



EXCMO. AYUNTAMIENTO DE ALCOBENDAS

REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS



DOCUMENTO PARA APROBACIÓN PROVISIONAL

ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO

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ANEXO VII

RESULTADOS DE LA MODELIZACIÓN
HIDRÁULICA FLUVIAL

ANEXO VII
RESULTADOS DE LA MODELIZACIÓN HIDRÁULICA
FLUVIAL

ESTADO ACTUAL

ARROYO DE VALDELACASA

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

HEC-RAS Version 3.1.1 May 2003
U.S. Army Corp of Engineers
Hydrologic Engineering Center
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```

X  X  XXXXXX  XXXX  XXXX  XX  XXXX
X  X  X      X  X  X  X  X  X  X
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X  X  X      X  X  X  X  X  X
X  X  X      X  X  X  X  X  X
X  X  XXXXXX  XXXX  X  X  X  XXXXX
    
```

PROJECT DATA
Project Title: Arroyo de Valdelacasa
Project File : Valdelacasa.prj
Run Date and Time: 01/07/2005 10:13:13

Project in SI units

PLAN DATA

Plan Title: Plan 07
Plan File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Valdelacasa.p07

Geometry Title: Arroyo de Valdelacasa
Geometry File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Valdelacasa.g01

Flow Title : Caudales Actuales-Nuevos Valdelacasa
Flow File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Valdelacasa.f04

Plan Summary Information:
Number of: Cross Sections = 151 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.003
Critical depth calculation tolerance = 0.003
Maximum number of iterations = 20
Maximum difference tolerance = 0.1
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Caudales Actuales-Nuevos Valdelacasa
Flow File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Valdelacasa.f04

Flow Data (m3/s)

| River | Reach | RS | T= 5 años | T= 500 años |
|--------------------------|-------|---------|-----------|-------------|
| Aryo ValdelacasaCompleto | | 0.0 | .1128 | .6926 |
| Aryo ValdelacasaCompleto | | -240.0 | .1128 | .6926 |
| Aryo ValdelacasaCompleto | | -620.0 | .2913 | 1.7893 |
| Aryo ValdelacasaCompleto | | -1000.0 | .4698 | 2.8859 |
| Aryo ValdelacasaCompleto | | -1500.0 | .7047 | 4.3289 |
| Aryo ValdelacasaCompleto | | -2000.0 | .9396 | 5.7718 |
| Aryo ValdelacasaCompleto | | -2500.0 | 1.1745 | 7.2148 |
| Aryo ValdelacasaCompleto | | -2980.0 | 1.4 | 8.6 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|--------------------------|-------|-------------|-------------------|-------------------|
| Aryo ValdelacasaCompleto | | T= 5 años | Normal S = 0.0285 | Normal S = 0.0285 |
| Aryo ValdelacasaCompleto | | T= 500 años | Normal S = 0.0285 | Normal S = 0.0285 |

GEOMETRY DATA

Geometry Title: Arroyo de Valdelacasa
Geometry File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Valdelacasa.g01

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: 0.0

INPUT

Description:

| Station | Elevation | Data | num= | 6 | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|-------|---|--------|-------|--------|-------|-----|------|
| -32.84 | 750 | -26.16 | 749.1 | 0 | 745.49 | 15.67 | 746.88 | 40.57 | 750 | |
| 80.78 | 750 | | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -32.84 | | -32.84 | .045 | 80.78 | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|--------|-------|----|----|----|----|----|
| -32.84 | 80.78 | 20 | 20 | 20 | .1 | .3 |
|--------|-------|----|----|----|----|----|

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 745.65 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 745.61 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 745.61 | Flow Area (m2) | | 0.14 | |
| E.G. Slope (m/m) | 0.051772 | Area (m2) | | 0.14 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 2.30 | Top Width (m) | | 2.30 | |
| Vel Total (m/s) | 0.79 | Avg. Vel. (m/s) | | 0.79 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.31 | |
| Min Ch El (m) | 745.49 | Shear (N/m2) | | 31.34 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.75 | |
| Frctn Loss (m) | 0.99 | Cum Volume (1000 m3) | | 3.34 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 37.31 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 745.81 | | |
| Vel Head (m) | 0.07 | 0.045 | |
| W.S. Elev (m) | 745.75 | 20.00 | 20.00 |
| Crit W.S. (m) | 745.75 | 20.00 | 20.00 |
| E.G. Slope (m/m) | 0.040172 | 0.61 | |
| Q Total (m3/s) | 0.69 | 0.69 | |
| Top Width (m) | 4.76 | 4.76 | |
| Vel Total (m/s) | 1.13 | 1.13 | |
| Max Chl Dpth (m) | 0.26 | 0.13 | |
| Conv. Total (m3/s) | 3.5 | 3.5 | |
| Length Wtd. (m) | 20.00 | 4.79 | |
| Min Ch El (m) | 745.49 | 50.36 | |
| Alpha | 1.00 | 56.93 | |
| Frctn Loss (m) | 0.79 | 12.06 | |
| C & E Loss (m) | 0.00 | 61.01 | |

| | | | |
|--------------------|--------|----------------------|---------|
| Vel Total (m/s) | 5.56 | Avg. Vel. (m/s) | 5.56 |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | 0.08 |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | 0.5 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 1.66 |
| Min Ch El (m) | 741.47 | Shear (N/m2) | 1456.38 |
| Alpha | 1.00 | Stream Power (N/m s) | 8098.39 |
| Frctn Loss (m) | 1.46 | Cum Volume (1000 m3) | 12.06 |
| C & E Loss (m) | 0.15 | Cum SA (1000 m2) | 60.95 |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -40.0

INPUT

| Description: | num= | 8 |
|------------------------|--------|--------|
| Station Elevation Data | Sta | Elev |
| | -36.29 | 745 |
| | 15.53 | 742.93 |
| | -29.64 | 743.97 |
| | 26.01 | 745 |
| | -11.04 | 740 |
| | 745 | 75.61 |

| Manning's n Values | num= | 3 |
|--------------------|--------|-------|
| Sta | n Val | Sta |
| -36.29 | -36.29 | .045 |
| | | 75.61 |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -36.29 | 75.61 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|--------------------|-----------|-----------|----------|
| E.G. Elev (m) | 747.50 | | |
| Vel Head (m) | 8.59 | 0.045 | |
| W.S. Elev (m) | 738.90 | 20.00 | 20.00 |
| Crit W.S. (m) | 739.00 | 20.00 | 20.00 |
| E.G. Slope (m/m) | 81.394000 | 0.01 | |
| Q Total (m3/s) | 0.11 | 0.11 | |
| Top Width (m) | 0.52 | 0.52 | |
| Vel Total (m/s) | 12.99 | 12.99 | |
| Max Chl Dpth (m) | 0.03 | 0.02 | |
| Conv. Total (m3/s) | 0.0 | 0.0 | |
| Length Wtd. (m) | 20.00 | 0.53 | |
| Min Ch El (m) | 738.87 | 13162.07 | |
| Alpha | 1.00 | 170957.00 | |
| Frctn Loss (m) | 3.19 | 3.33 | |
| C & E Loss (m) | 0.24 | 37.27 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 739.22 | | |
| Vel Head (m) | 0.10 | 0.045 | |
| W.S. Elev (m) | 739.12 | 20.00 | 20.00 |
| Crit W.S. (m) | 739.14 | 20.00 | 20.00 |
| E.G. Slope (m/m) | 0.061013 | 0.50 | |
| Q Total (m3/s) | 0.69 | 0.69 | |
| Top Width (m) | 3.97 | 3.97 | |
| Vel Total (m/s) | 1.38 | 1.38 | |
| Max Chl Dpth (m) | 0.25 | 0.13 | |
| Conv. Total (m3/s) | 2.8 | 2.8 | |
| Length Wtd. (m) | 20.00 | 4.01 | |
| Min Ch El (m) | 738.87 | 75.11 | |
| Alpha | 1.00 | 103.37 | |
| Frctn Loss (m) | 3.53 | 12.05 | |
| C & E Loss (m) | 0.44 | 60.89 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -20.0

INPUT

| Description: | num= | 8 |
|------------------------|--------|--------|
| Station Elevation Data | Sta | Elev |
| | -76.08 | 750 |
| | 15.44 | 744.39 |
| | -60.11 | 750 |
| | 745 | 83.67 |
| | -28.06 | 746.49 |
| | -19.16 | 745 |

| Manning's n Values | num= | 3 |
|--------------------|--------|-------|
| Sta | n Val | Sta |
| -76.08 | -76.08 | .045 |
| | | 83.67 |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -76.08 | 83.67 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 742.36 | | |
| Vel Head (m) | 0.82 | 0.045 | |
| W.S. Elev (m) | 741.54 | 20.00 | 20.00 |
| Crit W.S. (m) | 741.63 | 20.00 | 20.00 |
| E.G. Slope (m/m) | 2.774291 | 0.03 | |
| Q Total (m3/s) | 0.11 | 0.11 | |
| Top Width (m) | 0.78 | 0.78 | |
| Vel Total (m/s) | 4.01 | 4.01 | |
| Max Chl Dpth (m) | 0.07 | 0.04 | |
| Conv. Total (m3/s) | 0.1 | 0.1 | |
| Length Wtd. (m) | 20.00 | 0.79 | |
| Min Ch El (m) | 741.47 | 969.20 | |
| Alpha | 1.00 | 3883.94 | |
| Frctn Loss (m) | 3.21 | 3.33 | |
| C & E Loss (m) | 0.08 | 37.28 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|------------------|----------|---------|----------|
| E.G. Elev (m) | 743.20 | | |
| Vel Head (m) | 1.58 | 0.045 | |
| W.S. Elev (m) | 741.62 | 20.00 | 20.00 |
| Crit W.S. (m) | 741.79 | 20.00 | 20.00 |
| E.G. Slope (m/m) | 1.981676 | 0.12 | |
| Q Total (m3/s) | 0.69 | 0.69 | |
| Top Width (m) | 1.63 | 1.63 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -60.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | | | | | | | | |
|------------------------|------|--------|--------|--------|------|------|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -48.44 | 745 | -29.81 | 742.13 | -14.38 | 740 | -.01 | 737 | 0 | 737 | | |
| 14.39 | 740 | 16.92 | 741.27 | 84.83 | 742 | | | | | | |

| Manning's n Values | | num= 3 | | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -48.44 | | -48.44 | .045 | 84.83 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -48.44 | 84.83 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 737.21 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 737.14 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 737.16 | Flow Area (m2) | | 0.10 | |
| E.G. Slope (m/m) | 0.089324 | Area (m2) | | 0.10 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 1.38 | Top Width (m) | | 1.38 | |
| Vel Total (m/s) | 1.13 | Avg. Vel. (m/s) | | 1.13 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 0.4 | Conv. (m3/s) | | 0.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.41 | |
| Min Ch El (m) | 737.00 | Shear (N/m2) | | 61.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 70.04 | |
| Frctn Loss (m) | 7.75 | Cum Volume (1000 m3) | | 3.33 | |
| C & E Loss (m) | 2.56 | Cum SA (1000 m2) | | 37.25 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 737.48 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.22 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 737.26 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 737.33 | Flow Area (m2) | | 0.34 | |
| E.G. Slope (m/m) | 0.131573 | Area (m2) | | 0.34 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 2.54 | Top Width (m) | | 2.54 | |
| Vel Total (m/s) | 2.06 | Avg. Vel. (m/s) | | 2.06 | |
| Max Chl Dpth (m) | 0.26 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 1.9 | Conv. (m3/s) | | 1.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.59 | |
| Min Ch El (m) | 737.00 | Shear (N/m2) | | 167.13 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 344.89 | |
| Frctn Loss (m) | 1.73 | Cum Volume (1000 m3) | | 12.04 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 60.82 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -80.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | | | | | | | | |
|------------------------|--------|--------|--------|--------|------|------|--------|-----|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -57.48 | 745 | -26.89 | 740.45 | -23.89 | 740 | -.03 | 735.13 | 0 | 735.14 | | |
| 20.82 | 739.42 | 37.66 | 740 | | | | | | | | |

| Manning's n Values | | num= 3 | | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -57.48 | | -57.48 | .045 | 37.66 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -57.48 | 37.66 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 735.34 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 735.27 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 735.29 | Flow Area (m2) | | 0.10 | |
| E.G. Slope (m/m) | 0.097686 | Area (m2) | | 0.10 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 1.37 | Top Width (m) | | 1.37 | |
| Vel Total (m/s) | 1.17 | Avg. Vel. (m/s) | | 1.17 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 0.4 | Conv. (m3/s) | | 0.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.40 | |
| Min Ch El (m) | 735.13 | Shear (N/m2) | | 65.99 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 77.03 | |
| Frctn Loss (m) | 1.87 | Cum Volume (1000 m3) | | 3.33 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 37.22 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 735.56 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 735.43 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 735.46 | Flow Area (m2) | | 0.42 | |
| E.G. Slope (m/m) | 0.071387 | Area (m2) | | 0.42 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 2.88 | Top Width (m) | | 2.88 | |
| Vel Total (m/s) | 1.63 | Avg. Vel. (m/s) | | 1.63 | |
| Max Chl Dpth (m) | 0.30 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 2.6 | Conv. (m3/s) | | 2.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.94 | |
| Min Ch El (m) | 735.13 | Shear (N/m2) | | 101.03 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 165.03 | |
| Frctn Loss (m) | 1.89 | Cum Volume (1000 m3) | | 12.03 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 60.77 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -100.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|--------|--------|--------|--------|-------|-----|-----|-------|------|--|
| -66.24 | 745 | -30.58 | 740 | -23.88 | 739.14 | -6.07 | 735 | 0 | 733.9 | | |
| 5.13 | 735 | 23.49 | 737.53 | 75.78 | 740 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -66.24 | | -66.24 | .045 | 75.78 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -66.24 | | 75.78 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 734.67 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.69 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 733.98 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 734.06 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 2.147996 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 0.79 | Top Width (m) | | 0.79 | |
| Vel Total (m/s) | 3.68 | Avg. Vel. (m/s) | | 3.68 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 0.80 | |
| Min Ch El (m) | 733.90 | Shear (N/m2) | | 801.25 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2951.57 | |
| Frctn Loss (m) | 1.32 | Cum Volume (1000 m3) | | 3.33 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 37.20 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 734.31 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 734.21 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 734.23 | Flow Area (m2) | | 0.47 | |
| E.G. Slope (m/m) | 0.054471 | Area (m2) | | 0.47 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 3.11 | Top Width (m) | | 3.11 | |
| Vel Total (m/s) | 1.46 | Avg. Vel. (m/s) | | 1.46 | |
| Max Chl Dpth (m) | 0.31 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 3.0 | Conv. (m3/s) | | 3.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.17 | |
| Min Ch El (m) | 733.90 | Shear (N/m2) | | 79.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 116.84 | |
| Frctn Loss (m) | 1.24 | Cum Volume (1000 m3) | | 12.02 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 60.71 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -120.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|--------|--------|--------|-----|------|--------|-----|--------|------|--|
| -29.59 | 740 | -19.28 | 737.63 | -11.01 | 735 | 0 | 732.72 | .02 | 732.72 | | |
| 15.95 | 735 | 27.74 | 735.99 | 87.65 | 740 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -29.59 | | -29.59 | .045 | 87.65 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -29.59 | | 87.65 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 732.91 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 732.87 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 732.87 | Flow Area (m2) | | 0.13 | |
| E.G. Slope (m/m) | 0.049159 | Area (m2) | | 0.13 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 1.76 | Top Width (m) | | 1.76 | |
| Vel Total (m/s) | 0.86 | Avg. Vel. (m/s) | | 0.86 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.78 | |
| Min Ch El (m) | 732.72 | Shear (N/m2) | | 35.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 30.49 | |
| Frctn Loss (m) | 0.98 | Cum Volume (1000 m3) | | 3.33 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 37.18 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 733.11 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 733.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 733.03 | Flow Area (m2) | | 0.46 | |
| E.G. Slope (m/m) | 0.066546 | Area (m2) | | 0.46 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 3.28 | Top Width (m) | | 3.28 | |
| Vel Total (m/s) | 1.52 | Avg. Vel. (m/s) | | 1.52 | |
| Max Chl Dpth (m) | 0.28 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 2.7 | Conv. (m3/s) | | 2.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.33 | |
| Min Ch El (m) | 732.72 | Shear (N/m2) | | 89.26 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 135.83 | |
| Frctn Loss (m) | 1.20 | Cum Volume (1000 m3) | | 12.02 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 60.65 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -140.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|-----|--------|--------|-------|-----|-----|--------|------|--|
| -83.49 | 740 | -37.76 | 740 | -18.53 | 735.8 | -15.7 | 735 | 0 | 731.54 | | |
| .02 | 731.54 | 27.26 | 735 | 28.02 | 735.06 | 85.95 | 740 | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -83.49 | | -83.49 | .045 | 85.95 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -83.49 | | 85.95 | 20 | 20 | 20 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 731.72 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 731.67 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 731.68 | Flow Area (m2) | | 0.11 | |
| E.G. Slope (m/m) | 0.072170 | Area (m2) | | 0.11 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 1.69 | Top Width (m) | | 1.69 | |
| Vel Total (m/s) | 0.98 | Avg. Vel. (m/s) | | 0.98 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 0.4 | Conv. (m3/s) | | 0.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.71 | |
| Min Ch El (m) | 731.54 | Shear (N/m2) | | 47.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 46.70 | |
| Frctn Loss (m) | 1.18 | Cum Volume (1000 m3) | | 3.32 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 37.14 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 731.92 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 731.82 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 731.84 | Flow Area (m2) | | 0.50 | |
| E.G. Slope (m/m) | 0.053373 | Area (m2) | | 0.50 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 3.52 | Top Width (m) | | 3.52 | |
| Vel Total (m/s) | 1.38 | Avg. Vel. (m/s) | | 1.38 | |
| Max Chl Dpth (m) | 0.28 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 3.0 | Conv. (m3/s) | | 3.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.57 | |
| Min Ch El (m) | 731.54 | Shear (N/m2) | | 73.30 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 101.47 | |
| Frctn Loss (m) | 1.19 | Cum Volume (1000 m3) | | 12.01 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 60.58 | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -160.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|--------|--------|------|--------|------|--------|-------|--------|------|--|
| -40.5 | 735 | -23.65 | 733.75 | -0.2 | 730.36 | 0 | 730.36 | 24.26 | 733.88 | | |
| 38.13 | 735 | 85.52 | 740 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -40.5 | | -40.5 | .045 | 85.52 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -40.5 | | 85.52 | 20 | 20 | 20 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 730.53 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 730.50 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 730.50 | Flow Area (m2) | | 0.14 | |
| E.G. Slope (m/m) | 0.049601 | Area (m2) | | 0.14 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 1.94 | Top Width (m) | | 1.94 | |
| Vel Total (m/s) | 0.83 | Avg. Vel. (m/s) | | 0.83 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.96 | |
| Min Ch El (m) | 730.36 | Shear (N/m2) | | 33.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 28.04 | |
| Frctn Loss (m) | 1.19 | Cum Volume (1000 m3) | | 3.32 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 37.11 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 730.73 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 730.62 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 730.65 | Flow Area (m2) | | 0.47 | |
| E.G. Slope (m/m) | 0.066626 | Area (m2) | | 0.47 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 3.62 | Top Width (m) | | 3.62 | |
| Vel Total (m/s) | 1.47 | Avg. Vel. (m/s) | | 1.47 | |
| Max Chl Dpth (m) | 0.26 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 2.7 | Conv. (m3/s) | | 2.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.66 | |
| Min Ch El (m) | 730.36 | Shear (N/m2) | | 84.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 123.76 | |
| Frctn Loss (m) | 1.19 | Cum Volume (1000 m3) | | 12.00 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 60.51 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -180.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|-----|--------|--------|----------|-----|----------|-------|----------|-------|----------|--|
| -50.58 | 735 | -26.27 | 732.46 | -10.05 | 730 | -.03 | 729.3 | 0 | 729.3 | | |
| 11.46 | 730 | 17.48 | 731.76 | 47.9 | 735 | 88.73 | 740 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|--|--------|------|-----------|--|-----------|--|
| -50.58 | | -50.58 | .045 | 88.73 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -50.58 | 88.73 | | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 729.43 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 729.40 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 729.40 | Flow Area (m2) | | 0.15 | |
| E.G. Slope (m/m) | 0.061917 | Area (m2) | | 0.15 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 3.05 | Top Width (m) | | 3.05 | |
| Vel Total (m/s) | 0.75 | Avg. Vel. (m/s) | | 0.75 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.05 | |
| Min Ch El (m) | 729.30 | Shear (N/m2) | | 30.07 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 22.43 | |
| Frctn Loss (m) | 1.10 | Cum Volume (1000 m3) | | 3.32 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 37.06 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 729.56 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 729.50 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 729.51 | Flow Area (m2) | | 0.64 | |
| E.G. Slope (m/m) | 0.050241 | Area (m2) | | 0.64 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 6.26 | Top Width (m) | | 6.26 | |
| Vel Total (m/s) | 1.09 | Avg. Vel. (m/s) | | 1.09 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 3.1 | Conv. (m3/s) | | 3.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.27 | |
| Min Ch El (m) | 729.30 | Shear (N/m2) | | 50.12 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 54.41 | |
| Frctn Loss (m) | 1.15 | Cum Volume (1000 m3) | | 11.98 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 60.41 | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -200.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|-----|----------|--------|----------|--------|----------|--|
| -52.36 | 735 | -25.36 | 731.45 | -15.44 | 730 | -.01 | 728.29 | 0 | 728.29 | | |
| 14.34 | 729.69 | 17.93 | 730 | 49.15 | 735 | | | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|--|--------|------|-----------|--|-----------|--|
| -52.36 | | -52.36 | .045 | 49.15 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -52.36 | 49.15 | | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 728.44 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 728.41 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 728.41 | Flow Area (m2) | | 0.14 | |
| E.G. Slope (m/m) | 0.051785 | Area (m2) | | 0.14 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 2.36 | Top Width (m) | | 2.36 | |
| Vel Total (m/s) | 0.78 | Avg. Vel. (m/s) | | 0.78 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.37 | |
| Min Ch El (m) | 728.29 | Shear (N/m2) | | 30.90 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.17 | |
| Frctn Loss (m) | 1.13 | Cum Volume (1000 m3) | | 3.32 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 37.00 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 728.61 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 728.54 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 728.54 | Flow Area (m2) | | 0.59 | |
| E.G. Slope (m/m) | 0.045484 | Area (m2) | | 0.59 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 4.77 | Top Width (m) | | 4.77 | |
| Vel Total (m/s) | 1.17 | Avg. Vel. (m/s) | | 1.17 | |
| Max Chl Dpth (m) | 0.25 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 3.2 | Conv. (m3/s) | | 3.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.80 | |
| Min Ch El (m) | 728.29 | Shear (N/m2) | | 54.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 64.42 | |
| Frctn Loss (m) | 0.96 | Cum Volume (1000 m3) | | 11.97 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 60.30 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdela casa
REACH: Completo RS: -220.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|-------|--------|-------|----------|-----|----------|--------|----------|--------|----------|--|
| -52.63 | 735 | -19.83 | 730.3 | -16.98 | 730 | -0.01 | 727.28 | 0 | 727.28 | | |
| 8.52 | 728.2 | 18.38 | 730 | 48.24 | 735 | | | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|--|--------|------|-----------|--|-----------|--|
| -52.63 | | -52.63 | .045 | 48.24 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -52.63 | | 48.24 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 727.45 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 727.40 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 727.41 | Flow Area (m2) | | 0.11 | |
| E.G. Slope (m/m) | 0.084479 | Area (m2) | | 0.11 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 1.88 | Top Width (m) | | 1.88 | |
| Vel Total (m/s) | 0.99 | Avg. Vel. (m/s) | | 0.99 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 0.4 | Conv. (m3/s) | | 0.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.89 | |
| Min Ch El (m) | 727.28 | Shear (N/m2) | | 49.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 49.32 | |
| Frctn Loss (m) | 1.01 | Cum Volume (1000 m3) | | 3.31 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 36.96 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 727.63 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 727.54 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 727.55 | Flow Area (m2) | | 0.53 | |
| E.G. Slope (m/m) | 0.052597 | Area (m2) | | 0.53 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 4.05 | Top Width (m) | | 4.05 | |
| Vel Total (m/s) | 1.31 | Avg. Vel. (m/s) | | 1.31 | |
| Max Chl Dpth (m) | 0.26 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 3.0 | Conv. (m3/s) | | 3.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.09 | |
| Min Ch El (m) | 727.28 | Shear (N/m2) | | 66.90 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 87.35 | |
| Frctn Loss (m) | 0.98 | Cum Volume (1000 m3) | | 11.96 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 60.21 | |

CROSS SECTION

RIVER: Arroyo Valdela casa
REACH: Completo RS: -240.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|-----|----------|--------|----------|--------|----------|--------|----------|--|
| -56.44 | 735 | -22.31 | 730 | -17.6 | 728.86 | 0 | 726.27 | .01 | 726.27 | | |
| 7.65 | 726.96 | 22.07 | 730 | 50.27 | 735 | | | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|--|--------|------|-----------|--|-----------|--|
| -56.44 | | -56.44 | .045 | 50.27 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -56.44 | | 50.27 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 726.43 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 726.40 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 726.40 | Flow Area (m2) | | 0.14 | |
| E.G. Slope (m/m) | 0.050685 | Area (m2) | | 0.14 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 2.26 | Top Width (m) | | 2.26 | |
| Vel Total (m/s) | 0.79 | Avg. Vel. (m/s) | | 0.79 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.27 | |
| Min Ch El (m) | 726.27 | Shear (N/m2) | | 31.21 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.66 | |
| Frctn Loss (m) | 0.85 | Cum Volume (1000 m3) | | 3.31 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 36.92 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 726.60 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 726.52 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 726.53 | Flow Area (m2) | | 0.56 | |
| E.G. Slope (m/m) | 0.050223 | Area (m2) | | 0.56 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 4.47 | Top Width (m) | | 4.47 | |
| Vel Total (m/s) | 1.24 | Avg. Vel. (m/s) | | 1.24 | |
| Max Chl Dpth (m) | 0.25 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 3.1 | Conv. (m3/s) | | 3.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.50 | |
| Min Ch El (m) | 726.27 | Shear (N/m2) | | 61.18 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 75.85 | |
| Frctn Loss (m) | 1.03 | Cum Volume (1000 m3) | | 11.95 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 60.13 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -260.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | | | | | | | | |
|------------------------|--------|--------|------|--------|------|--------|--------|-----|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -97.12 | 735 | -63.4 | 735 | -29.89 | 730 | -17.61 | 727.48 | 0 | 725.26 | | |
| 6.53 | 725.74 | 25.81 | 730 | 57.52 | 735 | 97.27 | 735 | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -97.12 | | -97.12 | .045 | 97.27 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -97.12 | | 97.27 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 725.41 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 725.39 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 725.38 | Flow Area (m2) | | 0.17 | |
| E.G. Slope (m/m) | 0.036432 | Area (m2) | | 0.17 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 2.70 | Top Width (m) | | 2.70 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | 0.67 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 0.6 | Conv. (m3/s) | | 0.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.71 | |
| Min Ch El (m) | 725.26 | Shear (N/m2) | | 22.28 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.86 | |
| Frctn Loss (m) | 0.81 | Cum Volume (1000 m3) | | 3.31 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 36.87 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 725.57 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 725.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 725.50 | Flow Area (m2) | | 0.57 | |
| E.G. Slope (m/m) | 0.053028 | Area (m2) | | 0.57 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 4.97 | Top Width (m) | | 4.97 | |
| Vel Total (m/s) | 1.21 | Avg. Vel. (m/s) | | 1.21 | |
| Max Chl Dpth (m) | 0.23 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 3.0 | Conv. (m3/s) | | 3.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.99 | |
| Min Ch El (m) | 725.26 | Shear (N/m2) | | 59.70 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 72.17 | |
| Frctn Loss (m) | 1.03 | Cum Volume (1000 m3) | | 11.94 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 60.03 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -280.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | | | | | | | | |
|------------------------|------|--------|--------|-------|------|-----|--------|------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -39.25 | 730 | -17.86 | 726.11 | -3.3 | 725 | 0 | 724.44 | 6.99 | 725 | | |
| 32.77 | 730 | 64.24 | 735 | 94.14 | 735 | | | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -39.25 | | -39.25 | .045 | 94.14 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -39.25 | | 94.14 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 724.60 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 724.57 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 724.57 | Flow Area (m2) | | 0.15 | |
| E.G. Slope (m/m) | 0.045084 | Area (m2) | | 0.15 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 2.35 | Top Width (m) | | 2.35 | |
| Vel Total (m/s) | 0.75 | Avg. Vel. (m/s) | | 0.75 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.37 | |
| Min Ch El (m) | 724.44 | Shear (N/m2) | | 28.07 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 21.08 | |
| Frctn Loss (m) | 0.76 | Cum Volume (1000 m3) | | 3.31 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 36.82 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 724.76 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 724.70 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 724.70 | Flow Area (m2) | | 0.61 | |
| E.G. Slope (m/m) | 0.040444 | Area (m2) | | 0.61 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 4.74 | Top Width (m) | | 4.74 | |
| Vel Total (m/s) | 1.13 | Avg. Vel. (m/s) | | 1.13 | |
| Max Chl Dpth (m) | 0.26 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 3.4 | Conv. (m3/s) | | 3.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.77 | |
| Min Ch El (m) | 724.44 | Shear (N/m2) | | 50.76 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 57.61 | |
| Frctn Loss (m) | 0.76 | Cum Volume (1000 m3) | | 11.93 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 59.93 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -300.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|--------|--------|-----|--------|------|------|-------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -22.91 | 725 | -17.55 | 724.81 | 0 | 723.69 | 7.76 | 725 | 42.98 | 730 | | |
| 74.27 | 735 | 93.58 | 735 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -22.91 | | -22.91 | .045 | 93.58 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -22.91 | 93.58 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 723.84 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 723.82 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 0.18 | |
| E.G. Slope (m/m) | 0.032104 | | Area (m2) | | 0.18 | |
| Q Total (m3/s) | 0.11 | | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 2.77 | | Top Width (m) | | 2.77 | |
| Vel Total (m/s) | 0.64 | | Avg. Vel. (m/s) | | 0.64 | |
| Max Chl Dpth (m) | 0.13 | | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 0.6 | | Conv. (m3/s) | | 0.6 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 2.78 | |
| Min Ch El (m) | 723.69 | | Shear (N/m2) | | 20.08 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 12.76 | |
| Frctn Loss (m) | 0.75 | | Cum Volume (1000 m3) | | 3.30 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 36.77 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 724.04 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.16 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 723.88 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 723.93 | | Flow Area (m2) | | 0.40 | |
| E.G. Slope (m/m) | 0.141741 | | Area (m2) | | 0.40 | |
| Q Total (m3/s) | 0.69 | | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 4.14 | | Top Width (m) | | 4.14 | |
| Vel Total (m/s) | 1.75 | | Avg. Vel. (m/s) | | 1.75 | |
| Max Chl Dpth (m) | 0.19 | | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 1.8 | | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 4.16 | |
| Min Ch El (m) | 723.69 | | Shear (N/m2) | | 132.51 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 231.36 | |
| Frctn Loss (m) | 0.82 | | Cum Volume (1000 m3) | | 11.92 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 59.84 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -320.0

INPUT

Description:

| Station Elevation Data | | num= 5 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|--------|--------|-----|--------|-------|------|-------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -86.56 | 725 | -14.76 | 723.79 | 0 | 722.94 | 11.97 | 725 | 46.49 | 730 | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -86.56 | | -86.56 | .045 | 46.49 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -86.56 | 46.49 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 723.08 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 723.06 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 723.05 | | Flow Area (m2) | | 0.16 | |
| E.G. Slope (m/m) | 0.044813 | | Area (m2) | | 0.16 | |
| Q Total (m3/s) | 0.11 | | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 2.72 | | Top Width (m) | | 2.72 | |
| Vel Total (m/s) | 0.71 | | Avg. Vel. (m/s) | | 0.71 | |
| Max Chl Dpth (m) | 0.12 | | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 0.5 | | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 2.73 | |
| Min Ch El (m) | 722.94 | | Shear (N/m2) | | 25.64 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 18.15 | |
| Frctn Loss (m) | 0.76 | | Cum Volume (1000 m3) | | 3.30 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 36.71 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 723.23 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 723.18 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 723.18 | | Flow Area (m2) | | 0.64 | |
| E.G. Slope (m/m) | 0.041282 | | Area (m2) | | 0.64 | |
| Q Total (m3/s) | 0.69 | | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 5.45 | | Top Width (m) | | 5.45 | |
| Vel Total (m/s) | 1.08 | | Avg. Vel. (m/s) | | 1.08 | |
| Max Chl Dpth (m) | 0.24 | | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 3.4 | | Conv. (m3/s) | | 3.4 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 5.48 | |
| Min Ch El (m) | 722.94 | | Shear (N/m2) | | 47.38 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 51.18 | |
| Frctn Loss (m) | 1.39 | | Cum Volume (1000 m3) | | 11.91 | |
| C & E Loss (m) | 0.03 | | Cum SA (1000 m2) | | 59.75 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -340.0

INPUT

Description:

| Station Elevation Data | | num= 6 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|--------|------|-----|------|------|------|-----|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |

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ANEXO VII

-97.63 725 -12.12 722.72 0 722.19 .02 722.19 15.96 725
51.93 730

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-97.63 -97.63 .045 51.93

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-97.63 51.93 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 722.32 | 0.045 | 20.00 |
| Vel Head (m) | 0.02 | 0.045 | 20.00 |
| W.S. Elev (m) | 722.30 | 20.00 | 20.00 |
| Crit W.S. (m) | 722.29 | 0.19 | 0.19 |
| E.G. Slope (m/m) | 0.032613 | 0.19 | 0.11 |
| Q Total (m3/s) | 0.11 | 0.11 | 0.11 |
| Top Width (m) | 3.29 | 3.29 | 3.29 |
| Vel Total (m/s) | 0.60 | 0.60 | 0.60 |
| Max Chl Dpth (m) | 0.11 | 0.06 | 0.06 |
| Conv. Total (m3/s) | 0.6 | 0.6 | 0.6 |
| Length Wtd. (m) | 20.00 | 3.30 | 3.30 |
| Min Ch El (m) | 722.19 | 18.33 | 10.94 |
| Alpha | 1.00 | 10.94 | 3.29 |
| Frctn Loss (m) | 0.80 | 3.29 | 36.65 |
| C & E Loss (m) | 0.00 | 36.65 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 722.60 | 0.045 | 20.00 |
| Vel Head (m) | 0.26 | 0.045 | 20.00 |
| W.S. Elev (m) | 722.34 | 20.00 | 20.00 |
| Crit W.S. (m) | 722.41 | 0.31 | 0.31 |
| E.G. Slope (m/m) | 0.339597 | 0.31 | 0.69 |
| Q Total (m3/s) | 0.69 | 0.69 | 4.18 |
| Top Width (m) | 4.18 | 4.18 | 2.26 |
| Vel Total (m/s) | 2.26 | 2.26 | 0.07 |
| Max Chl Dpth (m) | 0.15 | 0.07 | 1.2 |
| Conv. Total (m3/s) | 1.2 | 1.2 | 4.20 |
| Length Wtd. (m) | 20.00 | 4.20 | 242.98 |
| Min Ch El (m) | 722.19 | 242.98 | 549.41 |
| Alpha | 1.00 | 549.41 | 11.90 |
| Frctn Loss (m) | 0.84 | 11.90 | 59.65 |
| C & E Loss (m) | 0.00 | 59.65 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -360.0

INPUT

Description:

| Station | Elevation | Data | num= | 6 | | | | | |
|---------|-----------|--------|--------|-----|--------|-------|--------|-------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -94.7 | 725 | -12.55 | 721.62 | 0 | 721.44 | 15.82 | 724.12 | 24.26 | 725 |
| 66.51 | 730 | | | | | | | | |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-94.7 -94.7 .045 66.51

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-94.7 66.51 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 721.53 | 0.045 | 20.00 |
| Vel Head (m) | 0.02 | 0.045 | 20.00 |
| W.S. Elev (m) | 721.51 | 20.00 | 20.00 |
| Crit W.S. (m) | 721.51 | 0.21 | 0.21 |
| E.G. Slope (m/m) | 0.049530 | 0.21 | 0.11 |
| Q Total (m3/s) | 0.11 | 0.11 | 0.11 |
| Top Width (m) | 5.58 | 5.58 | 5.58 |
| Vel Total (m/s) | 0.55 | 0.55 | 0.55 |
| Max Chl Dpth (m) | 0.07 | 0.04 | 0.04 |
| Conv. Total (m3/s) | 0.5 | 0.5 | 0.5 |
| Length Wtd. (m) | 20.00 | 5.58 | 5.58 |
| Min Ch El (m) | 721.44 | 17.91 | 9.81 |
| Alpha | 1.00 | 9.81 | 3.29 |
| Frctn Loss (m) | 0.99 | 3.29 | 36.56 |
| C & E Loss (m) | 0.00 | 36.56 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 721.62 | 0.045 | 20.00 |
| Vel Head (m) | 0.04 | 0.045 | 20.00 |
| W.S. Elev (m) | 721.59 | 20.00 | 20.00 |
| Crit W.S. (m) | 721.59 | 0.82 | 0.82 |
| E.G. Slope (m/m) | 0.047336 | 0.82 | 0.69 |
| Q Total (m3/s) | 0.69 | 0.69 | 11.11 |
| Top Width (m) | 11.11 | 11.11 | 0.85 |
| Vel Total (m/s) | 0.85 | 0.85 | 0.07 |
| Max Chl Dpth (m) | 0.15 | 0.07 | 3.2 |
| Conv. Total (m3/s) | 3.2 | 3.2 | 11.12 |
| Length Wtd. (m) | 20.00 | 11.12 | 34.09 |
| Min Ch El (m) | 721.44 | 34.09 | 28.90 |
| Alpha | 1.00 | 28.90 | 11.89 |
| Frctn Loss (m) | 0.92 | 11.89 | 59.50 |
| C & E Loss (m) | 0.00 | 59.50 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -380.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | | | | | |
|---------|-----------|--------|------|--------|--------|-----|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -94.7 | 725 | -26.63 | 720 | -14.03 | 720.61 | 0 | 720.69 | 13.13 | 722.53 |
| 29.29 | 725 | 75.46 | 730 | | | | | | |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-94.7 -94.7 .045 75.46

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-94.7 75.46 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|------------------|----------|---------|----------|
| E.G. Elev (m) | 720.13 | 0.045 | 20.00 |
| Vel Head (m) | 0.04 | 0.045 | 20.00 |
| W.S. Elev (m) | 720.09 | 20.00 | 20.00 |
| Crit W.S. (m) | 720.10 | 0.13 | 0.13 |
| E.G. Slope (m/m) | 0.106056 | 0.13 | 0.11 |
| Q Total (m3/s) | 0.11 | 0.11 | 0.11 |
| Top Width (m) | 2.95 | 2.95 | 2.95 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| | | | |
|--------------------|--------|----------------------|-------|
| Vel Total (m/s) | 0.89 | Avg. Vel. (m/s) | 0.89 |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | 0.04 |
| Conv. Total (m3/s) | 0.3 | Conv. (m3/s) | 0.3 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 2.96 |
| Min Ch El (m) | 720.00 | Shear (N/m2) | 44.69 |
| Alpha | 1.00 | Stream Power (N/m s) | 39.68 |
| Frctn Loss (m) | 1.40 | Cum Volume (1000 m3) | 3.29 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 36.48 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 720.27 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 720.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 720.20 | Flow Area (m2) | | 0.50 | |
| E.G. Slope (m/m) | 0.104139 | Area (m2) | | 0.50 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 5.85 | Top Width (m) | | 5.85 | |
| Vel Total (m/s) | 1.39 | Avg. Vel. (m/s) | | 1.39 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 2.1 | Conv. (m3/s) | | 2.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.86 | |
| Min Ch El (m) | 720.00 | Shear (N/m2) | | 86.97 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 120.73 | |
| Frctn Loss (m) | 1.35 | Cum Volume (1000 m3) | | 11.87 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 59.33 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -400.0

INPUT

Description:

| | | |
|---|------|---|
| Station Elevation Data | num= | 9 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -65.84 720 -49.24 719 -15.17 718 -.01 718.58 0 718.58 | | |
| 4.53 719 7.01 720 49.32 725 75.13 730 | | |

| | | |
|---------------------------------|------|---|
| Manning's n Values | num= | 3 |
| Sta n Val Sta n Val Sta n Val | | |
| -65.84 -98.17 -98.17 .045 74.93 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -98.17 74.93 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 719.10 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 719.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 719.08 | Flow Area (m2) | | 0.19 | |
| E.G. Slope (m/m) | 0.053137 | Area (m2) | | 0.19 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 4.70 | Top Width (m) | | 4.70 | |
| Vel Total (m/s) | 0.60 | Avg. Vel. (m/s) | | 0.60 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.70 | |
| Min Ch El (m) | 719.00 | Shear (N/m2) | | 20.85 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 12.49 | |
| Frctn Loss (m) | 0.00 | Cum Volume (1000 m3) | | 3.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 36.40 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 719.20 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 719.16 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 719.16 | Flow Area (m2) | | 0.76 | |
| E.G. Slope (m/m) | 0.047775 | Area (m2) | | 0.76 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 9.47 | Top Width (m) | | 9.47 | |
| Vel Total (m/s) | 0.91 | Avg. Vel. (m/s) | | 0.91 | |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 3.2 | Conv. (m3/s) | | 3.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.48 | |
| Min Ch El (m) | 719.00 | Shear (N/m2) | | 37.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 34.23 | |
| Frctn Loss (m) | 0.96 | Cum Volume (1000 m3) | | 11.86 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 59.18 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -420.0

INPUT

Description:

| | | |
|---|------|---|
| Station Elevation Data | num= | 9 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -65.84 720 -49.24 719 -15.17 718 -.01 718.58 0 718.58 | | |
| 4.53 719 7.01 720 49.32 725 75.13 730 | | |

| | | |
|-------------------------------|------|---|
| Manning's n Values | num= | 3 |
| Sta n Val Sta n Val Sta n Val | | |
| -65.84 -65.84 .045 75.13 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -65.84 75.13 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 718.10 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 718.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 718.08 | Flow Area (m2) | | 0.20 | |
| E.G. Slope (m/m) | 0.046936 | Area (m2) | | 0.20 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 4.89 | Top Width (m) | | 4.89 | |
| Vel Total (m/s) | 0.57 | Avg. Vel. (m/s) | | 0.57 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.89 | |
| Min Ch El (m) | 718.00 | Shear (N/m2) | | 18.67 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 10.61 | |
| Frctn Loss (m) | 1.01 | Cum Volume (1000 m3) | | 3.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 36.31 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|------------------|----------|----------------|---------|---------|----------|
| E.G. Elev (m) | 718.20 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 718.16 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 718.16 | Flow Area (m2) | | 0.74 | |
| E.G. Slope (m/m) | 0.052371 | Area (m2) | | 0.74 | |

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ANEXO VII

| | | | |
|--------------------|--------|----------------------|-------|
| Q Total (m3/s) | 0.69 | Flow (m3/s) | 0.69 |
| Top Width (m) | 9.46 | Top Width (m) | 9.46 |
| Vel Total (m/s) | 0.93 | Avg. Vel. (m/s) | 0.93 |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | 0.08 |
| Conv. Total (m3/s) | 3.0 | Conv. (m3/s) | 3.0 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 9.46 |
| Min Ch El (m) | 718.00 | Shear (N/m2) | 40.32 |
| Alpha | 1.00 | Stream Power (N/m s) | 37.59 |
| Frctn Loss (m) | 1.00 | Cum Volume (1000 m3) | 11.85 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 58.99 |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -440.0

INPUT

Description:

| | | |
|--|------|---|
| Station Elevation Data | num= | 9 |
| Sta Elev Sta Elev Sta Elev | | |
| -64.47 720 -49.31 719 -34.15 718 -12.93 717 -0.01 717.25 | | |
| 0 717.25 6.06 718 11.53 719 18.68 720 | | |

Manning's n Values

| | | |
|--------------------------|------|---|
| Sta n Val Sta n Val | num= | 3 |
| -64.47 -64.47 .045 18.68 | | |

| | | | |
|----------------------|-----------------------------|--------------|--------|
| Bank Sta: Left Right | Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -64.47 18.68 | 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 717.09 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 717.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 717.07 | Flow Area (m2) | | 0.20 | |
| E.G. Slope (m/m) | 0.054288 | Area (m2) | | 0.20 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 5.36 | Top Width (m) | | 5.36 | |
| Vel Total (m/s) | 0.57 | Avg. Vel. (m/s) | | 0.57 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.36 | |
| Min Ch El (m) | 717.00 | Shear (N/m2) | | 19.56 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.19 | |
| Frctn Loss (m) | 1.15 | Cum Volume (1000 m3) | | 3.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 36.20 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 717.19 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 717.13 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 717.15 | Flow Area (m2) | | 0.62 | |
| E.G. Slope (m/m) | 0.095006 | Area (m2) | | 0.62 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 9.53 | Top Width (m) | | 9.53 | |
| Vel Total (m/s) | 1.11 | Avg. Vel. (m/s) | | 1.11 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.2 | Conv. (m3/s) | | 2.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.54 | |
| Min Ch El (m) | 717.00 | Shear (N/m2) | | 60.88 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 67.65 | |
| Frctn Loss (m) | 1.03 | Cum Volume (1000 m3) | | 11.83 | |

| | | | |
|----------------|------|------------------|-------|
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 58.80 |
|----------------|------|------------------|-------|

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -460.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 10 |
| Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -62.79 720 -47.61 719 -32.42 718 -17.24 717 -2.05 716 | | |
| 0 715.86 .01 715.86 10.8 716 40.77 717 59.2 718 | | |

Manning's n Values

| | | |
|-------------------------|------|---|
| Sta n Val Sta n Val | num= | 3 |
| -62.79 -62.79 .045 59.2 | | |

| | | | |
|----------------------|-----------------------------|--------------|--------|
| Bank Sta: Left Right | Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -62.79 59.2 | 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 715.94 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 715.93 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 715.93 | Flow Area (m2) | | 0.20 | |
| E.G. Slope (m/m) | 0.061106 | Area (m2) | | 0.20 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 6.05 | Top Width (m) | | 6.05 | |
| Vel Total (m/s) | 0.56 | Avg. Vel. (m/s) | | 0.56 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.06 | |
| Min Ch El (m) | 715.86 | Shear (N/m2) | | 19.76 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.16 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 3.27 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 36.09 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 716.03 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 716.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 716.00 | Flow Area (m2) | | 0.84 | |
| E.G. Slope (m/m) | 0.049925 | Area (m2) | | 0.84 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 12.42 | Top Width (m) | | 12.42 | |
| Vel Total (m/s) | 0.82 | Avg. Vel. (m/s) | | 0.82 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 3.1 | Conv. (m3/s) | | 3.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.43 | |
| Min Ch El (m) | 715.86 | Shear (N/m2) | | 33.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.29 | |
| Frctn Loss (m) | 0.50 | Cum Volume (1000 m3) | | 11.82 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 58.58 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -480.0

INPUT

Description:

| Station Elevation Data | | num= 15 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|---------|--------|--------|------|--------|------|--------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -80.48 | 725 | -52 | 720 | -41.94 | 719 | -31.19 | 718 | -20.49 | 717 | | |
| -7.94 | 716 | 0 | 715.21 | 6.64 | 715 | 18.88 | 715 | 25.44 | 716 | | |
| 32.5 | 717 | 40.19 | 718 | 48.13 | 719 | 55.34 | 720 | 83.73 | 725 | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -80.48 | | -80.48 | .045 | 83.73 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -80.48 | 83.73 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 715.04 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.00 | 0.045 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 715.03 | 20.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 715.02 | 0.40 | Flow Area (m2) | | 0.40 | |
| E.G. Slope (m/m) | 0.017002 | 0.40 | Area (m2) | | 0.40 | |
| Q Total (m3/s) | 0.11 | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 13.44 | 13.44 | Top Width (m) | | 13.44 | |
| Vel Total (m/s) | 0.28 | 0.28 | Avg. Vel. (m/s) | | 0.28 | |
| Max Chl Dpth (m) | 0.03 | 0.03 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.9 | 0.9 | Conv. (m3/s) | | 0.9 | |
| Length Wtd. (m) | 20.00 | 13.44 | Wetted Per. (m) | | 13.44 | |
| Min Ch El (m) | 715.00 | 5.00 | Shear (N/m2) | | 5.00 | |
| Alpha | 1.00 | 1.40 | Stream Power (N/m s) | | 1.40 | |
| Prctn Loss (m) | 0.41 | 3.27 | Cum Volume (1000 m3) | | 3.27 | |
| C & E Loss (m) | 0.00 | 35.89 | Cum SA (1000 m2) | | 35.89 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 715.11 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | 0.045 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 715.09 | 20.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 715.07 | 1.33 | Flow Area (m2) | | 1.33 | |
| E.G. Slope (m/m) | 0.015020 | 1.33 | Area (m2) | | 1.33 | |
| Q Total (m3/s) | 0.69 | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 15.85 | 15.85 | Top Width (m) | | 15.85 | |
| Vel Total (m/s) | 0.52 | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.09 | 0.08 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 5.7 | 5.7 | Conv. (m3/s) | | 5.7 | |
| Length Wtd. (m) | 20.00 | 15.86 | Wetted Per. (m) | | 15.86 | |
| Min Ch El (m) | 715.00 | 12.34 | Shear (N/m2) | | 12.34 | |
| Alpha | 1.00 | 6.43 | Stream Power (N/m s) | | 6.43 | |
| Prctn Loss (m) | 0.39 | 11.80 | Cum Volume (1000 m3) | | 11.80 | |
| C & E Loss (m) | 0.00 | 58.30 | Cum SA (1000 m2) | | 58.30 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -500.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|---------|------|--------|--------|--------|--------|--------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.43 | 725 | -60.61 | 720 | -50.54 | 719 | -40.23 | 718 | -29.71 | 717 | | |
| -19.02 | 716 | -8.71 | 715 | 0 | 714.53 | .03 | 714.53 | 27.05 | 715 | | |
| 33.27 | 716 | 39.56 | 717 | 45.62 | 718 | 51.83 | 719 | 58.09 | 720 | | |
| 83.69 | 725 | | | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -90.43 | | -90.43 | .045 | 83.69 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.43 | 83.69 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 714.62 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | 0.045 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 714.61 | 20.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 714.60 | 0.27 | Flow Area (m2) | | 0.27 | |
| E.G. Slope (m/m) | 0.025318 | 0.27 | Area (m2) | | 0.27 | |
| Q Total (m3/s) | 0.11 | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 6.35 | 6.35 | Top Width (m) | | 6.35 | |
| Vel Total (m/s) | 0.43 | 0.43 | Avg. Vel. (m/s) | | 0.43 | |
| Max Chl Dpth (m) | 0.08 | 0.04 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 0.7 | 0.7 | Conv. (m3/s) | | 0.7 | |
| Length Wtd. (m) | 20.00 | 6.35 | Wetted Per. (m) | | 6.35 | |
| Min Ch El (m) | 714.53 | 10.36 | Shear (N/m2) | | 10.36 | |
| Alpha | 1.00 | 4.41 | Stream Power (N/m s) | | 4.41 | |
| Prctn Loss (m) | 0.73 | 3.26 | Cum Volume (1000 m3) | | 3.26 | |
| C & E Loss (m) | 0.00 | 35.70 | Cum SA (1000 m2) | | 35.70 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 714.72 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | 0.045 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 714.69 | 20.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 714.69 | 1.01 | Flow Area (m2) | | 1.01 | |
| E.G. Slope (m/m) | 0.026720 | 1.01 | Area (m2) | | 1.01 | |
| Q Total (m3/s) | 0.69 | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 12.41 | 12.41 | Top Width (m) | | 12.41 | |
| Vel Total (m/s) | 0.68 | 0.68 | Avg. Vel. (m/s) | | 0.68 | |
| Max Chl Dpth (m) | 0.16 | 0.08 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 4.2 | 4.2 | Conv. (m3/s) | | 4.2 | |
| Length Wtd. (m) | 20.00 | 12.42 | Wetted Per. (m) | | 12.42 | |
| Min Ch El (m) | 714.53 | 21.38 | Shear (N/m2) | | 21.38 | |
| Alpha | 1.00 | 14.61 | Stream Power (N/m s) | | 14.61 | |
| Prctn Loss (m) | 0.76 | 11.77 | Cum Volume (1000 m3) | | 11.77 | |
| C & E Loss (m) | 0.00 | 58.01 | Cum SA (1000 m2) | | 58.01 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -520.0

INPUT

Description:

| Station Elevation Data | | num= 17 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-----|--------|--------|--------|--------|--------|-----|------|--|
| -62.76 | 720 | -54.15 | 719 | -45.27 | 718 | -36.55 | 717 | -27.46 | 716 | | |
| -18.33 | 715 | -4.09 | 714 | 0 | 713.82 | .03 | 713.82 | 21.4 | 714 | | |
| 30.71 | 715 | 36.88 | 716 | 43.13 | 717 | 49.46 | 718 | 56.13 | 719 | | |
| 61.9 | 720 | 86.04 | 725 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -62.76 | | -62.76 | .045 | 86.04 | | | |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -62.76 | | 86.04 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 713.89 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 713.88 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 713.88 | Flow Area (m2) | | 0.23 | |
| E.G. Slope (m/m) | 0.057805 | Area (m2) | | 0.23 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 8.01 | Top Width (m) | | 8.01 | |
| Vel Total (m/s) | 0.50 | Avg. Vel. (m/s) | | 0.50 | |
| Max Chl Dpth (m) | 0.06 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.01 | |
| Min Ch El (m) | 713.82 | Shear (N/m2) | | 16.07 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.98 | |
| Frctn Loss (m) | 0.76 | Cum Volume (1000 m3) | | 3.26 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 35.55 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 713.96 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 713.93 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 713.93 | Flow Area (m2) | | 0.89 | |
| E.G. Slope (m/m) | 0.057367 | Area (m2) | | 0.89 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 15.85 | Top Width (m) | | 15.85 | |
| Vel Total (m/s) | 0.78 | Avg. Vel. (m/s) | | 0.78 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 2.9 | Conv. (m3/s) | | 2.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.85 | |
| Min Ch El (m) | 713.82 | Shear (N/m2) | | 31.53 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.58 | |
| Frctn Loss (m) | 0.76 | Cum Volume (1000 m3) | | 11.75 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 57.73 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -540.0

INPUT

Description:

| Station Elevation Data | | num= 19 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-----|--------|--------|--------|--------|--------|-----|------|--|
| -64.68 | 720 | -56.35 | 719 | -48.56 | 718 | -40.95 | 717 | -33.56 | 716 | | |
| -26.03 | 715 | -16.6 | 714 | 0 | 713.01 | .05 | 713.01 | .41 | 713 | | |
| 13.01 | 713 | 23.28 | 714 | 37.65 | 715 | 43.56 | 716 | 49.16 | 717 | | |
| 54.88 | 718 | 60.56 | 719 | 65.97 | 720 | 89.45 | 725 | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -64.68 | | -64.68 | .045 | 89.45 | | | |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -64.68 | | 89.45 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 713.03 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 713.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 713.02 | Flow Area (m2) | | 0.35 | |
| E.G. Slope (m/m) | 0.027004 | Area (m2) | | 0.35 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 13.57 | Top Width (m) | | 13.57 | |
| Vel Total (m/s) | 0.32 | Avg. Vel. (m/s) | | 0.32 | |
| Max Chl Dpth (m) | 0.03 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.7 | Conv. (m3/s) | | 0.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.57 | |
| Min Ch El (m) | 713.00 | Shear (N/m2) | | 6.88 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.20 | |
| Frctn Loss (m) | 0.74 | Cum Volume (1000 m3) | | 3.25 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 35.34 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 713.10 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 713.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 713.07 | Flow Area (m2) | | 1.09 | |
| E.G. Slope (m/m) | 0.026717 | Area (m2) | | 1.09 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 14.97 | Top Width (m) | | 14.97 | |
| Vel Total (m/s) | 0.63 | Avg. Vel. (m/s) | | 0.63 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 4.2 | Conv. (m3/s) | | 4.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.97 | |
| Min Ch El (m) | 713.00 | Shear (N/m2) | | 19.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 12.12 | |
| Frctn Loss (m) | 0.68 | Cum Volume (1000 m3) | | 11.73 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 57.42 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -560.0

INPUT

Description:

| Station Elevation Data | | num= 18 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-----|--------|-----|--------|--------|--------|--------|------|--|
| -76.86 | 720 | -67.87 | 719 | -58.62 | 718 | -48.76 | 717 | -40.02 | 716 | | |
| -31.79 | 715 | -24.76 | 714 | -16.04 | 713 | -0.04 | 712.17 | 0 | 712.17 | | |
| 14.3 | 713 | 29.77 | 714 | 45.51 | 715 | 51 | 716 | 56.86 | 717 | | |
| 63.09 | 718 | 70.2 | 719 | 79.86 | 720 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--------|--------|-------|-----|--|-------|--|
| -76.86 | -76.86 | .045 | 79.86 | | | | |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -76.86 | | 79.86 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 712.29 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 712.26 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 712.26 | Flow Area (m2) | | 0.17 | |
| E.G. Slope (m/m) | 0.054377 | Area (m2) | | 0.17 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 3.48 | Top Width (m) | | 3.48 | |
| Vel Total (m/s) | 0.68 | Avg. Vel. (m/s) | | 0.68 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.48 | |
| Min Ch El (m) | 712.17 | Shear (N/m2) | | 25.37 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.26 | |
| Frctn Loss (m) | 0.75 | Cum Volume (1000 m3) | | 3.24 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 35.17 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 712.41 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 712.36 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 712.36 | Flow Area (m2) | | 0.69 | |
| E.G. Slope (m/m) | 0.045001 | Area (m2) | | 0.69 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 7.12 | Top Width (m) | | 7.12 | |
| Vel Total (m/s) | 1.00 | Avg. Vel. (m/s) | | 1.00 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | | 3.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.13 | |
| Min Ch El (m) | 712.17 | Shear (N/m2) | | 42.97 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 42.86 | |
| Frctn Loss (m) | 0.76 | Cum Volume (1000 m3) | | 11.72 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 57.20 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -580.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-------|---------|-----|--------|-----|--------|-----|--------|-------|------|--|
| -77.24 | 720 | -69.08 | 719 | -60.68 | 718 | -52.15 | 717 | -43.62 | 716 | | |
| -35.09 | 715 | -27.36 | 714 | -20.27 | 713 | -12.17 | 712 | -.01 | 711.4 | | |
| 0 | 711.4 | 8.3 | 712 | 25.9 | 713 | 47.14 | 714 | 73.41 | 715 | | |
| 85.49 | 715 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--------|--------|-------|-----|--|-------|--|
| -77.24 | -77.24 | .045 | 85.49 | | | | |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -77.24 | | 85.49 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 711.53 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 711.51 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 711.50 | Flow Area (m2) | | 0.21 | |
| E.G. Slope (m/m) | 0.027693 | Area (m2) | | 0.21 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 3.78 | Top Width (m) | | 3.78 | |
| Vel Total (m/s) | 0.54 | Avg. Vel. (m/s) | | 0.54 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 0.7 | Conv. (m3/s) | | 0.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.79 | |
| Min Ch El (m) | 711.40 | Shear (N/m2) | | 15.04 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.08 | |
| Frctn Loss (m) | 0.75 | Cum Volume (1000 m3) | | 3.24 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 35.09 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 711.65 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 711.61 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 711.60 | Flow Area (m2) | | 0.77 | |
| E.G. Slope (m/m) | 0.032424 | Area (m2) | | 0.77 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 7.26 | Top Width (m) | | 7.26 | |
| Vel Total (m/s) | 0.90 | Avg. Vel. (m/s) | | 0.90 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 3.8 | Conv. (m3/s) | | 3.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.27 | |
| Min Ch El (m) | 711.40 | Shear (N/m2) | | 33.76 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 30.29 | |
| Frctn Loss (m) | 0.75 | Cum Volume (1000 m3) | | 11.70 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 57.06 | |

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REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -600.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|-----|--------|-----|--------|-----|--------|-----|------|--|
| -75.23 | 720 | -67.68 | 719 | -60.12 | 718 | -52.57 | 717 | -44.93 | 716 | | |
| -37.14 | 715 | -30.16 | 714 | -22.24 | 713 | -13.45 | 712 | -5.99 | 711 | | |
| 0 | 710.65 | 5.69 | 711 | 32.5 | 712 | 63.84 | 713 | 78.91 | 713 | | |
| 89.05 | 713 | | | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|--------|------|-------|-------|--|
| -75.23 | -75.23 | .045 | 89.05 | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| -75.23 | 89.05 | | 20 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 710.77 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 710.75 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 710.75 | Flow Area (m2) | | 0.16 | |
| E.G. Slope (m/m) | 0.053602 | Area (m2) | | 0.16 | |
| Q Total (m3/s) | 0.11 | Flow (m3/s) | | 0.11 | |
| Top Width (m) | 3.30 | Top Width (m) | | 3.30 | |
| Vel Total (m/s) | 0.69 | Avg. Vel. (m/s) | | 0.69 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 0.5 | Conv. (m3/s) | | 0.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.30 | |
| Min Ch El (m) | 710.65 | Shear (N/m2) | | 25.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.94 | |
| Frctn Loss (m) | 0.23 | Cum Volume (1000 m3) | | 3.24 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 35.02 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 710.90 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 710.85 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 710.85 | Flow Area (m2) | | 0.69 | |
| E.G. Slope (m/m) | 0.043898 | Area (m2) | | 0.69 | |
| Q Total (m3/s) | 0.69 | Flow (m3/s) | | 0.69 | |
| Top Width (m) | 6.76 | Top Width (m) | | 6.76 | |
| Vel Total (m/s) | 1.01 | Avg. Vel. (m/s) | | 1.01 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | | 3.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.78 | |
| Min Ch El (m) | 710.65 | Shear (N/m2) | | 43.54 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 44.00 | |
| Frctn Loss (m) | 0.29 | Cum Volume (1000 m3) | | 11.69 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 56.92 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -620.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|--------|--------|--------|--------|-----|--------|-----|------|--|
| -82.63 | 720 | -73.87 | 719 | -64.99 | 718 | -56.65 | 717 | -48.86 | 716 | | |
| -41.06 | 715 | -34.11 | 714 | -27.15 | 713 | -20.2 | 712 | -13.25 | 711 | | |
| -5.81 | 710 | 0 | 709.98 | .02 | 709.98 | 7 | 710 | 34.89 | 711 | | |
| 66.68 | 712 | | | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|--------|------|-------|-------|--|
| -82.63 | -82.63 | .045 | 66.68 | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| -82.63 | 66.68 | | 20 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 710.06 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 710.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 710.03 | Flow Area (m2) | | 0.94 | |
| E.G. Slope (m/m) | 0.007822 | Area (m2) | | 0.94 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 14.88 | Top Width (m) | | 14.88 | |
| Vel Total (m/s) | 0.31 | Avg. Vel. (m/s) | | 0.31 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | | 3.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.88 | |
| Min Ch El (m) | 709.98 | Shear (N/m2) | | 4.83 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.50 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 3.23 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 34.84 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 710.19 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 710.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 710.11 | Flow Area (m2) | | 2.77 | |
| E.G. Slope (m/m) | 0.010802 | Area (m2) | | 2.77 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 18.73 | Top Width (m) | | 18.73 | |
| Vel Total (m/s) | 0.65 | Avg. Vel. (m/s) | | 0.65 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 17.2 | Conv. (m3/s) | | 17.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.75 | |
| Min Ch El (m) | 709.98 | Shear (N/m2) | | 15.66 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 10.11 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 11.65 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 56.66 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -640.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|--------|--------|-------|--------|-----|--------|-----|------|--|
| -90.75 | 720 | -83.39 | 719 | -75.83 | 718 | -68.27 | 717 | -60.18 | 716 | | |
| -51.87 | 715 | -42.98 | 714 | -34.91 | 713 | -27.29 | 712 | -19.6 | 711 | | |
| -12.29 | 710 | 0 | 709.78 | 19.59 | 709.9 | 31.27 | 710 | 53.09 | 711 | | |
| 86.74 | 712 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--------|--------|-------|-----|--|-------|--|
| -90.75 | -90.75 | .045 | 86.74 | | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|-------|-------|----------|--------------|-------|--------------|--------|
| -90.75 | 86.74 | | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 709.88 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.87 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 709.85 | Flow Area (m2) | | 0.95 | |
| E.G. Slope (m/m) | 0.011449 | Area (m2) | | 0.95 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 20.40 | Top Width (m) | | 20.40 | |
| Vel Total (m/s) | 0.31 | Avg. Vel. (m/s) | | 0.31 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.7 | Conv. (m3/s) | | 2.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.40 | |
| Min Ch El (m) | 709.78 | Shear (N/m2) | | 5.22 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.60 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 3.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 34.49 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 709.98 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.97 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.79 | |
| E.G. Slope (m/m) | 0.009789 | Area (m2) | | 3.79 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 38.19 | Top Width (m) | | 38.19 | |
| Vel Total (m/s) | 0.47 | Avg. Vel. (m/s) | | 0.47 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 18.1 | Conv. (m3/s) | | 18.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 38.19 | |
| Min Ch El (m) | 709.78 | Shear (N/m2) | | 9.54 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.50 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 11.59 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 56.09 | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -660.0

INPUT

Description:

| Station Elevation Data | | num= 13 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|-----|--------|-----|--------|-----|--------|--------|------|--|
| -94.72 | 718 | -85.7 | 717 | -77.29 | 716 | -69.07 | 715 | -55.96 | 714 | | |
| -44.7 | 713 | -34.72 | 712 | -26.09 | 711 | -17.86 | 710 | 0 | 709.59 | | |
| 17.28 | 709.69 | 55.16 | 710 | 77.56 | 711 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--------|--------|-------|-----|--|-------|--|
| -94.72 | -94.72 | .045 | 77.56 | | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|-------|-------|----------|--------------|-------|--------------|--------|
| -94.72 | 77.56 | | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 709.69 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.69 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.11 | |
| E.G. Slope (m/m) | 0.007474 | Area (m2) | | 1.11 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 21.83 | Top Width (m) | | 21.83 | |
| Vel Total (m/s) | 0.26 | Avg. Vel. (m/s) | | 0.26 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 3.4 | Conv. (m3/s) | | 3.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.83 | |
| Min Ch El (m) | 709.59 | Shear (N/m2) | | 3.72 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.98 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 3.19 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 34.07 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 709.80 | Element | Left OB | Channel | Right OB |
|--|----------|----------------------|---------|---------|----------|
| Vel Head (m) <td>0.01</td> <td>Wt. n-Val.</td> <td></td> <td>0.045</td> <td></td> | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) <td>709.79</td> <td>Reach Len. (m)</td> <td>20.00</td> <td>20.00</td> <td>20.00</td> | 709.79 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) <td></td> <td>Flow Area (m2)</td> <td></td> <td>3.89</td> <td></td> | | Flow Area (m2) | | 3.89 | |
| E.G. Slope (m/m) <td>0.008757</td> <td>Area (m2)</td> <td></td> <td>3.89</td> <td></td> | 0.008757 | Area (m2) | | 3.89 | |
| Q Total (m3/s) <td>1.79</td> <td>Flow (m3/s)</td> <td></td> <td>1.79</td> <td></td> | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) <td>37.41</td> <td>Top Width (m)</td> <td></td> <td>37.41</td> <td></td> | 37.41 | Top Width (m) | | 37.41 | |
| Vel Total (m/s) <td>0.46</td> <td>Avg. Vel. (m/s)</td> <td></td> <td>0.46</td> <td></td> | 0.46 | Avg. Vel. (m/s) | | 0.46 | |
| Max Chl Dpth (m) <td>0.20</td> <td>Hydr. Depth (m)</td> <td></td> <td>0.10</td> <td></td> | 0.20 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) <td>19.1</td> <td>Conv. (m3/s)</td> <td></td> <td>19.1</td> <td></td> | 19.1 | Conv. (m3/s) | | 19.1 | |
| Length Wtd. (m) <td>20.00</td> <td>Wetted Per. (m)</td> <td></td> <td>37.41</td> <td></td> | 20.00 | Wetted Per. (m) | | 37.41 | |
| Min Ch El (m) <td>709.59</td> <td>Shear (N/m2)</td> <td></td> <td>8.93</td> <td></td> | 709.59 | Shear (N/m2) | | 8.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.11 | |
| Frctn Loss (m) <td>0.19</td> <td>Cum Volume (1000 m3)</td> <td></td> <td>11.51</td> <td></td> | 0.19 | Cum Volume (1000 m3) | | 11.51 | |
| C & E Loss (m) <td>0.00</td> <td>Cum SA (1000 m2)</td> <td></td> <td>55.34</td> <td></td> | 0.00 | Cum SA (1000 m2) | | 55.34 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -680.0

INPUT

Description:

| Station Elevation Data | | num= 12 | | | | | | | | | |
|------------------------|------|---------|-------|--------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -99.92 | 715 | -75.66 | 714 | -57.79 | 713 | -44.34 | 712 | -32.37 | 711 | | |
| -22.57 | 710 | 0 | 709.4 | 15.39 | 709.48 | 37.32 | 710 | 58.47 | 711 | | |
| 75.97 | 712 | 94.05 | 713 | | | | | | | | |

| Manning's n Values | | num= 3 | | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -99.92 | | -99.92 | .045 | 94.05 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.92 | 94.05 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.49 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 709.47 | Flow Area (m2) | | 0.86 | |
| E.G. Slope (m/m) | 0.014296 | Area (m2) | | 0.86 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 18.93 | Top Width (m) | | 18.93 | |
| Vel Total (m/s) | 0.34 | Avg. Vel. (m/s) | | 0.34 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.4 | Conv. (m3/s) | | 2.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.94 | |
| Min Ch El (m) | 709.40 | Shear (N/m2) | | 6.37 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.16 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 3.17 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 33.66 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.61 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.59 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.22 | |
| E.G. Slope (m/m) | 0.010676 | Area (m2) | | 3.22 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 27.12 | Top Width (m) | | 27.12 | |
| Vel Total (m/s) | 0.56 | Avg. Vel. (m/s) | | 0.56 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 17.3 | Conv. (m3/s) | | 17.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 27.13 | |
| Min Ch El (m) | 709.40 | Shear (N/m2) | | 12.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.91 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 11.44 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 54.69 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -700.0

INPUT

Description:

| Station Elevation Data | | num= 11 | | | | | | | | | |
|------------------------|--------|---------|------|--------|------|--------|------|-------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.14 | 713 | -66.16 | 712 | -46.47 | 711 | -31.92 | 710 | 0 | 709.21 | | |
| 13.91 | 709.27 | 30.89 | 710 | 44.2 | 711 | 57.83 | 712 | 74.07 | 713 | | |
| 92.16 | 714 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -90.14 | | -90.14 | .045 | 92.16 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.14 | 92.16 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.31 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.30 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 709.27 | Flow Area (m2) | | 1.08 | |
| E.G. Slope (m/m) | 0.006551 | Area (m2) | | 1.08 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 18.48 | Top Width (m) | | 18.48 | |
| Vel Total (m/s) | 0.27 | Avg. Vel. (m/s) | | 0.27 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 3.6 | Conv. (m3/s) | | 3.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.48 | |
| Min Ch El (m) | 709.21 | Shear (N/m2) | | 3.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.01 | |
| Frctn Loss (m) | 0.23 | Cum Volume (1000 m3) | | 3.15 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 33.28 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.43 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.41 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.51 | |
| E.G. Slope (m/m) | 0.007390 | Area (m2) | | 3.51 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 25.53 | Top Width (m) | | 25.53 | |
| Vel Total (m/s) | 0.51 | Avg. Vel. (m/s) | | 0.51 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 20.8 | Conv. (m3/s) | | 20.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 25.54 | |
| Min Ch El (m) | 709.21 | Shear (N/m2) | | 9.97 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.08 | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 11.37 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 54.17 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -720.0

INPUT

Description:

| Station Elevation Data | | num= 13 | |
|------------------------|--------|---------|--------|
| Sta | Elev | Sta | Elev |
| -90.86 | 713 | -74.93 | 712 |
| 0 | 709.02 | 14.07 | 709.03 |
| 72.5 | 713 | 81.35 | 714 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -90.86 | | -90.86 | .045 |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -90.86 | 90.2 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 709.08 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 709.06 | Flow Area (m2) | | 0.70 | |
| E.G. Slope (m/m) | 0.025226 | Area (m2) | | 0.70 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 17.46 | Top Width (m) | | 17.46 | |
| Vel Total (m/s) | 0.41 | Avg. Vel. (m/s) | | 0.41 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.46 | |
| Min Ch El (m) | 709.02 | Shear (N/m2) | | 9.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.13 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 3.13 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.92 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 709.18 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.15 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 709.13 | Flow Area (m2) | | 2.37 | |
| E.G. Slope (m/m) | 0.024801 | Area (m2) | | 2.37 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 23.54 | Top Width (m) | | 23.54 | |
| Vel Total (m/s) | 0.76 | Avg. Vel. (m/s) | | 0.76 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 11.4 | Conv. (m3/s) | | 11.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.54 | |
| Min Ch El (m) | 709.02 | Shear (N/m2) | | 24.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 18.48 | |
| Frctn Loss (m) | 0.57 | Cum Volume (1000 m3) | | 11.31 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 53.67 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -740.0

INPUT

Description:

| Station Elevation Data | | num= 11 | |
|------------------------|--------|---------|--------|
| Sta | Elev | Sta | Elev |
| -90.64 | 713 | -77.56 | 712 |
| 0 | 708.46 | 10.85 | 708.42 |
| 75.9 | 712 | 33.58 | 709 |
| | | 55.94 | 710 |
| | | 65.41 | 711 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -90.64 | | -90.64 | .045 |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -90.64 | 75.9 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 708.50 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 708.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 708.48 | Flow Area (m2) | | 0.60 | |
| E.G. Slope (m/m) | 0.033863 | Area (m2) | | 0.60 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 14.90 | Top Width (m) | | 14.90 | |
| Vel Total (m/s) | 0.48 | Avg. Vel. (m/s) | | 0.48 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.91 | |
| Min Ch El (m) | 708.42 | Shear (N/m2) | | 13.45 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.49 | |
| Frctn Loss (m) | 0.57 | Cum Volume (1000 m3) | | 3.12 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.60 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 708.60 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 708.57 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 708.56 | Flow Area (m2) | | 2.13 | |
| E.G. Slope (m/m) | 0.033584 | Area (m2) | | 2.13 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 22.65 | Top Width (m) | | 22.65 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | 0.84 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 9.8 | Conv. (m3/s) | | 9.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.65 | |
| Min Ch El (m) | 708.42 | Shear (N/m2) | | 30.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 26.01 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 11.27 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 53.21 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -760.0

INPUT

Description:

| Station Elevation Data | | num= 12 | | | | | | | | | |
|------------------------|--------|---------|--------|--------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -92.76 | 712 | -74.58 | 711 | -62.38 | 710 | -39.38 | 709 | -19.08 | 708 | | |
| 0 | 707.85 | .01 | 707.85 | 9.15 | 707.89 | 10.81 | 708 | 41.28 | 709 | | |
| 69.54 | 710 | 93.8 | 711 | | | | | | | | |

| Manning's n Values | | num= 3 | | | |
|--------------------|-------|--------|-------|------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -92.76 | | -92.76 | .045 | 93.8 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -92.76 | 93.8 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 707.93 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 707.92 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 707.91 | Flow Area (m2) | | 0.72 | |
| E.G. Slope (m/m) | 0.024521 | Area (m2) | | 0.72 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 18.06 | Top Width (m) | | 18.06 | |
| Vel Total (m/s) | 0.41 | Avg. Vel. (m/s) | | 0.41 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.9 | Conv. (m3/s) | | 1.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.06 | |
| Min Ch El (m) | 707.85 | Shear (N/m2) | | 9.57 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.88 | |
| Frctn Loss (m) | 0.55 | Cum Volume (1000 m3) | | 3.10 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.27 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 708.02 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 708.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 707.98 | Flow Area (m2) | | 2.57 | |
| E.G. Slope (m/m) | 0.025196 | Area (m2) | | 2.57 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 29.19 | Top Width (m) | | 29.19 | |
| Vel Total (m/s) | 0.70 | Avg. Vel. (m/s) | | 0.70 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 11.3 | Conv. (m3/s) | | 11.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.19 | |
| Min Ch El (m) | 707.85 | Shear (N/m2) | | 21.72 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 15.14 | |
| Frctn Loss (m) | 0.52 | Cum Volume (1000 m3) | | 11.22 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 52.69 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -780.0

INPUT

Description:

| Station Elevation Data | | num= 11 | | | | | | | | | |
|------------------------|--------|---------|--------|-------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -99.69 | 712 | -89.45 | 711 | -79.1 | 710 | -52.61 | 709 | -29.87 | 708 | | |
| 0 | 707.25 | .01 | 707.24 | 10.63 | 707.46 | 26.41 | 708 | 50.95 | 709 | | |
| 95.06 | 710 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -99.69 | | -99.69 | .045 | 95.06 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.69 | 95.06 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 707.37 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 707.35 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 707.34 | Flow Area (m2) | | 0.52 | |
| E.G. Slope (m/m) | 0.031569 | Area (m2) | | 0.52 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 9.52 | Top Width (m) | | 9.52 | |
| Vel Total (m/s) | 0.56 | Avg. Vel. (m/s) | | 0.56 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.53 | |
| Min Ch El (m) | 707.24 | Shear (N/m2) | | 16.75 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.47 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 3.09 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.00 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 707.50 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 707.46 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 707.44 | Flow Area (m2) | | 2.14 | |
| E.G. Slope (m/m) | 0.026689 | Area (m2) | | 2.14 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 19.32 | Top Width (m) | | 19.32 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | 0.84 | |
| Max Chl Dpth (m) | 0.22 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 11.0 | Conv. (m3/s) | | 11.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.33 | |
| Min Ch El (m) | 707.24 | Shear (N/m2) | | 28.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.23 | |
| Frctn Loss (m) | 0.60 | Cum Volume (1000 m3) | | 11.17 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 52.21 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -800.0

INPUT

Description:

| Station Elevation Data | | num= 13 | | | | | | | | | |
|------------------------|------|---------|--------|--------|--------|--------|--------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -98.93 | 712 | -89.51 | 711 | -80.78 | 710 | -64.69 | 709 | -41.33 | 708 | | |
| -19.96 | 707 | -.03 | 706.66 | 0 | 706.66 | 13.09 | 706.99 | 13.35 | 707 | | |
| 51.72 | 708 | 74.25 | 709 | 90.37 | 710 | | | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -98.93 | | -98.93 | .045 | 90.37 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.93 | 90.37 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 706.78 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 706.77 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 706.75 | Flow Area (m2) | | 0.56 | |
| E.G. Slope (m/m) | 0.027441 | Area (m2) | | 0.56 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.48 | Top Width (m) | | 10.48 | |
| Vel Total (m/s) | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.48 | |
| Min Ch El (m) | 706.66 | Shear (N/m2) | | 14.35 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.48 | |
| Frctn Loss (m) | 0.56 | Cum Volume (1000 m3) | | 3.08 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.80 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 706.90 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 706.86 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 706.85 | Flow Area (m2) | | 2.02 | |
| E.G. Slope (m/m) | 0.033680 | Area (m2) | | 2.02 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 19.92 | Top Width (m) | | 19.92 | |
| Vel Total (m/s) | 0.89 | Avg. Vel. (m/s) | | 0.89 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 9.7 | Conv. (m3/s) | | 9.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.92 | |
| Min Ch El (m) | 706.66 | Shear (N/m2) | | 33.47 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 29.67 | |
| Frctn Loss (m) | 0.54 | Cum Volume (1000 m3) | | 11.13 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 51.82 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -820.0

INPUT

Description:

| Station Elevation Data | | num= 12 | | | | | | | | | |
|------------------------|------|---------|--------|--------|--------|--------|--------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -98.02 | 712 | -89.86 | 711 | -81.72 | 710 | -65.83 | 709 | -49.43 | 708 | | |
| -27.5 | 707 | -.04 | 706.08 | 0 | 706.08 | 13.77 | 706.42 | 39.11 | 707 | | |
| 56.25 | 708 | 81.29 | 709 | | | | | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -98.02 | | -98.02 | .045 | 81.29 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.02 | 81.29 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 706.22 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 706.20 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 706.19 | Flow Area (m2) | | 0.50 | |
| E.G. Slope (m/m) | 0.028929 | Area (m2) | | 0.50 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 8.42 | Top Width (m) | | 8.42 | |
| Vel Total (m/s) | 0.58 | Avg. Vel. (m/s) | | 0.58 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.7 | Conv. (m3/s) | | 1.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.42 | |
| Min Ch El (m) | 706.08 | Shear (N/m2) | | 16.97 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.81 | |
| Frctn Loss (m) | 0.55 | Cum Volume (1000 m3) | | 3.07 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.61 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 706.36 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 706.33 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 706.30 | Flow Area (m2) | | 2.18 | |
| E.G. Slope (m/m) | 0.021869 | Area (m2) | | 2.18 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 17.52 | Top Width (m) | | 17.52 | |
| Vel Total (m/s) | 0.82 | Avg. Vel. (m/s) | | 0.82 | |
| Max Chl Dpth (m) | 0.25 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 12.1 | Conv. (m3/s) | | 12.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.53 | |
| Min Ch El (m) | 706.08 | Shear (N/m2) | | 26.71 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 21.89 | |
| Frctn Loss (m) | 0.57 | Cum Volume (1000 m3) | | 11.09 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 51.44 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -840.0

INPUT

Description:

| Station Elevation Data | | num= 14 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -97.6 | 712 | -89.85 | 711 |
| -33.8 | 707 | -11.38 | 706 |
| 23.25 | 707 | 52.58 | 707 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -97.6 | | -97.6 | .045 |
| | | 90.73 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|--------------|-------|-------|--------|--------|
| | -97.6 | 90.73 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 705.66 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 705.65 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 705.63 | Flow Area (m2) | | 0.56 | |
| E.G. Slope (m/m) | 0.026571 | Area (m2) | | 0.56 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.34 | Top Width (m) | | 10.34 | |
| Vel Total (m/s) | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.34 | |
| Min Ch El (m) | 705.54 | Shear (N/m2) | | 14.14 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.34 | |
| Frctn Loss (m) | 0.62 | Cum Volume (1000 m3) | | 3.06 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.42 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 705.78 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 705.74 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 705.73 | Flow Area (m2) | | 1.89 | |
| E.G. Slope (m/m) | 0.039356 | Area (m2) | | 1.89 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 18.97 | Top Width (m) | | 18.97 | |
| Vel Total (m/s) | 0.95 | Avg. Vel. (m/s) | | 0.95 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 9.0 | Conv. (m3/s) | | 9.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.98 | |
| Min Ch El (m) | 705.54 | Shear (N/m2) | | 38.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 36.39 | |
| Frctn Loss (m) | 0.64 | Cum Volume (1000 m3) | | 11.05 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 51.08 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -860.0

INPUT

Description:

| Station Elevation Data | | num= 16 | |
|------------------------|--------|---------|------|
| Sta | Elev | Sta | Elev |
| -96.56 | 712 | -89.67 | 711 |
| -36.31 | 707 | -18.68 | 706 |
| 15.18 | 704.98 | 16.94 | 705 |
| 88.19 | 709 | | |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -96.56 | | -96.56 | .045 |
| | | 88.19 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -96.56 | 88.19 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 705.04 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 705.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 705.02 | Flow Area (m2) | | 0.64 | |
| E.G. Slope (m/m) | 0.036751 | Area (m2) | | 0.64 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 17.97 | Top Width (m) | | 17.97 | |
| Vel Total (m/s) | 0.46 | Avg. Vel. (m/s) | | 0.46 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.5 | Conv. (m3/s) | | 1.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.97 | |
| Min Ch El (m) | 704.98 | Shear (N/m2) | | 12.73 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.84 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 3.05 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.14 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 705.14 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 705.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 705.09 | Flow Area (m2) | | 2.24 | |
| E.G. Slope (m/m) | 0.026706 | Area (m2) | | 2.24 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 21.61 | Top Width (m) | | 21.61 | |
| Vel Total (m/s) | 0.80 | Avg. Vel. (m/s) | | 0.80 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 10.9 | Conv. (m3/s) | | 10.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.62 | |
| Min Ch El (m) | 704.98 | Shear (N/m2) | | 27.09 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 21.68 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 11.01 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 50.67 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -880.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|---------|------|-------|--------|--------|--------|--------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -96.86 | 711 | -90.62 | 710 | -77.1 | 709 | -61.29 | 708 | -44.36 | 707 | | |
| -28.08 | 706 | -11.38 | 705 | 0 | 704.59 | .01 | 704.59 | 16.3 | 704.54 | | |
| 32.23 | 705 | 45.57 | 706 | 58.91 | 707 | 72.17 | 708 | 85.09 | 709 | | |
| 98 | 710 | | | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -96.86 | | -96.86 | .045 | 98 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -96.86 | 98 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 704.62 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 704.61 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | 0.89 | | | |
| E.G. Slope (m/m) | 0.013481 | Area (m2) | 0.89 | | | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | 0.29 | | | |
| Top Width (m) | 19.48 | Top Width (m) | 19.48 | | | |
| Vel Total (m/s) | 0.33 | Avg. Vel. (m/s) | 0.33 | | | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | 0.05 | | | |
| Conv. Total (m3/s) | 2.5 | Conv. (m3/s) | 2.5 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 19.48 | | | |
| Min Ch El (m) | 704.54 | Shear (N/m2) | 6.01 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 1.98 | | | |
| Frctn Loss (m) | 0.45 | Cum Volume (1000 m3) | 3.03 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 30.76 | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 704.72 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 704.70 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | 2.70 | | | |
| E.G. Slope (m/m) | 0.016860 | Area (m2) | 2.70 | | | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | 1.79 | | | |
| Top Width (m) | 24.62 | Top Width (m) | 24.62 | | | |
| Vel Total (m/s) | 0.66 | Avg. Vel. (m/s) | 0.66 | | | |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | 0.11 | | | |
| Conv. Total (m3/s) | 13.8 | Conv. (m3/s) | 13.8 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 24.63 | | | |
| Min Ch El (m) | 704.54 | Shear (N/m2) | 18.15 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 12.01 | | | |
| Frctn Loss (m) | 0.45 | Cum Volume (1000 m3) | 10.96 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 50.21 | | | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -900.0

INPUT

Description:

| Station Elevation Data | | num= 14 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|--------|--------|--------|--------|------|--------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -91.47 | 709 | -77.95 | 708 | -63.84 | 707 | -47.61 | 706 | -27.44 | 705 | | |
| 0 | 704.17 | .01 | 704.16 | 16.64 | 704.09 | 37.6 | 705 | 49.09 | 706 | | |
| 60.57 | 707 | 72.06 | 708 | 83.25 | 709 | 93.96 | 710 | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -91.47 | | -91.47 | .045 | 93.96 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -91.47 | 93.96 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 704.17 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 704.16 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | 704.15 | Flow Area (m2) | 0.59 | | | |
| E.G. Slope (m/m) | 0.044754 | Area (m2) | 0.59 | | | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | 0.29 | | | |
| Top Width (m) | 17.62 | Top Width (m) | 17.62 | | | |
| Vel Total (m/s) | 0.49 | Avg. Vel. (m/s) | 0.49 | | | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | 0.03 | | | |
| Conv. Total (m3/s) | 1.4 | Conv. (m3/s) | 1.4 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 17.62 | | | |
| Min Ch El (m) | 704.09 | Shear (N/m2) | 14.79 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 7.26 | | | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | 3.02 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 30.39 | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 704.27 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 704.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | 704.22 | Flow Area (m2) | 2.15 | | | |
| E.G. Slope (m/m) | 0.031254 | Area (m2) | 2.15 | | | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | 1.79 | | | |
| Top Width (m) | 22.16 | Top Width (m) | 22.16 | | | |
| Vel Total (m/s) | 0.83 | Avg. Vel. (m/s) | 0.83 | | | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | 0.10 | | | |
| Conv. Total (m3/s) | 10.1 | Conv. (m3/s) | 10.1 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 22.17 | | | |
| Min Ch El (m) | 704.09 | Shear (N/m2) | 29.79 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 24.74 | | | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | 10.91 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 49.74 | | | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -920.0

INPUT

Description:

| Station Elevation Data | | num= 15 | | Sta | | Elev | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|--------|--------|--------|--------|-----|-------|-----|------|--|-----|--|------|--|
| -90.07 | 708 | -77.32 | 707 | -64.25 | 706 | -51.55 | 705 | -7.41 | 704 | | | | | | |
| 0 | 703.72 | .01 | 703.72 | 15.07 | 703.64 | 27.85 | 704 | 42.76 | 705 | | | | | | |
| 52.34 | 706 | 61.92 | 707 | 71.5 | 708 | 81.08 | 709 | 90.83 | 710 | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | | Sta | | n Val | |
|--------|--|--------|------|-------|--|-----|--|-------|--|
| -90.07 | | -90.07 | .045 | 90.83 | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.07 | 90.83 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 703.73 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 703.73 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.88 | |
| E.G. Slope (m/m) | 0.012806 | Area (m2) | | 0.88 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 18.47 | Top Width (m) | | 18.47 | |
| Vel Total (m/s) | 0.33 | Avg. Vel. (m/s) | | 0.33 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.6 | Conv. (m3/s) | | 2.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.47 | |
| Min Ch El (m) | 703.64 | Shear (N/m2) | | 5.99 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.98 | |
| Frctn Loss (m) | 0.47 | Cum Volume (1000 m3) | | 3.00 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 30.03 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 703.84 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 703.82 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.73 | |
| E.G. Slope (m/m) | 0.015726 | Area (m2) | | 2.73 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 23.88 | Top Width (m) | | 23.88 | |
| Vel Total (m/s) | 0.66 | Avg. Vel. (m/s) | | 0.66 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 14.3 | Conv. (m3/s) | | 14.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.88 | |
| Min Ch El (m) | 703.64 | Shear (N/m2) | | 17.61 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.55 | |
| Frctn Loss (m) | 0.46 | Cum Volume (1000 m3) | | 10.86 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 49.28 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -940.0

INPUT

Description:

| Station Elevation Data | | num= 14 | | Sta | | Elev | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|--------|--------|-----|--------|-----|-------|--------|------|--|-----|--|------|--|
| -88.88 | 707 | -72.25 | 706 | -56.64 | 705 | -30.36 | 704 | 0 | 703.25 | | | | | | |
| .01 | 703.25 | 12.39 | 703.17 | 31.76 | 704 | 45.4 | 705 | 54.23 | 706 | | | | | | |
| 63.06 | 707 | 71.9 | 708 | 80.73 | 709 | 89.53 | 710 | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | | Sta | | n Val | |
|--------|--|--------|------|-------|--|-----|--|-------|--|
| -88.88 | | -88.88 | .045 | 89.53 | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -88.88 | 89.53 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 703.26 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 703.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.49 | |
| E.G. Slope (m/m) | 0.057391 | Area (m2) | | 0.49 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 13.22 | Top Width (m) | | 13.22 | |
| Vel Total (m/s) | 0.59 | Avg. Vel. (m/s) | | 0.59 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.2 | Conv. (m3/s) | | 1.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.22 | |
| Min Ch El (m) | 703.17 | Shear (N/m2) | | 20.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 12.40 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 2.99 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 29.71 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 703.37 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 703.33 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.94 | |
| E.G. Slope (m/m) | 0.037369 | Area (m2) | | 1.94 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 19.44 | Top Width (m) | | 19.44 | |
| Vel Total (m/s) | 0.92 | Avg. Vel. (m/s) | | 0.92 | |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 9.3 | Conv. (m3/s) | | 9.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.44 | |
| Min Ch El (m) | 703.17 | Shear (N/m2) | | 36.52 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.73 | |
| Frctn Loss (m) | 0.39 | Cum Volume (1000 m3) | | 10.81 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 48.85 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -960.0

INPUT

Description:

| Station Elevation Data | | num= 17 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|--------|--------|--------|--------|--------|--------|-----|------|--|
| -86.57 | 706 | -83.56 | 706 | -81.35 | 706 | -67.62 | 705 | -44.24 | 704 | | |
| -6.53 | 703 | 0 | 702.82 | .01 | 702.82 | 9.75 | 702.75 | 20.57 | 703 | | |
| 34.91 | 704 | 46.99 | 705 | 54.75 | 706 | 62.99 | 707 | 71.23 | 708 | | |
| 79.41 | 709 | 87.6 | 710 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--------|--------|------|-----|--|-------|--|
| -86.57 | -86.57 | .045 | 87.6 | | | | |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -86.57 | | 87.6 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 702.86 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 702.85 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.87 | |
| E.G. Slope (m/m) | 0.010193 | Area (m2) | | 0.87 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 15.20 | Top Width (m) | | 15.20 | |
| Vel Total (m/s) | 0.33 | Avg. Vel. (m/s) | | 0.33 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 2.9 | Conv. (m3/s) | | 2.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.20 | |
| Min Ch El (m) | 702.75 | Shear (N/m2) | | 5.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.91 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 2.97 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 29.43 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 702.98 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 702.96 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.94 | |
| E.G. Slope (m/m) | 0.012114 | Area (m2) | | 2.94 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 23.67 | Top Width (m) | | 23.67 | |
| Vel Total (m/s) | 0.61 | Avg. Vel. (m/s) | | 0.61 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 16.3 | Conv. (m3/s) | | 16.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.67 | |
| Min Ch El (m) | 702.75 | Shear (N/m2) | | 14.75 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.98 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | 10.76 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 48.42 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -980.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|--------|--------|--------|--------|-----|--------|-----|------|--|
| -92.95 | 707 | -78.92 | 706 | -64.64 | 705 | -50.22 | 704 | -26.56 | 703 | | |
| -0.3 | 702.41 | 0 | 702.41 | 8.28 | 702.33 | 25.83 | 703 | 38.27 | 704 | | |
| 50.54 | 705 | 58.2 | 706 | 66.12 | 707 | 74.25 | 708 | 82.31 | 709 | | |
| 90.96 | 710 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--------|--------|-------|-----|--|-------|--|
| -92.95 | -92.95 | .045 | 90.96 | | | | |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -92.95 | | 90.96 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 702.43 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 702.41 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 702.41 | Flow Area (m2) | | 0.43 | |
| E.G. Slope (m/m) | 0.065704 | Area (m2) | | 0.43 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.51 | Top Width (m) | | 10.51 | |
| Vel Total (m/s) | 0.68 | Avg. Vel. (m/s) | | 0.68 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.1 | Conv. (m3/s) | | 1.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.51 | |
| Min Ch El (m) | 702.33 | Shear (N/m2) | | 26.39 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.86 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 2.96 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 29.17 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 702.56 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 702.51 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 702.51 | Flow Area (m2) | | 1.78 | |
| E.G. Slope (m/m) | 0.042859 | Area (m2) | | 1.78 | |
| Q Total (m3/s) | 1.79 | Flow (m3/s) | | 1.79 | |
| Top Width (m) | 17.39 | Top Width (m) | | 17.39 | |
| Vel Total (m/s) | 1.01 | Avg. Vel. (m/s) | | 1.01 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 8.6 | Conv. (m3/s) | | 8.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.39 | |
| Min Ch El (m) | 702.33 | Shear (N/m2) | | 42.98 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 43.24 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 10.72 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 48.01 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1000.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|---------|------|--------|------|--------|--------|--------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -92.27 | 707 | -76.39 | 706 | -61.25 | 705 | -52.53 | 704 | -30.04 | 703 | | |
| -0.3 | 702 | -0.1 | 702 | 0 | 702 | 11.58 | 701.86 | 20.37 | 702 | | |
| 34.72 | 703 | 47.74 | 704 | 59.76 | 705 | 70.4 | 706 | 82.57 | 707 | | |
| 96.81 | 708 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -92.27 | | -92.27 | .045 | 96.81 | | | |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -92.27 | | 96.81 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 701.99 | Element | | Left OB | Channel | Right OB | |
|--------------------|----------|----------------------|-------|---------|---------|----------|--|
| Vel Head (m) | 0.01 | Wt. n-Val. | 0.045 | | 20.00 | 20.00 | |
| W.S. Elev (m) | 701.99 | Reach Len. (m) | 20.00 | | 20.00 | 20.00 | |
| Crit W.S. (m) | 701.96 | Flow Area (m2) | 1.16 | | 1.16 | 1.16 | |
| E.G. Slope (m/m) | 0.013164 | Area (m2) | 1.16 | | 1.16 | 1.16 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | 0.47 | | 0.47 | 0.47 | |
| Top Width (m) | 18.37 | Top Width (m) | 18.37 | | 18.37 | 18.37 | |
| Vel Total (m/s) | 0.40 | Avg. Vel. (m/s) | 0.40 | | 0.40 | 0.40 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | 0.06 | | 0.06 | 0.06 | |
| Conv. Total (m3/s) | 4.1 | Conv. (m3/s) | 4.1 | | 4.1 | 4.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 18.37 | | 18.37 | 18.37 | |
| Min Ch El (m) | 701.86 | Shear (N/m2) | 8.16 | | 8.16 | 8.16 | |
| Alpha | 1.00 | Stream Power (N/m s) | 3.30 | | 3.30 | 3.30 | |
| Frctn Loss (m) | 0.47 | Cum Volume (1000 m3) | 2.95 | | 2.95 | 2.95 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 28.88 | | 28.88 | 28.88 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 702.13 | Element | | Left OB | Channel | Right OB | |
|--------------------|----------|----------------------|-------|---------|---------|----------|--|
| Vel Head (m) | 0.03 | Wt. n-Val. | 0.045 | | 20.00 | 20.00 | |
| W.S. Elev (m) | 702.11 | Reach Len. (m) | 20.00 | | 20.00 | 20.00 | |
| Crit W.S. (m) | 702.06 | Flow Area (m2) | 3.83 | | 3.83 | 3.83 | |
| E.G. Slope (m/m) | 0.014102 | Area (m2) | 3.83 | | 3.83 | 3.83 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | 2.89 | | 2.89 | 2.89 | |
| Top Width (m) | 25.09 | Top Width (m) | 25.09 | | 25.09 | 25.09 | |
| Vel Total (m/s) | 0.75 | Avg. Vel. (m/s) | 0.75 | | 0.75 | 0.75 | |
| Max Chl Dpth (m) | 0.25 | Hydr. Depth (m) | 0.15 | | 0.15 | 0.15 | |
| Conv. Total (m3/s) | 24.3 | Conv. (m3/s) | 24.3 | | 24.3 | 24.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 25.09 | | 25.09 | 25.09 | |
| Min Ch El (m) | 701.86 | Shear (N/m2) | 21.11 | | 21.11 | 21.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | 15.91 | | 15.91 | 15.91 | |
| Frctn Loss (m) | 0.45 | Cum Volume (1000 m3) | 10.66 | | 10.66 | 10.66 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 47.58 | | 47.58 | 47.58 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1020.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|---------|------|--------|--------|-------|--------|--------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -96.57 | 708 | -85.63 | 707 | -74.48 | 706 | -63.7 | 705 | -42.97 | 704 | | |
| -30.16 | 703 | -11.59 | 702 | 0 | 701.64 | .04 | 701.64 | 17.4 | 701.37 | | |
| 29.4 | 702 | 42.01 | 703 | 53.84 | 704 | 68.49 | 705 | 80.92 | 706 | | |
| 94.88 | 707 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -96.57 | | -96.57 | .045 | 94.88 | | | |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -96.57 | | 94.88 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 701.52 | Element | | Left OB | Channel | Right OB | |
|--------------------|----------|----------------------|-------|---------|---------|----------|--|
| Vel Head (m) | 0.03 | Wt. n-Val. | 0.045 | | 20.00 | 20.00 | |
| W.S. Elev (m) | 701.49 | Reach Len. (m) | 20.00 | | 20.00 | 20.00 | |
| Crit W.S. (m) | 701.49 | Flow Area (m2) | 0.60 | | 0.60 | 0.60 | |
| E.G. Slope (m/m) | 0.053696 | Area (m2) | 0.60 | | 0.60 | 0.60 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | 0.47 | | 0.47 | 0.47 | |
| Top Width (m) | 9.97 | Top Width (m) | 9.97 | | 9.97 | 9.97 | |
| Vel Total (m/s) | 0.79 | Avg. Vel. (m/s) | 0.79 | | 0.79 | 0.79 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | 0.06 | | 0.06 | 0.06 | |
| Conv. Total (m3/s) | 2.0 | Conv. (m3/s) | 2.0 | | 2.0 | 2.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 9.98 | | 9.98 | 9.98 | |
| Min Ch El (m) | 701.37 | Shear (N/m2) | 31.49 | | 31.49 | 31.49 | |
| Alpha | 1.00 | Stream Power (N/m s) | 24.80 | | 24.80 | 24.80 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | 2.93 | | 2.93 | 2.93 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 28.60 | | 28.60 | 28.60 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 701.68 | Element | | Left OB | Channel | Right OB | |
|--------------------|----------|----------------------|-------|---------|---------|----------|--|
| Vel Head (m) | 0.06 | Wt. n-Val. | 0.045 | | 20.00 | 20.00 | |
| W.S. Elev (m) | 701.62 | Reach Len. (m) | 20.00 | | 20.00 | 20.00 | |
| Crit W.S. (m) | 701.62 | Flow Area (m2) | 2.57 | | 2.57 | 2.57 | |
| E.G. Slope (m/m) | 0.041402 | Area (m2) | 2.57 | | 2.57 | 2.57 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | 2.89 | | 2.89 | 2.89 | |
| Top Width (m) | 20.68 | Top Width (m) | 20.68 | | 20.68 | 20.68 | |
| Vel Total (m/s) | 1.12 | Avg. Vel. (m/s) | 1.12 | | 1.12 | 1.12 | |
| Max Chl Dpth (m) | 0.25 | Hydr. Depth (m) | 0.12 | | 0.12 | 0.12 | |
| Conv. Total (m3/s) | 14.2 | Conv. (m3/s) | 14.2 | | 14.2 | 14.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 20.69 | | 20.69 | 20.69 | |
| Min Ch El (m) | 701.37 | Shear (N/m2) | 50.36 | | 50.36 | 50.36 | |
| Alpha | 1.00 | Stream Power (N/m s) | 56.63 | | 56.63 | 56.63 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | 10.60 | | 10.60 | 10.60 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 47.12 | | 47.12 | 47.12 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1040.0

INPUT

Description:

| Station Elevation Data | | num= 17 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -94.69 | 709 | -85.89 | 708 |
| -47.11 | 704 | -30.76 | 703 |
| 10.62 | 701 | 20.87 | 701 |
| 75.15 | 705 | 87.62 | 706 |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -94.69 | -94.69 | .045 | 87.62 |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -94.69 | | 87.62 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 701.13 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 701.12 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 701.06 | Flow Area (m2) | | 1.67 | |
| E.G. Slope (m/m) | 0.003430 | Area (m2) | | 1.67 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 16.56 | Top Width (m) | | 16.56 | |
| Vel Total (m/s) | 0.28 | Avg. Vel. (m/s) | | 0.28 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 8.0 | Conv. (m3/s) | | 8.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.57 | |
| Min Ch El (m) | 701.00 | Shear (N/m2) | | 3.39 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.95 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | | 2.91 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 28.33 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 701.31 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 701.30 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 701.17 | Flow Area (m2) | | 5.24 | |
| E.G. Slope (m/m) | 0.004927 | Area (m2) | | 5.24 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 24.94 | Top Width (m) | | 24.94 | |
| Vel Total (m/s) | 0.55 | Avg. Vel. (m/s) | | 0.55 | |
| Max Chl Dpth (m) | 0.30 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 41.1 | Conv. (m3/s) | | 41.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.96 | |
| Min Ch El (m) | 701.00 | Shear (N/m2) | | 10.14 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.59 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 10.52 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 46.67 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1060.0

INPUT

Description:

| Station Elevation Data | | num= 16 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -96.23 | 708 | -84.32 | 707 |
| -33.11 | 703 | -17.35 | 702 |
| 35.38 | 702 | 47.21 | 703 |
| 92.5 | 707 | | |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -96.23 | -96.23 | .045 | 92.5 |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -96.23 | | 92.5 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 700.95 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 700.93 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 700.93 | Flow Area (m2) | | 0.68 | |
| E.G. Slope (m/m) | 0.053765 | Area (m2) | | 0.68 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 13.61 | Top Width (m) | | 13.61 | |
| Vel Total (m/s) | 0.70 | Avg. Vel. (m/s) | | 0.70 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.0 | Conv. (m3/s) | | 2.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.63 | |
| Min Ch El (m) | 700.83 | Shear (N/m2) | | 26.13 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 18.17 | |
| Frctn Loss (m) | 0.50 | Cum Volume (1000 m3) | | 2.88 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 28.03 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 701.09 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 701.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 701.03 | Flow Area (m2) | | 2.73 | |
| E.G. Slope (m/m) | 0.041813 | Area (m2) | | 2.73 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 24.24 | Top Width (m) | | 24.24 | |
| Vel Total (m/s) | 1.06 | Avg. Vel. (m/s) | | 1.06 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 14.1 | Conv. (m3/s) | | 14.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.28 | |
| Min Ch El (m) | 700.83 | Shear (N/m2) | | 46.07 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 48.74 | |
| Frctn Loss (m) | 0.53 | Cum Volume (1000 m3) | | 10.44 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 46.18 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1080.0

INPUT

Description:

| Station Elevation Data | | num= 13 | |
|------------------------|-------|---------|------|
| Sta | Elev | Sta | Elev |
| -88.39 | 705 | -64.88 | 704 |
| 0 | 700.1 | 15.02 | 701 |
| 70.15 | 705 | 80.34 | 706 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -88.39 | | -88.39 | .045 |
| | | 70.15 | 90.62 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -88.39 | 90.62 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 700.33 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 700.31 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 700.27 | Flow Area (m2) | | 0.78 | |
| E.G. Slope (m/m) | 0.014530 | Area (m2) | | 0.78 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 7.33 | Top Width (m) | | 7.33 | |
| Vel Total (m/s) | 0.60 | Avg. Vel. (m/s) | | 0.60 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 3.9 | Conv. (m3/s) | | 3.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.34 | |
| Min Ch El (m) | 700.10 | Shear (N/m2) | | 15.16 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.12 | |
| Frctn Loss (m) | 0.48 | Cum Volume (1000 m3) | | 2.87 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 27.82 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 700.56 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 700.50 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 700.45 | Flow Area (m2) | | 2.80 | |
| E.G. Slope (m/m) | 0.018278 | Area (m2) | | 2.80 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 13.86 | Top Width (m) | | 13.86 | |
| Vel Total (m/s) | 1.03 | Avg. Vel. (m/s) | | 1.03 | |
| Max Chl Dpth (m) | 0.40 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 21.3 | Conv. (m3/s) | | 21.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.89 | |
| Min Ch El (m) | 700.10 | Shear (N/m2) | | 36.09 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 37.25 | |
| Frctn Loss (m) | 0.51 | Cum Volume (1000 m3) | | 10.38 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 45.79 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1100.0

INPUT

Description:

| Station Elevation Data | | num= 14 | |
|------------------------|--------|---------|------|
| Sta | Elev | Sta | Elev |
| -91.95 | 704 | -70.49 | 703 |
| 0 | 699.66 | 9.33 | 700 |
| 56.95 | 704 | 68.59 | 705 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -91.95 | | -91.95 | .045 |
| | | 56.95 | 90.48 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.95 | 90.48 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 699.85 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 699.81 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 699.81 | Flow Area (m2) | | 0.55 | |
| E.G. Slope (m/m) | 0.048019 | Area (m2) | | 0.55 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 7.36 | Top Width (m) | | 7.36 | |
| Vel Total (m/s) | 0.86 | Avg. Vel. (m/s) | | 0.86 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.1 | Conv. (m3/s) | | 2.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.37 | |
| Min Ch El (m) | 699.66 | Shear (N/m2) | | 34.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 30.02 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 2.85 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 27.68 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 700.04 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 699.97 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 699.97 | Flow Area (m2) | | 2.33 | |
| E.G. Slope (m/m) | 0.038075 | Area (m2) | | 2.33 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 15.19 | Top Width (m) | | 15.19 | |
| Vel Total (m/s) | 1.24 | Avg. Vel. (m/s) | | 1.24 | |
| Max Chl Dpth (m) | 0.31 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 14.8 | Conv. (m3/s) | | 14.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.20 | |
| Min Ch El (m) | 699.66 | Shear (N/m2) | | 57.13 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 70.88 | |
| Frctn Loss (m) | 0.30 | Cum Volume (1000 m3) | | 10.33 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 45.50 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1120.0

INPUT

Description:

| Station Elevation Data | | num= 17 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -96.28 | 706 | -88.52 | 705 |
| -29.85 | 701 | -15.01 | 700 |
| 15.55 | 700 | 26.78 | 701 |
| 70.39 | 705 | 83.54 | 706 |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -96.28 | -96.28 | .045 | 83.54 |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -96.28 | 83.54 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 699.20 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 699.19 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 699.10 | Flow Area (m2) | 1.20 | | | |
| E.G. Slope (m/m) | 0.004214 | Area (m2) | 1.20 | | | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | 0.47 | | | |
| Top Width (m) | 8.50 | Top Width (m) | 8.50 | | | |
| Vel Total (m/s) | 0.39 | Avg. Vel. (m/s) | 0.39 | | | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | 0.14 | | | |
| Conv. Total (m3/s) | 7.2 | Conv. (m3/s) | 7.2 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 8.52 | | | |
| Min Ch El (m) | 699.00 | Shear (N/m2) | 5.83 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 2.28 | | | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | 2.84 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 27.52 | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 699.44 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 699.41 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 699.28 | Flow Area (m2) | 3.64 | | | |
| E.G. Slope (m/m) | 0.007809 | Area (m2) | 3.64 | | | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | 2.89 | | | |
| Top Width (m) | 14.17 | Top Width (m) | 14.17 | | | |
| Vel Total (m/s) | 0.79 | Avg. Vel. (m/s) | 0.79 | | | |
| Max Chl Dpth (m) | 0.41 | Hydr. Depth (m) | 0.26 | | | |
| Conv. Total (m3/s) | 32.7 | Conv. (m3/s) | 32.7 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 14.21 | | | |
| Min Ch El (m) | 699.00 | Shear (N/m2) | 19.63 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 15.56 | | | |
| Frctn Loss (m) | 0.30 | Cum Volume (1000 m3) | 10.27 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 45.21 | | | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1140.0

INPUT

Description:

| Station Elevation Data | | num= 15 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -93.23 | 705 | -79.63 | 704 |
| -23.28 | 700 | -2.59 | 699 |
| 36.28 | 701 | 48.46 | 702 |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -93.23 | -93.23 | .045 | 80.83 |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -93.23 | 80.83 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 698.99 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 698.97 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 698.97 | Flow Area (m2) | 0.68 | | | |
| E.G. Slope (m/m) | 0.053736 | Area (m2) | 0.68 | | | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | 0.47 | | | |
| Top Width (m) | 13.95 | Top Width (m) | 13.95 | | | |
| Vel Total (m/s) | 0.69 | Avg. Vel. (m/s) | 0.69 | | | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | 0.05 | | | |
| Conv. Total (m3/s) | 2.0 | Conv. (m3/s) | 2.0 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 13.96 | | | |
| Min Ch El (m) | 698.87 | Shear (N/m2) | 25.76 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 17.74 | | | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | 2.82 | | | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 27.29 | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 699.13 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 699.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 699.07 | Flow Area (m2) | 2.57 | | | |
| E.G. Slope (m/m) | 0.040881 | Area (m2) | 2.57 | | | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | 2.89 | | | |
| Top Width (m) | 20.56 | Top Width (m) | 20.56 | | | |
| Vel Total (m/s) | 1.12 | Avg. Vel. (m/s) | 1.12 | | | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | 0.12 | | | |
| Conv. Total (m3/s) | 14.3 | Conv. (m3/s) | 14.3 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 20.57 | | | |
| Min Ch El (m) | 698.87 | Shear (N/m2) | 50.09 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 56.24 | | | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | 10.21 | | | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 44.86 | | | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1160.0

INPUT

Description:

| Station Elevation Data | | num= 13 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|---------|--------|--------|------|--------|------|--------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -87.87 | 704 | -74.73 | 703 | -61.32 | 702 | -47.79 | 701 | -33.63 | 700 | | |
| -10.28 | 699 | 0 | 698.49 | 9.32 | 698 | 16.77 | 698 | 23.46 | 699 | | |
| 45.07 | 700 | 57.03 | 701 | 70.41 | 702 | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -87.87 | | -87.87 | .045 | 70.41 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -87.87 | 70.41 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 698.18 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 698.18 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 698.07 | Flow Area (m2) | | 1.71 | |
| E.G. Slope (m/m) | 0.002049 | Area (m2) | | 1.71 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 11.98 | Top Width (m) | | 11.98 | |
| Vel Total (m/s) | 0.27 | Avg. Vel. (m/s) | | 0.27 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 10.4 | Conv. (m3/s) | | 10.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.00 | |
| Min Ch El (m) | 698.00 | Shear (N/m2) | | 2.87 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.79 | |
| Frctn Loss (m) | 0.12 | Cum Volume (1000 m3) | | 2.79 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 27.03 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 698.39 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 698.37 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 698.22 | Flow Area (m2) | | 4.54 | |
| E.G. Slope (m/m) | 0.004756 | Area (m2) | | 4.54 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 17.00 | Top Width (m) | | 17.00 | |
| Vel Total (m/s) | 0.63 | Avg. Vel. (m/s) | | 0.63 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.27 | |
| Conv. Total (m3/s) | 41.8 | Conv. (m3/s) | | 41.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.04 | |
| Min Ch El (m) | 698.00 | Shear (N/m2) | | 12.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.90 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 10.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 44.49 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1180.0

INPUT

Description:

| Station Elevation Data | | num= 11 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|---------|--------|--------|------|--------|------|--------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.11 | 704 | -78.01 | 703 | -65.91 | 702 | -53.81 | 701 | -41.71 | 700 | | |
| -20.34 | 699 | 0 | 698.11 | 2.48 | 698 | 23.32 | 698 | 42 | 699 | | |
| 84.47 | 700 | | | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -90.11 | | -90.11 | .045 | 84.47 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.11 | 84.47 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 698.06 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 698.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 698.03 | Flow Area (m2) | | 0.73 | |
| E.G. Slope (m/m) | 0.081264 | Area (m2) | | 0.73 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 22.23 | Top Width (m) | | 22.23 | |
| Vel Total (m/s) | 0.65 | Avg. Vel. (m/s) | | 0.65 | |
| Max Chl Dpth (m) | 0.03 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.23 | |
| Min Ch El (m) | 698.00 | Shear (N/m2) | | 26.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 16.84 | |
| Frctn Loss (m) | 0.13 | Cum Volume (1000 m3) | | 2.77 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 26.69 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 698.17 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 698.12 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 698.12 | Flow Area (m2) | | 2.80 | |
| E.G. Slope (m/m) | 0.041718 | Area (m2) | | 2.80 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 25.79 | Top Width (m) | | 25.79 | |
| Vel Total (m/s) | 1.03 | Avg. Vel. (m/s) | | 1.03 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 14.1 | Conv. (m3/s) | | 14.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 25.79 | |
| Min Ch El (m) | 698.00 | Shear (N/m2) | | 44.35 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 45.77 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 10.07 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 44.06 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -1200.0

INPUT

Description:

| Station Elevation Data | | num= 15 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -97.29 | 706 | -85.28 | 705 |
| -43.28 | 701 | -36.59 | 700 |
| 15.18 | 697 | 22.16 | 697 |

Manning's n Values

| num= 3 | |
|-----------|-----------|
| Sta n Val | Sta n Val |
| -97.29 | -97.29 |
| | .045 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -97.29 | 98.88 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 697.18 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 697.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 697.07 | Flow Area (m2) | | 1.75 | |
| E.G. Slope (m/m) | 0.002200 | Area (m2) | | 1.75 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 13.30 | Top Width (m) | | 13.30 | |
| Vel Total (m/s) | 0.27 | Avg. Vel. (m/s) | | 0.27 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 10.0 | Conv. (m3/s) | | 10.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.31 | |
| Min Ch El (m) | 697.00 | Shear (N/m2) | | 2.83 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.76 | |
| Frctn Loss (m) | 0.12 | Cum Volume (1000 m3) | | 2.74 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 26.34 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 697.38 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 697.36 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 697.21 | Flow Area (m2) | | 4.92 | |
| E.G. Slope (m/m) | 0.004611 | Area (m2) | | 4.92 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 20.23 | Top Width (m) | | 20.23 | |
| Vel Total (m/s) | 0.59 | Avg. Vel. (m/s) | | 0.59 | |
| Max Chl Dpth (m) | 0.36 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 42.5 | Conv. (m3/s) | | 42.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.26 | |
| Min Ch El (m) | 697.00 | Shear (N/m2) | | 10.97 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.44 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 9.99 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 43.60 | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -1220.0

INPUT

Description:

| Station Elevation Data | | num= 21 | |
|------------------------|--------|---------|------|
| Sta | Elev | Sta | Elev |
| -95.71 | 711 | -82.39 | 710 |
| -60.91 | 706 | -55.54 | 705 |
| -31.99 | 701 | -26.1 | 700 |
| .02 | 697.02 | .9 | 697 |
| 94.18 | 700 | | |

Manning's n Values

| num= 3 | |
|-----------|-----------|
| Sta n Val | Sta n Val |
| -95.71 | -95.71 |
| | .045 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.71 | 94.18 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 697.05 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 697.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 697.04 | Flow Area (m2) | | 0.83 | |
| E.G. Slope (m/m) | 0.057684 | Area (m2) | | 0.83 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 24.01 | Top Width (m) | | 24.01 | |
| Vel Total (m/s) | 0.57 | Avg. Vel. (m/s) | | 0.57 | |
| Max Chl Dpth (m) | 0.04 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 2.0 | Conv. (m3/s) | | 2.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.01 | |
| Min Ch El (m) | 697.00 | Shear (N/m2) | | 19.55 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.07 | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | | 2.72 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 25.96 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 697.17 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 697.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 697.11 | Flow Area (m2) | | 2.83 | |
| E.G. Slope (m/m) | 0.041923 | Area (m2) | | 2.83 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 26.76 | Top Width (m) | | 26.76 | |
| Vel Total (m/s) | 1.02 | Avg. Vel. (m/s) | | 1.02 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 14.1 | Conv. (m3/s) | | 14.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.76 | |
| Min Ch El (m) | 697.00 | Shear (N/m2) | | 43.53 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 44.33 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 9.91 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 43.13 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1240.0

INPUT

Description:

| Station Elevation Data | | num= 22 | | | | | | | | | |
|------------------------|--------|---------|--------|--------|------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -96.86 | 711 | -83.44 | 710 | -78.31 | 709 | -73.05 | 708 | -67.9 | 707 | | |
| -62.61 | 706 | -57.27 | 705 | -51.27 | 704 | -45.4 | 703 | -39.55 | 702 | | |
| -33.71 | 701 | -27.87 | 700 | -19.43 | 699 | -11.5 | 698 | -7.26 | 697 | | |
| -0.1 | 696.52 | 0 | 696.52 | 9.3 | 696 | 16.89 | 696 | 40.55 | 697 | | |
| 68.82 | 698 | 85.99 | 699 | | | | | | | | |

Manning's n Values

| num= 3 | | | | | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -96.86 | | -96.86 | .045 | 85.99 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -96.86 | 85.99 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 696.17 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 696.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 696.07 | Flow Area (m2) | | 1.86 | |
| E.G. Slope (m/m) | 0.002005 | Area (m2) | | 1.86 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 14.57 | Top Width (m) | | 14.57 | |
| Vel Total (m/s) | 0.25 | Avg. Vel. (m/s) | | 0.25 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 10.5 | Conv. (m3/s) | | 10.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.58 | |
| Min Ch El (m) | 696.00 | Shear (N/m2) | | 2.51 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.63 | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | | 2.69 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 25.58 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 696.37 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 696.35 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 696.20 | Flow Area (m2) | | 5.27 | |
| E.G. Slope (m/m) | 0.004161 | Area (m2) | | 5.27 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 22.25 | Top Width (m) | | 22.25 | |
| Vel Total (m/s) | 0.55 | Avg. Vel. (m/s) | | 0.55 | |
| Max Chl Dpth (m) | 0.35 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 44.7 | Conv. (m3/s) | | 44.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.27 | |
| Min Ch El (m) | 696.00 | Shear (N/m2) | | 9.65 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.29 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 9.83 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 42.64 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1260.0

INPUT

Description:

| Station Elevation Data | | num= 13 | | | | | | | | | |
|------------------------|------|---------|------|--------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -85.81 | 703 | -66.53 | 702 | -55.85 | 701 | -46.45 | 700 | -34.44 | 699 | | |
| -22.7 | 698 | -12.32 | 697 | 0 | 696.01 | 1.87 | 696 | 21.59 | 696 | | |
| 44.78 | 697 | 66.88 | 698 | 87.42 | 698 | | | | | | |

Manning's n Values

| num= 3 | | | | | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -85.81 | | -85.81 | .045 | 87.42 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -85.81 | 87.42 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 696.05 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 696.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 696.04 | Flow Area (m2) | | 0.81 | |
| E.G. Slope (m/m) | 0.057540 | Area (m2) | | 0.81 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 22.79 | Top Width (m) | | 22.79 | |
| Vel Total (m/s) | 0.58 | Avg. Vel. (m/s) | | 0.58 | |
| Max Chl Dpth (m) | 0.04 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 2.0 | Conv. (m3/s) | | 2.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.79 | |
| Min Ch El (m) | 696.00 | Shear (N/m2) | | 20.13 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.63 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 2.67 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 25.20 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 696.17 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 696.12 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 696.12 | Flow Area (m2) | | 2.77 | |
| E.G. Slope (m/m) | 0.042727 | Area (m2) | | 2.77 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 25.67 | Top Width (m) | | 25.67 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 14.0 | Conv. (m3/s) | | 14.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 25.68 | |
| Min Ch El (m) | 696.00 | Shear (N/m2) | | 45.22 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 47.09 | |
| Frctn Loss (m) | 0.31 | Cum Volume (1000 m3) | | 9.75 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 42.16 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1280.0

INPUT

Description:

| Station Elevation Data | | num= 11 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|-----|--------|-----|--------|-----|-------|-----|------|--|
| -85.25 | 699 | -43.35 | 698 | -29.52 | 697 | -16.46 | 696 | -6.74 | 695 | | |
| 0 | 694.89 | 7.97 | 695 | 25.75 | 696 | 45.53 | 697 | 65.13 | 698 | | |
| 84.54 | 699 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -85.25 | | -85.25 | .045 | 84.54 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -85.25 | 84.54 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 696.71 | Element | Left OB | Channel | Right OB |
|--------------------|-----------|----------------------|---------|----------|----------|
| Vel Head (m) | 1.79 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.92 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.99 | Flow Area (m2) | | 0.08 | |
| E.G. Slope (m/m) | 15.965780 | Area (m2) | | 0.08 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 4.60 | Top Width (m) | | 4.60 | |
| Vel Total (m/s) | 5.92 | Avg. Vel. (m/s) | | 5.92 | |
| Max Chl Dpth (m) | 0.03 | Hydr. Depth (m) | | 0.02 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.61 | |
| Min Ch El (m) | 694.89 | Shear (N/m2) | | 2696.87 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 15971.58 | |
| Prctn Loss (m) | 1.10 | Cum Volume (1000 m3) | | 2.66 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 24.93 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 695.22 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 695.19 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 695.10 | Flow Area (m2) | | 4.17 | |
| E.G. Slope (m/m) | 0.007852 | Area (m2) | | 4.17 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 20.03 | Top Width (m) | | 20.03 | |
| Vel Total (m/s) | 0.69 | Avg. Vel. (m/s) | | 0.69 | |
| Max Chl Dpth (m) | 0.30 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 32.6 | Conv. (m3/s) | | 32.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.05 | |
| Min Ch El (m) | 694.89 | Shear (N/m2) | | 16.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.08 | |
| Prctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 9.68 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 41.70 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1300.0

INPUT

Description:

| Station Elevation Data | | num= 17 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|--------|--------|-----|--------|-----|--------|-----|------|--|
| -88.68 | 700 | -67.49 | 699 | -48.08 | 698 | -33.55 | 697 | -21.57 | 696 | | |
| -10.28 | 695 | 0 | 694.68 | 11.53 | 695 | 23.74 | 696 | 35.69 | 697 | | |
| 47.61 | 698 | 59.54 | 699 | 71.46 | 700 | 78.27 | 701 | 85.08 | 702 | | |
| 91.65 | 703 | 98.03 | 704 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -88.68 | | -88.68 | .045 | 98.03 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -88.68 | 98.03 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 694.87 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.86 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.81 | Flow Area (m2) | | 1.11 | |
| E.G. Slope (m/m) | 0.008957 | Area (m2) | | 1.11 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 12.30 | Top Width (m) | | 12.30 | |
| Vel Total (m/s) | 0.42 | Avg. Vel. (m/s) | | 0.42 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 5.0 | Conv. (m3/s) | | 5.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.31 | |
| Min Ch El (m) | 694.68 | Shear (N/m2) | | 7.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.35 | |
| Prctn Loss (m) | 0.23 | Cum Volume (1000 m3) | | 2.64 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 24.76 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 695.07 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 695.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 695.00 | Flow Area (m2) | | 4.52 | |
| E.G. Slope (m/m) | 0.007203 | Area (m2) | | 4.52 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 22.89 | Top Width (m) | | 22.89 | |
| Vel Total (m/s) | 0.64 | Avg. Vel. (m/s) | | 0.64 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 34.0 | Conv. (m3/s) | | 34.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.90 | |
| Min Ch El (m) | 694.68 | Shear (N/m2) | | 13.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.90 | |
| Prctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 9.59 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 41.27 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1320.0

INPUT

Description:

| Station Elevation Data | | num= 15 | | Elev | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|------|--------|------|--------|------|--------|--------|-----|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.03 | 703 | -87.89 | 702 | -80.75 | 701 | -74.36 | 700 | -61.64 | 699 | | | | |
| -49 | 698 | -37.17 | 697 | -25.7 | 696 | -14.28 | 695 | 0 | 694.46 | | | | |
| 6.76 | 694.63 | 17.44 | 695 | 31.31 | 696 | 47.7 | 697 | 70.58 | 698 | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -95.03 | | -95.03 | .045 | 70.58 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.03 | 70.58 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 694.64 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.63 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.59 | Flow Area (m2) | | 0.91 | |
| E.G. Slope (m/m) | 0.014913 | Area (m2) | | 0.91 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 10.98 | Top Width (m) | | 10.98 | |
| Vel Total (m/s) | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 3.8 | Conv. (m3/s) | | 3.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.98 | |
| Min Ch El (m) | 694.46 | Shear (N/m2) | | 12.12 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.25 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 2.62 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 24.53 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 694.81 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.75 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.73 | Flow Area (m2) | | 2.74 | |
| E.G. Slope (m/m) | 0.027662 | Area (m2) | | 2.74 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 18.00 | Top Width (m) | | 18.00 | |
| Vel Total (m/s) | 1.05 | Avg. Vel. (m/s) | | 1.05 | |
| Max Chl Dpth (m) | 0.29 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 17.4 | Conv. (m3/s) | | 17.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.01 | |
| Min Ch El (m) | 694.46 | Shear (N/m2) | | 41.27 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 43.48 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 9.52 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 40.87 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1340.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Elev | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|--------|--------|------|--------|------|--------|------|-----|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.88 | 704 | -89.78 | 703 | -83.67 | 702 | -77.57 | 701 | -71.47 | 700 | | | | |
| -59.32 | 699 | -47.17 | 698 | -35.03 | 697 | -22.83 | 696 | -10.55 | 695 | | | | |
| 0 | 694.24 | 16.18 | 694.22 | 65.85 | 695 | 78.69 | 696 | 87.52 | 697 | | | | |
| 96.71 | 698 | | | | | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -95.88 | | -95.88 | .045 | 96.71 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.88 | 96.71 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 694.30 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.29 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.27 | Flow Area (m2) | | 1.09 | |
| E.G. Slope (m/m) | 0.019615 | Area (m2) | | 1.09 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 21.13 | Top Width (m) | | 21.13 | |
| Vel Total (m/s) | 0.43 | Avg. Vel. (m/s) | | 0.43 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 3.4 | Conv. (m3/s) | | 3.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.13 | |
| Min Ch El (m) | 694.22 | Shear (N/m2) | | 9.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.28 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 2.60 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 24.21 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 694.43 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.41 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.36 | Flow Area (m2) | | 4.25 | |
| E.G. Slope (m/m) | 0.012967 | Area (m2) | | 4.25 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 30.61 | Top Width (m) | | 30.61 | |
| Vel Total (m/s) | 0.68 | Avg. Vel. (m/s) | | 0.68 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 25.3 | Conv. (m3/s) | | 25.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.62 | |
| Min Ch El (m) | 694.22 | Shear (N/m2) | | 17.66 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.99 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 9.45 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 40.38 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -1360.0

INPUT

Description:

| Station Elevation Data | | num= 13 | | | | | | | | | |
|------------------------|--------|---------|--------|--------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -99.37 | 699 | -77.81 | 698 | -59.81 | 697 | -43.26 | 696 | -24.89 | 695 | | |
| -15.58 | 694.77 | 0 | 694.02 | .01 | 694.02 | 9.58 | 694 | 19.01 | 694 | | |
| 20.12 | 694.04 | 54.57 | 695 | 70.65 | 696 | | | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -99.37 | | -99.37 | .045 | 70.65 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.37 | 70.65 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 694.09 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.04 | Flow Area (m2) | | 1.57 | |
| E.G. Slope (m/m) | 0.006429 | Area (m2) | | 1.57 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 22.84 | Top Width (m) | | 22.84 | |
| Vel Total (m/s) | 0.30 | Avg. Vel. (m/s) | | 0.30 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 5.9 | Conv. (m3/s) | | 5.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.84 | |
| Min Ch El (m) | 694.00 | Shear (N/m2) | | 4.34 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.30 | |
| Frctn Loss (m) | 0.30 | Cum Volume (1000 m3) | | 2.58 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 23.77 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 694.22 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.20 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.13 | Flow Area (m2) | | 4.71 | |
| E.G. Slope (m/m) | 0.008832 | Area (m2) | | 4.71 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 29.62 | Top Width (m) | | 29.62 | |
| Vel Total (m/s) | 0.61 | Avg. Vel. (m/s) | | 0.61 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.16 | |
| Conv. Total (m3/s) | 30.7 | Conv. (m3/s) | | 30.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.62 | |
| Min Ch El (m) | 694.00 | Shear (N/m2) | | 13.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.44 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 9.36 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 39.78 | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -1380.0

INPUT

Description:

| Station Elevation Data | | num= 12 | | | | | | | | | |
|------------------------|--------|---------|--------|--------|------|--------|------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.36 | 697 | -74.18 | 696 | -60.71 | 695 | -33.81 | 694 | -17.83 | 693.77 | | |
| 0 | 693.69 | 16.67 | 693.85 | 19.46 | 694 | 52.36 | 695 | 65.84 | 696 | | |
| 78.6 | 697 | 96.19 | 698 | | | | | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -88.36 | | -88.36 | .045 | 96.19 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -88.36 | 96.19 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 693.78 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 693.76 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 693.76 | Flow Area (m2) | | 0.76 | |
| E.G. Slope (m/m) | 0.070288 | Area (m2) | | 0.76 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 22.30 | Top Width (m) | | 22.30 | |
| Vel Total (m/s) | 0.62 | Avg. Vel. (m/s) | | 0.62 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.30 | |
| Min Ch El (m) | 693.69 | Shear (N/m2) | | 23.47 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.52 | |
| Frctn Loss (m) | 0.56 | Cum Volume (1000 m3) | | 2.55 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 23.32 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 693.88 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 693.84 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 693.84 | Flow Area (m2) | | 3.19 | |
| E.G. Slope (m/m) | 0.044767 | Area (m2) | | 3.19 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 37.80 | Top Width (m) | | 37.80 | |
| Vel Total (m/s) | 0.90 | Avg. Vel. (m/s) | | 0.90 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 13.6 | Conv. (m3/s) | | 13.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 37.80 | |
| Min Ch El (m) | 693.69 | Shear (N/m2) | | 37.05 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.51 | |
| Frctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 9.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 39.10 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1400.0

INPUT

Description:

| Station Elevation Data | | num= 12 | | | | | | | | | | | |
|------------------------|------|---------|--------|--------|--------|--------|------|--------|--------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -93.97 | 696 | -78.75 | 695 | -63.93 | 694 | -27.12 | 693 | -19.35 | 692.87 | | | | |
| -5.73 | 693 | 0 | 693.35 | 11.3 | 693.56 | 24.41 | 694 | 55.86 | 695 | | | | |
| 66.27 | 696 | 93.03 | 697 | | | | | | | | | | |

Manning's n Values

| num= 3 | | | | | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -93.97 | | -93.97 | .045 | 93.03 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -93.97 | 93.03 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 693.00 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 692.99 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 692.96 | Flow Area (m2) | | 1.14 | |
| E.G. Slope (m/m) | 0.014934 | Area (m2) | | 1.14 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 19.40 | Top Width (m) | | 19.40 | |
| Vel Total (m/s) | 0.41 | Avg. Vel. (m/s) | | 0.41 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 3.8 | Conv. (m3/s) | | 3.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.41 | |
| Min Ch El (m) | 692.87 | Shear (N/m2) | | 8.62 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.55 | |
| Prctn Loss (m) | 0.31 | Cum Volume (1000 m3) | | 2.54 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 22.90 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 693.14 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 693.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 693.06 | Flow Area (m2) | | 4.03 | |
| E.G. Slope (m/m) | 0.013189 | Area (m2) | | 4.03 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 27.18 | Top Width (m) | | 27.18 | |
| Vel Total (m/s) | 0.72 | Avg. Vel. (m/s) | | 0.72 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 25.1 | Conv. (m3/s) | | 25.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 27.19 | |
| Min Ch El (m) | 692.87 | Shear (N/m2) | | 19.19 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 13.73 | |
| Prctn Loss (m) | 0.28 | Cum Volume (1000 m3) | | 9.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 38.45 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1420.0

INPUT

Description:

| Station Elevation Data | | num= 18 | | | | | | | | | | | |
|------------------------|--------|---------|------|--------|--------|--------|--------|--------|--------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -99.95 | 697 | -87.26 | 696 | -74.01 | 695 | -64.04 | 694 | -39.54 | 693 | | | | |
| -24.66 | 692.52 | -.74 | 693 | -.02 | 693.02 | 0 | 693.02 | 8.74 | 693.23 | | | | |
| 29.57 | 694 | 35.94 | 695 | 45.69 | 696 | 54.03 | 697 | 62.32 | 698 | | | | |
| 71.15 | 699 | 79.2 | 700 | 90.39 | 701 | | | | | | | | |

Manning's n Values

| num= 3 | | | | | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -99.95 | | -99.95 | .045 | 90.39 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.95 | 90.39 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 692.68 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 692.67 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.93 | |
| E.G. Slope (m/m) | 0.015959 | Area (m2) | | 0.93 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 12.28 | Top Width (m) | | 12.28 | |
| Vel Total (m/s) | 0.50 | Avg. Vel. (m/s) | | 0.50 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 3.7 | Conv. (m3/s) | | 3.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.29 | |
| Min Ch El (m) | 692.52 | Shear (N/m2) | | 11.89 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.98 | |
| Prctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 2.51 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 22.58 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 692.86 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 692.83 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.76 | |
| E.G. Slope (m/m) | 0.014647 | Area (m2) | | 3.76 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 24.65 | Top Width (m) | | 24.65 | |
| Vel Total (m/s) | 0.77 | Avg. Vel. (m/s) | | 0.77 | |
| Max Chl Dpth (m) | 0.31 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 23.8 | Conv. (m3/s) | | 23.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.66 | |
| Min Ch El (m) | 692.52 | Shear (N/m2) | | 21.90 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 16.81 | |
| Prctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 9.13 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 37.93 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1440.0

INPUT

Description:

| Station Elevation Data | | num= 14 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|--------|--------|--------|--------|------|--------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.22 | 697 | -83.72 | 696 | -72.38 | 695 | -64.36 | 694 | -45.92 | 693 | | |
| -25.24 | 692.22 | -0.1 | 692.51 | 0 | 692.51 | 13.57 | 693 | 19.34 | 694 | | |
| 29.26 | 695 | 40.16 | 696 | 52.79 | 697 | 68.81 | 698 | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -95.22 | | -95.22 | .045 | 68.81 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.22 | 68.81 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 692.36 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 692.35 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 692.33 | Flow Area (m2) | | | 1.02 | |
| E.G. Slope (m/m) | 0.015747 | Area (m2) | | | 1.02 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | | 0.47 | |
| Top Width (m) | 15.23 | Top Width (m) | | | 15.23 | |
| Vel Total (m/s) | 0.46 | Avg. Vel. (m/s) | | | 0.46 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | | 0.07 | |
| Conv. Total (m3/s) | 3.7 | Conv. (m3/s) | | | 3.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 15.23 | |
| Min Ch El (m) | 692.22 | Shear (N/m2) | | | 10.35 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 4.76 | |
| Frctn Loss (m) | 0.31 | Cum Volume (1000 m3) | | | 2.50 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | 22.31 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 692.50 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 692.47 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 692.44 | Flow Area (m2) | | | 3.56 | |
| E.G. Slope (m/m) | 0.021216 | Area (m2) | | | 3.56 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | | 2.89 | |
| Top Width (m) | 28.44 | Top Width (m) | | | 28.44 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | | 0.81 | |
| Max Chl Dpth (m) | 0.25 | Hydr. Depth (m) | | | 0.13 | |
| Conv. Total (m3/s) | 19.8 | Conv. (m3/s) | | | 19.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 28.45 | |
| Min Ch El (m) | 692.22 | Shear (N/m2) | | | 26.05 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 21.10 | |
| Frctn Loss (m) | 0.33 | Cum Volume (1000 m3) | | | 9.06 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | 37.40 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1460.0

INPUT

Description:

| Station Elevation Data | | num= 12 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|---------|------|--------|------|--------|------|--------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -85.38 | 696 | -72.7 | 695 | -65.22 | 694 | -48.29 | 693 | -27.17 | 692 | | |
| -69.6 | 692 | 0 | 692 | 13.39 | 693 | 29.38 | 694 | 59.08 | 695 | | |
| 74.4 | 696 | 88.05 | 697 | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -85.38 | | -85.38 | .045 | 88.05 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -85.38 | 88.05 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 692.05 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 692.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 692.03 | Flow Area (m2) | | | 1.33 | |
| E.G. Slope (m/m) | 0.015384 | Area (m2) | | | 1.33 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | | 0.47 | |
| Top Width (m) | 28.81 | Top Width (m) | | | 28.81 | |
| Vel Total (m/s) | 0.35 | Avg. Vel. (m/s) | | | 0.35 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | | 0.05 | |
| Conv. Total (m3/s) | 3.8 | Conv. (m3/s) | | | 3.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 28.81 | |
| Min Ch El (m) | 692.00 | Shear (N/m2) | | | 6.95 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 2.46 | |
| Frctn Loss (m) | 0.50 | Cum Volume (1000 m3) | | | 2.47 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | 21.87 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 692.17 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 692.14 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 692.10 | Flow Area (m2) | | | 4.28 | |
| E.G. Slope (m/m) | 0.013554 | Area (m2) | | | 4.28 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | | 2.89 | |
| Top Width (m) | 32.15 | Top Width (m) | | | 32.15 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | | 0.67 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | | 0.13 | |
| Conv. Total (m3/s) | 24.8 | Conv. (m3/s) | | | 24.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 32.16 | |
| Min Ch El (m) | 692.00 | Shear (N/m2) | | | 17.69 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 11.93 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | | 8.98 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | 36.80 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1480.0

INPUT

Description:

| Station Elevation Data | | num= 10 | |
|------------------------|--------|---------|------|
| Sta | Elev | Sta | Elev |
| -82.67 | 696 | -69.96 | 695 |
| 0 | 691.38 | 14.11 | 692 |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -82.67 | -82.67 | .045 | 77.27 |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|--------------|-------|-------|--------|--------|
| -82.67 | 77.27 | | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 691.55 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 691.52 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 691.52 | Flow Area (m2) | | 0.58 | |
| E.G. Slope (m/m) | 0.048193 | Area (m2) | | 0.58 | |
| Q Total (m3/s) | 0.47 | Flow (m3/s) | | 0.47 | |
| Top Width (m) | 8.52 | Top Width (m) | | 8.52 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.1 | Conv. (m3/s) | | 2.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.52 | |
| Min Ch El (m) | 691.38 | Shear (N/m2) | | 32.09 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 26.06 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 2.45 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 21.49 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 691.73 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 691.66 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 691.66 | Flow Area (m2) | | 2.43 | |
| E.G. Slope (m/m) | 0.039556 | Area (m2) | | 2.43 | |
| Q Total (m3/s) | 2.89 | Flow (m3/s) | | 2.89 | |
| Top Width (m) | 17.46 | Top Width (m) | | 17.46 | |
| Vel Total (m/s) | 1.19 | Avg. Vel. (m/s) | | 1.19 | |
| Max Chl Dpth (m) | 0.28 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 14.5 | Conv. (m3/s) | | 14.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.47 | |
| Min Ch El (m) | 691.38 | Shear (N/m2) | | 53.99 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 64.09 | |
| Frctn Loss (m) | 0.33 | Cum Volume (1000 m3) | | 8.91 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 36.30 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1500.0

INPUT

Description:

| Station Elevation Data | | num= 13 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -91.04 | 698 | -81.92 | 697 |
| -33.75 | 693 | -20.23 | 692 |
| 34.94 | 692 | 50.44 | 693 |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -91.04 | -91.04 | .045 | 68.1 |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -91.04 | 68.1 | | 20 | 20 | 20 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 691.00 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 690.99 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 690.95 | Flow Area (m2) | | 1.46 | |
| E.G. Slope (m/m) | 0.011919 | Area (m2) | | 1.46 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 16.42 | Top Width (m) | | 16.42 | |
| Vel Total (m/s) | 0.48 | Avg. Vel. (m/s) | | 0.48 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 6.5 | Conv. (m3/s) | | 6.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.43 | |
| Min Ch El (m) | 690.81 | Shear (N/m2) | | 10.38 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.01 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | 2.43 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 21.24 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 691.20 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 691.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 691.09 | Flow Area (m2) | | 5.16 | |
| E.G. Slope (m/m) | 0.011017 | Area (m2) | | 5.16 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 23.89 | Top Width (m) | | 23.89 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | 0.84 | |
| Max Chl Dpth (m) | 0.36 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 41.2 | Conv. (m3/s) | | 41.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.91 | |
| Min Ch El (m) | 690.81 | Shear (N/m2) | | 23.31 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 19.56 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 8.84 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 35.89 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1520.0

INPUT

Description:

| Station Elevation Data | | num= 17 | |
|------------------------|--------|---------|------|
| Sta | Elev | Sta | Elev |
| -96.56 | 699 | -88.36 | 698 |
| -48.32 | 694 | -35.08 | 693 |
| .01 | 690.34 | 18.72 | 691 |
| 79.46 | 695 | 92.29 | 696 |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -96.56 | -96.56 | .045 | 92.29 |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -96.56 | 92.29 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 690.58 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.95 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 690.53 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 690.53 | Flow Area (m2) | 0.72 | | | |
| E.G. Slope (m/m) | 0.044496 | Area (m2) | 0.72 | | | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | 0.70 | | | |
| Top Width (m) | 7.57 | Top Width (m) | 7.57 | | | |
| Vel Total (m/s) | 0.98 | Avg. Vel. (m/s) | 0.98 | | | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | 0.10 | | | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | 3.3 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 7.58 | | | |
| Min Ch El (m) | 690.34 | Shear (N/m2) | 41.50 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 40.54 | | | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | 2.41 | | | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 21.00 | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 690.83 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.10 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 690.73 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 690.73 | Flow Area (m2) | 3.07 | | | |
| E.G. Slope (m/m) | 0.035430 | Area (m2) | 3.07 | | | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | 4.33 | | | |
| Top Width (m) | 15.61 | Top Width (m) | 15.61 | | | |
| Vel Total (m/s) | 1.41 | Avg. Vel. (m/s) | 1.41 | | | |
| Max Chl Dpth (m) | 0.39 | Hydr. Depth (m) | 0.20 | | | |
| Conv. Total (m3/s) | 23.0 | Conv. (m3/s) | 23.0 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 15.64 | | | |
| Min Ch El (m) | 690.34 | Shear (N/m2) | 68.13 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 96.19 | | | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | 8.76 | | | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | 35.49 | | | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1540.0

INPUT

Description:

| Station Elevation Data | | num= 15 | |
|------------------------|------|---------|--------|
| Sta | Elev | Sta | Elev |
| -94.55 | 695 | -72.35 | 694 |
| -4.51 | 690 | 0 | 689.94 |
| 35.64 | 692 | 50.75 | 693 |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -94.55 | -94.55 | .045 | 97.44 |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -94.55 | 97.44 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 690.12 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 690.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 690.04 | Flow Area (m2) | 1.85 | | | |
| E.G. Slope (m/m) | 0.004845 | Area (m2) | 1.85 | | | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | 0.70 | | | |
| Top Width (m) | 15.13 | Top Width (m) | 15.13 | | | |
| Vel Total (m/s) | 0.38 | Avg. Vel. (m/s) | 0.38 | | | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | 0.12 | | | |
| Conv. Total (m3/s) | 10.1 | Conv. (m3/s) | 10.1 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 15.14 | | | |
| Min Ch El (m) | 689.94 | Shear (N/m2) | 5.81 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 2.21 | | | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | 2.38 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 20.78 | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 690.38 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 690.35 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 690.19 | Flow Area (m2) | 6.34 | | | |
| E.G. Slope (m/m) | 0.005036 | Area (m2) | 6.34 | | | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | 4.33 | | | |
| Top Width (m) | 22.27 | Top Width (m) | 22.27 | | | |
| Vel Total (m/s) | 0.68 | Avg. Vel. (m/s) | 0.68 | | | |
| Max Chl Dpth (m) | 0.41 | Hydr. Depth (m) | 0.28 | | | |
| Conv. Total (m3/s) | 61.0 | Conv. (m3/s) | 61.0 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 22.29 | | | |
| Min Ch El (m) | 689.94 | Shear (N/m2) | 14.06 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 9.59 | | | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | 8.66 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 35.11 | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION

| | | | | | | | | | |
|--------|-----|--------|-----|--------|--------|--------|-----|--------|-----|
| -95.71 | 696 | -87.5 | 695 | -73.12 | 694 | -58.74 | 693 | -43.66 | 692 |
| -28.17 | 691 | -12.68 | 690 | 0 | 689.48 | 11.2 | 690 | 26.36 | 691 |
| 41.39 | 692 | 56.22 | 693 | 71.06 | 694 | 85.89 | 695 | 92.13 | 696 |
| 98.37 | 697 | | | | | | | | |

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1560.0

INPUT

Description:

| | | | | | | | | | |
|------------------------|--------|--------|--------|--------|------|--------|------|-------|------|
| Station Elevation Data | | num= | 14 | | | | | | |
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.47 | 694 | -69.87 | 693 | -44.97 | 692 | -20.27 | 691 | -4.33 | 690 |
| -0.1 | 689.71 | 0 | 689.71 | 8.14 | 690 | 21.69 | 691 | 35.23 | 692 |
| 49.91 | 693 | 65.88 | 694 | 82.27 | 695 | 95.24 | 696 | | |

| | | | | | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|-----|-------|
| Manning's n Values | | num= | 3 | | | | | | |
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -88.47 | | -88.47 | .045 | 95.24 | | | | | |

| | | | | | | |
|----------------|-------|---------------|---------|-------|--------------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
| -88.47 | 95.24 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.96 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.94 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 689.90 | Flow Area (m2) | | 1.11 | |
| E.G. Slope (m/m) | 0.014755 | Area (m2) | | 1.11 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 9.77 | Top Width (m) | | 9.77 | |
| Vel Total (m/s) | 0.63 | Avg. Vel. (m/s) | | 0.63 | |
| Max Chl Dpth (m) | 0.23 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 5.8 | Conv. (m3/s) | | 5.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.79 | |
| Min Ch El (m) | 689.71 | Shear (N/m2) | | 16.45 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 10.42 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 2.36 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 20.53 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 690.22 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 690.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 4.27 | |
| E.G. Slope (m/m) | 0.013489 | Area (m2) | | 4.27 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 17.34 | Top Width (m) | | 17.34 | |
| Vel Total (m/s) | 1.01 | Avg. Vel. (m/s) | | 1.01 | |
| Max Chl Dpth (m) | 0.46 | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 37.3 | Conv. (m3/s) | | 37.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.37 | |
| Min Ch El (m) | 689.71 | Shear (N/m2) | | 32.54 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.97 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 8.56 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 34.72 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1580.0

INPUT

Description:

| | | | | | | | | | |
|------------------------|------|--------|--------|--------|--------|--------|------|--------|------|
| Station Elevation Data | | num= | 16 | | | | | | |
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -94.16 | 695 | -80.97 | 694 | -67.83 | 693 | -55.61 | 692 | -41.02 | 691 |
| -26.42 | 690 | -15.48 | 689.72 | 0 | 689.25 | 13.74 | 690 | 28.17 | 691 |
| 42.63 | 692 | 57.8 | 693 | 72.97 | 694 | 87.9 | 695 | 94.1 | 696 |
| 99.43 | 697 | | | | | | | | |

| | | | | | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|-----|-------|
| Manning's n Values | | num= | 3 | | | | | | |
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -95.71 | | -95.71 | .045 | 98.37 | | | | | |

| | | | | | | |
|----------------|-------|---------------|---------|-------|--------------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
| -95.71 | 98.37 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.74 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.73 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 689.66 | Flow Area (m2) | | 1.40 | |
| E.G. Slope (m/m) | 0.008342 | Area (m2) | | 1.40 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 11.34 | Top Width (m) | | 11.34 | |
| Vel Total (m/s) | 0.50 | Avg. Vel. (m/s) | | 0.50 | |
| Max Chl Dpth (m) | 0.25 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 7.7 | Conv. (m3/s) | | 7.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.35 | |
| Min Ch El (m) | 689.48 | Shear (N/m2) | | 10.10 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.08 | |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | | 2.33 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 20.32 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.99 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.96 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 5.28 | |
| E.G. Slope (m/m) | 0.009139 | Area (m2) | | 5.28 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 22.02 | Top Width (m) | | 22.02 | |
| Vel Total (m/s) | 0.82 | Avg. Vel. (m/s) | | 0.82 | |
| Max Chl Dpth (m) | 0.48 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 45.3 | Conv. (m3/s) | | 45.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.04 | |
| Min Ch El (m) | 689.48 | Shear (N/m2) | | 21.48 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.60 | |
| Frctn Loss (m) | 0.29 | Cum Volume (1000 m3) | | 8.46 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 34.32 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1600.0

INPUT

Description:

| | | | | | | | | | |
|------------------------|------|--------|--------|--------|--------|--------|------|--------|------|
| Station Elevation Data | | num= | 16 | | | | | | |
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -94.16 | 695 | -80.97 | 694 | -67.83 | 693 | -55.61 | 692 | -41.02 | 691 |
| -26.42 | 690 | -15.48 | 689.72 | 0 | 689.25 | 13.74 | 690 | 28.17 | 691 |
| 42.63 | 692 | 57.8 | 693 | 72.97 | 694 | 87.9 | 695 | 94.1 | 696 |
| 99.43 | 697 | | | | | | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-94.16 -94.16 .045 99.43

Bank Sta: Left Right Lengths: Left Channel Right
-94.16 99.43 20 20 20
Coeff Contr. Expan.
.1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.47 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.44 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 689.42 | Flow Area (m2) | | 0.96 | |
| E.G. Slope (m/m) | 0.024735 | Area (m2) | | 0.96 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 9.91 | Top Width (m) | | 9.91 | |
| Vel Total (m/s) | 0.74 | Avg. Vel. (m/s) | | 0.74 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 4.5 | Conv. (m3/s) | | 4.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.92 | |
| Min Ch El (m) | 689.25 | Shear (N/m2) | | 23.43 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.24 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 2.31 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 20.10 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.70 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.63 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 689.61 | Flow Area (m2) | | 3.62 | |
| E.G. Slope (m/m) | 0.026867 | Area (m2) | | 3.62 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 19.27 | Top Width (m) | | 19.27 | |
| Vel Total (m/s) | 1.19 | Avg. Vel. (m/s) | | 1.19 | |
| Max Chl Dpth (m) | 0.38 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 26.4 | Conv. (m3/s) | | 26.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.29 | |
| Min Ch El (m) | 689.25 | Shear (N/m2) | | 49.49 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 59.13 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 8.37 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 33.91 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1620.0

INPUT

Description:

| |
|--|
| Station Elevation Data num= 17 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev |
| -95.64 695 -85.07 694 -73.23 693 -61.38 692 -49.54 691 |
| -37.69 690 -14.53 689.35 0 689.02 8.28 689 10.91 689 |
| 26.11 690 40.93 691 54.47 692 67.17 693 80.72 694 |
| 93.28 695 98.99 696 |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-95.64 -95.64 .045 98.99

Bank Sta: Left Right Lengths: Left Channel Right
-95.64 98.99 20 20 20
Coeff Contr. Expan.
.1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.13 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 689.08 | Flow Area (m2) | | 1.46 | |
| E.G. Slope (m/m) | 0.012365 | Area (m2) | | 1.46 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 16.79 | Top Width (m) | | 16.79 | |
| Vel Total (m/s) | 0.48 | Avg. Vel. (m/s) | | 0.48 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 6.3 | Conv. (m3/s) | | 6.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.79 | |
| Min Ch El (m) | 689.00 | Shear (N/m2) | | 10.51 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.09 | |
| Frctn Loss (m) | 0.26 | Cum Volume (1000 m3) | | 2.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 19.84 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.32 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.28 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 5.06 | |
| E.G. Slope (m/m) | 0.013561 | Area (m2) | | 5.06 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 26.62 | Top Width (m) | | 26.62 | |
| Vel Total (m/s) | 0.86 | Avg. Vel. (m/s) | | 0.86 | |
| Max Chl Dpth (m) | 0.28 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 37.2 | Conv. (m3/s) | | 37.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.64 | |
| Min Ch El (m) | 689.00 | Shear (N/m2) | | 25.27 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 21.61 | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 8.29 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 33.45 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1640.0

INPUT

Description:

| |
|---|
| Station Elevation Data num= 16 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev |
| -95.7 695 -85.91 694 -76.12 693 -66.33 692 -56.54 691 |
| -45.14 690 -14.2 689 -13.49 688.98 0 688.67 12.41 689 |
| 37.57 690 49.92 691 62.21 692 73.54 693 84.83 694 |
| 95.71 695 |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-95.7 -95.7 .045 95.71

Bank Sta: Left Right Lengths: Left Channel Right
-95.7 95.71 20 20
Coeff Contr. Expan.
.1 .3

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 688.87 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 688.85 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 688.81 | Flow Area (m2) | | 1.35 | |
| E.G. Slope (m/m) | 0.013437 | Area (m2) | | 1.35 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 14.80 | Top Width (m) | | 14.80 | |
| Vel Total (m/s) | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 6.1 | Conv. (m3/s) | | 6.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.80 | |
| Min Ch El (m) | 688.67 | Shear (N/m2) | | 12.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.27 | |
| Frctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 2.25 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 19.52 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.07 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 5.54 | |
| E.G. Slope (m/m) | 0.011189 | Area (m2) | | 5.54 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 28.88 | Top Width (m) | | 28.88 | |
| Vel Total (m/s) | 0.78 | Avg. Vel. (m/s) | | 0.78 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 40.9 | Conv. (m3/s) | | 40.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.89 | |
| Min Ch El (m) | 688.67 | Shear (N/m2) | | 21.04 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 16.44 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 8.18 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.90 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1660.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 14 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -93.34 694 -81.61 693 -70.67 692 -60.93 691 -51.19 690 | | |
| -25.99 689 -14.01 688.67 0 688.32 23.06 689 46 690 | | |
| 57.31 691 67.75 692 78.67 693 90.1 694 | | |

| | | |
|-------------------------------|------|---|
| Manning's n Values | num= | 3 |
| Sta n Val Sta n Val Sta n Val | | |
| -93.34 -93.34 .045 90.1 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -93.34 90.1 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|------------------|----------|----------------|---------|---------|----------|
| E.G. Elev (m) | 688.51 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 688.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 688.47 | Flow Area (m2) | | 1.06 | |
| E.G. Slope (m/m) | 0.024389 | Area (m2) | | 1.06 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |

| | | | |
|--------------------|--------|----------------------|-------|
| Top Width (m) | 12.49 | Top Width (m) | 12.49 |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | 0.67 |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | 0.08 |
| Conv. Total (m3/s) | 4.5 | Conv. (m3/s) | 4.5 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 12.50 |
| Min Ch El (m) | 688.32 | Shear (N/m2) | 20.19 |
| Alpha | 1.00 | Stream Power (N/m s) | 13.49 |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | 2.23 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 19.25 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 688.71 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 688.63 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 688.63 | Flow Area (m2) | | 3.64 | |
| E.G. Slope (m/m) | 0.033924 | Area (m2) | | 3.64 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 23.20 | Top Width (m) | | 23.20 | |
| Vel Total (m/s) | 1.19 | Avg. Vel. (m/s) | | 1.19 | |
| Max Chl Dpth (m) | 0.31 | Hydr. Depth (m) | | 0.16 | |
| Conv. Total (m3/s) | 23.5 | Conv. (m3/s) | | 23.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.20 | |
| Min Ch El (m) | 688.32 | Shear (N/m2) | | 52.15 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 62.06 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 8.09 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 32.38 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1680.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 14 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -93.33 693 -79.05 692 -67.8 691 -56.67 690 -33.03 689 | | |
| -14.33 688.35 -1.44 688 0 687.97 13.33 688 35.11 689 | | |
| 53.72 690 65.3 691 77 692 88.74 693 | | |

| | | |
|-------------------------------|------|---|
| Manning's n Values | num= | 3 |
| Sta n Val Sta n Val Sta n Val | | |
| -93.33 -93.33 .045 88.74 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -93.33 88.74 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 688.08 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 688.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 688.05 | Flow Area (m2) | | 1.33 | |
| E.G. Slope (m/m) | 0.019055 | Area (m2) | | 1.33 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 18.67 | Top Width (m) | | 18.67 | |
| Vel Total (m/s) | 0.53 | Avg. Vel. (m/s) | | 0.53 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 5.1 | Conv. (m3/s) | | 5.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.67 | |
| Min Ch El (m) | 687.97 | Shear (N/m2) | | 13.35 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.05 | |
| Frctn Loss (m) | 0.24 | Cum Volume (1000 m3) | | 2.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 18.94 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 688.26 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 688.22 | Flow Area (m2) | | 5.00 | |
| Crit W.S. (m) | | Area (m2) | | 5.00 | |
| E.G. Slope (m/m) | 0.015064 | Flow (m3/s) | | 4.33 | |
| Q Total (m3/s) | 4.33 | Top Width (m) | | 27.89 | |
| Top Width (m) | 27.89 | Avg. Vel. (m/s) | | 0.87 | |
| Vel Total (m/s) | 0.87 | Hydr. Depth (m) | | 0.18 | |
| Max Chl Dpth (m) | 0.25 | Conv. (m3/s) | | 35.3 | |
| Conv. Total (m3/s) | 35.3 | Wetted Per. (m) | | 27.90 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 26.45 | |
| Min Ch El (m) | 687.97 | Stream Power (N/m s) | | 22.92 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 8.00 | |
| Prctn Loss (m) | 0.23 | Cum SA (1000 m2) | | 31.87 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1700.0

INPUT

Description:

| Station | Elevation | Data | num= | 12 |
|---------|-----------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -85.55 | 692 | -67.27 | 691 | -57.91 |
| -13.67 | 688 | 0 | 687.64 | 20.7 |
| 79.85 | 691 | 91.98 | 692 | |

| Manning's n | Values | num= | 3 |
|-------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -85.55 | | -85.55 | .045 |
| | | 91.98 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -85.55 | 91.98 | | 20 | 20 | 20 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 687.84 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 687.83 | Flow Area (m2) | | 1.69 | |
| Crit W.S. (m) | | Area (m2) | | 1.69 | |
| E.G. Slope (m/m) | 0.008290 | Flow (m3/s) | | 0.70 | |
| Q Total (m3/s) | 0.70 | Top Width (m) | | 17.94 | |
| Top Width (m) | 17.94 | Avg. Vel. (m/s) | | 0.42 | |
| Vel Total (m/s) | 0.42 | Hydr. Depth (m) | | 0.09 | |
| Max Chl Dpth (m) | 0.19 | Conv. (m3/s) | | 7.7 | |
| Conv. Total (m3/s) | 7.7 | Wetted Per. (m) | | 17.95 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 7.64 | |
| Min Ch El (m) | 687.64 | Stream Power (N/m s) | | 3.19 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 2.18 | |
| Prctn Loss (m) | 0.33 | Cum SA (1000 m2) | | 18.57 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|------------------|----------|----------------|---------|---------|----------|
| E.G. Elev (m) | 688.03 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.02 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 688.00 | Flow Area (m2) | | 6.33 | |
| Crit W.S. (m) | | Area (m2) | | 6.33 | |
| E.G. Slope (m/m) | 0.009096 | Flow (m3/s) | | 4.33 | |
| Q Total (m3/s) | 4.33 | Top Width (m) | | 4.33 | |

| | | Element | Left OB | Channel | Right OB |
|--------------------|--------|-----------------|---------|---------|----------|
| Top Width (m) | 34.55 | Wt. n-Val. | | 0.045 | |
| Vel Total (m/s) | 0.68 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Max Chl Dpth (m) | 0.36 | Flow Area (m2) | | 45.4 | |
| Conv. Total (m3/s) | 45.4 | Area (m2) | | 45.4 | |
| Length Wtd. (m) | 20.00 | Flow (m3/s) | | 34.56 | |
| Min Ch El (m) | 687.64 | Top Width (m) | | 16.34 | |
| Alpha | 1.00 | Avg. Vel. (m/s) | | 11.17 | |
| Prctn Loss (m) | 0.33 | Hydr. Depth (m) | | 7.89 | |
| C & E Loss (m) | 0.01 | Conv. (m3/s) | | 31.24 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1720.0

INPUT

Description:

| Station | Elevation | Data | num= | 10 |
|---------|-----------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -82.71 | 693 | -72.98 | 692 | -63.67 |
| -20.22 | 688 | 0 | 687.32 | 33.26 |
| | | | 688 | 54.54 |

| Manning's n | Values | num= | 3 |
|-------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -82.71 | | -82.71 | .045 |
| | | 83.52 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -82.71 | 83.52 | | 20 | 20 | 20 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 687.50 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 687.47 | Flow Area (m2) | | 0.83 | |
| Crit W.S. (m) | 687.47 | Area (m2) | | 0.83 | |
| E.G. Slope (m/m) | 0.048096 | Flow (m3/s) | | 0.70 | |
| Q Total (m3/s) | 0.70 | Top Width (m) | | 11.43 | |
| Top Width (m) | 11.43 | Avg. Vel. (m/s) | | 0.85 | |
| Vel Total (m/s) | 0.85 | Hydr. Depth (m) | | 0.07 | |
| Max Chl Dpth (m) | 0.15 | Conv. (m3/s) | | 3.2 | |
| Conv. Total (m3/s) | 3.2 | Wetted Per. (m) | | 11.43 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 34.26 | |
| Min Ch El (m) | 687.32 | Stream Power (N/m s) | | 29.07 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 2.15 | |
| Prctn Loss (m) | 0.33 | Cum SA (1000 m2) | | 18.28 | |
| C & E Loss (m) | 0.01 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 687.70 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 687.62 | Flow Area (m2) | | 3.53 | |
| Crit W.S. (m) | 687.62 | Area (m2) | | 3.53 | |
| E.G. Slope (m/m) | 0.038156 | Flow (m3/s) | | 4.33 | |
| Q Total (m3/s) | 4.33 | Top Width (m) | | 23.58 | |
| Top Width (m) | 23.58 | Avg. Vel. (m/s) | | 1.22 | |
| Vel Total (m/s) | 1.22 | Hydr. Depth (m) | | 0.15 | |
| Max Chl Dpth (m) | 0.30 | Conv. (m3/s) | | 22.2 | |
| Conv. Total (m3/s) | 22.2 | Wetted Per. (m) | | 23.59 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 56.07 | |
| Min Ch El (m) | 687.32 | Stream Power (N/m s) | | 68.67 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 7.79 | |
| Prctn Loss (m) | 0.32 | Cum SA (1000 m2) | | 30.66 | |
| C & E Loss (m) | 0.02 | | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -1740.0

INPUT

Description:

| Station Elevation Data | | num= 14 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -98.31 | 695 | -89.79 | 694 |
| -55.63 | 690 | -39.01 | 689 |
| 19.85 | 687 | 42.43 | 688 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -98.31 | | -98.31 | .045 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.31 | 95.16 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 687.09 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 687.09 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 687.05 | Flow Area (m2) | | 1.89 | |
| E.G. Slope (m/m) | 0.008419 | Area (m2) | | 1.89 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 24.04 | Top Width (m) | | 24.04 | |
| Vel Total (m/s) | 0.37 | Avg. Vel. (m/s) | | 0.37 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 7.7 | Conv. (m3/s) | | 7.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.05 | |
| Min Ch El (m) | 687.00 | Shear (N/m2) | | 6.48 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.42 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 2.12 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.92 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 687.27 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 687.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 687.16 | Flow Area (m2) | | 6.16 | |
| E.G. Slope (m/m) | 0.008774 | Area (m2) | | 6.16 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 31.39 | Top Width (m) | | 31.39 | |
| Vel Total (m/s) | 0.70 | Avg. Vel. (m/s) | | 0.70 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 46.2 | Conv. (m3/s) | | 46.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 31.40 | |
| Min Ch El (m) | 687.00 | Shear (N/m2) | | 16.88 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.86 | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 7.69 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 30.11 | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -1760.0

INPUT

Description:

| Station Elevation Data | | num= 13 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -93.45 | 693 | -82.88 | 692 |
| -27.84 | 688 | -10.88 | 687 |
| 45.04 | 688 | 67.97 | 689 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -93.45 | | -93.45 | .045 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -93.45 | 92.73 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 686.75 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 686.72 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 686.72 | Flow Area (m2) | | 0.84 | |
| E.G. Slope (m/m) | 0.050159 | Area (m2) | | 0.84 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 12.23 | Top Width (m) | | 12.23 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | 0.84 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 3.1 | Conv. (m3/s) | | 3.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.24 | |
| Min Ch El (m) | 686.58 | Shear (N/m2) | | 33.88 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 28.33 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 2.10 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 17.56 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 686.94 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 686.92 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 686.87 | Flow Area (m2) | | 3.61 | |
| E.G. Slope (m/m) | 0.038976 | Area (m2) | | 3.61 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 25.33 | Top Width (m) | | 25.33 | |
| Vel Total (m/s) | 1.20 | Avg. Vel. (m/s) | | 1.20 | |
| Max Chl Dpth (m) | 0.29 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 21.9 | Conv. (m3/s) | | 21.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 25.34 | |
| Min Ch El (m) | 686.58 | Shear (N/m2) | | 54.52 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 65.29 | |
| Frctn Loss (m) | 0.46 | Cum Volume (1000 m3) | | 7.59 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 29.54 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

| | | | | | | | | | |
|--------|-----|--------|-----|--------|-----|--------|--------|-------|-----|
| -94.34 | 693 | -85.61 | 692 | -77.68 | 691 | -70.08 | 690 | -52.3 | 689 |
| -34.33 | 688 | -17.82 | 687 | -2.56 | 686 | 0 | 685.74 | 20.23 | 686 |
| 45.88 | 687 | 66.21 | 688 | 84.15 | 689 | 99.57 | 690 | | |

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1780.0

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-94.34 -94.34 .045 99.57

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 15 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -96.18 693 -86.48 692 -78.36 691 -70.27 690 -51.35 689 | | |
| -34.1 688 -18.03 687 -0.1 686.16 0 686.16 5.82 686 | | |
| 9.99 686 29.25 687 56.05 688 74.9 689 92.78 690 | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-94.34 99.57 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 685.93 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 685.92 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 685.88 | Flow Area (m2) | | 1.43 | |
| E.G. Slope (m/m) | 0.012051 | Area (m2) | | 1.43 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 15.86 | Top Width (m) | | 15.86 | |
| Vel Total (m/s) | 0.49 | Avg. Vel. (m/s) | | 0.49 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 6.4 | Conv. (m3/s) | | 6.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.87 | |
| Min Ch El (m) | 685.74 | Shear (N/m2) | | 10.68 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.25 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 2.05 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.02 | |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-96.18 -96.18 .045 92.78

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-96.18 92.78 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 686.17 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 686.16 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 686.11 | Flow Area (m2) | | 1.33 | |
| E.G. Slope (m/m) | 0.011625 | Area (m2) | | 1.33 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 12.88 | Top Width (m) | | 12.88 | |
| Vel Total (m/s) | 0.53 | Avg. Vel. (m/s) | | 0.53 | |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 6.5 | Conv. (m3/s) | | 6.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.88 | |
| Min Ch El (m) | 686.00 | Shear (N/m2) | | 11.80 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.24 | |
| Frctn Loss (m) | 0.24 | Cum Volume (1000 m3) | | 2.07 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.31 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 686.13 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 686.10 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 5.43 | |
| E.G. Slope (m/m) | 0.010829 | Area (m2) | | 5.43 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 26.86 | Top Width (m) | | 26.86 | |
| Vel Total (m/s) | 0.80 | Avg. Vel. (m/s) | | 0.80 | |
| Max Chl Dpth (m) | 0.36 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 41.6 | Conv. (m3/s) | | 41.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.88 | |
| Min Ch El (m) | 685.74 | Shear (N/m2) | | 21.47 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.10 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 7.42 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 28.61 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 686.39 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 686.34 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 686.28 | Flow Area (m2) | | 4.42 | |
| E.G. Slope (m/m) | 0.015036 | Area (m2) | | 4.42 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 20.45 | Top Width (m) | | 20.45 | |
| Vel Total (m/s) | 0.98 | Avg. Vel. (m/s) | | 0.98 | |
| Max Chl Dpth (m) | 0.34 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 35.3 | Conv. (m3/s) | | 35.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.47 | |
| Min Ch El (m) | 686.00 | Shear (N/m2) | | 31.81 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.18 | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 7.51 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 29.09 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1820.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 11 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -91.03 689 -66.23 688 -41.19 687 -17.21 686 -0.1 685.32 | | |
| 0 685.32 17.88 686 41.1 687 60.47 688 79.68 689 | | |
| 98.89 690 | | |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-91.03 -91.03 .045 98.89

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1800.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 14 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| | | | | | | | |
|---|----------|----------------------|---------|---------|----------|--------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
| -91.03 | 98.89 | 20 | 20 | 20 | .1 | .3 | |
| CROSS SECTION OUTPUT Profile #T= 5 años | | | | | | | |
| E.G. Elev (m) | 685.54 | Element | Left OB | Channel | Right OB | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | | | |
| W.S. Elev (m) | 685.50 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | | |
| Crit W.S. (m) | 685.49 | Flow Area (m2) | | 0.81 | | | |
| E.G. Slope (m/m) | 0.038388 | Area (m2) | | 0.81 | | | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | | | |
| Top Width (m) | 9.16 | Top Width (m) | | 9.16 | | | |
| Vel Total (m/s) | 0.87 | Avg. Vel. (m/s) | | 0.87 | | | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | | | |
| Conv. Total (m3/s) | 3.6 | Conv. (m3/s) | | 3.6 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.17 | | | |
| Min Ch El (m) | 685.32 | Shear (N/m2) | | 33.40 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | 28.93 | | | |
| Frctn Loss (m) | 0.45 | Cum Volume (1000 m3) | | 2.02 | | | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 16.77 | | | |

| | | | | | | | |
|---|----------|----------------------|---------|---------|----------|--|--|
| CROSS SECTION OUTPUT Profile #T= 500 años | | | | | | | |
| E.G. Elev (m) | 685.77 | Element | Left OB | Channel | Right OB | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | | | |
| W.S. Elev (m) | 685.67 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | | |
| Crit W.S. (m) | 685.67 | Flow Area (m2) | | 3.25 | | | |
| E.G. Slope (m/m) | 0.036197 | Area (m2) | | 3.25 | | | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | | | |
| Top Width (m) | 18.30 | Top Width (m) | | 18.30 | | | |
| Vel Total (m/s) | 1.33 | Avg. Vel. (m/s) | | 1.33 | | | |
| Max Chl Dpth (m) | 0.35 | Hydr. Depth (m) | | 0.18 | | | |
| Conv. Total (m3/s) | 22.8 | Conv. (m3/s) | | 22.8 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.31 | | | |
| Min Ch El (m) | 685.32 | Shear (N/m2) | | 62.91 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | 83.91 | | | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 7.33 | | | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 28.16 | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1840.0

INPUT

Description:

| | | | | | | | | | |
|--------------------------------|--------|--------|------|-------|------|--------|------|-------|--------|
| Station Elevation Data num= 13 | | | | | | | | | |
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -78.75 | 688 | -55.96 | 687 | -32.7 | 686 | -10.56 | 685 | -0.2 | 684.94 |
| 0 | 684.94 | 2.08 | 685 | 19.12 | 686 | 36.65 | 687 | 54.19 | 688 |
| 71.72 | 689 | 89.25 | 690 | 97.93 | 691 | | | | |

| | | | | | |
|---------------------------|-------|--------|-------|-------|-------|
| Manning's n Values num= 3 | | | | | |
| Sta | n Val | Sta | n Val | Sta | n Val |
| -78.75 | | -78.75 | .045 | 97.93 | |

| | | | | | | | |
|----------------|-------|---------------|---------|-------|-------|--------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
| -78.75 | 97.93 | 20 | 20 | 20 | .1 | .3 | |

| | | | | | | | |
|---|--------|----------------|---------|---------|----------|--|--|
| CROSS SECTION OUTPUT Profile #T= 5 años | | | | | | | |
| E.G. Elev (m) | 685.08 | Element | Left OB | Channel | Right OB | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | | | |
| W.S. Elev (m) | 685.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | | |

| | | | | | | | |
|--------------------|----------|----------------------|--|-------|--|--|--|
| Crit W.S. (m) | 685.04 | Flow Area (m2) | | 1.34 | | | |
| E.G. Slope (m/m) | 0.014568 | Area (m2) | | 1.34 | | | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | | | |
| Top Width (m) | 15.32 | Top Width (m) | | 15.32 | | | |
| Vel Total (m/s) | 0.53 | Avg. Vel. (m/s) | | 0.53 | | | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.09 | | | |
| Conv. Total (m3/s) | 5.8 | Conv. (m3/s) | | 5.8 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.32 | | | |
| Min Ch El (m) | 684.94 | Shear (N/m2) | | 12.46 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.57 | | | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 2.00 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.53 | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|--|--|
| E.G. Elev (m) | 685.29 | Element | Left OB | Channel | Right OB | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | | | |
| W.S. Elev (m) | 685.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | | |
| Crit W.S. (m) | 685.18 | Flow Area (m2) | | 4.65 | | | |
| E.G. Slope (m/m) | 0.014173 | Area (m2) | | 4.65 | | | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | | | |
| Top Width (m) | 22.23 | Top Width (m) | | 22.23 | | | |
| Vel Total (m/s) | 0.93 | Avg. Vel. (m/s) | | 0.93 | | | |
| Max Chl Dpth (m) | 0.30 | Hydr. Depth (m) | | 0.21 | | | |
| Conv. Total (m3/s) | 36.4 | Conv. (m3/s) | | 36.4 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.24 | | | |
| Min Ch El (m) | 684.94 | Shear (N/m2) | | 29.04 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.05 | | | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 7.25 | | | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 27.76 | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1860.0

INPUT

Description:

| | | | | | | | | | |
|--------------------------------|--------|--------|------|--------|------|--------|------|-------|--------|
| Station Elevation Data num= 14 | | | | | | | | | |
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -93.22 | 688 | -68.07 | 687 | -46.01 | 686 | -22.71 | 685 | -0.2 | 684.68 |
| 0 | 684.68 | 6.55 | 685 | 19.49 | 686 | 32.43 | 687 | 46.47 | 688 |
| 61.18 | 689 | 75.88 | 690 | 85.27 | 691 | 94.14 | 692 | | |

| | | | | | |
|---------------------------|-------|--------|-------|-------|-------|
| Manning's n Values num= 3 | | | | | |
| Sta | n Val | Sta | n Val | Sta | n Val |
| -93.22 | | -93.22 | .045 | 94.14 | |

| | | | | | | | |
|----------------|-------|---------------|---------|-------|-------|--------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
| -93.22 | 94.14 | 20 | 20 | 20 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|--|--|
| E.G. Elev (m) | 684.88 | Element | Left OB | Channel | Right OB | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | | | |
| W.S. Elev (m) | 684.88 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | | |
| Crit W.S. (m) | 684.82 | Flow Area (m2) | | 1.76 | | | |
| E.G. Slope (m/m) | 0.007172 | Area (m2) | | 1.76 | | | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | | | |
| Top Width (m) | 17.93 | Top Width (m) | | 17.93 | | | |
| Vel Total (m/s) | 0.40 | Avg. Vel. (m/s) | | 0.40 | | | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | | | |
| Conv. Total (m3/s) | 8.3 | Conv. (m3/s) | | 8.3 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.94 | | | |
| Min Ch El (m) | 684.68 | Shear (N/m2) | | 6.90 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.76 | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Frctn Loss (m) 0.27 Cum Volume (1000 m3) 1.97
C & E Loss (m) 0.00 Cum SA (1000 m2) 16.19

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 685.08 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 685.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 6.39 | |
| E.G. Slope (m/m) | 0.007739 | Area (m2) | | 6.39 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 31.30 | Top Width (m) | | 31.30 | |
| Vel Total (m/s) | 0.68 | Avg. Vel. (m/s) | | 0.68 | |
| Max Chl Dpth (m) | 0.38 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 49.2 | Conv. (m3/s) | | 49.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 31.31 | |
| Min Ch El (m) | 684.68 | Shear (N/m2) | | 15.48 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 10.49 | |
| Frctn Loss (m) | 0.23 | Cum Volume (1000 m3) | | 7.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 27.22 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1880.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 15 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -82.36 688 -64.56 687 -46.14 686 -27.48 685 -.01 684.41 | | |
| 0 684.42 7.95 685 20.78 686 39.03 687 52.22 688 | | |
| 61.88 689 72.23 690 80.4 691 89.45 692 96.43 693 | | |

Manning's n Values

| | |
|-------------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val Sta n Val | |
| -82.36 -82.36 .045 96.43 | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -82.36 96.43 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 684.62 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 684.58 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 684.57 | Flow Area (m2) | | 0.89 | |
| E.G. Slope (m/m) | 0.033322 | Area (m2) | | 0.89 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 10.36 | Top Width (m) | | 10.36 | |
| Vel Total (m/s) | 0.79 | Avg. Vel. (m/s) | | 0.79 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 3.9 | Conv. (m3/s) | | 3.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.38 | |
| Min Ch El (m) | 684.41 | Shear (N/m2) | | 28.09 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 22.19 | |
| Frctn Loss (m) | 0.39 | Cum Volume (1000 m3) | | 1.95 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.91 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|---------------|--------|---------|---------|---------|----------|
| E.G. Elev (m) | 684.84 | Element | Left OB | Channel | Right OB |
|---------------|--------|---------|---------|---------|----------|

| | | | | | |
|--------------------|----------|----------------------|-------|-------|-------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 684.79 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 4.22 | |
| E.G. Slope (m/m) | 0.019901 | Area (m2) | | 4.22 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 22.56 | Top Width (m) | | 22.56 | |
| Vel Total (m/s) | 1.03 | Avg. Vel. (m/s) | | 1.03 | |
| Max Chl Dpth (m) | 0.38 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 30.7 | Conv. (m3/s) | | 30.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.58 | |
| Min Ch El (m) | 684.41 | Shear (N/m2) | | 36.50 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 37.42 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 7.03 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 26.68 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1900.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 17 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -85.48 698 -67.54 687 -49.6 686 -31.87 685 -5.59 684 | | |
| -5.5 684 0 684.15 13.59 685 25.49 686 37.16 687 | | |
| 48.67 688 60.17 689 71.69 690 78.17 691 84.84 692 | | |
| 91.42 693 98.01 694 | | |

Manning's n Values

| | |
|-------------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val Sta n Val | |
| -85.48 -85.48 .045 98.01 | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -85.48 98.01 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 684.22 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 684.20 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 684.16 | Flow Area (m2) | | 1.24 | |
| E.G. Slope (m/m) | 0.012982 | Area (m2) | | 1.24 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 11.60 | Top Width (m) | | 11.60 | |
| Vel Total (m/s) | 0.57 | Avg. Vel. (m/s) | | 0.57 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 6.2 | Conv. (m3/s) | | 6.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.60 | |
| Min Ch El (m) | 684.00 | Shear (N/m2) | | 13.58 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.73 | |
| Frctn Loss (m) | 0.29 | Cum Volume (1000 m3) | | 1.92 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.69 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 684.44 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 684.37 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 684.33 | Flow Area (m2) | | 3.91 | |
| E.G. Slope (m/m) | 0.020428 | Area (m2) | | 3.91 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 18.98 | Top Width (m) | | 18.98 | |
| Vel Total (m/s) | 1.11 | Avg. Vel. (m/s) | | 1.11 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.21 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| | | | |
|--------------------|--------|----------------------|-------|
| Conv. Total (m3/s) | 30.3 | Conv. (m3/s) | 30.3 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 19.00 |
| Min Ch El (m) | 684.00 | Shear (N/m2) | 41.23 |
| Alpha | 1.00 | Stream Power (N/m s) | 45.64 |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | 6.95 |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 26.27 |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1920.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 15 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -84.63 688 -67.73 687 -50.83 686 -33.93 685 -24.71 684 | | |
| 0 683.76 5.88 684 17.63 685 29.28 686 40.88 687 | | |
| 52.29 688 64.09 689 75.89 690 83.88 691 93.33 692 | | |

Manning's n Values

| | |
|--------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val | |
| -84.63 -84.63 .045 93.33 | |

| | |
|--|---------------------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. Expan. |
| -84.63 93.33 20 20 20 | .1 .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 683.92 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 683.91 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 683.88 | Flow Area (m2) | | 1.40 | |
| E.G. Slope (m/m) | 0.016464 | Area (m2) | | 1.40 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 18.90 | Top Width (m) | | 18.90 | |
| Vel Total (m/s) | 0.50 | Avg. Vel. (m/s) | | 0.50 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 5.5 | Conv. (m3/s) | | 5.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.90 | |
| Min Ch El (m) | 683.76 | Shear (N/m2) | | 11.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.02 | |
| Frctn Loss (m) | 0.51 | Cum Volume (1000 m3) | | 1.90 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.39 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 684.09 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 684.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 684.01 | Flow Area (m2) | | 5.31 | |
| E.G. Slope (m/m) | 0.014556 | Area (m2) | | 5.31 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 31.70 | Top Width (m) | | 31.70 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 0.29 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 35.9 | Conv. (m3/s) | | 35.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 31.71 | |
| Min Ch El (m) | 683.76 | Shear (N/m2) | | 23.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 19.49 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 6.86 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 25.76 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1940.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 14 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -85.03 688 -69.27 687 -53.57 686 -37.15 685 -24.53 684 | | |
| 0 683.18 13.77 684 22.25 685 34.72 686 47.18 687 | | |
| 59.49 688 70.88 689 82.52 690 92.48 691 | | |

Manning's n Values

| | |
|--------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val | |
| -85.03 -85.03 .045 92.48 | |

| | |
|--|---------------------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. Expan. |
| -85.03 92.48 20 20 20 | .1 .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 683.40 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 683.36 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 683.36 | Flow Area (m2) | | 0.75 | |
| E.G. Slope (m/m) | 0.045155 | Area (m2) | | 0.75 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 8.35 | Top Width (m) | | 8.35 | |
| Vel Total (m/s) | 0.94 | Avg. Vel. (m/s) | | 0.94 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | | 3.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.36 | |
| Min Ch El (m) | 683.18 | Shear (N/m2) | | 39.55 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 37.32 | |
| Frctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 1.88 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 15.11 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 683.64 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 683.55 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 683.55 | Flow Area (m2) | | 3.17 | |
| E.G. Slope (m/m) | 0.035952 | Area (m2) | | 3.17 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 17.22 | Top Width (m) | | 17.22 | |
| Vel Total (m/s) | 1.36 | Avg. Vel. (m/s) | | 1.36 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 22.8 | Conv. (m3/s) | | 22.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.24 | |
| Min Ch El (m) | 683.18 | Shear (N/m2) | | 64.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 88.54 | |
| Frctn Loss (m) | 0.39 | Cum Volume (1000 m3) | | 6.77 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 25.27 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1960.0

INPUT

Description:

| Station Elevation Data | | num= 15 | |
|------------------------|------|---------|--------|
| Sta | Elev | Sta | Elev |
| -89.51 | 688 | -74.44 | 687 |
| -16.79 | 683 | 0 | 682.67 |
| 44 | 686 | 57.24 | 687 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -89.51 | | -89.51 | .045 |
| | | | 96.34 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -89.51 | 96.34 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 682.87 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 682.86 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 682.82 | Flow Area (m2) | | 1.35 | |
| E.G. Slope (m/m) | 0.012914 | Area (m2) | | 1.35 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 14.40 | Top Width (m) | | 14.40 | |
| Vel Total (m/s) | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 6.2 | Conv. (m3/s) | | 6.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.40 | |
| Min Ch El (m) | 682.67 | Shear (N/m2) | | 11.88 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.20 | |
| Prctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 1.86 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 14.89 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 683.07 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 683.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 682.97 | Flow Area (m2) | | 5.19 | |
| E.G. Slope (m/m) | 0.012159 | Area (m2) | | 5.19 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 26.08 | Top Width (m) | | 26.08 | |
| Vel Total (m/s) | 0.83 | Avg. Vel. (m/s) | | 0.83 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 39.3 | Conv. (m3/s) | | 39.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.10 | |
| Min Ch El (m) | 682.67 | Shear (N/m2) | | 23.70 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 19.78 | |
| Prctn Loss (m) | 0.39 | Cum Volume (1000 m3) | | 6.69 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 24.84 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -1980.0

INPUT

Description:

| Station Elevation Data | | num= 14 | |
|------------------------|--------|---------|------|
| Sta | Elev | Sta | Elev |
| -87.61 | 687 | -72.23 | 686 |
| 0 | 682.19 | 11.23 | 683 |
| 62.34 | 687 | 73.97 | 688 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -87.61 | | -87.61 | .045 |
| | | | 98.13 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -87.61 | 98.13 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 682.43 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 682.38 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 682.38 | Flow Area (m2) | | 0.72 | |
| E.G. Slope (m/m) | 0.044886 | Area (m2) | | 0.72 | |
| Q Total (m3/s) | 0.70 | Flow (m3/s) | | 0.70 | |
| Top Width (m) | 7.63 | Top Width (m) | | 7.63 | |
| Vel Total (m/s) | 0.98 | Avg. Vel. (m/s) | | 0.98 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | | 3.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.64 | |
| Min Ch El (m) | 682.19 | Shear (N/m2) | | 41.58 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 40.60 | |
| Prctn Loss (m) | 0.49 | Cum Volume (1000 m3) | | 1.83 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 14.67 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 682.68 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 682.58 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 682.58 | Flow Area (m2) | | 3.08 | |
| E.G. Slope (m/m) | 0.035288 | Area (m2) | | 3.08 | |
| Q Total (m3/s) | 4.33 | Flow (m3/s) | | 4.33 | |
| Top Width (m) | 15.77 | Top Width (m) | | 15.77 | |
| Vel Total (m/s) | 1.40 | Avg. Vel. (m/s) | | 1.40 | |
| Max Chl Dpth (m) | 0.39 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 23.0 | Conv. (m3/s) | | 23.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.79 | |
| Min Ch El (m) | 682.19 | Shear (N/m2) | | 67.54 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 94.87 | |
| Prctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 6.61 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 24.42 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2000.0

INPUT

Description:

| Station Elevation Data | | num= 17 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|--------|--------|--------|--------|-----|--------|-----|------|--|
| -88.3 | 687 | -73.83 | 686 | -59.37 | 685 | -43.67 | 684 | -27.41 | 683 | | |
| -13.52 | 682 | -.04 | 681.66 | 0 | 681.66 | 5.23 | 682 | 16.24 | 683 | | |
| 38.25 | 684 | 61.68 | 685 | 62.21 | 685 | 69.48 | 685 | 79.93 | 686 | | |
| 89.71 | 687 | 99.48 | 688 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -88.3 | | -88.3 | .045 | 99.48 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|--------------|-------|-------|--------|--------|
| | -88.3 | 99.48 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 681.91 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 681.88 | Reach Len. (m) | 20.00 | | 20.00 | 20.00 |
| Crit W.S. (m) | 681.85 | Flow Area (m2) | | | 1.39 | |
| E.G. Slope (m/m) | 0.017086 | Area (m2) | | | 1.39 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | | 0.94 | |
| Top Width (m) | 12.36 | Top Width (m) | | | 12.36 | |
| Vel Total (m/s) | 0.68 | Avg. Vel. (m/s) | | | 0.68 | |
| Max Chl Dpth (m) | 0.22 | Hydr. Depth (m) | | | 0.11 | |
| Conv. Total (m3/s) | 7.2 | Conv. (m3/s) | | | 7.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 12.37 | |
| Min Ch El (m) | 681.66 | Shear (N/m2) | | | 18.82 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 12.72 | |
| Frctn Loss (m) | 0.51 | Cum Volume (1000 m3) | | | 1.81 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | 14.47 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 682.16 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 682.10 | Reach Len. (m) | 20.00 | | 20.00 | 20.00 |
| Crit W.S. (m) | 682.04 | Flow Area (m2) | | | 5.20 | |
| E.G. Slope (m/m) | 0.016303 | Area (m2) | | | 5.20 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | | 5.77 | |
| Top Width (m) | 21.25 | Top Width (m) | | | 21.25 | |
| Vel Total (m/s) | 1.11 | Avg. Vel. (m/s) | | | 1.11 | |
| Max Chl Dpth (m) | 0.44 | Hydr. Depth (m) | | | 0.24 | |
| Conv. Total (m3/s) | 45.2 | Conv. (m3/s) | | | 45.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 21.27 | |
| Min Ch El (m) | 681.66 | Shear (N/m2) | | | 39.10 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 43.38 | |
| Frctn Loss (m) | 0.45 | Cum Volume (1000 m3) | | | 6.53 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | | 24.05 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2020.0

INPUT

Description:

| Station Elevation Data | | num= 14 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-------|--------|-------|--------|-----|--------|-----|------|--|
| -86.71 | 687 | -73.07 | 686 | -60.99 | 685 | -46.39 | 684 | -31.29 | 683 | | |
| -15.19 | 682 | -.02 | 681.1 | 0 | 681.1 | 13.44 | 682 | 38.19 | 683 | | |
| 55.8 | 684 | 70.66 | 685 | 83.82 | 686 | 97.11 | 687 | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -86.71 | | -86.71 | .045 | 97.11 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -86.71 | 97.11 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | E.G. Elev (m) | 681.39 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 681.33 | Reach Len. (m) | 20.00 | | 20.00 | 20.00 |
| Crit W.S. (m) | 681.33 | Flow Area (m2) | | | 0.87 | |
| E.G. Slope (m/m) | 0.041717 | Area (m2) | | | 0.87 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | | 0.94 | |
| Top Width (m) | 7.43 | Top Width (m) | | | 7.43 | |
| Vel Total (m/s) | 1.08 | Avg. Vel. (m/s) | | | 1.08 | |
| Max Chl Dpth (m) | 0.23 | Hydr. Depth (m) | | | 0.12 | |
| Conv. Total (m3/s) | 4.6 | Conv. (m3/s) | | | 4.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 7.44 | |
| Min Ch El (m) | 681.10 | Shear (N/m2) | | | 47.69 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 51.66 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | | 1.79 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | | 14.27 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | E.G. Elev (m) | 681.71 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.12 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 681.58 | Reach Len. (m) | 20.00 | | 20.00 | 20.00 |
| Crit W.S. (m) | 681.58 | Flow Area (m2) | | | 3.70 | |
| E.G. Slope (m/m) | 0.032801 | Area (m2) | | | 3.70 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | | 5.77 | |
| Top Width (m) | 15.35 | Top Width (m) | | | 15.35 | |
| Vel Total (m/s) | 1.56 | Avg. Vel. (m/s) | | | 1.56 | |
| Max Chl Dpth (m) | 0.48 | Hydr. Depth (m) | | | 0.24 | |
| Conv. Total (m3/s) | 31.9 | Conv. (m3/s) | | | 31.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 15.38 | |
| Min Ch El (m) | 681.10 | Shear (N/m2) | | | 77.49 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 120.74 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | | 6.44 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | | 23.68 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2040.0

INPUT

Description:

| Station Elevation Data | | num= 16 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -91.09 | 688 | -81.51 | 687 |
| -34.04 | 683 | -19.25 | 682 |
| 9.58 | 681 | 34.57 | 682 |
| 90.74 | 686 | | |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -91.09 | -91.09 | .045 | 90.74 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.09 | 90.74 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 680.97 | Element | Left OB <th>Channel</th> <td>Right OB </td> | Channel | Right OB |
|--------------------|----------|----------------------|---|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | 20.00 | 0.045 | 20.00 |
| W.S. Elev (m) | 680.95 | Reach Len. (m) | | 20.00 | |
| Crit W.S. (m) | 680.89 | Flow Area (m2) | | 1.46 | |
| E.G. Slope (m/m) | 0.012155 | Area (m2) | | 1.46 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 10.87 | Top Width (m) | | 10.87 | |
| Vel Total (m/s) | 0.64 | Avg. Vel. (m/s) | | 0.64 | |
| Max Chl Dpth (m) | 0.27 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 8.5 | Conv. (m3/s) | | 8.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.89 | |
| Min Ch El (m) | 680.68 | Shear (N/m2) | | 16.01 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 10.29 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 1.77 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 14.08 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 681.25 | Element | Left OB <th>Channel</th> <td>Right OB </td> | Channel | Right OB |
|--------------------|----------|----------------------|---|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | 20.00 | 0.045 | 20.00 |
| W.S. Elev (m) | 681.20 | Reach Len. (m) | | 20.00 | |
| Crit W.S. (m) | 681.12 | Flow Area (m2) | | 5.39 | |
| E.G. Slope (m/m) | 0.014194 | Area (m2) | | 5.39 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 20.95 | Top Width (m) | | 20.95 | |
| Vel Total (m/s) | 1.07 | Avg. Vel. (m/s) | | 1.07 | |
| Max Chl Dpth (m) | 0.52 | Hydr. Depth (m) | | 0.26 | |
| Conv. Total (m3/s) | 48.4 | Conv. (m3/s) | | 48.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.98 | |
| Min Ch El (m) | 680.68 | Shear (N/m2) | | 35.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 38.29 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 6.35 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 23.32 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2060.0

INPUT

Description:

| Station Elevation Data | | num= 16 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -95.25 | 688 | -86.26 | 687 |
| -39.4 | 683 | -24.89 | 682 |
| 19.6 | 681 | 35.96 | 682 |
| 91.55 | 686 | | |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -95.25 | -95.25 | .045 | 91.55 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.25 | 91.55 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 680.55 | Element | Left OB <th>Channel</th> <td>Right OB</td> | Channel | Right OB |
|--------------------|----------|----------------------|--|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | 20.00 | 0.045 | 20.00 |
| W.S. Elev (m) | 680.50 | Reach Len. (m) | | 20.00 | |
| Crit W.S. (m) | 680.50 | Flow Area (m2) | | 0.92 | |
| E.G. Slope (m/m) | 0.043319 | Area (m2) | | 0.92 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 8.81 | Top Width (m) | | 8.81 | |
| Vel Total (m/s) | 1.02 | Avg. Vel. (m/s) | | 1.02 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 4.5 | Conv. (m3/s) | | 4.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.82 | |
| Min Ch El (m) | 680.29 | Shear (N/m2) | | 44.22 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 45.26 | |
| Frctn Loss (m) | 0.29 | Cum Volume (1000 m3) | | 1.74 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 13.89 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 680.83 | Element | Left OB <th>Channel</th> <td>Right OB</td> | Channel | Right OB |
|--------------------|----------|----------------------|--|---------|----------|
| Vel Head (m) | 0.11 | Wt. n-Val. | 20.00 | 0.045 | 20.00 |
| W.S. Elev (m) | 680.72 | Reach Len. (m) | | 20.00 | |
| Crit W.S. (m) | 680.72 | Flow Area (m2) | | 3.92 | |
| E.G. Slope (m/m) | 0.034168 | Area (m2) | | 3.92 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 18.19 | Top Width (m) | | 18.19 | |
| Vel Total (m/s) | 1.47 | Avg. Vel. (m/s) | | 1.47 | |
| Max Chl Dpth (m) | 0.43 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 31.2 | Conv. (m3/s) | | 31.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.21 | |
| Min Ch El (m) | 680.29 | Shear (N/m2) | | 72.04 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 106.20 | |
| Frctn Loss (m) | 0.28 | Cum Volume (1000 m3) | | 6.25 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 22.93 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -2080.0

INPUT

Description:

| Station Elevation Data | | num= 16 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -91.33 | 686 | -81.92 | 685 |
| -18.42 | 681 | -2.39 | 680 |
| 25.52 | 681 | 40.18 | 682 |
| 95.12 | 686 | | |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -91.33 | | -91.33 | .045 |
| | | 95.12 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| -91.33 | | 95.12 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|---------|----------|
| E.G. Elev (m) | 680.12 | | | |
| Vel Head (m) | 0.01 | | 0.045 | |
| W.S. Elev (m) | 680.11 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 680.05 | | 2.04 | |
| E.G. Slope (m/m) | 0.007295 | | 2.04 | |
| Q Total (m3/s) | 0.94 | | 0.94 | |
| Top Width (m) | 16.99 | | 16.99 | |
| Vel Total (m/s) | 0.46 | | 0.46 | |
| Max Chl Dpth (m) | 0.16 | | 0.12 | |
| Conv. Total (m3/s) | 11.0 | | 11.0 | |
| Length Wtd. (m) | 20.00 | | 16.99 | |
| Min Ch El (m) | 679.95 | | 8.57 | |
| Alpha | 1.00 | | 3.96 | |
| Frctn Loss (m) | 0.14 | | 1.71 | |
| C & E Loss (m) | 0.00 | | 13.63 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|---------|----------|
| E.G. Elev (m) | 680.38 | | | |
| Vel Head (m) | 0.04 | | 0.045 | |
| W.S. Elev (m) | 680.35 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 680.22 | | 6.92 | |
| E.G. Slope (m/m) | 0.007487 | | 6.92 | |
| Q Total (m3/s) | 5.77 | | 5.77 | |
| Top Width (m) | 24.17 | | 24.17 | |
| Vel Total (m/s) | 0.83 | | 0.83 | |
| Max Chl Dpth (m) | 0.40 | | 0.29 | |
| Conv. Total (m3/s) | 66.7 | | 66.7 | |
| Length Wtd. (m) | 20.00 | | 24.20 | |
| Min Ch El (m) | 679.95 | | 20.99 | |
| Alpha | 1.00 | | 17.51 | |
| Frctn Loss (m) | 0.12 | | 6.14 | |
| C & E Loss (m) | 0.00 | | 22.50 | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -2100.0

INPUT

Description:

| Station Elevation Data | | num= 15 | |
|------------------------|------|---------|--------|
| Sta | Elev | Sta | Elev |
| -97.3 | 685 | -80.21 | 684 |
| -8.6 | 680 | 0 | 679.74 |
| 42.09 | 682 | 58.26 | 683 |
| | | 73.81 | 684 |
| | | 86.93 | 685 |
| | | 97.46 | 686 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -97.3 | | -97.3 | .045 |
| | | 97.46 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| -97.3 | | 97.46 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|---------|----------|
| E.G. Elev (m) | 679.98 | | | |
| Vel Head (m) | 0.01 | | 0.045 | |
| W.S. Elev (m) | 679.97 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 680.05 | | 2.15 | |
| E.G. Slope (m/m) | 0.006737 | | 2.15 | |
| Q Total (m3/s) | 0.94 | | 0.94 | |
| Top Width (m) | 18.30 | | 18.30 | |
| Vel Total (m/s) | 0.44 | | 0.44 | |
| Max Chl Dpth (m) | 0.23 | | 0.12 | |
| Conv. Total (m3/s) | 11.4 | | 11.4 | |
| Length Wtd. (m) | 20.00 | | 18.31 | |
| Min Ch El (m) | 679.74 | | 7.76 | |
| Alpha | 1.00 | | 3.39 | |
| Frctn Loss (m) | 0.16 | | 1.67 | |
| C & E Loss (m) | 0.00 | | 13.28 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|---------|----------|
| E.G. Elev (m) | 680.26 | | | |
| Vel Head (m) | 0.02 | | 0.045 | |
| W.S. Elev (m) | 680.24 | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 680.11 | | 8.36 | |
| E.G. Slope (m/m) | 0.004861 | | 8.36 | |
| Q Total (m3/s) | 5.77 | | 5.77 | |
| Top Width (m) | 28.12 | | 28.12 | |
| Vel Total (m/s) | 0.69 | | 0.69 | |
| Max Chl Dpth (m) | 0.50 | | 0.30 | |
| Conv. Total (m3/s) | 82.8 | | 82.8 | |
| Length Wtd. (m) | 20.00 | | 28.14 | |
| Min Ch El (m) | 679.74 | | 14.17 | |
| Alpha | 1.00 | | 9.78 | |
| Frctn Loss (m) | 0.12 | | 5.99 | |
| C & E Loss (m) | 0.00 | | 21.98 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2120.0

INPUT

Description:

Station Elevation Data num= 14
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-98.26 685 -83.85 684 -64.77 683 -38.69 682 -20.84 681
-4.3 680 0 679.53 .01 679.53 14.98 680 27.98 681
43.19 682 60.54 683 75.86 684 91.18 685

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-98.26 -98.26 .045 91.18

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-98.26 91.18 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 679.83 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 679.81 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.63 | |
| E.G. Slope (m/m) | 0.009204 | Area (m2) | | 1.63 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 11.56 | Top Width (m) | | 11.56 | |
| Vel Total (m/s) | 0.58 | Avg. Vel. (m/s) | | 0.58 | |
| Max Chl Dpth (m) | 0.28 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 9.8 | Conv. (m3/s) | | 9.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.58 | |
| Min Ch El (m) | 679.53 | Shear (N/m2) | | 12.70 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.33 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 1.63 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.98 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 680.13 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 680.09 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 6.49 | |
| E.G. Slope (m/m) | 0.008211 | Area (m2) | | 6.49 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 22.08 | Top Width (m) | | 22.08 | |
| Vel Total (m/s) | 0.89 | Avg. Vel. (m/s) | | 0.89 | |
| Max Chl Dpth (m) | 0.56 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 63.7 | Conv. (m3/s) | | 63.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.12 | |
| Min Ch El (m) | 679.53 | Shear (N/m2) | | 23.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 21.01 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | | 5.84 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 21.48 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2140.0

INPUT

Description:

Station Elevation Data num= 15

Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-91.76 684 -77.07 683 -61.74 682 -37.88 681 -12.9 680
.01 679.33 0 679.33 10.99 680 24 681 37.32 682
50.64 683 63.72 684 77.09 685 87.84 686 99.01 687

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-91.76 -91.76 .045 99.01

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-91.76 99.01 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 679.64 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 679.63 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.56 | |
| E.G. Slope (m/m) | 0.009436 | Area (m2) | | 1.56 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 10.54 | Top Width (m) | | 10.54 | |
| Vel Total (m/s) | 0.60 | Avg. Vel. (m/s) | | 0.60 | |
| Max Chl Dpth (m) | 0.30 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 9.7 | Conv. (m3/s) | | 9.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.56 | |
| Min Ch El (m) | 679.33 | Shear (N/m2) | | 13.66 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.24 | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 1.60 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.76 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 679.97 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 679.92 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 6.25 | |
| E.G. Slope (m/m) | 0.008765 | Area (m2) | | 6.25 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 21.11 | Top Width (m) | | 21.11 | |
| Vel Total (m/s) | 0.92 | Avg. Vel. (m/s) | | 0.92 | |
| Max Chl Dpth (m) | 0.59 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 61.7 | Conv. (m3/s) | | 61.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.14 | |
| Min Ch El (m) | 679.33 | Shear (N/m2) | | 25.41 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 23.46 | |
| Frctn Loss (m) | 0.31 | Cum Volume (1000 m3) | | 5.72 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 21.05 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2160.0

INPUT

Description:

Station Elevation Data num= 15
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-88.66 684 -74.56 683 -60.77 682 -44.92 681 -25.84 680
0 679.12 .02 679.12 12.07 680 24.56 681 37.04 682
48.81 683 60.61 684 72.79 685 84.47 686 96.75 687

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-88.66 -88.66 .045 96.75

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ANEXO VII

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-88.66 96.75 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años
E.G. Elev (m) 679.39 Element Left OB Channel Right OB
Vel Head (m) 0.03 Wt. n-Val. 0.045
W.S. Elev (m) 679.36 Reach Len. (m) 20.00 20.00 20.00
Crit W.S. (m) 679.33 Flow Area (m2) 1.29
E.G. Slope (m/m) 0.017800 Area (m2) 1.29
Q Total (m3/s) 0.94 Flow (m3/s) 0.94
Top Width (m) 10.53 Top Width (m) 10.53
Vel Total (m/s) 0.73 Avg. Vel. (m/s) 0.73
Max Chl Dpth (m) 0.24 Hydr. Depth (m) 0.12
Conv. Total (m3/s) 7.0 Conv. (m3/s) 7.0
Length Wtd. (m) 20.00 Wetted Per. (m) 10.54
Min Ch El (m) 679.12 Shear (N/m2) 21.32
Alpha 1.00 Stream Power (N/m s) 15.56
Frctn Loss (m) 0.45 Cum Volume (1000 m3) 1.57
C & E Loss (m) 0.00 Cum SA (1000 m2) 12.55

CROSS SECTION OUTPUT Profile #T= 500 años
E.G. Elev (m) 679.66 Element Left OB Channel Right OB
Vel Head (m) 0.11 Wt. n-Val. 0.045
W.S. Elev (m) 679.55 Reach Len. (m) 20.00 20.00 20.00
Crit W.S. (m) 679.55 Flow Area (m2) 3.99
E.G. Slope (m/m) 0.032959 Area (m2) 3.99
Q Total (m3/s) 5.77 Flow (m3/s) 5.77
Top Width (m) 18.53 Top Width (m) 18.53
Vel Total (m/s) 1.45 Avg. Vel. (m/s) 1.45
Max Chl Dpth (m) 0.43 Hydr. Depth (m) 0.22
Conv. Total (m3/s) 31.8 Conv. (m3/s) 31.8
Length Wtd. (m) 20.00 Wetted Per. (m) 18.55
Min Ch El (m) 679.12 Shear (N/m2) 69.46
Alpha 1.00 Stream Power (N/m s) 100.55
Frctn Loss (m) 0.49 Cum Volume (1000 m3) 5.61
C & E Loss (m) 0.02 Cum SA (1000 m2) 20.65

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2180.0

INPUT

Description:

| Station Elevation Data | | num= 16 | | Elev | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|---------|--------|--------|------|--------|------|--------|------|-----|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -96.73 | 684 | -84.91 | 683 | -73.38 | 682 | -60.55 | 681 | -47.67 | 680 | | | | |
| -17.41 | 679 | 0 | 678.76 | 8.25 | 679 | 15.06 | 680 | 26.98 | 681 | | | | |
| 38.9 | 682 | 51.06 | 683 | 63.7 | 684 | 74.56 | 685 | 85.79 | 686 | | | | |
| 97.03 | 687 | | | | | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -96.73 | | -96.73 | .045 | 97.03 | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-96.73 97.03 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

E.G. Elev (m) 678.94 Element Left OB Channel Right OB

Vel Head (m) 0.02 Wt. n-Val. 0.045
W.S. Elev (m) 678.92 Reach Len. (m) 20.00 20.00 20.00
Crit W.S. (m) 678.90 Flow Area (m2) 1.35
E.G. Slope (m/m) 0.029012 Area (m2) 1.35
Q Total (m3/s) 0.94 Flow (m3/s) 0.94
Top Width (m) 16.97 Top Width (m) 16.97
Vel Total (m/s) 0.70 Avg. Vel. (m/s) 0.70
Max Chl Dpth (m) 0.16 Hydr. Depth (m) 0.08
Conv. Total (m3/s) 5.5 Conv. (m3/s) 5.5
Length Wtd. (m) 20.00 Wetted Per. (m) 16.97
Min Ch El (m) 678.76 Shear (N/m2) 22.55
Alpha 1.00 Stream Power (N/m s) 15.75
Frctn Loss (m) 0.50 Cum Volume (1000 m3) 1.55
C & E Loss (m) 0.00 Cum SA (1000 m2) 12.27

CROSS SECTION OUTPUT Profile #T= 500 años

E.G. Elev (m) 679.15 Element Left OB Channel Right OB
Vel Head (m) 0.05 Wt. n-Val. 0.045
W.S. Elev (m) 679.09 Reach Len. (m) 20.00 20.00 20.00
Crit W.S. (m) 679.05 Flow Area (m2) 5.61
E.G. Slope (m/m) 0.019236 Area (m2) 5.61
Q Total (m3/s) 5.77 Flow (m3/s) 5.77
Top Width (m) 29.09 Top Width (m) 29.09
Vel Total (m/s) 1.03 Avg. Vel. (m/s) 1.03
Max Chl Dpth (m) 0.33 Hydr. Depth (m) 0.19
Conv. Total (m3/s) 41.6 Conv. (m3/s) 41.6
Length Wtd. (m) 20.00 Wetted Per. (m) 29.10
Min Ch El (m) 678.76 Shear (N/m2) 36.37
Alpha 1.00 Stream Power (N/m s) 37.41
Frctn Loss (m) 0.45 Cum Volume (1000 m3) 5.52
C & E Loss (m) 0.00 Cum SA (1000 m2) 20.18

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2200.0

INPUT

Description:

| Station Elevation Data | | num= 11 | | Elev | | Sta | | Elev | | Sta | | Elev | |
|------------------------|------|---------|--------|--------|------|--------|------|--------|------|-----|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -99.64 | 684 | -89.2 | 683 | -78.54 | 682 | -67.25 | 681 | -55.95 | 680 | | | | |
| -33.19 | 679 | 0 | 678.19 | 7.89 | 679 | 29.57 | 680 | 49.23 | 681 | | | | |
| 72.98 | 682 | | | | | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -99.64 | | -99.64 | .045 | 72.98 | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-99.64 72.98 20 20 20 .1 .3

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 678.44 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 678.41 | Flow Area (m2) | | 1.24 | |
| Crit W.S. (m) | 678.38 | Area (m2) | | 1.24 | |
| E.G. Slope (m/m) | 0.021846 | Flow (m3/s) | | 0.94 | |
| Q Total (m3/s) | 0.94 | Top Width (m) | | 11.23 | |
| Top Width (m) | 11.23 | Avg. Vel. (m/s) | | 0.76 | |
| Vel Total (m/s) | 0.76 | Hydr. Depth (m) | | 0.11 | |
| Max Chl Dpth (m) | 0.22 | Conv. (m3/s) | | 6.4 | |
| Conv. Total (m3/s) | 6.4 | Wetted Per. (m) | | 11.24 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 23.68 | |
| Min Ch El (m) | 678.19 | Stream Power (N/m s) | | 17.91 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 1.52 | |
| Prctn Loss (m) | 0.60 | Cum SA (1000 m2) | | 11.99 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 677.84 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 677.79 | Flow Area (m2) | | 0.97 | |
| Crit W.S. (m) | 677.79 | Area (m2) | | 0.97 | |
| E.G. Slope (m/m) | 0.043452 | Flow (m3/s) | | 0.94 | |
| Q Total (m3/s) | 0.94 | Top Width (m) | | 10.20 | |
| Top Width (m) | 10.20 | Avg. Vel. (m/s) | | 0.97 | |
| Vel Total (m/s) | 0.97 | Hydr. Depth (m) | | 0.10 | |
| Max Chl Dpth (m) | 0.19 | Conv. (m3/s) | | 4.5 | |
| Conv. Total (m3/s) | 4.5 | Wetted Per. (m) | | 10.21 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 40.59 | |
| Min Ch El (m) | 677.60 | Stream Power (N/m s) | | 39.21 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 1.50 | |
| Prctn Loss (m) | 0.57 | Cum SA (1000 m2) | | 11.78 | |
| C & E Loss (m) | 0.01 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 678.69 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 678.61 | Flow Area (m2) | | 4.49 | |
| Crit W.S. (m) | 678.59 | Area (m2) | | 4.49 | |
| E.G. Slope (m/m) | 0.026844 | Flow (m3/s) | | 5.77 | |
| Q Total (m3/s) | 5.77 | Top Width (m) | | 21.33 | |
| Top Width (m) | 21.33 | Avg. Vel. (m/s) | | 1.29 | |
| Vel Total (m/s) | 1.29 | Hydr. Depth (m) | | 0.21 | |
| Max Chl Dpth (m) | 0.42 | Conv. (m3/s) | | 35.2 | |
| Conv. Total (m3/s) | 35.2 | Wetted Per. (m) | | 21.36 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 55.29 | |
| Min Ch El (m) | 678.19 | Stream Power (N/m s) | | 71.13 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 5.42 | |
| Prctn Loss (m) | 0.60 | Cum SA (1000 m2) | | 19.67 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 678.09 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.10 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 677.99 | Flow Area (m2) | | 4.17 | |
| Crit W.S. (m) | 677.99 | Area (m2) | | 4.17 | |
| E.G. Slope (m/m) | 0.033762 | Flow (m3/s) | | 5.77 | |
| Q Total (m3/s) | 5.77 | Top Width (m) | | 21.13 | |
| Top Width (m) | 21.13 | Avg. Vel. (m/s) | | 1.38 | |
| Vel Total (m/s) | 1.38 | Hydr. Depth (m) | | 0.20 | |
| Max Chl Dpth (m) | 0.39 | Conv. (m3/s) | | 31.4 | |
| Conv. Total (m3/s) | 31.4 | Wetted Per. (m) | | 21.15 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 65.31 | |
| Min Ch El (m) | 677.60 | Stream Power (N/m s) | | 90.37 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 5.33 | |
| Prctn Loss (m) | 0.56 | Cum SA (1000 m2) | | 19.25 | |
| C & E Loss (m) | 0.01 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2220.0

INPUT

Description:

| Station | Elevation | Data | num= | 15 | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|-------|--------|-------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -97.94 | 684 | -87.64 | 683 | -77.35 | 682 | -67.05 | 681 | -56.75 | 680 | | | | | | | | | | |
| -37.62 | 679 | -14.82 | 678 | -1.02 | 677.6 | 0 | 677.6 | 6.6 | 678 | | | | | | | | | | |
| 44.52 | 679 | 63.36 | 680 | 73.27 | 681 | 83.87 | 682 | 93.14 | 683 | | | | | | | | | | |

| Manning's n | Values | num= | 3 | | | | | | | | | | | | | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -97.94 | | -97.94 | .045 | 93.14 | | | | | | | | | | | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -97.94 | 93.14 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2240.0

INPUT

Description:

| Station | Elevation | Data | num= | 13 | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -91.53 | 683 | -81.54 | 682 | -71.65 | 681 | -61.18 | 680 | -43.06 | 679 | | | | | | | | | | |
| -24.42 | 678 | 0 | 677 | 21.64 | 678 | 48.14 | 679 | 57.84 | 680 | | | | | | | | | | |
| 69.21 | 681 | 80 | 682 | 91.06 | 683 | | | | | | | | | | | | | | |

| Manning's n | Values | num= | 3 | | | | | | | | | | | | | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -91.53 | | -91.53 | .045 | 91.06 | | | | | | | | | | | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.53 | 91.06 | | 20 | 20 | 20 | .1 | | .3 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 677.26 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 677.23 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 677.20 | Flow Area (m2) | | 1.25 | |
| E.G. Slope (m/m) | 0.020224 | Area (m2) | | 1.25 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 10.72 | Top Width (m) | | 10.72 | |
| Vel Total (m/s) | 0.75 | Avg. Vel. (m/s) | | 0.75 | |
| Max Chl Dpth (m) | 0.23 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 6.6 | Conv. (m3/s) | | 6.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.73 | |
| Min Ch El (m) | 677.00 | Shear (N/m2) | | 23.06 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.36 | |
| Frctn Loss (m) | 0.57 | Cum Volume (1000 m3) | | 1.48 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.57 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 677.53 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 677.45 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 677.42 | Flow Area (m2) | | 4.59 | |
| E.G. Slope (m/m) | 0.023736 | Area (m2) | | 4.59 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 20.56 | Top Width (m) | | 20.56 | |
| Vel Total (m/s) | 1.26 | Avg. Vel. (m/s) | | 1.26 | |
| Max Chl Dpth (m) | 0.45 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 37.5 | Conv. (m3/s) | | 37.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.58 | |
| Min Ch El (m) | 677.00 | Shear (N/m2) | | 51.88 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 65.29 | |
| Frctn Loss (m) | 0.57 | Cum Volume (1000 m3) | | 5.24 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 18.83 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2260.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 14 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -95.21 681 -78.41 680 -59.03 679 -37.65 678 -15.16 677 | | |
| 0 676.43 .03 676.43 10.65 677 36.81 678 48.6 679 | | |
| 53.31 680 65.33 681 78.54 682 91.4 683 | | |

Manning's n Values

| | |
|-------------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val Sta n Val | |
| -95.21 -95.21 .045 91.4 | |

| | |
|--|---------------------------|
| Bank Sta: Left Right Lengths: Left Channel Right | |
| -95.21 91.4 20 20 20 | Coeff Contr. Expan. .1 .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 676.68 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 676.63 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 676.63 | Flow Area (m2) | | 0.93 | |
| E.G. Slope (m/m) | 0.043795 | Area (m2) | | 0.93 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 9.17 | Top Width (m) | | 9.17 | |
| Vel Total (m/s) | 1.01 | Avg. Vel. (m/s) | | 1.01 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | |

| | | | |
|--------------------|--------|----------------------|-------|
| Conv. Total (m3/s) | 4.5 | Conv. (m3/s) | 4.5 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 9.18 |
| Min Ch El (m) | 676.43 | Shear (N/m2) | 43.50 |
| Alpha | 1.00 | Stream Power (N/m s) | 43.95 |
| Frctn Loss (m) | 0.48 | Cum Volume (1000 m3) | 1.46 |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 11.37 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 676.96 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 676.85 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 676.85 | Flow Area (m2) | | 3.98 | |
| E.G. Slope (m/m) | 0.034266 | Area (m2) | | 3.98 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 18.97 | Top Width (m) | | 18.97 | |
| Vel Total (m/s) | 1.45 | Avg. Vel. (m/s) | | 1.45 | |
| Max Chl Dpth (m) | 0.42 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 31.2 | Conv. (m3/s) | | 31.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.99 | |
| Min Ch El (m) | 676.43 | Shear (N/m2) | | 70.39 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 102.13 | |
| Frctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 5.16 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 18.43 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2280.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 15 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -95.3 680 -79.71 679 -63.78 678 -44.19 677 -8.42 676 | | |
| 0 675.87 .01 675.87 1.57 676 22.44 677 34.7 678 | | |
| 40.04 679 47.19 680 59.31 681 74.67 682 92.14 683 | | |

Manning's n Values

| | |
|-------------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val Sta n Val | |
| -95.3 -95.3 .045 92.14 | |

| | |
|--|---------------------------|
| Bank Sta: Left Right Lengths: Left Channel Right | |
| -95.3 92.14 20 20 20 | Coeff Contr. Expan. .1 .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 676.09 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 676.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 676.03 | Flow Area (m2) | | 1.52 | |
| E.G. Slope (m/m) | 0.015141 | Area (m2) | | 1.52 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 14.07 | Top Width (m) | | 14.07 | |
| Vel Total (m/s) | 0.62 | Avg. Vel. (m/s) | | 0.62 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 7.6 | Conv. (m3/s) | | 7.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.08 | |
| Min Ch El (m) | 675.87 | Shear (N/m2) | | 16.00 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.91 | |
| Frctn Loss (m) | 0.48 | Cum Volume (1000 m3) | | 1.43 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.13 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| CROSS SECTION OUTPUT Profile #T= 500 años | | | | | |
|---|----------|----------------------|---------|---------|----------|
| | | Element | Left OB | Channel | Right OB |
| E.G. Elev (m) | 676.36 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.20 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 676.16 | Flow Area (m2) | | 2.92 | |
| Crit W.S. (m) | 676.22 | Area (m2) | | 2.92 | |
| E.G. Slope (m/m) | 0.095679 | Flow (m3/s) | | 5.77 | |
| Q Total (m3/s) | 5.77 | Top Width (m) | | 18.88 | |
| Top Width (m) | 18.88 | Avg. Vel. (m/s) | | 1.98 | |
| Vel Total (m/s) | 1.98 | Hydr. Depth (m) | | 0.15 | |
| Max Chl Dpth (m) | 0.29 | Conv. (m3/s) | | 18.7 | |
| Conv. Total (m3/s) | 18.7 | Wetted Per. (m) | | 18.90 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 144.87 | |
| Min Ch El (m) | 675.87 | Stream Power (N/m s) | | 286.61 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 5.09 | |
| Frctn Loss (m) | 0.70 | Cum SA (1000 m2) | | 18.06 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2300.0

INPUT

Description:

| Station Elevation Data num= 19 | | | | | | | | | | | |
|--------------------------------|------|-------|--------|--------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -99.41 | 681 | -87.8 | 680 | -73.86 | 679 | -59.55 | 678 | -42.82 | 677 | | |
| -20.5 | 676 | -.01 | 675.34 | 0 | 675.34 | 5.82 | 676 | 6.16 | 676 | | |
| 7.36 | 676 | 19.99 | 677 | 33.92 | 678 | 45.37 | 679 | 55.94 | 680 | | |
| 65.63 | 681 | 74.94 | 682 | 84.26 | 683 | 93.57 | 684 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -99.41 | | -99.41 | .045 | 93.57 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| -99.41 | 93.57 | | 20 | 20 | 20 | | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 675.61 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 675.55 | Flow Area (m2) | | 0.90 | |
| Crit W.S. (m) | 675.55 | Area (m2) | | 0.90 | |
| E.G. Slope (m/m) | 0.043471 | Flow (m3/s) | | 0.94 | |
| Q Total (m3/s) | 0.94 | Top Width (m) | | 8.49 | |
| Top Width (m) | 8.49 | Avg. Vel. (m/s) | | 1.04 | |
| Vel Total (m/s) | 1.04 | Hydr. Depth (m) | | 0.11 | |
| Max Chl Dpth (m) | 0.21 | Conv. (m3/s) | | 4.5 | |
| Conv. Total (m3/s) | 4.5 | Wetted Per. (m) | | 8.51 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 45.30 | |
| Min Ch El (m) | 675.34 | Stream Power (N/m s) | | 47.09 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 1.41 | |
| Frctn Loss (m) | 0.22 | Cum SA (1000 m2) | | 10.91 | |
| C & E Loss (m) | 0.01 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|---------------|--------|----------------|---------|---------|----------|
| E.G. Elev (m) | 675.89 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 675.78 | | | | |

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Crit W.S. (m) | 675.78 | Flow Area (m2) | | 3.88 | |
| E.G. Slope (m/m) | 0.033703 | Area (m2) | | 3.88 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 17.59 | Top Width (m) | | 17.59 | |
| Vel Total (m/s) | 1.49 | Avg. Vel. (m/s) | | 1.49 | |
| Max Chl Dpth (m) | 0.44 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 31.4 | Conv. (m3/s) | | 31.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.62 | |
| Min Ch El (m) | 675.34 | Shear (N/m2) | | 72.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 108.25 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 5.02 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 17.69 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2320.0

INPUT

Description:

| Station Elevation Data num= 17 | | | | | | | | | | | |
|--------------------------------|------|--------|--------|--------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.97 | 680 | -74.34 | 679 | -57.71 | 678 | -41.08 | 677 | -24.45 | 676 | | |
| -41 | 675 | 0 | 674.94 | .01 | 674.94 | 7.01 | 675 | 16.6 | 676 | | |
| 26.47 | 677 | 37.03 | 678 | 49.12 | 679 | 61.38 | 680 | 73.5 | 681 | | |
| 84.19 | 682 | 94.29 | 683 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -90.97 | | -90.97 | .045 | 94.29 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| -90.97 | 94.29 | | 20 | 20 | 20 | | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 675.15 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 675.14 | Flow Area (m2) | | 2.19 | |
| Crit W.S. (m) | 675.06 | Area (m2) | | 2.19 | |
| E.G. Slope (m/m) | 0.005050 | Flow (m3/s) | | 0.94 | |
| Q Total (m3/s) | 0.94 | Top Width (m) | | 15.49 | |
| Top Width (m) | 15.49 | Avg. Vel. (m/s) | | 0.43 | |
| Vel Total (m/s) | 0.43 | Hydr. Depth (m) | | 0.14 | |
| Max Chl Dpth (m) | 0.20 | Conv. (m3/s) | | 13.2 | |
| Conv. Total (m3/s) | 13.2 | Wetted Per. (m) | | 15.50 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 7.00 | |
| Min Ch El (m) | 674.94 | Stream Power (N/m s) | | 3.00 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 1.38 | |
| Frctn Loss (m) | 0.09 | Cum SA (1000 m2) | | 10.67 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 675.49 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.02 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 675.47 | Flow Area (m2) | | 9.04 | |
| Crit W.S. (m) | 675.24 | Area (m2) | | 9.04 | |
| E.G. Slope (m/m) | 0.003282 | Flow (m3/s) | | 5.77 | |
| Q Total (m3/s) | 5.77 | Top Width (m) | | 25.41 | |
| Top Width (m) | 25.41 | Avg. Vel. (m/s) | | 0.64 | |
| Vel Total (m/s) | 0.64 | Hydr. Depth (m) | | 0.36 | |
| Max Chl Dpth (m) | 0.53 | Conv. (m3/s) | | 100.7 | |
| Conv. Total (m3/s) | 100.7 | Wetted Per. (m) | | 25.45 | |
| Length Wtd. (m) | 20.00 | | | | |

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ANEXO VII

Min Ch El (m) 674.94 Shear (N/m2) 11.43
Alpha 1.00 Stream Power (N/m s) 7.30
Frctn Loss (m) 0.06 Cum Volume (1000 m3) 4.89
C & E Loss (m) 0.00 Cum SA (1000 m2) 17.26

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2340.0

INPUT

Description:

Station Elevation Data num= 18
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-88.71 681 -77.28 680 -63.04 679 -48.64 678 -34.91 677
-22.12 676 -9.33 675 0 674.77 .03 674.77 4.56 675
16.17 676 28.13 677 39.85 678 54.21 679 69.69 680
78.98 681 88.17 682 97.52 683

Manning's n Values

num= 3
Sta n Val Sta n Val
-88.71 -88.71 .045 97.52

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-88.71 97.52 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 675.06 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 675.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.31 | |
| E.G. Slope (m/m) | 0.004072 | Area (m2) | | 2.31 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 15.09 | Top Width (m) | | 15.09 | |
| Vel Total (m/s) | 0.41 | Avg. Vel. (m/s) | | 0.41 | |
| Max Chl Dpth (m) | 0.28 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 14.7 | Conv. (m3/s) | | 14.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.10 | |
| Min Ch El (m) | 674.77 | Shear (N/m2) | | 6.12 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.48 | |
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | | 1.33 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 10.36 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 675.43 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 675.42 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 9.47 | |
| E.G. Slope (m/m) | 0.002609 | Area (m2) | | 9.47 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 24.02 | Top Width (m) | | 24.02 | |
| Vel Total (m/s) | 0.61 | Avg. Vel. (m/s) | | 0.61 | |
| Max Chl Dpth (m) | 0.65 | Hydr. Depth (m) | | 0.39 | |
| Conv. Total (m3/s) | 113.0 | Conv. (m3/s) | | 113.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.06 | |
| Min Ch El (m) | 674.77 | Shear (N/m2) | | 10.07 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.14 | |
| Frctn Loss (m) | 0.06 | Cum Volume (1000 m3) | | 4.71 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.77 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2360.0

INPUT

Description:

Station Elevation Data num= 20
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-92.7 683 -83.98 682 -76.19 681 -68.39 680 -56.17 679
-43.95 678 -31.44 677 -18.87 676 -6.3 675 0 674.61
.01 674.61 6.28 675 19.25 676 32.36 677 45.57 678
59.78 679 74 680 82.42 681 91.03 682 99.46 683

Manning's n Values

num= 3
Sta n Val Sta n Val
-92.7 -92.7 .045 99.46

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-92.7 99.46 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 674.97 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.96 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.97 | |
| E.G. Slope (m/m) | 0.004739 | Area (m2) | | 1.97 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 11.26 | Top Width (m) | | 11.26 | |
| Vel Total (m/s) | 0.48 | Avg. Vel. (m/s) | | 0.48 | |
| Max Chl Dpth (m) | 0.35 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 13.6 | Conv. (m3/s) | | 13.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.28 | |
| Min Ch El (m) | 674.61 | Shear (N/m2) | | 8.10 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.87 | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | | 1.29 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 10.10 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 675.38 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 675.35 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 8.45 | |
| E.G. Slope (m/m) | 0.003303 | Area (m2) | | 8.45 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 21.55 | Top Width (m) | | 21.55 | |
| Vel Total (m/s) | 0.68 | Avg. Vel. (m/s) | | 0.68 | |
| Max Chl Dpth (m) | 0.74 | Hydr. Depth (m) | | 0.39 | |
| Conv. Total (m3/s) | 100.4 | Conv. (m3/s) | | 100.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.60 | |
| Min Ch El (m) | 674.61 | Shear (N/m2) | | 12.67 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.66 | |
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | | 4.53 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.31 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2380.0

INPUT

Description:

| Station Elevation Data | | num= 18 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-----|--------|-----|--------|--------|--------|--------|------|--|
| -90.4 | 682 | -83.19 | 681 | -76.13 | 680 | -61.76 | 679 | -47.39 | 678 | | |
| -33.02 | 677 | -18.65 | 676 | -4.33 | 675 | 0 | 674.44 | .03 | 674.44 | | |
| 6.27 | 675 | 20.22 | 676 | 34.16 | 677 | 48.15 | 678 | 62.25 | 679 | | |
| 76.1 | 680 | 84.11 | 681 | 92.11 | 682 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -90.4 | | -90.4 | .045 | 92.11 | | | |

| Bank | Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
|------|-----------|-------|---------------|---------|-------|-------|--------|--------|
| | -90.4 | 92.11 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 674.86 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.84 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.53 | |
| E.G. Slope (m/m) | 0.006485 | Area (m2) | | 1.53 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 7.61 | Top Width (m) | | 7.61 | |
| Vel Total (m/s) | 0.61 | Avg. Vel. (m/s) | | 0.61 | |
| Max Chl Dpth (m) | 0.40 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 11.7 | Conv. (m3/s) | | 11.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.65 | |
| Min Ch El (m) | 674.44 | Shear (N/m2) | | 12.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.81 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 1.25 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.91 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 675.28 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 675.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 6.36 | |
| E.G. Slope (m/m) | 0.006437 | Area (m2) | | 6.36 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 17.42 | Top Width (m) | | 17.42 | |
| Vel Total (m/s) | 0.91 | Avg. Vel. (m/s) | | 0.91 | |
| Max Chl Dpth (m) | 0.80 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 71.9 | Conv. (m3/s) | | 71.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.50 | |
| Min Ch El (m) | 674.44 | Shear (N/m2) | | 22.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 20.82 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 4.38 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 15.92 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2400.0

INPUT

Description:

| Station Elevation Data | | num= 17 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-----|--------|--------|--------|--------|--------|-----|------|--|
| -97.44 | 681 | -85.69 | 680 | -70.17 | 679 | -52.72 | 678 | -36.43 | 677 | | |
| -19.73 | 676 | -3.33 | 675 | 0 | 674.27 | .02 | 674.27 | 8.38 | 675 | | |
| 22.03 | 676 | 35.67 | 677 | 49.31 | 678 | 62.95 | 679 | 76.16 | 680 | | |
| 84.52 | 681 | 92.6 | 682 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|------|--|-------|--|
| -97.44 | | -97.44 | .045 | 92.6 | | | |

| Bank | Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
|------|-----------|-------|---------------|---------|-------|-------|--------|--------|
| | -97.44 | 92.6 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 674.68 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.64 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.12 | |
| E.G. Slope (m/m) | 0.013368 | Area (m2) | | 1.12 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 6.00 | Top Width (m) | | 6.00 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | 0.84 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 8.1 | Conv. (m3/s) | | 8.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.06 | |
| Min Ch El (m) | 674.27 | Shear (N/m2) | | 24.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 20.34 | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 1.23 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.78 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 675.09 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.99 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 4.13 | |
| E.G. Slope (m/m) | 0.015676 | Area (m2) | | 4.13 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 11.50 | Top Width (m) | | 11.50 | |
| Vel Total (m/s) | 1.40 | Avg. Vel. (m/s) | | 1.40 | |
| Max Chl Dpth (m) | 0.72 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 46.1 | Conv. (m3/s) | | 46.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.61 | |
| Min Ch El (m) | 674.27 | Shear (N/m2) | | 54.69 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 76.41 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 4.27 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.63 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2420.0

INPUT

Description:

| Station Elevation Data | | num= 17 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-------|--------|-------|--------|-----|--------|-----|------|--|
| -98.53 | 680 | -82.64 | 679 | -65.76 | 678 | -48.26 | 677 | -31.63 | 676 | | |
| -13.66 | 675 | -0.1 | 674.1 | 0 | 674.1 | 12.35 | 675 | 24.12 | 676 | | |
| 35.86 | 677 | 47.9 | 678 | 60.2 | 679 | 72.5 | 680 | 81.89 | 681 | | |
| 91.22 | 682 | 99.9 | 683 | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|--|--------|--|-------|------|
| -98.53 | | -98.53 | | .045 | 99.9 |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -98.53 | | 99.9 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 674.43 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.41 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 674.34 | Flow Area (m2) | | 1.38 | |
| E.G. Slope (m/m) | 0.011313 | Area (m2) | | 1.38 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 8.94 | Top Width (m) | | 8.94 | |
| Vel Total (m/s) | 0.68 | Avg. Vel. (m/s) | | 0.68 | |
| Max Chl Dpth (m) | 0.31 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 8.8 | Conv. (m3/s) | | 8.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.96 | |
| Min Ch El (m) | 674.10 | Shear (N/m2) | | 17.12 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.64 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | 1.20 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.63 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 674.74 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.66 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 674.60 | Flow Area (m2) | | 4.47 | |
| E.G. Slope (m/m) | 0.018669 | Area (m2) | | 4.47 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 16.07 | Top Width (m) | | 16.07 | |
| Vel Total (m/s) | 1.29 | Avg. Vel. (m/s) | | 1.29 | |
| Max Chl Dpth (m) | 0.56 | Hydr. Depth (m) | | 0.28 | |
| Conv. Total (m3/s) | 42.2 | Conv. (m3/s) | | 42.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.11 | |
| Min Ch El (m) | 674.10 | Shear (N/m2) | | 50.80 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 65.61 | |
| Frctn Loss (m) | 0.50 | Cum Volume (1000 m3) | | 4.19 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.36 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2440.0

INPUT

Description:

| Station Elevation Data | | num= 18 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|--------|--------|--------|--------|-----|--------|-----|------|--|
| -97.07 | 679 | -78.6 | 678 | -62.02 | 677 | -45.48 | 676 | -27.11 | 675 | | |
| -15.77 | 674 | -0.1 | 673.84 | 0 | 673.84 | 1.93 | 674 | 15.09 | 675 | | |
| 25.79 | 676 | 36.48 | 677 | 47.18 | 678 | 57.88 | 679 | 67.78 | 680 | | |
| 77.01 | 681 | 86.16 | 682 | 95.3 | 683 | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|--|--------|--|-------|------|
| -97.07 | | -97.07 | | .045 | 95.3 |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -97.07 | | 95.3 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 674.02 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 673.98 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 673.98 | Flow Area (m2) | | 1.11 | |
| E.G. Slope (m/m) | 0.048964 | Area (m2) | | 1.11 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 15.70 | Top Width (m) | | 15.70 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | 0.84 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 4.2 | Conv. (m3/s) | | 4.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.71 | |
| Min Ch El (m) | 673.84 | Shear (N/m2) | | 34.08 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 28.72 | |
| Frctn Loss (m) | 0.14 | Cum Volume (1000 m3) | | 1.18 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 9.38 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 674.24 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.14 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 674.14 | Flow Area (m2) | | 4.12 | |
| E.G. Slope (m/m) | 0.035110 | Area (m2) | | 4.12 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 21.11 | Top Width (m) | | 21.11 | |
| Vel Total (m/s) | 1.40 | Avg. Vel. (m/s) | | 1.40 | |
| Max Chl Dpth (m) | 0.30 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 30.8 | Conv. (m3/s) | | 30.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.13 | |
| Min Ch El (m) | 673.84 | Shear (N/m2) | | 67.15 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 94.03 | |
| Frctn Loss (m) | 0.23 | Cum Volume (1000 m3) | | 4.10 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 14.98 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2460.0

INPUT

Description:

| Station Elevation Data | | num= 19 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-----|--------|--------|--------|--------|--------|-----|------|--|
| -88.2 | 678 | -70.9 | 677 | -54.97 | 676 | -39.09 | 675 | -26.81 | 674 | | |
| -17.23 | 673 | -7.7 | 673 | -0.2 | 673.42 | 0 | 673.42 | 6.59 | 674 | | |
| 19.68 | 675 | 28.06 | 676 | 36.65 | 677 | 45.25 | 678 | 53.84 | 679 | | |
| 62.43 | 680 | 72.21 | 681 | 81.99 | 682 | 91.77 | 683 | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|--|-------|--|-------|-------|
| -88.2 | | -88.2 | | .045 | 91.77 |

| Bank | Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
|------|-----------|-------|---------------|---------|-------|-------|--------|--------|
| | -88.2 | 91.77 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 673.22 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 673.21 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 673.10 | Flow Area (m2) | | 2.66 | |
| E.G. Slope (m/m) | 0.002637 | Area (m2) | | 2.66 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 15.47 | Top Width (m) | | 15.47 | |
| Vel Total (m/s) | 0.35 | Avg. Vel. (m/s) | | 0.35 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 18.3 | Conv. (m3/s) | | 18.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.48 | |
| Min Ch El (m) | 673.00 | Shear (N/m2) | | 4.45 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.57 | |
| Frctn Loss (m) | 0.14 | Cum Volume (1000 m3) | | 1.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.07 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 673.49 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 673.46 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 673.29 | Flow Area (m2) | | 7.30 | |
| E.G. Slope (m/m) | 0.005535 | Area (m2) | | 7.30 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 22.07 | Top Width (m) | | 22.07 | |
| Vel Total (m/s) | 0.79 | Avg. Vel. (m/s) | | 0.79 | |
| Max Chl Dpth (m) | 0.46 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 77.6 | Conv. (m3/s) | | 77.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.11 | |
| Min Ch El (m) | 673.00 | Shear (N/m2) | | 17.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.17 | |
| Frctn Loss (m) | 0.23 | Cum Volume (1000 m3) | | 3.99 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 14.55 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2480.0

INPUT

Description:

| Station Elevation Data | | num= 18 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-----|--------|-----|--------|-----|--------|-----|------|--|
| -92.42 | 678 | -77.81 | 677 | -62.04 | 676 | -46.75 | 675 | -35.21 | 674 | | |
| -24.34 | 673 | 0 | 673 | .03 | 673 | 11.75 | 674 | 19.67 | 675 | | |
| 27.96 | 676 | 36.31 | 677 | 44.73 | 678 | 53.41 | 679 | 62.23 | 680 | | |
| 73.26 | 681 | 84.49 | 682 | 97.88 | 683 | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|--|--------|--|-------|-------|
| -92.42 | | -92.42 | | .045 | 97.88 |

| Bank | Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
|------|-----------|-------|---------------|---------|-------|-------|--------|--------|
| | -92.42 | 97.88 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 673.08 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 673.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 673.05 | Flow Area (m2) | | 1.36 | |
| E.G. Slope (m/m) | 0.048967 | Area (m2) | | 1.36 | |
| Q Total (m3/s) | 0.94 | Flow (m3/s) | | 0.94 | |
| Top Width (m) | 25.60 | Top Width (m) | | 25.60 | |
| Vel Total (m/s) | 0.69 | Avg. Vel. (m/s) | | 0.69 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 4.2 | Conv. (m3/s) | | 4.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 25.60 | |
| Min Ch El (m) | 673.00 | Shear (N/m2) | | 25.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.62 | |
| Frctn Loss (m) | 0.95 | Cum Volume (1000 m3) | | 1.10 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 8.66 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 673.25 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 673.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 673.17 | Flow Area (m2) | | 4.55 | |
| E.G. Slope (m/m) | 0.037196 | Area (m2) | | 4.55 | |
| Q Total (m3/s) | 5.77 | Flow (m3/s) | | 5.77 | |
| Top Width (m) | 28.28 | Top Width (m) | | 28.28 | |
| Vel Total (m/s) | 1.27 | Avg. Vel. (m/s) | | 1.27 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.16 | |
| Conv. Total (m3/s) | 29.9 | Conv. (m3/s) | | 29.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.29 | |
| Min Ch El (m) | 673.00 | Shear (N/m2) | | 58.69 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 74.41 | |
| Frctn Loss (m) | 0.70 | Cum Volume (1000 m3) | | 3.87 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 14.05 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2500.0

INPUT

Description:

| Station Elevation Data | | num= 19 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -94.26 | 678 | -80.53 | 677 |
| -29.89 | 673 | -19.44 | 672 |
| 6.63 | 673 | 13.05 | 674 |
| 48.37 | 678 | 60.5 | 679 |

Manning's n Values

| num= 3 | |
|--------|-------|
| Sta | n Val |
| -94.26 | 0.045 |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -94.26 | | 86.98 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 672.12 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 672.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 672.08 | Flow Area (m2) | | 1.33 | |
| E.G. Slope (m/m) | 0.046802 | Area (m2) | | 1.33 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 16.91 | Top Width (m) | | 16.91 | |
| Vel Total (m/s) | 0.88 | Avg. Vel. (m/s) | | 0.88 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 5.4 | Conv. (m3/s) | | 5.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.91 | |
| Min Ch El (m) | 672.00 | Shear (N/m2) | | 36.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.87 | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 1.07 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 8.23 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 672.38 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 672.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 672.27 | Flow Area (m2) | | 4.25 | |
| E.G. Slope (m/m) | 0.049345 | Area (m2) | | 4.25 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 21.05 | Top Width (m) | | 21.05 | |
| Vel Total (m/s) | 1.70 | Avg. Vel. (m/s) | | 1.70 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 32.5 | Conv. (m3/s) | | 32.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.07 | |
| Min Ch El (m) | 672.00 | Shear (N/m2) | | 97.60 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 165.69 | |
| Frctn Loss (m) | 0.87 | Cum Volume (1000 m3) | | 3.78 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 13.56 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2520.0

INPUT

Description:

| Station Elevation Data | | num= 19 | |
|------------------------|--------|---------|------|
| Sta | Elev | Sta | Elev |
| -95 | 678 | -81.53 | 677 |
| -34.17 | 673 | -22.87 | 672 |
| 0 | 671.57 | 3.13 | 672 |
| 33.89 | 676 | 46.91 | 677 |

Manning's n Values

| num= 3 | |
|--------|-------|
| Sta | n Val |
| -95 | 0.045 |

| Bank | Sta | Left | Right | Lengths | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|-----|------|-------|---------|------|---------|-------|-------|--------|--------|
| | -95 | | 78.98 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 671.26 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 671.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 671.15 | Flow Area (m2) | | 1.88 | |
| E.G. Slope (m/m) | 0.008027 | Area (m2) | | 1.88 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 10.73 | Top Width (m) | | 10.73 | |
| Vel Total (m/s) | 0.62 | Avg. Vel. (m/s) | | 0.62 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 13.1 | Conv. (m3/s) | | 13.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.75 | |
| Min Ch El (m) | 671.00 | Shear (N/m2) | | 13.79 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.60 | |
| Frctn Loss (m) | 0.31 | Cum Volume (1000 m3) | | 1.04 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 7.96 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 671.61 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 671.54 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 671.42 | Flow Area (m2) | | 6.13 | |
| E.G. Slope (m/m) | 0.011639 | Area (m2) | | 6.13 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 17.76 | Top Width (m) | | 17.76 | |
| Vel Total (m/s) | 1.18 | Avg. Vel. (m/s) | | 1.18 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.35 | |
| Conv. Total (m3/s) | 66.9 | Conv. (m3/s) | | 66.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.81 | |
| Min Ch El (m) | 671.00 | Shear (N/m2) | | 39.28 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 46.24 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 3.68 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 13.17 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2540.0

INPUT

Description:

| Station Elevation Data | | num= 17 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-----|--------|-----|-------|--------|--------|--------|------|--|
| -95.71 | 678 | -82.44 | 677 | -69.17 | 676 | -55.9 | 675 | -46.15 | 674 | | |
| -36.4 | 673 | -26.49 | 672 | -15.12 | 671 | 0 | 670.68 | .03 | 670.68 | | |
| 1.55 | 671 | 9.32 | 672 | 16.41 | 673 | 23.34 | 674 | 30.34 | 675 | | |
| 47.07 | 676 | 63.28 | 677 | | | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|--|--------|--|-------|-------|
| -95.71 | | -95.71 | | .045 | 63.28 |

| Bank | Sta | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.71 | | 63.28 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 670.94 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.89 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 670.89 | Flow Area (m2) | | 1.15 | |
| E.G. Slope (m/m) | 0.043062 | Area (m2) | | 1.15 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 10.92 | Top Width (m) | | 10.92 | |
| Vel Total (m/s) | 1.02 | Avg. Vel. (m/s) | | 1.02 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 5.7 | Conv. (m3/s) | | 5.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.94 | |
| Min Ch El (m) | 670.68 | Shear (N/m2) | | 44.24 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 45.33 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 1.01 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 7.74 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 671.23 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 671.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 671.11 | Flow Area (m2) | | 4.58 | |
| E.G. Slope (m/m) | 0.032988 | Area (m2) | | 4.58 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 18.73 | Top Width (m) | | 18.73 | |
| Vel Total (m/s) | 1.58 | Avg. Vel. (m/s) | | 1.58 | |
| Max Chl Dpth (m) | 0.43 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 39.7 | Conv. (m3/s) | | 39.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.78 | |
| Min Ch El (m) | 670.68 | Shear (N/m2) | | 78.89 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 124.27 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 3.57 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 12.80 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2560.0

INPUT

Description:

| Station Elevation Data | | num= 19 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|-----|--------|-----|--------|-----|--------|--------|------|--|
| -98.04 | 678 | -85.21 | 677 | -72.39 | 676 | -59.56 | 675 | -49.81 | 674 | | |
| -40.06 | 673 | -30.3 | 672 | -20.44 | 671 | -10.58 | 670 | 0 | 669.94 | | |
| .05 | 669.94 | 2.81 | 670 | 9.8 | 671 | 17.54 | 672 | 25.78 | 673 | | |
| 33.84 | 674 | 41.91 | 675 | 59.19 | 676 | 94.61 | 677 | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | |
|--------|--|--------|--|-------|-------|
| -98.04 | | -98.04 | | .045 | 94.61 |

| Bank | Sta | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.04 | | 94.61 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 670.17 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.16 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 670.06 | Flow Area (m2) | | 2.70 | |
| E.G. Slope (m/m) | 0.004109 | Area (m2) | | 2.70 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 16.02 | Top Width (m) | | 16.02 | |
| Vel Total (m/s) | 0.43 | Avg. Vel. (m/s) | | 0.43 | |
| Max Chl Dpth (m) | 0.22 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 18.3 | Conv. (m3/s) | | 18.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.04 | |
| Min Ch El (m) | 669.94 | Shear (N/m2) | | 6.79 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.95 | |
| Frctn Loss (m) | 0.08 | Cum Volume (1000 m3) | | 0.97 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 7.47 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 670.51 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.47 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 670.26 | Flow Area (m2) | | 8.65 | |
| E.G. Slope (m/m) | 0.004721 | Area (m2) | | 8.65 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 21.38 | Top Width (m) | | 21.38 | |
| Vel Total (m/s) | 0.83 | Avg. Vel. (m/s) | | 0.83 | |
| Max Chl Dpth (m) | 0.53 | Hydr. Depth (m) | | 0.40 | |
| Conv. Total (m3/s) | 105.0 | Conv. (m3/s) | | 105.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.44 | |
| Min Ch El (m) | 669.94 | Shear (N/m2) | | 18.68 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 15.58 | |
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | | 3.44 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.40 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -2580.0

INPUT

Description:

| Station Elevation Data | | num= 18 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-----|--------|-----|--------|--------|--------|--------|------|--|
| -91.22 | 677 | -77.66 | 676 | -64.1 | 675 | -52.76 | 674 | -41.41 | 673 | | |
| -30.07 | 672 | -20.34 | 671 | -11.27 | 670 | 0 | 669.82 | .06 | 669.82 | | |
| 5.66 | 670 | 13.39 | 671 | 21.16 | 672 | 32.25 | 673 | 42.73 | 674 | | |
| 57.77 | 675 | 84.67 | 676 | 98.05 | 677 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -91.22 | | -91.22 | .045 | 98.05 | | | |

| Bank | Sta | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.22 | | 98.05 | | 20 | 20 | | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 670.09 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.89 | |
| E.G. Slope (m/m) | 0.003915 | Area (m2) | | 2.89 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 18.23 | Top Width (m) | | 18.23 | |
| Vel Total (m/s) | 0.41 | Avg. Vel. (m/s) | | 0.41 | |
| Max Chl Dpth (m) | 0.26 | Hydr. Depth (m) | | 0.16 | |
| Conv. Total (m3/s) | 18.8 | Conv. (m3/s) | | 18.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.24 | |
| Min Ch El (m) | 669.82 | Shear (N/m2) | | 6.08 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.47 | |
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | | 0.92 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 7.13 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 670.42 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.39 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 9.45 | |
| E.G. Slope (m/m) | 0.003985 | Area (m2) | | 9.45 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 23.51 | Top Width (m) | | 23.51 | |
| Vel Total (m/s) | 0.76 | Avg. Vel. (m/s) | | 0.76 | |
| Max Chl Dpth (m) | 0.57 | Hydr. Depth (m) | | 0.40 | |
| Conv. Total (m3/s) | 114.3 | Conv. (m3/s) | | 114.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.56 | |
| Min Ch El (m) | 669.82 | Shear (N/m2) | | 15.68 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.96 | |
| Frctn Loss (m) | 0.07 | Cum Volume (1000 m3) | | 3.26 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.95 | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -2600.0

INPUT

Description:

| Station Elevation Data | | num= 18 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|---------|-----|--------|-----|--------|-------|--------|-------|------|--|
| -95.32 | 677 | -82.15 | 676 | -68.6 | 675 | -56.47 | 674 | -44.59 | 673 | | |
| -32.9 | 672 | -21.75 | 671 | -10.59 | 670 | 0 | 669.7 | .05 | 669.7 | | |
| 8.95 | 670 | 18.6 | 671 | 28.26 | 672 | 41.26 | 673 | 59.91 | 674 | | |
| 74.68 | 675 | 87.29 | 676 | 99.9 | 677 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|------|--|-------|--|
| -95.32 | | -95.32 | .045 | 99.9 | | | |

| Bank | Sta | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|------|--------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.32 | | 99.9 | | 20 | 20 | | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 670.00 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.99 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.76 | |
| E.G. Slope (m/m) | 0.004778 | Area (m2) | | 2.76 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 18.93 | Top Width (m) | | 18.93 | |
| Vel Total (m/s) | 0.43 | Avg. Vel. (m/s) | | 0.43 | |
| Max Chl Dpth (m) | 0.29 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 17.0 | Conv. (m3/s) | | 17.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.94 | |
| Min Ch El (m) | 669.70 | Shear (N/m2) | | 6.83 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.91 | |
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | | 0.86 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 6.76 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 670.35 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.32 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 10.27 | |
| E.G. Slope (m/m) | 0.003490 | Area (m2) | | 10.27 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 26.21 | Top Width (m) | | 26.21 | |
| Vel Total (m/s) | 0.70 | Avg. Vel. (m/s) | | 0.70 | |
| Max Chl Dpth (m) | 0.62 | Hydr. Depth (m) | | 0.39 | |
| Conv. Total (m3/s) | 122.1 | Conv. (m3/s) | | 122.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.25 | |
| Min Ch El (m) | 669.70 | Shear (N/m2) | | 13.39 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.41 | |
| Frctn Loss (m) | 0.07 | Cum Volume (1000 m3) | | 3.06 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.46 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2620.0

INPUT

Description:

| Station Elevation Data | | num= 17 | | | | | | | | | | | |
|------------------------|------|---------|------|--------|------|--------|--------|--------|--------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.49 | 677 | -77.76 | 676 | -65.28 | 675 | -54.14 | 674 | -42.56 | 673 | | | | |
| -31.13 | 672 | -19.7 | 671 | -8.26 | 670 | 0 | 669.57 | .02 | 669.57 | | | | |
| 13.01 | 670 | 25.82 | 671 | 38.06 | 672 | 50.29 | 673 | 62.56 | 674 | | | | |
| 74.85 | 675 | 87.92 | 676 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | | |
|--------------------|--------|--------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -90.49 | -90.49 | .045 | 87.92 | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| -90.49 | -90.49 | 87.92 | 20 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 669.91 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | 0.045 | | |
| W.S. Elev (m) | 669.90 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | 2.77 | | |
| E.G. Slope (m/m) | 0.003966 | Area (m2) | 2.77 | | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | 1.17 | | |
| Top Width (m) | 16.53 | Top Width (m) | 16.53 | | |
| Vel Total (m/s) | 0.42 | Avg. Vel. (m/s) | 0.42 | | |
| Max Chl Dpth (m) | 0.33 | Hydr. Depth (m) | 0.17 | | |
| Conv. Total (m3/s) | 18.6 | Conv. (m3/s) | 18.6 | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 16.55 | | |
| Min Ch El (m) | 669.57 | Shear (N/m2) | 6.50 | | |
| Alpha | 1.00 | Stream Power (N/m s) | 2.76 | | |
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | 0.80 | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 6.40 | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 670.28 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | 0.045 | | |
| W.S. Elev (m) | 670.26 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | 10.82 | | |
| E.G. Slope (m/m) | 0.003122 | Area (m2) | 10.82 | | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | 7.21 | | |
| Top Width (m) | 27.48 | Top Width (m) | 27.48 | | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | 0.67 | | |
| Max Chl Dpth (m) | 0.69 | Hydr. Depth (m) | 0.39 | | |
| Conv. Total (m3/s) | 129.1 | Conv. (m3/s) | 129.1 | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 27.52 | | |
| Min Ch El (m) | 669.57 | Shear (N/m2) | 12.04 | | |
| Alpha | 1.00 | Stream Power (N/m s) | 8.03 | | |
| Frctn Loss (m) | 0.07 | Cum Volume (1000 m3) | 2.85 | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 10.92 | | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2640.0

INPUT

Description:

| Station Elevation Data | | num= 17 | | | | | | | | | | | |
|------------------------|------|---------|------|--------|------|--------|--------|--------|--------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -94.2 | 677 | -81.43 | 676 | -67.89 | 675 | -54.85 | 674 | -42.43 | 673 | | | | |
| -30.31 | 672 | -18.19 | 671 | -6.17 | 670 | 0 | 669.45 | .01 | 669.45 | | | | |
| 13.67 | 670 | 26.79 | 671 | 39.9 | 672 | 52.99 | 673 | 65.52 | 674 | | | | |
| 78.04 | 675 | 91.84 | 676 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | | |
|--------------------|-------|--------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -94.2 | -94.2 | .045 | 91.84 | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| -94.2 | -94.2 | 91.84 | 20 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 669.83 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | 0.045 | | |
| W.S. Elev (m) | 669.82 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | 2.41 | | |
| E.G. Slope (m/m) | 0.004639 | Area (m2) | 2.41 | | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | 1.17 | | |
| Top Width (m) | 13.18 | Top Width (m) | 13.18 | | |
| Vel Total (m/s) | 0.49 | Avg. Vel. (m/s) | 0.49 | | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | 0.18 | | |
| Conv. Total (m3/s) | 17.2 | Conv. (m3/s) | 17.2 | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 13.21 | | |
| Min Ch El (m) | 669.45 | Shear (N/m2) | 8.30 | | |
| Alpha | 1.00 | Stream Power (N/m s) | 4.05 | | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | 0.75 | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 6.10 | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 670.20 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | 0.045 | | |
| W.S. Elev (m) | 670.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | 9.29 | | |
| E.G. Slope (m/m) | 0.004395 | Area (m2) | 9.29 | | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | 7.21 | | |
| Top Width (m) | 24.21 | Top Width (m) | 24.21 | | |
| Vel Total (m/s) | 0.78 | Avg. Vel. (m/s) | 0.78 | | |
| Max Chl Dpth (m) | 0.72 | Hydr. Depth (m) | 0.38 | | |
| Conv. Total (m3/s) | 108.8 | Conv. (m3/s) | 108.8 | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 24.26 | | |
| Min Ch El (m) | 669.45 | Shear (N/m2) | 16.50 | | |
| Alpha | 1.00 | Stream Power (N/m s) | 12.82 | | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | 2.65 | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 10.40 | | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -2660.0

INPUT

Description:

| Station Elevation Data | | num= 15 | |
|------------------------|------|---------|------|
| Sta | Elev | Sta | Elev |
| -94.83 | 676 | -80.21 | 675 |
| -21.28 | 671 | -8.07 | 670 |
| 25.35 | 671 | 39.4 | 672 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -94.83 | | -94.83 | .045 |
| | | 90.44 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.83 | 90.44 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.72 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.70 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.98 | |
| E.G. Slope (m/m) | 0.006814 | Area (m2) | | 1.98 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 10.77 | Top Width (m) | | 10.77 | |
| Vel Total (m/s) | 0.59 | Avg. Vel. (m/s) | | 0.59 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 14.2 | Conv. (m3/s) | | 14.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.80 | |
| Min Ch El (m) | 669.33 | Shear (N/m2) | | 12.27 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.27 | |
| Frctn Loss (m) | 0.14 | Cum Volume (1000 m3) | | 0.71 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 5.86 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.09 | | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 7.39 | |
| E.G. Slope (m/m) | 0.007650 | Area (m2) | | 7.39 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 20.71 | Top Width (m) | | 20.71 | |
| Vel Total (m/s) | 0.98 | Avg. Vel. (m/s) | | 0.98 | |
| Max Chl Dpth (m) | 0.71 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 82.5 | Conv. (m3/s) | | 82.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.76 | |
| Min Ch El (m) | 669.33 | Shear (N/m2) | | 26.70 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 26.07 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | | 2.48 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.95 | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -2680.0

INPUT

Description:

| Station Elevation Data | | num= 13 | |
|------------------------|------|---------|--------|
| Sta | Elev | Sta | Elev |
| -94.18 | 675 | -76.83 | 674 |
| -7.97 | 670 | 0 | 669.21 |
| 54.56 | 672 | 87.09 | 673 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -94.18 | | -94.18 | .045 |
| | | 98.55 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.18 | 98.55 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.57 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.56 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.96 | |
| E.G. Slope (m/m) | 0.007561 | Area (m2) | | 1.96 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 11.33 | Top Width (m) | | 11.33 | |
| Vel Total (m/s) | 0.60 | Avg. Vel. (m/s) | | 0.60 | |
| Max Chl Dpth (m) | 0.35 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 13.5 | Conv. (m3/s) | | 13.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.36 | |
| Min Ch El (m) | 669.21 | Shear (N/m2) | | 12.80 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.67 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 0.67 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 5.64 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.92 | | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.86 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 6.96 | |
| E.G. Slope (m/m) | 0.009725 | Area (m2) | | 6.96 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 21.35 | Top Width (m) | | 21.35 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 0.65 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 73.2 | Conv. (m3/s) | | 73.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.40 | |
| Min Ch El (m) | 669.21 | Shear (N/m2) | | 31.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.16 | |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | | 2.34 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.53 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2700.0

INPUT

Description:

| Station Elevation Data | | num= 11 | | | | | | | | | |
|------------------------|------|---------|--------|--------|--------|--------|--------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -98.21 | 675 | -87.53 | 674 | -73.36 | 673 | -53.74 | 672 | -34.12 | 671 | | |
| -15.64 | 670 | 0 | 669.09 | .05 | 669.09 | 28.43 | 669.91 | 34.15 | 670 | | |
| 79.77 | 671 | | | | | | | | | | |

Manning's n Values

| num= 3 | | | | | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -98.21 | | -98.21 | .045 | 79.77 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -98.21 | 79.77 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.37 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.35 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 669.30 | Flow Area (m2) | | 1.76 | |
| E.G. Slope (m/m) | 0.013603 | Area (m2) | | 1.76 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 13.51 | Top Width (m) | | 13.51 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | 0.67 | |
| Max Chl Dpth (m) | 0.26 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 10.1 | Conv. (m3/s) | | 10.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.53 | |
| Min Ch El (m) | 669.09 | Shear (N/m2) | | 17.39 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.58 | |
| Frctn Loss (m) | 0.30 | Cum Volume (1000 m3) | | 0.63 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 5.39 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.64 | Element | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.57 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 669.52 | Flow Area (m2) | | 5.89 | |
| E.G. Slope (m/m) | 0.020617 | Area (m2) | | 5.89 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 24.69 | Top Width (m) | | 24.69 | |
| Vel Total (m/s) | 1.23 | Avg. Vel. (m/s) | | 1.23 | |
| Max Chl Dpth (m) | 0.48 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 50.2 | Conv. (m3/s) | | 50.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.71 | |
| Min Ch El (m) | 669.09 | Shear (N/m2) | | 48.15 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 59.03 | |
| Frctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 2.21 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 9.07 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2720.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | | | | | | | | |
|------------------------|--------|--------|--------|--------|------|--------|--------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -86.97 | 673 | -72.17 | 672 | -58.74 | 671 | -38.82 | 670 | -12.85 | 669 | | |
| 0 | 668.91 | .05 | 668.91 | 7.24 | 669 | 29.42 | 669.62 | | | | |

Manning's n Values

| num= 3 | | | | | |
|--------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -86.97 | | -86.97 | .045 | 29.42 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -86.97 | 29.42 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.07 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 669.03 | Flow Area (m2) | | 2.05 | |
| E.G. Slope (m/m) | 0.016902 | Area (m2) | | 2.05 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 23.35 | Top Width (m) | | 23.35 | |
| Vel Total (m/s) | 0.57 | Avg. Vel. (m/s) | | 0.57 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 9.0 | Conv. (m3/s) | | 9.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.35 | |
| Min Ch El (m) | 668.91 | Shear (N/m2) | | 14.59 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.34 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 0.59 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 5.03 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.29 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 669.18 | Flow Area (m2) | | 7.45 | |
| E.G. Slope (m/m) | 0.014859 | Area (m2) | | 7.45 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 34.80 | Top Width (m) | | 34.80 | |
| Vel Total (m/s) | 0.97 | Avg. Vel. (m/s) | | 0.97 | |
| Max Chl Dpth (m) | 0.33 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 59.2 | Conv. (m3/s) | | 59.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 34.81 | |
| Min Ch El (m) | 668.91 | Shear (N/m2) | | 31.17 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 30.20 | |
| Frctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 2.07 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 8.48 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2740.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|-----|-------|--------|--------|--------|------|--|
| -98.67 | 672 | -83.05 | 671 | -67.85 | 670 | -30.4 | 669 | -18.29 | 668.48 | | |
| 0 | 668.59 | .05 | 668.59 | 18.12 | 669 | 28.85 | 669.33 | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | | Sta | | n Val | |
|--------|--|--------|--|-------|--|-------|--|-------|--|
| -98.67 | | -98.67 | | .045 | | 28.85 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -98.67 | | 28.85 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 668.64 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 668.62 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 668.60 | Flow Area (m2) | | 1.75 | |
| E.G. Slope (m/m) | 0.027811 | Area (m2) | | 1.75 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 22.77 | Top Width (m) | | 22.77 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | 0.67 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 7.0 | Conv. (m3/s) | | 7.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.77 | |
| Min Ch El (m) | 668.48 | Shear (N/m2) | | 20.98 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.07 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 0.55 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 4.57 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 668.84 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 668.76 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 668.75 | Flow Area (m2) | | 5.56 | |
| E.G. Slope (m/m) | 0.035384 | Area (m2) | | 5.56 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 32.11 | Top Width (m) | | 32.11 | |
| Vel Total (m/s) | 1.30 | Avg. Vel. (m/s) | | 1.30 | |
| Max Chl Dpth (m) | 0.28 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 38.4 | Conv. (m3/s) | | 38.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 32.12 | |
| Min Ch El (m) | 668.48 | Shear (N/m2) | | 60.04 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 77.94 | |
| Frctn Loss (m) | 0.56 | Cum Volume (1000 m3) | | 1.94 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 7.81 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2760.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|-----|--------|--------|-------|-----|-----|--------|------|--|
| -66.13 | 669 | -26.97 | 668 | -25.52 | 667.88 | -9.25 | 668 | 0 | 668.26 | | |
| .05 | 668.26 | 26.32 | 669 | 26.71 | 669.03 | | | | | | |

Manning's n Values

| num= 3 | | Sta | | n Val | | Sta | | n Val | |
|--------|--|--------|--|-------|--|-------|--|-------|--|
| -66.13 | | -66.13 | | .045 | | 26.71 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -66.13 | | 26.71 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 668.06 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 668.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 668.02 | Flow Area (m2) | | 1.61 | |
| E.G. Slope (m/m) | 0.030797 | Area (m2) | | 1.61 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 19.89 | Top Width (m) | | 19.89 | |
| Vel Total (m/s) | 0.73 | Avg. Vel. (m/s) | | 0.73 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 6.7 | Conv. (m3/s) | | 6.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.89 | |
| Min Ch El (m) | 667.88 | Shear (N/m2) | | 24.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.83 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 0.52 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 4.14 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 668.27 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 668.21 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 668.18 | Flow Area (m2) | | 6.43 | |
| E.G. Slope (m/m) | 0.022970 | Area (m2) | | 6.43 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 33.40 | Top Width (m) | | 33.40 | |
| Vel Total (m/s) | 1.12 | Avg. Vel. (m/s) | | 1.12 | |
| Max Chl Dpth (m) | 0.33 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 47.6 | Conv. (m3/s) | | 47.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 33.41 | |
| Min Ch El (m) | 667.88 | Shear (N/m2) | | 43.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 48.64 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 1.82 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 7.15 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdela casa
REACH: Completo RS: -2780.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|-----|--------|--------|----------|--------|----------|--------|----------|--------|----------|--|
| -77.48 | 669 | -43.27 | 668 | -29.04 | 667.46 | -0.02 | 667.94 | 0 | 667.94 | | |
| 4.38 | 668 | 22.02 | 668.58 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|--|--------|------|-----------|--|-----------|--|
| -77.48 | | -77.48 | .045 | 22.02 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -77.48 | | 22.02 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 667.70 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 667.68 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.13 | |
| E.G. Slope (m/m) | 0.011629 | Area (m2) | | 2.13 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 19.22 | Top Width (m) | | 19.22 | |
| Vel Total (m/s) | 0.55 | Avg. Vel. (m/s) | | 0.55 | |
| Max Chl Dpth (m) | 0.22 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 10.9 | Conv. (m3/s) | | 10.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.23 | |
| Min Ch El (m) | 667.46 | Shear (N/m2) | | 12.61 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.97 | |
| Frctn Loss (m) | 0.38 | Cum Volume (1000 m3) | | 0.48 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.75 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 667.93 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 667.89 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 7.98 | |
| E.G. Slope (m/m) | 0.012894 | Area (m2) | | 7.98 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 37.24 | Top Width (m) | | 37.24 | |
| Vel Total (m/s) | 0.90 | Avg. Vel. (m/s) | | 0.90 | |
| Max Chl Dpth (m) | 0.43 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 63.5 | Conv. (m3/s) | | 63.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 37.25 | |
| Min Ch El (m) | 667.46 | Shear (N/m2) | | 27.10 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.49 | |
| Frctn Loss (m) | 0.38 | Cum Volume (1000 m3) | | 1.68 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 6.45 | |

CROSS SECTION

RIVER: Arroyo Valdela casa
REACH: Completo RS: -2800.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|-----|--------|--------|----------|-------|----------|-------|----------|-------|----------|--|
| -80.31 | 669 | -52.76 | 668 | -29.14 | 667.1 | -0.02 | 667.6 | 0 | 667.6 | | |
| 8.08 | 668 | 22.21 | 668.13 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|--|--------|------|-----------|--|-----------|--|
| -80.31 | | -80.31 | .045 | 22.21 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -80.31 | | 22.21 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 667.32 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 667.28 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 667.27 | Flow Area (m2) | | 1.38 | |
| E.G. Slope (m/m) | 0.036042 | Area (m2) | | 1.38 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 15.28 | Top Width (m) | | 15.28 | |
| Vel Total (m/s) | 0.85 | Avg. Vel. (m/s) | | 0.85 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 6.2 | Conv. (m3/s) | | 6.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.28 | |
| Min Ch El (m) | 667.10 | Shear (N/m2) | | 31.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.16 | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 0.45 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 3.40 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 667.55 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 667.47 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 667.46 | Flow Area (m2) | | 5.73 | |
| E.G. Slope (m/m) | 0.030590 | Area (m2) | | 5.73 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 31.12 | Top Width (m) | | 31.12 | |
| Vel Total (m/s) | 1.26 | Avg. Vel. (m/s) | | 1.26 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 41.3 | Conv. (m3/s) | | 41.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 31.13 | |
| Min Ch El (m) | 667.10 | Shear (N/m2) | | 55.25 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 69.52 | |
| Frctn Loss (m) | 0.31 | Cum Volume (1000 m3) | | 1.54 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 5.76 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2820.0

INPUT

Description:

Station Elevation Data num= 8
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-81.83 669 -57.32 668 -32.8 667 -28.13 666.77 -7.25 667
-0.2 667.26 0 667.26 20.68 667.67

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-81.83 -81.83 .045 20.68

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-81.83 20.68 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 666.99 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.98 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.51 | |
| E.G. Slope (m/m) | 0.008827 | Area (m2) | | 2.51 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 23.61 | Top Width (m) | | 23.61 | |
| Vel Total (m/s) | 0.47 | Avg. Vel. (m/s) | | 0.47 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 12.5 | Conv. (m3/s) | | 12.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.62 | |
| Min Ch El (m) | 666.77 | Shear (N/m2) | | 9.19 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.30 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 0.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.01 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 667.22 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 667.18 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 8.56 | |
| E.G. Slope (m/m) | 0.009507 | Area (m2) | | 8.56 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 35.23 | Top Width (m) | | 35.23 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | 0.84 | |
| Max Chl Dpth (m) | 0.41 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 74.0 | Conv. (m3/s) | | 74.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 35.24 | |
| Min Ch El (m) | 666.77 | Shear (N/m2) | | 22.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 19.09 | |
| Frctn Loss (m) | 0.33 | Cum Volume (1000 m3) | | 1.40 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 5.10 | |

CROSS SECTION

RIVER: Arroyo Valdelacasa
REACH: Completo RS: -2840.0

INPUT

Description:

Station Elevation Data num= 8

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|-------|--------|--------|------|--------|--------|--------|--------|------|--------|
| -82.6 | 669 | -59.89 | 668 | -36.38 | 667 | -24.63 | 666.43 | -.01 | 666.83 |
| 0 | 666.83 | 5.67 | 667 | 21.8 | 667.22 | | | | |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-82.6 -82.6 .045 21.8

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-82.6 21.8 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 666.65 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 666.60 | Flow Area (m2) | | 1.25 | |
| E.G. Slope (m/m) | 0.045820 | Area (m2) | | 1.25 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 14.36 | Top Width (m) | | 14.36 | |
| Vel Total (m/s) | 0.94 | Avg. Vel. (m/s) | | 0.94 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 5.5 | Conv. (m3/s) | | 5.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.36 | |
| Min Ch El (m) | 666.43 | Shear (N/m2) | | 39.24 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 36.74 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 0.37 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 2.63 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 666.88 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.79 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 666.79 | Flow Area (m2) | | 5.35 | |
| E.G. Slope (m/m) | 0.036065 | Area (m2) | | 5.35 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 29.67 | Top Width (m) | | 29.67 | |
| Vel Total (m/s) | 1.35 | Avg. Vel. (m/s) | | 1.35 | |
| Max Chl Dpth (m) | 0.36 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 38.0 | Conv. (m3/s) | | 38.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.68 | |
| Min Ch El (m) | 666.43 | Shear (N/m2) | | 63.81 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 85.98 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 1.26 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 4.45 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -2860.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|--------|--------|--------|--------|--------|-----|--------|-----|------|--|
| -84.69 | 669 | -61.1 | 668 | -37.91 | 667 | -16.57 | 666 | -16.53 | 666 | | |
| -2.18 | 666 | 0 | 666.15 | 22.62 | 666.66 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -84.69 | | -84.69 | .045 | 22.62 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -84.69 | | 22.62 | 20 | 20 | 20 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 666.15 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.13 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 666.08 | Flow Area (m2) | | 2.25 | |
| E.G. Slope (m/m) | 0.009578 | Area (m2) | | 2.25 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 19.20 | Top Width (m) | | 19.20 | |
| Vel Total (m/s) | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 12.0 | Conv. (m3/s) | | 12.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.21 | |
| Min Ch El (m) | 666.00 | Shear (N/m2) | | 11.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.74 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 0.34 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 2.30 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 666.39 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.34 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 666.26 | Flow Area (m2) | | 7.63 | |
| E.G. Slope (m/m) | 0.012492 | Area (m2) | | 7.63 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 32.51 | Top Width (m) | | 32.51 | |
| Vel Total (m/s) | 0.95 | Avg. Vel. (m/s) | | 0.95 | |
| Max Chl Dpth (m) | 0.34 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 64.6 | Conv. (m3/s) | | 64.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 32.53 | |
| Min Ch El (m) | 666.00 | Shear (N/m2) | | 28.75 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.17 | |
| Frctn Loss (m) | 0.38 | Cum Volume (1000 m3) | | 1.13 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.83 | |

CROSS SECTION

RIVER: Arroyo Valdellacasa
REACH: Completo RS: -2880.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|-----|--------|--------|--------|--------|------|--|
| -86.1 | 669 | -64.43 | 668 | -41.94 | 667 | -18.34 | 666 | -15.42 | 665.83 | | |
| 0 | 665.58 | .01 | 665.58 | 16.17 | 666 | 19.42 | 666.06 | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|--|-------|--|
| -86.1 | | -86.1 | .045 | 19.42 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| -86.1 | | 19.42 | 20 | 20 | 20 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 665.78 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.74 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 665.74 | Flow Area (m2) | | 1.32 | |
| E.G. Slope (m/m) | 0.045845 | Area (m2) | | 1.32 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 16.24 | Top Width (m) | | 16.24 | |
| Vel Total (m/s) | 0.89 | Avg. Vel. (m/s) | | 0.89 | |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 5.5 | Conv. (m3/s) | | 5.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.24 | |
| Min Ch El (m) | 665.58 | Shear (N/m2) | | 36.46 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.51 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 0.30 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 1.94 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 666.00 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.92 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 665.91 | Flow Area (m2) | | 5.52 | |
| E.G. Slope (m/m) | 0.032896 | Area (m2) | | 5.52 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 29.89 | Top Width (m) | | 29.89 | |
| Vel Total (m/s) | 1.31 | Avg. Vel. (m/s) | | 1.31 | |
| Max Chl Dpth (m) | 0.34 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 39.8 | Conv. (m3/s) | | 39.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.90 | |
| Min Ch El (m) | 665.58 | Shear (N/m2) | | 59.57 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 77.85 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 1.00 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 3.20 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2900.0

INPUT

Description:

Station Elevation Data num= 8
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-82.58 669 -61.79 668 -41.09 667 -20.4 666 -14.67 665.66
0 665.05 .29 665 8.3 665.73

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-82.58 -82.58 .045 8.3

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-82.58 8.3 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 665.41 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.40 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 665.27 | Flow Area (m2) | | 2.43 | |
| E.G. Slope (m/m) | 0.004428 | Area (m2) | | 2.43 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 13.03 | Top Width (m) | | 13.03 | |
| Vel Total (m/s) | 0.48 | Avg. Vel. (m/s) | | 0.48 | |
| Max Chl Dpth (m) | 0.40 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 17.7 | Conv. (m3/s) | | 17.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.06 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 8.09 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.91 | |
| Frctn Loss (m) | 0.06 | Cum Volume (1000 m3) | | 0.26 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.65 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 665.76 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.73 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 8.61 | |
| E.G. Slope (m/m) | 0.005615 | Area (m2) | | 8.61 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 24.08 | Top Width (m) | | 24.08 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | 0.84 | |
| Max Chl Dpth (m) | 0.73 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 96.3 | Conv. (m3/s) | | 96.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.14 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 19.65 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 16.46 | |
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | | 0.86 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 2.66 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2920.0

INPUT

Description:

Station Elevation Data num= 9
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-86 669 -64.72 668 -43.27 667 -22.65 666 -14.34 665.49

-2.02 665 0 665 .01 665 14.32 665.7

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-86 -86 .045 14.32

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-86 14.32 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 665.34 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.34 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.29 | |
| E.G. Slope (m/m) | 0.002389 | Area (m2) | | 3.29 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 17.44 | Top Width (m) | | 17.44 | |
| Vel Total (m/s) | 0.36 | Avg. Vel. (m/s) | | 0.36 | |
| Max Chl Dpth (m) | 0.34 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 24.0 | Conv. (m3/s) | | 24.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.45 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 4.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.58 | |
| Frctn Loss (m) | 0.05 | Cum Volume (1000 m3) | | 0.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.35 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 665.67 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.65 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 10.75 | |
| E.G. Slope (m/m) | 0.003608 | Area (m2) | | 10.75 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 30.15 | Top Width (m) | | 30.15 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | 0.67 | |
| Max Chl Dpth (m) | 0.65 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 120.1 | Conv. (m3/s) | | 120.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.18 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 12.61 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.46 | |
| Frctn Loss (m) | 0.07 | Cum Volume (1000 m3) | | 0.66 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 2.12 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2940.0

INPUT

Description:

Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev
-78 668 -44.92 667 -23.76 666 -14.37 665.32 -3.27 665
0 665 15.76 665.6

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-78 -78 .045 15.76

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-78 15.76 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

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ANEXO VII

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.29 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.29 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.49 | |
| E.G. Slope (m/m) | 0.002492 | Area (m2) | | 3.49 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 20.89 | Top Width (m) | | 20.89 | |
| Vel Total (m/s) | 0.34 | Avg. Vel. (m/s) | | 0.34 | |
| Max Chl Dpth (m) | 0.29 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 23.5 | Conv. (m3/s) | | 23.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.90 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 4.08 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.37 | |
| Frctn Loss (m) | 0.05 | Cum Volume (1000 m3) | | 0.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.96 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.60 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.58 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 11.43 | |
| E.G. Slope (m/m) | 0.003348 | Area (m2) | | 11.43 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 33.18 | Top Width (m) | | 33.18 | |
| Vel Total (m/s) | 0.63 | Avg. Vel. (m/s) | | 0.63 | |
| Max Chl Dpth (m) | 0.58 | Hydr. Depth (m) | | 0.34 | |
| Conv. Total (m3/s) | 124.7 | Conv. (m3/s) | | 124.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 33.20 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 11.30 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.13 | |
| Frctn Loss (m) | 0.06 | Cum Volume (1000 m3) | | 0.44 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.49 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2960.0

INPUT

Description:

| | | |
|---|------|---|
| Station Elevation Data | num= | 6 |
| Sta Elev Sta Elev Sta Elev | | |
| -76.38 667 -31.53 666 -14.46 665.15 -4.83 665 | | |
| 19.95 665.6 | | |

Manning's n Values num= 3

| | | |
|--------------------------|--|--|
| Sta n Val Sta n Val | | |
| -76.38 -76.38 .045 19.95 | | |

Bank Sta: Left Right Lengths: Left Channel Right

| | | |
|---------------------|----|----|
| -76.38 19.95 20 20 | | |
| Coeff Contr. Expan. | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 665.25 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.86 | |
| E.G. Slope (m/m) | 0.002200 | Area (m2) | | 3.86 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 24.40 | Top Width (m) | | 24.40 | |
| Vel Total (m/s) | 0.30 | Avg. Vel. (m/s) | | 0.30 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.16 | |
| Conv. Total (m3/s) | 25.0 | Conv. (m3/s) | | 25.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.41 | |

| | | | |
|----------------|--------|----------------------|------|
| Min Ch El (m) | 665.00 | Shear (N/m2) | 3.41 |
| Alpha | 1.00 | Stream Power (N/m s) | 1.04 |
| Frctn Loss (m) | 0.10 | Cum Volume (1000 m3) | 0.07 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 0.51 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.54 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.52 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 12.61 | |
| E.G. Slope (m/m) | 0.002999 | Area (m2) | | 12.61 | |
| Q Total (m3/s) | 7.21 | Flow (m3/s) | | 7.21 | |
| Top Width (m) | 39.11 | Top Width (m) | | 39.11 | |
| Vel Total (m/s) | 0.57 | Avg. Vel. (m/s) | | 0.57 | |
| Max Chl Dpth (m) | 0.52 | Hydr. Depth (m) | | 0.32 | |
| Conv. Total (m3/s) | 131.7 | Conv. (m3/s) | | 131.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 39.13 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 9.48 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.42 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.20 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 0.77 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2980.0

INPUT

Description:

| | | |
|---|------|---|
| Station Elevation Data | num= | 4 |
| Sta Elev Sta Elev Sta Elev | | |
| -34.21 666 -14.22 665 0 665 23.45 665.6 | | |

Manning's n Values num= 3

| | | |
|--------------------------|--|--|
| Sta n Val Sta n Val | | |
| -34.21 -34.21 .045 23.45 | | |

Bank Sta: Left Right Lengths: Left Channel Right

| | | |
|---------------------|----|----|
| -34.21 23.45 2 2 | | |
| Coeff Contr. Expan. | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.15 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.13 | Reach Len. (m) | 2.00 | 2.00 | 2.00 |
| Crit W.S. (m) | 665.09 | Flow Area (m2) | | 2.26 | |
| E.G. Slope (m/m) | 0.015819 | Area (m2) | | 2.26 | |
| Q Total (m3/s) | 1.40 | Flow (m3/s) | | 1.40 | |
| Top Width (m) | 21.66 | Top Width (m) | | 21.66 | |
| Vel Total (m/s) | 0.62 | Avg. Vel. (m/s) | | 0.62 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 11.1 | Conv. (m3/s) | | 11.1 | |
| Length Wtd. (m) | 2.00 | Wetted Per. (m) | | 21.67 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 16.18 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 10.02 | |
| Frctn Loss (m) | 0.04 | Cum Volume (1000 m3) | | 0.00 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.05 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|---------------|--------|----------------|---------|---------|----------|
| E.G. Elev (m) | 665.38 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.28 | Reach Len. (m) | 2.00 | 2.00 | 2.00 |

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ANEXO VII

| | | | |
|--------------------|----------|----------------------|-------|
| Crit W.S. (m) | 665.27 | Flow Area (m2) | 6.35 |
| E.G. Slope (m/m) | 0.030641 | Area (m2) | 6.35 |
| Q Total (m3/s) | 8.60 | Flow (m3/s) | 8.60 |
| Top Width (m) | 30.86 | Top Width (m) | 30.86 |
| Vel Total (m/s) | 1.36 | Avg. Vel. (m/s) | 1.36 |
| Max Chl Dpth (m) | 0.28 | Hydr. Depth (m) | 0.21 |
| Conv. Total (m3/s) | 49.1 | Conv. (m3/s) | 49.1 |
| Length Wtd. (m) | 2.00 | Wetted Per. (m) | 30.87 |
| Min Ch El (m) | 665.00 | Shear (N/m2) | 61.78 |
| Alpha | 1.00 | Stream Power (N/m s) | 83.71 |
| Frctn Loss (m) | 0.06 | Cum Volume (1000 m3) | 0.01 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 0.07 |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2982.6

INPUT

Description:

| | | |
|------------------------|----------|----------------------------|
| Station Elevation Data | num= | 5 |
| Sta Elev | Sta Elev | Sta Elev |
| -40.19 666 -13.73 | 666 | 0 665 23.91 665 44.7 665.6 |

Manning's n Values

| | | |
|-----------|-----------|-----------|
| Sta n Val | Sta n Val | Sta n Val |
| -40.19 | -40.19 | .045 44.7 |

| | | | | | | | |
|----------------|-------|---------------|---------|-------|-------|--------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
| -40.19 | 44.7 | 2 | 2 | 2 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.10 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.08 | Reach Len. (m) | | | |
| Crit W.S. (m) | 665.07 | Flow Area (m2) | | 2.09 | |
| E.G. Slope (m/m) | 0.028480 | Area (m2) | | 2.09 | |
| Q Total (m3/s) | 1.40 | Flow (m3/s) | | 1.40 | |
| Top Width (m) | 27.83 | Top Width (m) | | 27.83 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | 0.67 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 8.3 | Conv. (m3/s) | | 8.3 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 27.83 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 21.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.05 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.31 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.23 | Reach Len. (m) | | | |
| Crit W.S. (m) | 665.22 | Flow Area (m2) | | 6.83 | |
| E.G. Slope (m/m) | 0.028537 | Area (m2) | | 6.83 | |
| Q Total (m3/s) | 8.60 | Flow (m3/s) | | 8.60 | |
| Top Width (m) | 35.11 | Top Width (m) | | 35.11 | |
| Vel Total (m/s) | 1.26 | Avg. Vel. (m/s) | | 1.26 | |
| Max Chl Dpth (m) | 0.23 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 50.9 | Conv. (m3/s) | | 50.9 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 35.12 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 54.40 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 68.53 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

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ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|-----|
| Completo | 0.0 | T= 5 años | 0.11 | 745.49 | 745.61 | 745.61 | 745.65 | 0.051772 | 0.79 | 0.14 | 2.30 | 1.01 | |
| Completo | 0.0 | T= 500 años | 0.69 | 745.49 | 745.75 | 745.75 | 745.81 | 0.040172 | 1.13 | 0.61 | 4.76 | 1.01 | |
| Completo | -20.0 | T= 5 años | 0.11 | 741.47 | 741.54 | 741.63 | 742.36 | 2.774291 | 4.01 | 0.03 | 0.78 | 6.72 | |
| Completo | -20.0 | T= 500 años | 0.69 | 741.47 | 741.62 | 741.79 | 743.20 | 1.981676 | 5.56 | 0.12 | 1.63 | 6.43 | |
| Completo | -40.0 | T= 5 años | 0.11 | 738.87 | 738.90 | 739.00 | 747.50 | 81.394000 | 12.99 | 0.01 | 0.52 | 32.15 | |
| Completo | -40.0 | T= 500 años | 0.69 | 738.87 | 739.12 | 739.14 | 739.22 | 0.061013 | 1.38 | 0.50 | 3.97 | 1.23 | |
| Completo | -60.0 | T= 5 años | 0.11 | 737.00 | 737.14 | 737.16 | 737.21 | 0.089324 | 1.13 | 0.10 | 1.38 | 1.35 | |
| Completo | -60.0 | T= 500 años | 0.69 | 737.00 | 737.26 | 737.33 | 737.48 | 0.131573 | 2.06 | 0.34 | 2.54 | 1.81 | |
| Completo | -80.0 | T= 5 años | 0.11 | 735.13 | 735.27 | 735.29 | 735.34 | 0.097686 | 1.17 | 0.10 | 1.37 | 1.40 | |
| Completo | -80.0 | T= 500 años | 0.69 | 735.13 | 735.43 | 735.46 | 735.56 | 0.071387 | 1.63 | 0.42 | 2.88 | 1.36 | |
| Completo | -100.0 | T= 5 años | 0.11 | 733.90 | 733.98 | 734.06 | 734.67 | 2.147996 | 3.68 | 0.03 | 0.79 | 5.97 | |
| Completo | -100.0 | T= 500 años | 0.69 | 733.90 | 734.21 | 734.23 | 734.31 | 0.054471 | 1.46 | 0.47 | 3.11 | 1.19 | |
| Completo | -120.0 | T= 5 años | 0.11 | 732.72 | 732.87 | 732.87 | 732.91 | 0.049159 | 0.86 | 0.13 | 1.76 | 1.01 | |
| Completo | -120.0 | T= 500 años | 0.69 | 732.72 | 733.00 | 733.03 | 733.11 | 0.066546 | 1.52 | 0.46 | 3.28 | 1.30 | |
| Completo | -140.0 | T= 5 años | 0.11 | 731.54 | 731.67 | 731.68 | 731.72 | 0.072170 | 0.98 | 0.11 | 1.69 | 1.21 | |
| Completo | -140.0 | T= 500 años | 0.69 | 731.54 | 731.82 | 731.84 | 731.92 | 0.053373 | 1.38 | 0.50 | 3.52 | 1.17 | |
| Completo | -160.0 | T= 5 años | 0.11 | 730.36 | 730.50 | 730.50 | 730.53 | 0.049601 | 0.83 | 0.14 | 1.94 | 1.01 | |
| Completo | -160.0 | T= 500 años | 0.69 | 730.36 | 730.62 | 730.65 | 730.73 | 0.066626 | 1.47 | 0.47 | 3.62 | 1.30 | |
| Completo | -180.0 | T= 5 años | 0.11 | 729.30 | 729.40 | 729.40 | 729.43 | 0.061917 | 0.75 | 0.15 | 3.05 | 1.07 | |
| Completo | -180.0 | T= 500 años | 0.69 | 729.30 | 729.50 | 729.51 | 729.56 | 0.050241 | 1.09 | 0.64 | 6.26 | 1.09 | |
| Completo | -200.0 | T= 5 años | 0.11 | 728.29 | 728.41 | 728.41 | 728.44 | 0.051785 | 0.78 | 0.14 | 2.36 | 1.01 | |
| Completo | -200.0 | T= 500 años | 0.69 | 728.29 | 728.54 | 728.54 | 728.61 | 0.045484 | 1.17 | 0.59 | 4.77 | 1.06 | |
| Completo | -220.0 | T= 5 años | 0.11 | 727.28 | 727.40 | 727.41 | 727.45 | 0.084479 | 0.99 | 0.11 | 1.88 | 1.28 | |
| Completo | -220.0 | T= 500 años | 0.69 | 727.28 | 727.54 | 727.55 | 727.63 | 0.052597 | 1.31 | 0.53 | 4.05 | 1.15 | |
| Completo | -240.0 | T= 5 años | 0.11 | 726.27 | 726.40 | 726.40 | 726.43 | 0.050685 | 0.79 | 0.14 | 2.26 | 1.00 | |
| Completo | -240.0 | T= 500 años | 0.69 | 726.27 | 726.52 | 726.53 | 726.60 | 0.050223 | 1.24 | 0.56 | 4.47 | 1.12 | |
| Completo | -260.0 | T= 5 años | 0.11 | 725.26 | 725.39 | 725.38 | 725.41 | 0.036432 | 0.67 | 0.17 | 2.70 | 0.85 | |
| Completo | -260.0 | T= 500 años | 0.69 | 725.26 | 725.49 | 725.50 | 725.57 | 0.053028 | 1.21 | 0.57 | 4.97 | 1.14 | |
| Completo | -280.0 | T= 5 años | 0.11 | 724.44 | 724.57 | 724.57 | 724.60 | 0.045084 | 0.75 | 0.15 | 2.35 | 0.95 | |
| Completo | -280.0 | T= 500 años | 0.69 | 724.44 | 724.70 | 724.70 | 724.76 | 0.040444 | 1.13 | 0.61 | 4.74 | 1.01 | |
| Completo | -300.0 | T= 5 años | 0.11 | 723.69 | 723.82 | 723.82 | 723.84 | 0.032104 | 0.64 | 0.18 | 2.77 | 0.80 | |
| Completo | -300.0 | T= 500 años | 0.69 | 723.69 | 723.88 | 723.93 | 724.04 | 0.141741 | 1.75 | 0.40 | 4.14 | 1.80 | |
| Completo | -320.0 | T= 5 años | 0.11 | 722.94 | 723.06 | 723.05 | 723.08 | 0.044813 | 0.71 | 0.16 | 2.72 | 0.93 | |
| Completo | -320.0 | T= 500 años | 0.69 | 722.94 | 723.18 | 723.18 | 723.23 | 0.041282 | 1.08 | 0.64 | 5.45 | 1.01 | |
| Completo | -340.0 | T= 5 años | 0.11 | 722.19 | 722.30 | 722.29 | 722.32 | 0.032613 | 0.60 | 0.19 | 3.29 | 0.79 | |
| Completo | -340.0 | T= 500 años | 0.69 | 722.19 | 722.34 | 722.41 | 722.60 | 0.339597 | 2.26 | 0.31 | 4.18 | 2.67 | |
| Completo | -360.0 | T= 5 años | 0.11 | 721.44 | 721.51 | 721.51 | 721.53 | 0.049530 | 0.55 | 0.21 | 5.58 | 0.91 | |
| Completo | -360.0 | T= 500 años | 0.69 | 721.44 | 721.59 | 721.59 | 721.62 | 0.047336 | 0.85 | 0.82 | 11.11 | 1.00 | |
| Completo | -380.0 | T= 5 años | 0.11 | 720.00 | 720.09 | 720.10 | 720.13 | 0.106056 | 0.89 | 0.13 | 2.95 | 1.37 | |
| Completo | -380.0 | T= 500 años | 0.69 | 720.00 | 720.17 | 720.20 | 720.27 | 0.104139 | 1.39 | 0.50 | 5.85 | 1.52 | |
| Completo | -400.0 | T= 5 años | 0.11 | 719.00 | 719.08 | 719.08 | 719.10 | 0.053137 | 0.60 | 0.19 | 4.70 | 0.96 | |
| Completo | -400.0 | T= 500 años | 0.69 | 719.00 | 719.16 | 719.16 | 719.20 | 0.047775 | 0.91 | 0.76 | 9.47 | 1.02 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|-----|
| Completo | -420.0 | T= 5 años | 0.11 | 718.00 | 718.08 | 718.08 | 718.10 | 0.046936 | 0.57 | 0.20 | 4.89 | 0.90 | |
| Completo | -420.0 | T= 500 años | 0.69 | 718.00 | 718.16 | 718.16 | 718.20 | 0.052371 | 0.93 | 0.74 | 9.46 | 1.06 | |
| Completo | -440.0 | T= 5 años | 0.11 | 717.00 | 717.07 | 717.07 | 717.09 | 0.054288 | 0.57 | 0.20 | 5.36 | 0.95 | |
| Completo | -440.0 | T= 500 años | 0.69 | 717.00 | 717.13 | 717.15 | 717.19 | 0.095006 | 1.11 | 0.62 | 9.53 | 1.39 | |
| Completo | -460.0 | T= 5 años | 0.11 | 715.86 | 715.93 | 715.93 | 715.94 | 0.061106 | 0.56 | 0.20 | 6.05 | 0.99 | |
| Completo | -460.0 | T= 500 años | 0.69 | 715.86 | 716.00 | 716.00 | 716.03 | 0.049925 | 0.82 | 0.84 | 12.42 | 1.01 | |
| Completo | -480.0 | T= 5 años | 0.11 | 715.00 | 715.03 | 715.02 | 715.04 | 0.017002 | 0.28 | 0.40 | 13.44 | 0.52 | |
| Completo | -480.0 | T= 500 años | 0.69 | 715.00 | 715.09 | 715.07 | 715.11 | 0.015020 | 0.52 | 1.33 | 15.85 | 0.57 | |
| Completo | -500.0 | T= 5 años | 0.11 | 714.53 | 714.61 | 714.60 | 714.62 | 0.025318 | 0.43 | 0.27 | 6.35 | 0.66 | |
| Completo | -500.0 | T= 500 años | 0.69 | 714.53 | 714.69 | 714.60 | 714.72 | 0.026720 | 0.68 | 1.01 | 12.41 | 0.76 | |
| Completo | -520.0 | T= 5 años | 0.11 | 713.82 | 713.88 | 713.88 | 713.89 | 0.057805 | 0.50 | 0.23 | 8.01 | 0.94 | |
| Completo | -520.0 | T= 500 años | 0.69 | 713.82 | 713.93 | 713.93 | 713.96 | 0.057367 | 0.78 | 0.89 | 15.85 | 1.05 | |
| Completo | -540.0 | T= 5 años | 0.11 | 713.00 | 713.03 | 713.02 | 713.03 | 0.027004 | 0.32 | 0.35 | 13.57 | 0.63 | |
| Completo | -540.0 | T= 500 años | 0.69 | 713.00 | 713.08 | 713.07 | 713.10 | 0.026717 | 0.63 | 1.09 | 14.97 | 0.75 | |
| Completo | -560.0 | T= 5 años | 0.11 | 712.17 | 712.26 | 712.26 | 712.29 | 0.054377 | 0.68 | 0.17 | 3.48 | 0.99 | |
| Completo | -560.0 | T= 500 años | 0.69 | 712.17 | 712.36 | 712.36 | 712.41 | 0.045001 | 1.00 | 0.69 | 7.12 | 1.02 | |
| Completo | -580.0 | T= 5 años | 0.11 | 711.40 | 711.51 | 711.50 | 711.53 | 0.027693 | 0.54 | 0.21 | 3.78 | 0.73 | |
| Completo | -580.0 | T= 500 años | 0.69 | 711.40 | 711.61 | 711.60 | 711.65 | 0.032424 | 0.90 | 0.77 | 7.26 | 0.88 | |
| Completo | -600.0 | T= 5 años | 0.11 | 710.65 | 710.75 | 710.75 | 710.77 | 0.053602 | 0.69 | 0.16 | 3.30 | 0.99 | |
| Completo | -600.0 | T= 500 años | 0.69 | 710.65 | 710.85 | 710.85 | 710.90 | 0.043898 | 1.01 | 0.69 | 6.76 | 1.01 | |
| Completo | -620.0 | T= 5 años | 0.29 | 709.98 | 710.06 | 710.03 | 710.06 | 0.007822 | 0.31 | 0.94 | 14.88 | 0.40 | |
| Completo | -620.0 | T= 500 años | 1.79 | 709.98 | 710.17 | 710.11 | 710.19 | 0.010802 | 0.65 | 2.77 | 18.73 | 0.54 | |
| Completo | -640.0 | T= 5 años | 0.29 | 709.78 | 709.87 | 709.85 | 709.88 | 0.011449 | 0.31 | 0.95 | 20.40 | 0.46 | |
| Completo | -640.0 | T= 500 años | 1.79 | 709.78 | 709.97 | 709.85 | 709.98 | 0.009789 | 0.47 | 3.79 | 38.19 | 0.48 | |
| Completo | -660.0 | T= 5 años | 0.29 | 709.59 | 709.69 | 709.69 | 709.69 | 0.007474 | 0.26 | 1.11 | 21.83 | 0.37 | |
| Completo | -660.0 | T= 500 años | 1.79 | 709.59 | 709.79 | 709.80 | 709.80 | 0.008757 | 0.46 | 3.89 | 37.41 | 0.46 | |
| Completo | -680.0 | T= 5 años | 0.29 | 709.40 | 709.49 | 709.47 | 709.49 | 0.014296 | 0.34 | 0.86 | 18.93 | 0.51 | |
| Completo | -680.0 | T= 500 años | 1.79 | 709.40 | 709.59 | 709.61 | 709.61 | 0.010676 | 0.56 | 3.22 | 27.12 | 0.51 | |
| Completo | -700.0 | T= 5 años | 0.29 | 709.21 | 709.30 | 709.27 | 709.31 | 0.006551 | 0.27 | 1.08 | 18.48 | 0.36 | |
| Completo | -700.0 | T= 500 años | 1.79 | 709.21 | 709.41 | 709.43 | 709.43 | 0.007390 | 0.51 | 3.51 | 25.53 | 0.44 | |
| Completo | -720.0 | T= 5 años | 0.29 | 709.02 | 709.07 | 709.06 | 709.08 | 0.025226 | 0.41 | 0.70 | 17.46 | 0.66 | |
| Completo | -720.0 | T= 500 años | 1.79 | 709.02 | 709.15 | 709.13 | 709.18 | 0.024801 | 0.76 | 2.37 | 23.54 | 0.76 | |
| Completo | -740.0 | T= 5 años | 0.29 | 708.42 | 708.49 | 708.48 | 708.50 | 0.033863 | 0.48 | 0.60 | 14.90 | 0.76 | |
| Completo | -740.0 | T= 500 años | 1.79 | 708.42 | 708.57 | 708.56 | 708.60 | 0.033584 | 0.84 | 2.13 | 22.65 | 0.88 | |
| Completo | -760.0 | T= 5 años | 0.29 | 707.85 | 707.92 | 707.91 | 707.93 | 0.024521 | 0.41 | 0.72 | 18.06 | 0.65 | |
| Completo | -760.0 | T= 500 años | 1.79 | 707.85 | 708.00 | 707.98 | 708.02 | 0.025196 | 0.70 | 2.57 | 29.19 | 0.75 | |
| Completo | -780.0 | T= 5 años | 0.29 | 707.24 | 707.35 | 707.34 | 707.37 | 0.031569 | 0.56 | 0.52 | 9.52 | 0.77 | |
| Completo | -780.0 | T= 500 años | 1.79 | 707.24 | 707.46 | 707.44 | 707.50 | 0.026689 | 0.84 | 2.14 | 19.32 | 0.80 | |
| Completo | -800.0 | T= 5 años | 0.29 | 706.66 | 706.77 | 706.75 | 706.78 | 0.027441 | 0.52 | 0.56 | 10.48 | 0.72 | |
| Completo | -800.0 | T= 500 años | 1.79 | 706.66 | 706.86 | 706.85 | 706.90 | 0.033680 | 0.89 | 2.02 | 19.92 | 0.89 | |
| Completo | -820.0 | T= 5 años | 0.29 | 706.08 | 706.20 | 706.19 | 706.22 | 0.028929 | 0.58 | 0.50 | 8.42 | 0.75 | |
| Completo | -820.0 | T= 500 años | 1.79 | 706.08 | 706.33 | 706.30 | 706.36 | 0.021869 | 0.82 | 2.18 | 17.52 | 0.74 | |
| Completo | -840.0 | T= 5 años | 0.29 | 705.54 | 705.65 | 705.63 | 705.66 | 0.026571 | 0.52 | 0.56 | 10.34 | 0.71 | |
| Completo | -840.0 | T= 500 años | 1.79 | 705.54 | 705.74 | 705.73 | 705.78 | 0.039356 | 0.95 | 1.89 | 18.97 | 0.96 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|-----|
| Completo | -860.0 | T= 5 años | 0.29 | 704.98 | 705.03 | 705.02 | 705.04 | 0.036751 | 0.46 | 0.64 | 17.97 | 0.78 | |
| Completo | -860.0 | T= 500 años | 1.79 | 704.98 | 705.11 | 705.09 | 705.14 | 0.026706 | 0.80 | 2.24 | 21.61 | 0.79 | |
| Completo | -880.0 | T= 5 años | 0.29 | 704.54 | 704.61 | | 704.62 | 0.013481 | 0.33 | 0.89 | 19.48 | 0.49 | |
| Completo | -880.0 | T= 500 años | 1.79 | 704.54 | 704.70 | | 704.72 | 0.016860 | 0.66 | 2.70 | 24.62 | 0.64 | |
| Completo | -900.0 | T= 5 años | 0.29 | 704.09 | 704.16 | 704.15 | 704.17 | 0.044754 | 0.49 | 0.59 | 17.62 | 0.85 | |
| Completo | -900.0 | T= 500 años | 1.79 | 704.09 | 704.24 | 704.22 | 704.27 | 0.031254 | 0.83 | 2.15 | 22.16 | 0.85 | |
| Completo | -920.0 | T= 5 años | 0.29 | 703.64 | 703.73 | | 703.73 | 0.012806 | 0.33 | 0.88 | 18.47 | 0.48 | |
| Completo | -920.0 | T= 500 años | 1.79 | 703.64 | 703.82 | | 703.84 | 0.015726 | 0.66 | 2.73 | 23.88 | 0.62 | |
| Completo | -940.0 | T= 5 años | 0.29 | 703.17 | 703.24 | 703.24 | 703.26 | 0.057391 | 0.59 | 0.49 | 13.22 | 0.98 | |
| Completo | -940.0 | T= 500 años | 1.79 | 703.17 | 703.33 | 703.33 | 703.37 | 0.037369 | 0.92 | 1.94 | 19.44 | 0.93 | |
| Completo | -960.0 | T= 5 años | 0.29 | 702.75 | 702.85 | | 702.86 | 0.010193 | 0.33 | 0.87 | 15.20 | 0.44 | |
| Completo | -960.0 | T= 500 años | 1.79 | 702.75 | 702.96 | | 702.98 | 0.012114 | 0.61 | 2.94 | 23.67 | 0.55 | |
| Completo | -980.0 | T= 5 años | 0.29 | 702.33 | 702.41 | 702.41 | 702.43 | 0.065704 | 0.68 | 0.43 | 10.51 | 1.07 | |
| Completo | -980.0 | T= 500 años | 1.79 | 702.33 | 702.51 | 702.51 | 702.56 | 0.042859 | 1.01 | 1.78 | 17.39 | 1.00 | |
| Completo | -1000.0 | T= 5 años | 0.47 | 701.86 | 701.99 | 701.96 | 701.99 | 0.013164 | 0.40 | 1.16 | 18.37 | 0.51 | |
| Completo | -1000.0 | T= 500 años | 2.89 | 701.86 | 702.11 | 702.06 | 702.13 | 0.014102 | 0.75 | 3.83 | 25.09 | 0.62 | |
| Completo | -1020.0 | T= 5 años | 0.47 | 701.37 | 701.49 | 701.49 | 701.52 | 0.053696 | 0.79 | 0.60 | 9.97 | 1.03 | |
| Completo | -1020.0 | T= 500 años | 2.89 | 701.37 | 701.62 | 701.62 | 701.68 | 0.041402 | 1.12 | 2.57 | 20.68 | 1.02 | |
| Completo | -1040.0 | T= 5 años | 0.47 | 701.00 | 701.12 | 701.06 | 701.13 | 0.003430 | 0.28 | 1.67 | 16.56 | 0.28 | |
| Completo | -1040.0 | T= 500 años | 2.89 | 701.00 | 701.30 | 701.17 | 701.31 | 0.004927 | 0.55 | 5.24 | 24.94 | 0.38 | |
| Completo | -1060.0 | T= 5 años | 0.47 | 700.83 | 700.93 | 700.93 | 700.95 | 0.053765 | 0.70 | 0.68 | 13.61 | 1.00 | |
| Completo | -1060.0 | T= 500 años | 2.89 | 700.83 | 701.03 | 701.03 | 701.09 | 0.041813 | 1.06 | 2.73 | 24.24 | 1.01 | |
| Completo | -1080.0 | T= 5 años | 0.47 | 700.10 | 700.31 | 700.27 | 700.33 | 0.014530 | 0.60 | 0.78 | 7.33 | 0.59 | |
| Completo | -1080.0 | T= 500 años | 2.89 | 700.10 | 700.50 | 700.45 | 700.56 | 0.018278 | 1.03 | 2.80 | 13.86 | 0.73 | |
| Completo | -1100.0 | T= 5 años | 0.47 | 699.66 | 699.81 | 699.81 | 699.85 | 0.048019 | 0.86 | 0.55 | 7.36 | 1.01 | |
| Completo | -1100.0 | T= 500 años | 2.89 | 699.66 | 699.97 | 699.97 | 700.04 | 0.038075 | 1.24 | 2.33 | 15.19 | 1.01 | |
| Completo | -1120.0 | T= 5 años | 0.47 | 699.00 | 699.19 | 699.10 | 699.20 | 0.004214 | 0.39 | 1.20 | 8.50 | 0.33 | |
| Completo | -1120.0 | T= 500 años | 2.89 | 699.00 | 699.41 | 699.28 | 699.44 | 0.007809 | 0.79 | 3.64 | 14.17 | 0.50 | |
| Completo | -1140.0 | T= 5 años | 0.47 | 698.87 | 698.97 | 698.97 | 698.99 | 0.053736 | 0.69 | 0.68 | 13.95 | 0.99 | |
| Completo | -1140.0 | T= 500 años | 2.89 | 698.87 | 699.07 | 699.07 | 699.13 | 0.040881 | 1.12 | 2.57 | 20.56 | 1.01 | |
| Completo | -1160.0 | T= 5 años | 0.47 | 698.00 | 698.18 | 698.07 | 698.18 | 0.002049 | 0.27 | 1.71 | 11.98 | 0.23 | |
| Completo | -1160.0 | T= 500 años | 2.89 | 698.00 | 698.37 | 698.22 | 698.39 | 0.004756 | 0.63 | 4.54 | 17.00 | 0.39 | |
| Completo | -1180.0 | T= 5 años | 0.47 | 698.00 | 698.03 | 698.03 | 698.06 | 0.081264 | 0.65 | 0.73 | 22.23 | 1.14 | |
| Completo | -1180.0 | T= 500 años | 2.89 | 698.00 | 698.12 | 698.12 | 698.17 | 0.041718 | 1.03 | 2.80 | 25.79 | 1.00 | |
| Completo | -1200.0 | T= 5 años | 0.47 | 697.00 | 697.17 | 697.07 | 697.18 | 0.002200 | 0.27 | 1.75 | 13.30 | 0.24 | |
| Completo | -1200.0 | T= 500 años | 2.89 | 697.00 | 697.36 | 697.21 | 697.38 | 0.004611 | 0.59 | 4.92 | 20.23 | 0.38 | |
| Completo | -1220.0 | T= 5 años | 0.47 | 697.00 | 697.04 | 697.04 | 697.05 | 0.057684 | 0.57 | 0.83 | 24.01 | 0.97 | |
| Completo | -1220.0 | T= 500 años | 2.89 | 697.00 | 697.11 | 697.11 | 697.17 | 0.041923 | 1.02 | 2.83 | 26.76 | 1.00 | |
| Completo | -1240.0 | T= 5 años | 0.47 | 696.00 | 696.17 | 696.07 | 696.17 | 0.002005 | 0.25 | 1.86 | 14.57 | 0.23 | |
| Completo | -1240.0 | T= 500 años | 2.89 | 696.00 | 696.35 | 696.20 | 696.37 | 0.004161 | 0.55 | 5.27 | 22.25 | 0.36 | |
| Completo | -1260.0 | T= 5 años | 0.47 | 696.00 | 696.04 | 696.04 | 696.05 | 0.057540 | 0.58 | 0.81 | 22.79 | 0.98 | |
| Completo | -1260.0 | T= 500 años | 2.89 | 696.00 | 696.12 | 696.12 | 696.17 | 0.042727 | 1.04 | 2.77 | 25.67 | 1.01 | |
| Completo | -1280.0 | T= 5 años | 0.47 | 694.89 | 694.92 | 694.99 | 696.71 | 15.965780 | 5.92 | 0.08 | 4.60 | 14.40 | |
| Completo | -1280.0 | T= 500 años | 2.89 | 694.89 | 695.19 | 695.10 | 695.22 | 0.007852 | 0.69 | 4.17 | 20.03 | 0.48 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|-----|
| Completo | -1300.0 | T= 5 años | 0.47 | 694.68 | 694.86 | 694.81 | 694.87 | 0.008957 | 0.42 | 1.11 | 12.30 | 0.45 | |
| Completo | -1300.0 | T= 500 años | 2.89 | 694.68 | 695.05 | | 695.07 | 0.007203 | 0.64 | 4.52 | 22.89 | 0.46 | |
| Completo | -1320.0 | T= 5 años | 0.47 | 694.46 | 694.63 | 694.59 | 694.64 | 0.014913 | 0.52 | 0.91 | 10.98 | 0.57 | |
| Completo | -1320.0 | T= 500 años | 2.89 | 694.46 | 694.75 | 694.73 | 694.81 | 0.027662 | 1.05 | 2.74 | 18.00 | 0.86 | |
| Completo | -1340.0 | T= 5 años | 0.47 | 694.22 | 694.29 | 694.27 | 694.30 | 0.019615 | 0.43 | 1.09 | 21.13 | 0.61 | |
| Completo | -1340.0 | T= 500 años | 2.89 | 694.22 | 694.41 | 694.36 | 694.43 | 0.012967 | 0.68 | 4.25 | 30.61 | 0.58 | |
| Completo | -1360.0 | T= 5 años | 0.47 | 694.00 | 694.08 | 694.04 | 694.09 | 0.006429 | 0.30 | 1.57 | 22.84 | 0.36 | |
| Completo | -1360.0 | T= 500 años | 2.89 | 694.00 | 694.20 | 694.13 | 694.22 | 0.008832 | 0.61 | 4.71 | 29.62 | 0.49 | |
| Completo | -1380.0 | T= 5 años | 0.47 | 693.69 | 693.76 | 693.76 | 693.78 | 0.070288 | 0.62 | 0.76 | 22.30 | 1.07 | |
| Completo | -1380.0 | T= 500 años | 2.89 | 693.69 | 693.84 | 693.84 | 693.88 | 0.044767 | 0.90 | 3.19 | 37.80 | 0.99 | |
| Completo | -1400.0 | T= 5 años | 0.47 | 692.87 | 692.99 | 692.96 | 693.00 | 0.014934 | 0.41 | 1.14 | 19.40 | 0.54 | |
| Completo | -1400.0 | T= 500 años | 2.89 | 692.87 | 693.11 | 693.06 | 693.14 | 0.013189 | 0.72 | 4.03 | 27.18 | 0.59 | |
| Completo | -1420.0 | T= 5 años | 0.47 | 692.52 | 692.67 | | 692.68 | 0.015959 | 0.50 | 0.93 | 12.28 | 0.58 | |
| Completo | -1420.0 | T= 500 años | 2.89 | 692.52 | 692.83 | | 692.86 | 0.014647 | 0.77 | 3.76 | 24.65 | 0.63 | |
| Completo | -1440.0 | T= 5 años | 0.47 | 692.22 | 692.35 | 692.33 | 692.36 | 0.015747 | 0.46 | 1.02 | 15.23 | 0.57 | |
| Completo | -1440.0 | T= 500 años | 2.89 | 692.22 | 692.47 | 692.44 | 692.50 | 0.021216 | 0.81 | 3.56 | 28.44 | 0.73 | |
| Completo | -1460.0 | T= 5 años | 0.47 | 692.00 | 692.05 | 692.03 | 692.05 | 0.015384 | 0.35 | 1.33 | 28.81 | 0.53 | |
| Completo | -1460.0 | T= 500 años | 2.89 | 692.00 | 692.14 | 692.10 | 692.17 | 0.013554 | 0.67 | 4.28 | 32.15 | 0.59 | |
| Completo | -1480.0 | T= 5 años | 0.47 | 691.38 | 691.52 | 691.52 | 691.55 | 0.048193 | 0.81 | 0.58 | 8.52 | 0.99 | |
| Completo | -1480.0 | T= 500 años | 2.89 | 691.38 | 691.66 | 691.66 | 691.73 | 0.039556 | 1.19 | 2.43 | 17.46 | 1.02 | |
| Completo | -1500.0 | T= 5 años | 0.70 | 690.81 | 690.99 | 690.95 | 691.00 | 0.011919 | 0.48 | 1.46 | 16.42 | 0.52 | |
| Completo | -1500.0 | T= 500 años | 4.33 | 690.81 | 691.17 | 691.09 | 691.20 | 0.011017 | 0.84 | 5.16 | 23.89 | 0.58 | |
| Completo | -1520.0 | T= 5 años | 0.70 | 690.34 | 690.53 | 690.53 | 690.58 | 0.044496 | 0.98 | 0.72 | 7.57 | 1.01 | |
| Completo | -1520.0 | T= 500 años | 4.33 | 690.34 | 690.73 | 690.73 | 690.83 | 0.035430 | 1.41 | 3.07 | 15.61 | 1.02 | |
| Completo | -1540.0 | T= 5 años | 0.70 | 689.94 | 690.11 | 690.04 | 690.12 | 0.004845 | 0.38 | 1.85 | 15.13 | 0.35 | |
| Completo | -1540.0 | T= 500 años | 4.33 | 689.94 | 690.35 | 690.19 | 690.38 | 0.005036 | 0.68 | 6.34 | 22.27 | 0.41 | |
| Completo | -1560.0 | T= 5 años | 0.70 | 689.71 | 689.94 | 689.90 | 689.96 | 0.014755 | 0.63 | 1.11 | 9.77 | 0.60 | |
| Completo | -1560.0 | T= 500 años | 4.33 | 689.71 | 690.17 | | 690.22 | 0.013489 | 1.01 | 4.27 | 17.34 | 0.65 | |
| Completo | -1580.0 | T= 5 años | 0.70 | 689.48 | 689.73 | 689.66 | 689.74 | 0.008342 | 0.50 | 1.40 | 11.34 | 0.46 | |
| Completo | -1580.0 | T= 500 años | 4.33 | 689.48 | 689.96 | | 689.99 | 0.009139 | 0.82 | 5.28 | 22.02 | 0.53 | |
| Completo | -1600.0 | T= 5 años | 0.70 | 689.25 | 689.44 | 689.42 | 689.47 | 0.024735 | 0.74 | 0.96 | 9.91 | 0.76 | |
| Completo | -1600.0 | T= 500 años | 4.33 | 689.25 | 689.63 | 689.61 | 689.70 | 0.026867 | 1.19 | 3.62 | 19.27 | 0.88 | |
| Completo | -1620.0 | T= 5 años | 0.70 | 689.00 | 689.11 | 689.08 | 689.13 | 0.012365 | 0.48 | 1.46 | 16.79 | 0.52 | |
| Completo | -1620.0 | T= 500 años | 4.33 | 689.00 | 689.28 | | 689.32 | 0.013561 | 0.86 | 5.06 | 26.62 | 0.63 | |
| Completo | -1640.0 | T= 5 años | 0.70 | 688.67 | 688.85 | 688.81 | 688.87 | 0.013437 | 0.52 | 1.35 | 14.80 | 0.55 | |
| Completo | -1640.0 | T= 500 años | 4.33 | 688.67 | 689.04 | | 689.07 | 0.011189 | 0.78 | 5.54 | 28.88 | 0.57 | |
| Completo | -1660.0 | T= 5 años | 0.70 | 688.32 | 688.49 | 688.47 | 688.51 | 0.024389 | 0.67 | 1.06 | 12.49 | 0.73 | |
| Completo | -1660.0 | T= 500 años | 4.33 | 688.32 | 688.63 | 688.63 | 688.71 | 0.033924 | 1.19 | 3.64 | 23.20 | 0.96 | |
| Completo | -1680.0 | T= 5 años | 0.70 | 687.97 | 688.07 | 688.05 | 688.08 | 0.019055 | 0.53 | 1.33 | 18.67 | 0.63 | |
| Completo | -1680.0 | T= 500 años | 4.33 | 687.97 | 688.22 | | 688.26 | 0.015064 | 0.87 | 5.00 | 27.89 | 0.65 | |
| Completo | -1700.0 | T= 5 años | 0.70 | 687.64 | 687.83 | | 687.84 | 0.008290 | 0.42 | 1.69 | 17.94 | 0.44 | |
| Completo | -1700.0 | T= 500 años | 4.33 | 687.64 | 688.00 | | 688.03 | 0.009096 | 0.68 | 6.33 | 34.55 | 0.51 | |
| Completo | -1720.0 | T= 5 años | 0.70 | 687.32 | 687.47 | 687.47 | 687.50 | 0.048096 | 0.85 | 0.83 | 11.43 | 1.00 | |
| Completo | -1720.0 | T= 500 años | 4.33 | 687.32 | 687.62 | 687.62 | 687.70 | 0.038156 | 1.22 | 3.53 | 23.58 | 1.01 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|------|
| Completo | -1740.0 | T= 5 años | 0.70 | 687.00 | 687.09 | 687.05 | 687.09 | 0.008419 | 0.37 | 1.89 | 24.04 | | 0.43 |
| Completo | -1740.0 | T= 500 años | 4.33 | 687.00 | 687.24 | 687.16 | 687.27 | 0.008774 | 0.70 | 6.16 | 31.39 | | 0.51 |
| Completo | -1760.0 | T= 5 años | 0.70 | 686.58 | 686.72 | 686.72 | 686.75 | 0.050159 | 0.84 | 0.84 | 12.23 | | 1.02 |
| Completo | -1760.0 | T= 500 años | 4.33 | 686.58 | 686.87 | 686.87 | 686.94 | 0.038976 | 1.20 | 3.61 | 25.33 | | 1.01 |
| Completo | -1780.0 | T= 5 años | 0.70 | 686.00 | 686.16 | 686.11 | 686.17 | 0.011625 | 0.53 | 1.33 | 12.88 | | 0.52 |
| Completo | -1780.0 | T= 500 años | 4.33 | 686.00 | 686.34 | 686.28 | 686.39 | 0.015036 | 0.98 | 4.42 | 20.45 | | 0.67 |
| Completo | -1800.0 | T= 5 años | 0.70 | 685.74 | 685.92 | 685.88 | 685.93 | 0.012051 | 0.49 | 1.43 | 15.86 | | 0.52 |
| Completo | -1800.0 | T= 500 años | 4.33 | 685.74 | 686.10 | 686.13 | 686.13 | 0.010829 | 0.80 | 5.43 | 26.86 | | 0.57 |
| Completo | -1820.0 | T= 5 años | 0.70 | 685.32 | 685.50 | 685.49 | 685.54 | 0.038388 | 0.87 | 0.81 | 9.16 | | 0.93 |
| Completo | -1820.0 | T= 500 años | 4.33 | 685.32 | 685.67 | 685.67 | 685.77 | 0.036197 | 1.33 | 3.25 | 18.30 | | 1.01 |
| Completo | -1840.0 | T= 5 años | 0.70 | 684.94 | 685.07 | 685.04 | 685.08 | 0.014568 | 0.53 | 1.34 | 15.32 | | 0.57 |
| Completo | -1840.0 | T= 500 años | 4.33 | 684.94 | 685.24 | 685.18 | 685.29 | 0.014173 | 0.93 | 4.65 | 22.23 | | 0.65 |
| Completo | -1860.0 | T= 5 años | 0.70 | 684.68 | 684.88 | 684.82 | 684.88 | 0.007172 | 0.40 | 1.76 | 17.93 | | 0.41 |
| Completo | -1860.0 | T= 500 años | 4.33 | 684.68 | 685.06 | 685.06 | 685.08 | 0.007739 | 0.68 | 6.39 | 31.30 | | 0.48 |
| Completo | -1880.0 | T= 5 años | 0.70 | 684.41 | 684.58 | 684.57 | 684.62 | 0.033322 | 0.79 | 0.89 | 10.36 | | 0.86 |
| Completo | -1880.0 | T= 500 años | 4.33 | 684.41 | 684.79 | 684.79 | 684.84 | 0.019901 | 1.03 | 4.22 | 22.56 | | 0.76 |
| Completo | -1900.0 | T= 5 años | 0.70 | 684.00 | 684.20 | 684.16 | 684.22 | 0.012982 | 0.57 | 1.24 | 11.60 | | 0.56 |
| Completo | -1900.0 | T= 500 años | 4.33 | 684.00 | 684.37 | 684.33 | 684.44 | 0.020428 | 1.11 | 3.91 | 18.98 | | 0.78 |
| Completo | -1920.0 | T= 5 años | 0.70 | 683.76 | 683.91 | 683.88 | 683.92 | 0.016464 | 0.50 | 1.40 | 18.90 | | 0.59 |
| Completo | -1920.0 | T= 500 años | 4.33 | 683.76 | 684.05 | 684.01 | 684.09 | 0.014556 | 0.81 | 5.31 | 31.70 | | 0.64 |
| Completo | -1940.0 | T= 5 años | 0.70 | 683.18 | 683.36 | 683.36 | 683.40 | 0.045155 | 0.94 | 0.75 | 8.35 | | 1.01 |
| Completo | -1940.0 | T= 500 años | 4.33 | 683.18 | 683.55 | 683.55 | 683.64 | 0.035952 | 1.36 | 3.17 | 17.22 | | 1.01 |
| Completo | -1960.0 | T= 5 años | 0.70 | 682.67 | 682.86 | 682.82 | 682.87 | 0.012914 | 0.52 | 1.35 | 14.40 | | 0.54 |
| Completo | -1960.0 | T= 500 años | 4.33 | 682.67 | 683.04 | 682.97 | 683.07 | 0.012159 | 0.83 | 5.19 | 26.08 | | 0.60 |
| Completo | -1980.0 | T= 5 años | 0.70 | 682.19 | 682.38 | 682.38 | 682.43 | 0.044886 | 0.98 | 0.72 | 7.63 | | 1.01 |
| Completo | -1980.0 | T= 500 años | 4.33 | 682.19 | 682.58 | 682.58 | 682.68 | 0.035288 | 1.40 | 3.08 | 15.77 | | 1.01 |
| Completo | -2000.0 | T= 5 años | 0.94 | 681.66 | 681.88 | 681.85 | 681.91 | 0.017086 | 0.68 | 1.39 | 12.36 | | 0.64 |
| Completo | -2000.0 | T= 500 años | 5.77 | 681.66 | 682.10 | 682.04 | 682.16 | 0.016303 | 1.11 | 5.20 | 21.25 | | 0.72 |
| Completo | -2020.0 | T= 5 años | 0.94 | 681.10 | 681.33 | 681.33 | 681.39 | 0.041717 | 1.08 | 0.87 | 7.43 | | 1.01 |
| Completo | -2020.0 | T= 500 años | 5.77 | 681.10 | 681.58 | 681.58 | 681.71 | 0.032801 | 1.56 | 3.70 | 15.35 | | 1.01 |
| Completo | -2040.0 | T= 5 años | 0.94 | 680.68 | 680.95 | 680.89 | 680.97 | 0.012155 | 0.64 | 1.46 | 10.87 | | 0.56 |
| Completo | -2040.0 | T= 500 años | 5.77 | 680.68 | 681.20 | 681.12 | 681.25 | 0.014194 | 1.07 | 5.39 | 20.95 | | 0.67 |
| Completo | -2060.0 | T= 5 años | 0.94 | 680.29 | 680.50 | 680.50 | 680.55 | 0.043319 | 1.02 | 0.92 | 8.81 | | 1.01 |
| Completo | -2060.0 | T= 500 años | 5.77 | 680.29 | 680.72 | 680.72 | 680.83 | 0.034168 | 1.47 | 3.92 | 18.19 | | 1.01 |
| Completo | -2080.0 | T= 5 años | 0.94 | 679.95 | 680.11 | 680.12 | 680.12 | 0.007295 | 0.46 | 2.04 | 16.99 | | 0.43 |
| Completo | -2080.0 | T= 500 años | 5.77 | 679.95 | 680.35 | 680.22 | 680.38 | 0.007487 | 0.83 | 6.92 | 24.17 | | 0.50 |
| Completo | -2100.0 | T= 5 años | 0.94 | 679.74 | 679.97 | | 679.98 | 0.006737 | 0.44 | 2.15 | 18.30 | | 0.41 |
| Completo | -2100.0 | T= 500 años | 5.77 | 679.74 | 680.24 | | 680.26 | 0.004861 | 0.69 | 8.36 | 28.12 | | 0.40 |
| Completo | -2120.0 | T= 5 años | 0.94 | 679.53 | 679.81 | | 679.83 | 0.009204 | 0.58 | 1.63 | 11.56 | | 0.49 |
| Completo | -2120.0 | T= 500 años | 5.77 | 679.53 | 680.09 | | 680.13 | 0.008211 | 0.89 | 6.49 | 22.08 | | 0.52 |
| Completo | -2140.0 | T= 5 años | 0.94 | 679.33 | 679.63 | 679.55 | 679.64 | 0.009436 | 0.60 | 1.56 | 10.54 | | 0.50 |
| Completo | -2140.0 | T= 500 años | 5.77 | 679.33 | 679.92 | | 679.97 | 0.008765 | 0.92 | 6.25 | 21.11 | | 0.54 |
| Completo | -2160.0 | T= 5 años | 0.94 | 679.12 | 679.36 | 679.33 | 679.39 | 0.017800 | 0.73 | 1.29 | 10.53 | | 0.67 |
| Completo | -2160.0 | T= 500 años | 5.77 | 679.12 | 679.55 | 679.55 | 679.66 | 0.032959 | 1.45 | 3.99 | 18.53 | | 1.00 |
| Completo | -2180.0 | T= 5 años | 0.94 | 678.76 | 678.92 | 678.90 | 678.94 | 0.029012 | 0.70 | 1.35 | 16.97 | | 0.79 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|-----|
| Completo | -2180.0 | T= 500 años | 5.77 | 678.76 | 679.09 | 679.05 | 679.15 | 0.019236 | 1.03 | 5.61 | 29.09 | 0.75 | |
| Completo | -2200.0 | T= 5 años | 0.94 | 678.19 | 678.41 | 678.38 | 678.44 | 0.021846 | 0.76 | 1.24 | 11.23 | 0.73 | |
| Completo | -2200.0 | T= 500 años | 5.77 | 678.19 | 678.61 | 678.59 | 678.69 | 0.026844 | 1.29 | 4.49 | 21.33 | 0.90 | |
| Completo | -2220.0 | T= 5 años | 0.94 | 677.60 | 677.79 | 677.79 | 677.84 | 0.043452 | 0.97 | 0.97 | 10.20 | 1.00 | |
| Completo | -2220.0 | T= 500 años | 5.77 | 677.60 | 677.99 | 677.99 | 678.09 | 0.033762 | 1.38 | 4.17 | 21.13 | 0.99 | |
| Completo | -2240.0 | T= 5 años | 0.94 | 677.00 | 677.23 | 677.20 | 677.26 | 0.020224 | 0.75 | 1.25 | 10.72 | 0.70 | |
| Completo | -2240.0 | T= 500 años | 5.77 | 677.00 | 677.45 | 677.42 | 677.53 | 0.023736 | 1.26 | 4.59 | 20.56 | 0.85 | |
| Completo | -2260.0 | T= 5 años | 0.94 | 676.43 | 676.63 | 676.63 | 676.68 | 0.043795 | 1.01 | 0.93 | 9.17 | 1.01 | |
| Completo | -2260.0 | T= 500 años | 5.77 | 676.43 | 676.85 | 676.85 | 676.96 | 0.034266 | 1.45 | 3.98 | 18.97 | 1.01 | |
| Completo | -2280.0 | T= 5 años | 0.94 | 675.87 | 676.07 | 676.03 | 676.09 | 0.015141 | 0.62 | 1.52 | 14.07 | 0.60 | |
| Completo | -2280.0 | T= 500 años | 5.77 | 675.87 | 676.16 | 676.22 | 676.36 | 0.095679 | 1.98 | 2.92 | 18.88 | 1.61 | |
| Completo | -2300.0 | T= 5 años | 0.94 | 675.34 | 675.55 | 675.55 | 675.61 | 0.043471 | 1.04 | 0.90 | 8.49 | 1.02 | |
| Completo | -2300.0 | T= 500 años | 5.77 | 675.34 | 675.78 | 675.78 | 675.89 | 0.033703 | 1.49 | 3.88 | 17.59 | 1.01 | |
| Completo | -2320.0 | T= 5 años | 0.94 | 674.94 | 675.14 | 675.06 | 675.15 | 0.005050 | 0.43 | 2.19 | 15.49 | 0.36 | |
| Completo | -2320.0 | T= 500 años | 5.77 | 674.94 | 675.47 | 675.24 | 675.49 | 0.003282 | 0.64 | 9.04 | 25.41 | 0.34 | |
| Completo | -2340.0 | T= 5 años | 0.94 | 674.77 | 675.05 | 675.06 | 675.06 | 0.004072 | 0.41 | 2.31 | 15.09 | 0.33 | |
| Completo | -2340.0 | T= 500 años | 5.77 | 674.77 | 675.42 | 675.43 | 675.43 | 0.002609 | 0.61 | 9.47 | 24.02 | 0.31 | |
| Completo | -2360.0 | T= 5 años | 0.94 | 674.61 | 674.96 | 674.97 | 674.97 | 0.004739 | 0.48 | 1.97 | 11.26 | 0.36 | |
| Completo | -2360.0 | T= 500 años | 5.77 | 674.61 | 675.35 | 675.38 | 675.38 | 0.003303 | 0.68 | 8.45 | 21.55 | 0.35 | |
| Completo | -2380.0 | T= 5 años | 0.94 | 674.44 | 674.84 | 674.86 | 674.86 | 0.006485 | 0.61 | 1.53 | 7.61 | 0.44 | |
| Completo | -2380.0 | T= 500 años | 5.77 | 674.44 | 675.24 | 675.28 | 675.28 | 0.006437 | 0.91 | 6.36 | 17.42 | 0.48 | |
| Completo | -2400.0 | T= 5 años | 0.94 | 674.27 | 674.64 | 674.68 | 674.68 | 0.013368 | 0.84 | 1.12 | 6.00 | 0.62 | |
| Completo | -2400.0 | T= 500 años | 5.77 | 674.27 | 674.99 | 675.09 | 675.09 | 0.015676 | 1.40 | 4.13 | 11.50 | 0.74 | |
| Completo | -2420.0 | T= 5 años | 0.94 | 674.10 | 674.41 | 674.34 | 674.43 | 0.011313 | 0.68 | 1.38 | 8.94 | 0.55 | |
| Completo | -2420.0 | T= 500 años | 5.77 | 674.10 | 674.66 | 674.60 | 674.74 | 0.018669 | 1.29 | 4.47 | 16.07 | 0.78 | |
| Completo | -2440.0 | T= 5 años | 0.94 | 673.84 | 673.98 | 673.98 | 674.02 | 0.048964 | 0.84 | 1.11 | 15.70 | 1.01 | |
| Completo | -2440.0 | T= 500 años | 5.77 | 673.84 | 674.14 | 674.14 | 674.24 | 0.035110 | 1.40 | 4.12 | 21.11 | 1.01 | |
| Completo | -2460.0 | T= 5 años | 0.94 | 673.00 | 673.21 | 673.10 | 673.22 | 0.002637 | 0.35 | 2.66 | 15.47 | 0.27 | |
| Completo | -2460.0 | T= 500 años | 5.77 | 673.00 | 673.46 | 673.29 | 673.49 | 0.005535 | 0.79 | 7.30 | 22.07 | 0.44 | |
| Completo | -2480.0 | T= 5 años | 0.94 | 673.00 | 673.05 | 673.05 | 673.08 | 0.048967 | 0.69 | 1.36 | 25.60 | 0.96 | |
| Completo | -2480.0 | T= 500 años | 5.77 | 673.00 | 673.17 | 673.17 | 673.25 | 0.037196 | 1.27 | 4.55 | 28.28 | 1.01 | |
| Completo | -2500.0 | T= 5 años | 1.17 | 672.00 | 672.08 | 672.08 | 672.12 | 0.046802 | 0.88 | 1.33 | 16.91 | 1.00 | |
| Completo | -2500.0 | T= 500 años | 7.21 | 672.00 | 672.24 | 672.27 | 672.38 | 0.049345 | 1.70 | 4.25 | 21.05 | 1.21 | |
| Completo | -2520.0 | T= 5 años | 1.17 | 671.00 | 671.24 | 671.15 | 671.26 | 0.008027 | 0.62 | 1.88 | 10.73 | 0.47 | |
| Completo | -2520.0 | T= 500 años | 7.21 | 671.00 | 671.54 | 671.42 | 671.61 | 0.011639 | 1.18 | 6.13 | 17.76 | 0.64 | |
| Completo | -2540.0 | T= 5 años | 1.17 | 670.68 | 670.89 | 670.89 | 670.94 | 0.043062 | 1.02 | 1.15 | 10.92 | 1.01 | |
| Completo | -2540.0 | T= 500 años | 7.21 | 670.68 | 671.11 | 671.11 | 671.23 | 0.032988 | 1.58 | 4.58 | 18.73 | 1.02 | |
| Completo | -2560.0 | T= 5 años | 1.17 | 669.94 | 670.16 | 670.06 | 670.17 | 0.004109 | 0.43 | 2.70 | 16.02 | 0.34 | |
| Completo | -2560.0 | T= 500 años | 7.21 | 669.94 | 670.47 | 670.26 | 670.51 | 0.004721 | 0.83 | 8.65 | 21.38 | 0.42 | |
| Completo | -2580.0 | T= 5 años | 1.17 | 669.82 | 670.08 | 670.09 | 670.09 | 0.003915 | 0.41 | 2.89 | 18.23 | 0.33 | |
| Completo | -2580.0 | T= 500 años | 7.21 | 669.82 | 670.39 | 670.42 | 670.42 | 0.003985 | 0.76 | 9.45 | 23.51 | 0.38 | |
| Completo | -2600.0 | T= 5 años | 1.17 | 669.70 | 669.99 | 670.00 | 670.00 | 0.004778 | 0.43 | 2.76 | 18.93 | 0.36 | |
| Completo | -2600.0 | T= 500 años | 7.21 | 669.70 | 670.32 | 670.35 | 670.35 | 0.003490 | 0.70 | 10.27 | 26.21 | 0.36 | |
| Completo | -2620.0 | T= 5 años | 1.17 | 669.57 | 669.90 | 669.91 | 669.91 | 0.003966 | 0.42 | 2.77 | 16.53 | 0.33 | |
| Completo | -2620.0 | T= 500 años | 7.21 | 669.57 | 670.26 | 670.28 | 670.28 | 0.003122 | 0.67 | 10.82 | 27.48 | 0.34 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|------|
| Completo | -2640.0 | T= 5 años | 1.17 | 669.45 | 669.82 | | 669.83 | 0.004639 | 0.49 | 2.41 | 13.18 | | 0.36 |
| Completo | -2640.0 | T= 500 años | 7.21 | 669.45 | 670.17 | | 670.20 | 0.004395 | 0.78 | 9.29 | 24.21 | | 0.40 |
| Completo | -2660.0 | T= 5 años | 1.17 | 669.33 | 669.70 | | 669.72 | 0.006814 | 0.59 | 1.98 | 10.77 | | 0.44 |
| Completo | -2660.0 | T= 500 años | 7.21 | 669.33 | 670.04 | | 670.09 | 0.007650 | 0.98 | 7.39 | 20.71 | | 0.52 |
| Completo | -2680.0 | T= 5 años | 1.17 | 669.21 | 669.56 | | 669.57 | 0.007561 | 0.60 | 1.96 | 11.33 | | 0.46 |
| Completo | -2680.0 | T= 500 años | 7.21 | 669.21 | 669.86 | | 669.92 | 0.009725 | 1.04 | 6.96 | 21.35 | | 0.58 |
| Completo | -2700.0 | T= 5 años | 1.17 | 669.09 | 669.35 | 669.30 | 669.37 | 0.013603 | 0.67 | 1.76 | 13.51 | | 0.59 |
| Completo | -2700.0 | T= 500 años | 7.21 | 669.09 | 669.57 | 669.52 | 669.64 | 0.020617 | 1.23 | 5.89 | 24.69 | | 0.80 |
| Completo | -2720.0 | T= 5 años | 1.17 | 668.91 | 669.05 | 669.03 | 669.07 | 0.016902 | 0.57 | 2.05 | 23.35 | | 0.61 |
| Completo | -2720.0 | T= 500 años | 7.21 | 668.91 | 669.24 | 669.18 | 669.29 | 0.014859 | 0.97 | 7.45 | 34.80 | | 0.67 |
| Completo | -2740.0 | T= 5 años | 1.17 | 668.48 | 668.62 | 668.60 | 668.64 | 0.027811 | 0.67 | 1.75 | 22.77 | | 0.77 |
| Completo | -2740.0 | T= 500 años | 7.21 | 668.48 | 668.76 | 668.75 | 668.84 | 0.035384 | 1.30 | 5.56 | 32.11 | | 1.00 |
| Completo | -2760.0 | T= 5 años | 1.17 | 667.88 | 668.03 | 668.02 | 668.06 | 0.030797 | 0.73 | 1.61 | 19.89 | | 0.82 |
| Completo | -2760.0 | T= 500 años | 7.21 | 667.88 | 668.21 | 668.18 | 668.27 | 0.022970 | 1.12 | 6.43 | 33.40 | | 0.82 |
| Completo | -2780.0 | T= 5 años | 1.17 | 667.46 | 667.68 | | 667.70 | 0.011629 | 0.55 | 2.13 | 19.22 | | 0.53 |
| Completo | -2780.0 | T= 500 años | 7.21 | 667.46 | 667.89 | | 667.93 | 0.012894 | 0.90 | 7.98 | 37.24 | | 0.62 |
| Completo | -2800.0 | T= 5 años | 1.17 | 667.10 | 667.28 | 667.27 | 667.32 | 0.036042 | 0.85 | 1.38 | 15.28 | | 0.90 |
| Completo | -2800.0 | T= 500 años | 7.21 | 667.10 | 667.47 | 667.46 | 667.55 | 0.030590 | 1.26 | 5.73 | 31.12 | | 0.94 |
| Completo | -2820.0 | T= 5 años | 1.17 | 666.77 | 666.98 | | 666.99 | 0.008827 | 0.47 | 2.51 | 23.61 | | 0.46 |
| Completo | -2820.0 | T= 500 años | 7.21 | 666.77 | 667.18 | | 667.22 | 0.009507 | 0.84 | 8.56 | 35.23 | | 0.55 |
| Completo | -2840.0 | T= 5 años | 1.17 | 666.43 | 666.60 | 666.60 | 666.65 | 0.045820 | 0.94 | 1.25 | 14.36 | | 1.01 |
| Completo | -2840.0 | T= 500 años | 7.21 | 666.43 | 666.79 | 666.79 | 666.88 | 0.036065 | 1.35 | 5.35 | 29.67 | | 1.01 |
| Completo | -2860.0 | T= 5 años | 1.17 | 666.00 | 666.13 | 666.08 | 666.15 | 0.009578 | 0.52 | 2.25 | 19.20 | | 0.49 |
| Completo | -2860.0 | T= 500 años | 7.21 | 666.00 | 666.34 | 666.26 | 666.39 | 0.012492 | 0.95 | 7.63 | 32.51 | | 0.62 |
| Completo | -2880.0 | T= 5 años | 1.17 | 665.58 | 665.74 | 665.74 | 665.78 | 0.045845 | 0.89 | 1.32 | 16.24 | | 1.00 |
| Completo | -2880.0 | T= 500 años | 7.21 | 665.58 | 665.92 | 665.91 | 666.00 | 0.032896 | 1.31 | 5.52 | 29.89 | | 0.97 |
| Completo | -2900.0 | T= 5 años | 1.17 | 665.00 | 665.40 | 665.27 | 665.41 | 0.004428 | 0.48 | 2.43 | 13.03 | | 0.36 |
| Completo | -2900.0 | T= 500 años | 7.21 | 665.00 | 665.73 | | 665.76 | 0.005615 | 0.84 | 8.61 | 24.08 | | 0.45 |
| Completo | -2920.0 | T= 5 años | 1.17 | 665.00 | 665.34 | | 665.34 | 0.002389 | 0.36 | 3.29 | 17.44 | | 0.26 |
| Completo | -2920.0 | T= 500 años | 7.21 | 665.00 | 665.65 | | 665.67 | 0.003608 | 0.67 | 10.75 | 30.15 | | 0.36 |
| Completo | -2940.0 | T= 5 años | 1.17 | 665.00 | 665.29 | | 665.29 | 0.002492 | 0.34 | 3.49 | 20.89 | | 0.26 |
| Completo | -2940.0 | T= 500 años | 7.21 | 665.00 | 665.58 | | 665.60 | 0.003348 | 0.63 | 11.43 | 33.18 | | 0.34 |
| Completo | -2960.0 | T= 5 años | 1.17 | 665.00 | 665.24 | | 665.25 | 0.002200 | 0.30 | 3.86 | 24.40 | | 0.24 |
| Completo | -2960.0 | T= 500 años | 7.21 | 665.00 | 665.52 | | 665.54 | 0.002999 | 0.57 | 12.61 | 39.11 | | 0.32 |
| Completo | -2980.0 | T= 5 años | 1.40 | 665.00 | 665.13 | 665.09 | 665.15 | 0.015819 | 0.62 | 2.26 | 21.66 | | 0.61 |
| Completo | -2980.0 | T= 500 años | 8.60 | 665.00 | 665.28 | 665.27 | 665.38 | 0.030641 | 1.36 | 6.35 | 30.86 | | 0.95 |
| Completo | -2982.6 | T= 5 años | 1.40 | 665.00 | 665.08 | 665.07 | 665.10 | 0.028480 | 0.67 | 2.09 | 27.83 | | 0.78 |
| Completo | -2982.6 | T= 500 años | 8.60 | 665.00 | 665.23 | 665.22 | 665.31 | 0.028537 | 1.26 | 6.83 | 35.11 | | 0.91 |

ARROYO DE LA VEGA
(Tramo: Arroyo Valdelacasa – Avda Monte de Valdelatas)

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

HEC-RAS Version 3.1.1 May 2003
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```

X   X   XXXXXX   XXXX   XXXX   XX   XXXX
X   X   X   X   X   X   X   X   X   X   X
X   X   X   X   X   X   X   X   X   X   X
XXXXXXXX XXXX   X   XXX XXXX XXXXXX XXXX
X   X   X   X   X   X   X   X   X   X   X
X   X   X   X   X   X   X   X   X   X   X
X   X   XXXXXX   XXXX   X   X   X   X   XXXX
    
```

PROJECT DATA
Project Title: Arroyo de la Vega (Inicio)
Project File : VegaI.prj
Run Date and Time: 01/07/2005 11:06:16

Project in SI units

PLAN DATA

Plan Title: Plan 05
Plan File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\VegaI.p05

Geometry Title: Arroyo de Vega (Inicio)
Geometry File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\VegaI.g01

Flow Title : Caudales Actuales-Nuevo Vega Inicio
Flow File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\VegaI.f03

Plan Summary Information:
Number of: Cross Sections = 15 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Caudales Actuales-Nuevo Vega Inicio
Flow File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\VegaI.f03

Flow Data (m3/s)

| | | | | |
|-------|-------|----|----------|-------------|
| River | Reach | RS | T=5 años | T= 500 años |
|-------|-------|----|----------|-------------|

| | | | | |
|----------------|--------|------|-----|----|
| Arroyo de Vega | Inicio | -0.0 | 1.9 | 23 |
|----------------|--------|------|-----|----|

Boundary Conditions

| | | | | |
|----------------|--------|----------|------------------|------------------|
| River | Reach | Profile | Upstream | Downstream |
| Arroyo de Vega | Inicio | T=5 años | Normal S = 0.007 | Normal S = 0.007 |

GEOMETRY DATA

Geometry Title: Arroyo de Vega (Inicio)
Geometry File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\VegaI.g01

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -0.0

INPUT

Description:
Station Elevation Data num= 12
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-94.32 668 -73.16 667 -47.87 666 -3.5 666 -1.5 664
0 664 1.5 664 3.5 666 53.11 666 67.29 667
81.47 668 95.65 669

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-94.32 -94.32 .045 95.65

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-94.32 95.65 17 17 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.57 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.51 | Reach Len. (m) | 17.00 | 17.00 | 17.00 |
| Crit W.S. (m) | 664.33 | Flow Area (m2) | | 1.79 | |
| E.G. Slope (m/m) | 0.007634 | Area (m2) | | 1.79 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.02 | Top Width (m) | | 4.02 | |
| Vel Total (m/s) | 1.06 | Avg. Vel. (m/s) | | 1.06 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 21.7 | Conv. (m3/s) | | 21.7 | |
| Length Wtd. (m) | 17.00 | Wetted Per. (m) | | 4.44 | |
| Min Ch El (m) | 664.00 | Shear (N/m2) | | 30.19 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.00 | |
| Frctn Loss (m) | 0.13 | Cum Volume (1000 m3) | | 0.47 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.06 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 666.21 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.18 | Reach Len. (m) | 17.00 | 17.00 | 17.00 |
| Crit W.S. (m) | 665.52 | Flow Area (m2) | | 28.56 | |
| E.G. Slope (m/m) | 0.007898 | Area (m2) | | 28.56 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 107.99 | Top Width (m) | | 107.99 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 2.18 | Hydr. Depth (m) | | 0.26 | |
| Conv. Total (m3/s) | 258.8 | Conv. (m3/s) | | 258.8 | |
| Length Wtd. (m) | 17.00 | Wetted Per. (m) | | 109.66 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

Min Ch El (m) 664.00 Shear (N/m2) 20.17
Alpha 1.00 Stream Power (N/m s) 16.24
Frctn Loss (m) 0.14 Cum Volume (1000 m3) 8.46
C & E Loss (m) 0.00 Cum SA (1000 m2) 37.61

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -17.0

INPUT

Description:
Station Elevation Data num= 11
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-86.41 668 -66.41 667 -46.41 665.87 -3.5 665.87 -1.5 663.87
0 663.87 1.5 663.87 3.5 665.87 55.5 665.87 71.06 667
86.26 668

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-86.41 -86.41 .045 86.26

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-86.41 86.26 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 664.44 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.38 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.80 | |
| E.G. Slope (m/m) | 0.007504 | Area (m2) | | 1.80 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.03 | Top Width (m) | | 4.03 | |
| Vel Total (m/s) | 1.05 | Avg. Vel. (m/s) | | 1.05 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 21.9 | Conv. (m3/s) | | 21.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.45 | |
| Min Ch El (m) | 663.87 | Shear (N/m2) | | 29.80 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.41 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.44 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.99 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 666.08 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 27.95 | |
| E.G. Slope (m/m) | 0.008414 | Area (m2) | | 27.95 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 107.31 | Top Width (m) | | 107.31 | |
| Vel Total (m/s) | 0.82 | Avg. Vel. (m/s) | | 0.82 | |
| Max Chl Dpth (m) | 2.17 | Hydr. Depth (m) | | 0.26 | |
| Conv. Total (m3/s) | 250.7 | Conv. (m3/s) | | 250.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 108.98 | |
| Min Ch El (m) | 663.87 | Shear (N/m2) | | 21.16 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.41 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | | 7.98 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 35.78 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -37.0

INPUT

Description:
Station Elevation Data num= 11
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-91.03 668 -72.92 667 -54.95 665.72 -3.5 665.72 -1.5 663.72
0 663.72 1.5 663.72 3.5 665.72 62.54 665.72 77.31 667
91.7 668

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-91.03 -91.03 .045 91.7

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-91.03 91.7 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 664.28 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.23 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.78 | |
| E.G. Slope (m/m) | 0.007849 | Area (m2) | | 1.78 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.01 | Top Width (m) | | 4.01 | |
| Vel Total (m/s) | 1.07 | Avg. Vel. (m/s) | | 1.07 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.44 | |
| Conv. Total (m3/s) | 21.4 | Conv. (m3/s) | | 21.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.43 | |
| Min Ch El (m) | 663.72 | Shear (N/m2) | | 30.84 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.99 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.91 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 665.91 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.88 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 29.32 | |
| E.G. Slope (m/m) | 0.008454 | Area (m2) | | 29.32 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 121.62 | Top Width (m) | | 121.62 | |
| Vel Total (m/s) | 0.78 | Avg. Vel. (m/s) | | 0.78 | |
| Max Chl Dpth (m) | 2.16 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 250.2 | Conv. (m3/s) | | 250.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 123.29 | |
| Min Ch El (m) | 663.72 | Shear (N/m2) | | 19.72 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 15.47 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 7.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 33.49 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -57.0

INPUT

Description:
Station Elevation Data num= 11
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-94.16 668 -80.51 667 -64.49 665.56 -3.5 665.56 -1.5 663.56

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

0 663.56 1.5 663.56 3.5 665.56 69.95 665.56 81.56 667
93.17 668

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-94.16 -94.16 .045 93.17

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-94.16 93.17 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.13 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.82 | |
| E.G. Slope (m/m) | 0.007276 | Area (m2) | | 1.82 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.04 | Top Width (m) | | 4.04 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 0.52 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 22.3 | Conv. (m3/s) | | 22.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.46 | |
| Min Ch El (m) | 663.56 | Shear (N/m2) | | 29.12 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 30.36 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 0.37 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.83 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.75 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.73 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 33.14 | |
| E.G. Slope (m/m) | 0.006623 | Area (m2) | | 33.14 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 137.70 | Top Width (m) | | 137.70 | |
| Vel Total (m/s) | 0.69 | Avg. Vel. (m/s) | | 0.69 | |
| Max Chl Dpth (m) | 2.17 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 282.6 | Conv. (m3/s) | | 282.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 139.38 | |
| Min Ch El (m) | 663.56 | Shear (N/m2) | | 15.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 10.72 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | | 6.78 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 30.89 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -77.0

INPUT
Description:

| Station Elevation Data | | num= | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|-------|--------|-------|--------|--|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | |
| -95.48 | 668 | -82.17 | 667 | -68.89 | 665.42 | -3.5 | 665.42 | -1.5 | 663.42 | |
| 0 | 663.42 | 1.5 | 663.42 | 3.5 | 665.42 | 71.36 | 665.42 | 83.44 | 667 | |
| 95.54 | 668 | | | | | | | | | |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-95.48 -95.48 .045 95.54

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-95.48 95.54 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 663.97 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.91 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.69 | |
| E.G. Slope (m/m) | 0.009013 | Area (m2) | | 1.69 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 3.97 | Top Width (m) | | 3.97 | |
| Vel Total (m/s) | 1.12 | Avg. Vel. (m/s) | | 1.12 | |
| Max Chl Dpth (m) | 0.49 | Hydr. Depth (m) | | 0.43 | |
| Conv. Total (m3/s) | 20.0 | Conv. (m3/s) | | 20.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.37 | |
| Min Ch El (m) | 663.42 | Shear (N/m2) | | 34.24 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 38.39 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.34 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.75 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.58 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.55 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 28.37 | |
| E.G. Slope (m/m) | 0.011615 | Area (m2) | | 28.37 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 142.34 | Top Width (m) | | 142.34 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 2.13 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 213.4 | Conv. (m3/s) | | 213.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 144.01 | |
| Min Ch El (m) | 663.42 | Shear (N/m2) | | 22.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 18.19 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 6.16 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 28.09 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -97.0

INPUT

Description:

| Station Elevation Data | | num= | | | | | | | | |
|------------------------|--------|-------|--------|--------|--------|-------|--------|------|--------|--|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | |
| -97.39 | 668 | -84.8 | 667 | -71.95 | 665.23 | -3.5 | 665.23 | -1.5 | 663.23 | |
| 0 | 663.23 | 1.5 | 663.23 | 3.5 | 665.23 | 78.42 | 665.23 | 98.5 | 666 | |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-97.39 -97.39 .045 98.5

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-97.39 98.5 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 663.82 | | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.76 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.89 | |
| E.G. Slope (m/m) | 0.006557 | Area (m2) | | 1.89 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.07 | Top Width (m) | | 4.07 | |
| Vel Total (m/s) | 1.01 | Avg. Vel. (m/s) | | 1.01 | |
| Max Chl Dpth (m) | 0.53 | Hydr. Depth (m) | | 0.46 | |
| Conv. Total (m3/s) | 23.5 | Conv. (m3/s) | | 23.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.51 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| | | | |
|----------------|--------|----------------------|-------|
| Min Ch El (m) | 663.23 | Shear (N/m2) | 26.91 |
| Alpha | 1.00 | Stream Power (N/m s) | 27.09 |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | 0.30 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 0.67 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.42 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.40 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 36.53 | |
| E.G. Slope (m/m) | 0.005650 | Area (m2) | | 36.53 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 156.14 | Top Width (m) | | 156.14 | |
| Vel Total (m/s) | 0.63 | Avg. Vel. (m/s) | | 0.63 | |
| Max Chl Dpth (m) | 2.17 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 306.0 | Conv. (m3/s) | | 306.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 157.81 | |
| Min Ch El (m) | 663.23 | Shear (N/m2) | | 12.82 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.07 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 5.51 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 25.11 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -117.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 10 |
| Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -99.59 668 -87.99 667 -76.6 665.11 -3.5 665.11 -1.5 663.11 | | |
| 0 663.11 1.5 663.11 3.5 665.11 76 665.11 90.31 666 | | |

| | | |
|-------------------------------|------|---|
| Manning's n Values | num= | 3 |
| Sta n Val Sta n Val Sta n Val | | |
| -99.59 -99.59 .045 90.31 | | |

| | | |
|----------------------|-----------------------------|---------------------|
| Bank Sta: Left Right | Lengths: Left Channel Right | Coeff Contr. Expan. |
| -99.59 90.31 | 20 20 20 | .1 .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 663.66 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.71 | |
| E.G. Slope (m/m) | 0.008838 | Area (m2) | | 1.71 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 3.98 | Top Width (m) | | 3.98 | |
| Vel Total (m/s) | 1.11 | Avg. Vel. (m/s) | | 1.11 | |
| Max Chl Dpth (m) | 0.49 | Hydr. Depth (m) | | 0.43 | |
| Conv. Total (m3/s) | 20.2 | Conv. (m3/s) | | 20.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.38 | |
| Min Ch El (m) | 663.11 | Shear (N/m2) | | 33.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 37.57 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.26 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.59 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|---------------|--------|----------------|---------|---------|----------|
| E.G. Elev (m) | 665.27 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |

| | | | |
|--------------------|----------|----------------------|--------|
| Crit W.S. (m) | | Flow Area (m2) | 29.53 |
| E.G. Slope (m/m) | 0.011411 | Area (m2) | 29.53 |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | 23.00 |
| Top Width (m) | 155.40 | Top Width (m) | 155.40 |
| Vel Total (m/s) | 0.78 | Avg. Vel. (m/s) | 0.78 |
| Max Chl Dpth (m) | 2.13 | Hydr. Depth (m) | 0.19 |
| Conv. Total (m3/s) | 215.3 | Conv. (m3/s) | 215.3 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 157.07 |
| Min Ch El (m) | 663.11 | Shear (N/m2) | 21.04 |
| Alpha | 1.00 | Stream Power (N/m s) | 16.39 |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | 4.85 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 21.99 |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -137.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 10 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -99.36 668 -88.41 667 -77.03 664.92 -3.5 664.92 -1.5 662.92 | | |
| 0 662.92 1.5 662.92 3.5 664.92 75.57 664.92 91.5 666 | | |

| | | |
|-------------------------------|------|---|
| Manning's n Values | num= | 3 |
| Sta n Val Sta n Val Sta n Val | | |
| -99.36 -99.36 .045 91.5 | | |

| | | |
|----------------------|-----------------------------|---------------------|
| Bank Sta: Left Right | Lengths: Left Channel Right | Coeff Contr. Expan. |
| -99.36 91.5 | 20 20 20 | .1 .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 663.51 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.47 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.93 | |
| E.G. Slope (m/m) | 0.006096 | Area (m2) | | 1.93 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.09 | Top Width (m) | | 4.09 | |
| Vel Total (m/s) | 0.98 | Avg. Vel. (m/s) | | 0.98 | |
| Max Chl Dpth (m) | 0.55 | Hydr. Depth (m) | | 0.47 | |
| Conv. Total (m3/s) | 24.3 | Conv. (m3/s) | | 24.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.54 | |
| Min Ch El (m) | 662.92 | Shear (N/m2) | | 25.46 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 25.00 | |
| Frctn Loss (m) | 0.14 | Cum Volume (1000 m3) | | 0.23 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.51 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.12 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.10 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 37.70 | |
| E.G. Slope (m/m) | 0.005087 | Area (m2) | | 37.70 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 156.23 | Top Width (m) | | 156.23 | |
| Vel Total (m/s) | 0.61 | Avg. Vel. (m/s) | | 0.61 | |
| Max Chl Dpth (m) | 2.18 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 322.5 | Conv. (m3/s) | | 322.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 157.91 | |
| Min Ch El (m) | 662.92 | Shear (N/m2) | | 11.91 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.27 | |
| Frctn Loss (m) | 0.12 | Cum Volume (1000 m3) | | 4.18 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 18.88 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -157.0

INPUT

Description:

Station Elevation Data num= 10
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-97.6 668 -84.08 667 -70.57 664.81 -3.5 664.81 -1.5 662.81
0 662.81 1.5 662.81 3.5 664.81 79.83 664.81 94.95 666

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-97.6 -97.6 .045 94.95

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-97.6 94.95 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 663.38 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.32 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.80 | |
| E.G. Slope (m/m) | 0.007533 | Area (m2) | | 1.80 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.03 | Top Width (m) | | 4.03 | |
| Vel Total (m/s) | 1.06 | Avg. Vel. (m/s) | | 1.06 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 21.9 | Conv. (m3/s) | | 21.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.45 | |
| Min Ch El (m) | 662.81 | Shear (N/m2) | | 29.89 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.54 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.19 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.43 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.99 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.96 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 32.90 | |
| E.G. Slope (m/m) | 0.007810 | Area (m2) | | 32.90 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 153.25 | Top Width (m) | | 153.25 | |
| Vel Total (m/s) | 0.70 | Avg. Vel. (m/s) | | 0.70 | |
| Max Chl Dpth (m) | 2.15 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 260.3 | Conv. (m3/s) | | 260.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 154.92 | |
| Min Ch El (m) | 662.81 | Shear (N/m2) | | 16.27 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.37 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 3.48 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.78 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -177.0

INPUT

Description:

Station Elevation Data num= 9
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-88.81 666 -71 664.66 -3.5 664.66 -1.5 662.66 0 662.66

1.5 662.66 3.5 664.66 80 664.66 97.92 666

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-88.81 -88.81 .045 97.92

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-88.81 97.92 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 663.22 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.77 | |
| E.G. Slope (m/m) | 0.007899 | Area (m2) | | 1.77 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.01 | Top Width (m) | | 4.01 | |
| Vel Total (m/s) | 1.07 | Avg. Vel. (m/s) | | 1.07 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.44 | |
| Conv. Total (m3/s) | 21.4 | Conv. (m3/s) | | 21.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.43 | |
| Min Ch El (m) | 662.66 | Shear (N/m2) | | 30.99 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.23 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.16 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.35 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.83 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.81 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 32.58 | |
| E.G. Slope (m/m) | 0.008183 | Area (m2) | | 32.58 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 154.94 | Top Width (m) | | 154.94 | |
| Vel Total (m/s) | 0.71 | Avg. Vel. (m/s) | | 0.71 | |
| Max Chl Dpth (m) | 2.15 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 254.3 | Conv. (m3/s) | | 254.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 156.61 | |
| Min Ch El (m) | 662.66 | Shear (N/m2) | | 16.70 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.79 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 2.82 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.70 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -197.0

INPUT

Description:

Station Elevation Data num= 9
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-99.52 666 -72 664.5 -3.5 664.5 -1.5 662.5 0 662.5
1.5 662.5 3.5 664.5 80 664.5 86.76 665

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-99.52 -99.52 .045 86.76

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-99.52 86.76 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|---------------|--------|---------|---------|---------|----------|
| E.G. Elev (m) | 663.07 | | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| | | | |
|--------------------|----------|----------------------|-------|
| Vel Head (m) | 0.06 | Wt. n-Val. | 0.045 |
| W.S. Elev (m) | 663.01 | Reach Len. (m) | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | 1.80 |
| E.G. Slope (m/m) | 0.007496 | Area (m2) | 1.80 |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | 1.90 |
| Top Width (m) | 4.03 | Top Width (m) | 4.03 |
| Vel Total (m/s) | 1.05 | Avg. Vel. (m/s) | 1.05 |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | 0.45 |
| Conv. Total (m3/s) | 21.9 | Conv. (m3/s) | 21.9 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 4.45 |
| Min Ch El (m) | 662.50 | Shear (N/m2) | 29.78 |
| Alpha | 1.00 | Stream Power (N/m s) | 31.37 |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | 0.12 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 0.27 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.67 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.65 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 33.09 | |
| E.G. Slope (m/m) | 0.007894 | Area (m2) | | 33.09 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 156.77 | Top Width (m) | | 156.77 | |
| Vel Total (m/s) | 0.70 | Avg. Vel. (m/s) | | 0.70 | |
| Max Chl Dpth (m) | 2.15 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 258.9 | Conv. (m3/s) | | 258.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 158.43 | |
| Min Ch El (m) | 662.50 | Shear (N/m2) | | 16.17 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.24 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 2.16 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.58 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -217.0

INPUT

| | |
|---|--------|
| Description: | |
| Station Elevation Data | num= 9 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | |
| -85.61 666 -71.04 664.35 -3.5 664.35 -1.5 662.35 0 662.35 | |
| 1.5 662.35 3.5 664.35 80 664.35 89.46 665 | |

| | |
|-------------------------------|--------|
| Manning's n Values | num= 3 |
| Sta n Val Sta n Val Sta n Val | |
| -85.61 -85.61 .045 89.46 | |

| | |
|--|---------------------------|
| Bank Sta: Left Right Lengths: Left Channel Right | |
| -85.61 89.46 20 20 20 | Coeff Contr. Expan. .1 .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 662.92 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 662.86 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.80 | |
| E.G. Slope (m/m) | 0.007496 | Area (m2) | | 1.80 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.03 | Top Width (m) | | 4.03 | |
| Vel Total (m/s) | 1.05 | Avg. Vel. (m/s) | | 1.05 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 21.9 | Conv. (m3/s) | | 21.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.45 | |
| Min Ch El (m) | 662.35 | Shear (N/m2) | | 29.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.37 | |

| | | | |
|----------------|------|----------------------|------|
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | 0.08 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 0.19 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.53 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.51 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 33.89 | |
| E.G. Slope (m/m) | 0.007165 | Area (m2) | | 33.89 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 154.69 | Top Width (m) | | 154.69 | |
| Vel Total (m/s) | 0.68 | Avg. Vel. (m/s) | | 0.68 | |
| Max Chl Dpth (m) | 2.16 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 271.7 | Conv. (m3/s) | | 271.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 156.36 | |
| Min Ch El (m) | 662.35 | Shear (N/m2) | | 15.23 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 10.34 | |
| Frctn Loss (m) | 0.13 | Cum Volume (1000 m3) | | 1.49 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 6.47 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -237.0

INPUT

| | |
|---|---------|
| Description: | |
| Station Elevation Data | num= 10 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | |
| -89.4 667 -69.71 666 -67.02 664.2 -3.5 664.2 80 664.2 91.22 665 | |
| 0 662.2 1.5 662.2 3.5 664.2 | |

| | |
|-------------------------------|--------|
| Manning's n Values | num= 3 |
| Sta n Val Sta n Val Sta n Val | |
| -89.4 -89.4 .045 91.22 | |

| | |
|--|---------------------------|
| Bank Sta: Left Right Lengths: Left Channel Right | |
| -89.4 91.22 20 20 20 | Coeff Contr. Expan. .1 .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 662.77 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 662.71 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.80 | |
| E.G. Slope (m/m) | 0.007496 | Area (m2) | | 1.80 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.03 | Top Width (m) | | 4.03 | |
| Vel Total (m/s) | 1.05 | Avg. Vel. (m/s) | | 1.05 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 21.9 | Conv. (m3/s) | | 21.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.45 | |
| Min Ch El (m) | 662.20 | Shear (N/m2) | | 29.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.37 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.05 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.10 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|------------------|----------|----------------|---------|---------|----------|
| E.G. Elev (m) | 664.40 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.38 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 36.21 | |
| E.G. Slope (m/m) | 0.005505 | Area (m2) | | 36.21 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |

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ANEXO VII

| | | | |
|--------------------|--------|----------------------|--------|
| Top Width (m) | 149.76 | Top Width (m) | 149.76 |
| Vel Total (m/s) | 0.64 | Avg. Vel. (m/s) | 0.64 |
| Max Chl Dpth (m) | 2.18 | Hydr. Depth (m) | 0.24 |
| Conv. Total (m3/s) | 310.0 | Conv. (m3/s) | 310.0 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 151.48 |
| Min Ch El (m) | 662.20 | Shear (N/m2) | 12.91 |
| Alpha | 1.00 | Stream Power (N/m s) | 8.20 |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | 0.79 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 3.42 |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -257.0

INPUT

Description:

| | | |
|--|------|---|
| Station Elevation Data | num= | 9 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -90 665 -19.05 664.05 -3.5 664.05 -1.5 662.05 0 662.05 | | |
| 1.5 662.05 3.5 664.05 80 664.05 92.22 666 | | |

Manning's n Values

| | |
|-------------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val Sta n Val | |
| -90 -90 .045 92.22 | |

| | |
|--|---------------------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. Expan. |
| -90 92.22 6 6 6 | .1 .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 662.62 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 662.57 | Reach Len. (m) | 6.00 | 6.00 | 6.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.81 | |
| E.G. Slope (m/m) | 0.007376 | Area (m2) | | 1.81 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.03 | Top Width (m) | | 4.03 | |
| Vel Total (m/s) | 1.05 | Avg. Vel. (m/s) | | 1.05 | |
| Max Chl Dpth (m) | 0.52 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 22.1 | Conv. (m3/s) | | 22.1 | |
| Length Wtd. (m) | 6.00 | Wetted Per. (m) | | 4.46 | |
| Min Ch El (m) | 662.05 | Shear (N/m2) | | 29.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 30.82 | |
| Frctn Loss (m) | 0.04 | Cum Volume (1000 m3) | | 0.01 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.02 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.24 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.19 | Reach Len. (m) | 6.00 | 6.00 | 6.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 25.16 | |
| E.G. Slope (m/m) | 0.012454 | Area (m2) | | 25.16 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 110.75 | Top Width (m) | | 110.75 | |
| Vel Total (m/s) | 0.91 | Avg. Vel. (m/s) | | 0.91 | |
| Max Chl Dpth (m) | 2.14 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 206.1 | Conv. (m3/s) | | 206.1 | |
| Length Wtd. (m) | 6.00 | Wetted Per. (m) | | 112.42 | |
| Min Ch El (m) | 662.05 | Shear (N/m2) | | 27.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.99 | |
| Frctn Loss (m) | 0.05 | Cum Volume (1000 m3) | | 0.18 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 0.82 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -263.0

INPUT

Description:

| | | |
|--|------|---|
| Station Elevation Data | num= | 9 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -90 665 -69.97 664 -3.5 664 -1.5 662 0 662 | | |
| 1.5 662 3.5 664 88.45 664 97.13 667 | | |

Manning's n Values

| | |
|-------------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val Sta n Val | |
| -90 -90 .045 97.13 | |

| | |
|----------------------|---------------------|
| Bank Sta: Left Right | Coeff Contr. Expan. |
| -90 97.13 | .1 .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 662.58 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 662.52 | Reach Len. (m) | | 6.00 | |
| Crit W.S. (m) | 662.33 | Flow Area (m2) | | 1.85 | |
| E.G. Slope (m/m) | 0.007003 | Area (m2) | | 1.85 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.05 | Top Width (m) | | 4.05 | |
| Vel Total (m/s) | 1.03 | Avg. Vel. (m/s) | | 1.03 | |
| Max Chl Dpth (m) | 0.52 | Hydr. Depth (m) | | 0.46 | |
| Conv. Total (m3/s) | 22.7 | Conv. (m3/s) | | 22.7 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 4.48 | |
| Min Ch El (m) | 662.00 | Shear (N/m2) | | 28.28 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 29.12 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.18 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.15 | Reach Len. (m) | | 6.00 | |
| Crit W.S. (m) | 663.52 | Flow Area (m2) | | 34.75 | |
| E.G. Slope (m/m) | 0.007004 | Area (m2) | | 34.75 | |
| Q Total (m3/s) | 23.00 | Flow (m3/s) | | 23.00 | |
| Top Width (m) | 161.96 | Top Width (m) | | 161.96 | |
| Vel Total (m/s) | 0.66 | Avg. Vel. (m/s) | | 0.66 | |
| Max Chl Dpth (m) | 2.15 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 274.8 | Conv. (m3/s) | | 274.8 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 163.65 | |
| Min Ch El (m) | 662.00 | Shear (N/m2) | | 14.58 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.65 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

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ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|--------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|-----|
| Inicio | -0.0 | T=5 años | 1.90 | 664.00 | 664.51 | 664.33 | 664.57 | 0.007634 | 1.06 | 1.79 | 4.02 | 0.51 | |
| Inicio | -0.0 | T= 500 años | 23.00 | 664.00 | 666.18 | 665.52 | 666.21 | 0.007898 | 0.81 | 28.56 | 107.99 | 0.50 | |
| Inicio | -17.0 | T=5 años | 1.90 | 663.87 | 664.38 | | 664.44 | 0.007504 | 1.05 | 1.80 | 4.03 | 0.50 | |
| Inicio | -17.0 | T= 500 años | 23.00 | 663.87 | 666.04 | | 666.08 | 0.008414 | 0.82 | 27.95 | 107.31 | 0.51 | |
| Inicio | -37.0 | T=5 años | 1.90 | 663.72 | 664.23 | | 664.28 | 0.007849 | 1.07 | 1.78 | 4.01 | 0.51 | |
| Inicio | -37.0 | T= 500 años | 23.00 | 663.72 | 665.88 | | 665.91 | 0.008454 | 0.78 | 29.32 | 121.62 | 0.51 | |
| Inicio | -57.0 | T=5 años | 1.90 | 663.56 | 664.08 | | 664.13 | 0.007276 | 1.04 | 1.82 | 4.04 | 0.50 | |
| Inicio | -57.0 | T= 500 años | 23.00 | 663.56 | 665.73 | | 665.75 | 0.006623 | 0.69 | 33.14 | 137.70 | 0.45 | |
| Inicio | -77.0 | T=5 años | 1.90 | 663.42 | 663.91 | | 663.97 | 0.009013 | 1.12 | 1.69 | 3.97 | 0.55 | |
| Inicio | -77.0 | T= 500 años | 23.00 | 663.42 | 665.55 | | 665.58 | 0.011615 | 0.81 | 28.37 | 142.34 | 0.58 | |
| Inicio | -97.0 | T=5 años | 1.90 | 663.23 | 663.76 | | 663.82 | 0.006557 | 1.01 | 1.89 | 4.07 | 0.47 | |
| Inicio | -97.0 | T= 500 años | 23.00 | 663.23 | 665.40 | | 665.42 | 0.005650 | 0.63 | 36.53 | 156.14 | 0.42 | |
| Inicio | -117.0 | T=5 años | 1.90 | 663.11 | 663.60 | | 663.66 | 0.008838 | 1.11 | 1.71 | 3.98 | 0.54 | |
| Inicio | -117.0 | T= 500 años | 23.00 | 663.11 | 665.24 | | 665.27 | 0.011411 | 0.78 | 29.53 | 155.40 | 0.57 | |
| Inicio | -137.0 | T=5 años | 1.90 | 662.92 | 663.47 | | 663.51 | 0.006096 | 0.98 | 1.93 | 4.09 | 0.46 | |
| Inicio | -137.0 | T= 500 años | 23.00 | 662.92 | 665.10 | | 665.12 | 0.005087 | 0.61 | 37.70 | 156.23 | 0.40 | |
| Inicio | -157.0 | T=5 años | 1.90 | 662.81 | 663.32 | | 663.38 | 0.007533 | 1.06 | 1.80 | 4.03 | 0.50 | |
| Inicio | -157.0 | T= 500 años | 23.00 | 662.81 | 664.96 | | 664.99 | 0.007810 | 0.70 | 32.90 | 153.25 | 0.48 | |
| Inicio | -177.0 | T=5 años | 1.90 | 662.66 | 663.17 | | 663.22 | 0.007899 | 1.07 | 1.77 | 4.01 | 0.51 | |
| Inicio | -177.0 | T= 500 años | 23.00 | 662.66 | 664.81 | | 664.83 | 0.008183 | 0.71 | 32.58 | 154.94 | 0.49 | |
| Inicio | -197.0 | T=5 años | 1.90 | 662.50 | 663.01 | | 663.07 | 0.007496 | 1.05 | 1.80 | 4.03 | 0.50 | |
| Inicio | -197.0 | T= 500 años | 23.00 | 662.50 | 664.65 | | 664.67 | 0.007894 | 0.70 | 33.09 | 156.77 | 0.48 | |
| Inicio | -217.0 | T=5 años | 1.90 | 662.35 | 662.86 | | 662.92 | 0.007496 | 1.05 | 1.80 | 4.03 | 0.50 | |
| Inicio | -217.0 | T= 500 años | 23.00 | 662.35 | 664.51 | | 664.53 | 0.007165 | 0.68 | 33.89 | 154.69 | 0.46 | |
| Inicio | -237.0 | T=5 años | 1.90 | 662.20 | 662.71 | | 662.77 | 0.007496 | 1.05 | 1.80 | 4.03 | 0.50 | |
| Inicio | -237.0 | T= 500 años | 23.00 | 662.20 | 664.38 | | 664.40 | 0.005505 | 0.64 | 36.21 | 149.76 | 0.41 | |
| Inicio | -257.0 | T=5 años | 1.90 | 662.05 | 662.57 | | 662.62 | 0.007376 | 1.05 | 1.81 | 4.03 | 0.50 | |
| Inicio | -257.0 | T= 500 años | 23.00 | 662.05 | 664.19 | | 664.24 | 0.012454 | 0.91 | 25.16 | 110.75 | 0.61 | |
| Inicio | -263.0 | T=5 años | 1.90 | 662.00 | 662.52 | 662.33 | 662.58 | 0.007003 | 1.03 | 1.85 | 4.05 | 0.49 | |
| Inicio | -263.0 | T= 500 años | 23.00 | 662.00 | 664.15 | 663.52 | 664.18 | 0.007004 | 0.66 | 34.75 | 161.96 | 0.46 | |

ARROYO DE LA VEGA
(Tramo: Polideportivo Municipal - E.D.A.R.)

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

HEC-RAS Version 3.1.1 May 2003
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```

X   X   XXXXXX   XXXX   XXXX   XX   XXXX
X   X   X       X   X   X   X   X   X   X
X   X   X       X       X   X   X   X   X
XXXXXXXX XXXX   X       XXX XXXX XXXXXX XXXX
X   X   X       X       X   X   X   X   X
X   X   X       X   X   X   X   X   X   X
X   X   XXXXXX   XXXX   X   X   X   X   XXXXX
    
```

PROJECT DATA
Project Title: Arroyo de la Vega
Project File : Vega.prj
Run Date and Time: 01/07/2005 12:10:19

Project in SI units

PLAN DATA

Plan Title: Plan 07
Plan File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Vega.p07

Geometry Title: Arroyo de la Vega
Geometry File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Vega.g01

Flow Title : Caudales Actuales-Nuevo Vega
Flow File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Vega.f04

Plan Summary Information:

Number of: Cross Sections = 9 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information

Water surface calculation tolerance = 0.003
Critical depth calculation tolerance = 0.003
Maximum number of iterations = 20
Maximum difference tolerance = 0.1
Flow tolerance factor = 0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Caudales Actuales-Nuevo Vega
Flow File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Vega.f04

Flow Data (m3/s)

| River | Reach | RS | T= 5 años | T= 500 años |
|-----------------|--------------|---------|-----------|-------------|
| Aryo de la Vega | Rotonda-EDAR | 0.0 | 11.7698 | 83.9348 |
| Aryo de la Vega | Rotonda-EDAR | -1000.0 | 11.7698 | 83.9348 |
| Aryo de la Vega | Rotonda-EDAR | -2500.0 | 13.5902 | 99.4809 |
| Aryo de la Vega | Rotonda-EDAR | -3000.0 | 13.81 | 104.5043 |
| Aryo de la Vega | Rotonda-EDAR | -3869.0 | 14.0382 | 109.0056 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|-----------------|--------------|-------------|-----------------|-----------------|
| Aryo de la Vega | Rotonda-EDAR | T= 5 años | Normal S = 0.01 | Normal S = 0.01 |
| Aryo de la Vega | Rotonda-EDAR | T= 500 años | Normal S = 0.01 | Normal S = 0.01 |

GEOMETRY DATA

Geometry Title: Arroyo de la Vega
Geometry File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Vega.g01

CROSS SECTION

RIVER: Arroyo de la Vega
REACH: Rotonda-EDAR RS: 0.0

INPUT

Description:

| Station Elevation Data | | num= 7 | |
|------------------------|------|--------|------|
| Sta | Elev | Sta | Elev |
| -30 | 641 | -2 | 639 |
| 2 | 639 | 30 | 641 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -30 | .045 | 30 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -30 | 30 | | 500 | 500 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 636.55 | Element | | | |
| Vel Head (m) | 0.27 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 636.28 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 635.96 | Flow Area (m2) | | 5.11 | |
| E.G. Slope (m/m) | 0.015010 | Area (m2) | | 5.11 | |
| Q Total (m3/s) | 11.77 | Flow (m3/s) | | 11.77 | |
| Top Width (m) | 4.00 | Top Width (m) | | 4.00 | |
| Vel Total (m/s) | 2.31 | Avg. Vel. (m/s) | | 2.31 | |
| Max Chl Dpth (m) | 1.28 | Hydr. Depth (m) | | 1.28 | |
| Conv. Total (m3/s) | 96.1 | Conv. (m3/s) | | 96.1 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 6.55 | |
| Min Ch El (m) | 635.00 | Shear (N/m2) | | 114.68 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 264.38 | |
| Frctn Loss (m) | 9.25 | Cum Volume (1000 m3) | | 25.83 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 15.47 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| CROSS SECTION OUTPUT Profile #T= 500 años | | | | | |
|---|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 640.30 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.33 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 639.97 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 639.69 | Flow Area (m2) | | 33.02 | |
| E.G. Slope (m/m) | 0.016452 | Area (m2) | | 33.02 | |
| Q Total (m3/s) | 83.93 | Flow (m3/s) | | 83.93 | |
| Top Width (m) | 31.13 | Top Width (m) | | 31.13 | |
| Vel Total (m/s) | 2.54 | Avg. Vel. (m/s) | | 2.54 | |
| Max Chl Dpth (m) | 4.97 | Hydr. Depth (m) | | 1.06 | |
| Conv. Total (m3/s) | 654.4 | Conv. (m3/s) | | 654.4 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 39.20 | |
| Min Ch El (m) | 635.00 | Shear (N/m2) | | 135.90 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 345.49 | |
| Frctn Loss (m) | 9.19 | Cum Volume (1000 m3) | | 180.16 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 152.22 | |

CROSS SECTION

RIVER: Arroyo de la Vega
REACH: Rotonda-EDAR RS: -500.0

INPUT

Description:

| Station Elevation Data num= 7 | | | | | | | | | |
|-------------------------------|--------|-----|--------|-----|--------|-----|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -30 | 631.83 | -2 | 629.83 | -2 | 625.83 | 0 | 625.83 | 2 | 625.83 |
| 2 | 629.83 | 30 | 631.83 | | | | | | |

| Manning's n Values num= 3 | | | | | |
|---------------------------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -30 | | -30 | .045 | 30 | |

| Bank Sta: Left Right Lengths: Left Channel Right | | | | | | | Coeff Contr. | Expan. |
|--|----|-----|-----|-----|--|--|--------------|--------|
| -30 | 30 | 500 | 500 | 500 | | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 627.29 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.37 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.92 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 626.79 | Flow Area (m2) | | 4.37 | |
| E.G. Slope (m/m) | 0.023350 | Area (m2) | | 4.37 | |
| Q Total (m3/s) | 11.77 | Flow (m3/s) | | 11.77 | |
| Top Width (m) | 4.00 | Top Width (m) | | 4.00 | |
| Vel Total (m/s) | 2.69 | Avg. Vel. (m/s) | | 2.69 | |
| Max Chl Dpth (m) | 1.09 | Hydr. Depth (m) | | 1.09 | |
| Conv. Total (m3/s) | 77.0 | Conv. (m3/s) | | 77.0 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 6.18 | |
| Min Ch El (m) | 625.83 | Shear (N/m2) | | 161.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 435.76 | |
| Frctn Loss (m) | 5.34 | Cum Volume (1000 m3) | | 23.46 | |
| C & E Loss (m) | 0.07 | Cum SA (1000 m2) | | 13.47 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|------------------|----------|----------------|---------|---------|----------|
| E.G. Elev (m) | 631.09 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.40 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 630.69 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 630.53 | Flow Area (m2) | | 29.86 | |
| E.G. Slope (m/m) | 0.020689 | Area (m2) | | 29.86 | |
| Q Total (m3/s) | 83.93 | Flow (m3/s) | | 83.93 | |

| | | | |
|--------------------|--------|----------------------|--------|
| Top Width (m) | 28.14 | Top Width (m) | 28.14 |
| Vel Total (m/s) | 2.81 | Avg. Vel. (m/s) | 2.81 |
| Max Chl Dpth (m) | 4.86 | Hydr. Depth (m) | 1.06 |
| Conv. Total (m3/s) | 583.5 | Conv. (m3/s) | 583.5 |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | 36.20 |
| Min Ch El (m) | 625.83 | Shear (N/m2) | 167.32 |
| Alpha | 1.00 | Stream Power (N/m s) | 470.35 |
| Frctn Loss (m) | 5.54 | Cum Volume (1000 m3) | 164.44 |
| C & E Loss (m) | 0.07 | Cum SA (1000 m2) | 137.40 |

CROSS SECTION

RIVER: Arroyo de la Vega
REACH: Rotonda-EDAR RS: -1000.0

INPUT

Description:

| Station Elevation Data num= 7 | | | | | | | | | |
|-------------------------------|--------|-----|--------|-----|------|-----|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -30 | 625.96 | -2 | 623.96 | -2 | 620 | 0 | 619.96 | 2 | 620 |
| 2 | 623.96 | 30 | 625.96 | | | | | | |

| Manning's n Values num= 3 | | | | | |
|---------------------------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -30 | | -30 | .045 | 30 | |

| Bank Sta: Left Right Lengths: Left Channel Right | | | | | | | Coeff Contr. | Expan. |
|--|----|-----|-----|-----|--|--|--------------|--------|
| -30 | 30 | 500 | 500 | 500 | | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 621.89 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.74 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 7.06 | |
| E.G. Slope (m/m) | 0.006092 | Area (m2) | | 7.06 | |
| Q Total (m3/s) | 11.77 | Flow (m3/s) | | 11.77 | |
| Top Width (m) | 4.00 | Top Width (m) | | 4.00 | |
| Vel Total (m/s) | 1.67 | Avg. Vel. (m/s) | | 1.67 | |
| Max Chl Dpth (m) | 1.78 | Hydr. Depth (m) | | 1.76 | |
| Conv. Total (m3/s) | 150.8 | Conv. (m3/s) | | 150.8 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 7.49 | |
| Min Ch El (m) | 619.96 | Shear (N/m2) | | 56.31 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 93.88 | |
| Frctn Loss (m) | 2.85 | Cum Volume (1000 m3) | | 20.60 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.47 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 625.48 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.16 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.32 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 624.66 | Flow Area (m2) | | 47.29 | |
| E.G. Slope (m/m) | 0.006892 | Area (m2) | | 47.29 | |
| Q Total (m3/s) | 83.93 | Flow (m3/s) | | 83.93 | |
| Top Width (m) | 42.10 | Top Width (m) | | 42.10 | |
| Vel Total (m/s) | 1.77 | Avg. Vel. (m/s) | | 1.77 | |
| Max Chl Dpth (m) | 5.36 | Hydr. Depth (m) | | 1.12 | |
| Conv. Total (m3/s) | 1011.1 | Conv. (m3/s) | | 1011.1 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 50.12 | |
| Min Ch El (m) | 619.96 | Shear (N/m2) | | 63.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 113.18 | |
| Frctn Loss (m) | 2.75 | Cum Volume (1000 m3) | | 145.15 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 119.84 | |

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ANEXO VII

CROSS SECTION

-30 619.68 -2 617.68 -2 613.68 0 613.68 2 613.88
2 617.68 30 619.68

RIVER: Arroyo de la Vega
REACH: Rotonda-EDAR RS: -1500.0

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-30 -30 .045 30

INPUT

Description:

Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-30 623.06 -2 621.06 -2 617.05 0 617.05 2 617.05
2 621.06 30 623

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-30 30 500 500 500 .1 .3

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-30 -30 .045 30

CROSS SECTION OUTPUT Profile #T= 5 años

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-30 30 500 500 500 .1 .3

E.G. Elev (m) 615.38 Element Left OB Channel Right OB
Vel Head (m) 0.21 Wt. n-Val. 0.045
W.S. Elev (m) 615.17 Reach Len. (m) 500.00 500.00 500.00
Crit W.S. (m) 614.69 Flow Area (m2) 5.75
E.G. Slope (m/m) 0.010579 Area (m2) 5.75
Q Total (m3/s) 11.77 Flow (m3/s) 11.77
Top Width (m) 4.00 Top Width (m) 4.00
Vel Total (m/s) 2.05 Avg. Vel. (m/s) 2.05
Max Chl Dpth (m) 1.49 Hydr. Depth (m) 1.44
Conv. Total (m3/s) 114.4 Conv. (m3/s) 114.4
Length Wtd. (m) 500.00 Wetted Per. (m) 6.79
Min Ch El (m) 613.68 Shear (N/m2) 87.92
Alpha 1.00 Stream Power (N/m s) 179.95
Frctn Loss (m) 4.30 Cum Volume (1000 m3) 13.68
C & E Loss (m) 0.01 Cum SA (1000 m2) 7.47

CROSS SECTION OUTPUT Profile #T= 5 años

E.G. Elev (m) 619.04 Element Left OB Channel Right OB
Vel Head (m) 0.13 Wt. n-Val. 0.045
W.S. Elev (m) 618.91 Reach Len. (m) 500.00 500.00 500.00
Crit W.S. (m) 618.91 Flow Area (m2) 7.44
E.G. Slope (m/m) 0.005327 Area (m2) 7.44
Q Total (m3/s) 11.77 Flow (m3/s) 11.77
Top Width (m) 4.00 Top Width (m) 4.00
Vel Total (m/s) 1.58 Avg. Vel. (m/s) 1.58
Max Chl Dpth (m) 1.86 Hydr. Depth (m) 1.86
Conv. Total (m3/s) 161.3 Conv. (m3/s) 161.3
Length Wtd. (m) 500.00 Wetted Per. (m) 7.72
Min Ch El (m) 617.05 Shear (N/m2) 50.34
Alpha 1.00 Stream Power (N/m s) 79.65
Frctn Loss (m) 3.65 Cum Volume (1000 m3) 16.98
C & E Loss (m) 0.01 Cum SA (1000 m2) 9.47

CROSS SECTION OUTPUT Profile #T= 500 años

E.G. Elev (m) 619.01 Element Left OB Channel Right OB
Vel Head (m) 0.29 Wt. n-Val. 0.045
W.S. Elev (m) 618.72 Reach Len. (m) 500.00 500.00 500.00
Crit W.S. (m) 618.40 Flow Area (m2) 34.95
E.G. Slope (m/m) 0.014393 Area (m2) 34.95
Q Total (m3/s) 83.93 Flow (m3/s) 83.93
Top Width (m) 32.99 Top Width (m) 32.99
Vel Total (m/s) 2.40 Avg. Vel. (m/s) 2.40
Max Chl Dpth (m) 5.04 Hydr. Depth (m) 1.06
Conv. Total (m3/s) 699.6 Conv. (m3/s) 699.6
Length Wtd. (m) 500.00 Wetted Per. (m) 40.87
Min Ch El (m) 613.68 Shear (N/m2) 120.69
Alpha 1.00 Stream Power (N/m s) 289.85
Frctn Loss (m) 4.16 Cum Volume (1000 m3) 96.44
C & E Loss (m) 0.04 Cum SA (1000 m2) 77.06

CROSS SECTION OUTPUT Profile #T= 500 años

E.G. Elev (m) 622.72 Element Left OB Channel Right OB
Vel Head (m) 0.11 Wt. n-Val. 0.045
W.S. Elev (m) 622.61 Reach Len. (m) 500.00 500.00 500.00
Crit W.S. (m) 621.76 Flow Area (m2) 56.30
E.G. Slope (m/m) 0.004484 Area (m2) 56.30
Q Total (m3/s) 83.93 Flow (m3/s) 83.93
Top Width (m) 48.01 Top Width (m) 48.01
Vel Total (m/s) 1.49 Avg. Vel. (m/s) 1.49
Max Chl Dpth (m) 5.56 Hydr. Depth (m) 1.17
Conv. Total (m3/s) 1253.5 Conv. (m3/s) 1253.5
Length Wtd. (m) 500.00 Wetted Per. (m) 56.14
Min Ch El (m) 617.05 Shear (N/m2) 44.10
Alpha 1.00 Stream Power (N/m s) 65.74
Frctn Loss (m) 3.69 Cum Volume (1000 m3) 119.25
C & E Loss (m) 0.02 Cum SA (1000 m2) 97.31

CROSS SECTION

RIVER: Arroyo de la Vega
REACH: Rotonda-EDAR RS: -2500.0

CROSS SECTION

INPUT

Description:

Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-30 615.06 -2 613.06 -2 609.06 0 609.06 2 609.06
2 613.06 30 615.06

RIVER: Arroyo de la Vega
REACH: Rotonda-EDAR RS: -2000.0

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-30 -30 .045 30

INPUT

Description:

Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
Sta Elev Sta Elev Sta Elev Sta Elev

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-30 30 500 500 500 .1 .3

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 611.07 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.17 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 610.90 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 7.37 | |
| E.G. Slope (m/m) | 0.007293 | Area (m2) | | 7.37 | |
| Q Total (m3/s) | 13.59 | Flow (m3/s) | | 13.59 | |
| Top Width (m) | 4.00 | Top Width (m) | | 4.00 | |
| Vel Total (m/s) | 1.85 | Avg. Vel. (m/s) | | 1.85 | |
| Max Chl Dpth (m) | 1.84 | Hydr. Depth (m) | | 1.84 | |
| Conv. Total (m3/s) | 159.1 | Conv. (m3/s) | | 159.1 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 7.68 | |
| Min Ch El (m) | 609.06 | Shear (N/m2) | | 68.56 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 126.51 | |
| Frctn Loss (m) | 5.35 | Cum Volume (1000 m3) | | 10.40 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 5.47 | |

| | | | |
|--------------------|--------|----------------------|--------|
| Max Chl Dpth (m) | 1.37 | Hydr. Depth (m) | 1.37 |
| Conv. Total (m3/s) | 105.8 | Conv. (m3/s) | 105.8 |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | 6.74 |
| Min Ch El (m) | 604.02 | Shear (N/m2) | 135.67 |
| Alpha | 1.00 | Stream Power (N/m s) | 342.51 |
| Frctn Loss (m) | 2.91 | Cum Volume (1000 m3) | 7.19 |
| C & E Loss (m) | 0.07 | Cum SA (1000 m2) | 3.47 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 614.81 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 614.66 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 613.95 | Flow Area (m2) | | 58.16 | |
| E.G. Slope (m/m) | 0.005750 | Area (m2) | | 58.16 | |
| Q Total (m3/s) | 99.48 | Flow (m3/s) | | 99.48 | |
| Top Width (m) | 48.76 | Top Width (m) | | 48.76 | |
| Vel Total (m/s) | 1.71 | Avg. Vel. (m/s) | | 1.71 | |
| Max Chl Dpth (m) | 5.60 | Hydr. Depth (m) | | 1.19 | |
| Conv. Total (m3/s) | 1311.9 | Conv. (m3/s) | | 1311.9 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 56.87 | |
| Min Ch El (m) | 609.06 | Shear (N/m2) | | 57.67 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 98.64 | |
| Frctn Loss (m) | 5.27 | Cum Volume (1000 m3) | | 73.16 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 56.63 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 609.50 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.48 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 609.02 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 608.96 | Flow Area (m2) | | 33.89 | |
| E.G. Slope (m/m) | 0.023997 | Area (m2) | | 33.89 | |
| Q Total (m3/s) | 104.50 | Flow (m3/s) | | 104.50 | |
| Top Width (m) | 31.90 | Top Width (m) | | 31.90 | |
| Vel Total (m/s) | 3.08 | Avg. Vel. (m/s) | | 3.08 | |
| Max Chl Dpth (m) | 5.00 | Hydr. Depth (m) | | 1.06 | |
| Conv. Total (m3/s) | 674.6 | Conv. (m3/s) | | 674.6 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 39.97 | |
| Min Ch El (m) | 604.02 | Shear (N/m2) | | 199.51 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 615.23 | |
| Frctn Loss (m) | 2.98 | Cum Volume (1000 m3) | | 50.15 | |
| C & E Loss (m) | 0.12 | Cum SA (1000 m2) | | 36.46 | |

CROSS SECTION

RIVER: Aryo de la Vega
REACH: Rotonda-EDAR RS: -3000.0

INPUT

Description:

| | | |
|------------------------|-----------|-----------|
| Station Elevation Data | num= | 7 |
| Sta Elev | Sta Elev | Sta Elev |
| -30 610.02 | -2 608.02 | -2 604.02 |
| 2 608.02 | 30 610.02 | 0 604.02 |
| 2 604.02 | | 2 604.02 |

Manning's n Values num= 3

| | | |
|-----------|-----------|-----------|
| Sta n Val | Sta n Val | Sta n Val |
| -30 | -30 | .045 |
| | | 30 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|-----|----|-----|-----|-----|----|----|
| -30 | 30 | 500 | 500 | 500 | .1 | .3 |
|-----|----|-----|-----|-----|----|----|

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 605.71 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.32 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 605.39 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 605.08 | Flow Area (m2) | | 5.47 | |
| E.G. Slope (m/m) | 0.017034 | Area (m2) | | 5.47 | |
| Q Total (m3/s) | 13.81 | Flow (m3/s) | | 13.81 | |
| Top Width (m) | 4.00 | Top Width (m) | | 4.00 | |
| Vel Total (m/s) | 2.52 | Avg. Vel. (m/s) | | 2.52 | |

CROSS SECTION

RIVER: Aryo de la Vega
REACH: Rotonda-EDAR RS: -3500.0

INPUT

Description:

| | | |
|------------------------|----------|----------|
| Station Elevation Data | num= | 7 |
| Sta Elev | Sta Elev | Sta Elev |
| -30 607 | -2 604 | -2 600 |
| 2 604 | 30 607 | 0 600 |
| 2 604 | | 2 600 |

Manning's n Values num= 3

| | | |
|-----------|-----------|-----------|
| Sta n Val | Sta n Val | Sta n Val |
| -30 | -30 | .045 |
| | | 30 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|-----|----|-----|-----|-----|----|----|
| -30 | 30 | 368 | 368 | 368 | .1 | .3 |
|-----|----|-----|-----|-----|----|----|

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 602.73 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 602.64 | Reach Len. (m) | 368.00 | 368.00 | 368.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 10.57 | |
| E.G. Slope (m/m) | 0.002906 | Area (m2) | | 10.57 | |
| Q Total (m3/s) | 13.81 | Flow (m3/s) | | 13.81 | |
| Top Width (m) | 4.00 | Top Width (m) | | 4.00 | |
| Vel Total (m/s) | 1.31 | Avg. Vel. (m/s) | | 1.31 | |
| Max Chl Dpth (m) | 2.64 | Hydr. Depth (m) | | 2.64 | |
| Conv. Total (m3/s) | 256.2 | Conv. (m3/s) | | 256.2 | |
| Length Wtd. (m) | 368.00 | Wetted Per. (m) | | 9.29 | |
| Min Ch El (m) | 600.00 | Shear (N/m2) | | 32.45 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 42.39 | |
| Frctn Loss (m) | 1.82 | Cum Volume (1000 m3) | | 3.18 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 1.47 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| | | | | | | | | | |
|---------------------------------|----------------------|-----------------------------------|---------|---------|----------|-----------------|--------|-----------------------------------|--------|
| CROSS SECTION OUTPUT | Profile #T= 500 años | | | | | Length Wtd. (m) | | Wetted Per. (m) | 52.05 |
| E.G. Elev (m) | 606.40 | Element | Left OB | Channel | Right OB | Min Ch El (m) | 599.00 | Shear (N/m ²) | 94.71 |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | | Alpha | 1.00 | Stream Power (N/m s) | 205.60 |
| W.S. Elev (m) | 606.30 | Reach Len. (m) | 368.00 | 368.00 | 368.00 | Frctn Loss (m) | | Cum Volume (1000 m ³) | |
| Crit W.S. (m) | | Flow Area (m ²) | | 74.74 | | C & E Loss (m) | | Cum SA (1000 m ²) | |
| E.G. Slope (m/m) | 0.002645 | Area (m ²) | | 74.74 | | | | | |
| Q Total (m ³ /s) | 104.50 | Flow (m ³ /s) | | 104.50 | | | | | |
| Top Width (m) | 47.00 | Top Width (m) | | 47.00 | | | | | |
| Vel Total (m/s) | 1.40 | Avg. Vel. (m/s) | | 1.40 | | | | | |
| Max Chl Dpth (m) | 6.30 | Hydr. Depth (m) | | 1.59 | | | | | |
| Conv. Total (m ³ /s) | 2031.8 | Conv. (m ³ /s) | | 2031.8 | | | | | |
| Length Wtd. (m) | 368.00 | Wetted Per. (m) | | 55.25 | | | | | |
| Min Ch El (m) | 600.00 | Shear (N/m ²) | | 35.10 | | | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | 49.07 | | | | | |
| Frctn Loss (m) | 1.72 | Cum Volume (1000 m ³) | | 22.99 | | | | | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m ²) | | 16.74 | | | | | |

CROSS SECTION

RIVER: Arroyo de la Vega
REACH: Rotonda-EDAR RS: -3869.0

INPUT

Description:

| | | | | | | | | | |
|----------------------------|------|---|--|---|-----|--|--|---|-----|
| Station Elevation Data | num= | 7 | | | | | | | |
| Sta Elev Sta Elev Sta Elev | | | | | | | | | |
| -30 605 -2 603 -2 599 | | | | 0 | 599 | | | 2 | 599 |
| 2 603 30 605 | | | | | | | | | |

Manning's n Values

| | | | | | |
|-----------|------|---|--|----|-------|
| Sta n Val | num= | 3 | | | |
| -30 | | | | 30 | n Val |
| | | | | | |

| | | | | |
|----------------|-------|-------|--------|--------|
| Bank Sta: Left | Right | Coeff | Contr. | Expan. |
| -30 | 30 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|---------------------------------|----------|-----------------------------------|---------|---------|----------|
| E.G. Elev (m) | 600.90 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.22 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 600.68 | Reach Len. (m) | | | |
| Crit W.S. (m) | 600.07 | Flow Area (m ²) | | 6.71 | |
| E.G. Slope (m/m) | 0.010011 | Area (m ²) | | 6.71 | |
| Q Total (m ³ /s) | 14.04 | Flow (m ³ /s) | | 14.04 | |
| Top Width (m) | 4.00 | Top Width (m) | | 4.00 | |
| Vel Total (m/s) | 2.09 | Avg. Vel. (m/s) | | 2.09 | |
| Max Chl Dpth (m) | 1.68 | Hydr. Depth (m) | | 1.68 | |
| Conv. Total (m ³ /s) | 140.3 | Conv. (m ³ /s) | | 140.3 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 7.36 | |
| Min Ch El (m) | 599.00 | Shear (N/m ²) | | 89.57 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 187.36 | |
| Frctn Loss (m) | | Cum Volume (1000 m ³) | | | |
| C & E Loss (m) | | Cum SA (1000 m ²) | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|---------------------------------|----------|-----------------------------|---------|---------|----------|
| E.G. Elev (m) | 604.67 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.24 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 604.43 | Reach Len. (m) | | | |
| Crit W.S. (m) | 603.99 | Flow Area (m ²) | | 50.21 | |
| E.G. Slope (m/m) | 0.010012 | Area (m ²) | | 50.21 | |
| Q Total (m ³ /s) | 109.01 | Flow (m ³ /s) | | 109.01 | |
| Top Width (m) | 43.95 | Top Width (m) | | 43.95 | |
| Vel Total (m/s) | 2.17 | Avg. Vel. (m/s) | | 2.17 | |
| Max Chl Dpth (m) | 5.43 | Hydr. Depth (m) | | 1.14 | |
| Conv. Total (m ³ /s) | 1089.4 | Conv. (m ³ /s) | | 1089.4 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|--------------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|-----|
| Rotonda-EDAR | 0.0 | T= 5 años | 11.77 | 635.00 | 636.28 | 635.96 | 636.55 | 0.015010 | 2.31 | 5.11 | 4.00 | 0.65 | |
| Rotonda-EDAR | 0.0 | T= 500 años | 83.93 | 635.00 | 639.97 | 639.69 | 640.30 | 0.016452 | 2.54 | 33.02 | 31.13 | 0.79 | |
| Rotonda-EDAR | -500.0 | T= 5 años | 11.77 | 625.83 | 626.92 | 626.79 | 627.29 | 0.023350 | 2.69 | 4.37 | 4.00 | 0.82 | |
| Rotonda-EDAR | -500.0 | T= 500 años | 83.93 | 625.83 | 630.69 | 630.53 | 631.09 | 0.020689 | 2.81 | 29.86 | 28.14 | 0.87 | |
| Rotonda-EDAR | -1000.0 | T= 5 años | 11.77 | 619.96 | 621.74 | 621.89 | 621.89 | 0.006092 | 1.67 | 7.06 | 4.00 | 0.40 | |
| Rotonda-EDAR | -1000.0 | T= 500 años | 83.93 | 619.96 | 625.32 | 624.66 | 625.48 | 0.006892 | 1.77 | 47.29 | 42.10 | 0.53 | |
| Rotonda-EDAR | -1500.0 | T= 5 años | 11.77 | 617.05 | 618.91 | 619.04 | 619.04 | 0.005327 | 1.58 | 7.44 | 4.00 | 0.37 | |
| Rotonda-EDAR | -1500.0 | T= 500 años | 83.93 | 617.05 | 622.61 | 621.76 | 622.72 | 0.004484 | 1.49 | 56.30 | 48.01 | 0.44 | |
| Rotonda-EDAR | -2000.0 | T= 5 años | 11.77 | 613.68 | 615.17 | 614.69 | 615.38 | 0.010579 | 2.05 | 5.75 | 4.00 | 0.54 | |
| Rotonda-EDAR | -2000.0 | T= 500 años | 83.93 | 613.68 | 618.72 | 618.40 | 619.01 | 0.014393 | 2.40 | 34.95 | 32.99 | 0.74 | |
| Rotonda-EDAR | -2500.0 | T= 5 años | 13.59 | 609.06 | 610.90 | 611.07 | 611.07 | 0.007293 | 1.85 | 7.37 | 4.00 | 0.43 | |
| Rotonda-EDAR | -2500.0 | T= 500 años | 99.48 | 609.06 | 614.66 | 613.95 | 614.81 | 0.005750 | 1.71 | 58.16 | 48.76 | 0.50 | |
| Rotonda-EDAR | -3000.0 | T= 5 años | 13.81 | 604.02 | 605.39 | 605.08 | 605.71 | 0.017034 | 2.52 | 5.47 | 4.00 | 0.69 | |
| Rotonda-EDAR | -3000.0 | T= 500 años | 104.50 | 604.02 | 609.02 | 608.96 | 609.50 | 0.023997 | 3.08 | 33.89 | 31.90 | 0.96 | |
| Rotonda-EDAR | -3500.0 | T= 5 años | 13.81 | 600.00 | 602.64 | 602.73 | 602.73 | 0.002906 | 1.31 | 10.57 | 4.00 | 0.26 | |
| Rotonda-EDAR | -3500.0 | T= 500 años | 104.50 | 600.00 | 606.30 | 606.40 | 606.40 | 0.002645 | 1.40 | 74.74 | 47.00 | 0.35 | |
| Rotonda-EDAR | -3869.0 | T= 5 años | 14.04 | 599.00 | 600.68 | 600.07 | 600.90 | 0.010011 | 2.09 | 6.71 | 4.00 | 0.52 | |
| Rotonda-EDAR | -3869.0 | T= 500 años | 109.01 | 599.00 | 604.43 | 603.99 | 604.67 | 0.010012 | 2.17 | 50.21 | 43.95 | 0.65 | |

ARROYO DE LOS CARBONEROS

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

HEC-RAS Version 3.1.1 May 2003
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street, Suite D
Davis, California 95616-4687
(916) 756-1104

```

X   X   XXXXXX   XXXX   XXXX   XX   XXXX
X   X   X       X   X       X   X   X   X
X   X   X       X       X   X   X   X   X
XXXXXXXX XXXX   X   XXX   XXXXX XXXXXX XXXX
X   X   X       X       X   X   X   X   X
X   X   X       X   X       X   X   X   X
X   X   XXXXXX   XXXX   X   X   X   X   XXXXX
    
```

PROJECT DATA
Project Title: Arroyo de los Carboneros
Project File : Carboneros.prj
Run Date and Time: 27/06/2005 19:11:23

Project in SI units

PLAN DATA

Plan Title: Plan 08
Plan File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Carboneros.p08

Geometry Title: Arroyo de los Carboneros (50 m)
Geometry File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Carboneros.g03

Flow Title : Caudales Actuales Carboneros (50 m)
Flow File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Carboneros.f04

Plan Summary Information:

Number of: Cross Sections = 34 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information

Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Caudales Actuales Carboneros (50 m)
Flow File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Carboneros.f04

Flow Data (m3/s)

| River | Reach | RS | T= 5 años | T= 500 años |
|------------------|------------|---------|-----------|-------------|
| Arroyo de los Ca | CaCompleto | 0.0 | 1.3047 | 8.0553 |
| Arroyo de los Ca | CaCompleto | -550.0 | 1.3047 | 8.0553 |
| Arroyo de los Ca | CaCompleto | -1000.0 | 1.3829 | 8.5383 |
| Arroyo de los Ca | CaCompleto | -1600.0 | 1.4947 | 9.2283 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|------------------|------------|-------------|------------------|------------------|
| Arroyo de los Ca | CaCompleto | T= 5 años | Normal S = 0.018 | Normal S = 0.018 |
| Arroyo de los Ca | CaCompleto | T= 500 años | Normal S = 0.018 | Normal S = 0.018 |

GEOMETRY DATA

Geometry Title: Arroyo de los Carboneros (50 m)
Geometry File : C:\JORGEGUTIERREZ\PROYECTOS\2005-10-PGOU_ALCOBENDAS\HEC-RAS\Carboneros.g03

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: 0.0

INPUT

Description:

| Station | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|------|--------|--------|------|-------|-----|------|-----|------|
| -48.77 | 645 | -19.78 | 641.11 | -.8 | 640.8 | -.8 | 640 | 0 | 640 |
| .8 | 640 | .8 | 640.8 | 93.2 | 645 | | | | |

Manning's n Values

| Sta | n | Sta | n | Sta | n | Sta | n |
|--------|---|--------|------|------|---|-----|---|
| -48.77 | | -48.77 | .045 | 93.2 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -48.77 | 93.2 | | 50 | 50 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 640.63 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 640.48 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 640.41 | Flow Area (m2) | | 0.77 | |
| E.G. Slope (m/m) | 0.028880 | Area (m2) | | 0.77 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.69 | Avg. Vel. (m/s) | | 1.69 | |
| Max Chl Dpth (m) | 0.48 | Hydr. Depth (m) | | 0.48 | |
| Conv. Total (m3/s) | 7.7 | Conv. (m3/s) | | 7.7 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.56 | |
| Min Ch El (m) | 640.00 | Shear (N/m2) | | 85.10 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 144.19 | |
| Frctn Loss (m) | 1.36 | Cum Volume (1000 m3) | | 1.56 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 2.75 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 641.21 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 641.11 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 641.10 | Flow Area (m2) | | 5.87 | |
| E.G. Slope (m/m) | 0.032325 | Area (m2) | | 5.87 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 27.50 | Top Width (m) | | 27.50 | |
| Vel Total (m/s) | 1.37 | Avg. Vel. (m/s) | | 1.37 | |
| Max Chl Dpth (m) | 1.11 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 44.8 | Conv. (m3/s) | | 44.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 29.11 | |
| Min Ch El (m) | 640.00 | Shear (N/m2) | | 63.88 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 87.73 | |
| Frctn Loss (m) | 1.33 | Cum Volume (1000 m3) | | 10.65 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 35.42 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -50.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|-------|----------|-------|----------|--------|----------|--------|----------|--|
| -60.51 | 645 | -17.06 | 640 | -8 | 639.4 | -8 | 638.63 | 0 | 638.63 | | |
| .8 | 638.63 | .8 | 639.4 | 19.64 | 640 | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -60.51 | | -60.51 | .045 | 19.64 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -60.51 | 19.64 | | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 639.27 | | | | |
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 639.13 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.80 | |
| E.G. Slope (m/m) | 0.025770 | Area (m2) | | 0.80 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.63 | Avg. Vel. (m/s) | | 1.63 | |
| Max Chl Dpth (m) | 0.50 | Hydr. Depth (m) | | 0.50 | |
| Conv. Total (m3/s) | 8.1 | Conv. (m3/s) | | 8.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.60 | |
| Min Ch El (m) | 638.63 | Shear (N/m2) | | 77.86 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 126.70 | |
| Frctn Loss (m) | 1.36 | Cum Volume (1000 m3) | | 1.52 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 2.67 | |

CROSS SECTION OUTPUT Profile #T= 50 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 639.87 | | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 639.79 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 639.73 | Flow Area (m2) | | 6.26 | |
| E.G. Slope (m/m) | 0.022266 | Area (m2) | | 6.26 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 24.29 | Top Width (m) | | 24.29 | |
| Vel Total (m/s) | 1.29 | Avg. Vel. (m/s) | | 1.29 | |
| Max Chl Dpth (m) | 1.16 | Hydr. Depth (m) | | 0.26 | |
| Conv. Total (m3/s) | 54.0 | Conv. (m3/s) | | 54.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 25.85 | |
| Min Ch El (m) | 638.63 | Shear (N/m2) | | 52.85 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 68.05 | |
| Frctn Loss (m) | 1.40 | Cum Volume (1000 m3) | | 10.34 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 34.12 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -100.0

INPUT

Description:

| Station Elevation Data | | num= 11 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|---------|--------|----------|--------|----------|--------|----------|--------|----------|--|
| -69.83 | 645 | -34.95 | 640 | -18.08 | 638.79 | -8 | 638.08 | -8 | 637.28 | | |
| 0 | 637.28 | .8 | 637.28 | .8 | 638.08 | 15.78 | 638.3 | 36.31 | 639.57 | | |
| 41.31 | 640 | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -69.83 | | -69.83 | .045 | 41.31 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -69.83 | 41.31 | | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 637.91 | | | | |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 637.76 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 637.69 | Flow Area (m2) | | 0.77 | |
| E.G. Slope (m/m) | 0.028867 | Area (m2) | | 0.77 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.69 | Avg. Vel. (m/s) | | 1.69 | |
| Max Chl Dpth (m) | 0.48 | Hydr. Depth (m) | | 0.48 | |
| Conv. Total (m3/s) | 7.7 | Conv. (m3/s) | | 7.7 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.56 | |
| Min Ch El (m) | 637.28 | Shear (N/m2) | | 85.07 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 144.12 | |
| Frctn Loss (m) | 1.10 | Cum Volume (1000 m3) | | 1.48 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 2.59 | |

CROSS SECTION OUTPUT Profile #T= 50 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 638.48 | | | | |
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 638.37 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 638.37 | Flow Area (m2) | | 5.45 | |
| E.G. Slope (m/m) | 0.036144 | Area (m2) | | 5.45 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 24.67 | Top Width (m) | | 24.67 | |
| Vel Total (m/s) | 1.48 | Avg. Vel. (m/s) | | 1.48 | |
| Max Chl Dpth (m) | 1.09 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 42.4 | Conv. (m3/s) | | 42.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 26.28 | |
| Min Ch El (m) | 637.28 | Shear (N/m2) | | 73.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 108.63 | |
| Frctn Loss (m) | 1.38 | Cum Volume (1000 m3) | | 10.05 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 32.90 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -150.0

INPUT

Description:

| Station Elevation Data | | num= | 12 | | | | | | |
|------------------------|--------|-------|--------|--------|--------|--------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.52 | 645 | -41.4 | 640 | -38.94 | 639.84 | -10.68 | 636.75 | -8 | 636.73 |
| -8 | 635.93 | 0 | 635.93 | .8 | 635.93 | .8 | 636.73 | 11.9 | 636.75 |
| 33.28 | 637.62 | 92.86 | 640 | | | | | | |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -88.52 | | -88.52 | .045 | 92.86 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -88.52 | 92.86 | | 50 | 50 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 636.79 | Element | | Left OB | | Channel | | Right OB | |
|--------------------|----------|----------------------|-------|---------|--|---------|--|----------|--|
| Vel Head (m) | 0.05 | Wt. n-Val. | | | | 0.045 | | | |
| W.S. Elev (m) | 636.73 | Reach Len. (m) | 50.00 | | | 50.00 | | 50.00 | |
| Crit W.S. (m) | 636.73 | Flow Area (m2) | | | | 1.29 | | | |
| E.G. Slope (m/m) | 0.017226 | Area (m2) | | | | 1.29 | | | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | | | 1.30 | | | |
| Top Width (m) | 4.71 | Top Width (m) | | | | 4.71 | | | |
| Vel Total (m/s) | 1.01 | Avg. Vel. (m/s) | | | | 1.01 | | | |
| Max Chl Dpth (m) | 0.80 | Hydr. Depth (m) | | | | 0.27 | | | |
| Conv. Total (m3/s) | 9.9 | Conv. (m3/s) | | | | 9.9 | | | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | | | 6.31 | | | |
| Min Ch El (m) | 635.93 | Shear (N/m2) | | | | 34.53 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | | | 34.94 | | | |
| Frctn Loss (m) | 0.93 | Cum Volume (1000 m3) | | | | 1.43 | | | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | | | 2.43 | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 637.02 | Element | | Left OB | | Channel | | Right OB | |
|--------------------|----------|----------------------|-------|---------|--|---------|--|----------|--|
| Vel Head (m) | 0.07 | Wt. n-Val. | | | | 0.045 | | | |
| W.S. Elev (m) | 636.95 | Reach Len. (m) | 50.00 | | | 50.00 | | 50.00 | |
| Crit W.S. (m) | 636.91 | Flow Area (m2) | | | | 6.77 | | | |
| E.G. Slope (m/m) | 0.021796 | Area (m2) | | | | 6.77 | | | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | | | 8.06 | | | |
| Top Width (m) | 29.39 | Top Width (m) | | | | 29.39 | | | |
| Vel Total (m/s) | 1.19 | Avg. Vel. (m/s) | | | | 1.19 | | | |
| Max Chl Dpth (m) | 1.02 | Hydr. Depth (m) | | | | 0.23 | | | |
| Conv. Total (m3/s) | 54.6 | Conv. (m3/s) | | | | 54.6 | | | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | | | 31.01 | | | |
| Min Ch El (m) | 635.93 | Shear (N/m2) | | | | 46.68 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | | | 55.53 | | | |
| Frctn Loss (m) | 1.24 | Cum Volume (1000 m3) | | | | 9.74 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | | 31.55 | | | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -200.0

INPUT

Description:

| Station Elevation Data | | num= | 11 | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -69.28 | 640 | -50.96 | 638.45 | -19.39 | 636.35 | -11.75 | 635.5 | -8 | 635.43 |
| -8 | 634.63 | 0 | 634.63 | .8 | 634.63 | .8 | 635.43 | 4.07 | 635.5 |
| 26.95 | 635.96 | | | | | | | | |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -69.28 | | -69.28 | .045 | 26.95 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -69.28 | 26.95 | | 50 | 50 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 635.29 | Element | | Left OB | | Channel | | Right OB | |
|--------------------|----------|----------------------|-------|---------|--|---------|--|----------|--|
| Vel Head (m) | 0.11 | Wt. n-Val. | | | | 0.045 | | | |
| W.S. Elev (m) | 635.18 | Reach Len. (m) | 50.00 | | | 50.00 | | 50.00 | |
| Crit W.S. (m) | 635.04 | Flow Area (m2) | | | | 0.87 | | | |
| E.G. Slope (m/m) | 0.020188 | Area (m2) | | | | 0.87 | | | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | | | 1.30 | | | |
| Top Width (m) | 1.60 | Top Width (m) | | | | 1.60 | | | |
| Vel Total (m/s) | 1.49 | Avg. Vel. (m/s) | | | | 1.49 | | | |
| Max Chl Dpth (m) | 0.55 | Hydr. Depth (m) | | | | 0.55 | | | |
| Conv. Total (m3/s) | 9.2 | Conv. (m3/s) | | | | 9.2 | | | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | | | 2.69 | | | |
| Min Ch El (m) | 634.63 | Shear (N/m2) | | | | 64.29 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | | | 95.90 | | | |
| Frctn Loss (m) | 1.22 | Cum Volume (1000 m3) | | | | 1.37 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | | 2.27 | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 635.78 | Element | | Left OB | | Channel | | Right OB | |
|--------------------|----------|----------------------|-------|---------|--|---------|--|----------|--|
| Vel Head (m) | 0.09 | Wt. n-Val. | | | | 0.045 | | | |
| W.S. Elev (m) | 635.69 | Reach Len. (m) | 50.00 | | | 50.00 | | 50.00 | |
| Crit W.S. (m) | 635.67 | Flow Area (m2) | | | | 6.08 | | | |
| E.G. Slope (m/m) | 0.028302 | Area (m2) | | | | 6.08 | | | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | | | 8.06 | | | |
| Top Width (m) | 27.26 | Top Width (m) | | | | 27.26 | | | |
| Vel Total (m/s) | 1.32 | Avg. Vel. (m/s) | | | | 1.32 | | | |
| Max Chl Dpth (m) | 1.06 | Hydr. Depth (m) | | | | 0.22 | | | |
| Conv. Total (m3/s) | 47.9 | Conv. (m3/s) | | | | 47.9 | | | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | | | 28.87 | | | |
| Min Ch El (m) | 634.63 | Shear (N/m2) | | | | 58.49 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | | | 77.44 | | | |
| Frctn Loss (m) | 1.12 | Cum Volume (1000 m3) | | | | 9.42 | | | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | | | 30.13 | | | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -250.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|------|--------|-------|--------|-------|--------|-----|--------|-----|------|
| -62.28 | 636.19 | -22.1 | | 635 | -8 | 634.24 | -8 | 633.44 | 0 | 633.44 | | |
| .8 | 633.44 | .8 | | 634.24 | 29.12 | 634.67 | 46.35 | 635 | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -62.28 | | -62.28 | .045 | 46.35 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -62.28 | 46.35 | | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 634.06 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 633.91 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 633.85 | Flow Area (m2) | | 0.76 | |
| E.G. Slope (m/m) | 0.030184 | Area (m2) | | 0.76 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.72 | Avg. Vel. (m/s) | | 1.72 | |
| Max Chl Dpth (m) | 0.47 | Hydr. Depth (m) | | 0.47 | |
| Conv. Total (m3/s) | 7.5 | Conv. (m3/s) | | 7.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.55 | |
| Min Ch El (m) | 633.44 | Shear (N/m2) | | 88.08 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 151.58 | |
| Frctn Loss (m) | 1.14 | Cum Volume (1000 m3) | | 1.33 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 2.19 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 634.65 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 634.59 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 634.53 | Flow Area (m2) | | 7.60 | |
| E.G. Slope (m/m) | 0.018195 | Area (m2) | | 7.60 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 34.48 | Top Width (m) | | 34.48 | |
| Vel Total (m/s) | 1.06 | Avg. Vel. (m/s) | | 1.06 | |
| Max Chl Dpth (m) | 1.15 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 59.7 | Conv. (m3/s) | | 59.7 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 36.09 | |
| Min Ch El (m) | 633.44 | Shear (N/m2) | | 37.55 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 39.83 | |
| Frctn Loss (m) | 1.02 | Cum Volume (1000 m3) | | 9.08 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 28.59 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -300.0

INPUT

Description:

| Station | Elevation | Data | num= | 10 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|------|--------|------|--------|-------|--------|-----|--------|-----|------|
| -55.56 | 636.1 | -30.4 | | 635 | -8 | 633.04 | -8 | 632.24 | 0 | 632.24 | | |
| .8 | 632.24 | .8 | | 633.04 | 7.52 | 633.5 | 40.45 | 635 | 98 | 640 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-----|-------|
| -55.56 | | -55.56 | .045 | 98 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -55.56 | 98 | | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 632.92 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 632.81 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.92 | |
| E.G. Slope (m/m) | 0.017759 | Area (m2) | | 0.92 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.42 | Avg. Vel. (m/s) | | 1.42 | |
| Max Chl Dpth (m) | 0.57 | Hydr. Depth (m) | | 0.57 | |
| Conv. Total (m3/s) | 9.8 | Conv. (m3/s) | | 9.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.74 | |
| Min Ch El (m) | 632.24 | Shear (N/m2) | | 58.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 82.78 | |
| Frctn Loss (m) | 1.25 | Cum Volume (1000 m3) | | 1.29 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 2.11 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 633.63 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 633.51 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 633.44 | Flow Area (m2) | | 5.25 | |
| E.G. Slope (m/m) | 0.023050 | Area (m2) | | 5.25 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 15.48 | Top Width (m) | | 15.48 | |
| Vel Total (m/s) | 1.53 | Avg. Vel. (m/s) | | 1.53 | |
| Max Chl Dpth (m) | 1.27 | Hydr. Depth (m) | | 0.34 | |
| Conv. Total (m3/s) | 53.1 | Conv. (m3/s) | | 53.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 17.12 | |
| Min Ch El (m) | 632.24 | Shear (N/m2) | | 69.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 106.38 | |
| Frctn Loss (m) | 1.41 | Cum Volume (1000 m3) | | 8.76 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 27.34 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -350.0

INPUT

Description:

| Station | Elevation | Data | num= | 10 | | | | | |
|---------|-----------|--------|--------|-------|--------|-------|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -41.51 | 635 | -38.49 | 634.82 | -18.5 | 632.93 | -8 | 631.85 | -8 | 631.05 |
| 0 | 631.05 | .8 | 631.05 | .8 | 631.85 | 12.57 | 631.9 | 35.57 | 632.74 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -41.51 | | -41.51 | .045 | 35.57 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -41.51 | 35.57 | | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 631.66 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.18 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 631.49 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 631.46 | Flow Area (m2) | | 0.70 | |
| E.G. Slope (m/m) | 0.037978 | Area (m2) | | 0.70 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.87 | Avg. Vel. (m/s) | | 1.87 | |
| Max Chl Dpth (m) | 0.44 | Hydr. Depth (m) | | 0.44 | |
| Conv. Total (m3/s) | 6.7 | Conv. (m3/s) | | 6.7 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.47 | |
| Min Ch El (m) | 631.05 | Shear (N/m2) | | 105.28 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 196.37 | |
| Frctn Loss (m) | 0.97 | Cum Volume (1000 m3) | | 1.25 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 2.03 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 632.21 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 632.10 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 632.10 | Flow Area (m2) | | 5.32 | |
| E.G. Slope (m/m) | 0.035470 | Area (m2) | | 5.32 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 22.81 | Top Width (m) | | 22.81 | |
| Vel Total (m/s) | 1.51 | Avg. Vel. (m/s) | | 1.51 | |
| Max Chl Dpth (m) | 1.05 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 42.8 | Conv. (m3/s) | | 42.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 24.42 | |
| Min Ch El (m) | 631.05 | Shear (N/m2) | | 75.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 114.74 | |
| Frctn Loss (m) | 0.82 | Cum Volume (1000 m3) | | 8.50 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 26.38 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -400.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 | | | | | |
|---------|-----------|------|--------|-------|--------|-----|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -31.82 | 632.68 | -8 | 630.73 | -8 | 629.93 | 0 | 629.93 | .8 | 629.93 |
| .8 | 630.73 | 9.51 | 630.9 | 26.24 | 631.51 | | | | |

| Manning's n Values | num= | 3 | | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -31.82 | | -31.82 | .045 | 26.24 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -31.82 | 26.24 | | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 630.67 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 630.60 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.07 | |
| E.G. Slope (m/m) | 0.011707 | Area (m2) | | 1.07 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.22 | Avg. Vel. (m/s) | | 1.22 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.67 | |
| Conv. Total (m3/s) | 12.1 | Conv. (m3/s) | | 12.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.93 | |
| Min Ch El (m) | 629.93 | Shear (N/m2) | | 41.72 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 51.09 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 1.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.95 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 631.25 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 631.20 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 631.04 | Flow Area (m2) | | 8.32 | |
| E.G. Slope (m/m) | 0.009372 | Area (m2) | | 8.32 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 25.92 | Top Width (m) | | 25.92 | |
| Vel Total (m/s) | 0.97 | Avg. Vel. (m/s) | | 0.97 | |
| Max Chl Dpth (m) | 1.27 | Hydr. Depth (m) | | 0.32 | |
| Conv. Total (m3/s) | 83.2 | Conv. (m3/s) | | 83.2 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 27.54 | |
| Min Ch El (m) | 629.93 | Shear (N/m2) | | 27.76 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 26.88 | |
| Frctn Loss (m) | 0.54 | Cum Volume (1000 m3) | | 8.16 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 25.16 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -450.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 | | | | | |
|---------|-----------|-------|--------|-------|--------|-----|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -30.16 | 631.47 | -8 | 630.14 | -8 | 629.34 | 0 | 629.34 | .8 | 629.34 |
| .8 | 630.14 | 64.33 | 633.68 | 85.73 | 635 | | | | |

| Manning's n Values | num= | 3 | | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -30.16 | | -30.16 | .045 | 85.73 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -30.16 | 85.73 | | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 630.09 | Element | Left OB | Channel | Right OB |
|---------------|--------|----------------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 630.01 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| | | | |
|--------------------|----------|----------------------|-------|
| Crit W.S. (m) | | Flow Area (m2) | 1.07 |
| E.G. Slope (m/m) | 0.011534 | Area (m2) | 1.07 |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | 1.30 |
| Top Width (m) | 1.60 | Top Width (m) | 1.60 |
| Vel Total (m/s) | 1.22 | Avg. Vel. (m/s) | 1.22 |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | 0.67 |
| Conv. Total (m3/s) | 12.1 | Conv. (m3/s) | 12.1 |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | 2.94 |
| Min Ch El (m) | 629.34 | Shear (N/m2) | 41.23 |
| Alpha | 1.00 | Stream Power (N/m s) | 50.21 |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | 1.15 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 1.87 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 630.71 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 630.64 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 7.14 | |
| E.G. Slope (m/m) | 0.012513 | Area (m2) | | 7.14 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 21.71 | Top Width (m) | | 21.71 | |
| Vel Total (m/s) | 1.13 | Avg. Vel. (m/s) | | 1.13 | |
| Max Chl Dpth (m) | 1.30 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 72.0 | Conv. (m3/s) | | 72.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 23.34 | |
| Min Ch El (m) | 629.34 | Shear (N/m2) | | 37.53 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 42.35 | |
| Frctn Loss (m) | 0.62 | Cum Volume (1000 m3) | | 7.77 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 23.97 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -500.0

INPUT
Description:
Station Elevation Data num= 8

| | | | | | | | | | |
|--------|--------|--------|--------|-------|--------|-----|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -25.01 | 631.5 | -18.54 | 630 | -8 | 629.56 | -8 | 628.76 | 0 | 628.76 |
| .8 | 628.76 | .8 | 629.56 | 23.97 | 633 | | | | |

Manning's n Values num= 3

| | | | | | |
|--------|--------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -25.01 | -25.01 | .045 | 23.97 | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|--------|-------|----|----|----|----|----|
| -25.01 | 23.97 | 50 | 50 | 50 | .1 | .3 |
|--------|-------|----|----|----|----|----|

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 629.50 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.43 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.06 | |
| E.G. Slope (m/m) | 0.011725 | Area (m2) | | 1.06 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.23 | Avg. Vel. (m/s) | | 1.23 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.67 | |
| Conv. Total (m3/s) | 12.0 | Conv. (m3/s) | | 12.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.93 | |
| Min Ch El (m) | 628.76 | Shear (N/m2) | | 41.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 51.18 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 1.10 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.79 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 630.10 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 630.04 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 7.33 | |
| E.G. Slope (m/m) | 0.012131 | Area (m2) | | 7.33 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 22.69 | Top Width (m) | | 22.69 | |
| Vel Total (m/s) | 1.10 | Avg. Vel. (m/s) | | 1.10 | |
| Max Chl Dpth (m) | 1.28 | Hydr. Depth (m) | | 0.32 | |
| Conv. Total (m3/s) | 73.1 | Conv. (m3/s) | | 73.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 24.34 | |
| Min Ch El (m) | 628.76 | Shear (N/m2) | | 35.82 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 39.38 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 7.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 22.86 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -550.0

INPUT
Description:
Station Elevation Data num= 8

| | | | | | | | | | |
|--------|--------|--------|--------|-------|--------|-----|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -38.95 | 630 | -15.55 | 630 | -8 | 628.97 | -8 | 628.17 | 0 | 628.17 |
| .8 | 628.17 | .8 | 628.97 | 36.12 | 630 | | | | |

Manning's n Values num= 3

| | | | | | |
|--------|--------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -38.95 | -38.95 | .045 | 36.12 | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|--------|-------|----|----|----|----|----|
| -38.95 | 36.12 | 50 | 50 | 50 | .1 | .3 |
|--------|-------|----|----|----|----|----|

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 628.91 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 628.84 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.07 | |
| E.G. Slope (m/m) | 0.011569 | Area (m2) | | 1.07 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.22 | Avg. Vel. (m/s) | | 1.22 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.67 | |
| Conv. Total (m3/s) | 12.1 | Conv. (m3/s) | | 12.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.94 | |
| Min Ch El (m) | 628.17 | Shear (N/m2) | | 41.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 50.39 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 1.05 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.71 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 629.51 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.45 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 7.76 | |
| E.G. Slope (m/m) | 0.011370 | Area (m2) | | 7.76 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 25.16 | Top Width (m) | | 25.16 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 1.28 | Hydr. Depth (m) | | 0.31 | |

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REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| | | | |
|--------------------|--------|----------------------|-------|
| Conv. Total (m3/s) | 75.5 | Conv. (m3/s) | 75.5 |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | 26.78 |
| Min Ch El (m) | 628.17 | Shear (N/m2) | 32.32 |
| Alpha | 1.00 | Stream Power (N/m s) | 33.54 |
| Frctn Loss (m) | 0.54 | Cum Volume (1000 m3) | 7.03 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 21.67 |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -600.0

INPUT

Description:

| | | |
|----------------------------------|------|--------------------|
| Station Elevation Data | num= | 7 |
| Sta Elev Sta Elev Sta Elev | | |
| -14.43 630 -.8 628.39 -.8 627.59 | | 0 627.59 .8 627.58 |
| .8 628.39 55.53 630 | | |

| | | |
|-------------------------------|------|---|
| Manning's n Values | num= | 3 |
| Sta n Val Sta n Val Sta n Val | | |
| -14.43 -14.43 .045 55.53 | | |

| | | | |
|--|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | | Coeff Contr. | Expan. |
| -14.43 55.53 50 50 50 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 628.33 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 628.25 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.06 | |
| E.G. Slope (m/m) | 0.011956 | Area (m2) | | 1.06 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.23 | Avg. Vel. (m/s) | | 1.23 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.66 | |
| Conv. Total (m3/s) | 11.9 | Conv. (m3/s) | | 11.9 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.93 | |
| Min Ch El (m) | 627.58 | Shear (N/m2) | | 42.38 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 52.25 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 0.99 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.63 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 628.96 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 628.91 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 7.81 | |
| E.G. Slope (m/m) | 0.010278 | Area (m2) | | 7.81 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 23.60 | Top Width (m) | | 23.60 | |
| Vel Total (m/s) | 1.03 | Avg. Vel. (m/s) | | 1.03 | |
| Max Chl Dpth (m) | 1.33 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 79.5 | Conv. (m3/s) | | 79.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 25.25 | |
| Min Ch El (m) | 627.58 | Shear (N/m2) | | 31.19 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.15 | |
| Frctn Loss (m) | 0.54 | Cum Volume (1000 m3) | | 6.64 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 20.45 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -650.0

INPUT

Description:

| | | |
|-------------------------------------|------|--------------|
| Station Elevation Data | num= | 8 |
| Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -18.51 630 -.8 627.8 -.8 627 | | 0 627 .8 627 |
| .8 627.8 48.46 629.91 51.94 630 | | |

| | | |
|-------------------------------|------|---|
| Manning's n Values | num= | 3 |
| Sta n Val Sta n Val Sta n Val | | |
| -18.51 -18.51 .045 51.94 | | |

| | | | |
|--|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | | Coeff Contr. | Expan. |
| -18.51 51.94 50 50 50 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 627.74 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.67 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.07 | |
| E.G. Slope (m/m) | 0.011643 | Area (m2) | | 1.07 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.22 | Avg. Vel. (m/s) | | 1.22 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.67 | |
| Conv. Total (m3/s) | 12.1 | Conv. (m3/s) | | 12.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.93 | |
| Min Ch El (m) | 627.00 | Shear (N/m2) | | 41.54 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 50.76 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 0.94 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.55 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 628.43 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 628.36 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 7.00 | |
| E.G. Slope (m/m) | 0.011183 | Area (m2) | | 7.00 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 18.79 | Top Width (m) | | 18.79 | |
| Vel Total (m/s) | 1.15 | Avg. Vel. (m/s) | | 1.15 | |
| Max Chl Dpth (m) | 1.36 | Hydr. Depth (m) | | 0.37 | |
| Conv. Total (m3/s) | 76.2 | Conv. (m3/s) | | 76.2 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 20.44 | |
| Min Ch El (m) | 627.00 | Shear (N/m2) | | 37.57 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 43.22 | |
| Frctn Loss (m) | 0.53 | Cum Volume (1000 m3) | | 6.27 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 19.39 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -700.0

INPUT

Description:

| Station Elevation Data | | num= | 8 | | | | | | |
|------------------------|--------|-------|--------|-------|--------|-----|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -17.03 | 630 | -8 | 627.21 | -8 | 626.41 | 0 | 626.41 | .8 | 626.41 |
| .8 | 627.21 | 18.86 | 628.23 | 55.19 | | | | | 630 |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -17.03 | | -17.03 | .045 | 55.19 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -17.03 | 55.19 | | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 627.15 | | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.07 | Reach Len. (m) | 50.00 | | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | | |
| E.G. Slope (m/m) | 0.011913 | Area (m2) | | 1.06 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.23 | Avg. Vel. (m/s) | | 1.23 | |
| Max Chl Dpth (m) | 0.66 | Hydr. Depth (m) | | 0.66 | |
| Conv. Total (m3/s) | 12.0 | Conv. (m3/s) | | 12.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.92 | |
| Min Ch El (m) | 626.41 | Shear (N/m2) | | 42.31 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 52.14 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 0.89 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.47 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|-------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 627.90 | | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.83 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 6.85 | |
| E.G. Slope (m/m) | 0.010109 | Area (m2) | | 6.85 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 16.27 | Top Width (m) | | 16.27 | |
| Vel Total (m/s) | 1.18 | Avg. Vel. (m/s) | | 1.18 | |
| Max Chl Dpth (m) | 1.42 | Hydr. Depth (m) | | 0.42 | |
| Conv. Wtd. (m3/s) | 80.1 | Conv. (m3/s) | | 80.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 17.94 | |
| Min Ch El (m) | 626.41 | Shear (N/m2) | | 37.85 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 44.52 | |
| Frctn Loss (m) | 0.53 | Cum Volume (1000 m3) | | 5.92 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 18.51 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -750.0

INPUT

Description:

| Station Elevation Data | | num= | 9 | | | | | | |
|------------------------|--------|------|--------|-------|--------|-----|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -16.76 | 630 | -8 | 626.62 | -8 | 625.82 | 0 | 625.82 | .8 | 625.82 |
| .8 | 626.62 | 3.43 | 626.81 | 35.17 | 630 | 65 | 630 | | |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -16.76 | | -16.76 | .045 | 65 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -16.76 | 65 | | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 626.57 | | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.49 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.08 | |
| E.G. Slope (m/m) | 0.011287 | Area (m2) | | 1.08 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.21 | Avg. Vel. (m/s) | | 1.21 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.67 | |
| Conv. Total (m3/s) | 12.3 | Conv. (m3/s) | | 12.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.95 | |
| Min Ch El (m) | 625.82 | Shear (N/m2) | | 40.52 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 48.95 | |
| Frctn Loss (m) | 0.61 | Cum Volume (1000 m3) | | 0.83 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.39 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 627.38 | | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.29 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 6.02 | |
| E.G. Slope (m/m) | 0.010975 | Area (m2) | | 6.02 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 12.11 | Top Width (m) | | 12.11 | |
| Vel Total (m/s) | 1.34 | Avg. Vel. (m/s) | | 1.34 | |
| Max Chl Dpth (m) | 1.47 | Hydr. Depth (m) | | 0.50 | |
| Conv. Total (m3/s) | 76.9 | Conv. (m3/s) | | 76.9 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 13.81 | |
| Min Ch El (m) | 625.82 | Shear (N/m2) | | 46.91 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 62.79 | |
| Frctn Loss (m) | 0.54 | Cum Volume (1000 m3) | | 5.60 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.80 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -800.0

INPUT

Description:

| Station Elevation Data | | num= | 9 | | | | | | |
|------------------------|--------|-------|--------|------|--------|-------|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -15.8 | 628.39 | -8 | 626.04 | -8 | 625.24 | 0 | 625.24 | .8 | 625.24 |
| .8 | 626.04 | 32.47 | 630 | 37.1 | 630 | 98.86 | 635 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|-------|-------|
| -15.8 | | -15.8 | .045 | 98.86 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|-------|-------|----------|--------------|-------|--------------|--------|
| | -15.8 | 98.86 | | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 625.96 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.88 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.02 | |
| E.G. Slope (m/m) | 0.013221 | Area (m2) | | 1.02 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.28 | Avg. Vel. (m/s) | | 1.28 | |
| Max Chl Dpth (m) | 0.64 | Hydr. Depth (m) | | 0.64 | |
| Conv. Total (m3/s) | 11.3 | Conv. (m3/s) | | 11.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.87 | |
| Min Ch El (m) | 625.24 | Shear (N/m2) | | 45.98 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 58.86 | |
| Frctn Loss (m) | 0.68 | Cum Volume (1000 m3) | | 0.78 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.31 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 626.84 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.75 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 626.53 | Flow Area (m2) | | 6.02 | |
| E.G. Slope (m/m) | 0.010627 | Area (m2) | | 6.02 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 11.78 | Top Width (m) | | 11.78 | |
| Vel Total (m/s) | 1.34 | Avg. Vel. (m/s) | | 1.34 | |
| Max Chl Dpth (m) | 1.51 | Hydr. Depth (m) | | 0.51 | |
| Conv. Total (m3/s) | 78.1 | Conv. (m3/s) | | 78.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 13.48 | |
| Min Ch El (m) | 625.24 | Shear (N/m2) | | 46.52 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 62.26 | |
| Frctn Loss (m) | 0.87 | Cum Volume (1000 m3) | | 5.30 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 17.20 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -850.0

INPUT

Description:

| Station Elevation Data | | num= | 9 | | | | | | |
|------------------------|--------|--------|--------|-------|--------|-------|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -51.51 | 630 | -41.08 | 628.5 | -8 | 625.37 | -8 | 624.57 | 0 | 624.57 |
| .8 | 624.57 | .8 | 625.37 | 47.15 | 628.53 | 60.35 | 630 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -51.51 | | -51.51 | .045 | 60.35 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -51.51 | 60.35 | | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 625.28 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.19 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.00 | |
| E.G. Slope (m/m) | 0.014020 | Area (m2) | | 1.00 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.31 | Avg. Vel. (m/s) | | 1.31 | |
| Max Chl Dpth (m) | 0.62 | Hydr. Depth (m) | | 0.62 | |
| Conv. Total (m3/s) | 11.0 | Conv. (m3/s) | | 11.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.85 | |
| Min Ch El (m) | 624.57 | Shear (N/m2) | | 48.18 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 63.00 | |
| Frctn Loss (m) | 0.72 | Cum Volume (1000 m3) | | 0.73 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.23 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 625.96 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.17 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.79 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 625.79 | Flow Area (m2) | | 4.42 | |
| E.G. Slope (m/m) | 0.034015 | Area (m2) | | 4.42 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 13.24 | Top Width (m) | | 13.24 | |
| Vel Total (m/s) | 1.82 | Avg. Vel. (m/s) | | 1.82 | |
| Max Chl Dpth (m) | 1.22 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 43.7 | Conv. (m3/s) | | 43.7 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 14.87 | |
| Min Ch El (m) | 624.57 | Shear (N/m2) | | 99.06 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 180.72 | |
| Frctn Loss (m) | 0.71 | Cum Volume (1000 m3) | | 5.04 | |
| C & E Loss (m) | 0.04 | Cum SA (1000 m2) | | 16.58 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -900.0

INPUT

Description:

| Station Elevation Data | | num= | 12 | | | | | | |
|------------------------|--------|--------|--------|-------|--------|-------|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -78.31 | 630 | -14.39 | 625 | -8 | 624.66 | -8 | 623.86 | 0 | 623.86 |
| .8 | 623.86 | .8 | 624.66 | 11.18 | 624.82 | 28.31 | 625 | 35.04 | 625.57 |
| 64.01 | 629.02 | 99.08 | 630 | | | | | | |

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ANEXO VII

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-78.31 -78.31 .045 99.08

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-78.31 99.08 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.56 | Element | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.47 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.98 | |
| E.G. Slope (m/m) | 0.014668 | Area (m2) | | 0.98 | |
| Q Total (m3/s) | 1.30 | Flow (m3/s) | | 1.30 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.33 | Avg. Vel. (m/s) | | 1.33 | |
| Max Chl Dpth (m) | 0.61 | Hydr. Depth (m) | | 0.61 | |
| Conv. Total (m3/s) | 10.8 | Conv. (m3/s) | | 10.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.83 | |
| Min Ch El (m) | 623.86 | Shear (N/m2) | | 49.94 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 66.39 | |
| Frctn Loss (m) | 0.71 | Cum Volume (1000 m3) | | 0.68 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.15 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 625.08 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.06 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 624.94 | Flow Area (m2) | | 10.80 | |
| E.G. Slope (m/m) | 0.007708 | Area (m2) | | 10.80 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 44.07 | Top Width (m) | | 44.07 | |
| Vel Total (m/s) | 0.75 | Avg. Vel. (m/s) | | 0.75 | |
| Max Chl Dpth (m) | 1.20 | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 91.7 | Conv. (m3/s) | | 91.7 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 45.68 | |
| Min Ch El (m) | 623.86 | Shear (N/m2) | | 17.87 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 13.33 | |
| Frctn Loss (m) | 0.53 | Cum Volume (1000 m3) | | 4.66 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 15.15 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -950.0

INPUT

Description:

| Station | Elevation | Data | num= | 11 | | | |
|---------|-----------|--------|--------|-------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.93 | 630 | -17.76 | 625 | -8 | 623.94 | -8 | 623.14 |
| .8 | 623.14 | .8 | 623.94 | 11.13 | 624.62 | 21.8 | 625 |
| 75 | 630 | | | | | | |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-95.93 -95.93 .045 75

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-95.93 75 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|---------------|--------|------------|---------|---------|----------|
| E.G. Elev (m) | 623.86 | Element | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| W.S. Elev (m) | 623.77 | Element | | | |
| Crit W.S. (m) | | Wt. n-Val. | | 0.045 | |
| E.G. Slope (m/m) | 0.013656 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Q Total (m3/s) | 1.30 | Flow Area (m2) | | 1.01 | |
| Top Width (m) | 1.60 | Flow (m3/s) | | 1.30 | |
| Vel Total (m/s) | 1.30 | Top Width (m) | | 1.60 | |
| Max Chl Dpth (m) | 0.63 | Avg. Vel. (m/s) | | 1.30 | |
| Conv. Total (m3/s) | 11.2 | Hydr. Depth (m) | | 0.63 | |
| Length Wtd. (m) | 50.00 | Conv. (m3/s) | | 11.2 | |
| Min Ch El (m) | 623.14 | Wetted Per. (m) | | 2.86 | |
| Alpha | 1.00 | Shear (N/m2) | | 47.18 | |
| Frctn Loss (m) | 0.70 | Stream Power (N/m s) | | 61.11 | |
| C & E Loss (m) | 0.00 | Cum Volume (1000 m3) | | 0.63 | |
| | | Cum SA (1000 m2) | | 1.07 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.54 | Element | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.45 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 6.17 | |
| E.G. Slope (m/m) | 0.015673 | Area (m2) | | 6.17 | |
| Q Total (m3/s) | 8.06 | Flow (m3/s) | | 8.06 | |
| Top Width (m) | 17.53 | Top Width (m) | | 17.53 | |
| Vel Total (m/s) | 1.31 | Avg. Vel. (m/s) | | 1.31 | |
| Max Chl Dpth (m) | 1.31 | Hydr. Depth (m) | | 0.35 | |
| Conv. Total (m3/s) | 64.3 | Conv. (m3/s) | | 64.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 19.16 | |
| Min Ch El (m) | 623.14 | Shear (N/m2) | | 49.45 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 64.60 | |
| Frctn Loss (m) | 0.64 | Cum Volume (1000 m3) | | 4.24 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 13.61 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1000.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | | | |
|---------|-----------|-------|--------|-------|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -23.63 | 625 | -8 | 623.22 | -8 | 622.42 | 0 | 622.42 |
| .8 | 623.22 | 17.08 | 624.24 | 39.77 | 625 | 84.53 | 630 |

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-23.63 -23.63 .045 84.53

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-23.63 84.53 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 623.16 | Element | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.07 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.04 | |
| E.G. Slope (m/m) | 0.014203 | Area (m2) | | 1.04 | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.33 | Avg. Vel. (m/s) | | 1.33 | |
| Max Chl Dpth (m) | 0.65 | Hydr. Depth (m) | | 0.65 | |
| Conv. Total (m3/s) | 11.6 | Conv. (m3/s) | | 11.6 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.90 | |
| Min Ch El (m) | 622.42 | Shear (N/m2) | | 49.84 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 66.53 | |
| Frctn Loss (m) | 0.71 | Cum Volume (1000 m3) | | 0.58 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.99 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| | | | | | | | | | | | | | | | | | | | | |
|--|----------|----------------------|---------|---------|----------|--|--|--|--|--|----------|----------------------|---------|---------|----------|--|--|--|--|--|
| CROSS SECTION OUTPUT Profile #T= 500 años | | | | | | | | | | CROSS SECTION OUTPUT Profile #T= 500 años | | | | | | | | | | |
| E.G. Elev (m) | 623.88 | Element | Left OB | Channel | Right OB | | | | | E.G. Elev (m) | 623.16 | Element | Left OB | Channel | Right OB | | | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | | | | | | Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | | | | | | |
| W.S. Elev (m) | 623.81 | Reach Len. (m) | 50.00 | 50.00 | 50.00 | | | | | W.S. Elev (m) | 623.04 | Reach Len. (m) | 50.00 | 50.00 | 50.00 | | | | | |
| Crit W.S. (m) | | Flow Area (m2) | | 7.29 | | | | | | Crit W.S. (m) | 622.96 | Flow Area (m2) | | 5.53 | | | | | | |
| E.G. Slope (m/m) | 0.010900 | Area (m2) | | 7.29 | | | | | | E.G. Slope (m/m) | 0.019884 | Area (m2) | | 5.53 | | | | | | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | | | | | | Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | | | | | | |
| Top Width (m) | 18.67 | Top Width (m) | | 18.67 | | | | | | Top Width (m) | 14.33 | Top Width (m) | | 14.33 | | | | | | |
| Vel Total (m/s) | 1.17 | Avg. Vel. (m/s) | | 1.17 | | | | | | Vel Total (m/s) | 1.54 | Avg. Vel. (m/s) | | 1.54 | | | | | | |
| Max Chl Dpth (m) | 1.39 | Hydr. Depth (m) | | 0.39 | | | | | | Max Chl Dpth (m) | 1.33 | Hydr. Depth (m) | | 0.39 | | | | | | |
| Conv. Total (m3/s) | 81.8 | Conv. (m3/s) | | 81.8 | | | | | | Conv. Total (m3/s) | 60.6 | Conv. (m3/s) | | 60.6 | | | | | | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 20.31 | | | | | | Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 15.98 | | | | | | |
| Min Ch El (m) | 622.42 | Shear (N/m2) | | 38.36 | | | | | | Min Ch El (m) | 621.71 | Shear (N/m2) | | 67.46 | | | | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | 44.94 | | | | | | Alpha | 1.00 | Stream Power (N/m s) | | 104.19 | | | | | | |
| Frctn Loss (m) | 0.72 | Cum Volume (1000 m3) | | 3.90 | | | | | | Frctn Loss (m) | 0.87 | Cum Volume (1000 m3) | | 3.58 | | | | | | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 12.70 | | | | | | C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 11.88 | | | | | | |
| CROSS SECTION | | | | | | | | | | CROSS SECTION | | | | | | | | | | |
| RIVER: Arroyo de los Ca REACH: Completo RS: -1050.0 | | | | | | | | | | RIVER: Arroyo de los Ca REACH: Completo RS: -1100.0 | | | | | | | | | | |
| INPUT Description: Station Elevation Data num= 9 | | | | | | | | | | INPUT Description: Station Elevation Data num= 8 | | | | | | | | | | |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | | | | | | | | | Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | | | | | | | | | |
| -25.84 625 -25.84 622.51 -25.84 621.71 -25.84 621.71 -25.84 621.71 | | | | | | | | | | -23.51 623.2 -23.51 621.79 -23.51 620.99 -23.51 620.99 | | | | | | | | | | |
| .8 622.51 8.54 623.07 37.09 623.87 59.97 625 | | | | | | | | | | .8 621.79 28.89 622.37 74.44 625 | | | | | | | | | | |
| Manning's n Values num= 3 | | | | | | | | | | Manning's n Values num= 3 | | | | | | | | | | |
| Sta n Val Sta n Val Sta n Val | | | | | | | | | | Sta n Val Sta n Val Sta n Val | | | | | | | | | | |
| -25.84 -25.84 .045 59.97 | | | | | | | | | | -23.51 -23.51 .045 74.44 | | | | | | | | | | |
| Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan. | | | | | | | | | | Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan. | | | | | | | | | | |
| -25.84 59.97 50 50 .1 .3 | | | | | | | | | | -23.51 74.44 50 50 .1 .3 | | | | | | | | | | |
| CROSS SECTION OUTPUT Profile #T= 5 años | | | | | | | | | | CROSS SECTION OUTPUT Profile #T= 5 años | | | | | | | | | | |
| E.G. Elev (m) | 622.45 | Element | Left OB | Channel | Right OB | | | | | E.G. Elev (m) | 621.72 | Element | Left OB | Channel | Right OB | | | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | | | | | | Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | | | | | | |
| W.S. Elev (m) | 622.36 | Reach Len. (m) | 50.00 | 50.00 | 50.00 | | | | | W.S. Elev (m) | 621.63 | Reach Len. (m) | 50.00 | 50.00 | 50.00 | | | | | |
| Crit W.S. (m) | | Flow Area (m2) | | 1.04 | | | | | | Crit W.S. (m) | | Flow Area (m2) | | 1.02 | | | | | | |
| E.G. Slope (m/m) | 0.014239 | Area (m2) | | 1.04 | | | | | | E.G. Slope (m/m) | 0.014730 | Area (m2) | | 1.02 | | | | | | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | | | | | | Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | | | | | | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | | | | | | Top Width (m) | 1.60 | Top Width (m) | | 1.60 | | | | | | |
| Vel Total (m/s) | 1.34 | Avg. Vel. (m/s) | | 1.34 | | | | | | Vel Total (m/s) | 1.35 | Avg. Vel. (m/s) | | 1.35 | | | | | | |
| Max Chl Dpth (m) | 0.65 | Hydr. Depth (m) | | 0.65 | | | | | | Max Chl Dpth (m) | 0.64 | Hydr. Depth (m) | | 0.64 | | | | | | |
| Conv. Total (m3/s) | 11.6 | Conv. (m3/s) | | 11.6 | | | | | | Conv. Total (m3/s) | 11.4 | Conv. (m3/s) | | 11.4 | | | | | | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.89 | | | | | | Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.88 | | | | | | |
| Min Ch El (m) | 621.71 | Shear (N/m2) | | 49.94 | | | | | | Min Ch El (m) | 620.99 | Shear (N/m2) | | 51.31 | | | | | | |
| Alpha | 1.00 | Stream Power (N/m s) | | 66.73 | | | | | | Alpha | 1.00 | Stream Power (N/m s) | | 69.41 | | | | | | |
| Frctn Loss (m) | 0.72 | Cum Volume (1000 m3) | | 0.53 | | | | | | Frctn Loss (m) | 0.68 | Cum Volume (1000 m3) | | 0.48 | | | | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.91 | | | | | | C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.83 | | | | | | |
| CROSS SECTION OUTPUT Profile #T= 500 años | | | | | | | | | | CROSS SECTION OUTPUT Profile #T= 500 años | | | | | | | | | | |
| E.G. Elev (m) | 622.28 | Element | Left OB | Channel | Right OB | | | | | E.G. Elev (m) | 622.28 | Element | Left OB | Channel | Right OB | | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | | | | | | Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | | | | | | |
| W.S. Elev (m) | 622.21 | Reach Len. (m) | 50.00 | 50.00 | 50.00 | | | | | W.S. Elev (m) | 622.21 | Reach Len. (m) | 50.00 | 50.00 | 50.00 | | | | | |
| Crit W.S. (m) | 622.13 | Flow Area (m2) | | 7.77 | | | | | | Crit W.S. (m) | 622.13 | Flow Area (m2) | | 7.77 | | | | | | |
| E.G. Slope (m/m) | 0.015226 | Area (m2) | | 7.77 | | | | | | E.G. Slope (m/m) | 0.015226 | Area (m2) | | 7.77 | | | | | | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | | | | | | Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | | | | | | |
| Top Width (m) | 28.98 | Top Width (m) | | 28.98 | | | | | | Top Width (m) | 28.98 | Top Width (m) | | 28.98 | | | | | | |
| Vel Total (m/s) | 1.10 | Avg. Vel. (m/s) | | 1.10 | | | | | | Vel Total (m/s) | 1.10 | Avg. Vel. (m/s) | | 1.10 | | | | | | |
| Max Chl Dpth (m) | 1.22 | Hydr. Depth (m) | | 0.27 | | | | | | Max Chl Dpth (m) | 1.22 | Hydr. Depth (m) | | 0.27 | | | | | | |
| Conv. Total (m3/s) | 69.2 | Conv. (m3/s) | | 69.2 | | | | | | Conv. Total (m3/s) | 69.2 | Conv. (m3/s) | | 69.2 | | | | | | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 30.60 | | | | | | Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 30.60 | | | | | | |
| Min Ch El (m) | 620.99 | Shear (N/m2) | | 37.90 | | | | | | Min Ch El (m) | 620.99 | Shear (N/m2) | | 37.90 | | | | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Alpha 1.00 Stream Power (N/m s) 41.67
Frctn Loss (m) 0.69 Cum Volume (1000 m3) 3.25
C & E Loss (m) 0.00 Cum SA (1000 m2) 10.79

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1150.0

INPUT

Description:
Station Elevation Data num= 8
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-70.11 624 -8 621.08 -8 620.28 0 620.28 .8 620.28
.8 621.08 32.36 622 91.18 623.11

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-70.11 -70.11 .045 91.18

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-70.11 91.18 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 621.04 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.96 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.08 | |
| E.G. Slope (m/m) | 0.012606 | Area (m2) | | 1.08 | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.28 | Avg. Vel. (m/s) | | 1.28 | |
| Max Chl Dpth (m) | 0.68 | Hydr. Depth (m) | | 0.68 | |
| Conv. Total (m3/s) | 12.3 | Conv. (m3/s) | | 12.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.95 | |
| Min Ch El (m) | 620.28 | Shear (N/m2) | | 45.31 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 57.90 | |
| Frctn Loss (m) | 0.98 | Cum Volume (1000 m3) | | 0.42 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 0.75 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 621.60 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.54 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 621.43 | Flow Area (m2) | | 8.18 | |
| E.G. Slope (m/m) | 0.012460 | Area (m2) | | 8.18 | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | |
| Top Width (m) | 28.35 | Top Width (m) | | 28.35 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 1.26 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 76.5 | Conv. (m3/s) | | 76.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 29.96 | |
| Min Ch El (m) | 620.28 | Shear (N/m2) | | 33.36 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 34.82 | |
| Frctn Loss (m) | 0.89 | Cum Volume (1000 m3) | | 2.85 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 9.36 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1200.0

INPUT

Description:
Station Elevation Data num= 9
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-92.76 623.63 -8 620.2 -8 619.4 0 619.4 .8 619.4
.8 620.2 20.48 621 28.58 622 99.73 623.67

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-92.76 -92.76 .045 99.73

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-92.76 99.73 50 50 50 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 620.04 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.17 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.87 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 619.82 | Flow Area (m2) | | 0.75 | |
| E.G. Slope (m/m) | 0.034539 | Area (m2) | | 0.75 | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.84 | Avg. Vel. (m/s) | | 1.84 | |
| Max Chl Dpth (m) | 0.47 | Hydr. Depth (m) | | 0.47 | |
| Conv. Total (m3/s) | 7.4 | Conv. (m3/s) | | 7.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.54 | |
| Min Ch El (m) | 619.40 | Shear (N/m2) | | 100.38 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 184.29 | |
| Frctn Loss (m) | 1.04 | Cum Volume (1000 m3) | | 0.38 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 0.67 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 620.70 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.59 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 620.56 | Flow Area (m2) | | 5.84 | |
| E.G. Slope (m/m) | 0.027482 | Area (m2) | | 5.84 | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | |
| Top Width (m) | 21.70 | Top Width (m) | | 21.70 | |
| Vel Total (m/s) | 1.46 | Avg. Vel. (m/s) | | 1.46 | |
| Max Chl Dpth (m) | 1.19 | Hydr. Depth (m) | | 0.27 | |
| Conv. Total (m3/s) | 51.5 | Conv. (m3/s) | | 51.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 23.32 | |
| Min Ch El (m) | 619.40 | Shear (N/m2) | | 67.45 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 98.69 | |
| Frctn Loss (m) | 1.00 | Cum Volume (1000 m3) | | 2.50 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 8.11 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1250.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|--------|-------|--------|------|--------|------|--------|------|-----|------|
| -94.52 | 625.62 | - .8 | 619.24 | - .8 | 618.24 | 0 | 618.24 | .8 | 618.24 | | | |
| .8 | 619.24 | 46.45 | 620 | 87.51 | 622.78 | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -94.52 | | -94.52 | .045 | 87.51 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -94.52 | 87.51 | 50 | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 618.98 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 618.89 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.04 | |
| E.G. Slope (m/m) | 0.013904 | Area (m2) | | 1.04 | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.32 | Avg. Vel. (m/s) | | 1.32 | |
| Max Chl Dpth (m) | 0.65 | Hydr. Depth (m) | | 0.65 | |
| Conv. Total (m3/s) | 11.7 | Conv. (m3/s) | | 11.7 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.91 | |
| Min Ch El (m) | 618.24 | Shear (N/m2) | | 49.00 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 64.90 | |
| Frctn Loss (m) | 0.81 | Cum Volume (1000 m3) | | 0.33 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.59 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 619.69 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.63 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 619.55 | Flow Area (m2) | | 8.02 | |
| E.G. Slope (m/m) | 0.015172 | Area (m2) | | 8.02 | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | |
| Top Width (m) | 31.01 | Top Width (m) | | 31.01 | |
| Vel Total (m/s) | 1.07 | Avg. Vel. (m/s) | | 1.07 | |
| Max Chl Dpth (m) | 1.39 | Hydr. Depth (m) | | 0.26 | |
| Conv. Total (m3/s) | 69.3 | Conv. (m3/s) | | 69.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 33.03 | |
| Min Ch El (m) | 618.24 | Shear (N/m2) | | 36.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 38.46 | |
| Frctn Loss (m) | 0.77 | Cum Volume (1000 m3) | | 2.15 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 6.79 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1300.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|--------|------|--------|------|--------|------|--------|------|-----|------|
| -27.93 | 621 | - .8 | 618.28 | - .8 | 617.48 | 0 | 617.48 | .8 | 617.48 | | | |
| .8 | 618.28 | 30.46 | 620 | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -27.93 | | -27.93 | .045 | 30.46 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -27.93 | 30.46 | 50 | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 618.18 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 618.06 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.93 | |
| E.G. Slope (m/m) | 0.018955 | Area (m2) | | 0.93 | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.48 | Avg. Vel. (m/s) | | 1.48 | |
| Max Chl Dpth (m) | 0.58 | Hydr. Depth (m) | | 0.58 | |
| Conv. Total (m3/s) | 10.0 | Conv. (m3/s) | | 10.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.77 | |
| Min Ch El (m) | 617.48 | Shear (N/m2) | | 62.69 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 92.93 | |
| Frctn Loss (m) | 0.96 | Cum Volume (1000 m3) | | 0.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.51 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 618.92 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 618.83 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 618.73 | Flow Area (m2) | | 6.24 | |
| E.G. Slope (m/m) | 0.015763 | Area (m2) | | 6.24 | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | |
| Top Width (m) | 16.50 | Top Width (m) | | 16.50 | |
| Vel Total (m/s) | 1.37 | Avg. Vel. (m/s) | | 1.37 | |
| Max Chl Dpth (m) | 1.35 | Hydr. Depth (m) | | 0.38 | |
| Conv. Total (m3/s) | 68.0 | Conv. (m3/s) | | 68.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 18.15 | |
| Min Ch El (m) | 617.48 | Shear (N/m2) | | 53.13 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 72.73 | |
| Frctn Loss (m) | 0.87 | Cum Volume (1000 m3) | | 1.79 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 5.60 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1350.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|------|------|---|-----|--------|-----|------|-----|--------|-----|------|
| -64.69 | 626.94 | | | | -8 | 617.32 | | | 0 | 616.52 | | |
| .8 | 617.32 | 28.6 | | | | | | | | | | 620 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|------|-------|
| -64.69 | | -64.69 | .045 | 28.6 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -64.69 | 28.6 | | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 617.21 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 617.10 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 616.94 | Flow Area (m2) | | 0.92 | |
| E.G. Slope (m/m) | 0.019635 | Area (m2) | | 0.92 | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.50 | Avg. Vel. (m/s) | | 1.50 | |
| Max Chl Dpth (m) | 0.58 | Hydr. Depth (m) | | 0.58 | |
| Conv. Total (m3/s) | 9.9 | Conv. (m3/s) | | 9.9 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.75 | |
| Min Ch El (m) | 616.52 | Shear (N/m2) | | 64.46 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 96.78 | |
| Frctn Loss (m) | 0.95 | Cum Volume (1000 m3) | | 0.24 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.43 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 618.05 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 617.91 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 617.75 | Flow Area (m2) | | 5.16 | |
| E.G. Slope (m/m) | 0.019532 | Area (m2) | | 5.16 | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | |
| Top Width (m) | 11.60 | Top Width (m) | | 11.60 | |
| Vel Total (m/s) | 1.65 | Avg. Vel. (m/s) | | 1.65 | |
| Max Chl Dpth (m) | 1.39 | Hydr. Depth (m) | | 0.44 | |
| Conv. Total (m3/s) | 61.1 | Conv. (m3/s) | | 61.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 13.27 | |
| Min Ch El (m) | 616.52 | Shear (N/m2) | | 74.47 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 123.20 | |
| Frctn Loss (m) | 0.99 | Cum Volume (1000 m3) | | 1.51 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 4.90 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1400.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|------|---|-----|--------|-----|------|-----|--------|-----|-------|
| -52.14 | 628.03 | | | | -8 | 616.36 | | | 0 | 615.56 | | |
| .8 | 616.36 | 20.31 | | | | | | | | | | 618.4 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -52.14 | | -52.14 | .045 | 20.31 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -52.14 | 20.31 | | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 616.26 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 616.15 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 615.99 | Flow Area (m2) | | 0.94 | |
| E.G. Slope (m/m) | 0.018297 | Area (m2) | | 0.94 | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.46 | Avg. Vel. (m/s) | | 1.46 | |
| Max Chl Dpth (m) | 0.59 | Hydr. Depth (m) | | 0.59 | |
| Conv. Total (m3/s) | 10.2 | Conv. (m3/s) | | 10.2 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.78 | |
| Min Ch El (m) | 615.56 | Shear (N/m2) | | 60.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 89.22 | |
| Frctn Loss (m) | 1.15 | Cum Volume (1000 m3) | | 0.19 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.35 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 617.06 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 616.92 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 616.84 | Flow Area (m2) | | 5.26 | |
| E.G. Slope (m/m) | 0.019988 | Area (m2) | | 5.26 | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | |
| Top Width (m) | 12.51 | Top Width (m) | | 12.51 | |
| Vel Total (m/s) | 1.62 | Avg. Vel. (m/s) | | 1.62 | |
| Max Chl Dpth (m) | 1.36 | Hydr. Depth (m) | | 0.42 | |
| Conv. Total (m3/s) | 60.4 | Conv. (m3/s) | | 60.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 14.19 | |
| Min Ch El (m) | 615.56 | Shear (N/m2) | | 72.72 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 117.95 | |
| Frctn Loss (m) | 0.98 | Cum Volume (1000 m3) | | 1.25 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 4.30 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1450.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|------|------|---|------|--------|-----|------|-----|--------|-----|------|
| -22.76 | 629.16 | | | | -8 | 615.25 | | | -8 | 614.45 | | |
| .8 | 615.25 | | | | 8.03 | 616 | | | 0 | 614.45 | | .8 |
| | | | | | | | | | .8 | 614.45 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|------|-------|
| -22.76 | | -22.76 | .045 | 8.03 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -22.76 | 8.03 | | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 615.10 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.16 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 614.94 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 614.87 | Flow Area (m2) | | 0.79 | |
| E.G. Slope (m/m) | 0.030022 | Area (m2) | | 0.79 | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.75 | Avg. Vel. (m/s) | | 1.75 | |
| Max Chl Dpth (m) | 0.49 | Hydr. Depth (m) | | 0.49 | |
| Conv. Total (m3/s) | 8.0 | Conv. (m3/s) | | 8.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.59 | |
| Min Ch El (m) | 614.45 | Shear (N/m2) | | 89.99 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 157.23 | |
| Frctn Loss (m) | 1.32 | Cum Volume (1000 m3) | | 0.15 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 0.27 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 616.07 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.16 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 615.91 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 615.79 | Flow Area (m2) | | 4.78 | |
| E.G. Slope (m/m) | 0.019270 | Area (m2) | | 4.78 | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | |
| Top Width (m) | 9.00 | Top Width (m) | | 9.00 | |
| Vel Total (m/s) | 1.79 | Avg. Vel. (m/s) | | 1.79 | |
| Max Chl Dpth (m) | 1.46 | Hydr. Depth (m) | | 0.53 | |
| Conv. Total (m3/s) | 61.5 | Conv. (m3/s) | | 61.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 10.83 | |
| Min Ch El (m) | 614.45 | Shear (N/m2) | | 83.36 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 149.03 | |
| Frctn Loss (m) | 1.25 | Cum Volume (1000 m3) | | 1.00 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 3.76 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1500.0

INPUT

Description:

| Station | Elevation | Data | num= | 10 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|------|------|----|-------|--------|-----|------|------|--------|-----|--------|
| -68.4 | 614.87 | | | | -2.57 | 615 | | | -8 | 613.92 | | |
| 0 | 613.11 | | | | .8 | 613.11 | | | .8 | 613.91 | | 6.89 |
| | | | | | | | | | .8 | 613.92 | | -8 |
| | | | | | | | | | 6.89 | 615 | | 47.79 |
| | | | | | | | | | | 615 | | 613.11 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|-------|-------|
| -68.4 | | -68.4 | .045 | 47.79 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|-------|-------|----------|--------------|-------|--------------|--------|
| | -68.4 | 47.79 | | 50 | 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 613.78 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 613.65 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.86 | |
| E.G. Slope (m/m) | 0.023422 | Area (m2) | | 0.86 | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.60 | Avg. Vel. (m/s) | | 1.60 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.54 | |
| Conv. Total (m3/s) | 9.0 | Conv. (m3/s) | | 9.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.68 | |
| Min Ch El (m) | 613.11 | Shear (N/m2) | | 74.08 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 118.48 | |
| Frctn Loss (m) | 1.35 | Cum Volume (1000 m3) | | 0.10 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.19 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 614.81 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.30 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 614.51 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 614.50 | Flow Area (m2) | | 3.54 | |
| E.G. Slope (m/m) | 0.033605 | Area (m2) | | 3.54 | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | |
| Top Width (m) | 5.93 | Top Width (m) | | 5.93 | |
| Vel Total (m/s) | 2.41 | Avg. Vel. (m/s) | | 2.41 | |
| Max Chl Dpth (m) | 1.40 | Hydr. Depth (m) | | 0.60 | |
| Conv. Total (m3/s) | 46.6 | Conv. (m3/s) | | 46.6 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 7.76 | |
| Min Ch El (m) | 613.11 | Shear (N/m2) | | 150.30 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 362.80 | |
| Frctn Loss (m) | 1.74 | Cum Volume (1000 m3) | | 0.79 | |
| C & E Loss (m) | 0.05 | Cum SA (1000 m2) | | 3.39 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1550.0

INPUT

Description:

| Station Elevation Data | | num= 7 | |
|------------------------|--------|--------|--------|
| Sta | Elev | Sta | Elev |
| -32.08 | 613.49 | -8 | 612.57 |
| .8 | 612.57 | 65.12 | 614.37 |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -32.08 | -32.08 | .045 | 65.12 |

| Bank | Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
|------|-----------|-------|---------------|---------|-------|-------|--------|--------|
| | -32.08 | 65.12 | 50 | 50 | 50 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 612.42 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.16 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 612.26 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 612.19 | Flow Area (m2) | | 0.78 | |
| E.G. Slope (m/m) | 0.031705 | Area (m2) | | 0.78 | |
| Q Total (m3/s) | 1.38 | Flow (m3/s) | | 1.38 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.78 | Avg. Vel. (m/s) | | 1.78 | |
| Max Chl Dpth (m) | 0.49 | Hydr. Depth (m) | | 0.49 | |
| Conv. Total (m3/s) | 7.8 | Conv. (m3/s) | | 7.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.57 | |
| Min Ch El (m) | 611.77 | Shear (N/m2) | | 93.91 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 167.27 | |
| Frctn Loss (m) | 1.25 | Cum Volume (1000 m3) | | 0.06 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 0.11 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 613.02 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 612.90 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 612.90 | Flow Area (m2) | | 5.65 | |
| E.G. Slope (m/m) | 0.035993 | Area (m2) | | 5.65 | |
| Q Total (m3/s) | 8.54 | Flow (m3/s) | | 8.54 | |
| Top Width (m) | 24.75 | Top Width (m) | | 24.75 | |
| Vel Total (m/s) | 1.51 | Avg. Vel. (m/s) | | 1.51 | |
| Max Chl Dpth (m) | 1.13 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 45.0 | Conv. (m3/s) | | 45.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 26.36 | |
| Min Ch El (m) | 611.77 | Shear (N/m2) | | 75.70 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 114.35 | |
| Frctn Loss (m) | 1.19 | Cum Volume (1000 m3) | | 0.56 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 2.62 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1600.0

INPUT

Description:

| Station Elevation Data | | num= 7 | |
|------------------------|--------|--------|--------|
| Sta | Elev | Sta | Elev |
| -84.04 | 611.99 | -8 | 611.23 |
| .8 | 611.23 | 60 | 614 |

| Manning's n Values | | num= 3 | |
|--------------------|--------|--------|-------|
| Sta | n Val | Sta | n Val |
| -84.04 | -84.04 | .045 | 60 |

| Bank | Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
|------|-----------|-------|---------------|---------|-------|-------|--------|--------|
| | -84.04 | 60 | 21 | 21 | 21 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 611.15 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 611.03 | Reach Len. (m) | 21.00 | 21.00 | 21.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.96 | |
| E.G. Slope (m/m) | 0.020627 | Area (m2) | | 0.96 | |
| Q Total (m3/s) | 1.49 | Flow (m3/s) | | 1.49 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.56 | Avg. Vel. (m/s) | | 1.56 | |
| Max Chl Dpth (m) | 0.60 | Hydr. Depth (m) | | 0.60 | |
| Conv. Total (m3/s) | 10.4 | Conv. (m3/s) | | 10.4 | |
| Length Wtd. (m) | 21.00 | Wetted Per. (m) | | 2.80 | |
| Min Ch El (m) | 610.43 | Shear (N/m2) | | 69.23 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 108.11 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 0.02 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.03 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 611.62 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 611.57 | Reach Len. (m) | 21.00 | 21.00 | 21.00 |
| Crit W.S. (m) | 611.50 | Flow Area (m2) | | 9.36 | |
| E.G. Slope (m/m) | 0.017252 | Area (m2) | | 9.36 | |
| Q Total (m3/s) | 9.23 | Flow (m3/s) | | 9.23 | |
| Top Width (m) | 46.01 | Top Width (m) | | 46.01 | |
| Vel Total (m/s) | 0.99 | Avg. Vel. (m/s) | | 0.99 | |
| Max Chl Dpth (m) | 1.14 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 70.3 | Conv. (m3/s) | | 70.3 | |
| Length Wtd. (m) | 21.00 | Wetted Per. (m) | | 47.62 | |
| Min Ch El (m) | 610.43 | Shear (N/m2) | | 33.24 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.78 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 0.19 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.85 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1621.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|--------|-----|-----|------|-----|------|-----|------|
| -84.95 | 612 | -.8 | 610.8 | -.8 | 610 | 0 | 610 | .8 | 610 | |
| .8 | 610.8 | 15.18 | 611.64 | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -84.95 | | -84.95 | .045 | 15.18 | |

| Bank Sta: | Left | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|-------|--------|--------|
| | -84.95 | 15.18 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 610.74 | | | | |
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 610.63 | Reach Len. (m) | | | |
| Crit W.S. (m) | 610.44 | Flow Area (m2) | | 1.01 | |
| E.G. Slope (m/m) | 0.018002 | Area (m2) | | 1.01 | |
| Q Total (m3/s) | 1.49 | Flow (m3/s) | | 1.49 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.49 | Avg. Vel. (m/s) | | 1.49 | |
| Max Chl Dpth (m) | 0.63 | Hydr. Depth (m) | | 0.63 | |
| Conv. Total (m3/s) | 11.1 | Conv. (m3/s) | | 11.1 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 2.86 | |
| Min Ch El (m) | 610.00 | Shear (N/m2) | | 62.14 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 92.36 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 611.25 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 611.18 | Reach Len. (m) | | | |
| Crit W.S. (m) | 611.12 | Flow Area (m2) | | 8.32 | |
| E.G. Slope (m/m) | 0.018008 | Area (m2) | | 8.32 | |
| Q Total (m3/s) | 9.23 | Flow (m3/s) | | 9.23 | |
| Top Width (m) | 35.09 | Top Width (m) | | 35.09 | |
| Vel Total (m/s) | 1.11 | Avg. Vel. (m/s) | | 1.11 | |
| Max Chl Dpth (m) | 1.18 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 68.8 | Conv. (m3/s) | | 68.8 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 36.70 | |
| Min Ch El (m) | 610.00 | Shear (N/m2) | | 40.04 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 44.40 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|-----|
| Completo | 0.0 | T= 5 años | 1.30 | 640.00 | 640.48 | 640.41 | 640.63 | 0.028880 | 1.69 | 0.77 | 1.60 | 0.78 | |
| Completo | 0.0 | T= 500 años | 8.06 | 640.00 | 641.11 | 641.10 | 641.21 | 0.032325 | 1.37 | 5.87 | 27.50 | 0.95 | |
| Completo | -50.0 | T= 5 años | 1.30 | 638.63 | 639.13 | | 639.27 | 0.025770 | 1.63 | 0.80 | 1.60 | 0.73 | |
| Completo | -50.0 | T= 500 años | 8.06 | 638.63 | 639.79 | 639.73 | 639.87 | 0.022266 | 1.29 | 6.26 | 24.29 | 0.81 | |
| Completo | -100.0 | T= 5 años | 1.30 | 637.28 | 637.76 | 637.69 | 637.91 | 0.028867 | 1.69 | 0.77 | 1.60 | 0.78 | |
| Completo | -100.0 | T= 500 años | 8.06 | 637.28 | 638.37 | 638.37 | 638.48 | 0.036144 | 1.48 | 5.45 | 24.67 | 1.01 | |
| Completo | -150.0 | T= 5 años | 1.30 | 635.93 | 636.73 | 636.73 | 636.79 | 0.017226 | 1.01 | 1.29 | 4.71 | 0.62 | |
| Completo | -150.0 | T= 500 años | 8.06 | 635.93 | 636.95 | 636.91 | 637.02 | 0.021796 | 1.19 | 6.77 | 29.39 | 0.79 | |
| Completo | -200.0 | T= 5 años | 1.30 | 634.63 | 635.18 | 635.04 | 635.29 | 0.020188 | 1.49 | 0.87 | 1.60 | 0.64 | |
| Completo | -200.0 | T= 500 años | 8.06 | 634.63 | 635.69 | 635.67 | 635.78 | 0.028302 | 1.32 | 6.08 | 27.26 | 0.89 | |
| Completo | -250.0 | T= 5 años | 1.30 | 633.44 | 633.91 | 633.85 | 634.06 | 0.030184 | 1.72 | 0.76 | 1.60 | 0.80 | |
| Completo | -250.0 | T= 500 años | 8.06 | 633.44 | 634.59 | 634.53 | 634.65 | 0.018195 | 1.06 | 7.60 | 34.48 | 0.72 | |
| Completo | -300.0 | T= 5 años | 1.30 | 632.24 | 632.81 | | 632.92 | 0.017759 | 1.42 | 0.92 | 1.60 | 0.60 | |
| Completo | -300.0 | T= 500 años | 8.06 | 632.24 | 633.51 | 633.44 | 633.63 | 0.023050 | 1.53 | 5.25 | 15.48 | 0.84 | |
| Completo | -350.0 | T= 5 años | 1.30 | 631.05 | 631.49 | 631.46 | 631.66 | 0.037978 | 1.87 | 0.70 | 1.60 | 0.90 | |
| Completo | -350.0 | T= 500 años | 8.06 | 631.05 | 632.10 | 632.10 | 632.21 | 0.035470 | 1.51 | 5.32 | 22.81 | 1.00 | |
| Completo | -400.0 | T= 5 años | 1.30 | 629.93 | 630.60 | | 630.67 | 0.011707 | 1.22 | 1.07 | 1.60 | 0.48 | |
| Completo | -400.0 | T= 500 años | 8.06 | 629.93 | 631.20 | 631.04 | 631.25 | 0.009372 | 0.97 | 8.32 | 25.92 | 0.55 | |
| Completo | -450.0 | T= 5 años | 1.30 | 629.34 | 630.01 | | 630.09 | 0.011534 | 1.22 | 1.07 | 1.60 | 0.48 | |
| Completo | -450.0 | T= 500 años | 8.06 | 629.34 | 630.64 | | 630.71 | 0.012513 | 1.13 | 7.14 | 21.71 | 0.63 | |
| Completo | -500.0 | T= 5 años | 1.30 | 628.76 | 629.43 | | 629.50 | 0.011725 | 1.23 | 1.06 | 1.60 | 0.48 | |
| Completo | -500.0 | T= 500 años | 8.06 | 628.76 | 630.04 | | 630.10 | 0.012131 | 1.10 | 7.33 | 22.69 | 0.62 | |
| Completo | -550.0 | T= 5 años | 1.30 | 628.17 | 628.84 | | 628.91 | 0.011569 | 1.22 | 1.07 | 1.60 | 0.48 | |
| Completo | -550.0 | T= 500 años | 8.06 | 628.17 | 629.45 | | 629.51 | 0.011370 | 1.04 | 7.76 | 25.16 | 0.60 | |
| Completo | -600.0 | T= 5 años | 1.30 | 627.58 | 628.25 | | 628.33 | 0.011956 | 1.23 | 1.06 | 1.60 | 0.48 | |
| Completo | -600.0 | T= 500 años | 8.06 | 627.58 | 628.91 | | 628.96 | 0.010278 | 1.03 | 7.81 | 23.60 | 0.57 | |
| Completo | -650.0 | T= 5 años | 1.30 | 627.00 | 627.67 | | 627.74 | 0.011643 | 1.22 | 1.07 | 1.60 | 0.48 | |
| Completo | -650.0 | T= 500 años | 8.06 | 627.00 | 628.36 | | 628.43 | 0.011183 | 1.15 | 7.00 | 18.79 | 0.60 | |
| Completo | -700.0 | T= 5 años | 1.30 | 626.41 | 627.07 | | 627.15 | 0.011913 | 1.23 | 1.06 | 1.60 | 0.48 | |
| Completo | -700.0 | T= 500 años | 8.06 | 626.41 | 627.83 | | 627.90 | 0.010109 | 1.18 | 6.85 | 16.27 | 0.58 | |
| Completo | -750.0 | T= 5 años | 1.30 | 625.82 | 626.49 | | 626.57 | 0.011287 | 1.21 | 1.08 | 1.60 | 0.47 | |
| Completo | -750.0 | T= 500 años | 8.06 | 625.82 | 627.29 | | 627.38 | 0.010975 | 1.34 | 6.02 | 12.11 | 0.61 | |
| Completo | -800.0 | T= 5 años | 1.30 | 625.24 | 625.88 | | 625.96 | 0.013221 | 1.28 | 1.02 | 1.60 | 0.51 | |
| Completo | -800.0 | T= 500 años | 8.06 | 625.24 | 626.75 | 626.53 | 626.84 | 0.010627 | 1.34 | 6.02 | 11.78 | 0.60 | |
| Completo | -850.0 | T= 5 años | 1.30 | 624.57 | 625.19 | | 625.28 | 0.014020 | 1.31 | 1.00 | 1.60 | 0.53 | |
| Completo | -850.0 | T= 500 años | 8.06 | 624.57 | 625.79 | 625.79 | 625.96 | 0.034015 | 1.82 | 4.42 | 13.24 | 1.01 | |
| Completo | -900.0 | T= 5 años | 1.30 | 623.86 | 624.47 | | 624.56 | 0.014668 | 1.33 | 0.98 | 1.60 | 0.54 | |
| Completo | -900.0 | T= 500 años | 8.06 | 623.86 | 625.06 | 624.94 | 625.08 | 0.007708 | 0.75 | 10.80 | 44.07 | 0.48 | |
| Completo | -950.0 | T= 5 años | 1.30 | 623.14 | 623.77 | | 623.86 | 0.013656 | 1.30 | 1.01 | 1.60 | 0.52 | |
| Completo | -950.0 | T= 500 años | 8.06 | 623.14 | 624.45 | | 624.54 | 0.015673 | 1.31 | 6.17 | 17.53 | 0.70 | |
| Completo | -1000.0 | T= 5 años | 1.38 | 622.42 | 623.07 | | 623.16 | 0.014203 | 1.33 | 1.04 | 1.60 | 0.53 | |
| Completo | -1000.0 | T= 500 años | 8.54 | 622.42 | 623.81 | | 623.88 | 0.010900 | 1.17 | 7.29 | 18.67 | 0.60 | |
| Completo | -1050.0 | T= 5 años | 1.38 | 621.71 | 622.36 | | 622.45 | 0.014239 | 1.34 | 1.04 | 1.60 | 0.53 | |
| Completo | -1050.0 | T= 500 años | 8.54 | 621.71 | 623.04 | 622.96 | 623.16 | 0.019884 | 1.54 | 5.53 | 14.33 | 0.79 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch (m) | El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|----------|-----------|-------------|-------------------|---------------|-----------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|------|
| Completo | -1100.0 | T= 5 años | 1.38 | 620.99 | 621.63 | | | 621.72 | 0.014730 | 1.35 | 1.02 | 1.60 | | 0.54 |
| Completo | -1100.0 | T= 500 años | 8.54 | 620.99 | 622.21 | 622.13 | | 622.28 | 0.015226 | 1.10 | 7.77 | 28.98 | | 0.68 |
| Completo | -1150.0 | T= 5 años | 1.38 | 620.28 | 620.96 | | | 621.04 | 0.012606 | 1.28 | 1.08 | 1.60 | | 0.50 |
| Completo | -1150.0 | T= 500 años | 8.54 | 620.28 | 621.54 | 621.43 | | 621.60 | 0.012460 | 1.04 | 8.18 | 28.35 | | 0.62 |
| Completo | -1200.0 | T= 5 años | 1.38 | 619.40 | 619.87 | 619.82 | | 620.04 | 0.034539 | 1.84 | 0.75 | 1.60 | | 0.85 |
| Completo | -1200.0 | T= 500 años | 8.54 | 619.40 | 620.59 | 620.56 | | 620.70 | 0.027482 | 1.46 | 5.84 | 21.70 | | 0.90 |
| Completo | -1250.0 | T= 5 años | 1.38 | 618.24 | 618.89 | | | 618.98 | 0.013904 | 1.32 | 1.04 | 1.60 | | 0.52 |
| Completo | -1250.0 | T= 500 años | 8.54 | 618.24 | 619.63 | 619.55 | | 619.69 | 0.015172 | 1.07 | 8.02 | 31.01 | | 0.67 |
| Completo | -1300.0 | T= 5 años | 1.38 | 617.48 | 618.06 | | | 618.18 | 0.018955 | 1.48 | 0.93 | 1.60 | | 0.62 |
| Completo | -1300.0 | T= 500 años | 8.54 | 617.48 | 618.83 | 618.73 | | 618.92 | 0.015763 | 1.37 | 6.24 | 16.50 | | 0.71 |
| Completo | -1350.0 | T= 5 años | 1.38 | 616.52 | 617.10 | 616.94 | | 617.21 | 0.019635 | 1.50 | 0.92 | 1.60 | | 0.63 |
| Completo | -1350.0 | T= 500 años | 8.54 | 616.52 | 617.91 | | | 618.05 | 0.019532 | 1.65 | 5.16 | 11.60 | | 0.79 |
| Completo | -1400.0 | T= 5 años | 1.38 | 615.56 | 616.15 | | | 616.26 | 0.018297 | 1.46 | 0.94 | 1.60 | | 0.61 |
| Completo | -1400.0 | T= 500 años | 8.54 | 615.56 | 616.92 | 616.84 | | 617.06 | 0.019988 | 1.62 | 5.26 | 12.51 | | 0.80 |
| Completo | -1450.0 | T= 5 años | 1.38 | 614.45 | 614.94 | 614.87 | | 615.10 | 0.030022 | 1.75 | 0.79 | 1.60 | | 0.79 |
| Completo | -1450.0 | T= 500 años | 8.54 | 614.45 | 615.91 | 615.79 | | 616.07 | 0.019270 | 1.79 | 4.78 | 9.00 | | 0.78 |
| Completo | -1500.0 | T= 5 años | 1.38 | 613.11 | 613.65 | | | 613.78 | 0.023422 | 1.60 | 0.86 | 1.60 | | 0.69 |
| Completo | -1500.0 | T= 500 años | 8.54 | 613.11 | 614.51 | 614.50 | | 614.81 | 0.033605 | 2.41 | 3.54 | 5.93 | | 1.00 |
| Completo | -1550.0 | T= 5 años | 1.38 | 611.77 | 612.26 | 612.19 | | 612.42 | 0.031705 | 1.78 | 0.78 | 1.60 | | 0.82 |
| Completo | -1550.0 | T= 500 años | 8.54 | 611.77 | 612.90 | 612.90 | | 613.02 | 0.035993 | 1.51 | 5.65 | 24.75 | | 1.01 |
| Completo | -1600.0 | T= 5 años | 1.49 | 610.43 | 611.03 | | | 611.15 | 0.020627 | 1.56 | 0.96 | 1.60 | | 0.64 |
| Completo | -1600.0 | T= 500 años | 9.23 | 610.43 | 611.57 | 611.50 | | 611.62 | 0.017252 | 0.99 | 9.36 | 46.01 | | 0.70 |
| Completo | -1621.0 | T= 5 años | 1.49 | 610.00 | 610.63 | 610.44 | | 610.74 | 0.018002 | 1.49 | 1.01 | 1.60 | | 0.60 |
| Completo | -1621.0 | T= 500 años | 9.23 | 610.00 | 611.18 | 611.12 | | 611.25 | 0.018008 | 1.11 | 8.32 | 35.09 | | 0.73 |

ARROYO MESONES
(Tramo: Club Golf Moraleja - Carretera M-110)

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Version 3.1.3 May 2005

U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X  X  XXXXXX  XXXX  XXXX  XX  XXXX
X  X  X  X  X  X  X  X  X  X
X  X  X  X  X  X  X  X  X  X
XXXXXXXX XXXX X  XXX XXXX XXXXXX XXXX
X  X  X  X  X  X  X  X  X  X
X  X  X  X  X  X  X  X  X  X
X  X  XXXXXX  XXXX  X  X  X  XXXX
    
```

PROJECT DATA
Project Title: Arroyo de Mejones
Project File : Mesones.prj
Run Date and Time: 13/07/2005 16:29:53

Project in SI units

PLAN DATA
Plan Title: Plan 07
Plan File : C:\PROYECTOS\PGOU_ALCOBENDAS\HEC_RAS\Mesones_p07

Geometry Title: Mejones
Geometry File : C:\PROYECTOS\PGOU_ALCOBENDAS\HEC_RAS\Mesones.g01

Flow Title : Caudales Mesones-Nuevos Actuales
Flow File : C:\PROYECTOS\PGOU_ALCOBENDAS\HEC_RAS\Mesones.f04

Plan Summary Information:
Number of: Cross Sections = 51 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At Breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

HEC-RAS

FLOW DATA

Flow Title: Caudales Mesones-Nuevos Actuales
Flow File : C:\PROYECTOS\PGOU_ALCOBENDAS\HEC_RAS\Mesones.f04

Flow Data (m3/s)

| River | Reach | RS | T=5 años | T=500 años |
|--------------|------------------------|----|----------|------------|
| Aryo Mejones | Campo golf-R_M-10.0 | | 1.0738 | 13.5547 |
| Aryo Mejones | Campo golf-R_M-1-160.0 | | 1.1538 | 14.5653 |
| Aryo Mejones | Campo golf-R_M-1-998.8 | | 1.3619 | 17.1917 |

Boundary Conditions

| River | Reach | Profile | Upstream | Downstream |
|--------------|----------------------------|---------|------------------|------------------|
| Aryo Mejones | Campo golf-R_M-1T=5 años | | Normal S = 0.015 | Normal S = 0.015 |
| Aryo Mejones | Campo golf-R_M-1T=500 años | | Normal S = 0.015 | Normal S = 0.015 |

GEOMETRY DATA

Geometry Title: Mejones
Geometry File : C:\PROYECTOS\PGOU_ALCOBENDAS\HEC_RAS\Mesones.g01

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: 0.0

INPUT

Description:

Station Elevation Data num= 6

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|------|------|--------|--------|------|--------|-------|--------|-------|------|
| -100 | 632 | -22.83 | 630.51 | 6.17 | 630.67 | 40.94 | 634.88 | 42.62 | 635 |
| 100 | 635 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|------|-----|----|----|----|----|----|
| -100 | 100 | 20 | 20 | 20 | .1 | .3 |
|------|-----|----|----|----|----|----|

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -20.0

INPUT

Description:

Station Elevation Data num= 7

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|------|--------|-------|--------|-----|--------|-------|------|-------|--------|
| -100 | 632 | -7.53 | 630 | 0 | 629.84 | 10.28 | 630 | 44.26 | 633.66 |
| 88.6 | 634.04 | 100 | 634.04 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|------|-----|----|----|----|----|----|
| -100 | 100 | 20 | 20 | 20 | .1 | .3 |
|------|-----|----|----|----|----|----|

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -40.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|-----|--------|-------|------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 632 | -11.31 | 630 | 0 | 629.63 | 15.84 | 630 | 47.43 | 632.54 |
| 93.23 | 633.23 | 100 | 633.23 | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -60.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 632.03 | -99.03 | 632.03 | -57.42 | 630 | -17.58 | 630 | 0 | 629.42 |
| 22.46 | 630 | 22.53 | 630 | 48.42 | 631.74 | 94.47 | 632.89 | 100 | 632.89 |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -80.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|-------|--------|--------|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 631.39 | -83.52 | 631.39 | -59.2 | 630 | -27.64 | 630 | 0 | 629.2 |
| 25.31 | 629.7 | 33.85 | 630 | 47.59 | 630.94 | 94.7 | 632.56 | 100 | 632.56 |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -100.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630.81 | -73.57 | 630.81 | -53.37 | 629.95 | -42.61 | 630 | 0 | 628.99 |
| 25.88 | 629.41 | 43.37 | 630 | 44.87 | 630.11 | 93.93 | 632.22 | 100 | 632.22 |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -120.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|------|--------|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630.71 | -72.03 | 630.71 | -52.08 | 630 | -49.13 | 630 | 0 | 628.68 |
| 27.16 | 628.97 | 47.21 | 629.54 | 71.26 | 630 | 90.8 | 630.48 | 100 | 630.48 |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -140.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630.66 | -70.62 | 630.66 | -49.89 | 630 | -47.32 | 629.79 | 0 | 628.38 |
| 35.59 | 628.46 | 58.91 | 628.95 | 100 | 628.95 | | | | |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -160.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630.08 | -50.15 | 630.08 | -49.83 | 630 | -34.98 | 629.28 | -29.76 | 629.12 |
| 0 | 628.07 | 39.41 | 628.25 | 61.48 | 628.83 | 100 | 628.83 | | |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -180.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 631.1 | -59.58 | 631.1 | -52.16 | 630 | -29.04 | 628.91 | -20.93 | 628.57 | | |
| 0 | 627.76 | 40.39 | 628.05 | 62.31 | 628.72 | 100 | 628.72 | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -200.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 632.05 | -73.98 | 632.05 | -63.04 | 630 | -28.61 | 628.59 | -17.93 | 628.11 | | |
| 0 | 627.45 | 38.54 | 627.79 | 61.24 | 628.51 | 100 | 628.51 | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -220.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|-------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 632.72 | -84.78 | 632.72 | -69.33 | 630 | -28.88 | 628.33 | -15.9 | 627.71 | | |
| 0 | 627.13 | 35.66 | 627.43 | 59.24 | 628.17 | 100 | 628.17 | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -240.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 633.39 | -95.27 | 633.39 | -80.79 | 630 | -28.96 | 628.06 | -13.66 | 627.31 | | |
| -.01 | 626.84 | 32.99 | 627.07 | 57.45 | 627.82 | 100 | 627.82 | | | | |

| Manning's n Values | | | |
|--------------------|-------|------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -260.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | | | |
|------------------------|--------|-------|--------|--------|--------|--------|-------|-----|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -86 | 630 | -28.83 | 627.8 | -11.23 | 626.9 | 0 | 626.56 | | |
| 30.54 | 626.71 | 55.88 | 627.48 | 100 | 627.48 | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -280.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -84.88 | 630 | -84.66 | 629.92 | -42.09 | 627.15 | -13.86 | 626.32 | | |
| 0 | 626.28 | 39.17 | 626.84 | 75.66 | 628.01 | 100 | 628.01 | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -300.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 631.2 | -98.74 | 631.2 | -85.64 | 630 | -49.86 | 627.19 | -26.64 | 626.13 | | |
| 0 | 626.01 | 9.21 | 626.25 | 37.97 | 627.19 | 89.54 | 628 | 100 | 628 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -320.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -86.36 | 630 | -49.61 | 627.16 | -26.37 | 625.92 | -.01 | 625.69 |
| 3.55 | 625.85 | 31.02 | 626.64 | 81.91 | 626.97 | 100 | 626.97 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -340.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -87.21 | 630 | -47.83 | 627.06 | -21.75 | 625.63 | -.01 | 625.37 |
| 5.11 | 625.48 | 34.21 | 626.15 | 100 | 626.5 | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -360.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|-------|------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -77.24 | 630 | -41.68 | 626.81 | -12.53 | 625.2 | -.01 | 625.04 |
| 9.37 | 625.12 | 39.8 | 625.78 | 97.45 | 625.8 | 100 | 625.9 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -380.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|-------|--------|--------|-------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -66.86 | 630 | -65.5 | 629.75 | -33.35 | 626.5 | -11.72 | 625 |
| 0 | 624.79 | 45.21 | 625.47 | 100 | 625.6 | | | | |

| Manning's n Values | | | |
|--------------------|-------|------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -400.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|------|--------|--------|--------|--------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -70.93 | 630 | -56.53 | 628.95 | -30.24 | 626.04 | -17.72 | 625 |
| 0 | 624.54 | 15.06 | 625 | 45.21 | 625.47 | 100 | 625.47 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -420.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|------|--------|--------|--------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -81.49 | 630 | -58.55 | 628.56 | -34.28 | 625.75 | -24.13 | 625 |
| -.01 | 624.29 | 26.52 | 625 | 40.23 | 625.16 | 98.15 | 625.47 | 100 | 625.47 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -440.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -92.57 | 630 | -60.01 | 628.25 | -37.65 | 625.49 | -31.42 | 625 |
| -26.48 | 624.86 | -.01 | 624.05 | 42.72 | 624.96 | 50.75 | 625 | 100 | 625.03 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -460.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|------|--------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 627.93 | -61.09 | 627.93 | -40.62 | 625.23 | -37.99 | 625 | -18.26 | 624.42 |
| -.01 | 623.75 | 52.02 | 624.9 | 100 | 624.9 | | | | |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -480.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 627.39 | -64.37 | 627.39 | -44.56 | 625 | -41.15 | 624.82 | -9.72 | 623.93 |
| 0 | 623.45 | 56.65 | 624.87 | 100 | 624.87 | | | | |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -500.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|------|--------|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 626.38 | -91.44 | 626.38 | -57.91 | 625 | -45.77 | 624.22 | -9.67 | 623.43 |
| 0 | 623.14 | 56.54 | 624.88 | 79.66 | 625 | | | | |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -520.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|-----|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 623.74 | -59.33 | 623.74 | -17.55 | 622.94 | 0 | 622.88 | 52.2 | 624.85 |
| 100 | 624.85 | | | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -540.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|-------|------|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 623.4 | -69.64 | 623.4 | -25.29 | 622.5 | -.01 | 622.65 | 44.65 | 624.78 |
| 93.03 | 624.96 | 100 | 624.96 | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -560.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|-----|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 623.07 | -79.66 | 623.07 | -32.76 | 622.06 | 0 | 622.42 | 37.37 | 624.72 |
| 84.83 | 624.92 | 100 | 624.92 | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -580.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|-----|-------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 622.73 | -89.38 | 622.73 | -39.99 | 621.63 | 0 | 622.2 | 30.33 | 624.66 |
| 76.89 | 624.88 | 88.58 | 625 | 100 | 625 | | | | |

| Manning's n Values | | | |
|--------------------|-------|-----|-------|
| Sta | n Val | Sta | n Val |
| -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -600.0

INPUT

Description:
Station Elevation Data num= 8
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-100 622.72 -90.75 622.72 -43.79 621.39 -0.1 621.96 23.44 624.58
66.66 624.81 81.37 625 100 625

Manning's n Values num= 3
Sta n Val Sta n Val
-100 -100 .045 100

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-100 100 20 20 20 .1 .3

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -620.0

INPUT

Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-100 622.88 -89.28 622.88 -43 621.28 -0.1 621.63 25.53 624.5
68.15 624.74 100 624.74

Manning's n Values num= 3
Sta n Val Sta n Val
-100 -100 .045 100

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-100 100 20 20 20 .1 .3

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -640.0

INPUT

Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-100 622.84 -88.88 622.84 -39.36 621.02 -0.1 621.3 34.11 624.42
79.82 625 100 625

Manning's n Values num= 3
Sta n Val Sta n Val
-100 -100 .045 100

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-100 100 20 20 20 .1 .3

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -660.0

INPUT

Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-100 622.8 -87.94 622.8 -32.36 620.72 -0.03 620.95 47.68 624.68
62.13 625 100 625

Manning's n Values num= 3
Sta n Val Sta n Val
-100 -100 .045 100

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-100 100 20 20 20 .1 .3

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -680.0

INPUT

Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-100 622.75 -86.24 622.75 -19.9 620.32 -0.03 620.23 66.97 624.86
67.25 625 100 625

Manning's n Values num= 3
Sta n Val Sta n Val
-100 -100 .045 100

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-100 100 20 20 20 .1 .3

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -700.0

INPUT

Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-100 622.47 -73.31 622.47 -10.87 620 0 619.94 17.71 620
81.85 624.45 100 624.45

Manning's n Values num= 3
Sta n Val Sta n Val
-100 -100 .045 100

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-100 100 20 20 20 .1 .3

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -720.0

INPUT

Description:
Station Elevation Data num= 9
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-100 622.54 -79 622.54 -45.12 621.65 -14.01 620 0 619.86
19.87 620 76.88 624.67 82.25 625 100 625

Manning's n Values num= 3
Sta n Val Sta n Val
-100 -100 .045 100

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-100 100 20 20 20 .1 .3

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -740.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|-------|--------|--------|--------|--------|------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 621.33 | -69.5 | 621.33 | -41.33 | 621.04 | -15.61 | 620 | 0 | 619.77 |
| 19.31 | 620 | 78.89 | 624.87 | 78.98 | 625 | 100 | 625 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -760.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|------|-----|--------|-------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.71 | -46.16 | 620.66 | -23.09 | 620 | 0 | 619.69 | 17.36 | 620 |
| 76.75 | 625 | 100 | 625 | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -780.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|-------|--------|--------|--------|--------|------|------|-------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.65 | -73.9 | 620.65 | -48.34 | 620.52 | -28.89 | 620 | -.01 | 619.6 |
| 15.04 | 620 | 59.31 | 624.17 | 90.39 | 625 | 100 | 625 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -800.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|------|------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.97 | -78.39 | 620.97 | -48.71 | 620.55 | -29.19 | 620 | -.01 | 619.51 |
| 13.6 | 620 | 59.3 | 623.53 | 100 | 623.53 | | | | |

| Manning's n Values | | | |
|--------------------|-------|------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -820.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|-------|--------|-------|--------|--------|------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.58 | -68.2 | 620.58 | -38.9 | 620.25 | -26.39 | 620 | 0 | 619.43 |
| 17.56 | 620 | 66.81 | 623.18 | 100 | 623.18 | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -840.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|------|-----|--------|-------|------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.4 | -60.29 | 620 | 0 | 619.34 | 26.62 | 620 | 71.43 | 622.94 |
| 100 | 622.94 | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -860.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|------|-----|--------|-------|------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.4 | -86.06 | 620 | 0 | 619.26 | 36.31 | 620 | 74.64 | 622.74 |
| 100 | 622.74 | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|------|-------|-----|-------|
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | .1 | | .3 |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -880.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|------|-----|--------|-------|------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.4 | -37.04 | 620 | 0 | 619.17 | 43.66 | 620 | 75.34 | 622.63 |
| 100 | 622.63 | | | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -900.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|------|--------|-------|------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620 | -35.26 | 619.96 | -.03 | 619.09 | 40.04 | 620 | 75.83 | 622.27 |
| 100 | 622.27 | | | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -920.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|------|------|-------|--------|-------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620 | -32.75 | 619.9 | -.03 | 619 | 22.19 | 619.85 | 28.92 | 620 |
| 81.38 | 621.81 | 100 | 621.81 | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -940.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|------|--------|-------|--------|-------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 619.4 | -27.43 | 619 | -.01 | 617.95 | 21.64 | 618.63 | 43.15 | 620 |
| 93.33 | 621.31 | 100 | 621.31 | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -960.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|-----|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 618.72 | -97.69 | 618.72 | -17.91 | 617.18 | 0 | 616.88 | 22.97 | 617.64 |
| 40.84 | 620 | 100 | 620 | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -980.0

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|-----|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 617.99 | -80.97 | 617.99 | -10.85 | 615.97 | 0 | 615.81 | 22.08 | 616.76 |
| 40.31 | 620 | 100 | 620 | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 18 | 18 | 18 | | .1 | .3 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -998.8

INPUT

Description:

| Station Elevation Data | | | | | | | | | |
|------------------------|--------|--------|--------|-------|------|------|------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 617.42 | -70.92 | 617.42 | -8.38 | 615 | 5.64 | 615 | 19.18 | 615.88 |
| 41.96 | 620 | 100 | 620 | | | | | | |

| Manning's n Values | | | |
|--------------------|-------|------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -100 | 100 | | 18 | 18 | 18 | | .1 | .3 |

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ANEXO VII

SUMMARY OF MANNING'S N VALUES

River: Aryo Mejones

| Reach | River Sta. | n1 | n2 | n3 |
|------------------|------------|----|------|----|
| Campo golf-R_M-1 | 0.0 | | .045 | |
| Campo golf-R_M-1 | -20.0 | | .045 | |
| Campo golf-R_M-1 | -40.0 | | .045 | |
| Campo golf-R_M-1 | -60.0 | | .045 | |
| Campo golf-R_M-1 | -80.0 | | .045 | |
| Campo golf-R_M-1 | -100.0 | | .045 | |
| Campo golf-R_M-1 | -120.0 | | .045 | |
| Campo golf-R_M-1 | -140.0 | | .045 | |
| Campo golf-R_M-1 | -160.0 | | .045 | |
| Campo golf-R_M-1 | -180.0 | | .045 | |
| Campo golf-R_M-1 | -200.0 | | .045 | |
| Campo golf-R_M-1 | -220.0 | | .045 | |
| Campo golf-R_M-1 | -240.0 | | .045 | |
| Campo golf-R_M-1 | -260.0 | | .045 | |
| Campo golf-R_M-1 | -280.0 | | .045 | |
| Campo golf-R_M-1 | -300.0 | | .045 | |
| Campo golf-R_M-1 | -320.0 | | .045 | |
| Campo golf-R_M-1 | -340.0 | | .045 | |
| Campo golf-R_M-1 | -360.0 | | .045 | |
| Campo golf-R_M-1 | -380.0 | | .045 | |
| Campo golf-R_M-1 | -400.0 | | .045 | |
| Campo golf-R_M-1 | -420.0 | | .045 | |
| Campo golf-R_M-1 | -440.0 | | .045 | |
| Campo golf-R_M-1 | -460.0 | | .045 | |
| Campo golf-R_M-1 | -480.0 | | .045 | |
| Campo golf-R_M-1 | -500.0 | | .045 | |
| Campo golf-R_M-1 | -520.0 | | .045 | |
| Campo golf-R_M-1 | -540.0 | | .045 | |
| Campo golf-R_M-1 | -560.0 | | .045 | |
| Campo golf-R_M-1 | -580.0 | | .045 | |
| Campo golf-R_M-1 | -600.0 | | .045 | |
| Campo golf-R_M-1 | -620.0 | | .045 | |
| Campo golf-R_M-1 | -640.0 | | .045 | |
| Campo golf-R_M-1 | -660.0 | | .045 | |
| Campo golf-R_M-1 | -680.0 | | .045 | |
| Campo golf-R_M-1 | -700.0 | | .045 | |
| Campo golf-R_M-1 | -720.0 | | .045 | |
| Campo golf-R_M-1 | -740.0 | | .045 | |
| Campo golf-R_M-1 | -760.0 | | .045 | |
| Campo golf-R_M-1 | -780.0 | | .045 | |
| Campo golf-R_M-1 | -800.0 | | .045 | |
| Campo golf-R_M-1 | -820.0 | | .045 | |
| Campo golf-R_M-1 | -840.0 | | .045 | |
| Campo golf-R_M-1 | -860.0 | | .045 | |
| Campo golf-R_M-1 | -880.0 | | .045 | |
| Campo golf-R_M-1 | -900.0 | | .045 | |
| Campo golf-R_M-1 | -920.0 | | .045 | |
| Campo golf-R_M-1 | -940.0 | | .045 | |
| Campo golf-R_M-1 | -960.0 | | .045 | |
| Campo golf-R_M-1 | -980.0 | | .045 | |
| Campo golf-R_M-1 | -998.8 | | .045 | |

SUMMARY OF REACH LENGTHS

River: Aryo Mejones

| Reach | River Sta. | Left | Channel | Right |
|------------------|------------|------|---------|-------|
| Campo golf-R_M-1 | 0.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -20.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -40.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -60.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -80.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -100.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -120.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -140.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -160.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -180.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -200.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -220.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -240.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -260.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -280.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -300.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -320.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -340.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -360.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -380.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -400.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -420.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -440.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -460.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -480.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -500.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -520.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -540.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -560.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -580.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -600.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -620.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -640.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -660.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -680.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -700.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -720.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -740.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -760.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -780.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -800.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -820.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -840.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -860.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -880.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -900.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -920.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -940.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -960.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -980.0 | 18 | 18 | 18 |
| Campo golf-R_M-1 | -998.8 | 18 | 18 | 18 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Aryo Mejones

| Reach | River Sta. | Contr. | Expan. |
|------------------|------------|--------|--------|
| Campo golf-R_M-1 | 0.0 | .1 | .3 |
| Campo golf-R_M-1 | -20.0 | .1 | .3 |
| Campo golf-R_M-1 | -40.0 | .1 | .3 |
| Campo golf-R_M-1 | -60.0 | .1 | .3 |
| Campo golf-R_M-1 | -80.0 | .1 | .3 |
| Campo golf-R_M-1 | -100.0 | .1 | .3 |
| Campo golf-R_M-1 | -120.0 | .1 | .3 |
| Campo golf-R_M-1 | -140.0 | .1 | .3 |
| Campo golf-R_M-1 | -160.0 | .1 | .3 |
| Campo golf-R_M-1 | -180.0 | .1 | .3 |
| Campo golf-R_M-1 | -200.0 | .1 | .3 |
| Campo golf-R_M-1 | -220.0 | .1 | .3 |
| Campo golf-R_M-1 | -240.0 | .1 | .3 |
| Campo golf-R_M-1 | -260.0 | .1 | .3 |
| Campo golf-R_M-1 | -280.0 | .1 | .3 |
| Campo golf-R_M-1 | -300.0 | .1 | .3 |
| Campo golf-R_M-1 | -320.0 | .1 | .3 |
| Campo golf-R_M-1 | -340.0 | .1 | .3 |
| Campo golf-R_M-1 | -360.0 | .1 | .3 |
| Campo golf-R_M-1 | -380.0 | .1 | .3 |
| Campo golf-R_M-1 | -400.0 | .1 | .3 |
| Campo golf-R_M-1 | -420.0 | .1 | .3 |
| Campo golf-R_M-1 | -440.0 | .1 | .3 |
| Campo golf-R_M-1 | -460.0 | .1 | .3 |
| Campo golf-R_M-1 | -480.0 | .1 | .3 |
| Campo golf-R_M-1 | -500.0 | .1 | .3 |
| Campo golf-R_M-1 | -520.0 | .1 | .3 |
| Campo golf-R_M-1 | -540.0 | .1 | .3 |
| Campo golf-R_M-1 | -560.0 | .1 | .3 |
| Campo golf-R_M-1 | -580.0 | .1 | .3 |
| Campo golf-R_M-1 | -600.0 | .1 | .3 |
| Campo golf-R_M-1 | -620.0 | .1 | .3 |
| Campo golf-R_M-1 | -640.0 | .1 | .3 |
| Campo golf-R_M-1 | -660.0 | .1 | .3 |
| Campo golf-R_M-1 | -680.0 | .1 | .3 |
| Campo golf-R_M-1 | -700.0 | .1 | .3 |
| Campo golf-R_M-1 | -720.0 | .1 | .3 |
| Campo golf-R_M-1 | -740.0 | .1 | .3 |
| Campo golf-R_M-1 | -760.0 | .1 | .3 |
| Campo golf-R_M-1 | -780.0 | .1 | .3 |
| Campo golf-R_M-1 | -800.0 | .1 | .3 |
| Campo golf-R_M-1 | -820.0 | .1 | .3 |
| Campo golf-R_M-1 | -840.0 | .1 | .3 |
| Campo golf-R_M-1 | -860.0 | .1 | .3 |
| Campo golf-R_M-1 | -880.0 | .1 | .3 |
| Campo golf-R_M-1 | -900.0 | .1 | .3 |
| Campo golf-R_M-1 | -920.0 | .1 | .3 |
| Campo golf-R_M-1 | -940.0 | .1 | .3 |
| Campo golf-R_M-1 | -960.0 | .1 | .3 |
| Campo golf-R_M-1 | -980.0 | .1 | .3 |
| Campo golf-R_M-1 | -998.8 | .1 | .3 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m ³ /s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m ²) | Top Width (m) | Froude # | Chl |
|------------------|-----------|------------|--------------------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|--------------------------------|------------------|----------|-----|
| Campo golf-R_M-1 | 0.0 | T=5 años | 1.07 | 630.51 | 630.63 | 630.63 | 630.65 | 0.041852 | 0.68 | 1.57 | 27.09 | 0.90 | |
| Campo golf-R_M-1 | 0.0 | T=500 años | 13.55 | 630.51 | 630.82 | 630.82 | 630.93 | 0.035446 | 1.44 | 9.40 | 46.49 | 1.02 | |
| Campo golf-R_M-1 | -20.0 | T=5 años | 1.07 | 629.84 | 630.04 | 629.99 | 630.06 | 0.008524 | 0.48 | 2.26 | 20.24 | 0.45 | |
| Campo golf-R_M-1 | -20.0 | T=500 años | 13.55 | 629.84 | 630.42 | 630.28 | 630.47 | 0.008234 | 0.98 | 13.89 | 41.25 | 0.54 | |
| Campo golf-R_M-1 | -40.0 | T=5 años | 1.07 | 629.63 | 629.87 | 629.88 | 629.88 | 0.009544 | 0.52 | 2.05 | 17.36 | 0.49 | |
| Campo golf-R_M-1 | -40.0 | T=500 años | 13.55 | 629.63 | 630.26 | 629.79 | 630.30 | 0.008485 | 0.98 | 13.82 | 41.67 | 0.54 | |
| Campo golf-R_M-1 | -60.0 | T=5 años | 1.07 | 629.42 | 629.65 | 629.67 | 629.67 | 0.012209 | 0.58 | 1.84 | 15.95 | 0.55 | |
| Campo golf-R_M-1 | -60.0 | T=500 años | 13.55 | 629.42 | 630.05 | 630.09 | 630.09 | 0.014154 | 0.87 | 15.52 | 81.66 | 0.64 | |
| Campo golf-R_M-1 | -80.0 | T=5 años | 1.07 | 629.20 | 629.42 | 629.38 | 629.43 | 0.011337 | 0.54 | 2.00 | 18.44 | 0.52 | |
| Campo golf-R_M-1 | -80.0 | T=500 años | 13.55 | 629.20 | 629.74 | 629.80 | 629.80 | 0.013333 | 1.09 | 12.47 | 45.20 | 0.66 | |
| Campo golf-R_M-1 | -100.0 | T=5 años | 1.07 | 628.99 | 629.19 | 629.20 | 629.20 | 0.012092 | 0.52 | 2.05 | 20.62 | 0.53 | |
| Campo golf-R_M-1 | -100.0 | T=500 años | 13.55 | 628.99 | 629.50 | 629.55 | 629.55 | 0.011921 | 1.01 | 13.44 | 50.17 | 0.62 | |
| Campo golf-R_M-1 | -120.0 | T=5 años | 1.07 | 628.68 | 628.84 | 628.83 | 628.86 | 0.027526 | 0.67 | 1.59 | 20.43 | 0.77 | |
| Campo golf-R_M-1 | -120.0 | T=500 años | 13.55 | 628.68 | 629.07 | 629.07 | 629.17 | 0.033049 | 1.43 | 9.47 | 44.89 | 0.99 | |
| Campo golf-R_M-1 | -140.0 | T=5 años | 1.07 | 628.38 | 628.49 | 628.46 | 628.50 | 0.012615 | 0.40 | 2.65 | 40.58 | 0.51 | |
| Campo golf-R_M-1 | -140.0 | T=500 años | 13.55 | 628.38 | 628.72 | 628.65 | 628.76 | 0.012708 | 0.96 | 14.09 | 59.19 | 0.63 | |
| Campo golf-R_M-1 | -160.0 | T=5 años | 1.15 | 628.07 | 628.21 | 628.19 | 628.22 | 0.014460 | 0.46 | 2.51 | 35.23 | 0.55 | |
| Campo golf-R_M-1 | -160.0 | T=500 años | 14.57 | 628.07 | 628.45 | 628.50 | 628.50 | 0.013578 | 1.02 | 14.29 | 57.85 | 0.65 | |
| Campo golf-R_M-1 | -180.0 | T=5 años | 1.15 | 627.76 | 627.93 | 627.88 | 627.94 | 0.013701 | 0.50 | 2.32 | 27.67 | 0.55 | |
| Campo golf-R_M-1 | -180.0 | T=500 años | 14.57 | 627.76 | 628.19 | 628.25 | 628.25 | 0.012794 | 1.01 | 14.39 | 56.25 | 0.64 | |
| Campo golf-R_M-1 | -200.0 | T=5 años | 1.15 | 627.45 | 627.62 | 627.64 | 627.64 | 0.016557 | 0.56 | 2.07 | 24.14 | 0.61 | |
| Campo golf-R_M-1 | -200.0 | T=500 años | 14.57 | 627.45 | 627.88 | 627.95 | 627.95 | 0.017152 | 1.13 | 12.89 | 53.32 | 0.73 | |
| Campo golf-R_M-1 | -220.0 | T=5 años | 1.15 | 627.13 | 627.30 | 627.27 | 627.32 | 0.016127 | 0.55 | 2.11 | 24.88 | 0.60 | |
| Campo golf-R_M-1 | -220.0 | T=500 años | 14.57 | 627.13 | 627.57 | 627.63 | 627.63 | 0.014596 | 1.08 | 13.43 | 52.32 | 0.68 | |
| Campo golf-R_M-1 | -240.0 | T=5 años | 1.15 | 626.84 | 627.01 | 627.02 | 627.02 | 0.013537 | 0.49 | 2.35 | 28.51 | 0.54 | |
| Campo golf-R_M-1 | -240.0 | T=500 años | 14.57 | 626.84 | 627.25 | 627.32 | 627.32 | 0.017559 | 1.16 | 12.54 | 50.57 | 0.74 | |
| Campo golf-R_M-1 | -260.0 | T=5 años | 1.15 | 626.56 | 626.70 | 626.71 | 626.71 | 0.017686 | 0.50 | 2.30 | 33.02 | 0.61 | |
| Campo golf-R_M-1 | -260.0 | T=500 años | 14.57 | 626.56 | 626.96 | 627.02 | 627.02 | 0.013007 | 1.05 | 13.81 | 51.41 | 0.65 | |
| Campo golf-R_M-1 | -280.0 | T=5 años | 1.15 | 626.28 | 626.41 | 626.43 | 626.43 | 0.012104 | 0.49 | 2.36 | 26.45 | 0.52 | |
| Campo golf-R_M-1 | -280.0 | T=500 años | 14.57 | 626.28 | 626.70 | 626.75 | 626.75 | 0.014162 | 1.05 | 13.89 | 55.65 | 0.67 | |
| Campo golf-R_M-1 | -300.0 | T=5 años | 1.15 | 626.01 | 626.14 | 626.12 | 626.16 | 0.016154 | 0.49 | 2.34 | 32.14 | 0.58 | |
| Campo golf-R_M-1 | -300.0 | T=500 años | 14.57 | 626.01 | 626.42 | 626.48 | 626.48 | 0.012583 | 1.08 | 13.52 | 47.59 | 0.65 | |
| Campo golf-R_M-1 | -320.0 | T=5 años | 1.15 | 625.69 | 625.87 | 625.89 | 625.89 | 0.012112 | 0.50 | 2.33 | 25.55 | 0.52 | |
| Campo golf-R_M-1 | -320.0 | T=500 años | 14.57 | 625.69 | 626.16 | 626.22 | 626.22 | 0.013414 | 1.12 | 13.00 | 45.25 | 0.67 | |
| Campo golf-R_M-1 | -340.0 | T=5 años | 1.15 | 625.37 | 625.53 | 625.56 | 625.56 | 0.024481 | 0.66 | 1.75 | 21.21 | 0.73 | |
| Campo golf-R_M-1 | -340.0 | T=500 años | 14.57 | 625.37 | 625.81 | 625.89 | 625.89 | 0.021486 | 1.30 | 11.18 | 44.21 | 0.83 | |
| Campo golf-R_M-1 | -360.0 | T=5 años | 1.15 | 625.04 | 625.20 | 625.16 | 625.21 | 0.013155 | 0.51 | 2.27 | 25.58 | 0.54 | |
| Campo golf-R_M-1 | -360.0 | T=500 años | 14.57 | 625.04 | 625.52 | 625.58 | 625.58 | 0.011562 | 1.06 | 13.69 | 46.05 | 0.62 | |
| Campo golf-R_M-1 | -380.0 | T=5 años | 1.15 | 624.79 | 624.99 | 625.00 | 625.00 | 0.009309 | 0.46 | 2.48 | 24.65 | 0.47 | |
| Campo golf-R_M-1 | -380.0 | T=500 años | 14.57 | 624.79 | 625.36 | 625.40 | 625.40 | 0.006849 | 0.85 | 17.17 | 54.79 | 0.48 | |
| Campo golf-R_M-1 | -400.0 | T=5 años | 1.15 | 624.54 | 624.77 | 624.79 | 624.79 | 0.013356 | 0.61 | 1.90 | 16.44 | 0.57 | |
| Campo golf-R_M-1 | -400.0 | T=500 años | 14.57 | 624.54 | 625.15 | 625.21 | 625.21 | 0.012137 | 1.10 | 13.26 | 44.12 | 0.64 | |
| Campo golf-R_M-1 | -420.0 | T=5 años | 1.15 | 624.29 | 624.53 | 624.54 | 624.54 | 0.011772 | 0.58 | 1.99 | 16.85 | 0.54 | |
| Campo golf-R_M-1 | -420.0 | T=500 años | 14.57 | 624.29 | 624.89 | 624.96 | 624.96 | 0.012948 | 1.13 | 12.85 | 42.83 | 0.66 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m ³ /s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m ²) | Top Width (m) | Froude # | Chl |
|------------------|-----------|------------|--------------------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|--------------------------------|------------------|----------|------|
| Campo golf-R_M-1 | -440.0 | T=5 años | 1.15 | 624.05 | 624.27 | | 624.29 | 0.015135 | 0.62 | 1.86 | 17.21 | | 0.60 |
| Campo golf-R_M-1 | -440.0 | T=500 años | 14.57 | 624.05 | 624.61 | | 624.68 | 0.014659 | 1.16 | 12.61 | 44.81 | | 0.70 |
| Campo golf-R_M-1 | -460.0 | T=5 años | 1.15 | 623.75 | 623.98 | 623.93 | 624.00 | 0.014186 | 0.62 | 1.86 | 16.43 | | 0.59 |
| Campo golf-R_M-1 | -460.0 | T=500 años | 14.57 | 623.75 | 624.36 | | 624.42 | 0.011655 | 1.09 | 13.42 | 44.11 | | 0.63 |
| Campo golf-R_M-1 | -480.0 | T=5 años | 1.15 | 623.45 | 623.69 | 623.65 | 623.72 | 0.013667 | 0.64 | 1.80 | 14.73 | | 0.58 |
| Campo golf-R_M-1 | -480.0 | T=500 años | 14.57 | 623.45 | 624.07 | | 624.15 | 0.015594 | 1.24 | 11.77 | 39.53 | | 0.72 |
| Campo golf-R_M-1 | -500.0 | T=5 años | 1.15 | 623.14 | 623.36 | 623.33 | 623.39 | 0.021215 | 0.74 | 1.56 | 14.35 | | 0.71 |
| Campo golf-R_M-1 | -500.0 | T=500 años | 14.57 | 623.14 | 623.70 | 623.66 | 623.79 | 0.020623 | 1.33 | 10.93 | 40.51 | | 0.82 |
| Campo golf-R_M-1 | -520.0 | T=5 años | 1.15 | 622.88 | 623.01 | 622.99 | 623.03 | 0.015698 | 0.54 | 2.13 | 24.72 | | 0.59 |
| Campo golf-R_M-1 | -520.0 | T=500 años | 14.57 | 622.88 | 623.27 | 623.24 | 623.36 | 0.023208 | 1.33 | 10.98 | 44.78 | | 0.85 |
| Campo golf-R_M-1 | -540.0 | T=5 años | 1.15 | 622.50 | 622.64 | 622.62 | 622.65 | 0.022650 | 0.56 | 2.06 | 29.94 | | 0.68 |
| Campo golf-R_M-1 | -540.0 | T=500 años | 14.57 | 622.50 | 622.90 | | 622.97 | 0.016426 | 1.14 | 12.75 | 50.14 | | 0.72 |
| Campo golf-R_M-1 | -560.0 | T=5 años | 1.15 | 622.06 | 622.23 | 622.20 | 622.25 | 0.018442 | 0.58 | 1.98 | 23.33 | | 0.64 |
| Campo golf-R_M-1 | -560.0 | T=500 años | 14.57 | 622.06 | 622.47 | 622.45 | 622.55 | 0.026656 | 1.30 | 11.21 | 52.31 | | 0.90 |
| Campo golf-R_M-1 | -580.0 | T=5 años | 1.15 | 621.63 | 621.80 | 621.78 | 621.83 | 0.023356 | 0.67 | 1.73 | 19.97 | | 0.72 |
| Campo golf-R_M-1 | -580.0 | T=500 años | 14.57 | 621.63 | 622.13 | | 622.18 | 0.012742 | 1.00 | 14.57 | 57.91 | | 0.64 |
| Campo golf-R_M-1 | -600.0 | T=5 años | 1.15 | 621.39 | 621.62 | | 621.63 | 0.005002 | 0.38 | 3.07 | 26.23 | | 0.35 |
| Campo golf-R_M-1 | -600.0 | T=500 años | 14.57 | 621.39 | 621.94 | | 621.98 | 0.008001 | 0.85 | 17.24 | 62.17 | | 0.51 |
| Campo golf-R_M-1 | -620.0 | T=5 años | 1.15 | 621.28 | 621.45 | 621.42 | 621.46 | 0.015073 | 0.53 | 2.19 | 25.77 | | 0.58 |
| Campo golf-R_M-1 | -620.0 | T=500 años | 14.57 | 621.28 | 621.72 | | 621.77 | 0.014060 | 1.04 | 13.99 | 56.36 | | 0.67 |
| Campo golf-R_M-1 | -640.0 | T=5 años | 1.15 | 621.02 | 621.19 | 621.16 | 621.20 | 0.012301 | 0.48 | 2.42 | 28.50 | | 0.52 |
| Campo golf-R_M-1 | -640.0 | T=500 años | 14.57 | 621.02 | 621.45 | | 621.50 | 0.013023 | 1.05 | 13.93 | 52.60 | | 0.65 |
| Campo golf-R_M-1 | -660.0 | T=5 años | 1.15 | 620.72 | 620.88 | 620.84 | 620.89 | 0.018761 | 0.56 | 2.07 | 26.29 | | 0.64 |
| Campo golf-R_M-1 | -660.0 | T=500 años | 14.57 | 620.72 | 621.13 | | 621.21 | 0.017356 | 1.21 | 12.08 | 45.66 | | 0.75 |
| Campo golf-R_M-1 | -680.0 | T=5 años | 1.15 | 620.23 | 620.35 | 620.35 | 620.38 | 0.037444 | 0.73 | 1.57 | 22.36 | | 0.88 |
| Campo golf-R_M-1 | -680.0 | T=500 años | 14.57 | 620.23 | 620.61 | 620.61 | 620.75 | 0.030595 | 1.62 | 9.00 | 33.47 | | 1.00 |
| Campo golf-R_M-1 | -700.0 | T=5 años | 1.15 | 619.94 | 620.11 | 620.02 | 620.11 | 0.002552 | 0.28 | 4.11 | 32.78 | | 0.25 |
| Campo golf-R_M-1 | -700.0 | T=500 años | 14.57 | 619.94 | 620.51 | 620.26 | 620.54 | 0.003141 | 0.70 | 20.74 | 48.94 | | 0.34 |
| Campo golf-R_M-1 | -720.0 | T=5 años | 1.15 | 619.86 | 620.06 | | 620.06 | 0.002352 | 0.27 | 4.35 | 35.65 | | 0.24 |
| Campo golf-R_M-1 | -720.0 | T=500 años | 14.57 | 619.86 | 620.45 | | 620.48 | 0.002985 | 0.70 | 20.88 | 47.93 | | 0.34 |
| Campo golf-R_M-1 | -740.0 | T=5 años | 1.15 | 619.77 | 620.00 | | 620.00 | 0.003187 | 0.29 | 3.92 | 34.49 | | 0.28 |
| Campo golf-R_M-1 | -740.0 | T=500 años | 14.57 | 619.77 | 620.39 | | 620.41 | 0.003368 | 0.72 | 20.36 | 49.27 | | 0.36 |
| Campo golf-R_M-1 | -760.0 | T=5 años | 1.15 | 619.69 | 619.93 | | 619.93 | 0.003506 | 0.32 | 3.64 | 30.83 | | 0.29 |
| Campo golf-R_M-1 | -760.0 | T=500 años | 14.57 | 619.69 | 620.33 | | 620.35 | 0.003061 | 0.66 | 22.02 | 55.78 | | 0.34 |
| Campo golf-R_M-1 | -780.0 | T=5 años | 1.15 | 619.60 | 619.86 | | 619.86 | 0.003229 | 0.32 | 3.60 | 28.10 | | 0.29 |
| Campo golf-R_M-1 | -780.0 | T=500 años | 14.57 | 619.60 | 620.27 | | 620.29 | 0.003014 | 0.65 | 22.28 | 56.79 | | 0.33 |
| Campo golf-R_M-1 | -800.0 | T=5 años | 1.15 | 619.51 | 619.78 | | 619.79 | 0.003528 | 0.35 | 3.29 | 23.96 | | 0.30 |
| Campo golf-R_M-1 | -800.0 | T=500 años | 14.57 | 619.51 | 620.19 | | 620.22 | 0.004189 | 0.75 | 19.49 | 51.99 | | 0.39 |
| Campo golf-R_M-1 | -820.0 | T=5 años | 1.15 | 619.43 | 619.68 | | 619.69 | 0.007686 | 0.48 | 2.38 | 19.16 | | 0.44 |
| Campo golf-R_M-1 | -820.0 | T=500 años | 14.57 | 619.43 | 620.04 | | 620.09 | 0.010086 | 1.02 | 14.32 | 46.55 | | 0.59 |
| Campo golf-R_M-1 | -840.0 | T=5 años | 1.15 | 619.34 | 619.56 | | 619.57 | 0.005174 | 0.37 | 3.15 | 28.82 | | 0.35 |
| Campo golf-R_M-1 | -840.0 | T=500 años | 14.57 | 619.34 | 619.96 | | 619.98 | 0.003158 | 0.57 | 25.42 | 81.82 | | 0.33 |
| Campo golf-R_M-1 | -860.0 | T=5 años | 1.15 | 619.26 | 619.50 | | 619.50 | 0.002228 | 0.25 | 4.58 | 38.92 | | 0.23 |
| Campo golf-R_M-1 | -860.0 | T=500 años | 14.57 | 619.26 | 619.93 | | 619.94 | 0.001365 | 0.40 | 36.86 | 110.41 | | 0.22 |

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ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|------------------|-----------|------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Campo golf-R_M-1 | -880.0 | T=5 años | 1.15 | 619.17 | 619.44 | | 619.44 | 0.003281 | 0.33 | 3.47 | 25.98 | 0.29 |
| Campo golf-R_M-1 | -880.0 | T=500 años | 14.57 | 619.17 | 619.88 | | 619.90 | 0.002854 | 0.59 | 24.48 | 69.00 | 0.32 |
| Campo golf-R_M-1 | -900.0 | T=5 años | 1.15 | 619.09 | 619.38 | | 619.39 | 0.002775 | 0.32 | 3.57 | 24.55 | 0.27 |
| Campo golf-R_M-1 | -900.0 | T=500 años | 14.57 | 619.09 | 619.81 | | 619.84 | 0.003425 | 0.66 | 22.08 | 61.09 | 0.35 |
| Campo golf-R_M-1 | -920.0 | T=5 años | 1.15 | 619.00 | 619.19 | 619.19 | 619.24 | 0.043819 | 0.98 | 1.18 | 12.12 | 1.01 |
| Campo golf-R_M-1 | -920.0 | T=500 años | 14.57 | 619.00 | 619.54 | 619.54 | 619.67 | 0.030715 | 1.62 | 8.99 | 33.53 | 1.00 |
| Campo golf-R_M-1 | -940.0 | T=5 años | 1.15 | 617.95 | 618.14 | 618.15 | 618.20 | 0.062313 | 1.14 | 1.01 | 10.82 | 1.19 |
| Campo golf-R_M-1 | -940.0 | T=500 años | 14.57 | 617.95 | 618.41 | 618.50 | 618.70 | 0.083301 | 2.40 | 6.07 | 26.53 | 1.60 |
| Campo golf-R_M-1 | -960.0 | T=5 años | 1.15 | 616.88 | 617.05 | 617.05 | 617.09 | 0.049531 | 0.94 | 1.23 | 14.87 | 1.04 |
| Campo golf-R_M-1 | -960.0 | T=500 años | 14.57 | 616.88 | 617.32 | 617.34 | 617.47 | 0.044750 | 1.72 | 8.45 | 38.09 | 1.17 |
| Campo golf-R_M-1 | -980.0 | T=5 años | 1.15 | 615.81 | 615.97 | 615.99 | 616.02 | 0.057774 | 0.99 | 1.16 | 14.56 | 1.12 |
| Campo golf-R_M-1 | -980.0 | T=500 años | 14.57 | 615.81 | 616.24 | 616.29 | 616.45 | 0.057607 | 2.04 | 7.13 | 30.06 | 1.34 |
| Campo golf-R_M-1 | -998.8 | T=5 años | 1.36 | 615.00 | 615.13 | 615.11 | 615.15 | 0.015017 | 0.63 | 2.16 | 19.35 | 0.60 |
| Campo golf-R_M-1 | -998.8 | T=500 años | 17.19 | 615.00 | 615.51 | 615.43 | 615.61 | 0.015001 | 1.37 | 12.54 | 35.09 | 0.73 |

ANEXO VII
RESULTADOS DE LA MODELIZACIÓN HIDRÁULICA
FLUVIAL

ESTADO FUTURO

ARROYO DE VALDELACASA

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X   X   XXXXXX   XXXX   XXXX   XX   XXXX
X   X   X       X   X   X   X   X   X
X   X   X       X       X   X   X   X   X
XXXXXXXX XXXX   X       XXX XXXX XXXXXX XXXX
X   X   X       X       X   X   X   X   X
X   X   X       X   X   X   X   X   X   X
X   X   XXXXXX   XXXX   X   X   X   X   XXXXX
    
```

PROJECT DATA
Project Title: Arroyo de Valdelacasa
Project File : Valdelacasa.prj
Run Date and Time: 03/07/2008 16:51:58

Project in SI units

Project Description:
Arroyo Valdelacasa_Fut_junio_08

PLAN DATA

Plan Title: Plan 12
Plan File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Valdelacasa.pl2

Geometry Title: Arroyo de Valdelacasa
Geometry File : o:\2005-10-PGOU
ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Valdelacasa.g01

Flow Title : Caudales Futuros Valdelacasa_junio/08
Flow File : o:\2005-10-PGOU
ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Valdelacasa.f06

Plan Summary Information:
Number of: Cross Sections = 151 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.003
Critical depth calculation tolerance = 0.003
Maximum number of iterations = 20
Maximum difference tolerance = 0.1
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Caudales Futuros Valdelacasa_junio/08
Flow File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Valdelacasa.f06

Flow Data (m3/s)

| River | Reach | RS | T= 5 años | T= 500 años |
|--------------------------|-------|---------|-----------|-------------|
| Aryo ValdelacasaCompleto | | 0.0 | .0121 | .3756 |
| Aryo ValdelacasaCompleto | | -240.0 | .0121 | .3756 |
| Aryo ValdelacasaCompleto | | -620.0 | .2913 | 2.8781 |
| Aryo ValdelacasaCompleto | | -1000.0 | .2913 | 9.8057 |
| Aryo ValdelacasaCompleto | | -1500.0 | .2913 | 12.8601 |
| Aryo ValdelacasaCompleto | | -2000.0 | .2913 | 15.9145 |
| Aryo ValdelacasaCompleto | | -2500.0 | 1.1745 | 18.969 |
| Aryo ValdelacasaCompleto | | -2980.0 | 1.4 | 20.2416 |

Boundary Conditions

| River | Reach | Profile | Upstream |
|--------------------------|-------|-------------|-------------------|
| Aryo ValdelacasaCompleto | | T= 5 años | Normal S = 0.0285 |
| Aryo ValdelacasaCompleto | | T= 500 años | Normal S = 0.0285 |

GEOMETRY DATA

Geometry Title: Arroyo de Valdelacasa
Geometry File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Valdelacasa.g01

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: 0.0

INPUT

Description:
Station Elevation Data num= 6

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|--------|------|--------|-------|-----|--------|-------|--------|-------|------|
| -32.84 | 750 | -26.16 | 749.1 | 0 | 745.49 | 15.67 | 746.88 | 40.57 | 750 |
| 80.78 | 750 | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -32.84 | | -32.84 | .045 | 80.78 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|--------------|--------|
| | -32.84 | 80.78 | 20 | 20 | 20 | | .1 | .3 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 745.55 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 745.54 | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | 745.54 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.052706 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 0.99 | Top Width (m) | | 0.99 | |
| Vel Total (m/s) | 0.45 | Avg. Vel. (m/s) | | 0.45 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.00 | |
| Min Ch El (m) | 745.49 | Shear (N/m2) | | 13.76 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.26 | |
| Frctn Loss (m) | 1.26 | Cum Volume (1000 m3) | | 2.42 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.35 | |

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 741.98 | Element | | | |
| Vel Head (m) | 0.48 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 741.50 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 741.53 | Flow Area (m2) | | 0.00 | |
| E.G. Slope (m/m) | 6.072406 | Area (m2) | | 0.00 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 0.29 | Top Width (m) | | 0.29 | |
| Vel Total (m/s) | 3.08 | Avg. Vel. (m/s) | | 3.08 | |
| Max Chl Dpth (m) | 0.03 | Hydr. Depth (m) | | 0.01 | |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | | 0.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 0.30 | |
| Min Ch El (m) | 741.47 | Shear (N/m2) | | 792.80 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2438.69 | |
| Frctn Loss (m) | 3.53 | Cum Volume (1000 m3) | | 2.42 | |
| C & E Loss (m) | 0.05 | Cum SA (1000 m2) | | 32.34 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 745.74 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 745.69 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 745.69 | Flow Area (m2) | | 0.37 | |
| E.G. Slope (m/m) | 0.044229 | Area (m2) | | 0.37 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 3.72 | Top Width (m) | | 3.72 | |
| Vel Total (m/s) | 1.01 | Avg. Vel. (m/s) | | 1.01 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.74 | |
| Min Ch El (m) | 745.49 | Shear (N/m2) | | 43.29 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 43.54 | |
| Frctn Loss (m) | 0.86 | Cum Volume (1000 m3) | | 24.17 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 78.30 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 742.89 | Element | | | |
| Vel Head (m) | 1.30 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 741.59 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 741.72 | Flow Area (m2) | | 0.07 | |
| E.G. Slope (m/m) | 2.307614 | Area (m2) | | 0.07 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 1.26 | Top Width (m) | | 1.26 | |
| Vel Total (m/s) | 5.05 | Avg. Vel. (m/s) | | 5.05 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 0.2 | Conv. (m3/s) | | 0.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.28 | |
| Min Ch El (m) | 741.47 | Shear (N/m2) | | 1310.22 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6619.51 | |
| Frctn Loss (m) | 2.73 | Cum Volume (1000 m3) | | 24.17 | |
| C & E Loss (m) | 0.12 | Cum SA (1000 m2) | | 78.25 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -20.0

INPUT

Description:

| Station Elevation Data | | num= 8 | |
|------------------------|--------|--------|--------|
| Sta | Elev | Sta | Elev |
| -36.29 | 745 | -29.64 | 743.97 |
| 15.44 | 744.39 | 18.19 | 745 |
| -76.08 | 750 | -60.11 | 750 |
| -28.06 | 746.49 | -19.16 | 745 |
| 83.67 | 745 | | |

Manning's n Values

| num= 3 | |
|--------|-------|
| Sta | n Val |
| -76.08 | 0.45 |
| -76.08 | 0.45 |
| 83.67 | 0.45 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -76.08 | 83.67 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -40.0

INPUT

Description:

| Station Elevation Data | | num= 8 | |
|------------------------|--------|--------|--------|
| Sta | Elev | Sta | Elev |
| -36.29 | 745 | -29.64 | 743.97 |
| 15.53 | 742.93 | 26.01 | 745 |
| -76.08 | 750 | -60.11 | 750 |
| -28.06 | 746.49 | -19.16 | 745 |
| 83.67 | 745 | | |

Manning's n Values

| num= 3 | |
|--------|-------|
| Sta | n Val |
| -36.29 | 0.45 |
| -36.29 | 0.45 |
| 75.61 | 0.45 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -36.29 | 75.61 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|---------------|--------|------------|---------|---------|----------|
| E.G. Elev (m) | 738.94 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |

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ANEXO VII

| | | | | | | | | | |
|--------------------|----------|----------------------|-------|-------|-------|--------------------|----------|----------------------|-------|
| W.S. Elev (m) | 738.92 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | E.G. Slope (m/m) | 0.125717 | Area (m2) | 0.02 |
| Crit W.S. (m) | 738.92 | Flow Area (m2) | 0.02 | 0.02 | 0.02 | Q Total (m3/s) | 0.01 | Flow (m3/s) | 0.01 |
| E.G. Slope (m/m) | 0.070936 | Area (m2) | 0.02 | 0.02 | 0.02 | Top Width (m) | 0.56 | Top Width (m) | 0.56 |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | 0.01 | 0.01 | 0.01 | Vel Total (m/s) | 0.74 | Avg. Vel. (m/s) | 0.74 |
| Top Width (m) | 0.85 | Top Width (m) | 0.85 | 0.85 | 0.85 | Max Chl Dpth (m) | 0.06 | Hydr. Depth (m) | 0.03 |
| Vel Total (m/s) | 0.53 | Avg. Vel. (m/s) | 0.53 | 0.53 | 0.53 | Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | 0.0 |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | 0.03 | 0.03 | 0.03 | Length Wtd. (m) | 20.00 | Wetted Per. (m) | 0.57 |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | 0.0 | 0.0 | 0.0 | Min Ch El (m) | 737.00 | Shear (N/m2) | 35.30 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 0.85 | 0.85 | 0.85 | Alpha | 1.00 | Stream Power (N/m s) | 26.03 |
| Min Ch El (m) | 738.87 | Shear (N/m2) | 18.60 | 18.60 | 18.60 | Frctn Loss (m) | 1.85 | Cum Volume (1000 m3) | 2.41 |
| Alpha | 1.00 | Stream Power (N/m s) | 9.85 | 9.85 | 9.85 | C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 32.32 |
| Frctn Loss (m) | 1.38 | Cum Volume (1000 m3) | 2.42 | 2.42 | 2.42 | | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 32.33 | 32.33 | 32.33 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 739.14 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 739.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 739.08 | Flow Area (m2) | 0.33 | 0.33 | 0.33 |
| E.G. Slope (m/m) | 0.056442 | Area (m2) | 0.33 | 0.33 | 0.33 |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | 0.38 | 0.38 | 0.38 |
| Top Width (m) | 3.21 | Top Width (m) | 3.21 | 3.21 | 3.21 |
| Vel Total (m/s) | 1.15 | Avg. Vel. (m/s) | 1.15 | 1.15 | 1.15 |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | 0.10 | 0.10 | 0.10 |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | 1.6 | 1.6 | 1.6 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 3.23 | 3.23 | 3.23 |
| Min Ch El (m) | 738.87 | Shear (N/m2) | 56.05 | 56.05 | 56.05 |
| Alpha | 1.00 | Stream Power (N/m s) | 64.29 | 64.29 | 64.29 |
| Frctn Loss (m) | 3.38 | Cum Volume (1000 m3) | 24.16 | 24.16 | 24.16 |
| C & E Loss (m) | 0.37 | Cum SA (1000 m2) | 78.21 | 78.21 | 78.21 |

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 737.38 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.18 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 737.20 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 737.26 | Flow Area (m2) | 0.20 | 0.20 | 0.20 |
| E.G. Slope (m/m) | 0.152989 | Area (m2) | 0.20 | 0.20 | 0.20 |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | 0.38 | 0.38 | 0.38 |
| Top Width (m) | 1.96 | Top Width (m) | 1.96 | 1.96 | 1.96 |
| Vel Total (m/s) | 1.87 | Avg. Vel. (m/s) | 1.87 | 1.87 | 1.87 |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | 0.10 | 0.10 | 0.10 |
| Conv. Total (m3/s) | 1.0 | Conv. (m3/s) | 1.0 | 1.0 | 1.0 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 2.00 | 2.00 | 2.00 |
| Min Ch El (m) | 737.00 | Shear (N/m2) | 150.18 | 150.18 | 150.18 |
| Alpha | 1.00 | Stream Power (N/m s) | 281.42 | 281.42 | 281.42 |
| Frctn Loss (m) | 1.75 | Cum Volume (1000 m3) | 24.16 | 24.16 | 24.16 |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 78.16 | 78.16 | 78.16 |

CROSS SECTION

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -60.0

RIVER: Aryo Valdelacasa
REACH: Completo RS: -80.0

INPUT

Description:

| | | |
|-------------------------------------|------|---|
| Station Elevation Data | num= | 8 |
| Sta Elev Sta Elev Sta Elev | | |
| -48.44 745 -29.81 742.13 -14.38 740 | | |
| 14.39 740 16.92 741.27 84.83 742 | | |

INPUT

Description:

| | | |
|-------------------------------------|------|---|
| Station Elevation Data | num= | 7 |
| Sta Elev Sta Elev Sta Elev | | |
| -57.48 745 -26.89 740.45 -23.89 740 | | |
| 20.82 739.42 37.66 740 | | |

Manning's n Values

| | | |
|-------------------------------|------|---|
| Sta n Val Sta n Val Sta n Val | num= | 3 |
| -48.44 -48.44 .045 84.83 | | |

Manning's n Values

| | | |
|-------------------------------|------|---|
| Sta n Val Sta n Val Sta n Val | num= | 3 |
| -57.48 -57.48 .045 37.66 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -48.44 84.83 20 20 20 | .1 | .3 |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -57.48 37.66 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|---------------|--------|----------------|---------|---------|----------|
| E.G. Elev (m) | 737.09 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 737.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 737.06 | Flow Area (m2) | 0.02 | 0.02 | 0.02 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|------------------|----------|----------------|---------|---------|----------|
| E.G. Elev (m) | 735.21 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 735.20 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 735.20 | Flow Area (m2) | 0.02 | 0.02 | 0.02 |
| E.G. Slope (m/m) | 0.071947 | Area (m2) | 0.02 | 0.02 | 0.02 |

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ANEXO VII

| | | | |
|--------------------|--------|----------------------|-------|
| Q Total (m3/s) | 0.01 | Flow (m3/s) | 0.01 |
| Top Width (m) | 0.63 | Top Width (m) | 0.63 |
| Vel Total (m/s) | 0.60 | Avg. Vel. (m/s) | 0.60 |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | 0.03 |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | 0.0 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 0.64 |
| Min Ch El (m) | 735.13 | Shear (N/m2) | 22.29 |
| Alpha | 1.00 | Stream Power (N/m s) | 13.28 |
| Frctn Loss (m) | 1.87 | Cum Volume (1000 m3) | 2.41 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 32.30 |

| | | | |
|--------------------|--------|----------------------|-------|
| Vel Total (m/s) | 0.61 | Avg. Vel. (m/s) | 0.61 |
| Max Chl Dpth (m) | 0.06 | Hydr. Depth (m) | 0.03 |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | 0.0 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 0.65 |
| Min Ch El (m) | 733.90 | Shear (N/m2) | 23.55 |
| Alpha | 1.00 | Stream Power (N/m s) | 14.35 |
| Frctn Loss (m) | 1.50 | Cum Volume (1000 m3) | 2.41 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 32.29 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 735.46 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 735.37 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 735.39 | Flow Area (m2) | | 0.28 | |
| E.G. Slope (m/m) | 0.064323 | Area (m2) | | 0.28 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 2.33 | Top Width (m) | | 2.33 | |
| Vel Total (m/s) | 1.35 | Avg. Vel. (m/s) | | 1.35 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 1.5 | Conv. (m3/s) | | 1.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.38 | |
| Min Ch El (m) | 735.13 | Shear (N/m2) | | 73.79 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 99.48 | |
| Frctn Loss (m) | 1.89 | Cum Volume (1000 m3) | | 24.15 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 78.11 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 734.22 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 734.14 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 734.15 | Flow Area (m2) | | 0.29 | |
| E.G. Slope (m/m) | 0.059499 | Area (m2) | | 0.29 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 2.43 | Top Width (m) | | 2.43 | |
| Vel Total (m/s) | 1.30 | Avg. Vel. (m/s) | | 1.30 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 1.5 | Conv. (m3/s) | | 1.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.48 | |
| Min Ch El (m) | 733.90 | Shear (N/m2) | | 68.27 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 88.52 | |
| Frctn Loss (m) | 1.24 | Cum Volume (1000 m3) | | 24.15 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 78.06 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -100.0

INPUT

Description:

| | | |
|---|------|---------|
| Station Elevation Data | num= | 8 |
| Sta Elev Sta Elev Sta Elev | | |
| -66.24 745 -30.58 740 -23.88 739.14 -6.07 735 | | 0 733.9 |
| 5.13 735 23.49 737.53 75.78 740 | | |

Manning's n Values num= 3

| | | |
|-------------------------------|--|--|
| Sta n Val Sta n Val Sta n Val | | |
| -66.24 -66.24 .045 75.78 | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | |
|-----------------------|--|-------|
| -66.24 75.78 20 20 20 | | .1 .3 |
|-----------------------|--|-------|

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -120.0

INPUT

Description:

| | | |
|-------------------------------------|------|---------------------|
| Station Elevation Data | num= | 8 |
| Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -29.59 740 -19.28 737.63 -11.01 735 | | 0 732.72 .02 732.72 |
| 15.95 735 27.74 735.99 87.65 740 | | |

Manning's n Values num= 3

| | | |
|-------------------------------|--|--|
| Sta n Val Sta n Val Sta n Val | | |
| -29.59 -29.59 .045 87.65 | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | |
|-----------------------|--|-------|
| -29.59 87.65 20 20 20 | | .1 .3 |
|-----------------------|--|-------|

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|------------------|----------|----------------|---------|---------|----------|
| E.G. Elev (m) | 733.98 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 733.96 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 733.96 | Flow Area (m2) | | 0.02 | |
| E.G. Slope (m/m) | 0.078409 | Area (m2) | | 0.02 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 0.64 | Top Width (m) | | 0.64 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 732.79 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 732.78 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 732.78 | Flow Area (m2) | | 0.02 | |
| E.G. Slope (m/m) | 0.055198 | Area (m2) | | 0.02 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 0.74 | Top Width (m) | | 0.74 | |
| Vel Total (m/s) | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.06 | Hydr. Depth (m) | | 0.03 | |

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ANEXO VII

| | | | |
|--------------------|--------|----------------------|-------|
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | 0.1 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 0.76 |
| Min Ch El (m) | 732.72 | Shear (N/m2) | 16.80 |
| Alpha | 1.00 | Stream Power (N/m s) | 8.67 |
| Frctn Loss (m) | 1.18 | Cum Volume (1000 m3) | 2.41 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 32.28 |

| | | | |
|----------------|--------|----------------------|-------|
| Min Ch El (m) | 731.54 | Shear (N/m2) | 18.49 |
| Alpha | 1.00 | Stream Power (N/m s) | 9.93 |
| Frctn Loss (m) | 1.18 | Cum Volume (1000 m3) | 2.41 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 32.26 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 733.02 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 732.94 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 732.96 | Flow Area (m2) | | 0.30 | |
| E.G. Slope (m/m) | 0.060354 | Area (m2) | | 0.30 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 2.66 | Top Width (m) | | 2.66 | |
| Vel Total (m/s) | 1.26 | Avg. Vel. (m/s) | | 1.26 | |
| Max Chl Dpth (m) | 0.22 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 1.5 | Conv. (m3/s) | | 1.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.69 | |
| Min Ch El (m) | 732.72 | Shear (N/m2) | | 65.54 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 82.51 | |
| Frctn Loss (m) | 1.20 | Cum Volume (1000 m3) | | 24.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 78.01 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 731.84 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 731.76 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 731.77 | Flow Area (m2) | | 0.31 | |
| E.G. Slope (m/m) | 0.058277 | Area (m2) | | 0.31 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 2.76 | Top Width (m) | | 2.76 | |
| Vel Total (m/s) | 1.23 | Avg. Vel. (m/s) | | 1.23 | |
| Max Chl Dpth (m) | 0.22 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.79 | |
| Min Ch El (m) | 731.54 | Shear (N/m2) | | 62.58 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 76.84 | |
| Frctn Loss (m) | 1.19 | Cum Volume (1000 m3) | | 24.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 77.96 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -140.0

INPUT

Description:

| | | |
|----------------------------|------|----------------------------|
| Station Elevation Data | num= | 9 |
| Sta Elev Sta Elev Sta Elev | | |
| -83.49 740 -37.76 | | 740 -18.53 735.8 -15.7 |
| .02 731.54 27.26 | | 735 28.02 735.06 85.95 740 |

Manning's n Values

| | | |
|---------------------|------|------------|
| Sta n Val Sta n Val | num= | 3 |
| -83.49 -83.49 | | .045 85.95 |

Bank Sta: Left Right Lengths: Left Channel Right

| | | | |
|--------------|--|----------|---------------------|
| -83.49 85.95 | | 20 20 20 | Coeff Contr. Expan. |
| | | | .1 .3 |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -160.0

INPUT

Description:

| | | |
|----------------------------|------|--|
| Station Elevation Data | num= | 7 |
| Sta Elev Sta Elev Sta Elev | | |
| -40.5 735 -23.65 | | 733.75 -0.2 730.36 0 730.36 24.26 733.88 |
| 38.13 735 85.52 | | 740 |

Manning's n Values

| | | |
|---------------------|------|------------|
| Sta n Val Sta n Val | num= | 3 |
| -40.5 -40.5 | | .045 85.52 |

Bank Sta: Left Right Lengths: Left Channel Right

| | | | |
|-------------|--|----------|---------------------|
| -40.5 85.52 | | 20 20 20 | Coeff Contr. Expan. |
| | | | .1 .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 731.61 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 731.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 731.60 | Flow Area (m2) | | 0.02 | |
| E.G. Slope (m/m) | 0.063476 | Area (m2) | | 0.02 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 0.75 | Top Width (m) | | 0.75 | |
| Vel Total (m/s) | 0.54 | Avg. Vel. (m/s) | | 0.54 | |
| Max Chl Dpth (m) | 0.06 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | | 0.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 0.76 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 730.43 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 730.42 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 730.42 | Flow Area (m2) | | 0.02 | |
| E.G. Slope (m/m) | 0.055291 | Area (m2) | | 0.02 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 0.82 | Top Width (m) | | 0.82 | |
| Vel Total (m/s) | 0.50 | Avg. Vel. (m/s) | | 0.50 | |
| Max Chl Dpth (m) | 0.06 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 0.83 | |
| Min Ch El (m) | 730.36 | Shear (N/m2) | | 15.90 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.90 | |

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ANEXO VII

Frctn Loss (m) 0.96 Cum Volume (1000 m3) 2.41
C & E Loss (m) 0.00 Cum SA (1000 m2) 32.25

CROSS SECTION OUTPUT Profile #T= 500 años

| Parameter | Value | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 730.64 | Element | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 730.57 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 730.59 | Flow Area (m2) | | 0.31 | |
| E.G. Slope (m/m) | 0.060784 | Area (m2) | | 0.31 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 2.93 | Top Width (m) | | 2.93 | |
| Vel Total (m/s) | 1.22 | Avg. Vel. (m/s) | | 1.22 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 1.5 | Conv. (m3/s) | | 1.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.96 | |
| Min Ch El (m) | 730.36 | Shear (N/m2) | | 62.29 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 75.71 | |
| Frctn Loss (m) | 1.19 | Cum Volume (1000 m3) | | 24.13 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 77.90 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -180.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|--------|-----|-------|-------|------|-------|------|-----|------|
| -50.58 | 735 | -26.27 | 732.46 | -10.05 | 730 | -.03 | 729.3 | 0 | 729.3 | | | |
| 11.46 | 730 | 17.48 | 731.76 | 47.9 | 735 | 88.73 | 740 | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -50.58 | | -50.58 | .045 | 88.73 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -50.58 | 88.73 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| Parameter | Value | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 729.35 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 729.35 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 729.34 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.042396 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 1.42 | Top Width (m) | | 1.42 | |
| Vel Total (m/s) | 0.37 | Avg. Vel. (m/s) | | 0.37 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.02 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.42 | |
| Min Ch El (m) | 729.30 | Shear (N/m2) | | 9.57 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.54 | |
| Frctn Loss (m) | 1.00 | Cum Volume (1000 m3) | | 2.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.22 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| Parameter | Value | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 729.51 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 729.46 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 729.46 | Flow Area (m2) | | 0.40 | |
| E.G. Slope (m/m) | 0.052665 | Area (m2) | | 0.40 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 4.93 | Top Width (m) | | 4.93 | |
| Vel Total (m/s) | 0.95 | Avg. Vel. (m/s) | | 0.95 | |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.94 | |
| Min Ch El (m) | 729.30 | Shear (N/m2) | | 41.40 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 39.25 | |
| Frctn Loss (m) | 1.13 | Cum Volume (1000 m3) | | 24.12 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 77.82 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -200.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|--------|-----|------|--------|------|--------|------|-----|------|
| -52.36 | 735 | -25.36 | 731.45 | -15.44 | 730 | -.01 | 728.29 | 0 | 728.29 | | | |
| 14.34 | 729.69 | 17.93 | 730 | 49.15 | 735 | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -52.36 | | -52.36 | .045 | 49.15 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -52.36 | 49.15 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| Parameter | Value | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 728.35 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 728.34 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 728.34 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.059651 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 0.99 | Top Width (m) | | 0.99 | |
| Vel Total (m/s) | 0.47 | Avg. Vel. (m/s) | | 0.47 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | | 0.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.00 | |
| Min Ch El (m) | 728.29 | Shear (N/m2) | | 15.00 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.08 | |
| Frctn Loss (m) | 1.00 | Cum Volume (1000 m3) | | 2.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.20 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 728.54 | | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 728.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 728.49 | Flow Area (m2) | | 0.38 | |
| E.G. Slope (m/m) | 0.044559 | Area (m2) | | 0.38 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 3.81 | Top Width (m) | | 3.81 | |
| Vel Total (m/s) | 1.00 | Avg. Vel. (m/s) | | 1.00 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.83 | |
| Min Ch El (m) | 728.29 | Shear (N/m2) | | 42.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 42.88 | |
| Frctn Loss (m) | 0.97 | Cum Volume (1000 m3) | | 24.12 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 77.74 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -220.0

INPUT

Description:

| Station Elevation Data | | num= | 8 | |
|------------------------|-------|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -52.63 | 735 | -19.83 | 730.3 | -16.98 |
| 8.52 | 728.2 | 18.38 | 730 | 48.24 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -52.63 | | -52.63 | .045 | 48.24 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -52.63 | 48.24 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 727.35 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 727.34 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 727.33 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.042845 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 0.92 | Top Width (m) | | 0.92 | |
| Vel Total (m/s) | 0.44 | Avg. Vel. (m/s) | | 0.44 | |
| Max Chl Dpth (m) | 0.06 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 0.93 | |
| Min Ch El (m) | 727.28 | Shear (N/m2) | | 12.41 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.45 | |
| Frctn Loss (m) | 1.02 | Cum Volume (1000 m3) | | 2.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.18 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 727.55 | | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 727.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 727.50 | Flow Area (m2) | | 0.33 | |
| E.G. Slope (m/m) | 0.054661 | Area (m2) | | 0.33 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 3.20 | Top Width (m) | | 3.20 | |
| Vel Total (m/s) | 1.14 | Avg. Vel. (m/s) | | 1.14 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.23 | |
| Min Ch El (m) | 727.28 | Shear (N/m2) | | 54.87 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 62.38 | |
| Frctn Loss (m) | 0.98 | Cum Volume (1000 m3) | | 24.11 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 77.67 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -240.0

INPUT

Description:

| Station Elevation Data | | num= | 8 | |
|------------------------|--------|--------|------|-------|
| Sta | Elev | Sta | Elev | Sta |
| -56.44 | 735 | -22.31 | 730 | -17.6 |
| 7.65 | 726.96 | 22.07 | 730 | 50.27 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -56.44 | | -56.44 | .045 | 50.27 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -56.44 | 50.27 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 726.33 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 726.32 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 726.32 | Flow Area (m2) | | 0.02 | |
| E.G. Slope (m/m) | 0.061269 | Area (m2) | | 0.02 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 0.94 | Top Width (m) | | 0.94 | |
| Vel Total (m/s) | 0.49 | Avg. Vel. (m/s) | | 0.49 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | | 0.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 0.95 | |
| Min Ch El (m) | 726.27 | Shear (N/m2) | | 15.76 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.65 | |
| Frctn Loss (m) | 1.01 | Cum Volume (1000 m3) | | 2.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.16 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 726.53 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 726.47 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 726.47 | Flow Area (m2) | | 0.36 | |
| E.G. Slope (m/m) | 0.047780 | Area (m2) | | 0.36 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 3.59 | Top Width (m) | | 3.59 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 1.7 | Conv. (m3/s) | | 1.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.61 | |
| Min Ch El (m) | 726.27 | Shear (N/m2) | | 46.70 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 48.77 | |
| Frctn Loss (m) | 1.02 | Cum Volume (1000 m3) | | 24.10 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 77.60 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -260.0

INPUT

Description:

| Station Elevation Data | | num= | 9 | |
|------------------------|--------|-------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -97.12 | 735 | -63.4 | 735 | -29.89 |
| 6.53 | 725.74 | 25.81 | 730 | 57.52 |
| | | | 735 | 97.27 |
| | | | 735 | 97.27 |

Manning's n Values

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -97.12 | | -97.12 | .045 | 97.27 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -97.12 | 97.27 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 725.32 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 725.31 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 725.31 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.042550 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 1.13 | Top Width (m) | | 1.13 | |
| Vel Total (m/s) | 0.40 | Avg. Vel. (m/s) | | 0.40 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.14 | |
| Min Ch El (m) | 725.26 | Shear (N/m2) | | 10.94 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.43 | |
| Frctn Loss (m) | 0.82 | Cum Volume (1000 m3) | | 2.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.14 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 725.50 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 725.44 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 725.45 | Flow Area (m2) | | 0.36 | |
| E.G. Slope (m/m) | 0.055424 | Area (m2) | | 0.36 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 3.92 | Top Width (m) | | 3.92 | |
| Vel Total (m/s) | 1.05 | Avg. Vel. (m/s) | | 1.05 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 3.93 | |
| Min Ch El (m) | 725.26 | Shear (N/m2) | | 49.20 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 51.89 | |
| Frctn Loss (m) | 1.03 | Cum Volume (1000 m3) | | 24.09 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 77.52 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -280.0

INPUT

Description:

| Station Elevation Data | | num= | 8 | |
|------------------------|------|--------|--------|-------|
| Sta | Elev | Sta | Elev | Sta |
| -39.25 | 730 | -17.86 | 726.11 | -3.3 |
| 32.77 | 730 | 64.24 | 735 | 94.14 |
| | | | 735 | 94.14 |

Manning's n Values

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -39.25 | | -39.25 | .045 | 94.14 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -39.25 | 94.14 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 724.51 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 724.50 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 724.49 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.039305 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 1.04 | Top Width (m) | | 1.04 | |
| Vel Total (m/s) | 0.41 | Avg. Vel. (m/s) | | 0.41 | |
| Max Chl Dpth (m) | 0.06 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.05 | |
| Min Ch El (m) | 724.44 | Shear (N/m2) | | 10.87 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.44 | |
| Frctn Loss (m) | 0.75 | Cum Volume (1000 m3) | | 2.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.12 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 724.69 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 724.64 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 724.64 | Flow Area (m2) | | 0.37 | |
| E.G. Slope (m/m) | 0.044943 | Area (m2) | | 0.37 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 3.69 | Top Width (m) | | 3.69 | |
| Vel Total (m/s) | 1.01 | Avg. Vel. (m/s) | | 1.01 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.72 | |
| Min Ch El (m) | 724.44 | Shear (N/m2) | | 43.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 44.54 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | 24.09 | |
| C & E Loss (m) | | Cum SA (1000 m2) | | 77.45 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -300.0

INPUT

Description:

| Station Elevation Data | | num= | 7 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|--------|--------|---|--------|------|------|-------|-----|--|------|--|
| -22.91 | 725 | -17.55 | 724.81 | 0 | 723.69 | 7.76 | 725 | 42.98 | 730 | | | |
| 74.27 | 735 | 93.58 | 735 | | | | | | | | | |

| Manning's n Values | | num= | 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|-----|--|-------|--|
| -22.91 | | -22.91 | .045 | 93.58 | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -22.91 | 93.58 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 723.75 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 723.74 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.036250 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 1.17 | Top Width (m) | | 1.17 | |
| Vel Total (m/s) | 0.38 | Avg. Vel. (m/s) | | 0.38 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.18 | |
| Min Ch El (m) | 723.69 | Shear (N/m2) | | 9.59 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.65 | |
| Frctn Loss (m) | 0.75 | Cum Volume (1000 m3) | | 2.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.10 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 723.93 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 723.89 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 723.88 | Flow Area (m2) | | 0.43 | |
| E.G. Slope (m/m) | 0.033022 | Area (m2) | | 0.43 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 4.32 | Top Width (m) | | 4.32 | |
| Vel Total (m/s) | 0.87 | Avg. Vel. (m/s) | | 0.87 | |
| Max Chl Dpth (m) | 0.20 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 2.1 | Conv. (m3/s) | | 2.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.35 | |
| Min Ch El (m) | 723.69 | Shear (N/m2) | | 32.25 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.98 | |
| Frctn Loss (m) | 0.76 | Cum Volume (1000 m3) | | 24.08 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 77.37 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -320.0

INPUT

Description:

| Station Elevation Data | | num= | 5 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-----|--------|--------|---|--------|-------|------|-------|-----|--|------|--|
| -86.56 | 725 | -14.76 | 723.79 | 0 | 722.94 | 11.97 | 725 | 46.49 | 730 | | | |

| Manning's n Values | | num= | 3 | | Sta | | n Val | |
|--------------------|--|--------|------|-------|-----|--|-------|--|
| -86.56 | | -86.56 | .045 | 46.49 | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -86.56 | 46.49 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 723.00 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 722.99 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 722.99 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.038753 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 1.21 | Top Width (m) | | 1.21 | |
| Vel Total (m/s) | 0.38 | Avg. Vel. (m/s) | | 0.38 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.21 | |
| Min Ch El (m) | 722.94 | Shear (N/m2) | | 9.86 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.78 | |
| Frctn Loss (m) | 0.75 | Cum Volume (1000 m3) | | 2.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.07 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 723.17 | | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 723.12 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 723.12 | Flow Area (m2) | | 0.40 | |
| E.G. Slope (m/m) | 0.043902 | Area (m2) | | 0.40 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 4.28 | Top Width (m) | | 4.28 | |
| Vel Total (m/s) | 0.95 | Avg. Vel. (m/s) | | 0.95 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.30 | |
| Min Ch El (m) | 722.94 | Shear (N/m2) | | 39.60 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 37.56 | |
| Frctn Loss (m) | 0.75 | Cum Volume (1000 m3) | | 24.07 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 77.28 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -340.0

INPUT

Description:

| Station | Elevation | Data | num= | 6 | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|---|--------|------|--------|-------|-----|------|
| -97.63 | 725 | -12.12 | 722.72 | 0 | 722.19 | .02 | 722.19 | 15.96 | 725 | |
| 51.93 | 730 | | | | | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-------|-------|-----|-------|
| -97.63 | | -97.63 | .045 | 51.93 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -97.63 | 51.93 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 722.24 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 722.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 722.23 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.036498 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 1.39 | Top Width (m) | | 1.39 | |
| Vel Total (m/s) | 0.36 | Avg. Vel. (m/s) | | 0.36 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.02 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.40 | |
| Min Ch El (m) | 722.19 | Shear (N/m2) | | 8.69 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.10 | |
| Frctn Loss (m) | 0.76 | Cum Volume (1000 m3) | | 2.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.05 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 722.40 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 722.37 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 722.36 | Flow Area (m2) | | 0.47 | |
| E.G. Slope (m/m) | 0.032158 | Area (m2) | | 0.47 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 5.17 | Top Width (m) | | 5.17 | |
| Vel Total (m/s) | 0.80 | Avg. Vel. (m/s) | | 0.80 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 2.1 | Conv. (m3/s) | | 2.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.19 | |
| Min Ch El (m) | 722.19 | Shear (N/m2) | | 28.46 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 22.81 | |
| Frctn Loss (m) | 0.82 | Cum Volume (1000 m3) | | 24.06 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 77.19 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -360.0

INPUT

Description:

| Station | Elevation | Data | num= | 6 | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|---|--------|-------|--------|-------|-----|------|
| -94.7 | 725 | -12.55 | 721.62 | 0 | 721.44 | 15.82 | 724.12 | 24.26 | 725 | |
| 66.51 | 730 | | | | | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val |
|-------------|--------|-------|------|-------|-------|-----|-------|
| -94.7 | | -94.7 | .045 | 66.51 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.7 | 66.51 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 721.48 | | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 721.47 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 721.47 | Flow Area (m2) | | 0.04 | |
| E.G. Slope (m/m) | 0.039969 | Area (m2) | | 0.04 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 2.51 | Top Width (m) | | 2.51 | |
| Vel Total (m/s) | 0.29 | Avg. Vel. (m/s) | | 0.29 | |
| Max Chl Dpth (m) | 0.03 | Hydr. Depth (m) | | 0.02 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.52 | |
| Min Ch El (m) | 721.44 | Shear (N/m2) | | 6.51 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.88 | |
| Frctn Loss (m) | 1.42 | Cum Volume (1000 m3) | | 2.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 32.01 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 721.58 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 721.55 | Flow Area (m2) | | 0.49 | |
| Crit W.S. (m) | 721.55 | Area (m2) | | 0.49 | |
| E.G. Slope (m/m) | 0.054094 | Flow (m3/s) | | 0.38 | |
| Q Total (m3/s) | 0.38 | Top Width (m) | | 8.61 | |
| Top Width (m) | 8.61 | Avg. Vel. (m/s) | | 0.76 | |
| Vel Total (m/s) | 0.76 | Hydr. Depth (m) | | 0.06 | |
| Max Chl Dpth (m) | 0.11 | Conv. (m3/s) | | 1.6 | |
| Conv. Total (m3/s) | 1.6 | Wetted Per. (m) | | 8.63 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 30.20 | |
| Min Ch El (m) | 721.44 | Stream Power (N/m s) | | 23.10 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 24.05 | |
| Frctn Loss (m) | 1.02 | Cum SA (1000 m2) | | 77.05 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -380.0

INPUT

Description:

| Station | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|------|--------|------|--------|--------|-----|--------|-------|--------|
| -94.7 | 725 | -26.63 | 720 | -14.03 | 720.61 | 0 | 720.69 | 13.13 | 722.53 |
| 29.29 | 725 | 75.46 | 730 | | | | | | |

| Sta | n Val | Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|-------|-------|
| -94.7 | | -94.7 | .045 | 75.46 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.7 | 75.46 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 720.05 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 720.04 | Flow Area (m2) | | 0.03 | |
| Crit W.S. (m) | 720.04 | Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.074564 | Flow (m3/s) | | 0.01 | |
| Q Total (m3/s) | 0.01 | Top Width (m) | | 1.36 | |
| Top Width (m) | 1.36 | Avg. Vel. (m/s) | | 0.45 | |
| Vel Total (m/s) | 0.45 | Hydr. Depth (m) | | 0.02 | |
| Max Chl Dpth (m) | 0.04 | Conv. (m3/s) | | 0.0 | |
| Conv. Total (m3/s) | 0.0 | Wetted Per. (m) | | 1.37 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 14.53 | |
| Min Ch El (m) | 720.00 | Stream Power (N/m s) | | 6.47 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 2.41 | |
| Frctn Loss (m) | 1.01 | Cum SA (1000 m2) | | 31.97 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 720.20 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 720.14 | Flow Area (m2) | | 0.33 | |
| Crit W.S. (m) | 720.16 | Area (m2) | | 0.33 | |
| E.G. Slope (m/m) | 0.090353 | Flow (m3/s) | | 0.38 | |
| Q Total (m3/s) | 0.38 | Top Width (m) | | 4.77 | |
| Top Width (m) | 4.77 | Avg. Vel. (m/s) | | 1.13 | |
| Vel Total (m/s) | 1.13 | Hydr. Depth (m) | | 0.07 | |
| Max Chl Dpth (m) | 0.14 | Conv. (m3/s) | | 1.2 | |
| Conv. Total (m3/s) | 1.2 | Wetted Per. (m) | | 4.78 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 61.61 | |
| Min Ch El (m) | 720.00 | Stream Power (N/m s) | | 69.58 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 24.04 | |
| Frctn Loss (m) | 1.38 | Cum SA (1000 m2) | | 76.92 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -400.0

INPUT

Description:

| Station | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|------|--------|--------|--------|------|-------|--------|-----|--------|
| -98.17 | 725 | -56.29 | 720 | -19.64 | 719 | 0 | 719.89 | .01 | 719.89 |
| 4.71 | 720 | 10.38 | 720.97 | 44.13 | 725 | 74.93 | 730 | | |

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -98.17 | | -98.17 | .045 | 74.93 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.17 | 74.93 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 719.04 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 719.04 | Flow Area (m2) | | 0.04 | |
| Crit W.S. (m) | 719.04 | Area (m2) | | 0.04 | |
| E.G. Slope (m/m) | 0.036390 | Flow (m3/s) | | 0.01 | |
| Q Total (m3/s) | 0.01 | Top Width (m) | | 2.18 | |
| Top Width (m) | 2.18 | Avg. Vel. (m/s) | | 0.30 | |
| Vel Total (m/s) | 0.30 | Hydr. Depth (m) | | 0.02 | |
| Max Chl Dpth (m) | 0.04 | Conv. (m3/s) | | 0.1 | |
| Conv. Total (m3/s) | 0.1 | Wetted Per. (m) | | 2.19 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 6.63 | |
| Min Ch El (m) | 719.00 | Stream Power (N/m s) | | 1.97 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 2.41 | |
| Frctn Loss (m) | 1.01 | Cum SA (1000 m2) | | 31.93 | |
| C & E Loss (m) | 0.00 | | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 719.16 | Element | | 0.045 | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 719.13 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 719.13 | Flow Area (m2) | | 0.46 | |
| E.G. Slope (m/m) | 0.054398 | Area (m2) | | 0.46 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 7.35 | Top Width (m) | | 7.35 | |
| Vel Total (m/s) | 0.82 | Avg. Vel. (m/s) | | 0.82 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.35 | |
| Min Ch El (m) | 719.00 | Shear (N/m2) | | 33.36 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.25 | |
| Frctn Loss (m) | 1.38 | Cum Volume (1000 m3) | | 24.04 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 76.79 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -420.0

INPUT

Description:

| Station Elevation Data | | num= | 9 | |
|------------------------|------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -65.84 | 720 | -49.24 | 719 | -15.17 |
| 4.53 | 719 | 7.01 | 720 | 49.32 |
| | | | | 725 |
| | | | | 75.13 |
| | | | | 730 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -65.84 | | -65.84 | .045 | 75.13 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -65.84 | 75.13 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 718.04 | Element | | 0.045 | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 718.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 718.03 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.088825 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 1.88 | Top Width (m) | | 1.88 | |
| Vel Total (m/s) | 0.41 | Avg. Vel. (m/s) | | 0.41 | |
| Max Chl Dpth (m) | 0.03 | Hydr. Depth (m) | | 0.02 | |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | | 0.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.88 | |
| Min Ch El (m) | 718.00 | Shear (N/m2) | | 13.57 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.61 | |
| Frctn Loss (m) | 0.99 | Cum Volume (1000 m3) | | 2.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.89 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 718.16 | Element | | 0.045 | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 718.13 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 718.13 | Flow Area (m2) | | 0.49 | |
| E.G. Slope (m/m) | 0.047669 | Area (m2) | | 0.49 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 7.65 | Top Width (m) | | 7.65 | |
| Vel Total (m/s) | 0.77 | Avg. Vel. (m/s) | | 0.77 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.7 | Conv. (m3/s) | | 1.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.66 | |
| Min Ch El (m) | 718.00 | Shear (N/m2) | | 29.69 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 22.93 | |
| Frctn Loss (m) | 1.01 | Cum Volume (1000 m3) | | 24.03 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 76.64 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -440.0

INPUT

Description:

| Station Elevation Data | | num= | 9 | |
|------------------------|--------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -64.47 | 720 | -49.31 | 719 | -34.15 |
| 0 | 717.25 | 6.06 | 718 | 11.53 |
| | | | | 719 |
| | | | | 18.68 |
| | | | | 720 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -64.47 | | -64.47 | .045 | 18.68 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -64.47 | 18.68 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 717.04 | Element | | 0.045 | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 717.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 717.04 | Flow Area (m2) | | 0.04 | |
| E.G. Slope (m/m) | 0.032074 | Area (m2) | | 0.04 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 2.56 | Top Width (m) | | 2.56 | |
| Vel Total (m/s) | 0.27 | Avg. Vel. (m/s) | | 0.27 | |
| Max Chl Dpth (m) | 0.04 | Hydr. Depth (m) | | 0.02 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.56 | |
| Min Ch El (m) | 717.00 | Shear (N/m2) | | 5.52 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.48 | |
| Frctn Loss (m) | 1.00 | Cum Volume (1000 m3) | | 2.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.85 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 717.15 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 717.12 | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | 717.12 | Flow Area (m2) | | 0.49 | |
| E.G. Slope (m/m) | 0.053593 | Area (m2) | | 0.49 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 8.44 | Top Width (m) | | 8.44 | |
| Vel Total (m/s) | 0.77 | Avg. Vel. (m/s) | | 0.77 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.44 | |
| Min Ch El (m) | 717.00 | Shear (N/m2) | | 30.39 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 23.38 | |
| Frctn Loss (m) | 1.11 | Cum Volume (1000 m3) | | 24.02 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 76.48 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -460.0

INPUT

Description:

| Station Elevation Data | | num= | 10 | | | | | | | | |
|------------------------|--------|--------|--------|--------|------|--------|------|-------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -62.79 | 720 | -47.61 | 719 | -32.42 | 718 | -17.24 | 717 | -2.05 | 716 | | |
| 0 | 715.86 | .01 | 715.86 | 10.8 | 716 | 40.77 | 717 | 59.2 | 718 | | |

| Manning's n Values | | num= | 3 | | | | | | | | |
|--------------------|-------|--------|-------|------|-------|-----|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -62.79 | | -62.79 | .045 | 59.2 | | | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -62.79 | 59.2 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 715.89 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 715.88 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 715.89 | Flow Area (m2) | | 0.03 | |
| E.G. Slope (m/m) | 0.129152 | Area (m2) | | 0.03 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 2.28 | Top Width (m) | | 2.28 | |
| Vel Total (m/s) | 0.43 | Avg. Vel. (m/s) | | 0.43 | |
| Max Chl Dpth (m) | 0.02 | Hydr. Depth (m) | | 0.01 | |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | | 0.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.28 | |
| Min Ch El (m) | 715.86 | Shear (N/m2) | | 15.71 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.72 | |
| Frctn Loss (m) | 1.14 | Cum Volume (1000 m3) | | 2.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.80 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 715.99 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 715.96 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 715.96 | Flow Area (m2) | | 0.49 | |
| E.G. Slope (m/m) | 0.062138 | Area (m2) | | 0.49 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 9.48 | Top Width (m) | | 9.48 | |
| Vel Total (m/s) | 0.77 | Avg. Vel. (m/s) | | 0.77 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 1.5 | Conv. (m3/s) | | 1.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.48 | |
| Min Ch El (m) | 715.86 | Shear (N/m2) | | 31.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.14 | |
| Frctn Loss (m) | 1.15 | Cum Volume (1000 m3) | | 24.01 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 76.30 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -480.0

INPUT

Description:

| Station Elevation Data | | num= | 15 | | | | | | | | |
|------------------------|------|-------|--------|--------|------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -80.48 | 725 | -52 | 720 | -41.94 | 719 | -31.19 | 718 | -20.49 | 717 | | |
| -7.94 | 716 | 0 | 715.21 | 6.64 | 715 | 18.88 | 715 | 25.44 | 716 | | |
| 32.5 | 717 | 40.19 | 718 | 48.13 | 719 | 55.34 | 720 | 83.73 | 725 | | |

| Manning's n Values | | num= | 3 | | | | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -80.48 | | -80.48 | .045 | 83.73 | | | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -80.48 | 83.73 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 715.01 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 715.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 715.01 | Flow Area (m2) | | 0.09 | |
| E.G. Slope (m/m) | 0.025206 | Area (m2) | | 0.09 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 12.52 | Top Width (m) | | 12.52 | |
| Vel Total (m/s) | 0.13 | Avg. Vel. (m/s) | | 0.13 | |
| Max Chl Dpth (m) | 0.01 | Hydr. Depth (m) | | 0.01 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.52 | |
| Min Ch El (m) | 715.00 | Shear (N/m2) | | 1.80 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.24 | |
| Frctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 2.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.65 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 715.07 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 715.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 715.05 | Flow Area (m2) | | 0.88 | |
| E.G. Slope (m/m) | 0.015678 | Area (m2) | | 0.88 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 14.74 | Top Width (m) | | 14.74 | |
| Vel Total (m/s) | 0.43 | Avg. Vel. (m/s) | | 0.43 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 3.0 | Conv. (m3/s) | | 3.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.74 | |
| Min Ch El (m) | 715.00 | Shear (N/m2) | | 9.20 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.92 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 23.99 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 76.06 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -500.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|--------|--------|--------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.43 | 725 | -60.61 | 720 | -50.54 | 719 | -40.23 | 718 | -29.71 | 717 | | | | | | | | | | |
| -19.02 | 716 | -8.71 | 715 | 0 | 714.53 | .03 | 714.53 | 27.05 | 715 | | | | | | | | | | |
| 33.27 | 716 | 39.56 | 717 | 45.62 | 718 | 51.83 | 719 | 58.09 | 720 | | | | | | | | | | |
| 83.69 | 725 | | | | | | | | | | | | | | | | | | |

| Manning's n | Values | num= | 3 | | | | | | | | | | | | | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -90.43 | | -90.43 | .045 | 83.69 | | | | | | | | | | | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.43 | 83.69 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 714.57 | | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 714.57 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 714.56 | Flow Area (m2) | | 0.06 | |
| E.G. Slope (m/m) | 0.019276 | Area (m2) | | 0.06 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 2.89 | Top Width (m) | | 2.89 | |
| Vel Total (m/s) | 0.22 | Avg. Vel. (m/s) | | 0.22 | |
| Max Chl Dpth (m) | 0.04 | Hydr. Depth (m) | | 0.02 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 2.89 | |
| Min Ch El (m) | 714.53 | Shear (N/m2) | | 3.59 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.79 | |
| Frctn Loss (m) | 0.72 | Cum Volume (1000 m3) | | 2.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.50 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 714.68 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 714.66 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 714.65 | Flow Area (m2) | | 0.65 | |
| E.G. Slope (m/m) | 0.026081 | Area (m2) | | 0.65 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 9.91 | Top Width (m) | | 9.91 | |
| Vel Total (m/s) | 0.58 | Avg. Vel. (m/s) | | 0.58 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.3 | Conv. (m3/s) | | 2.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.92 | |
| Min Ch El (m) | 714.53 | Shear (N/m2) | | 16.67 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.69 | |
| Frctn Loss (m) | 0.74 | Cum Volume (1000 m3) | | 23.98 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 75.82 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -520.0

INPUT

Description:

| Station | Elevation | Data | num= | 17 | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|--------|--------|--------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -62.76 | 720 | -54.15 | 719 | -45.27 | 718 | -36.55 | 717 | -27.46 | 716 | | | | | | | | | | |
| -18.33 | 715 | -4.09 | 714 | 0 | 713.82 | .03 | 713.82 | 21.4 | 714 | | | | | | | | | | |
| 30.71 | 715 | 36.88 | 716 | 43.13 | 717 | 49.46 | 718 | 56.13 | 719 | | | | | | | | | | |
| 61.9 | 720 | 86.04 | 725 | | | | | | | | | | | | | | | | |

| Manning's n | Values | num= | 3 | | | | | | | | | | | | | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -62.76 | | -62.76 | .045 | 86.04 | | | | | | | | | | | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -62.76 | 86.04 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 713.85 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 713.84 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 713.84 | Flow Area (m2) | | 0.04 | |
| E.G. Slope (m/m) | 0.089470 | Area (m2) | | 0.04 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 3.20 | Top Width (m) | | 3.20 | |
| Vel Total (m/s) | 0.33 | Avg. Vel. (m/s) | | 0.33 | |
| Max Chl Dpth (m) | 0.02 | Hydr. Depth (m) | | 0.01 | |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | | 0.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 3.20 | |
| Min Ch El (m) | 713.82 | Shear (N/m2) | | 9.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.32 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 2.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.44 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 713.93 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 713.91 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 713.91 | Flow Area (m2) | | 0.56 | |
| E.G. Slope (m/m) | 0.057117 | Area (m2) | | 0.56 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 12.61 | Top Width (m) | | 12.61 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | 0.67 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.61 | |
| Min Ch El (m) | 713.82 | Shear (N/m2) | | 24.98 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 16.68 | |
| Frctn Loss (m) | 0.76 | Cum Volume (1000 m3) | | 23.97 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 75.59 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -540.0

INPUT

Description:

| Station | Elevation | Data | num= | 19 | | | | | | |
|---------|-----------|--------|------|--------|--------|--------|--------|--------|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -64.68 | 720 | -56.35 | 719 | -48.56 | 718 | -40.95 | 717 | -33.56 | 716 | |
| -26.03 | 715 | -16.6 | 714 | 0 | 713.01 | .05 | 713.01 | .41 | 713 | |
| 13.01 | 713 | 23.28 | 714 | 37.65 | 715 | 43.56 | 716 | 49.16 | 717 | |
| 54.88 | 718 | 60.56 | 719 | 65.97 | 720 | 89.45 | 725 | | | |

| Manning's n | Values | num= | 3 | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -64.68 | | -64.68 | .045 | 89.45 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -64.68 | 89.45 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 713.01 | | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 713.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 713.01 | Flow Area (m2) | | 0.11 | |
| E.G. Slope (m/m) | 0.014394 | Area (m2) | | 0.11 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 12.99 | Top Width (m) | | 12.99 | |
| Vel Total (m/s) | 0.11 | Avg. Vel. (m/s) | | 0.11 | |
| Max Chl Dpth (m) | 0.01 | Hydr. Depth (m) | | 0.01 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.00 | |
| Min Ch El (m) | 713.00 | Shear (N/m2) | | 1.19 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.13 | |
| Frctn Loss (m) | 0.55 | Cum Volume (1000 m3) | | 2.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.28 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 713.07 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 713.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 713.04 | Flow Area (m2) | | 0.74 | |
| E.G. Slope (m/m) | 0.026827 | Area (m2) | | 0.74 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 14.32 | Top Width (m) | | 14.32 | |
| Vel Total (m/s) | 0.51 | Avg. Vel. (m/s) | | 0.51 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.3 | Conv. (m3/s) | | 2.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.33 | |
| Min Ch El (m) | 713.00 | Shear (N/m2) | | 13.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.90 | |
| Frctn Loss (m) | 0.71 | Cum Volume (1000 m3) | | 23.95 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 75.32 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -560.0

INPUT

Description:

| Station | Elevation | Data | num= | 18 | | | | | | |
|---------|-----------|--------|------|--------|------|--------|--------|--------|--------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -76.86 | 720 | -67.87 | 719 | -58.62 | 718 | -48.76 | 717 | -40.02 | 716 | |
| -31.79 | 715 | -24.76 | 714 | -16.04 | 713 | -.04 | 712.17 | 0 | 712.17 | |
| 14.3 | 713 | 29.77 | 714 | 45.51 | 715 | 51 | 716 | 56.86 | 717 | |
| 63.09 | 718 | 70.2 | 719 | 79.86 | 720 | | | | | |

| Manning's n | Values | num= | 3 | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -76.86 | | -76.86 | .045 | 79.86 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -76.86 | 79.86 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 712.23 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 712.20 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 712.21 | Flow Area (m2) | | 0.02 | |
| E.G. Slope (m/m) | 0.308282 | Area (m2) | | 0.02 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 1.09 | Top Width (m) | | 1.09 | |
| Vel Total (m/s) | 0.75 | Avg. Vel. (m/s) | | 0.75 | |
| Max Chl Dpth (m) | 0.03 | Hydr. Depth (m) | | 0.01 | |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | | 0.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.09 | |
| Min Ch El (m) | 712.17 | Shear (N/m2) | | 44.95 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.53 | |
| Frctn Loss (m) | 0.78 | Cum Volume (1000 m3) | | 2.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.14 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 712.36 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 712.32 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 712.32 | Flow Area (m2) | | 0.43 | |
| E.G. Slope (m/m) | 0.048450 | Area (m2) | | 0.43 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 5.58 | Top Width (m) | | 5.58 | |
| Vel Total (m/s) | 0.88 | Avg. Vel. (m/s) | | 0.88 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 1.7 | Conv. (m3/s) | | 1.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.59 | |
| Min Ch El (m) | 712.17 | Shear (N/m2) | | 36.27 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.92 | |
| Frctn Loss (m) | 0.76 | Cum Volume (1000 m3) | | 23.94 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 75.12 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -580.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|------|--------|-----|--------|-----|--------|-------|------|-----|------|-----|------|-----|------|-----|------|
| -77.24 | 720 | -69.08 | 719 | -60.68 | 718 | -52.15 | 717 | -43.62 | 716 | | | | | | | | | |
| -35.09 | 715 | -27.36 | 714 | -20.27 | 713 | -12.17 | 712 | -0.01 | 711.4 | | | | | | | | | |
| 0 | 711.4 | 8.3 | 712 | 25.9 | 713 | 47.14 | 714 | 73.41 | 715 | | | | | | | | | |
| 85.49 | 715 | | | | | | | | | | | | | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-------|-------|-----|-------|-----|-------|
| -77.24 | | -77.24 | .045 | 85.49 | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -77.24 | 85.49 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 711.45 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 711.45 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 711.44 | Flow Area (m2) | | 0.04 | |
| E.G. Slope (m/m) | 0.019541 | Area (m2) | | 0.04 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 1.75 | Top Width (m) | | 1.75 | |
| Vel Total (m/s) | 0.27 | Avg. Vel. (m/s) | | 0.27 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 0.1 | Conv. (m3/s) | | 0.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.75 | |
| Min Ch El (m) | 711.40 | Shear (N/m2) | | 4.90 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.32 | |
| Frctn Loss (m) | 0.75 | Cum Volume (1000 m3) | | 2.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.11 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 711.60 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 711.57 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 711.56 | Flow Area (m2) | | 0.50 | |
| E.G. Slope (m/m) | 0.030428 | Area (m2) | | 0.50 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 5.84 | Top Width (m) | | 5.84 | |
| Vel Total (m/s) | 0.75 | Avg. Vel. (m/s) | | 0.75 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 2.2 | Conv. (m3/s) | | 2.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.85 | |
| Min Ch El (m) | 711.40 | Shear (N/m2) | | 25.49 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 19.16 | |
| Frctn Loss (m) | 0.75 | Cum Volume (1000 m3) | | 23.93 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 75.01 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -600.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|------|--------|-----|--------|-----|--------|-----|------|-----|------|-----|------|-----|------|-----|------|
| -75.23 | 720 | -67.68 | 719 | -60.12 | 718 | -52.57 | 717 | -44.93 | 716 | | | | | | | | | |
| -35.09 | 715 | -30.16 | 714 | -22.24 | 713 | -13.45 | 712 | -5.99 | 711 | | | | | | | | | |
| 0 | 710.65 | 5.69 | 711 | 32.5 | 712 | 63.84 | 713 | 78.91 | 713 | | | | | | | | | |
| 89.05 | 713 | | | | | | | | | | | | | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-------|-------|-----|-------|-----|-------|
| -75.23 | | -75.23 | .045 | 89.05 | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -75.23 | 89.05 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 710.70 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 710.69 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 710.69 | Flow Area (m2) | | 0.02 | |
| E.G. Slope (m/m) | 0.100407 | Area (m2) | | 0.02 | |
| Q Total (m3/s) | 0.01 | Flow (m3/s) | | 0.01 | |
| Top Width (m) | 1.27 | Top Width (m) | | 1.27 | |
| Vel Total (m/s) | 0.50 | Avg. Vel. (m/s) | | 0.50 | |
| Max Chl Dpth (m) | 0.04 | Hydr. Depth (m) | | 0.02 | |
| Conv. Total (m3/s) | 0.0 | Conv. (m3/s) | | 0.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 1.27 | |
| Min Ch El (m) | 710.65 | Shear (N/m2) | | 18.69 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.36 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | | 2.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.08 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 710.85 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 710.81 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 710.81 | Flow Area (m2) | | 0.42 | |
| E.G. Slope (m/m) | 0.047248 | Area (m2) | | 0.42 | |
| Q Total (m3/s) | 0.38 | Flow (m3/s) | | 0.38 | |
| Top Width (m) | 5.30 | Top Width (m) | | 5.30 | |
| Vel Total (m/s) | 0.89 | Avg. Vel. (m/s) | | 0.89 | |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 1.7 | Conv. (m3/s) | | 1.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.31 | |
| Min Ch El (m) | 710.65 | Shear (N/m2) | | 36.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.76 | |
| Frctn Loss (m) | 0.28 | Cum Volume (1000 m3) | | 23.92 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 74.90 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -620.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|--------|--------|--------|-----|--------|-----|------|-----|------|-----|------|-----|------|-----|------|
| -82.63 | 720 | -73.87 | 719 | -64.99 | 718 | -56.65 | 717 | -48.86 | 716 | | | | | | | | | |
| -41.06 | 715 | -34.11 | 714 | -27.15 | 713 | -20.2 | 712 | -13.25 | 711 | | | | | | | | | |
| -5.81 | 710 | 0 | 709.98 | .02 | 709.98 | 7 | 710 | 34.89 | 711 | | | | | | | | | |
| 66.68 | 712 | | | | | | | | | | | | | | | | | |

| Manning's n Values | num= | 3 | Sta | n Val | Sta | n Val | Sta | n Val |
|--------------------|------|---|--------|-------|-------|-------|-----|-------|
| -82.63 | | | -82.63 | .045 | 66.68 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| -82.63 | 66.68 | | 20 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 710.06 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 710.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 710.03 | Flow Area (m2) | | 0.94 | |
| E.G. Slope (m/m) | 0.007822 | Area (m2) | | 0.94 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 14.88 | Top Width (m) | | 14.88 | |
| Vel Total (m/s) | 0.31 | Avg. Vel. (m/s) | | 0.31 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | | 3.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.88 | |
| Min Ch El (m) | 709.98 | Shear (N/m2) | | 4.83 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.50 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 2.39 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 30.92 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 710.24 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 710.21 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 710.15 | Flow Area (m2) | | 3.67 | |
| E.G. Slope (m/m) | 0.012273 | Area (m2) | | 3.67 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 20.35 | Top Width (m) | | 20.35 | |
| Vel Total (m/s) | 0.78 | Avg. Vel. (m/s) | | 0.78 | |
| Max Chl Dpth (m) | 0.23 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 26.0 | Conv. (m3/s) | | 26.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.37 | |
| Min Ch El (m) | 709.98 | Shear (N/m2) | | 21.67 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.00 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 23.88 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 74.64 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -640.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|--------|-------|--------|-----|--------|-----|------|-----|------|-----|------|-----|------|-----|------|
| -90.75 | 720 | -83.39 | 719 | -75.83 | 718 | -68.27 | 717 | -60.18 | 716 | | | | | | | | | |
| -51.87 | 715 | -42.98 | 714 | -34.91 | 713 | -27.29 | 712 | -19.6 | 711 | | | | | | | | | |
| -12.29 | 710 | 0 | 709.78 | 19.59 | 709.9 | 31.27 | 710 | 53.09 | 711 | | | | | | | | | |
| 86.74 | 712 | | | | | | | | | | | | | | | | | |

| Manning's n Values | num= | 3 | Sta | n Val | Sta | n Val | Sta | n Val |
|--------------------|------|---|--------|-------|-------|-------|-----|-------|
| -90.75 | | | -90.75 | .045 | 86.74 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| -90.75 | 86.74 | | 20 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.88 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.87 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 709.85 | Flow Area (m2) | | 0.95 | |
| E.G. Slope (m/m) | 0.011449 | Area (m2) | | 0.95 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 20.40 | Top Width (m) | | 20.40 | |
| Vel Total (m/s) | 0.31 | Avg. Vel. (m/s) | | 0.31 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.7 | Conv. (m3/s) | | 2.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.40 | |
| Min Ch El (m) | 709.78 | Shear (N/m2) | | 5.22 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.60 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 2.37 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 30.56 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 710.02 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 710.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 5.31 | |
| E.G. Slope (m/m) | 0.009880 | Area (m2) | | 5.31 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 43.72 | Top Width (m) | | 43.72 | |
| Vel Total (m/s) | 0.54 | Avg. Vel. (m/s) | | 0.54 | |
| Max Chl Dpth (m) | 0.23 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 29.0 | Conv. (m3/s) | | 29.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 43.73 | |
| Min Ch El (m) | 709.78 | Shear (N/m2) | | 11.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.38 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 23.79 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 74.00 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -660.0

INPUT

Description:

| Station Elevation Data | | num= | 13 | |
|------------------------|--------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -94.72 | 718 | -85.7 | 717 | -77.29 |
| -44.7 | 713 | -34.72 | 712 | -26.09 |
| 17.28 | 709.69 | 55.16 | 710 | 77.56 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -94.72 | | -94.72 | .045 | 77.56 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.72 | 77.56 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.69 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.69 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.11 | |
| E.G. Slope (m/m) | 0.007412 | Area (m2) | | 1.11 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 21.86 | Top Width (m) | | 21.86 | |
| Vel Total (m/s) | 0.26 | Avg. Vel. (m/s) | | 0.26 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 3.4 | Conv. (m3/s) | | 3.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.86 | |
| Min Ch El (m) | 709.59 | Shear (N/m2) | | 3.69 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.97 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 2.35 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 30.14 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.84 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.83 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 5.64 | |
| E.G. Slope (m/m) | 0.008295 | Area (m2) | | 5.64 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 44.48 | Top Width (m) | | 44.48 | |
| Vel Total (m/s) | 0.51 | Avg. Vel. (m/s) | | 0.51 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 31.6 | Conv. (m3/s) | | 31.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 44.48 | |
| Min Ch El (m) | 709.59 | Shear (N/m2) | | 10.31 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.26 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 23.68 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 73.12 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -680.0

INPUT

Description:

| Station Elevation Data | | num= | 12 | |
|------------------------|------|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -99.92 | 715 | -75.66 | 714 | -57.79 |
| -22.57 | 710 | 0 | 709.4 | 15.39 |
| 75.97 | 712 | 94.05 | 713 | 37.32 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -99.92 | | -99.92 | .045 | 94.05 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.92 | 94.05 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.49 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 709.47 | Flow Area (m2) | | 0.85 | |
| E.G. Slope (m/m) | 0.014662 | Area (m2) | | 0.85 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 18.90 | Top Width (m) | | 18.90 | |
| Vel Total (m/s) | 0.34 | Avg. Vel. (m/s) | | 0.34 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.4 | Conv. (m3/s) | | 2.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.91 | |
| Min Ch El (m) | 709.40 | Shear (N/m2) | | 6.49 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.22 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 2.33 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 29.73 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.66 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.64 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 4.61 | |
| E.G. Slope (m/m) | 0.010015 | Area (m2) | | 4.61 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 30.92 | Top Width (m) | | 30.92 | |
| Vel Total (m/s) | 0.62 | Avg. Vel. (m/s) | | 0.62 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 28.8 | Conv. (m3/s) | | 28.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.93 | |
| Min Ch El (m) | 709.40 | Shear (N/m2) | | 14.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.14 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 23.58 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 72.36 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -700.0

INPUT

Description:

| Station Elevation Data | | num= | 11 | | | | | | | | |
|------------------------|--------|--------|------|--------|------|--------|------|-------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.14 | 713 | -66.16 | 712 | -46.47 | 711 | -31.92 | 710 | 0 | 709.21 | | |
| 13.91 | 709.27 | 30.89 | 710 | 44.2 | 711 | 57.83 | 712 | 74.07 | 713 | | |
| 92.16 | 714 | | | | | | | | | | |

| Manning's n Values | | num= | 3 | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -90.14 | | -90.14 | .045 | 92.16 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.14 | 92.16 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.31 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.30 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 709.27 | Flow Area (m2) | | 1.09 | |
| E.G. Slope (m/m) | 0.006374 | Area (m2) | | 1.09 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 18.52 | Top Width (m) | | 18.52 | |
| Vel Total (m/s) | 0.27 | Avg. Vel. (m/s) | | 0.27 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 3.6 | Conv. (m3/s) | | 3.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.52 | |
| Min Ch El (m) | 709.21 | Shear (N/m2) | | 3.67 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.98 | |
| Frctn Loss (m) | 0.23 | Cum Volume (1000 m3) | | 2.31 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 29.36 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.48 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.46 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 4.78 | |
| E.G. Slope (m/m) | 0.007930 | Area (m2) | | 4.78 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 28.52 | Top Width (m) | | 28.52 | |
| Vel Total (m/s) | 0.60 | Avg. Vel. (m/s) | | 0.60 | |
| Max Chl Dpth (m) | 0.25 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 32.3 | Conv. (m3/s) | | 32.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.53 | |
| Min Ch El (m) | 709.21 | Shear (N/m2) | | 13.04 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.85 | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 23.49 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 71.77 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -720.0

INPUT

Description:

| Station Elevation Data | | num= | 13 | | | | | | | | |
|------------------------|--------|--------|--------|--------|------|--------|------|-------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.86 | 713 | -74.93 | 712 | -56.95 | 711 | -41.75 | 710 | -.01 | 709.02 | | |
| 0 | 709.02 | 14.07 | 709.03 | 45.45 | 710 | 54.79 | 711 | 63.64 | 712 | | |
| 72.5 | 713 | 81.35 | 714 | 90.2 | 715 | | | | | | |

| Manning's n Values | | num= | 3 | | | | |
|--------------------|-------|--------|-------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -90.86 | | -90.86 | .045 | 90.2 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.86 | 90.2 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.08 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 709.06 | Flow Area (m2) | | 0.69 | |
| E.G. Slope (m/m) | 0.027042 | Area (m2) | | 0.69 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 17.39 | Top Width (m) | | 17.39 | |
| Vel Total (m/s) | 0.42 | Avg. Vel. (m/s) | | 0.42 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.40 | |
| Min Ch El (m) | 709.02 | Shear (N/m2) | | 10.48 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.44 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 2.29 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 29.00 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 709.23 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 709.19 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 709.17 | Flow Area (m2) | | 3.39 | |
| E.G. Slope (m/m) | 0.022807 | Area (m2) | | 3.39 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 26.60 | Top Width (m) | | 26.60 | |
| Vel Total (m/s) | 0.85 | Avg. Vel. (m/s) | | 0.85 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 19.1 | Conv. (m3/s) | | 19.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.60 | |
| Min Ch El (m) | 709.02 | Shear (N/m2) | | 28.48 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.20 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 23.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 71.22 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -740.0

INPUT

Description:

| Station Elevation Data | | num= 11 | | Elev | | Sta | | Elev | | Sta | |
|------------------------|--------|---------|--------|--------|------|-------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.64 | 713 | -77.56 | 712 | -64.44 | 711 | -49.6 | 710 | -30.39 | 709 | | |
| 0 | 708.46 | 10.85 | 708.42 | 33.58 | 709 | 55.94 | 710 | 65.41 | 711 | | |
| 75.9 | 712 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -90.64 | | -90.64 | .045 | 75.9 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.64 | 75.9 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 708.50 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 708.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.62 | |
| E.G. Slope (m/m) | 0.030883 | Area (m2) | | 0.62 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 15.02 | Top Width (m) | | 15.02 | |
| Vel Total (m/s) | 0.47 | Avg. Vel. (m/s) | | 0.47 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.7 | Conv. (m3/s) | | 1.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.03 | |
| Min Ch El (m) | 708.42 | Shear (N/m2) | | 12.55 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.87 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 2.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 28.67 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 708.65 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 708.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 708.59 | Flow Area (m2) | | 2.88 | |
| E.G. Slope (m/m) | 0.037386 | Area (m2) | | 2.88 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 25.62 | Top Width (m) | | 25.62 | |
| Vel Total (m/s) | 1.00 | Avg. Vel. (m/s) | | 1.00 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 14.9 | Conv. (m3/s) | | 14.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 25.62 | |
| Min Ch El (m) | 708.42 | Shear (N/m2) | | 41.17 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 41.18 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 23.34 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 70.69 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -760.0

INPUT

Description:

| Station Elevation Data | | num= 12 | | Elev | | Sta | | Elev | | Sta | |
|------------------------|--------|---------|--------|--------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -92.76 | 712 | -74.58 | 711 | -62.38 | 710 | -39.38 | 709 | -19.08 | 708 | | |
| 0 | 707.85 | .01 | 707.85 | 9.15 | 707.89 | 10.81 | 708 | 41.28 | 709 | | |
| 69.54 | 710 | 93.8 | 711 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -92.76 | | -92.76 | .045 | 93.8 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -92.76 | 93.8 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 707.92 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 707.92 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 707.91 | Flow Area (m2) | | 0.70 | |
| E.G. Slope (m/m) | 0.026933 | Area (m2) | | 0.70 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 17.88 | Top Width (m) | | 17.88 | |
| Vel Total (m/s) | 0.42 | Avg. Vel. (m/s) | | 0.42 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.88 | |
| Min Ch El (m) | 707.85 | Shear (N/m2) | | 10.28 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.30 | |
| Frctn Loss (m) | 0.56 | Cum Volume (1000 m3) | | 2.26 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 28.35 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 708.06 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 708.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 708.01 | Flow Area (m2) | | 3.60 | |
| E.G. Slope (m/m) | 0.023302 | Area (m2) | | 3.60 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 31.36 | Top Width (m) | | 31.36 | |
| Vel Total (m/s) | 0.80 | Avg. Vel. (m/s) | | 0.80 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 18.9 | Conv. (m3/s) | | 18.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 31.36 | |
| Min Ch El (m) | 707.85 | Shear (N/m2) | | 26.20 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 20.97 | |
| Frctn Loss (m) | 0.50 | Cum Volume (1000 m3) | | 23.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 70.13 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -780.0

INPUT

Description:

| Station Elevation Data | | num= | 11 | | | | | | | | |
|------------------------|--------|--------|--------|-------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -99.69 | 712 | -89.45 | 711 | -79.1 | 710 | -52.61 | 709 | -29.87 | 708 | | |
| 0 | 707.25 | .01 | 707.24 | 10.63 | 707.46 | 26.41 | 708 | 50.95 | 709 | | |
| 95.06 | 710 | | | | | | | | | | |

| Manning's n Values | | num= | 3 | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -99.69 | | -99.69 | .045 | 95.06 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.69 | 95.06 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 707.37 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 707.35 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 707.34 | Flow Area (m2) | | 0.53 | |
| E.G. Slope (m/m) | 0.028623 | Area (m2) | | 0.53 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 9.70 | Top Width (m) | | 9.70 | |
| Vel Total (m/s) | 0.54 | Avg. Vel. (m/s) | | 0.54 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.7 | Conv. (m3/s) | | 1.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.70 | |
| Min Ch El (m) | 707.24 | Shear (N/m2) | | 15.47 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.43 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 2.25 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 28.07 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 707.55 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 707.51 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 707.49 | Flow Area (m2) | | 2.98 | |
| E.G. Slope (m/m) | 0.027447 | Area (m2) | | 2.98 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 22.11 | Top Width (m) | | 22.11 | |
| Vel Total (m/s) | 0.97 | Avg. Vel. (m/s) | | 0.97 | |
| Max Chl Dpth (m) | 0.27 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 17.4 | Conv. (m3/s) | | 17.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.12 | |
| Min Ch El (m) | 707.24 | Shear (N/m2) | | 36.22 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 35.02 | |
| Frctn Loss (m) | 0.60 | Cum Volume (1000 m3) | | 23.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 69.59 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -800.0

INPUT

Description:

| Station Elevation Data | | num= | 13 | | | | | | | | |
|------------------------|------|--------|--------|--------|--------|--------|--------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -98.93 | 712 | -89.51 | 711 | -80.78 | 710 | -64.69 | 709 | -41.33 | 708 | | |
| -19.96 | 707 | -.03 | 706.66 | 0 | 706.66 | 13.09 | 706.99 | 13.35 | 707 | | |
| 51.72 | 708 | 74.25 | 709 | 90.37 | 710 | | | | | | |

| Manning's n Values | | num= | 3 | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -98.93 | | -98.93 | .045 | 90.37 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.93 | 90.37 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 706.78 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 706.76 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 706.75 | Flow Area (m2) | | 0.54 | |
| E.G. Slope (m/m) | 0.030603 | Area (m2) | | 0.54 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.27 | Top Width (m) | | 10.27 | |
| Vel Total (m/s) | 0.54 | Avg. Vel. (m/s) | | 0.54 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 1.7 | Conv. (m3/s) | | 1.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.27 | |
| Min Ch El (m) | 706.66 | Shear (N/m2) | | 15.67 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.51 | |
| Frctn Loss (m) | 0.56 | Cum Volume (1000 m3) | | 2.24 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 27.87 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 706.95 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 706.90 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 706.89 | Flow Area (m2) | | 2.91 | |
| E.G. Slope (m/m) | 0.032998 | Area (m2) | | 2.91 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 23.89 | Top Width (m) | | 23.89 | |
| Vel Total (m/s) | 0.99 | Avg. Vel. (m/s) | | 0.99 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 15.8 | Conv. (m3/s) | | 15.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.90 | |
| Min Ch El (m) | 706.66 | Shear (N/m2) | | 39.34 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 38.97 | |
| Frctn Loss (m) | 0.53 | Cum Volume (1000 m3) | | 23.15 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 69.13 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -820.0

INPUT

Description:

| Station Elevation Data | | num= | 12 | | | | | | | | |
|------------------------|------|--------|--------|--------|--------|--------|--------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -98.02 | 712 | -89.86 | 711 | -81.72 | 710 | -65.83 | 709 | -49.43 | 708 | | |
| -27.5 | 707 | -0.4 | 706.08 | 0 | 706.08 | 13.77 | 706.42 | 39.11 | 707 | | |
| 56.25 | 708 | 81.29 | 709 | | | | | | | | |

| Manning's n Values | | num= | 3 | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -98.02 | | -98.02 | .045 | 81.29 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.02 | 81.29 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 706.22 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 706.20 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 706.19 | Flow Area (m2) | | 0.53 | |
| E.G. Slope (m/m) | 0.025792 | Area (m2) | | 0.53 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 8.60 | Top Width (m) | | 8.60 | |
| Vel Total (m/s) | 0.55 | Avg. Vel. (m/s) | | 0.55 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.8 | Conv. (m3/s) | | 1.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.60 | |
| Min Ch El (m) | 706.08 | Shear (N/m2) | | 15.46 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.56 | |
| Frctn Loss (m) | 0.56 | Cum Volume (1000 m3) | | 2.23 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 27.68 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 706.42 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 706.38 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 706.35 | Flow Area (m2) | | 3.13 | |
| E.G. Slope (m/m) | 0.021647 | Area (m2) | | 3.13 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 20.98 | Top Width (m) | | 20.98 | |
| Vel Total (m/s) | 0.92 | Avg. Vel. (m/s) | | 0.92 | |
| Max Chl Dpth (m) | 0.30 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 19.6 | Conv. (m3/s) | | 19.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.99 | |
| Min Ch El (m) | 706.08 | Shear (N/m2) | | 31.66 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 29.11 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 23.09 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 68.68 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -840.0

INPUT

Description:

| Station Elevation Data | | num= | 14 | | | | | | | | |
|------------------------|------|--------|------|-------|--------|--------|--------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -97.6 | 712 | -89.85 | 711 | -82.1 | 710 | -66.48 | 709 | -50.22 | 708 | | |
| -33.8 | 707 | -11.38 | 706 | -0.4 | 705.54 | 0 | 705.54 | 15.54 | 705.76 | | |
| 23.25 | 706 | 52.58 | 707 | 72.78 | 708 | 90.73 | 709 | | | | |

| Manning's n Values | | num= | 3 | | | | |
|--------------------|-------|-------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -97.6 | | -97.6 | .045 | 90.73 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -97.6 | 90.73 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 705.66 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 705.65 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 705.63 | Flow Area (m2) | | 0.53 | |
| E.G. Slope (m/m) | 0.030360 | Area (m2) | | 0.53 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.08 | Top Width (m) | | 10.08 | |
| Vel Total (m/s) | 0.55 | Avg. Vel. (m/s) | | 0.55 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 1.7 | Conv. (m3/s) | | 1.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.09 | |
| Min Ch El (m) | 705.54 | Shear (N/m2) | | 15.75 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.60 | |
| Frctn Loss (m) | 0.62 | Cum Volume (1000 m3) | | 2.22 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 27.49 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 705.84 | Element | | 0.045 | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 705.77 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 705.77 | Flow Area (m2) | | 2.62 | |
| E.G. Slope (m/m) | 0.041292 | Area (m2) | | 2.62 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 21.81 | Top Width (m) | | 21.81 | |
| Vel Total (m/s) | 1.10 | Avg. Vel. (m/s) | | 1.10 | |
| Max Chl Dpth (m) | 0.23 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 14.2 | Conv. (m3/s) | | 14.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.82 | |
| Min Ch El (m) | 705.54 | Shear (N/m2) | | 48.61 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 53.42 | |
| Frctn Loss (m) | 0.54 | Cum Volume (1000 m3) | | 23.03 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 68.25 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -860.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|------|--------|--------|-------|--------|--------|-----|------|-----|------|
| -96.56 | 712 | -89.67 | 711 | -82.82 | 710 | -67.7 | 709 | -52.33 | 708 | | | |
| -36.31 | 707 | -18.68 | 706 | 0 | 705.01 | .01 | 705.01 | .34 | 705 | | | |
| 15.18 | 704.98 | 16.94 | 705 | 43.08 | 706 | 58.3 | 707 | 73.91 | 708 | | | |
| 88.19 | 709 | | | | | | | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-------|-------|-----|-------|
| -96.56 | | -96.56 | .045 | 88.19 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -96.56 | 88.19 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 705.04 | Element | | 0.045 | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 705.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 705.02 | Flow Area (m2) | | 0.67 | |
| E.G. Slope (m/m) | 0.031559 | Area (m2) | | 0.67 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 18.05 | Top Width (m) | | 18.05 | |
| Vel Total (m/s) | 0.44 | Avg. Vel. (m/s) | | 0.44 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | | 1.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.05 | |
| Min Ch El (m) | 704.98 | Shear (N/m2) | | 11.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.99 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 2.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 27.21 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 705.20 | Element | | 0.045 | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 705.16 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 705.13 | Flow Area (m2) | | 3.43 | |
| E.G. Slope (m/m) | 0.018998 | Area (m2) | | 3.43 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 23.98 | Top Width (m) | | 23.98 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | 0.84 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 20.9 | Conv. (m3/s) | | 20.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.99 | |
| Min Ch El (m) | 704.98 | Shear (N/m2) | | 26.67 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 22.36 | |
| Frctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 22.97 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 67.80 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -880.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|------|-------|--------|--------|--------|--------|--------|------|-----|------|
| -96.86 | 711 | -90.62 | 710 | -77.1 | 709 | -61.29 | 708 | -44.36 | 707 | | | |
| -28.08 | 706 | -11.38 | 705 | 0 | 704.59 | .01 | 704.59 | 16.3 | 704.54 | | | |
| 32.23 | 705 | 45.57 | 706 | 58.91 | 707 | 72.17 | 708 | 85.09 | 709 | | | |
| 98 | 710 | | | | | | | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-----|-------|-----|-------|
| -96.86 | | -96.86 | .045 | 98 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -96.86 | 98 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 704.62 | Element | | 0.045 | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 704.61 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 705.02 | Flow Area (m2) | | 0.86 | |
| E.G. Slope (m/m) | 0.014962 | Area (m2) | | 0.86 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 19.39 | Top Width (m) | | 19.39 | |
| Vel Total (m/s) | 0.34 | Avg. Vel. (m/s) | | 0.34 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 2.4 | Conv. (m3/s) | | 2.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.39 | |
| Min Ch El (m) | 704.54 | Shear (N/m2) | | 6.49 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.20 | |
| Frctn Loss (m) | 0.45 | Cum Volume (1000 m3) | | 2.19 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 26.84 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 704.76 | | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 704.72 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 704.70 | Flow Area (m2) | | 3.23 | |
| E.G. Slope (m/m) | 0.025909 | Area (m2) | | 3.23 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 25.92 | Top Width (m) | | 25.92 | |
| Vel Total (m/s) | 0.89 | Avg. Vel. (m/s) | | 0.89 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 17.9 | Conv. (m3/s) | | 17.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 25.92 | |
| Min Ch El (m) | 704.54 | Shear (N/m2) | | 31.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 28.21 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 22.91 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 67.30 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -900.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|--------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -91.47 | 709 | -77.95 | 708 | -63.84 | 707 | -47.61 | 706 | -27.44 | 705 | | | | | | | | | | |
| 0 | 704.17 | .01 | 704.16 | 16.64 | 704.09 | 37.6 | 705 | 49.09 | 706 | | | | | | | | | | |
| 60.57 | 707 | 72.06 | 708 | 83.25 | 709 | 93.96 | 710 | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-----|-------|
| -91.47 | | -91.47 | .045 | | 93.96 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.47 | 93.96 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 704.17 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 704.16 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 704.15 | Flow Area (m2) | | 0.64 | |
| E.G. Slope (m/m) | 0.036676 | Area (m2) | | 0.64 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 18.24 | Top Width (m) | | 18.24 | |
| Vel Total (m/s) | 0.46 | Avg. Vel. (m/s) | | 0.46 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.5 | Conv. (m3/s) | | 1.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.24 | |
| Min Ch El (m) | 704.09 | Shear (N/m2) | | 12.60 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.74 | |
| Frctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 2.18 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 26.46 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 704.33 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 704.30 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.58 | |
| E.G. Slope (m/m) | 0.018004 | Area (m2) | | 3.58 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 25.51 | Top Width (m) | | 25.51 | |
| Vel Total (m/s) | 0.80 | Avg. Vel. (m/s) | | 0.80 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 21.4 | Conv. (m3/s) | | 21.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 25.52 | |
| Min Ch El (m) | 704.09 | Shear (N/m2) | | 24.75 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 19.91 | |
| Frctn Loss (m) | 0.45 | Cum Volume (1000 m3) | | 22.84 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 66.78 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -920.0

INPUT

Description:

| Station | Elevation | Data | num= | 15 | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|--------|--------|------|-------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.07 | 708 | -77.32 | 707 | -64.25 | 706 | -51.55 | 705 | -7.41 | 704 | | | | | | | | | | |
| 0 | 703.72 | .01 | 703.72 | 15.07 | 703.64 | 27.85 | 704 | 42.76 | 705 | | | | | | | | | | |
| 52.34 | 706 | 61.92 | 707 | 71.5 | 708 | 81.08 | 709 | 90.83 | 710 | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-----|-------|
| -90.07 | | -90.07 | .045 | | 90.83 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.07 | 90.83 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 703.73 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 703.73 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.85 | |
| E.G. Slope (m/m) | 0.014422 | Area (m2) | | 0.85 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 18.36 | Top Width (m) | | 18.36 | |
| Vel Total (m/s) | 0.34 | Avg. Vel. (m/s) | | 0.34 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.4 | Conv. (m3/s) | | 2.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.36 | |
| Min Ch El (m) | 703.64 | Shear (N/m2) | | 6.53 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.24 | |
| Frctn Loss (m) | 0.47 | Cum Volume (1000 m3) | | 2.16 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 26.10 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 703.87 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 703.83 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 703.82 | Flow Area (m2) | | 3.05 | |
| E.G. Slope (m/m) | 0.029300 | Area (m2) | | 3.05 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 24.70 | Top Width (m) | | 24.70 | |
| Vel Total (m/s) | 0.94 | Avg. Vel. (m/s) | | 0.94 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 16.8 | Conv. (m3/s) | | 16.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.71 | |
| Min Ch El (m) | 703.64 | Shear (N/m2) | | 35.48 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.47 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 22.77 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 66.28 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -940.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|------|--------|------|-------|--------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.88 | 707 | -72.25 | 706 | -56.64 | 705 | -30.36 | 704 | 0 | 703.25 | | | | | | | | | | |
| .01 | 703.25 | 12.39 | 703.17 | 31.76 | 704 | 45.4 | 705 | 54.23 | 706 | | | | | | | | | | |
| 63.06 | 707 | 71.9 | 708 | 80.73 | 709 | 89.53 | 710 | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -88.88 | | -88.88 | .045 | 89.53 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| -88.88 | 89.53 | | 20 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 703.26 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 703.25 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 703.24 | Flow Area (m2) | | 0.54 | |
| E.G. Slope (m/m) | 0.044231 | Area (m2) | | 0.54 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 13.88 | Top Width (m) | | 13.88 | |
| Vel Total (m/s) | 0.54 | Avg. Vel. (m/s) | | 0.54 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.4 | Conv. (m3/s) | | 1.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.88 | |
| Min Ch El (m) | 703.17 | Shear (N/m2) | | 16.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.10 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | 2.15 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 25.77 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 703.44 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 703.41 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.59 | |
| E.G. Slope (m/m) | 0.016666 | Area (m2) | | 3.59 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 24.26 | Top Width (m) | | 24.26 | |
| Vel Total (m/s) | 0.80 | Avg. Vel. (m/s) | | 0.80 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 22.3 | Conv. (m3/s) | | 22.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.27 | |
| Min Ch El (m) | 703.17 | Shear (N/m2) | | 24.16 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 19.38 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 22.71 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 65.79 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -960.0

INPUT

Description:

| Station | Elevation | Data | num= | 17 | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|--------|--------|--------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -86.57 | 706 | -83.56 | 706 | -81.35 | 706 | -67.62 | 705 | -44.24 | 704 | | | | | | | | | | |
| -6.53 | 703 | 0 | 702.82 | .01 | 702.82 | 9.75 | 702.75 | 20.57 | 703 | | | | | | | | | | |
| 34.91 | 704 | 46.99 | 705 | 54.75 | 706 | 62.99 | 707 | 71.23 | 708 | | | | | | | | | | |
| 79.41 | 709 | 87.6 | 710 | | | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|------|-------|
| -86.57 | | -86.57 | .045 | 87.6 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| -86.57 | 87.6 | | 20 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 702.85 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 702.85 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 702.82 | Flow Area (m2) | | 0.84 | |
| E.G. Slope (m/m) | 0.011579 | Area (m2) | | 0.84 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 15.01 | Top Width (m) | | 15.01 | |
| Vel Total (m/s) | 0.35 | Avg. Vel. (m/s) | | 0.35 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 2.7 | Conv. (m3/s) | | 2.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.01 | |
| Min Ch El (m) | 702.75 | Shear (N/m2) | | 6.32 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.20 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 2.13 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 25.49 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 703.01 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 702.96 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 702.94 | Flow Area (m2) | | 3.01 | |
| E.G. Slope (m/m) | 0.029339 | Area (m2) | | 3.01 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 23.91 | Top Width (m) | | 23.91 | |
| Vel Total (m/s) | 0.96 | Avg. Vel. (m/s) | | 0.96 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.13 | |
| Conv. Total (m3/s) | 16.8 | Conv. (m3/s) | | 16.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.91 | |
| Min Ch El (m) | 702.75 | Shear (N/m2) | | 36.22 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 34.63 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 22.64 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 65.31 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -980.0

INPUT

Description:

| Station Elevation Data | | num= | 16 | |
|------------------------|--------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -92.95 | 707 | -78.92 | 706 | -64.64 |
| -03 | 702.41 | 0 | 702.41 | 8.28 |
| 50.54 | 705 | 58.2 | 706 | 66.12 |
| 90.96 | 710 | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -92.95 | | -92.95 | .045 | 90.96 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -92.95 | 90.96 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 702.43 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 702.42 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 702.41 | Flow Area (m2) | | 0.48 | |
| E.G. Slope (m/m) | 0.048912 | Area (m2) | | 0.48 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.81 | Top Width (m) | | 10.81 | |
| Vel Total (m/s) | 0.61 | Avg. Vel. (m/s) | | 0.61 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.81 | |
| Min Ch El (m) | 702.33 | Shear (N/m2) | | 21.10 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 12.92 | |
| Frctn Loss (m) | 0.46 | Cum Volume (1000 m3) | | 2.12 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 25.23 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 702.64 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 702.61 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.95 | |
| E.G. Slope (m/m) | 0.012421 | Area (m2) | | 3.95 | |
| Q Total (m3/s) | 2.88 | Flow (m3/s) | | 2.88 | |
| Top Width (m) | 24.72 | Top Width (m) | | 24.72 | |
| Vel Total (m/s) | 0.73 | Avg. Vel. (m/s) | | 0.73 | |
| Max Chl Dpth (m) | 0.28 | Hydr. Depth (m) | | 0.16 | |
| Conv. Total (m3/s) | 25.8 | Conv. (m3/s) | | 25.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.73 | |
| Min Ch El (m) | 702.33 | Shear (N/m2) | | 19.45 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.18 | |
| Frctn Loss (m) | 0.30 | Cum Volume (1000 m3) | | 22.57 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 64.82 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1000.0

INPUT

Description:

| Station Elevation Data | | num= | 16 | |
|------------------------|------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -92.27 | 707 | -76.39 | 706 | -61.25 |
| -03 | 702 | -01 | 702 | 0 |
| 34.72 | 703 | 47.74 | 704 | 59.76 |
| 96.81 | 708 | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -92.27 | | -92.27 | .045 | 96.81 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -92.27 | 96.81 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 701.97 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 701.97 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.81 | |
| E.G. Slope (m/m) | 0.013273 | Area (m2) | | 0.81 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 15.33 | Top Width (m) | | 15.33 | |
| Vel Total (m/s) | 0.36 | Avg. Vel. (m/s) | | 0.36 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.5 | Conv. (m3/s) | | 2.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.33 | |
| Min Ch El (m) | 701.86 | Shear (N/m2) | | 6.87 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.47 | |
| Frctn Loss (m) | 0.47 | Cum Volume (1000 m3) | | 2.11 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 24.97 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 702.34 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 702.27 | Flow Area (m2) | | 8.55 | |
| Crit W.S. (m) | | Area (m2) | | 8.55 | |
| E.G. Slope (m/m) | 0.015756 | Flow (m3/s) | | 9.81 | |
| Q Total (m3/s) | 9.81 | Top Width (m) | | 32.37 | |
| Top Width (m) | 32.37 | Avg. Vel. (m/s) | | 1.15 | |
| Vel Total (m/s) | 1.15 | Hydr. Depth (m) | | 0.26 | |
| Max Chl Dpth (m) | 0.41 | Conv. (m3/s) | | 78.1 | |
| Conv. Total (m3/s) | 78.1 | Wetted Per. (m) | | 32.38 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 40.77 | |
| Min Ch El (m) | 701.86 | Stream Power (N/m s) | | 46.78 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 22.45 | |
| Frctn Loss (m) | 0.44 | Cum SA (1000 m2) | | 64.25 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1020.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | | | | | | | |
|---------|-----------|--------|------|--------|--------|-------|--------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -96.57 | 708 | -85.63 | 707 | -74.48 | 706 | -63.7 | 705 | -42.97 | 704 | | |
| -30.16 | 703 | -11.59 | 702 | 0 | 701.64 | .04 | 701.64 | 17.4 | 701.37 | | |
| 29.4 | 702 | 42.01 | 703 | 53.84 | 704 | 68.49 | 705 | 80.92 | 706 | | |
| 94.88 | 707 | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -96.57 | | -96.57 | .045 | 94.88 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -96.57 | 94.88 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 701.50 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.02 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 701.47 | Flow Area (m2) | | 0.42 | |
| Crit W.S. (m) | 701.47 | Area (m2) | | 0.42 | |
| E.G. Slope (m/m) | 0.053511 | Flow (m3/s) | | 0.29 | |
| Q Total (m3/s) | 0.29 | Top Width (m) | | 8.34 | |
| Top Width (m) | 8.34 | Avg. Vel. (m/s) | | 0.70 | |
| Vel Total (m/s) | 0.70 | Hydr. Depth (m) | | 0.05 | |
| Max Chl Dpth (m) | 0.10 | Conv. (m3/s) | | 1.3 | |
| Conv. Total (m3/s) | 1.3 | Wetted Per. (m) | | 8.34 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 26.25 | |
| Min Ch El (m) | 701.37 | Stream Power (N/m s) | | 18.32 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 2.10 | |
| Frctn Loss (m) | 0.17 | Cum SA (1000 m2) | | 24.73 | |
| C & E Loss (m) | 0.01 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 701.89 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 701.78 | Flow Area (m2) | | 6.57 | |
| Crit W.S. (m) | 701.78 | Area (m2) | | 6.57 | |
| E.G. Slope (m/m) | 0.033489 | Flow (m3/s) | | 9.81 | |
| Q Total (m3/s) | 9.81 | Top Width (m) | | 29.49 | |
| Top Width (m) | 29.49 | Avg. Vel. (m/s) | | 1.49 | |
| Vel Total (m/s) | 1.49 | Hydr. Depth (m) | | 0.22 | |
| Max Chl Dpth (m) | 0.41 | Conv. (m3/s) | | 53.6 | |
| Conv. Total (m3/s) | 53.6 | Wetted Per. (m) | | 29.51 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 73.08 | |
| Min Ch El (m) | 701.37 | Stream Power (N/m s) | | 109.14 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 22.30 | |
| Frctn Loss (m) | 0.26 | Cum SA (1000 m2) | | 63.63 | |
| C & E Loss (m) | 0.02 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1040.0

INPUT

Description:

| Station | Elevation | Data | num= | 17 | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|--------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -94.69 | 709 | -85.89 | 708 | -77.49 | 707 | -69.03 | 706 | -60.53 | 705 | | |
| -47.11 | 704 | -30.76 | 703 | -11.82 | 702 | 0 | 701.28 | .03 | 701.28 | | |
| 10.62 | 701 | 20.87 | 701 | 33.82 | 702 | 45.41 | 703 | 60.3 | 704 | | |
| 75.15 | 705 | 87.62 | 706 | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -94.69 | | -94.69 | .045 | 87.62 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.69 | 87.62 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 701.10 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 701.10 | Flow Area (m2) | | 1.23 | |
| Crit W.S. (m) | 701.04 | Area (m2) | | 1.23 | |
| E.G. Slope (m/m) | 0.003217 | Flow (m3/s) | | 0.29 | |
| Q Total (m3/s) | 0.29 | Top Width (m) | | 15.17 | |
| Top Width (m) | 15.17 | Avg. Vel. (m/s) | | 0.24 | |
| Vel Total (m/s) | 0.24 | Hydr. Depth (m) | | 0.08 | |
| Max Chl Dpth (m) | 0.10 | Conv. (m3/s) | | 5.1 | |
| Conv. Total (m3/s) | 5.1 | Wetted Per. (m) | | 15.18 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 2.56 | |
| Min Ch El (m) | 701.00 | Stream Power (N/m s) | | 0.61 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 2.08 | |
| Frctn Loss (m) | 0.17 | Cum SA (1000 m2) | | 24.49 | |
| C & E Loss (m) | 0.00 | | | | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 701.53 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 701.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 701.34 | Flow Area (m2) | | 10.65 | |
| E.G. Slope (m/m) | 0.007042 | Area (m2) | | 10.65 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 30.66 | Top Width (m) | | 30.66 | |
| Vel Total (m/s) | 0.92 | Avg. Vel. (m/s) | | 0.92 | |
| Max Chl Dpth (m) | 0.49 | Hydr. Depth (m) | | 0.35 | |
| Conv. Total (m3/s) | 116.9 | Conv. (m3/s) | | 116.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.69 | |
| Min Ch El (m) | 701.00 | Shear (N/m2) | | 23.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 22.07 | |
| Frctn Loss (m) | 0.23 | Cum Volume (1000 m3) | | 22.12 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 63.03 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1060.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | | | | | | | |
|---------|-----------|--------|------|-------|------|--------|--------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -96.23 | 708 | -84.32 | 707 | -73.8 | 706 | -63.29 | 705 | -48.17 | 704 | | |
| -33.11 | 703 | -17.35 | 702 | -4.2 | 701 | 0 | 700.83 | 22.9 | 701 | | |
| 35.38 | 702 | 47.21 | 703 | 59.73 | 704 | 72.79 | 705 | 82.47 | 706 | | |
| 92.5 | 707 | | | | | | | | | | |

| Manning's n | Values | num= | 3 | | | | |
|-------------|--------|--------|-------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -96.23 | | -96.23 | .045 | 92.5 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -96.23 | 92.5 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 700.93 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 700.91 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 700.91 | Flow Area (m2) | | 0.46 | |
| E.G. Slope (m/m) | 0.058100 | Area (m2) | | 0.46 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 11.22 | Top Width (m) | | 11.22 | |
| Vel Total (m/s) | 0.64 | Avg. Vel. (m/s) | | 0.64 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.2 | Conv. (m3/s) | | 1.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.23 | |
| Min Ch El (m) | 700.83 | Shear (N/m2) | | 23.26 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.78 | |
| Frctn Loss (m) | 0.50 | Cum Volume (1000 m3) | | 2.06 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 24.23 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 701.29 | Element | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 701.20 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 701.17 | Flow Area (m2) | | 7.31 | |
| E.G. Slope (m/m) | 0.023231 | Area (m2) | | 7.31 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 29.28 | Top Width (m) | | 29.28 | |
| Vel Total (m/s) | 1.34 | Avg. Vel. (m/s) | | 1.34 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 64.3 | Conv. (m3/s) | | 64.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.32 | |
| Min Ch El (m) | 700.83 | Shear (N/m2) | | 56.79 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 76.18 | |
| Frctn Loss (m) | 0.46 | Cum Volume (1000 m3) | | 21.94 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 62.43 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1080.0

INPUT

Description:

| Station | Elevation | Data | num= | 13 | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.39 | 705 | -64.88 | 704 | -47.34 | 703 | -32.44 | 702 | -15.91 | 701 | | |
| 0 | 700.1 | 15.02 | 701 | 30.76 | 702 | 44.22 | 703 | 57.19 | 704 | | |
| 70.15 | 705 | 80.34 | 706 | 90.62 | 707 | | | | | | |

| Manning's n | Values | num= | 3 | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -88.39 | | -88.39 | .045 | 90.62 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -88.39 | 90.62 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 700.29 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 700.28 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 700.24 | Flow Area (m2) | | 0.56 | |
| E.G. Slope (m/m) | 0.013743 | Area (m2) | | 0.56 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 6.19 | Top Width (m) | | 6.19 | |
| Vel Total (m/s) | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 2.5 | Conv. (m3/s) | | 2.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.20 | |
| Min Ch El (m) | 700.10 | Shear (N/m2) | | 12.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.33 | |
| Frctn Loss (m) | 0.48 | Cum Volume (1000 m3) | | 2.05 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 24.06 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 700.83 | | | | |
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 700.71 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 700.68 | Flow Area (m2) | | 6.46 | |
| E.G. Slope (m/m) | 0.022589 | Area (m2) | | 6.46 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 21.08 | Top Width (m) | | 21.08 | |
| Vel Total (m/s) | 1.52 | Avg. Vel. (m/s) | | 1.52 | |
| Max Chl Dpth (m) | 0.61 | Hydr. Depth (m) | | 0.31 | |
| Conv. Total (m3/s) | 65.2 | Conv. (m3/s) | | 65.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.11 | |
| Min Ch El (m) | 700.10 | Shear (N/m2) | | 67.82 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 102.88 | |
| Frctn Loss (m) | 0.53 | Cum Volume (1000 m3) | | 21.81 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 61.93 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1100.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | |
|---------|-----------|--------|------|--------|------|--------|------|-------|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -91.95 | 704 | -70.49 | 703 | -44.37 | 702 | -23.32 | 701 | -7.54 | 700 | |
| 0 | 699.66 | 9.33 | 700 | 21.66 | 701 | 33.66 | 702 | 45.31 | 703 | |
| 56.95 | 704 | 68.59 | 705 | 79.17 | 706 | 90.48 | 707 | | | |

| Manning's n | Values | num= | 3 | | | |
|-------------|--------|--------|-------|-------|-------|--|
| Sta | n Val | Sta | n Val | Sta | n Val | |
| -91.95 | | -91.95 | .045 | 90.48 | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.95 | 90.48 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 699.81 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 699.78 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 699.78 | Flow Area (m2) | | 0.37 | |
| E.G. Slope (m/m) | 0.051149 | Area (m2) | | 0.37 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 6.08 | Top Width (m) | | 6.08 | |
| Vel Total (m/s) | 0.78 | Avg. Vel. (m/s) | | 0.78 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.09 | |
| Min Ch El (m) | 699.66 | Shear (N/m2) | | 30.73 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.00 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 2.04 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 23.93 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 700.30 | | | | |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 700.16 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 700.16 | Flow Area (m2) | | 5.88 | |
| E.G. Slope (m/m) | 0.031407 | Area (m2) | | 5.88 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 21.30 | Top Width (m) | | 21.30 | |
| Vel Total (m/s) | 1.67 | Avg. Vel. (m/s) | | 1.67 | |
| Max Chl Dpth (m) | 0.50 | Hydr. Depth (m) | | 0.28 | |
| Conv. Total (m3/s) | 55.3 | Conv. (m3/s) | | 55.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.33 | |
| Min Ch El (m) | 699.66 | Shear (N/m2) | | 84.89 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 141.60 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 21.68 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 61.51 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1120.0

INPUT

Description:

| Station | Elevation | Data | num= | 17 | | | | | | |
|---------|-----------|--------|------|--------|--------|--------|------|--------|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -96.28 | 706 | -88.52 | 705 | -73.98 | 704 | -59.23 | 703 | -44.49 | 702 | |
| -29.85 | 701 | -15.01 | 700 | 0 | 699.26 | 4 | 699 | 8.2 | 699 | |
| 15.55 | 700 | 26.78 | 701 | 38.02 | 702 | 49.25 | 703 | 59.91 | 704 | |
| 70.39 | 705 | 83.54 | 706 | | | | | | | |

| Manning's n | Values | num= | 3 | | | |
|-------------|--------|--------|-------|-------|-------|--|
| Sta | n Val | Sta | n Val | Sta | n Val | |
| -96.28 | | -96.28 | .045 | 83.54 | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -96.28 | 83.54 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 699.16 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 699.15 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 699.07 | Flow Area (m2) | | 0.90 | |
| E.G. Slope (m/m) | 0.003650 | Area (m2) | | 0.90 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 7.66 | Top Width (m) | | 7.66 | |
| Vel Total (m/s) | 0.32 | Avg. Vel. (m/s) | | 0.32 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 4.8 | Conv. (m3/s) | | 4.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.68 | |
| Min Ch El (m) | 699.00 | Shear (N/m2) | | 4.21 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.36 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 2.03 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 23.80 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 699.73 | | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 699.65 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 699.53 | Flow Area (m2) | | 7.82 | |
| E.G. Slope (m/m) | 0.011780 | Area (m2) | | 7.82 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 20.77 | Top Width (m) | | 20.77 | |
| Vel Total (m/s) | 1.25 | Avg. Vel. (m/s) | | 1.25 | |
| Max Chl Dpth (m) | 0.65 | Hydr. Depth (m) | | 0.38 | |
| Conv. Total (m3/s) | 90.3 | Conv. (m3/s) | | 90.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.83 | |
| Min Ch El (m) | 699.00 | Shear (N/m2) | | 43.34 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 54.38 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 21.55 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 61.08 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1140.0

INPUT

Description:

| Station | Elevation | Data | num= | 15 | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|--------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -93.23 | 705 | -79.63 | 704 | -66.33 | 703 | -52.22 | 702 | -37.64 | 701 | | | | | | | | | | |
| -23.28 | 700 | -2.59 | 699 | 0 | 698.87 | 15.93 | 699 | 24.39 | 700 | | | | | | | | | | |
| 36.28 | 701 | 48.46 | 702 | 60.64 | 703 | 69.97 | 704 | 80.83 | 705 | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -93.23 | | -93.23 | .045 | 80.83 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -93.23 | 80.83 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 698.97 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 698.95 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 698.95 | Flow Area (m2) | | 0.46 | |
| E.G. Slope (m/m) | 0.058506 | Area (m2) | | 0.46 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 11.48 | Top Width (m) | | 11.48 | |
| Vel Total (m/s) | 0.63 | Avg. Vel. (m/s) | | 0.63 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.2 | Conv. (m3/s) | | 1.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.48 | |
| Min Ch El (m) | 698.87 | Shear (N/m2) | | 23.07 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.56 | |
| Frctn Loss (m) | 0.10 | Cum Volume (1000 m3) | | 2.02 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 23.60 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 699.36 | | | | |
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 699.23 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 699.23 | Flow Area (m2) | | 6.25 | |
| E.G. Slope (m/m) | 0.032137 | Area (m2) | | 6.25 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 25.24 | Top Width (m) | | 25.24 | |
| Vel Total (m/s) | 1.57 | Avg. Vel. (m/s) | | 1.57 | |
| Max Chl Dpth (m) | 0.36 | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 54.7 | Conv. (m3/s) | | 54.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 25.26 | |
| Min Ch El (m) | 698.87 | Shear (N/m2) | | 77.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 122.32 | |
| Frctn Loss (m) | 0.29 | Cum Volume (1000 m3) | | 21.41 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 60.62 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1160.0

INPUT

Description:

| Station | Elevation | Data | num= | 13 | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -87.87 | 704 | -74.73 | 703 | -61.32 | 702 | -47.79 | 701 | -33.63 | 700 | | | | | | | | | | |
| -10.28 | 699 | 0 | 698.49 | 9.32 | 698 | 16.77 | 698 | 23.46 | 699 | | | | | | | | | | |
| 45.07 | 700 | 57.03 | 701 | 70.41 | 702 | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -87.87 | | -87.87 | .045 | 70.41 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -87.87 | 70.41 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 698.14 | | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 698.14 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 698.05 | Flow Area (m2) | | 1.31 | |
| E.G. Slope (m/m) | 0.001712 | Area (m2) | | 1.31 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 11.09 | Top Width (m) | | 11.09 | |
| Vel Total (m/s) | 0.22 | Avg. Vel. (m/s) | | 0.22 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 7.0 | Conv. (m3/s) | | 7.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.11 | |
| Min Ch El (m) | 698.00 | Shear (N/m2) | | 1.99 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.44 | |
| Frctn Loss (m) | 0.10 | Cum Volume (1000 m3) | | 2.00 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 23.38 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 698.66 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 698.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 698.43 | Flow Area (m2) | | 9.14 | |
| E.G. Slope (m/m) | 0.008013 | Area (m2) | | 9.14 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 23.05 | Top Width (m) | | 23.05 | |
| Vel Total (m/s) | 1.07 | Avg. Vel. (m/s) | | 1.07 | |
| Max Chl Dpth (m) | 0.60 | Hydr. Depth (m) | | 0.40 | |
| Conv. Total (m3/s) | 109.5 | Conv. (m3/s) | | 109.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.11 | |
| Min Ch El (m) | 698.00 | Shear (N/m2) | | 31.10 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.35 | |
| Frctn Loss (m) | 0.29 | Cum Volume (1000 m3) | | 21.25 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 60.14 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1180.0

INPUT

Description:

| Station Elevation Data | | num= | 11 | | | | | | | | | | |
|------------------------|------|--------|--------|--------|------|--------|------|--------|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -90.11 | 704 | -78.01 | 703 | -65.91 | 702 | -53.81 | 701 | -41.71 | 700 | | | | |
| -20.34 | 699 | 0 | 698.11 | 2.48 | 698 | 23.32 | 698 | 42 | 699 | | | | |
| 84.47 | 700 | | | | | | | | | | | | |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -90.11 | | -90.11 | .045 | 84.47 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.11 | 84.47 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 698.04 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 698.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 698.03 | Flow Area (m2) | | 0.57 | |
| E.G. Slope (m/m) | 0.067533 | Area (m2) | | 0.57 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 21.94 | Top Width (m) | | 21.94 | |
| Vel Total (m/s) | 0.51 | Avg. Vel. (m/s) | | 0.51 | |
| Max Chl Dpth (m) | 0.03 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 1.1 | Conv. (m3/s) | | 1.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.95 | |
| Min Ch El (m) | 698.00 | Shear (N/m2) | | 17.29 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.79 | |
| Frctn Loss (m) | 0.10 | Cum Volume (1000 m3) | | 1.98 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 23.05 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 698.37 | Element | | | |
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 698.26 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 698.26 | Flow Area (m2) | | 6.73 | |
| E.G. Slope (m/m) | 0.033655 | Area (m2) | | 6.73 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 31.49 | Top Width (m) | | 31.49 | |
| Vel Total (m/s) | 1.46 | Avg. Vel. (m/s) | | 1.46 | |
| Max Chl Dpth (m) | 0.26 | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 53.5 | Conv. (m3/s) | | 53.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 31.50 | |
| Min Ch El (m) | 698.00 | Shear (N/m2) | | 70.51 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 102.72 | |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | | 21.09 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 59.60 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1200.0

INPUT

Description:

| Station Elevation Data | | num= | 15 | | | | | | | | | | |
|------------------------|------|--------|------|--------|------|--------|------|--------|-------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -97.29 | 706 | -85.28 | 705 | -70.09 | 704 | -59.29 | 703 | -50.79 | 702 | | | | |
| -43.28 | 701 | -36.59 | 700 | -28.44 | 699 | -8.53 | 698 | 0 | 697.6 | | | | |
| 15.18 | 697 | 22.16 | 697 | 33.55 | 698 | 59.04 | 699 | 98.88 | 700 | | | | |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -97.29 | | -97.29 | .045 | 98.88 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -97.29 | 98.88 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 697.14 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 697.14 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 697.05 | Flow Area (m2) | | 1.35 | |
| E.G. Slope (m/m) | 0.001765 | Area (m2) | | 1.35 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 12.16 | Top Width (m) | | 12.16 | |
| Vel Total (m/s) | 0.22 | Avg. Vel. (m/s) | | 0.22 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 6.9 | Conv. (m3/s) | | 6.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.17 | |
| Min Ch El (m) | 697.00 | Shear (N/m2) | | 1.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.41 | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | | 1.96 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 22.71 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 697.63 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 697.58 | Flow Area (m2) | | 10.33 | |
| Crit W.S. (m) | 697.41 | Area (m2) | | 10.33 | |
| E.G. Slope (m/m) | 0.007044 | Flow (m3/s) | | 9.81 | |
| Q Total (m3/s) | 9.81 | Top Width (m) | | 28.40 | |
| Top Width (m) | 28.40 | Avg. Vel. (m/s) | | 0.95 | |
| Vel Total (m/s) | 0.95 | Hydr. Depth (m) | | 0.36 | |
| Max Chl Dpth (m) | 0.58 | Conv. (m3/s) | | 116.8 | |
| Conv. Total (m3/s) | 116.8 | Wetted Per. (m) | | 28.44 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 25.09 | |
| Min Ch El (m) | 697.00 | Stream Power (N/m s) | | 23.82 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 20.92 | |
| Frctn Loss (m) | 0.27 | Cum SA (1000 m2) | | 59.00 | |
| C & E Loss (m) | 0.01 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1220.0

INPUT

Description:

| Station Elevation Data num= 21 | | | | | | | | | | | |
|--------------------------------|--------|--------|------|--------|------|--------|------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.71 | 711 | -82.39 | 710 | -77 | 709 | -71.63 | 708 | -66.27 | 707 | | |
| -60.91 | 706 | -55.54 | 705 | -49.67 | 704 | -43.78 | 703 | -37.89 | 702 | | |
| -31.99 | 701 | -26.1 | 700 | -20.87 | 699 | -17.16 | 698 | 0 | 697.02 | | |
| .02 | 697.02 | .9 | 697 | 23.12 | 697 | 40.38 | 698 | 65.71 | 699 | | |
| 94.18 | 700 | | | | | | | | | | |

| Manning's n Values num= 3 | | | | | |
|---------------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -95.71 | | -95.71 | .045 | 94.18 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.71 | 94.18 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 697.04 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 697.03 | Flow Area (m2) | | 0.58 | |
| Crit W.S. (m) | 697.03 | Area (m2) | | 0.58 | |
| E.G. Slope (m/m) | 0.069685 | Flow (m3/s) | | 0.29 | |
| Q Total (m3/s) | 0.29 | Top Width (m) | | 23.65 | |
| Top Width (m) | 23.65 | Avg. Vel. (m/s) | | 0.50 | |
| Vel Total (m/s) | 0.50 | Hydr. Depth (m) | | 0.02 | |
| Max Chl Dpth (m) | 0.03 | Conv. (m3/s) | | 1.1 | |
| Conv. Total (m3/s) | 1.1 | Wetted Per. (m) | | 23.65 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 16.90 | |
| Min Ch El (m) | 697.00 | Stream Power (N/m s) | | 8.42 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 1.94 | |
| Frctn Loss (m) | 0.10 | Cum SA (1000 m2) | | 22.35 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 697.36 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 697.25 | Flow Area (m2) | | 6.72 | |
| Crit W.S. (m) | 697.25 | Area (m2) | | 6.72 | |
| E.G. Slope (m/m) | 0.033738 | Flow (m3/s) | | 9.81 | |
| Q Total (m3/s) | 9.81 | Top Width (m) | | 31.40 | |
| Top Width (m) | 31.40 | Avg. Vel. (m/s) | | 1.46 | |
| Vel Total (m/s) | 1.46 | Hydr. Depth (m) | | 0.21 | |
| Max Chl Dpth (m) | 0.25 | Conv. (m3/s) | | 53.4 | |
| Conv. Total (m3/s) | 53.4 | Wetted Per. (m) | | 31.41 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 70.75 | |
| Min Ch El (m) | 697.00 | Stream Power (N/m s) | | 103.27 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 20.75 | |
| Frctn Loss (m) | 0.24 | Cum SA (1000 m2) | | 58.40 | |
| C & E Loss (m) | 0.02 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1240.0

INPUT

Description:

| Station Elevation Data num= 22 | | | | | | | | | | | |
|--------------------------------|--------|--------|--------|--------|------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -96.86 | 711 | -83.44 | 710 | -78.31 | 709 | -73.05 | 708 | -67.9 | 707 | | |
| -62.61 | 706 | -57.27 | 705 | -51.27 | 704 | -45.4 | 703 | -39.55 | 702 | | |
| -33.71 | 701 | -27.87 | 700 | -19.43 | 699 | -11.5 | 698 | -7.26 | 697 | | |
| -.01 | 696.52 | 0 | 696.52 | 9.3 | 696 | 16.89 | 696 | 40.55 | 697 | | |
| 68.82 | 698 | 85.99 | 699 | | | | | | | | |

| Manning's n Values num= 3 | | | | | |
|---------------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -96.86 | | -96.86 | .045 | 85.99 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -96.86 | 85.99 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 696.14 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 696.14 | Flow Area (m2) | | 1.43 | |
| Crit W.S. (m) | 696.05 | Area (m2) | | 1.43 | |
| E.G. Slope (m/m) | 0.001630 | Flow (m3/s) | | 0.29 | |
| Q Total (m3/s) | 0.29 | Top Width (m) | | 13.29 | |
| Top Width (m) | 13.29 | Avg. Vel. (m/s) | | 0.20 | |
| Vel Total (m/s) | 0.20 | Hydr. Depth (m) | | 0.11 | |
| Max Chl Dpth (m) | 0.14 | Conv. (m3/s) | | 7.2 | |
| Conv. Total (m3/s) | 7.2 | Wetted Per. (m) | | 13.30 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 1.72 | |
| Min Ch El (m) | 696.00 | Stream Power (N/m s) | | 0.35 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 1.92 | |
| Frctn Loss (m) | 0.10 | Cum SA (1000 m2) | | 21.98 | |
| C & E Loss (m) | 0.00 | | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 696.61 | | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 696.57 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 696.39 | Flow Area (m2) | | 11.19 | |
| E.G. Slope (m/m) | 0.006137 | Area (m2) | | 11.19 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 31.29 | Top Width (m) | | 31.29 | |
| Vel Total (m/s) | 0.88 | Avg. Vel. (m/s) | | 0.88 | |
| Max Chl Dpth (m) | 0.57 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 125.2 | Conv. (m3/s) | | 125.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 31.32 | |
| Min Ch El (m) | 696.00 | Shear (N/m2) | | 21.50 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 18.84 | |
| Frctn Loss (m) | 0.24 | Cum Volume (1000 m3) | | 20.57 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 57.77 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1260.0

INPUT

Description:

| Station Elevation Data | | num= | 13 | |
|------------------------|------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -85.81 | 703 | -66.53 | 702 | -55.85 |
| -22.7 | 698 | -12.32 | 697 | 0 |
| 44.78 | 697 | 66.88 | 698 | 87.42 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -85.81 | | -85.81 | .045 | 87.42 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -85.81 | 87.42 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 696.04 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 696.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 696.03 | Flow Area (m2) | | 0.55 | |
| E.G. Slope (m/m) | 0.080579 | Area (m2) | | 0.55 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 22.37 | Top Width (m) | | 22.37 | |
| Vel Total (m/s) | 0.53 | Avg. Vel. (m/s) | | 0.53 | |
| Max Chl Dpth (m) | 0.03 | Hydr. Depth (m) | | 0.02 | |
| Conv. Total (m3/s) | 1.0 | Conv. (m3/s) | | 1.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.37 | |
| Min Ch El (m) | 696.00 | Shear (N/m2) | | 19.34 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 10.29 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 1.90 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 21.62 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 696.37 | | | | |
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 696.26 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 696.26 | Flow Area (m2) | | 6.70 | |
| E.G. Slope (m/m) | 0.032981 | Area (m2) | | 6.70 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 30.64 | Top Width (m) | | 30.64 | |
| Vel Total (m/s) | 1.46 | Avg. Vel. (m/s) | | 1.46 | |
| Max Chl Dpth (m) | 0.26 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 54.0 | Conv. (m3/s) | | 54.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.66 | |
| Min Ch El (m) | 696.00 | Shear (N/m2) | | 70.66 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 103.45 | |
| Frctn Loss (m) | 0.30 | Cum Volume (1000 m3) | | 20.39 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 57.15 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1280.0

INPUT

Description:

| Station Elevation Data | | num= | 11 | |
|------------------------|--------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -85.25 | 699 | -43.35 | 698 | -29.52 |
| 0 | 694.89 | 7.97 | 695 | 25.75 |
| 84.54 | 699 | | 696 | 45.53 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -85.25 | | -85.25 | .045 | 84.54 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -85.25 | 84.54 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 695.01 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 695.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.97 | Flow Area (m2) | | 0.93 | |
| E.G. Slope (m/m) | 0.008058 | Area (m2) | | 0.93 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 14.93 | Top Width (m) | | 14.93 | |
| Vel Total (m/s) | 0.31 | Avg. Vel. (m/s) | | 0.31 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 3.2 | Conv. (m3/s) | | 3.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.94 | |
| Min Ch El (m) | 694.89 | Shear (N/m2) | | 4.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.54 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | | 1.89 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 21.25 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 695.48 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 695.42 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 695.28 | Flow Area (m2) | | 9.44 | |
| E.G. Slope (m/m) | 0.008585 | Area (m2) | | 9.44 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 26.28 | Top Width (m) | | 26.28 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 0.53 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 105.8 | Conv. (m3/s) | | 105.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.32 | |
| Min Ch El (m) | 694.89 | Shear (N/m2) | | 30.18 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.37 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 20.23 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 56.58 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1300.0

INPUT

Description:

| Station Elevation Data | | num= | 17 | |
|------------------------|------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -88.68 | 700 | -67.49 | 699 | -48.08 |
| -10.28 | 695 | 0 | 694.68 | 11.53 |
| 47.61 | 698 | 59.54 | 699 | 71.46 |
| 91.65 | 703 | 98.03 | 704 | 700 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -88.68 | | -88.68 | .045 | 98.03 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -88.68 | 98.03 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 694.84 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.83 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.79 | Flow Area (m2) | | 0.76 | |
| E.G. Slope (m/m) | 0.009466 | Area (m2) | | 0.76 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.18 | Top Width (m) | | 10.18 | |
| Vel Total (m/s) | 0.38 | Avg. Vel. (m/s) | | 0.38 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 3.0 | Conv. (m3/s) | | 3.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.18 | |
| Min Ch El (m) | 694.68 | Shear (N/m2) | | 6.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.66 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 1.87 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 21.00 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 695.31 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 695.27 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 10.13 | |
| E.G. Slope (m/m) | 0.007399 | Area (m2) | | 10.13 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 28.06 | Top Width (m) | | 28.06 | |
| Vel Total (m/s) | 0.97 | Avg. Vel. (m/s) | | 0.97 | |
| Max Chl Dpth (m) | 0.59 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 114.0 | Conv. (m3/s) | | 114.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.10 | |
| Min Ch El (m) | 694.68 | Shear (N/m2) | | 26.16 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 25.32 | |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | | 20.04 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 56.04 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1320.0

INPUT

Description:

| Station Elevation Data | | num= | 15 | |
|------------------------|--------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -95.03 | 703 | -87.89 | 702 | -80.75 |
| -49 | 698 | -37.17 | 697 | -25.7 |
| 6.76 | 694.63 | 17.44 | 695 | 31.31 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -95.03 | | -95.03 | .045 | 70.58 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.03 | 70.58 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 694.61 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.57 | Flow Area (m2) | | 0.66 | |
| E.G. Slope (m/m) | 0.013437 | Area (m2) | | 0.66 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 9.36 | Top Width (m) | | 9.36 | |
| Vel Total (m/s) | 0.44 | Avg. Vel. (m/s) | | 0.44 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.5 | Conv. (m3/s) | | 2.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.36 | |
| Min Ch El (m) | 694.46 | Shear (N/m2) | | 9.31 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.10 | |
| Frctn Loss (m) | 0.33 | Cum Volume (1000 m3) | | 1.86 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 20.80 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 695.03 | Element | | | |
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.91 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.91 | Flow Area (m2) | | 6.36 | |
| E.G. Slope (m/m) | 0.032962 | Area (m2) | | 6.36 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 26.91 | Top Width (m) | | 26.91 | |
| Vel Total (m/s) | 1.54 | Avg. Vel. (m/s) | | 1.54 | |
| Max Chl Dpth (m) | 0.45 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 54.0 | Conv. (m3/s) | | 54.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.93 | |
| Min Ch El (m) | 694.46 | Shear (N/m2) | | 76.35 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 117.70 | |
| Frctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 19.87 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 55.49 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1340.0

INPUT

Description:

| Station Elevation Data | | num= | 16 | |
|------------------------|--------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -95.88 | 704 | -89.78 | 703 | -83.67 |
| -59.32 | 699 | -47.17 | 698 | -35.03 |
| 0 | 694.24 | 16.18 | 694.22 | 65.85 |
| 96.71 | 698 | | 695 | 78.69 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -95.88 | | -95.88 | .045 | 96.71 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.88 | 96.71 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 694.28 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.27 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.26 | Flow Area (m2) | | 0.78 | |
| E.G. Slope (m/m) | 0.021108 | Area (m2) | | 0.78 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 19.97 | Top Width (m) | | 19.97 | |
| Vel Total (m/s) | 0.37 | Avg. Vel. (m/s) | | 0.37 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 2.0 | Conv. (m3/s) | | 2.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.97 | |
| Min Ch El (m) | 694.22 | Shear (N/m2) | | 8.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.02 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 1.84 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 20.51 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 694.63 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.59 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.49 | Flow Area (m2) | | 10.88 | |
| E.G. Slope (m/m) | 0.010717 | Area (m2) | | 10.88 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 44.32 | Top Width (m) | | 44.32 | |
| Vel Total (m/s) | 0.90 | Avg. Vel. (m/s) | | 0.90 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 94.7 | Conv. (m3/s) | | 94.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 44.34 | |
| Min Ch El (m) | 694.22 | Shear (N/m2) | | 25.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 23.24 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 19.70 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 54.78 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1360.0

INPUT

Description:

| Station Elevation Data | | num= | 13 | |
|------------------------|--------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -99.37 | 699 | -77.81 | 698 | -59.81 |
| -15.58 | 694.77 | 0 | 694.02 | .01 |
| 20.12 | 694.04 | 54.57 | 695 | 70.65 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -99.37 | | -99.37 | .045 | 70.65 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.37 | 70.65 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 694.07 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 694.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 694.03 | Flow Area (m2) | | 1.15 | |
| E.G. Slope (m/m) | 0.006540 | Area (m2) | | 1.15 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 21.77 | Top Width (m) | | 21.77 | |
| Vel Total (m/s) | 0.25 | Avg. Vel. (m/s) | | 0.25 | |
| Max Chl Dpth (m) | 0.06 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 3.6 | Conv. (m3/s) | | 3.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.77 | |
| Min Ch El (m) | 694.00 | Shear (N/m2) | | 3.39 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 0.86 | |
| Frctn Loss (m) | 0.30 | Cum Volume (1000 m3) | | 1.82 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 20.09 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 694.41 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 694.36 | Flow Area (m2) | | 10.10 | |
| Crit W.S. (m) | | Area (m2) | | 10.10 | |
| E.G. Slope (m/m) | 0.011398 | Flow (m3/s) | | 9.81 | |
| Q Total (m3/s) | 9.81 | Top Width (m) | | 38.58 | |
| Top Width (m) | 38.58 | Avg. Vel. (m/s) | | 0.97 | |
| Vel Total (m/s) | 0.97 | Hydr. Depth (m) | | 0.26 | |
| Max Chl Dpth (m) | 0.36 | Conv. (m3/s) | | 91.8 | |
| Conv. Total (m3/s) | 91.8 | Wetted Per. (m) | | 38.59 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 29.26 | |
| Min Ch El (m) | 694.00 | Stream Power (N/m s) | | 28.40 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 19.49 | |
| Frctn Loss (m) | 0.38 | Cum SA (1000 m2) | | 53.95 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1380.0

INPUT

Description:

| Station | Elevation | Data | num= | 12 | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|------|--------|------|--------|--------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.36 | 697 | -74.18 | 696 | -60.71 | 695 | -33.81 | 694 | -17.83 | 693.77 | | | | | | | | | | |
| 0 | 693.69 | 16.67 | 693.85 | 19.46 | 694 | 52.36 | 695 | 65.84 | 696 | | | | | | | | | | |
| 78.6 | 697 | 96.19 | 698 | | | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -88.36 | | -88.36 | .045 | 96.19 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| -88.36 | | 96.19 | 20 | 20 | 20 | | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 693.76 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 693.75 | Flow Area (m2) | | 0.54 | |
| Crit W.S. (m) | 693.75 | Area (m2) | | 0.54 | |
| E.G. Slope (m/m) | 0.065970 | Flow (m3/s) | | 0.29 | |
| Q Total (m3/s) | 0.29 | Top Width (m) | | 18.86 | |
| Top Width (m) | 18.86 | Avg. Vel. (m/s) | | 0.54 | |
| Vel Total (m/s) | 0.54 | Hydr. Depth (m) | | 0.03 | |
| Max Chl Dpth (m) | 0.06 | Conv. (m3/s) | | 1.1 | |
| Conv. Total (m3/s) | 1.1 | Wetted Per. (m) | | 18.86 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 18.63 | |
| Min Ch El (m) | 693.69 | Stream Power (N/m s) | | 9.99 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 1.81 | |
| Frctn Loss (m) | 0.54 | Cum SA (1000 m2) | | 19.69 | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 694.02 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 693.94 | Flow Area (m2) | | 7.75 | |
| Crit W.S. (m) | 693.94 | Area (m2) | | 7.75 | |
| E.G. Slope (m/m) | 0.037019 | Flow (m3/s) | | 9.81 | |
| Q Total (m3/s) | 9.81 | Top Width (m) | | 48.15 | |
| Top Width (m) | 48.15 | Avg. Vel. (m/s) | | 1.27 | |
| Vel Total (m/s) | 1.27 | Hydr. Depth (m) | | 0.16 | |
| Max Chl Dpth (m) | 0.25 | Conv. (m3/s) | | 51.0 | |
| Conv. Total (m3/s) | 51.0 | Wetted Per. (m) | | 48.16 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 58.43 | |
| Min Ch El (m) | 693.69 | Stream Power (N/m s) | | 73.92 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 19.31 | |
| Frctn Loss (m) | 0.40 | Cum SA (1000 m2) | | 53.08 | |
| C & E Loss (m) | 0.01 | | | | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1400.0

INPUT

Description:

| Station | Elevation | Data | num= | 12 | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|--------|--------|------|--------|--------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -93.97 | 696 | -78.75 | 695 | -63.93 | 694 | -27.12 | 693 | -19.35 | 692.87 | | | | | | | | | | |
| -5.73 | 693 | 0 | 693.35 | 11.3 | 693.56 | 24.41 | 694 | 55.86 | 695 | | | | | | | | | | |
| 66.27 | 696 | 93.03 | 697 | | | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -93.97 | | -93.97 | .045 | 93.03 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| -93.97 | | 93.03 | 20 | 20 | 20 | | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 692.98 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 692.97 | Flow Area (m2) | | 0.80 | |
| Crit W.S. (m) | 692.95 | Area (m2) | | 0.80 | |
| E.G. Slope (m/m) | 0.014768 | Flow (m3/s) | | 0.29 | |
| Q Total (m3/s) | 0.29 | Top Width (m) | | 16.25 | |
| Top Width (m) | 16.25 | Avg. Vel. (m/s) | | 0.36 | |
| Vel Total (m/s) | 0.36 | Hydr. Depth (m) | | 0.05 | |
| Max Chl Dpth (m) | 0.10 | Conv. (m3/s) | | 2.4 | |
| Conv. Total (m3/s) | 2.4 | Wetted Per. (m) | | 16.26 | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | 7.14 | |
| Min Ch El (m) | 692.87 | Stream Power (N/m s) | | 2.60 | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | 1.79 | |
| Frctn Loss (m) | 0.32 | Cum SA (1000 m2) | | 19.34 | |
| C & E Loss (m) | 0.00 | | | | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 693.34 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 693.28 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 693.20 | Flow Area (m2) | | 9.61 | |
| E.G. Slope (m/m) | 0.012510 | Area (m2) | | 9.61 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 36.49 | Top Width (m) | | 36.49 | |
| Vel Total (m/s) | 1.02 | Avg. Vel. (m/s) | | 1.02 | |
| Max Chl Dpth (m) | 0.41 | Hydr. Depth (m) | | 0.26 | |
| Conv. Total (m3/s) | 87.7 | Conv. (m3/s) | | 87.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 36.51 | |
| Min Ch El (m) | 692.87 | Shear (N/m2) | | 32.28 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.95 | |
| Frctn Loss (m) | 0.28 | Cum Volume (1000 m3) | | 19.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 52.24 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1420.0

INPUT

Description:

| Station Elevation Data | | num= | 18 | | | | | | |
|------------------------|--------|--------|------|--------|--------|--------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -99.95 | 697 | -87.26 | 696 | -74.01 | 695 | -64.04 | 694 | -39.54 | 693 |
| -24.66 | 692.52 | .74 | 693 | -.02 | 693.02 | 0 | 693.02 | 8.74 | 693.23 |
| 29.57 | 694 | 35.94 | 695 | 45.69 | 696 | 54.03 | 697 | 62.32 | 698 |
| 71.15 | 699 | 79.2 | 700 | 90.39 | 701 | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -99.95 | | -99.95 | .045 | 90.39 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.95 | 90.39 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 692.66 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 692.65 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.64 | |
| E.G. Slope (m/m) | 0.016989 | Area (m2) | | 0.64 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.15 | Top Width (m) | | 10.15 | |
| Vel Total (m/s) | 0.46 | Avg. Vel. (m/s) | | 0.46 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 2.2 | Conv. (m3/s) | | 2.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.15 | |
| Min Ch El (m) | 692.52 | Shear (N/m2) | | 10.45 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.78 | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 1.78 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 19.07 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 693.05 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 692.99 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 692.93 | Flow Area (m2) | | 9.05 | |
| E.G. Slope (m/m) | 0.016269 | Area (m2) | | 9.05 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 38.24 | Top Width (m) | | 38.24 | |
| Vel Total (m/s) | 1.08 | Avg. Vel. (m/s) | | 1.08 | |
| Max Chl Dpth (m) | 0.47 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 76.9 | Conv. (m3/s) | | 76.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 38.25 | |
| Min Ch El (m) | 692.52 | Shear (N/m2) | | 37.73 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 40.90 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 18.95 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 51.49 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1440.0

INPUT

Description:

| Station Elevation Data | | num= | 14 | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.22 | 697 | -83.72 | 696 | -72.38 | 695 | -64.36 | 694 | -45.92 | 693 |
| -25.24 | 692.22 | -.01 | 692.51 | 0 | 692.51 | 13.57 | 693 | 19.34 | 694 |
| 29.26 | 695 | 40.16 | 696 | 52.79 | 697 | 68.81 | 698 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -95.22 | | -95.22 | .045 | 68.81 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.22 | 68.81 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 692.34 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 692.33 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 692.31 | Flow Area (m2) | | 0.73 | |
| E.G. Slope (m/m) | 0.014744 | Area (m2) | | 0.73 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 12.89 | Top Width (m) | | 12.89 | |
| Vel Total (m/s) | 0.40 | Avg. Vel. (m/s) | | 0.40 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 2.4 | Conv. (m3/s) | | 2.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.89 | |
| Min Ch El (m) | 692.22 | Shear (N/m2) | | 8.20 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.27 | |
| Frctn Loss (m) | 0.30 | Cum Volume (1000 m3) | | 1.76 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 18.84 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 692.68 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 692.61 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 692.57 | Flow Area (m2) | | 8.37 | |
| E.G. Slope (m/m) | 0.021185 | Area (m2) | | 8.37 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 38.40 | Top Width (m) | | 38.40 | |
| Vel Total (m/s) | 1.17 | Avg. Vel. (m/s) | | 1.17 | |
| Max Chl Dpth (m) | 0.39 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 67.4 | Conv. (m3/s) | | 67.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 38.41 | |
| Min Ch El (m) | 692.22 | Shear (N/m2) | | 45.28 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 53.04 | |
| Frctn Loss (m) | 0.33 | Cum Volume (1000 m3) | | 18.78 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 50.72 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1460.0

INPUT

Description:

| Station | Elevation | Data | num= | 12 | | | | | | | | | | | | | | | |
|---------|-----------|-------|------|--------|------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -85.38 | 696 | -72.7 | 695 | -65.22 | 694 | -48.29 | 693 | -27.17 | 692 | | | | | | | | | | |
| -69 | 692 | 0 | 692 | 13.39 | 693 | 29.38 | 694 | 59.08 | 695 | | | | | | | | | | |
| 74.4 | 696 | 88.05 | 697 | | | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -85.38 | | -85.38 | .045 | 88.05 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -85.38 | 88.05 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 692.04 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 692.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 692.02 | Flow Area (m2) | | 0.99 | |
| E.G. Slope (m/m) | 0.015595 | Area (m2) | | 0.99 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 28.39 | Top Width (m) | | 28.39 | |
| Vel Total (m/s) | 0.30 | Avg. Vel. (m/s) | | 0.30 | |
| Max Chl Dpth (m) | 0.04 | Hydr. Depth (m) | | 0.03 | |
| Conv. Total (m3/s) | 2.3 | Conv. (m3/s) | | 2.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.40 | |
| Min Ch El (m) | 692.00 | Shear (N/m2) | | 5.31 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.57 | |
| Frctn Loss (m) | 0.52 | Cum Volume (1000 m3) | | 1.75 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 18.43 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 692.35 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 692.30 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 692.23 | Flow Area (m2) | | 9.62 | |
| E.G. Slope (m/m) | 0.012896 | Area (m2) | | 9.62 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 37.44 | Top Width (m) | | 37.44 | |
| Vel Total (m/s) | 1.02 | Avg. Vel. (m/s) | | 1.02 | |
| Max Chl Dpth (m) | 0.30 | Hydr. Depth (m) | | 0.26 | |
| Conv. Total (m3/s) | 86.3 | Conv. (m3/s) | | 86.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 37.46 | |
| Min Ch El (m) | 692.00 | Shear (N/m2) | | 32.47 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.10 | |
| Frctn Loss (m) | 0.39 | Cum Volume (1000 m3) | | 18.60 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 49.96 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1480.0

INPUT

Description:

| Station | Elevation | Data | num= | 10 | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -82.67 | 696 | -69.96 | 695 | -57.31 | 694 | -48.01 | 693 | -24.75 | 692 | | | | | | | | | | |
| 0 | 691.38 | 14.11 | 692 | 43.05 | 693 | 60.02 | 694 | 77.27 | 695 | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -82.67 | | -82.67 | .045 | 77.27 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -82.67 | 77.27 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 691.52 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 691.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 691.49 | Flow Area (m2) | | 0.39 | |
| E.G. Slope (m/m) | 0.051588 | Area (m2) | | 0.39 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 7.03 | Top Width (m) | | 7.03 | |
| Vel Total (m/s) | 0.74 | Avg. Vel. (m/s) | | 0.74 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.03 | |
| Min Ch El (m) | 691.38 | Shear (N/m2) | | 28.35 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 20.95 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 1.73 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 18.07 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 691.95 | Element | | | |
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 691.83 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 691.83 | Flow Area (m2) | | 6.47 | |
| E.G. Slope (m/m) | 0.033550 | Area (m2) | | 6.47 | |
| Q Total (m3/s) | 9.81 | Flow (m3/s) | | 9.81 | |
| Top Width (m) | 28.48 | Top Width (m) | | 28.48 | |
| Vel Total (m/s) | 1.52 | Avg. Vel. (m/s) | | 1.52 | |
| Max Chl Dpth (m) | 0.45 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 53.5 | Conv. (m3/s) | | 53.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.50 | |
| Min Ch El (m) | 691.38 | Shear (N/m2) | | 74.72 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 113.20 | |
| Frctn Loss (m) | 0.33 | Cum Volume (1000 m3) | | 18.44 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 49.30 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1500.0

INPUT

Description:

| Station Elevation Data | | num= | 13 | |
|------------------------|------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -91.04 | 698 | -81.92 | 697 | -72.75 |
| -33.75 | 693 | -20.23 | 692 | -3.19 |
| 34.94 | 692 | 50.44 | 693 | 68.1 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|------|
| Sta | n Val | Sta | n Val | Sta |
| -91.04 | | -91.04 | .045 | 68.1 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.04 | 68.1 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 690.95 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 690.94 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 690.91 | Flow Area (m2) | | 0.76 | |
| E.G. Slope (m/m) | 0.011794 | Area (m2) | | 0.76 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 11.81 | Top Width (m) | | 11.81 | |
| Vel Total (m/s) | 0.39 | Avg. Vel. (m/s) | | 0.39 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 2.7 | Conv. (m3/s) | | 2.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.82 | |
| Min Ch El (m) | 690.81 | Shear (N/m2) | | 7.39 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.85 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 1.72 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.89 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 691.45 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 691.38 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 691.27 | Flow Area (m2) | | 11.18 | |
| E.G. Slope (m/m) | 0.010891 | Area (m2) | | 11.18 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 32.00 | Top Width (m) | | 32.00 | |
| Vel Total (m/s) | 1.15 | Avg. Vel. (m/s) | | 1.15 | |
| Max Chl Dpth (m) | 0.57 | Hydr. Depth (m) | | 0.35 | |
| Conv. Total (m3/s) | 123.2 | Conv. (m3/s) | | 123.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 32.03 | |
| Min Ch El (m) | 690.81 | Shear (N/m2) | | 37.29 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 42.88 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 18.26 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 48.70 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1520.0

INPUT

Description:

| Station Elevation Data | | num= | 17 | |
|------------------------|--------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -96.56 | 699 | -88.36 | 698 | -79.44 |
| -48.32 | 694 | -35.08 | 693 | -20.94 |
| .01 | 690.34 | 18.72 | 691 | 37.5 |
| 79.46 | 695 | 92.29 | 696 | 50.52 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -96.56 | | -96.56 | .045 | 92.29 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -96.56 | 92.29 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 690.51 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 690.47 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 690.47 | Flow Area (m2) | | 0.35 | |
| E.G. Slope (m/m) | 0.051850 | Area (m2) | | 0.35 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 5.28 | Top Width (m) | | 5.28 | |
| Vel Total (m/s) | 0.83 | Avg. Vel. (m/s) | | 0.83 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.29 | |
| Min Ch El (m) | 690.34 | Shear (N/m2) | | 33.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.99 | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 1.71 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 17.71 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 691.10 | Element | | | |
| Vel Head (m) | 0.16 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 690.95 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 690.95 | Flow Area (m2) | | 7.35 | |
| E.G. Slope (m/m) | 0.030360 | Area (m2) | | 7.35 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 24.18 | Top Width (m) | | 24.18 | |
| Vel Total (m/s) | 1.75 | Avg. Vel. (m/s) | | 1.75 | |
| Max Chl Dpth (m) | 0.61 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 73.8 | Conv. (m3/s) | | 73.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.21 | |
| Min Ch El (m) | 690.34 | Shear (N/m2) | | 90.40 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 158.13 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 18.07 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 48.14 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1540.0

INPUT

Description:

| Station | Elevation | Data | num= | 15 | | | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|--------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -94.55 | 695 | -72.35 | 694 | -47.65 | 693 | -33.75 | 692 | -19.96 | 691 | | | | | | | | | | | | |
| -4.51 | 690 | 0 | 689.94 | .01 | 689.94 | 7.33 | 690 | 21.56 | 691 | | | | | | | | | | | | |
| 35.64 | 692 | 50.75 | 693 | 67.02 | 694 | 83.03 | 695 | 97.44 | 696 | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -94.55 | | -94.55 | .045 | 97.44 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.55 | 97.44 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 690.06 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 690.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 690.01 | Flow Area (m2) | | 1.00 | |
| E.G. Slope (m/m) | 0.005416 | Area (m2) | | 1.00 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 13.36 | Top Width (m) | | 13.36 | |
| Vel Total (m/s) | 0.29 | Avg. Vel. (m/s) | | 0.29 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 4.0 | Conv. (m3/s) | | 4.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.37 | |
| Min Ch El (m) | 689.94 | Shear (N/m2) | | 3.98 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.16 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | | 1.70 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.53 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 690.67 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 690.63 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 690.39 | Flow Area (m2) | | 13.59 | |
| E.G. Slope (m/m) | 0.005324 | Area (m2) | | 13.59 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 30.43 | Top Width (m) | | 30.43 | |
| Vel Total (m/s) | 0.95 | Avg. Vel. (m/s) | | 0.95 | |
| Max Chl Dpth (m) | 0.69 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 176.3 | Conv. (m3/s) | | 176.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.47 | |
| Min Ch El (m) | 689.94 | Shear (N/m2) | | 23.28 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 22.03 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | | 17.86 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 47.59 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1560.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|------|--------|------|-------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.47 | 694 | -69.87 | 693 | -44.97 | 692 | -20.27 | 691 | -4.33 | 690 | | | | | | | | | | | | |
| -.01 | 689.71 | 0 | 689.71 | 8.14 | 690 | 21.69 | 691 | 35.23 | 692 | | | | | | | | | | | | |
| 49.91 | 693 | 65.88 | 694 | 82.27 | 695 | 95.24 | 696 | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -88.47 | | -88.47 | .045 | 95.24 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -88.47 | 95.24 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.89 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.87 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 689.84 | Flow Area (m2) | | 0.56 | |
| E.G. Slope (m/m) | 0.015619 | Area (m2) | | 0.56 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 6.94 | Top Width (m) | | 6.94 | |
| Vel Total (m/s) | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 2.3 | Conv. (m3/s) | | 2.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.95 | |
| Min Ch El (m) | 689.71 | Shear (N/m2) | | 12.37 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.42 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 1.68 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.33 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 690.50 | Element | | | |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 690.40 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 9.15 | |
| E.G. Slope (m/m) | 0.014708 | Area (m2) | | 9.15 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 24.26 | Top Width (m) | | 24.26 | |
| Vel Total (m/s) | 1.41 | Avg. Vel. (m/s) | | 1.41 | |
| Max Chl Dpth (m) | 0.69 | Hydr. Depth (m) | | 0.38 | |
| Conv. Total (m3/s) | 106.0 | Conv. (m3/s) | | 106.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.30 | |
| Min Ch El (m) | 689.71 | Shear (N/m2) | | 54.31 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 76.33 | |
| Frctn Loss (m) | 0.23 | Cum Volume (1000 m3) | | 17.64 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 47.04 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1580.0

INPUT

Description:

| Station Elevation Data num= 16 | | | | | | | | | | | |
|--------------------------------|------|--------|------|--------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.71 | 696 | -87.5 | 695 | -73.12 | 694 | -58.74 | 693 | -43.66 | 692 | | |
| -28.17 | 691 | -12.68 | 690 | 0 | 689.48 | 11.2 | 690 | 26.36 | 691 | | |
| 41.39 | 692 | 56.22 | 693 | 71.06 | 694 | 85.89 | 695 | 92.13 | 696 | | |
| 98.37 | 697 | | | | | | | | | | |

| Manning's n Values num= 3 | | | | | |
|---------------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -95.71 | | -95.71 | .045 | 98.37 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.71 | 98.37 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.67 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.66 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 689.61 | Flow Area (m2) | | 0.73 | |
| E.G. Slope (m/m) | 0.008010 | Area (m2) | | 0.73 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 8.20 | Top Width (m) | | 8.20 | |
| Vel Total (m/s) | 0.40 | Avg. Vel. (m/s) | | 0.40 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | | 3.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.21 | |
| Min Ch El (m) | 689.48 | Shear (N/m2) | | 7.01 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.79 | |
| Frctn Loss (m) | 0.26 | Cum Volume (1000 m3) | | 1.67 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.17 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 690.26 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 690.19 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 11.30 | |
| E.G. Slope (m/m) | 0.009529 | Area (m2) | | 11.30 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 29.70 | Top Width (m) | | 29.70 | |
| Vel Total (m/s) | 1.14 | Avg. Vel. (m/s) | | 1.14 | |
| Max Chl Dpth (m) | 0.71 | Hydr. Depth (m) | | 0.38 | |
| Conv. Total (m3/s) | 131.7 | Conv. (m3/s) | | 131.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.74 | |
| Min Ch El (m) | 689.48 | Shear (N/m2) | | 35.51 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 40.41 | |
| Frctn Loss (m) | 0.31 | Cum Volume (1000 m3) | | 17.43 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 46.50 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1600.0

INPUT

Description:

| Station Elevation Data num= 16 | | | | | | | | | | | |
|--------------------------------|------|--------|--------|--------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -94.16 | 695 | -80.97 | 694 | -67.83 | 693 | -55.61 | 692 | -41.02 | 691 | | |
| -26.42 | 690 | -15.48 | 689.72 | 0 | 689.25 | 13.74 | 690 | 28.17 | 691 | | |
| 42.63 | 692 | 57.8 | 693 | 72.97 | 694 | 87.9 | 695 | 94.1 | 696 | | |
| 99.43 | 697 | | | | | | | | | | |

| Manning's n Values num= 3 | | | | | |
|---------------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -94.16 | | -94.16 | .045 | 99.43 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.16 | 99.43 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.41 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.39 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 689.37 | Flow Area (m2) | | 0.49 | |
| E.G. Slope (m/m) | 0.024691 | Area (m2) | | 0.49 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 7.12 | Top Width (m) | | 7.12 | |
| Vel Total (m/s) | 0.59 | Avg. Vel. (m/s) | | 0.59 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 1.9 | Conv. (m3/s) | | 1.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.12 | |
| Min Ch El (m) | 689.25 | Shear (N/m2) | | 16.80 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.90 | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 1.66 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.02 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.94 | Element | | | |
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.81 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 689.80 | Flow Area (m2) | | 8.04 | |
| E.G. Slope (m/m) | 0.028981 | Area (m2) | | 8.04 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 29.21 | Top Width (m) | | 29.21 | |
| Vel Total (m/s) | 1.60 | Avg. Vel. (m/s) | | 1.60 | |
| Max Chl Dpth (m) | 0.56 | Hydr. Depth (m) | | 0.28 | |
| Conv. Total (m3/s) | 75.5 | Conv. (m3/s) | | 75.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.23 | |
| Min Ch El (m) | 689.25 | Shear (N/m2) | | 78.15 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 125.03 | |
| Frctn Loss (m) | 0.38 | Cum Volume (1000 m3) | | 17.24 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 45.92 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1620.0

INPUT

Description:

| Station Elevation Data | | num= | 17 | |
|------------------------|------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -95.64 | 695 | -85.07 | 694 | -73.23 |
| -37.69 | 690 | -14.53 | 689.35 | 0 |
| 26.11 | 690 | 40.93 | 691 | 54.47 |
| 93.28 | 695 | 98.99 | 696 | 67.17 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -95.64 | | -95.64 | .045 | 98.99 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.64 | 98.99 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.08 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.07 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 689.05 | Flow Area (m2) | | 0.82 | |
| E.G. Slope (m/m) | 0.011436 | Area (m2) | | 0.82 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 14.39 | Top Width (m) | | 14.39 | |
| Vel Total (m/s) | 0.35 | Avg. Vel. (m/s) | | 0.35 | |
| Max Chl Dpth (m) | 0.07 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 2.7 | Conv. (m3/s) | | 2.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.40 | |
| Min Ch El (m) | 689.00 | Shear (N/m2) | | 6.43 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.27 | |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | | 1.64 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.81 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.54 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.47 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 11.08 | |
| E.G. Slope (m/m) | 0.013516 | Area (m2) | | 11.08 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 36.81 | Top Width (m) | | 36.81 | |
| Vel Total (m/s) | 1.16 | Avg. Vel. (m/s) | | 1.16 | |
| Max Chl Dpth (m) | 0.47 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 110.6 | Conv. (m3/s) | | 110.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 36.83 | |
| Min Ch El (m) | 689.00 | Shear (N/m2) | | 39.89 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 46.29 | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 17.05 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 45.26 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1640.0

INPUT

Description:

| Station Elevation Data | | num= | 16 | |
|------------------------|------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -95.7 | 695 | -85.91 | 694 | -76.12 |
| -45.14 | 690 | -14.2 | 689 | -13.49 |
| 37.57 | 690 | 49.92 | 691 | 62.21 |
| 95.71 | 695 | | 692 | 73.54 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|-------|-------|
| -95.7 | | -95.7 | .045 | 95.71 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.7 | 95.71 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 688.81 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 688.80 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 688.77 | Flow Area (m2) | | 0.65 | |
| E.G. Slope (m/m) | 0.016295 | Area (m2) | | 0.65 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.25 | Top Width (m) | | 10.25 | |
| Vel Total (m/s) | 0.45 | Avg. Vel. (m/s) | | 0.45 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 2.3 | Conv. (m3/s) | | 2.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.25 | |
| Min Ch El (m) | 688.67 | Shear (N/m2) | | 10.09 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.54 | |
| Frctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 1.63 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.56 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 689.29 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 689.23 | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | | |
| E.G. Slope (m/m) | 0.011648 | Area (m2) | | | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | | |
| Top Width (m) | 39.34 | Top Width (m) | | | |
| Vel Total (m/s) | 1.08 | Avg. Vel. (m/s) | | 1.08 | |
| Max Chl Dpth (m) | 0.56 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 119.2 | Conv. (m3/s) | | 119.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 39.36 | |
| Min Ch El (m) | 688.67 | Shear (N/m2) | | 34.54 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 37.32 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 16.82 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 44.49 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1660.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|--------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -93.34 | 694 | -81.61 | 693 | -70.67 | 692 | -60.93 | 691 | -51.19 | 690 | | | | | | | | | | |
| -25.99 | 689 | -14.01 | 688.67 | 0 | 688.32 | 23.06 | 689 | 46 | 690 | | | | | | | | | | |
| 57.31 | 691 | 67.75 | 692 | 78.67 | 693 | 90.1 | 694 | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|------|-------|
| -93.34 | | -93.34 | .045 | 90.1 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -93.34 | 90.1 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 688.46 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 688.45 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 688.42 | Flow Area (m2) | | 0.61 | |
| E.G. Slope (m/m) | 0.018360 | Area (m2) | | 0.61 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 9.46 | Top Width (m) | | 9.46 | |
| Vel Total (m/s) | 0.48 | Avg. Vel. (m/s) | | 0.48 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 2.1 | Conv. (m3/s) | | 2.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.46 | |
| Min Ch El (m) | 688.32 | Shear (N/m2) | | 11.51 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.54 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 1.62 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.36 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 688.92 | Element | | | |
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 688.80 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 688.79 | Flow Area (m2) | | 8.34 | |
| E.G. Slope (m/m) | 0.032238 | Area (m2) | | 8.34 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 34.71 | Top Width (m) | | 34.71 | |
| Vel Total (m/s) | 1.54 | Avg. Vel. (m/s) | | 1.54 | |
| Max Chl Dpth (m) | 0.48 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 71.6 | Conv. (m3/s) | | 71.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 34.73 | |
| Min Ch El (m) | 688.32 | Shear (N/m2) | | 75.93 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 117.07 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 16.62 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 43.75 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1680.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|-------|--------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -93.33 | 693 | -79.05 | 692 | -67.8 | 691 | -56.67 | 690 | -33.03 | 689 | | | | | | | | | | |
| -14.33 | 688.35 | -1.44 | 688 | 0 | 687.97 | 13.33 | 688 | 35.11 | 689 | | | | | | | | | | |
| 53.72 | 690 | 65.3 | 691 | 77 | 692 | 88.74 | 693 | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -93.33 | | -93.33 | .045 | 88.74 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -93.33 | 88.74 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 688.04 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 688.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 688.02 | Flow Area (m2) | | 0.70 | |
| E.G. Slope (m/m) | 0.024228 | Area (m2) | | 0.70 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 16.54 | Top Width (m) | | 16.54 | |
| Vel Total (m/s) | 0.42 | Avg. Vel. (m/s) | | 0.42 | |
| Max Chl Dpth (m) | 0.06 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.9 | Conv. (m3/s) | | 1.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.54 | |
| Min Ch El (m) | 687.97 | Shear (N/m2) | | 10.00 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.18 | |
| Frctn Loss (m) | 0.26 | Cum Volume (1000 m3) | | 1.60 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.10 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 688.47 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 688.40 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 10.79 | |
| E.G. Slope (m/m) | 0.015306 | Area (m2) | | 10.79 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 37.79 | Top Width (m) | | 37.79 | |
| Vel Total (m/s) | 1.19 | Avg. Vel. (m/s) | | 1.19 | |
| Max Chl Dpth (m) | 0.43 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 103.9 | Conv. (m3/s) | | 103.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 37.80 | |
| Min Ch El (m) | 687.97 | Shear (N/m2) | | 42.84 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 51.06 | |
| Frctn Loss (m) | 0.24 | Cum Volume (1000 m3) | | 16.42 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 43.03 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1700.0

INPUT

Description:

| Station Elevation Data | | num= | 12 | | | | | | |
|------------------------|------|--------|--------|--------|------|--------|------|--------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -85.55 | 692 | -67.27 | 691 | -57.91 | 690 | -38.28 | 689 | -14.44 | 688.04 |
| -13.67 | 688 | 0 | 687.64 | 20.7 | 688 | 43.78 | 689 | 66.73 | 690 |
| 79.85 | 691 | 91.98 | 692 | | | | | | |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -85.55 | | -85.55 | .045 | 91.98 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -85.55 | 91.98 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 687.78 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 687.78 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.88 | |
| E.G. Slope (m/m) | 0.008002 | Area (m2) | | 0.88 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 12.97 | Top Width (m) | | 12.97 | |
| Vel Total (m/s) | 0.33 | Avg. Vel. (m/s) | | 0.33 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | | 3.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 12.97 | |
| Min Ch El (m) | 687.64 | Shear (N/m2) | | 5.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.76 | |
| Frctn Loss (m) | 0.33 | Cum Volume (1000 m3) | | 1.59 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.81 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 688.23 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 688.18 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 13.13 | |
| E.G. Slope (m/m) | 0.009387 | Area (m2) | | 13.13 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 42.79 | Top Width (m) | | 42.79 | |
| Vel Total (m/s) | 0.98 | Avg. Vel. (m/s) | | 0.98 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.31 | |
| Conv. Total (m3/s) | 132.7 | Conv. (m3/s) | | 132.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 42.81 | |
| Min Ch El (m) | 687.64 | Shear (N/m2) | | 28.24 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.65 | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 16.19 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 42.22 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1720.0

INPUT

Description:

| Station Elevation Data | | num= | 10 | | | | | | |
|------------------------|------|--------|--------|--------|------|--------|------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -82.71 | 693 | -72.98 | 692 | -63.67 | 691 | -54.45 | 690 | -42.82 | 689 |
| -20.22 | 688 | 0 | 687.32 | 33.26 | 688 | 54.54 | 689 | 83.52 | 690 |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -82.71 | | -82.71 | .045 | 83.52 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -82.71 | 83.52 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 687.45 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 687.42 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 687.42 | Flow Area (m2) | | 0.41 | |
| E.G. Slope (m/m) | 0.052787 | Area (m2) | | 0.41 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 8.06 | Top Width (m) | | 8.06 | |
| Vel Total (m/s) | 0.70 | Avg. Vel. (m/s) | | 0.70 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.07 | |
| Min Ch El (m) | 687.32 | Shear (N/m2) | | 26.53 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 18.69 | |
| Frctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 1.57 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 15.60 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 687.90 | | | | |
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 687.78 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 687.78 | Flow Area (m2) | | 8.41 | |
| E.G. Slope (m/m) | 0.033425 | Area (m2) | | 8.41 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 36.36 | Top Width (m) | | 36.36 | |
| Vel Total (m/s) | 1.53 | Avg. Vel. (m/s) | | 1.53 | |
| Max Chl Dpth (m) | 0.46 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 70.3 | Conv. (m3/s) | | 70.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 36.37 | |
| Min Ch El (m) | 687.32 | Shear (N/m2) | | 75.75 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 115.89 | |
| Frctn Loss (m) | 0.33 | Cum Volume (1000 m3) | | 15.97 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 41.43 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1740.0

INPUT

Description:

| Station Elevation Data | | num= | 14 | |
|------------------------|------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -98.31 | 695 | -89.79 | 694 | -81.26 |
| -55.63 | 690 | -39.01 | 689 | -25.18 |
| 19.85 | 687 | 42.43 | 688 | 71.18 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -98.31 | | -98.31 | .045 | 95.16 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.31 | 95.16 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 687.05 | | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 687.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 687.03 | Flow Area (m2) | | 1.08 | |
| E.G. Slope (m/m) | 0.008491 | Area (m2) | | 1.08 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 22.38 | Top Width (m) | | 22.38 | |
| Vel Total (m/s) | 0.27 | Avg. Vel. (m/s) | | 0.27 | |
| Max Chl Dpth (m) | 0.05 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 3.2 | Conv. (m3/s) | | 3.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.38 | |
| Min Ch El (m) | 687.00 | Shear (N/m2) | | 4.00 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.08 | |
| Frctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 1.56 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.29 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 687.47 | | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 687.42 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 687.31 | Flow Area (m2) | | 12.56 | |
| E.G. Slope (m/m) | 0.009936 | Area (m2) | | 12.56 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 39.94 | Top Width (m) | | 39.94 | |
| Vel Total (m/s) | 1.02 | Avg. Vel. (m/s) | | 1.02 | |
| Max Chl Dpth (m) | 0.42 | Hydr. Depth (m) | | 0.31 | |
| Conv. Total (m3/s) | 129.0 | Conv. (m3/s) | | 129.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 39.96 | |
| Min Ch El (m) | 687.00 | Shear (N/m2) | | 30.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.36 | |
| Frctn Loss (m) | 0.33 | Cum Volume (1000 m3) | | 15.76 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 40.67 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1760.0

INPUT

Description:

| Station Elevation Data | | num= | 13 | |
|------------------------|------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -93.45 | 693 | -82.88 | 692 | -74.16 |
| -27.84 | 688 | -10.88 | 687 | 0 |
| 45.04 | 688 | 67.97 | 689 | 92.73 |

| Manning's n Values | | num= | 3 | |
|--------------------|-------|--------|-------|-------|
| Sta | n Val | Sta | n Val | Sta |
| -93.45 | | -93.45 | .045 | 92.73 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -93.45 | 92.73 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 686.70 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 686.68 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 686.68 | Flow Area (m2) | | 0.42 | |
| E.G. Slope (m/m) | 0.055024 | Area (m2) | | 0.42 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 8.63 | Top Width (m) | | 8.63 | |
| Vel Total (m/s) | 0.69 | Avg. Vel. (m/s) | | 0.69 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 1.2 | Conv. (m3/s) | | 1.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.63 | |
| Min Ch El (m) | 686.58 | Shear (N/m2) | | 26.22 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 18.20 | |
| Frctn Loss (m) | 0.39 | Cum Volume (1000 m3) | | 1.54 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 14.98 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 687.13 | Element | | | |
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 687.02 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 687.02 | Flow Area (m2) | | 8.54 | |
| E.G. Slope (m/m) | 0.033574 | Area (m2) | | 8.54 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 37.97 | Top Width (m) | | 37.97 | |
| Vel Total (m/s) | 1.51 | Avg. Vel. (m/s) | | 1.51 | |
| Max Chl Dpth (m) | 0.44 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 70.2 | Conv. (m3/s) | | 70.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 37.98 | |
| Min Ch El (m) | 686.58 | Shear (N/m2) | | 74.04 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 111.48 | |
| Frctn Loss (m) | 0.46 | Cum Volume (1000 m3) | | 15.55 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 39.89 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1780.0

INPUT

Description:

| Station | Elevation | Data | num= | 15 | | | | | | | | | | | |
|---------|-----------|--------|------|--------|--------|--------|--------|--------|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -96.18 | 693 | -86.48 | 692 | -78.36 | 691 | -70.27 | 690 | -51.35 | 689 | | | | | | |
| -34.1 | 688 | -18.03 | 687 | -0.01 | 686.16 | 0 | 686.16 | 5.82 | 686 | | | | | | |
| 9.99 | 686 | 29.25 | 687 | 56.05 | 688 | 74.9 | 689 | 92.78 | 690 | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -96.18 | | -96.18 | .045 | 92.78 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -96.18 | 92.78 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 686.11 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 686.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 686.07 | Flow Area (m2) | | 0.75 | |
| E.G. Slope (m/m) | 0.009862 | Area (m2) | | 0.75 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.02 | Top Width (m) | | 10.02 | |
| Vel Total (m/s) | 0.39 | Avg. Vel. (m/s) | | 0.39 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.9 | Conv. (m3/s) | | 2.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.02 | |
| Min Ch El (m) | 686.00 | Shear (N/m2) | | 7.20 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.81 | |
| Frctn Loss (m) | 0.24 | Cum Volume (1000 m3) | | 1.53 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 14.80 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 686.64 | Element | | | |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 686.54 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 686.48 | Flow Area (m2) | | 9.38 | |
| E.G. Slope (m/m) | 0.016902 | Area (m2) | | 9.38 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 28.68 | Top Width (m) | | 28.68 | |
| Vel Total (m/s) | 1.37 | Avg. Vel. (m/s) | | 1.37 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 98.9 | Conv. (m3/s) | | 98.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.71 | |
| Min Ch El (m) | 686.00 | Shear (N/m2) | | 54.17 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 74.25 | |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | | 15.37 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 39.22 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1800.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|--------|-------|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -94.34 | 693 | -85.61 | 692 | -77.68 | 691 | -70.08 | 690 | -52.3 | 689 | | | | | | |
| -34.33 | 688 | -17.82 | 687 | -2.56 | 686 | 0 | 685.74 | 20.23 | 686 | | | | | | |
| 45.88 | 687 | 66.21 | 688 | 84.15 | 689 | 99.57 | 690 | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -94.34 | | -94.34 | .045 | 99.57 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.34 | 99.57 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 685.87 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 685.87 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 685.84 | Flow Area (m2) | | 0.69 | |
| E.G. Slope (m/m) | 0.014590 | Area (m2) | | 0.69 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.98 | Top Width (m) | | 10.98 | |
| Vel Total (m/s) | 0.42 | Avg. Vel. (m/s) | | 0.42 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 2.4 | Conv. (m3/s) | | 2.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.99 | |
| Min Ch El (m) | 685.74 | Shear (N/m2) | | 8.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.79 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 1.52 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 14.59 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 686.36 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 686.30 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 11.60 | |
| E.G. Slope (m/m) | 0.010863 | Area (m2) | | 11.60 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 35.02 | Top Width (m) | | 35.02 | |
| Vel Total (m/s) | 1.11 | Avg. Vel. (m/s) | | 1.11 | |
| Max Chl Dpth (m) | 0.56 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 123.4 | Conv. (m3/s) | | 123.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 35.05 | |
| Min Ch El (m) | 685.74 | Shear (N/m2) | | 35.26 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 39.09 | |
| Frctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 15.16 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 38.59 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1820.0

INPUT

Description:

| Station Elevation Data | | num= | 11 | | | | |
|------------------------|--------|--------|------|--------|------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -91.03 | 689 | -66.23 | 688 | -41.19 | 687 | -17.21 | 686 |
| 0 | 685.32 | 17.88 | 686 | 41.1 | 687 | 60.47 | 688 |
| 98.89 | 690 | | | | | | 689 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -91.03 | | -91.03 | .045 | 98.89 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.03 | 98.89 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 685.47 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 685.45 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 685.44 | Flow Area (m2) | | 0.47 | |
| E.G. Slope (m/m) | 0.028956 | Area (m2) | | 0.47 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 6.94 | Top Width (m) | | 6.94 | |
| Vel Total (m/s) | 0.62 | Avg. Vel. (m/s) | | 0.62 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 1.7 | Conv. (m3/s) | | 1.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.94 | |
| Min Ch El (m) | 685.32 | Shear (N/m2) | | 19.07 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.92 | |
| Frctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 1.51 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 14.41 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 686.01 | Element | | | |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 685.87 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 685.87 | Flow Area (m2) | | 7.73 | |
| E.G. Slope (m/m) | 0.031613 | Area (m2) | | 7.73 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 28.23 | Top Width (m) | | 28.23 | |
| Vel Total (m/s) | 1.66 | Avg. Vel. (m/s) | | 1.66 | |
| Max Chl Dpth (m) | 0.55 | Hydr. Depth (m) | | 0.27 | |
| Conv. Total (m3/s) | 72.3 | Conv. (m3/s) | | 72.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.25 | |
| Min Ch El (m) | 685.32 | Shear (N/m2) | | 84.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 141.10 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 14.97 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 37.95 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1840.0

INPUT

Description:

| Station Elevation Data | | num= | 13 | | | | |
|------------------------|--------|--------|------|-------|------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -78.75 | 688 | -55.96 | 687 | -32.7 | 686 | -10.56 | 685 |
| 0 | 684.94 | 2.08 | 685 | 19.12 | 686 | 36.65 | 687 |
| 71.72 | 689 | 89.25 | 690 | 97.93 | 691 | | 688 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -78.75 | | -78.75 | .045 | 97.93 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -78.75 | 97.93 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 685.03 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 685.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 685.01 | Flow Area (m2) | | 0.71 | |
| E.G. Slope (m/m) | 0.017171 | Area (m2) | | 0.71 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 13.64 | Top Width (m) | | 13.64 | |
| Vel Total (m/s) | 0.41 | Avg. Vel. (m/s) | | 0.41 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.2 | Conv. (m3/s) | | 2.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.64 | |
| Min Ch El (m) | 684.94 | Shear (N/m2) | | 8.82 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.60 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 1.49 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 14.20 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 685.53 | Element | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 685.44 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 685.37 | Flow Area (m2) | | 9.78 | |
| E.G. Slope (m/m) | 0.015564 | Area (m2) | | 9.78 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 29.94 | Top Width (m) | | 29.94 | |
| Vel Total (m/s) | 1.31 | Avg. Vel. (m/s) | | 1.31 | |
| Max Chl Dpth (m) | 0.50 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 103.1 | Conv. (m3/s) | | 103.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.97 | |
| Min Ch El (m) | 684.94 | Shear (N/m2) | | 49.83 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 65.50 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 14.79 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 37.37 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1860.0

INPUT

Description:

| Station Elevation Data | | num= | 14 | | | | | | |
|------------------------|--------|--------|------|--------|------|--------|------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -93.22 | 688 | -68.07 | 687 | -46.01 | 686 | -22.71 | 685 | -.02 | 684.68 |
| 0 | 684.68 | 6.55 | 685 | 19.49 | 686 | 32.43 | 687 | 46.47 | 688 |
| 61.18 | 689 | 75.88 | 690 | 85.27 | 691 | 94.14 | 692 | | |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -93.22 | | -93.22 | .045 | 94.14 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -93.22 | 94.14 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 684.83 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 684.82 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 684.78 | Flow Area (m2) | | 0.93 | |
| E.G. Slope (m/m) | 0.006745 | Area (m2) | | 0.93 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 13.03 | Top Width (m) | | 13.03 | |
| Vel Total (m/s) | 0.31 | Avg. Vel. (m/s) | | 0.31 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 3.5 | Conv. (m3/s) | | 3.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.03 | |
| Min Ch El (m) | 684.68 | Shear (N/m2) | | 4.71 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.48 | |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | | 1.48 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 13.93 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 685.30 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 685.25 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 13.04 | |
| E.G. Slope (m/m) | 0.008266 | Area (m2) | | 13.04 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 38.23 | Top Width (m) | | 38.23 | |
| Vel Total (m/s) | 0.99 | Avg. Vel. (m/s) | | 0.99 | |
| Max Chl Dpth (m) | 0.57 | Hydr. Depth (m) | | 0.34 | |
| Conv. Total (m3/s) | 141.4 | Conv. (m3/s) | | 141.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 38.26 | |
| Min Ch El (m) | 684.68 | Shear (N/m2) | | 27.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.25 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 14.56 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 36.69 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1880.0

INPUT

Description:

| Station Elevation Data | | num= | 15 | | | | | | |
|------------------------|--------|--------|------|--------|------|--------|------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -82.36 | 688 | -64.56 | 687 | -46.14 | 686 | -27.48 | 685 | -.01 | 684.41 |
| 0 | 684.42 | 7.95 | 685 | 20.78 | 686 | 39.03 | 687 | 52.22 | 688 |
| 61.88 | 689 | 72.23 | 690 | 80.4 | 691 | 89.45 | 692 | 96.43 | 693 |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -82.36 | | -82.36 | .045 | 96.43 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -82.36 | 96.43 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 684.55 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 684.53 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 684.52 | Flow Area (m2) | | 0.43 | |
| E.G. Slope (m/m) | 0.038790 | Area (m2) | | 0.43 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 7.23 | Top Width (m) | | 7.23 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | 0.67 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.5 | Conv. (m3/s) | | 1.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.24 | |
| Min Ch El (m) | 684.41 | Shear (N/m2) | | 22.82 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 15.30 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 1.46 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 13.73 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 685.08 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 685.01 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 10.74 | |
| E.G. Slope (m/m) | 0.014420 | Area (m2) | | 10.74 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 35.72 | Top Width (m) | | 35.72 | |
| Vel Total (m/s) | 1.20 | Avg. Vel. (m/s) | | 1.20 | |
| Max Chl Dpth (m) | 0.60 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 107.1 | Conv. (m3/s) | | 107.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 35.75 | |
| Min Ch El (m) | 684.41 | Shear (N/m2) | | 42.49 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 50.87 | |
| Frctn Loss (m) | 0.39 | Cum Volume (1000 m3) | | 14.33 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 35.95 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1900.0

INPUT

Description:

| Station Elevation Data | | num= | 17 | |
|------------------------|------|--------|--------|-------|
| Sta | Elev | Sta | Elev | Sta |
| -85.48 | 688 | -67.54 | 687 | -49.6 |
| -5.5 | 684 | 0 | 684.15 | 13.59 |
| 48.67 | 688 | 60.17 | 689 | 71.69 |
| 91.42 | 693 | 98.01 | 694 | 690 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -85.48 | | -85.48 | .045 | 98.01 | |

| Bank Sta: Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|----------------|-------|----------|------|---------|-------|-------|--------|--------|
| -85.48 | 98.01 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 684.15 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 684.15 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 684.11 | Flow Area (m2) | | 0.68 | |
| E.G. Slope (m/m) | 0.012075 | Area (m2) | | 0.68 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 9.25 | Top Width (m) | | 9.25 | |
| Vel Total (m/s) | 0.43 | Avg. Vel. (m/s) | | 0.43 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.7 | Conv. (m3/s) | | 2.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.25 | |
| Min Ch El (m) | 684.00 | Shear (N/m2) | | 8.70 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.73 | |
| Frctn Loss (m) | 0.28 | Cum Volume (1000 m3) | | 1.45 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 13.57 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 684.68 | Element | | | |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 684.54 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 684.54 | Flow Area (m2) | | 7.78 | |
| E.G. Slope (m/m) | 0.027990 | Area (m2) | | 7.78 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 26.22 | Top Width (m) | | 26.22 | |
| Vel Total (m/s) | 1.65 | Avg. Vel. (m/s) | | 1.65 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 76.9 | Conv. (m3/s) | | 76.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.25 | |
| Min Ch El (m) | 684.00 | Shear (N/m2) | | 81.37 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 134.49 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 14.14 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 35.33 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1920.0

INPUT

Description:

| Station Elevation Data | | num= | 15 | |
|------------------------|--------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -84.63 | 688 | -67.73 | 687 | -50.83 |
| 0 | 683.76 | 5.88 | 684 | 17.63 |
| 52.29 | 688 | 64.09 | 689 | 75.89 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -84.63 | | -84.63 | .045 | 93.33 | |

| Bank Sta: Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|----------------|-------|----------|------|---------|-------|-------|--------|--------|
| -84.63 | 93.33 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 683.87 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 683.87 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 683.85 | Flow Area (m2) | | 0.72 | |
| E.G. Slope (m/m) | 0.016666 | Area (m2) | | 0.72 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 13.54 | Top Width (m) | | 13.54 | |
| Vel Total (m/s) | 0.41 | Avg. Vel. (m/s) | | 0.41 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 2.3 | Conv. (m3/s) | | 2.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.54 | |
| Min Ch El (m) | 683.76 | Shear (N/m2) | | 8.68 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.52 | |
| Frctn Loss (m) | 0.54 | Cum Volume (1000 m3) | | 1.44 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 13.34 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 684.29 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 684.22 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 684.14 | Flow Area (m2) | | 10.97 | |
| E.G. Slope (m/m) | 0.013211 | Area (m2) | | 10.97 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 35.24 | Top Width (m) | | 35.24 | |
| Vel Total (m/s) | 1.17 | Avg. Vel. (m/s) | | 1.17 | |
| Max Chl Dpth (m) | 0.46 | Hydr. Depth (m) | | 0.31 | |
| Conv. Total (m3/s) | 111.9 | Conv. (m3/s) | | 111.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 35.27 | |
| Min Ch El (m) | 683.76 | Shear (N/m2) | | 40.29 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 47.24 | |
| Frctn Loss (m) | 0.39 | Cum Volume (1000 m3) | | 13.95 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 34.72 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1940.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -85.03 | 688 | -69.27 | 687 | -53.57 | 686 | -37.15 | 685 | -24.53 | 684 | | | | | | | | | | | | |
| 0 | 683.18 | 13.77 | 684 | 22.25 | 685 | 34.72 | 686 | 47.18 | 687 | | | | | | | | | | | | |
| 59.49 | 688 | 70.88 | 689 | 82.52 | 690 | 92.48 | 691 | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -85.03 | | -85.03 | .045 | 92.48 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -85.03 | 92.48 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 683.34 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 683.31 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 683.31 | Flow Area (m2) | | 0.37 | |
| E.G. Slope (m/m) | 0.050268 | Area (m2) | | 0.37 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 5.88 | Top Width (m) | | 5.88 | |
| Vel Total (m/s) | 0.79 | Avg. Vel. (m/s) | | 0.79 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.88 | |
| Min Ch El (m) | 683.18 | Shear (N/m2) | | 30.98 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.40 | |
| Frctn Loss (m) | 0.46 | Cum Volume (1000 m3) | | 1.43 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 13.14 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 683.90 | Element | | | |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 683.75 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 683.75 | Flow Area (m2) | | 7.58 | |
| E.G. Slope (m/m) | 0.031088 | Area (m2) | | 7.58 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 26.62 | Top Width (m) | | 26.62 | |
| Vel Total (m/s) | 1.70 | Avg. Vel. (m/s) | | 1.70 | |
| Max Chl Dpth (m) | 0.57 | Hydr. Depth (m) | | 0.28 | |
| Conv. Total (m3/s) | 72.9 | Conv. (m3/s) | | 72.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.65 | |
| Min Ch El (m) | 683.18 | Shear (N/m2) | | 86.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 147.13 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 13.77 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 34.10 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1960.0

INPUT

Description:

| Station | Elevation | Data | num= | 15 | | | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -89.51 | 688 | -74.44 | 687 | -59.36 | 686 | -44.12 | 685 | -27.46 | 684 | | | | | | | | | | | | |
| -16.79 | 683 | 0 | 682.67 | 8.52 | 683 | 17.54 | 684 | 30.94 | 685 | | | | | | | | | | | | |
| 44 | 686 | 57.24 | 687 | 69.91 | 688 | 82.76 | 689 | 96.34 | 690 | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -89.51 | | -89.51 | .045 | 96.34 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -89.51 | 96.34 | | 20 | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 682.81 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 682.80 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 682.77 | Flow Area (m2) | | 0.69 | |
| E.G. Slope (m/m) | 0.013049 | Area (m2) | | 0.69 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.32 | Top Width (m) | | 10.32 | |
| Vel Total (m/s) | 0.42 | Avg. Vel. (m/s) | | 0.42 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.6 | Conv. (m3/s) | | 2.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.32 | |
| Min Ch El (m) | 682.67 | Shear (N/m2) | | 8.60 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.61 | |
| Frctn Loss (m) | 0.45 | Cum Volume (1000 m3) | | 1.42 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.98 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 683.31 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 683.24 | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | 683.13 | Flow Area (m2) | | 10.73 | |
| E.G. Slope (m/m) | 0.011466 | Area (m2) | | 10.73 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 29.98 | Top Width (m) | | 29.98 | |
| Vel Total (m/s) | 1.20 | Avg. Vel. (m/s) | | 1.20 | |
| Max Chl Dpth (m) | 0.57 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 120.1 | Conv. (m3/s) | | 120.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.01 | |
| Min Ch El (m) | 682.67 | Shear (N/m2) | | 40.20 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 48.18 | |
| Frctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 13.58 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 33.53 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -1980.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -87.61 | 687 | -72.23 | 686 | -56.55 | 685 | -38.78 | 684 | -21.45 | 683 | | | | | | | | | | |
| 0 | 682.19 | 11.23 | 683 | 21.92 | 684 | 38.92 | 685 | 50.7 | 686 | | | | | | | | | | |
| 62.34 | 687 | 73.97 | 688 | 85.35 | 689 | 98.13 | 690 | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -87.61 | | -87.61 | .045 | 98.13 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -87.61 | 98.13 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 682.36 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 682.32 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 682.32 | Flow Area (m2) | | 0.36 | |
| E.G. Slope (m/m) | 0.048912 | Area (m2) | | 0.36 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 5.39 | Top Width (m) | | 5.39 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.40 | |
| Min Ch El (m) | 682.19 | Shear (N/m2) | | 32.01 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 25.88 | |
| Frctn Loss (m) | 0.54 | Cum Volume (1000 m3) | | 1.41 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 12.83 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 682.95 | Element | | | |
| Vel Head (m) | 0.16 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 682.79 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 682.79 | Flow Area (m2) | | 7.37 | |
| E.G. Slope (m/m) | 0.030499 | Area (m2) | | 7.37 | |
| Q Total (m3/s) | 12.86 | Flow (m3/s) | | 12.86 | |
| Top Width (m) | 24.38 | Top Width (m) | | 24.38 | |
| Vel Total (m/s) | 1.75 | Avg. Vel. (m/s) | | 1.75 | |
| Max Chl Dpth (m) | 0.60 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 73.6 | Conv. (m3/s) | | 73.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.41 | |
| Min Ch El (m) | 682.19 | Shear (N/m2) | | 90.25 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 157.57 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 13.40 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 32.99 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2000.0

INPUT

Description:

| Station | Elevation | Data | num= | 17 | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|--------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.3 | 687 | -73.83 | 686 | -59.37 | 685 | -43.67 | 684 | -27.41 | 683 | | | | | | | | | | |
| -13.52 | 682 | -0.4 | 681.66 | 0 | 681.66 | 5.23 | 682 | 16.24 | 683 | | | | | | | | | | |
| 38.25 | 684 | 61.68 | 685 | 62.21 | 685 | 69.48 | 685 | 79.93 | 686 | | | | | | | | | | |
| 89.71 | 687 | 99.48 | 688 | | | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|-------|-------|
| -88.3 | | -88.3 | .045 | 99.48 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -88.3 | 99.48 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 681.82 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 681.80 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.58 | |
| E.G. Slope (m/m) | 0.016870 | Area (m2) | | 0.58 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 7.99 | Top Width (m) | | 7.99 | |
| Vel Total (m/s) | 0.50 | Avg. Vel. (m/s) | | 0.50 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.2 | Conv. (m3/s) | | 2.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 8.00 | |
| Min Ch El (m) | 681.66 | Shear (N/m2) | | 12.00 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.03 | |
| Frctn Loss (m) | 0.53 | Cum Volume (1000 m3) | | 1.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.69 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 682.44 | | | | |
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 682.32 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 682.25 | Flow Area (m2) | | 10.48 | |
| E.G. Slope (m/m) | 0.016287 | Area (m2) | | 10.48 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 26.73 | Top Width (m) | | 26.73 | |
| Vel Total (m/s) | 1.52 | Avg. Vel. (m/s) | | 1.52 | |
| Max Chl Dpth (m) | 0.66 | Hydr. Depth (m) | | 0.39 | |
| Conv. Total (m3/s) | 124.7 | Conv. (m3/s) | | 124.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 26.77 | |
| Min Ch El (m) | 681.66 | Shear (N/m2) | | 62.55 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 94.94 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 13.22 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 32.48 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2020.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | | | | | | |
|---------|-----------|--------|-------|--------|-------|--------|------|--------|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -86.71 | 687 | -73.07 | 686 | -60.99 | 685 | -46.39 | 684 | -31.29 | 683 | | | | | | |
| -15.19 | 682 | -.02 | 681.1 | 0 | 681.1 | 13.44 | 682 | 38.19 | 683 | | | | | | |
| 55.8 | 684 | 70.66 | 685 | 83.82 | 686 | 97.11 | 687 | | | | | | | | |

| Manning's n | Values | num= | 3 | | | | | | | | | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|--|--|--|--|--|--|--|--|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | | | | | | | | |
| -86.71 | | -86.71 | .045 | 97.11 | | | | | | | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -86.71 | 97.11 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 681.28 | | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 681.25 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 681.25 | Flow Area (m2) | | 0.34 | |
| E.G. Slope (m/m) | 0.048078 | Area (m2) | | 0.34 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 4.66 | Top Width (m) | | 4.66 | |
| Vel Total (m/s) | 0.85 | Avg. Vel. (m/s) | | 0.85 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.67 | |
| Min Ch El (m) | 681.10 | Shear (N/m2) | | 34.50 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 29.41 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 1.39 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 12.57 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 682.01 | | | | |
| Vel Head (m) | 0.19 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 681.82 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 681.82 | Flow Area (m2) | | 8.32 | |
| E.G. Slope (m/m) | 0.028794 | Area (m2) | | 8.32 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 23.00 | Top Width (m) | | 23.00 | |
| Vel Total (m/s) | 1.91 | Avg. Vel. (m/s) | | 1.91 | |
| Max Chl Dpth (m) | 0.72 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 93.8 | Conv. (m3/s) | | 93.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.05 | |
| Min Ch El (m) | 681.10 | Shear (N/m2) | | 101.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 194.97 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | 13.04 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 31.98 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2040.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | | | | | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|--------|-------|--------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -91.09 | 688 | -81.51 | 687 | -71.94 | 686 | -62.37 | 685 | -48.2 | 684 | | | | | | |
| -34.04 | 683 | -19.25 | 682 | -3.37 | 681 | 0 | 680.68 | .02 | 680.68 | | | | | | |
| 9.58 | 681 | 34.57 | 682 | 45.67 | 683 | 62.09 | 684 | 78.24 | 685 | | | | | | |
| 90.74 | 686 | | | | | | | | | | | | | | |

| Manning's n | Values | num= | 3 | | | | | | | | | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|--|--|--|--|--|--|--|--|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | | | | | | | | |
| -91.09 | | -91.09 | .045 | 90.74 | | | | | | | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.09 | 90.74 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 680.87 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 680.86 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 680.81 | Flow Area (m2) | | 0.63 | |
| E.G. Slope (m/m) | 0.011073 | Area (m2) | | 0.63 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 7.13 | Top Width (m) | | 7.13 | |
| Vel Total (m/s) | 0.46 | Avg. Vel. (m/s) | | 0.46 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 2.8 | Conv. (m3/s) | | 2.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.14 | |
| Min Ch El (m) | 680.68 | Shear (N/m2) | | 9.57 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.43 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | 1.38 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.45 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 681.53 | | | | |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 681.42 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 681.34 | Flow Area (m2) | | 11.19 | |
| E.G. Slope (m/m) | 0.015416 | Area (m2) | | 11.19 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 30.21 | Top Width (m) | | 30.21 | |
| Vel Total (m/s) | 1.42 | Avg. Vel. (m/s) | | 1.42 | |
| Max Chl Dpth (m) | 0.74 | Hydr. Depth (m) | | 0.37 | |
| Conv. Total (m3/s) | 128.2 | Conv. (m3/s) | | 128.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.26 | |
| Min Ch El (m) | 680.68 | Shear (N/m2) | | 55.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 79.52 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 12.84 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 31.45 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 681.10 | | | | |
| Vel Head (m) | 0.17 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 680.94 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 680.94 | Flow Area (m2) | | 8.82 | |
| E.G. Slope (m/m) | 0.029750 | Area (m2) | | 8.82 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 27.31 | Top Width (m) | | 27.31 | |
| Vel Total (m/s) | 1.80 | Avg. Vel. (m/s) | | 1.80 | |
| Max Chl Dpth (m) | 0.65 | Hydr. Depth (m) | | 0.32 | |
| Conv. Total (m3/s) | 92.3 | Conv. (m3/s) | | 92.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 27.34 | |
| Min Ch El (m) | 680.29 | Shear (N/m2) | | 94.16 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 169.82 | |
| Frctn Loss (m) | 0.26 | Cum Volume (1000 m3) | | 12.64 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 30.87 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2060.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|--------|--------|--------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.25 | 688 | -86.26 | 687 | -77.1 | 686 | -68.42 | 685 | -53.91 | 684 | | | | | | | | | | |
| -39.4 | 683 | -24.89 | 682 | -10.41 | 681 | 0 | 680.29 | .02 | 680.29 | | | | | | | | | | |
| 19.6 | 681 | 35.96 | 682 | 50.21 | 683 | 65.06 | 684 | 80.22 | 685 | | | | | | | | | | |
| 91.55 | 686 | | | | | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -95.25 | | -95.25 | .045 | 91.55 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.25 | 91.55 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 680.45 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 680.42 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 680.42 | Flow Area (m2) | | 0.36 | |
| E.G. Slope (m/m) | 0.050672 | Area (m2) | | 0.36 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 5.51 | Top Width (m) | | 5.51 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.52 | |
| Min Ch El (m) | 680.29 | Shear (N/m2) | | 32.38 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 26.23 | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 1.37 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 12.32 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2080.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|--------|--------|--------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -91.33 | 686 | -81.92 | 685 | -63.91 | 684 | -48.33 | 683 | -33.82 | 682 | | | | | | | | | | |
| -18.42 | 681 | -2.39 | 680 | 0 | 679.95 | .03 | 679.95 | 11.24 | 680 | | | | | | | | | | |
| 25.52 | 681 | 40.18 | 682 | 54.84 | 683 | 69.51 | 684 | 84.17 | 685 | | | | | | | | | | |
| 95.12 | 686 | | | | | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -91.33 | | -91.33 | .045 | 95.12 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.33 | 95.12 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 680.05 | | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 680.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 680.01 | Flow Area (m2) | | 0.94 | |
| E.G. Slope (m/m) | 0.007739 | Area (m2) | | 0.94 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 14.90 | Top Width (m) | | 14.90 | |
| Vel Total (m/s) | 0.31 | Avg. Vel. (m/s) | | 0.31 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | | 3.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.91 | |
| Min Ch El (m) | 679.95 | Shear (N/m2) | | 4.79 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.48 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 1.36 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.12 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 680.68 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 680.62 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 680.42 | Flow Area (m2) | | 14.47 | |
| E.G. Slope (m/m) | 0.007151 | Area (m2) | | 14.47 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 32.28 | Top Width (m) | | 32.28 | |
| Vel Total (m/s) | 1.10 | Avg. Vel. (m/s) | | 1.10 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 188.2 | Conv. (m3/s) | | 188.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 32.33 | |
| Min Ch El (m) | 679.95 | Shear (N/m2) | | 31.40 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 34.53 | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | | 12.41 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 30.28 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2100.0

INPUT

Description:

| Station | Elevation | Data | num= | 15 | | | | | | |
|---------|-----------|--------|--------|--------|--------|-------|------|--------|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -97.3 | 685 | -80.21 | 684 | -62.64 | 683 | -44.9 | 682 | -26.73 | 681 | |
| -8.6 | 680 | 0 | 679.74 | .04 | 679.74 | 11.7 | 680 | 26.67 | 681 | |
| 42.09 | 682 | 58.26 | 683 | 73.81 | 684 | 86.93 | 685 | 97.46 | 686 | |

| Manning's n Values | num= | 3 | | | |
|--------------------|-------|-------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -97.3 | | -97.3 | .045 | 97.46 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -97.3 | 97.46 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 679.89 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 679.89 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 679.84 | Flow Area (m2) | | 0.84 | |
| E.G. Slope (m/m) | 0.007825 | Area (m2) | | 0.84 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 11.47 | Top Width (m) | | 11.47 | |
| Vel Total (m/s) | 0.35 | Avg. Vel. (m/s) | | 0.35 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 3.3 | Conv. (m3/s) | | 3.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.47 | |
| Min Ch El (m) | 679.74 | Shear (N/m2) | | 5.65 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.95 | |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | | 1.34 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.85 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 680.56 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 680.52 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 17.52 | |
| E.G. Slope (m/m) | 0.004591 | Area (m2) | | 17.52 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 37.38 | Top Width (m) | | 37.38 | |
| Vel Total (m/s) | 0.91 | Avg. Vel. (m/s) | | 0.91 | |
| Max Chl Dpth (m) | 0.78 | Hydr. Depth (m) | | 0.47 | |
| Conv. Total (m3/s) | 234.9 | Conv. (m3/s) | | 234.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 37.42 | |
| Min Ch El (m) | 679.74 | Shear (N/m2) | | 21.09 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 19.15 | |
| Frctn Loss (m) | 0.12 | Cum Volume (1000 m3) | | 12.09 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 29.58 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2120.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | |
|---------|-----------|--------|--------|--------|--------|--------|------|--------|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -98.26 | 685 | -83.85 | 684 | -64.77 | 683 | -38.69 | 682 | -20.84 | 681 | |
| -4.3 | 680 | 0 | 679.53 | .01 | 679.53 | 14.98 | 680 | 27.98 | 681 | |
| 43.19 | 682 | 60.54 | 683 | 75.86 | 684 | 91.18 | 685 | | | |

| Manning's n Values | num= | 3 | | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -98.26 | | -98.26 | .045 | 91.18 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.26 | 91.18 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 679.72 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 679.71 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.67 | |
| E.G. Slope (m/m) | 0.009316 | Area (m2) | | 0.67 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 7.43 | Top Width (m) | | 7.43 | |
| Vel Total (m/s) | 0.43 | Avg. Vel. (m/s) | | 0.43 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 3.0 | Conv. (m3/s) | | 3.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.45 | |
| Min Ch El (m) | 679.53 | Shear (N/m2) | | 8.27 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.57 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 1.32 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.66 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 680.44 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 680.37 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 13.54 | |
| E.G. Slope (m/m) | 0.008120 | Area (m2) | | 13.54 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 30.07 | Top Width (m) | | 30.07 | |
| Vel Total (m/s) | 1.18 | Avg. Vel. (m/s) | | 1.18 | |
| Max Chl Dpth (m) | 0.84 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 176.6 | Conv. (m3/s) | | 176.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.12 | |
| Min Ch El (m) | 679.53 | Shear (N/m2) | | 35.80 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 42.07 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 11.78 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 28.91 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2140.0

INPUT

Description:

| Station Elevation Data | | num= | 15 | | | | | | |
|------------------------|--------|--------|--------|--------|------|--------|------|-------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -91.76 | 684 | -77.07 | 683 | -61.74 | 682 | -37.88 | 681 | -12.9 | 680 |
| -.01 | 679.33 | 0 | 679.33 | 10.99 | 680 | 24 | 681 | 37.32 | 682 |
| 50.64 | 683 | 63.72 | 684 | 77.09 | 685 | 87.84 | 686 | 99.01 | 687 |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -91.76 | | -91.76 | .045 | 99.01 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.76 | 99.01 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 679.53 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 679.52 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 679.47 | Flow Area (m2) | | 0.64 | |
| E.G. Slope (m/m) | 0.009707 | Area (m2) | | 0.64 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 6.76 | Top Width (m) | | 6.76 | |
| Vel Total (m/s) | 0.45 | Avg. Vel. (m/s) | | 0.45 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 3.0 | Conv. (m3/s) | | 3.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.77 | |
| Min Ch El (m) | 679.33 | Shear (N/m2) | | 9.01 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.10 | |
| Frctn Loss (m) | 0.23 | Cum Volume (1000 m3) | | 1.31 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.52 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 680.25 | Element | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 680.18 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 12.79 | |
| E.G. Slope (m/m) | 0.010044 | Area (m2) | | 12.79 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 30.56 | Top Width (m) | | 30.56 | |
| Vel Total (m/s) | 1.24 | Avg. Vel. (m/s) | | 1.24 | |
| Max Chl Dpth (m) | 0.85 | Hydr. Depth (m) | | 0.42 | |
| Conv. Total (m3/s) | 158.8 | Conv. (m3/s) | | 158.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.61 | |
| Min Ch El (m) | 679.33 | Shear (N/m2) | | 41.15 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 51.21 | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 11.51 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 28.30 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2160.0

INPUT

Description:

| Station Elevation Data | | num= | 15 | | | | | | |
|------------------------|--------|--------|--------|--------|------|--------|------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.66 | 684 | -74.56 | 683 | -60.77 | 682 | -44.92 | 681 | -25.84 | 680 |
| 0 | 679.12 | .02 | 679.12 | 12.07 | 680 | 24.56 | 681 | 37.04 | 682 |
| 48.81 | 683 | 60.61 | 684 | 72.79 | 685 | 84.47 | 686 | 96.75 | 687 |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -88.66 | | -88.66 | .045 | 96.75 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -88.66 | 96.75 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 679.30 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 679.28 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 679.25 | Flow Area (m2) | | 0.59 | |
| E.G. Slope (m/m) | 0.013784 | Area (m2) | | 0.59 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 7.12 | Top Width (m) | | 7.12 | |
| Vel Total (m/s) | 0.49 | Avg. Vel. (m/s) | | 0.49 | |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 2.5 | Conv. (m3/s) | | 2.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.13 | |
| Min Ch El (m) | 679.12 | Shear (N/m2) | | 11.16 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.52 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 1.30 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.38 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 679.93 | Element | | 0.045 | |
| Vel Head (m) | 0.16 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 679.76 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 679.76 | Flow Area (m2) | | 8.89 | |
| E.G. Slope (m/m) | 0.029557 | Area (m2) | | 8.89 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 27.67 | Top Width (m) | | 27.67 | |
| Vel Total (m/s) | 1.79 | Avg. Vel. (m/s) | | 1.79 | |
| Max Chl Dpth (m) | 0.64 | Hydr. Depth (m) | | 0.32 | |
| Conv. Total (m3/s) | 92.6 | Conv. (m3/s) | | 92.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 27.70 | |
| Min Ch El (m) | 679.12 | Shear (N/m2) | | 93.00 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 166.52 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 11.30 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 27.72 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2180.0

INPUT

Description:

| Station | Elevation | Data | num= | 16 | | | | | | |
|---------|-----------|--------|--------|--------|------|--------|------|--------|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -96.73 | 684 | -84.91 | 683 | -73.38 | 682 | -60.55 | 681 | -47.67 | 680 | |
| -17.41 | 679 | 0 | 678.76 | 8.25 | 679 | 15.06 | 680 | 26.98 | 681 | |
| 38.9 | 682 | 51.06 | 683 | 63.7 | 684 | 74.56 | 685 | 85.79 | 686 | |
| 97.03 | 687 | | | | | | | | | |

| Manning's n | Values | num= | 3 | | | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -96.73 | | -96.73 | .045 | 97.03 | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -96.73 | 97.03 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 678.87 | Element | | 0.045 | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 678.86 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 678.85 | Flow Area (m2) | | 0.51 | |
| E.G. Slope (m/m) | 0.036162 | Area (m2) | | 0.51 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.49 | Top Width (m) | | 10.49 | |
| Vel Total (m/s) | 0.57 | Avg. Vel. (m/s) | | 0.57 | |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | | 0.05 | |
| Conv. Total (m3/s) | 1.5 | Conv. (m3/s) | | 1.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.50 | |
| Min Ch El (m) | 678.76 | Shear (N/m2) | | 17.39 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 9.84 | |
| Frctn Loss (m) | 0.52 | Cum Volume (1000 m3) | | 1.29 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.21 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 679.38 | Element | | 0.045 | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 679.29 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 679.22 | Flow Area (m2) | | 11.96 | |
| E.G. Slope (m/m) | 0.015776 | Area (m2) | | 11.96 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 36.29 | Top Width (m) | | 36.29 | |
| Vel Total (m/s) | 1.33 | Avg. Vel. (m/s) | | 1.33 | |
| Max Chl Dpth (m) | 0.53 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 126.7 | Conv. (m3/s) | | 126.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 36.32 | |
| Min Ch El (m) | 678.76 | Shear (N/m2) | | 50.94 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 67.79 | |
| Frctn Loss (m) | 0.43 | Cum Volume (1000 m3) | | 11.09 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 27.08 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2200.0

INPUT

Description:

| Station | Elevation | Data | num= | 11 | | | | | | |
|---------|-----------|-------|--------|--------|------|--------|------|--------|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -99.64 | 684 | -89.2 | 683 | -78.54 | 682 | -67.25 | 681 | -55.95 | 680 | |
| -33.19 | 679 | 0 | 678.19 | 7.89 | 679 | 29.57 | 680 | 49.23 | 681 | |
| 72.98 | 682 | | | | | | | | | |

| Manning's n | Values | num= | 3 | | | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -99.64 | | -99.64 | .045 | 72.98 | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.64 | 72.98 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 678.35 | Element | | 0.045 | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 678.34 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 678.31 | Flow Area (m2) | | 0.54 | |
| E.G. Slope (m/m) | 0.019834 | Area (m2) | | 0.54 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 7.37 | Top Width (m) | | 7.37 | |
| Vel Total (m/s) | 0.54 | Avg. Vel. (m/s) | | 0.54 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.1 | Conv. (m3/s) | | 2.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.38 | |
| Min Ch El (m) | 678.19 | Shear (N/m2) | | 14.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.68 | |
| Frctn Loss (m) | 0.60 | Cum Volume (1000 m3) | | 1.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.03 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 678.94 | | | | |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 678.79 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 678.79 | Flow Area (m2) | | 9.14 | |
| E.G. Slope (m/m) | 0.030623 | Area (m2) | | 9.14 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 30.45 | Top Width (m) | | 30.45 | |
| Vel Total (m/s) | 1.74 | Avg. Vel. (m/s) | | 1.74 | |
| Max Chl Dpth (m) | 0.60 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 90.9 | Conv. (m3/s) | | 90.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.48 | |
| Min Ch El (m) | 678.19 | Shear (N/m2) | | 90.01 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 156.77 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 10.88 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 26.41 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2220.0

INPUT

Description:

| Station | Elevation | Data | num= | 15 | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|-------|--------|-------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -97.94 | 684 | -87.64 | 683 | -77.35 | 682 | -67.05 | 681 | -56.75 | 680 | | | | | | | | | |
| -37.62 | 679 | -14.82 | 678 | -0.02 | 677.6 | 0 | 677.6 | 6.6 | 678 | | | | | | | | | |
| 44.52 | 679 | 63.36 | 680 | 73.27 | 681 | 83.87 | 682 | 93.14 | 683 | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -97.94 | | -97.94 | .045 | 93.14 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| -97.94 | | 93.14 | 20 | 20 | 20 | | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 677.75 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 677.72 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 677.72 | Flow Area (m2) | | 0.38 | |
| E.G. Slope (m/m) | 0.050246 | Area (m2) | | 0.38 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 6.40 | Top Width (m) | | 6.40 | |
| Vel Total (m/s) | 0.76 | Avg. Vel. (m/s) | | 0.76 | |
| Max Chl Dpth (m) | 0.12 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.40 | |
| Min Ch El (m) | 677.60 | Shear (N/m2) | | 29.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 22.41 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 1.27 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 10.89 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 678.33 | | | | |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 678.18 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 678.19 | Flow Area (m2) | | 9.17 | |
| E.G. Slope (m/m) | 0.032944 | Area (m2) | | 9.17 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 32.42 | Top Width (m) | | 32.42 | |
| Vel Total (m/s) | 1.74 | Avg. Vel. (m/s) | | 1.74 | |
| Max Chl Dpth (m) | 0.58 | Hydr. Depth (m) | | 0.28 | |
| Conv. Total (m3/s) | 87.7 | Conv. (m3/s) | | 87.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 32.45 | |
| Min Ch El (m) | 677.60 | Shear (N/m2) | | 91.26 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 158.46 | |
| Frctn Loss (m) | 0.62 | Cum Volume (1000 m3) | | 10.70 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 25.78 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2240.0

INPUT

Description:

| Station | Elevation | Data | num= | 13 | | | | | | | | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -91.53 | 683 | -81.54 | 682 | -71.65 | 681 | -61.18 | 680 | -43.06 | 679 | | | | | | | | | |
| -24.42 | 678 | 0 | 677 | 21.64 | 678 | 48.14 | 679 | 57.84 | 680 | | | | | | | | | |
| 69.21 | 681 | 80 | 682 | 91.06 | 683 | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -91.53 | | -91.53 | .045 | 91.06 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| -91.53 | | 91.06 | 20 | 20 | 20 | | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 677.17 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 677.15 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 677.13 | Flow Area (m2) | | 0.54 | |
| E.G. Slope (m/m) | 0.018605 | Area (m2) | | 0.54 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 7.02 | Top Width (m) | | 7.02 | |
| Vel Total (m/s) | 0.54 | Avg. Vel. (m/s) | | 0.54 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 2.1 | Conv. (m3/s) | | 2.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 7.03 | |
| Min Ch El (m) | 677.00 | Shear (N/m2) | | 13.89 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.56 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 1.26 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 10.76 | |

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REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 677.79 | Element | | | |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 677.64 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 677.62 | Flow Area (m2) | | 9.43 | |
| E.G. Slope (m/m) | 0.026428 | Area (m2) | | 9.43 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 29.47 | Top Width (m) | | 29.47 | |
| Vel Total (m/s) | 1.69 | Avg. Vel. (m/s) | | 1.69 | |
| Max Chl Dpth (m) | 0.64 | Hydr. Depth (m) | | 0.32 | |
| Conv. Total (m3/s) | 97.9 | Conv. (m3/s) | | 97.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.50 | |
| Min Ch El (m) | 677.00 | Shear (N/m2) | | 82.81 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 139.82 | |
| Frctn Loss (m) | 0.56 | Cum Volume (1000 m3) | | 10.51 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 25.16 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2260.0

INPUT

Description:

| Station | Elevation | Data | num= | 14 | | | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|------|--------|------|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.21 | 681 | -78.41 | 680 | -59.03 | 679 | -37.65 | 678 | -15.16 | 677 | | | | | | | | | | | | |
| 0 | 676.43 | .03 | 676.43 | 10.65 | 677 | 36.81 | 678 | 48.6 | 679 | | | | | | | | | | | | |
| 53.31 | 680 | 65.33 | 681 | 78.54 | 682 | 91.4 | 683 | | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|------|-------|
| -95.21 | | -95.21 | .045 | 91.4 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.21 | 91.4 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 676.59 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 676.56 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 676.56 | Flow Area (m2) | | 0.37 | |
| E.G. Slope (m/m) | 0.050535 | Area (m2) | | 0.37 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 5.76 | Top Width (m) | | 5.76 | |
| Vel Total (m/s) | 0.80 | Avg. Vel. (m/s) | | 0.80 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.76 | |
| Min Ch El (m) | 676.43 | Shear (N/m2) | | 31.50 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 25.06 | |
| Frctn Loss (m) | 0.50 | Cum Volume (1000 m3) | | 1.25 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 10.63 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 677.22 | Element | | | |
| Vel Head (m) | 0.16 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 677.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 677.06 | Flow Area (m2) | | 8.96 | |
| E.G. Slope (m/m) | 0.030183 | Area (m2) | | 8.96 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 28.66 | Top Width (m) | | 28.66 | |
| Vel Total (m/s) | 1.78 | Avg. Vel. (m/s) | | 1.78 | |
| Max Chl Dpth (m) | 0.63 | Hydr. Depth (m) | | 0.31 | |
| Conv. Total (m3/s) | 91.6 | Conv. (m3/s) | | 91.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.68 | |
| Min Ch El (m) | 676.43 | Shear (N/m2) | | 92.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 164.22 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 10.33 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 24.58 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2280.0

INPUT

Description:

| Station | Elevation | Data | num= | 15 | | | | | | | | | | | | | | | | | |
|---------|-----------|--------|--------|--------|------|--------|------|-------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.3 | 680 | -79.71 | 679 | -63.78 | 678 | -44.19 | 677 | -8.42 | 676 | | | | | | | | | | | | |
| 0 | 675.87 | .01 | 675.87 | 1.57 | 676 | 22.44 | 677 | 34.7 | 678 | | | | | | | | | | | | |
| 40.04 | 679 | 47.19 | 680 | 59.31 | 681 | 74.67 | 682 | 92.14 | 683 | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|-------|-------|
| -95.3 | | -95.3 | .045 | 92.14 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.3 | 92.14 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 676.01 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 676.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 675.97 | Flow Area (m2) | | 0.66 | |
| E.G. Slope (m/m) | 0.014952 | Area (m2) | | 0.66 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.04 | Top Width (m) | | 10.04 | |
| Vel Total (m/s) | 0.44 | Avg. Vel. (m/s) | | 0.44 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 2.4 | Conv. (m3/s) | | 2.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.04 | |
| Min Ch El (m) | 675.87 | Shear (N/m2) | | 9.62 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.25 | |
| Frctn Loss (m) | 0.50 | Cum Volume (1000 m3) | | 1.24 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 10.47 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 676.58 | Element | | 0.045 | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 20.00 | 20.00 |
| W.S. Elev (m) | 676.50 | Reach Len. (m) | 20.00 | | |
| Crit W.S. (m) | 676.41 | Flow Area (m2) | | 12.60 | |
| E.G. Slope (m/m) | 0.014150 | Area (m2) | | 12.60 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 38.12 | Top Width (m) | | 38.12 | |
| Vel Total (m/s) | 1.26 | Avg. Vel. (m/s) | | 1.26 | |
| Max Chl Dpth (m) | 0.63 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 133.8 | Conv. (m3/s) | | 133.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 38.15 | |
| Min Ch El (m) | 675.87 | Shear (N/m2) | | 45.83 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 57.89 | |
| Frctn Loss (m) | 0.40 | Cum Volume (1000 m3) | | 10.11 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 23.91 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2300.0

INPUT

Description:

| Station | Elevation | Data | num= | 19 | | | | | | |
|---------|-----------|-------|--------|--------|--------|--------|------|--------|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -99.41 | 681 | -87.8 | 680 | -73.86 | 679 | -59.55 | 678 | -42.82 | 677 | |
| -20.5 | 676 | -.01 | 675.34 | 0 | 675.34 | 5.82 | 676 | 6.16 | 676 | |
| 7.36 | 676 | 19.99 | 677 | 33.92 | 678 | 45.37 | 679 | 55.94 | 680 | |
| 65.63 | 681 | 74.94 | 682 | 84.26 | 683 | 93.57 | 684 | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -99.41 | | -99.41 | .045 | 93.57 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.41 | 93.57 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 675.51 | Element | | 0.045 | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 20.00 | 20.00 |
| W.S. Elev (m) | 675.47 | Reach Len. (m) | 20.00 | | |
| Crit W.S. (m) | 675.47 | Flow Area (m2) | | 0.36 | |
| E.G. Slope (m/m) | 0.049442 | Area (m2) | | 0.36 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 5.34 | Top Width (m) | | 5.34 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 1.3 | Conv. (m3/s) | | 1.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 5.35 | |
| Min Ch El (m) | 675.34 | Shear (N/m2) | | 32.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 26.39 | |
| Frctn Loss (m) | 0.24 | Cum Volume (1000 m3) | | 1.23 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 10.32 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 676.17 | Element | | 0.045 | |
| Vel Head (m) | 0.16 | Wt. n-Val. | | 20.00 | 20.00 |
| W.S. Elev (m) | 676.01 | Reach Len. (m) | 20.00 | | |
| Crit W.S. (m) | 676.01 | Flow Area (m2) | | 8.89 | |
| E.G. Slope (m/m) | 0.030146 | Area (m2) | | 8.89 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 28.12 | Top Width (m) | | 28.12 | |
| Vel Total (m/s) | 1.79 | Avg. Vel. (m/s) | | 1.79 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.32 | |
| Conv. Total (m3/s) | 91.7 | Conv. (m3/s) | | 91.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.17 | |
| Min Ch El (m) | 675.34 | Shear (N/m2) | | 93.35 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 167.02 | |
| Frctn Loss (m) | 0.13 | Cum Volume (1000 m3) | | 9.89 | |
| C & E Loss (m) | 0.04 | Cum SA (1000 m2) | | 23.25 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2320.0

INPUT

Description:

| Station | Elevation | Data | num= | 17 | | | | | | |
|---------|-----------|--------|--------|--------|--------|--------|------|--------|------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -90.97 | 680 | -74.34 | 679 | -57.71 | 678 | -41.08 | 677 | -24.45 | 676 | |
| -4.41 | 675 | 0 | 674.94 | .01 | 674.94 | 7.01 | 675 | 16.6 | 676 | |
| 26.47 | 677 | 37.03 | 678 | 49.12 | 679 | 61.38 | 680 | 73.5 | 681 | |
| 84.19 | 682 | 94.29 | 683 | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -90.97 | | -90.97 | .045 | 94.29 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -90.97 | 94.29 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 675.06 | Element | | 0.045 | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 20.00 | 20.00 |
| W.S. Elev (m) | 675.05 | Reach Len. (m) | 20.00 | | |
| Crit W.S. (m) | 675.01 | Flow Area (m2) | | 1.00 | |
| E.G. Slope (m/m) | 0.005261 | Area (m2) | | 1.00 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 13.01 | Top Width (m) | | 13.01 | |
| Vel Total (m/s) | 0.29 | Avg. Vel. (m/s) | | 0.29 | |
| Max Chl Dpth (m) | 0.11 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 4.0 | Conv. (m3/s) | | 4.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.02 | |
| Min Ch El (m) | 674.94 | Shear (N/m2) | | 3.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.15 | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | | 1.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 10.13 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 675.86 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 675.83 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 675.45 | Flow Area (m2) | | 20.04 | |
| E.G. Slope (m/m) | 0.002796 | Area (m2) | | 20.04 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 36.03 | Top Width (m) | | 36.03 | |
| Vel Total (m/s) | 0.79 | Avg. Vel. (m/s) | | 0.79 | |
| Max Chl Dpth (m) | 0.89 | Hydr. Depth (m) | | 0.56 | |
| Conv. Total (m3/s) | 300.9 | Conv. (m3/s) | | 300.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 36.09 | |
| Min Ch El (m) | 674.94 | Shear (N/m2) | | 15.23 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 12.09 | |
| Frctn Loss (m) | 0.05 | Cum Volume (1000 m3) | | 9.61 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 22.61 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2340.0

INPUT

Description:

| Station | Elevation | Data | num= | 18 | | | | | | | |
|---------|-----------|--------|------|--------|--------|--------|--------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.71 | 681 | -77.28 | 680 | -63.04 | 679 | -48.64 | 678 | -34.91 | 677 | | |
| -22.12 | 676 | -9.33 | 675 | 0 | 674.77 | .03 | 674.77 | 4.56 | 675 | | |
| 16.17 | 676 | 28.13 | 677 | 39.85 | 678 | 54.21 | 679 | 69.69 | 680 | | |
| 78.98 | 681 | 88.17 | 682 | 97.52 | 683 | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -88.71 | | -88.71 | .045 | 97.52 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -88.71 | 97.52 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 674.95 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.94 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.90 | |
| E.G. Slope (m/m) | 0.005637 | Area (m2) | | 0.90 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 10.38 | Top Width (m) | | 10.38 | |
| Vel Total (m/s) | 0.33 | Avg. Vel. (m/s) | | 0.33 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 3.9 | Conv. (m3/s) | | 3.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.39 | |
| Min Ch El (m) | 674.77 | Shear (N/m2) | | 4.76 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.55 | |
| Frctn Loss (m) | 0.12 | Cum Volume (1000 m3) | | 1.20 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.90 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 675.81 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 675.78 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 19.70 | |
| E.G. Slope (m/m) | 0.002617 | Area (m2) | | 19.70 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 32.80 | Top Width (m) | | 32.80 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 1.01 | Hydr. Depth (m) | | 0.60 | |
| Conv. Total (m3/s) | 311.1 | Conv. (m3/s) | | 311.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 32.87 | |
| Min Ch El (m) | 674.77 | Shear (N/m2) | | 15.38 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 12.43 | |
| Frctn Loss (m) | 0.06 | Cum Volume (1000 m3) | | 9.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 21.92 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2360.0

INPUT

Description:

| Station | Elevation | Data | num= | 20 | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -92.7 | 683 | -83.98 | 682 | -76.19 | 681 | -68.39 | 680 | -56.17 | 679 | | |
| -43.95 | 678 | -31.44 | 677 | -18.87 | 676 | -6.3 | 675 | 0 | 674.61 | | |
| .01 | 674.61 | 6.28 | 675 | 19.25 | 676 | 32.36 | 677 | 45.57 | 678 | | |
| 59.78 | 679 | 74 | 680 | 82.42 | 681 | 91.03 | 682 | 99.46 | 683 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|-------|-------|
| -92.7 | | -92.7 | .045 | 99.46 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -92.7 | 99.46 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 674.83 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.83 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.75 | |
| E.G. Slope (m/m) | 0.005965 | Area (m2) | | 0.75 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 6.95 | Top Width (m) | | 6.95 | |
| Vel Total (m/s) | 0.39 | Avg. Vel. (m/s) | | 0.39 | |
| Max Chl Dpth (m) | 0.22 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 3.8 | Conv. (m3/s) | | 3.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.97 | |
| Min Ch El (m) | 674.61 | Shear (N/m2) | | 6.30 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.45 | |
| Frctn Loss (m) | 0.13 | Cum Volume (1000 m3) | | 1.18 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.73 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 675.75 | 0.045 | 20.00 |
| Vel Head (m) | 0.04 | 0.045 | 20.00 |
| W.S. Elev (m) | 675.71 | 0.045 | 20.00 |
| Crit W.S. (m) | | 17.74 | 20.00 |
| E.G. Slope (m/m) | 0.003389 | 17.74 | 20.00 |
| Q Total (m3/s) | 15.91 | 15.91 | 20.00 |
| Top Width (m) | 30.64 | 30.64 | 20.00 |
| Vel Total (m/s) | 0.90 | 0.90 | 20.00 |
| Max Chl Dpth (m) | 1.10 | 0.58 | 20.00 |
| Conv. Total (m3/s) | 273.4 | 273.4 | 20.00 |
| Length Wtd. (m) | 20.00 | 30.72 | 20.00 |
| Min Ch El (m) | 674.61 | 19.19 | 20.00 |
| Alpha | 1.00 | 17.22 | 20.00 |
| Frctn Loss (m) | 0.09 | 8.83 | 20.00 |
| C & E Loss (m) | 0.00 | 21.29 | 20.00 |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2380.0

INPUT

Description:

| Station | Elevation | Data | num= | 18 |
|---------|-----------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -90.4 | 682 | -83.19 | 681 | -76.13 |
| -33.02 | 677 | -18.65 | 676 | -4.33 |
| 6.27 | 675 | 20.22 | 676 | 34.16 |
| 76.1 | 680 | 84.11 | 681 | 92.11 |

Manning's n Values

| Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|
| -90.4 | 0.045 | 92.11 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| -90.4 | 92.11 | | 20 | 20 | | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 674.71 | 0.045 | 20.00 |
| Vel Head (m) | 0.01 | 0.045 | 20.00 |
| W.S. Elev (m) | 674.70 | 0.045 | 20.00 |
| Crit W.S. (m) | | 0.63 | 20.00 |
| E.G. Slope (m/m) | 0.006564 | 0.63 | 20.00 |
| Q Total (m3/s) | 0.29 | 0.29 | 20.00 |
| Top Width (m) | 4.89 | 4.89 | 20.00 |
| Vel Total (m/s) | 0.46 | 0.46 | 20.00 |
| Max Chl Dpth (m) | 0.26 | 0.13 | 20.00 |
| Conv. Total (m3/s) | 3.6 | 3.6 | 20.00 |
| Length Wtd. (m) | 20.00 | 4.92 | 20.00 |
| Min Ch El (m) | 674.44 | 8.29 | 20.00 |
| Alpha | 1.00 | 3.81 | 20.00 |
| Frctn Loss (m) | 0.18 | 1.17 | 20.00 |
| C & E Loss (m) | 0.00 | 9.61 | 20.00 |

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 675.66 | 0.045 | 20.00 |
| Vel Head (m) | 0.06 | 0.045 | 20.00 |
| W.S. Elev (m) | 675.59 | 0.045 | 20.00 |
| Crit W.S. (m) | | 14.25 | 20.00 |
| E.G. Slope (m/m) | 0.006063 | 14.25 | 20.00 |
| Q Total (m3/s) | 15.91 | 15.91 | 20.00 |
| Top Width (m) | 27.38 | 27.38 | 20.00 |
| Vel Total (m/s) | 1.12 | 1.12 | 20.00 |
| Max Chl Dpth (m) | 1.15 | 0.52 | 20.00 |
| Conv. Total (m3/s) | 204.4 | 204.4 | 20.00 |
| Length Wtd. (m) | 20.00 | 27.49 | 20.00 |
| Min Ch El (m) | 674.44 | 30.83 | 20.00 |
| Alpha | 1.00 | 34.43 | 20.00 |
| Frctn Loss (m) | 0.19 | 8.51 | 20.00 |
| C & E Loss (m) | 0.01 | 20.71 | 20.00 |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2400.0

INPUT

Description:

| Station | Elevation | Data | num= | 17 |
|---------|-----------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -97.44 | 681 | -85.69 | 680 | -70.17 |
| -19.73 | 676 | -3.33 | 675 | 0 |
| 22.03 | 676 | 35.67 | 677 | 49.31 |
| 84.52 | 681 | 92.6 | 682 | 678 |

Manning's n Values

| Sta | n Val | Sta | n Val |
|--------|-------|------|-------|
| -97.44 | 0.045 | 92.6 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| -97.44 | 92.6 | | 20 | 20 | | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 674.53 | 0.045 | 20.00 |
| Vel Head (m) | 0.02 | 0.045 | 20.00 |
| W.S. Elev (m) | 674.51 | 0.045 | 20.00 |
| Crit W.S. (m) | 674.46 | 0.48 | 20.00 |
| E.G. Slope (m/m) | 0.012431 | 0.48 | 20.00 |
| Q Total (m3/s) | 0.29 | 0.29 | 20.00 |
| Top Width (m) | 3.92 | 3.92 | 20.00 |
| Vel Total (m/s) | 0.61 | 0.61 | 20.00 |
| Max Chl Dpth (m) | 0.24 | 0.12 | 20.00 |
| Conv. Total (m3/s) | 2.6 | 2.6 | 20.00 |
| Length Wtd. (m) | 20.00 | 3.96 | 20.00 |
| Min Ch El (m) | 674.27 | 14.78 | 20.00 |
| Alpha | 1.00 | 8.97 | 20.00 |
| Frctn Loss (m) | 0.21 | 1.15 | 20.00 |
| C & E Loss (m) | 0.00 | 9.52 | 20.00 |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 675.46 | Element | | | |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 675.31 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 9.46 | |
| E.G. Slope (m/m) | 0.016940 | Area (m2) | | 9.46 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 21.17 | Top Width (m) | | 21.17 | |
| Vel Total (m/s) | 1.68 | Avg. Vel. (m/s) | | 1.68 | |
| Max Chl Dpth (m) | 1.04 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 122.3 | Conv. (m3/s) | | 122.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 21.30 | |
| Min Ch El (m) | 674.27 | Shear (N/m2) | | 73.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 124.11 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | 8.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 20.22 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2420.0

INPUT

Description:

| Station | Elevation | Data | num= | 17 | | | | | | | |
|---------|-----------|--------|-------|--------|-------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -98.53 | 680 | -82.64 | 679 | -65.76 | 678 | -48.26 | 677 | -31.63 | 676 | | |
| -13.66 | 675 | -0.01 | 674.1 | 0 | 674.1 | 12.35 | 675 | 24.12 | 676 | | |
| 35.86 | 677 | 47.9 | 678 | 60.2 | 679 | 72.5 | 680 | 81.89 | 681 | | |
| 91.22 | 682 | 99.9 | 683 | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|------|-------|
| -98.53 | | -98.53 | .045 | 99.9 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.53 | 99.9 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 674.32 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.31 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 674.25 | Flow Area (m2) | | 0.62 | |
| E.G. Slope (m/m) | 0.009052 | Area (m2) | | 0.62 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 6.01 | Top Width (m) | | 6.01 | |
| Vel Total (m/s) | 0.47 | Avg. Vel. (m/s) | | 0.47 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 3.1 | Conv. (m3/s) | | 3.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 6.02 | |
| Min Ch El (m) | 674.10 | Shear (N/m2) | | 9.20 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.30 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 1.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.42 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 675.05 | Element | | | |
| Vel Head (m) | 0.18 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 674.87 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 674.85 | Flow Area (m2) | | 8.53 | |
| E.G. Slope (m/m) | 0.025346 | Area (m2) | | 8.53 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 22.19 | Top Width (m) | | 22.19 | |
| Vel Total (m/s) | 1.87 | Avg. Vel. (m/s) | | 1.87 | |
| Max Chl Dpth (m) | 0.77 | Hydr. Depth (m) | | 0.38 | |
| Conv. Total (m3/s) | 100.0 | Conv. (m3/s) | | 100.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.25 | |
| Min Ch El (m) | 674.10 | Shear (N/m2) | | 95.25 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 177.80 | |
| Frctn Loss (m) | 0.54 | Cum Volume (1000 m3) | | 8.10 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 19.79 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2440.0

INPUT

Description:

| Station | Elevation | Data | num= | 18 | | | | | | | |
|---------|-----------|-------|--------|--------|--------|--------|------|--------|------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -97.07 | 679 | -78.6 | 678 | -62.02 | 677 | -45.48 | 676 | -27.11 | 675 | | |
| -15.77 | 674 | -0.01 | 673.84 | 0 | 673.84 | 1.93 | 674 | 15.09 | 675 | | |
| 25.79 | 676 | 36.48 | 677 | 47.18 | 678 | 57.88 | 679 | 67.78 | 680 | | |
| 77.01 | 681 | 86.16 | 682 | 95.3 | 683 | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|------|-------|
| -97.07 | | -97.07 | .045 | 95.3 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -97.07 | 95.3 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 673.95 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 673.93 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 673.93 | Flow Area (m2) | | 0.44 | |
| E.G. Slope (m/m) | 0.055550 | Area (m2) | | 0.44 | |
| Q Total (m3/s) | 0.29 | Flow (m3/s) | | 0.29 | |
| Top Width (m) | 9.88 | Top Width (m) | | 9.88 | |
| Vel Total (m/s) | 0.66 | Avg. Vel. (m/s) | | 0.66 | |
| Max Chl Dpth (m) | 0.09 | Hydr. Depth (m) | | 0.04 | |
| Conv. Total (m3/s) | 1.2 | Conv. (m3/s) | | 1.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 9.89 | |
| Min Ch El (m) | 673.84 | Shear (N/m2) | | 24.34 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 16.05 | |
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | | 1.13 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 9.26 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 674.50 | 0.045 | 20.00 |
| Vel Head (m) | 0.17 | 0.045 | 20.00 |
| W.S. Elev (m) | 674.33 | 20.00 | 20.00 |
| Crit W.S. (m) | 674.33 | 8.72 | 8.72 |
| E.G. Slope (m/m) | 0.028902 | 8.72 | 8.72 |
| Q Total (m3/s) | 15.91 | 15.91 | 15.91 |
| Top Width (m) | 25.90 | 25.90 | 25.90 |
| Vel Total (m/s) | 1.83 | 1.83 | 1.83 |
| Max Chl Dpth (m) | 0.49 | 0.34 | 0.34 |
| Conv. Total (m3/s) | 93.6 | 93.6 | 93.6 |
| Length Wtd. (m) | 20.00 | 25.94 | 25.94 |
| Min Ch El (m) | 673.84 | 95.24 | 95.24 |
| Alpha | 1.00 | 173.91 | 173.91 |
| Frctn Loss (m) | 0.28 | 7.92 | 7.92 |
| C & E Loss (m) | 0.03 | 19.31 | 19.31 |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2460.0

INPUT

Description:

| Station | Elevation | Data | num= | 19 | | | | | |
|---------|-----------|-------|------|--------|--------|--------|--------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.2 | 678 | -70.9 | 677 | -54.97 | 676 | -39.09 | 675 | -26.81 | 674 |
| -17.23 | 673 | -7.7 | 673 | -0.02 | 673.42 | 0 | 673.42 | 6.59 | 674 |
| 19.68 | 675 | 28.06 | 676 | 36.65 | 677 | 45.25 | 678 | 53.84 | 679 |
| 62.43 | 680 | 72.21 | 681 | 81.99 | 682 | 91.77 | 683 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|-------|-------|
| -88.2 | | -88.2 | .045 | 91.77 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| -88.2 | | 91.77 | 20 | 20 | | | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 673.13 | 0.045 | 20.00 |
| Vel Head (m) | 0.00 | 0.045 | 20.00 |
| W.S. Elev (m) | 673.13 | 20.00 | 20.00 |
| Crit W.S. (m) | 673.04 | 1.43 | 1.43 |
| E.G. Slope (m/m) | 0.001610 | 1.43 | 1.43 |
| Q Total (m3/s) | 0.29 | 0.29 | 0.29 |
| Top Width (m) | 13.05 | 13.05 | 13.05 |
| Vel Total (m/s) | 0.20 | 0.20 | 0.20 |
| Max Chl Dpth (m) | 0.13 | 0.11 | 0.11 |
| Conv. Total (m3/s) | 7.3 | 7.3 | 7.3 |
| Length Wtd. (m) | 20.00 | 13.06 | 13.06 |
| Min Ch El (m) | 673.00 | 1.73 | 1.73 |
| Alpha | 1.00 | 0.35 | 0.35 |
| Frctn Loss (m) | 0.09 | 1.11 | 1.11 |
| C & E Loss (m) | 0.00 | 9.03 | 9.03 |

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 673.77 | 0.045 | 20.00 |
| Vel Head (m) | 0.08 | 0.045 | 20.00 |
| W.S. Elev (m) | 673.69 | 20.00 | 20.00 |
| Crit W.S. (m) | 673.51 | 12.95 | 12.95 |
| E.G. Slope (m/m) | 0.008120 | 12.95 | 12.95 |
| Q Total (m3/s) | 15.91 | 15.91 | 15.91 |
| Top Width (m) | 26.90 | 26.90 | 26.90 |
| Vel Total (m/s) | 1.23 | 1.23 | 1.23 |
| Max Chl Dpth (m) | 0.69 | 0.48 | 0.48 |
| Conv. Total (m3/s) | 176.6 | 176.6 | 176.6 |
| Length Wtd. (m) | 20.00 | 26.96 | 26.96 |
| Min Ch El (m) | 673.00 | 38.26 | 38.26 |
| Alpha | 1.00 | 47.00 | 47.00 |
| Frctn Loss (m) | 0.28 | 7.71 | 7.71 |
| C & E Loss (m) | 0.01 | 18.78 | 18.78 |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2480.0

INPUT

Description:

| Station | Elevation | Data | num= | 18 | | | | | |
|---------|-----------|--------|------|--------|------|--------|------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -92.42 | 678 | -77.81 | 677 | -62.04 | 676 | -46.75 | 675 | -35.21 | 674 |
| -24.34 | 673 | 0 | 673 | .03 | 673 | 11.75 | 674 | 19.67 | 675 |
| 27.96 | 676 | 36.31 | 677 | 44.73 | 678 | 53.41 | 679 | 62.23 | 680 |
| 73.26 | 681 | 84.49 | 682 | 97.88 | 683 | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -92.42 | | -92.42 | .045 | 97.88 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| -92.42 | | 97.88 | 20 | 20 | | | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 673.04 | 0.045 | 20.00 |
| Vel Head (m) | 0.01 | 0.045 | 20.00 |
| W.S. Elev (m) | 673.03 | 20.00 | 20.00 |
| Crit W.S. (m) | 673.02 | 0.70 | 0.70 |
| E.G. Slope (m/m) | 0.041270 | 0.70 | 0.70 |
| Q Total (m3/s) | 0.29 | 0.29 | 0.29 |
| Top Width (m) | 25.01 | 25.01 | 25.01 |
| Vel Total (m/s) | 0.42 | 0.42 | 0.42 |
| Max Chl Dpth (m) | 0.03 | 0.03 | 0.03 |
| Conv. Total (m3/s) | 1.4 | 1.4 | 1.4 |
| Length Wtd. (m) | 20.00 | 25.01 | 25.01 |
| Min Ch El (m) | 673.00 | 11.33 | 11.33 |
| Alpha | 1.00 | 4.71 | 4.71 |
| Frctn Loss (m) | 0.91 | 1.09 | 1.09 |
| C & E Loss (m) | 0.00 | 8.65 | 8.65 |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 673.48 | Element | | | |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 673.33 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 673.33 | Flow Area (m2) | | 9.35 | |
| E.G. Slope (m/m) | 0.030179 | Area (m2) | | 9.35 | |
| Q Total (m3/s) | 15.91 | Flow (m3/s) | | 15.91 | |
| Top Width (m) | 31.88 | Top Width (m) | | 31.88 | |
| Vel Total (m/s) | 1.70 | Avg. Vel. (m/s) | | 1.70 | |
| Max Chl Dpth (m) | 0.33 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 91.6 | Conv. (m3/s) | | 91.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 31.91 | |
| Min Ch El (m) | 673.00 | Shear (N/m2) | | 86.69 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 147.62 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 7.48 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 18.19 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2500.0

INPUT

Description:

| Station Elevation Data | | num= | 19 | | | | | | | | |
|------------------------|------|--------|------|--------|------|--------|--------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -94.26 | 678 | -80.53 | 677 | -66.67 | 676 | -52.81 | 675 | -40.83 | 674 | | |
| -29.89 | 673 | -19.44 | 672 | -4.81 | 672 | -0.02 | 672.29 | 0 | 672.29 | | |
| 6.63 | 673 | 13.05 | 674 | 19.16 | 675 | 28.88 | 676 | 38.61 | 677 | | |
| 48.37 | 678 | 60.5 | 679 | 72.48 | 680 | 86.98 | 681 | | | | |

Manning's n Values

| Station Elevation Data | | num= | 3 | | | | | |
|------------------------|-------|--------|-------|-------|-------|-----|-------|--|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | |
| -94.26 | | -94.26 | .045 | 86.98 | | | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-94.26 86.98 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 672.12 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 672.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 672.08 | Flow Area (m2) | | 1.33 | |
| E.G. Slope (m/m) | 0.046802 | Area (m2) | | 1.33 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 16.91 | Top Width (m) | | 16.91 | |
| Vel Total (m/s) | 0.88 | Avg. Vel. (m/s) | | 0.88 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 5.4 | Conv. (m3/s) | | 5.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.91 | |
| Min Ch El (m) | 672.00 | Shear (N/m2) | | 36.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.87 | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 1.07 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 8.23 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 672.69 | Element | | | |
| Vel Head (m) | 0.28 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 672.40 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 672.47 | Flow Area (m2) | | 8.07 | |
| E.G. Slope (m/m) | 0.049888 | Area (m2) | | 8.07 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 24.73 | Top Width (m) | | 24.73 | |
| Vel Total (m/s) | 2.35 | Avg. Vel. (m/s) | | 2.35 | |
| Max Chl Dpth (m) | 0.40 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 84.9 | Conv. (m3/s) | | 84.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.76 | |
| Min Ch El (m) | 672.00 | Shear (N/m2) | | 159.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 374.77 | |
| Frctn Loss (m) | 0.78 | Cum Volume (1000 m3) | | 7.31 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 17.62 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2520.0

INPUT

Description:

| Station Elevation Data | | num= | 19 | | | | | | | | |
|------------------------|--------|--------|------|--------|------|--------|------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95 | 678 | -81.53 | 677 | -68.04 | 676 | -54.56 | 675 | -44.65 | 674 | | |
| -34.17 | 673 | -22.87 | 672 | -12.64 | 671 | -7.51 | 671 | -0.03 | 671.56 | | |
| 0 | 671.57 | 3.13 | 672 | 9.35 | 673 | 15.92 | 674 | 22.24 | 675 | | |
| 33.89 | 676 | 46.91 | 677 | 62.02 | 678 | 78.98 | 679 | | | | |

Manning's n Values

| Station Elevation Data | | num= | 3 | | | | | |
|------------------------|-------|------|-------|-------|-------|-----|-------|--|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | |
| -95 | | -95 | .045 | 78.98 | | | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-95 78.98 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 671.26 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 671.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 671.15 | Flow Area (m2) | | 1.88 | |
| E.G. Slope (m/m) | 0.008027 | Area (m2) | | 1.88 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 10.73 | Top Width (m) | | 10.73 | |
| Vel Total (m/s) | 0.62 | Avg. Vel. (m/s) | | 0.62 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 13.1 | Conv. (m3/s) | | 13.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.75 | |
| Min Ch El (m) | 671.00 | Shear (N/m2) | | 13.79 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.60 | |
| Frctn Loss (m) | 0.31 | Cum Volume (1000 m3) | | 1.04 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 7.96 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 671.94 | | | | |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 671.79 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 671.69 | Flow Area (m2) | | 11.32 | |
| E.G. Slope (m/m) | 0.014166 | Area (m2) | | 11.32 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 22.39 | Top Width (m) | | 22.39 | |
| Vel Total (m/s) | 1.68 | Avg. Vel. (m/s) | | 1.68 | |
| Max Chl Dpth (m) | 0.79 | Hydr. Depth (m) | | 0.51 | |
| Conv. Total (m3/s) | 159.4 | Conv. (m3/s) | | 159.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.47 | |
| Min Ch El (m) | 671.00 | Shear (N/m2) | | 70.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 117.30 | |
| Frctn Loss (m) | 0.38 | Cum Volume (1000 m3) | | 7.12 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 17.15 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2540.0

INPUT

Description:

| Station | Elevation | Data | num= | 17 | | | | | | | |
|---------|-----------|--------|------|--------|------|-------|--------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -95.71 | 678 | -82.44 | 677 | -69.17 | 676 | -55.9 | 675 | -46.15 | 674 | | |
| -36.4 | 673 | -26.49 | 672 | -15.12 | 671 | 0 | 670.68 | .03 | 670.68 | | |
| 1.55 | 671 | 9.32 | 672 | 16.41 | 673 | 23.34 | 674 | 30.34 | 675 | | |
| 47.07 | 676 | 63.28 | 677 | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -95.71 | | -95.71 | .045 | 63.28 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.71 | 63.28 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.94 | | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.89 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 670.89 | Flow Area (m2) | | 1.15 | |
| E.G. Slope (m/m) | 0.043062 | Area (m2) | | 1.15 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 10.92 | Top Width (m) | | 10.92 | |
| Vel Total (m/s) | 1.02 | Avg. Vel. (m/s) | | 1.02 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 5.7 | Conv. (m3/s) | | 5.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.94 | |
| Min Ch El (m) | 670.68 | Shear (N/m2) | | 44.24 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 45.33 | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | | 1.01 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 7.74 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 671.55 | | | | |
| Vel Head (m) | 0.21 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 671.34 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 671.34 | Flow Area (m2) | | 9.39 | |
| E.G. Slope (m/m) | 0.027583 | Area (m2) | | 9.39 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 23.13 | Top Width (m) | | 23.13 | |
| Vel Total (m/s) | 2.02 | Avg. Vel. (m/s) | | 2.02 | |
| Max Chl Dpth (m) | 0.66 | Hydr. Depth (m) | | 0.41 | |
| Conv. Total (m3/s) | 114.2 | Conv. (m3/s) | | 114.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.21 | |
| Min Ch El (m) | 670.68 | Shear (N/m2) | | 109.48 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 221.09 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 6.91 | |
| C & E Loss (m) | 0.04 | Cum SA (1000 m2) | | 16.70 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2560.0

INPUT

Description:

| Station | Elevation | Data | num= | 19 | | | | | | | |
|---------|-----------|--------|------|--------|------|--------|------|--------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -98.04 | 678 | -85.21 | 677 | -72.39 | 676 | -59.56 | 675 | -49.81 | 674 | | |
| -40.06 | 673 | -30.3 | 672 | -20.44 | 671 | -10.58 | 670 | 0 | 669.94 | | |
| .05 | 669.94 | 2.81 | 670 | 9.8 | 671 | 17.54 | 672 | 25.78 | 673 | | |
| 33.84 | 674 | 41.91 | 675 | 59.19 | 676 | 94.61 | 677 | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -98.04 | | -98.04 | .045 | 94.61 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.04 | 94.61 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.17 | | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.16 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 670.06 | Flow Area (m2) | | 2.70 | |
| E.G. Slope (m/m) | 0.004109 | Area (m2) | | 2.70 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 16.02 | Top Width (m) | | 16.02 | |
| Vel Total (m/s) | 0.43 | Avg. Vel. (m/s) | | 0.43 | |
| Max Chl Dpth (m) | 0.22 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 18.3 | Conv. (m3/s) | | 18.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.04 | |
| Min Ch El (m) | 669.94 | Shear (N/m2) | | 6.79 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.95 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| | | | |
|----------------|------|----------------------|------|
| Frctn Loss (m) | 0.08 | Cum Volume (1000 m3) | 0.97 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 7.47 |

| | | | |
|----------------|------|----------------------|------|
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | 0.92 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 7.13 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.87 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.80 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 670.50 | Flow Area (m2) | | 16.61 | |
| E.G. Slope (m/m) | 0.005054 | Area (m2) | | 16.61 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 26.93 | Top Width (m) | | 26.93 | |
| Vel Total (m/s) | 1.14 | Avg. Vel. (m/s) | | 1.14 | |
| Max Chl Dpth (m) | 0.86 | Hydr. Depth (m) | | 0.62 | |
| Conv. Total (m3/s) | 266.8 | Conv. (m3/s) | | 266.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 27.03 | |
| Min Ch El (m) | 669.94 | Shear (N/m2) | | 30.46 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 34.78 | |
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | | 6.65 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.20 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.78 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.72 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 18.03 | |
| E.G. Slope (m/m) | 0.004241 | Area (m2) | | 18.03 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 29.00 | Top Width (m) | | 29.00 | |
| Vel Total (m/s) | 1.05 | Avg. Vel. (m/s) | | 1.05 | |
| Max Chl Dpth (m) | 0.90 | Hydr. Depth (m) | | 0.62 | |
| Conv. Total (m3/s) | 291.3 | Conv. (m3/s) | | 291.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.09 | |
| Min Ch El (m) | 669.82 | Shear (N/m2) | | 25.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.12 | |
| Frctn Loss (m) | 0.08 | Cum Volume (1000 m3) | | 6.30 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.64 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2580.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 18 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -91.22 677 -77.66 676 -64.1 675 -52.76 674 -41.41 673 | | |
| -30.07 672 -20.34 671 -11.27 670 0 669.82 .06 669.82 | | |
| 5.66 670 13.39 671 21.16 672 32.25 673 42.73 674 | | |
| 57.77 675 84.67 676 98.05 677 | | |

Manning's n Values

| | | |
|-------------------------------|------|---|
| Sta n Val Sta n Val Sta n Val | num= | 3 |
| -91.22 -91.22 .045 98.05 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -91.22 98.05 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.09 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.08 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.89 | |
| E.G. Slope (m/m) | 0.003915 | Area (m2) | | 2.89 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 18.23 | Top Width (m) | | 18.23 | |
| Vel Total (m/s) | 0.41 | Avg. Vel. (m/s) | | 0.41 | |
| Max Chl Dpth (m) | 0.26 | Hydr. Depth (m) | | 0.16 | |
| Conv. Total (m3/s) | 18.8 | Conv. (m3/s) | | 18.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.24 | |
| Min Ch El (m) | 669.82 | Shear (N/m2) | | 6.08 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.47 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2600.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 18 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -95.32 677 -82.15 676 -68.6 675 -56.47 674 -44.59 673 | | |
| -32.9 672 -21.75 671 -10.59 670 0 669.7 .05 669.7 | | |
| 8.95 670 18.6 671 28.26 672 41.26 673 59.91 674 | | |
| 74.68 675 87.29 676 99.9 677 | | |

Manning's n Values

| | | |
|-------------------------------|------|---|
| Sta n Val Sta n Val Sta n Val | num= | 3 |
| -95.32 -95.32 .045 99.9 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -95.32 99.9 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.00 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.99 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.76 | |
| E.G. Slope (m/m) | 0.004778 | Area (m2) | | 2.76 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 18.93 | Top Width (m) | | 18.93 | |
| Vel Total (m/s) | 0.43 | Avg. Vel. (m/s) | | 0.43 | |
| Max Chl Dpth (m) | 0.29 | Hydr. Depth (m) | | 0.15 | |
| Conv. Total (m3/s) | 17.0 | Conv. (m3/s) | | 17.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 18.94 | |
| Min Ch El (m) | 669.70 | Shear (N/m2) | | 6.83 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.91 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| | | | |
|----------------|------|----------------------|------|
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | 0.86 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 6.76 |

| | | | |
|----------------|------|----------------------|------|
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | 0.80 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 6.40 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.69 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.65 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 19.97 | |
| E.G. Slope (m/m) | 0.003583 | Area (m2) | | 19.97 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 33.02 | Top Width (m) | | 33.02 | |
| Vel Total (m/s) | 0.95 | Avg. Vel. (m/s) | | 0.95 | |
| Max Chl Dpth (m) | 0.95 | Hydr. Depth (m) | | 0.60 | |
| Conv. Total (m3/s) | 316.9 | Conv. (m3/s) | | 316.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 33.09 | |
| Min Ch El (m) | 669.70 | Shear (N/m2) | | 21.20 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 20.14 | |
| Frctn Loss (m) | 0.07 | Cum Volume (1000 m3) | | 5.92 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.02 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.62 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.58 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 21.09 | |
| E.G. Slope (m/m) | 0.003276 | Area (m2) | | 21.09 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 35.40 | Top Width (m) | | 35.40 | |
| Vel Total (m/s) | 0.90 | Avg. Vel. (m/s) | | 0.90 | |
| Max Chl Dpth (m) | 1.01 | Hydr. Depth (m) | | 0.60 | |
| Conv. Total (m3/s) | 331.4 | Conv. (m3/s) | | 331.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 35.47 | |
| Min Ch El (m) | 669.57 | Shear (N/m2) | | 19.10 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.18 | |
| Frctn Loss (m) | 0.08 | Cum Volume (1000 m3) | | 5.51 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 14.33 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2620.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 17 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -90.49 677 -77.76 676 -65.28 675 -54.14 674 -42.56 673 | | |
| -31.13 672 -19.7 671 -8.26 670 0 669.57 .02 669.57 | | |
| 13.01 670 25.82 671 38.06 672 50.29 673 62.56 674 | | |
| 74.85 675 87.92 676 | | |

Manning's n Values

| | | |
|-------------------------------|------|---|
| Sta n Val Sta n Val Sta n Val | num= | 3 |
| -90.49 -90.49 .045 87.92 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -90.49 87.92 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.91 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.90 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.77 | |
| E.G. Slope (m/m) | 0.003966 | Area (m2) | | 2.77 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 16.53 | Top Width (m) | | 16.53 | |
| Vel Total (m/s) | 0.42 | Avg. Vel. (m/s) | | 0.42 | |
| Max Chl Dpth (m) | 0.33 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 18.6 | Conv. (m3/s) | | 18.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.55 | |
| Min Ch El (m) | 669.57 | Shear (N/m2) | | 6.50 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 2.76 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2640.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 17 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -94.2 677 -81.43 676 -67.89 675 -54.85 674 -42.43 673 | | |
| -30.31 672 -18.19 671 -6.17 670 0 669.45 .01 669.45 | | |
| 13.67 670 26.79 671 39.9 672 52.99 673 65.52 674 | | |
| 78.04 675 91.84 676 | | |

Manning's n Values

| | | |
|-------------------------------|------|---|
| Sta n Val Sta n Val Sta n Val | num= | 3 |
| -94.2 -94.2 .045 91.84 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -94.2 91.84 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.83 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.82 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.41 | |
| E.G. Slope (m/m) | 0.004639 | Area (m2) | | 2.41 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 13.18 | Top Width (m) | | 13.18 | |
| Vel Total (m/s) | 0.49 | Avg. Vel. (m/s) | | 0.49 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 17.2 | Conv. (m3/s) | | 17.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.21 | |
| Min Ch El (m) | 669.45 | Shear (N/m2) | | 8.30 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.05 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| | | | |
|----------------|------|----------------------|------|
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | 0.75 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 6.10 |

| | | | |
|----------------|------|------------------|------|
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 5.86 |
|----------------|------|------------------|------|

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.54 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.49 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 18.16 | |
| E.G. Slope (m/m) | 0.004740 | Area (m2) | | 18.16 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 32.13 | Top Width (m) | | 32.13 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 1.04 | Hydr. Depth (m) | | 0.57 | |
| Conv. Total (m3/s) | 275.5 | Conv. (m3/s) | | 275.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 32.20 | |
| Min Ch El (m) | 669.45 | Shear (N/m2) | | 26.22 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.38 | |
| Frctn Loss (m) | 0.12 | Cum Volume (1000 m3) | | 5.12 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 13.66 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2660.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 15 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -94.83 676 -80.21 675 -63.34 674 -48.79 673 -35.3 672 | | |
| -21.28 671 -8.07 670 0 669.33 .01 669.33 11.55 670 | | |
| 25.35 671 39.4 672 54.41 673 74.22 674 90.44 675 | | |

Manning's n Values

| | |
|-------------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val Sta n Val | |
| -94.83 -94.83 .045 90.44 | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -94.83 90.44 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.72 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.70 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.98 | |
| E.G. Slope (m/m) | 0.006814 | Area (m2) | | 1.98 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 10.77 | Top Width (m) | | 10.77 | |
| Vel Total (m/s) | 0.59 | Avg. Vel. (m/s) | | 0.59 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 14.2 | Conv. (m3/s) | | 14.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 10.80 | |
| Min Ch El (m) | 669.33 | Shear (N/m2) | | 12.27 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.27 | |
| Frctn Loss (m) | 0.14 | Cum Volume (1000 m3) | | 0.71 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 670.42 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 670.33 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 14.51 | |
| E.G. Slope (m/m) | 0.008556 | Area (m2) | | 14.51 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 28.52 | Top Width (m) | | 28.52 | |
| Vel Total (m/s) | 1.31 | Avg. Vel. (m/s) | | 1.31 | |
| Max Chl Dpth (m) | 1.00 | Hydr. Depth (m) | | 0.51 | |
| Conv. Total (m3/s) | 205.1 | Conv. (m3/s) | | 205.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.59 | |
| Min Ch El (m) | 669.33 | Shear (N/m2) | | 42.57 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 55.67 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 4.79 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 13.05 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2680.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 13 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -94.18 675 -76.83 674 -56.95 673 -39.43 672 -23.09 671 | | |
| -7.97 670 0 669.21 .01 669.21 17.91 670 34.05 671 | | |
| 54.56 672 87.09 673 98.55 674 | | |

Manning's n Values

| | |
|-------------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val Sta n Val | |
| -94.18 -94.18 .045 98.55 | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -94.18 98.55 20 20 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.57 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.56 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.96 | |
| E.G. Slope (m/m) | 0.007561 | Area (m2) | | 1.96 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 11.33 | Top Width (m) | | 11.33 | |
| Vel Total (m/s) | 0.60 | Avg. Vel. (m/s) | | 0.60 | |
| Max Chl Dpth (m) | 0.35 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 13.5 | Conv. (m3/s) | | 13.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 11.36 | |
| Min Ch El (m) | 669.21 | Shear (N/m2) | | 12.80 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.67 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 0.67 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 5.64 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 670.22 | 0.045 | 20.00 |
| Vel Head (m) | 0.10 | 0.045 | 20.00 |
| W.S. Elev (m) | 670.11 | 20.00 | 20.00 |
| Crit W.S. (m) | | 13.36 | |
| E.G. Slope (m/m) | 0.011728 | 13.36 | |
| Q Total (m3/s) | 18.97 | 18.97 | |
| Top Width (m) | 29.42 | 29.42 | |
| Vel Total (m/s) | 1.42 | 1.42 | |
| Max Chl Dpth (m) | 0.90 | 0.45 | |
| Conv. Total (m3/s) | 175.2 | 175.2 | |
| Length Wtd. (m) | 20.00 | 29.49 | |
| Min Ch El (m) | 669.21 | 52.11 | |
| Alpha | 1.00 | 73.98 | |
| Frctn Loss (m) | 0.32 | 4.51 | |
| C & E Loss (m) | 0.00 | 12.47 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2700.0

INPUT

Description:

| Station | Elevation | Data | num= | 11 |
|---------|-----------|--------|--------|--------|
| -98.21 | 675 | -87.53 | 674 | -73.36 |
| -15.64 | 670 | 0 | 669.09 | .05 |
| 79.77 | 671 | | 669.09 | 28.43 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -98.21 | | -98.21 | .045 | 79.77 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -98.21 | 79.77 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 669.37 | 0.045 | 20.00 |
| Vel Head (m) | 0.02 | 0.045 | 20.00 |
| W.S. Elev (m) | 669.35 | 20.00 | 20.00 |
| Crit W.S. (m) | 669.30 | 1.76 | |
| E.G. Slope (m/m) | 0.013603 | 1.76 | |
| Q Total (m3/s) | 1.17 | 1.17 | |
| Top Width (m) | 13.51 | 13.51 | |
| Vel Total (m/s) | 0.67 | 0.67 | |
| Max Chl Dpth (m) | 0.26 | 0.13 | |
| Conv. Total (m3/s) | 10.1 | 10.1 | |
| Length Wtd. (m) | 20.00 | 13.53 | |
| Min Ch El (m) | 669.09 | 17.39 | |
| Alpha | 1.00 | 11.58 | |
| Frctn Loss (m) | 0.30 | 0.63 | |
| C & E Loss (m) | 0.00 | 5.39 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 669.90 | 0.045 | 20.00 |
| Vel Head (m) | 0.13 | 0.045 | 20.00 |
| W.S. Elev (m) | 669.76 | 20.00 | 20.00 |
| Crit W.S. (m) | 669.73 | 11.71 | |
| E.G. Slope (m/m) | 0.022757 | 11.71 | |
| Q Total (m3/s) | 18.97 | 18.97 | |
| Top Width (m) | 34.83 | 34.83 | |
| Vel Total (m/s) | 1.62 | 1.62 | |
| Max Chl Dpth (m) | 0.67 | 0.34 | |
| Conv. Total (m3/s) | 125.7 | 125.7 | |
| Length Wtd. (m) | 20.00 | 34.86 | |
| Min Ch El (m) | 669.09 | 74.97 | |
| Alpha | 1.00 | 121.44 | |
| Frctn Loss (m) | 0.38 | 4.26 | |
| C & E Loss (m) | 0.01 | 11.83 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2720.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 |
|---------|-----------|--------|--------|--------|
| -86.97 | 673 | -72.17 | 672 | -58.74 |
| 0 | 668.91 | .05 | 668.91 | 7.24 |
| | | | 669 | 29.42 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -86.97 | | -86.97 | .045 | 29.42 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -86.97 | 29.42 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| Element | Left OB | Channel | Right OB |
|--------------------|----------|---------|----------|
| E.G. Elev (m) | 669.07 | 0.045 | 20.00 |
| Vel Head (m) | 0.02 | 0.045 | 20.00 |
| W.S. Elev (m) | 669.05 | 20.00 | 20.00 |
| Crit W.S. (m) | 669.03 | 2.05 | |
| E.G. Slope (m/m) | 0.016902 | 2.05 | |
| Q Total (m3/s) | 1.17 | 1.17 | |
| Top Width (m) | 23.35 | 23.35 | |
| Vel Total (m/s) | 0.57 | 0.57 | |
| Max Chl Dpth (m) | 0.14 | 0.09 | |
| Conv. Total (m3/s) | 9.0 | 9.0 | |
| Length Wtd. (m) | 20.00 | 23.35 | |
| Min Ch El (m) | 668.91 | 14.59 | |
| Alpha | 1.00 | 8.34 | |
| Frctn Loss (m) | 0.43 | 0.59 | |
| C & E Loss (m) | 0.00 | 5.03 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.50 | | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 669.41 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 14.39 | |
| E.G. Slope (m/m) | 0.016315 | Area (m2) | | 14.39 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 45.49 | Top Width (m) | | 45.49 | |
| Vel Total (m/s) | 1.32 | Avg. Vel. (m/s) | | 1.32 | |
| Max Chl Dpth (m) | 0.50 | Hydr. Depth (m) | | 0.32 | |
| Conv. Total (m3/s) | 148.5 | Conv. (m3/s) | | 148.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 45.50 | |
| Min Ch El (m) | 668.91 | Shear (N/m2) | | 50.61 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 66.70 | |
| Frctn Loss (m) | 0.44 | Cum Volume (1000 m3) | | 4.00 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.03 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2740.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 |
|---------|-----------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -98.67 | 672 | -83.05 | 671 | -67.85 |
| 0 | 668.59 | .05 | 668.59 | 18.12 |
| | | | 669 | 28.85 |
| | | | 669 | 28.85 |
| | | | 669 | 28.85 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -98.67 | | -98.67 | .045 | 28.85 | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|--------|-------|----|----|----|----|----|
| -98.67 | 28.85 | 20 | 20 | 20 | .1 | .3 |
|--------|-------|----|----|----|----|----|

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 668.64 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 668.62 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 668.60 | Flow Area (m2) | | 1.75 | |
| E.G. Slope (m/m) | 0.027811 | Area (m2) | | 1.75 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 22.77 | Top Width (m) | | 22.77 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | 0.67 | |
| Max Chl Dpth (m) | 0.14 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 7.0 | Conv. (m3/s) | | 7.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 22.77 | |
| Min Ch El (m) | 668.48 | Shear (N/m2) | | 20.98 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.07 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 0.55 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 4.57 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 669.05 | | | | |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 668.92 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 668.92 | Flow Area (m2) | | 11.54 | |
| E.G. Slope (m/m) | 0.031470 | Area (m2) | | 11.54 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 42.87 | Top Width (m) | | 42.87 | |
| Vel Total (m/s) | 1.64 | Avg. Vel. (m/s) | | 1.64 | |
| Max Chl Dpth (m) | 0.44 | Hydr. Depth (m) | | 0.27 | |
| Conv. Total (m3/s) | 106.9 | Conv. (m3/s) | | 106.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 42.88 | |
| Min Ch El (m) | 668.48 | Shear (N/m2) | | 83.07 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 136.52 | |
| Frctn Loss (m) | 0.50 | Cum Volume (1000 m3) | | 3.74 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 10.14 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2760.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 |
|---------|-----------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -66.13 | 669 | -26.97 | 668 | -25.52 |
| .05 | 668.26 | 26.32 | 669 | 26.71 |
| | | | 669 | 26.71 |
| | | | 669 | 26.71 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -66.13 | | -66.13 | .045 | 26.71 | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|--------|-------|----|----|----|----|----|
| -66.13 | 26.71 | 20 | 20 | 20 | .1 | .3 |
|--------|-------|----|----|----|----|----|

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 668.06 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 668.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 668.02 | Flow Area (m2) | | 1.61 | |
| E.G. Slope (m/m) | 0.030797 | Area (m2) | | 1.61 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 19.89 | Top Width (m) | | 19.89 | |
| Vel Total (m/s) | 0.73 | Avg. Vel. (m/s) | | 0.73 | |
| Max Chl Dpth (m) | 0.15 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 6.7 | Conv. (m3/s) | | 6.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.89 | |
| Min Ch El (m) | 667.88 | Shear (N/m2) | | 24.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.83 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 0.52 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 4.14 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 668.49 | Element | | | |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 668.39 | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | 668.34 | Flow Area (m2) | | 13.66 | |
| E.G. Slope (m/m) | 0.020217 | Area (m2) | | 13.66 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 46.91 | Top Width (m) | | 46.91 | |
| Vel Total (m/s) | 1.39 | Avg. Vel. (m/s) | | 1.39 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 133.4 | Conv. (m3/s) | | 133.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 46.92 | |
| Min Ch El (m) | 667.88 | Shear (N/m2) | | 57.73 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 80.15 | |
| Frctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 3.49 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 9.25 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2780.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | | | | | | |
|---------|-----------|--------|--------|--------|--------|------|--------|-----|--------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -77.48 | 669 | -43.27 | 668 | -29.04 | 667.46 | -.02 | 667.94 | 0 | 667.94 | |
| 4.38 | 668 | 22.02 | 668.58 | | | | | | | |

| Manning's n | Values | num= | 3 | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -77.48 | | -77.48 | .045 | 22.02 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -77.48 | 22.02 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 667.70 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 667.68 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.13 | |
| E.G. Slope (m/m) | 0.011629 | Area (m2) | | 2.13 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 19.22 | Top Width (m) | | 19.22 | |
| Vel Total (m/s) | 0.55 | Avg. Vel. (m/s) | | 0.55 | |
| Max Chl Dpth (m) | 0.22 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 10.9 | Conv. (m3/s) | | 10.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.23 | |
| Min Ch El (m) | 667.46 | Shear (N/m2) | | 12.61 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 6.97 | |
| Frctn Loss (m) | 0.38 | Cum Volume (1000 m3) | | 0.48 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.75 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 668.13 | Element | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 668.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 15.40 | |
| E.G. Slope (m/m) | 0.015258 | Area (m2) | | 15.40 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 51.21 | Top Width (m) | | 51.21 | |
| Vel Total (m/s) | 1.23 | Avg. Vel. (m/s) | | 1.23 | |
| Max Chl Dpth (m) | 0.59 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 153.6 | Conv. (m3/s) | | 153.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 51.22 | |
| Min Ch El (m) | 667.46 | Shear (N/m2) | | 44.98 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 55.41 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 3.20 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 8.26 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2800.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | | | | | | |
|---------|-----------|--------|--------|--------|-------|------|-------|-----|-------|-----|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta |
| -80.31 | 669 | -52.76 | 668 | -29.14 | 667.1 | -.02 | 667.6 | 0 | 667.6 | |
| 8.08 | 668 | 22.21 | 668.13 | | | | | | | |

| Manning's n | Values | num= | 3 | | | | |
|-------------|--------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -80.31 | | -80.31 | .045 | 22.21 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -80.31 | 22.21 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 667.32 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 667.28 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.38 | |
| E.G. Slope (m/m) | 0.036042 | Area (m2) | | 1.38 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 15.28 | Top Width (m) | | 15.28 | |
| Vel Total (m/s) | 0.85 | Avg. Vel. (m/s) | | 0.85 | |
| Max Chl Dpth (m) | 0.18 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 6.2 | Conv. (m3/s) | | 6.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 15.28 | |
| Min Ch El (m) | 667.10 | Shear (N/m2) | | 31.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.16 | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | | 0.45 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 3.40 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 667.76 | Element | | | |
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 667.66 | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | 667.62 | Flow Area (m2) | | 12.98 | |
| E.G. Slope (m/m) | 0.022594 | Area (m2) | | 12.98 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 44.84 | Top Width (m) | | 44.84 | |
| Vel Total (m/s) | 1.46 | Avg. Vel. (m/s) | | 1.46 | |
| Max Chl Dpth (m) | 0.56 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 126.2 | Conv. (m3/s) | | 126.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 44.86 | |
| Min Ch El (m) | 667.10 | Shear (N/m2) | | 64.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 93.69 | |
| Frctn Loss (m) | 0.31 | Cum Volume (1000 m3) | | 2.92 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 7.30 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2820.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 |
|---------|-----------|--------|--------|-------|
| Sta | Elev | Sta | Elev | Sta |
| -81.83 | 669 | -57.32 | 668 | -32.8 |
| -02 | 667.26 | 0 | 667.26 | 20.68 |

| Manning's n | Values | num= | 3 |
|-------------|--------|------|-------|
| Sta | n Val | Sta | n Val |
| -81.83 | -81.83 | .045 | 20.68 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -81.83 | 20.68 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 666.99 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.98 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.51 | |
| E.G. Slope (m/m) | 0.008827 | Area (m2) | | 2.51 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 23.61 | Top Width (m) | | 23.61 | |
| Vel Total (m/s) | 0.47 | Avg. Vel. (m/s) | | 0.47 | |
| Max Chl Dpth (m) | 0.21 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 12.5 | Conv. (m3/s) | | 12.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 23.62 | |
| Min Ch El (m) | 666.77 | Shear (N/m2) | | 9.19 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.30 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 0.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.01 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 667.45 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 667.38 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 16.56 | |
| E.G. Slope (m/m) | 0.011022 | Area (m2) | | 16.56 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 48.13 | Top Width (m) | | 48.13 | |
| Vel Total (m/s) | 1.15 | Avg. Vel. (m/s) | | 1.15 | |
| Max Chl Dpth (m) | 0.61 | Hydr. Depth (m) | | 0.34 | |
| Conv. Total (m3/s) | 180.7 | Conv. (m3/s) | | 180.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 48.15 | |
| Min Ch El (m) | 666.77 | Shear (N/m2) | | 37.18 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 42.58 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 2.62 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 6.37 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2840.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 |
|---------|-----------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -82.6 | 669 | -59.89 | 668 | -36.38 |
| 0 | 666.83 | 5.67 | 667 | 21.8 |

| Manning's n | Values | num= | 3 |
|-------------|--------|------|-------|
| Sta | n Val | Sta | n Val |
| -82.6 | -82.6 | .045 | 21.8 |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -82.6 | 21.8 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 666.65 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 666.60 | Flow Area (m2) | | 1.25 | |
| E.G. Slope (m/m) | 0.045820 | Area (m2) | | 1.25 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 14.36 | Top Width (m) | | 14.36 | |
| Vel Total (m/s) | 0.94 | Avg. Vel. (m/s) | | 0.94 | |
| Max Chl Dpth (m) | 0.17 | Hydr. Depth (m) | | 0.09 | |
| Conv. Total (m3/s) | 5.5 | Conv. (m3/s) | | 5.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 14.36 | |
| Min Ch El (m) | 666.43 | Shear (N/m2) | | 39.24 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 36.74 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 0.37 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 2.63 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 667.10 | Element | | | |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.97 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 666.96 | Flow Area (m2) | | 11.57 | |
| E.G. Slope (m/m) | 0.028675 | Area (m2) | | 11.57 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 40.26 | Top Width (m) | | 40.26 | |
| Vel Total (m/s) | 1.64 | Avg. Vel. (m/s) | | 1.64 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 112.0 | Conv. (m3/s) | | 112.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 40.27 | |
| Min Ch El (m) | 666.43 | Shear (N/m2) | | 80.82 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 132.44 | |
| Frctn Loss (m) | 0.50 | Cum Volume (1000 m3) | | 2.34 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 5.49 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2860.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|--------|--------|--------|--------|-----|--------|-----|------|-----|------|
| -84.69 | 669 | -61.1 | 668 | -37.91 | 667 | -16.57 | 666 | -16.53 | 666 | | | |
| -2.18 | 666 | 0 | 666.15 | 22.62 | 666.66 | | | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-------|-------|-----|-------|-----|-------|
| -84.69 | | -84.69 | .045 | 22.62 | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| -84.69 | | 22.62 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 666.15 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.13 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 666.08 | Flow Area (m2) | | 2.25 | |
| E.G. Slope (m/m) | 0.009578 | Area (m2) | | 2.25 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 19.20 | Top Width (m) | | 19.20 | |
| Vel Total (m/s) | 0.52 | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 12.0 | Conv. (m3/s) | | 12.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.21 | |
| Min Ch El (m) | 666.00 | Shear (N/m2) | | 11.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.74 | |
| Frctn Loss (m) | 0.36 | Cum Volume (1000 m3) | | 0.34 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 2.30 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 666.59 | Element | | | |
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.48 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 666.44 | Flow Area (m2) | | 12.68 | |
| E.G. Slope (m/m) | 0.021999 | Area (m2) | | 12.68 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 41.48 | Top Width (m) | | 41.48 | |
| Vel Total (m/s) | 1.50 | Avg. Vel. (m/s) | | 1.50 | |
| Max Chl Dpth (m) | 0.48 | Hydr. Depth (m) | | 0.31 | |
| Conv. Total (m3/s) | 127.9 | Conv. (m3/s) | | 127.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 41.50 | |
| Min Ch El (m) | 666.00 | Shear (N/m2) | | 65.94 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 98.62 | |
| Frctn Loss (m) | 0.33 | Cum Volume (1000 m3) | | 2.10 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 4.67 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2880.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|--------|-----|--------|--------|--------|--------|------|-----|------|
| -86.1 | 669 | -64.43 | 668 | -41.94 | 667 | -18.34 | 666 | -15.42 | 665.83 | | | |
| 0 | 665.58 | .01 | 665.58 | 16.17 | 666 | 19.42 | 666.06 | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val | Sta | n Val |
|-------------|--------|-------|------|-------|-------|-----|-------|-----|-------|
| -86.1 | | -86.1 | .045 | 19.42 | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| -86.1 | | 19.42 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.78 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.74 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 665.74 | Flow Area (m2) | | 1.32 | |
| E.G. Slope (m/m) | 0.045845 | Area (m2) | | 1.32 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 16.24 | Top Width (m) | | 16.24 | |
| Vel Total (m/s) | 0.89 | Avg. Vel. (m/s) | | 0.89 | |
| Max Chl Dpth (m) | 0.16 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 5.5 | Conv. (m3/s) | | 5.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 16.24 | |
| Min Ch El (m) | 665.58 | Shear (N/m2) | | 36.46 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.51 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 0.30 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 1.94 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 666.25 | Element | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 666.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 14.91 | |
| E.G. Slope (m/m) | 0.012998 | Area (m2) | | 14.91 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 41.80 | Top Width (m) | | 41.80 | |
| Vel Total (m/s) | 1.27 | Avg. Vel. (m/s) | | 1.27 | |
| Max Chl Dpth (m) | 0.59 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 166.4 | Conv. (m3/s) | | 166.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 41.93 | |
| Min Ch El (m) | 665.58 | Shear (N/m2) | | 45.34 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 57.66 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 1.82 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.84 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2900.0

INPUT

Description:

| Station Elevation Data | | num= | 8 | | |
|------------------------|--------|--------|------|--------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev |
| -82.58 | 669 | -61.79 | 668 | -41.09 | 667 |
| 0 | 665.05 | .29 | 665 | 8.3 | 665.73 |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -82.58 | | -82.58 | .045 | 8.3 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -82.58 | 8.3 | | 20 | 20 | 20 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.41 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.40 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 665.27 | Flow Area (m2) | | 2.43 | |
| E.G. Slope (m/m) | 0.004428 | Area (m2) | | 2.43 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 13.03 | Top Width (m) | | 13.03 | |
| Vel Total (m/s) | 0.48 | Avg. Vel. (m/s) | | 0.48 | |
| Max Chl Dpth (m) | 0.40 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 17.7 | Conv. (m3/s) | | 17.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 13.06 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 8.09 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 3.91 | |
| Frctn Loss (m) | 0.06 | Cum Volume (1000 m3) | | 0.26 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.65 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 666.07 | Element | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.99 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 15.61 | |
| E.G. Slope (m/m) | 0.006804 | Area (m2) | | 15.61 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 28.59 | Top Width (m) | | 28.59 | |
| Vel Total (m/s) | 1.22 | Avg. Vel. (m/s) | | 1.22 | |
| Max Chl Dpth (m) | 0.99 | Hydr. Depth (m) | | 0.55 | |
| Conv. Total (m3/s) | 230.0 | Conv. (m3/s) | | 230.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 28.91 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 36.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 43.78 | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | | 1.52 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 3.14 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2920.0

INPUT

Description:

| Station Elevation Data | | num= | 9 | | |
|------------------------|------|--------|-------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev |
| -86 | 669 | -64.72 | 668 | -43.27 | 667 |
| -2.02 | 665 | 0 | 665 | .01 | 665 |
| | | 14.32 | 665.7 | | |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -86 | | -86 | .045 | 14.32 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -86 | 14.32 | | 20 | 20 | 20 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.34 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.34 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.29 | |
| E.G. Slope (m/m) | 0.002389 | Area (m2) | | 3.29 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 17.44 | Top Width (m) | | 17.44 | |
| Vel Total (m/s) | 0.36 | Avg. Vel. (m/s) | | 0.36 | |
| Max Chl Dpth (m) | 0.34 | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 24.0 | Conv. (m3/s) | | 24.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.45 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 4.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.58 | |
| Frctn Loss (m) | 0.05 | Cum Volume (1000 m3) | | 0.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.35 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.95 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.90 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 19.18 | |
| E.G. Slope (m/m) | 0.004521 | Area (m2) | | 19.18 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 35.36 | Top Width (m) | | 35.36 | |
| Vel Total (m/s) | 0.99 | Avg. Vel. (m/s) | | 0.99 | |
| Max Chl Dpth (m) | 0.90 | Hydr. Depth (m) | | 0.54 | |
| Conv. Total (m3/s) | 282.1 | Conv. (m3/s) | | 282.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 35.60 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 23.88 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 23.62 | |
| Frctn Loss (m) | 0.09 | Cum Volume (1000 m3) | | 1.17 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 2.50 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2940.0

INPUT

Description:

| Station Elevation Data | | num= | 7 | | |
|------------------------|------|--------|-------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev |
| -78 | 668 | -44.92 | 667 | -23.76 | 666 |
| 0 | 665 | 15.76 | 665.6 | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-----|-------|-----|-------|-------|-------|
| -78 | | -78 | .045 | 15.76 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|------|---------|-------|-------|--------|--------|
| | -78 | 15.76 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.29 | Element | | | |
| Vel Head (m) | 0.01 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.29 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.49 | |
| E.G. Slope (m/m) | 0.002492 | Area (m2) | | 3.49 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 20.89 | Top Width (m) | | 20.89 | |
| Vel Total (m/s) | 0.34 | Avg. Vel. (m/s) | | 0.34 | |
| Max Chl Dpth (m) | 0.29 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 23.5 | Conv. (m3/s) | | 23.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 20.90 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 4.08 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.37 | |
| Frctn Loss (m) | 0.05 | Cum Volume (1000 m3) | | 0.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.96 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.86 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.81 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 19.70 | |
| E.G. Slope (m/m) | 0.004380 | Area (m2) | | 19.70 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 36.95 | Top Width (m) | | 36.95 | |
| Vel Total (m/s) | 0.96 | Avg. Vel. (m/s) | | 0.96 | |
| Max Chl Dpth (m) | 0.81 | Hydr. Depth (m) | | 0.53 | |
| Conv. Total (m3/s) | 286.6 | Conv. (m3/s) | | 286.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 37.20 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 22.75 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 21.90 | |
| Frctn Loss (m) | 0.08 | Cum Volume (1000 m3) | | 0.78 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.77 | |

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2960.0

INPUT

Description:

| Station Elevation Data | | num= | 6 | | |
|------------------------|-------|--------|------|--------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev |
| -76.38 | 667 | -31.53 | 666 | -14.46 | 665.15 |
| 19.95 | 665.6 | | | -4.83 | 665 |
| | | | | 0 | 665 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -76.38 | | -76.38 | .045 | 19.95 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -76.38 | 19.95 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.25 | Element | | | |
| Vel Head (m) | 0.00 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.86 | |
| E.G. Slope (m/m) | 0.002200 | Area (m2) | | 3.86 | |
| Q Total (m3/s) | 1.17 | Flow (m3/s) | | 1.17 | |
| Top Width (m) | 24.40 | Top Width (m) | | 24.40 | |
| Vel Total (m/s) | 0.30 | Avg. Vel. (m/s) | | 0.30 | |
| Max Chl Dpth (m) | 0.24 | Hydr. Depth (m) | | 0.16 | |
| Conv. Total (m3/s) | 25.0 | Conv. (m3/s) | | 25.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 24.41 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 3.41 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 1.04 | |
| Frctn Loss (m) | 0.10 | Cum Volume (1000 m3) | | 0.07 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.51 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.77 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.74 | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 22.11 | |
| E.G. Slope (m/m) | 0.004003 | Area (m2) | | 22.11 | |
| Q Total (m3/s) | 18.97 | Flow (m3/s) | | 18.97 | |
| Top Width (m) | 46.20 | Top Width (m) | | 46.20 | |
| Vel Total (m/s) | 0.86 | Avg. Vel. (m/s) | | 0.86 | |
| Max Chl Dpth (m) | 0.74 | Hydr. Depth (m) | | 0.48 | |
| Conv. Total (m3/s) | 299.8 | Conv. (m3/s) | | 299.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 46.36 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 18.72 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 16.06 | |
| Frctn Loss (m) | 0.18 | Cum Volume (1000 m3) | | 0.36 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 0.94 | |

| | | | | | |
|--------------------|----------|----------------------|------|--------|------|
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.44 | Reach Len. (m) | 2.00 | | 2.00 |
| Crit W.S. (m) | 665.44 | Flow Area (m2) | | 11.80 | |
| E.G. Slope (m/m) | 0.030310 | Area (m2) | | 11.80 | |
| Q Total (m3/s) | 20.24 | Flow (m3/s) | | 20.24 | |
| Top Width (m) | 39.96 | Top Width (m) | | 39.96 | |
| Vel Total (m/s) | 1.72 | Avg. Vel. (m/s) | | 1.72 | |
| Max Chl Dpth (m) | 0.44 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 116.3 | Conv. (m3/s) | | 116.3 | |
| Length Wtd. (m) | 2.00 | Wetted Per. (m) | | 39.98 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 87.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 150.50 | |
| Frctn Loss (m) | 0.06 | Cum Volume (1000 m3) | | 0.02 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.08 | |

CROSS SECTION

CROSS SECTION

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2980.0

INPUT

Description:

| | | |
|------------------------|----------|-------------|
| Station Elevation Data | num= | 4 |
| Sta Elev Sta Elev | Sta Elev | Sta Elev |
| -34.21 666 -14.22 665 | 0 665 | 23.45 665.6 |

Manning's n Values

| | |
|---------------------|-----------|
| num= | 3 |
| Sta n Val Sta n Val | Sta n Val |
| -34.21 -34.21 .045 | 23.45 |

| | | | | | | |
|----------------|-------|---------------|---------|-------|--------------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
| -34.21 | 23.45 | 2 | 2 | 2 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.15 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.13 | Reach Len. (m) | 2.00 | 2.00 | 2.00 |
| Crit W.S. (m) | 665.09 | Flow Area (m2) | | 2.26 | |
| E.G. Slope (m/m) | 0.015819 | Area (m2) | | 2.26 | |
| Q Total (m3/s) | 1.40 | Flow (m3/s) | | 1.40 | |
| Top Width (m) | 21.66 | Top Width (m) | | 21.66 | |
| Vel Total (m/s) | 0.62 | Avg. Vel. (m/s) | | 0.62 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.10 | |
| Conv. Total (m3/s) | 11.1 | Conv. (m3/s) | | 11.1 | |
| Length Wtd. (m) | 2.00 | Wetted Per. (m) | | 21.67 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 16.18 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 10.02 | |
| Frctn Loss (m) | 0.04 | Cum Volume (1000 m3) | | 0.00 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.05 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|---------------|--------|---------|---------|---------|----------|
| E.G. Elev (m) | 665.59 | Element | Left OB | Channel | Right OB |
|---------------|--------|---------|---------|---------|----------|

RIVER: Aryo Valdelacasa
REACH: Completo RS: -2982.6

INPUT

Description:

| | | |
|------------------------|----------|-----------|
| Station Elevation Data | num= | 5 |
| Sta Elev Sta Elev | Sta Elev | Sta Elev |
| -40.19 666 -13.73 666 | 0 665 | 23.91 665 |
| | 44.7 | 665.6 |

Manning's n Values

| | |
|---------------------|-----------|
| num= | 3 |
| Sta n Val Sta n Val | Sta n Val |
| -40.19 -40.19 .045 | 44.7 |

| | | | | | | |
|----------------|-------|---------------|---------|-------|--------------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff Contr. | Expan. |
| -40.19 | 44.7 | 2 | 2 | 2 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.10 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.08 | Reach Len. (m) | | | |
| Crit W.S. (m) | 665.07 | Flow Area (m2) | | 2.09 | |
| E.G. Slope (m/m) | 0.028480 | Area (m2) | | 2.09 | |
| Q Total (m3/s) | 1.40 | Flow (m3/s) | | 1.40 | |
| Top Width (m) | 27.83 | Top Width (m) | | 27.83 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | 0.67 | |
| Max Chl Dpth (m) | 0.08 | Hydr. Depth (m) | | 0.08 | |
| Conv. Total (m3/s) | 8.3 | Conv. (m3/s) | | 8.3 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 27.83 | |
| Min Ch El (m) | 665.00 | Shear (N/m2) | | 21.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.05 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|---------------|--------|----------------|---------|---------|----------|
| E.G. Elev (m) | 665.52 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.18 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.34 | Reach Len. (m) | | | |
| Crit W.S. (m) | 665.37 | Flow Area (m2) | | 10.90 | |

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ANEXO VII

| | | | |
|--------------------|----------|----------------------|--------|
| E.G. Slope (m/m) | 0.039995 | Area (m2) | 10.90 |
| Q Total (m3/s) | 20.24 | Flow (m3/s) | 20.24 |
| Top Width (m) | 40.33 | Top Width (m) | 40.33 |
| Vel Total (m/s) | 1.86 | Avg. Vel. (m/s) | 1.86 |
| Max Chl Dpth (m) | 0.34 | Hydr. Depth (m) | 0.27 |
| Conv. Total (m3/s) | 101.2 | Conv. (m3/s) | 101.2 |
| Length Wtd. (m) | | Wetted Per. (m) | 40.35 |
| Min Ch El (m) | 665.00 | Shear (N/m2) | 105.95 |
| Alpha | 1.00 | Stream Power (N/m s) | 196.76 |
| Frctn Loss (m) | 0.07 | Cum Volume (1000 m3) | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | |

SUMMARY OF MANNING'S N VALUES

River:Aryo Valdelacasa

| Reach | River Sta. | n1 | n2 | n3 |
|----------|------------|----|------|----|
| Completo | 0.0 | | .045 | |
| Completo | -20.0 | | .045 | |
| Completo | -40.0 | | .045 | |
| Completo | -60.0 | | .045 | |
| Completo | -80.0 | | .045 | |
| Completo | -100.0 | | .045 | |
| Completo | -120.0 | | .045 | |
| Completo | -140.0 | | .045 | |
| Completo | -160.0 | | .045 | |
| Completo | -180.0 | | .045 | |
| Completo | -200.0 | | .045 | |
| Completo | -220.0 | | .045 | |
| Completo | -240.0 | | .045 | |
| Completo | -260.0 | | .045 | |
| Completo | -280.0 | | .045 | |
| Completo | -300.0 | | .045 | |
| Completo | -320.0 | | .045 | |
| Completo | -340.0 | | .045 | |
| Completo | -360.0 | | .045 | |
| Completo | -380.0 | | .045 | |
| Completo | -400.0 | | .045 | |
| Completo | -420.0 | | .045 | |
| Completo | -440.0 | | .045 | |
| Completo | -460.0 | | .045 | |
| Completo | -480.0 | | .045 | |
| Completo | -500.0 | | .045 | |
| Completo | -520.0 | | .045 | |
| Completo | -540.0 | | .045 | |
| Completo | -560.0 | | .045 | |
| Completo | -580.0 | | .045 | |
| Completo | -600.0 | | .045 | |
| Completo | -620.0 | | .045 | |
| Completo | -640.0 | | .045 | |
| Completo | -660.0 | | .045 | |
| Completo | -680.0 | | .045 | |
| Completo | -700.0 | | .045 | |
| Completo | -720.0 | | .045 | |
| Completo | -740.0 | | .045 | |
| Completo | -760.0 | | .045 | |
| Completo | -780.0 | | .045 | |
| Completo | -800.0 | | .045 | |
| Completo | -820.0 | | .045 | |
| Completo | -840.0 | | .045 | |
| Completo | -860.0 | | .045 | |
| Completo | -880.0 | | .045 | |
| Completo | -900.0 | | .045 | |
| Completo | -920.0 | | .045 | |
| Completo | -940.0 | | .045 | |
| Completo | -960.0 | | .045 | |
| Completo | -980.0 | | .045 | |
| Completo | -1000.0 | | .045 | |
| Completo | -1020.0 | | .045 | |
| Completo | -1040.0 | | .045 | |
| Completo | -1060.0 | | .045 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

SUMMARY OF MANNING'S N VALUES

River:Aryo Valdelacasa

| Reach | River Sta. | n1 | n2 | n3 |
|----------|------------|----|------|----|
| Completo | -1080.0 | | .045 | |
| Completo | -1100.0 | | .045 | |
| Completo | -1120.0 | | .045 | |
| Completo | -1140.0 | | .045 | |
| Completo | -1160.0 | | .045 | |
| Completo | -1180.0 | | .045 | |
| Completo | -1200.0 | | .045 | |
| Completo | -1220.0 | | .045 | |
| Completo | -1240.0 | | .045 | |
| Completo | -1260.0 | | .045 | |
| Completo | -1280.0 | | .045 | |
| Completo | -1300.0 | | .045 | |
| Completo | -1320.0 | | .045 | |
| Completo | -1340.0 | | .045 | |
| Completo | -1360.0 | | .045 | |
| Completo | -1380.0 | | .045 | |
| Completo | -1400.0 | | .045 | |
| Completo | -1420.0 | | .045 | |
| Completo | -1440.0 | | .045 | |
| Completo | -1460.0 | | .045 | |
| Completo | -1480.0 | | .045 | |
| Completo | -1500.0 | | .045 | |
| Completo | -1520.0 | | .045 | |
| Completo | -1540.0 | | .045 | |
| Completo | -1560.0 | | .045 | |
| Completo | -1580.0 | | .045 | |
| Completo | -1600.0 | | .045 | |
| Completo | -1620.0 | | .045 | |
| Completo | -1640.0 | | .045 | |
| Completo | -1660.0 | | .045 | |
| Completo | -1680.0 | | .045 | |
| Completo | -1700.0 | | .045 | |
| Completo | -1720.0 | | .045 | |
| Completo | -1740.0 | | .045 | |
| Completo | -1760.0 | | .045 | |
| Completo | -1780.0 | | .045 | |
| Completo | -1800.0 | | .045 | |
| Completo | -1820.0 | | .045 | |
| Completo | -1840.0 | | .045 | |
| Completo | -1860.0 | | .045 | |
| Completo | -1880.0 | | .045 | |
| Completo | -1900.0 | | .045 | |
| Completo | -1920.0 | | .045 | |
| Completo | -1940.0 | | .045 | |
| Completo | -1960.0 | | .045 | |
| Completo | -1980.0 | | .045 | |
| Completo | -2000.0 | | .045 | |
| Completo | -2020.0 | | .045 | |
| Completo | -2040.0 | | .045 | |
| Completo | -2060.0 | | .045 | |
| Completo | -2080.0 | | .045 | |
| Completo | -2100.0 | | .045 | |
| Completo | -2120.0 | | .045 | |
| Completo | -2140.0 | | .045 | |

SUMMARY OF MANNING'S N VALUES

River:Aryo Valdelacasa

| Reach | River Sta. | n1 | n2 | n3 |
|----------|------------|----|------|----|
| Completo | -2160.0 | | .045 | |
| Completo | -2180.0 | | .045 | |
| Completo | -2200.0 | | .045 | |
| Completo | -2220.0 | | .045 | |
| Completo | -2240.0 | | .045 | |
| Completo | -2260.0 | | .045 | |
| Completo | -2280.0 | | .045 | |
| Completo | -2300.0 | | .045 | |
| Completo | -2320.0 | | .045 | |
| Completo | -2340.0 | | .045 | |
| Completo | -2360.0 | | .045 | |
| Completo | -2380.0 | | .045 | |
| Completo | -2400.0 | | .045 | |
| Completo | -2420.0 | | .045 | |
| Completo | -2440.0 | | .045 | |
| Completo | -2460.0 | | .045 | |
| Completo | -2480.0 | | .045 | |
| Completo | -2500.0 | | .045 | |
| Completo | -2520.0 | | .045 | |
| Completo | -2540.0 | | .045 | |
| Completo | -2560.0 | | .045 | |
| Completo | -2580.0 | | .045 | |
| Completo | -2600.0 | | .045 | |
| Completo | -2620.0 | | .045 | |
| Completo | -2640.0 | | .045 | |
| Completo | -2660.0 | | .045 | |
| Completo | -2680.0 | | .045 | |
| Completo | -2700.0 | | .045 | |
| Completo | -2720.0 | | .045 | |
| Completo | -2740.0 | | .045 | |
| Completo | -2760.0 | | .045 | |
| Completo | -2780.0 | | .045 | |
| Completo | -2800.0 | | .045 | |
| Completo | -2820.0 | | .045 | |
| Completo | -2840.0 | | .045 | |
| Completo | -2860.0 | | .045 | |
| Completo | -2880.0 | | .045 | |
| Completo | -2900.0 | | .045 | |
| Completo | -2920.0 | | .045 | |
| Completo | -2940.0 | | .045 | |
| Completo | -2960.0 | | .045 | |
| Completo | -2980.0 | | .045 | |
| Completo | -2982.6 | | .045 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

SUMMARY OF REACH LENGTHS

River: Aryo Valdelacasa

| Reach | River Sta. | Left | Channel | Right |
|----------|------------|------|---------|-------|
| Completo | 0.0 | 20 | 20 | 20 |
| Completo | -20.0 | 20 | 20 | 20 |
| Completo | -40.0 | 20 | 20 | 20 |
| Completo | -60.0 | 20 | 20 | 20 |
| Completo | -80.0 | 20 | 20 | 20 |
| Completo | -100.0 | 20 | 20 | 20 |
| Completo | -120.0 | 20 | 20 | 20 |
| Completo | -140.0 | 20 | 20 | 20 |
| Completo | -160.0 | 20 | 20 | 20 |
| Completo | -180.0 | 20 | 20 | 20 |
| Completo | -200.0 | 20 | 20 | 20 |
| Completo | -220.0 | 20 | 20 | 20 |
| Completo | -240.0 | 20 | 20 | 20 |
| Completo | -260.0 | 20 | 20 | 20 |
| Completo | -280.0 | 20 | 20 | 20 |
| Completo | -300.0 | 20 | 20 | 20 |
| Completo | -320.0 | 20 | 20 | 20 |
| Completo | -340.0 | 20 | 20 | 20 |
| Completo | -360.0 | 20 | 20 | 20 |
| Completo | -380.0 | 20 | 20 | 20 |
| Completo | -400.0 | 20 | 20 | 20 |
| Completo | -420.0 | 20 | 20 | 20 |
| Completo | -440.0 | 20 | 20 | 20 |
| Completo | -460.0 | 20 | 20 | 20 |
| Completo | -480.0 | 20 | 20 | 20 |
| Completo | -500.0 | 20 | 20 | 20 |
| Completo | -520.0 | 20 | 20 | 20 |
| Completo | -540.0 | 20 | 20 | 20 |
| Completo | -560.0 | 20 | 20 | 20 |
| Completo | -580.0 | 20 | 20 | 20 |
| Completo | -600.0 | 20 | 20 | 20 |
| Completo | -620.0 | 20 | 20 | 20 |
| Completo | -640.0 | 20 | 20 | 20 |
| Completo | -660.0 | 20 | 20 | 20 |
| Completo | -680.0 | 20 | 20 | 20 |
| Completo | -700.0 | 20 | 20 | 20 |
| Completo | -720.0 | 20 | 20 | 20 |
| Completo | -740.0 | 20 | 20 | 20 |
| Completo | -760.0 | 20 | 20 | 20 |
| Completo | -780.0 | 20 | 20 | 20 |
| Completo | -800.0 | 20 | 20 | 20 |
| Completo | -820.0 | 20 | 20 | 20 |
| Completo | -840.0 | 20 | 20 | 20 |
| Completo | -860.0 | 20 | 20 | 20 |
| Completo | -880.0 | 20 | 20 | 20 |
| Completo | -900.0 | 20 | 20 | 20 |
| Completo | -920.0 | 20 | 20 | 20 |
| Completo | -940.0 | 20 | 20 | 20 |
| Completo | -960.0 | 20 | 20 | 20 |
| Completo | -980.0 | 20 | 20 | 20 |
| Completo | -1000.0 | 20 | 20 | 20 |
| Completo | -1020.0 | 20 | 20 | 20 |
| Completo | -1040.0 | 20 | 20 | 20 |
| Completo | -1060.0 | 20 | 20 | 20 |

SUMMARY OF MANNING'S N VALUES

River: Aryo Valdelacasa

| Reach | River Sta. | n1 | n2 | n3 |
|----------|------------|----|----|----|
| Completo | -1080.0 | 20 | 20 | 20 |
| Completo | -1100.0 | 20 | 20 | 20 |
| Completo | -1120.0 | 20 | 20 | 20 |
| Completo | -1140.0 | 20 | 20 | 20 |
| Completo | -1160.0 | 20 | 20 | 20 |
| Completo | -1180.0 | 20 | 20 | 20 |
| Completo | -1200.0 | 20 | 20 | 20 |
| Completo | -1220.0 | 20 | 20 | 20 |
| Completo | -1240.0 | 20 | 20 | 20 |
| Completo | -1260.0 | 20 | 20 | 20 |
| Completo | -1280.0 | 20 | 20 | 20 |
| Completo | -1300.0 | 20 | 20 | 20 |
| Completo | -1320.0 | 20 | 20 | 20 |
| Completo | -1340.0 | 20 | 20 | 20 |
| Completo | -1360.0 | 20 | 20 | 20 |
| Completo | -1380.0 | 20 | 20 | 20 |
| Completo | -1400.0 | 20 | 20 | 20 |
| Completo | -1420.0 | 20 | 20 | 20 |
| Completo | -1440.0 | 20 | 20 | 20 |
| Completo | -1460.0 | 20 | 20 | 20 |
| Completo | -1480.0 | 20 | 20 | 20 |
| Completo | -1500.0 | 20 | 20 | 20 |
| Completo | -1520.0 | 20 | 20 | 20 |
| Completo | -1540.0 | 20 | 20 | 20 |
| Completo | -1560.0 | 20 | 20 | 20 |
| Completo | -1580.0 | 20 | 20 | 20 |
| Completo | -1600.0 | 20 | 20 | 20 |
| Completo | -1620.0 | 20 | 20 | 20 |
| Completo | -1640.0 | 20 | 20 | 20 |
| Completo | -1660.0 | 20 | 20 | 20 |
| Completo | -1680.0 | 20 | 20 | 20 |
| Completo | -1700.0 | 20 | 20 | 20 |
| Completo | -1720.0 | 20 | 20 | 20 |
| Completo | -1740.0 | 20 | 20 | 20 |
| Completo | -1760.0 | 20 | 20 | 20 |
| Completo | -1780.0 | 20 | 20 | 20 |
| Completo | -1800.0 | 20 | 20 | 20 |
| Completo | -1820.0 | 20 | 20 | 20 |
| Completo | -1840.0 | 20 | 20 | 20 |
| Completo | -1860.0 | 20 | 20 | 20 |
| Completo | -1880.0 | 20 | 20 | 20 |
| Completo | -1900.0 | 20 | 20 | 20 |
| Completo | -1920.0 | 20 | 20 | 20 |
| Completo | -1940.0 | 20 | 20 | 20 |
| Completo | -1960.0 | 20 | 20 | 20 |
| Completo | -1980.0 | 20 | 20 | 20 |
| Completo | -2000.0 | 20 | 20 | 20 |
| Completo | -2020.0 | 20 | 20 | 20 |
| Completo | -2040.0 | 20 | 20 | 20 |
| Completo | -2060.0 | 20 | 20 | 20 |
| Completo | -2080.0 | 20 | 20 | 20 |
| Completo | -2100.0 | 20 | 20 | 20 |
| Completo | -2120.0 | 20 | 20 | 20 |
| Completo | -2140.0 | 20 | 20 | 20 |

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ANEXO VII

SUMMARY OF MANNING'S N VALUES

River: Aryo Valdelacasa

| Reach | River Sta. | n1 | n2 | n3 |
|----------|------------|----|----|----|
| Completo | -2160.0 | 20 | 20 | 20 |
| Completo | -2180.0 | 20 | 20 | 20 |
| Completo | -2200.0 | 20 | 20 | 20 |
| Completo | -2220.0 | 20 | 20 | 20 |
| Completo | -2240.0 | 20 | 20 | 20 |
| Completo | -2260.0 | 20 | 20 | 20 |
| Completo | -2280.0 | 20 | 20 | 20 |
| Completo | -2300.0 | 20 | 20 | 20 |
| Completo | -2320.0 | 20 | 20 | 20 |
| Completo | -2340.0 | 20 | 20 | 20 |
| Completo | -2360.0 | 20 | 20 | 20 |
| Completo | -2380.0 | 20 | 20 | 20 |
| Completo | -2400.0 | 20 | 20 | 20 |
| Completo | -2420.0 | 20 | 20 | 20 |
| Completo | -2440.0 | 20 | 20 | 20 |
| Completo | -2460.0 | 20 | 20 | 20 |
| Completo | -2480.0 | 20 | 20 | 20 |
| Completo | -2500.0 | 20 | 20 | 20 |
| Completo | -2520.0 | 20 | 20 | 20 |
| Completo | -2540.0 | 20 | 20 | 20 |
| Completo | -2560.0 | 20 | 20 | 20 |
| Completo | -2580.0 | 20 | 20 | 20 |
| Completo | -2600.0 | 20 | 20 | 20 |
| Completo | -2620.0 | 20 | 20 | 20 |
| Completo | -2640.0 | 20 | 20 | 20 |
| Completo | -2660.0 | 20 | 20 | 20 |
| Completo | -2680.0 | 20 | 20 | 20 |
| Completo | -2700.0 | 20 | 20 | 20 |
| Completo | -2720.0 | 20 | 20 | 20 |
| Completo | -2740.0 | 20 | 20 | 20 |
| Completo | -2760.0 | 20 | 20 | 20 |
| Completo | -2780.0 | 20 | 20 | 20 |
| Completo | -2800.0 | 20 | 20 | 20 |
| Completo | -2820.0 | 20 | 20 | 20 |
| Completo | -2840.0 | 20 | 20 | 20 |
| Completo | -2860.0 | 20 | 20 | 20 |
| Completo | -2880.0 | 20 | 20 | 20 |
| Completo | -2900.0 | 20 | 20 | 20 |
| Completo | -2920.0 | 20 | 20 | 20 |
| Completo | -2940.0 | 20 | 20 | 20 |
| Completo | -2960.0 | 20 | 20 | 20 |
| Completo | -2980.0 | 2 | 2 | 2 |
| Completo | -2982.6 | 2 | 2 | 2 |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Aryo Valdelacasa

| Reach | River Sta. | Contr. | Expan. |
|----------|------------|--------|--------|
| Completo | 0.0 | .1 | .3 |
| Completo | -20.0 | .1 | .3 |
| Completo | -40.0 | .1 | .3 |
| Completo | -60.0 | .1 | .3 |
| Completo | -80.0 | .1 | .3 |
| Completo | -100.0 | .1 | .3 |
| Completo | -120.0 | .1 | .3 |
| Completo | -140.0 | .1 | .3 |
| Completo | -160.0 | .1 | .3 |
| Completo | -180.0 | .1 | .3 |
| Completo | -200.0 | .1 | .3 |
| Completo | -220.0 | .1 | .3 |
| Completo | -240.0 | .1 | .3 |
| Completo | -260.0 | .1 | .3 |
| Completo | -280.0 | .1 | .3 |
| Completo | -300.0 | .1 | .3 |
| Completo | -320.0 | .1 | .3 |
| Completo | -340.0 | .1 | .3 |
| Completo | -360.0 | .1 | .3 |
| Completo | -380.0 | .1 | .3 |
| Completo | -400.0 | .1 | .3 |
| Completo | -420.0 | .1 | .3 |
| Completo | -440.0 | .1 | .3 |
| Completo | -460.0 | .1 | .3 |
| Completo | -480.0 | .1 | .3 |
| Completo | -500.0 | .1 | .3 |
| Completo | -520.0 | .1 | .3 |
| Completo | -540.0 | .1 | .3 |
| Completo | -560.0 | .1 | .3 |
| Completo | -580.0 | .1 | .3 |
| Completo | -600.0 | .1 | .3 |
| Completo | -620.0 | .1 | .3 |
| Completo | -640.0 | .1 | .3 |
| Completo | -660.0 | .1 | .3 |
| Completo | -680.0 | .1 | .3 |
| Completo | -700.0 | .1 | .3 |
| Completo | -720.0 | .1 | .3 |
| Completo | -740.0 | .1 | .3 |
| Completo | -760.0 | .1 | .3 |
| Completo | -780.0 | .1 | .3 |
| Completo | -800.0 | .1 | .3 |
| Completo | -820.0 | .1 | .3 |
| Completo | -840.0 | .1 | .3 |
| Completo | -860.0 | .1 | .3 |
| Completo | -880.0 | .1 | .3 |
| Completo | -900.0 | .1 | .3 |
| Completo | -920.0 | .1 | .3 |
| Completo | -940.0 | .1 | .3 |
| Completo | -960.0 | .1 | .3 |
| Completo | -980.0 | .1 | .3 |
| Completo | -1000.0 | .1 | .3 |
| Completo | -1020.0 | .1 | .3 |
| Completo | -1040.0 | .1 | .3 |
| Completo | -1060.0 | .1 | .3 |

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ANEXO VII

SUMMARY OF MANNING'S N VALUES

River:Aryo Valdelacasa

| Reach | River Sta. | n1 | n2 | n3 |
|----------|------------|----|----|----|
| Completo | -1080.0 | .1 | .3 | |
| Completo | -1100.0 | .1 | .3 | |
| Completo | -1120.0 | .1 | .3 | |
| Completo | -1140.0 | .1 | .3 | |
| Completo | -1160.0 | .1 | .3 | |
| Completo | -1180.0 | .1 | .3 | |
| Completo | -1200.0 | .1 | .3 | |
| Completo | -1220.0 | .1 | .3 | |
| Completo | -1240.0 | .1 | .3 | |
| Completo | -1260.0 | .1 | .3 | |
| Completo | -1280.0 | .1 | .3 | |
| Completo | -1300.0 | .1 | .3 | |
| Completo | -1320.0 | .1 | .3 | |
| Completo | -1340.0 | .1 | .3 | |
| Completo | -1360.0 | .1 | .3 | |
| Completo | -1380.0 | .1 | .3 | |
| Completo | -1400.0 | .1 | .3 | |
| Completo | -1420.0 | .1 | .3 | |
| Completo | -1440.0 | .1 | .3 | |
| Completo | -1460.0 | .1 | .3 | |
| Completo | -1480.0 | .1 | .3 | |
| Completo | -1500.0 | .1 | .3 | |
| Completo | -1520.0 | .1 | .3 | |
| Completo | -1540.0 | .1 | .3 | |
| Completo | -1560.0 | .1 | .3 | |
| Completo | -1580.0 | .1 | .3 | |
| Completo | -1600.0 | .1 | .3 | |
| Completo | -1620.0 | .1 | .3 | |
| Completo | -1640.0 | .1 | .3 | |
| Completo | -1660.0 | .1 | .3 | |
| Completo | -1680.0 | .1 | .3 | |
| Completo | -1700.0 | .1 | .3 | |
| Completo | -1720.0 | .1 | .3 | |
| Completo | -1740.0 | .1 | .3 | |
| Completo | -1760.0 | .1 | .3 | |
| Completo | -1780.0 | .1 | .3 | |
| Completo | -1800.0 | .1 | .3 | |
| Completo | -1820.0 | .1 | .3 | |
| Completo | -1840.0 | .1 | .3 | |
| Completo | -1860.0 | .1 | .3 | |
| Completo | -1880.0 | .1 | .3 | |
| Completo | -1900.0 | .1 | .3 | |
| Completo | -1920.0 | .1 | .3 | |
| Completo | -1940.0 | .1 | .3 | |
| Completo | -1960.0 | .1 | .3 | |
| Completo | -1980.0 | .1 | .3 | |

SUMMARY OF MANNING'S N VALUES

River:Aryo Valdelacasa

| Reach | River Sta. | n1 | n2 | n3 |
|----------|------------|----|----|----|
| Completo | -2000.0 | .1 | .3 | |
| Completo | -2020.0 | .1 | .3 | |
| Completo | -2040.0 | .1 | .3 | |
| Completo | -2060.0 | .1 | .3 | |
| Completo | -2080.0 | .1 | .3 | |
| Completo | -2100.0 | .1 | .3 | |
| Completo | -2120.0 | .1 | .3 | |
| Completo | -2140.0 | .1 | .3 | |
| Completo | -2160.0 | .1 | .3 | |
| Completo | -2180.0 | .1 | .3 | |
| Completo | -2200.0 | .1 | .3 | |
| Completo | -2220.0 | .1 | .3 | |
| Completo | -2240.0 | .1 | .3 | |
| Completo | -2260.0 | .1 | .3 | |
| Completo | -2280.0 | .1 | .3 | |
| Completo | -2300.0 | .1 | .3 | |
| Completo | -2320.0 | .1 | .3 | |
| Completo | -2340.0 | .1 | .3 | |
| Completo | -2360.0 | .1 | .3 | |
| Completo | -2380.0 | .1 | .3 | |
| Completo | -2400.0 | .1 | .3 | |
| Completo | -2420.0 | .1 | .3 | |
| Completo | -2440.0 | .1 | .3 | |
| Completo | -2460.0 | .1 | .3 | |
| Completo | -2480.0 | .1 | .3 | |
| Completo | -2500.0 | .1 | .3 | |
| Completo | -2520.0 | .1 | .3 | |
| Completo | -2540.0 | .1 | .3 | |
| Completo | -2560.0 | .1 | .3 | |
| Completo | -2580.0 | .1 | .3 | |
| Completo | -2600.0 | .1 | .3 | |
| Completo | -2620.0 | .1 | .3 | |
| Completo | -2640.0 | .1 | .3 | |
| Completo | -2660.0 | .1 | .3 | |
| Completo | -2680.0 | .1 | .3 | |
| Completo | -2700.0 | .1 | .3 | |
| Completo | -2720.0 | .1 | .3 | |
| Completo | -2740.0 | .1 | .3 | |
| Completo | -2760.0 | .1 | .3 | |
| Completo | -2780.0 | .1 | .3 | |
| Completo | -2800.0 | .1 | .3 | |
| Completo | -2820.0 | .1 | .3 | |
| Completo | -2840.0 | .1 | .3 | |
| Completo | -2860.0 | .1 | .3 | |
| Completo | -2880.0 | .1 | .3 | |
| Completo | -2900.0 | .1 | .3 | |
| Completo | -2920.0 | .1 | .3 | |
| Completo | -2940.0 | .1 | .3 | |
| Completo | -2960.0 | .1 | .3 | |
| Completo | -2980.0 | .1 | .3 | |
| Completo | -2982.6 | .1 | .3 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Completo | 0.0 | T= 5 años | 0.01 | 745.49 | 745.54 | 745.54 | 745.55 | 0.052706 | 0.45 | 0.03 | 0.99 | 0.89 |
| Completo | 0.0 | T= 500 años | 0.38 | 745.49 | 745.69 | 745.69 | 745.74 | 0.044229 | 1.01 | 0.37 | 3.72 | 1.01 |
| Completo | -20.0 | T= 5 años | 0.01 | 741.47 | 741.50 | 741.53 | 741.98 | 6.072406 | 3.08 | 0.00 | 0.29 | 8.44 |
| Completo | -20.0 | T= 500 años | 0.38 | 741.47 | 741.59 | 741.72 | 742.89 | 2.307614 | 5.05 | 0.07 | 1.26 | 6.64 |
| Completo | -40.0 | T= 5 años | 0.01 | 738.87 | 738.92 | 738.92 | 738.94 | 0.070936 | 0.53 | 0.02 | 0.85 | 1.03 |
| Completo | -40.0 | T= 500 años | 0.38 | 738.87 | 739.07 | 739.08 | 739.14 | 0.056442 | 1.15 | 0.33 | 3.21 | 1.15 |
| Completo | -60.0 | T= 5 años | 0.01 | 737.00 | 737.06 | 737.06 | 737.09 | 0.125717 | 0.74 | 0.02 | 0.56 | 1.38 |
| Completo | -60.0 | T= 500 años | 0.38 | 737.00 | 737.20 | 737.26 | 737.38 | 0.152989 | 1.87 | 0.20 | 1.96 | 1.87 |
| Completo | -80.0 | T= 5 años | 0.01 | 735.13 | 735.20 | 735.20 | 735.21 | 0.071947 | 0.60 | 0.02 | 0.63 | 1.06 |
| Completo | -80.0 | T= 500 años | 0.38 | 735.13 | 735.37 | 735.39 | 735.46 | 0.064323 | 1.35 | 0.28 | 2.33 | 1.24 |
| Completo | -100.0 | T= 5 años | 0.01 | 733.90 | 733.96 | 733.96 | 733.98 | 0.078409 | 0.61 | 0.02 | 0.64 | 1.10 |
| Completo | -100.0 | T= 500 años | 0.38 | 733.90 | 734.14 | 734.15 | 734.22 | 0.059499 | 1.30 | 0.29 | 2.43 | 1.20 |
| Completo | -120.0 | T= 5 años | 0.01 | 732.72 | 732.78 | 732.78 | 732.79 | 0.055198 | 0.52 | 0.02 | 0.74 | 0.93 |
| Completo | -120.0 | T= 500 años | 0.38 | 732.72 | 732.94 | 732.96 | 733.02 | 0.060354 | 1.26 | 0.30 | 2.66 | 1.20 |
| Completo | -140.0 | T= 5 años | 0.01 | 731.54 | 731.60 | 731.60 | 731.61 | 0.063476 | 0.54 | 0.02 | 0.75 | 0.99 |
| Completo | -140.0 | T= 500 años | 0.38 | 731.54 | 731.76 | 731.77 | 731.84 | 0.058277 | 1.23 | 0.31 | 2.76 | 1.18 |
| Completo | -160.0 | T= 5 años | 0.01 | 730.36 | 730.42 | 730.42 | 730.43 | 0.055291 | 0.50 | 0.02 | 0.82 | 0.92 |
| Completo | -160.0 | T= 500 años | 0.38 | 730.36 | 730.57 | 730.59 | 730.64 | 0.060784 | 1.22 | 0.31 | 2.93 | 1.19 |
| Completo | -180.0 | T= 5 años | 0.01 | 729.30 | 729.35 | 729.34 | 729.35 | 0.042396 | 0.37 | 0.03 | 1.42 | 0.78 |
| Completo | -180.0 | T= 500 años | 0.38 | 729.30 | 729.46 | 729.46 | 729.51 | 0.052665 | 0.95 | 0.40 | 4.93 | 1.07 |
| Completo | -200.0 | T= 5 años | 0.01 | 728.29 | 728.34 | 728.34 | 728.35 | 0.059651 | 0.47 | 0.03 | 0.99 | 0.94 |
| Completo | -200.0 | T= 500 años | 0.38 | 728.29 | 728.49 | 728.49 | 728.54 | 0.044559 | 1.00 | 0.38 | 3.81 | 1.01 |
| Completo | -220.0 | T= 5 años | 0.01 | 727.28 | 727.34 | 727.33 | 727.35 | 0.042845 | 0.44 | 0.03 | 0.92 | 0.81 |
| Completo | -220.0 | T= 500 años | 0.38 | 727.28 | 727.49 | 727.50 | 727.55 | 0.054661 | 1.14 | 0.33 | 3.20 | 1.13 |
| Completo | -240.0 | T= 5 años | 0.01 | 726.27 | 726.32 | 726.32 | 726.33 | 0.061269 | 0.49 | 0.02 | 0.94 | 0.95 |
| Completo | -240.0 | T= 500 años | 0.38 | 726.27 | 726.47 | 726.47 | 726.53 | 0.047780 | 1.04 | 0.36 | 3.59 | 1.05 |
| Completo | -260.0 | T= 5 años | 0.01 | 725.26 | 725.31 | 725.31 | 725.32 | 0.042550 | 0.40 | 0.03 | 1.13 | 0.80 |
| Completo | -260.0 | T= 500 años | 0.38 | 725.26 | 725.44 | 725.45 | 725.50 | 0.055424 | 1.05 | 0.36 | 3.92 | 1.12 |
| Completo | -280.0 | T= 5 años | 0.01 | 724.44 | 724.50 | 724.49 | 724.51 | 0.039305 | 0.41 | 0.03 | 1.04 | 0.77 |
| Completo | -280.0 | T= 500 años | 0.38 | 724.44 | 724.64 | 724.64 | 724.69 | 0.044943 | 1.01 | 0.37 | 3.69 | 1.02 |
| Completo | -300.0 | T= 5 años | 0.01 | 723.69 | 723.74 | | 723.75 | 0.036250 | 0.38 | 0.03 | 1.17 | 0.74 |
| Completo | -300.0 | T= 500 años | 0.38 | 723.69 | 723.89 | 723.88 | 723.93 | 0.033022 | 0.87 | 0.43 | 4.32 | 0.88 |
| Completo | -320.0 | T= 5 años | 0.01 | 722.94 | 722.99 | 722.99 | 723.00 | 0.038753 | 0.38 | 0.03 | 1.21 | 0.76 |
| Completo | -320.0 | T= 500 años | 0.38 | 722.94 | 723.12 | 723.12 | 723.17 | 0.043902 | 0.95 | 0.40 | 4.28 | 1.00 |
| Completo | -340.0 | T= 5 años | 0.01 | 722.19 | 722.24 | 722.23 | 722.24 | 0.036498 | 0.36 | 0.03 | 1.39 | 0.73 |
| Completo | -340.0 | T= 500 años | 0.38 | 722.19 | 722.37 | 722.36 | 722.40 | 0.032158 | 0.80 | 0.47 | 5.17 | 0.85 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Completo | -360.0 | T= 5 años | 0.01 | 721.44 | 721.47 | 721.47 | 721.48 | 0.039969 | 0.29 | 0.04 | 2.51 | 0.72 |
| Completo | -360.0 | T= 500 años | 0.38 | 721.44 | 721.55 | 721.55 | 721.58 | 0.054094 | 0.76 | 0.49 | 8.61 | 1.02 |
| Completo | -380.0 | T= 5 años | 0.01 | 720.00 | 720.04 | 720.04 | 720.05 | 0.074564 | 0.45 | 0.03 | 1.36 | 1.01 |
| Completo | -380.0 | T= 500 años | 0.38 | 720.00 | 720.14 | 720.16 | 720.20 | 0.090353 | 1.13 | 0.33 | 4.77 | 1.37 |
| Completo | -400.0 | T= 5 años | 0.01 | 719.00 | 719.04 | 719.04 | 719.04 | 0.036390 | 0.30 | 0.04 | 2.18 | 0.70 |
| Completo | -400.0 | T= 500 años | 0.38 | 719.00 | 719.13 | 719.13 | 719.16 | 0.054398 | 0.82 | 0.46 | 7.35 | 1.04 |
| Completo | -420.0 | T= 5 años | 0.01 | 718.00 | 718.03 | 718.03 | 718.04 | 0.088825 | 0.41 | 0.03 | 1.88 | 1.06 |
| Completo | -420.0 | T= 500 años | 0.38 | 718.00 | 718.13 | 718.13 | 718.16 | 0.047669 | 0.77 | 0.49 | 7.65 | 0.98 |
| Completo | -440.0 | T= 5 años | 0.01 | 717.00 | 717.04 | 717.04 | 717.04 | 0.032074 | 0.27 | 0.04 | 2.56 | 0.65 |
| Completo | -440.0 | T= 500 años | 0.38 | 717.00 | 717.12 | 717.12 | 717.15 | 0.053593 | 0.77 | 0.49 | 8.44 | 1.02 |
| Completo | -460.0 | T= 5 años | 0.01 | 715.86 | 715.88 | 715.89 | 715.89 | 0.129152 | 0.43 | 0.03 | 2.28 | 1.23 |
| Completo | -460.0 | T= 500 años | 0.38 | 715.86 | 715.96 | 715.96 | 715.99 | 0.062138 | 0.77 | 0.49 | 9.48 | 1.08 |
| Completo | -480.0 | T= 5 años | 0.01 | 715.00 | 715.01 | 715.01 | 715.01 | 0.025206 | 0.13 | 0.09 | 12.52 | 0.50 |
| Completo | -480.0 | T= 500 años | 0.38 | 715.00 | 715.07 | 715.05 | 715.07 | 0.015678 | 0.43 | 0.88 | 14.74 | 0.56 |
| Completo | -500.0 | T= 5 años | 0.01 | 714.53 | 714.57 | 714.56 | 714.57 | 0.019276 | 0.22 | 0.06 | 2.89 | 0.51 |
| Completo | -500.0 | T= 500 años | 0.38 | 714.53 | 714.66 | 714.65 | 714.68 | 0.026081 | 0.58 | 0.65 | 9.91 | 0.73 |
| Completo | -520.0 | T= 5 años | 0.01 | 713.82 | 713.84 | 713.84 | 713.85 | 0.089470 | 0.33 | 0.04 | 3.20 | 1.01 |
| Completo | -520.0 | T= 500 años | 0.38 | 713.82 | 713.91 | 713.91 | 713.93 | 0.057117 | 0.67 | 0.56 | 12.61 | 1.01 |
| Completo | -540.0 | T= 5 años | 0.01 | 713.00 | 713.01 | 713.01 | 713.01 | 0.014394 | 0.11 | 0.11 | 12.99 | 0.38 |
| Completo | -540.0 | T= 500 años | 0.38 | 713.00 | 713.05 | 713.04 | 713.07 | 0.026827 | 0.51 | 0.74 | 14.32 | 0.71 |
| Completo | -560.0 | T= 5 años | 0.01 | 712.17 | 712.20 | 712.21 | 712.23 | 0.308282 | 0.75 | 0.02 | 1.09 | 1.95 |
| Completo | -560.0 | T= 500 años | 0.38 | 712.17 | 712.32 | 712.32 | 712.36 | 0.048450 | 0.88 | 0.43 | 5.58 | 1.02 |
| Completo | -580.0 | T= 5 años | 0.01 | 711.40 | 711.45 | 711.44 | 711.45 | 0.019541 | 0.27 | 0.04 | 1.75 | 0.54 |
| Completo | -580.0 | T= 500 años | 0.38 | 711.40 | 711.57 | 711.56 | 711.60 | 0.030428 | 0.75 | 0.50 | 5.84 | 0.82 |
| Completo | -600.0 | T= 5 años | 0.01 | 710.65 | 710.69 | 710.69 | 710.70 | 0.100407 | 0.50 | 0.02 | 1.27 | 1.16 |
| Completo | -600.0 | T= 500 años | 0.38 | 710.65 | 710.81 | 710.81 | 710.85 | 0.047248 | 0.89 | 0.42 | 5.30 | 1.01 |
| Completo | -620.0 | T= 5 años | 0.29 | 709.98 | 710.06 | 710.03 | 710.06 | 0.007822 | 0.31 | 0.94 | 14.88 | 0.40 |
| Completo | -620.0 | T= 500 años | 2.88 | 709.98 | 710.21 | 710.15 | 710.24 | 0.012273 | 0.78 | 3.67 | 20.35 | 0.59 |
| Completo | -640.0 | T= 5 años | 0.29 | 709.78 | 709.87 | 709.85 | 709.88 | 0.011449 | 0.31 | 0.95 | 20.40 | 0.46 |
| Completo | -640.0 | T= 500 años | 2.88 | 709.78 | 710.01 | 710.02 | 710.02 | 0.009880 | 0.54 | 5.31 | 43.72 | 0.50 |
| Completo | -660.0 | T= 5 años | 0.29 | 709.59 | 709.69 | 709.69 | 709.69 | 0.007412 | 0.26 | 1.11 | 21.86 | 0.37 |
| Completo | -660.0 | T= 500 años | 2.88 | 709.59 | 709.83 | 709.84 | 709.84 | 0.008295 | 0.51 | 5.64 | 44.48 | 0.46 |
| Completo | -680.0 | T= 5 años | 0.29 | 709.40 | 709.49 | 709.47 | 709.49 | 0.014662 | 0.34 | 0.85 | 18.90 | 0.51 |
| Completo | -680.0 | T= 500 años | 2.88 | 709.40 | 709.64 | 709.66 | 709.66 | 0.010015 | 0.62 | 4.61 | 30.92 | 0.52 |
| Completo | -700.0 | T= 5 años | 0.29 | 709.21 | 709.30 | 709.27 | 709.31 | 0.006374 | 0.27 | 1.09 | 18.52 | 0.35 |
| Completo | -700.0 | T= 500 años | 2.88 | 709.21 | 709.46 | 709.48 | 709.48 | 0.007930 | 0.60 | 4.78 | 28.52 | 0.47 |

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ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m ³ /s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m ²) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|--------------------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|--------------------------------|------------------|--------------|
| Completo | -720.0 | T= 5 años | 0.29 | 709.02 | 709.07 | 709.06 | 709.08 | 0.027042 | 0.42 | 0.69 | 17.39 | 0.68 |
| Completo | -720.0 | T= 500 años | 2.88 | 709.02 | 709.19 | 709.17 | 709.23 | 0.022807 | 0.85 | 3.39 | 26.60 | 0.76 |
| Completo | -740.0 | T= 5 años | 0.29 | 708.42 | 708.49 | | 708.50 | 0.030883 | 0.47 | 0.62 | 15.02 | 0.73 |
| Completo | -740.0 | T= 500 años | 2.88 | 708.42 | 708.60 | 708.59 | 708.65 | 0.037386 | 1.00 | 2.88 | 25.62 | 0.95 |
| Completo | -760.0 | T= 5 años | 0.29 | 707.85 | 707.92 | 707.91 | 707.92 | 0.026933 | 0.42 | 0.70 | 17.88 | 0.68 |
| Completo | -760.0 | T= 500 años | 2.88 | 707.85 | 708.03 | 708.01 | 708.06 | 0.023302 | 0.80 | 3.60 | 31.36 | 0.75 |
| Completo | -780.0 | T= 5 años | 0.29 | 707.24 | 707.35 | 707.34 | 707.37 | 0.028623 | 0.54 | 0.53 | 9.70 | 0.74 |
| Completo | -780.0 | T= 500 años | 2.88 | 707.24 | 707.51 | 707.49 | 707.55 | 0.027447 | 0.97 | 2.98 | 22.11 | 0.84 |
| Completo | -800.0 | T= 5 años | 0.29 | 706.66 | 706.76 | 706.75 | 706.78 | 0.030603 | 0.54 | 0.54 | 10.27 | 0.76 |
| Completo | -800.0 | T= 500 años | 2.88 | 706.66 | 706.90 | 706.89 | 706.95 | 0.032998 | 0.99 | 2.91 | 23.89 | 0.91 |
| Completo | -820.0 | T= 5 años | 0.29 | 706.08 | 706.20 | 706.19 | 706.22 | 0.025792 | 0.55 | 0.53 | 8.60 | 0.71 |
| Completo | -820.0 | T= 500 años | 2.88 | 706.08 | 706.38 | 706.35 | 706.42 | 0.021647 | 0.92 | 3.13 | 20.98 | 0.76 |
| Completo | -840.0 | T= 5 años | 0.29 | 705.54 | 705.65 | 705.63 | 705.66 | 0.030360 | 0.55 | 0.53 | 10.08 | 0.76 |
| Completo | -840.0 | T= 500 años | 2.88 | 705.54 | 705.77 | 705.77 | 705.84 | 0.041292 | 1.10 | 2.62 | 21.81 | 1.01 |
| Completo | -860.0 | T= 5 años | 0.29 | 704.98 | 705.03 | 705.02 | 705.04 | 0.031559 | 0.44 | 0.67 | 18.05 | 0.73 |
| Completo | -860.0 | T= 500 años | 2.88 | 704.98 | 705.16 | 705.13 | 705.20 | 0.018998 | 0.84 | 3.43 | 23.98 | 0.71 |
| Completo | -880.0 | T= 5 años | 0.29 | 704.54 | 704.61 | | 704.62 | 0.014962 | 0.34 | 0.86 | 19.39 | 0.52 |
| Completo | -880.0 | T= 500 años | 2.88 | 704.54 | 704.72 | 704.70 | 704.76 | 0.025909 | 0.89 | 3.23 | 25.92 | 0.81 |
| Completo | -900.0 | T= 5 años | 0.29 | 704.09 | 704.16 | 704.15 | 704.17 | 0.036676 | 0.46 | 0.64 | 18.24 | 0.78 |
| Completo | -900.0 | T= 500 años | 2.88 | 704.09 | 704.30 | | 704.33 | 0.018004 | 0.80 | 3.58 | 25.51 | 0.69 |
| Completo | -920.0 | T= 5 años | 0.29 | 703.64 | 703.73 | | 703.73 | 0.014422 | 0.34 | 0.85 | 18.36 | 0.51 |
| Completo | -920.0 | T= 500 años | 2.88 | 703.64 | 703.83 | 703.82 | 703.87 | 0.029300 | 0.94 | 3.05 | 24.70 | 0.86 |
| Completo | -940.0 | T= 5 años | 0.29 | 703.17 | 703.25 | 703.24 | 703.26 | 0.044231 | 0.54 | 0.54 | 13.88 | 0.87 |
| Completo | -940.0 | T= 500 años | 2.88 | 703.17 | 703.41 | | 703.44 | 0.016666 | 0.80 | 3.59 | 24.26 | 0.67 |
| Completo | -960.0 | T= 5 años | 0.29 | 702.75 | 702.85 | 702.82 | 702.85 | 0.011579 | 0.35 | 0.84 | 15.01 | 0.47 |
| Completo | -960.0 | T= 500 años | 2.88 | 702.75 | 702.96 | 702.94 | 703.01 | 0.029339 | 0.96 | 3.01 | 23.91 | 0.86 |
| Completo | -980.0 | T= 5 años | 0.29 | 702.33 | 702.42 | 702.41 | 702.43 | 0.048912 | 0.61 | 0.48 | 10.81 | 0.93 |
| Completo | -980.0 | T= 500 años | 2.88 | 702.33 | 702.61 | | 702.64 | 0.012421 | 0.73 | 3.95 | 24.72 | 0.58 |
| Completo | -1000.0 | T= 5 años | 0.29 | 701.86 | 701.97 | | 701.97 | 0.013273 | 0.36 | 0.81 | 15.33 | 0.50 |
| Completo | -1000.0 | T= 500 años | 9.81 | 701.86 | 702.27 | | 702.34 | 0.015756 | 1.15 | 8.55 | 32.37 | 0.71 |
| Completo | -1020.0 | T= 5 años | 0.29 | 701.37 | 701.47 | 701.47 | 701.50 | 0.053511 | 0.70 | 0.42 | 8.34 | 1.00 |
| Completo | -1020.0 | T= 500 años | 9.81 | 701.37 | 701.78 | 701.78 | 701.89 | 0.033489 | 1.49 | 6.57 | 29.49 | 1.01 |
| Completo | -1040.0 | T= 5 años | 0.29 | 701.00 | 701.10 | 701.04 | 701.10 | 0.003217 | 0.24 | 1.23 | 15.17 | 0.26 |
| Completo | -1040.0 | T= 500 años | 9.81 | 701.00 | 701.49 | 701.34 | 701.53 | 0.007042 | 0.92 | 10.65 | 30.66 | 0.50 |
| Completo | -1060.0 | T= 5 años | 0.29 | 700.83 | 700.91 | 700.91 | 700.93 | 0.058100 | 0.64 | 0.46 | 11.22 | 1.00 |
| Completo | -1060.0 | T= 500 años | 9.81 | 700.83 | 701.20 | 701.17 | 701.29 | 0.023231 | 1.34 | 7.31 | 29.28 | 0.86 |

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ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Completo | -1080.0 | T= 5 años | 0.29 | 700.10 | 700.28 | 700.24 | 700.29 | 0.013743 | 0.52 | 0.56 | 6.19 | 0.56 |
| Completo | -1080.0 | T= 500 años | 9.81 | 700.10 | 700.71 | 700.68 | 700.83 | 0.022589 | 1.52 | 6.46 | 21.08 | 0.87 |
| Completo | -1100.0 | T= 5 años | 0.29 | 699.66 | 699.78 | 699.78 | 699.81 | 0.051149 | 0.78 | 0.37 | 6.08 | 1.01 |
| Completo | -1100.0 | T= 500 años | 9.81 | 699.66 | 700.16 | 700.16 | 700.30 | 0.031407 | 1.67 | 5.88 | 21.30 | 1.01 |
| Completo | -1120.0 | T= 5 años | 0.29 | 699.00 | 699.15 | 699.07 | 699.16 | 0.003650 | 0.32 | 0.90 | 7.66 | 0.30 |
| Completo | -1120.0 | T= 500 años | 9.81 | 699.00 | 699.65 | 699.53 | 699.73 | 0.011780 | 1.25 | 7.82 | 20.77 | 0.65 |
| Completo | -1140.0 | T= 5 años | 0.29 | 698.87 | 698.95 | 698.95 | 698.97 | 0.058506 | 0.63 | 0.46 | 11.48 | 1.00 |
| Completo | -1140.0 | T= 500 años | 9.81 | 698.87 | 699.23 | 699.23 | 699.36 | 0.032137 | 1.57 | 6.25 | 25.24 | 1.01 |
| Completo | -1160.0 | T= 5 años | 0.29 | 698.00 | 698.14 | 698.05 | 698.14 | 0.001712 | 0.22 | 1.31 | 11.09 | 0.21 |
| Completo | -1160.0 | T= 500 años | 9.81 | 698.00 | 698.60 | 698.43 | 698.66 | 0.008013 | 1.07 | 9.14 | 23.05 | 0.54 |
| Completo | -1180.0 | T= 5 años | 0.29 | 698.00 | 698.03 | 698.03 | 698.04 | 0.067533 | 0.51 | 0.57 | 21.94 | 1.00 |
| Completo | -1180.0 | T= 500 años | 9.81 | 698.00 | 698.26 | 698.26 | 698.37 | 0.033655 | 1.46 | 6.73 | 31.49 | 1.01 |
| Completo | -1200.0 | T= 5 años | 0.29 | 697.00 | 697.14 | 697.05 | 697.14 | 0.001765 | 0.22 | 1.35 | 12.16 | 0.21 |
| Completo | -1200.0 | T= 500 años | 9.81 | 697.00 | 697.58 | 697.41 | 697.63 | 0.007044 | 0.95 | 10.33 | 28.40 | 0.50 |
| Completo | -1220.0 | T= 5 años | 0.29 | 697.00 | 697.03 | 697.03 | 697.04 | 0.069685 | 0.50 | 0.58 | 23.65 | 1.01 |
| Completo | -1220.0 | T= 500 años | 9.81 | 697.00 | 697.25 | 697.25 | 697.36 | 0.033738 | 1.46 | 6.72 | 31.40 | 1.01 |
| Completo | -1240.0 | T= 5 años | 0.29 | 696.00 | 696.14 | 696.05 | 696.14 | 0.001630 | 0.20 | 1.43 | 13.29 | 0.20 |
| Completo | -1240.0 | T= 500 años | 9.81 | 696.00 | 696.57 | 696.39 | 696.61 | 0.006137 | 0.88 | 11.19 | 31.29 | 0.47 |
| Completo | -1260.0 | T= 5 años | 0.29 | 696.00 | 696.03 | 696.03 | 696.04 | 0.080579 | 0.53 | 0.55 | 22.37 | 1.08 |
| Completo | -1260.0 | T= 500 años | 9.81 | 696.00 | 696.26 | 696.26 | 696.37 | 0.032981 | 1.46 | 6.70 | 30.64 | 1.00 |
| Completo | -1280.0 | T= 5 años | 0.29 | 694.89 | 695.01 | 694.97 | 695.01 | 0.008058 | 0.31 | 0.93 | 14.93 | 0.40 |
| Completo | -1280.0 | T= 500 años | 9.81 | 694.89 | 695.42 | 695.28 | 695.48 | 0.008585 | 1.04 | 9.44 | 26.28 | 0.55 |
| Completo | -1300.0 | T= 5 años | 0.29 | 694.68 | 694.83 | 694.79 | 694.84 | 0.009466 | 0.38 | 0.76 | 10.18 | 0.45 |
| Completo | -1300.0 | T= 500 años | 9.81 | 694.68 | 695.27 | 695.31 | 695.31 | 0.007399 | 0.97 | 10.13 | 28.06 | 0.51 |
| Completo | -1320.0 | T= 5 años | 0.29 | 694.46 | 694.60 | 694.57 | 694.61 | 0.013437 | 0.44 | 0.66 | 9.36 | 0.53 |
| Completo | -1320.0 | T= 500 años | 9.81 | 694.46 | 694.91 | 694.91 | 695.03 | 0.032962 | 1.54 | 6.36 | 26.91 | 1.01 |
| Completo | -1340.0 | T= 5 años | 0.29 | 694.22 | 694.27 | 694.26 | 694.28 | 0.021108 | 0.37 | 0.78 | 19.97 | 0.60 |
| Completo | -1340.0 | T= 500 años | 9.81 | 694.22 | 694.59 | 694.49 | 694.63 | 0.010717 | 0.90 | 10.88 | 44.32 | 0.58 |
| Completo | -1360.0 | T= 5 años | 0.29 | 694.00 | 694.06 | 694.03 | 694.07 | 0.006540 | 0.25 | 1.15 | 21.77 | 0.35 |
| Completo | -1360.0 | T= 500 años | 9.81 | 694.00 | 694.36 | 694.41 | 694.41 | 0.011398 | 0.97 | 10.10 | 38.58 | 0.61 |
| Completo | -1380.0 | T= 5 años | 0.29 | 693.69 | 693.75 | 693.75 | 693.76 | 0.065970 | 0.54 | 0.54 | 18.86 | 1.01 |
| Completo | -1380.0 | T= 500 años | 9.81 | 693.69 | 693.94 | 693.94 | 694.02 | 0.037019 | 1.27 | 7.75 | 48.15 | 1.01 |
| Completo | -1400.0 | T= 5 años | 0.29 | 692.87 | 692.97 | 692.95 | 692.98 | 0.014768 | 0.36 | 0.80 | 16.25 | 0.52 |
| Completo | -1400.0 | T= 500 años | 9.81 | 692.87 | 693.28 | 693.20 | 693.34 | 0.012510 | 1.02 | 9.61 | 36.49 | 0.63 |
| Completo | -1420.0 | T= 5 años | 0.29 | 692.52 | 692.65 | 692.66 | 692.66 | 0.016989 | 0.46 | 0.64 | 10.15 | 0.58 |
| Completo | -1420.0 | T= 500 años | 9.81 | 692.52 | 692.99 | 692.93 | 693.05 | 0.016269 | 1.08 | 9.05 | 38.24 | 0.71 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Completo | -1440.0 | T= 5 años | 0.29 | 692.22 | 692.33 | 692.31 | 692.34 | 0.014744 | 0.40 | 0.73 | 12.89 | 0.53 |
| Completo | -1440.0 | T= 500 años | 9.81 | 692.22 | 692.61 | 692.57 | 692.68 | 0.021185 | 1.17 | 8.37 | 38.40 | 0.80 |
| Completo | -1460.0 | T= 5 años | 0.29 | 692.00 | 692.04 | 692.02 | 692.04 | 0.015595 | 0.30 | 0.99 | 28.39 | 0.51 |
| Completo | -1460.0 | T= 500 años | 9.81 | 692.00 | 692.30 | 692.23 | 692.35 | 0.012896 | 1.02 | 9.62 | 37.44 | 0.64 |
| Completo | -1480.0 | T= 5 años | 0.29 | 691.38 | 691.49 | 691.49 | 691.52 | 0.051588 | 0.74 | 0.39 | 7.03 | 1.00 |
| Completo | -1480.0 | T= 500 años | 9.81 | 691.38 | 691.83 | 691.83 | 691.95 | 0.033550 | 1.52 | 6.47 | 28.48 | 1.01 |
| Completo | -1500.0 | T= 5 años | 0.29 | 690.81 | 690.94 | 690.91 | 690.95 | 0.011794 | 0.39 | 0.76 | 11.81 | 0.49 |
| Completo | -1500.0 | T= 500 años | 12.86 | 690.81 | 691.38 | 691.27 | 691.45 | 0.010891 | 1.15 | 11.18 | 32.00 | 0.62 |
| Completo | -1520.0 | T= 5 años | 0.29 | 690.34 | 690.47 | 690.47 | 690.51 | 0.051850 | 0.83 | 0.35 | 5.28 | 1.03 |
| Completo | -1520.0 | T= 500 años | 12.86 | 690.34 | 690.95 | 690.95 | 691.10 | 0.030360 | 1.75 | 7.35 | 24.18 | 1.01 |
| Completo | -1540.0 | T= 5 años | 0.29 | 689.94 | 690.05 | 690.01 | 690.06 | 0.005416 | 0.29 | 1.00 | 13.36 | 0.34 |
| Completo | -1540.0 | T= 500 años | 12.86 | 689.94 | 690.63 | 690.39 | 690.67 | 0.005324 | 0.95 | 13.59 | 30.43 | 0.45 |
| Completo | -1560.0 | T= 5 años | 0.29 | 689.71 | 689.87 | 689.84 | 689.89 | 0.015619 | 0.52 | 0.56 | 6.94 | 0.58 |
| Completo | -1560.0 | T= 500 años | 12.86 | 689.71 | 690.40 | | 690.50 | 0.014708 | 1.41 | 9.15 | 24.26 | 0.73 |
| Completo | -1580.0 | T= 5 años | 0.29 | 689.48 | 689.66 | 689.61 | 689.67 | 0.008010 | 0.40 | 0.73 | 8.20 | 0.42 |
| Completo | -1580.0 | T= 500 años | 12.86 | 689.48 | 690.19 | | 690.26 | 0.009529 | 1.14 | 11.30 | 29.70 | 0.59 |
| Completo | -1600.0 | T= 5 años | 0.29 | 689.25 | 689.39 | 689.37 | 689.41 | 0.024691 | 0.59 | 0.49 | 7.12 | 0.71 |
| Completo | -1600.0 | T= 500 años | 12.86 | 689.25 | 689.81 | 689.80 | 689.94 | 0.028981 | 1.60 | 8.04 | 29.21 | 0.97 |
| Completo | -1620.0 | T= 5 años | 0.29 | 689.00 | 689.07 | 689.05 | 689.08 | 0.011436 | 0.35 | 0.82 | 14.39 | 0.47 |
| Completo | -1620.0 | T= 500 años | 12.86 | 689.00 | 689.47 | | 689.54 | 0.013516 | 1.16 | 11.08 | 36.81 | 0.67 |
| Completo | -1640.0 | T= 5 años | 0.29 | 688.67 | 688.80 | 688.77 | 688.81 | 0.016295 | 0.45 | 0.65 | 10.25 | 0.57 |
| Completo | -1640.0 | T= 500 años | 12.86 | 688.67 | 689.23 | | 689.29 | 0.011648 | 1.08 | 11.90 | 39.34 | 0.63 |
| Completo | -1660.0 | T= 5 años | 0.29 | 688.32 | 688.45 | 688.42 | 688.46 | 0.018360 | 0.48 | 0.61 | 9.46 | 0.61 |
| Completo | -1660.0 | T= 500 años | 12.86 | 688.32 | 688.80 | 688.79 | 688.92 | 0.032238 | 1.54 | 8.34 | 34.71 | 1.00 |
| Completo | -1680.0 | T= 5 años | 0.29 | 687.97 | 688.03 | 688.02 | 688.04 | 0.024228 | 0.42 | 0.70 | 16.54 | 0.65 |
| Completo | -1680.0 | T= 500 años | 12.86 | 687.97 | 688.40 | | 688.47 | 0.015306 | 1.19 | 10.79 | 37.79 | 0.71 |
| Completo | -1700.0 | T= 5 años | 0.29 | 687.64 | 687.78 | | 687.78 | 0.008002 | 0.33 | 0.88 | 12.97 | 0.41 |
| Completo | -1700.0 | T= 500 años | 12.86 | 687.64 | 688.18 | | 688.23 | 0.009387 | 0.98 | 13.13 | 42.79 | 0.56 |
| Completo | -1720.0 | T= 5 años | 0.29 | 687.32 | 687.42 | 687.42 | 687.45 | 0.052787 | 0.70 | 0.41 | 8.06 | 0.99 |
| Completo | -1720.0 | T= 500 años | 12.86 | 687.32 | 687.78 | 687.78 | 687.90 | 0.033425 | 1.53 | 8.41 | 36.36 | 1.02 |
| Completo | -1740.0 | T= 5 años | 0.29 | 687.00 | 687.05 | 687.03 | 687.05 | 0.008491 | 0.27 | 1.08 | 22.38 | 0.39 |
| Completo | -1740.0 | T= 500 años | 12.86 | 687.00 | 687.42 | 687.31 | 687.47 | 0.009936 | 1.02 | 12.56 | 39.94 | 0.58 |
| Completo | -1760.0 | T= 5 años | 0.29 | 686.58 | 686.68 | 686.68 | 686.70 | 0.055024 | 0.69 | 0.42 | 8.63 | 1.00 |
| Completo | -1760.0 | T= 500 años | 12.86 | 686.58 | 687.02 | 687.02 | 687.13 | 0.033574 | 1.51 | 8.54 | 37.97 | 1.01 |
| Completo | -1780.0 | T= 5 años | 0.29 | 686.00 | 686.11 | 686.07 | 686.11 | 0.009862 | 0.39 | 0.75 | 10.02 | 0.46 |
| Completo | -1780.0 | T= 500 años | 12.86 | 686.00 | 686.54 | 686.48 | 686.64 | 0.016902 | 1.37 | 9.38 | 28.68 | 0.77 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Completo | -1800.0 | T= 5 años | 0.29 | 685.74 | 685.87 | 685.84 | 685.87 | 0.014590 | 0.42 | 0.69 | 10.98 | 0.54 |
| Completo | -1800.0 | T= 500 años | 12.86 | 685.74 | 686.30 | | 686.36 | 0.010863 | 1.11 | 11.60 | 35.02 | 0.61 |
| Completo | -1820.0 | T= 5 años | 0.29 | 685.32 | 685.45 | 685.44 | 685.47 | 0.028956 | 0.62 | 0.47 | 6.94 | 0.77 |
| Completo | -1820.0 | T= 500 años | 12.86 | 685.32 | 685.87 | 685.87 | 686.01 | 0.031613 | 1.66 | 7.73 | 28.23 | 1.02 |
| Completo | -1840.0 | T= 5 años | 0.29 | 684.94 | 685.03 | 685.01 | 685.03 | 0.017171 | 0.41 | 0.71 | 13.64 | 0.57 |
| Completo | -1840.0 | T= 500 años | 12.86 | 684.94 | 685.44 | 685.37 | 685.53 | 0.015564 | 1.31 | 9.78 | 29.94 | 0.73 |
| Completo | -1860.0 | T= 5 años | 0.29 | 684.68 | 684.82 | 684.78 | 684.83 | 0.006745 | 0.31 | 0.93 | 13.03 | 0.38 |
| Completo | -1860.0 | T= 500 años | 12.86 | 684.68 | 685.25 | | 685.30 | 0.008266 | 0.99 | 13.04 | 38.23 | 0.54 |
| Completo | -1880.0 | T= 5 años | 0.29 | 684.41 | 684.53 | 684.52 | 684.55 | 0.038790 | 0.67 | 0.43 | 7.23 | 0.87 |
| Completo | -1880.0 | T= 500 años | 12.86 | 684.41 | 685.01 | | 685.08 | 0.014420 | 1.20 | 10.74 | 35.72 | 0.70 |
| Completo | -1900.0 | T= 5 años | 0.29 | 684.00 | 684.15 | 684.11 | 684.15 | 0.012075 | 0.43 | 0.68 | 9.25 | 0.50 |
| Completo | -1900.0 | T= 500 años | 12.86 | 684.00 | 684.54 | 684.54 | 684.68 | 0.027990 | 1.65 | 7.78 | 26.22 | 0.97 |
| Completo | -1920.0 | T= 5 años | 0.29 | 683.76 | 683.87 | 683.85 | 683.87 | 0.016666 | 0.41 | 0.72 | 13.54 | 0.56 |
| Completo | -1920.0 | T= 500 años | 12.86 | 683.76 | 684.22 | 684.14 | 684.29 | 0.013211 | 1.17 | 10.97 | 35.24 | 0.67 |
| Completo | -1940.0 | T= 5 años | 0.29 | 683.18 | 683.31 | 683.31 | 683.34 | 0.050268 | 0.79 | 0.37 | 5.88 | 1.00 |
| Completo | -1940.0 | T= 500 años | 12.86 | 683.18 | 683.75 | 683.75 | 683.90 | 0.031088 | 1.70 | 7.58 | 26.62 | 1.01 |
| Completo | -1960.0 | T= 5 años | 0.29 | 682.67 | 682.80 | 682.77 | 682.81 | 0.013049 | 0.42 | 0.69 | 10.32 | 0.52 |
| Completo | -1960.0 | T= 500 años | 12.86 | 682.67 | 683.24 | 683.13 | 683.31 | 0.011466 | 1.20 | 10.73 | 29.98 | 0.64 |
| Completo | -1980.0 | T= 5 años | 0.29 | 682.19 | 682.32 | 682.32 | 682.36 | 0.048912 | 0.81 | 0.36 | 5.39 | 1.00 |
| Completo | -1980.0 | T= 500 años | 12.86 | 682.19 | 682.79 | 682.79 | 682.95 | 0.030499 | 1.75 | 7.37 | 24.38 | 1.01 |
| Completo | -2000.0 | T= 5 años | 0.29 | 681.66 | 681.80 | | 681.82 | 0.016870 | 0.50 | 0.58 | 7.99 | 0.59 |
| Completo | -2000.0 | T= 500 años | 15.91 | 681.66 | 682.32 | 682.25 | 682.44 | 0.016287 | 1.52 | 10.48 | 26.73 | 0.77 |
| Completo | -2020.0 | T= 5 años | 0.29 | 681.10 | 681.25 | 681.25 | 681.28 | 0.048078 | 0.85 | 0.34 | 4.66 | 1.00 |
| Completo | -2020.0 | T= 500 años | 15.91 | 681.10 | 681.82 | 681.82 | 682.01 | 0.028794 | 1.91 | 8.32 | 23.00 | 1.01 |
| Completo | -2040.0 | T= 5 años | 0.29 | 680.68 | 680.86 | 680.81 | 680.87 | 0.011073 | 0.46 | 0.63 | 7.13 | 0.50 |
| Completo | -2040.0 | T= 500 años | 15.91 | 680.68 | 681.42 | 681.34 | 681.53 | 0.015416 | 1.42 | 11.19 | 30.21 | 0.75 |
| Completo | -2060.0 | T= 5 años | 0.29 | 680.29 | 680.42 | 680.42 | 680.45 | 0.050672 | 0.81 | 0.36 | 5.51 | 1.01 |
| Completo | -2060.0 | T= 500 años | 15.91 | 680.29 | 680.94 | 680.94 | 681.10 | 0.029750 | 1.80 | 8.82 | 27.31 | 1.01 |
| Completo | -2080.0 | T= 5 años | 0.29 | 679.95 | 680.04 | 680.01 | 680.05 | 0.007739 | 0.31 | 0.94 | 14.90 | 0.39 |
| Completo | -2080.0 | T= 500 años | 15.91 | 679.95 | 680.62 | 680.42 | 680.68 | 0.007151 | 1.10 | 14.47 | 32.28 | 0.52 |
| Completo | -2100.0 | T= 5 años | 0.29 | 679.74 | 679.89 | 679.84 | 679.89 | 0.007825 | 0.35 | 0.84 | 11.47 | 0.41 |
| Completo | -2100.0 | T= 500 años | 15.91 | 679.74 | 680.52 | | 680.56 | 0.004591 | 0.91 | 17.52 | 37.38 | 0.42 |
| Completo | -2120.0 | T= 5 años | 0.29 | 679.53 | 679.71 | | 679.72 | 0.009316 | 0.43 | 0.67 | 7.43 | 0.46 |
| Completo | -2120.0 | T= 500 años | 15.91 | 679.53 | 680.37 | | 680.44 | 0.008120 | 1.18 | 13.54 | 30.07 | 0.56 |
| Completo | -2140.0 | T= 5 años | 0.29 | 679.33 | 679.52 | 679.47 | 679.53 | 0.009707 | 0.45 | 0.64 | 6.76 | 0.47 |
| Completo | -2140.0 | T= 500 años | 15.91 | 679.33 | 680.18 | | 680.25 | 0.010044 | 1.24 | 12.79 | 30.56 | 0.61 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Completo | -2160.0 | T= 5 años | 0.29 | 679.12 | 679.28 | 679.25 | 679.30 | 0.013784 | 0.49 | 0.59 | 7.12 | 0.55 |
| Completo | -2160.0 | T= 500 años | 15.91 | 679.12 | 679.76 | 679.76 | 679.93 | 0.029557 | 1.79 | 8.89 | 27.67 | 1.01 |
| Completo | -2180.0 | T= 5 años | 0.29 | 678.76 | 678.86 | 678.85 | 678.87 | 0.036162 | 0.57 | 0.51 | 10.49 | 0.82 |
| Completo | -2180.0 | T= 500 años | 15.91 | 678.76 | 679.29 | 679.22 | 679.38 | 0.015776 | 1.33 | 11.96 | 36.29 | 0.74 |
| Completo | -2200.0 | T= 5 años | 0.29 | 678.19 | 678.34 | 678.31 | 678.35 | 0.019834 | 0.54 | 0.54 | 7.37 | 0.64 |
| Completo | -2200.0 | T= 500 años | 15.91 | 678.19 | 678.79 | 678.79 | 678.94 | 0.030623 | 1.74 | 9.14 | 30.45 | 1.01 |
| Completo | -2220.0 | T= 5 años | 0.29 | 677.60 | 677.72 | 677.72 | 677.75 | 0.050246 | 0.76 | 0.38 | 6.40 | 0.99 |
| Completo | -2220.0 | T= 500 años | 15.91 | 677.60 | 678.18 | 678.19 | 678.33 | 0.032944 | 1.74 | 9.17 | 32.42 | 1.04 |
| Completo | -2240.0 | T= 5 años | 0.29 | 677.00 | 677.15 | 677.13 | 677.17 | 0.018605 | 0.54 | 0.54 | 7.02 | 0.63 |
| Completo | -2240.0 | T= 500 años | 15.91 | 677.00 | 677.64 | 677.62 | 677.79 | 0.026428 | 1.69 | 9.43 | 29.47 | 0.95 |
| Completo | -2260.0 | T= 5 años | 0.29 | 676.43 | 676.56 | 676.56 | 676.59 | 0.050535 | 0.80 | 0.37 | 5.76 | 1.01 |
| Completo | -2260.0 | T= 500 años | 15.91 | 676.43 | 677.06 | 677.06 | 677.22 | 0.030183 | 1.78 | 8.96 | 28.66 | 1.01 |
| Completo | -2280.0 | T= 5 años | 0.29 | 675.87 | 676.00 | 675.97 | 676.01 | 0.014952 | 0.44 | 0.66 | 10.04 | 0.55 |
| Completo | -2280.0 | T= 500 años | 15.91 | 675.87 | 676.50 | 676.41 | 676.58 | 0.014150 | 1.26 | 12.60 | 38.12 | 0.70 |
| Completo | -2300.0 | T= 5 años | 0.29 | 675.34 | 675.47 | 675.47 | 675.51 | 0.049442 | 0.81 | 0.36 | 5.34 | 1.00 |
| Completo | -2300.0 | T= 500 años | 15.91 | 675.34 | 676.01 | 676.01 | 676.17 | 0.030146 | 1.79 | 8.89 | 28.12 | 1.02 |
| Completo | -2320.0 | T= 5 años | 0.29 | 674.94 | 675.05 | 675.01 | 675.06 | 0.005261 | 0.29 | 1.00 | 13.01 | 0.34 |
| Completo | -2320.0 | T= 500 años | 15.91 | 674.94 | 675.83 | 675.45 | 675.86 | 0.002796 | 0.79 | 20.04 | 36.03 | 0.34 |
| Completo | -2340.0 | T= 5 años | 0.29 | 674.77 | 674.94 | 674.95 | 674.95 | 0.005637 | 0.33 | 0.90 | 10.38 | 0.35 |
| Completo | -2340.0 | T= 500 años | 15.91 | 674.77 | 675.78 | 675.81 | 675.81 | 0.002617 | 0.81 | 19.70 | 32.80 | 0.33 |
| Completo | -2360.0 | T= 5 años | 0.29 | 674.61 | 674.83 | 674.83 | 674.83 | 0.005965 | 0.39 | 0.75 | 6.95 | 0.38 |
| Completo | -2360.0 | T= 500 años | 15.91 | 674.61 | 675.71 | 675.75 | 675.75 | 0.003389 | 0.90 | 17.74 | 30.64 | 0.38 |
| Completo | -2380.0 | T= 5 años | 0.29 | 674.44 | 674.70 | 674.71 | 674.71 | 0.006564 | 0.46 | 0.63 | 4.89 | 0.41 |
| Completo | -2380.0 | T= 500 años | 15.91 | 674.44 | 675.59 | 675.66 | 675.66 | 0.006063 | 1.12 | 14.25 | 27.38 | 0.49 |
| Completo | -2400.0 | T= 5 años | 0.29 | 674.27 | 674.51 | 674.46 | 674.53 | 0.012431 | 0.61 | 0.48 | 3.92 | 0.55 |
| Completo | -2400.0 | T= 500 años | 15.91 | 674.27 | 675.31 | 675.46 | 675.46 | 0.016940 | 1.68 | 9.46 | 21.17 | 0.80 |
| Completo | -2420.0 | T= 5 años | 0.29 | 674.10 | 674.31 | 674.25 | 674.32 | 0.009052 | 0.47 | 0.62 | 6.01 | 0.46 |
| Completo | -2420.0 | T= 500 años | 15.91 | 674.10 | 674.87 | 674.85 | 675.05 | 0.025346 | 1.87 | 8.53 | 22.19 | 0.96 |
| Completo | -2440.0 | T= 5 años | 0.29 | 673.84 | 673.93 | 673.93 | 673.95 | 0.055550 | 0.66 | 0.44 | 9.88 | 1.00 |
| Completo | -2440.0 | T= 500 años | 15.91 | 673.84 | 674.33 | 674.33 | 674.50 | 0.028902 | 1.83 | 8.72 | 25.90 | 1.00 |
| Completo | -2460.0 | T= 5 años | 0.29 | 673.00 | 673.13 | 673.04 | 673.13 | 0.001610 | 0.20 | 1.43 | 13.05 | 0.20 |
| Completo | -2460.0 | T= 500 años | 15.91 | 673.00 | 673.69 | 673.51 | 673.77 | 0.008120 | 1.23 | 12.95 | 26.90 | 0.57 |
| Completo | -2480.0 | T= 5 años | 0.29 | 673.00 | 673.03 | 673.02 | 673.04 | 0.041270 | 0.42 | 0.70 | 25.01 | 0.79 |
| Completo | -2480.0 | T= 500 años | 15.91 | 673.00 | 673.33 | 673.33 | 673.48 | 0.030179 | 1.70 | 9.35 | 31.88 | 1.00 |
| Completo | -2500.0 | T= 5 años | 1.17 | 672.00 | 672.08 | 672.08 | 672.12 | 0.046802 | 0.88 | 1.33 | 16.91 | 1.00 |
| Completo | -2500.0 | T= 500 años | 18.97 | 672.00 | 672.40 | 672.47 | 672.69 | 0.049888 | 2.35 | 8.07 | 24.73 | 1.31 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|----------------|---------------|---------------|---------------|---------------|------------------|----------------|----------------|---------------|--------------|
| Completo | -2520.0 | T= 5 años | 1.17 | 671.00 | 671.24 | 671.15 | 671.26 | 0.008027 | 0.62 | 1.88 | 10.73 | 0.47 |
| Completo | -2520.0 | T= 500 años | 18.97 | 671.00 | 671.79 | 671.69 | 671.94 | 0.014166 | 1.68 | 11.32 | 22.39 | 0.75 |
| Completo | -2540.0 | T= 5 años | 1.17 | 670.68 | 670.89 | 670.89 | 670.94 | 0.043062 | 1.02 | 1.15 | 10.92 | 1.01 |
| Completo | -2540.0 | T= 500 años | 18.97 | 670.68 | 671.34 | 671.34 | 671.55 | 0.027583 | 2.02 | 9.39 | 23.13 | 1.01 |
| Completo | -2560.0 | T= 5 años | 1.17 | 669.94 | 670.16 | 670.06 | 670.17 | 0.004109 | 0.43 | 2.70 | 16.02 | 0.34 |
| Completo | -2560.0 | T= 500 años | 18.97 | 669.94 | 670.80 | 670.50 | 670.87 | 0.005054 | 1.14 | 16.61 | 26.93 | 0.46 |
| Completo | -2580.0 | T= 5 años | 1.17 | 669.82 | 670.08 | 670.09 | 670.09 | 0.003915 | 0.41 | 2.89 | 18.23 | 0.33 |
| Completo | -2580.0 | T= 500 años | 18.97 | 669.82 | 670.72 | 670.78 | 670.78 | 0.004241 | 1.05 | 18.03 | 29.00 | 0.43 |
| Completo | -2600.0 | T= 5 años | 1.17 | 669.70 | 669.99 | 670.00 | 670.00 | 0.004778 | 0.43 | 2.76 | 18.93 | 0.36 |
| Completo | -2600.0 | T= 500 años | 18.97 | 669.70 | 670.65 | 670.69 | 670.69 | 0.003583 | 0.95 | 19.97 | 33.02 | 0.39 |
| Completo | -2620.0 | T= 5 años | 1.17 | 669.57 | 669.90 | 669.91 | 669.91 | 0.003966 | 0.42 | 2.77 | 16.53 | 0.33 |
| Completo | -2620.0 | T= 500 años | 18.97 | 669.57 | 670.58 | 670.62 | 670.62 | 0.003276 | 0.90 | 21.09 | 35.40 | 0.37 |
| Completo | -2640.0 | T= 5 años | 1.17 | 669.45 | 669.82 | 669.83 | 669.83 | 0.004639 | 0.49 | 2.41 | 13.18 | 0.36 |
| Completo | -2640.0 | T= 500 años | 18.97 | 669.45 | 670.49 | 670.54 | 670.54 | 0.004740 | 1.04 | 18.16 | 32.13 | 0.44 |
| Completo | -2660.0 | T= 5 años | 1.17 | 669.33 | 669.70 | 669.72 | 669.72 | 0.006814 | 0.59 | 1.98 | 10.77 | 0.44 |
| Completo | -2660.0 | T= 500 años | 18.97 | 669.33 | 670.33 | 670.42 | 670.42 | 0.008556 | 1.31 | 14.51 | 28.52 | 0.59 |
| Completo | -2680.0 | T= 5 años | 1.17 | 669.21 | 669.56 | 669.57 | 669.57 | 0.007561 | 0.60 | 1.96 | 11.33 | 0.46 |
| Completo | -2680.0 | T= 500 años | 18.97 | 669.21 | 670.11 | 670.22 | 670.22 | 0.011728 | 1.42 | 13.36 | 29.42 | 0.67 |
| Completo | -2700.0 | T= 5 años | 1.17 | 669.09 | 669.35 | 669.30 | 669.37 | 0.013603 | 0.67 | 1.76 | 13.51 | 0.59 |
| Completo | -2700.0 | T= 500 años | 18.97 | 669.09 | 669.76 | 669.73 | 669.90 | 0.022757 | 1.62 | 11.71 | 34.83 | 0.89 |
| Completo | -2720.0 | T= 5 años | 1.17 | 668.91 | 669.05 | 669.03 | 669.07 | 0.016902 | 0.57 | 2.05 | 23.35 | 0.61 |
| Completo | -2720.0 | T= 500 años | 18.97 | 668.91 | 669.41 | 669.50 | 669.50 | 0.016315 | 1.32 | 14.39 | 45.49 | 0.75 |
| Completo | -2740.0 | T= 5 años | 1.17 | 668.48 | 668.62 | 668.60 | 668.64 | 0.027811 | 0.67 | 1.75 | 22.77 | 0.77 |
| Completo | -2740.0 | T= 500 años | 18.97 | 668.48 | 668.92 | 668.92 | 669.05 | 0.031470 | 1.64 | 11.54 | 42.87 | 1.01 |
| Completo | -2760.0 | T= 5 años | 1.17 | 667.88 | 668.03 | 668.02 | 668.06 | 0.030797 | 0.73 | 1.61 | 19.89 | 0.82 |
| Completo | -2760.0 | T= 500 años | 18.97 | 667.88 | 668.39 | 668.34 | 668.49 | 0.020217 | 1.39 | 13.66 | 46.91 | 0.82 |
| Completo | -2780.0 | T= 5 años | 1.17 | 667.46 | 667.68 | 667.70 | 667.70 | 0.011629 | 0.55 | 2.13 | 19.22 | 0.53 |
| Completo | -2780.0 | T= 500 años | 18.97 | 667.46 | 668.06 | 668.13 | 668.13 | 0.015258 | 1.23 | 15.40 | 51.21 | 0.72 |
| Completo | -2800.0 | T= 5 años | 1.17 | 667.10 | 667.28 | 667.27 | 667.32 | 0.036042 | 0.85 | 1.38 | 15.28 | 0.90 |
| Completo | -2800.0 | T= 500 años | 18.97 | 667.10 | 667.66 | 667.62 | 667.76 | 0.022594 | 1.46 | 12.98 | 44.84 | 0.87 |
| Completo | -2820.0 | T= 5 años | 1.17 | 666.77 | 666.98 | 666.99 | 666.99 | 0.008827 | 0.47 | 2.51 | 23.61 | 0.46 |
| Completo | -2820.0 | T= 500 años | 18.97 | 666.77 | 667.38 | 667.45 | 667.45 | 0.011022 | 1.15 | 16.56 | 48.13 | 0.62 |
| Completo | -2840.0 | T= 5 años | 1.17 | 666.43 | 666.60 | 666.60 | 666.65 | 0.045820 | 0.94 | 1.25 | 14.36 | 1.01 |
| Completo | -2840.0 | T= 500 años | 18.97 | 666.43 | 666.97 | 666.96 | 667.10 | 0.028675 | 1.64 | 11.57 | 40.26 | 0.98 |
| Completo | -2860.0 | T= 5 años | 1.17 | 666.00 | 666.13 | 666.08 | 666.15 | 0.009578 | 0.52 | 2.25 | 19.20 | 0.49 |
| Completo | -2860.0 | T= 500 años | 18.97 | 666.00 | 666.48 | 666.44 | 666.59 | 0.021999 | 1.50 | 12.68 | 41.48 | 0.86 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Completo | -2880.0 | T= 5 años | 1.17 | 665.58 | 665.74 | 665.74 | 665.78 | 0.045845 | 0.89 | 1.32 | 16.24 | 1.00 |
| Completo | -2880.0 | T= 500 años | 18.97 | 665.58 | 666.17 | | 666.25 | 0.012998 | 1.27 | 14.91 | 41.80 | 0.68 |
| Completo | -2900.0 | T= 5 años | 1.17 | 665.00 | 665.40 | 665.27 | 665.41 | 0.004428 | 0.48 | 2.43 | 13.03 | 0.36 |
| Completo | -2900.0 | T= 500 años | 18.97 | 665.00 | 665.99 | | 666.07 | 0.006804 | 1.22 | 15.61 | 28.59 | 0.53 |
| Completo | -2920.0 | T= 5 años | 1.17 | 665.00 | 665.34 | | 665.34 | 0.002389 | 0.36 | 3.29 | 17.44 | 0.26 |
| Completo | -2920.0 | T= 500 años | 18.97 | 665.00 | 665.90 | | 665.95 | 0.004521 | 0.99 | 19.18 | 35.36 | 0.43 |
| Completo | -2940.0 | T= 5 años | 1.17 | 665.00 | 665.29 | | 665.29 | 0.002492 | 0.34 | 3.49 | 20.89 | 0.26 |
| Completo | -2940.0 | T= 500 años | 18.97 | 665.00 | 665.81 | | 665.86 | 0.004380 | 0.96 | 19.70 | 36.95 | 0.42 |
| Completo | -2960.0 | T= 5 años | 1.17 | 665.00 | 665.24 | | 665.25 | 0.002200 | 0.30 | 3.86 | 24.40 | 0.24 |
| Completo | -2960.0 | T= 500 años | 18.97 | 665.00 | 665.74 | | 665.77 | 0.004003 | 0.86 | 22.11 | 46.20 | 0.40 |
| Completo | -2980.0 | T= 5 años | 1.40 | 665.00 | 665.13 | 665.09 | 665.15 | 0.015819 | 0.62 | 2.26 | 21.66 | 0.61 |
| Completo | -2980.0 | T= 500 años | 20.24 | 665.00 | 665.44 | 665.44 | 665.59 | 0.030310 | 1.72 | 11.80 | 39.96 | 1.01 |
| Completo | -2982.6 | T= 5 años | 1.40 | 665.00 | 665.08 | 665.07 | 665.10 | 0.028480 | 0.67 | 2.09 | 27.83 | 0.78 |
| Completo | -2982.6 | T= 500 años | 20.24 | 665.00 | 665.34 | 665.37 | 665.52 | 0.039995 | 1.86 | 10.90 | 40.33 | 1.14 |

**COMPARATIVA ENTRE LA SITUACIÓN ACTUAL
 Y LA SITUACIÓN FUTURA**

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|-------------------|------------------|------------------|------------------|----------------------|-------------------|------------------|------------------|------------------|-----------------------------|----------------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| 0 | T= 5 años | 0.01 | 745.49 | 745.54 | 0.99 | T= 5 años | 0.01 | 745.49 | 745.54 | 0.99 | 0.00 | 0.00 |
| 0 | T= 500 años | 0.38 | 745.49 | 745.69 | 3.72 | T= 500 años | 0.38 | 745.49 | 745.69 | 3.72 | 0.00 | 0.00 |
| | | | | | | | | 0 | | | | |
| -20 | T= 5 años | 0.01 | 741.47 | 741.50 | 0.29 | T= 5 años | 0.01 | 741.47 | 741.50 | 0.29 | 0.00 | 0.00 |
| -20 | T= 500 años | 0.38 | 741.47 | 741.59 | 1.26 | T= 500 años | 0.38 | 741.47 | 741.59 | 1.26 | 0.00 | 0.00 |
| | | | | | | | | | | | | |
| -40 | T= 5 años | 0.01 | 738.87 | 738.92 | 0.85 | T= 5 años | 0.01 | 738.87 | 738.92 | 0.85 | 0.00 | 0.00 |
| -40 | T= 500 años | 0.38 | 738.87 | 739.07 | 3.21 | T= 500 años | 0.38 | 738.87 | 739.07 | 3.21 | 0.00 | 0.00 |
| | | | | | | | | | | | | |
| -60 | T= 5 años | 0.01 | 737.00 | 737.06 | 0.56 | T= 5 años | 0.01 | 737.00 | 737.06 | 0.56 | 0.00 | 0.00 |
| -60 | T= 500 años | 0.38 | 737.00 | 737.20 | 1.96 | T= 500 años | 0.38 | 737.00 | 737.20 | 1.96 | 0.00 | 0.00 |
| | | | | | | | | | | | | |
| -80 | T= 5 años | 0.01 | 735.13 | 735.20 | 0.63 | T= 5 años | 0.01 | 735.13 | 735.20 | 0.63 | 0.00 | 0.00 |
| -80 | T= 500 años | 0.38 | 735.13 | 735.37 | 2.33 | T= 500 años | 0.38 | 735.13 | 735.37 | 2.33 | 0.00 | 0.00 |
| | | | | | | | | | | | | |
| -100 | T= 5 años | 0.01 | 733.90 | 733.96 | 0.64 | T= 5 años | 0.01 | 733.90 | 733.96 | 0.64 | 0.00 | 0.00 |
| -100 | T= 500 años | 0.38 | 733.90 | 734.14 | 2.43 | T= 500 años | 0.38 | 733.90 | 734.14 | 2.43 | 0.00 | 0.00 |
| | | | | | | | | | | | | |
| -120 | T= 5 años | 0.01 | 732.72 | 732.78 | 0.74 | T= 5 años | 0.01 | 732.72 | 732.78 | 0.74 | 0.00 | 0.00 |
| -120 | T= 500 años | 0.38 | 732.72 | 732.94 | 2.66 | T= 500 años | 0.38 | 732.72 | 732.94 | 2.66 | 0.00 | 0.00 |
| | | | | | | | | | | | | |
| -140 | T= 5 años | 0.01 | 731.54 | 731.60 | 0.75 | T= 5 años | 0.01 | 731.54 | 731.60 | 0.75 | 0.00 | 0.00 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia | Diferencia |
|----------------------|-------------|---------|-----------|---------------|-----------|----------------------|---------|-----------|---------------|-----------|------------|------------|
| River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Calado | Ancho |
| | | (m3/s) | (m) | (m) | (m) | | (m3/s) | (m) | (m) | (m) | (m) | (m) |
| -140 | T= 500 años | 0.38 | 731.54 | 731.76 | 2.76 | T= 500 años | 0.38 | 731.54 | 731.76 | 2.76 | 0.00 | 0.00 |
| -160 | T= 5 años | 0.01 | 730.36 | 730.42 | 0.82 | T= 5 años | 0.01 | 730.36 | 730.42 | 0.82 | 0.00 | 0.00 |
| -160 | T= 500 años | 0.38 | 730.36 | 730.57 | 2.93 | T= 500 años | 0.38 | 730.36 | 730.57 | 2.93 | 0.00 | 0.00 |
| -180 | T= 5 años | 0.01 | 729.30 | 729.35 | 1.43 | T= 5 años | 0.01 | 729.30 | 729.35 | 1.42 | 0.00 | -0.01 |
| -180 | T= 500 años | 0.38 | 729.30 | 729.46 | 4.93 | T= 500 años | 0.38 | 729.30 | 729.46 | 4.93 | 0.00 | 0.00 |
| -200 | T= 5 años | 0.01 | 728.29 | 728.34 | 0.96 | T= 5 años | 0.01 | 728.29 | 728.34 | 0.99 | 0.00 | 0.03 |
| -200 | T= 500 años | 0.38 | 728.29 | 728.49 | 3.81 | T= 500 años | 0.38 | 728.29 | 728.49 | 3.81 | 0.00 | 0.00 |
| -220 | T= 5 años | 0.01 | 727.28 | 727.35 | 1.04 | T= 5 años | 0.01 | 727.28 | 727.34 | 0.92 | -0.01 | -0.12 |
| -220 | T= 500 años | 0.38 | 727.28 | 727.49 | 3.20 | T= 500 años | 0.38 | 727.28 | 727.49 | 3.20 | 0.00 | 0.00 |
| -240 | T= 5 años | 0.11 | 726.27 | 726.40 | 2.26 | T= 5 años | 0.01 | 726.27 | 726.32 | 0.94 | -0.08 | -1.32 |
| -240 | T= 500 años | 0.69 | 726.27 | 726.53 | 4.57 | T= 500 años | 0.38 | 726.27 | 726.47 | 3.59 | -0.06 | -0.98 |
| -260 | T= 5 años | 0.11 | 725.26 | 725.39 | 2.70 | T= 5 años | 0.01 | 725.26 | 725.31 | 1.13 | -0.08 | -1.57 |
| -260 | T= 500 años | 0.69 | 725.26 | 725.49 | 4.85 | T= 500 años | 0.38 | 725.26 | 725.44 | 3.92 | -0.05 | -0.93 |
| -280 | T= 5 años | 0.11 | 724.44 | 724.57 | 2.35 | T= 5 años | 0.01 | 724.44 | 724.50 | 1.04 | -0.07 | -1.31 |
| -280 | T= 500 años | 0.69 | 724.44 | 724.70 | 4.74 | T= 500 años | 0.38 | 724.44 | 724.64 | 3.69 | -0.06 | -1.05 |
| -300 | T= 5 años | 0.11 | 723.69 | 723.82 | 2.77 | T= 5 años | 0.01 | 723.69 | 723.74 | 1.17 | -0.08 | -1.60 |
| -300 | T= 500 años | 0.69 | 723.69 | 723.94 | 5.37 | T= 500 años | 0.38 | 723.69 | 723.89 | 4.32 | -0.05 | -1.05 |
| -320 | T= 5 años | 0.11 | 722.94 | 723.06 | 2.72 | T= 5 años | 0.01 | 722.94 | 722.99 | 1.21 | -0.07 | -1.51 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -320 | T= 500 años | 0.69 | 722.94 | 723.18 | 5.47 | T= 500 años | 0.38 | 722.94 | 723.12 | 4.28 | -0.06 | -1.19 |
| -340 | T= 5 años | 0.11 | 722.19 | 722.30 | 3.29 | T= 5 años | 0.01 | 722.19 | 722.24 | 1.39 | -0.06 | -1.90 |
| -340 | T= 500 años | 0.69 | 722.19 | 722.41 | 6.34 | T= 500 años | 0.38 | 722.19 | 722.37 | 5.17 | -0.04 | -1.17 |
| -360 | T= 5 años | 0.11 | 721.44 | 721.51 | 5.58 | T= 5 años | 0.01 | 721.44 | 721.47 | 2.51 | -0.04 | -3.07 |
| -360 | T= 500 años | 0.69 | 721.44 | 721.59 | 11.11 | T= 500 años | 0.38 | 721.44 | 721.55 | 8.61 | -0.04 | -2.50 |
| -380 | T= 5 años | 0.11 | 720.00 | 720.09 | 2.95 | T= 5 años | 0.01 | 720.00 | 720.04 | 1.36 | -0.05 | -1.59 |
| -380 | T= 500 años | 0.69 | 720.00 | 720.17 | 5.85 | T= 500 años | 0.38 | 720.00 | 720.14 | 4.77 | -0.03 | -1.08 |
| -400 | T= 5 años | 0.11 | 719.00 | 719.08 | 4.70 | T= 5 años | 0.01 | 719.00 | 719.04 | 2.18 | -0.04 | -2.52 |
| -400 | T= 500 años | 0.69 | 719.00 | 719.16 | 9.47 | T= 500 años | 0.38 | 719.00 | 719.13 | 7.35 | -0.03 | -2.12 |
| -420 | T= 5 años | 0.11 | 718.00 | 718.08 | 4.89 | T= 5 años | 0.01 | 718.00 | 718.03 | 1.88 | -0.05 | -3.01 |
| -420 | T= 500 años | 0.69 | 718.00 | 718.16 | 9.46 | T= 500 años | 0.38 | 718.00 | 718.13 | 7.65 | -0.03 | -1.81 |
| -440 | T= 5 años | 0.11 | 717.00 | 717.07 | 5.36 | T= 5 años | 0.01 | 717.00 | 717.04 | 2.56 | -0.03 | -2.80 |
| -440 | T= 500 años | 0.69 | 717.00 | 717.13 | 9.53 | T= 500 años | 0.38 | 717.00 | 717.12 | 8.44 | -0.01 | -1.09 |
| -460 | T= 5 años | 0.11 | 715.86 | 715.93 | 6.05 | T= 5 años | 0.01 | 715.86 | 715.88 | 2.28 | -0.05 | -3.77 |
| -460 | T= 500 años | 0.69 | 715.86 | 716.00 | 12.42 | T= 500 años | 0.38 | 715.86 | 715.96 | 9.48 | -0.04 | -2.94 |
| -480 | T= 5 años | 0.11 | 715.00 | 715.03 | 13.44 | T= 5 años | 0.01 | 715.00 | 715.01 | 12.52 | -0.02 | -0.92 |
| -480 | T= 500 años | 0.69 | 715.00 | 715.09 | 15.85 | T= 500 años | 0.38 | 715.00 | 715.07 | 14.74 | -0.02 | -1.11 |
| -500 | T= 5 años | 0.11 | 714.53 | 714.61 | 6.35 | T= 5 años | 0.01 | 714.53 | 714.57 | 2.89 | -0.04 | -3.46 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -500 | T= 500 años | 0.69 | 714.53 | 714.69 | 12.41 | T= 500 años | 0.38 | 714.53 | 714.66 | 9.91 | -0.03 | -2.50 |
| -520 | T= 5 años | 0.11 | 713.82 | 713.88 | 8.01 | T= 5 años | 0.01 | 713.82 | 713.84 | 3.20 | -0.04 | -4.81 |
| -520 | T= 500 años | 0.69 | 713.82 | 713.93 | 15.85 | T= 500 años | 0.38 | 713.82 | 713.91 | 12.61 | -0.02 | -3.24 |
| -540 | T= 5 años | 0.11 | 713.00 | 713.03 | 13.57 | T= 5 años | 0.01 | 713.00 | 713.01 | 12.99 | -0.02 | -0.58 |
| -540 | T= 500 años | 0.69 | 713.00 | 713.08 | 14.97 | T= 500 años | 0.38 | 713.00 | 713.05 | 14.32 | -0.03 | -0.65 |
| -560 | T= 5 años | 0.11 | 712.17 | 712.26 | 3.48 | T= 5 años | 0.01 | 712.17 | 712.20 | 1.09 | -0.06 | -2.39 |
| -560 | T= 500 años | 0.69 | 712.17 | 712.36 | 7.12 | T= 500 años | 0.38 | 712.17 | 712.32 | 5.58 | -0.04 | -1.54 |
| -580 | T= 5 años | 0.11 | 711.40 | 711.51 | 3.78 | T= 5 años | 0.01 | 711.40 | 711.45 | 1.75 | -0.06 | -2.03 |
| -580 | T= 500 años | 0.69 | 711.40 | 711.61 | 7.26 | T= 500 años | 0.38 | 711.40 | 711.57 | 5.84 | -0.04 | -1.42 |
| -600 | T= 5 años | 0.11 | 710.65 | 710.75 | 3.30 | T= 5 años | 0.01 | 710.65 | 710.69 | 1.27 | -0.06 | -2.03 |
| -600 | T= 500 años | 0.69 | 710.65 | 710.85 | 6.76 | T= 500 años | 0.38 | 710.65 | 710.81 | 5.30 | -0.04 | -1.46 |
| -620 | T= 5 años | 0.29 | 709.98 | 710.06 | 14.88 | T= 5 años | 0.29 | 709.98 | 710.06 | 14.88 | 0.00 | 0.00 |
| -620 | T= 500 años | 1.79 | 709.98 | 710.17 | 18.73 | T= 500 años | 2.88 | 709.98 | 710.21 | 20.35 | 0.04 | 1.62 |
| -640 | T= 5 años | 0.29 | 709.78 | 709.87 | 20.40 | T= 5 años | 0.29 | 709.78 | 709.87 | 20.40 | 0.00 | 0.00 |
| -640 | T= 500 años | 1.79 | 709.78 | 709.97 | 38.19 | T= 500 años | 2.88 | 709.78 | 710.01 | 43.72 | 0.04 | 5.53 |
| -660 | T= 5 años | 0.29 | 709.59 | 709.69 | 21.83 | T= 5 años | 0.29 | 709.59 | 709.69 | 21.86 | 0.00 | 0.03 |
| -660 | T= 500 años | 1.79 | 709.59 | 709.79 | 37.41 | T= 500 años | 2.88 | 709.59 | 709.83 | 44.48 | 0.04 | 7.07 |
| -680 | T= 5 años | 0.29 | 709.40 | 709.49 | 18.93 | T= 5 años | 0.29 | 709.40 | 709.49 | 18.90 | 0.00 | -0.03 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -680 | T= 500 años | 1.79 | 709.40 | 709.59 | 27.12 | T= 500 años | 2.88 | 709.40 | 709.64 | 30.92 | 0.05 | 3.80 |
| -700 | T= 5 años | 0.29 | 709.21 | 709.30 | 18.48 | T= 5 años | 0.29 | 709.21 | 709.30 | 18.52 | 0.00 | 0.04 |
| -700 | T= 500 años | 1.79 | 709.21 | 709.41 | 25.53 | T= 500 años | 2.88 | 709.21 | 709.46 | 28.52 | 0.05 | 2.99 |
| -720 | T= 5 años | 0.29 | 709.02 | 709.07 | 17.46 | T= 5 años | 0.29 | 709.02 | 709.07 | 17.39 | 0.00 | -0.07 |
| -720 | T= 500 años | 1.79 | 709.02 | 709.15 | 23.54 | T= 500 años | 2.88 | 709.02 | 709.19 | 26.60 | 0.04 | 3.06 |
| -740 | T= 5 años | 0.29 | 708.42 | 708.49 | 14.90 | T= 5 años | 0.29 | 708.42 | 708.49 | 15.02 | 0.00 | 0.12 |
| -740 | T= 500 años | 1.79 | 708.42 | 708.57 | 22.65 | T= 500 años | 2.88 | 708.42 | 708.60 | 25.62 | 0.03 | 2.97 |
| -760 | T= 5 años | 0.29 | 707.85 | 707.92 | 18.06 | T= 5 años | 0.29 | 707.85 | 707.92 | 17.88 | 0.00 | -0.18 |
| -760 | T= 500 años | 1.79 | 707.85 | 708.00 | 29.19 | T= 500 años | 2.88 | 707.85 | 708.03 | 31.36 | 0.03 | 2.17 |
| -780 | T= 5 años | 0.29 | 707.24 | 707.35 | 9.52 | T= 5 años | 0.29 | 707.24 | 707.35 | 9.70 | 0.00 | 0.18 |
| -780 | T= 500 años | 1.79 | 707.24 | 707.46 | 19.32 | T= 500 años | 2.88 | 707.24 | 707.51 | 22.11 | 0.05 | 2.79 |
| -800 | T= 5 años | 0.29 | 706.66 | 706.77 | 10.48 | T= 5 años | 0.29 | 706.66 | 706.76 | 10.27 | -0.01 | -0.21 |
| -800 | T= 500 años | 1.79 | 706.66 | 706.86 | 19.92 | T= 500 años | 2.88 | 706.66 | 706.90 | 23.89 | 0.04 | 3.97 |
| -820 | T= 5 años | 0.29 | 706.08 | 706.20 | 8.42 | T= 5 años | 0.29 | 706.08 | 706.20 | 8.60 | 0.00 | 0.18 |
| -820 | T= 500 años | 1.79 | 706.08 | 706.33 | 17.52 | T= 500 años | 2.88 | 706.08 | 706.38 | 20.98 | 0.05 | 3.46 |
| -840 | T= 5 años | 0.29 | 705.54 | 705.65 | 10.34 | T= 5 años | 0.29 | 705.54 | 705.65 | 10.08 | 0.00 | -0.26 |
| -840 | T= 500 años | 1.79 | 705.54 | 705.74 | 18.97 | T= 500 años | 2.88 | 705.54 | 705.77 | 21.81 | 0.03 | 2.84 |
| -860 | T= 5 años | 0.29 | 704.98 | 705.03 | 17.97 | T= 5 años | 0.29 | 704.98 | 705.03 | 18.05 | 0.00 | 0.08 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia | Diferencia |
|----------------------|-------------|---------|-----------|---------------|-----------|----------------------|---------|-----------|---------------|-----------|------------|------------|
| River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Calado | Ancho |
| | | (m3/s) | (m) | (m) | (m) | | (m3/s) | (m) | (m) | (m) | (m) | (m) |
| -860 | T= 500 años | 1.79 | 704.98 | 705.11 | 21.61 | T= 500 años | 2.88 | 704.98 | 705.16 | 23.98 | 0.05 | 2.37 |
| -880 | T= 5 años | 0.29 | 704.54 | 704.61 | 19.48 | T= 5 años | 0.29 | 704.54 | 704.61 | 19.39 | 0.00 | -0.09 |
| -880 | T= 500 años | 1.79 | 704.54 | 704.70 | 24.62 | T= 500 años | 2.88 | 704.54 | 704.72 | 25.92 | 0.02 | 1.30 |
| -900 | T= 5 años | 0.29 | 704.09 | 704.16 | 17.62 | T= 5 años | 0.29 | 704.09 | 704.16 | 18.24 | 0.00 | 0.62 |
| -900 | T= 500 años | 1.79 | 704.09 | 704.24 | 22.16 | T= 500 años | 2.88 | 704.09 | 704.30 | 25.51 | 0.06 | 3.35 |
| -920 | T= 5 años | 0.29 | 703.64 | 703.73 | 18.47 | T= 5 años | 0.29 | 703.64 | 703.73 | 18.36 | 0.00 | -0.11 |
| -920 | T= 500 años | 1.79 | 703.64 | 703.82 | 23.88 | T= 500 años | 2.88 | 703.64 | 703.83 | 24.70 | 0.01 | 0.82 |
| -940 | T= 5 años | 0.29 | 703.17 | 703.24 | 13.22 | T= 5 años | 0.29 | 703.17 | 703.25 | 13.88 | 0.01 | 0.66 |
| -940 | T= 500 años | 1.79 | 703.17 | 703.33 | 19.44 | T= 500 años | 2.88 | 703.17 | 703.41 | 24.26 | 0.08 | 4.82 |
| -960 | T= 5 años | 0.29 | 702.75 | 702.85 | 15.20 | T= 5 años | 0.29 | 702.75 | 702.85 | 15.01 | 0.00 | -0.19 |
| -960 | T= 500 años | 1.79 | 702.75 | 702.96 | 23.67 | T= 500 años | 2.88 | 702.75 | 702.96 | 23.91 | 0.00 | 0.24 |
| -980 | T= 5 años | 0.29 | 702.33 | 702.41 | 10.51 | T= 5 años | 0.29 | 702.33 | 702.42 | 10.81 | 0.01 | 0.30 |
| -980 | T= 500 años | 1.79 | 702.33 | 702.51 | 17.39 | T= 500 años | 2.88 | 702.33 | 702.61 | 24.72 | 0.10 | 7.33 |
| -1000 | T= 5 años | 0.47 | 701.86 | 701.99 | 18.37 | T= 5 años | 0.29 | 701.86 | 701.97 | 15.33 | -0.02 | -3.04 |
| -1000 | T= 500 años | 2.89 | 701.86 | 702.11 | 25.09 | T= 500 años | 9.81 | 701.86 | 702.27 | 32.37 | 0.16 | 7.28 |
| -1020 | T= 5 años | 0.47 | 701.37 | 701.49 | 9.97 | T= 5 años | 0.29 | 701.37 | 701.47 | 8.34 | -0.02 | -1.63 |
| -1020 | T= 500 años | 2.89 | 701.37 | 701.62 | 20.68 | T= 500 años | 9.81 | 701.37 | 701.78 | 29.49 | 0.16 | 8.81 |
| -1040 | T= 5 años | 0.47 | 701.00 | 701.12 | 16.56 | T= 5 años | 0.29 | 701.00 | 701.10 | 15.17 | -0.02 | -1.39 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -1040 | T= 500 años | 2.89 | 701.00 | 701.30 | 24.94 | T= 500 años | 9.81 | 701.00 | 701.49 | 30.66 | 0.19 | 5.72 |
| -1060 | T= 5 años | 0.47 | 700.83 | 700.93 | 13.61 | T= 5 años | 0.29 | 700.83 | 700.91 | 11.22 | -0.02 | -2.39 |
| -1060 | T= 500 años | 2.89 | 700.83 | 701.03 | 24.24 | T= 500 años | 9.81 | 700.83 | 701.20 | 29.28 | 0.17 | 5.04 |
| -1080 | T= 5 años | 0.47 | 700.10 | 700.31 | 7.33 | T= 5 años | 0.29 | 700.10 | 700.28 | 6.19 | -0.03 | -1.14 |
| -1080 | T= 500 años | 2.89 | 700.10 | 700.50 | 13.86 | T= 500 años | 9.81 | 700.10 | 700.71 | 21.08 | 0.21 | 7.22 |
| -1100 | T= 5 años | 0.47 | 699.66 | 699.81 | 7.36 | T= 5 años | 0.29 | 699.66 | 699.78 | 6.08 | -0.03 | -1.28 |
| -1100 | T= 500 años | 2.89 | 699.66 | 699.97 | 15.19 | T= 500 años | 9.81 | 699.66 | 700.16 | 21.30 | 0.19 | 6.11 |
| -1120 | T= 5 años | 0.47 | 699.00 | 699.19 | 8.50 | T= 5 años | 0.29 | 699.00 | 699.15 | 7.66 | -0.04 | -0.84 |
| -1120 | T= 500 años | 2.89 | 699.00 | 699.41 | 14.17 | T= 500 años | 9.81 | 699.00 | 699.65 | 20.77 | 0.24 | 6.60 |
| -1140 | T= 5 años | 0.47 | 698.87 | 698.97 | 13.95 | T= 5 años | 0.29 | 698.87 | 698.95 | 11.48 | -0.02 | -2.47 |
| -1140 | T= 500 años | 2.89 | 698.87 | 699.07 | 20.56 | T= 500 años | 9.81 | 698.87 | 699.23 | 25.24 | 0.16 | 4.68 |
| -1160 | T= 5 años | 0.47 | 698.00 | 698.18 | 11.98 | T= 5 años | 0.29 | 698.00 | 698.14 | 11.09 | -0.04 | -0.89 |
| -1160 | T= 500 años | 2.89 | 698.00 | 698.37 | 17.00 | T= 500 años | 9.81 | 698.00 | 698.60 | 23.05 | 0.23 | 6.05 |
| -1180 | T= 5 años | 0.47 | 698.00 | 698.03 | 22.23 | T= 5 años | 0.29 | 698.00 | 698.03 | 21.94 | 0.00 | -0.29 |
| -1180 | T= 500 años | 2.89 | 698.00 | 698.12 | 25.79 | T= 500 años | 9.81 | 698.00 | 698.26 | 31.49 | 0.14 | 5.70 |
| -1200 | T= 5 años | 0.47 | 697.00 | 697.17 | 13.30 | T= 5 años | 0.29 | 697.00 | 697.14 | 12.16 | -0.03 | -1.14 |
| -1200 | T= 500 años | 2.89 | 697.00 | 697.36 | 20.23 | T= 500 años | 9.81 | 697.00 | 697.58 | 28.40 | 0.22 | 8.17 |
| -1220 | T= 5 años | 0.47 | 697.00 | 697.04 | 24.01 | T= 5 años | 0.29 | 697.00 | 697.03 | 23.65 | -0.01 | -0.36 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -1220 | T= 500 años | 2.89 | 697.00 | 697.11 | 26.76 | T= 500 años | 9.81 | 697.00 | 697.25 | 31.40 | 0.14 | 4.64 |
| -1240 | T= 5 años | 0.47 | 696.00 | 696.17 | 14.57 | T= 5 años | 0.29 | 696.00 | 696.14 | 13.29 | -0.03 | -1.28 |
| -1240 | T= 500 años | 2.89 | 696.00 | 696.35 | 22.25 | T= 500 años | 9.81 | 696.00 | 696.57 | 31.29 | 0.22 | 9.04 |
| -1260 | T= 5 años | 0.47 | 696.00 | 696.04 | 22.79 | T= 5 años | 0.29 | 696.00 | 696.03 | 22.37 | -0.01 | -0.42 |
| -1260 | T= 500 años | 2.89 | 696.00 | 696.12 | 25.67 | T= 500 años | 9.81 | 696.00 | 696.26 | 30.64 | 0.14 | 4.97 |
| -1280 | T= 5 años | 0.47 | 694.89 | 695.03 | 15.53 | T= 5 años | 0.29 | 694.89 | 695.01 | 14.93 | -0.02 | -0.60 |
| -1280 | T= 500 años | 2.89 | 694.89 | 695.19 | 20.03 | T= 500 años | 9.81 | 694.89 | 695.42 | 26.28 | 0.23 | 6.25 |
| -1300 | T= 5 años | 0.47 | 694.68 | 694.86 | 12.30 | T= 5 años | 0.29 | 694.68 | 694.83 | 10.18 | -0.03 | -2.12 |
| -1300 | T= 500 años | 2.89 | 694.68 | 695.05 | 22.89 | T= 500 años | 9.81 | 694.68 | 695.27 | 28.06 | 0.22 | 5.17 |
| -1320 | T= 5 años | 0.47 | 694.46 | 694.63 | 10.98 | T= 5 años | 0.29 | 694.46 | 694.60 | 9.36 | -0.03 | -1.62 |
| -1320 | T= 500 años | 2.89 | 694.46 | 694.75 | 18.00 | T= 500 años | 9.81 | 694.46 | 694.91 | 26.91 | 0.16 | 8.91 |
| -1340 | T= 5 años | 0.47 | 694.22 | 694.29 | 21.13 | T= 5 años | 0.29 | 694.22 | 694.27 | 19.97 | -0.02 | -1.16 |
| -1340 | T= 500 años | 2.89 | 694.22 | 694.41 | 30.61 | T= 500 años | 9.81 | 694.22 | 694.59 | 44.32 | 0.18 | 13.71 |
| -1360 | T= 5 años | 0.47 | 694.00 | 694.08 | 22.84 | T= 5 años | 0.29 | 694.00 | 694.06 | 21.77 | -0.02 | -1.07 |
| -1360 | T= 500 años | 2.89 | 694.00 | 694.20 | 29.62 | T= 500 años | 9.81 | 694.00 | 694.36 | 38.58 | 0.16 | 8.96 |
| -1380 | T= 5 años | 0.47 | 693.69 | 693.76 | 22.30 | T= 5 años | 0.29 | 693.69 | 693.75 | 18.86 | -0.01 | -3.44 |
| -1380 | T= 500 años | 2.89 | 693.69 | 693.84 | 37.80 | T= 500 años | 9.81 | 693.69 | 693.94 | 48.15 | 0.10 | 10.35 |
| -1400 | T= 5 años | 0.47 | 692.87 | 692.99 | 19.40 | T= 5 años | 0.29 | 692.87 | 692.97 | 16.25 | -0.02 | -3.15 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia | Diferencia |
|----------------------|-------------|---------|-----------|---------------|-----------|----------------------|---------|-----------|---------------|-----------|------------|------------|
| River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Calado | Ancho |
| | | (m3/s) | (m) | (m) | (m) | | (m3/s) | (m) | (m) | (m) | (m) | (m) |
| -1400 | T= 500 años | 2.89 | 692.87 | 693.11 | 27.18 | T= 500 años | 9.81 | 692.87 | 693.28 | 36.49 | 0.17 | 9.31 |
| -1420 | T= 5 años | 0.47 | 692.52 | 692.67 | 12.28 | T= 5 años | 0.29 | 692.52 | 692.65 | 10.15 | -0.02 | -2.13 |
| -1420 | T= 500 años | 2.89 | 692.52 | 692.83 | 24.65 | T= 500 años | 9.81 | 692.52 | 692.99 | 38.24 | 0.16 | 13.59 |
| -1440 | T= 5 años | 0.47 | 692.22 | 692.35 | 15.23 | T= 5 años | 0.29 | 692.22 | 692.33 | 12.89 | -0.02 | -2.34 |
| -1440 | T= 500 años | 2.89 | 692.22 | 692.47 | 28.44 | T= 500 años | 9.81 | 692.22 | 692.61 | 38.40 | 0.14 | 9.96 |
| -1460 | T= 5 años | 0.47 | 692.00 | 692.05 | 28.81 | T= 5 años | 0.29 | 692.00 | 692.04 | 28.39 | -0.01 | -0.42 |
| -1460 | T= 500 años | 2.89 | 692.00 | 692.14 | 32.15 | T= 500 años | 9.81 | 692.00 | 692.30 | 37.44 | 0.16 | 5.29 |
| -1480 | T= 5 años | 0.47 | 691.38 | 691.52 | 8.52 | T= 5 años | 0.29 | 691.38 | 691.49 | 7.03 | -0.03 | -1.49 |
| -1480 | T= 500 años | 2.89 | 691.38 | 691.66 | 17.46 | T= 500 años | 9.81 | 691.38 | 691.83 | 28.48 | 0.17 | 11.02 |
| -1500 | T= 5 años | 0.70 | 690.81 | 690.99 | 16.42 | T= 5 años | 0.29 | 690.81 | 690.94 | 11.81 | -0.05 | -4.61 |
| -1500 | T= 500 años | 4.33 | 690.81 | 691.17 | 23.89 | T= 500 años | 12.86 | 690.81 | 691.38 | 32.00 | 0.21 | 8.11 |
| -1520 | T= 5 años | 0.70 | 690.34 | 690.53 | 7.57 | T= 5 años | 0.29 | 690.34 | 690.47 | 5.28 | -0.06 | -2.29 |
| -1520 | T= 500 años | 4.33 | 690.34 | 690.73 | 15.61 | T= 500 años | 12.86 | 690.34 | 690.95 | 24.18 | 0.22 | 8.57 |
| -1540 | T= 5 años | 0.70 | 689.94 | 690.11 | 15.13 | T= 5 años | 0.29 | 689.94 | 690.05 | 13.36 | -0.06 | -1.77 |
| -1540 | T= 500 años | 4.33 | 689.94 | 690.35 | 22.27 | T= 500 años | 12.86 | 689.94 | 690.63 | 30.43 | 0.28 | 8.16 |
| -1560 | T= 5 años | 0.70 | 689.71 | 689.94 | 9.77 | T= 5 años | 0.29 | 689.71 | 689.87 | 6.94 | -0.07 | -2.83 |
| -1560 | T= 500 años | 4.33 | 689.71 | 690.17 | 17.34 | T= 500 años | 12.86 | 689.71 | 690.40 | 24.26 | 0.23 | 6.92 |
| -1580 | T= 5 años | 0.70 | 689.48 | 689.73 | 11.34 | T= 5 años | 0.29 | 689.48 | 689.66 | 8.20 | -0.07 | -3.14 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia | Diferencia |
|----------------------|-------------|---------|-----------|---------------|-----------|----------------------|---------|-----------|---------------|-----------|------------|------------|
| River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Calado | Ancho |
| | | (m3/s) | (m) | (m) | (m) | | (m3/s) | (m) | (m) | (m) | (m) | (m) |
| -1580 | T= 500 años | 4.33 | 689.48 | 689.96 | 22.02 | T= 500 años | 12.86 | 689.48 | 690.19 | 29.70 | 0.23 | 7.68 |
| -1600 | T= 5 años | 0.70 | 689.25 | 689.44 | 9.91 | T= 5 años | 0.29 | 689.25 | 689.39 | 7.12 | -0.05 | -2.79 |
| -1600 | T= 500 años | 4.33 | 689.25 | 689.63 | 19.27 | T= 500 años | 12.86 | 689.25 | 689.81 | 29.21 | 0.18 | 9.94 |
| -1620 | T= 5 años | 0.70 | 689.00 | 689.11 | 16.79 | T= 5 años | 0.29 | 689.00 | 689.07 | 14.39 | -0.04 | -2.40 |
| -1620 | T= 500 años | 4.33 | 689.00 | 689.28 | 26.62 | T= 500 años | 12.86 | 689.00 | 689.47 | 36.81 | 0.19 | 10.19 |
| -1640 | T= 5 años | 0.70 | 688.67 | 688.85 | 14.80 | T= 5 años | 0.29 | 688.67 | 688.80 | 10.25 | -0.05 | -4.55 |
| -1640 | T= 500 años | 4.33 | 688.67 | 689.04 | 28.88 | T= 500 años | 12.86 | 688.67 | 689.23 | 39.34 | 0.19 | 10.46 |
| -1660 | T= 5 años | 0.70 | 688.32 | 688.49 | 12.49 | T= 5 años | 0.29 | 688.32 | 688.45 | 9.46 | -0.04 | -3.03 |
| -1660 | T= 500 años | 4.33 | 688.32 | 688.63 | 23.20 | T= 500 años | 12.86 | 688.32 | 688.80 | 34.71 | 0.17 | 11.51 |
| -1680 | T= 5 años | 0.70 | 687.97 | 688.07 | 18.67 | T= 5 años | 0.29 | 687.97 | 688.03 | 16.54 | -0.04 | -2.13 |
| -1680 | T= 500 años | 4.33 | 687.97 | 688.22 | 27.89 | T= 500 años | 12.86 | 687.97 | 688.40 | 37.79 | 0.18 | 9.90 |
| -1700 | T= 5 años | 0.70 | 687.64 | 687.83 | 17.94 | T= 5 años | 0.29 | 687.64 | 687.78 | 12.97 | -0.05 | -4.97 |
| -1700 | T= 500 años | 4.33 | 687.64 | 688.00 | 34.55 | T= 500 años | 12.86 | 687.64 | 688.18 | 42.79 | 0.18 | 8.24 |
| -1720 | T= 5 años | 0.70 | 687.32 | 687.47 | 11.43 | T= 5 años | 0.29 | 687.32 | 687.42 | 8.06 | -0.05 | -3.37 |
| -1720 | T= 500 años | 4.33 | 687.32 | 687.62 | 23.58 | T= 500 años | 12.86 | 687.32 | 687.78 | 36.36 | 0.16 | 12.78 |
| -1740 | T= 5 años | 0.70 | 687.00 | 687.09 | 24.04 | T= 5 años | 0.29 | 687.00 | 687.05 | 22.38 | -0.04 | -1.66 |
| -1740 | T= 500 años | 4.33 | 687.00 | 687.24 | 31.39 | T= 500 años | 12.86 | 687.00 | 687.42 | 39.94 | 0.18 | 8.55 |
| -1760 | T= 5 años | 0.70 | 686.58 | 686.72 | 12.23 | T= 5 años | 0.29 | 686.58 | 686.68 | 8.63 | -0.04 | -3.60 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -1760 | T= 500 años | 4.33 | 686.58 | 686.87 | 25.33 | T= 500 años | 12.86 | 686.58 | 687.02 | 37.97 | 0.15 | 12.64 |
| -1780 | T= 5 años | 0.70 | 686.00 | 686.16 | 12.88 | T= 5 años | 0.29 | 686.00 | 686.11 | 10.02 | -0.05 | -2.86 |
| -1780 | T= 500 años | 4.33 | 686.00 | 686.34 | 20.45 | T= 500 años | 12.86 | 686.00 | 686.54 | 28.68 | 0.20 | 8.23 |
| -1800 | T= 5 años | 0.70 | 685.74 | 685.92 | 15.86 | T= 5 años | 0.29 | 685.74 | 685.87 | 10.98 | -0.05 | -4.88 |
| -1800 | T= 500 años | 4.33 | 685.74 | 686.10 | 26.86 | T= 500 años | 12.86 | 685.74 | 686.30 | 35.02 | 0.20 | 8.16 |
| -1820 | T= 5 años | 0.70 | 685.32 | 685.50 | 9.16 | T= 5 años | 0.29 | 685.32 | 685.45 | 6.94 | -0.05 | -2.22 |
| -1820 | T= 500 años | 4.33 | 685.32 | 685.67 | 18.30 | T= 500 años | 12.86 | 685.32 | 685.87 | 28.23 | 0.20 | 9.93 |
| -1840 | T= 5 años | 0.70 | 684.94 | 685.07 | 15.32 | T= 5 años | 0.29 | 684.94 | 685.03 | 13.64 | -0.04 | -1.68 |
| -1840 | T= 500 años | 4.33 | 684.94 | 685.24 | 22.23 | T= 500 años | 12.86 | 684.94 | 685.44 | 29.94 | 0.20 | 7.71 |
| -1860 | T= 5 años | 0.70 | 684.68 | 684.88 | 17.93 | T= 5 años | 0.29 | 684.68 | 684.82 | 13.03 | -0.06 | -4.90 |
| -1860 | T= 500 años | 4.33 | 684.68 | 685.06 | 31.30 | T= 500 años | 12.86 | 684.68 | 685.25 | 38.23 | 0.19 | 6.93 |
| -1880 | T= 5 años | 0.70 | 684.41 | 684.58 | 10.36 | T= 5 años | 0.29 | 684.41 | 684.53 | 7.23 | -0.05 | -3.13 |
| -1880 | T= 500 años | 4.33 | 684.41 | 684.79 | 22.56 | T= 500 años | 12.86 | 684.41 | 685.01 | 35.72 | 0.22 | 13.16 |
| -1900 | T= 5 años | 0.70 | 684.00 | 684.20 | 11.60 | T= 5 años | 0.29 | 684.00 | 684.15 | 9.25 | -0.05 | -2.35 |
| -1900 | T= 500 años | 4.33 | 684.00 | 684.37 | 18.98 | T= 500 años | 12.86 | 684.00 | 684.54 | 26.22 | 0.17 | 7.24 |
| -1920 | T= 5 años | 0.70 | 683.76 | 683.91 | 18.90 | T= 5 años | 0.29 | 683.76 | 683.87 | 13.54 | -0.04 | -5.36 |
| -1920 | T= 500 años | 4.33 | 683.76 | 684.05 | 31.70 | T= 500 años | 12.86 | 683.76 | 684.22 | 35.24 | 0.17 | 3.54 |
| -1940 | T= 5 años | 0.70 | 683.18 | 683.36 | 8.35 | T= 5 años | 0.29 | 683.18 | 683.31 | 5.88 | -0.05 | -2.47 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia | Diferencia |
|----------------------|-------------|---------|-----------|---------------|-----------|----------------------|---------|-----------|---------------|-----------|------------|------------|
| River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Calado | Ancho |
| | | (m3/s) | (m) | (m) | (m) | | (m3/s) | (m) | (m) | (m) | (m) | (m) |
| -1940 | T= 500 años | 4.33 | 683.18 | 683.55 | 17.22 | T= 500 años | 12.86 | 683.18 | 683.75 | 26.62 | 0.20 | 9.40 |
| -1960 | T= 5 años | 0.70 | 682.67 | 682.86 | 14.40 | T= 5 años | 0.29 | 682.67 | 682.80 | 10.32 | -0.06 | -4.08 |
| -1960 | T= 500 años | 4.33 | 682.67 | 683.04 | 26.08 | T= 500 años | 12.86 | 682.67 | 683.24 | 29.98 | 0.20 | 3.90 |
| -1980 | T= 5 años | 0.70 | 682.19 | 682.38 | 7.63 | T= 5 años | 0.29 | 682.19 | 682.32 | 5.39 | -0.06 | -2.24 |
| -1980 | T= 500 años | 4.33 | 682.19 | 682.58 | 15.77 | T= 500 años | 12.86 | 682.19 | 682.79 | 24.38 | 0.21 | 8.61 |
| -2000 | T= 5 años | 0.94 | 681.66 | 681.88 | 12.36 | T= 5 años | 0.29 | 681.66 | 681.80 | 7.99 | -0.08 | -4.37 |
| -2000 | T= 500 años | 5.77 | 681.66 | 682.10 | 21.25 | T= 500 años | 15.91 | 681.66 | 682.32 | 26.73 | 0.22 | 5.48 |
| -2020 | T= 5 años | 0.94 | 681.10 | 681.33 | 7.43 | T= 5 años | 0.29 | 681.10 | 681.25 | 4.66 | -0.08 | -2.77 |
| -2020 | T= 500 años | 5.77 | 681.10 | 681.58 | 15.35 | T= 500 años | 15.91 | 681.10 | 681.82 | 23.00 | 0.24 | 7.65 |
| -2040 | T= 5 años | 0.94 | 680.68 | 680.95 | 10.87 | T= 5 años | 0.29 | 680.68 | 680.86 | 7.13 | -0.09 | -3.74 |
| -2040 | T= 500 años | 5.77 | 680.68 | 681.20 | 20.95 | T= 500 años | 15.91 | 680.68 | 681.42 | 30.21 | 0.22 | 9.26 |
| -2060 | T= 5 años | 0.94 | 680.29 | 680.50 | 8.81 | T= 5 años | 0.29 | 680.29 | 680.42 | 5.51 | -0.08 | -3.30 |
| -2060 | T= 500 años | 5.77 | 680.29 | 680.72 | 18.19 | T= 500 años | 15.91 | 680.29 | 680.94 | 27.31 | 0.22 | 9.12 |
| -2080 | T= 5 años | 0.94 | 679.95 | 680.11 | 16.99 | T= 5 años | 0.29 | 679.95 | 680.04 | 14.90 | -0.07 | -2.09 |
| -2080 | T= 500 años | 5.77 | 679.95 | 680.35 | 24.17 | T= 500 años | 15.91 | 679.95 | 680.62 | 32.28 | 0.27 | 8.11 |
| -2100 | T= 5 años | 0.94 | 679.74 | 679.97 | 18.30 | T= 5 años | 0.29 | 679.74 | 679.89 | 11.47 | -0.08 | -6.83 |
| -2100 | T= 500 años | 5.77 | 679.74 | 680.24 | 28.12 | T= 500 años | 15.91 | 679.74 | 680.52 | 37.38 | 0.28 | 9.26 |
| -2120 | T= 5 años | 0.94 | 679.53 | 679.81 | 11.56 | T= 5 años | 0.29 | 679.53 | 679.71 | 7.43 | -0.10 | -4.13 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -2120 | T= 500 años | 5.77 | 679.53 | 680.09 | 22.08 | T= 500 años | 15.91 | 679.53 | 680.37 | 30.07 | 0.28 | 7.99 |
| -2140 | T= 5 años | 0.94 | 679.33 | 679.63 | 10.54 | T= 5 años | 0.29 | 679.33 | 679.52 | 6.76 | -0.11 | -3.78 |
| -2140 | T= 500 años | 5.77 | 679.33 | 679.92 | 21.11 | T= 500 años | 15.91 | 679.33 | 680.18 | 30.56 | 0.26 | 9.45 |
| -2160 | T= 5 años | 0.94 | 679.12 | 679.36 | 10.53 | T= 5 años | 0.29 | 679.12 | 679.28 | 7.12 | -0.08 | -3.41 |
| -2160 | T= 500 años | 5.77 | 679.12 | 679.55 | 18.53 | T= 500 años | 15.91 | 679.12 | 679.76 | 27.67 | 0.21 | 9.14 |
| -2180 | T= 5 años | 0.94 | 678.76 | 678.92 | 16.97 | T= 5 años | 0.29 | 678.76 | 678.86 | 10.49 | -0.06 | -6.48 |
| -2180 | T= 500 años | 5.77 | 678.76 | 679.09 | 29.09 | T= 500 años | 15.91 | 678.76 | 679.29 | 36.29 | 0.20 | 7.20 |
| -2200 | T= 5 años | 0.94 | 678.19 | 678.41 | 11.23 | T= 5 años | 0.29 | 678.19 | 678.34 | 7.37 | -0.07 | -3.86 |
| -2200 | T= 500 años | 5.77 | 678.19 | 678.61 | 21.33 | T= 500 años | 15.91 | 678.19 | 678.79 | 30.45 | 0.18 | 9.12 |
| -2220 | T= 5 años | 0.94 | 677.60 | 677.79 | 10.20 | T= 5 años | 0.29 | 677.60 | 677.72 | 6.40 | -0.07 | -3.80 |
| -2220 | T= 500 años | 5.77 | 677.60 | 677.99 | 21.13 | T= 500 años | 15.91 | 677.60 | 678.18 | 32.42 | 0.19 | 11.29 |
| -2240 | T= 5 años | 0.94 | 677.00 | 677.23 | 10.72 | T= 5 años | 0.29 | 677.00 | 677.15 | 7.02 | -0.08 | -3.70 |
| -2240 | T= 500 años | 5.77 | 677.00 | 677.45 | 20.56 | T= 500 años | 15.91 | 677.00 | 677.64 | 29.47 | 0.19 | 8.91 |
| -2260 | T= 5 años | 0.94 | 676.43 | 676.63 | 9.17 | T= 5 años | 0.29 | 676.43 | 676.56 | 5.76 | -0.07 | -3.41 |
| -2260 | T= 500 años | 5.77 | 676.43 | 676.85 | 18.97 | T= 500 años | 15.91 | 676.43 | 677.06 | 28.66 | 0.21 | 9.69 |
| -2280 | T= 5 años | 0.94 | 675.87 | 676.07 | 14.07 | T= 5 años | 0.29 | 675.87 | 676.00 | 10.04 | -0.07 | -4.03 |
| -2280 | T= 500 años | 5.77 | 675.87 | 676.28 | 26.03 | T= 500 años | 15.91 | 675.87 | 676.50 | 38.12 | 0.22 | 12.09 |
| -2300 | T= 5 años | 0.94 | 675.34 | 675.55 | 8.49 | T= 5 años | 0.29 | 675.34 | 675.47 | 5.34 | -0.08 | -3.15 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia | Diferencia |
|----------------------|-------------|---------|-----------|---------------|-----------|----------------------|---------|-----------|---------------|-----------|------------|------------|
| River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Calado | Ancho |
| | | (m3/s) | (m) | (m) | (m) | | (m3/s) | (m) | (m) | (m) | (m) | (m) |
| -2300 | T= 500 años | 5.77 | 675.34 | 675.78 | 17.59 | T= 500 años | 15.91 | 675.34 | 676.01 | 28.12 | 0.23 | 10.53 |
| -2320 | T= 5 años | 0.94 | 674.94 | 675.14 | 15.49 | T= 5 años | 0.29 | 674.94 | 675.05 | 13.01 | -0.09 | -2.48 |
| -2320 | T= 500 años | 5.77 | 674.94 | 675.47 | 25.41 | T= 500 años | 15.91 | 674.94 | 675.83 | 36.03 | 0.36 | 10.62 |
| -2340 | T= 5 años | 0.94 | 674.77 | 675.05 | 15.09 | T= 5 años | 0.29 | 674.77 | 674.94 | 10.38 | -0.11 | -4.71 |
| -2340 | T= 500 años | 5.77 | 674.77 | 675.42 | 24.02 | T= 500 años | 15.91 | 674.77 | 675.78 | 32.80 | 0.36 | 8.78 |
| -2360 | T= 5 años | 0.94 | 674.61 | 674.96 | 11.26 | T= 5 años | 0.29 | 674.61 | 674.83 | 6.95 | -0.13 | -4.31 |
| -2360 | T= 500 años | 5.77 | 674.61 | 675.35 | 21.55 | T= 500 años | 15.91 | 674.61 | 675.71 | 30.64 | 0.36 | 9.09 |
| -2380 | T= 5 años | 0.94 | 674.44 | 674.84 | 7.61 | T= 5 años | 0.29 | 674.44 | 674.70 | 4.89 | -0.14 | -2.72 |
| -2380 | T= 500 años | 5.77 | 674.44 | 675.24 | 17.42 | T= 500 años | 15.91 | 674.44 | 675.59 | 27.38 | 0.35 | 9.96 |
| -2400 | T= 5 años | 0.94 | 674.27 | 674.64 | 6.00 | T= 5 años | 0.29 | 674.27 | 674.51 | 3.92 | -0.13 | -2.08 |
| -2400 | T= 500 años | 5.77 | 674.27 | 674.99 | 11.50 | T= 500 años | 15.91 | 674.27 | 675.31 | 21.17 | 0.32 | 9.67 |
| -2420 | T= 5 años | 0.94 | 674.10 | 674.41 | 8.94 | T= 5 años | 0.29 | 674.10 | 674.31 | 6.01 | -0.10 | -2.93 |
| -2420 | T= 500 años | 5.77 | 674.10 | 674.66 | 16.07 | T= 500 años | 15.91 | 674.10 | 674.87 | 22.19 | 0.21 | 6.12 |
| -2440 | T= 5 años | 0.94 | 673.84 | 673.98 | 15.70 | T= 5 años | 0.29 | 673.84 | 673.93 | 9.88 | -0.05 | -5.82 |
| -2440 | T= 500 años | 5.77 | 673.84 | 674.14 | 21.11 | T= 500 años | 15.91 | 673.84 | 674.33 | 25.90 | 0.19 | 4.79 |
| -2460 | T= 5 años | 0.94 | 673.00 | 673.21 | 15.47 | T= 5 años | 0.29 | 673.00 | 673.13 | 13.05 | -0.08 | -2.42 |
| -2460 | T= 500 años | 5.77 | 673.00 | 673.46 | 22.07 | T= 500 años | 15.91 | 673.00 | 673.69 | 26.90 | 0.23 | 4.83 |
| -2480 | T= 5 años | 0.94 | 673.00 | 673.05 | 25.60 | T= 5 años | 0.29 | 673.00 | 673.03 | 25.01 | -0.02 | -0.59 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia | Diferencia |
|----------------------|-------------|---------|-----------|---------------|-----------|----------------------|---------|-----------|---------------|-----------|------------|------------|
| River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Calado | Ancho |
| | | (m3/s) | (m) | (m) | (m) | | (m3/s) | (m) | (m) | (m) | (m) | (m) |
| -2480 | T= 500 años | 5.77 | 673.00 | 673.17 | 28.28 | T= 500 años | 15.91 | 673.00 | 673.33 | 31.88 | 0.16 | 3.60 |
| -2500 | T= 5 años | 1.17 | 672.00 | 672.08 | 16.91 | T= 5 años | 1.17 | 672.00 | 672.08 | 16.91 | 0.00 | 0.00 |
| -2500 | T= 500 años | 7.21 | 672.00 | 672.24 | 21.05 | T= 500 años | 18.97 | 672.00 | 672.40 | 24.73 | 0.16 | 3.68 |
| -2520 | T= 5 años | 1.17 | 671.00 | 671.24 | 10.73 | T= 5 años | 1.17 | 671.00 | 671.24 | 10.73 | 0.00 | 0.00 |
| -2520 | T= 500 años | 7.21 | 671.00 | 671.54 | 17.76 | T= 500 años | 18.97 | 671.00 | 671.79 | 22.39 | 0.25 | 4.63 |
| -2540 | T= 5 años | 1.17 | 670.68 | 670.89 | 10.92 | T= 5 años | 1.17 | 670.68 | 670.89 | 10.92 | 0.00 | 0.00 |
| -2540 | T= 500 años | 7.21 | 670.68 | 671.11 | 18.73 | T= 500 años | 18.97 | 670.68 | 671.34 | 23.13 | 0.23 | 4.40 |
| -2560 | T= 5 años | 1.17 | 669.94 | 670.16 | 16.02 | T= 5 años | 1.17 | 669.94 | 670.16 | 16.02 | 0.00 | 0.00 |
| -2560 | T= 500 años | 7.21 | 669.94 | 670.47 | 21.38 | T= 500 años | 18.97 | 669.94 | 670.80 | 26.93 | 0.33 | 5.55 |
| -2580 | T= 5 años | 1.17 | 669.82 | 670.08 | 18.23 | T= 5 años | 1.17 | 669.82 | 670.08 | 18.23 | 0.00 | 0.00 |
| -2580 | T= 500 años | 7.21 | 669.82 | 670.39 | 23.51 | T= 500 años | 18.97 | 669.82 | 670.72 | 29.00 | 0.33 | 5.49 |
| -2600 | T= 5 años | 1.17 | 669.70 | 669.99 | 18.93 | T= 5 años | 1.17 | 669.70 | 669.99 | 18.93 | 0.00 | 0.00 |
| -2600 | T= 500 años | 7.21 | 669.70 | 670.32 | 26.21 | T= 500 años | 18.97 | 669.70 | 670.65 | 33.02 | 0.33 | 6.81 |
| -2620 | T= 5 años | 1.17 | 669.57 | 669.90 | 16.53 | T= 5 años | 1.17 | 669.57 | 669.90 | 16.53 | 0.00 | 0.00 |
| -2620 | T= 500 años | 7.21 | 669.57 | 670.26 | 27.48 | T= 500 años | 18.97 | 669.57 | 670.58 | 35.40 | 0.32 | 7.92 |
| -2640 | T= 5 años | 1.17 | 669.45 | 669.82 | 13.18 | T= 5 años | 1.17 | 669.45 | 669.82 | 13.18 | 0.00 | 0.00 |
| -2640 | T= 500 años | 7.21 | 669.45 | 670.17 | 24.21 | T= 500 años | 18.97 | 669.45 | 670.49 | 32.13 | 0.32 | 7.92 |
| -2660 | T= 5 años | 1.17 | 669.33 | 669.70 | 10.77 | T= 5 años | 1.17 | 669.33 | 669.70 | 10.77 | 0.00 | 0.00 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -2660 | T= 500 años | 7.21 | 669.33 | 670.04 | 20.71 | T= 500 años | 18.97 | 669.33 | 670.33 | 28.52 | 0.29 | 7.81 |
| -2680 | T= 5 años | 1.17 | 669.21 | 669.56 | 11.33 | T= 5 años | 1.17 | 669.21 | 669.56 | 11.33 | 0.00 | 0.00 |
| -2680 | T= 500 años | 7.21 | 669.21 | 669.86 | 21.35 | T= 500 años | 18.97 | 669.21 | 670.11 | 29.42 | 0.25 | 8.07 |
| -2700 | T= 5 años | 1.17 | 669.09 | 669.35 | 13.51 | T= 5 años | 1.17 | 669.09 | 669.35 | 13.51 | 0.00 | 0.00 |
| -2700 | T= 500 años | 7.21 | 669.09 | 669.57 | 24.69 | T= 500 años | 18.97 | 669.09 | 669.76 | 34.83 | 0.19 | 10.14 |
| -2720 | T= 5 años | 1.17 | 668.91 | 669.05 | 23.35 | T= 5 años | 1.17 | 668.91 | 669.05 | 23.35 | 0.00 | 0.00 |
| -2720 | T= 500 años | 7.21 | 668.91 | 669.24 | 34.80 | T= 500 años | 18.97 | 668.91 | 669.41 | 45.49 | 0.17 | 10.69 |
| -2740 | T= 5 años | 1.17 | 668.48 | 668.62 | 22.77 | T= 5 años | 1.17 | 668.48 | 668.62 | 22.77 | 0.00 | 0.00 |
| -2740 | T= 500 años | 7.21 | 668.48 | 668.76 | 32.11 | T= 500 años | 18.97 | 668.48 | 668.92 | 42.87 | 0.16 | 10.76 |
| -2760 | T= 5 años | 1.17 | 667.88 | 668.03 | 19.89 | T= 5 años | 1.17 | 667.88 | 668.03 | 19.89 | 0.00 | 0.00 |
| -2760 | T= 500 años | 7.21 | 667.88 | 668.21 | 33.40 | T= 500 años | 18.97 | 667.88 | 668.39 | 46.91 | 0.18 | 13.51 |
| -2780 | T= 5 años | 1.17 | 667.46 | 667.68 | 19.22 | T= 5 años | 1.17 | 667.46 | 667.68 | 19.22 | 0.00 | 0.00 |
| -2780 | T= 500 años | 7.21 | 667.46 | 667.89 | 37.24 | T= 500 años | 18.97 | 667.46 | 668.06 | 51.21 | 0.17 | 13.97 |
| -2800 | T= 5 años | 1.17 | 667.10 | 667.28 | 15.28 | T= 5 años | 1.17 | 667.10 | 667.28 | 15.28 | 0.00 | 0.00 |
| -2800 | T= 500 años | 7.21 | 667.10 | 667.47 | 31.12 | T= 500 años | 18.97 | 667.10 | 667.66 | 44.84 | 0.19 | 13.72 |
| -2820 | T= 5 años | 1.17 | 666.77 | 666.98 | 23.61 | T= 5 años | 1.17 | 666.77 | 666.98 | 23.61 | 0.00 | 0.00 |
| -2820 | T= 500 años | 7.21 | 666.77 | 667.18 | 35.23 | T= 500 años | 18.97 | 666.77 | 667.38 | 48.13 | 0.20 | 12.90 |
| -2840 | T= 5 años | 1.17 | 666.43 | 666.60 | 14.36 | T= 5 años | 1.17 | 666.43 | 666.60 | 14.36 | 0.00 | 0.00 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia | Diferencia |
|----------------------|-------------|---------|-----------|---------------|-----------|----------------------|---------|-----------|---------------|-----------|------------|------------|
| River Sta | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Profile | Q Total | Min Ch El | W.S. Elev | Top Width | Calado | Ancho |
| | | (m3/s) | (m) | (m) | (m) | | (m3/s) | (m) | (m) | (m) | (m) | (m) |
| -2840 | T= 500 años | 7.21 | 666.43 | 666.79 | 29.67 | T= 500 años | 18.97 | 666.43 | 666.97 | 40.26 | 0.18 | 10.59 |
| -2860 | T= 5 años | 1.17 | 666.00 | 666.13 | 19.20 | T= 5 años | 1.17 | 666.00 | 666.13 | 19.20 | 0.00 | 0.00 |
| -2860 | T= 500 años | 7.21 | 666.00 | 666.34 | 32.51 | T= 500 años | 18.97 | 666.00 | 666.48 | 41.48 | 0.14 | 8.97 |
| -2880 | T= 5 años | 1.17 | 665.58 | 665.74 | 16.24 | T= 5 años | 1.17 | 665.58 | 665.74 | 16.24 | 0.00 | 0.00 |
| -2880 | T= 500 años | 7.21 | 665.58 | 665.92 | 29.89 | T= 500 años | 18.97 | 665.58 | 666.17 | 41.80 | 0.25 | 11.91 |
| -2900 | T= 5 años | 1.17 | 665.00 | 665.40 | 13.03 | T= 5 años | 1.17 | 665.00 | 665.40 | 13.03 | 0.00 | 0.00 |
| -2900 | T= 500 años | 7.21 | 665.00 | 665.73 | 24.08 | T= 500 años | 18.97 | 665.00 | 665.99 | 28.59 | 0.26 | 4.51 |
| -2920 | T= 5 años | 1.17 | 665.00 | 665.34 | 17.44 | T= 5 años | 1.17 | 665.00 | 665.34 | 17.44 | 0.00 | 0.00 |
| -2920 | T= 500 años | 7.21 | 665.00 | 665.65 | 30.15 | T= 500 años | 18.97 | 665.00 | 665.90 | 35.36 | 0.25 | 5.21 |
| -2940 | T= 5 años | 1.17 | 665.00 | 665.29 | 20.89 | T= 5 años | 1.17 | 665.00 | 665.29 | 20.89 | 0.00 | 0.00 |
| -2940 | T= 500 años | 7.21 | 665.00 | 665.58 | 33.18 | T= 500 años | 18.97 | 665.00 | 665.81 | 36.95 | 0.23 | 3.77 |
| -2960 | T= 5 años | 1.17 | 665.00 | 665.24 | 24.40 | T= 5 años | 1.17 | 665.00 | 665.24 | 24.40 | 0.00 | 0.00 |
| -2960 | T= 500 años | 7.21 | 665.00 | 665.52 | 39.11 | T= 500 años | 18.97 | 665.00 | 665.74 | 46.20 | 0.22 | 7.09 |
| -2980 | T= 5 años | 1.40 | 665.00 | 665.13 | 21.66 | T= 5 años | 1.40 | 665.00 | 665.13 | 21.66 | 0.00 | 0.00 |
| -2980 | T= 500 años | 8.60 | 665.00 | 665.28 | 30.86 | T= 500 años | 20.24 | 665.00 | 665.44 | 39.96 | 0.16 | 9.10 |
| -2982.6 | T= 5 años | 1.40 | 665.00 | 665.08 | 27.83 | T= 5 años | 1.40 | 665.00 | 665.08 | 27.83 | 0.00 | 0.00 |
| -2982.6 | T= 500 años | 8.60 | 665.00 | 665.23 | 35.11 | T= 500 años | 20.24 | 665.00 | 665.34 | 40.33 | 0.11 | 5.22 |

**ARROYO DE VEGA
(tramo inicio)**

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X   X XXXXXX   XXXX   XXXX   XX   XXXX
X   X X       X   X   X   X   X X   X
X   X X       X   X   X   X   X X   X
XXXXXXXX XXXX   X       XXX XXXX XXXXXX XXXX
X   X X       X   X   X   X   X X   X
X   X X       X   X   X   X   X X   X
X   X XXXXXX   XXXX   X   X   X   X XXXXX
    
```

PROJECT DATA
Project Title: Arroyo de la Vega (Inicio)
Project File : VegaI.prj
Run Date and Time: 03/07/2008 16:17:40

Project in SI units

Project Description:
Arroyo de la Vega (inicio)_Fut_junio_08

PLAN DATA

Plan Title: Plan 09
Plan File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\VegaI.p09

Geometry Title: Arroyo de Vega (Inicio)
Geometry File : o:\2005-10-PGOU
ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\VegaI.g01

Flow Title : Caudales Futuros Vega Inicio_Junio/08
Flow File : o:\2005-10-PGOU
ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\VegaI.f06

Plan Summary Information:
Number of: Cross Sections = 15 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Caudales Futuros Vega Inicio_Junio/08
Flow File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\VegaI.f06

Flow Data (m3/s)

| River | Reach | RS | T=5 años | T= 500 años |
|----------------|--------|--------|----------|-------------|
| Arroyo de Vega | Inicio | -0.0 | 1.9 | 34.6416 |
| Arroyo de Vega | Inicio | -263.0 | 2.69 | 37.939 |

Boundary Conditions

| River | Reach | Profile | Upstream |
|----------------|--------|----------|-------------------------|
| Downstream | | | |
| Arroyo de Vega | Inicio | T=5 años | Normal S = 0.007 Normal |

GEOMETRY DATA

Geometry Title: Arroyo de Vega (Inicio)
Geometry File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\VegaI.g01

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -0.0

INPUT

Description:
Station Elevation Data num= 12

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|--------|------|--------|------|--------|------|-------|------|-------|------|
| -94.32 | 668 | -73.16 | 667 | -47.87 | 666 | -3.5 | 666 | -1.5 | 664 |
| 0 | 664 | 1.5 | 664 | 3.5 | 666 | 53.11 | 666 | 67.29 | 667 |
| 81.47 | 668 | 95.65 | 669 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -94.32 | | -94.32 | .045 | 95.65 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|-------|--------|--------|
| | -94.32 | 95.65 | | 17 | 17 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 664.57 | Element | Left OB | Channel | Right OB |
|--------------------|----------|-----------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.51 | Reach Len. (m) | 17.00 | 17.00 | 17.00 |
| Crit W.S. (m) | 664.33 | Flow Area (m2) | | 1.79 | |
| E.G. Slope (m/m) | 0.007634 | Area (m2) | | 1.79 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.02 | Top Width (m) | | 4.02 | |
| Vel Total (m/s) | 1.06 | Avg. Vel. (m/s) | | 1.06 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 21.7 | Conv. (m3/s) | | 21.7 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| | | | |
|-----------------|--------|----------------------|-------|
| Length Wtd. (m) | 17.00 | Wetted Per. (m) | 4.44 |
| Min Ch El (m) | 664.00 | Shear (N/m2) | 30.19 |
| Alpha | 1.00 | Stream Power (N/m s) | 32.00 |
| Frctn Loss (m) | 0.13 | Cum Volume (1000 m3) | 0.49 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 1.07 |

| CROSS SECTION OUTPUT Profile #T= 500 años | | | | | |
|---|----------|----------------------|---------|---------|----------|
| | | Element | Left OB | Channel | Right OB |
| E.G. Elev (m) | 666.30 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.04 | Reach Len. (m) | 17.00 | | 17.00 |
| W.S. Elev (m) | 666.25 | Flow Area (m2) | | | |
| Crit W.S. (m) | 666.11 | Area (m2) | | | |
| E.G. Slope (m/m) | 0.007899 | Flow (m3/s) | | | |
| Q Total (m3/s) | 34.64 | Top Width (m) | | | |
| Top Width (m) | 111.00 | Avg. Vel. (m/s) | | | |
| Vel Total (m/s) | 0.94 | Hydr. Depth (m) | | | |
| Max Chl Dpth (m) | 2.25 | Conv. (m3/s) | | | |
| Conv. Total (m3/s) | 389.8 | Wetted Per. (m) | | | |
| Length Wtd. (m) | 17.00 | Shear (N/m2) | | | |
| Min Ch El (m) | 664.00 | Stream Power (N/m s) | | | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | | |
| Frctn Loss (m) | 0.14 | Cum SA (1000 m2) | | | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -17.0

| INPUT | | | | | | | | | | | |
|--------------------------------|--------|--------|--------|--------|--------|------|--------|-------|--------|-----|------|
| Description: | | | | | | | | | | | |
| Station Elevation Data num= 11 | | | | | | | | | | | |
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -86.41 | 668 | -66.41 | 667 | -46.41 | 665.87 | -3.5 | 665.87 | -1.5 | 663.87 | | |
| 0 | 663.87 | 1.5 | 663.87 | 3.5 | 665.87 | 55.5 | 665.87 | 71.06 | 667 | | |
| 86.26 | 668 | | | | | | | | | | |

| Manning's n Values num= 3 | | | | | | | | | | | |
|---------------------------|-------|--------|-------|-------|-------|-----|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -86.41 | | -86.41 | .045 | 86.26 | | | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -86.41 | 86.26 | | 20 | 20 | 20 | .1 | | .3 |

| CROSS SECTION OUTPUT Profile #T=5 años | | | | | |
|--|----------|----------------------|---------|---------|----------|
| | | Element | Left OB | Channel | Right OB |
| E.G. Elev (m) | 664.44 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.06 | Reach Len. (m) | 20.00 | | 20.00 |
| W.S. Elev (m) | 664.38 | Flow Area (m2) | | | |
| Crit W.S. (m) | | Area (m2) | | | |
| E.G. Slope (m/m) | 0.007504 | Flow (m3/s) | | | |
| Q Total (m3/s) | 1.90 | Top Width (m) | | | |
| Top Width (m) | 4.03 | Avg. Vel. (m/s) | | | |
| Vel Total (m/s) | 1.05 | Hydr. Depth (m) | | | |
| Max Chl Dpth (m) | 0.51 | Conv. (m3/s) | | | |
| Conv. Total (m3/s) | 21.9 | Wetted Per. (m) | | | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | | |
| Min Ch El (m) | 663.87 | Stream Power (N/m s) | | | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | | |
| Frctn Loss (m) | 0.15 | Cum SA (1000 m2) | | | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 666.16 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.05 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 666.12 | Flow Area (m2) | | | |
| Crit W.S. (m) | | Area (m2) | | | |
| E.G. Slope (m/m) | 0.008491 | Flow (m3/s) | | | |
| Q Total (m3/s) | 34.64 | Top Width (m) | | | |
| Top Width (m) | 109.63 | Avg. Vel. (m/s) | | | |
| Vel Total (m/s) | 0.96 | Hydr. Depth (m) | | | |
| Max Chl Dpth (m) | 2.25 | Conv. (m3/s) | | | |
| Conv. Total (m3/s) | 376.0 | Wetted Per. (m) | | | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | | |
| Min Ch El (m) | 663.87 | Stream Power (N/m s) | | | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | | |
| Frctn Loss (m) | 0.17 | Cum SA (1000 m2) | | | |
| C & E Loss (m) | 0.00 | | | | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -37.0

| INPUT | | | | | | | | | | | |
|--------------------------------|--------|--------|--------|--------|--------|-------|--------|-------|--------|-----|------|
| Description: | | | | | | | | | | | |
| Station Elevation Data num= 11 | | | | | | | | | | | |
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -91.03 | 668 | -72.92 | 667 | -54.95 | 665.72 | -3.5 | 665.72 | -1.5 | 663.72 | | |
| 0 | 663.72 | 1.5 | 663.72 | 3.5 | 665.72 | 62.54 | 665.72 | 77.31 | 667 | | |
| 91.7 | 668 | | | | | | | | | | |

| Manning's n Values num= 3 | | | | | | | | | | | |
|---------------------------|-------|--------|-------|------|-------|-----|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -91.03 | | -91.03 | .045 | 91.7 | | | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -91.03 | 91.7 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.28 | Wt. n-Val. | | 0.045 | |
| Vel Head (m) | 0.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| W.S. Elev (m) | 664.23 | Flow Area (m2) | | | |
| Crit W.S. (m) | | Area (m2) | | | |
| E.G. Slope (m/m) | 0.007849 | Flow (m3/s) | | | |
| Q Total (m3/s) | 1.90 | Top Width (m) | | | |
| Top Width (m) | 4.01 | Avg. Vel. (m/s) | | | |
| Vel Total (m/s) | 1.07 | Hydr. Depth (m) | | | |
| Max Chl Dpth (m) | 0.51 | Conv. (m3/s) | | | |
| Conv. Total (m3/s) | 21.4 | Wetted Per. (m) | | | |
| Length Wtd. (m) | 20.00 | Shear (N/m2) | | | |
| Min Ch El (m) | 663.72 | Stream Power (N/m s) | | | |
| Alpha | 1.00 | Cum Volume (1000 m3) | | | |
| Frctn Loss (m) | 0.15 | Cum SA (1000 m2) | | | |
| C & E Loss (m) | 0.00 | | | | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.99 | | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.95 | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 37.16 | |
| E.G. Slope (m/m) | 0.008864 | Area (m2) | | 37.16 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 123.26 | Top Width (m) | | 123.26 | |
| Vel Total (m/s) | 0.93 | Avg. Vel. (m/s) | | 0.93 | |
| Max Chl Dpth (m) | 2.23 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 367.9 | Conv. (m3/s) | | 367.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 124.94 | |
| Min Ch El (m) | 663.72 | Shear (N/m2) | | 25.85 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.10 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 9.54 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 33.87 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -57.0

INPUT

Description:

| Station | Elevation | Data | num= | 11 |
|---------|-----------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -94.16 | 668 | -80.51 | 667 | -64.49 |
| 0 | 663.56 | 1.5 | 663.56 | 3.5 |
| 93.17 | 668 | | | |

| Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|
| -94.16 | | -94.16 | .045 |
| | | 93.17 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.16 | 93.17 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.13 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.08 | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.82 | |
| E.G. Slope (m/m) | 0.007276 | Area (m2) | | 1.82 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.04 | Top Width (m) | | 4.04 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 0.52 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 22.3 | Conv. (m3/s) | | 22.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.46 | |
| Min Ch El (m) | 663.56 | Shear (N/m2) | | 29.12 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 30.36 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 0.39 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.84 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|---------------|--------|----------------|---------|---------|----------|
| E.G. Elev (m) | 665.82 | | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.79 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |

| | | Flow Area (m2) | 41.27 |
|--------------------|----------|----------------------|--------|
| E.G. Slope (m/m) | 0.007310 | Area (m2) | 41.27 |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | 34.64 |
| Top Width (m) | 138.83 | Top Width (m) | 138.83 |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | 0.84 |
| Max Chl Dpth (m) | 2.23 | Hydr. Depth (m) | 0.30 |
| Conv. Total (m3/s) | 405.2 | Conv. (m3/s) | 405.2 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 140.51 |
| Min Ch El (m) | 663.56 | Shear (N/m2) | 21.05 |
| Alpha | 1.00 | Stream Power (N/m s) | 17.67 |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | 8.75 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 31.25 |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -77.0

INPUT

Description:

| Station | Elevation | Data | num= | 11 |
|---------|-----------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta |
| -95.48 | 668 | -82.17 | 667 | -68.89 |
| 0 | 663.42 | 1.5 | 663.42 | 3.5 |
| 95.54 | 668 | | | |

| Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|
| -95.48 | | -95.48 | .045 |
| | | 95.54 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.48 | 95.54 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 663.97 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.91 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.69 | |
| E.G. Slope (m/m) | 0.009013 | Area (m2) | | 1.69 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 3.97 | Top Width (m) | | 3.97 | |
| Vel Total (m/s) | 1.12 | Avg. Vel. (m/s) | | 1.12 | |
| Max Chl Dpth (m) | 0.49 | Hydr. Depth (m) | | 0.43 | |
| Conv. Total (m3/s) | 20.0 | Conv. (m3/s) | | 20.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.37 | |
| Min Ch El (m) | 663.42 | Shear (N/m2) | | 34.24 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 38.39 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.35 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.76 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 665.66 | | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.61 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 37.58 | |
| E.G. Slope (m/m) | 0.010415 | Area (m2) | | 37.58 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 143.37 | Top Width (m) | | 143.37 | |
| Vel Total (m/s) | 0.92 | Avg. Vel. (m/s) | | 0.92 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| | | | |
|--------------------|--------|----------------------|--------|
| Max Chl Dpth (m) | 2.19 | Hydr. Depth (m) | 0.26 |
| Conv. Total (m3/s) | 339.4 | Conv. (m3/s) | 339.4 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 145.05 |
| Min Ch El (m) | 663.42 | Shear (N/m2) | 26.46 |
| Alpha | 1.00 | Stream Power (N/m s) | 24.39 |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | 7.96 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 28.42 |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -97.0

INPUT

Description:

| | | |
|------------------------------------|------|----|
| Station Elevation Data | num= | 10 |
| Sta Elev Sta Elev Sta Elev | | |
| -97.39 668 -84.8 667 -71.95 665.23 | | |
| 0 663.23 1.5 663.23 3.5 665.23 | | |

Manning's n Values

| | | |
|-----------|------|---|
| Sta n Val | num= | 3 |
| -97.39 | | |
| -97.39 | | |
| 0.045 | | |
| 98.5 | | |

| | | | | | | |
|----------------|-------|----------|--------------|-------|--------------|--------|
| Bank Sta: Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
| -97.39 | 98.5 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 663.82 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.76 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.89 | |
| E.G. Slope (m/m) | 0.006557 | Area (m2) | | 1.89 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.07 | Top Width (m) | | 4.07 | |
| Vel Total (m/s) | 1.01 | Avg. Vel. (m/s) | | 1.01 | |
| Max Chl Dpth (m) | 0.53 | Hydr. Depth (m) | | 0.46 | |
| Conv. Total (m3/s) | 23.5 | Conv. (m3/s) | | 23.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.51 | |
| Min Ch El (m) | 663.23 | Shear (N/m2) | | 26.91 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 27.09 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.32 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.68 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.49 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.46 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 45.56 | |
| E.G. Slope (m/m) | 0.006234 | Area (m2) | | 45.56 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 158.06 | Top Width (m) | | 158.06 | |
| Vel Total (m/s) | 0.76 | Avg. Vel. (m/s) | | 0.76 | |
| Max Chl Dpth (m) | 2.23 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 438.7 | Conv. (m3/s) | | 438.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 159.74 | |
| Min Ch El (m) | 663.23 | Shear (N/m2) | | 17.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 13.26 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 7.13 | |

| | | | |
|----------------|------|------------------|-------|
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 25.41 |
|----------------|------|------------------|-------|

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -117.0

INPUT

Description:

| | | |
|------------------------------------|------|----|
| Station Elevation Data | num= | 10 |
| Sta Elev Sta Elev Sta Elev | | |
| -99.59 668 -87.99 667 -76.6 665.11 | | |
| 0 663.11 1.5 663.11 3.5 665.11 | | |

Manning's n Values

| | | |
|-----------|------|---|
| Sta n Val | num= | 3 |
| -99.59 | | |
| -99.59 | | |
| .045 | | |
| 90.31 | | |

| | | | | | | |
|----------------|-------|----------|--------------|-------|--------------|--------|
| Bank Sta: Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
| -99.59 | 90.31 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 663.66 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.71 | |
| E.G. Slope (m/m) | 0.008838 | Area (m2) | | 1.71 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 3.98 | Top Width (m) | | 3.98 | |
| Vel Total (m/s) | 1.11 | Avg. Vel. (m/s) | | 1.11 | |
| Max Chl Dpth (m) | 0.49 | Hydr. Depth (m) | | 0.43 | |
| Conv. Total (m3/s) | 20.2 | Conv. (m3/s) | | 20.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.38 | |
| Min Ch El (m) | 663.11 | Shear (N/m2) | | 33.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 37.57 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.60 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 665.34 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.30 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 39.47 | |
| E.G. Slope (m/m) | 0.009956 | Area (m2) | | 39.47 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 156.81 | Top Width (m) | | 156.81 | |
| Vel Total (m/s) | 0.88 | Avg. Vel. (m/s) | | 0.88 | |
| Max Chl Dpth (m) | 2.19 | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 347.2 | Conv. (m3/s) | | 347.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 158.49 | |
| Min Ch El (m) | 663.11 | Shear (N/m2) | | 24.31 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 21.34 | |
| Frctn Loss (m) | 0.14 | Cum Volume (1000 m3) | | 6.28 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 22.26 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -137.0

INPUT

Description:

| Station | Elevation | Data | num= | 10 | | | | | |
|---------|-----------|--------|--------|--------|--------|-------|--------|------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -99.36 | 668 | -88.41 | 667 | -77.03 | 664.92 | -3.5 | 664.92 | -1.5 | 662.92 |
| 0 | 662.92 | 1.5 | 662.92 | 3.5 | 664.92 | 75.57 | 664.92 | 91.5 | 666 |

| Manning's n Values | num= | 3 | | | |
|--------------------|-------|--------|-------|------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -99.36 | | -99.36 | .045 | 91.5 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -99.36 | 91.5 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 663.51 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.47 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.94 | |
| E.G. Slope (m/m) | 0.006090 | Area (m2) | | 1.94 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.09 | Top Width (m) | | 4.09 | |
| Vel Total (m/s) | 0.98 | Avg. Vel. (m/s) | | 0.98 | |
| Max Chl Dpth (m) | 0.55 | Hydr. Depth (m) | | 0.47 | |
| Conv. Total (m3/s) | 24.3 | Conv. (m3/s) | | 24.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.54 | |
| Min Ch El (m) | 662.92 | Shear (N/m2) | | 25.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.97 | |
| Frctn Loss (m) | 0.13 | Cum Volume (1000 m3) | | 0.25 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.52 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 665.19 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.16 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 47.24 | |
| E.G. Slope (m/m) | 0.005499 | Area (m2) | | 47.24 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 157.46 | Top Width (m) | | 157.46 | |
| Vel Total (m/s) | 0.73 | Avg. Vel. (m/s) | | 0.73 | |
| Max Chl Dpth (m) | 2.24 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 467.1 | Conv. (m3/s) | | 467.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 159.14 | |
| Min Ch El (m) | 662.92 | Shear (N/m2) | | 16.01 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.74 | |
| Frctn Loss (m) | 0.13 | Cum Volume (1000 m3) | | 5.41 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 19.12 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -157.0

INPUT

Description:

| Station | Elevation | Data | num= | 10 | | | | | |
|---------|-----------|--------|--------|--------|--------|-------|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -97.6 | 668 | -84.08 | 667 | -70.57 | 664.81 | -3.5 | 664.81 | -1.5 | 662.81 |
| 0 | 662.81 | 1.5 | 662.81 | 3.5 | 664.81 | 79.83 | 664.81 | 94.95 | 666 |

| Manning's n Values | num= | 3 | | | |
|--------------------|-------|-------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -97.6 | | -97.6 | .045 | 94.95 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -97.6 | 94.95 | | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 663.38 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.32 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.80 | |
| E.G. Slope (m/m) | 0.007496 | Area (m2) | | 1.80 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.03 | Top Width (m) | | 4.03 | |
| Vel Total (m/s) | 1.05 | Avg. Vel. (m/s) | | 1.05 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 21.9 | Conv. (m3/s) | | 21.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.45 | |
| Min Ch El (m) | 662.81 | Shear (N/m2) | | 29.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.37 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.44 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 665.06 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 665.02 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 42.75 | |
| E.G. Slope (m/m) | 0.007481 | Area (m2) | | 42.75 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 154.46 | Top Width (m) | | 154.46 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 2.21 | Hydr. Depth (m) | | 0.28 | |
| Conv. Total (m3/s) | 400.5 | Conv. (m3/s) | | 400.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 156.14 | |
| Min Ch El (m) | 662.81 | Shear (N/m2) | | 20.08 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 16.28 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 4.51 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.00 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -177.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|--------|----------|--------|----------|--------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -88.81 | 666 | -71 | 664.66 | -3.5 | 664.66 | -1.5 | 662.66 | 0 | 662.66 | | |
| 1.5 | 662.66 | 3.5 | 664.66 | 80 | 664.66 | 97.92 | 666 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -88.81 | | -88.81 | .045 | 97.92 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -88.81 | 97.92 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 663.22 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.17 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.78 | |
| E.G. Slope (m/m) | 0.007833 | Area (m2) | | 1.78 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.01 | Top Width (m) | | 4.01 | |
| Vel Total (m/s) | 1.07 | Avg. Vel. (m/s) | | 1.07 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.44 | |
| Conv. Total (m3/s) | 21.5 | Conv. (m3/s) | | 21.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.43 | |
| Min Ch El (m) | 662.66 | Shear (N/m2) | | 30.79 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.92 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 0.17 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.35 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.90 | | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.87 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 41.60 | |
| E.G. Slope (m/m) | 0.008333 | Area (m2) | | 41.60 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 156.48 | Top Width (m) | | 156.48 | |
| Vel Total (m/s) | 0.83 | Avg. Vel. (m/s) | | 0.83 | |
| Max Chl Dpth (m) | 2.21 | Hydr. Depth (m) | | 0.27 | |
| Conv. Total (m3/s) | 379.5 | Conv. (m3/s) | | 379.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 158.15 | |
| Min Ch El (m) | 662.66 | Shear (N/m2) | | 21.49 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.90 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | 3.67 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.89 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -197.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|-------|--------|-------|----------|-------|----------|-------|----------|-------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -99.52 | 666 | -72 | 664.5 | -3.5 | 664.5 | -1.5 | 662.5 | 0 | 662.5 | | |
| 1.5 | 662.5 | 3.5 | 664.5 | 80 | 664.5 | 86.76 | 665 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -99.52 | | -99.52 | .045 | 86.76 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|--------|-------|----------|--------------|-------|--------------|--------|
| | -99.52 | 86.76 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 663.07 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 663.02 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.83 | |
| E.G. Slope (m/m) | 0.007213 | Area (m2) | | 1.83 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.04 | Top Width (m) | | 4.04 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 0.52 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 22.4 | Conv. (m3/s) | | 22.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.47 | |
| Min Ch El (m) | 662.50 | Shear (N/m2) | | 28.92 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 30.07 | |
| Frctn Loss (m) | 0.14 | Cum Volume (1000 m3) | | 0.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.27 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 664.74 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.71 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 42.83 | |
| E.G. Slope (m/m) | 0.007702 | Area (m2) | | 42.83 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 158.73 | Top Width (m) | | 158.73 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 2.21 | Hydr. Depth (m) | | 0.27 | |
| Conv. Total (m3/s) | 394.7 | Conv. (m3/s) | | 394.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 160.40 | |
| Min Ch El (m) | 662.50 | Shear (N/m2) | | 20.17 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 16.31 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 2.83 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.74 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -217.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|------|--------|-------|--------|------|--------|------|-----|------|
| -85.61 | 666 | -71.04 | 664.35 | -3.5 | 664.35 | -1.5 | 662.35 | 0 | 662.35 | | | |
| 1.5 | 662.35 | 3.5 | 664.35 | 80 | 664.35 | 89.46 | 665 | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-------|-------|-----|-------|
| -85.61 | | -85.61 | .045 | 89.46 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -85.61 | 89.46 | 20 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 662.94 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 662.89 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.89 | |
| E.G. Slope (m/m) | 0.006483 | Area (m2) | | 1.89 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.07 | Top Width (m) | | 4.07 | |
| Vel Total (m/s) | 1.00 | Avg. Vel. (m/s) | | 1.00 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.47 | |
| Conv. Total (m3/s) | 23.6 | Conv. (m3/s) | | 23.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.52 | |
| Min Ch El (m) | 662.35 | Shear (N/m2) | | 26.68 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 26.75 | |
| Frctn Loss (m) | 0.11 | Cum Volume (1000 m3) | | 0.10 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.19 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 664.60 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.57 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 43.52 | |
| E.G. Slope (m/m) | 0.007147 | Area (m2) | | 43.52 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 156.14 | Top Width (m) | | 156.14 | |
| Vel Total (m/s) | 0.80 | Avg. Vel. (m/s) | | 0.80 | |
| Max Chl Dpth (m) | 2.22 | Hydr. Depth (m) | | 0.28 | |
| Conv. Total (m3/s) | 409.8 | Conv. (m3/s) | | 409.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 157.82 | |
| Min Ch El (m) | 662.35 | Shear (N/m2) | | 19.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 15.38 | |
| Frctn Loss (m) | 0.12 | Cum Volume (1000 m3) | | 1.96 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 6.59 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -237.0

INPUT

Description:

| Station | Elevation | Data | num= | 10 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|-------|--------|-------|------|-------|-------|-------|------|-----|------|
| -89.4 | 667 | -69.71 | 666 | -67.02 | 664.2 | -3.5 | 664.2 | -1.5 | 662.2 | | | |
| 0 | 662.2 | 1.5 | 662.2 | 3.5 | 664.2 | 80 | 664.2 | 91.22 | 665 | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val |
|-------------|--------|-------|------|-------|-------|-----|-------|
| -89.4 | | -89.4 | .045 | 91.22 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -89.4 | 91.22 | 20 | 20 | 20 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 662.82 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 662.78 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.08 | |
| E.G. Slope (m/m) | 0.004921 | Area (m2) | | 2.08 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.16 | Top Width (m) | | 4.16 | |
| Vel Total (m/s) | 0.91 | Avg. Vel. (m/s) | | 0.91 | |
| Max Chl Dpth (m) | 0.58 | Hydr. Depth (m) | | 0.50 | |
| Conv. Total (m3/s) | 27.1 | Conv. (m3/s) | | 27.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 4.64 | |
| Min Ch El (m) | 662.20 | Shear (N/m2) | | 21.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 19.74 | |
| Frctn Loss (m) | 0.08 | Cum Volume (1000 m3) | | 0.06 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.11 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 664.48 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.45 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 47.54 | |
| E.G. Slope (m/m) | 0.005096 | Area (m2) | | 47.54 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 150.93 | Top Width (m) | | 150.93 | |
| Vel Total (m/s) | 0.73 | Avg. Vel. (m/s) | | 0.73 | |
| Max Chl Dpth (m) | 2.25 | Hydr. Depth (m) | | 0.31 | |
| Conv. Total (m3/s) | 485.3 | Conv. (m3/s) | | 485.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 152.67 | |
| Min Ch El (m) | 662.20 | Shear (N/m2) | | 15.56 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.34 | |
| Frctn Loss (m) | 0.15 | Cum Volume (1000 m3) | | 1.05 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.52 | |

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ANEXO VII

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -257.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|------|--------|-------|--------|------|--------|------|-----|------|
| -90 | 665 | -19.05 | 664.05 | -3.5 | 664.05 | -1.5 | 662.05 | 0 | 662.05 | | | |
| 1.5 | 662.05 | 3.5 | 664.05 | 80 | 664.05 | 92.22 | 666 | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-----|-------|-----|-------|-------|-------|
| -90 | | -90 | .045 | 92.22 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| -90 | 92.22 | | 6 | 6 | 6 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 662.74 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 662.71 | Reach Len. (m) | 6.00 | 6.00 | 6.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.42 | |
| E.G. Slope (m/m) | 0.003176 | Area (m2) | | 2.42 | |
| Q Total (m3/s) | 1.90 | Flow (m3/s) | | 1.90 | |
| Top Width (m) | 4.32 | Top Width (m) | | 4.32 | |
| Vel Total (m/s) | 0.79 | Avg. Vel. (m/s) | | 0.79 | |
| Max Chl Dpth (m) | 0.66 | Hydr. Depth (m) | | 0.56 | |
| Conv. Total (m3/s) | 33.7 | Conv. (m3/s) | | 33.7 | |
| Length Wtd. (m) | 6.00 | Wetted Per. (m) | | 4.87 | |
| Min Ch El (m) | 662.05 | Shear (N/m2) | | 15.47 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 12.16 | |
| Frctn Loss (m) | 0.03 | Cum Volume (1000 m3) | | 0.01 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.03 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 664.32 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.27 | Reach Len. (m) | 6.00 | 6.00 | 6.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 33.55 | |
| E.G. Slope (m/m) | 0.011603 | Area (m2) | | 33.55 | |
| Q Total (m3/s) | 34.64 | Flow (m3/s) | | 34.64 | |
| Top Width (m) | 116.72 | Top Width (m) | | 116.72 | |
| Vel Total (m/s) | 1.03 | Avg. Vel. (m/s) | | 1.03 | |
| Max Chl Dpth (m) | 2.22 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 321.6 | Conv. (m3/s) | | 321.6 | |
| Length Wtd. (m) | 6.00 | Wetted Per. (m) | | 118.39 | |
| Min Ch El (m) | 662.05 | Shear (N/m2) | | 32.24 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.29 | |
| Frctn Loss (m) | 0.05 | Cum Volume (1000 m3) | | 0.24 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 0.84 | |

CROSS SECTION

RIVER: Arroyo de Vega
REACH: Inicio RS: -263.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|------|-------|-----|-------|-----|------|-----|------|-----|------|-----|------|
| -90 | 665 | -69.97 | 664 | -3.5 | 664 | -1.5 | 662 | 0 | 662 | | | | | |
| 1.5 | 662 | 3.5 | 664 | 88.45 | 664 | 97.13 | 667 | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-----|-------|-----|-------|-------|-------|
| -90 | | -90 | .045 | 97.13 | |

| Bank Sta: | Left | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|-------|--------|--------|
| -90 | 97.13 | | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 662.71 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 662.64 | Reach Len. (m) | | | |
| Crit W.S. (m) | 662.41 | Flow Area (m2) | | 2.34 | |
| E.G. Slope (m/m) | 0.007012 | Area (m2) | | 2.34 | |
| Q Total (m3/s) | 2.69 | Flow (m3/s) | | 2.69 | |
| Top Width (m) | 4.28 | Top Width (m) | | 4.28 | |
| Vel Total (m/s) | 1.15 | Avg. Vel. (m/s) | | 1.15 | |
| Max Chl Dpth (m) | 0.64 | Hydr. Depth (m) | | 0.55 | |
| Conv. Total (m3/s) | 32.1 | Conv. (m3/s) | | 32.1 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 4.82 | |
| Min Ch El (m) | 662.00 | Shear (N/m2) | | 33.40 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 38.40 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 664.26 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 664.23 | Reach Len. (m) | | | |
| Crit W.S. (m) | 664.11 | Flow Area (m2) | | 47.12 | |
| E.G. Slope (m/m) | 0.007004 | Area (m2) | | 47.12 | |
| Q Total (m3/s) | 37.94 | Flow (m3/s) | | 37.94 | |
| Top Width (m) | 163.70 | Top Width (m) | | 163.70 | |
| Vel Total (m/s) | 0.81 | Avg. Vel. (m/s) | | 0.81 | |
| Max Chl Dpth (m) | 2.23 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 453.3 | Conv. (m3/s) | | 453.3 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 165.40 | |
| Min Ch El (m) | 662.00 | Shear (N/m2) | | 19.57 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 15.75 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

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SUMMARY OF MANNING'S N VALUES

River: Arroyo de Vega

| Reach | River Sta. | n1 | n2 | n3 |
|--------|------------|----|------|----|
| Inicio | -0.0 | | .045 | |
| Inicio | -17.0 | | .045 | |
| Inicio | -37.0 | | .045 | |
| Inicio | -57.0 | | .045 | |
| Inicio | -77.0 | | .045 | |
| Inicio | -97.0 | | .045 | |
| Inicio | -117.0 | | .045 | |
| Inicio | -137.0 | | .045 | |
| Inicio | -157.0 | | .045 | |
| Inicio | -177.0 | | .045 | |
| Inicio | -197.0 | | .045 | |
| Inicio | -217.0 | | .045 | |
| Inicio | -237.0 | | .045 | |
| Inicio | -257.0 | | .045 | |
| Inicio | -263.0 | | .045 | |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Arroyo de Vega

| Reach | River Sta. | Contr. | Expan. |
|--------|------------|--------|--------|
| Inicio | -0.0 | .1 | .3 |
| Inicio | -17.0 | .1 | .3 |
| Inicio | -37.0 | .1 | .3 |
| Inicio | -57.0 | .1 | .3 |
| Inicio | -77.0 | .1 | .3 |
| Inicio | -97.0 | .1 | .3 |
| Inicio | -117.0 | .1 | .3 |
| Inicio | -137.0 | .1 | .3 |
| Inicio | -157.0 | .1 | .3 |
| Inicio | -177.0 | .1 | .3 |
| Inicio | -197.0 | .1 | .3 |
| Inicio | -217.0 | .1 | .3 |
| Inicio | -237.0 | .1 | .3 |
| Inicio | -257.0 | .1 | .3 |
| Inicio | -263.0 | .1 | .3 |

SUMMARY OF REACH LENGTHS

River: Arroyo de Vega

| Reach | River Sta. | Left | Channel | Right |
|--------|------------|------|---------|-------|
| Inicio | -0.0 | 17 | 17 | 17 |
| Inicio | -17.0 | 20 | 20 | 20 |
| Inicio | -37.0 | 20 | 20 | 20 |
| Inicio | -57.0 | 20 | 20 | 20 |
| Inicio | -77.0 | 20 | 20 | 20 |
| Inicio | -97.0 | 20 | 20 | 20 |
| Inicio | -117.0 | 20 | 20 | 20 |
| Inicio | -137.0 | 20 | 20 | 20 |
| Inicio | -157.0 | 20 | 20 | 20 |
| Inicio | -177.0 | 20 | 20 | 20 |
| Inicio | -197.0 | 20 | 20 | 20 |
| Inicio | -217.0 | 20 | 20 | 20 |
| Inicio | -237.0 | 20 | 20 | 20 |
| Inicio | -257.0 | 6 | 6 | 6 |
| Inicio | -263.0 | | | |

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ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|--------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Inicio | -0.0 | T=5 años | 1.90 | 664.00 | 664.51 | 664.33 | 664.57 | 0.007634 | 1.06 | 1.79 | 4.02 | 0.51 |
| Inicio | -0.0 | T= 500 años | 34.64 | 664.00 | 666.25 | 666.11 | 666.30 | 0.007899 | 0.94 | 36.91 | 111.00 | 0.52 |
| Inicio | -17.0 | T=5 años | 1.90 | 663.87 | 664.38 | | 664.44 | 0.007504 | 1.05 | 1.80 | 4.03 | 0.50 |
| Inicio | -17.0 | T= 500 años | 34.64 | 663.87 | 666.12 | | 666.16 | 0.008491 | 0.96 | 35.94 | 109.63 | 0.54 |
| Inicio | -37.0 | T=5 años | 1.90 | 663.72 | 664.23 | | 664.28 | 0.007849 | 1.07 | 1.78 | 4.01 | 0.51 |
| Inicio | -37.0 | T= 500 años | 34.64 | 663.72 | 665.95 | | 665.99 | 0.008864 | 0.93 | 37.16 | 123.26 | 0.54 |
| Inicio | -57.0 | T=5 años | 1.90 | 663.56 | 664.08 | | 664.13 | 0.007276 | 1.04 | 1.82 | 4.04 | 0.50 |
| Inicio | -57.0 | T= 500 años | 34.64 | 663.56 | 665.79 | | 665.82 | 0.007310 | 0.84 | 41.27 | 138.83 | 0.49 |
| Inicio | -77.0 | T=5 años | 1.90 | 663.42 | 663.91 | | 663.97 | 0.009013 | 1.12 | 1.69 | 3.97 | 0.55 |
| Inicio | -77.0 | T= 500 años | 34.64 | 663.42 | 665.61 | | 665.66 | 0.010415 | 0.92 | 37.58 | 143.37 | 0.57 |
| Inicio | -97.0 | T=5 años | 1.90 | 663.23 | 663.76 | | 663.82 | 0.006557 | 1.01 | 1.89 | 4.07 | 0.47 |
| Inicio | -97.0 | T= 500 años | 34.64 | 663.23 | 665.46 | | 665.49 | 0.006234 | 0.76 | 45.56 | 158.06 | 0.45 |
| Inicio | -117.0 | T=5 años | 1.90 | 663.11 | 663.60 | | 663.66 | 0.008838 | 1.11 | 1.71 | 3.98 | 0.54 |
| Inicio | -117.0 | T= 500 años | 34.64 | 663.11 | 665.30 | | 665.34 | 0.009956 | 0.88 | 39.47 | 156.81 | 0.56 |
| Inicio | -137.0 | T=5 años | 1.90 | 662.92 | 663.47 | | 663.51 | 0.006090 | 0.98 | 1.94 | 4.09 | 0.46 |
| Inicio | -137.0 | T= 500 años | 34.64 | 662.92 | 665.16 | | 665.19 | 0.005499 | 0.73 | 47.24 | 157.46 | 0.43 |
| Inicio | -157.0 | T=5 años | 1.90 | 662.81 | 663.32 | | 663.38 | 0.007496 | 1.05 | 1.80 | 4.03 | 0.50 |
| Inicio | -157.0 | T= 500 años | 34.64 | 662.81 | 665.02 | | 665.06 | 0.007481 | 0.81 | 42.75 | 154.46 | 0.49 |
| Inicio | -177.0 | T=5 años | 1.90 | 662.66 | 663.17 | | 663.22 | 0.007833 | 1.07 | 1.78 | 4.01 | 0.51 |
| Inicio | -177.0 | T= 500 años | 34.64 | 662.66 | 664.87 | | 664.90 | 0.008333 | 0.83 | 41.60 | 156.48 | 0.52 |
| Inicio | -197.0 | T=5 años | 1.90 | 662.50 | 663.02 | | 663.07 | 0.007213 | 1.04 | 1.83 | 4.04 | 0.49 |
| Inicio | -197.0 | T= 500 años | 34.64 | 662.50 | 664.71 | | 664.74 | 0.007702 | 0.81 | 42.83 | 158.73 | 0.50 |
| Inicio | -217.0 | T=5 años | 1.90 | 662.35 | 662.89 | | 662.94 | 0.006483 | 1.00 | 1.89 | 4.07 | 0.47 |
| Inicio | -217.0 | T= 500 años | 34.64 | 662.35 | 664.57 | | 664.60 | 0.007147 | 0.80 | 43.52 | 156.14 | 0.48 |
| Inicio | -237.0 | T=5 años | 1.90 | 662.20 | 662.78 | | 662.82 | 0.004921 | 0.91 | 2.08 | 4.16 | 0.41 |
| Inicio | -237.0 | T= 500 años | 34.64 | 662.20 | 664.45 | | 664.48 | 0.005096 | 0.73 | 47.54 | 150.93 | 0.41 |
| Inicio | -257.0 | T=5 años | 1.90 | 662.05 | 662.71 | | 662.74 | 0.003176 | 0.79 | 2.42 | 4.32 | 0.34 |
| Inicio | -257.0 | T= 500 años | 34.64 | 662.05 | 664.27 | | 664.32 | 0.011603 | 1.03 | 33.55 | 116.72 | 0.61 |
| Inicio | -263.0 | T=5 años | 2.69 | 662.00 | 662.64 | 662.41 | 662.71 | 0.007012 | 1.15 | 2.34 | 4.28 | 0.50 |
| Inicio | -263.0 | T= 500 años | 37.94 | 662.00 | 664.23 | 664.11 | 664.26 | 0.007004 | 0.81 | 47.12 | 163.70 | 0.48 |

**COMPARATIVA ENTRE LA SITUACIÓN ACTUAL
 Y LA SITUACIÓN FUTURA**

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| 0 | T=5 años | 1.90 | 664.00 | 664.51 | 4.02 | T=5 años | 1.90 | 664.00 | 664.51 | 4.02 | 0.00 | 0.00 |
| 0 | T= 500 años | 23.00 | 664.00 | 666.18 | 107.99 | T= 500 años | 34.64 | 664.00 | 666.25 | 111.00 | 0.07 | 3.01 |
| -17 | T=5 años | 1.90 | 663.87 | 664.38 | 4.03 | T=5 años | 1.90 | 663.87 | 664.38 | 4.03 | 0.00 | 0.00 |
| -17 | T= 500 años | 23.00 | 663.87 | 666.04 | 107.31 | T= 500 años | 34.64 | 663.87 | 666.12 | 109.63 | 0.08 | 2.32 |
| -37 | T=5 años | 1.90 | 663.72 | 664.23 | 4.01 | T=5 años | 1.90 | 663.72 | 664.23 | 4.01 | 0.00 | 0.00 |
| -37 | T= 500 años | 23.00 | 663.72 | 665.88 | 121.62 | T= 500 años | 34.64 | 663.72 | 665.95 | 123.26 | 0.07 | 1.64 |
| -57 | T=5 años | 1.90 | 663.56 | 664.08 | 4.04 | T=5 años | 1.90 | 663.56 | 664.08 | 4.04 | 0.00 | 0.00 |
| -57 | T= 500 años | 23.00 | 663.56 | 665.73 | 137.70 | T= 500 años | 34.64 | 663.56 | 665.79 | 138.83 | 0.06 | 1.13 |
| -77 | T=5 años | 1.90 | 663.42 | 663.91 | 3.97 | T=5 años | 1.90 | 663.42 | 663.91 | 3.97 | 0.00 | 0.00 |
| -77 | T= 500 años | 23.00 | 663.42 | 665.55 | 142.34 | T= 500 años | 34.64 | 663.42 | 665.61 | 143.37 | 0.06 | 1.03 |
| -97 | T=5 años | 1.90 | 663.23 | 663.76 | 4.07 | T=5 años | 1.90 | 663.23 | 663.76 | 4.07 | 0.00 | 0.00 |
| -97 | T= 500 años | 23.00 | 663.23 | 665.40 | 156.14 | T= 500 años | 34.64 | 663.23 | 665.46 | 158.06 | 0.06 | 1.92 |
| -117 | T=5 años | 1.90 | 663.11 | 663.60 | 3.98 | T=5 años | 1.90 | 663.11 | 663.60 | 3.98 | 0.00 | 0.00 |
| -117 | T= 500 años | 23.00 | 663.11 | 665.24 | 155.40 | T= 500 años | 34.64 | 663.11 | 665.30 | 156.81 | 0.06 | 1.41 |
| -137 | T=5 años | 1.90 | 662.92 | 663.47 | 4.09 | T=5 años | 1.90 | 662.92 | 663.47 | 4.09 | 0.00 | 0.00 |
| -137 | T= 500 años | 23.00 | 662.92 | 665.10 | 156.23 | T= 500 años | 34.64 | 662.92 | 665.16 | 157.46 | 0.06 | 1.23 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -157 | T=5 años | 1.90 | 662.81 | 663.32 | 4.03 | T=5 años | 1.90 | 662.81 | 663.32 | 4.03 | 0.00 | 0.00 |
| -157 | T= 500 años | 23.00 | 662.81 | 664.96 | 153.25 | T= 500 años | 34.64 | 662.81 | 665.02 | 154.46 | 0.06 | 1.21 |
| -177 | T=5 años | 1.90 | 662.66 | 663.17 | 4.01 | T=5 años | 1.90 | 662.66 | 663.17 | 4.01 | 0.00 | 0.00 |
| -177 | T= 500 años | 23.00 | 662.66 | 664.81 | 154.94 | T= 500 años | 34.64 | 662.66 | 664.87 | 156.48 | 0.06 | 1.54 |
| -197 | T=5 años | 1.90 | 662.50 | 663.01 | 4.03 | T=5 años | 1.90 | 662.50 | 663.02 | 4.04 | 0.01 | 0.01 |
| -197 | T= 500 años | 23.00 | 662.50 | 664.65 | 156.77 | T= 500 años | 34.64 | 662.50 | 664.71 | 158.73 | 0.06 | 1.96 |
| -217 | T=5 años | 1.90 | 662.35 | 662.86 | 4.03 | T=5 años | 1.90 | 662.35 | 662.89 | 4.07 | 0.03 | 0.04 |
| -217 | T= 500 años | 23.00 | 662.35 | 664.51 | 154.69 | T= 500 años | 34.64 | 662.35 | 664.57 | 156.14 | 0.06 | 1.45 |
| -237 | T=5 años | 1.90 | 662.20 | 662.71 | 4.03 | T=5 años | 1.90 | 662.20 | 662.78 | 4.16 | 0.07 | 0.13 |
| -237 | T= 500 años | 23.00 | 662.20 | 664.38 | 149.76 | T= 500 años | 34.64 | 662.20 | 664.45 | 150.93 | 0.07 | 1.17 |
| -257 | T=5 años | 1.90 | 662.05 | 662.57 | 4.03 | T=5 años | 1.90 | 662.05 | 662.71 | 4.32 | 0.14 | 0.29 |
| -257 | T= 500 años | 23.00 | 662.05 | 664.19 | 110.75 | T= 500 años | 34.64 | 662.05 | 664.27 | 116.72 | 0.08 | 5.97 |
| -263 | T=5 años | 1.90 | 662.00 | 662.52 | 4.05 | T=5 años | 2.69 | 662.00 | 662.64 | 4.28 | 0.12 | 0.23 |
| -263 | T= 500 años | 23.00 | 662.00 | 664.15 | 161.96 | T= 500 años | 37.94 | 662.00 | 664.23 | 163.70 | 0.08 | 1.74 |

ARROYO DE VEGA
(tramo norte)

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X   X   XXXXXX   XXXX   XXXX   XX   XXXX
X   X   X       X   X       X   X   X   X
X   X   X       X       X   X   X   X   X
XXXXXXXX   XXXX   X       XXX   XXXX   XXXXXX   XXXX
X   X   X       X       X   X   X   X       X
X   X   X       X   X       X   X   X   X   X
X   X   XXXXXX   XXXX   X   X   X   X   XXXXX
    
```

PROJECT DATA
Project Title: Arroyo de la Vega
Project File : Vega.prj
Run Date and Time: 03/07/2008 11:40:20

Project in SI units

PLAN DATA

Plan Title: Plan 11
Plan File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Vega.p11

Geometry Title: Arroyo de la Vega
Geometry File : o:\2005-10-PGOU
ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Vega.g01

Flow Title : Caudales Futuros Vega_junio/08
Flow File : o:\2005-10-PGOU
ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Vega.f07

Plan Summary Information:
Number of: Cross Sections = 9 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Caudales Futuros Vega_junio/08
Flow File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Vega.f07

Flow Data (m3/s)

| River | Reach | RS | T= 5 años | T= 500 años |
|-----------------|--------------|---------|-----------|-------------|
| Aryo de la Vega | Rotonda-EDAR | 0.0 | 2.69 | 37.939 |
| Aryo de la Vega | Rotonda-EDAR | -1000.0 | 35.0823 | 133.0053 |
| Aryo de la Vega | Rotonda-EDAR | -2500.0 | 44.0138 | 156.7891 |
| Aryo de la Vega | Rotonda-EDAR | -3000.0 | 49.5993 | 171.2746 |
| Aryo de la Vega | Rotonda-EDAR | -3869.0 | 55.1849 | 185.7602 |

Boundary Conditions

| River | Reach | Profile | Upstream |
|-----------------|--------------|-------------|-----------------|
| Downstream | | | |
| Aryo de la Vega | Rotonda-EDAR | T= 5 años | Normal S = 0.01 |
| Aryo de la Vega | Rotonda-EDAR | T= 500 años | Normal S = 0.01 |

GEOMETRY DATA

Geometry Title: Arroyo de la Vega
Geometry File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Vega.g01

CROSS SECTION

RIVER: Arroyo de la Vega
REACH: Rotonda-EDAR RS: 0.0

INPUT

Description:
Station Elevation Data num= 7

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|-----|------|-----|------|-----|------|-----|------|-----|------|
| -30 | 641 | -2 | 639 | -2 | 635 | 0 | 635 | 2 | 635 |
| 2 | 639 | 30 | 641 | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|-----|-------|-----|-------|-----|-------|
| -30 | | -30 | .045 | 30 | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|-----|----|-----|-----|-----|----|----|
| -30 | 30 | 500 | 500 | 500 | .1 | .3 |
|-----|----|-----|-----|-----|----|----|

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 635.54 | Element | Left OB | Channel | Right OB |
|--------------------|----------|-----------------|---------|---------|----------|
| Vel Head (m) | 0.18 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 635.36 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 635.36 | Flow Area (m2) | | 1.43 | |
| E.G. Slope (m/m) | 0.035166 | Area (m2) | | 1.43 | |
| Q Total (m3/s) | 2.69 | Flow (m3/s) | | 2.69 | |
| Top Width (m) | 4.00 | Top Width (m) | | 4.00 | |
| Vel Total (m/s) | 1.88 | Avg. Vel. (m/s) | | 1.88 | |
| Max Chl Dpth (m) | 0.36 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 14.3 | Conv. (m3/s) | | 14.3 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Length Wtd. (m) 500.00 Wetted Per. (m) 4.72
 Min Ch El (m) 635.00 Shear (N/m2) 104.59
 Alpha 1.00 Stream Power (N/m s) 196.74
 Frctn Loss (m) 1.65 Cum Volume (1000 m3) 77.49
 C & E Loss (m) 0.05 Cum SA (1000 m2) 57.60

C & E Loss (m) 0.01 Cum SA (1000 m2) 55.60

CROSS SECTION OUTPUT Profile #T= 500 años

E.G. Elev (m) 638.19 Element Left OB Channel Right OB
 Vel Head (m) 0.80 Wt. n-Val. 0.045
 W.S. Elev (m) 637.39 Reach Len. (m) 500.00 500.00 500.00
 Crit W.S. (m) 637.09 Flow Area (m2) 9.56
 E.G. Slope (m/m) 0.028491 Area (m2) 9.56
 Q Total (m3/s) 37.94 Flow (m3/s) 37.94
 Top Width (m) 4.00 Top Width (m) 4.00
 Vel Total (m/s) 3.97 Avg. Vel. (m/s) 3.97
 Max Chl Dpth (m) 2.39 Hydr. Depth (m) 2.39
 Conv. Total (m3/s) 224.8 Conv. (m3/s) 224.8
 Length Wtd. (m) 500.00 Wetted Per. (m) 8.78
 Min Ch El (m) 635.00 Shear (N/m2) 304.18
 Alpha 1.00 Stream Power (N/m s) 1207.49
 Frctn Loss (m) 8.38 Cum Volume (1000 m3) 238.32
 C & E Loss (m) 0.13 Cum SA (1000 m2) 172.91

CROSS SECTION OUTPUT Profile #T= 500 años

E.G. Elev (m) 629.68 Element Left OB Channel Right OB
 Vel Head (m) 0.38 Wt. n-Val. 0.045
 W.S. Elev (m) 629.30 Reach Len. (m) 500.00 500.00 500.00
 Crit W.S. (m) Flow Area (m2) 13.87
 E.G. Slope (m/m) 0.011029 Area (m2) 13.87
 Q Total (m3/s) 37.94 Flow (m3/s) 37.94
 Top Width (m) 4.00 Top Width (m) 4.00
 Vel Total (m/s) 2.73 Avg. Vel. (m/s) 2.73
 Max Chl Dpth (m) 3.47 Hydr. Depth (m) 3.47
 Conv. Total (m3/s) 361.3 Conv. (m3/s) 361.3
 Length Wtd. (m) 500.00 Wetted Per. (m) 10.94
 Min Ch El (m) 625.83 Shear (N/m2) 137.20
 Alpha 1.00 Stream Power (N/m s) 375.20
 Frctn Loss (m) 3.66 Cum Volume (1000 m3) 232.46
 C & E Loss (m) 0.06 Cum SA (1000 m2) 170.91

CROSS SECTION

RIVER: Aryo de la Vega
 REACH: Rotonda-EDAR RS: -1000.0

INPUT

Description:

Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -30 625.96 -2 623.96 -2 620 0 619.96 2 620
 2 623.96 30 625.96

Manning's n Values num= 3

Sta n Val Sta n Val Sta n Val
 -30 .045 30

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 -30 30 500 500 500 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

E.G. Elev (m) 624.75 Element Left OB Channel Right OB
 Vel Head (m) 0.10 Wt. n-Val. 0.045
 W.S. Elev (m) 624.65 Reach Len. (m) 500.00 500.00 500.00
 Crit W.S. (m) Flow Area (m2) 25.31
 E.G. Slope (m/m) 0.005153 Area (m2) 25.31
 Q Total (m3/s) 35.08 Flow (m3/s) 35.08
 Top Width (m) 23.27 Top Width (m) 23.27
 Vel Total (m/s) 1.39 Avg. Vel. (m/s) 1.39
 Max Chl Dpth (m) 4.69 Hydr. Depth (m) 1.09
 Conv. Total (m3/s) 488.7 Conv. (m3/s) 488.7
 Length Wtd. (m) 500.00 Wetted Per. (m) 31.24
 Min Ch El (m) 619.96 Shear (N/m2) 40.93
 Alpha 1.00 Stream Power (N/m s) 56.74
 Frctn Loss (m) 3.12 Cum Volume (1000 m3) 68.57
 C & E Loss (m) 0.01 Cum SA (1000 m2) 48.78

CROSS SECTION OUTPUT Profile #T= 500 años

E.G. Elev (m) 625.96 Element Left OB Channel Right OB

CROSS SECTION

RIVER: Aryo de la Vega
 REACH: Rotonda-EDAR RS: -500.0

INPUT

Description:

Station Elevation Data num= 7
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -30 631.83 -2 629.83 -2 625.83 0 625.83 2 625.83
 2 629.83 30 631.83

Manning's n Values num= 3

Sta n Val Sta n Val Sta n Val
 -30 .045 30

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 -30 30 500 500 500 .1 .3

CROSS SECTION OUTPUT Profile #T= 5 años

E.G. Elev (m) 626.96 Element Left OB Channel Right OB
 Vel Head (m) 0.02 Wt. n-Val. 0.045
 W.S. Elev (m) 626.95 Reach Len. (m) 500.00 500.00 500.00
 Crit W.S. (m) 626.19 Flow Area (m2) 4.46
 E.G. Slope (m/m) 0.001147 Area (m2) 4.46
 Q Total (m3/s) 2.69 Flow (m3/s) 2.69
 Top Width (m) 4.00 Top Width (m) 4.00
 Vel Total (m/s) 0.60 Avg. Vel. (m/s) 0.60
 Max Chl Dpth (m) 1.12 Hydr. Depth (m) 1.12
 Conv. Total (m3/s) 79.4 Conv. (m3/s) 79.4
 Length Wtd. (m) 500.00 Wetted Per. (m) 6.23
 Min Ch El (m) 625.83 Shear (N/m2) 8.06
 Alpha 1.00 Stream Power (N/m s) 4.86
 Frctn Loss (m) 2.21 Cum Volume (1000 m3) 76.01

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| | | | | | |
|--------------------|----------|----------------------|--------|--------|--------|
| Vel Head (m) | 0.19 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.77 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 625.14 | Flow Area (m2) | | 69.06 | |
| E.G. Slope (m/m) | 0.006609 | Area (m2) | | 69.06 | |
| Q Total (m3/s) | 133.01 | Flow (m3/s) | | 133.01 | |
| Top Width (m) | 54.70 | Top Width (m) | | 54.70 | |
| Vel Total (m/s) | 1.93 | Avg. Vel. (m/s) | | 1.93 | |
| Max Chl Dpth (m) | 5.81 | Hydr. Depth (m) | | 1.26 | |
| Conv. Total (m3/s) | 1636.1 | Conv. (m3/s) | | 1636.1 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 62.75 | |
| Min Ch El (m) | 619.96 | Shear (N/m2) | | 71.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 137.38 | |
| Frctn Loss (m) | 2.78 | Cum Volume (1000 m3) | | 211.73 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 156.23 | |

| | | | |
|--------------------|--------|----------------------|--------|
| Top Width (m) | 59.49 | Top Width (m) | 59.49 |
| Vel Total (m/s) | 1.69 | Avg. Vel. (m/s) | 1.69 |
| Max Chl Dpth (m) | 5.97 | Hydr. Depth (m) | 1.32 |
| Conv. Total (m3/s) | 1933.8 | Conv. (m3/s) | 1933.8 |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | 67.67 |
| Min Ch El (m) | 617.05 | Shear (N/m2) | 53.95 |
| Alpha | 1.00 | Stream Power (N/m s) | 91.19 |
| Frctn Loss (m) | 3.65 | Cum Volume (1000 m3) | 174.79 |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | 127.69 |

CROSS SECTION

RIVER: Aryo de la Vega
REACH: Rotonda-EDAR RS: -1500.0

INPUT

Description:

| | | |
|------------------------|-----------|-----------|
| Station Elevation Data | num= | 7 |
| Sta Elev | Sta Elev | Sta Elev |
| -30 623.06 | -2 621.06 | -2 617.05 |
| 2 621.06 | 30 623 | 2 617.05 |

Manning's n Values

| | | |
|-----------|-----------|-----------|
| num= | 3 | |
| Sta n Val | Sta n Val | Sta n Val |
| -30 | -30 .045 | 30 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|-----|----|-----|-----|-----|----|----|
| -30 | 30 | 500 | 500 | 500 | .1 | .3 |
|-----|----|-----|-----|-----|----|----|

CROSS SECTION

RIVER: Aryo de la Vega
REACH: Rotonda-EDAR RS: -2000.0

INPUT

Description:

| | | |
|------------------------|-----------|-----------|
| Station Elevation Data | num= | 7 |
| Sta Elev | Sta Elev | Sta Elev |
| -30 619.68 | -2 617.68 | -2 613.68 |
| 2 617.68 | 30 619.68 | 0 613.68 |
| | | 2 613.88 |

Manning's n Values

| | | |
|-----------|-----------|-----------|
| num= | 3 | |
| Sta n Val | Sta n Val | Sta n Val |
| -30 | -30 .045 | 30 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | | | | | |
|-----|----|-----|-----|-----|----|----|
| -30 | 30 | 500 | 500 | 500 | .1 | .3 |
|-----|----|-----|-----|-----|----|----|

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 621.62 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.16 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.47 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 20.05 | |
| E.G. Slope (m/m) | 0.007736 | Area (m2) | | 20.05 | |
| Q Total (m3/s) | 35.08 | Flow (m3/s) | | 35.08 | |
| Top Width (m) | 15.62 | Top Width (m) | | 15.62 | |
| Vel Total (m/s) | 1.75 | Avg. Vel. (m/s) | | 1.75 | |
| Max Chl Dpth (m) | 4.42 | Hydr. Depth (m) | | 1.28 | |
| Conv. Total (m3/s) | 398.9 | Conv. (m3/s) | | 398.9 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 23.66 | |
| Min Ch El (m) | 617.05 | Shear (N/m2) | | 64.27 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 112.47 | |
| Frctn Loss (m) | 3.83 | Cum Volume (1000 m3) | | 57.23 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 39.06 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 617.77 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.28 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 617.50 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 15.07 | |
| E.G. Slope (m/m) | 0.007602 | Area (m2) | | 15.07 | |
| Q Total (m3/s) | 35.08 | Flow (m3/s) | | 35.08 | |
| Top Width (m) | 4.00 | Top Width (m) | | 4.00 | |
| Vel Total (m/s) | 2.33 | Avg. Vel. (m/s) | | 2.33 | |
| Max Chl Dpth (m) | 3.82 | Hydr. Depth (m) | | 3.77 | |
| Conv. Total (m3/s) | 402.4 | Conv. (m3/s) | | 402.4 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 11.45 | |
| Min Ch El (m) | 613.68 | Shear (N/m2) | | 98.16 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 228.49 | |
| Frctn Loss (m) | 3.81 | Cum Volume (1000 m3) | | 48.45 | |
| C & E Loss (m) | 0.04 | Cum SA (1000 m2) | | 34.15 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|------------------|----------|----------------|---------|---------|----------|
| E.G. Elev (m) | 623.17 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.02 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 622.25 | Flow Area (m2) | | 78.69 | |
| E.G. Slope (m/m) | 0.004731 | Area (m2) | | 78.69 | |
| Q Total (m3/s) | 133.01 | Flow (m3/s) | | 133.01 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 619.50 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.32 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.18 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 618.88 | Flow Area (m2) | | 53.48 | |
| E.G. Slope (m/m) | 0.012695 | Area (m2) | | 53.48 | |
| Q Total (m3/s) | 133.01 | Flow (m3/s) | | 133.01 | |
| Top Width (m) | 46.11 | Top Width (m) | | 46.11 | |
| Vel Total (m/s) | 2.49 | Avg. Vel. (m/s) | | 2.49 | |

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ANEXO VII

| | | | |
|--------------------|--------|----------------------|--------|
| Max Chl Dpth (m) | 5.50 | Hydr. Depth (m) | 1.16 |
| Conv. Total (m3/s) | 1180.5 | Conv. (m3/s) | 1180.5 |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | 54.03 |
| Min Ch El (m) | 613.68 | Shear (N/m2) | 123.24 |
| Alpha | 1.00 | Stream Power (N/m s) | 306.49 |
| Frctn Loss (m) | 4.21 | Cum Volume (1000 m3) | 141.75 |
| C & E Loss (m) | 0.04 | Cum SA (1000 m2) | 101.29 |

| | | | |
|----------------|------|----------------------|--------|
| Frctn Loss (m) | 5.18 | Cum Volume (1000 m3) | 108.39 |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | 74.77 |

CROSS SECTION

RIVER: Arroyo de la Vega
REACH: Rotonda-EDAR RS: -2500.0

INPUT

Description:

| | | |
|-------------------------------------|------|---|
| Station Elevation Data | num= | 7 |
| Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -30 615.06 -2 613.06 | | |
| 2 613.06 30 615.06 | | |

Manning's n Values

| | |
|-------------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val Sta n Val | |
| -30 -30 .045 30 | |

| | |
|--|-------|
| Bank Sta: Left Right Lengths: Left Channel Right | |
| -30 30 500 500 500 | |
| Coeff Contr. Expan. | .1 .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 613.92 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 613.78 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 26.04 | |
| E.G. Slope (m/m) | 0.007647 | Area (m2) | | 26.04 | |
| Q Total (m3/s) | 44.01 | Flow (m3/s) | | 44.01 | |
| Top Width (m) | 24.04 | Top Width (m) | | 24.04 | |
| Vel Total (m/s) | 1.69 | Avg. Vel. (m/s) | | 1.69 | |
| Max Chl Dpth (m) | 4.72 | Hydr. Depth (m) | | 1.08 | |
| Conv. Total (m3/s) | 503.3 | Conv. (m3/s) | | 503.3 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 32.10 | |
| Min Ch El (m) | 609.06 | Shear (N/m2) | | 60.84 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 102.83 | |
| Frctn Loss (m) | 5.65 | Cum Volume (1000 m3) | | 38.17 | |
| C & E Loss (m) | 0.05 | Cum SA (1000 m2) | | 27.14 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 615.26 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.20 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 615.06 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 79.95 | |
| E.G. Slope (m/m) | 0.006291 | Area (m2) | | 79.95 | |
| Q Total (m3/s) | 156.79 | Flow (m3/s) | | 156.79 | |
| Top Width (m) | 59.98 | Top Width (m) | | 59.98 | |
| Vel Total (m/s) | 1.96 | Avg. Vel. (m/s) | | 1.96 | |
| Max Chl Dpth (m) | 6.00 | Hydr. Depth (m) | | 1.33 | |
| Conv. Total (m3/s) | 1976.8 | Conv. (m3/s) | | 1976.8 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 68.12 | |
| Min Ch El (m) | 609.06 | Shear (N/m2) | | 72.40 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 141.99 | |

CROSS SECTION

RIVER: Arroyo de la Vega
REACH: Rotonda-EDAR RS: -3000.0

INPUT

Description:

| | | |
|-------------------------------------|------|---|
| Station Elevation Data | num= | 7 |
| Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -30 610.02 -2 608.02 | | |
| 2 608.02 30 610.02 | | |

Manning's n Values

| | |
|-------------------------------|---|
| num= | 3 |
| Sta n Val Sta n Val Sta n Val | |
| -30 -30 .045 30 | |

| | |
|--|-------|
| Bank Sta: Left Right Lengths: Left Channel Right | |
| -30 30 500 500 500 | |
| Coeff Contr. Expan. | .1 .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 608.22 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.61 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 607.61 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 14.36 | |
| E.G. Slope (m/m) | 0.017299 | Area (m2) | | 14.36 | |
| Q Total (m3/s) | 49.60 | Flow (m3/s) | | 49.60 | |
| Top Width (m) | 4.00 | Top Width (m) | | 4.00 | |
| Vel Total (m/s) | 3.45 | Avg. Vel. (m/s) | | 3.45 | |
| Max Chl Dpth (m) | 3.59 | Hydr. Depth (m) | | 3.59 | |
| Conv. Total (m3/s) | 377.1 | Conv. (m3/s) | | 377.1 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 11.18 | |
| Min Ch El (m) | 604.02 | Shear (N/m2) | | 217.91 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 752.59 | |
| Frctn Loss (m) | 2.45 | Cum Volume (1000 m3) | | 28.07 | |
| C & E Loss (m) | 0.16 | Cum SA (1000 m2) | | 20.13 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 610.05 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.48 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 609.57 | Reach Len. (m) | 500.00 | 500.00 | 500.00 |
| Crit W.S. (m) | 609.43 | Flow Area (m2) | | 55.83 | |
| E.G. Slope (m/m) | 0.018908 | Area (m2) | | 55.83 | |
| Q Total (m3/s) | 171.27 | Flow (m3/s) | | 171.27 | |
| Top Width (m) | 47.40 | Top Width (m) | | 47.40 | |
| Vel Total (m/s) | 3.07 | Avg. Vel. (m/s) | | 3.07 | |
| Max Chl Dpth (m) | 5.55 | Hydr. Depth (m) | | 1.18 | |
| Conv. Total (m3/s) | 1245.6 | Conv. (m3/s) | | 1245.6 | |
| Length Wtd. (m) | 500.00 | Wetted Per. (m) | | 55.51 | |
| Min Ch El (m) | 604.02 | Shear (N/m2) | | 186.51 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 572.15 | |
| Frctn Loss (m) | 2.89 | Cum Volume (1000 m3) | | 74.44 | |
| C & E Loss (m) | 0.10 | Cum SA (1000 m2) | | 47.92 | |

CROSS SECTION

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RIVER: Aryo de la Vega
REACH: Rotonda-EDAR RS: -3500.0

INPUT

Description:

| Station Elevation Data | | num= 7 | |
|------------------------|------|--------|------|
| Sta | Elev | Sta | Elev |
| -30 | 607 | -2 | 604 |
| 2 | 604 | 30 | 607 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -30 | | -30 | .045 |
| | | 30 | |

| Bank Sta: Left | | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|----------------|----|-------|----------|--------------|-------|--------------|--------|
| -30 | 30 | 368 | 368 | 368 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 605.61 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 605.54 | Reach Len. (m) | 368.00 | 368.00 | 368.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 44.38 | |
| E.G. Slope (m/m) | 0.002272 | Area (m2) | | 44.38 | |
| Q Total (m3/s) | 49.60 | Flow (m3/s) | | 49.60 | |
| Top Width (m) | 32.80 | Top Width (m) | | 32.80 | |
| Vel Total (m/s) | 1.12 | Avg. Vel. (m/s) | | 1.12 | |
| Max Chl Dpth (m) | 5.54 | Hydr. Depth (m) | | 1.35 | |
| Conv. Total (m3/s) | 1040.5 | Conv. (m3/s) | | 1040.5 | |
| Length Wtd. (m) | 368.00 | Wetted Per. (m) | | 40.96 | |
| Min Ch El (m) | 600.00 | Shear (N/m2) | | 24.15 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 26.99 | |
| Frctn Loss (m) | 1.59 | Cum Volume (1000 m3) | | 13.39 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 10.93 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 607.05 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 606.92 | Reach Len. (m) | 368.00 | 368.00 | 368.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 107.06 | |
| E.G. Slope (m/m) | 0.002760 | Area (m2) | | 107.06 | |
| Q Total (m3/s) | 171.27 | Flow (m3/s) | | 171.27 | |
| Top Width (m) | 58.44 | Top Width (m) | | 58.44 | |
| Vel Total (m/s) | 1.60 | Avg. Vel. (m/s) | | 1.60 | |
| Max Chl Dpth (m) | 6.92 | Hydr. Depth (m) | | 1.83 | |
| Conv. Total (m3/s) | 3259.9 | Conv. (m3/s) | | 3259.9 | |
| Length Wtd. (m) | 368.00 | Wetted Per. (m) | | 66.75 | |
| Min Ch El (m) | 600.00 | Shear (N/m2) | | 43.42 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 69.46 | |
| Frctn Loss (m) | 1.79 | Cum Volume (1000 m3) | | 33.72 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 21.46 | |

CROSS SECTION

RIVER: Aryo de la Vega
REACH: Rotonda-EDAR RS: -3869.0

INPUT

Description:

| Station Elevation Data | | num= 7 | |
|------------------------|------|--------|------|
| Sta | Elev | Sta | Elev |
| -30 | 605 | -2 | 603 |
| 2 | 603 | 30 | 605 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -30 | | -30 | .045 |
| | | 30 | |

| Bank Sta: Left | | Right | Coeff Contr. | Expan. |
|----------------|----|-------|--------------|--------|
| -30 | 30 | 30 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 604.00 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.19 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 603.81 | Reach Len. (m) | | | |
| Crit W.S. (m) | 601.68 | Flow Area (m2) | | 28.37 | |
| E.G. Slope (m/m) | 0.010014 | Area (m2) | | 28.37 | |
| Q Total (m3/s) | 55.18 | Flow (m3/s) | | 55.18 | |
| Top Width (m) | 26.62 | Top Width (m) | | 26.62 | |
| Vel Total (m/s) | 1.95 | Avg. Vel. (m/s) | | 1.95 | |
| Max Chl Dpth (m) | 4.81 | Hydr. Depth (m) | | 1.07 | |
| Conv. Total (m3/s) | 551.5 | Conv. (m3/s) | | 551.5 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 34.68 | |
| Min Ch El (m) | 599.00 | Shear (N/m2) | | 80.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 156.26 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| E.G. Elev (m) | 605.24 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.30 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 604.94 | Reach Len. (m) | | | |
| Crit W.S. (m) | 604.50 | Flow Area (m2) | | 76.20 | |
| E.G. Slope (m/m) | 0.010002 | Area (m2) | | 76.20 | |
| Q Total (m3/s) | 185.76 | Flow (m3/s) | | 185.76 | |
| Top Width (m) | 58.20 | Top Width (m) | | 58.20 | |
| Vel Total (m/s) | 2.44 | Avg. Vel. (m/s) | | 2.44 | |
| Max Chl Dpth (m) | 5.94 | Hydr. Depth (m) | | 1.31 | |
| Conv. Total (m3/s) | 1857.4 | Conv. (m3/s) | | 1857.4 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 66.34 | |
| Min Ch El (m) | 599.00 | Shear (N/m2) | | 112.67 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 274.66 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

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SUMMARY OF MANNING'S N VALUES

River: Aryo de la Vega

| Reach | River Sta. | n1 | n2 | n3 |
|--------------|------------|----|------|----|
| Rotonda-EDAR | 0.0 | | .045 | |
| Rotonda-EDAR | -500.0 | | .045 | |
| Rotonda-EDAR | -1000.0 | | .045 | |
| Rotonda-EDAR | -1500.0 | | .045 | |
| Rotonda-EDAR | -2000.0 | | .045 | |
| Rotonda-EDAR | -2500.0 | | .045 | |
| Rotonda-EDAR | -3000.0 | | .045 | |
| Rotonda-EDAR | -3500.0 | | .045 | |
| Rotonda-EDAR | -3869.0 | | .045 | |

SUMMARY OF REACH LENGTHS

River: Aryo de la Vega

| Reach | River Sta. | Left | Channel | Right |
|--------------|------------|------|---------|-------|
| Rotonda-EDAR | 0.0 | 500 | 500 | 500 |
| Rotonda-EDAR | -500.0 | 500 | 500 | 500 |
| Rotonda-EDAR | -1000.0 | 500 | 500 | 500 |
| Rotonda-EDAR | -1500.0 | 500 | 500 | 500 |
| Rotonda-EDAR | -2000.0 | 500 | 500 | 500 |
| Rotonda-EDAR | -2500.0 | 500 | 500 | 500 |
| Rotonda-EDAR | -3000.0 | 500 | 500 | 500 |
| Rotonda-EDAR | -3500.0 | 368 | 368 | 368 |
| Rotonda-EDAR | -3869.0 | | | |

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Aryo de la Vega

| Reach | River Sta. | Contr. | Expan. |
|--------------|------------|--------|--------|
| Rotonda-EDAR | 0.0 | .1 | .3 |
| Rotonda-EDAR | -500.0 | .1 | .3 |
| Rotonda-EDAR | -1000.0 | .1 | .3 |
| Rotonda-EDAR | -1500.0 | .1 | .3 |
| Rotonda-EDAR | -2000.0 | .1 | .3 |
| Rotonda-EDAR | -2500.0 | .1 | .3 |
| Rotonda-EDAR | -3000.0 | .1 | .3 |
| Rotonda-EDAR | -3500.0 | .1 | .3 |
| Rotonda-EDAR | -3869.0 | .1 | .3 |

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Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # | Chl |
|--------------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|----------|-----|
| Rotonda-EDAR | 0.0 | T= 5 años | 2.69 | 635.00 | 635.36 | 635.36 | 635.54 | 0.035166 | 1.88 | 1.43 | 4.00 | 1.00 | |
| Rotonda-EDAR | 0.0 | T= 500 años | 37.94 | 635.00 | 637.39 | 637.09 | 638.19 | 0.028491 | 3.97 | 9.56 | 4.00 | 0.82 | |
| Rotonda-EDAR | -500.0 | T= 5 años | 2.69 | 625.83 | 626.95 | 626.19 | 626.96 | 0.001147 | 0.60 | 4.46 | 4.00 | 0.18 | |
| Rotonda-EDAR | -500.0 | T= 500 años | 37.94 | 625.83 | 629.30 | | 629.68 | 0.011029 | 2.73 | 13.87 | 4.00 | 0.47 | |
| Rotonda-EDAR | -1000.0 | T= 5 años | 35.08 | 619.96 | 624.65 | | 624.75 | 0.005153 | 1.39 | 25.31 | 23.27 | 0.42 | |
| Rotonda-EDAR | -1000.0 | T= 500 años | 133.01 | 619.96 | 625.77 | 625.14 | 625.96 | 0.006609 | 1.93 | 69.06 | 54.70 | 0.55 | |
| Rotonda-EDAR | -1500.0 | T= 5 años | 35.08 | 617.05 | 621.47 | | 621.62 | 0.007736 | 1.75 | 20.05 | 15.62 | 0.49 | |
| Rotonda-EDAR | -1500.0 | T= 500 años | 133.01 | 617.05 | 623.02 | 622.25 | 623.17 | 0.004731 | 1.69 | 78.69 | 59.49 | 0.47 | |
| Rotonda-EDAR | -2000.0 | T= 5 años | 35.08 | 613.68 | 617.50 | | 617.77 | 0.007602 | 2.33 | 15.07 | 4.00 | 0.38 | |
| Rotonda-EDAR | -2000.0 | T= 500 años | 133.01 | 613.68 | 619.18 | 618.88 | 619.50 | 0.012695 | 2.49 | 53.48 | 46.11 | 0.74 | |
| Rotonda-EDAR | -2500.0 | T= 5 años | 44.01 | 609.06 | 613.78 | | 613.92 | 0.007647 | 1.69 | 26.04 | 24.04 | 0.52 | |
| Rotonda-EDAR | -2500.0 | T= 500 años | 156.79 | 609.06 | 615.06 | | 615.26 | 0.006291 | 1.96 | 79.95 | 59.98 | 0.54 | |
| Rotonda-EDAR | -3000.0 | T= 5 años | 49.60 | 604.02 | 607.61 | | 608.22 | 0.017299 | 3.45 | 14.36 | 4.00 | 0.58 | |
| Rotonda-EDAR | -3000.0 | T= 500 años | 171.27 | 604.02 | 609.57 | 609.43 | 610.05 | 0.018908 | 3.07 | 55.83 | 47.40 | 0.90 | |
| Rotonda-EDAR | -3500.0 | T= 5 años | 49.60 | 600.00 | 605.54 | | 605.61 | 0.002272 | 1.12 | 44.38 | 32.80 | 0.31 | |
| Rotonda-EDAR | -3500.0 | T= 500 años | 171.27 | 600.00 | 606.92 | | 607.05 | 0.002760 | 1.60 | 107.06 | 58.44 | 0.38 | |
| Rotonda-EDAR | -3869.0 | T= 5 años | 55.18 | 599.00 | 603.81 | 601.68 | 604.00 | 0.010014 | 1.95 | 28.37 | 26.62 | 0.60 | |
| Rotonda-EDAR | -3869.0 | T= 500 años | 185.76 | 599.00 | 604.94 | 604.50 | 605.24 | 0.010002 | 2.44 | 76.20 | 58.20 | 0.68 | |

**COMPARATIVA ENTRE LA SITUACIÓN ACTUAL
 Y LA SITUACIÓN FUTURA**

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| 0 | T= 5 años | 2.69 | 635.00 | 635.51 | 4.00 | T= 5 años | 2.69 | 635.00 | 635.36 | 4.00 | -0.15 | 0.00 |
| 0 | T= 500 años | 40.32 | 635.00 | 637.66 | 4.00 | T= 500 años | 37.94 | 635.00 | 637.39 | 4.00 | -0.27 | 0.00 |
| -500 | T= 5 años | 2.69 | 625.83 | 626.19 | 4.00 | T= 5 años | 2.69 | 625.83 | 626.95 | 4.00 | 0.76 | 0.00 |
| -500 | T= 500 años | 40.32 | 625.83 | 629.26 | 4.00 | T= 500 años | 37.94 | 625.83 | 629.30 | 4.00 | 0.04 | 0.00 |
| -1000 | T= 5 años | 11.77 | 619.96 | 621.75 | 4.00 | T= 5 años | 35.08 | 619.96 | 624.65 | 23.27 | 2.90 | 19.27 |
| -1000 | T= 500 años | 83.93 | 619.96 | 625.32 | 42.10 | T= 500 años | 133.01 | 619.96 | 625.77 | 54.70 | 0.45 | 12.60 |
| -1500 | T= 5 años | 11.77 | 617.05 | 618.91 | 4.00 | T= 5 años | 35.08 | 617.05 | 621.47 | 15.62 | 2.56 | 11.62 |
| -1500 | T= 500 años | 83.93 | 617.05 | 622.61 | 47.97 | T= 500 años | 133.01 | 617.05 | 623.02 | 59.49 | 0.41 | 11.52 |
| -2000 | T= 5 años | 11.77 | 613.68 | 615.17 | 4.00 | T= 5 años | 35.08 | 613.68 | 617.50 | 4.00 | 2.33 | 0.00 |
| -2000 | T= 500 años | 83.93 | 613.68 | 618.72 | 33.09 | T= 500 años | 133.01 | 613.68 | 619.18 | 46.11 | 0.46 | 13.02 |
| -2500 | T= 5 años | 13.59 | 609.06 | 610.90 | 4.00 | T= 5 años | 44.01 | 609.06 | 613.78 | 24.04 | 2.88 | 20.04 |
| -2500 | T= 500 años | 99.48 | 609.06 | 614.66 | 48.71 | T= 500 años | 156.79 | 609.06 | 615.06 | 59.98 | 0.40 | 11.27 |
| -3000 | T= 5 años | 13.81 | 604.02 | 605.39 | 4.00 | T= 5 años | 49.60 | 604.02 | 607.61 | 4.00 | 2.22 | 0.00 |
| -3000 | T= 500 años | 104.50 | 604.02 | 609.02 | 32.00 | T= 500 años | 171.27 | 604.02 | 609.57 | 47.40 | 0.55 | 15.40 |
| -3500 | T= 5 años | 13.81 | 600.00 | 602.64 | 4.00 | T= 5 años | 49.60 | 600.00 | 605.54 | 32.80 | 2.90 | 28.80 |
| -3500 | T= 500 años | 104.50 | 600.00 | 606.30 | 46.99 | T= 500 años | 171.27 | 600.00 | 606.92 | 58.44 | 0.62 | 11.45 |
| -3869 | T= 5 años | 14.04 | 599.00 | 600.68 | 4.00 | T= 5 años | 55.18 | 599.00 | 603.81 | 26.62 | 3.13 | 22.62 |
| -3869 | T= 500 años | 109.01 | 599.00 | 604.43 | 43.96 | T= 500 años | 185.76 | 599.00 | 604.94 | 58.20 | 0.51 | 14.24 |

ARROYO DE CARBONEROS

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X   X   XXXXXX   XXXX   XXXX   XX   XXXX
X   X   X   X   X   X   X   X   X   X
X   X   X   X   X   X   X   X   X
XXXXXXXX XXXX   X   XXX XXXX XXXXXXX XXXX
X   X   X   X   X   X   X   X   X   X
X   X   X   X   X   X   X   X   X   X
X   X   XXXXXX   XXXX   X   X   X   X   XXXXX
    
```

PROJECT DATA
Project Title: Arroyo de los Carboneros
Project File : Carboneros.prj
Run Date and Time: 03/07/2008 13:56:02

Project in SI units

PLAN DATA

Plan Title: Plan 13
Plan File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Carboneros.pl3

Geometry Title: Arroyo de los Carboneros (50 m)
Geometry File : o:\2005-10-PGOU
ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Carboneros.g03

Flow Title : Caudales Futuros Carboneros_junio/08
Flow File : o:\2005-10-PGOU
ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Carboneros.f07

Plan Summary Information:

Number of: Cross Sections = 34 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information

Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Caudales Futuros Carboneros_junio/08
Flow File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Carboneros.f07

Flow Data (m3/s)

| River | Reach | RS | T= 5 años | T= 500 años |
|------------------|----------|---------|-----------|-------------|
| Arroyo de los Ca | Completo | 0.0 | .9721 | 2.9877 |
| Arroyo de los Ca | Completo | -550.0 | .9721 | 2.9877 |
| Arroyo de los Ca | Completo | -1000.0 | 1.67 | 5.1327 |
| Arroyo de los Ca | Completo | -1600.0 | 2.667 | 8.197 |

Boundary Conditions

| River | Reach | Profile | Upstream |
|------------------|----------|-------------|------------------|
| Downstream | | | |
| Arroyo de los Ca | Completo | T= 5 años | Normal S = 0.018 |
| Arroyo de los Ca | Completo | T= 500 años | Normal S = 0.018 |

GEOMETRY DATA

Geometry Title: Arroyo de los Carboneros (50 m)
Geometry File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Carboneros.g03

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: 0.0

INPUT

Description:
Station Elevation Data num= 8

| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|--------|------|--------|--------|------|-------|-----|------|-----|------|
| -48.77 | 645 | -19.78 | 641.11 | -.8 | 640.8 | -.8 | 640 | 0 | 640 |
| .8 | 640 | .8 | 640.8 | 93.2 | 645 | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|------|-------|
| -48.77 | | -48.77 | .045 | 93.2 | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| Left | Right | Left | Channel | Right | Coeff | Contr. | Expan. |
|--------|-------|------|---------|-------|-------|--------|--------|
| -48.77 | 93.2 | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| E.G. Elev (m) | 640.53 | Element | Left OB | Channel | Right OB |
|---------------|--------|----------------|---------|---------|----------|
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 640.42 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 640.33 | Flow Area (m2) | | 0.67 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| | | | | | | | |
|--------------------|----------|----------------------|-------|--------------------|--------|----------------------|--------|
| E.G. Slope (m/m) | 0.024155 | Area (m2) | 0.67 | Top Width (m) | 1.60 | Top Width (m) | 1.60 |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | 0.97 | Vel Total (m/s) | 1.61 | Avg. Vel. (m/s) | 1.61 |
| Top Width (m) | 1.60 | Top Width (m) | 1.60 | Max Chl Dpth (m) | 0.38 | Hydr. Depth (m) | 0.38 |
| Vel Total (m/s) | 1.46 | Avg. Vel. (m/s) | 1.46 | Conv. Total (m3/s) | 5.4 | Conv. (m3/s) | 5.4 |
| Max Chl Dpth (m) | 0.42 | Hydr. Depth (m) | 0.42 | Length Wtd. (m) | 50.00 | Wetted Per. (m) | 2.36 |
| Conv. Total (m3/s) | 6.3 | Conv. (m3/s) | 6.3 | Min Ch El (m) | 638.63 | Shear (N/m2) | 80.72 |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | 2.43 | Alpha | 1.00 | Stream Power (N/m s) | 129.75 |
| Min Ch El (m) | 640.00 | Shear (N/m2) | 64.92 | Frctn Loss (m) | 1.33 | Cum Volume (1000 m3) | 1.62 |
| Alpha | 1.00 | Stream Power (N/m s) | 94.61 | C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 4.33 |
| Frctn Loss (m) | 1.38 | Cum Volume (1000 m3) | 1.65 | | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 4.41 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 641.03 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 640.98 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 640.94 | Flow Area (m2) | | 2.98 | |
| E.G. Slope (m/m) | 0.023300 | Area (m2) | | 2.98 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 16.88 | Top Width (m) | | 16.88 | |
| Vel Total (m/s) | 1.00 | Avg. Vel. (m/s) | | 1.00 | |
| Max Chl Dpth (m) | 0.98 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 19.6 | Conv. (m3/s) | | 19.6 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 18.49 | |
| Min Ch El (m) | 640.00 | Shear (N/m2) | | 36.79 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 36.93 | |
| Frctn Loss (m) | 1.39 | Cum Volume (1000 m3) | | 5.75 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 23.50 | |

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 639.65 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 639.57 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 639.55 | Flow Area (m2) | | 2.31 | |
| E.G. Slope (m/m) | 0.033479 | Area (m2) | | 2.31 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 11.35 | Top Width (m) | | 11.35 | |
| Vel Total (m/s) | 1.29 | Avg. Vel. (m/s) | | 1.29 | |
| Max Chl Dpth (m) | 0.94 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 16.3 | Conv. (m3/s) | | 16.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 12.89 | |
| Min Ch El (m) | 638.63 | Shear (N/m2) | | 58.85 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 76.07 | |
| Frctn Loss (m) | 1.32 | Cum Volume (1000 m3) | | 5.62 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 22.79 | |

CROSS SECTION

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -50.0

RIVER: Arroyo de los Ca
REACH: Completo RS: -100.0

INPUT
Description:

| | | |
|---------------------------------|------|---|
| Station Elevation Data | num= | 8 |
| Sta Elev Sta Elev Sta Elev | | |
| -60.51 645 -17.06 640 -.8 639.4 | | |
| .8 638.63 .8 639.4 19.64 640 | | |

INPUT
Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 11 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -69.83 645 -34.95 640 -18.08 638.79 -.8 638.08 -.8 637.28 | | |
| 0 637.28 .8 637.28 .8 638.08 15.78 638.3 36.31 639.57 | | |
| 41.31 640 | | |

Manning's n Values

| | | |
|-------------------------------|--|--|
| Sta n Val Sta n Val Sta n Val | | |
| -60.51 -60.51 .045 19.64 | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | |
|-----------------------|--|--|
| -60.51 19.64 50 50 50 | | |
| .1 .3 | | |

Manning's n Values

| | | |
|-------------------------------|--|--|
| Sta n Val Sta n Val Sta n Val | | |
| -69.83 -69.83 .045 41.31 | | |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| | | |
|-----------------------|--|--|
| -69.83 41.31 50 50 50 | | |
| .1 .3 | | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|------------------|----------|----------------|---------|---------|----------|
| E.G. Elev (m) | 639.14 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 639.01 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 638.96 | Flow Area (m2) | | 0.60 | |
| E.G. Slope (m/m) | 0.032068 | Area (m2) | | 0.60 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|------------------|----------|----------------|---------|---------|----------|
| E.G. Elev (m) | 637.81 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 637.71 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.68 | |
| E.G. Slope (m/m) | 0.022423 | Area (m2) | | 0.68 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

| | | | |
|--------------------|--------|----------------------|-------|
| Vel Total (m/s) | 1.42 | Avg. Vel. (m/s) | 1.42 |
| Max Chl Dpth (m) | 0.43 | Hydr. Depth (m) | 0.43 |
| Conv. Total (m3/s) | 6.5 | Conv. (m3/s) | 6.5 |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | 2.46 |
| Min Ch El (m) | 637.28 | Shear (N/m2) | 61.30 |
| Alpha | 1.00 | Stream Power (N/m s) | 87.04 |
| Frctn Loss (m) | 1.38 | Cum Volume (1000 m3) | 1.58 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 4.25 |

| | | | |
|--------------------|--------|----------------------|--------|
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | 0.37 |
| Conv. Total (m3/s) | 5.2 | Conv. (m3/s) | 5.2 |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | 2.34 |
| Min Ch El (m) | 635.93 | Shear (N/m2) | 85.71 |
| Alpha | 1.00 | Stream Power (N/m s) | 141.53 |
| Frctn Loss (m) | 1.25 | Cum Volume (1000 m3) | 1.55 |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 4.17 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 638.31 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 638.27 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 638.21 | Flow Area (m2) | | 3.17 | |
| E.G. Slope (m/m) | 0.021442 | Area (m2) | | 3.17 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 18.77 | Top Width (m) | | 18.77 | |
| Vel Total (m/s) | 0.94 | Avg. Vel. (m/s) | | 0.94 | |
| Max Chl Dpth (m) | 0.99 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 20.4 | Conv. (m3/s) | | 20.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 20.38 | |
| Min Ch El (m) | 637.28 | Shear (N/m2) | | 32.74 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 30.83 | |
| Frctn Loss (m) | 1.45 | Cum Volume (1000 m3) | | 5.48 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 22.04 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 636.86 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 636.81 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 636.80 | Flow Area (m2) | | 2.88 | |
| E.G. Slope (m/m) | 0.041106 | Area (m2) | | 2.88 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 24.53 | Top Width (m) | | 24.53 | |
| Vel Total (m/s) | 1.04 | Avg. Vel. (m/s) | | 1.04 | |
| Max Chl Dpth (m) | 0.88 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 14.7 | Conv. (m3/s) | | 14.7 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 26.13 | |
| Min Ch El (m) | 635.93 | Shear (N/m2) | | 44.47 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 46.09 | |
| Frctn Loss (m) | 1.23 | Cum Volume (1000 m3) | | 5.33 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 20.96 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -150.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 12 |
| Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -88.52 645 -41.4 640 -38.94 639.84 -10.68 636.75 -.8 636.73 | | |
| -.8 635.93 0 635.93 .8 635.93 .8 636.73 11.9 636.75 | | |
| 33.28 637.62 92.86 640 | | |

Manning's n Values

| | | |
|-------------------------------|------|---|
| Sta n Val Sta n Val Sta n Val | num= | 3 |
| -88.52 -88.52 .045 92.86 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -88.52 92.86 50 50 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 636.44 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 636.30 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 636.27 | Flow Area (m2) | | 0.59 | |
| E.G. Slope (m/m) | 0.034682 | Area (m2) | | 0.59 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.65 | Avg. Vel. (m/s) | | 1.65 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -200.0

INPUT

Description:

| | | |
|--|------|----|
| Station Elevation Data | num= | 11 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -69.28 640 -50.96 638.45 -19.39 636.35 -11.75 635.5 -.8 635.43 | | |
| -.8 634.63 0 634.63 .8 634.63 .8 635.43 4.07 635.5 | | |
| 26.95 635.96 | | |

Manning's n Values

| | | |
|-------------------------------|------|---|
| Sta n Val Sta n Val Sta n Val | num= | 3 |
| -69.28 -69.28 .045 26.95 | | |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -69.28 26.95 50 50 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 635.18 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 635.08 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.73 | |
| E.G. Slope (m/m) | 0.018918 | Area (m2) | | 0.73 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.34 | Avg. Vel. (m/s) | | 1.34 | |
| Max Chl Dpth (m) | 0.45 | Hydr. Depth (m) | | 0.45 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

| | | | |
|--------------------|--------|----------------------|-------|
| Conv. Total (m3/s) | 7.1 | Conv. (m3/s) | 7.1 |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | 2.51 |
| Min Ch El (m) | 634.63 | Shear (N/m2) | 53.74 |
| Alpha | 1.00 | Stream Power (N/m s) | 71.90 |
| Frctn Loss (m) | 1.23 | Cum Volume (1000 m3) | 1.52 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 4.09 |

| | | | |
|----------------|--------|----------------------|--------|
| Min Ch El (m) | 633.44 | Shear (N/m2) | 82.52 |
| Alpha | 1.00 | Stream Power (N/m s) | 133.96 |
| Frctn Loss (m) | 1.14 | Cum Volume (1000 m3) | 1.49 |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | 4.01 |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 635.63 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 635.59 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.60 | |
| E.G. Slope (m/m) | 0.016427 | Area (m2) | | 3.60 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 21.23 | Top Width (m) | | 21.23 | |
| Vel Total (m/s) | 0.83 | Avg. Vel. (m/s) | | 0.83 | |
| Max Chl Dpth (m) | 0.96 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 23.3 | Conv. (m3/s) | | 23.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 22.83 | |
| Min Ch El (m) | 634.63 | Shear (N/m2) | | 25.37 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 21.08 | |
| Frctn Loss (m) | 1.17 | Cum Volume (1000 m3) | | 5.17 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 19.81 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 634.46 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 634.39 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 634.15 | Flow Area (m2) | | 2.53 | |
| E.G. Slope (m/m) | 0.035766 | Area (m2) | | 2.53 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 15.42 | Top Width (m) | | 15.42 | |
| Vel Total (m/s) | 1.18 | Avg. Vel. (m/s) | | 1.18 | |
| Max Chl Dpth (m) | 0.95 | Hydr. Depth (m) | | 0.16 | |
| Conv. Total (m3/s) | 15.8 | Conv. (m3/s) | | 15.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 17.02 | |
| Min Ch El (m) | 633.44 | Shear (N/m2) | | 52.17 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 61.56 | |
| Frctn Loss (m) | 1.08 | Cum Volume (1000 m3) | | 5.02 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 18.90 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -250.0

INPUT

Description:

| | | |
|----------------------------|------|------------------------------|
| Station Elevation Data | num= | 9 |
| Sta Elev Sta Elev Sta Elev | | |
| -62.28 636.19 -22.1 635 | | -8 634.24 -8 633.44 0 633.44 |
| .8 633.44 .8 634.24 | | 29.12 634.67 46.35 635 |

Manning's n Values

| | | |
|-------------------------------|------|-------|
| Sta n Val Sta n Val Sta n Val | num= | 3 |
| -62.28 -62.28 .045 | | 46.35 |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -62.28 46.35 50 50 50 | .1 | .3 |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -300.0

INPUT

Description:

| | | |
|--|------|------------------------------|
| Station Elevation Data | num= | 10 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -55.56 636.1 -30.4 635 | | -8 633.04 -8 632.24 0 632.24 |
| .8 632.24 .8 633.04 | | 7.52 633.5 40.45 635 98 640 |

Manning's n Values

| | | |
|-------------------------------|------|----|
| Sta n Val Sta n Val Sta n Val | num= | 3 |
| -55.56 -55.56 .045 | | 98 |

| | | |
|--|--------------|--------|
| Bank Sta: Left Right Lengths: Left Channel Right | Coeff Contr. | Expan. |
| -55.56 98 50 50 50 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 633.95 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 633.81 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 633.77 | Flow Area (m2) | | 0.60 | |
| E.G. Slope (m/m) | 0.033003 | Area (m2) | | 0.60 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.62 | Avg. Vel. (m/s) | | 1.62 | |
| Max Chl Dpth (m) | 0.37 | Hydr. Depth (m) | | 0.37 | |
| Conv. Total (m3/s) | 5.4 | Conv. (m3/s) | | 5.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.35 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 632.80 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 632.71 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 632.57 | Flow Area (m2) | | 0.76 | |
| E.G. Slope (m/m) | 0.016719 | Area (m2) | | 0.76 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.28 | Avg. Vel. (m/s) | | 1.28 | |
| Max Chl Dpth (m) | 0.47 | Hydr. Depth (m) | | 0.47 | |
| Conv. Total (m3/s) | 7.5 | Conv. (m3/s) | | 7.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.55 | |
| Min Ch El (m) | 632.24 | Shear (N/m2) | | 48.81 | |

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ANEXO VII

| | | | | | | | |
|----------------|------|----------------------|-------|----------------|------|----------------------|------|
| Alpha | 1.00 | Stream Power (N/m s) | 62.54 | Frctn Loss (m) | 0.99 | Cum Volume (1000 m3) | 1.42 |
| Frctn Loss (m) | 1.24 | Cum Volume (1000 m3) | 1.45 | C & E Loss (m) | 0.03 | Cum SA (1000 m2) | 3.85 |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | 3.93 | | | | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 633.37 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 633.31 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 632.95 | Flow Area (m2) | | 2.83 | |
| E.G. Slope (m/m) | 0.014372 | Area (m2) | | 2.83 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 9.73 | Top Width (m) | | 9.73 | |
| Vel Total (m/s) | 1.06 | Avg. Vel. (m/s) | | 1.06 | |
| Max Chl Dpth (m) | 1.07 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 24.9 | Conv. (m3/s) | | 24.9 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 11.35 | |
| Min Ch El (m) | 632.24 | Shear (N/m2) | | 35.15 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 37.10 | |
| Frctn Loss (m) | 1.23 | Cum Volume (1000 m3) | | 4.88 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 18.27 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 632.11 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.35 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 631.76 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 631.76 | Flow Area (m2) | | 1.14 | |
| E.G. Slope (m/m) | 0.050961 | Area (m2) | | 1.14 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 2.62 | Avg. Vel. (m/s) | | 2.62 | |
| Max Chl Dpth (m) | 0.71 | Hydr. Depth (m) | | 0.71 | |
| Conv. Total (m3/s) | 13.2 | Conv. (m3/s) | | 13.2 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 3.03 | |
| Min Ch El (m) | 631.05 | Shear (N/m2) | | 188.43 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 493.36 | |
| Frctn Loss (m) | 1.00 | Cum Volume (1000 m3) | | 4.78 | |
| C & E Loss (m) | 0.10 | Cum SA (1000 m2) | | 17.99 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -350.0

INPUT

Description:

| | | |
|---|------|----|
| Station Elevation Data | num= | 10 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -41.51 635 -38.49 634.82 -18.5 632.93 -.8 631.85 -.8 631.05 | | |
| 0 631.05 .8 631.05 .8 631.85 12.57 631.9 35.57 632.74 | | |

Manning's n Values num= 3

| |
|-------------------------------|
| Sta n Val Sta n Val Sta n Val |
| -41.51 -41.51 .045 35.57 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| |
|-----------------------------|
| -41.51 35.57 50 50 50 .1 .3 |
|-----------------------------|

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -400.0

INPUT

Description:

| | | |
|--|------|---|
| Station Elevation Data | num= | 8 |
| Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev | | |
| -31.82 632.68 -.8 630.73 -.8 629.93 0 629.93 .8 629.93 | | |
| .8 630.73 9.51 630.9 26.24 631.51 | | |

Manning's n Values num= 3

| |
|-------------------------------|
| Sta n Val Sta n Val Sta n Val |
| -31.82 -31.82 .045 26.24 |

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.

| |
|-----------------------------|
| -31.82 26.24 50 50 50 .1 .3 |
|-----------------------------|

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 631.55 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.16 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 631.40 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 631.38 | Flow Area (m2) | | 0.56 | |
| E.G. Slope (m/m) | 0.040789 | Area (m2) | | 0.56 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.75 | Avg. Vel. (m/s) | | 1.75 | |
| Max Chl Dpth (m) | 0.35 | Hydr. Depth (m) | | 0.35 | |
| Conv. Total (m3/s) | 4.8 | Conv. (m3/s) | | 4.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.30 | |
| Min Ch El (m) | 631.05 | Shear (N/m2) | | 97.01 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 169.33 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 630.53 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 630.47 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.86 | |
| E.G. Slope (m/m) | 0.011640 | Area (m2) | | 0.86 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.13 | Avg. Vel. (m/s) | | 1.13 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.54 | |
| Conv. Total (m3/s) | 9.0 | Conv. (m3/s) | | 9.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.68 | |
| Min Ch El (m) | 629.93 | Shear (N/m2) | | 36.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 41.43 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 1.38 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.77 | |

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ANEXO VII

| | | | | | | | | | | | |
|--|----------|----------------------|---------|---------|----------|--|----------|----------------------|---------|---------|----------|
| CROSS SECTION OUTPUT Profile #T= 500 años | | | | | | CROSS SECTION OUTPUT Profile #T= 500 años | | | | | |
| E.G. Elev (m) | 631.01 | Element | Left OB | Channel | Right OB | E.G. Elev (m) | 630.46 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | | Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 630.98 | Reach Len. (m) | 50.00 | 50.00 | 50.00 | W.S. Elev (m) | 630.42 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.74 | | Crit W.S. (m) | | Flow Area (m2) | | 3.35 | |
| E.G. Slope (m/m) | 0.010665 | Area (m2) | | 3.74 | | E.G. Slope (m/m) | 0.011430 | Area (m2) | | 3.35 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | | Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 16.57 | Top Width (m) | | 16.57 | | Top Width (m) | 12.98 | Top Width (m) | | 12.98 | |
| Vel Total (m/s) | 0.80 | Avg. Vel. (m/s) | | 0.80 | | Vel Total (m/s) | 0.89 | Avg. Vel. (m/s) | | 0.89 | |
| Max Chl Dpth (m) | 1.05 | Hydr. Depth (m) | | 0.23 | | Max Chl Dpth (m) | 1.08 | Hydr. Depth (m) | | 0.26 | |
| Conv. Total (m3/s) | 28.9 | Conv. (m3/s) | | 28.9 | | Conv. Total (m3/s) | 27.9 | Conv. (m3/s) | | 27.9 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 18.18 | | Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 14.59 | |
| Min Ch El (m) | 629.93 | Shear (N/m2) | | 21.50 | | Min Ch El (m) | 629.34 | Shear (N/m2) | | 25.75 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.18 | | Alpha | 1.00 | Stream Power (N/m s) | | 22.95 | |
| Frctn Loss (m) | 0.55 | Cum Volume (1000 m3) | | 4.66 | | Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 4.48 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.53 | | C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.79 | |
| CROSS SECTION | | | | | | CROSS SECTION | | | | | |
| RIVER: Arroyo de los Ca REACH: Completo RS: -450.0 | | | | | | RIVER: Arroyo de los Ca REACH: Completo RS: -500.0 | | | | | |
| INPUT | | | | | | INPUT | | | | | |
| Description: | | | | | | Description: | | | | | |
| Station Elevation Data num= 8 | | | | | | Station Elevation Data num= 8 | | | | | |
| Sta Elev Sta Elev Sta Elev | | | | | | Sta Elev Sta Elev Sta Elev | | | | | |
| -30.16 631.47 -.8 630.14 -.8 629.34 | | | | | | -25.01 631.5 -18.54 630 -.8 629.56 | | | | | |
| .8 630.14 64.33 633.68 85.73 635 | | | | | | .8 628.76 .8 629.56 23.97 633 | | | | | |
| Manning's n Values num= 3 | | | | | | Manning's n Values num= 3 | | | | | |
| Sta n Val Sta n Val Sta n Val | | | | | | Sta n Val Sta n Val Sta n Val | | | | | |
| -30.16 -30.16 .045 85.73 | | | | | | -25.01 -25.01 .045 23.97 | | | | | |
| Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan. | | | | | | Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan. | | | | | |
| -30.16 85.73 50 50 50 .1 .3 | | | | | | -25.01 23.97 50 50 50 .1 .3 | | | | | |
| CROSS SECTION OUTPUT Profile #T= 5 años | | | | | | CROSS SECTION OUTPUT Profile #T= 5 años | | | | | |
| E.G. Elev (m) | 629.94 | Element | Left OB | Channel | Right OB | E.G. Elev (m) | 629.36 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | | Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.88 | Reach Len. (m) | 50.00 | 50.00 | 50.00 | W.S. Elev (m) | 629.30 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.86 | | Crit W.S. (m) | | Flow Area (m2) | | 0.86 | |
| E.G. Slope (m/m) | 0.011564 | Area (m2) | | 0.86 | | E.G. Slope (m/m) | 0.011808 | Area (m2) | | 0.86 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | | Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | | Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.12 | Avg. Vel. (m/s) | | 1.12 | | Vel Total (m/s) | 1.13 | Avg. Vel. (m/s) | | 1.13 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.54 | | Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.54 | |
| Conv. Total (m3/s) | 9.0 | Conv. (m3/s) | | 9.0 | | Conv. Total (m3/s) | 8.9 | Conv. (m3/s) | | 8.9 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.68 | | Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.67 | |
| Min Ch El (m) | 629.34 | Shear (N/m2) | | 36.58 | | Min Ch El (m) | 628.76 | Shear (N/m2) | | 37.19 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 41.12 | | Alpha | 1.00 | Stream Power (N/m s) | | 42.11 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 1.34 | | Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 1.30 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.69 | | C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.61 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 629.87 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.83 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.39 | |
| E.G. Slope (m/m) | 0.012256 | Area (m2) | | 3.39 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 14.18 | Top Width (m) | | 14.18 | |
| Vel Total (m/s) | 0.88 | Avg. Vel. (m/s) | | 0.88 | |
| Max Chl Dpth (m) | 1.07 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 27.0 | Conv. (m3/s) | | 27.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 15.81 | |
| Min Ch El (m) | 628.76 | Shear (N/m2) | | 25.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 22.72 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 4.32 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.11 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -550.0

INPUT

Description:

| Station Elevation Data | | num= | 8 | | | | | | | | |
|------------------------|--------|--------|--------|-------|--------|-----|--------|-----|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -38.95 | 630 | -15.55 | 630 | -.8 | 628.97 | -.8 | 628.17 | 0 | 628.17 | | |
| .8 | 628.17 | .8 | 628.97 | 36.12 | 630 | | | | | | |

Manning's n Values

| Manning's n Values | | num= | 3 | | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -38.95 | | -38.95 | .045 | 36.12 | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -38.95 | 36.12 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 628.77 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 628.71 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.86 | |
| E.G. Slope (m/m) | 0.011831 | Area (m2) | | 0.86 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.13 | Avg. Vel. (m/s) | | 1.13 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.54 | |
| Conv. Total (m3/s) | 8.9 | Conv. (m3/s) | | 8.9 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.67 | |
| Min Ch El (m) | 628.17 | Shear (N/m2) | | 37.24 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 42.20 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 1.25 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.53 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 629.28 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.24 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.50 | |
| E.G. Slope (m/m) | 0.011540 | Area (m2) | | 3.50 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 14.79 | Top Width (m) | | 14.79 | |
| Vel Total (m/s) | 0.85 | Avg. Vel. (m/s) | | 0.85 | |
| Max Chl Dpth (m) | 1.07 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 27.8 | Conv. (m3/s) | | 27.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 16.40 | |
| Min Ch El (m) | 628.17 | Shear (N/m2) | | 24.17 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 20.62 | |
| Frctn Loss (m) | 0.57 | Cum Volume (1000 m3) | | 4.14 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.39 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -600.0

INPUT

Description:

| Station Elevation Data | | num= | 7 | | | | | | | | |
|------------------------|--------|-------|--------|-----|--------|-----|--------|-----|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -14.43 | 630 | -.8 | 628.39 | -.8 | 627.59 | 0 | 627.59 | .8 | 627.58 | | |
| .8 | 628.39 | 55.53 | 630 | | | | | | | | |

Manning's n Values

| Manning's n Values | | num= | 3 | | | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -14.43 | | -14.43 | .045 | 55.53 | | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -14.43 | 55.53 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 628.19 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 628.12 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.86 | |
| E.G. Slope (m/m) | 0.011806 | Area (m2) | | 0.86 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.13 | Avg. Vel. (m/s) | | 1.13 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.54 | |
| Conv. Total (m3/s) | 8.9 | Conv. (m3/s) | | 8.9 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.68 | |
| Min Ch El (m) | 627.58 | Shear (N/m2) | | 37.13 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 42.01 | |
| Frctn Loss (m) | 0.59 | Cum Volume (1000 m3) | | 1.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.45 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 628.71 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 628.67 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.41 | |
| E.G. Slope (m/m) | 0.011373 | Area (m2) | | 3.41 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 13.53 | Top Width (m) | | 13.53 | |
| Vel Total (m/s) | 0.88 | Avg. Vel. (m/s) | | 0.88 | |
| Max Chl Dpth (m) | 1.09 | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 28.0 | Conv. (m3/s) | | 28.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 15.16 | |
| Min Ch El (m) | 627.58 | Shear (N/m2) | | 25.08 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 21.98 | |
| Frctn Loss (m) | 0.56 | Cum Volume (1000 m3) | | 3.97 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 14.68 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -650.0

INPUT

Description:

| Station Elevation Data | | num= | 8 | | |
|------------------------|-------|-------|--------|-------|------|
| Sta | Elev | Sta | Elev | Sta | Elev |
| -18.51 | 630 | -8 | 627.8 | -8 | 627 |
| .8 | 627.8 | 48.46 | 629.91 | 51.94 | 630 |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -18.51 | | -18.51 | .045 | 51.94 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -18.51 | 51.94 | | 50 | 50 | 50 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 627.60 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.54 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.86 | |
| E.G. Slope (m/m) | 0.011658 | Area (m2) | | 0.86 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.13 | Avg. Vel. (m/s) | | 1.13 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.54 | |
| Conv. Total (m3/s) | 9.0 | Conv. (m3/s) | | 9.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.68 | |
| Min Ch El (m) | 627.00 | Shear (N/m2) | | 36.81 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 41.50 | |
| Frctn Loss (m) | 0.60 | Cum Volume (1000 m3) | | 1.17 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.37 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 628.15 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 628.10 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.19 | |
| E.G. Slope (m/m) | 0.011074 | Area (m2) | | 3.19 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 10.93 | Top Width (m) | | 10.93 | |
| Vel Total (m/s) | 0.94 | Avg. Vel. (m/s) | | 0.94 | |
| Max Chl Dpth (m) | 1.10 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 28.4 | Conv. (m3/s) | | 28.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 12.55 | |
| Min Ch El (m) | 627.00 | Shear (N/m2) | | 27.57 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 25.85 | |
| Frctn Loss (m) | 0.57 | Cum Volume (1000 m3) | | 3.81 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 14.07 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -700.0

INPUT

Description:

| Station Elevation Data | | num= | 8 | | |
|------------------------|--------|-------|--------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev |
| -17.03 | 630 | -8 | 627.21 | -8 | 626.41 |
| .8 | 627.21 | 18.86 | 628.23 | 55.19 | 630 |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|--------|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -17.03 | | -17.03 | .045 | 55.19 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -17.03 | 55.19 | | 50 | 50 | 50 | .1 | .3 | |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 627.01 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.94 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.85 | |
| E.G. Slope (m/m) | 0.012221 | Area (m2) | | 0.85 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.15 | Avg. Vel. (m/s) | | 1.15 | |
| Max Chl Dpth (m) | 0.53 | Hydr. Depth (m) | | 0.53 | |
| Conv. Total (m3/s) | 8.8 | Conv. (m3/s) | | 8.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.66 | |
| Min Ch El (m) | 626.41 | Shear (N/m2) | | 38.20 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 43.80 | |
| Frctn Loss (m) | 0.57 | Cum Volume (1000 m3) | | 1.13 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.29 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 627.57 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.52 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.90 | |
| E.G. Slope (m/m) | 0.011951 | Area (m2) | | 2.90 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 8.88 | Top Width (m) | | 8.88 | |
| Vel Total (m/s) | 1.03 | Avg. Vel. (m/s) | | 1.03 | |
| Max Chl Dpth (m) | 1.11 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 27.3 | Conv. (m3/s) | | 27.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 10.51 | |
| Min Ch El (m) | 626.41 | Shear (N/m2) | | 32.34 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.30 | |
| Frctn Loss (m) | 0.56 | Cum Volume (1000 m3) | | 3.65 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 13.58 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -750.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|------|--------|-------|--------|------|--------|------|--------|------|
| -16.76 | 630 | -.8 | 626.62 | -.8 | 625.82 | 0 | 625.82 | .8 | 625.82 | |
| .8 | 626.62 | 3.43 | 626.81 | 35.17 | 630 | 65 | 630 | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-----|-------|
| -16.76 | | -16.76 | .045 | 65 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -16.76 | 65 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 626.43 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.37 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.89 | |
| E.G. Slope (m/m) | 0.010824 | Area (m2) | | 0.89 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.10 | Avg. Vel. (m/s) | | 1.10 | |
| Max Chl Dpth (m) | 0.55 | Hydr. Depth (m) | | 0.55 | |
| Conv. Total (m3/s) | 9.3 | Conv. (m3/s) | | 9.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.71 | |
| Min Ch El (m) | 625.82 | Shear (N/m2) | | 34.73 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 38.12 | |
| Frctn Loss (m) | 0.62 | Cum Volume (1000 m3) | | 1.08 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.21 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 627.01 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.95 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.81 | |
| E.G. Slope (m/m) | 0.010611 | Area (m2) | | 2.81 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 7.25 | Top Width (m) | | 7.25 | |
| Vel Total (m/s) | 1.06 | Avg. Vel. (m/s) | | 1.06 | |
| Max Chl Dpth (m) | 1.13 | Hydr. Depth (m) | | 0.39 | |
| Conv. Total (m3/s) | 29.0 | Conv. (m3/s) | | 29.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 8.89 | |
| Min Ch El (m) | 625.82 | Shear (N/m2) | | 32.90 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 34.95 | |
| Frctn Loss (m) | 0.58 | Cum Volume (1000 m3) | | 3.51 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 13.17 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -800.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|--------|------|--------|-------|--------|------|--------|------|-----|------|
| -15.8 | 628.39 | -.8 | 626.04 | -.8 | 625.24 | 0 | 625.24 | .8 | 625.24 | | | |
| .8 | 626.04 | 32.47 | 630 | 37.1 | 630 | 98.86 | 635 | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|-------|-------|
| -15.8 | | -15.8 | .045 | 98.86 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -15.8 | 98.86 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 625.82 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.74 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.80 | |
| E.G. Slope (m/m) | 0.014198 | Area (m2) | | 0.80 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.21 | Avg. Vel. (m/s) | | 1.21 | |
| Max Chl Dpth (m) | 0.50 | Hydr. Depth (m) | | 0.50 | |
| Conv. Total (m3/s) | 8.2 | Conv. (m3/s) | | 8.2 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.60 | |
| Min Ch El (m) | 625.24 | Shear (N/m2) | | 42.97 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 51.96 | |
| Frctn Loss (m) | 0.64 | Cum Volume (1000 m3) | | 1.04 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.13 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 626.43 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.36 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.53 | |
| E.G. Slope (m/m) | 0.012797 | Area (m2) | | 2.53 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 6.20 | Top Width (m) | | 6.20 | |
| Vel Total (m/s) | 1.18 | Avg. Vel. (m/s) | | 1.18 | |
| Max Chl Dpth (m) | 1.12 | Hydr. Depth (m) | | 0.41 | |
| Conv. Total (m3/s) | 26.4 | Conv. (m3/s) | | 26.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 7.85 | |
| Min Ch El (m) | 625.24 | Shear (N/m2) | | 40.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 47.78 | |
| Frctn Loss (m) | 0.75 | Cum Volume (1000 m3) | | 3.38 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.84 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -850.0

INPUT

Description:

| Station Elevation Data | | num= | 9 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|-------|--------|-------|--------|---|--------|--|------|--|
| -51.51 | 630 | -41.08 | 628.5 | -8 | 625.37 | -8 | 624.57 | 0 | 624.57 | | | |
| .8 | 624.57 | .8 | 625.37 | 47.15 | 628.53 | 60.35 | 630 | | | | | |

Manning's n Values

| num= | | 3 | | Sta | | n Val | |
|--------|--------|------|-------|-----|--|-------|--|
| -51.51 | -51.51 | .045 | 60.35 | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -51.51 | 60.35 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 625.17 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.11 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.86 | |
| E.G. Slope (m/m) | 0.011740 | Area (m2) | | 0.86 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.13 | Avg. Vel. (m/s) | | 1.13 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.54 | |
| Conv. Total (m3/s) | 9.0 | Conv. (m3/s) | | 9.0 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.68 | |
| Min Ch El (m) | 624.57 | Shear (N/m2) | | 37.02 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 41.83 | |
| Frctn Loss (m) | 0.78 | Cum Volume (1000 m3) | | 1.00 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 3.05 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 625.69 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.62 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.54 | |
| E.G. Slope (m/m) | 0.017622 | Area (m2) | | 2.54 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 8.49 | Top Width (m) | | 8.49 | |
| Vel Total (m/s) | 1.18 | Avg. Vel. (m/s) | | 1.18 | |
| Max Chl Dpth (m) | 1.05 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 22.5 | Conv. (m3/s) | | 22.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 10.11 | |
| Min Ch El (m) | 624.57 | Shear (N/m2) | | 43.46 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 51.09 | |
| Frctn Loss (m) | 0.77 | Cum Volume (1000 m3) | | 3.25 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 12.47 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -900.0

INPUT

Description:

| Station Elevation Data | | num= | 12 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|-------|--------|-------|--------|-------|--------|--|------|--|
| -78.31 | 630 | -14.39 | 625 | -8 | 624.66 | -8 | 623.86 | 0 | 623.86 | | | |
| .8 | 623.86 | .8 | 624.66 | 11.18 | 624.82 | 28.31 | 625 | 35.04 | 625.57 | | | |
| 64.01 | 629.02 | 99.08 | 630 | | | | | | | | | |

Manning's n Values

| num= | | 3 | | Sta | | n Val | |
|--------|--------|------|-------|-----|--|-------|--|
| -78.31 | -78.31 | .045 | 99.08 | | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -78.31 | 99.08 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.39 | Element | | | |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.29 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.70 | |
| E.G. Slope (m/m) | 0.021431 | Area (m2) | | 0.70 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.40 | Avg. Vel. (m/s) | | 1.40 | |
| Max Chl Dpth (m) | 0.43 | Hydr. Depth (m) | | 0.43 | |
| Conv. Total (m3/s) | 6.6 | Conv. (m3/s) | | 6.6 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.47 | |
| Min Ch El (m) | 623.86 | Shear (N/m2) | | 59.19 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 82.73 | |
| Frctn Loss (m) | 0.53 | Cum Volume (1000 m3) | | 0.96 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 2.97 | |

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REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.90 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.87 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 624.57 | Flow Area (m2) | | 4.08 | |
| E.G. Slope (m/m) | 0.013704 | Area (m2) | | 4.08 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 25.74 | Top Width (m) | | 25.74 | |
| Vel Total (m/s) | 0.73 | Avg. Vel. (m/s) | | 0.73 | |
| Max Chl Dpth (m) | 1.01 | Hydr. Depth (m) | | 0.16 | |
| Conv. Total (m3/s) | 25.5 | Conv. (m3/s) | | 25.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 27.35 | |
| Min Ch El (m) | 623.86 | Shear (N/m2) | | 20.06 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 14.68 | |
| Frctn Loss (m) | 0.61 | Cum Volume (1000 m3) | | 3.08 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 11.61 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -950.0

INPUT

Description:

| Station | Elevation | Data | num= | 11 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|-------|--------|--------|-----|--------|--------|--------|-----|------|-----|------|
| -95.93 | 630 | -17.76 | | 625 | -8 | 623.94 | -8 | 623.14 | 0 | 623.14 | | | | |
| .8 | 623.14 | .8 | 623.94 | 11.13 | 624.62 | 21.8 | 625 | 44.1 | 626.82 | | | | | |
| 75 | 630 | | | | | | | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-----|-------|
| -95.93 | | -95.93 | .045 | 75 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -95.93 | 75 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 623.86 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.81 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.08 | |
| E.G. Slope (m/m) | 0.006282 | Area (m2) | | 1.08 | |
| Q Total (m3/s) | 0.97 | Flow (m3/s) | | 0.97 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 0.90 | Avg. Vel. (m/s) | | 0.90 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.67 | |
| Conv. Total (m3/s) | 12.3 | Conv. (m3/s) | | 12.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.95 | |
| Min Ch El (m) | 623.14 | Shear (N/m2) | | 22.54 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 20.31 | |
| Frctn Loss (m) | 0.51 | Cum Volume (1000 m3) | | 0.91 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 2.89 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.29 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.24 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.21 | |
| E.G. Slope (m/m) | 0.010991 | Area (m2) | | 3.21 | |
| Q Total (m3/s) | 2.99 | Flow (m3/s) | | 2.99 | |
| Top Width (m) | 11.09 | Top Width (m) | | 11.09 | |
| Vel Total (m/s) | 0.93 | Avg. Vel. (m/s) | | 0.93 | |
| Max Chl Dpth (m) | 1.10 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 28.5 | Conv. (m3/s) | | 28.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 12.71 | |
| Min Ch El (m) | 623.14 | Shear (N/m2) | | 27.23 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 25.35 | |
| Frctn Loss (m) | 0.56 | Cum Volume (1000 m3) | | 2.90 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 10.69 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1000.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|--------|-------|--------|-------|--------|------|--------|------|-----|------|-----|------|
| -23.63 | 625 | -8 | 623.22 | -8 | 622.42 | 0 | 622.42 | .8 | 622.42 | | | | | |
| .8 | 623.22 | 17.08 | 624.24 | 39.77 | 625 | 84.53 | 630 | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -23.63 | | -23.63 | .045 | 84.53 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -23.63 | 84.53 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 623.34 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.27 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.40 | |
| E.G. Slope (m/m) | 0.014398 | Area (m2) | | 1.40 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 3.08 | Top Width (m) | | 3.08 | |
| Vel Total (m/s) | 1.19 | Avg. Vel. (m/s) | | 1.19 | |
| Max Chl Dpth (m) | 0.85 | Hydr. Depth (m) | | 0.45 | |
| Conv. Total (m3/s) | 13.9 | Conv. (m3/s) | | 13.9 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 4.69 | |
| Min Ch El (m) | 622.42 | Shear (N/m2) | | 42.20 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 50.30 | |
| Frctn Loss (m) | 0.70 | Cum Volume (1000 m3) | | 0.85 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 2.77 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 623.72 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.66 | Reach Len. (m) | 50.00 | | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 4.82 | |
| E.G. Slope (m/m) | 0.011385 | Area (m2) | | 4.82 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 14.36 | Top Width (m) | | 14.36 | |
| Vel Total (m/s) | 1.07 | Avg. Vel. (m/s) | | 1.07 | |
| Max Chl Dpth (m) | 1.24 | Hydr. Depth (m) | | 0.34 | |
| Conv. Total (m3/s) | 48.1 | Conv. (m3/s) | | 48.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 15.99 | |
| Min Ch El (m) | 622.42 | Shear (N/m2) | | 33.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 35.84 | |
| Frctn Loss (m) | 0.72 | Cum Volume (1000 m3) | | 2.70 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 10.06 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1050.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|------|--------|-------|--------|-------|--------|------|--------|------|
| -25.84 | 625 | --.8 | 622.51 | --.8 | 621.71 | 0 | 621.71 | .8 | 621.71 | |
| .8 | 622.51 | 8.54 | 623.07 | 37.09 | 623.87 | 59.97 | 625 | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-------|-------|-----|-------|
| -25.84 | | -25.84 | .045 | 59.97 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -25.84 | 59.97 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 622.64 | Element | | | |
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 622.57 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.42 | |
| E.G. Slope (m/m) | 0.013596 | Area (m2) | | 1.42 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 3.03 | Top Width (m) | | 3.03 | |
| Vel Total (m/s) | 1.18 | Avg. Vel. (m/s) | | 1.18 | |
| Max Chl Dpth (m) | 0.86 | Hydr. Depth (m) | | 0.47 | |
| Conv. Total (m3/s) | 14.3 | Conv. (m3/s) | | 14.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 4.63 | |
| Min Ch El (m) | 621.71 | Shear (N/m2) | | 40.83 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 48.07 | |
| Frctn Loss (m) | 0.67 | Cum Volume (1000 m3) | | 0.78 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 2.62 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 623.00 | Element | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 622.90 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.76 | |
| E.G. Slope (m/m) | 0.018939 | Area (m2) | | 3.76 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 11.01 | Top Width (m) | | 11.01 | |
| Vel Total (m/s) | 1.36 | Avg. Vel. (m/s) | | 1.36 | |
| Max Chl Dpth (m) | 1.19 | Hydr. Depth (m) | | 0.34 | |
| Conv. Total (m3/s) | 37.3 | Conv. (m3/s) | | 37.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 12.64 | |
| Min Ch El (m) | 621.71 | Shear (N/m2) | | 55.30 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 75.40 | |
| Frctn Loss (m) | 0.82 | Cum Volume (1000 m3) | | 2.49 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 9.42 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1100.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|--------|-------|--------|------|--------|------|--------|------|
| -23.51 | 623.2 | --.8 | 621.79 | --.8 | 620.99 | 0 | 620.99 | .8 | 620.99 | |
| .8 | 621.79 | 28.89 | 622.37 | 74.44 | 625 | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-------|-------|-----|-------|
| -23.51 | | -23.51 | .045 | 74.44 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -23.51 | 74.44 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 621.96 | Element | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.92 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.08 | |
| E.G. Slope (m/m) | 0.013383 | Area (m2) | | 2.08 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 10.27 | Top Width (m) | | 10.27 | |
| Vel Total (m/s) | 0.80 | Avg. Vel. (m/s) | | 0.80 | |
| Max Chl Dpth (m) | 0.93 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 14.4 | Conv. (m3/s) | | 14.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 11.87 | |
| Min Ch El (m) | 620.99 | Shear (N/m2) | | 22.96 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 18.46 | |
| Frctn Loss (m) | 0.72 | Cum Volume (1000 m3) | | 0.70 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 2.29 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 622.17 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 622.12 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 622.02 | Flow Area (m2) | | 5.33 | |
| E.G. Slope (m/m) | 0.014401 | Area (m2) | | 5.33 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 22.91 | Top Width (m) | | 22.91 | |
| Vel Total (m/s) | 0.96 | Avg. Vel. (m/s) | | 0.96 | |
| Max Chl Dpth (m) | 1.13 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 42.8 | Conv. (m3/s) | | 42.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 24.52 | |
| Min Ch El (m) | 620.99 | Shear (N/m2) | | 30.67 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 29.56 | |
| Frctn Loss (m) | 0.69 | Cum Volume (1000 m3) | | 2.26 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 8.57 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1150.0

INPUT

Description:

| Station | Elevation | Data | num= | 8 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|--------|-------|--------|------|--------|------|--------|------|-----|------|
| -70.11 | 624 | --.8 | 621.08 | --.8 | 620.28 | 0 | 620.28 | .8 | 620.28 | | | |
| .8 | 621.08 | 32.36 | 622 | 91.18 | 623.11 | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -70.11 | | -70.11 | .045 | 91.18 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -70.11 | 91.18 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 621.24 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.19 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.84 | |
| E.G. Slope (m/m) | 0.015615 | Area (m2) | | 1.84 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 8.19 | Top Width (m) | | 8.19 | |
| Vel Total (m/s) | 0.91 | Avg. Vel. (m/s) | | 0.91 | |
| Max Chl Dpth (m) | 0.91 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 13.4 | Conv. (m3/s) | | 13.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 9.79 | |
| Min Ch El (m) | 620.28 | Shear (N/m2) | | 28.71 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 26.11 | |
| Frctn Loss (m) | 1.10 | Cum Volume (1000 m3) | | 0.60 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 1.82 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 621.48 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.43 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 621.32 | Flow Area (m2) | | 5.36 | |
| E.G. Slope (m/m) | 0.013275 | Area (m2) | | 5.36 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 21.82 | Top Width (m) | | 21.82 | |
| Vel Total (m/s) | 0.96 | Avg. Vel. (m/s) | | 0.96 | |
| Max Chl Dpth (m) | 1.15 | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 44.5 | Conv. (m3/s) | | 44.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 23.43 | |
| Min Ch El (m) | 620.28 | Shear (N/m2) | | 29.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 28.51 | |
| Frctn Loss (m) | 0.89 | Cum Volume (1000 m3) | | 1.99 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 7.46 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1200.0

INPUT

Description:

| Station | Elevation | Data | num= | 9 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|-------|-------|-------|-------|--------|------|-------|------|-----|------|
| -92.76 | 623.63 | --.8 | 620.2 | --.8 | 619.4 | 0 | 619.4 | .8 | 619.4 | | | |
| .8 | 620.2 | 20.48 | 621 | 28.58 | 622 | 99.73 | 623.67 | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -92.76 | | -92.76 | .045 | 99.73 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -92.76 | 99.73 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 620.13 | Element | | | |
| Vel Head (m) | 0.19 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.95 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 619.88 | Flow Area (m2) | | 0.88 | |
| E.G. Slope (m/m) | 0.033019 | Area (m2) | | 0.88 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.91 | Avg. Vel. (m/s) | | 1.91 | |
| Max Chl Dpth (m) | 0.55 | Hydr. Depth (m) | | 0.55 | |
| Conv. Total (m3/s) | 9.2 | Conv. (m3/s) | | 9.2 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.69 | |
| Min Ch El (m) | 619.40 | Shear (N/m2) | | 105.19 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 200.72 | |
| Frctn Loss (m) | 1.02 | Cum Volume (1000 m3) | | 0.53 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 1.58 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 620.58 | Element | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.50 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 620.45 | Flow Area (m2) | | 4.03 | |
| E.G. Slope (m/m) | 0.025051 | Area (m2) | | 4.03 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 16.89 | Top Width (m) | | 16.89 | |
| Vel Total (m/s) | 1.27 | Avg. Vel. (m/s) | | 1.27 | |
| Max Chl Dpth (m) | 1.10 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 32.4 | Conv. (m3/s) | | 32.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 18.50 | |
| Min Ch El (m) | 619.40 | Shear (N/m2) | | 53.51 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 68.14 | |
| Frctn Loss (m) | 1.00 | Cum Volume (1000 m3) | | 1.76 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 6.49 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1250.0

INPUT

Description:

| Station Elevation Data | | num= | 8 | |
|------------------------|--------|-------|--------|-----------|
| Sta | Elev | Sta | Elev | Sta Elev |
| -94.52 | 625.62 | -8 | 619.24 | 0 618.24 |
| .8 | 619.24 | 46.45 | 620 | .8 618.24 |
| | | | 87.51 | 622.78 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -94.52 | | -94.52 | .045 | 87.51 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -94.52 | 87.51 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 619.09 | Element | | | |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 618.99 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.20 | |
| E.G. Slope (m/m) | 0.013811 | Area (m2) | | 1.20 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.39 | Avg. Vel. (m/s) | | 1.39 | |
| Max Chl Dpth (m) | 0.75 | Hydr. Depth (m) | | 0.75 | |
| Conv. Total (m3/s) | 14.2 | Conv. (m3/s) | | 14.2 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 3.10 | |
| Min Ch El (m) | 618.24 | Shear (N/m2) | | 52.49 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 72.88 | |
| Frctn Loss (m) | 0.82 | Cum Volume (1000 m3) | | 0.48 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.50 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 619.58 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.53 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 619.44 | Flow Area (m2) | | 5.20 | |
| E.G. Slope (m/m) | 0.016215 | Area (m2) | | 5.20 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 23.26 | Top Width (m) | | 23.26 | |
| Vel Total (m/s) | 0.99 | Avg. Vel. (m/s) | | 0.99 | |
| Max Chl Dpth (m) | 1.29 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 40.3 | Conv. (m3/s) | | 40.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 25.27 | |
| Min Ch El (m) | 618.24 | Shear (N/m2) | | 32.73 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 32.29 | |
| Frctn Loss (m) | 0.82 | Cum Volume (1000 m3) | | 1.53 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 5.48 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1300.0

INPUT

Description:

| Station Elevation Data | | num= | 7 | |
|------------------------|--------|-------|--------|-----------|
| Sta | Elev | Sta | Elev | Sta Elev |
| -27.93 | 621 | -8 | 618.28 | 0 617.48 |
| .8 | 618.28 | 30.46 | 620 | .8 617.48 |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -27.93 | | -27.93 | .045 | 30.46 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -27.93 | 30.46 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 618.27 | Element | | | |
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 618.14 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.06 | |
| E.G. Slope (m/m) | 0.019699 | Area (m2) | | 1.06 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.58 | Avg. Vel. (m/s) | | 1.58 | |
| Max Chl Dpth (m) | 0.66 | Hydr. Depth (m) | | 0.66 | |
| Conv. Total (m3/s) | 11.9 | Conv. (m3/s) | | 11.9 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.92 | |
| Min Ch El (m) | 617.48 | Shear (N/m2) | | 69.83 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 110.52 | |
| Frctn Loss (m) | 0.95 | Cum Volume (1000 m3) | | 0.42 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.42 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 618.76 | Element | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 618.68 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 4.09 | |
| E.G. Slope (m/m) | 0.016648 | Area (m2) | | 4.09 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 12.46 | Top Width (m) | | 12.46 | |
| Vel Total (m/s) | 1.26 | Avg. Vel. (m/s) | | 1.26 | |
| Max Chl Dpth (m) | 1.20 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 39.8 | Conv. (m3/s) | | 39.8 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 14.09 | |
| Min Ch El (m) | 617.48 | Shear (N/m2) | | 47.33 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 59.45 | |
| Frctn Loss (m) | 0.91 | Cum Volume (1000 m3) | | 1.29 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 4.59 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1350.0

INPUT

Description:

| Station Elevation Data | | num= | 7 | | | | | | | | |
|------------------------|--------|------|--------|-----|--------|-----|--------|-----|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -64.69 | 626.94 | -8 | 617.32 | -8 | 616.52 | 0 | 616.52 | .8 | 616.52 | | |
| .8 | 617.32 | 28.6 | 620 | | | | | | | | |

| Manning's n Values | | num= | 3 | | | | |
|--------------------|-------|--------|-------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -64.69 | | -64.69 | .045 | 28.6 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -64.69 | 28.6 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 617.32 | Element | | | |
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 617.19 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.08 | |
| E.G. Slope (m/m) | 0.018491 | Area (m2) | | 1.08 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.55 | Avg. Vel. (m/s) | | 1.55 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.67 | |
| Conv. Total (m3/s) | 12.3 | Conv. (m3/s) | | 12.3 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.95 | |
| Min Ch El (m) | 616.52 | Shear (N/m2) | | 66.38 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 102.66 | |
| Frctn Loss (m) | 0.98 | Cum Volume (1000 m3) | | 0.37 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.34 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 617.85 | Element | | | |
| Vel Head (m) | 0.12 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 617.73 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 617.64 | Flow Area (m2) | | 3.40 | |
| E.G. Slope (m/m) | 0.020147 | Area (m2) | | 3.40 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 8.65 | Top Width (m) | | 8.65 | |
| Vel Total (m/s) | 1.51 | Avg. Vel. (m/s) | | 1.51 | |
| Max Chl Dpth (m) | 1.21 | Hydr. Depth (m) | | 0.39 | |
| Conv. Total (m3/s) | 36.2 | Conv. (m3/s) | | 36.2 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 10.30 | |
| Min Ch El (m) | 616.52 | Shear (N/m2) | | 65.29 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 98.43 | |
| Frctn Loss (m) | 0.97 | Cum Volume (1000 m3) | | 1.11 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 4.06 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1400.0

INPUT

Description:

| Station Elevation Data | | num= | 8 | | | | | | | | |
|------------------------|--------|------|--------|-------|--------|-----|--------|-----|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -52.14 | 628.03 | -8 | 616.36 | -8 | 615.56 | 0 | 615.56 | .8 | 615.56 | | |
| .8 | 616.36 | 9.2 | 616.92 | 20.31 | 618.4 | | | | | | |

| Manning's n Values | | num= | 3 | | | | |
|--------------------|-------|--------|-------|-------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -52.14 | | -52.14 | .045 | 20.31 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -52.14 | 20.31 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 616.34 | Element | | | |
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 616.21 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.03 | |
| E.G. Slope (m/m) | 0.020876 | Area (m2) | | 1.03 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.62 | Avg. Vel. (m/s) | | 1.62 | |
| Max Chl Dpth (m) | 0.65 | Hydr. Depth (m) | | 0.65 | |
| Conv. Total (m3/s) | 11.6 | Conv. (m3/s) | | 11.6 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.89 | |
| Min Ch El (m) | 615.56 | Shear (N/m2) | | 73.14 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 118.24 | |
| Frctn Loss (m) | 1.13 | Cum Volume (1000 m3) | | 0.31 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.26 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 616.88 | Element | | | |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 616.78 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 616.67 | Flow Area (m2) | | 3.62 | |
| E.G. Slope (m/m) | 0.018653 | Area (m2) | | 3.62 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 9.65 | Top Width (m) | | 9.65 | |
| Vel Total (m/s) | 1.42 | Avg. Vel. (m/s) | | 1.42 | |
| Max Chl Dpth (m) | 1.22 | Hydr. Depth (m) | | 0.37 | |
| Conv. Total (m3/s) | 37.6 | Conv. (m3/s) | | 37.6 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 11.32 | |
| Min Ch El (m) | 615.56 | Shear (N/m2) | | 58.48 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 82.98 | |
| Frctn Loss (m) | 1.05 | Cum Volume (1000 m3) | | 0.93 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 3.61 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1450.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|------|--------|------|--------|------|--------|------|--------|------|-----|------|
| -22.76 | 629.16 | --.8 | 615.25 | --.8 | 614.45 | 0 | 614.45 | .8 | 614.45 | | | |
| .8 | 615.25 | 8.03 | 616 | | | | | | | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|------|-------|
| -22.76 | | -22.76 | .045 | 8.03 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -22.76 | 8.03 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 615.21 | Element | | | |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 615.06 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 0.98 | |
| E.G. Slope (m/m) | 0.024467 | Area (m2) | | 0.98 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.71 | Avg. Vel. (m/s) | | 1.71 | |
| Max Chl Dpth (m) | 0.61 | Hydr. Depth (m) | | 0.61 | |
| Conv. Total (m3/s) | 10.7 | Conv. (m3/s) | | 10.7 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.82 | |
| Min Ch El (m) | 614.45 | Shear (N/m2) | | 82.99 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 142.15 | |
| Frctn Loss (m) | 1.35 | Cum Volume (1000 m3) | | 0.26 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 1.18 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 615.83 | Element | | | |
| Vel Head (m) | 0.15 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 615.67 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 615.58 | Flow Area (m2) | | 2.94 | |
| E.G. Slope (m/m) | 0.023595 | Area (m2) | | 2.94 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 6.31 | Top Width (m) | | 6.31 | |
| Vel Total (m/s) | 1.74 | Avg. Vel. (m/s) | | 1.74 | |
| Max Chl Dpth (m) | 1.22 | Hydr. Depth (m) | | 0.47 | |
| Conv. Total (m3/s) | 33.4 | Conv. (m3/s) | | 33.4 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 8.06 | |
| Min Ch El (m) | 614.45 | Shear (N/m2) | | 84.50 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 147.38 | |
| Frctn Loss (m) | 1.29 | Cum Volume (1000 m3) | | 0.77 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 3.21 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1500.0

INPUT

Description:

| Station | Elevation | Data | num= | 10 | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|--------|--------|-------|--------|------|--------|-------|--------|------|-----|------|
| -68.4 | 614.87 | -62.75 | 615 | -2.57 | 615 | -.8 | 613.92 | -.8 | 613.11 | | | |
| 0 | 613.11 | .8 | 613.11 | .8 | 613.91 | 6.89 | 615 | 47.79 | 615 | | | |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta | n Val |
|-------|-------|-------|-------|-------|-------|
| -68.4 | | -68.4 | .045 | 47.79 | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|-------|-------|----------|------|---------|-------|-------|--------|--------|
| | -68.4 | 47.79 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 613.85 | Element | | | |
| Vel Head (m) | 0.17 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 613.67 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 613.59 | Flow Area (m2) | | 0.90 | |
| E.G. Slope (m/m) | 0.030179 | Area (m2) | | 0.90 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.85 | Avg. Vel. (m/s) | | 1.85 | |
| Max Chl Dpth (m) | 0.56 | Hydr. Depth (m) | | 0.56 | |
| Conv. Total (m3/s) | 9.6 | Conv. (m3/s) | | 9.6 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.73 | |
| Min Ch El (m) | 613.11 | Shear (N/m2) | | 97.99 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 181.05 | |
| Frctn Loss (m) | 1.30 | Cum Volume (1000 m3) | | 0.22 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 1.10 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 614.53 | Element | | | |
| Vel Head (m) | 0.21 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 614.32 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 614.24 | Flow Area (m2) | | 2.52 | |
| E.G. Slope (m/m) | 0.028238 | Area (m2) | | 2.52 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 4.53 | Top Width (m) | | 4.53 | |
| Vel Total (m/s) | 2.03 | Avg. Vel. (m/s) | | 2.03 | |
| Max Chl Dpth (m) | 1.21 | Hydr. Depth (m) | | 0.56 | |
| Conv. Total (m3/s) | 30.5 | Conv. (m3/s) | | 30.5 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 6.28 | |
| Min Ch El (m) | 613.11 | Shear (N/m2) | | 111.25 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 226.17 | |
| Frctn Loss (m) | 1.58 | Cum Volume (1000 m3) | | 0.63 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 2.94 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1550.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|--------|-----|--------|------|--------|------|--------|------|
| -32.08 | 613.49 | -.8 | 612.57 | -.8 | 611.77 | 0 | 611.77 | .8 | 611.77 | |
| .8 | 612.57 | 65.12 | 614.37 | | | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-------|-------|-----|-------|
| -32.08 | | -32.08 | .045 | 65.12 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -32.08 | 65.12 | | 50 | 50 | 50 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 612.54 | Element | | | |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 612.40 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 1.00 | |
| E.G. Slope (m/m) | 0.022786 | Area (m2) | | 1.00 | |
| Q Total (m3/s) | 1.67 | Flow (m3/s) | | 1.67 | |
| Top Width (m) | 1.60 | Top Width (m) | | 1.60 | |
| Vel Total (m/s) | 1.67 | Avg. Vel. (m/s) | | 1.67 | |
| Max Chl Dpth (m) | 0.63 | Hydr. Depth (m) | | 0.63 | |
| Conv. Total (m3/s) | 11.1 | Conv. (m3/s) | | 11.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 2.85 | |
| Min Ch El (m) | 611.77 | Shear (N/m2) | | 78.43 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 130.90 | |
| Frctn Loss (m) | 1.08 | Cum Volume (1000 m3) | | 0.17 | |
| C & E Loss (m) | 0.03 | Cum SA (1000 m2) | | 1.02 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 612.91 | Element | | | |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 612.81 | Reach Len. (m) | 50.00 | 50.00 | 50.00 |
| Crit W.S. (m) | 612.81 | Flow Area (m2) | | 3.76 | |
| E.G. Slope (m/m) | 0.035772 | Area (m2) | | 3.76 | |
| Q Total (m3/s) | 5.13 | Flow (m3/s) | | 5.13 | |
| Top Width (m) | 18.65 | Top Width (m) | | 18.65 | |
| Vel Total (m/s) | 1.37 | Avg. Vel. (m/s) | | 1.37 | |
| Max Chl Dpth (m) | 1.04 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 27.1 | Conv. (m3/s) | | 27.1 | |
| Length Wtd. (m) | 50.00 | Wetted Per. (m) | | 20.26 | |
| Min Ch El (m) | 611.77 | Shear (N/m2) | | 65.04 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 88.88 | |
| Frctn Loss (m) | 1.12 | Cum Volume (1000 m3) | | 0.47 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 2.36 | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1600.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|------|--------|-----|--------|------|--------|------|--------|------|
| -84.04 | 611.99 | -.8 | 611.23 | -.8 | 610.43 | 0 | 610.43 | .8 | 610.43 | |
| .8 | 611.23 | 60 | 614 | | | | | | | |

| Manning's n | Values | num= | 3 | Sta | n Val | Sta | n Val |
|-------------|--------|--------|------|-----|-------|-----|-------|
| -84.04 | | -84.04 | .045 | 60 | | | |

| Bank Sta: | Left | Right | Lengths: | Left | Channel | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|----------|------|---------|-------|-------|--------|--------|
| | -84.04 | 60 | | 21 | 21 | 21 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 611.42 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 611.39 | Reach Len. (m) | 21.00 | 21.00 | 21.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 3.18 | |
| E.G. Slope (m/m) | 0.020992 | Area (m2) | | 3.18 | |
| Q Total (m3/s) | 2.67 | Flow (m3/s) | | 2.67 | |
| Top Width (m) | 22.38 | Top Width (m) | | 22.38 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | 0.84 | |
| Max Chl Dpth (m) | 0.96 | Hydr. Depth (m) | | 0.14 | |
| Conv. Total (m3/s) | 18.4 | Conv. (m3/s) | | 18.4 | |
| Length Wtd. (m) | 21.00 | Wetted Per. (m) | | 23.99 | |
| Min Ch El (m) | 610.43 | Shear (N/m2) | | 27.32 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 22.89 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | 0.07 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.42 | |

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ANEXO VII

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 611.60 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 611.55 | Reach Len. (m) | 21.00 | 21.00 | 21.00 |
| Crit W.S. (m) | 611.49 | Flow Area (m2) | | 8.47 | |
| E.G. Slope (m/m) | 0.017611 | Area (m2) | | 8.47 | |
| Q Total (m3/s) | 8.20 | Flow (m3/s) | | 8.20 | |
| Top Width (m) | 43.41 | Top Width (m) | | 43.41 | |
| Vel Total (m/s) | 0.97 | Avg. Vel. (m/s) | | 0.97 | |
| Max Chl Dpth (m) | 1.12 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 61.8 | Conv. (m3/s) | | 61.8 | |
| Length Wtd. (m) | 21.00 | Wetted Per. (m) | | 45.02 | |
| Min Ch El (m) | 610.43 | Shear (N/m2) | | 32.48 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 31.45 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 0.17 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 0.80 | |

CROSS SECTION OUTPUT Profile #T= 500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 611.22 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 611.16 | Reach Len. (m) | | | |
| Crit W.S. (m) | 611.09 | Flow Area (m2) | | 7.59 | |
| E.G. Slope (m/m) | 0.018010 | Area (m2) | | 7.59 | |
| Q Total (m3/s) | 8.20 | Flow (m3/s) | | 8.20 | |
| Top Width (m) | 33.22 | Top Width (m) | | 33.22 | |
| Vel Total (m/s) | 1.08 | Avg. Vel. (m/s) | | 1.08 | |
| Max Chl Dpth (m) | 1.16 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 61.1 | Conv. (m3/s) | | 61.1 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 34.83 | |
| Min Ch El (m) | 610.00 | Shear (N/m2) | | 38.49 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 41.56 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

CROSS SECTION

RIVER: Arroyo de los Ca
REACH: Completo RS: -1621.0

INPUT

Description:

| Station | Elevation | Data | num= | 7 | Sta | Elev | Sta | Elev | Sta | Elev |
|---------|-----------|-------|--------|-----|-----|------|-----|------|-----|------|
| -84.95 | 612 | -.8 | 610.8 | -.8 | 610 | 0 | 610 | .8 | 610 | |
| .8 | 610.8 | 15.18 | 611.64 | | | | | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|--------|-------|--------|-------|-------|-------|
| -84.95 | | -84.95 | .045 | 15.18 | |

| Bank Sta: | Left | Right | Coeff | Contr. | Expan. |
|-----------|--------|-------|-------|--------|--------|
| | -84.95 | 15.18 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T= 5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 611.02 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 610.98 | Reach Len. (m) | | | |
| Crit W.S. (m) | 610.66 | Flow Area (m2) | | 3.05 | |
| E.G. Slope (m/m) | 0.018007 | Area (m2) | | 3.05 | |
| Q Total (m3/s) | 2.67 | Flow (m3/s) | | 2.67 | |
| Top Width (m) | 17.66 | Top Width (m) | | 17.66 | |
| Vel Total (m/s) | 0.87 | Avg. Vel. (m/s) | | 0.87 | |
| Max Chl Dpth (m) | 0.98 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 19.9 | Conv. (m3/s) | | 19.9 | |
| Length Wtd. (m) | | Wetted Per. (m) | | 19.27 | |
| Min Ch El (m) | 610.00 | Shear (N/m2) | | 27.98 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.44 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | |

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ANEXO VII

SUMMARY OF MANNING'S N VALUES

River: Arroyo de los Ca

| Reach | River Sta. | n1 | n2 | n3 |
|----------|------------|----|------|----|
| Completo | 0.0 | | .045 | |
| Completo | -50.0 | | .045 | |
| Completo | -100.0 | | .045 | |
| Completo | -150.0 | | .045 | |
| Completo | -200.0 | | .045 | |
| Completo | -250.0 | | .045 | |
| Completo | -300.0 | | .045 | |
| Completo | -350.0 | | .045 | |
| Completo | -400.0 | | .045 | |
| Completo | -450.0 | | .045 | |
| Completo | -500.0 | | .045 | |
| Completo | -550.0 | | .045 | |
| Completo | -600.0 | | .045 | |
| Completo | -650.0 | | .045 | |
| Completo | -700.0 | | .045 | |
| Completo | -750.0 | | .045 | |
| Completo | -800.0 | | .045 | |
| Completo | -850.0 | | .045 | |
| Completo | -900.0 | | .045 | |
| Completo | -950.0 | | .045 | |
| Completo | -1000.0 | | .045 | |
| Completo | -1050.0 | | .045 | |
| Completo | -1100.0 | | .045 | |
| Completo | -1150.0 | | .045 | |
| Completo | -1200.0 | | .045 | |
| Completo | -1250.0 | | .045 | |
| Completo | -1300.0 | | .045 | |
| Completo | -1350.0 | | .045 | |
| Completo | -1400.0 | | .045 | |
| Completo | -1450.0 | | .045 | |
| Completo | -1500.0 | | .045 | |
| Completo | -1550.0 | | .045 | |
| Completo | -1600.0 | | .045 | |
| Completo | -1621.0 | | .045 | |

SUMMARY OF REACH LENGTHS

River: Arroyo de los Ca

| Reach | River Sta. | Left | Channel | Right |
|----------|------------|------|---------|-------|
| Completo | 0.0 | 50 | 50 | 50 |
| Completo | -50.0 | 50 | 50 | 50 |
| Completo | -100.0 | 50 | 50 | 50 |
| Completo | -150.0 | 50 | 50 | 50 |
| Completo | -200.0 | 50 | 50 | 50 |
| Completo | -250.0 | 50 | 50 | 50 |
| Completo | -300.0 | 50 | 50 | 50 |
| Completo | -350.0 | 50 | 50 | 50 |
| Completo | -400.0 | 50 | 50 | 50 |
| Completo | -450.0 | 50 | 50 | 50 |
| Completo | -500.0 | 50 | 50 | 50 |
| Completo | -550.0 | 50 | 50 | 50 |
| Completo | -600.0 | 50 | 50 | 50 |
| Completo | -650.0 | 50 | 50 | 50 |
| Completo | -700.0 | 50 | 50 | 50 |
| Completo | -750.0 | 50 | 50 | 50 |
| Completo | -800.0 | 50 | 50 | 50 |
| Completo | -850.0 | 50 | 50 | 50 |
| Completo | -900.0 | 50 | 50 | 50 |
| Completo | -950.0 | 50 | 50 | 50 |
| Completo | -1000.0 | 50 | 50 | 50 |
| Completo | -1050.0 | 50 | 50 | 50 |
| Completo | -1100.0 | 50 | 50 | 50 |
| Completo | -1150.0 | 50 | 50 | 50 |
| Completo | -1200.0 | 50 | 50 | 50 |
| Completo | -1250.0 | 50 | 50 | 50 |
| Completo | -1300.0 | 50 | 50 | 50 |
| Completo | -1350.0 | 50 | 50 | 50 |
| Completo | -1400.0 | 50 | 50 | 50 |
| Completo | -1450.0 | 50 | 50 | 50 |
| Completo | -1500.0 | 50 | 50 | 50 |
| Completo | -1550.0 | 50 | 50 | 50 |
| Completo | -1600.0 | 21 | 21 | 21 |
| Completo | -1621.0 | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Arroyo de los Ca

| Reach | River Sta. | Contr. | Expan. |
|----------|------------|--------|--------|
| Completo | 0.0 | .1 | .3 |
| Completo | -50.0 | .1 | .3 |
| Completo | -100.0 | .1 | .3 |
| Completo | -150.0 | .1 | .3 |
| Completo | -200.0 | .1 | .3 |
| Completo | -250.0 | .1 | .3 |
| Completo | -300.0 | .1 | .3 |
| Completo | -350.0 | .1 | .3 |
| Completo | -400.0 | .1 | .3 |
| Completo | -450.0 | .1 | .3 |
| Completo | -500.0 | .1 | .3 |
| Completo | -550.0 | .1 | .3 |
| Completo | -600.0 | .1 | .3 |
| Completo | -650.0 | .1 | .3 |
| Completo | -700.0 | .1 | .3 |
| Completo | -750.0 | .1 | .3 |
| Completo | -800.0 | .1 | .3 |
| Completo | -850.0 | .1 | .3 |
| Completo | -900.0 | .1 | .3 |
| Completo | -950.0 | .1 | .3 |
| Completo | -1000.0 | .1 | .3 |
| Completo | -1050.0 | .1 | .3 |
| Completo | -1100.0 | .1 | .3 |
| Completo | -1150.0 | .1 | .3 |
| Completo | -1200.0 | .1 | .3 |
| Completo | -1250.0 | .1 | .3 |
| Completo | -1300.0 | .1 | .3 |
| Completo | -1350.0 | .1 | .3 |
| Completo | -1400.0 | .1 | .3 |
| Completo | -1450.0 | .1 | .3 |
| Completo | -1500.0 | .1 | .3 |
| Completo | -1550.0 | .1 | .3 |
| Completo | -1600.0 | .1 | .3 |
| Completo | -1621.0 | .1 | .3 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Completo | 0.0 | T= 5 años | 0.97 | 640.00 | 640.42 | 640.33 | 640.53 | 0.024155 | 1.46 | 0.67 | 1.60 | 0.72 |
| Completo | 0.0 | T= 500 años | 2.99 | 640.00 | 640.98 | 640.94 | 641.03 | 0.023300 | 1.00 | 2.98 | 16.88 | 0.76 |
| Completo | -50.0 | T= 5 años | 0.97 | 638.63 | 639.01 | 638.96 | 639.14 | 0.032068 | 1.61 | 0.60 | 1.60 | 0.83 |
| Completo | -50.0 | T= 500 años | 2.99 | 638.63 | 639.57 | 639.55 | 639.65 | 0.033479 | 1.29 | 2.31 | 11.35 | 0.91 |
| Completo | -100.0 | T= 5 años | 0.97 | 637.28 | 637.71 | 637.81 | 637.81 | 0.022423 | 1.42 | 0.68 | 1.60 | 0.69 |
| Completo | -100.0 | T= 500 años | 2.99 | 637.28 | 638.27 | 638.21 | 638.31 | 0.021442 | 0.94 | 3.17 | 18.77 | 0.73 |
| Completo | -150.0 | T= 5 años | 0.97 | 635.93 | 636.30 | 636.27 | 636.44 | 0.034682 | 1.65 | 0.59 | 1.60 | 0.87 |
| Completo | -150.0 | T= 500 años | 2.99 | 635.93 | 636.81 | 636.80 | 636.86 | 0.041106 | 1.04 | 2.88 | 24.53 | 0.96 |
| Completo | -200.0 | T= 5 años | 0.97 | 634.63 | 635.08 | 635.18 | 635.18 | 0.018918 | 1.34 | 0.73 | 1.60 | 0.63 |
| Completo | -200.0 | T= 500 años | 2.99 | 634.63 | 635.59 | 635.63 | 635.63 | 0.016427 | 0.83 | 3.60 | 21.23 | 0.64 |
| Completo | -250.0 | T= 5 años | 0.97 | 633.44 | 633.81 | 633.77 | 633.95 | 0.033003 | 1.62 | 0.60 | 1.60 | 0.85 |
| Completo | -250.0 | T= 500 años | 2.99 | 633.44 | 634.39 | 634.15 | 634.46 | 0.035766 | 1.18 | 2.53 | 15.42 | 0.93 |
| Completo | -300.0 | T= 5 años | 0.97 | 632.24 | 632.71 | 632.57 | 632.80 | 0.016719 | 1.28 | 0.76 | 1.60 | 0.59 |
| Completo | -300.0 | T= 500 años | 2.99 | 632.24 | 633.31 | 632.95 | 633.37 | 0.014372 | 1.06 | 2.83 | 9.73 | 0.62 |
| Completo | -350.0 | T= 5 años | 0.97 | 631.05 | 631.40 | 631.38 | 631.55 | 0.040789 | 1.75 | 0.56 | 1.60 | 0.94 |
| Completo | -350.0 | T= 500 años | 2.99 | 631.05 | 631.76 | 631.76 | 632.11 | 0.050961 | 2.62 | 1.14 | 1.60 | 0.99 |
| Completo | -400.0 | T= 5 años | 0.97 | 629.93 | 630.47 | 630.53 | 630.53 | 0.011640 | 1.13 | 0.86 | 1.60 | 0.49 |
| Completo | -400.0 | T= 500 años | 2.99 | 629.93 | 630.98 | 631.01 | 631.01 | 0.010665 | 0.80 | 3.74 | 16.57 | 0.54 |
| Completo | -450.0 | T= 5 años | 0.97 | 629.34 | 629.88 | 629.94 | 629.94 | 0.011564 | 1.12 | 0.86 | 1.60 | 0.49 |
| Completo | -450.0 | T= 500 años | 2.99 | 629.34 | 630.42 | 630.46 | 630.46 | 0.011430 | 0.89 | 3.35 | 12.98 | 0.56 |
| Completo | -500.0 | T= 5 años | 0.97 | 628.76 | 629.30 | 629.36 | 629.36 | 0.011808 | 1.13 | 0.86 | 1.60 | 0.49 |
| Completo | -500.0 | T= 500 años | 2.99 | 628.76 | 629.83 | 629.87 | 629.87 | 0.012256 | 0.88 | 3.39 | 14.18 | 0.58 |
| Completo | -550.0 | T= 5 años | 0.97 | 628.17 | 628.71 | 628.77 | 628.77 | 0.011831 | 1.13 | 0.86 | 1.60 | 0.49 |
| Completo | -550.0 | T= 500 años | 2.99 | 628.17 | 629.24 | 629.28 | 629.28 | 0.011540 | 0.85 | 3.50 | 14.79 | 0.56 |
| Completo | -600.0 | T= 5 años | 0.97 | 627.58 | 628.12 | 628.19 | 628.19 | 0.011806 | 1.13 | 0.86 | 1.60 | 0.49 |
| Completo | -600.0 | T= 500 años | 2.99 | 627.58 | 628.67 | 628.71 | 628.71 | 0.011373 | 0.88 | 3.41 | 13.53 | 0.56 |
| Completo | -650.0 | T= 5 años | 0.97 | 627.00 | 627.54 | 627.60 | 627.60 | 0.011658 | 1.13 | 0.86 | 1.60 | 0.49 |
| Completo | -650.0 | T= 500 años | 2.99 | 627.00 | 628.10 | 628.15 | 628.15 | 0.011074 | 0.94 | 3.19 | 10.93 | 0.55 |
| Completo | -700.0 | T= 5 años | 0.97 | 626.41 | 626.94 | 627.01 | 627.01 | 0.012221 | 1.15 | 0.85 | 1.60 | 0.50 |
| Completo | -700.0 | T= 500 años | 2.99 | 626.41 | 627.52 | 627.57 | 627.57 | 0.011951 | 1.03 | 2.90 | 8.88 | 0.57 |
| Completo | -750.0 | T= 5 años | 0.97 | 625.82 | 626.37 | 626.43 | 626.43 | 0.010824 | 1.10 | 0.89 | 1.60 | 0.47 |
| Completo | -750.0 | T= 500 años | 2.99 | 625.82 | 626.95 | 627.01 | 627.01 | 0.010611 | 1.06 | 2.81 | 7.25 | 0.54 |
| Completo | -800.0 | T= 5 años | 0.97 | 625.24 | 625.74 | 625.82 | 625.82 | 0.014198 | 1.21 | 0.80 | 1.60 | 0.54 |
| Completo | -800.0 | T= 500 años | 2.99 | 625.24 | 626.36 | 626.43 | 626.43 | 0.012797 | 1.18 | 2.53 | 6.20 | 0.59 |
| Completo | -850.0 | T= 5 años | 0.97 | 624.57 | 625.11 | 625.17 | 625.17 | 0.011740 | 1.13 | 0.86 | 1.60 | 0.49 |
| Completo | -850.0 | T= 500 años | 2.99 | 624.57 | 625.62 | 625.69 | 625.69 | 0.017622 | 1.18 | 2.54 | 8.49 | 0.69 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|----------|-----------|-------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Completo | -900.0 | T= 5 años | 0.97 | 623.86 | 624.29 | | 624.39 | 0.021431 | 1.40 | 0.70 | 1.60 | 0.68 |
| Completo | -900.0 | T= 500 años | 2.99 | 623.86 | 624.87 | 624.57 | 624.90 | 0.013704 | 0.73 | 4.08 | 25.74 | 0.59 |
| Completo | -950.0 | T= 5 años | 0.97 | 623.14 | 623.81 | | 623.86 | 0.006282 | 0.90 | 1.08 | 1.60 | 0.35 |
| Completo | -950.0 | T= 500 años | 2.99 | 623.14 | 624.24 | | 624.29 | 0.010991 | 0.93 | 3.21 | 11.09 | 0.55 |
| Completo | -1000.0 | T= 5 años | 1.67 | 622.42 | 623.27 | | 623.34 | 0.014398 | 1.19 | 1.40 | 3.08 | 0.56 |
| Completo | -1000.0 | T= 500 años | 5.13 | 622.42 | 623.66 | | 623.72 | 0.011385 | 1.07 | 4.82 | 14.36 | 0.59 |
| Completo | -1050.0 | T= 5 años | 1.67 | 621.71 | 622.57 | | 622.64 | 0.013596 | 1.18 | 1.42 | 3.03 | 0.55 |
| Completo | -1050.0 | T= 500 años | 5.13 | 621.71 | 622.90 | | 623.00 | 0.018939 | 1.36 | 3.76 | 11.01 | 0.74 |
| Completo | -1100.0 | T= 5 años | 1.67 | 620.99 | 621.92 | | 621.96 | 0.013383 | 0.80 | 2.08 | 10.27 | 0.57 |
| Completo | -1100.0 | T= 500 años | 5.13 | 620.99 | 622.12 | 622.02 | 622.17 | 0.014401 | 0.96 | 5.33 | 22.91 | 0.64 |
| Completo | -1150.0 | T= 5 años | 1.67 | 620.28 | 621.19 | | 621.24 | 0.015615 | 0.91 | 1.84 | 8.19 | 0.61 |
| Completo | -1150.0 | T= 500 años | 5.13 | 620.28 | 621.43 | 621.32 | 621.48 | 0.013275 | 0.96 | 5.36 | 21.82 | 0.62 |
| Completo | -1200.0 | T= 5 años | 1.67 | 619.40 | 619.95 | 619.88 | 620.13 | 0.033019 | 1.91 | 0.88 | 1.60 | 0.82 |
| Completo | -1200.0 | T= 500 años | 5.13 | 619.40 | 620.50 | 620.45 | 620.58 | 0.025051 | 1.27 | 4.03 | 16.89 | 0.83 |
| Completo | -1250.0 | T= 5 años | 1.67 | 618.24 | 618.99 | | 619.09 | 0.013811 | 1.39 | 1.20 | 1.60 | 0.51 |
| Completo | -1250.0 | T= 500 años | 5.13 | 618.24 | 619.53 | 619.44 | 619.58 | 0.016215 | 0.99 | 5.20 | 23.26 | 0.67 |
| Completo | -1300.0 | T= 5 años | 1.67 | 617.48 | 618.14 | | 618.27 | 0.019699 | 1.58 | 1.06 | 1.60 | 0.62 |
| Completo | -1300.0 | T= 500 años | 5.13 | 617.48 | 618.68 | | 618.76 | 0.016648 | 1.26 | 4.09 | 12.46 | 0.70 |
| Completo | -1350.0 | T= 5 años | 1.67 | 616.52 | 617.19 | | 617.32 | 0.018491 | 1.55 | 1.08 | 1.60 | 0.60 |
| Completo | -1350.0 | T= 500 años | 5.13 | 616.52 | 617.73 | 617.64 | 617.85 | 0.020147 | 1.51 | 3.40 | 8.65 | 0.77 |
| Completo | -1400.0 | T= 5 años | 1.67 | 615.56 | 616.21 | | 616.34 | 0.020876 | 1.62 | 1.03 | 1.60 | 0.64 |
| Completo | -1400.0 | T= 500 años | 5.13 | 615.56 | 616.78 | 616.67 | 616.88 | 0.018653 | 1.42 | 3.62 | 9.65 | 0.74 |
| Completo | -1450.0 | T= 5 años | 1.67 | 614.45 | 615.06 | | 615.21 | 0.024467 | 1.71 | 0.98 | 1.60 | 0.70 |
| Completo | -1450.0 | T= 500 años | 5.13 | 614.45 | 615.67 | 615.58 | 615.83 | 0.023595 | 1.74 | 2.94 | 6.31 | 0.82 |
| Completo | -1500.0 | T= 5 años | 1.67 | 613.11 | 613.67 | 613.59 | 613.85 | 0.030179 | 1.85 | 0.90 | 1.60 | 0.78 |
| Completo | -1500.0 | T= 500 años | 5.13 | 613.11 | 614.32 | 614.24 | 614.53 | 0.028238 | 2.03 | 2.52 | 4.53 | 0.87 |
| Completo | -1550.0 | T= 5 años | 1.67 | 611.77 | 612.40 | | 612.54 | 0.022786 | 1.67 | 1.00 | 1.60 | 0.67 |
| Completo | -1550.0 | T= 500 años | 5.13 | 611.77 | 612.81 | 612.81 | 612.91 | 0.035772 | 1.37 | 3.76 | 18.65 | 0.97 |
| Completo | -1600.0 | T= 5 años | 2.67 | 610.43 | 611.39 | | 611.42 | 0.020992 | 0.84 | 3.18 | 22.38 | 0.71 |
| Completo | -1600.0 | T= 500 años | 8.20 | 610.43 | 611.55 | 611.49 | 611.60 | 0.017611 | 0.97 | 8.47 | 43.41 | 0.70 |
| Completo | -1621.0 | T= 5 años | 2.67 | 610.00 | 610.98 | 610.66 | 611.02 | 0.018007 | 0.87 | 3.05 | 17.66 | 0.67 |
| Completo | -1621.0 | T= 500 años | 8.20 | 610.00 | 611.16 | 611.09 | 611.22 | 0.018010 | 1.08 | 7.59 | 33.22 | 0.72 |

**COMPARATIVA ENTRE LA SITUACIÓN ACTUAL
 Y LA SITUACIÓN FUTURA**

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|-------------------|------------------|------------------|------------------|----------------------|-------------------|------------------|------------------|------------------|-----------------------------|----------------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| 0 | T= 5 años | 1.30 | 640.00 | 640.48 | 1.60 | T= 5 años | 0.97 | 640.00 | 640.42 | 1.60 | -0.06 | 0.00 |
| 0 | T= 500 años | 8.06 | 640.00 | 641.11 | 27.50 | T= 500 años | 2.99 | 640.00 | 640.98 | 16.88 | -0.13 | -10.62 |
| -50 | T= 5 años | 1.30 | 638.63 | 639.13 | 1.60 | T= 5 años | 0.97 | 638.63 | 639.01 | 1.60 | -0.12 | 0.00 |
| -50 | T= 500 años | 8.06 | 638.63 | 639.79 | 24.29 | T= 500 años | 2.99 | 638.63 | 639.57 | 11.35 | -0.22 | -12.94 |
| -100 | T= 5 años | 1.30 | 637.28 | 637.76 | 1.60 | T= 5 años | 0.97 | 637.28 | 637.71 | 1.60 | -0.05 | 0.00 |
| -100 | T= 500 años | 8.06 | 637.28 | 638.37 | 24.67 | T= 500 años | 2.99 | 637.28 | 638.27 | 18.77 | -0.10 | -5.90 |
| -150 | T= 5 años | 1.30 | 635.93 | 636.73 | 4.71 | T= 5 años | 0.97 | 635.93 | 636.30 | 1.60 | -0.43 | -3.11 |
| -150 | T= 500 años | 8.06 | 635.93 | 636.95 | 29.39 | T= 500 años | 2.99 | 635.93 | 636.81 | 24.53 | -0.14 | -4.86 |
| -200 | T= 5 años | 1.30 | 634.63 | 635.18 | 1.60 | T= 5 años | 0.97 | 634.63 | 635.08 | 1.60 | -0.10 | 0.00 |
| -200 | T= 500 años | 8.06 | 634.63 | 635.69 | 27.26 | T= 500 años | 2.99 | 634.63 | 635.59 | 21.23 | -0.10 | -6.03 |
| -250 | T= 5 años | 1.30 | 633.44 | 633.91 | 1.60 | T= 5 años | 0.97 | 633.44 | 633.81 | 1.60 | -0.10 | 0.00 |
| -250 | T= 500 años | 8.06 | 633.44 | 634.59 | 34.48 | T= 500 años | 2.99 | 633.44 | 634.39 | 15.42 | -0.20 | -19.06 |
| -300 | T= 5 años | 1.30 | 632.24 | 632.81 | 1.60 | T= 5 años | 0.97 | 632.24 | 632.71 | 1.60 | -0.10 | 0.00 |
| -300 | T= 500 años | 8.06 | 632.24 | 633.51 | 15.48 | T= 500 años | 2.99 | 632.24 | 633.31 | 9.73 | -0.20 | -5.75 |
| -350 | T= 5 años | 1.30 | 631.05 | 631.49 | 1.60 | T= 5 años | 0.97 | 631.05 | 631.40 | 1.60 | -0.09 | 0.00 |
| -350 | T= 500 años | 8.06 | 631.05 | 632.10 | 22.81 | T= 500 años | 2.99 | 631.05 | 631.76 | 1.60 | -0.34 | -21.21 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -400 | T= 5 años | 1.30 | 629.93 | 630.60 | 1.60 | T= 5 años | 0.97 | 629.93 | 630.47 | 1.60 | -0.13 | 0.00 |
| -400 | T= 500 años | 8.06 | 629.93 | 631.20 | 25.92 | T= 500 años | 2.99 | 629.93 | 630.98 | 16.57 | -0.22 | -9.35 |
| -450 | T= 5 años | 1.30 | 629.34 | 630.01 | 1.60 | T= 5 años | 0.97 | 629.34 | 629.88 | 1.60 | -0.13 | 0.00 |
| -450 | T= 500 años | 8.06 | 629.34 | 630.64 | 21.71 | T= 500 años | 2.99 | 629.34 | 630.42 | 12.98 | -0.22 | -8.73 |
| -500 | T= 5 años | 1.30 | 628.76 | 629.43 | 1.60 | T= 5 años | 0.97 | 628.76 | 629.30 | 1.60 | -0.13 | 0.00 |
| -500 | T= 500 años | 8.06 | 628.76 | 630.04 | 22.69 | T= 500 años | 2.99 | 628.76 | 629.83 | 14.18 | -0.21 | -8.51 |
| -550 | T= 5 años | 1.30 | 628.17 | 628.84 | 1.60 | T= 5 años | 0.97 | 628.17 | 628.71 | 1.60 | -0.13 | 0.00 |
| -550 | T= 500 años | 8.06 | 628.17 | 629.45 | 25.16 | T= 500 años | 2.99 | 628.17 | 629.24 | 14.79 | -0.21 | -10.37 |
| -600 | T= 5 años | 1.30 | 627.58 | 628.25 | 1.60 | T= 5 años | 0.97 | 627.58 | 628.12 | 1.60 | -0.13 | 0.00 |
| -600 | T= 500 años | 8.06 | 627.58 | 628.91 | 23.60 | T= 500 años | 2.99 | 627.58 | 628.67 | 13.53 | -0.24 | -10.07 |
| -650 | T= 5 años | 1.30 | 627.00 | 627.67 | 1.60 | T= 5 años | 0.97 | 627.00 | 627.54 | 1.60 | -0.13 | 0.00 |
| -650 | T= 500 años | 8.06 | 627.00 | 628.36 | 18.79 | T= 500 años | 2.99 | 627.00 | 628.10 | 10.93 | -0.26 | -7.86 |
| -700 | T= 5 años | 1.30 | 626.41 | 627.07 | 1.60 | T= 5 años | 0.97 | 626.41 | 626.94 | 1.60 | -0.13 | 0.00 |
| -700 | T= 500 años | 8.06 | 626.41 | 627.83 | 16.27 | T= 500 años | 2.99 | 626.41 | 627.52 | 8.88 | -0.31 | -7.39 |
| -750 | T= 5 años | 1.30 | 625.82 | 626.49 | 1.60 | T= 5 años | 0.97 | 625.82 | 626.37 | 1.60 | -0.12 | 0.00 |
| -750 | T= 500 años | 8.06 | 625.82 | 627.29 | 12.11 | T= 500 años | 2.99 | 625.82 | 626.95 | 7.25 | -0.34 | -4.86 |
| -800 | T= 5 años | 1.30 | 625.24 | 625.88 | 1.60 | T= 5 años | 0.97 | 625.24 | 625.74 | 1.60 | -0.14 | 0.00 |
| -800 | T= 500 años | 8.06 | 625.24 | 626.75 | 11.78 | T= 500 años | 2.99 | 625.24 | 626.36 | 6.20 | -0.39 | -5.58 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -850 | T= 5 años | 1.30 | 624.57 | 625.19 | 1.60 | T= 5 años | 0.97 | 624.57 | 625.11 | 1.60 | -0.08 | 0.00 |
| -850 | T= 500 años | 8.06 | 624.57 | 625.79 | 13.24 | T= 500 años | 2.99 | 624.57 | 625.62 | 8.49 | -0.17 | -4.75 |
| -900 | T= 5 años | 1.30 | 623.86 | 624.47 | 1.60 | T= 5 años | 0.97 | 623.86 | 624.29 | 1.60 | -0.18 | 0.00 |
| -900 | T= 500 años | 8.06 | 623.86 | 625.06 | 44.07 | T= 500 años | 2.99 | 623.86 | 624.87 | 25.74 | -0.19 | -18.33 |
| -950 | T= 5 años | 1.30 | 623.14 | 623.77 | 1.60 | T= 5 años | 0.97 | 623.14 | 623.81 | 1.60 | 0.04 | 0.00 |
| -950 | T= 500 años | 8.06 | 623.14 | 624.45 | 17.53 | T= 500 años | 2.99 | 623.14 | 624.24 | 11.09 | -0.21 | -6.44 |
| -1000 | T= 5 años | 1.38 | 622.42 | 623.07 | 1.60 | T= 5 años | 1.67 | 622.42 | 623.27 | 3.08 | 0.20 | 1.48 |
| -1000 | T= 500 años | 8.54 | 622.42 | 623.81 | 18.67 | T= 500 años | 5.13 | 622.42 | 623.66 | 14.36 | -0.15 | -4.31 |
| -1050 | T= 5 años | 1.38 | 621.71 | 622.36 | 1.60 | T= 5 años | 1.67 | 621.71 | 622.57 | 3.03 | 0.21 | 1.43 |
| -1050 | T= 500 años | 8.54 | 621.71 | 623.04 | 14.33 | T= 500 años | 5.13 | 621.71 | 622.90 | 11.01 | -0.14 | -3.32 |
| -1100 | T= 5 años | 1.38 | 620.99 | 621.63 | 1.60 | T= 5 años | 1.67 | 620.99 | 621.92 | 10.27 | 0.29 | 8.67 |
| -1100 | T= 500 años | 8.54 | 620.99 | 622.21 | 28.98 | T= 500 años | 5.13 | 620.99 | 622.12 | 22.91 | -0.09 | -6.07 |
| -1150 | T= 5 años | 1.38 | 620.28 | 620.96 | 1.60 | T= 5 años | 1.67 | 620.28 | 621.19 | 8.19 | 0.23 | 6.59 |
| -1150 | T= 500 años | 8.54 | 620.28 | 621.54 | 28.35 | T= 500 años | 5.13 | 620.28 | 621.43 | 21.82 | -0.11 | -6.53 |
| -1200 | T= 5 años | 1.38 | 619.40 | 619.87 | 1.60 | T= 5 años | 1.67 | 619.40 | 619.95 | 1.60 | 0.08 | 0.00 |
| -1200 | T= 500 años | 8.54 | 619.40 | 620.59 | 21.70 | T= 500 años | 5.13 | 619.40 | 620.50 | 16.89 | -0.09 | -4.81 |
| -1250 | T= 5 años | 1.38 | 618.24 | 618.89 | 1.60 | T= 5 años | 1.67 | 618.24 | 618.99 | 1.60 | 0.10 | 0.00 |
| -1250 | T= 500 años | 8.54 | 618.24 | 619.63 | 31.01 | T= 500 años | 5.13 | 618.24 | 619.53 | 23.26 | -0.10 | -7.75 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|-------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -1300 | T= 5 años | 1.38 | 617.48 | 618.06 | 1.60 | T= 5 años | 1.67 | 617.48 | 618.14 | 1.60 | 0.08 | 0.00 |
| -1300 | T= 500 años | 8.54 | 617.48 | 618.83 | 16.50 | T= 500 años | 5.13 | 617.48 | 618.68 | 12.46 | -0.15 | -4.04 |
| -1350 | T= 5 años | 1.38 | 616.52 | 617.10 | 1.60 | T= 5 años | 1.67 | 616.52 | 617.19 | 1.60 | 0.09 | 0.00 |
| -1350 | T= 500 años | 8.54 | 616.52 | 617.91 | 11.60 | T= 500 años | 5.13 | 616.52 | 617.73 | 8.65 | -0.18 | -2.95 |
| -1400 | T= 5 años | 1.38 | 615.56 | 616.15 | 1.60 | T= 5 años | 1.67 | 615.56 | 616.21 | 1.60 | 0.06 | 0.00 |
| -1400 | T= 500 años | 8.54 | 615.56 | 616.92 | 12.51 | T= 500 años | 5.13 | 615.56 | 616.78 | 9.65 | -0.14 | -2.86 |
| -1450 | T= 5 años | 1.38 | 614.45 | 614.94 | 1.60 | T= 5 años | 1.67 | 614.45 | 615.06 | 1.60 | 0.12 | 0.00 |
| -1450 | T= 500 años | 8.54 | 614.45 | 615.91 | 9.00 | T= 500 años | 5.13 | 614.45 | 615.67 | 6.31 | -0.24 | -2.69 |
| -1500 | T= 5 años | 1.38 | 613.11 | 613.65 | 1.60 | T= 5 años | 1.67 | 613.11 | 613.67 | 1.60 | 0.02 | 0.00 |
| -1500 | T= 500 años | 8.54 | 613.11 | 614.51 | 5.93 | T= 500 años | 5.13 | 613.11 | 614.32 | 4.53 | -0.19 | -1.40 |
| -1550 | T= 5 años | 1.38 | 611.77 | 612.26 | 1.60 | T= 5 años | 1.67 | 611.77 | 612.40 | 1.60 | 0.14 | 0.00 |
| -1550 | T= 500 años | 8.54 | 611.77 | 612.90 | 24.75 | T= 500 años | 5.13 | 611.77 | 612.81 | 18.65 | -0.09 | -6.10 |
| -1600 | T= 5 años | 1.49 | 610.43 | 611.03 | 1.60 | T= 5 años | 2.67 | 610.43 | 611.39 | 22.38 | 0.36 | 20.78 |
| -1600 | T= 500 años | 9.23 | 610.43 | 611.57 | 46.01 | T= 500 años | 8.20 | 610.43 | 611.55 | 43.41 | -0.02 | -2.60 |
| -1621 | T= 5 años | 1.49 | 610.00 | 610.63 | 1.60 | T= 5 años | 2.67 | 610.00 | 610.98 | 17.66 | 0.35 | 16.06 |
| -1621 | T= 500 años | 9.23 | 610.00 | 611.18 | 35.09 | T= 500 años | 8.20 | 610.00 | 611.16 | 33.22 | -0.02 | -1.87 |

ARROYO MESONES
(Tramo: Club Golf Moraleja - Carretera M-110)

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

HEC-RAS Version 3.1.3 May 2005
U.S. Army Corp of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```

X   X   XXXXXX   XXXX   XXXX   XX   XXXX
X   X   X       X   X   X   X   X   X   X
X   X   X       X   X   X   X   X   X   X
XXXXXXXX XXXX   X       XXX XXXX XXXXXX XXXX
X   X   X       X   X   X   X   X   X   X
X   X   X       X   X   X   X   X   X   X
X   X   XXXXXX   XXXX   X   X   X   X   XXXXX
    
```

PROJECT DATA
Project Title: Arroyo de Mejones
Project File : Mesones.prj
Run Date and Time: 03/07/2008 15:28:31

Project in SI units

Project Description:
Arroyo Mesones_Fut_junio_08

PLAN DATA

Plan Title: Plan 10
Plan File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Mesones.p10

Geometry Title: Mejones
Geometry File : o:\2005-10-PGOU
ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Mesones.g01

Flow Title : Caudales Futuro Mesones_junio/08
Flow File : o:\2005-10-PGOU
ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Mesones.f07

Plan Summary Information:
Number of: Cross Sections = 51 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 0 Lateral Structures = 0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Mixed Flow

FLOW DATA

Flow Title: Caudales Futuro Mesones_junio/08
Flow File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Mesones.f07

Flow Data (m3/s)

| River | Reach | RS | T=5 años | T=500 años |
|--------------|------------------------|----|----------|------------|
| Aryo Mejones | Campo golf-R_M-10.0 | | 1.2416 | 10.7237 |
| Aryo Mejones | Campo golf-R_M-1-160.0 | | 8.2908 | 31.6234 |
| Aryo Mejones | Campo golf-R_M-1-998.8 | | 12.8151 | 42.1028 |

Boundary Conditions

| River | Reach | Profile | Upstream |
|--------------|----------------------------|---------|------------------|
| Aryo Mejones | Campo golf-R_M-1T=5 años | | Normal S = 0.015 |
| Aryo Mejones | Campo golf-R_M-1T=500 años | | Normal S = 0.015 |

GEOMETRY DATA

Geometry Title: Mejones
Geometry File : o:\2005-10-PGOU ALCOBENDAS\EH_JUNIO_08\HEC_RAS_Alcobendas\Mesones.g01

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: 0.0

INPUT

Description:

| Station | Elevation | Data | num= | 6 |
|---------|-----------|--------|--------|------------------------------------|
| -100 | 632 | -22.83 | 630.51 | 6.17 630.67 40.94 634.88 42.62 635 |
| 100 | 635 | | | |

Manning's n Values

| Sta | n Val | Sta | n Val | Sta | n Val |
|------|-------|-----|-------|-----|-------|
| -100 | | 100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 630.66 | Element | Left OB | Channel | Right OB |
|--------------------|----------|-----------------|---------|---------|----------|
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 630.64 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 630.64 | Flow Area (m2) | | 1.84 | |
| E.G. Slope (m/m) | 0.036763 | Area (m2) | | 1.84 | |
| Q Total (m3/s) | 1.24 | Flow (m3/s) | | 1.24 | |
| Top Width (m) | 29.31 | Top Width (m) | | 29.31 | |
| Vel Total (m/s) | 0.67 | Avg. Vel. (m/s) | | 0.67 | |
| Max Chl Dpth (m) | 0.13 | Hydr. Depth (m) | | 0.06 | |
| Conv. Total (m3/s) | 6.5 | Conv. (m3/s) | | 6.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 29.31 | |

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ANEXO VII

Min Ch El (m) 630.51 Shear (N/m2) 22.67
Alpha 1.00 Stream Power (N/m s) 15.27
Frctn Loss (m) 0.30 Cum Volume (1000 m3) 8.91
C & E Loss (m) 0.00 Cum SA (1000 m2) 40.15

CROSS SECTION OUTPUT Profile #T=500 años

| | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|----------|
| E.G. Elev (m) | 630.88 | Element | |
| Vel Head (m) | 0.09 | Wt. n-Val. | 0.045 |
| W.S. Elev (m) | 630.79 | Reach Len. (m) | 20.00 |
| Crit W.S. (m) | 630.79 | Flow Area (m2) | 8.03 |
| E.G. Slope (m/m) | 0.035665 | Area (m2) | 8.03 |
| Q Total (m3/s) | 10.72 | Flow (m3/s) | 10.72 |
| Top Width (m) | 44.68 | Top Width (m) | 44.68 |
| Vel Total (m/s) | 1.34 | Avg. Vel. (m/s) | 1.34 |
| Max Chl Dpth (m) | 0.28 | Hydr. Depth (m) | 0.18 |
| Conv. Total (m3/s) | 56.8 | Conv. (m3/s) | 56.8 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 44.69 |
| Min Ch El (m) | 630.51 | Shear (N/m2) | 62.82 |
| Alpha | 1.00 | Stream Power (N/m s) | 83.93 |
| Frctn Loss (m) | | Cum Volume (1000 m3) | 24.63 |
| C & E Loss (m) | | Cum SA (1000 m2) | 63.69 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -20.0

INPUT

Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-100 632 -7.53 630 0 629.84 10.28 630 44.26 633.66
88.6 634.04 100 634.04

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-100 .045 100

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-100 100 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|----------|
| E.G. Elev (m) | 630.20 | Element | |
| Vel Head (m) | 0.26 | Wt. n-Val. | 0.045 |
| W.S. Elev (m) | 629.94 | Reach Len. (m) | 20.00 |
| Crit W.S. (m) | 630.01 | Flow Area (m2) | 0.55 |
| E.G. Slope (m/m) | 0.566742 | Area (m2) | 0.55 |
| Q Total (m3/s) | 1.24 | Flow (m3/s) | 1.24 |
| Top Width (m) | 11.06 | Top Width (m) | 11.06 |
| Vel Total (m/s) | 2.26 | Avg. Vel. (m/s) | 2.26 |
| Max Chl Dpth (m) | 0.10 | Hydr. Depth (m) | 0.05 |
| Conv. Total (m3/s) | 1.6 | Conv. (m3/s) | 1.6 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 11.06 |
| Min Ch El (m) | 629.84 | Shear (N/m2) | 276.02 |
| Alpha | 1.00 | Stream Power (N/m s) | 623.88 |
| Frctn Loss (m) | 0.69 | Cum Volume (1000 m3) | 8.88 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 39.74 |

CROSS SECTION OUTPUT Profile #T=500 años

| | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|----------|
| E.G. Elev (m) | 630.41 | Element | |
| Vel Head (m) | 0.04 | Wt. n-Val. | 0.045 |
| W.S. Elev (m) | 630.37 | Reach Len. (m) | 20.00 |
| Crit W.S. (m) | 630.23 | Flow Area (m2) | 11.81 |
| E.G. Slope (m/m) | 0.008043 | Area (m2) | 11.81 |
| Q Total (m3/s) | 10.72 | Flow (m3/s) | 10.72 |
| Top Width (m) | 38.34 | Top Width (m) | 38.34 |
| Vel Total (m/s) | 0.91 | Avg. Vel. (m/s) | 0.91 |
| Max Chl Dpth (m) | 0.53 | Hydr. Depth (m) | 0.31 |
| Conv. Total (m3/s) | 119.6 | Conv. (m3/s) | 119.6 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 38.36 |
| Min Ch El (m) | 629.84 | Shear (N/m2) | 24.27 |
| Alpha | 1.00 | Stream Power (N/m s) | 22.05 |
| Frctn Loss (m) | 0.17 | Cum Volume (1000 m3) | 24.43 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 62.86 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -40.0

INPUT

Description:
Station Elevation Data num= 7
Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
-100 632 -11.31 630 0 629.63 15.84 630 47.43 632.54
93.23 633.23 100 633.23

Manning's n Values num= 3
Sta n Val Sta n Val Sta n Val
-100 .045 100

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
-100 100 20 20 20 .1 .3

CROSS SECTION OUTPUT Profile #T=5 años

| | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|----------|
| E.G. Elev (m) | 629.89 | Element | |
| Vel Head (m) | 0.02 | Wt. n-Val. | 0.045 |
| W.S. Elev (m) | 629.88 | Reach Len. (m) | 20.00 |
| Crit W.S. (m) | 629.82 | Flow Area (m2) | 2.25 |
| E.G. Slope (m/m) | 0.010010 | Area (m2) | 2.25 |
| Q Total (m3/s) | 1.24 | Flow (m3/s) | 1.24 |
| Top Width (m) | 18.17 | Top Width (m) | 18.17 |
| Vel Total (m/s) | 0.55 | Avg. Vel. (m/s) | 0.55 |
| Max Chl Dpth (m) | 0.25 | Hydr. Depth (m) | 0.12 |
| Conv. Total (m3/s) | 12.4 | Conv. (m3/s) | 12.4 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 18.17 |
| Min Ch El (m) | 629.63 | Shear (N/m2) | 12.15 |
| Alpha | 1.00 | Stream Power (N/m s) | 6.71 |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | 8.86 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 39.45 |

CROSS SECTION OUTPUT Profile #T=500 años

| | Left OB | Channel | Right OB |
|------------------|----------|----------------|----------|
| E.G. Elev (m) | 630.24 | Element | |
| Vel Head (m) | 0.05 | Wt. n-Val. | 0.045 |
| W.S. Elev (m) | 630.19 | Reach Len. (m) | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | 11.28 |
| E.G. Slope (m/m) | 0.009268 | Area (m2) | 11.28 |

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ANEXO VII

| | | | |
|--------------------|--------|----------------------|-------|
| Q Total (m3/s) | 10.72 | Flow (m3/s) | 10.72 |
| Top Width (m) | 38.05 | Top Width (m) | 38.05 |
| Vel Total (m/s) | 0.95 | Avg. Vel. (m/s) | 0.95 |
| Max Chl Dpth (m) | 0.56 | Hydr. Depth (m) | 0.30 |
| Conv. Total (m3/s) | 111.4 | Conv. (m3/s) | 111.4 |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 38.07 |
| Min Ch El (m) | 629.63 | Shear (N/m2) | 26.93 |
| Alpha | 1.00 | Stream Power (N/m s) | 25.60 |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | 24.20 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 62.10 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -60.0

INPUT

Description:
Station Elevation Data num= 10

| | | | | | | | | | |
|-------|--------|--------|--------|--------|--------|--------|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 632.03 | -99.03 | 632.03 | -57.42 | 630 | -17.58 | 630 | 0 | 629.42 |
| 22.46 | 630 | 22.53 | 630 | 48.42 | 631.74 | 94.47 | 632.89 | 100 | 632.89 |

Manning's n Values

| | | | | | |
|------|-------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | |

| | | | | | | | |
|----------------|-------|---------------|---------|-------|-------|--------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
| -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 629.69 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.67 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 2.12 | |
| E.G. Slope (m/m) | 0.011223 | Area (m2) | | 2.12 | |
| Q Total (m3/s) | 1.24 | Flow (m3/s) | | 1.24 | |
| Top Width (m) | 17.12 | Top Width (m) | | 17.12 | |
| Vel Total (m/s) | 0.59 | Avg. Vel. (m/s) | | 0.59 | |
| Max Chl Dpth (m) | 0.25 | Hydr. Depth (m) | | 0.12 | |
| Conv. Total (m3/s) | 11.7 | Conv. (m3/s) | | 11.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 17.12 | |
| Min Ch El (m) | 629.42 | Shear (N/m2) | | 13.64 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.98 | |
| Frctn Loss (m) | 0.24 | Cum Volume (1000 m3) | | 8.81 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 39.10 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | | | | |
|--------------------|----------|-----------------|---------|---------|----------|
| E.G. Elev (m) | 630.02 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.96 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 10.07 | |
| E.G. Slope (m/m) | 0.013169 | Area (m2) | | 10.07 | |
| Q Total (m3/s) | 10.72 | Flow (m3/s) | | 10.72 | |
| Top Width (m) | 37.28 | Top Width (m) | | 37.28 | |
| Vel Total (m/s) | 1.07 | Avg. Vel. (m/s) | | 1.07 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.27 | |
| Conv. Total (m3/s) | 93.4 | Conv. (m3/s) | | 93.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 37.30 | |
| Min Ch El (m) | 629.42 | Shear (N/m2) | | 34.86 | |

| | | | |
|----------------|------|----------------------|-------|
| Alpha | 1.00 | Stream Power (N/m s) | 37.13 |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | 23.98 |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 61.35 |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -80.0

INPUT

Description:
Station Elevation Data num= 10

| | | | | | | | | | |
|-------|--------|--------|--------|-------|--------|--------|--------|-----|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 631.39 | -83.52 | 631.39 | -59.2 | 630 | -27.64 | 630 | 0 | 629.2 |
| 25.31 | 629.7 | 33.85 | 630 | 47.59 | 630.94 | 94.7 | 632.56 | 100 | 632.56 |

Manning's n Values

| | | | | | |
|------|-------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | |

| | | | | | | | |
|----------------|-------|---------------|---------|-------|-------|--------|--------|
| Bank Sta: Left | Right | Lengths: Left | Channel | Right | Coeff | Contr. | Expan. |
| -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 629.44 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.42 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 629.38 | Flow Area (m2) | | 2.12 | |
| E.G. Slope (m/m) | 0.012886 | Area (m2) | | 2.12 | |
| Q Total (m3/s) | 1.24 | Flow (m3/s) | | 1.24 | |
| Top Width (m) | 19.01 | Top Width (m) | | 19.01 | |
| Vel Total (m/s) | 0.58 | Avg. Vel. (m/s) | | 0.58 | |
| Max Chl Dpth (m) | 0.22 | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 10.9 | Conv. (m3/s) | | 10.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 19.02 | |
| Min Ch El (m) | 629.20 | Shear (N/m2) | | 14.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 8.25 | |
| Frctn Loss (m) | 0.22 | Cum Volume (1000 m3) | | 8.77 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 38.74 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | | | | |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 629.75 | Element | Left OB | Channel | Right OB |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.70 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 10.51 | |
| E.G. Slope (m/m) | 0.013504 | Area (m2) | | 10.51 | |
| Q Total (m3/s) | 10.72 | Flow (m3/s) | | 10.72 | |
| Top Width (m) | 42.30 | Top Width (m) | | 42.30 | |
| Vel Total (m/s) | 1.02 | Avg. Vel. (m/s) | | 1.02 | |
| Max Chl Dpth (m) | 0.50 | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 92.3 | Conv. (m3/s) | | 92.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 42.32 | |
| Min Ch El (m) | 629.20 | Shear (N/m2) | | 32.89 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.56 | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 23.78 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 60.55 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -100.0

INPUT

Description:

| Station Elevation Data | | num= 10 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|--------|--------|--------|--------|--------|-----|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630.81 | -73.57 | 630.81 | -53.37 | 629.95 | -42.61 | 630 | 0 | 628.99 | | |
| 25.88 | 629.41 | 43.37 | 630 | 44.87 | 630.11 | 93.93 | 632.22 | 100 | 632.22 | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 629.22 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.21 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 629.16 | | Flow Area (m2) | | 2.54 | |
| E.G. Slope (m/m) | 0.009129 | | Area (m2) | | 2.54 | |
| Q Total (m3/s) | 1.24 | | Flow (m3/s) | | 1.24 | |
| Top Width (m) | 22.96 | | Top Width (m) | | 22.96 | |
| Vel Total (m/s) | 0.49 | | Avg. Vel. (m/s) | | 0.49 | |
| Max Chl Dpth (m) | 0.22 | | Hydr. Depth (m) | | 0.11 | |
| Conv. Total (m3/s) | 13.0 | | Conv. (m3/s) | | 13.0 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 22.96 | |
| Min Ch El (m) | 628.99 | | Shear (N/m2) | | 9.90 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 4.84 | |
| Frctn Loss (m) | 0.35 | | Cum Volume (1000 m3) | | 8.72 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 38.32 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 629.51 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.46 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 629.38 | | Flow Area (m2) | | 11.51 | |
| E.G. Slope (m/m) | 0.011571 | | Area (m2) | | 11.51 | |
| Q Total (m3/s) | 10.72 | | Flow (m3/s) | | 10.72 | |
| Top Width (m) | 47.32 | | Top Width (m) | | 47.32 | |
| Vel Total (m/s) | 0.93 | | Avg. Vel. (m/s) | | 0.93 | |
| Max Chl Dpth (m) | 0.47 | | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 99.7 | | Conv. (m3/s) | | 99.7 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 47.33 | |
| Min Ch El (m) | 628.99 | | Shear (N/m2) | | 27.60 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 25.71 | |
| Frctn Loss (m) | 0.38 | | Cum Volume (1000 m3) | | 23.56 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 59.65 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -120.0

INPUT

Description:

| Station Elevation Data | | num= 10 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|--------|--------|------|--------|--------|------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630.71 | -72.03 | 630.71 | -52.08 | 630 | -49.13 | 630 | -0.2 | 628.68 | | |
| 27.16 | 628.97 | 47.21 | 629.54 | 71.26 | 630 | 90.8 | 630.48 | 100 | 630.48 | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 628.87 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 628.83 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 628.83 | | Flow Area (m2) | | 1.46 | |
| E.G. Slope (m/m) | 0.046744 | | Area (m2) | | 1.46 | |
| Q Total (m3/s) | 1.24 | | Flow (m3/s) | | 1.24 | |
| Top Width (m) | 19.53 | | Top Width (m) | | 19.53 | |
| Vel Total (m/s) | 0.85 | | Avg. Vel. (m/s) | | 0.85 | |
| Max Chl Dpth (m) | 0.15 | | Hydr. Depth (m) | | 0.07 | |
| Conv. Total (m3/s) | 5.7 | | Conv. (m3/s) | | 5.7 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 19.54 | |
| Min Ch El (m) | 628.68 | | Shear (N/m2) | | 34.21 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 29.13 | |
| Frctn Loss (m) | 0.08 | | Cum Volume (1000 m3) | | 8.68 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 37.89 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 629.12 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 629.03 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 629.03 | | Flow Area (m2) | | 7.76 | |
| E.G. Slope (m/m) | 0.036787 | | Area (m2) | | 7.76 | |
| Q Total (m3/s) | 10.72 | | Flow (m3/s) | | 10.72 | |
| Top Width (m) | 42.05 | | Top Width (m) | | 42.05 | |
| Vel Total (m/s) | 1.38 | | Avg. Vel. (m/s) | | 1.38 | |
| Max Chl Dpth (m) | 0.35 | | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 55.9 | | Conv. (m3/s) | | 55.9 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 42.06 | |
| Min Ch El (m) | 628.68 | | Shear (N/m2) | | 66.58 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 91.99 | |
| Frctn Loss (m) | 0.12 | | Cum Volume (1000 m3) | | 23.36 | |
| C & E Loss (m) | 0.03 | | Cum SA (1000 m2) | | 58.76 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -140.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|--------|----------|--------|----------|--------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630.66 | -70.62 | 630.66 | -49.89 | 630 | -47.32 | 629.79 | 0 | 628.38 | | |
| 35.59 | 628.46 | 58.91 | 628.95 | 100 | 628.95 | | | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 628.57 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.00 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 628.57 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | 628.47 | Flow Area (m2) | | | 6.08 | |
| E.G. Slope (m/m) | 0.001286 | Area (m2) | | | 6.08 | |
| Q Total (m3/s) | 1.24 | Flow (m3/s) | | | 1.24 | |
| Top Width (m) | 46.95 | Top Width (m) | | | 46.95 | |
| Vel Total (m/s) | 0.20 | Avg. Vel. (m/s) | | | 0.20 | |
| Max Chl Dpth (m) | 0.19 | Hydr. Depth (m) | | | 0.13 | |
| Conv. Total (m3/s) | 34.6 | Conv. (m3/s) | | | 34.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 46.95 | |
| Min Ch El (m) | 628.38 | Shear (N/m2) | | | 1.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 0.33 | |
| Frctn Loss (m) | 0.16 | Cum Volume (1000 m3) | | | 8.61 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | 37.23 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 628.85 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.01 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 628.84 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | 628.61 | Flow Area (m2) | | | 21.66 | |
| E.G. Slope (m/m) | 0.002318 | Area (m2) | | | 21.66 | |
| Q Total (m3/s) | 10.72 | Flow (m3/s) | | | 10.72 | |
| Top Width (m) | 68.80 | Top Width (m) | | | 68.80 | |
| Vel Total (m/s) | 0.50 | Avg. Vel. (m/s) | | | 0.50 | |
| Max Chl Dpth (m) | 0.46 | Hydr. Depth (m) | | | 0.31 | |
| Conv. Total (m3/s) | 222.8 | Conv. (m3/s) | | | 222.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 68.81 | |
| Min Ch El (m) | 628.38 | Shear (N/m2) | | | 7.15 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 3.54 | |
| Frctn Loss (m) | 0.14 | Cum Volume (1000 m3) | | | 23.07 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | | 57.65 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -160.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|--------|----------|--------|----------|--------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630.08 | -50.15 | 630.08 | -49.83 | 630 | -34.98 | 629.28 | -29.76 | 629.12 | | |
| 0 | 628.07 | 39.41 | 628.25 | 61.48 | 628.83 | 100 | 628.83 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 628.41 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 628.37 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | | | 9.90 | |
| E.G. Slope (m/m) | 0.013168 | Area (m2) | | | 9.90 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | | 8.29 | |
| Top Width (m) | 52.57 | Top Width (m) | | | 52.57 | |
| Vel Total (m/s) | 0.84 | Avg. Vel. (m/s) | | | 0.84 | |
| Max Chl Dpth (m) | 0.30 | Hydr. Depth (m) | | | 0.19 | |
| Conv. Total (m3/s) | 72.2 | Conv. (m3/s) | | | 72.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 52.58 | |
| Min Ch El (m) | 628.07 | Shear (N/m2) | | | 24.31 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 20.36 | |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | | | 8.45 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | 36.23 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 628.70 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 628.62 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | | | 24.87 | |
| E.G. Slope (m/m) | 0.012750 | Area (m2) | | | 24.87 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | | 31.62 | |
| Top Width (m) | 68.93 | Top Width (m) | | | 68.93 | |
| Vel Total (m/s) | 1.27 | Avg. Vel. (m/s) | | | 1.27 | |
| Max Chl Dpth (m) | 0.55 | Hydr. Depth (m) | | | 0.36 | |
| Conv. Total (m3/s) | 280.1 | Conv. (m3/s) | | | 280.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | | 68.95 | |
| Min Ch El (m) | 628.07 | Shear (N/m2) | | | 45.10 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 57.35 | |
| Frctn Loss (m) | 0.26 | Cum Volume (1000 m3) | | | 22.60 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | 56.28 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -180.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|--------|----------|--------|----------|--------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 631.1 | -59.58 | 631.1 | -52.16 | 630 | -29.04 | 628.91 | -20.93 | 628.57 | | |
| 0 | 627.76 | 40.39 | 628.05 | 62.31 | 628.72 | 100 | 628.72 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 628.14 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 628.11 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | 9.73 | | | |
| E.G. Slope (m/m) | 0.013442 | Area (m2) | 9.73 | | | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | 8.29 | | | |
| Top Width (m) | 51.18 | Top Width (m) | 51.18 | | | |
| Vel Total (m/s) | 0.85 | Avg. Vel. (m/s) | 0.85 | | | |
| Max Chl Dpth (m) | 0.35 | Hydr. Depth (m) | 0.19 | | | |
| Conv. Total (m3/s) | 71.5 | Conv. (m3/s) | 71.5 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 51.19 | | | |
| Min Ch El (m) | 627.76 | Shear (N/m2) | 25.06 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 21.35 | | | |
| Frctn Loss (m) | 0.30 | Cum Volume (1000 m3) | 8.25 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 35.19 | | | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 628.44 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.09 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 628.36 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | 24.38 | | | |
| E.G. Slope (m/m) | 0.012811 | Area (m2) | 24.38 | | | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | 31.62 | | | |
| Top Width (m) | 65.84 | Top Width (m) | 65.84 | | | |
| Vel Total (m/s) | 1.30 | Avg. Vel. (m/s) | 1.30 | | | |
| Max Chl Dpth (m) | 0.60 | Hydr. Depth (m) | 0.37 | | | |
| Conv. Total (m3/s) | 279.4 | Conv. (m3/s) | 279.4 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 65.86 | | | |
| Min Ch El (m) | 627.76 | Shear (N/m2) | 46.51 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 60.32 | | | |
| Frctn Loss (m) | 0.29 | Cum Volume (1000 m3) | 22.11 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 54.93 | | | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -200.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|--------|----------|--------|----------|--------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 632.05 | -73.98 | 632.05 | -63.04 | 630 | -28.61 | 628.59 | -17.93 | 628.11 | | |
| 0 | 627.45 | 38.54 | 627.79 | 61.24 | 628.51 | 100 | 628.51 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 627.85 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 627.81 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | 8.93 | | | |
| E.G. Slope (m/m) | 0.016789 | Area (m2) | 8.93 | | | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | 8.29 | | | |
| Top Width (m) | 48.76 | Top Width (m) | 48.76 | | | |
| Vel Total (m/s) | 0.93 | Avg. Vel. (m/s) | 0.93 | | | |
| Max Chl Dpth (m) | 0.36 | Hydr. Depth (m) | 0.18 | | | |
| Conv. Total (m3/s) | 64.0 | Conv. (m3/s) | 64.0 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 48.77 | | | |
| Min Ch El (m) | 627.45 | Shear (N/m2) | 30.15 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 27.99 | | | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | 8.06 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 34.19 | | | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 628.15 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.10 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 628.04 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | 22.06 | | | |
| E.G. Slope (m/m) | 0.016724 | Area (m2) | 22.06 | | | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | 31.62 | | | |
| Top Width (m) | 62.60 | Top Width (m) | 62.60 | | | |
| Vel Total (m/s) | 1.43 | Avg. Vel. (m/s) | 1.43 | | | |
| Max Chl Dpth (m) | 0.59 | Hydr. Depth (m) | 0.35 | | | |
| Conv. Total (m3/s) | 244.5 | Conv. (m3/s) | 244.5 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 62.62 | | | |
| Min Ch El (m) | 627.45 | Shear (N/m2) | 57.78 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 82.82 | | | |
| Frctn Loss (m) | 0.32 | Cum Volume (1000 m3) | 21.65 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 53.64 | | | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -220.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|--------|----------|--------|----------|--------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 632.72 | -84.78 | 632.72 | -69.33 | 630 | -28.88 | 628.33 | -15.9 | 627.71 | | |
| 0 | 627.13 | 35.66 | 627.43 | 59.24 | 628.17 | 100 | 628.17 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 627.53 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.48 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 9.03 | |
| E.G. Slope (m/m) | 0.015443 | | Area (m2) | | 9.03 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 47.07 | | Top Width (m) | | 47.07 | |
| Vel Total (m/s) | 0.92 | | Avg. Vel. (m/s) | | 0.92 | |
| Max Chl Dpth (m) | 0.35 | | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 66.7 | | Conv. (m3/s) | | 66.7 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 47.08 | |
| Min Ch El (m) | 627.13 | | Shear (N/m2) | | 29.04 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 26.67 | |
| Frctn Loss (m) | 0.32 | | Cum Volume (1000 m3) | | 7.89 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 33.24 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 627.83 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.73 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 22.45 | |
| E.G. Slope (m/m) | 0.015427 | | Area (m2) | | 22.45 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 61.57 | | Top Width (m) | | 61.57 | |
| Vel Total (m/s) | 1.41 | | Avg. Vel. (m/s) | | 1.41 | |
| Max Chl Dpth (m) | 0.60 | | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 254.6 | | Conv. (m3/s) | | 254.6 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 61.59 | |
| Min Ch El (m) | 627.13 | | Shear (N/m2) | | 55.15 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 77.68 | |
| Frctn Loss (m) | 0.31 | | Cum Volume (1000 m3) | | 21.20 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 52.40 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -240.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|--------|----------|--------|----------|--------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 633.39 | -95.27 | 633.39 | -80.79 | 630 | -28.96 | 628.06 | -13.66 | 627.31 | | |
| 0 | 626.84 | 32.99 | 627.07 | 57.45 | 627.82 | 100 | 627.82 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 627.21 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.17 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 8.69 | |
| E.G. Slope (m/m) | 0.016824 | | Area (m2) | | 8.69 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 45.65 | | Top Width (m) | | 45.65 | |
| Vel Total (m/s) | 0.95 | | Avg. Vel. (m/s) | | 0.95 | |
| Max Chl Dpth (m) | 0.33 | | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 63.9 | | Conv. (m3/s) | | 63.9 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 45.65 | |
| Min Ch El (m) | 626.84 | | Shear (N/m2) | | 31.41 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 29.96 | |
| Frctn Loss (m) | 0.30 | | Cum Volume (1000 m3) | | 7.71 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 32.31 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 627.52 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.11 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.42 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 22.01 | |
| E.G. Slope (m/m) | 0.015984 | | Area (m2) | | 22.01 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 60.16 | | Top Width (m) | | 60.16 | |
| Vel Total (m/s) | 1.44 | | Avg. Vel. (m/s) | | 1.44 | |
| Max Chl Dpth (m) | 0.58 | | Hydr. Depth (m) | | 0.37 | |
| Conv. Total (m3/s) | 250.1 | | Conv. (m3/s) | | 250.1 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 60.18 | |
| Min Ch El (m) | 626.84 | | Shear (N/m2) | | 57.33 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 82.37 | |
| Frctn Loss (m) | 0.30 | | Cum Volume (1000 m3) | | 20.76 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 51.18 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -260.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|--------|----------|-------|----------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -86 | 630 | -28.83 | 627.8 | -11.23 | 626.9 | 0 | 626.56 |
| 30.54 | 626.71 | 55.88 | 627.48 | 100 | 627.48 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 626.91 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.87 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 9.33 | |
| E.G. Slope (m/m) | 0.013516 | | Area (m2) | | 9.33 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 46.25 | | Top Width (m) | | 46.25 | |
| Vel Total (m/s) | 0.89 | | Avg. Vel. (m/s) | | 0.89 | |
| Max Chl Dpth (m) | 0.31 | | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 71.3 | | Conv. (m3/s) | | 71.3 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 46.26 | |
| Min Ch El (m) | 626.56 | | Shear (N/m2) | | 26.74 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 23.76 | |
| Frctn Loss (m) | 0.28 | | Cum Volume (1000 m3) | | 7.53 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 31.39 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 627.23 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 627.13 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 22.99 | |
| E.G. Slope (m/m) | 0.013790 | | Area (m2) | | 22.99 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 60.06 | | Top Width (m) | | 60.06 | |
| Vel Total (m/s) | 1.38 | | Avg. Vel. (m/s) | | 1.38 | |
| Max Chl Dpth (m) | 0.57 | | Hydr. Depth (m) | | 0.38 | |
| Conv. Total (m3/s) | 269.3 | | Conv. (m3/s) | | 269.3 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 60.08 | |
| Min Ch El (m) | 626.56 | | Shear (N/m2) | | 51.75 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 71.18 | |
| Frctn Loss (m) | 0.26 | | Cum Volume (1000 m3) | | 20.31 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 49.98 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -280.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|--------|----------|--------|----------|--------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -84.88 | 630 | -84.66 | 629.92 | -42.09 | 627.15 | -13.86 | 626.32 | | |
| 0 | 626.28 | 39.17 | 626.84 | 75.66 | 628.01 | 100 | 628.01 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 626.64 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.60 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 9.12 | |
| E.G. Slope (m/m) | 0.014419 | | Area (m2) | | 9.12 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 45.88 | | Top Width (m) | | 45.88 | |
| Vel Total (m/s) | 0.91 | | Avg. Vel. (m/s) | | 0.91 | |
| Max Chl Dpth (m) | 0.32 | | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 69.0 | | Conv. (m3/s) | | 69.0 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 45.89 | |
| Min Ch El (m) | 626.28 | | Shear (N/m2) | | 28.11 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 25.55 | |
| Frctn Loss (m) | 0.28 | | Cum Volume (1000 m3) | | 7.34 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 30.47 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 626.95 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.08 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.87 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 25.45 | |
| E.G. Slope (m/m) | 0.012726 | | Area (m2) | | 25.45 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 72.89 | | Top Width (m) | | 72.89 | |
| Vel Total (m/s) | 1.24 | | Avg. Vel. (m/s) | | 1.24 | |
| Max Chl Dpth (m) | 0.59 | | Hydr. Depth (m) | | 0.35 | |
| Conv. Total (m3/s) | 280.3 | | Conv. (m3/s) | | 280.3 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 72.91 | |
| Min Ch El (m) | 626.28 | | Shear (N/m2) | | 43.56 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 54.13 | |
| Frctn Loss (m) | 0.24 | | Cum Volume (1000 m3) | | 19.82 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 48.65 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -300.0

INPUT

Description:

| Station Elevation Data | | num= 10 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|---------|--------|----------|--------|----------|--------|----------|--------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 631.2 | -98.74 | 631.2 | -85.64 | 630 | -49.86 | 627.19 | -26.64 | 626.13 | | |
| 0 | 626.01 | 9.21 | 626.25 | 37.97 | 627.19 | 89.54 | 628 | 100 | 628 | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 626.37 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.32 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 9.04 | |
| E.G. Slope (m/m) | 0.013369 | | Area (m2) | | 9.04 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 42.35 | | Top Width (m) | | 42.35 | |
| Vel Total (m/s) | 0.92 | | Avg. Vel. (m/s) | | 0.92 | |
| Max Chl Dpth (m) | 0.31 | | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 71.7 | | Conv. (m3/s) | | 71.7 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 42.36 | |
| Min Ch El (m) | 626.01 | | Shear (N/m2) | | 27.97 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 25.66 | |
| Frctn Loss (m) | 0.26 | | Cum Volume (1000 m3) | | 7.16 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 29.59 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 626.71 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.09 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.62 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 24.08 | |
| E.G. Slope (m/m) | 0.011305 | | Area (m2) | | 24.08 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 58.08 | | Top Width (m) | | 58.08 | |
| Vel Total (m/s) | 1.31 | | Avg. Vel. (m/s) | | 1.31 | |
| Max Chl Dpth (m) | 0.61 | | Hydr. Depth (m) | | 0.41 | |
| Conv. Total (m3/s) | 297.4 | | Conv. (m3/s) | | 297.4 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 58.10 | |
| Min Ch El (m) | 626.01 | | Shear (N/m2) | | 45.95 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 60.35 | |
| Frctn Loss (m) | 0.27 | | Cum Volume (1000 m3) | | 19.33 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 47.34 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -320.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta Elev | | Sta Elev | | Sta Elev | | Sta Elev | |
|------------------------|--------|--------|--------|----------|--------|----------|--------|----------|--------|----------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -86.36 | 630 | -49.61 | 627.16 | -26.37 | 625.92 | -.01 | 625.69 | | |
| 3.55 | 625.85 | 31.02 | 626.64 | 81.91 | 626.97 | 100 | 626.97 | | | | |

| Manning's n Values | | num= 3 | | Sta n Val | | Sta n Val | |
|--------------------|-------|--------|-------|-----------|-------|-----------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 626.11 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.07 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 9.09 | |
| E.G. Slope (m/m) | 0.012316 | | Area (m2) | | 9.09 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 40.36 | | Top Width (m) | | 40.36 | |
| Vel Total (m/s) | 0.91 | | Avg. Vel. (m/s) | | 0.91 | |
| Max Chl Dpth (m) | 0.38 | | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 74.7 | | Conv. (m3/s) | | 74.7 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 40.37 | |
| Min Ch El (m) | 625.69 | | Shear (N/m2) | | 27.18 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 24.80 | |
| Frctn Loss (m) | 0.33 | | Cum Volume (1000 m3) | | 6.98 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 28.76 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 626.44 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.12 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.32 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 20.86 | |
| E.G. Slope (m/m) | 0.016436 | | Area (m2) | | 20.86 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 53.75 | | Top Width (m) | | 53.75 | |
| Vel Total (m/s) | 1.52 | | Avg. Vel. (m/s) | | 1.52 | |
| Max Chl Dpth (m) | 0.63 | | Hydr. Depth (m) | | 0.39 | |
| Conv. Total (m3/s) | 246.7 | | Conv. (m3/s) | | 246.7 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 53.77 | |
| Min Ch El (m) | 625.69 | | Shear (N/m2) | | 62.54 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 94.79 | |
| Frctn Loss (m) | 0.29 | | Cum Volume (1000 m3) | | 18.88 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 46.22 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -340.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -87.21 | 630 | -47.83 | 627.06 | -21.75 | 625.63 | -.01 | 625.37 | | |
| 5.11 | 625.48 | 34.21 | 626.15 | 100 | 626.5 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 625.78 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.71 | | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | 625.69 | | Flow Area (m2) | | 7.39 | |
| E.G. Slope (m/m) | 0.023038 | | Area (m2) | | 7.39 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 38.57 | | Top Width (m) | | 38.57 | |
| Vel Total (m/s) | 1.12 | | Avg. Vel. (m/s) | | 1.12 | |
| Max Chl Dpth (m) | 0.34 | | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 54.6 | | Conv. (m3/s) | | 54.6 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 38.58 | |
| Min Ch El (m) | 625.37 | | Shear (N/m2) | | 43.30 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 48.55 | |
| Frctn Loss (m) | 0.32 | | Cum Volume (1000 m3) | | 6.82 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 27.97 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 626.13 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 626.04 | | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 23.03 | |
| E.G. Slope (m/m) | 0.013228 | | Area (m2) | | 23.03 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 58.45 | | Top Width (m) | | 58.45 | |
| Vel Total (m/s) | 1.37 | | Avg. Vel. (m/s) | | 1.37 | |
| Max Chl Dpth (m) | 0.67 | | Hydr. Depth (m) | | 0.39 | |
| Conv. Total (m3/s) | 275.0 | | Conv. (m3/s) | | 275.0 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 58.47 | |
| Min Ch El (m) | 625.37 | | Shear (N/m2) | | 51.09 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 70.17 | |
| Frctn Loss (m) | 0.27 | | Cum Volume (1000 m3) | | 18.44 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 45.10 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -360.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|--------|--------|-------|------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -77.24 | 630 | -41.68 | 626.81 | -12.53 | 625.2 | -.01 | 625.04 | | |
| 9.37 | 625.12 | 39.8 | 625.78 | 97.45 | 625.8 | 100 | 625.9 | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 625.45 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.41 | | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 9.08 | |
| E.G. Slope (m/m) | 0.011825 | | Area (m2) | | 9.08 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 39.10 | | Top Width (m) | | 39.10 | |
| Vel Total (m/s) | 0.91 | | Avg. Vel. (m/s) | | 0.91 | |
| Max Chl Dpth (m) | 0.37 | | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 76.2 | | Conv. (m3/s) | | 76.2 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 39.11 | |
| Min Ch El (m) | 625.04 | | Shear (N/m2) | | 26.93 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 24.58 | |
| Frctn Loss (m) | 0.18 | | Cum Volume (1000 m3) | | 6.65 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 27.19 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 625.86 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.80 | | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 29.23 | |
| E.G. Slope (m/m) | 0.013457 | | Area (m2) | | 29.23 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 107.52 | | Top Width (m) | | 107.52 | |
| Vel Total (m/s) | 1.08 | | Avg. Vel. (m/s) | | 1.08 | |
| Max Chl Dpth (m) | 0.76 | | Hydr. Depth (m) | | 0.27 | |
| Conv. Total (m3/s) | 272.6 | | Conv. (m3/s) | | 272.6 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 107.55 | |
| Min Ch El (m) | 625.04 | | Shear (N/m2) | | 35.87 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 38.80 | |
| Frctn Loss (m) | 0.20 | | Cum Volume (1000 m3) | | 17.92 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 43.44 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -380.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|-------|--------|--------|-------|--------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -66.86 | 630 | -65.5 | 629.75 | -33.35 | 626.5 | -11.72 | 625 | | |
| 0 | 624.79 | 45.21 | 625.47 | 100 | 625.6 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 625.27 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.03 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 625.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | 11.09 | | | |
| E.G. Slope (m/m) | 0.007312 | Area (m2) | 11.09 | | | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | 8.29 | | | |
| Top Width (m) | 44.92 | Top Width (m) | 44.92 | | | |
| Vel Total (m/s) | 0.75 | Avg. Vel. (m/s) | 0.75 | | | |
| Max Chl Dpth (m) | 0.45 | Hydr. Depth (m) | 0.25 | | | |
| Conv. Total (m3/s) | 97.0 | Conv. (m3/s) | 97.0 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 44.93 | | | |
| Min Ch El (m) | 624.79 | Shear (N/m2) | 17.70 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 13.23 | | | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | 6.45 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 26.35 | | | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 625.64 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.04 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 625.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | 36.10 | | | |
| E.G. Slope (m/m) | 0.007746 | Area (m2) | 36.10 | | | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | 31.62 | | | |
| Top Width (m) | 120.42 | Top Width (m) | 120.42 | | | |
| Vel Total (m/s) | 0.88 | Avg. Vel. (m/s) | 0.88 | | | |
| Max Chl Dpth (m) | 0.81 | Hydr. Depth (m) | 0.30 | | | |
| Conv. Total (m3/s) | 359.3 | Conv. (m3/s) | 359.3 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 120.46 | | | |
| Min Ch El (m) | 624.79 | Shear (N/m2) | 22.77 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 19.94 | | | |
| Frctn Loss (m) | 0.19 | Cum Volume (1000 m3) | 17.26 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 41.16 | | | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -400.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|------|--------|--------|--------|--------|--------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -70.93 | 630 | -56.53 | 628.95 | -30.24 | 626.04 | -17.72 | 625 | | |
| 0 | 624.54 | 15.06 | 625 | 45.21 | 625.47 | 100 | 625.47 | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 625.08 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.05 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 625.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | 8.55 | | | |
| E.G. Slope (m/m) | 0.012484 | Area (m2) | 8.55 | | | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | 8.29 | | | |
| Top Width (m) | 35.06 | Top Width (m) | 35.06 | | | |
| Vel Total (m/s) | 0.97 | Avg. Vel. (m/s) | 0.97 | | | |
| Max Chl Dpth (m) | 0.49 | Hydr. Depth (m) | 0.24 | | | |
| Conv. Total (m3/s) | 74.2 | Conv. (m3/s) | 74.2 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 35.08 | | | |
| Min Ch El (m) | 624.54 | Shear (N/m2) | 29.85 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 28.93 | | | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | 6.25 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 25.55 | | | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 625.44 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.09 | Wt. n-Val. | 0.045 | | | |
| W.S. Elev (m) | 625.36 | Reach Len. (m) | 20.00 | 20.00 | 20.00 | |
| Crit W.S. (m) | | Flow Area (m2) | 24.02 | | | |
| E.G. Slope (m/m) | 0.011872 | Area (m2) | 24.02 | | | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | 31.62 | | | |
| Top Width (m) | 59.89 | Top Width (m) | 59.89 | | | |
| Vel Total (m/s) | 1.32 | Avg. Vel. (m/s) | 1.32 | | | |
| Max Chl Dpth (m) | 0.82 | Hydr. Depth (m) | 0.40 | | | |
| Conv. Total (m3/s) | 290.2 | Conv. (m3/s) | 290.2 | | | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | 59.92 | | | |
| Min Ch El (m) | 624.54 | Shear (N/m2) | 46.67 | | | |
| Alpha | 1.00 | Stream Power (N/m s) | 61.45 | | | |
| Frctn Loss (m) | 0.26 | Cum Volume (1000 m3) | 16.66 | | | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | 39.36 | | | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -420.0

INPUT

Description:

| Station Elevation Data | | num= 10 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|------|--------|--------|--------|--------|--------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -81.49 | 630 | -58.55 | 628.56 | -34.28 | 625.75 | -24.13 | 625 | | |
| -.01 | 624.29 | 26.52 | 625 | 40.23 | 625.16 | 98.15 | 625.47 | 100 | 625.47 | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.83 | | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.78 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 8.47 | |
| E.G. Slope (m/m) | 0.012755 | Area (m2) | | 8.47 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 34.77 | Top Width (m) | | 34.77 | |
| Vel Total (m/s) | 0.98 | Avg. Vel. (m/s) | | 0.98 | |
| Max Chl Dpth (m) | 0.49 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 73.4 | Conv. (m3/s) | | 73.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 34.78 | |
| Min Ch El (m) | 624.29 | Shear (N/m2) | | 30.46 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 29.82 | |
| Frctn Loss (m) | 0.28 | Cum Volume (1000 m3) | | 6.08 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 24.85 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 625.19 | | | | |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 625.09 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 22.72 | |
| E.G. Slope (m/m) | 0.014074 | Area (m2) | | 22.72 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 59.22 | Top Width (m) | | 59.22 | |
| Vel Total (m/s) | 1.39 | Avg. Vel. (m/s) | | 1.39 | |
| Max Chl Dpth (m) | 0.80 | Hydr. Depth (m) | | 0.38 | |
| Conv. Total (m3/s) | 266.6 | Conv. (m3/s) | | 266.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 59.24 | |
| Min Ch El (m) | 624.29 | Shear (N/m2) | | 52.94 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 73.67 | |
| Frctn Loss (m) | 0.28 | Cum Volume (1000 m3) | | 16.20 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 38.17 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -440.0

INPUT

Description:

| Station Elevation Data | | num= 10 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|---------|------|--------|--------|--------|--------|--------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 630 | -92.57 | 630 | -60.01 | 628.25 | -37.65 | 625.49 | -31.42 | 625 | | |
| -.26 | 624.86 | 26.52 | 625 | 42.72 | 624.96 | 50.75 | 625 | 100 | 625.03 | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.56 | | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.50 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 8.19 | |
| E.G. Slope (m/m) | 0.015001 | Area (m2) | | 8.19 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 36.12 | Top Width (m) | | 36.12 | |
| Vel Total (m/s) | 1.01 | Avg. Vel. (m/s) | | 1.01 | |
| Max Chl Dpth (m) | 0.45 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 67.7 | Conv. (m3/s) | | 67.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 36.13 | |
| Min Ch El (m) | 624.05 | Shear (N/m2) | | 33.35 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 33.76 | |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | | 5.92 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 24.15 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.91 | | | | |
| Vel Head (m) | 0.10 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.81 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 23.06 | |
| E.G. Slope (m/m) | 0.013813 | Area (m2) | | 23.06 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 60.60 | Top Width (m) | | 60.60 | |
| Vel Total (m/s) | 1.37 | Avg. Vel. (m/s) | | 1.37 | |
| Max Chl Dpth (m) | 0.76 | Hydr. Depth (m) | | 0.38 | |
| Conv. Total (m3/s) | 269.1 | Conv. (m3/s) | | 269.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 60.62 | |
| Min Ch El (m) | 624.05 | Shear (N/m2) | | 51.53 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 70.67 | |
| Frctn Loss (m) | 0.25 | Cum Volume (1000 m3) | | 15.74 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 36.97 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -460.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|--------|--------|------|--------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 627.93 | -61.09 | 627.93 | -40.62 | 625.23 | -37.99 | 625 | -18.26 | 624.42 | | |
| -01 | 623.75 | 52.02 | 624.9 | 100 | 624.9 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.28 | | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.24 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 8.59 | |
| E.G. Slope (m/m) | 0.012408 | Area (m2) | | 8.59 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 35.29 | Top Width (m) | | 35.29 | |
| Vel Total (m/s) | 0.96 | Avg. Vel. (m/s) | | 0.96 | |
| Max Chl Dpth (m) | 0.49 | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 74.4 | Conv. (m3/s) | | 74.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 35.31 | |
| Min Ch El (m) | 623.75 | Shear (N/m2) | | 29.61 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 28.57 | |
| Frctn Loss (m) | 0.27 | Cum Volume (1000 m3) | | 5.75 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 23.43 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.65 | | | | |
| Vel Head (m) | 0.09 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.57 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 24.33 | |
| E.G. Slope (m/m) | 0.011477 | Area (m2) | | 24.33 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 60.30 | Top Width (m) | | 60.30 | |
| Vel Total (m/s) | 1.30 | Avg. Vel. (m/s) | | 1.30 | |
| Max Chl Dpth (m) | 0.82 | Hydr. Depth (m) | | 0.40 | |
| Conv. Total (m3/s) | 295.2 | Conv. (m3/s) | | 295.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 60.33 | |
| Min Ch El (m) | 623.75 | Shear (N/m2) | | 45.40 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 59.00 | |
| Frctn Loss (m) | 0.26 | Cum Volume (1000 m3) | | 15.26 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 35.76 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -480.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|--------|--------|--------|-------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 627.39 | -64.37 | 627.39 | -44.56 | 625 | -41.15 | 624.82 | -9.72 | 623.93 | | |
| 0 | 623.45 | 56.65 | 624.87 | 100 | 624.87 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.02 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.96 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 7.71 | |
| E.G. Slope (m/m) | 0.014907 | Area (m2) | | 7.71 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 30.83 | Top Width (m) | | 30.83 | |
| Vel Total (m/s) | 1.08 | Avg. Vel. (m/s) | | 1.08 | |
| Max Chl Dpth (m) | 0.51 | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 67.9 | Conv. (m3/s) | | 67.9 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 30.85 | |
| Min Ch El (m) | 623.45 | Shear (N/m2) | | 36.51 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 39.29 | |
| Frctn Loss (m) | 0.34 | Cum Volume (1000 m3) | | 5.58 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 22.77 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 624.39 | | | | |
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 624.28 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 21.52 | |
| E.G. Slope (m/m) | 0.015296 | Area (m2) | | 21.52 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 55.04 | Top Width (m) | | 55.04 | |
| Vel Total (m/s) | 1.47 | Avg. Vel. (m/s) | | 1.47 | |
| Max Chl Dpth (m) | 0.83 | Hydr. Depth (m) | | 0.39 | |
| Conv. Total (m3/s) | 255.7 | Conv. (m3/s) | | 255.7 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 55.07 | |
| Min Ch El (m) | 623.45 | Shear (N/m2) | | 58.63 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 86.14 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 14.80 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 34.61 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -500.0

INPUT

Description:

| Station Elevation Data | | num= | | 9 | |
|------------------------|--------|--------|--------|--------|------|
| Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 626.38 | -91.44 | 626.38 | -57.91 | 625 |
| 0 | 623.14 | 56.54 | 624.88 | 79.66 | 625 |

| Manning's n Values | | num= | | 3 | |
|--------------------|-------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 623.67 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.07 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 623.56 | Flow Area (m2) | | 7.22 | |
| E.G. Slope (m/m) | 0.019891 | Area (m2) | | 7.22 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 32.58 | Top Width (m) | | 32.58 | |
| Vel Total (m/s) | 1.15 | Avg. Vel. (m/s) | | 1.15 | |
| Max Chl Dpth (m) | 0.46 | Hydr. Depth (m) | | 0.22 | |
| Conv. Total (m3/s) | 58.8 | Conv. (m3/s) | | 58.8 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 32.59 | |
| Min Ch El (m) | 623.14 | Shear (N/m2) | | 43.23 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 49.62 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 5.44 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 22.14 | |

CROSS SECTION OUTPUT Profile #T=500 años

| E.G. Elev (m) | 624.02 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.87 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 623.84 | Flow Area (m2) | | 18.95 | |
| E.G. Slope (m/m) | 0.022673 | Area (m2) | | 18.95 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 53.81 | Top Width (m) | | 53.81 | |
| Vel Total (m/s) | 1.67 | Avg. Vel. (m/s) | | 1.67 | |
| Max Chl Dpth (m) | 0.73 | Hydr. Depth (m) | | 0.35 | |
| Conv. Total (m3/s) | 210.0 | Conv. (m3/s) | | 210.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 53.83 | |
| Min Ch El (m) | 623.14 | Shear (N/m2) | | 78.28 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 130.61 | |
| Frctn Loss (m) | 0.45 | Cum Volume (1000 m3) | | 14.40 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 33.52 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -520.0

INPUT

Description:

| Station Elevation Data | | num= | | 6 | |
|------------------------|--------|--------|--------|--------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 623.74 | -59.33 | 623.74 | -17.55 | 622.94 |
| 100 | 624.85 | | | 0 | 622.88 |

| Manning's n Values | | num= | | 3 | |
|--------------------|-------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| E.G. Elev (m) | 623.24 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.18 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 623.15 | Flow Area (m2) | | 7.41 | |
| E.G. Slope (m/m) | 0.022432 | Area (m2) | | 7.41 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 37.98 | Top Width (m) | | 37.98 | |
| Vel Total (m/s) | 1.12 | Avg. Vel. (m/s) | | 1.12 | |
| Max Chl Dpth (m) | 0.30 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 55.4 | Conv. (m3/s) | | 55.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 37.99 | |
| Min Ch El (m) | 622.88 | Shear (N/m2) | | 42.90 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 48.01 | |
| Frctn Loss (m) | 0.39 | Cum Volume (1000 m3) | | 5.29 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 21.43 | |

CROSS SECTION OUTPUT Profile #T=500 años

| E.G. Elev (m) | 623.57 | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.13 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.43 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 623.40 | Flow Area (m2) | | 19.52 | |
| E.G. Slope (m/m) | 0.022642 | Area (m2) | | 19.52 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 57.87 | Top Width (m) | | 57.87 | |
| Vel Total (m/s) | 1.62 | Avg. Vel. (m/s) | | 1.62 | |
| Max Chl Dpth (m) | 0.55 | Hydr. Depth (m) | | 0.34 | |
| Conv. Total (m3/s) | 210.2 | Conv. (m3/s) | | 210.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 57.89 | |
| Min Ch El (m) | 622.88 | Shear (N/m2) | | 74.88 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 121.30 | |
| Frctn Loss (m) | 0.39 | Cum Volume (1000 m3) | | 14.02 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 32.40 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -540.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | | | | | | | | |
|------------------------|--------|--------|--------|--------|-------|------|--------|-------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 623.4 | -69.64 | 623.4 | -25.29 | 622.5 | -.01 | 622.65 | 44.65 | 624.78 | | |
| 93.03 | 624.96 | 100 | 624.96 | | | | | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 622.86 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 622.81 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 8.58 | |
| E.G. Slope (m/m) | 0.016702 | Area (m2) | | 8.58 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 43.91 | Top Width (m) | | 43.91 | |
| Vel Total (m/s) | 0.97 | Avg. Vel. (m/s) | | 0.97 | |
| Max Chl Dpth (m) | 0.31 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 64.2 | Conv. (m3/s) | | 64.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 43.92 | |
| Min Ch El (m) | 622.50 | Shear (N/m2) | | 31.99 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 30.92 | |
| Frctn Loss (m) | 0.41 | Cum Volume (1000 m3) | | 5.13 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 20.61 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 623.17 | Element | | | |
| Vel Head (m) | 0.11 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 623.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 21.79 | |
| E.G. Slope (m/m) | 0.017020 | Area (m2) | | 21.79 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 61.52 | Top Width (m) | | 61.52 | |
| Vel Total (m/s) | 1.45 | Avg. Vel. (m/s) | | 1.45 | |
| Max Chl Dpth (m) | 0.56 | Hydr. Depth (m) | | 0.35 | |
| Conv. Total (m3/s) | 242.4 | Conv. (m3/s) | | 242.4 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 61.53 | |
| Min Ch El (m) | 622.50 | Shear (N/m2) | | 59.11 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 85.78 | |
| Frctn Loss (m) | 0.42 | Cum Volume (1000 m3) | | 13.60 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 31.21 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -560.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|-----|--------|-------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 623.07 | -79.66 | 623.07 | -32.76 | 622.06 | 0 | 622.42 | 37.37 | 624.72 | | |
| 84.83 | 624.92 | 100 | 624.92 | | | | | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 622.45 | Element | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 622.39 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 622.37 | Flow Area (m2) | | 7.65 | |
| E.G. Slope (m/m) | 0.025864 | Area (m2) | | 7.65 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 45.87 | Top Width (m) | | 45.87 | |
| Vel Total (m/s) | 1.08 | Avg. Vel. (m/s) | | 1.08 | |
| Max Chl Dpth (m) | 0.33 | Hydr. Depth (m) | | 0.17 | |
| Conv. Total (m3/s) | 51.6 | Conv. (m3/s) | | 51.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 45.87 | |
| Min Ch El (m) | 622.06 | Shear (N/m2) | | 42.32 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 45.84 | |
| Frctn Loss (m) | 0.37 | Cum Volume (1000 m3) | | 4.97 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | 19.71 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 622.74 | Element | | | |
| Vel Head (m) | 0.14 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 622.60 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 622.59 | Flow Area (m2) | | 18.96 | |
| E.G. Slope (m/m) | 0.026704 | Area (m2) | | 18.96 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 60.89 | Top Width (m) | | 60.89 | |
| Vel Total (m/s) | 1.67 | Avg. Vel. (m/s) | | 1.67 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.31 | |
| Conv. Total (m3/s) | 193.5 | Conv. (m3/s) | | 193.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 60.91 | |
| Min Ch El (m) | 622.06 | Shear (N/m2) | | 81.52 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 135.97 | |
| Frctn Loss (m) | 0.35 | Cum Volume (1000 m3) | | 13.19 | |
| C & E Loss (m) | 0.02 | Cum SA (1000 m2) | | 29.99 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -580.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|--------|------|-------|-------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 622.73 | -89.38 | 622.73 | -39.99 | 621.63 | 0 | 622.2 | 30.33 | 624.66 | | |
| 76.89 | 624.88 | 88.58 | 625 | 100 | 625 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 622.07 | | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 622.03 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 9.26 | |
| E.G. Slope (m/m) | 0.013823 | Area (m2) | | 9.26 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 46.17 | Top Width (m) | | 46.17 | |
| Vel Total (m/s) | 0.90 | Avg. Vel. (m/s) | | 0.90 | |
| Max Chl Dpth (m) | 0.40 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 70.5 | Conv. (m3/s) | | 70.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 46.17 | |
| Min Ch El (m) | 621.63 | Shear (N/m2) | | 27.19 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 24.34 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 4.80 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 18.79 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 622.38 | | | | |
| Vel Head (m) | 0.08 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 622.30 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 25.60 | |
| E.G. Slope (m/m) | 0.012124 | Area (m2) | | 25.60 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 71.36 | Top Width (m) | | 71.36 | |
| Vel Total (m/s) | 1.24 | Avg. Vel. (m/s) | | 1.24 | |
| Max Chl Dpth (m) | 0.67 | Hydr. Depth (m) | | 0.36 | |
| Conv. Total (m3/s) | 287.2 | Conv. (m3/s) | | 287.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 71.38 | |
| Min Ch El (m) | 621.63 | Shear (N/m2) | | 42.64 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 52.68 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 12.75 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 28.66 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -600.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|--------|------|--------|-------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 622.72 | -90.75 | 622.72 | -43.79 | 621.39 | -01 | 621.96 | 23.44 | 624.58 | | |
| 66.66 | 624.81 | 81.37 | 625 | 100 | 625 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 621.87 | | | | |
| Vel Head (m) | 0.03 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.85 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 11.69 | |
| E.G. Slope (m/m) | 0.007305 | Area (m2) | | 11.69 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 51.19 | Top Width (m) | | 51.19 | |
| Vel Total (m/s) | 0.71 | Avg. Vel. (m/s) | | 0.71 | |
| Max Chl Dpth (m) | 0.46 | Hydr. Depth (m) | | 0.23 | |
| Conv. Total (m3/s) | 97.0 | Conv. (m3/s) | | 97.0 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 51.20 | |
| Min Ch El (m) | 621.39 | Shear (N/m2) | | 16.35 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 11.60 | |
| Frctn Loss (m) | 0.20 | Cum Volume (1000 m3) | | 4.59 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 17.82 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 622.18 | | | | |
| Vel Head (m) | 0.06 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 622.12 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 28.75 | |
| E.G. Slope (m/m) | 0.008159 | Area (m2) | | 28.75 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 70.82 | Top Width (m) | | 70.82 | |
| Vel Total (m/s) | 1.10 | Avg. Vel. (m/s) | | 1.10 | |
| Max Chl Dpth (m) | 0.73 | Hydr. Depth (m) | | 0.41 | |
| Conv. Total (m3/s) | 350.1 | Conv. (m3/s) | | 350.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 70.85 | |
| Min Ch El (m) | 621.39 | Shear (N/m2) | | 32.46 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 35.71 | |
| Frctn Loss (m) | 0.21 | Cum Volume (1000 m3) | | 12.21 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 27.24 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -620.0

INPUT

Description:

| Station Elevation Data | | num= | 7 | | | | | | |
|------------------------|--------|--------|--------|-----|--------|------|--------|-------|-------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | | |
| -100 | 622.88 | -89.28 | 622.88 | -43 | 621.28 | -.01 | 621.63 | 25.53 | 624.5 |
| 68.15 | 624.74 | 100 | 624.74 | | | | | | |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 621.67 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.64 | 20.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | 9.57 | Flow Area (m2) | | 9.57 | |
| E.G. Slope (m/m) | 0.014995 | 9.57 | Area (m2) | | 9.57 | |
| Q Total (m3/s) | 8.29 | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 53.31 | 53.31 | Top Width (m) | | 53.31 | |
| Vel Total (m/s) | 0.87 | 0.87 | Avg. Vel. (m/s) | | 0.87 | |
| Max Chl Dpth (m) | 0.36 | 0.18 | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 67.7 | 67.7 | Conv. (m3/s) | | 67.7 | |
| Length Wtd. (m) | 20.00 | 53.32 | Wetted Per. (m) | | 53.32 | |
| Min Ch El (m) | 621.28 | 26.40 | Shear (N/m2) | | 26.40 | |
| Alpha | 1.00 | 22.86 | Stream Power (N/m s) | | 22.86 | |
| Frctn Loss (m) | 0.28 | 4.38 | Cum Volume (1000 m3) | | 4.38 | |
| C & E Loss (m) | 0.00 | 16.77 | Cum SA (1000 m2) | | 16.77 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 621.97 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.09 | 0.045 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.88 | 20.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | 23.59 | Flow Area (m2) | | 23.59 | |
| E.G. Slope (m/m) | 0.013334 | 23.59 | Area (m2) | | 23.59 | |
| Q Total (m3/s) | 31.62 | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 62.47 | 62.47 | Top Width (m) | | 62.47 | |
| Vel Total (m/s) | 1.34 | 1.34 | Avg. Vel. (m/s) | | 1.34 | |
| Max Chl Dpth (m) | 0.60 | 0.38 | Hydr. Depth (m) | | 0.38 | |
| Conv. Total (m3/s) | 273.9 | 273.9 | Conv. (m3/s) | | 273.9 | |
| Length Wtd. (m) | 20.00 | 62.50 | Wetted Per. (m) | | 62.50 | |
| Min Ch El (m) | 621.28 | 49.36 | Shear (N/m2) | | 49.36 | |
| Alpha | 1.00 | 66.16 | Stream Power (N/m s) | | 66.16 | |
| Frctn Loss (m) | 0.25 | 11.68 | Cum Volume (1000 m3) | | 11.68 | |
| C & E Loss (m) | 0.00 | 25.91 | Cum SA (1000 m2) | | 25.91 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -640.0

INPUT

Description:

| Station Elevation Data | | num= | 7 | | | | | | |
|------------------------|--------|--------|--------|--------|--------|------|-------|-------|--------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 622.84 | -88.88 | 622.84 | -39.36 | 621.02 | -.01 | 621.3 | 34.11 | 624.42 |
| 79.82 | 625 | 100 | 625 | | | | | | |

| Manning's n Values | | num= | 3 | | |
|--------------------|-------|------|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 621.40 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | 0.045 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.37 | 20.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 621.32 | 9.76 | Flow Area (m2) | | 9.76 | |
| E.G. Slope (m/m) | 0.012718 | 9.76 | Area (m2) | | 9.76 | |
| Q Total (m3/s) | 8.29 | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 49.49 | 49.49 | Top Width (m) | | 49.49 | |
| Vel Total (m/s) | 0.85 | 0.85 | Avg. Vel. (m/s) | | 0.85 | |
| Max Chl Dpth (m) | 0.35 | 0.20 | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 73.5 | 73.5 | Conv. (m3/s) | | 73.5 | |
| Length Wtd. (m) | 20.00 | 49.50 | Wetted Per. (m) | | 49.50 | |
| Min Ch El (m) | 621.02 | 24.60 | Shear (N/m2) | | 24.60 | |
| Alpha | 1.00 | 20.89 | Stream Power (N/m s) | | 20.89 | |
| Frctn Loss (m) | 0.30 | 4.18 | Cum Volume (1000 m3) | | 4.18 | |
| C & E Loss (m) | 0.00 | 15.75 | Cum SA (1000 m2) | | 15.75 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 621.72 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.09 | 0.045 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.63 | 20.00 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | 23.92 | Flow Area (m2) | | 23.92 | |
| E.G. Slope (m/m) | 0.011907 | 23.92 | Area (m2) | | 23.92 | |
| Q Total (m3/s) | 31.62 | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 59.41 | 59.41 | Top Width (m) | | 59.41 | |
| Vel Total (m/s) | 1.32 | 1.32 | Avg. Vel. (m/s) | | 1.32 | |
| Max Chl Dpth (m) | 0.61 | 0.40 | Hydr. Depth (m) | | 0.40 | |
| Conv. Total (m3/s) | 289.8 | 289.8 | Conv. (m3/s) | | 289.8 | |
| Length Wtd. (m) | 20.00 | 59.44 | Wetted Per. (m) | | 59.44 | |
| Min Ch El (m) | 621.02 | 47.00 | Shear (N/m2) | | 47.00 | |
| Alpha | 1.00 | 62.13 | Stream Power (N/m s) | | 62.13 | |
| Frctn Loss (m) | 0.29 | 11.21 | Cum Volume (1000 m3) | | 11.21 | |
| C & E Loss (m) | 0.00 | 24.69 | Cum SA (1000 m2) | | 24.69 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -660.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|-------|--------|-------|--------|--------|------|--------|-------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 622.8 | -87.94 | 622.8 | -32.36 | 620.72 | -.03 | 620.95 | 47.68 | 624.68 | | |
| 62.13 | 625 | 100 | 625 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 621.10 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.05 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.05 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 621.01 | | Flow Area (m2) | | 8.29 | |
| E.G. Slope (m/m) | 0.017749 | | Area (m2) | | 8.29 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 42.26 | | Top Width (m) | | 42.26 | |
| Vel Total (m/s) | 1.00 | | Avg. Vel. (m/s) | | 1.00 | |
| Max Chl Dpth (m) | 0.33 | | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 62.2 | | Conv. (m3/s) | | 62.2 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 42.27 | |
| Min Ch El (m) | 620.72 | | Shear (N/m2) | | 34.15 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 34.14 | |
| Frctn Loss (m) | 0.48 | | Cum Volume (1000 m3) | | 4.00 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 14.83 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 621.42 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.13 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 621.29 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 20.01 | |
| E.G. Slope (m/m) | 0.018105 | | Area (m2) | | 20.01 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 52.08 | | Top Width (m) | | 52.08 | |
| Vel Total (m/s) | 1.58 | | Avg. Vel. (m/s) | | 1.58 | |
| Max Chl Dpth (m) | 0.57 | | Hydr. Depth (m) | | 0.38 | |
| Conv. Total (m3/s) | 235.0 | | Conv. (m3/s) | | 235.0 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 52.11 | |
| Min Ch El (m) | 620.72 | | Shear (N/m2) | | 68.20 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 107.75 | |
| Frctn Loss (m) | 0.41 | | Cum Volume (1000 m3) | | 10.77 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 23.57 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -680.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|-------|--------|------|--------|-------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 622.75 | -86.24 | 622.75 | -19.9 | 620.32 | -.03 | 620.23 | 66.97 | 624.86 | | |
| 67.25 | 625 | 100 | 625 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 620.62 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.10 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.52 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 620.52 | | Flow Area (m2) | | 5.88 | |
| E.G. Slope (m/m) | 0.034267 | | Area (m2) | | 5.88 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 29.33 | | Top Width (m) | | 29.33 | |
| Vel Total (m/s) | 1.41 | | Avg. Vel. (m/s) | | 1.41 | |
| Max Chl Dpth (m) | 0.29 | | Hydr. Depth (m) | | 0.20 | |
| Conv. Total (m3/s) | 44.8 | | Conv. (m3/s) | | 44.8 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 29.34 | |
| Min Ch El (m) | 620.23 | | Shear (N/m2) | | 67.38 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 94.95 | |
| Frctn Loss (m) | 0.14 | | Cum Volume (1000 m3) | | 3.86 | |
| C & E Loss (m) | 0.03 | | Cum SA (1000 m2) | | 14.11 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 621.00 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.18 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.82 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 620.80 | | Flow Area (m2) | | 16.91 | |
| E.G. Slope (m/m) | 0.024006 | | Area (m2) | | 16.91 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 42.20 | | Top Width (m) | | 42.20 | |
| Vel Total (m/s) | 1.87 | | Avg. Vel. (m/s) | | 1.87 | |
| Max Chl Dpth (m) | 0.59 | | Hydr. Depth (m) | | 0.40 | |
| Conv. Total (m3/s) | 204.1 | | Conv. (m3/s) | | 204.1 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 42.23 | |
| Min Ch El (m) | 620.23 | | Shear (N/m2) | | 94.25 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 176.27 | |
| Frctn Loss (m) | 0.14 | | Cum Volume (1000 m3) | | 10.40 | |
| C & E Loss (m) | 0.04 | | Cum SA (1000 m2) | | 22.63 | |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -700.0

INPUT

Description:

| Station Elevation Data | | num= 7 | |
|------------------------|--------|--------|--------|
| Sta | Elev | Sta | Elev |
| -100 | 622.47 | -73.31 | 622.47 |
| 81.85 | 624.45 | 100 | 624.45 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 620.39 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.37 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 620.17 | Flow Area (m2) | | 14.24 | |
| E.G. Slope (m/m) | 0.003030 | Area (m2) | | 14.24 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 43.35 | Top Width (m) | | 43.35 | |
| Vel Total (m/s) | 0.58 | Avg. Vel. (m/s) | | 0.58 | |
| Max Chl Dpth (m) | 0.43 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 150.6 | Conv. (m3/s) | | 150.6 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 43.37 | |
| Min Ch El (m) | 619.94 | Shear (N/m2) | | 9.76 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.68 | |
| Frctn Loss (m) | 0.06 | Cum Volume (1000 m3) | | 3.66 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 13.39 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 620.82 | | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.78 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 35.03 | |
| E.G. Slope (m/m) | 0.003340 | Area (m2) | | 35.03 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 59.41 | Top Width (m) | | 59.41 | |
| Vel Total (m/s) | 0.90 | Avg. Vel. (m/s) | | 0.90 | |
| Max Chl Dpth (m) | 0.84 | Hydr. Depth (m) | | 0.59 | |
| Conv. Total (m3/s) | 547.2 | Conv. (m3/s) | | 547.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 59.46 | |
| Min Ch El (m) | 619.94 | Shear (N/m2) | | 19.30 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 17.42 | |
| Frctn Loss (m) | 0.07 | Cum Volume (1000 m3) | | 9.88 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 21.61 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -720.0

INPUT

Description:

| Station Elevation Data | | num= 9 | |
|------------------------|--------|--------|--------|
| Sta | Elev | Sta | Elev |
| -100 | 622.54 | -79 | 622.54 |
| 19.87 | 620 | 76.88 | 624.67 |
| | | 82.25 | 625 |
| | | 100 | 625 |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 20 | 20 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 620.33 | | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.32 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 14.60 | |
| E.G. Slope (m/m) | 0.002819 | Area (m2) | | 14.60 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 43.67 | Top Width (m) | | 43.67 | |
| Vel Total (m/s) | 0.57 | Avg. Vel. (m/s) | | 0.57 | |
| Max Chl Dpth (m) | 0.46 | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 156.2 | Conv. (m3/s) | | 156.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 43.69 | |
| Min Ch El (m) | 619.86 | Shear (N/m2) | | 9.23 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 5.24 | |
| Frctn Loss (m) | 0.06 | Cum Volume (1000 m3) | | 3.37 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 12.52 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | Element | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 620.75 | | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.71 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 34.10 | |
| E.G. Slope (m/m) | 0.003365 | Area (m2) | | 34.10 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 55.85 | Top Width (m) | | 55.85 | |
| Vel Total (m/s) | 0.93 | Avg. Vel. (m/s) | | 0.93 | |
| Max Chl Dpth (m) | 0.85 | Hydr. Depth (m) | | 0.61 | |
| Conv. Total (m3/s) | 545.2 | Conv. (m3/s) | | 545.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 55.90 | |
| Min Ch El (m) | 619.86 | Shear (N/m2) | | 20.13 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 18.67 | |
| Frctn Loss (m) | 0.07 | Cum Volume (1000 m3) | | 9.19 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 20.46 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -740.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|--------|--------|------|-----|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 621.33 | -69.5 | 621.33 | -41.33 | 621.04 | -15.61 | 620 | 0 | 619.77 | | |
| 19.31 | 620 | 78.89 | 624.87 | 78.98 | 625 | 100 | 625 | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 620.27 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.25 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 14.12 | |
| E.G. Slope (m/m) | 0.003213 | | Area (m2) | | 14.12 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 44.34 | | Top Width (m) | | 44.34 | |
| Vel Total (m/s) | 0.59 | | Avg. Vel. (m/s) | | 0.59 | |
| Max Chl Dpth (m) | 0.48 | | Hydr. Depth (m) | | 0.32 | |
| Conv. Total (m3/s) | 146.3 | | Conv. (m3/s) | | 146.3 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 44.36 | |
| Min Ch El (m) | 619.77 | | Shear (N/m2) | | 10.03 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 5.89 | |
| Frctn Loss (m) | 0.06 | | Cum Volume (1000 m3) | | 3.08 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 11.64 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 620.68 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.64 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 33.66 | |
| E.G. Slope (m/m) | 0.003731 | | Area (m2) | | 33.66 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 58.40 | | Top Width (m) | | 58.40 | |
| Vel Total (m/s) | 0.94 | | Avg. Vel. (m/s) | | 0.94 | |
| Max Chl Dpth (m) | 0.87 | | Hydr. Depth (m) | | 0.58 | |
| Conv. Total (m3/s) | 517.7 | | Conv. (m3/s) | | 517.7 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 58.44 | |
| Min Ch El (m) | 619.77 | | Shear (N/m2) | | 21.07 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 19.80 | |
| Frctn Loss (m) | 0.07 | | Cum Volume (1000 m3) | | 8.51 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 19.32 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -760.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|------|------|--------|-------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.71 | -46.16 | 620.66 | -23.09 | 620 | 0 | 619.69 | 17.36 | 620 | | |
| 76.75 | 625 | 100 | 625 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 620.21 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.19 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 15.04 | |
| E.G. Slope (m/m) | 0.003022 | | Area (m2) | | 15.04 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 49.57 | | Top Width (m) | | 49.57 | |
| Vel Total (m/s) | 0.55 | | Avg. Vel. (m/s) | | 0.55 | |
| Max Chl Dpth (m) | 0.50 | | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 150.8 | | Conv. (m3/s) | | 150.8 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 49.59 | |
| Min Ch El (m) | 619.69 | | Shear (N/m2) | | 8.99 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 4.95 | |
| Frctn Loss (m) | 0.06 | | Cum Volume (1000 m3) | | 2.79 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 10.70 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 620.61 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.57 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 37.00 | |
| E.G. Slope (m/m) | 0.003280 | | Area (m2) | | 37.00 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 67.19 | | Top Width (m) | | 67.19 | |
| Vel Total (m/s) | 0.85 | | Avg. Vel. (m/s) | | 0.85 | |
| Max Chl Dpth (m) | 0.88 | | Hydr. Depth (m) | | 0.55 | |
| Conv. Total (m3/s) | 552.2 | | Conv. (m3/s) | | 552.2 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 67.23 | |
| Min Ch El (m) | 619.69 | | Shear (N/m2) | | 17.70 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 15.13 | |
| Frctn Loss (m) | 0.07 | | Cum Volume (1000 m3) | | 7.80 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 18.06 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -780.0

INPUT

Description:

| Station Elevation Data | | num= 9 | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|------|------|-------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.65 | -73.9 | 620.65 | -48.34 | 620.52 | -28.89 | 620 | -.01 | 619.6 | | |
| 15.04 | 620 | 59.31 | 624.17 | 90.39 | 625 | 100 | 625 | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 620.15 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.14 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 15.23 | |
| E.G. Slope (m/m) | 0.002964 | Area (m2) | | 15.23 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 50.49 | Top Width (m) | | 50.49 | |
| Vel Total (m/s) | 0.54 | Avg. Vel. (m/s) | | 0.54 | |
| Max Chl Dpth (m) | 0.54 | Hydr. Depth (m) | | 0.30 | |
| Conv. Total (m3/s) | 152.3 | Conv. (m3/s) | | 152.3 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 50.50 | |
| Min Ch El (m) | 619.60 | Shear (N/m2) | | 8.77 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 4.77 | |
| Frctn Loss (m) | 0.07 | Cum Volume (1000 m3) | | 2.49 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 9.70 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 620.54 | Element | | | |
| Vel Head (m) | 0.04 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.51 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 37.14 | |
| E.G. Slope (m/m) | 0.003305 | Area (m2) | | 37.14 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 68.21 | Top Width (m) | | 68.21 | |
| Vel Total (m/s) | 0.85 | Avg. Vel. (m/s) | | 0.85 | |
| Max Chl Dpth (m) | 0.91 | Hydr. Depth (m) | | 0.54 | |
| Conv. Total (m3/s) | 550.1 | Conv. (m3/s) | | 550.1 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 68.25 | |
| Min Ch El (m) | 619.60 | Shear (N/m2) | | 17.64 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 15.02 | |
| Frctn Loss (m) | 0.08 | Cum Volume (1000 m3) | | 7.06 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 16.71 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -800.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|--------|------|------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.97 | -78.39 | 620.97 | -48.71 | 620.55 | -29.19 | 620 | -.01 | 619.51 | | |
| 13.6 | 620 | 59.3 | 623.53 | 100 | 623.53 | | | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 620.08 | Element | | | |
| Vel Head (m) | 0.02 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.06 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 13.35 | |
| E.G. Slope (m/m) | 0.004053 | Area (m2) | | 13.35 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 45.92 | Top Width (m) | | 45.92 | |
| Vel Total (m/s) | 0.62 | Avg. Vel. (m/s) | | 0.62 | |
| Max Chl Dpth (m) | 0.55 | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 130.2 | Conv. (m3/s) | | 130.2 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 45.94 | |
| Min Ch El (m) | 619.51 | Shear (N/m2) | | 11.55 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 7.17 | |
| Frctn Loss (m) | 0.12 | Cum Volume (1000 m3) | | 2.20 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 8.73 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | | | Left OB | Channel | Right OB |
|--------------------|----------|----------------------|---------|---------|----------|
| E.G. Elev (m) | 620.46 | Element | | | |
| Vel Head (m) | 0.05 | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.41 | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | Flow Area (m2) | | 32.40 | |
| E.G. Slope (m/m) | 0.004675 | Area (m2) | | 32.40 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 62.88 | Top Width (m) | | 62.88 | |
| Vel Total (m/s) | 0.98 | Avg. Vel. (m/s) | | 0.98 | |
| Max Chl Dpth (m) | 0.90 | Hydr. Depth (m) | | 0.52 | |
| Conv. Total (m3/s) | 462.5 | Conv. (m3/s) | | 462.5 | |
| Length Wtd. (m) | 20.00 | Wetted Per. (m) | | 62.92 | |
| Min Ch El (m) | 619.51 | Shear (N/m2) | | 23.61 | |
| Alpha | 1.00 | Stream Power (N/m s) | | 23.04 | |
| Frctn Loss (m) | 0.13 | Cum Volume (1000 m3) | | 6.37 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | 15.40 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -820.0

INPUT

Description:

| Station Elevation Data | | num= 8 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|-------|--------|--------|------|-----|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.58 | -68.2 | 620.58 | -38.9 | 620.25 | -26.39 | 620 | 0 | 619.43 | | |
| 17.56 | 620 | 66.81 | 623.18 | 100 | 623.18 | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 619.97 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.04 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.93 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 9.52 | |
| E.G. Slope (m/m) | 0.009851 | | Area (m2) | | 9.52 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 38.31 | | Top Width (m) | | 38.31 | |
| Vel Total (m/s) | 0.87 | | Avg. Vel. (m/s) | | 0.87 | |
| Max Chl Dpth (m) | 0.50 | | Hydr. Depth (m) | | 0.25 | |
| Conv. Total (m3/s) | 83.5 | | Conv. (m3/s) | | 83.5 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 38.32 | |
| Min Ch El (m) | 619.43 | | Shear (N/m2) | | 23.99 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 20.90 | |
| Frctn Loss (m) | 0.11 | | Cum Volume (1000 m3) | | 1.97 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 7.89 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 620.33 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.08 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.26 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 25.91 | |
| E.G. Slope (m/m) | 0.009442 | | Area (m2) | | 25.91 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 60.93 | | Top Width (m) | | 60.93 | |
| Vel Total (m/s) | 1.22 | | Avg. Vel. (m/s) | | 1.22 | |
| Max Chl Dpth (m) | 0.83 | | Hydr. Depth (m) | | 0.43 | |
| Conv. Total (m3/s) | 325.4 | | Conv. (m3/s) | | 325.4 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 60.96 | |
| Min Ch El (m) | 619.43 | | Shear (N/m2) | | 39.35 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 48.03 | |
| Frctn Loss (m) | 0.09 | | Cum Volume (1000 m3) | | 5.78 | |
| C & E Loss (m) | 0.02 | | Cum SA (1000 m2) | | 14.16 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -840.0

INPUT

Description:

| Station Elevation Data | | num= 6 | | Sta | | Elev | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|------|-----|--------|-------|------|-------|--------|------|------|-----|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620.4 | -60.29 | 620 | 0 | 619.34 | 26.62 | 620 | 71.43 | 622.94 | | | | | | |
| 100 | 622.94 | | | | | | | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 619.84 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.83 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 15.74 | |
| E.G. Slope (m/m) | 0.003678 | | Area (m2) | | 15.74 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 64.36 | | Top Width (m) | | 64.36 | |
| Vel Total (m/s) | 0.53 | | Avg. Vel. (m/s) | | 0.53 | |
| Max Chl Dpth (m) | 0.49 | | Hydr. Depth (m) | | 0.24 | |
| Conv. Total (m3/s) | 136.7 | | Conv. (m3/s) | | 136.7 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 64.37 | |
| Min Ch El (m) | 619.34 | | Shear (N/m2) | | 8.82 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 4.65 | |
| Frctn Loss (m) | 0.04 | | Cum Volume (1000 m3) | | 1.72 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 6.86 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 620.23 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.21 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 49.21 | |
| E.G. Slope (m/m) | 0.002465 | | Area (m2) | | 49.21 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 110.70 | | Top Width (m) | | 110.70 | |
| Vel Total (m/s) | 0.64 | | Avg. Vel. (m/s) | | 0.64 | |
| Max Chl Dpth (m) | 0.87 | | Hydr. Depth (m) | | 0.44 | |
| Conv. Total (m3/s) | 637.0 | | Conv. (m3/s) | | 637.0 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 110.72 | |
| Min Ch El (m) | 619.34 | | Shear (N/m2) | | 10.74 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 6.90 | |
| Frctn Loss (m) | 0.03 | | Cum Volume (1000 m3) | | 5.03 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 12.44 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -860.0

INPUT

Description:

| Station Elevation Data | | num= 6 | |
|------------------------|--------|--------|------|
| Sta | Elev | Sta | Elev |
| -100 | 620.4 | -86.06 | 620 |
| 100 | 622.74 | | |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 619.80 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.79 | | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 23.26 | |
| E.G. Slope (m/m) | 0.001510 | | Area (m2) | | 23.26 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 87.70 | | Top Width (m) | | 87.70 | |
| Vel Total (m/s) | 0.36 | | Avg. Vel. (m/s) | | 0.36 | |
| Max Chl Dpth (m) | 0.53 | | Hydr. Depth (m) | | 0.27 | |
| Conv. Total (m3/s) | 213.3 | | Conv. (m3/s) | | 213.3 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 87.71 | |
| Min Ch El (m) | 619.26 | | Shear (N/m2) | | 3.93 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 1.40 | |
| Frctn Loss (m) | 0.04 | | Cum Volume (1000 m3) | | 1.33 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 5.34 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 620.20 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.18 | | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 68.72 | |
| E.G. Slope (m/m) | 0.001018 | | Area (m2) | | 68.72 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 131.39 | | Top Width (m) | | 131.39 | |
| Vel Total (m/s) | 0.46 | | Avg. Vel. (m/s) | | 0.46 | |
| Max Chl Dpth (m) | 0.92 | | Hydr. Depth (m) | | 0.52 | |
| Conv. Total (m3/s) | 991.2 | | Conv. (m3/s) | | 991.2 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 131.41 | |
| Min Ch El (m) | 619.26 | | Shear (N/m2) | | 5.22 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 2.40 | |
| Frctn Loss (m) | 0.03 | | Cum Volume (1000 m3) | | 3.85 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 10.02 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -880.0

INPUT

Description:

| Station Elevation Data | | num= 6 | |
|------------------------|--------|--------|------|
| Sta | Elev | Sta | Elev |
| -100 | 620.4 | -37.04 | 620 |
| 100 | 622.63 | | |

| Manning's n Values | | num= 3 | |
|--------------------|-------|--------|-------|
| Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 |
| | | 100 | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 619.76 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.01 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.74 | | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 15.98 | |
| E.G. Slope (m/m) | 0.002886 | | Area (m2) | | 15.98 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 55.74 | | Top Width (m) | | 55.74 | |
| Vel Total (m/s) | 0.52 | | Avg. Vel. (m/s) | | 0.52 | |
| Max Chl Dpth (m) | 0.57 | | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 154.3 | | Conv. (m3/s) | | 154.3 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 55.75 | |
| Min Ch El (m) | 619.17 | | Shear (N/m2) | | 8.11 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 4.21 | |
| Frctn Loss (m) | 0.06 | | Cum Volume (1000 m3) | | 0.94 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 3.91 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 620.16 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.14 | | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 46.33 | |
| E.G. Slope (m/m) | 0.002782 | | Area (m2) | | 46.33 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 104.24 | | Top Width (m) | | 104.24 | |
| Vel Total (m/s) | 0.68 | | Avg. Vel. (m/s) | | 0.68 | |
| Max Chl Dpth (m) | 0.97 | | Hydr. Depth (m) | | 0.44 | |
| Conv. Total (m3/s) | 599.6 | | Conv. (m3/s) | | 599.6 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 104.26 | |
| Min Ch El (m) | 619.17 | | Shear (N/m2) | | 12.12 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 8.27 | |
| Frctn Loss (m) | 0.07 | | Cum Volume (1000 m3) | | 2.70 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 7.67 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -900.0

INPUT

Description:

| Station Elevation Data | | num= 6 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|------|--------|-------|------|-------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620 | -35.26 | 619.96 | -.03 | 619.09 | 40.04 | 620 | 75.83 | 622.27 | | |
| 100 | 622.27 | | | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 619.70 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.68 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 14.64 | |
| E.G. Slope (m/m) | 0.003316 | | Area (m2) | | 14.64 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 49.75 | | Top Width (m) | | 49.75 | |
| Vel Total (m/s) | 0.57 | | Avg. Vel. (m/s) | | 0.57 | |
| Max Chl Dpth (m) | 0.59 | | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 144.0 | | Conv. (m3/s) | | 144.0 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 49.77 | |
| Min Ch El (m) | 619.09 | | Shear (N/m2) | | 9.57 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 5.42 | |
| Frctn Loss (m) | 0.15 | | Cum Volume (1000 m3) | | 0.63 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 2.85 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 620.10 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.02 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 620.07 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | | | Flow Area (m2) | | 46.30 | |
| E.G. Slope (m/m) | 0.004182 | | Area (m2) | | 46.30 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 141.17 | | Top Width (m) | | 141.17 | |
| Vel Total (m/s) | 0.68 | | Avg. Vel. (m/s) | | 0.68 | |
| Max Chl Dpth (m) | 0.98 | | Hydr. Depth (m) | | 0.33 | |
| Conv. Total (m3/s) | 489.0 | | Conv. (m3/s) | | 489.0 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 141.26 | |
| Min Ch El (m) | 619.09 | | Shear (N/m2) | | 13.44 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 9.18 | |
| Frctn Loss (m) | 0.17 | | Cum Volume (1000 m3) | | 1.78 | |
| C & E Loss (m) | 0.02 | | Cum SA (1000 m2) | | 5.21 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -920.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|------|------|-------|--------|-------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 620 | -32.75 | 619.9 | -.03 | 619 | 22.19 | 619.85 | 28.92 | 620 | | |
| 81.38 | 621.81 | 100 | 621.81 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | | 20 | 20 | | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 619.53 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.11 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.43 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 619.43 | | Flow Area (m2) | | 5.73 | |
| E.G. Slope (m/m) | 0.033174 | | Area (m2) | | 5.73 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 26.75 | | Top Width (m) | | 26.75 | |
| Vel Total (m/s) | 1.45 | | Avg. Vel. (m/s) | | 1.45 | |
| Max Chl Dpth (m) | 0.43 | | Hydr. Depth (m) | | 0.21 | |
| Conv. Total (m3/s) | 45.5 | | Conv. (m3/s) | | 45.5 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 26.77 | |
| Min Ch El (m) | 619.00 | | Shear (N/m2) | | 69.60 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 100.77 | |
| Frctn Loss (m) | 0.66 | | Cum Volume (1000 m3) | | 0.43 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 2.09 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 619.91 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.18 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 619.73 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 619.73 | | Flow Area (m2) | | 16.67 | |
| E.G. Slope (m/m) | 0.027930 | | Area (m2) | | 16.67 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 45.65 | | Top Width (m) | | 45.65 | |
| Vel Total (m/s) | 1.90 | | Avg. Vel. (m/s) | | 1.90 | |
| Max Chl Dpth (m) | 0.73 | | Hydr. Depth (m) | | 0.37 | |
| Conv. Total (m3/s) | 189.2 | | Conv. (m3/s) | | 189.2 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 45.67 | |
| Min Ch El (m) | 619.00 | | Shear (N/m2) | | 99.98 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 189.65 | |
| Frctn Loss (m) | 0.56 | | Cum Volume (1000 m3) | | 1.15 | |
| C & E Loss (m) | 0.00 | | Cum SA (1000 m2) | | 3.34 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -940.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|-----|--------|-------|--------|-------|------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 619.4 | -27.43 | 619 | -01 | 617.95 | 21.64 | 618.63 | 43.15 | 620 | | |
| 93.33 | 621.31 | 100 | 621.31 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 618.54 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.22 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 618.32 | | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | 618.39 | | Flow Area (m2) | | 4.03 | |
| E.G. Slope (m/m) | 0.080613 | | Area (m2) | | 4.03 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 21.61 | | Top Width (m) | | 21.61 | |
| Vel Total (m/s) | 2.06 | | Avg. Vel. (m/s) | | 2.06 | |
| Max Chl Dpth (m) | 0.37 | | Hydr. Depth (m) | | 0.19 | |
| Conv. Total (m3/s) | 29.2 | | Conv. (m3/s) | | 29.2 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 21.62 | |
| Min Ch El (m) | 617.95 | | Shear (N/m2) | | 147.29 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 303.14 | |
| Frctn Loss (m) | 0.98 | | Cum Volume (1000 m3) | | 0.33 | |
| C & E Loss (m) | 0.01 | | Cum SA (1000 m2) | | 1.60 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 618.99 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.42 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 618.57 | | Reach Len. (m) | 20.00 | | 20.00 |
| Crit W.S. (m) | 618.70 | | Flow Area (m2) | | 11.00 | |
| E.G. Slope (m/m) | 0.080417 | | Area (m2) | | 11.00 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 35.71 | | Top Width (m) | | 35.71 | |
| Vel Total (m/s) | 2.87 | | Avg. Vel. (m/s) | | 2.87 | |
| Max Chl Dpth (m) | 0.62 | | Hydr. Depth (m) | | 0.31 | |
| Conv. Total (m3/s) | 111.5 | | Conv. (m3/s) | | 111.5 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 35.73 | |
| Min Ch El (m) | 617.95 | | Shear (N/m2) | | 242.85 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 697.87 | |
| Frctn Loss (m) | 0.90 | | Cum Volume (1000 m3) | | 0.87 | |
| C & E Loss (m) | 0.02 | | Cum SA (1000 m2) | | 2.53 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -960.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | Sta | | Elev | | Sta | | Elev | |
|------------------------|--------|--------|--------|--------|--------|------|--------|-------|--------|------|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 618.72 | -97.69 | 618.72 | -17.91 | 617.18 | 0 | 616.88 | 22.97 | 617.64 | | |
| 40.84 | 620 | 100 | 620 | | | | | | | | |

| Manning's n Values | | num= 3 | | Sta | | n Val | |
|--------------------|-------|--------|-------|-----|-------|-------|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff | Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|-------|--------|--------|
| | -100 | 100 | 20 | 20 | 20 | .1 | | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 617.34 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.11 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 617.23 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 617.25 | | Flow Area (m2) | | 5.64 | |
| E.G. Slope (m/m) | 0.043364 | | Area (m2) | | 5.64 | |
| Q Total (m3/s) | 8.29 | | Flow (m3/s) | | 8.29 | |
| Top Width (m) | 31.45 | | Top Width (m) | | 31.45 | |
| Vel Total (m/s) | 1.47 | | Avg. Vel. (m/s) | | 1.47 | |
| Max Chl Dpth (m) | 0.35 | | Hydr. Depth (m) | | 0.18 | |
| Conv. Total (m3/s) | 39.8 | | Conv. (m3/s) | | 39.8 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 31.45 | |
| Min Ch El (m) | 616.88 | | Shear (N/m2) | | 76.21 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 112.09 | |
| Frctn Loss (m) | 1.15 | | Cum Volume (1000 m3) | | 0.24 | |
| C & E Loss (m) | 0.03 | | Cum SA (1000 m2) | | 1.07 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 617.70 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|--------|----------------------|---------|---------|----------|
| Vel Head (m) | 0.24 | | Wt. n-Val. | | 0.045 | |
| W.S. Elev (m) | 617.45 | | Reach Len. (m) | 20.00 | 20.00 | 20.00 |
| Crit W.S. (m) | 617.51 | | Flow Area (m2) | | 14.53 | |
| E.G. Slope (m/m) | 0.049201 | | Area (m2) | | 14.53 | |
| Q Total (m3/s) | 31.62 | | Flow (m3/s) | | 31.62 | |
| Top Width (m) | 49.47 | | Top Width (m) | | 49.47 | |
| Vel Total (m/s) | 2.18 | | Avg. Vel. (m/s) | | 2.18 | |
| Max Chl Dpth (m) | 0.57 | | Hydr. Depth (m) | | 0.29 | |
| Conv. Total (m3/s) | 142.6 | | Conv. (m3/s) | | 142.6 | |
| Length Wtd. (m) | 20.00 | | Wetted Per. (m) | | 49.48 | |
| Min Ch El (m) | 616.88 | | Shear (N/m2) | | 141.63 | |
| Alpha | 1.00 | | Stream Power (N/m s) | | 308.34 | |
| Frctn Loss (m) | 1.24 | | Cum Volume (1000 m3) | | 0.61 | |
| C & E Loss (m) | 0.05 | | Cum SA (1000 m2) | | 1.68 | |

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ANEXO VII

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -980.0

INPUT

Description:

| Station Elevation Data | | num= 7 | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|-----|--------|-------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 617.99 | -80.97 | 617.99 | -10.85 | 615.97 | 0 | 615.81 | 22.08 | 616.76 | | |
| 40.31 | 620 | 100 | 620 | | | | | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 18 | 18 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 616.31 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.16 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 616.15 | Reach Len. (m) | 18.00 | 18.00 | 18.00 | |
| Crit W.S. (m) | 616.19 | Flow Area (m2) | | | 4.62 | |
| E.G. Slope (m/m) | 0.061107 | Area (m2) | | | 4.62 | |
| Q Total (m3/s) | 8.29 | Flow (m3/s) | | | 8.29 | |
| Top Width (m) | 24.76 | Top Width (m) | | | 24.76 | |
| Vel Total (m/s) | 1.79 | Avg. Vel. (m/s) | | | 1.79 | |
| Max Chl Dpth (m) | 0.34 | Hydr. Depth (m) | | | 0.19 | |
| Conv. Total (m3/s) | 33.5 | Conv. (m3/s) | | | 33.5 | |
| Length Wtd. (m) | 18.00 | Wetted Per. (m) | | | 24.77 | |
| Min Ch El (m) | 615.81 | Shear (N/m2) | | | 111.83 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 200.60 | |
| Frctn Loss (m) | 1.02 | Cum Volume (1000 m3) | | | 0.13 | |
| C & E Loss (m) | 0.01 | Cum SA (1000 m2) | | | 0.51 | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 616.70 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.29 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 616.41 | Reach Len. (m) | 18.00 | 18.00 | 18.00 | |
| Crit W.S. (m) | 616.49 | Flow Area (m2) | | | 13.30 | |
| E.G. Slope (m/m) | 0.050134 | Area (m2) | | | 13.30 | |
| Q Total (m3/s) | 31.62 | Flow (m3/s) | | | 31.62 | |
| Top Width (m) | 40.23 | Top Width (m) | | | 40.23 | |
| Vel Total (m/s) | 2.38 | Avg. Vel. (m/s) | | | 2.38 | |
| Max Chl Dpth (m) | 0.60 | Hydr. Depth (m) | | | 0.33 | |
| Conv. Total (m3/s) | 141.2 | Conv. (m3/s) | | | 141.2 | |
| Length Wtd. (m) | 18.00 | Wetted Per. (m) | | | 40.25 | |
| Min Ch El (m) | 615.81 | Shear (N/m2) | | | 162.43 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 386.24 | |
| Frctn Loss (m) | 0.99 | Cum Volume (1000 m3) | | | 0.34 | |
| C & E Loss (m) | 0.00 | Cum SA (1000 m2) | | | 0.78 | |

CROSS SECTION

RIVER: Aryo Mejones
REACH: Campo golf-R_M-1 RS: -998.8

INPUT

Description:

| Station Elevation Data | | num= 7 | | | | | | | | | |
|------------------------|--------|--------|--------|-------|------|------|------|-------|--------|-----|------|
| Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev | Sta | Elev |
| -100 | 617.42 | -70.92 | 617.42 | -8.38 | 615 | 5.64 | 615 | 19.18 | 615.88 | | |
| 41.96 | 620 | 100 | 620 | | | | | | | | |

| Manning's n Values | | num= 3 | | | | | |
|--------------------|-------|--------|-------|-----|-------|-----|-------|
| Sta | n Val | Sta | n Val | Sta | n Val | Sta | n Val |
| -100 | | -100 | .045 | 100 | | | |

| Bank Sta: | Left | Right | Lengths: | Left Channel | Right | Coeff Contr. | Expan. |
|-----------|------|-------|----------|--------------|-------|--------------|--------|
| | -100 | 100 | | 18 | 18 | .1 | .3 |

CROSS SECTION OUTPUT Profile #T=5 años

| | E.G. Elev (m) | 615.52 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.08 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 615.44 | Reach Len. (m) | | | | |
| Crit W.S. (m) | 615.36 | Flow Area (m2) | | | 10.16 | |
| E.G. Slope (m/m) | 0.015007 | Area (m2) | | | 10.16 | |
| Q Total (m3/s) | 12.82 | Flow (m3/s) | | | 12.82 | |
| Top Width (m) | 32.16 | Top Width (m) | | | 32.16 | |
| Vel Total (m/s) | 1.26 | Avg. Vel. (m/s) | | | 1.26 | |
| Max Chl Dpth (m) | 0.44 | Hydr. Depth (m) | | | 0.32 | |
| Conv. Total (m3/s) | 104.6 | Conv. (m3/s) | | | 104.6 | |
| Length Wtd. (m) | | Wetted Per. (m) | | | 32.18 | |
| Min Ch El (m) | 615.00 | Shear (N/m2) | | | 46.44 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 58.61 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | | |

CROSS SECTION OUTPUT Profile #T=500 años

| | E.G. Elev (m) | 615.95 | Element | Left OB | Channel | Right OB |
|--------------------|---------------|----------------------|---------|---------|---------|----------|
| Vel Head (m) | 0.16 | Wt. n-Val. | | | 0.045 | |
| W.S. Elev (m) | 615.79 | Reach Len. (m) | | | | |
| Crit W.S. (m) | 615.70 | Flow Area (m2) | | | 24.07 | |
| E.G. Slope (m/m) | 0.015007 | Area (m2) | | | 24.07 | |
| Q Total (m3/s) | 42.10 | Flow (m3/s) | | | 42.10 | |
| Top Width (m) | 46.71 | Top Width (m) | | | 46.71 | |
| Vel Total (m/s) | 1.75 | Avg. Vel. (m/s) | | | 1.75 | |
| Max Chl Dpth (m) | 0.79 | Hydr. Depth (m) | | | 0.52 | |
| Conv. Total (m3/s) | 343.7 | Conv. (m3/s) | | | 343.7 | |
| Length Wtd. (m) | | Wetted Per. (m) | | | 46.75 | |
| Min Ch El (m) | 615.00 | Shear (N/m2) | | | 75.78 | |
| Alpha | 1.00 | Stream Power (N/m s) | | | 132.54 | |
| Frctn Loss (m) | | Cum Volume (1000 m3) | | | | |
| C & E Loss (m) | | Cum SA (1000 m2) | | | | |

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ANEXO VII

SUMMARY OF MANNING'S N VALUES

River: Aryo Mejones

| Reach | River Sta. | n1 | n2 | n3 |
|------------------|------------|----|------|----|
| Campo golf-R_M-1 | 0.0 | | .045 | |
| Campo golf-R_M-1 | -20.0 | | .045 | |
| Campo golf-R_M-1 | -40.0 | | .045 | |
| Campo golf-R_M-1 | -60.0 | | .045 | |
| Campo golf-R_M-1 | -80.0 | | .045 | |
| Campo golf-R_M-1 | -100.0 | | .045 | |
| Campo golf-R_M-1 | -120.0 | | .045 | |
| Campo golf-R_M-1 | -140.0 | | .045 | |
| Campo golf-R_M-1 | -160.0 | | .045 | |
| Campo golf-R_M-1 | -180.0 | | .045 | |
| Campo golf-R_M-1 | -200.0 | | .045 | |
| Campo golf-R_M-1 | -220.0 | | .045 | |
| Campo golf-R_M-1 | -240.0 | | .045 | |
| Campo golf-R_M-1 | -260.0 | | .045 | |
| Campo golf-R_M-1 | -280.0 | | .045 | |
| Campo golf-R_M-1 | -300.0 | | .045 | |
| Campo golf-R_M-1 | -320.0 | | .045 | |
| Campo golf-R_M-1 | -340.0 | | .045 | |
| Campo golf-R_M-1 | -360.0 | | .045 | |
| Campo golf-R_M-1 | -380.0 | | .045 | |
| Campo golf-R_M-1 | -400.0 | | .045 | |
| Campo golf-R_M-1 | -420.0 | | .045 | |
| Campo golf-R_M-1 | -440.0 | | .045 | |
| Campo golf-R_M-1 | -460.0 | | .045 | |
| Campo golf-R_M-1 | -480.0 | | .045 | |
| Campo golf-R_M-1 | -500.0 | | .045 | |
| Campo golf-R_M-1 | -520.0 | | .045 | |
| Campo golf-R_M-1 | -540.0 | | .045 | |
| Campo golf-R_M-1 | -560.0 | | .045 | |
| Campo golf-R_M-1 | -580.0 | | .045 | |
| Campo golf-R_M-1 | -600.0 | | .045 | |
| Campo golf-R_M-1 | -620.0 | | .045 | |
| Campo golf-R_M-1 | -640.0 | | .045 | |
| Campo golf-R_M-1 | -660.0 | | .045 | |
| Campo golf-R_M-1 | -680.0 | | .045 | |
| Campo golf-R_M-1 | -700.0 | | .045 | |
| Campo golf-R_M-1 | -720.0 | | .045 | |
| Campo golf-R_M-1 | -740.0 | | .045 | |
| Campo golf-R_M-1 | -760.0 | | .045 | |
| Campo golf-R_M-1 | -780.0 | | .045 | |
| Campo golf-R_M-1 | -800.0 | | .045 | |
| Campo golf-R_M-1 | -820.0 | | .045 | |
| Campo golf-R_M-1 | -840.0 | | .045 | |
| Campo golf-R_M-1 | -860.0 | | .045 | |
| Campo golf-R_M-1 | -880.0 | | .045 | |
| Campo golf-R_M-1 | -900.0 | | .045 | |
| Campo golf-R_M-1 | -920.0 | | .045 | |
| Campo golf-R_M-1 | -940.0 | | .045 | |
| Campo golf-R_M-1 | -960.0 | | .045 | |
| Campo golf-R_M-1 | -980.0 | | .045 | |
| Campo golf-R_M-1 | -998.8 | | .045 | |

SUMMARY OF REACH LENGTHS

River: Aryo Mejones

| Reach | River Sta. | Left | Channel | Right |
|------------------|------------|------|---------|-------|
| Campo golf-R_M-1 | 0.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -20.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -40.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -60.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -80.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -100.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -120.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -140.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -160.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -180.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -200.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -220.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -240.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -260.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -280.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -300.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -320.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -340.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -360.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -380.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -400.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -420.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -440.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -460.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -480.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -500.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -520.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -540.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -560.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -580.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -600.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -620.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -640.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -660.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -680.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -700.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -720.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -740.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -760.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -780.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -800.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -820.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -840.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -860.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -880.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -900.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -920.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -940.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -960.0 | 20 | 20 | 20 |
| Campo golf-R_M-1 | -980.0 | 18 | 18 | 18 |
| Campo golf-R_M-1 | -998.8 | 18 | 18 | 18 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Aryo Mejones

| Reach | River Sta. | Contr. | Expan. |
|------------------|------------|--------|--------|
| Campo golf-R_M-1 | 0.0 | .1 | .3 |
| Campo golf-R_M-1 | -20.0 | .1 | .3 |
| Campo golf-R_M-1 | -40.0 | .1 | .3 |
| Campo golf-R_M-1 | -60.0 | .1 | .3 |
| Campo golf-R_M-1 | -80.0 | .1 | .3 |
| Campo golf-R_M-1 | -100.0 | .1 | .3 |
| Campo golf-R_M-1 | -120.0 | .1 | .3 |
| Campo golf-R_M-1 | -140.0 | .1 | .3 |
| Campo golf-R_M-1 | -160.0 | .1 | .3 |
| Campo golf-R_M-1 | -180.0 | .1 | .3 |
| Campo golf-R_M-1 | -200.0 | .1 | .3 |
| Campo golf-R_M-1 | -220.0 | .1 | .3 |
| Campo golf-R_M-1 | -240.0 | .1 | .3 |
| Campo golf-R_M-1 | -260.0 | .1 | .3 |
| Campo golf-R_M-1 | -280.0 | .1 | .3 |
| Campo golf-R_M-1 | -300.0 | .1 | .3 |
| Campo golf-R_M-1 | -320.0 | .1 | .3 |
| Campo golf-R_M-1 | -340.0 | .1 | .3 |
| Campo golf-R_M-1 | -360.0 | .1 | .3 |
| Campo golf-R_M-1 | -380.0 | .1 | .3 |
| Campo golf-R_M-1 | -400.0 | .1 | .3 |
| Campo golf-R_M-1 | -420.0 | .1 | .3 |
| Campo golf-R_M-1 | -440.0 | .1 | .3 |
| Campo golf-R_M-1 | -460.0 | .1 | .3 |
| Campo golf-R_M-1 | -480.0 | .1 | .3 |
| Campo golf-R_M-1 | -500.0 | .1 | .3 |
| Campo golf-R_M-1 | -520.0 | .1 | .3 |
| Campo golf-R_M-1 | -540.0 | .1 | .3 |
| Campo golf-R_M-1 | -560.0 | .1 | .3 |
| Campo golf-R_M-1 | -580.0 | .1 | .3 |
| Campo golf-R_M-1 | -600.0 | .1 | .3 |
| Campo golf-R_M-1 | -620.0 | .1 | .3 |
| Campo golf-R_M-1 | -640.0 | .1 | .3 |
| Campo golf-R_M-1 | -660.0 | .1 | .3 |
| Campo golf-R_M-1 | -680.0 | .1 | .3 |
| Campo golf-R_M-1 | -700.0 | .1 | .3 |
| Campo golf-R_M-1 | -720.0 | .1 | .3 |
| Campo golf-R_M-1 | -740.0 | .1 | .3 |
| Campo golf-R_M-1 | -760.0 | .1 | .3 |
| Campo golf-R_M-1 | -780.0 | .1 | .3 |
| Campo golf-R_M-1 | -800.0 | .1 | .3 |
| Campo golf-R_M-1 | -820.0 | .1 | .3 |
| Campo golf-R_M-1 | -840.0 | .1 | .3 |
| Campo golf-R_M-1 | -860.0 | .1 | .3 |
| Campo golf-R_M-1 | -880.0 | .1 | .3 |
| Campo golf-R_M-1 | -900.0 | .1 | .3 |
| Campo golf-R_M-1 | -920.0 | .1 | .3 |
| Campo golf-R_M-1 | -940.0 | .1 | .3 |
| Campo golf-R_M-1 | -960.0 | .1 | .3 |
| Campo golf-R_M-1 | -980.0 | .1 | .3 |
| Campo golf-R_M-1 | -998.8 | .1 | .3 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m ³ /s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m ²) | Top Width (m) | Froude # Chl |
|------------------|-----------|------------|--------------------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|--------------------------------|------------------|--------------|
| Campo golf-R_M-1 | 0.0 | T=5 años | 1.24 | 630.51 | 630.64 | 630.64 | 630.66 | 0.036763 | 0.67 | 1.84 | 29.31 | 0.86 |
| Campo golf-R_M-1 | 0.0 | T=500 años | 10.72 | 630.51 | 630.79 | 630.79 | 630.88 | 0.035665 | 1.34 | 8.03 | 44.68 | 1.01 |
| Campo golf-R_M-1 | -20.0 | T=5 años | 1.24 | 629.84 | 629.94 | 630.01 | 630.20 | 0.566742 | 2.26 | 0.55 | 11.06 | 3.24 |
| Campo golf-R_M-1 | -20.0 | T=500 años | 10.72 | 629.84 | 630.37 | 630.23 | 630.41 | 0.008043 | 0.91 | 11.81 | 38.34 | 0.52 |
| Campo golf-R_M-1 | -40.0 | T=5 años | 1.24 | 629.63 | 629.88 | 629.82 | 629.89 | 0.010010 | 0.55 | 2.25 | 18.17 | 0.50 |
| Campo golf-R_M-1 | -40.0 | T=500 años | 10.72 | 629.63 | 630.19 | | 630.24 | 0.009268 | 0.95 | 11.28 | 38.05 | 0.56 |
| Campo golf-R_M-1 | -60.0 | T=5 años | 1.24 | 629.42 | 629.67 | | 629.69 | 0.011223 | 0.59 | 2.12 | 17.12 | 0.53 |
| Campo golf-R_M-1 | -60.0 | T=500 años | 10.72 | 629.42 | 629.96 | | 630.02 | 0.013169 | 1.07 | 10.07 | 37.28 | 0.65 |
| Campo golf-R_M-1 | -80.0 | T=5 años | 1.24 | 629.20 | 629.42 | 629.38 | 629.44 | 0.012886 | 0.58 | 2.12 | 19.01 | 0.56 |
| Campo golf-R_M-1 | -80.0 | T=500 años | 10.72 | 629.20 | 629.70 | | 629.75 | 0.013504 | 1.02 | 10.51 | 42.30 | 0.65 |
| Campo golf-R_M-1 | -100.0 | T=5 años | 1.24 | 628.99 | 629.21 | 629.16 | 629.22 | 0.009129 | 0.49 | 2.54 | 22.96 | 0.47 |
| Campo golf-R_M-1 | -100.0 | T=500 años | 10.72 | 628.99 | 629.46 | 629.38 | 629.51 | 0.011571 | 0.93 | 11.51 | 47.32 | 0.60 |
| Campo golf-R_M-1 | -120.0 | T=5 años | 1.24 | 628.68 | 628.83 | 628.83 | 628.87 | 0.046744 | 0.85 | 1.46 | 19.53 | 1.00 |
| Campo golf-R_M-1 | -120.0 | T=500 años | 10.72 | 628.68 | 629.03 | 629.03 | 629.12 | 0.036787 | 1.38 | 7.76 | 42.05 | 1.03 |
| Campo golf-R_M-1 | -140.0 | T=5 años | 1.24 | 628.38 | 628.57 | 628.47 | 628.57 | 0.001286 | 0.20 | 6.08 | 46.95 | 0.18 |
| Campo golf-R_M-1 | -140.0 | T=500 años | 10.72 | 628.38 | 628.84 | 628.61 | 628.85 | 0.002318 | 0.50 | 21.66 | 68.80 | 0.28 |
| Campo golf-R_M-1 | -160.0 | T=5 años | 8.29 | 628.07 | 628.37 | | 628.41 | 0.013168 | 0.84 | 9.90 | 52.57 | 0.62 |
| Campo golf-R_M-1 | -160.0 | T=500 años | 31.62 | 628.07 | 628.62 | | 628.70 | 0.012750 | 1.27 | 24.87 | 68.93 | 0.68 |
| Campo golf-R_M-1 | -180.0 | T=5 años | 8.29 | 627.76 | 628.11 | | 628.14 | 0.013442 | 0.85 | 9.73 | 51.18 | 0.62 |
| Campo golf-R_M-1 | -180.0 | T=500 años | 31.62 | 627.76 | 628.36 | | 628.44 | 0.012811 | 1.30 | 24.38 | 65.84 | 0.68 |
| Campo golf-R_M-1 | -200.0 | T=5 años | 8.29 | 627.45 | 627.81 | | 627.85 | 0.016789 | 0.93 | 8.93 | 48.76 | 0.69 |
| Campo golf-R_M-1 | -200.0 | T=500 años | 31.62 | 627.45 | 628.04 | | 628.15 | 0.016724 | 1.43 | 22.06 | 62.60 | 0.77 |
| Campo golf-R_M-1 | -220.0 | T=5 años | 8.29 | 627.13 | 627.48 | | 627.53 | 0.015443 | 0.92 | 9.03 | 47.07 | 0.67 |
| Campo golf-R_M-1 | -220.0 | T=500 años | 31.62 | 627.13 | 627.73 | | 627.83 | 0.015427 | 1.41 | 22.45 | 61.57 | 0.74 |
| Campo golf-R_M-1 | -240.0 | T=5 años | 8.29 | 626.84 | 627.17 | | 627.21 | 0.016824 | 0.95 | 8.69 | 45.65 | 0.70 |
| Campo golf-R_M-1 | -240.0 | T=500 años | 31.62 | 626.84 | 627.42 | | 627.52 | 0.015984 | 1.44 | 22.01 | 60.16 | 0.76 |
| Campo golf-R_M-1 | -260.0 | T=5 años | 8.29 | 626.56 | 626.87 | | 626.91 | 0.013516 | 0.89 | 9.33 | 46.25 | 0.63 |
| Campo golf-R_M-1 | -260.0 | T=500 años | 31.62 | 626.56 | 627.13 | | 627.23 | 0.013790 | 1.38 | 22.99 | 60.06 | 0.71 |
| Campo golf-R_M-1 | -280.0 | T=5 años | 8.29 | 626.28 | 626.60 | | 626.64 | 0.014419 | 0.91 | 9.12 | 45.88 | 0.65 |
| Campo golf-R_M-1 | -280.0 | T=500 años | 31.62 | 626.28 | 626.87 | | 626.95 | 0.012726 | 1.24 | 25.45 | 72.89 | 0.67 |
| Campo golf-R_M-1 | -300.0 | T=5 años | 8.29 | 626.01 | 626.32 | | 626.37 | 0.013369 | 0.92 | 9.04 | 42.35 | 0.63 |
| Campo golf-R_M-1 | -300.0 | T=500 años | 31.62 | 626.01 | 626.62 | | 626.71 | 0.011305 | 1.31 | 24.08 | 58.08 | 0.65 |
| Campo golf-R_M-1 | -320.0 | T=5 años | 8.29 | 625.69 | 626.07 | | 626.11 | 0.012316 | 0.91 | 9.09 | 40.36 | 0.61 |
| Campo golf-R_M-1 | -320.0 | T=500 años | 31.62 | 625.69 | 626.32 | | 626.44 | 0.016436 | 1.52 | 20.86 | 53.75 | 0.78 |
| Campo golf-R_M-1 | -340.0 | T=5 años | 8.29 | 625.37 | 625.71 | 625.69 | 625.78 | 0.023038 | 1.12 | 7.39 | 38.57 | 0.82 |
| Campo golf-R_M-1 | -340.0 | T=500 años | 31.62 | 625.37 | 626.04 | | 626.13 | 0.013228 | 1.37 | 23.03 | 58.45 | 0.70 |
| Campo golf-R_M-1 | -360.0 | T=5 años | 8.29 | 625.04 | 625.41 | | 625.45 | 0.011825 | 0.91 | 9.08 | 39.10 | 0.60 |
| Campo golf-R_M-1 | -360.0 | T=500 años | 31.62 | 625.04 | 625.80 | | 625.86 | 0.013457 | 1.08 | 29.23 | 107.52 | 0.66 |
| Campo golf-R_M-1 | -380.0 | T=5 años | 8.29 | 624.79 | 625.24 | | 625.27 | 0.007312 | 0.75 | 11.09 | 44.92 | 0.48 |
| Campo golf-R_M-1 | -380.0 | T=500 años | 31.62 | 624.79 | 625.60 | | 625.64 | 0.007746 | 0.88 | 36.10 | 120.42 | 0.51 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|------------------|-----------|------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Campo golf-R_M-1 | -400.0 | T=5 años | 8.29 | 624.54 | 625.03 | | 625.08 | 0.012484 | 0.97 | 8.55 | 35.06 | 0.63 |
| Campo golf-R_M-1 | -400.0 | T=500 años | 31.62 | 624.54 | 625.36 | | 625.44 | 0.011872 | 1.32 | 24.02 | 59.89 | 0.66 |
| Campo golf-R_M-1 | -420.0 | T=5 años | 8.29 | 624.29 | 624.78 | | 624.83 | 0.012755 | 0.98 | 8.47 | 34.77 | 0.63 |
| Campo golf-R_M-1 | -420.0 | T=500 años | 31.62 | 624.29 | 625.09 | | 625.19 | 0.014074 | 1.39 | 22.72 | 59.22 | 0.72 |
| Campo golf-R_M-1 | -440.0 | T=5 años | 8.29 | 624.05 | 624.50 | | 624.56 | 0.015001 | 1.01 | 8.19 | 36.12 | 0.68 |
| Campo golf-R_M-1 | -440.0 | T=500 años | 31.62 | 624.05 | 624.81 | | 624.91 | 0.013813 | 1.37 | 23.06 | 60.60 | 0.71 |
| Campo golf-R_M-1 | -460.0 | T=5 años | 8.29 | 623.75 | 624.24 | | 624.28 | 0.012408 | 0.96 | 8.59 | 35.29 | 0.62 |
| Campo golf-R_M-1 | -460.0 | T=500 años | 31.62 | 623.75 | 624.57 | | 624.65 | 0.011477 | 1.30 | 24.33 | 60.30 | 0.65 |
| Campo golf-R_M-1 | -480.0 | T=5 años | 8.29 | 623.45 | 623.96 | | 624.02 | 0.014907 | 1.08 | 7.71 | 30.83 | 0.69 |
| Campo golf-R_M-1 | -480.0 | T=500 años | 31.62 | 623.45 | 624.28 | | 624.39 | 0.015296 | 1.47 | 21.52 | 55.04 | 0.75 |
| Campo golf-R_M-1 | -500.0 | T=5 años | 8.29 | 623.14 | 623.60 | 623.56 | 623.67 | 0.019891 | 1.15 | 7.22 | 32.58 | 0.78 |
| Campo golf-R_M-1 | -500.0 | T=500 años | 31.62 | 623.14 | 623.87 | 623.84 | 624.02 | 0.022673 | 1.67 | 18.95 | 53.81 | 0.90 |
| Campo golf-R_M-1 | -520.0 | T=5 años | 8.29 | 622.88 | 623.18 | 623.15 | 623.24 | 0.022432 | 1.12 | 7.41 | 37.98 | 0.81 |
| Campo golf-R_M-1 | -520.0 | T=500 años | 31.62 | 622.88 | 623.43 | 623.40 | 623.57 | 0.022642 | 1.62 | 19.52 | 57.87 | 0.89 |
| Campo golf-R_M-1 | -540.0 | T=5 años | 8.29 | 622.50 | 622.81 | | 622.86 | 0.016702 | 0.97 | 8.58 | 43.91 | 0.70 |
| Campo golf-R_M-1 | -540.0 | T=500 años | 31.62 | 622.50 | 623.06 | | 623.17 | 0.017020 | 1.45 | 21.79 | 61.52 | 0.78 |
| Campo golf-R_M-1 | -560.0 | T=5 años | 8.29 | 622.06 | 622.39 | 622.37 | 622.45 | 0.025864 | 1.08 | 7.65 | 45.87 | 0.85 |
| Campo golf-R_M-1 | -560.0 | T=500 años | 31.62 | 622.06 | 622.60 | 622.59 | 622.74 | 0.026704 | 1.67 | 18.96 | 60.89 | 0.95 |
| Campo golf-R_M-1 | -580.0 | T=5 años | 8.29 | 621.63 | 622.03 | | 622.07 | 0.013823 | 0.90 | 9.26 | 46.17 | 0.64 |
| Campo golf-R_M-1 | -580.0 | T=500 años | 31.62 | 621.63 | 622.30 | | 622.38 | 0.012124 | 1.24 | 25.60 | 71.36 | 0.66 |
| Campo golf-R_M-1 | -600.0 | T=5 años | 8.29 | 621.39 | 621.85 | | 621.87 | 0.007305 | 0.71 | 11.69 | 51.19 | 0.47 |
| Campo golf-R_M-1 | -600.0 | T=500 años | 31.62 | 621.39 | 622.12 | | 622.18 | 0.008159 | 1.10 | 28.75 | 70.82 | 0.55 |
| Campo golf-R_M-1 | -620.0 | T=5 años | 8.29 | 621.28 | 621.64 | | 621.67 | 0.014995 | 0.87 | 9.57 | 53.31 | 0.65 |
| Campo golf-R_M-1 | -620.0 | T=500 años | 31.62 | 621.28 | 621.88 | | 621.97 | 0.013334 | 1.34 | 23.59 | 62.47 | 0.70 |
| Campo golf-R_M-1 | -640.0 | T=5 años | 8.29 | 621.02 | 621.37 | 621.32 | 621.40 | 0.012718 | 0.85 | 9.76 | 49.49 | 0.61 |
| Campo golf-R_M-1 | -640.0 | T=500 años | 31.62 | 621.02 | 621.63 | | 621.72 | 0.011907 | 1.32 | 23.92 | 59.41 | 0.66 |
| Campo golf-R_M-1 | -660.0 | T=5 años | 8.29 | 620.72 | 621.05 | 621.01 | 621.10 | 0.017749 | 1.00 | 8.29 | 42.26 | 0.72 |
| Campo golf-R_M-1 | -660.0 | T=500 años | 31.62 | 620.72 | 621.29 | | 621.42 | 0.018105 | 1.58 | 20.01 | 52.08 | 0.81 |
| Campo golf-R_M-1 | -680.0 | T=5 años | 8.29 | 620.23 | 620.52 | 620.52 | 620.62 | 0.034267 | 1.41 | 5.88 | 29.33 | 1.00 |
| Campo golf-R_M-1 | -680.0 | T=500 años | 31.62 | 620.23 | 620.82 | 620.80 | 621.00 | 0.024006 | 1.87 | 16.91 | 42.20 | 0.94 |
| Campo golf-R_M-1 | -700.0 | T=5 años | 8.29 | 619.94 | 620.37 | 620.17 | 620.39 | 0.003030 | 0.58 | 14.24 | 43.35 | 0.32 |
| Campo golf-R_M-1 | -700.0 | T=500 años | 31.62 | 619.94 | 620.78 | | 620.82 | 0.003340 | 0.90 | 35.03 | 59.41 | 0.38 |
| Campo golf-R_M-1 | -720.0 | T=5 años | 8.29 | 619.86 | 620.32 | | 620.33 | 0.002819 | 0.57 | 14.60 | 43.67 | 0.31 |
| Campo golf-R_M-1 | -720.0 | T=500 años | 31.62 | 619.86 | 620.71 | | 620.75 | 0.003365 | 0.93 | 34.10 | 55.85 | 0.38 |
| Campo golf-R_M-1 | -740.0 | T=5 años | 8.29 | 619.77 | 620.25 | | 620.27 | 0.003213 | 0.59 | 14.12 | 44.34 | 0.33 |
| Campo golf-R_M-1 | -740.0 | T=500 años | 31.62 | 619.77 | 620.64 | | 620.68 | 0.003731 | 0.94 | 33.66 | 58.40 | 0.40 |
| Campo golf-R_M-1 | -760.0 | T=5 años | 8.29 | 619.69 | 620.19 | | 620.21 | 0.003022 | 0.55 | 15.04 | 49.57 | 0.32 |
| Campo golf-R_M-1 | -760.0 | T=500 años | 31.62 | 619.69 | 620.57 | | 620.61 | 0.003280 | 0.85 | 37.00 | 67.19 | 0.37 |
| Campo golf-R_M-1 | -780.0 | T=5 años | 8.29 | 619.60 | 620.14 | | 620.15 | 0.002964 | 0.54 | 15.23 | 50.49 | 0.32 |
| Campo golf-R_M-1 | -780.0 | T=500 años | 31.62 | 619.60 | 620.51 | | 620.54 | 0.003305 | 0.85 | 37.14 | 68.21 | 0.37 |

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS DE SANEAMIENTO.
REVISIÓN Y ADAPTACIÓN DEL PLAN GENERAL DE ALCOBENDAS.**

ANEXO VII

Profile Output Table - Standard Table 1

| Reach | River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Crit W.S. (m) | E.G. Elev (m) | E.G. Slope (m/m) | Vel Chnl (m/s) | Flow Area (m2) | Top Width (m) | Froude # Chl |
|------------------|-----------|------------|-------------------|------------------|------------------|------------------|------------------|---------------------|-------------------|-------------------|------------------|--------------|
| Campo golf-R_M-1 | -800.0 | T=5 años | 8.29 | 619.51 | 620.06 | | 620.08 | 0.004053 | 0.62 | 13.35 | 45.92 | 0.37 |
| Campo golf-R_M-1 | -800.0 | T=500 años | 31.62 | 619.51 | 620.41 | | 620.46 | 0.004675 | 0.98 | 32.40 | 62.88 | 0.43 |
| Campo golf-R_M-1 | -820.0 | T=5 años | 8.29 | 619.43 | 619.93 | | 619.97 | 0.009851 | 0.87 | 9.52 | 38.31 | 0.56 |
| Campo golf-R_M-1 | -820.0 | T=500 años | 31.62 | 619.43 | 620.26 | | 620.33 | 0.009442 | 1.22 | 25.91 | 60.93 | 0.60 |
| Campo golf-R_M-1 | -840.0 | T=5 años | 8.29 | 619.34 | 619.83 | | 619.84 | 0.003678 | 0.53 | 15.74 | 64.36 | 0.34 |
| Campo golf-R_M-1 | -840.0 | T=500 años | 31.62 | 619.34 | 620.21 | | 620.23 | 0.002465 | 0.64 | 49.21 | 110.70 | 0.31 |
| Campo golf-R_M-1 | -860.0 | T=5 años | 8.29 | 619.26 | 619.79 | | 619.80 | 0.001510 | 0.36 | 23.26 | 87.70 | 0.22 |
| Campo golf-R_M-1 | -860.0 | T=500 años | 31.62 | 619.26 | 620.18 | | 620.20 | 0.001018 | 0.46 | 68.72 | 131.39 | 0.20 |
| Campo golf-R_M-1 | -880.0 | T=5 años | 8.29 | 619.17 | 619.74 | | 619.76 | 0.002886 | 0.52 | 15.98 | 55.74 | 0.31 |
| Campo golf-R_M-1 | -880.0 | T=500 años | 31.62 | 619.17 | 620.14 | | 620.16 | 0.002782 | 0.68 | 46.33 | 104.24 | 0.33 |
| Campo golf-R_M-1 | -900.0 | T=5 años | 8.29 | 619.09 | 619.68 | | 619.70 | 0.003316 | 0.57 | 14.64 | 49.75 | 0.33 |
| Campo golf-R_M-1 | -900.0 | T=500 años | 31.62 | 619.09 | 620.07 | | 620.10 | 0.004182 | 0.68 | 46.30 | 141.17 | 0.38 |
| Campo golf-R_M-1 | -920.0 | T=5 años | 8.29 | 619.00 | 619.43 | 619.43 | 619.53 | 0.033174 | 1.45 | 5.73 | 26.75 | 1.00 |
| Campo golf-R_M-1 | -920.0 | T=500 años | 31.62 | 619.00 | 619.73 | 619.73 | 619.91 | 0.027930 | 1.90 | 16.67 | 45.65 | 1.00 |
| Campo golf-R_M-1 | -940.0 | T=5 años | 8.29 | 617.95 | 618.32 | 618.39 | 618.54 | 0.080613 | 2.06 | 4.03 | 21.61 | 1.52 |
| Campo golf-R_M-1 | -940.0 | T=500 años | 31.62 | 617.95 | 618.57 | 618.70 | 618.99 | 0.080417 | 2.87 | 11.00 | 35.71 | 1.65 |
| Campo golf-R_M-1 | -960.0 | T=5 años | 8.29 | 616.88 | 617.23 | 617.25 | 617.34 | 0.043364 | 1.47 | 5.64 | 31.45 | 1.11 |
| Campo golf-R_M-1 | -960.0 | T=500 años | 31.62 | 616.88 | 617.45 | 617.51 | 617.70 | 0.049201 | 2.18 | 14.53 | 49.47 | 1.28 |
| Campo golf-R_M-1 | -980.0 | T=5 años | 8.29 | 615.81 | 616.15 | 616.19 | 616.31 | 0.061107 | 1.79 | 4.62 | 24.76 | 1.33 |
| Campo golf-R_M-1 | -980.0 | T=500 años | 31.62 | 615.81 | 616.41 | 616.49 | 616.70 | 0.050134 | 2.38 | 13.30 | 40.23 | 1.32 |
| Campo golf-R_M-1 | -998.8 | T=5 años | 12.82 | 615.00 | 615.44 | 615.36 | 615.52 | 0.015007 | 1.26 | 10.16 | 32.16 | 0.72 |
| Campo golf-R_M-1 | -998.8 | T=500 años | 42.10 | 615.00 | 615.79 | 615.70 | 615.95 | 0.015007 | 1.75 | 24.07 | 46.71 | 0.78 |

**COMPARATIVA ENTRE LA SITUACIÓN ACTUAL
 Y LA SITUACIÓN FUTURA**

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| 0 | T=5 años | 1.07 | 630.51 | 630.63 | 27.09 | T=5 años | 1.24 | 630.51 | 630.64 | 29.31 | 0.01 | 2.22 |
| 0 | T=500 años | 13.55 | 630.51 | 630.82 | 46.49 | T=500 años | 10.72 | 630.51 | 630.79 | 44.68 | -0.03 | -1.81 |
| -20 | T=5 años | 1.07 | 629.84 | 630.04 | 20.24 | T=5 años | 1.24 | 629.84 | 629.94 | 11.06 | -0.10 | -9.18 |
| -20 | T=500 años | 13.55 | 629.84 | 630.42 | 41.25 | T=500 años | 10.72 | 629.84 | 630.37 | 38.34 | -0.05 | -2.91 |
| -40 | T=5 años | 1.07 | 629.63 | 629.87 | 17.36 | T=5 años | 1.24 | 629.63 | 629.88 | 18.17 | 0.01 | 0.81 |
| -40 | T=500 años | 13.55 | 629.63 | 630.26 | 41.67 | T=500 años | 10.72 | 629.63 | 630.19 | 38.05 | -0.07 | -3.62 |
| -60 | T=5 años | 1.07 | 629.42 | 629.65 | 15.95 | T=5 años | 1.24 | 629.42 | 629.67 | 17.12 | 0.02 | 1.17 |
| -60 | T=500 años | 13.55 | 629.42 | 630.05 | 81.66 | T=500 años | 10.72 | 629.42 | 629.96 | 37.28 | -0.09 | -44.38 |
| -80 | T=5 años | 1.07 | 629.20 | 629.42 | 18.44 | T=5 años | 1.24 | 629.20 | 629.42 | 19.01 | 0.00 | 0.57 |
| -80 | T=500 años | 13.55 | 629.20 | 629.74 | 45.20 | T=500 años | 10.72 | 629.20 | 629.70 | 42.30 | -0.04 | -2.90 |
| -100 | T=5 años | 1.07 | 628.99 | 629.19 | 20.62 | T=5 años | 1.24 | 628.99 | 629.21 | 22.96 | 0.02 | 2.34 |
| -100 | T=500 años | 13.55 | 628.99 | 629.50 | 50.17 | T=500 años | 10.72 | 628.99 | 629.46 | 47.32 | -0.04 | -2.85 |
| -120 | T=5 años | 1.07 | 628.68 | 628.84 | 20.43 | T=5 años | 1.24 | 628.68 | 628.83 | 19.53 | -0.01 | -0.90 |
| -120 | T=500 años | 13.55 | 628.68 | 629.07 | 44.89 | T=500 años | 10.72 | 628.68 | 629.03 | 42.05 | -0.04 | -2.84 |
| -140 | T=5 años | 1.07 | 628.38 | 628.49 | 40.58 | T=5 años | 1.24 | 628.38 | 628.57 | 46.95 | 0.08 | 6.37 |
| -140 | T=500 años | 13.55 | 628.38 | 628.72 | 59.19 | T=500 años | 10.72 | 628.38 | 628.84 | 68.80 | 0.12 | 9.61 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -160 | T=5 años | 1.15 | 628.07 | 628.21 | 35.23 | T=5 años | 8.29 | 628.07 | 628.37 | 52.57 | 0.16 | 17.34 |
| -160 | T=500 años | 14.57 | 628.07 | 628.45 | 57.85 | T=500 años | 31.62 | 628.07 | 628.62 | 68.93 | 0.17 | 11.08 |
| -180 | T=5 años | 1.15 | 627.76 | 627.93 | 27.67 | T=5 años | 8.29 | 627.76 | 628.11 | 51.18 | 0.18 | 23.51 |
| -180 | T=500 años | 14.57 | 627.76 | 628.19 | 56.25 | T=500 años | 31.62 | 627.76 | 628.36 | 65.84 | 0.17 | 9.59 |
| -200 | T=5 años | 1.15 | 627.45 | 627.62 | 24.14 | T=5 años | 8.29 | 627.45 | 627.81 | 48.76 | 0.19 | 24.62 |
| -200 | T=500 años | 14.57 | 627.45 | 627.88 | 53.32 | T=500 años | 31.62 | 627.45 | 628.04 | 62.60 | 0.16 | 9.28 |
| -220 | T=5 años | 1.15 | 627.13 | 627.30 | 24.88 | T=5 años | 8.29 | 627.13 | 627.48 | 47.07 | 0.18 | 22.19 |
| -220 | T=500 años | 14.57 | 627.13 | 627.57 | 52.32 | T=500 años | 31.62 | 627.13 | 627.73 | 61.57 | 0.16 | 9.25 |
| -240 | T=5 años | 1.15 | 626.84 | 627.01 | 28.51 | T=5 años | 8.29 | 626.84 | 627.17 | 45.65 | 0.16 | 17.14 |
| -240 | T=500 años | 14.57 | 626.84 | 627.25 | 50.57 | T=500 años | 31.62 | 626.84 | 627.42 | 60.16 | 0.17 | 9.59 |
| -260 | T=5 años | 1.15 | 626.56 | 626.70 | 33.02 | T=5 años | 8.29 | 626.56 | 626.87 | 46.25 | 0.17 | 13.23 |
| -260 | T=500 años | 14.57 | 626.56 | 626.96 | 51.41 | T=500 años | 31.62 | 626.56 | 627.13 | 60.06 | 0.17 | 8.65 |
| -280 | T=5 años | 1.15 | 626.28 | 626.41 | 26.45 | T=5 años | 8.29 | 626.28 | 626.60 | 45.88 | 0.19 | 19.43 |
| -280 | T=500 años | 14.57 | 626.28 | 626.70 | 55.65 | T=500 años | 31.62 | 626.28 | 626.87 | 72.89 | 0.17 | 17.24 |
| -300 | T=5 años | 1.15 | 626.01 | 626.14 | 32.14 | T=5 años | 8.29 | 626.01 | 626.32 | 42.35 | 0.18 | 10.21 |
| -300 | T=500 años | 14.57 | 626.01 | 626.42 | 47.59 | T=500 años | 31.62 | 626.01 | 626.62 | 58.08 | 0.20 | 10.49 |
| -320 | T=5 años | 1.15 | 625.69 | 625.87 | 25.55 | T=5 años | 8.29 | 625.69 | 626.07 | 40.36 | 0.20 | 14.81 |
| -320 | T=500 años | 14.57 | 625.69 | 626.16 | 45.25 | T=500 años | 31.62 | 625.69 | 626.32 | 53.75 | 0.16 | 8.50 |
| -340 | T=5 años | 1.15 | 625.37 | 625.53 | 21.21 | T=5 años | 8.29 | 625.37 | 625.71 | 38.57 | 0.18 | 17.36 |
| -340 | T=500 años | 14.57 | 625.37 | 625.81 | 44.21 | T=500 años | 31.62 | 625.37 | 626.04 | 58.45 | 0.23 | 14.24 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -360 | T=5 años | 1.15 | 625.04 | 625.20 | 25.58 | T=5 años | 8.29 | 625.04 | 625.41 | 39.10 | 0.21 | 13.52 |
| -360 | T=500 años | 14.57 | 625.04 | 625.52 | 46.05 | T=500 años | 31.62 | 625.04 | 625.80 | 107.52 | 0.28 | 61.47 |
| -380 | T=5 años | 1.15 | 624.79 | 624.99 | 24.65 | T=5 años | 8.29 | 624.79 | 625.24 | 44.92 | 0.25 | 20.27 |
| -380 | T=500 años | 14.57 | 624.79 | 625.36 | 54.79 | T=500 años | 31.62 | 624.79 | 625.60 | 120.42 | 0.24 | 65.63 |
| -400 | T=5 años | 1.15 | 624.54 | 624.77 | 16.44 | T=5 años | 8.29 | 624.54 | 625.03 | 35.06 | 0.26 | 18.62 |
| -400 | T=500 años | 14.57 | 624.54 | 625.15 | 44.12 | T=500 años | 31.62 | 624.54 | 625.36 | 59.89 | 0.21 | 15.77 |
| -420 | T=5 años | 1.15 | 624.29 | 624.53 | 16.85 | T=5 años | 8.29 | 624.29 | 624.78 | 34.77 | 0.25 | 17.92 |
| -420 | T=500 años | 14.57 | 624.29 | 624.89 | 42.83 | T=500 años | 31.62 | 624.29 | 625.09 | 59.22 | 0.20 | 16.39 |
| -440 | T=5 años | 1.15 | 624.05 | 624.27 | 17.21 | T=5 años | 8.29 | 624.05 | 624.50 | 36.12 | 0.23 | 18.91 |
| -440 | T=500 años | 14.57 | 624.05 | 624.61 | 44.81 | T=500 años | 31.62 | 624.05 | 624.81 | 60.60 | 0.20 | 15.79 |
| -460 | T=5 años | 1.15 | 623.75 | 623.98 | 16.43 | T=5 años | 8.29 | 623.75 | 624.24 | 35.29 | 0.26 | 18.86 |
| -460 | T=500 años | 14.57 | 623.75 | 624.36 | 44.11 | T=500 años | 31.62 | 623.75 | 624.57 | 60.30 | 0.21 | 16.19 |
| -480 | T=5 años | 1.15 | 623.45 | 623.69 | 14.73 | T=5 años | 8.29 | 623.45 | 623.96 | 30.83 | 0.27 | 16.10 |
| -480 | T=500 años | 14.57 | 623.45 | 624.07 | 39.53 | T=500 años | 31.62 | 623.45 | 624.28 | 55.04 | 0.21 | 15.51 |
| -500 | T=5 años | 1.15 | 623.14 | 623.36 | 14.35 | T=5 años | 8.29 | 623.14 | 623.60 | 32.58 | 0.24 | 18.23 |
| -500 | T=500 años | 14.57 | 623.14 | 623.70 | 40.51 | T=500 años | 31.62 | 623.14 | 623.87 | 53.81 | 0.17 | 13.30 |
| -520 | T=5 años | 1.15 | 622.88 | 623.01 | 24.72 | T=5 años | 8.29 | 622.88 | 623.18 | 37.98 | 0.17 | 13.26 |
| -520 | T=500 años | 14.57 | 622.88 | 623.27 | 44.78 | T=500 años | 31.62 | 622.88 | 623.43 | 57.87 | 0.16 | 13.09 |
| -540 | T=5 años | 1.15 | 622.50 | 622.64 | 29.94 | T=5 años | 8.29 | 622.50 | 622.81 | 43.91 | 0.17 | 13.97 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -540 | T=500 años | 14.57 | 622.50 | 622.90 | 50.14 | T=500 años | 31.62 | 622.50 | 623.06 | 61.52 | 0.16 | 11.38 |
| -560 | T=5 años | 1.15 | 622.06 | 622.23 | 23.33 | T=5 años | 8.29 | 622.06 | 622.39 | 45.87 | 0.16 | 22.54 |
| -560 | T=500 años | 14.57 | 622.06 | 622.47 | 52.31 | T=500 años | 31.62 | 622.06 | 622.60 | 60.89 | 0.13 | 8.58 |
| -580 | T=5 años | 1.15 | 621.63 | 621.80 | 19.97 | T=5 años | 8.29 | 621.63 | 622.03 | 46.17 | 0.23 | 26.20 |
| -580 | T=500 años | 14.57 | 621.63 | 622.13 | 57.91 | T=500 años | 31.62 | 621.63 | 622.30 | 71.36 | 0.17 | 13.45 |
| -600 | T=5 años | 1.15 | 621.39 | 621.62 | 26.23 | T=5 años | 8.29 | 621.39 | 621.85 | 51.19 | 0.23 | 24.96 |
| -600 | T=500 años | 14.57 | 621.39 | 621.94 | 62.17 | T=500 años | 31.62 | 621.39 | 622.12 | 70.82 | 0.18 | 8.65 |
| -620 | T=5 años | 1.15 | 621.28 | 621.45 | 25.77 | T=5 años | 8.29 | 621.28 | 621.64 | 53.31 | 0.19 | 27.54 |
| -620 | T=500 años | 14.57 | 621.28 | 621.72 | 56.36 | T=500 años | 31.62 | 621.28 | 621.88 | 62.47 | 0.16 | 6.11 |
| -640 | T=5 años | 1.15 | 621.02 | 621.19 | 28.50 | T=5 años | 8.29 | 621.02 | 621.37 | 49.49 | 0.18 | 20.99 |
| -640 | T=500 años | 14.57 | 621.02 | 621.45 | 52.60 | T=500 años | 31.62 | 621.02 | 621.63 | 59.41 | 0.18 | 6.81 |
| -660 | T=5 años | 1.15 | 620.72 | 620.88 | 26.29 | T=5 años | 8.29 | 620.72 | 621.05 | 42.26 | 0.17 | 15.97 |
| -660 | T=500 años | 14.57 | 620.72 | 621.13 | 45.66 | T=500 años | 31.62 | 620.72 | 621.29 | 52.08 | 0.16 | 6.42 |
| -680 | T=5 años | 1.15 | 620.23 | 620.35 | 22.36 | T=5 años | 8.29 | 620.23 | 620.52 | 29.33 | 0.17 | 6.97 |
| -680 | T=500 años | 14.57 | 620.23 | 620.61 | 33.47 | T=500 años | 31.62 | 620.23 | 620.82 | 42.20 | 0.21 | 8.73 |
| -700 | T=5 años | 1.15 | 619.94 | 620.11 | 32.78 | T=5 años | 8.29 | 619.94 | 620.37 | 43.35 | 0.26 | 10.57 |
| -700 | T=500 años | 14.57 | 619.94 | 620.51 | 48.94 | T=500 años | 31.62 | 619.94 | 620.78 | 59.41 | 0.27 | 10.47 |
| -720 | T=5 años | 1.15 | 619.86 | 620.06 | 35.65 | T=5 años | 8.29 | 619.86 | 620.32 | 43.67 | 0.26 | 8.02 |
| -720 | T=500 años | 14.57 | 619.86 | 620.45 | 47.93 | T=500 años | 31.62 | 619.86 | 620.71 | 55.85 | 0.26 | 7.92 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -740 | T=5 años | 1.15 | 619.77 | 620.00 | 34.49 | T=5 años | 8.29 | 619.77 | 620.25 | 44.34 | 0.25 | 9.85 |
| -740 | T=500 años | 14.57 | 619.77 | 620.39 | 49.27 | T=500 años | 31.62 | 619.77 | 620.64 | 58.40 | 0.25 | 9.13 |
| -760 | T=5 años | 1.15 | 619.69 | 619.93 | 30.83 | T=5 años | 8.29 | 619.69 | 620.19 | 49.57 | 0.26 | 18.74 |
| -760 | T=500 años | 14.57 | 619.69 | 620.33 | 55.78 | T=500 años | 31.62 | 619.69 | 620.57 | 67.19 | 0.24 | 11.41 |
| -780 | T=5 años | 1.15 | 619.60 | 619.86 | 28.10 | T=5 años | 8.29 | 619.60 | 620.14 | 50.49 | 0.28 | 22.39 |
| -780 | T=500 años | 14.57 | 619.60 | 620.27 | 56.79 | T=500 años | 31.62 | 619.60 | 620.51 | 68.21 | 0.24 | 11.42 |
| -800 | T=5 años | 1.15 | 619.51 | 619.78 | 23.96 | T=5 años | 8.29 | 619.51 | 620.06 | 45.92 | 0.28 | 21.96 |
| -800 | T=500 años | 14.57 | 619.51 | 620.19 | 51.99 | T=500 años | 31.62 | 619.51 | 620.41 | 62.88 | 0.22 | 10.89 |
| -820 | T=5 años | 1.15 | 619.43 | 619.68 | 19.16 | T=5 años | 8.29 | 619.43 | 619.93 | 38.31 | 0.25 | 19.15 |
| -820 | T=500 años | 14.57 | 619.43 | 620.04 | 46.55 | T=500 años | 31.62 | 619.43 | 620.26 | 60.93 | 0.22 | 14.38 |
| -840 | T=5 años | 1.15 | 619.34 | 619.56 | 28.82 | T=5 años | 8.29 | 619.34 | 619.83 | 64.36 | 0.27 | 35.54 |
| -840 | T=500 años | 14.57 | 619.34 | 619.96 | 81.82 | T=500 años | 31.62 | 619.34 | 620.21 | 110.70 | 0.25 | 28.88 |
| -860 | T=5 años | 1.15 | 619.26 | 619.50 | 38.92 | T=5 años | 8.29 | 619.26 | 619.79 | 87.70 | 0.29 | 48.78 |
| -860 | T=500 años | 14.57 | 619.26 | 619.93 | 110.41 | T=500 años | 31.62 | 619.26 | 620.18 | 131.39 | 0.25 | 20.98 |
| -880 | T=5 años | 1.15 | 619.17 | 619.44 | 25.98 | T=5 años | 8.29 | 619.17 | 619.74 | 55.74 | 0.30 | 29.76 |
| -880 | T=500 años | 14.57 | 619.17 | 619.88 | 69.00 | T=500 años | 31.62 | 619.17 | 620.14 | 104.24 | 0.26 | 35.24 |
| -900 | T=5 años | 1.15 | 619.09 | 619.38 | 24.55 | T=5 años | 8.29 | 619.09 | 619.68 | 49.75 | 0.30 | 25.20 |
| -900 | T=500 años | 14.57 | 619.09 | 619.81 | 61.09 | T=500 años | 31.62 | 619.09 | 620.07 | 141.17 | 0.26 | 80.08 |
| -920 | T=5 años | 1.15 | 619.00 | 619.19 | 12.12 | T=5 años | 8.29 | 619.00 | 619.43 | 26.75 | 0.24 | 14.63 |
| -920 | T=500 años | 14.57 | 619.00 | 619.54 | 33.53 | T=500 años | 31.62 | 619.00 | 619.73 | 45.65 | 0.19 | 12.12 |

| HEC-RAS Plan: Actual | | | | | | HEC-RAS Plan: Futuro | | | | | Diferencia Calado (m) | Diferencia Ancho (m) |
|----------------------|------------|----------------|---------------|---------------|---------------|----------------------|----------------|---------------|---------------|---------------|-----------------------|----------------------|
| River Sta | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | Profile | Q Total (m3/s) | Min Ch El (m) | W.S. Elev (m) | Top Width (m) | | |
| -940 | T=5 años | 1.15 | 617.95 | 618.14 | 10.82 | T=5 años | 8.29 | 617.95 | 618.32 | 21.61 | 0.18 | 10.79 |
| -940 | T=500 años | 14.57 | 617.95 | 618.41 | 26.53 | T=500 años | 31.62 | 617.95 | 618.57 | 35.71 | 0.16 | 9.18 |
| -960 | T=5 años | 1.15 | 616.88 | 617.05 | 14.87 | T=5 años | 8.29 | 616.88 | 617.23 | 31.45 | 0.18 | 16.58 |
| -960 | T=500 años | 14.57 | 616.88 | 617.32 | 38.09 | T=500 años | 31.62 | 616.88 | 617.45 | 49.47 | 0.13 | 11.38 |
| -980 | T=5 años | 1.15 | 615.81 | 615.97 | 14.56 | T=5 años | 8.29 | 615.81 | 616.15 | 24.76 | 0.18 | 10.20 |
| -980 | T=500 años | 14.57 | 615.81 | 616.24 | 30.06 | T=500 años | 31.62 | 615.81 | 616.41 | 40.23 | 0.17 | 10.17 |
| -998.8 | T=5 años | 1.36 | 615.00 | 615.13 | 19.35 | T=5 años | 12.82 | 615.00 | 615.44 | 32.16 | 0.31 | 12.81 |
| -998.8 | T=500 años | 17.19 | 615.00 | 615.51 | 35.09 | T=500 años | 42.10 | 615.00 | 615.79 | 46.71 | 0.28 | 11.62 |

ANEXO VIII

SECCIONES DE CONTROL

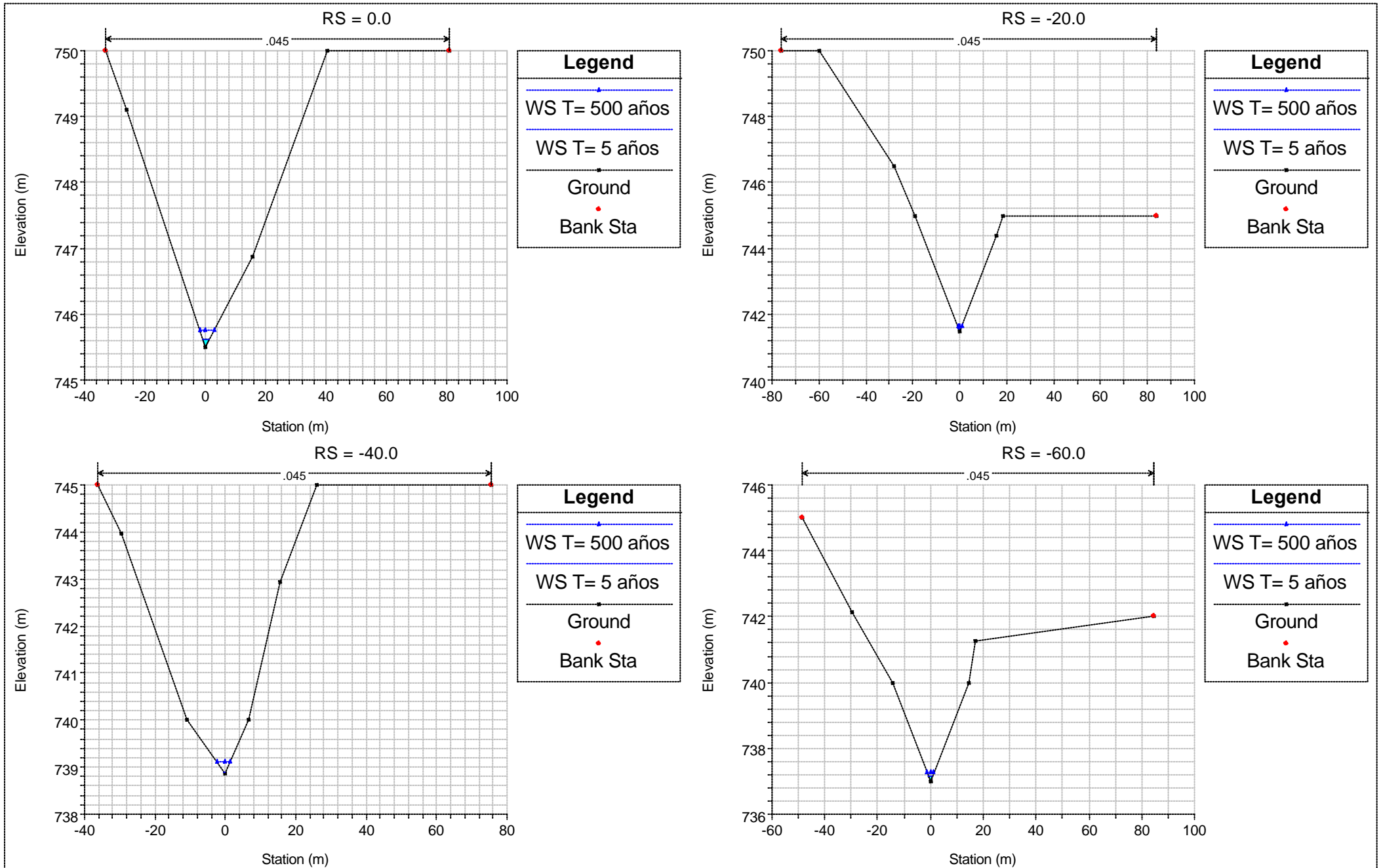
ANEXO VIII

SECCIONES DE CONTROL

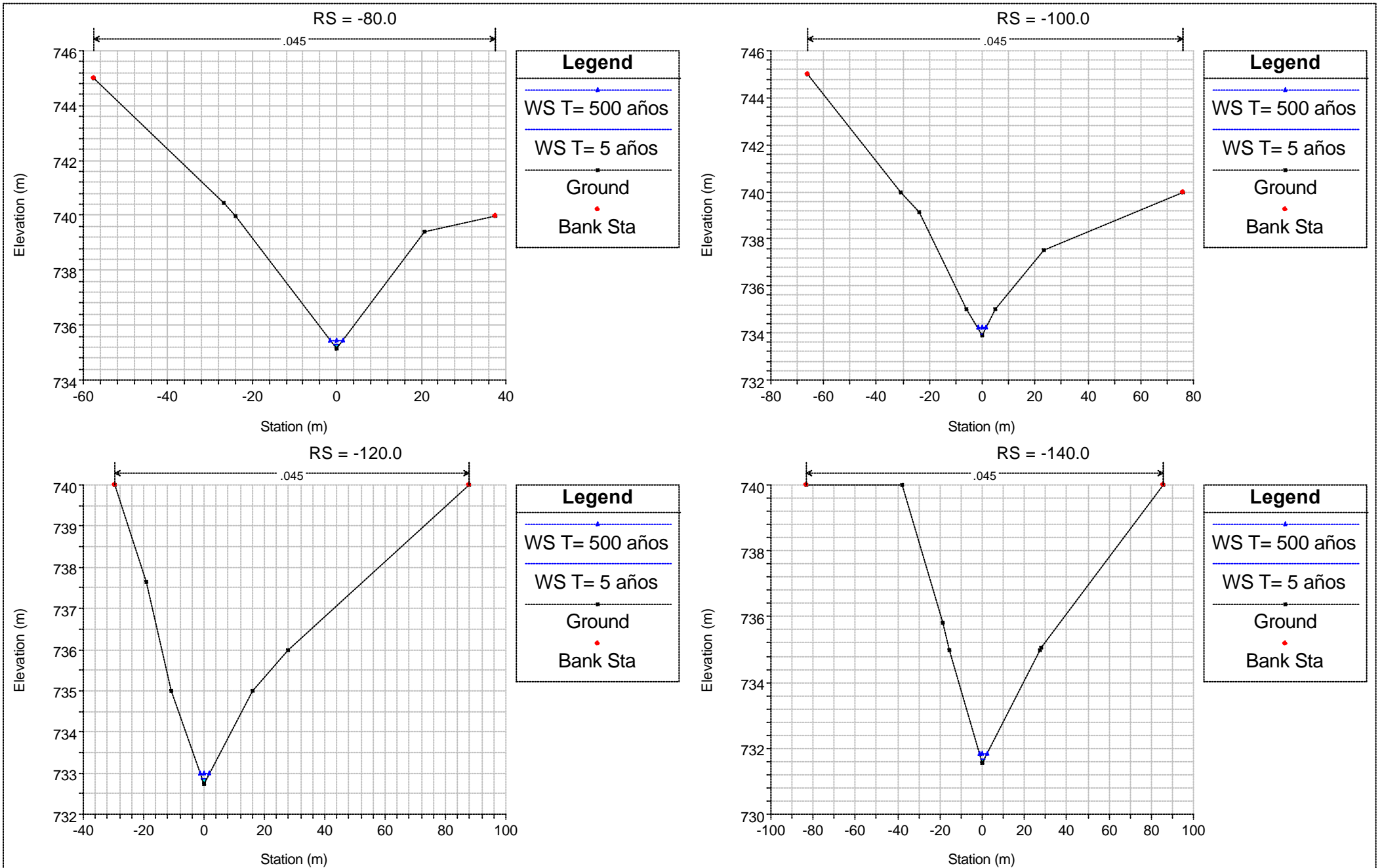
| |
|----------------------|
| ESTADO ACTUAL |
|----------------------|

ARROYO DE VALDELACASA

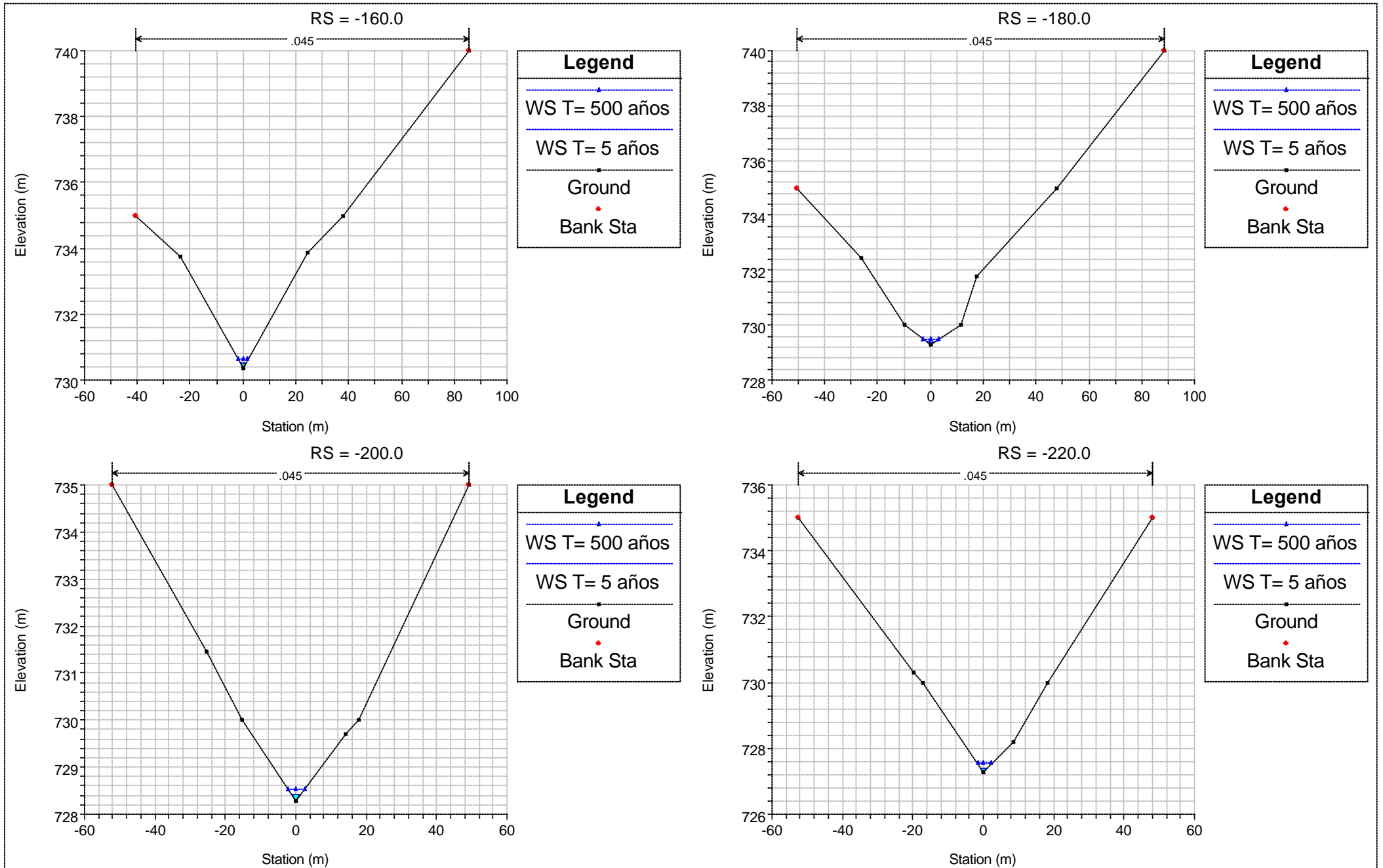
ARROYO DE VALDELACASA - SITUACIÓN ACTUAL



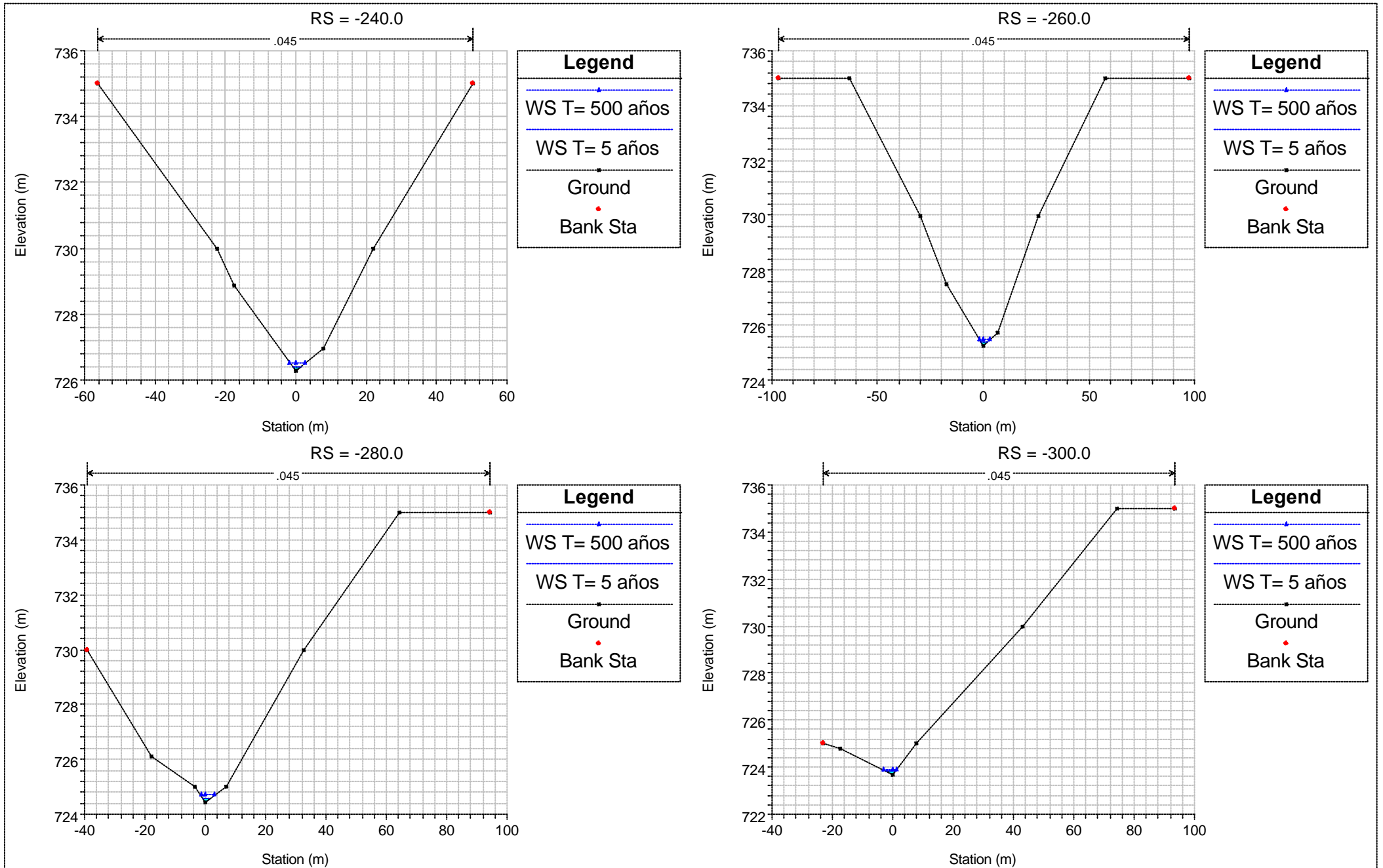
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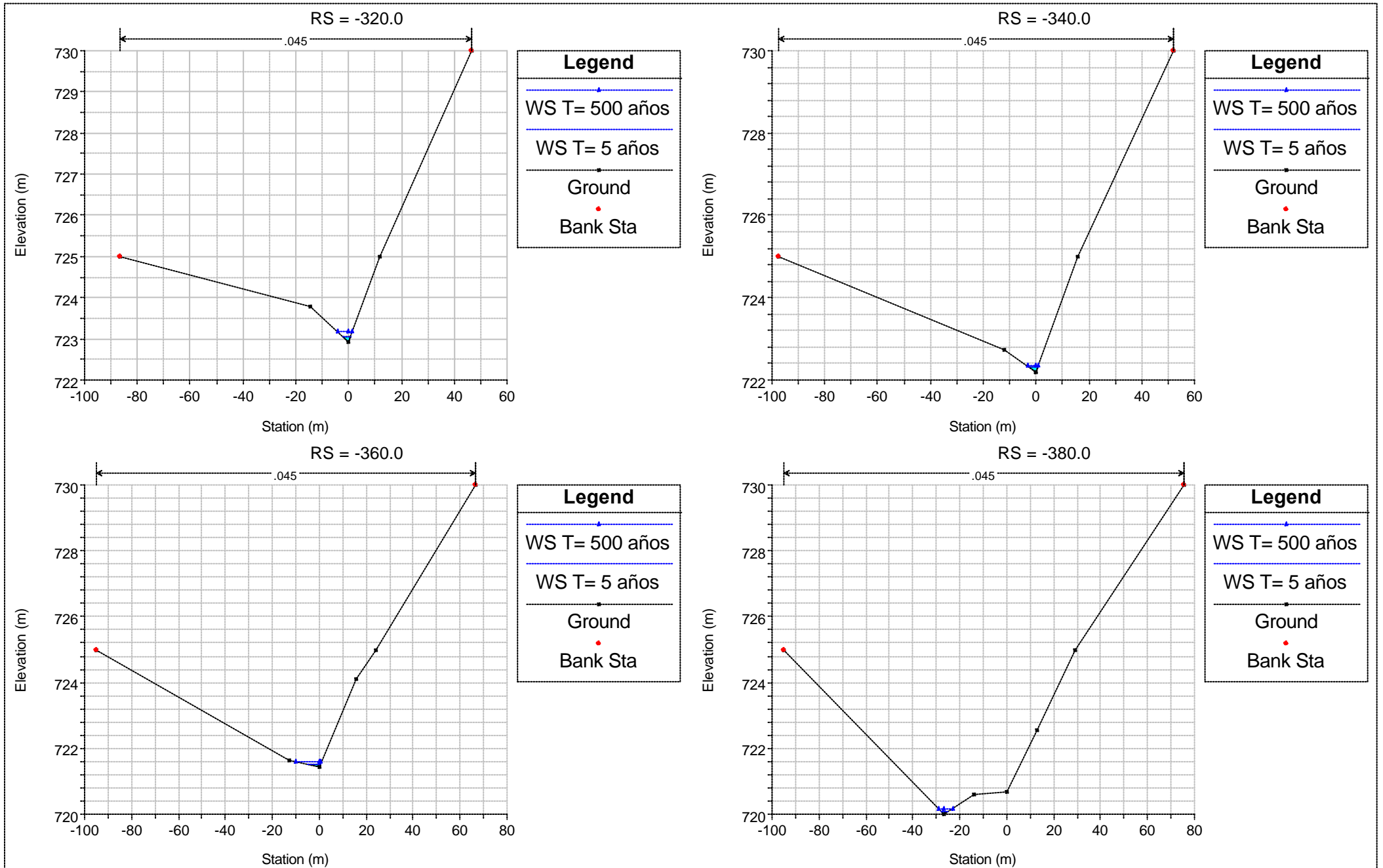
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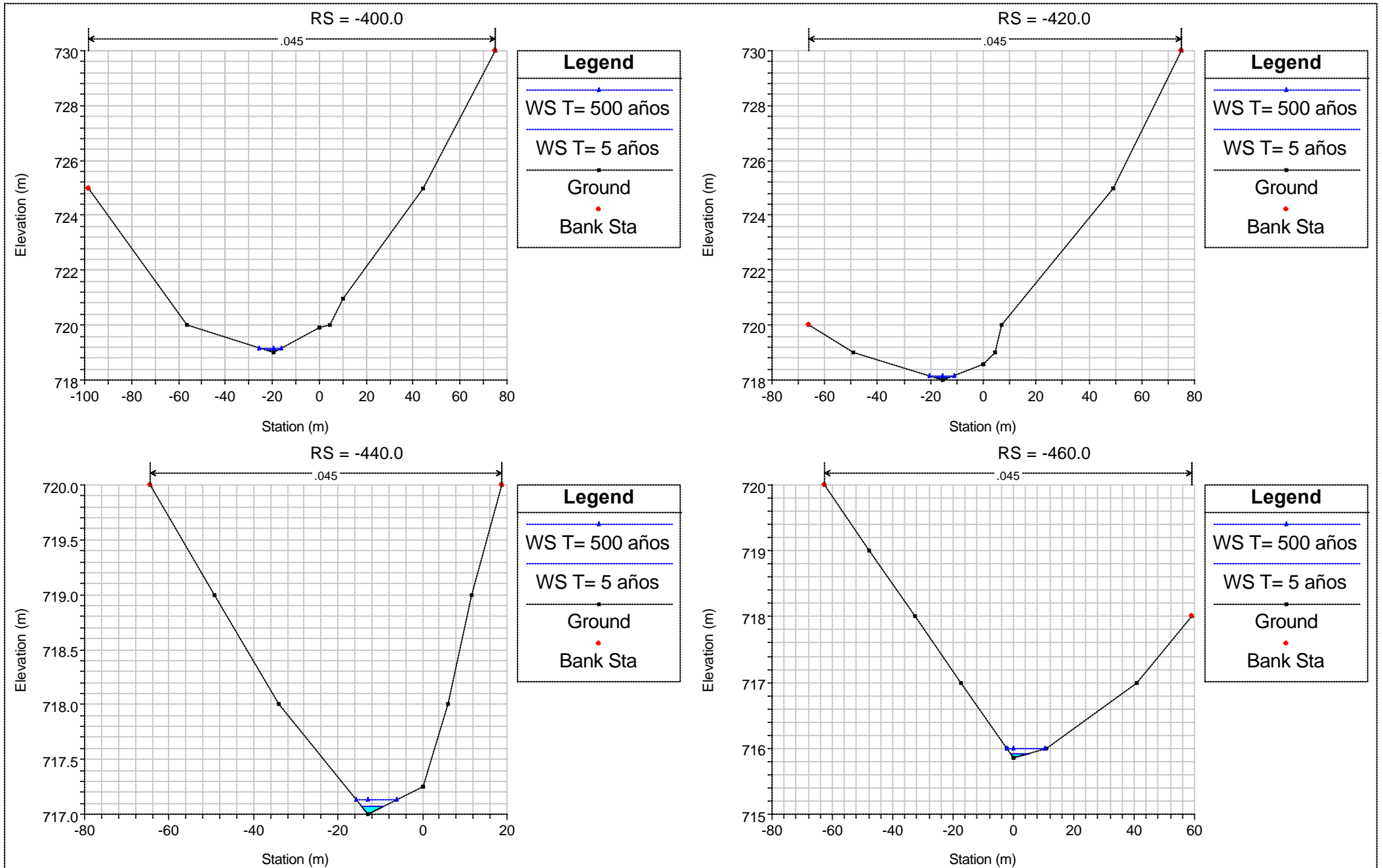
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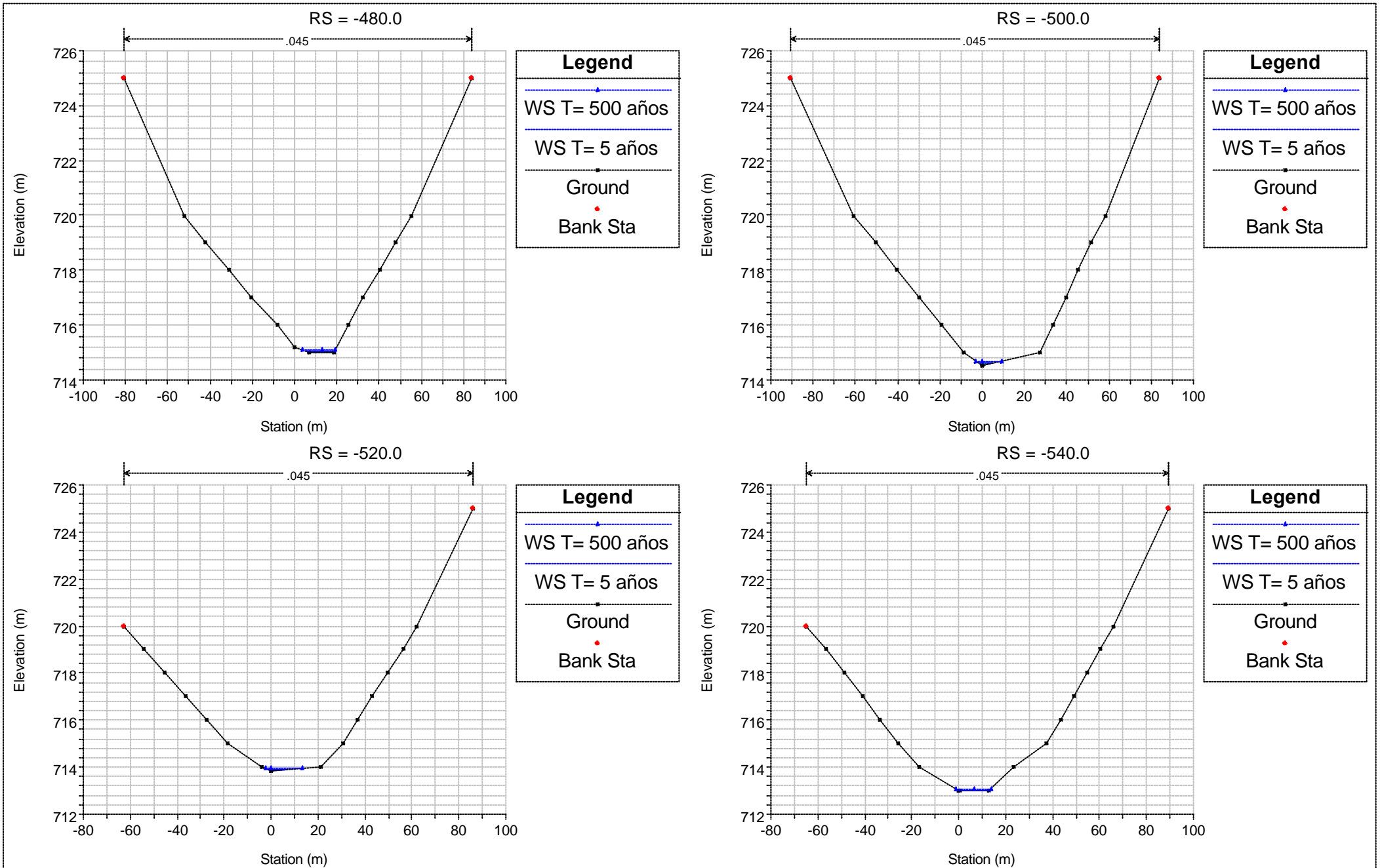
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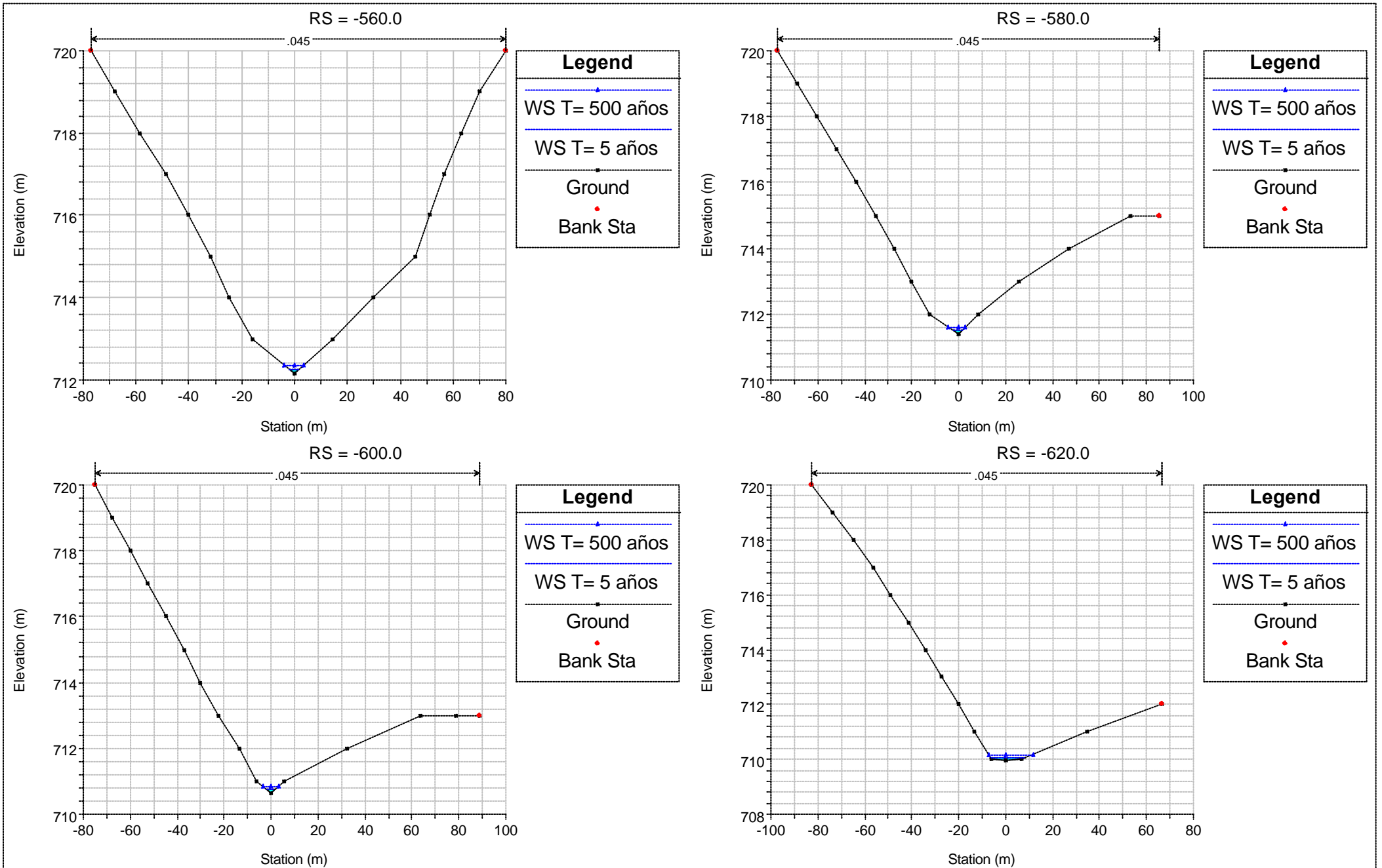
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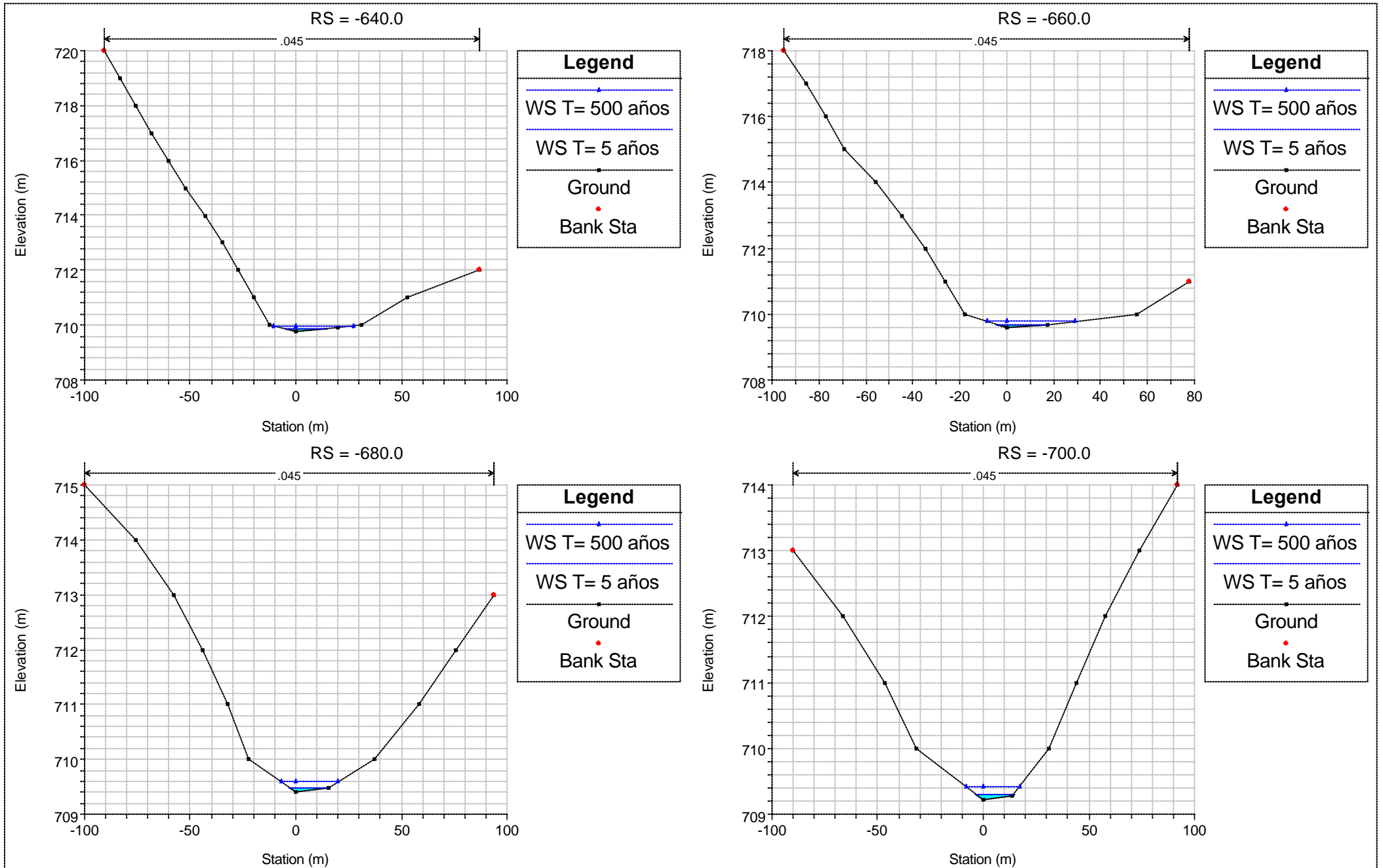
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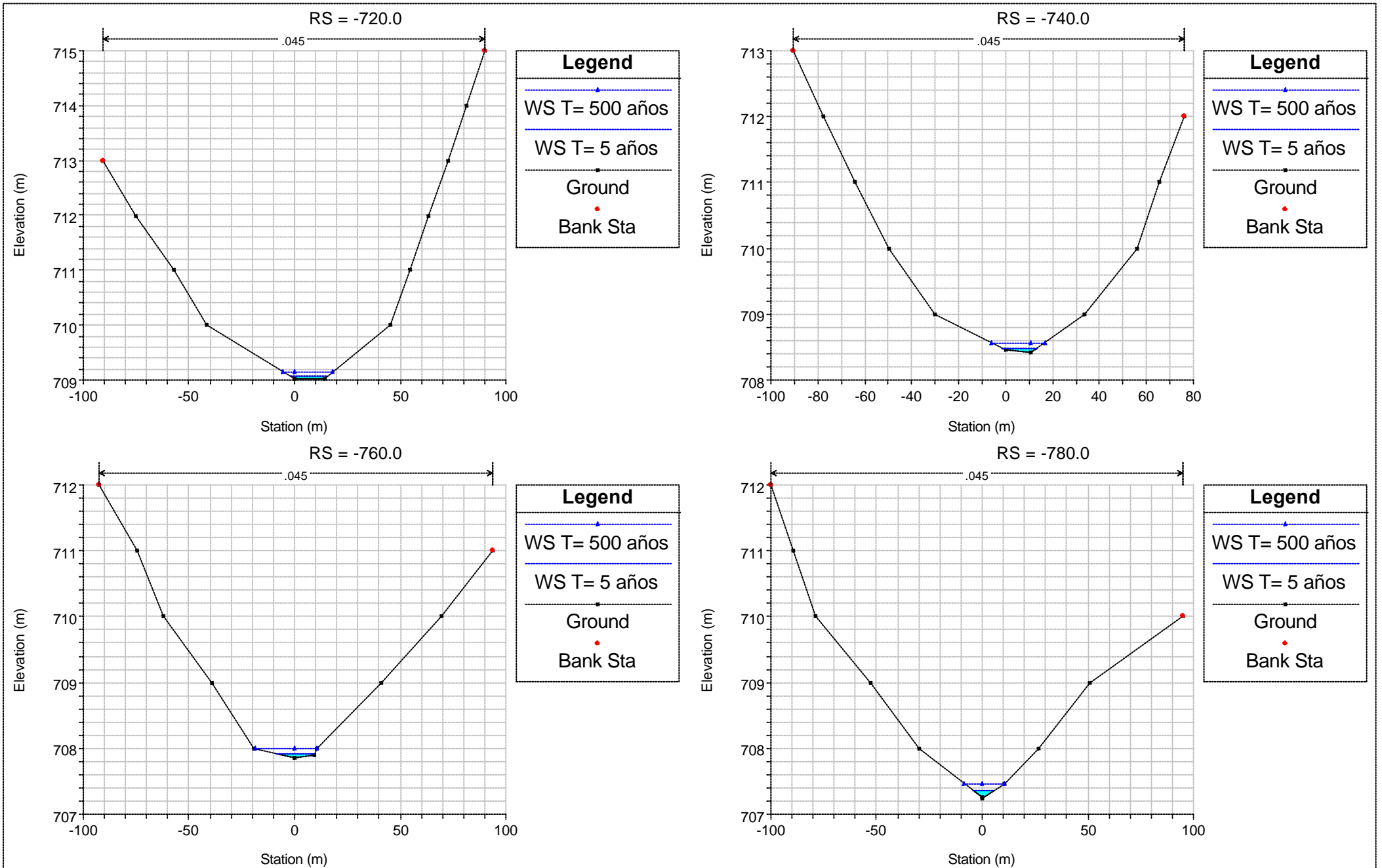
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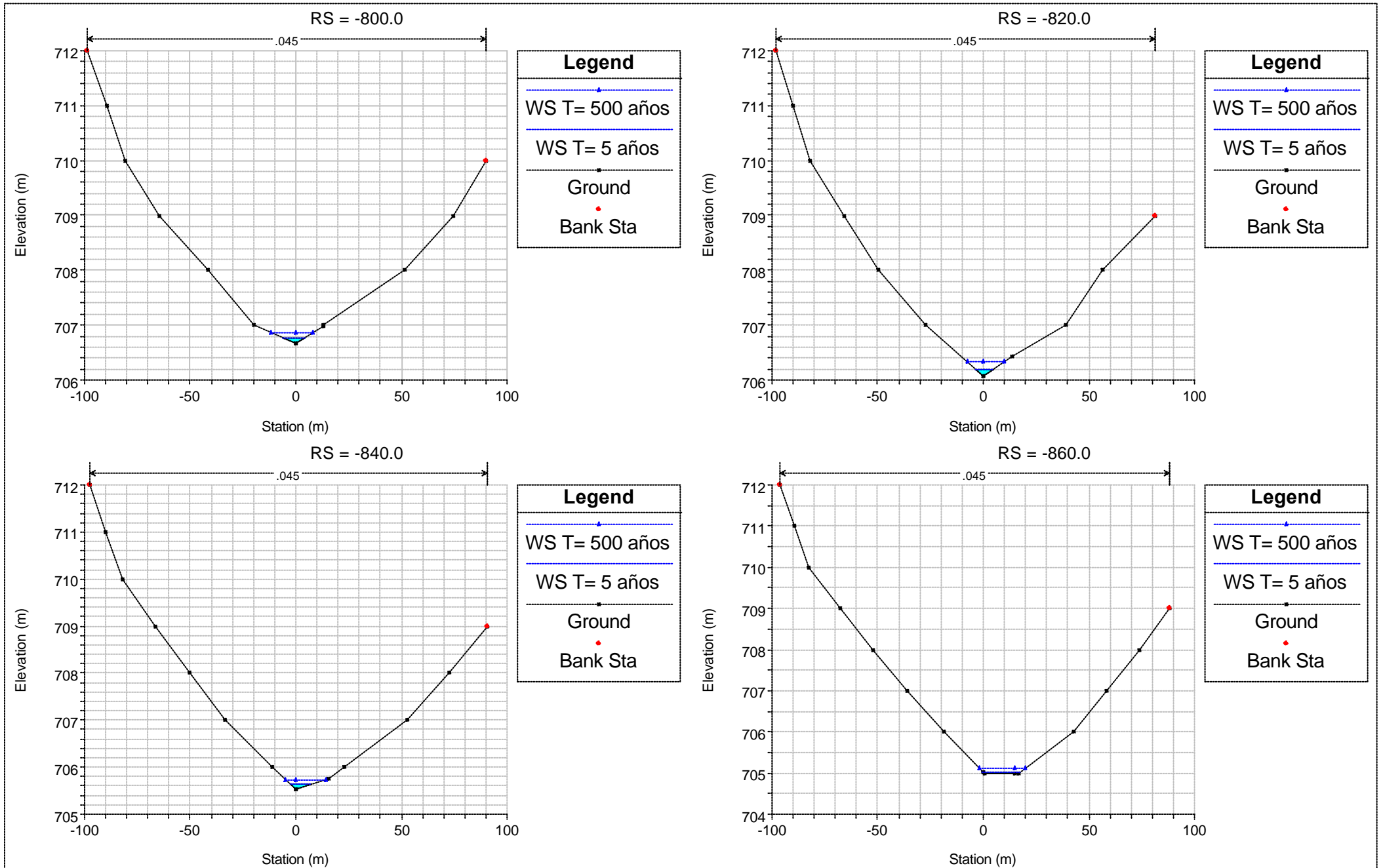
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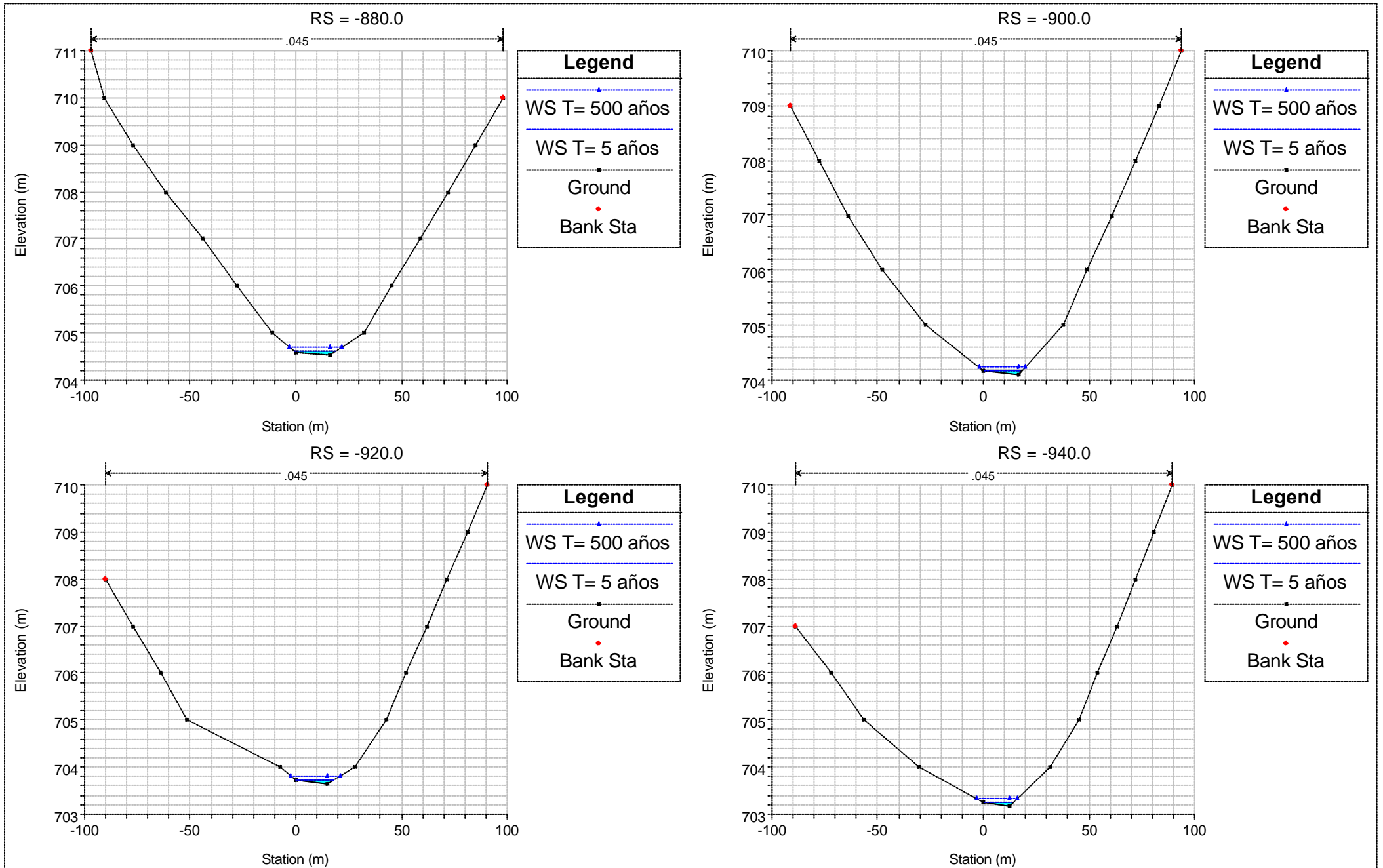
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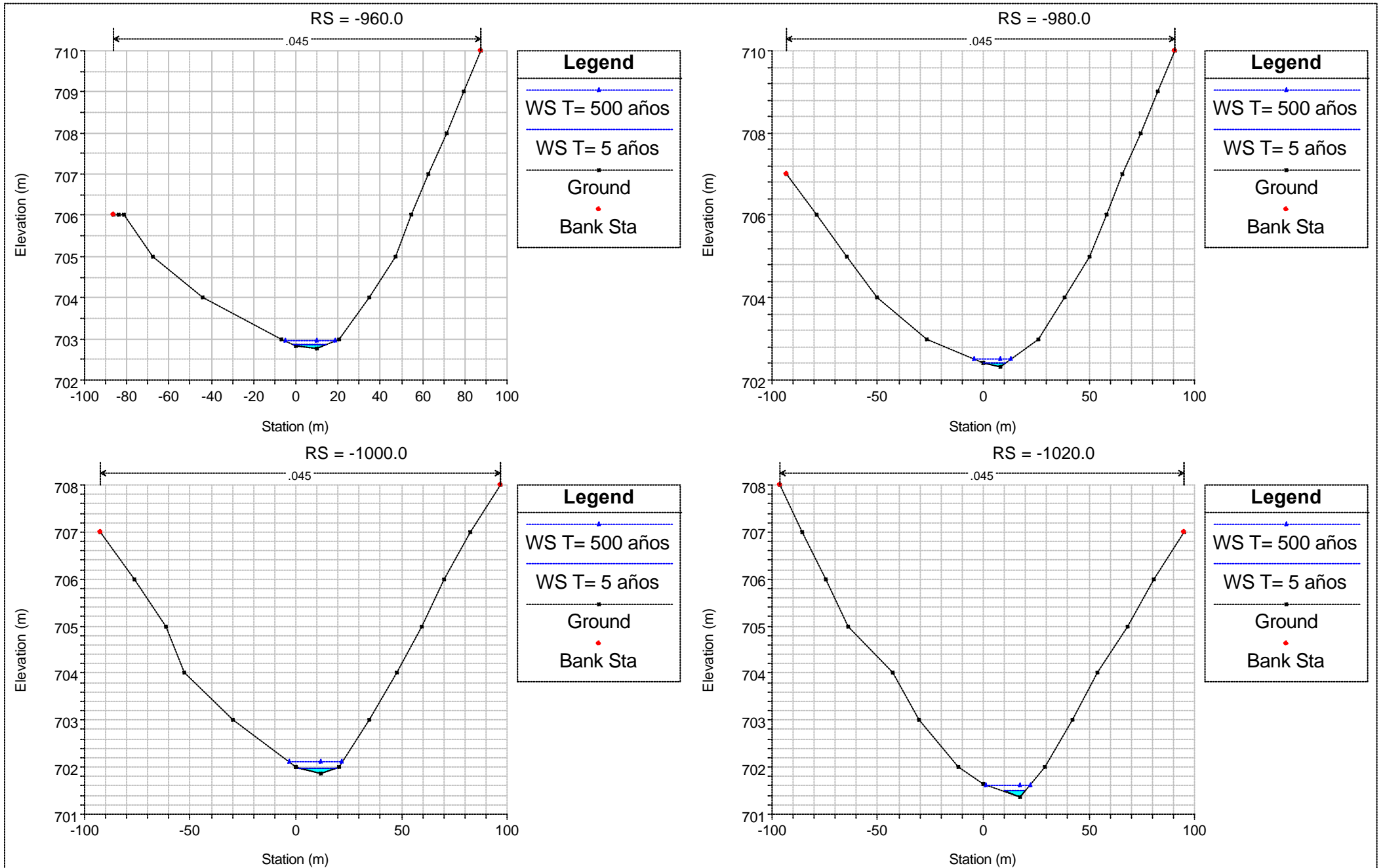
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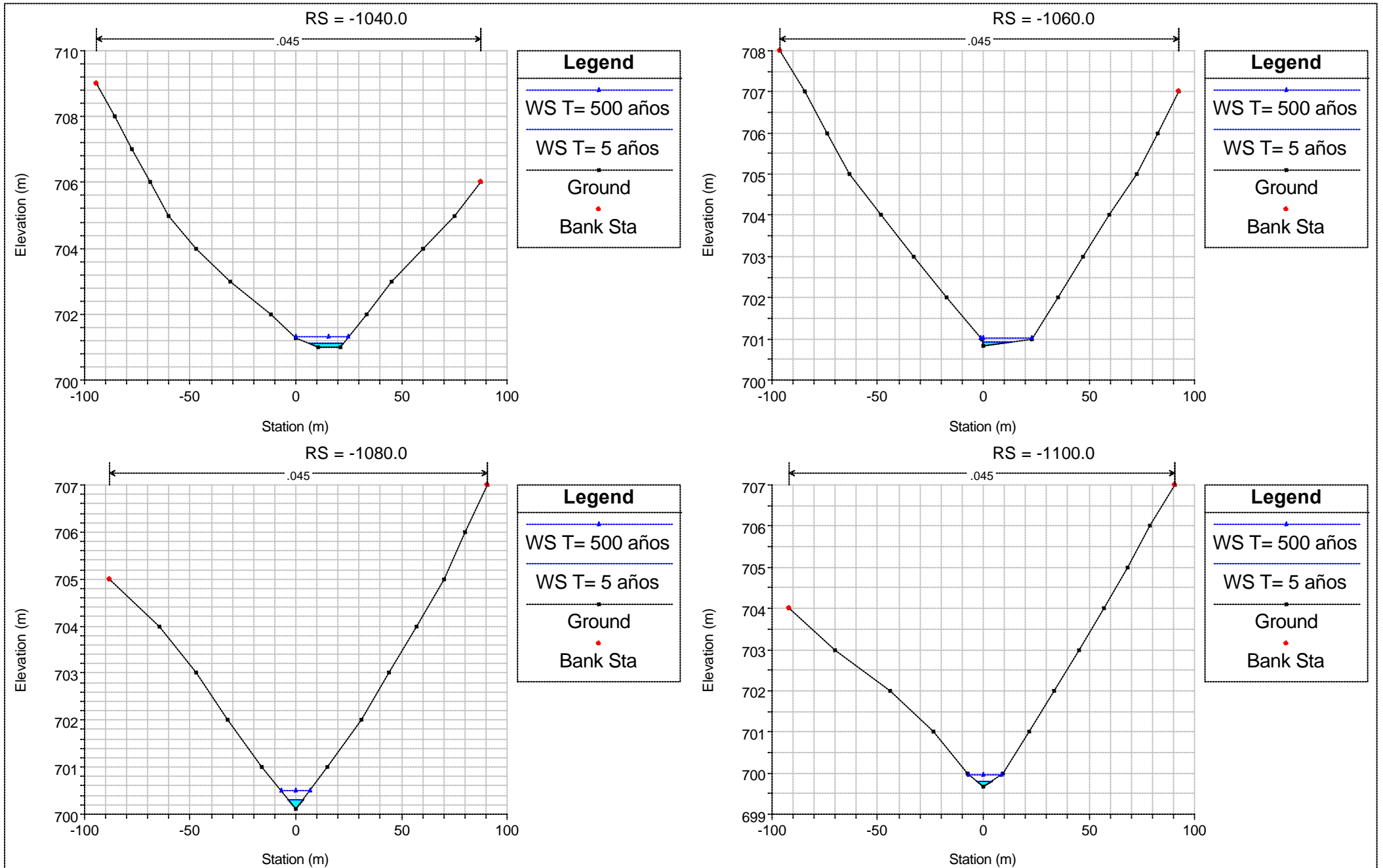
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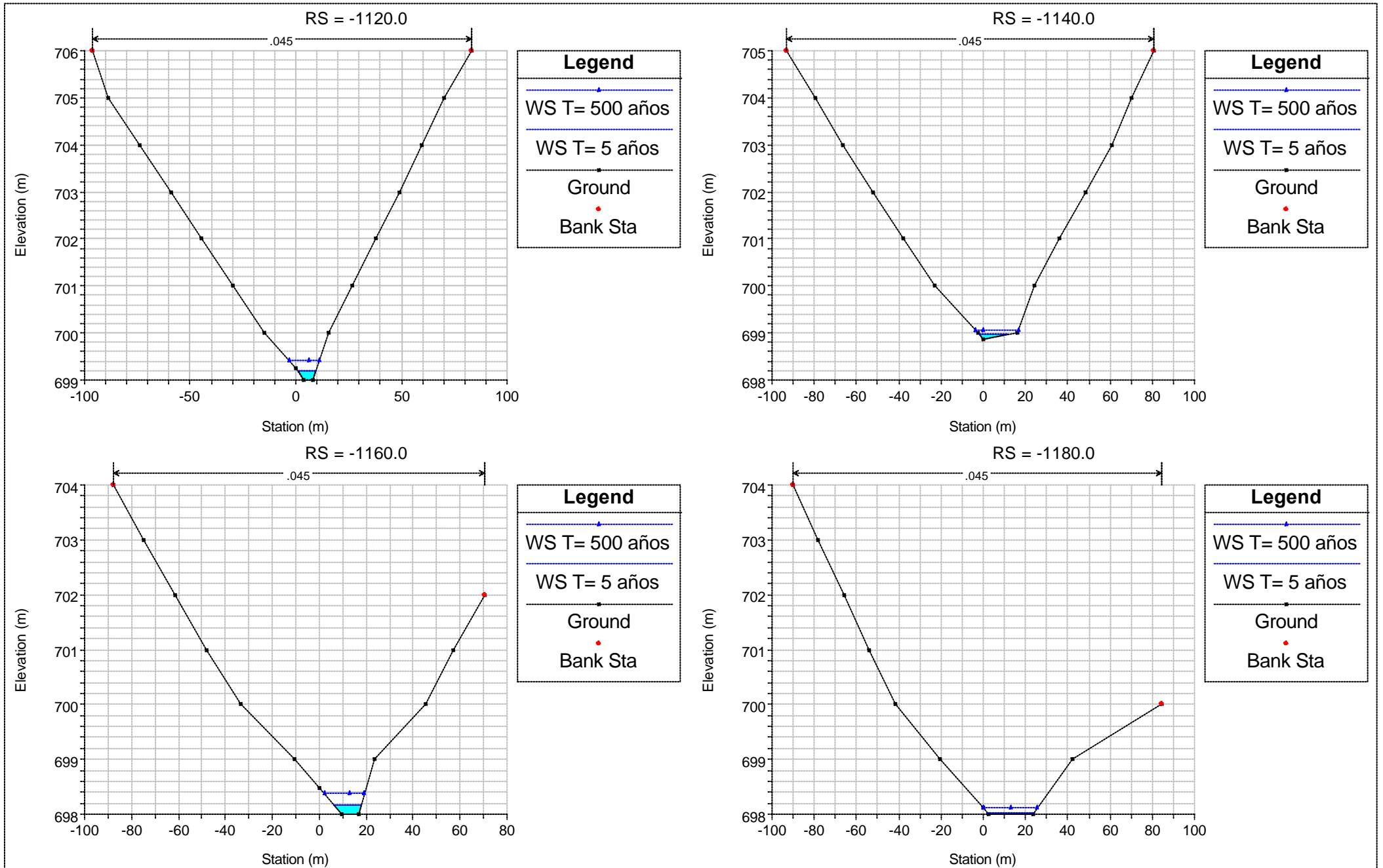
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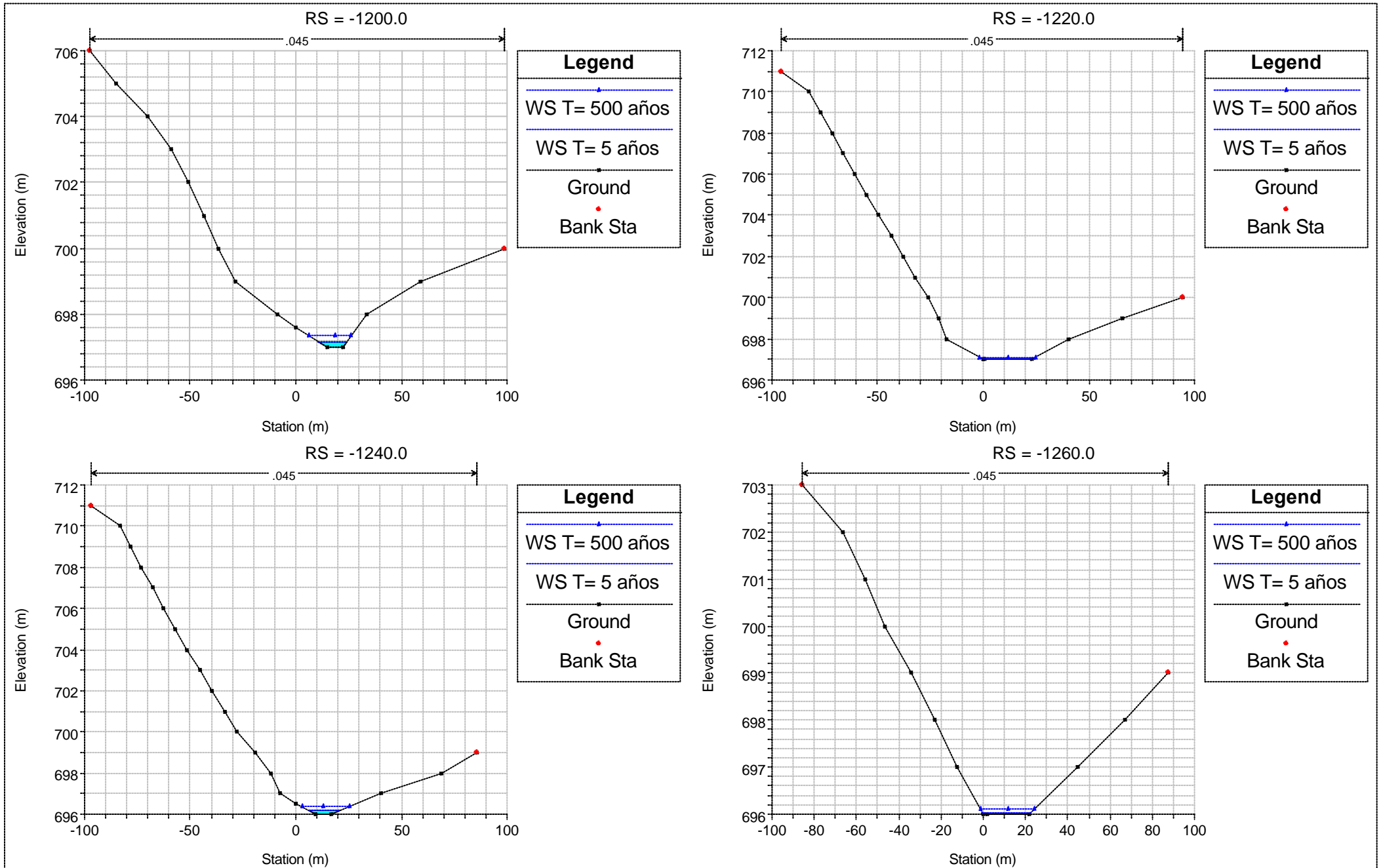
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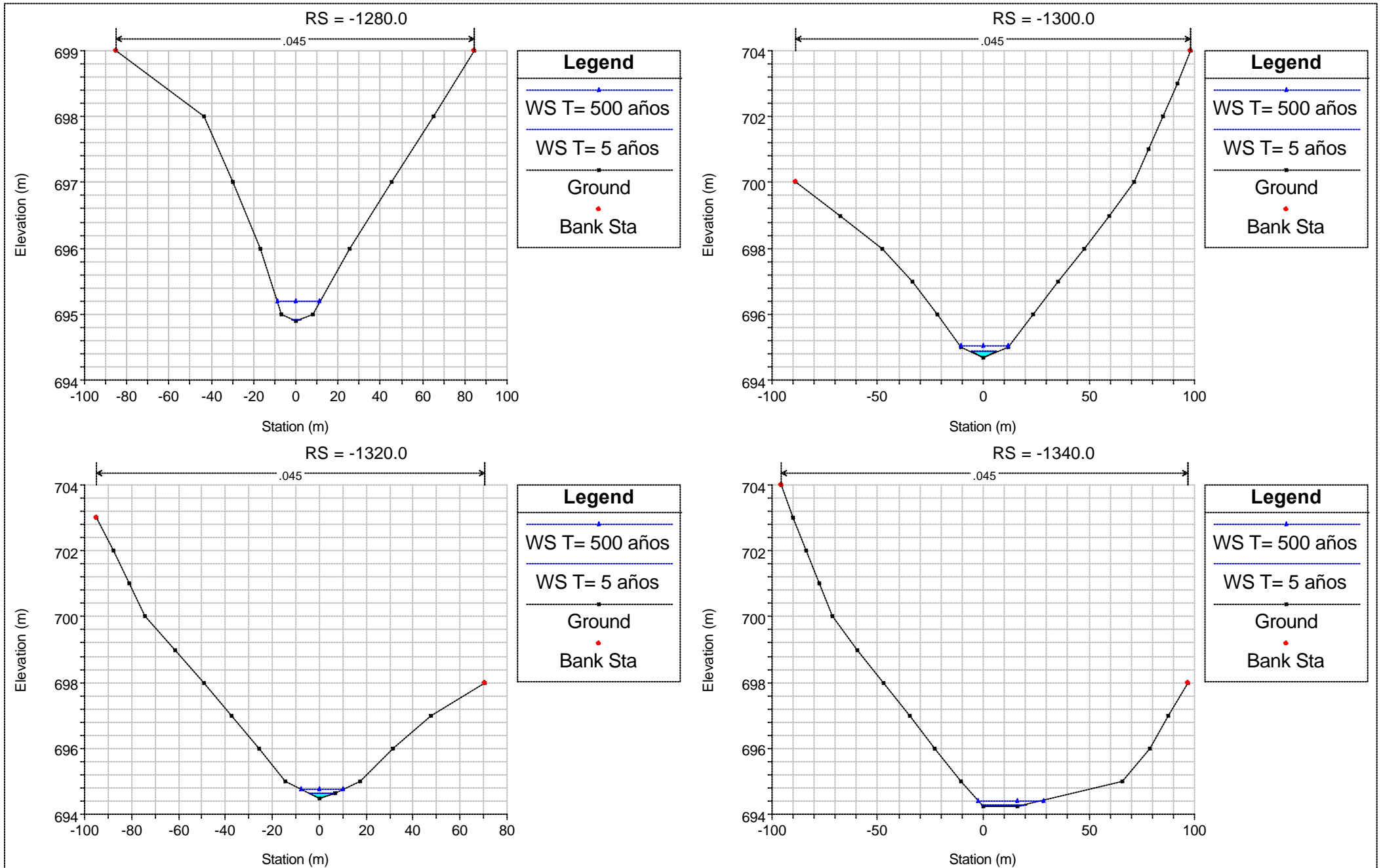
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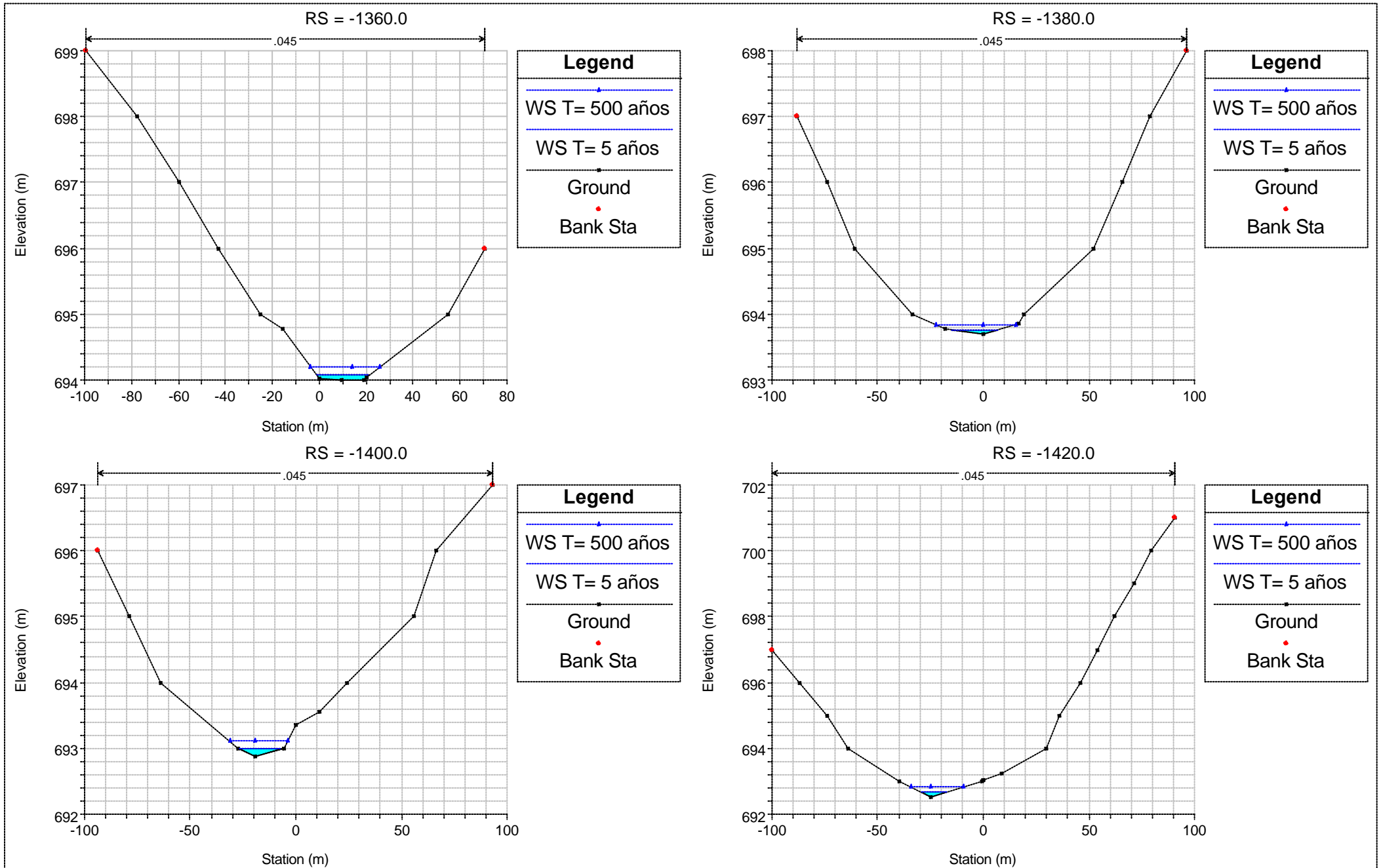
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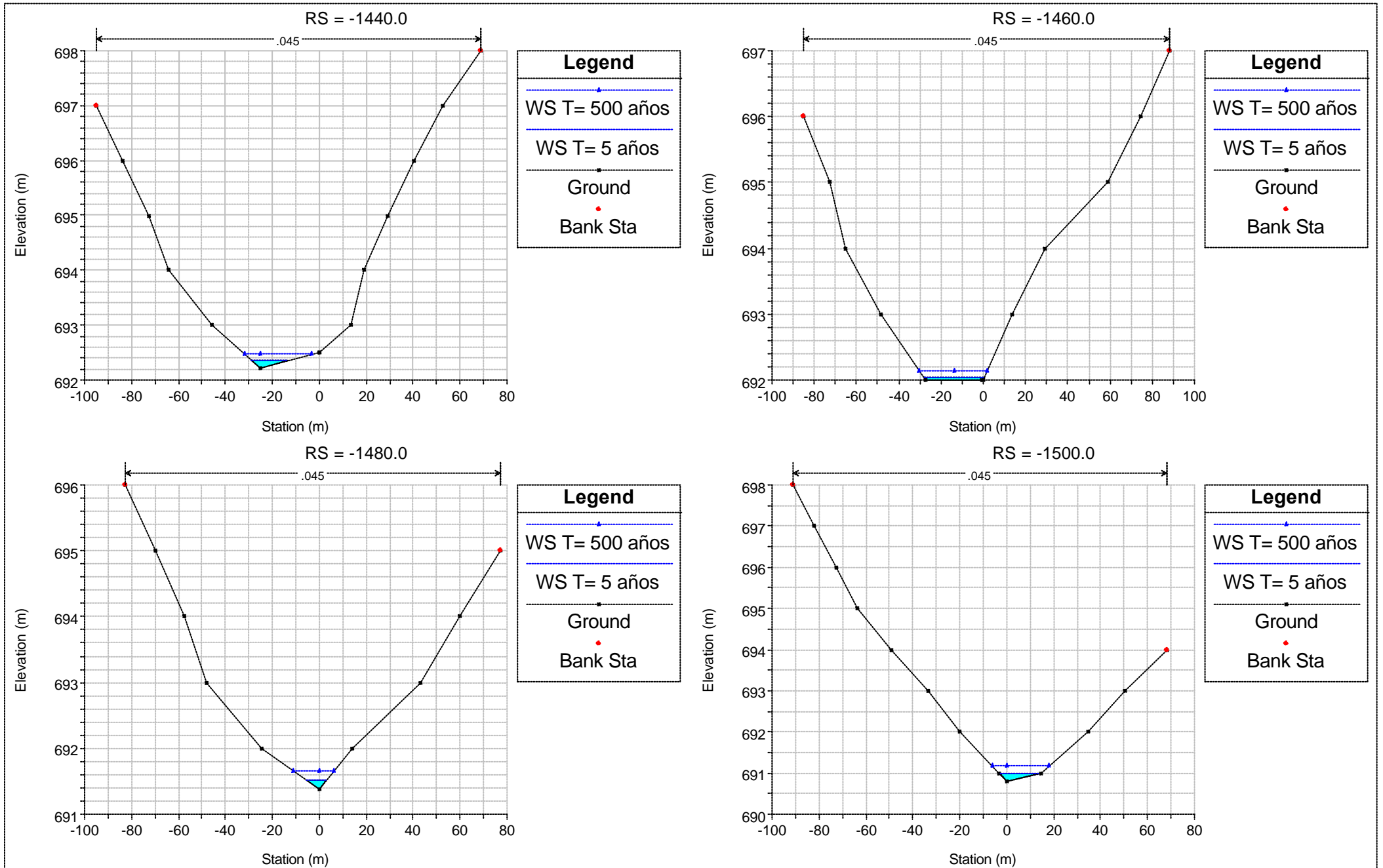
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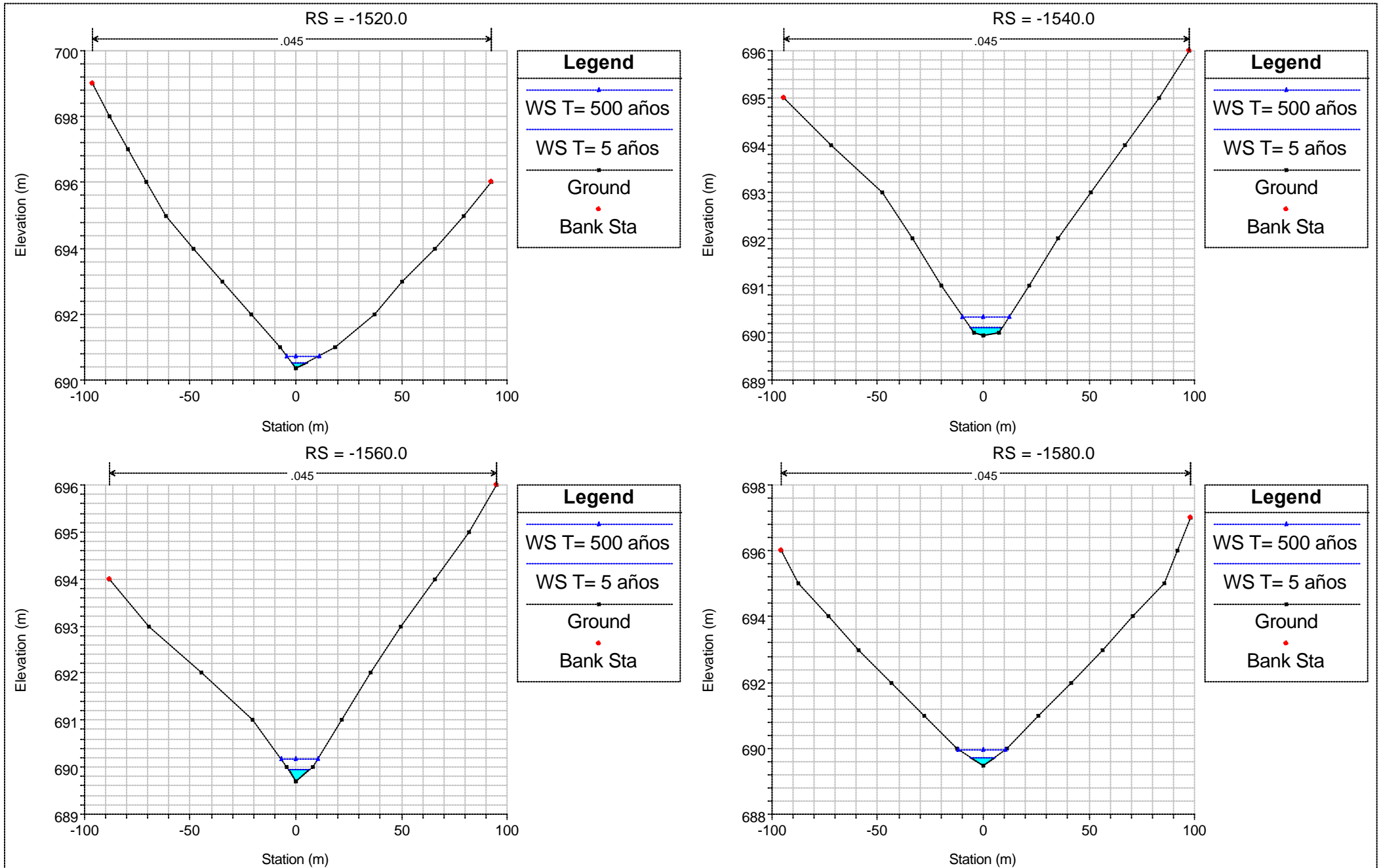
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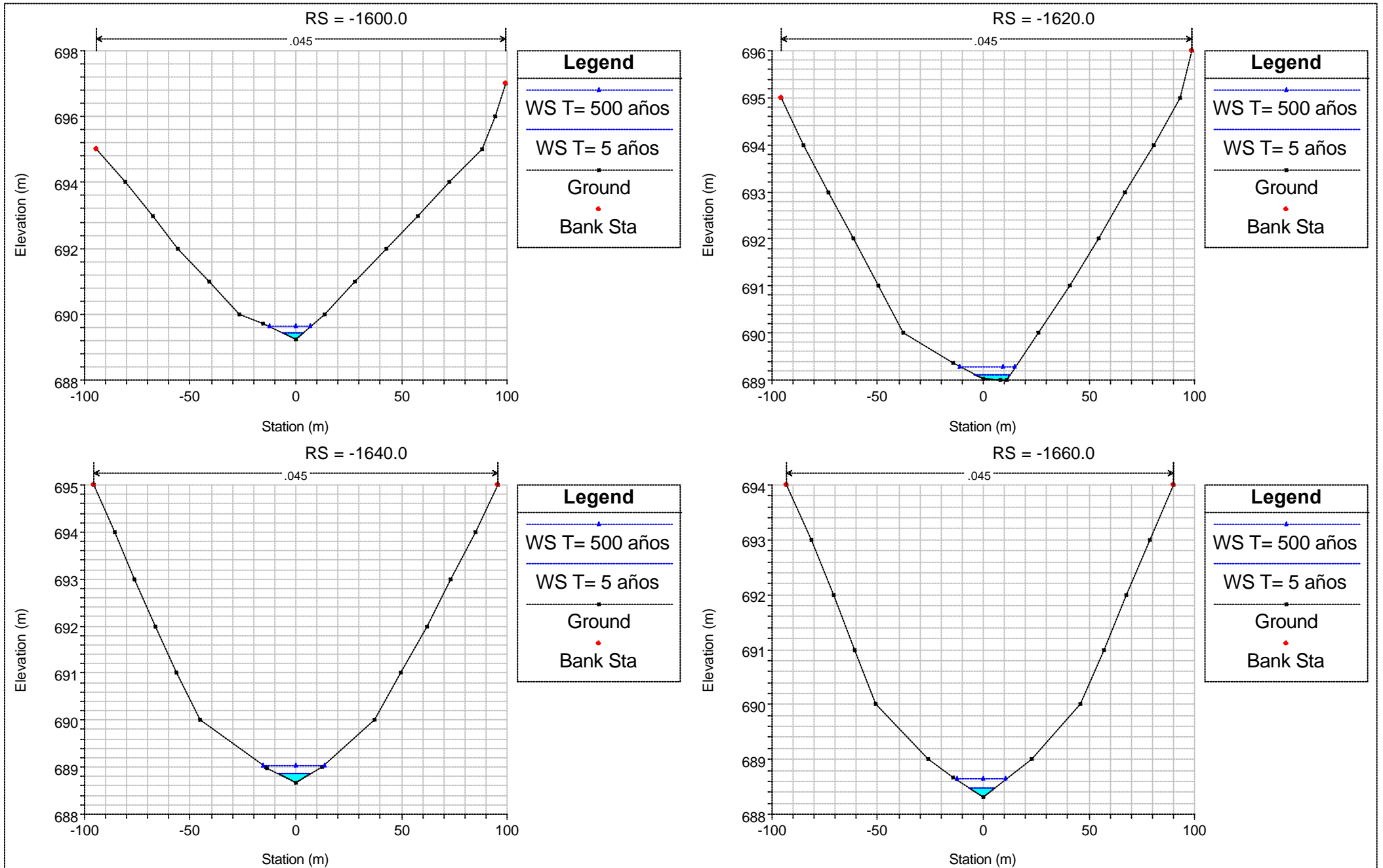
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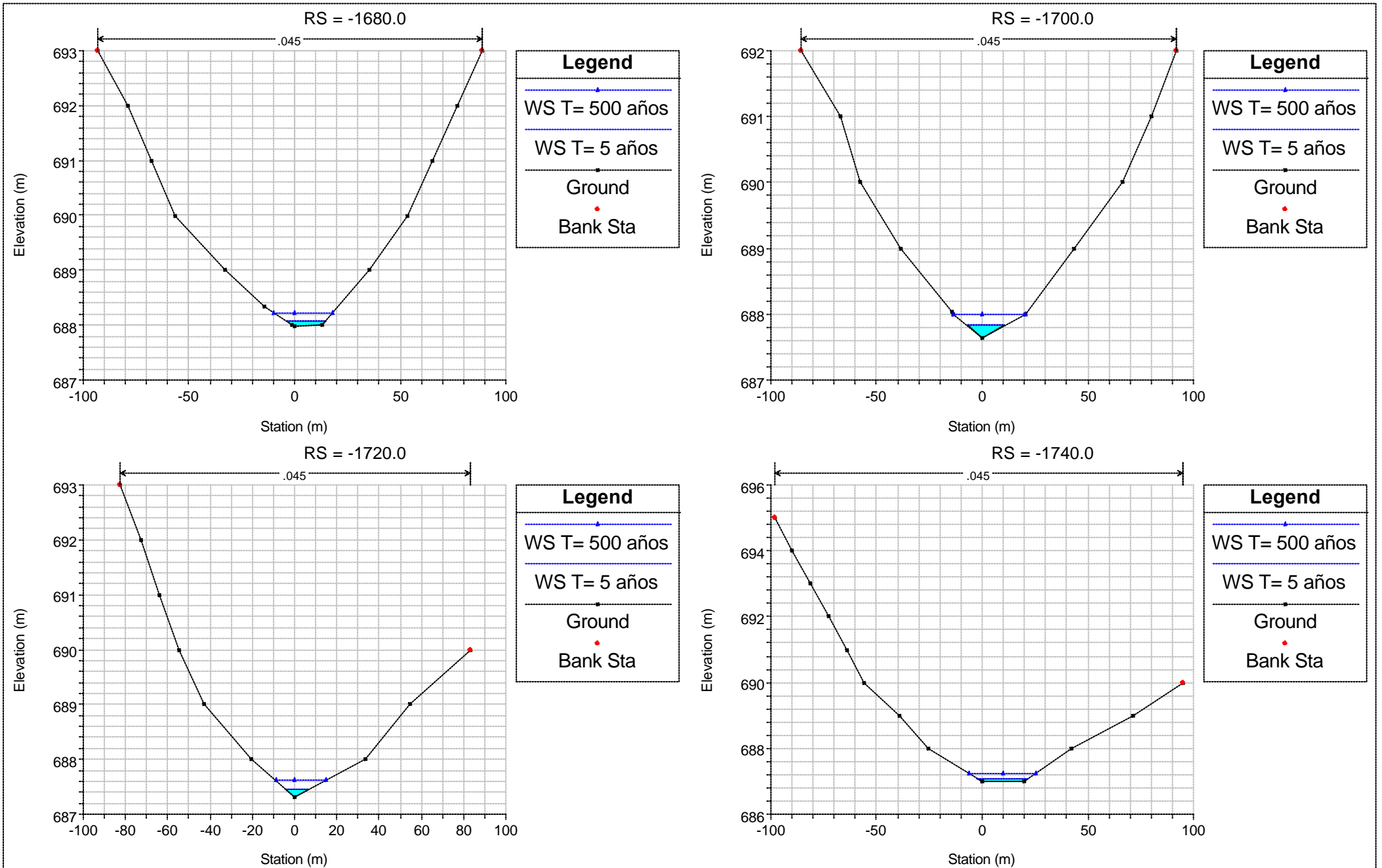
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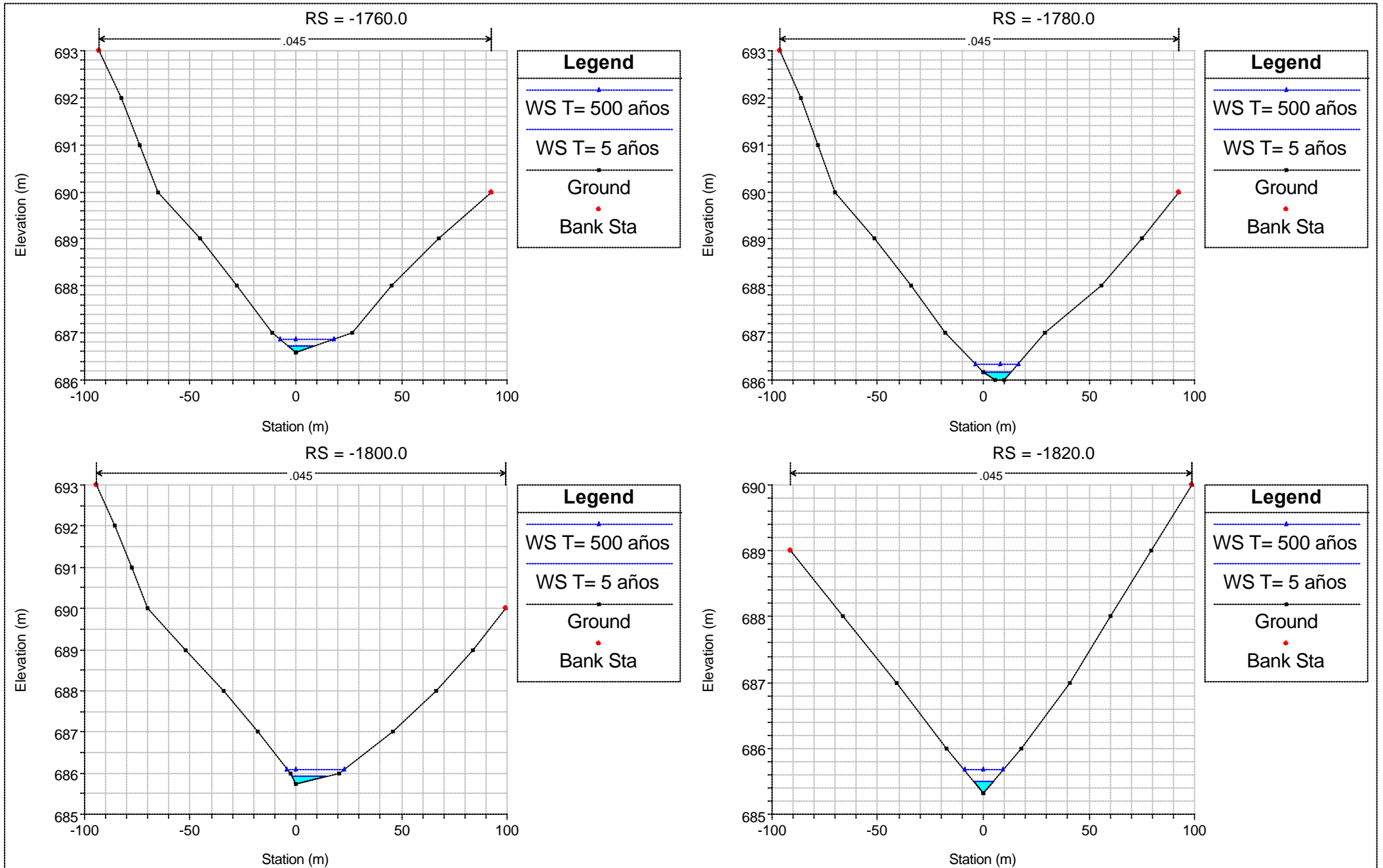
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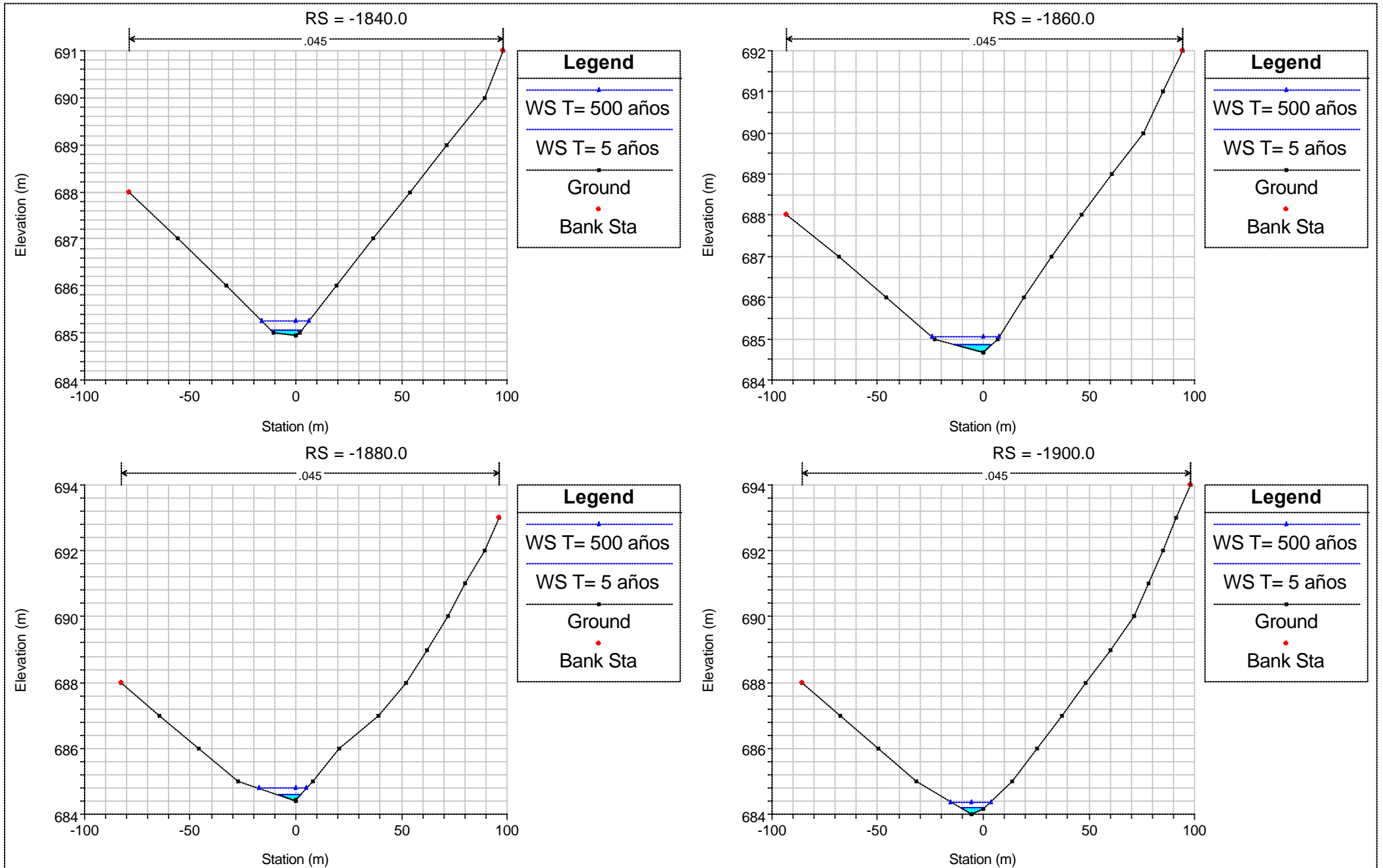
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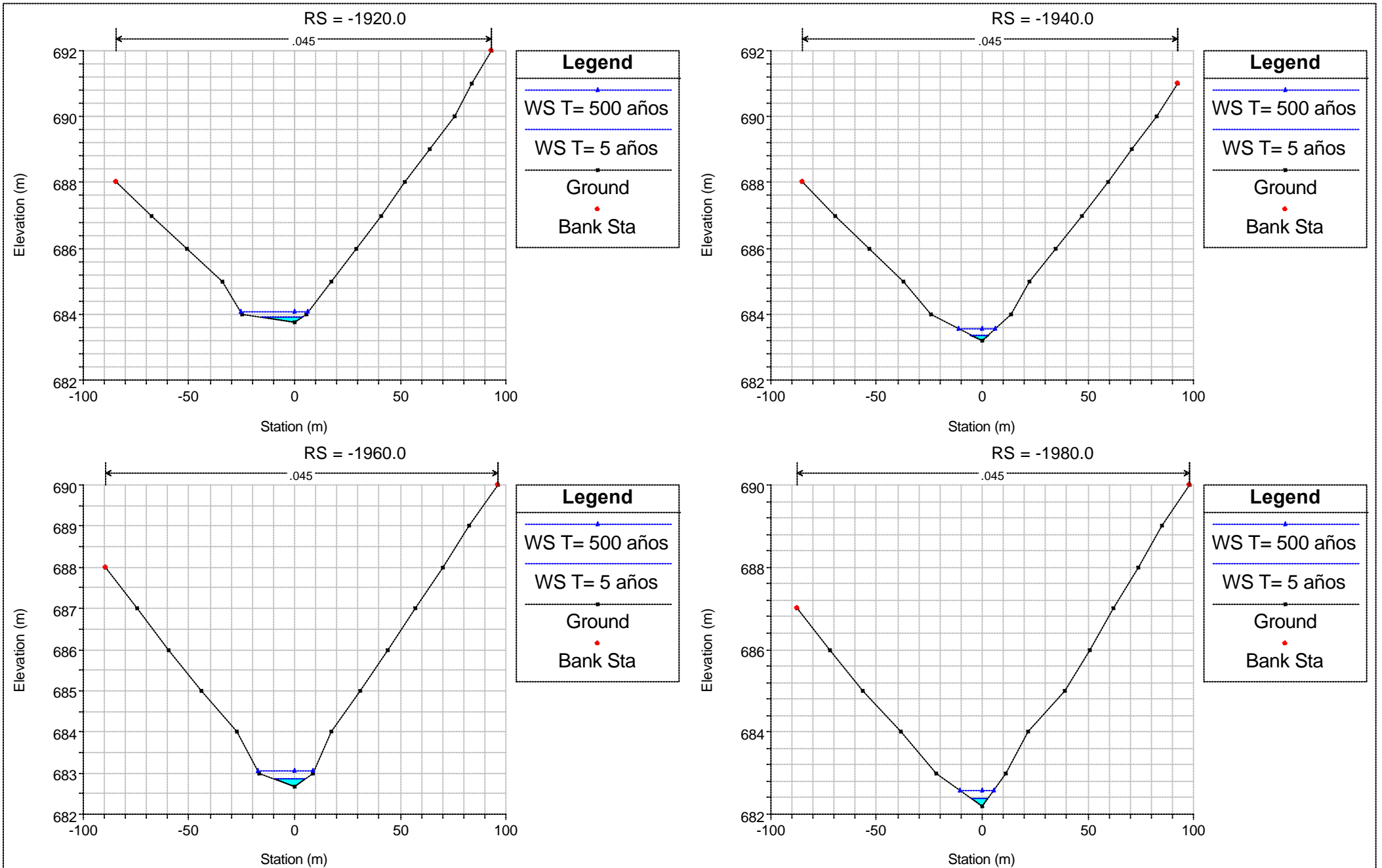
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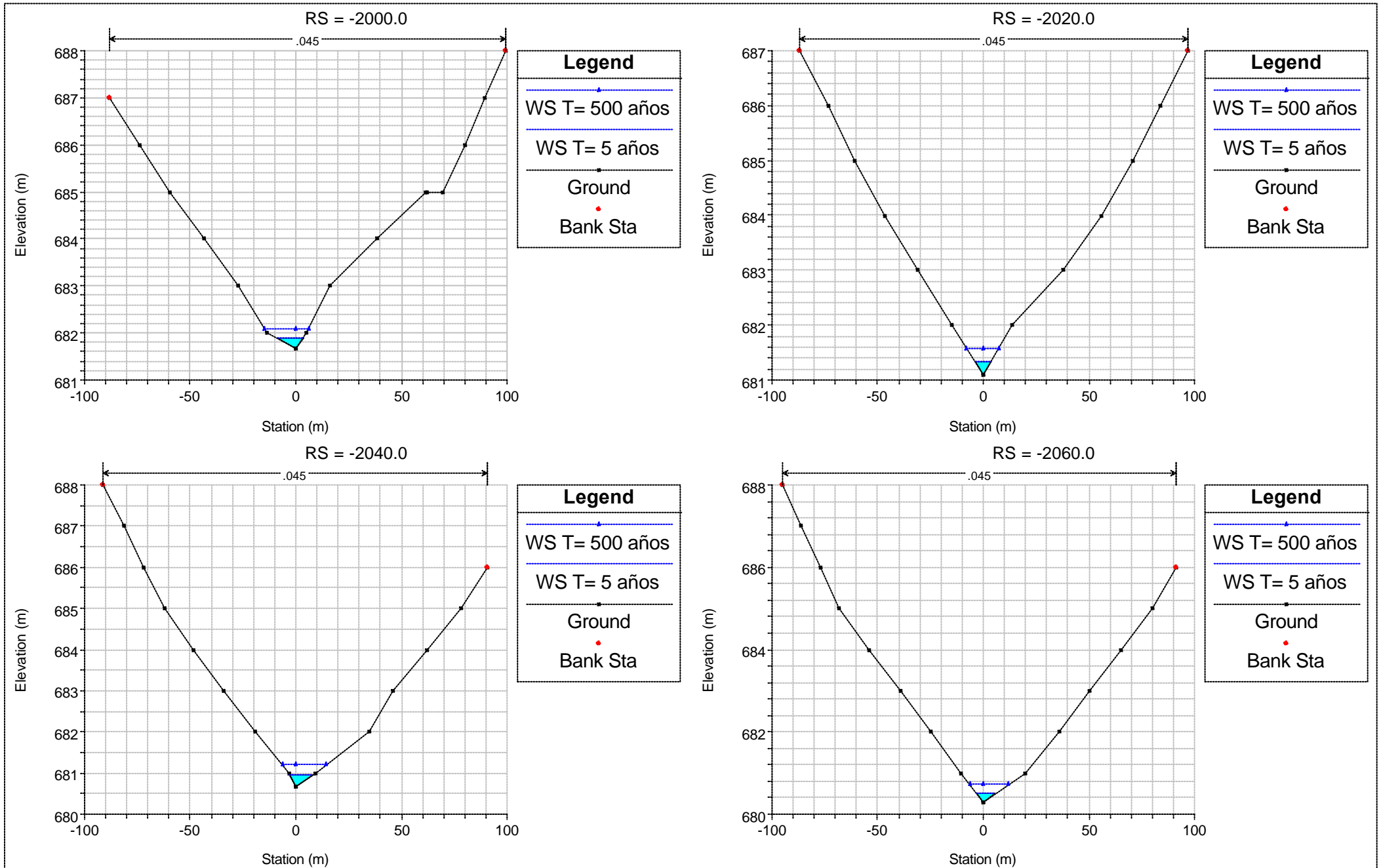
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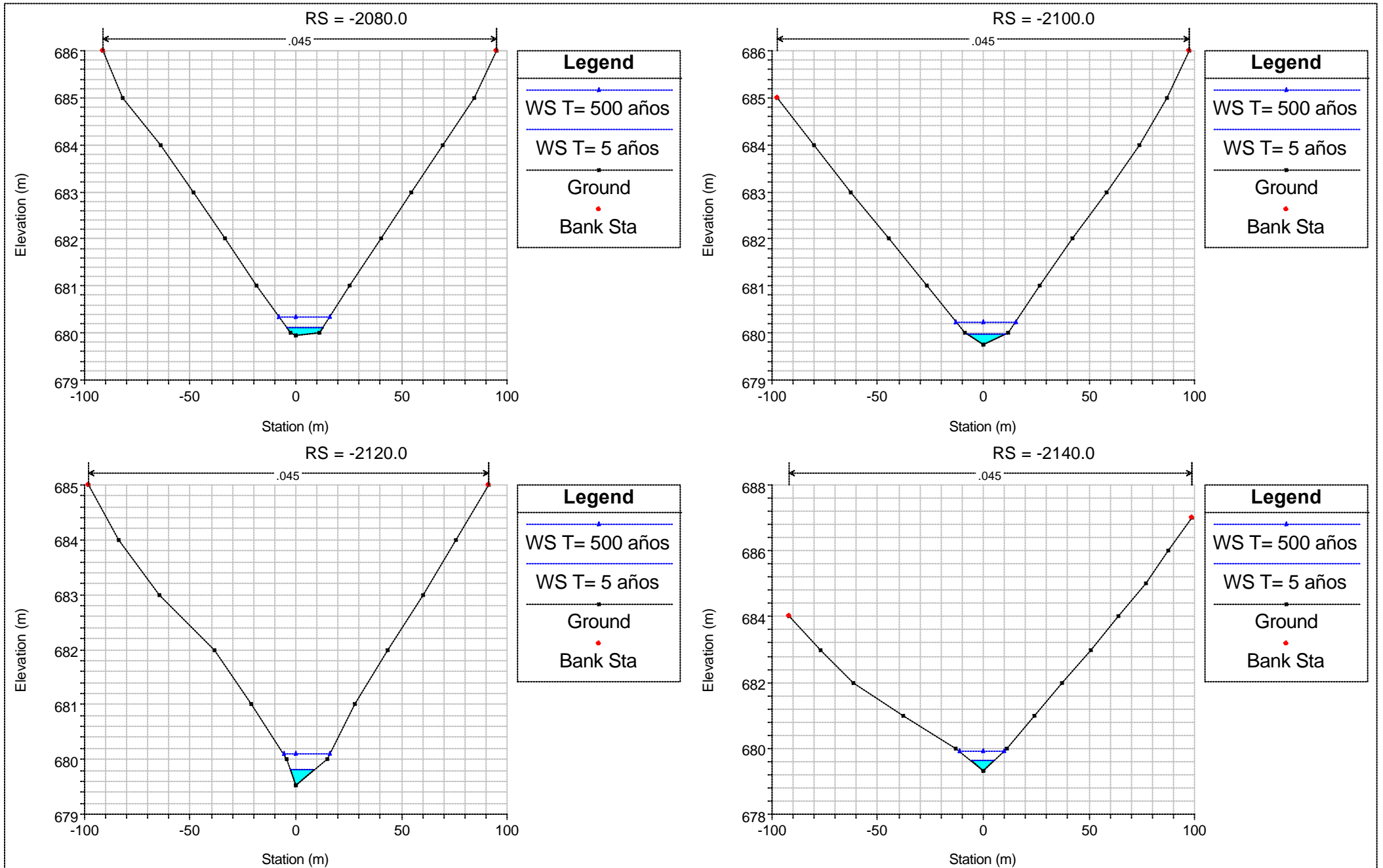
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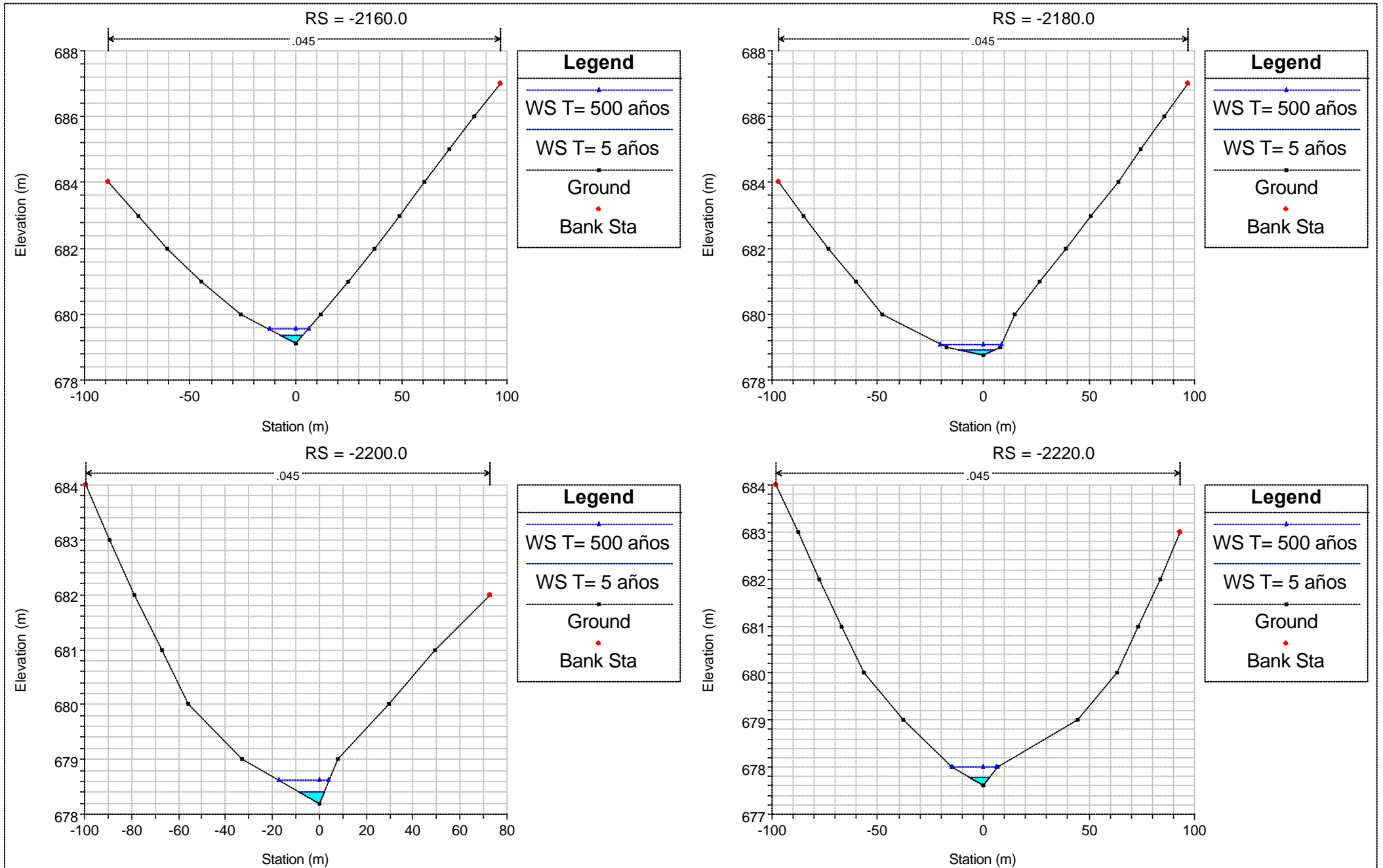
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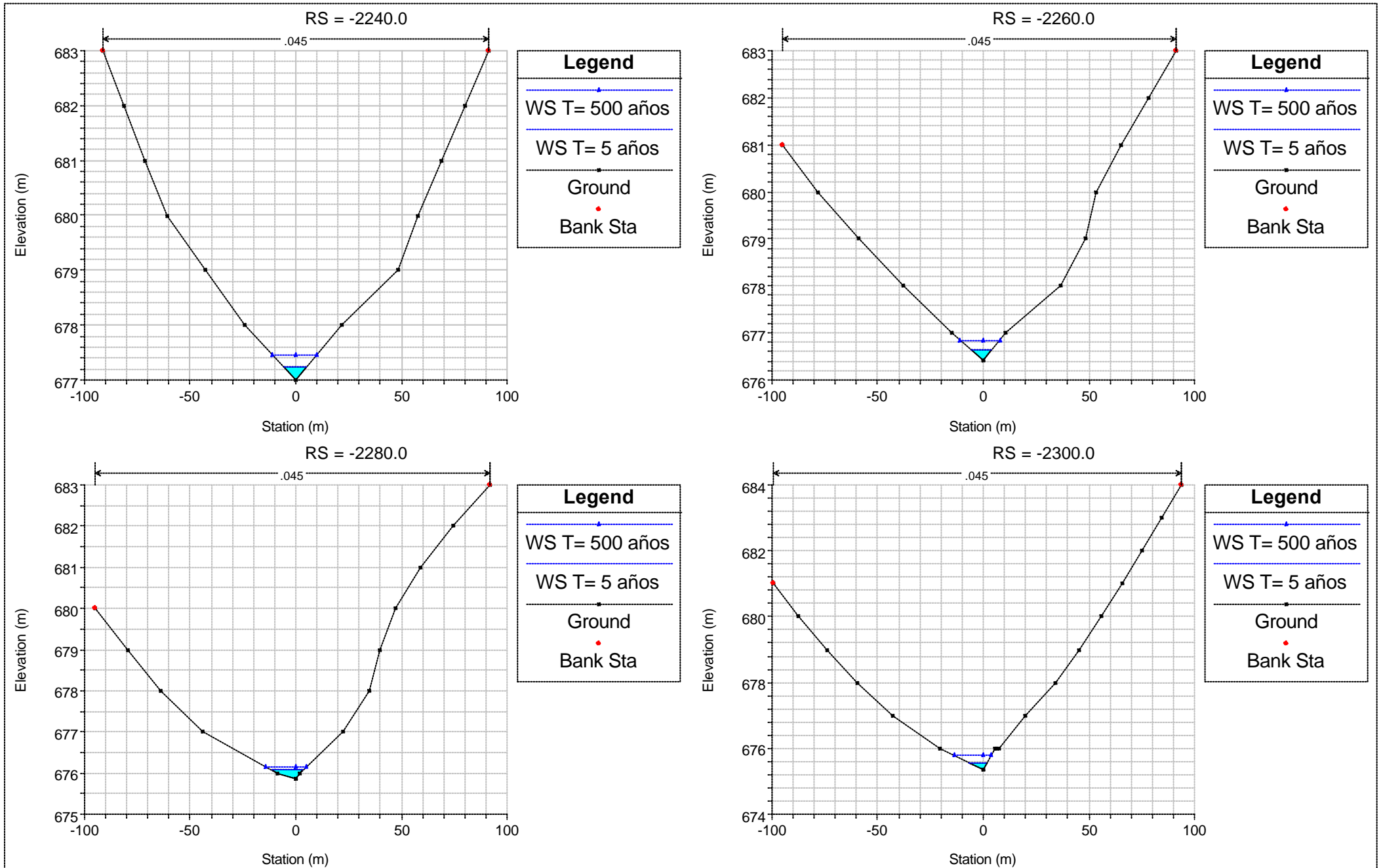
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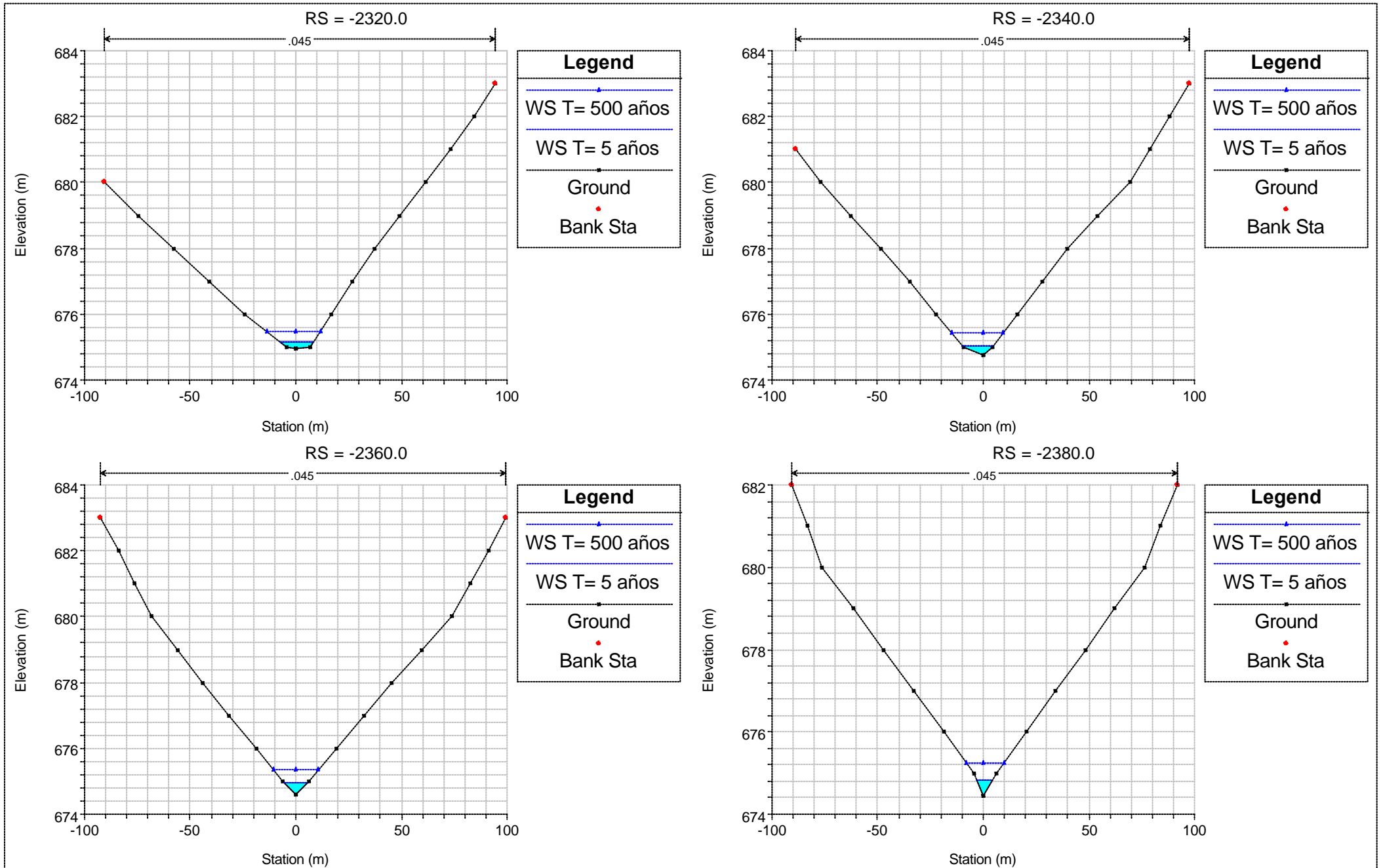
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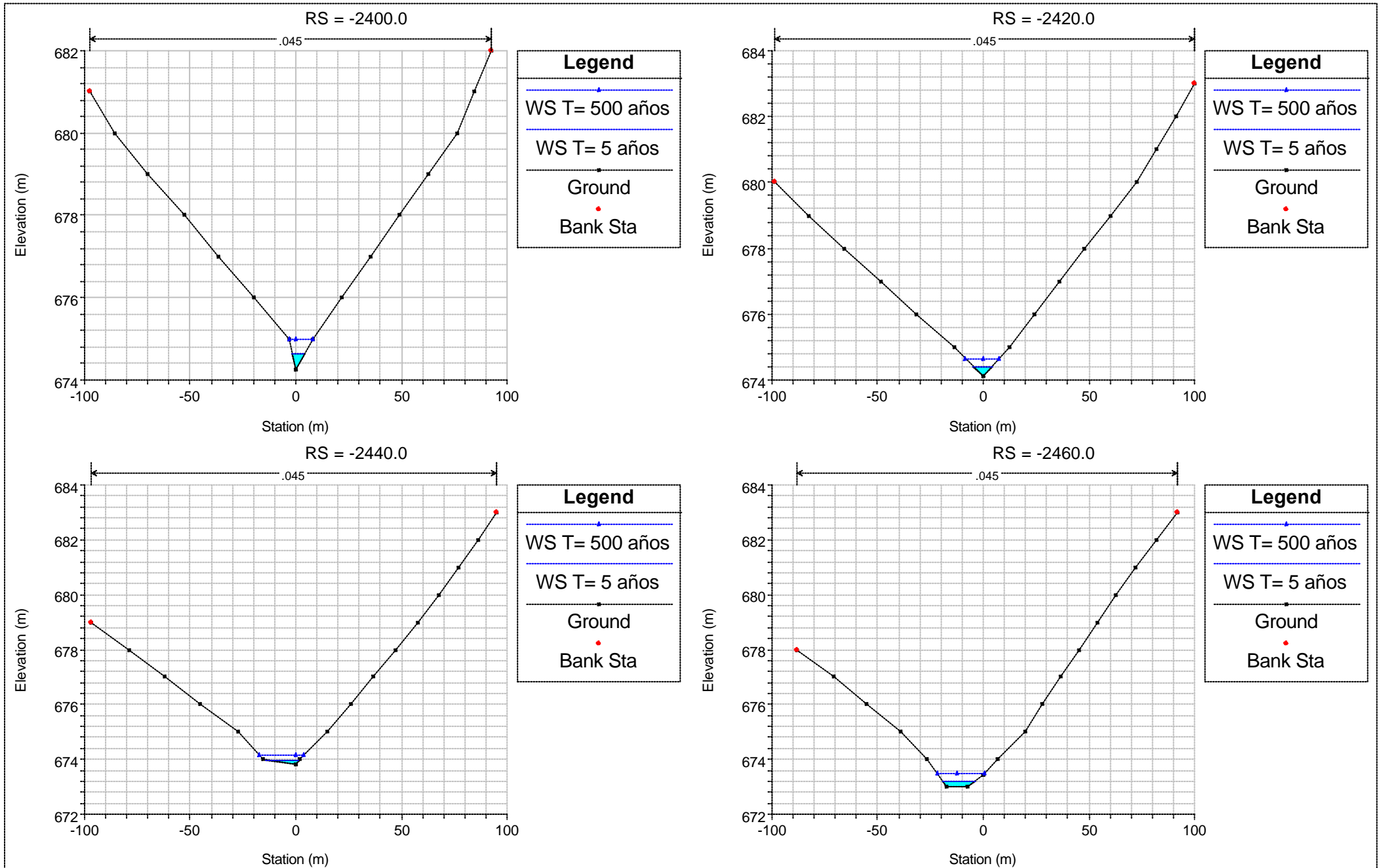
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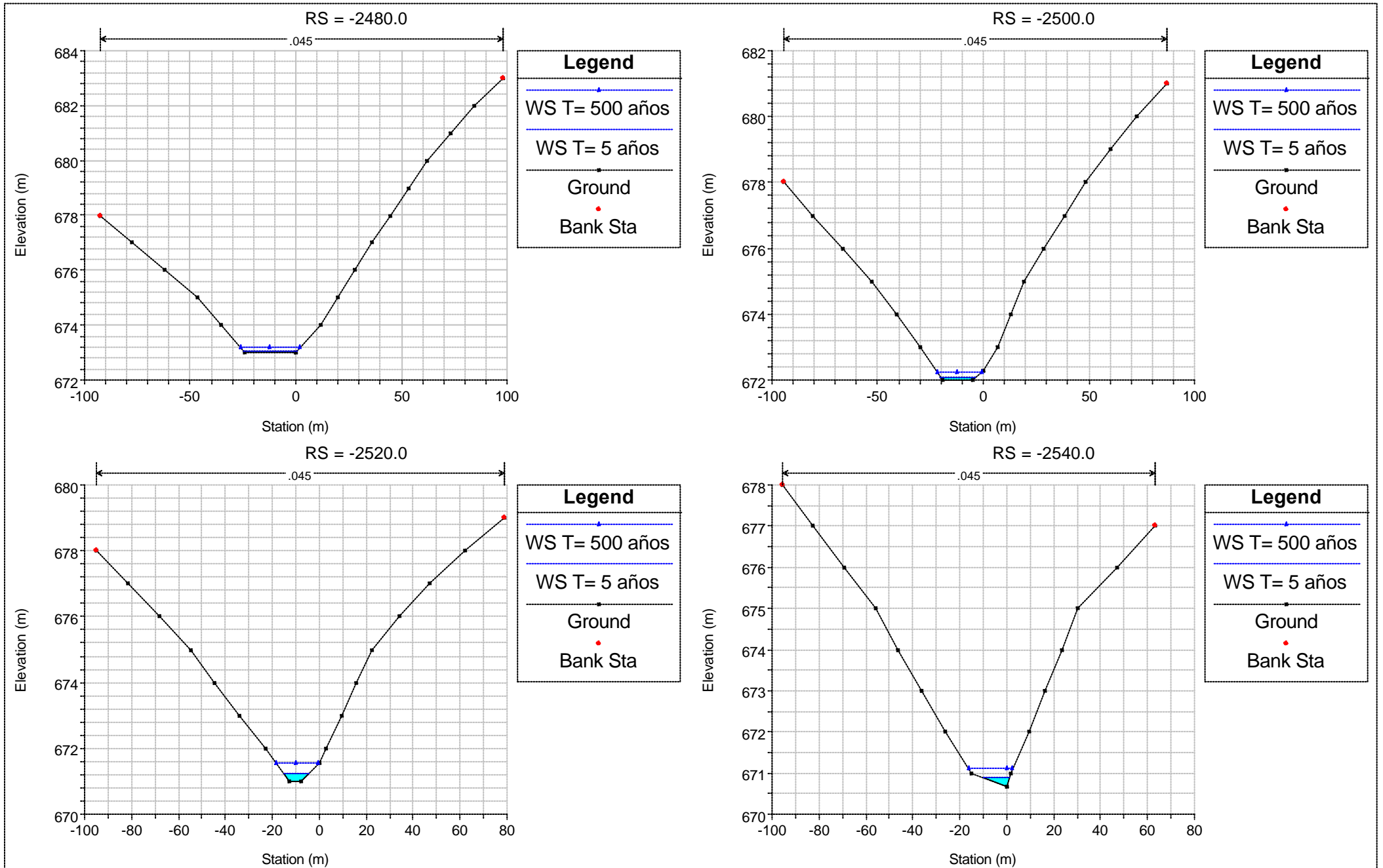
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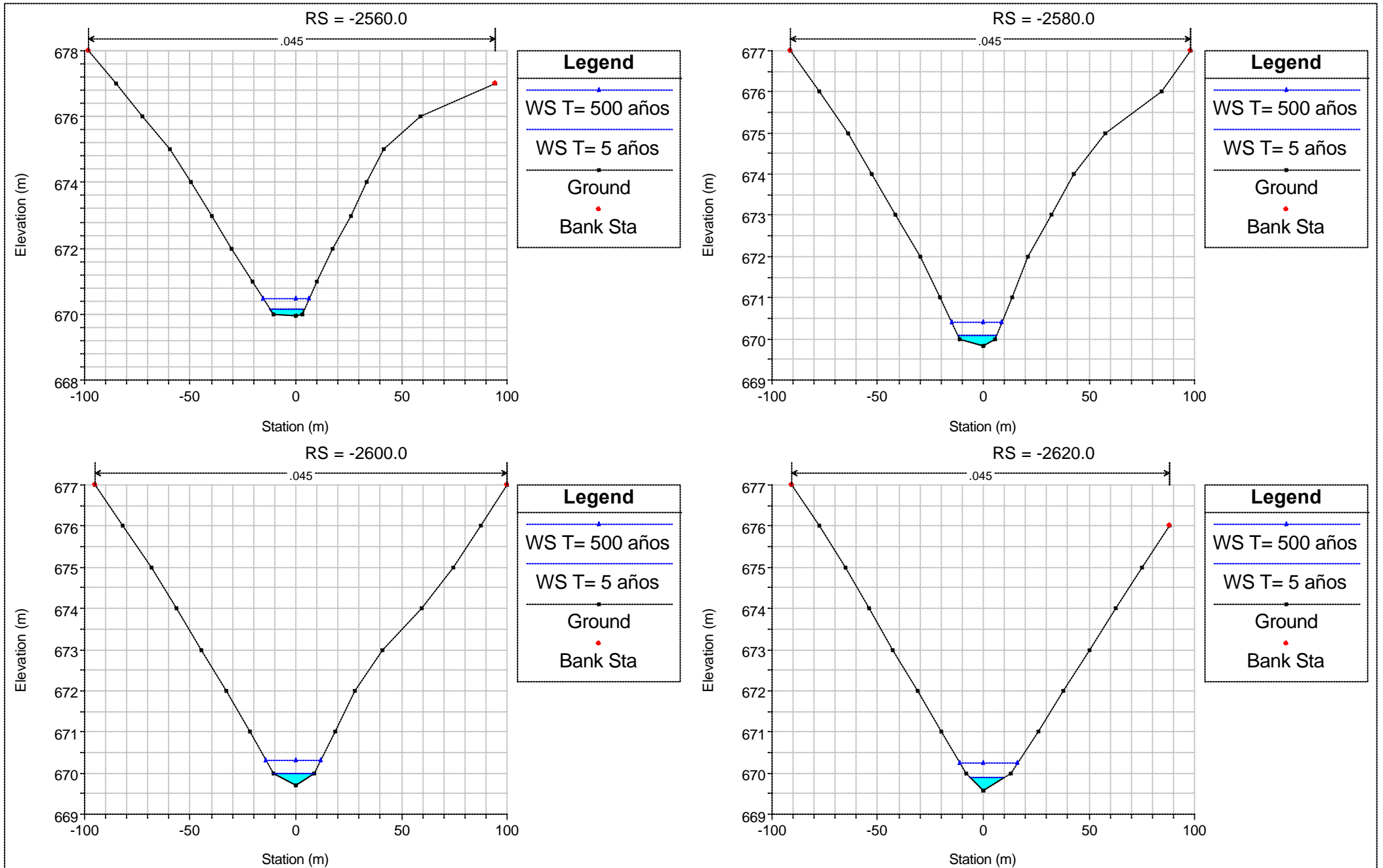
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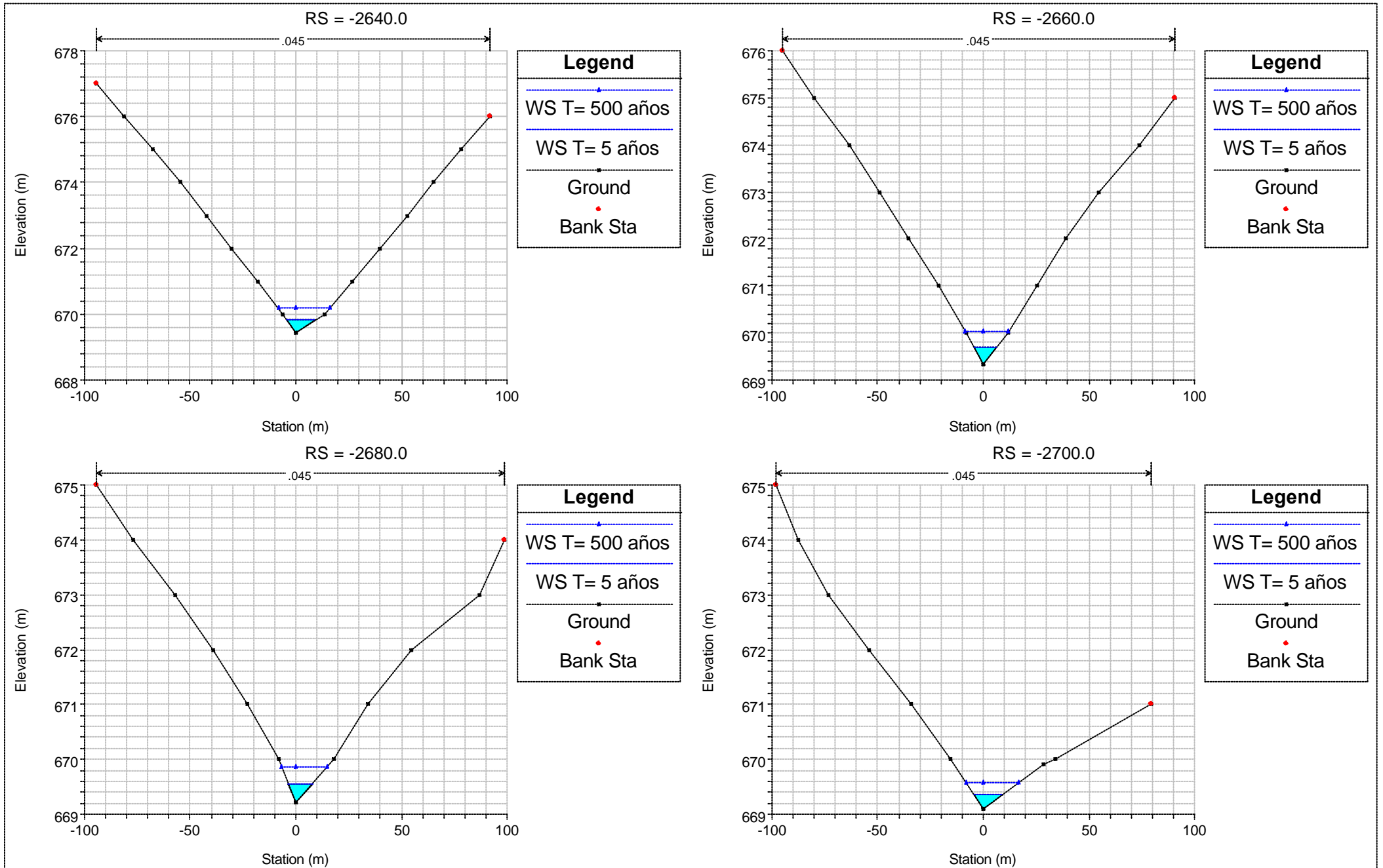
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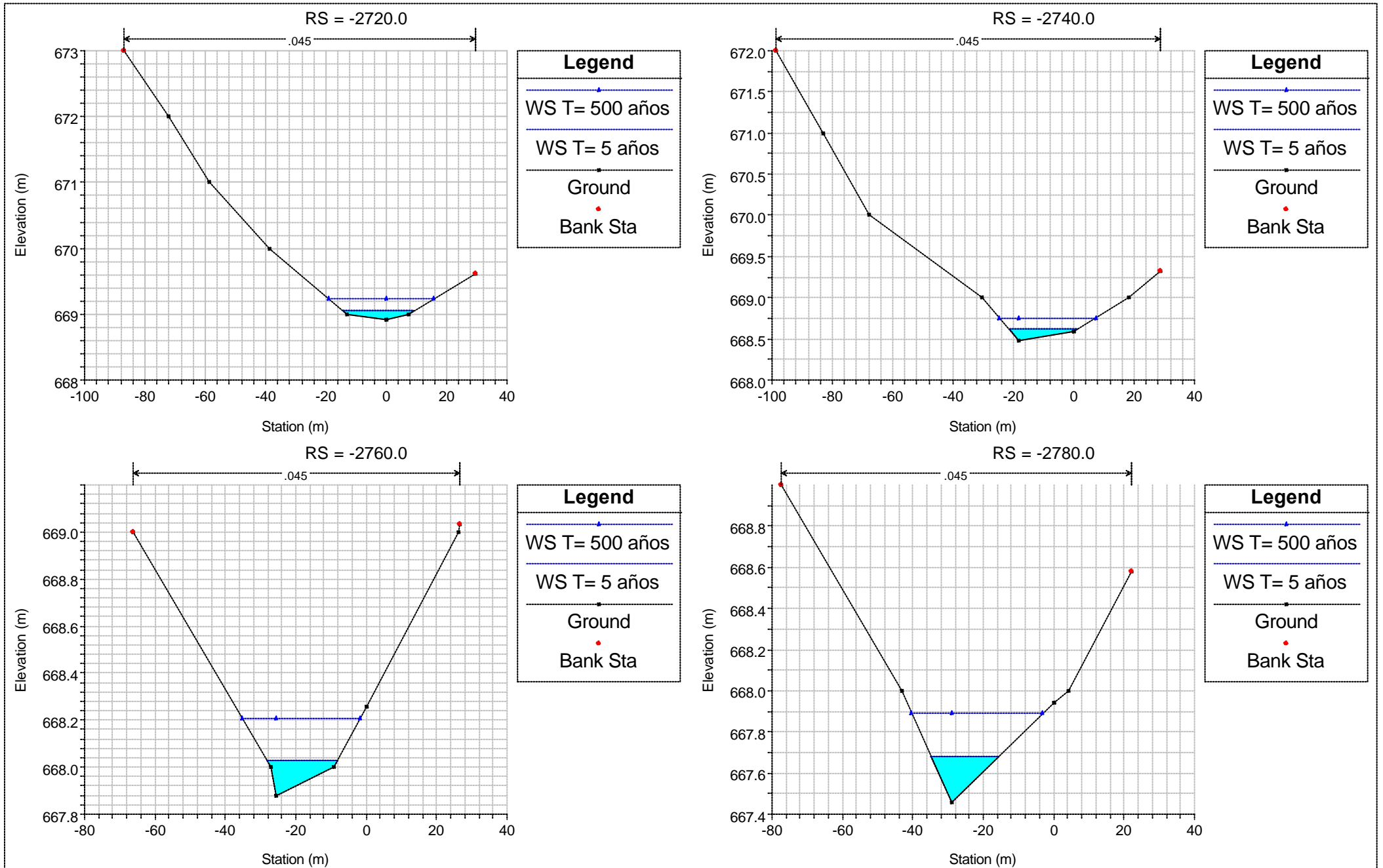
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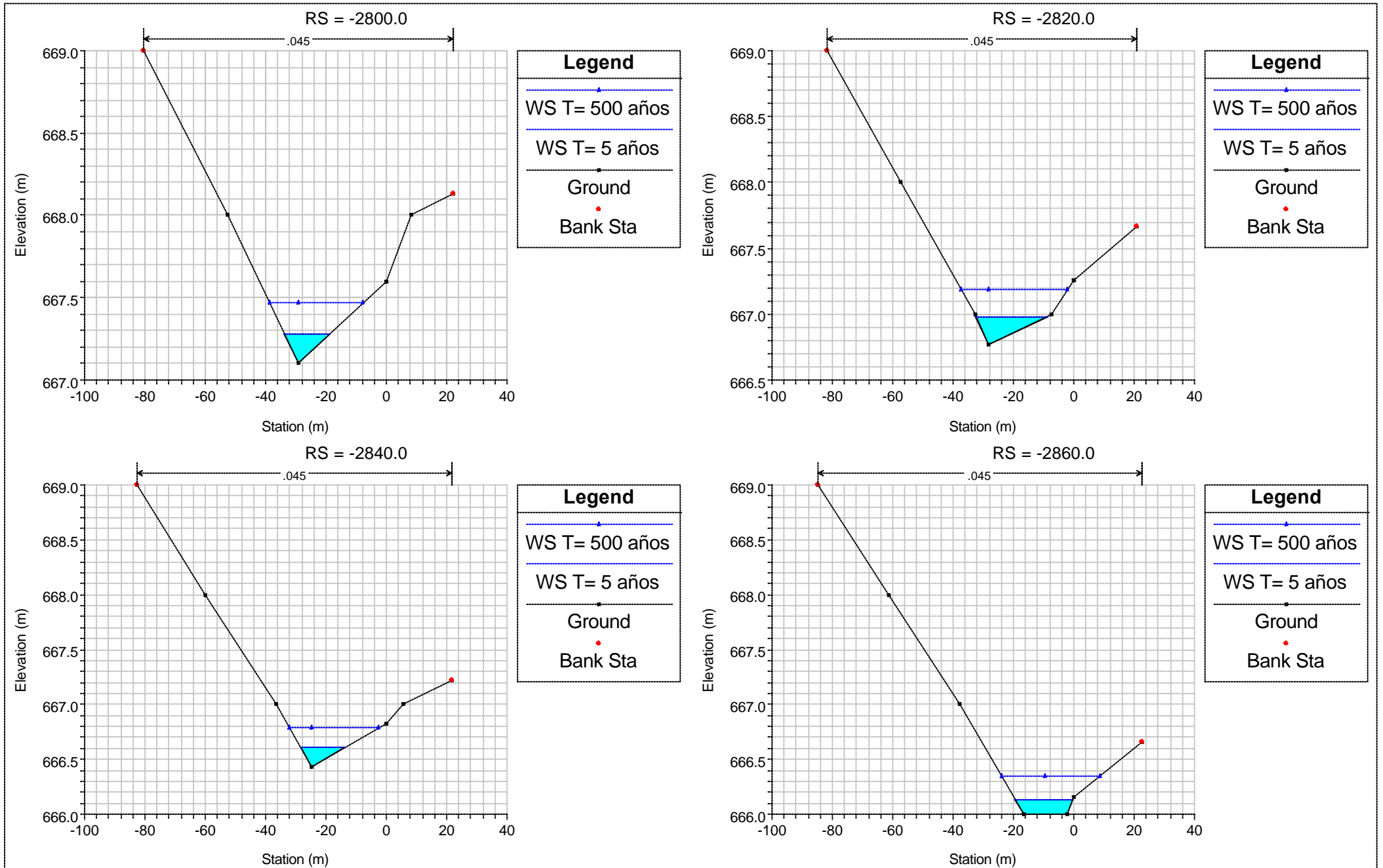
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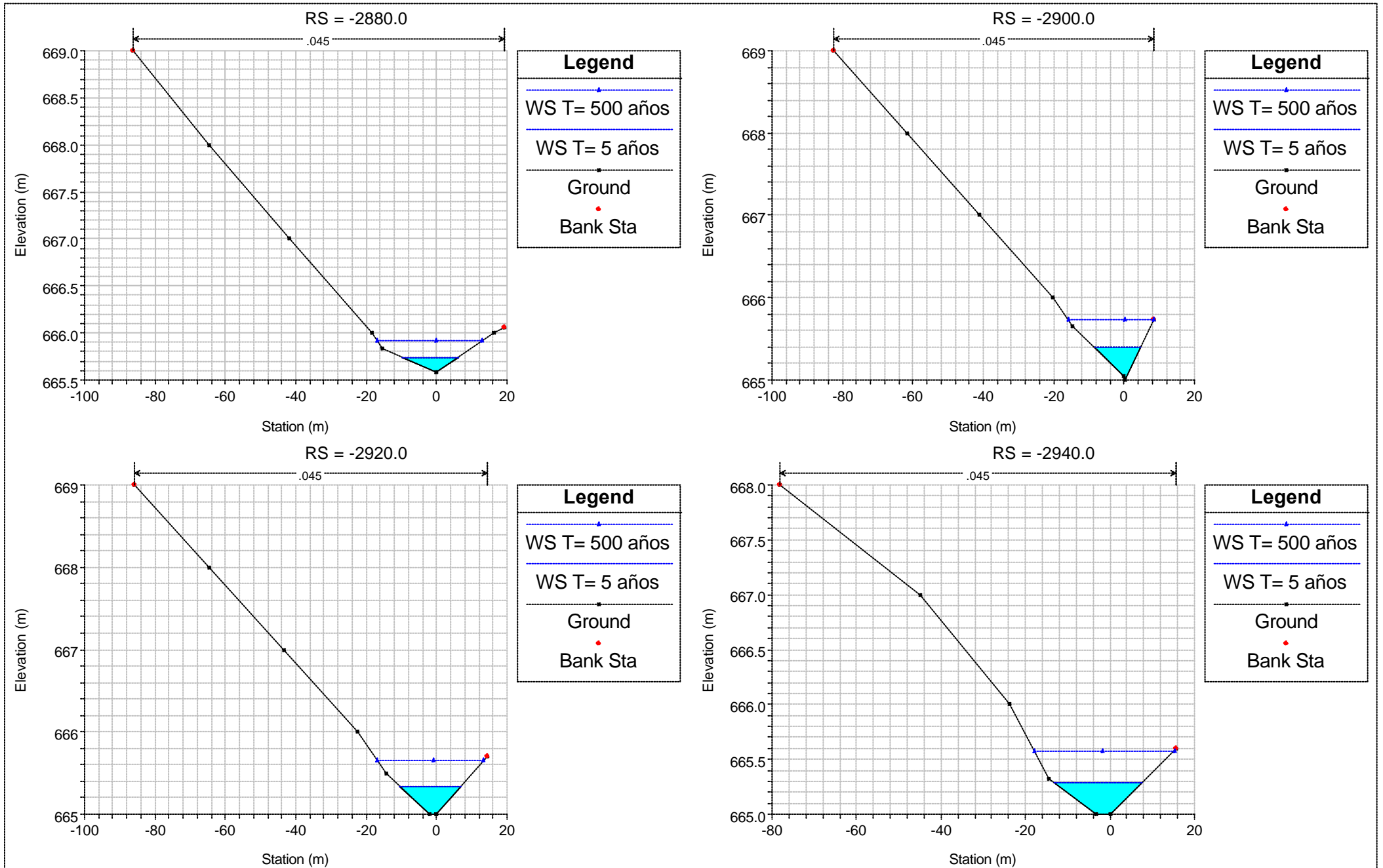
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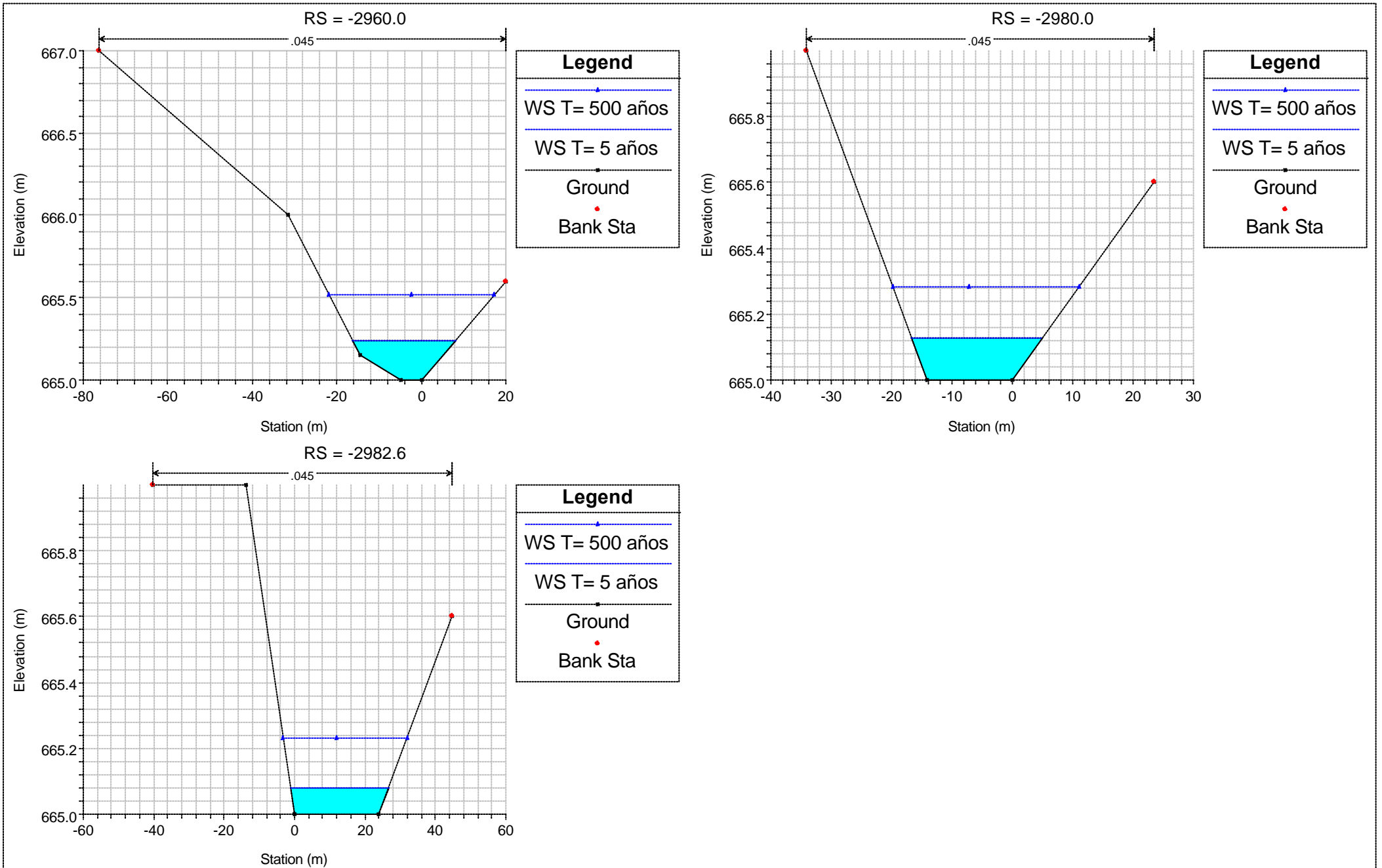
ARROYO DE VALDELACASA - SITUACIÓN ACTUAL



ARROYO DE VALDELACASA - SITUACIÓN ACTUAL

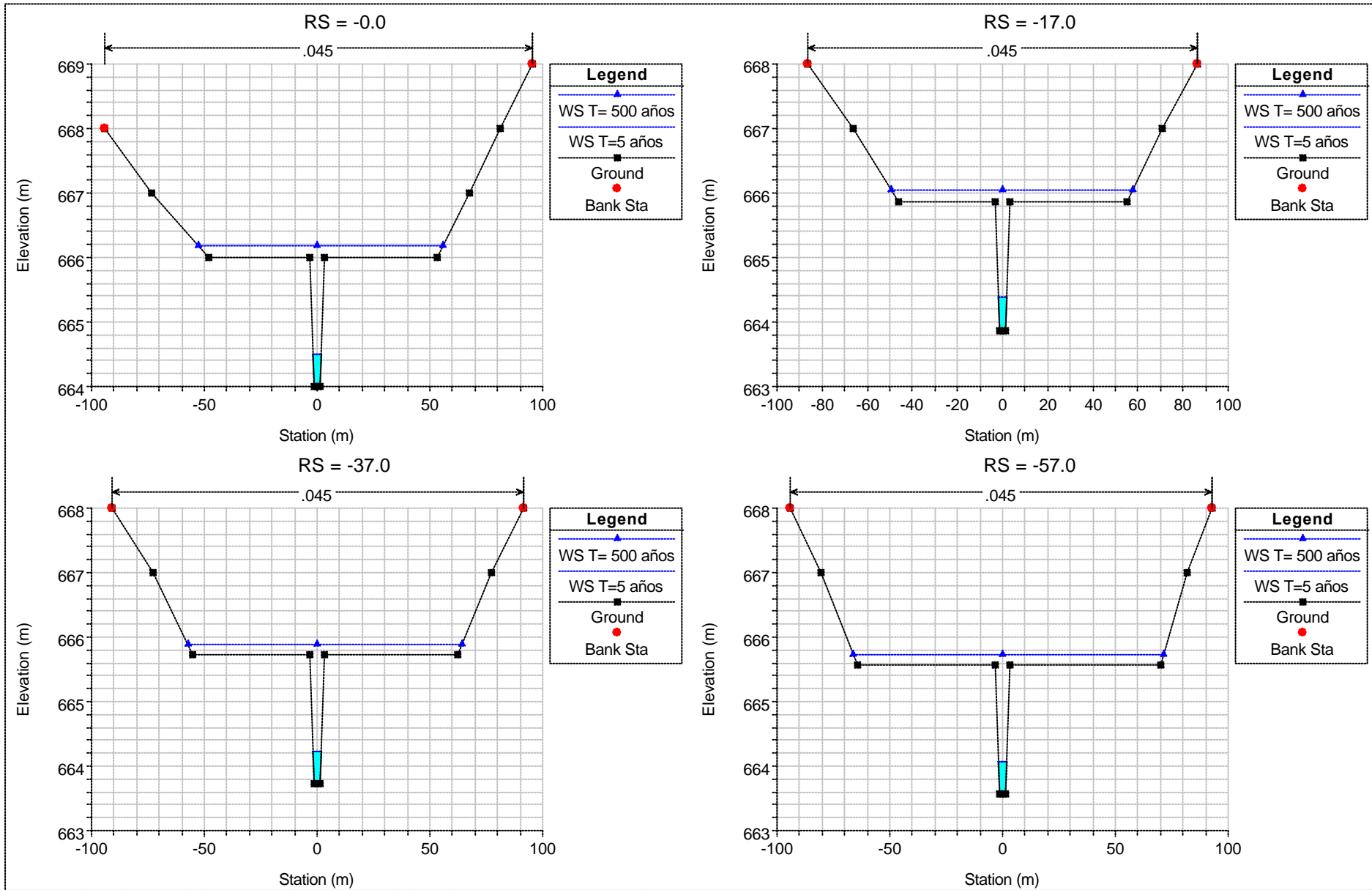


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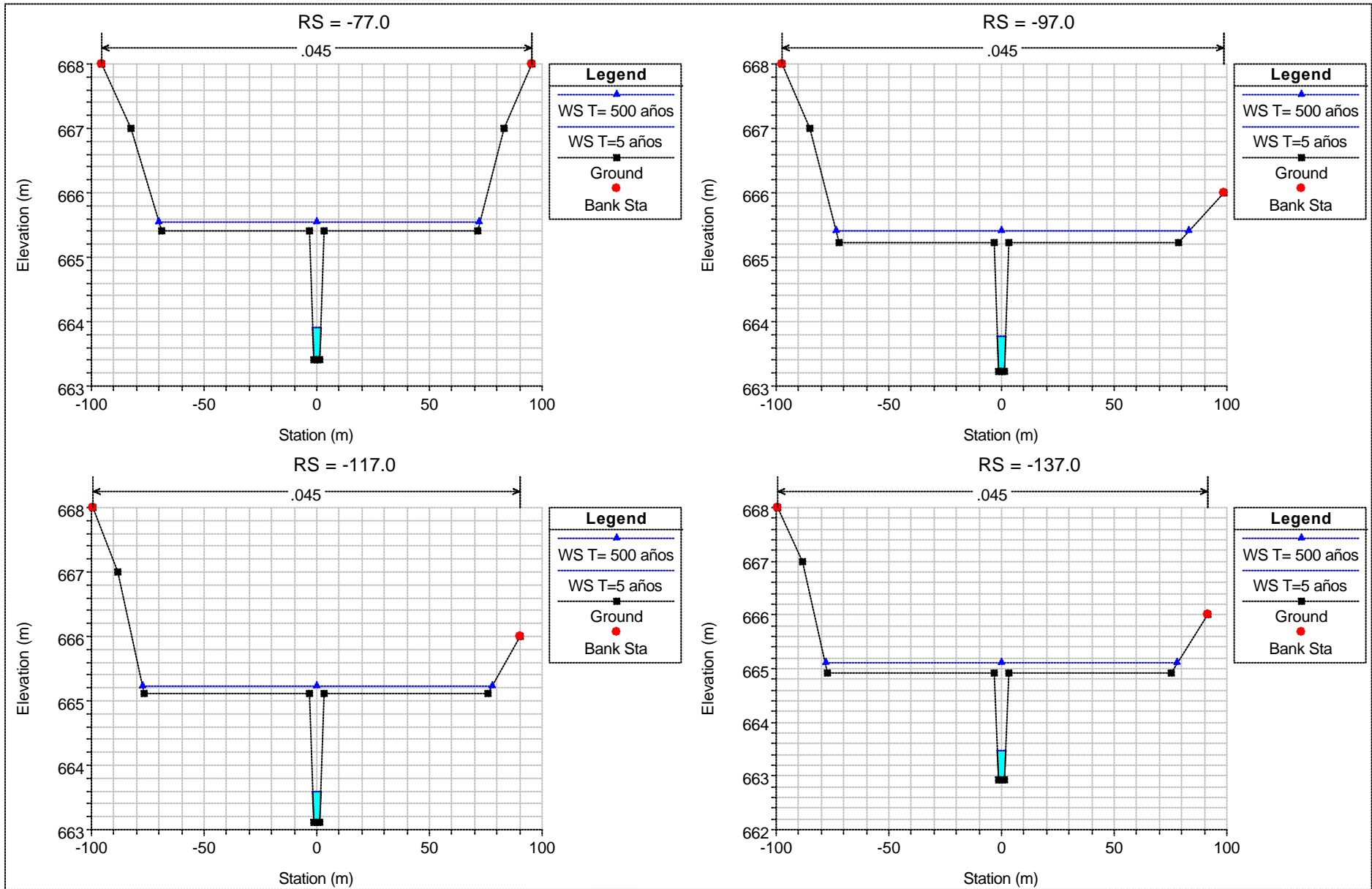


ARROYO DE LA VEGA
(tramo inicial)

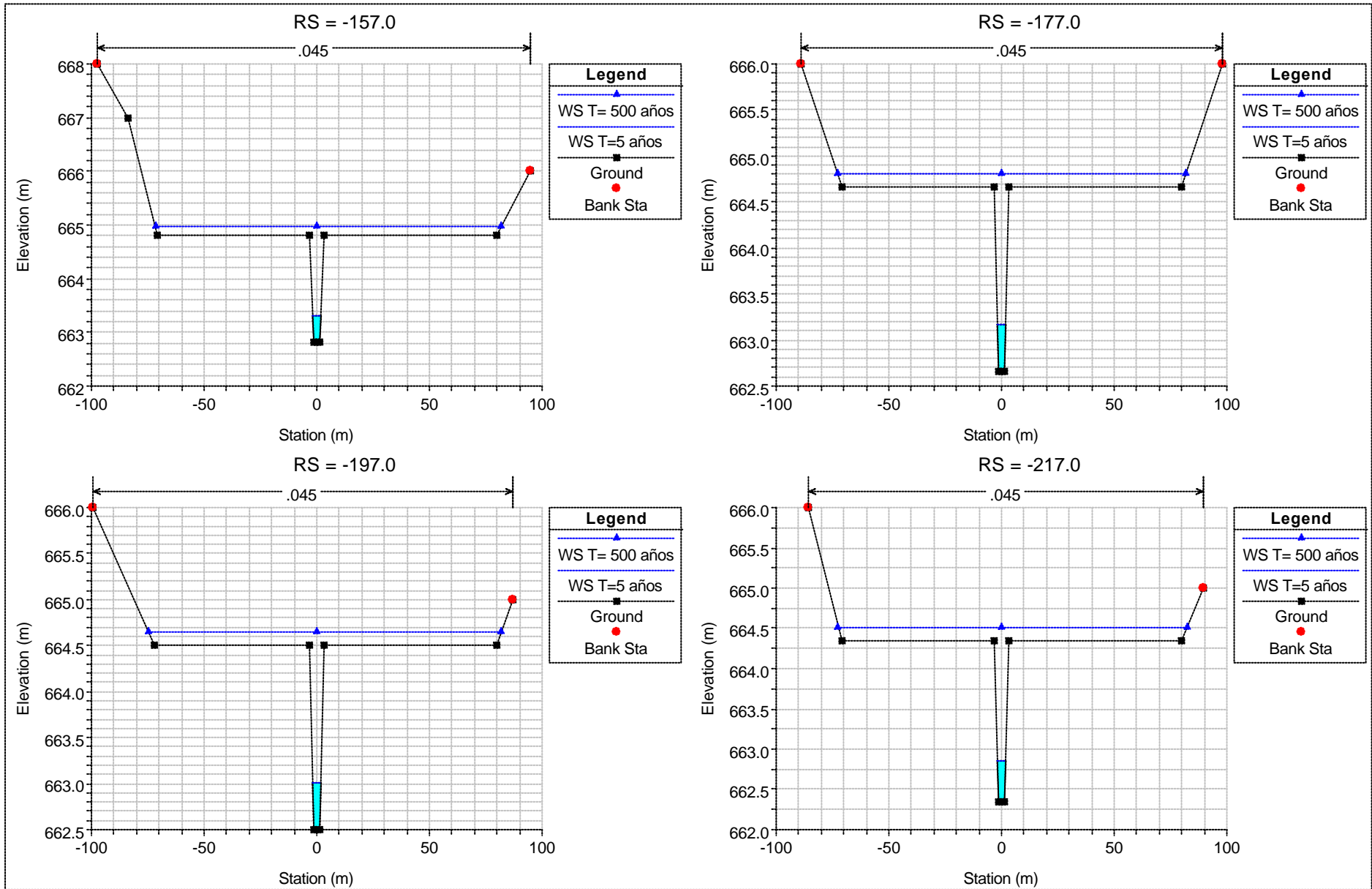
ARROYO DE LA VEGA (tramo inicial) - SITUACIÓN ACTUAL



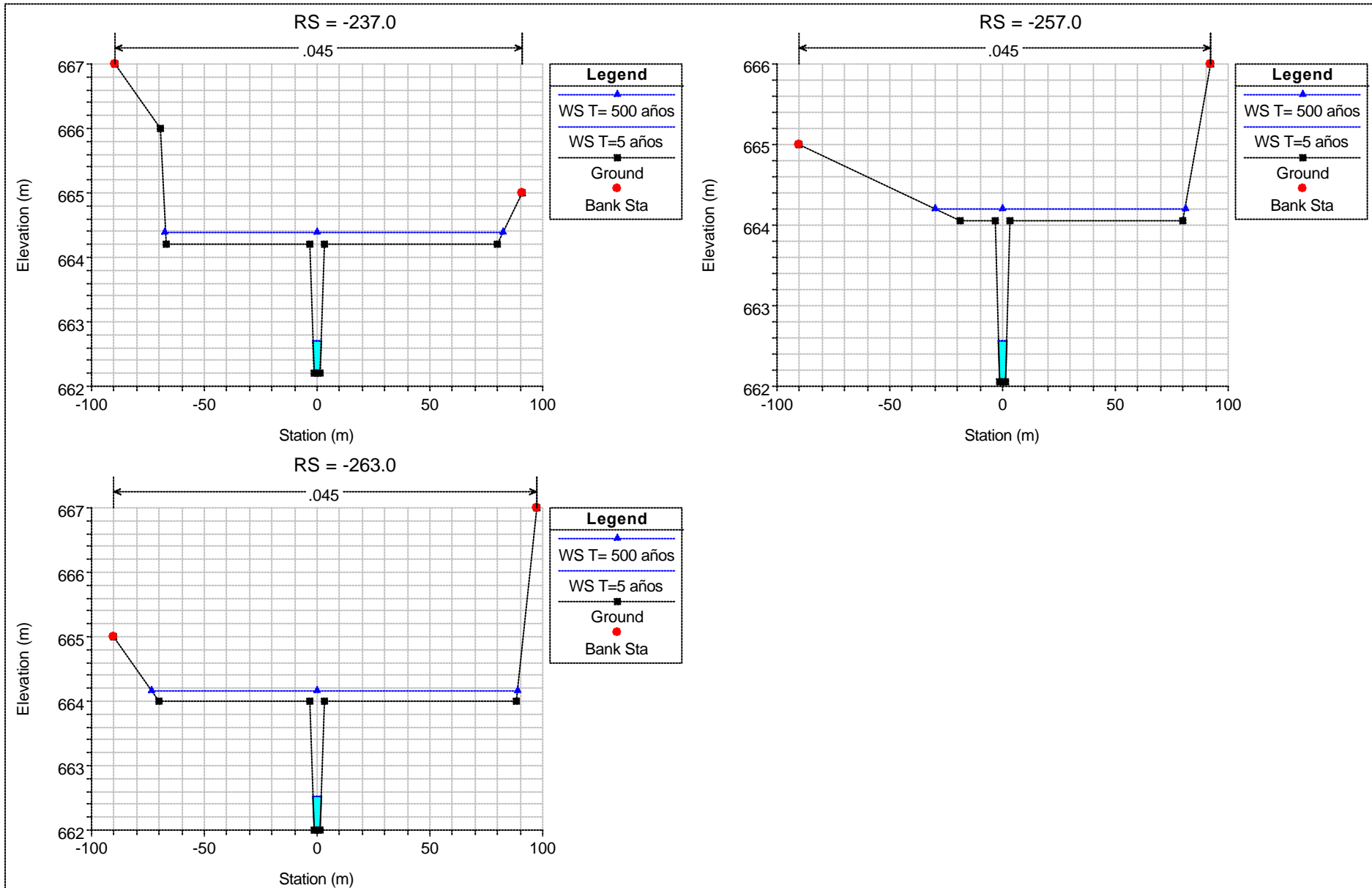
ARROYO DE LA VEGA (tramo inicial) - SITUACIÓN ACTUAL



ARROYO DE LA VEGA (tramo inicial) - SITUACIÓN ACTUAL

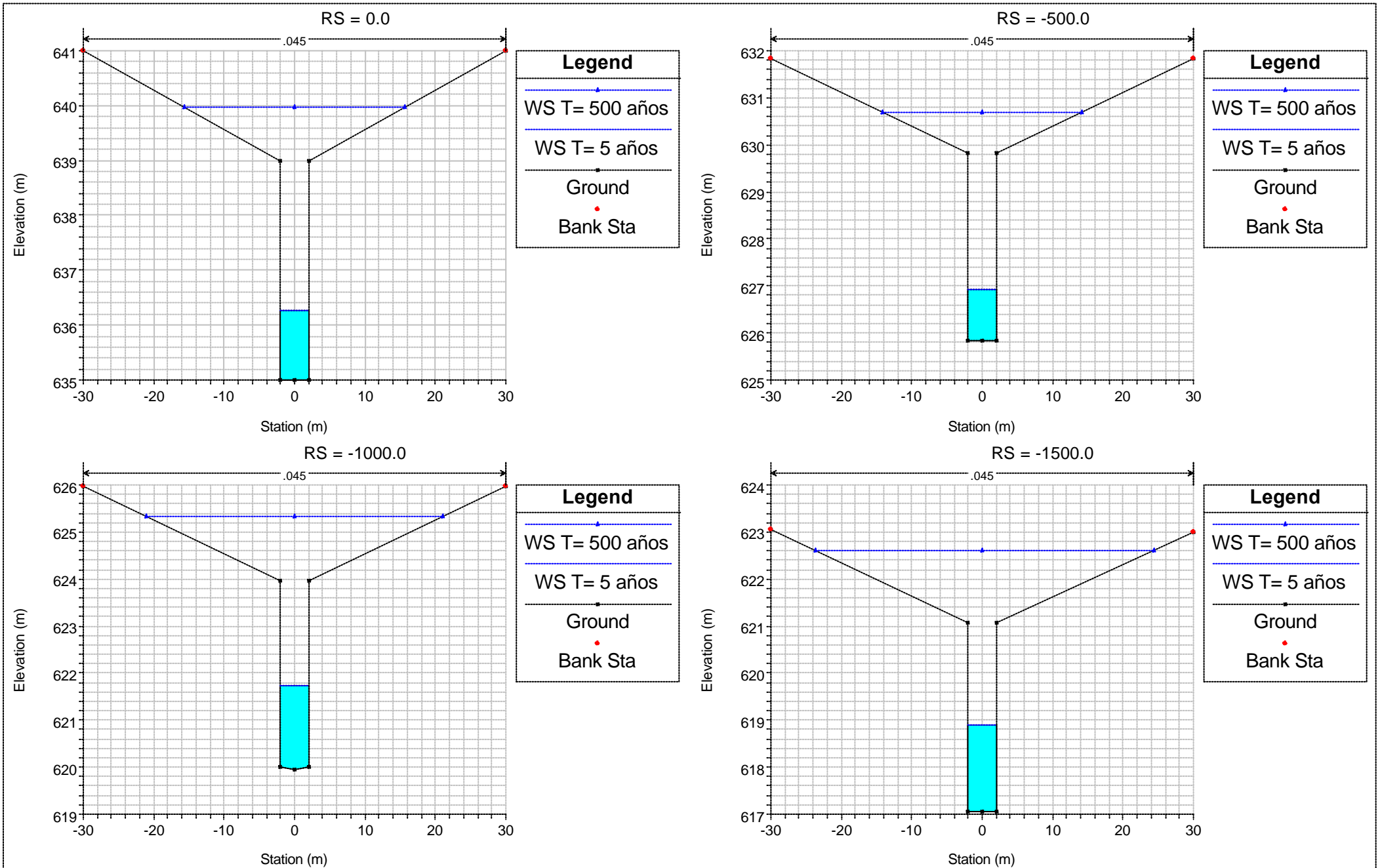


ARROYO DE LA VEGA (tramo inicial) - SITUACIÓN ACTUAL

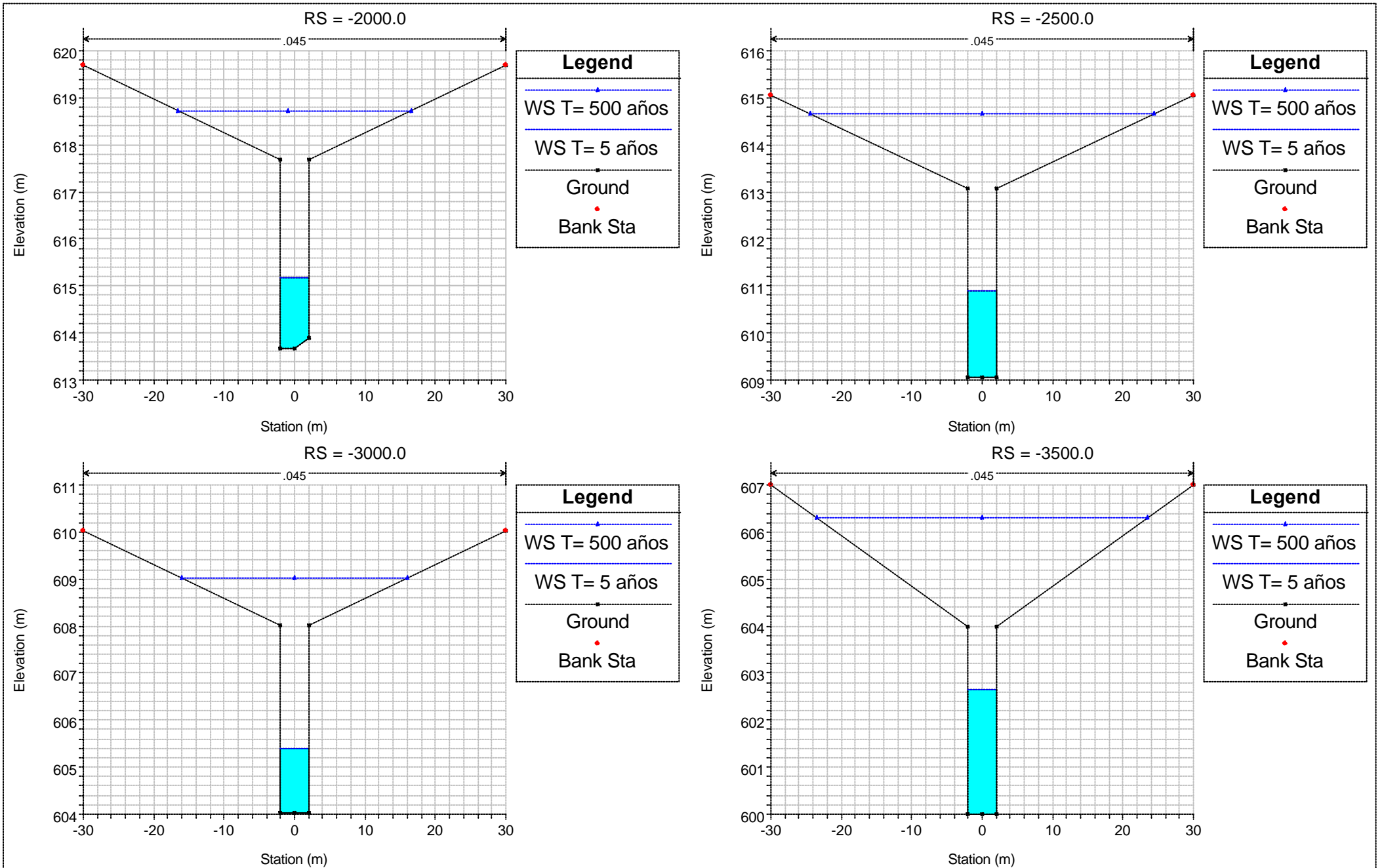


ARROYO DE LA VEGA
(tramo norte)

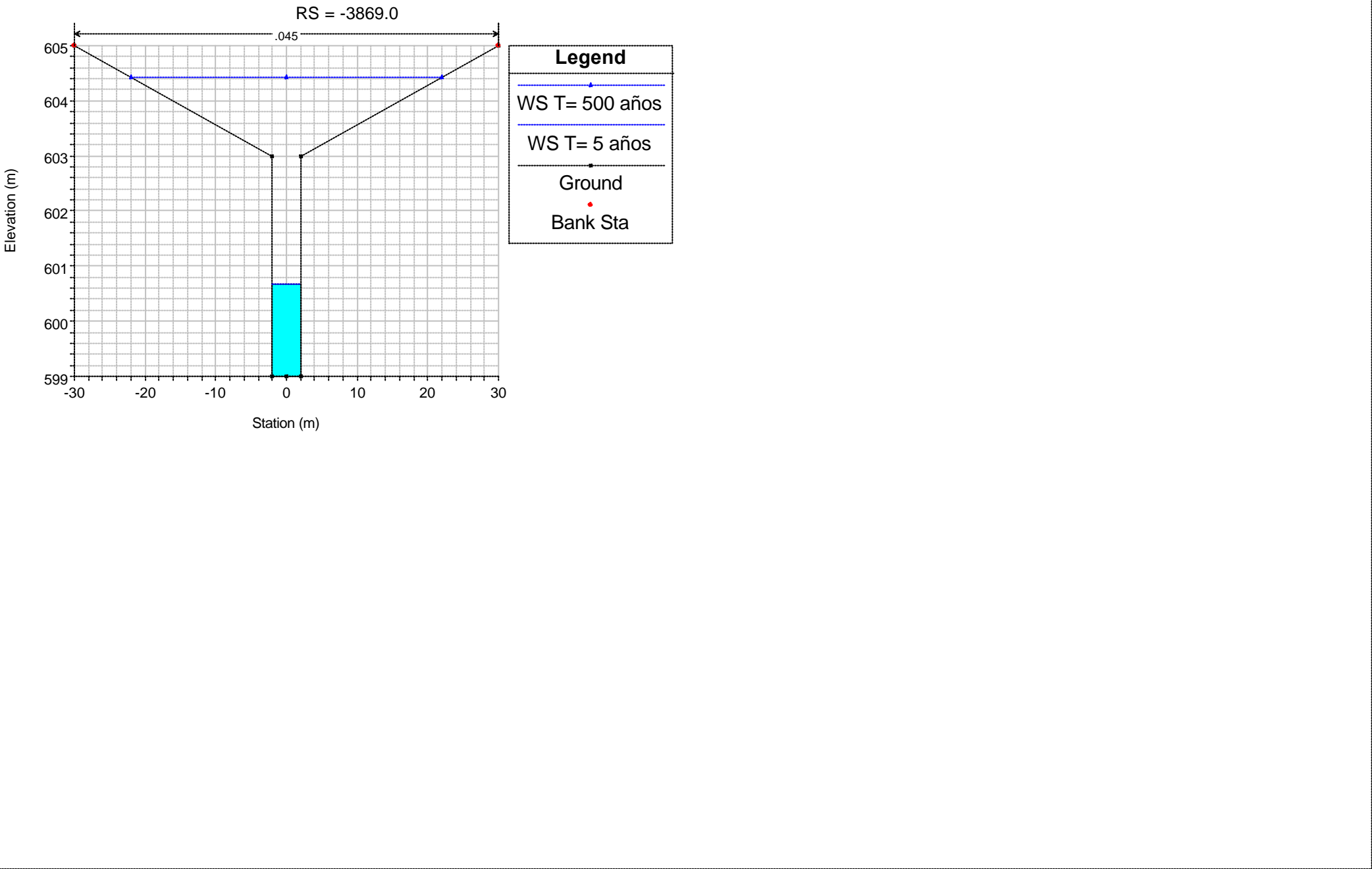
ARROYO DE LA VEGA (tramo norte) - SITUACIÓN ACTUAL



ARROYO DE LA VEGA (tramo norte) - SITUACIÓN ACTUAL

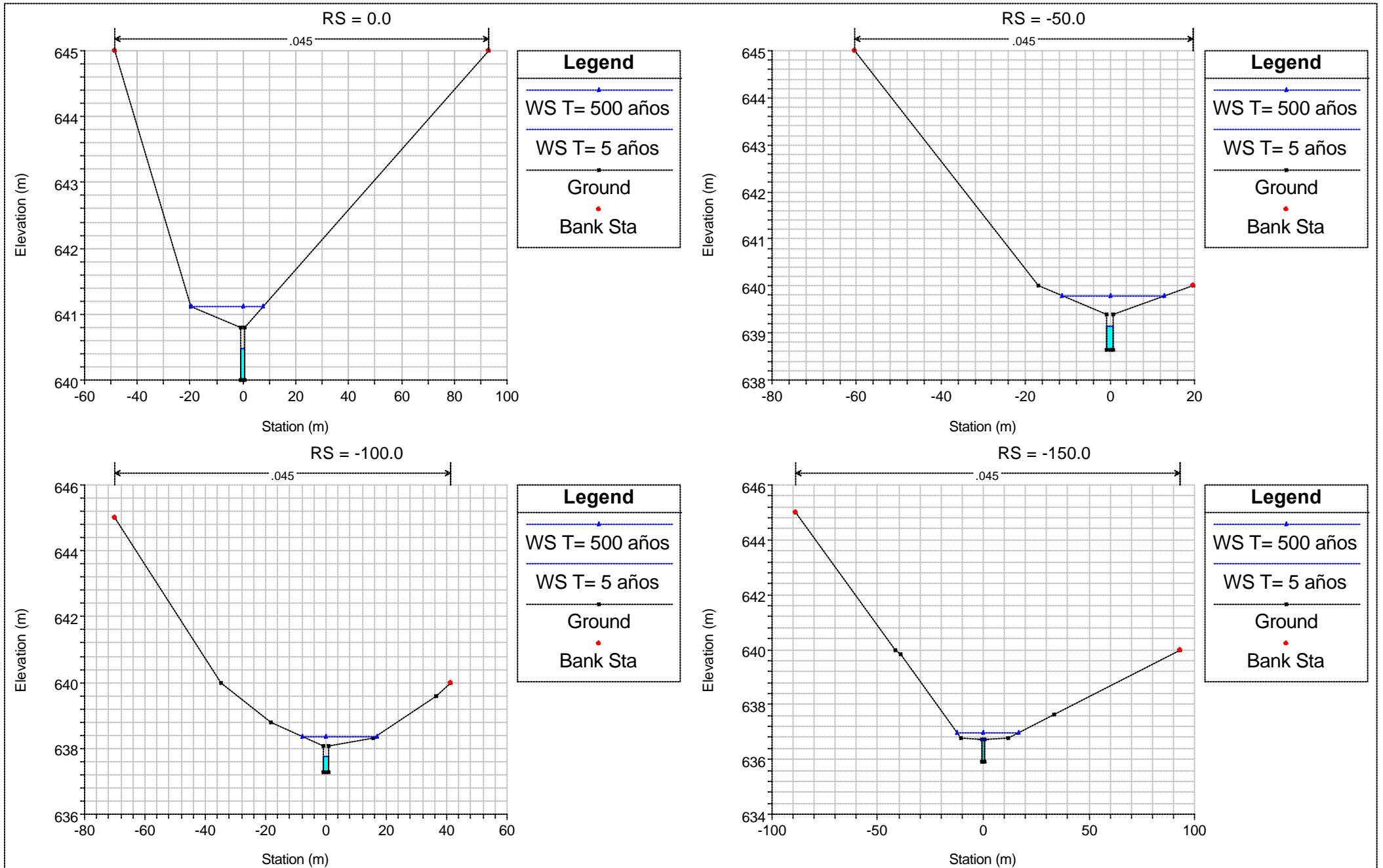


ARROYO DE LA VEGA (tramo norte) - SITUACIÓN ACTUAL

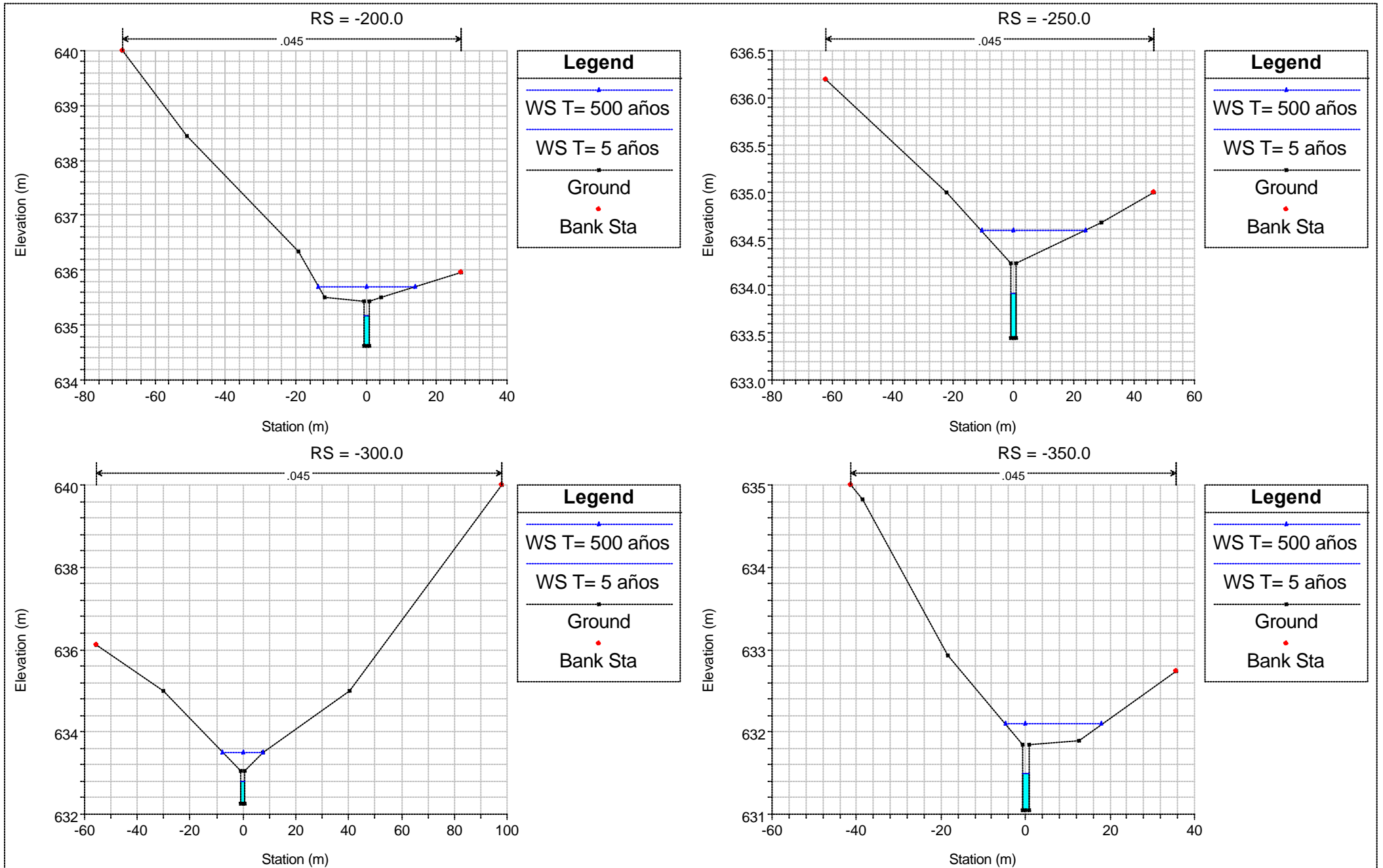


ARROYO DE CARBONEROS

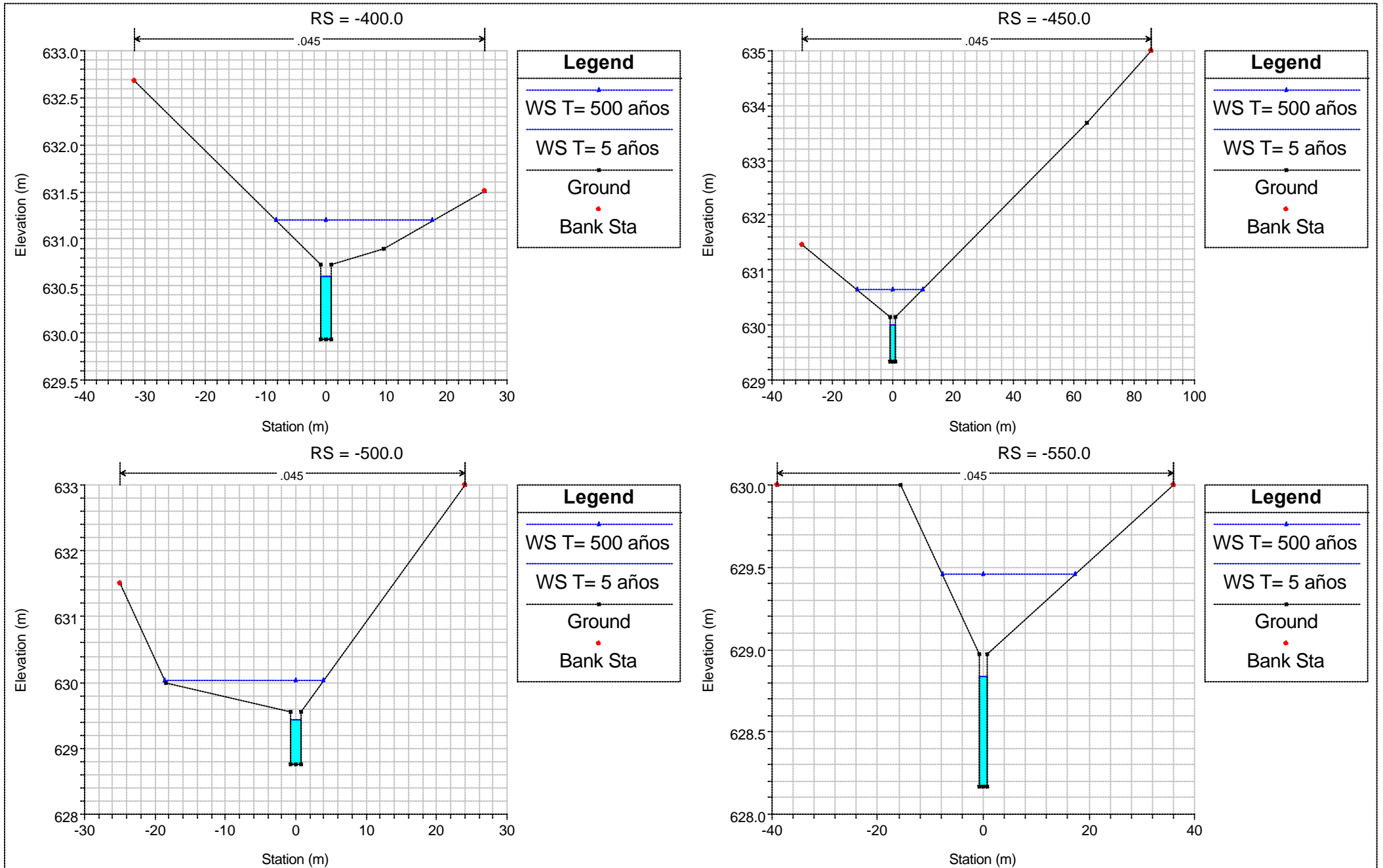
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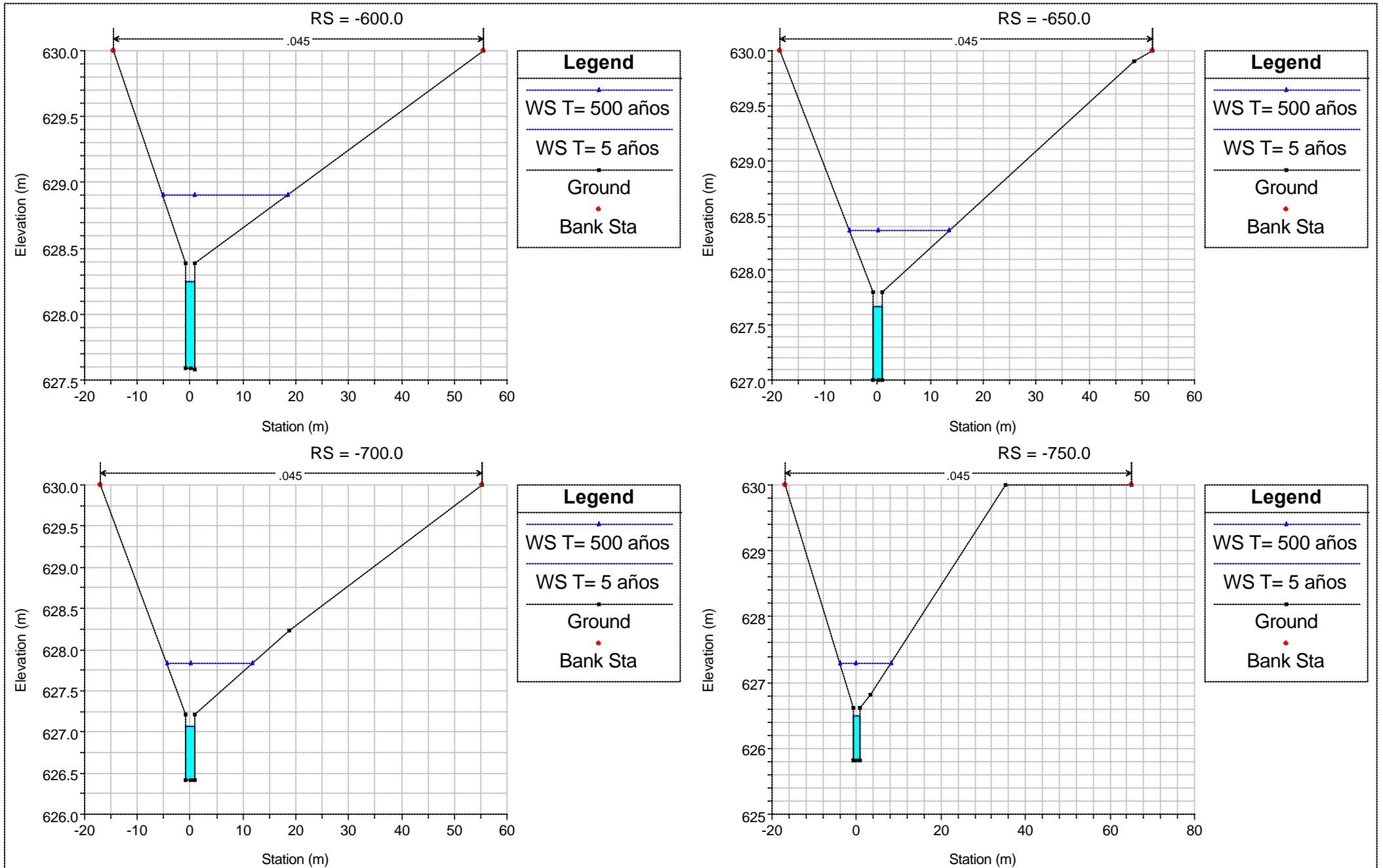
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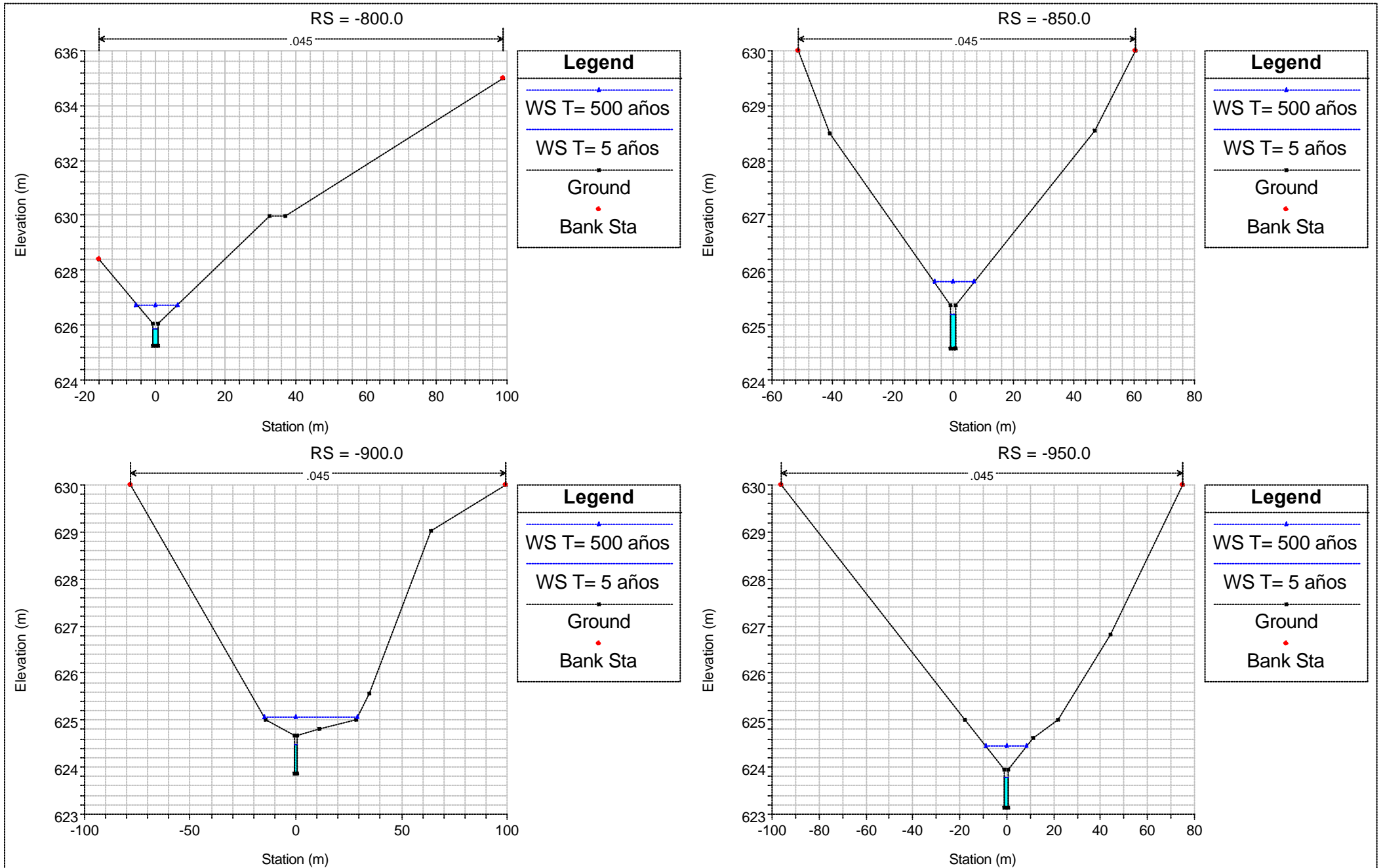
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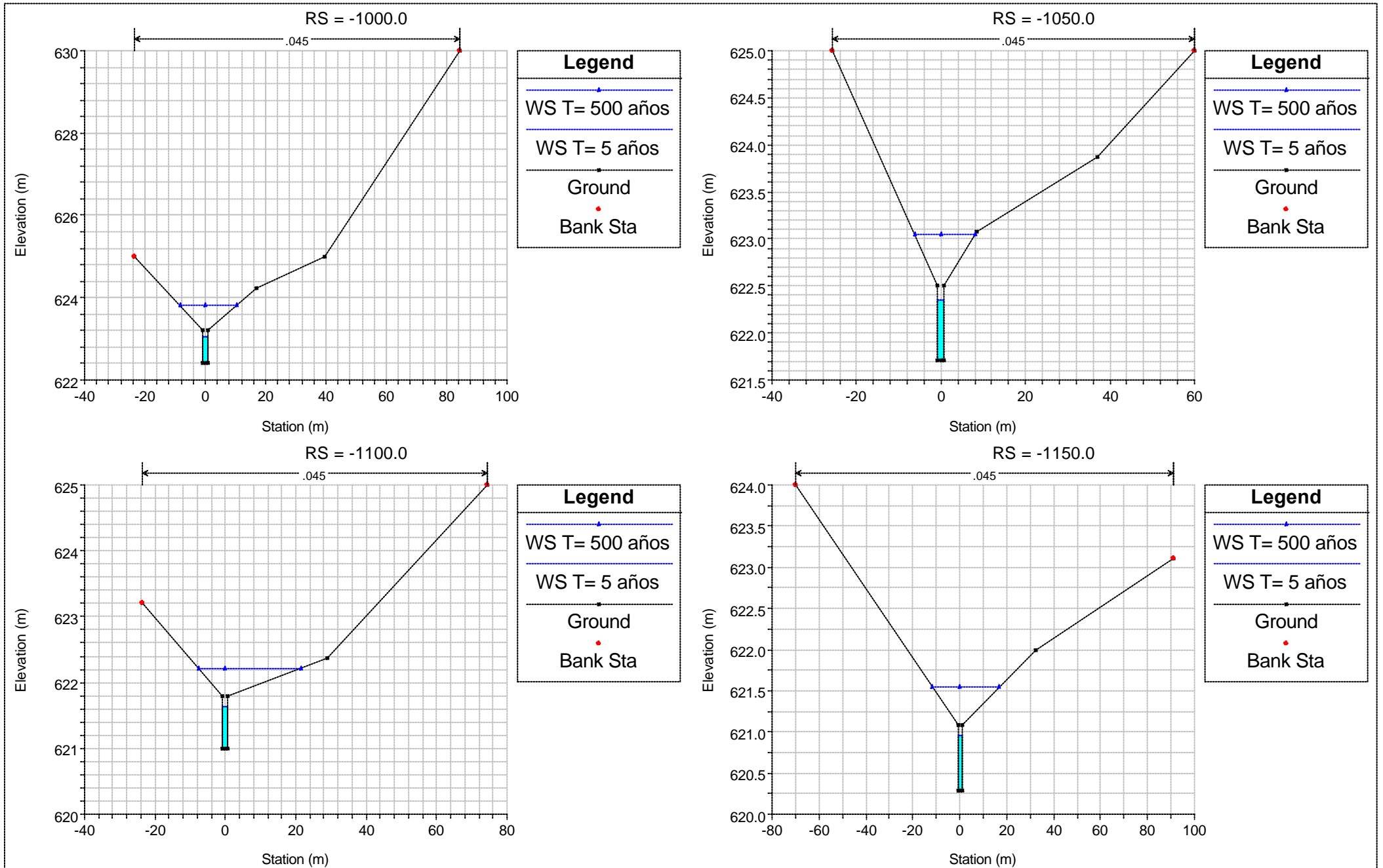
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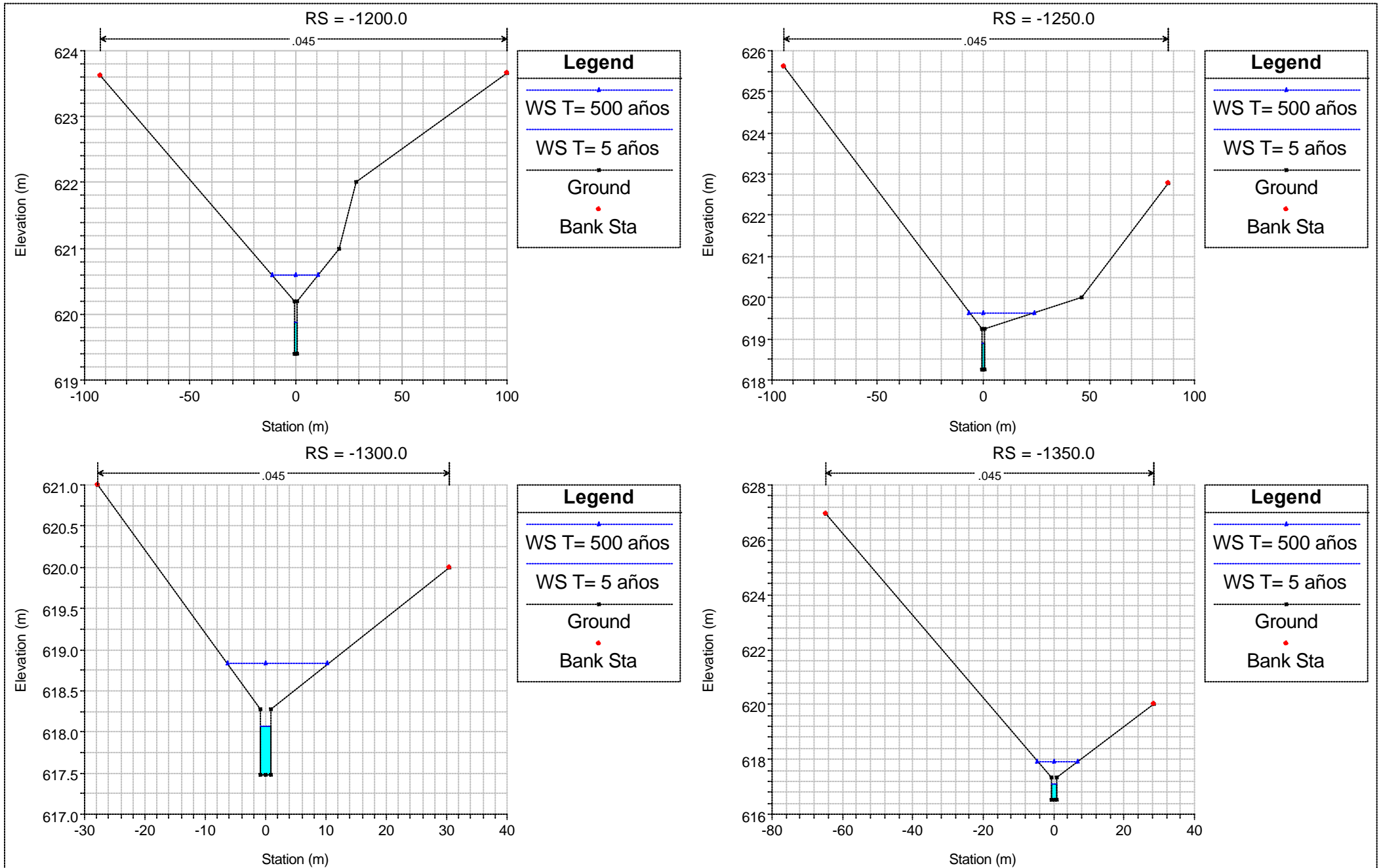
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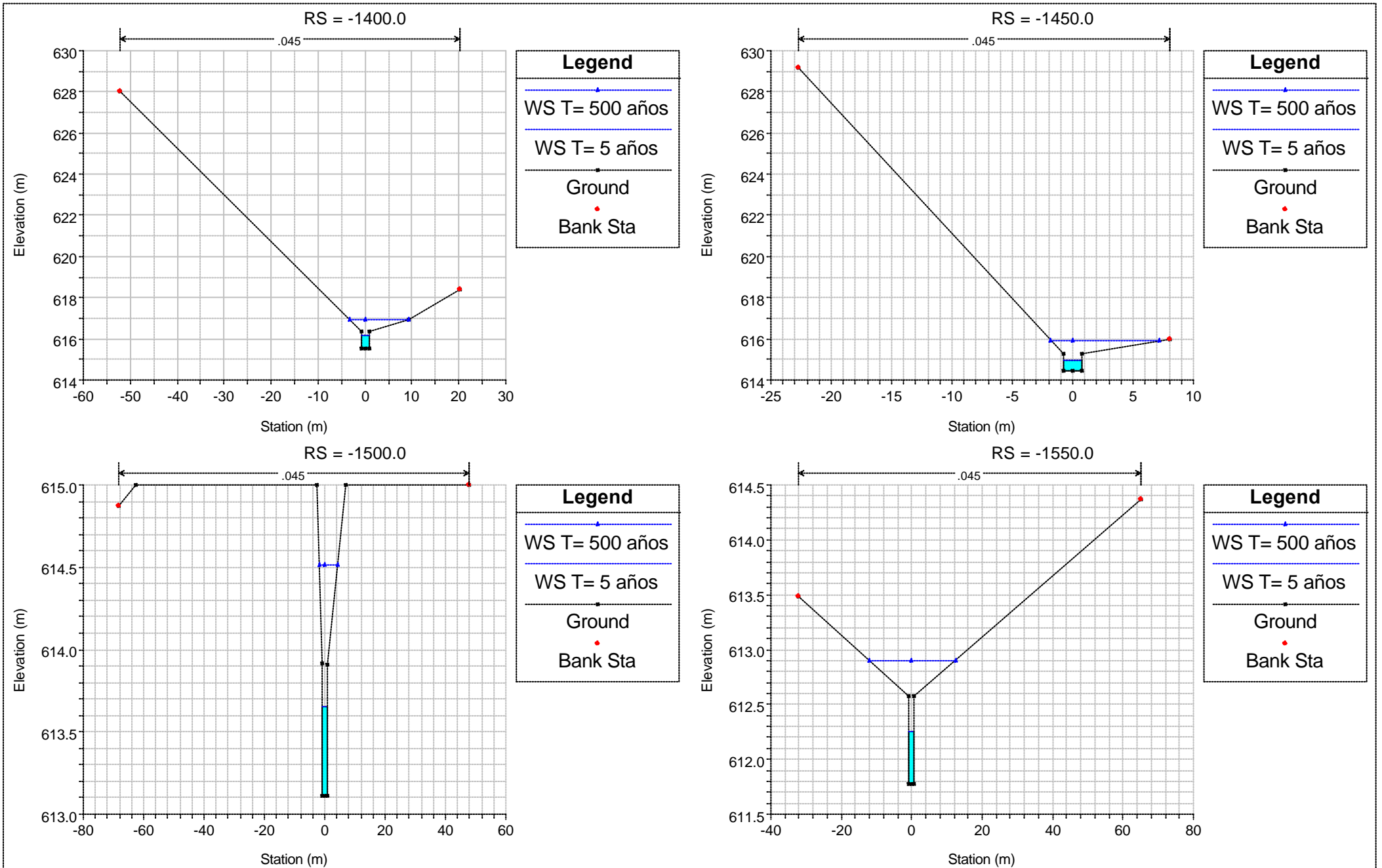
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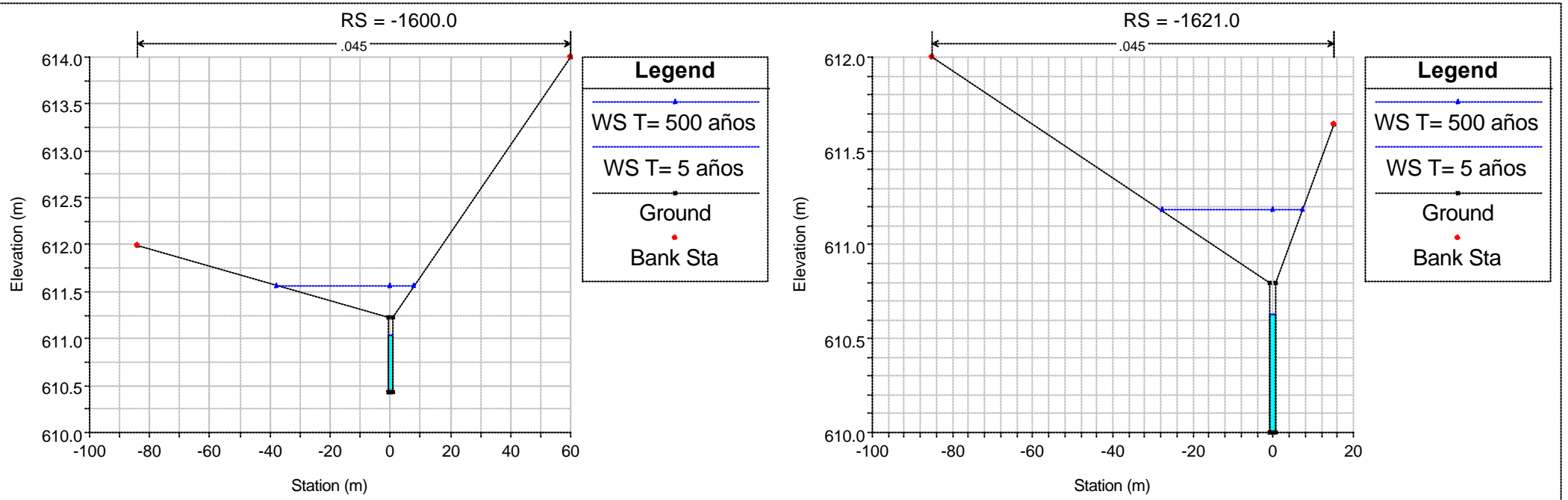
ARROYO DE CARBONEROS - SITUACIÓN ACTUAL



ARROYO DE CARBONEROS - SITUACIÓN ACTUAL

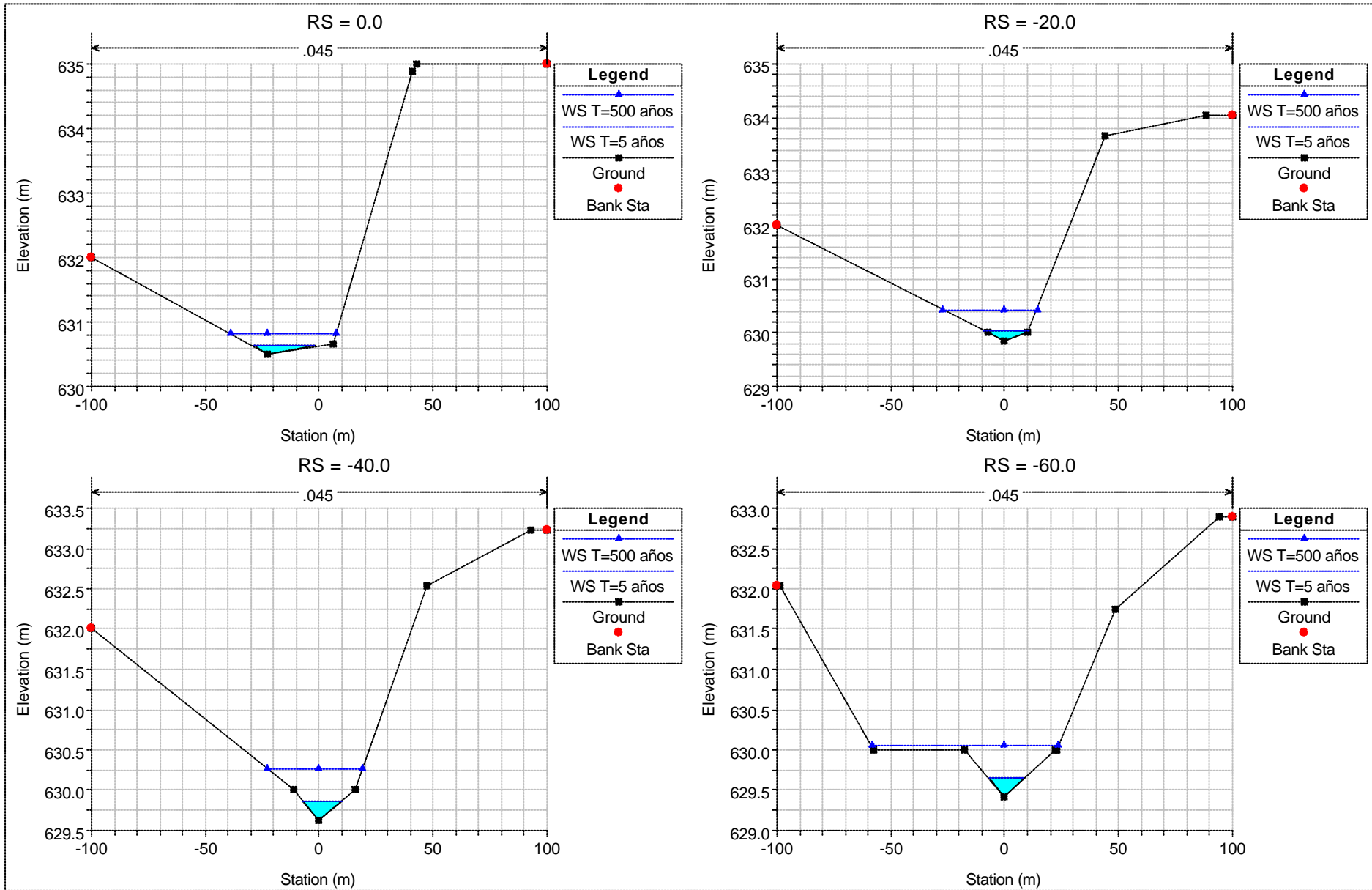


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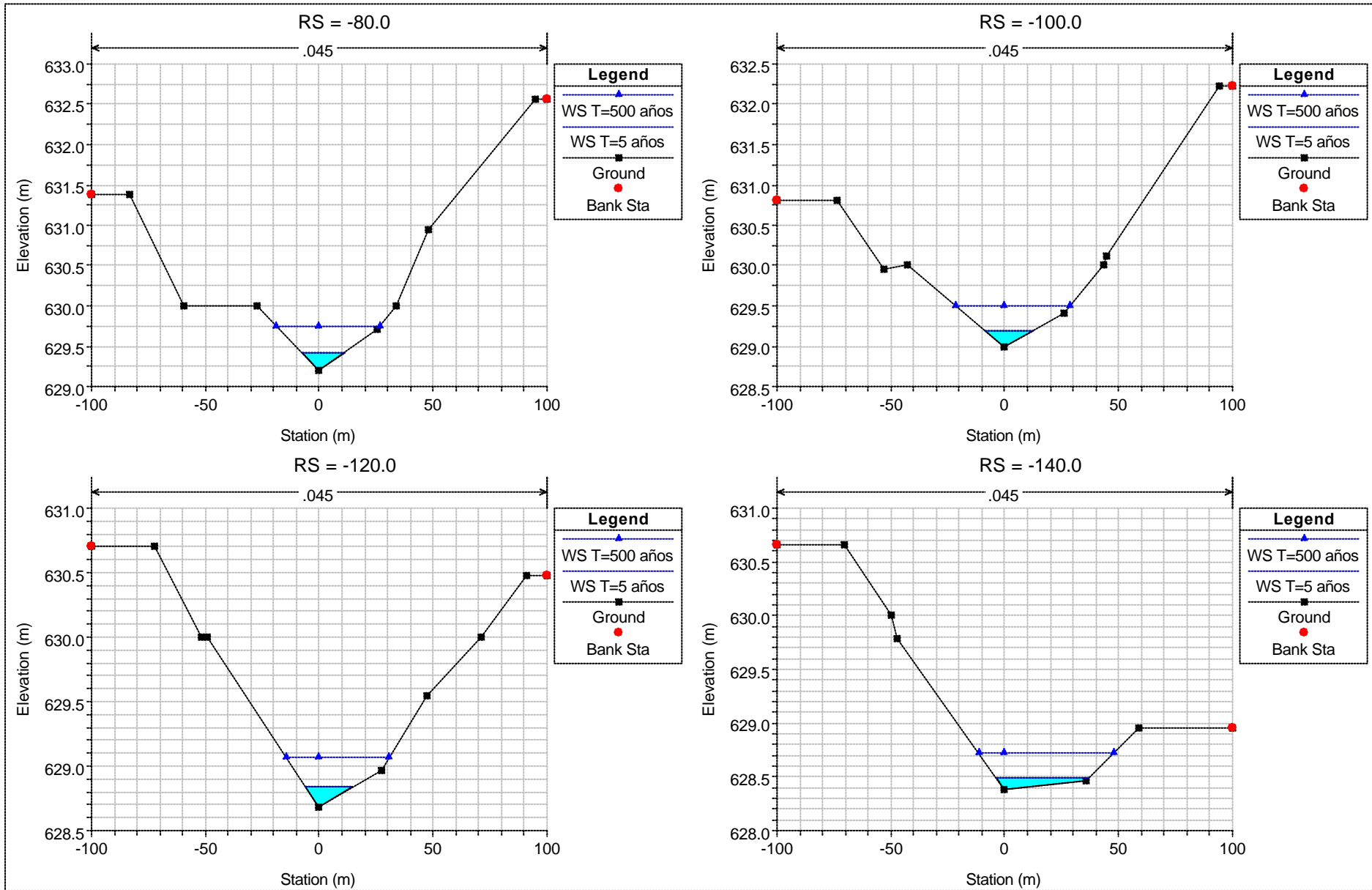


ARROYO DE MESONES

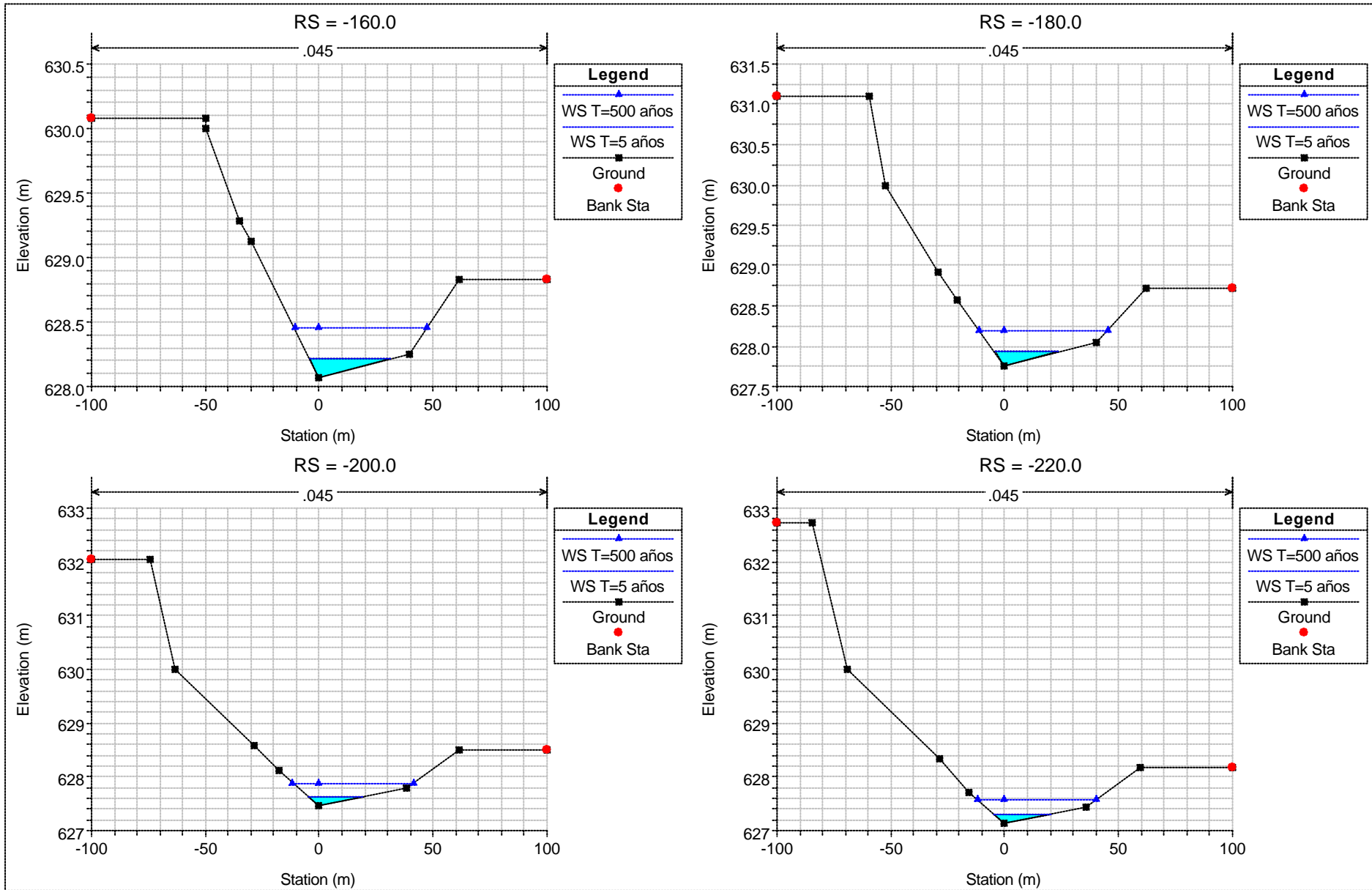
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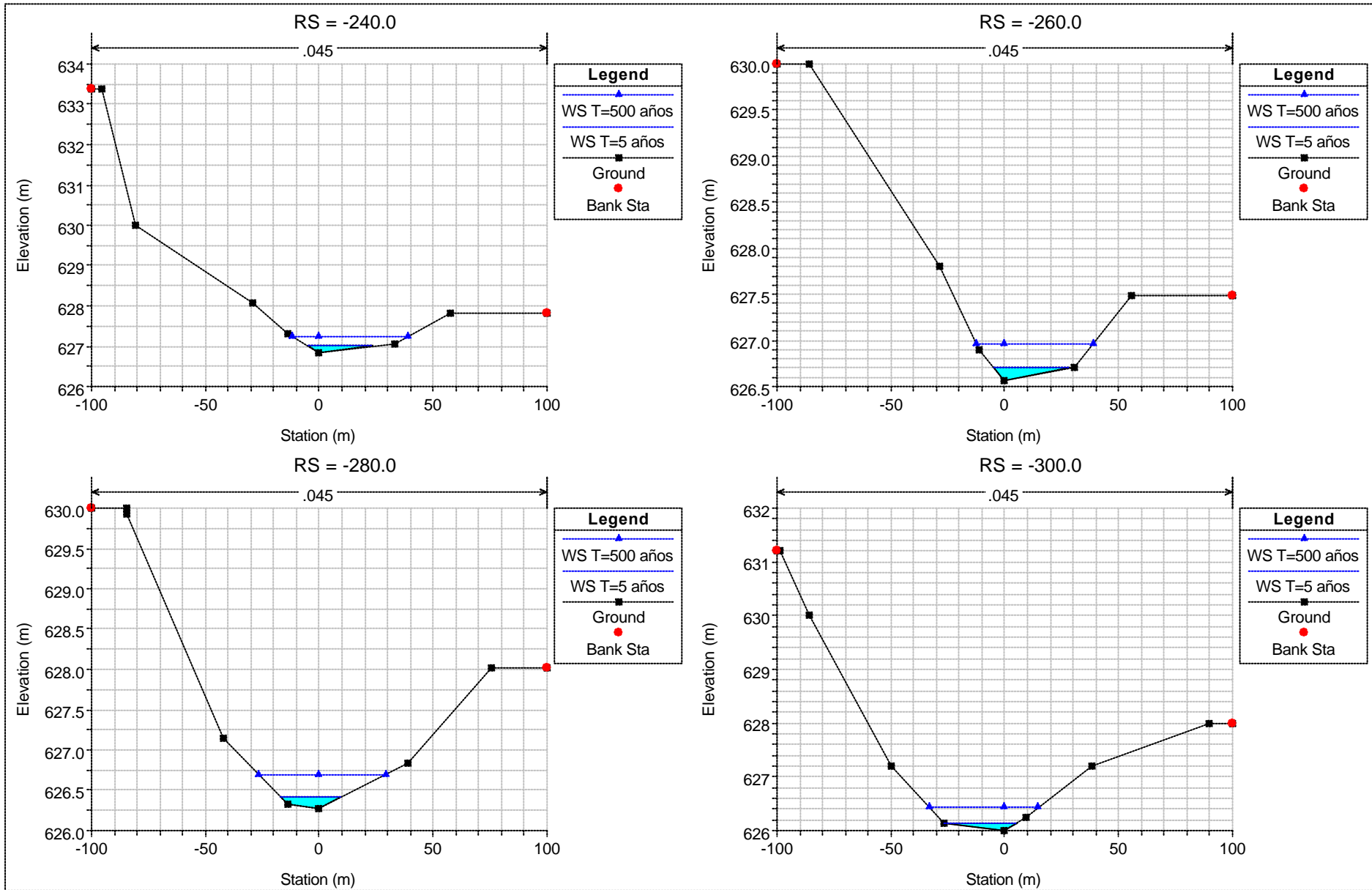
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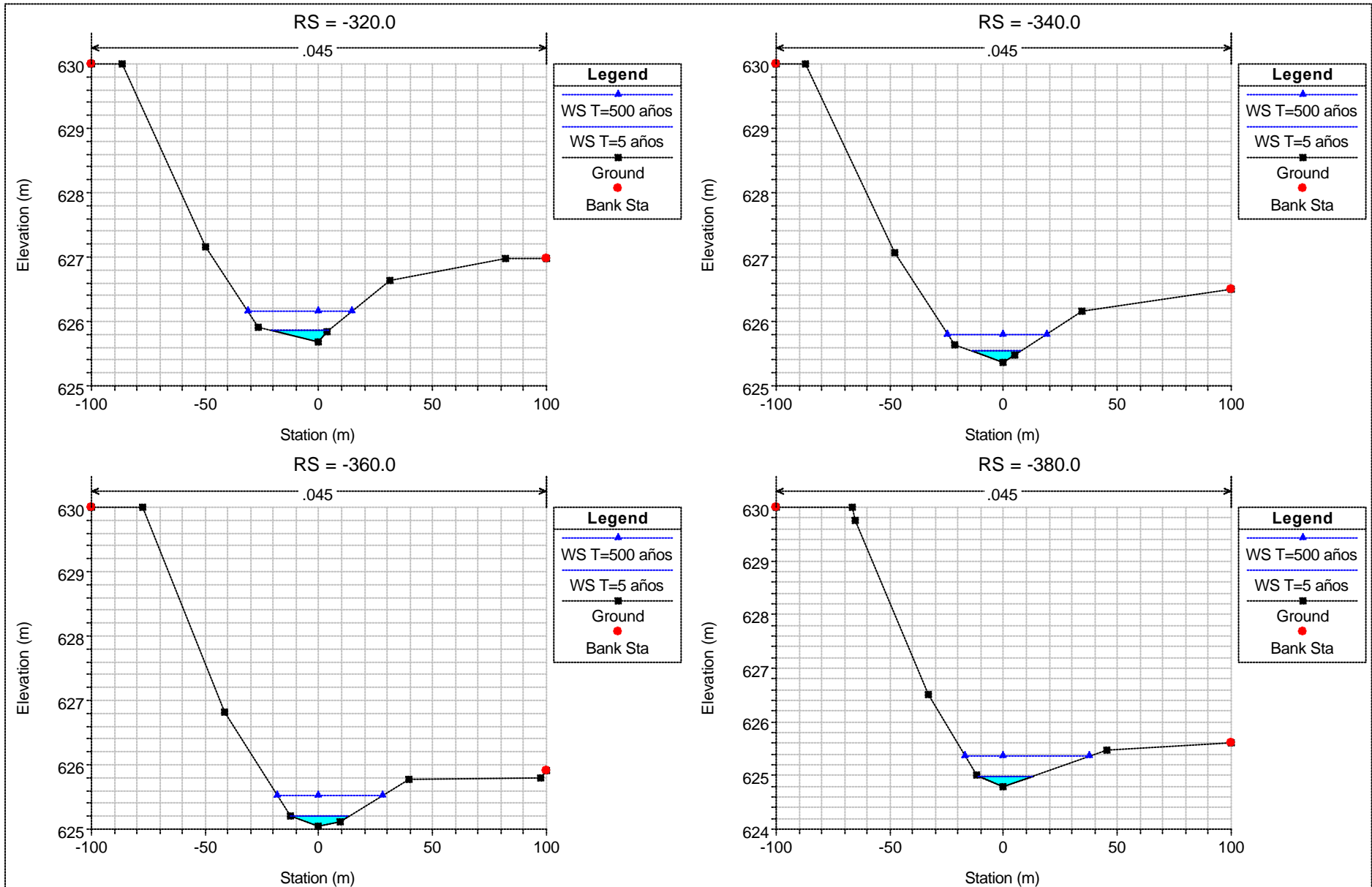
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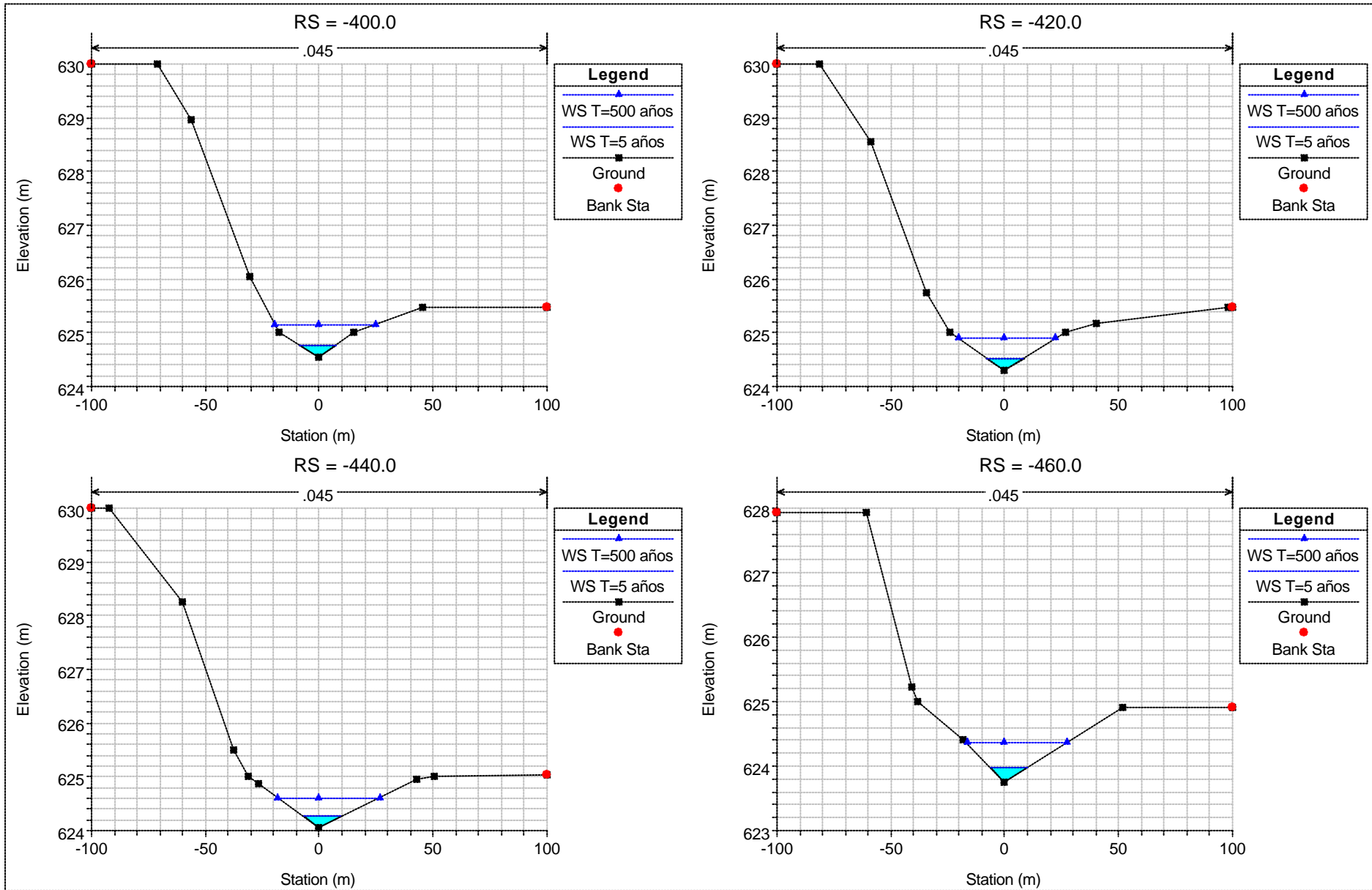
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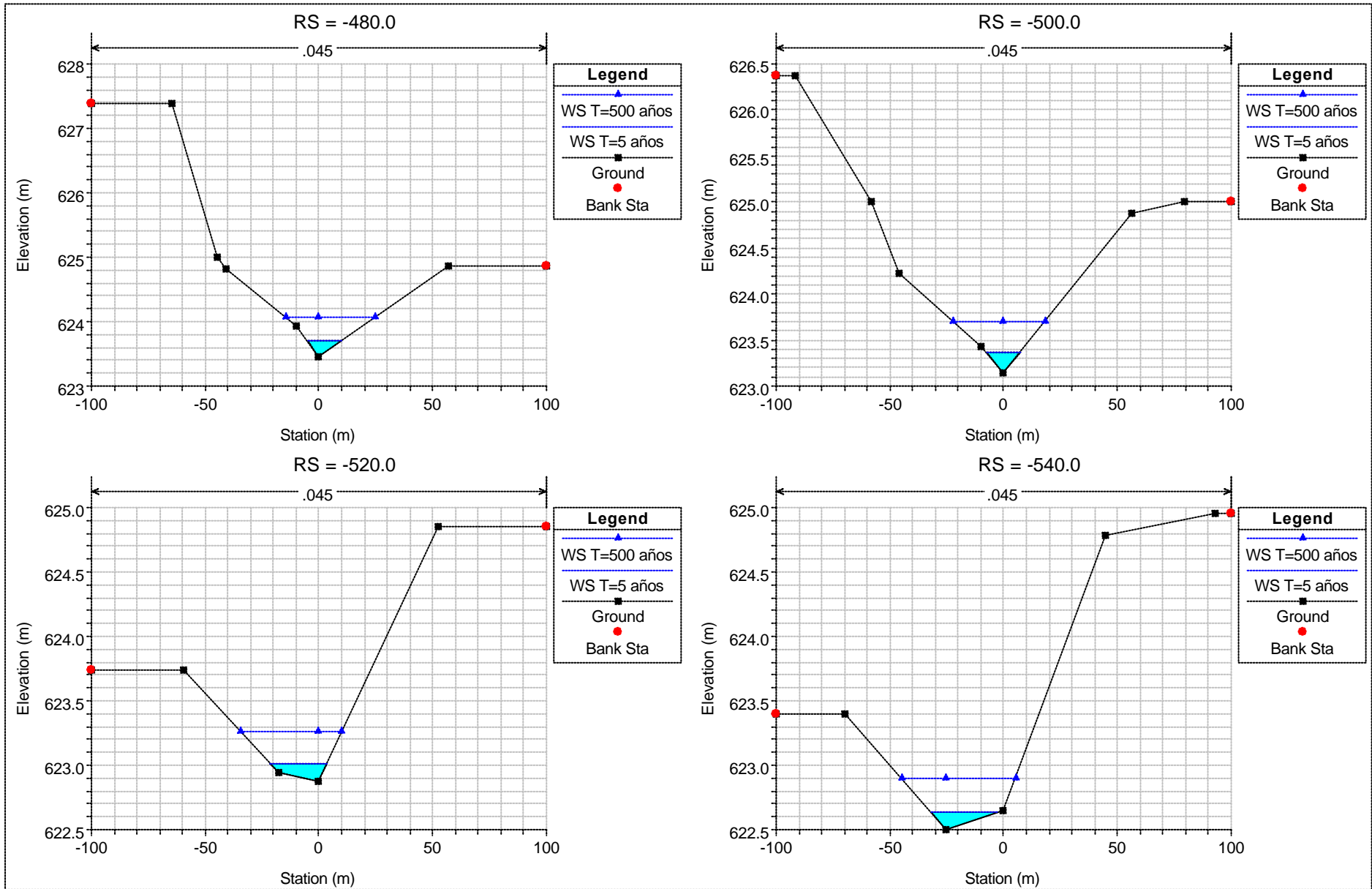
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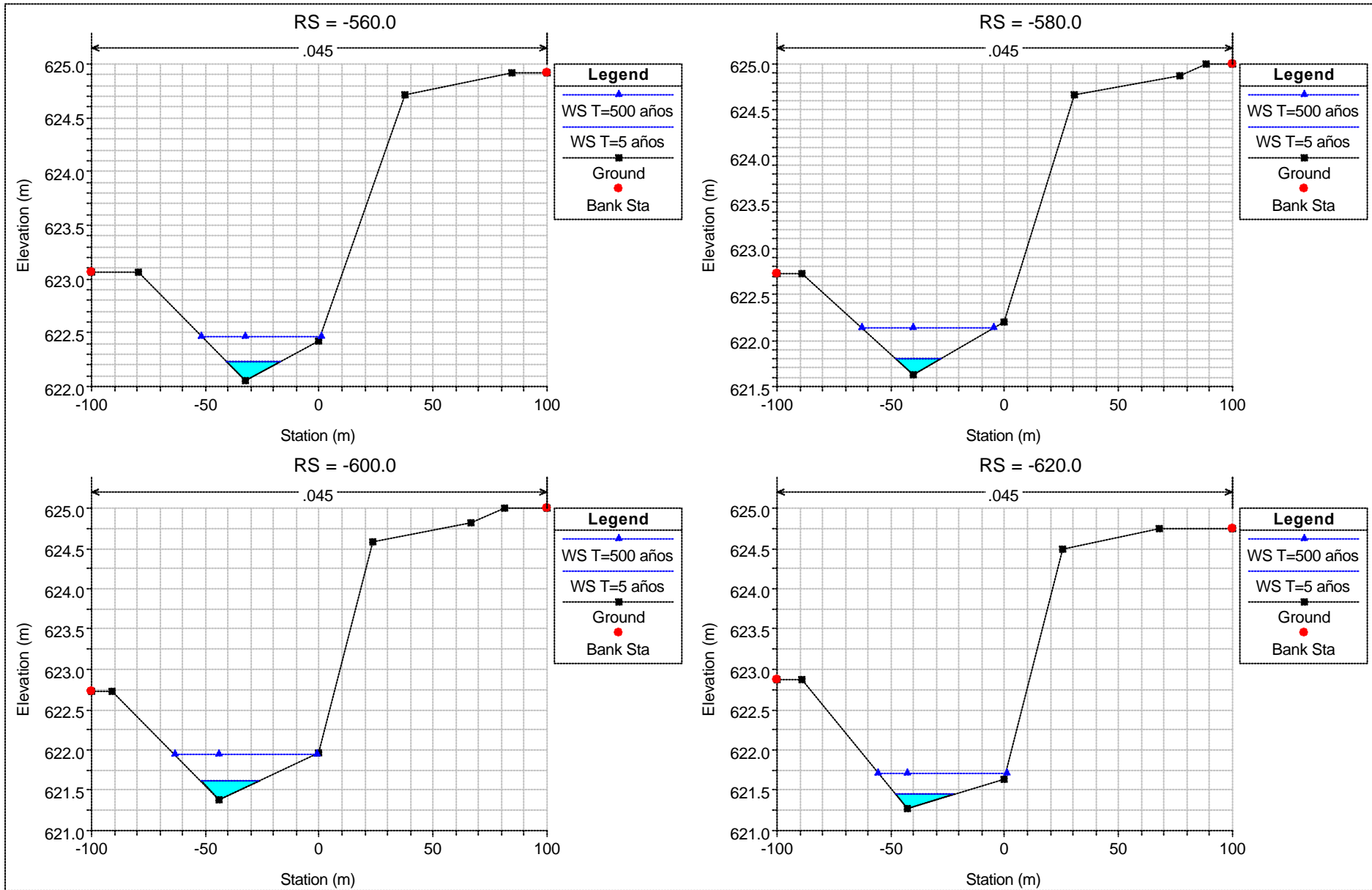
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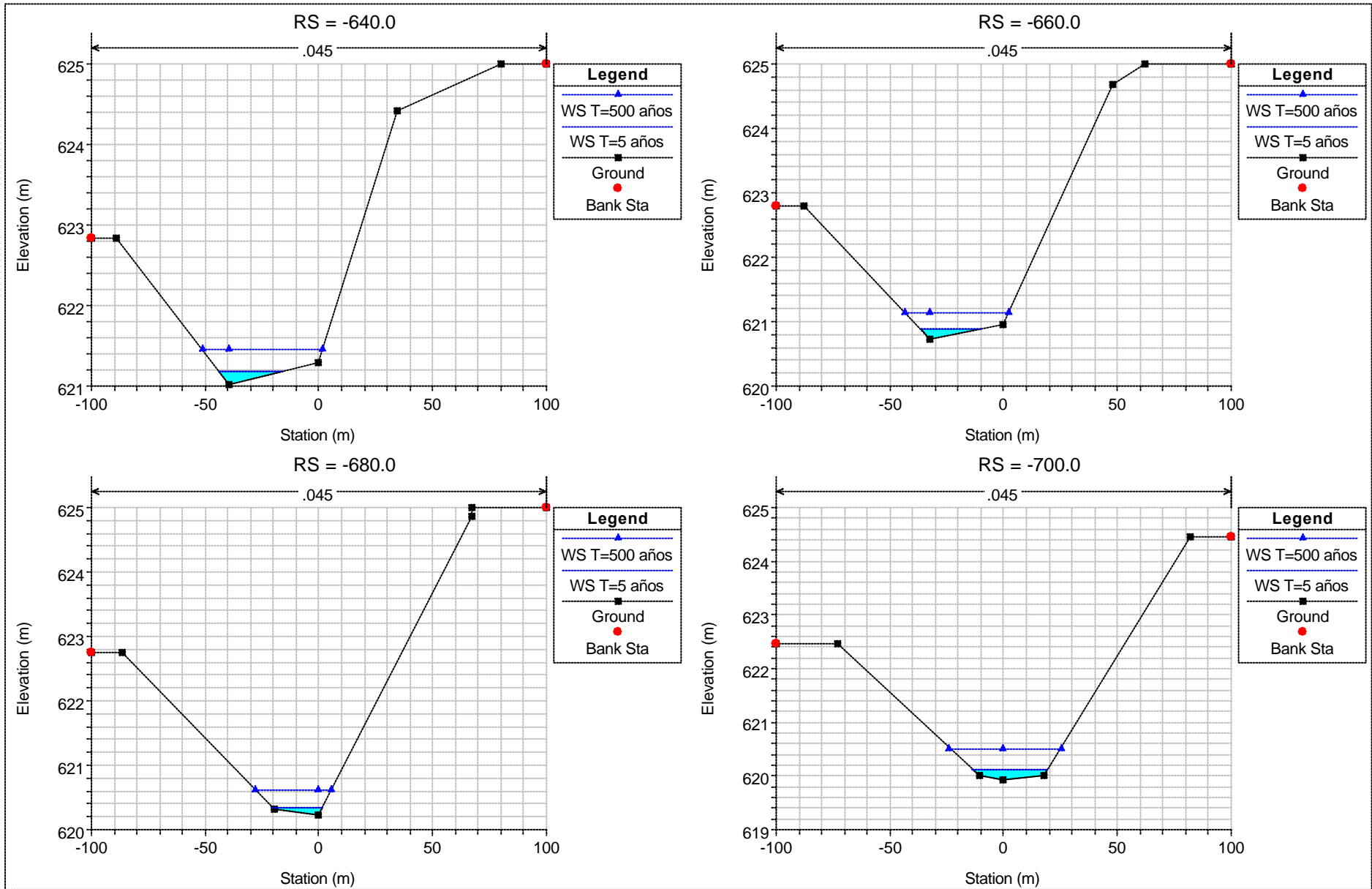
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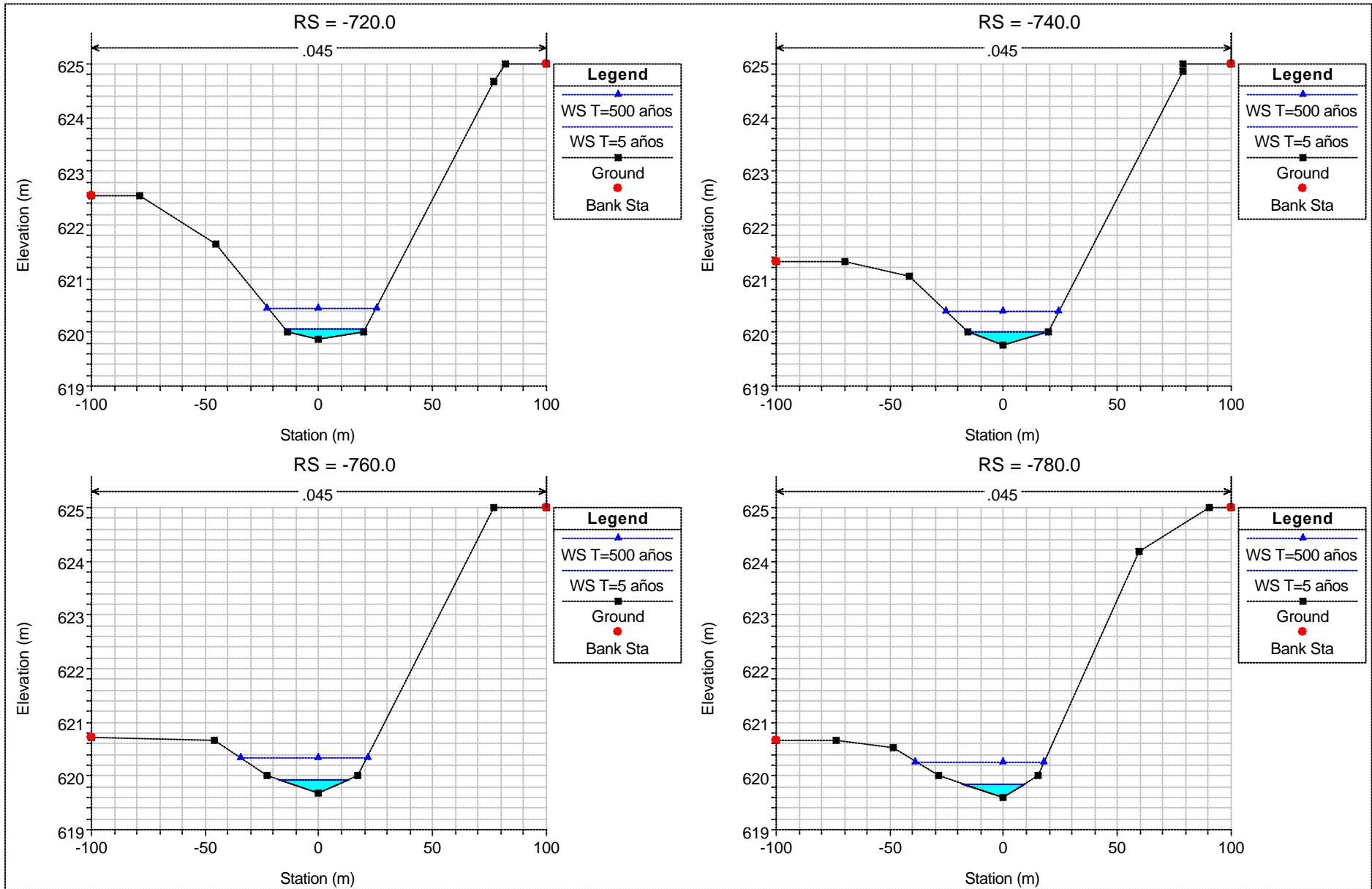
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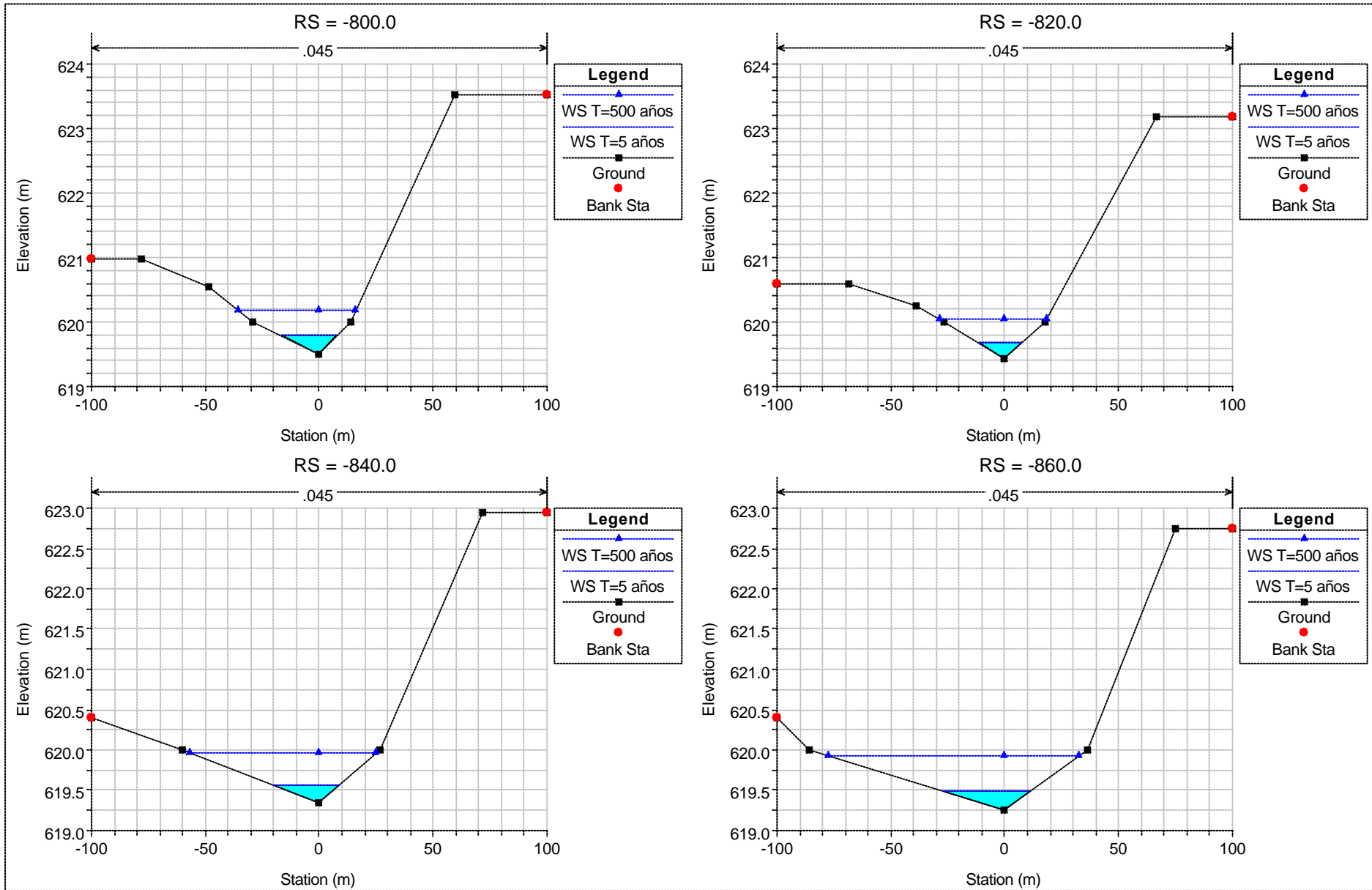
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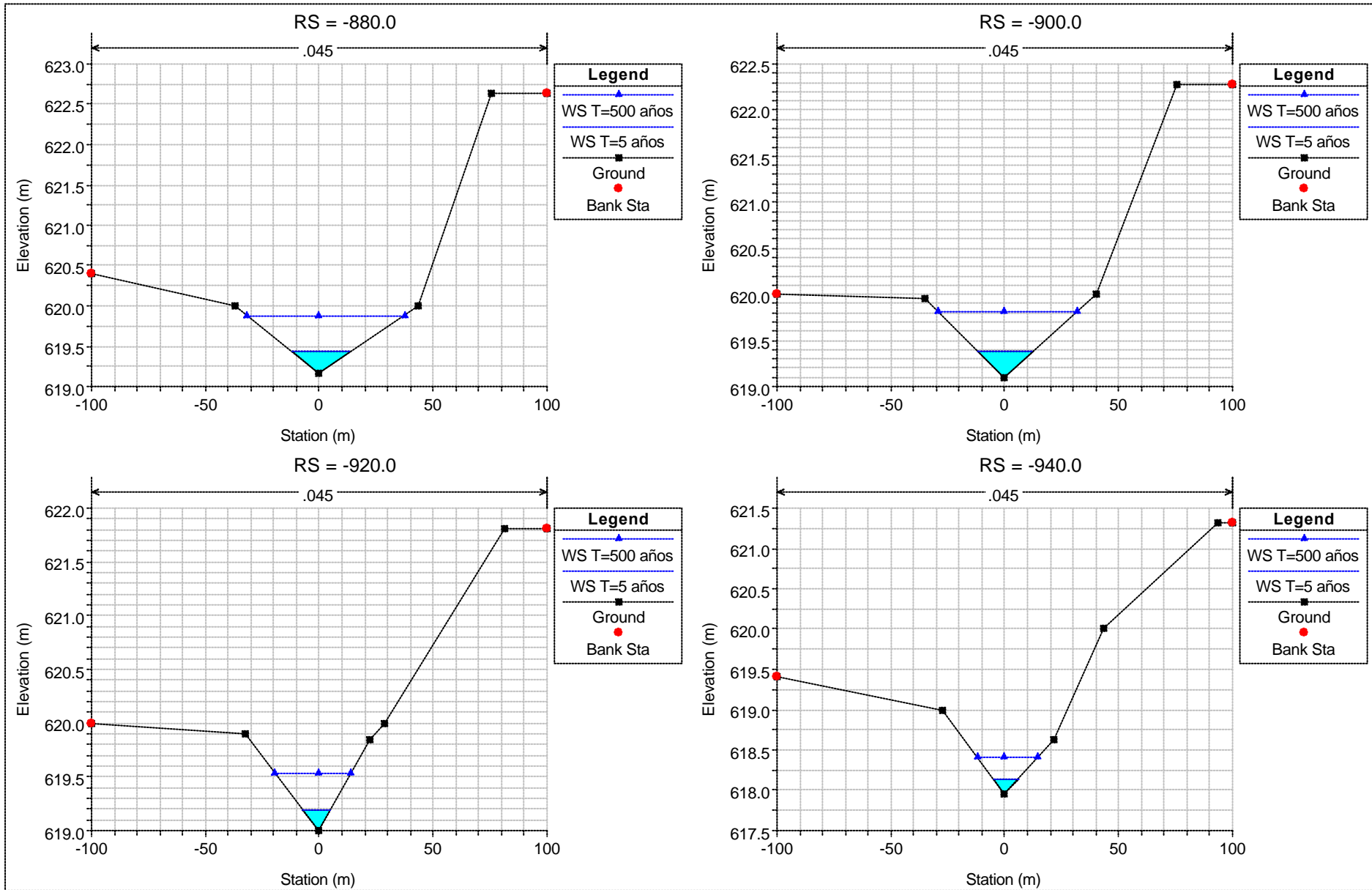
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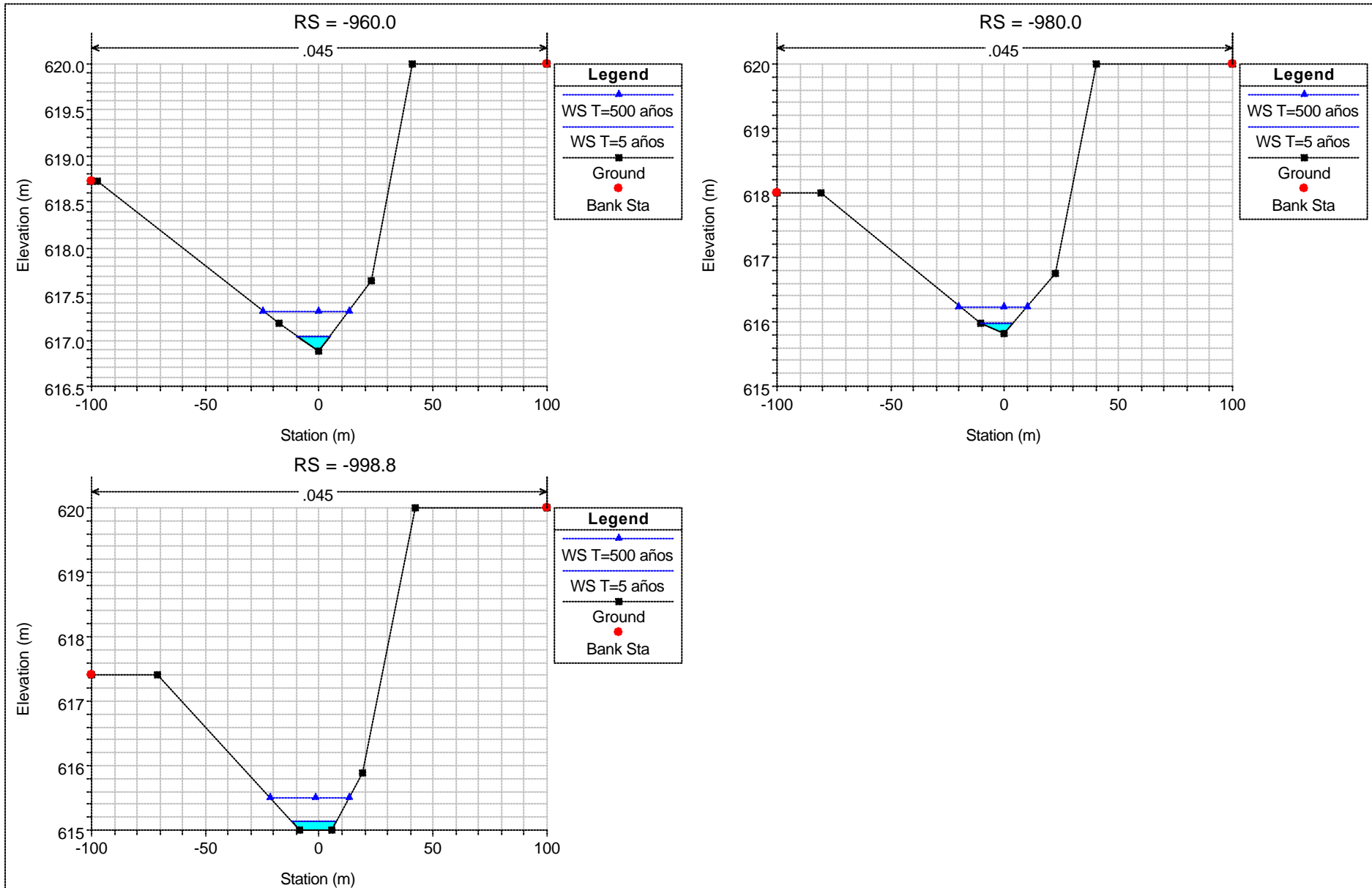
ARROYO DE MESONES - SITUACIÓN ACTUAL



ARROYO DE MESONES - SITUACIÓN ACTUAL



ARROYO DE MESONES - SITUACIÓN ACTUAL



COMPROBACIÓN OBRAS DE DRENAJE EXISTENTES

COMPROBACIÓN DE OBRAS DE DRENAJE EXISTENTES:

A continuación se comprueban las Secciones de Control en las que actualmente existen Obras de Drenaje. Éstas son:

- **SECCIÓN 4:** canalización del Arroyo de la Vega a su entrada al casco urbano de Alcobendas. La O.D. existente consta de un tubo tipo ARCO Multi-Placa de \varnothing 3.300 mm.
- **O.D. BAJO C/ VALPORTILLO:** O.D. consistente en tres tubos tipo Arco Multiplaca de diámetro interior \varnothing 1.960 mm
- **O.D. BAJO C/ FRANCISCO GERVÁS:** O.D. consistente en tres tubos tipo Arco Multiplaca de diámetro interior \varnothing 1.960 mm
- **SECCIÓN 8:** O.D. consistente en un marco prefabricado de sección rectangular de 2,00 x 3,00 m (ancho x alto)
- **SECCIÓN 9:** O.D. consistente en un marco prefabricado de sección rectangular de 3,00 x 2,00 m (ancho x alto)

Según las comprobaciones realizadas, se obtiene el comportamiento de cada una de las O.D. contempladas, resultando que:

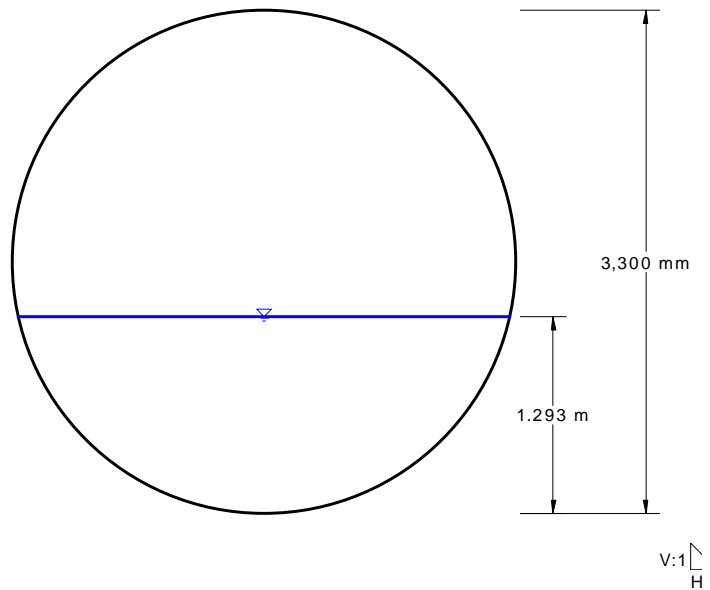
EN ESTADO ACTUAL:

| | |
|---------------------------------|--------|
| - SECCIÓN 4 (Embocadura) | CUMPLE |
| - O.D. BAJO C/ VALPORTILLO | CUMPLE |
| - O.D. BAJO C/ FRANCISCO GERVÁS | CUMPLE |
| - SECCIÓN 8 | CUMPLE |
| - SECCIÓN 9 | CUMPLE |

| Project Description | |
|---------------------|--|
| Worksheet | ARROYO DE LA VEGA. SITUACIÓN ACTUAL (T=500 AÑOS). SECCIÓN 4-EMBOCADURA. |
| Flow Element | Circular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | |
|----------------------|---------------------------|
| Mannings Coefficient | 0.013 |
| Slope | 0.015000 m/m |
| Diameter | 3,300 mm |
| Discharge | 23.0000 m ³ /s |

| Results | |
|-------------------|---------------------------|
| Depth | 1.293 m |
| Flow Area | 3.1 m ² |
| Wetted Perimeter | 4.46 m |
| Top Width | 3.22 m |
| Critical Depth | 2.05 m |
| Percent Full | 39.2 % |
| Critical Slope | 0.003170 m/m |
| Velocity | 7.40 m/s |
| Velocity Head | 2.79 m |
| Specific Energy | 4.085 m |
| Froude Number | 2.41 |
| Maximum Discharge | 76.2459 m ³ /s |
| Discharge Full | 70.8799 m ³ /s |
| Slope Full | 0.001579 m/m |
| Flow Type | Supercritical |

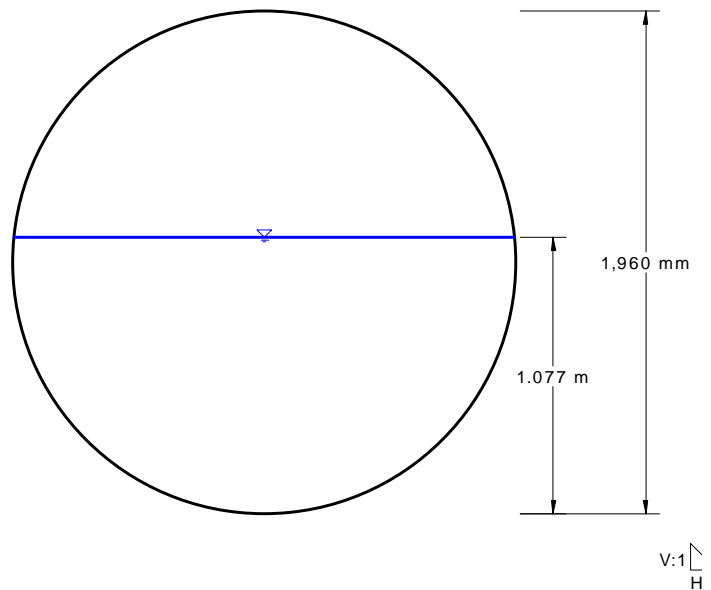


Se comprueba que la Sección tiene capacidad suficiente para desaguar todo el caudal de aguas pluviales generado aguas arriba, para la Situación Actual, para un período de retorno de 500 años.

| Project Description | |
|---------------------|---|
| Worksheet | ARROYO DE LA VEGA. SITUACIÓN ACTUAL (T=500 AÑOS). O.D. C/ VALPORTILLO. |
| Flow Element | Circular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | |
|----------------------|--------------------------|
| Mannings Coefficient | 0.015 |
| Slope | 0.011000 m/m |
| Diameter | 1,960 mm |
| Discharge | 7.6670 m ³ /s |

| Results | |
|-------------------|---------------------------|
| Depth | 1.077 m |
| Flow Area | 1.7 m ² |
| Wetted Perimeter | 3.27 m |
| Top Width | 1.95 m |
| Critical Depth | 1.35 m |
| Percent Full | 54.9 % |
| Critical Slope | 0.005602 m/m |
| Velocity | 4.51 m/s |
| Velocity Head | 1.04 m |
| Specific Energy | 2.116 m |
| Froude Number | 1.55 |
| Maximum Discharge | 14.1047 m ³ /s |
| Discharge Full | 13.1121 m ³ /s |
| Slope Full | 0.003761 m/m |
| Flow Type | Supercritical |

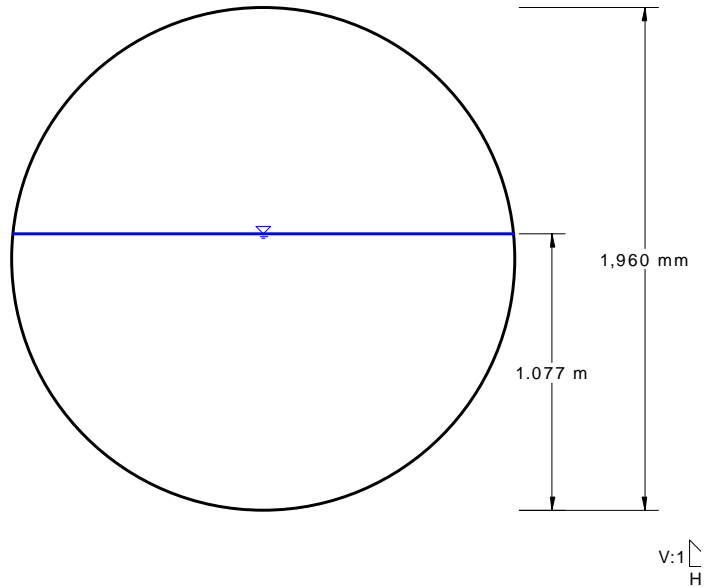


Se comprueba uno de los tres tubos que forman la O.D. Para ello se considera la tercera parte del caudal total (23,00 m³/s).

| Project Description | |
|---------------------|---|
| Worksheet | ARROYO DE LA VEGA. SITUACIÓN ACTUAL (T=500 AÑOS). O.D. C/ FCO. GERVÁS. |
| Flow Element | Circular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | |
|----------------------|--------------------------|
| Mannings Coefficient | 0.015 |
| Slope | 0.011000 m/m |
| Diameter | 1,960 mm |
| Discharge | 7.6670 m ³ /s |

| Results | |
|-------------------|---------------------------|
| Depth | 1.077 m |
| Flow Area | 1.7 m ² |
| Wetted Perimeter | 3.27 m |
| Top Width | 1.95 m |
| Critical Depth | 1.35 m |
| Percent Full | 54.9 % |
| Critical Slope | 0.005602 m/m |
| Velocity | 4.51 m/s |
| Velocity Head | 1.04 m |
| Specific Energy | 2.116 m |
| Froude Number | 1.55 |
| Maximum Discharge | 14.1047 m ³ /s |
| Discharge Full | 13.1121 m ³ /s |
| Slope Full | 0.003761 m/m |
| Flow Type | Supercritical |

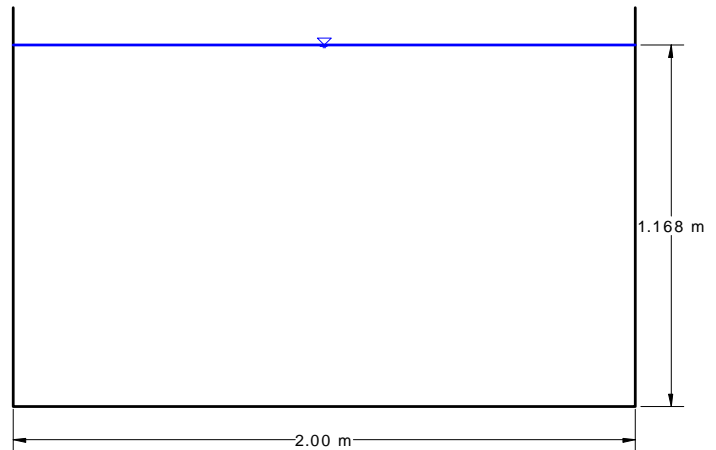


Se comprueba uno de los tres tubos que forman la O.D. Para ello se considera la tercera parte del caudal total (23,00 m³/s).

| Project Description | |
|---------------------|---|
| Worksheet | ARROYO MESONES. SITUACIÓN ACTUAL (T=500 AÑOS). SECCIÓN DE CONTROL 8. |
| Flow Element | Rectangular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | |
|----------------------|---------------------------|
| Mannings Coefficient | 0.013 |
| Slope | 0.015000 m/m |
| Bottom Width | 2.00 M |
| Discharge | 14.5653 m ³ /s |

| Results | |
|------------------|--------------------|
| Depth | 1.168 M |
| Flow Area | 2.3 m ² |
| Wetted Perimeter | 4.34 M |
| Top Width | 2.00 M |
| Critical Depth | 1.76 M |
| Critical Slope | 0.005307 m/m |
| Velocity | 6.24 m/s |
| Velocity Head | 1.98 M |
| Specific Energy | 3.151 M |
| Froude Number | 1.84 |
| Flow Type | Supercritical |

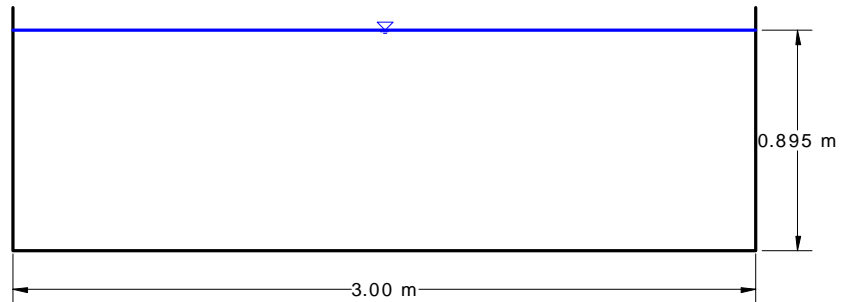


La O.D. existente se compone de un marco prefabricado de sección rectangular libre de 2,00 x 3,00 m. Luego, tiene capacidad hidráulica suficiente para desaguar los caudales de aguas pluviales generados en el Estado Actual, para un período de retorno de 500 años.

| Project Description | |
|---------------------|---|
| Worksheet | ARROYO MESONES. SITUACIÓN ACTUAL (T=500 AÑOS). SECCIÓN DE CONTROL 9. |
| Flow Element | Rectangular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | |
|----------------------|---------------------------|
| Mannings Coefficient | 0.013 |
| Slope | 0.015000 m/m |
| Bottom Width | 3.00 m |
| Discharge | 17.1917 m ³ /s |

| Results | |
|------------------|--------------------|
| Depth | 0.895 m |
| Flow Area | 2.7 m ² |
| Wetted Perimeter | 4.79 m |
| Top Width | 3.00 m |
| Critical Depth | 1.50 m |
| Critical Slope | 0.003645 m/m |
| Velocity | 6.40 m/s |
| Velocity Head | 2.09 m |
| Specific Energy | 2.986 m |
| Froude Number | 2.16 |
| Flow Type | Supercritical |



V:1
H:1
NTS

La O.D. existente se compone de un marco prefabricado de sección rectangular libre de 3,00 x 2,00 m. Luego, tiene capacidad hidráulica suficiente para desaguar los caudales de aguas pluviales generados en el Estado Actual, para un período de retorno de 500 años.

**COMPROBACIÓN DEL CAUCE
DEL ARROYO DE LA VEGA A SU PASO
POR LA ZONA INDUSTRIAL DE ALCOBENDAS**

COMPROBACIÓN DE LA SECCIÓN DEL CAUCE DEL ARROYO DE LA VEGA, A SU PASO POR LA ZONA INDUSTRIAL DE ALCOBENDAS.

Según el Proyecto de *“Recuperación del Cauce del Arroyo de la Vega en el tramo de la zona industrial de Alcobendas”*, se plantea llevar a cabo la recuperación y acondicionamiento de este tramo adoptando una sección transversal del siguiente tipo:

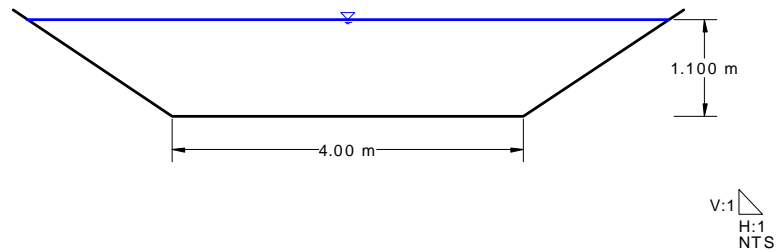
- Cauce: Lecho plano, de 4 m de ancho, hormigonado sobre 1,20 m de gravas. Corazas de Gabiones laterales con taludes 3/2, atados a la base de hormigón. Altura media del cauce 3 m. Anchura total de 12 m.

Se comprueba a continuación dicha sección para los caudales obtenidos, para un período de retorno, en la Situación Actual.

| | |
|---------------------|---|
| Project Description | |
| Worksheet | ARROYO DE LA VEGA. SITUACIÓN ACTUAL (T=500 AÑOS). CAUCE PROPUESTO. |
| Flow Element | Trapezoidal Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

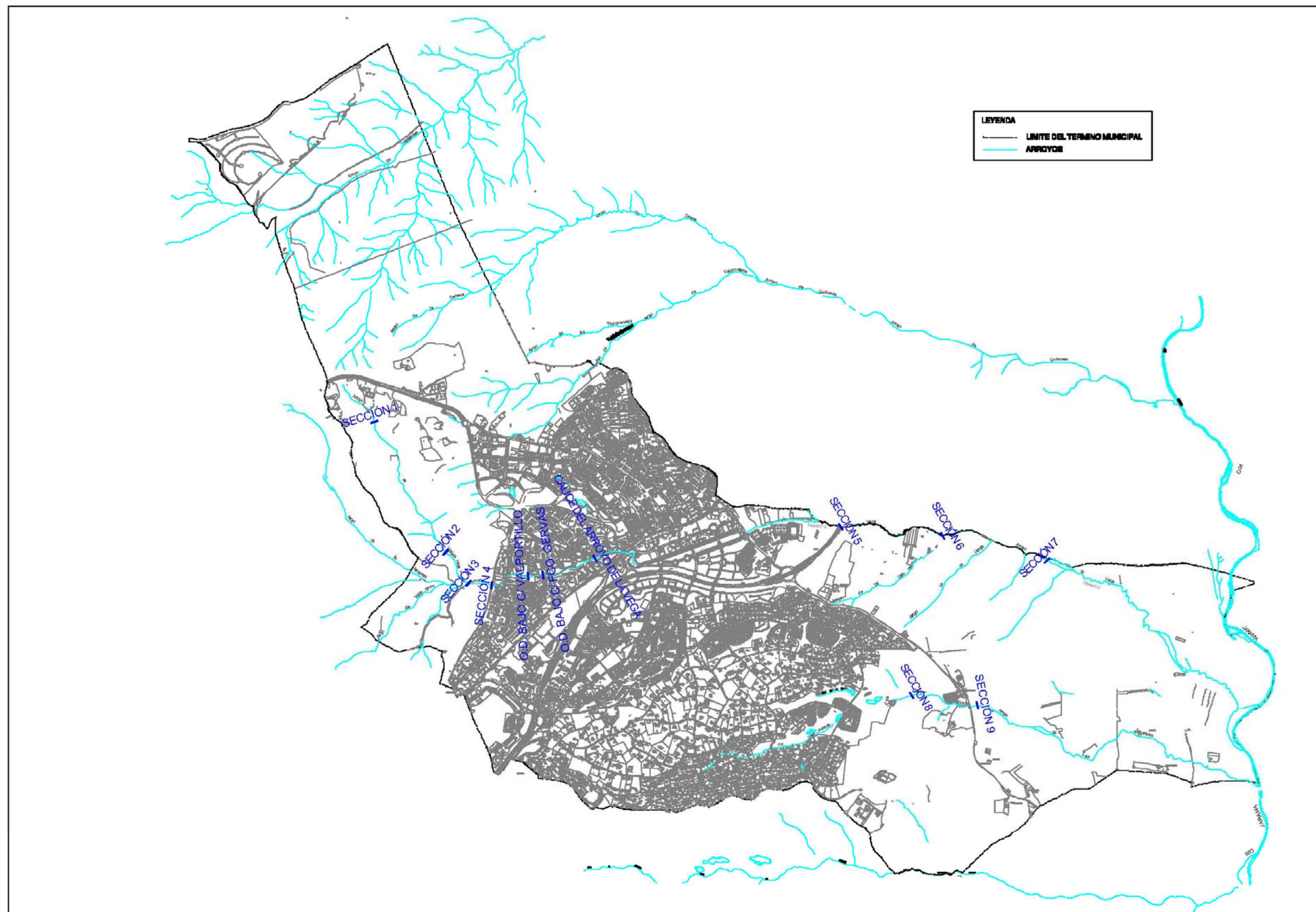
| | |
|----------------------|---------------------------|
| Input Data | |
| Mannings Coefficient | 0.024 |
| Slope | 0.011000 m/m |
| Left Side Slope | 1.50 H : V |
| Right Side Slope | 1.50 H : V |
| Bottom Width | 4.00 m |
| Discharge | 23.0000 m ³ /s |

| | |
|------------------|--------------------|
| Results | |
| Depth | 1.100 m |
| Flow Area | 6.2 m ² |
| Wetted Perimeter | 7.96 m |
| Top Width | 7.30 m |
| Critical Depth | 1.27 m |
| Critical Slope | 0.006490 m/m |
| Velocity | 3.70 m/s |
| Velocity Head | 0.70 m |
| Specific Energy | 1.799 m |
| Froude Number | 1.28 |
| Flow Type | Supercritical |



Se comprueba que con la nueva sección propuesta, se tiene capacidad suficiente para desaguar los caudales de aguas pluviales generados aguas arriba en la Situación Actual, para un período de retorno de 500 años.

LOCALIZACIÓN DE SECCIONES DE CONTROL ANALIZADAS

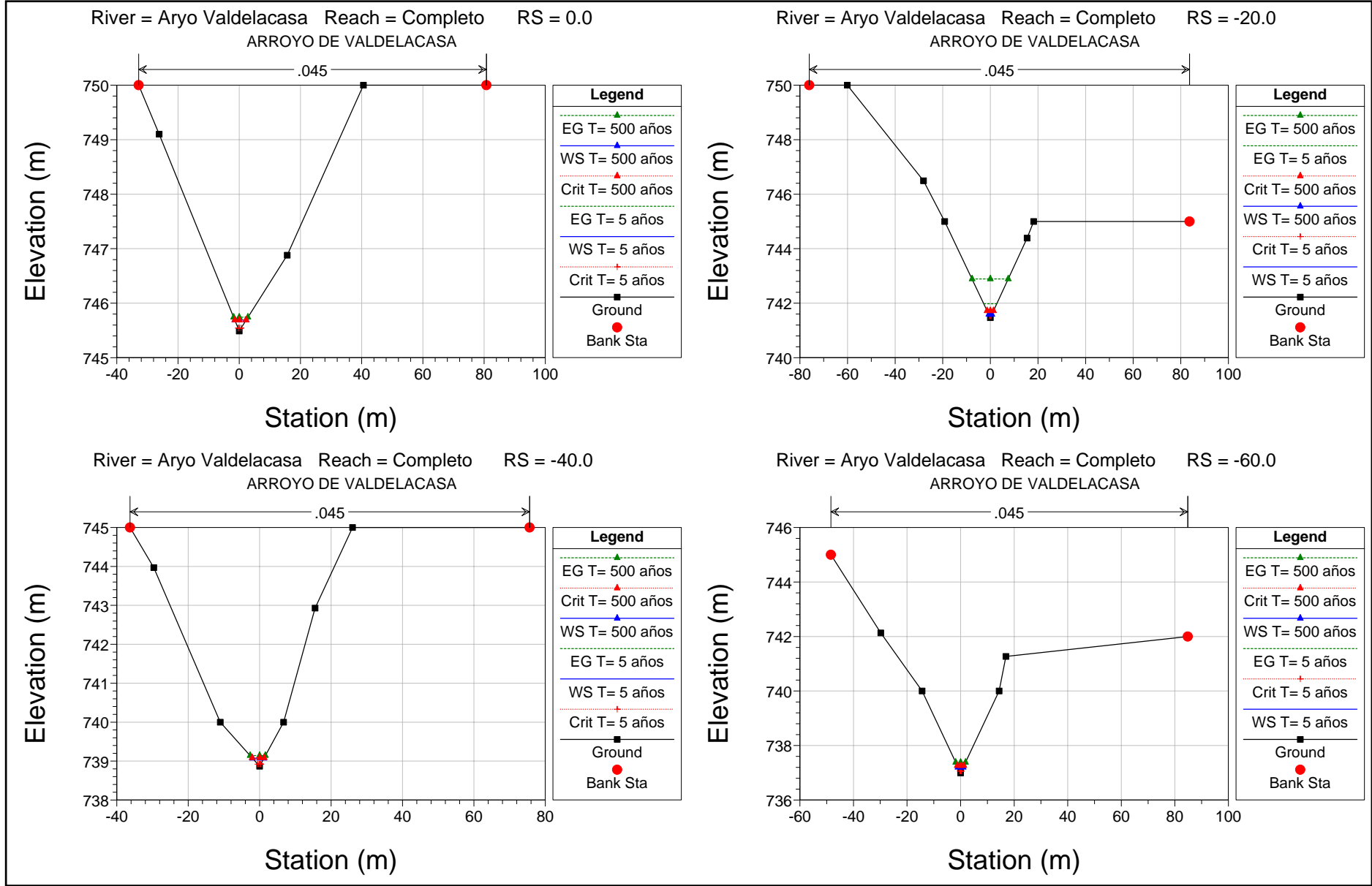


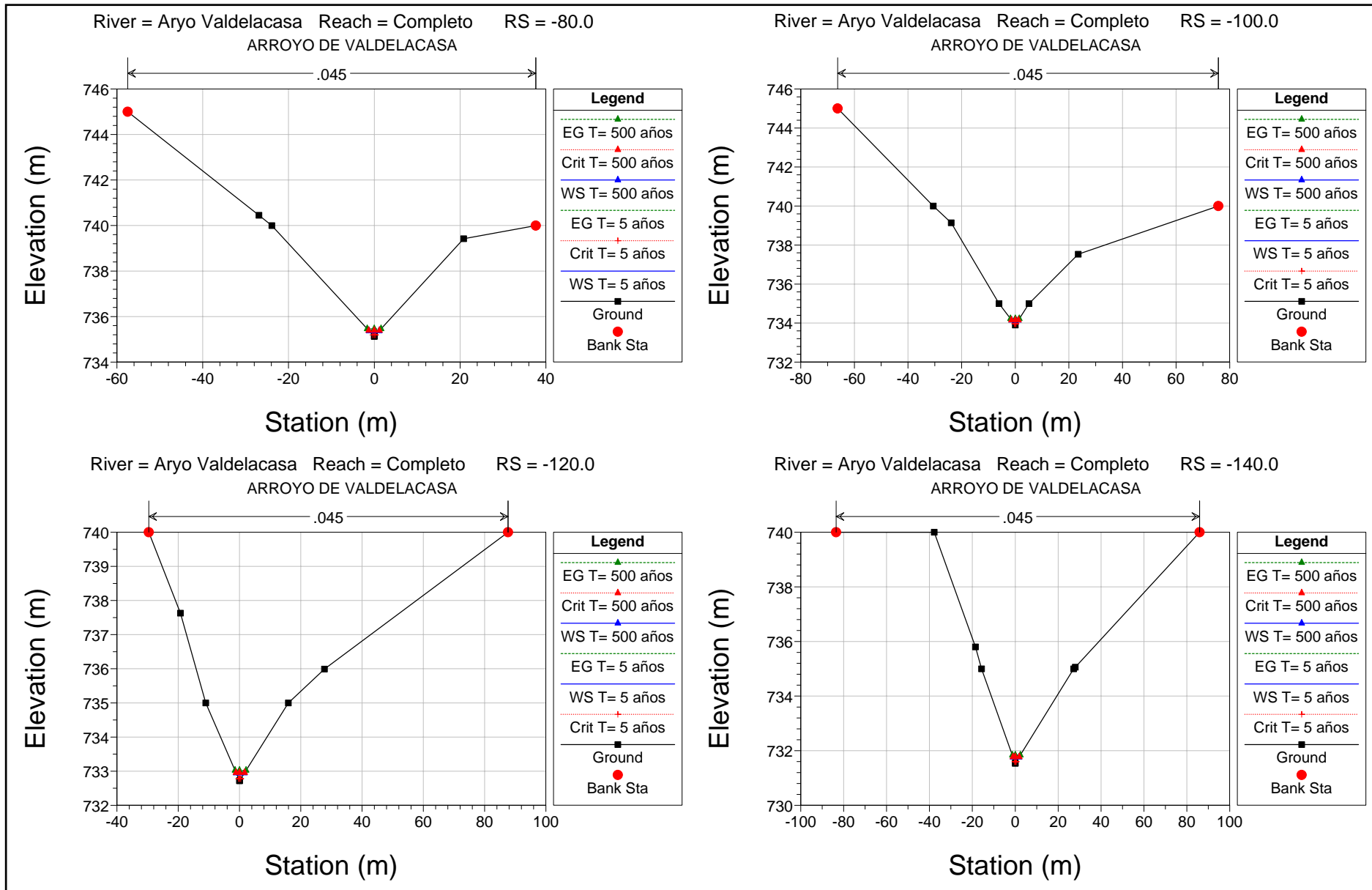
ANEXO VIII

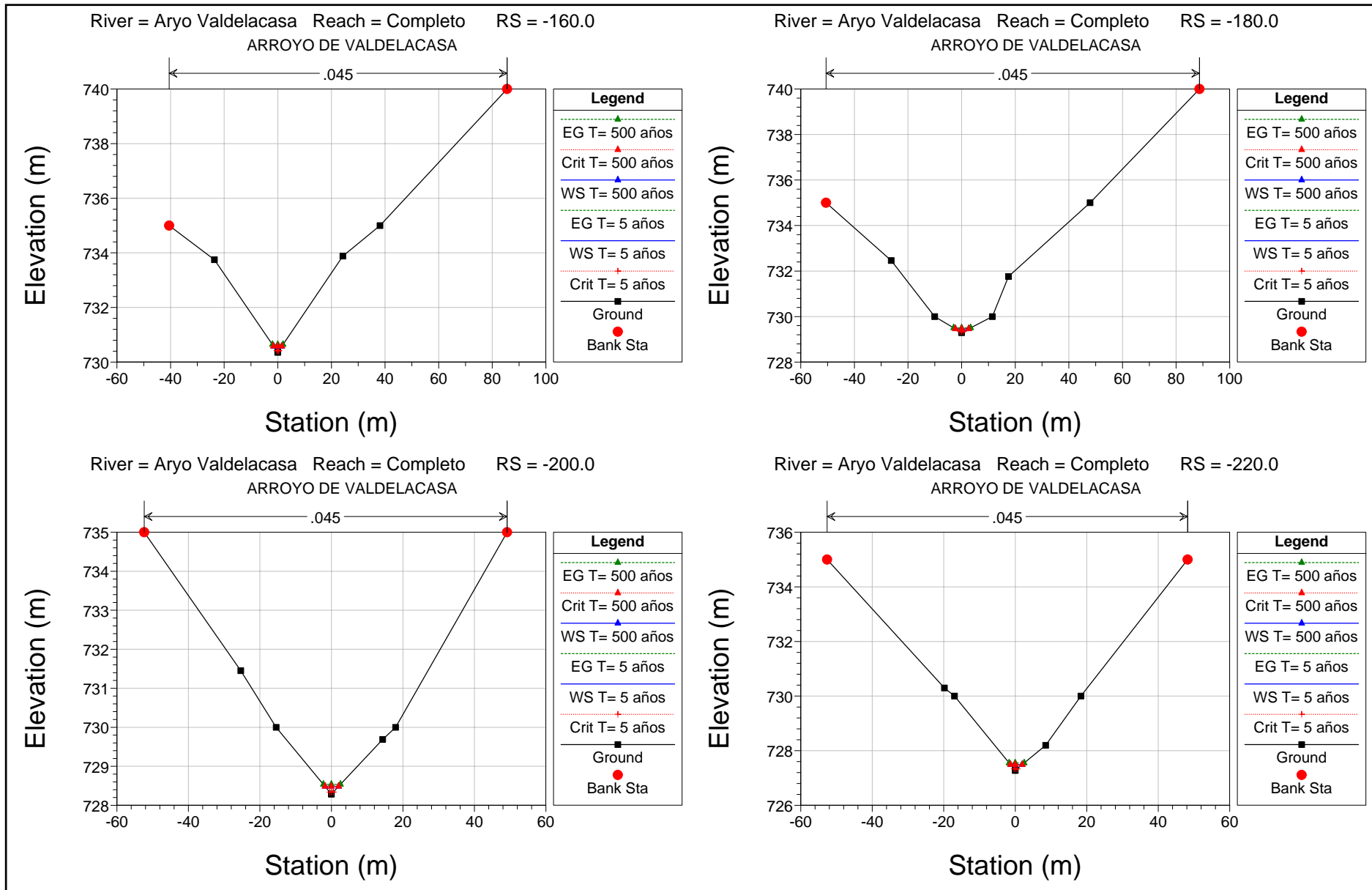
SECCIONES DE CONTROL

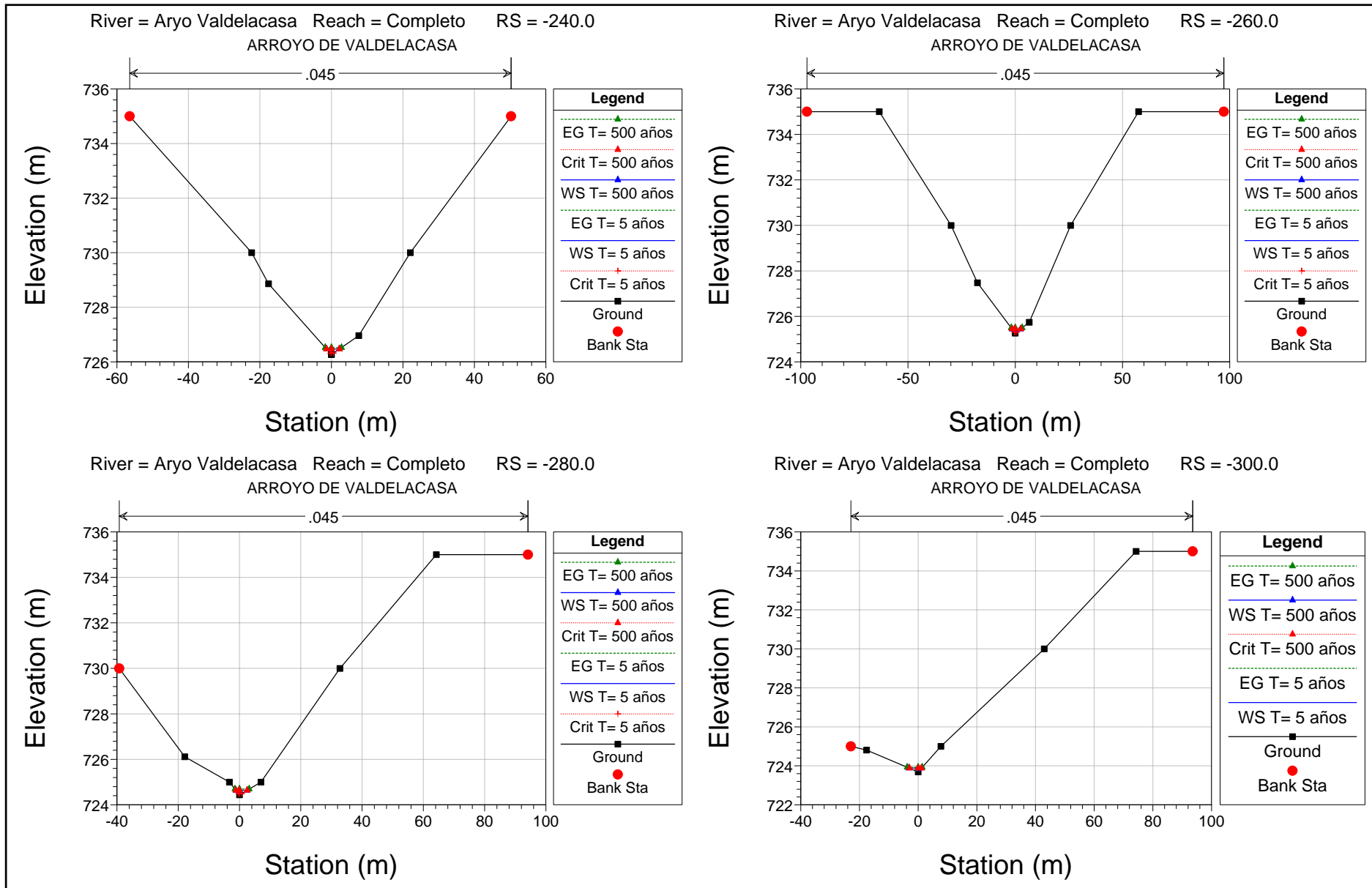
ESTADO FUTURO

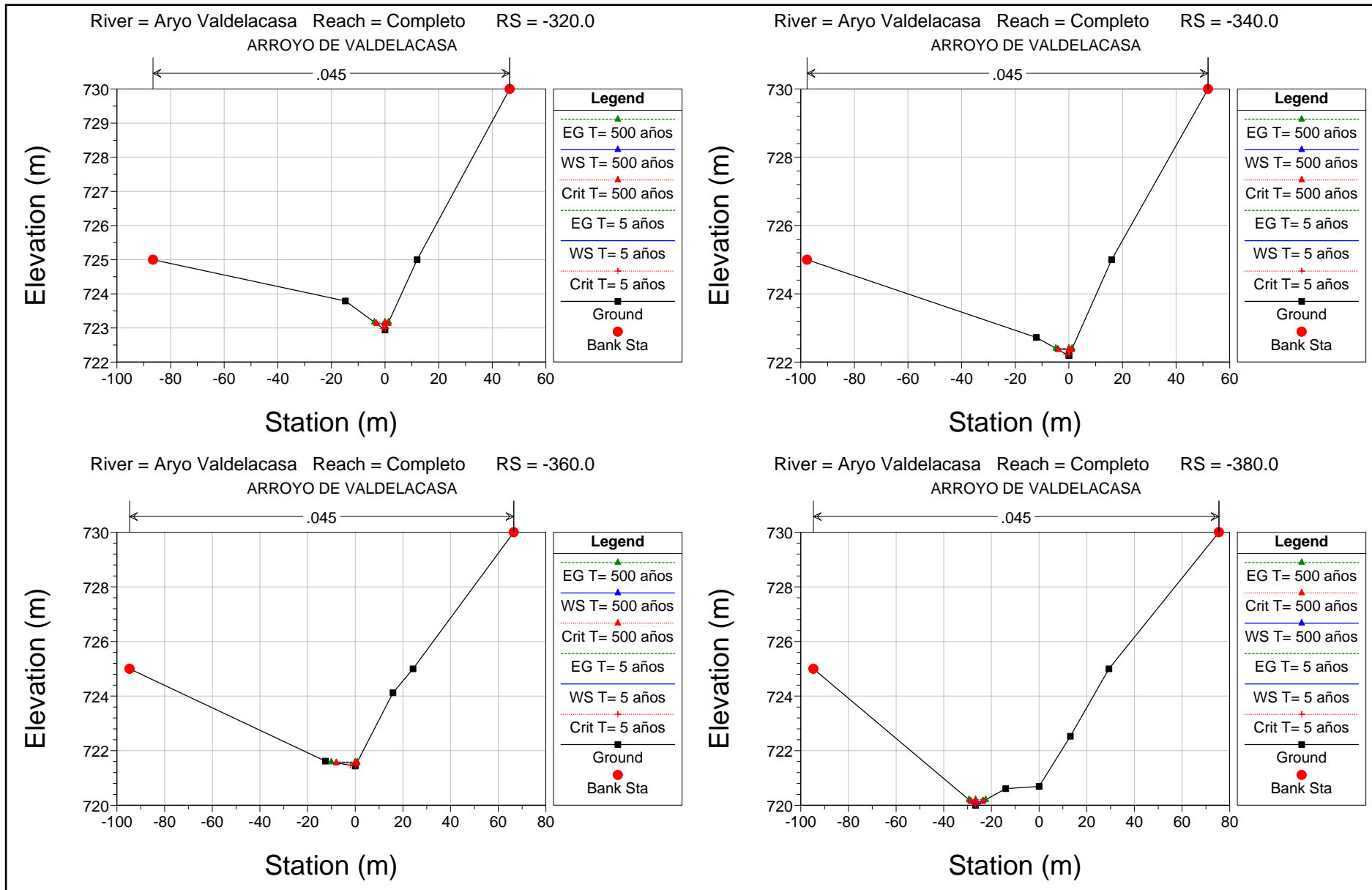
ARROYO DE VALDELACASA

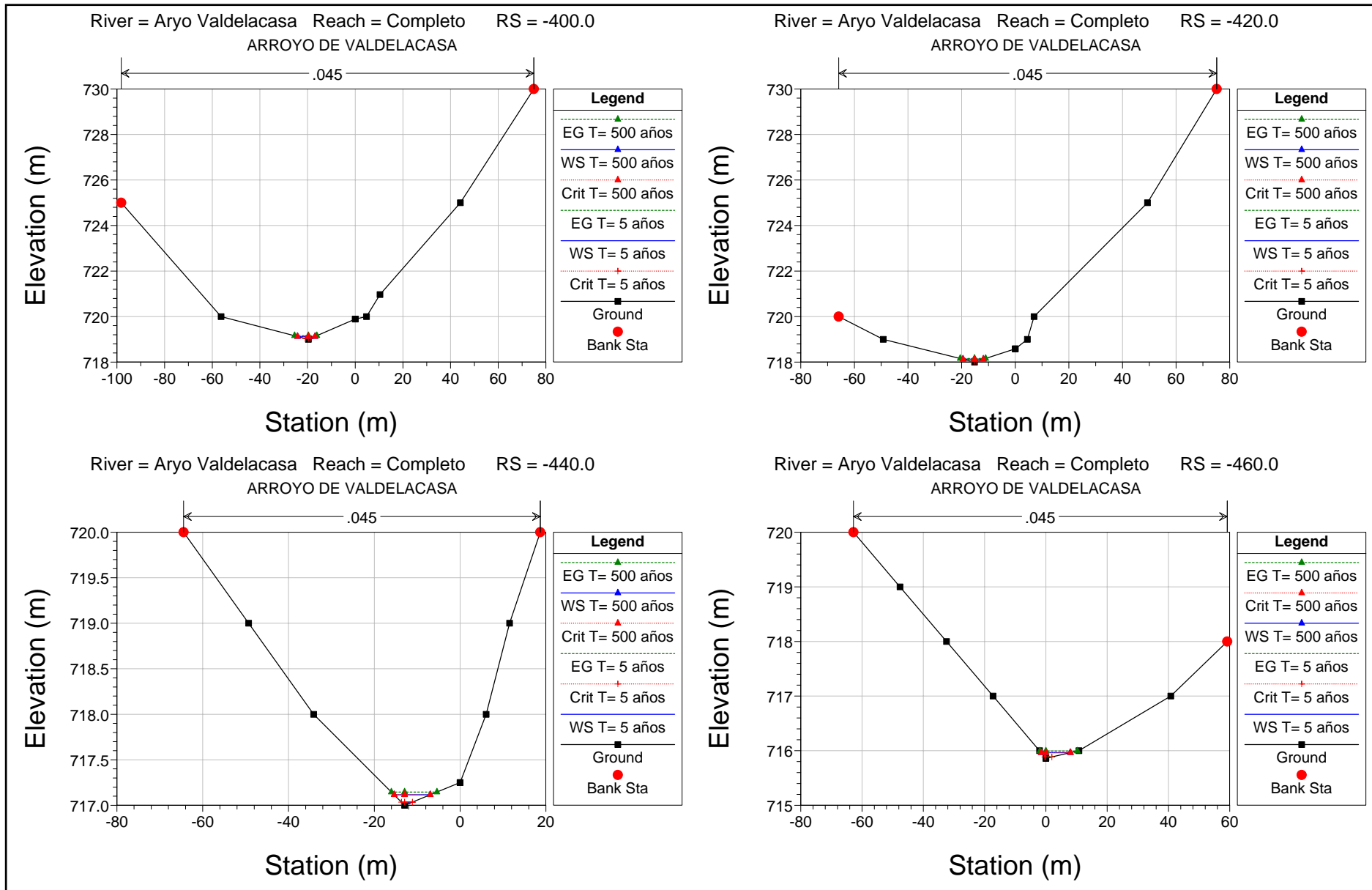


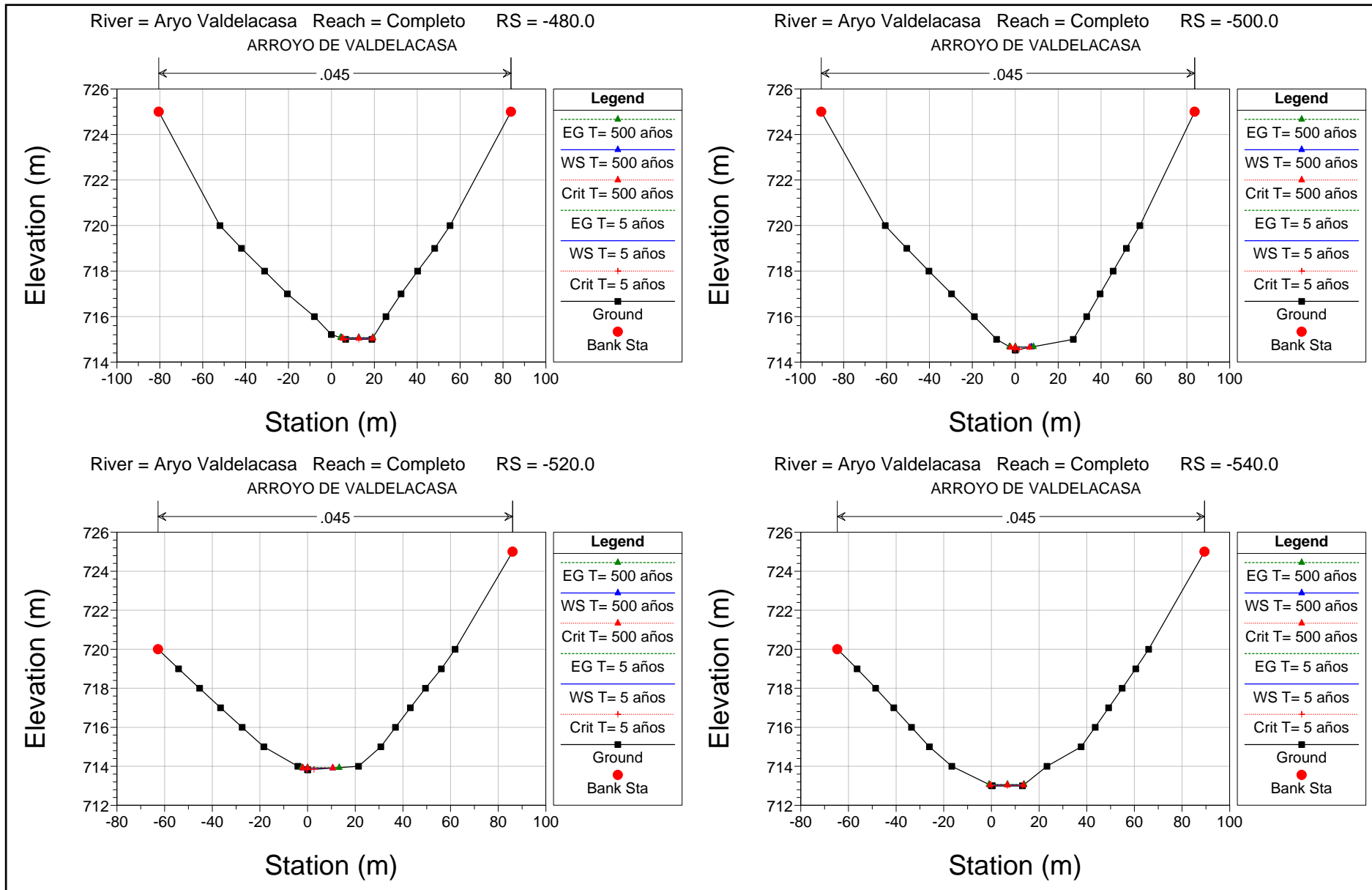


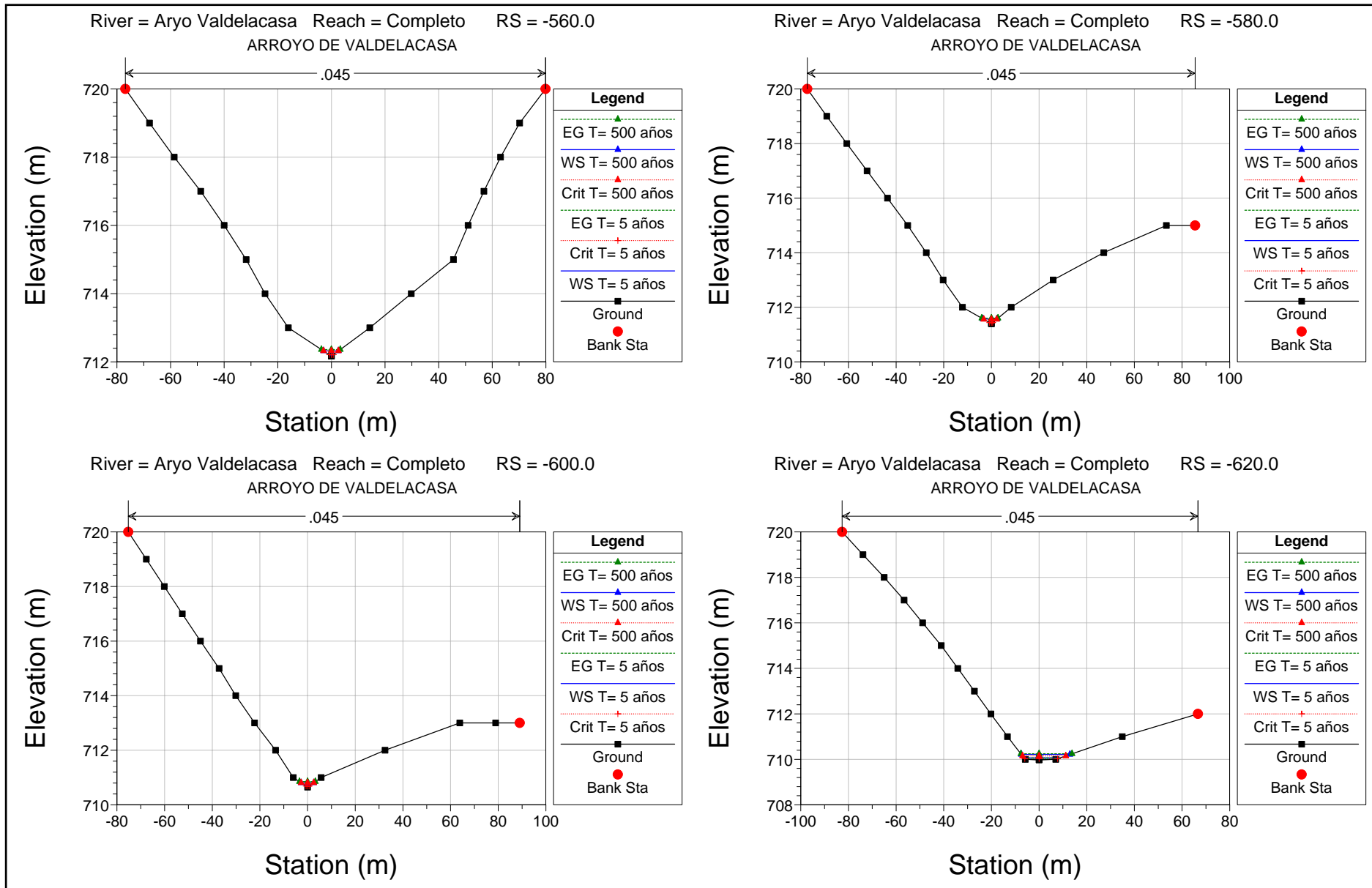


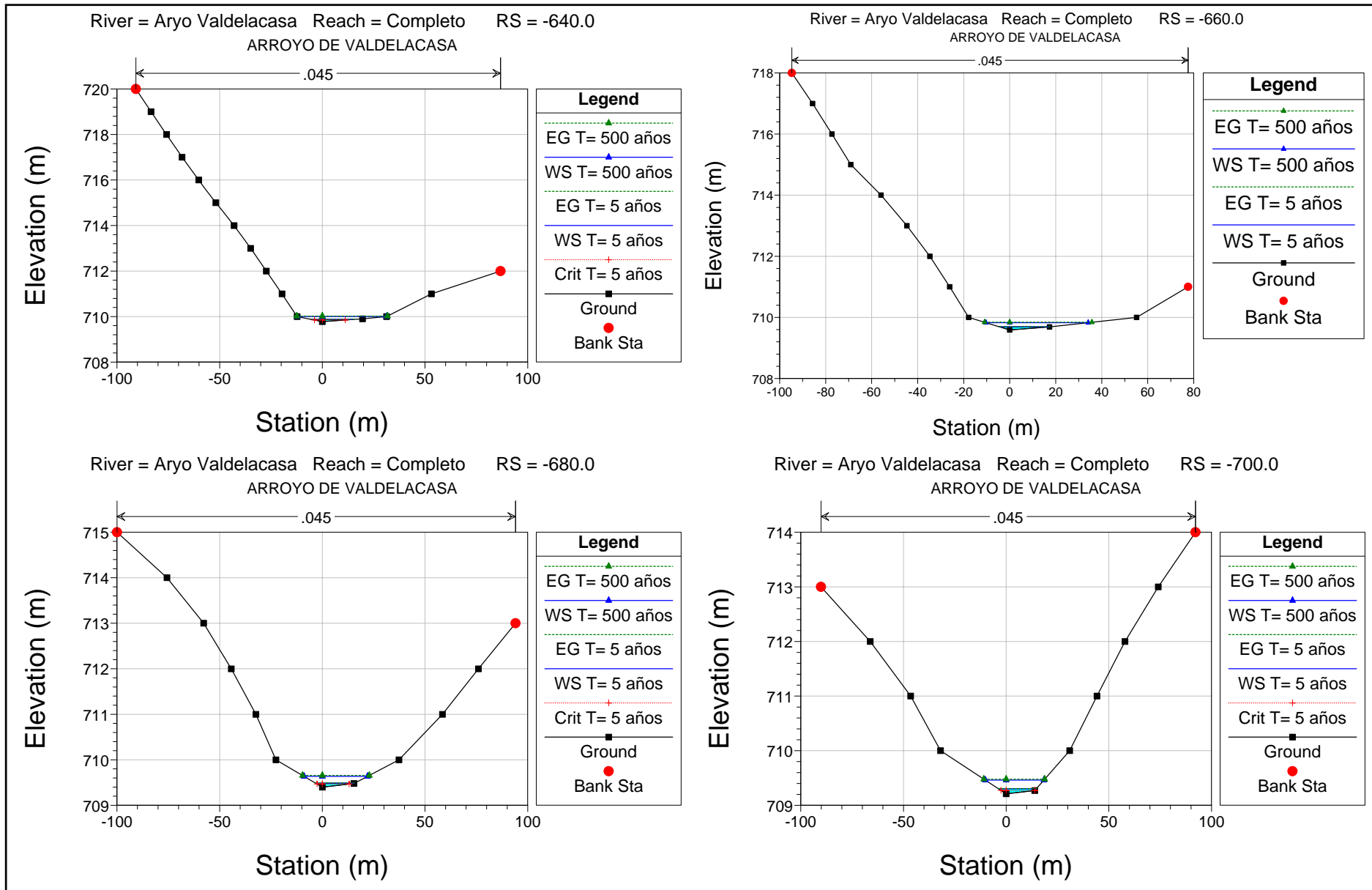


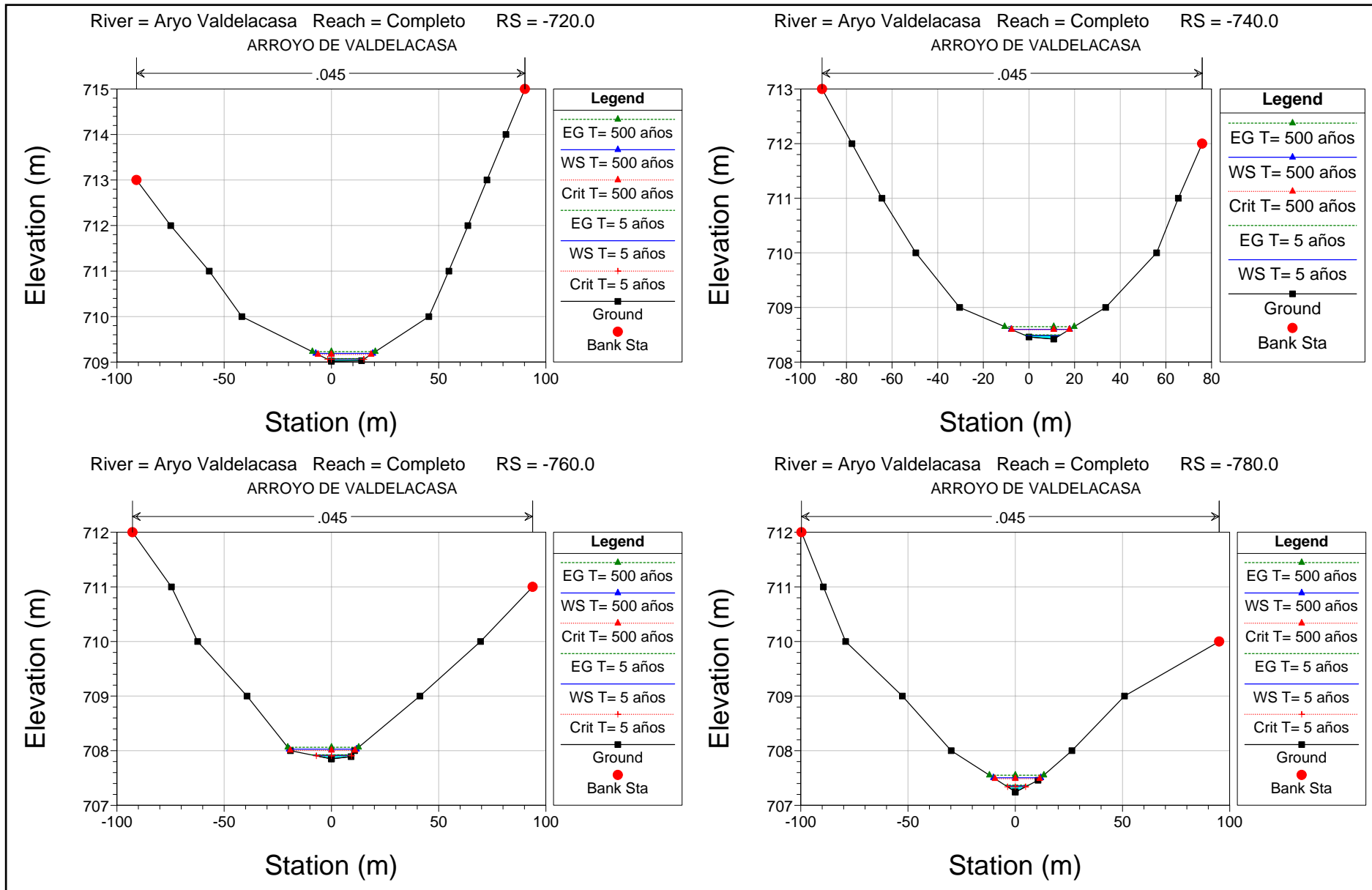


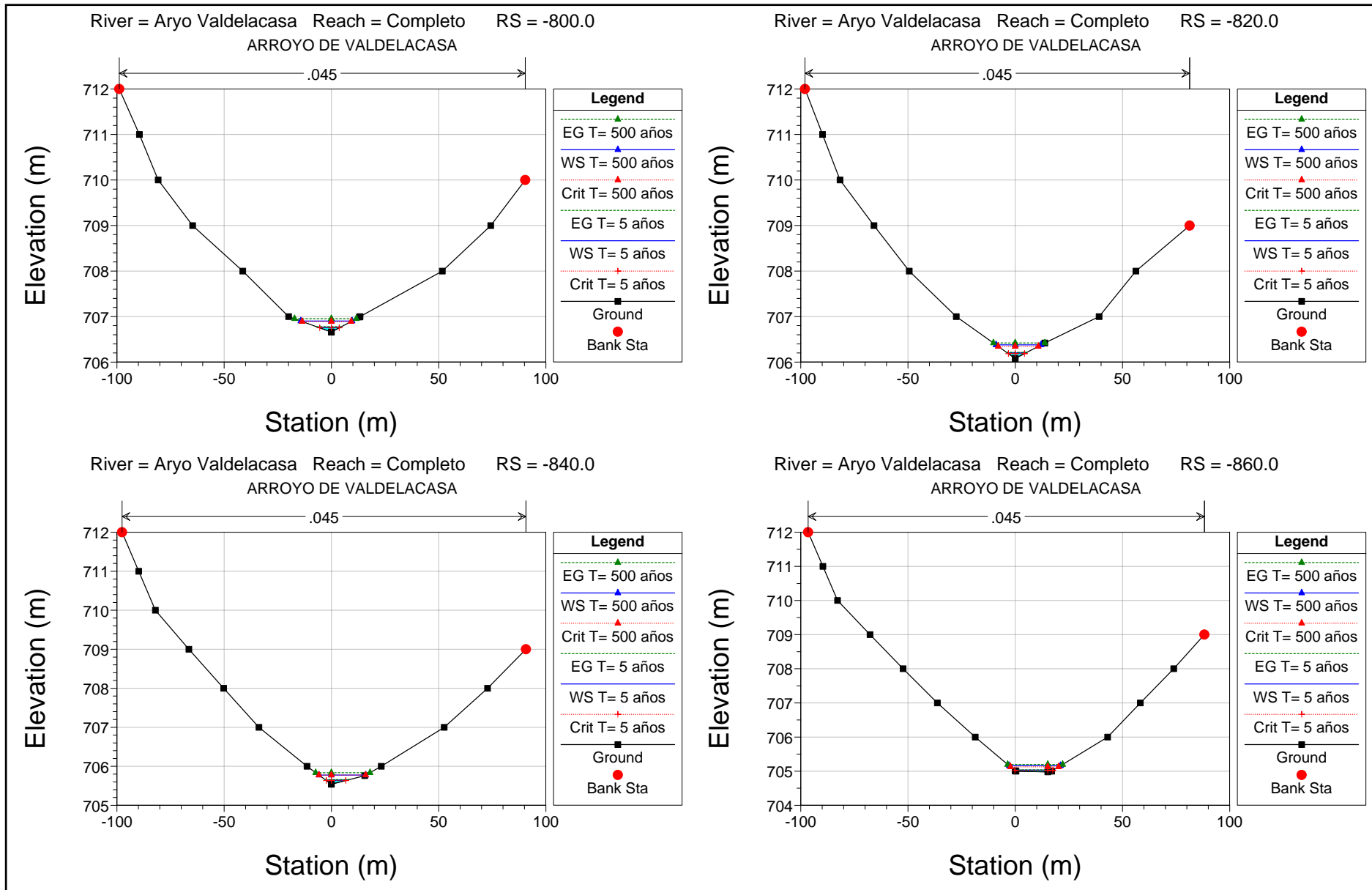


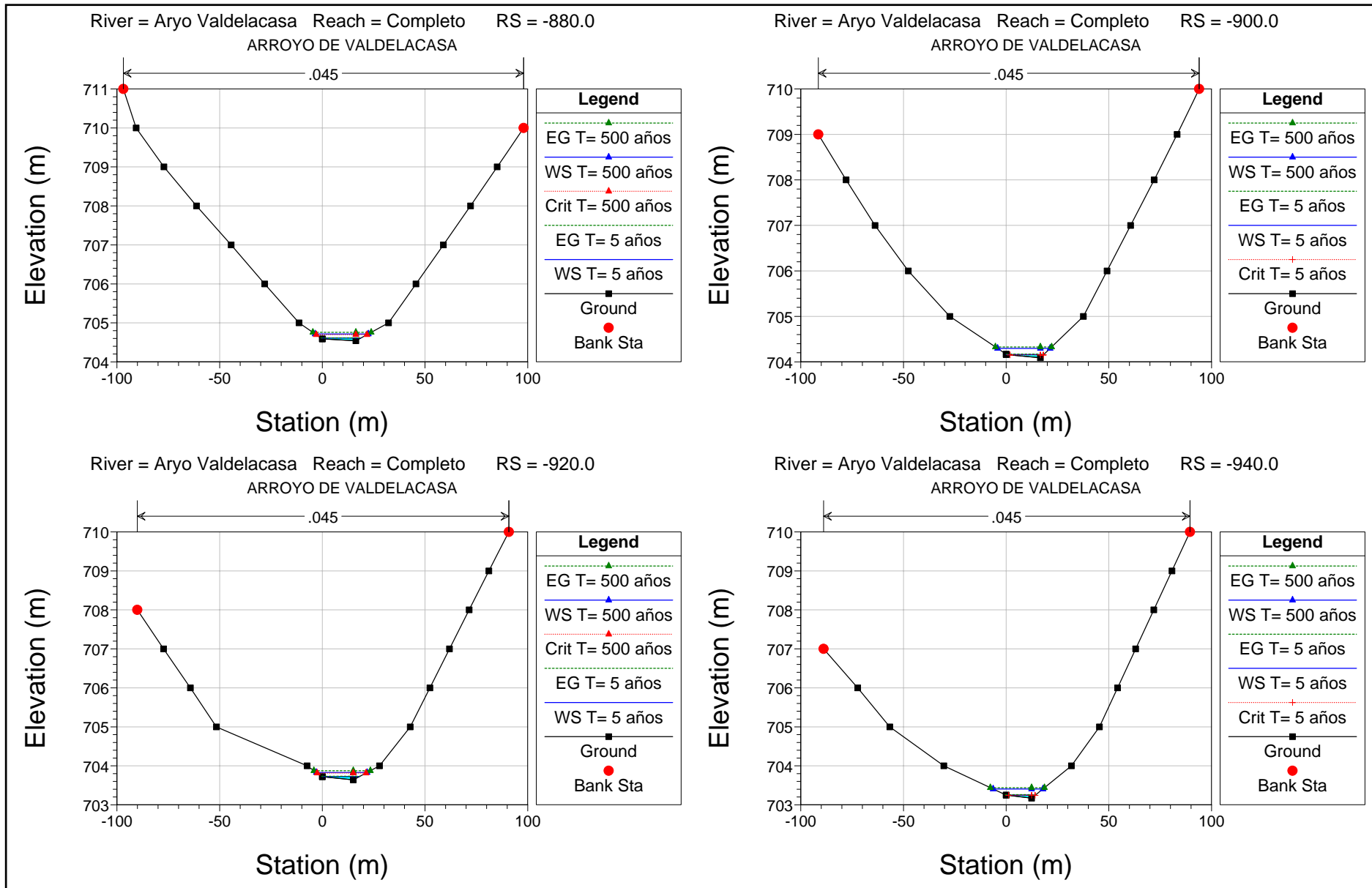


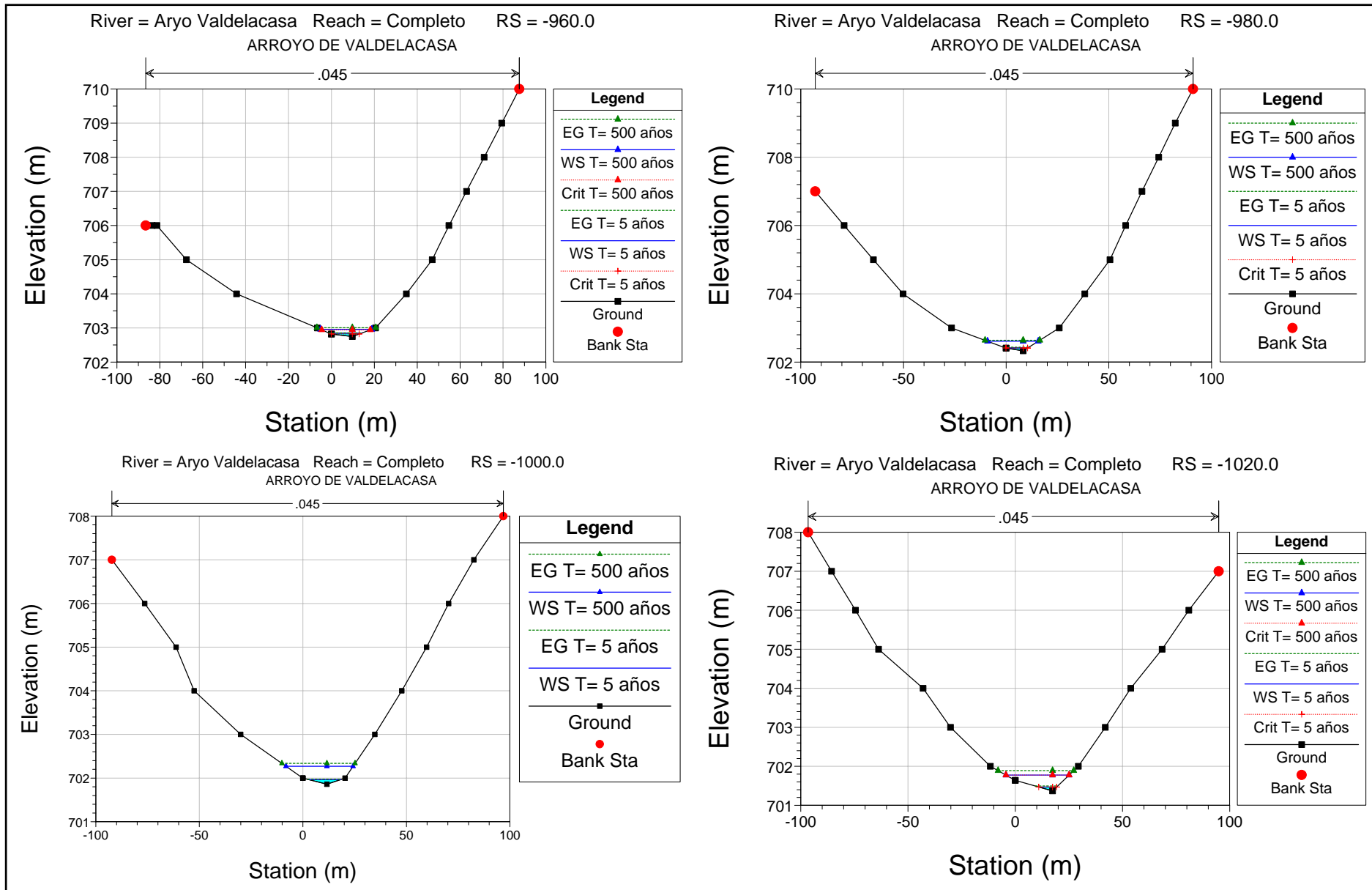


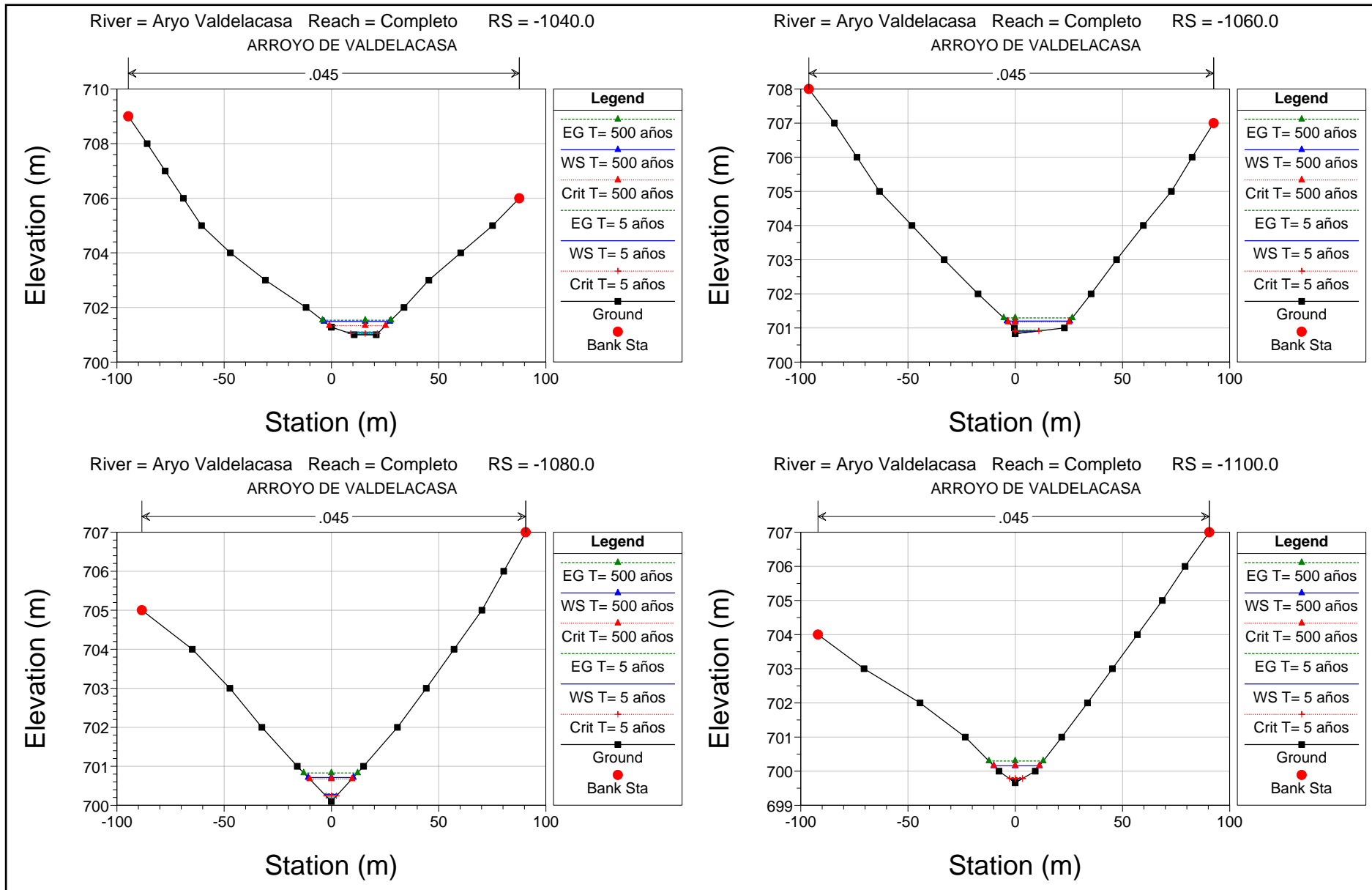


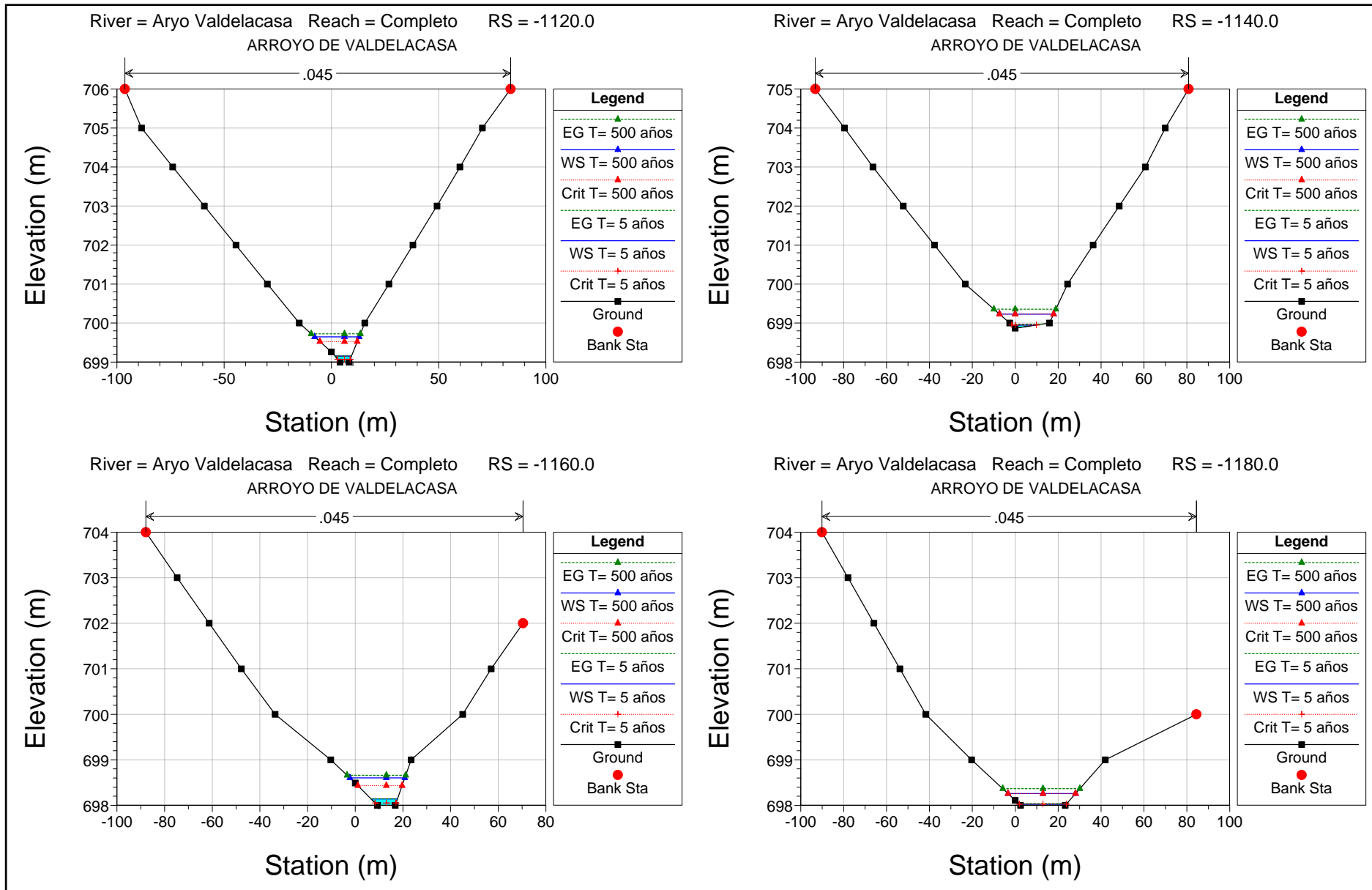


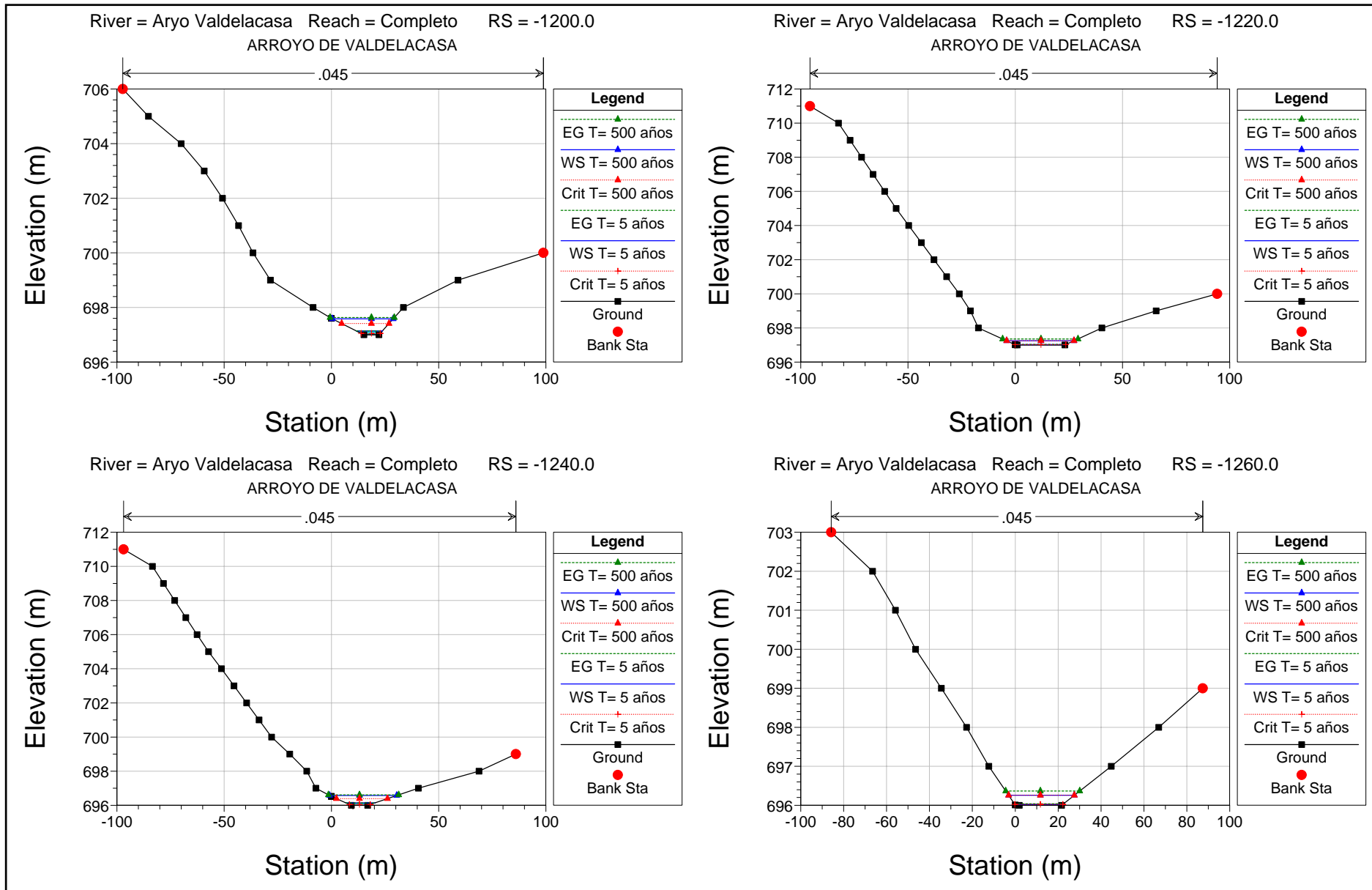


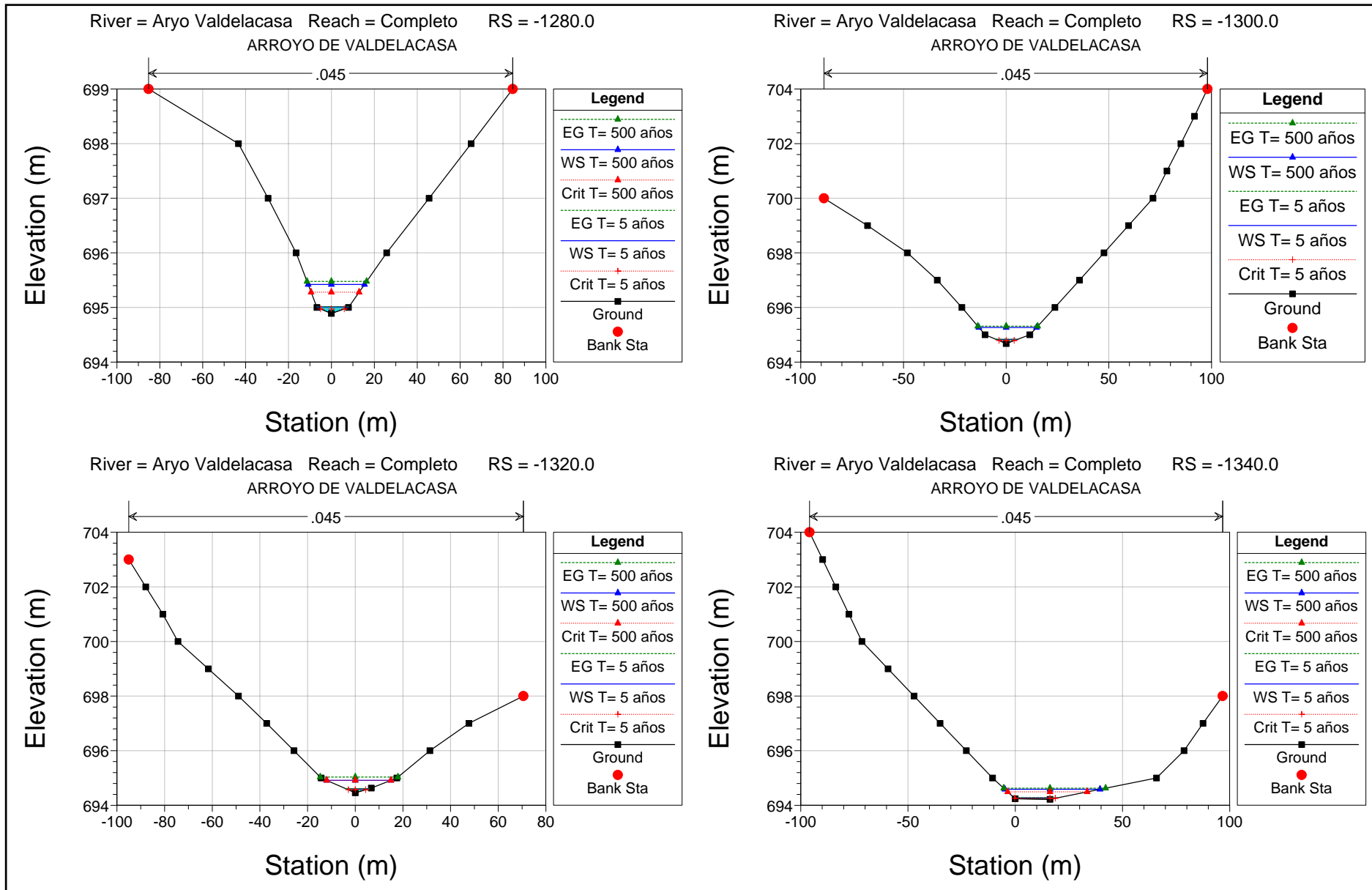


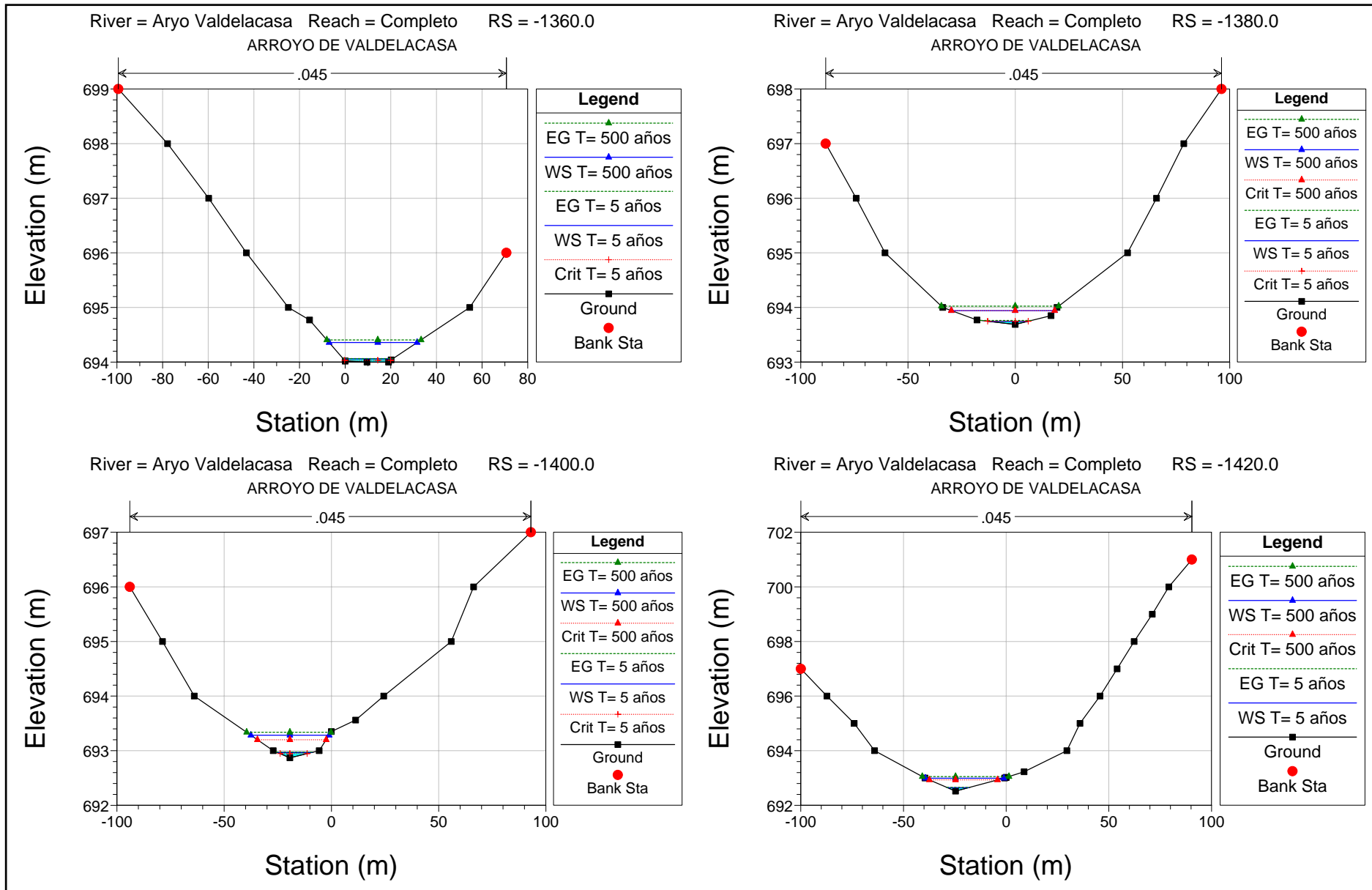


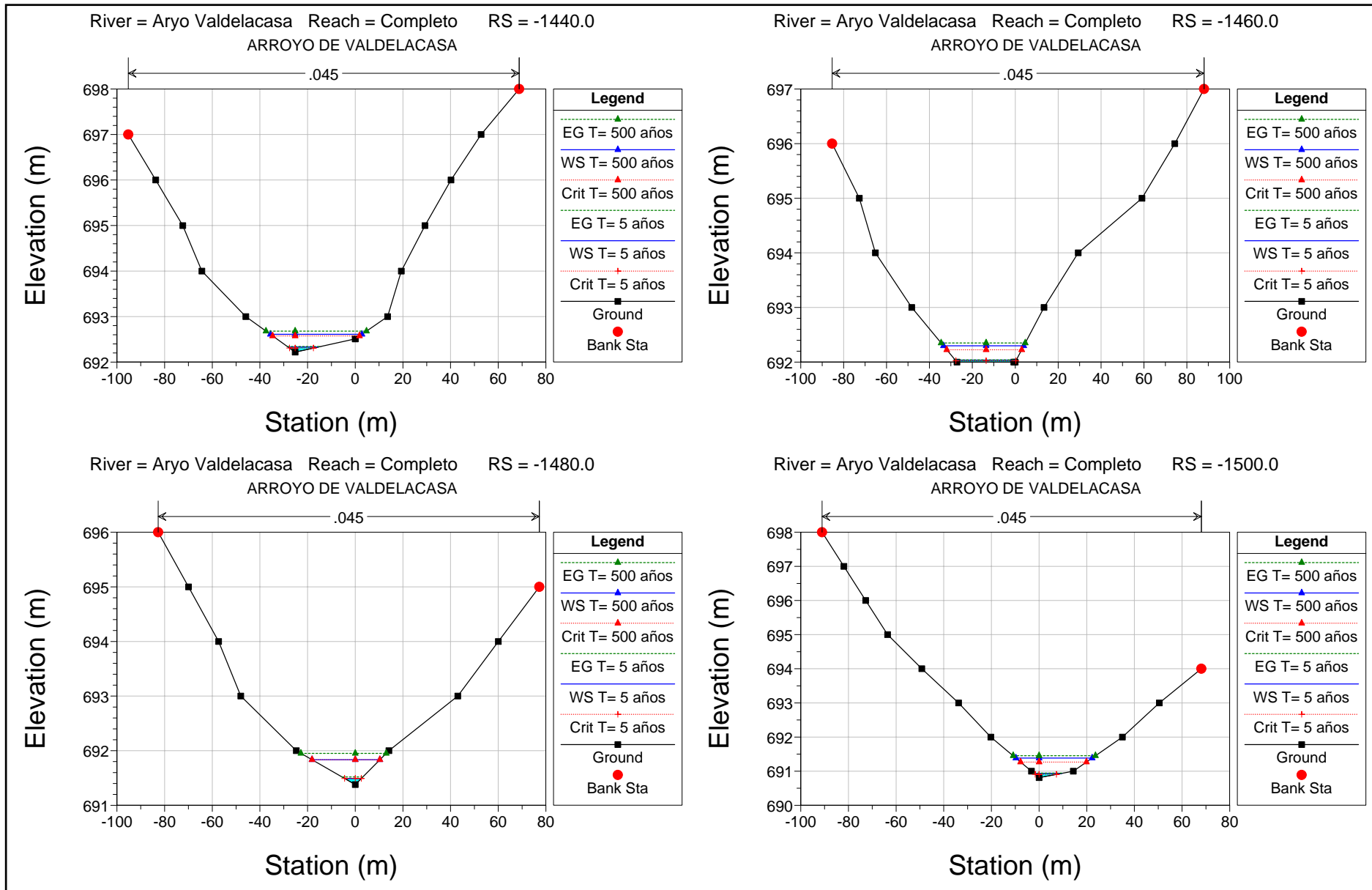


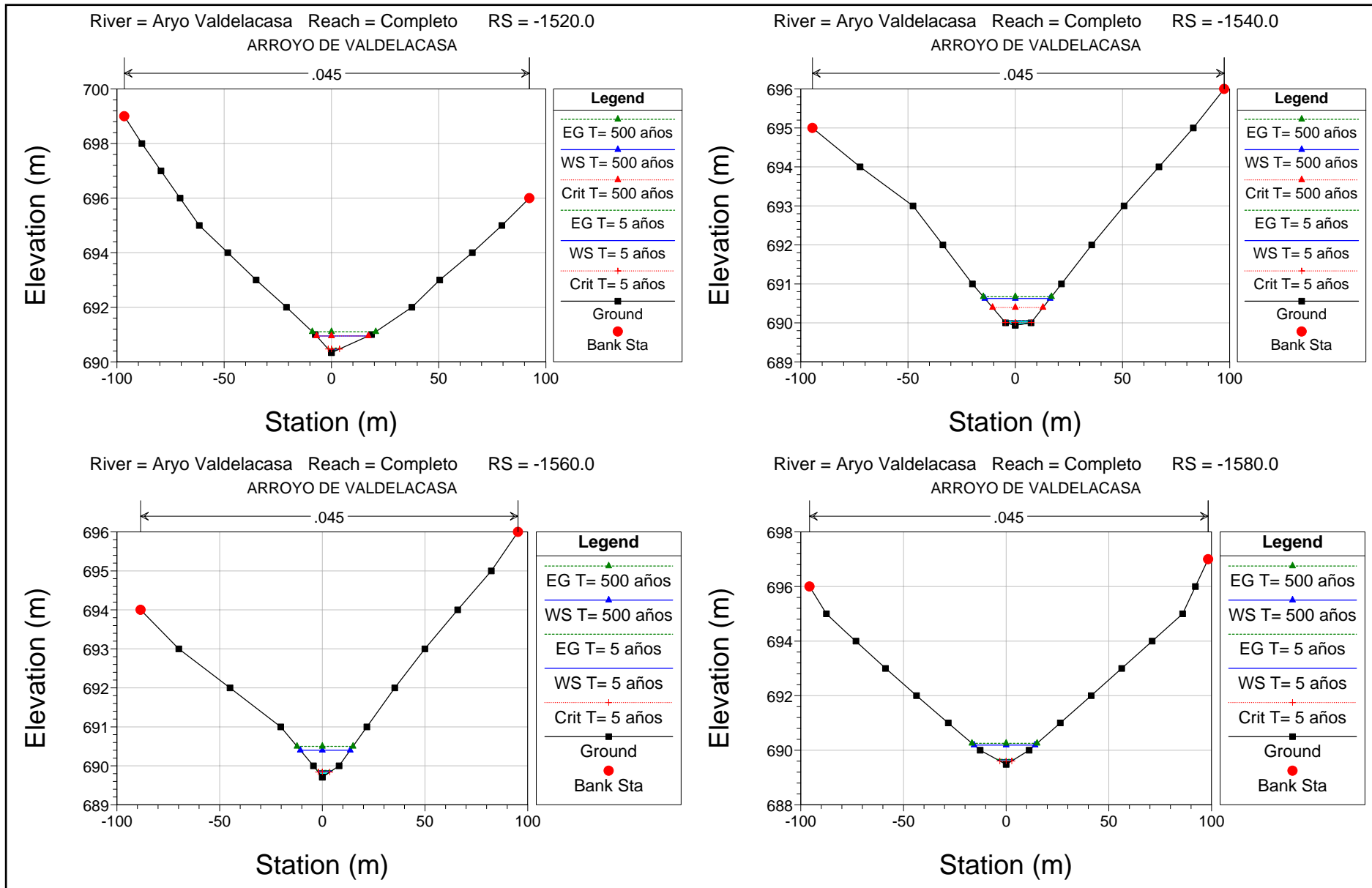


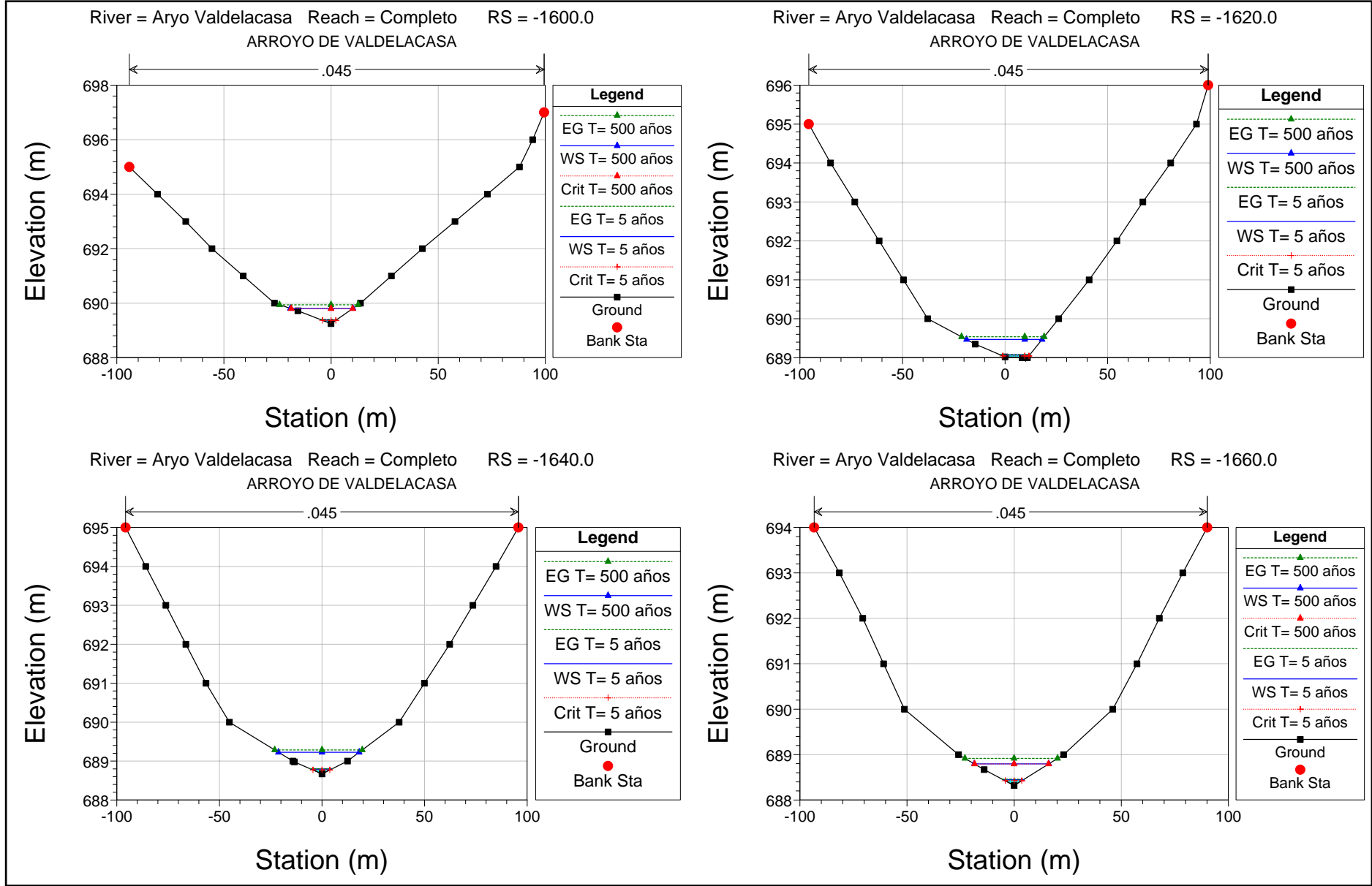


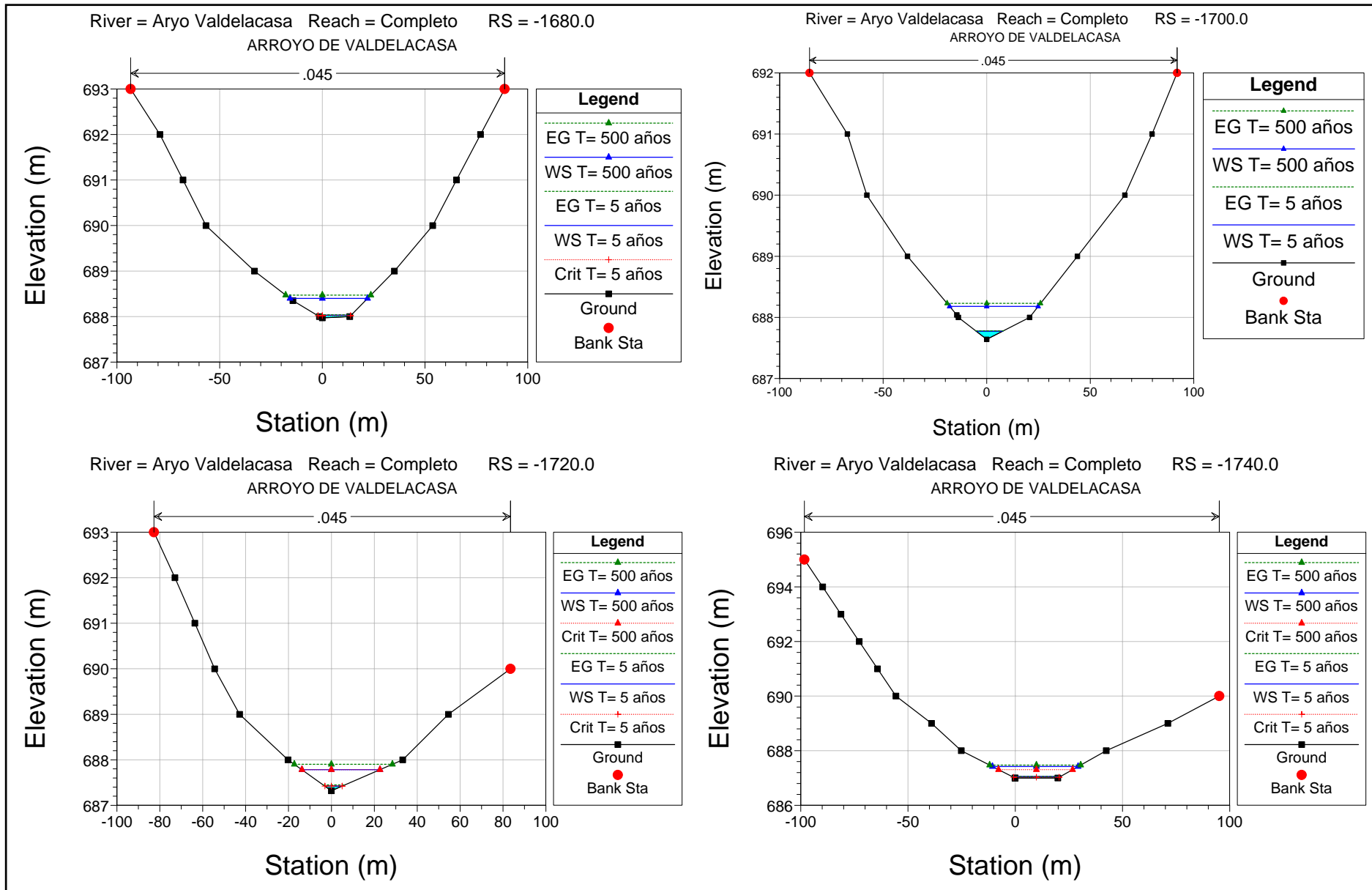


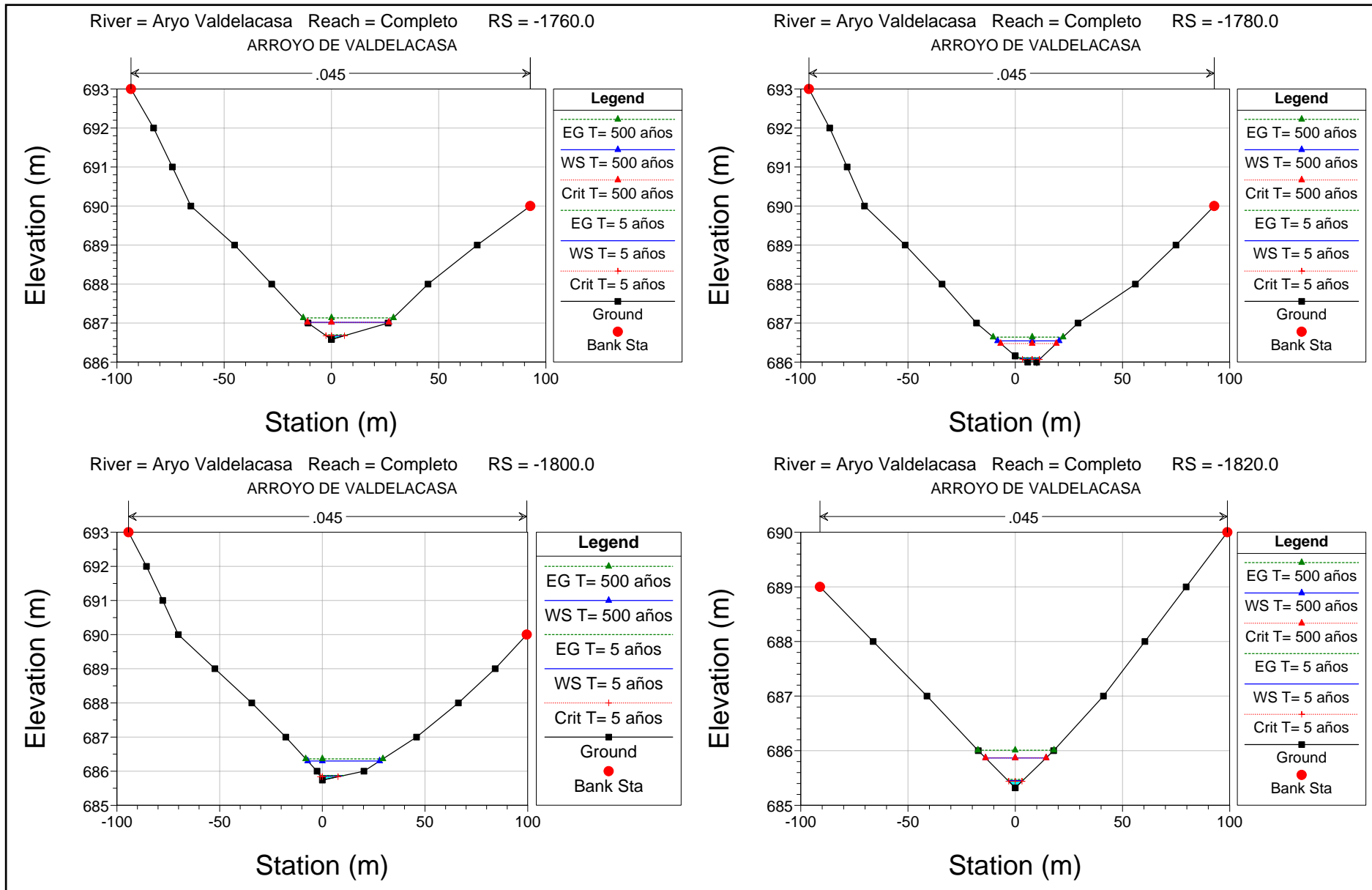


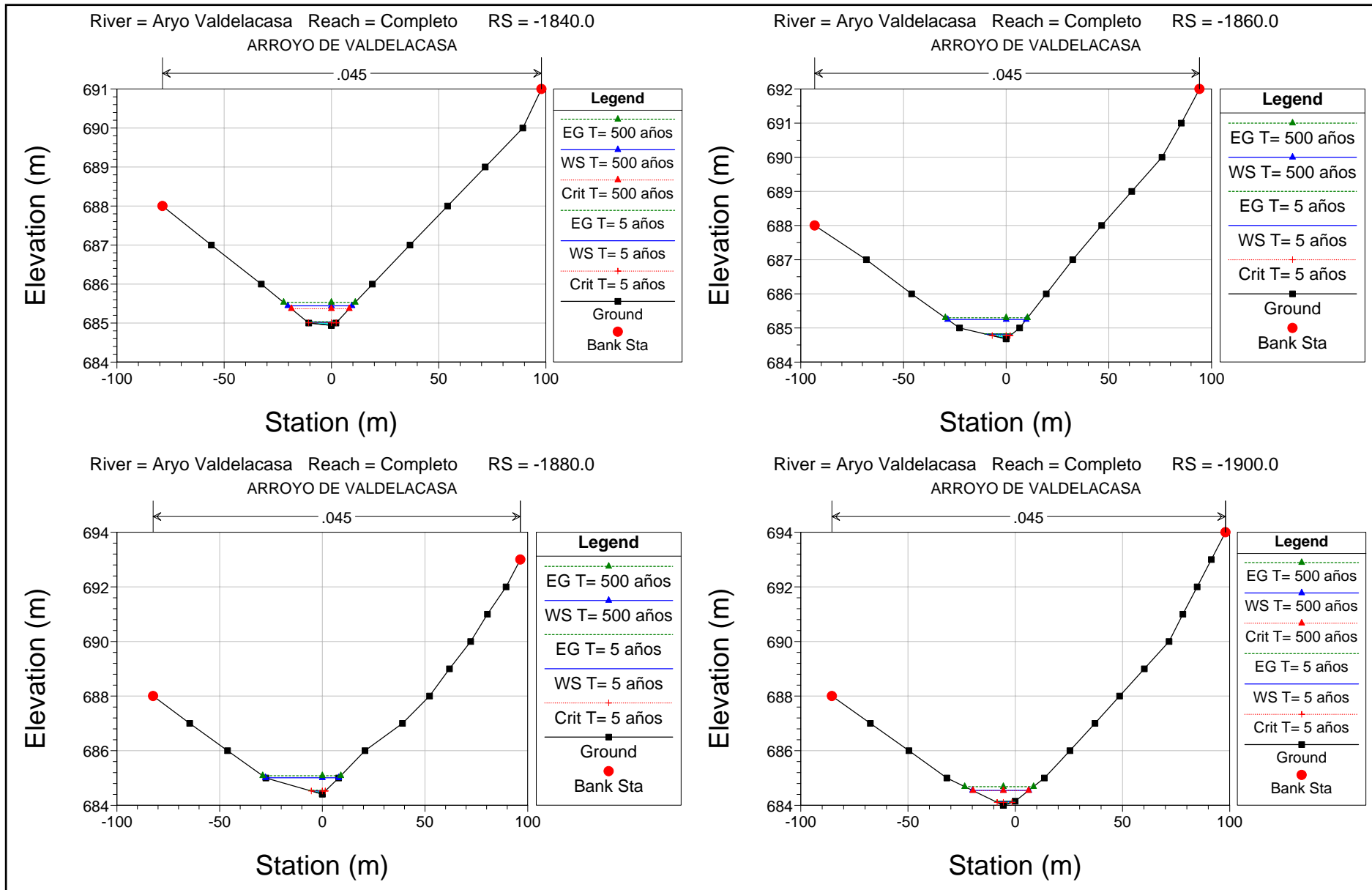


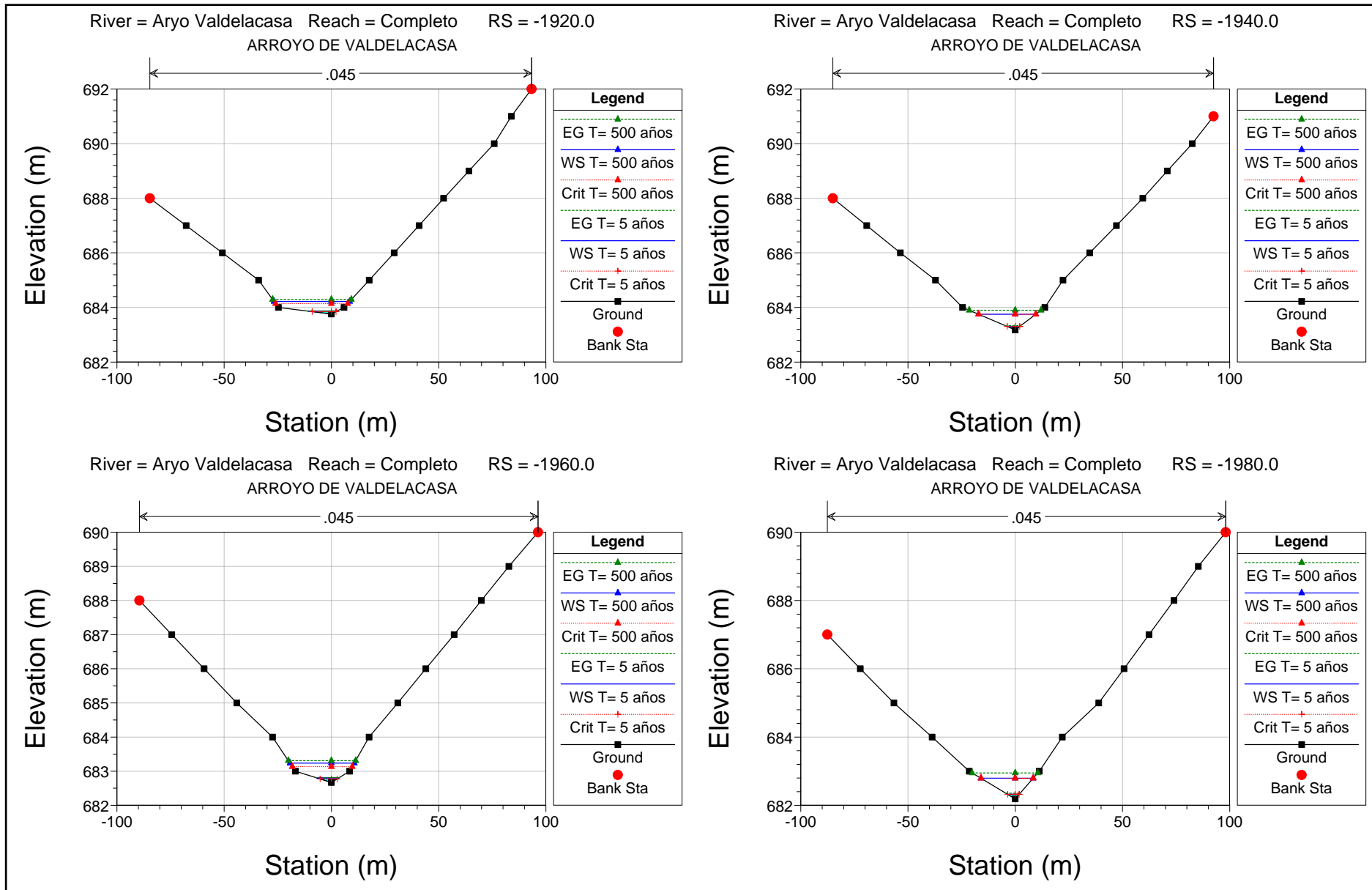


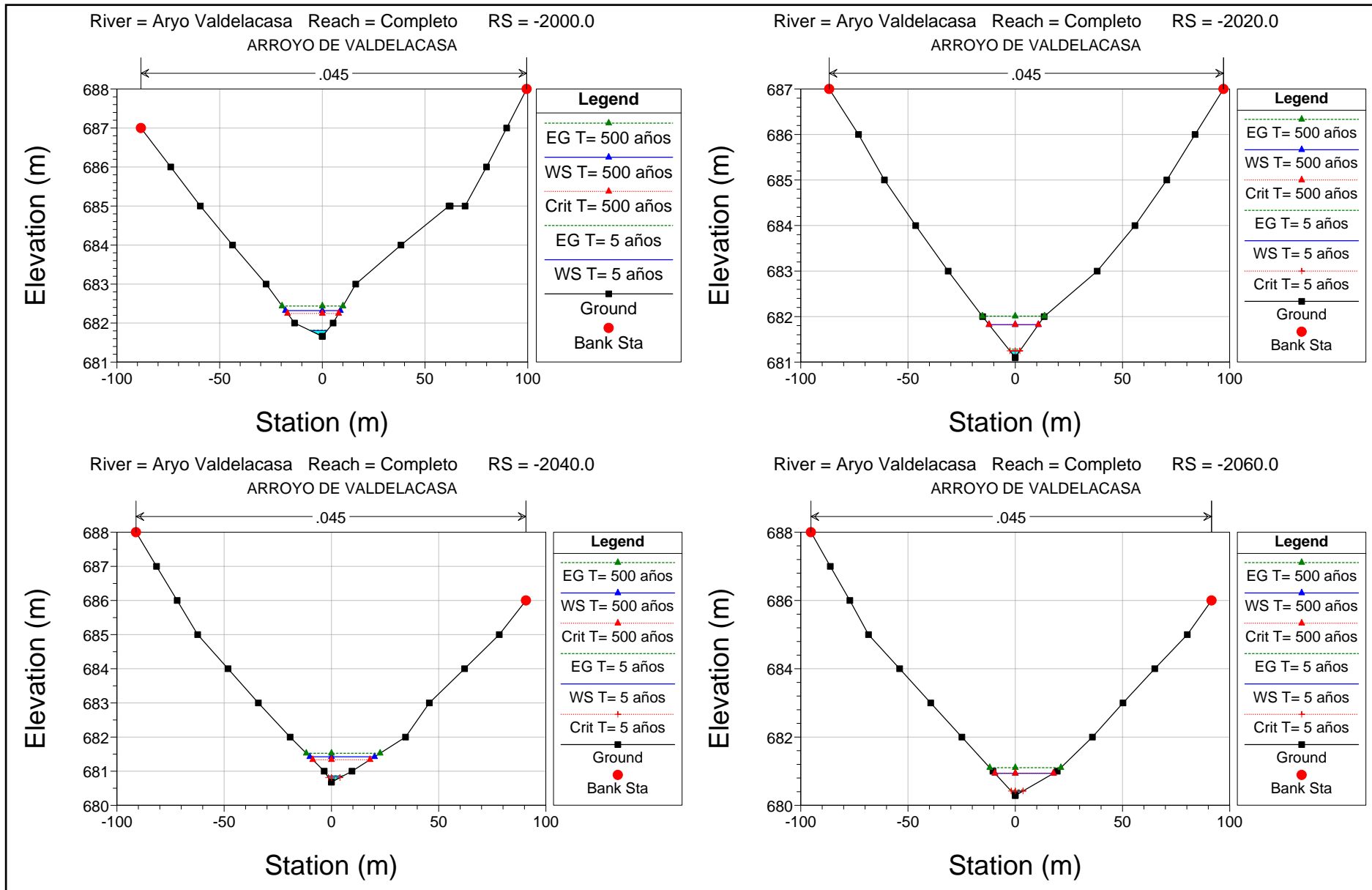


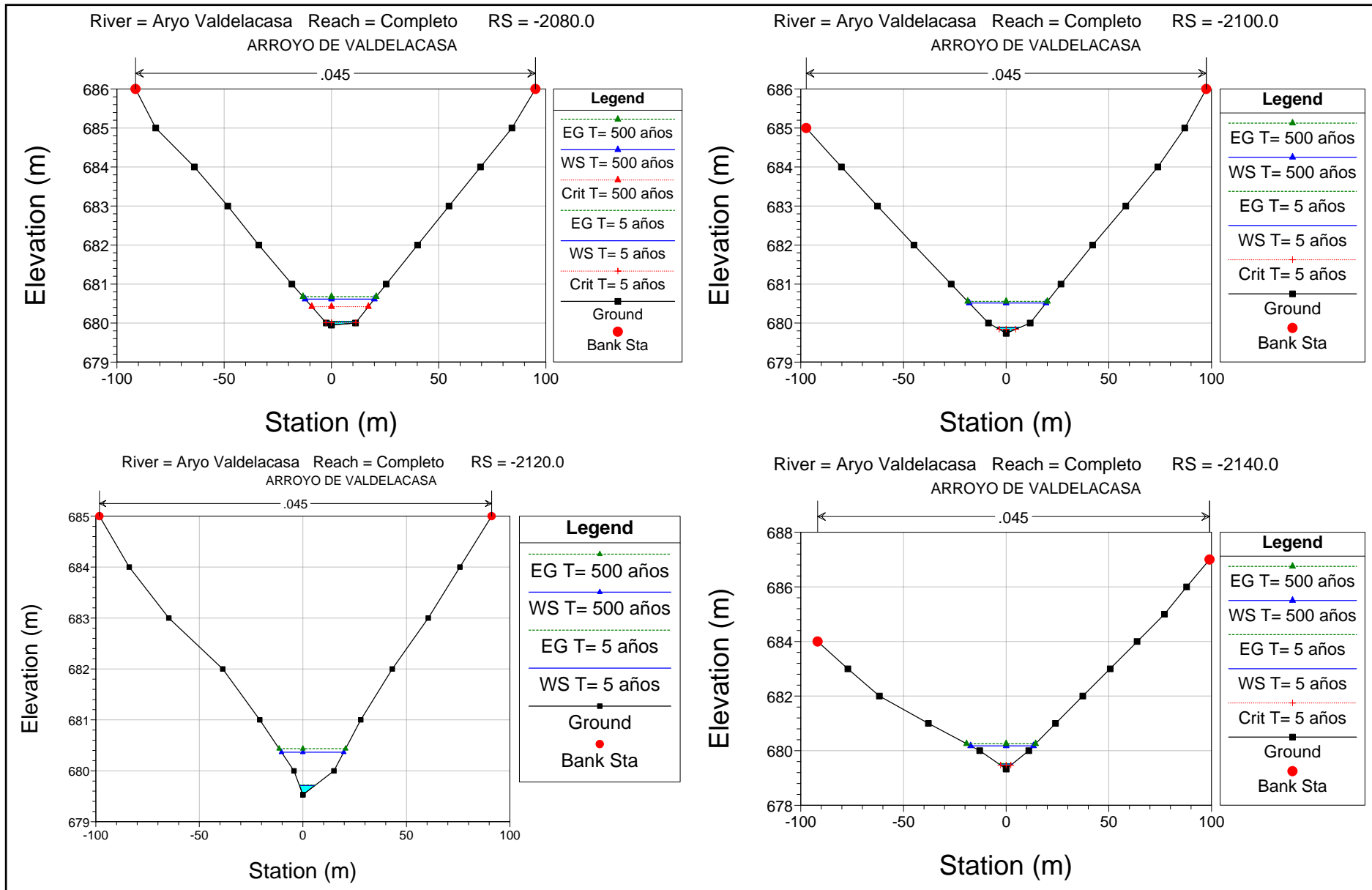


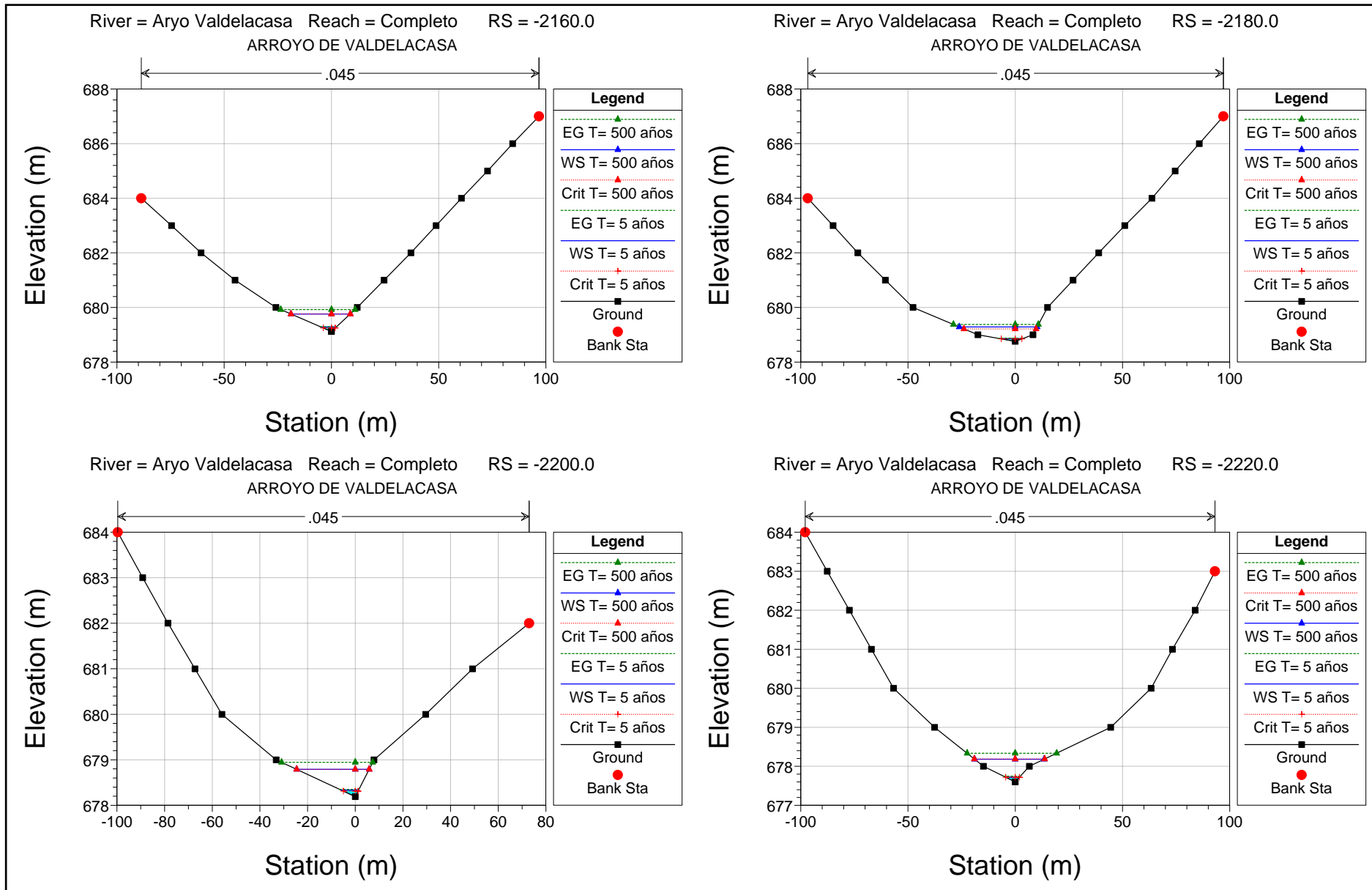


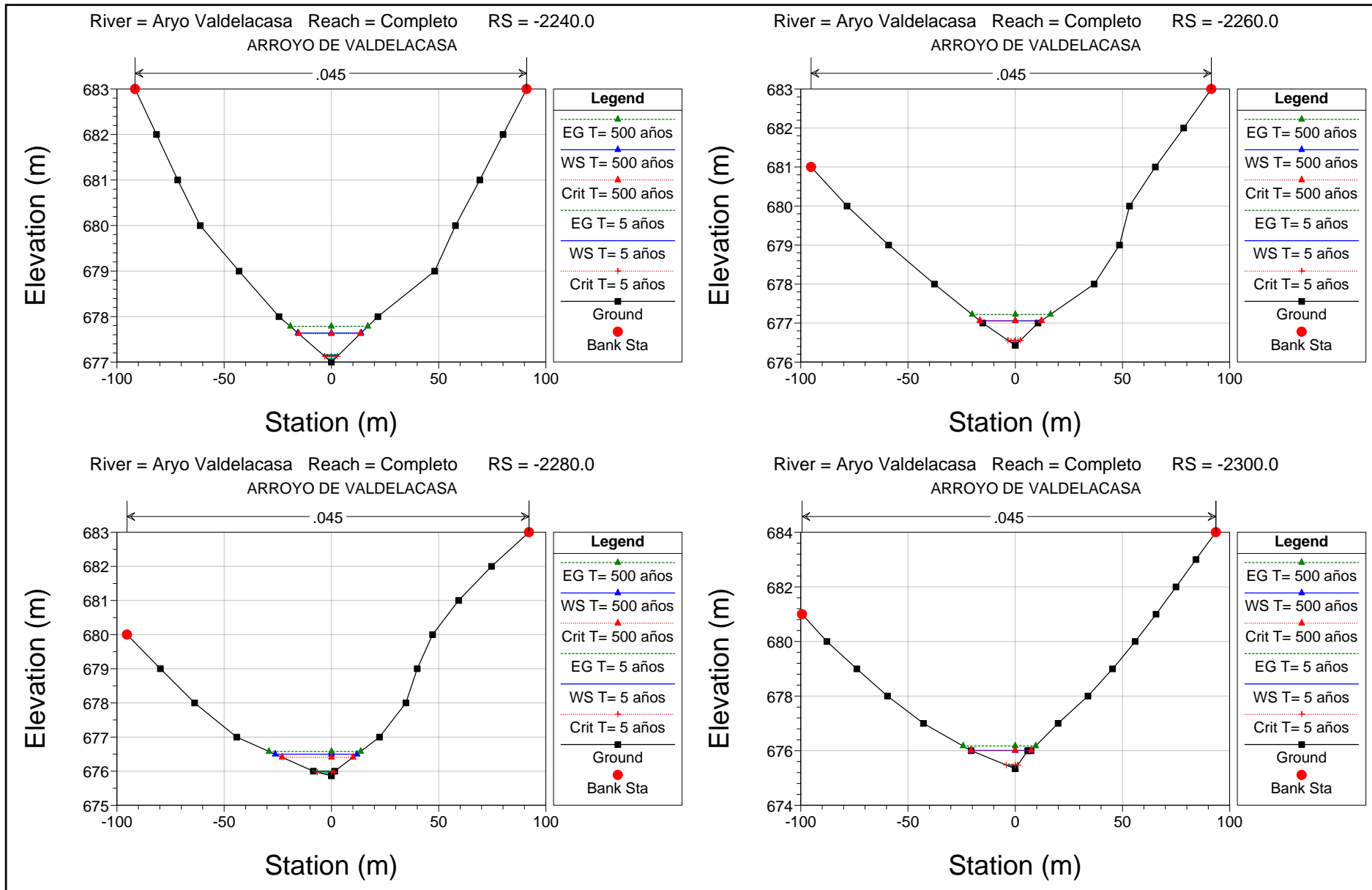


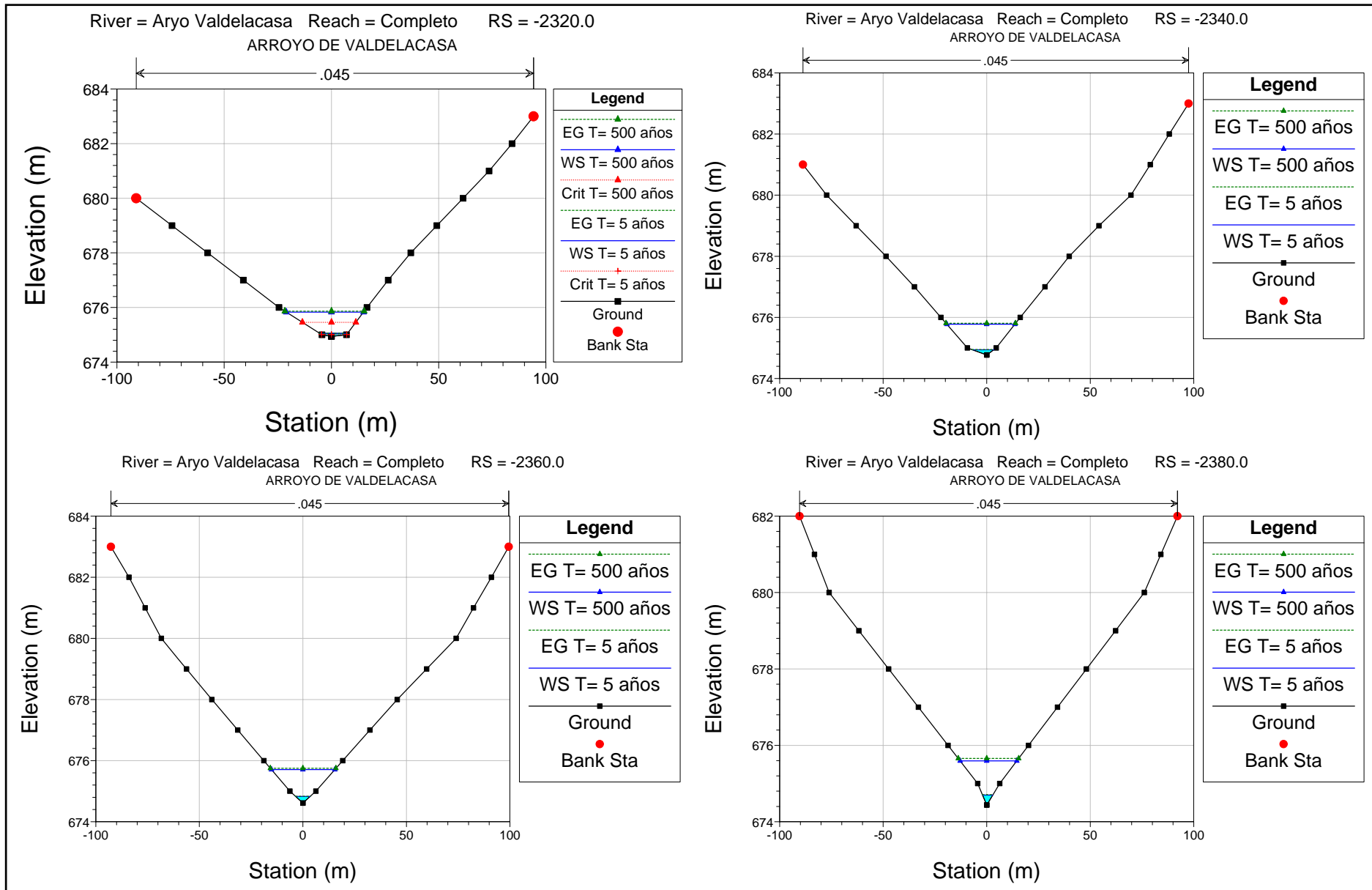


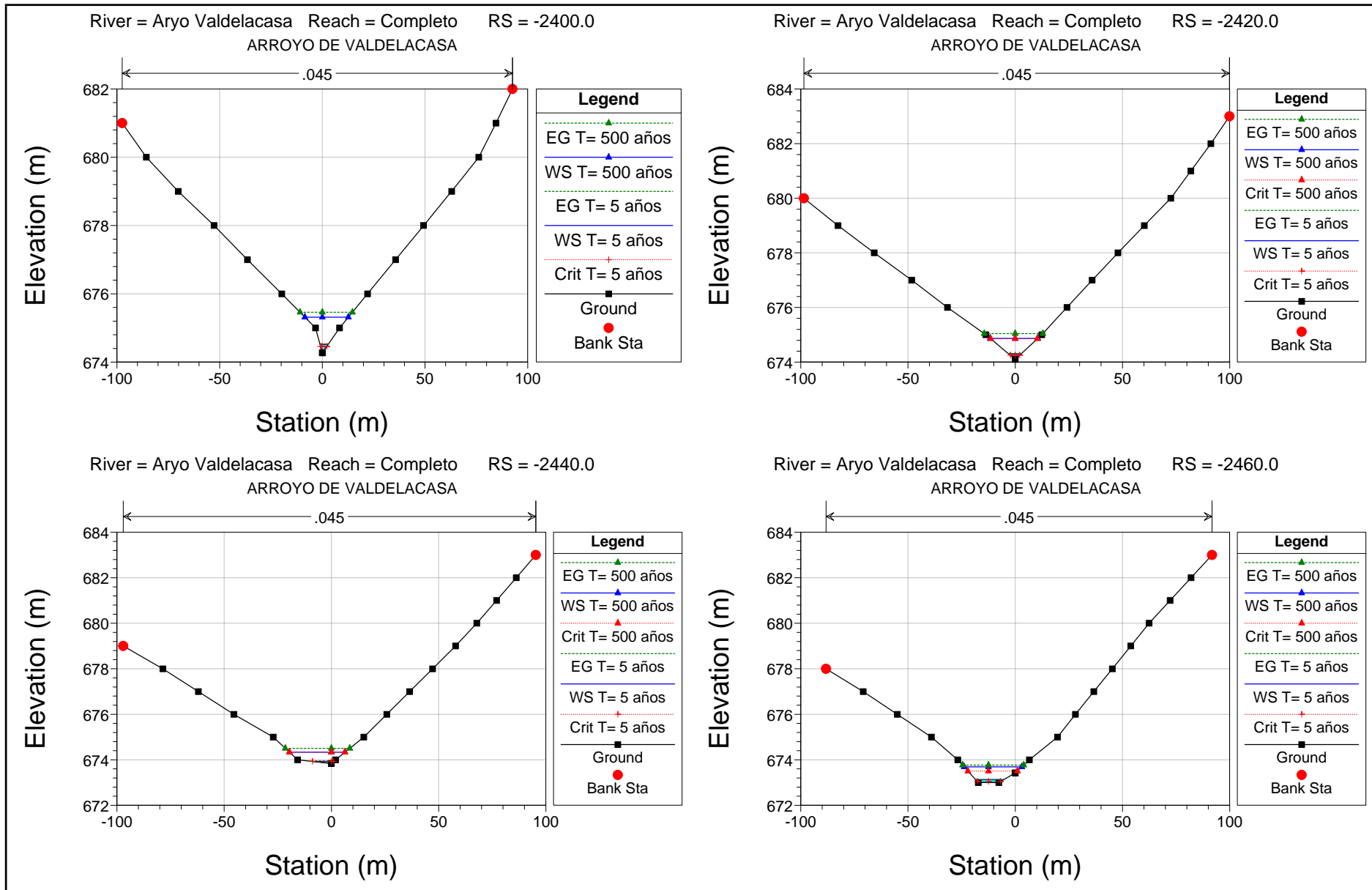


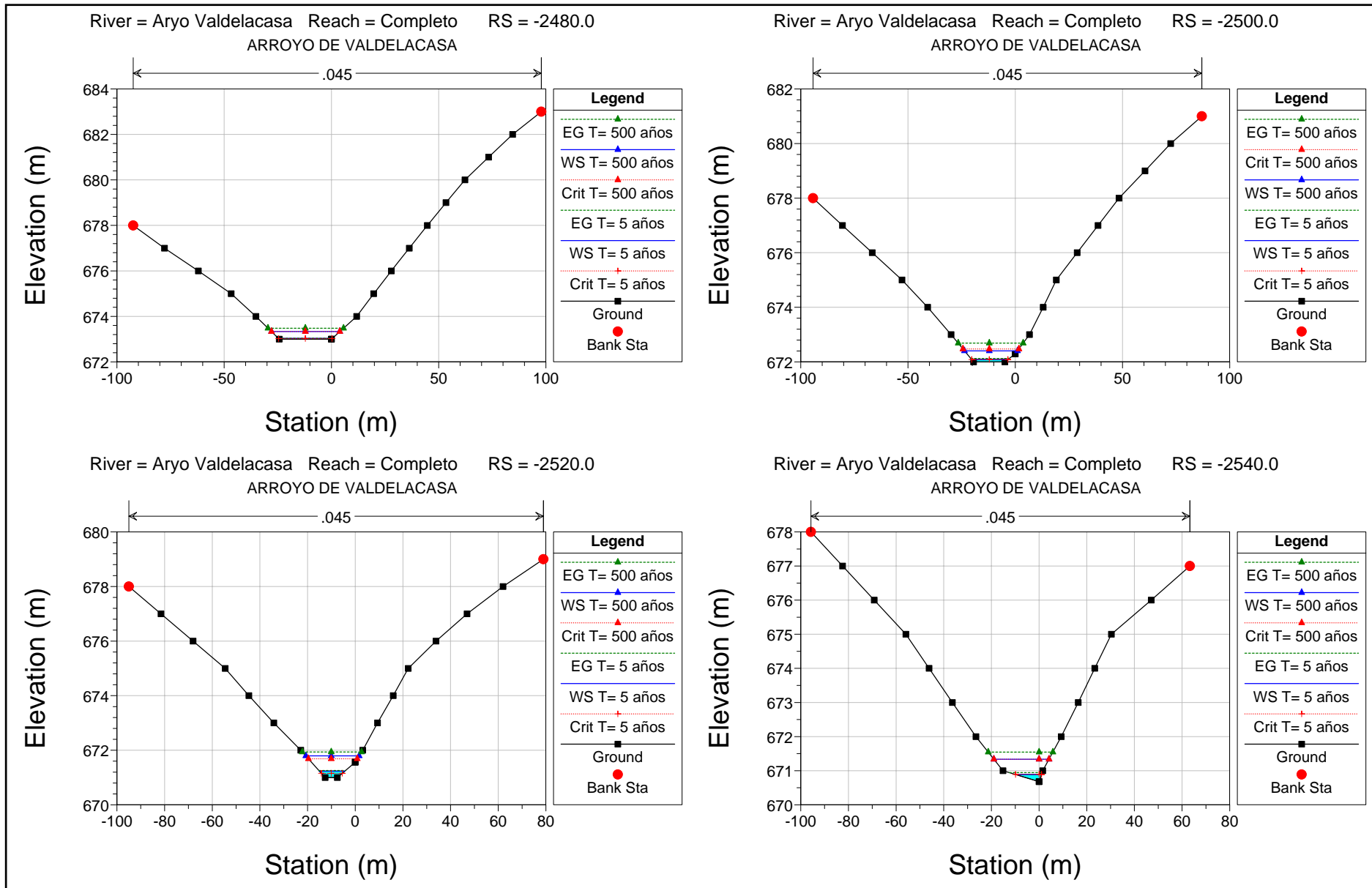


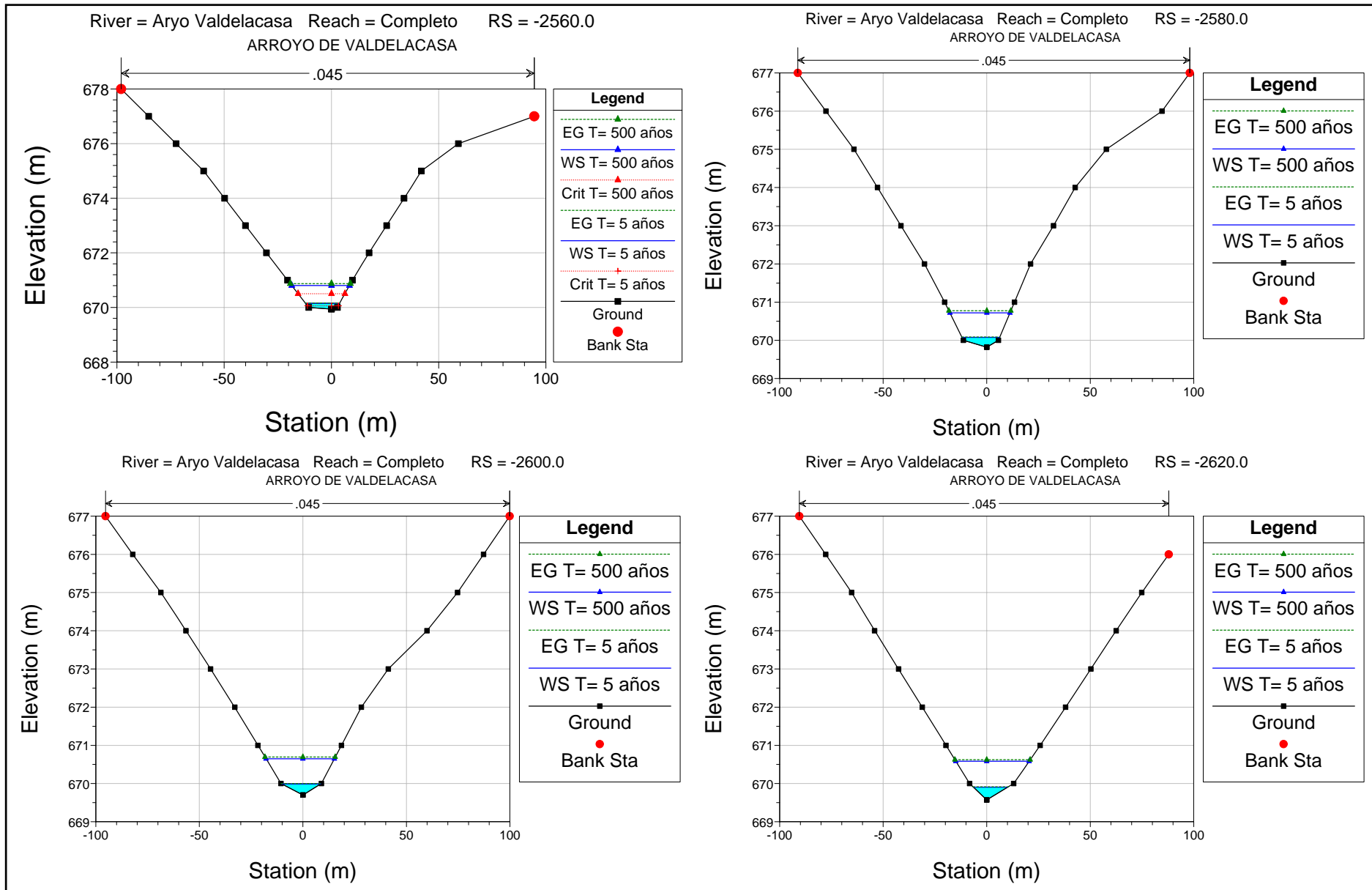


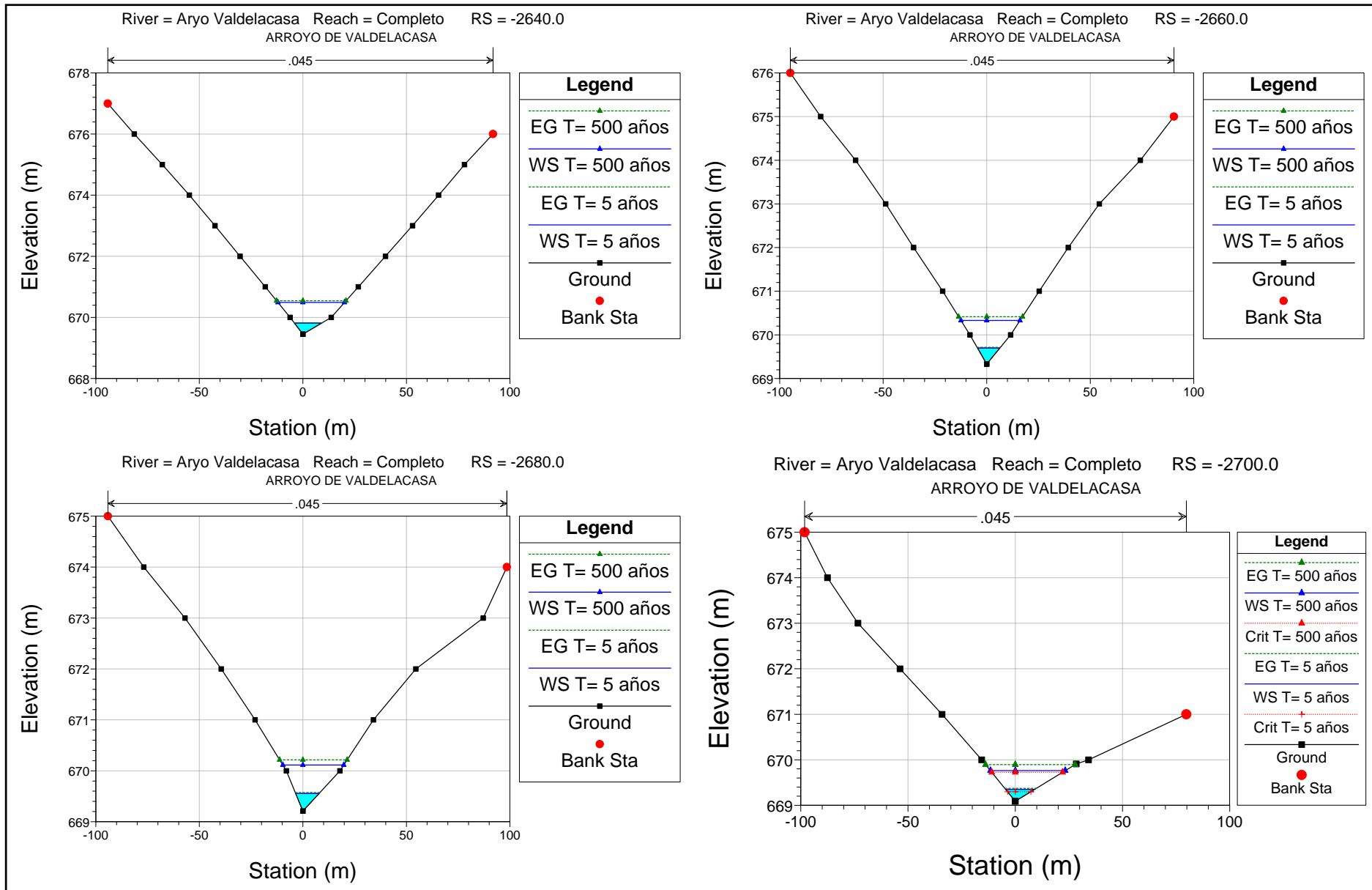


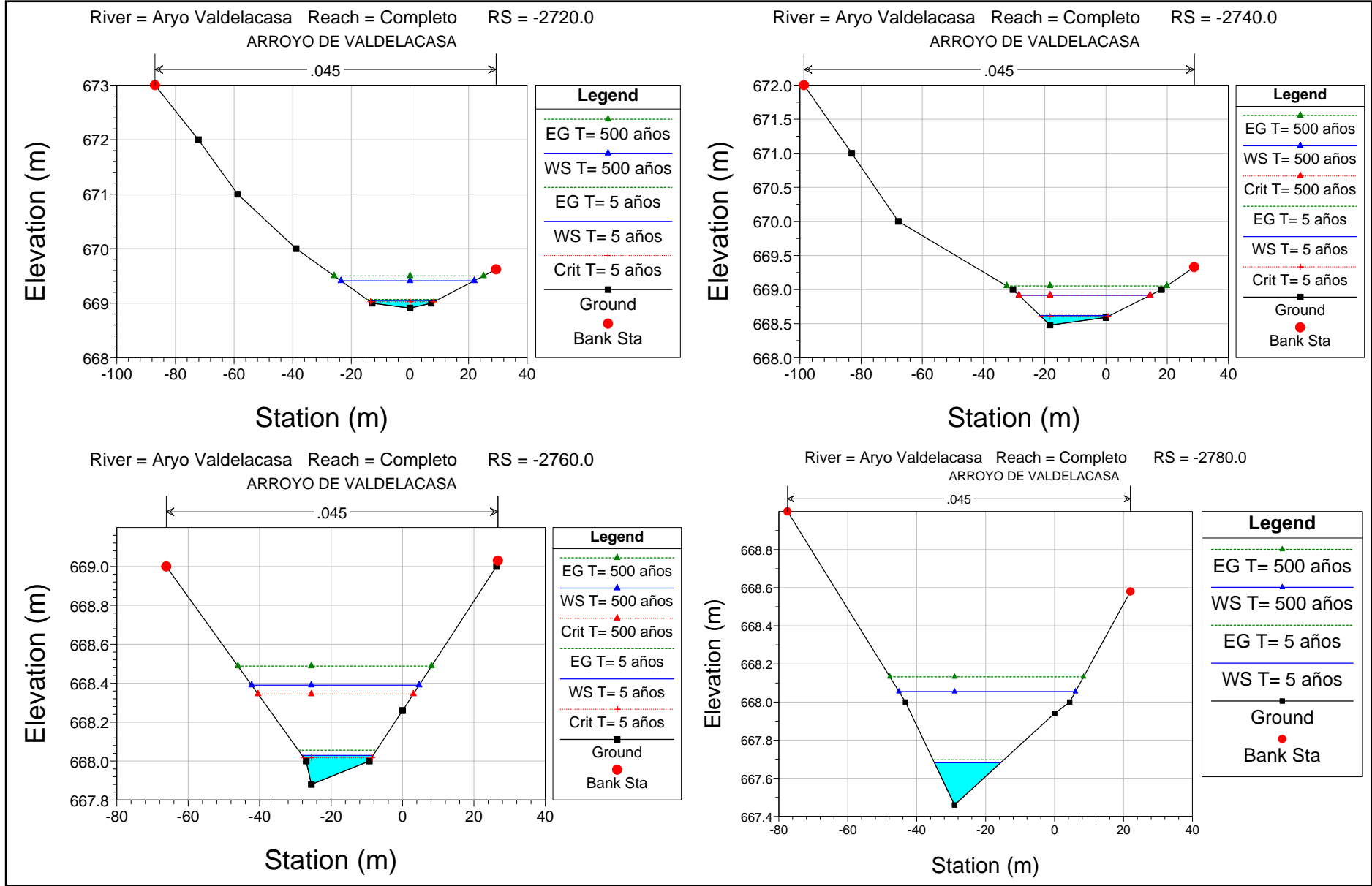


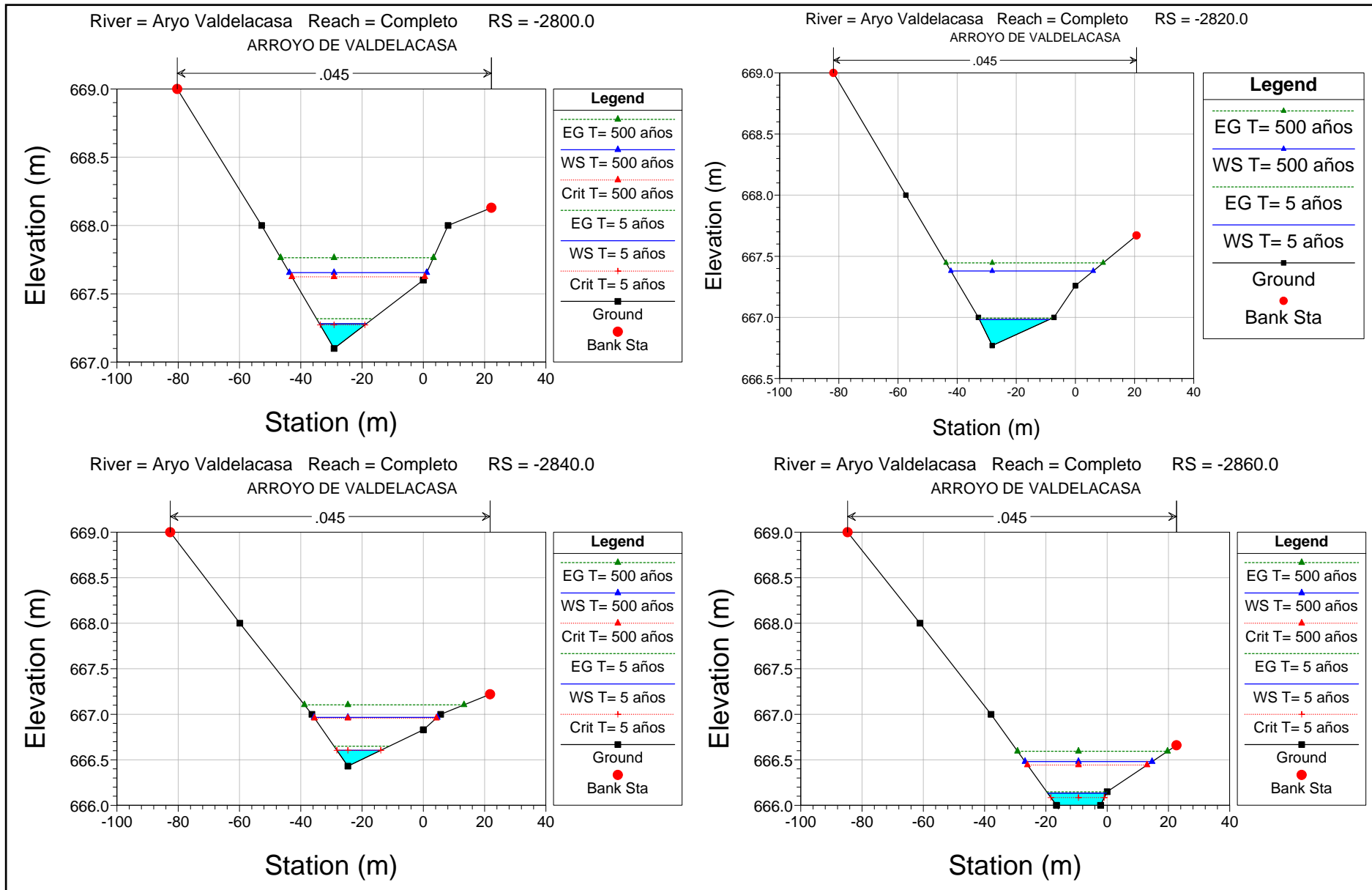


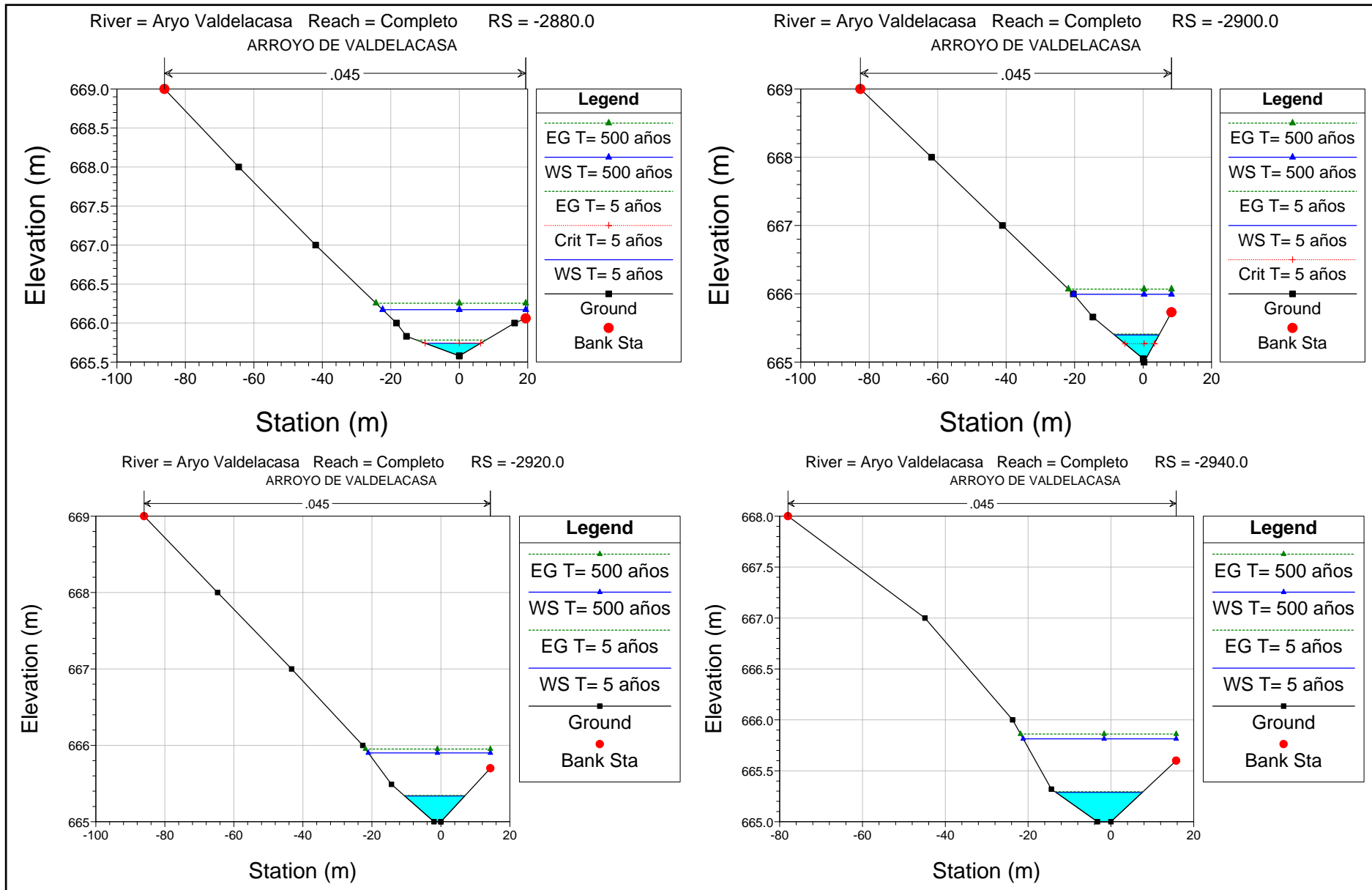


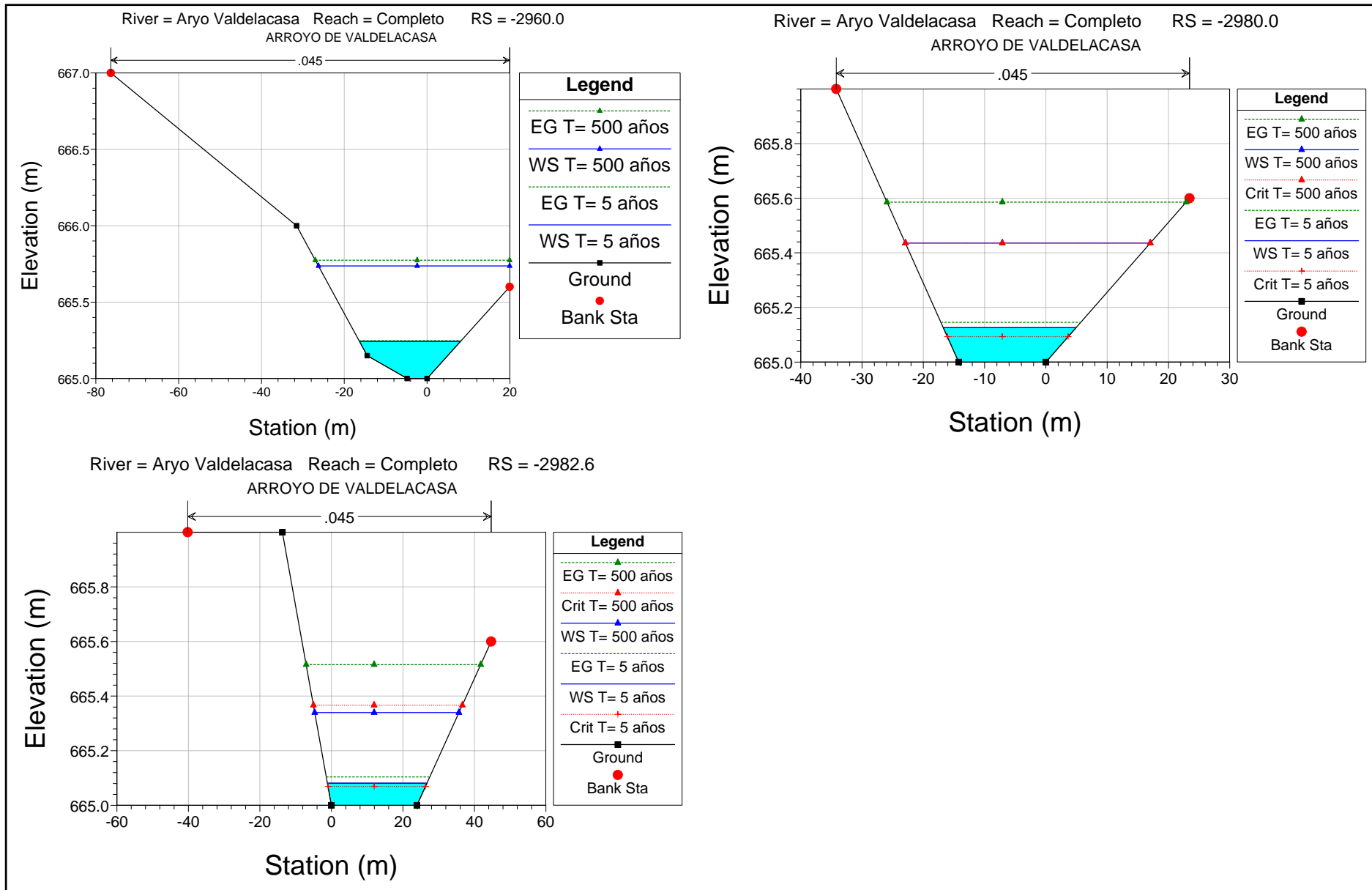




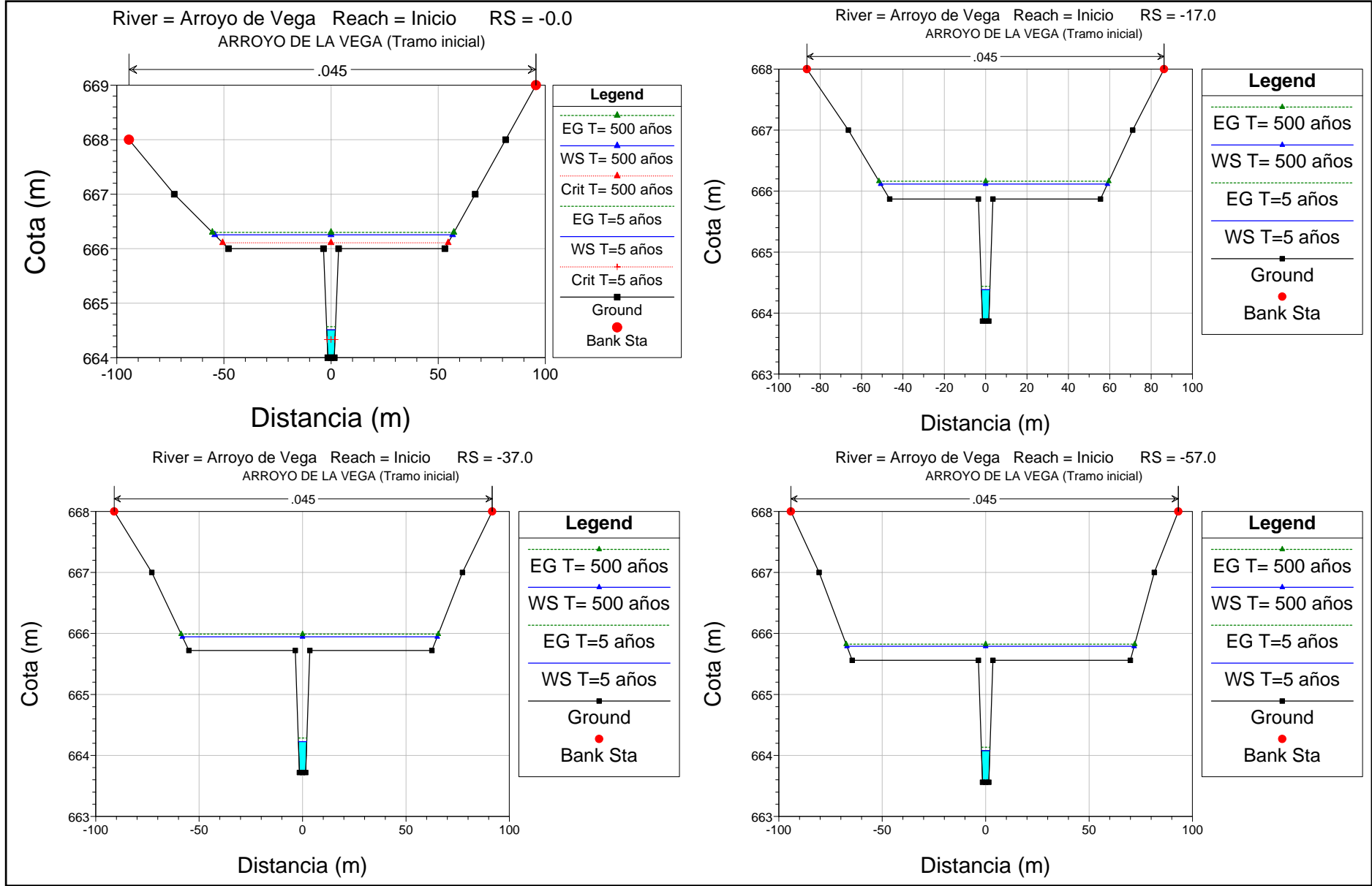


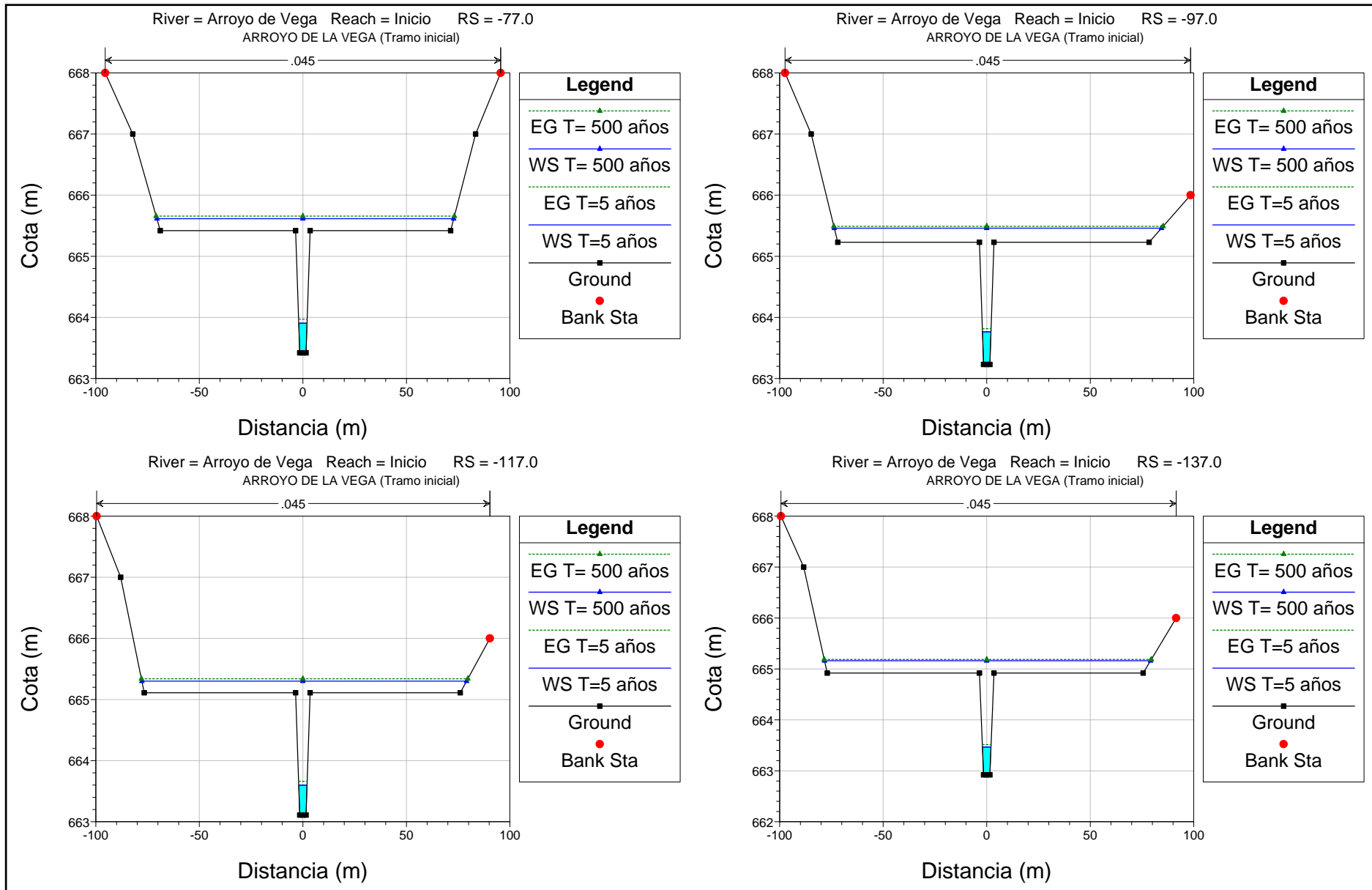


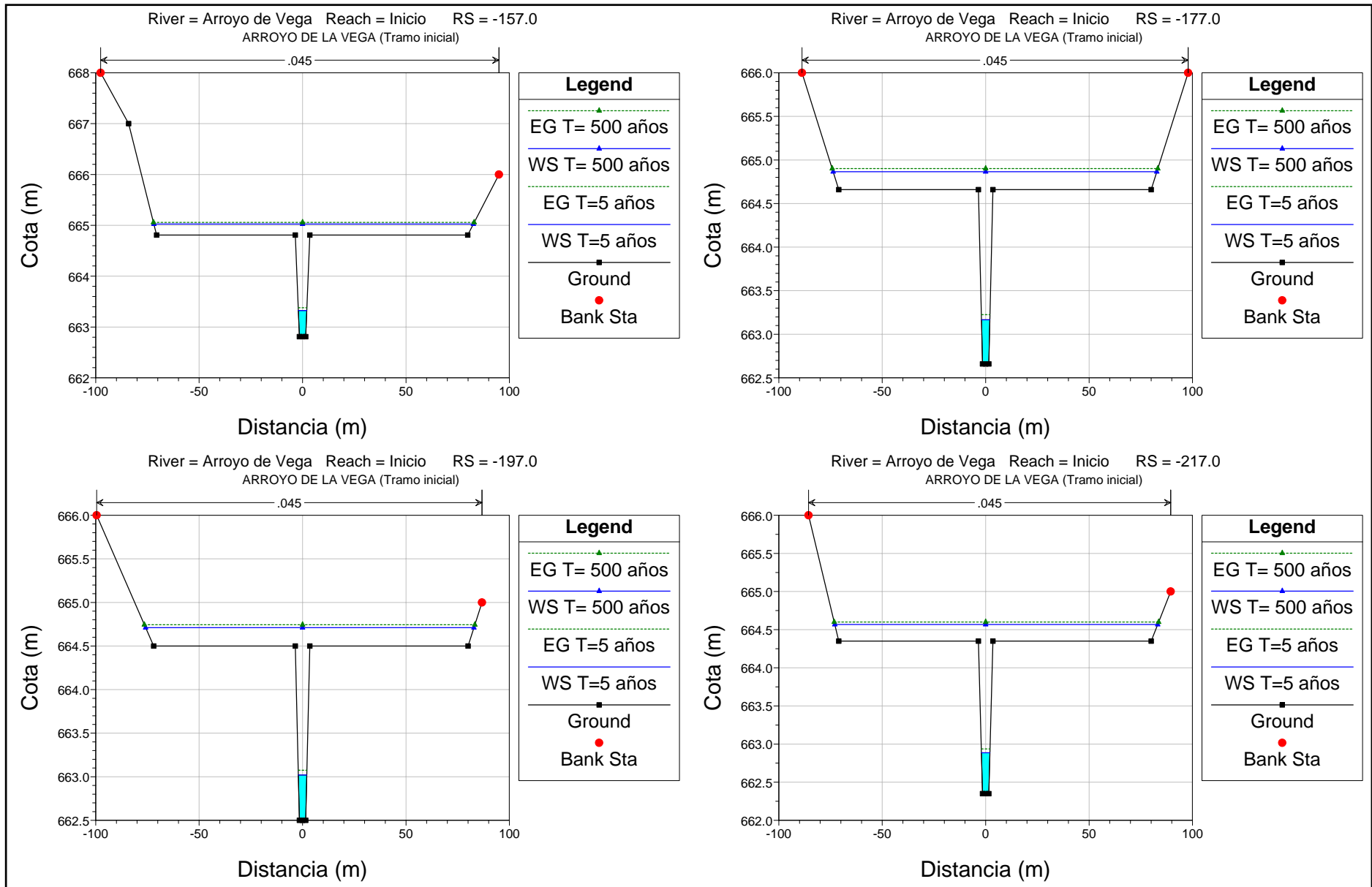


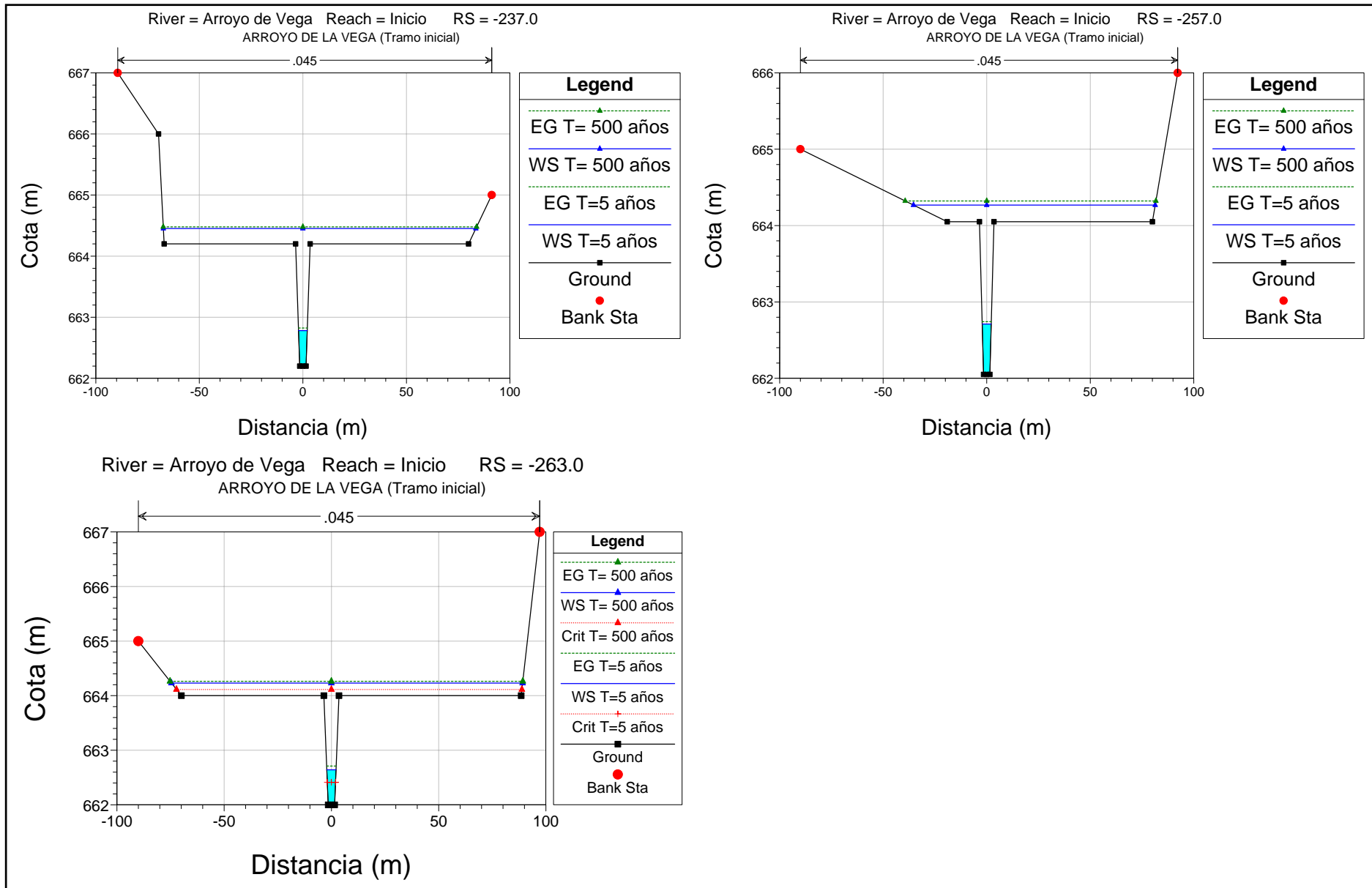


ARROYO DE LA VEGA
(tramo inicial)

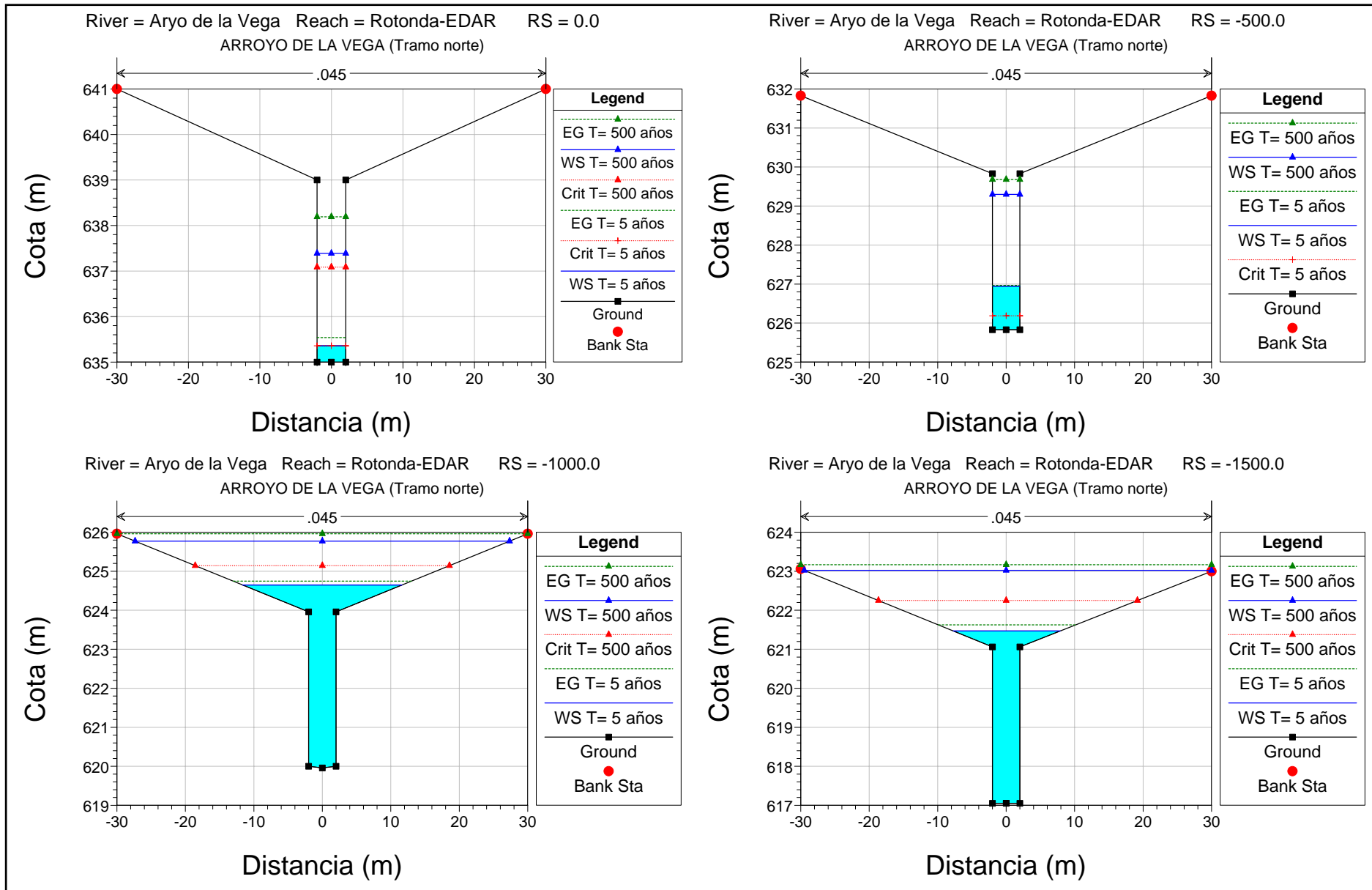


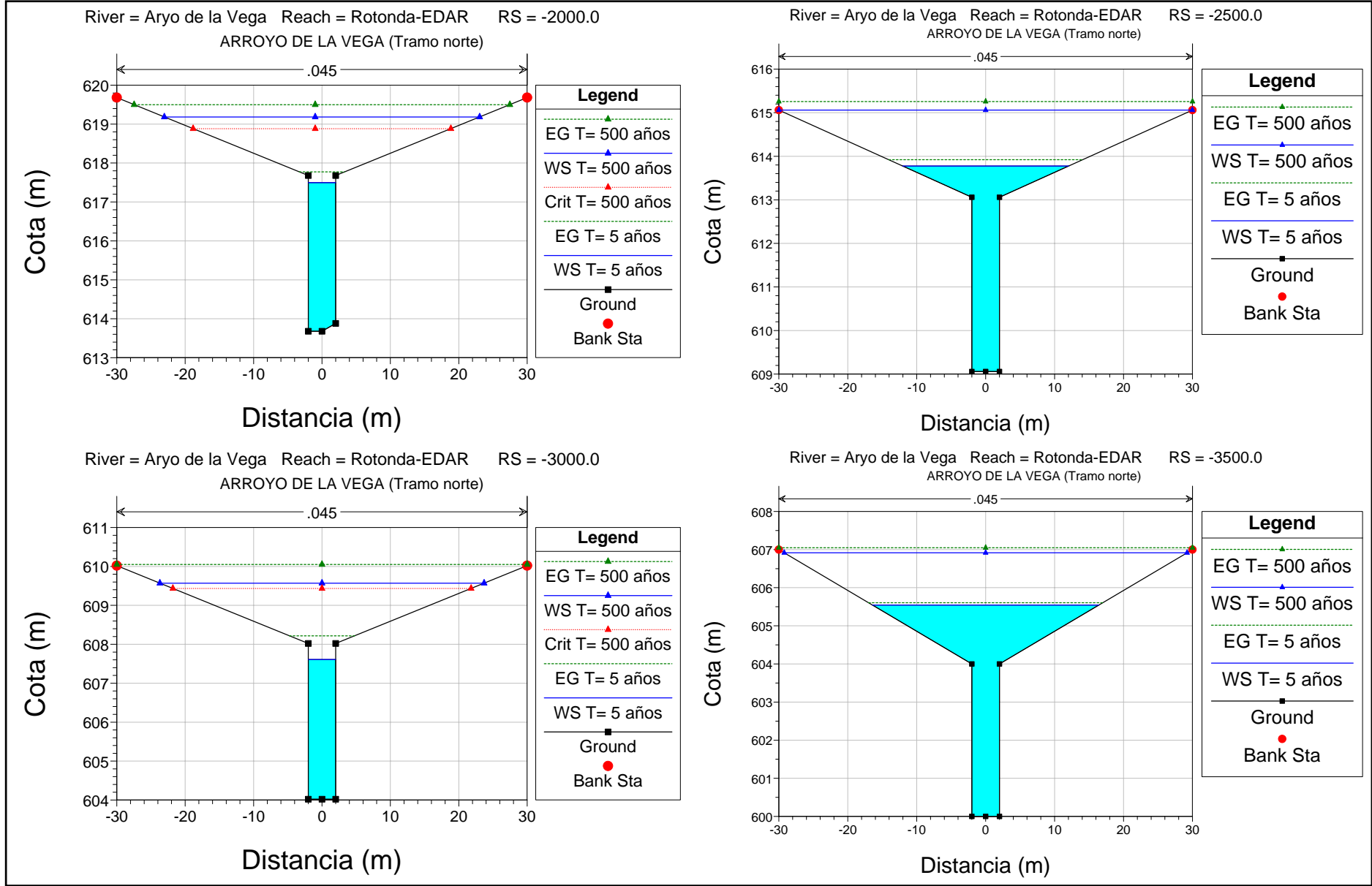






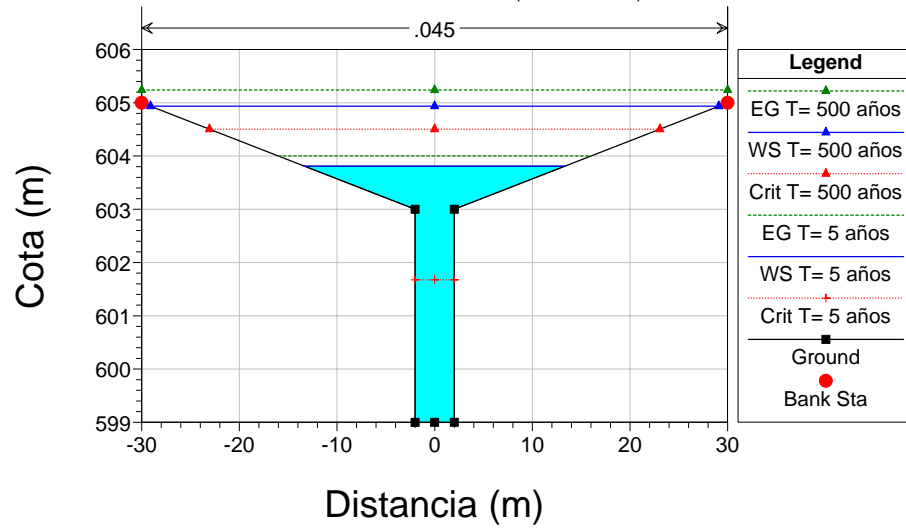
ARROYO DE LA VEGA
(tramo norte)



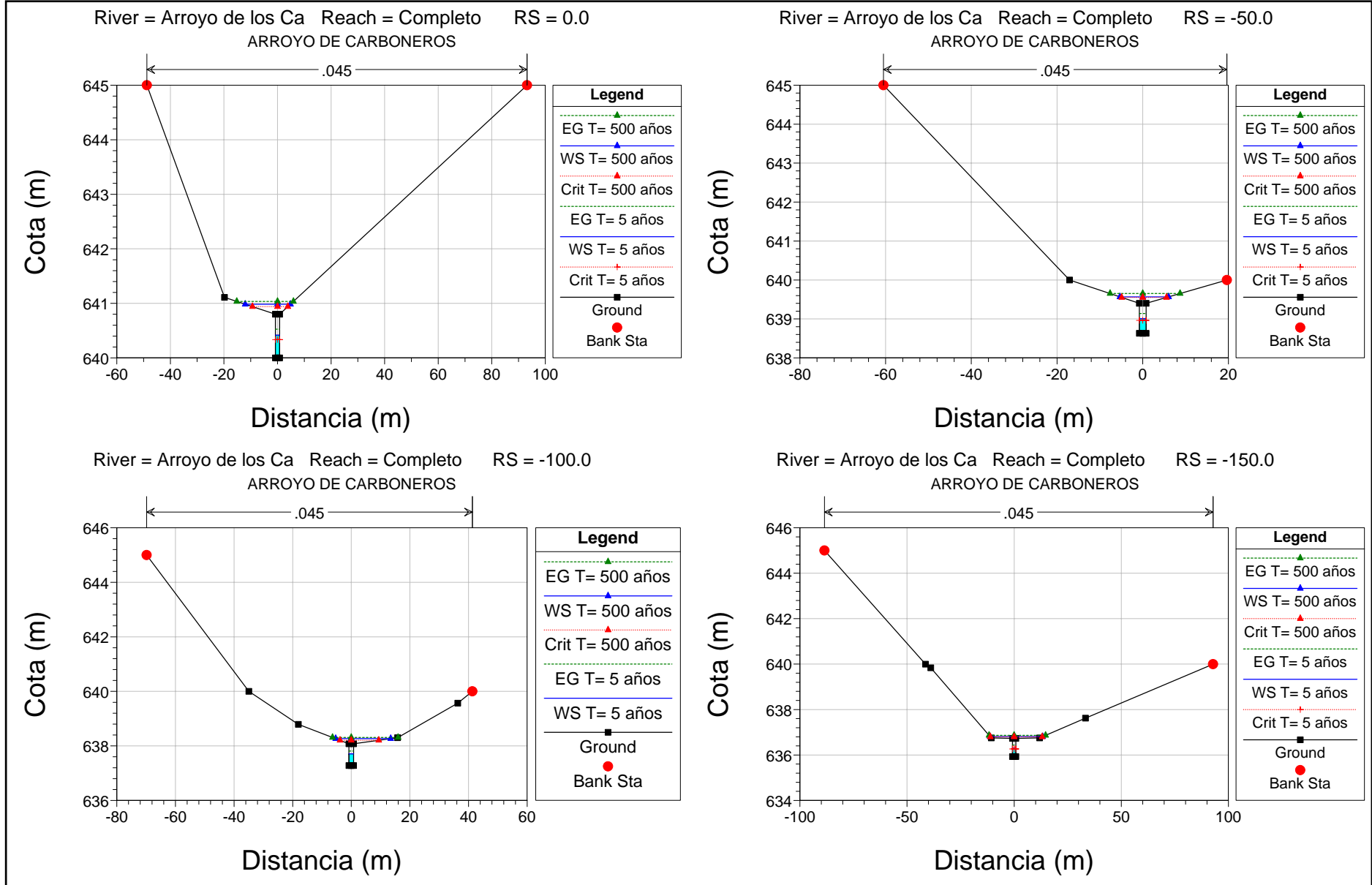


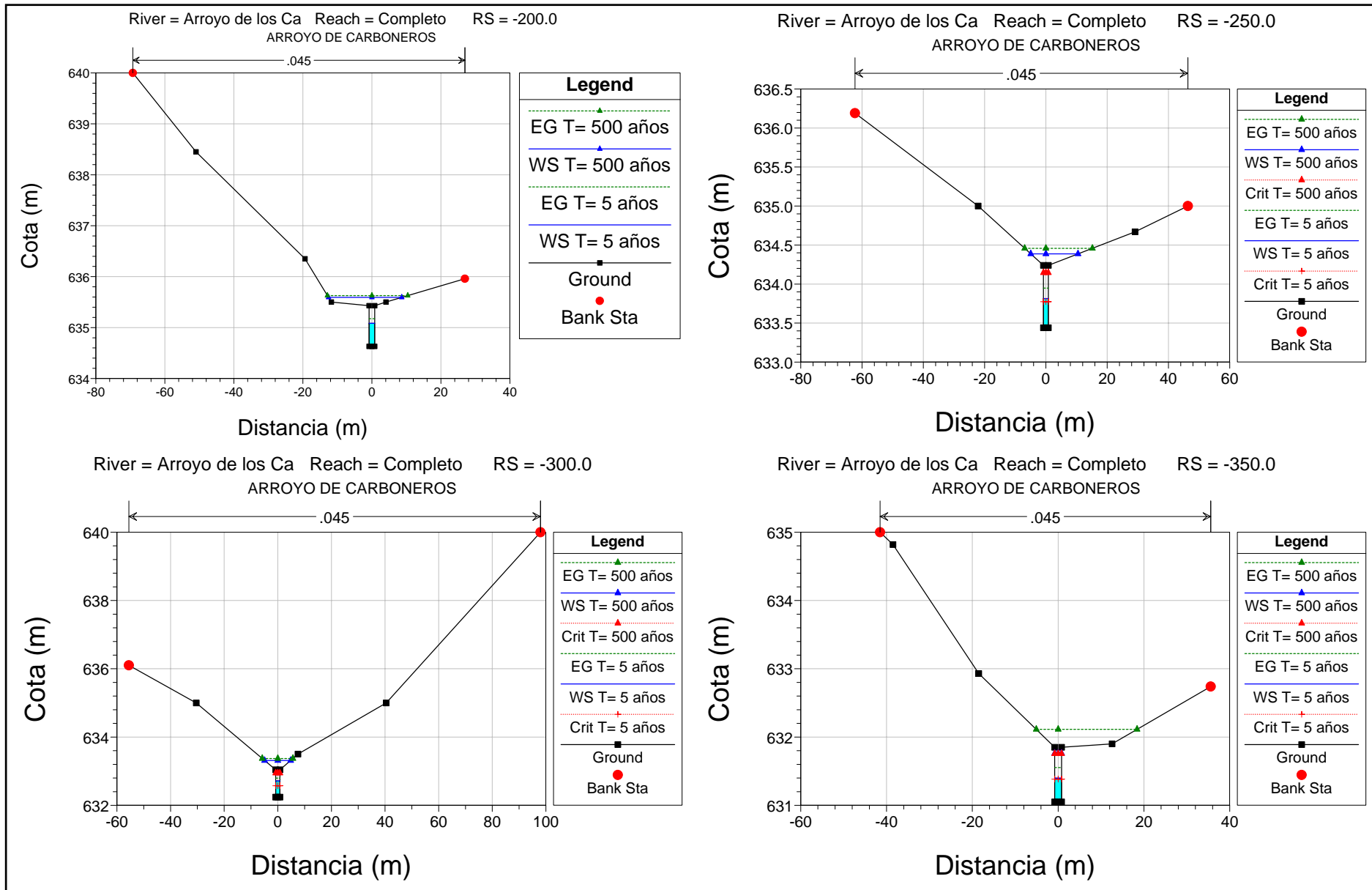
River = Arroyo de la Vega Reach = Rotonda-EDAR RS = -3869.0

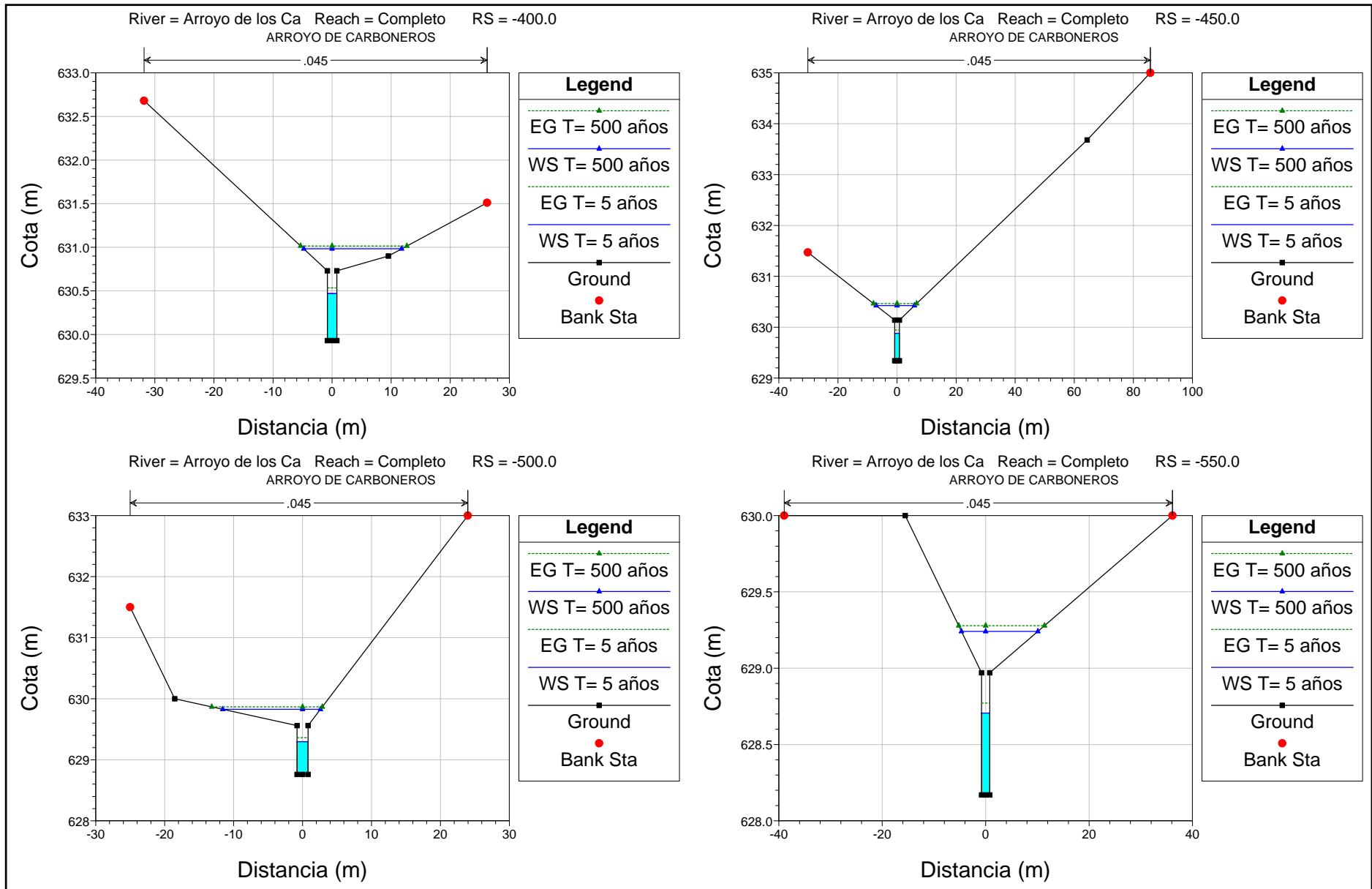
ARROYO DE LA VEGA (Tramo norte)

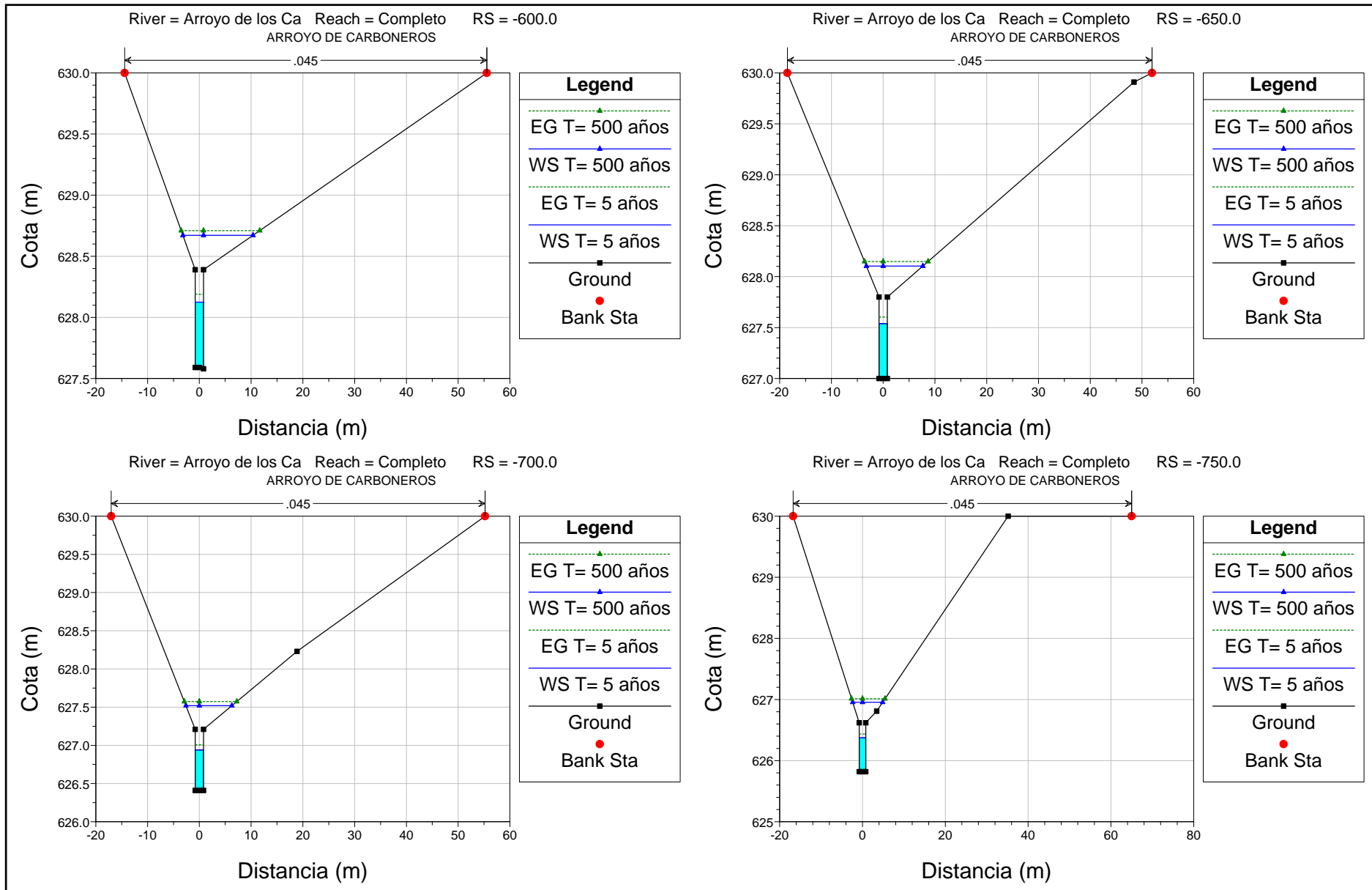


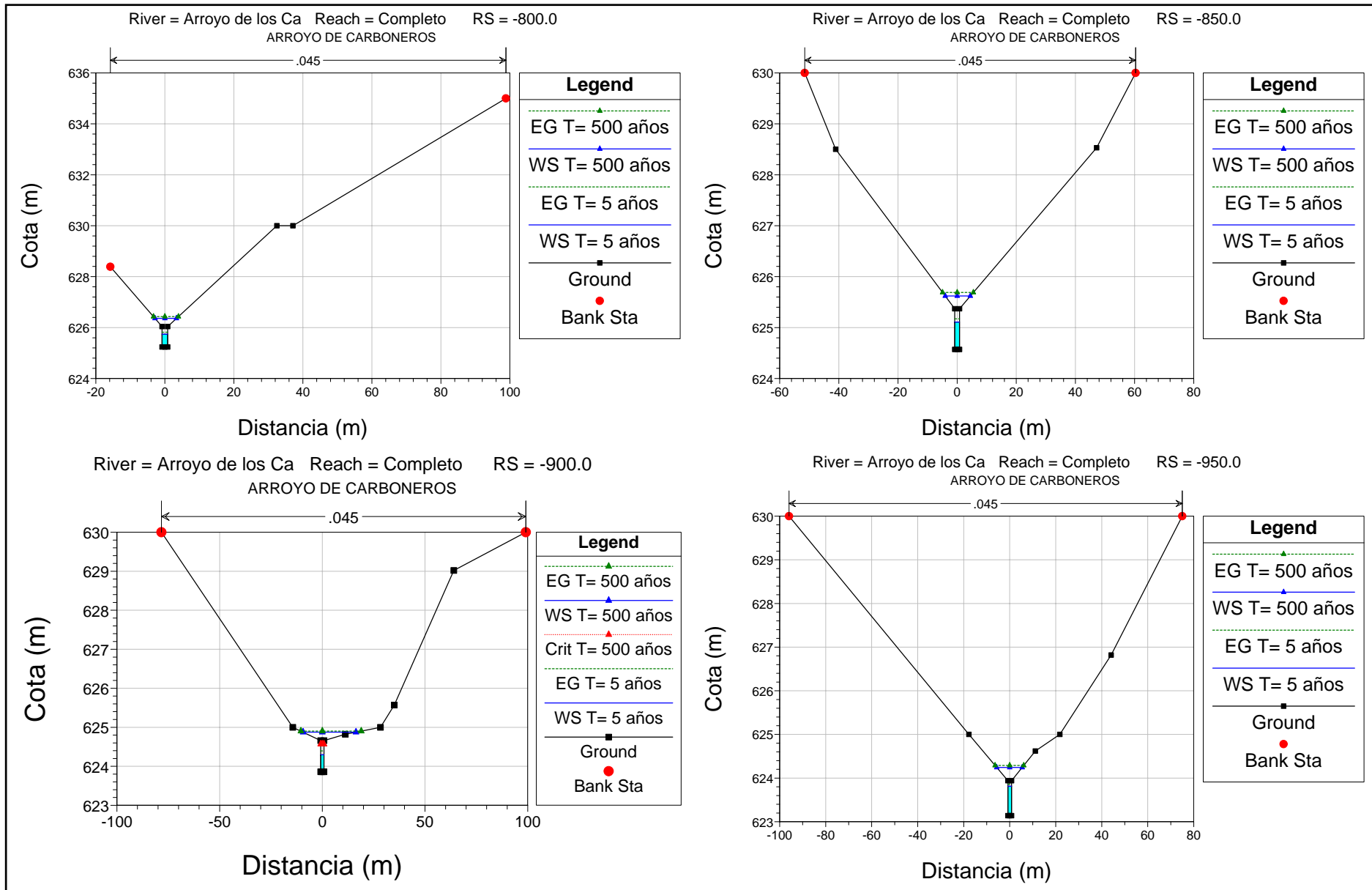
ARROYO DE CARBONEROS

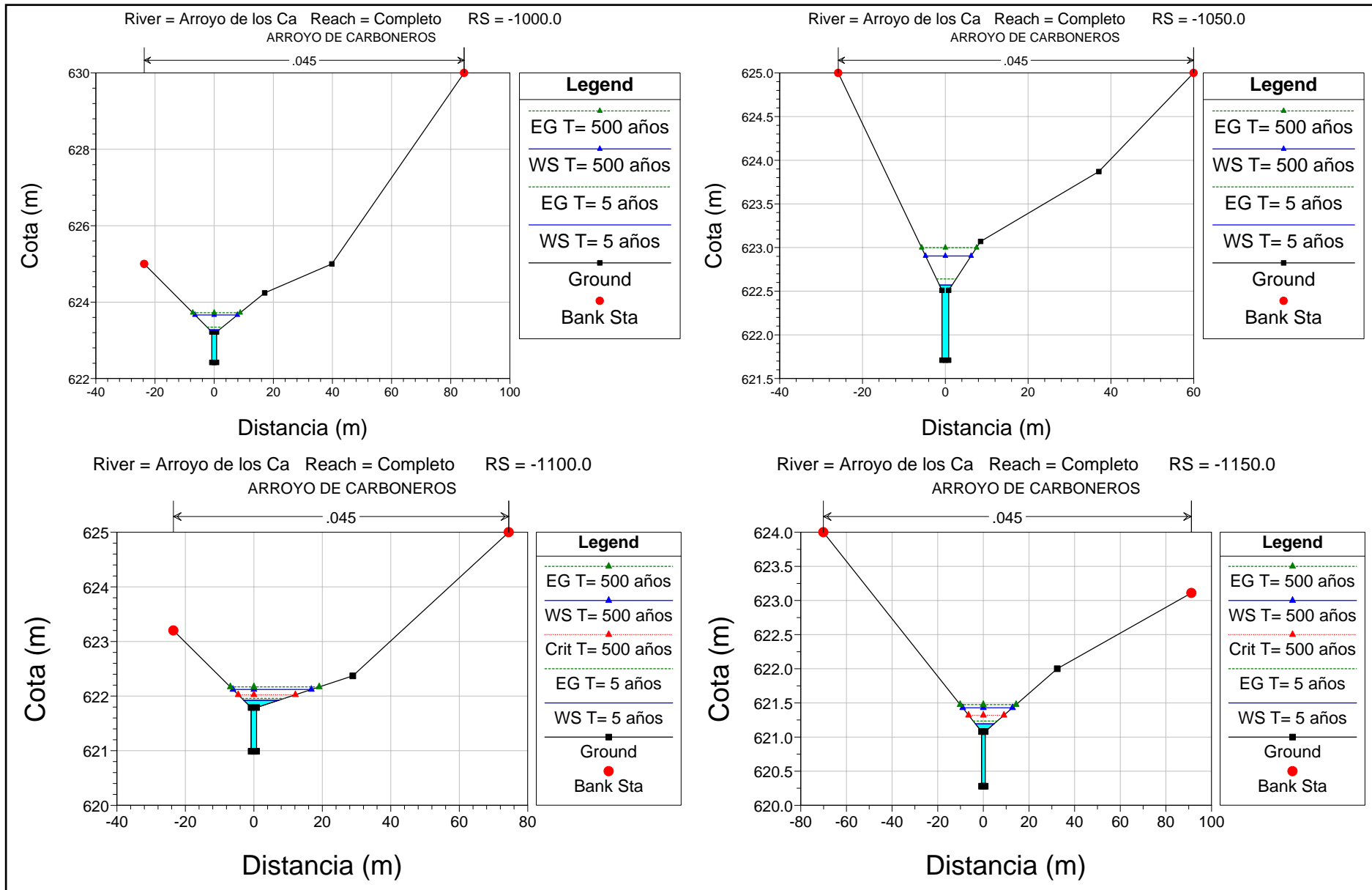


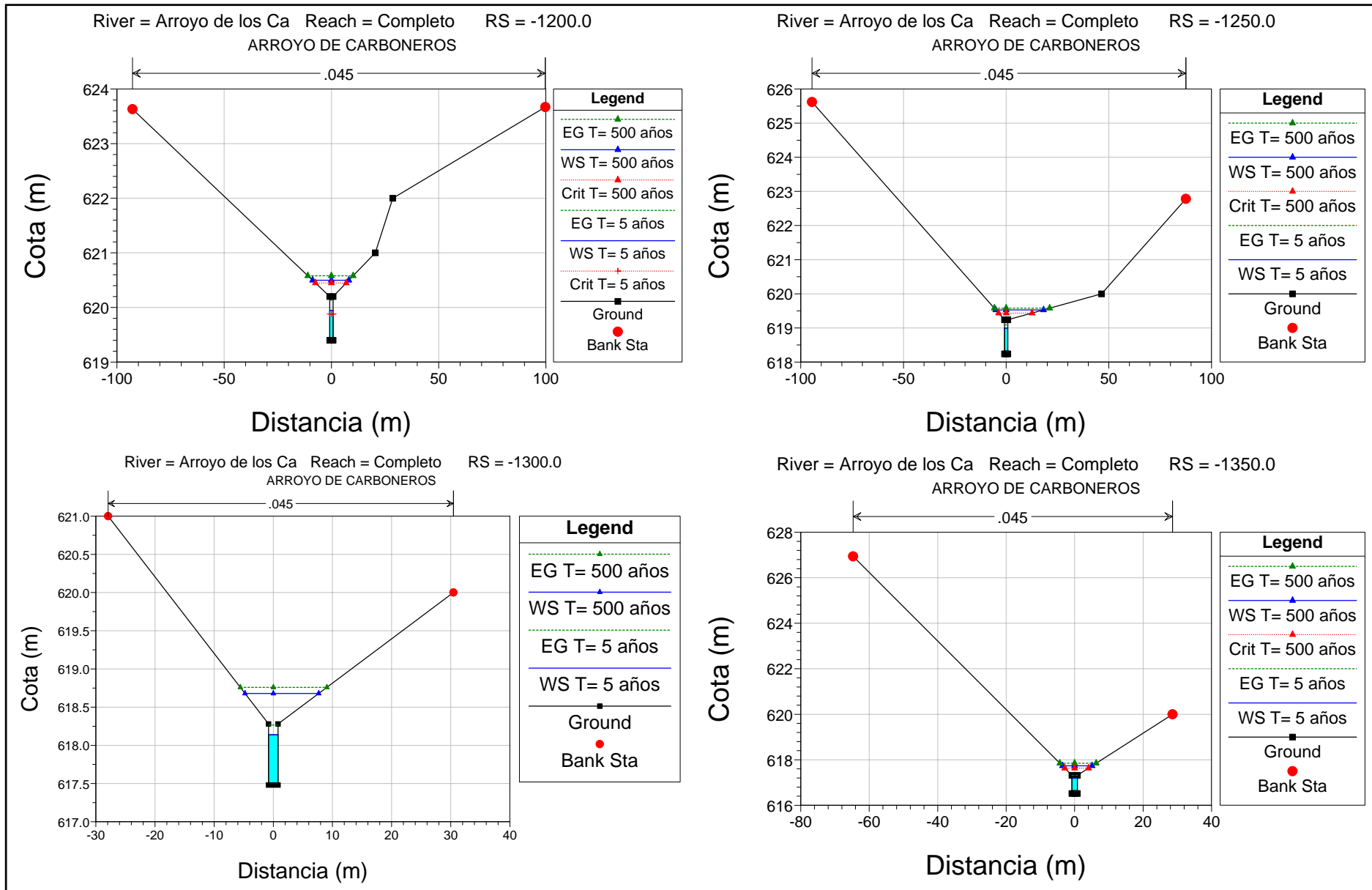


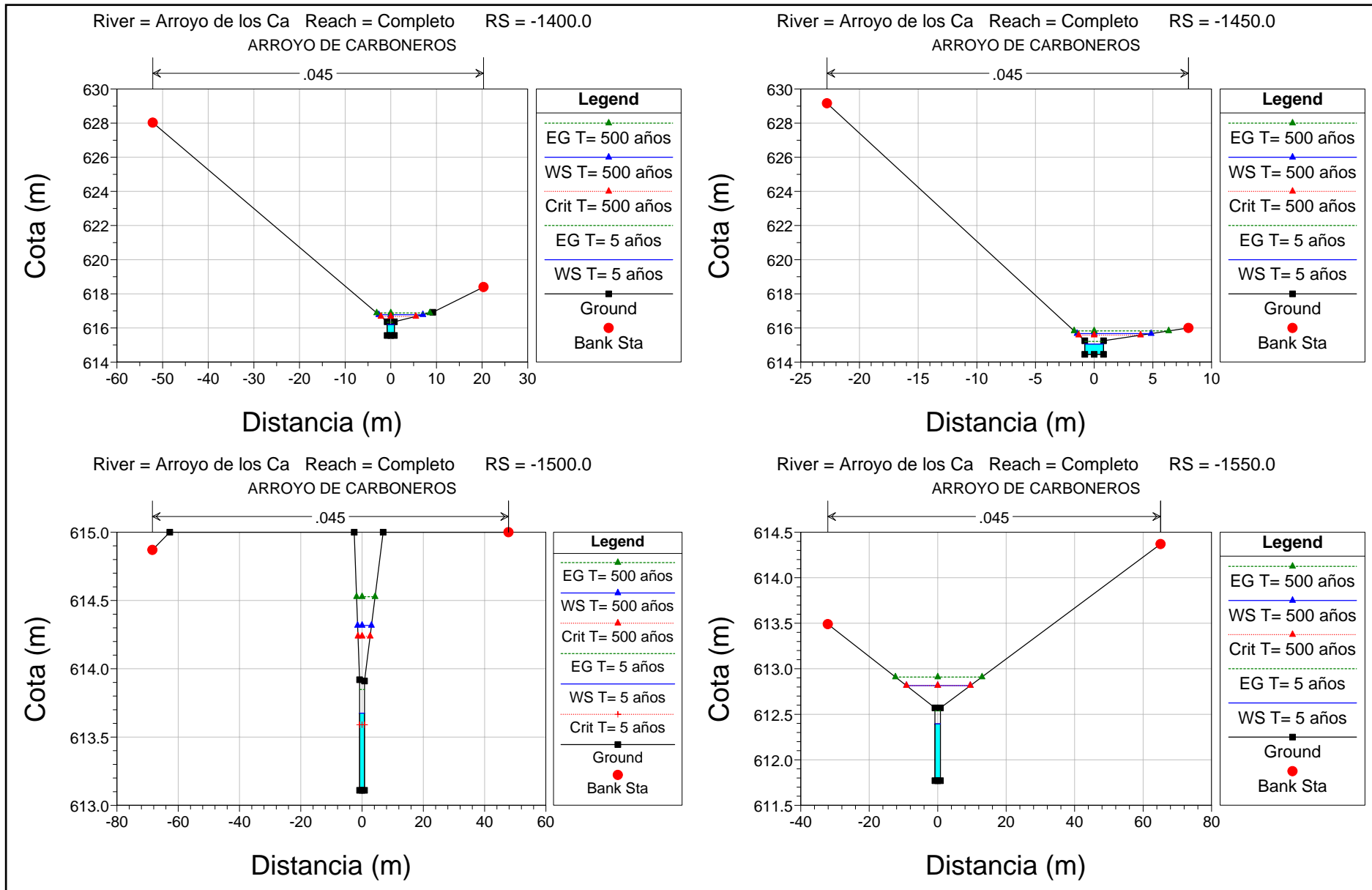


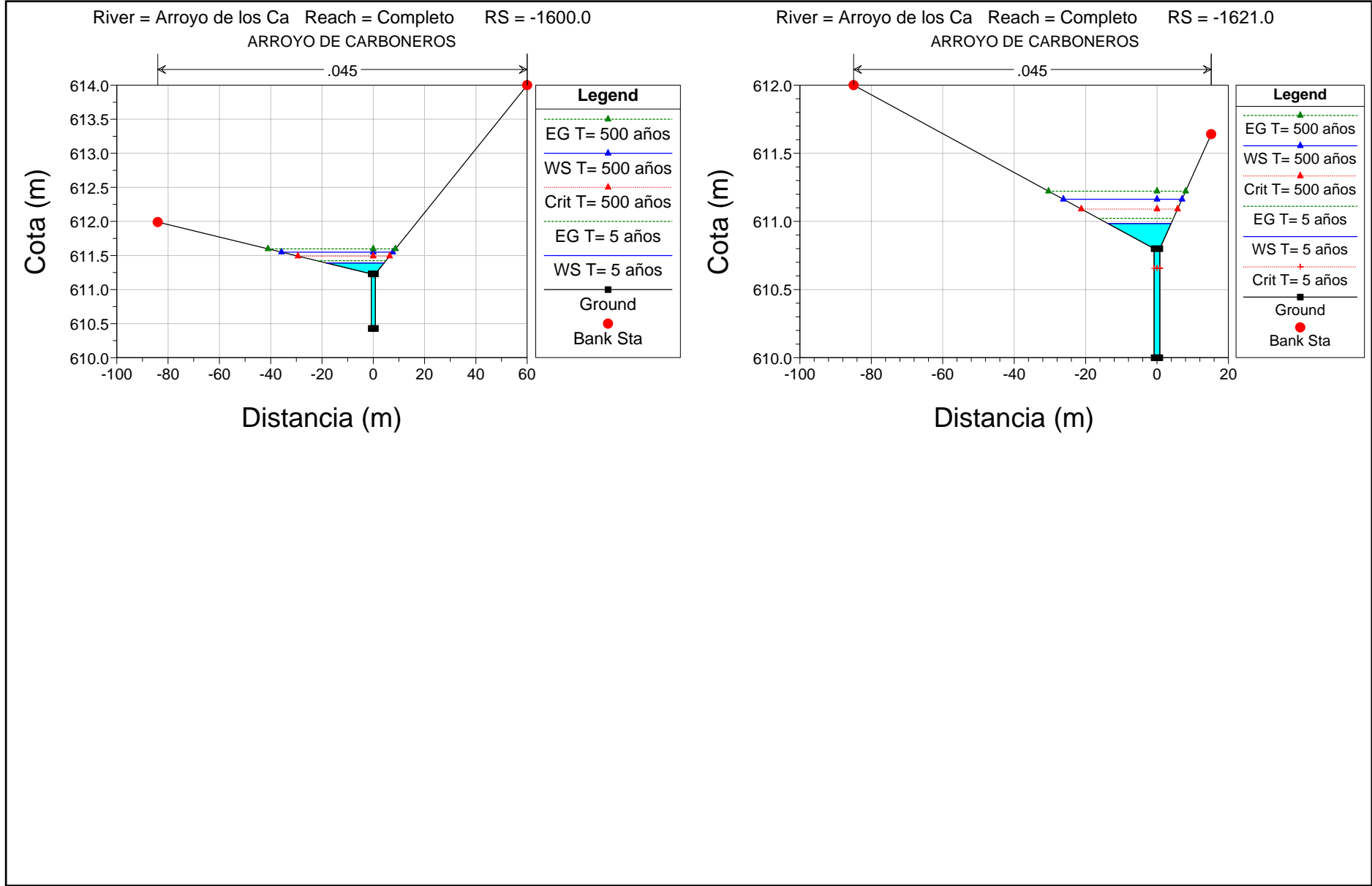




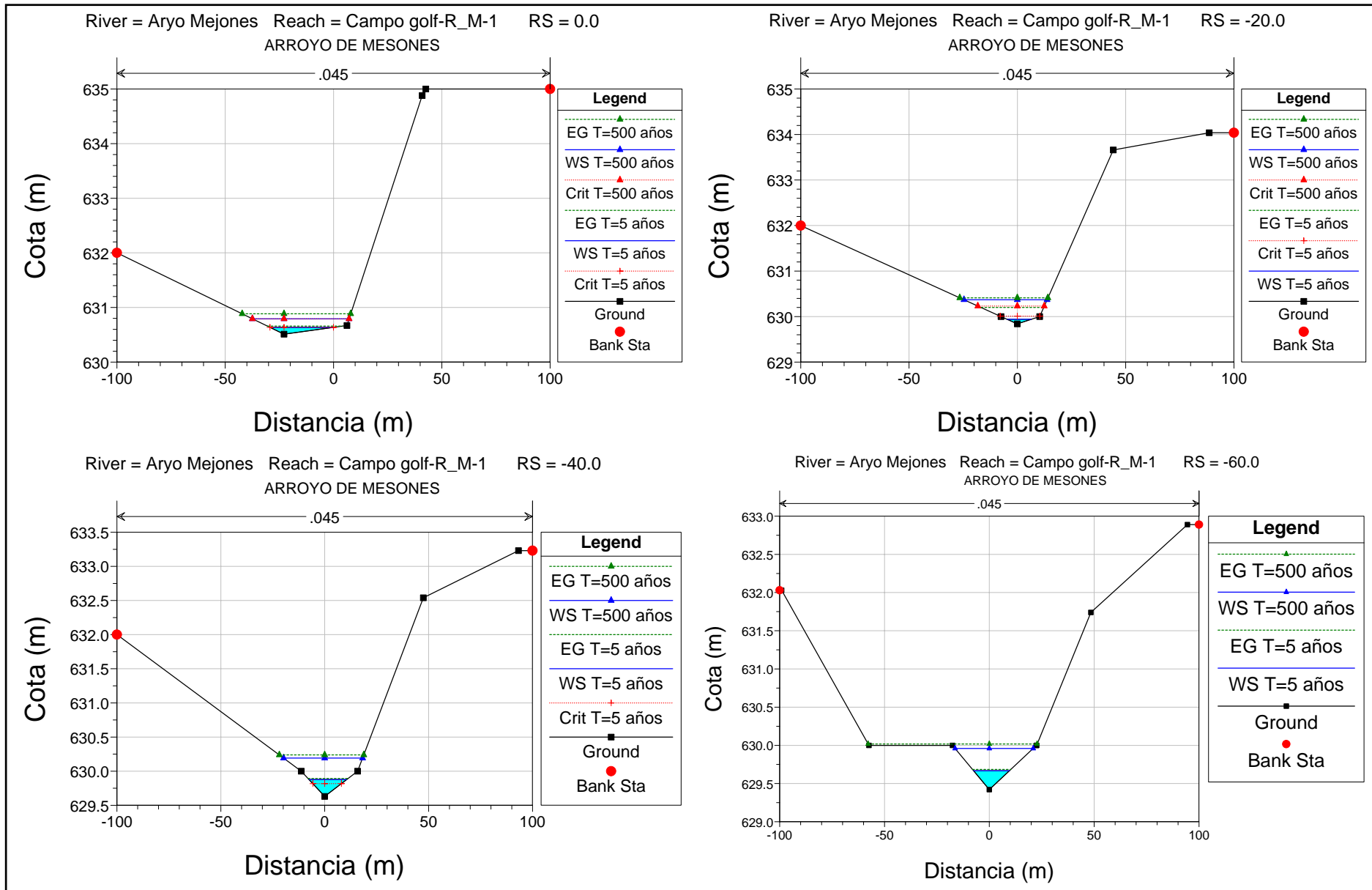


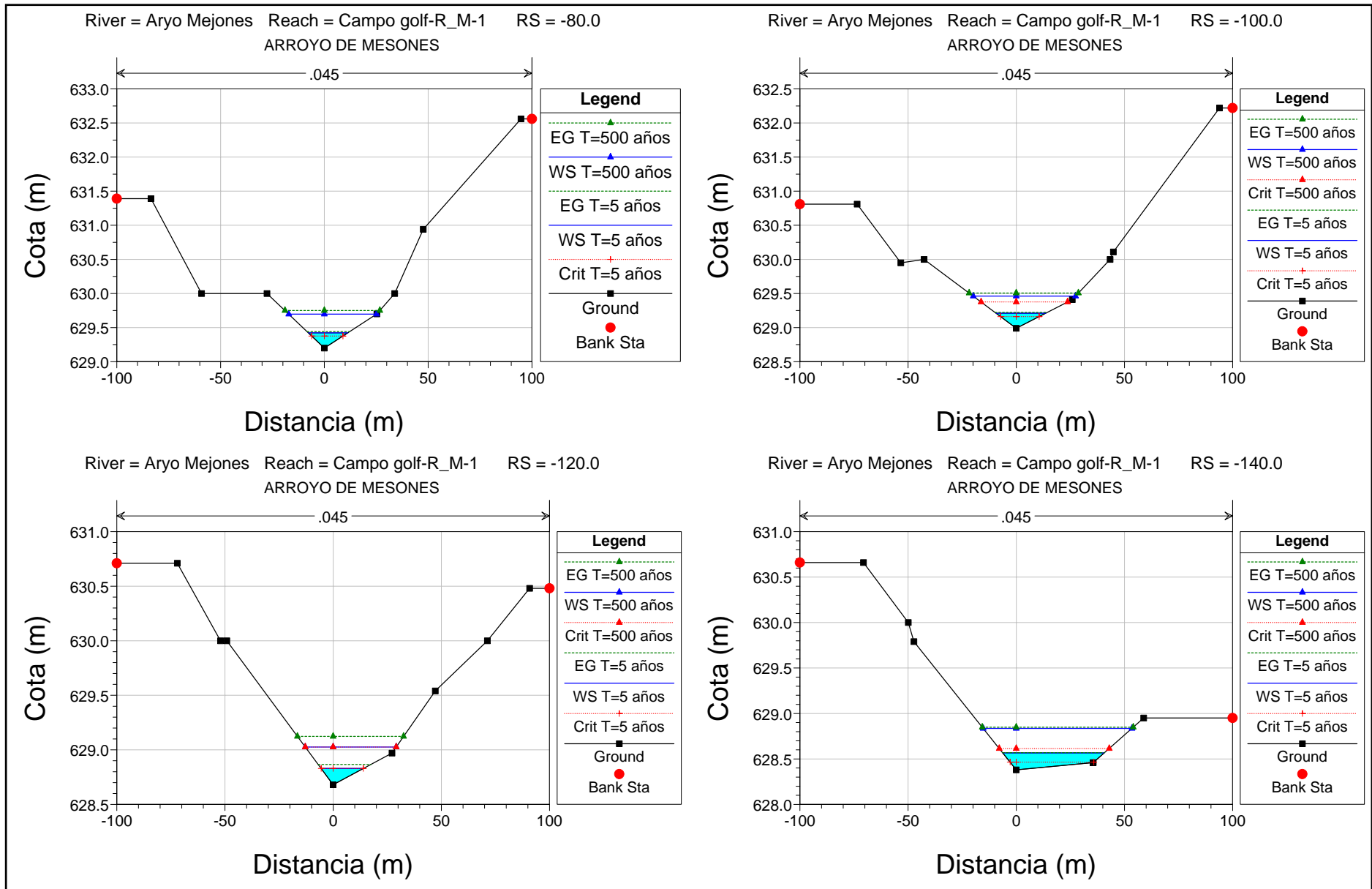


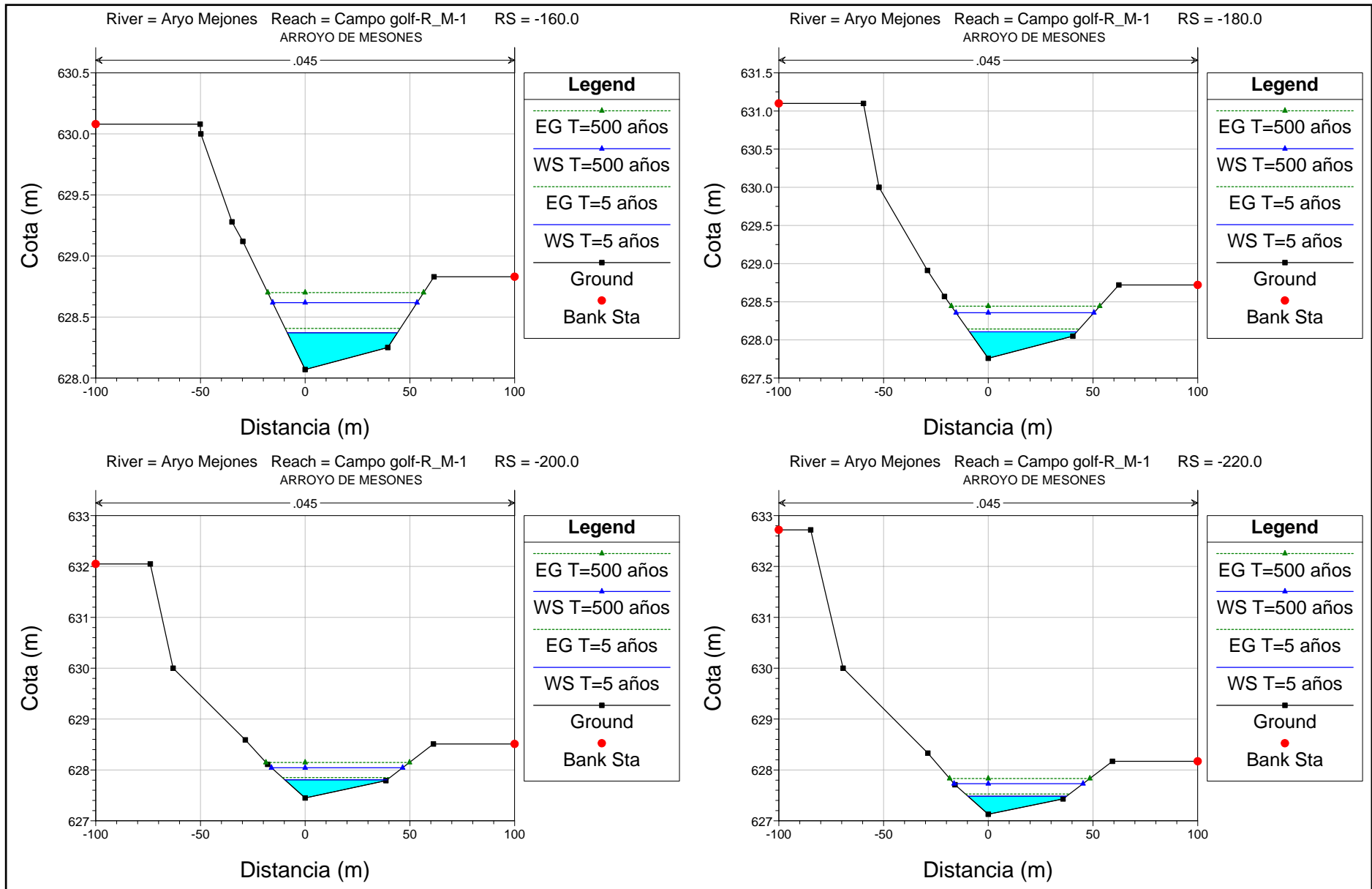


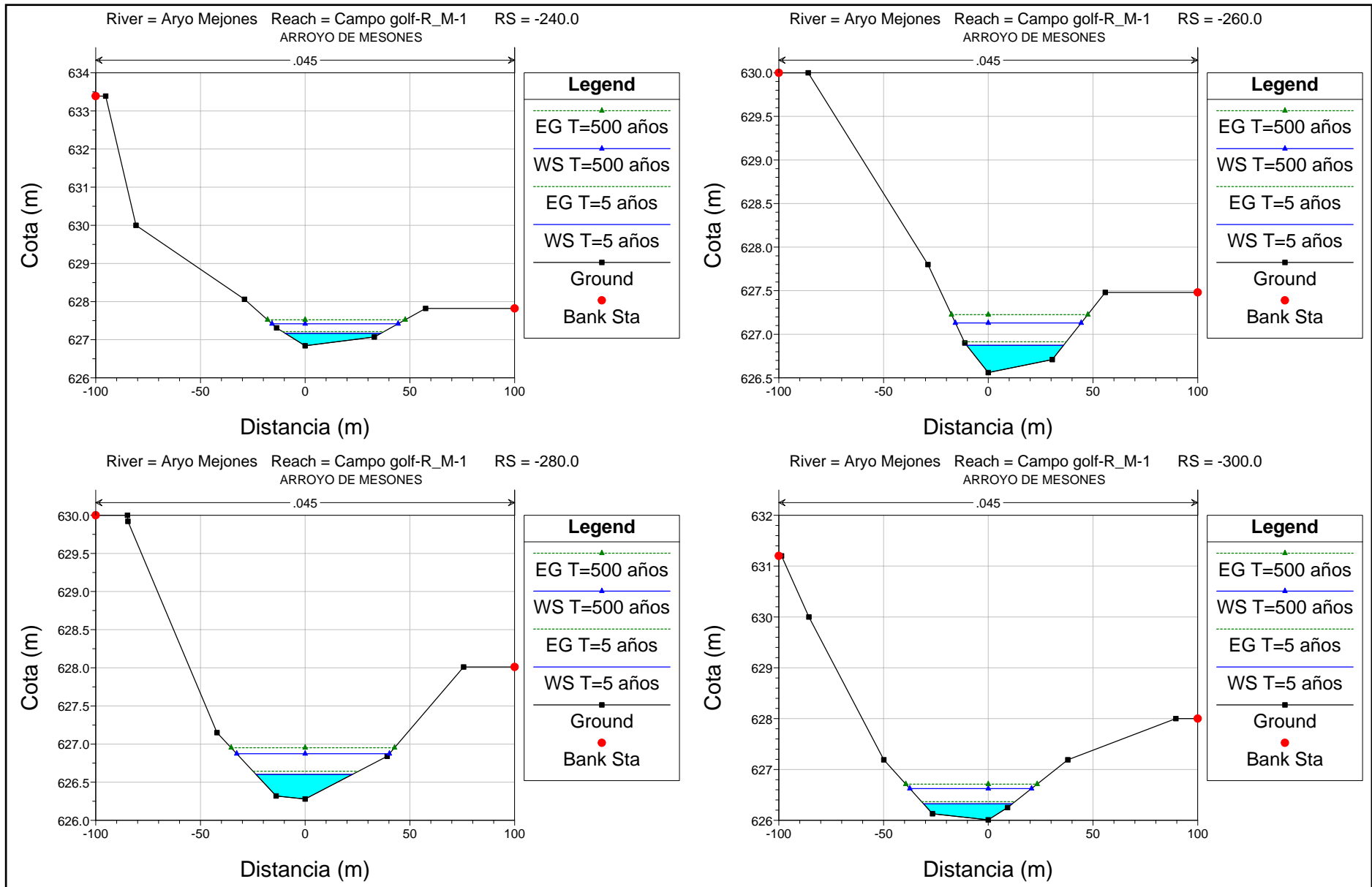


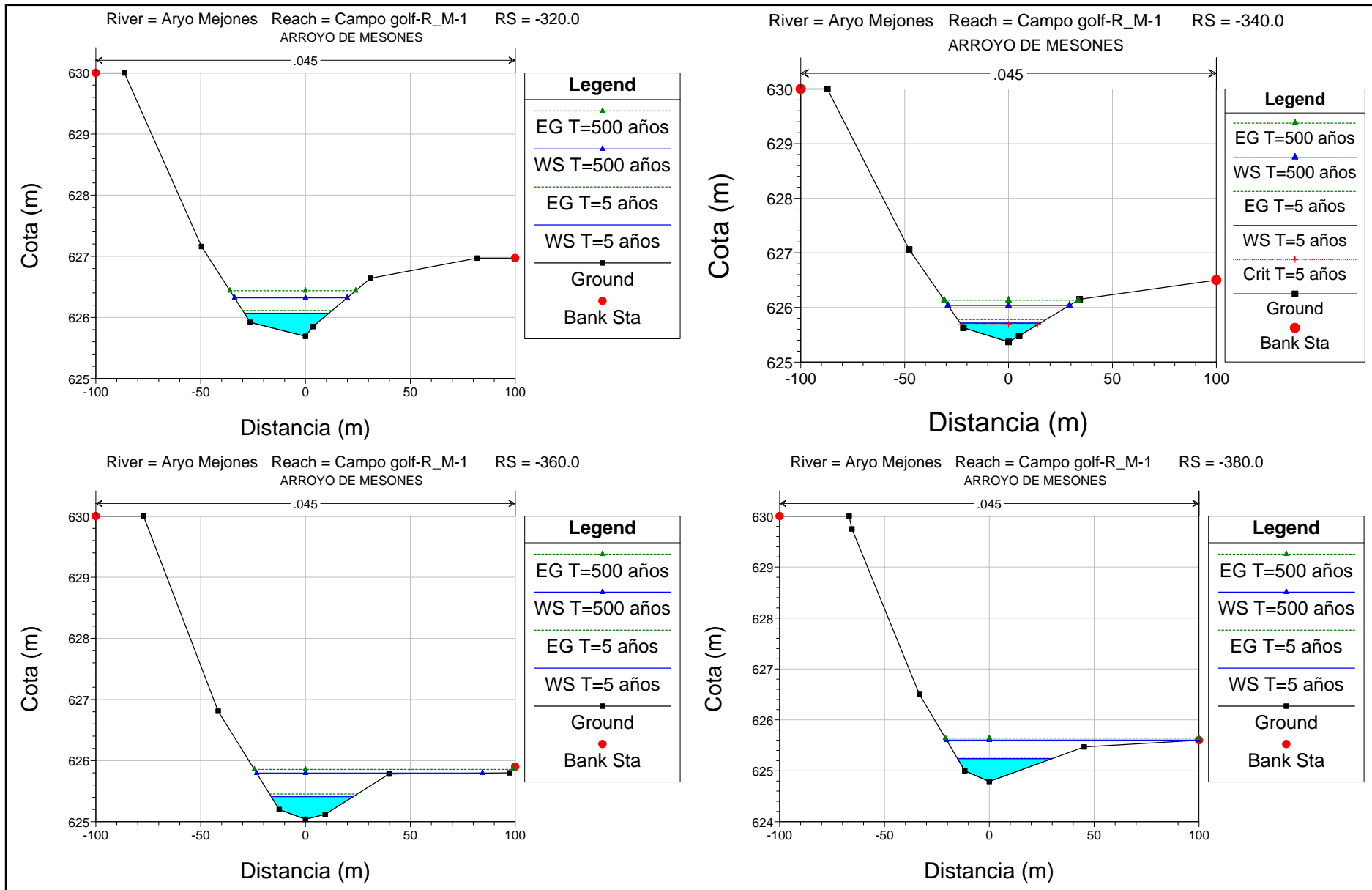
ARROYO MESONES

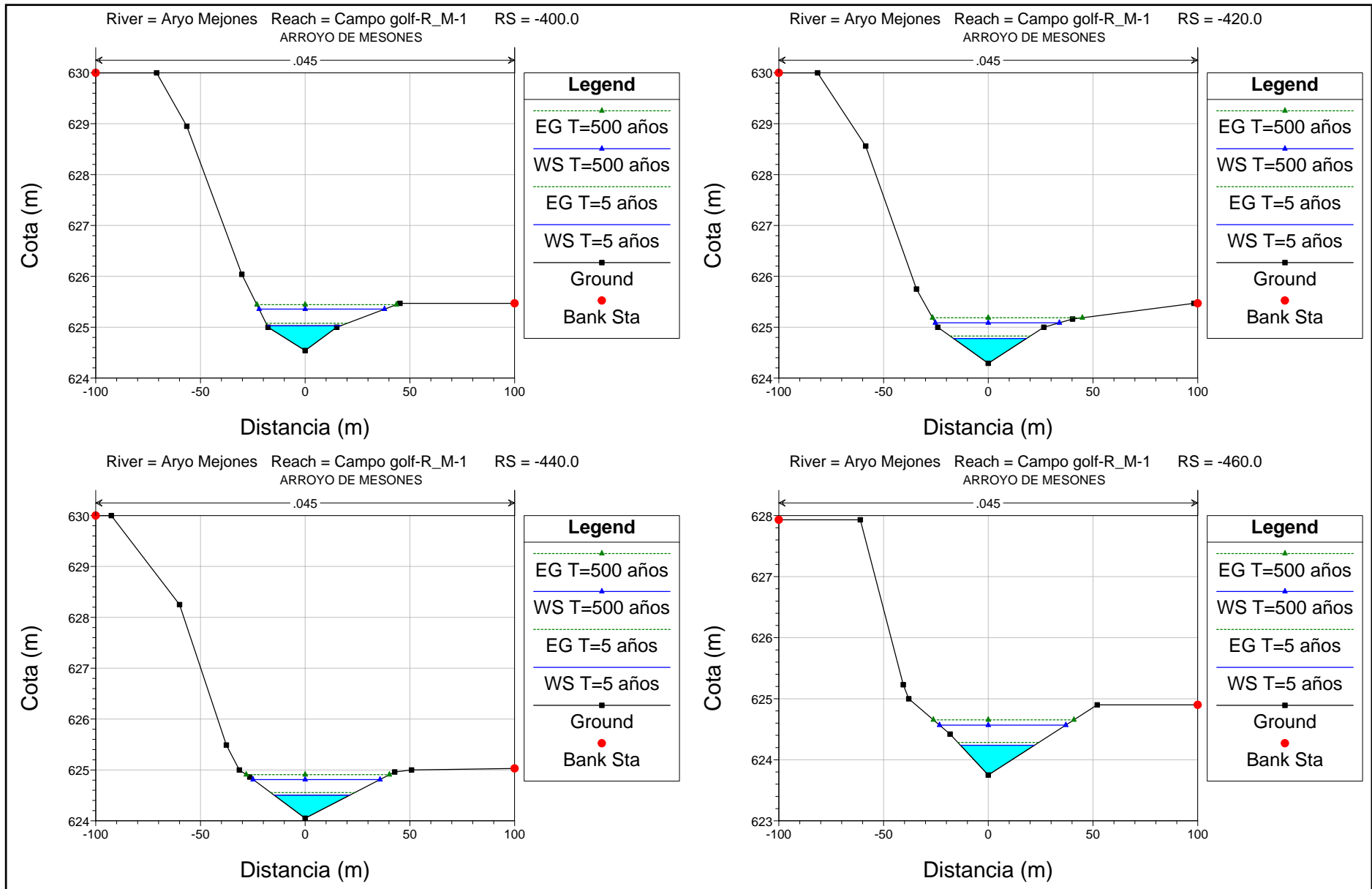


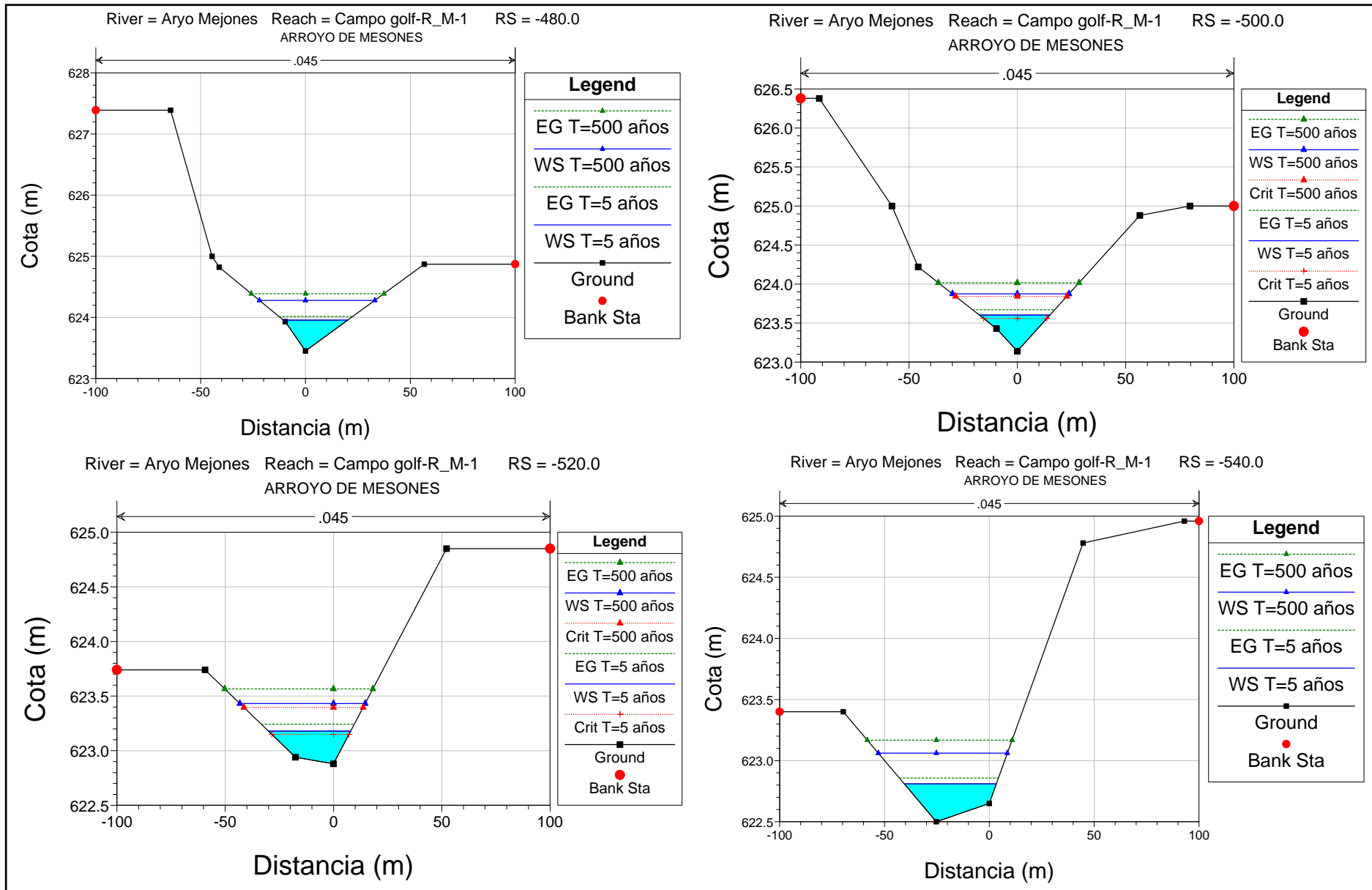


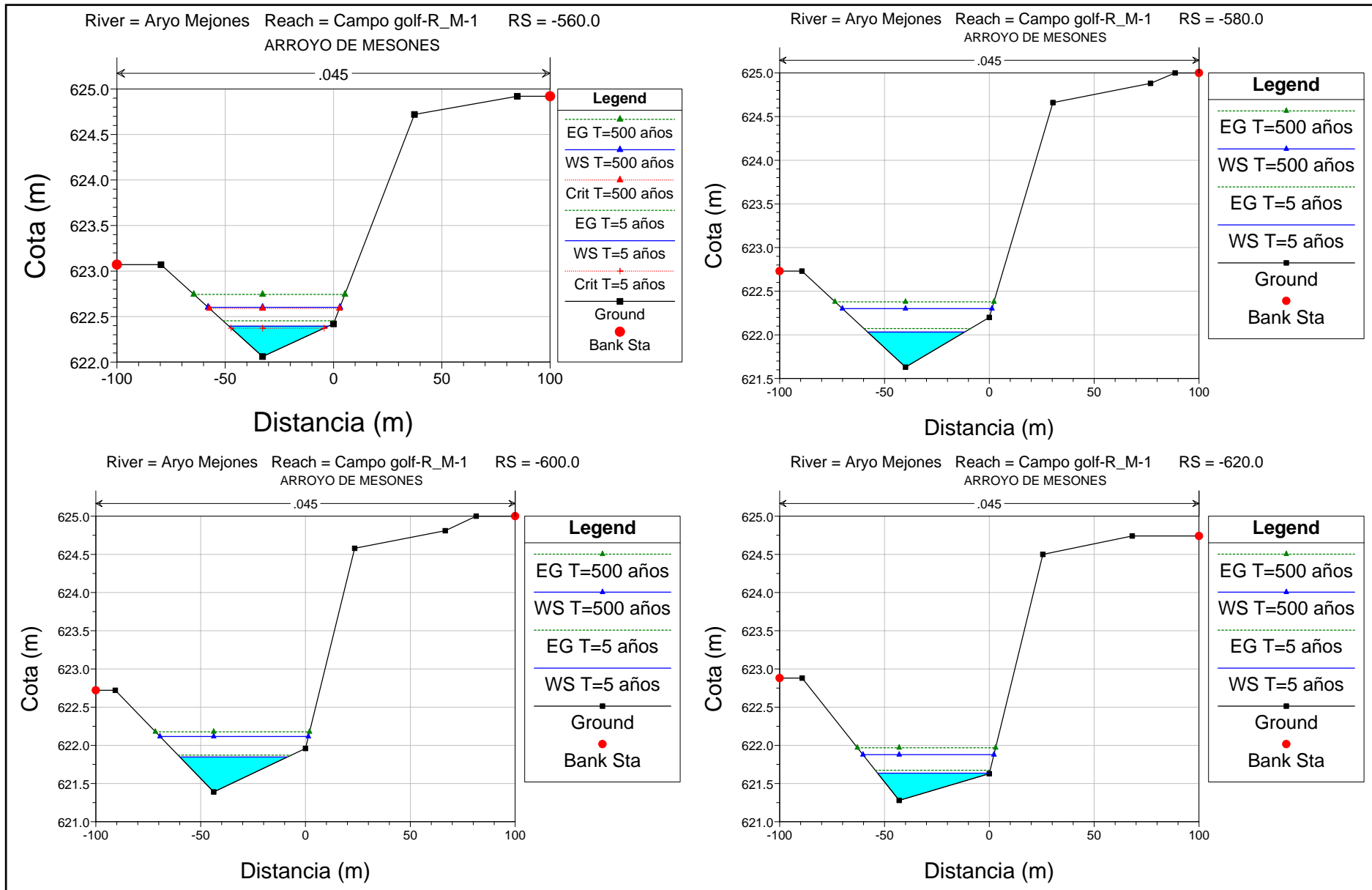


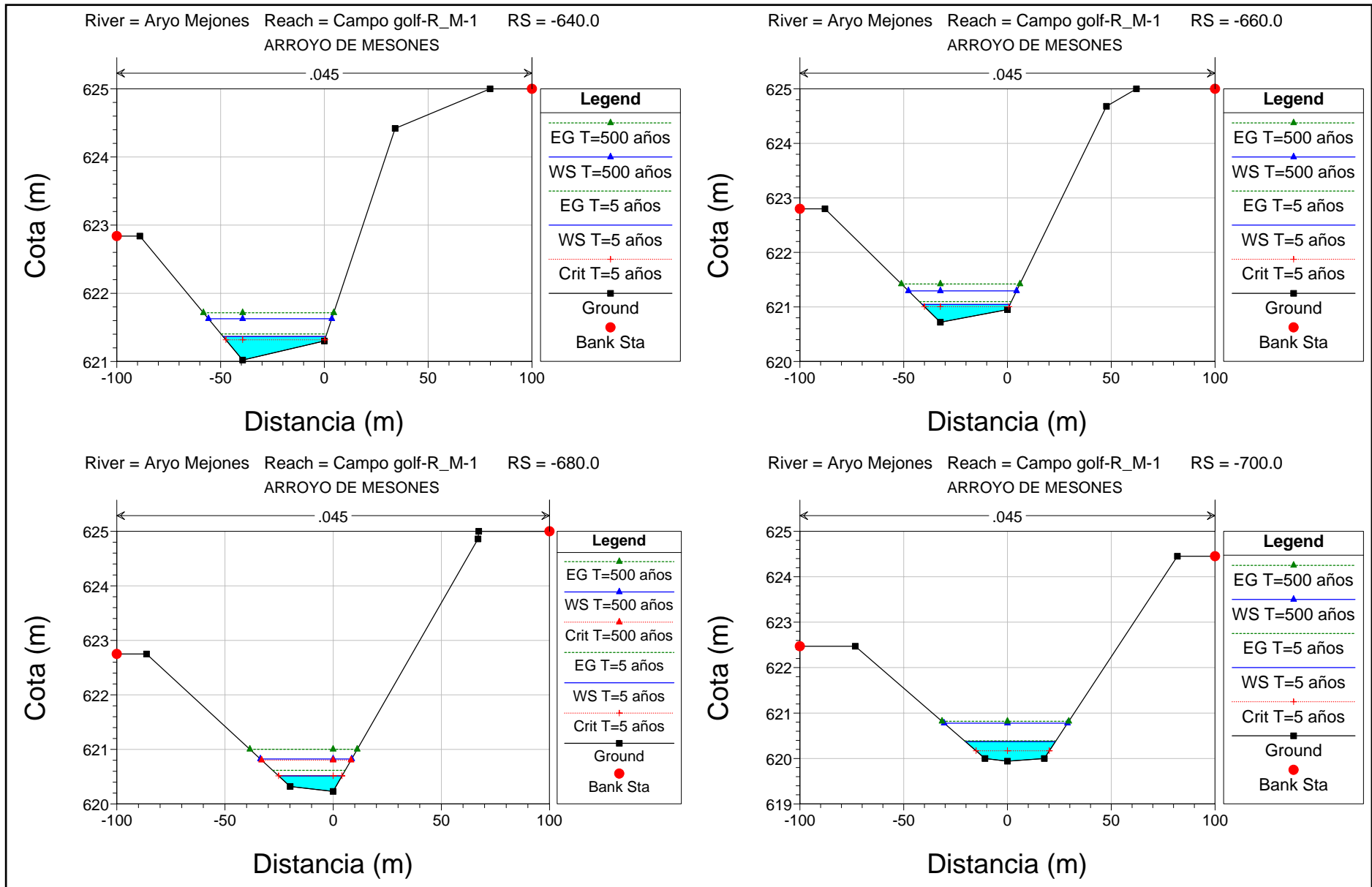


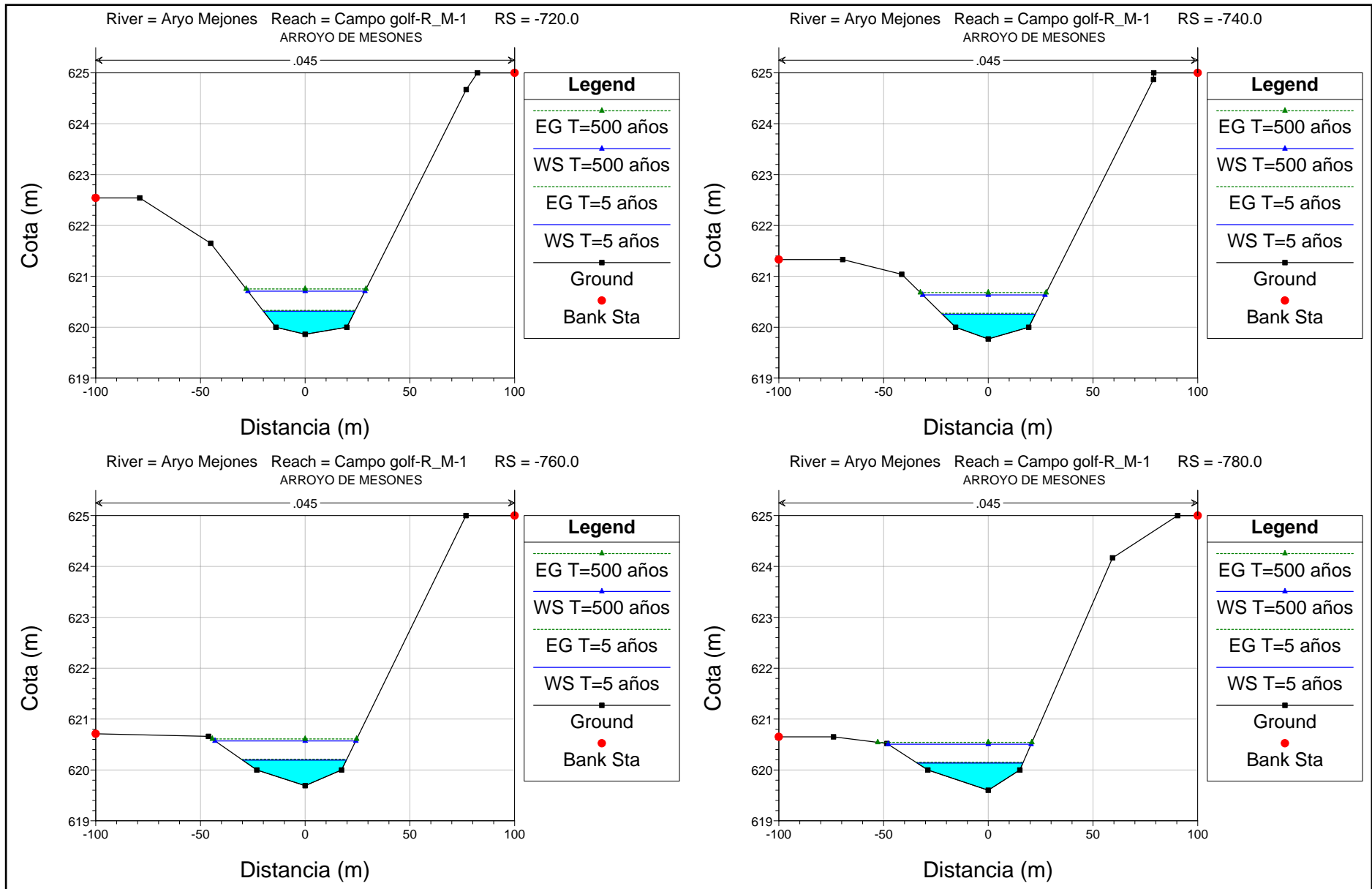


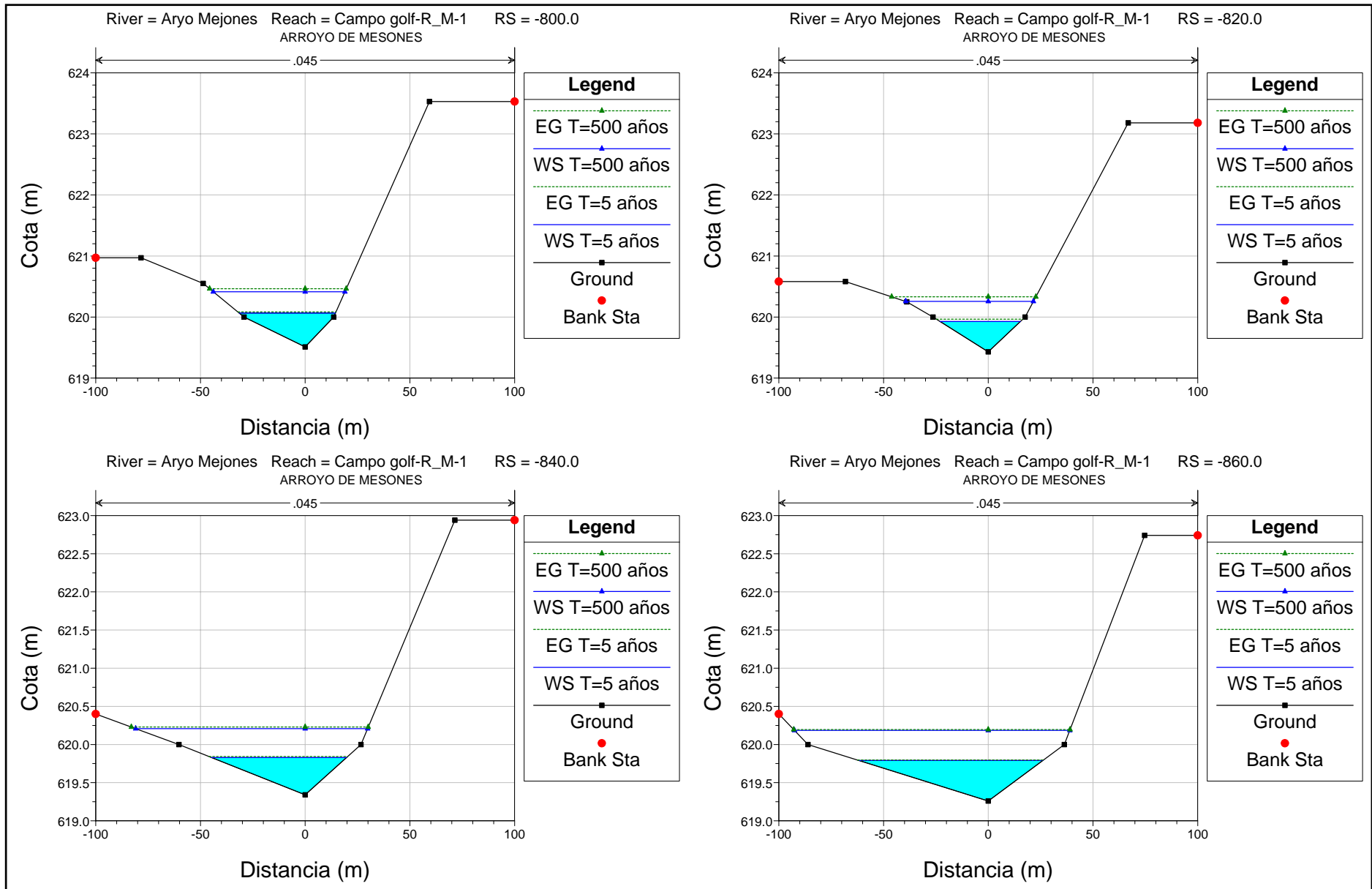


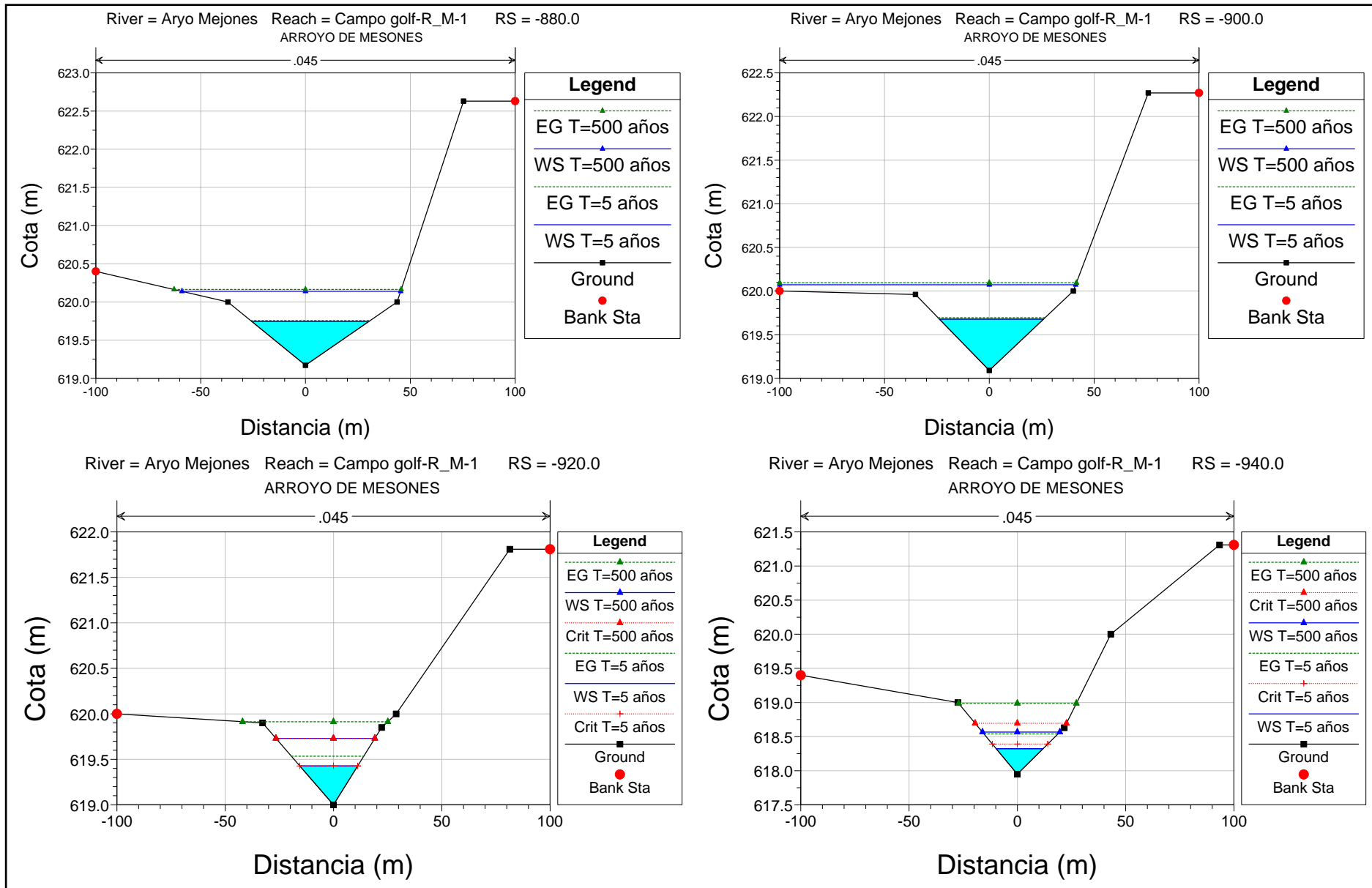


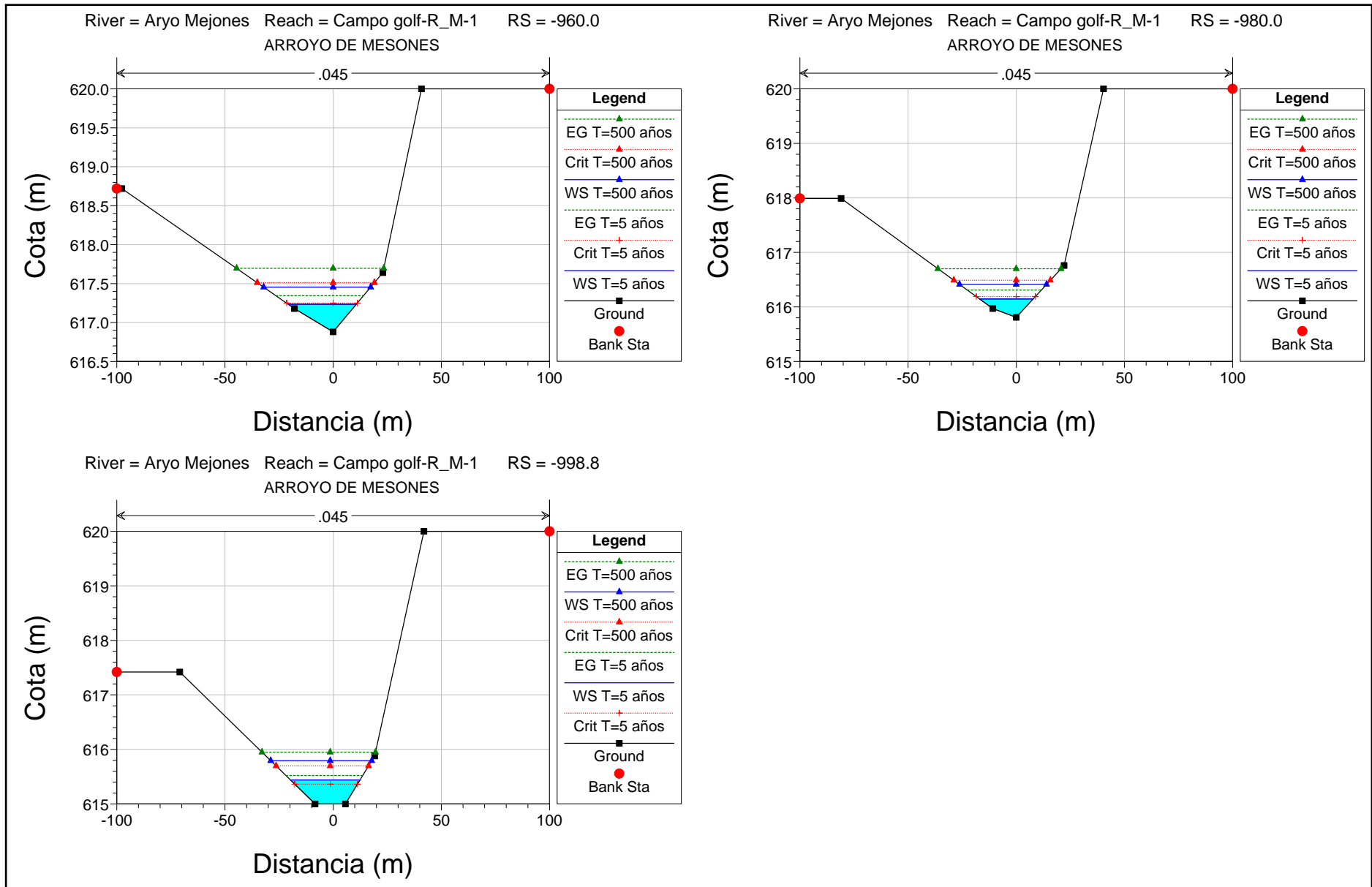












COMPROBACIÓN OBRAS DE DRENAJE EXISTENTES

COMPROBACIÓN DE OBRAS DE DRENAJE EXISTENTES:

A continuación se comprueban las Secciones de Control en las que actualmente existen Obras de Drenaje. Éstas son:

- **SECCIÓN 4:** canalización del Arroyo de la Vega a su entrada al casco urbano de Alcobendas. La O.D. existente consta de un tubo tipo ARCO Multi-Placa de \varnothing 3.300 mm.
- **O.D. BAJO C/ VALPORTILLO:** O.D. consistente en tres tubos tipo Arco Multiplaca de diámetro interior \varnothing 1.960 mm
- **O.D. BAJO C/ FRANCISCO GERVÁS:** O.D. consistente en tres tubos tipo Arco Multiplaca de diámetro interior \varnothing 1.960 mm
- **SECCIÓN 8:** O.D. consistente en un marco prefabricado de sección rectangular de 2,00 x 3,00 m (ancho x alto)
- **SECCIÓN 9:** O.D. consistente en un marco prefabricado de sección rectangular de 3,00 x 2,00 m (ancho x alto)

Según las comprobaciones realizadas, se obtiene el comportamiento de cada una de las O.D. contempladas, resultando que:

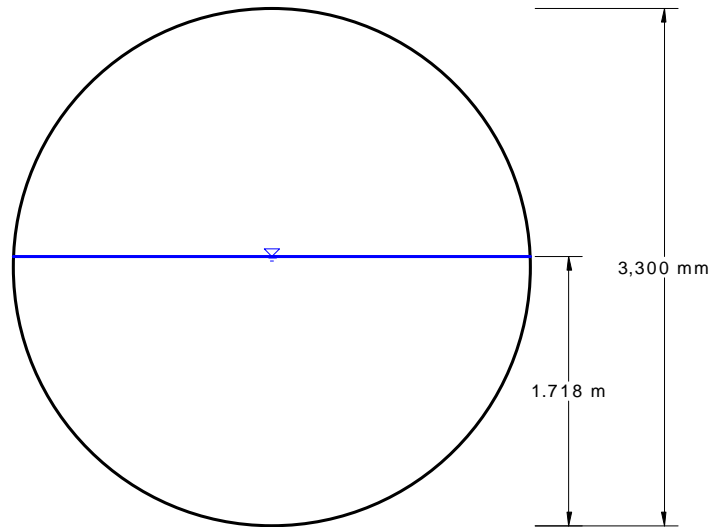
EN ESTADO FUTURO:

- | | |
|---------------------------------|--------|
| - SECCIÓN 4 (Embocadura) | CUMPLE |
| - O.D. BAJO C/ VALPORTILLO | CUMPLE |
| - O.D. BAJO C/ FRANCISCO GERVÁS | CUMPLE |
| - SECCIÓN 8 | CUMPLE |
| - SECCIÓN 9 | CUMPLE |

| | |
|---------------------|--|
| Project Description | |
| Worksheet | ARROYO DE LA VEGA. SITUACIÓN FUTURO (T=500 AÑOS). |
| | SECCIÓN 4-EMBOCADURA. |
| Flow Element | Circular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| | |
|----------------------|---------------------------|
| Input Data | |
| Mannings Coefficient | 0.013 |
| Slope | 0.015000 m/m |
| Diameter | 3,300 mm |
| Discharge | 37.9400 m ³ /s |

| | |
|-------------------|---------------------------|
| Results | |
| Depth | 1.718 m |
| Flow Area | 4.5 m ² |
| Wetted Perimeter | 5.32 m |
| Top Width | 3.30 m |
| Critical Depth | 2.63 m |
| Percent Full | 52.1 % |
| Critical Slope | 0.004536 m/m |
| Velocity | 8.43 m/s |
| Velocity Head | 3.62 m |
| Specific Energy | 5.340 m |
| Froude Number | 2.30 |
| Maximum Discharge | 76.2459 m ³ /s |
| Discharge Full | 70.8799 m ³ /s |
| Slope Full | 0.004298 m/m |
| Flow Type | Supercritical |



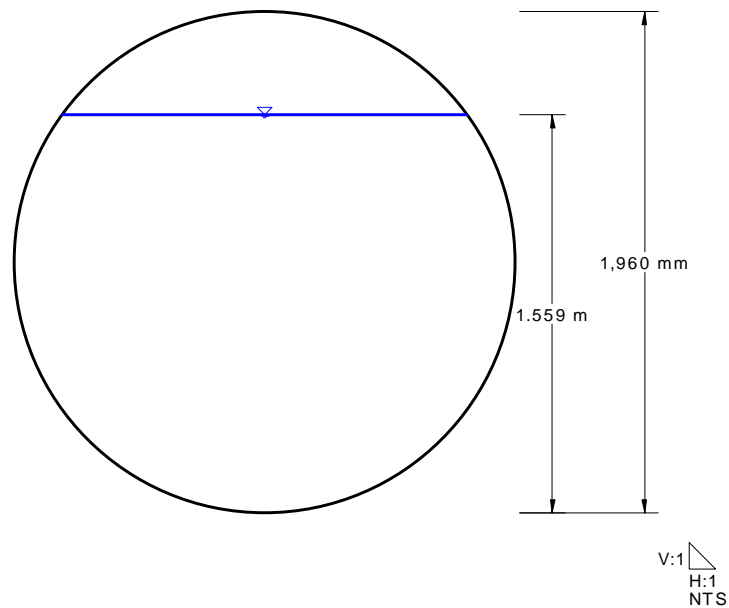
V:1
 H:1
 NTS

Se comprueba que la Sección tiene capacidad suficiente para desaguar todo el caudal de aguas pluviales generado aguas arriba, para la Situación Futura, para un período de retorno de 500 años.

| Project Description | |
|---------------------|---|
| Worksheet | ARROYO DE LA VEGA. SITUACIÓN FUTURO (T=500 AÑOS). O.D. C/ VALPORTILLO. |
| Flow Element | Circular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | |
|----------------------|---------------------------|
| Mannings Coefficient | 0.015 |
| Slope | 0.011000 m/m |
| Diameter | 1,960 mm |
| Discharge | 12.7470 m ³ /s |

| Results | |
|-------------------|---------------------------|
| Depth | 1.559 m |
| Flow Area | 2.6 m ² |
| Wetted Perimeter | 4.32 m |
| Top Width | 1.58 m |
| Critical Depth | 1.71 m |
| Percent Full | 79.6 % |
| Critical Slope | 0.009462 m/m |
| Velocity | 4.95 m/s |
| Velocity Head | 1.25 m |
| Specific Energy | 2.810 m |
| Froude Number | 1.24 |
| Maximum Discharge | 14.1047 m ³ /s |
| Discharge Full | 13.1121 m ³ /s |
| Slope Full | 0.010396 m/m |
| Flow Type | Supercritical |

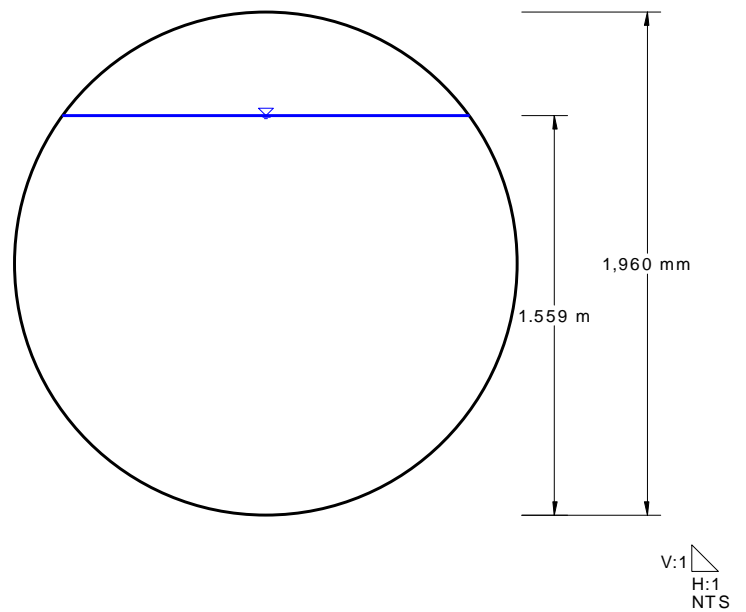


Se comprueba uno de los tres tubos que forman la O.D. Para ello se considera la tercera parte del caudal total (38,241 m³/s).

| Project Description | |
|---------------------|---|
| Worksheet | ARROYO DE LA VEGA. SITUACIÓN FUTURO (T=500 AÑOS). O.D. C/ FCO. GERVÁS. |
| Flow Element | Circular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| Input Data | |
|----------------------|---------------------------|
| Mannings Coefficient | 0.015 |
| Slope | 0.011000 m/m |
| Diameter | 1,960 mm |
| Discharge | 12.7470 m ³ /s |

| Results | |
|-------------------|---------------------------|
| Depth | 1.559 m |
| Flow Area | 2.6 m ² |
| Wetted Perimeter | 4.32 m |
| Top Width | 1.58 m |
| Critical Depth | 1.71 m |
| Percent Full | 79.6 % |
| Critical Slope | 0.009462 m/m |
| Velocity | 4.95 m/s |
| Velocity Head | 1.25 m |
| Specific Energy | 2.810 m |
| Froude Number | 1.24 |
| Maximum Discharge | 14.1047 m ³ /s |
| Discharge Full | 13.1121 m ³ /s |
| Slope Full | 0.010396 m/m |
| Flow Type | Supercritical |

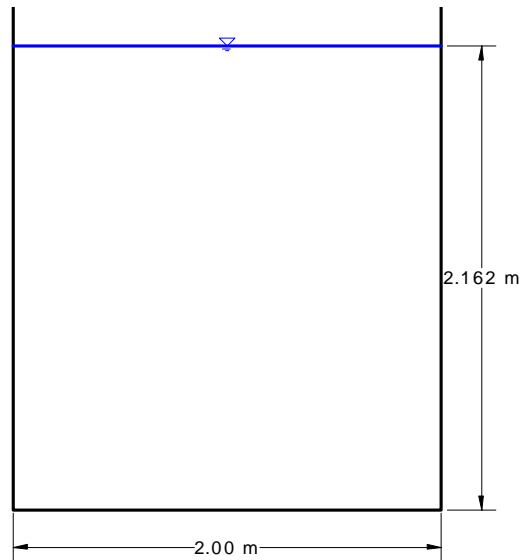


Se comprueba uno de los tres tubos que forman la O.D. Para ello se considera la tercera parte del caudal total (38,241 m³/s).

| | |
|---------------------|---|
| Project Description | |
| Worksheet | ARROYO MESONES. SITUACIÓN FUTURO (T=500 AÑOS). SECCIÓN DE CONTROL 8. |
| Flow Element | Rectangular Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

| | |
|----------------------|---------------------------|
| Input Data | |
| Mannings Coefficient | 0.013 |
| Slope | 0.015000 m/m |
| Bottom Width | 2.00 m |
| Discharge | 31.6234 m ³ /s |

| | |
|------------------|--------------------|
| Results | |
| Depth | 2.162 m |
| Flow Area | 4.3 m ² |
| Wetted Perimeter | 6.32 m |
| Top Width | 2.00 m |
| Critical Depth | 2.94 m |
| Critical Slope | 0.007204 m/m |
| Velocity | 7.31 m/s |
| Velocity Head | 2.73 m |
| Specific Energy | 4.888 m |
| Froude Number | 1.59 |
| Flow Type | Supercritical |



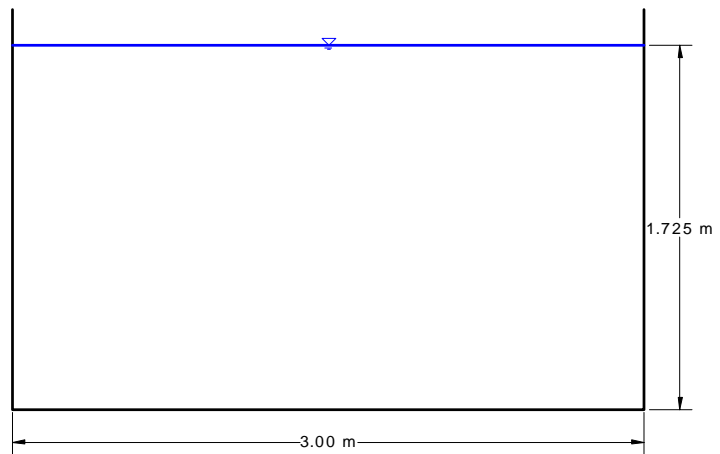
V:1
H:1
NTS

La O.D. existente se compone de un marco prefabricado de sección rectangular libre de 2,00 x 3,00 m. Luego, tiene capacidad hidráulica suficiente para desaguar los caudales de aguas pluviales generados en el Estado Futuro, para un período de retorno de 500 años.

| Project Description | |
|---------------------|--|
| Worksheet | ARROYO MESONES. SIITUACIÓN FUTURO (T=500 AÑOS). |
| Flow Element | SECCIÓN DE CONTROL 9. |
| Method | Rectangular Channel |
| Solve For | Manning's Formula |
| | Channel Depth |

| Input Data | |
|----------------------|---------------------------|
| Mannings Coefficient | 0.013 |
| Slope | 0.015000 m/m |
| Bottom Width | 3.00 m |
| Discharge | 42.1028 m ³ /s |

| Results | |
|------------------|--------------------|
| Depth | 1.725 m |
| Flow Area | 5.2 m ² |
| Wetted Perimeter | 6.45 m |
| Top Width | 3.00 m |
| Critical Depth | 2.72 m |
| Critical Slope | 0.004714 m/m |
| Velocity | 8.13 m/s |
| Velocity Head | 3.37 m |
| Specific Energy | 5.099 m |
| Froude Number | 1.98 |
| Flow Type | Supercritical |



V:1
 H:1
 NTS

La O.D. existente se compone de un marco prefabricado de sección rectangular libre de 3,00 x 2,00 m. Luego, tiene capacidad hidráulica suficiente para desaguar los caudales de aguas pluviales generados en el Estado Futuro, para un período de retorno de 500 años.

**COMPROBACIÓN DEL CAUCE
DEL ARROYO DE LA VEGA A SU PASO
POR LA ZONA INDUSTRIAL DE ALCOBENDAS**

COMPROBACIÓN DE LA SECCIÓN DEL CAUCE DEL ARROYO DE LA VEGA, A SU PASO POR LA ZONA INDUSTRIAL DE ALCOBENDAS.

Según el Proyecto de *“Recuperación del Cauce del Arroyo de la Vega en el tramo de la zona industrial de Alcobendas”*, se plantea llevar a cabo la recuperación y acondicionamiento de este tramo adoptando una sección transversal del siguiente tipo:

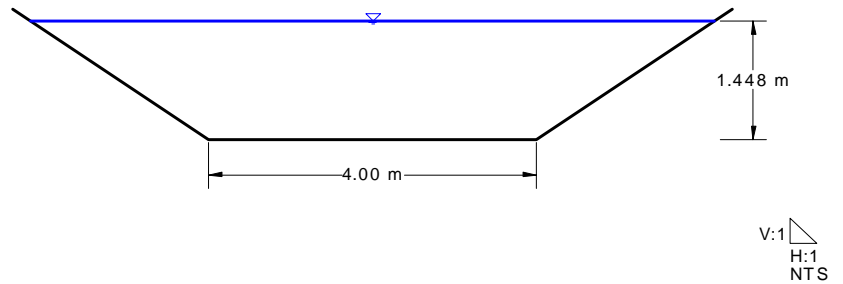
- Cauce: Lecho plano, de 4 m de ancho, hormigonado sobre 1,20 m de gravas. Corazas de Gabiones laterales con taludes 3/2, atados a la base de hormigón. Altura media del cauce 3 m. Anchura total de 12 m.

Se comprueba a continuación dicha sección para los caudales obtenidos, para un período de retorno de 500 años, en la Situación Futura.

| | |
|---------------------|---|
| Project Description | |
| Worksheet | ARROYO DE LA VEGA. SITUACIÓN FUTURO (T=500 AÑOS). CAUCE PROPUESTO. |
| Flow Element | Trapezoidal Channel |
| Method | Manning's Formula |
| Solve For | Channel Depth |

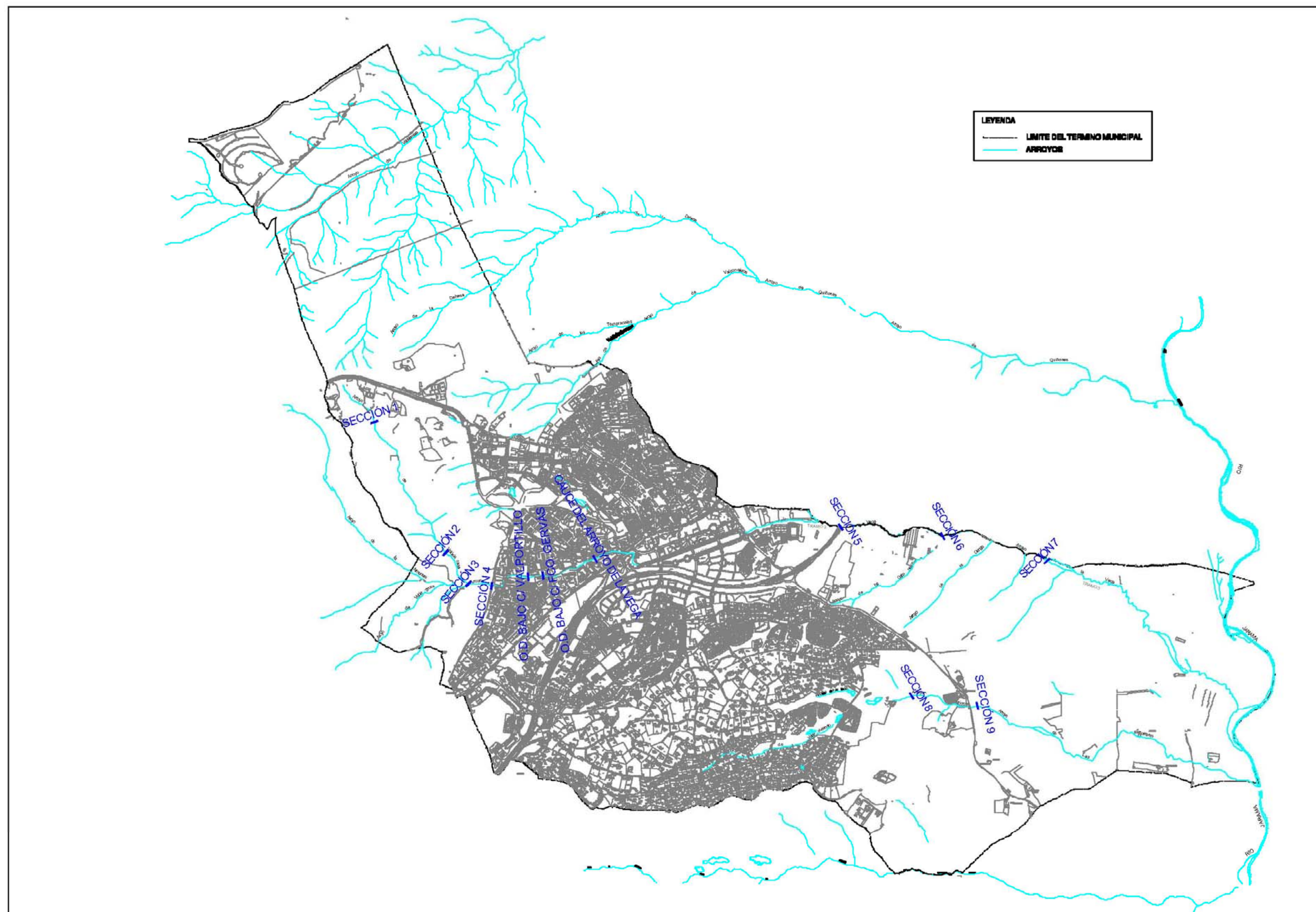
| | |
|----------------------|---------------------------|
| Input Data | |
| Mannings Coefficient | 0.024 |
| Slope | 0.011000 m/m |
| Left Side Slope | 1.50 H : V |
| Right Side Slope | 1.50 H : V |
| Bottom Width | 4.00 m |
| Discharge | 38.2400 m ³ /s |

| | |
|------------------|--------------------|
| Results | |
| Depth | 1.448 m |
| Flow Area | 8.9 m ² |
| Wetted Perimeter | 9.22 m |
| Top Width | 8.34 m |
| Critical Depth | 1.69 m |
| Critical Slope | 0.006099 m/m |
| Velocity | 4.28 m/s |
| Velocity Head | 0.93 m |
| Specific Energy | 2.382 m |
| Froude Number | 1.32 |
| Flow Type | Supercritical |



Se comprueba que con la nueva sección propuesta, se tiene capacidad suficiente para desaguar los caudales de aguas pluviales generados aguas arriba en la Situación Futura, para un período de retorno de 500 años.

LOCALIZACIÓN DE SECCIONES DE CONTROL ANALIZADAS





Ayuntamiento de
Alcobendas

**ESTUDIO HIDROLÓGICO Y DE GESTIÓN DE INFRAESTRUCTURAS
DE SANEAMIENTO. TOMO II**

Revisión y adaptación del Plan General de Alcobendas

