

# ELEVATION CERTIFICATE

**Important:** Follow the instructions on pages 1–9.

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

| SECTION A – PROPERTY INFORMATION   |                 |                                   |  | FOR INSURANCE COMPANY USE |  |
|--|-----------------|-----------------------------------|--|---------------------------|--|
| A1. Building Owner's Name<br>James D. and Margaret L. Shockley   |                 |                                   |  | Policy Number:            |  |
| A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.<br>23 Road 4265  |                 |                                   |  | Company NAIC Number:      |  |
| City<br>Navajo Dam   |                 | State<br>New Mexico               |  | ZIP Code<br>87419         |  |
| A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.)<br>Parcel #2-047-176-240-456 Account R0070702   |                 |                                   |  |                           |  |
| A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>Residential</u>  |                 |                                   |  |                           |  |
| A5. Latitude/Longitude: Lat. <u>36° 48' 05.97833" N</u> Long. <u>107° 41' 53.615" W</u> Horizontal Datum: <input type="checkbox"/> NAD 1927 <input checked="" type="checkbox"/> NAD 1983   |                 |                                   |  |                           |  |
| A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance.  |                 |                                   |  |                           |  |
| A7. Building Diagram Number <u>9</u>   |                 |                                   |  |                           |  |
| A8. For a building with a crawlspace or enclosure(s):  |                 |                                   |  |                           |  |
| a) Square footage of crawlspace or enclosure(s) <u>2800.00</u> sq ft   |                 |                                   |  |                           |  |
| b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>10</u>   |                 |                                   |  |                           |  |
| c) Total net area of flood openings in A8.b <u>420.00</u> sq in  |                 |                                   |  |                           |  |
| d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |                 |                                   |  |                           |  |
| A9. For a building with an attached garage:  |                 |                                   |  |                           |  |
| a) Square footage of attached garage <u>N/A</u> sq ft  |                 |                                   |  |                           |  |
| b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade <u>N/A</u>   |                 |                                   |  |                           |  |
| c) Total net area of flood openings in A9.b <u>N/A</u> sq in   |                 |                                   |  |                           |  |
| d) Engineered flood openings? <input type="checkbox"/> Yes <input type="checkbox"/> No   |                 |                                   |  |                           |  |
| SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION  |                 |                                   |  |                           |  |
| B1. NFIP Community Name & Community Number<br>San Juan County/350064   |                 |                                   | B2. County Name<br>San Juan                          |                           | B3. State<br>New Mexico  |
| B4. Map/Panel Number<br>35045C0800   | B5. Suffix<br>F | B6. FIRM Index Date<br>08-05-2010 | B7. FIRM Panel Effective/ Revised Date<br>08-05-2010 | B8. Flood Zone(s)<br>A    | B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth)<br>5667.07 |
| B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9:<br><input type="checkbox"/> FIS Profile <input type="checkbox"/> FIRM <input type="checkbox"/> Community Determined <input checked="" type="checkbox"/> Other/Source: <u>HEC-RAS</u> |                 |                                   |  |                           |  |
| B11. Indicate elevation datum used for BFE in Item B9: <input type="checkbox"/> NGVD 1929 <input checked="" type="checkbox"/> NAVD 1988 <input type="checkbox"/> Other/Source: _____   |                 |                                   |  |                           |  |
| B12. Is the building located in a Coastal Barrier Resources System (CBRS) area or Otherwise Protected Area (OPA)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>Designation Date: _____ <input type="checkbox"/> CBRS <input type="checkbox"/> OPA                  |                 |                                   |  |                           |  |

# ELEVATION CERTIFICATE

OMB No. 1660-0008  
Expiration Date: November 30, 2018

|   |                     |                   |                                  |
|---|---------------------|-------------------|----------------------------------|
| <b>IMPORTANT: In these spaces, copy the corresponding information from Section A.</b>                             |                     |                   | <b>FOR INSURANCE COMPANY USE</b> |
| Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No.<br>23 Road 4265 |                     |                   | Policy Number:                   |
| City<br>Navajo Dam  | State<br>New Mexico | ZIP Code<br>87419 | Company NAIC Number              |

## SECTION C – BUILDING ELEVATION INFORMATION (SURVEY REQUIRED)

C1. Building elevations are based on:  Construction Drawings\*  Building Under Construction\*  Finished Construction

\*A new Elevation Certificate will be required when construction of the building is complete.

C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/AO. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.

Benchmark Utilized: Opus Vertical Datum: NAVD 1988

Indicate elevation datum used for the elevations in items a) through h) below.

NGVD 1929  NAVD 1988  Other/Source: \_\_\_\_\_

Datum used for building elevations must be the same as that used for the BFE.

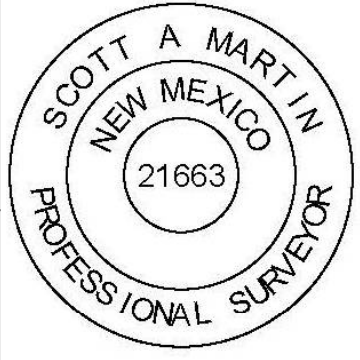
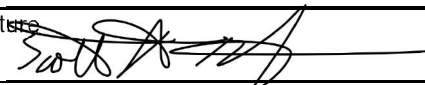
Check the measurement used.

- |   |                |  |                                 |
|---|----------------|--|---------------------------------|
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor)   | <u>5672.32</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| b) Top of the next higher floor   | <u>5676.24</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only)   | <u>N/A</u>     | <input type="checkbox"/> feet            | <input type="checkbox"/> meters |
| d) Attached garage (top of slab)  | <u>N/A</u>     | <input type="checkbox"/> feet            | <input type="checkbox"/> meters |
| e) Lowest elevation of machinery or equipment servicing the building<br>(Describe type of equipment and location in Comments) | <u>5673.45</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG)  | <u>5673.45</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG)   | <u>5673.71</u> | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support                                  | <u>N/A</u>     | <input type="checkbox"/> feet            | <input type="checkbox"/> meters |

## SECTION D – SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information. I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

Were latitude and longitude in Section A provided by a licensed land surveyor?  Yes  No  Check here if attachments.

|  |                         |   |                   |
|--|-------------------------|---|-------------------|
| Certifier's Name<br>Scott A. Martin  | License Number<br>24570 |  |                   |
| Title<br>Engineer  |                         |   |                   |
| Company Name<br>Sakura Engineering and Surveying   |                         |   |                   |
| Address<br>125 West Main St.   |                         |   |                   |
| City<br>Farmington   | State<br>New Mexico     |   | ZIP Code<br>87401 |
| Signature<br> | Date<br>08-26-2020      | Telephone<br>(505) 564-2139   | Ext.<br>2         |

Copy all pages of this Elevation Certificate and all attachments for (1) community official, (2) insurance agent/company, and (3) building owner.

Comments (including type of equipment and location, per C2(e), if applicable)

Lowest Machinery is AC unit

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OMB No. 1660-0008  
Expiration Date: November 30, 2018

|   |                     |                   |                                  |
|---|---------------------|-------------------|----------------------------------|
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| City<br>Navajo Dam  | State<br>New Mexico | ZIP Code<br>87419 | Company NAIC Number              |

## SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)

For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.

- E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).
- a) Top of bottom floor (including basement, crawlspace, or enclosure) is 5672.32  feet  meters  above or  below the HAG.
- b) Top of bottom floor (including basement, crawlspace, or enclosure) is 5672.32  feet  meters  above or  below the LAG.
- E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 1–2 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is 5676.24  feet  meters  above or  below the HAG.
- E3. Attached garage (top of slab) is N/A  feet  meters  above or  below the HAG.
- E4. Top of platform of machinery and/or equipment servicing the building is 5673.45  feet  meters  above or  below the HAG.
- E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance?  Yes  No  Unknown. The local official must certify this information in Section G.

## SECTION F – PROPERTY OWNER (OR OWNER'S REPRESENTATIVE) CERTIFICATION

The property owner or owner's authorized representative who completes Sections A, B, and E for Zone A (without a FEMA-issued or community-issued BFE) or Zone AO must sign here. The statements in Sections A, B, and E are correct to the best of my knowledge.

Property Owner or Owner's Authorized Representative's Name

Address City State ZIP Code

Signature Date Telephone

Comments

Check here if attachments.

# ELEVATION CERTIFICATE

OMB No. 1660-0008  
Expiration Date: November 30, 2018

|   |                     |                   |                                  |
|---|---------------------|-------------------|----------------------------------|
| <b>IMPORTANT: In these spaces, copy the corresponding information from Section A.</b>                             |                     |                   | <b>FOR INSURANCE COMPANY USE</b> |
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## SECTION G – COMMUNITY INFORMATION (OPTIONAL)

The local official who is authorized by law or ordinance to administer the community's floodplain management ordinance can complete Sections A, B, C (or E), and G of this Elevation Certificate. Complete the applicable item(s) and sign below. Check the measurement used in Items G8–G10. In Puerto Rico only, enter meters.

- G1.  The information in Section C was taken from other documentation that has been signed and sealed by a licensed surveyor, engineer, or architect who is authorized by law to certify elevation information. (Indicate the source and date of the elevation data in the Comments area below.)
- G2.  A community official completed Section E for a building located in Zone A (without a FEMA-issued or community-issued BFE) or Zone AO.
- G3.  The following information (Items G4–G10) is provided for community floodplain management purposes.

|                   |                        |   |
|-------------------|------------------------|---|
| G4. Permit Number | G5. Date Permit Issued | G6. Date Certificate of Compliance/Occupancy Issued |
|-------------------|------------------------|---|

G7. This permit has been issued for:  New Construction  Substantial Improvement

G8. Elevation of as-built lowest floor (including basement) of the building: \_\_\_\_\_  feet  meters Datum \_\_\_\_\_

G9. BFE or (in Zone AO) depth of flooding at the building site: \_\_\_\_\_  feet  meters Datum \_\_\_\_\_

G10. Community's design flood elevation: \_\_\_\_\_  feet  meters Datum \_\_\_\_\_

Local Official's Name \_\_\_\_\_ Title \_\_\_\_\_

Community Name \_\_\_\_\_ Telephone \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Comments (including type of equipment and location, per C2(e), if applicable)

Check here if attachments.

# BUILDING PHOTOGRAPHS

See Instructions for Item A6.

OMB No. 1660-0008

Expiration Date: November 30, 2018

## ELEVATION CERTIFICATE

|   |                     |                   |                                  |
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If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.



Photo One

Photo One Caption North Side (Date Taken 8-23-2020)

Clear Photo One



Photo Two

Photo Two Caption East Side (Date Taken 8-23-2020)

Clear Photo Two



# BUILDING PHOTOGRAPHS

Continuation Page

OMB No. 1660-0008

Expiration Date: November 30, 2018

## ELEVATION CERTIFICATE

|   |                     |                   |                                  |
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| <b>IMPORTANT: In these spaces, copy the corresponding information from Section A.</b>                             |                     |                   | <b>FOR INSURANCE COMPANY USE</b> |
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| City<br>Navajo Dam  | State<br>New Mexico | ZIP Code<br>87419 | Company NAIC Number              |

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.



Photo Three

Photo Three Caption West Side (Date Taken 8-23-2020)

Clear Photo Three

Photo Four

Photo Four Caption

Clear Photo Four

2018-108.rep

HEC-RAS Version 4.1.0 Jan 2010  
U.S. Army Corps 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   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: 2018-108  
Project File : 2018-108.prj  
Run Date and Time: 1/23/2018 4:45:50 PM



Project in English units

PLAN DATA

Plan Title: Plan 01  
Plan File : C:\Users\Scott\Documents\2018-108.p01

Geometry Title: Geom 01  
Geometry File : C:\Users\Scott\Documents\2018-108.g01

Flow Title : Flow 02  
Flow File : C:\Users\Scott\Documents\2018-108.f02

Plan Summary Information:

|                           |   |   |                    |   |   |
|---------------------------|---|---|--------------------|---|---|
| Number of: Cross Sections | = | 4 | 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

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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: Subcritical Flow

FLOW DATA

Flow Title: Flow 02  
Flow File : C:\Users\Scott\Documents\2018-108.f02

Flow Data (cfs)

| River          | Reach          | RS  | PF 1  |
|----------------|----------------|-----|-------|
| SAN JUAN RIVER | SAN JUAN RIVER | 400 | 18908 |

Boundary Conditions

| River          | Reach          | Profile | Upstream |
|----------------|----------------|---------|----------|
| SAN JUAN RIVER | SAN JUAN RIVER | PF 1    | Critical |
| Downstream     |                |         |          |
| Critical       |                |         |          |

GEOMETRY DATA

Geometry Title: Geom 01  
Geometry File : C:\Users\Scott\Documents\2018-108.g01

CROSS SECTION

RIVER: SAN JUAN RIVER  
REACH: SAN JUAN RIVER RS: 400



INPUT

Description:

Station Elevation Data num= 100

| Sta      | Elev     | Sta     | Elev     | Sta     | Elev     | Sta     | Elev     | Sta     | Elev    |
|----------|----------|---------|----------|---------|----------|---------|----------|---------|---------|
| 0        | 5714.376 | 849976  | 5710.915 | 65997   | 5706.042 | 1.67999 | 5702.47  | 32.62   | 5695.59 |
| 41.67999 | 5690.355 | 1.23999 | 5685.615 | 7.98999 | 5682.462 | 8.84998 | 5680.386 | 7.35999 | 5679.13 |
| 72.83002 | 5677.919 | 0.82001 | 5674.46  | 102.08  | 5672.15  | 111.5   | 5669.96  | 115.62  | 5670.49 |
| 120.26   | 5670.83  | 124.73  | 5670.95  | 127.84  | 5670.7   | 136.45  | 5669.52  | 143.56  | 5668.17 |
| 152.19   | 5666.32  | 153.75  | 5666.16  | 158.85  | 5664.21  | 167.69  | 5662.22  | 170.44  | 5661.9  |
| 179.18   | 5661.36  | 186.51  | 5660.79  | 205     | 5659.13  | 212.39  | 5658.88  | 223.07  | 5659.13 |
| 236.26   | 5659.35  | 246.57  | 5659.26  | 268.72  | 5659.18  | 272.59  | 5658.86  | 288.44  | 5657.9  |
| 296.29   | 5657.3   | 303.5   | 5657.52  | 311.01  | 5657.62  | 328.02  | 5657.58  | 332.74  | 5657.45 |
| 342.93   | 5656.95  | 352.22  | 5656.98  | 359.41  | 5657.24  | 362.71  | 5657.62  | 369     | 5658.79 |
| 373.72   | 5659.41  | 379.99  | 5661.59  | 391.22  | 5665.44  | 409.73  | 5669.48  | 416.11  | 5670.78 |
| 420.04   | 5671.4   | 428.16  | 5671.91  | 441.28  | 5672.4   | 454.57  | 5672.5   | 468.75  | 5672.51 |
| 484.46   | 5672.36  | 499.1   | 5672.33  | 509.07  | 5672.42  | 554.85  | 5672.38  | 578.67  | 5672.41 |
| 608.98   | 5672.5   | 618.67  | 5672.38  | 626.05  | 5672.39  | 638.43  | 5672.62  | 651.88  | 5672.62 |
| 657.26   | 5672.55  | 664.04  | 5672.22  | 675.38  | 5672.38  | 692.28  | 5672.35  | 698.3   | 5672.5  |
| 706.93   | 5672.5   | 720.63  | 5672.36  | 725.27  | 5672.5   | 732.29  | 5672.55  | 738.7   | 5672.54 |
| 746.08   | 5672.69  | 751.01  | 5672.58  | 753.62  | 5672.29  | 754.81  | 5672.54  | 767.36  | 5672.77 |
| 792.39   | 5672.71  | 802.56  | 5672.57  | 809.39  | 5672.57  | 821.82  | 5672.78  | 827.31  | 5672.74 |
| 834.48   | 5672.88  | 844.34  | 5672.81  | 851.53  | 5672.95  | 859.39  | 5672.9   | 873.02  | 5673.11 |
| 890.89   | 5673.18  | 898.53  | 5673.05  | 908.46  | 5673.53  | 913.48  | 5673.64  | 926.41  | 5673.6  |
| 940.67   | 5673.76  | 962.12  | 5673.76  | 966.06  | 5673.91  | 986.99  | 5673.87  | 1000    | 5673.66 |

Manning's n Values num= 3

| Sta | n Val | Sta | n Val | Sta    | n Val |
|-----|-------|-----|-------|--------|-------|
| 0   | .06   | 205 | .03   | 379.99 | .06   |

| Bank Sta: | Left | Right  | Lengths: | Left Channel | Right | Coeff Contr. | Expan.   |
|-----------|------|--------|----------|--------------|-------|--------------|----------|
|           | 205  | 379.99 |          | 100.01       | 100   | 100.61       | .1<br>.3 |

CROSS SECTION OUTPUT Profile #PF 1

|                    |          |                   |         |          |
|--------------------|----------|-------------------|---------|----------|
| E.G. Elev (ft)     | 5669.16  | Element           | Left OB | Channel  |
| Right OB           |          |                   |         |          |
| Vel Head (ft)      | 1.85     | Wt. n-Val.        | 0.060   | 0.030    |
| 0.060              |          |                   |         |          |
| W.S. Elev (ft)     | 5667.31  | Reach Len. (ft)   | 100.01  | 100.00   |
| 100.61             |          |                   |         |          |
| Crit W.S. (ft)     |          | Flow Area (sq ft) | 296.37  | 1566.87  |
| 50.53              |          |                   |         |          |
| E.G. Slope (ft/ft) | 0.002792 | Area (sq ft)      | 296.37  | 1566.87  |
| 50.53              |          |                   |         |          |
| Q Total (cfs)      | 18908.00 | Flow (cfs)        | 1147.58 | 17640.24 |
| 120.19             |          |                   |         |          |
| Top Width (ft)     | 252.17   | Top Width (ft)    | 57.40   | 174.99   |

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|                   |          |                        |         |          |
|-------------------|----------|------------------------|---------|----------|
| 19.77             |          |                        |         |          |
| Vel Total (ft/s)  | 9.88     | Avg. Vel. (ft/s)       | 3.87    | 11.26    |
| 2.38              |          |                        |         |          |
| Max Chl Dpth (ft) | 10.35    | Hydr. Depth (ft)       | 5.16    | 8.95     |
| 2.56              |          |                        |         |          |
| Conv. Total (cfs) | 357830.7 | Conv. (cfs)            | 21717.7 | 333838.5 |
| 2274.5            |          |                        |         |          |
| Length Wtd. (ft)  | 100.01   | Wetted Per. (ft)       | 58.23   | 175.63   |
| 20.62             |          |                        |         |          |
| Min Ch El (ft)    | 5656.95  | Shear (lb/sq ft)       | 0.89    | 1.56     |
| 0.43              |          |                        |         |          |
| Alpha             | 1.22     | Stream Power (lb/ft s) | 1000.00 | 0.00     |
| 0.00              |          |                        |         |          |
| Frctn Loss (ft)   | 0.27     | Cum Volume (acre-ft)   | 1.44    | 11.15    |
| 0.69              |          |                        |         |          |
| C & E Loss (ft)   | 0.02     | Cum SA (acres)         | 0.33    | 1.29     |
| 0.24              |          |                        |         |          |

CROSS SECTION

RIVER: SAN JUAN RIVER  
 REACH: SAN JUAN RIVER RS: 300

INPUT

Description:

Station Elevation Data num= 100

| Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    | Sta    | Elev    |
|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| 0      | 5725.59 | 10.16  | 5723.87 | 20.99  | 5721.43 | 30.77  | 5720.19 | 40.97  | 5718.43 |
| 38.12  | 5717.74 | 50.23  | 5713.44 | 55.38  | 5711.47 | 62.22  | 5708.56 | 67.09  | 5706.21 |
| 76.12  | 5701.24 | 82.60  | 5697.25 | 88.53  | 5693.49 | 82.49  | 5687.52 | 103.33 | 5684.73 |
| 107.15 | 5682.87 | 114.95 | 5679.32 | 122.7  | 5676.65 | 124.48 | 5676.22 | 132.2  | 5673.53 |
| 149.47 | 5667.81 | 155.25 | 5666.6  | 162.34 | 5665.36 | 175.2  | 5663.38 | 179.62 | 5663.08 |
| 188.27 | 5662.02 | 202.45 | 5660.07 | 206.4  | 5659.38 | 210.17 | 5659.28 | 224.6  | 5658.99 |
| 230.41 | 5659.05 | 245.2  | 5658.69 | 256.28 | 5658.18 | 267.6  | 5657.38 | 272.55 | 5657.15 |
| 276.80 | 5657.21 | 287.73 | 5657.69 | 295.11 | 5657.65 | 310.58 | 5657.76 | 316.93 | 5658.08 |
| 328.36 | 5658.16 | 346.66 | 5658.02 | 361.8  | 5657.74 | 365.7  | 5657.49 | 372.96 | 5657.74 |
| 386.27 | 5659.42 | 393.02 | 5660.95 | 403.30 | 5663.24 | 419.28 | 5666.6  | 429.77 | 5668.33 |
| 439.87 | 5669.68 | 449.24 | 5670.65 | 464.28 | 5671.87 | 485.08 | 5672.2  | 497.83 | 5672.24 |
| 513.9  | 5672.08 | 518.52 | 5672.4  | 524.15 | 5672.65 | 532.05 | 5672.75 | 541.43 | 5672.68 |
| 548.49 | 5672.54 | 550.89 | 5672.64 | 556.68 | 5672.84 | 582.22 | 5672.98 | 600.29 | 5672.86 |
| 609.02 | 5672.29 | 615.24 | 5672.56 | 625.81 | 5672.5  | 640    | 5672.19 | 641.85 | 5672.39 |
| 652.35 | 5672.62 | 663.79 | 5672.67 | 671.55 | 5672.58 | 675.56 | 5672.28 | 680.48 | 5672.39 |
| 708.92 | 5672.65 | 743.58 | 5672.78 | 778.16 | 5672.79 | 797.21 | 5672.99 | 830.48 | 5673    |
| 850.04 | 5673.06 | 858.84 | 5673.15 | 874.55 | 5673.19 | 894.02 | 5673.32 | 907.54 | 5673.53 |
| 916.65 | 5673.76 | 933.00 | 5674.03 | 950.29 | 5673.99 | 969.42 | 5673.74 | 982.81 | 5673.43 |

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985.4 5673.25 991.61 5673.21 998.79 5673.45 1004.24 5673.42 1008.6 5673.22  
 1014.14 5673.49 1022.11 5673.67 1027.82 5673.94 1038.5 5674.29 1050.84 5674.38

Manning's n Values num= 3  
 Sta n Val Sta n Val Sta n Val  
 0 .06 210.17 .03 393.02 .06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.  
 210.17 393.02 120.04 100 74.51 .1 .3

CROSS SECTION OUTPUT Profile #PF 1

| Parameter          | Value    | Element                | Left OB | Channel  |
|--------------------|----------|------------------------|---------|----------|
| E.G. Elev (ft)     | 5668.86  |                        |         |          |
| Right OB           |          |                        |         |          |
| Vel Head (ft)      | 1.79     | Wt. n-Val.             | 0.060   | 0.030    |
| 0.060              |          |                        |         |          |
| W.S. Elev (ft)     | 5667.07  | Reach Len. (ft)        | 120.04  | 100.00   |
| 74.51              |          |                        |         |          |
| Crit W.S. (ft)     |          | Flow Area (sq ft)      | 242.82  | 1622.72  |
| 86.27              |          |                        |         |          |
| E.G. Slope (ft/ft) | 0.002697 | Area (sq ft)           | 242.82  | 1622.72  |
| 86.27              |          |                        |         |          |
| Q Total (cfs)      | 18908.00 | Flow (cfs)             | 813.45  | 17868.98 |
| 225.57             |          |                        |         |          |
| Top Width (ft)     | 269.17   | Top Width (ft)         | 57.19   | 182.85   |
| 29.13              |          |                        |         |          |
| Vel Total (ft/s)   | 9.69     | Avg. Vel. (ft/s)       | 3.35    | 11.01    |
| 2.61               |          |                        |         |          |
| Max Chl Dpth (ft)  | 9.92     | Hydr. Depth (ft)       | 4.25    | 8.87     |
| 2.96               |          |                        |         |          |
| Conv. Total (cfs)  | 364069.7 | Conv. (cfs)            | 15662.8 | 344063.5 |
| 4343.3             |          |                        |         |          |
| Length Wtd. (ft)   | 100.28   | Wetted Per. (ft)       | 57.77   | 183.22   |
| 29.77              |          |                        |         |          |
| Min Ch El (ft)     | 5657.15  | Shear (lb/sq ft)       | 0.71    | 1.49     |
| 0.49               |          |                        |         |          |
| Alpha              | 1.23     | Stream Power (lb/ft s) | 1050.84 | 0.00     |
| 0.00               |          |                        |         |          |
| Frctn Loss (ft)    | 0.24     | Cum Volume (acre-ft)   | 0.82    | 7.49     |
| 0.53               |          |                        |         |          |
| C & E Loss (ft)    | 0.10     | Cum SA (acres)         | 0.20    | 0.88     |
| 0.18               |          |                        |         |          |

CROSS SECTION

RIVER: SAN JUAN RIVER  
 REACH: SAN JUAN RIVER RS: 200

INPUT

Description:

Station Elevation Data num= 100

| Sta      | Elev      | Sta      | Elev      | Sta      | Elev      | Sta      | Elev      | Sta     | Elev    |
|----------|-----------|----------|-----------|----------|-----------|----------|-----------|---------|---------|
| 0        | 5723.988  | 409973   | 5722.4819 | 19995    | 5720.6521 | 73999    | 5720.425  | 57001   | 5720.69 |
| 30.87    | 5720.7637 | 79999    | 5720.6740 | 66998    | 5720.8642 | 02997    | 5720.5952 | 02997   | 5716.72 |
| 56.12    | 5714.9259 | 26996    | 5713.3163 | 66998    | 5710.7166 | 70996    | 5708.66   | 70.94   | 5705.5  |
| 76.17999 | 5701.1988 | 82001    | 5690.1890 | 46997    | 5689.08   | 102.27   | 5682.86   | 110.5   | 5678.4  |
| 118.61   | 5674.37   | 125.35   | 5671.4    | 129.69   | 5669.69   | 135.05   | 5667.82   | 142.13  | 5665.57 |
| 144.98   | 5664.8    | 153.09   | 5663.32   | 163.61   | 5661.16   | 169.96   | 5660.05   | 174.66  | 5659.58 |
| 182.46   | 5659.28   | 197.39   | 5658.91   | 208.38   | 5658.68   | 220.55   | 5658.53   | 230.19  | 5658.56 |
| 233.57   | 5658.48   | 247.46   | 5658.4    | 257.94   | 5658.27   | 269.49   | 5658      | 282.43  | 5657.58 |
| 291.29   | 5657.15   | 305.59   | 5656.9    | 310.06   | 5656.67   | 313.36   | 5656.37   | 333.25  | 5656.26 |
| 343.46   | 5656.67   | 346.8    | 5656.88   | 352.59   | 5657.44   | 361.38   | 5658.58   | 366.91  | 5659.5  |
| 375.48   | 5660.74   | 394.0099 | 5663.34   | 396.34   | 5663.5    | 406.49   | 5664.55   | 412.19  | 5665.3  |
| 420.6    | 5666.06   | 441.1    | 5668.06   | 451.15   | 5668.96   | 462.98   | 5669.91   | 466.62  | 5670.12 |
| 473.8    | 5670.83   | 482.43   | 5671.49   | 500.79   | 5672      | 508.97   | 5672.15   | 12.6899 | 5672.23 |
| 530.78   | 5672.61   | 550.05   | 5672.7    | 568.14   | 5672.74   | 583.1899 | 5672.83   | 607     | 5672.9  |
| 628.66   | 5672.88   | 652.63   | 5673.24   | 660.62   | 5673.25   | 668.23   | 5673.19   | 669.79  | 5673.04 |
| 676.34   | 5673.06   | 693.11   | 5673.38   | 704.23   | 5673.5    | 711.67   | 5673.45   | 715.67  | 5673.56 |
| 731.4    | 5673.51   | 732.73   | 5673.62   | 757.3199 | 5673.98   | 760.02   | 5673.89   | 771.18  | 5674    |
| 800.6    | 5674      | 810.74   | 5673.85   | 816.15   | 5673.91   | 828.97   | 5673.94   | 831.37  | 5673.99 |
| 843.88   | 5674      | 854.15   | 5673.95   | 865.35   | 5673.55   | 869.77   | 5673.3    | 874.81  | 5672.88 |
| 884.87   | 5673.49   | 896.62   | 5673.77   | 913.84   | 5673.72   | 925.36   | 5673.75   | 934.04  | 5673.88 |

Manning's n Values num= 3

| Sta | n Val | Sta    | n Val | Sta    | n Val |
|-----|-------|--------|-------|--------|-------|
| 0   | .06   | 174.66 | .03   | 375.48 | .06   |

| Bank Sta: | Left   | Right  | Lengths: | Left Channel | Right | Coeff  | Contr. | Expan. |
|-----------|--------|--------|----------|--------------|-------|--------|--------|--------|
|           | 174.66 | 375.48 |          | 100.98       | 100   | 102.43 | .1     | .3     |

CROSS SECTION OUTPUT Profile #PF 1

|                    |          |                   |         |         |
|--------------------|----------|-------------------|---------|---------|
| E.G. Elev (ft)     | 5668.52  | Element           | Left OB | Channel |
| Right OB           |          |                   |         |         |
| Vel Head (ft)      | 1.46     | Wt. n-Val.        | 0.060   | 0.030   |
| 0.060              |          |                   |         |         |
| W.S. Elev (ft)     | 5667.07  | Reach Len. (ft)   | 100.98  | 100.00  |
| 102.43             |          |                   |         |         |
| Crit W.S. (ft)     | 5664.48  | Flow Area (sq ft) | 159.14  | 1825.56 |
| 161.54             |          |                   |         |         |
| E.G. Slope (ft/ft) | 0.002109 | Area (sq ft)      | 159.14  | 1825.56 |

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|                   |          |                        |         |          |
|-------------------|----------|------------------------|---------|----------|
| 161.54            |          |                        |         |          |
| Q Total (cfs)     | 18908.00 | Flow (cfs)             | 469.82  | 18065.06 |
| 373.12            |          |                        |         |          |
| Top Width (ft)    | 293.49   | Top Width (ft)         | 37.24   | 200.82   |
| 55.43             |          |                        |         |          |
| Vel Total (ft/s)  | 8.81     | Avg. Vel. (ft/s)       | 2.95    | 9.90     |
| 2.31              |          |                        |         |          |
| Max Chl Dpth (ft) | 10.81    | Hydr. Depth (ft)       | 4.27    | 9.09     |
| 2.91              |          |                        |         |          |
| Conv. Total (cfs) | 411764.1 | Conv. (cfs)            | 10231.4 | 393407.2 |
| 8125.6            |          |                        |         |          |
| Length Wtd. (ft)  | 100.07   | Wetted Per. (ft)       | 38.04   | 201.16   |
| 55.80             |          |                        |         |          |
| Min Ch El (ft)    | 5656.26  | Shear (lb/sq ft)       | 0.55    | 1.19     |
| 0.38              |          |                        |         |          |
| Alpha             | 1.21     | Stream Power (lb/ft s) | 934.04  | 0.00     |
| 0.00              |          |                        |         |          |
| Frctn Loss (ft)   | 0.35     | Cum Volume (acre-ft)   | 0.27    | 3.53     |
| 0.32              |          |                        |         |          |
| C & E Loss (ft)   | 0.17     | Cum SA (acres)         | 0.07    | 0.44     |
| 0.11              |          |                        |         |          |

Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: SAN JUAN RIVER

REACH: SAN JUAN RIVER RS: 100

INPUT

Description:

Station Elevation Data num= 100

| Sta      | Elev      | Sta     | Elev      | Sta    | Elev      | Sta    | Elev      | Sta    | Elev    |
|----------|-----------|---------|-----------|--------|-----------|--------|-----------|--------|---------|
| 0        | 5725.21   | 4.26001 | 5723.529  | 929993 | 5720.79   | 15.12  | 5717.79   | 18.69  | 5715.44 |
| 24.04999 | 5711.4829 | 27002   | 5707.1833 | 53003  | 5703.4138 | 46997  | 5698.845  | 17999  | 5692.02 |
| 50.76001 | 5687.5959 | 03998   | 5681.4162 | 04999  | 5679.23   | 69.38  | 5674.2571 | 48999  | 5673.1  |
| 80.67999 | 5667.9184 | 73999   | 5666.52   | 100.26 | 5661.74   | 104.74 | 5660.43   | 108.38 | 5659.52 |
| 112      | 5658.93   | 119.37  | 5657.98   | 123.2  | 5657.64   | 125.48 | 5657.56   | 144.42 | 5657.53 |
| 149.83   | 5657.59   | 154.28  | 5657.75   | 158.68 | 5657.73   | 165.55 | 5657.85   | 178.81 | 5658.26 |
| 189.31   | 5658.45   | 198.86  | 5658.49   | 204.52 | 5658.44   | 214.92 | 5658.15   | 224.72 | 5657.63 |
| 233.34   | 5657.41   | 240.57  | 5657.66   | 248.62 | 5658.01   | 254.22 | 5657.92   | 262.42 | 5657.91 |



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|        |         |        |         |        |         |        |         |        |         |
|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| 272.74 | 5658.33 | 279.16 | 5658.52 | 284.57 | 5658.86 | 296.8  | 5659.94 | 305.94 | 5660.76 |
| 308.3  | 5660.86 | 311.28 | 5661.18 | 319.15 | 5662.25 | 326.5  | 5663.32 | 333.26 | 5664.45 |
| 346.89 | 5666.54 | 355.22 | 5667.67 | 362.07 | 5668.48 | 368.87 | 5669.17 | 376.46 | 5669.74 |
| 384.15 | 5669.9  | 395.78 | 5669.98 | 401.56 | 5669.97 | 428.1  | 5670.62 | 438.68 | 5670.74 |
| 446.28 | 5670.79 | 456.12 | 5670.77 | 464.67 | 5671.06 | 472.4  | 5671.23 | 479.3  | 5671.32 |
| 484.49 | 5671.33 | 490.54 | 5671.53 | 498.26 | 5671.7  | 503.41 | 5671.88 | 519.01 | 5672.3  |
| 540.39 | 5672.69 | 548.64 | 5672.86 | 571.05 | 5673.16 | 580.48 | 5673.61 | 599.02 | 5673.85 |
| 612.33 | 5673.98 | 617.52 | 5673.9  | 628.27 | 5673.91 | 647.7  | 5674.17 | 654.13 | 5674.21 |
| 668.01 | 5674.19 | 677.97 | 5674.36 | 685.13 | 5674.35 | 687.71 | 5674.56 | 695.27 | 5675.5  |
| 699.36 | 5675.88 | 702.66 | 5676.06 | 705.96 | 5676.1  | 711.26 | 5675.86 | 716.72 | 5675.26 |
| 721.25 | 5674.58 | 723.74 | 5674.32 | 728.86 | 5673.96 | 735.92 | 5673.74 | 750.84 | 5673.69 |
| 762.33 | 5673.95 | 770.68 | 5674.06 | 787.34 | 5674.17 | 797.5  | 5674.12 | 800    | 5674.19 |

|                    |       |      |       |       |       |
|--------------------|-------|------|-------|-------|-------|
| Manning's n Values |       | num= |       | 3     |       |
| Sta                | n Val | Sta  | n Val | Sta   | n Val |
| 0                  | .06   | 112  | .03   | 296.8 | .06   |

|           |      |       |       |        |        |
|-----------|------|-------|-------|--------|--------|
| Bank Sta: | Left | Right | Coeff | Contr. | Expan. |
|           | 112  | 296.8 |       | .1     | .3     |

CROSS SECTION OUTPUT Profile #PF 1

|                    |          |                        |         |          |
|--------------------|----------|------------------------|---------|----------|
| E.G. Elev (ft)     | 5668.01  | Element                | Left OB | Channel  |
| Right OB           |          |                        |         |          |
| Vel Head (ft)      | 3.16     | Wt. n-Val.             | 0.060   | 0.030    |
| 0.060              |          |                        |         |          |
| W.S. Elev (ft)     | 5664.85  | Reach Len. (ft)        |         |          |
| Crit W.S. (ft)     | 5664.85  | Flow Area (sq ft)      | 70.63   | 1250.21  |
| 108.90             |          |                        |         |          |
| E.G. Slope (ft/ft) | 0.006735 | Area (sq ft)           | 70.63   | 1250.21  |
| 108.90             |          |                        |         |          |
| Q Total (cfs)      | 18908.00 | Flow (cfs)             | 306.45  | 18165.52 |
| 436.03             |          |                        |         |          |
| Top Width (ft)     | 245.69   | Top Width (ft)         | 21.83   | 184.80   |
| 39.06              |          |                        |         |          |
| Vel Total (ft/s)   | 13.22    | Avg. Vel. (ft/s)       | 4.34    | 14.53    |
| 4.00               |          |                        |         |          |
| Max Chl Dpth (ft)  | 7.44     | Hydr. Depth (ft)       | 3.24    | 6.77     |
| 2.79               |          |                        |         |          |
| Conv. Total (cfs)  | 230395.1 | Conv. (cfs)            | 3734.1  | 221347.9 |
| 5313.1             |          |                        |         |          |
| Length Wtd. (ft)   |          | Wetted Per. (ft)       | 22.65   | 184.99   |
| 39.39              |          |                        |         |          |
| Min Ch El (ft)     | 5657.41  | Shear (lb/sq ft)       | 1.31    | 2.84     |
| 1.16               |          |                        |         |          |
| Alpha              | 1.16     | Stream Power (lb/ft s) | 800.00  | 0.00     |

0.00

Frctn Loss (ft)

Cum Volume (acre-ft)

C &amp; E Loss (ft)

Cum SA (acres)

## SUMMARY OF MANNING'S N VALUES

River: SAN JUAN RIVER

| Reach          | River Sta. | n1  | n2  | n3  |
|----------------|------------|-----|-----|-----|
| SAN JUAN RIVER | 400        | .06 | .03 | .06 |
| SAN JUAN RIVER | 300        | .06 | .03 | .06 |
| SAN JUAN RIVER | 200        | .06 | .03 | .06 |
| SAN JUAN RIVER | 100        | .06 | .03 | .06 |

## SUMMARY OF REACH LENGTHS

River: SAN JUAN RIVER

| Reach          | River Sta. | Left   | Channel | Right  |
|----------------|------------|--------|---------|--------|
| SAN JUAN RIVER | 400        | 100.01 | 100     | 100.61 |
| SAN JUAN RIVER | 300        | 120.04 | 100     | 74.51  |
| SAN JUAN RIVER | 200        | 100.98 | 100     | 102.43 |
| SAN JUAN RIVER | 100        |        |         |        |

## SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: SAN JUAN RIVER

| Reach          | River Sta. | Contr. | Expan. |
|----------------|------------|--------|--------|
| SAN JUAN RIVER | 400        | .1     | .3     |
| SAN JUAN RIVER | 300        | .1     | .3     |
| SAN JUAN RIVER | 200        | .1     | .3     |
| SAN JUAN RIVER | 100        | .1     | .3     |

ERRORS WARNINGS AND NOTES

Errors Warnings and Notes for Plan : Plan 01

River: SAN JUAN RIVER Reach: SAN JUAN RIVER RS: 200 Profile: PF 1

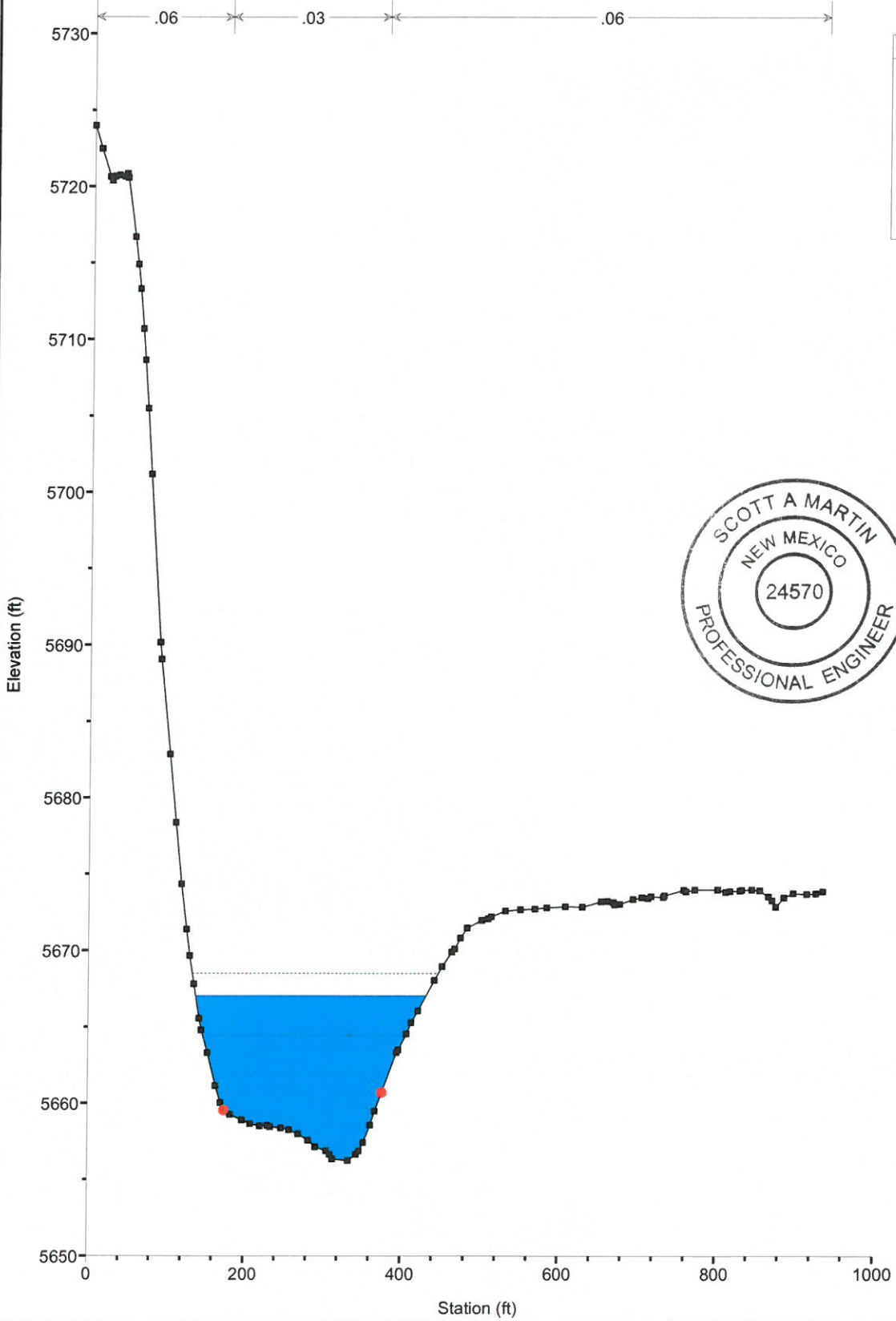
Warning: The velocity head has changed by more than 0.5 ft (0.15 m). This may indicate the need for additional cross sections.

Warning: The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7 or greater than 1.4.

This may indicate the need for additional cross sections.

2018-108 Plan: Plan 01 1/23/2018

River = SAN JUAN RIVER Reach = SAN JUAN RIVER RS = 200



| Legend    |       |
|-----------|-------|
| EG PF 1   | ..... |
| WS PF 1   | ————  |
| Crit PF 1 | ..... |
| Ground    | ——■—— |
| Bank Sta  | ●     |

