



**FEMA**

*NATIONAL FLOOD INSURANCE PROGRAM*

**ELEVATION CERTIFICATE**

**AND**

**INSTRUCTIONS**

**2015 EDITION**

U.S. DEPARTMENT OF HOMELAND SECURITY  
Federal Emergency Management Agency  
National Flood Insurance Program

## ELEVATION CERTIFICATE AND INSTRUCTIONS

### Paperwork Reduction Act Notice

Public reporting burden for this data collection is estimated to average 3.75 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and submitting this form. You are not required to respond to this collection of information unless a valid OMB control number is displayed on this form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 1800 South Bell Street, Arlington, VA 20598-3005, Paperwork Reduction Project (1660-0008). **NOTE: Do not send your completed form to this address.**

### Privacy Act Statement

**Authority:** Title 44 CFR § 61.7 and 61.8.

**Principal Purpose(s):** This information is being collected for the primary purpose of estimating the risk premium rates necessary to provide flood insurance for new or substantially improved structures in designated Special Flood Hazard Areas.

**Routine Use(s):** The information on this form may be disclosed as generally permitted under 5 U.S.C. § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA-003 – National Flood Insurance Program Files System or Records Notice 73 Fed. Reg. 77747 (December 19, 2008); DHS/FEMA/NFIP/LOMA-1 – National Flood Insurance Program (NFIP) Letter of Map Amendment (LOMA) System of Records Notice 71 Fed. Reg. 7990 (February 15, 2006); and upon written request, written consent, by agreement, or as required by law.

**Disclosure:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may result in the inability to obtain flood insurance through the National Flood Insurance Program or the applicant may be subject to higher premium rates for flood insurance. Information will only be released as permitted by law.

### Purpose of the Elevation Certificate

The Elevation Certificate is an important administrative tool of the National Flood Insurance Program (NFIP). It is to be used to provide elevation information necessary to ensure compliance with community floodplain management ordinances, to determine the proper insurance premium rate, and to support a request for a Letter of Map Amendment (LOMA) or Letter of Map Revision based on fill (LOMR-F).

The Elevation Certificate is required in order to properly rate Post-FIRM buildings, which are buildings constructed after publication of the Flood Insurance Rate Map (FIRM), located in flood insurance Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, and AR/AO. The Elevation Certificate is not required for Pre-FIRM buildings unless the building is being rated under the optional Post-FIRM flood insurance rules.

As part of the agreement for making flood insurance available in a community, the NFIP requires the community to adopt floodplain management regulations that specify minimum requirements for reducing flood losses. One such requirement is for the community to obtain the elevation of the lowest floor (including basement) of all new and substantially improved buildings, and maintain a record of such information. The Elevation Certificate provides a way for a community to document compliance with the community's floodplain management ordinance.

Use of this certificate does not provide a waiver of the flood insurance purchase requirement. Only a LOMA or LOMR-F from the Federal Emergency Management Agency (FEMA) can amend the FIRM and remove the Federal mandate for a lending institution to require the purchase of flood insurance. However, the lending institution has the option of requiring flood insurance even if a LOMA/LOMR-F has been issued by FEMA. The Elevation Certificate may be used to support a LOMA or LOMR-F request. Lowest floor and lowest adjacent grade elevations certified by a surveyor or engineer will be required if the certificate is used to support a LOMA or LOMR-F request. A LOMA or LOMR-F request must be submitted with either a completed FEMA MT-EZ or MT-1 package, whichever is appropriate.

This certificate is used only to certify building elevations. A separate certificate is required for floodproofing. Under the NFIP, non-residential buildings can be floodproofed up to or above the Base Flood Elevation (BFE). A floodproofed building is a building that has been designed and constructed to be watertight (substantially impermeable to floodwaters) below the BFE. Floodproofing of residential buildings is not permitted under the NFIP unless FEMA has granted the community an exception for residential floodproofed basements. The community must adopt standards for design and construction of floodproofed basements before FEMA will grant a basement exception. For both floodproofed non-residential buildings and residential floodproofed basements in communities that have been granted an exception by FEMA, a floodproofing certificate is required.

Additional guidance can be found in FEMA Publication 467-1, Floodplain Management Bulletin: Elevation Certificate, available on FEMA's website at <https://www.fema.gov/media-library/assets/documents/3539?id=1727>.

# 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 Merle D. Gingerich				Policy Number:	
A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 18 Rd. 4726				Company NAIC Number:	
City Bloomfield		State New Mexico		ZIP Code 87413	
A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) R4006265 Parcel Number 2058170144016					
A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) <u>RESIDENTIAL</u>					
A5. Latitude/Longitude: Lat. <u>36 42 18.72</u> Long. <u>107 53 11.07</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>1,682</u> sq ft					
b) Number of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade <u>9</u>					
c) Total net area of flood openings in A8.b <u>1,152</u> sq in					
d) Engineered flood openings? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
A9. For a building with an attached garage:					
a) Square footage of attached garage <u>0</u> sq ft					
b) Number of permanent flood openings in the attached garage within 1.0 foot above adjacent grade <u>0</u>					
c) Total net area of flood openings in A9.b <u>0</u> sq in					
d) Engineered flood openings? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
SECTION B – FLOOD INSURANCE RATE MAP (FIRM) INFORMATION					
B1. NFIP Community Name & Community Number San Juan County/ 35045			B2. County Name SAN JUAN		B3. State New Mexico
B4. Map/Panel Number 35045C / 1060	B5. Suffix F	B6. FIRM Index Date 08/05/2010	B7. FIRM Panel Effective/ Revised Date 08/05/2010	B8. Flood Zone(s) A	B9. Base Flood Elevation(s) (Zone AO, use Base Flood Depth) 5512.57
B10. Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9: <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 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. 18 Rd. 4726			Policy Number:
City Bloomfield	State New Mexico	ZIP Code 87413	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: NAVD88

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.


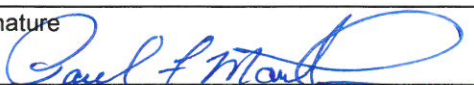
Check the measurement used.

- |   |         |  |                                 |
|---|---------|--|---------------------------------|
| a) Top of bottom floor (including basement, crawlspace, or enclosure floor)   | 5515.19 | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| b) Top of the next higher floor   | 5518.29 | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| c) Bottom of the lowest horizontal structural member (V Zones only)   | N/A     | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| d) Attached garage (top of slab)  | N/A     | <input checked="" 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) | N/A     | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| f) Lowest adjacent (finished) grade next to building (LAG)  | 5516.50 | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| g) Highest adjacent (finished) grade next to building (HAG)   | 5516.59 | <input checked="" type="checkbox"/> feet | <input type="checkbox"/> meters |
| h) Lowest adjacent grade at lowest elevation of deck or stairs, including structural support                                  | N/A     | <input checked="" 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 PAUL F. MARTIN	License Number 8548	
Title LICENSED ENGINEER		
Company Name SAKURA ENGINEERING & SURVEYING		
Address 125 W. MAIN, SUITE A		
City FARMINGTON	State New Mexico	
Signature 	Date 11/18/16	Telephone (505) 564-2139

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)

A rebar with plastic cap with markings of LS 6159 was found to the northeast of the house and was used as project benchmark. Elevation was found to be 5516.27. Detached garage finish floor elevation is 5516.70 ft.

# 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. 18 Rd. 4726			Policy Number:
City Bloomfield	State New Mexico	ZIP Code 87413	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 \_\_\_\_\_ . \_\_\_\_\_  feet  meters  above or  below the HAG.
- b) Top of bottom floor (including basement, crawlspace, or enclosure) is \_\_\_\_\_ . \_\_\_\_\_  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 \_\_\_\_\_ . \_\_\_\_\_  feet  meters  above or  below the HAG.
- E3. Attached garage (top of slab) is \_\_\_\_\_ . \_\_\_\_\_  feet  meters  above or  below the HAG.
- E4. Top of platform of machinery and/or equipment servicing the building is \_\_\_\_\_ . \_\_\_\_\_  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>
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 18 Rd. 4726			Policy Number:
City Bloomfield	State New Mexico	ZIP Code 87413	Company NAIC Number

## 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

<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. 18 Rd. 4726			Policy Number:
City Bloomfield	State New Mexico	ZIP Code 87413	Company NAIC Number

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.

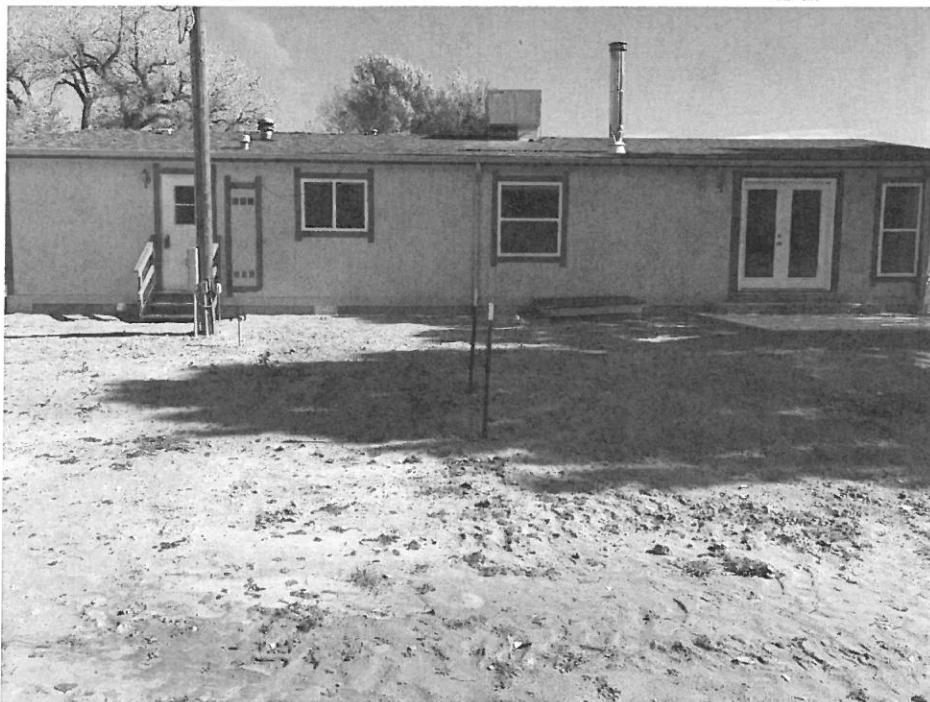


Photo One

Photo One Caption West of house (Date Taken 11/12/16)

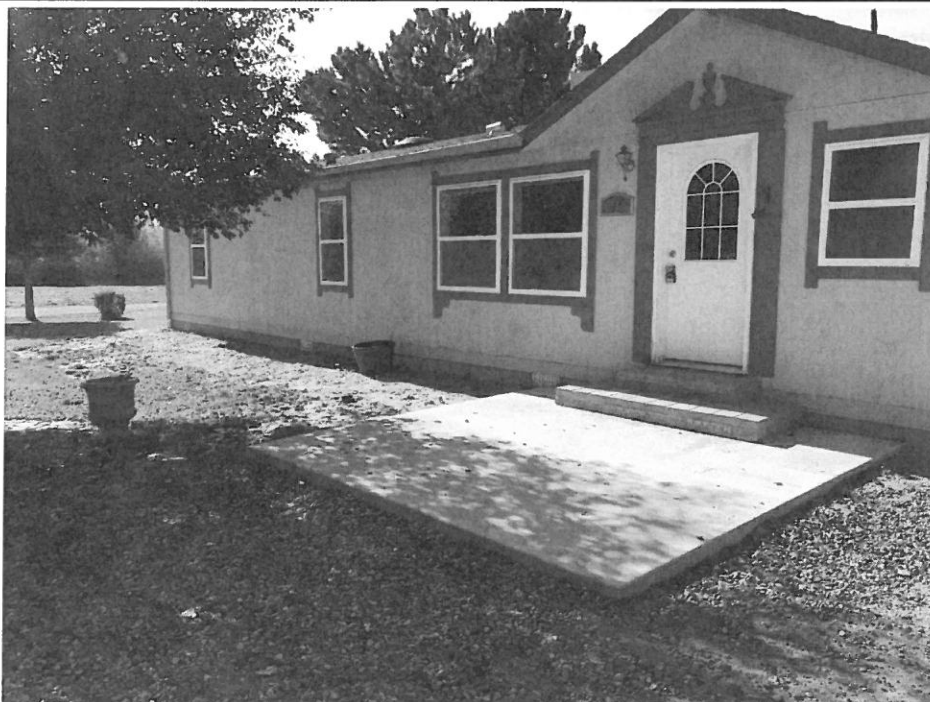


Photo Two

Photo Two Caption East of house (Date Taken 11/12/16)

**ELEVATION CERTIFICATE**

**BUILDING PHOTOGRAPHS**

Continuation Page

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. 18 Rd. 4726			Policy Number:
City Bloomfield	State New Mexico	ZIP Code 87413	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 One

Photo One Caption South of house (Date Taken 11/12/16)



Photo Two

Photo Two Caption Detached Garage (Date Taken 11/12/16)



2016-443Gingerich.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: 2016-443Gingerich  
Project File : 2016-443Gingerich.prj  
Run Date and Time: 11/17/2016 4:15:50 PM

Project in English units

PLAN DATA

Plan Title: Plan 01  
Plan File : C:\Users\Scott\Documents\2016-443Gingerich.p01

Geometry Title: g  
Geometry File : C:\Users\Scott\Documents\2016-443Gingerich.g01

Flow Title : Flow 01  
Flow File : C:\Users\Scott\Documents\2016-443Gingerich.f01

Plan Summary Information:

Number of: Cross Sections	=	2	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

2016-443Gingerich.rep

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 01  
Flow File : C:\Users\Scott\Documents\2016-443Gingerich.f01

Flow Data (cfs)

River	Reach	RS	100 YR
Slane Canyon	0	130.49	2531.04

Boundary Conditions

River	Reach	Profile	Upstream
Downstream			
Slane Canyon	0	100 YR	Critical
Critical			

GEOMETRY DATA

Geometry Title: g  
Geometry File : C:\Users\Scott\Documents\2016-443Gingerich.g01

CROSS SECTION

RIVER: Slane Canyon  
REACH: 0 RS: 130.49

2016-443Gingerich.rep

INPUT

Description:

Station Elevation Data		num= 11		Sta		Elev		Sta		Elev	
0	5516.75	12.44	5516.54	23.52	5511.06	42.76	5509.53	77.26	5509.01		
91.94	5506.24	99.4	5506.5	105.61	5511.58	111.73	5514.29	125.75	5516.11		
144.43	5516.7										

Manning's n Values		num= 3		Sta		n Val	
0	.1	23.52	.03	111.73	.1		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff Contr.	Expan.
	23.52	111.73		140 130.49	136	.1	.3

CROSS SECTION OUTPUT Profile #100 YR

E.G. Elev (ft)	5513.78	Element	Left OB	Channel
Right OB				
Vel Head (ft)	1.21	Wt. n-Val.	0.100	0.030
W.S. Elev (ft)	5512.57	Reach Len. (ft)	140.00	130.49
136.00				
Crit W.S. (ft)		Flow Area (sq ft)	2.31	299.53
E.G. Slope (ft/ft)	0.006072	Area (sq ft)	2.31	299.53
Q Total (cfs)	2644.55	Flow (cfs)	2.06	2642.49
Top Width (ft)	87.38	Top Width (ft)	3.05	84.33
Vel Total (ft/s)	8.76	Avg. Vel. (ft/s)	0.89	8.82
Max Chl Dpth (ft)	6.33	Hydr. Depth (ft)	0.76	3.55
Conv. Total (cfs)	33936.9	Conv. (cfs)	26.4	33910.4
Length Wtd. (ft)	130.49	Wetted Per. (ft)	3.41	86.68
Min Ch El (ft)	5506.24	Shear (lb/sq ft)	0.26	1.31
Alpha	1.01	Stream Power (lb/ft s)	144.43	0.00
0.00				
Frctn Loss (ft)	0.98	Cum Volume (acre-ft)	0.00	0.87
C & E Loss (ft)	0.02	Cum SA (acres)	0.03	0.28

Warning: The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section. This may indicate the need for additional cross sections.

CROSS SECTION

RIVER: Slane Canyon

REACH: 0 RS: 0

INPUT

Description:

Station Elevation Data		num=		11							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5511.46	31.76	5511.28	74.72	5508.69	80.77	5506.23	97.2	5504.92		
110.28	5507.03	115.11	5509.67	160.19	5514.14	207.67	5514.18	238.25	5515.81		
255.11	5516.59										

Manning's n Values		num=		3	
Sta	n Val	Sta	n Val	Sta	n Val
0	.1	31.76	.03	160.19	.1

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	31.76	160.19		140	130.49		.1	.3

CROSS SECTION OUTPUT Profile #100 YR

E.G. Elev (ft)	5512.77	Element	Left OB	Channel
Right OB				
Vel Head (ft)	1.40	Wt. n-Val.	0.100	0.030
W.S. Elev (ft)	5511.38	Reach Len. (ft)		
Crit W.S. (ft)	5511.38	Flow Area (sq ft)	0.80	278.61
E.G. Slope (ft/ft)	0.009628	Area (sq ft)	0.80	278.61
Q Total (cfs)	2644.55	Flow (cfs)	0.15	2644.40
Top Width (ft)	117.33	Top Width (ft)	16.78	100.54
Vel Total (ft/s)	9.46	Avg. Vel. (ft/s)	0.19	9.49
Max Chl Dpth (ft)	6.46	Hydr. Depth (ft)	0.05	2.77

2016-443Gingerich.rep

Conv. Total (cfs)	26951.2	Conv. (cfs)	1.6	26949.6
Length Wtd. (ft)		Wetted Per. (ft)	16.78	102.08
Min Ch El (ft)	5504.92	Shear (lb/sq ft)	0.03	1.64
Alpha 0.00	1.01	Stream Power (lb/ft s)	255.11	0.00
Frctn Loss (ft)		Cum Volume (acre-ft)		
C & E Loss (ft)		Cum SA (acres)		

SUMMARY OF MANNING'S N VALUES

River: Slane Canyon

Reach	River Sta.	n1	n2	n3
0	130.49	.1	.03	.1
0	0	.1	.03	.1

SUMMARY OF REACH LENGTHS

River: Slane Canyon

Reach	River Sta.	Left	Channel	Right
0	130.49	140	130.49	136
0	0	140	130.49	136

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Slane Canyon

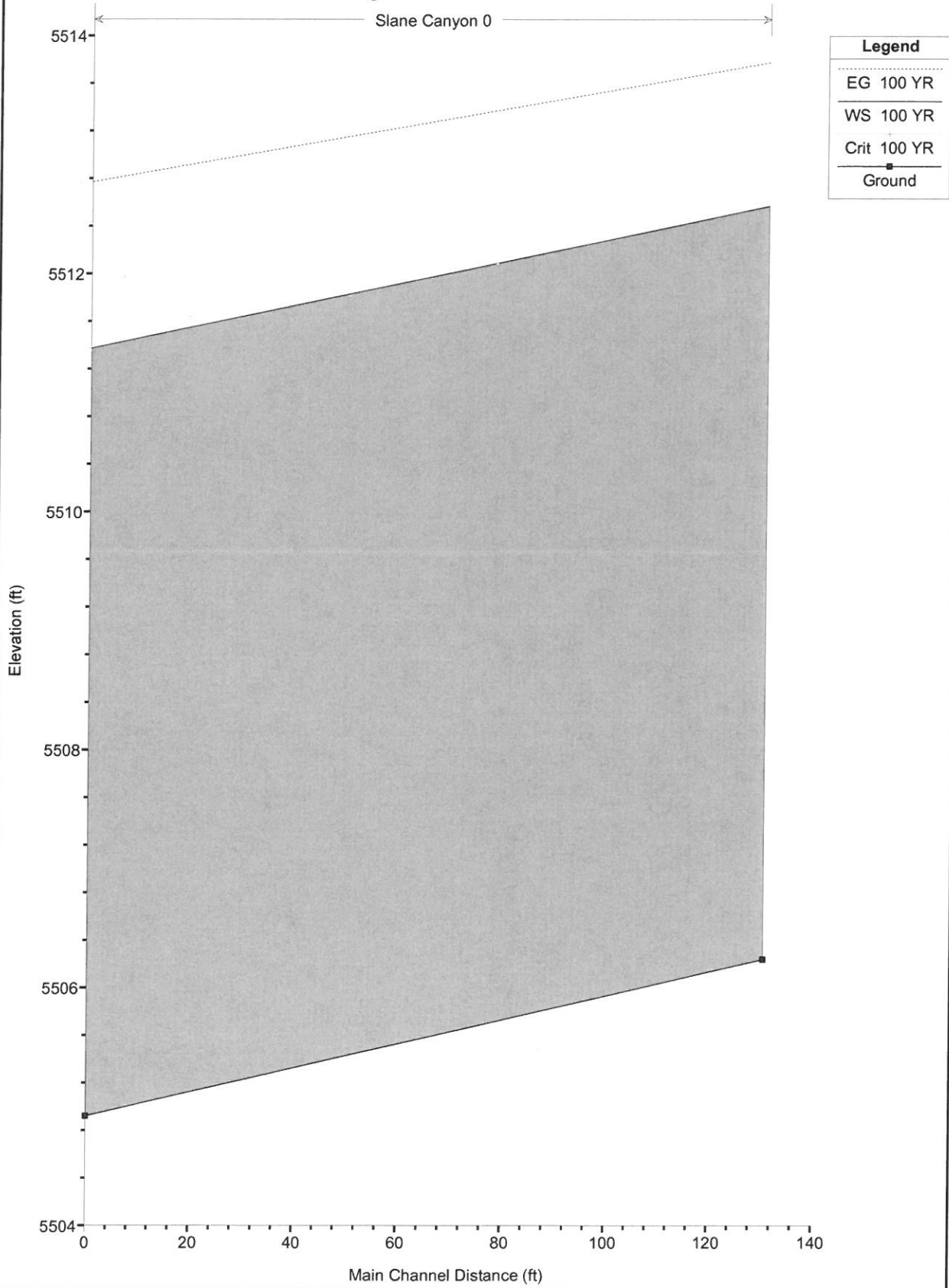
Reach	River Sta.	Contr.	Expan.
-------	------------	--------	--------

2016-443Gingerich.rep

0	130.49	.1	.3
0	0	.1	.3



Slane Canyon 0



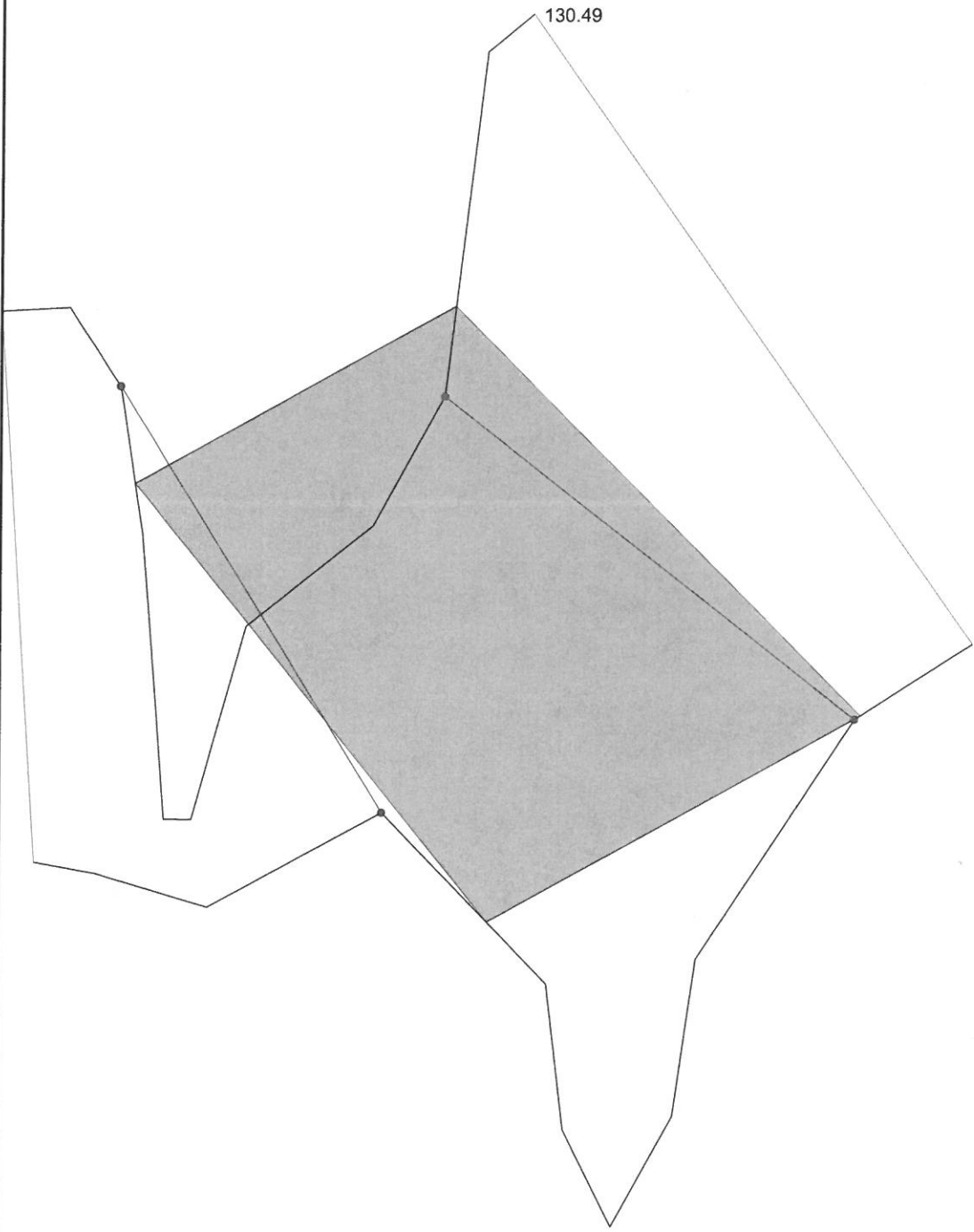
**Legend**

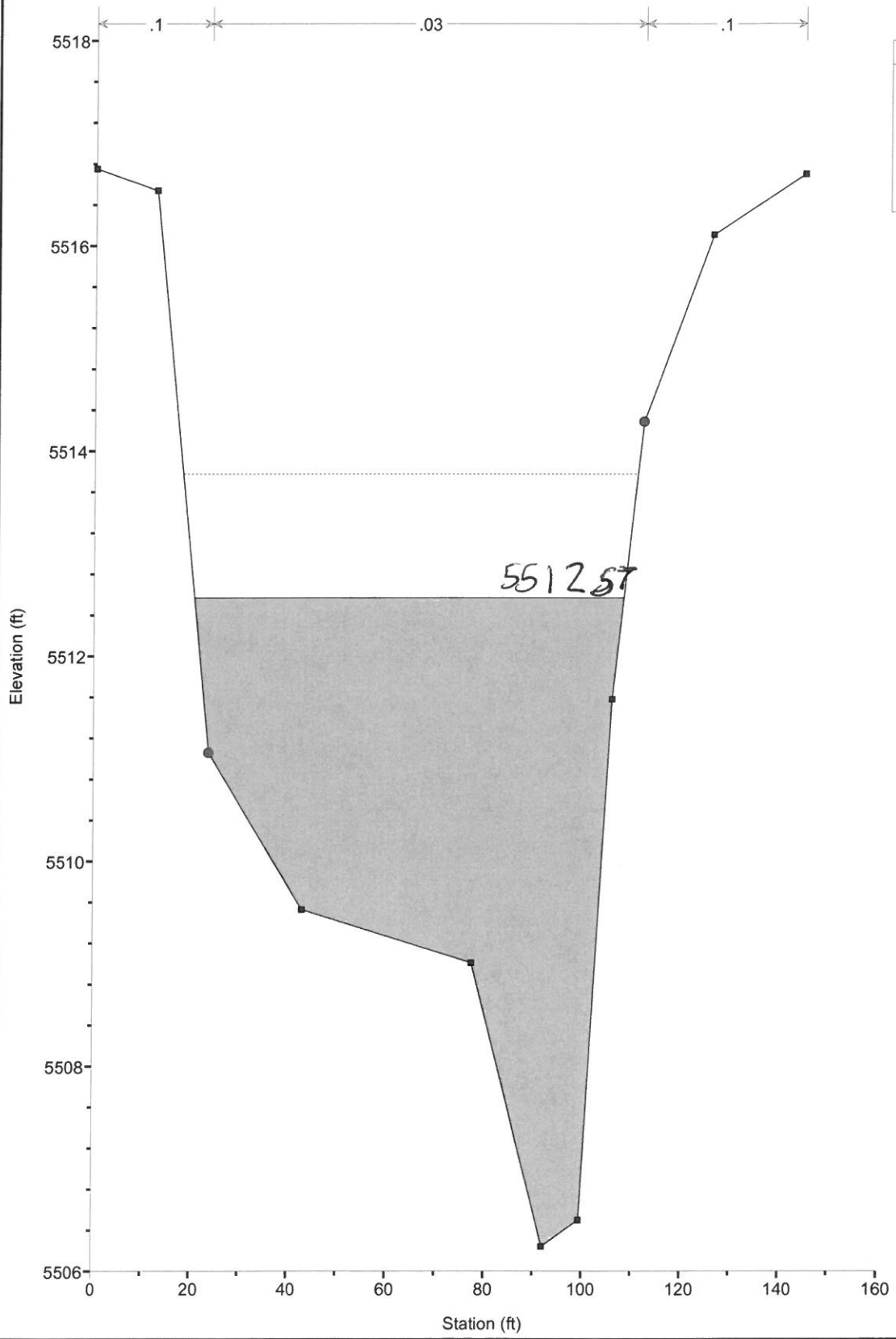
- EG 100 YR
- WS 100 YR
- Crit 100 YR
- Ground

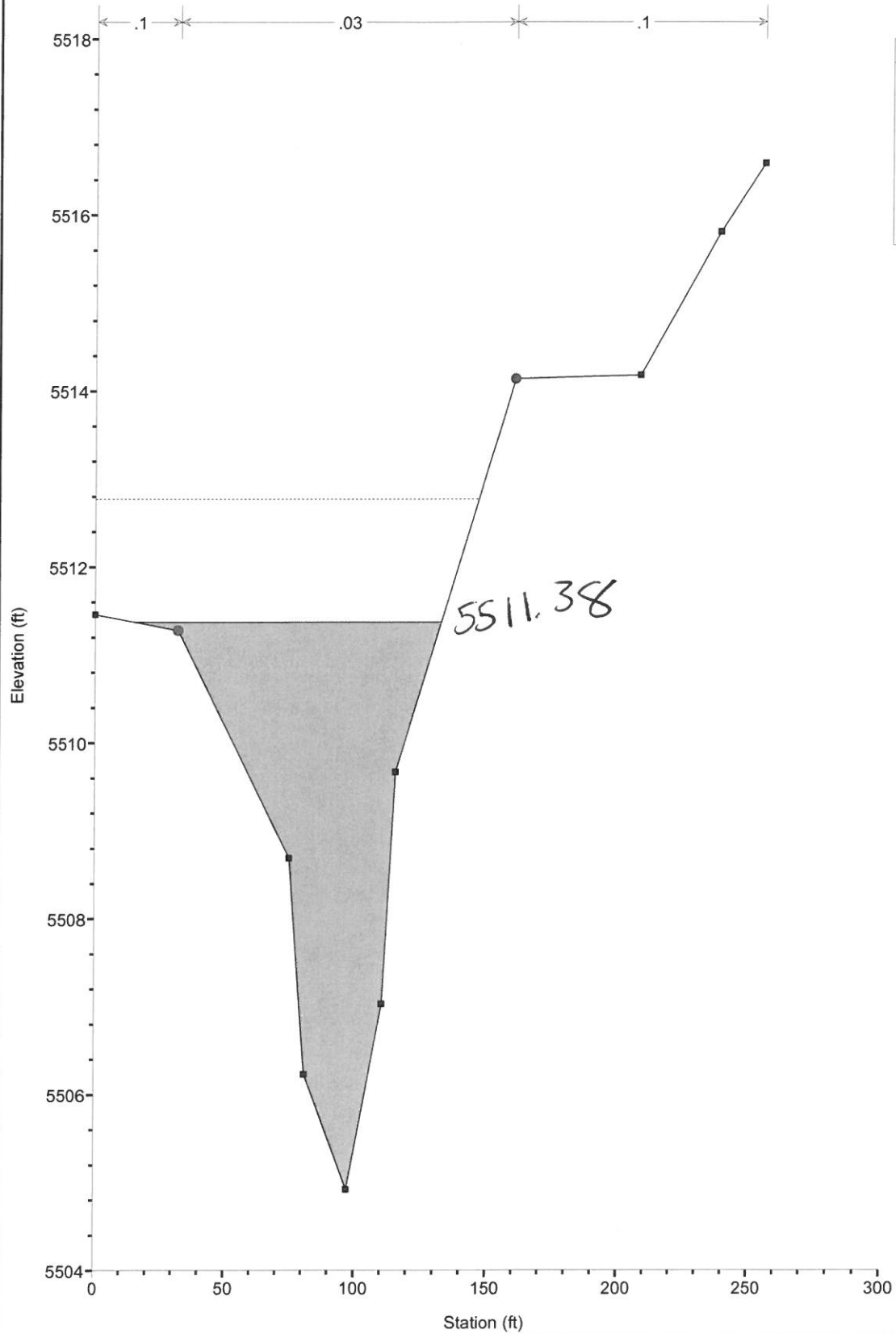


**Legend**

- WS 100 YR
- Ground
- Bank Sta







Legend	
.....	EG 100 YR
-----	WS 100 YR
-----	Crit 100 YR
■	Ground
●	Bank Sta

**Drainage Calculations (Flood Waters North of Road are slowed by 2 pipes under Hwy 64)**

Number of Pipes 2  
Pipe Size 96 inch  
Pipe Length 222 ft.  
Elevation Change 13 ft.

Slope 0.05855856  
Max Flow Through Pipes 2503.44622

tc= 10 min.

**Hydrologic Group D**

**Existing Condition after Road**

$Q \text{ (cfs)} = C * I_{\text{Max}} * A$   
141.10 cfs  
 $C_{\text{Native Ground Cover}} = 0.3$   
 $I_{100 \text{ yr for 10 min}} = 4.5$   
Total Existing Area 4,552,891.20 sq. ft.  
Total Existing Area 104.52 AC.

**Total Flow (cfs) 2644.55**