BOROUGH OF CONSHOHOCKEN

ZONING HEARING BOARD

AGENDA

June 14th, 2021 - 7:00 PM

This meeting is being held using a Go to Meeting platform and will be recorded.

Monthly Zoning Hearing Board Meeting

Please join my meeting from your computer, tablet or smartphone.
https://global.gotomeeting.com/join/972846509

You can also dial in using your phone.
United States (Toll Free): 1 866 899 4679

Access Code: 972-846-509

The public is asked to please keep their phones on mute. There will be time for public comment that will be announced by the Zoning Hearing Board Chairman. During the meeting, you may submit written comments by e-mailing them to Zoning@conshohockenpa.gov. Please provide your name, address, and property reference.

1. Call to Order

2. Appearance of Property

PETITIONER:	Craft Custom Homes, LLC
PREMISES INVOLVED:	261 & 263 E. Elm St. Conshohocken, PA 19428 Limited Industrial & Borough Residential 2

**** Persons who submitted an entry of appearance application for a specific property will be called upon at the appropriate time.

3. Public Comment – (state your name, address, and property reference)

4. Announcements/Discussion

5. Adjournment

The Conshohocken Zoning Hearing Board thanks you in advance for your cooperation during the remote meeting. If you encounter problems participating during the meeting, or have questions regarding the above prior to the meeting, please contact the Borough at zoning@conshohockenpa.gov.

BOROUGH OF CONSHOHOCKEN
Office of the Borough Manager

Zoning Administration

ZONING NOTICE
May 12th, 2021 ZONING HEARING BOARD MEETING TO OCCUR VIA REMOTE MEANS

ZONING HEARING Z-2020-12

NOTICE IS HEREBY GIVEN that the Conshohocken Zoning Hearing Board will conduct a public hearing on May 12th, 2021 at 7:00 p.m. prevailing time via remote means. The public is encouraged to participate as set forth below.

This meeting will be held using a Go-To-Meeting Platform. To the extent possible, members of Conshohocken Zoning Hearing Board and Borough staff/professionals will participate via both video and audio. (INSTRUCTIONS ON SECOND PAGE)

At this time, the Conshohocken Zoning Hearing Board will hear testimony and accept evidence on the following request.

PETITIONER:	Craft Custom Home, LLC. 231 Redwood Rd. King of Prussia, PA 19406
PREMISES INVOLVED:	261-263 E. Elm St., Conshohocken, PA 19428 Limited Industrial and Borough Residential 2
OWNER OF RECORD:	John Staley, Joseph Staley and John Staley, Jr.

The applicant, Craft Custom Homes, LLC, proposes to demolish the existing site improvements to construct a multifamily residential development consisting of a 4-story building containing 21 units with rooftop decks. The applicant also proposes an under-building parking lot containing 42 parking spaces and a courtyard located behind the building.

The applicant is seeking multiple variances from the Zoning Hearing Board to permit development within the Floodplain Conservation District, and relief from many of the performance standards of the Residential Overlay and the BR-2 and Limited Industrial Zoning Districts. Enclosed with this notice is the full list of zoning relief the applicant is seeking in connection with the proposed development.

Persons who wish to become parties to the application must notify the Borough of their intent to ask for party status at least five (5) days prior to the scheduled hearing by emailing the attached entry of appearance form to zoning@conshohockenpa.gov. Said persons must be available to participate in the zoning hearing on the scheduled date and time. It is noted that submitting the attached entry of appearance form does not guarantee that you will be granted party status. The Zoning Hearing Board decides who may participate in the hearing before it as a party, subject to Section 908(3) of the Municipalities Planning Code (MPC). The MPC permits party status to any person "affected" by the application. Having taxpayer status alone is not enough to claim party status; however, a person whose property or business abuts the property that is the subject of the appeal is affected and should qualify as a party. Ultimately, the ZHB makes the party status determination after reviewing the request.

Thank you,
Zoning Hearing Board

Revised 2-17-21

AMENDED REQUESTED RELIEF

The applicant respectfully requests relief from the following sections of the Borough of Conshohocken Ordinance:

27-1714.1.A	In order to alter an existing building and construct a new building in the 100-year flood plain.
27-1903-B.2	To exceed the allowable maximum permitted dwelling unit density of 33 units per acre.
27-1903-B.3.A-C	To provide relief from the district's front, side, and rear yard setback standards.
27-1903-B.4	To exceed the allowable maximum building coverage of 40%.
27-1903-B.6	To allow the proposed parking setback to be less than the minimum 10' setback from property lines.
27-1903.B.9	To allow for the parking to be located under the building rather than the rear yard of the parcel.
27-1903.B.12	To develop a parcel that does not comply with the minimum tract area for the district.
27-1904-B.1-5	To provide partial relief from the screening, buffering, and street tree regulations of the ordinance.
27-2007.F.1-3	To provide relief from the required buffer strip.
27-2007.H.	To provide relief from the required curbed planting strips.
27-2007.J.	To provide relief from the requirement of providing shade trees within parking areas.
27-820.C-F.	To provide relief from the large truck collection access and setback requirements as listed in the ordinance.
27-1404.4.A-C.	To provide partial relief from the requirements of shade trees along public streets, landscaping of the front yards adjoining residential districts, side and/or rear yard buffers when adjoining residential districts.

27-1105	To permit relief from the dimensional standards of the BR-2 Borough Residential District Two
27-1102	If necessary, to permit the proposed multi-family building (the ordinance allows attached dwellings).

BOROUGH OF CONSHOHOCKEN
Office of the Borough Manager

Zoning Administration

ZONING HEARING REMOTE SESSION ACCESS INSTRUCTIONS

The public is encouraged to participate as follows:

Audio Feed Participation: You may dial-in to access the audio feed of the meeting. All participants (whether listening or providing comments) must use this method of audio participation, even those using Go-To-Meeting to access the video feed. To access audio, please use the below number and access code/ password information.

We ask that you please always keep your phones on mute, unless giving a public comment as set forth in the Public Comment section below.

Please join my meeting from your computer, tablet or smartphone.
https://global.gotomeeting.com/join/972846509

You can also dial in using your phone.
United States (Toll Free): 1 866 899 4679

Access Code: 972-846-509

New to GoToMeeting? Get the app now and be ready when your first meeting starts:
https://global.gotomeeting.com/install/972846509

If you have already downloaded the Go-To-Meeting application, the link will redirect you to the application itself. Please follow the instructions.

It is recommended that you download the application in advance of the meeting time. If you attempt to sign in prior to the start of the meeting, the Go-To-Meeting application will inform you that the meeting has not started. Please close the application and log back in at the time of the meeting (7:00 PM).

Public Comment: There will be a designated time on the agenda for public comment. Those with public comment shall state their name and address. Prior to the start of the meeting, you may submit written comments by e-mailing them to Bmyrsiades@conshohockenpa.gov. Similarly, during the meeting, you may submit written comments by e-mailing them to bmyrsiades@conshohockenpa.gov.

Public comments submitted in this manner will be read by a member of Borough Administration during the public comment period. Because the actual time of the public comment period is determined by the pace of the meeting, please submit all comments as soon as possible, whether before or during the meeting. Written comments shall include the submitting person's name, address, and property in question.

The Conshohocken Zoning Hearing Board thanks you in advance for your cooperation during the remote meeting. If you encounter problems participating during the meeting, or have questions regarding the above prior to the meeting, please contact the Borough at bmyrsiades@conshohockenpa.gov.

BOROUGH OF CONSHOHOCKEN
Office of the Borough Manager

Zoning Administration

BOROUGH COUNCIL
Colleen Leonard, President
Tina Sokolowski, Vice-President
Robert Stokley, Member
Anita Barton, Member
James Griffin, Member
Jane Flanagan, Member
Karen Tutino, Member

Yaniv Aronson, Mayor

Stephanie Cecco, Borough Manager

The Borough of Conshohocken Zoning Hearing Board
Entry of Appearance as a Party

I/We _____

Request to be granted party status in Application Z-2020-12.

Applicant: Craft Custom Homes - 261-263 E. Elm St. – Zoning Variance

Please print name:

_____

Please print address:

_____

_____

Please print email:

_____

Please Sign Below:

_____

_____

Please return form via mail or e-mail to the below:
(Entry must be received no later than May 7th, 2021)

MAIL:
Borough of Conshohocken
Attn: Bobbi Jo Myrsiades
400 Fayette St. – Suite 200
Conshohocken, PA 19428

E-MAIL:
zoning@conshohockenpa.gov

BOROUGH OF CONSHOHOCKEN

Office of the Borough Manager

MEMORANDUM

Date: April 30, 2021

To: Stephanie Cecco, Brittany Rogers

From: Eric P. Johnson, PE, Zoning Officer

Re: 261-263 E. Elm Street – Variance Zoning Determination

History of the Site:

261-263 E. Elm Street is an approximately 0.5-acre property, located at the southwest corner of E. Elm Street and Poplar Street. The property is bounded by the Fine Grinding Corporation property to the south and west, along with some residential dwellings to the west near the E. Elm Street frontage. The majority of the property is located in the LI – Limited Industrial zoning district, with a small portion in the BR-2 – Borough Residential 2 zoning district, as well as the Residential Overlay District. The majority of the site is located in the Floodplain Conservation District and Zone AE Special Flood Hazard Area as defined by the FEMA Flood Insurance Rate Map (FIRM). The property is currently developed with a building housing multiple commercial uses, including a fitness center, locksmith, and offices; along with 23 parking spaces.

Current Request:

The applicant, Craft Custom Homes, LLC, proposes to demolish all of the existing site improvements in order to construct a multifamily residential development consisting of a 4-story building containing 21 units with rooftop decks. The applicant also proposes an under-building parking lot containing 42 parking spaces and a courtyard located behind the building.

The applicant is seeking variances from the Zoning Hearing Board to permit development within the Floodplain Conservation District, relief from many of the performance standards of the Residential Overlay district, and the use and performance standards of the BR-2 Zoning District. Enclosed with this determination is the full list of zoning relief the applicant is seeking in connection with the proposed development.

The applicant is concurrently seeking Conditional Use approval from Borough Council in accordance with §27-1901-B and §27-1903-B.11 of the Conshohocken Zoning Ordinance to permit a residential development utilizing the Residential Overlay District and to permit a building height taller than 35-feet.

Zoning Determination:

Development is permitted in the underlaying zoning districts; however construction of permanent buildings, structures, placement of fill, clearing of existing vegetation, roads, parking lots, stormwater management facilities, and related site improvements are generally prohibited in the Floodplain Conservation District because of the risk of inundation of flood waters. The subject property is almost entirely located within the Flood Conservation District making development of the site without encroaching into the floodplain difficult. Therefore, a variance from §27-1714.1.A is required for the proposed development.

Part 17, Article F of the Borough Zoning Code outlines the procedures and conditions for granting relief from the strict application of the Flood Conservation District requirements if an exceptional hardship is imposed by the requirements. When seeking a variance for development within Zone AE, the applicant must demonstrate any construction, development, use, or activity, together with all other existing or anticipated development, will not increase the Base Flood Elevation more than one foot at any point. The applicant has submitted a report titles "*261-263 E. Elm St. Preliminary Floodplain Study,*" prepared by Kimley Horn, dated March 18, 2021, and signed and sealed by a Professional Engineer indicating the proposed development, along developments on adjoining properties, raises the Base Flood Elevation by less than 1-foot. We have reviewed the report and find it acceptable.

When considering the variance application, the Zoning Hearing Board should consult Code Section 27-1722; and if a variance is granted, the technical provisions outlined in Code Section 17, Article G should be attached to the approval.

§27-1903-B.2 – The maximum permitted dwelling unit density is 33 units per acre. The applicant proposes 21 units on an approximately 0.5-acre property, requiring a variance.

§27-1903-B.3.A-C - The required front yard setback is 30 feet, the required side yard setback is 10 feet per side, and the required rear yard setback is 30 feet. The applicant is seeking 0-foot front, side, and rear yard setbacks, requiring variances.

§27-1903-B.4 – The maximum permitted building coverage is 40% of total lot area. The applicant is seeking 87.5% building coverage, requiring a variance.

§27-1903-B.6 – The minimum parking area setback is 10 feet from property lines. The applicant is seeking 1.5-foot setbacks, requiring a variance.

§27-1903.B.9 – The parking lot shall be to the rear of the building. The applicant is seeking to place the parking lot under the building, requiring a variance.

§27-1903.B.12 - The minimum tract area shall be one acre. The parcel is approximately 0.5 acres, requiring a variance.

§27-1904-B.1 - Any development that is adjacent to a residential use shall be screened from that use by wall, fence or landscape material. If landscaping materials are used, such landscaping screen shall be designed by a landscaping architectural plan which shall be approved by the Borough. The requested variance for a 0-foot setback does not allow for screening from the adjacent residential uses, requiring a variance.

§27-1904-B.2 - Street trees shall be provided along all streets. Shade trees shall be provided at a maximum spacing of 30 feet on center and a minimum caliper of 3 1/2 inches. The property street frontage requires 9 street trees. The provided plan indicates 8 trees with spacing greater than 30 feet, requiring a variance.

§27-1904-B.3 - Service areas. All trash dumpsters, receptacles, etc., shall be screened from the view of residents, adjoining properties, and streets. Such screening may use landscape materials, opaque fences, or a combination of both. The proposed trash facilities are identified under the building; however detail is not provided on the screening methods. The applicant will need to provide additional information in order to determine the need for a variance.

§27-1904-B.4 - All parking lots shall be screened by a buffer of trees and shrubs from all adjacent properties and streets. The parking spaces are proposed within 1.5 feet of the sidewalk, which does not allow for landscape screening, requiring a variance.

§27-1904-B.5 - The use of native plant materials and naturalistic design is encouraged. The use of native plant materials and naturalistic design is encouraged but not required; therefore zoning relief is not required.

§27-2007.F.1-3 – A parking lot buffer strip 10 feet in width shall be provided along each property line abutting a residential property or a public right-of-way. The applicants request for reduced building and parking setbacks does not allow room for the required buffer strip, requiring a variance.

§27-2007.H. - No parking area shall abut directly upon a public street, but instead shall be separated from the street by curbed planting strips a minimum of five feet in depth from the edge of the cart way or sidewalk, with suitable breaks for access ways. The applicants request for reduced parking setbacks does not allow room for the required buffer strip, requiring a variance.

§27-2007.J. - Shade trees shall be provided within all parking areas at a minimum rate of one 3-1/2-inch caliper shade tree per 10 parking spaces. The proposed parking area is under the building; therefore, no shade trees are proposed within the parking areas, requiring a variance.

§27-820.C – Refuse collection facilities shall be designed in a manner that can accommodate large collection trucks. The provided plans indicate the refuse facility under the building and not accessible to trucks, requiring a variance.

§27-820.D - Landscaping is required around refuse collection facilities. The proposed refuse facility is identified under the building; however detail is not provided on the screening methods. The applicant will need to provide additional information in order to determine the need for a variance.

§27-820.E - Refuse facilities attached to or within buildings shall be subject to the same building setbacks as the buildings. The proposed refuse facility is identified under the building with the same 0-foot setback as the building, requiring a variance.

§27-820.F - Refuse facilities detached from buildings shall be subject to the setback of 10 feet from all property lines. The proposed refuse facility is identified under the building. The applicant will need to provide additional information on the request for a variance for a refuse facility detached from the building.

§27-1404.4.A – In the LI district, shade trees shall be provided along all public streets. The Residential Overlay District section §27-1904-B.2 has more stringent requirements for trees along the street frontage; however the applicant is seeking partial relief from this section. A variance would be required if the Zoning Hearing Board does not find the proposed trees along the frontage satisfactory.

§27-1404.4.B - In the LI district, the area within the front yard setback shall contain shade trees and ornamental plantings when the property adjoins or faces a residential use or district. The applicants request for reduced building and parking setbacks does not allow room for the required plantings, requiring a variance.

§27-1404.4.C - In the LI district, a screen buffer of evergreens and/or an opaque fence, six feet in height, shall be required whenever a side yard or rear yard adjoins a residential use. The applicants request for reduced building and parking setbacks does not allow room for the required plantings, requiring a variance.

§27-1102 – Permitted uses in the BR-2 zoning district. Multifamily housing is not a permitted use in the BR-2 zoning district. The northwest corner of the property is located in the BR-2 and the applicant is proposing a portion of the multifamily building with ground floor parking in the BR-2 district, requiring a use variance.

§27-1105 – Permitted use dimensional standards in the BR-2 zoning district. The northwest corner of the property is located in the BR-2 and the applicant is proposing a portion of the multifamily building with ground floor parking in the BR-2 district that would not meet the dimensional standards of the BR-2 district, requiring a use variance.

Revised 2-17-21

AMENDED REQUESTED RELIEF

The applicant respectfully requests relief from the following sections of the Borough of Conshohocken Ordinance:

27-1714.1.A	In order to alter an existing building and construct a new building in the 100-year flood plain.
27-1903-B.2	To exceed the allowable maximum permitted dwelling unit density of 33 units per acre.
27-1903-B.3.A-C	To provide relief from the district's front, side, and rear yard setback standards.
27-1903-B.4	To exceed the allowable maximum building coverage of 40%.
27-1903-B.6	To allow the proposed parking setback to be less than the minimum 10' setback from property lines.
27-1903.B.9	To allow for the parking to be located under the building rather than the rear yard of the parcel.
27-1903.B.12	To develop a parcel that does not comply with the minimum tract area for the district.
27-1904-B.1-5	To provide partial relief from the screening, buffering, and street tree regulations of the ordinance.
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27-1105	To permit relief from the dimensional standards of the BR-2 Borough Residential District Two
27-1102	If necessary, to permit the proposed multi-family building (the ordinance allows attached dwellings).

DEBRA A. SHULSKI
debbie@rrhc.com
extension: 210

RILEY RIPER HOLLIN & COLAGRECO
ATTORNEYS AT LAW

February 17, 2021

Eric Johnson, Zoning Officer
Borough of Conshohocken
400 Fayette Street, Suite 200
Conshohocken, PA 19428
zoning@conshohockenpa.gov

Re: Craft Custom Homes, LLC

Dear Eric:

This is to confirm that Craft Custom Homes, LLC, agrees to an extension of time with respect to the pending Zoning Hearing Board Application to permit the hearing to be held on May 17, 2021. As you know, the Applicant will be submitting a Conditional Use Application which will be heard prior to the hearing before the Zoning Hearing Board on the variance requests. The Applicant agrees to waive the applicable time requirements as set forth in the Pennsylvania Municipalities Planning Code to permit this extension of time.

Also, in accordance with your recent review dated February 10, 2021, the Applicant is amending the pending Zoning Hearing Board Application as follows:

1. The Applicant is removing the variance request from § 27-1903.B.11 with respect to maximum permitted building height (and will be pursuing the height increase as part of the Conditional Use Application).

2. The Applicant is adding a variance request from §27-1105 to permit relief from the Conditional Use dimensional standards of the BR-2 Borough Residential District 2.

3. The Applicant is adding a variance request from §27-1102 (permitted was in the BR-2) to permit the proposed multi-family building (the ordinance allows attached dwellings).

I have updated the narrative of requested relief setting forth the relief requested as part of the pending Zoning Hearing Board Application and am enclosing a copy of the amended relief requested.

Thank you for your attention to this matter. We look forward to continuing to work with the Borough throughout this process.

Very truly yours,

Debra A. Shulski

DEBRA A. SHULSKI

DAS/mrm

Enclosures
cc: Stephanie Cecco (via e-mail)
Brittnay Rogers (via e-mail)
Ryan Alexaki (via e-mail)
Nicholas L. Vastardis, P.E. (via e-mail)

Revised 2-17-21

AMENDED REQUESTED RELIEF

The applicant respectfully requests relief from the following sections of the Borough of Conshohocken Ordinance:

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27-1105	To permit relief from the dimensional standards of the BR-2 Borough Residential District Two
27-1102	If necessary, to permit the proposed multi-family building (the ordinance allows attached dwellings).

DEBRA A. SHULSKI
debbie@rrhc.com
extension: 210

RILEY RIPER HOLLIN & COLAGRECO
ATTORNEYS AT LAW

October 13, 2020

via email & overnight mail

Eric Johnson, Zoning Officer
Borough of Conshohocken
400 Fayette Street, Suite 200
Conshohocken, PA 19428

Re: Zoning Hearing Board Application for Property at 261 and 263 Elm Street

Dear Eric:

Enclosed for filing on behalf of Craft Custom Homes, LLC, please find a Zoning Hearing Board Application with respect to property located at 261 and 263 Elm Street and further identified as Tax Parcels Nos: 05-00-02200-009 & 05-00-02196-004 in Conshohocken Borough ("Property"). The Property is approximately one-half an acre in size and is situated in the LI and BR-2 Zoning Districts and within the Residential Overlay District.

The Property is the location of the original Conshohocken Train Station and contains an existing building currently occupied by several commercial businesses. The Applicant is proposing a redevelopment consisting of the demolition and rebuild for purposes of constructing 21 multi-family residential units and associated parking and improvements. The redevelopment will result in more parking than currently exists on the Property and result in a net reduction in the impervious coverage (under the existing conditions, the site is almost entirely all impervious coverage).

Enclosed as part of this submission are three (3) copies of the following documents (unless otherwise noted):

1. Zoning Hearing Board Application form and attached List of Requested Relief;
2. Zoning Hearing Exhibit Plan prepared by Vastardis Consulting Engineers, LLC;
3. Existing Conditions Plan prepared by Vastardis Consulting Engineers, LLC;
4. Conceptual Landscape Plan prepared by Vastardis Consulting Engineers, LLC;
5. Exhibit package including proposed elevations, floor plans and before and after renderings;

6. Trip Generation Analysis prepared by Andy Heinrich, P.E, PTOE dated July 16, 2020;

7. Parking Assessment Analysis prepared by Andy Heinrich, P.E, PTOE dated August 31, 2020;

8. Existing Parking Plan;

9. One (1) copy of the Agreement of Sale (redacted based on proprietary information); and

10. Check made payable to Conshohocken Borough in the amount of $1,500.00 representing the Application fee is being submitted under separate cover.

Please note that three (3) full size sets of the Zoning Hearing Board Plan and Existing Conditions Plan is being submitted to you under separate cover.

Kindy place this Application on the next available Zoning Hearing Board Agenda which I understand is November 16, 2020. Also, kindly advise as to the meeting when it will be reviewed by Borough Council. It is my understanding that the Borough handles all applicable notice requirements including individual notice, publication of the hearing notice and posting of the property. If this is not the case, however, please advise at your earliest convenience.

Thank you for your attention to this matter. If you have any questions or require additional information, please feel free to give me a call.

Very truly yours,

Debra A. Shulski

DEBRA A. SHULSKI

DAS/mrm
Enclosures
cc: Ryan Alexaki (*via e-mail w/enclosures*)
Jesse Last (*via e-mail w/enclosures*)
Nicholas L. Vastardis, P.E. (*via e-mail w/enclosures*)

BOROUGH OF CONSHOHOCKEN
400 Fayette Street, Suite 200, Conshohocken, PA 19428
Phone (610) 828-1092 Fax (610) 828-0920

Zoning Application

Application: Z-2020-19
Date Submitted: 10-14-20
Date Received: 10-14-20

1. Application is hereby made for:

[ ] Special Exception [X] Variance

[ ] Appeal of the decision of the zoning officer

[ ] Conditional Use approval [ ] Interpretation of the Zoning Ordinance

[ ] Other _____

2. Section of the Zoning Ordinance from which relief is requested:

See attached Narrative of Requested Relief.

3. Address of the property, which is the subject of the application:

261 & 263 Elm Street

4. Applicant's Name: Craft Custom Homes, LLC

Address: 231 Redwood Road, King of Prussia, PA 19406

Phone Number (daytime): 610-945-7860

E-mail Address: ryan@builtbycraft.com

5. Applicant is (check one): Legal Owner [ ] Equitable Owner [X]; Tenant [ ]

6. Property Owner: John Stanley, Joseph Stanley & John Stanley, Jr.

Address: 2247 Fox Run Road, King of Prussia, PA 19406

Phone Number: _____

E-mail Address: _____

7. Lot Dimensions: See enclosed plans. Zoning District: LI & BR-2, Residential Overlay

8. Has there been previous zoning relief requested in connection with this Property?

Yes [ ] No [X] If yes, please describe.

9. Please describe the present use of the property including any existing improvements and the dimensions of any structures on the property.

The Property is the location of the original Conshohocken Train Station and contains an existing building currently occupied by several commercial uses/businesses (including a fitness center, locksmith and offices). There are 23 existing parking spaces. Currently the site is almost entirely all impervious surfaces with no stormwater management or landscaping.

10. Please describe the proposed use of the property.

Applicant intends to redevelop the Property for 21 multi-family residential units and associated parking and other improvements as more fully shown on the enclosed Zoning Hearing Exhibit Plan.

11. Please describe proposal and improvements to the property in detail.

The proposal involves a redevelopment whereby the existing building proposed to be demolished and a new building constructed for multi-family use consisting of a 21-unit, 4-story residential building with a roof deck and parking beneath the building. The proposed improvements would reduce the existing impervious coverage which is currently almost 100%. Stormwater management and landscaping are also proposed whereas none currently existing on the site. See attached Zoning Hearing Exhibit Plan and Architect renderings enclosed herewith.

12. Please describe the reasons the Applicant believes that the requested relief should be granted.

The Applicant is redeveloping an existing site which contains a number of non-conformities many of which are being reduced by the proposal. Most of the relief would be required for virtually any redevelopment of the property. Evidence and testimony will be presented at the time of the hearing in support of the requested relief.

13. If a Variance is being requested, please describe the following:

a. The unique characteristics of the property: The property is bisected by two zoning districts, contains a number of non-conformities, (including the lot size), and contains existing conditions including access points which makes redevelopment challenging.

b. How the Zoning Ordinance unreasonably restricts development of the property:

Given the existing site constraints and non-conformities, virtually any redevelopment will need similar relief.

c. How the proposal is consistent with the character of the surrounding neighborhood. The proposal will be improving the site from the existing conditions including providing stormwater management, landscaping and more parking. The proposed use generate less traffic than the existing use. See enclosed Trip Generation Letter.

d. Why the requested relief is the minimum required to reasonably use the property; and why the proposal could not be less than what is proposed.

Applicant is proposing substantial improvements to upgrade the existing conditions of the site. The number of units is necessary to justify the extraordinary costs associated with the redevelopment and improving the property to a more appropriate use.

14. The following section should be completed if the applicant is contesting the determination of the zoning officer. N/A.

a. Please indicate the section of the zoning ordinance that is the subject of the zoning officer's decision (attach any written correspondence relating to the determination).

b. Please explain in detail the reasons why you disagree with the zoning officer's determination.

15. If the Applicant is requesting any other type of relief, please complete the following section. N/A.

a. Type of relief that is being requested by the applicant.

b. Please indicate the section of the Zoning Ordinance related to the relief being requested.

c. Please describe in detail the reasons why the requested relief should be granted.

16. If the applicant is being represented by an attorney, please provide the following information.

a. Attorney's Name: Debra A. Shulski, Esquire

b. Address: 717 Constitution Drive, Suite 201, Exton, PA 19341

c. Phone Number: 610-458-4400 x 210

d. E-mail Address: debbie@rrhc.com

I/we hereby certify that to the best of my knowledge, all of the above statements contained in this Zoning Application and any papers or plans submitted with this application to the Borough of Conshohocken are true and correct.

Debra A Shulski

Applicant Debra A. Shulski, Esquire, Attorney for Applicant

Authorized pursuant to Agreement of Sale

Legal Owner

10-13-20

Date

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF MONTGOMERY

As subscribed and sworn to before me this 13th day of October, 2020.

Kathleen C. Hopta

Notary Public

(Seal)

Commonwealth of Pennsylvania - Notary Seal
KATHLEEN C HOPTA - Notary Public
Chester County
My Commission Expires September 23, 2024
Commission Number 1375764

BOROUGH OF CONSHOHOCKEN
400 Fayette Street, Suite 200, Conshohocken, PA 19428
Phone (610) 828-1092 Fax (610) 828-0920

Decision

(For Borough Use Only)

Application Granted ☐ Application Denied ☐

MOTION:

CONDITIONS:

BY ORDER OF THE ZONING HEARING BOARD

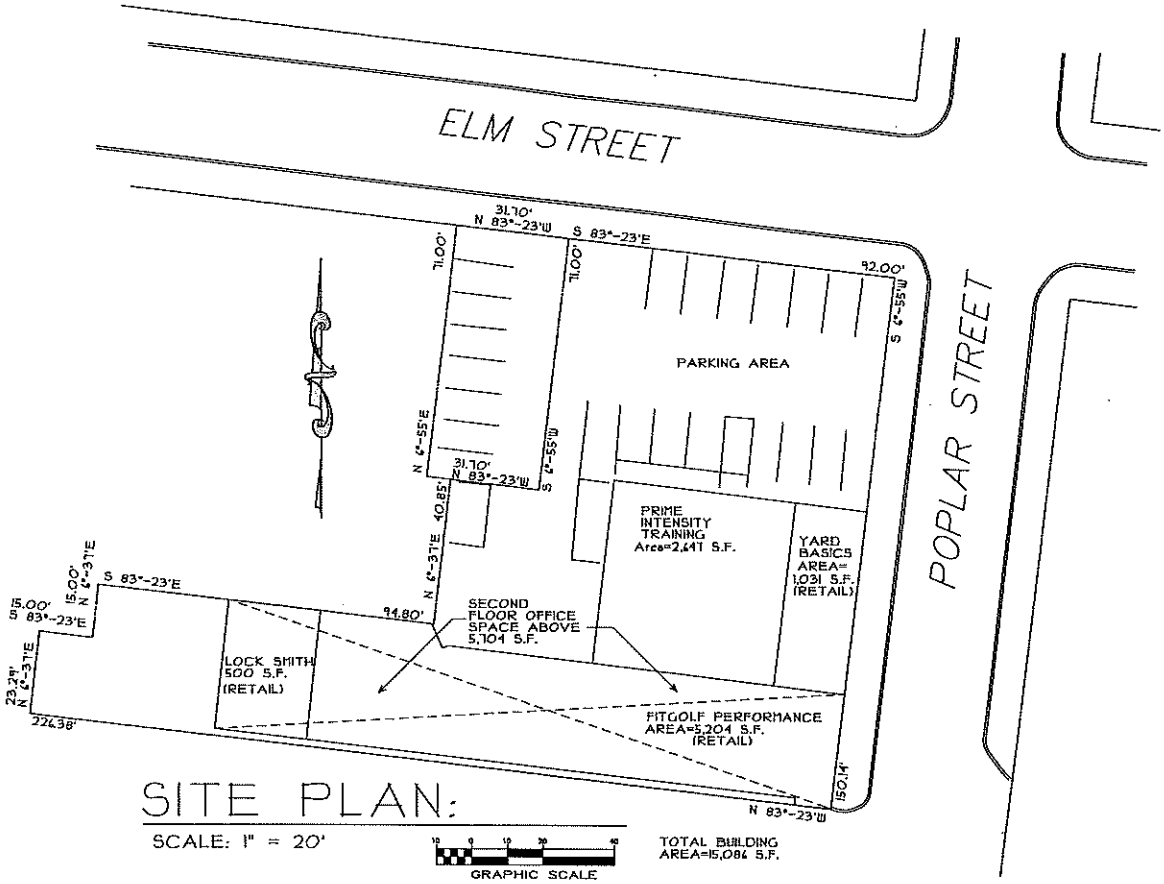
	Yes	No
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

DATE OF ORDER: _____

REQUESTED RELIEF

The applicant respectfully requests relief from the following sections of the Borough of Conshohocken Ordinance:

27-1714.1.A	In order to alter an existing building and construct a new building in the 100-year flood plain.
27-1903-B.2	To exceed the allowable maximum permitted dwelling unit density of 33 units per acre.
27-1903-B.3.A-C	To provide relief from the district's front, side, and rear yard setback standards.
27-1903-B.4	To exceed the allowable maximum building coverage of 40%.
27-1903-B.6	To allow the proposed parking setback to be less than the minimum 10' setback from property lines.
27-1903.B.9	To allow for the parking to be located under the building rather than the rear yard of the parcel.
27-1903.B.11	To allow the building height to exceed the permitted 35-foot height.
27-1903.B.12	To develop a parcel that does not comply with the minimum tract area for the district.
27-1904-B.1-5	To provide partial relief from the screening, buffering, and street tree regulations of the ordinance.
27-2007.F.1-3	To provide relief from the required buffer strip.
27-2007.H.	To provide relief from the required curbed planting strips.
27-2007.J.	To provide relief from the requirement of providing shade trees within parking areas.
27-820.C-F.	To provide relief from the large truck collection access and setback requirements as listed in the ordinance.
27-1404.4.A-C.	To provide partial relief from the requirements of shade trees along public streets, landscaping of the front yards adjoining residential districts, side and/or rear yard buffers when adjoining residential districts.



SITE PLAN:

SCALE: 1" = 20'

GRAPHIC SCALE

TOTAL BUILDING AREA=15,084 S.F.

RETAIL STORES 1 SPACE PER 150 S.F.	6,735 S.F.	45 SPACES
BUSINESS 1 SPACE PER 250 S.F.	4,704 S.F.	19 SPACES
INDOOR SPORTS FACILITY 1 SPACE PER 50 S.F.	2,641 S.F.	53 SPACES
	TOTAL	117 SPACES

River Station Townhomes

261 & 263 E Elm Street New Construction

CRAFT HOMES
BOUTIQUE HOME BUILDERS

Binnie & Bianco
REAL ESTATE TEAM

	Name	Address	In Favor/Oppose
1.	[signature]	542 E Hector	Favor
2.	Max Bianco dotloop verified 05/12/21 11:59 AM EDT ODBD-CWUC-WZ31-CAXG	417 W 10th Ave	Favor
3.	[signature]	419 W. 6th	Favor
4.	[signature]	312 E 9th	Favor
5.	Brenna Mannin	312 E 9th	favor
6.	Jason Roderburgh	442 W 10th	Favor
7.	Kyle Pearmen	370 E Hector	Favor
8.			

River Station
Townhomes

261 & 263 E Elm Street New Construction

CRAFT HOMES
BOUTIQUE HOME BUILDERS

Binnie Barco
REAL ESTATE TEAM

	Name	Address	In Favor/Oppose
1.	David Goldenberg	300 W. Elm St #2313 Conshohocken PA 19428	In Favor
2.			
3.			
4.			
5.			
6.			
7.			
8.			

River Station Townhomes

261 & 263 E Elm Street New Construction

CRAFT HOMES
BOUTIQUE HOME BUILDERS

Bianco Real Estate Team

	Name	Address	In Favor/Oppose
1.	Karen Walker	336 1/2 E Elm St.	in Favor Karen Walker
2.	Monica Palataro	72 Popular	Favor
3.	Adriano Palataro	72 Popular	FAVOR
4.			
5.			
6.			
7.			
8.			

River Station Townhomes

261 & 263 E Elm Street New Construction

CRAFT HOMES
BOUTIQUE HOME BUILDERS

Bonnie Blanco
REAL ESTATE TEAM

	Name	Address	In Favor/Oppose
1.	Daniel Maguire	309 E. 8th Ave	IN FAVOR Daniel Maguire
2.	Chelsea Maguire	323 E. 8th Ave	IN FAVOR Chelsea Maguire
3.	Nicholas DeLUCA	323 E. 8th Ave	IN FAVOR Nicholas DeLuca
4.	Myra Harrison	321 E ELM	IN FAVOR
5.	Nolan Bamky	315 E Elm	IN FAVOR
6.	Emma Cordes	331 E. Elm	IN FAVOR Emma Cordes In favor
7.	Mary Tracey	339 E Elm	IN FAVOR Mary Tracey
8.	Ian Weiss	335 E Elm	IN FAVOR

River Station
Townhomes

261 & 263 E Elm Street New Construction

CRAFT HOMES
BOUTIQUE HOME BUILDERS

Bianca Bianco
REAL ESTATE TEAM

	Name	Address	In Favor/Oppose
1.	Sam Weiss	335 E ELM	IN FAVOR
2.	Danielle Maguire	122 W. 7th	IN FAVOR Danielle.
3.	Joseph Page	72 Popular	IN FAVOR
4.		381 E Elm	In Favor
5.	Mayat Rumel	369 Spring Mill	IN FAVOR
6.	Sean Walsh	370 E Elm	IN FAVOR
7.		356 E. Elm St. Home	IN FAVOR
8.		348 1/2 E Elm St	IN FAVOR, IN FAVOR
	RYAN Dressel	350 1/2 E. Elm St.	

BEFORE BOROUGH OF CONSHOHOCKEN
ZONING HEARING BOARD

CRAFT CUSTOM HOMES, LLC

Hearing Date: May 12, 2021

APPLICANT'S EXHIBITS

A-1 Zoning Hearing Board Application submitted by correspondence dated October 13, 2020

A-2 Amended Variances Request by correspondence dated February 17, 2021

A-3 Property Deed

A-4 Redacted Agreement of Sale

A-5 Existing Conditions Plan

A-6 Zoning Plan

A-7 Landscape and Lighting Plan

A-8 Proposed Latest Building Elevation Plans

A-9 Exhibit package including proposed elevations, floor plans and before and after renderings

A-10 CV of Nicholas L. Vastardis, P.E.

A-11 CV of Melissa Duyar, P.E., CFM

A-12 CV of Andreas Heinrich, P.E., PTOE

A-13 Flood Study prepared by Kimley Horn dated March 18, 2021

A-14 Trip Generation Analysis prepared by Andy Heinrich, P.E, PTOE dated July 16, 2020

A-15 Parking Assessment Analysis prepared by Andy Heinrich, P.E, PTOE dated August 31, 2020

DEBRA A. SHULSKI
debbie@rrhc.com
extension: 210

RILEY RIPER HOLLIN & COLAGRECO
ATTORNEYS AT LAW

October 13, 2020

via email & overnight mail

Eric Johnson, Zoning Officer
Borough of Conshohocken
400 Fayette Street, Suite 200
Conshohocken, PA 19428

Re: Zoning Hearing Board Application for Property at 261 and 263 Elm Street

Dear Eric:

Enclosed for filing on behalf of Craft Custom Homes, LLC, please find a Zoning Hearing Board Application with respect to property located at 261 and 263 Elm Street and further identified as Tax Parcels Nos: 05-00-02200-009 & 05-00-02196-004 in Conshohocken Borough ("Property"). The Property is approximately one-half an acre in size and is situated in the LI and BR-2 Zoning Districts and within the Residential Overlay District.

The Property is the location of the original Conshohocken Train Station and contains an existing building currently occupied by several commercial businesses. The Applicant is proposing a redevelopment consisting of the demolition and rebuild for purposes of constructing 21 multi-family residential units and associated parking and improvements. The redevelopment will result in more parking than currently exists on the Property and result in a net reduction in the impervious coverage (under the existing conditions, the site is almost entirely all impervious coverage).

Enclosed as part of this submission are three (3) copies of the following documents (unless otherwise noted):

1. Zoning Hearing Board Application form and attached List of Requested Relief;
2. Zoning Hearing Exhibit Plan prepared by Vastardis Consulting Engineers, LLC;
3. Existing Conditions Plan prepared by Vastardis Consulting Engineers, LLC;
4. Conceptual Landscape Plan prepared by Vastardis Consulting Engineers, LLC;
5. Exhibit package including proposed elevations, floor plans and before and after renderings;

Brittany Rogers, *Executive Assistant to the Borough Manager*
Borough of Conshohocken
October 12, 2020

6. Trip Generation Analysis prepared by Andy Heinrich, P.E, PTOE dated July 16, 2020;

7. Parking Assessment Analysis prepared by Andy Heinrich, P.E, PTOE dated August 31, 2020;

8. Existing Parking Plan;

9. One (1) copy of the Agreement of Sale (redacted based on proprietary information); and

10. Check made payable to Conshohocken Borough in the amount of $1,500.00 representing the Application fee is being submitted under separate cover.

Please note that three (3) full size sets of the Zoning Hearing Board Plan and Existing Conditions Plan is being submitted to you under separate cover.

Kindy place this Application on the next available Zoning Hearing Board Agenda which I understand is November 16, 2020. Also, kindly advise as to the meeting when it will be reviewed by Borough Council. It is my understanding that the Borough handles all applicable notice requirements including individual notice, publication of the hearing notice and posting of the property. If this is not the case, however, please advise at your earliest convenience.

Thank you for your attention to this matter. If you have any questions or require additional information, please feel free to give me a call.

Very truly yours,

Debra A. Shulski

DEBRA A. SHULSKI

DAS/mrm
Enclosures
cc: Ryan Alexaki (*via e-mail w/enclosures*)
Jesse Last (*via e-mail w/enclosures*)
Nicholas L. Vastardis, P.E. (*via e-mail w/enclosures*)

BOROUGH OF CONSHOHOCKEN
400 Fayette Street, Suite 200, Conshohocken, PA 19428
Phone (610) 828-1092 Fax (610) 828-0920

Zoning Application

Application: _____
Date Submitted: _____
Date Received: _____

1. Application is hereby made for:

☐ Special Exception ☒ Variance

☐ Appeal of the decision of the zoning officer

☐ Conditional Use approval ☐ Interpretation of the Zoning Ordinance

☐ Other _____

2. Section of the Zoning Ordinance from which relief is requested:

See attached Narrative of Requested Relief.

3. Address of the property, which is the subject of the application:

261 & 263 Elm Street

4. Applicant's Name: Craft Custom Homes, LLC

Address: 231 Redwood Road, King of Prussia, PA 19406

Phone Number (daytime): 610-945-7860

E-mail Address: ryan@builtbycraft.com

5. Applicant is (check one): Legal Owner ☐ Equitable Owner ☒; Tenant ☐

6. Property Owner: John Stanley, Joseph Stanley & John Stanley, Jr.

Address: 2247 Fox Run Road, King of Prussia, PA 19406

Phone Number: _____

E-mail Address: _____

7. Lot Dimensions: See enclosed plans. Zoning District: LI & BR-2, Residential Overlay

8. Has there been previous zoning relief requested in connection with this Property?

Yes [ ] No [X] If yes, please describe.

9. Please describe the present use of the property including any existing improvements and the dimensions of any structures on the property.

The Property is the location of the original Conshohocken Train Station and contains an existing building currently occupied by several commercial uses/businesses (including a fitness center, locksmith and offices). There are 23 existing parking spaces. Currently the site is almost entirely all impervious surfaces with no stormwater management or landscaping.

10. Please describe the proposed use of the property.

Applicant intends to redevelop the Property for 21 multi-family residential units and associated parking and other improvements as more fully shown on the enclosed Zoning Hearing Exhibit Plan.

11. Please describe proposal and improvements to the property in detail.

The proposal involves a redevelopment whereby the existing building proposed to be demolished and a new building constructed for multi-family use consisting of a 21-unit, 4-story residential building with a roof deck and parking beneath the building. The proposed improvements would reduce the existing impervious coverage which is currently almost 100%. Stormwater management and landscaping are also proposed whereas none currently existing on the site. See attached Zoning Hearing Exhibit Plan and Architect renderings enclosed herewith.

12. Please describe the reasons the Applicant believes that the requested relief should be granted.

The Applicant is redeveloping an existing site which contains a number of non-conformities many of which are being reduced by the proposal. Most of the relief would be required for virtually any redevelopment of the property. Evidence and testimony will be presented at the time of the hearing in support of the requested relief.

13. If a Variance is being requested, please describe the following:

a. The unique characteristics of the property: The property is bisected by two zoning districts, contains a number of non-conformities, (including the lot size), and contains existing conditions including access points which makes redevelopment challenging.

b. How the Zoning Ordinance unreasonably restricts development of the property:

Given the existing site constraints and non-conformities, virtually any redevelopment will need similar relief.

c. How the proposal is consistent with the character of the surrounding neighborhood. The proposal will be improving the site from the existing conditions including providing stormwater management, landscaping and more parking. The proposed use generate less traffic than the existing use. See enclosed Trip Generation Letter.

d. Why the requested relief is the minimum required to reasonably use the property; and why the proposal could not be less than what is proposed.

Applicant is proposing substantial improvements to upgrade the existing conditions of the site. The number of units is necessary to justify the extraordinary costs associated with the redevelopment and improving the property to a more appropriate use.

14. The following section should be completed if the applicant is contesting the determination of the zoning officer. N/A.

a. Please indicate the section of the zoning ordinance that is the subject of the zoning officer's decision (attach any written correspondence relating to the determination).

b. Please explain in detail the reasons why you disagree with the zoning officer's determination.

15. If the Applicant is requesting any other type of relief, please complete the following section. N/A.

a. Type of relief that is being requested by the applicant.

b. Please indicate the section of the Zoning Ordinance related to the relief being requested.

c. Please describe in detail the reasons why the requested relief should be granted.

16. If the applicant is being represented by an attorney, please provide the following information.

a. Attorney's Name: Debra A. Shulski, Esquire

b. Address: 717 Constitution Drive, Suite 201, Exton, PA 19341

c. Phone Number: 610-458-4400 x 210

d. E-mail Address: debbie@rrhc.com

I/we hereby certify that to the best of my knowledge, all of the above statements contained in this Zoning Application and any papers or plans submitted with this application to the Borough of Conshohocken are true and correct.

Debra A Shulski

Applicant Debra A. Shulski, Esquire, Attorney for Applicant

Authorized pursuant to Agreement of Sale

Legal Owner

10-13-20

Date

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF MONTGOMERY

As subscribed and sworn to before me this 13th day of October, 2020.

Kathleen C. Hopta

Notary Public

(Seal)

Commonwealth of Pennsylvania - Notary Seal
KATHLEEN C HOPTA - Notary Public
Chester County
My Commission Expires September 23, 2024
Commission Number 1375764

BOROUGH OF CONSHOHOCKEN
400 Fayette Street, Suite 200, Conshohocken, PA 19428
Phone (610) 828-1092 Fax (610) 828-0920

Decision

(For Borough Use Only)

Application Granted ☐ Application Denied ☐

MOTION:

CONDITIONS:

BY ORDER OF THE ZONING HEARING BOARD

	Yes	No
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

DATE OF ORDER: _____

REQUESTED RELIEF

The applicant respectfully requests relief from the following sections of the Borough of Conshohocken Ordinance:

27-1714.1.A	In order to alter an existing building and construct a new building in the 100-year flood plain.
27-1903-B.2	To exceed the allowable maximum permitted dwelling unit density of 33 units per acre.
27-1903-B.3.A-C	To provide relief from the district's front, side, and rear yard setback standards.
27-1903-B.4	To exceed the allowable maximum building coverage of 40%.
27-1903-B.6	To allow the proposed parking setback to be less than the minimum 10' setback from property lines.
27-1903.B.9	To allow for the parking to be located under the building rather than the rear yard of the parcel.
27-1903.B.11	To allow the building height to exceed the permitted 35-foot height.
27-1903.B.12	To develop a parcel that does not comply with the minimum tract area for the district.
27-1904-B.1-5	To provide partial relief from the screening, buffering, and street tree regulations of the ordinance.
27-2007.F.1-3	To provide relief from the required buffer strip.
27-2007.H.	To provide relief from the required curbed planting strips.
27-2007.J.	To provide relief from the requirement of providing shade trees within parking areas.
27-820.C-F.	To provide relief from the large truck collection access and setback requirements as listed in the ordinance.
27-1404.4.A-C.	To provide partial relief from the requirements of shade trees along public streets, landscaping of the front yards adjoining residential districts, side and/or rear yard buffers when adjoining residential districts.

DEBRA A. SHULSKI
debbie@rrhc.com
extension: 210

RILEY RIPER HOLLIN & COLAGRECO
ATTORNEYS AT LAW

February 17, 2021

Eric Johnson, Zoning Officer
Borough of Conshohocken
400 Fayette Street, Suite 200
Conshohocken, PA 19428
zoning@conshohockenpa.gov

Re: Craft Custom Homes, LLC

Dear Eric:

This is to confirm that Craft Custom Homes, LLC, agrees to an extension of time with respect to the pending Zoning Hearing Board Application to permit the hearing to be held on May 17, 2021. As you know, the Applicant will be submitting a Conditional Use Application which will be heard prior to the hearing before the Zoning Hearing Board on the variance requests. The Applicant agrees to waive the applicable time requirements as set forth in the Pennsylvania Municipalities Planning Code to permit this extension of time.

Also, in accordance with your recent review dated February 10, 2021, the Applicant is amending the pending Zoning Hearing Board Application as follows:

1. The Applicant is removing the variance request from § 27-1903.B.11 with respect to maximum permitted building height (and will be pursuing the height increase as part of the Conditional Use Application).

2. The Applicant is adding a variance request from §27-1105 to permit relief from the Conditional Use dimensional standards of the BR-2 Borough Residential District 2.

3. The Applicant is adding a variance request from §27-1102 (permitted was in the BR-2) to permit the proposed multi-family building (the ordinance allows attached dwellings).

I have updated the narrative of requested relief setting forth the relief requested as part of the pending Zoning Hearing Board Application and am enclosing a copy of the amended relief requested.

Thank you for your attention to this matter. We look forward to continuing to work with the Borough throughout this process.

Very truly yours,

Debra A. Shulski

DEBRA A. SHULSKI

DAS/mrm

Enclosures
cc: Stephanie Cecco (via e-mail)
Brittnay Rogers (via e-mail)
Ryan Alexaki (via e-mail)
Nicholas L. Vastardis, P.E. (via e-mail)

Revised 2-17-21

AMENDED REQUESTED RELIEF

The applicant respectfully requests relief from the following sections of the Borough of Conshohocken Ordinance:

27-1714.1.A	In order to alter an existing building and construct a new building in the 100-year flood plain.
27-1903-B.2	To exceed the allowable maximum permitted dwelling unit density of 33 units per acre.
27-1903-B.3.A-C	To provide relief from the district's front, side, and rear yard setback standards.
27-1903-B.4	To exceed the allowable maximum building coverage of 40%.
27-1903-B.6	To allow the proposed parking setback to be less than the minimum 10' setback from property lines.
27-1903.B.9	To allow for the parking to be located under the building rather than the rear yard of the parcel.
27-1903.B.12	To develop a parcel that does not comply with the minimum tract area for the district.
27-1904-B.1-5	To provide partial relief from the screening, buffering, and street tree regulations of the ordinance.
27-2007.F.1-3	To provide relief from the required buffer strip.
27-2007.H.	To provide relief from the required curbed planting strips.
27-2007.J.	To provide relief from the requirement of providing shade trees within parking areas.
27-820.C-F.	To provide relief from the large truck collection access and setback requirements as listed in the ordinance.
27-1404.4.A-C.	To provide partial relief from the requirements of shade trees along public streets, landscaping of the front yards adjoining residential districts, side and/or rear yard buffers when adjoining residential districts.

27-1105	To permit relief from the dimensional standards of the BR-2 Borough Residential District Two
27-1102	If necessary, to permit the proposed multi-family building (the ordinance allows attached dwellings).

RECORDER OF DEEDS

MONTGOMERY COUNTY PENNSYLVANIA

Jeanne Sorg

One Montgomery Plaza
Swede and Airy Streets ~ Suite 303
P.O. Box 311 ~ Norristown, PA 19404
Office: (610) 278-3289 ~ Fax (610) 278-3869

I hereby certify that the following is a true and correct copy of the original document recorded in Montgomery County, PA

RECORDER'S OFFICE
MONTGOMERY COUNTY, PA

Jeanne Sorg, Recorder of Deeds

Fee Simple/Trustees' Deed

023022

36.50

This Indenture Made this 7th day of October 19 99

14.00
14.00
1.50
6.00
82.00

Between

JOSEPH G. PROIETTO AND ANN T. PROIETTO, husband and wife

(hereinafter called the Grantor s),

JOHN J. STALEY, SR. , JOSEPH F. STALEY and JOHN J. STALEY, JR.

(hereinafter called the Grantee s),

Witnesseth That the said Grantor s for and in consideration of the sum of THREE HUNDRED AND SIXTY THOUSAND ($360,000.00)----------DOLLARS lawful money of the United States of America, unto them well and truly paid by the said Grantees, at or before the sealing and delivery hereof, the receipt whereof is hereby acknowledged, have granted, bargained and sold, released and confirmed, and by these presents do grant, bargain and sell, release and confirm unto the said Grantee s, their heirs and assigns, as joint tenants with the right of survivorship.

99 OCT 18 PM 2:02

D233727MB

REALTY TRANS. TAX PAID	
STATE	360.00
LOCAL	360.00
PER	DC

ALL THAT CERTAIN lot or piece of grounds, SITUATE in Conshohocken Borough, Montgomery County, Pennsylvania, bounded and described according to a Land Subdivision Agreement made by John L. Dzedzy, Inc. dated January 22, 1983 and reviewed March 14, 1983, and recorded in Plan Book B-40 page 181, as follows, to wit:

BEGINNING at a point of intersection formed by the Westerly side of Poplar Street and the Southerly side of Elm Street (50 feet wide); thence extending from said point of beginning along the said Westerly side of Poplar Street South 6 degrees 55 minutes West 150.14 feet to a point a corner of lands now or late of Consolidated Rail Corp.; thence extending along the same North 83 degrees 23 minutes West crossing a certain 12 inch drain pipe 226.38 feet to a point in line of lands now or late of Fine Grinding Corp.; thence extending along the same North 6 degrees 37 minutes East 23.29 feet to a point a corner of Lot 1 as shown on the above mentioned plan; thence extending along the same the four following courses and distances: (1) South 83 degrees 23 minutes East 15 feet to a point; (2) North 6 degrees 37 minutes East 15 feet to a point; (3) South 83 degrees 23 minutes East crossing a certain 10 feet wide easement and recrossing the said 12 inch drain pipe therein 94.80 feet to a point and (4) North 6 degrees 37 minutes East 40.85 feet to a point; thence extending South 3 degrees 23 minutes East 25 feet to a point; thence extending North 6 degrees 55 minutes East 71 feet to a point on Southerly side of Elm Street; thence extending along the same South 83 degrees 23 minutes East 92 feet to the first mentioned point and place of beginning.

CONTAINING in area 19,755 square feet.

BEING LOT 2 as shown on the above mentioned Plan.

BEING ASSESSMENT PARCEL NUMBER 05-00-02200-00-9.

DB5292PG2391

PREMISES "B"

ALL THAT CERTAIN lot or piece of land known as 261 E. Elm Street, Situate in the Borough of Conshohocken, County of Montgomery and State of Pennsylvania, bounded and described as follows, to wit:

BEGINNING at a stake on the South side of Elm Street, at the distance of 92 feet Westerly from Poplar Street; thence along said Elm Street, Westerly 31.7 feet to a stake, a corner of this and land conveyed to Henry C. Messinger; thence along said land Southerly, parallel with Poplar Street, 70 feet to the Northerly side of land conveyed to the Pennsylvania Schuylkill Valley Railroad Company; thence along said land Easterly 31.7 feet to a stake; thence Northerly parallel with Poplar Street, aforesaid; 70 feet to the place of beginning.

BEING Assessment Parcel Number 05-00-02196-00-4.
05-00-02200-00-9

BEING, AS TO PREMISES A, PART OF, the same premises which William Armstrong, III and Anne O. Armstrong, his wife by Deed dated 1/8/1982 and recorded in Montgomery County, in Deed Book 4677 page 48 conveyed their undivided One-half interest conveyed unto Joseph G. Proietto, in fee.

ALSO BEING PART OF, the same premises which The Philadelphia National Bank, and Others Trustees under the Will of John J. D'Arcy, Deceased by Deed dated 1/8/1982 and recorded in Montgomery County, in Deed Book 4677 page 52, conveyed their undivided One-half interest conveyed unto Joseph G. Proietto, in fee.

BEING, AS TO PREMISES "B" the same premises which Ann T. Proietto by Deed dated 12/17/1990 and recorded in Montgomery County, in Deed Book 4966 page 1253 conveyed unto Ann T. Proietto and Joseph G. Proietto, husband and wife, in fee.

MONTGOMERY COUNTY COMMISSIONERS REGISTRY
05-00-02200-00-9 CONSHOHOCKEN
263 E ELM ST
PROIETTO JOSEPH G
B 018 U 015 L 3321 DATE: 10/08/99

MONTGOMERY COUNTY COMMISSIONERS REGISTRY
05-00-02196-00-4 CONSHOHOCKEN
261 E ELM ST
PROIETTO ANN T & JOSEPH G
B 018 U 007 L 2102 DATE: 10/08/99

#037028
CONSHOHOCKEN BORO 3600.00
STATE STAMP 3600.00
TOTAL 7200.00
CHECK 3600.00
CHECK 3600.00
ITEM 2
10-18-99 MON #1 CASH-10 0684 15:32TM

Together with all and singular the buildings improvements, ways, streets, alleys, driveways, passages, waters, water-courses, rights, liberties, privileges, hereditaments and appurtenances, whatsoever unto the hereby granted premises belonging, or in any wise appertaining, and the reversions and remainders, rents, issues, and profits thereof; and all the estate, right, title, interest, property, claim and demand whatsoever of the said Grantors, as well at law as in equity, of, in, and to the same.

To have and to hold the said lot or piece of ground above described with the buildings and improvements thereon erected hereditaments and premises hereby granted, or mentioned, and intended so to be, with the appurtenances, unto the said Grantees, their heirs and assigns, to and for the only proper use and behoof of the said Grantees, their heirs and assigns forever.

(SPECIAL WARRANTY)

And the said Grantors, their heirs and assigns do by these presents, covenant, grant and agree, to and with the said Grantees, their heirs and Assigns, that they the said Grantors, their heirs all and singular the Hereditaments and premises herein above described and granted, or mentioned and intended so to be with the Appurtenances unto the said Grantees, their heirs and Assigns, against them the said Grantors, and against all and every Person or Persons whomsoever lawfully claiming or to claim the same or any part thereof, by from, or under them or any of them, shall and will by these presents WARRANT and forever DEFEND.

OR

(TRUSTEES' WARRANTY)

the said do covenant, promise and agree, to and with the said and assigns, by these presents, that the said has/have not done, committed or knowingly or willingly suffered to be done or committed, any act, matter or thing whatsoever whereby the premises hereby granted, or any part thereof, is, are, shall or may be impeached, charged or incumbered, in title, charge, estate, or otherwise howsoever.

In Witness Whereof, the said Grantors has/have caused these presents to be duly executed dated the day and year first above written.

Sealed and Delivered
IN THE PRESENCE OF US:

Mari Gate

Joseph G. Proietto
JOSEPH G. PROIETTO

Ann T. Proietto
Ann T. Proietto

DB5292PG2393

COMMONWEALTH OF PENNSYLVANIA)SS.
COUNTY OF Montgomery)

On this, the 7th day of October, A.D. 19 , before me,
the undersigned officer, personally appeared Joseph G. Proietto and Ann T. Proietto, husband **
known to me (or satisfactorily proven) to be the persons whose name s is(are) subscribed to the within
instrument, and acknowledged that t he y executed the same for the purposes therein contained.
In Witness Whereof, I hereunto set my hand and official seal.

** and wife

Marielle M Gates
Notary Public
My Commission Expires:

NOTARIAL SEAL
MARIELLE M. GATES, Notary Public
Whitemarsh Twp., Montgomery County
My Commission Expires Dec. 12, 2000

COMMONWEALTH OF PENNSYLVANIA)SS.
COUNTY OF)

On this, the day of , A.D. 19 , before me,
the undersigned officer, personally appeared who acknowledged
himself (herself) to be the of
a corporation and that he as such
being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the
corporation by himself (herself) as
In Witness Whereof, I hereunto set my hand and official seal.

Notary Public
My Commission Expires:

D233-727MB
City Suburban Abstract Co.
Plymouth Corp. Ctr., Bldg. C
625 Ridge Pike, STe. 103
Conshohocken, PA 19428

DEED.

Joseph G. Proietto and
Ann T. Proietto, husband
and wife

To:

John J. Staley, Sr. Joseph
F. Staley, and
John J. Staley, Jr.

Premises:
261-263 E. Elm Street
Conshohocken Borough
Montgomery County
Pennsylvania

RECORDER'S OFFICE
MONTGOMERY COUNTY, PA.

Maryanne Beckenbach

APPROVED
Borough of Conshohocken
Date: 10/7/99 mcb

The address of the above-named Grantee
is 611 Fayette St.
Conshohocken PA 19428
On behalf of the Grantee

CLT-2896

DB5292PG2394

AGREEMENT OF SALE

THIS AGREEMENT is made and entered as of the Effective Date, by and between John J. Staley, Sr., Joseph F. Staley & John J. Staley, Jr. (collectively, "Seller"), and Craft Custom Homes LLC, Buyer or it assignee or nominee ("Purchaser").

BACKGROUND

Seller is the owner of a parcel of land located at 261 & 263 E Elm St, Conshohocken 19428, Montgomery County, Pennsylvania. Seller now desires to sell the land, and Purchaser desires to purchase the land, upon the terms and conditions set forth in this Agreement.

NOW THEREFORE, in consideration of the covenants and provisions contained herein and other good and valuable consideration, and intending to be legally bound hereby, the parties hereto agree as follows:

1. Agreement to Sell and Purchase. Seller agrees to sell to Purchaser, and Purchaser agrees to purchase from Seller, subject to the terms and conditions of this Agreement, the following: that certain tract or piece of land containing approximately .56 acres, more or less, and the improvements (if any) erected thereon, known as Parcel # 05-00-02200-009 & 05-00-02196-004 Borough Of Conshohocken, Montgomery County, Pennsylvania, together with (a) all easements, rights of way, licenses, privileges, hereditaments and appurtenances, if any, belonging to or inuring to the benefit of the land, (b) all right, title and interest of Seller in and to any land lying in the bed of any highway, street, road or avenue, opened or proposed, in front or abutting or adjoining the land, and (c) all application materials, proposed and approved parcel plans, the right to use all preliminary, final, recorded and architectural plans and working drawings, all development agreements and any court ordered stipulation agreements, all engineering reports, surveys, plans, soils reports, environmental inspections and reports, hazardous waste studies or reports, grading plans, street and storm drain, sewer, water, landscape and irrigation plans, utility company will serve letters, feasibility studies (both physical and economic) relating to the development of the property, documents, studies and statements, and all agreements with consultants who performed work with respect to the development of the land (collectively, "Premises"). All existing Structures are included in the Purchase Price.

2.

3. Investigation. Purchaser, at Purchaser's expense, shall have a period of ninety (90) days from the Effective Date (the "*Investigation Period*") in which to satisfy itself as to the condition of the Premises including, but not limited to, environmental conditions, soil conditions, wetlands, floodplains, the proximity and availability of utility services, suitability for Purchaser's intended use, the status and content of any development approvals, any conditions thereof, zoning and to inspect, survey, measure, take test borings or soil samples or appraise the Premises. Purchaser, and Purchaser's agents, employees and representatives, shall have the right to enter upon the Premises at all reasonable times between the Effective Date and Closing to conduct any and all of such tests in connection therewith as it deems reasonably necessary, provided the Premises is returned to substantially the same condition as existed prior to entry by Purchaser or Purchaser's agents, employees and representatives. Purchaser shall have the right to perform Phase I and Phase II environmental site assessment testing at the Premises and if, in Purchaser's sole discretion, based on the advice of Purchaser's environmental consultant, a Phase II environmental site assessment is warranted, the Investigation Period shall be automatically extended for an additional period of thirty (30) days. Purchaser shall notify Seller in writing that Purchaser intends to perform a Phase II environmental site assessment and provide Seller with the new expiration date for the Investigation Period.

Purchaser further agrees to indemnify and save Seller harmless from all claims asserted against Seller as a result of injury or damage caused by Purchaser's activities upon the Premises. Purchaser's obligation to indemnify and save Seller harmless shall survive Closing or earlier termination of this Agreement.

Prior to entry upon the Premises, Purchaser shall provide Seller with reasonable proof of liability insurance in an amount of not less than One Million Dollars ($1,000,000.00) per occurrence, Two Million Dollars ($2,000,000.00) aggregate, covering Purchaser's activities on the Premises and naming Seller as an additional insured.

Purchaser shall have the right to terminate this Agreement at any time during the Investigation Period for any reason and for no reason, in its sole discretion, by delivery of written notice of such termination to the Seller prior to the expiration of the Investigation Period.

In the event the Purchaser shall fail to give such timely notice of termination then the Purchaser shall be deemed to have waived this condition, and this Agreement shall remain in full force and effect (subject, nevertheless, to all other conditions and contingencies set forth herein). In the event that the Purchaser shall terminate this Agreement pursuant to this paragraph 3, this Agreement shall be null and void, the Deposit shall be promptly returned to Purchaser, and the parties hereto shall be released from any and all further liability or obligation hereunder (except for any obligations which expressly survive Closing or the earlier termination of this Agreement).

4. Condition of Title.

(a) Title to the Premises shall be good and marketable, and free and clear of all liens, restrictions, easements, encumbrances, leases, tenancies and other title objections except for the

"Permitted Encumbrances" (as hereafter defined). In addition, such title shall be insurable under an ALTA Owner's Policy, Form B, Amended 1992, as aforesaid by any reputable title insurance company at regular rates. Seller, at Seller's expense, shall take all necessary steps required by Purchaser's title insurance company to permit the issuance to Purchaser without additional premium of a title insurance policy without exceptions for mechanics liens or bulk sales clearances, and Seller shall be solely liable for any roll-back taxes payable at Closing pursuant to the Pennsylvania Farmland and Forest Land Assessment Act of 1974, 16 P.S. §11941 ("Act 319"), or any similar statute or regulation requiring the payment of accrued or deferred taxes upon any change in use.

(b) Purchaser shall order a commitment to insure title ("Commitment") for the Premises prior to the expiration of the Investigation Period, and shall send Seller a copy of the Commitment within five (5) business days following Purchaser's receipt of the Commitment with copies of all exceptions, together with a list of all title objections and exceptions disclosed in the Commitment which interfere with Purchaser's proposed development and use of the Premises and are not acceptable to Purchaser ("Purchaser's Title Objections"); all other title exceptions shown on the Commitment and not identified as unacceptable by Purchaser are herein referred to as the ("Permitted Encumbrances"). Seller shall have five (5) days following the date of receipt of Purchaser's Title Objections to notify Purchaser of Seller's unwillingness or inability to deliver title free and clear of Purchaser's Title Objections, in which event Purchaser shall have the option, by notice to Seller within ten (10) business days after receipt of Seller's notification, to either accept such title to the Premises as Seller can provide (other than monetary liens of an ascertainable amount, which shall be paid by Seller at Closing from the Purchase Price) or to terminate this Agreement and have the Deposit returned to Purchaser within five (5) business days of Purchaser's notice and neither party shall have any obligations to the other. Failure by Seller to notify Purchaser of Seller's inability or unwillingness to deliver title subject only to the Permitted Encumbrances within such 5-day period shall constitute Seller's agreement to deliver title at Closing subject only to the Permitted Encumbrances and free and clear of Purchaser's Title Objections.

(c) Without Purchaser's prior written consent, Seller shall take no action after the Effective Date hereof to voluntarily subject the Premises to any additional title exceptions not disclosed on the Commitment.

(d) Purchaser shall have the right, in Purchaser's discretion, to have a survey of the Premises prepared (or, if Seller has an existing survey in Seller's possession, to have Seller's survey revised and updated), at Purchaser's expense, prior to the expiration of the Due Diligence Period (as hereinafter defined). If Purchaser elects to obtain such a survey and the survey reveals any exceptions to title not disclosed by the Commitment, Purchaser shall forward a copy of the survey and a list of such additional title objections and exceptions ("Purchaser's Additional Title Objections") to Seller prior to the end of the Due Diligence Period (as hereinafter defined), and Seller shall have five (5) days following receipt of the survey and Purchaser's Additional Title Objections to notify Purchaser of Seller's unwillingness or inability to deliver title free and clear of Purchaser's Additional Title Objections, in which event Purchaser shall have the option, by notice to Seller within ten (10) business days after receipt of Seller's notification, to either accept such title to the Premises as Seller can provide (other than monetary liens of an ascertainable amount, which shall be paid by Seller at Closing from the Purchase Price) or to terminate this Agreement and have the Deposit returned to Purchaser within five (5) business days of Purchaser's notice and neither party shall have any obligations to the other.

5. Representations and Warranties of Seller. Seller, to induce Purchaser to enter into this Agreement and to purchase the Premises, represents and warrants to Purchaser as follows:

(a) Authority; Consent; Conflicts. Seller has full capacity to execute, deliver and comply with this Agreement and any other document or instrument relating thereto or the transactions contemplated hereby. No consent, approval or other authorization of or by any court, administrative agency or other governmental or quasi-governmental authority is required in connection with Seller's execution and delivery of or compliance with this Agreement. The execution and delivery of this Agreement, the consummation of the transaction contemplated hereby and the compliance with the terms and conditions hereof will not conflict with, or result in a breach of any mortgage, lease, agreement or other instrument which will remain in effect at Closing, or any applicable law, judgment, order, writ, injunction, decree, rule or regulation of any court, administrative agency or other governmental authority to which Seller is a party or by which it or its properties is bound.

(b) Regulatory Compliance. Seller has complied with all applicable federal, state and local laws, regulations and ordinances affecting the Premises, including, but not limited to, zoning and building codes. Seller has received no notice from any governmental authority of any violations of any federal, state or local law, regulation or ordinance affecting any portion of the Premises, which remains uncorrected. Prior to Closing Seller shall cure or resolve to Purchaser's reasonable satisfaction (if such violation can be cured or resolved by payment of money) any other violation of which Seller receives written notice prior to the Closing, or which results from any inspection of the Premises which occurs prior to Closing. The current zoning classification of the Premises is Limited Industrial (with a Residential Overlay).

(c) Litigation. There is no action, suit or proceeding pending or, to the knowledge of Seller, threatened, and Seller as of the Effective Date shall not initiate any of the same, against or affecting the Premises or any portion thereof or relating to or arising out of the ownership, management or operation of the Premises in any court or before or by any federal, state or local department, commission, board, bureau or agency or other governmental instrumentality.

(d) Public Improvements. No assessment for public improvements has been served upon the Seller with respect to the Premises which remains unpaid, including, but not limited to, those for construction of sewer, water, electric or gas lines and mains, streets, sidewalks and curbing. Seller shall be responsible for the assessments and charges that are imposed on Seller or the Premises up to and including the day of Closing. Seller knows of no public improvements, which have been ordered to be made, and/or which have not heretofore been completed, assessed and paid for.

(e) Condemnation. Seller has not received any notice of any condemnation proceeding or other proceeding in the nature of eminent domain with respect to the Premises, and to the best of Seller's knowledge no such proceedings are threatened.

(f) Environmental Disclosures. To the best of Seller's knowledge, the Premises has never been used for the disposal of refuse or waste, or for the generation, processing, manufacture, storage, handling, treatment or disposal of any hazardous or toxic waste, substance, petroleum product or material ("Hazardous Substance"). To the best of Seller's knowledge, no (i) asbestos-containing materials, or (ii) machinery, equipment or fixtures containing polychlorinated biphenyls (PCBs), or (iii) storage tanks for gasoline or any other substance, or (iv) urea formaldehyde foam insulation, have been installed, used, stored, handled or located on the Premises. To the best of Seller's knowledge, no Hazardous Substance has been installed, used, stored, handled or located on the

Premises which, if found on the Premises or improperly disposed of off the Premises, would subject the owners or occupants of the Premises to damages, penalties, liabilities or an obligation to perform any work, cleanup, removal, repair, construction, alteration, demolition, renovation or installation on or in connection with the Premises ("Environmental Cleanup Work") in order to comply with any federal, state or local law, regulation, ordinance or order concerning the environmental state, condition or quality of the Premises ("Environmental Law") applicable to owners, operators or developers of real property. To the best of Seller's knowledge, no notice from any governmental body has ever been served upon Seller, its agents or employees, or, to the best of Seller's knowledge, any occupant or prior owner of the Premises, claiming any violation of any Environmental Law, or requiring or calling attention to the need for any Environmental Cleanup Work on or in connection with the Premises in order to comply with any Environmental Law. Neither Seller, its agents or employees, nor, to the best of Seller's knowledge, any occupant or prior owner of the Premises, has ever had any reason to believe that any violation notice or corrective work order was about to be issued with respect to the Premises. Seller shall indemnify, hold harmless, and at Purchaser's request, defend Purchaser against all damage, claim, liability, personal injury, loss or expense, including any attorneys' and professional fees, and any court costs and litigation expenses, in connection with or arising out of any misrepresentation by Seller under this subparagraph.

(g) Leases and Other Agreements. There are leases currently at the property. The Seller will not enter into a new lease or extend any lease, however the Seller may enter into a month to month lease with the current tenants with a 60 day notice to terminate. There are no other occupancy agreements (except current leases), licenses, agreements of sale, options or similar agreements of any kind affecting the Premises, and neither Seller nor, to the best of Seller's knowledge, any prior owner of the Premises has made any commitments, written or verbal, to any persons or entities in any way affecting the Premises or any aspect of the development thereof except as disclosed to Purchaser in writing prior to execution hereof. There are no management, service, equipment, supply, maintenance or concession agreements with respect to or affecting the Premises which will remain in effect after Closing. Seller agrees that as of the Effective Date Seller will not enter into any agreement financial or otherwise, or understanding with any governmental agency, municipality or authority or any person, persons, partnership, corporation, or other entity which may effect in any way the Premises, or proposed development of the Premises without the written consent of Purchaser. Purchaser agrees to assume the remaining term of the lease for "Fit Golf" residing at 2 Poplar Street, Conshohocken, PA 19428.

(h) Sewer and Water. The existing public sewer system shall be in good working condition and the public water shall be turned on at the time of Closing.

(i) Connection of Premises to Public Streets. The Premises has direct ingress and egress to public street(s).

6.

7. Closing. Closing (the "Closing") hereunder shall take place at the offices of Purchaser's title company, or at such other location as the parties hereto shall mutually agree upon, upon the earliest to occur of (i) 12 months from the Effective Date, unless extended by the parties pursuant to Subsection 6 (e) hereof or (ii) sixty (60) days after satisfaction of all of the Conditions set forth in Section 6, or (iii) such earlier date as may be specified by Purchaser to Seller with at least fifteen (15) days advance notice.

8. Operation of the Premises Prior to Closing. Between the date of the execution of this Agreement and Closing:

(a) Seller shall maintain the Premises and all portions thereof in the same condition as on the date hereof, and perform all routine or ordinary maintenance such as grass cutting, prohibiting dumping and weed control in areas where previously performed or as required by law. Seller shall maintain all systems including HVAC systems and appliances so as not to be in default of any of Seller's lease obligations and all said systems and appliances shall be in good working order at the time of Closing with regard to the "Fit Golf" Lease for property at 2 Poplar Street, Conshohocken, PA 19428.

(b) Seller shall deliver to Purchaser within five (5) days following the Effective Date any and all surveys, plans, studies, reports, permits, approvals, submissions, applications, and similar materials regarding the Premises in Seller's possession, and will authorize any contractors and consultants who have performed any work for Seller regarding the Premises to release materials regarding such work to Purchaser.

(c) As of the Effective Date no contract for or on behalf of or affecting the Premises shall be negotiated or entered into by Seller which cannot be terminated at or before Closing without charge, cost, penalty or premium or which would in any way increase the cost or difficulty of Purchaser's proposed development of the Premises, and no lease, occupancy agreement or understanding with any governmental agency, municipality, or authority or any person(s), partnership, corporation or other entity or similar agreement of any kind for all or any portion of the Premises which may effect in any way the proposed development of the Premises shall be executed without Purchaser's prior written consent.

9. Provisions with Respect to Closing. At Closing, Seller shall deliver or cause to be delivered to Purchaser the following:

(a) Deed. A special warranty deed for the Premises duly executed and acknowledged by Seller, and in form satisfactory to Purchaser's attorneys;

(b) FIRPTA Affidavit. An affidavit, in accordance with the Foreign Investment in Real Property Tax Act, stating that Seller is not a foreign person within the meaning of such Act and that Seller is not subject to the withholding requirements set forth in such Act;

(c) Title Company Affidavit. An affidavit to Purchaser's title insurance company of the type customarily provided by sellers of real property to induce title companies in the Philadelphia metropolitan area to insure over certain "standard" or "preprinted" exceptions to title.

(d) Certification Statement. If required by or reasonably available from the Township, certifications confirming the zoning classification of the Premises as set forth in Section 5(b) and that there are no notices of any uncorrected violations of the Township's ordinances.

(e) Assignment and Assumption of Lease with Fit Golf for 2 Poplar Street.

(f) Such other conveyance documents, certificates, deeds and other instruments as Purchaser, Seller or the Title Company may reasonably require to carry out the transaction contemplated by this Agreement and as are customary and like transactions in Montgomery County, Pennsylvania.

10. Taxes; Apportionments.

(a) Real estate taxes and any other lienable services shall be apportioned pro rata on a per diem basis as of the date of Closing.

(b) All realty transfer taxes imposed on any document executed or delivered pursuant hereto or otherwise in connection with this transaction shall be divided equally between Seller and Purchaser. Except as set forth in Section 4 hereof, Purchaser shall pay all title insurance premiums charged by Purchaser's title insurance company. Each party shall bear its own counsel fees. All other recording and closing costs of any nature or description shall be borne or apportioned in accordance with the custom and practice in Montgomery County Pennsylvania.

11. Fire, Eminent Domain, etc. If, prior to Closing, a fire or other casualty causes material damage to the Premises, the Seller shall notify the Purchaser of such fact in writing promptly after obtaining knowledge thereof, and the Purchaser shall have the right to terminate this Agreement by giving written notice thereof to the Seller within five (5) Business Days after receiving the Seller's written notice (and, if necessary, the Closing Date shall be extended as appropriate to permit the Purchaser the full five (5) day period within which to decide whether to terminate this Agreement). If the Purchaser elects to terminate this Agreement as aforesaid, the entire Deposit shall be paid to the Purchaser and this Agreement shall terminate and be of no further force and effect and neither party shall have any liability to the other hereunder except for the Surviving Obligations. If a fire or other casualty does not cause material damage to the Premises or if the Purchaser shall not elect to terminate this Agreement as aforesaid, there shall be no abatement of the Purchase Price and the Seller shall assign to the Purchaser at the Closing the rights of the Seller to the proceeds, if any, under the Seller's insurance policies covering the Premises with respect to such damage or destruction and Purchaser shall receive a credit against the Purchase Price at Closing for the lesser of (a) any applicable deductible amounts under such policies or (ii) the costs to repair such damage as reasonably estimated by the Seller and the Purchaser. For purposes of the foregoing, "material damage" shall be deemed to be damage which costs in excess of $75,000 to repair or restore, as reasonably determined by the Seller and the Purchaser. If at any time prior to the date of Closing Seller is notified of any condemnation proceedings or other proceedings in the nature of eminent domain against any portion of the Premises, Seller shall, within three (3) days thereof, give written notice thereof to Purchaser. Purchaser shall have the right, by notice to Seller within fifteen (15) business days of receipt of such notice, at Purchaser's sole option, to terminate this Agreement, in which event the Deposit(s) shall be returned to Purchaser within five (5) business days of Purchaser's notice and this Agreement shall become null and void, and neither party shall have any further liabilities or obligations hereunder. If Purchaser does not terminate this Agreement, then (a) Purchaser shall have the right to participate in and approve the determination of any condemnation or eminent domain award, (b) any condemnation or eminent domain award with

respect to the Premises paid between the date of this Agreement and the Closing shall be paid or credited to Purchaser at time of Closing, and (c) all unpaid claims and rights in connection with losses shall be assigned to Purchaser at Closing without in any manner affecting the Purchase Price.

12. Brokers. Seller and Purchaser each warrants and represent to the other that each has had no dealings, negotiations or communications with any brokers or other intermediaries in connection with this Agreement or the sale of the Premises, other than Keller Williams Real Estate and Binnie Bianco to whom Seller has agreed to pay a Commission of 2.5% of the Purchase Price pursuant to a separate agreement. In the event that any claim is asserted by any other person, firm or corporation, whether broker or otherwise, claiming a commission and/or finder's fee with respect to the sale and purchase of the Premises resulting from any act, representation or promise of Seller, Seller shall indemnify and save harmless Purchaser from any such claim, and in the event any such claim shall be made against Seller resulting from any act, representation or promise of Purchaser with respect to such sale and purchase, Purchaser shall likewise indemnify and save harmless Seller from any such claim from any other Broker.

13. Notices. All notices, requests and other communications under this Agreement shall be in writing and shall be addressed as follows:

To Seller: John J Staley Sr, Joseph F Staley & John J Staley Jr.
224 Fox Run Road
King of Prussia, PA 19406

With a copy to: Frederic M. Wentz, Esquire
McGrory Wentz, LLP
Suite 207, 1250 Germantown Pike
Plymouth Meeting, PA 19462

To Purchaser: Craft Custom Homes, LLC
231 Redwood Road
King of Prussia, PA 19406

With a copy to: Edward J. Hughes, Esquire
Hughes, Kalkbrenner & Ozorowski, LLP
Suite 205, 1250 Germantown Pike
Plymouth Meeting, PA 19462

or at such other address of which Seller or Purchaser shall have given notice as herein provided. Notices by the parties may be given to and by their respective counsel. All such notices shall be given by overnight delivery service or by certified mail, return receipt requested, or by telecopy if followed by a copy served in accordance with one of the other permitted means. Such notices shall be deemed to have been given on the date received, if tele-copied, or the next business day following deposit of the notice with an overnight delivery service, or three days after mailing, if sent by certified mail.

14. Default; Provisions Regarding Deposit.

(a) In the event that Purchaser violates or fails to fulfill or perform any of the

terms and conditions of this Agreement required to be performed by Purchaser, which violation or failure is not cured within thirty (30) days following written notice from Seller, such violation or failure shall be deemed a Default hereunder, and Escrow Agent shall pay the Deposit to Seller as liquidated damages. Receipt of the Deposit shall be Seller's sole and exclusive remedy hereunder and this Agreement shall thereupon become null and void, and neither party shall have any further obligations hereunder.

(b) If the Seller shall have made any representation or warranty herein which shall be untrue or misleading in any material respect when made or if the Seller shall fail to perform any of the material covenants and agreements to perform by it at or prior to Closing, the Purchaser may as its sole and exclusive remedy, either (a) terminate this Agreement and receive a refund of the Deposit; or (b) pursue a suit for specific performance.

(c) Seller and Purchaser agree that Escrow Agent is acting as agent only and shall not be liable to either party for any act or omission except as the result of Escrow Agent's gross negligence or willful misconduct. Escrow Agent shall be entitled to rely upon any document reasonably believed by it to be genuine. In the event of any dispute between Purchaser and Seller regarding the Deposit, Escrow Agent shall be entitled to pay the Deposit into court and thereafter shall have no further liability or obligation hereunder.

(d) Escrow Agent shall place the Deposit in a federally insured non-interest bearing account.

15. Miscellaneous.

(a) The headings and captions in this Agreement are inserted for convenience of reference only and in no way define, describe or limit the scope or intent of this Agreement or any of the provisions hereof.

(b) This Agreement shall be binding upon and inure to the benefit of parties hereto and their respective heirs, executors, administrators, legal representatives, successors and assigns. Seller agrees to execute at or prior to Settlement, a new Agreement of Sale with the ultimate Purchaser. In the event that Purchaser assigns this agreement to another entity, the Purchaser will notify the Seller within 30 days of settlement. Seller shall have the right to approve the assignee within 5 days of receiving all financial documentation provided by the Purchaser. If Seller does not approve of assignee based on financial viability, the Purchaser will notify the assignee and Seller will have the option of requiring original Purchaser to proceed with agreement or terminate the agreement. The new Agreement of Sale shall have the same terms and conditions as the Agreement of Sale herein.

(c) Possession is to be delivered by Seller to Purchaser at Closing. Formal tender of an executed deed and purchase money is hereby waived subject only to the remaining term of the Lease for Fit Golf at 2 Poplar Street, Conshohocken, PA 19428.

(d) This Agreement contains the entire agreement between Seller and Purchaser and there are no other terms, obligations, covenants, representations, statements or conditions, oral or otherwise of any kind whatsoever concerning this sale. Furthermore, this Agreement shall not be altered, amended, changed or modified except in writing executed by the parties hereto.

(e) This Agreement shall be governed by and construed in accordance with

the laws of the Commonwealth of Pennsylvania.

(f) The representations, warranties and agreements of the parties contained herein shall survive the Closing.

(g) As used herein, the term "business day" means any day other than a Saturday, Sunday or legal holiday.

(h) All times referred to for the performance of any of the obligations of this Agreement is hereby agreed to be of the essence of this Agreement.

(i) This Agreement may be executed in one (1) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. This Agreement constitutes the entire agreement of the parties hereto with respect to the subject matter hereof and shall supersede and take the place of any other instruments purporting to be an agreement of the parties hereto relating to the subject matter hereof. Any such counterparts or signatures may be delivered by facsimile or e-mail (in .pdf format), and any counterparts or signatures so delivered shall be deemed an original counterpart or signature for all purposes related to this Agreement.

16. In the event the Purchaser extends the time for Closing under the Agreement in accordance with Paragraph 6(e), the Purchaser shall be responsible for maintaining the Premises including, but not limited to, appliances, roof, mechanicals, required public assessments and/or repairs and all prorated taxes, insurance and utilities not paid by tenants. These costs will be itemized and paid at the time of Closing. If the Agreement is terminated for any reason other than Seller's default, Purchaser shall be responsible for the aforementioned costs from the date of the extension to the date of termination.

17. In the event that the Purchaser terminates this Agreement for any reason other than Seller's default, Purchaser shall deliver to Seller within five (5) days following the Termination Date any and all surveys, plans, studies, reports, permits, approvals, submissions, applications, and similar materials regarding the Premises in Purchaser's possession, and will authorize any consultants who have performed any work for Purchaser regarding the Premises to release materials regarding such work to Seller.

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, and intending to be legally bound hereby, the parties hereto have executed this Agreement (for the Premises known as Parcel # 05-00-02200-009 & 05-00-02196-004, containing .56 acres, more or less, in the Borough of Conshohocken, Montgomery County, Pennsylvania) as of the later date signed below and initialed any revisions herein by Purchaser and Seller.

PURCHASER:

CRAFT CUSTOM HOMES, LLC

Witness: _____ By: _____ Date 8.21.19

Ryan Alexaki, ~~Member~~

SELLER:

Witness Bonnie Brace _____ Date 8/21/19

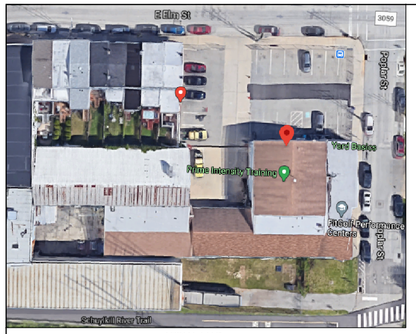
John J. Staley, Sr.

Witness Bonnie Brace _____ Date 8/21/19

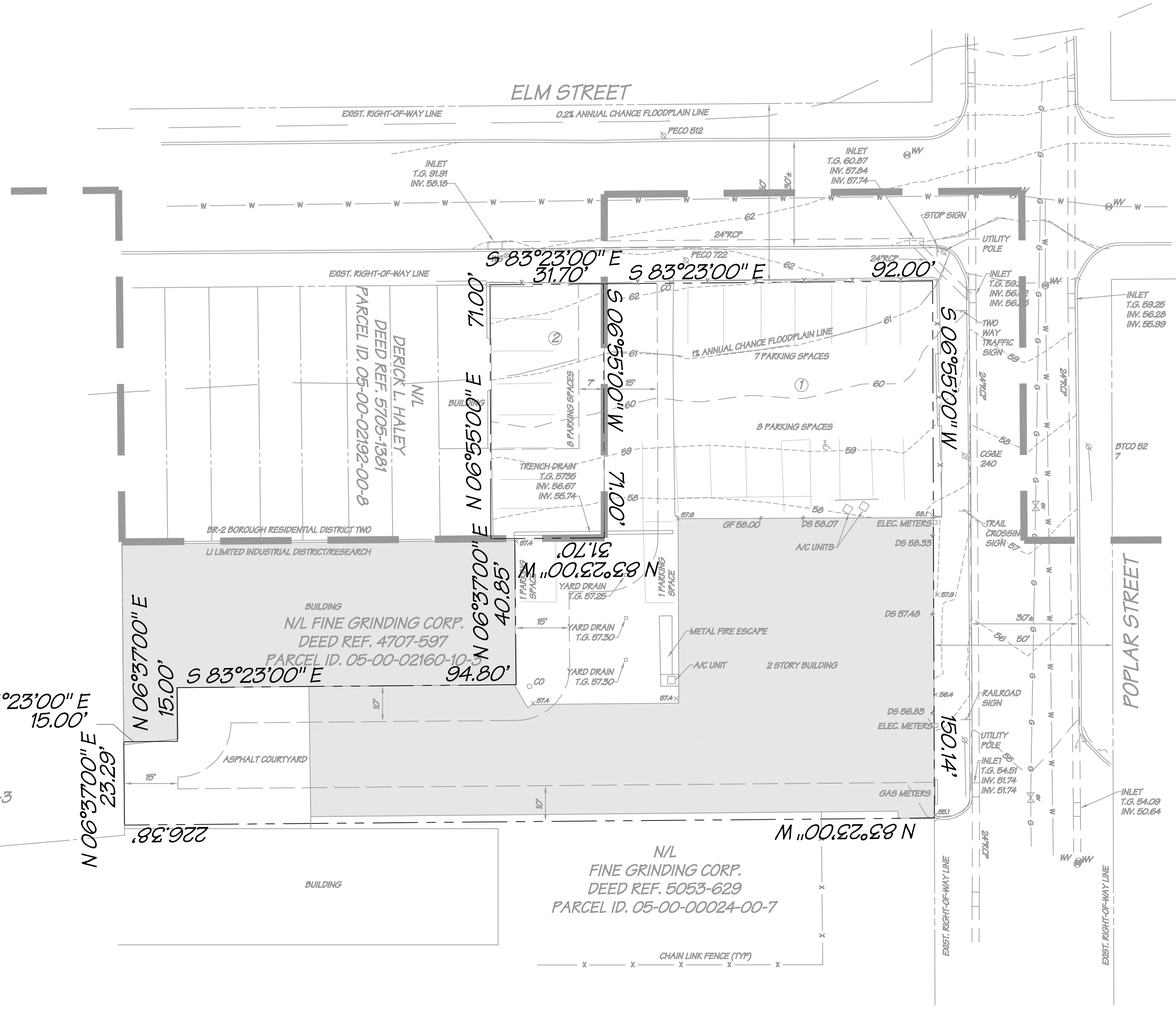
Joseph F. Staley

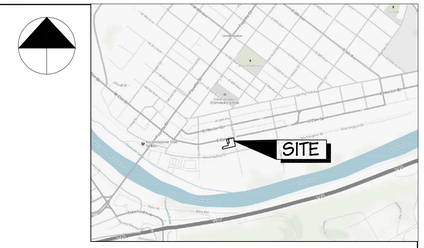
Witness Bonnie Brace _____ Date 8/21/19

John J. Staley, Jr.



AERIAL MAP
SCALE 1"=50'





LOCATION MAP
NOT TO SCALE

GENERAL NOTES

1. PHYSICAL FEATURES SHOWN HEREON OBTAINED BY A FIELD SURVEY COMPLETED ON AUGUST 29, 2018.
2. HORIZONTAL DATUM IS BASED ON DEED BEARINGS. VERTICAL DATUM IS REFERENCED TO NAVD88.
3. THIS PLAT WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT.
4. THIS PLAT IS REPRESENTATIVE OF EXISTING CONDITIONS FOR WHICH VASTARDIS CONSULTING ENGINEERS, LLC (VCELLC) WAS CONTRACTED TO PERFORM, EXCEPT ANY RECORDED OR UNRECORDED EASEMENTS WHICH MAY NOT BE VISIBLE OR SUPPLIED TO VASTARDIS CONSULTING ENGINEERS, LLC (VCELLC).
5. THE LOCATIONS OF UNDERGROUND UTILITIES HAVE BEEN SHOWN BASED ON FIELD SURVEY AND SURFACE OBSERVATION. VASTARDIS CONSULTING ENGINEERS, LLC (VCELLC) MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA EITHER IN SERVICE OR ABANDONED. VCELLC DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION. THEREFORE, VCELLC SHALL NOT BE RESPONSIBLE OR HELD LIABLE FOR ANY UTILITY NOT SHOWN OR SHOWN ON THE DRAWINGS IN A LOCATION OTHER THEN WHERE IT IS ACTUALLY DISCOVERED UPON EXCAVATION. VCELLC HAS NOT PHYSICALLY EXCAVATED AND LOCATED ANY UNDERGROUND LINES.
6. FLOODPLAIN BOUNDARIES ARE PLOTTED FROM FEMA FLOOD INSURANCE RATE MAP NO. 42091C0356G, REVISED 03/02/2016. SUBJECT PROPERTY PARTIALLY LIES WITHIN THE 1.0% ANNUAL CHANCE FLOODPLAIN. FLOOD PLAIN BOUNDARY IS APPROXIMATE.
7. REFERENCE IS MADE TO A PLAN ENTITLED "JOSEPH G. PROIETTO LAND SUBDIVISION PLAN", PREPARED BY JOHN L. DZEEDZY INC., PLAN NO. 8226, DATED 01/22/1983, LAST REVISED 03/14/1983, AND RECORDED IN THE MONTGOMERY COUNTY RECORDER OF DEEDS OFFICE PLAN NO. 840 PAGE 181.

ZONING REQUIREMENT

① LI - LIMITED INDUSTRIAL DISTRICT

	REQUIRED	EXISTING
MIN. LOT AREA	N/A	19,753 S.F.
MIN. FRONT YARD SETBACK	25 FT.**	0 FT.
MIN. SIDE YARD SETBACK	10 FT.***	0 FT.
MIN. REAR YARD SETBACK	15 FT. (25 FT. RESIDENTIAL)****	20.6 FT.
MAX. BUILDING COVERAGE	50%	47.3%
MAX. IMPERVIOUS SURFACES	75%	98.0%*
* EXISTING NON-CONFORMING		

② BR-2 BOROUGH RESIDENTIAL DISTRICT TWO

	REQUIRED	EXISTING
MIN. LOT AREA	1,800 S.F.	2,250 S.F.
MIN. LOT WIDTH	18 FT.	31.7 FT.
MIN. FRONT YARD SETBACK	15 FT.******	N/A
MIN. SIDE YARD SETBACK	7 FT.******	N/A
MIN. REAR YARD SETBACK	25 FT.	N/A
MAX. BUILDING COVERAGE	40%	N/A
MAX. IMPERVIOUS SURFACES	60%	100%*
* EXISTING NON-CONFORMING		

** EXCEPT WHERE A BUILDING LINE HAS BEEN ESTABLISHED, THEN THE BUILDING LINE OF THE MAJORITY OF THE BUILDINGS ON THAT SIDE OF THE BLOCK SHALL BE USED.
*** EXCEPT WHERE THE PROPERTY ADJOINS A RESIDENTIAL USE OR DISTRICT, THEN THE SETBACK SHALL BE INCREASED TO 15 FEET.
**** EXCEPT WHERE THE PROPERTY ADJOINS A RESIDENTIAL USE OR DISTRICT, THEN THE SETBACK SHALL BE INCREASED TO 25 FEET.
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****** 7 FT. FOR END UNITS, NOT MORE THE 8 SINGLE FAMILY ATTACHED DWELLING UNITS PER SERIES SHALL BE PERMITTED.
REFER TO THE BOROUGH OF CONSHOHOCKEN ZONING ORDINANCE FOR COMPLETE TEXT OF ALL REGULATIONS.

PROPERTY OWNER

JOHN J. STALEY SR., JOSEPH F. STALEY, & JOHN J. STALEY, JR.
234 FOX RUN ROAD
KING OF PRUSSIA, PA 19406

EQUITABLE OWNER

CRAFT CUSTOM HOMES, LLC
541 E. HECTOR ST.
CONSHOHOCKEN, PA 19406

PROPERTY INFORMATION

① DEED REF. 5292-2391
PARCEL ID. 05-00-02200-00-9

② DEED REF. 5292-2391
PARCEL ID. 50-00-02196-00-4

SITE ADDRESS:

261-263 E. ELM STREET
CONSHOHOCKEN, PA 19428

IMPERVIOUS COVERAGE

		EXISTING	
①	BUILDING	9,343 S.F.	47.3%
	ASPHALT/CONCRETE	10,024 S.F.	50.7%
	TOTAL	19,367 S.F.	
		EXISTING	
②	ASPHALT	2,550 S.F.	100.0%

PENNSYLVANIA ONE CALL SYSTEM, INC. 811 PENNSYLVANIA'S LAW REQUIRES 3 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY

PA. ACT 121 (1996) REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH.

OSHA 1926.651 SPECIAL EXCAVATION REQUIREMENTS

(A) PRIOR TO OPENING AN EXCAVATION, EFFORT SHALL BE MADE TO DETERMINE WHETHER UNDERGROUND INSTALLATIONS I.E., SEWER, TELEPHONE WATER, FUEL, ELECTRIC LINES, ETC. WILL BE ENCOUNTERED, AND IF SO, WHERE SUCH INSTALLATIONS ARE LOCATED. WHEN IT APPEARS THAT SUCH INSTALLATIONS MAY BE APPROACHED THE ESTIMATED LOCATION OF EACH AN INSTALLATION, THE EXACT LOCATION SHALL BE DETERMINED AND WHEN IT IS UNCOVERED, PROPER SUPPORTS SHALL BE PROVIDED FOR THE EXISTING INSTALLATIONS.(B) UTILITY COMPANIES OR OWNERS SHALL BE CONTACTED WITHIN THE ESTABLISHED OR KNOWN LIMITS OF AN EXCAVATION PRIOR TO THE BEGINNING OF ACTUAL EXCAVATIONS.

OUTSIDE PENNA. OR IN THE PITTSBURGH AREA WE CAN ALSO BE REACHED AT 412-523-7100

PA ONE CALL
SERIAL NO.20203270139

TAX PARCEL ID. FOLIO #05-00-02200-00-9
TAX PARCEL ID. FOLIO #50-00-02196-00-4

LEGEND

- EXIST. 5' CONTOURS
- EXIST. 1' CONTOURS
- EXIST. BOUNDARY LINE
- EXIST. RIGHT-OF-WAY
- EXIST. BUILDING SETBACK LINE
- EXIST. FLOODPLAIN BOUNDARY
- W — EXIST. WATER LINE
- G — EXIST. UNDERGROUND GAS LINE
- S — EXIST. SANITARY SEWER LINE
- OHE — EXIST. OVERHEAD ELECTRIC LINE
- X 57.4 — EXIST. SPOT ELEVATION
- X DS 58.07 — EXIST. DOOR SILL ELEVATION
- WS — EXIST. WATER SERVICE
- WV — EXIST. WATER VALVE
- S — EXIST. SANITARY MANHOLE
- CO — EXIST. CLEANOUT
- EXIST. UTILITY POLE
- ZONING DISTRICT BOUNDARY LINE

SHEET INDEX

*TO BE RECORDED

0' 20' 40' 60'
GRAPHIC SCALE

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — NICHOLAS L. VASTARDIS — ENGINEER — 35066-E

NICHOLAS L. VASTARDIS, P.E.

NUM.	DATE	REVISION
1	12-09-20	ADDITIONAL INFORMATION ADDED PER BOROUGH REQUEST

VASTARDIS CONSULTING ENGINEERS, LLC
29 Harvey Lane I Malvern, PA 19355 Ph:610.644.9663 I Fx: 610.644.3789 Email : vcellc@ verizon.net

PLAN PREPARED FOR:

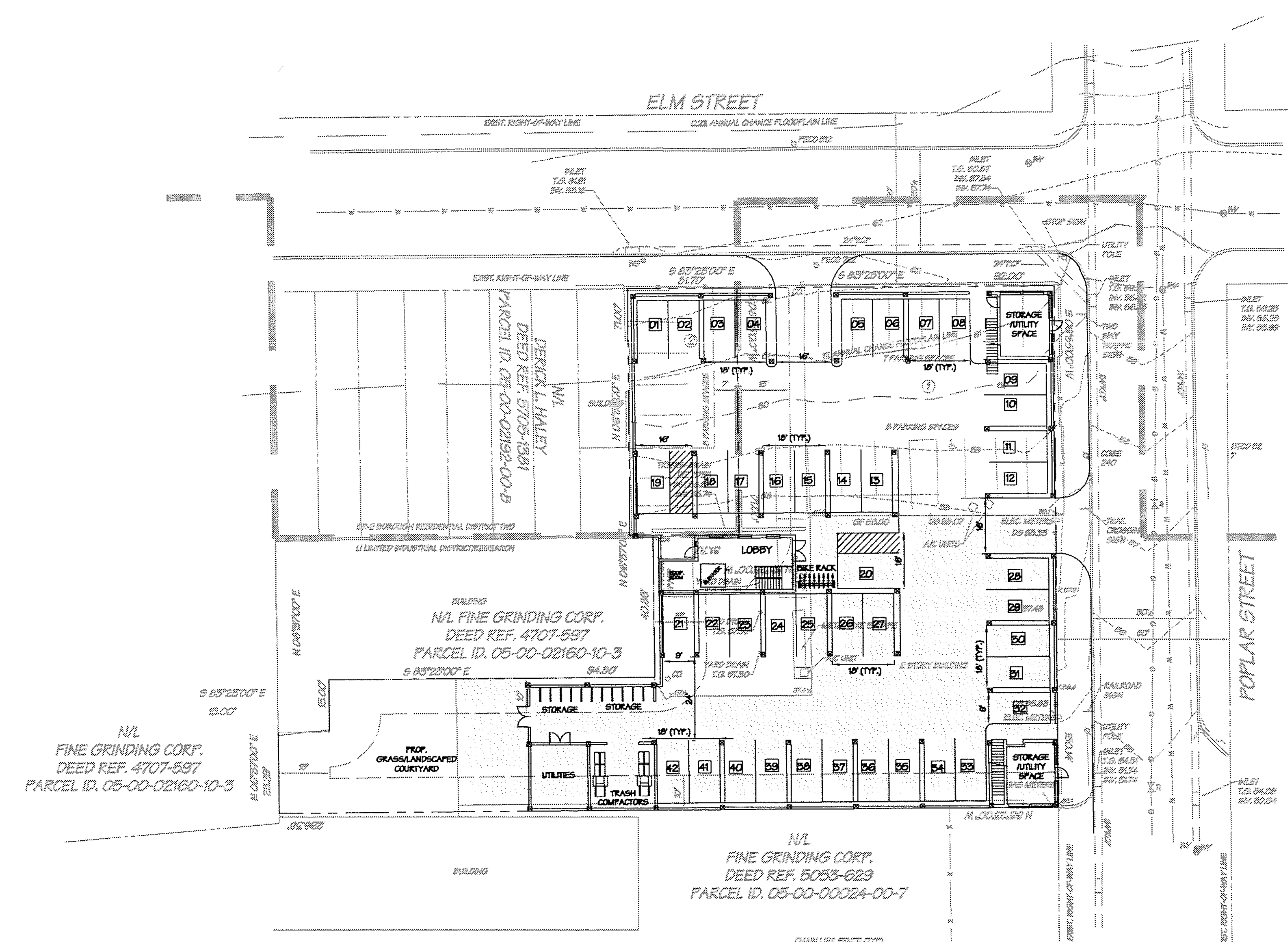
CRAFT CUSTOM HOMES, LLC
261-263 E. ELM STREET

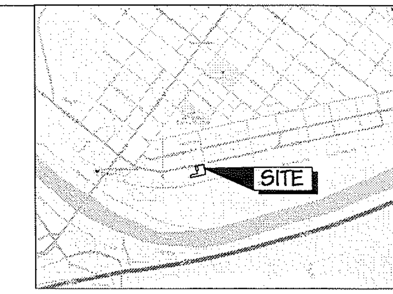
BOROUGH OF CONSHOHOCKEN MONTGOMERY COUNTY PENNSYLVANIA

DRAWN BY	SDI
CHECKED BY	NV
DATE	11-25-20
SCALE	1"=20'

EXISTING CONDITIONS PLAN

SHEET 1 OF 7





LOCATION MAP
NOT TO SCALE

GENERAL NOTES

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PROPERTY OWNER
JOHN J. STALEY SR., JOSEPH F. STALEY, & JOHN J. STALEY, JR.
224 FOX RUN ROAD
KING OF PRUSSIA, PA 19406

EQUITABLE OWNER
CRAFT CUSTOM HOMES, LLC
541 E. HECTOR ST.
CONSHOHOCKEN, PA 19406

PROPERTY INFORMATION
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PARCEL ID. 05-00-02200-00-9

② DEED REF. 5292-2591
PARCEL ID. 50-00-02196-00-4

SITE ADDRESS:
261-263 E. ELM STREET
CONSHOHOCKEN, PA 19428

IMPERVIOUS COVERAGE

①	EXISTING	PROPOSED
BUILDING	9,343 S.F.	18,240 S.F.
ASPHALT/CONCRETE	10,024 S.F.	127 S.F.
TOTAL	19,367 S.F.	19,367 S.F.

CURRENT PARKING COUNT = 25 SPACES
PROPOSED PARKING COUNT = 42 SPACES

NOTES:
APPLICANT IS PROPOSING 21 2 BEDROOM CONDOMINIUM UNITS WITH 2 PARKING SPACES PER UNIT PROVIDED.

ZONING REQUIREMENT

① LI - LIMITED INDUSTRIAL DISTRICT

	REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA	N/A	19,755 S.F.	19,755 S.F.
MIN. FRONT YARD SETBACK	25 FT.**	0 FT.	0 FT.
MIN. SIDE YARD SETBACK	10 FT.***	0 FT.	0 FT.
MIN. REAR YARD SETBACK	15 FT. (25 FT. RESIDENTIAL)****	20.6 FT.	1.5 FT.
MAX. BUILDING COVERAGE	50%	47.3%	86%
MAX. IMPERVIOUS SURFACES	75%	98.0%*	98.5%

* EXISTING NON-CONFORMING

② BR-2 BOROUGH RESIDENTIAL DISTRICT TWO

	REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA	1,800 S.F.	2,250 S.F.	2,250 S.F.
MIN. LOT WIDTH	18 FT.	31.7 FT.	31.7 FT.
MIN. FRONT YARD SETBACK	15 FT.*****	N/A	1 FT.
MIN. SIDE YARD SETBACK	7 FT.******	N/A	1 FT.
MIN. REAR YARD SETBACK	25 FT.	N/A	0 FT.
MAX. BUILDING COVERAGE	40%	N/A	95%
MAX. IMPERVIOUS SURFACES	60%	100%*	100%

* EXISTING NON-CONFORMING

RESIDENTIAL OVERLAY DISTRICT

	REQUIRED	PROPOSED
MIN. TRACT AREA	1 AC.	0.45 AC.
MAX. DENSITY	33 DWELLING/AC.	21 UNITS
MIN. FRONT YARD	30 FT.	0 FT.
MIN. SIDE YARD	10 FT. (EACH)	0 FT.
MIN. REAR YARD	30 FT.	0 FT.
MAX. BUILDING COVERAGE	40%	87.5%
BUILDING HEIGHT LIMIT	35 FT.	45 FT.
MAX. IMPERVIOUS COVERAGE	80%	88.5%
PARKING AREA SETBACK	10 FT. FROM PROPERTY LINE	1.5 FT.
INTERNAL DRIVEWAY SETBACK	10 FT. FROM PROPERTY LINE	20 FT.
MIN. PARKING REQUIREMENTS	2 SPACES/UNIT	2 SPACES/UNIT
PARKING LOT LOCATION	REAR OF BUILDING	UNDER BUILDING
MIN. SQUARE FOOTAGE (2-BEDROOM UNIT)	900 S.F.	900 S.F.

** EXCEPT WHERE A BUILDING LINE HAS BEEN ESTABLISHED, THEN THE BUILDING LINE OF THE MAJORITY OF THE BUILDINGS ON THAT SIDE OF THE BLOCK SHALL BE USED.
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REFER TO THE BOROUGH OF CONSHOHOCKEN ZONING ORDINANCE FOR COMPLETE TEXT OF ALL REGULATIONS.

REQUESTED RELIEF

THE APPLICANT RESPECTFULLY REQUESTS RELIEF FROM THE FOLLOWING SECTIONS OF THE BOROUGH OF CONSHOHOCKEN ORDINANCE:

27-1714.1.A	IN ORDER TO ALTER AN EXISTING BUILDING AND CONSTRUCT A NEW BUILDING IN THE 100-YEAR FLOOD PLAIN.
27-1903-B.2	TO EXCEED THE ALLOWABLE MAXIMUM PERMITTED DWELLING UNIT DENSITY OF 33 UNITS PER ACRE.
27-1903-B.3.A-C	TO PROVIDE RELIEF FROM THE DISTRICT'S FRONT, SIDE, AND REAR YARD SETBACK STANDARDS.
27-1903-B.4	TO EXCEED THE ALLOWABLE MAXIMUM BUILDING COVERAGE OF 40%.
27-1903-B.6	TO ALLOW THE PROPOSED PARKING SETBACK TO BE LESS THAN THE MINIMUM 10' SETBACK FROM PROPERTY LINES.
27-1903.B.9	TO ALLOW FOR THE PARKING TO BE LOCATED UNDER THE BUILDING RATHER THAN THE REAR YARD OF THE PARCEL.
27-1903.B.11	TO ALLOW THE BUILDING HEIGHT TO EXCEED THE PERMITTED 35-FOOT HEIGHT.
27-1903.B.12	TO DEVELOP A PARCEL THAT DOES NOT COMPLY WITH THE MINIMUM TRACT AREA FOR THE DISTRICT.
27-1904-B.1-5	TO PROVIDE PARTIAL RELIEF FROM THE SCREENING, BUFFERING, AND STREET TREE REGULATIONS OF THE ORDINANCE.
27-2007.F.1-3	TO PROVIDE RELIEF FROM THE REQUIRED BUFFER STRIP.
27-2007.H.	TO PROVIDE RELIEF FROM THE REQUIRED CURBED PLANTING STRIPS.
7-2007.J.	TO PROVIDE RELIEF FROM THE REQUIREMENT OF PROVIDING SHADE TREES WITHIN PARKING AREAS.
27-820.C-F.	TO PROVIDE RELIEF FROM THE LARGE TRUCK COLLECTION ACCESS AND SETBACK REQUIREMENTS AS LISTED IN THE ORDINANCE.
27-1404.A.A-C.	TO PROVIDE PARTIAL RELIEF FROM THE REQUIREMENTS OF SHADE TREES ALONG PUBLIC STREETS, LANDSCAPING OF THE FRONT YARDS ADJOINING RESIDENTIAL DISTRICTS, SIDE AND/OR REAR YARD BUFFERS WHEN ADJOINING RESIDENTIAL DISTRICTS.

0' 20' 40' 60'
GRAPHIC SCALE

LEGEND

- EXIST. 5' CONTOURS
- EXIST. 1' CONTOURS
- EXIST. BOUNDARY LINE
- EXIST. RIGHT-OF-WAY
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OSHA 1926.651 SPECIAL EXCAVATION REQUIREMENTS

TO THE START OF ACTUAL EXCAVATION.

OUTSIDE PENNA. OR IN THE PITTSBURGH AREA WE CAN ALSO BE REACHED AT 412-823-7100

PA ONE CALL
SERIAL NO. XXXXXXXXXXXX
TAX PARCEL ID. FOLIO #05-00-02200-00-9
TAX PARCEL ID. FOLIO #50-00-02196-00-4

NUM.	DATE	REVISION
2	10-08-20	ADD REQUESTED ZONING RELIEF
1	07-27-20	REDUCE NUMBER OF UNITS AND RETAIL AREAS

VASTARDIS
CONSULTING ENGINEERS, LLC
29 Harvey Lane | Malvern, PA 19355 Ph:610.644.9663 | Fx: 610.644.5788 Email: vcellc@verizon.net

PLAN PREPARED FOR:
CRAFT CUSTOM HOMES, LLC
261-263 E. ELM STREET
BOROUGH OF CONSHOHOCKEN MONTGOMERY COUNTY PENNSYLVANIA

DRAWN BY	SDI
CHECKED BY	NV
DATE	10-14-19
SCALE	1"=20'

ZONING HEARING EXHIBIT PLAN

SHEET 1 OF 1

NICHOLAS L. VASTARDIS, P.E.

GENERAL NOTES

1. PHYSICAL FEATURES SHOWN HEREON OBTAINED BY A FIELD SURVEY COMPLETED ON AUGUST 29, 2018.
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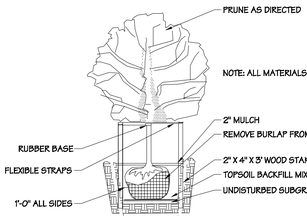
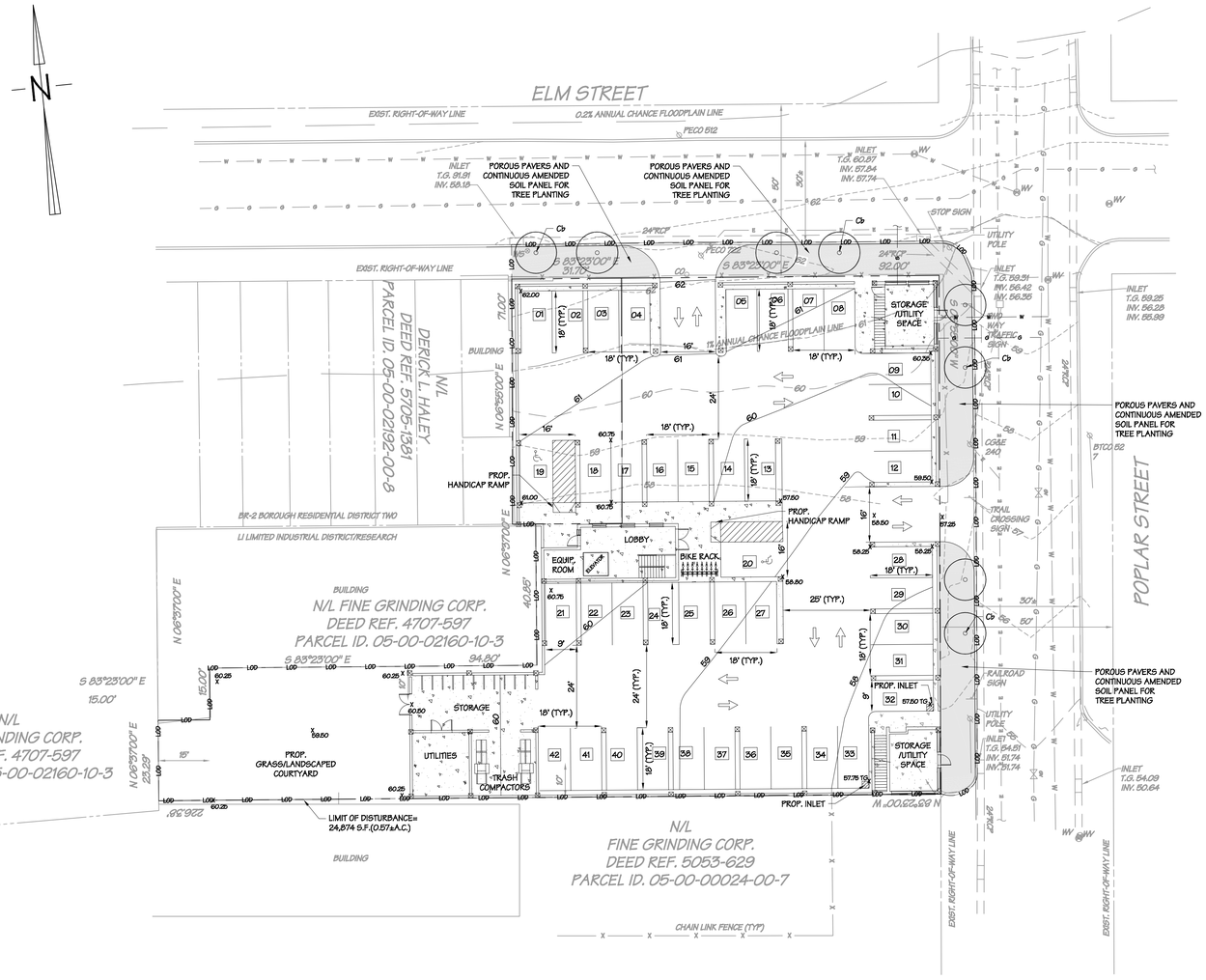
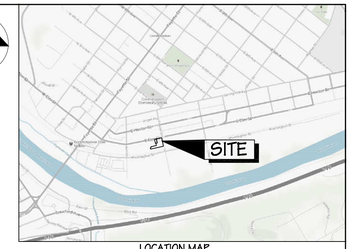
6. THIS PROPERTY IS LOCATED WITHIN THE FEMA DESIGNATED ZONE AND IS THEREFORE LOCATED WITHIN THE BOROUGH FLOOD PLAN CONSERVATION DISTRICT.
7. CONTRACTOR SHALL MAKE SURE ANY MUD, DIRT, OR DEBRIS THAT REACHES THIS OR ANY ADJOINING ROAD AS A RESULT OF THIS PROJECT WILL BE REMOVED IMMEDIATELY. SHOULD THIS BE INEFFECTIVE, A STABILIZED CONSTRUCTION ENTRANCE WILL BE NECESSARY.
8. CONTRACTOR MUST VERIFY THE DEPTH AND LOCATION OF ALL UNDERGROUND UTILITIES AND FACILITIES BEFORE START OF WORK AS PER ACT 187. CONTRACTOR SHALL CONTACT THE UNDERGROUND UTILITY SERVICE AT LEAST 3 DAYS PRIOR TO ANY EARTHMOVING, DEMOLITION, OR CONSTRUCTION.
9. SOME OF THE EXISTING FOUNDATION AND BUILDING WALLS ARE BEING USED FOR THE NEW PROPOSED BUILDING.
10. ALL NEW ELECTRICAL SERVICES SHALL BE UNDERGROUND.
11. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE QUALITY AND CORRECTNESS OF COMPLETED WORK. THE PROPERTY OWNER MAY DESIGNATE A CONTRACTOR, CONSULTANT OR OTHER AGENT TO COORDINATE INSPECTIONS WITH THE BOROUGH. THE PROPERTY OWNER IS RESPONSIBLE FOR ALL OUTSIDE CONSULTANT FEES INCURRED BY THE BOROUGH.
12. ANY COMPLETED WORK THAT DOES NOT COMPLY WITH APPLICABLE STANDARDS SUCH AS THE AMERICANS WITH DISABILITIES ACT (ADA), PENNDOT SPECIFICATIONS AND CONSTRUCTION STANDARDS, OR THE BOROUGH OF CONSHOHOCKEN TYPICAL DETAILS SHALL BE REMOVED AND REPLACED. PROPERTY OWNERS ARE ENCOURAGED TO WITHOLD PAYMENT FOR WORK PERFORMED UNTIL ALL WORK AND RESTORATIONS ARE ACCEPTED BY THE BOROUGH IN WRITING.
13. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH THE BOROUGH STORMWATER MANAGEMENT ORDINANCE. SPECIFICALLY, ALL WORK SITES SHALL BE PROTECTED FROM EROSION AND SEDIMENT RUNOFF IN ACCORDANCE WITH MONTGOMERY COUNTY CONSERVATION DISTRICT REQUIREMENTS. FAILURE TO INSTALL AND MAINTAIN ACCEPTABLE EROSION CONTROLS WILL RESULT IN WORK STOPPAGES AND FINES IN ACCORDANCE WITH THE BOROUGH ORDINANCE.
14. EROSION CONTROL INLET PROTECTION SHALL BE INSTALLED IN THE NEAREST DOWNSTREAM INLET OF ALL WORK SITES. PIPE TRENCHES SHALL BE PUMPED THROUGH A WATER FILTER BAG.
15. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT. THE BOROUGH INSPECTOR WILL VERIFY THAT THE APPROPRIATE CONSTRUCTION DETAILS ARE BEING FOLLOWED AND THAT THE APPROPRIATE METHODS ARE BEING USED. THE BOROUGH INSPECTOR DOES NOT APPROVE ANY PHYSICAL PRODUCT UNTIL THE WORK IS COMPLETE. ANY PERCEIVED APPROVAL OF LAYOUT, FORMWORK, ECT., DOES NOT ABSOLVE THE CONTRACTOR FROM ENSURING THAT THE FINAL PRODUCT COMPLIES WITH ALL APPLICABLE STANDARDS.
16. THE OWNER IS RESPONSIBLE FOR REPLACING ANY EXISTING FEATURES DAMAGED DURING CONSTRUCTION AND WILL BE REPLACED AT NO COST TO THE BOROUGH.



TYPICAL DECIDUOUS TREE PLANTING DETAIL
N.T.S.





LOCATION MAP
NOT TO SCALE

LANDSCAPE MATERIALS CHART

KEY	QUANTITY	BOTANICAL / COMMON NAME	SIZE	SPEC.
Cb	8	CARPINUS BETULUS 'FRANZ FONTAINE'	4-4.5"C	B & B

LANDSCAPE NOTES:

1. PLANT LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL STAKE LOCATIONS FOR APPROVALS BY THE OWNER PRIOR TO THE INSTALLATION OF ANY PLANT MATERIAL.
2. PROVIDE CONTINUOUS MULCH (2" THICK) IN ALL BEDDING AND GROUND COVER AREAS AND AT THE BASE OF SPECIMEN TREES.
3. SIZES OF PLANT MATERIAL GIVEN ARE TO BE CONSIDERED MINIMUM.
4. NO SUBSTITUTIONS FOR PLANT MATERIAL ARE ACCEPTABLE UNLESS APPROVED BY OWNER.
5. CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE, INCLUDING WATERING OF PLANT MATERIAL UNTIL JOB IS TURNED OVER TO OWNER.
6. CONTRACTOR SHALL LOOSEN SUBGRADE OF PLANTING BED AREAS TO A MINIMUM DEPTH OF TWENTY-FOUR INCHES (24") USING A CULTIVAULCHER OR SIMILAR EQUIPMENT. REMOVE STONES ONE TO ONE AND A HALF INCHES (1 - 1 ½") IN ANY DIMENSIONS AND STICKS, RUBBISH AND OTHER EXTRANEOUS MATTER.
7. WHEN CONDITIONS DETRIMENTAL TO PLANT GROWTH ARE ENCOUNTERED OR SUSPECTED, SUCH AS RUBBLE FILL, UNACCEPTABLE TOPSOIL, ADVERSE DRAINAGE CONDITIONS OR OTHER OBSTRUCTIONS, THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING BEFORE PLANTING ANY TREES, SHRUBS OR LAWN AREAS.
8. TREES AND SHRUBS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY; HAVE NORMAL GROWTH HABITS, WELL DEVELOPED, DENSELY FOLIATED BRANCHES, AND VIGOROUS, FIBROUS ROOT SYSTEMS.
9. TREES AND SHRUBS SHALL BE FREE FROM DEFECTS AND INJURIES AND CERTIFIED BY APPROPRIATE FEDERAL AND STATE AUTHORITIES TO BE FREE FROM DISEASES AND INSECT INFESTATIONS.
10. TREES AND SHRUBS SHALL BE FRESHLY DUG AND NURSERY GROWN. THEY SHALL HAVE BEEN GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN LOCALITY OF THE PROJECT OR PROPERLY ACCLIMATED TO CONDITIONS OF THE LOCALITY OF THE PROJECT.
11. ALL PLANTING BEDS SHALL BE MULCHED WITH DOUBLE GROUND HARDWOOD MULCH INSTALLED AT A MINIMUM DEPTH OF TWO INCHES (2").
12. ALL CANOPY TREES MUST HAVE A SPREAD EQUAL TO FIFTY PERCENT (50%) OF THE HEIGHT.
13. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXACT LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND UTILITIES AND OTHER STRICTURES BEFORE THE START OF CONSTRUCTION ON THIS PLAN.
14. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE OWNER AND/OR LANDSCAPE ARCHITECT.
15. ALL SIZES AND GRADING STANDARD FOR PLANT MATERIALS SHALL CONFORM WITH THE LATEST EDITION OF AMERICAN STANDARD OF NURSERY STOCK AS SPONSORED BY THE AMERICAN ASSOCIATES OF NURSERYMEN, INC., AND APPROVED MAY 2, 1986 BY THE AMERICAN NATIONAL STANDARDS INSTITUTE, INC. OR THE LATEST REVISED EDITION OF THIS STANDARD.
16. ANY TREE OR SHRUB THAT DIES WITHIN TWO GROWING SEASONS OF THE DEDICATION OF PUBLIC IMPROVEMENTS OF OCCUPANCY SHALL BE REPLACED. ANY TREE OR SHRUB WHICH, WITHIN THE AFOREMENTIONED TIME PERIOD IS DEEMED, IN THE OPINION OF AN AGENT AUTHORIZED BY THE TOWNSHIP, NOT TO HAVE SURVIVED OR GROWN IN A MANNER CHARACTERISTIC OF ITS TYPE SHALL BE REPLACED. ANY SUBSTITUTIONS SHALL BE APPROVED BY THE TOWNSHIP.
17. CLEAR SIGHT TRIANGLES SHALL BE PROVIDED AT ALL STREET INTERSECTIONS. WITHIN SUCH TRIANGLES, NO VISION OBSTRUCTING OBJECT SHALL BE PERMITTED WHICH OBSCURES VISION ABOVE THE HEIGHT OF TWENTY-FOUR INCHES (24") OR BELOW TEN FEET (10') MEASURED FROM THE CENTER LINE GRADE OF INTERSECTING STREETS. EACH SIDE OF THE SIGHT TRIANGLE SHALL BE A MINIMUM FIFTY FEET (50') MEASURED FROM THE POINT OF INTERSECTION ALONG EACH ROAD CENTER LINE.

TAX PARCEL ID. FOLIO #05-00-02200-00-9
TAX PARCEL ID. FOLIO #50-00-02196-00-4

LEGEND

62	EXIST. 5' CONTOURS
59	EXIST. 1' CONTOURS
	EXIST. BOUNDARY LINE
	EXIST. RIGHT-OF-WAY
	EXIST. BUILDING SETBACK LINE
	EXIST. FLOODPLAIN BOUNDARY
W	EXIST. WATER LINE
G	EXIST. UNDERGROUND GAS LINE
S	EXIST. SANITARY SEWER LINE
OHE	EXIST. OVERHEAD ELECTRIC LINE
WS	EXIST. WATER SERVICE
WV	EXIST. WATER VALVE
CO	EXIST. CLEANOUT
	EXIST. UTILITY POLE
	ZONING DISTRICT BOUNDARY LINE
LOD	LIMIT OF DISTURBANCE
60	PROP. CONTOUR
X 60.0	PROP. SPOT ELEVATION
	PROP. INLET

SOILS INFO.

UgB – URBAN LAND – 0-8% SLOPES
WELL-DRAINED, 4-6 FEET THICK; COMPRISED OF SILTY CLAY LOAM.
TEXTURE; VARIES

LIMITATIONS:

DEPTH TO SEASONAL HIGH WATER TABLE	– 6-24"
DEPTH TO BEDROCK	– 20-80"
ROAD SUBGRADE	– VARIABLE
ROAD FILL	– VARIABLE
TOPSOIL	– VARIABLE
HYDROLOGIC SOIL CLASSIFICATION	NA

0' 20' 40' 60'
GRAPHIC SCALE

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL NICHOLAS L. VASTARDIS ENGINEER 36066-E

NICHOLAS L. VASTARDIS, P.E.

NUM.	DATE	REVISION
1	12-09-20	ADDITIONAL INFORMATION ADDED PER BOROUGH REQUEST

VASTARDIS
CONSULTING ENGINEERS, LLC
29 Harvey Lane I Malvern, PA 19355 Ph:610.644.9663 I Fx: 610.644.3789 Email : vcellc@ verizon.net

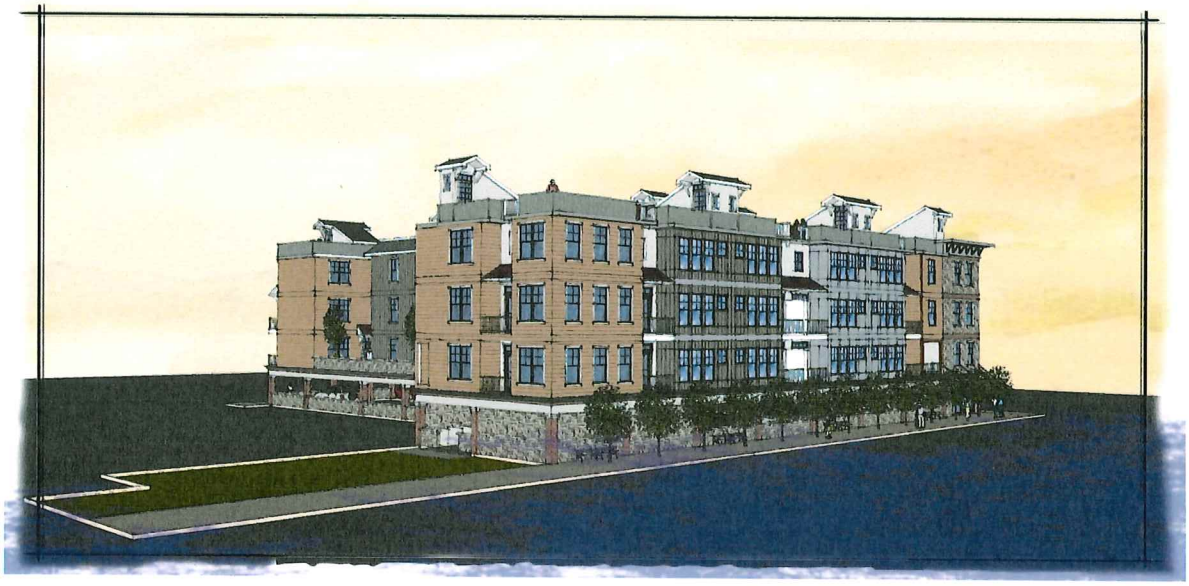
PLAN PREPARED FOR:

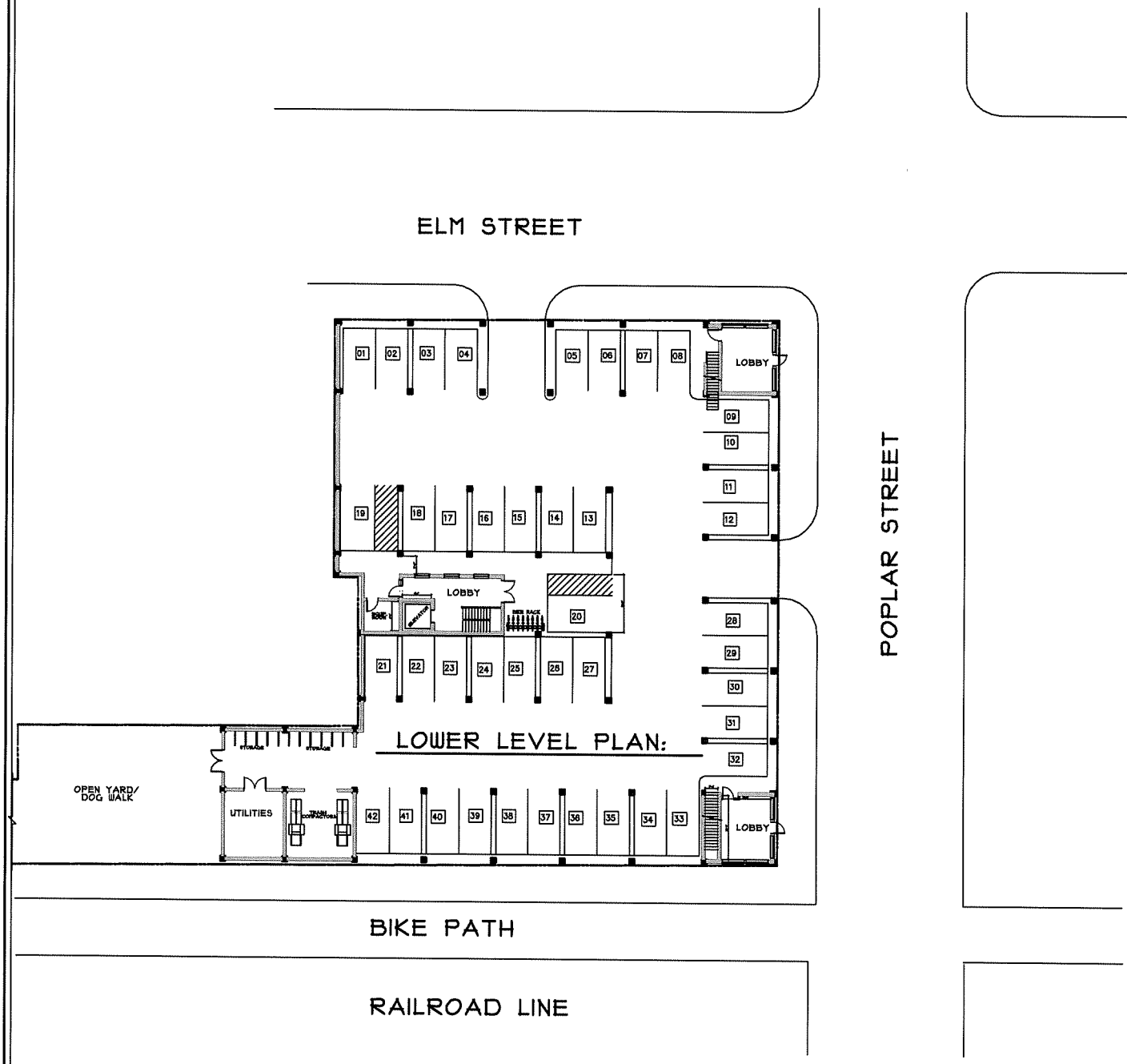
CRAFT CUSTOM HOMES, LLC
261-263 E. ELM STREET
BOROUGH OF CONSHOHOCKEN MONTGOMERY COUNTY PENNSYLVANIA

DRAWN BY	SDI
CHECKED BY	NV
DATE	11-25-20
SCALE	1"=20'

LANDSCAPE AND LIGHTING PLAN

SHEET 7 OF 7




ELM STREET
POPLAR STREET
LOBBY
LOBBY
LOBBY
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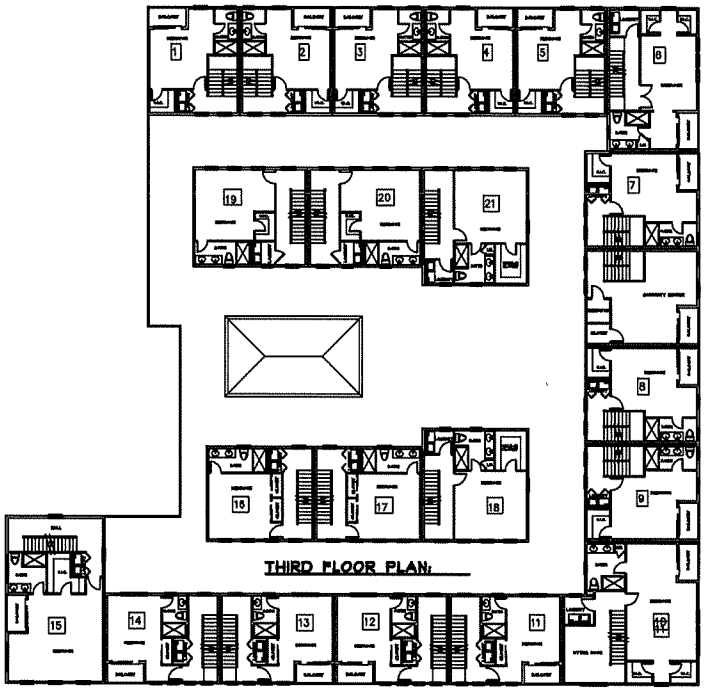
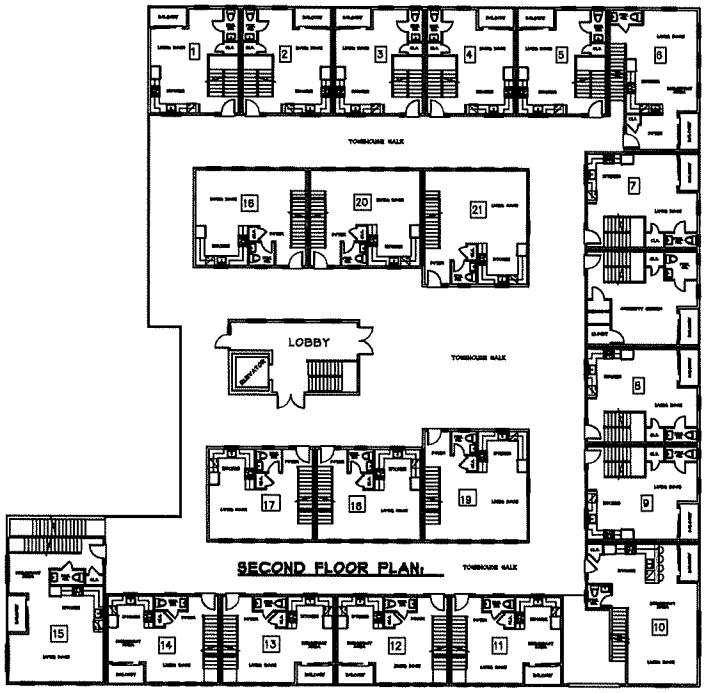
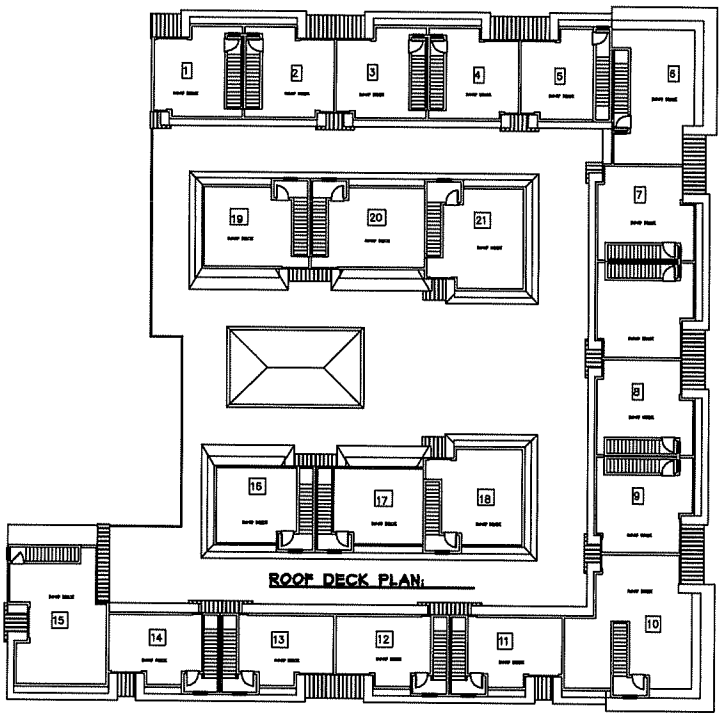
OPEN YARD/ DOG WALK
UTILITIES
LOWER LEVEL PLAN:
BIKE PATH
RAILROAD LINE


THIRD FLOOR PLAN:


LOBBY
SECOND FLOOR PLAN: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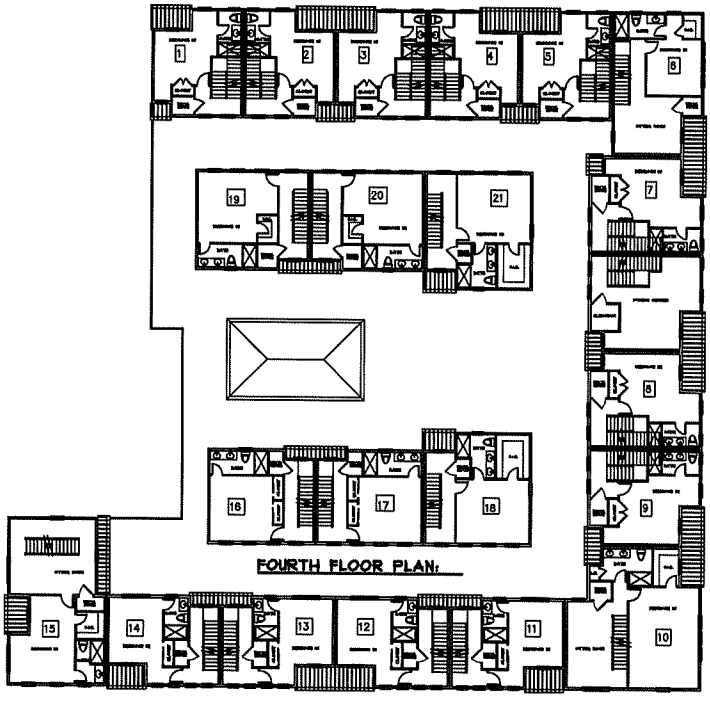
ROOF DECK PLAN: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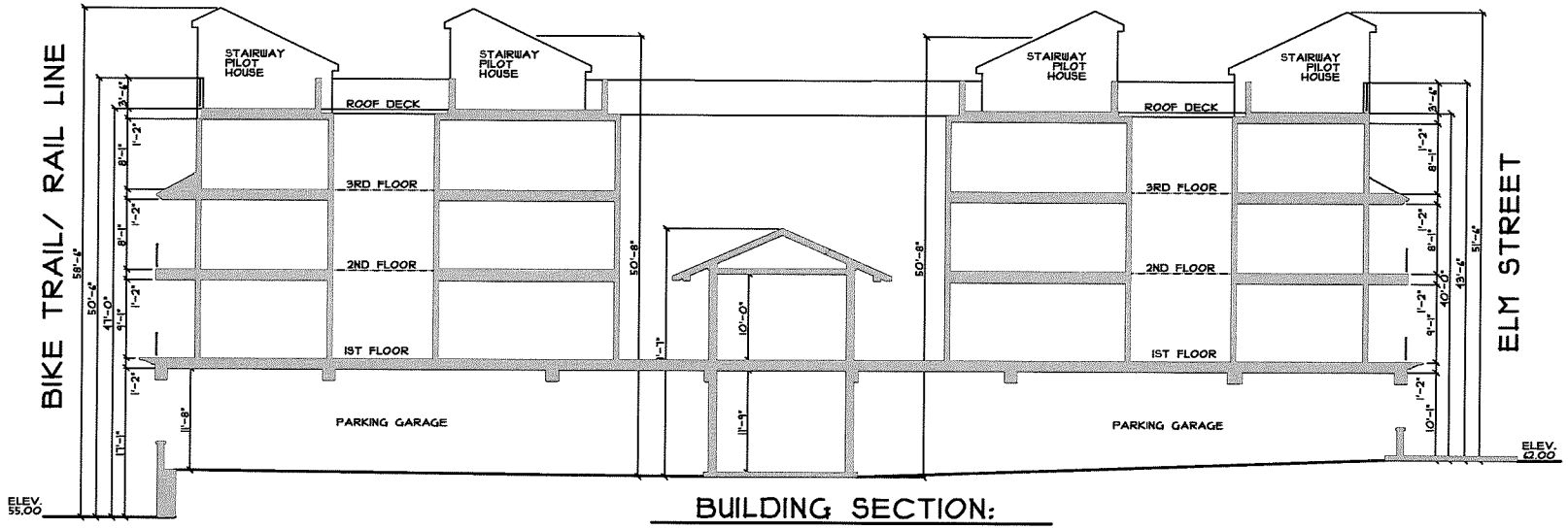
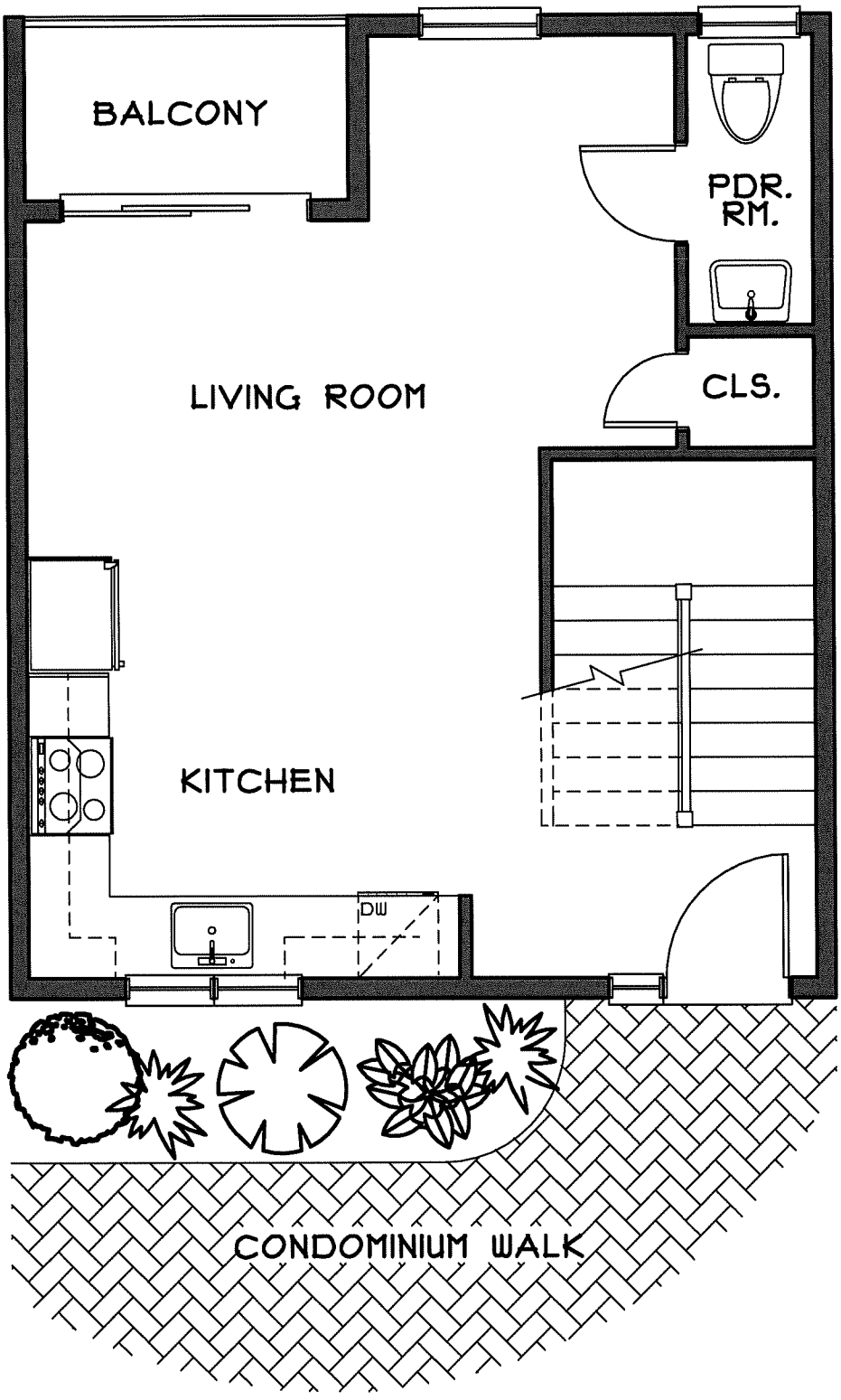
FOURTH FLOOR PLAN:

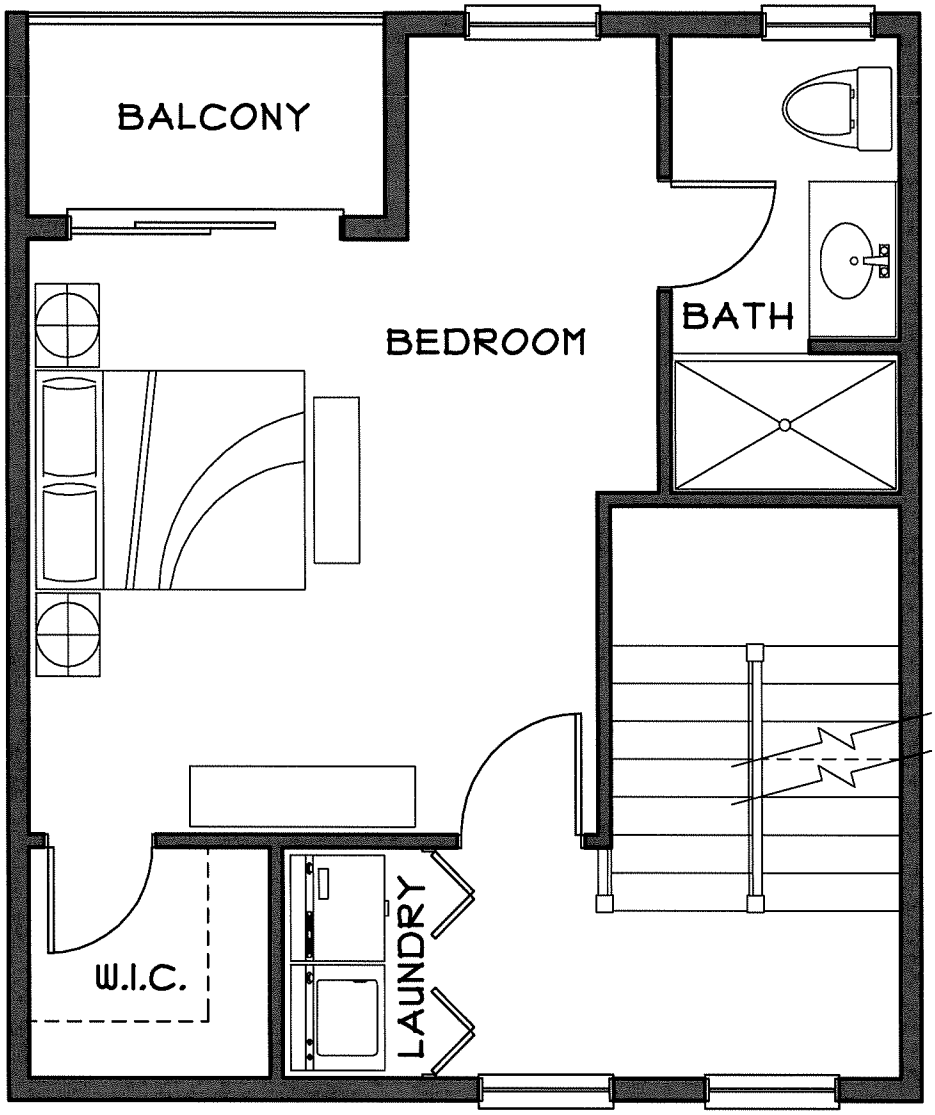


BUILDING SECTION:



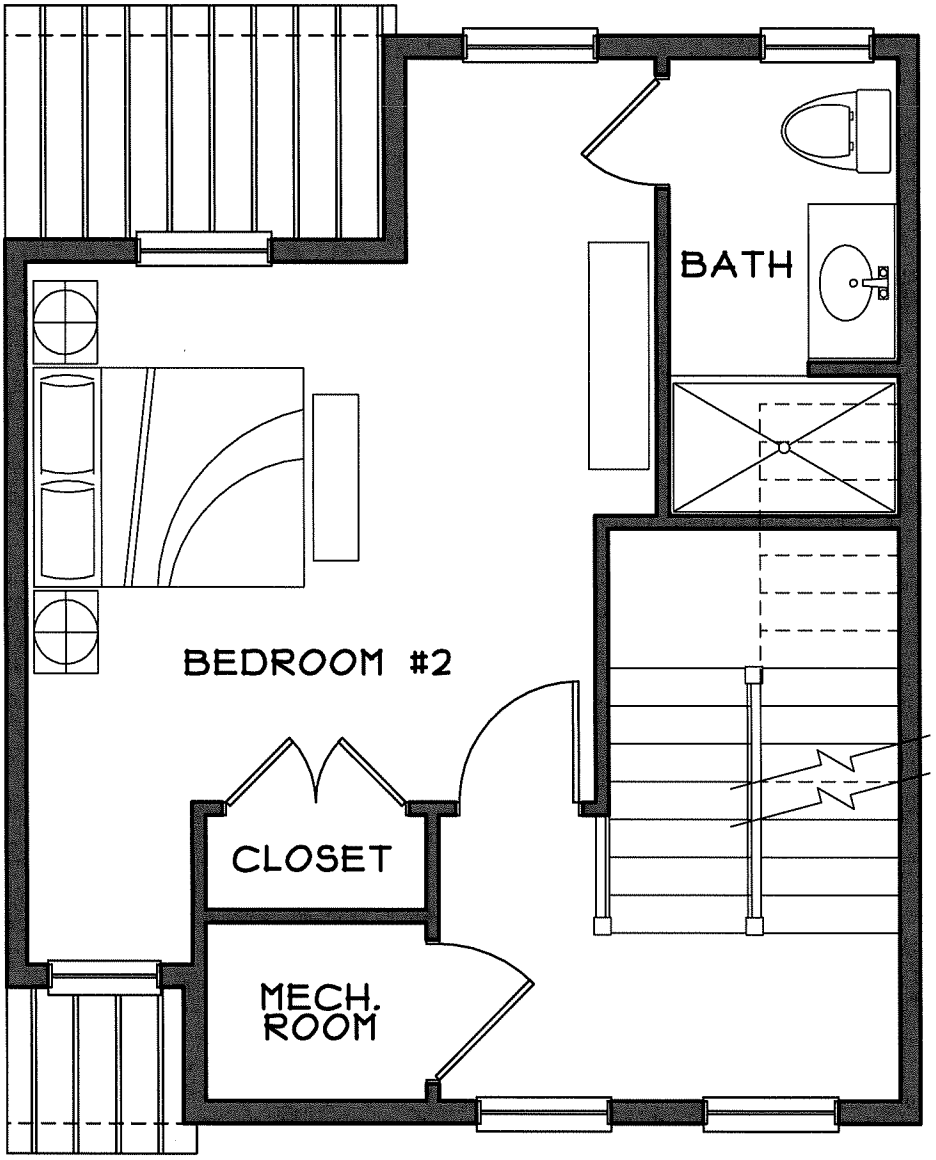
TYPICAL CONDOMINIUM FIRST FLOOR PLAN:

SCALE: 1/4" = 1'-0"



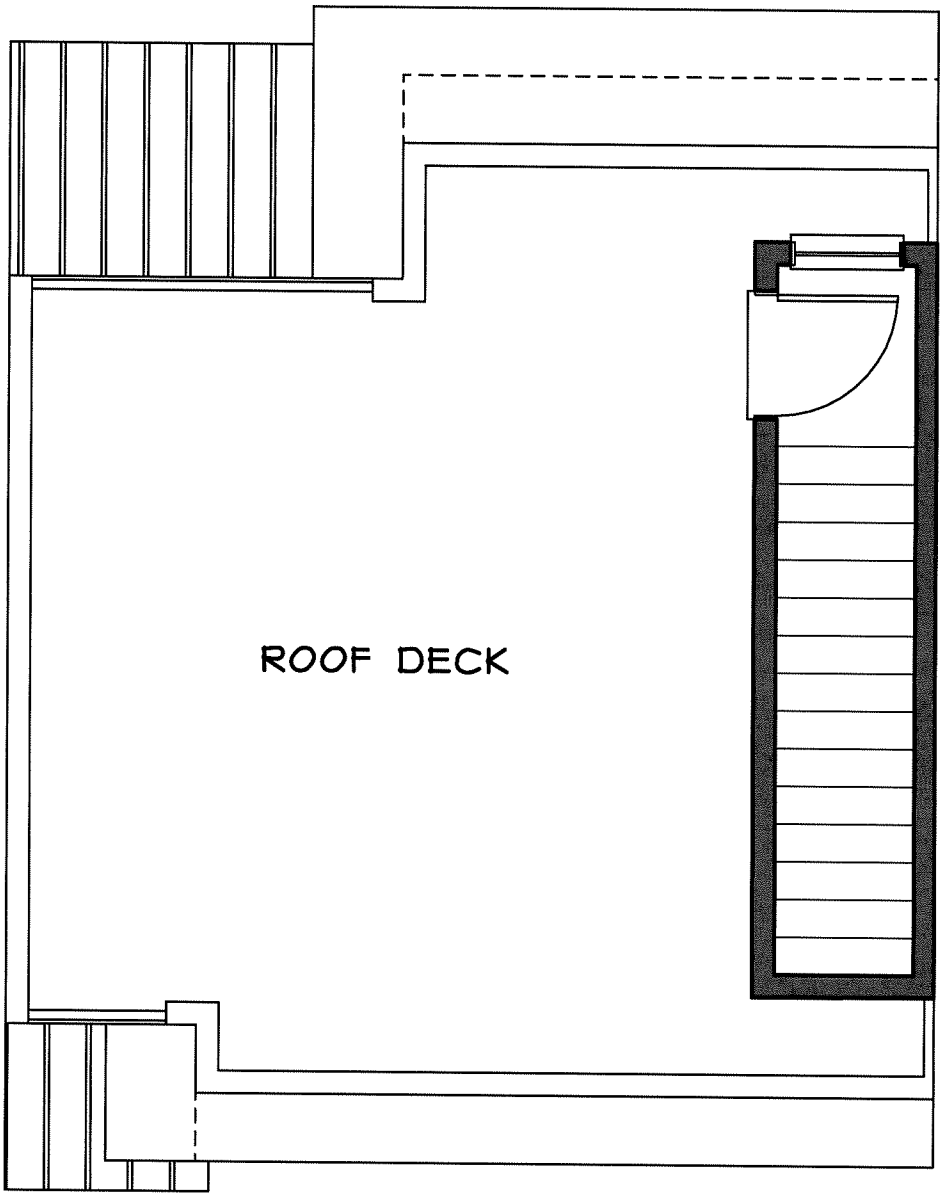
TYPICAL CONDOMINIUM SECOND FLOOR PLAN:

SCALE: 1/4" = 1'-0"



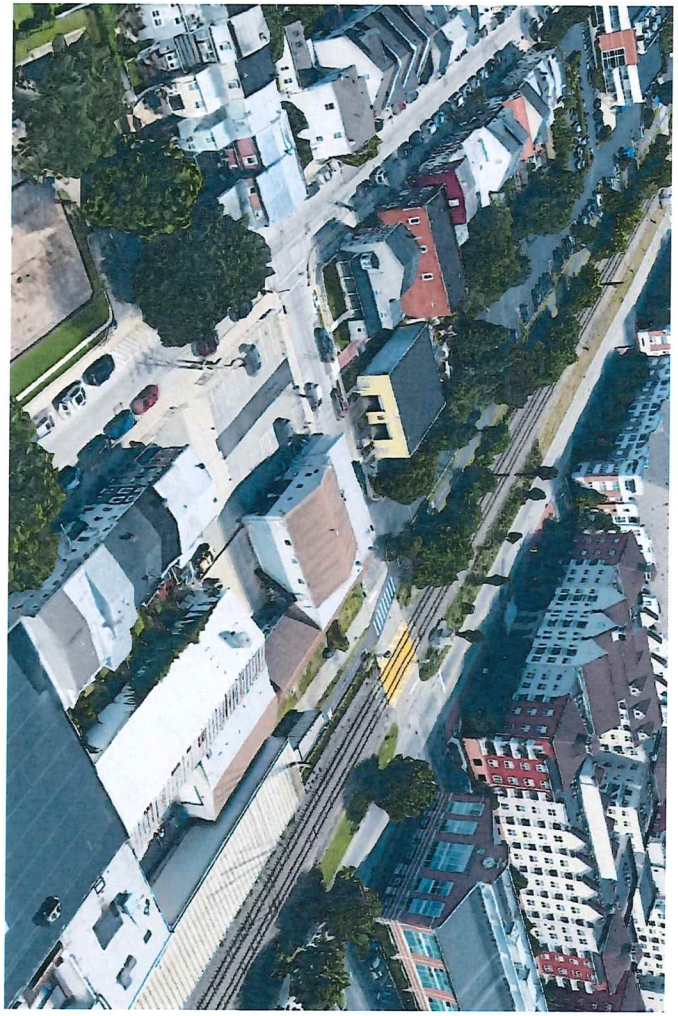
TYPICAL CONDOMINIUM THIRD FLOOR PLAN:

SCALE: 1/4" = 1'-0"

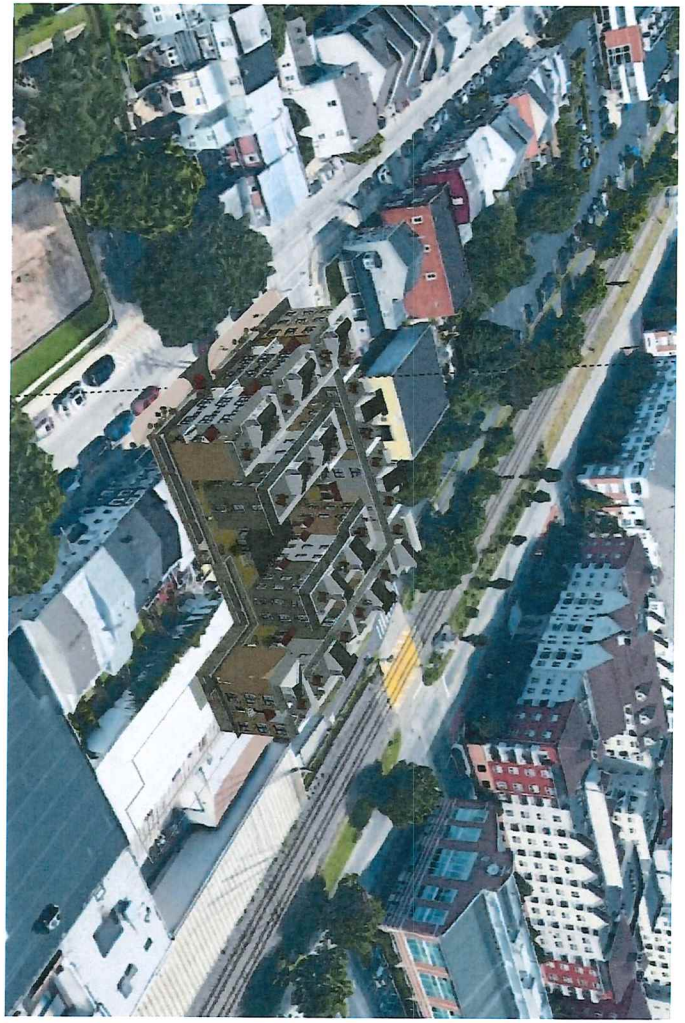


TYPICAL CONDOMINIUM ROOF PLAN:

SCALE: 1/4" = 1'-0"



BEFORE



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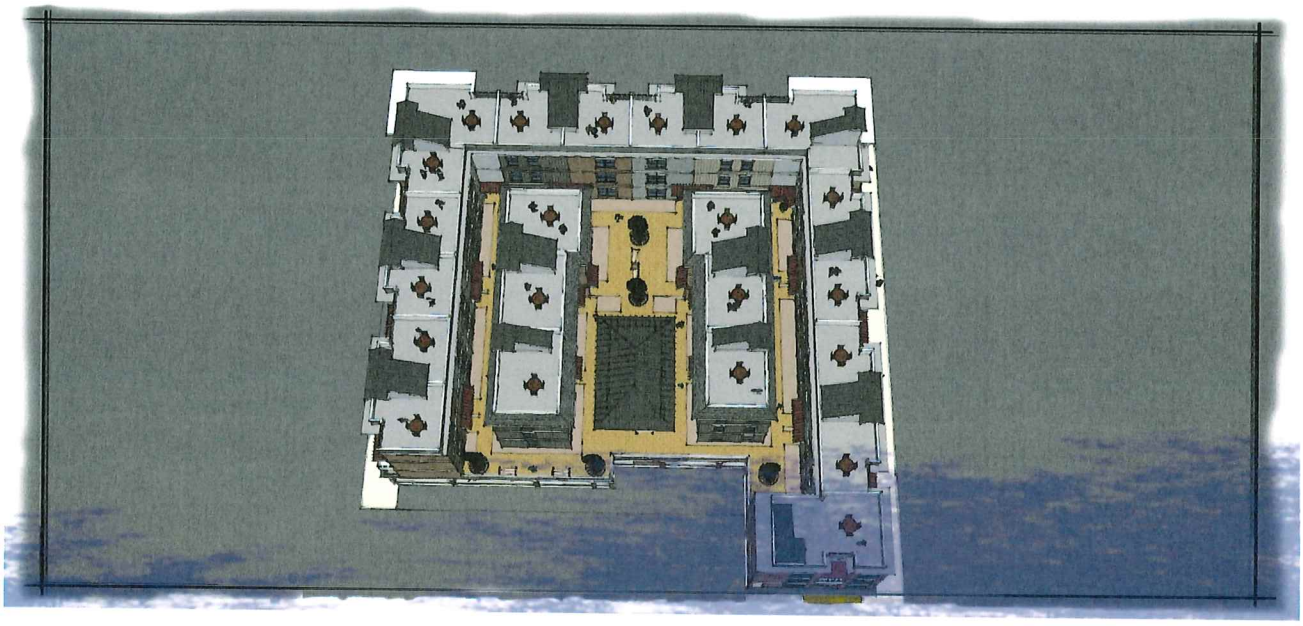

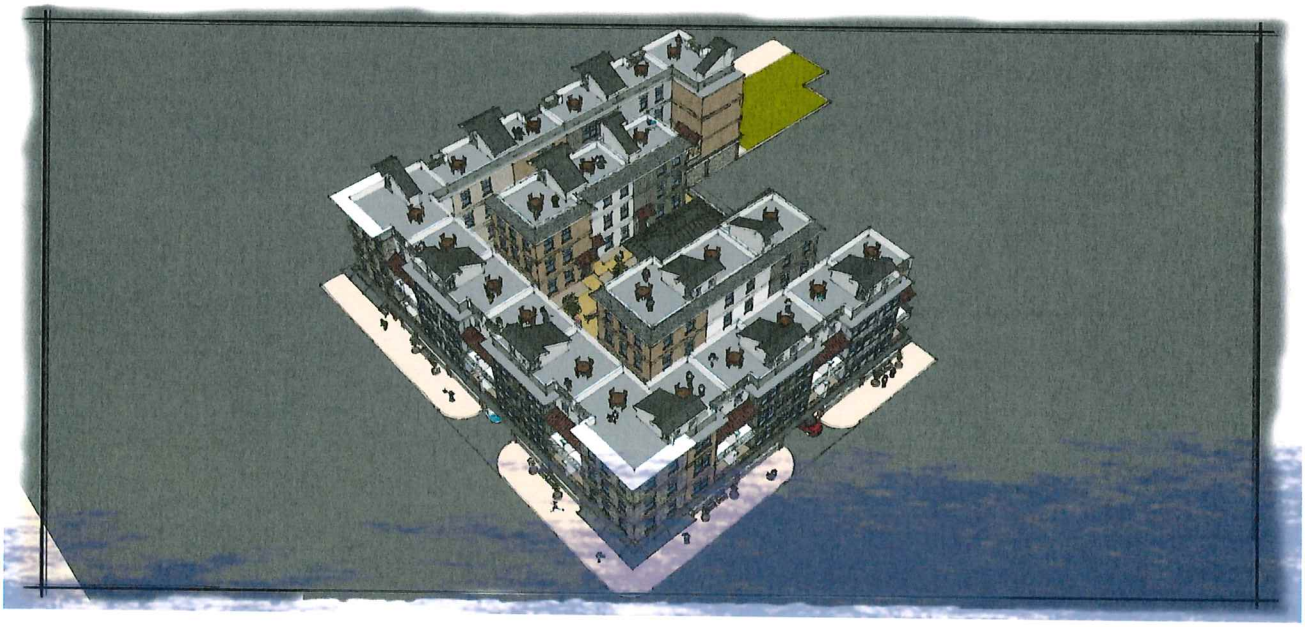

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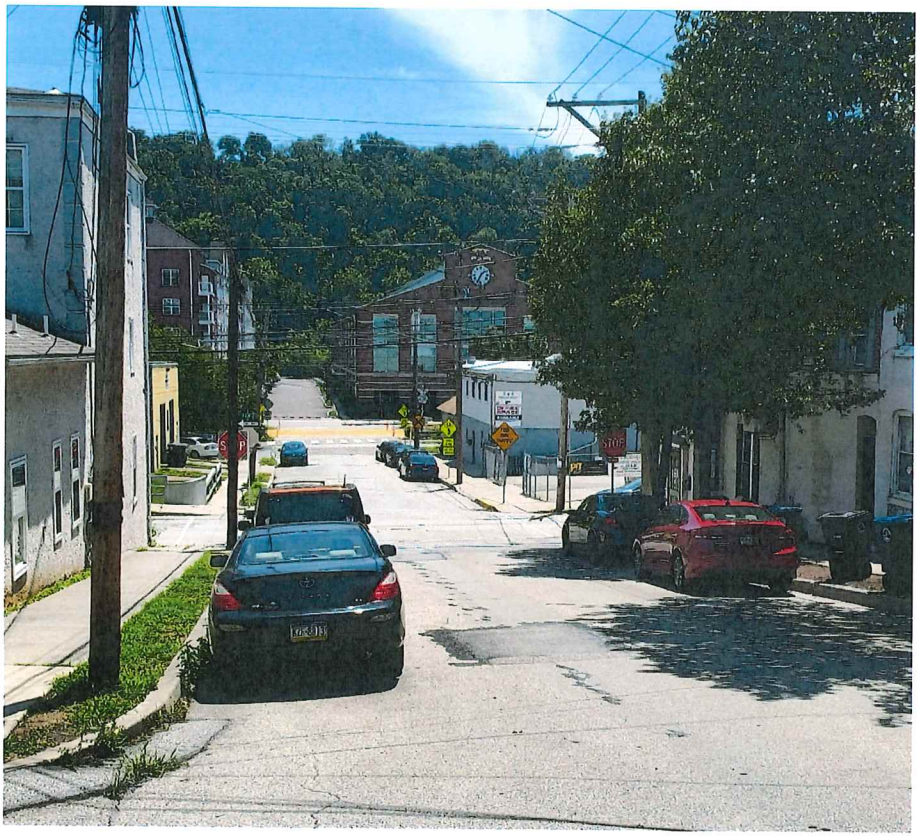

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VASTARDIS CONSULTING ENGINEERS, LLC

Curriculum Vitae

Name: **Nicholas L. Vastardis, P.E.**

Education: Drexel University, Philadelphia, PA
Bachelor of Science – Civil Engineering (Construction Mgt) 1983
Drexel University, Philadelphia, PA
Masters of Science – Civil Engineering (Geotechnical Eng) 1987

Registrations: Registered Professional Engineer
Pennsylvania, New Jersey, Delaware, and Maryland

Present Position and Responsibilities:

Vastardis Consulting Engineers, LLC – Malvern, PA

President – Responsible for project management of residential, commercial, and institutional projects. Provide engineering design and support for all projects including site and project analysis; liaison for federal, state, and local permitting; supervision of environmental sub-consultants; various construction services including site cost estimates and specifications; client representation at public meetings and hearings; expert witness services.

Former Employment & Responsibilities:

Chester Valley Engineers, Inc. – Paoli, PA (2004 to 2006)

Project Engineer/Manager – Responsible for engineering design including roadways, stormwater management systems, sanitary sewers, water systems, and erosion and sediment control for institutional, commercial, industrial and residential subdivisions and developments; construction specifications; federal, state, and local permit applications; construction cost estimates; drainage studies; supervision of draftsmen and engineering support staff; liaison with federal, state, and local agencies; client representation at public meetings and hearings.

Herbert E. MacCombie, Jr. Engineers, Inc. – Broomall, PA (2002-2004)

Project Manager/Engineer-
Responsible for all phases of land development design and approval; residential, commercial, and institutional developments; preparation of environmental impact analysis reports.

Schoor DePalma, Inc. (CMX Engineers) – Kulpsville, PA (2001-2002)

Senior Project Manager/ Department Mgr.-
Responsible for all phases of land development design and approval; residential, commercial, and institutional developments; coordination and supervision of all engineering support staff and liaison with various in-house departments; assistant township engineer for Upper Merion Township; additional responsibilities included new business development, and the company expansion to the Exton, PA office.

Yerkes Associates, Inc. – Rosemont, PA (1992-2001)

Project Manager-
Responsible for all phases of project design for institutional, commercial and residential developments; drainage studies; quantity takeoffs and cost estimates; site analysis studies; provide representation at public meetings.

Vastardis Construction Co., Inc. – Newtown Square, PA (1989-1992)

President-
Responsible for day to day operations and the coordination of all employees and subcontractors on various commercial projects; new business development

Yerkes Associates, Inc. – Bryn Mawr, PA (1986-1989)

Project Engineer-
Responsible for the design of grading, stormwater management, erosion and sediment control for various institutional, commercial, industrial, and residential developments; supervised drafting of projects.

Pennoni Associates, Inc. – Philadelphia, PA (1983-1986)

Staff Engineer-
Responsible for the design of grading, stormwater management, erosion and sediment control for various commercial, industrial, and residential developments; supervised drafting of projects.

Volunteer Positions

Achievement House Cyber Charter School – 2009 to 2015 – (President of the Board of Trustees)
Great Valley School Board – 2000 to 2009 - Vice President (4 terms)
Great Valley Community Arts Foundation – Former Board Treasurer
Delaware Valley Arts Consortium – Board President
Willistown Environmental Advisory Council – Former Member

Melissa Duyar, P.E., CFM

Melissa has applied hydrologic and hydraulic engineering principles to flood modeling, floodplain mapping, and assessing flood risks. She has used FEMA Benefit Cost Analysis (BCA) software to prepare benefit cost ratios for use in FEMA grant applications. Melissa has experience using EPA, USACE, and FEMA modeling software to analyze the flood mitigation benefits of specific projects. She also has extensive experience using ArcGIS for modeling and flood risk analysis applications. Melissa has prepared FEMA flood map products, risk assessment products, and benefit cost analyses for submittal. She contributes excellent technical skills and understanding of the FEMA grant process and required software.

Relevant Experience

- **Countywide Floodplain Mapping, DeKalb County, GA**—Analyst. Kimley-Horn's water resources team performed a countywide flood study program over a period of 7 years that examined all streams in the county with a drainage area equal to or greater than 100 acres. Detailed studies were performed on all streams for existing 50-, 10-, 5-, 4-, 2-, 1-, 0.5, and 0.2% annual chance storm events and future 1% annual chance conditions. A countywide risk assessment also was completed that provided a risk frequency for all buildings and roadways located within the 0.2% annual chance floodplain. Additionally, dam breach zones were established for 18 of the highest risk dams within the county using a sunny day dam breach analysis.
- **Stormwater Modeling, Mapping and Analysis, White Station Basin, Memphis, TN**—Project Engineer. Kimley-Horn completed a stormwater inventory and watershed study for the City of Memphis. The 6.1-square-mile White Station Creek watershed was studied as a part of the City's Drainage Masterplan Program initiative. Survey of stormwater infrastructure was collected across the watershed to include all open channels as well as drainage structures 24 inches or greater in diameter. This survey data was then connected and compiled into a stormwater inventory database. The watershed was subdivided into sub-basin areas ranging from between 5 to 100 acres, depending on the presence of stormwater infrastructure. Sub-basin characteristics were assigned based on City land use data, soil infiltration data, LIDAR, and surveyed topography. The SWMM runoff method was used within PCSWMM and InfoSWMM modeling software. HEC-RAS was used for initial development and back calibration of the stream networks within the watershed. Data generated from rainfall and flow gauges installed and managed by the University of Memphis were coupled with radar rainfall data to calibrate the modeling data. SCS synthetic design storms were simulated to assess stormwater infrastructure performance relative to City design standards. Capital improvement projects were generated from public involvement-generated information in combination with modeling results. Cost estimates were provided for the City-selected project improvements. The program included 14 watershed studies—7 studies per two rounds of selections. A different consulting engineer was selected for each of the 7 basins per round. Kimley-Horn was the only firm selected for both rounds of studies.

Professional Credentials

- Bachelor of Science, Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, 2013
- Professional Engineer in Florida (PE87580), Georgia (PE042385), Illinois (062.069641), and Indiana (PE12100221)
- Certified Floodplain Manager

- **Alpine View Estates (Jack's Valley Creek) Flood Study, Douglas County, NV**—Analyst. Melissa worked as a water resources analyst for the Alpine View Estates Flood Study and LOMR. The CWSD (a FEMA CTP) retained Kimley-Horn to perform a flood study to update the FEMA Flood Insurance Rate Maps (FIRMs) and Flood Insurance Study (FIS) in the Alpine View Estates area (aka Jack's Valley) of Douglas County, Nevada. The overall goal of the study was to provide the CWSD with hydrologic and hydraulic models as well as floodplain mapping and profiles for the 10%, 4%, 2%, 1%, 1% plus, and 0.2% annual-chance storm events. Hydrologic analyses were completed using HEC-HMS software. The Green and Ampt method was used to estimate infiltration and the Snyder Unit Hydrograph Method was used to route runoff throughout the watershed. Hydraulic analyses were completed using HEC-RAS software on the lower mountain channels and Jacks Valley Creek to the east of Jacks Valley Road and FLO-2D Pro was used to model the hydraulics in the wide shallow flooding areas between the mountains and Jacks Valley Road. Floodplain cross-sections that summarize the flow rate across FLO-2D grid cells were used to determine a peak flow at four locations to use in the one-dimensional steady flow hydraulic analysis of Jacks Valley Creek. The mapped results of the flood study were submitted to FEMA in the form of a Letter of Map Revision (LOMR) and were approved as the current effective floodplain mapping.
- **Indianhead Creek and East Drainage Ditch FEMA LOMR Preliminary Analysis, Tallahassee, FL**—Project Engineer. Kimley-Horn prepared an XPSWMM model of Indianhead Creek and East Drainage Ditch in Tallahassee, Florida to evaluate the potential to remove properties from the FEMA floodplain via a Letter of Map Revision (LOMR). The City of Tallahassee has completed several infrastructure projects in the vicinity of Indianhead Creek and East Drainage Ditch. The improvements have been evaluated one by one but have not been combined to evaluate their cumulative effects on the watershed and 100-year flood inundation levels. Kimley-Horn evaluated several types of modeling software before choosing XPSWMM to study the watershed. A survey analysis was done to determine where survey data had already been obtained and where survey data was needed to create an accurate stormwater model. In addition, the team performed a frequency analysis to aid in choosing a downstream boundary condition for the XPSWMM model. The existing conditions of Indianhead Creek and East Drainage Ditch were entered into the XPSWMM model as a series of links and nodes. The model was calibrated using three actual storm events from the watershed. Rain gauges were used in conjunction with stream gauges to perform the calibration. Pervious Curve Numbers, Directly Connected Impervious Area, and Longest Flow Paths were used as calibration parameters for the model.
- **Children's Healthcare of Atlanta, Brookhaven, GA**—Water Resources Engineer. Children's Healthcare of Atlanta (Children's) plans to build a replacement Pediatric Hospital on their approximately 70-acre campus on North Druid Hills Road at I-85 in the City of Brookhaven, DeKalb County, Georgia. The campus will include a replacement hospital with associated support facilities, a Center for Advanced Pediatrics medical office building (currently under construction), and administrative support office buildings. A portion of Children's property is bisected by a tributary to North Fork Peachtree Creek. To be able to fully utilize the available property on their campus, Children's plans to construct a vehicular bridge over the existing tributary and to construct roads along portions of the tributary. The tributary of North Fork Peachtree Creek is currently mapped as a FEMA Zone A 100-year floodplain or "approximate" zone. However, DeKalb County is currently undergoing re-mapping of the FEMA floodplains. The preliminary flood map information is the best available data and therefore the preliminary models were used as the best available data to analyze the proposed crossing. The proposed vehicular bridge was entered into the preliminary HEC-RAS model to measure the effects of the bridge did not adversely affect or cause a rise in water surface elevations on neighboring properties. Compensatory cut was provided in the vicinity of the roadway crossing to obtain a "no-rise" in water surface elevations. A no-rise certification was submitted to the City of Brookhaven for their review and approval prior to construction. After construction, the FEMA floodplain mapping will be revised via a Letter of Map Revision (LOMR).

- **Babcock Ranch Community Conditional Letter of Map Revision (CLOMR), Charlotte and Lee County, FL**—Project Engineer. Kimley-Horn prepared a FEMA Conditional Letter of Map Revision for the Babcock Ranch Development near Punta Gorda, Florida. The project includes residential and commercial development and is located within the effective FEMA 100-year floodplain of Trout Creek/Curry Lake Canal. The proposed grading within the project area was modeled using the two-dimensional HEC-RAS Version 5.0 platform to more accurately estimate the impacts of the project on 100-year base flood elevations and inundation areas. Infiltration was not modeled due to the high water table in the vicinity of the project. The HEC-RAS model used a computational grid that was refined at critical hydraulic locations to route runoff through the project area and multiple ponds with outlet control structures. The analysis was submitted to FEMA for their review and approval in 2016. Construction has been completed and a follow-up Letter of Map Revision (LOMR) is currently being submitted to finalize the FEMA permitting process.
- **Oxford College of Emory University Stormwater Master Plan, Oxford, GA**—Project Engineer. Kimley-Horn prepared a Stormwater Master Plan for the Oxford College of Emory University to address stormwater management concerns throughout the campus. Several meetings were held between the college staff and Kimley-Horn to identify areas of known flooding or drainage related issues. The projects were prioritized based on the experiences of the staff as well as site visits to the campus. The entire campus was then modeled in EPA SWMM, which allows for modeling of stormwater best management practices (BMPs). BMPs ranging from bioretention areas and enhanced swales to underground detention vaults were modeled to evaluate their effectiveness at improving water quality within the watershed as well as alleviating flooding issues. The benefits of each project were weighed with the costs for each project and presented to college staff for further input. The SWMM model input combined with knowledge of the drainage area were used to develop a Stormwater Master Plan for the college to implement over time.
- **Atlanta BeltLine Southside Trail Corridor Design, Atlanta, GA**—Water Resources Engineer. Kimley-Horn is leading the design of the Atlanta BeltLine Southside trail corridor from University Avenue to Memorial Drive. The project includes the design of a 14'-wide concrete multiuse path with 3' soft shoulders on each side and extending approximately 4 miles between the two logical termini: University Avenue and Memorial Drive. Additional site elements include planting, lighting, retaining walls, vertical connections to intersecting streets via ramps and stairs, storm drainage, signage/wayfinding, and the replacement of at least one existing freight rail bridge. The design includes streetscape/accessibility improvements on all intersecting streets extending from the corridor to the nearest intersection or one-quarter mile. Kimley-Horn worked with Atlanta BeltLine, Inc. to develop a robust stakeholder and community involvement program to support the concept validation phase of this project. Melissa assisted the Atlanta BeltLine Inc. with stormwater management and drainage design for the Southside Trail using EPA SWMM5 software. SWMM5 is a hydrodynamic hydrologic and hydraulic model that accounts for storage that occurs within the pipe network over the course of a storm event. The model can more accurately simulate timing throughout a complex drainage system and allows for overflow conduits to be entered to model drainage patterns during large storm events where pipes surcharge.
- **Georgia DOT, SR 9 Widening (PI 121690), Forsyth County, GA**—Post-Construction Stormwater and Hydraulic Analyst. This turn-key project includes NEPA analysis and documentation, public involvement, and preliminary design for widening of three miles of two-lane rural roadway to a four-lane median divided urban roadway with multiuse trails on both sides. This project is just south of the rapidly developing community of Cumming. The widening of the roadway required analysis of the post-construction stormwater impacts from the project. Melissa completed an outfall-by-outfall analysis of the pre- versus post-development peak flows. She also calculated the water quality and channel protection treatment volumes that would be required at each outfall per GDOT's Drainage Design for Highways Manual Chapter 10. The outfalls along the project were evaluated per the GDOT standards for post-construction stormwater best management practices and several best management practices were designed and costs were estimated using the Item Means Summary tables.

HEINRICH & KLEIN ASSOCIATES, INC.

TRAFFIC ENGINEERING & PLANNING
1134 Heinrich Lane • Ambler, Pennsylvania 19002
215-793-4177 • FAX 215-793-4179

Andreas Heinrich, P.E., P.T.O.E.
Principal

Andreas Heinrich is a licensed Professional Engineer in Pennsylvania (PE #031080E), New Jersey (GE30117), Delaware (6467), North Carolina (15559), Illinois (062-045023), Florida (42364), South Carolina (13373) and Maryland (18831). Mr. Heinrich is certified by the Transportation Professional Certification Board, Inc. as a Professional Traffic Operations Engineer. Mr. Heinrich has also been certified by the National Council of Examiners for Engineering and Surveying. He holds a Bachelor of Science in Civil Engineering degree from Drexel University and has attended graduate level course work at Villanova University. In addition, Mr. Heinrich has completed the 1985 Highway Capacity Manual Short Course at the Polytechnic Institute of New York. Mr. Heinrich is a member of the Institute of Transportation Engineers, the American Society of Civil Engineers, the American Society of Highway Engineers, the International Municipal Signal Association, and the American Planning Association.

Mr. Heinrich has been engaged in engineering studies involving traffic engineering, transportation planning, and environmental impact assessments since 1976. He has completed engagements for a variety of public and private clients involving determination of traffic impacts and parking requirements for new land developments, quantification of traffic related noise impacts, traffic signal design, and assessing long-range planning needs of regional highway systems. Mr. Heinrich has completed area-wide Traffic Studies on behalf of twelve municipalities and the Pennsylvania Department of Transportation and has assisted more than 25 municipalities in long range planning and review of the traffic access and parking elements of new land development proposals.

Mr. Heinrich has performed studies of parking needs, site access and traffic impacts of new land developments in eight states including office buildings/parks, industrial parks and flex developments, residential projects, shopping centers/malls, hospitals and medical institutions, schools and child day care centers, and mixed-use developments.

KEY PROJECTS

- The Vanguard Group Corporate Campus, a corporate headquarters comprised of 800,000 square feet of floor space and office park comprised of an additional 580,000 square feet of floor space; The Vanguard Group, Inc. Training and Conference Center comprised of 120,000 square Feet of floor space; and, The Vanguard Group Technical Operations Center, a facility comprised of 363,264 square feet of floor space, Tredyffrin Township, PA, The Vanguard Group, Inc.

- Pennsylvania Act 209 Traffic Impact Fee Study, Roadway Sufficiency Analysis and Transportation Capital Improvements Program, West Norriton Township, Montgomery County, PA.

- Pennsylvania Act 209 Traffic Impact Fee Study, Roadway Sufficiency Analysis and Transportation Capital Improvements Program, Hatfield Township, Montgomery County, PA.

- Pennsylvania Act 209 Traffic Impact Fee Study, Roadway Sufficiency Analysis and Transportation Capital Improvements Program, East Brandywine Township, Chester County, PA.

- Pennsylvania Act 209 Traffic Impact Fee Study, Roadway Sufficiency Analysis and Transportation Capital Improvements Program, Charlestown Township, Chester County, PA.

- North Chester Road (S.R. 0352) & Paoli Pike (S.R. 2014), Traffic Study and Traffic Signal Design for intersection improvements, East Goshen Township, Chester County, PA.

- S.R. 0052 & S.R. 3025 (Lenape-Unionville Road/Wawaset Road), Traffic Analysis and Concept Design Review for Construction of a Single-Lane Roundabout, Pocopson Township, Chester County, PA.

- Delaware River City Corporation, City of Philadelphia – Delaware Avenue/Allegheny Avenue Connection of the North Delaware Greenway – Participation in the project included revision of Traffic Signal Permit Plans for trail/pedestrian crosswalks and pedestrian signal devices at two signalized intersections and four unsignalized intersections; and, reviewed signage/pavement markings for multiple trail crossings of public streets and private driveways.

- Brandywine Square Shopping Center, East Caln Township, PA, 605,000 square feet retail development, J. Loew Associates, Inc.

- Freedom Village Retirement Center, West Brandywine Township, PA, 342 independent living units plus 84 assisted care beds, The Freedom Group, Inc.

- Eagleview, Uwchlan and Upper Uwchlan Townships, PA, a mixed-use development comprised of 716 residential units, 3.5 million square feet commercial/industrial/office space, and a hotel/conference center, The Hankin Group.

- Philadelphia Park Racetrack, Bensalem Township, PA, Traffic and Parking Studies of Off-Track Betting Facilities in several suburban Philadelphia locations; and Traffic Analyses and review of vehicular access and on-site circulation for a casino addition comprised of 3,000 slot machines and associated facilities.

- Four Falls Corporate Center, Building 300, Borough of West Conshohocken, PA, 290,000 square feet of office floor space, Acorn Development Corp.

- Union Hospital, City of Elkton, Cecil County, MD, Traffic Study of downtown Elkton for construction of an In-Patient Care Facility, a new medical office building, and a multi-level parking structure.

- Merck, Sharp & Dohme, Upper Gwynedd Township, PA, 1,200,000 square feet expansion program, Access and Traffic Impact Review prepared for Upper Gwynedd Township.

- Lionville Campus, Downingtown Area School District, Uwchlan Township, PA, elementary school expansion, construction of a new middle school, and renovation of the junior high school for a second senior high school, combined enrollment 3,574 students.

- Pocono Mountain High School and Sullivan Trail Junior High School, Pocono Mountain School District, Tobyhanna Township, Monroe County, PA, high school and junior high school construction for total enrollment of 3,250 students, and design of a new traffic control signal for site access.

- 401 Plymouth Road Office Building, Plymouth Township, PA 210,000 square feet of office floor space, The Flynn Company.

- The Shoppes At English Village, Horsham Township, PA, renovation for 104,486 square feet of retail floor space, Stanbery Development.

- Fox Briar Farms and Peddler's Village, Solebury Township, PA, 129,300 square feet expansion for retail shops, 63 dwelling units, and a 100 room country inn, Peddler's Village Lahaska, Inc.

- A Technical Review of a proposed Shared Parking Ordinance for Voorhees Township, Camden County, NJ.

261-263 E. ELM ST. PRELIMINARY FLOODPLAIN STUDY

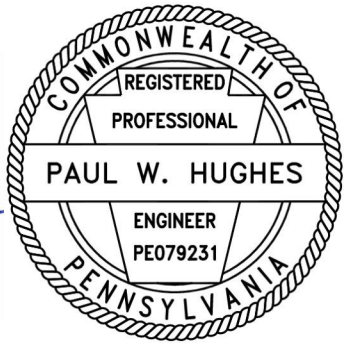
Borough of Conshohocken, PA

Prepared for:
Craft Custom Homes, LLC

Prepared by:

Kimley-Horn and Associates, Inc.
50 South 16th Street
Two Liberty Place, Suite 3010
Philadelphia, PA, 19102

Prepared: March 18, 2021



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TABLES

APPENDICES

1. INTRODUCTION

1.1. PURPOSE

The purpose of this study is to present the results of a no-rise analysis for the proposed development of 261-263 E. Elm St. in the Borough of Conshohocken in Montgomery County, Pennsylvania. The site is currently partially shown in a FEMA Zone AE Special Flood Hazard Area (SFHA) on the effective Flood Insurance Rate Map (FIRM). Per the Conshohocken Borough Floodplain Conservation District Ordinance, no permit shall be granted for any construction, development, use, or activity within any AE area/district unless it is demonstrated that the cumulative effect of the proposed development would not, together with all other existing and anticipated development, increase the base flood elevation (BFE) more than one (1) foot at any point. The purpose of this study is to preliminarily evaluate the impacts of the proposed project on the BFEs.

1.2. PROJECT DESCRIPTION

Kimley-Horn and Associates, Inc. (Kimley-Horn) serves as the engineering consultant for Craft Custom Homes, LLC, who is proposing to redevelop the site at 261-263 E. Elm St. and place fill within the Zone AE SFHA of the Schuylkill River. The site is bound by E. Elm St. to the north, Ash St. to the east, Poplar St. to the west, and Schuylkill River Trail to the south (Figure 1).

The study area is located on effective Flood Insurance Rate Map (FIRM) number 42091C0358G (Figure 3). The effective Flood Insurance Study (FIS) for Montgomery County, PA is dated March 2, 2016. The proposed development is located within a Zone AE SFHA with Floodway on the effective FIRM.

2. HYDROLOGY

The effective hydrologic and hydraulic models from FEMA were obtained at the beginning of the project. A FEMA Flood Insurance Study (FIS) has been completed to establish the floodplain on this portion of the Schuylkill River. The peak discharges from the FIS were used in this analysis. The hydrologic model from FEMA was used for this analysis.

3. HYDRAULICS

The hydraulic model was prepared from the HEC-2 hydraulic model from FEMA provided by the client. This HEC-2 model was imported into HEC-RAS Version 5.0.7 to create a Duplicate Effective model for the analysis.

3.1. CORRECTED EFFECTIVE

A copy of the Duplicate Effective model was to prepare the Corrected Effective model. Cross-sections 103278 and 103063 were added to intersect with the site. Figure 2 illustrates the HEC-RAS cross-section layout with the added cross-sections on the site. These added cross-sections were cut based on new terrain built from onsite topographic survey and publicly available LiDAR. Figure 3 shows the topography of the existing conditions and Figure 5 shows the existing conditions grading. Results of the Corrected Effective model are included in Appendix B.

3.2. PROPOSED CONDITIONS

A copy of the Corrected Effective model was used to prepare the Proposed Conditions model. Onsite cross-sections 103278 and 103063 were updated to show the proposed grading plan for the project. Figure 4 displays the topography of the proposed grading plan and Figure 5 shows the proposed conditions grading plan. The cross-sections and results of the proposed conditions model are included in Appendix C.

The comparison of corrected effective versus proposed conditions models show that there is an increase in water surface elevations for the 100-year storm event. See Table 3-1 below for a comparison of 100-year water surface elevations between the existing and proposed conditions HEC-RAS model. The 100-year event storm event shows a maximum rise of 0.01 feet.

Table 3-1. HEC-RAS Results Summary (FIS Discharges)

River Station	Profile	Corrected Effective		Proposed Conditions		Change in W.S. Elev
		Q Total	W.S. Elev	Q Total	W.S. Elev	
		(cfs)	(ft)	(cfs)	(ft)	(ft)
148266	100 YR	109000.00	82.60	109000.00	82.60	0
147996	100 YR	109000.00	82.23	109000.00	82.23	0
147978.5	100 YR	Bridge		Bridge		0
147961	100 YR	109000.00	82.22	109000.00	82.22	0
147907	100 YR	109000.00	82.09	109000.00	82.09	0
147855	100 YR	109000.00	81.95	109000.00	81.96	0.01
147816	100 YR	Bridge		Bridge		0
147777	100 YR	109000.00	81.90	109000.00	81.90	0
147468	100 YR	109000.00	81.86	109000.00	81.86	0
146836	100 YR	109000.00	81.62	109000.00	81.62	0
146261	100 YR	109000.00	81.26	109000.00	81.26	0
145718	100 YR	109000.00	81.09	109000.00	81.09	0
145322	100 YR	109000.00	81.05	109000.00	81.05	0
144123	100 YR	109000.00	80.78	109000.00	80.78	0
143224	100 YR	109000.00	80.61	109000.00	80.61	0
142252	100 YR	109000.00	80.38	109000.00	80.38	0
141305	100 YR	109000.00	80.19	109000.00	80.19	0
140315	100 YR	109000.00	79.98	109000.00	79.98	0
139246	100 YR	109000.00	79.80	109000.00	79.80	0
138319	100 YR	109000.00	79.26	109000.00	79.26	0
137179	100 YR	109000.00	78.96	109000.00	78.96	0
136547	100 YR	109000.00	78.80	109000.00	78.80	0
135965	100 YR	109000.00	78.69	109000.00	78.69	0
135309	100 YR	109000.00	78.52	109000.00	78.52	0
134634	100 YR	109000.00	78.30	109000.00	78.30	0
133727	100 YR	109000.00	78.06	109000.00	78.06	0
132707	100 YR	109000.00	78.02	109000.00	78.02	0
132065	100 YR	109000.00	78.01	109000.00	78.01	0
131298	100 YR	109000.00	77.87	109000.00	77.87	0
130606	100 YR	109000.00	77.71	109000.00	77.71	0
129999	100 YR	109000.00	77.46	109000.00	77.46	0

River Station	Profile	Corrected Effective		Proposed Conditions		Change in W.S. Elev
		Q Total	W.S. Elev	Q Total	W.S. Elev	
		(cfs)	(ft)	(cfs)	(ft)	(ft)
129552	100 YR	109000.00	77.32	109000.00	77.32	0
129008	100 YR	109000.00	76.98	109000.00	76.98	0
128834	100 YR	109000.00	76.90	109000.00	76.90	0
128814.5	100 YR	Bridge		Bridge		0
128795	100 YR	109000.00	76.86	109000.00	76.86	0
128638	100 YR	109000.00	76.80	109000.00	76.80	0
128215	100 YR	109000.00	76.74	109000.00	76.74	0
127766	100 YR	109000.00	76.54	109000.00	76.54	0
127339	100 YR	109000.00	76.52	109000.00	76.52	0
127040	100 YR	109000.00	76.13	109000.00	76.13	0
127032	100 YR	Bridge		Bridge		0
127024	100 YR	109000.00	75.97	109000.00	75.97	0
126951	100 YR	109000.00	76.12	109000.00	76.12	0
126845	100 YR	109000.00	76.11	109000.00	76.11	0
126779	100 YR	109000.00	76.08	109000.00	76.08	0
126715	100 YR	109000.00	76.05	109000.00	76.05	0
126702	100 YR	Bridge		Bridge		0
126689	100 YR	109000.00	76.01	109000.00	76.01	0
126497	100 YR	109000.00	75.94	109000.00	75.94	0
126190	100 YR	109000.00	75.79	109000.00	75.79	0
125738	100 YR	109000.00	75.66	109000.00	75.66	0
125718	100 YR	109000.00	75.44	109000.00	75.44	0
125698	100 YR	109000.00	75.58	109000.00	75.58	0
125608	100 YR	109000.00	75.56	109000.00	75.56	0
125596	100 YR	Bridge		Bridge		0
125584	100 YR	109000.00	75.56	109000.00	75.56	0
125295	100 YR	109000.00	75.43	109000.00	75.43	0
124990	100 YR	109000.00	75.30	109000.00	75.30	0
124959.5	100 YR	Bridge		Bridge		0
124929	100 YR	109000.00	75.14	109000.00	75.14	0
124445	100 YR	109000.00	74.93	109000.00	74.93	0
123663	100 YR	109000.00	74.50	109000.00	74.50	0
122951	100 YR	109000.00	73.93	109000.00	73.93	0
122312	100 YR	109000.00	73.80	109000.00	73.80	0
121490	100 YR	109000.00	73.46	109000.00	73.46	0
120802	100 YR	109000.00	73.18	109000.00	73.18	0

River Station	Profile	Corrected Effective		Proposed Conditions		Change in W.S. Elev
		Q Total	W.S. Elev	Q Total	W.S. Elev	
		(cfs)	(ft)	(cfs)	(ft)	(ft)
120200	100 YR	109000.00	72.76	109000.00	72.76	0
119282	100 YR	109000.00	72.27	109000.00	72.27	0
118934	100 YR	109000.00	71.93	109000.00	71.93	0
118798	100 YR	109000.00	71.61	109000.00	71.61	0
118737	100 YR	109000.00	71.54	109000.00	71.54	0
118675	100 YR	109000.00	71.50	109000.00	71.50	0
118651	100 YR	109000.00	71.46	109000.00	71.46	0
118490	100 YR	109000.00	71.54	109000.00	71.54	0
118005	100 YR	109000.00	71.41	109000.00	71.41	0
117330	100 YR	109000.00	70.96	109000.00	70.96	0
116307	100 YR	109000.00	70.23	109000.00	70.23	0
115807	100 YR	109000.00	69.86	109000.00	69.86	0
114577	100 YR	109000.00	69.28	109000.00	69.28	0
114062	100 YR	109000.00	69.21	109000.00	69.21	0
113859	100 YR	109000.00	69.03	109000.00	69.03	0
113835	100 YR	Bridge		Bridge		0
113811	100 YR	109000.00	69.01	109000.00	69.01	0
113597	100 YR	109000.00	68.96	109000.00	68.96	0
112467	100 YR	109000.00	68.59	109000.00	68.59	0
111334	100 YR	109000.00	68.38	109000.00	68.38	0
110666	100 YR	109000.00	68.24	109000.00	68.24	0
110054	100 YR	109000.00	67.95	109000.00	67.95	0
109548	100 YR	109000.00	67.64	109000.00	67.64	0
109276	100 YR	109000.00	67.24	109000.00	67.24	0
109192	100 YR	Bridge		Bridge		0
109108	100 YR	109000.00	67.12	109000.00	67.12	0
108858	100 YR	109000.00	67.06	109000.00	67.06	0
108437	100 YR	109000.00	66.95	109000.00	66.95	0
108025	100 YR	109000.00	66.82	109000.00	66.82	0
107856	100 YR	109000.00	66.77	109000.00	66.77	0
107836	100 YR	109000.00	66.28	109000.00	66.28	0
107816	100 YR	109000.00	66.48	109000.00	66.48	0
107696	100 YR	109000.00	66.44	109000.00	66.44	0
107348	100 YR	109000.00	66.21	109000.00	66.21	0
106758	100 YR	109000.00	65.77	109000.00	65.78	0.01
106049	100 YR	109000.00	65.09	109000.00	65.09	0

River Station	Profile	Corrected Effective		Proposed Conditions		Change in W.S. Elev
		Q Total	W.S. Elev	Q Total	W.S. Elev	
		(cfs)	(ft)	(cfs)	(ft)	(ft)
105690	100 YR	109000.00	65.05	109000.00	65.05	0
105514	100 YR	109000.00	65.04	109000.00	65.04	0
105474.5	100 YR	Bridge		Bridge		0
105435	100 YR	109000.00	64.79	109000.00	64.79	0
105266	100 YR	109000.00	64.49	109000.00	64.49	0
104860	100 YR	109000.00	64.07	109000.00	64.07	0
104344	100 YR	109000.00	63.41	109000.00	63.41	0
103793	100 YR	109000.00	62.79	109000.00	62.79	0
103278	100 YR	109000.00	62.41	109000.00	62.41	0
103063	100 YR	109000.00	62.07	109000.00	62.07	0
102843	100 YR	109000.00	61.94	109000.00	61.94	0
102205	100 YR	109000.00	61.52	109000.00	61.52	0
101667	100 YR	109000.00	61.18	109000.00	61.18	0
101095	100 YR	109000.00	60.95	109000.00	60.95	0
100491	100 YR	109000.00	60.78	109000.00	60.78	0
99703	100 YR	109000.00	60.35	109000.00	60.35	0
99111	100 YR	109000.00	59.74	109000.00	59.74	0
98439	100 YR	109000.00	59.48	109000.00	59.48	0
97712	100 YR	109000.00	59.19	109000.00	59.19	0
97059	100 YR	109000.00	58.47	109000.00	58.47	0
96094	100 YR	109000.00	57.19	109000.00	57.19	0
95310	100 YR	109000.00	56.85	109000.00	56.85	0
94285	100 YR	109000.00	56.30	109000.00	56.30	0
93233	100 YR	109000.00	55.53	109000.00	55.53	0
92033	100 YR	109000.00	55.32	109000.00	55.32	0
91406	100 YR	109000.00	55.11	109000.00	55.11	0
90774	100 YR	109000.00	55.01	109000.00	55.01	0

4. CONCLUSION AND RECOMMENDATIONS

The proposed re-development of 261 -263 E. Elm St. will consist of filling within a FEMA Zone AE SFHA. Per the Conshohocken Borough Floodplain Conservation District Ordinance, no permit shall be granted for any construction, development, use, or activity within any AE area/district unless it is demonstrated that the cumulative effect of the proposed development would not, together with all other existing and anticipated development, increase the base flood elevation (BFE) more than one (1) foot at any point.

The hydrologic and hydraulic analysis that was completed in this study shows that the development causes up to 0.01-ft of rise in the 100-year water surface elevations. The rise is below the one (1) foot threshold set forth in the Conshohocken Borough Floodplain Conservation District Ordinance and therefore meets the requirements.

APPENDIX A: **FIGURES**

Figure 1

Vicinity Map

261-263 E. Elm St.
Conshohocken, PA

N

0 150 300 Feet

Kimley»Horn

STATE PLANE COORDINATE SYSTEM
PENNSYLVANIA SOUTH - NAD 83
VERTICAL DATUM NAVD88

February 2021

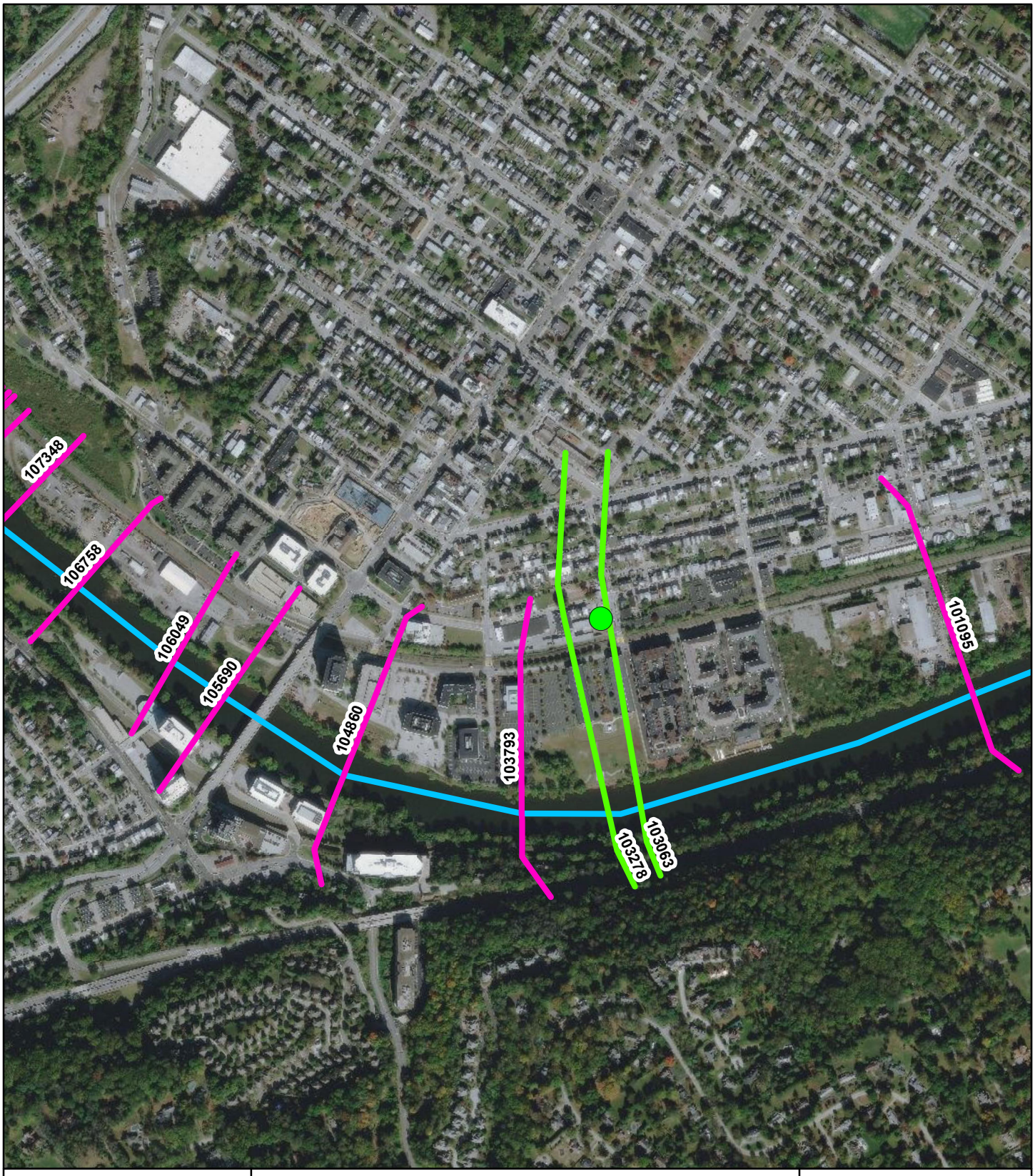


Figure 2

HEC-RAS Summary Map

261-263 E. Elm St.
Conshohocken, PA

N

0 800 1,600 Feet

Legend

- Project Location
- Added Cross-Sections
- FEMA Cross-Sections
- Schuylkill River

Kimley»Horn

STATE PLANE COORDINATE SYSTEM
PENNSYLVANIA SOUTH - NAD 83
VERTICAL DATUM NAVD88

February 2021

Figure 3

Corrected Effective Topographic Map

261-263 E. Elm St.
Conshohocken, PA

N

0 200 400 Feet

Legend

- Project Location
- Added Cross-Sections
- Schuylkill River
- Existing 2-ft Contours

Kimley»Horn

STATE PLANE COORDINATE SYSTEM
PENNSYLVANIA SOUTH - NAD 83
VERTICAL DATUM NAVD88

February 2021

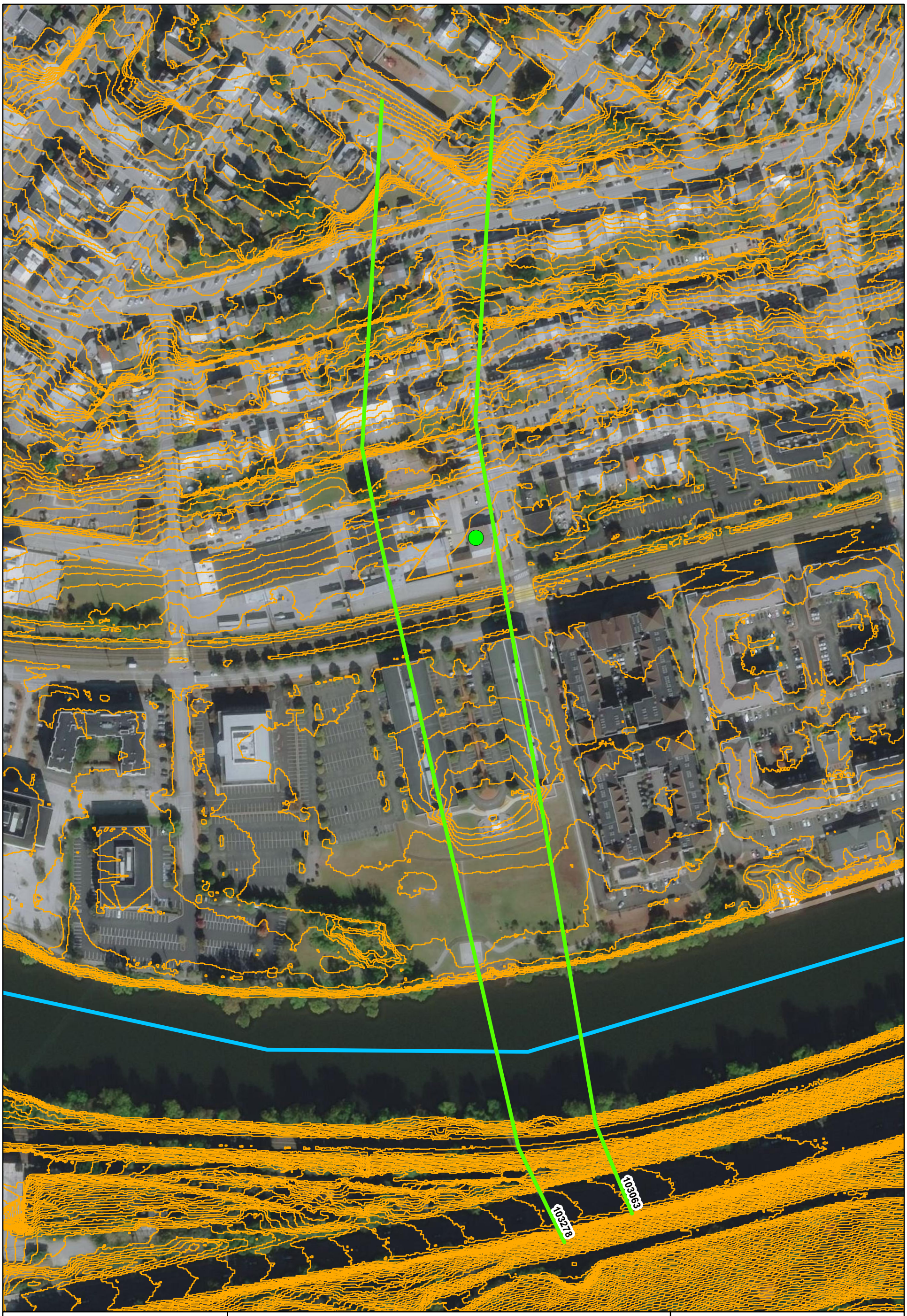


Figure 4

Proposed Conditions
Topographic Map

261-263 E. Elm St.
Conshohocken, PA

N

0 200 400
Feet

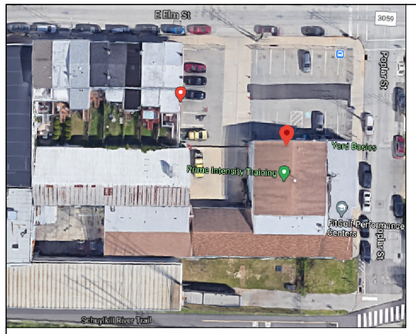
Legend

- Project Location
- Added Cross-Sections
- Schuylkill River
- Proposed 2-ft Contours

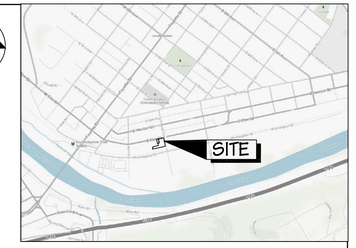
Kimley»Horn

STATE PLANE COORDINATE SYSTEM
PENNSYLVANIA SOUTH - NAD 83
VERTICAL DATUM NAVD88

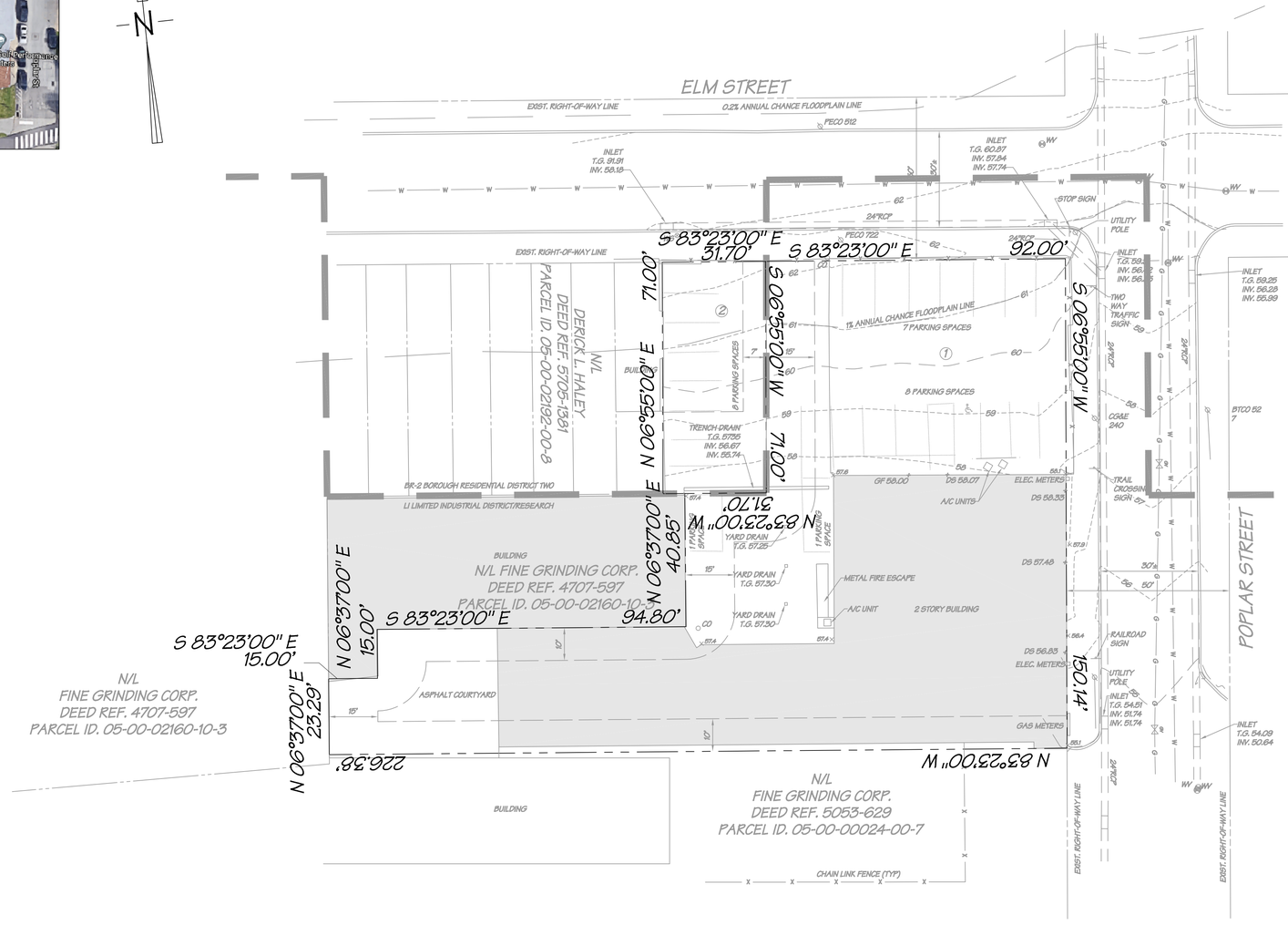
February 2021



AERIAL MAP
SCALE 1"=50'



LOCATION MAP
NOT TO SCALE



GENERAL NOTES

1. PHYSICAL FEATURES SHOWN HEREON OBTAINED BY A FIELD SURVEY COMPLETED ON AUGUST 28, 2018.
2. HORIZONTAL DATUM IS BASED ON DEED BEARINGS. VERTICAL DATUM IS REFERENCED TO NAVD88.
3. THIS PLAT WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT.
4. THIS PLAT IS REPRESENTATIVE OF EXISTING CONDITIONS FOR WHICH VASTARDIS CONSULTING ENGINEERS, LLC (VCELLC) WAS CONTRACTED TO PERFORM, EXCEPT ANY RECORDED OR UNRECORDED EASEMENTS WHICH MAY NOT BE VISIBLE OR SUPPLIED TO VASTARDIS CONSULTING ENGINEERS, LLC (VCELLC).
5. THE LOCATIONS OF UNDERGROUND UTILITIES HAVE BEEN SHOWN BASED ON FIELD SURVEY AND SURFACE OBSERVATION. VASTARDIS CONSULTING ENGINEERS, LLC (VCELLC) MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA EITHER IN SERVICE OR ABANDONED. VCELLC DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION. THEREFORE, VCELLC SHALL NOT BE RESPONSIBLE OR HELD LIABLE FOR ANY UTILITY NOT SHOWN OR SHOWN ON THE DRAWINGS IN A LOCATION OTHER THEN WHERE IT IS ACTUALLY DISCOVERED UPON EXCAVATION. VCELLC HAS NOT PHYSICALLY EXCAVATED AND LOCATED ANY UNDERGROUND LINES.
6. FLOODPLAIN BOUNDARIES ARE PLOTTED FROM FEMA FLOOD INSURANCE RATE MAP NO. 42091C0556G, REVISED 03/02/2016. SUBJECT PROPERTY PARTIALLY LIES WITHIN THE 1.0% ANNUAL CHANCE FLOODPLAIN. FLOOD PLAIN BOUNDARY IS APPROXIMATE.
7. REFERENCE IS MADE TO A PLAN ENTITLED "JOSEPH G. PROIETTO LAND SUBDIVISION PLAN", PREPARED BY JOHN L. DZEEDZY INC., PLAN NO. 8226, DATED 01/22/1983, LAST REVISED 05/14/1983, AND RECORDED IN THE MONTGOMERY COUNTY RECORDER OF DEEDS OFFICE PLAN NO. 840 PAGE 101.

① ZONING REQUIREMENT

LI - LIMITED INDUSTRIAL DISTRICT

	REQUIRED	EXISTING
MIN. LOT AREA	N/A	19,753 S.F.
MIN. FRONT YARD SETBACK	25 FT.**	0 FT.
MIN. SIDE YARD SETBACK	10 FT.***	0 FT.
MIN. REAR YARD SETBACK	15 FT. (25 FT. RESIDENTIAL)****	20.6 FT.
MAX. BUILDING COVERAGE	50%	47.3%
MAX. IMPERVIOUS SURFACES	75%	98.0%*

* EXISTING NON-CONFORMING

② BR-2 BOROUGH RESIDENTIAL DISTRICT TWO

	REQUIRED	EXISTING
MIN. LOT AREA	1,800 S.F.	2,250 S.F.
MIN. LOT WIDTH	18 FT.	31.7 FT.
MIN. FRONT YARD SETBACK	15 FT.******	N/A
MIN. SIDE YARD SETBACK	7 FT.******	N/A
MIN. REAR YARD SETBACK	25 FT.	N/A
MAX. BUILDING COVERAGE	40%	N/A
MAX. IMPERVIOUS SURFACES	60%	100%*

* EXISTING NON-CONFORMING

** EXCEPT WHERE A BUILDING LINE HAS BEEN ESTABLISHED, THEN THE BUILDING LINE OF THE MAJORITY OF THE BUILDINGS ON THAT SIDE OF THE BLOCK SHALL BE USED.
*** EXCEPT WHERE THE PROPERTY ADJOINS A RESIDENTIAL USE OR DISTRICT, THEN THE SETBACK SHALL BE INCREASED TO 15 FEET.
**** EXCEPT WHERE THE PROPERTY ADJOINS A RESIDENTIAL USE OR DISTRICT, THEN THE SETBACK SHALL BE INCREASED TO 25 FEET.
***** EXCEPT WHERE A BUILDING LINE HAS BEEN ESTABLISHED, THEN THE BUILDING LINE OF THE MAJORITY OF THE BUILDINGS ON THAT SIDE OF THE BLOCK SHALL BE USED. NO CASE SHALL THE SETBACK BE LESS THAN 10 FT. FROM THE FACE OF CURB.
****** 7 FT. FOR END UNITS, NOT MORE THE 8 SINGLE FAMILY ATTACHED DWELLING UNITS PER SERIES SHALL BE PERMITTED.
REFER TO THE BOROUGH OF CONSHOHOCKEN ZONING ORDINANCE FOR COMPLETE TEXT OF ALL REGULATIONS.

PROPERTY OWNER
JOHN J. STALEY SR., JOSEPH F. STALEY, & JOHN J. STALEY, JR.
234 FOX RUN ROAD
KING OF PRUSSIA, PA 19406

EQUITABLE OWNER
CRAFT CUSTOM HOMES, LLC
541 E. HECTOR ST.
CONSHOHOCKEN, PA 19406

PROPERTY INFORMATION
① DEED REF. 5292-2591
PARCEL ID. 05-00-02200-00-9

② DEED REF. 5292-2591
PARCEL ID. 50-00-02196-00-4

SITE ADDRESS:
261-263 E. ELM STREET
CONSHOHOCKEN, PA 19428

IMPERVIOUS COVERAGE

		EXISTING	
①	BUILDING	9,343 S.F.	47.3%
	ASPHALT/CONCRETE	10,024 S.F.	50.7%
	TOTAL	19,367 S.F.	
		EXISTING	
②	ASPHALT	2,250 S.F.	100.0%

PENNSYLVANIA ONE CALL SYSTEM, INC. 811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY

PA. ACT 121 (1996) REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH.

OSHA 1926.651 SPECIAL EXCAVATION REQUIREMENTS

(A) PRIOR TO OPENING AN EXCAVATION, EFFORT SHALL BE MADE TO DETERMINE WHETHER UNDERGROUND INSTALLATIONS I.E., SEWER, TELEPHONE WATER, FUEL, ELECTRIC LINES, ETC. WILL BE ENCOUNTERED, AND IF SO, WHERE SUCH INSTALLATIONS ARE LOCATED. WHEN IT APPEARS THAT AN EXCAVATION WILL APPROACH THE ESTIMATED LOCATION OF SUCH AN INSTALLATION, THE EXACT LOCATION SHALL BE DETERMINED. AND WHEN IT IS UNCOVERED, PROPER SUPPORTS SHALL BE PROVIDED FOR THE EXISTING INSTALLATION/UTILITY AND PROTECTION OF EMPLOYEES. SUCH INFORMATION SHALL BE MADE AVAILABLE TO THE SITE SUPERVISOR OF ACTUAL EXCAVATIONS.

OUTSIDE PENNA. OR IN THE PITTSBURGH AREA WE CAN ALSO BE REACHED AT 412-523-7100

PA ONE CALL
SERIAL NO.20203270139

TAX PARCEL ID. FOLIO #05-00-02200-00-9
TAX PARCEL ID. FOLIO #50-00-02196-00-4

LEGEND

60	EXIST. 5' CONTOURS
59	EXIST. 1' CONTOURS
	EXIST. BOUNDARY LINE
	EXIST. RIGHT-OF-WAY
	EXIST. BUILDING SETBACK LINE
	EXIST. FLOODPLAIN BOUNDARY
W	EXIST. WATER LINE
G	EXIST. UNDERGROUND GAS LINE
S	EXIST. SANITARY SEWER LINE
OHE	EXIST. OVERHEAD ELECTRIC LINE
X 57.4	EXIST. SPOT ELEVATION
X DS 58.07	EXIST. DOOR SILL ELEVATION
WS	EXIST. WATER SERVICE
WV	EXIST. WATER VALVE
S	EXIST. SANITARY MANHOLE
CO	EXIST. CLEANOUT
	EXIST. UTILITY POLE
	ZONING DISTRICT BOUNDARY LINE

SHEET INDEX

*TO BE RECORDED

0' 20' 40' 60'
GRAPHIC SCALE

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — NICHOLAS L. VASTARDIS — ENGINEER — 35005-E

NICHOLAS L. VASTARDIS, P.E.

NUM.	DATE	REVISION

VASTARDIS
CONSULTING ENGINEERS, LLC
29 Harvey Lane I Malvern, PA 19355 Ph:610.644.3665 I Fx: 610.644.3769 Email : vcelic@ verizon.net

PLAN PREPARED FOR:
CRAFT CUSTOM HOMES, LLC
261-263 E. ELM STREET
BOROUGH OF CONSHOHOCKEN MONTGOMERY COUNTY PENNSYLVANIA

DRAWN BY	SDI
CHECKED BY	NV
DATE	11-25-20
SCALE	1"=20'

EXISTING CONDITIONS PLAN

SHEET 1 OF 7

CONSTRUCTION SEQUENCE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER CONSTRUCTION, STABILIZATION, AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROL AND RELATED ITEMS ON THE PLANS. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION CONTROLS MUST BE PROPERLY MAINTAINED. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL CONTROLS AFTER EACH STORM EVENT AND ON A WEEKLY BASIS. THE CONTRACTOR IS ADVISED TO BECOME FAMILIAR WITH THE PROVISIONS OF APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS: TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION; SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES; CHAPTER 102, EROSION CONTROL. SHOULD UNFORESEEN EROSIVE CONDITIONS DEVELOP DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE ACTION TO REMEDY SUCH CONDITIONS AND TO PREVENT DAMAGE TO ADJACENT PROPERTIES AS A RESULT OF INCREASED RUNOFF AND/OR SEDIMENT DISPLACEMENT. STOCKPILES OF MATERIALS FOR USE AS CONTROL MEASURES SHALL BE HELD IN READINESS TO DEAL IMMEDIATELY WITH EMERGENCY PROBLEMS OF EROSION.

ANTICIPATED START OF CONSTRUCTION: FALL 2021
ANTICIPATED COMPLETION OF CONSTRUCTION: FALL 2022

1. CONSTRUCTION SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE.
2. CONSTRUCTION SHALL COMMENCE UPON RECEIPT OF THE NECESSARY PERMITS FROM BOROUGH OF CONSHOCKEN.
3. CONTRACTOR SHALL CONTACT UNDERGROUND UTILITIES AS PER ACT 187, AT LEAST 3 DAYS PRIOR TO ANY EARTHMOVING OR CONSTRUCTION.
4. THE APPLICANT SHOW NOTIFY THE BOROUGH AND BOROUGH ENGINEER A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
5. FIELD MARK THE LIMIT OF DISTURBANCE AS INDICATED ON THE PLAN.
6. FIELD MARK ALL UTILITY SERVICE LINES AND LATERALS AND DISCONNECT OR PROTECT THE LINES AND LATERALS AS NECESSARY.
7. INSTALL SEDIMENT BARRIERS AS SHOWN ON THE PLAN.
8. STRIP AND STOCKPILE TOPSOIL IN THE AREA OF THE PROPOSED CONSTRUCTION.
9. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH PADEP SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA CODE 260.1 ET SEQ., 271.1, AND 287.1 ET SEQ. NO BUILDING MATERIALS, WASTES, OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.
10. ROUGH GRADE THE AREA OF THE PROPOSED IMPROVEMENTS, AND THEN BEGIN CONSTRUCTION OF THE IMPROVEMENTS. ROUTINE END-OF-DAY CHECKS AND FOLLOWING STORMS SHALL BE MADE DURING CONSTRUCTION SHALL BE MADE TO ENSURE EROSION AND SEDIMENT CONTROL MEASURES ARE WORKING PROPERLY.
11. FINE GRADE AND STABILIZE ALL DISTURBED AREAS. IMMEDIATELY STABILIZE DISTURBED AREAS WITH PERMANENT GROUND COVER AS OUTLINED ON THE PLANS.
12. ONCE ALL DISTURBED AREAS ARE STABILIZED, THE SEDIMENT BARRIERS AND OTHER EROSION AND SEDIMENTATION CONTROL FEATURES MAY BE REMOVED. IMMEDIATELY STABILIZE ANY AREAS THAT ARE DISTURBED DURING THIS PROCESS.
13. STABILIZATION SHALL CONSIST OF A MINIMUM OF 70% OF GOOD VEGETATIVE COVER.

GENERAL NOTES

1. PHYSICAL FEATURES SHOWN HEREON OBTAINED BY A FIELD SURVEY COMPLETED ON AUGUST 29, 2018.
2. HORIZONTAL BEARINGS ARE ASSUMED FROM AZIMUTH READINGS. VERTICAL DATUM IS REFERENCED TO NAVD88.
3. THIS PLAT WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT.
4. THIS PLAT IS REPRESENTATIVE OF EXISTING CONDITIONS FOR WHICH VASTARDIS CONSULTING ENGINEERS, LLC (VCELLC) WAS CONTRACTED TO PERFORM, EXCEPT ANY RECORDED OR UNRECORDED EASEMENTS WHICH MAY NOT BE VISIBLE OR SUPPLIED TO VASTARDIS CONSULTING ENGINEERS, LLC (VCELLC).
5. THE LOCATIONS OF UNDERGROUND UTILITIES HAVE BEEN SHOWN BASED ON FIELD SURVEY AND SURFACE OBSERVATION. VASTARDIS CONSULTING ENGINEERS, LLC (VCELLC) MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA EITHER IN SERVICE OR ABANDONED. VCELLC DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. VCELLC SHALL NOT BE RESPONSIBLE OR HELD LIABLE FOR ANY UTILITY NOT SHOWN OR SHOWN ON THE DRAWINGS IN A LOCATION OTHER THEN WHERE IT IS ACTUALLY DISCOVERED UPON EXCAVATION. VCELLC HAS NOT PHYSICALLY EXCAVATED AND LOCATED ANY UNDERGROUND LINES.
6. THIS PROPERTY IS LOCATED WITHIN THE FEMA DESIGNATED ZONE AND IS THEREFORE LOCATED WITHIN THE BOROUGH FLOOD PLAN CONSERVATION DISTRICT.
7. CONTRACTOR SHALL MAKE SURE ANY MUD, DIRT, OR DEBRIS THAT REACHES THIS OR ANY ADJOINING ROAD AS A RESULT OF THIS PROJECT WILL BE REMOVED IMMEDIATELY. SHOULD THIS BE INEFFECTIVE, A STABILIZED CONSTRUCTION ENTRANCE WILL BE NECESSARY.
8. CONTRACTOR MUST VERIFY THE DEPTH AND LOCATION OF ALL UNDERGROUND UTILITIES AND FACILITIES BEFORE START OF WORK AS PER ACT 187. CONTRACTOR SHALL CONTACT THE UNDERGROUND UTILITY SERVICE AT LEAST 3 DAYS PRIOR TO ANY EARTHMOVING, DEMOLITION, OR CONSTRUCTION.
9. SOME OF THE EXISTING FOUNDATION AND BUILDING WALLS ARE BEING USED FOR THE NEW PROPOSED BUILDING.
10. ALL NEW ELECTRICAL SERVICES SHALL BE UNDERGROUND.
11. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR THE QUALITY AND CORRECTNESS OF COMPLETED WORK. THE PROPERTY OWNER MAY DESIGNATE A CONTRACTOR, CONSULTANT OR OTHER AGENT TO COORDINATE INSPECTIONS WITH THE BOROUGH. THE PROPERTY OWNER IS RESPONSIBLE FOR ALL OUTSIDE CONSULTANT FEES INCURRED BY THE BOROUGH.
12. ANY COMPLETED WORK THAT DOES NOT COMPLY WITH APPLICABLE STANDARDS SUCH AS THE AMERICANS WITH DISABILITIES ACT (ADA), PENNDOT SPECIFICATIONS AND CONSTRUCTION STANDARDS, OR THE BOROUGH OF CONSHOHOCKEN TYPICAL DETAILS SHALL BE REMOVED AND REPLACED. PROPERTY OWNERS ARE ENCOURAGED TO WITHOLD PAYMENT FOR WORK PERFORMED UNTIL ALL WORK AND RESTORATIONS ARE ACCEPTED BY THE BOROUGH IN WRITING.
13. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH THE BOROUGH STORMWATER MANAGEMENT ORDINANCE. SPECIFICALLY, ALL WORK SITES SHALL BE PROTECTED FROM EROSION AND SEDIMENT RUNOFF IN ACCORDANCE WITH MONTGOMERY COUNTY CONSERVATION DISTRICT REQUIREMENTS. FAILURE TO INSTALL AND MAINTAIN ACCEPTABLE EROSION CONTROLS WILL RESULT IN WORK STOPPAGES AND FINES IN ACCORDANCE WITH THE BOROUGH ORDINANCE.
14. EROSION CONTROL INLET PROTECTION SHALL BE INSTALLED IN THE NEAREST DOWNSTREAM INLET OF ALL WORK SITES. PIPE TRENCHES SHALL BE PUMPED THROUGH A WATER FILTER BAG.
15. THE CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT. THE BOROUGH INSPECTOR WILL VERIFY THAT THE APPROPRIATE CONSTRUCTION DETAILS ARE BEING FOLLOWED AND THAT THE APPROPRIATE METHODS ARE BEING USED. THE BOROUGH INSPECTOR DOES NOT APPROVE ANY PHYSICAL PRODUCT UNTIL THE WORK IS COMPLETE. ANY PERCEIVED APPROVAL OF LAYOUT, FORMWORK, ECT., DOES NOT ABSOLVE THE CONTRACTOR FROM ENSURING THAT THE FINAL PRODUCT COMPLIES WITH ALL APPLICABLE STANDARDS.
16. THE OWNER IS RESPONSIBLE FOR REPLACING ANY EXISTING FEATURES DAMAGED DURING CONSTRUCTION AND WILL BE REPLACED AT NO COST TO THE BOROUGH.

REQUESTED RELIEF

THE APPLICANT RESPECTFULLY REQUESTS RELIEF FROM THE FOLLOWING SECTIONS OF THE BOROUGH OF CONSHOHOCKEN ORDINANCE:

27-1714.1.A	IN ORDER TO ALTER AN EXISTING BUILDING AND CONSTRUCT A NEW BUILDING IN THE 100-YEAR FLOOD PLAIN.
27-1905-B.2	TO EXCEED THE ALLOWABLE MAXIMUM PERMITTED DWELLING UNIT DENSITY OF 35 UNITS PER ACRE.
27-1905-B.3.A-C	TO PROVIDE RELIEF FROM THE DISTRICT'S FRONT, SIDE, AND REAR YARD SETBACK STANDARDS.
27-1905-B.4	TO EXCEED THE ALLOWABLE MAXIMUM BUILDING COVERAGE OF 40%.
27-1905-B.6	TO ALLOW THE PROPOSED PARKING SETBACK TO BE LESS THAN THE MINIMUM 10' SETBACK FROM PROPERTY LINES.
27-1905.B.9	TO ALLOW FOR THE PARKING TO BE LOCATED UNDER THE BUILDING RATHER THAN THE REAR YARD OF THE PARCEL.
27-1905.B.11	TO ALLOW THE BUILDING HEIGHT TO EXCEED THE PERMITTED 35-FOOT HEIGHT.
27-1905.B.12	TO DEVELOP A PARCEL THAT DOES NOT COMPLY WITH THE MINIMUM TRACT AREA FOR THE DISTRICT.
27-1904-B.1-5	TO PROVIDE PARTIAL RELIEF FROM THE SCREENING, BUFFERING, AND STREET TREE REGULATIONS OF THE ORDINANCE.
27-2007.F.1-3	TO PROVIDE RELIEF FROM THE REQUIRED BUFFER STRIP.
27-2007.H.	TO PROVIDE RELIEF FROM THE REQUIRED CURBED PLANTING STRIPS.
7-2007.J.	TO PROVIDE RELIEF FROM THE REQUIREMENT OF PROVIDING SHADE TREES WITHIN PARKING AREAS.
27-820.C-F.	TO PROVIDE RELIEF FROM THE LARGE TRUCK COLLECTION ACCESS AND SETBACK REQUIREMENTS AS LISTED IN THE ORDINANCE.
27-1404.4.A-C.	TO PROVIDE PARTIAL RELIEF FROM THE REQUIREMENTS OF SHADE TREES ALONG PUBLIC STREETS, LANDSCAPING OF THE FRONT YARDS ADJOINING RESIDENTIAL DISTRICTS, SIDE AND/OR REAR YARD BUFFERS WHEN ADJOINING RESIDENTIAL DISTRICTS.

SOILS INFO.

UgB – URBAN LAND – 0-8% SLOPES
WELL-DRAINED, 4-6 FEET THICK; COMPRISED OF SILTY CLAY LOAM.
TEXTURE; VARIES

LIMITATIONS:	
DEPTH TO SEASONAL HIGH WATER TABLE	– 6-24"
DEPTH TO BEDROCK	– 20-80"
ROAD SUBGRADE	– VARIABLE
ROAD FILL	– VARIABLE
TOPSOIL	– VARIABLE
HYDROLOGIC SOIL CLASSIFICATION	NA

LEGEND

- EXIST. 5' CONTOURS
- EXIST. 1' CONTOURS
- EXIST. BOUNDARY LINE
- EXIST. RIGHT-OF-WAY
- EXIST. BUILDING SETBACK LINE
- EXIST. FLOODPLAIN BOUNDARY
- EXIST. WATER LINE
- EXIST. UNDERGROUND GAS LINE
- EXIST. SANITARY SEWER LINE
- EXIST. OVERHEAD ELECTRIC LINE
- EXIST. WATER SERVICE
- EXIST. WATER VALVE
- EXIST. CLEANOUT
- EXIST. UTILITY POLE
- ZONING DISTRICT BOUNDARY LINE
- LIMIT OF DISTURBANCE
- PROP. SANITARY LINE
- PROP. GAS LINE
- PROP. ELEC. LINE
- PROP. WATER LINE
- PROP. CONTOUR
- PROP. SPOT ELEVATION
- PROP. INLET

PENNSYLVANIA ONE CALL SYSTEM, INC. – IT'S THE LAW! – CALL BEFORE YOU DIG!

BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY

PA. ACT 172 (1986) REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL, BLAST OR DEMOLISH.

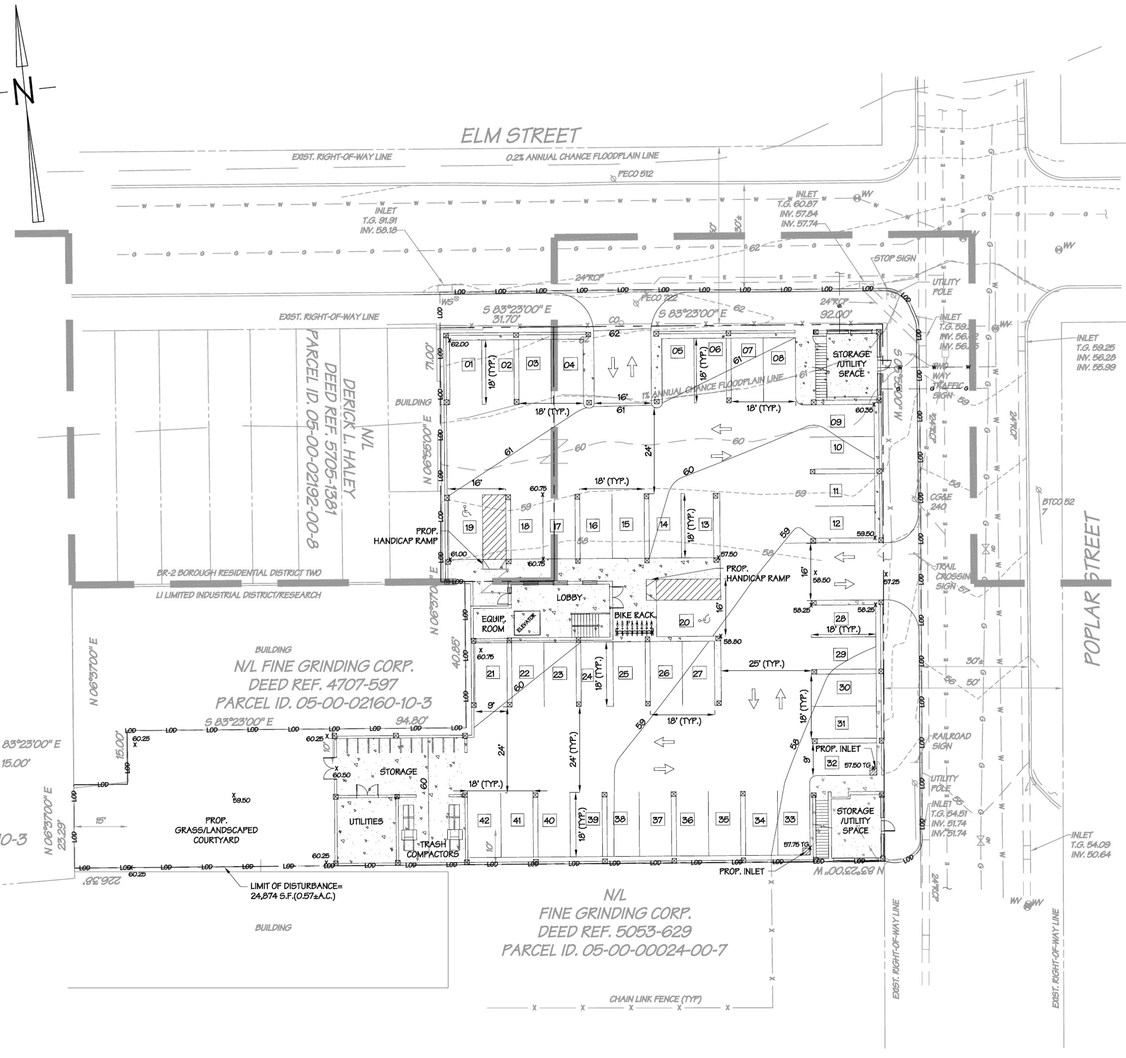
OSHA 1926.651 SPECIAL EXCAVATION REQUIREMENTS

DUTY TO DETERMINE: AN EXCAVATION, EFFORT SHALL BE MADE TO DETERMINE WITH REASONABLE CERTAINTY WHETHER OR NOT UNDERGROUND INSTALLATIONS (GAS, ELECTRIC LINES, ETC.) WILL BE ENCOUNTERED, AND IF SO, WHERE SUCH UNDERGROUND INSTALLATIONS ARE LOCATED. WHEN THE EXCAVATION APPROACHES THE ESTIMATED LOCATION OF SUCH INSTALLATIONS, THE EXACT LOCATION SHALL BE DETERMINED AND WHEN IT IS UNCOVERED, PROPER SUPPORTS SHALL BE PROVIDED FOR THE EXISTING INSTALLATIONS.UTILITY COMPANIES SHALL BE CONTACTED AND ADVISED OF PROPOSED WORK PRIOR TO THE START OF ACTUAL EXCAVATION.

OUTSIDE PENNA. OR IN THE PITTSBURGH AREA WE CAN ALSO BE REACHED AT 412-323-7100

PA ONE CALL
SERIAL NO. 20203270139

TAX PARCEL ID. FOLIO #05-00-02200-00-9
TAX PARCEL ID. FOLIO #50-00-02196-00-4



LOCATION MAP
NOT TO SCALE

BOROUGH APPROVAL

APPROVED BY THE BOROUGH COUNCIL OF THE BOROUGH OF CONSHOHOCKEN THIS _____ DAY OF _____ 2020.

_____ COUNCIL SECRETARY — _____ COUNCIL PRESIDENT

_____ DATE — _____ DATE

ACKNOWLEDGMENT OF INTENT

CRAFT CUSTOM HOMES, LLC, A PENNSYLVANIA LIMITED LIABILITY COMPANY HAS LAID OUT UPON ITS LAND SITUATE IN BOROUGH OF CONSHOHOCKEN, MONTGOMERY COUNTY, PENNSYLVANIA, CERTAIN IMPROVEMENTS ACCORDING TO ACCOMPANYING PLAN AND DESIRES THAT THE PLAN BE RECORDED AS SUCH ACCORDING TO LAW.

CRAFT CUSTOM HOMES, LLC

BY: _____ _____
RYAN ALEXAKI, MEMBER — DATE

COMMONWEALTH OF PENNSYLVANIA COUNTY OF MONTGOMERY

ON THIS, THE _____ DAY OF _____, 2020, BEFORE ME THE SUBSCRIBER, A NOTARY PUBLIC, IN AND FOR THE COUNTY OF MONTGOMERY, COMMONWEALTH OF PENNSYLVANIA, PERSONALLY APPEARED RYAN ALEXAKI, WHO ACKNOWLEDGED HIMSELF TO BE A MEMBER OF CRAFT CUSTOM HOMES, LLC, A PENNSYLVANIA LIMITED LIABILITY COMPANY, AND AS SUCH MEMBER BEING AUTHORIZED TO DO SO EXECUTED THE PLAN FOR THE PURPOSES CONTAINED HEREIN.

_____ (SEAL)
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

BOROUGH ENGINEER'S CERTIFICATION:

REVIEWED BY THE BOROUGH OF CONSHOHOCKEN ENGINEER THIS _____ DAY OF _____, 2020.

_____.

SURVEYOR'S CERTIFICATE, BOUNDARY AND TOPOGRAPHY

THIS IS TO CERTIFY THAT THIS PLAN REPRESENTS A FIELD SURVEY BY ME OR UNDER MY SUPERVISION, THAT ALL PROPERTY CORNERS ARE SET AS SHOWN HEREON, THAT ALL GEOMETRIC AND GEODETIC DETAILS AS SHOWN ARE CORRECT, AND THAT ALL LOTS OR TRACTS HAVE A BOUNDARY CLOSURE ERROR OF 1:10,000 OR BETTER

SEAL
_____ PLS — _____ DATE

SU # - _____

RECORDER OF DEEDS

RECORDED IN THE OFFICE FOR THE RECORDING OF DEEDS, NORRISTOWN, PENNSYLVANIA, IN PLAN BOOK _____, PAGE NUMBER _____ ON THIS _____ DAY OF _____, 2020.

MCPC NO. _____

PROCESSED AND REVIEWED. A REPORT HAS BEEN PREPARED BY THE MONTGOMERY COUNTY PLANNING COMMISSION IN ACCORDANCE WITH THE MUNICIPALITIES PLANNING CODE.

CERTIFIED THIS DATE _____ FOR THE DIRECTOR _____

MONTGOMERY COUNTY PLANNING COMMISSION

PROPERTY OWNER

JOHN J. STALEY SR., JOSEPH F. STALEY, & JOHN J. STALEY, JR.
224 FOX RUN ROAD
KING OF PRUSSIA, PA 19406

PROPERTY INFORMATION

① DEED REF. 5232-2361
PARCEL ID. 05-00-02200-00-9

② DEED REF. 5232-2361
PARCEL ID. 50-00-02196-00-4

IMPERVIOUS COVERAGE

		EXISTING	PROPOSED
①	BUILDING	9,343 S.F.	19,240 S.F.
	ASPHALT/CONCRETE	10,024 S.F.	4,107 S.F.
	TOTAL	19,367 S.F.	23,347 S.F.

CURRENT PARKING COUNT = 25 SPACES
PROPOSED PARKING COUNT = 42 SPACES

ZONING REQUIREMENT

① LI - LIMITED INDUSTRIAL DISTRICT

	REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA	N/A	19,753 S.F.	19,753 S.F.
MIN. FRONT YARD SETBACK	25 FT.**	0 FT.	0 FT.
MIN. SIDE YARD SETBACK	10 FT.***	0 FT.	0 FT.
MIN. REAR YARD SETBACK	15 FT. (25 FT. RESIDENTIAL)****	20.6 FT.	1.5 FT.
MAX. BUILDING COVERAGE	50%	47.5%	96%
MAX. IMPERVIOUS SURFACES	75%	98.0%*	98.5%

* EXISTING NON-CONFORMING

② DR-2 BOROUGH RESIDENTIAL DISTRICT TWO

	REQUIRED	EXISTING	PROPOSED
MIN. LOT AREA	1,800 S.F.	2,250 S.F.	2,250 S.F.
MIN. LOT WIDTH	18 FT.	31.7 FT.	31.7 FT.
MIN. FRONT YARD SETBACK	15 FT.*****	N/A	1 FT.
MIN. SIDE YARD SETBACK	7 FT.******	N/A	1 FT.
MIN. REAR YARD SETBACK	25 FT.	N/A	0 FT.
MAX. BUILDING COVERAGE	40%	N/A	95%
MAX. IMPERVIOUS SURFACES	60%	100%*	100%

* EXISTING NON-CONFORMING

EQUITABLE OWNER

CRAFT CUSTOM HOMES, LLC
541 E. HECTOR ST.
CONSHOHOCKEN, PA 19406

SITE ADDRESS:

261-263 E. ELM STREET
CONSHOHOCKEN, PA 19428

NOTES:

APPLICANT IS PROPOSING 21 2 BEDROOM CONDOMINIUM UNITS WITH 2 PARKING SPACES PER UNIT PROVIDED.

RESIDENTIAL OVERLAY DISTRICT

	REQUIRED	PROPOSED
MIN. TRACT AREA	1 AC.	0.45 AC.
MAX. DENSITY	35 DWELLING/AC.	21 UNITS
MIN. FRONT YARD	30 FT.	0 FT.
MIN. SIDE YARD	10 FT. (EACH)	0 FT.
MIN. REAR YARD	30 FT.	0 FT.
MAX. BUILDING COVERAGE	40%	87.5%
BUILDING HEIGHT LIMIT	35 FT.	45 FT.
MAX. IMPERVIOUS COVERAGE	80%	88.5%
PARKING AREA SETBACK	10 FT. FROM PROPERTY LINE	1.5 FT.
INTERNAL DRIVEWAY SETBACK	10 FT. FROM PROPERTY LINE	20 FT.
MIN. PARKING REQUIREMENTS	2 SPACES/UNIT	2 SPACES/UNIT
PARKING LOT LOCATION	REAR OF BUILDING	UNDER BUILDING
MIN. SQUARE FOOTAGE (2-BEDROOM UNIT)	900 S.F.	900 S.F.

** EXCEPT WHERE A BUILDING LINE HAS BEEN ESTABLISHED, THEN THE BUILDING LINE OF THE MAJORITY OF THE BUILDINGS ON THAT SIDE OF THE BLOCK SHALL BE USED.
*** EXCEPT WHERE THE PROPERTY ADJOINS A RESIDENTIAL USE OR DISTRICT, THEN THE SETBACK SHALL BE INCREASED TO 15 FEET.
**** EXCEPT WHERE THE PROPERTY ADJOINS A RESIDENTIAL USE OR DISTRICT, THEN THE SETBACK SHALL BE INCREASED TO 25 FEET.
***** EXCEPT WHERE A BUILDING LINE HAS BEEN ESTABLISHED, THEN THE BUILDING LINE OF THE MAJORITY OF THE BUILDINGS ON THAT SIDE OF THE BLOCK SHALL BE USED. NO CASE SHALL THE SETBACK BE LESS THAN 10 FT. FROM THE FACE OF CURB.
****** 7 FT. FOR END UNITS, NOT MORE THE 8 SINGLE FAMILY ATTACHED DWELLING UNITS PER SERIES SHALL BE PERMITTED.
REFER TO THE BOROUGH OF CONSHOHOCKEN ZONING ORDINANCE FOR COMPLETE TEXT OF ALL REGULATIONS.

RESIDENTIAL OVERLAY DISTRICT (CONTINUED)

	REQUIRED	EXISTING	PROPOSED
PARKING AREA SETBACK	10 FT.	N/A	20 FT.
INTERNAL DRIVE SETBACK	10 FT.	N/A	20 FT.
PARKING REQUIREMENTS	2 SPACES/UNIT	N/A	2 SPACES/UNIT
PARKING LOCATION	REAR OF THE BUILDING	N/A	UNDER BUILDING
HEIGHT LIMIT	35 FT.	N/A	40 FT.
MINIMUM UNIT SIZE (2BR)	900 S.F.	N/A	900 S.F.

LANDSCAPING/BUFFERING

ADJACENT TO RESIDENTIAL AREA	SCREENING REQUIRED	N/A	BUILDING WALL
STREET TREES	30' O.C.	N/A	TBD
SERVICE AREAS	SCREENING REQUIRED	N/A	TBD
PARKING LOTS	SCREENING REQUIRED	N/A	UNDER BUILDING W/WALL
REFUSE FACILITIES SETBACK	10' IF DETACHED	N/A	TBD
REFUSE FACILITIES LANDSCAPE	REQUIRED	N/A	TBD
REFUSE FACILITY TRUCK ACCESS	REQUIRED	N/A	TBD

WAIVER REQUESTS

THE APPLICANT RESPECTIVELY REQUEST THE WAIVERS AS PART OF THIS PROJECT:

22-306.A.(1)	EXISTING FEATURES WITHIN 100 FT; PROVIDING AERIAL MAP.
22-309.C	ONE SUBMISSION FOR PRELIMINARY/FINAL LAND DEVELOPMENT APPROVAL.
22-404.2.A	PROPOSED DRIVEWAY AND DRIVEWAY CURB CUT WITHIN FRONT YARD SETBACKS.
22-404.3.G.	CURB RADII LESS THAN A 5' RADIUS.
22-409.2	TO PERMIT PROPOSED GRADING WITHIN 5 FEET OF THE PROPERTY LINES.
22-421.4 (PARTIAL)	TO PROVIDE TWO LESS STREET TREES THAN REQUIRED.
22-421.5	MULTI-FAMILY DEVELOPMENT SCREENING.
22-421.6	PEDESTRIAN LIGHTING PROVIDED ALONG BOTH SIDES OF PUBLIC STREETS WHERE SIDEWALK EXISTS.

PARKING REQUIREMENTS

REQUIRED OFF-STREET PARKING
REQUIREMENT IS 2 SPACES PER DWELLING UNIT.
21 DWELLING UNITS PLANNED,
THEREFORE 2X21=42 SPACES ARE REQUIRED AND 42 SPACES ARE PROVIDED.

0' 20' 40' 60'
GRAPHIC SCALE

COMMONWEALTH OF PENNSYLVANIA – REGISTERED PROFESSIONAL – NICHOLAS L. VASTARDIS – ENGINEER – 35006-E

NICHOLAS L. VASTARDIS, P.E.

NUM.	DATE	REVISION
1	12-09-20	ADD UTILITIES

VASTARDIS
CONSULTING ENGINEERS, LLC
29 Harvey Lane | Malvern, PA 19355 Ph:610.644.9665 | Fx: 610.644.3769 Email : vcelle@ verizon.net

PLAN PREPARED FOR:

CRAFT CUSTOM HOMES, LLC
261-263 E. ELM STREET
BOROUGH OF CONSHOHOCKEN — MONTGOMERY COUNTY — PENNSYLVANIA

DRAWN BY	SDI
CHECKED BY	NV
DATE	11-25-20
SCALE	1"=20'

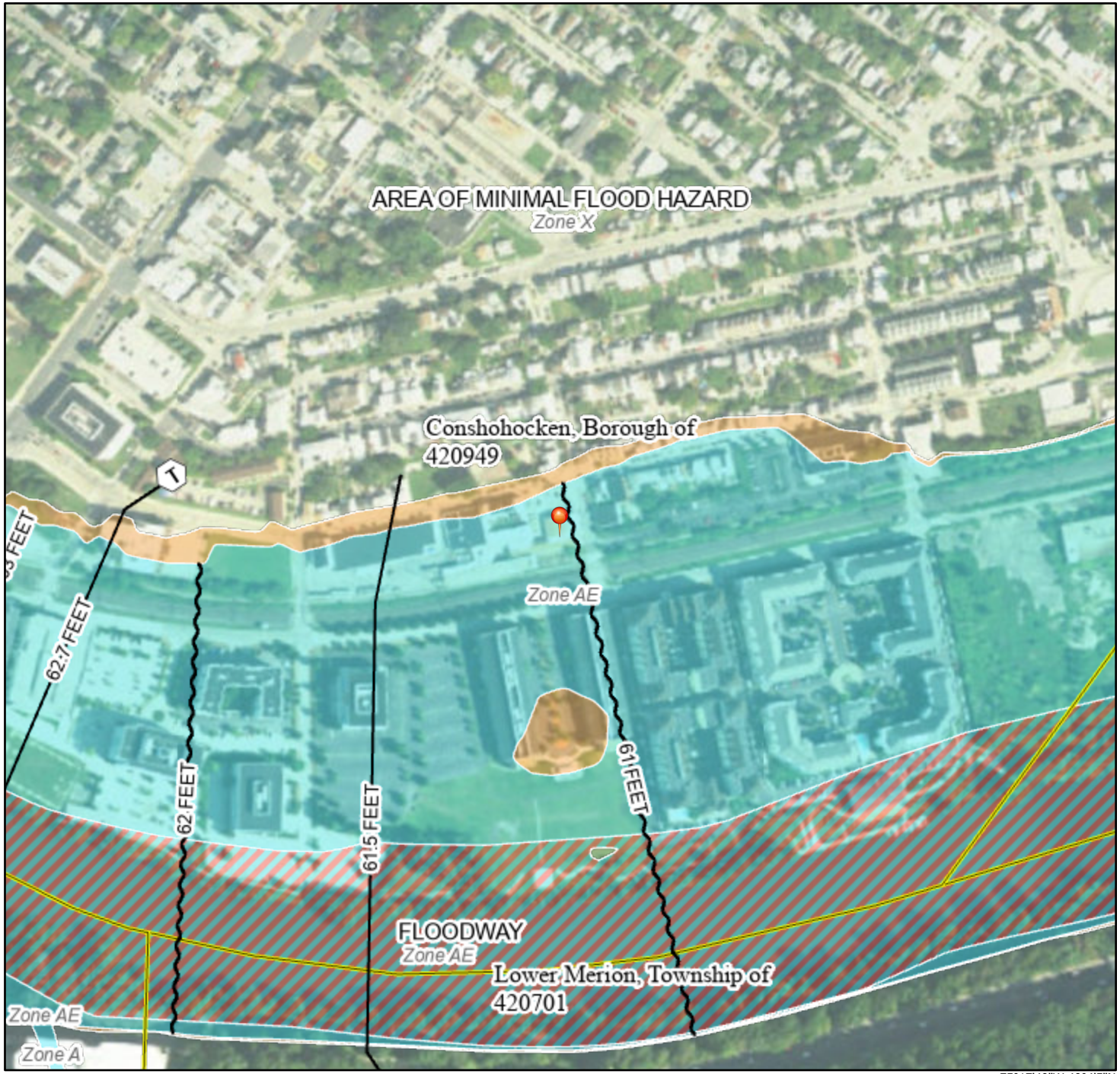
PRELIMINARY/FINAL LAND DEVELOPMENT PLAN

SHEET 3 OF 7

National Flood Hazard Layer FIRMette

FEMA

75°18'27"W 40°4'33"N



75°17'49"W 40°4'5"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/26/2021 at 4:06 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

APPENDIX B: **Corrected Effective HEC-RAS**

HEC-RAS HEC-RAS 5.0.7 March 2019
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
XXXXXXX  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: ElmSt_NoRise_rev1
Project File : ElmSt_NoRise_rev1.prj
Run Date and Time: 3/18/2021 1:46:44 PM

Project in English units

Project Description:
****

SSB34N-1.I
   MILES 10 TO 20 OF HYDRAULIC SEGMENT B

JANUARY
23,1994
SCHUYLKILL RIVER FLOOD INSURANCE STUDY
FREQUENCY
SEGMENT B MILES 10
TO 20
LIMITS OF MODEL: FAIRMONT DAM TO USGS GAGE 01473193 (PORT
KENNEDY)
CROSS-SECTION DATA WAS DEVELOPED FROM A DIGITAL TERRAIN MODEL
(DTM)
THE TOPOGRAPHY IS BASED ON AERIAL PHOTOGRAPHY FLOWN 3-17-1991
AND
3-16-1992.

THE CROSS-SECTIONS IN THIS HEC2 MODEL CORRESPOND TO THE
FOLLOWING
DTM SEGMENTS:
             SCT001, SCT002, SCT003, SCT004, SCT005,

SCT006
SCT007, SCT008, SCT009, SCT010

THE ABOVE X-SECTIONS
WERE CUT ON 6 AUG 1993 AND DELIVERED
BY FPMS TO H&H BRANCH ON 25 AUG
1993.

AND THE ADDITIONAL DTM SEGMENTS OF:
SCT011, SCT012,
SCT013, SCT014, SCT015, SCT016
SCT017, SCT018, SCT019, SCT020,
SCT021

WHICH WERE CUT ON 3 AND 10 SEP 1993 AND DELIVERED BY FPMS
TO H&H
BRANCH ON 21 SEP 1993

THE FPMS FLOOD OUTLINE MAP PLOTTING PROGRAM EXPECTS A
TAPE96
X-SECTION FOR EVERY X-SECT STATION THAT WAS CUT FROM THE DTM. IN
ORDER
TO KEEP THE PLOTTING PROGRAM FROM BOMBING, THE DTM X-SECTS NOT
USED IN
THE HEC2 MODEL MUST BE DELETED FROM THE DTM X-SECTION LAYER.
THEREFORE THE
FOLLOWING IS A LIST OF PROVIDED DTM X-SECT STATIONS WHICH
ARE NOT USED IN THE
HEC2 INPUT FILE:

DTM SEGMENT	CUT X-SECTIONS STATIONS WHICH ARE NOT USED IN THIS HEC2 MODEL
SCT001.DAT	42079, 42229, 42394, 42455 42495, 42718, 42878, 43060 43257, 44701, 45389
SCT002.DAT	46699, 48708, 48960, 49694 50618
SCT003.DAT	51730, 52382, 53701, 54418

55962, 56690

SCT004.DAT 58524, 59299, 59615,
60406
61649, 62466, 62688

SCT005.DAT 63044, 64030, 66460, 66803

SCT006.DAT 67923, 70236, 71761, 72407

SCT007.DAT
75577, 76476

SCT008.DAT 77735,
79960

SCT009.DAT 82038, 83016, 83977, 85098

86110

SCT010.DAT
86810, 87658, 88531

SCT011.DAT 92687, 93755,
94799, 95659

SCT012.DAT 96483

SCT014.DAT 111864, 113028, 115241

SCT015.DAT
116763, 118709, 119068, 119282

SCT017.DAT
126765 (DS FACE OF RT 202)

SCT018.DAT
133280, 134191

SCT019.DAT 137781

138755

SCT020.DAT
139825, 140847, 141772
142729, 143653,
144672

SCT021.DAT 148549, 149130, 149666,
150177

NON-DTM / ADDED X-SECTIONS IN THE HEC2 FILE WILL BE FOUND IN THE
TAPE96
FILE. THE PLOTTING PROGRAM WILL NOT BOMB. HOWEVER, NO WSEL WILL
BE
PLOTTED AT THE X-SECTION STATION. A NON-DTM X-SECTION IS ADDED TO
PROVIDE
A MORE ACCURATE WSEL AT THE NEXT DTM X-SECTION. THE PLOTTING
PROGRAM
WILL CONNECT A WSEL PLANE BETWEEN TWO ADJACENT DTM X-SECTIONS. THE
WSEL
DRAWN ON THE MAP MAY DISAGREE WITH THE WSEL SHOWN ON THE PROFILE
PLOT
SINCE THE PROFILE PLOT REFLECTS THE ADDED X-SECTION.

THE FOLLOWING IS
A LIST OF NON-DTM / MOVED X-SECTIONS IN THIS HEC2 FILE:

X-81585, X-107816, X-107856, X-125698, X-125738
X-126779
(NEW DS FACE OF RT 202)

THERE ARE NO X3 CARDS IN THIS FILE RE:
ENCROACHMENTS.

MASTER FILE FOR SEGMENT B IS SSBC.I

SCHUYLKILL RIVER
FLOOD INSURANCE STUDY -- JAN 1994
FREQUENCY- FAIRMOUNT DAM TO PORT KENNEDY
GAGE
FILE:SSB34N-1.I Q=74000 CFS (10 YR REGULATED) / 62900
CFS
****
***
SSB34E-1.I
MILES 10 TO 20 OF HYDRAULIC SEGMENT B

JANUARY
23,1994
SCHUYLKILL RIVER FLOOD INSURANCE STUDY
ENCROACHMENT
SEGMENT B MILES

10 TO 20
LIMITS OF MODEL: FAIRMONT DAM TO USGS GAGE 01473193 (PORT
KENNEDY)
CROSS-SECTION DATA WAS DEVELOPED FROM A DIGITAL TERRAIN MODEL
(DTM)
THE TOPOGRAPHY IS BASED ON AERIAL PHOTOGRAPHY FLOWN 3-17-1991
AND
3-16-1992.

THE CROSS-SECTIONS IN THIS HEC2 MODEL CORRESPOND TO THE
FOLLOWING
DTM SEGMENTS:
SCT001, SCT002, SCT003, SCT004, SCT005,
SCT006
SCT007, SCT008, SCT009, SCT010

THE ABOVE X-SECTIONS
WERE CUT ON 6 AUG 1993 AND DELIVERED
BY FPMS TO H&H BRANCH ON 25 AUG
1993.

AND THE ADDITIONAL DTM SEGMENTS OF:
SCT011, SCT012,
SCT013, SCT014, SCT015, SCT016
SCT017, SCT018, SCT019, SCT020,
SCT021

WHICH WERE CUT ON 3 AND 10 SEP 1993 AND DELIVERED BY FPMS
TO H&H
BRANCH ON 21 SEP 1993

THE FPMS FLOOD OUTLINE MAP PLOTTING PROGRAM EXPECTS A
TAPE96
X-SECTION FOR EVERY X-SECT STATION THAT WAS CUT FROM THE DTM. IN
ORDER
TO KEEP THE PLOTTING PROGRAM FROM BOMBING, THE DTM X-SECTS NOT
USED IN
THE HEC2 MODEL MUST BE DELETED FROM THE DTM X-SECTION LAYER.
THEREFORE THE
FOLLOWING IS A LIST OF PROVIDED DTM X-SECT STATIONS WHICH
ARE NOT USED IN THE
HEC2 INPUT FILE:

DTM SEGMENT	CUT X-SECTIONS STATIONS WHICH ARE NOT USED IN THIS HEC2 MODEL
SCT001.DAT	

42079, 42229, 42394, 42455

42495, 42718, 42878, 43060
43257,
44701, 45389

SCT002.DAT 46699, 48708, 48960,
49694
50618

SCT003.DAT
51730, 52382, 53701, 54418

55962, 56690

SCT004.DAT 58524, 59299, 59615,
60406
61649, 62466, 62688

SCT005.DAT 63044, 64030, 66460, 66803

SCT006.DAT 67923, 70236, 71761, 72407

SCT007.DAT
75577, 76476

SCT008.DAT 77735,
79960

SCT009.DAT 82038, 83016, 83977, 85098

86110

SCT010.DAT
86810, 87658, 88531

SCT011.DAT 92687, 93755,
94799, 95659

SCT012.DAT 96483

SCT014.DAT 111864, 113028, 115241

SCT015.DAT
116763, 118709, 119068, 119282

SCT017.DAT

126765 (DS FACE OF RT 202)

SCT018.DAT
133280, 134191

SCT019.DAT 137781

138755

SCT020.DAT
139825, 140847, 141772
142729, 143653,
144672

SCT021.DAT 148549, 149130, 149666,
150177

NON-DTM / ADDED X-SECTIONS IN THE HEC2 FILE WILL BE FOUND IN THE
TAPE96
FILE. THE PLOTTING PROGRAM WILL NOT BOMB. HOWEVER, NO WSEL WILL
BE
PLOTTED AT THE X-SECTION STATION. A NON-DTM X-SECTION IS ADDED TO
PROVIDE
A MORE ACCURATE WSEL AT THE NEXT DTM X-SECTION. THE PLOTTING
PROGRAM
WILL CONNECT A WSEL PLANE BETWEEN TWO ADJACENT DTM X-SECTIONS. THE
WSEL
DRAWN ON THE MAP MAY DISAGREE WITH THE WSEL SHOWN ON THE PROFILE
PLOT
SINCE THE PROFILE PLOT REFLECTS THE ADDED X-SECTION.

THE FOLLOWING IS
A LIST OF NON-DTM / MOVED X-SECTIONS IN THIS HEC2 FILE:

X-81585, X-107816, X-107856, X-125698, X-125738
X-126779
(NEW DS FACE OF RT 202)

THERE ARE NO X3 CARDS IN THIS FILE RE:
ENCROACHMENTS.

MASTER FILE FOR SEGMENT B IS SSBC.I

SCHUYLKILL RIVER
FLOOD INSURANCE STUDY -- JAN 1994
ENCROACHMENT- FAIRMOUNT DAM TO PORT
KENNEDY GAGE

FILE:SSB34E-1.I Q=128000 CFS (100 YR NATURAL) / 109000 CFS

PLAN DATA

Plan Title: CorrectedEffective
Plan File :
k:\AMT_WaterResources\112243004_ElmSt_NoRise\Models\HEC-RAS\ElmSt_NoRise_rev1.p06

Geometry Title: CorrectedEffective_Geometry
Geometry File :
k:\AMT_WaterResources\112243004_ElmSt_NoRise\Models\HEC-RAS\ElmSt_NoRise_rev1.g06

Flow Title : CorrectedEffective_Flow
Flow File :
k:\AMT_WaterResources\112243004_ElmSt_NoRise\Models\HEC-RAS\ElmSt_NoRise_rev1.f05

Plan Summary Information:
Number of: Cross Sections = 120 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 10 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: Subcritical Flow

FLOW DATA

Flow Title: CorrectedEffective_Flow
Flow File :
k:\AMT_WaterResources\112243004_ElmSt_NoRise\Models\HEC-RAS\ElmSt_NoRise_rev1.f05

Flow Data (cfs)

River	Reach	RS	10-yr	50-yr	100-yr	500-yr
RIVER-1	Reach-1	148266	62900	93700	109000	146000

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
RIVER-1	Reach-1	10-yr	Known WS = 50.01	
RIVER-1	Reach-1	50-yr	Known WS = 53.5	
RIVER-1	Reach-1	100-yr	Known WS = 55.01	
RIVER-1	Reach-1	500-yr	Known WS = 59.19	

GEOMETRY DATA

Geometry Title: CorrectedEffective_Geometry
Geometry File :
k:\AMT_WaterResources\112243004_ElmSt_NoRise\Models\HEC-RAS\ElmSt_NoRise_rev1.g06

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 148266

INPUT
Description: X-147996 IS THE US FACE DTM STATION OF OLD RT 363 BRIDGE
X1147996
25 1070 1550 35 35 35
USGS GAGE #01473193
(CREST GAGE) AT PORT KENNEDY IS LOCATED 200 FT
UPSTREAM OF
BETZWOOD HIGHWAY BRIDGE. 200 FT ADDED TO THE UPSTREAM
FACE
STATION OF 147996 RESULTS IN A STATION OF 148196, HOWEVER,
THE WSEL AT

X-148266 WILL BE ASSUMED APPLICABLE TO THE GAGE.

Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	102.2	1060	91	1100	91	1110	91	1150	91
1210	91	1320	91	1360	91	1390	91	1499.9	91
1500	71.3	1550	71.5	1660	68.1	1690	67	1700	65.5
1730	57.9	1800	54	1810	53.9	1840	54.4	1890	52.1
1930	52.1	1980	53	2020	51.6	2100	54.6	2130	54.1
2180	58.6	2210	70.4	2220	72.6	2270	81.1	2360	84.6
2380	84	2440	86.6	2450	86.5	2450.1	99	2580	99
2590	99	2650	99	2680	99	2700	99	2740	99
2790	99	2800	99	2801	99				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1700	.032	2220	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1700	2220	288	288	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 147996

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
572.4	109	572.5	88.7	662.5	88.2	747.5	89.54	747.6	88.07
747.7	68.17	773.5	59.38	788.5	57.38	842.5	53.58	880.4	53.7
880.5	91.3	887.5	91.3	887.6	53.78	890.5	53.78	907.5	55.78
929.5	52.18	1006.5	51.38	1010	51.61	1015.4	52	1015.5	94.6
1022.8	94.6	1022.9	52.6	1036.5	53.38	1057.5	50.48	1089.5	50.38
1159.7	55.38	1159.8	97.9	1165.8	97.9	1165.9	54.9	1185.5	52.98
1238.5	55.58	1246.5	59.38	1270.8	74	1297.7	93.97	1297.8	101.17
1297.9	102.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
572.4	.07	747.7	.032	1270.8	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
747.7	1270.8	17	17	.3	.5

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 147978.5

INPUT
Description: Bridge #10X-147961 IS THE DS FACE DTM STATION OF OLD RT 363
BRIDGE
X1147961 25 1060 1540 54 54
54
OLD RT 363 BRIDGE
HELICOPTER FLIGHT PHOTO #38

Distance from Upstream XS = .1
Deck/Roadway Width = 16.8
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 10

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
747.5	89.54	89.54	747.6	89.54	88.07	880.5	92.8	91.3
887.5	92.8	91.3	1015.5	96.1	94.6	1022.8	96.1	94.6
1159.8	99.3	97.9	1165.8	99.3	97.9	1297.8	102.6	101.17
1297.9	102.6	102.6						

Upstream Bridge Cross Section Data
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
572.4	109	572.5	88.7	662.5	88.2	747.5	89.54	747.6	88.07
747.7	68.17	773.5	59.38	788.5	57.38	842.5	53.58	880.4	53.7
880.5	91.3	887.5	91.3	887.6	53.78	890.5	53.78	907.5	55.78
929.5	52.18	1006.5	51.38	1010	51.61	1015.4	52	1015.5	94.6
1022.8	94.6	1022.9	52.6	1036.5	53.38	1057.5	50.48	1089.5	50.38
1159.7	55.38	1159.8	97.9	1165.8	97.9	1165.9	54.9	1185.5	52.98
1238.5	55.58	1246.5	59.38	1270.8	74	1297.7	93.97	1297.8	101.17
1297.9	102.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
572.4	.07	747.7	.032	1270.8	.07

Bank Sta: Left Right Coeff Contr. Expan.
747.7 1270.8 .3 .5

Downstream Deck/Roadway Coordinates
num= 10

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
747.5	89.54	89.54	747.6	89.54	88.07	880.5	92.8	91.3
887.5	92.8	91.3	1015.5	96.1	94.6	1022.8	96.1	94.6
1159.8	99.3	97.9	1165.8	99.3	97.9	1297.8	102.6	101.17
1297.9	102.6	102.6						

```
Downstream Bridge Cross Section Data
Station Elevation Data    num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   572.4     109   572.5    88.7   662.5    88.2   747.5   89.54   747.6   88.07
   747.7   68.17   773.5   59.38   788.5   57.38   842.5   53.58   880.4    53.7
   880.5    91.3   887.5    91.3   887.6   53.78   890.5   53.78   907.5   55.78
   929.5   52.18  1006.5   51.38    1010   51.61  1015.4      52  1015.5    94.6
  1022.8    94.6  1022.9    52.6  1036.5   53.38  1057.5   50.48  1089.5   50.38
  1159.7   55.38  1159.8    97.9  1165.8    97.9  1165.9    54.9  1185.5   52.98
  1238.5   55.58  1246.5   59.38  1270.8      74  1297.7   93.97  1297.8  101.17
  1297.9   102.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   572.4     .07   747.7    .032  1270.8     .07

Bank Sta: Left   Right    Coeff Contr.   Expan.
         747.7  1270.8             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 147961

INPUT
```

Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
572.4	109	572.5	88.7	662.5	88.2	747.5	89.54	747.6	88.07
747.7	68.17	773.5	59.38	788.5	57.38	842.5	53.58	880.4	53.7
880.5	91.3	887.5	91.3	887.6	53.78	890.5	53.78	907.5	55.78
929.5	52.18	1006.5	51.38	1010	51.61	1015.4	52	1015.5	94.6
1022.8	94.6	1022.9	52.6	1036.5	53.38	1057.5	50.48	1089.5	50.38
1159.7	55.38	1159.8	97.9	1165.8	97.9	1165.9	54.9	1185.5	52.98
1238.5	55.58	1246.5	59.38	1270.8	74	1297.7	93.97	1297.8	101.17
1297.9	102.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
572.4	.07	747.7	.032	1270.8	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
747.7	1270.8	54	54	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 147907

INPUT
Description: X-147855 IS THE US FACE DTM STATION OF NEW RT 363 BRIDGE
X1147855

32	1150	1700	78	78	78

Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1660	95.8	1661	95.8	1700	91.1	1740	86.3	1790	72.5
1810	70.6	1840	59	1920	53	1960	54.2	2030	51.1
2070	52.6	2110	50.9	2190	54.3	2200	54.3	2210	54.2
2220	54.2	2260	56.7	2270	59.9	2290	70.1	2300	72.3
2310	72.5	2320	74.2	2340	89	2350	91.5	2380	92.4
2390	92.2	2420	86.4	2430	85.9	2440	85.9	2460	86.6
2470	86.4	2480	87.1	2490	91.5	2510	104.2	2520	107.4
2630	113.9	2640	114.3	2690	112.2	2732	114		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1660	.07	1810	.032	2300	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1810	2300	60	60	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 147855

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
816.8	105	816.9	87.5	878	72.5	904.8	71	904.9	105.5
908.8	104.6	908.9	71	910	70.8	935	66.8	948.5	59.4
963	55.2	1009.5	52.2	1009.6	65	1009.8	65	1009.9	105.1
1013.8	105.2	1013.9	65	1014	65	1015	51.8	1028.5	51
1054.5	55.7	1085.5	51.1	1106.5	53.7	1124.5	53.2	1145.5	49.6
1149.5	50	1149.6	65	1149.8	65	1149.9	106	1153.8	106
1153.9	65	1154	65	1155	51.4	1162.5	52.6	1223.5	50.6
1289.5	53.4	1289.6	65	1289.8	65	1289.9	106.8	1293.8	106.8
1293.9	65	1294	65	1295	53.8	1356.5	56.4	1371.5	59.4
1394.8	74.5	1394.9	107.4	1398.8	108.4	1398.9	108.4	1430	108.4
1475	108.7	1482.8	108.9	1482.9	108.9	1486.8	108.9	1486.9	83.5
1530	83.5	1531	84.5	1550	84.5	1569.9	92.2	1570	109.4
1573.9	112.4	1574	93.8	1622.8	112.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
816.8	.07	910	.032	1394.8	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
910	1394.8	70	70	.3	.5

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 147816

INPUT
Description: Bridge #9X-147777 IS THE DS FACE DTM STATION OF NEW RT 363
BRIDGE
X1147777 31 1200 1710 309 309 309
RT
422 (NEW RT 363) BRIDGE
HELICOPTER FLIGHT PHOTO #37

Distance from Upstream XS = .1
Deck/Roadway Width = 69.8
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord

816.8	115	104.6	1622.8	115	104.6

Upstream Bridge Cross Section Data

Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
816.8	105	816.9	87.5	878	72.5	904.8	71	904.9	105.5
908.8	104.6	908.9	71	910	70.8	935	66.8	948.5	59.4
963	55.2	1009.5	52.2	1009.6	65	1009.8	65	1009.9	105.1
1013.8	105.2	1013.9	65	1014	65	1015	51.8	1028.5	51
1054.5	55.7	1085.5	51.1	1106.5	53.7	1124.5	53.2	1145.5	49.6
1149.5	50	1149.6	65	1149.8	65	1149.9	106	1153.8	106
1153.9	65	1154	65	1155	51.4	1162.5	52.6	1223.5	50.6
1289.5	53.4	1289.6	65	1289.8	65	1289.9	106.8	1293.8	106.8
1293.9	65	1294	65	1295	53.8	1356.5	56.4	1371.5	59.4
1394.8	74.5	1394.9	107.4	1398.8	108.4	1398.9	108.4	1430	108.4
1475	108.7	1482.8	108.9	1482.9	108.9	1486.8	108.9	1486.9	83.5
1530	83.5	1531	84.5	1550	84.5	1569.9	92.2	1570	109.4
1573.9	112.4	1574	93.8	1622.8	112.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
816.8	.07	910	.032	1394.8	.07

Bank Sta: Left	Right	Coeff Contr.	Expan.
910	1394.8	.3	.5

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
816.8	115	104.6	1622.8	115	104.6

Downstream Bridge Cross Section Data

Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
816.8	105	816.9	87.5	878	72.5	904.8	71	904.9	105.5
908.8	104.6	908.9	71	910	70.8	935	66.8	948.5	59.4
963	55.2	1009.5	52.2	1009.6	65	1009.8	65	1009.9	105.1
1013.8	105.2	1013.9	65	1014	65	1015	51.8	1028.5	51
1054.5	55.7	1085.5	51.1	1106.5	53.7	1124.5	53.2	1145.5	49.6
1149.5	50	1149.6	65	1149.8	65	1149.9	106	1153.8	106
1153.9	65	1154	65	1155	51.4	1162.5	52.6	1223.5	50.6
1289.5	53.4	1289.6	65	1289.8	65	1289.9	106.8	1293.8	106.8
1293.9	65	1294	65	1295	53.8	1356.5	56.4	1371.5	59.4
1394.8	74.5	1394.9	107.4	1398.8	108.4	1398.9	108.4	1430	108.4
1475	108.7	1482.8	108.9	1482.9	108.9	1486.8	108.9	1486.9	83.5
1530	83.5	1531	84.5	1550	84.5	1569.9	92.2	1570	109.4
1573.9	112.4	1574	93.8	1622.8	112.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
   816.8     .07     910    .032  1394.8     .07

Bank Sta: Left   Right    Coeff Contr.   Expan.
           910  1394.8             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =     115
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 147777

INPUT
Description:
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   816.8     105   816.9    87.5     878    72.5   904.8      71   904.9   105.5
   908.8   104.6   908.9      71     910    70.8     935    66.8   948.5    59.4
     963    55.2  1009.5    52.2  1009.6      65  1009.8      65  1009.9   105.1
  1013.8   105.2  1013.9      65    1014      65    1015    51.8  1028.5      51
  1054.5    55.7  1085.5    51.1  1106.5    53.7  1124.5    53.2  1145.5    49.6
  1149.5      50  1149.6      65  1149.8      65  1149.9     106  1153.8     106
  1153.9      65    1154      65    1155    51.4  1162.5    52.6  1223.5    50.6
  1289.5    53.4  1289.6      65  1289.8      65  1289.9   106.8  1293.8   106.8
  1293.9      65    1294      65    1295    53.8  1356.5    56.4  1371.5    59.4
  1394.8    74.5  1394.9   107.4  1398.8   108.4  1398.9   108.4    1430   108.4
    1475   108.7  1482.8   108.9  1482.9   108.9  1486.8   108.9  1486.9    83.5
```

```
    1530    83.5    1531    84.5    1550    84.5  1569.9    92.2    1570   109.4
  1573.9   112.4    1574    93.8  1622.8   112.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   816.8     .07     910    .032  1394.8     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           910  1394.8              309     309     309             .3       .5

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 147468

INPUT
Description:
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   112.9    1030     103    1060      98    1070      98    1080      98
    1100      98    1110      98    1130      98    1140      98    1250      98
    1270      98    1380      98    1400      98    1430      98    1530      98
    1590      98    1640      98    1700      98  1769.9      98    1770      78
    1830    78.3    1940    72.5    1950    70.5    1970    60.6    1980    57.6
    2090    52.7    2120    52.6    2170    50.4    2180    50.5    2230    51.1
    2240    51.1    2250      51    2270      51    2350    53.1    2370    53.3
    2410    54.8    2420    56.4    2444      68    2470    80.9    2480    84.5
    2510    86.5    2520    86.5    2540    84.7    2550    86.4    2620   119.2
    2722     125

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1950    .032    2444     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1950    2444              632     632     632             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 146836

INPUT
Description:
Station Elevation Data    num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   115.1    1010   111.3    1120    90.7    1170    87.4    1190    87.2
    1300      82    1410    78.2    1430    78.2    1450    78.4    1490    78.5
```

```
    1600    75.4    1620      75    1690    75.5    1800    71.5    1810    71.4
    1830    71.6    1840    71.6    1930    66.7    1980    71.7    2007      68
    2090    56.7    2200    52.6    2270    50.3    2380    52.7    2450    56.4
    2460    57.9    2483      68    2520    83.5    2530    85.6    2560    86.8
    2620      99    2730     103    2840   110.9    2892   113.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    2007    .032    2483     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2007    2483              575     575     575             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 146261

INPUT
Description:
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000    99.8    1010    94.4    1020      94    1050      94    1060      94
    1080      94    1100      94    1140      94    1250      94    1350      94
    1460      94  1569.9      94    1570    74.4    1670    72.3    1780    71.1
    1800      71    1890    69.7    1900    67.2    1920    58.1    1930      55
    1970    52.4    2000    52.7    2040    52.7    2110    50.3    2220    52.3
    2300      58    2348      70    2410    85.4    2450    87.4    2490    95.6
    2550      97    2590    97.2    2700   101.7    2810   109.4    2896   116.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1890    .032    2348     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1890    2348              543     543     543             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 145718

INPUT
Description: FROM FILE SCT021.DAT

Station Elevation Data    num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000    97.5    1030      95    1040      95    1070      95    1080      95
```

```
    1100      95    1210      95  1449.9      95    1450    74.5    1490    73.8
    1500    72.4    1520      68    1530    67.8    1550      68    1600    67.9
    1630    65.6    1650    69.7    1700    70.2    1750    70.1    1770    69.3
    1780    67.8    1810    55.6    1850    52.8    1920    52.5    2000    50.4
    2100    50.5    2190    58.3    2210    66.2    2220    68.1    2270    71.9
    2280      72    2282      72    2302      76    2322      80    2382      88
    2402      92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1780    .032    2220     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1780    2220              396     396     396             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 145322

INPUT
Description:
Station Elevation Data    num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     370      93     371      93     372      93     373      93     390      93
     420      93   769.9      93     770      73     840      72     920      68
    1000    70.1    1020    70.2    1080    68.7    1090    66.2    1100    60.3
    1110    55.9    1170    52.9    1220    52.5    1330    50.5    1430    48.8
    1450    48.8    1480    49.6    1530    59.2    1560    69.4    1630    73.5
    1680    85.7    1700    86.4    1710    86.4    1720      87    1830     104
    1911   110.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     370     .07    1080    .032    1560     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1080    1560             1199    1199    1199             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 144123

INPUT
Description:
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

1000	139.6	1100	98.6	1110	92.7	1120	90.1	1230	83.5
1330	75	1350	75.1	1460	77.1	1520	76.9	1530	77
1540	76.9	1550	76.9	1660	74.7	1700	72.1	1710	72.1
1730	72.3	1740	72.4	1770	69.7	1790	60.6	1800	57.5
1910	54.4	1960	53.4	2040	53.3	2060	53	2070	53.1
2130	54.5	2220	52.5	2330	57	2340	58.5	2350	62.2
2360	64.7	2440	70.8	2470	81.7	2480	84	2510	84.7
2520	84.6	2610	80	2630	80	2660	90.8	2670	92.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1770	.032	2360	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1770	2360	899	899	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 143224

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	126.2	1050	107.5	1060	102.4	1080	89.5	1090	85.3
1200	73.2	1310	69.1	1370	67.7	1450	67.5	1520	66.5
1630	66.4	1650	66.3	1660	66.8	1770	59.9	1800	55.7
1910	52.8	1980	51.2	2090	51.3	2180	57.1	2230	65
2280	68.1	2360	83.8	2370	84.4	2400	84.5	2410	84.3
2420	84.7	2450	90	2460	89.6	2470	87.7	2480	88.5
2500	97.8	2510	100.1	2570	101.9	2582	108.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1660	.032	2230	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1660	2230	972	972	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 142252

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	125	1070	115.7	1150	83.2	1220	69.7	1280	67.5
1310	67.5	1410	69.3	1510	67.4	1620	67.3	1660	67.3
1770	65.7	1790	65.7	1800	65.8	1810	64.9	1850	55.6
1890	51.5	1920	51.6	1960	52.2	2000	52.3	2110	50.5
2150	50	2170	49.9	2250	52.2	2290	58.7	2310	66.5
2340	68.1	2380	81.9	2390	84.1	2400	84.1	2410	83.7
2440	83.8	2550	92.6	2590	100.5	2600	100.7	2610	100.4
2720	105.8	2775	111.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1810	.032	2310	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1810	2310	947	947	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 141305

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	136.4	1110	92.8	1130	86.4	1160	80.1	1190	70.6
1230	68.5	1320	68.4	1330	68.5	1440	68.1	1530	67.7
1570	66.7	1610	66.5	1690	65	1700	62.4	1710	58.8
1720	56.4	1770	51.9	1800	51.8	1840	52.3	1950	52.4
2060	52.2	2160	51.8	2240	57.7	2250	60.1	2280	77.6
2290	81.9	2300	82.8	2310	82.7	2350	82.6	2360	82.8
2370	82.8	2400	82.1	2410	82	2430	82.4	2440	82.2
2460	83.2	2470	84.7	2540	105.9	2550	107.7	2570	107.7
2621	109								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1690	.032	2280	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1690	2280	990	990	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 140315

INPUT
Description: FROM FILE SCT020.DAT

Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	110.2	1110	75.8	1140	69.2	1220	64.6	1310	64.4
1420	69.3	1430	69.7	1490	67.8	1500	66.4	1520	58.8
1610	52.7	1650	53.7	1760	53.8	1810	53.8	1840	53.5
1950	53.4	1990	53.4	2030	52.8	2060	52.9	2120	59.6
2166	75	2180	79.7	2290	83.1	2300	83.2	2360	82
2390	82.2	2420	81.7	2430	81.6	2450	82.7	2460	82.1
2470	82.2	2510	84.2	2620	96.6	2681	102.5		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1500	.032	2166	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1500	2166	1200	1069	900	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 139246

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	115.5	1040	117	1150	105.6	1230	91	1250	84
1360	70.1	1380	66.8	1390	66.4	1440	66.6	1450	66
1460	62.6	1470	57.4	1480	54.1	1490	52.2	1500	52
1610	55.8	1720	55.5	1830	55.5	1920	55.3	2010	54.2
2120	54	2150	54.1	2250	66.7	2260	69	2270	69.1
2280	68.9	2290	68.9	2390	72.6	2400	72.6	2430	72
2500	77.9	2550	78	2580	78.3	2590	78.4	2610	76.8
2710	81.1	2790	80.8	2870	74	2880	76.1	2910	88.4
2920	89.4	3010	89	3120	91.5	3200	93.6	3276	104.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1450	.032	2260	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1450	2260	950	927	850	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 138319

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	111.5	1110	96.7	1220	83.1	1280	65.7	1290	65.1
1340	65	1370	64.6	1460	52.3	1470	52.2	1500	52.4
1540	53	1560	53	1640	52.2	1670	52	1700	51.7
1750	51.7	1860	53.5	1940	57.9	1960	62.4	1970	65.5
2020	70.9	2060	86.6	2070	88.2	2150	84.2	2190	84.3
2300	86.2	2340	86.8	2350	86.7	2420	85.4	2440	85.3
2520	87.4	2530	86.6	2560	80.5	2570	80.5	2650	80.5
2760	80.1	2860	80.1	2930	80.7	2940	80.8	2990	81
3000	82	3020	83	3030	83.2	3040	82.1	3050	82.3
3070	88	3080	89.4	3140	92.4	3150	92.4	3200	94
3240	94.1	3290	97.5	3337	95.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1370	.032	1960	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1370	1960	1140	1140	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 137179

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	108.5	1100	103.6	1110	101.7	1160	83.1	1170	82.8
1190	83.9	1220	82.7	1313	65	1330	61.9	1360	55.5
1450	51	1540	50.6	1640	52.2	1690	52.3	1780	53.2
1860	53.1	1950	62.7	1960	65.1	2000	84.3	2010	87
2100	81.9	2200	82.2	2280	83.1	2380	83.7	2470	86.8
2480	86.8	2490	85.1	2520	79.3	2530	79.3	2640	79.3
2660	79.7	2670	79.7	2680	79.6	2700	79.5	2720	79.7
2830	80	2870	80.1	2920	81.2	2930	80.5	2960	80
2970	80	2990	80.7	3000	83.8	3029	98.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1313	.032	1960	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1313 1960 632 632 632 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 136547

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	106.3	1060	100.6	1110	101.8	1120	100.3	1180	82
1200	78.8	1260	62.6	1285	60.5	1310	58.5	1370	51.3
1480	51.2	1500	51.1	1590	53.2	1610	56.4	1630	53.2
1640	52.9	1750	52.8	1850	52.8	1910	58	1930	63.1
1980	85.5	1990	86.5	2060	84.4	2070	84.5	2180	86.2
2260	88.7	2340	88.3	2450	85.9	2460	85.7	2530	87
2540	87.1	2590	78.8	2670	78.8	2780	78.8	2860	78.3
2870	78.2	2890	78.8	2976	113				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1285	.032	1930	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1285 1930 582 582 582 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 135965

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1219	100	1220	76.9	1290	76.9	1350	76.9	1360	76.9
1400	76.9	1410	77.8	1420	73.4	1460	62.2	1570	55.4
1630	51.1	1640	51.1	1660	51.3	1770	51.3	1820	52.2
1840	52.2	1870	52.5	1980	52.1	2020	52.3	2110	56.7
2120	58.8	2170	64.3	2210	85.3	2220	86.4	2260	84.8
2340	84.7	2370	85.1	2440	85.6	2520	84.2	2620	84
2640	83.8	2740	83.7	2830	86.4	2840	85.4	2880	77.5
2890	77.5	3000	77.5	3030	78.1	3040	78.1	3110	78.1
3120	78.1	3230	86	3240	86	3302	88.4		

Manning's n Values num= 3

```
     Sta   n Val     Sta   n Val     Sta   n Val
    1219     .07    1460    .032    2170     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1460    2170              656     656     656             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 135309

INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   105.7    1040    97.6    1060      99    1070      99    1100      96
    1150    81.3    1160    80.2    1180    81.4    1190      80    1247      66
    1280    57.8    1380    50.5    1490    50.5    1600    50.8    1660    51.3
    1770    54.4    1860      66    1870      66    1960    64.3    2070    64.5
    2160    63.8    2270    66.7    2370    72.8    2460      73    2560    74.4
    2570    74.5    2660    77.3    2760    77.4    2780    76.3    2890    79.5
    2950    81.6  2950.1      99    3150      99    3160      99    3240      99
    3260      99    3315      99

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1247    .032    1860     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1247    1860              700     675     580             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 134634

INPUT
Description: FROM FILE SCT019.DAT

Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   113.1    1080   109.1    1090   106.9    1130    85.7    1140    82.5
    1160    81.8    1170      77    1180    69.7    1190    66.7    1200    65.8
    1210    63.6    1220    59.6    1230    56.8    1340    50.1    1370    49.7
    1460    49.5    1490    49.8    1500    49.9    1610    51.6    1720    56.1
    1750    60.2    1770    64.7    1780      65    1890    60.7    1900    60.7
    2010    63.4    2120    66.5    2230    69.2    2340      72    2450    77.5
    2490    78.8    2570    75.7    2580    77.7    2590    81.7    2600    83.3
```

```
    2710    87.1    2820    91.6    2930    96.2    3040   100.9    3080   102.7
    3090   102.8    3096   102.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1200    .032    1770     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1200    1770              907     907     907             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 133727

INPUT
Description:
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   102.5    1110   102.5    1190   104.8    1200   103.7    1210   100.4
    1240    87.4    1250    84.9    1260      84    1280    84.5    1320    80.5
    1350      81    1360    80.6    1410    64.4    1440      63    1470    56.8
    1580    50.5    1630    49.8    1690    49.9    1740    50.7    1760    50.8
    1860      52    1940    52.6    2040    58.2    2080    65.9    2090    65.8
    2110    64.5    2220    70.5    2240    72.7    2250    72.7    2330    69.7
    2410    70.9    2500    71.4    2610    79.7    2620    79.8    2640    79.8
    2660    80.2    2670    80.2    2720    77.3    2730    77.3    2750    81.4
    2860    88.5    2970    93.9    3010    94.9    3020    94.9    3030    94.6
    3040    94.5    3090    95.3    3130    95.4    3154    95.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1440    .032    2080     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1440    2080             1020    1020    1020             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 132707

INPUT
Description:
Station Elevation Data    num=      47
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   113.6    1010   113.5    1020   113.4    1050   112.2    1070   113.4
    1150   104.3    1160   101.7    1210    81.5    1220    81.6    1230    81.6
```

1240	81.8	1250	81.8	1260	80.4	1290	67.1	1300	64.4
1330	60.8	1340	58.3	1430	52.9	1490	52.9	1530	53.4
1640	53.9	1750	53.8	1800	53.4	1840	53.8	1890	52.8
2000	52.5	2070	52.5	2160	56.9	2210	67.4	2230	68.6
2340	66.8	2350	66.7	2460	72.2	2530	74	2550	73.9
2620	79.8	2630	79.7	2650	79.9	2680	80	2710	78.6
2740	83.2	2780	82.4	2790	82.4	2900	86.4	3010	95.8
3120	105.1	3200	112.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1290	.032	2210	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1290	2210	642	642	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 132065

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	110.4	1110	102.7	1220	93.8	1230	92.9	1250	88.3
1260	84.9	1310	82.4	1320	79.1	1350	65.4	1360	64
1390	63	1470	54.2	1510	54.1	1620	55.9	1640	56.1
1710	56	1820	54.3	1890	53.4	2000	53	2110	52.9
2220	52.3	2330	51.5	2350	51.5	2430	53.8	2440	55.8
2460	62.4	2470	64.2	2580	67.9	2690	71.6	2800	79.2
2810	79.7	2820	79.8	2840	79.5	2870	80.1	2880	80.2
2910	81	2920	81.3	2970	83.1	2980	82.8	3090	87.5
3200	98.1	3310	113	3338	116.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1390	.032	2460	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1390	2460	767	767	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 131298

INPUT

Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	117.7	1030	115.4	1040	112.7	1080	86.5	1090	84.8
1140	83.2	1150	78.8	1170	65.5	1180	63.6	1200	61.3
1210	58.2	1270	54.2	1320	54.5	1400	55.3	1440	55.5
1490	53.9	1540	54	1580	53.1	1620	53	1670	54.9
1680	66.7	1800	65	1900	66	2000	65	2120	66.7
2121	66.7	2122	66.7	2180	53.1	2220	53	2260	53.9
2270	53.8	2330	51.6	2370	51.5	2450	56.2	2470	60.7
2480	64.4	2490	67.2	2500	68.6	2510	68.5	2520	68.4
2620	72.3	2650	72.5	2760	77.7	2790	79.8	2800	79.8
2820	80.2	2840	80.3	2850	80.5	2890	78.2	3000	83.9
3110	94.4	3170	107.9	3240	113.1	3284	120.6		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1170	.035	1680	.07	2122	.035	2490	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1170	2490	692	692	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 130606

INPUT
Description:
Station Elevation Data num= 59

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	97.6	1040	88	1060	86.5	1140	89.6	1150	89.5
1260	85.1	1320	83.9	1330	81.7	1340	77.6	1360	67.3
1370	64.6	1400	62.6	1420	56.8	1470	54.2	1510	54.7
1620	55	1630	55	1740	53.3	1760	53	1790	53
1840	55	1850	57	1880	66.7	2028	65	2151	66
2274	65	2421	66.7	2422	66.7	2423	66.7	2424	66.7
2425	66.7	2460	53	2500	52.9	2590	51.5	2610	51.6
2690	57	2700	59.4	2720	66.8	2830	71.8	2860	72.7
2970	72.9	3040	73.3	3150	80.3	3170	80.7	3180	80.6
3220	79.2	3230	79.7	3240	82.7	3250	87.5	3270	94
3380	101.8	3450	105.1	3470	109.2	3480	112.2	3490	118.2
3510	137.1	3520	142.6	3530	145.9	3538	147.7		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1360	.035	1880	.07	2425	.035	2720	.06

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

1360	2720		607	607	607	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 129999

INPUT
Description: FROM FILE SCT018.DAT

Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	109.2	1010	106.9	1040	93.4	1050	90.4	1120	87.6
1130	86.2	1170	68.2	1180	65.2	1210	63	1240	55.8
1280	54.3	1290	54.2	1330	54.9	1420	54.6	1510	53
1550	53	1600	57.4	1630	67	1649	69	1664	71
1723	71	1734	73.5	1744	72.5	1768	73	1769	73
1816	72.5	1882	72	1956	71.5	2031	72	2097	72.5
2145	73	2168	72.5	2179	73.5	2190	71	2249	71
2264	69	2283	67	2284	67	2285	67	2286	67
2330	53	2370	53	2410	53.9	2420	53.9	2480	51.6
2530	51.6	2600	53.6	2610	55.1	2620	58.3	2640	66.3
2700	68.2	2710	68.3	2820	70.6	2930	77.3	2960	78.8
2990	78.9	3010	79.5	3020	79.4	3040	79.3	3060	79.7
3080	79.2	3090	79.4	3100	81	3130	101.9	3140	103
3150	103	3200	102	3210	102	3270	104.6	3280	106.8
3290	110.2	3300	115.4	3313	126.8				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1180	.035	1630	.07	2286	.035	2640	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1180	2640	447	447	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 129552

INPUT
Description:
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	90.8	1080	88	1090	85.7	1100	80.6	1156	65
1180	58.5	1250	54.3	1270	55.1	1330	53.1	1340	53.1
1360	53.4	1370	53.5	1380	53.6	1410	53.5	1440	52.4
1450	52.4	1480	53.4	1500	53.2	1520	53	1540	54.1

1570	67	1592	69	1608	71	1650	71	1650.1	91
1700	91	1726	91	1780	91	1856	91	1919.9	91
1920	71	1940	70.5	2024	72	2099	72.5	2153	73
2180	72.5	2192	73.5	2204	71	2271	71	2288	69
2309	67	2310	67	2311	67	2312	67	2360	53
2410	53.9	2450	53	2560	53	2590	52.9	2690	58.5
2710	61.6	2820	66.5	2930	73.8	2990	78.8	3000	78.8
3010	77.8	3020	79	3060	75.9	3090	77.2	3100	84
3138	88								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1156	.035	1570	.05	2312	.035	2710	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1156	2710	580	544	320	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 129008

INPUT
Description: X-128834 IS THE US FACE DTM STATION OF HAWS AVE BRIDGE
X1128834
36 1080 2747 39 39 39

Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	104	1080	93.2	1140	91.4	1150	89.2	1180	74.5
1190	71.8	1250	65.4	1270	59.2	1340	54.3	1360	54.8
1400	53.3	1420	53.2	1440	53.6	1450	53.6	1490	52.4
1500	52.4	1530	53.4	1550	53.3	1570	53	1580	53
1627	61.5	1628	61.5	1629	61.5	1630	61.5	1641	73.5
1674	75	1690	75.5	1690.1	96	1818	96	1831	96
1874	96	1892	96	1985	96	2058	96	2070	96
2082	96	2094	96	2219.9	96	2220	73.2	2272	73
2290	72	2333	71.5	2346	76.5	2388	76.5	2448	76
2490	75	2523	73.5	2534	61.5	2535	61.5	2560	53.1
2570	53.1	2610	53.9	2620	53.9	2650	53	2760	52.9
2780	52.8	2890	59.4	2937	65	3000	72.5	3100	79.2
3120	79.2	3130	78.9	3140	78.9	3150	82.9	3155	85.6
3185	100								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1250	.035	1627	.05	2535	.035	2937	.06

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

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          1250    2937              188     188     188             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 128834

INPUT
Description: This is a REPEATED section.

Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     190      90   249.2   78.24   389.2   78.24   389.3   60.57  400.25   60.57
  400.35    60.1   401.2    55.6   464.2      51   464.3    74.8   469.7    74.8
   469.8    50.7   544.7    50.4   544.8    74.8   550.2    74.8   550.3    50.4
   625.2    50.4   625.3    74.8   630.7    74.8   630.8    50.4   705.7    50.3
   705.8    74.8   711.2    74.8   711.3   50.25   739.8    60.1   741.2    60.6
   787.1    67.9   787.2   78.24     870    77.2     900    76.5     906    76.5
     907    76.5     908    76.5     910    76.5     931    76.5   931.1      97
    1017      97    1036      97    1137      97    1138      97    1139      97
    1217      97    1229      97    1243      97    1257      97  1410.9      97
    1411    73.2    1450      73    1469      72    1516    71.5    1531    76.5
    1576    76.5    1642      76    1687      75    1723    73.5    1735    61.5
    1736    61.5    1737    61.5    1738    61.5    1781      53    1821    53.8
    1831    53.9    1861      53    1971    52.9    1981    52.8    2091    59.7
    2150      68    2201    75.2    2271    79.7    2281    82.8    2311      95
    2331   100.3    2341   106.7

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     190     .06   389.2    .035   705.8     .05    1738    .035    2150     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         389.2    2150               25      25      25             .1       .3

BRIDGE


RIVER: RIVER-1
REACH: Reach-1            RS: 128814.5

INPUT
Description: Bridge #8X-128795 IS THE DS FACE DTM STATION OF HAWS AVE
             BRIDGE
X1128795    33    1090    2760     157     157
             157
HAWES AVE (BARBADOES ISLAND) BRIDGE
HELICOPTER FLIGHT PHOTO
             #36
```

Distance from Upstream XS = .1
Deck/Roadway Width = 24.8
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
389.2	78.24	78.24	389.3	78.24	74.8	787.1	78.24	74.8
787.2	78.24	78.24						

Upstream Bridge Cross Section Data
Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
190	90	249.2	78.24	389.2	78.24	389.3	60.57	400.25	60.57
400.35	60.1	401.2	55.6	464.2	51	464.3	74.8	469.7	74.8
469.8	50.7	544.7	50.4	544.8	74.8	550.2	74.8	550.3	50.4
625.2	50.4	625.3	74.8	630.7	74.8	630.8	50.4	705.7	50.3
705.8	74.8	711.2	74.8	711.3	50.25	739.8	60.1	741.2	60.6
787.1	67.9	787.2	78.24	870	77.2	900	76.5	906	76.5
907	76.5	908	76.5	910	76.5	931	76.5	931.1	97
1017	97	1036	97	1137	97	1138	97	1139	97
1217	97	1229	97	1243	97	1257	97	1410.9	97
1411	73.2	1450	73	1469	72	1516	71.5	1531	76.5
1576	76.5	1642	76	1687	75	1723	73.5	1735	61.5
1736	61.5	1737	61.5	1738	61.5	1781	53	1821	53.8
1831	53.9	1861	53	1971	52.9	1981	52.8	2091	59.7
2150	68	2201	75.2	2271	79.7	2281	82.8	2311	95
2331	100.3	2341	106.7						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
190	.06	389.2	.035	705.8	.05	1738	.035	2150	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
389.2	2150	.1	.3

Downstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
389.2	78.24	78.24	389.3	78.24	74.8	787.1	78.24	74.8
787.2	78.24	78.24						

Downstream Bridge Cross Section Data
Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
190	90	249.2	78.24	389.2	78.24	389.3	60.57	400.25	60.57
400.35	60.1	401.2	55.6	464.2	51	464.3	74.8	469.7	74.8
469.8	50.7	544.7	50.4	544.8	74.8	550.2	74.8	550.3	50.4
625.2	50.4	625.3	74.8	630.7	74.8	630.8	50.4	705.7	50.3
705.8	74.8	711.2	74.8	711.3	50.25	739.8	60.1	741.2	60.6

```
   787.1    67.9   787.2   78.24     870    77.2     900    76.5     906    76.5
     907    76.5     908    76.5     910    76.5     931    76.5   931.1      97
    1017      97    1036      97    1137      97    1138      97    1139      97
    1217      97    1229      97    1243      97    1257      97  1410.9      97
    1411    73.2    1450      73    1469      72    1516    71.5    1531    76.5
    1576    76.5    1642      76    1687      75    1723    73.5    1735    61.5
    1736    61.5    1737    61.5    1738    61.5    1781      53    1821    53.8
    1831    53.9    1861      53    1971    52.9    1981    52.8    2091    59.7
    2150      68    2201    75.2    2271    79.7    2281    82.8    2311      95
    2331   100.3    2341   106.7

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     190     .06   389.2    .035   705.8     .05    1738    .035    2150     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         389.2    2150             .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 128795

INPUT
Description:
```

Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
190	90	249.2	78.24	389.2	78.24	389.3	60.57	400.25	60.57
400.35	60.1	401.2	55.6	464.2	51	464.3	74.8	469.7	74.8
469.8	50.7	544.7	50.4	544.8	74.8	550.2	74.8	550.3	50.4
625.2	50.4	625.3	74.8	630.7	74.8	630.8	50.4	705.7	50.3
705.8	74.8	711.2	74.8	711.3	50.25	739.8	60.1	741.2	60.6
787.1	67.9	787.2	78.24	870	77.2	900	76.5	906	76.5
907	76.5	908	76.5	910	76.5	931	76.5	931.1	97
1017	97	1036	97	1137	97	1138	97	1139	97
1217	97	1229	97	1243	97	1257	97	1410.9	97
1411	73.2	1450	73	1469	72	1516	71.5	1531	76.5
1576	76.5	1642	76	1687	75	1723	73.5	1735	61.5
1736	61.5	1737	61.5	1738	61.5	1781	53	1821	53.8
1831	53.9	1861	53	1971	52.9	1981	52.8	2091	59.7
2150	68	2201	75.2	2271	79.7	2281	82.8	2311	95
2331	100.3	2341	106.7						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
190	.06	389.2	.035	705.8	.05	1738	.035	2150	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
389.2	2150	157	157	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 128638

INPUT
Description:
Station Elevation Data num= 62

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	102	1110	95	1220	93.2	1250	91.9	1310	69.8
1320	68	1400	63.2	1430	58.5	1500	54.4	1520	54.7
1560	53.3	1580	53.3	1610	53.8	1660	52.4	1690	53.3
1720	53.2	1740	52.9	1750	53	1790	61.5	1802	73.5
1838	75	1883	76	1949	76.5	1970	76.5	1970.1	97
2056	97	2075	97	2176	97	2177	97	2178	97
2256	97	2268	97	2282	97	2296	97	2449.9	97
2450	73.2	2489	73	2508	72	2555	71.5	2570	76.5
2615	76.5	2681	76	2726	75	2762	73.5	2774	61.5
2775	61.5	2776	61.5	2777	61.5	2820	53	2860	53.8
2870	53.9	2900	53	3010	52.9	3020	52.8	3130	59.7
3161	64	3240	75.2	3310	79.7	3320	82.8	3350	95
3370	100.3	3380	106.7						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1400	.035	1790	.05	2777	.035	3161	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1400	3161	423	423	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 128215

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	105.4	1110	100.2	1220	96.2	1300	94	1310	93.9
1320	93.6	1330	92.2	1370	82.3	1410	68.2	1420	66.8
1430	66.6	1480	66.4	1590	55.6	1610	54.5	1630	54.6
1670	53.4	1690	53.4	1730	54.1	1750	54.1	1820	52.5
1850	53.3	1880	53.2	1900	52.9	1910	53.2	1950	70.5
2025	71.5	2080	72.5	2114	71	2130	71.5	2130.1	92
2301	92	2442	92	2609.9	92	2610	73	2722	72
2770	71	2804	72.5	2859	71.5	2934	70.5	2935	70.5
2980	53	3030	53.9	3060	53	3170	52.9	3190	52.8
3300	60.6	3357	70	3410	78.6	3430	79.6	3440	79.3
3450	79.4	3490	83.1	3534	106.7				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1480	.035	1950	.05	2935	.035	3357	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1480	3357	449	449	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 127766

INPUT
Description:
Station Elevation Data num= 62

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	102	1010	102	1120	96.1	1180	96.1	1210	96.1
1220	96.1	1270	96.1	1280	96.1	1290	94	1340	73.4
1350	72.5	1390	74.6	1400	74.6	1510	72.5	1620	70
1700	67.1	1710	65.8	1730	59.2	1800	54.7	1820	54.6
1860	53.4	1880	53.5	1920	54.3	1990	52.5	2000	52.6

2030	53.4	2050	53.3	2080	52.9	2120	70.5	2197	71.5
2255	72.5	2289	71	2339	72	2440	73	2440.1	93
2639.9	93	2640	72.5	2824	73	2918	72	2968	71
3003	72.5	3060	71.5	3137	70.5	3138	70.5	3139	70.5
3180	53.2	3190	53	3230	53.8	3240	53.9	3270	53
3360	52.8	3450	57.7	3460	60	3490	73.3	3500	75.8
3610	79.2	3620	79.3	3630	79.2	3640	79.3	3650	82.4
3730	121.4	3754	129.6						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1710	.035	2120	.05	3139	.035	3490	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1710	3490	427	427	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 127339

INPUT
Description: X-127040 IS THE US FACE DTM STATION OF RR BRIDGE #35A
X1127040

28	1030	2731	16	16	16

Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	95	1010	95	1030	95	1130	95	1160	95
1170	95	1180	95	1190	95	1200	95	1220	95
1240	95	1250	94	1260	87	1270	81.6	1290	68.6
1300	67.1	1310	67.1	1320	67.2	1340	67.4	1450	72.8
1540	75.5	1560	75.4	1630	74.5	1640	74.6	1660	74.6
1730	76.1	1740	76.2	1790	72.8	1820	59.6	1830	58.3
1840	58.1	1850	58.1	1950	53.4	1960	53.5	2030	54.6
2080	54.6	2160	52.6	2170	52.5	2200	53.4	2220	53.3
2250	52.9	2300	61.5	2356	64.5	2412	67	2495	68.5
2556	71	2619	72.5	2675	76.5	2739	78	2802	76.5
2858	72.5	2922	71	2983	68.5	3065	67	3122	64.5
3177	61.5	3178	61.5	3179	61.5	3180	61.5	3181	61.5
3190	57.4	3220	53.2	3230	53.1	3270	53.9	3280	53.8
3330	52.6	3440	52.9	3520	57.1	3530	58.7	3580	74.1
3640	77	3720	76.8	3760	78.8	3780	78.1	3800	75.4
3810	78.7	3860	102.3	3892	106.6				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1790	.035	2300	.07	3181	.035	3580	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1790 3580 289 289 289 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 127040

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	94	.1	74.3	202	74.3	257	72.8	328	73.3
362	70.8	380	70.8	412	74.8	427.7	75	427.8	71.29
431.7	71.33	431.8	60.8	443.7	58.8	519.5	54.2	519.6	72.3
526.6	72.35	526.7	54.2	613.8	54.3	613.9	73.4	620.9	73.45
621	54.3	660	54.55	711.2	55.1	711.3	74.45	718.3	74.5
718.4	55.1	810.5	54	810.6	75.55	817.6	75.6	817.7	53
866.4	52.6	909.1	62.8	911.6	63.42	911.7	76.62	916	76.62
916.1	80.3	1000	80.8	1086	81.3	1403	80.8	1403.1	80.8
1760.9	79.5	1761	79.5	1907	79.5	1974	79.5	2056	79.5
2138	80	2199	80.03	2199.1	71.25	2199.2	64.3	2245.9	64.3
2246	71.2	2252	71.2	2252.1	62.3	2259	59.4	2276	58
2299.9	57.5	2300	71.1	2306	71.1	2306.1	51.6	2353.9	50.9
2354	71.05	2360	71.05	2360.1	50.9	2383	50.9	2407.9	51.9
2408	70.95	2414	70.95	2414.1	51.9	2437	51.9	2460.9	50.3
2461	70.9	2467	70.9	2467.1	50.3	2490	50.3	2512.9	50.3
2513	70.85	2519	70.85	2519.1	50.3	2539	50.8	2559.9	50.8
2560	70.8	2566	70.8	2566.1	50.8	2585	51.4	2602.9	51
2603	70.75	2609	70.75	2609.1	59.5	2612.5	60.7	2637.9	64.1
2638	70.65	2638.1	79.23	2659	78	2681	77.5	2759	77.5
2797	77.5	2814	90.5						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	431.7	.035	909.1	.08	2252.1	.035	2638	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
431.7 2638 26 26 26 .1 .3

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 127032

INPUT
Description: Bridge #7X-127024 IS THE DS FACE DTM STATION OF RR

```
             BRIDGE
X1127024    29    1030    2740      73      73
             73
CONRAIL (SEPTA/READING) RR BRIDGE
HELICOPTER FLIGHT PHOTO
             #35A

Distance from Upstream XS =      .1
Deck/Roadway Width        =    25.8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      44
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   427.7      75      75   427.8   81.41   71.29   431.7   81.45   71.33
   519.6    82.4    72.3   526.6    82.5   72.35   613.9    83.4    73.4
   620.9    83.5   73.45   711.3    84.5   74.45   718.3    84.6    74.5
   810.6    85.5   75.55   817.6    85.6    75.6   911.7    86.8   76.62
     916   86.86   76.82   916.1    80.3    80.3    1000    80.8    80.8
    1086    81.3    81.3    1403    80.8    80.8  1403.1    80.8    80.8
  1760.9    79.5    79.5    1761    79.5    79.5    1907    79.5    79.5
    1974    79.5    79.5    2056    79.5    79.5    2138      80      80
    2199   80.03   80.03  2199.1   80.03   71.25    2246      80    71.2
    2252      80    71.2    2300    79.9    71.1    2306    79.9    71.1
    2354    79.8   71.05    2360    79.8   71.05    2408    79.6   70.95
    2414    79.6   70.95    2461    79.5    70.9    2467    79.5    70.9
    2513    79.4   70.85    2519    79.4   70.85    2560    79.3    70.8
    2566    79.3    70.8    2603    79.2   70.75    2609    79.2   70.75
    2638   79.23   70.65  2638.1   79.23   79.23

Upstream Bridge Cross Section Data
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0      94      .1    74.3     202    74.3     257    72.8     328    73.3
     362    70.8     380    70.8     412    74.8   427.7      75   427.8   71.29
   431.7   71.33   431.8    60.8   443.7    58.8   519.5    54.2   519.6    72.3
   526.6   72.35   526.7    54.2   613.8    54.3   613.9    73.4   620.9   73.45
     621    54.3     660   54.55   711.2    55.1   711.3   74.45   718.3    74.5
   718.4    55.1   810.5      54   810.6   75.55   817.6    75.6   817.7      53
   866.4    52.6   909.1    62.8   911.6   63.42   911.7   76.62     916   76.62
   916.1    80.3    1000    80.8    1086    81.3    1403    80.8  1403.1    80.8
  1760.9    79.5    1761    79.5    1907    79.5    1974    79.5    2056    79.5
    2138      80    2199   80.03  2199.1   71.25  2199.2    64.3  2245.9    64.3
    2246    71.2    2252    71.2  2252.1    62.3    2259    59.4    2276      58
  2299.9    57.5    2300    71.1    2306    71.1  2306.1    51.6  2353.9    50.9
    2354   71.05    2360   71.05  2360.1    50.9    2383    50.9  2407.9    51.9
    2408   70.95    2414   70.95  2414.1    51.9    2437    51.9  2460.9    50.3
    2461    70.9    2467    70.9  2467.1    50.3    2490    50.3  2512.9    50.3
    2513   70.85    2519   70.85  2519.1    50.3    2539    50.8  2559.9    50.8
    2560    70.8    2566    70.8  2566.1    50.8    2585    51.4  2602.9      51
    2603   70.75    2609   70.75  2609.1    59.5  2612.5    60.7  2637.9    64.1
```

2638	70.65	2638.1	79.23	2659	78	2681	77.5	2759	77.5
2797	77.5	2814	90.5						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	431.7	.035	909.1	.08	2252.1	.035	2638	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
431.7	2638	.1	.3

Downstream Deck/Roadway Coordinates

num= 44

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
427.7	75	75	427.8	81.41	71.29	431.7	81.45	71.33
519.6	82.4	72.3	526.6	82.5	72.35	613.9	83.4	73.4
620.9	83.5	73.45	711.3	84.5	74.45	718.3	84.6	74.5
810.6	85.5	75.55	817.6	85.6	75.6	911.7	86.8	76.62
916	86.86	76.82	916.1	80.3	80.3	1000	80.8	80.8
1086	81.3	81.3	1403	80.8	80.8	1403.1	80.8	80.8
1760.9	79.5	79.5	1761	79.5	79.5	1907	79.5	79.5
1974	79.5	79.5	2056	79.5	79.5	2138	80	80
2199	80.03	80.03	2199.1	80.03	71.25	2246	80	71.2
2252	80	71.2	2300	79.9	71.1	2306	79.9	71.1
2354	79.8	71.05	2360	79.8	71.05	2408	79.6	70.95
2414	79.6	70.95	2461	79.5	70.9	2467	79.5	70.9
2513	79.4	70.85	2519	79.4	70.85	2560	79.3	70.8
2566	79.3	70.8	2603	79.2	70.75	2609	79.2	70.75
2638	79.23	70.65	2638.1	79.23	79.23			

Downstream Bridge Cross Section Data

Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	94	.1	74.3	202	74.3	257	72.8	328	73.3
362	70.8	380	70.8	412	74.8	427.7	75	427.8	71.29
431.7	71.33	431.8	60.8	443.7	58.8	519.5	54.2	519.6	72.3
526.6	72.35	526.7	54.2	613.8	54.3	613.9	73.4	620.9	73.45
621	54.3	660	54.55	711.2	55.1	711.3	74.45	718.3	74.5
718.4	55.1	810.5	54	810.6	75.55	817.6	75.6	817.7	53
866.4	52.6	909.1	62.8	911.6	63.42	911.7	76.62	916	76.62
916.1	80.3	1000	80.8	1086	81.3	1403	80.8	1403.1	80.8
1760.9	79.5	1761	79.5	1907	79.5	1974	79.5	2056	79.5
2138	80	2199	80.03	2199.1	71.25	2199.2	64.3	2245.9	64.3
2246	71.2	2252	71.2	2252.1	62.3	2259	59.4	2276	58
2299.9	57.5	2300	71.1	2306	71.1	2306.1	51.6	2353.9	50.9
2354	71.05	2360	71.05	2360.1	50.9	2383	50.9	2407.9	51.9
2408	70.95	2414	70.95	2414.1	51.9	2437	51.9	2460.9	50.3
2461	70.9	2467	70.9	2467.1	50.3	2490	50.3	2512.9	50.3
2513	70.85	2519	70.85	2519.1	50.3	2539	50.8	2559.9	50.8
2560	70.8	2566	70.8	2566.1	50.8	2585	51.4	2602.9	51
2603	70.75	2609	70.75	2609.1	59.5	2612.5	60.7	2637.9	64.1

```
    2638   70.65  2638.1   79.23    2659      78    2681    77.5    2759    77.5
    2797    77.5    2814    90.5

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   431.7    .035   909.1     .08  2252.1    .035    2638     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         431.7    2638             .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 127024

INPUT
Description:
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0      94      .1    74.3     202    74.3     257    72.8     328    73.3
     362    70.8     380    70.8     412    74.8   427.7      75   427.8   71.29
   431.7   71.33   431.8    60.8   443.7    58.8   519.5    54.2   519.6    72.3
   526.6   72.35   526.7    54.2   613.8    54.3   613.9    73.4   620.9   73.45
     621    54.3     660   54.55   711.2    55.1   711.3   74.45   718.3    74.5
   718.4    55.1   810.5      54   810.6   75.55   817.6    75.6   817.7      53
```

866.4	52.6	909.1	62.8	911.6	63.42	911.7	76.62	916	76.62
916.1	80.3	1000	80.8	1086	81.3	1403	80.8	1403.1	80.8
1760.9	79.5	1761	79.5	1907	79.5	1974	79.5	2056	79.5
2138	80	2199	80.03	2199.1	71.25	2199.2	64.3	2245.9	64.3
2246	71.2	2252	71.2	2252.1	62.3	2259	59.4	2276	58
2299.9	57.5	2300	71.1	2306	71.1	2306.1	51.6	2353.9	50.9
2354	71.05	2360	71.05	2360.1	50.9	2383	50.9	2407.9	51.9
2408	70.95	2414	70.95	2414.1	51.9	2437	51.9	2460.9	50.3
2461	70.9	2467	70.9	2467.1	50.3	2490	50.3	2512.9	50.3
2513	70.85	2519	70.85	2519.1	50.3	2539	50.8	2559.9	50.8
2560	70.8	2566	70.8	2566.1	50.8	2585	51.4	2602.9	51
2603	70.75	2609	70.75	2609.1	59.5	2612.5	60.7	2637.9	64.1
2638	70.65	2638.1	79.23	2659	78	2681	77.5	2759	77.5
2797	77.5	2814	90.5						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	431.7	.035	909.1	.08	2252.1	.035	2638	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
431.7	2638	73	73	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 126951

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1629.9	96	1630	76.4	1640	74	1670	72.8	1680	72.7
1720	74.4	1770	74.4	1850	73	1860	73	1930	73.7
1940	73.8	2000	71.9	2020	71.9	2100	58.6	2210	54
2230	53.5	2240	53.4	2330	54.8	2350	54.8	2430	52.7
2450	52.6	2490	53.4	2520	53.2	2540	53	2550	52.9
2600	61.5	2648	64.5	2697	67	2769	68.5	2822	71
2877	72.5	2925	76.5	2981	78	2982	78	2983	78
3036	76.5	3084	72.5	3139	71	3192	68.5	3264	67
3313	64.5	3361	61.5	3362	61.5	3363	61.5	3400	52.9
3450	53.9	3460	53.8	3510	52.5	3520	52.5	3550	52.9
3620	52.9	3700	57.1	3710	58.9	3742	71	3750	74.2
3760	75.6	3770	75.7	3780	75.7	3790	75.8	3800	75.9
3820	76.1	3870	76.3	3970	80.3	4070	75.4	4160	78.5
4170	78.6	4190	79.6	4250	93.9	4260	95.2	4270	94.8
4280	95.9	4300	104.3	4329	110.6				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val

1629.9	.05	2020	.035	2600	.08	3363	.035	3742	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2020	3742	106	106	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 126845

INPUT
Description: This is a REPEATED section.
Station Elevation Data num= 95

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
280	82	340	78.3	340	86.8	343	86.8	343	78.3
401	78.3	401	89.3	405	89.3	405	78.3	462	72.5
462	91	466	91	466	72.5	524	72.5	524	94.5
527	94.5	527	72.5	584	72.5	584	96.5	589	72.5
626	68	673	62.3	673	88.6	678.9	88.6	679	62.3
702	55	815	56	815	93.7	821	93.7	821	58
834	56.2	902	52	993	54	993	100	999	100
999	54	1172	63.5	1172	102.4	1178	102.4	1178	63.5
1316	63.5	1316	105.4	1322	105.4	1322	63.5	1427	62.5
1428	108.1	1434	108.1	1434	62.5	1557	63	1557.1	63
1557.3	63	1557.4	106.4	1563.4	106.2	1563.4	63	1701.6	63.5
1701.6	100	1707.6	100	1707.6	65	1830.4	65	1830.4	106.5
1836.4	106.5	1836.4	65	1959.4	50.1	1959.4	104.4	1965.4	104
1965.4	50.1	1980	50.1	1998	50.1	2030	50.1	2035.4	50.1
2069.9	50.1	2103.4	50.1	2103.4	103.2	2109.4	103.2	2109.4	51
2139	52	2173	53.3	2199	68	2232.4	81.25	2232.4	104.9
2238.4	104.9	2238.4	81.25	2352.7	72.75	2352.7	102.5	2364.2	102.5
2364.2	72.75	2473.9	75	2473.9	101.75	2488.9	101.75	2488.9	75
2596.9	74.75	2596.9	98.75	2611.9	98.75	2611.9	74.75	2726.2	94

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
280	.05	626	.035	1172	.08	1836.4	.035	2199	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
626	2199	66	66	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 126779

INPUT
Description: X-126715 IS THE US FACE DTM STATION OF RR BRIDGE

```
X1126715    28
             1000    2550      26      26      26
X-126765 IS THE DS FACE DTM
             STATION OF RT 202 BRIDGE
X1126765    42    1370    2960      50
             50      50
DEKALB PIKE/MARKLEY ST (RT 202/DANNEHOWER)
             BRIDGE
HELICOPTER FLIGHT PHOTO #35
Station Elevation Data    num=      95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     280      82     340    78.3     340    86.8     343    86.8     343    78.3
     401    78.3     401    89.3     405    89.3     405    78.3     462    72.5
     462      91     466      91     466    72.5     524    72.5     524    94.5
     527    94.5     527    72.5     584    72.5     584    96.5     589    72.5
     626      68     673    62.3     673    88.6   678.9    88.6     679    62.3
     702      55     815      56     815    93.7     821    93.7     821      58
     834    56.2     902      52     993      54     993     100     999     100
     999      54    1172    63.5    1172   102.4    1178   102.4    1178    63.5
    1316    63.5    1316   105.4    1322   105.4    1322    63.5    1427    62.5
    1428   108.1    1434   108.1    1434    62.5    1557      63  1557.1      63
  1557.3      63  1557.4   106.4  1563.4   106.2  1563.4      63  1701.6    63.5
  1701.6     100  1707.6     100  1707.6      65  1830.4      65  1830.4   106.5
  1836.4   106.5  1836.4      65  1959.4    50.1  1959.4   104.4  1965.4     104
  1965.4    50.1    1980    50.1    1998    50.1    2030    50.1  2035.4    50.1
  2069.9    50.1  2103.4    50.1  2103.4   103.2  2109.4   103.2  2109.4      51
    2139      52    2173    53.3    2199      68  2232.4   81.25  2232.4   104.9
  2238.4   104.9  2238.4   81.25  2352.7   72.75  2352.7   102.5  2364.2   102.5
  2364.2   72.75  2473.9      75  2473.9  101.75  2488.9  101.75  2488.9      75
  2596.9   74.75  2596.9   98.75  2611.9   98.75  2611.9   74.75  2726.2      94

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     280     .05     626    .035    1172     .08  1836.4    .035    2199     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           626    2199               56      56      56             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 126715

INPUT
Description: This is a REPEATED section.

Station Elevation Data    num=      86
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     619    81.6   619.1    72.9     670    63.5   672.9    62.6     673    72.8
```

```
     680    72.8   680.1    62.7   733.9    63.6     734   72.75     741   72.75
   741.1    55.9   794.9      56     795    72.7     802    72.7   802.1    56.1
   855.9    55.3     856    72.6     863    72.6   863.1    51.8   916.9      54
     917   72.55     924   72.55   924.1    53.8     952      52   977.9    54.1
     978    72.5     985    72.5   985.1    54.1    1012      53  1038.9    54.9
    1039   72.45    1046   72.45  1046.1    53.1  1099.9      53    1100    72.4
    1107    72.4  1107.1    50.8  1160.9    53.3    1161   72.35    1168   72.35
  1168.1    56.2    1196    57.2    1199    59.5    1203    61.3  1221.9   61.99
    1222    72.3  1222.1      81  1222.2      81  1222.3      81  1222.4      81
  1421.7      63    1484    62.5    1607      62  1613.4      63  1751.6    63.5
  1757.5      65  1886.4      65  2009.4    50.1  2009.5    50.1  2015.3    50.1
  2015.4    50.1    2030    50.1    2048    50.1    2080      51  2085.4      51
  2119.9      51  2159.4      51    2189      52    2223    53.3    2249    56.6
    2264      66  2288.3      72  2288.4      72  2402.7   72.75  2402.8   72.75
  2414.1   72.75  2414.2   72.75  2523.9      75    2524      75  2538.8      75
  2538.9      75  2646.9   74.75    2647   74.75  2661.8   74.75  2661.9   74.75
  2776.2      94

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     619     .05   733.9    .035  1222.1     .08  1886.4    .035    2264     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         733.9    2264               34      34      34             .1       .3

BRIDGE


RIVER: RIVER-1
REACH: Reach-1            RS: 126702

INPUT
Description: Bridge #6X-126689 IS THE DS FACE DTM STATION OF RR
             BRIDGE
X1126689    31    1000    2540     192     192
             192
CONRAIL (READING) RR BRIDGE
HELICOPTER FLIGHT PHOTO #34A

Distance from Upstream XS =      .1
Deck/Roadway Width        =    33.8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      22
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     619    81.6    81.6   619.1    81.6    72.9     673   81.54    72.8
     680   81.54    72.8     734   81.48   72.75     741   81.48   72.75
     795   81.42    72.7     802   81.42    72.7     856   81.36    72.6
     863   81.36    72.6     917    81.3   72.55     924    81.3   72.55
     978   81.24    72.5     985   81.24    72.5    1039   81.18   72.45
```

1046	81.18	72.45	1100	81.12	72.4	1107	81.12	72.4
1161	81.06	72.35	1168	81.06	72.35	1222	81	72.3
1222.1	81	81						

Upstream Bridge Cross Section Data

Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
619	81.6	619.1	72.9	670	63.5	672.9	62.6	673	72.8
680	72.8	680.1	62.7	733.9	63.6	734	72.75	741	72.75
741.1	55.9	794.9	56	795	72.7	802	72.7	802.1	56.1
855.9	55.3	856	72.6	863	72.6	863.1	51.8	916.9	54
917	72.55	924	72.55	924.1	53.8	952	52	977.9	54.1
978	72.5	985	72.5	985.1	54.1	1012	53	1038.9	54.9
1039	72.45	1046	72.45	1046.1	53.1	1099.9	53	1100	72.4
1107	72.4	1107.1	50.8	1160.9	53.3	1161	72.35	1168	72.35
1168.1	56.2	1196	57.2	1199	59.5	1203	61.3	1221.9	61.99
1222	72.3	1222.1	81	1222.2	81	1222.3	81	1222.4	81
1421.7	63	1484	62.5	1607	62	1613.4	63	1751.6	63.5
1757.5	65	1886.4	65	2009.4	50.1	2009.5	50.1	2015.3	50.1
2015.4	50.1	2030	50.1	2048	50.1	2080	51	2085.4	51
2119.9	51	2159.4	51	2189	52	2223	53.3	2249	56.6
2264	66	2288.3	72	2288.4	72	2402.7	72.75	2402.8	72.75
2414.1	72.75	2414.2	72.75	2523.9	75	2524	75	2538.8	75
2538.9	75	2646.9	74.75	2647	74.75	2661.8	74.75	2661.9	74.75
2776.2	94								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
619	.05	733.9	.035	1222.1	.08	1886.4	.035	2264	.05

Bank Sta: Left Right Coeff Contr. Expan.

Left	Right	Coeff Contr.	Expan.
733.9	2264	.1	.3

Downstream Deck/Roadway Coordinates

num= 22

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
619	81.6	81.6	619.1	81.6	72.9	673	81.54	72.8
680	81.54	72.8	734	81.48	72.75	741	81.48	72.75
795	81.42	72.7	802	81.42	72.7	856	81.36	72.6
863	81.36	72.6	917	81.3	72.55	924	81.3	72.55
978	81.24	72.5	985	81.24	72.5	1039	81.18	72.45
1046	81.18	72.45	1100	81.12	72.4	1107	81.12	72.4
1161	81.06	72.35	1168	81.06	72.35	1222	81	72.3
1222.1	81	81						

Downstream Bridge Cross Section Data

Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
619	81.6	619.1	72.9	670	63.5	672.9	62.6	673	72.8
680	72.8	680.1	62.7	733.9	63.6	734	72.75	741	72.75

```
   741.1    55.9   794.9      56     795    72.7     802    72.7   802.1    56.1
   855.9    55.3     856    72.6     863    72.6   863.1    51.8   916.9      54
     917   72.55     924   72.55   924.1    53.8     952      52   977.9    54.1
     978    72.5     985    72.5   985.1    54.1    1012      53  1038.9    54.9
    1039   72.45    1046   72.45  1046.1    53.1  1099.9      53    1100    72.4
    1107    72.4  1107.1    50.8  1160.9    53.3    1161   72.35    1168   72.35
  1168.1    56.2    1196    57.2    1199    59.5    1203    61.3  1221.9   61.99
    1222    72.3  1222.1      81  1222.2      81  1222.3      81  1222.4      81
  1421.7      63    1484    62.5    1607      62  1613.4      63  1751.6    63.5
  1757.5      65  1886.4      65  2009.4    50.1  2009.5    50.1  2015.3    50.1
  2015.4    50.1    2030    50.1    2048    50.1    2080      51  2085.4      51
  2119.9      51  2159.4      51    2189      52    2223    53.3    2249    56.6
    2264      66  2288.3      72  2288.4      72  2402.7   72.75  2402.8   72.75
  2414.1   72.75  2414.2   72.75  2523.9      75    2524      75  2538.8      75
  2538.9      75  2646.9   74.75    2647   74.75  2661.8   74.75  2661.9   74.75
  2776.2      94

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     619     .05   733.9    .035  1222.1     .08  1886.4    .035    2264     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
         733.9    2264             .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION
```

RIVER: RIVER-1
REACH: Reach-1 RS: 126689

INPUT
Description:
Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
619	81.6	619.1	72.9	670	63.5	672.9	62.6	673	72.8
680	72.8	680.1	62.7	733.9	63.6	734	72.75	741	72.75
741.1	55.9	794.9	56	795	72.7	802	72.7	802.1	56.1
855.9	55.3	856	72.6	863	72.6	863.1	51.8	916.9	54
917	72.55	924	72.55	924.1	53.8	952	52	977.9	54.1
978	72.5	985	72.5	985.1	54.1	1012	53	1038.9	54.9
1039	72.45	1046	72.45	1046.1	53.1	1099.9	53	1100	72.4
1107	72.4	1107.1	50.8	1160.9	53.3	1161	72.35	1168	72.35
1168.1	56.2	1196	57.2	1199	59.5	1203	61.3	1221.9	61.99
1222	72.3	1222.1	81	1222.2	81	1222.3	81	1222.4	81
1421.7	63	1484	62.5	1607	62	1613.4	63	1751.6	63.5
1757.5	65	1886.4	65	2009.4	50.1	2009.5	50.1	2015.3	50.1
2015.4	50.1	2030	50.1	2048	50.1	2080	51	2085.4	51
2119.9	51	2159.4	51	2189	52	2223	53.3	2249	56.6
2264	66	2288.3	72	2288.4	72	2402.7	72.75	2402.8	72.75
2414.1	72.75	2414.2	72.75	2523.9	75	2524	75	2538.8	75
2538.9	75	2646.9	74.75	2647	74.75	2661.8	74.75	2661.9	74.75
2776.2	94								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
619	.05	733.9	.035	1222.1	.08	1886.4	.035	2264	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
733.9	2264	192	192	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 126497

INPUT
Description:
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1730	94.8	1840	91.5	1950	89	1980	89	2030	89
2040	89	2080	89	2120	89	2130	89	2150	89
2160	89	2170	89	2369.9	89	2370	68.6	2400	68.4
2510	62.7	2620	54.7	2670	53.4	2750	55	2790	55
2860	52.7	2880	52.6	2920	53.4	2940	53.3	2970	52.9
3030	64.5	3166	65	3302	64.5	3438	65	3575	64.5

3576	64.5	3610	53	3660	53.9	3720	52.4	3740	53
3790	52.8	3880	57.2	3910	63.3	3980	66.1	4020	75.2
4070	76.4	4080	76.4	4170	74.8	4260	75.1	4370	77.3
4470	77.1	4520	78.3	4530	78.1	4540	78.1	4560	78.1
4560.1	98	4740	98	4850	98	4880	98	4940	98
4970	98	5000	98	5070	98	5080	98	5150	98
5160	98	5170	98	5200	104.4	5220	107.8	5230	107.8
5270	106.5	5290	106.5	5350	103.6				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1730	.05	2510	.035	3030	.08	3576	.035	3910	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2510	3910	307	307	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 126190

INPUT
Description:
Station Elevation Data num= 95

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1150	88	1160	87.3	1270	90.5	1290	91	1300	90.9
1310	90.8	1400	95.1	1510	94.8	1570	95.1	1580	95.2
1590	95.3	1610	95.5	1720	95.9	1770	95.8	1810	95.2
1890	94.6	2000	91.1	2110	86.6	2220	86	2230	86
2290	86	2390	86	2410	86	2450	86	2490	86
2500	86	2510	86	2520	86	2530	86	2580	86
2659.9	86	2660	66.3	2690	64.8	2700	67.1	2710	65
2730	66.2	2740	65.8	2750	66.1	2860	56.1	2940	53.4
3040	55.2	3050	55.2	3110	52.7	3140	52.7	3180	53.4
3210	53.3	3230	53	3240	52.9	3300	64.5	3389	65
3478	64.5	3567	65	3656	64.5	3700	53	3750	53.9
3760	53.8	3790	52.9	3800	52.8	3810	53	3880	52.8
3970	57.1	4000	63.8	4110	67.1	4120	67.1	4170	66.5
4180	66.5	4230	74.9	4240	75	4260	74.9	4300	74.4
4370	74.4	4480	76.4	4590	77.7	4600	77.7	4650	76.9
4670	76.9	4680	76.9	4680.1	97	4750	97	4790	97
4830	97	4900	97	4930	97	4990	97	5040	97
5050	97	5070	97	5080	97	5110	97	5200	97
5210	97	5290	97	5300	97	5370	101.8	5390	101.7

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1150	.06	2750	.035	3300	.08	4000	.035	4000	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
2750 4000 452 452 452 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 125738

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
400	96	430	96	510	96	590	96	678.9	96
679	76	770	72	940	68	960	64	961	64
1000	63	1010	63.3	1020	62.7	1070	62.7	1080	62.7
1129	62.7	1149	52.7	1160	52.7	1270	52.7	1300	52.7
1310	52.7	1340	52.7	1360	52.7	1370	52.7	1390	52.7
1420	52.7	1460	52.7	1500	52.7	1510	52.7	1520	52.7
1560	52.7	1570	52.7	1590	52.7	1620	52.7	1670	52.7
1750	52.7	1780	52.7	1790	52.7	1800	52.7	1910	52.7
1920	52.7	1989	52.7	2011	63.7	2030	63.7	2140	67.6
2250	69.9	2260	70	2300	69.8	2330	70.6	2400	70.6
2420	70.8	2430	70.5	2430.1	91	2450	91	2470	91
2480	91	2510	91	2530	91	2590	91	2610	91
2620	91	2730	91	2740	91	2750	91	2770	91
2780	91	2790	91	2900	91	2950	91	2960	91
3070	91	3180	91	3290	91	3400	96.4	3410	96.3
3520	102.9	3630	110.1	3696	115.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
400	.04	1129	.035	2011	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1129 2011 20 20 20 .3 .5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 125718

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
400	96	430	96	510	96	590	96	678.9	96
679	76	770	72	940	68	960	64	961	64
1000	63	1010	63.3	1020	62.7	1070	62.7	1080	62.7

1129	62.7	1130	58.3	1160	58.3	1270	58.3	1300	58.3
1310	58.3	1340	58.3	1360	58.3	1370	58.3	1390	58.3
1420	58.3	1460	58.3	1500	58.3	1510	58.3	1520	58.3
1560	58.3	1570	58.3	1590	58.3	1620	58.3	1670	58.3
1750	58.3	1780	58.3	1790	58.3	1800	58.3	1910	58.3
1920	58.3	2010	58.3	2011	63.7	2030	63.7	2140	67.6
2250	69.9	2260	70	2300	69.8	2330	70.6	2400	70.6
2420	70.8	2430	70.5	2430.1	91	2450	91	2470	91
2480	91	2510	91	2530	91	2590	91	2610	91
2620	91	2730	91	2740	91	2750	91	2770	91
2780	91	2790	91	2900	91	2950	91	2960	91
3070	91	3180	91	3290	91	3400	96.4	3410	96.3
3520	102.9	3630	110.1	3696	115.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
400	.04	1129	.035	2011	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1129	2011	20	20	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 125698

INPUT
Description: X-125608 IS THE US FACE DTM STATION OF SEPTA RR BRIDGE
X1125608
22 1000 1970 24 24 24
X-125718 IS THE DTM
STATION OF THE CREST OF NORRISTOWN DAM
X1125718 68 1020
2030 110 110 110
NORRISTOWN DAM
HELICOPTER FLIGHT
PHOTO #34

Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
400	96	430	96	510	96	590	96	678.9	96
679	76	770	72	940	68	960	64	961	64
1000	63	1010	63.3	1020	62.7	1070	62.7	1080	62.7
1129	62.7	1166	44	1167	44	1270	44	1300	44
1310	44	1340	44	1360	44	1370	44	1390	44
1420	44	1460	44	1500	44	1510	44	1520	44
1560	44	1570	44	1590	44	1620	44	1670	44
1750	44	1780	44	1790	44	1800	44	1910	44
1920	44	1972	44	2011	63.7	2030	63.7	2140	67.6

2250	69.9	2260	70	2300	69.8	2330	70.6	2400	70.6
2420	70.8	2430	70.5	2430.1	91	2450	91	2470	91
2480	91	2510	91	2530	91	2590	91	2610	91
2620	91	2730	91	2740	91	2750	91	2770	91
2780	91	2790	91	2900	91	2950	91	2960	91
3070	91	3180	91	3290	91	3400	96.4	3410	96.3
3520	102.9	3630	110.1	3696	115.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
400	.04	1129	.035	2011	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1129	2011	96	96	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 125608

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
216	110	217	110	218	110	219.9	110	220	72.8
260	71.5	327.9	71.3	328	100.3	340	100	340.1	71.2
393	70.7	430	70.5	459.9	69.6	460	95.7	464	95.7
464.1	69.5	505	68.5	523.9	65.6	524	95	528	95
528.1	64	560	52.7	588	48	588.1	78.1	595	78.1
595.1	46.8	640	44.8	670	44.2	710	45	741.9	45.1
742	78.1	749	78.1	749.1	45.2	840	45.5	880	46
895.9	44.7	896	78.1	903	78.1	903.1	44.3	920	43.5
1049.9	46	1050	78.1	1057	78.1	1057.1	46.2	1120	48
1203.9	45.6	1204	78.1	1211	78.1	1211.1	45.3	1230	44.8
1310	45.3	1357.9	46.1	1358	78.1	1365	78.1	1365.1	46.8
1460	47	1511.9	50.1	1512	78.1	1519	78.1	1519.1	53.2
1540	60	1580	65.5	1665.9	66.8	1666	78.1	1673	78.1
1673.1	66.9	1740	67.7	1740.1	98.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
216	.04	528.1	.035	1540	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
528.1	1540	18	18	.3	.5

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 125596

INPUT
Description: Bridge #5X-125584 IS THE DS FACE DTM STATION OF SEPTA RR
BRIDGE
X1125584 26 1000 1960 289 289
289
SEPTA RED ARROW/PHILLY SUBURBAN TROLLY (POWELL ST) RR
BRIDGE
HELICOPTER FLIGHT PHOTO #33
USGS GAGE #01473500 IS
LOACATED AT THE BRIDGE PIER (ASSUMED AT DS FACE)
OF THIS BRIDGE
WHICH IS LOCATED 600 FT UPSTREAM OF THE DEKALB ST BRIDGE

Distance from Upstream XS = .1
Deck/Roadway Width = 17.8
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 29

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
218	110	110	219.9	110	110	220	110	100.3
328	104.8	100.3	340	104.5	100	393	104.1	97
460	100	95.7	464	99.6	95.7	524	99	95
528	99	95	588	98.5	94.3	588.1	98.5	78.1
595	98.5	78.1	742	98.5	78.1	749	98.5	78.1
896	98.5	78.1	903	98.5	78.1	1050	98.5	78.1
1057	98.5	78.1	1204	98.5	78.1	1211	98.5	78.1
1358	98.3	78.1	1365	98.5	78.1	1512	98.5	78.1
1519	98.5	78.1	1666	98.5	78.1	1673	98.5	78.1
1740	98.5	78.1	1740.1	98.5	98.5			

Upstream Bridge Cross Section Data
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
216	110	217	110	218	110	219.9	110	220	72.8
260	71.5	327.9	71.3	328	100.3	340	100	340.1	71.2
393	70.7	430	70.5	459.9	69.6	460	95.7	464	95.7
464.1	69.5	505	68.5	523.9	65.6	524	95	528	95
528.1	64	560	52.7	588	48	588.1	78.1	595	78.1
595.1	46.8	640	44.8	670	44.2	710	45	741.9	45.1
742	78.1	749	78.1	749.1	45.2	840	45.5	880	46
895.9	44.7	896	78.1	903	78.1	903.1	44.3	920	43.5
1049.9	46	1050	78.1	1057	78.1	1057.1	46.2	1120	48
1203.9	45.6	1204	78.1	1211	78.1	1211.1	45.3	1230	44.8
1310	45.3	1357.9	46.1	1358	78.1	1365	78.1	1365.1	46.8
1460	47	1511.9	50.1	1512	78.1	1519	78.1	1519.1	53.2
1540	60	1580	65.5	1665.9	66.8	1666	78.1	1673	78.1

```
  1673.1    66.9    1740    67.7  1740.1    98.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     216     .04   528.1    .035    1540     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
         528.1    1540             .3       .5

Downstream  Deck/Roadway Coordinates
    num=      29
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     218     110     110   219.9     110     110     220     110   100.3
     328   104.8   100.3     340   104.5     100     393   104.1      97
     460     100    95.7     464    99.6    95.7     524      99      95
     528      99      95     588    98.5    94.3   588.1    98.5    78.1
     595    98.5    78.1     742    98.5    78.1     749    98.5    78.1
     896    98.5    78.1     903    98.5    78.1    1050    98.5    78.1
    1057    98.5    78.1    1204    98.5    78.1    1211    98.5    78.1
    1358    98.3    78.1    1365    98.5    78.1    1512    98.5    78.1
    1519    98.5    78.1    1666    98.5    78.1    1673    98.5    78.1
    1740    98.5    78.1  1740.1    98.5    98.5

Downstream Bridge Cross Section Data
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     216     110     217     110     218     110   219.9     110     220    72.8
     260    71.5   327.9    71.3     328   100.3     340     100   340.1    71.2
     393    70.7     430    70.5   459.9    69.6     460    95.7     464    95.7
   464.1    69.5     505    68.5   523.9    65.6     524      95     528      95
   528.1      64     560    52.7     588      48   588.1    78.1     595    78.1
   595.1    46.8     640    44.8     670    44.2     710      45   741.9    45.1
     742    78.1     749    78.1   749.1    45.2     840    45.5     880      46
   895.9    44.7     896    78.1     903    78.1   903.1    44.3     920    43.5
  1049.9      46    1050    78.1    1057    78.1  1057.1    46.2    1120      48
  1203.9    45.6    1204    78.1    1211    78.1  1211.1    45.3    1230    44.8
    1310    45.3  1357.9    46.1    1358    78.1    1365    78.1  1365.1    46.8
    1460      47  1511.9    50.1    1512    78.1    1519    78.1  1519.1    53.2
    1540      60    1580    65.5  1665.9    66.8    1666    78.1    1673    78.1
  1673.1    66.9    1740    67.7  1740.1    98.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     216     .04   528.1    .035    1540     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
         528.1    1540             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
```

```
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 125584

INPUT
Description:
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     216     110     217     110     218     110   219.9     110     220    72.8
     260    71.5   327.9    71.3     328   100.3     340     100   340.1    71.2
     393    70.7     430    70.5   459.9    69.6     460    95.7     464    95.7
   464.1    69.5     505    68.5   523.9    65.6     524      95     528      95
   528.1      64     560    52.7     588      48   588.1    78.1     595    78.1
   595.1    46.8     640    44.8     670    44.2     710      45   741.9    45.1
     742    78.1     749    78.1   749.1    45.2     840    45.5     880      46
   895.9    44.7     896    78.1     903    78.1   903.1    44.3     920    43.5
  1049.9      46    1050    78.1    1057    78.1  1057.1    46.2    1120      48
  1203.9    45.6    1204    78.1    1211    78.1  1211.1    45.3    1230    44.8
    1310    45.3  1357.9    46.1    1358    78.1    1365    78.1  1365.1    46.8
    1460      47  1511.9    50.1    1512    78.1    1519    78.1  1519.1    53.2
    1540      60    1580    65.5  1665.9    66.8    1666    78.1    1673    78.1
  1673.1    66.9    1740    67.7  1740.1    98.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     216     .04   528.1    .035    1540     .04
```

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
528.1 1540 289 289 289 .3 .5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 125295

INPUT
Description: X-124990 IS THE US FACE DTM STATION OF DEKALB ST BRIDGE
X1124990
31 1020 1880 61 61 61

Station Elevation Data num= 91

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	107.8	1110	100.2	1220	94.7	1330	92.4	1340	92.4
1360	92.5	1410	92.9	1430	93	1450	92.6	1470	92.6
1510	91.6	1520	91	1540	91	1550	91	1580	91
1690	91	1700	91	1720	91	1730	91	1740	91
1770	91	1820	91	1999.9	91	2000	70.6	2010	70.6
2020	70.4	2040	70.3	2060	70	2110	52.4	2120	50.4
2230	46.8	2270	46.4	2380	46	2390	46	2420	46.6
2430	46.7	2450	46.4	2520	52	2570	46.6	2580	46.5
2600	46.9	2640	47.2	2720	51.2	2770	47.5	2820	47.4
2860	46.6	2870	46.6	2900	47.6	2920	47.3	2960	49.6
2970	52	3010	66.8	3020	68.3	3030	68.3	3050	68.9
3080	65.6	3090	65.6	3160	66.5	3160.1	87	3330	87
3350	87	3360	87	3440	87	3450	87	3500	87
3530	87	3550	87	3560	87	3600	87	3710	87
3750	87	3850	87	3920	87	3930	87	3940	87
3960	87	4040	87	4150	88.6	4160	88.8	4210	88.3
4320	92.7	4430	100.2	4460	102.6	4480	102.1	4490	102.2
4550	109	4560	108.8	4570	107.4	4580	107.3	4690	112.2
4723	112.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	2060	.035	3010	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
2060 3010 380 298 250 .3 .5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 124990

INPUT
Description: This is a REPEATED section.

Station Elevation Data   num=   69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
50	94	419.9	94	420	73.8	487	76.6	498.5	66.3
530	50.5	544.5	49.1	565	47	575	47	590.5	48
601.9	48.7	602	54.8	610	54.8	610.1	48.5	621.5	47.3
630	46.5	667.5	46.8	680	47	713.5	47	724.9	47
725	57.6	733	57.6	733.1	47	744.5	46.9	790.5	46.7
836.5	46.5	847.9	46.4	848	58.9	856	58.9	856.1	46.3
867.5	46.3	913.5	46.1	930	46	950	45	959.5	45.5
970.9	46	971	58.9	979	58.9	979.1	46	990.5	46
1030	46	1036.5	45.9	1070	45.5	1082.5	46	1093.9	46.7
1094	57.6	1102	57.6	1102.1	46.7	1113.5	46.6	1159.5	45.9
1173	45.8	1205.5	47.3	1216.9	47.9	1217	54.8	1225	54.8
1236.5	47.4	1273	45.5	1282.5	45.5	1295	45.5	1310	50.5
1328.5	56.4	1340	60	1340.1	76.6	1510	70.5	1580	70.5
1580.1	91	1810	91	1910	91	2010	91		

Manning's n Values   num=   3

Sta	n Val	Sta	n Val	Sta	n Val
50	.04	498.5	.035	1340	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
498.5	1340	68	68	.3	.5

BRIDGE

RIVER: RIVER-1
REACH: Reach-1   RS: 124959.5

INPUT
Description: Bridge #4FROM FILE SCT017.DAT
X-124929 IS THE DS FACE DTM STATION
OF DEKALB ST BRIDGE
X1124929   37   1000   1770   484
484   484
DEKALB STREET BRIDGE (OLD ROUTE 202?)
HELICOPTER
FLIGHT PHOTO #32

Distance from Upstream XS =   .1
Deck/Roadway Width   =   67.8
Weir Coefficient   =   2.6
Upstream Deck/Roadway Coordinates
num=   36

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
487	76.6	76.6	498.5	77	66.3	544.5	78.7	72.8

590.5	80	69.2	602	80.3	54.8	610	80.5	54.8
621.5	80	69.9	667.5	82.1	76.2	713.5	82.9	72.4
725	83.1	57.6	733	83.2	57.6	744.5	83.4	72.6
790.5	84.2	78.2	836.5	84.5	73.7	848	84.55	58.9
856	84.6	58.9	867.5	84.65	73.9	913.5	84.9	78.9
959.5	84.65	73.9	971	84.6	58.9	979	84.55	58.9
990.5	84.5	73.7	1036.5	84.2	78.2	1082.5	83.4	72.6
1094	83.2	57.6	1102	83.1	57.6	1113.5	82.4	72.3
1159.5	82.1	76.2	1205.5	80.8	70	1217	80.5	54.8
1225	80.3	54.8	1236.5	80	69.2	1282.5	78.7	72.8
1328.5	77	66.3	1340	76.6	60	1340.1	76.6	76.6

Upstream Bridge Cross Section Data

Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
50	94	419.9	94	420	73.8	487	76.6	498.5	66.3
530	50.5	544.5	49.1	565	47	575	47	590.5	48
601.9	48.7	602	54.8	610	54.8	610.1	48.5	621.5	47.3
630	46.5	667.5	46.8	680	47	713.5	47	724.9	47
725	57.6	733	57.6	733.1	47	744.5	46.9	790.5	46.7
836.5	46.5	847.9	46.4	848	58.9	856	58.9	856.1	46.3
867.5	46.3	913.5	46.1	930	46	950	45	959.5	45.5
970.9	46	971	58.9	979	58.9	979.1	46	990.5	46
1030	46	1036.5	45.9	1070	45.5	1082.5	46	1093.9	46.7
1094	57.6	1102	57.6	1102.1	46.7	1113.5	46.6	1159.5	45.9
1173	45.8	1205.5	47.3	1216.9	47.9	1217	54.8	1225	54.8
1236.5	47.4	1273	45.5	1282.5	45.5	1295	45.5	1310	50.5
1328.5	56.4	1340	60	1340.1	76.6	1510	70.5	1580	70.5
1580.1	91	1810	91	1910	91	2010	91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
50	.04	498.5	.035	1340	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
498.5	1340	.3	.5

Downstream Deck/Roadway Coordinates

num= 36

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
487	76.6	76.6	498.5	77	66.3	544.5	78.7	72.8
590.5	80	69.2	602	80.3	54.8	610	80.5	54.8
621.5	80	69.9	667.5	82.1	76.2	713.5	82.9	72.4
725	83.1	57.6	733	83.2	57.6	744.5	83.4	72.6
790.5	84.2	78.2	836.5	84.5	73.7	848	84.55	58.9
856	84.6	58.9	867.5	84.65	73.9	913.5	84.9	78.9
959.5	84.65	73.9	971	84.6	58.9	979	84.55	58.9
990.5	84.5	73.7	1036.5	84.2	78.2	1082.5	83.4	72.6
1094	83.2	57.6	1102	83.1	57.6	1113.5	82.4	72.3
1159.5	82.1	76.2	1205.5	80.8	70	1217	80.5	54.8

```
    1225    80.3    54.8  1236.5      80    69.2  1282.5    78.7    72.8
  1328.5      77    66.3    1340    76.6      60  1340.1    76.6    76.6

Downstream Bridge Cross Section Data
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      50      94   419.9      94     420    73.8     487    76.6   498.5    66.3
     530    50.5   544.5    49.1     565      47     575      47   590.5      48
   601.9    48.7     602    54.8     610    54.8   610.1    48.5   621.5    47.3
     630    46.5   667.5    46.8     680      47   713.5      47   724.9      47
     725    57.6     733    57.6   733.1      47   744.5    46.9   790.5    46.7
   836.5    46.5   847.9    46.4     848    58.9     856    58.9   856.1    46.3
   867.5    46.3   913.5    46.1     930      46     950      45   959.5    45.5
   970.9      46     971    58.9     979    58.9   979.1      46   990.5      46
    1030      46  1036.5    45.9    1070    45.5  1082.5      46  1093.9    46.7
    1094    57.6    1102    57.6  1102.1    46.7  1113.5    46.6  1159.5    45.9
    1173    45.8  1205.5    47.3  1216.9    47.9    1217    54.8    1225    54.8
  1236.5    47.4    1273    45.5  1282.5    45.5    1295    45.5    1310    50.5
  1328.5    56.4    1340      60  1340.1    76.6    1510    70.5    1580    70.5
  1580.1      91    1810      91    1910      91    2010      91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      50     .04   498.5    .035    1340     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
         498.5    1340             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
```

Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 124929

INPUT
Description:
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
50	94	419.9	94	420	73.8	487	76.6	498.5	66.3
530	50.5	544.5	49.1	565	47	575	47	590.5	48
601.9	48.7	602	54.8	610	54.8	610.1	48.5	621.5	47.3
630	46.5	667.5	46.8	680	47	713.5	47	724.9	47
725	57.6	733	57.6	733.1	47	744.5	46.9	790.5	46.7
836.5	46.5	847.9	46.4	848	58.9	856	58.9	856.1	46.3
867.5	46.3	913.5	46.1	930	46	950	45	959.5	45.5
970.9	46	971	58.9	979	58.9	979.1	46	990.5	46
1030	46	1036.5	45.9	1070	45.5	1082.5	46	1093.9	46.7
1094	57.6	1102	57.6	1102.1	46.7	1113.5	46.6	1159.5	45.9
1173	45.8	1205.5	47.3	1216.9	47.9	1217	54.8	1225	54.8
1236.5	47.4	1273	45.5	1282.5	45.5	1295	45.5	1310	50.5
1328.5	56.4	1340	60	1340.1	76.6	1510	70.5	1580	70.5
1580.1	91	1810	91	1910	91	2010	91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
50	.04	498.5	.035	1340	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
498.5	1340	484	484	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 124445

INPUT
Description:
Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	97.3	1110	90.7	1120	90.5	1130	90.5	1150	90.8
1230	89	1240	89	1350	89	1370	89	1420	89
1530	89	1560	89	1590	89	1700	89	1730	89
1750	89	1770	89	1780	89	1800	89	1820	89
1850	89	1900	89	1960	89	2129.9	89	2130	69
2140	69.1	2190	67	2200	65.4	2270	46.7	2340	44.1

2450	44.4	2560	44.4	2670	44.4	2740	44.6	2770	44.2
2820	48.3	2830	51	2870	67.9	2880	68.1	2970	66.4
3020	66.6	3060	67	3130	67.3	3170	67.8	3240	68.2
3240.1	88	3470	88	3500	88	3560	88	3580	88
3690	88	3750	88	3780	88	3840	88	3850	88
3860	88	3880	88	3980	88	4080	88	4150	88
4160	88	4180	88	4190	88	4300	88	4410	93.7
4520	97.9	4630	105.4	4690	109.9	4700	109.5	4702	109.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	2200	.035	2870	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2200	2870	782	782	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 123663

INPUT
Description:
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	91	1110	91	1220	91	1330	91	1420	91
1510	91	1540	91	1650	91	1690	91	1710	91
1770	91	1800	91	1840	91	1850	91	1870	91
1880	91	1890	91	2000	91	2060	91	2080	91
2090	91	2100	91	2110	91	2140	91	2170	91
2289.9	91	2290	70.6	2340	69.9	2450	67.8	2480	66.7
2490	65.2	2540	48.5	2630	43.2	2700	43.4	2750	45.6
2810	44.5	2900	44.5	2920	44.3	2930	44.3	2970	47.2
2980	50	2990	55.3	3000	62.5	3060	65.9	3070	65.7
3080	65.6	3080.1	86	3249.9	86	3250	65.8	3290	65.8
3320	66.3	3420	66.7	3530	69	3540	69.1	3630	69.5
3660	68.7	3700	71.1	3700.1	91	3920	91	3940	91
4050	91	4160	91	4270	91	4350	91	4380	91
4490	91	4600	94.9	4710	101.6	4712	101.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	2490	.035	3000	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2490	3000	712	712	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 122951

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	94	1110	94	1220	94	1389.9	94	1390	74.3
1470	74.3	1480	74.3	1500	74.1	1560	74.3	1570	73.9
1590	67.2	1600	66.2	1610	66.2	1620	65.3	1710	68.6
1820	66.5	1830	66.4	1890	66	1940	64.7	1990	64.3
2010	63.3	2020	60.3	2040	50.1	2050	47	2130	42.8
2140	42.7	2230	45.6	2250	44.2	2290	44.3	2320	44.6
2330	44.6	2360	44.3	2370	44.3	2400	45	2410	47
2450	62.6	2460	63.9	2490	63.9	2490.1	84	2629.9	84
2630	65.3	2670	65	2680	65.1	2720	65.4	2720.1	85
2750	85	2760	85	2870	85	2900	85	3109.9	85
3110	74.5	3150	75.7	3160	75.8	3180	75.7	3190	75.7
3190.1	96	3420	96	3430	96	3440	96	3460	96
3570	96	3640	96	3750	96	3770	96	3816	96

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2010	.035	2450	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2010	2450	639	639	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 122312

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	93	1110	93	1220	93	1330	93	1359.9	93
1360	73.4	1380	73.8	1390	73.8	1500	70.4	1530	70
1590	71.3	1630	68.8	1660	69.5	1750	69.7	1810	69
1840	68.8	1950	67	2060	63.1	2070	63.2	2170	45.3
2240	43.6	2350	44	2430	44.3	2470	44.8	2480	44.8
2500	44.6	2510	44.6	2550	45.8	2560	47.7	2600	63
2610	65.6	2695	73.4	2800	69.2	2830	70	2840	70
2860	68.9	2870	71.5	2980	75.1	3000	76.3	3040	83.3
3150	91.8	3190	94.9	3210	94.8	3268	93.7		

Manning's n Values num= 3

```
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .05    2070    .035    2610     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2070    2610              822     822     822             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 121490

INPUT
Description:
Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000      94    1020      94    1130      94  1399.9      94    1400    73.6
    1430    73.6    1520    71.4    1530    71.3    1580      73    1600    70.9
    1630    62.9    1700    67.4  1700.1      84    1830      84    1840      84
    1950      84  2039.9      84    2040    64.2    2060    64.2    2090    64.1
    2100    64.3    2110    64.3    2130    63.3    2140      61    2170    48.3
    2180    46.1    2220    44.6    2330    44.1    2440      44    2470    44.1
    2520      45    2590    44.7    2600    45.1    2610    46.8    2620    50.6
    2630    55.8    2640    59.1    2650    59.2    2670    54.5    2680      55
    2720    69.1    2770    73.5    2780    75.5    2820    90.8    2860    92.9
    2900    92.9    2970    94.3    2990    94.4    3100    99.7    3107   100.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .05    2130    .035    2640     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2130    2640              688     688     688             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 120802

INPUT
Description:
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000      94    1010      94    1030      94    1040      94    1050      94
    1070      94    1160      94    1230      94    1270      94    1290      94
    1320      94    1330      94    1400      94  1499.9      94    1500    74.3
    1510    74.5    1550    73.8    1620    75.2    1650    71.5    1660    71.7
    1670    69.7    1700    60.3    1740      66    1750    65.6    1760    65.5
    1860    63.4    1920    63.1    1950    62.3    2060    44.3    2090    42.9
```

2170	42.5	2280	44.1	2320	44.7	2380	44.9	2400	45.7
2410	48.2	2440	59.2	2450	60.2	2480	53.2	2490	52.7
2500	53.9	2560	69.7	2610	74	2640	79.4	2660	80.2
2670	78.6	2680	76	2690	74.7	2700	74.7	2810	80.4
2920	84.9	3030	90.7	3140	96.3	3250	101.4	3283	103.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1950	.035	2440	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1950	2440	650	602	550	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 120200

INPUT
Description: FROM FILE SCT016.DAT

Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	88.7	1090	81.4	1200	81.1	1240	80.8	1280	80.4
1300	80.3	1330	80.7	1350	80.7	1360	78.4	1370	76
1380	76	1390	76	1400	76	1410	76	1420	76
1440	76	1450	76	1470	76	1480	76	1490	76
1540	76	1550	76	1570	76	1600	76	1610	76
1690	76	1760	77	1830	72.7	1840	72.7	1850	72.8
1860	72.8	1940	64.8	1950	64.9	2060	58.6	2120	44.2
2230	41.5	2250	41.6	2270	41.8	2280	41.8	2290	41.7
2300	41.6	2400	43.2	2410	43.3	2460	45.4	2480	49
2520	60.9	2580	64.1	2600	64.1	2710	71.2	2820	76.8
2930	80.9	3040	85.7	3060	85.9	3100	86.2	3210	93.1
3317	99.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	2060	.035	2520	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2060	2520	1150	918	650	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 119282

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1089	90	1090	70.4	1100	70.4	1110	70.5	1160	70.5
1180	70.3	1230	70.3	1240	70.4	1280	68.9	1330	68.7
1340	68.8	1350	65	1360	64.7	1380	66.1	1390	66.1
1410	64.2	1420	66.5	1430	63.9	1450	54.6	1490	45.6
1580	40.8	1640	41	1660	40.6	1690	40.7	1800	43.4
1820	44.5	1880	61.9	1885	62.3	1965	60	2025	60
2045	64	2075	68	2205	72	2285	76	2335	80
2415	84								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1089	.06	1420	.035	1880	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1420	1880	348	348	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 118934

INPUT
Description: X-118798 IS THE US FACE DTM STATION OF PA TURNPIKE
BRIDGE

X1118798	34	1440	1860	61	61	61

Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	135.8	1010	135.8	1020	128.9	1060	75.3	1070	68.7
1130	64.1	1160	66.1	1170	66.1	1180	63.6	1220	47
1230	45.4	1320	40.2	1370	41.1	1430	40	1540	44.2
1550	44.8	1560	47.7	1580	57.1	1590	60.3	1600	60.7
1650	59.2	1670	59.1	1700	57.1	1710	57.8	1770	69.4
1780	70.3	1830	66.1	1861	67.9	1940	72	1990	76
2050	80	2050.1	100						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1170	.035	1590	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1170	1590	147	147	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 118798

INPUT
Description: This is a REPEATED section.
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4	93.9	67	85	90	76.6	90	90	96	90
97	76.6	130	64.5	156	64.3	178	61.6	180	90
186	90	189	54.6	201	48	211	45.3	244	45.1
287	39.4	292	39.7	294	90	300	90	303	40.1
348	41.3	370	40.8	416	39.6	418	90	424	90
427	39.5	430	39.5	448	41.6	495	43.7	515	43.8
534	45.1	540	48	542	90	548	90	551	49.8
567	57.3	664	58.9	666	90	672	90	675	58.9
685	58.9	710	68	772	68	786	67.5	787	90
792	90	795	68.7	876	65.7	914	66.4	917	90
923	90	924	66.1	1000	72	1000.1	90	1044	90
1045	90	1131	90	1132	90	1138	90	1160	90
1227	104.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4	.04	178	.035	567	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
178	567	50	50	.3	.5

Cross Section Lid
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4	115.7	101.9	1227	115.7	101.9

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 118737

INPUT
Description: X-118675 IS THE US FACE DTM STATION OF RR BRIDGE
X1118675 74
1600 2050 24 24 24
I-276 (PENNSYLVANIA
TURNPIKE) BRIDGE
HELICOPTER FLIGHT PHOTO #31A
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4	93.9	67	85	90	76.6	90	90	96	90
97	76.6	130	64.5	156	64.3	178	61.6	180	90

```
     186      90     189    54.6     201      48     211    45.3     244    45.1
     287    39.4     292    39.7     294      90     300      90     303    40.1
     348    41.3     370    40.8     416    39.6     418      90     424      90
     427    39.5     430    39.5     448    41.6     495    43.7     515    43.8
     534    45.1     540      48     542      90     548      90     551    49.8
     567    57.3     664    58.9     666      90     672      90     675    58.9
     685    58.9     710      68     772      68     786    67.5     787      90
     792      90     795    68.7     876    65.7     914    66.4     917      90
     923      90     924    66.1    1000      72  1000.1      90    1044      90
    1045      90    1131      90    1132      90    1138      90    1160      90
    1227   104.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       4     .04     178    .035     567     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           178     567               57      57      57             .3       .5
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       4   115.7   101.9    1227   115.7   101.9

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 118675

INPUT
Description: This is a REPEATED section.

Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      48   85.97      48   78.97     113   62.62     119   65.01     139   64.02
     145   62.62     163    56.8     163   85.97     170   85.97   171.5     54
   189.5   47.98   204.5   42.68   216.5   41.98   225.5   42.78   273.5   41.08
   283.5    42.1     285   85.97     292   85.97   293.5    43.4   304.5   44.68
   330.5   39.88     360   40.59   384.5   41.18   397.5      43   405.5      43
     407   85.97     414   85.97   415.5    44.3   419.5      45   449.5   41.48
   479.5   42.28   492.5   42.38   524.5   45.98   527.5    46.8     529   85.97
     536   85.97   537.5    51.5   545.5   56.53   649.5    58.6     651   85.97
     658   85.97   659.5   58.75   674.5   59.08   687.5   65.75   716.5   66.31
     747   66.48     772   66.88     773   85.97     783   85.97     784    64.8
     787    64.5     826   64.38     856   71.98     898   73.38     898   85.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      48     .04     145    .035   545.5     .05
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           145   545.5               29      29      29             .3       .5
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      48  105.97   85.97     898  105.97   85.97

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 118651

INPUT
Description: X-118651 IS THE DS FACE DTM STATION OF RR BRIDGE
X1118651    43
             1600    2060     161     161     161
CONRAIL (PENN CENTRAL) RR
             BRIDGE
HELICOPTER FLIGHT PHOTO #31

Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      48   85.97      48   78.97     113   62.62     119   65.01     139   64.02
     145   62.62     163    56.8     163   85.97     170   85.97   171.5     54
   189.5   47.98   204.5   42.68   216.5   41.98   225.5   42.78   273.5   41.08
   283.5    42.1     285   85.97     292   85.97   293.5    43.4   304.5   44.68
   330.5   39.88     360   40.59   384.5   41.18   397.5      43   405.5      43
     407   85.97     414   85.97   415.5    44.3   419.5      45   449.5   41.48
   479.5   42.28   492.5   42.38   524.5   45.98   527.5    46.8     529   85.97
     536   85.97   537.5    51.5   545.5   56.53   649.5    58.6     651   85.97
     658   85.97   659.5   58.75   674.5   59.08   687.5   65.75   716.5   66.31
     747   66.48     772   66.88     773   85.97     783   85.97     784    64.8
     787    64.5     826   64.38     856   71.98     898   73.38     898   85.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      48     .04     145    .035   545.5     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           145   545.5               161     161     161             .3       .5
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      48  105.97   85.97     898  105.97   85.97

CROSS SECTION


RIVER: RIVER-1
```

REACH: Reach-1 RS: 118490

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1760	93.6	1870	93.2	1980	90.3	1990	88.9	2030	66.9
2040	66	2050	66.1	2060	65.9	2100	58.3	2110	54.6
2120	48.1	2130	44.7	2220	40.7	2250	41.9	2290	39.5
2400	43.8	2450	42.7	2470	42.7	2520	45.8	2530	48.2
2550	57	2560	60.2	2620	58.7	2650	58.8	2660	59
2700	66.4	2740	68.6	2790	67.5	2800	67.5	2910	72.2
3020	78.3	3043	79						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1760	.04	2060	.035	2560	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2060	2560	485	485	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 118005

INPUT
Description: FROM FILE SCT015.DAT

Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	85	1020	85	1030	85	1080	85	1160	85
1240	85	1250	85	1320	85	1330	85	1350	85
1370	85	1480	85	1540	85	1580	85	1640	85
1650	85	1660	85	1680	85	1690	85	1700	85
1720	85	1740	85	1899.9	85	1900	64.8	1920	64.8
1950	64.2	1960	64.2	1980	63.7	2020	64.2	2060	64.2
2090	64.8	2120	60.3	2180	43.3	2290	39.7	2300	39.5
2330	39.6	2440	42.5	2450	42.6	2530	42.8	2560	43.5
2570	45.1	2630	63.9	2640	65.4	2650	65.5	2760	65.5
2800	65.5	2910	68.8	2960	67.2	3070	71.8	3180	79.3
3290	86.8	3400	92	3433	96.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	2120	.035	2630	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2120	2630	720	675	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 117330

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	91.1	1060	88.2	1090	80.1	1100	78.6	1140	83.9
1150	84	1260	81.2	1290	74.4	1400	71.7	1510	72
1590	72.1	1700	67.7	1760	64.6	1770	64.6	1870	46.4
1880	43.3	1910	41.1	2020	40.6	2060	40.6	2070	40.7
2120	40.9	2230	42.9	2240	44.1	2250	48.3	2310	65
2320	67.7	2330	69.3	2400	71.2	2430	70.8	2540	71.1
2550	71	2610	70.9	2620	70.7	2650	70.6	2660	70.5
2770	69.7	2800	69.1	2810	69.1	2820	68.6	2840	68
2850	68.2	2860	68.2	2880	67.6	2890	67.6	2920	69.4
3030	100.2	3050	103.8	3060	104.4	3070	104.4	3140	99.2
3150	99.4	3160	101.5	3200	120.5	3249	149.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1770	.035	2310	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1770	2310	1150	1023	850	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 116307

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	108.8	1010	107.8	1070	81.2	1080	74.8	1090	70.2
1200	60.2	1270	48.8	1290	42.9	1320	38.8	1340	38.5
1350	38.5	1410	39.7	1440	39.7	1550	43.2	1590	44.4
1600	45.9	1660	61	1680	69.3	1690	71.3	1700	70.4
1750	64	1760	64	1770	64	1780	64	1800	64
1870	64	1980	64	2070	64	2110	64	2120	64
2160	70.3	2170	70.6	2190	64.8	2200	64.5	2300	68.3
2320	67.2	2330	67.4	2440	73.8	2540	77.9	2580	85.6
2680	96.5	2710	111	2720	114	2730	114	2740	113.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1200	.035	1660	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1200	1660	500	500	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 115807

INPUT
Description: FROM FILE SCT015.DAT

Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	109.8	1030	125.4	1040	116.9	1070	77.1	1080	71.4
1100	85	1110	84	1130	66.4	1140	62.8	1150	62
1200	50.8	1210	45.3	1220	42.1	1240	38.3	1270	37.4
1360	39.3	1370	39.3	1480	43.4	1510	44	1520	44
1530	44.3	1540	46.8	1560	48.2	1605	62	1630	69.9
1640	67.2	1660	64	1670	64	1770	64	1780	64
1890	64	1960	64	1990	70.1	2040	64	2050	64
2110	65.4	2120	65.5	2130	65.5	2240	75	2270	79
2280	79	2290	78.9	2310	78.9	2350	79.3	2460	79.4
2500	79.3	2610	75.9	2620	75.8	2690	91.9	2700	91.7
2790	100.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1150	.035	1605	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1150	1605	1230	1230	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 114577

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	137.4	1110	124.2	1180	113.5	1220	101.3	1260	79.9
1270	70.9	1280	65.9	1290	64.4	1310	64.3	1370	59.3
1380	57.4	1410	45.1	1420	42.3	1490	37.7	1510	37.6

```
    1550    38.6    1570    38.2    1610    39.5    1630    39.6    1740    41.8
    1780      48    1810      56    1820    57.1    1890    53.5    2000    61.8
    2090      66    2110      66    2120      66    2130      66    2140      66
    2160      66    2170      66    2200    66.2    2210      65    2310    75.1
    2420    75.7    2440    75.7  2440.1      96    2610      96    2720      96
    2730      96    2810      96    2900      96    2940      96    2993      96

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .06    1380    .035    1810     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1380    1810              515     515     515             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 114062

INPUT
Description: X-113859 IS THE US FACE DTM STATION OF RR BRIDGE
X1113859    57
              2110    2600      48      48      48

Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1680    91.5    1700    95.9    1710    96.8    1720    82.5    1730    72.7
    1740    68.6    1810    65.4    1866      56    1920    46.9    1950    39.1
    1990    36.7    2010    36.8    2060    37.5    2090    37.6    2180    39.5
    2210    39.5    2320    43.4    2390    55.3    2420      56    2530    72.7
    2540    74.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1680     .07    1866    .035    2390     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1866    2390              229     229     229             .3       .5

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 113859

INPUT
Description: This is a REPEATED section.

Station Elevation Data    num=      55
```

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     151   105.7     156   105.7     156    68.9     230    68.4     240    66.9
     240    92.4     245    92.4     245    65.6     254    63.3     285    63.2
     325    58.5     325    92.4     330    84.4     330    57.8     339    56.7
     343    48.2     371    37.6     413    36.2     413    83.6     418    83.6
     418    36.2     459    36.9     500    37.2     500    82.8     506    82.8
     506    37.2     547    37.9     588    38.2     588      82     594      82
     594    38.2     635    39.8     676    39.2     676    81.2     682    81.2
     682    39.2     723    40.1     764    42.2     764    80.4     769    80.4
     769    42.2     811    43.1     837    48.2     841    57.6     852    57.6
     852    79.6     857    87.6     857    57.6     860    57.6     873    62.3
     884    62.4     888    64.2     938    64.7     938   100.5     944   100.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     151     .07     339    .035     841     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           339     841               22      22      22             .3       .5

BRIDGE


RIVER: RIVER-1
REACH: Reach-1            RS: 113835

INPUT
Description: Bridge #3X-113811 IS THE DS FACE DTM STATION OF RR
             BRIDGE
X1113811    67    2150    2720     214     214
             214
CONRAIL (READING) RR BRIDGE
HELICOPTER FLIGHT PHOTO #30

Distance from Upstream XS =      .1
Deck/Roadway Width        =    21.8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      20
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     156   105.7    92.5     240   105.4    92.4     245   105.4    92.4
     325   105.1    92.4     325   102.4    92.4     330   102.4    84.4
     413   101.6    83.6     418   101.6    83.6     500   100.8    82.8
     506   100.8    82.8     588     100      82     594     100      82
     676    99.2    81.2     682    99.2    81.2     764    98.4    80.4
     769    98.4    80.4     852    97.6    79.6     857    97.6    87.6
     857   100.6    87.6     938   100.5    87.5

Upstream Bridge Cross Section Data
Station Elevation Data    num=      55
```

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
151	105.7	156	105.7	156	68.9	230	68.4	240	66.9
240	92.4	245	92.4	245	65.6	254	63.3	285	63.2
325	58.5	325	92.4	330	84.4	330	57.8	339	56.7
343	48.2	371	37.6	413	36.2	413	83.6	418	83.6
418	36.2	459	36.9	500	37.2	500	82.8	506	82.8
506	37.2	547	37.9	588	38.2	588	82	594	82
594	38.2	635	39.8	676	39.2	676	81.2	682	81.2
682	39.2	723	40.1	764	42.2	764	80.4	769	80.4
769	42.2	811	43.1	837	48.2	841	57.6	852	57.6
852	79.6	857	87.6	857	57.6	860	57.6	873	62.3
884	62.4	888	64.2	938	64.7	938	100.5	944	100.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
151	.07	339	.035	841	.07

Bank Sta: Left	Right	Coeff Contr.	Expan.
339	841	.3	.5

Downstream Deck/Roadway Coordinates
num= 20

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
156	105.7	92.5	240	105.4	92.4	245	105.4	92.4
325	105.1	92.4	325	102.4	92.4	330	102.4	84.4
413	101.6	83.6	418	101.6	83.6	500	100.8	82.8
506	100.8	82.8	588	100	82	594	100	82
676	99.2	81.2	682	99.2	81.2	764	98.4	80.4
769	98.4	80.4	852	97.6	79.6	857	97.6	87.6
857	100.6	87.6	938	100.5	87.5			

Downstream Bridge Cross Section Data
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
151	105.7	156	105.7	156	68.9	230	68.4	240	66.9
240	92.4	245	92.4	245	65.6	254	63.3	285	63.2
325	58.5	325	92.4	330	84.4	330	57.8	339	56.7
343	48.2	371	37.6	413	36.2	413	83.6	418	83.6
418	36.2	459	36.9	500	37.2	500	82.8	506	82.8
506	37.2	547	37.9	588	38.2	588	82	594	82
594	38.2	635	39.8	676	39.2	676	81.2	682	81.2
682	39.2	723	40.1	764	42.2	764	80.4	769	80.4
769	42.2	811	43.1	837	48.2	841	57.6	852	57.6
852	79.6	857	87.6	857	57.6	860	57.6	873	62.3
884	62.4	888	64.2	938	64.7	938	100.5	944	100.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
151	.07	339	.035	841	.07

```
Bank Sta: Left   Right    Coeff Contr.   Expan.
           339     841             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 113811

INPUT
Description:
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     151   105.7     156   105.7     156    68.9     230    68.4     240    66.9
     240    92.4     245    92.4     245    65.6     254    63.3     285    63.2
     325    58.5     325    92.4     330    84.4     330    57.8     339    56.7
     343    48.2     371    37.6     413    36.2     413    83.6     418    83.6
     418    36.2     459    36.9     500    37.2     500    82.8     506    82.8
     506    37.2     547    37.9     588    38.2     588      82     594      82
     594    38.2     635    39.8     676    39.2     676    81.2     682    81.2
     682    39.2     723    40.1     764    42.2     764    80.4     769    80.4
     769    42.2     811    43.1     837    48.2     841    57.6     852    57.6
     852    79.6     857    87.6     857    57.6     860    57.6     873    62.3
     884    62.4     888    64.2     938    64.7     938   100.5     944   100.5

Manning's n Values        num=       3
```

Sta	n Val	Sta	n Val	Sta	n Val
151	.07	339	.035	841	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
339	841	214	214	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 113597

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	104.4	1110	106.2	1160	111	1170	106.5	1200	90.6
1210	87.9	1250	90.6	1280	90	1290	90	1330	91.3
1390	90.7	1500	90.5	1520	90.4	1540	90.1	1650	89.9
1690	89.2	1800	89.6	1840	89.7	1900	91	1930	90.1
1940	88.4	1950	84.5	1980	67.2	1990	64.6	2000	66.8
2020	73.3	2030	74.7	2140	60	2210	56.2	2230	47.2
2240	44	2270	39.1	2310	37.9	2400	38.3	2420	38.5
2460	38.8	2520	39.8	2570	39.8	2680	43.4	2770	61.2
2840	86.8	2850	88.4	2870	88.4	2890	89	2940	89.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	2210	.035	2770	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2210	2770	1130	1130	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 112467

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	133.7	1020	134.2	1120	134	1230	137.6	1320	138.5
1430	138.6	1470	137.7	1530	137.6	1640	132.2	1750	105
1770	98.6	1780	98.4	1830	99.6	1840	99.7	1950	94.7
2030	90.9	2120	91.4	2130	91.5	2160	91.6	2250	90.2
2270	90.6	2280	90.6	2360	84.3	2470	58.1	2550	48.8
2570	43.2	2580	41.7	2600	41.5	2650	40.5	2680	41
2710	41.2	2760	41.7	2870	41.9	2890	41.9	2900	42

3010	41.9	3060	43.6	3070	45.1	3110	57.6	3190	67.8
3260	69.1	3280	68.6	3290	69.9	3330	83	3340	83.8
3450	84	3480	84	3500	84	3580	84	3600	84
3630	84	3650	84	3700	84	3810	84	3860	84
3970	84	4010	84	4110	84	4220	84	4240	84
4290	84	4300	84	4310	84	4340	84	4350	84
4440	84	4450	86.4	4460	87.9	4470	88.3	4510	88.3
4540	88.6	4620	89.1	4671	93.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	2470	.035	3110	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2470	3110	1133	1133	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 111334

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1240	112.7	1280	95.8	1290	93.2	1300	92.9	1410	92.8
1520	93.4	1530	93.4	1580	92.8	1690	93	1710	92.8
1730	92.8	1800	90.2	1810	90.1	1830	90.4	1840	90.3
1850	88.7	1960	60.7	2030	48.1	2060	40.5	2080	38.9
2190	41.9	2210	42.3	2240	42.2	2280	41.2	2320	41.3
2350	42	2360	41.9	2370	41.7	2400	41.8	2430	42.9
2450	42.9	2560	41.3	2600	40.8	2630	40.7	2640	40.9
2650	42.1	2700	58.5	2760	63.4	2790	62.5	2900	67.3
3010	69.5	3110	72.2	3150	71.5	3170	71.4	3210	70
3220	70	3240	70.3	3240.1	90	3330	90	3340	90
3420	90	3440	90	3500	90	3530	90	3590	90
3600	90	3620	90	3630	90	3660	90	3670	90
3750	90	3760	90	3810	94.6	3820	95.1	3850	94.7
3960	97.9	4030	102.1	4050	101.7	4060	101.7	4120	99.1
4140	99.1	4190	100.9	4212	100.9				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1240	.08	1960	.035	2700	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1960	2700	580	668	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 110666

INPUT
Description:
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1690	112.9	1750	91.7	1840	77.3	1880	62.3	1950	48.3
1970	42	2000	37.6	2020	37.6	2080	39.2	2140	39.4
2150	39.3	2160	39.3	2260	40.6	2370	41.1	2440	41
2510	39.9	2520	39.8	2550	41.7	2560	43.5	2570	46.4
2590	55.4	2600	57.8	2710	63.6	2720	63.6	2750	63
2820	63.1	2890	66.2	2950	66.5	3010	62.6	3020	62.7
3080	65.6	3110	74.1	3120	76	3190	78.8	3220	79.1
3330	87	3440	100.7	3490	104.4	3500	104.4	3530	103.2
3540	104	3553	106.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1690	.08	1880	.035	2600	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1880	2600	612	612	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 110054

INPUT
Description:
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	117.3	1020	116.9	1030	116.9	1040	117.6	1050	117.7
1110	116.3	1120	116.2	1160	104.5	1170	104.2	1180	104.2
1190	104.3	1270	94.4	1280	94.8	1290	94.8	1400	90.5
1500	88.3	1610	67.5	1670	57	1720	40.5	1770	37.5
1820	37.6	1870	36.8	1900	36.8	2010	38.4	2080	39.2
2120	39.1	2140	39.4	2180	47	2190	47.5	2200	47.3
2230	49.4	2260	56.2	2290	57.2	2330	57	2390	56.2
2400	56.1	2510	60.5	2550	62.7	2610	62.5	2720	66.8
2830	70.6	2880	74	2890	73.7	3000	78.4	3020	78.4
3070	79.2	3083	79.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1670	.035	2260	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1670 2260 420 506 600 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 109548

INPUT
Description: X-109276 IS THE US FACE DTM STATION OF RT 476 SOUTH
BRIDGE
X1109276 24 1410 1980 56 56 56

Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	111.2	1110	113.7	1150	115.3	1260	112.8	1370	105.2
1420	102.4	1430	102.4	1510	111.3	1620	98.5	1730	79
1840	59.4	1930	48	1950	42.6	2060	36.9	2080	36.3
2100	36.3	2110	36.5	2120	36.5	2130	36	2170	36.2
2250	38.7	2300	38.7	2340	41.2	2380	49.3	2400	50.9
2450	57.8	2540	60.6	2580	64	2590	64	2600	63.9
2630	63.6	2640	63.5	2650	63.4	2660	63.3	2670	63.3
2680	63.1	2690	63.1	2710	64.6	2720	63.6	2730	61.5
2740	60.6	2850	66.2	2860	67.5	2880	75.1	2890	81.8
2910	90.4	2920	92.9	2930	94.1	2960	94.2	2980	95.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1840	.035	2450	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1840 2450 278 278 278 .3 .5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 109276

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
368	77	390	63	417	63	417.1	90	422.9	90
423	63	435	63	455	60	470	57.8	483	54.6
498	47.8	510	44.6	525	43.8	545	44.8	570	37.8
606	37.1	606.1	40	612	90	612.1	37	640	36.6

```
     664    42.8     674    36.5     720    36.4     774    36.3     795    38.3
   795.1      90   800.9      90     801      39     823    40.8     848    38.8
     888    38.5     925    44.3     942    47.8     961      53   983.9    59.5
     984      90   989.9      90     990      61    1000    63.5    1107    63.2
    1149    62.2  1149.1      90  1154.9      90    1155      62    1200    61.8
    1261      62  1261.1      90  1266.9      90    1267      62    1365      62
    1392    63.5    1409    63.5    1412    64.8    1423    66.4  1423.1      90
  1428.9      90    1429    67.1    1495      77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     368     .08     455    .035   983.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           455   983.9               162     162     162             .3       .5

BRIDGE


RIVER: RIVER-1
REACH: Reach-1            RS: 109192

INPUT
Description: Bridge #2X-109108 IS THE DS FACE DTM STATION OF RT 476 NORTH
             BRIDGE
X1109108    25    1470    2040     250     250
             250
X-109173 IS THE US FACE DTM STATION OF RT 476 NORTH
             BRIDGE
X1109173    25    1460    2030      65      65
             65
X-109220 IS THE DS FACE DTM STATION OF RT 476 SOUTH
             BRIDGE
X1109220    22    1480    1990      47      47
             47
I-476 (BLUE ROUTE) BRIDGES (TWIN SPAN)
BOTH NORTH BOUND AND
             SOUTH BOUND BRIDGES MODELLED
AS ONE BRIDGE
RT 476 NORTH AND
             SOUTH
HELICOPTER FLIGHT PHOTO #29 AND #29A

Distance from Upstream XS =      .1
Deck/Roadway Width        =   161.8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     368     129      90    1495     129      90
```

Upstream Bridge Cross Section Data
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
368	77	390	63	417	63	417.1	90	422.9	90
423	63	435	63	455	60	470	57.8	483	54.6
498	47.8	510	44.6	525	43.8	545	44.8	570	37.8
606	37.1	606.1	40	612	90	612.1	37	640	36.6
664	42.8	674	36.5	720	36.4	774	36.3	795	38.3
795.1	90	800.9	90	801	39	823	40.8	848	38.8
888	38.5	925	44.3	942	47.8	961	53	983.9	59.5
984	90	989.9	90	990	61	1000	63.5	1107	63.2
1149	62.2	1149.1	90	1154.9	90	1155	62	1200	61.8
1261	62	1261.1	90	1266.9	90	1267	62	1365	62
1392	63.5	1409	63.5	1412	64.8	1423	66.4	1423.1	90
1428.9	90	1429	67.1	1495	77				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
368	.08	455	.035	983.9	.05

Bank Sta: Left	Right	Coeff Contr.	Expan.
455	983.9	.3	.5

Downstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
368	129	90	1495	129	90

Downstream Bridge Cross Section Data
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
368	77	390	63	417	63	417.1	90	422.9	90
423	63	435	63	455	60	470	57.8	483	54.6
498	47.8	510	44.6	525	43.8	545	44.8	570	37.8
606	37.1	606.1	40	612	90	612.1	37	640	36.6
664	42.8	674	36.5	720	36.4	774	36.3	795	38.3
795.1	90	800.9	90	801	39	823	40.8	848	38.8
888	38.5	925	44.3	942	47.8	961	53	983.9	59.5
984	90	989.9	90	990	61	1000	63.5	1107	63.2
1149	62.2	1149.1	90	1154.9	90	1155	62	1200	61.8
1261	62	1261.1	90	1266.9	90	1267	62	1365	62
1392	63.5	1409	63.5	1412	64.8	1423	66.4	1423.1	90
1428.9	90	1429	67.1	1495	77				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
368	.08	455	.035	983.9	.05

Bank Sta: Left	Right	Coeff Contr.	Expan.

```
          455   983.9             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =     129
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 109108

INPUT
Description:
Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     368      77     390      63     417      63   417.1      90   422.9      90
     423      63     435      63     455      60     470    57.8     483    54.6
     498    47.8     510    44.6     525    43.8     545    44.8     570    37.8
     606    37.1   606.1      40     612      90   612.1      37     640    36.6
     664    42.8     674    36.5     720    36.4     774    36.3     795    38.3
   795.1      90   800.9      90     801      39     823    40.8     848    38.8
     888    38.5     925    44.3     942    47.8     961      53   983.9    59.5
     984      90   989.9      90     990      61    1000    63.5    1107    63.2
    1149    62.2  1149.1      90  1154.9      90    1155      62    1200    61.8
    1261      62  1261.1      90  1266.9      90    1267      62    1365      62
    1392    63.5    1409    63.5    1412    64.8    1423    66.4  1423.1      90
  1428.9      90    1429    67.1    1495      77

Manning's n Values        num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
     368     .08     455    .035   983.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           455   983.9              250     250     250             .3       .5

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 108858

INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   123.3    1110   122.9    1190   117.8    1200     118    1210   116.9
    1320   101.8    1430    94.7    1500    90.6    1610    70.4    1720      54
    1750    48.2    1770    41.5    1880    36.4    1930    35.9    2010    36.1
    2120    37.7    2200    42.6    2210    45.1    2250      59    2260    60.8
    2330    64.3    2370    63.9    2390    63.8    2420    63.3    2530    63.6
    2580    63.5    2590    63.4    2600    63.4    2610    63.7    2620    65.8
    2630      69    2670    85.1    2680    87.1    2690      87    2760    95.8
    2780   101.4    2834   105.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .08    1720    .035    2250     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1720    2250              450     421     360             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 108437

INPUT
Description:
Station Elevation Data    num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   103.3    1110   100.7    1220    95.2    1330    88.8    1440    76.7
    1550    63.7    1660    47.1    1690    41.3    1800    38.9    1830    38.6
    1860    38.4    1940    37.5    1960    37.7    2070    40.1    2080    40.4
    2090    40.4    2120    42.4    2130    44.1    2170    53.8    2213      60
    2240    63.9    2260    64.3    2270    64.2    2380    62.3    2430    62.4
    2540    65.5    2630    68.6    2650    68.7    2760      73    2840    75.9
    2860    75.5    2870    75.5    2910    76.7    2920      79    2930    88.8
    2970   141.1    2980   149.2    2998   152.3
```

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1550	.035	2213	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1550	2213	450	412	380	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 108025

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1280	90.4	1290	87.8	1300	86.6	1380	90.3	1490	78.2
1600	65.1	1710	52.8	1760	54.1	1800	48.5	1820	42.1
1930	39.4	1980	38.5	2070	40.5	2080	40.5	2130	39.7
2180	41.1	2190	41.1	2210	40.8	2280	40.8	2310	42.7
2320	45.3	2350	56.5	2370	57.6	2480	58.4	2500	58.5
2550	59.7	2610	66.9	2650	67.8	2750	68	2860	71.9
2960	76.1	2970	76.1	3030	78.2	3080	90.5	3110	102.6
3220	137.6	3230	139	3240	138.3	3268	130.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1280	.08	1760	.035	2350	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1760	2350	169	169	169	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 107856

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1280	90.4	1290	87.8	1300	86.6	1380	90.3	1490	78.2
1600	65.1	1710	52.8	1760	54.1	1800	48.5	1820	42.1
1930	39.4	1980	38.5	2070	40.5	2080	40.5	2130	39.7
2180	41.1	2190	41.1	2210	40.8	2280	40.8	2310	42.7
2320	45.3	2350	56.5	2370	57.6	2480	58.4	2500	58.5
2550	59.7	2610	66.9	2650	67.8	2750	68	2860	71.9

2960	76.1	2970	76.1	3030	78.2	3080	90.5	3110	102.6
3220	137.6	3230	139	3240	138.3	3268	130.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1280	.05	1760	.035	2350	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1760	2350	20	20	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 107836

INPUT
Description:
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	87.5	1060	86.3	1080	86.2	1100	86.4	1120	86.4
1230	76.8	1280	74.4	1300	74.9	1390	65	1410	61
1420	60.9	1510	64.7	1520	64.8	1530	62.6	1540	56.7
1550	52.8	1560	51.8	1590	56.1	1600	55.9	1635	55.9
1636	46	1660	46	1720	46	1770	46	1800	46
1830	46	1850	46	1940	46	1950	46	1980	46
2030	46	2060	46	2080	46	2110	46	2164	46
2165	50.2	2200	50.2	2220	53.6	2230	53.8	2240	53.9
2250	53.8	2260	53.8	2370	59.3	2430	66.2	2440	68.6
2450	74.3	2460	81.9	2480	90.6	2520	101.5	2530	102.6
2540	102.6	2570	102.6	2580	102.6	2610	102.6	2640	102.6
2670	102.6	2680	102.6	2700	102.6	2710	102.6	2790	102.6
2860	102.6	2940	102.6	2950	102.6	3000	102.6	3010	102.6
3058	102.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1635	.035	2165	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1635	2165	20	20	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 107816

INPUT
Description: X-107836 IS THE CREST OF PLYMOUTH DAM

X1107836   66   1640
             2180   140   140   140
PLYMOUTH DAM
HELICOPTER FLIGHT
             PHOTO #28A

Station Elevation Data   num=   57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1249.9	87	1250	67.2	1300	67.1	1320	66.6	1330	66.6
1340	67.1	1350	67.1	1360	66.8	1370	66.8	1380	66.6
1410	63	1420	62.7	1480	62.8	1490	62.9	1500	62.8
1510	62.8	1520	63.2	1530	62.9	1540	62.9	1650	65.6
1670	66.3	1680	66	1705	58	1760	40.8	1830	33.6
1840	33.6	1850	33.7	1870	33.7	1910	32.9	1930	32.9
1970	33.8	1980	33.9	2000	34.1	2010	34	2060	33.3
2080	33.2	2120	33.9	2140	34.1	2210	40.2	2220	43.1
2250	53.7	2260	55.6	2270	56.1	2280	55.8	2290	55.7
2390	59.7	2410	59.7	2420	59.6	2430	59.5	2490	65.3
2500	65.4	2520	65.2	2600	67.4	2610	67.2	2630	67.2
2680	68.6	2680.1	89						

Manning's n Values   num=   3

Sta	n Val	Sta	n Val	Sta	n Val
1249.9	.05	1705	.035	2260	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1705	2260	120	120	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1   RS: 107696

INPUT
Description:
Station Elevation Data   num=   57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1249.9	87	1250	67.2	1300	67.1	1320	66.6	1330	66.6
1340	67.1	1350	67.1	1360	66.8	1370	66.8	1380	66.6
1410	63	1420	62.7	1480	62.8	1490	62.9	1500	62.8
1510	62.8	1520	63.2	1530	62.9	1540	62.9	1650	65.6
1670	66.3	1680	66	1705	58	1760	40.8	1830	33.6
1840	33.6	1850	33.7	1870	33.7	1910	32.9	1930	32.9
1970	33.8	1980	33.9	2000	34.1	2010	34	2060	33.3
2080	33.2	2120	33.9	2140	34.1	2210	40.2	2220	43.1
2250	53.7	2260	55.6	2270	56.1	2280	55.8	2290	55.7
2390	59.7	2410	59.7	2420	59.6	2430	59.5	2490	65.3
2500	65.4	2520	65.2	2600	67.4	2610	67.2	2630	67.2
2680	68.6	2680.1	89						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1249.9	.05	1705	.035	2260	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1705	2260	348	348	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 107348

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	83.6	1100	68.7	1150	55.7	1160	55.9	1250	65.9
1260	65.9	1370	59.7	1380	59.6	1490	62.4	1510	62.7
1620	62.8	1710	62.8	1770	64.8	1780	64.8	1790	62.8
1840	40.6	1910	34.9	1940	34.9	1980	34.3	1990	34.4
2000	34.5	2010	34.5	2020	34.4	2050	34.4	2110	35
2130	35.1	2240	44.5	2330	52.2	2340	52	2350	52
2440	61.1	2450	60.8	2470	63.3	2580	94.3	2690	120.6
2692	121.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1790	.035	2330	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1790	2330	590	590	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 106758

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	85.6	1020	80.1	1030	78.9	1040	80.6	1060	86.1
1070	85.8	1130	67.4	1240	64.6	1350	61.8	1410	59.2
1460	59.3	1500	60.7	1530	60.4	1590	60.3	1640	61
1650	61	1700	57.9	1710	55.3	1720	50.5	1730	47
1770	40.2	1880	37.1	1930	36.2	1970	36.1	2010	36.9
2030	36.7	2040	36.7	2120	39.8	2210	55.9	2250	58

2290	67.5	2300	67.9	2310	65.3	2320	59	2330	59
2350	63.2	2400	79.3	2420	84.3	2440	87	2450	86.9
2470	86.7	2490	86.5	2510	88.3	2590	108.1	2598	108.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1700	.035	2210	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1700	2210	580	709	800	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 106049

INPUT
Description: FROM FILE SCT014.DAT

Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	102.8	1110	90.1	1120	86.3	1140	76.2	1150	72.8
1160	72.8	1210	77.4	1230	77.3	1270	76.6	1380	65.1
1480	58.3	1550	60.9	1560	60.8	1580	60.4	1620	60.4
1700	58.6	1730	58.4	1760	60.1	1780	59.9	1800	60.5
1850	57.8	1910	37.2	1920	36.8	1950	37.7	1960	37.8
2030	34.3	2070	34.5	2090	34.7	2110	34.8	2130	34.4
2180	36.5	2200	40	2215	50	2217	52	2235	54
2280	56	2340	58	2400	60.2	2430	61	2510	61.2
2550	60.7	2560	60.7	2590	61.9	2600	63.5	2610	68.7
2620	77.1	2630	80.1	2640	80.3	2650	80.2	2700	76
2710	76.1	2790	84.1	2810	84	2900	86.3	2910	86.4
3020	89.8	3070	93.4	3100	93.3	3210	100.2	3297	103.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1850	.035	2235	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1850	2235	400	359	320	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 105690

INPUT
Description: X-105514 IS THE US FACE DTM STATION OF FAYETTE ST BRIDGE

X1105514

52	1810	2210	79	79	79

Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	105.2	1110	96.9	1180	94	1290	79	1469.9	79
1470	58.5	1480	58.3	1490	58.9	1510	58.1	1520	58.5
1570	58.5	1590	57.7	1620	52.7	1640	54	1650	56.3
1660	57.1	1670	57.1	1690	53.8	1730	57.5	1730.1	75
1869.9	75	1870	54.8	1880	54.8	1890	55.1	1900	53.6
1950	38.7	1960	37.2	1970	36.9	1980	36.9	2000	37.4
2070	33.6	2090	33.7	2140	34.9	2150	35	2180	35.4
2200	35.5	2260	37.4	2320	57.2	2325	57.9	2505	60
2620	62	2620.1	82	2945	82	3005	82		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.03	1900	.035	2320	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1900	2320	207	207	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 105514

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75.2	84.37	75.3	80.97	108.2	69.41	108.3	60.25	125.2	60.13
125.3	58.07	136.2	58.75	136.3	56.81	148.2	57.6	172.2	57.91
188.2	57.91	188.3	71.03	215	58.02	215.1	57.91	253	57.6
265	57.49	265.1	55.73	273	55.7	293	55.2	331	55
331.1	58.32	340	58.45	340.1	54.97	378	55.2	398	55.4
413	55.6	456	55.87	456.1	58.75	465	58.68	465.1	58.68
503	55.9	523	55.9	543	55.92	581	58.98	581.1	58.98
590	59	590.1	44.8	601.5	37	628	36.5	638.5	36.4
648	36.9	668	38.07	673.5	38.09	705.5	34.7	706	59.3
715	59.28	718.5	32.5	753	33	763.5	33.5	773	33.3
783.5	33	790	33.13	793	35.95	798.5	36	818.5	35.1
827	35.12	831	59.5	840	59.59	843	35.17	858.5	35.2
878	35.8	878.5	36.1	898	36	918	36.2	948.5	36.4
956	59.89	965	59.79	968	36.9	978.5	37	1003	44.5
1009.4	47.72	1009.5	57.72	1023	57.8	1043	58	1081	58.2
1081.1	60.09	1090	60.1	1090.1	58.4	1128	58.9	1148	59.32
1168	59.35	1206	59.4	1206.1	60.1	1222.4	71.87	1222.5	59.51

```
  1262.4   59.88  1302.4   61.01  1302.5   71.16  1325.4    79.6  1325.5      83

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    75.2     .03   581.1    .035  1009.5     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         581.1  1009.5               48      48      48             .3       .5

BRIDGE


RIVER: RIVER-1
REACH: Reach-1            RS: 105474.5

INPUT
Description: Bridge #1X-105435 IS THE DS FACE DTM STATION OF FAYETTE ST
             BRIDGE
X1105435    56    1830    2250     169     169
             169
FAYETTE STREET BRIDGE
HELICOPTER FLIGHT PHOTO #28

Distance from Upstream XS =      .1
Deck/Roadway Width        =    47.8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      50
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    75.2   84.37   84.37    75.3   84.37   80.97   108.2      86   69.41
   148.2   86.81   80.61   188.3      87   71.03     215    87.2   58.02
     253    87.6   78.27     273   87.77   79.17     293    87.9   78.27
   331.1      88   58.32     340      88   58.45     378    88.1    78.7
     398    88.2    79.6     413    88.2    78.7   456.1    88.3   58.75
     465    88.3   58.68     503    88.4    55.9     523   88.43    55.9
     543    88.4   55.92   581.1    88.6   58.98     590    88.6      59
     628    88.7   79.25     648   88.75   80.15     668    88.8   79.25
     706    88.9    59.3     715    88.9   59.28     753      89   79.53
     773   89.03   80.43     793    89.1   79.53     831    89.2    59.5
     840    89.2   59.59     878    89.3   79.84     898   89.34   80.74
     918    89.4   79.84     956    89.5   59.89     965    89.5   59.79
    1003    89.5      80    1023   89.54   80.94    1043    89.6   80.04
  1081.1    89.7   60.09    1090    89.7    60.1    1128    89.8   80.35
    1148   89.85   81.25    1168    89.8   80.35  1206.1   89.73    60.1
  1222.4    89.5   71.87  1262.4   89.23   83.03  1302.5      86   71.16
  1325.4      83    79.6  1325.5      83      83

Upstream Bridge Cross Section Data
Station Elevation Data    num=      90
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

75.2	84.37	75.3	80.97	108.2	69.41	108.3	60.25	125.2	60.13
125.3	58.07	136.2	58.75	136.3	56.81	148.2	57.6	172.2	57.91
188.2	57.91	188.3	71.03	215	58.02	215.1	57.91	253	57.6
265	57.49	265.1	55.73	273	55.7	293	55.2	331	55
331.1	58.32	340	58.45	340.1	54.97	378	55.2	398	55.4
413	55.6	456	55.87	456.1	58.75	465	58.68	465.1	58.68
503	55.9	523	55.9	543	55.92	581	58.98	581.1	58.98
590	59	590.1	44.8	601.5	37	628	36.5	638.5	36.4
648	36.9	668	38.07	673.5	38.09	705.5	34.7	706	59.3
715	59.28	718.5	32.5	753	33	763.5	33.5	773	33.3
783.5	33	790	33.13	793	35.95	798.5	36	818.5	35.1
827	35.12	831	59.5	840	59.59	843	35.17	858.5	35.2
878	35.8	878.5	36.1	898	36	918	36.2	948.5	36.4
956	59.89	965	59.79	968	36.9	978.5	37	1003	44.5
1009.4	47.72	1009.5	57.72	1023	57.8	1043	58	1081	58.2
1081.1	60.09	1090	60.1	1090.1	58.4	1128	58.9	1148	59.32
1168	59.35	1206	59.4	1206.1	60.1	1222.4	71.87	1222.5	59.51
1262.4	59.88	1302.4	61.01	1302.5	71.16	1325.4	79.6	1325.5	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
75.2	.03	581.1	.035	1009.5	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
581.1	1009.5	.3	.5

Downstream Deck/Roadway Coordinates

num= 50

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
75.2	84.37	84.37	75.3	84.37	80.97	108.2	86	69.41
148.2	86.81	80.61	188.3	87	71.03	215	87.2	58.02
253	87.6	78.27	273	87.77	79.17	293	87.9	78.27
331.1	88	58.32	340	88	58.45	378	88.1	78.7
398	88.2	79.6	413	88.2	78.7	456.1	88.3	58.75
465	88.3	58.68	503	88.4	55.9	523	88.43	55.9
543	88.4	55.92	581.1	88.6	58.98	590	88.6	59
628	88.7	79.25	648	88.75	80.15	668	88.8	79.25
706	88.9	59.3	715	88.9	59.28	753	89	79.53
773	89.03	80.43	793	89.1	79.53	831	89.2	59.5
840	89.2	59.59	878	89.3	79.84	898	89.34	80.74
918	89.4	79.84	956	89.5	59.89	965	89.5	59.79
1003	89.5	80	1023	89.54	80.94	1043	89.6	80.04
1081.1	89.7	60.09	1090	89.7	60.1	1128	89.8	80.35
1148	89.85	81.25	1168	89.8	80.35	1206.1	89.73	60.1
1222.4	89.5	71.87	1262.4	89.23	83.03	1302.5	86	71.16
1325.4	83	79.6	1325.5	83	83			

Downstream Bridge Cross Section Data

Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

75.2	84.37	75.3	80.97	108.2	69.41	108.3	60.25	125.2	60.13
125.3	58.07	136.2	58.75	136.3	56.81	148.2	57.6	172.2	57.91
188.2	57.91	188.3	71.03	215	58.02	215.1	57.91	253	57.6
265	57.49	265.1	55.73	273	55.7	293	55.2	331	55
331.1	58.32	340	58.45	340.1	54.97	378	55.2	398	55.4
413	55.6	456	55.87	456.1	58.75	465	58.68	465.1	58.68
503	55.9	523	55.9	543	55.92	581	58.98	581.1	58.98
590	59	590.1	44.8	601.5	37	628	36.5	638.5	36.4
648	36.9	668	38.07	673.5	38.09	705.5	34.7	706	59.3
715	59.28	718.5	32.5	753	33	763.5	33.5	773	33.3
783.5	33	790	33.13	793	35.95	798.5	36	818.5	35.1
827	35.12	831	59.5	840	59.59	843	35.17	858.5	35.2
878	35.8	878.5	36.1	898	36	918	36.2	948.5	36.4
956	59.89	965	59.79	968	36.9	978.5	37	1003	44.5
1009.4	47.72	1009.5	57.72	1023	57.8	1043	58	1081	58.2
1081.1	60.09	1090	60.1	1090.1	58.4	1128	58.9	1148	59.32
1168	59.35	1206	59.4	1206.1	60.1	1222.4	71.87	1222.5	59.51
1262.4	59.88	1302.4	61.01	1302.5	71.16	1325.4	79.6	1325.5	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
75.2	.03	581.1	.035	1009.5	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
581.1	1009.5	.3	.5

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Energy

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 105435

INPUT
Description:
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75.2	84.37	75.3	80.97	108.2	69.41	108.3	60.25	125.2	60.13
125.3	58.07	136.2	58.75	136.3	56.81	148.2	57.6	172.2	57.91
188.2	57.91	188.3	71.03	215	58.02	215.1	57.91	253	57.6
265	57.49	265.1	55.73	273	55.7	293	55.2	331	55
331.1	58.32	340	58.45	340.1	54.97	378	55.2	398	55.4
413	55.6	456	55.87	456.1	58.75	465	58.68	465.1	58.68
503	55.9	523	55.9	543	55.92	581	58.98	581.1	58.98
590	59	590.1	44.8	601.5	37	628	36.5	638.5	36.4
648	36.9	668	38.07	673.5	38.09	705.5	34.7	706	59.3
715	59.28	718.5	32.5	753	33	763.5	33.5	773	33.3
783.5	33	790	33.13	793	35.95	798.5	36	818.5	35.1
827	35.12	831	59.5	840	59.59	843	35.17	858.5	35.2
878	35.8	878.5	36.1	898	36	918	36.2	948.5	36.4
956	59.89	965	59.79	968	36.9	978.5	37	1003	44.5
1009.4	47.72	1009.5	57.72	1023	57.8	1043	58	1081	58.2
1081.1	60.09	1090	60.1	1090.1	58.4	1128	58.9	1148	59.32
1168	59.35	1206	59.4	1206.1	60.1	1222.4	71.87	1222.5	59.51
1262.4	59.88	1302.4	61.01	1302.5	71.16	1325.4	79.6	1325.5	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
75.2	.03	581.1	.035	1009.5	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
581.1	1009.5	169	169	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 105266

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	107.3	1100	97.1	1130	90.7	1240	80	1270	80
1330	80	1340	80	1350	80	1479.9	80	1480	60.2
1490	60.2	1500	55.7	1520	57	1530	56.9	1580	57.8
1590	57.8	1690	54.7	1800	54.6	1820	54.9	1830	54.9

1840	54.8	1840.1	75	1940	75	1979.9	75	1980	54.9
1990	53.7	2040	37.8	2060	36.7	2070	36.7	2100	37
2150	32.7	2160	32.8	2170	32.9	2180	33	2220	34.8
2250	34.8	2280	35.6	2300	35.6	2360	36.9	2370	39.3
2420	57.8	2430	58.5	2440	58.2	2440.1	75	2559.9	75
2560	59.5	2640	60.6	2650	60.7	2660	60.8	2730	67.2
2730.1	87	2840	87	2870	89.9	2900	92.9	2910	92.8
2940	92.1	2950	92	2960	93.8	2970	97.6	2980	99.2
3030	96.4	3040	96.5	3100	98.3	3130	98.4	3184	100.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.03	1990	.035	2420	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1990	2420	300	406	480	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 104860

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	106.6	1110	94.8	1220	81.8	1330	81	1469.9	81
1470	61.2	1480	61.2	1500	62.8	1520	55.1	1530	55.1
1540	56.7	1550	56.7	1590	58.3	1600	58.3	1680	57
1780	56.8	1920	54.1	1920.1	74	2059.9	74	2060	54
2090	53.1	2140	38.8	2250	32.7	2290	33.3	2310	33.3
2340	34.3	2360	34.3	2420	36.6	2430	37.9	2440	41.1
2470	55.6	2480	58.1	2490	58.2	2530	58.3	2530.1	75
2649.9	75	2650	60.5	2670	60.7	2680	61.1	2710	69.9
2820	90.3	2880	94.4	2900	99.8	2970	107.9	2981	110.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.03	2090	.035	2480	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2090	2480	380	516	600	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 104344

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	115.8	1030	113	1050	106.9	1100	98.9	1110	95.9
1130	94.1	1140	94.2	1150	94.3	1160	94.4	1170	94.1
1190	86.7	1270	79.6	1280	74.5	1390	66	1500	57.6
1530	53.2	1540	56.1	1600	58.5	1610	58.4	1670	58.4
1690	58.7	1710	58.7	1740	58.4	1790	58	1900	56.9
1910	56.9	2020	56.5	2030	56.5	2130	58.7	2140	58.7
2150	58.6	2170	58.5	2180	58.1	2190	56.2	2240	39.3
2350	31.8	2360	31.5	2380	31.9	2390	31.9	2400	31.8
2410	31.8	2520	37.8	2530	40.8	2550	49.6	2560	52.4
2640	61.6	2670	68.9	2700	71	2740	89.9	2780	119.6
2790	123.4	2840	125.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2190	.035	2560	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2190	2560	551	551	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 103793

INPUT
Description: FROM FILE SCT013.DAT
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	108.8	1110	97.4	1190	91.8	1200	89	1210	83.3
1409.9	83	1410	63	1440	61.2	1540	57.1	1550	53.5
1580	57.3	1580.1	77	1829.9	77	1830	56.6	1910	57.1
1970	57.7	2000	57.9	2090	58.8	2110	58.9	2170	53.4
2280	57.9	2290	58.2	2300	56.4	2360	36.8	2470	29.4
2490	28.9	2600	35.3	2620	38.1	2630	40.6	2662	56
2670	59.8	2680	61.4	2690	65.8	2720	86.1	2730	88.9
2740	90.1	2829	122.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2300	.035	2662	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2300	2662	470	515	550	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 103278

INPUT
Description:
Station Elevation Data num= 452

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	165.24	1.9	165.12	2.9	164.58	4.9	164.55	5.9	164.01
8	163.99	9	163.5	11.9	163.47	12.9	162.94	14.9	162.94
15.9	162.41	17.9	162.41	18.9	161.97	21.9	161.97	22.9	161.53
24.9	161.53	25.9	161.09	27.9	161.09	28.9	160.66	32	160.66
33	160.16	35	160.16	36	159.56	38	159.56	39	159
41	159	42	158.56	51	158.25	52	157.84	59	157.38
84	157.22	115.1	155.06	143.1	155.81	154.2	155.02	176.2	155.03
183.2	154.61	184.2	153.64	186.2	153.77	187.2	152.91	189.2	153.07
190.2	152.03	193.2	152.33	194.2	150.83	196.2	151.06	197.2	149.71
199.2	149.75	200.2	147.97	203.2	147.97	204.2	146.56	206.2	146.56
207.2	145.38	209.2	145.38	210.2	144.38	212.3	144.38	213.3	143.41
216.3	143.49	217.3	142.2	219.3	142.39	220.3	141.24	222.3	141.44
223.3	140.61	226.3	140.79	227.3	140	230.3	139.8	245.3	139.91
246.3	139.09	249.3	139.09	250.3	138.41	252.3	138.41	253.3	137.94
255.3	137.94	263.3	136.81	278.4	136.72	288.4	136.19	289.4	135.62
291.4	135.62	292.4	134.22	295.4	134.22	296.4	132.16	298.4	132.16
299.4	130.42	301.4	130.47	302.4	129.59	311.4	129	312.4	128.31
341.5	127.94	362.5	125.94	375.5	126.48	390.5	126.34	398.6	125.81
430.6	126.09	440.6	125.41	466.7	124.75	486.7	122.98	489.7	123.07
490.7	122.38	492.7	122.5	493.7	115.94	495.7	115.94	496.7	111.75
499.7	111.75	500.7	111.16	506.7	110.88	518.8	110.94	526.5	111.59
532.8	111.34	533.8	110.19	535.8	110.19	536.8	108.97	538.8	108.97
539.8	107.78	548.8	107.06	549.8	106.53	551.8	106.53	552.8	105.59
555.8	105.64	556.8	105.16	558.8	105.15	559.8	104.44	561.8	104.44
562.8	103.19	564.8	103.19	565.8	100.19	568.8	100.19	569.8	98.06
571.9	98.06	572.9	98.69	574.9	98.69	575.9	99.03	578.9	99.03
608.9	97.47	624.9	97.19	625.9	96.84	627.9	96.84	628.9	96.22
659	94.97	681	95.5	685	94.75	687	94.75	688	94.31
690	94.31	691.1	93.88	694.1	93.88	695.1	93.44	697.1	93.44
698.1	93	700.1	93.01	701.1	92.61	704.1	92.65	708.1	91.86
710.1	91.88	711.1	91.45	713.1	91.46	714.1	91.04	717.1	91.06
718.1	90.66	720.1	90.66	721.1	90.22	723.1	90.22	724.1	89.81
727.1	89.81	728.1	89.47	736.1	89.14	737.3	88.66	740.1	88.64
741.1	87.94	766.2	86.94	769.2	86.66	770.2	85.88	773.2	85.88
774.2	84.41	776.3	84.41	777.3	82.94	779.3	82.94	780.3	80.97
782.4	80.97	783.4	78.75	786.4	78.43	787.5	76.08	789.5	75.94
790.5	73.22	792.6	73.22	793.6	71.38	862.8	70.22	873	69.78
880.1	68.91	886.3	68.72	887.3	66.16	889.3	66.19	890.3	65.05
892.4	65.04	893.4	64.5	895.4	64.47	896.4	64.09	912.7	63.91
919.9	63.41	939.2	63.91	940.2	63.5	952.5	62.81	959.6	61.72
965.8	61.41	969.9	60.68	982.2	59.69	983.2	59.34	992.4	59

1009.9	57.16	1026.3	56.91	1060.1	54.43	1099.1	54.44	1120.6	54.84
1132.9	54.5	1134	53.84	1136	53.84	1137	52.16	1140.1	52.12
1141.1	51.3	1144.2	51.28	1146.3	51.34	1147.3	52.25	1149.3	52.25
1150.4	52.91	1153.5	52.91	1154.5	53.66	1156.5	53.7	1157.6	54.84
1163.7	55.19	1166.8	55.19	1167.8	54.81	1170.9	54.56	1180.1	54.62
1181.1	54.06	1183.2	54.06	1184.2	53.53	1193.5	53.66	1203.7	54.84
1223.2	54.75	1243.7	54.01	1252.9	54.69	1254	55.19	1257	55.19
1258.1	55.62	1260.1	55.62	1261.1	56.06	1263.2	56.06	1264.2	56.5
1266.3	56.5	1267.3	56.94	1279.6	56.67	1323.7	57.12	1344.2	57.88
1380.1	57.53	1400.6	58.51	1407.8	59.16	1424.2	59.22	1438.6	60.34
1464.2	60.44	1482.7	61.35	1498.1	61.33	1520.1	62.41	1534.7	62.31
1545.2	63.16	1556.1	63.5	1567.8	63	1568.8	62.56	1581.1	61.94
1588.3	63.12	1600.6	63.81	1601.7	64.5	1604.7	64.99	1607.8	65
1608.8	63.94	1610.9	63.94	1611.9	62.88	1614.9	62.83	1616	61.81
1618.1	61.81	1619.1	60.75	1621.1	60.97	1622.2	60	1624.2	60.25
1625.2	59.34	1628.3	59.34	1629.3	58.59	1631.4	58.59	1632.4	58.19
1635.5	57.91	1638.6	57.94	1641.7	58.44	1647.8	57.88	1648.8	57.5
1652.9	57.52	1656	56.88	1658.1	57.24	1661.1	57.16	1662.2	56.81
1664.3	56.79	1665.2	56.38	1669.3	56.11	1671.4	56.33	1678.6	55.97
1701.1	55.84	1708.5	56.19	1779.1	55	1852.9	54.5	1865.2	54.59
1876.5	55.38	1886.8	55.66	1942.2	55.16	1943.2	54.68	1945.2	54.64
1946.3	53.75	1949.3	53.72	1950.4	52.59	1952.4	52.59	1953.5	51.84
1962.7	51.66	1963.7	51	1965.8	50.94	1966.8	49.88	1968.8	49.88
1969.9	47.59	1971.9	47.59	1972.9	42.91	1976	42.91	1976.6	40.4321
1977	38.78	1979.1	38.78	1980.1	38.31	1983.2	37.91	2256.5	37.91
2300.1	37.91	2301.1	38.69	2303.2	38.68	2304.2	40.97	2306.3	40.68
2307.3	43.36	2310.4	43.34	2311.4	45.78	2313.5	45.78	2314.5	48
2316.5	48	2317.6	50.12	2319.6	50.12	2320.7	52.22	2323.7	52.44
2324.7	54.03	2326.8	54.03	2327.8	55.31	2329.9	55.31	2330.9	56.72
2334	56.72	2334.9	57.6	2337	57.62	2338.1	58.34	2340.1	58.38
2341.1	59	2343.2	59	2344.2	59.5	2365.4	60.34	2370.6	60.06
2371.7	59.41	2378.3	59.47	2379.5	61.31	2381.7	61.31	2382.8	64.21
2385	64.66	2386.1	67.34	2389.3	67.47	2390.6	69.62	2392.8	69.81
2393.9	72.34	2396.1	72.34	2397.2	75.03	2399.5	74.94	2400.6	78.03
2402.8	78.03	2403.9	80.34	2407.2	80.34	2408.4	83.99	2409.7	83.38
2410.6	83.38	2411.7	86.62	2413.9	86.62	2415	89.13	2417.2	88.66
2418.4	90.97	2421.7	90.97	2422.8	91.81	2425	91.99	2426.1	93.16
2428.4	93.16	2429.5	94.09	2431.7	93.92	2432.8	94.97	2436.1	94.97
2437.2	96.06	2439.5	96.06	2440.6	97.78	2442.8	97.78	2443.9	100.25
2446.1	100.25	2447.2	103.04	2449.5	103.28	2450.7	106.14	2453.9	106.28
2455	109.16	2457.3	109.37	2458.4	112.28	2460.6	112.28	2461.7	116.03
2463.9	116.64	2465	118.5	2468.4	118.5	2469.5	120.34	2471.7	120.32
2472.8	120.86	2473.8	120.91	2478.3	120.72	2487.3	121.16	2507.3	121.34
2512.8	121.75	2516.2	121.44	2532.8	121.5	2537.3	121.84	2544.2	121.35
2550.6	121.5	2551.7	122.88	2553.9	122.52	2555	123.09	2561.7	123.44
2562.8	124.72	2565.1	124.72	2566.2	128.88	2567.8	128.88	2568.4	129.54
2569.5	139.5	2570.1	140.16	2571.7	140.16	2572.8	148.78	2574.7	148.78
2576.2	149.99	2577.3	159.28	2579.5	159.28	2580.6	162.62	2582.8	162.62
2583.9	165.31	2586.2	166.09	2587.3	169.5	2590.6	169.5	2591.7	172.91
2593.9	173.28	2595	175.87						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1942.2	.035	2344.2	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1942.2	2344.2	185	215	200	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 103063

INPUT
Description:
Station Elevation Data num= 450

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	171.12	1.3	170.44	10.3	170.09	14.3	169.31	17.3	169.31
21.3	168.62	23.3	168.62	24.3	168.25	37.3	167.44	46.3	167.31
47.3	166.97	50.4	166.97	51.4	166.5	53.4	166.5	54.4	166.16
63.4	166.22	70.4	165.31	79.4	164.75	80.4	164.19	82.4	164.19
83.4	163.69	86.4	163.69	87.4	163.31	92.4	162.97	93.4	162.62
96.4	162.62	97.4	161.97	99.4	161.97	100.4	161.31	102.4	161.32
103.4	160.67	105.4	160.67	106.4	160.04	109.4	160.06	110.5	159.22
112.5	159.21	113.5	158.22	115.5	158.22	116.5	157.38	119.5	157.38
120.5	156.56	122.5	156.56	123.5	155.72	125.5	155.72	126.5	154.69
128.5	154.69	129.5	153.94	132.5	153.94	133.5	153.31	135.5	153.31
136.5	152.73	138.5	152.75	139.5	151.72	142.5	151.86	143.5	150.47
145.5	150.63	146.5	149	148.5	149.21	149.5	146.81	152.5	147.1
153.5	144.72	155.5	144.72	156.5	143.12	158.5	143.12	159.5	142.53
161.5	142.53	162.5	142	165.5	142	166.5	141.47	168.5	141.47
169.5	140.91	171.6	140.88	172.6	140.19	175.6	140.16	176.6	139.53
178.6	139.52	179.6	138.91	181.6	138.87	182.6	138.4	191.6	137.5
192.6	137.03	194.6	137.03	195.6	136.62	198.6	136.62	199.6	136.09
201.6	136.09	202.6	135.53	204.6	135.53	205.6	134.92	207.6	134.88
208.6	134.27	211.6	134.23	212.6	133.65	214.6	133.63	215.6	133.06
217.6	133.04	218.6	132.53	221.6	132.5	222.6	131.94	224.6	131.94
225.6	131.47	237.7	130.19	238.7	129.69	240.7	129.69	241.7	129.03
244.7	129.03	245.7	128.56	247.7	128.59	248.7	128.11	253.7	127.76
254.7	127.38	263.7	127.41	283.7	126.78	293.8	126.16	296.8	125.88
297.8	125.47	300.8	125.47	301.8	125.06	307.8	124.69	323.8	124.75
324.8	124.16	326.8	124.16	327.8	123.57	329.8	123.62	330.8	123.03
332.8	123.03	333.8	122.44	336.8	122.44	337.8	121.84	339.8	121.84
340.8	121.25	342.8	121.25	343.8	120.66	346.8	120.66	347.8	120.06
349.8	120.06	350.9	119.47	352.9	119.47	353.9	118.88	355.9	118.88
356.9	118.31	359.9	118.31	360.9	117.81	365.9	117.69	366.9	117.16
369.9	117.34	370.9	116.28	372.9	116.28	373.9	115.81	382.9	115.25
383.9	114.75	385.9	114.75	386.9	114.28	395.9	113.66	396.9	113.34
423	111.78	432	111.55	435	111.36	436	110.83	439	110.89

440	108.87	442	109.06	443	106.59	449	106.34	450	105.97
458	105.81	491.1	104.03	492.1	99.91	495.1	99.91	496.1	94.88
498.1	94.88	499.1	92.03	511.1	91.82	512.1	92.17	518.1	92.34
519.1	92.78	521.1	92.78	522.1	93.22	524.1	93.22	525.1	93.66
529.1	94.06	538.2	93.22	544.2	93.26	545.2	92.94	547.2	92.99
548.2	92.58	551.2	92.65	558.2	91.81	564.2	91.56	565.2	90.94
574.2	90.41	578.2	89.72	583.2	89.44	584.2	89.06	587.2	89.22
588.2	88.81	590.3	88.81	591.3	88.34	620.3	86.72	627.3	85.88
633.3	85.59	634.3	85.22	639.3	84.91	640.3	84.5	643.3	84.5
644.3	84.16	649.3	83.84	650.4	83.44	656.4	83.1	657.4	82.69
662.4	82.39	663.4	82.01	666.4	82.02	667.4	81.62	672.4	81.25
673.4	80.84	679.4	80.5	680.4	80.09	685.4	79.69	686.4	79.28
689.4	79.28	690.4	78.88	692.4	78.88	693.4	78.45	695.4	78.47
696.4	78.13	699.4	78.14	700.4	77.79	709.4	77	725.6	76.12
732.7	75.04	735.7	75.03	736.7	74.66	744.9	74.06	745.9	73.69
748.9	73.69	756	72.53	762.1	72.19	769.2	71.31	772.2	71.31
778.3	70.52	779.3	70.13	785.4	69.78	795.6	68.53	798.6	68.52
805.7	67.44	814.9	67.09	815.9	66.47	822	66.45	823	65.61
828	65.19	830.1	63.84	845.3	62.69	871.7	61	892.1	61
947.8	58	959.1	57.99	964	57.53	976.3	57.37	986.3	56.62
998.5	56.22	1003.6	56.72	1014.7	55.69	1031	54.81	1086.8	54.72
1089.8	54.41	1090.8	52.81	1092.9	52.88	1093.9	51.6	1100	51.69
1101	52.94	1103	52.94	1104	53.94	1107.1	54.17	1136.5	53.72
1153.7	54.9	1159.2	54.59	1173	54.66	1187.2	54	1199.4	54.41
1202.4	54.85	1203.4	56.14	1205.5	56.21	1206.5	57.22	1209.5	57.33
1210.5	57.83	1285.6	57.56	1305.2	57.86	1316.1	57.38	1335.3	57.44
1355.6	58.5	1378	58.66	1395.2	59.2	1399.3	59.65	1431.7	60.31
1449	61.23	1458.1	60.81	1468.3	61.58	1481.4	61.81	1482.5	62.16
1494.6	61.81	1508.8	62.54	1531.2	61.09	1532.2	61.58	1534.2	61.39
1538.3	62.66	1540.3	62.47	1541.3	62.93	1544.3	62.69	1545.4	63.25
1550.4	63.59	1551.4	63.03	1553.5	63.03	1554.5	62.47	1557.5	62.23
1558.6	61.5	1560.6	61.88	1561.6	61.31	1563.6	61.05	1564.6	60.32
1566.7	60.05	1567.7	59.38	1570.7	59.38	1571.7	58.34	1573.8	58.34
1574.8	57.69	1580.9	57.7	1584.9	58.5	1590	58.24	1594.1	58.47
1598.1	59.12	1605.2	59.39	1608.3	59.91	1613.3	59.56	1626.6	59.78
1632.6	59.69	1640.7	59.06	1652.9	59	1667.1	58	1680.3	57.62
1703.6	56.28	1734.1	55.41	1788.9	55.06	1866	53.94	1875.1	54.18
1876.1	53.84	1879.5	53.71	1914.7	52.88	1915.7	52.47	1918.7	52.47
1919.7	51.95	1927.9	51.31	1928.9	50.75	1930.2	50.75	1931.9	50.75
1932.9	49.56	1935	49.56	1936	46.19	1938	46.19	1939	39.84
1942.1	39.76	1943.1	37.88	2224.2	38.00519	2279.9	38.03	2280.9	39.44
2283	39.44	2284	43.12	2286	43.12	2287	45.75	2289.1	45.75
2290.1	48.03	2293.1	48.03	2294.1	49.78	2296.2	49.86	2297.2	52.29
2299.2	52.57	2300.2	55.4	2303.4	55.5	2304.5	57.25	2306.6	57.25
2307.7	58.5	2309.9	58.41	2310.9	58.96	2313.1	58.94	2314.2	59.5
2327.1	59.81	2328.2	60.13	2337.9	60.34	2339	59.84	2344.4	60
2345.4	61.34	2348.7	61.6	2349.8	64.38	2351.9	64.38	2353	67.16
2355.2	67.18	2356.2	69.88	2358.4	69.97	2359.5	72.34	2362.7	72.34
2363.8	74.56	2365.9	74.61	2367	77.28	2369.2	77.44	2370.2	80.81
2372.4	80.81	2373.5	84.14	2375.6	84.72	2376.7	84.29	2377.8	87.88

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    2380   88.12    2381   91.06  2383.2   91.06  2384.3   93.22  2386.4   93.62
  2387.5    95.5  2390.7    95.5  2391.8   97.53    2394   97.53    2395   99.78
  2397.2  100.33  2398.3  102.81  2400.4  102.81  2401.5  105.28  2404.8  105.78
  2405.8  108.03    2408  108.03  2409.1  110.53  2411.2  110.53  2412.3  113.12
  2413.5  113.12  2414.5  113.65  2415.5  116.55  2416.2  116.81  2425.2  116.84
  2433.9  117.45  2459.7  117.69  2460.8  117.95  2466.2  117.69  2487.8  117.97
  2498.6  117.66  2499.6  118.51  2501.8  118.94  2502.9  120.03  2506.1  120.03
  2507.2  120.48  2509.3  120.78  2510.4  122.22  2512.6  122.22  2513.9  127.28

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       0     .05  1914.7    .035  2314.2     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
        1914.7  2314.2              195     220     230             .1       .3
Blocked Obstructions     num=       1
   Sta L   Sta R    Elev
   947.8  1003.6      67

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 102843

INPUT
Description:
Station Elevation Data    num=      29
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     158      59     159      59     160      59     250      56   329.9      56
     330      76   859.9      76     860      56     970      56     971      56
    1000      55    1060    52.6    1070    52.7    1080    53.3    1090    51.9
    1110    38.8    1120    36.1    1150    34.5    1190    34.6    1270    30.4
    1280    30.4    1390      35    1430    36.8    1440    38.5    1472      52
    1490    59.3    1500    61.4    1510    64.5    1570     103

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     158     .05    1090    .035    1472     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1090    1472              638     638     638             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 102205

INPUT
```

Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
499.9	86	500	66	520	64	560	60	620	60
860	56.8	860.1	79	1180	79	1290	79	1329.9	79
1330	58.5	1340	58.5	1350	58.6	1370	58.6	1450	56.1
1460	53.8	1500	37.6	1510	35.6	1540	34.1	1570	34
1660	30.9	1720	30.7	1830	35	1840	35.8	1850	38.5
1860	44.9	1870	53.8	1880	60.7	1890	62	1900	64.9
1940	93.9	1950	99.4	1961	104.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
499.9	.05	1450	.035	1870	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1450	1870	538	538	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 101667

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
940	80	960	76	970	68	990	60	991	60
1000	56.3	1010	54.5	1030	55	1060	54.6	1070	54.6
1090	53.3	1110	50.1	1120	50.6	1140	54.9	1189.9	55.3
1190	75	1270	75	1360	75	1410	75	1659.9	75
1660	54.6	1700	54.5	1790	52.8	1800	50.9	1830	37.6
1840	34.3	1860	34.2	1970	31.2	2020	30.1	2030	30.1
2050	30.3	2060	30.4	2150	36	2193	53	2210	59.8
2220	61.3	2230	64.6	2292	98				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
940	.05	1790	.035	2193	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1790	2193	572	572	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 101095

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	83	1110	83	1160	83	1170	83	1249.9	83
1250	62.5	1310	60	1340	53.7	1350	53.4	1370	53.9
1380	53.9	1400	54.2	1410	54.1	1430	53.5	1460	49.1
1480	54.1	1480.1	73	1510	73	1570	73	1590	73
1829.9	73	1830	52.5	1880	52.2	1990	50.2	2040	49.5
2050	49.6	2060	49.6	2090	48.5	2100	46.6	2110	41.8
2120	33.1	2130	30.4	2150	33.8	2260	29.4	2290	29
2310	28.8	2420	34.6	2440	37.3	2475	50	2500	58.9
2510	61	2520	61.4	2530	65	2598	105.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2100	.035	2475	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2100	2475	604	604	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 100491

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	83.5	1040	82.3	1090	82.3	1200	78.2	1310	77
1380	77	1480	77	1590	77	1729.9	77	1730	57.2
1750	57.1	1860	53.3	1900	52.3	1950	52.3	2000	51.1
2010	51.1	2060	51.6	2080	51.6	2180	50.6	2190	50.7
2280	54.5	2310	52.2	2320	52.3	2370	53.3	2380	53
2420	41.2	2430	35.6	2440	33.1	2450	33	2460	33
2570	29.9	2580	29.8	2600	29.7	2620	29.5	2660	29.4
2750	34	2770	37.6	2806	53	2820	58.8	2840	61.8
2895	88.4								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2380	.035	2806	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2380	2806	788	788	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 99703

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	111.4	1110	95.5	1170	89.8	1190	89.7	1270	85.4
1380	77	1440	77	1470	77	1580	77	1690	77
1800	77	1830	77	1840	77	1850	77	1959.9	77
1960	56.9	1980	56.7	2050	54.1	2070	54.4	2130	53.2
2130.1	74	2349.9	74	2350	54.2	2400	54.9	2410	55
2420	55	2430	51.9	2480	48.5	2520	36.6	2630	31.5
2740	29.8	2770	29.4	2860	33	2870	32.7	2880	32.7
2910	37.3	2960	51.9	2970	56.8	2980	60.2	2990	61.1
3040	93								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2420	.035	2970	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2420	2970	592	592	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 99111

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	93	1010	93.4	1020	93.4	1080	92.1	1090	92.1
1100	91.7	1130	85.1	1150	79	1160	79	1180	79
1290	79	1400	79	1510	79	1550	79	1620	79
1730	79	1740	79	1760	79	1889.9	79	1890	58.7
1900	58.7	2010	53.6	2030	53.1	2030.1	74	2209.9	74
2210	54.4	2230	54.6	2260	53.7	2310	36.1	2420	30.8
2470	30.7	2490	31.1	2530	30.1	2550	30	2630	33.5
2640	33.4	2650	33.2	2680	35.8	2690	37.8	2747	54
2770	60.4	2780	61.4	2790	64.1	2881	108.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2260	.035	2747	.07

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

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          2260    2747              720     672     600             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 98439

INPUT
Description:
Station Elevation Data    num=      41
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000    91.3    1110    86.1    1220    79.2    1330      75    1340      75
    1350      75    1380      75    1390      75    1450      75    1560      75
    1570      75  1659.9      75    1660      55    1720    52.8    1750    53.7
    1760    53.7    1770    53.5    1800    53.3    1900    50.2    1920    50.1
    1930    50.2    1940    50.2    1950    46.5    1960    39.5    1970      35
    2070    27.8    2080    27.8    2190    31.1    2260    32.9    2310    32.9
    2360    36.3    2410    48.6    2490    61.4    2500    61.6    2510    61.6
    2520    62.4    2530    64.8    2640   114.9    2660   123.9    2670   126.1
    2721   128.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .05    1940    .035    2410     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1940    2410              850     727     620             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 97712

INPUT
Description:
Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000      71    1020      71    1120      71    1130      71    1240      71
    1350      71    1360      71    1470      71    1560      71    1580      71
  1759.9      71    1760    50.6    1870    52.5    1890    52.8    1970    52.6
    1990      53    2040    53.3    2110      50    2120    48.4    2160    33.4
    2180      30    2190    30.1    2220      31    2230      31    2260      29
    2280    29.4    2310    29.5    2360    30.4    2400    30.4    2510    33.2
    2560    36.9    2570    39.3    2600    49.6    2610    50.8    2670    44.7
    2690    45.6    2760    60.7    2810    64.4    2820    66.7    2920   122.4
    2930   125.4    2941   127.6

Manning's n Values        num=       3
```

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	2120	.035	2600	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2120	2600	720	653	550	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 97059

INPUT
Description: FROM FILE SCT012.DAT

Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	95.3	1110	74.2	1180	62.1	1200	61.9	1210	61.8
1320	53.7	1430	49.2	1450	48.7	1520	40	1540	32.5
1550	30.1	1560	28.8	1610	34	1640	30.7	1660	31
1740	29.1	1850	34	1890	36.3	1900	38.1	1930	48.6
1940	50.6	1960	49.4	1970	50.3	2030	61.5	2040	62.1
2150	107	2190	124	2200	125.7	2210	126	2240	124.8
2250	125.5	2259	130.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1450	.035	1940	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1450	1940	965	965	965	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 96094

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	111.7	1080	86.8	1130	62.3	1140	61.4	1150	61.9
1160	61.2	1180	55.6	1290	46.6	1320	46.1	1350	40.6
1370	33	1450	30.2	1510	29.8	1620	26.5	1670	32.1
1690	40.2	1800	51	1810	52.4	1820	54.8	1830	59.8
1840	59.5	1850	58.1	1860	57.8	1950	107.4	1960	108
2000	106	2010	104.3	2020	98.9	2027	94.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1320	.035	1690	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1320	1690	880	784	650	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 95310

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	133.2	1060	103.7	1110	68.9	1120	63.5	1180	52.1
1220	48.4	1240	43.7	1250	40.1	1260	34.8	1270	32.3
1290	31.1	1310	31.5	1340	30.8	1400	33.5	1440	39
1450	39.1	1470	34	1480	33.3	1510	33.3	1570	30.4
1620	30.3	1690	34.7	1700	37.2	1750	54.6	1760	56.9
1790	59.5	1840	58.5	1850	58.5	1860	60.7	1920	93.1
1940	94.5	1960	94.2	1970	94.3	1980	97.4	2014	113.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1180	.035	1750	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1180	1750	1025	1025	1025	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 94285

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	117.2	1070	69.1	1080	64.3	1090	60.6	1130	52.3
1150	50.3	1180	36.5	1190	33.4	1290	28.6	1310	28.6
1340	29	1370	28.5	1400	31.1	1430	30.2	1450	30.5
1480	30.4	1500	30.2	1510	30.2	1620	33.4	1630	34
1640	36.3	1650	42.3	1660	50.9	1670	56.9	1690	59.2
1700	59.4	1740	58.3	1750	58.2	1850	59.7	1910	59.5
1920	60.3	1950	70.5	1960	72.2	2010	74	2070	88
2090	98.1	2092	98.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1150	.03	1660	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1150	1660	1052	1052	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 93233

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	112	1060	91.4	1120	81.9	1220	53.7	1240	52
1290	38.8	1300	34.4	1310	32.7	1420	30.3	1450	29.9
1460	29.9	1520	34.8	1580	31.6	1590	31.7	1650	35.1
1700	31.6	1710	31.6	1750	35.7	1760	37.9	1770	43.5
1780	52	1790	57.2	1810	59.6	1820	59.5	1840	58.8
1910	58.5	1930	58.3	1950	58.3	2060	59.7	2080	60.2
2090	62.2	2120	73.6	2140	76.1	2160	75.3	2200	81.6
2220	90.1	2240	102.5	2300	125.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1240	.03	1780	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1240	1780	1200	1200	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 92033

INPUT
Description:
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	102.3	1110	82	1220	71.5	1330	64.2	1340	65.9
1360	73.6	1370	73.5	1420	57.9	1530	49.7	1580	42.2
1610	43.3	1620	41.5	1640	33.6	1660	30.2	1670	29.8
1780	30	1790	30.1	1810	34.7	1820	34.7	1830	32.6
1840	32.1	1950	36.4	2020	38.4	2030	41.6	2040	46.2
2050	49.7	2060	50.6	2070	50.5	2150	48.8	2160	46.1
2180	38.6	2290	32.8	2300	32.5	2330	36.1	2340	39.6

```
    2370    54.2    2380    57.4    2400    60.3    2410    60.7    2420    60.7
    2470    59.8    2530    61.4    2570    80.7    2580    83.1    2590    83.1
    2600    83.6    2610    83.6    2630    82.7    2650    83.2    2660    82.8
    2670    80.5    2680    79.7    2710    84.5    2720    84.5    2730    84.4
    2829    96.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .08    1530    .025    2370     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1530    2370             580     627     700             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 91406

INPUT
Description: FROM FILE SCT011.DAT

Station Elevation Data    num=      51
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000      77    1010      77    1030      77    1050      77    1070      77
    1080      77    1090      77    1180      77    1210      77    1240      77
    1250      77    1280      77  1489.9      77    1490    56.6    1550    53.2
    1590    49.7    1600    47.8    1630    34.5    1650    29.7    1660    28.7
    1670    28.7    1780    30.1    1820    32.4    1860    32.1    1940    34.1
    1960    33.8    1970    33.9    2000    37.9    2110      38    2140    38.3
    2150    38.3    2220    32.3    2240      35    2280    47.7    2390    49.6
    2430    50.6    2510    61.8    2540    59.9    2550    61.6    2610    86.1
    2630    87.5    2640    87.5    2660    87.2    2670    87.2    2700    88.3
    2740   105.4    2750   105.3    2780    99.9    2890   105.6    3000   109.7
    3094   114.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .03    1600    .025    2280     .04

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1600    2280             650     632     580             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 90774

INPUT
```

Description: FROM FILE SCT010.DAT
THIS QT CARD APPLIES FROM UPSTREAM
WISSAHICKON CREEK TO DOWNSTREAM OF
PERKIOMEN CREEK. THE
DISCHARGES APPLY TO A DRAINAGE AREA OF 1690 SQ MI
WHICH
CORRESPONDS TO THE PORT KENNEDY GAGE LOCATION
ALL X-SECTIONS
AFTER X-90774 ARE FROM DTM SEGMENTS SCT011 TO SCT021
RECIEVED
FROM FPMS ON 21 SEP 1993.

Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	120.3	1010	117.8	1020	113.9	1050	82.9	1060	77.3
1080	76.5	1090	80.1	1100	90.7	1110	94	1200	67.1
1310	61.3	1350	60.4	1370	60.3	1390	58.1	1420	53
1470	53.1	1510	47.2	1530	40	1590	29.8	1660	27.9
1680	27.9	1710	28.2	1800	28.9	1840	29.4	1880	29.6
1950	30.2	2000	30.1	2040	29.5	2080	33.7	2100	38.8
2110	44	2120	45.8	2130	46	2190	46.3	2280	49
2370	61.3	2380	61.3	2400	59.7	2430	61.2	2450	59.4
2460	59.8	2490	84.5	2500	89.3	2510	89.5	2520	88.7
2550	90.1	2600	88.6	2610	89.5	2627	96.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.03	1510	.025	2110	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1510	2110	0	0	.1	.3

SUMMARY OF MANNING'S N VALUES

River:RIVER-1

Reach	River Sta.	n1	n2	n3	n4	n5
Reach-1	148266	.05	.032	.07		
Reach-1	147996	.07	.032	.07		
Reach-1	147978.5	Bridge				
Reach-1	147961	.07	.032	.07		

Reach-1	147907	.07	.032	.07		
Reach-1	147855	.07	.032	.07		
Reach-1	147816	Bridge				
Reach-1	147777	.07	.032	.07		
Reach-1	147468	.07	.032	.07		
Reach-1	146836	.07	.032	.07		
Reach-1	146261	.07	.032	.07		
Reach-1	145718	.07	.032	.07		
Reach-1	145322	.07	.032	.07		
Reach-1	144123	.07	.032	.07		
Reach-1	143224	.05	.032	.07		
Reach-1	142252	.05	.032	.07		
Reach-1	141305	.05	.032	.04		
Reach-1	140315	.05	.032	.07		
Reach-1	139246	.05	.032	.07		
Reach-1	138319	.05	.032	.07		
Reach-1	137179	.05	.032	.07		
Reach-1	136547	.07	.032	.07		
Reach-1	135965	.07	.032	.07		
Reach-1	135309	.07	.032	.08		
Reach-1	134634	.07	.032	.08		
Reach-1	133727	.07	.032	.07		
Reach-1	132707	.07	.032	.07		
Reach-1	132065	.07	.032	.07		
Reach-1	131298	.07	.035	.07	.035	.06
Reach-1	130606	.07	.035	.07	.035	.06

Reach-1	129999		.06	.035	.07	.035	.06
Reach-1	129552		.06	.035	.05	.035	.06
Reach-1	129008		.06	.035	.05	.035	.06
Reach-1	128834		.06	.035	.05	.035	.06
Reach-1	128814.5	Bridge					
Reach-1	128795		.06	.035	.05	.035	.06
Reach-1	128638		.06	.035	.05	.035	.06
Reach-1	128215		.06	.035	.05	.035	.06
Reach-1	127766		.05	.035	.05	.035	.06
Reach-1	127339		.05	.035	.07	.035	.06
Reach-1	127040		.06	.035	.08	.035	.06
Reach-1	127032	Bridge					
Reach-1	127024		.06	.035	.08	.035	.06
Reach-1	126951		.05	.035	.08	.035	.06
Reach-1	126845		.05	.035	.08	.035	.06
Reach-1	126779		.05	.035	.08	.035	.06
Reach-1	126715		.05	.035	.08	.035	.05
Reach-1	126702	Bridge					
Reach-1	126689		.05	.035	.08	.035	.05
Reach-1	126497		.05	.035	.08	.035	.05
Reach-1	126190		.06	.035	.08	.035	.05
Reach-1	125738		.04	.035	.04		
Reach-1	125718		.04	.035	.04		
Reach-1	125698		.04	.035	.04		
Reach-1	125608		.04	.035	.04		
Reach-1	125596	Bridge					
Reach-1	125584		.04	.035	.04		

Reach-1	125295	.04	.035	.04
Reach-1	124990	.04	.035	.04
Reach-1	124959.5	Bridge		
Reach-1	124929	.04	.035	.04
Reach-1	124445	.04	.035	.04
Reach-1	123663	.04	.035	.04
Reach-1	122951	.05	.035	.05
Reach-1	122312	.05	.035	.05
Reach-1	121490	.05	.035	.05
Reach-1	120802	.06	.035	.05
Reach-1	120200	.06	.035	.05
Reach-1	119282	.06	.035	.06
Reach-1	118934	.04	.035	.06
Reach-1	118798	.04	.035	.05
Reach-1	118737	.04	.035	.05
Reach-1	118675	.04	.035	.05
Reach-1	118651	.04	.035	.05
Reach-1	118490	.04	.035	.05
Reach-1	118005	.06	.035	.05
Reach-1	117330	.06	.035	.05
Reach-1	116307	.06	.035	.07
Reach-1	115807	.06	.035	.07
Reach-1	114577	.06	.035	.07
Reach-1	114062	.07	.035	.07
Reach-1	113859	.07	.035	.07

Reach-1	113835	Bridge			
Reach-1	113811		.07	.035	.07
Reach-1	113597		.08	.035	.08
Reach-1	112467		.08	.035	.08
Reach-1	111334		.08	.035	.08
Reach-1	110666		.08	.035	.06
Reach-1	110054		.08	.035	.06
Reach-1	109548		.08	.035	.06
Reach-1	109276		.08	.035	.05
Reach-1	109192	Bridge			
Reach-1	109108		.08	.035	.05
Reach-1	108858		.08	.035	.05
Reach-1	108437		.08	.035	.05
Reach-1	108025		.08	.035	.05
Reach-1	107856		.05	.035	.05
Reach-1	107836		.05	.035	.05
Reach-1	107816		.05	.035	.05
Reach-1	107696		.05	.035	.05
Reach-1	107348		.05	.035	.05
Reach-1	106758		.04	.035	.03
Reach-1	106049		.04	.035	.03
Reach-1	105690		.03	.035	.03
Reach-1	105514		.03	.035	.03
Reach-1	105474.5	Bridge			
Reach-1	105435		.03	.035	.03
Reach-1	105266		.03	.035	.03
Reach-1	104860		.03	.035	.03

Reach-1	104344	.05	.035	.07
Reach-1	103793	.05	.035	.07
Reach-1	103278	.05	.035	.07
Reach-1	103063	.05	.035	.07
Reach-1	102843	.05	.035	.07
Reach-1	102205	.05	.035	.07
Reach-1	101667	.05	.035	.07
Reach-1	101095	.05	.035	.07
Reach-1	100491	.05	.035	.07
Reach-1	99703	.05	.035	.07
Reach-1	99111	.05	.035	.07
Reach-1	98439	.05	.035	.07
Reach-1	97712	.07	.035	.07
Reach-1	97059	.07	.035	.07
Reach-1	96094	.08	.035	.08
Reach-1	95310	.08	.035	.08
Reach-1	94285	.08	.03	.05
Reach-1	93233	.08	.03	.05
Reach-1	92033	.08	.025	.05
Reach-1	91406	.03	.025	.04
Reach-1	90774	.03	.025	.04

SUMMARY OF REACH LENGTHS

River: RIVER-1

Reach	River Sta.	Left	Channel	Right
Reach-1	148266	288	288	288
Reach-1	147996	17	17	17
Reach-1	147978.5	Bridge		
Reach-1	147961	54	54	54
Reach-1	147907	60	60	60
Reach-1	147855	70	70	70
Reach-1	147816	Bridge		
Reach-1	147777	309	309	309
Reach-1	147468	632	632	632
Reach-1	146836	575	575	575
Reach-1	146261	543	543	543
Reach-1	145718	396	396	396
Reach-1	145322	1199	1199	1199
Reach-1	144123	899	899	899
Reach-1	143224	972	972	972
Reach-1	142252	947	947	947
Reach-1	141305	990	990	990
Reach-1	140315	1200	1069	900
Reach-1	139246	950	927	850
Reach-1	138319	1140	1140	1140
Reach-1	137179	632	632	632
Reach-1	136547	582	582	582
Reach-1	135965	656	656	656
Reach-1	135309	700	675	580
Reach-1	134634	907	907	907
Reach-1	133727	1020	1020	1020
Reach-1	132707	642	642	642
Reach-1	132065	767	767	767
Reach-1	131298	692	692	692
Reach-1	130606	607	607	607
Reach-1	129999	447	447	447
Reach-1	129552	580	544	320
Reach-1	129008	188	188	188
Reach-1	128834	25	25	25
Reach-1	128814.5	Bridge		
Reach-1	128795	157	157	157
Reach-1	128638	423	423	423
Reach-1	128215	449	449	449
Reach-1	127766	427	427	427
Reach-1	127339	289	289	289
Reach-1	127040	26	26	26
Reach-1	127032	Bridge		
Reach-1	127024	73	73	73
Reach-1	126951	106	106	106
Reach-1	126845	66	66	66
Reach-1	126779	56	56	56

Reach-1	126715		34	34	34
Reach-1	126702	Bridge			
Reach-1	126689		192	192	192
Reach-1	126497		307	307	307
Reach-1	126190		452	452	452
Reach-1	125738		20	20	20
Reach-1	125718		20	20	20
Reach-1	125698		96	96	96
Reach-1	125608		18	18	18
Reach-1	125596	Bridge			
Reach-1	125584		289	289	289
Reach-1	125295		380	298	250
Reach-1	124990		68	68	68
Reach-1	124959.5	Bridge			
Reach-1	124929		484	484	484
Reach-1	124445		782	782	782
Reach-1	123663		712	712	712
Reach-1	122951		639	639	639
Reach-1	122312		822	822	822
Reach-1	121490		688	688	688
Reach-1	120802		650	602	550
Reach-1	120200		1150	918	650
Reach-1	119282		348	348	348
Reach-1	118934		147	147	147
Reach-1	118798		50	50	50
Reach-1	118737		57	57	57
Reach-1	118675		29	29	29
Reach-1	118651		161	161	161
Reach-1	118490		485	485	485
Reach-1	118005		720	675	600
Reach-1	117330		1150	1023	850
Reach-1	116307		500	500	500
Reach-1	115807		1230	1230	1230
Reach-1	114577		515	515	515
Reach-1	114062		229	229	229
Reach-1	113859		22	22	22
Reach-1	113835	Bridge			
Reach-1	113811		214	214	214
Reach-1	113597		1130	1130	1130
Reach-1	112467		1133	1133	1133
Reach-1	111334		580	668	780
Reach-1	110666		612	612	612
Reach-1	110054		420	506	600
Reach-1	109548		278	278	278
Reach-1	109276		162	162	162
Reach-1	109192	Bridge			
Reach-1	109108		250	250	250
Reach-1	108858		450	421	360
Reach-1	108437		450	412	380
Reach-1	108025		169	169	169

Reach-1	107856	20	20	20
Reach-1	107836	20	20	20
Reach-1	107816	120	120	120
Reach-1	107696	348	348	348
Reach-1	107348	590	590	590
Reach-1	106758	580	709	800
Reach-1	106049	400	359	320
Reach-1	105690	207	207	207
Reach-1	105514	48	48	48
Reach-1	105474.5	Bridge		
Reach-1	105435	169	169	169
Reach-1	105266	300	406	480
Reach-1	104860	380	516	600
Reach-1	104344	551	551	551
Reach-1	103793	470	515	550
Reach-1	103278	185	215	200
Reach-1	103063	195	220	230
Reach-1	102843	638	638	638
Reach-1	102205	538	538	538
Reach-1	101667	572	572	572
Reach-1	101095	604	604	604
Reach-1	100491	788	788	788
Reach-1	99703	592	592	592
Reach-1	99111	720	672	600
Reach-1	98439	850	727	620
Reach-1	97712	720	653	550
Reach-1	97059	965	965	965
Reach-1	96094	880	784	650
Reach-1	95310	1025	1025	1025
Reach-1	94285	1052	1052	1052
Reach-1	93233	1200	1200	1200
Reach-1	92033	580	627	700
Reach-1	91406	650	632	580
Reach-1	90774	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: RIVER-1

Reach	River Sta.	Contr.	Expan.
Reach-1	148266	.3	.5
Reach-1	147996	.3	.5
Reach-1	147978.5	Bridge	
Reach-1	147961	.3	.5
Reach-1	147907	.3	.5
Reach-1	147855	.3	.5

Reach-1	147816	Bridge		
Reach-1	147777		.3	.5
Reach-1	147468		.1	.3
Reach-1	146836		.1	.3
Reach-1	146261		.1	.3
Reach-1	145718		.1	.3
Reach-1	145322		.1	.3
Reach-1	144123		.1	.3
Reach-1	143224		.1	.3
Reach-1	142252		.1	.3
Reach-1	141305		.1	.3
Reach-1	140315		.1	.3
Reach-1	139246		.1	.3
Reach-1	138319		.1	.3
Reach-1	137179		.1	.3
Reach-1	136547		.1	.3
Reach-1	135965		.1	.3
Reach-1	135309		.1	.3
Reach-1	134634		.1	.3
Reach-1	133727		.1	.3
Reach-1	132707		.1	.3
Reach-1	132065		.1	.3
Reach-1	131298		.1	.3
Reach-1	130606		.1	.3
Reach-1	129999		.1	.3
Reach-1	129552		.1	.3
Reach-1	129008		.1	.3
Reach-1	128834		.1	.3
Reach-1	128814.5	Bridge		
Reach-1	128795		.1	.3
Reach-1	128638		.1	.3
Reach-1	128215		.1	.3
Reach-1	127766		.1	.3
Reach-1	127339		.1	.3
Reach-1	127040		.1	.3
Reach-1	127032	Bridge		
Reach-1	127024		.1	.3
Reach-1	126951		.1	.3
Reach-1	126845		.1	.3
Reach-1	126779		.1	.3
Reach-1	126715		.1	.3
Reach-1	126702	Bridge		
Reach-1	126689		.1	.3
Reach-1	126497		.1	.3
Reach-1	126190		.1	.3
Reach-1	125738		.3	.5
Reach-1	125718		.3	.5
Reach-1	125698		.3	.5
Reach-1	125608		.3	.5
Reach-1	125596	Bridge		

Reach-1	125584		.3	.5
Reach-1	125295		.3	.5
Reach-1	124990		.3	.5
Reach-1	124959.5	Bridge		
Reach-1	124929		.3	.5
Reach-1	124445		.1	.3
Reach-1	123663		.1	.3
Reach-1	122951		.1	.3
Reach-1	122312		.1	.3
Reach-1	121490		.1	.3
Reach-1	120802		.1	.3
Reach-1	120200		.1	.3
Reach-1	119282		.1	.3
Reach-1	118934		.3	.5
Reach-1	118798		.3	.5
Reach-1	118737		.3	.5
Reach-1	118675		.3	.5
Reach-1	118651		.3	.5
Reach-1	118490		.1	.3
Reach-1	118005		.1	.3
Reach-1	117330		.1	.3
Reach-1	116307		.1	.3
Reach-1	115807		.1	.3
Reach-1	114577		.1	.3
Reach-1	114062		.3	.5
Reach-1	113859		.3	.5
Reach-1	113835	Bridge		
Reach-1	113811		.3	.5
Reach-1	113597		.1	.3
Reach-1	112467		.1	.3
Reach-1	111334		.1	.3
Reach-1	110666		.1	.3
Reach-1	110054		.1	.3
Reach-1	109548		.3	.5
Reach-1	109276		.3	.5
Reach-1	109192	Bridge		
Reach-1	109108		.3	.5
Reach-1	108858		.1	.3
Reach-1	108437		.1	.3
Reach-1	108025		.1	.3
Reach-1	107856		.3	.5
Reach-1	107836		.3	.5
Reach-1	107816		.1	.3
Reach-1	107696		.1	.3
Reach-1	107348		.1	.3
Reach-1	106758		.1	.3
Reach-1	106049		.1	.3
Reach-1	105690		.3	.5
Reach-1	105514		.3	.5
Reach-1	105474.5	Bridge		

Reach-1	105435	.3	.5
Reach-1	105266	.1	.3
Reach-1	104860	.1	.3
Reach-1	104344	.1	.3
Reach-1	103793	.1	.3
Reach-1	103278	.1	.3
Reach-1	103063	.1	.3
Reach-1	102843	.1	.3
Reach-1	102205	.1	.3
Reach-1	101667	.1	.3
Reach-1	101095	.1	.3
Reach-1	100491	.1	.3
Reach-1	99703	.1	.3
Reach-1	99111	.1	.3
Reach-1	98439	.1	.3
Reach-1	97712	.1	.3
Reach-1	97059	.1	.3
Reach-1	96094	.1	.3
Reach-1	95310	.1	.3
Reach-1	94285	.1	.3
Reach-1	93233	.1	.3
Reach-1	92033	.1	.3
Reach-1	91406	.1	.3
Reach-1	90774	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)		(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Reach-1	148266	10-yr	62900.00	51.60	75.81	76.30	0.000271	5.71	11931.48	738.89	0.22	
Reach-1	148266	50-yr	93700.00	51.60	80.54	81.21	0.000286	6.73	15492.30	766.74	0.24	
Reach-1	148266	100-yr	109000.00	51.60	82.60	83.36	0.000292	7.16	17111.36	808.73	0.24	
Reach-1	148266	500-yr	146000.00	51.60	87.17	88.10	0.000299	8.04	21166.25	950.09	0.25	
Reach-1	147996	10-yr	62900.00	50.38	75.64	61.90	76.19	0.000392	5.95	10566.98	504.77	0.23
Reach-1	147996	50-yr	93700.00	50.38	80.23	64.48	81.05	0.000476	7.28	12900.79	511.05	0.25
Reach-1	147996	100-yr	109000.00	50.38	82.23							

65.64 83.18 0.000513 7.85 13922.86 513.77 0.26
Reach-1 147996 500-yr 146000.00 50.38 86.61
68.23 87.88 0.000592 9.07 16185.90 519.76 0.28

Reach-1 147978.5 Bridge

Reach-1 147961 10-yr 62900.00 50.38 75.63
76.18 0.000393 5.96 10563.38 504.76 0.23
Reach-1 147961 50-yr 93700.00 50.38 80.22
81.05 0.000476 7.28 12896.31 511.03 0.25
Reach-1 147961 100-yr 109000.00 50.38 82.22
83.18 0.000514 7.85 13917.96 513.76 0.26
Reach-1 147961 500-yr 146000.00 50.38 86.59
87.87 0.000593 9.07 16180.12 519.74 0.28

Reach-1 147907 10-yr 62900.00 50.90 75.53
76.14 0.000337 6.30 10111.92 542.75 0.25
Reach-1 147907 50-yr 93700.00 50.90 80.10
81.00 0.000377 7.63 12647.34 565.52 0.27
Reach-1 147907 100-yr 109000.00 50.90 82.09
83.13 0.000393 8.20 13782.02 575.41 0.28
Reach-1 147907 500-yr 146000.00 50.90 86.47
87.82 0.000423 9.40 16361.27 638.74 0.30

Reach-1 147855 10-yr 62900.00 49.60 75.45
62.27 76.10 0.000507 6.52 9754.36 512.58 0.25
Reach-1 147855 50-yr 93700.00 49.60 79.98
65.03 80.95 0.000605 7.91 12123.18 531.17 0.28
Reach-1 147855 100-yr 109000.00 49.60 81.95
66.25 83.07 0.000648 8.51 13178.03 539.25 0.29
Reach-1 147855 500-yr 146000.00 49.60 86.30
69.13 87.76 0.000735 9.76 15718.77 624.79 0.31

Reach-1 147816 Bridge

Reach-1 147777 10-yr 62900.00 49.60 75.41
76.07 0.000510 6.53 9734.55 512.42 0.26
Reach-1 147777 50-yr 93700.00 49.60 79.94
80.91 0.000608 7.93 12098.26 530.98 0.28
Reach-1 147777 100-yr 109000.00 49.60 81.90
83.03 0.000652 8.53 13150.72 539.04 0.29
Reach-1 147777 500-yr 146000.00 49.60 86.24

	87.71	0.000739	9.78	15682.27	624.40	0.31
Reach-1	147468	10-yr	62900.00	50.40	75.35	
	75.90	0.000279	5.94	10744.88	572.86	0.23
Reach-1	147468	50-yr	93700.00	50.40	79.88	
	80.69	0.000322	7.25	13638.60	697.96	0.25
Reach-1	147468	100-yr	109000.00	50.40	81.86	
	82.79	0.000338	7.79	15021.11	702.68	0.26
Reach-1	147468	500-yr	146000.00	50.40	86.21	
	87.42	0.000365	8.92	18144.69	761.46	0.28
Reach-1	146836	10-yr	62900.00	50.30	75.04	
	75.68	0.000372	6.52	10760.91	804.16	0.26
Reach-1	146836	50-yr	93700.00	50.30	79.60	
	80.47	0.000389	7.66	15289.08	1141.19	0.27
Reach-1	146836	100-yr	109000.00	50.30	81.62	
	82.56	0.000387	8.06	17659.30	1204.52	0.28
Reach-1	146836	500-yr	146000.00	50.30	86.07	
	87.15	0.000376	8.82	23272.91	1327.78	0.28
Reach-1	146261	10-yr	62900.00	50.30	74.76	
	75.46	0.000396	6.77	10164.18	797.15	0.27
Reach-1	146261	50-yr	93700.00	50.30	79.28	
	80.23	0.000418	7.96	13813.30	815.40	0.28
Reach-1	146261	100-yr	109000.00	50.30	81.26	
	82.32	0.000425	8.46	15436.70	823.38	0.29
Reach-1	146261	500-yr	146000.00	50.30	85.60	
	86.89	0.000437	9.49	19043.68	844.02	0.30
Reach-1	145718	10-yr	62900.00	50.40	74.58	
	75.24	0.000364	6.65	11048.41	844.89	0.26
Reach-1	145718	50-yr	93700.00	50.40	79.11	
	79.99	0.000386	7.81	14926.35	867.56	0.27
Reach-1	145718	100-yr	109000.00	50.40	81.09	
	82.07	0.000394	8.30	16658.03	880.21	0.28
Reach-1	145718	500-yr	146000.00	50.40	85.43	
	86.64	0.000407	9.31	20550.19	912.79	0.29
Reach-1	145322	10-yr	62900.00	48.80	74.53	
	75.08	0.000285	5.99	11811.86	864.24	0.23
Reach-1	145322	50-yr	93700.00	48.80	79.06	
	79.81	0.000312	7.13	15770.20	882.83	0.25
Reach-1	145322	100-yr	109000.00	48.80	81.05	
	81.89	0.000321	7.60	17530.73	890.98	0.25
Reach-1	145322	500-yr	146000.00	48.80	85.40	

	86.44	0.000338	8.58	21442.46	908.82	0.27
Reach-1	144123	10-yr	62900.00	52.50	74.26	
	74.72	0.000274	5.49	12075.84	782.67	0.22
Reach-1	144123	50-yr	93700.00	52.50	78.78	
	79.42	0.000289	6.49	16622.77	1176.49	0.23
Reach-1	144123	100-yr	109000.00	52.50	80.78	
	81.48	0.000289	6.86	19025.54	1242.99	0.24
Reach-1	144123	500-yr	146000.00	52.50	85.16	
	86.01	0.000290	7.62	24866.35	1442.09	0.24
Reach-1	143224	10-yr	62900.00	51.20	74.00	
	74.45	0.000308	5.61	13477.71	1117.36	0.23
Reach-1	143224	50-yr	93700.00	51.20	78.59	
	79.13	0.000285	6.27	18756.50	1182.49	0.23
Reach-1	143224	100-yr	109000.00	51.20	80.61	
	81.19	0.000278	6.55	21172.92	1211.13	0.23
Reach-1	143224	500-yr	146000.00	51.20	85.03	
	85.70	0.000267	7.16	26700.64	1329.45	0.23
Reach-1	142252	10-yr	62900.00	49.90	73.75	
	74.18	0.000246	5.48	14336.58	1157.41	0.21
Reach-1	142252	50-yr	93700.00	49.90	78.36	
	78.87	0.000241	6.20	19749.16	1194.62	0.22
Reach-1	142252	100-yr	109000.00	49.90	80.38	
	80.93	0.000239	6.49	22183.43	1210.98	0.22
Reach-1	142252	500-yr	146000.00	49.90	84.81	
	85.45	0.000235	7.12	27684.88	1306.60	0.22
Reach-1	141305	10-yr	62900.00	51.80	73.56	
	73.94	0.000229	5.10	14437.37	1092.43	0.20
Reach-1	141305	50-yr	93700.00	51.80	78.16	
	78.63	0.000229	5.81	19516.68	1115.20	0.21
Reach-1	141305	100-yr	109000.00	51.80	80.19	
	80.70	0.000227	6.11	21784.85	1126.44	0.21
Reach-1	141305	500-yr	146000.00	51.80	84.62	
	85.22	0.000223	6.72	27205.43	1331.01	0.21
Reach-1	140315	10-yr	62900.00	52.70	73.35	
	73.70	0.000234	4.90	14494.61	1039.94	0.20
Reach-1	140315	50-yr	93700.00	52.70	77.96	
	78.40	0.000228	5.59	19359.84	1071.70	0.21
Reach-1	140315	100-yr	109000.00	52.70	79.98	
	80.47	0.000225	5.89	21543.69	1092.44	0.21
Reach-1	140315	500-yr	146000.00	52.70	84.42	

	85.00	0.000220	6.49	27142.02	1429.48	0.21
Reach-1	139246	10-yr	62900.00	52.00	73.16	
	73.45	0.000202	4.41	15046.48	1107.90	0.19
Reach-1	139246	50-yr	93700.00	52.00	77.77	
	78.16	0.000196	5.08	20498.82	1292.22	0.19
Reach-1	139246	100-yr	109000.00	52.00	79.80	
	80.23	0.000194	5.36	23386.45	1483.70	0.19
Reach-1	139246	500-yr	146000.00	52.00	84.26	
	84.76	0.000185	5.87	30534.66	1650.64	0.19
Reach-1	138319	10-yr	62900.00	51.70	72.75	
	73.22	0.000287	5.54	12149.72	769.03	0.23
Reach-1	138319	50-yr	93700.00	51.70	77.27	
	77.91	0.000299	6.53	15689.03	796.15	0.24
Reach-1	138319	100-yr	109000.00	51.70	79.26	
	79.98	0.000304	6.95	17280.64	808.05	0.24
Reach-1	138319	500-yr	146000.00	51.70	83.62	
	84.50	0.000307	7.77	22352.52	1346.62	0.25
Reach-1	137179	10-yr	62900.00	50.60	72.48	
	72.89	0.000253	5.19	12290.90	701.66	0.21
Reach-1	137179	50-yr	93700.00	50.60	76.98	
	77.57	0.000270	6.20	15524.82	734.70	0.23
Reach-1	137179	100-yr	109000.00	50.60	78.96	
	79.63	0.000277	6.62	16990.86	749.20	0.23
Reach-1	137179	500-yr	146000.00	50.60	83.31	
	84.15	0.000283	7.45	22219.65	1552.62	0.24
Reach-1	136547	10-yr	62900.00	51.10	72.33	
	72.73	0.000243	5.12	12707.02	726.65	0.21
Reach-1	136547	50-yr	93700.00	51.10	76.82	
	77.40	0.000262	6.13	16032.44	753.32	0.22
Reach-1	136547	100-yr	109000.00	51.10	78.80	
	79.45	0.000269	6.56	17560.92	874.49	0.23
Reach-1	136547	500-yr	146000.00	51.10	83.15	
	83.97	0.000277	7.39	22352.67	1135.64	0.24
Reach-1	135965	10-yr	62900.00	51.10	72.22	
	72.59	0.000234	4.89	13067.81	760.85	0.20
Reach-1	135965	50-yr	93700.00	51.10	76.72	
	77.24	0.000246	5.81	16539.58	781.18	0.22
Reach-1	135965	100-yr	109000.00	51.10	78.69	
	79.28	0.000251	6.20	18654.86	1231.74	0.22
Reach-1	135965	500-yr	146000.00	51.10	83.07	

	83.79	0.000250	6.90	24246.67	1323.38	0.23
Reach-1	135309	10-yr	62900.00	50.50	72.01	
	72.42	0.000268	5.28	14529.15	1134.44	0.22
Reach-1	135309	50-yr	93700.00	50.50	76.53	
	77.07	0.000269	6.12	20454.62	1443.20	0.23
Reach-1	135309	100-yr	109000.00	50.50	78.52	
	79.11	0.000269	6.48	23584.05	1660.28	0.23
Reach-1	135309	500-yr	146000.00	50.50	82.94	
	83.61	0.000254	7.01	31315.52	1805.59	0.23
Reach-1	134634	10-yr	62900.00	49.50	71.79	
	72.23	0.000281	5.49	14393.23	1154.58	0.22
Reach-1	134634	50-yr	93700.00	49.50	76.31	
	76.88	0.000281	6.34	19858.09	1274.17	0.23
Reach-1	134634	100-yr	109000.00	49.50	78.30	
	78.93	0.000281	6.70	22502.28	1386.14	0.23
Reach-1	134634	500-yr	146000.00	49.50	82.69	
	83.42	0.000276	7.39	28751.16	1456.76	0.24
Reach-1	133727	10-yr	62900.00	49.80	71.55	
	71.98	0.000269	5.28	12850.56	1062.93	0.22
Reach-1	133727	50-yr	93700.00	49.80	76.07	
	76.63	0.000271	6.14	18014.33	1187.86	0.23
Reach-1	133727	100-yr	109000.00	49.80	78.06	
	78.68	0.000269	6.47	20428.72	1247.25	0.23
Reach-1	133727	500-yr	146000.00	49.80	82.44	
	83.18	0.000267	7.18	26401.67	1465.47	0.23
Reach-1	132707	10-yr	62900.00	52.50	71.45	
	71.71	0.000175	4.03	16268.83	1164.92	0.17
Reach-1	132707	50-yr	93700.00	52.50	76.01	
	76.34	0.000170	4.66	21936.02	1305.17	0.18
Reach-1	132707	100-yr	109000.00	52.50	78.02	
	78.39	0.000168	4.91	24586.85	1333.54	0.18
Reach-1	132707	500-yr	146000.00	52.50	82.43	
	82.88	0.000164	5.46	30903.94	1539.95	0.18
Reach-1	132065	10-yr	62900.00	51.50	71.42	
	71.59	0.000118	3.36	19689.28	1347.74	0.14
Reach-1	132065	50-yr	93700.00	51.50	75.99	
	76.22	0.000116	3.91	26041.94	1426.77	0.15
Reach-1	132065	100-yr	109000.00	51.50	78.01	
	78.27	0.000116	4.14	28951.21	1460.35	0.15
Reach-1	132065	500-yr	146000.00	51.50	82.43	

	82.75	0.000116	4.63	35804.58	1642.09	0.15
Reach-1	131298	10-yr	62900.00	51.50	71.23	
	71.46	0.000253	3.79	16759.88	1431.32	0.19
Reach-1	131298	50-yr	93700.00	51.50	75.84	
	76.10	0.000223	4.09	23704.42	1566.27	0.17
Reach-1	131298	100-yr	109000.00	51.50	77.87	
	78.15	0.000214	4.24	26928.79	1611.06	0.17
Reach-1	131298	500-yr	146000.00	51.50	82.32	
	82.64	0.000197	4.55	34632.75	1827.60	0.16
Reach-1	130606	10-yr	62900.00	51.50	71.01	
	71.26	0.000314	4.02	15824.11	1459.83	0.21
Reach-1	130606	50-yr	93700.00	51.50	75.66	
	75.93	0.000261	4.21	23348.62	1733.34	0.18
Reach-1	130606	100-yr	109000.00	51.50	77.71	
	77.99	0.000244	4.30	26930.65	1769.50	0.18
Reach-1	130606	500-yr	146000.00	51.50	82.18	
	82.49	0.000217	4.53	35187.55	1910.49	0.17
Reach-1	129999	10-yr	62900.00	51.60	70.66	
	71.04	0.000366	4.98	12982.77	1066.31	0.23
Reach-1	129999	50-yr	93700.00	51.60	75.38	
	75.75	0.000309	4.91	20221.58	1744.52	0.24
Reach-1	129999	100-yr	109000.00	51.60	77.46	
	77.82	0.000287	4.87	23883.80	1783.80	0.22
Reach-1	129999	500-yr	146000.00	51.60	81.98	
	82.35	0.000249	4.92	32450.82	1962.04	0.20
Reach-1	129552	10-yr	62900.00	52.40	70.52	
	70.88	0.000344	4.84	13648.31	1075.08	0.22
Reach-1	129552	50-yr	93700.00	52.40	75.25	
	75.62	0.000290	4.93	20349.84	1558.24	0.23
Reach-1	129552	100-yr	109000.00	52.40	77.32	
	77.69	0.000270	4.98	23649.74	1639.13	0.22
Reach-1	129552	500-yr	146000.00	52.40	81.84	
	82.23	0.000237	5.14	31355.75	1729.37	0.20
Reach-1	129008	10-yr	62900.00	52.40	70.23	
	70.66	0.000423	5.28	12093.70	888.21	0.24
Reach-1	129008	50-yr	93700.00	52.40	74.91	
	75.43	0.000372	5.80	16785.36	1158.61	0.25
Reach-1	129008	100-yr	109000.00	52.40	76.98	
	77.51	0.000353	5.89	19390.96	1361.97	0.26
Reach-1	129008	500-yr	146000.00	52.40	81.52	

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      82.07     0.000312       6.05    25811.55     1450.94           0.24


  Reach-1       128834        10-yr      62900.00       50.25       70.16
59.52       70.57     0.000498       5.13    12268.07      815.08           0.23
  Reach-1       128834        50-yr      93700.00       50.25       74.83
61.65       75.34     0.000496       5.74    16459.88     1020.32           0.25
  Reach-1       128834        100-yr    109000.00       50.25       76.90
62.58       77.43     0.000483       5.89    18748.15     1262.45           0.26
  Reach-1       128834        500-yr    146000.00       50.25       81.46
64.60       82.00     0.000419       5.95    25491.66     1563.73           0.24


  Reach-1       128814.5                  Bridge



  Reach-1       128795        10-yr      62900.00       50.25       70.15
      70.56     0.000499       5.14    12257.31      814.97           0.23
  Reach-1       128795        50-yr      93700.00       50.25       74.82
      75.33     0.000498       5.74    16442.80     1019.75           0.25
  Reach-1       128795        100-yr    109000.00       50.25       76.86
      77.40     0.000486       5.90    18696.71     1260.07           0.26
  Reach-1       128795        500-yr    146000.00       50.25       81.41
      81.96     0.000422       5.97    25419.92     1563.35           0.24


  Reach-1       128638        10-yr      62900.00       52.40       70.04
      70.48     0.000433       5.32    12192.29      927.39           0.24
  Reach-1       128638        50-yr      93700.00       52.40       74.75
      75.26     0.000374       5.81    16981.27     1154.75           0.26
  Reach-1       128638        100-yr    109000.00       52.40       76.80
      77.33     0.000357       5.89    19627.02     1493.94           0.28
  Reach-1       128638        500-yr    146000.00       52.40       81.38
      81.89     0.000308       5.88    26633.26     1556.89           0.24


  Reach-1       128215        10-yr      62900.00       52.50       69.87
      70.29     0.000464       5.18    12313.76      962.86           0.25
  Reach-1       128215        50-yr      93700.00       52.50       74.66
      75.07     0.000358       5.19    18536.85     1514.08           0.26
  Reach-1       128215        100-yr    109000.00       52.50       76.74
      77.15     0.000325       5.17    21701.78     1532.80           0.24
  Reach-1       128215        500-yr    146000.00       52.50       81.32
      81.74     0.000271       5.26    28900.38     1618.08           0.21


  Reach-1       127766        10-yr      62900.00       52.50       69.49
      70.04     0.000590       5.96    10644.20      823.51           0.28
  Reach-1       127766        50-yr      93700.00       52.50       74.39
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     74.89     0.000455       5.70    17227.80     1931.60           0.31
  Reach-1       127766        100-yr    109000.00       52.50       76.54
     76.99     0.000390       5.40    21466.75     1991.75           0.27
  Reach-1       127766        500-yr    146000.00       52.50       81.22
     81.61     0.000290       5.09    31163.55     2125.27           0.22


  Reach-1       127339        10-yr      62900.00       52.50       69.46
     69.77     0.000372       4.42    14363.91     1419.67           0.24
  Reach-1       127339        50-yr      93700.00       52.50       74.38
     74.67     0.000288       4.31    22411.36     1854.63           0.21
  Reach-1       127339        100-yr    109000.00       52.50       76.52
     76.80     0.000260       4.28    26867.97     2239.04           0.19
  Reach-1       127339        500-yr    146000.00       52.50       81.21
     81.46     0.000204       4.14    38526.84     2544.72           0.17


  Reach-1       127040        10-yr      62900.00       50.30       69.19
59.70       69.61     0.000693       5.19    12130.21      842.40           0.24
  Reach-1       127040        50-yr      93700.00       50.30       74.02
61.64       74.53     0.000658       5.71    16635.13     1102.39           0.24
  Reach-1       127040        100-yr    109000.00       50.30       76.13
62.49       76.67     0.000621       5.89    19402.24     1350.63           0.23
  Reach-1       127040        500-yr    146000.00       50.30       80.82
64.53       81.35     0.000520       5.93    27054.37     2417.60           0.29


  Reach-1       127032                    Bridge


  Reach-1       127024        10-yr      62900.00       50.30       69.17
     69.59     0.000696       5.19    12114.03      842.39           0.24
  Reach-1       127024        50-yr      93700.00       50.30       73.93
     74.44     0.000669       5.74    16536.98     1098.40           0.24
  Reach-1       127024        100-yr    109000.00       50.30       75.97
     76.52     0.000638       5.94    19187.13     1350.62           0.24
  Reach-1       127024        500-yr    146000.00       50.30       80.52
     81.07     0.000546       6.09    26332.54     2271.77           0.29


  Reach-1       126951        10-yr      62900.00       52.50       69.22
     69.52     0.000377       4.42    14218.10     1308.54           0.24
  Reach-1       126951        50-yr      93700.00       52.50       74.05
     74.35     0.000298       4.42    21463.45     1861.30           0.21
  Reach-1       126951        100-yr    109000.00       52.50       76.12
     76.42     0.000271       4.42    25559.91     2107.88           0.20
  Reach-1       126951        500-yr    146000.00       52.50       80.68
     80.96     0.000221       4.35    36548.30     2564.55           0.18
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Reach-1	126845	10-yr	62900.00	50.10	69.20				
69.46	0.000524	4.08	15406.61	1519.00	0.23				
Reach-1	126845	50-yr	93700.00	50.10	74.04				
74.30	0.000407	4.11	23108.70	1768.96	0.19				
Reach-1	126845	100-yr	109000.00	50.10	76.11				
76.37	0.000380	4.17	27034.85	1985.76	0.18				
Reach-1	126845	500-yr	146000.00	50.10	80.66				
80.93	0.000334	4.29	36559.00	2204.33	0.16				
Reach-1	126779	10-yr	62900.00	50.10	69.17				
69.43	0.000529	4.10	15350.99	1518.60	0.23				
Reach-1	126779	50-yr	93700.00	50.10	74.01				
74.27	0.000410	4.12	23059.11	1766.86	0.19				
Reach-1	126779	100-yr	109000.00	50.10	76.08				
76.35	0.000382	4.18	26983.01	1984.92	0.18				
Reach-1	126779	500-yr	146000.00	50.10	80.63				
80.91	0.000335	4.29	36508.75	2203.46	0.16				
Reach-1	126715	10-yr	62900.00	50.10	69.13				
59.42	69.40	0.000469	4.15	15430.70	1441.99	0.22			
Reach-1	126715	50-yr	93700.00	50.10	73.98				
61.35	74.25	0.000394	4.22	22970.68	1776.86	0.19			
Reach-1	126715	100-yr	109000.00	50.10	76.05				
62.73	76.33	0.000358	4.26	26925.63	1995.43	0.18			
Reach-1	126715	500-yr	146000.00	50.10	80.62				
64.72	80.89	0.000296	4.31	36212.38	2073.19	0.17			
Reach-1	126702	Bridge							
Reach-1	126689	10-yr	62900.00	50.10	69.12				
69.38	0.000471	4.15	15405.98	1441.64	0.22				
Reach-1	126689	50-yr	93700.00	50.10	73.95				
74.22	0.000396	4.22	22920.75	1775.18	0.19				
Reach-1	126689	100-yr	109000.00	50.10	76.01				
76.29	0.000361	4.27	26845.56	1994.75	0.18				
Reach-1	126689	500-yr	146000.00	50.10	80.56				
80.84	0.000299	4.33	36092.98	2072.21	0.17				
Reach-1	126497	10-yr	62900.00	52.40	69.00				
69.29	0.000431	4.39	14820.96	1622.74	0.24				
Reach-1	126497	50-yr	93700.00	52.40	73.88				
74.16	0.000305	4.30	22790.84	1644.21	0.20				
Reach-1	126497	100-yr	109000.00	52.40	75.94				

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     76.23     0.000279       4.37    26346.47     1876.99           0.19
  Reach-1       126497        500-yr    146000.00       52.40       80.49
     80.78     0.000233       4.49    35946.68     2190.07           0.17


  Reach-1       126190        10-yr      62900.00       52.70       68.78
     69.11     0.000829       4.64    14064.76     1533.59           0.25
  Reach-1       126190        50-yr      93700.00       52.70       73.72
     74.03     0.000523       4.54    21718.46     1563.04           0.20
  Reach-1       126190        100-yr    109000.00       52.70       75.79
     76.11     0.000476       4.66    25180.53     1786.57           0.20
  Reach-1       126190        500-yr    146000.00       52.70       80.37
     80.69     0.000375       4.74    34153.41     2020.09           0.18


  Reach-1       125738        10-yr      62900.00       52.70       68.61
     68.90     0.000275       4.39    15272.11     1274.11           0.20
  Reach-1       125738        50-yr      93700.00       52.70       73.57
     73.89     0.000217       4.69    22939.32     1695.76           0.18
  Reach-1       125738        100-yr    109000.00       52.70       75.66
     75.98     0.000199       4.79    26528.19     1743.25           0.18
  Reach-1       125738        500-yr    146000.00       52.70       80.25
     80.58     0.000168       4.97    34566.28     1751.07           0.17


  Reach-1       125718        10-yr      62900.00       58.30       68.09
     68.77     0.001244       6.81     9895.55     1226.91           0.38
  Reach-1       125718        50-yr      93700.00       58.30       73.30
     73.82     0.000569       6.12    17753.55     1689.54           0.28
  Reach-1       125718        100-yr    109000.00       58.30       75.44
     75.93     0.000452       5.96    21433.25     1738.39           0.25
  Reach-1       125718        500-yr    146000.00       58.30       80.11
     80.55     0.000308       5.78    29597.98     1751.07           0.22


  Reach-1       125698        10-yr      62900.00       44.00       68.36
     68.49     0.000074       2.98    22118.15     1251.34           0.11
  Reach-1       125698        50-yr      93700.00       44.00       73.46
     73.65     0.000079       3.51    29920.71     1693.30           0.12
  Reach-1       125698        100-yr    109000.00       44.00       75.58
     75.78     0.000081       3.72    33559.33     1741.51           0.12
  Reach-1       125698        500-yr    146000.00       44.00       80.21
     80.44     0.000081       4.10    41657.89     1751.07           0.12


  Reach-1       125608        10-yr      62900.00       43.50       68.35
51.22       68.48     0.000118       2.99    21438.88     1173.31           0.11
  Reach-1       125608        50-yr      93700.00       43.50       73.45
52.84       73.64     0.000132       3.51    28145.98     1443.33           0.12
  Reach-1       125608        100-yr    109000.00       43.50       75.56
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53.59       75.77     0.000138       3.72    31197.81     1443.52           0.12
  Reach-1       125608         500-yr    146000.00       43.50       80.18
55.26       80.43     0.000152       4.14    37972.06     1499.71           0.13


  Reach-1       125596                       Bridge



  Reach-1       125584         10-yr      62900.00       43.50       68.34
       68.48     0.000118       2.99    21436.34     1173.29           0.11
  Reach-1       125584         50-yr      93700.00       43.50       73.45
       73.63     0.000132       3.51    28142.46     1443.33           0.12
  Reach-1       125584         100-yr    109000.00       43.50       75.56
       75.77     0.000138       3.72    31194.13     1443.52           0.12
  Reach-1       125584         500-yr    146000.00       43.50       80.15
       80.40     0.000152       4.15    37927.25     1499.70           0.13


  Reach-1       125295         10-yr      62900.00       46.00       68.25
       68.43     0.000128       3.44    18449.71     1058.75           0.14
  Reach-1       125295         50-yr      93700.00       46.00       73.33
       73.58     0.000127       4.00    24208.73     1160.05           0.14
  Reach-1       125295         100-yr    109000.00       46.00       75.43
       75.71     0.000129       4.25    26646.21     1160.07           0.15
  Reach-1       125295         500-yr    146000.00       46.00       79.98
       80.33     0.000132       4.79    31923.50     1160.11           0.15


  Reach-1       124990         10-yr      62900.00       45.00       68.17
52.76       68.38     0.000166       3.71    16967.64      843.63           0.15
  Reach-1       124990         50-yr      93700.00       45.00       73.22
54.67       73.52     0.000174       4.40    21535.68      994.96           0.15
  Reach-1       124990         100-yr    109000.00       45.00       75.30
55.54       75.64     0.000179       4.71    23700.07     1091.31           0.16
  Reach-1       124990         500-yr    146000.00       45.00       79.83
57.42       80.26     0.000186       5.32    28905.87     1160.08           0.17


  Reach-1       124959.5                     Bridge



  Reach-1       124929         10-yr      62900.00       45.00       68.12
       68.33     0.000167       3.72    16928.66      843.58           0.15
  Reach-1       124929         50-yr      93700.00       45.00       73.11
       73.41     0.000177       4.42    21426.54      991.78           0.16
  Reach-1       124929         100-yr    109000.00       45.00       75.14
       75.48     0.000183       4.74    23521.60     1082.62           0.16
  Reach-1       124929         500-yr    146000.00       45.00       79.49
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	79.93	0.000193	5.38	28510.68	1160.07	0.17
Reach-1	124445	10-yr	62900.00	44.10	67.91	
	68.22	0.000190	4.44	14403.49	1002.54	0.17
Reach-1	124445	50-yr	93700.00	44.10	72.90	
	73.29	0.000192	5.14	19898.00	1110.04	0.18
Reach-1	124445	100-yr	109000.00	44.10	74.93	
	75.37	0.000195	5.44	22154.20	1110.06	0.18
Reach-1	124445	500-yr	146000.00	44.10	79.28	
	79.81	0.000200	6.07	26979.49	1110.11	0.19
Reach-1	123663	10-yr	62900.00	43.20	67.48	
	68.01	0.000330	5.82	11200.13	828.84	0.22
Reach-1	123663	50-yr	93700.00	43.20	72.45	
	73.08	0.000318	6.58	16687.63	1240.08	0.23
Reach-1	123663	100-yr	109000.00	43.20	74.50	
	75.15	0.000309	6.83	19228.33	1240.12	0.23
Reach-1	123663	500-yr	146000.00	43.20	78.88	
	79.60	0.000293	7.32	24667.67	1240.21	0.23
Reach-1	122951	10-yr	62900.00	42.70	66.98	
	67.71	0.000475	6.88	9734.48	858.69	0.27
Reach-1	122951	50-yr	93700.00	42.70	71.92	
	72.79	0.000453	7.75	14550.76	1004.19	0.27
Reach-1	122951	100-yr	109000.00	42.70	73.93	
	74.86	0.000448	8.11	16583.29	1010.99	0.27
Reach-1	122951	500-yr	146000.00	42.70	78.26	
	79.31	0.000440	8.85	21901.99	1270.28	0.28
Reach-1	122312	10-yr	62900.00	43.60	66.83	
	67.38	0.000383	5.97	10740.44	668.61	0.24
Reach-1	122312	50-yr	93700.00	43.60	71.76	
	72.48	0.000378	6.90	15558.06	1363.01	0.25
Reach-1	122312	100-yr	109000.00	43.60	73.80	
	74.55	0.000369	7.19	18540.98	1569.90	0.25
Reach-1	122312	500-yr	146000.00	43.60	78.21	
	78.99	0.000332	7.56	25723.87	1650.93	0.24
Reach-1	121490	10-yr	62900.00	44.00	66.55	
	67.07	0.000343	5.85	11405.90	743.33	0.23
Reach-1	121490	50-yr	93700.00	44.00	71.47	
	72.17	0.000353	6.85	15228.69	830.64	0.24
Reach-1	121490	100-yr	109000.00	44.00	73.46	
	74.25	0.000365	7.33	17052.67	993.82	0.25
Reach-1	121490	500-yr	146000.00	44.00	77.74	

	78.68	0.000373	8.16	21492.42	1045.99	0.26			
Reach-1	120802	10-yr	62900.00	42.50	66.23				
	66.81	0.000408	6.23	11210.14	865.77	0.25			
Reach-1	120802	50-yr	93700.00	42.50	71.18				
	71.91	0.000394	7.10	15593.24	914.69	0.25			
Reach-1	120802	100-yr	109000.00	42.50	73.18				
	73.98	0.000400	7.54	17470.29	964.03	0.26			
Reach-1	120802	500-yr	146000.00	42.50	77.43				
	78.41	0.000410	8.42	22186.21	1207.32	0.27			
Reach-1	120200	10-yr	62900.00	41.50	65.92				
	66.56	0.000411	6.48	10316.20	699.27	0.25			
Reach-1	120200	50-yr	93700.00	41.50	70.79				
	71.65	0.000425	7.58	14032.03	823.67	0.26			
Reach-1	120200	100-yr	109000.00	41.50	72.76				
	73.72	0.000438	8.08	15702.80	896.74	0.27			
Reach-1	120200	500-yr	146000.00	41.50	76.95				
	78.13	0.000460	9.09	20173.56	1453.33	0.28			
Reach-1	119282	10-yr	62900.00	40.60	65.47				
	66.15	0.000464	6.72	9990.99	672.99	0.26			
Reach-1	119282	50-yr	93700.00	40.60	70.31				
	71.23	0.000481	7.86	13702.64	959.80	0.28			
Reach-1	119282	100-yr	109000.00	40.60	72.27				
	73.29	0.000489	8.34	15823.95	1120.43	0.28			
Reach-1	119282	500-yr	146000.00	40.60	76.52				
	77.70	0.000487	9.17	20764.04	1201.75	0.29			
Reach-1	118934	10-yr	62900.00	40.00	65.20				
	65.98	0.000516	7.16	9449.41	605.38	0.28			
Reach-1	118934	50-yr	93700.00	40.00	70.02				
	71.05	0.000535	8.35	12913.41	827.30	0.29			
Reach-1	118934	100-yr	109000.00	40.00	71.93				
	73.09	0.000554	8.93	14546.53	873.58	0.30			
Reach-1	118934	500-yr	146000.00	40.00	76.11				
	77.49	0.000566	9.92	18321.11	932.26	0.31			
Reach-1	118798	10-yr	62900.00	39.40	64.86				
53.04	65.82	0.000935	7.99	8400.86	526.35	0.30			
Reach-1	118798	50-yr	93700.00	39.40	69.64				
56.25	70.88	0.001059	9.26	11526.07	792.43	0.32			
Reach-1	118798	100-yr	109000.00	39.40	71.61				
57.71	72.93	0.001096	9.70	13120.12	825.15	0.32			
Reach-1	118798	500-yr	146000.00	39.40	75.87				

61.44	77.35	0.001150	10.49	16691.02	846.03		0.33	
Reach-1	118737	10-yr	62900.00	39.40	64.81			
53.04	65.77	0.000942	8.01	8372.55	526.02		0.31	
Reach-1	118737	50-yr	93700.00	39.40	69.58			
56.25	70.82	0.001068	9.29	11474.71	791.36		0.32	
Reach-1	118737	100-yr	109000.00	39.40	71.54			
57.71	72.88	0.001106	9.73	13064.28	824.03		0.32	
Reach-1	118737	500-yr	146000.00	39.40	75.80			
61.44	77.29	0.001159	10.52	16630.95	845.77		0.33	
Reach-1	118675	10-yr	62900.00	39.88	64.76			
53.18	65.71	0.000946	7.95	8481.00	575.65		0.31	
Reach-1	118675	50-yr	93700.00	39.88	69.54			
56.36	70.73	0.001040	9.12	11630.55	708.02		0.32	
Reach-1	118675	100-yr	109000.00	39.88	71.50			
57.99	72.80	0.001082	9.59	13033.36	724.47		0.32	
Reach-1	118675	500-yr	146000.00	39.88	75.71			
61.68	77.22	0.001163	10.53	16260.81	787.14		0.33	
Reach-1	118651	10-yr	62900.00	39.88	64.73			
53.18	65.68	0.000950	7.96	8462.95	574.30		0.31	
Reach-1	118651	50-yr	93700.00	39.88	69.50			
56.36	70.70	0.001045	9.14	11605.42	707.72		0.32	
Reach-1	118651	100-yr	109000.00	39.88	71.46			
57.99	72.76	0.001088	9.61	13006.51	724.16		0.32	
Reach-1	118651	500-yr	146000.00	39.88	75.67			
61.68	77.19	0.001168	10.55	16229.21	786.96		0.33	
Reach-1	118490	10-yr	62900.00	39.50	64.80			
65.42	0.000425	6.33	10402.75	625.59	0.25			
Reach-1	118490	50-yr	93700.00	39.50	69.58			
70.42	0.000448	7.46	13789.87	823.54	0.27			
Reach-1	118490	100-yr	109000.00	39.50	71.54			
72.47	0.000455	7.92	15451.35	872.95	0.27			
Reach-1	118490	500-yr	146000.00	39.50	75.75			
76.88	0.000464	8.84	19320.24	960.16	0.28			
Reach-1	118005	10-yr	62900.00	39.50	64.64			
65.21	0.000375	6.07	10482.07	697.54	0.24			
Reach-1	118005	50-yr	93700.00	39.50	69.43			
70.19	0.000386	7.09	15038.09	1113.45	0.25			
Reach-1	118005	100-yr	109000.00	39.50	71.41			
72.24	0.000387	7.48	17285.45	1160.72	0.25			
Reach-1	118005	500-yr	146000.00	39.50	75.67			

	76.62	0.000384	8.20	22382.64	1226.88	0.26
Reach-1	117330	10-yr	62900.00	40.60	64.31	
	64.93	0.000450	6.29	9996.61	535.96	0.26
Reach-1	117330	50-yr	93700.00	40.60	69.04	
	69.90	0.000470	7.44	12907.92	764.50	0.27
Reach-1	117330	100-yr	109000.00	40.60	70.96	
	71.93	0.000482	7.95	14674.55	1193.01	0.28
Reach-1	117330	500-yr	146000.00	40.60	75.25	
	76.33	0.000458	8.60	21283.36	1654.62	0.28
Reach-1	116307	10-yr	62900.00	38.50	63.55	
	64.38	0.000602	7.30	8680.34	503.00	0.30
Reach-1	116307	50-yr	93700.00	38.50	68.28	
	69.34	0.000591	8.41	13189.38	1162.84	0.31
Reach-1	116307	100-yr	109000.00	38.50	70.23	
	71.37	0.000585	8.82	15555.96	1260.25	0.31
Reach-1	116307	500-yr	146000.00	38.50	74.54	
	75.80	0.000553	9.52	21278.01	1377.40	0.31
Reach-1	115807	10-yr	62900.00	37.40	63.25	
	64.08	0.000592	7.29	8644.22	470.23	0.29
Reach-1	115807	50-yr	93700.00	37.40	67.94	
	69.04	0.000602	8.51	12557.85	988.13	0.31
Reach-1	115807	100-yr	109000.00	37.40	69.86	
	71.07	0.000605	8.99	14520.41	1051.07	0.31
Reach-1	115807	500-yr	146000.00	37.40	74.10	
	75.50	0.000596	9.88	19114.26	1117.04	0.32
Reach-1	114577	10-yr	62900.00	37.60	62.70	
	63.41	0.000457	6.83	10220.00	690.08	0.26
Reach-1	114577	50-yr	93700.00	37.60	67.36	
	68.33	0.000494	8.12	13995.73	956.25	0.28
Reach-1	114577	100-yr	109000.00	37.60	69.28	
	70.35	0.000504	8.60	15853.94	979.10	0.29
Reach-1	114577	500-yr	146000.00	37.60	73.50	
	74.78	0.000515	9.57	20093.77	1027.07	0.30
Reach-1	114062	10-yr	62900.00	36.70	62.64	
	63.15	0.000325	5.75	11337.54	637.29	0.22
Reach-1	114062	50-yr	93700.00	36.70	67.31	
	68.04	0.000360	6.93	14479.30	726.26	0.24
Reach-1	114062	100-yr	109000.00	36.70	69.21	
	70.06	0.000378	7.46	15910.28	768.53	0.25
Reach-1	114062	500-yr	146000.00	36.70	73.40	

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      74.49     0.000410       8.53    19204.28      805.36           0.27


  Reach-1       113859        10-yr      62900.00       36.20       62.54
47.66       63.06     0.000506       5.78    11065.33      555.66           0.21
  Reach-1       113859        50-yr      93700.00       36.20       67.15
50.22       67.92     0.000646       7.09    13948.12      656.68           0.24
  Reach-1       113859        100-yr    109000.00       36.20       69.03
51.37       69.93     0.000715       7.67    15220.47      739.00           0.25
  Reach-1       113859        500-yr    146000.00       36.20       73.16
53.96       74.34     0.000854       8.85    18273.46      739.00           0.27


  Reach-1       113835                     Bridge



  Reach-1       113811        10-yr      62900.00       36.20       62.53
      63.04     0.000507       5.79    11058.77      555.54           0.21
  Reach-1       113811        50-yr      93700.00       36.20       67.14
      67.91     0.000648       7.10    13938.00      656.58           0.24
  Reach-1       113811        100-yr    109000.00       36.20       69.01
      69.91     0.000716       7.68    15207.74      739.00           0.25
  Reach-1       113811        500-yr    146000.00       36.20       73.14
      74.32     0.000856       8.85    18258.03      739.00           0.27


  Reach-1       113597        10-yr      62900.00       37.90       62.46
      62.94     0.000311       5.53    11659.93      651.90           0.22
  Reach-1       113597        50-yr      93700.00       37.90       67.08
      67.76     0.000343       6.66    14805.66      719.51           0.24
  Reach-1       113597        100-yr    109000.00       37.90       68.96
      69.75     0.000362       7.18    16184.31      747.99           0.24
  Reach-1       113597        500-yr    146000.00       37.90       73.09
      74.13     0.000395       8.25    19401.14      810.05           0.26


  Reach-1       112467        10-yr      62900.00       40.50       62.11
      62.56     0.000343       5.41    11727.42      692.19           0.22
  Reach-1       112467        50-yr      93700.00       40.50       66.72
      67.36     0.000355       6.40    15049.30      747.75           0.24
  Reach-1       112467        100-yr    109000.00       40.50       68.59
      69.32     0.000368       6.87    16482.24      806.66           0.24
  Reach-1       112467        500-yr    146000.00       40.50       72.72
      73.65     0.000387       7.82    20077.85      889.99           0.26


  Reach-1       111334        10-yr      62900.00       38.90       61.87
      62.20     0.000242       4.60    13754.60      785.91           0.19
  Reach-1       111334        50-yr      93700.00       38.90       66.51
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	66.97	0.000252	5.45	17802.50	944.67	0.20
Reach-1	111334	100-yr	109000.00	38.90	68.38	
	68.91	0.000262	5.85	19637.81	1024.39	0.21
Reach-1	111334	500-yr	146000.00	38.90	72.53	
	73.21	0.000276	6.65	24487.15	1326.50	0.22
Reach-1	110666	10-yr	62900.00	37.60	61.73	
	62.04	0.000214	4.49	14152.28	791.74	0.18
Reach-1	110666	50-yr	93700.00	37.60	66.36	
	66.80	0.000230	5.34	18736.43	1183.79	0.19
Reach-1	110666	100-yr	109000.00	37.60	68.24	
	68.73	0.000237	5.70	21024.96	1225.16	0.20
Reach-1	110666	500-yr	146000.00	37.60	72.41	
	73.01	0.000245	6.40	26183.53	1250.98	0.21
Reach-1	110054	10-yr	62900.00	36.80	61.50	
	61.89	0.000258	5.10	13226.30	883.78	0.20
Reach-1	110054	50-yr	93700.00	36.80	66.09	
	66.64	0.000277	6.04	17809.82	1083.80	0.21
Reach-1	110054	100-yr	109000.00	36.80	67.95	
	68.56	0.000288	6.46	19879.04	1145.61	0.22
Reach-1	110054	500-yr	146000.00	36.80	72.08	
	72.83	0.000302	7.27	24885.86	1265.93	0.23
Reach-1	109548	10-yr	62900.00	36.00	61.24	
	61.73	0.000363	5.61	11396.27	737.64	0.23
Reach-1	109548	50-yr	93700.00	36.00	65.80	
	66.46	0.000373	6.59	15468.42	1037.99	0.24
Reach-1	109548	100-yr	109000.00	36.00	67.64	
	68.38	0.000380	7.00	17413.60	1066.63	0.25
Reach-1	109548	500-yr	146000.00	36.00	71.75	
	72.65	0.000384	7.80	21866.48	1100.50	0.26
Reach-1	109276	10-yr	62900.00	36.30	60.93	
48.07	61.56	0.000559	6.37	9878.07	525.72	0.26
Reach-1	109276	50-yr	93700.00	36.30	65.41	
50.81	66.27	0.000612	7.53	13557.68	997.11	0.27
Reach-1	109276	100-yr	109000.00	36.30	67.24	
52.04	68.19	0.000630	7.97	15392.91	1008.00	0.28
Reach-1	109276	500-yr	146000.00	36.30	71.34	
54.78	72.45	0.000646	8.77	19597.13	1042.44	0.29
Reach-1	109192	Bridge				

Reach-1	109108	10-yr	62900.00	36.30	60.83	
61.47	0.000569	6.40	9825.83	525.05	0.26	
Reach-1	109108	50-yr	93700.00	36.30	65.29	
66.17	0.000623	7.57	13443.96	996.13	0.28	
Reach-1	109108	100-yr	109000.00	36.30	67.12	
68.08	0.000641	8.01	15273.36	1007.00	0.28	
Reach-1	109108	500-yr	146000.00	36.30	71.21	
72.34	0.000657	8.82	19469.79	1041.41	0.29	
Reach-1	108858	10-yr	62900.00	35.90	60.80	
61.30	0.000318	5.69	11192.32	585.56	0.22	
Reach-1	108858	50-yr	93700.00	35.90	65.25	
65.98	0.000362	6.92	14518.96	972.79	0.24	
Reach-1	108858	100-yr	109000.00	35.90	67.06	
67.89	0.000379	7.41	16301.29	991.53	0.25	
Reach-1	108858	500-yr	146000.00	35.90	71.14	
72.16	0.000399	8.35	20423.32	1029.32	0.26	
Reach-1	108437	10-yr	62900.00	37.50	60.65	
61.15	0.000397	5.65	11143.43	647.32	0.24	
Reach-1	108437	50-yr	93700.00	37.50	65.12	
65.80	0.000416	6.62	14675.43	988.68	0.25	
Reach-1	108437	100-yr	109000.00	37.50	66.95	
67.70	0.000420	7.02	16545.28	1059.51	0.26	
Reach-1	108437	500-yr	146000.00	37.50	71.06	
71.95	0.000412	7.76	21245.32	1222.49	0.26	
Reach-1	108025	10-yr	62900.00	38.50	60.51	
60.99	0.000355	5.61	12098.81	915.66	0.23	
Reach-1	108025	50-yr	93700.00	38.50	64.99	
65.63	0.000361	6.53	16380.99	993.17	0.24	
Reach-1	108025	100-yr	109000.00	38.50	66.82	
67.53	0.000370	6.95	18219.80	1023.74	0.25	
Reach-1	108025	500-yr	146000.00	38.50	70.91	
71.78	0.000382	7.81	23043.30	1280.81	0.26	
Reach-1	107856	10-yr	62900.00	38.50	60.45	
60.93	0.000355	5.59	12047.00	914.68	0.23	
Reach-1	107856	50-yr	93700.00	38.50	64.94	
65.56	0.000356	6.47	16331.55	992.31	0.24	
Reach-1	107856	100-yr	109000.00	38.50	66.77	
67.46	0.000363	6.87	18171.65	1022.95	0.24	
Reach-1	107856	500-yr	146000.00	38.50	70.87	
71.71	0.000371	7.69	22994.66	1279.42	0.25	

Reach-1	107836	10-yr	62900.00	46.00	59.87	
60.78	0.001082	7.94	8939.68	840.30	0.38	
Reach-1	107836	50-yr	93700.00	46.00	64.45	
65.44	0.000830	8.41	13122.14	1004.67	0.35	
Reach-1	107836	100-yr	109000.00	46.00	66.28	
67.34	0.000796	8.77	15008.36	1051.94	0.34	
Reach-1	107836	500-yr	146000.00	46.00	70.48	
71.61	0.000686	9.23	19541.91	1103.12	0.33	
Reach-1	107816	10-yr	62900.00	32.90	60.13	
60.51	0.000214	4.96	13033.90	738.13	0.18	
Reach-1	107816	50-yr	93700.00	32.90	64.66	
65.22	0.000249	6.04	16832.66	1014.84	0.20	
Reach-1	107816	100-yr	109000.00	32.90	66.48	
67.12	0.000267	6.52	18834.52	1185.47	0.21	
Reach-1	107816	500-yr	146000.00	32.90	70.65	
71.42	0.000279	7.29	24634.60	1430.03	0.22	
Reach-1	107696	10-yr	62900.00	32.90	60.10	
60.48	0.000215	4.96	13013.96	737.76	0.18	
Reach-1	107696	50-yr	93700.00	32.90	64.63	
65.19	0.000250	6.05	16800.23	1012.84	0.20	
Reach-1	107696	100-yr	109000.00	32.90	66.44	
67.09	0.000268	6.53	18793.59	1183.93	0.21	
Reach-1	107696	500-yr	146000.00	32.90	70.62	
71.39	0.000280	7.30	24582.02	1430.03	0.22	
Reach-1	107348	10-yr	62900.00	34.30	59.86	
60.37	0.000341	5.77	11366.23	716.13	0.23	
Reach-1	107348	50-yr	93700.00	34.30	64.38	
65.07	0.000368	6.80	15783.76	1281.62	0.24	
Reach-1	107348	100-yr	109000.00	34.30	66.21	
66.96	0.000372	7.19	18232.90	1370.76	0.25	
Reach-1	107348	500-yr	146000.00	34.30	70.44	
71.27	0.000355	7.75	24106.31	1407.06	0.25	
Reach-1	106758	10-yr	62900.00	36.10	59.45	
60.12	0.000489	6.58	9673.57	654.03	0.27	
Reach-1	106758	50-yr	93700.00	36.10	63.94	
64.80	0.000487	7.58	13731.40	1049.39	0.28	
Reach-1	106758	100-yr	109000.00	36.10	65.77	
66.70	0.000485	7.95	15734.31	1138.72	0.28	
Reach-1	106758	500-yr	146000.00	36.10	70.05	
71.02	0.000441	8.43	20934.31	1249.90	0.27	

Reach-1	106049	10-yr	62900.00	34.30	58.64	
59.67	0.000714	8.18	7894.09	572.71	0.32	
Reach-1	106049	50-yr	93700.00	34.30	63.14	
64.36	0.000688	9.21	12202.28	1188.84	0.33	
Reach-1	106049	100-yr	109000.00	34.30	65.09	
66.28	0.000636	9.32	14556.34	1222.86	0.32	
Reach-1	106049	500-yr	146000.00	34.30	69.59	
70.68	0.000511	9.29	20179.31	1274.01	0.30	

Reach-1	105690	10-yr	62900.00	33.60	58.56	
59.38	0.000559	7.34	9021.61	757.15	0.29	
Reach-1	105690	50-yr	93700.00	33.60	63.12	
64.06	0.000520	8.12	13258.52	1010.10	0.29	
Reach-1	105690	100-yr	109000.00	33.60	65.05	
66.01	0.000497	8.34	15205.96	1010.14	0.29	
Reach-1	105690	500-yr	146000.00	33.60	69.49	
70.48	0.000436	8.66	19692.25	1010.23	0.27	

Reach-1	105514	10-yr	62900.00	32.50	58.44		
45.75	59.23	0.000736	7.20	9331.44	871.98		0.27
Reach-1	105514	50-yr	93700.00	32.50	63.09		
48.68	63.85	0.000665	7.47	14416.06	1165.55		0.27
Reach-1	105514	100-yr	109000.00	32.50	65.04		
49.99	65.79	0.000605	7.50	16700.72	1172.34		0.26
Reach-1	105514	500-yr	146000.00	32.50	69.52		
52.93	70.26	0.000488	7.48	21989.20	1188.23		0.24

Reach-1	105474.5	Bridge

Reach-1	105435	10-yr	62900.00	32.50	58.39	
59.18	0.000743	7.22	9285.00	862.49	0.27	
Reach-1	105435	50-yr	93700.00	32.50	62.90	
63.69	0.000693	7.58	14196.03	1164.90	0.27	
Reach-1	105435	100-yr	109000.00	32.50	64.79	
65.57	0.000635	7.63	16409.89	1171.48	0.26	
Reach-1	105435	500-yr	146000.00	32.50	69.14	
69.91	0.000519	7.65	21538.11	1186.59	0.24	

Reach-1	105266	10-yr	62900.00	32.70	58.31	
59.06	0.000508	7.03	9592.59	796.76	0.28	
Reach-1	105266	50-yr	93700.00	32.70	62.67	
63.56	0.000495	7.90	13413.80	940.60	0.28	
Reach-1	105266	100-yr	109000.00	32.70	64.49	

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     65.43     0.000488       8.23    15138.96      960.50          0.28
Reach-1       105266        500-yr    146000.00       32.70       68.73
     69.75     0.000451       8.74    19299.97      990.31          0.28


Reach-1       104860        10-yr      62900.00       32.70       57.83
     58.80     0.000671       7.98     8383.56      775.35          0.32
Reach-1       104860        50-yr      93700.00       32.70       62.23
     63.32     0.000624       8.78    12302.75      945.44          0.31
Reach-1       104860        100-yr    109000.00       32.70       64.07
     65.20     0.000605       9.08    14057.12      960.30          0.31
Reach-1       104860        500-yr    146000.00       32.70       68.39
     69.55     0.000531       9.42    18235.00      975.14          0.30


Reach-1       104344        10-yr      62900.00       31.50       57.30
     58.42     0.000761       8.51     7669.85      692.14          0.34
Reach-1       104344        50-yr      93700.00       31.50       61.56
     62.94     0.000773       9.76    12183.61     1191.46          0.35
Reach-1       104344        100-yr    109000.00       31.50       63.41
     64.83     0.000748      10.09    14425.04     1223.59          0.35
Reach-1       104344        500-yr    146000.00       31.50       67.85
     69.24     0.000647      10.42    20019.33     1299.59          0.33


Reach-1       103793        10-yr      62900.00       28.90       56.89
     58.00     0.000740       8.49     7653.37      571.98          0.33
Reach-1       103793        50-yr      93700.00       28.90       61.00
     62.49     0.000811      10.05    11168.23      982.63          0.36
Reach-1       103793        100-yr    109000.00       28.90       62.79
     64.39     0.000811      10.54    12966.60     1019.77          0.36
Reach-1       103793        500-yr    146000.00       28.90       67.18
     68.83     0.000736      11.12    17472.25     1032.16          0.35


Reach-1       103278        10-yr      62900.00       37.91       55.93
     57.44     0.001443       9.94     6779.51      844.27          0.44
Reach-1       103278        50-yr      93700.00       37.91       60.46
     61.99     0.001193      10.43    11606.19     1249.31          0.41
Reach-1       103278        100-yr    109000.00       37.91       62.41
     63.88     0.001064      10.48    14121.32     1358.98          0.39
Reach-1       103278        500-yr    146000.00       37.91       67.08
     68.33     0.000774      10.16    20957.80     1499.05          0.35


Reach-1       103063        10-yr      62900.00       37.88       55.64
     57.13     0.001398       9.84     6791.49      764.89          0.43
Reach-1       103063        50-yr      93700.00       37.88       60.08
     61.72     0.001238      10.68    11040.45     1223.16          0.42
Reach-1       103063        100-yr    109000.00       37.88       62.07
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     63.64     0.001101      10.72    13631.66     1396.54           0.40
Reach-1       103063        500-yr    146000.00       37.88       66.88
     68.16     0.000775      10.25    20656.29     1481.85           0.35


Reach-1       102843        10-yr      62900.00       30.40       55.79
     56.78     0.000650       8.00     8064.50      504.22           0.31
Reach-1       102843        50-yr      93700.00       30.40       60.09
     61.43     0.000709       9.49    11296.31      805.69           0.34
Reach-1       102843        100-yr    109000.00       30.40       61.94
     63.42     0.000721      10.04    12800.30      813.71           0.34
Reach-1       102843        500-yr    146000.00       30.40       66.27
     67.96     0.000706      10.98    16350.98      824.77           0.35


Reach-1       102205        10-yr      62900.00       30.70       55.50
     56.35     0.000567       7.42     8483.13      419.84           0.29
Reach-1       102205        50-yr      93700.00       30.70       59.70
     60.97     0.000667       9.09    10817.88      765.90           0.32
Reach-1       102205        100-yr    109000.00       30.70       61.52
     62.96     0.000691       9.70    12359.42      871.56           0.33
Reach-1       102205        500-yr    146000.00       30.70       65.85
     67.51     0.000680      10.66    16268.10      929.91           0.34


Reach-1       101667        10-yr      62900.00       30.10       55.09
     56.02     0.000627       7.75     8439.44      695.80           0.31
Reach-1       101667        50-yr      93700.00       30.10       59.35
     60.60     0.000677       9.16    11567.40      746.25           0.33
Reach-1       101667        100-yr    109000.00       30.10       61.18
     62.57     0.000693       9.73    12945.04      762.12           0.34
Reach-1       101667        500-yr    146000.00       30.10       65.51
     67.14     0.000687      10.72    16294.37      785.45           0.34


Reach-1       101095        10-yr      62900.00       28.80       54.83
     55.67     0.000526       7.47     9541.40      803.98           0.28
Reach-1       101095        50-yr      93700.00       28.80       59.12
     60.20     0.000566       8.73    13055.67      836.88           0.30
Reach-1       101095        100-yr    109000.00       28.80       60.95
     62.15     0.000581       9.26    14617.09      872.70           0.31
Reach-1       101095        500-yr    146000.00       28.80       65.33
     66.70     0.000571      10.12    18638.18      930.69           0.31


Reach-1       100491        10-yr      62900.00       29.40       54.57
     55.33     0.000514       7.08     9988.01      986.58           0.28
Reach-1       100491        50-yr      93700.00       29.40       58.91
     59.83     0.000514       8.06    14548.33     1090.72           0.29
Reach-1       100491        100-yr    109000.00       29.40       60.78
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	61.75	0.000506	8.40	16607.65	1103.24	0.29
Reach-1	100491	500-yr	146000.00	29.40	65.26	
	66.29	0.000464	8.92	21581.28	1117.19	0.28
Reach-1	99703	10-yr	62900.00	29.40	54.26	
	54.90	0.000486	6.41	9843.12	615.32	0.27
Reach-1	99703	50-yr	93700.00	29.40	58.52	
	59.41	0.000524	7.60	13044.59	795.12	0.28
Reach-1	99703	100-yr	109000.00	29.40	60.35	
	61.34	0.000533	8.08	14504.31	801.77	0.29
Reach-1	99703	500-yr	146000.00	29.40	64.70	
	65.89	0.000523	8.94	18032.18	815.79	0.30
Reach-1	99111	10-yr	62900.00	30.00	53.84	
	54.59	0.000544	6.92	9100.06	516.40	0.28
Reach-1	99111	50-yr	93700.00	30.00	57.97	
	59.05	0.000612	8.38	11610.10	665.55	0.31
Reach-1	99111	100-yr	109000.00	30.00	59.74	
	60.97	0.000637	8.98	12824.59	697.68	0.32
Reach-1	99111	500-yr	146000.00	30.00	63.99	
	65.51	0.000645	10.05	15844.02	719.72	0.33
Reach-1	98439	10-yr	62900.00	27.80	53.56	
	54.23	0.000445	6.59	9911.42	720.56	0.26
Reach-1	98439	50-yr	93700.00	27.80	57.70	
	58.64	0.000500	7.91	13163.11	806.88	0.28
Reach-1	98439	100-yr	109000.00	27.80	59.48	
	60.53	0.000519	8.44	14607.58	818.00	0.29
Reach-1	98439	500-yr	146000.00	27.80	63.78	
	65.04	0.000523	9.38	18231.24	865.78	0.30
Reach-1	97712	10-yr	62900.00	29.00	53.29	
	53.91	0.000410	6.35	10824.98	964.12	0.25
Reach-1	97712	50-yr	93700.00	29.00	57.41	
	58.26	0.000457	7.58	14844.42	984.80	0.27
Reach-1	97712	100-yr	109000.00	29.00	59.19	
	60.14	0.000474	8.09	16599.87	993.03	0.28
Reach-1	97712	500-yr	146000.00	29.00	63.50	
	64.64	0.000477	8.98	20961.37	1037.93	0.29
Reach-1	97059	10-yr	62900.00	28.80	52.79	
	53.57	0.000600	7.09	9161.41	641.17	0.29
Reach-1	97059	50-yr	93700.00	28.80	56.77	
	57.88	0.000666	8.54	11893.42	726.28	0.32
Reach-1	97059	100-yr	109000.00	28.80	58.47	

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     59.74     0.000693       9.15    13156.27      758.50          0.33
Reach-1       97059          500-yr    146000.00       28.80       62.66
     64.22     0.000697      10.23    16527.49      864.63          0.34


Reach-1       96094          10-yr      62900.00       26.50       51.94
     52.94     0.000662       8.11     8612.21      582.01          0.32
Reach-1       96094          50-yr      93700.00       26.50       55.62
     57.13     0.000815      10.05    10869.04      641.72          0.36
Reach-1       96094          100-yr    109000.00       26.50       57.19
     58.94     0.000879      10.88    11879.87      650.44          0.38
Reach-1       96094          500-yr    146000.00       26.50       61.14
     63.38     0.000942      12.40    14575.87      705.86          0.40


Reach-1       95310          10-yr      62900.00       30.30       51.58
     52.34     0.000681       7.01     8966.77      555.70          0.31
Reach-1       95310          50-yr      93700.00       30.30       55.27
     56.39     0.000778       8.47    11084.96      589.63          0.34
Reach-1       95310          100-yr    109000.00       30.30       56.85
     58.14     0.000810       9.11    12026.42      604.78          0.35
Reach-1       95310          500-yr    146000.00       30.30       60.90
     62.51     0.000802      10.20    14733.75      726.70          0.36


Reach-1       94285          10-yr      62900.00       28.50       51.19
     51.83     0.000338       6.44     9772.27      519.36          0.26
Reach-1       94285          50-yr      93700.00       28.50       54.77
     55.78     0.000422       8.07    11692.92      548.37          0.30
Reach-1       94285          100-yr    109000.00       28.50       56.30
     57.50     0.000459       8.80    12538.23      558.28          0.31
Reach-1       94285          500-yr    146000.00       28.50       60.29
     61.86     0.000492      10.08    15123.82      828.46          0.33


Reach-1       93233          10-yr      62900.00       29.90       50.61
     51.39     0.000494       7.10     8859.86      533.10          0.31
Reach-1       93233          50-yr      93700.00       29.90       54.06
     55.24     0.000592       8.74    10745.47      565.22          0.35
Reach-1       93233          100-yr    109000.00       29.90       55.53
     56.92     0.000631       9.46    11582.20      573.26          0.36
Reach-1       93233          500-yr    146000.00       29.90       59.50
     61.26     0.000637      10.66    14088.22      833.94          0.37


Reach-1       92033          10-yr      62900.00       29.80       50.23
     50.82     0.000370       6.16    10210.70      812.48          0.31
Reach-1       92033          50-yr      93700.00       29.80       53.78
     54.57     0.000371       7.11    13281.04      893.94          0.32
Reach-1       92033          100-yr    109000.00       29.80       55.32
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	56.20	0.000368	7.53	14670.65	918.86	0.32					
Reach-1	92033	500-yr	146000.00	29.80	59.50						
	60.51	0.000317	8.09	18653.35	979.61	0.31					
Reach-1	91406	10-yr	62900.00	28.70	50.07						
	50.62	0.000260	5.94	10752.12	823.15	0.27					
Reach-1	91406	50-yr	93700.00	28.70	53.59						
	54.36	0.000285	7.12	13816.65	908.16	0.29					
Reach-1	91406	100-yr	109000.00	28.70	55.11						
	55.99	0.000295	7.62	15226.18	945.86	0.30					
Reach-1	91406	500-yr	146000.00	28.70	59.30						
	60.33	0.000272	8.28	19348.98	1002.18	0.29					
Reach-1	90774	10-yr	62900.00	27.90	50.01						
37.27	50.46	0.000163	5.42	12076.70	796.44	0.22					
Reach-1	90774	50-yr	93700.00	27.90	53.50						
39.61	54.19	0.000201	6.72	14964.82	895.87	0.25					
Reach-1	90774	100-yr	109000.00	27.90	55.01						
40.65	55.81	0.000216	7.27	16332.63	915.80	0.26					
Reach-1	90774	500-yr	146000.00	27.90	59.19						
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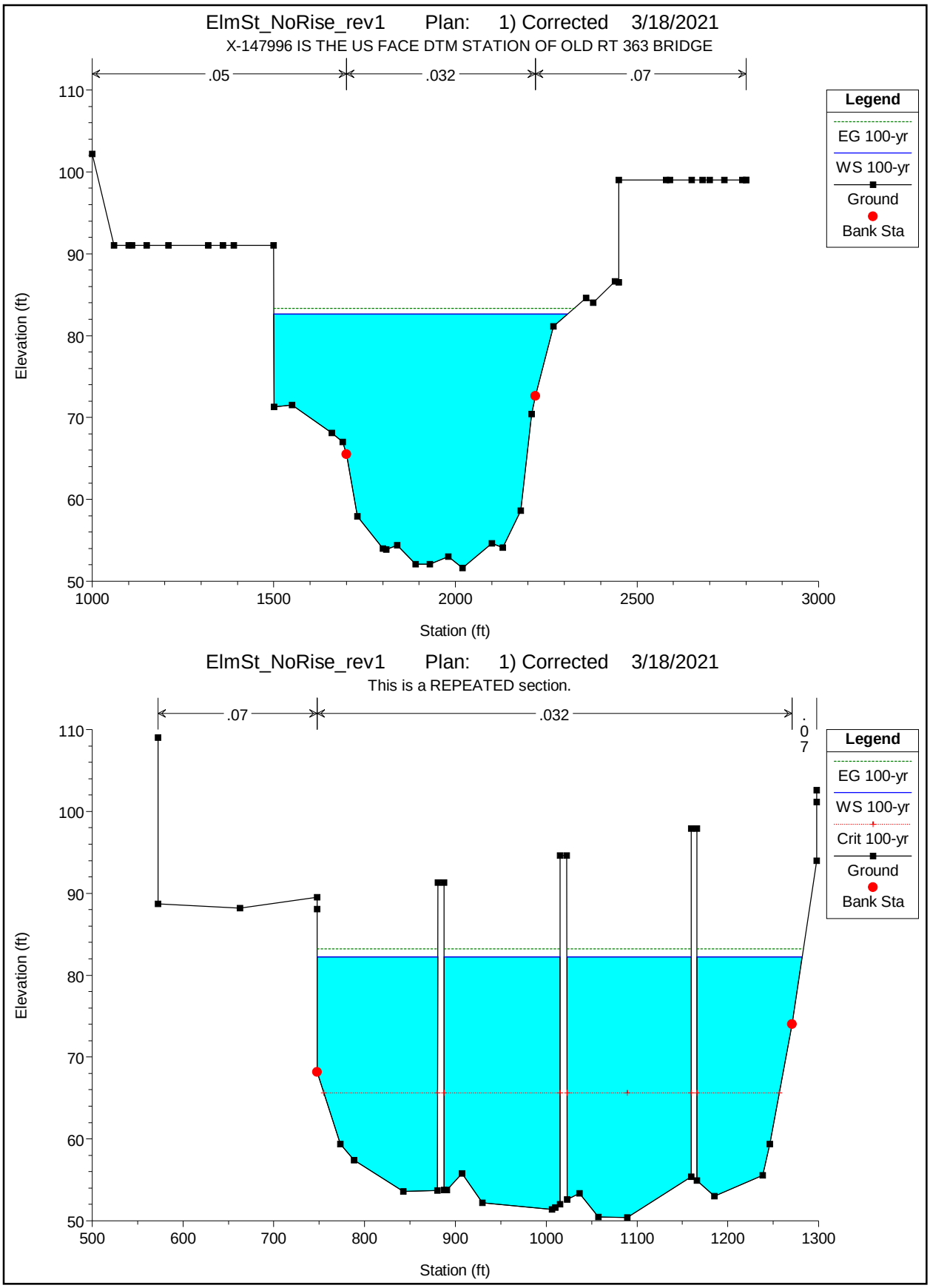
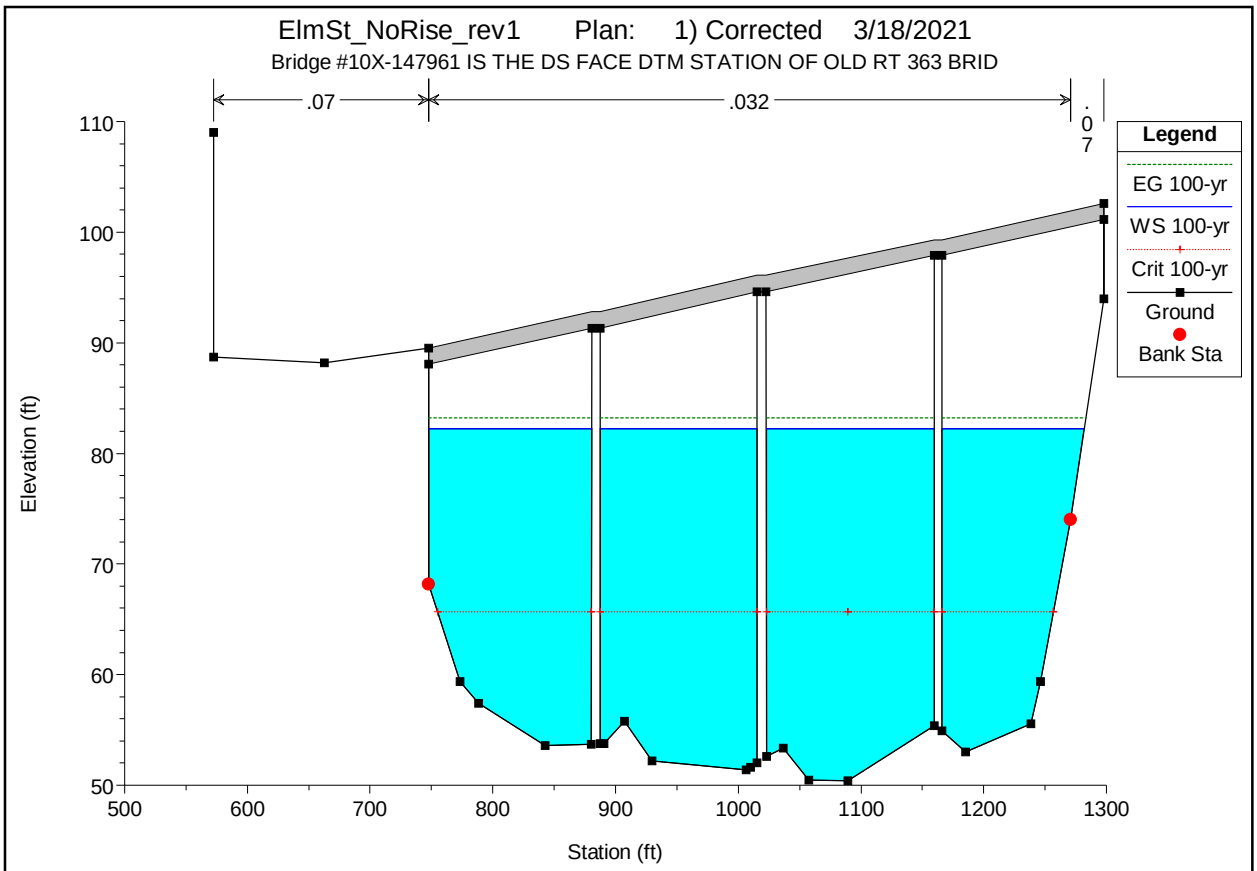
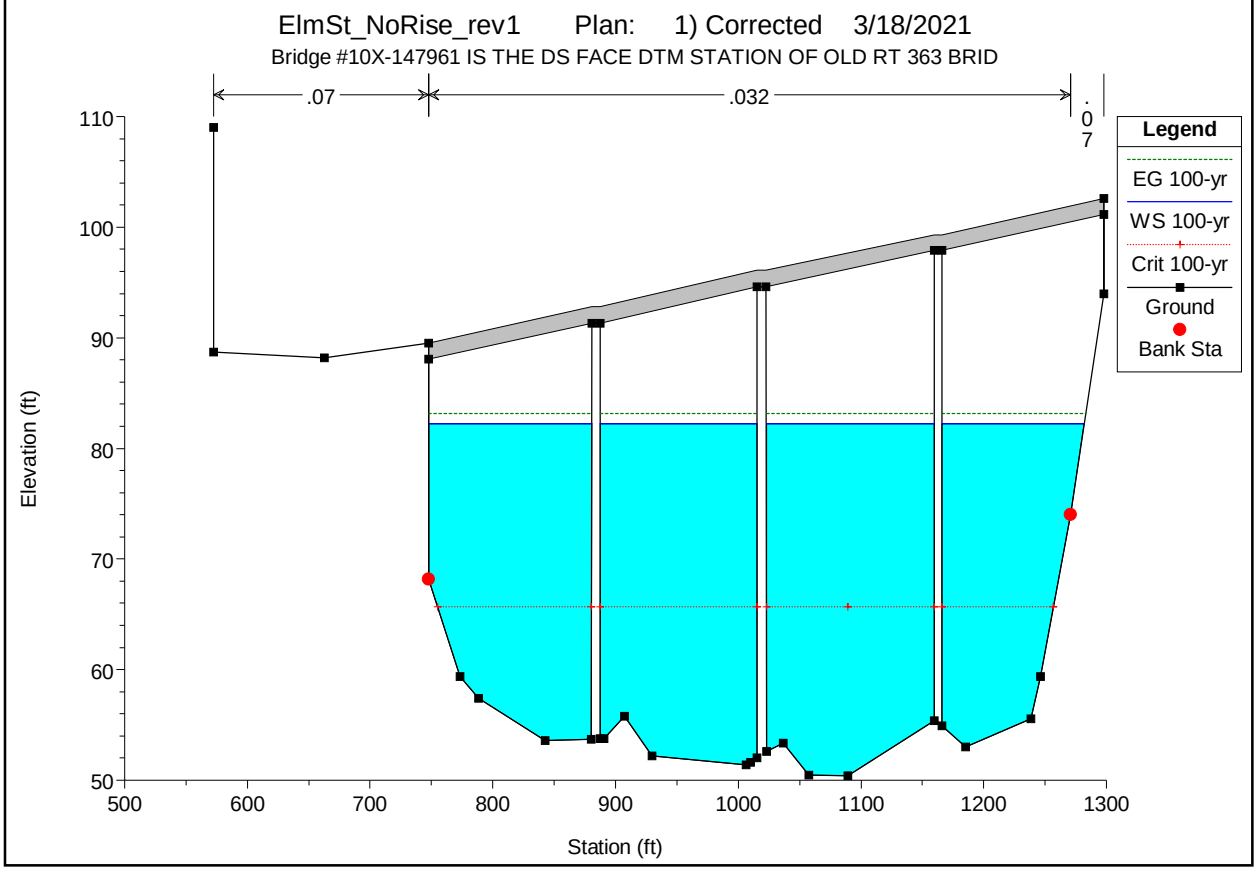
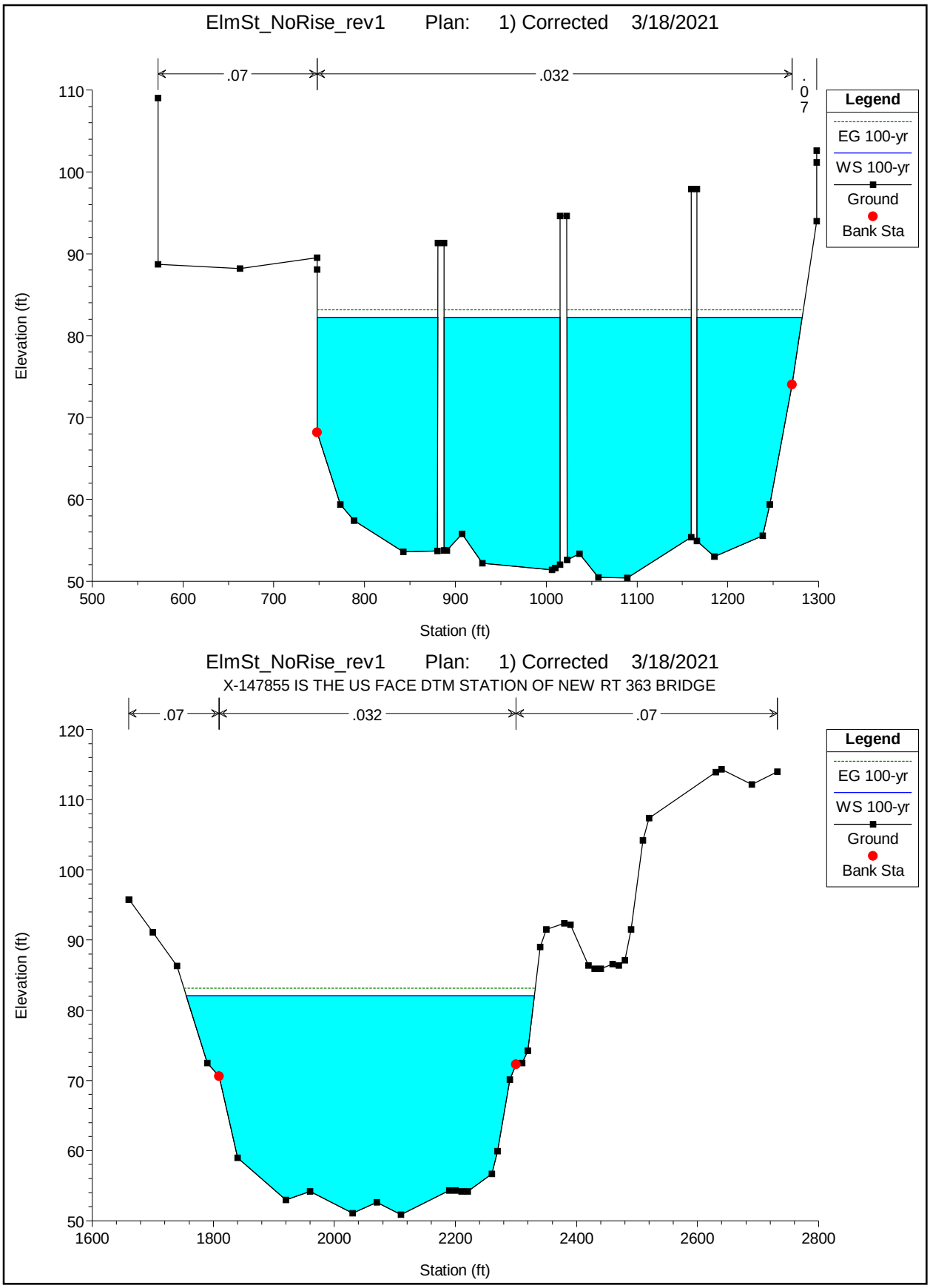
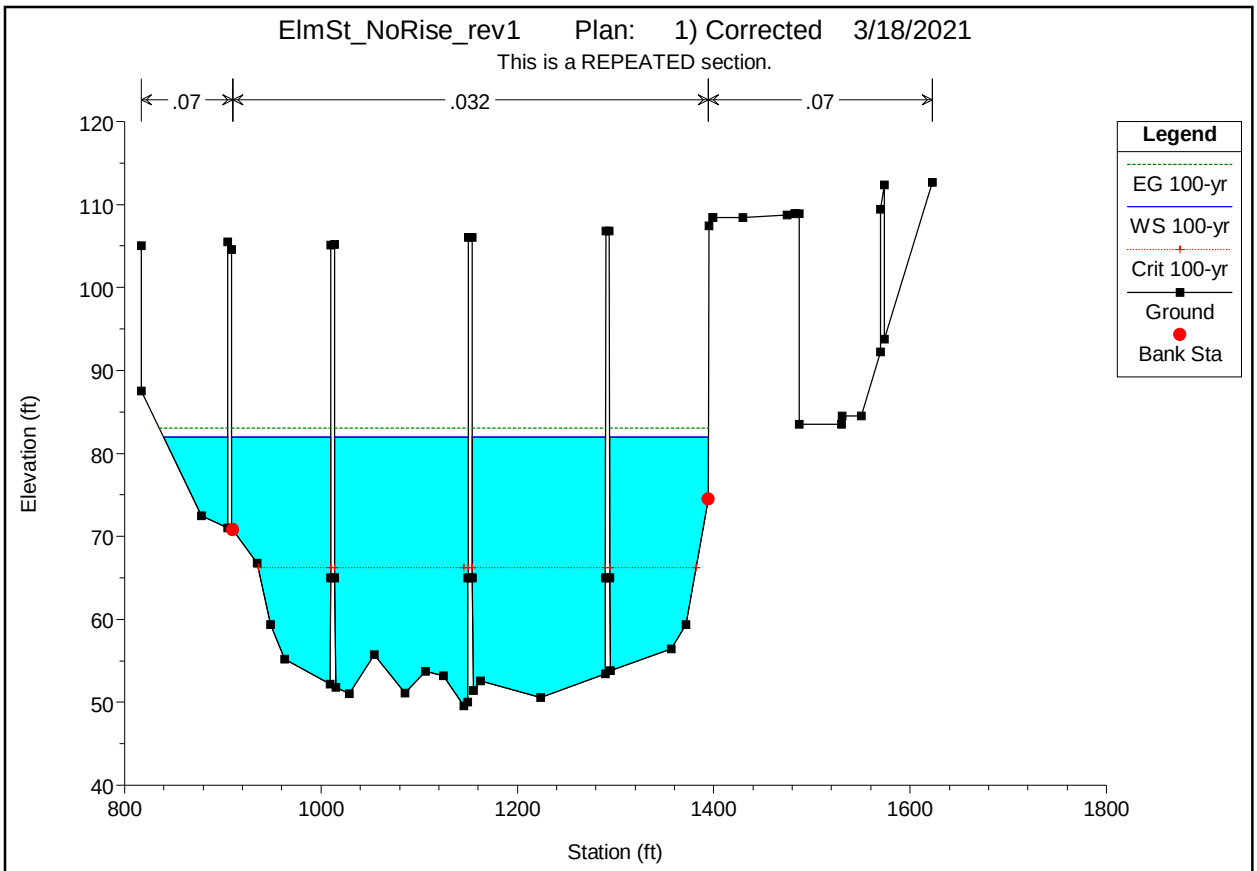
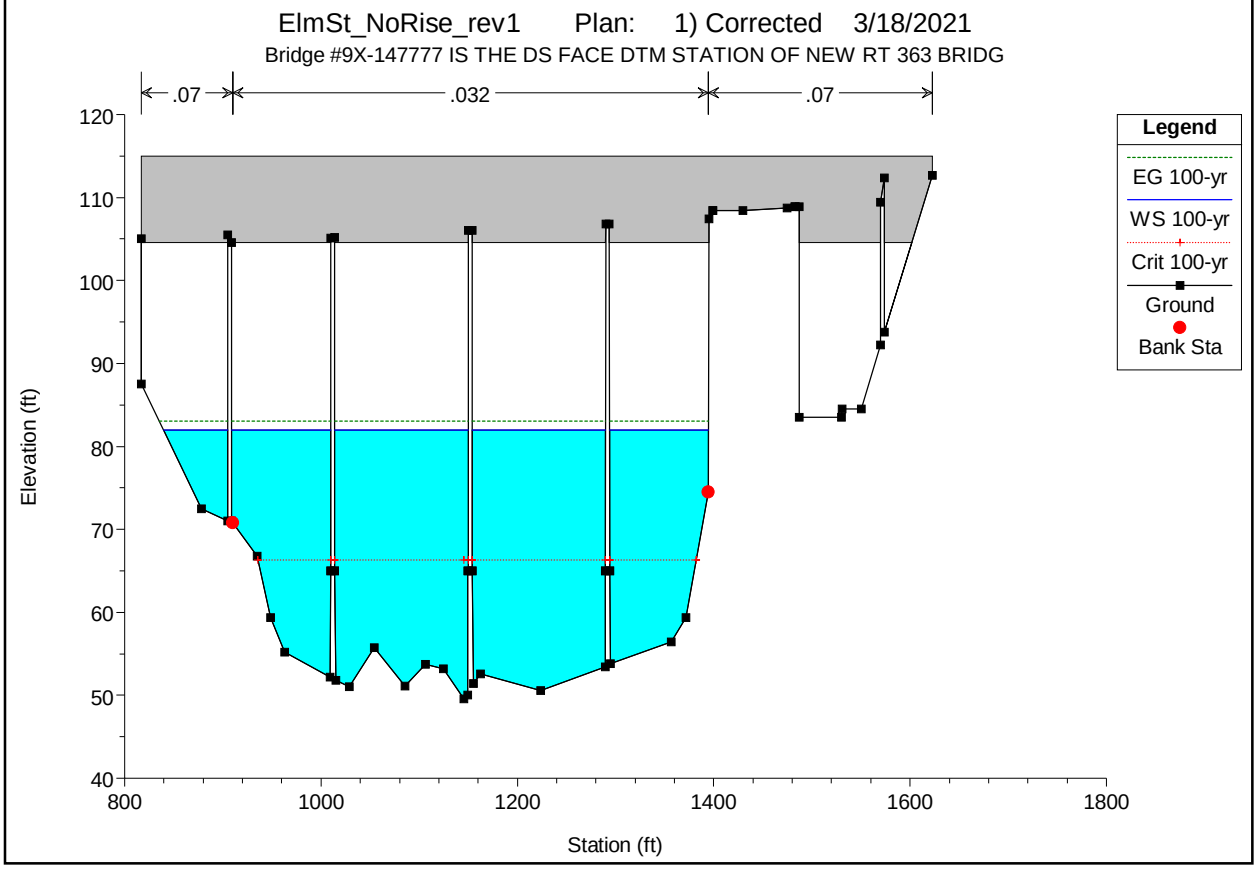


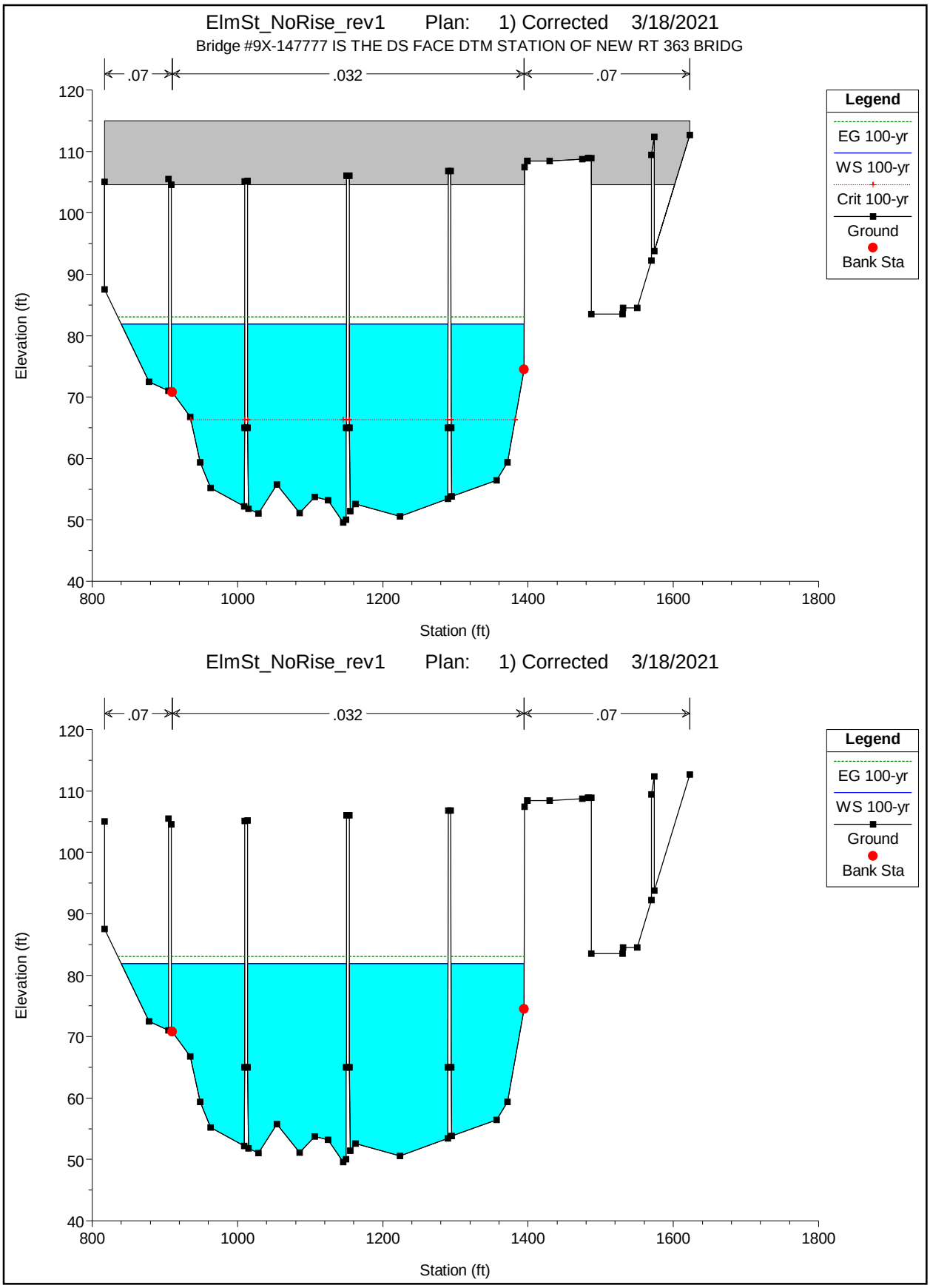


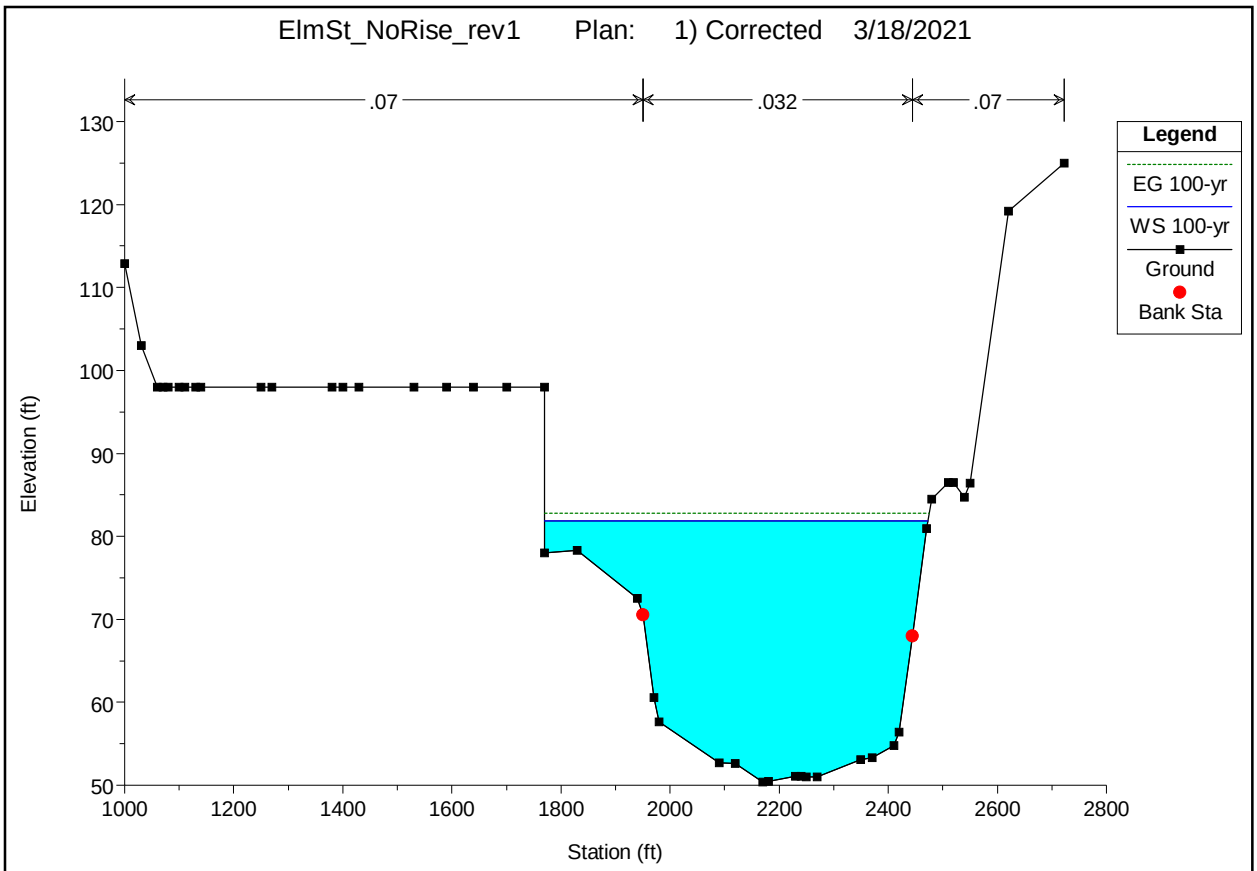


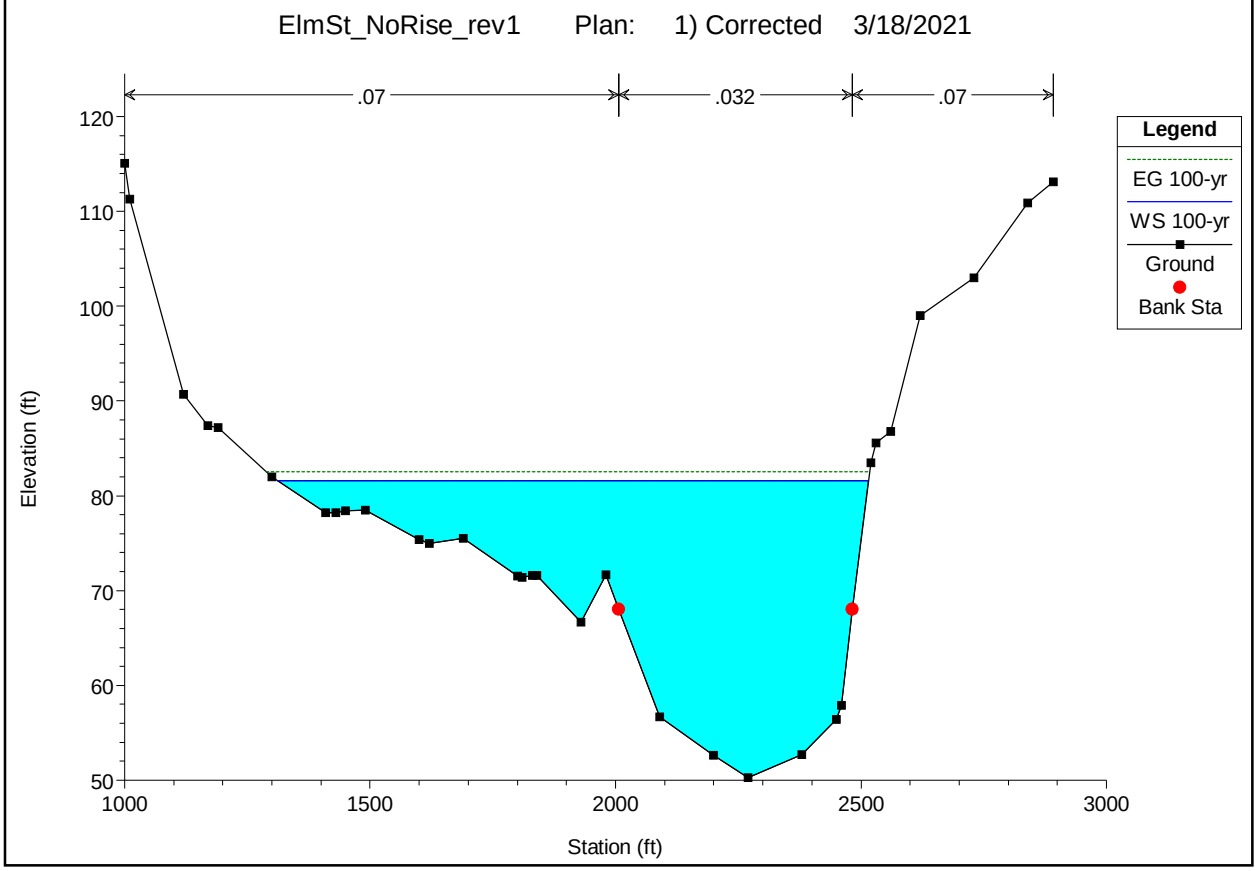


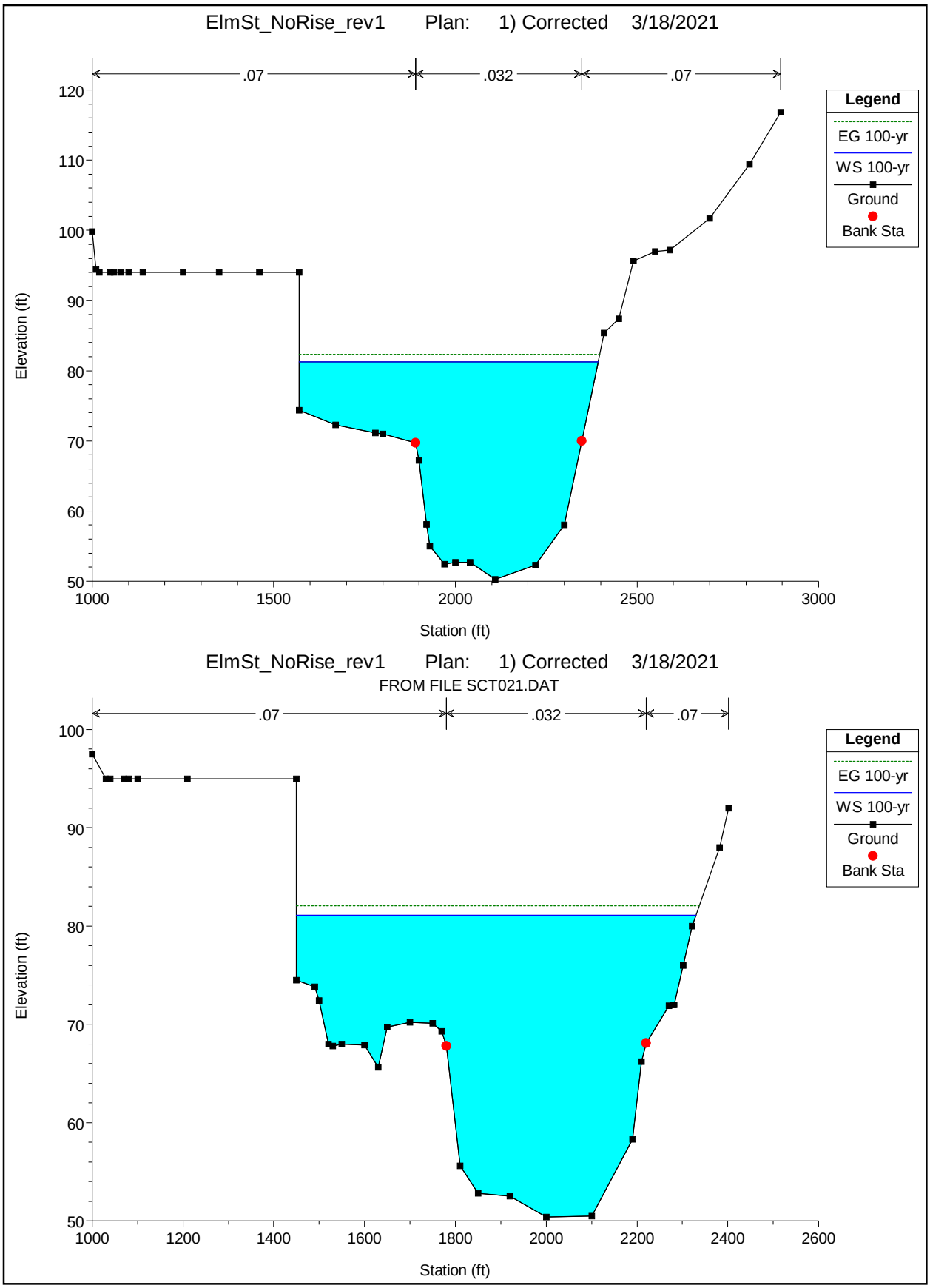


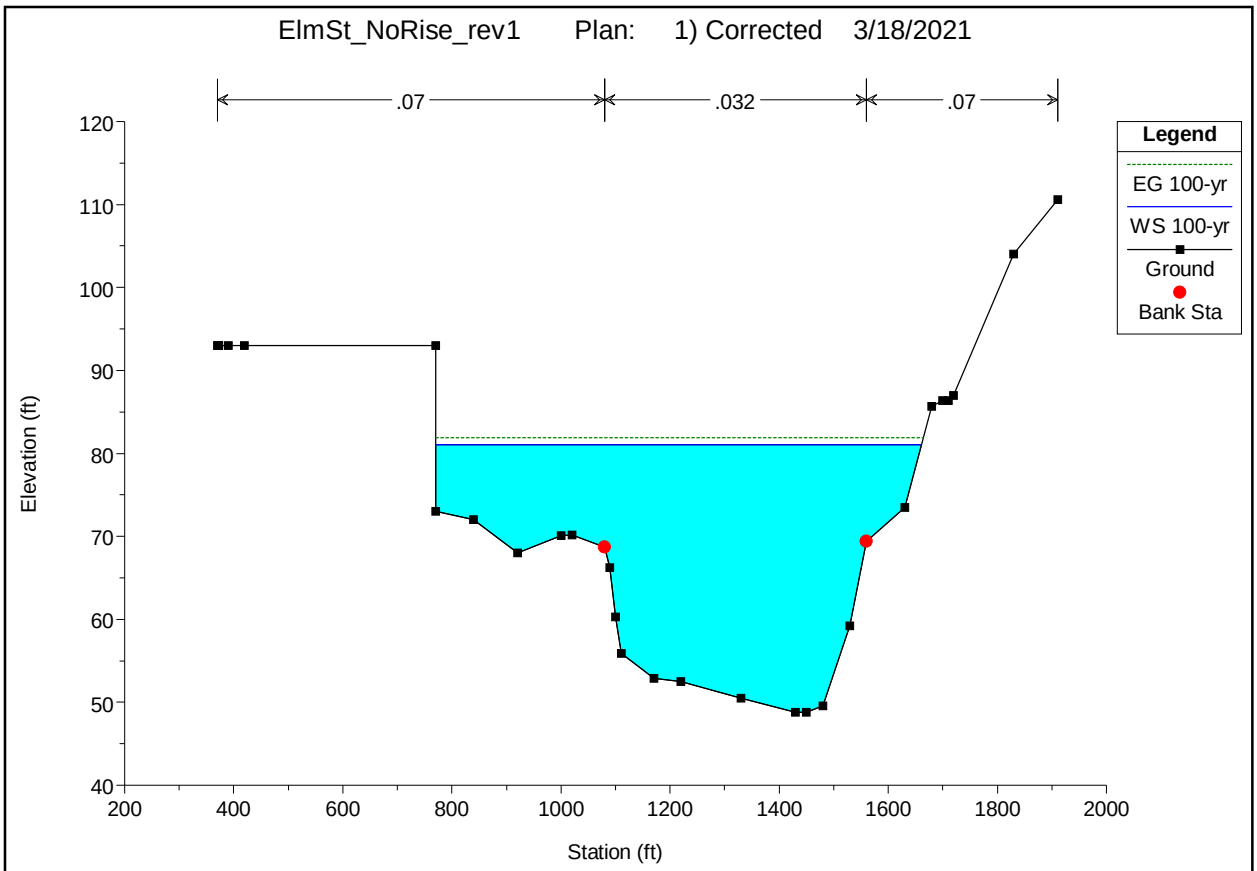


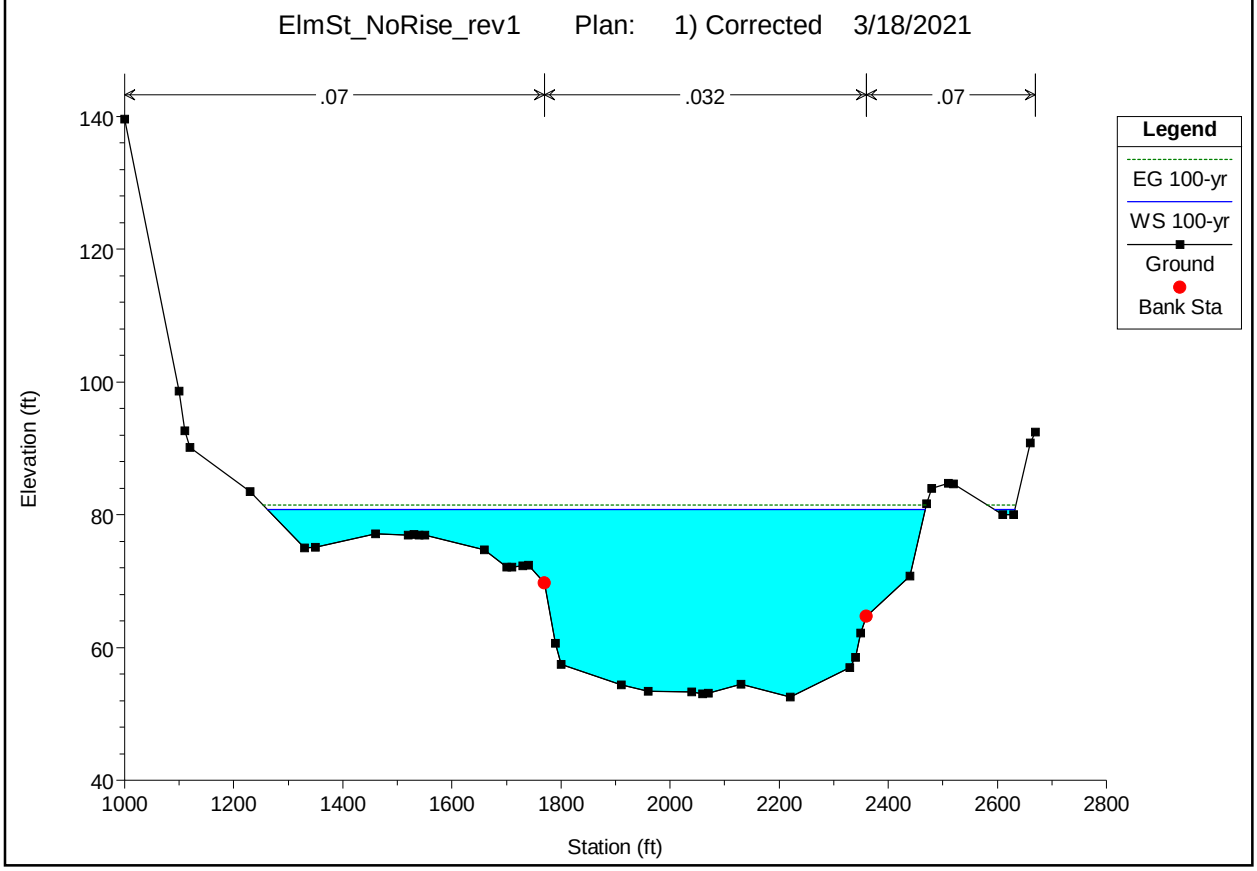


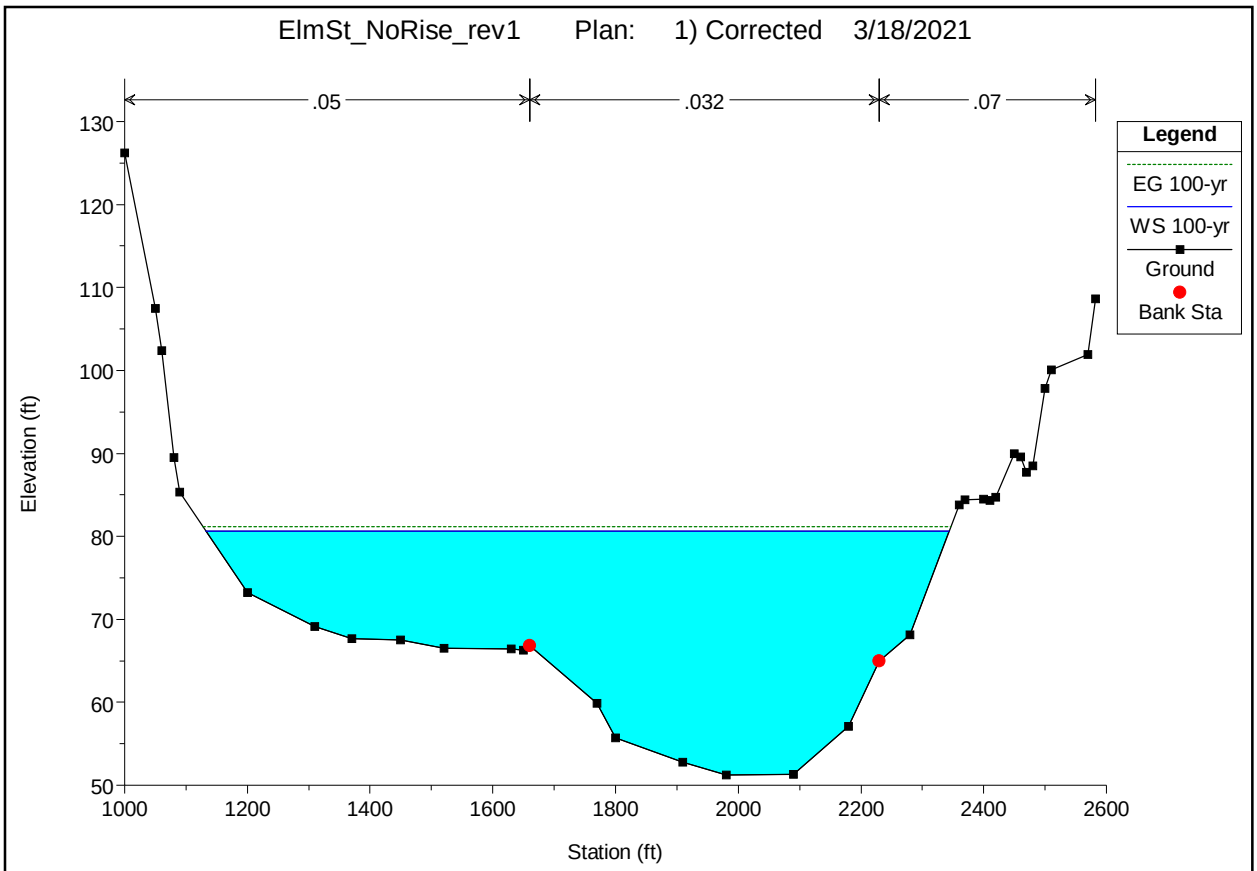


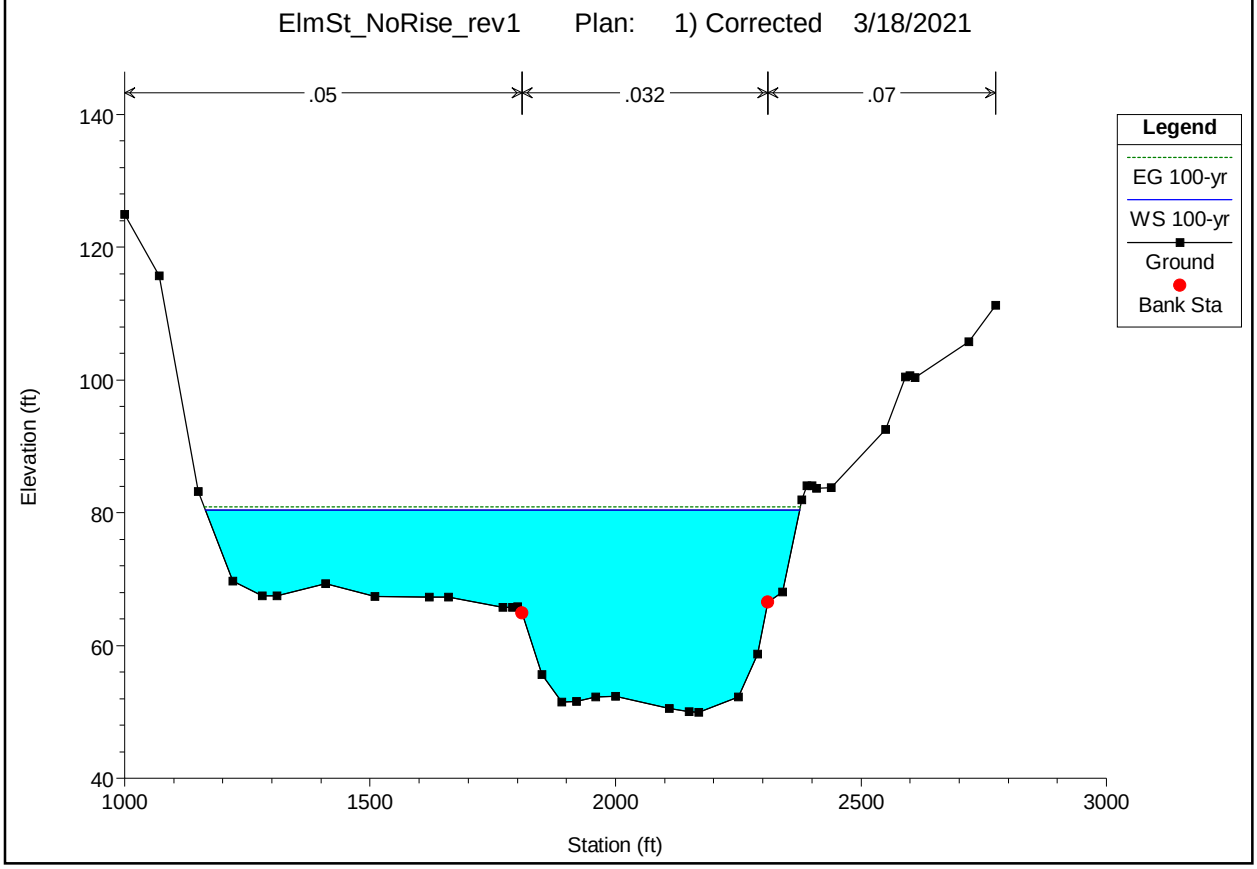


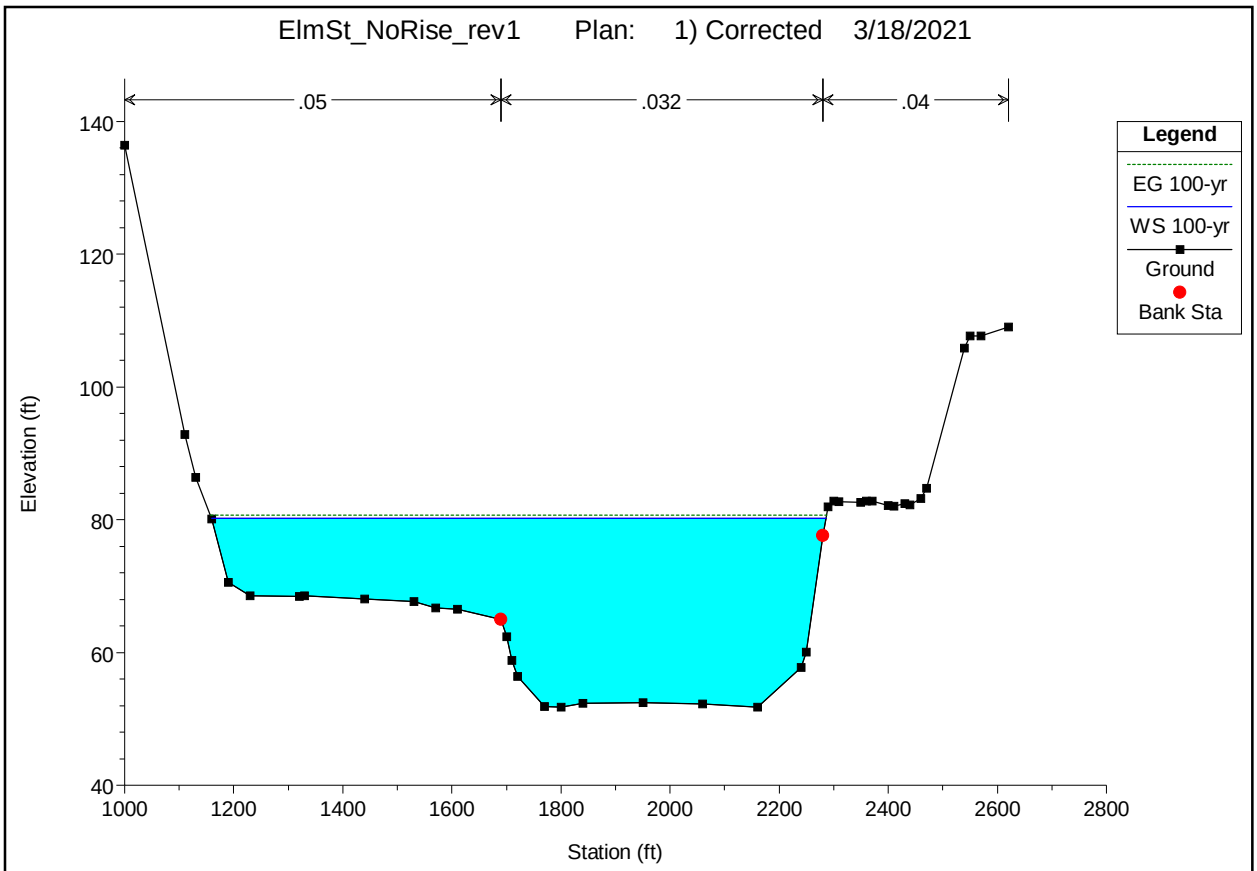


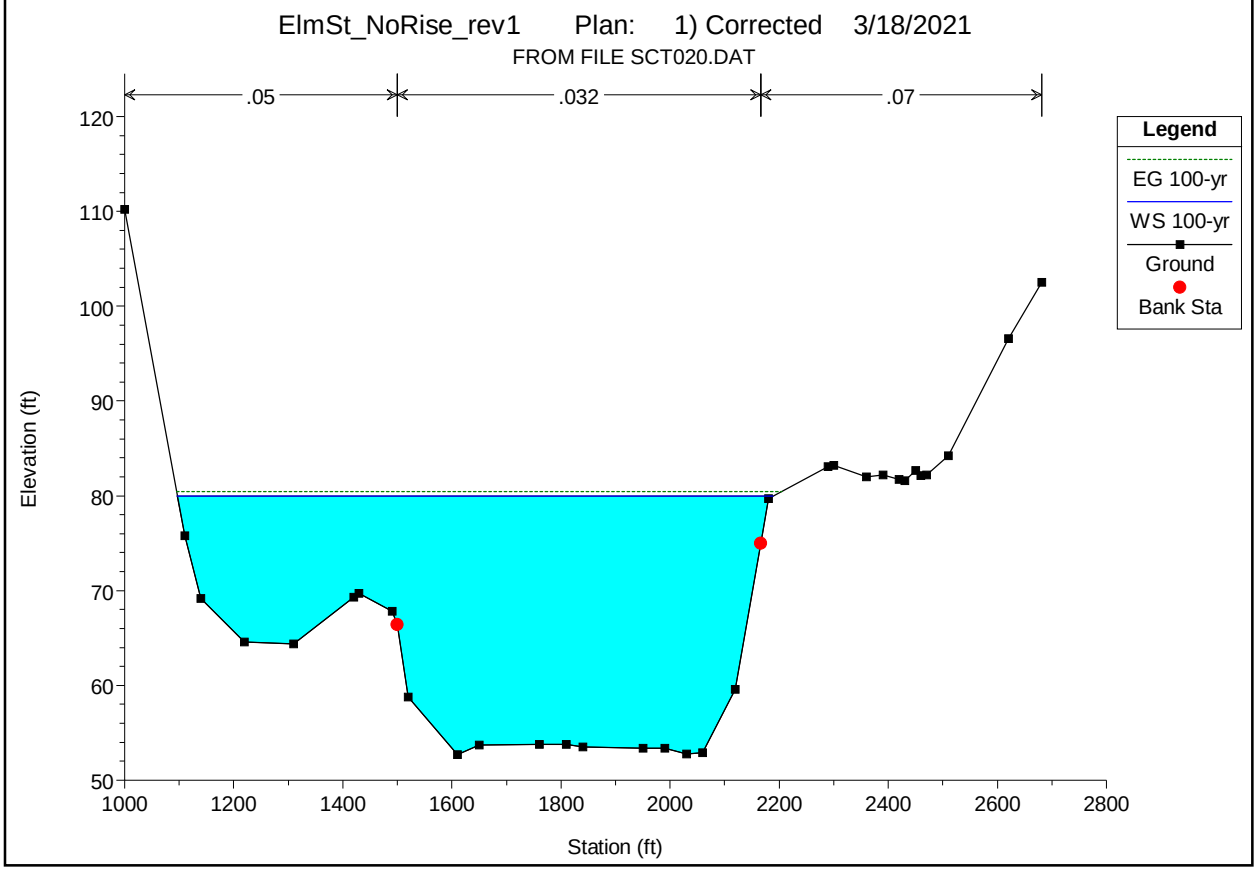


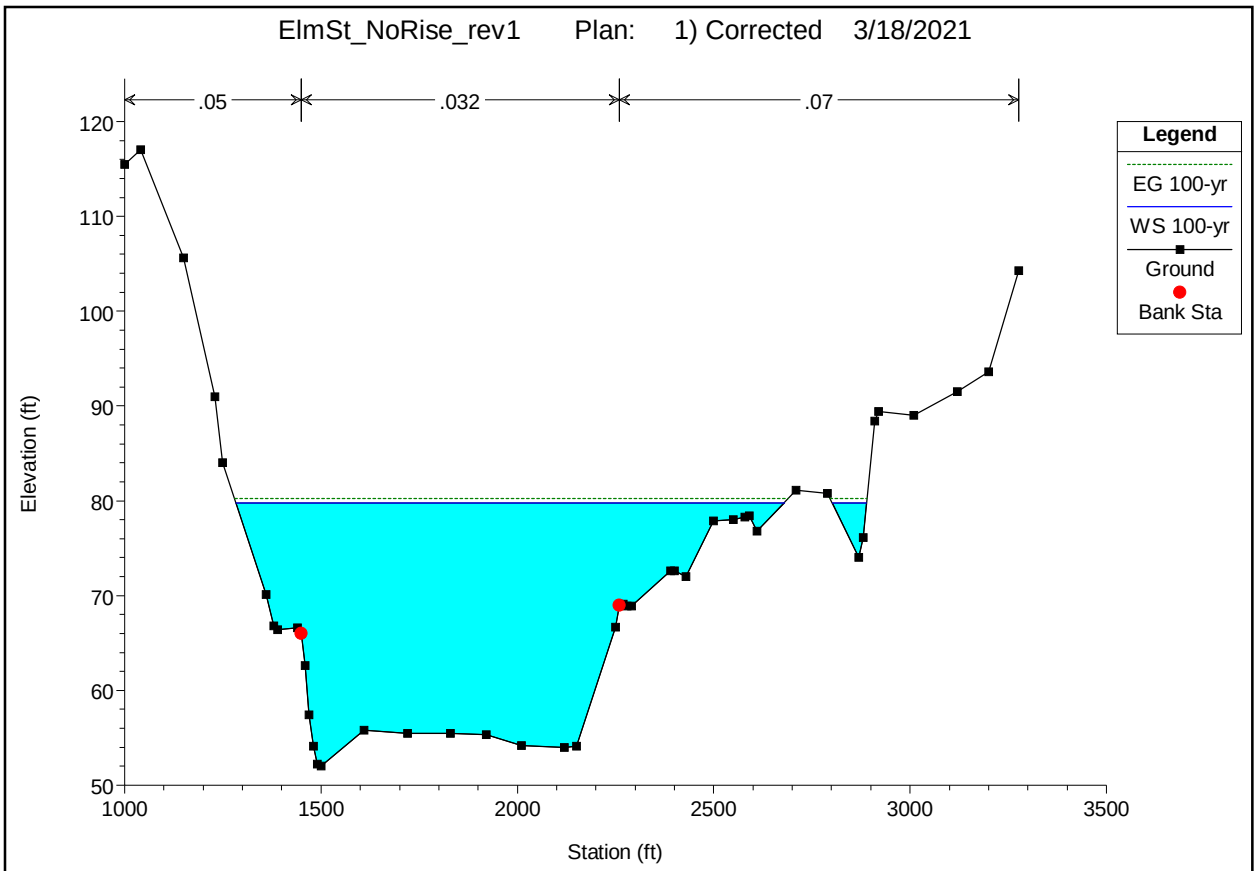


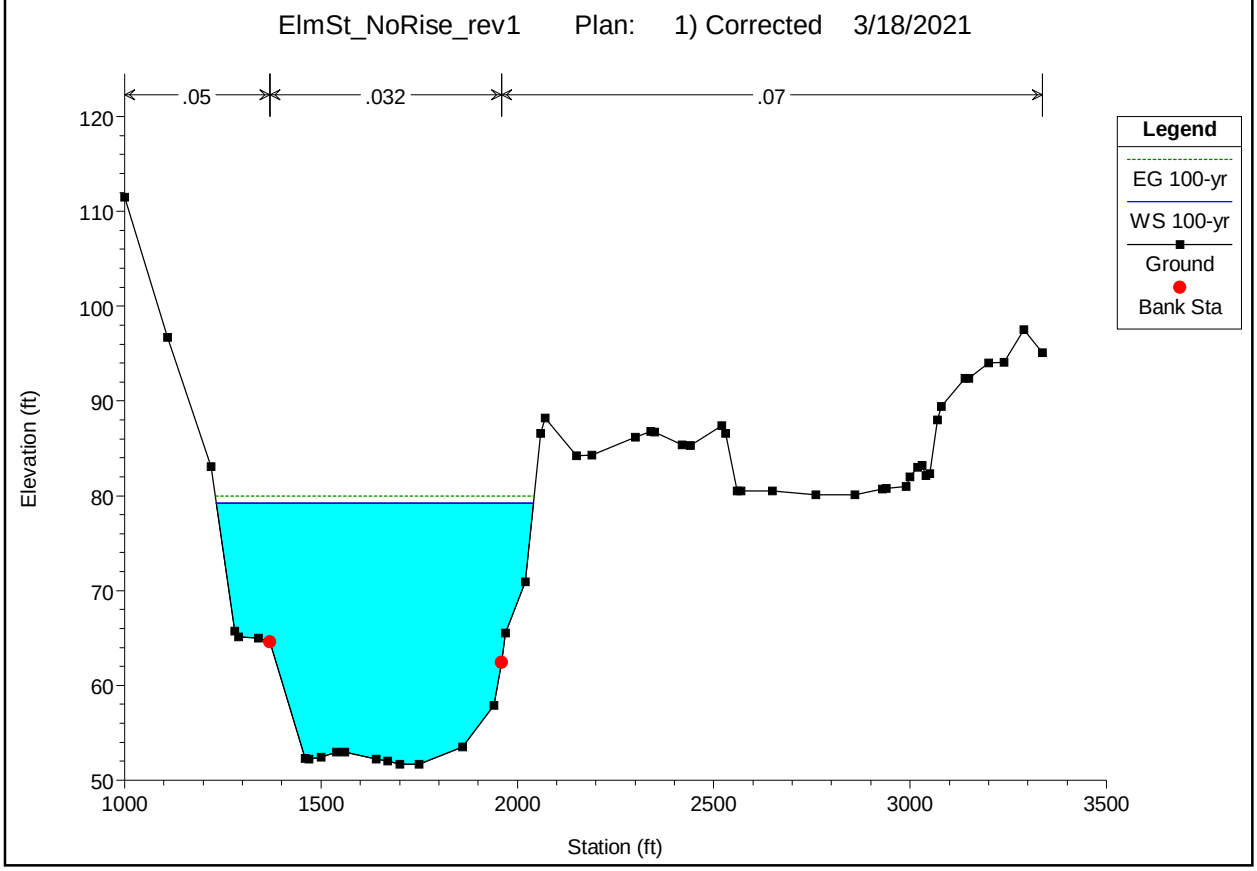


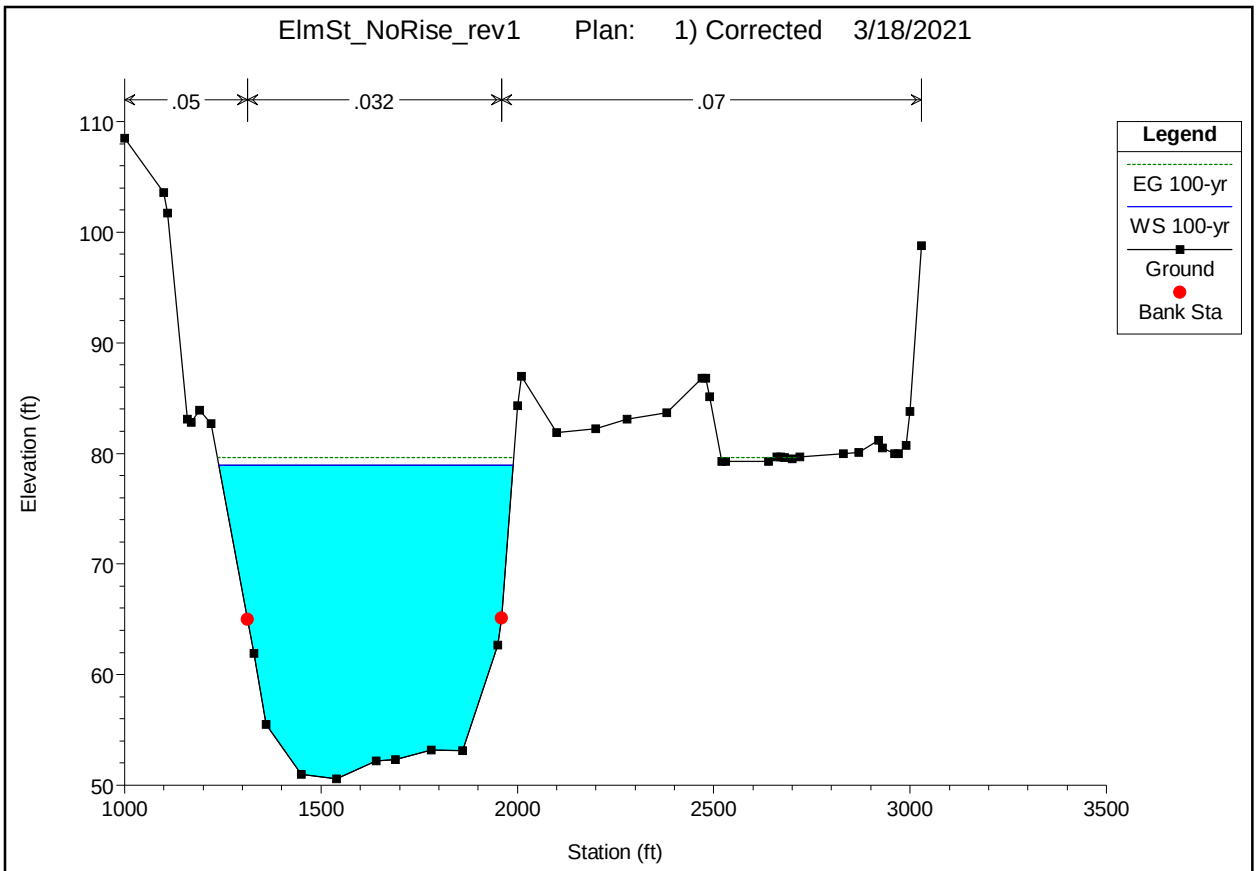


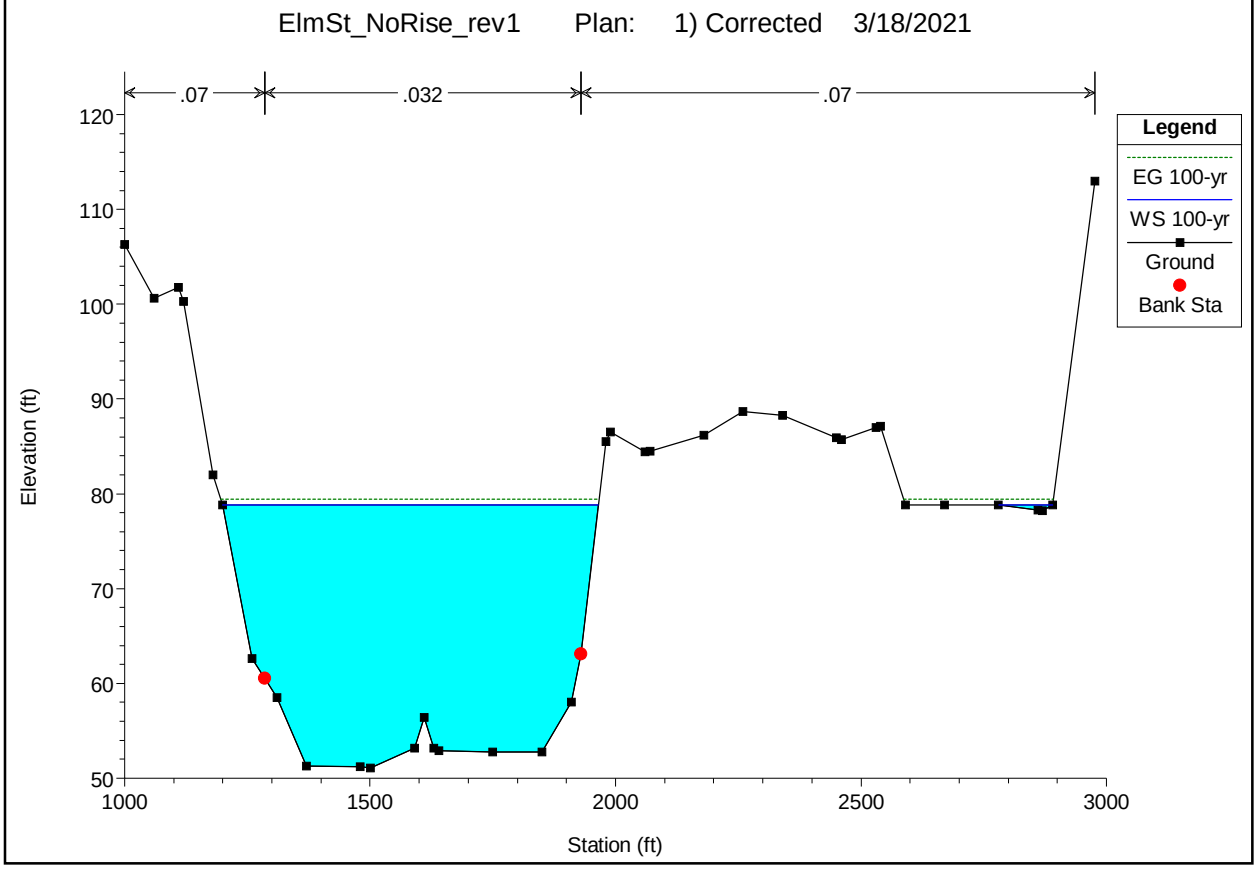


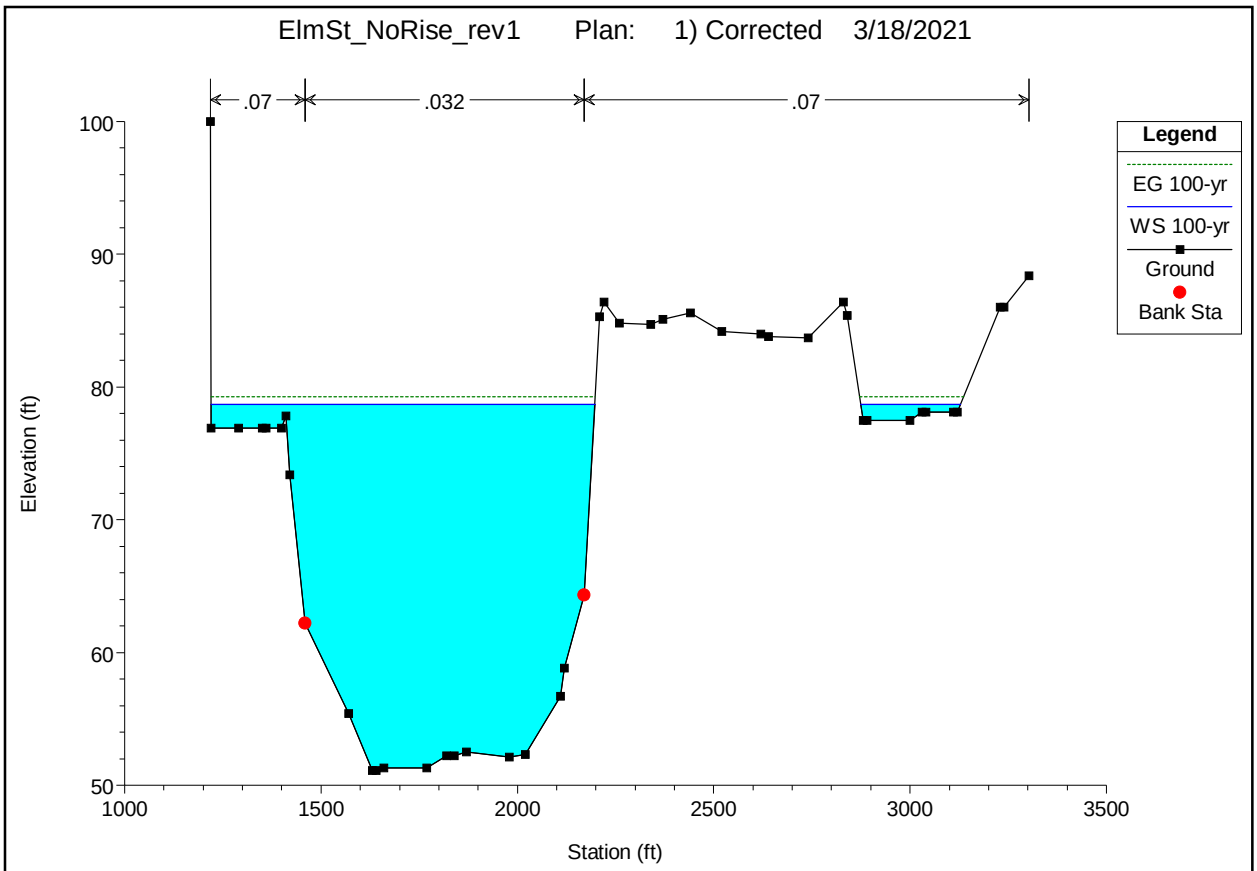


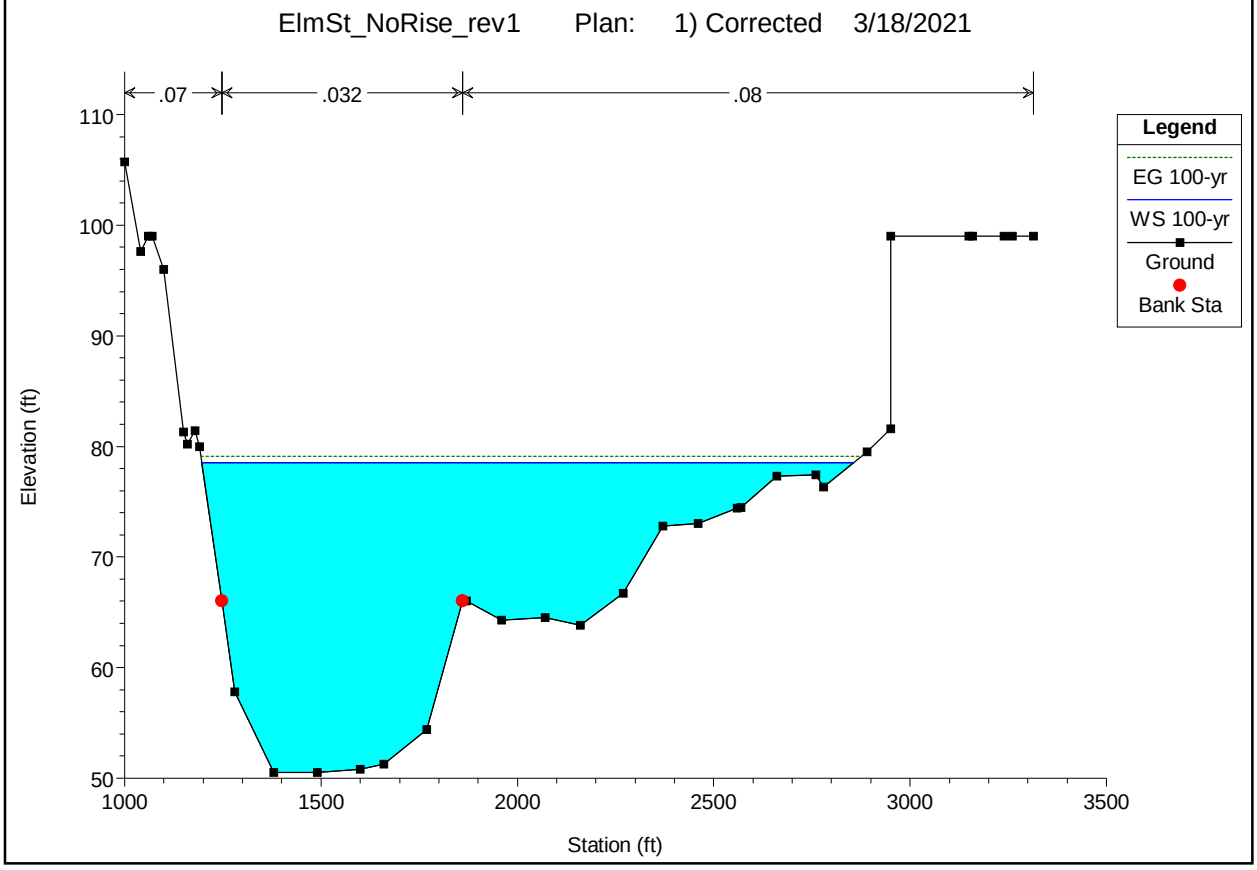


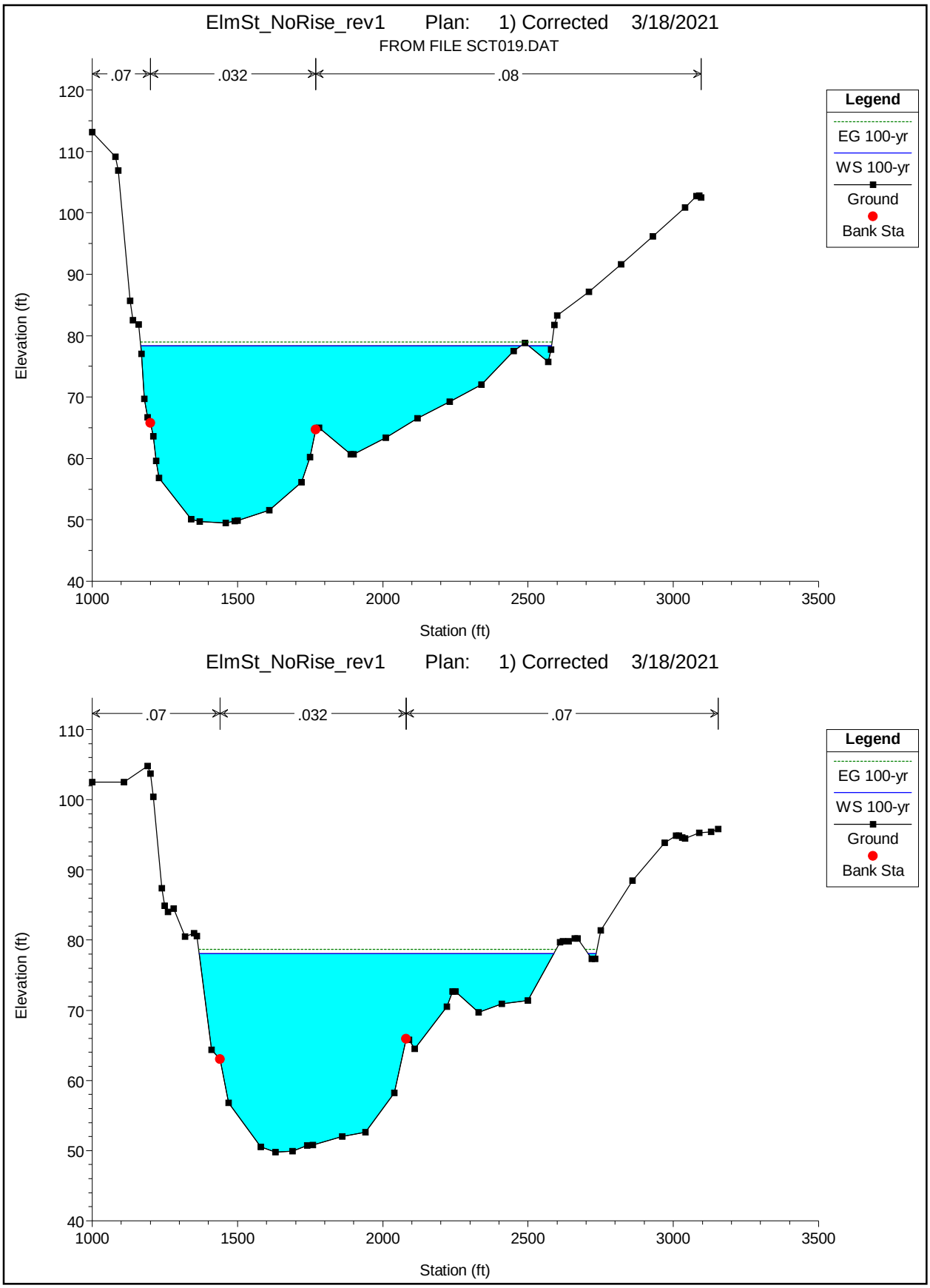


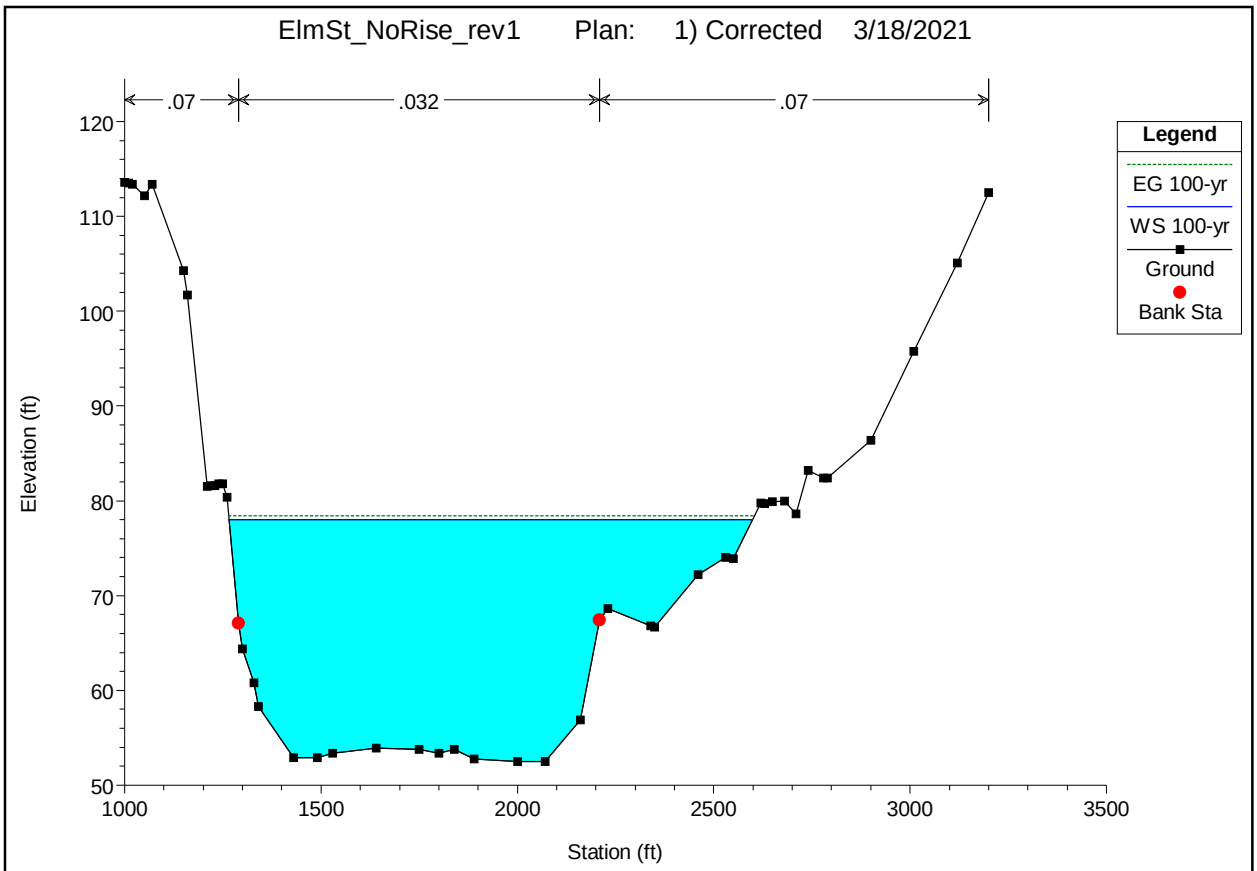


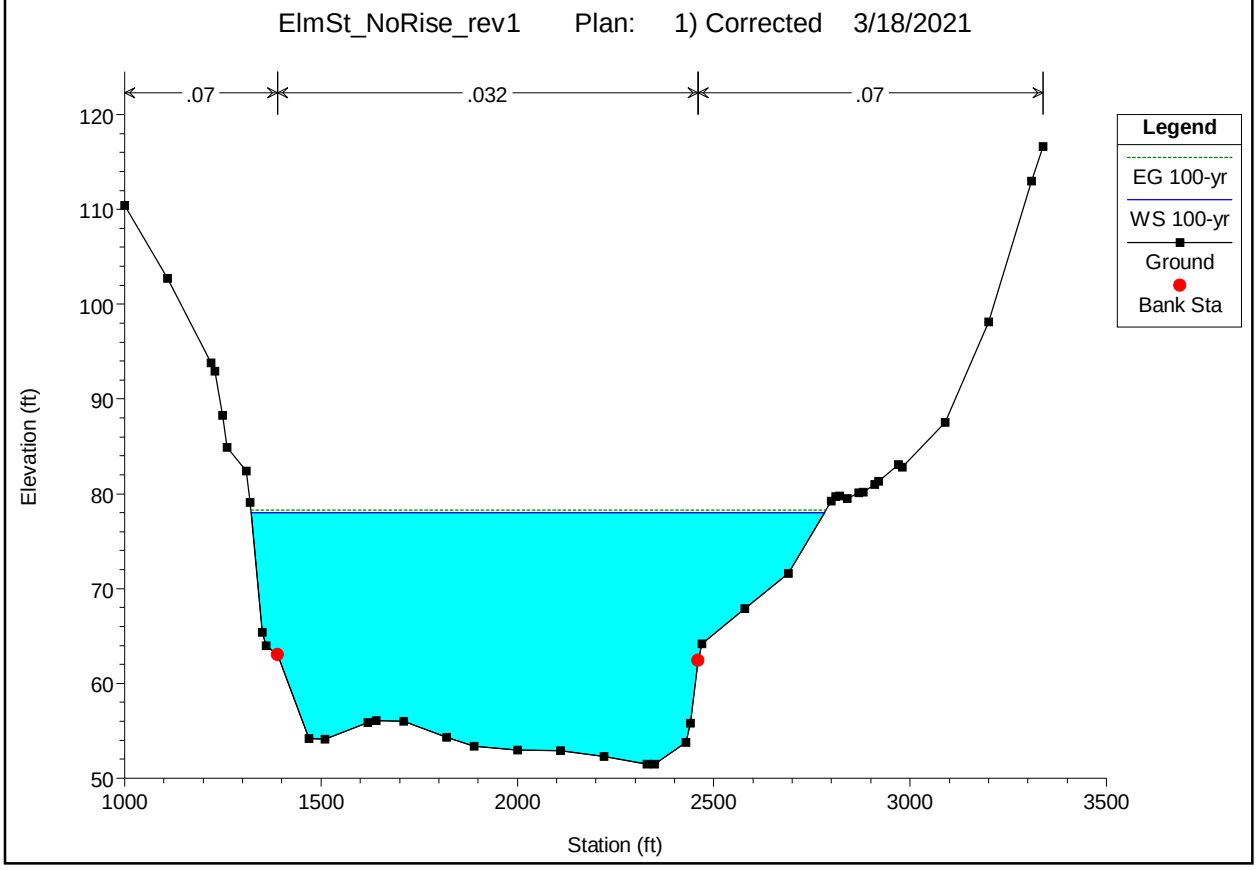


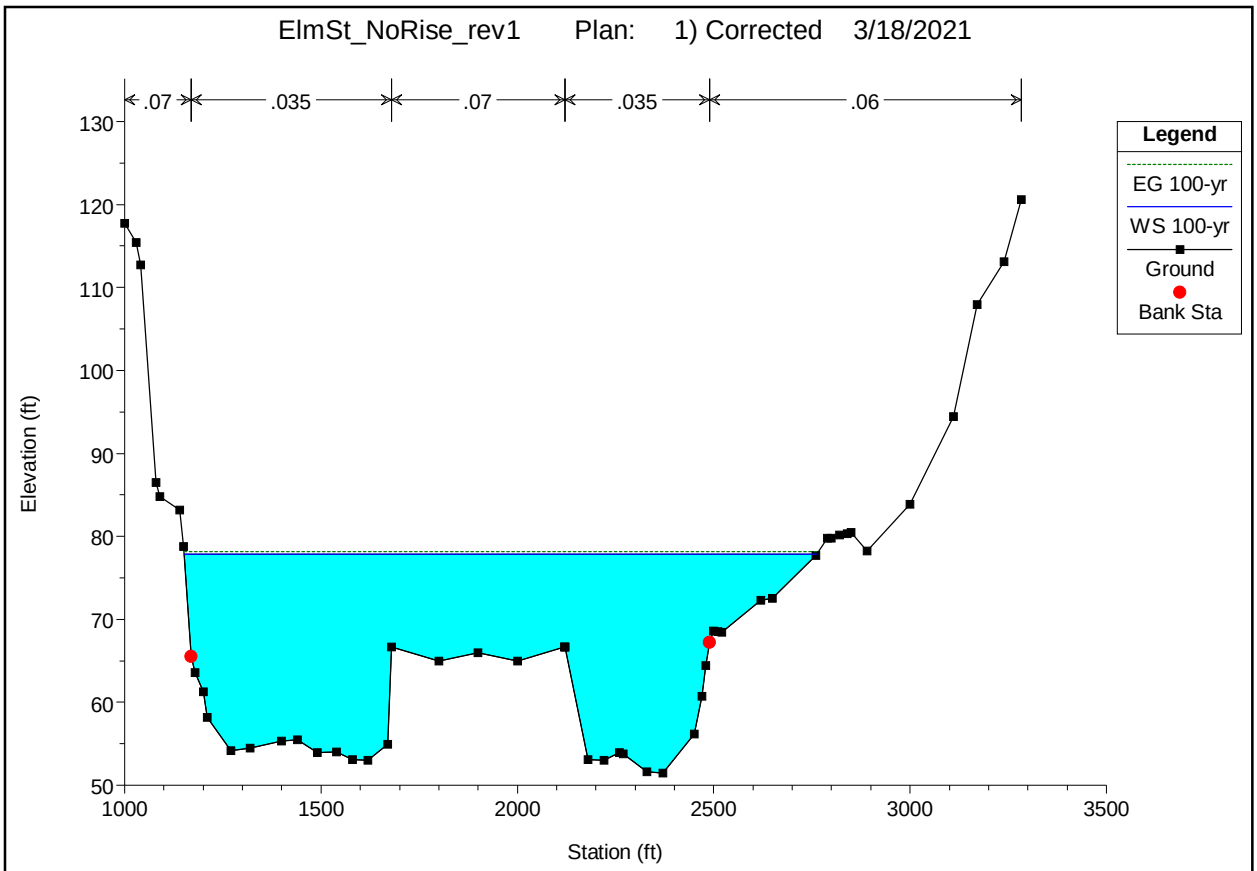


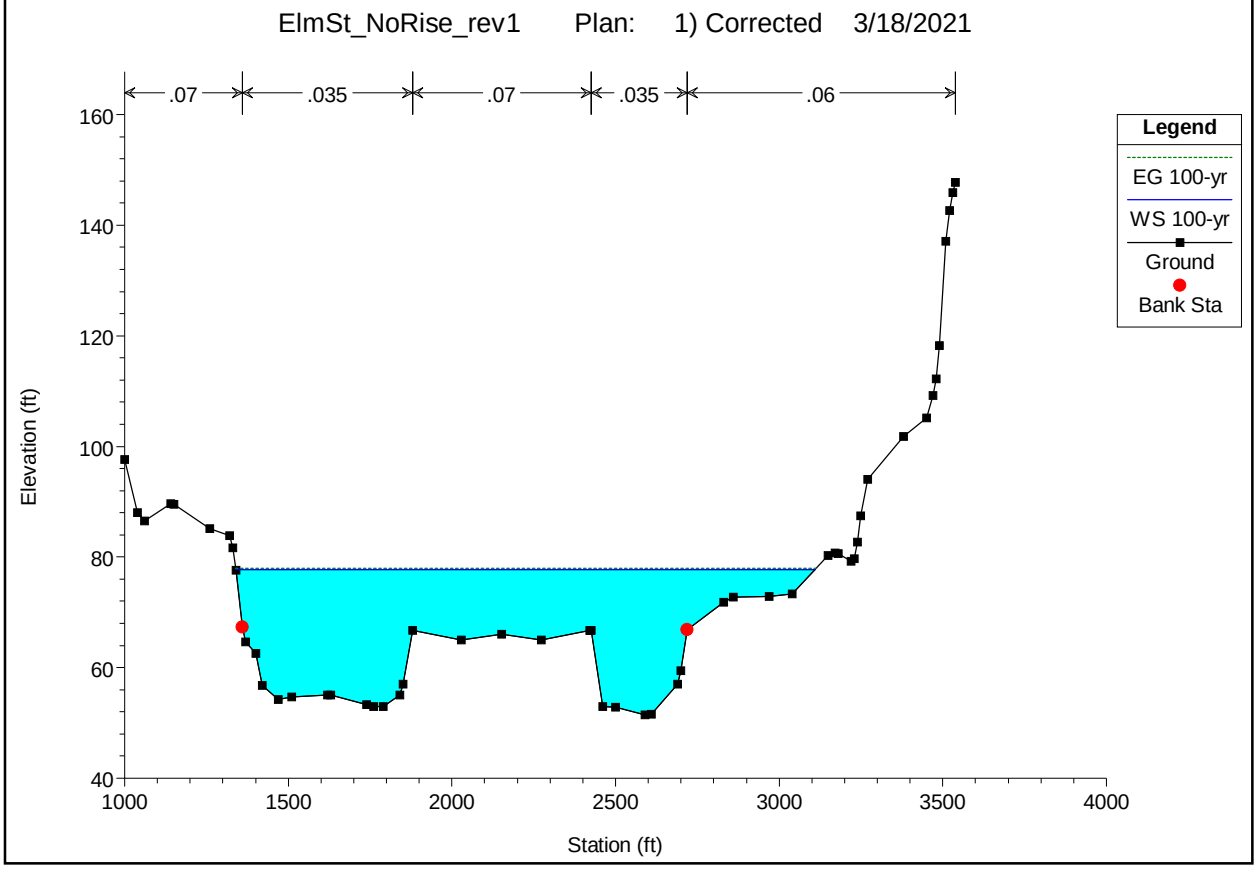


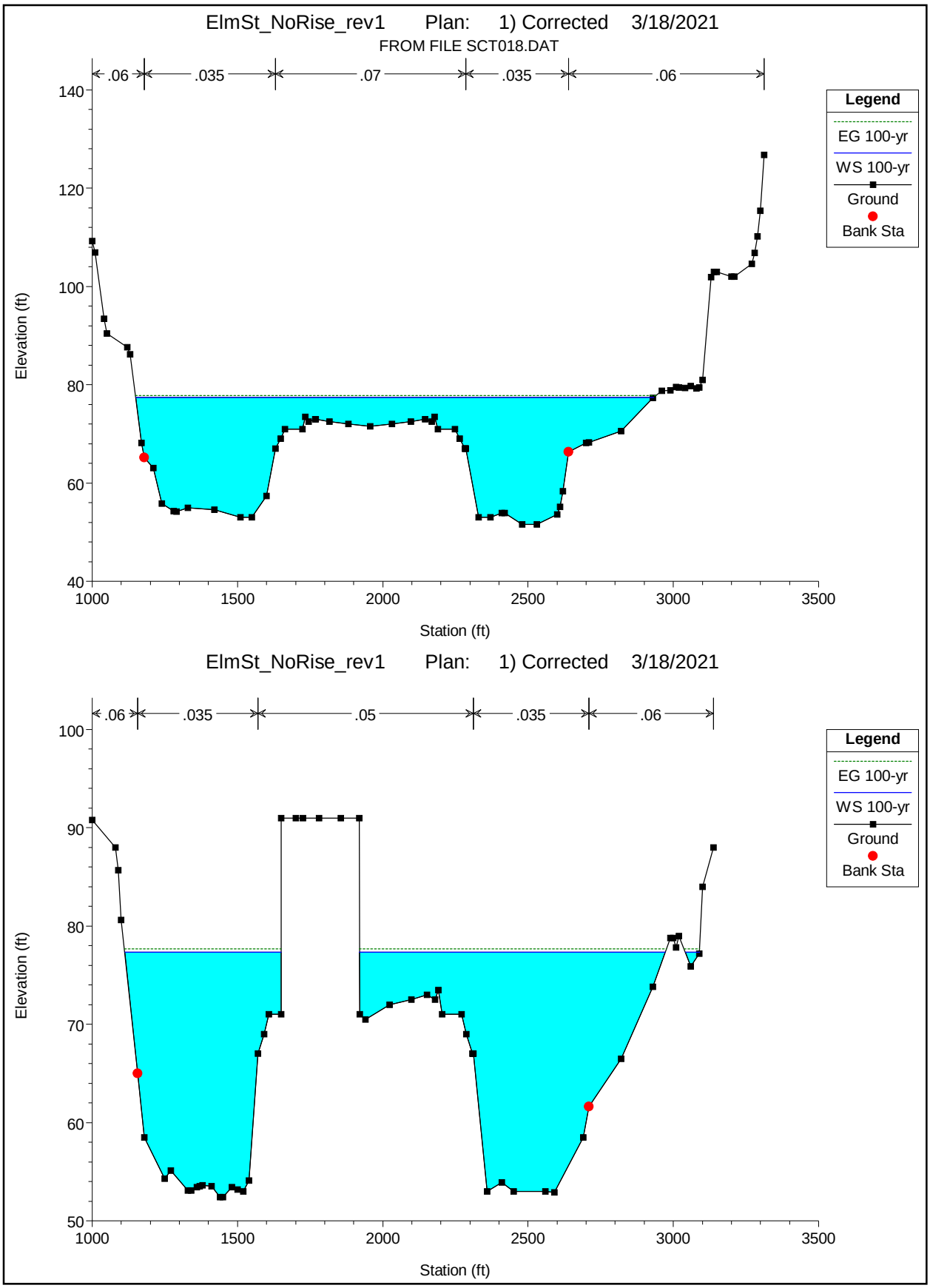


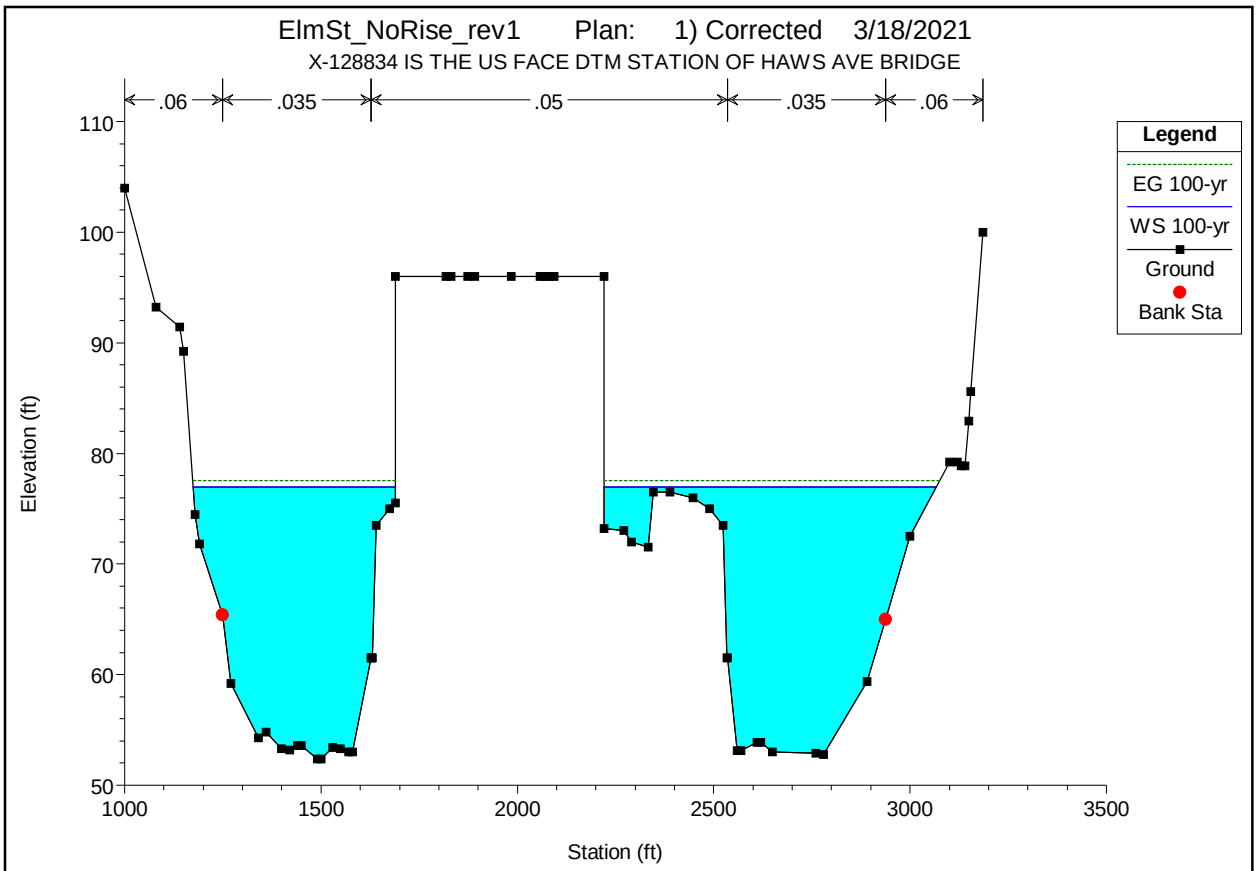


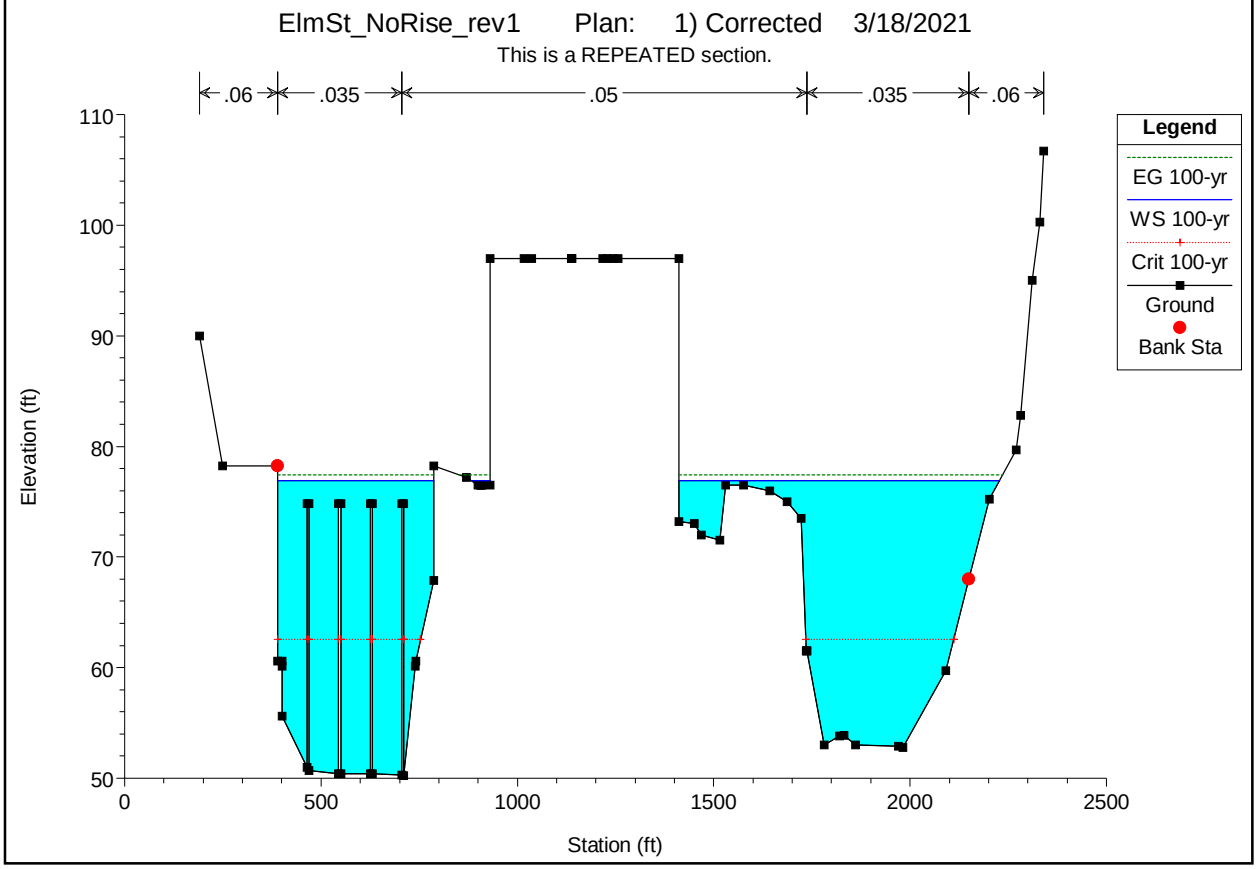


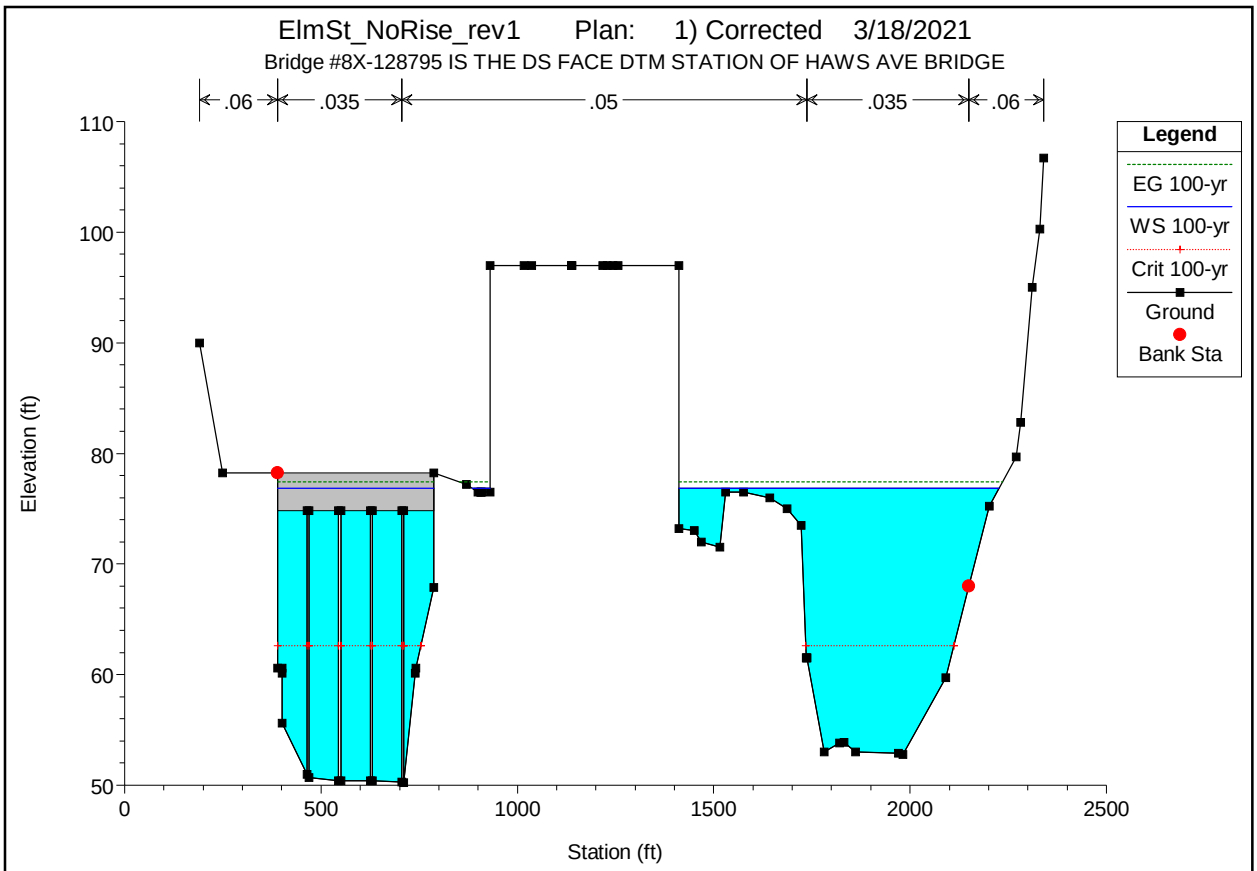


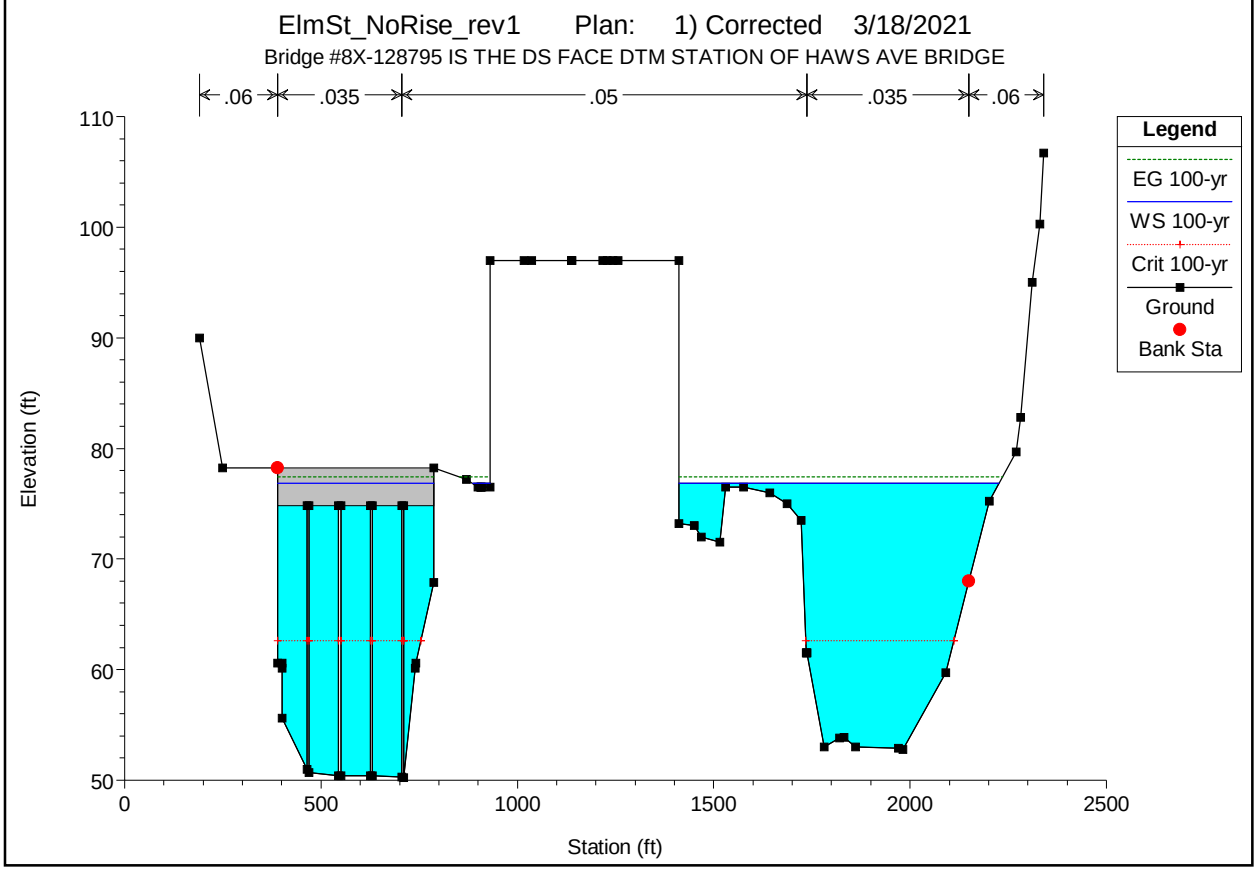


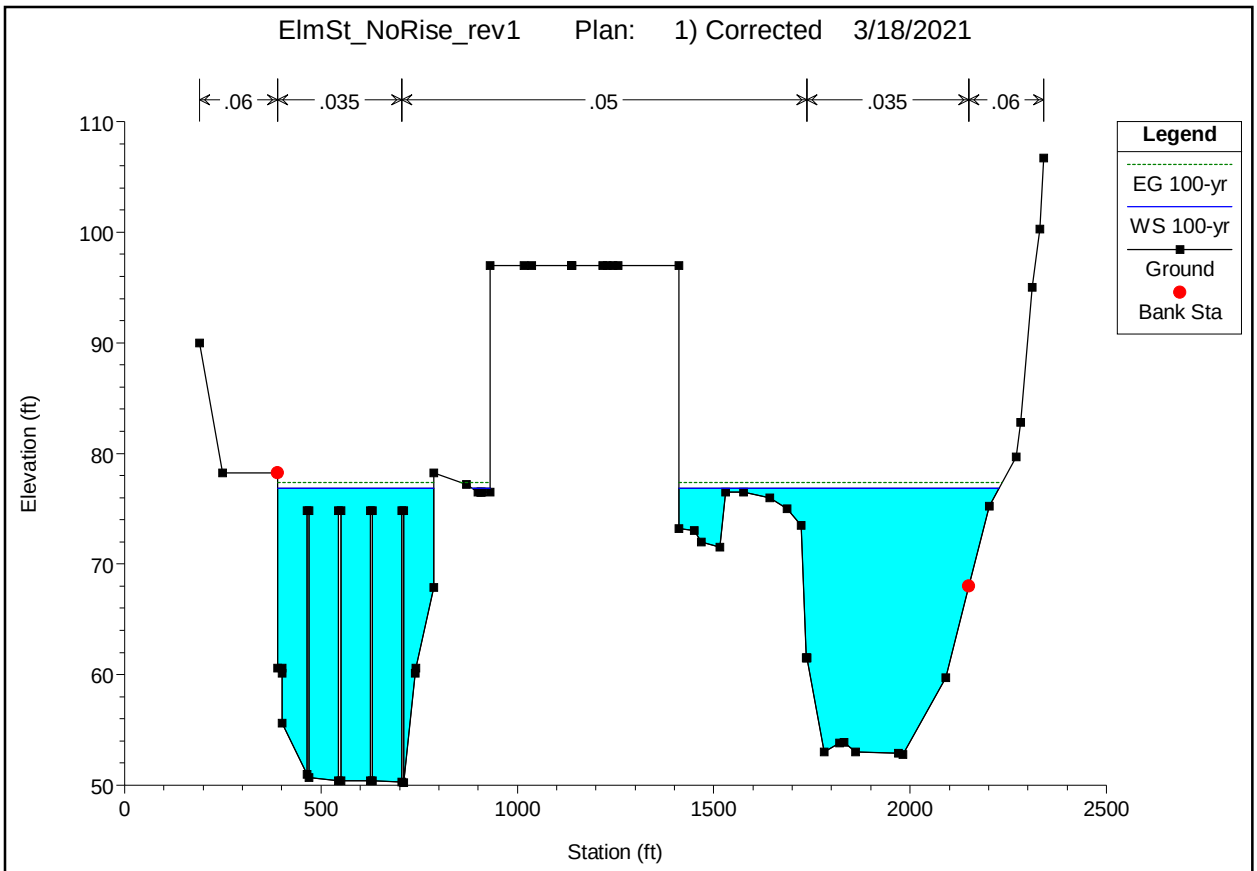


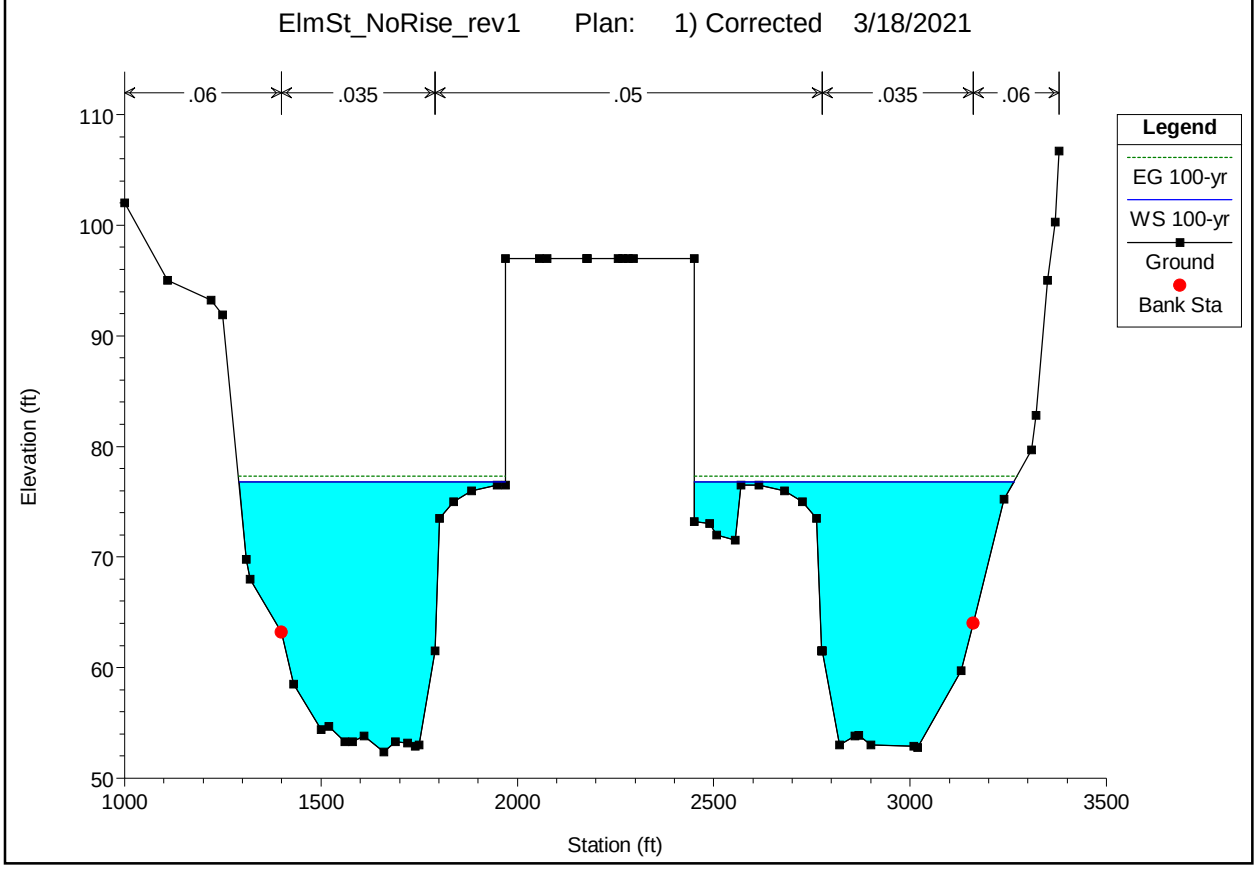


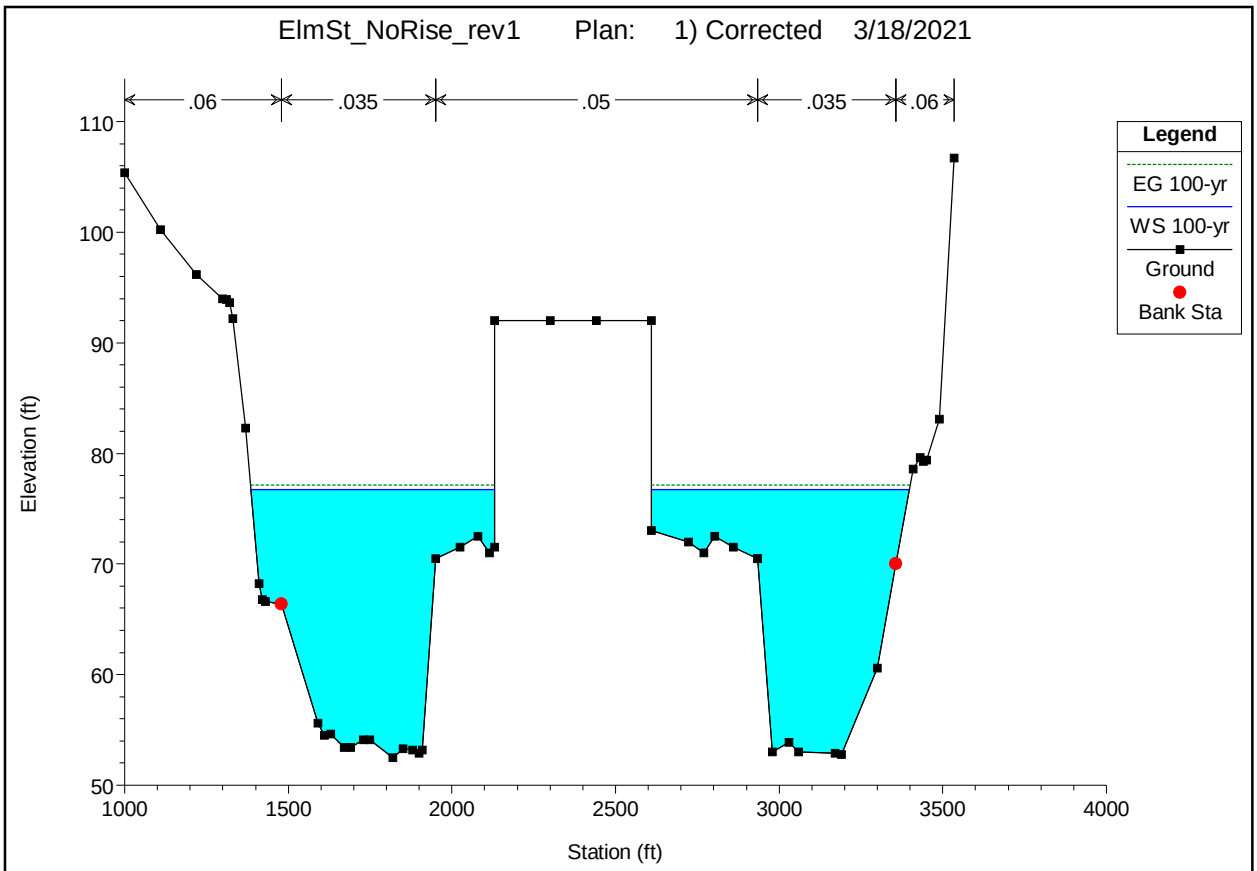


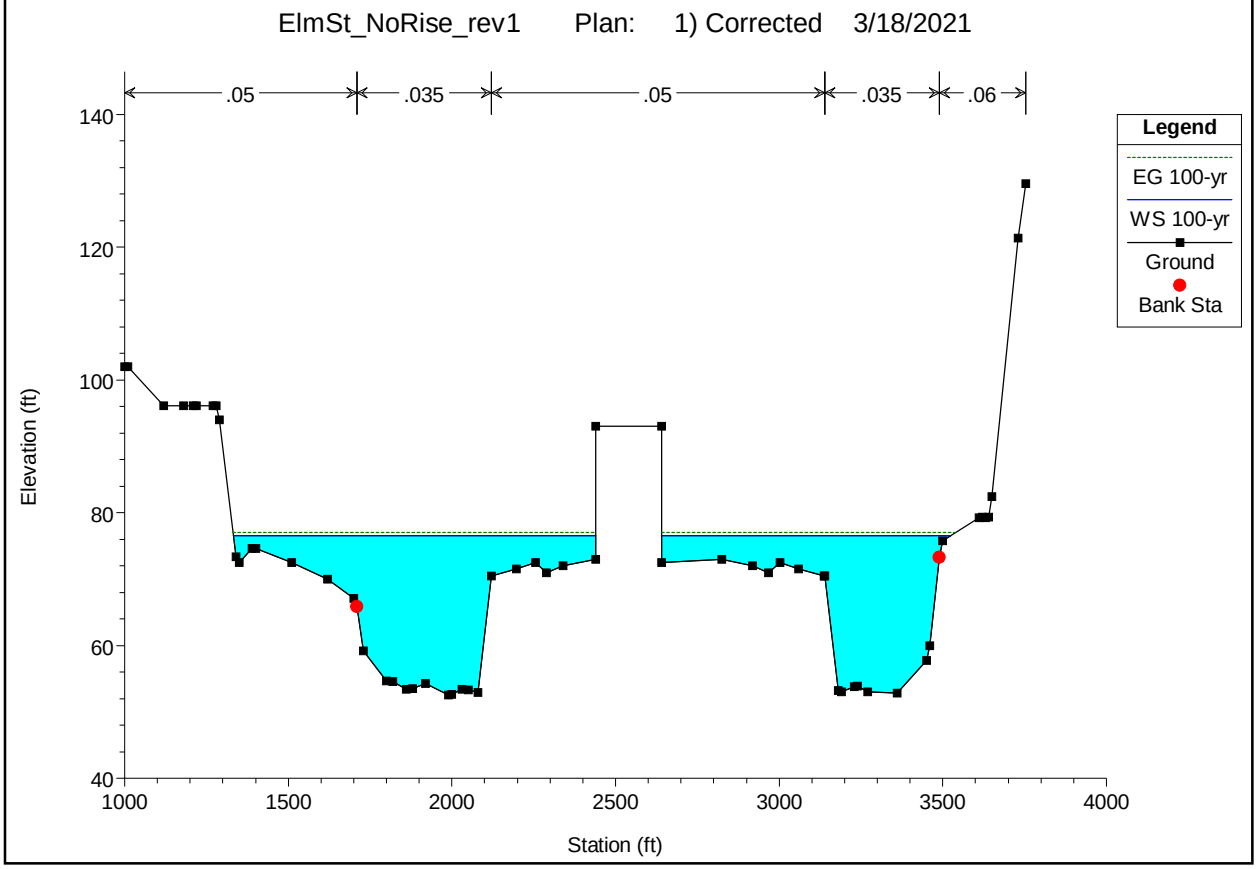


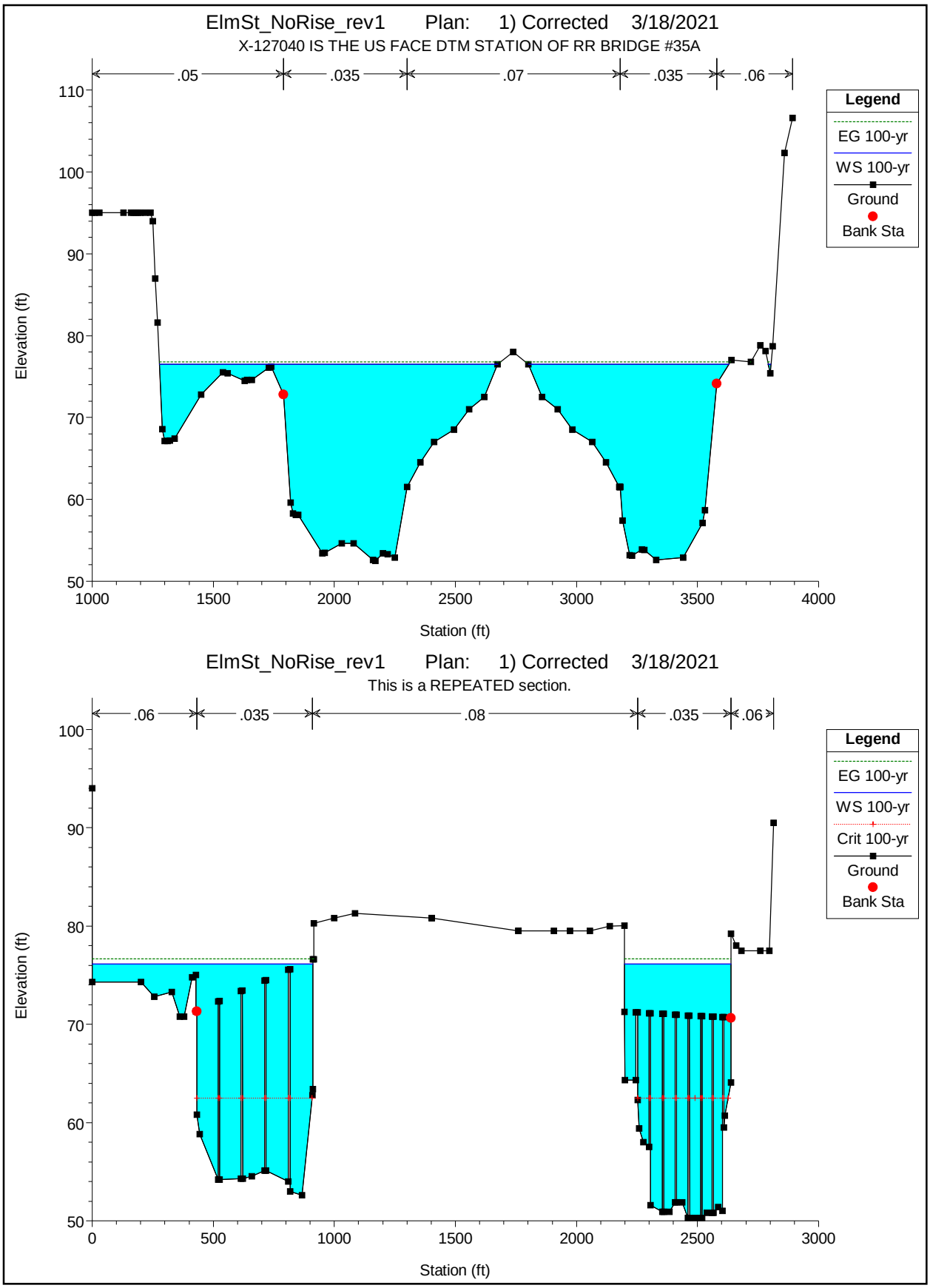


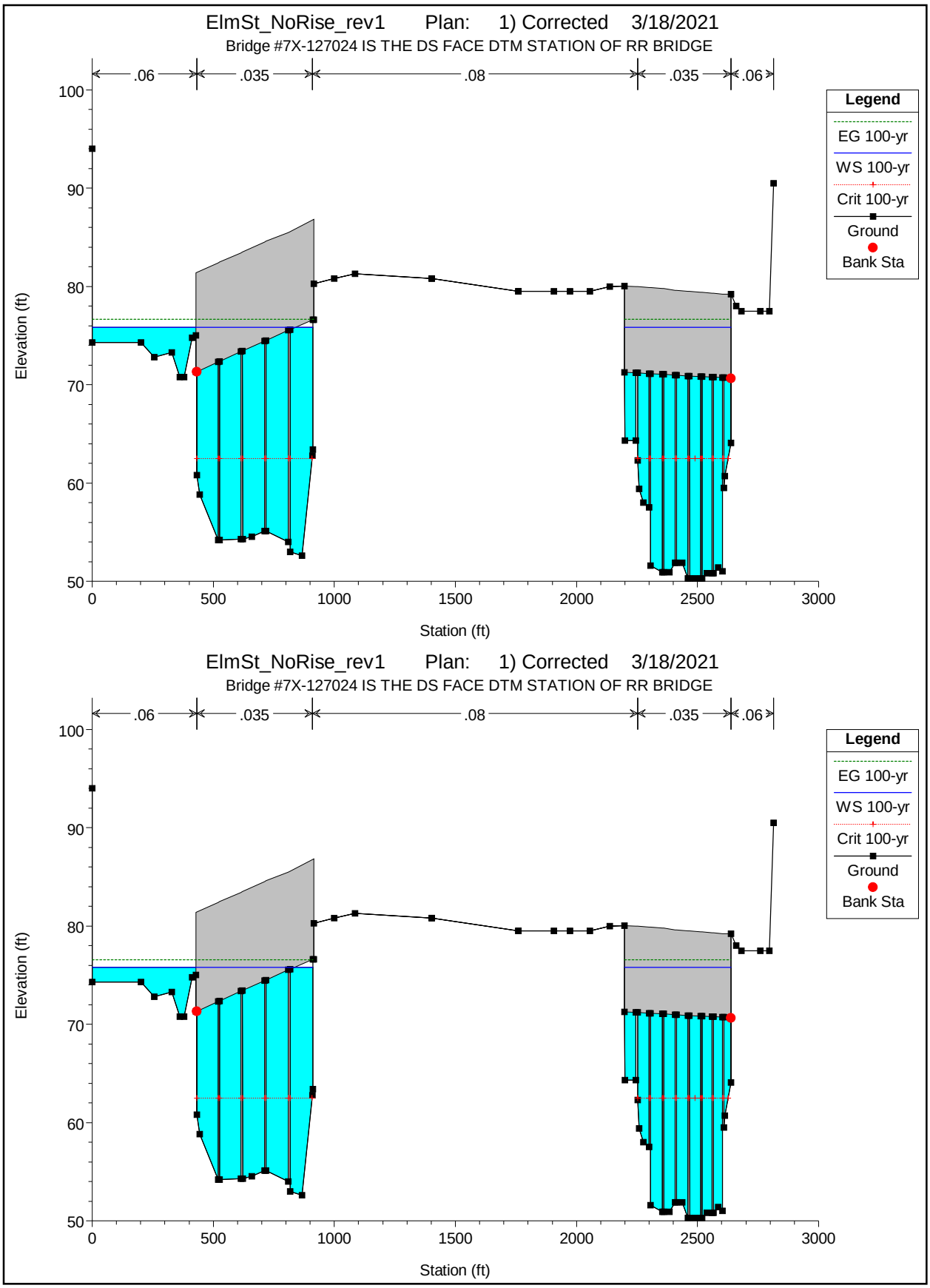




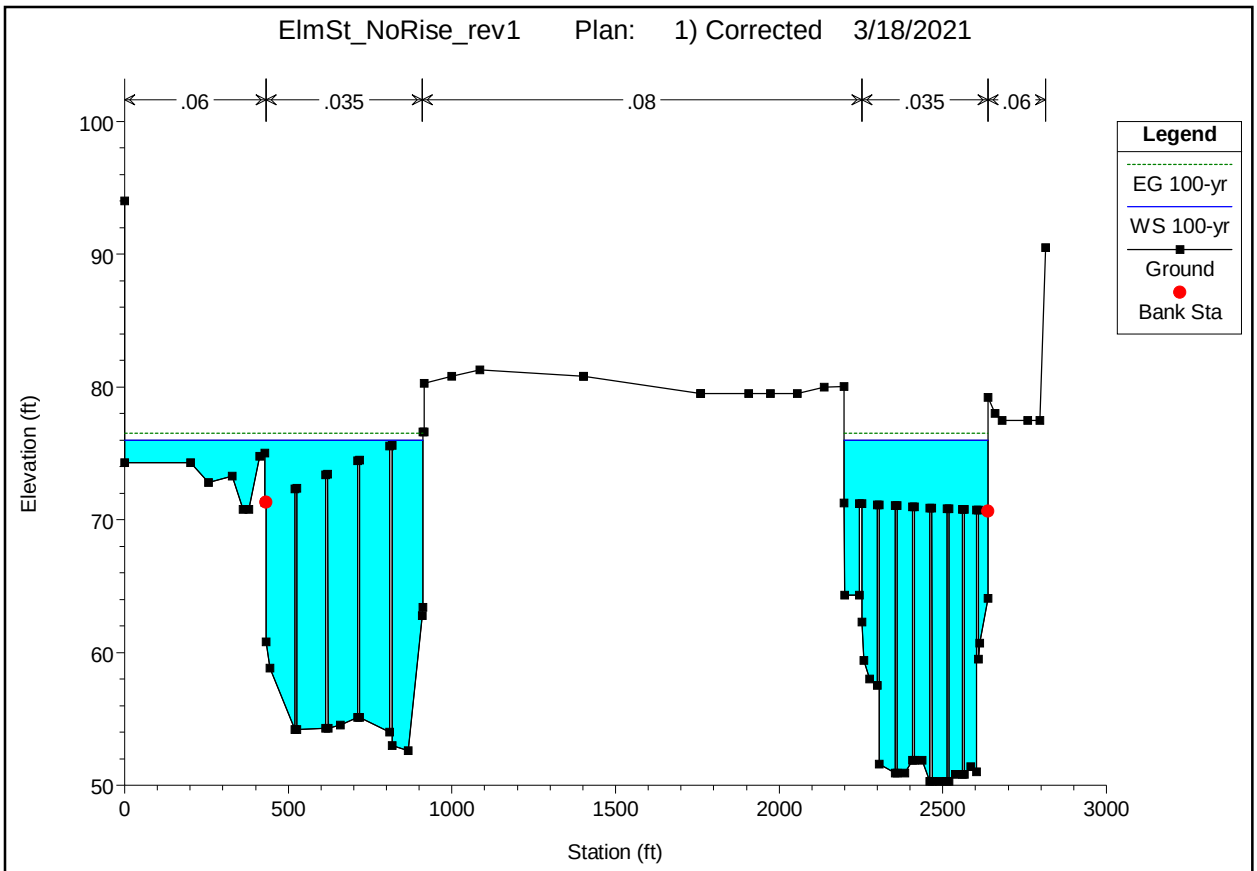


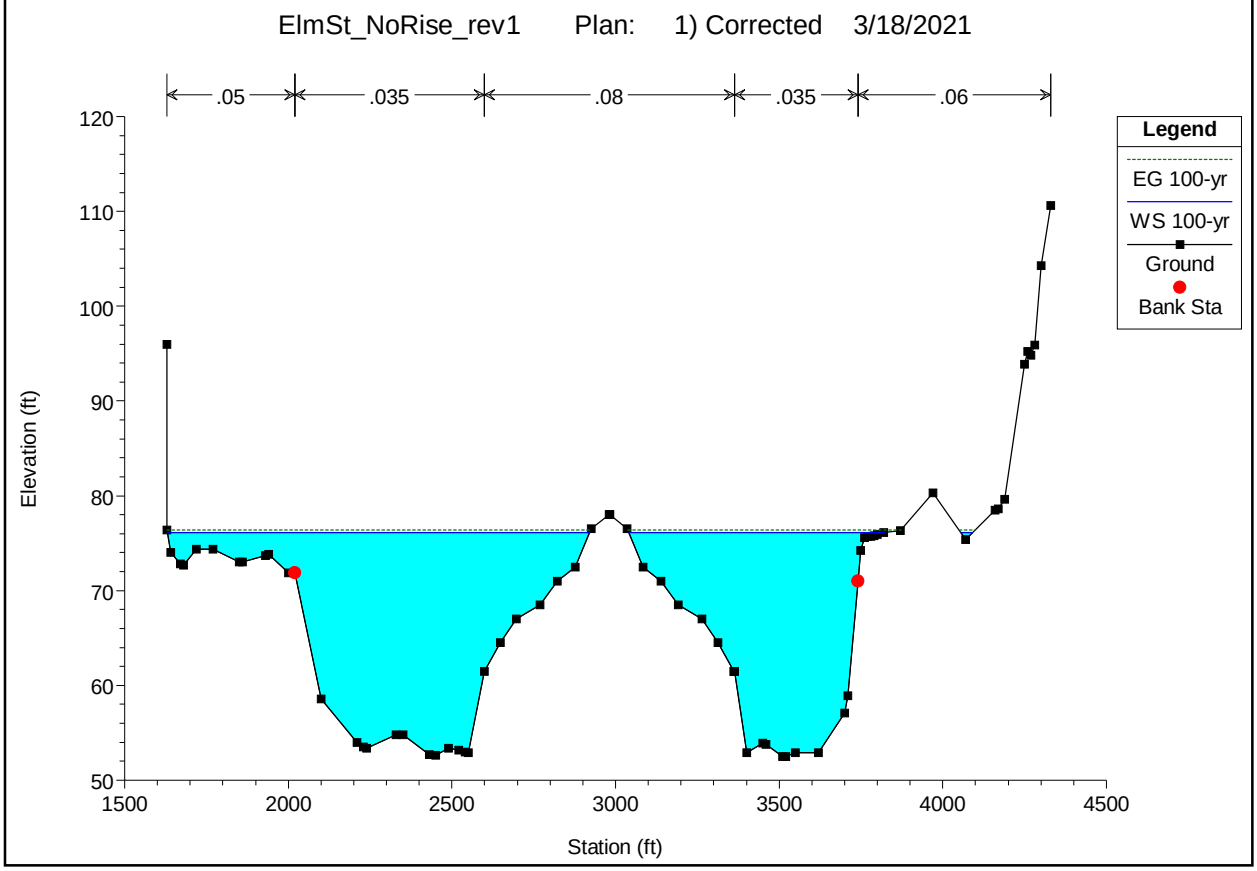


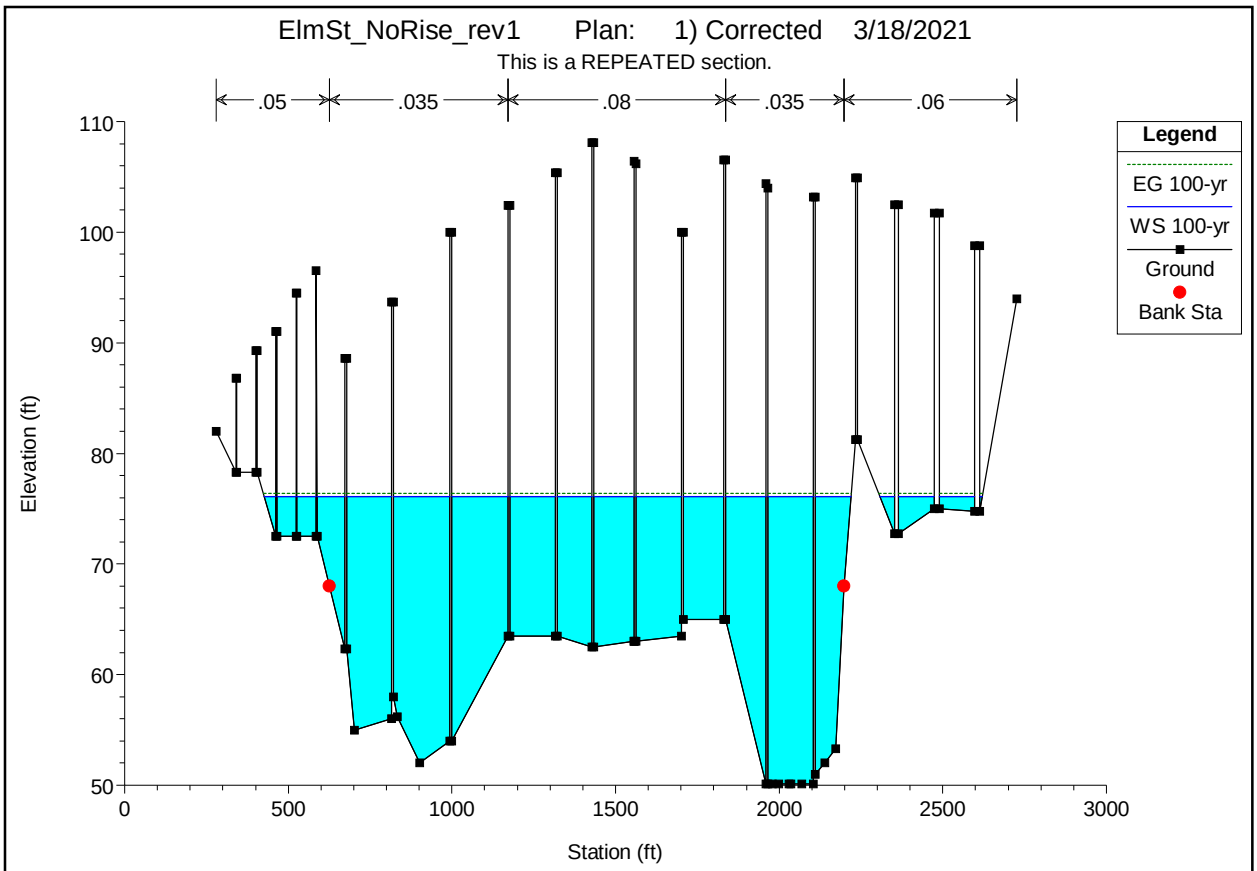


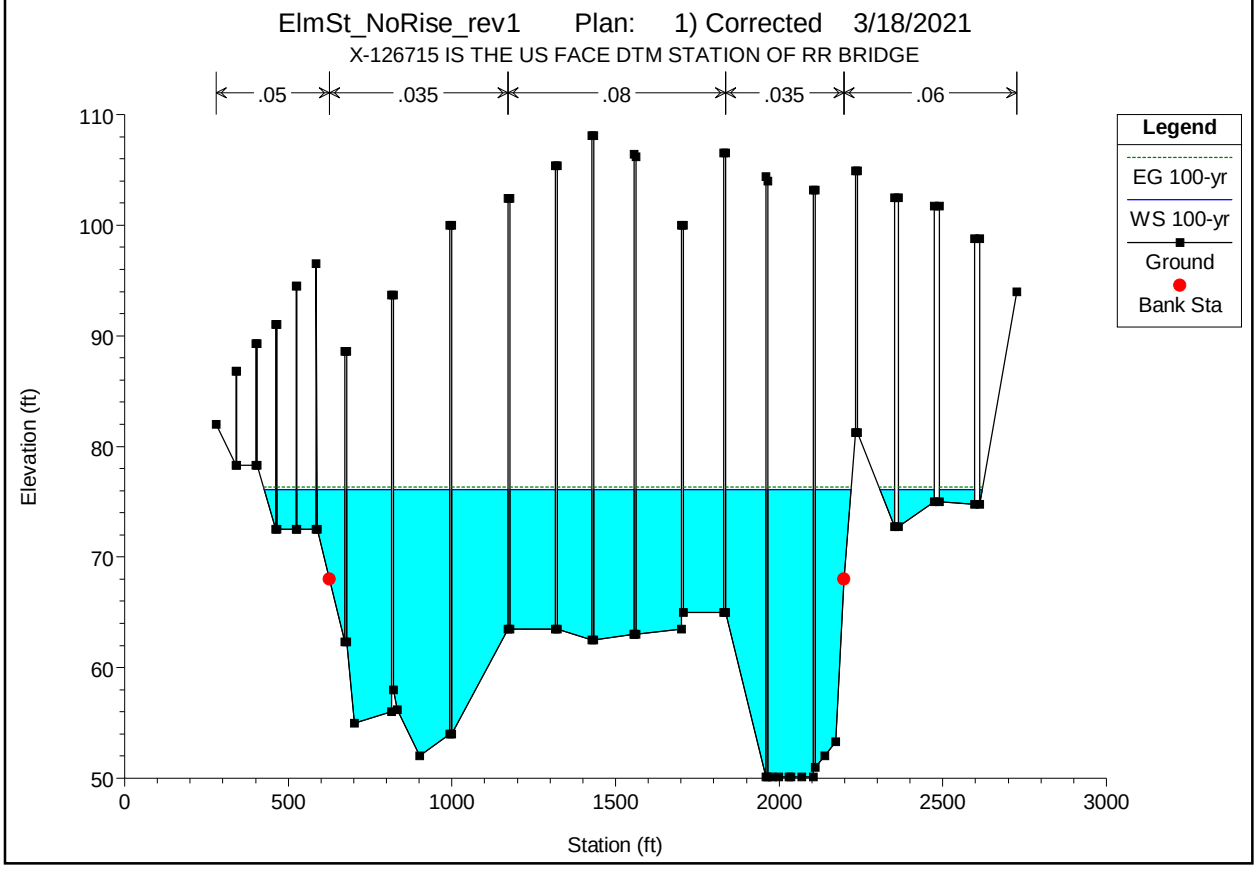


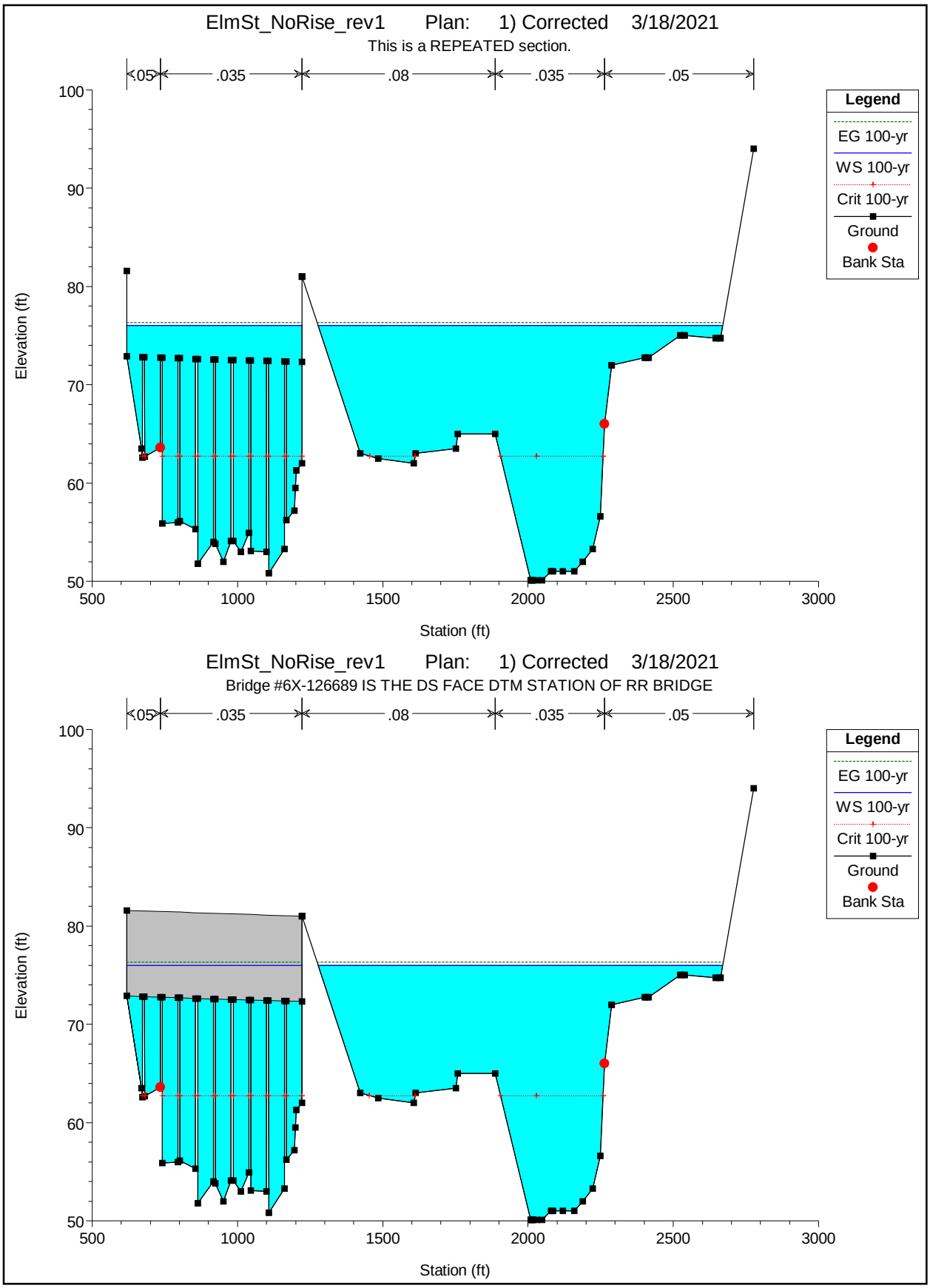
ElmSt_NoRise_rev1 Plan: 1) Corrected 3/18/2021
Bridge #7X-127024 IS THE DS FACE DTM STATION OF RR BRIDGE
.06
.035
.08
.035
.06
Legend
EG 100-yr
WS 100-yr
Crit 100-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
100
90
80
70
60
50
0
500
1000
1500
2000
2500
3000

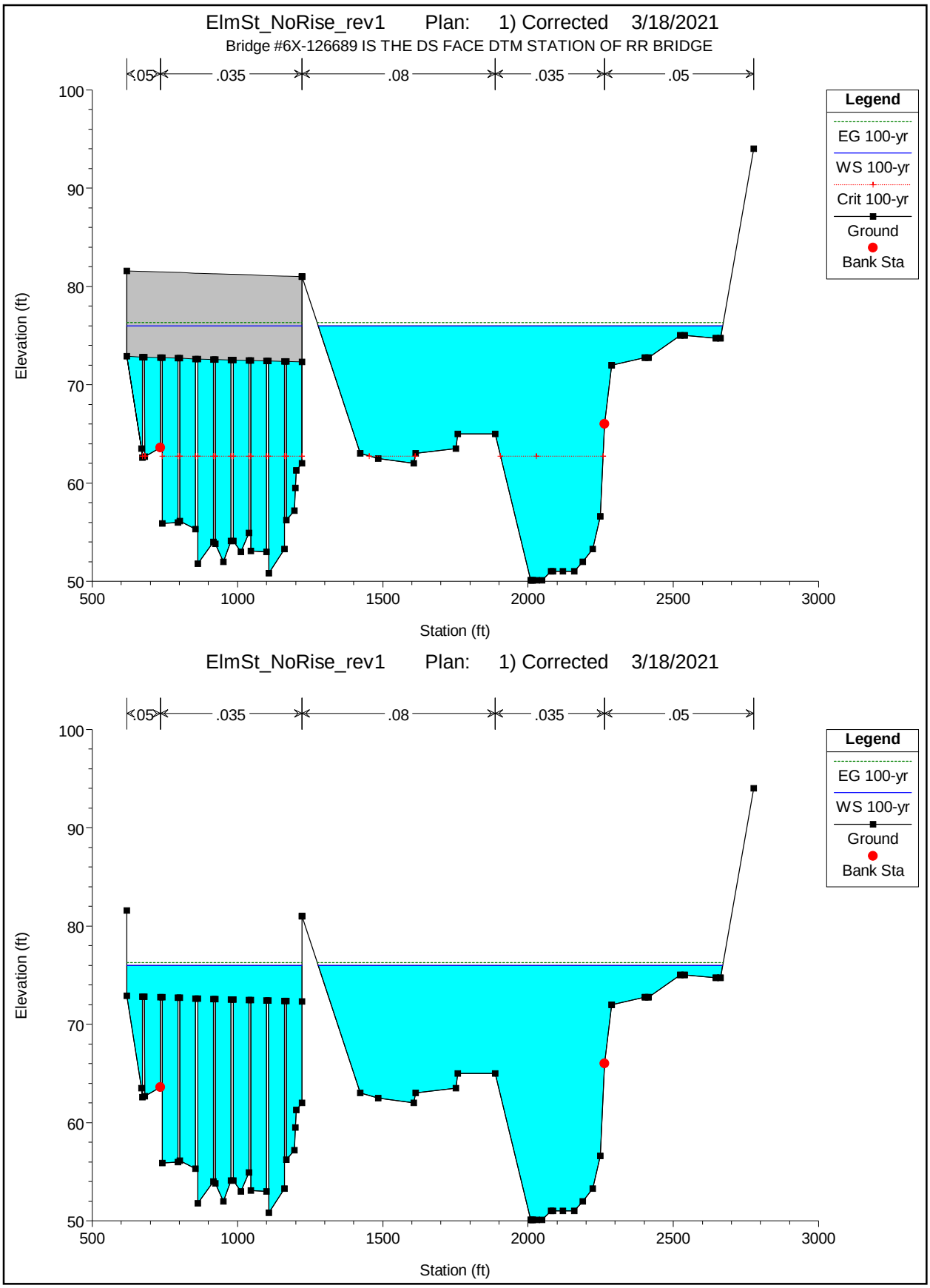


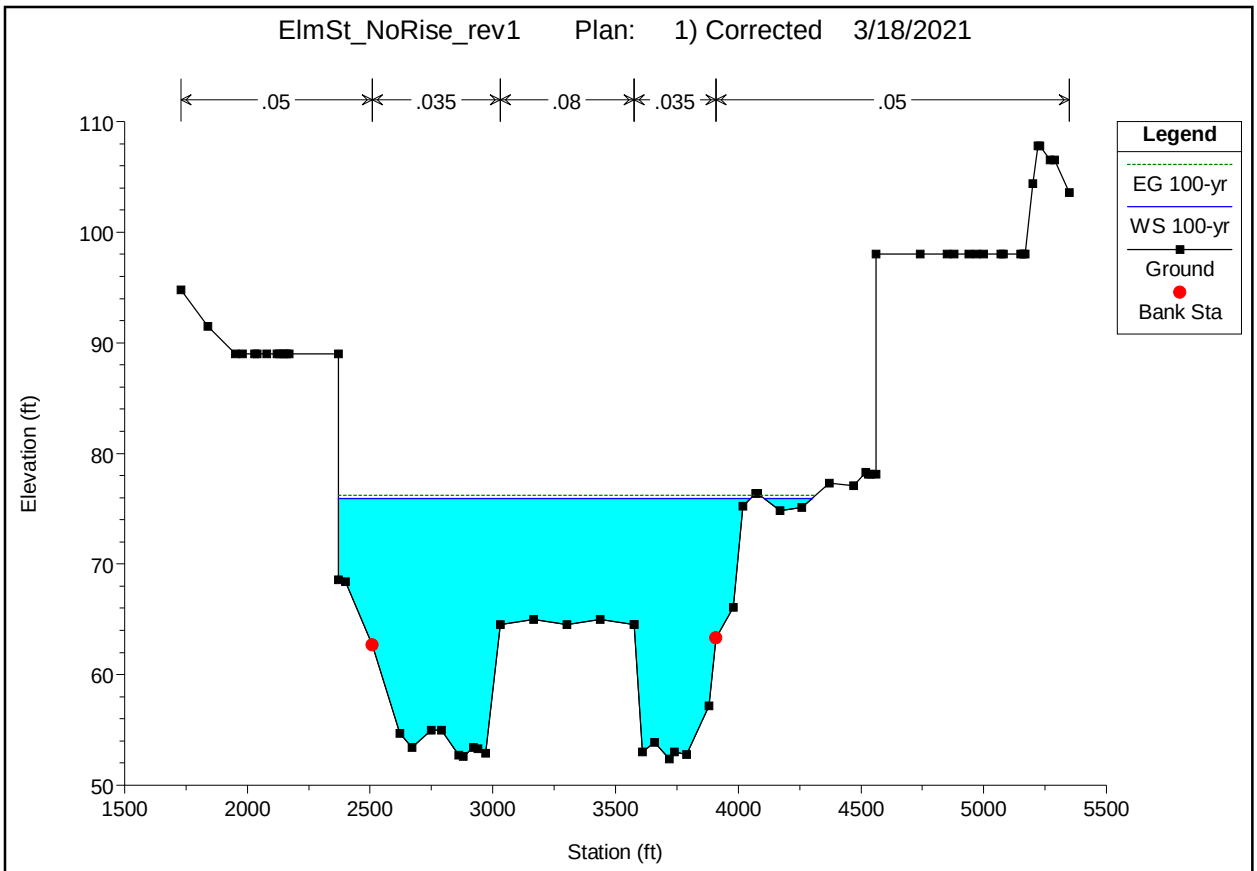


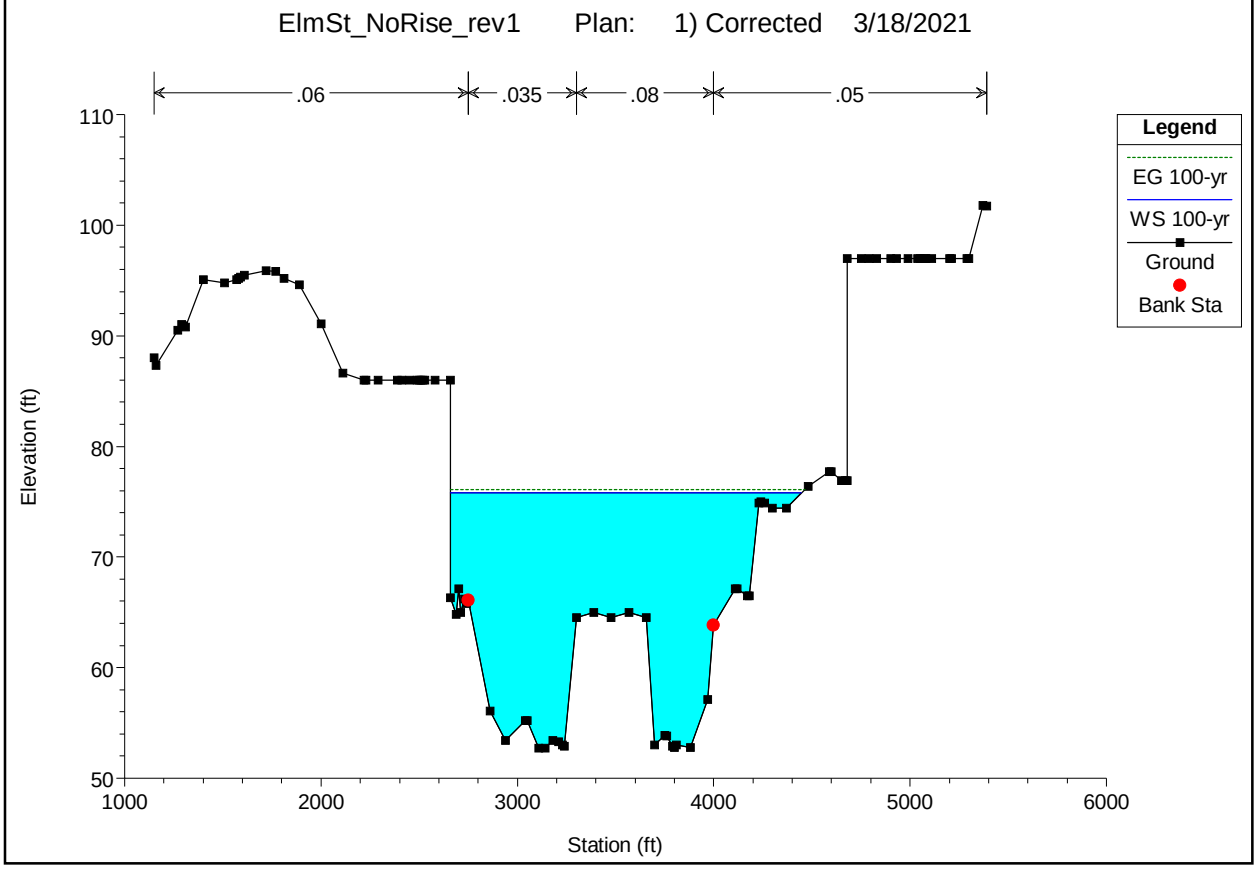


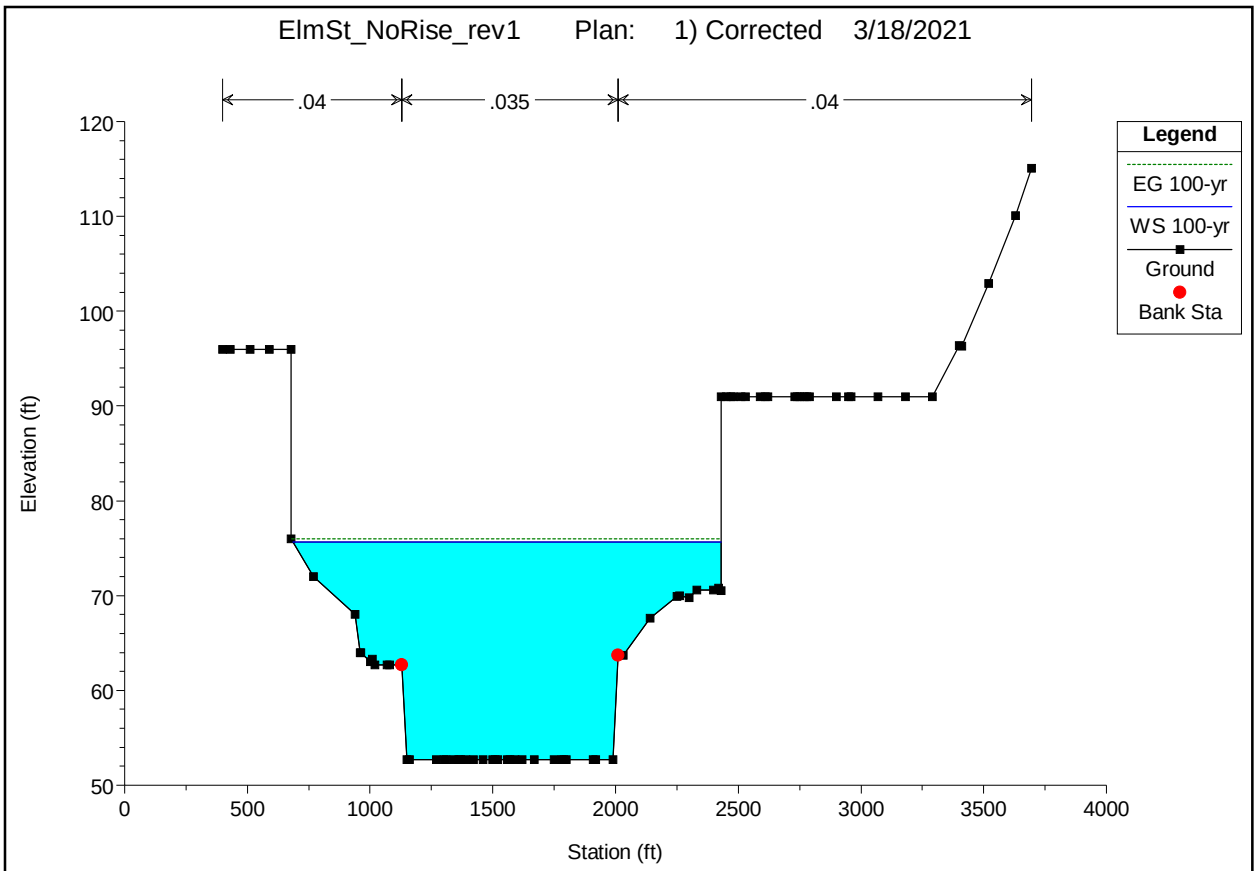


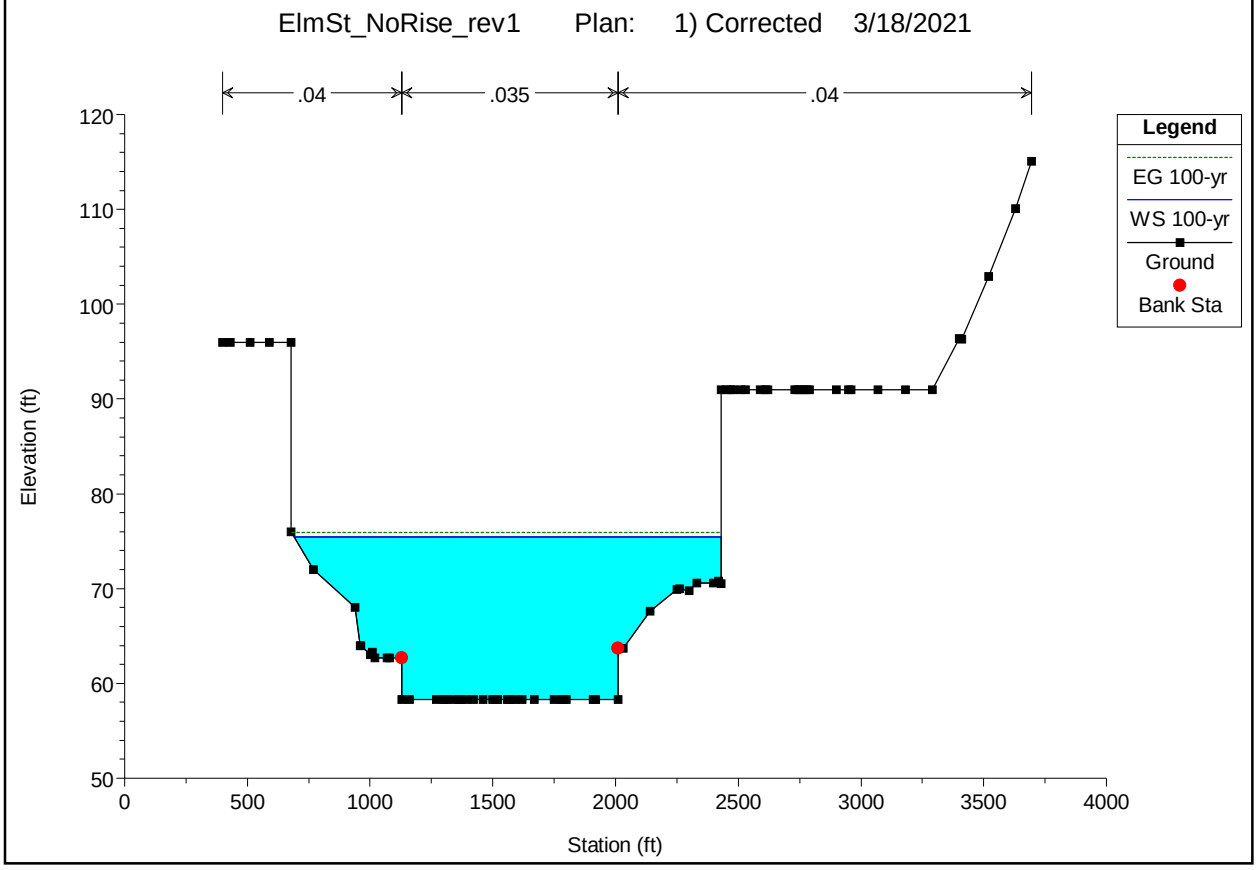


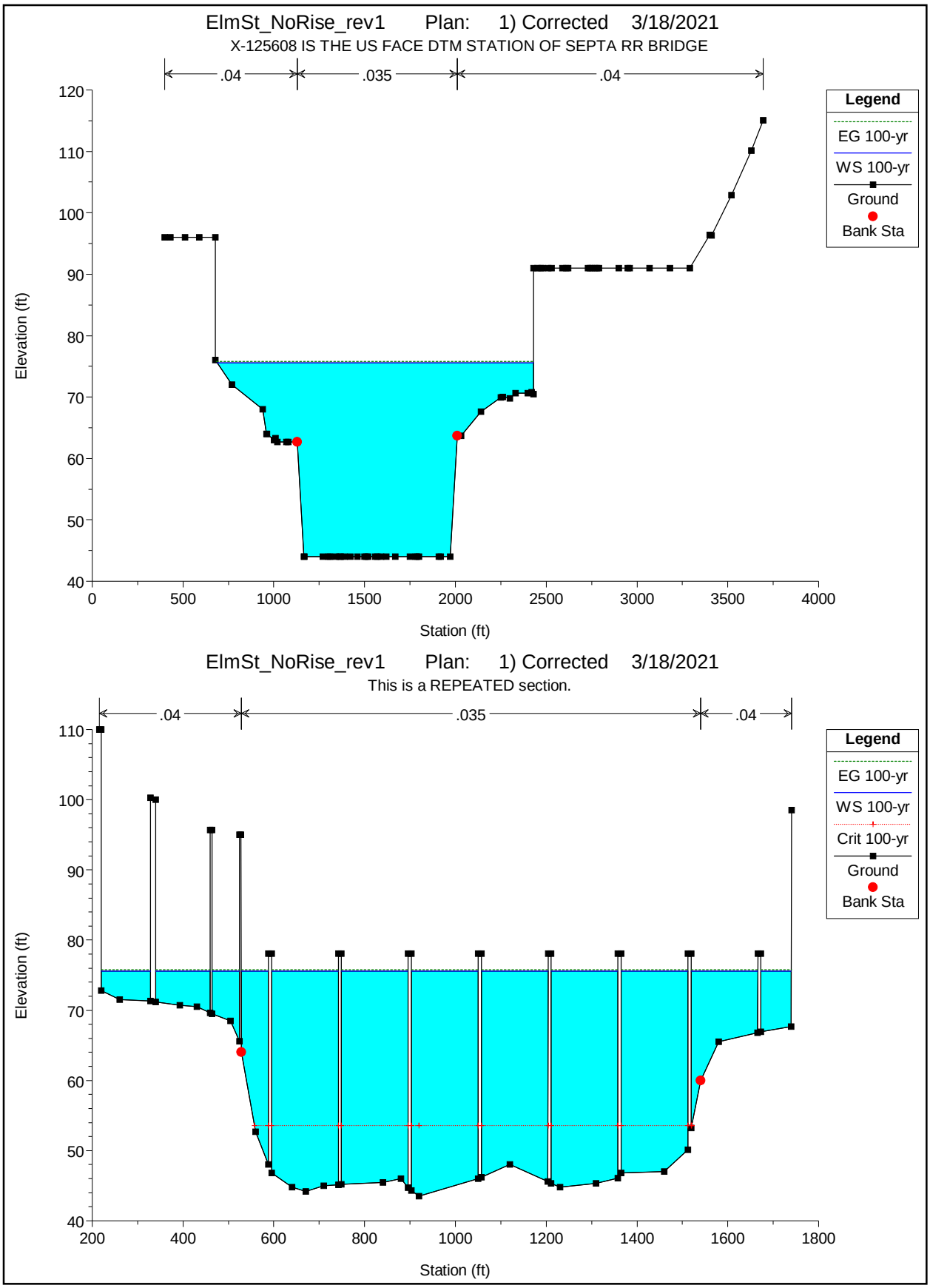


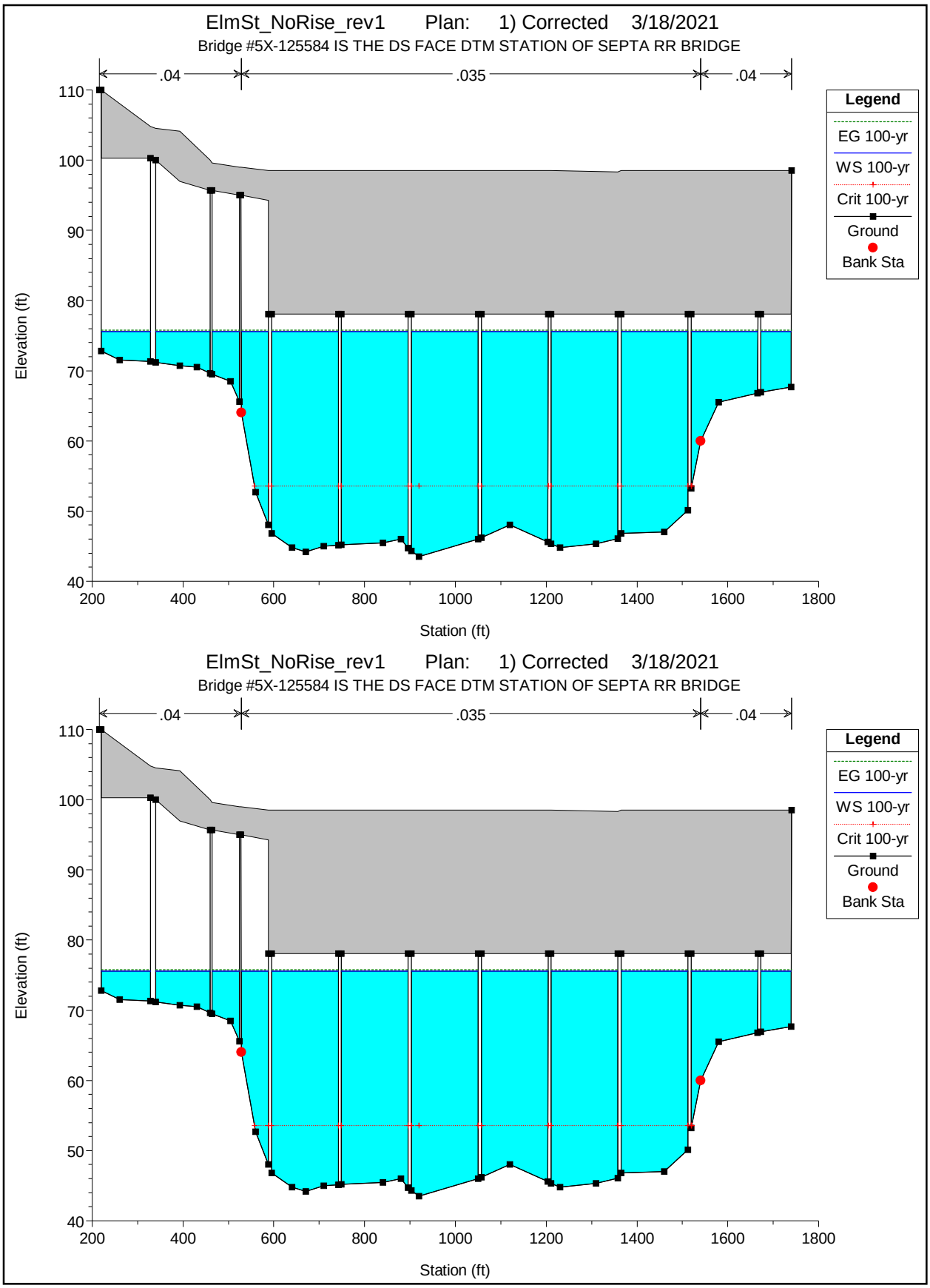




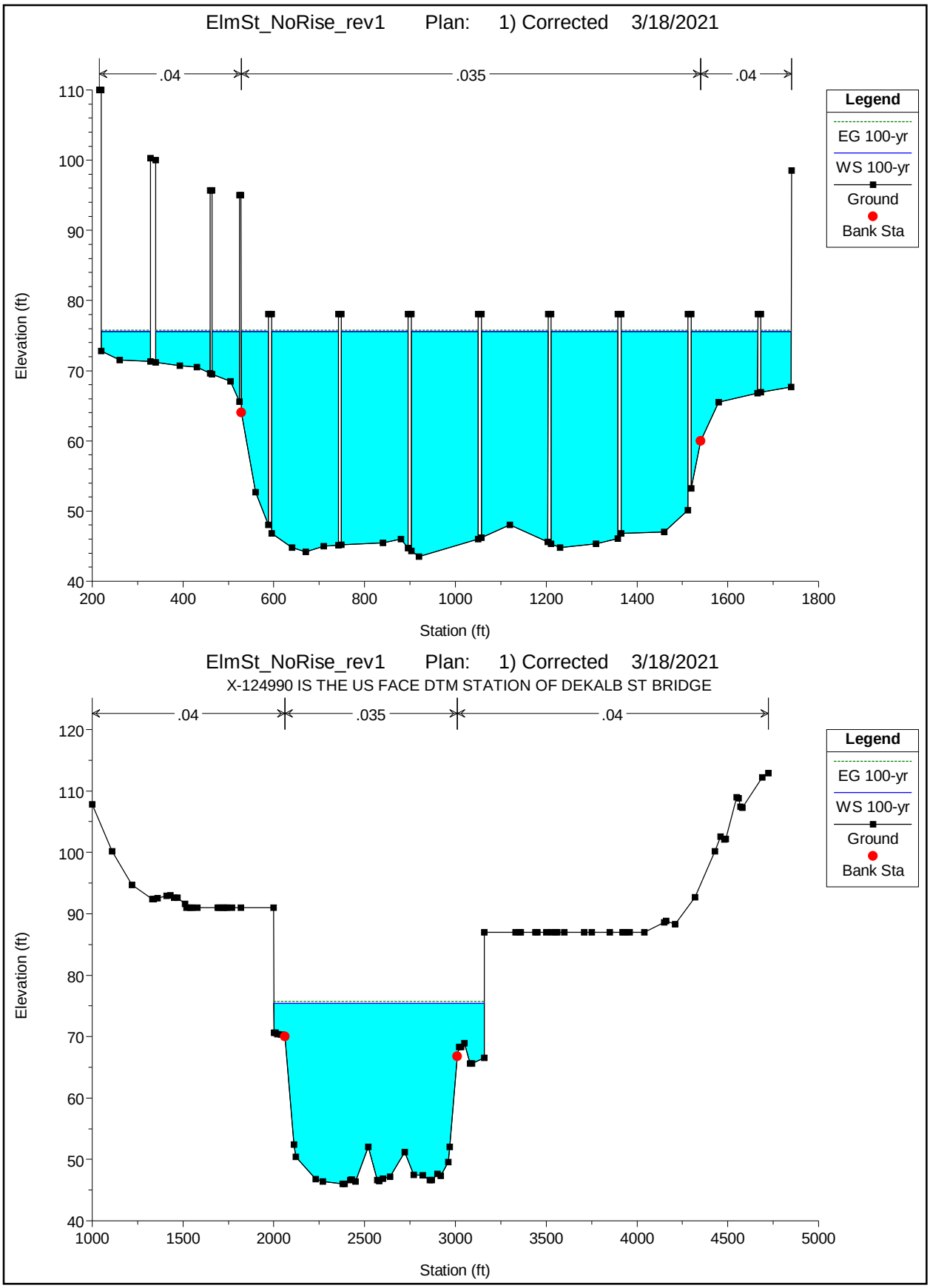


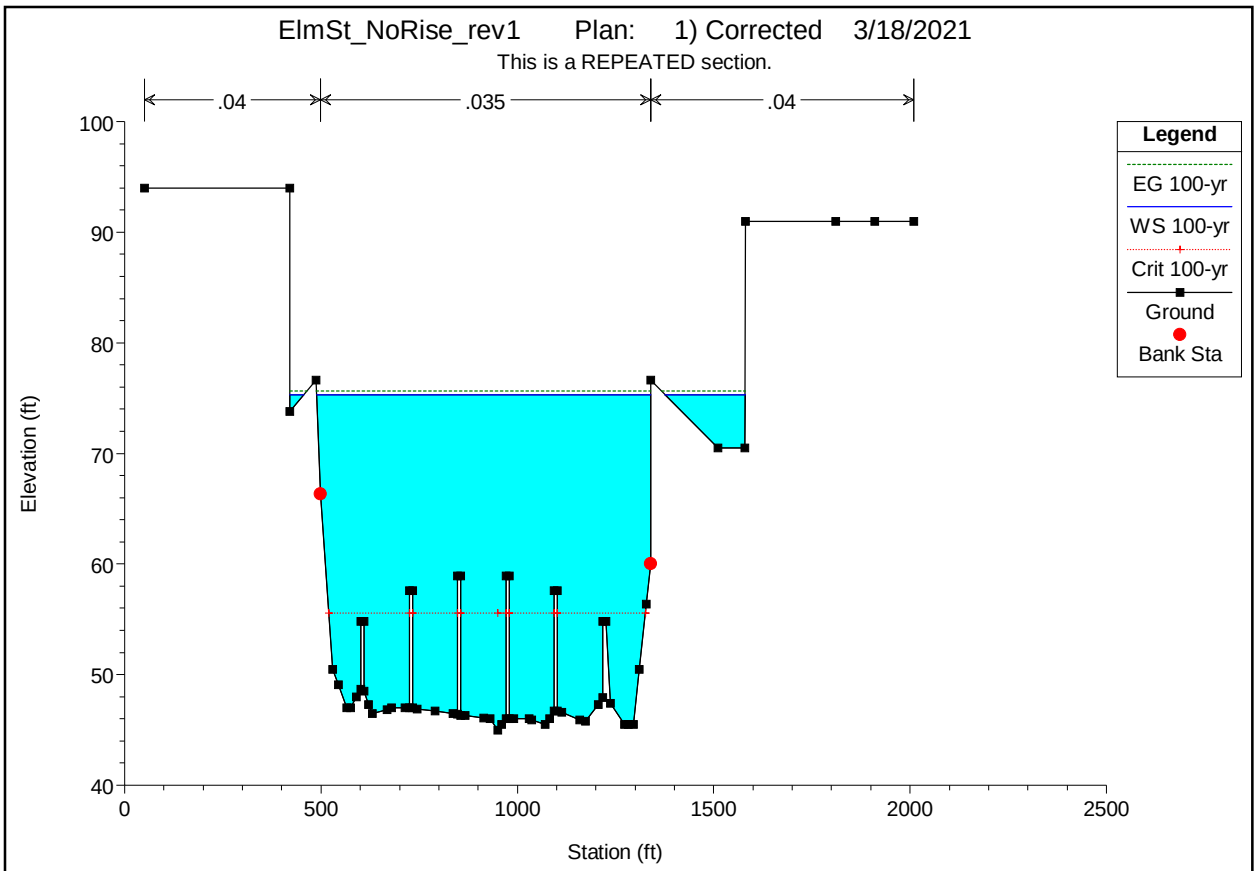


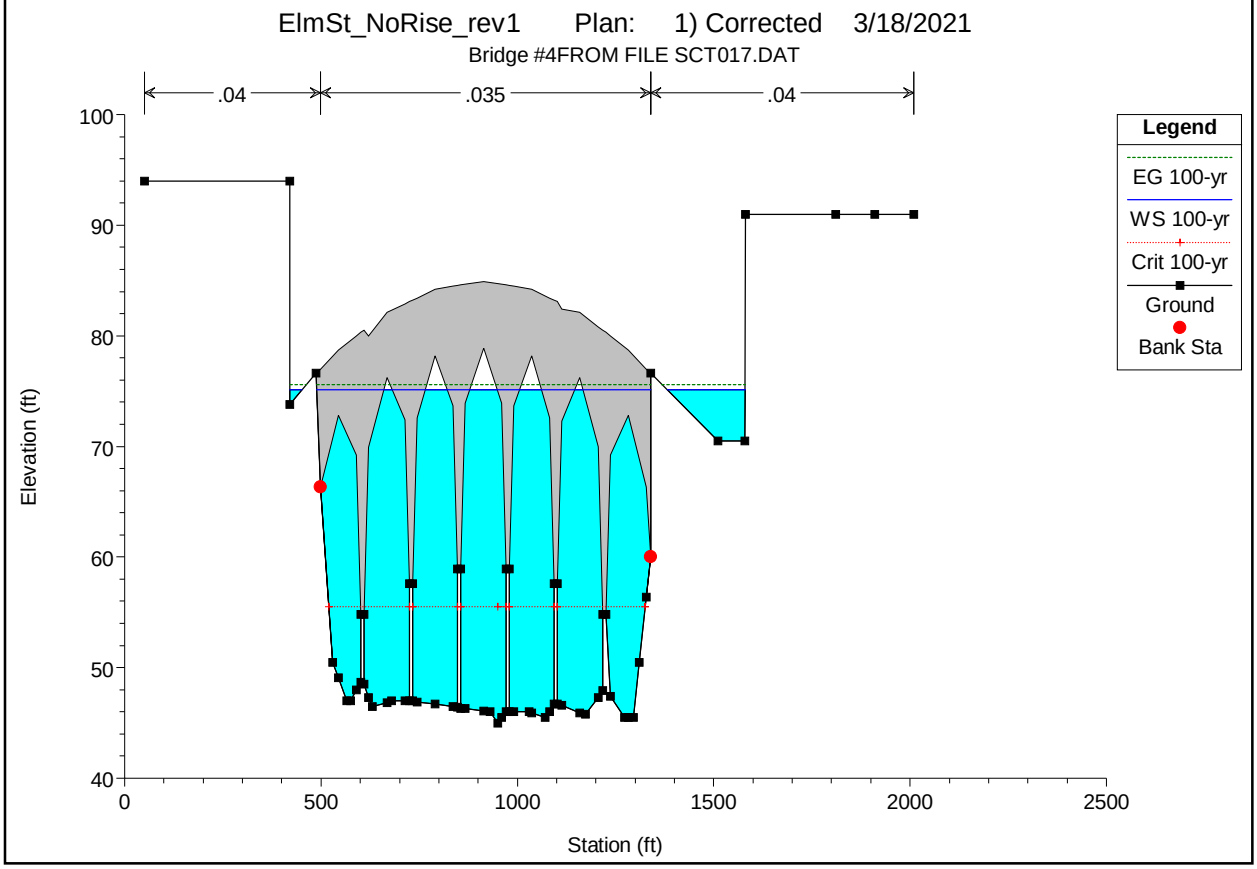


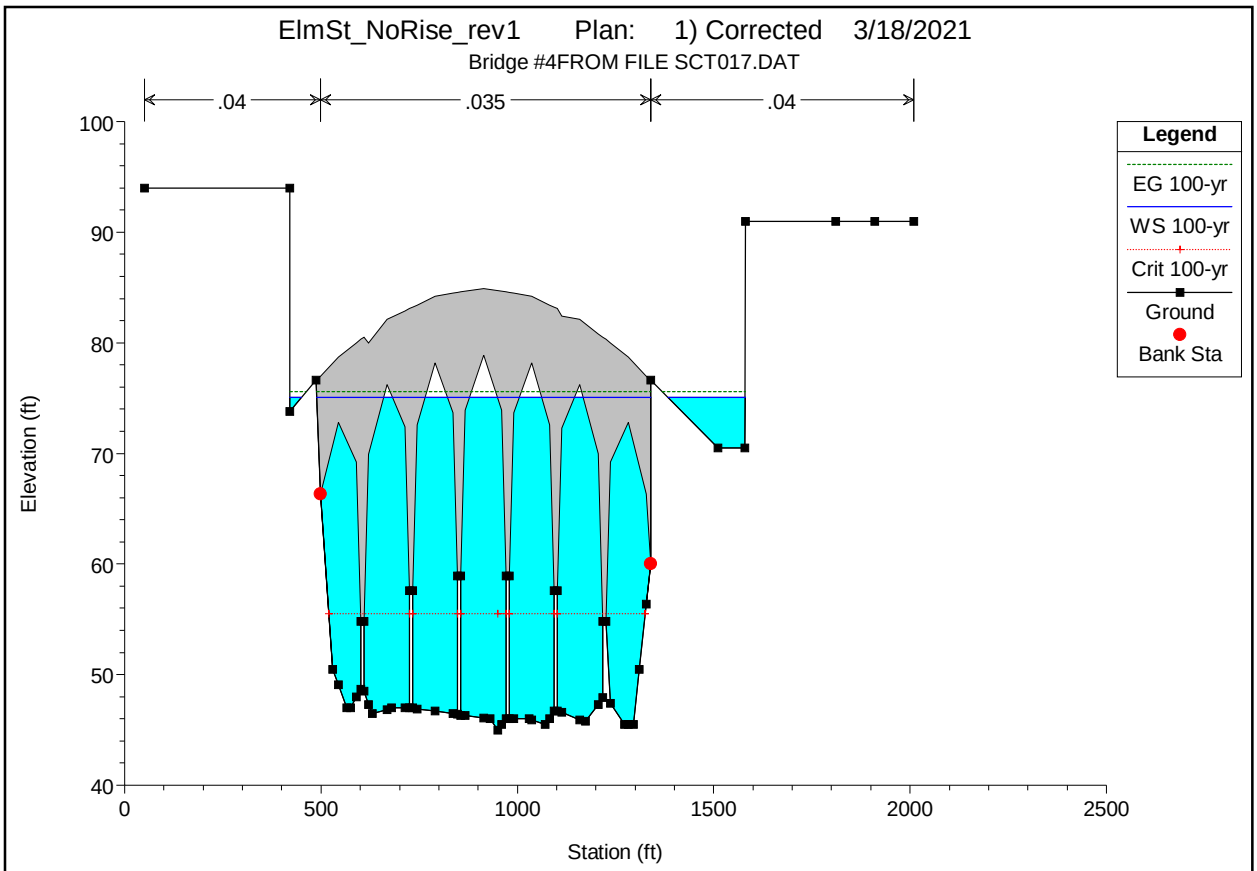


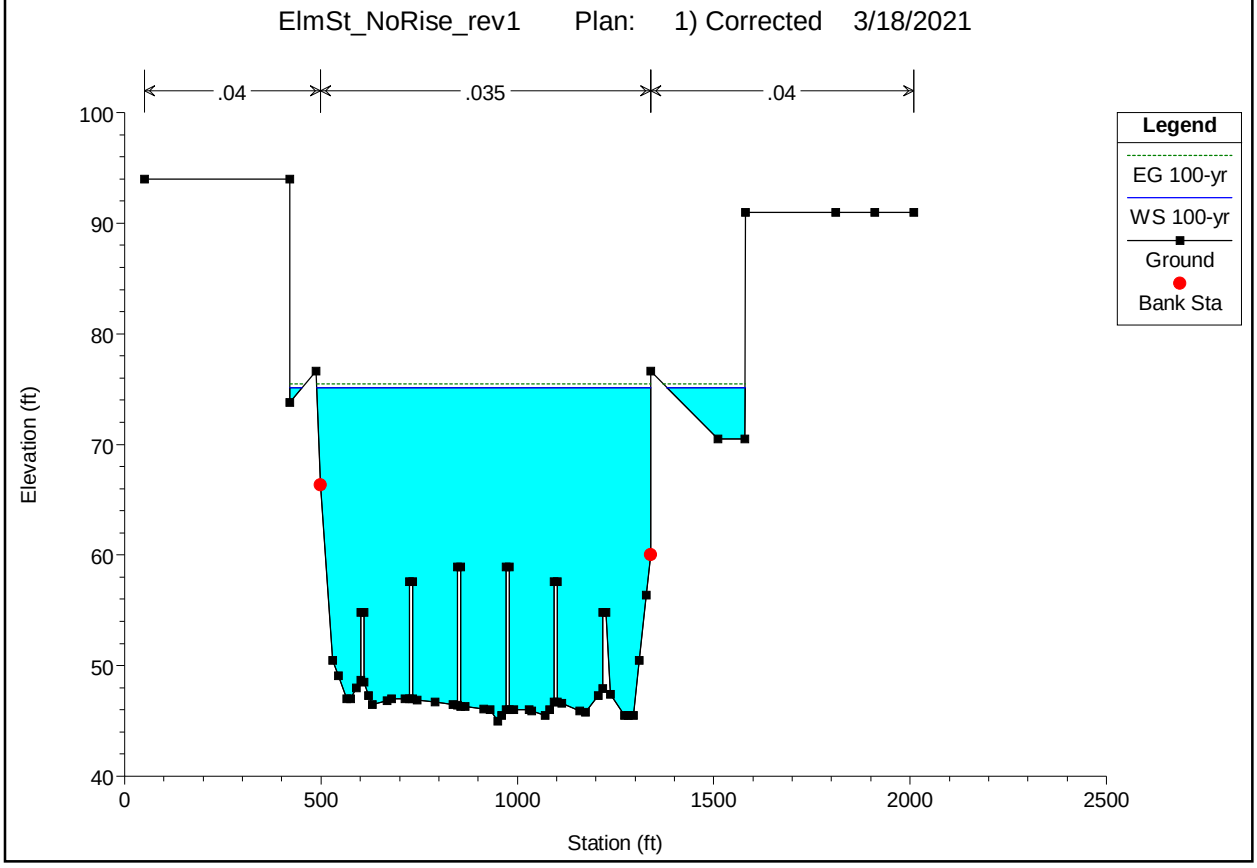
ElmSt_NoRise_rev1 Plan: 1) Corrected 3/18/2021
Bridge #5X-125584 IS THE DS FACE DTM STATION OF SEPTA RR BRIDGE
.04
.035
.04
Legend
EG 100-yr
WS 100-yr
Crit 100-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

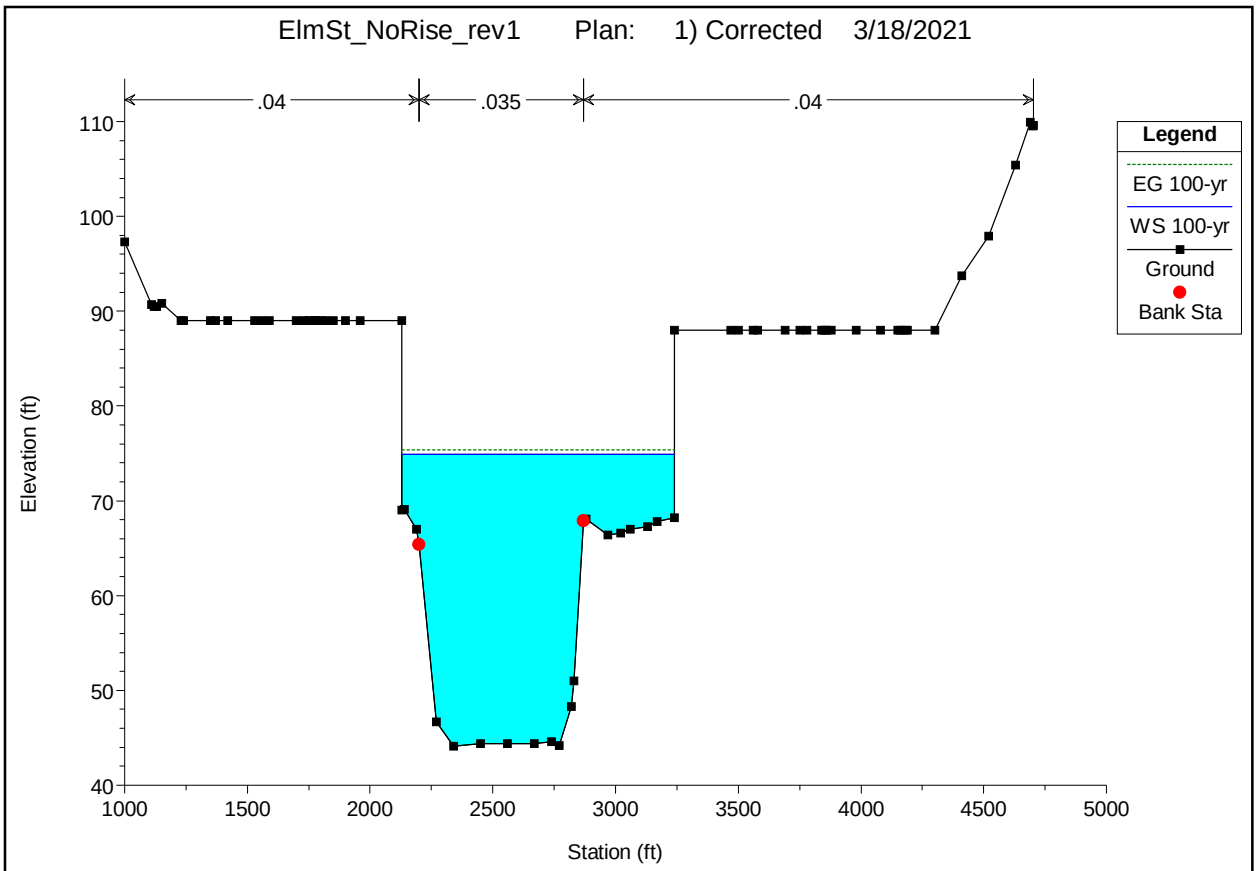


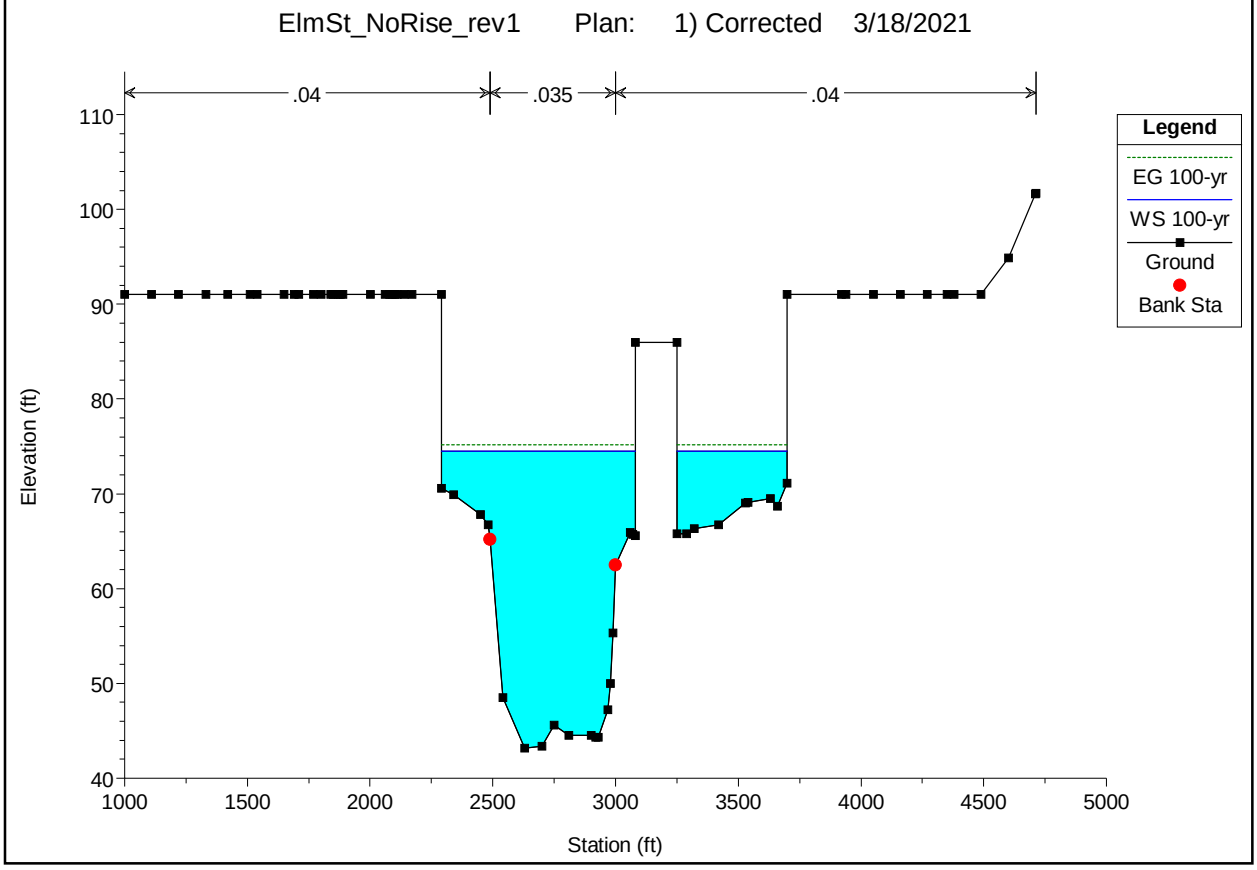


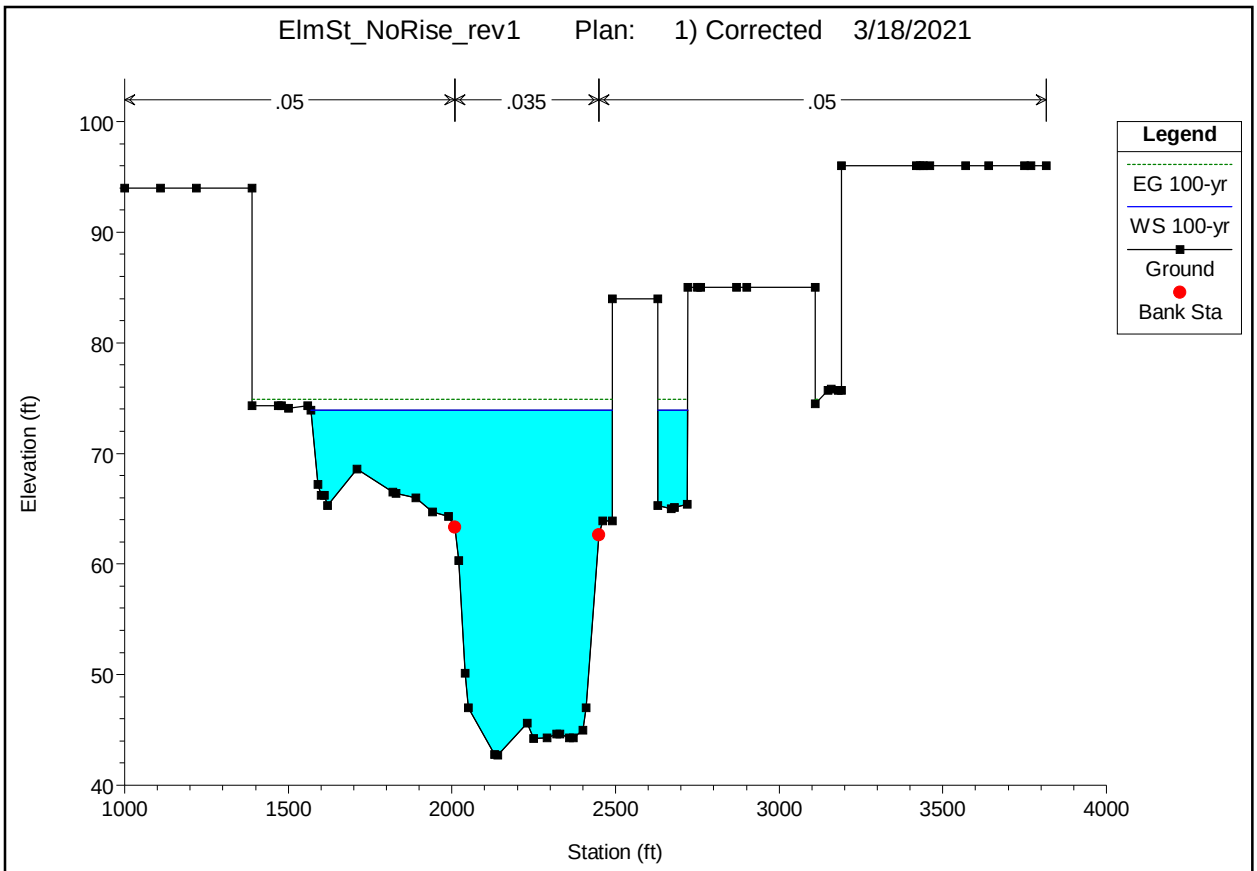


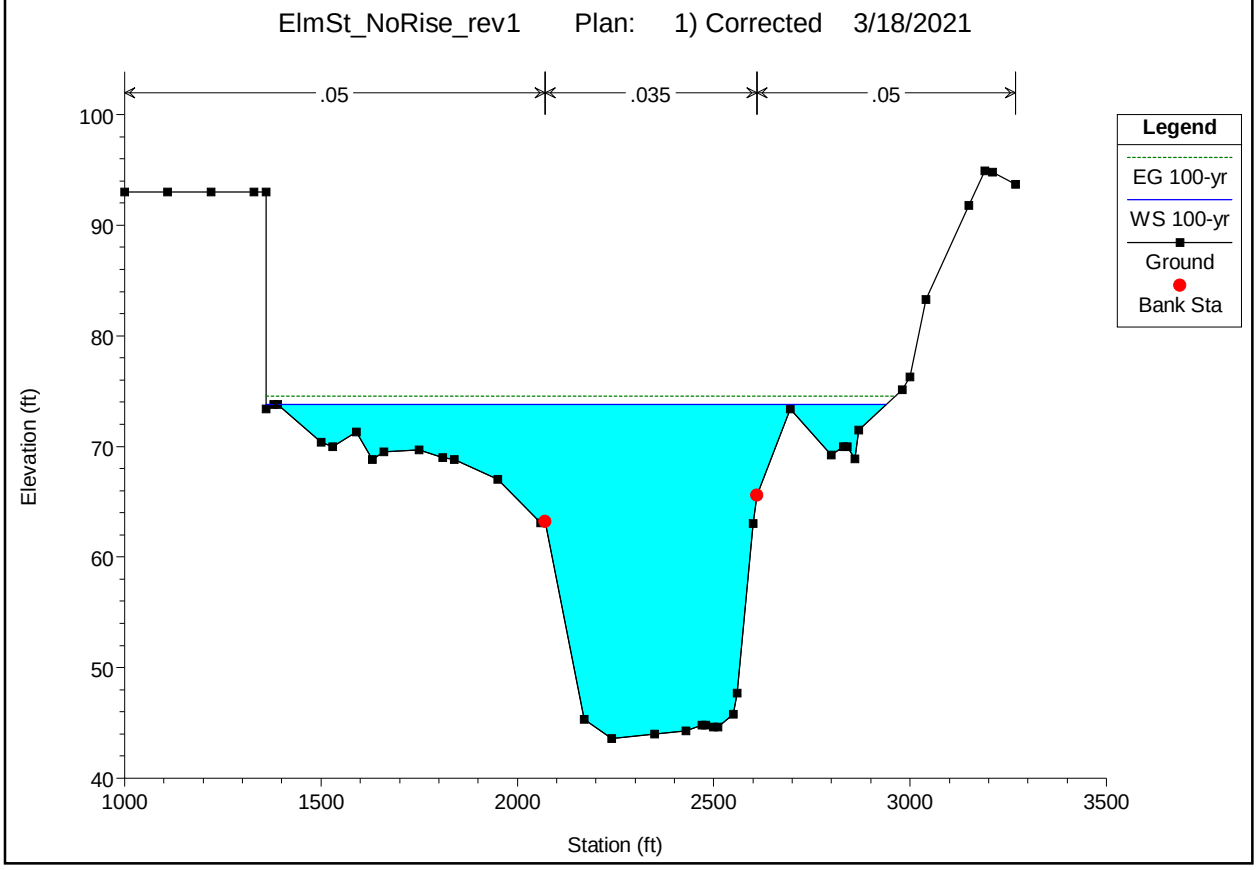


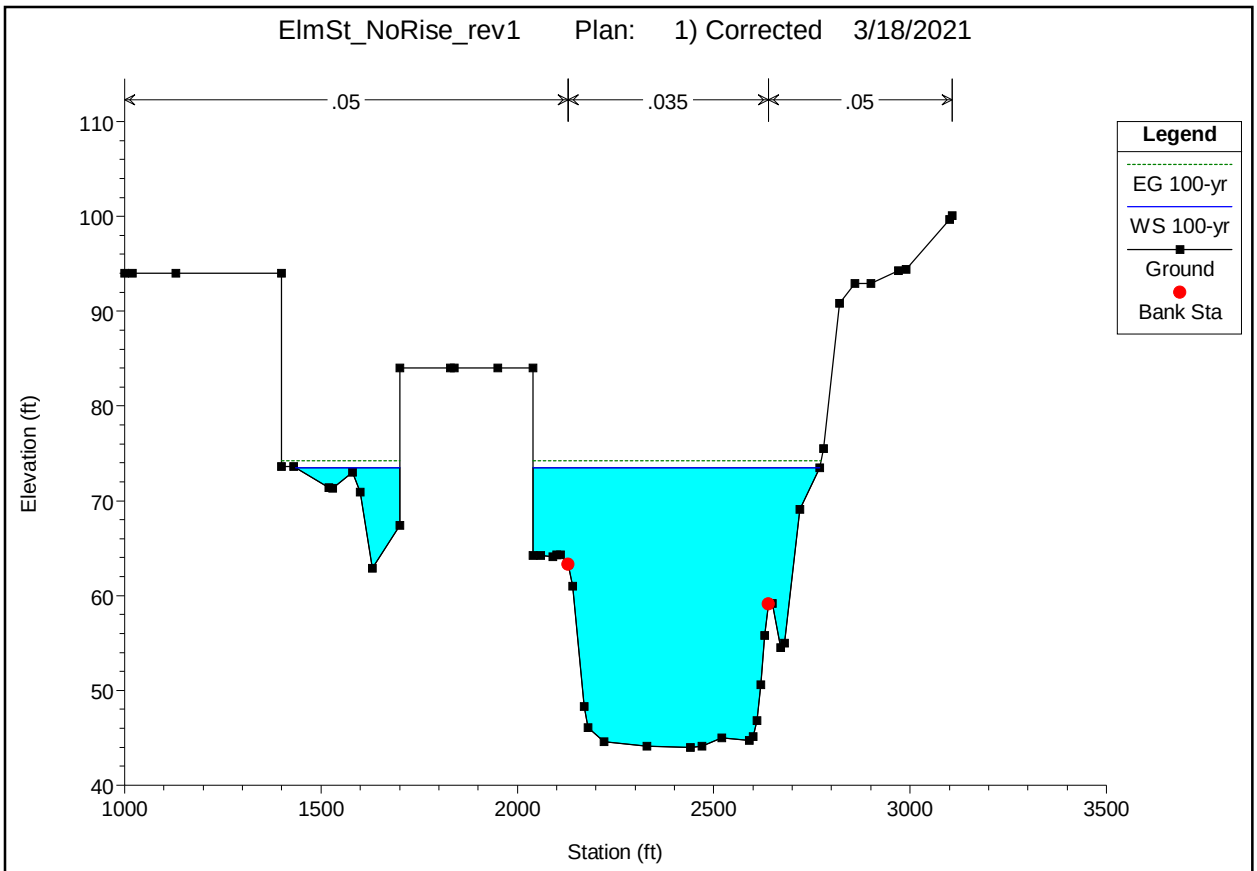


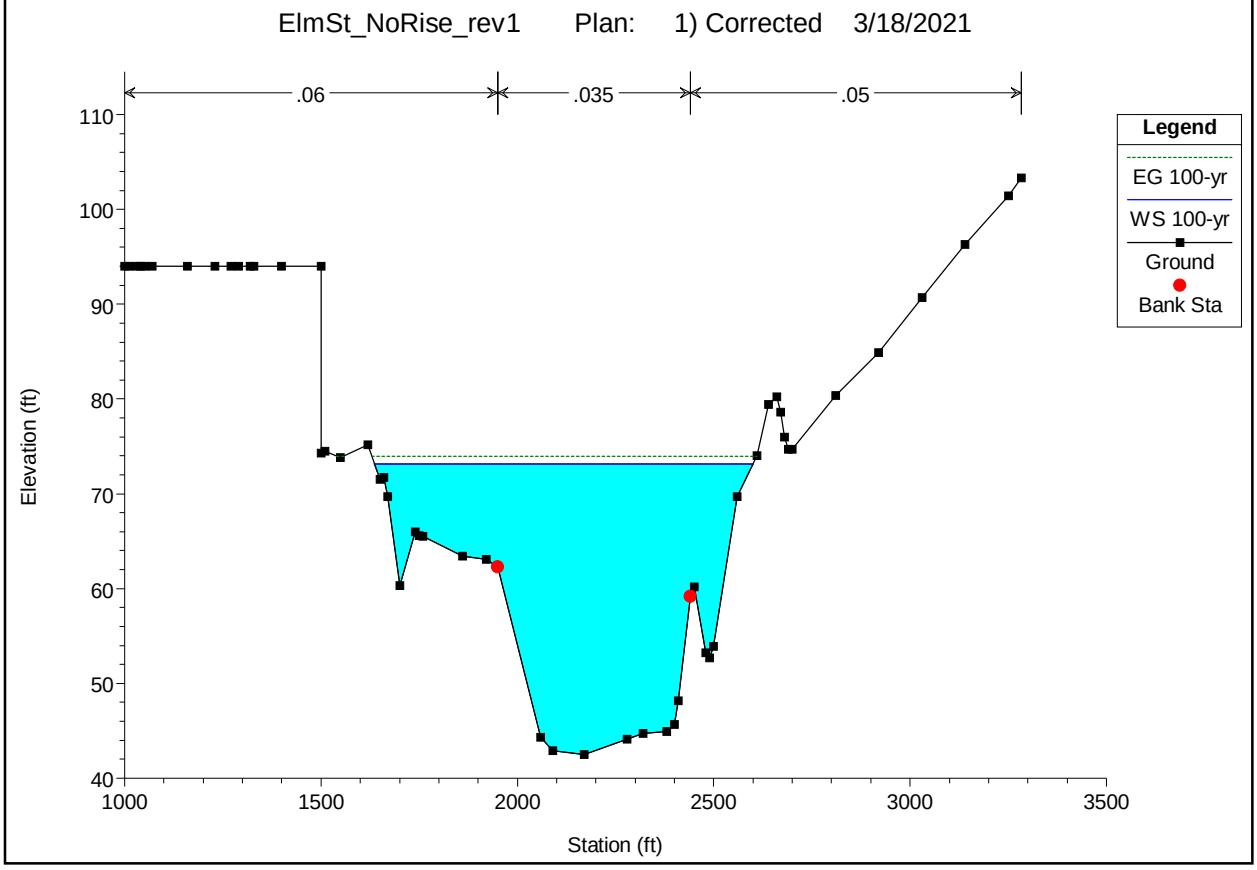


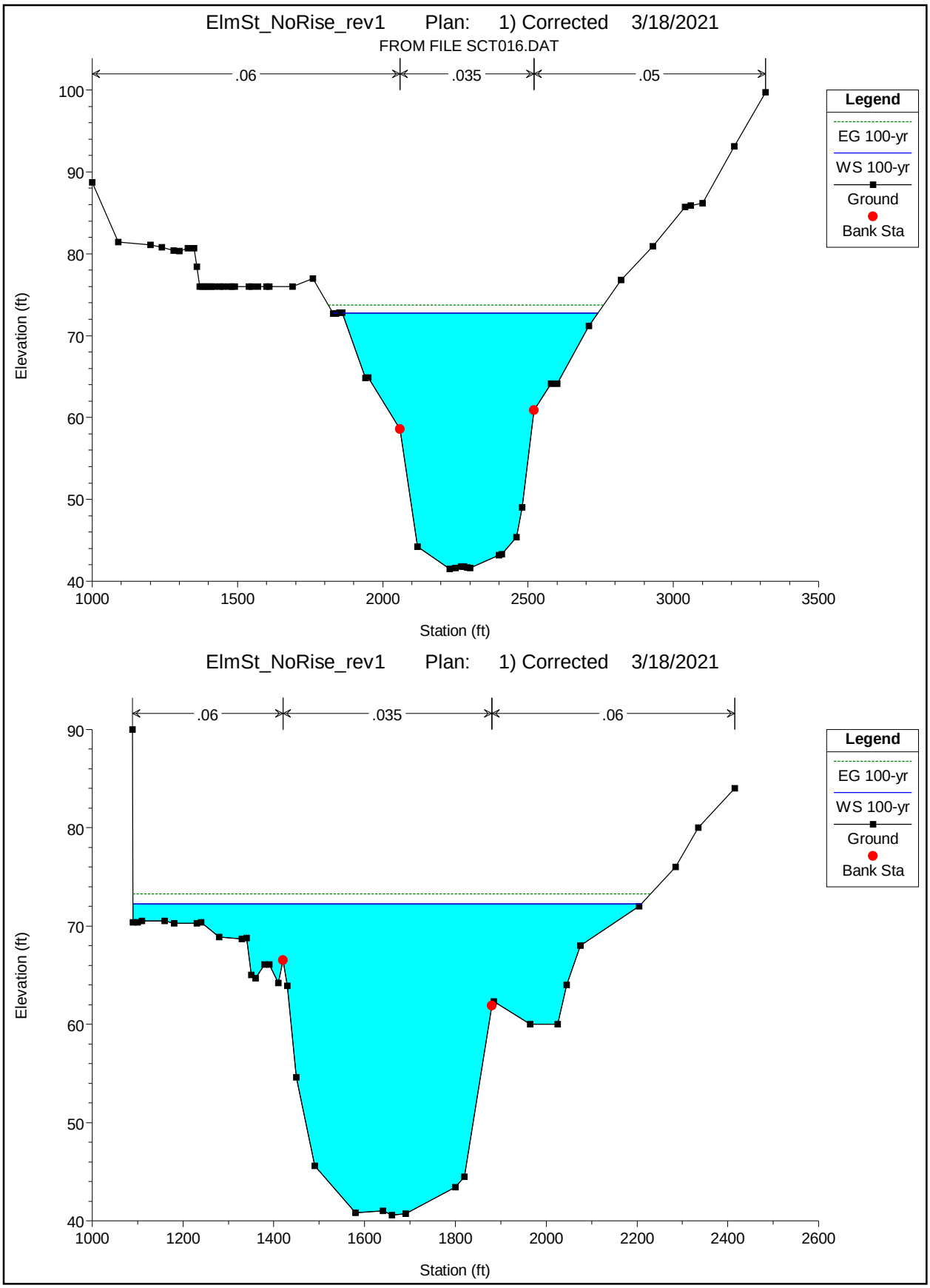


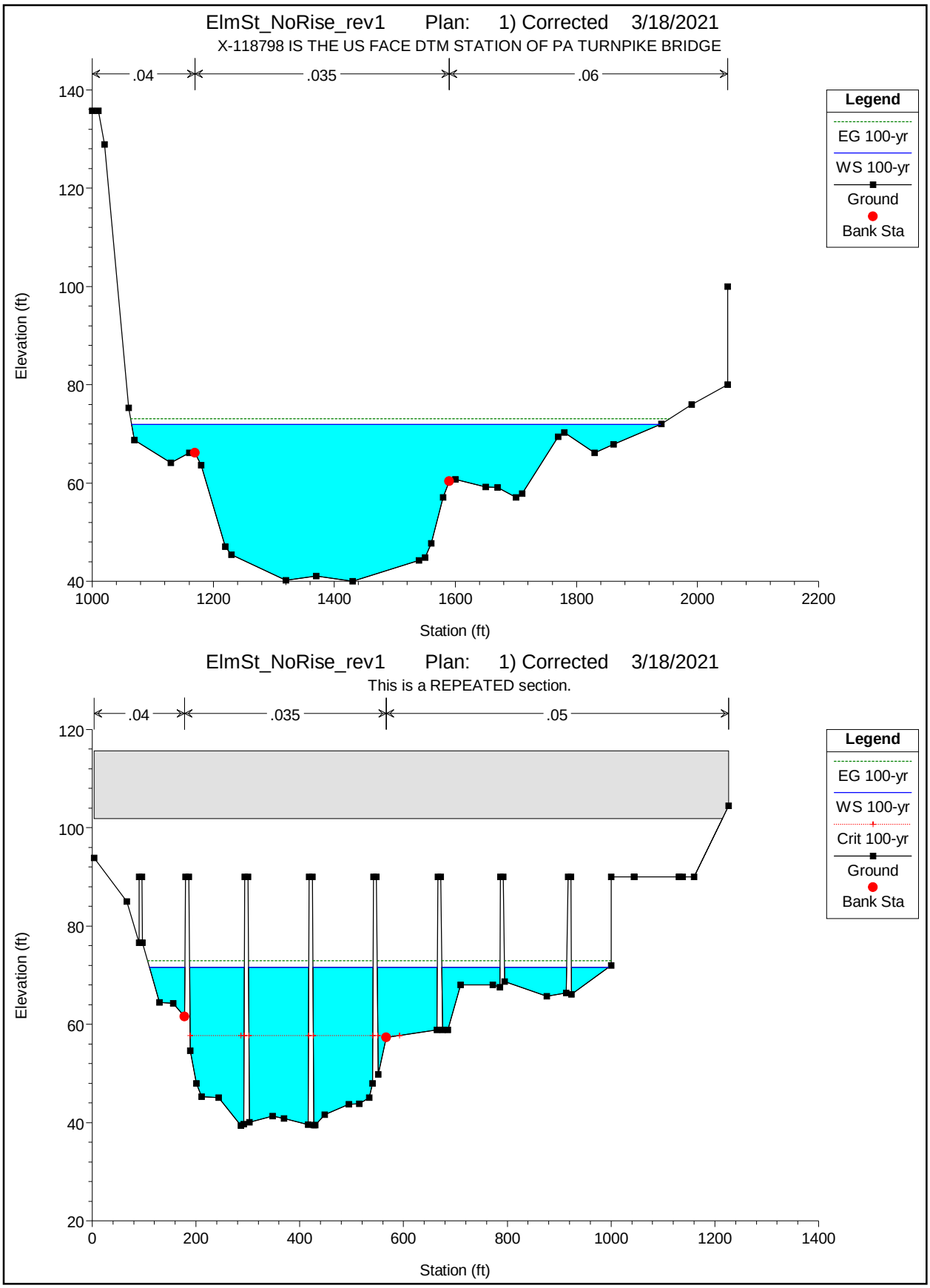


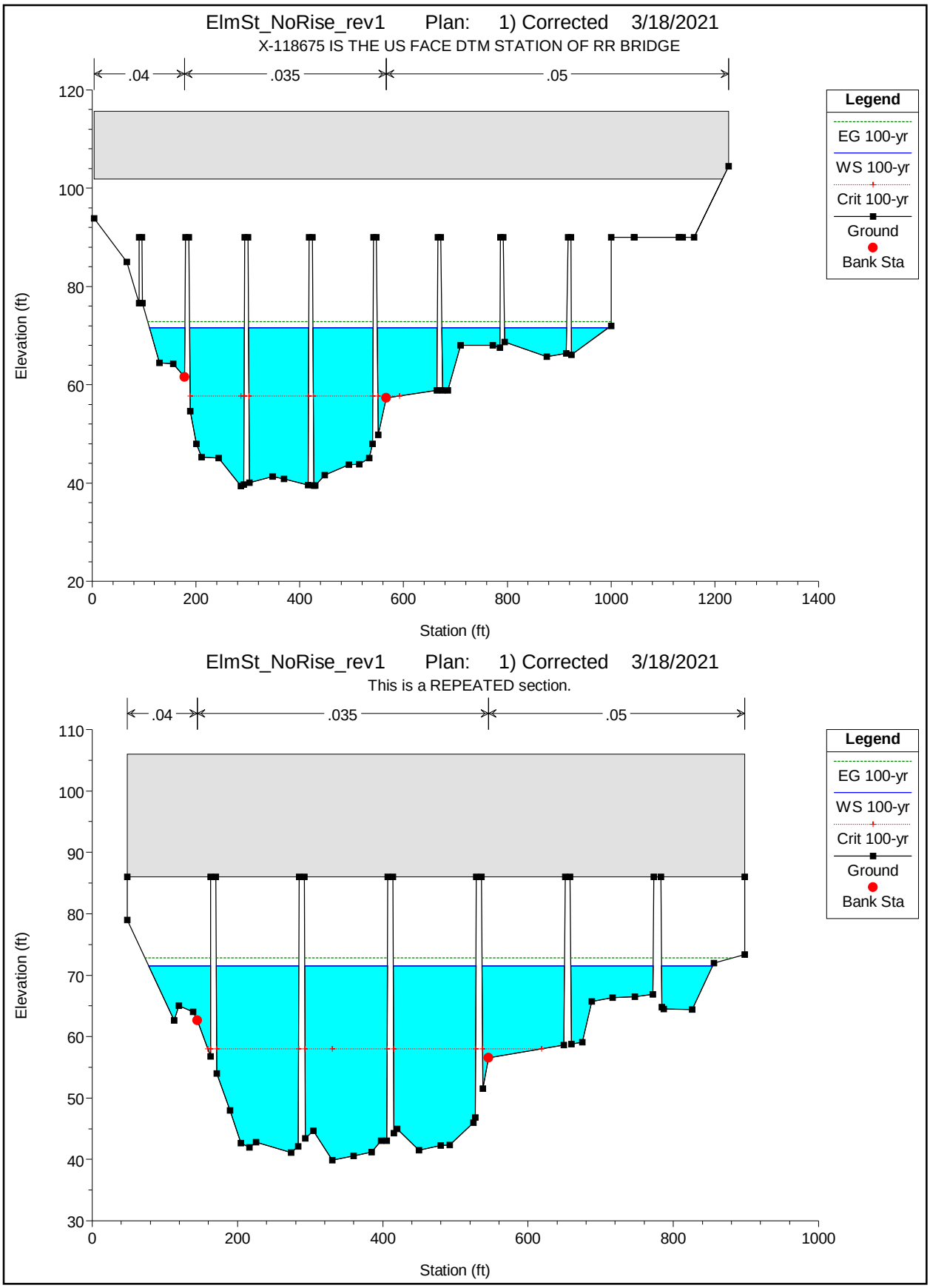


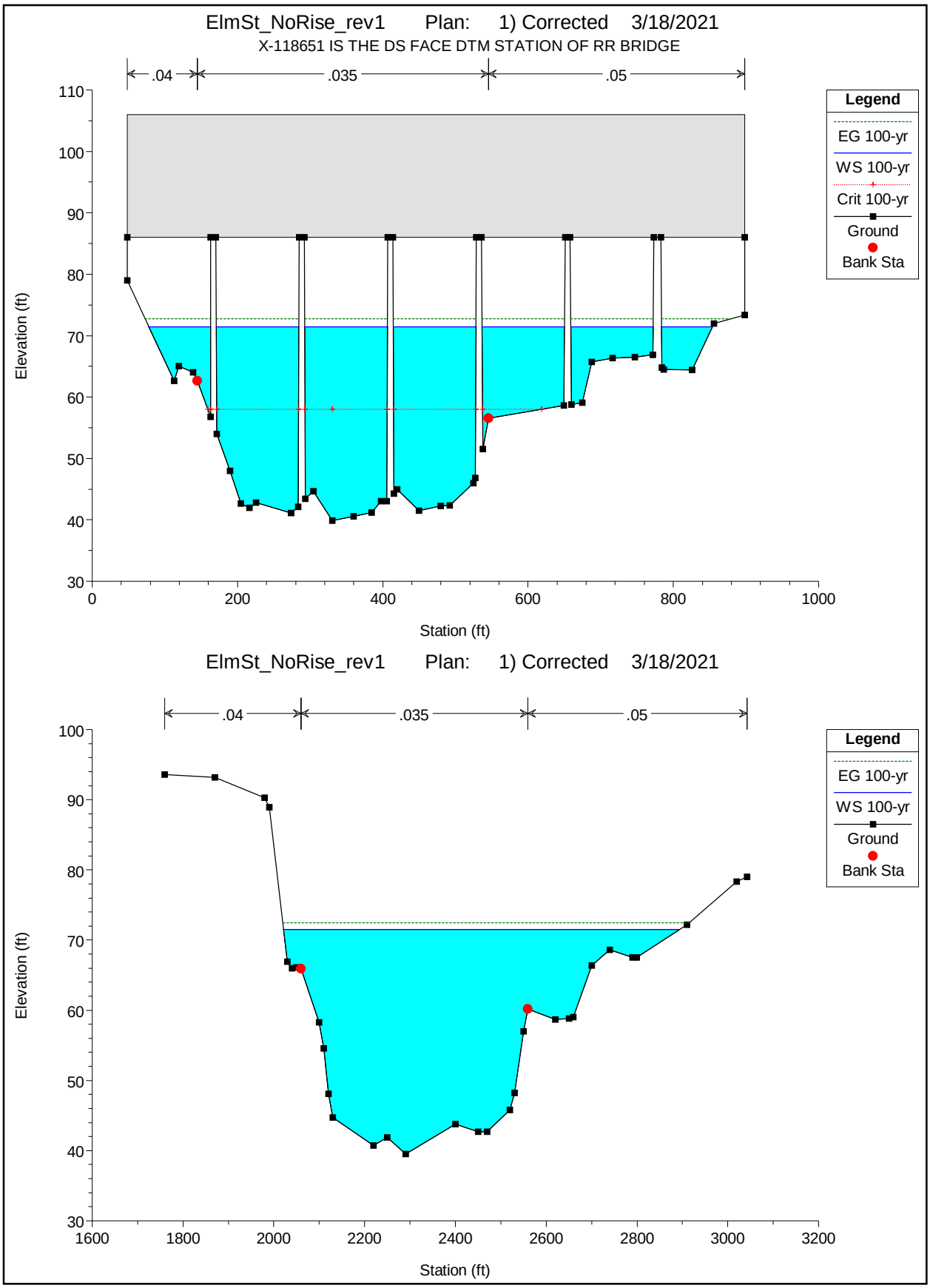


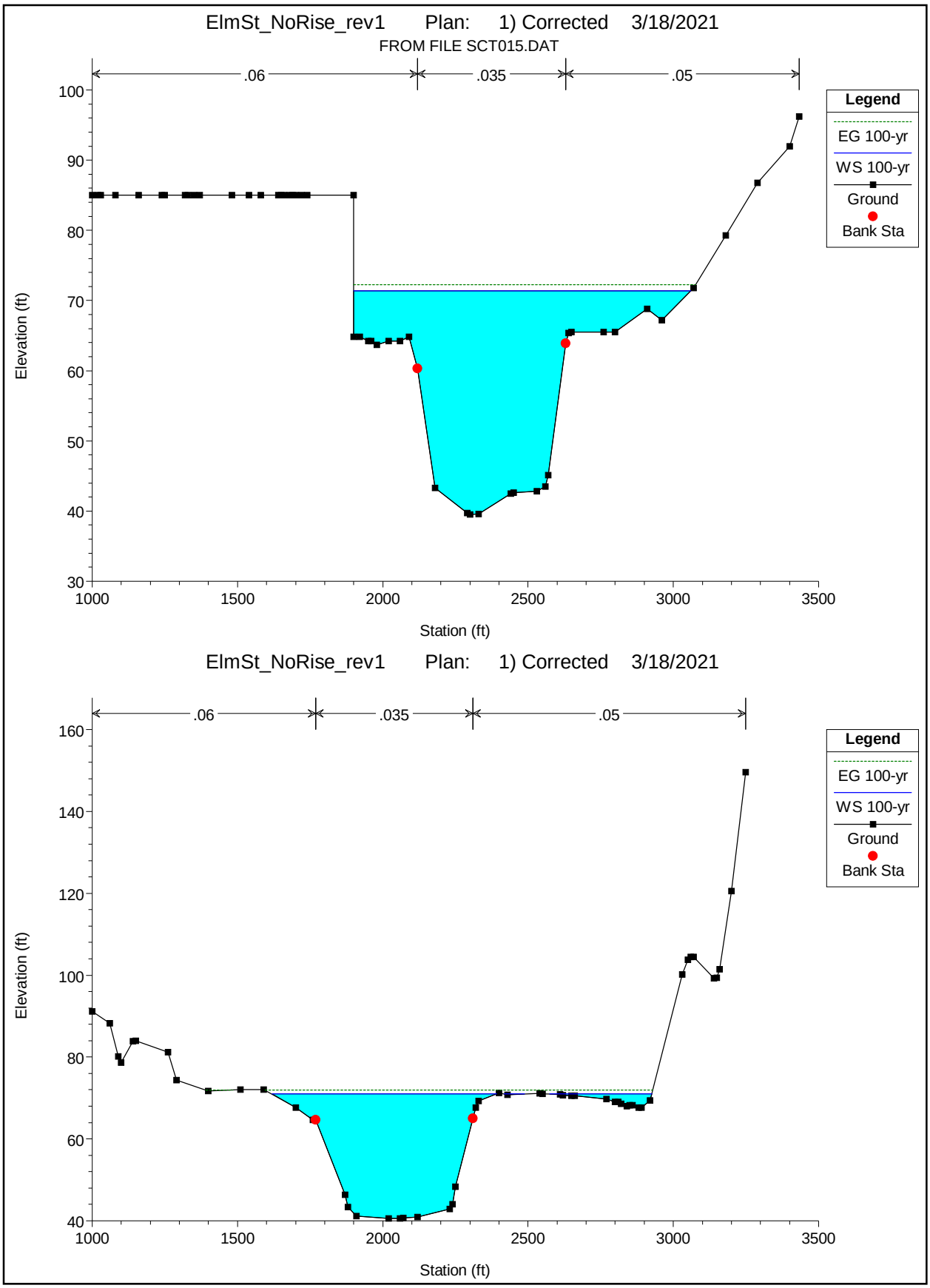


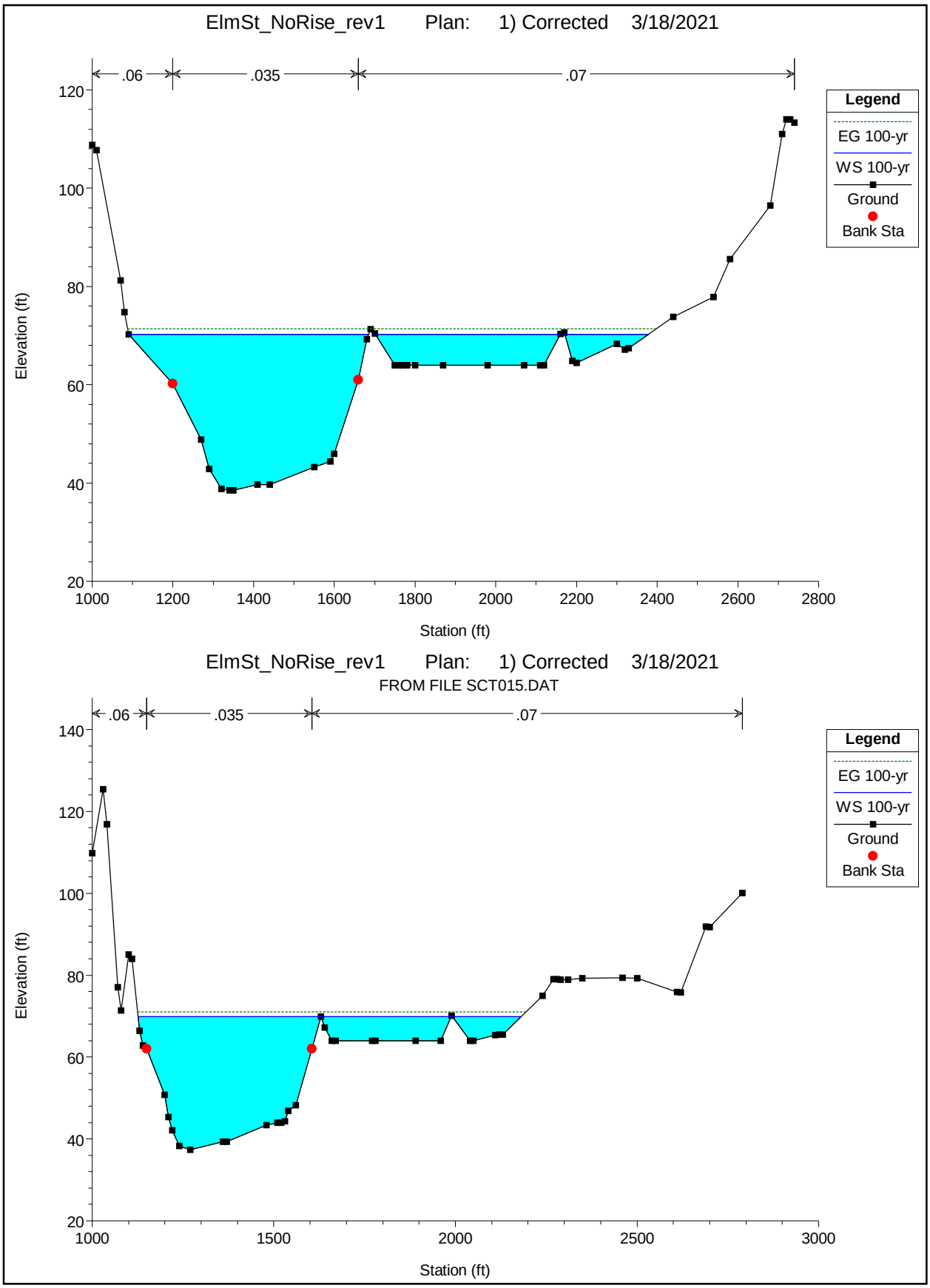


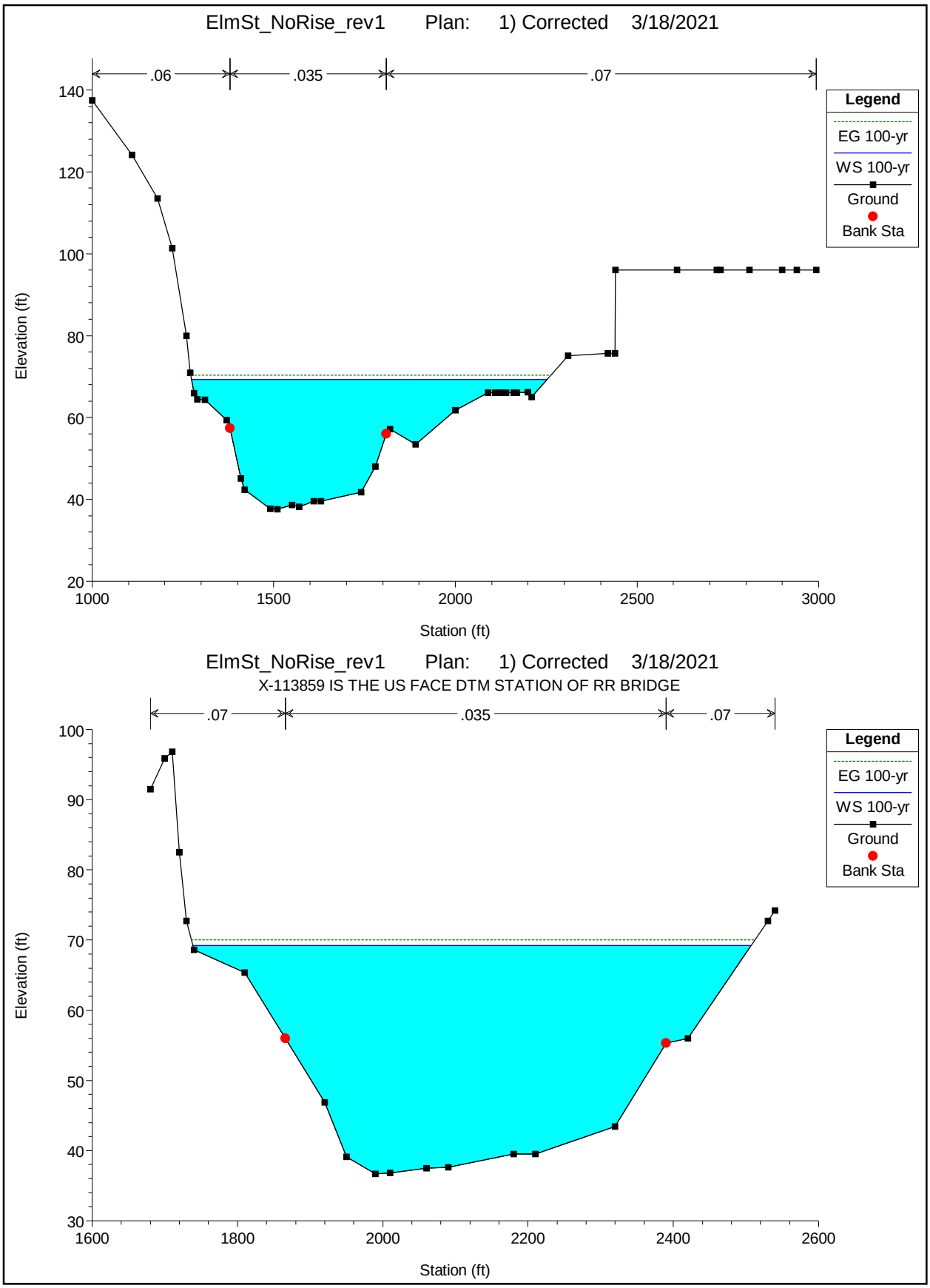


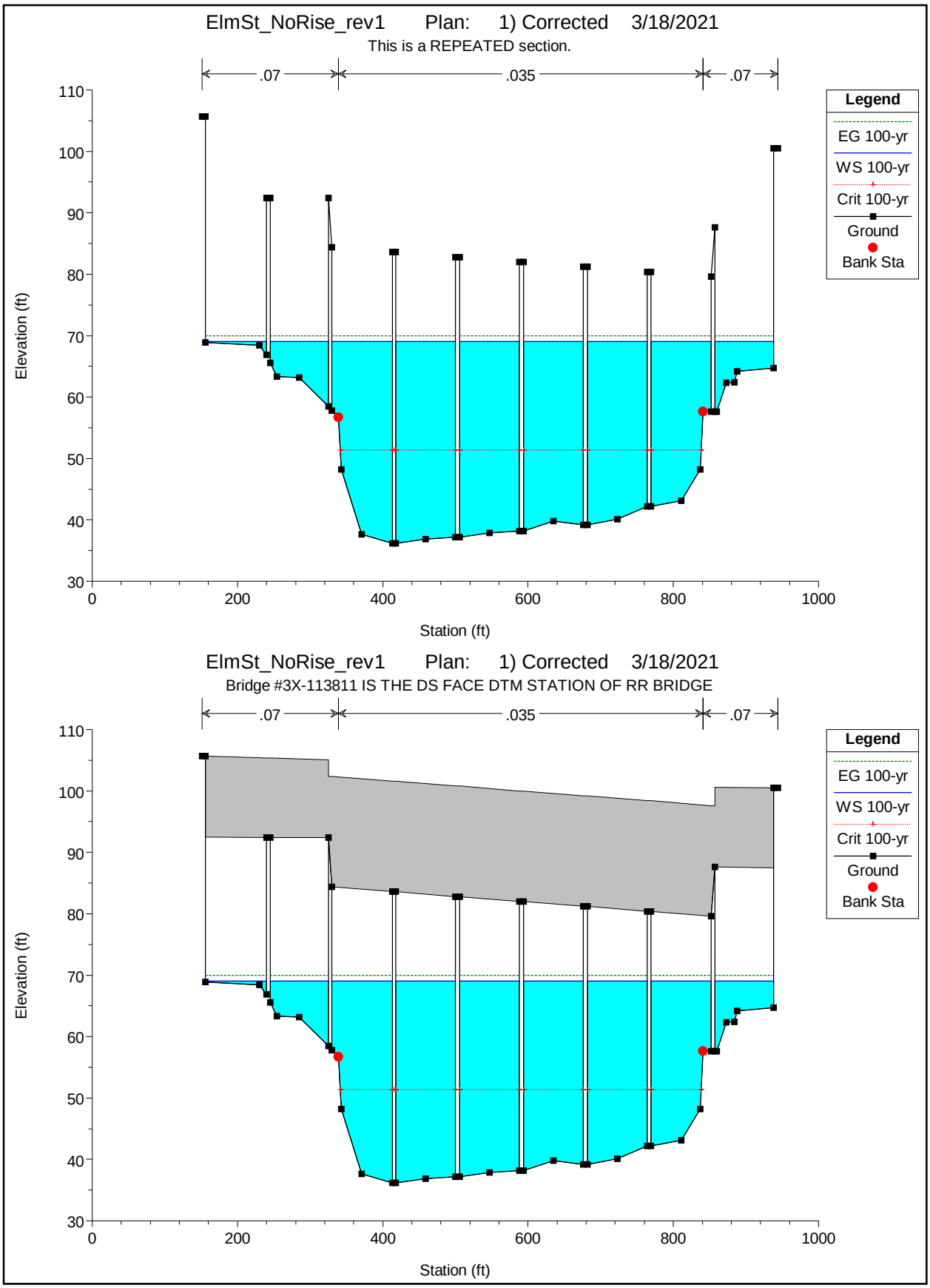


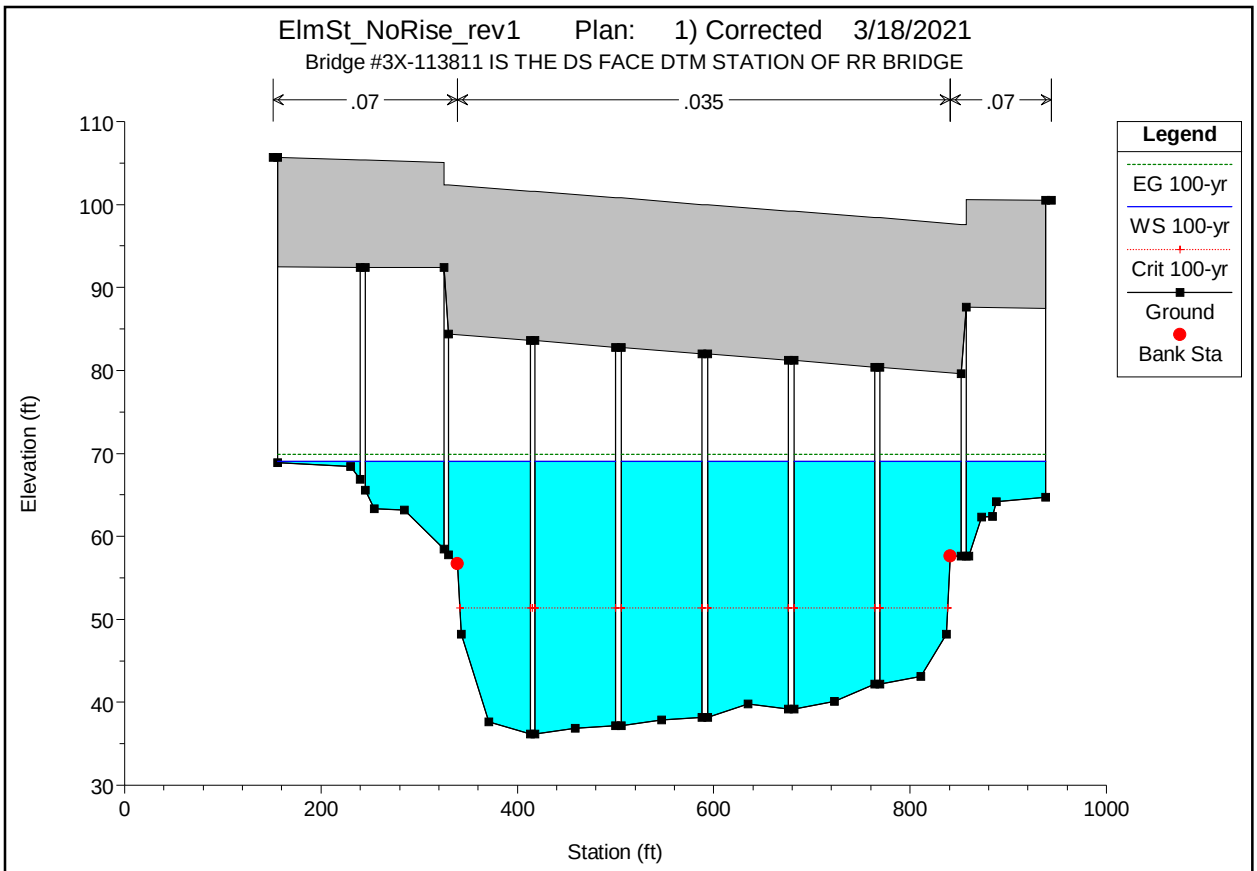


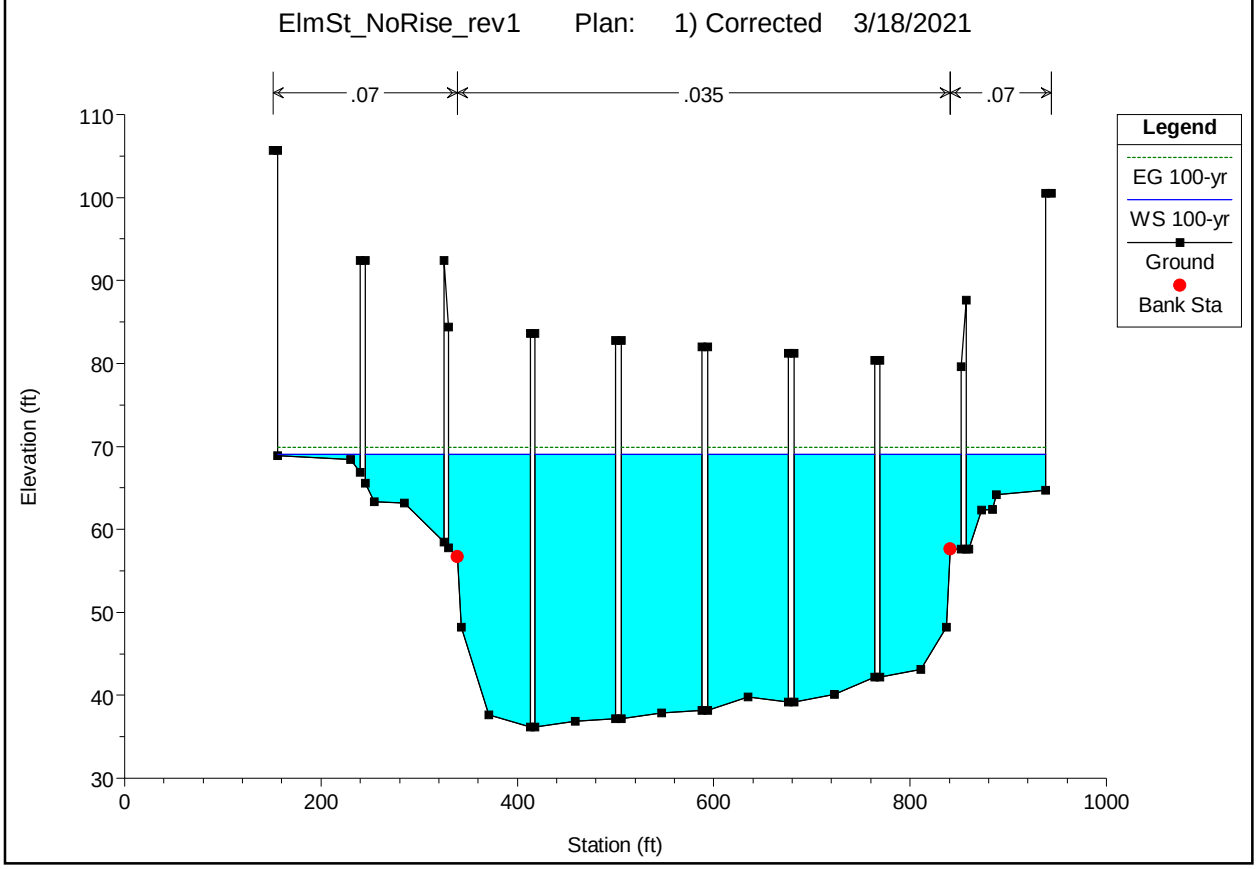


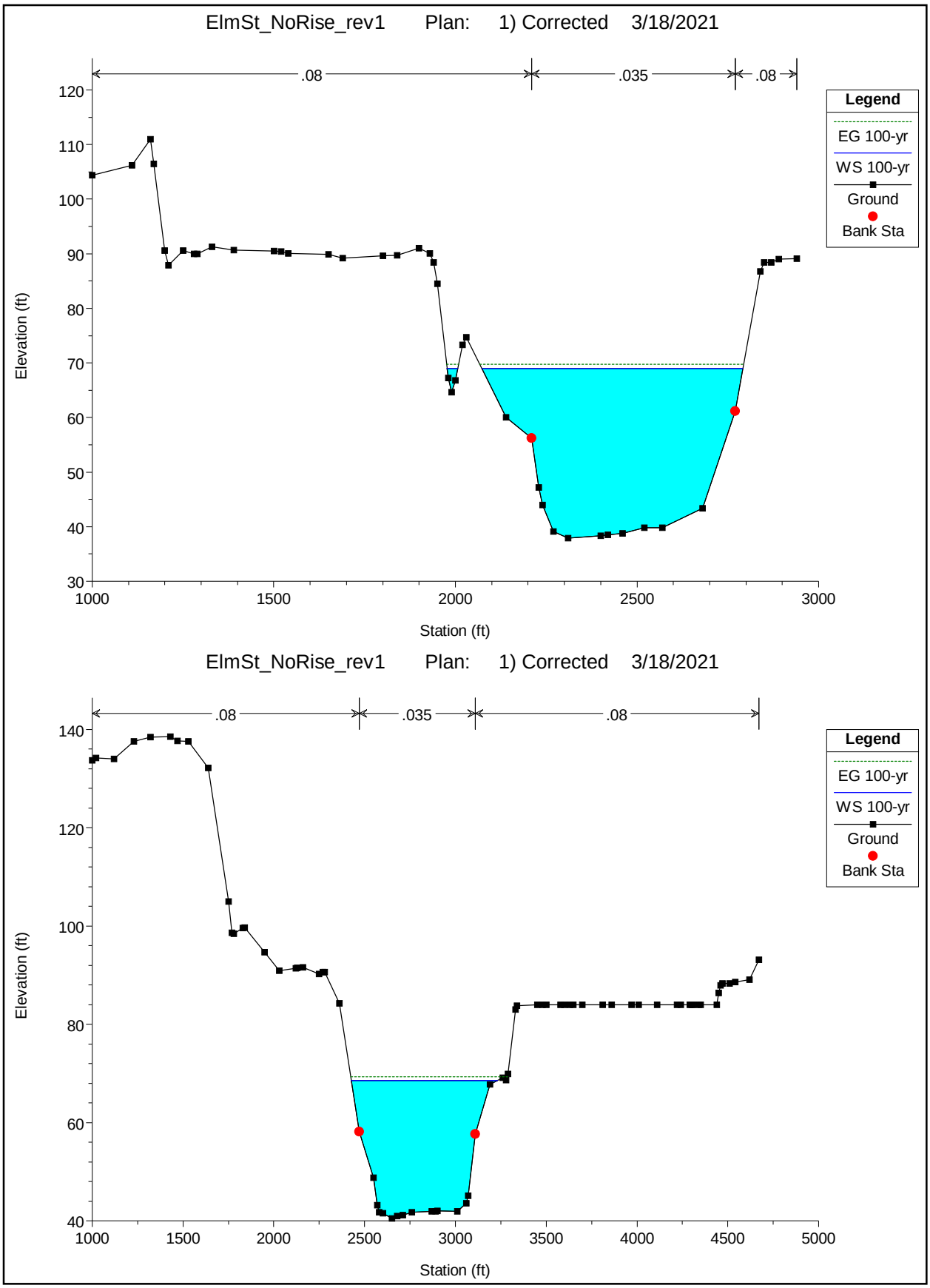


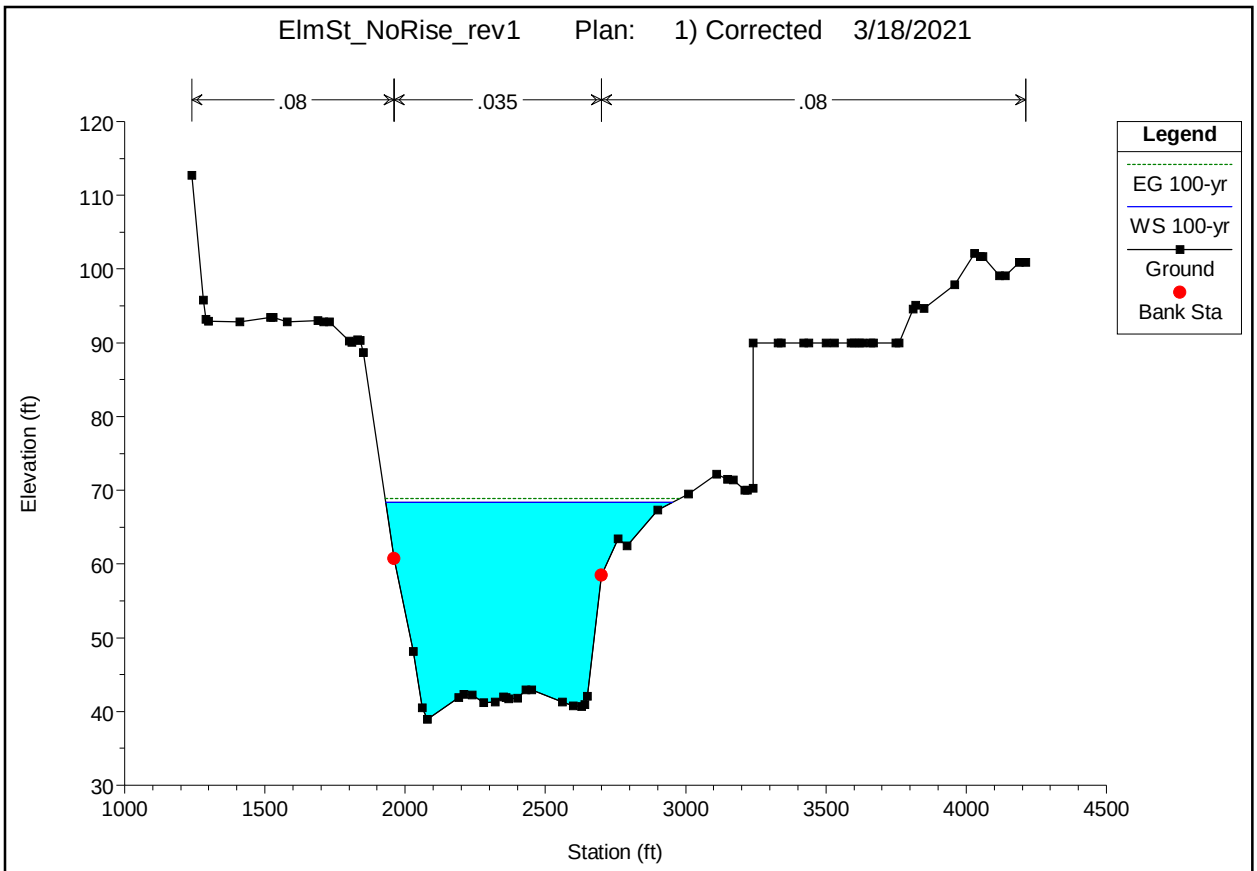


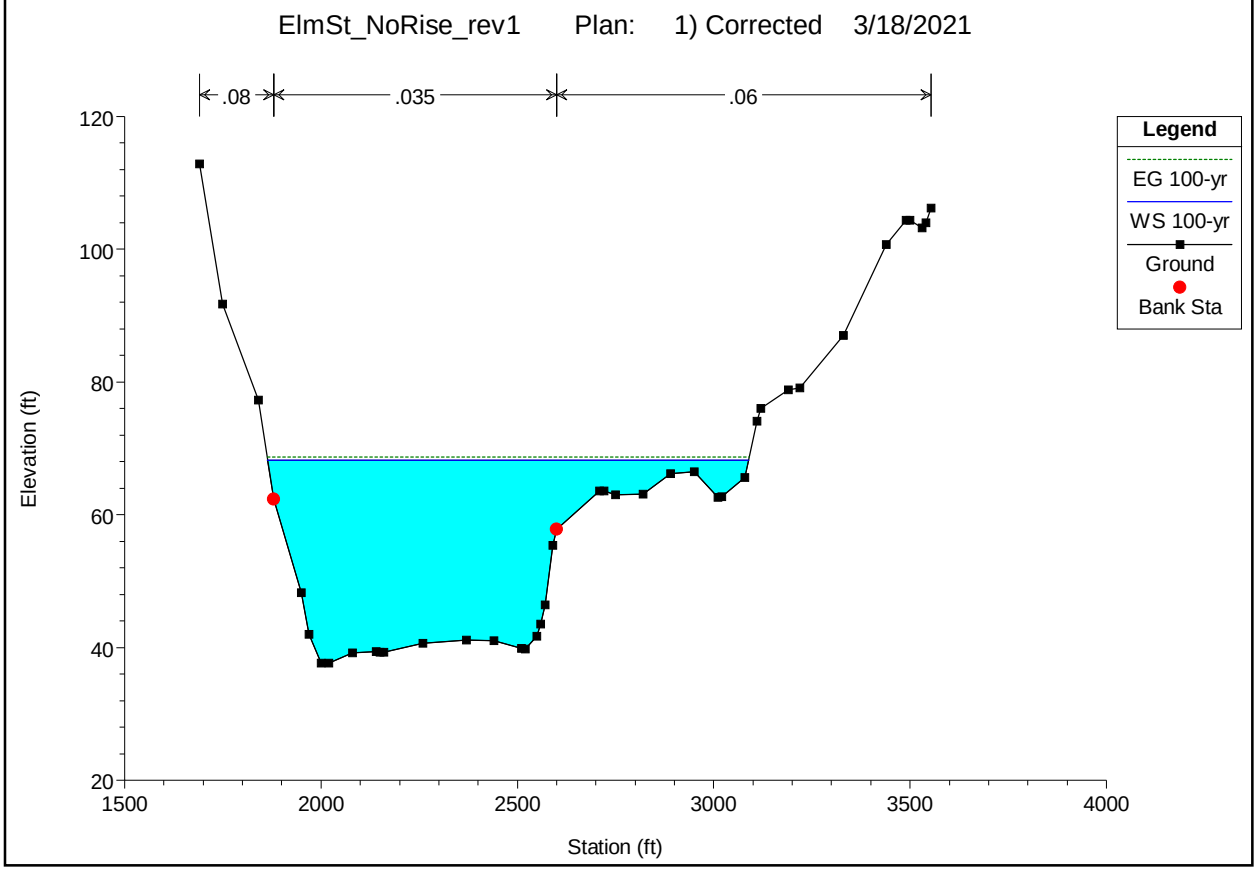


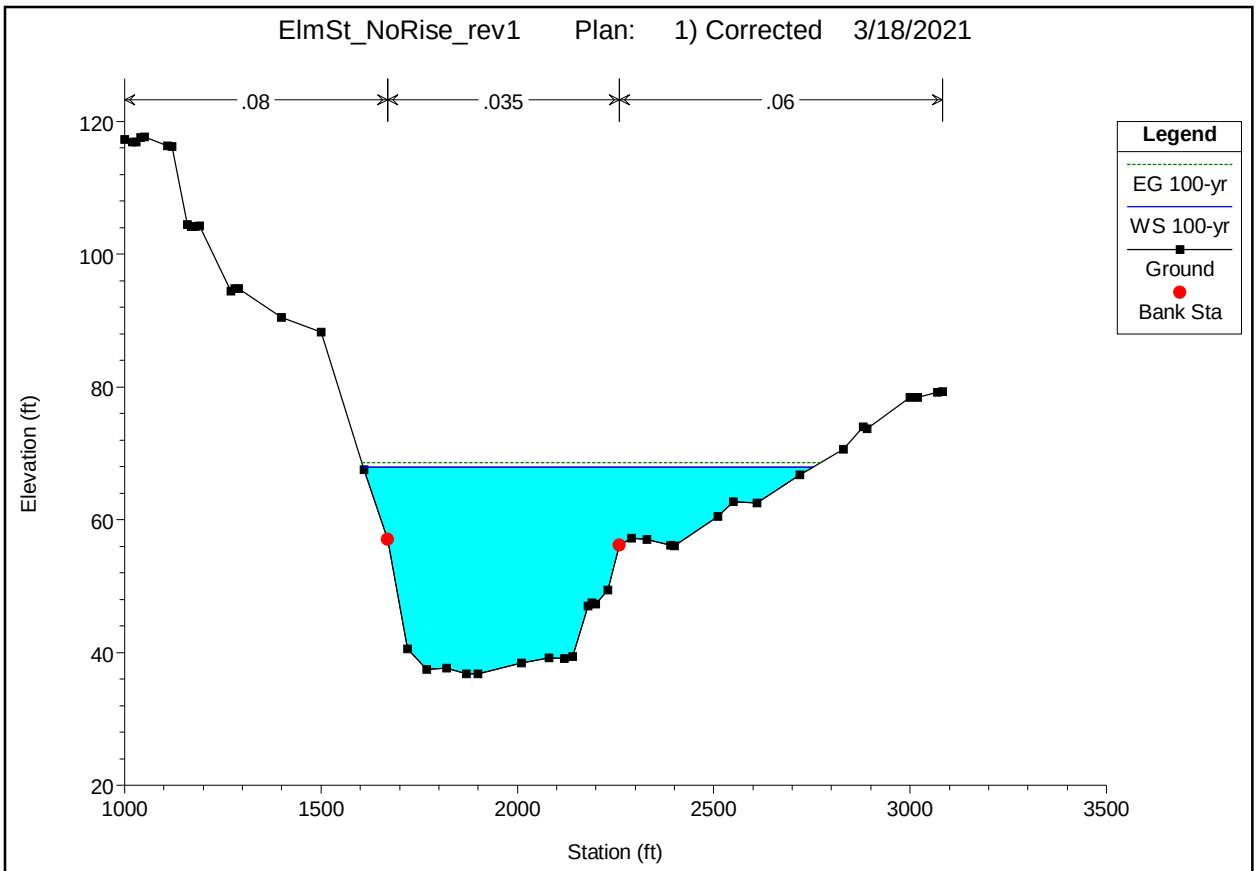


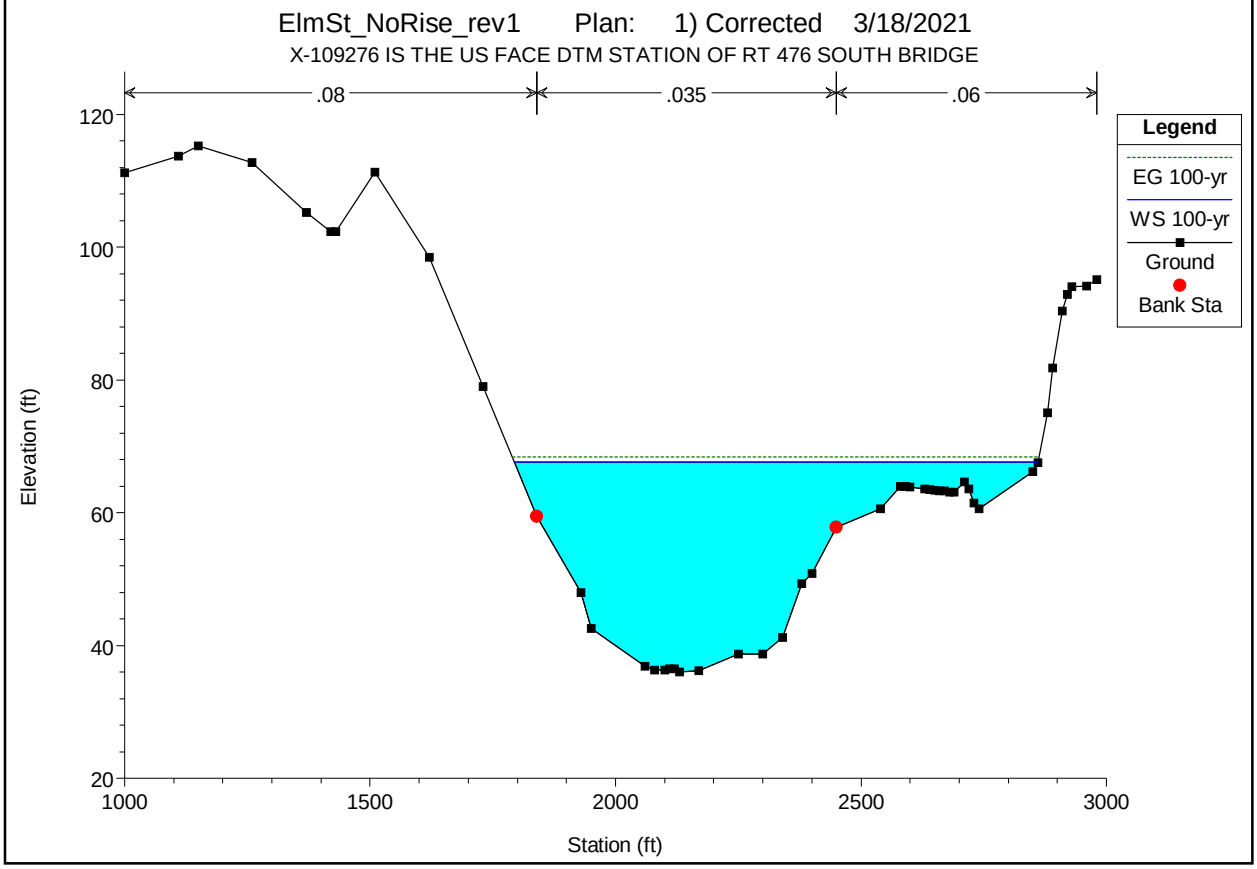


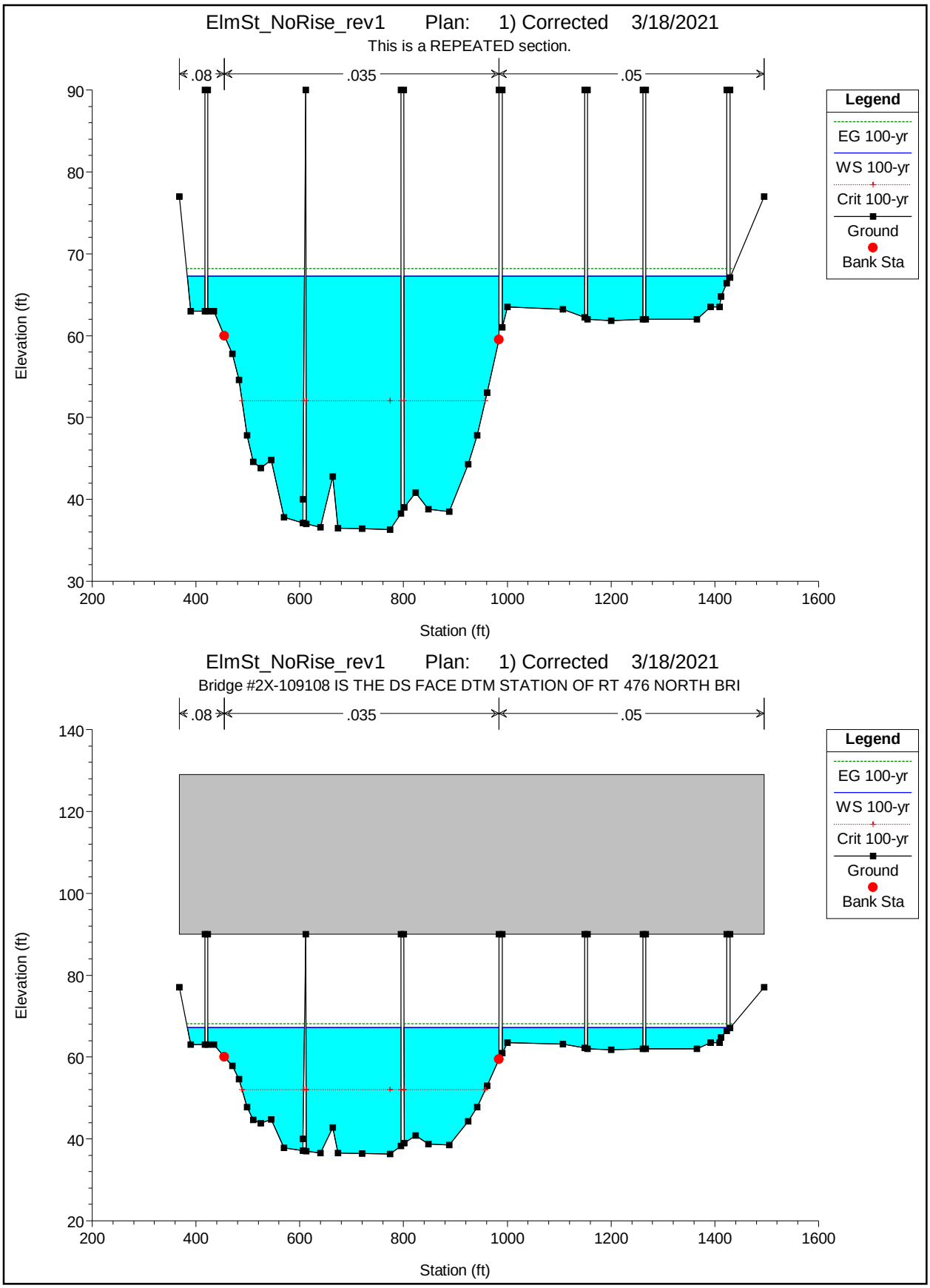


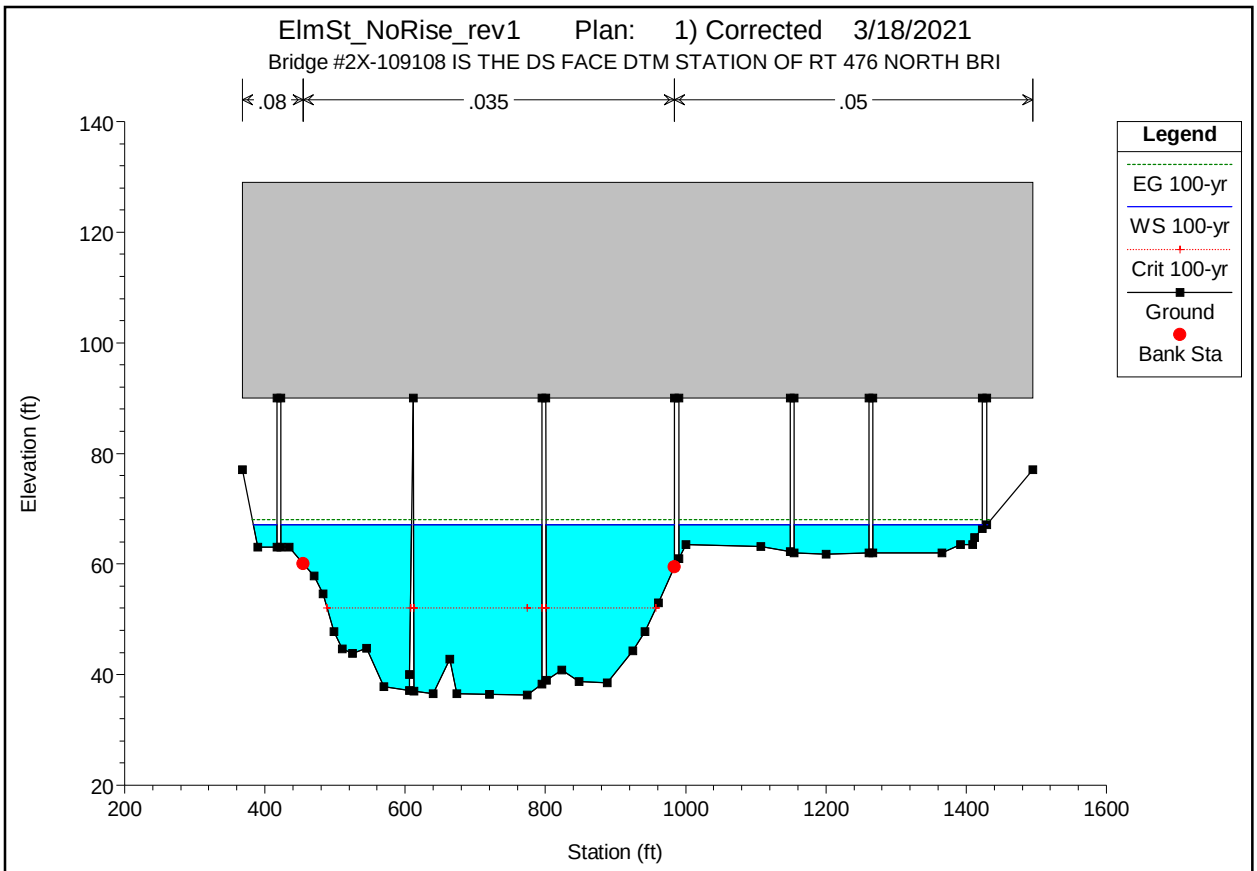


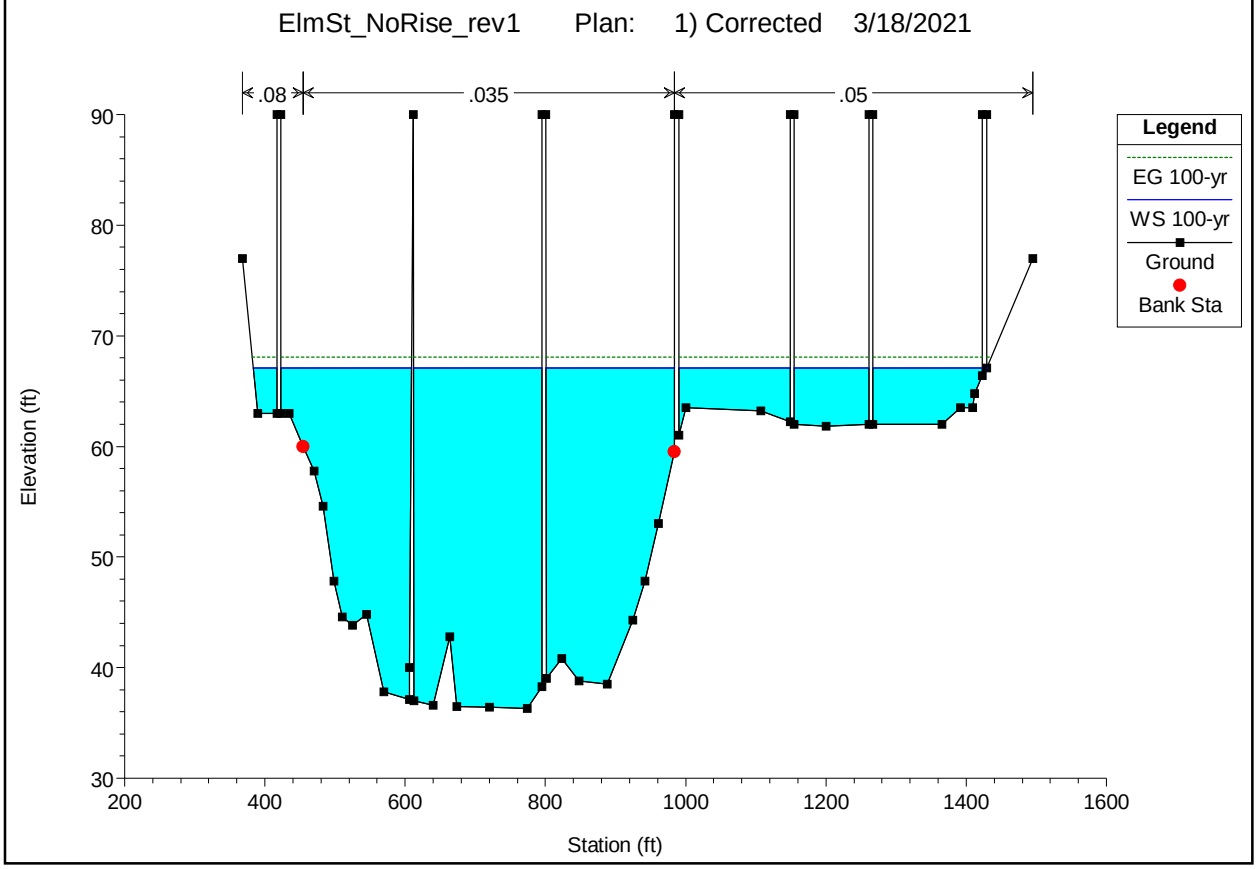


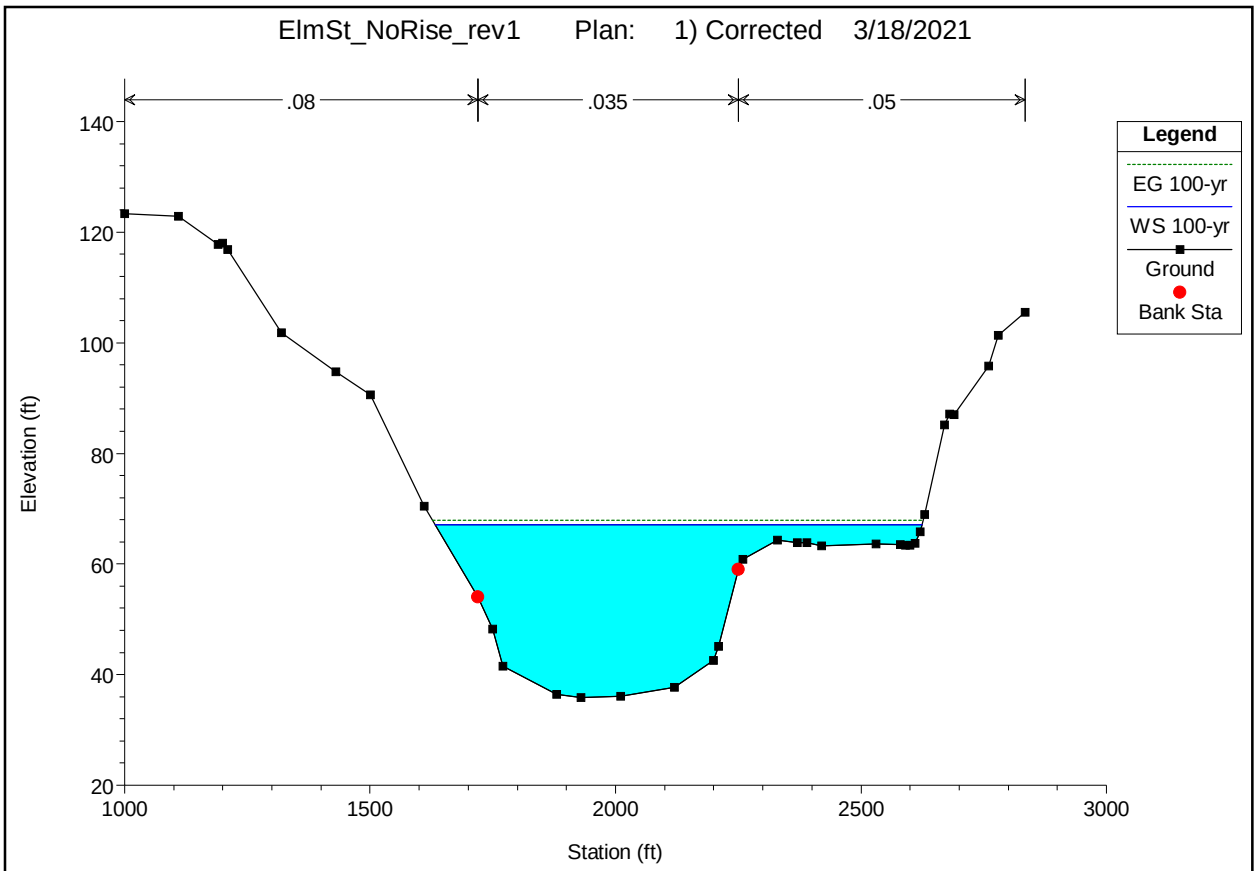


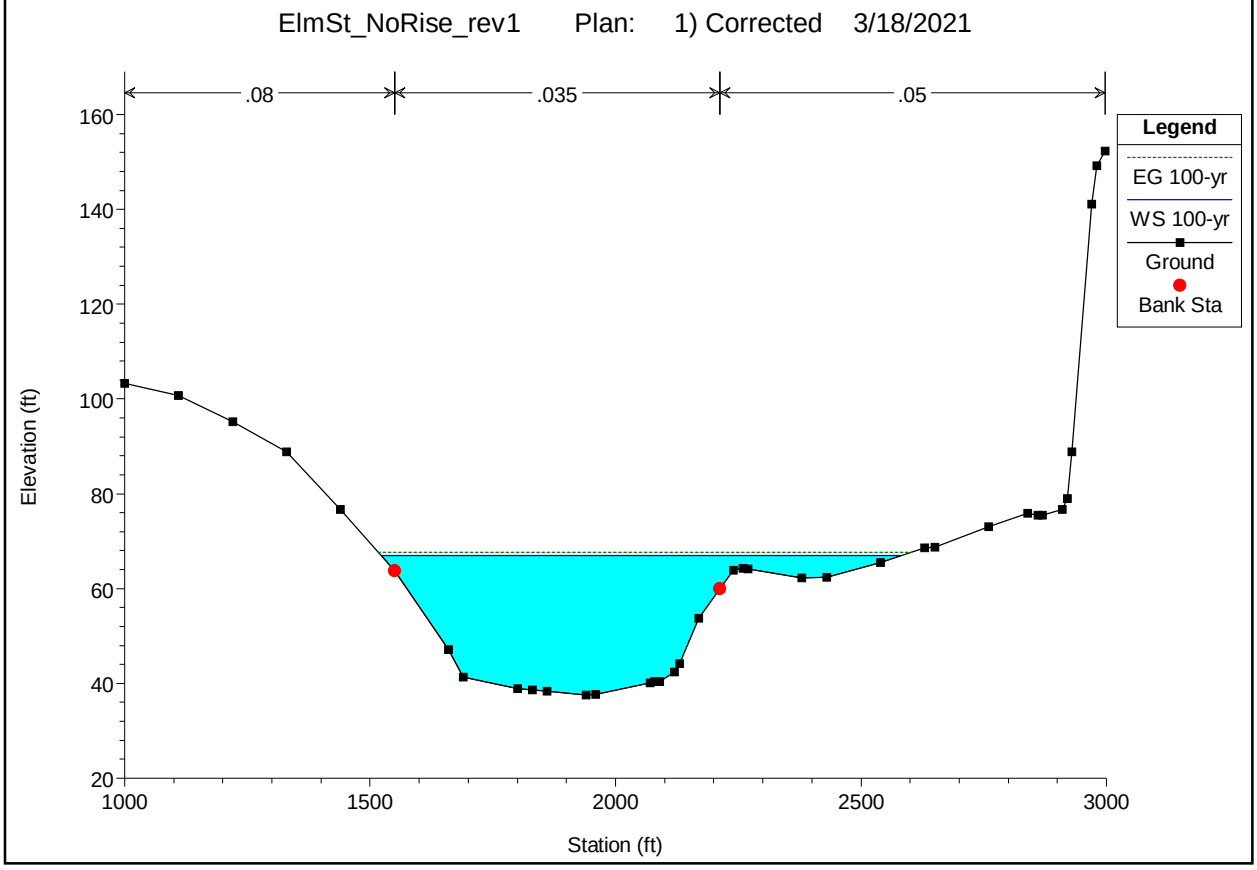


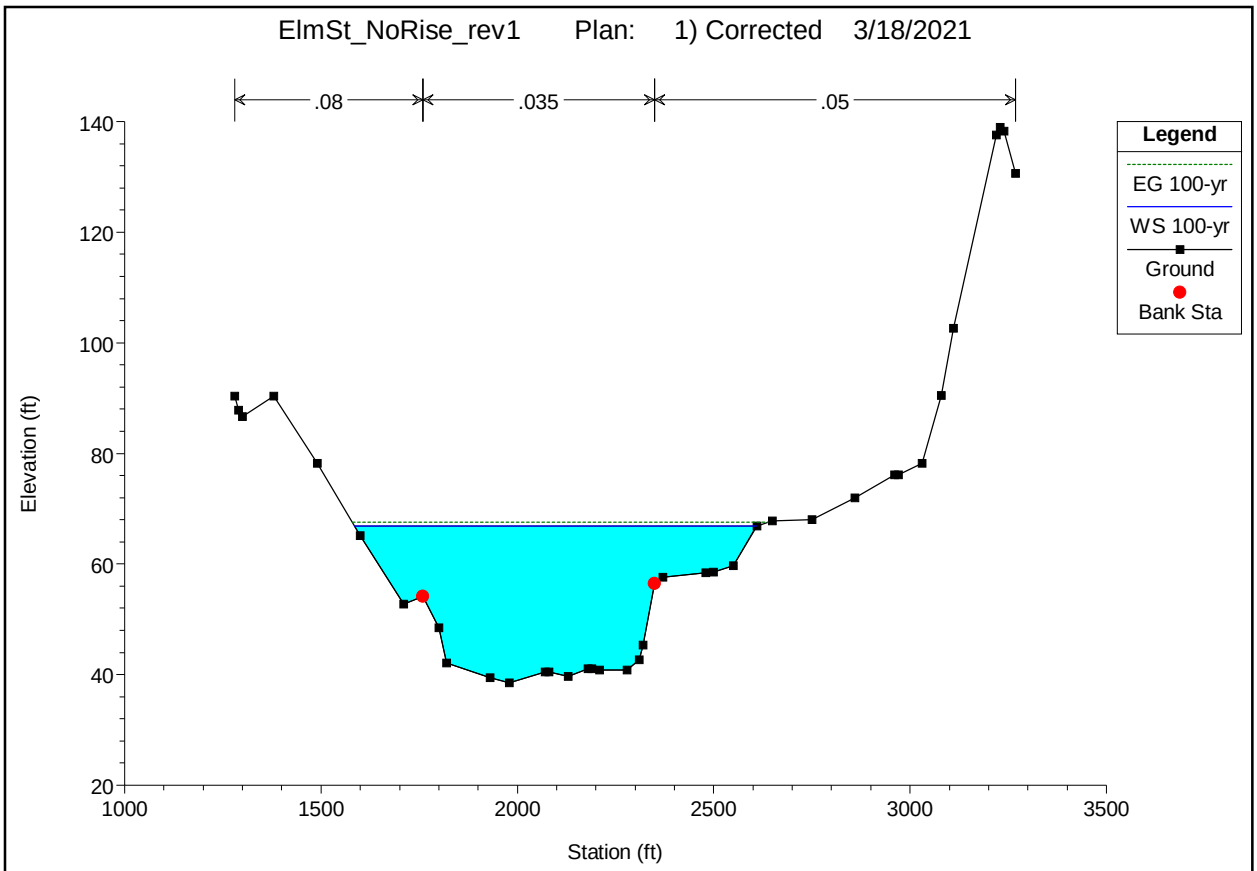


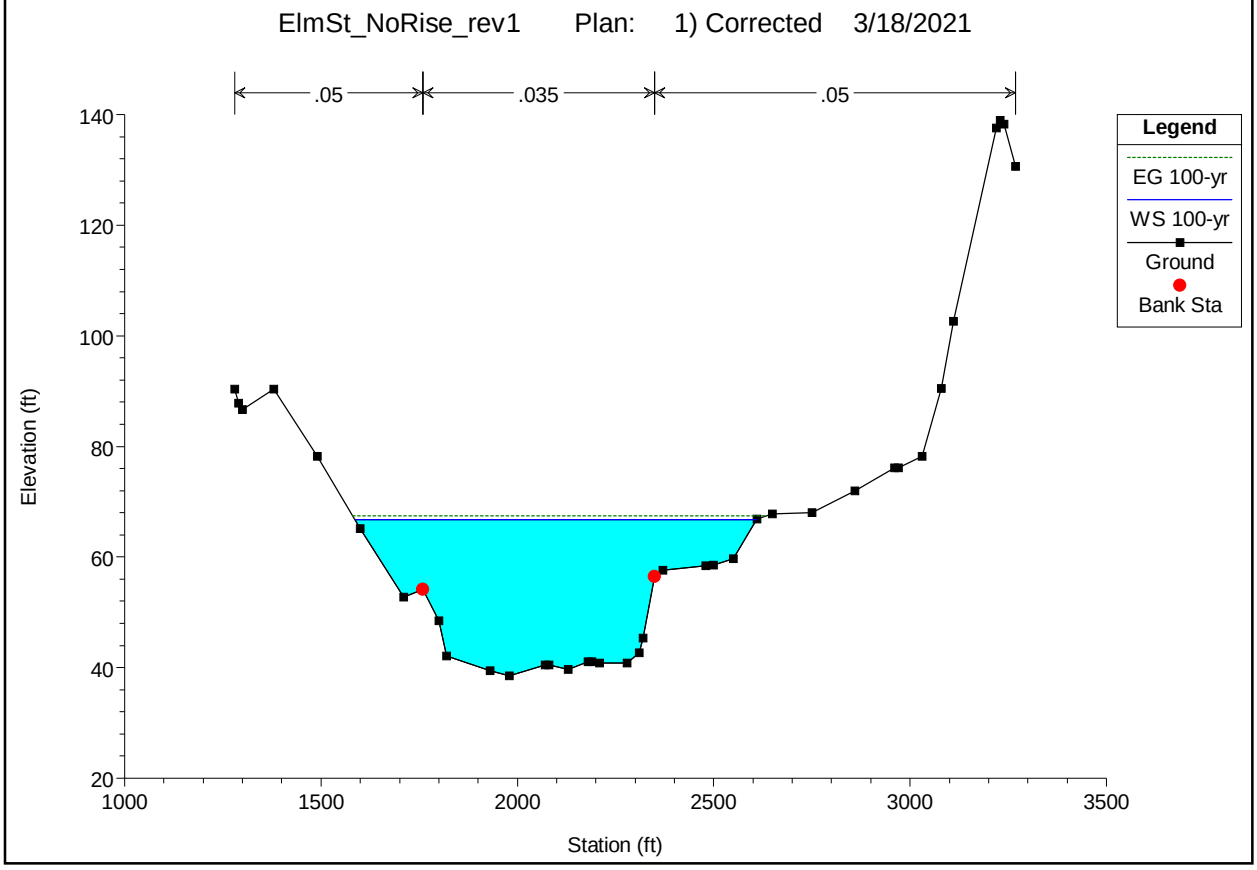


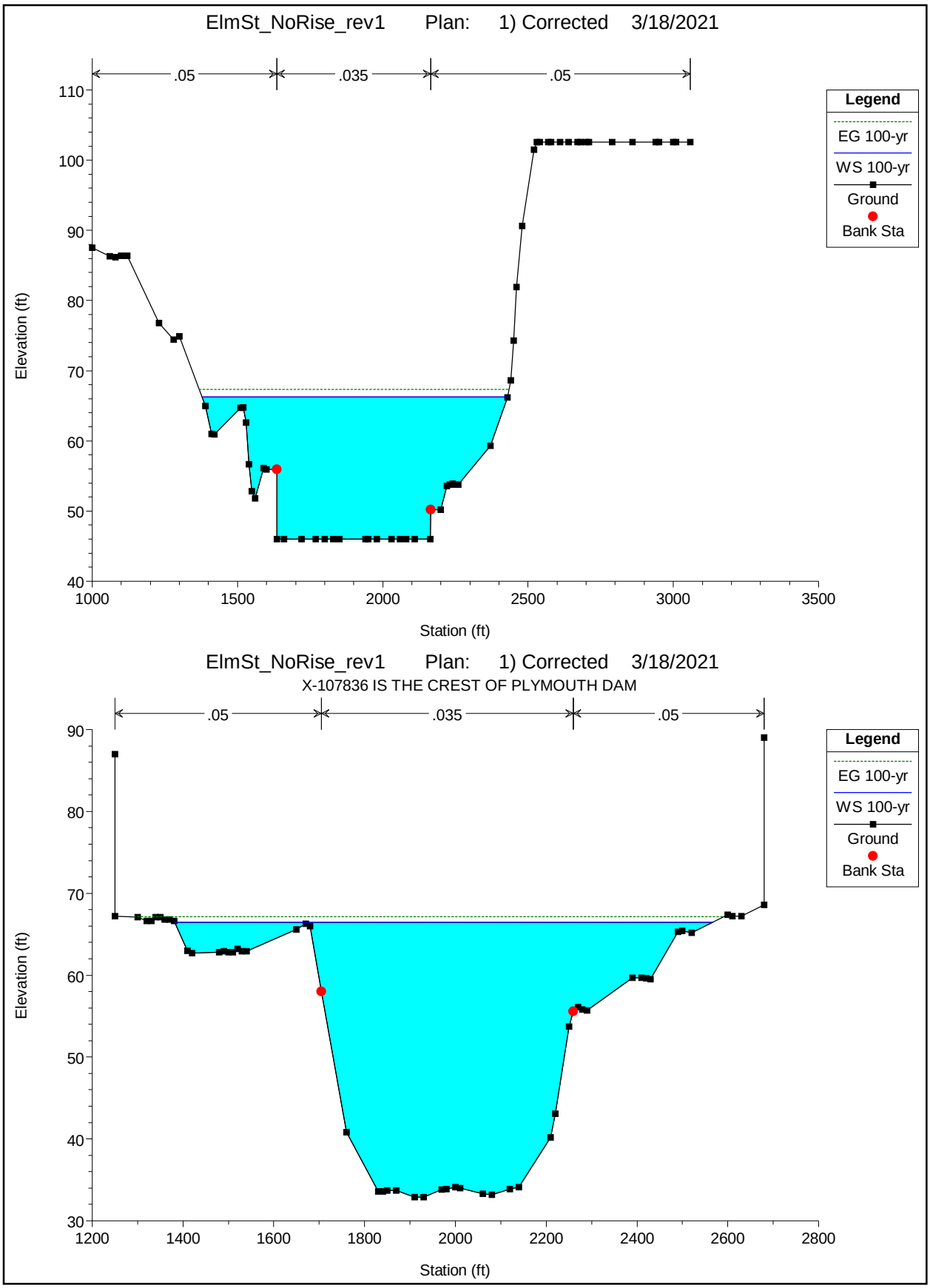


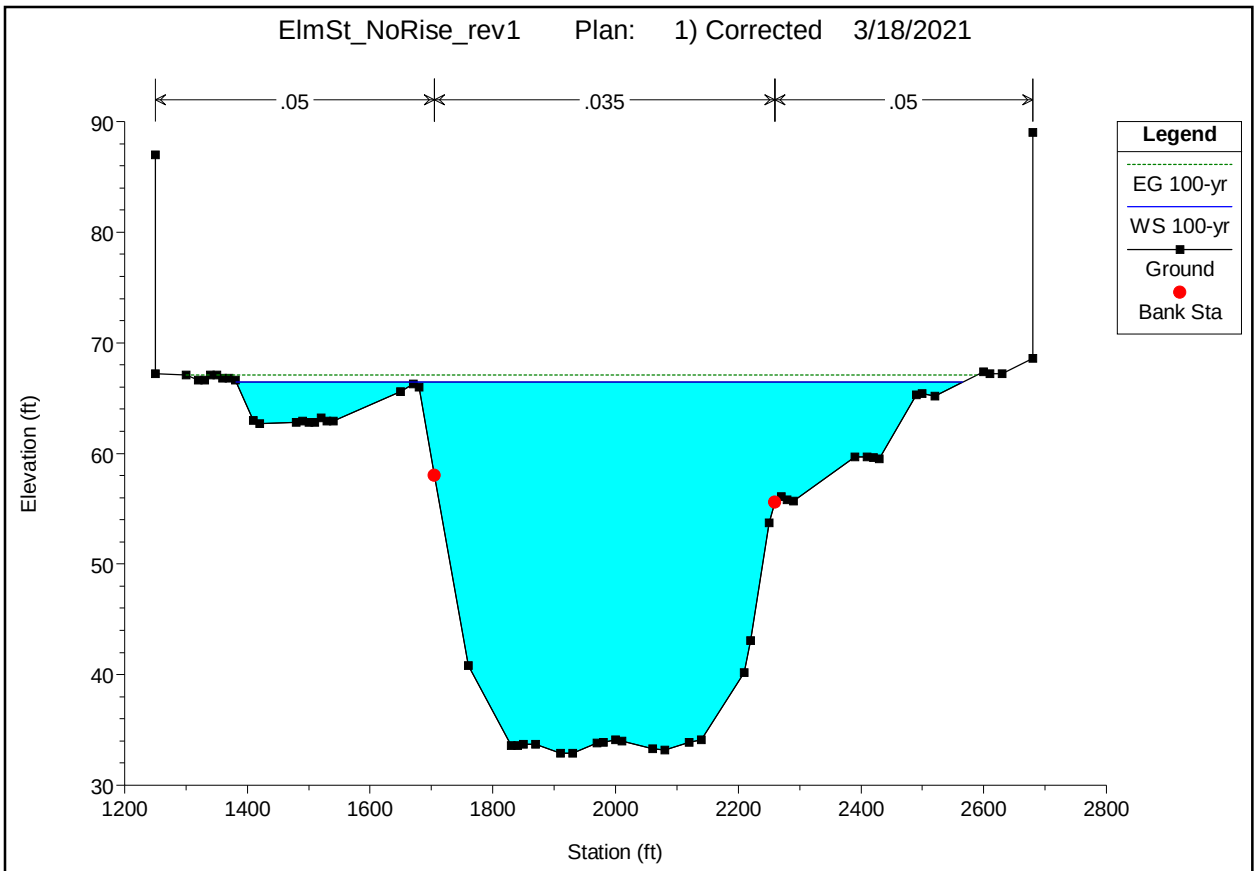


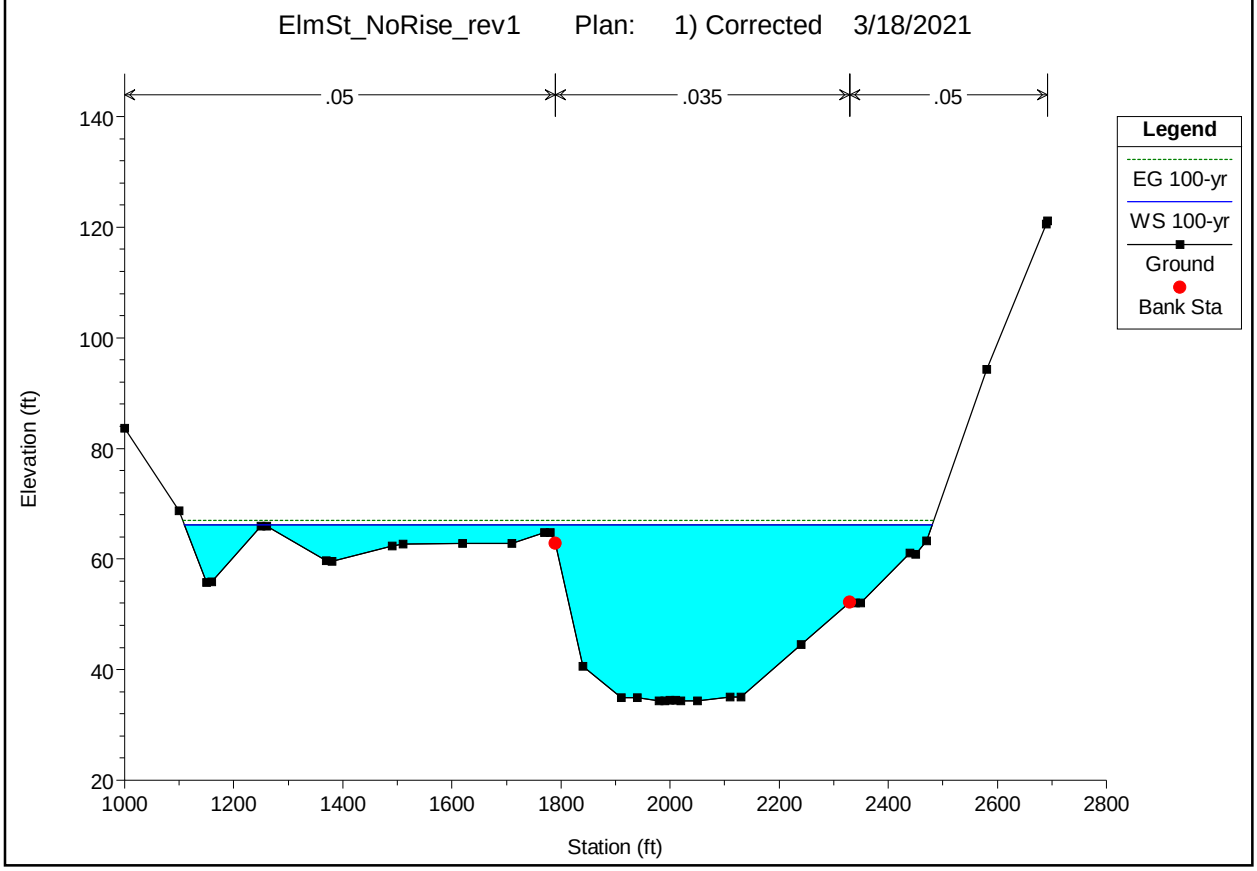


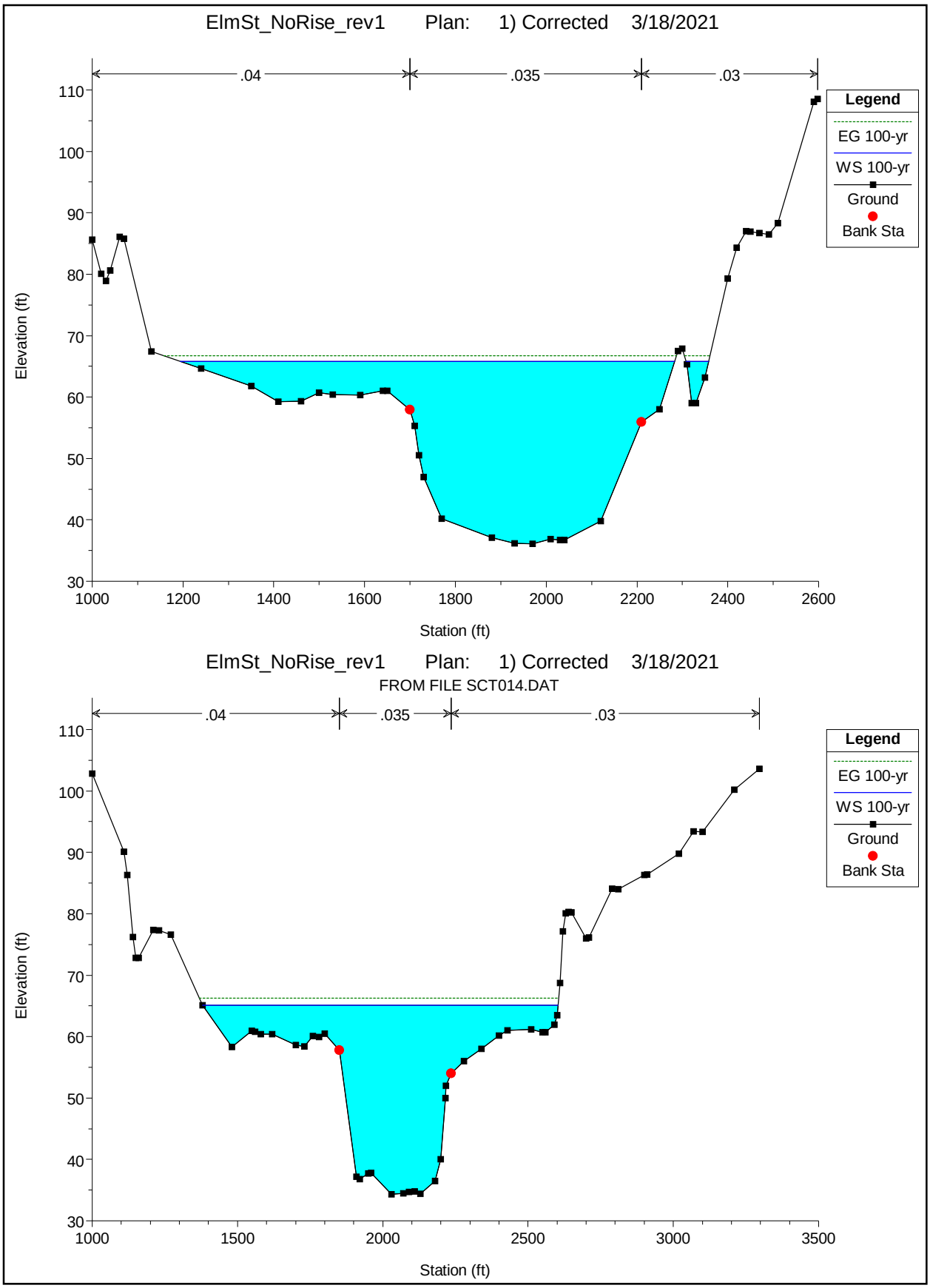


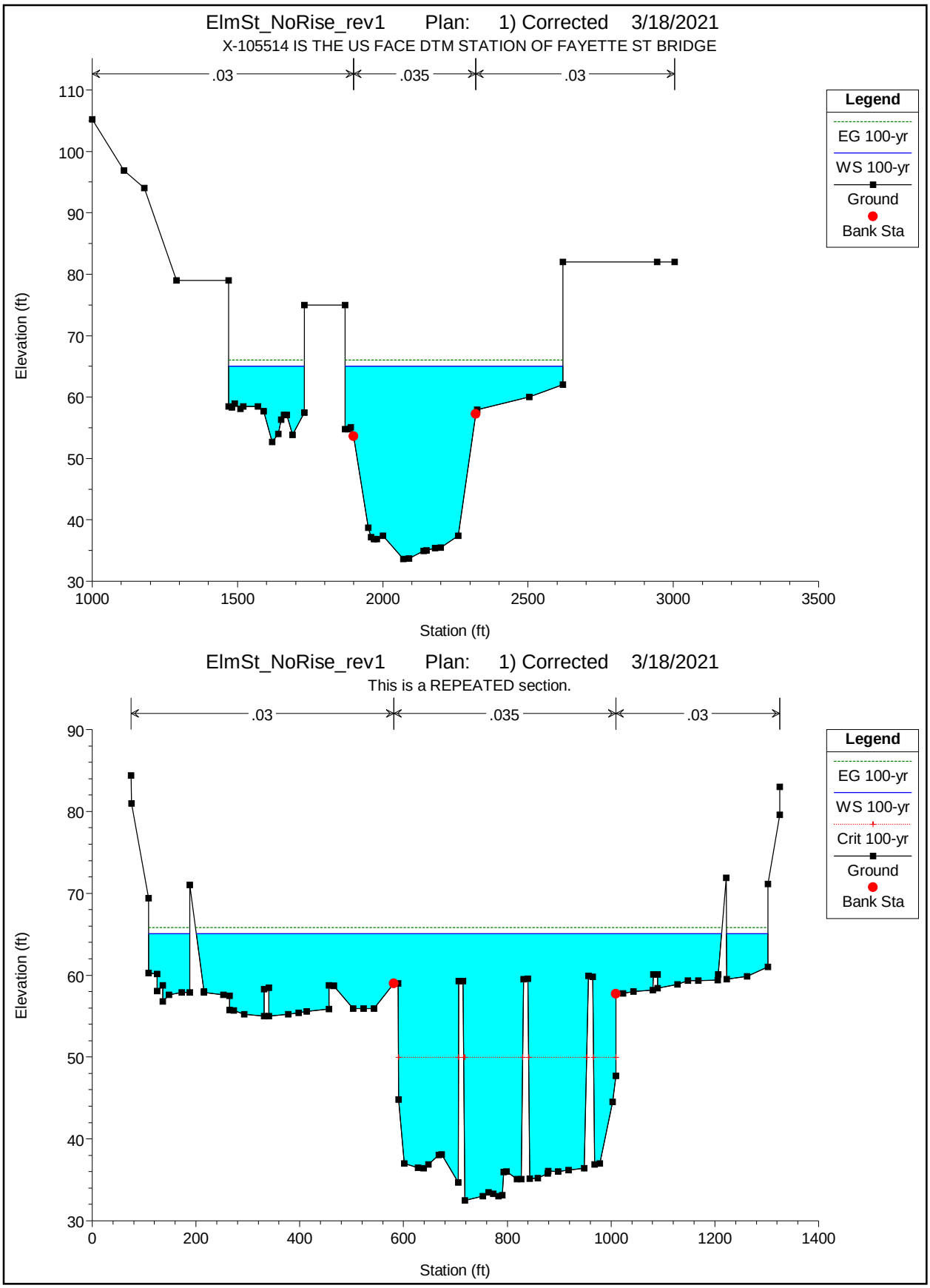


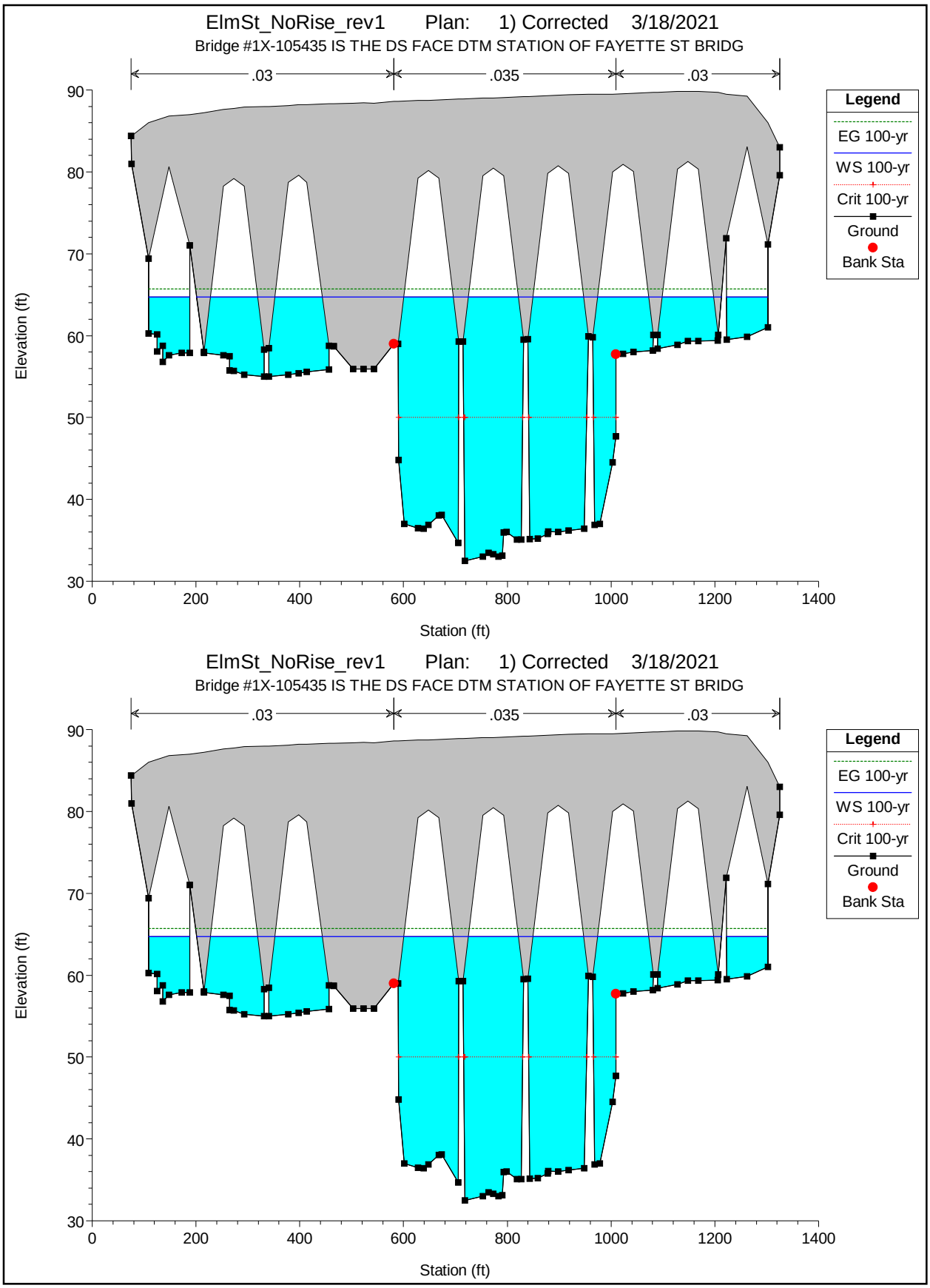




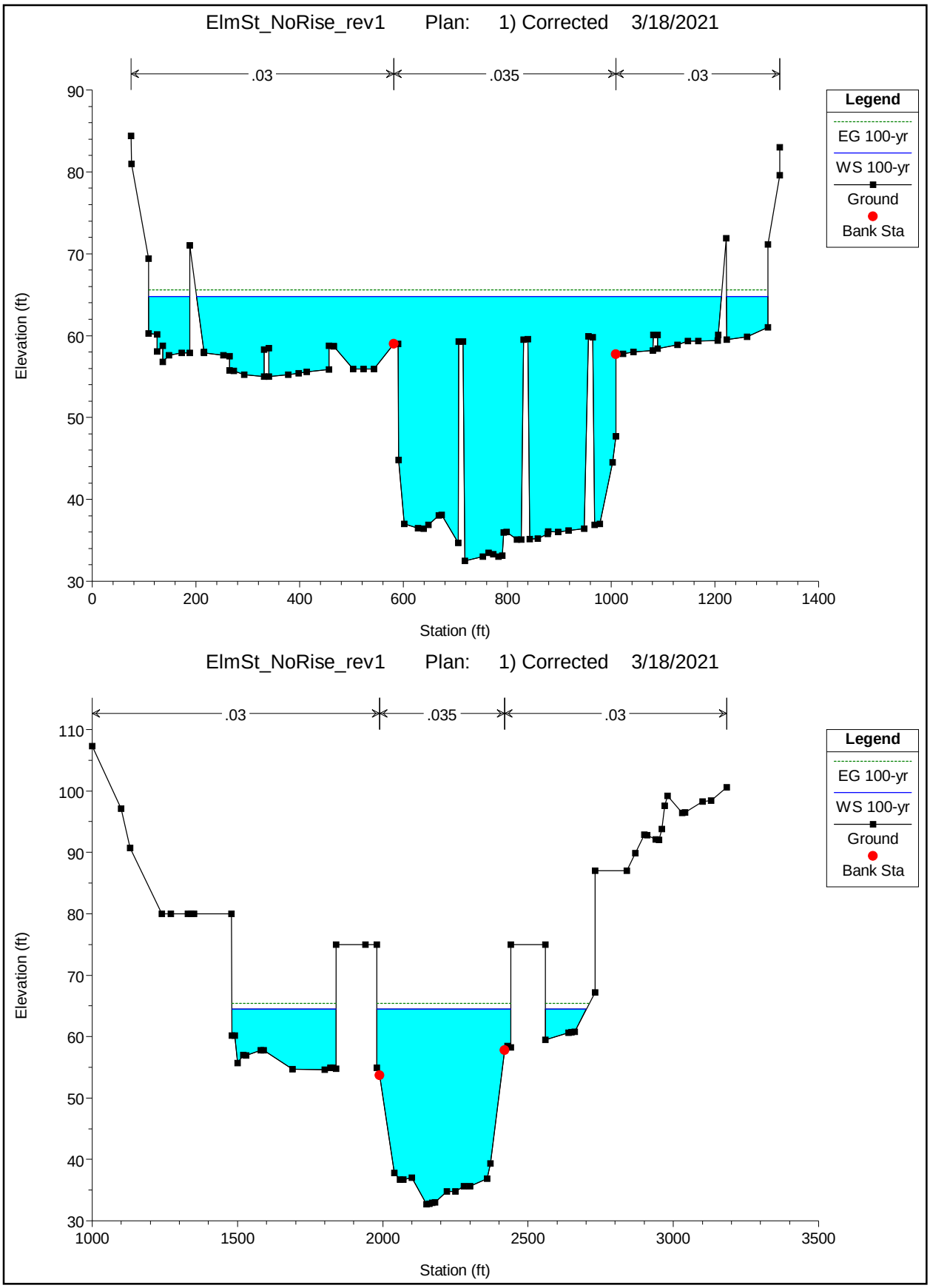


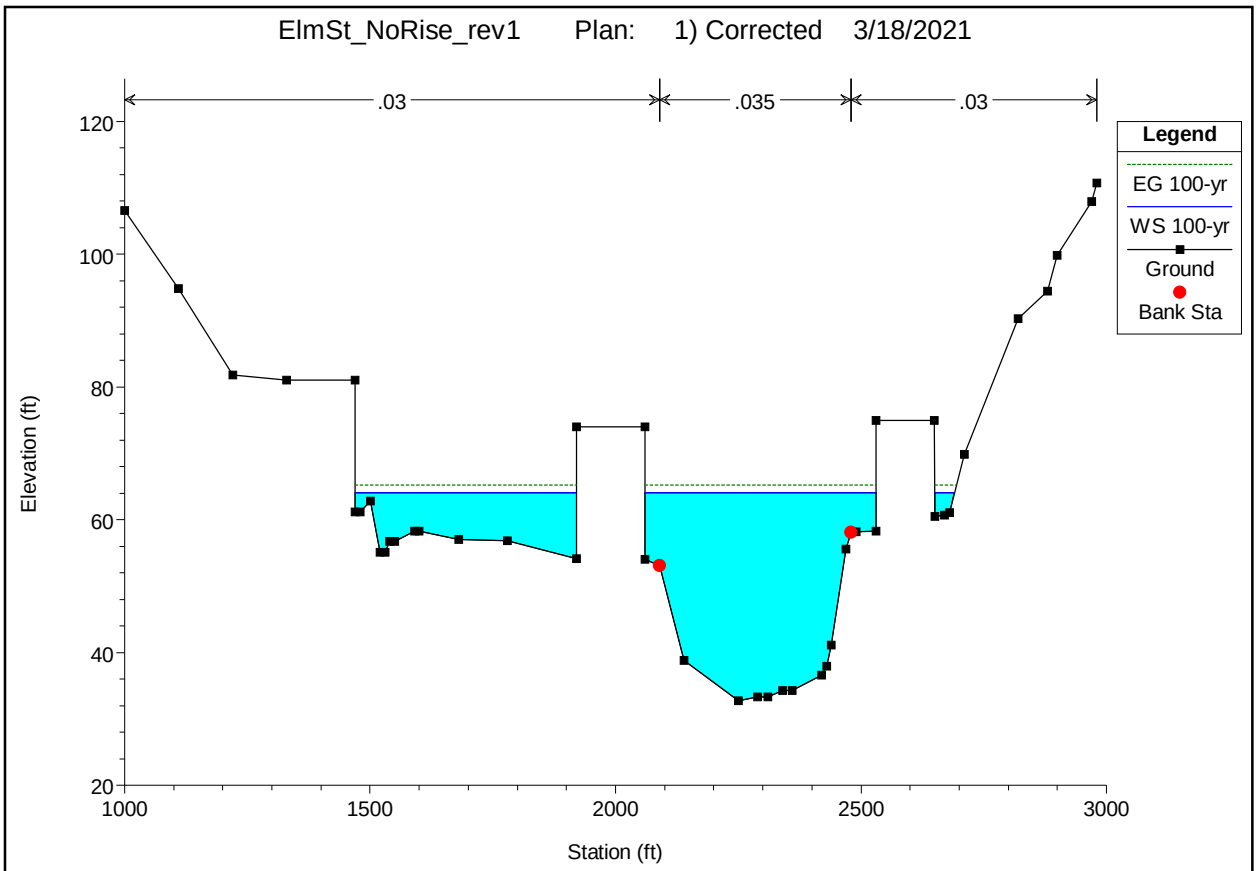


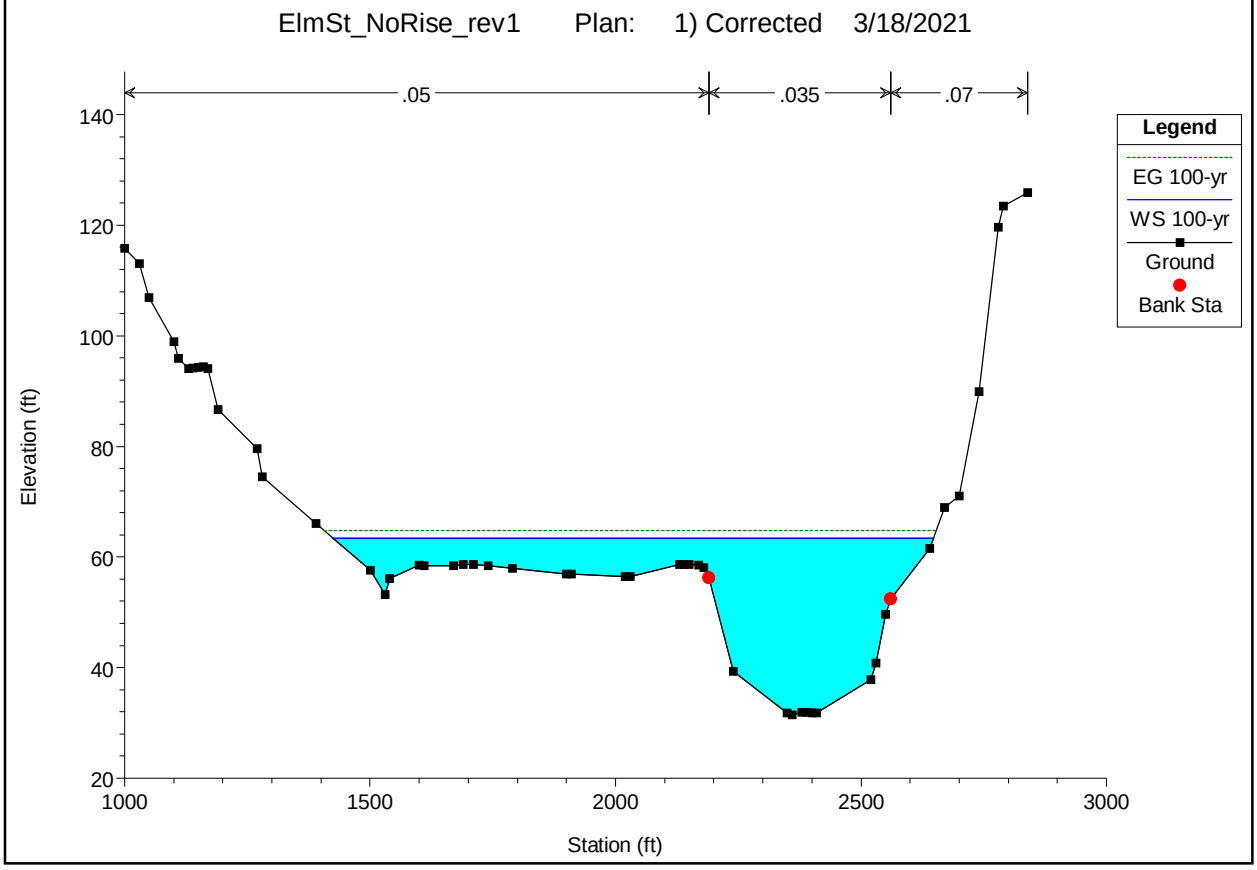


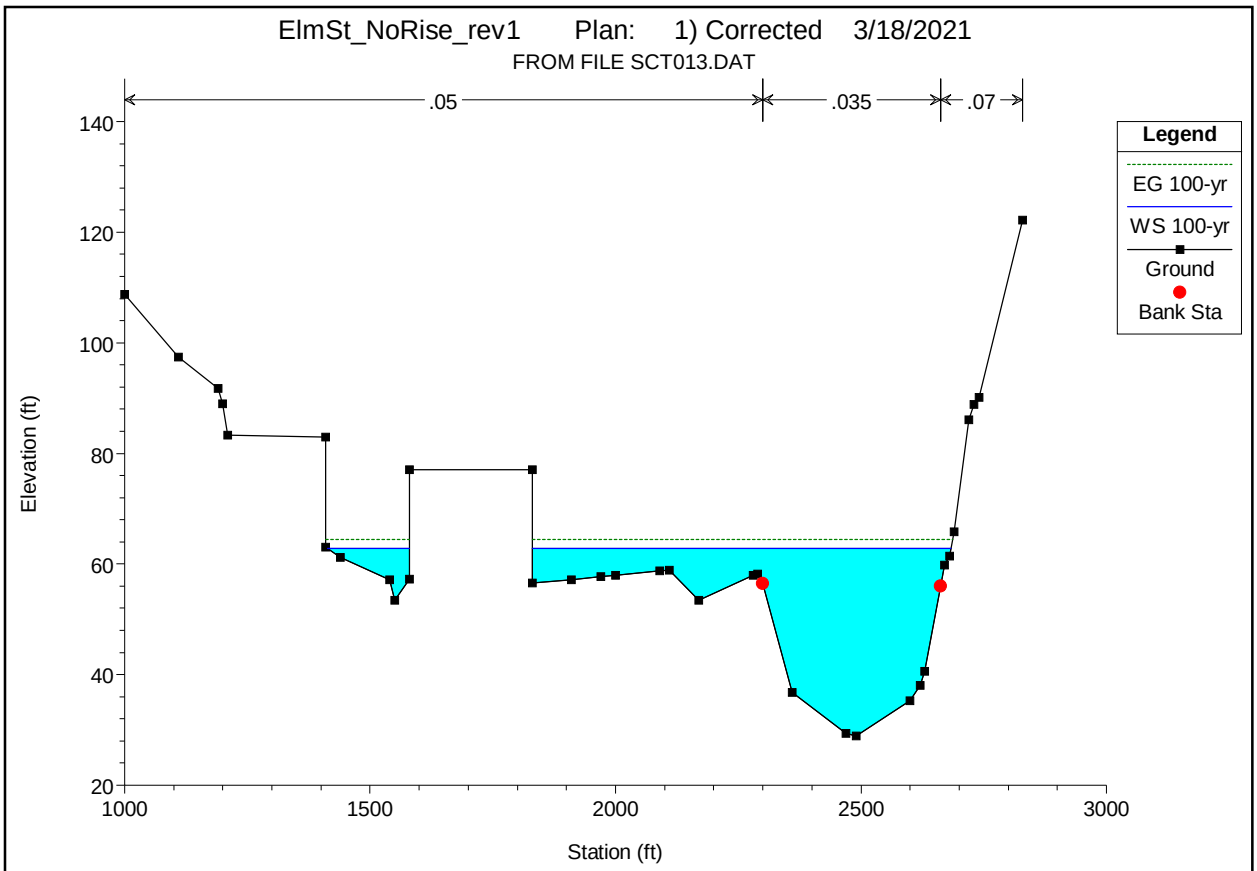


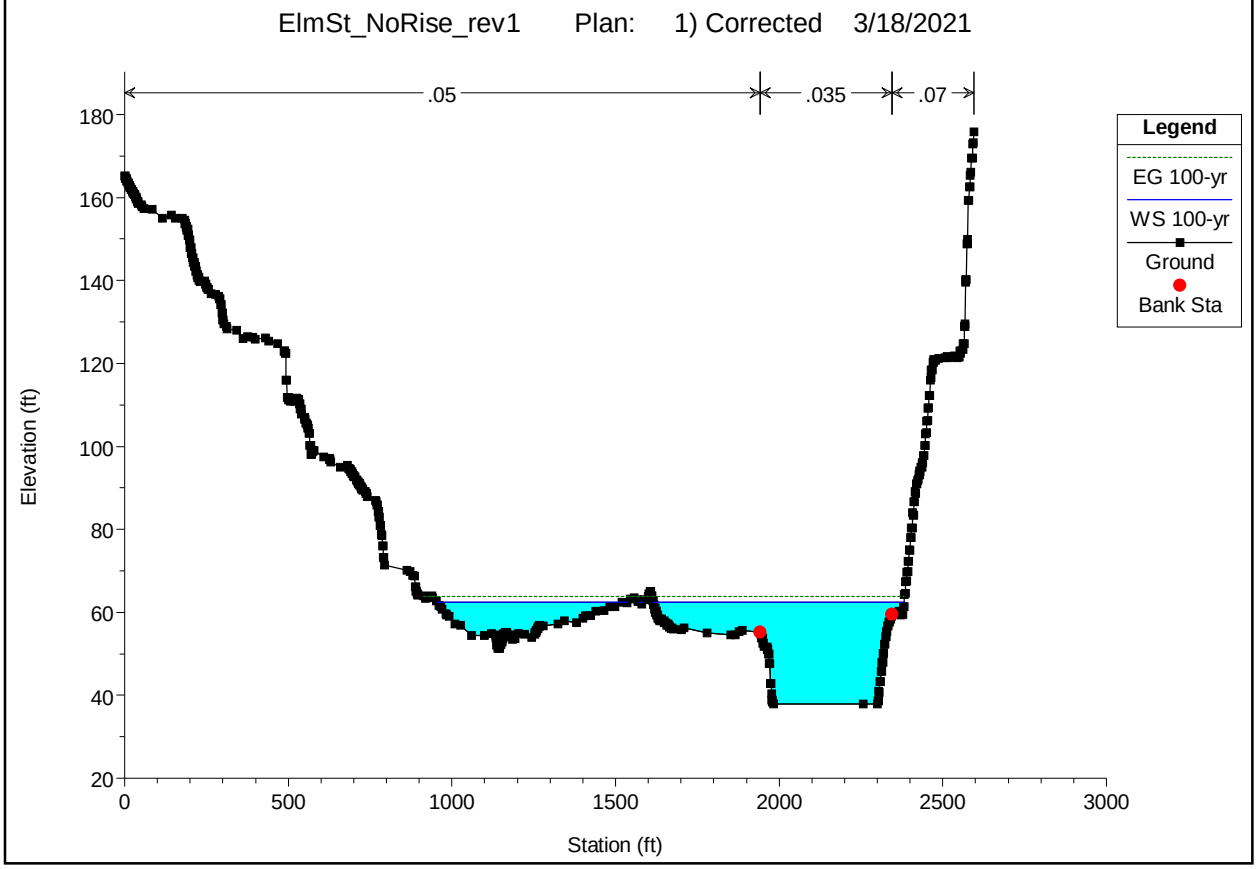
ElmSt_NoRise_rev1 Plan: 1) Corrected 3/18/2021
Bridge #1X-105435 IS THE DS FACE DTM STATION OF FAYETTE ST BRIDG

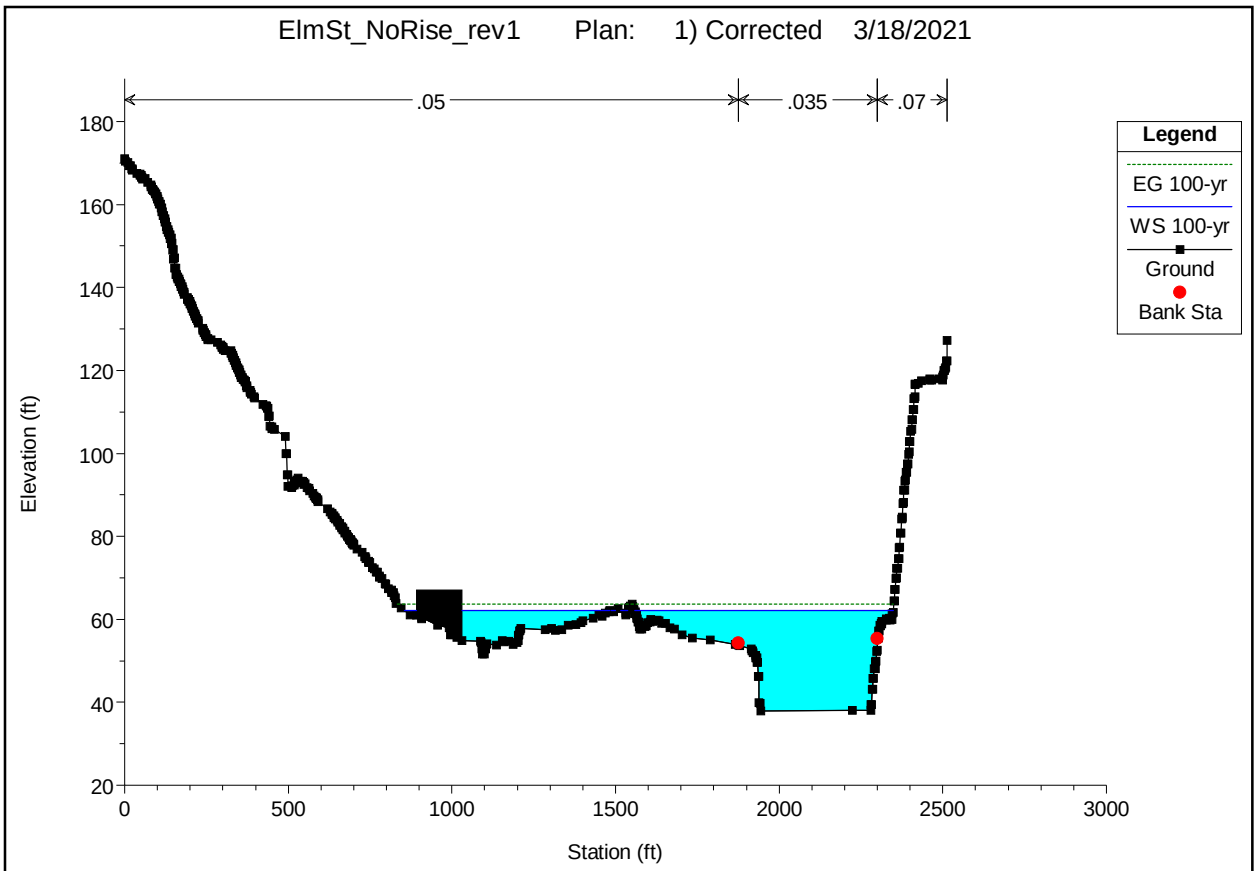


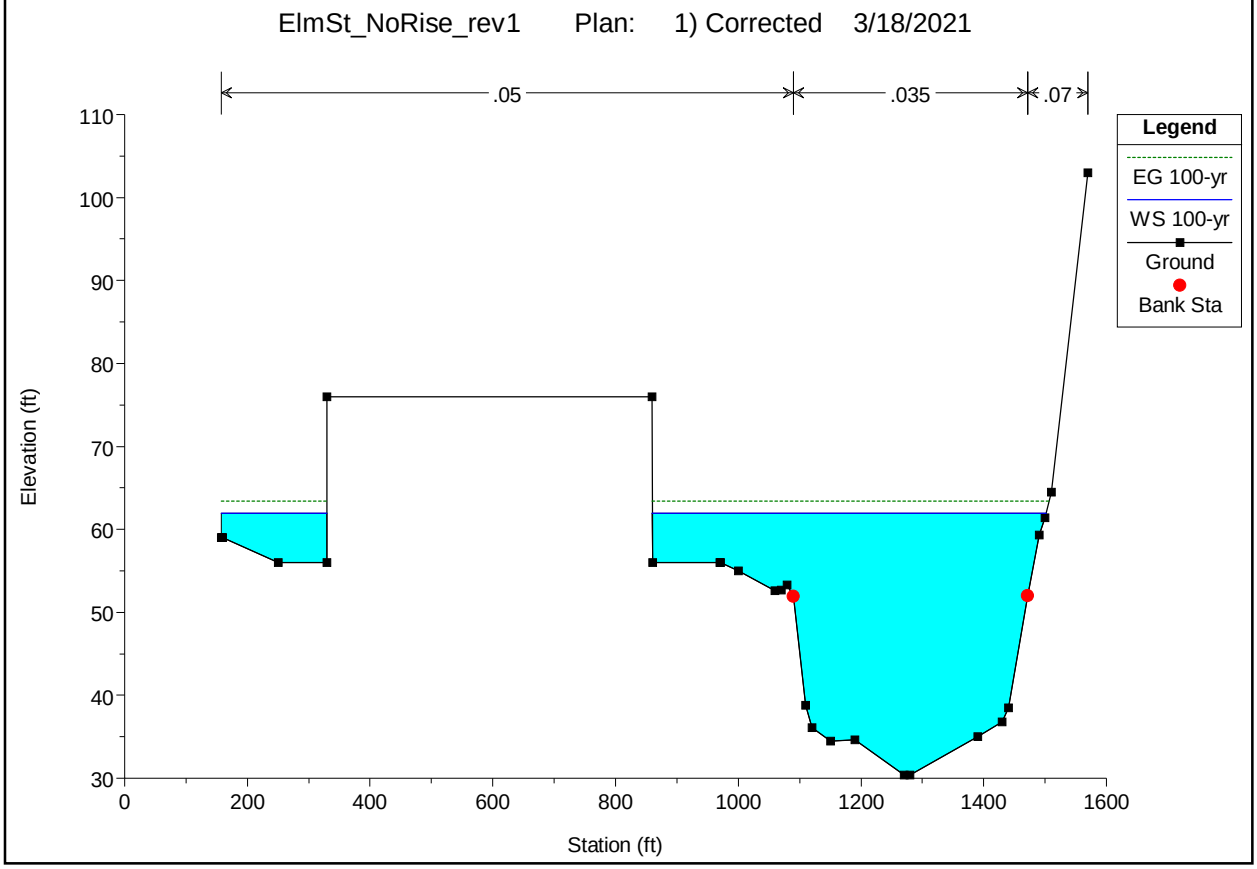


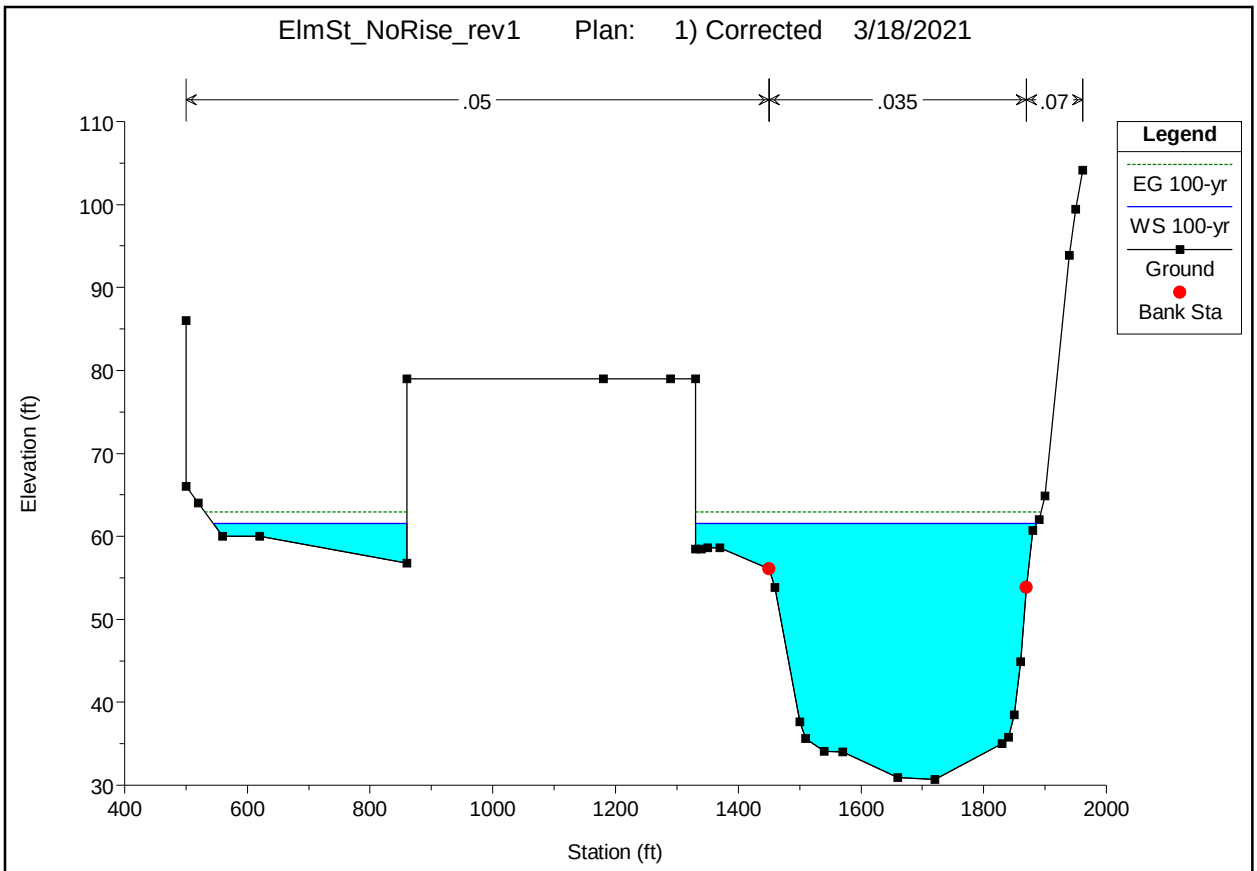


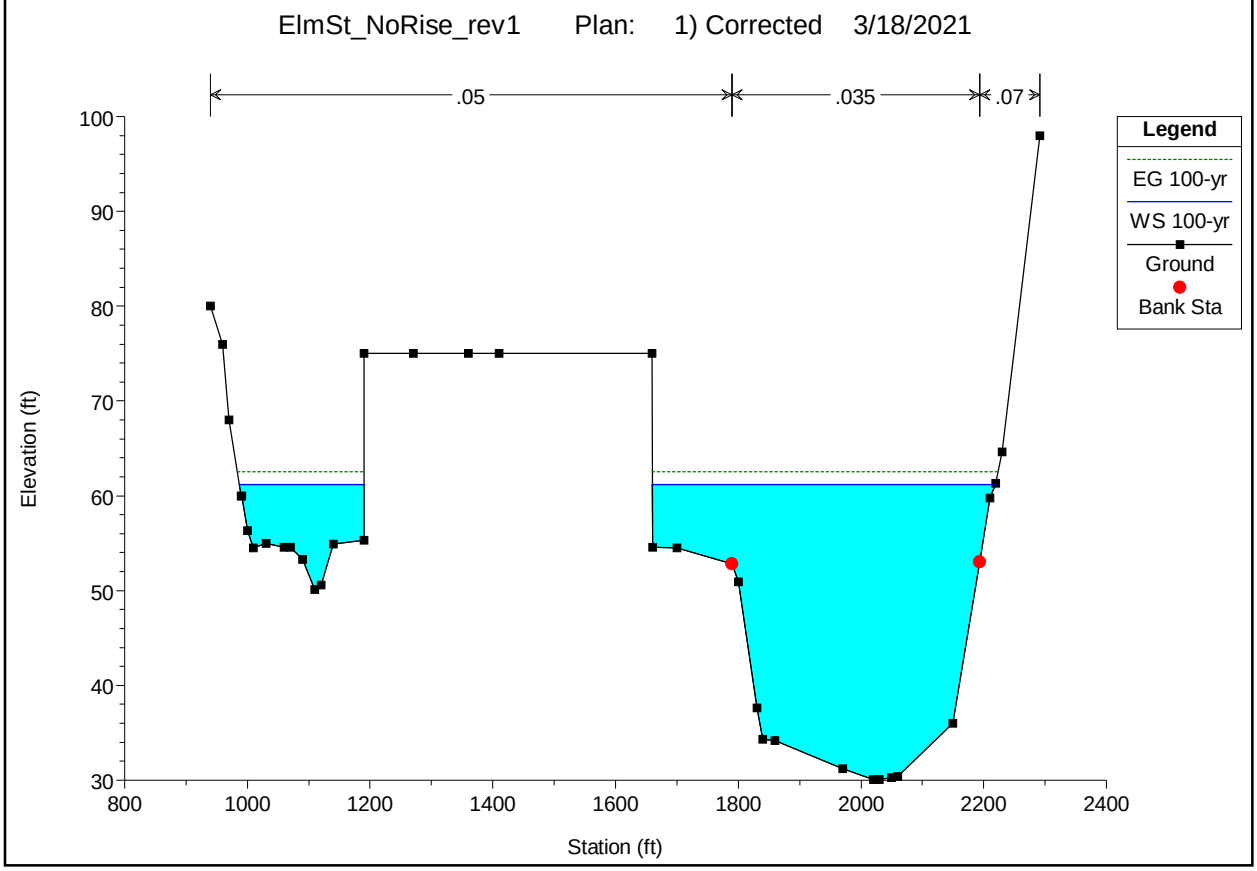


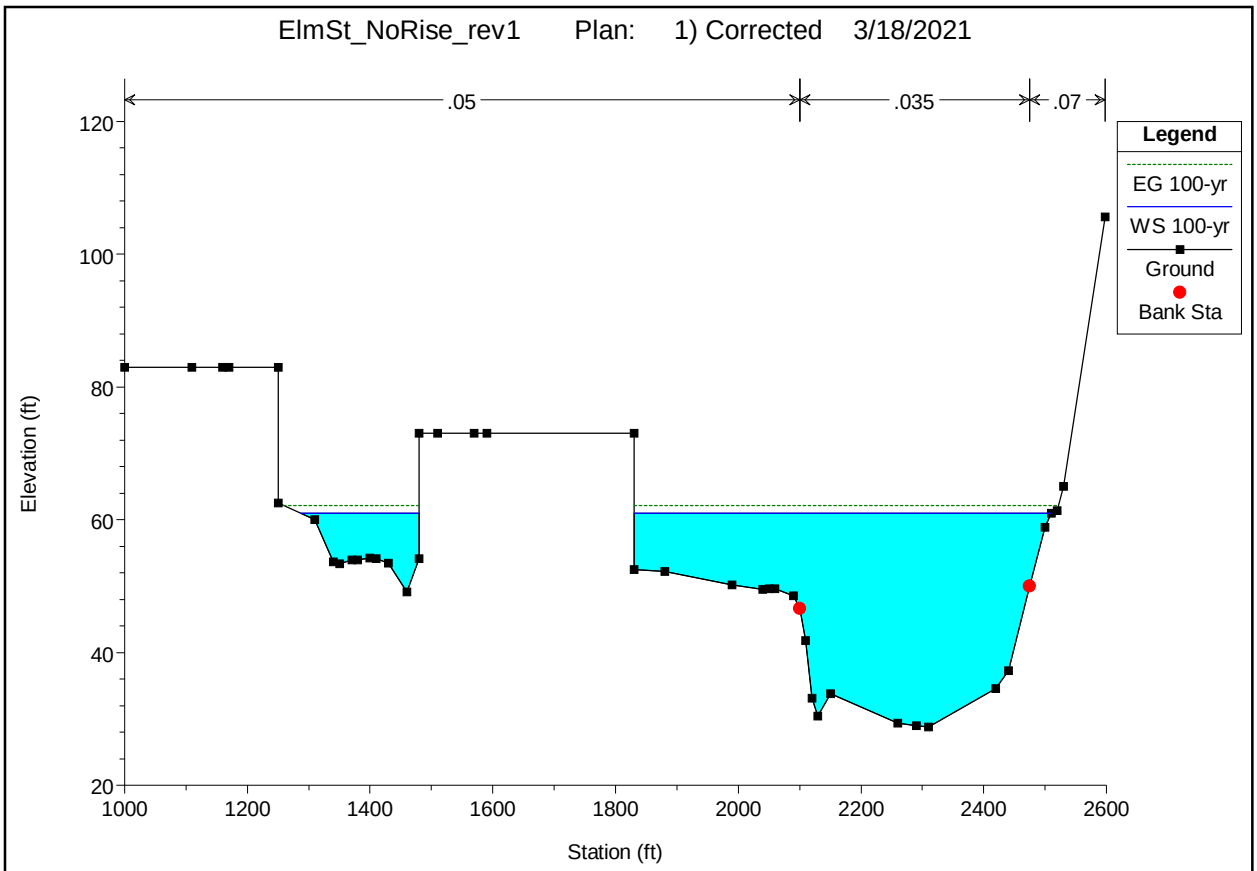


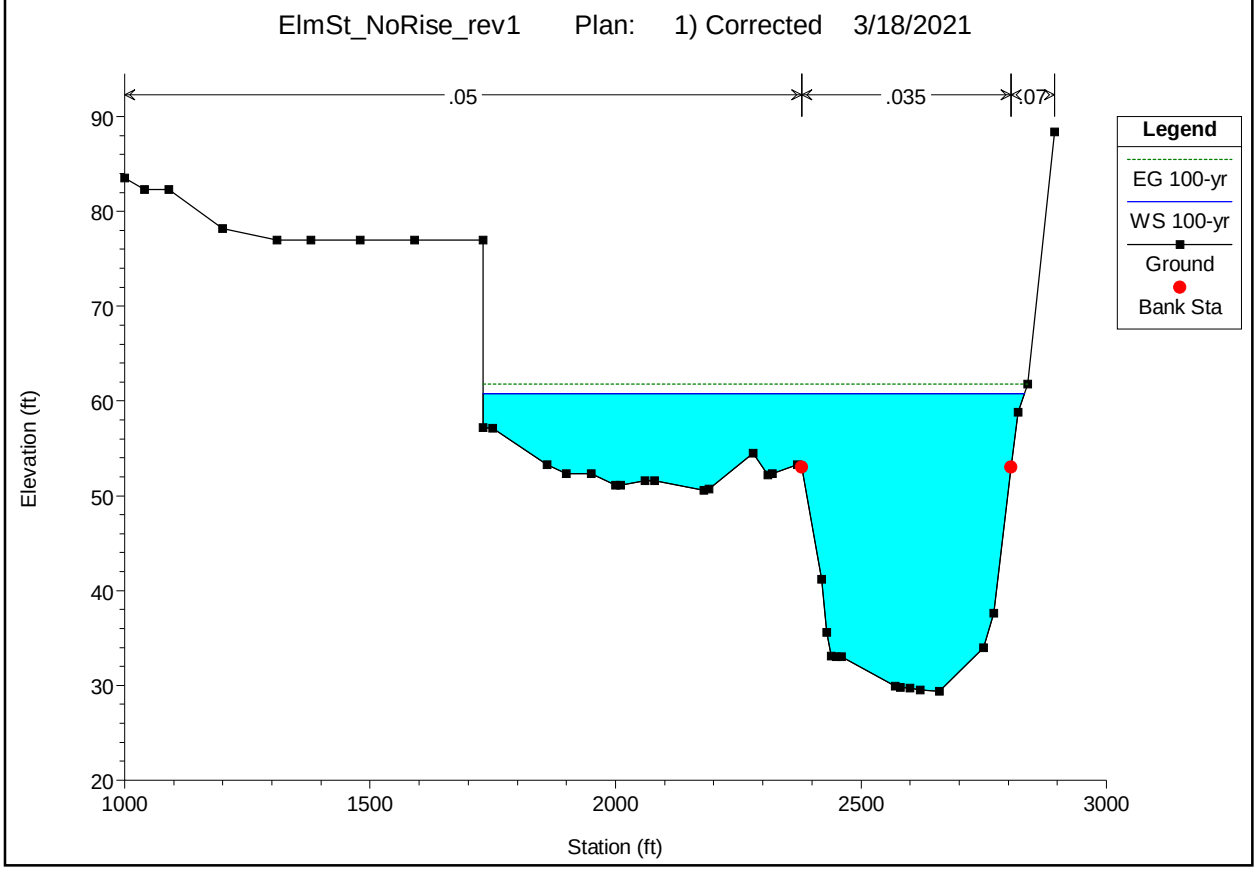


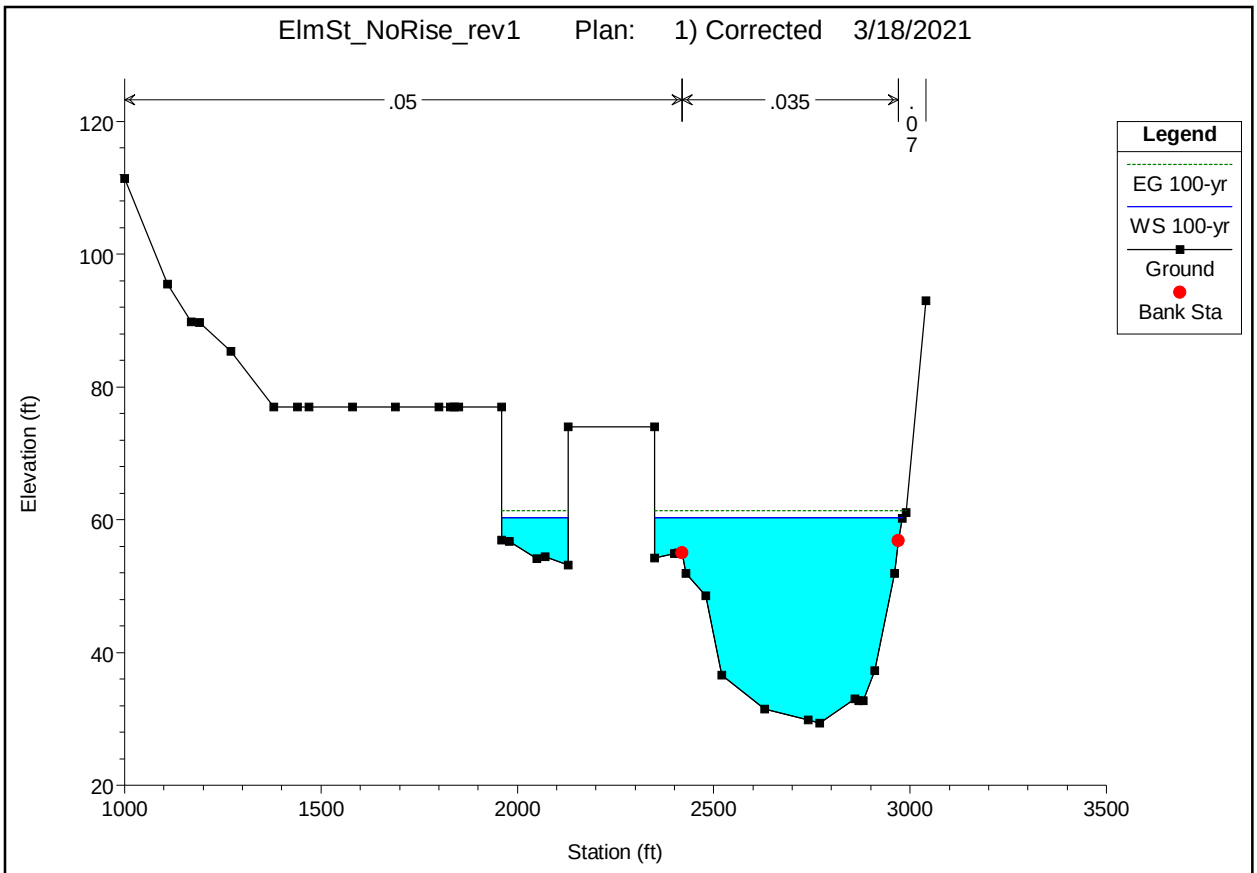


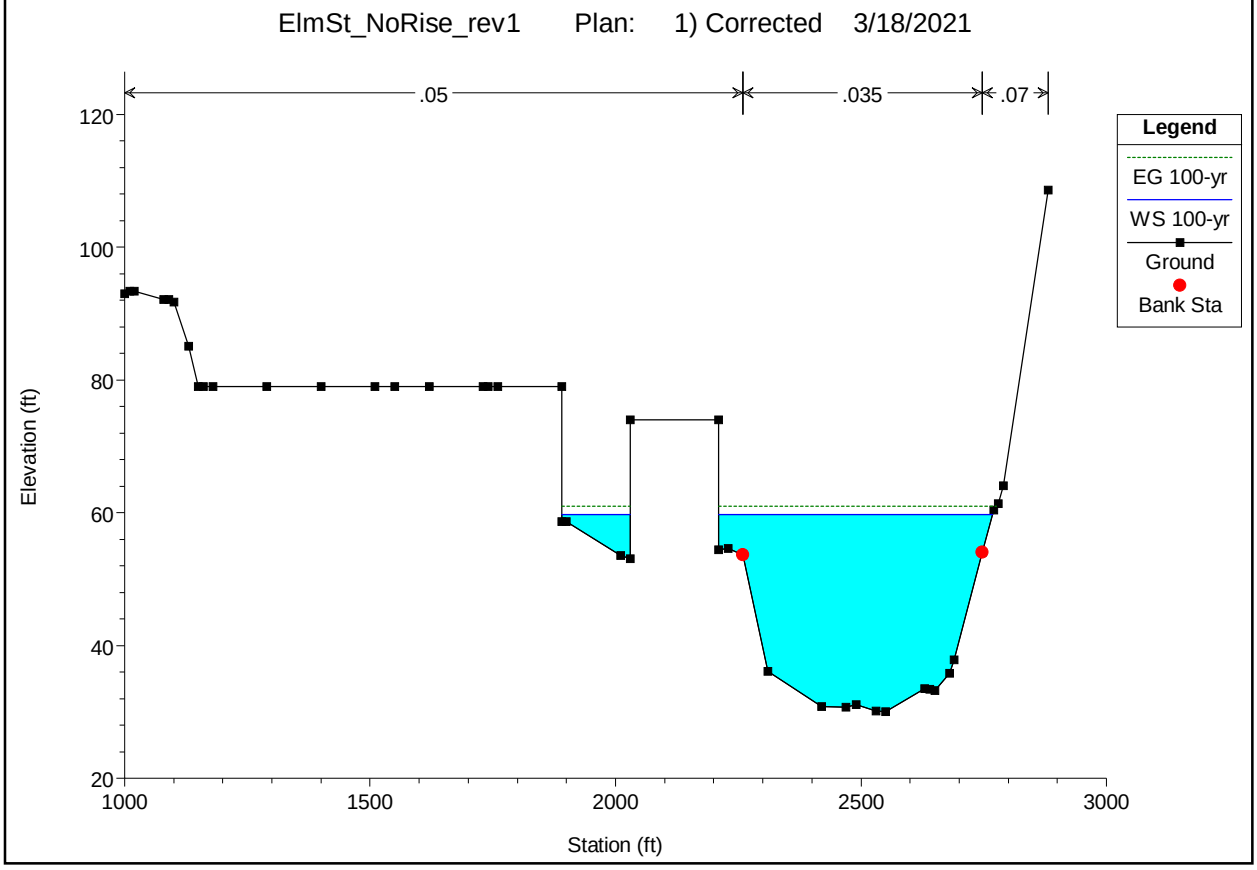


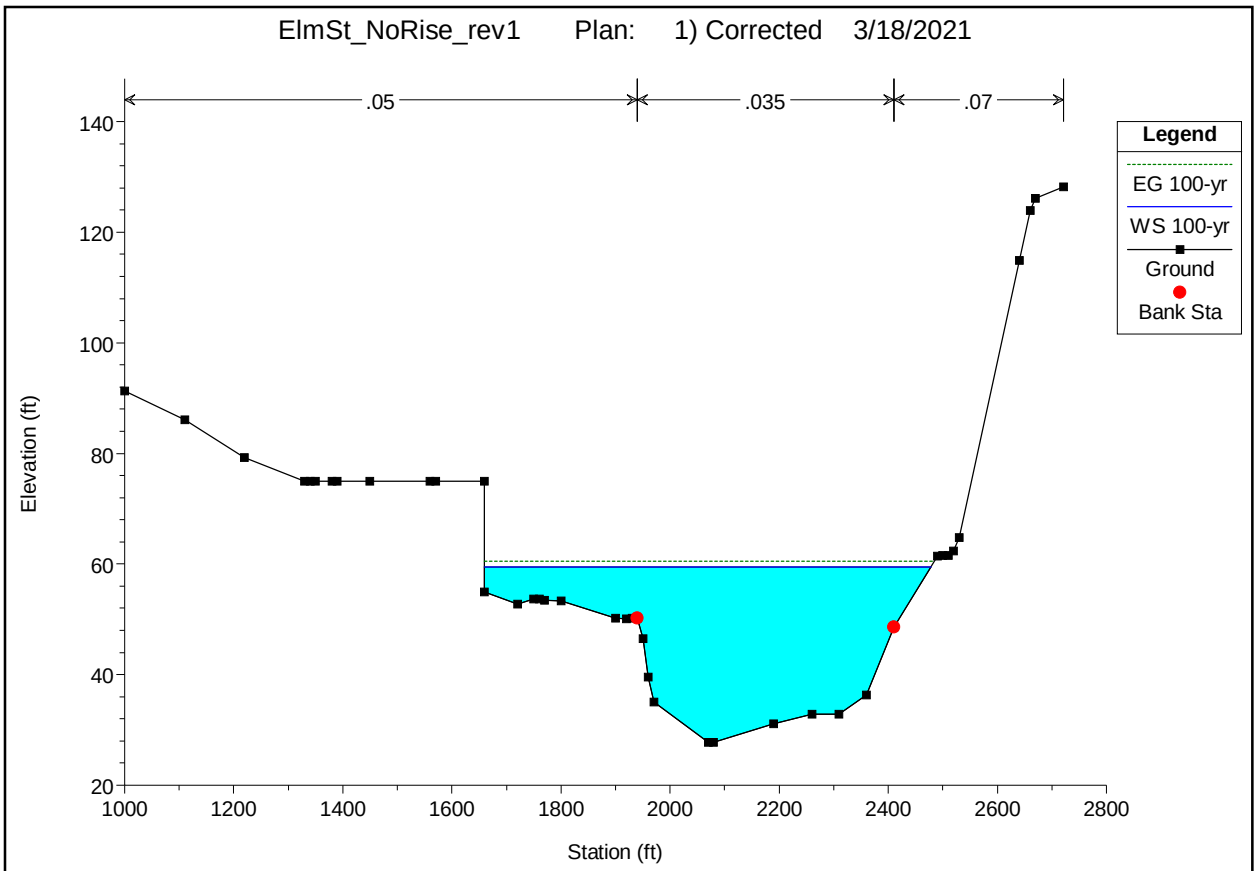


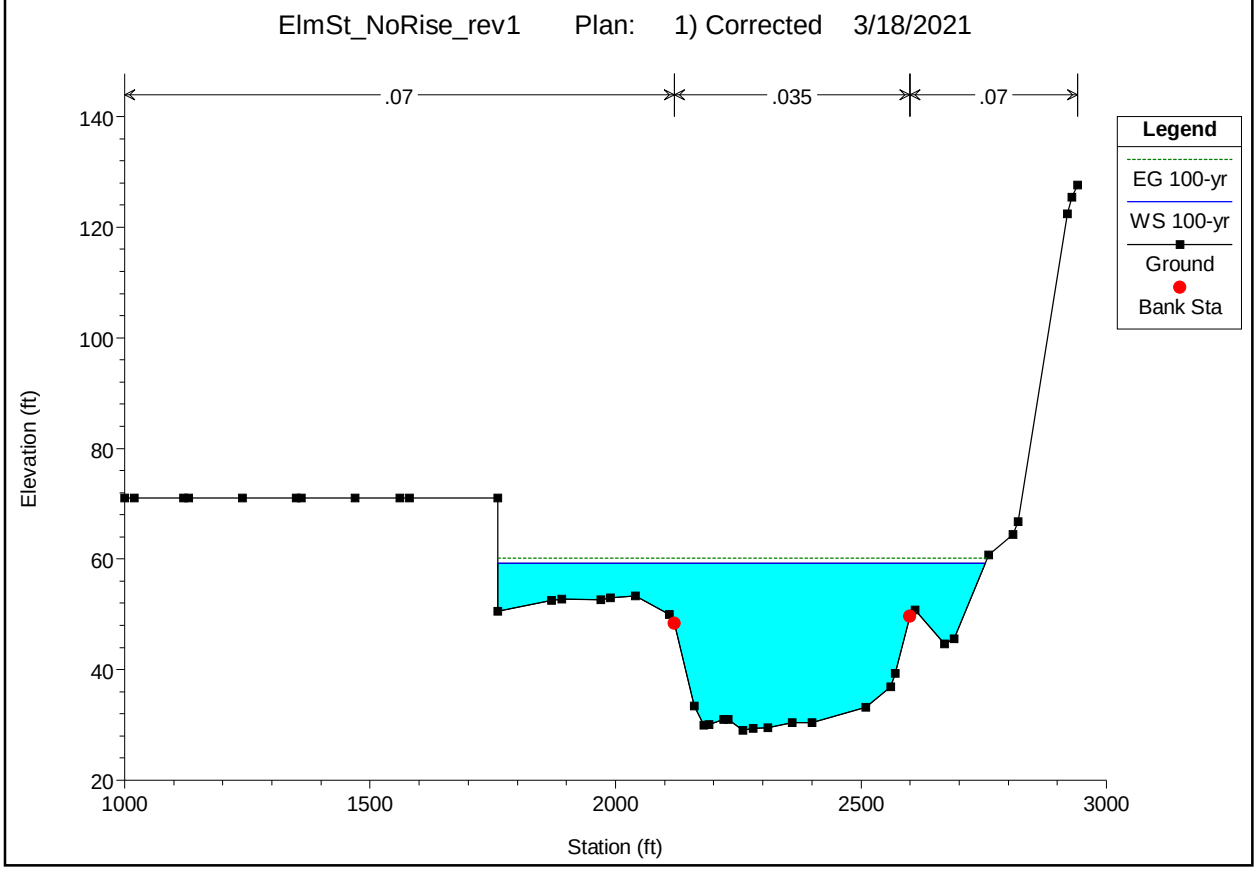


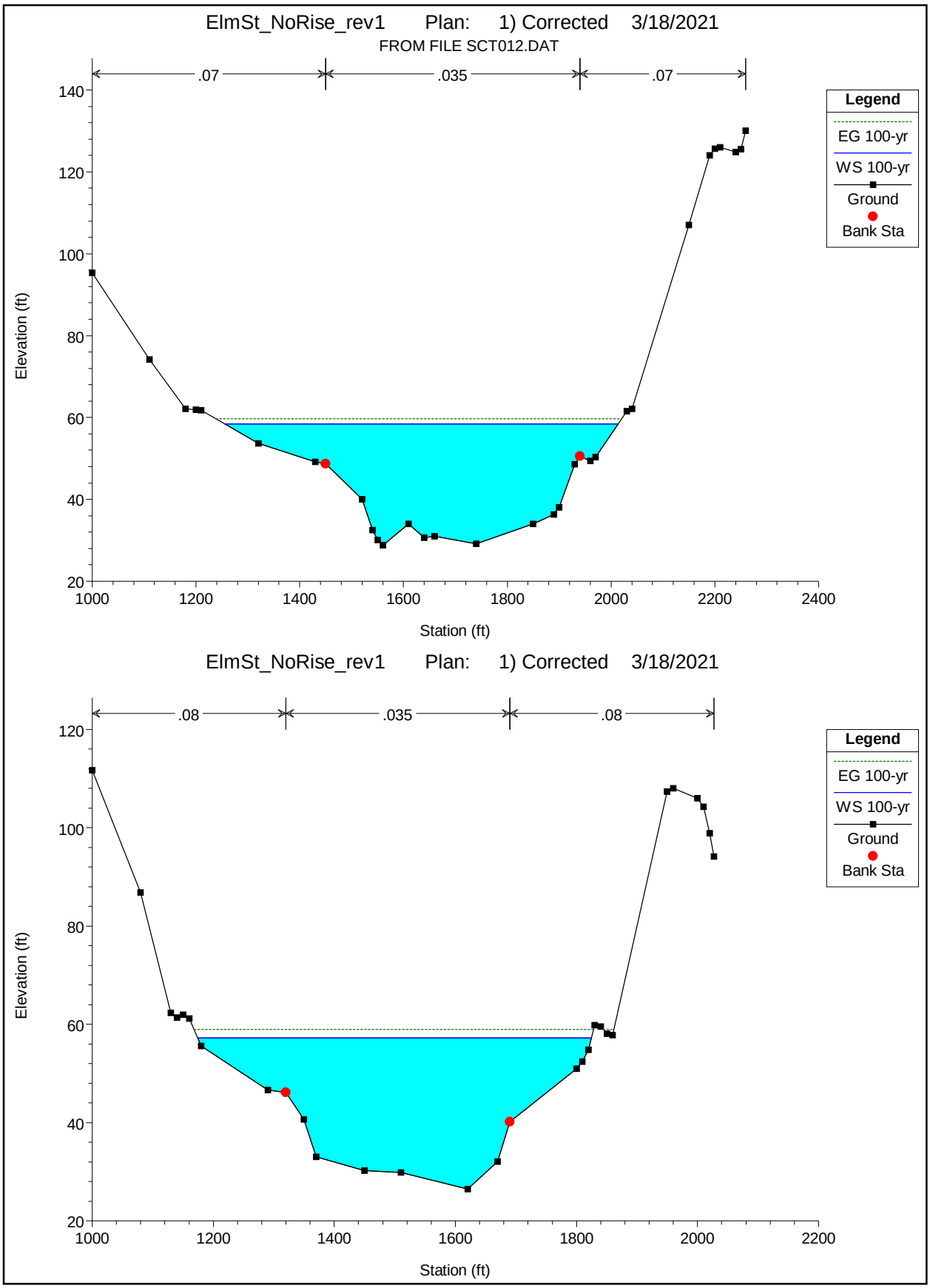


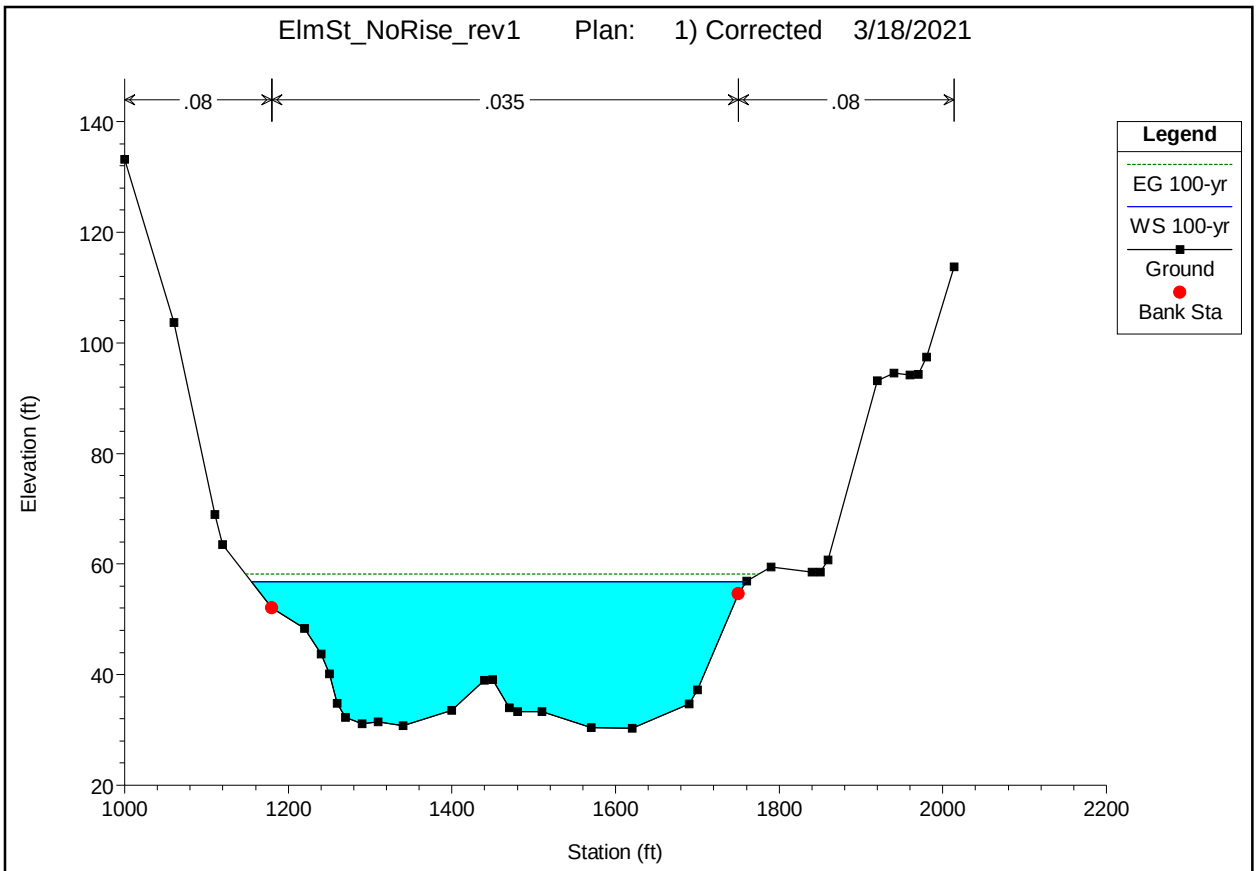


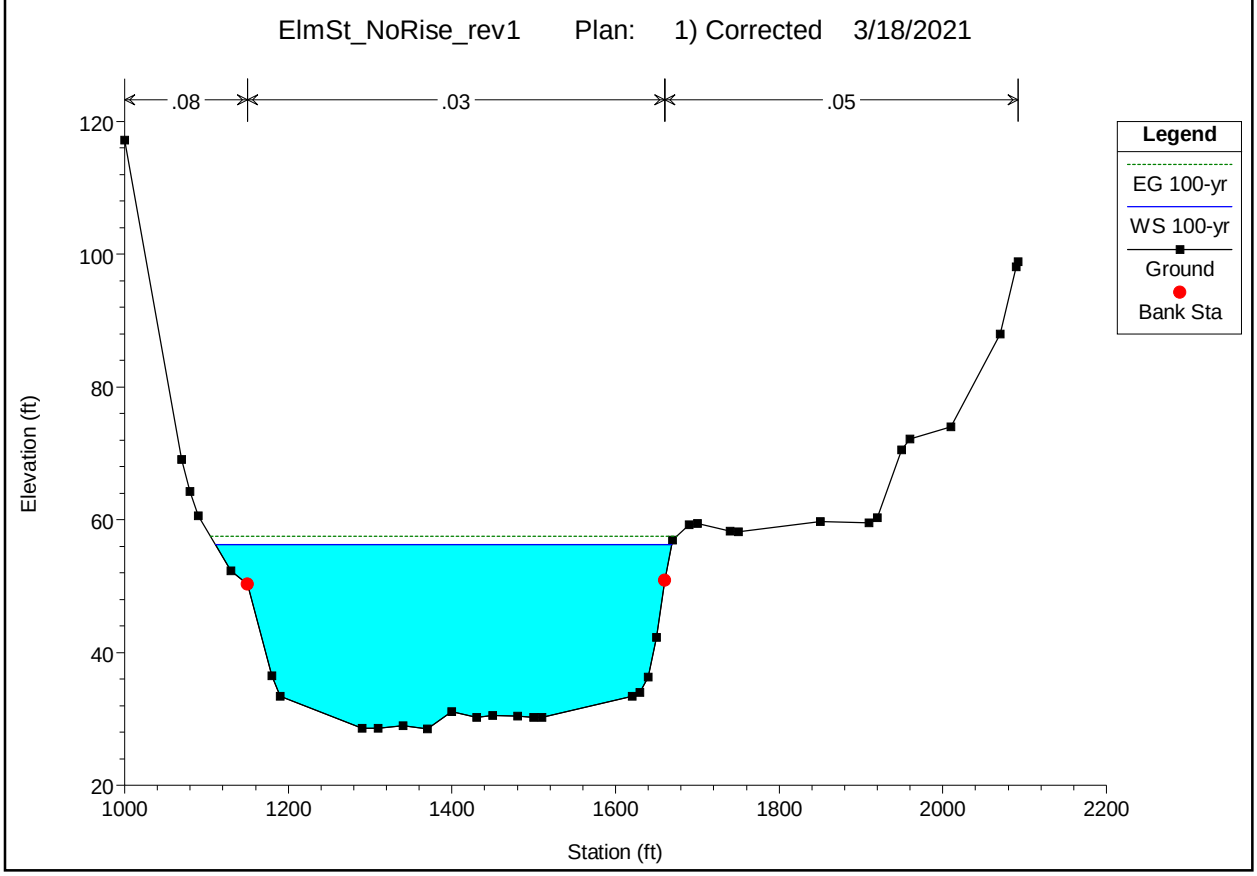


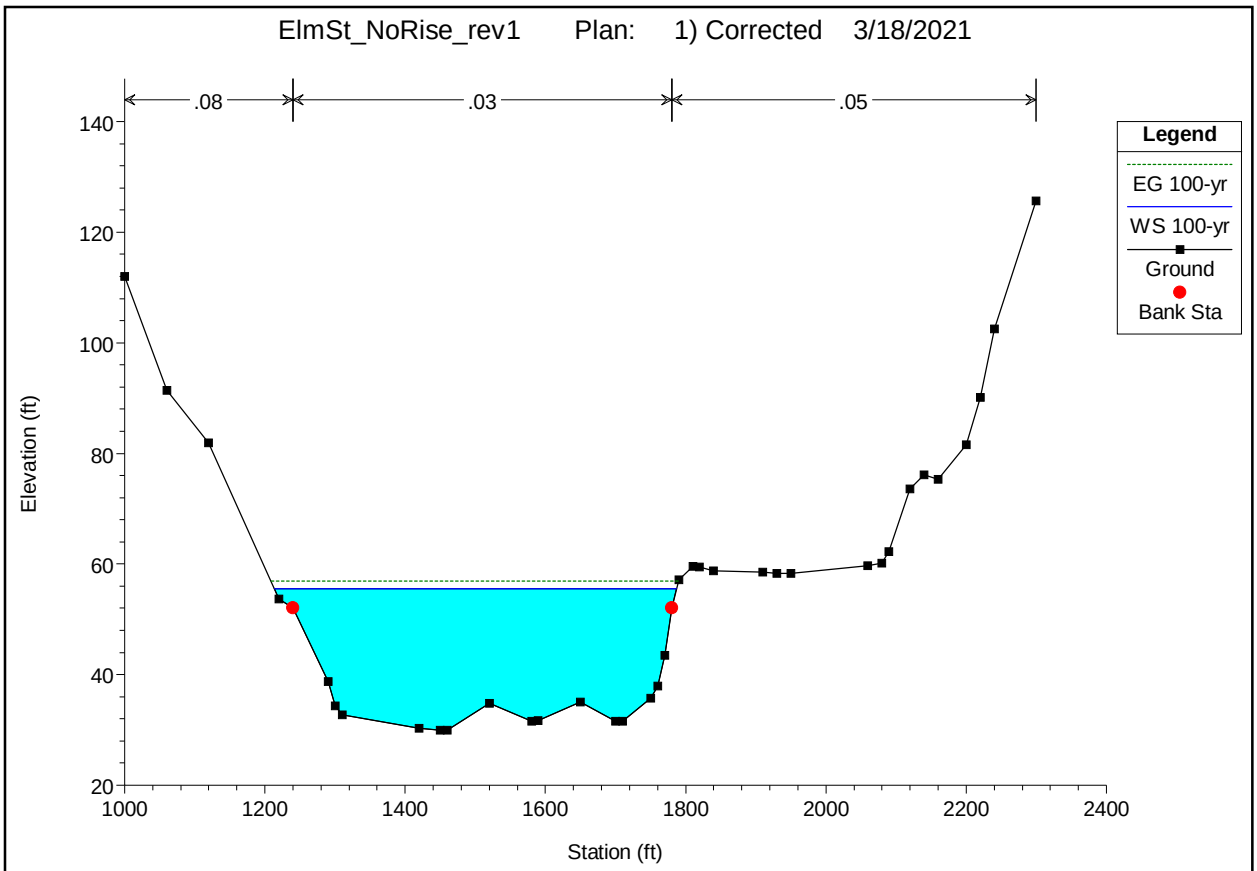


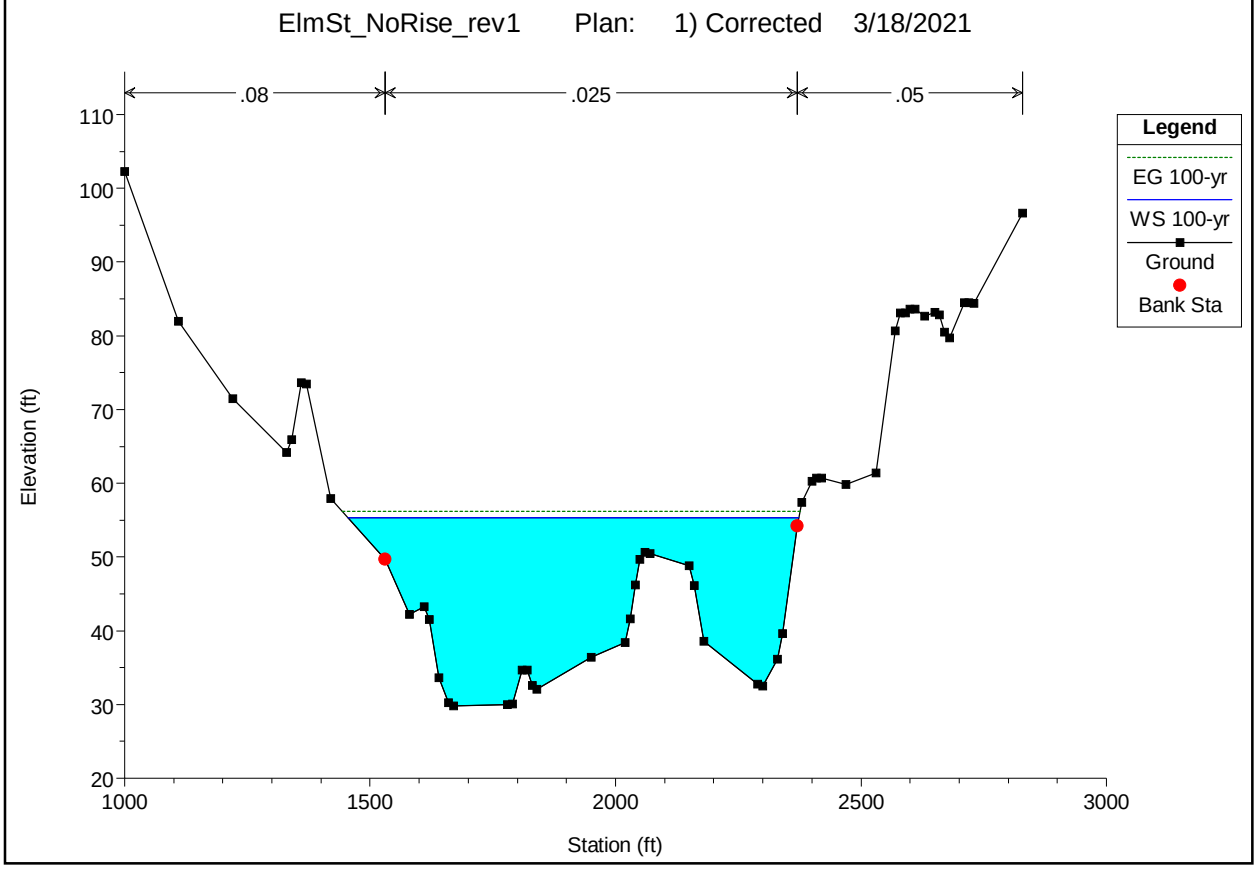


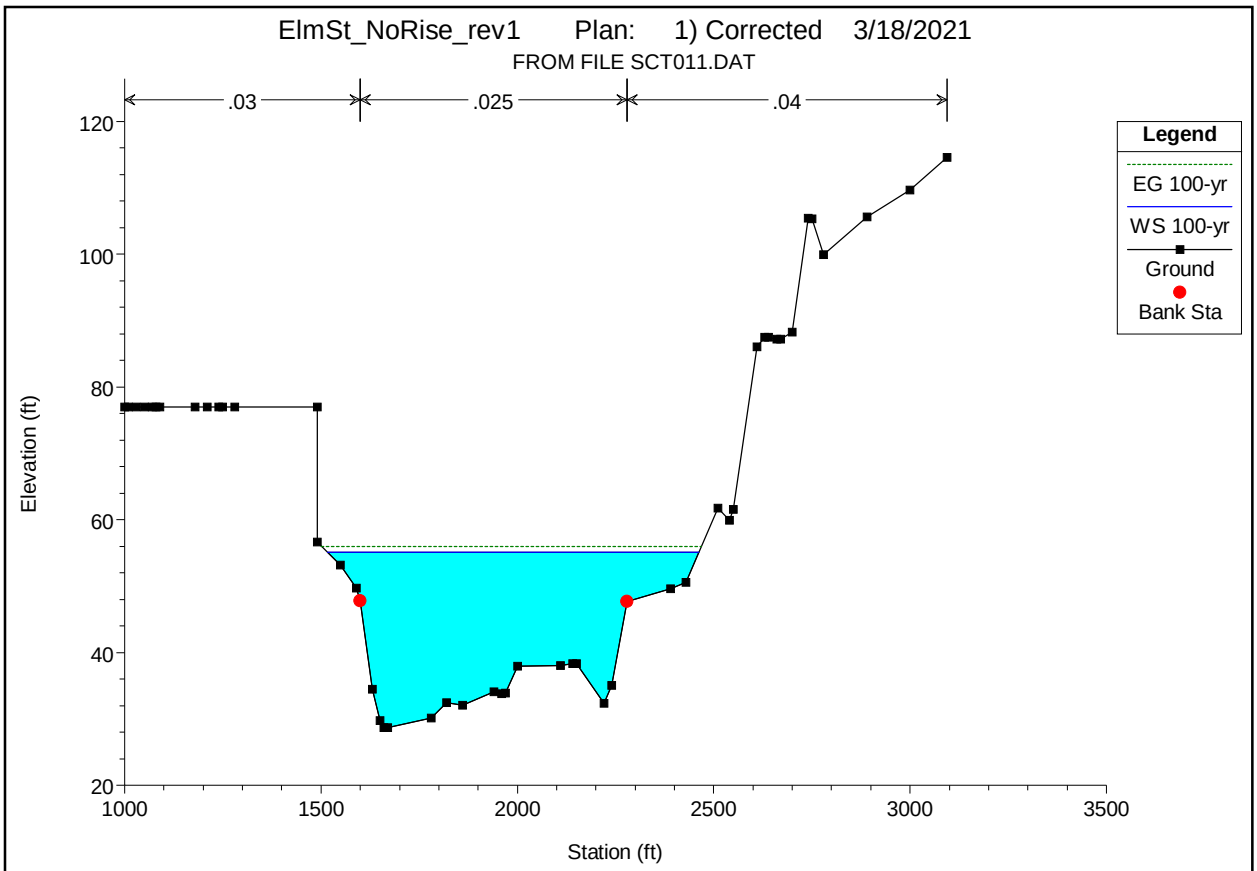


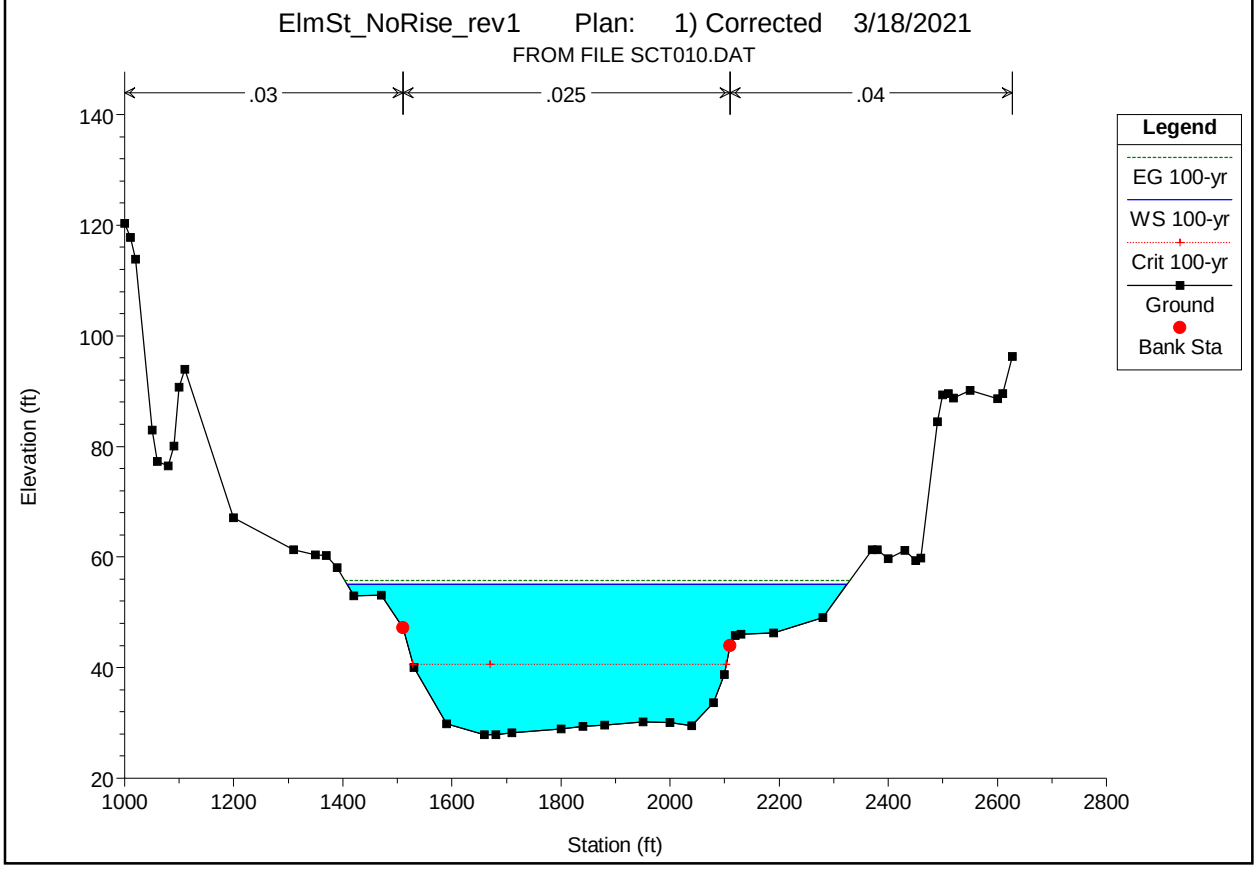












APPENDIX C: **Proposed Conditions HEC-RAS**

HEC-RAS HEC-RAS 5.0.7 March 2019
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
XXXXXXX  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: ElmSt_NoRise_rev1
Project File : ElmSt_NoRise_rev1.prj
Run Date and Time: 3/18/2021 1:47:48 PM

Project in English units

Project Description:
****

SSB34N-1.I
   MILES 10 TO 20 OF HYDRAULIC SEGMENT B

JANUARY
23,1994
SCHUYLKILL RIVER FLOOD INSURANCE STUDY
FREQUENCY
SEGMENT B MILES 10
TO 20
LIMITS OF MODEL: FAIRMONT DAM TO USGS GAGE 01473193 (PORT
KENNEDY)
CROSS-SECTION DATA WAS DEVELOPED FROM A DIGITAL TERRAIN MODEL
(DTM)
THE TOPOGRAPHY IS BASED ON AERIAL PHOTOGRAPHY FLOWN 3-17-1991
AND
3-16-1992.

THE CROSS-SECTIONS IN THIS HEC2 MODEL CORRESPOND TO THE
FOLLOWING
DTM SEGMENTS:
             SCT001, SCT002, SCT003, SCT004, SCT005,

SCT006
SCT007, SCT008, SCT009, SCT010

THE ABOVE X-SECTIONS
WERE CUT ON 6 AUG 1993 AND DELIVERED
BY FPMS TO H&H BRANCH ON 25 AUG
1993.

AND THE ADDITIONAL DTM SEGMENTS OF:
SCT011, SCT012,
SCT013, SCT014, SCT015, SCT016
SCT017, SCT018, SCT019, SCT020,
SCT021

WHICH WERE CUT ON 3 AND 10 SEP 1993 AND DELIVERED BY FPMS
TO H&H
BRANCH ON 21 SEP 1993

THE FPMS FLOOD OUTLINE MAP PLOTTING PROGRAM EXPECTS A
TAPE96
X-SECTION FOR EVERY X-SECT STATION THAT WAS CUT FROM THE DTM. IN
ORDER
TO KEEP THE PLOTTING PROGRAM FROM BOMBING, THE DTM X-SECTS NOT
USED IN
THE HEC2 MODEL MUST BE DELETED FROM THE DTM X-SECTION LAYER.
THEREFORE THE
FOLLOWING IS A LIST OF PROVIDED DTM X-SECT STATIONS WHICH
ARE NOT USED IN THE
HEC2 INPUT FILE:

DTM SEGMENT	CUT X-SECTIONS STATIONS WHICH ARE NOT USED IN THIS HEC2 MODEL
SCT001.DAT	42079, 42229, 42394, 42455 42495, 42718, 42878, 43060 43257, 44701, 45389
SCT002.DAT	46699, 48708, 48960, 49694 50618
SCT003.DAT	51730, 52382, 53701, 54418

55962, 56690

SCT004.DAT 58524, 59299, 59615,
60406
61649, 62466, 62688

SCT005.DAT 63044, 64030, 66460, 66803

SCT006.DAT 67923, 70236, 71761, 72407

SCT007.DAT
75577, 76476

SCT008.DAT 77735,
79960

SCT009.DAT 82038, 83016, 83977, 85098

86110

SCT010.DAT
86810, 87658, 88531

SCT011.DAT 92687, 93755,
94799, 95659

SCT012.DAT 96483

SCT014.DAT 111864, 113028, 115241

SCT015.DAT
116763, 118709, 119068, 119282

SCT017.DAT
126765 (DS FACE OF RT 202)

SCT018.DAT
133280, 134191

SCT019.DAT 137781

138755

SCT020.DAT
139825, 140847, 141772
142729, 143653,
144672

SCT021.DAT 148549, 149130, 149666,
150177

NON-DTM / ADDED X-SECTIONS IN THE HEC2 FILE WILL BE FOUND IN THE
TAPE96
FILE. THE PLOTTING PROGRAM WILL NOT BOMB. HOWEVER, NO WSEL WILL
BE
PLOTTED AT THE X-SECTION STATION. A NON-DTM X-SECTION IS ADDED TO
PROVIDE
A MORE ACCURATE WSEL AT THE NEXT DTM X-SECTION. THE PLOTTING
PROGRAM
WILL CONNECT A WSEL PLANE BETWEEN TWO ADJACENT DTM X-SECTIONS. THE
WSEL
DRAWN ON THE MAP MAY DISAGREE WITH THE WSEL SHOWN ON THE PROFILE
PLOT
SINCE THE PROFILE PLOT REFLECTS THE ADDED X-SECTION.

THE FOLLOWING IS
A LIST OF NON-DTM / MOVED X-SECTIONS IN THIS HEC2 FILE:

X-81585, X-107816, X-107856, X-125698, X-125738
X-126779
(NEW DS FACE OF RT 202)

THERE ARE NO X3 CARDS IN THIS FILE RE:
ENCROACHMENTS.

MASTER FILE FOR SEGMENT B IS SSBC.I

SCHUYLKILL RIVER
FLOOD INSURANCE STUDY -- JAN 1994
FREQUENCY- FAIRMOUNT DAM TO PORT KENNEDY
GAGE
FILE:SSB34N-1.I Q=74000 CFS (10 YR REGULATED) / 62900
CFS
****
***
SSB34E-1.I
MILES 10 TO 20 OF HYDRAULIC SEGMENT B

JANUARY
23,1994
SCHUYLKILL RIVER FLOOD INSURANCE STUDY
ENCROACHMENT
SEGMENT B MILES

10 TO 20
LIMITS OF MODEL: FAIRMONT DAM TO USGS GAGE 01473193 (PORT
KENNEDY)
CROSS-SECTION DATA WAS DEVELOPED FROM A DIGITAL TERRAIN MODEL
(DTM)
THE TOPOGRAPHY IS BASED ON AERIAL PHOTOGRAPHY FLOWN 3-17-1991
AND
3-16-1992.

THE CROSS-SECTIONS IN THIS HEC2 MODEL CORRESPOND TO THE
FOLLOWING
DTM SEGMENTS:
SCT001, SCT002, SCT003, SCT004, SCT005,
SCT006
SCT007, SCT008, SCT009, SCT010

THE ABOVE X-SECTIONS
WERE CUT ON 6 AUG 1993 AND DELIVERED
BY FPMS TO H&H BRANCH ON 25 AUG
1993.

AND THE ADDITIONAL DTM SEGMENTS OF:
SCT011, SCT012,
SCT013, SCT014, SCT015, SCT016
SCT017, SCT018, SCT019, SCT020,
SCT021

WHICH WERE CUT ON 3 AND 10 SEP 1993 AND DELIVERED BY FPMS
TO H&H
BRANCH ON 21 SEP 1993

THE FPMS FLOOD OUTLINE MAP PLOTTING PROGRAM EXPECTS A
TAPE96
X-SECTION FOR EVERY X-SECT STATION THAT WAS CUT FROM THE DTM. IN
ORDER
TO KEEP THE PLOTTING PROGRAM FROM BOMBING, THE DTM X-SECTS NOT
USED IN
THE HEC2 MODEL MUST BE DELETED FROM THE DTM X-SECTION LAYER.
THEREFORE THE
FOLLOWING IS A LIST OF PROVIDED DTM X-SECT STATIONS WHICH
ARE NOT USED IN THE
HEC2 INPUT FILE:

DTM SEGMENT	CUT X-SECTIONS STATIONS WHICH ARE NOT USED IN THIS HEC2 MODEL
SCT001.DAT	

42079, 42229, 42394, 42455

42495, 42718, 42878, 43060
43257,
44701, 45389

SCT002.DAT 46699, 48708, 48960,
49694
50618

SCT003.DAT
51730, 52382, 53701, 54418

55962, 56690

SCT004.DAT 58524, 59299, 59615,
60406
61649, 62466, 62688

SCT005.DAT 63044, 64030, 66460, 66803

SCT006.DAT 67923, 70236, 71761, 72407

SCT007.DAT
75577, 76476

SCT008.DAT 77735,
79960

SCT009.DAT 82038, 83016, 83977, 85098

86110

SCT010.DAT
86810, 87658, 88531

SCT011.DAT 92687, 93755,
94799, 95659

SCT012.DAT 96483

SCT014.DAT 111864, 113028, 115241

SCT015.DAT
116763, 118709, 119068, 119282

SCT017.DAT

126765 (DS FACE OF RT 202)

SCT018.DAT
133280, 134191

SCT019.DAT 137781

138755

SCT020.DAT
139825, 140847, 141772
142729, 143653,
144672

SCT021.DAT 148549, 149130, 149666,
150177

NON-DTM / ADDED X-SECTIONS IN THE HEC2 FILE WILL BE FOUND IN THE
TAPE96
FILE. THE PLOTTING PROGRAM WILL NOT BOMB. HOWEVER, NO WSEL WILL
BE
PLOTTED AT THE X-SECTION STATION. A NON-DTM X-SECTION IS ADDED TO
PROVIDE
A MORE ACCURATE WSEL AT THE NEXT DTM X-SECTION. THE PLOTTING
PROGRAM
WILL CONNECT A WSEL PLANE BETWEEN TWO ADJACENT DTM X-SECTIONS. THE
WSEL
DRAWN ON THE MAP MAY DISAGREE WITH THE WSEL SHOWN ON THE PROFILE
PLOT
SINCE THE PROFILE PLOT REFLECTS THE ADDED X-SECTION.

THE FOLLOWING IS
A LIST OF NON-DTM / MOVED X-SECTIONS IN THIS HEC2 FILE:

X-81585, X-107816, X-107856, X-125698, X-125738
X-126779
(NEW DS FACE OF RT 202)

THERE ARE NO X3 CARDS IN THIS FILE RE:
ENCROACHMENTS.

MASTER FILE FOR SEGMENT B IS SSBC.I

SCHUYLKILL RIVER
FLOOD INSURANCE STUDY -- JAN 1994
ENCROACHMENT- FAIRMOUNT DAM TO PORT
KENNEDY GAGE

FILE:SSB34E-1.I Q=128000 CFS (100 YR NATURAL) / 109000 CFS

PLAN DATA

Plan Title: ProposedConditions
Plan File :
k:\AMT_WaterResources\112243004_ElmSt_NoRise\Models\HEC-RAS\ElmSt_NoRise_rev1.p05

Geometry Title: Proposed_Geometry
Geometry File :
k:\AMT_WaterResources\112243004_ElmSt_NoRise\Models\HEC-RAS\ElmSt_NoRise_rev1.g05

Flow Title : Proposed_Flow
Flow File :
k:\AMT_WaterResources\112243004_ElmSt_NoRise\Models\HEC-RAS\ElmSt_NoRise_rev1.f06

Plan Summary Information:
Number of: Cross Sections = 120 Multiple Openings = 0
Culverts = 0 Inline Structures = 0
Bridges = 10 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: Subcritical Flow

FLOW DATA

Flow Title: Proposed_Flow
Flow File :
k:\AMT_WaterResources\112243004_ElmSt_NoRise\Models\HEC-RAS\ElmSt_NoRise_rev1.f06

Flow Data (cfs)

River	Reach	RS	10-yr	50-yr	100-yr	500-yr
RIVER-1	Reach-1	148266	62900	93700	109000	146000

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
RIVER-1	Reach-1	10-yr	Known WS = 50.01	
RIVER-1	Reach-1	50-yr	Known WS = 53.5	
RIVER-1	Reach-1	100-yr	Known WS = 55.01	
RIVER-1	Reach-1	500-yr	Known WS = 59.19	

GEOMETRY DATA

Geometry Title: Proposed_Geometry
Geometry File :
k:\AMT_WaterResources\112243004_ElmSt_NoRise\Models\HEC-RAS\ElmSt_NoRise_rev1.g05

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 148266

INPUT
Description: X-147996 IS THE US FACE DTM STATION OF OLD RT 363 BRIDGE
X1147996
25 1070 1550 35 35 35
USGS GAGE #01473193
(CREST GAGE) AT PORT KENNEDY IS LOCATED 200 FT
UPSTREAM OF
BETZWOOD HIGHWAY BRIDGE. 200 FT ADDED TO THE UPSTREAM
FACE
STATION OF 147996 RESULTS IN A STATION OF 148196, HOWEVER,
THE WSEL AT

X-148266 WILL BE ASSUMED APPLICABLE TO THE GAGE.

Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	102.2	1060	91	1100	91	1110	91	1150	91
1210	91	1320	91	1360	91	1390	91	1499.9	91
1500	71.3	1550	71.5	1660	68.1	1690	67	1700	65.5
1730	57.9	1800	54	1810	53.9	1840	54.4	1890	52.1
1930	52.1	1980	53	2020	51.6	2100	54.6	2130	54.1
2180	58.6	2210	70.4	2220	72.6	2270	81.1	2360	84.6
2380	84	2440	86.6	2450	86.5	2450.1	99	2580	99
2590	99	2650	99	2680	99	2700	99	2740	99
2790	99	2800	99	2801	99				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1700	.032	2220	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1700	2220	288	288	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 147996

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
572.4	109	572.5	88.7	662.5	88.2	747.5	89.54	747.6	88.07
747.7	68.17	773.5	59.38	788.5	57.38	842.5	53.58	880.4	53.7
880.5	91.3	887.5	91.3	887.6	53.78	890.5	53.78	907.5	55.78
929.5	52.18	1006.5	51.38	1010	51.61	1015.4	52	1015.5	94.6
1022.8	94.6	1022.9	52.6	1036.5	53.38	1057.5	50.48	1089.5	50.38
1159.7	55.38	1159.8	97.9	1165.8	97.9	1165.9	54.9	1185.5	52.98
1238.5	55.58	1246.5	59.38	1270.8	74	1297.7	93.97	1297.8	101.17
1297.9	102.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
572.4	.07	747.7	.032	1270.8	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
747.7	1270.8	17	17	.3	.5

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 147978.5

INPUT
Description: Bridge #10X-147961 IS THE DS FACE DTM STATION OF OLD RT 363
BRIDGE
X1147961 25 1060 1540 54 54
54
OLD RT 363 BRIDGE
HELICOPTER FLIGHT PHOTO #38

Distance from Upstream XS = .1
Deck/Roadway Width = 16.8
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 10

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
747.5	89.54	89.54	747.6	89.54	88.07	880.5	92.8	91.3
887.5	92.8	91.3	1015.5	96.1	94.6	1022.8	96.1	94.6
1159.8	99.3	97.9	1165.8	99.3	97.9	1297.8	102.6	101.17
1297.9	102.6	102.6						

Upstream Bridge Cross Section Data
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
572.4	109	572.5	88.7	662.5	88.2	747.5	89.54	747.6	88.07
747.7	68.17	773.5	59.38	788.5	57.38	842.5	53.58	880.4	53.7
880.5	91.3	887.5	91.3	887.6	53.78	890.5	53.78	907.5	55.78
929.5	52.18	1006.5	51.38	1010	51.61	1015.4	52	1015.5	94.6
1022.8	94.6	1022.9	52.6	1036.5	53.38	1057.5	50.48	1089.5	50.38
1159.7	55.38	1159.8	97.9	1165.8	97.9	1165.9	54.9	1185.5	52.98
1238.5	55.58	1246.5	59.38	1270.8	74	1297.7	93.97	1297.8	101.17
1297.9	102.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
572.4	.07	747.7	.032	1270.8	.07

Bank Sta: Left Right Coeff Contr. Expan.
747.7 1270.8 .3 .5

Downstream Deck/Roadway Coordinates
num= 10

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
747.5	89.54	89.54	747.6	89.54	88.07	880.5	92.8	91.3
887.5	92.8	91.3	1015.5	96.1	94.6	1022.8	96.1	94.6
1159.8	99.3	97.9	1165.8	99.3	97.9	1297.8	102.6	101.17
1297.9	102.6	102.6						

```
Downstream Bridge Cross Section Data
Station Elevation Data    num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   572.4     109   572.5    88.7   662.5    88.2   747.5   89.54   747.6   88.07
   747.7   68.17   773.5   59.38   788.5   57.38   842.5   53.58   880.4    53.7
   880.5    91.3   887.5    91.3   887.6   53.78   890.5   53.78   907.5   55.78
   929.5   52.18  1006.5   51.38    1010   51.61  1015.4      52  1015.5    94.6
  1022.8    94.6  1022.9    52.6  1036.5   53.38  1057.5   50.48  1089.5   50.38
  1159.7   55.38  1159.8    97.9  1165.8    97.9  1165.9    54.9  1185.5   52.98
  1238.5   55.58  1246.5   59.38  1270.8      74  1297.7   93.97  1297.8  101.17
  1297.9   102.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   572.4     .07   747.7    .032  1270.8     .07

Bank Sta: Left   Right    Coeff Contr.   Expan.
         747.7  1270.8             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 147961

INPUT
```

Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
572.4	109	572.5	88.7	662.5	88.2	747.5	89.54	747.6	88.07
747.7	68.17	773.5	59.38	788.5	57.38	842.5	53.58	880.4	53.7
880.5	91.3	887.5	91.3	887.6	53.78	890.5	53.78	907.5	55.78
929.5	52.18	1006.5	51.38	1010	51.61	1015.4	52	1015.5	94.6
1022.8	94.6	1022.9	52.6	1036.5	53.38	1057.5	50.48	1089.5	50.38
1159.7	55.38	1159.8	97.9	1165.8	97.9	1165.9	54.9	1185.5	52.98
1238.5	55.58	1246.5	59.38	1270.8	74	1297.7	93.97	1297.8	101.17
1297.9	102.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
572.4	.07	747.7	.032	1270.8	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
747.7	1270.8	54	54	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 147907

INPUT
Description: X-147855 IS THE US FACE DTM STATION OF NEW RT 363 BRIDGE
X1147855

32	1150	1700	78	78	78

Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1660	95.8	1661	95.8	1700	91.1	1740	86.3	1790	72.5
1810	70.6	1840	59	1920	53	1960	54.2	2030	51.1
2070	52.6	2110	50.9	2190	54.3	2200	54.3	2210	54.2
2220	54.2	2260	56.7	2270	59.9	2290	70.1	2300	72.3
2310	72.5	2320	74.2	2340	89	2350	91.5	2380	92.4
2390	92.2	2420	86.4	2430	85.9	2440	85.9	2460	86.6
2470	86.4	2480	87.1	2490	91.5	2510	104.2	2520	107.4
2630	113.9	2640	114.3	2690	112.2	2732	114		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1660	.07	1810	.032	2300	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1810	2300	60	60	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 147855

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
816.8	105	816.9	87.5	878	72.5	904.8	71	904.9	105.5
908.8	104.6	908.9	71	910	70.8	935	66.8	948.5	59.4
963	55.2	1009.5	52.2	1009.6	65	1009.8	65	1009.9	105.1
1013.8	105.2	1013.9	65	1014	65	1015	51.8	1028.5	51
1054.5	55.7	1085.5	51.1	1106.5	53.7	1124.5	53.2	1145.5	49.6
1149.5	50	1149.6	65	1149.8	65	1149.9	106	1153.8	106
1153.9	65	1154	65	1155	51.4	1162.5	52.6	1223.5	50.6
1289.5	53.4	1289.6	65	1289.8	65	1289.9	106.8	1293.8	106.8
1293.9	65	1294	65	1295	53.8	1356.5	56.4	1371.5	59.4
1394.8	74.5	1394.9	107.4	1398.8	108.4	1398.9	108.4	1430	108.4
1475	108.7	1482.8	108.9	1482.9	108.9	1486.8	108.9	1486.9	83.5
1530	83.5	1531	84.5	1550	84.5	1569.9	92.2	1570	109.4
1573.9	112.4	1574	93.8	1622.8	112.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
816.8	.07	910	.032	1394.8	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
910	1394.8	70	70	.3	.5

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 147816

INPUT
Description: Bridge #9X-147777 IS THE DS FACE DTM STATION OF NEW RT 363
BRIDGE
X1147777 31 1200 1710 309 309 309
RT
422 (NEW RT 363) BRIDGE
HELICOPTER FLIGHT PHOTO #37

Distance from Upstream XS = .1
Deck/Roadway Width = 69.8
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord

816.8	115	104.6	1622.8	115	104.6

Upstream Bridge Cross Section Data

Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
816.8	105	816.9	87.5	878	72.5	904.8	71	904.9	105.5
908.8	104.6	908.9	71	910	70.8	935	66.8	948.5	59.4
963	55.2	1009.5	52.2	1009.6	65	1009.8	65	1009.9	105.1
1013.8	105.2	1013.9	65	1014	65	1015	51.8	1028.5	51
1054.5	55.7	1085.5	51.1	1106.5	53.7	1124.5	53.2	1145.5	49.6
1149.5	50	1149.6	65	1149.8	65	1149.9	106	1153.8	106
1153.9	65	1154	65	1155	51.4	1162.5	52.6	1223.5	50.6
1289.5	53.4	1289.6	65	1289.8	65	1289.9	106.8	1293.8	106.8
1293.9	65	1294	65	1295	53.8	1356.5	56.4	1371.5	59.4
1394.8	74.5	1394.9	107.4	1398.8	108.4	1398.9	108.4	1430	108.4
1475	108.7	1482.8	108.9	1482.9	108.9	1486.8	108.9	1486.9	83.5
1530	83.5	1531	84.5	1550	84.5	1569.9	92.2	1570	109.4
1573.9	112.4	1574	93.8	1622.8	112.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
816.8	.07	910	.032	1394.8	.07

Bank Sta: Left	Right	Coeff Contr.	Expan.
910	1394.8	.3	.5

Downstream Deck/Roadway Coordinates

num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
816.8	115	104.6	1622.8	115	104.6

Downstream Bridge Cross Section Data

Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
816.8	105	816.9	87.5	878	72.5	904.8	71	904.9	105.5
908.8	104.6	908.9	71	910	70.8	935	66.8	948.5	59.4
963	55.2	1009.5	52.2	1009.6	65	1009.8	65	1009.9	105.1
1013.8	105.2	1013.9	65	1014	65	1015	51.8	1028.5	51
1054.5	55.7	1085.5	51.1	1106.5	53.7	1124.5	53.2	1145.5	49.6
1149.5	50	1149.6	65	1149.8	65	1149.9	106	1153.8	106
1153.9	65	1154	65	1155	51.4	1162.5	52.6	1223.5	50.6
1289.5	53.4	1289.6	65	1289.8	65	1289.9	106.8	1293.8	106.8
1293.9	65	1294	65	1295	53.8	1356.5	56.4	1371.5	59.4
1394.8	74.5	1394.9	107.4	1398.8	108.4	1398.9	108.4	1430	108.4
1475	108.7	1482.8	108.9	1482.9	108.9	1486.8	108.9	1486.9	83.5
1530	83.5	1531	84.5	1550	84.5	1569.9	92.2	1570	109.4
1573.9	112.4	1574	93.8	1622.8	112.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val

```
   816.8     .07     910    .032  1394.8     .07

Bank Sta: Left   Right    Coeff Contr.   Expan.
           910  1394.8             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =     115
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 147777

INPUT
Description:
Station Elevation Data    num=      63
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
   816.8     105   816.9    87.5     878    72.5   904.8      71   904.9   105.5
   908.8   104.6   908.9      71     910    70.8     935    66.8   948.5    59.4
     963    55.2  1009.5    52.2  1009.6      65  1009.8      65  1009.9   105.1
  1013.8   105.2  1013.9      65    1014      65    1015    51.8  1028.5      51
  1054.5    55.7  1085.5    51.1  1106.5    53.7  1124.5    53.2  1145.5    49.6
  1149.5      50  1149.6      65  1149.8      65  1149.9     106  1153.8     106
  1153.9      65    1154      65    1155    51.4  1162.5    52.6  1223.5    50.6
  1289.5    53.4  1289.6      65  1289.8      65  1289.9   106.8  1293.8   106.8
  1293.9      65    1294      65    1295    53.8  1356.5    56.4  1371.5    59.4
  1394.8    74.5  1394.9   107.4  1398.8   108.4  1398.9   108.4    1430   108.4
    1475   108.7  1482.8   108.9  1482.9   108.9  1486.8   108.9  1486.9    83.5
```

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    1530    83.5    1531    84.5    1550    84.5  1569.9    92.2    1570   109.4
  1573.9   112.4    1574    93.8  1622.8   112.7

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
   816.8     .07     910    .032  1394.8     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           910  1394.8              309     309     309             .3       .5

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 147468

INPUT
Description:
Station Elevation Data    num=      46
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   112.9    1030     103    1060      98    1070      98    1080      98
    1100      98    1110      98    1130      98    1140      98    1250      98
    1270      98    1380      98    1400      98    1430      98    1530      98
    1590      98    1640      98    1700      98  1769.9      98    1770      78
    1830    78.3    1940    72.5    1950    70.5    1970    60.6    1980    57.6
    2090    52.7    2120    52.6    2170    50.4    2180    50.5    2230    51.1
    2240    51.1    2250      51    2270      51    2350    53.1    2370    53.3
    2410    54.8    2420    56.4    2444      68    2470    80.9    2480    84.5
    2510    86.5    2520    86.5    2540    84.7    2550    86.4    2620   119.2
    2722     125

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1950    .032    2444     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1950    2444              632     632     632             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 146836

INPUT
Description:
Station Elevation Data    num=      34
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   115.1    1010   111.3    1120    90.7    1170    87.4    1190    87.2
    1300      82    1410    78.2    1430    78.2    1450    78.4    1490    78.5
```

```
    1600    75.4    1620      75    1690    75.5    1800    71.5    1810    71.4
    1830    71.6    1840    71.6    1930    66.7    1980    71.7    2007      68
    2090    56.7    2200    52.6    2270    50.3    2380    52.7    2450    56.4
    2460    57.9    2483      68    2520    83.5    2530    85.6    2560    86.8
    2620      99    2730     103    2840   110.9    2892   113.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    2007    .032    2483     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2007    2483              575     575     575             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 146261

INPUT
Description:
Station Elevation Data    num=      35
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000    99.8    1010    94.4    1020      94    1050      94    1060      94
    1080      94    1100      94    1140      94    1250      94    1350      94
    1460      94  1569.9      94    1570    74.4    1670    72.3    1780    71.1
    1800      71    1890    69.7    1900    67.2    1920    58.1    1930      55
    1970    52.4    2000    52.7    2040    52.7    2110    50.3    2220    52.3
    2300      58    2348      70    2410    85.4    2450    87.4    2490    95.6
    2550      97    2590    97.2    2700   101.7    2810   109.4    2896   116.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1890    .032    2348     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1890    2348              543     543     543             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 145718

INPUT
Description: FROM FILE SCT021.DAT

Station Elevation Data    num=      36
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000    97.5    1030      95    1040      95    1070      95    1080      95
```

```
    1100      95    1210      95  1449.9      95    1450    74.5    1490    73.8
    1500    72.4    1520      68    1530    67.8    1550      68    1600    67.9
    1630    65.6    1650    69.7    1700    70.2    1750    70.1    1770    69.3
    1780    67.8    1810    55.6    1850    52.8    1920    52.5    2000    50.4
    2100    50.5    2190    58.3    2210    66.2    2220    68.1    2270    71.9
    2280      72    2282      72    2302      76    2322      80    2382      88
    2402      92

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1780    .032    2220     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1780    2220              396     396     396             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 145322

INPUT
Description:
Station Elevation Data    num=      31
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     370      93     371      93     372      93     373      93     390      93
     420      93   769.9      93     770      73     840      72     920      68
    1000    70.1    1020    70.2    1080    68.7    1090    66.2    1100    60.3
    1110    55.9    1170    52.9    1220    52.5    1330    50.5    1430    48.8
    1450    48.8    1480    49.6    1530    59.2    1560    69.4    1630    73.5
    1680    85.7    1700    86.4    1710    86.4    1720      87    1830     104
    1911   110.6

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     370     .07    1080    .032    1560     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1080    1560             1199    1199    1199             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 144123

INPUT
Description:
Station Elevation Data    num=      40
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

1000	139.6	1100	98.6	1110	92.7	1120	90.1	1230	83.5
1330	75	1350	75.1	1460	77.1	1520	76.9	1530	77
1540	76.9	1550	76.9	1660	74.7	1700	72.1	1710	72.1
1730	72.3	1740	72.4	1770	69.7	1790	60.6	1800	57.5
1910	54.4	1960	53.4	2040	53.3	2060	53	2070	53.1
2130	54.5	2220	52.5	2330	57	2340	58.5	2350	62.2
2360	64.7	2440	70.8	2470	81.7	2480	84	2510	84.7
2520	84.6	2610	80	2630	80	2660	90.8	2670	92.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1770	.032	2360	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1770	2360	899	899	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 143224

INPUT
Description:
Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	126.2	1050	107.5	1060	102.4	1080	89.5	1090	85.3
1200	73.2	1310	69.1	1370	67.7	1450	67.5	1520	66.5
1630	66.4	1650	66.3	1660	66.8	1770	59.9	1800	55.7
1910	52.8	1980	51.2	2090	51.3	2180	57.1	2230	65
2280	68.1	2360	83.8	2370	84.4	2400	84.5	2410	84.3
2420	84.7	2450	90	2460	89.6	2470	87.7	2480	88.5
2500	97.8	2510	100.1	2570	101.9	2582	108.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1660	.032	2230	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1660	2230	972	972	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 142252

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	125	1070	115.7	1150	83.2	1220	69.7	1280	67.5
1310	67.5	1410	69.3	1510	67.4	1620	67.3	1660	67.3
1770	65.7	1790	65.7	1800	65.8	1810	64.9	1850	55.6
1890	51.5	1920	51.6	1960	52.2	2000	52.3	2110	50.5
2150	50	2170	49.9	2250	52.2	2290	58.7	2310	66.5
2340	68.1	2380	81.9	2390	84.1	2400	84.1	2410	83.7
2440	83.8	2550	92.6	2590	100.5	2600	100.7	2610	100.4
2720	105.8	2775	111.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1810	.032	2310	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1810	2310	947	947	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 141305

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	136.4	1110	92.8	1130	86.4	1160	80.1	1190	70.6
1230	68.5	1320	68.4	1330	68.5	1440	68.1	1530	67.7
1570	66.7	1610	66.5	1690	65	1700	62.4	1710	58.8
1720	56.4	1770	51.9	1800	51.8	1840	52.3	1950	52.4
2060	52.2	2160	51.8	2240	57.7	2250	60.1	2280	77.6
2290	81.9	2300	82.8	2310	82.7	2350	82.6	2360	82.8
2370	82.8	2400	82.1	2410	82	2430	82.4	2440	82.2
2460	83.2	2470	84.7	2540	105.9	2550	107.7	2570	107.7
2621	109								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1690	.032	2280	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1690	2280	990	990	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 140315

INPUT
Description: FROM FILE SCT020.DAT

Station Elevation Data num= 34

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	110.2	1110	75.8	1140	69.2	1220	64.6	1310	64.4
1420	69.3	1430	69.7	1490	67.8	1500	66.4	1520	58.8
1610	52.7	1650	53.7	1760	53.8	1810	53.8	1840	53.5
1950	53.4	1990	53.4	2030	52.8	2060	52.9	2120	59.6
2166	75	2180	79.7	2290	83.1	2300	83.2	2360	82
2390	82.2	2420	81.7	2430	81.6	2450	82.7	2460	82.1
2470	82.2	2510	84.2	2620	96.6	2681	102.5		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1500	.032	2166	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1500	2166	1200	1069	900	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 139246

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	115.5	1040	117	1150	105.6	1230	91	1250	84
1360	70.1	1380	66.8	1390	66.4	1440	66.6	1450	66
1460	62.6	1470	57.4	1480	54.1	1490	52.2	1500	52
1610	55.8	1720	55.5	1830	55.5	1920	55.3	2010	54.2
2120	54	2150	54.1	2250	66.7	2260	69	2270	69.1
2280	68.9	2290	68.9	2390	72.6	2400	72.6	2430	72
2500	77.9	2550	78	2580	78.3	2590	78.4	2610	76.8
2710	81.1	2790	80.8	2870	74	2880	76.1	2910	88.4
2920	89.4	3010	89	3120	91.5	3200	93.6	3276	104.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1450	.032	2260	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1450	2260	950	927	850	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 138319

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	111.5	1110	96.7	1220	83.1	1280	65.7	1290	65.1
1340	65	1370	64.6	1460	52.3	1470	52.2	1500	52.4
1540	53	1560	53	1640	52.2	1670	52	1700	51.7
1750	51.7	1860	53.5	1940	57.9	1960	62.4	1970	65.5
2020	70.9	2060	86.6	2070	88.2	2150	84.2	2190	84.3
2300	86.2	2340	86.8	2350	86.7	2420	85.4	2440	85.3
2520	87.4	2530	86.6	2560	80.5	2570	80.5	2650	80.5
2760	80.1	2860	80.1	2930	80.7	2940	80.8	2990	81
3000	82	3020	83	3030	83.2	3040	82.1	3050	82.3
3070	88	3080	89.4	3140	92.4	3150	92.4	3200	94
3240	94.1	3290	97.5	3337	95.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1370	.032	1960	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1370	1960	1140	1140	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 137179

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	108.5	1100	103.6	1110	101.7	1160	83.1	1170	82.8
1190	83.9	1220	82.7	1313	65	1330	61.9	1360	55.5
1450	51	1540	50.6	1640	52.2	1690	52.3	1780	53.2
1860	53.1	1950	62.7	1960	65.1	2000	84.3	2010	87
2100	81.9	2200	82.2	2280	83.1	2380	83.7	2470	86.8
2480	86.8	2490	85.1	2520	79.3	2530	79.3	2640	79.3
2660	79.7	2670	79.7	2680	79.6	2700	79.5	2720	79.7
2830	80	2870	80.1	2920	81.2	2930	80.5	2960	80
2970	80	2990	80.7	3000	83.8	3029	98.8		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1313	.032	1960	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1313 1960 632 632 632 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 136547

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	106.3	1060	100.6	1110	101.8	1120	100.3	1180	82
1200	78.8	1260	62.6	1285	60.5	1310	58.5	1370	51.3
1480	51.2	1500	51.1	1590	53.2	1610	56.4	1630	53.2
1640	52.9	1750	52.8	1850	52.8	1910	58	1930	63.1
1980	85.5	1990	86.5	2060	84.4	2070	84.5	2180	86.2
2260	88.7	2340	88.3	2450	85.9	2460	85.7	2530	87
2540	87.1	2590	78.8	2670	78.8	2780	78.8	2860	78.3
2870	78.2	2890	78.8	2976	113				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1285	.032	1930	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1285 1930 582 582 582 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 135965

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1219	100	1220	76.9	1290	76.9	1350	76.9	1360	76.9
1400	76.9	1410	77.8	1420	73.4	1460	62.2	1570	55.4
1630	51.1	1640	51.1	1660	51.3	1770	51.3	1820	52.2
1840	52.2	1870	52.5	1980	52.1	2020	52.3	2110	56.7
2120	58.8	2170	64.3	2210	85.3	2220	86.4	2260	84.8
2340	84.7	2370	85.1	2440	85.6	2520	84.2	2620	84
2640	83.8	2740	83.7	2830	86.4	2840	85.4	2880	77.5
2890	77.5	3000	77.5	3030	78.1	3040	78.1	3110	78.1
3120	78.1	3230	86	3240	86	3302	88.4		

Manning's n Values num= 3

```
     Sta   n Val     Sta   n Val     Sta   n Val
    1219     .07    1460    .032    2170     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1460    2170              656     656     656             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 135309

INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   105.7    1040    97.6    1060      99    1070      99    1100      96
    1150    81.3    1160    80.2    1180    81.4    1190      80    1247      66
    1280    57.8    1380    50.5    1490    50.5    1600    50.8    1660    51.3
    1770    54.4    1860      66    1870      66    1960    64.3    2070    64.5
    2160    63.8    2270    66.7    2370    72.8    2460      73    2560    74.4
    2570    74.5    2660    77.3    2760    77.4    2780    76.3    2890    79.5
    2950    81.6  2950.1      99    3150      99    3160      99    3240      99
    3260      99    3315      99

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1247    .032    1860     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1247    1860              700     675     580             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 134634

INPUT
Description: FROM FILE SCT019.DAT

Station Elevation Data    num=      42
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   113.1    1080   109.1    1090   106.9    1130    85.7    1140    82.5
    1160    81.8    1170      77    1180    69.7    1190    66.7    1200    65.8
    1210    63.6    1220    59.6    1230    56.8    1340    50.1    1370    49.7
    1460    49.5    1490    49.8    1500    49.9    1610    51.6    1720    56.1
    1750    60.2    1770    64.7    1780      65    1890    60.7    1900    60.7
    2010    63.4    2120    66.5    2230    69.2    2340      72    2450    77.5
    2490    78.8    2570    75.7    2580    77.7    2590    81.7    2600    83.3
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    2710    87.1    2820    91.6    2930    96.2    3040   100.9    3080   102.7
    3090   102.8    3096   102.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1200    .032    1770     .08

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1200    1770              907     907     907             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 133727

INPUT
Description:
Station Elevation Data    num=      49
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   102.5    1110   102.5    1190   104.8    1200   103.7    1210   100.4
    1240    87.4    1250    84.9    1260      84    1280    84.5    1320    80.5
    1350      81    1360    80.6    1410    64.4    1440      63    1470    56.8
    1580    50.5    1630    49.8    1690    49.9    1740    50.7    1760    50.8
    1860      52    1940    52.6    2040    58.2    2080    65.9    2090    65.8
    2110    64.5    2220    70.5    2240    72.7    2250    72.7    2330    69.7
    2410    70.9    2500    71.4    2610    79.7    2620    79.8    2640    79.8
    2660    80.2    2670    80.2    2720    77.3    2730    77.3    2750    81.4
    2860    88.5    2970    93.9    3010    94.9    3020    94.9    3030    94.6
    3040    94.5    3090    95.3    3130    95.4    3154    95.8

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .07    1440    .032    2080     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1440    2080             1020    1020    1020             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 132707

INPUT
Description:
Station Elevation Data    num=      47
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   113.6    1010   113.5    1020   113.4    1050   112.2    1070   113.4
    1150   104.3    1160   101.7    1210    81.5    1220    81.6    1230    81.6
```

1240	81.8	1250	81.8	1260	80.4	1290	67.1	1300	64.4
1330	60.8	1340	58.3	1430	52.9	1490	52.9	1530	53.4
1640	53.9	1750	53.8	1800	53.4	1840	53.8	1890	52.8
2000	52.5	2070	52.5	2160	56.9	2210	67.4	2230	68.6
2340	66.8	2350	66.7	2460	72.2	2530	74	2550	73.9
2620	79.8	2630	79.7	2650	79.9	2680	80	2710	78.6
2740	83.2	2780	82.4	2790	82.4	2900	86.4	3010	95.8
3120	105.1	3200	112.5						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1290	.032	2210	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1290	2210	642	642	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 132065

INPUT
Description:
Station Elevation Data num= 43

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	110.4	1110	102.7	1220	93.8	1230	92.9	1250	88.3
1260	84.9	1310	82.4	1320	79.1	1350	65.4	1360	64
1390	63	1470	54.2	1510	54.1	1620	55.9	1640	56.1
1710	56	1820	54.3	1890	53.4	2000	53	2110	52.9
2220	52.3	2330	51.5	2350	51.5	2430	53.8	2440	55.8
2460	62.4	2470	64.2	2580	67.9	2690	71.6	2800	79.2
2810	79.7	2820	79.8	2840	79.5	2870	80.1	2880	80.2
2910	81	2920	81.3	2970	83.1	2980	82.8	3090	87.5
3200	98.1	3310	113	3338	116.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1390	.032	2460	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1390	2460	767	767	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 131298

INPUT

Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	117.7	1030	115.4	1040	112.7	1080	86.5	1090	84.8
1140	83.2	1150	78.8	1170	65.5	1180	63.6	1200	61.3
1210	58.2	1270	54.2	1320	54.5	1400	55.3	1440	55.5
1490	53.9	1540	54	1580	53.1	1620	53	1670	54.9
1680	66.7	1800	65	1900	66	2000	65	2120	66.7
2121	66.7	2122	66.7	2180	53.1	2220	53	2260	53.9
2270	53.8	2330	51.6	2370	51.5	2450	56.2	2470	60.7
2480	64.4	2490	67.2	2500	68.6	2510	68.5	2520	68.4
2620	72.3	2650	72.5	2760	77.7	2790	79.8	2800	79.8
2820	80.2	2840	80.3	2850	80.5	2890	78.2	3000	83.9
3110	94.4	3170	107.9	3240	113.1	3284	120.6		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1170	.035	1680	.07	2122	.035	2490	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1170	2490	692	692	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 130606

INPUT
Description:
Station Elevation Data num= 59

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	97.6	1040	88	1060	86.5	1140	89.6	1150	89.5
1260	85.1	1320	83.9	1330	81.7	1340	77.6	1360	67.3
1370	64.6	1400	62.6	1420	56.8	1470	54.2	1510	54.7
1620	55	1630	55	1740	53.3	1760	53	1790	53
1840	55	1850	57	1880	66.7	2028	65	2151	66
2274	65	2421	66.7	2422	66.7	2423	66.7	2424	66.7
2425	66.7	2460	53	2500	52.9	2590	51.5	2610	51.6
2690	57	2700	59.4	2720	66.8	2830	71.8	2860	72.7
2970	72.9	3040	73.3	3150	80.3	3170	80.7	3180	80.6
3220	79.2	3230	79.7	3240	82.7	3250	87.5	3270	94
3380	101.8	3450	105.1	3470	109.2	3480	112.2	3490	118.2
3510	137.1	3520	142.6	3530	145.9	3538	147.7		

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1360	.035	1880	.07	2425	.035	2720	.06

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

1360	2720		607	607	607	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 129999

INPUT
Description: FROM FILE SCT018.DAT

Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	109.2	1010	106.9	1040	93.4	1050	90.4	1120	87.6
1130	86.2	1170	68.2	1180	65.2	1210	63	1240	55.8
1280	54.3	1290	54.2	1330	54.9	1420	54.6	1510	53
1550	53	1600	57.4	1630	67	1649	69	1664	71
1723	71	1734	73.5	1744	72.5	1768	73	1769	73
1816	72.5	1882	72	1956	71.5	2031	72	2097	72.5
2145	73	2168	72.5	2179	73.5	2190	71	2249	71
2264	69	2283	67	2284	67	2285	67	2286	67
2330	53	2370	53	2410	53.9	2420	53.9	2480	51.6
2530	51.6	2600	53.6	2610	55.1	2620	58.3	2640	66.3
2700	68.2	2710	68.3	2820	70.6	2930	77.3	2960	78.8
2990	78.9	3010	79.5	3020	79.4	3040	79.3	3060	79.7
3080	79.2	3090	79.4	3100	81	3130	101.9	3140	103
3150	103	3200	102	3210	102	3270	104.6	3280	106.8
3290	110.2	3300	115.4	3313	126.8				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1180	.035	1630	.07	2286	.035	2640	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1180	2640	447	447	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 129552

INPUT
Description:
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	90.8	1080	88	1090	85.7	1100	80.6	1156	65
1180	58.5	1250	54.3	1270	55.1	1330	53.1	1340	53.1
1360	53.4	1370	53.5	1380	53.6	1410	53.5	1440	52.4
1450	52.4	1480	53.4	1500	53.2	1520	53	1540	54.1

1570	67	1592	69	1608	71	1650	71	1650.1	91
1700	91	1726	91	1780	91	1856	91	1919.9	91
1920	71	1940	70.5	2024	72	2099	72.5	2153	73
2180	72.5	2192	73.5	2204	71	2271	71	2288	69
2309	67	2310	67	2311	67	2312	67	2360	53
2410	53.9	2450	53	2560	53	2590	52.9	2690	58.5
2710	61.6	2820	66.5	2930	73.8	2990	78.8	3000	78.8
3010	77.8	3020	79	3060	75.9	3090	77.2	3100	84
3138	88								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1156	.035	1570	.05	2312	.035	2710	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1156	2710	580	544	320	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 129008

INPUT
Description: X-128834 IS THE US FACE DTM STATION OF HAWS AVE BRIDGE
X1128834
36 1080 2747 39 39 39

Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	104	1080	93.2	1140	91.4	1150	89.2	1180	74.5
1190	71.8	1250	65.4	1270	59.2	1340	54.3	1360	54.8
1400	53.3	1420	53.2	1440	53.6	1450	53.6	1490	52.4
1500	52.4	1530	53.4	1550	53.3	1570	53	1580	53
1627	61.5	1628	61.5	1629	61.5	1630	61.5	1641	73.5
1674	75	1690	75.5	1690.1	96	1818	96	1831	96
1874	96	1892	96	1985	96	2058	96	2070	96
2082	96	2094	96	2219.9	96	2220	73.2	2272	73
2290	72	2333	71.5	2346	76.5	2388	76.5	2448	76
2490	75	2523	73.5	2534	61.5	2535	61.5	2560	53.1
2570	53.1	2610	53.9	2620	53.9	2650	53	2760	52.9
2780	52.8	2890	59.4	2937	65	3000	72.5	3100	79.2
3120	79.2	3130	78.9	3140	78.9	3150	82.9	3155	85.6
3185	100								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1250	.035	1627	.05	2535	.035	2937	.06

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

```
          1250    2937              188     188     188             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 128834

INPUT
Description: This is a REPEATED section.

Station Elevation Data    num=      72
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     190      90   249.2   78.24   389.2   78.24   389.3   60.57  400.25   60.57
  400.35    60.1   401.2    55.6   464.2      51   464.3    74.8   469.7    74.8
   469.8    50.7   544.7    50.4   544.8    74.8   550.2    74.8   550.3    50.4
   625.2    50.4   625.3    74.8   630.7    74.8   630.8    50.4   705.7    50.3
   705.8    74.8   711.2    74.8   711.3   50.25   739.8    60.1   741.2    60.6
   787.1    67.9   787.2   78.24     870    77.2     900    76.5     906    76.5
     907    76.5     908    76.5     910    76.5     931    76.5   931.1      97
    1017      97    1036      97    1137      97    1138      97    1139      97
    1217      97    1229      97    1243      97    1257      97  1410.9      97
    1411    73.2    1450      73    1469      72    1516    71.5    1531    76.5
    1576    76.5    1642      76    1687      75    1723    73.5    1735    61.5
    1736    61.5    1737    61.5    1738    61.5    1781      53    1821    53.8
    1831    53.9    1861      53    1971    52.9    1981    52.8    2091    59.7
    2150      68    2201    75.2    2271    79.7    2281    82.8    2311      95
    2331   100.3    2341   106.7

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     190     .06   389.2    .035   705.8     .05    1738    .035    2150     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         389.2    2150               25      25      25             .1       .3

BRIDGE


RIVER: RIVER-1
REACH: Reach-1            RS: 128814.5

INPUT
Description: Bridge #8X-128795 IS THE DS FACE DTM STATION OF HAWS AVE
             BRIDGE
X1128795    33    1090    2760     157     157
             157
HAWES AVE (BARBADOES ISLAND) BRIDGE
HELICOPTER FLIGHT PHOTO
             #36
```

Distance from Upstream XS = .1
Deck/Roadway Width = 24.8
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
389.2	78.24	78.24	389.3	78.24	74.8	787.1	78.24	74.8
787.2	78.24	78.24						

Upstream Bridge Cross Section Data
Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
190	90	249.2	78.24	389.2	78.24	389.3	60.57	400.25	60.57
400.35	60.1	401.2	55.6	464.2	51	464.3	74.8	469.7	74.8
469.8	50.7	544.7	50.4	544.8	74.8	550.2	74.8	550.3	50.4
625.2	50.4	625.3	74.8	630.7	74.8	630.8	50.4	705.7	50.3
705.8	74.8	711.2	74.8	711.3	50.25	739.8	60.1	741.2	60.6
787.1	67.9	787.2	78.24	870	77.2	900	76.5	906	76.5
907	76.5	908	76.5	910	76.5	931	76.5	931.1	97
1017	97	1036	97	1137	97	1138	97	1139	97
1217	97	1229	97	1243	97	1257	97	1410.9	97
1411	73.2	1450	73	1469	72	1516	71.5	1531	76.5
1576	76.5	1642	76	1687	75	1723	73.5	1735	61.5
1736	61.5	1737	61.5	1738	61.5	1781	53	1821	53.8
1831	53.9	1861	53	1971	52.9	1981	52.8	2091	59.7
2150	68	2201	75.2	2271	79.7	2281	82.8	2311	95
2331	100.3	2341	106.7						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
190	.06	389.2	.035	705.8	.05	1738	.035	2150	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
389.2	2150	.1	.3

Downstream Deck/Roadway Coordinates
num= 4

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
389.2	78.24	78.24	389.3	78.24	74.8	787.1	78.24	74.8
787.2	78.24	78.24						

Downstream Bridge Cross Section Data
Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
190	90	249.2	78.24	389.2	78.24	389.3	60.57	400.25	60.57
400.35	60.1	401.2	55.6	464.2	51	464.3	74.8	469.7	74.8
469.8	50.7	544.7	50.4	544.8	74.8	550.2	74.8	550.3	50.4
625.2	50.4	625.3	74.8	630.7	74.8	630.8	50.4	705.7	50.3
705.8	74.8	711.2	74.8	711.3	50.25	739.8	60.1	741.2	60.6

```
   787.1    67.9   787.2   78.24     870    77.2     900    76.5     906    76.5
     907    76.5     908    76.5     910    76.5     931    76.5   931.1      97
    1017      97    1036      97    1137      97    1138      97    1139      97
    1217      97    1229      97    1243      97    1257      97  1410.9      97
    1411    73.2    1450      73    1469      72    1516    71.5    1531    76.5
    1576    76.5    1642      76    1687      75    1723    73.5    1735    61.5
    1736    61.5    1737    61.5    1738    61.5    1781      53    1821    53.8
    1831    53.9    1861      53    1971    52.9    1981    52.8    2091    59.7
    2150      68    2201    75.2    2271    79.7    2281    82.8    2311      95
    2331   100.3    2341   106.7

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     190     .06   389.2    .035   705.8     .05    1738    .035    2150     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         389.2    2150             .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 128795

INPUT
Description:
```

Station Elevation Data num= 72

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
190	90	249.2	78.24	389.2	78.24	389.3	60.57	400.25	60.57
400.35	60.1	401.2	55.6	464.2	51	464.3	74.8	469.7	74.8
469.8	50.7	544.7	50.4	544.8	74.8	550.2	74.8	550.3	50.4
625.2	50.4	625.3	74.8	630.7	74.8	630.8	50.4	705.7	50.3
705.8	74.8	711.2	74.8	711.3	50.25	739.8	60.1	741.2	60.6
787.1	67.9	787.2	78.24	870	77.2	900	76.5	906	76.5
907	76.5	908	76.5	910	76.5	931	76.5	931.1	97
1017	97	1036	97	1137	97	1138	97	1139	97
1217	97	1229	97	1243	97	1257	97	1410.9	97
1411	73.2	1450	73	1469	72	1516	71.5	1531	76.5
1576	76.5	1642	76	1687	75	1723	73.5	1735	61.5
1736	61.5	1737	61.5	1738	61.5	1781	53	1821	53.8
1831	53.9	1861	53	1971	52.9	1981	52.8	2091	59.7
2150	68	2201	75.2	2271	79.7	2281	82.8	2311	95
2331	100.3	2341	106.7						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
190	.06	389.2	.035	705.8	.05	1738	.035	2150	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
389.2	2150	157	157	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 128638

INPUT
Description:
Station Elevation Data num= 62

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	102	1110	95	1220	93.2	1250	91.9	1310	69.8
1320	68	1400	63.2	1430	58.5	1500	54.4	1520	54.7
1560	53.3	1580	53.3	1610	53.8	1660	52.4	1690	53.3
1720	53.2	1740	52.9	1750	53	1790	61.5	1802	73.5
1838	75	1883	76	1949	76.5	1970	76.5	1970.1	97
2056	97	2075	97	2176	97	2177	97	2178	97
2256	97	2268	97	2282	97	2296	97	2449.9	97
2450	73.2	2489	73	2508	72	2555	71.5	2570	76.5
2615	76.5	2681	76	2726	75	2762	73.5	2774	61.5
2775	61.5	2776	61.5	2777	61.5	2820	53	2860	53.8
2870	53.9	2900	53	3010	52.9	3020	52.8	3130	59.7
3161	64	3240	75.2	3310	79.7	3320	82.8	3350	95
3370	100.3	3380	106.7						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1400	.035	1790	.05	2777	.035	3161	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1400	3161	423	423	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 128215

INPUT
Description:
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	105.4	1110	100.2	1220	96.2	1300	94	1310	93.9
1320	93.6	1330	92.2	1370	82.3	1410	68.2	1420	66.8
1430	66.6	1480	66.4	1590	55.6	1610	54.5	1630	54.6
1670	53.4	1690	53.4	1730	54.1	1750	54.1	1820	52.5
1850	53.3	1880	53.2	1900	52.9	1910	53.2	1950	70.5
2025	71.5	2080	72.5	2114	71	2130	71.5	2130.1	92
2301	92	2442	92	2609.9	92	2610	73	2722	72
2770	71	2804	72.5	2859	71.5	2934	70.5	2935	70.5
2980	53	3030	53.9	3060	53	3170	52.9	3190	52.8
3300	60.6	3357	70	3410	78.6	3430	79.6	3440	79.3
3450	79.4	3490	83.1	3534	106.7				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1480	.035	1950	.05	2935	.035	3357	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1480	3357	449	449	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 127766

INPUT
Description:
Station Elevation Data num= 62

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	102	1010	102	1120	96.1	1180	96.1	1210	96.1
1220	96.1	1270	96.1	1280	96.1	1290	94	1340	73.4
1350	72.5	1390	74.6	1400	74.6	1510	72.5	1620	70
1700	67.1	1710	65.8	1730	59.2	1800	54.7	1820	54.6
1860	53.4	1880	53.5	1920	54.3	1990	52.5	2000	52.6

2030	53.4	2050	53.3	2080	52.9	2120	70.5	2197	71.5
2255	72.5	2289	71	2339	72	2440	73	2440.1	93
2639.9	93	2640	72.5	2824	73	2918	72	2968	71
3003	72.5	3060	71.5	3137	70.5	3138	70.5	3139	70.5
3180	53.2	3190	53	3230	53.8	3240	53.9	3270	53
3360	52.8	3450	57.7	3460	60	3490	73.3	3500	75.8
3610	79.2	3620	79.3	3630	79.2	3640	79.3	3650	82.4
3730	121.4	3754	129.6						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1710	.035	2120	.05	3139	.035	3490	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1710	3490	427	427	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 127339

INPUT
Description: X-127040 IS THE US FACE DTM STATION OF RR BRIDGE #35A
X1127040

28	1030	2731	16	16	16

Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	95	1010	95	1030	95	1130	95	1160	95
1170	95	1180	95	1190	95	1200	95	1220	95
1240	95	1250	94	1260	87	1270	81.6	1290	68.6
1300	67.1	1310	67.1	1320	67.2	1340	67.4	1450	72.8
1540	75.5	1560	75.4	1630	74.5	1640	74.6	1660	74.6
1730	76.1	1740	76.2	1790	72.8	1820	59.6	1830	58.3
1840	58.1	1850	58.1	1950	53.4	1960	53.5	2030	54.6
2080	54.6	2160	52.6	2170	52.5	2200	53.4	2220	53.3
2250	52.9	2300	61.5	2356	64.5	2412	67	2495	68.5
2556	71	2619	72.5	2675	76.5	2739	78	2802	76.5
2858	72.5	2922	71	2983	68.5	3065	67	3122	64.5
3177	61.5	3178	61.5	3179	61.5	3180	61.5	3181	61.5
3190	57.4	3220	53.2	3230	53.1	3270	53.9	3280	53.8
3330	52.6	3440	52.9	3520	57.1	3530	58.7	3580	74.1
3640	77	3720	76.8	3760	78.8	3780	78.1	3800	75.4
3810	78.7	3860	102.3	3892	106.6				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1790	.035	2300	.07	3181	.035	3580	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1790 3580 289 289 289 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 127040

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	94	.1	74.3	202	74.3	257	72.8	328	73.3
362	70.8	380	70.8	412	74.8	427.7	75	427.8	71.29
431.7	71.33	431.8	60.8	443.7	58.8	519.5	54.2	519.6	72.3
526.6	72.35	526.7	54.2	613.8	54.3	613.9	73.4	620.9	73.45
621	54.3	660	54.55	711.2	55.1	711.3	74.45	718.3	74.5
718.4	55.1	810.5	54	810.6	75.55	817.6	75.6	817.7	53
866.4	52.6	909.1	62.8	911.6	63.42	911.7	76.62	916	76.62
916.1	80.3	1000	80.8	1086	81.3	1403	80.8	1403.1	80.8
1760.9	79.5	1761	79.5	1907	79.5	1974	79.5	2056	79.5
2138	80	2199	80.03	2199.1	71.25	2199.2	64.3	2245.9	64.3
2246	71.2	2252	71.2	2252.1	62.3	2259	59.4	2276	58
2299.9	57.5	2300	71.1	2306	71.1	2306.1	51.6	2353.9	50.9
2354	71.05	2360	71.05	2360.1	50.9	2383	50.9	2407.9	51.9
2408	70.95	2414	70.95	2414.1	51.9	2437	51.9	2460.9	50.3
2461	70.9	2467	70.9	2467.1	50.3	2490	50.3	2512.9	50.3
2513	70.85	2519	70.85	2519.1	50.3	2539	50.8	2559.9	50.8
2560	70.8	2566	70.8	2566.1	50.8	2585	51.4	2602.9	51
2603	70.75	2609	70.75	2609.1	59.5	2612.5	60.7	2637.9	64.1
2638	70.65	2638.1	79.23	2659	78	2681	77.5	2759	77.5
2797	77.5	2814	90.5						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	431.7	.035	909.1	.08	2252.1	.035	2638	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
431.7 2638 26 26 26 .1 .3

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 127032

INPUT
Description: Bridge #7X-127024 IS THE DS FACE DTM STATION OF RR

```
             BRIDGE
X1127024    29    1030    2740      73      73
             73
CONRAIL (SEPTA/READING) RR BRIDGE
HELICOPTER FLIGHT PHOTO
             #35A

Distance from Upstream XS =      .1
Deck/Roadway Width        =    25.8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      44
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
   427.7      75      75   427.8   81.41   71.29   431.7   81.45   71.33
   519.6    82.4    72.3   526.6    82.5   72.35   613.9    83.4    73.4
   620.9    83.5   73.45   711.3    84.5   74.45   718.3    84.6    74.5
   810.6    85.5   75.55   817.6    85.6    75.6   911.7    86.8   76.62
     916   86.86   76.82   916.1    80.3    80.3    1000    80.8    80.8
    1086    81.3    81.3    1403    80.8    80.8  1403.1    80.8    80.8
  1760.9    79.5    79.5    1761    79.5    79.5    1907    79.5    79.5
    1974    79.5    79.5    2056    79.5    79.5    2138      80      80
    2199   80.03   80.03  2199.1   80.03   71.25    2246      80    71.2
    2252      80    71.2    2300    79.9    71.1    2306    79.9    71.1
    2354    79.8   71.05    2360    79.8   71.05    2408    79.6   70.95
    2414    79.6   70.95    2461    79.5    70.9    2467    79.5    70.9
    2513    79.4   70.85    2519    79.4   70.85    2560    79.3    70.8
    2566    79.3    70.8    2603    79.2   70.75    2609    79.2   70.75
    2638   79.23   70.65  2638.1   79.23   79.23

Upstream Bridge Cross Section Data
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0      94      .1    74.3     202    74.3     257    72.8     328    73.3
     362    70.8     380    70.8     412    74.8   427.7      75   427.8   71.29
   431.7   71.33   431.8    60.8   443.7    58.8   519.5    54.2   519.6    72.3
   526.6   72.35   526.7    54.2   613.8    54.3   613.9    73.4   620.9   73.45
     621    54.3     660   54.55   711.2    55.1   711.3   74.45   718.3    74.5
   718.4    55.1   810.5      54   810.6   75.55   817.6    75.6   817.7      53
   866.4    52.6   909.1    62.8   911.6   63.42   911.7   76.62     916   76.62
   916.1    80.3    1000    80.8    1086    81.3    1403    80.8  1403.1    80.8
  1760.9    79.5    1761    79.5    1907    79.5    1974    79.5    2056    79.5
    2138      80    2199   80.03  2199.1   71.25  2199.2    64.3  2245.9    64.3
    2246    71.2    2252    71.2  2252.1    62.3    2259    59.4    2276      58
  2299.9    57.5    2300    71.1    2306    71.1  2306.1    51.6  2353.9    50.9
    2354   71.05    2360   71.05  2360.1    50.9    2383    50.9  2407.9    51.9
    2408   70.95    2414   70.95  2414.1    51.9    2437    51.9  2460.9    50.3
    2461    70.9    2467    70.9  2467.1    50.3    2490    50.3  2512.9    50.3
    2513   70.85    2519   70.85  2519.1    50.3    2539    50.8  2559.9    50.8
    2560    70.8    2566    70.8  2566.1    50.8    2585    51.4  2602.9      51
    2603   70.75    2609   70.75  2609.1    59.5  2612.5    60.7  2637.9    64.1
```

2638	70.65	2638.1	79.23	2659	78	2681	77.5	2759	77.5
2797	77.5	2814	90.5						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	431.7	.035	909.1	.08	2252.1	.035	2638	.06

Bank Sta: Left	Right	Coeff Contr.	Expan.
431.7	2638	.1	.3

Downstream Deck/Roadway Coordinates

num= 44

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
427.7	75	75	427.8	81.41	71.29	431.7	81.45	71.33
519.6	82.4	72.3	526.6	82.5	72.35	613.9	83.4	73.4
620.9	83.5	73.45	711.3	84.5	74.45	718.3	84.6	74.5
810.6	85.5	75.55	817.6	85.6	75.6	911.7	86.8	76.62
916	86.86	76.82	916.1	80.3	80.3	1000	80.8	80.8
1086	81.3	81.3	1403	80.8	80.8	1403.1	80.8	80.8
1760.9	79.5	79.5	1761	79.5	79.5	1907	79.5	79.5
1974	79.5	79.5	2056	79.5	79.5	2138	80	80
2199	80.03	80.03	2199.1	80.03	71.25	2246	80	71.2
2252	80	71.2	2300	79.9	71.1	2306	79.9	71.1
2354	79.8	71.05	2360	79.8	71.05	2408	79.6	70.95
2414	79.6	70.95	2461	79.5	70.9	2467	79.5	70.9
2513	79.4	70.85	2519	79.4	70.85	2560	79.3	70.8
2566	79.3	70.8	2603	79.2	70.75	2609	79.2	70.75
2638	79.23	70.65	2638.1	79.23	79.23			

Downstream Bridge Cross Section Data

Station Elevation Data num= 97

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	94	.1	74.3	202	74.3	257	72.8	328	73.3
362	70.8	380	70.8	412	74.8	427.7	75	427.8	71.29
431.7	71.33	431.8	60.8	443.7	58.8	519.5	54.2	519.6	72.3
526.6	72.35	526.7	54.2	613.8	54.3	613.9	73.4	620.9	73.45
621	54.3	660	54.55	711.2	55.1	711.3	74.45	718.3	74.5
718.4	55.1	810.5	54	810.6	75.55	817.6	75.6	817.7	53
866.4	52.6	909.1	62.8	911.6	63.42	911.7	76.62	916	76.62
916.1	80.3	1000	80.8	1086	81.3	1403	80.8	1403.1	80.8
1760.9	79.5	1761	79.5	1907	79.5	1974	79.5	2056	79.5
2138	80	2199	80.03	2199.1	71.25	2199.2	64.3	2245.9	64.3
2246	71.2	2252	71.2	2252.1	62.3	2259	59.4	2276	58
2299.9	57.5	2300	71.1	2306	71.1	2306.1	51.6	2353.9	50.9
2354	71.05	2360	71.05	2360.1	50.9	2383	50.9	2407.9	51.9
2408	70.95	2414	70.95	2414.1	51.9	2437	51.9	2460.9	50.3
2461	70.9	2467	70.9	2467.1	50.3	2490	50.3	2512.9	50.3
2513	70.85	2519	70.85	2519.1	50.3	2539	50.8	2559.9	50.8
2560	70.8	2566	70.8	2566.1	50.8	2585	51.4	2602.9	51
2603	70.75	2609	70.75	2609.1	59.5	2612.5	60.7	2637.9	64.1

```
    2638   70.65  2638.1   79.23    2659      78    2681    77.5    2759    77.5
    2797    77.5    2814    90.5

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
       0     .06   431.7    .035   909.1     .08  2252.1    .035    2638     .06

Bank Sta: Left   Right    Coeff Contr.   Expan.
         431.7    2638             .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 127024

INPUT
Description:
Station Elevation Data    num=      97
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
       0      94      .1    74.3     202    74.3     257    72.8     328    73.3
     362    70.8     380    70.8     412    74.8   427.7      75   427.8   71.29
   431.7   71.33   431.8    60.8   443.7    58.8   519.5    54.2   519.6    72.3
   526.6   72.35   526.7    54.2   613.8    54.3   613.9    73.4   620.9   73.45
     621    54.3     660   54.55   711.2    55.1   711.3   74.45   718.3    74.5
   718.4    55.1   810.5      54   810.6   75.55   817.6    75.6   817.7      53
```

866.4	52.6	909.1	62.8	911.6	63.42	911.7	76.62	916	76.62
916.1	80.3	1000	80.8	1086	81.3	1403	80.8	1403.1	80.8
1760.9	79.5	1761	79.5	1907	79.5	1974	79.5	2056	79.5
2138	80	2199	80.03	2199.1	71.25	2199.2	64.3	2245.9	64.3
2246	71.2	2252	71.2	2252.1	62.3	2259	59.4	2276	58
2299.9	57.5	2300	71.1	2306	71.1	2306.1	51.6	2353.9	50.9
2354	71.05	2360	71.05	2360.1	50.9	2383	50.9	2407.9	51.9
2408	70.95	2414	70.95	2414.1	51.9	2437	51.9	2460.9	50.3
2461	70.9	2467	70.9	2467.1	50.3	2490	50.3	2512.9	50.3
2513	70.85	2519	70.85	2519.1	50.3	2539	50.8	2559.9	50.8
2560	70.8	2566	70.8	2566.1	50.8	2585	51.4	2602.9	51
2603	70.75	2609	70.75	2609.1	59.5	2612.5	60.7	2637.9	64.1
2638	70.65	2638.1	79.23	2659	78	2681	77.5	2759	77.5
2797	77.5	2814	90.5						

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	431.7	.035	909.1	.08	2252.1	.035	2638	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
431.7	2638	73	73	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 126951

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1629.9	96	1630	76.4	1640	74	1670	72.8	1680	72.7
1720	74.4	1770	74.4	1850	73	1860	73	1930	73.7
1940	73.8	2000	71.9	2020	71.9	2100	58.6	2210	54
2230	53.5	2240	53.4	2330	54.8	2350	54.8	2430	52.7
2450	52.6	2490	53.4	2520	53.2	2540	53	2550	52.9
2600	61.5	2648	64.5	2697	67	2769	68.5	2822	71
2877	72.5	2925	76.5	2981	78	2982	78	2983	78
3036	76.5	3084	72.5	3139	71	3192	68.5	3264	67
3313	64.5	3361	61.5	3362	61.5	3363	61.5	3400	52.9
3450	53.9	3460	53.8	3510	52.5	3520	52.5	3550	52.9
3620	52.9	3700	57.1	3710	58.9	3742	71	3750	74.2
3760	75.6	3770	75.7	3780	75.7	3790	75.8	3800	75.9
3820	76.1	3870	76.3	3970	80.3	4070	75.4	4160	78.5
4170	78.6	4190	79.6	4250	93.9	4260	95.2	4270	94.8
4280	95.9	4300	104.3	4329	110.6				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val

1629.9	.05	2020	.035	2600	.08	3363	.035	3742	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2020	3742	106	106	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 126845

INPUT
Description: This is a REPEATED section.
Station Elevation Data num= 95

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
280	82	340	78.3	340	86.8	343	86.8	343	78.3
401	78.3	401	89.3	405	89.3	405	78.3	462	72.5
462	91	466	91	466	72.5	524	72.5	524	94.5
527	94.5	527	72.5	584	72.5	584	96.5	589	72.5
626	68	673	62.3	673	88.6	678.9	88.6	679	62.3
702	55	815	56	815	93.7	821	93.7	821	58
834	56.2	902	52	993	54	993	100	999	100
999	54	1172	63.5	1172	102.4	1178	102.4	1178	63.5
1316	63.5	1316	105.4	1322	105.4	1322	63.5	1427	62.5
1428	108.1	1434	108.1	1434	62.5	1557	63	1557.1	63
1557.3	63	1557.4	106.4	1563.4	106.2	1563.4	63	1701.6	63.5
1701.6	100	1707.6	100	1707.6	65	1830.4	65	1830.4	106.5
1836.4	106.5	1836.4	65	1959.4	50.1	1959.4	104.4	1965.4	104
1965.4	50.1	1980	50.1	1998	50.1	2030	50.1	2035.4	50.1
2069.9	50.1	2103.4	50.1	2103.4	103.2	2109.4	103.2	2109.4	51
2139	52	2173	53.3	2199	68	2232.4	81.25	2232.4	104.9
2238.4	104.9	2238.4	81.25	2352.7	72.75	2352.7	102.5	2364.2	102.5
2364.2	72.75	2473.9	75	2473.9	101.75	2488.9	101.75	2488.9	75
2596.9	74.75	2596.9	98.75	2611.9	98.75	2611.9	74.75	2726.2	94

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
280	.05	626	.035	1172	.08	1836.4	.035	2199	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
626	2199	66	66	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 126779

INPUT
Description: X-126715 IS THE US FACE DTM STATION OF RR BRIDGE

```
X1126715    28
             1000    2550      26      26      26
X-126765 IS THE DS FACE DTM
             STATION OF RT 202 BRIDGE
X1126765    42    1370    2960      50
             50      50
DEKALB PIKE/MARKLEY ST (RT 202/DANNEHOWER)
             BRIDGE
HELICOPTER FLIGHT PHOTO #35
Station Elevation Data    num=      95
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     280      82     340    78.3     340    86.8     343    86.8     343    78.3
     401    78.3     401    89.3     405    89.3     405    78.3     462    72.5
     462      91     466      91     466    72.5     524    72.5     524    94.5
     527    94.5     527    72.5     584    72.5     584    96.5     589    72.5
     626      68     673    62.3     673    88.6   678.9    88.6     679    62.3
     702      55     815      56     815    93.7     821    93.7     821      58
     834    56.2     902      52     993      54     993     100     999     100
     999      54    1172    63.5    1172   102.4    1178   102.4    1178    63.5
    1316    63.5    1316   105.4    1322   105.4    1322    63.5    1427    62.5
    1428   108.1    1434   108.1    1434    62.5    1557      63  1557.1      63
  1557.3      63  1557.4   106.4  1563.4   106.2  1563.4      63  1701.6    63.5
  1701.6     100  1707.6     100  1707.6      65  1830.4      65  1830.4   106.5
  1836.4   106.5  1836.4      65  1959.4    50.1  1959.4   104.4  1965.4     104
  1965.4    50.1    1980    50.1    1998    50.1    2030    50.1  2035.4    50.1
  2069.9    50.1  2103.4    50.1  2103.4   103.2  2109.4   103.2  2109.4      51
    2139      52    2173    53.3    2199      68  2232.4   81.25  2232.4   104.9
  2238.4   104.9  2238.4   81.25  2352.7   72.75  2352.7   102.5  2364.2   102.5
  2364.2   72.75  2473.9      75  2473.9  101.75  2488.9  101.75  2488.9      75
  2596.9   74.75  2596.9   98.75  2611.9   98.75  2611.9   74.75  2726.2      94

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     280     .05     626    .035    1172     .08  1836.4    .035    2199     .06

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           626    2199               56      56      56             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 126715

INPUT
Description: This is a REPEATED section.

Station Elevation Data    num=      86
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     619    81.6   619.1    72.9     670    63.5   672.9    62.6     673    72.8
```

```
     680    72.8   680.1    62.7   733.9    63.6     734   72.75     741   72.75
   741.1    55.9   794.9      56     795    72.7     802    72.7   802.1    56.1
   855.9    55.3     856    72.6     863    72.6   863.1    51.8   916.9      54
     917   72.55     924   72.55   924.1    53.8     952      52   977.9    54.1
     978    72.5     985    72.5   985.1    54.1    1012      53  1038.9    54.9
    1039   72.45    1046   72.45  1046.1    53.1  1099.9      53    1100    72.4
    1107    72.4  1107.1    50.8  1160.9    53.3    1161   72.35    1168   72.35
  1168.1    56.2    1196    57.2    1199    59.5    1203    61.3  1221.9   61.99
    1222    72.3  1222.1      81  1222.2      81  1222.3      81  1222.4      81
  1421.7      63    1484    62.5    1607      62  1613.4      63  1751.6    63.5
  1757.5      65  1886.4      65  2009.4    50.1  2009.5    50.1  2015.3    50.1
  2015.4    50.1    2030    50.1    2048    50.1    2080      51  2085.4      51
  2119.9      51  2159.4      51    2189      52    2223    53.3    2249    56.6
    2264      66  2288.3      72  2288.4      72  2402.7   72.75  2402.8   72.75
  2414.1   72.75  2414.2   72.75  2523.9      75    2524      75  2538.8      75
  2538.9      75  2646.9   74.75    2647   74.75  2661.8   74.75  2661.9   74.75
  2776.2      94

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     619     .05   733.9    .035  1222.1     .08  1886.4    .035    2264     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         733.9    2264               34      34      34             .1       .3

BRIDGE


RIVER: RIVER-1
REACH: Reach-1            RS: 126702

INPUT
Description: Bridge #6X-126689 IS THE DS FACE DTM STATION OF RR
             BRIDGE
X1126689    31    1000    2540     192     192
             192
CONRAIL (READING) RR BRIDGE
HELICOPTER FLIGHT PHOTO #34A

Distance from Upstream XS =      .1
Deck/Roadway Width        =    33.8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      22
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     619    81.6    81.6   619.1    81.6    72.9     673   81.54    72.8
     680   81.54    72.8     734   81.48   72.75     741   81.48   72.75
     795   81.42    72.7     802   81.42    72.7     856   81.36    72.6
     863   81.36    72.6     917    81.3   72.55     924    81.3   72.55
     978   81.24    72.5     985   81.24    72.5    1039   81.18   72.45
```

1046	81.18	72.45	1100	81.12	72.4	1107	81.12	72.4
1161	81.06	72.35	1168	81.06	72.35	1222	81	72.3
1222.1	81	81						

Upstream Bridge Cross Section Data

Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
619	81.6	619.1	72.9	670	63.5	672.9	62.6	673	72.8
680	72.8	680.1	62.7	733.9	63.6	734	72.75	741	72.75
741.1	55.9	794.9	56	795	72.7	802	72.7	802.1	56.1
855.9	55.3	856	72.6	863	72.6	863.1	51.8	916.9	54
917	72.55	924	72.55	924.1	53.8	952	52	977.9	54.1
978	72.5	985	72.5	985.1	54.1	1012	53	1038.9	54.9
1039	72.45	1046	72.45	1046.1	53.1	1099.9	53	1100	72.4
1107	72.4	1107.1	50.8	1160.9	53.3	1161	72.35	1168	72.35
1168.1	56.2	1196	57.2	1199	59.5	1203	61.3	1221.9	61.99
1222	72.3	1222.1	81	1222.2	81	1222.3	81	1222.4	81
1421.7	63	1484	62.5	1607	62	1613.4	63	1751.6	63.5
1757.5	65	1886.4	65	2009.4	50.1	2009.5	50.1	2015.3	50.1
2015.4	50.1	2030	50.1	2048	50.1	2080	51	2085.4	51
2119.9	51	2159.4	51	2189	52	2223	53.3	2249	56.6
2264	66	2288.3	72	2288.4	72	2402.7	72.75	2402.8	72.75
2414.1	72.75	2414.2	72.75	2523.9	75	2524	75	2538.8	75
2538.9	75	2646.9	74.75	2647	74.75	2661.8	74.75	2661.9	74.75
2776.2	94								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
619	.05	733.9	.035	1222.1	.08	1886.4	.035	2264	.05

Bank Sta: Left Right Coeff Contr. Expan.

Left	Right	Coeff Contr.	Expan.
733.9	2264	.1	.3

Downstream Deck/Roadway Coordinates

num= 22

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
619	81.6	81.6	619.1	81.6	72.9	673	81.54	72.8
680	81.54	72.8	734	81.48	72.75	741	81.48	72.75
795	81.42	72.7	802	81.42	72.7	856	81.36	72.6
863	81.36	72.6	917	81.3	72.55	924	81.3	72.55
978	81.24	72.5	985	81.24	72.5	1039	81.18	72.45
1046	81.18	72.45	1100	81.12	72.4	1107	81.12	72.4
1161	81.06	72.35	1168	81.06	72.35	1222	81	72.3
1222.1	81	81						

Downstream Bridge Cross Section Data

Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
619	81.6	619.1	72.9	670	63.5	672.9	62.6	673	72.8
680	72.8	680.1	62.7	733.9	63.6	734	72.75	741	72.75

```
   741.1    55.9   794.9      56     795    72.7     802    72.7   802.1    56.1
   855.9    55.3     856    72.6     863    72.6   863.1    51.8   916.9      54
     917   72.55     924   72.55   924.1    53.8     952      52   977.9    54.1
     978    72.5     985    72.5   985.1    54.1    1012      53  1038.9    54.9
    1039   72.45    1046   72.45  1046.1    53.1  1099.9      53    1100    72.4
    1107    72.4  1107.1    50.8  1160.9    53.3    1161   72.35    1168   72.35
  1168.1    56.2    1196    57.2    1199    59.5    1203    61.3  1221.9   61.99
    1222    72.3  1222.1      81  1222.2      81  1222.3      81  1222.4      81
  1421.7      63    1484    62.5    1607      62  1613.4      63  1751.6    63.5
  1757.5      65  1886.4      65  2009.4    50.1  2009.5    50.1  2015.3    50.1
  2015.4    50.1    2030    50.1    2048    50.1    2080      51  2085.4      51
  2119.9      51  2159.4      51    2189      52    2223    53.3    2249    56.6
    2264      66  2288.3      72  2288.4      72  2402.7   72.75  2402.8   72.75
  2414.1   72.75  2414.2   72.75  2523.9      75    2524      75  2538.8      75
  2538.9      75  2646.9   74.75    2647   74.75  2661.8   74.75  2661.9   74.75
  2776.2      94

Manning's n Values        num=       5
     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val     Sta   n Val
     619     .05   733.9    .035  1222.1     .08  1886.4    .035    2264     .05

Bank Sta: Left   Right    Coeff Contr.   Expan.
         733.9    2264             .1       .3

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION
```

RIVER: RIVER-1
REACH: Reach-1 RS: 126689

INPUT
Description:
Station Elevation Data num= 86

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
619	81.6	619.1	72.9	670	63.5	672.9	62.6	673	72.8
680	72.8	680.1	62.7	733.9	63.6	734	72.75	741	72.75
741.1	55.9	794.9	56	795	72.7	802	72.7	802.1	56.1
855.9	55.3	856	72.6	863	72.6	863.1	51.8	916.9	54
917	72.55	924	72.55	924.1	53.8	952	52	977.9	54.1
978	72.5	985	72.5	985.1	54.1	1012	53	1038.9	54.9
1039	72.45	1046	72.45	1046.1	53.1	1099.9	53	1100	72.4
1107	72.4	1107.1	50.8	1160.9	53.3	1161	72.35	1168	72.35
1168.1	56.2	1196	57.2	1199	59.5	1203	61.3	1221.9	61.99
1222	72.3	1222.1	81	1222.2	81	1222.3	81	1222.4	81
1421.7	63	1484	62.5	1607	62	1613.4	63	1751.6	63.5
1757.5	65	1886.4	65	2009.4	50.1	2009.5	50.1	2015.3	50.1
2015.4	50.1	2030	50.1	2048	50.1	2080	51	2085.4	51
2119.9	51	2159.4	51	2189	52	2223	53.3	2249	56.6
2264	66	2288.3	72	2288.4	72	2402.7	72.75	2402.8	72.75
2414.1	72.75	2414.2	72.75	2523.9	75	2524	75	2538.8	75
2538.9	75	2646.9	74.75	2647	74.75	2661.8	74.75	2661.9	74.75
2776.2	94								

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
619	.05	733.9	.035	1222.1	.08	1886.4	.035	2264	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
733.9	2264	192	192	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 126497

INPUT
Description:
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1730	94.8	1840	91.5	1950	89	1980	89	2030	89
2040	89	2080	89	2120	89	2130	89	2150	89
2160	89	2170	89	2369.9	89	2370	68.6	2400	68.4
2510	62.7	2620	54.7	2670	53.4	2750	55	2790	55
2860	52.7	2880	52.6	2920	53.4	2940	53.3	2970	52.9
3030	64.5	3166	65	3302	64.5	3438	65	3575	64.5

3576	64.5	3610	53	3660	53.9	3720	52.4	3740	53
3790	52.8	3880	57.2	3910	63.3	3980	66.1	4020	75.2
4070	76.4	4080	76.4	4170	74.8	4260	75.1	4370	77.3
4470	77.1	4520	78.3	4530	78.1	4540	78.1	4560	78.1
4560.1	98	4740	98	4850	98	4880	98	4940	98
4970	98	5000	98	5070	98	5080	98	5150	98
5160	98	5170	98	5200	104.4	5220	107.8	5230	107.8
5270	106.5	5290	106.5	5350	103.6				

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1730	.05	2510	.035	3030	.08	3576	.035	3910	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2510	3910	307	307	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 126190

INPUT
Description:
Station Elevation Data num= 95

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1150	88	1160	87.3	1270	90.5	1290	91	1300	90.9
1310	90.8	1400	95.1	1510	94.8	1570	95.1	1580	95.2
1590	95.3	1610	95.5	1720	95.9	1770	95.8	1810	95.2
1890	94.6	2000	91.1	2110	86.6	2220	86	2230	86
2290	86	2390	86	2410	86	2450	86	2490	86
2500	86	2510	86	2520	86	2530	86	2580	86
2659.9	86	2660	66.3	2690	64.8	2700	67.1	2710	65
2730	66.2	2740	65.8	2750	66.1	2860	56.1	2940	53.4
3040	55.2	3050	55.2	3110	52.7	3140	52.7	3180	53.4
3210	53.3	3230	53	3240	52.9	3300	64.5	3389	65
3478	64.5	3567	65	3656	64.5	3700	53	3750	53.9
3760	53.8	3790	52.9	3800	52.8	3810	53	3880	52.8
3970	57.1	4000	63.8	4110	67.1	4120	67.1	4170	66.5
4180	66.5	4230	74.9	4240	75	4260	74.9	4300	74.4
4370	74.4	4480	76.4	4590	77.7	4600	77.7	4650	76.9
4670	76.9	4680	76.9	4680.1	97	4750	97	4790	97
4830	97	4900	97	4930	97	4990	97	5040	97
5050	97	5070	97	5080	97	5110	97	5200	97
5210	97	5290	97	5300	97	5370	101.8	5390	101.7

Manning's n Values num= 5

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
1150	.06	2750	.035	3300	.08	4000	.035	4000	.05

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
2750 4000 452 452 452 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 125738

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
400	96	430	96	510	96	590	96	678.9	96
679	76	770	72	940	68	960	64	961	64
1000	63	1010	63.3	1020	62.7	1070	62.7	1080	62.7
1129	62.7	1149	52.7	1160	52.7	1270	52.7	1300	52.7
1310	52.7	1340	52.7	1360	52.7	1370	52.7	1390	52.7
1420	52.7	1460	52.7	1500	52.7	1510	52.7	1520	52.7
1560	52.7	1570	52.7	1590	52.7	1620	52.7	1670	52.7
1750	52.7	1780	52.7	1790	52.7	1800	52.7	1910	52.7
1920	52.7	1989	52.7	2011	63.7	2030	63.7	2140	67.6
2250	69.9	2260	70	2300	69.8	2330	70.6	2400	70.6
2420	70.8	2430	70.5	2430.1	91	2450	91	2470	91
2480	91	2510	91	2530	91	2590	91	2610	91
2620	91	2730	91	2740	91	2750	91	2770	91
2780	91	2790	91	2900	91	2950	91	2960	91
3070	91	3180	91	3290	91	3400	96.4	3410	96.3
3520	102.9	3630	110.1	3696	115.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
400	.04	1129	.035	2011	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1129 2011 20 20 20 .3 .5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 125718

INPUT
Description:
Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
400	96	430	96	510	96	590	96	678.9	96
679	76	770	72	940	68	960	64	961	64
1000	63	1010	63.3	1020	62.7	1070	62.7	1080	62.7

1129	62.7	1130	58.3	1160	58.3	1270	58.3	1300	58.3
1310	58.3	1340	58.3	1360	58.3	1370	58.3	1390	58.3
1420	58.3	1460	58.3	1500	58.3	1510	58.3	1520	58.3
1560	58.3	1570	58.3	1590	58.3	1620	58.3	1670	58.3
1750	58.3	1780	58.3	1790	58.3	1800	58.3	1910	58.3
1920	58.3	2010	58.3	2011	63.7	2030	63.7	2140	67.6
2250	69.9	2260	70	2300	69.8	2330	70.6	2400	70.6
2420	70.8	2430	70.5	2430.1	91	2450	91	2470	91
2480	91	2510	91	2530	91	2590	91	2610	91
2620	91	2730	91	2740	91	2750	91	2770	91
2780	91	2790	91	2900	91	2950	91	2960	91
3070	91	3180	91	3290	91	3400	96.4	3410	96.3
3520	102.9	3630	110.1	3696	115.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
400	.04	1129	.035	2011	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1129	2011	20	20	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 125698

INPUT
Description: X-125608 IS THE US FACE DTM STATION OF SEPTA RR BRIDGE
X1125608
22 1000 1970 24 24 24
X-125718 IS THE DTM
STATION OF THE CREST OF NORRISTOWN DAM
X1125718 68 1020
2030 110 110 110
NORRISTOWN DAM
HELICOPTER FLIGHT
PHOTO #34

Station Elevation Data num= 78

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
400	96	430	96	510	96	590	96	678.9	96
679	76	770	72	940	68	960	64	961	64
1000	63	1010	63.3	1020	62.7	1070	62.7	1080	62.7
1129	62.7	1166	44	1167	44	1270	44	1300	44
1310	44	1340	44	1360	44	1370	44	1390	44
1420	44	1460	44	1500	44	1510	44	1520	44
1560	44	1570	44	1590	44	1620	44	1670	44
1750	44	1780	44	1790	44	1800	44	1910	44
1920	44	1972	44	2011	63.7	2030	63.7	2140	67.6

2250	69.9	2260	70	2300	69.8	2330	70.6	2400	70.6
2420	70.8	2430	70.5	2430.1	91	2450	91	2470	91
2480	91	2510	91	2530	91	2590	91	2610	91
2620	91	2730	91	2740	91	2750	91	2770	91
2780	91	2790	91	2900	91	2950	91	2960	91
3070	91	3180	91	3290	91	3400	96.4	3410	96.3
3520	102.9	3630	110.1	3696	115.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
400	.04	1129	.035	2011	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1129	2011	96	96	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 125608

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
216	110	217	110	218	110	219.9	110	220	72.8
260	71.5	327.9	71.3	328	100.3	340	100	340.1	71.2
393	70.7	430	70.5	459.9	69.6	460	95.7	464	95.7
464.1	69.5	505	68.5	523.9	65.6	524	95	528	95
528.1	64	560	52.7	588	48	588.1	78.1	595	78.1
595.1	46.8	640	44.8	670	44.2	710	45	741.9	45.1
742	78.1	749	78.1	749.1	45.2	840	45.5	880	46
895.9	44.7	896	78.1	903	78.1	903.1	44.3	920	43.5
1049.9	46	1050	78.1	1057	78.1	1057.1	46.2	1120	48
1203.9	45.6	1204	78.1	1211	78.1	1211.1	45.3	1230	44.8
1310	45.3	1357.9	46.1	1358	78.1	1365	78.1	1365.1	46.8
1460	47	1511.9	50.1	1512	78.1	1519	78.1	1519.1	53.2
1540	60	1580	65.5	1665.9	66.8	1666	78.1	1673	78.1
1673.1	66.9	1740	67.7	1740.1	98.5				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
216	.04	528.1	.035	1540	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
528.1	1540	18	18	.3	.5

BRIDGE

RIVER: RIVER-1
REACH: Reach-1 RS: 125596

INPUT
Description: Bridge #5X-125584 IS THE DS FACE DTM STATION OF SEPTA RR
BRIDGE
X1125584 26 1000 1960 289 289
289
SEPTA RED ARROW/PHILLY SUBURBAN TROLLY (POWELL ST) RR
BRIDGE
HELICOPTER FLIGHT PHOTO #33
USGS GAGE #01473500 IS
LOACATED AT THE BRIDGE PIER (ASSUMED AT DS FACE)
OF THIS BRIDGE
WHICH IS LOCATED 600 FT UPSTREAM OF THE DEKALB ST BRIDGE

Distance from Upstream XS = .1
Deck/Roadway Width = 17.8
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 29

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
218	110	110	219.9	110	110	220	110	100.3
328	104.8	100.3	340	104.5	100	393	104.1	97
460	100	95.7	464	99.6	95.7	524	99	95
528	99	95	588	98.5	94.3	588.1	98.5	78.1
595	98.5	78.1	742	98.5	78.1	749	98.5	78.1
896	98.5	78.1	903	98.5	78.1	1050	98.5	78.1
1057	98.5	78.1	1204	98.5	78.1	1211	98.5	78.1
1358	98.3	78.1	1365	98.5	78.1	1512	98.5	78.1
1519	98.5	78.1	1666	98.5	78.1	1673	98.5	78.1
1740	98.5	78.1	1740.1	98.5	98.5			

Upstream Bridge Cross Section Data
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
216	110	217	110	218	110	219.9	110	220	72.8
260	71.5	327.9	71.3	328	100.3	340	100	340.1	71.2
393	70.7	430	70.5	459.9	69.6	460	95.7	464	95.7
464.1	69.5	505	68.5	523.9	65.6	524	95	528	95
528.1	64	560	52.7	588	48	588.1	78.1	595	78.1
595.1	46.8	640	44.8	670	44.2	710	45	741.9	45.1
742	78.1	749	78.1	749.1	45.2	840	45.5	880	46
895.9	44.7	896	78.1	903	78.1	903.1	44.3	920	43.5
1049.9	46	1050	78.1	1057	78.1	1057.1	46.2	1120	48
1203.9	45.6	1204	78.1	1211	78.1	1211.1	45.3	1230	44.8
1310	45.3	1357.9	46.1	1358	78.1	1365	78.1	1365.1	46.8
1460	47	1511.9	50.1	1512	78.1	1519	78.1	1519.1	53.2
1540	60	1580	65.5	1665.9	66.8	1666	78.1	1673	78.1

```
  1673.1    66.9    1740    67.7  1740.1    98.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     216     .04   528.1    .035    1540     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
         528.1    1540             .3       .5

Downstream  Deck/Roadway Coordinates
    num=      29
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     218     110     110   219.9     110     110     220     110   100.3
     328   104.8   100.3     340   104.5     100     393   104.1      97
     460     100    95.7     464    99.6    95.7     524      99      95
     528      99      95     588    98.5    94.3   588.1    98.5    78.1
     595    98.5    78.1     742    98.5    78.1     749    98.5    78.1
     896    98.5    78.1     903    98.5    78.1    1050    98.5    78.1
    1057    98.5    78.1    1204    98.5    78.1    1211    98.5    78.1
    1358    98.3    78.1    1365    98.5    78.1    1512    98.5    78.1
    1519    98.5    78.1    1666    98.5    78.1    1673    98.5    78.1
    1740    98.5    78.1  1740.1    98.5    98.5

Downstream Bridge Cross Section Data
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     216     110     217     110     218     110   219.9     110     220    72.8
     260    71.5   327.9    71.3     328   100.3     340     100   340.1    71.2
     393    70.7     430    70.5   459.9    69.6     460    95.7     464    95.7
   464.1    69.5     505    68.5   523.9    65.6     524      95     528      95
   528.1      64     560    52.7     588      48   588.1    78.1     595    78.1
   595.1    46.8     640    44.8     670    44.2     710      45   741.9    45.1
     742    78.1     749    78.1   749.1    45.2     840    45.5     880      46
   895.9    44.7     896    78.1     903    78.1   903.1    44.3     920    43.5
  1049.9      46    1050    78.1    1057    78.1  1057.1    46.2    1120      48
  1203.9    45.6    1204    78.1    1211    78.1  1211.1    45.3    1230    44.8
    1310    45.3  1357.9    46.1    1358    78.1    1365    78.1  1365.1    46.8
    1460      47  1511.9    50.1    1512    78.1    1519    78.1  1519.1    53.2
    1540      60    1580    65.5  1665.9    66.8    1666    78.1    1673    78.1
  1673.1    66.9    1740    67.7  1740.1    98.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     216     .04   528.1    .035    1540     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
         528.1    1540             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
```

```
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 125584

INPUT
Description:
Station Elevation Data    num=      68
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     216     110     217     110     218     110   219.9     110     220    72.8
     260    71.5   327.9    71.3     328   100.3     340     100   340.1    71.2
     393    70.7     430    70.5   459.9    69.6     460    95.7     464    95.7
   464.1    69.5     505    68.5   523.9    65.6     524      95     528      95
   528.1      64     560    52.7     588      48   588.1    78.1     595    78.1
   595.1    46.8     640    44.8     670    44.2     710      45   741.9    45.1
     742    78.1     749    78.1   749.1    45.2     840    45.5     880      46
   895.9    44.7     896    78.1     903    78.1   903.1    44.3     920    43.5
  1049.9      46    1050    78.1    1057    78.1  1057.1    46.2    1120      48
  1203.9    45.6    1204    78.1    1211    78.1  1211.1    45.3    1230    44.8
    1310    45.3  1357.9    46.1    1358    78.1    1365    78.1  1365.1    46.8
    1460      47  1511.9    50.1    1512    78.1    1519    78.1  1519.1    53.2
    1540      60    1580    65.5  1665.9    66.8    1666    78.1    1673    78.1
  1673.1    66.9    1740    67.7  1740.1    98.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     216     .04   528.1    .035    1540     .04
```

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
528.1 1540 289 289 289 .3 .5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 125295

INPUT
Description: X-124990 IS THE US FACE DTM STATION OF DEKALB ST BRIDGE
X1124990
31 1020 1880 61 61 61

Station Elevation Data num= 91

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	107.8	1110	100.2	1220	94.7	1330	92.4	1340	92.4
1360	92.5	1410	92.9	1430	93	1450	92.6	1470	92.6
1510	91.6	1520	91	1540	91	1550	91	1580	91
1690	91	1700	91	1720	91	1730	91	1740	91
1770	91	1820	91	1999.9	91	2000	70.6	2010	70.6
2020	70.4	2040	70.3	2060	70	2110	52.4	2120	50.4
2230	46.8	2270	46.4	2380	46	2390	46	2420	46.6
2430	46.7	2450	46.4	2520	52	2570	46.6	2580	46.5
2600	46.9	2640	47.2	2720	51.2	2770	47.5	2820	47.4
2860	46.6	2870	46.6	2900	47.6	2920	47.3	2960	49.6
2970	52	3010	66.8	3020	68.3	3030	68.3	3050	68.9
3080	65.6	3090	65.6	3160	66.5	3160.1	87	3330	87
3350	87	3360	87	3440	87	3450	87	3500	87
3530	87	3550	87	3560	87	3600	87	3710	87
3750	87	3850	87	3920	87	3930	87	3940	87
3960	87	4040	87	4150	88.6	4160	88.8	4210	88.3
4320	92.7	4430	100.2	4460	102.6	4480	102.1	4490	102.2
4550	109	4560	108.8	4570	107.4	4580	107.3	4690	112.2
4723	112.9								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	2060	.035	3010	.04

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
2060 3010 380 298 250 .3 .5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 124990

INPUT
Description: This is a REPEATED section.

Station Elevation Data   num=   69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
50	94	419.9	94	420	73.8	487	76.6	498.5	66.3
530	50.5	544.5	49.1	565	47	575	47	590.5	48
601.9	48.7	602	54.8	610	54.8	610.1	48.5	621.5	47.3
630	46.5	667.5	46.8	680	47	713.5	47	724.9	47
725	57.6	733	57.6	733.1	47	744.5	46.9	790.5	46.7
836.5	46.5	847.9	46.4	848	58.9	856	58.9	856.1	46.3
867.5	46.3	913.5	46.1	930	46	950	45	959.5	45.5
970.9	46	971	58.9	979	58.9	979.1	46	990.5	46
1030	46	1036.5	45.9	1070	45.5	1082.5	46	1093.9	46.7
1094	57.6	1102	57.6	1102.1	46.7	1113.5	46.6	1159.5	45.9
1173	45.8	1205.5	47.3	1216.9	47.9	1217	54.8	1225	54.8
1236.5	47.4	1273	45.5	1282.5	45.5	1295	45.5	1310	50.5
1328.5	56.4	1340	60	1340.1	76.6	1510	70.5	1580	70.5
1580.1	91	1810	91	1910	91	2010	91		

Manning's n Values   num=   3

Sta	n Val	Sta	n Val	Sta	n Val
50	.04	498.5	.035	1340	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
498.5	1340	68	68	.3	.5

BRIDGE

RIVER: RIVER-1
REACH: Reach-1   RS: 124959.5

INPUT
Description: Bridge #4FROM FILE SCT017.DAT
X-124929 IS THE DS FACE DTM STATION
OF DEKALB ST BRIDGE
X1124929   37   1000   1770   484
484   484
DEKALB STREET BRIDGE (OLD ROUTE 202?)
HELICOPTER
FLIGHT PHOTO #32

Distance from Upstream XS =   .1
Deck/Roadway Width   =   67.8
Weir Coefficient   =   2.6
Upstream Deck/Roadway Coordinates
num=   36

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
487	76.6	76.6	498.5	77	66.3	544.5	78.7	72.8

590.5	80	69.2	602	80.3	54.8	610	80.5	54.8
621.5	80	69.9	667.5	82.1	76.2	713.5	82.9	72.4
725	83.1	57.6	733	83.2	57.6	744.5	83.4	72.6
790.5	84.2	78.2	836.5	84.5	73.7	848	84.55	58.9
856	84.6	58.9	867.5	84.65	73.9	913.5	84.9	78.9
959.5	84.65	73.9	971	84.6	58.9	979	84.55	58.9
990.5	84.5	73.7	1036.5	84.2	78.2	1082.5	83.4	72.6
1094	83.2	57.6	1102	83.1	57.6	1113.5	82.4	72.3
1159.5	82.1	76.2	1205.5	80.8	70	1217	80.5	54.8
1225	80.3	54.8	1236.5	80	69.2	1282.5	78.7	72.8
1328.5	77	66.3	1340	76.6	60	1340.1	76.6	76.6

Upstream Bridge Cross Section Data

Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
50	94	419.9	94	420	73.8	487	76.6	498.5	66.3
530	50.5	544.5	49.1	565	47	575	47	590.5	48
601.9	48.7	602	54.8	610	54.8	610.1	48.5	621.5	47.3
630	46.5	667.5	46.8	680	47	713.5	47	724.9	47
725	57.6	733	57.6	733.1	47	744.5	46.9	790.5	46.7
836.5	46.5	847.9	46.4	848	58.9	856	58.9	856.1	46.3
867.5	46.3	913.5	46.1	930	46	950	45	959.5	45.5
970.9	46	971	58.9	979	58.9	979.1	46	990.5	46
1030	46	1036.5	45.9	1070	45.5	1082.5	46	1093.9	46.7
1094	57.6	1102	57.6	1102.1	46.7	1113.5	46.6	1159.5	45.9
1173	45.8	1205.5	47.3	1216.9	47.9	1217	54.8	1225	54.8
1236.5	47.4	1273	45.5	1282.5	45.5	1295	45.5	1310	50.5
1328.5	56.4	1340	60	1340.1	76.6	1510	70.5	1580	70.5
1580.1	91	1810	91	1910	91	2010	91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
50	.04	498.5	.035	1340	.04

Bank Sta: Left	Right	Coeff Contr.	Expan.
498.5	1340	.3	.5

Downstream Deck/Roadway Coordinates

num= 36

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
487	76.6	76.6	498.5	77	66.3	544.5	78.7	72.8
590.5	80	69.2	602	80.3	54.8	610	80.5	54.8
621.5	80	69.9	667.5	82.1	76.2	713.5	82.9	72.4
725	83.1	57.6	733	83.2	57.6	744.5	83.4	72.6
790.5	84.2	78.2	836.5	84.5	73.7	848	84.55	58.9
856	84.6	58.9	867.5	84.65	73.9	913.5	84.9	78.9
959.5	84.65	73.9	971	84.6	58.9	979	84.55	58.9
990.5	84.5	73.7	1036.5	84.2	78.2	1082.5	83.4	72.6
1094	83.2	57.6	1102	83.1	57.6	1113.5	82.4	72.3
1159.5	82.1	76.2	1205.5	80.8	70	1217	80.5	54.8

```
    1225    80.3    54.8  1236.5      80    69.2  1282.5    78.7    72.8
  1328.5      77    66.3    1340    76.6      60  1340.1    76.6    76.6

Downstream Bridge Cross Section Data
Station Elevation Data    num=      69
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      50      94   419.9      94     420    73.8     487    76.6   498.5    66.3
     530    50.5   544.5    49.1     565      47     575      47   590.5      48
   601.9    48.7     602    54.8     610    54.8   610.1    48.5   621.5    47.3
     630    46.5   667.5    46.8     680      47   713.5      47   724.9      47
     725    57.6     733    57.6   733.1      47   744.5    46.9   790.5    46.7
   836.5    46.5   847.9    46.4     848    58.9     856    58.9   856.1    46.3
   867.5    46.3   913.5    46.1     930      46     950      45   959.5    45.5
   970.9      46     971    58.9     979    58.9   979.1      46   990.5      46
    1030      46  1036.5    45.9    1070    45.5  1082.5      46  1093.9    46.7
    1094    57.6    1102    57.6  1102.1    46.7  1113.5    46.6  1159.5    45.9
    1173    45.8  1205.5    47.3  1216.9    47.9    1217    54.8    1225    54.8
  1236.5    47.4    1273    45.5  1282.5    45.5    1295    45.5    1310    50.5
  1328.5    56.4    1340      60  1340.1    76.6    1510    70.5    1580    70.5
  1580.1      91    1810      91    1910      91    2010      91

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      50     .04   498.5    .035    1340     .04

Bank Sta: Left   Right    Coeff Contr.   Expan.
         498.5    1340             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
```

Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 124929

INPUT
Description:
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
50	94	419.9	94	420	73.8	487	76.6	498.5	66.3
530	50.5	544.5	49.1	565	47	575	47	590.5	48
601.9	48.7	602	54.8	610	54.8	610.1	48.5	621.5	47.3
630	46.5	667.5	46.8	680	47	713.5	47	724.9	47
725	57.6	733	57.6	733.1	47	744.5	46.9	790.5	46.7
836.5	46.5	847.9	46.4	848	58.9	856	58.9	856.1	46.3
867.5	46.3	913.5	46.1	930	46	950	45	959.5	45.5
970.9	46	971	58.9	979	58.9	979.1	46	990.5	46
1030	46	1036.5	45.9	1070	45.5	1082.5	46	1093.9	46.7
1094	57.6	1102	57.6	1102.1	46.7	1113.5	46.6	1159.5	45.9
1173	45.8	1205.5	47.3	1216.9	47.9	1217	54.8	1225	54.8
1236.5	47.4	1273	45.5	1282.5	45.5	1295	45.5	1310	50.5
1328.5	56.4	1340	60	1340.1	76.6	1510	70.5	1580	70.5
1580.1	91	1810	91	1910	91	2010	91		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
50	.04	498.5	.035	1340	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
498.5	1340	484	484	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 124445

INPUT
Description:
Station Elevation Data num= 70

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	97.3	1110	90.7	1120	90.5	1130	90.5	1150	90.8
1230	89	1240	89	1350	89	1370	89	1420	89
1530	89	1560	89	1590	89	1700	89	1730	89
1750	89	1770	89	1780	89	1800	89	1820	89
1850	89	1900	89	1960	89	2129.9	89	2130	69
2140	69.1	2190	67	2200	65.4	2270	46.7	2340	44.1

2450	44.4	2560	44.4	2670	44.4	2740	44.6	2770	44.2
2820	48.3	2830	51	2870	67.9	2880	68.1	2970	66.4
3020	66.6	3060	67	3130	67.3	3170	67.8	3240	68.2
3240.1	88	3470	88	3500	88	3560	88	3580	88
3690	88	3750	88	3780	88	3840	88	3850	88
3860	88	3880	88	3980	88	4080	88	4150	88
4160	88	4180	88	4190	88	4300	88	4410	93.7
4520	97.9	4630	105.4	4690	109.9	4700	109.5	4702	109.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	2200	.035	2870	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2200	2870	782	782	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 123663

INPUT
Description:
Station Elevation Data num= 69

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	91	1110	91	1220	91	1330	91	1420	91
1510	91	1540	91	1650	91	1690	91	1710	91
1770	91	1800	91	1840	91	1850	91	1870	91
1880	91	1890	91	2000	91	2060	91	2080	91
2090	91	2100	91	2110	91	2140	91	2170	91
2289.9	91	2290	70.6	2340	69.9	2450	67.8	2480	66.7
2490	65.2	2540	48.5	2630	43.2	2700	43.4	2750	45.6
2810	44.5	2900	44.5	2920	44.3	2930	44.3	2970	47.2
2980	50	2990	55.3	3000	62.5	3060	65.9	3070	65.7
3080	65.6	3080.1	86	3249.9	86	3250	65.8	3290	65.8
3320	66.3	3420	66.7	3530	69	3540	69.1	3630	69.5
3660	68.7	3700	71.1	3700.1	91	3920	91	3940	91
4050	91	4160	91	4270	91	4350	91	4380	91
4490	91	4600	94.9	4710	101.6	4712	101.7		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	2490	.035	3000	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2490	3000	712	712	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 122951

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	94	1110	94	1220	94	1389.9	94	1390	74.3
1470	74.3	1480	74.3	1500	74.1	1560	74.3	1570	73.9
1590	67.2	1600	66.2	1610	66.2	1620	65.3	1710	68.6
1820	66.5	1830	66.4	1890	66	1940	64.7	1990	64.3
2010	63.3	2020	60.3	2040	50.1	2050	47	2130	42.8
2140	42.7	2230	45.6	2250	44.2	2290	44.3	2320	44.6
2330	44.6	2360	44.3	2370	44.3	2400	45	2410	47
2450	62.6	2460	63.9	2490	63.9	2490.1	84	2629.9	84
2630	65.3	2670	65	2680	65.1	2720	65.4	2720.1	85
2750	85	2760	85	2870	85	2900	85	3109.9	85
3110	74.5	3150	75.7	3160	75.8	3180	75.7	3190	75.7
3190.1	96	3420	96	3430	96	3440	96	3460	96
3570	96	3640	96	3750	96	3770	96	3816	96

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2010	.035	2450	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2010	2450	639	639	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 122312

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	93	1110	93	1220	93	1330	93	1359.9	93
1360	73.4	1380	73.8	1390	73.8	1500	70.4	1530	70
1590	71.3	1630	68.8	1660	69.5	1750	69.7	1810	69
1840	68.8	1950	67	2060	63.1	2070	63.2	2170	45.3
2240	43.6	2350	44	2430	44.3	2470	44.8	2480	44.8
2500	44.6	2510	44.6	2550	45.8	2560	47.7	2600	63
2610	65.6	2695	73.4	2800	69.2	2830	70	2840	70
2860	68.9	2870	71.5	2980	75.1	3000	76.3	3040	83.3
3150	91.8	3190	94.9	3210	94.8	3268	93.7		

Manning's n Values num= 3

```
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .05    2070    .035    2610     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2070    2610              822     822     822             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 121490

INPUT
Description:
Station Elevation Data    num=      50
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000      94    1020      94    1130      94  1399.9      94    1400    73.6
    1430    73.6    1520    71.4    1530    71.3    1580      73    1600    70.9
    1630    62.9    1700    67.4  1700.1      84    1830      84    1840      84
    1950      84  2039.9      84    2040    64.2    2060    64.2    2090    64.1
    2100    64.3    2110    64.3    2130    63.3    2140      61    2170    48.3
    2180    46.1    2220    44.6    2330    44.1    2440      44    2470    44.1
    2520      45    2590    44.7    2600    45.1    2610    46.8    2620    50.6
    2630    55.8    2640    59.1    2650    59.2    2670    54.5    2680      55
    2720    69.1    2770    73.5    2780    75.5    2820    90.8    2860    92.9
    2900    92.9    2970    94.3    2990    94.4    3100    99.7    3107   100.1

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .05    2130    .035    2640     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          2130    2640              688     688     688             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 120802

INPUT
Description:
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000      94    1010      94    1030      94    1040      94    1050      94
    1070      94    1160      94    1230      94    1270      94    1290      94
    1320      94    1330      94    1400      94  1499.9      94    1500    74.3
    1510    74.5    1550    73.8    1620    75.2    1650    71.5    1660    71.7
    1670    69.7    1700    60.3    1740      66    1750    65.6    1760    65.5
    1860    63.4    1920    63.1    1950    62.3    2060    44.3    2090    42.9
```

2170	42.5	2280	44.1	2320	44.7	2380	44.9	2400	45.7
2410	48.2	2440	59.2	2450	60.2	2480	53.2	2490	52.7
2500	53.9	2560	69.7	2610	74	2640	79.4	2660	80.2
2670	78.6	2680	76	2690	74.7	2700	74.7	2810	80.4
2920	84.9	3030	90.7	3140	96.3	3250	101.4	3283	103.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1950	.035	2440	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1950	2440	650	602	550	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 120200

INPUT
Description: FROM FILE SCT016.DAT

Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	88.7	1090	81.4	1200	81.1	1240	80.8	1280	80.4
1300	80.3	1330	80.7	1350	80.7	1360	78.4	1370	76
1380	76	1390	76	1400	76	1410	76	1420	76
1440	76	1450	76	1470	76	1480	76	1490	76
1540	76	1550	76	1570	76	1600	76	1610	76
1690	76	1760	77	1830	72.7	1840	72.7	1850	72.8
1860	72.8	1940	64.8	1950	64.9	2060	58.6	2120	44.2
2230	41.5	2250	41.6	2270	41.8	2280	41.8	2290	41.7
2300	41.6	2400	43.2	2410	43.3	2460	45.4	2480	49
2520	60.9	2580	64.1	2600	64.1	2710	71.2	2820	76.8
2930	80.9	3040	85.7	3060	85.9	3100	86.2	3210	93.1
3317	99.7								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	2060	.035	2520	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2060	2520	1150	918	650	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 119282

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1089	90	1090	70.4	1100	70.4	1110	70.5	1160	70.5
1180	70.3	1230	70.3	1240	70.4	1280	68.9	1330	68.7
1340	68.8	1350	65	1360	64.7	1380	66.1	1390	66.1
1410	64.2	1420	66.5	1430	63.9	1450	54.6	1490	45.6
1580	40.8	1640	41	1660	40.6	1690	40.7	1800	43.4
1820	44.5	1880	61.9	1885	62.3	1965	60	2025	60
2045	64	2075	68	2205	72	2285	76	2335	80
2415	84								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1089	.06	1420	.035	1880	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1420	1880	348	348	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 118934

INPUT
Description: X-118798 IS THE US FACE DTM STATION OF PA TURNPIKE
BRIDGE

X1118798	34	1440	1860	61	61	61

Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	135.8	1010	135.8	1020	128.9	1060	75.3	1070	68.7
1130	64.1	1160	66.1	1170	66.1	1180	63.6	1220	47
1230	45.4	1320	40.2	1370	41.1	1430	40	1540	44.2
1550	44.8	1560	47.7	1580	57.1	1590	60.3	1600	60.7
1650	59.2	1670	59.1	1700	57.1	1710	57.8	1770	69.4
1780	70.3	1830	66.1	1861	67.9	1940	72	1990	76
2050	80	2050.1	100						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1170	.035	1590	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1170	1590	147	147	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 118798

INPUT
Description: This is a REPEATED section.
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4	93.9	67	85	90	76.6	90	90	96	90
97	76.6	130	64.5	156	64.3	178	61.6	180	90
186	90	189	54.6	201	48	211	45.3	244	45.1
287	39.4	292	39.7	294	90	300	90	303	40.1
348	41.3	370	40.8	416	39.6	418	90	424	90
427	39.5	430	39.5	448	41.6	495	43.7	515	43.8
534	45.1	540	48	542	90	548	90	551	49.8
567	57.3	664	58.9	666	90	672	90	675	58.9
685	58.9	710	68	772	68	786	67.5	787	90
792	90	795	68.7	876	65.7	914	66.4	917	90
923	90	924	66.1	1000	72	1000.1	90	1044	90
1045	90	1131	90	1132	90	1138	90	1160	90
1227	104.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
4	.04	178	.035	567	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
178	567	50	50	.3	.5

Cross Section Lid
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
4	115.7	101.9	1227	115.7	101.9

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 118737

INPUT
Description: X-118675 IS THE US FACE DTM STATION OF RR BRIDGE
X1118675 74
1600 2050 24 24 24
I-276 (PENNSYLVANIA
TURNPIKE) BRIDGE
HELICOPTER FLIGHT PHOTO #31A
Station Elevation Data num= 61

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4	93.9	67	85	90	76.6	90	90	96	90
97	76.6	130	64.5	156	64.3	178	61.6	180	90

```
     186      90     189    54.6     201      48     211    45.3     244    45.1
     287    39.4     292    39.7     294      90     300      90     303    40.1
     348    41.3     370    40.8     416    39.6     418      90     424      90
     427    39.5     430    39.5     448    41.6     495    43.7     515    43.8
     534    45.1     540      48     542      90     548      90     551    49.8
     567    57.3     664    58.9     666      90     672      90     675    58.9
     685    58.9     710      68     772      68     786    67.5     787      90
     792      90     795    68.7     876    65.7     914    66.4     917      90
     923      90     924    66.1    1000      72  1000.1      90    1044      90
    1045      90    1131      90    1132      90    1138      90    1160      90
    1227   104.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
       4     .04     178    .035     567     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           178     567               57      57      57             .3       .5
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
       4   115.7   101.9    1227   115.7   101.9

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 118675

INPUT
Description: This is a REPEATED section.

Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      48   85.97      48   78.97     113   62.62     119   65.01     139   64.02
     145   62.62     163    56.8     163   85.97     170   85.97   171.5     54
   189.5   47.98   204.5   42.68   216.5   41.98   225.5   42.78   273.5   41.08
   283.5    42.1     285   85.97     292   85.97   293.5    43.4   304.5   44.68
   330.5   39.88     360   40.59   384.5   41.18   397.5      43   405.5      43
     407   85.97     414   85.97   415.5    44.3   419.5      45   449.5   41.48
   479.5   42.28   492.5   42.38   524.5   45.98   527.5    46.8     529   85.97
     536   85.97   537.5    51.5   545.5   56.53   649.5    58.6     651   85.97
     658   85.97   659.5   58.75   674.5   59.08   687.5   65.75   716.5   66.31
     747   66.48     772   66.88     773   85.97     783   85.97     784    64.8
     787    64.5     826   64.38     856   71.98     898   73.38     898   85.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      48     .04     145    .035   545.5     .05
```

```
Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           145   545.5               29      29      29             .3       .5
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      48  105.97   85.97     898  105.97   85.97

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 118651

INPUT
Description: X-118651 IS THE DS FACE DTM STATION OF RR BRIDGE
X1118651    43
             1600    2060     161     161     161
CONRAIL (PENN CENTRAL) RR
             BRIDGE
HELICOPTER FLIGHT PHOTO #31

Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
      48   85.97      48   78.97     113   62.62     119   65.01     139   64.02
     145   62.62     163    56.8     163   85.97     170   85.97   171.5     54
   189.5   47.98   204.5   42.68   216.5   41.98   225.5   42.78   273.5   41.08
   283.5    42.1     285   85.97     292   85.97   293.5    43.4   304.5   44.68
   330.5   39.88     360   40.59   384.5   41.18   397.5      43   405.5      43
     407   85.97     414   85.97   415.5    44.3   419.5      45   449.5   41.48
   479.5   42.28   492.5   42.38   524.5   45.98   527.5    46.8     529   85.97
     536   85.97   537.5    51.5   545.5   56.53   649.5    58.6     651   85.97
     658   85.97   659.5   58.75   674.5   59.08   687.5   65.75   716.5   66.31
     747   66.48     772   66.88     773   85.97     783   85.97     784    64.8
     787    64.5     826   64.38     856   71.98     898   73.38     898   85.97

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
      48     .04     145    .035   545.5     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           145   545.5               161     161     161             .3       .5
Cross Section Lid
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
      48  105.97   85.97     898  105.97   85.97

CROSS SECTION


RIVER: RIVER-1
```

REACH: Reach-1 RS: 118490

INPUT
Description:
Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1760	93.6	1870	93.2	1980	90.3	1990	88.9	2030	66.9
2040	66	2050	66.1	2060	65.9	2100	58.3	2110	54.6
2120	48.1	2130	44.7	2220	40.7	2250	41.9	2290	39.5
2400	43.8	2450	42.7	2470	42.7	2520	45.8	2530	48.2
2550	57	2560	60.2	2620	58.7	2650	58.8	2660	59
2700	66.4	2740	68.6	2790	67.5	2800	67.5	2910	72.2
3020	78.3	3043	79						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1760	.04	2060	.035	2560	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2060	2560	485	485	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 118005

INPUT
Description: FROM FILE SCT015.DAT

Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	85	1020	85	1030	85	1080	85	1160	85
1240	85	1250	85	1320	85	1330	85	1350	85
1370	85	1480	85	1540	85	1580	85	1640	85
1650	85	1660	85	1680	85	1690	85	1700	85
1720	85	1740	85	1899.9	85	1900	64.8	1920	64.8
1950	64.2	1960	64.2	1980	63.7	2020	64.2	2060	64.2
2090	64.8	2120	60.3	2180	43.3	2290	39.7	2300	39.5
2330	39.6	2440	42.5	2450	42.6	2530	42.8	2560	43.5
2570	45.1	2630	63.9	2640	65.4	2650	65.5	2760	65.5
2800	65.5	2910	68.8	2960	67.2	3070	71.8	3180	79.3
3290	86.8	3400	92	3433	96.2				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	2120	.035	2630	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2120	2630	720	675	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 117330

INPUT
Description:
Station Elevation Data num= 54

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	91.1	1060	88.2	1090	80.1	1100	78.6	1140	83.9
1150	84	1260	81.2	1290	74.4	1400	71.7	1510	72
1590	72.1	1700	67.7	1760	64.6	1770	64.6	1870	46.4
1880	43.3	1910	41.1	2020	40.6	2060	40.6	2070	40.7
2120	40.9	2230	42.9	2240	44.1	2250	48.3	2310	65
2320	67.7	2330	69.3	2400	71.2	2430	70.8	2540	71.1
2550	71	2610	70.9	2620	70.7	2650	70.6	2660	70.5
2770	69.7	2800	69.1	2810	69.1	2820	68.6	2840	68
2850	68.2	2860	68.2	2880	67.6	2890	67.6	2920	69.4
3030	100.2	3050	103.8	3060	104.4	3070	104.4	3140	99.2
3150	99.4	3160	101.5	3200	120.5	3249	149.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1770	.035	2310	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1770	2310	1150	1023	850	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 116307

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	108.8	1010	107.8	1070	81.2	1080	74.8	1090	70.2
1200	60.2	1270	48.8	1290	42.9	1320	38.8	1340	38.5
1350	38.5	1410	39.7	1440	39.7	1550	43.2	1590	44.4
1600	45.9	1660	61	1680	69.3	1690	71.3	1700	70.4
1750	64	1760	64	1770	64	1780	64	1800	64
1870	64	1980	64	2070	64	2110	64	2120	64
2160	70.3	2170	70.6	2190	64.8	2200	64.5	2300	68.3
2320	67.2	2330	67.4	2440	73.8	2540	77.9	2580	85.6
2680	96.5	2710	111	2720	114	2730	114	2740	113.3

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1200	.035	1660	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1200	1660	500	500	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 115807

INPUT
Description: FROM FILE SCT015.DAT

Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	109.8	1030	125.4	1040	116.9	1070	77.1	1080	71.4
1100	85	1110	84	1130	66.4	1140	62.8	1150	62
1200	50.8	1210	45.3	1220	42.1	1240	38.3	1270	37.4
1360	39.3	1370	39.3	1480	43.4	1510	44	1520	44
1530	44.3	1540	46.8	1560	48.2	1605	62	1630	69.9
1640	67.2	1660	64	1670	64	1770	64	1780	64
1890	64	1960	64	1990	70.1	2040	64	2050	64
2110	65.4	2120	65.5	2130	65.5	2240	75	2270	79
2280	79	2290	78.9	2310	78.9	2350	79.3	2460	79.4
2500	79.3	2610	75.9	2620	75.8	2690	91.9	2700	91.7
2790	100.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.06	1150	.035	1605	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1150	1605	1230	1230	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 114577

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	137.4	1110	124.2	1180	113.5	1220	101.3	1260	79.9
1270	70.9	1280	65.9	1290	64.4	1310	64.3	1370	59.3
1380	57.4	1410	45.1	1420	42.3	1490	37.7	1510	37.6

```
    1550    38.6    1570    38.2    1610    39.5    1630    39.6    1740    41.8
    1780      48    1810      56    1820    57.1    1890    53.5    2000    61.8
    2090      66    2110      66    2120      66    2130      66    2140      66
    2160      66    2170      66    2200    66.2    2210      65    2310    75.1
    2420    75.7    2440    75.7  2440.1      96    2610      96    2720      96
    2730      96    2810      96    2900      96    2940      96    2993      96

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .06    1380    .035    1810     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1380    1810              515     515     515             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 114062

INPUT
Description: X-113859 IS THE US FACE DTM STATION OF RR BRIDGE
X1113859    57
              2110    2600      48      48      48

Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1680    91.5    1700    95.9    1710    96.8    1720    82.5    1730    72.7
    1740    68.6    1810    65.4    1866      56    1920    46.9    1950    39.1
    1990    36.7    2010    36.8    2060    37.5    2090    37.6    2180    39.5
    2210    39.5    2320    43.4    2390    55.3    2420      56    2530    72.7
    2540    74.2

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1680     .07    1866    .035    2390     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1866    2390              229     229     229             .3       .5

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 113859

INPUT
Description: This is a REPEATED section.

Station Elevation Data    num=      55
```

```
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     151   105.7     156   105.7     156    68.9     230    68.4     240    66.9
     240    92.4     245    92.4     245    65.6     254    63.3     285    63.2
     325    58.5     325    92.4     330    84.4     330    57.8     339    56.7
     343    48.2     371    37.6     413    36.2     413    83.6     418    83.6
     418    36.2     459    36.9     500    37.2     500    82.8     506    82.8
     506    37.2     547    37.9     588    38.2     588      82     594      82
     594    38.2     635    39.8     676    39.2     676    81.2     682    81.2
     682    39.2     723    40.1     764    42.2     764    80.4     769    80.4
     769    42.2     811    43.1     837    48.2     841    57.6     852    57.6
     852    79.6     857    87.6     857    57.6     860    57.6     873    62.3
     884    62.4     888    64.2     938    64.7     938   100.5     944   100.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     151     .07     339    .035     841     .07

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           339     841               22      22      22             .3       .5

BRIDGE


RIVER: RIVER-1
REACH: Reach-1            RS: 113835

INPUT
Description: Bridge #3X-113811 IS THE DS FACE DTM STATION OF RR
             BRIDGE
X1113811    67    2150    2720     214     214
             214
CONRAIL (READING) RR BRIDGE
HELICOPTER FLIGHT PHOTO #30

Distance from Upstream XS =      .1
Deck/Roadway Width        =    21.8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      20
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     156   105.7    92.5     240   105.4    92.4     245   105.4    92.4
     325   105.1    92.4     325   102.4    92.4     330   102.4    84.4
     413   101.6    83.6     418   101.6    83.6     500   100.8    82.8
     506   100.8    82.8     588     100      82     594     100      82
     676    99.2    81.2     682    99.2    81.2     764    98.4    80.4
     769    98.4    80.4     852    97.6    79.6     857    97.6    87.6
     857   100.6    87.6     938   100.5    87.5

Upstream Bridge Cross Section Data
Station Elevation Data    num=      55
```

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
151	105.7	156	105.7	156	68.9	230	68.4	240	66.9
240	92.4	245	92.4	245	65.6	254	63.3	285	63.2
325	58.5	325	92.4	330	84.4	330	57.8	339	56.7
343	48.2	371	37.6	413	36.2	413	83.6	418	83.6
418	36.2	459	36.9	500	37.2	500	82.8	506	82.8
506	37.2	547	37.9	588	38.2	588	82	594	82
594	38.2	635	39.8	676	39.2	676	81.2	682	81.2
682	39.2	723	40.1	764	42.2	764	80.4	769	80.4
769	42.2	811	43.1	837	48.2	841	57.6	852	57.6
852	79.6	857	87.6	857	57.6	860	57.6	873	62.3
884	62.4	888	64.2	938	64.7	938	100.5	944	100.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
151	.07	339	.035	841	.07

Bank Sta: Left	Right	Coeff Contr.	Expan.
339	841	.3	.5

Downstream Deck/Roadway Coordinates
num= 20

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
156	105.7	92.5	240	105.4	92.4	245	105.4	92.4
325	105.1	92.4	325	102.4	92.4	330	102.4	84.4
413	101.6	83.6	418	101.6	83.6	500	100.8	82.8
506	100.8	82.8	588	100	82	594	100	82
676	99.2	81.2	682	99.2	81.2	764	98.4	80.4
769	98.4	80.4	852	97.6	79.6	857	97.6	87.6
857	100.6	87.6	938	100.5	87.5			

Downstream Bridge Cross Section Data
Station Elevation Data num= 55

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
151	105.7	156	105.7	156	68.9	230	68.4	240	66.9
240	92.4	245	92.4	245	65.6	254	63.3	285	63.2
325	58.5	325	92.4	330	84.4	330	57.8	339	56.7
343	48.2	371	37.6	413	36.2	413	83.6	418	83.6
418	36.2	459	36.9	500	37.2	500	82.8	506	82.8
506	37.2	547	37.9	588	38.2	588	82	594	82
594	38.2	635	39.8	676	39.2	676	81.2	682	81.2
682	39.2	723	40.1	764	42.2	764	80.4	769	80.4
769	42.2	811	43.1	837	48.2	841	57.6	852	57.6
852	79.6	857	87.6	857	57.6	860	57.6	873	62.3
884	62.4	888	64.2	938	64.7	938	100.5	944	100.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
151	.07	339	.035	841	.07

```
Bank Sta: Left   Right    Coeff Contr.   Expan.
           339     841             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 113811

INPUT
Description:
Station Elevation Data    num=      55
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     151   105.7     156   105.7     156    68.9     230    68.4     240    66.9
     240    92.4     245    92.4     245    65.6     254    63.3     285    63.2
     325    58.5     325    92.4     330    84.4     330    57.8     339    56.7
     343    48.2     371    37.6     413    36.2     413    83.6     418    83.6
     418    36.2     459    36.9     500    37.2     500    82.8     506    82.8
     506    37.2     547    37.9     588    38.2     588      82     594      82
     594    38.2     635    39.8     676    39.2     676    81.2     682    81.2
     682    39.2     723    40.1     764    42.2     764    80.4     769    80.4
     769    42.2     811    43.1     837    48.2     841    57.6     852    57.6
     852    79.6     857    87.6     857    57.6     860    57.6     873    62.3
     884    62.4     888    64.2     938    64.7     938   100.5     944   100.5

Manning's n Values        num=       3
```

Sta	n Val	Sta	n Val	Sta	n Val
151	.07	339	.035	841	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
339	841	214	214	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 113597

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	104.4	1110	106.2	1160	111	1170	106.5	1200	90.6
1210	87.9	1250	90.6	1280	90	1290	90	1330	91.3
1390	90.7	1500	90.5	1520	90.4	1540	90.1	1650	89.9
1690	89.2	1800	89.6	1840	89.7	1900	91	1930	90.1
1940	88.4	1950	84.5	1980	67.2	1990	64.6	2000	66.8
2020	73.3	2030	74.7	2140	60	2210	56.2	2230	47.2
2240	44	2270	39.1	2310	37.9	2400	38.3	2420	38.5
2460	38.8	2520	39.8	2570	39.8	2680	43.4	2770	61.2
2840	86.8	2850	88.4	2870	88.4	2890	89	2940	89.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	2210	.035	2770	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2210	2770	1130	1130	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 112467

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	133.7	1020	134.2	1120	134	1230	137.6	1320	138.5
1430	138.6	1470	137.7	1530	137.6	1640	132.2	1750	105
1770	98.6	1780	98.4	1830	99.6	1840	99.7	1950	94.7
2030	90.9	2120	91.4	2130	91.5	2160	91.6	2250	90.2
2270	90.6	2280	90.6	2360	84.3	2470	58.1	2550	48.8
2570	43.2	2580	41.7	2600	41.5	2650	40.5	2680	41
2710	41.2	2760	41.7	2870	41.9	2890	41.9	2900	42

3010	41.9	3060	43.6	3070	45.1	3110	57.6	3190	67.8
3260	69.1	3280	68.6	3290	69.9	3330	83	3340	83.8
3450	84	3480	84	3500	84	3580	84	3600	84
3630	84	3650	84	3700	84	3810	84	3860	84
3970	84	4010	84	4110	84	4220	84	4240	84
4290	84	4300	84	4310	84	4340	84	4350	84
4440	84	4450	86.4	4460	87.9	4470	88.3	4510	88.3
4540	88.6	4620	89.1	4671	93.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	2470	.035	3110	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2470	3110	1133	1133	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 111334

INPUT
Description:
Station Elevation Data num= 73

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1240	112.7	1280	95.8	1290	93.2	1300	92.9	1410	92.8
1520	93.4	1530	93.4	1580	92.8	1690	93	1710	92.8
1730	92.8	1800	90.2	1810	90.1	1830	90.4	1840	90.3
1850	88.7	1960	60.7	2030	48.1	2060	40.5	2080	38.9
2190	41.9	2210	42.3	2240	42.2	2280	41.2	2320	41.3
2350	42	2360	41.9	2370	41.7	2400	41.8	2430	42.9
2450	42.9	2560	41.3	2600	40.8	2630	40.7	2640	40.9
2650	42.1	2700	58.5	2760	63.4	2790	62.5	2900	67.3
3010	69.5	3110	72.2	3150	71.5	3170	71.4	3210	70
3220	70	3240	70.3	3240.1	90	3330	90	3340	90
3420	90	3440	90	3500	90	3530	90	3590	90
3600	90	3620	90	3630	90	3660	90	3670	90
3750	90	3760	90	3810	94.6	3820	95.1	3850	94.7
3960	97.9	4030	102.1	4050	101.7	4060	101.7	4120	99.1
4140	99.1	4190	100.9	4212	100.9				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1240	.08	1960	.035	2700	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1960	2700	580	668	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 110666

INPUT
Description:
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1690	112.9	1750	91.7	1840	77.3	1880	62.3	1950	48.3
1970	42	2000	37.6	2020	37.6	2080	39.2	2140	39.4
2150	39.3	2160	39.3	2260	40.6	2370	41.1	2440	41
2510	39.9	2520	39.8	2550	41.7	2560	43.5	2570	46.4
2590	55.4	2600	57.8	2710	63.6	2720	63.6	2750	63
2820	63.1	2890	66.2	2950	66.5	3010	62.6	3020	62.7
3080	65.6	3110	74.1	3120	76	3190	78.8	3220	79.1
3330	87	3440	100.7	3490	104.4	3500	104.4	3530	103.2
3540	104	3553	106.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1690	.08	1880	.035	2600	.06

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1880	2600	612	612	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 110054

INPUT
Description:
Station Elevation Data num= 47

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	117.3	1020	116.9	1030	116.9	1040	117.6	1050	117.7
1110	116.3	1120	116.2	1160	104.5	1170	104.2	1180	104.2
1190	104.3	1270	94.4	1280	94.8	1290	94.8	1400	90.5
1500	88.3	1610	67.5	1670	57	1720	40.5	1770	37.5
1820	37.6	1870	36.8	1900	36.8	2010	38.4	2080	39.2
2120	39.1	2140	39.4	2180	47	2190	47.5	2200	47.3
2230	49.4	2260	56.2	2290	57.2	2330	57	2390	56.2
2400	56.1	2510	60.5	2550	62.7	2610	62.5	2720	66.8
2830	70.6	2880	74	2890	73.7	3000	78.4	3020	78.4
3070	79.2	3083	79.3						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1670	.035	2260	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1670 2260 420 506 600 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 109548

INPUT
Description: X-109276 IS THE US FACE DTM STATION OF RT 476 SOUTH
BRIDGE
X1109276 24 1410 1980 56 56 56

Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	111.2	1110	113.7	1150	115.3	1260	112.8	1370	105.2
1420	102.4	1430	102.4	1510	111.3	1620	98.5	1730	79
1840	59.4	1930	48	1950	42.6	2060	36.9	2080	36.3
2100	36.3	2110	36.5	2120	36.5	2130	36	2170	36.2
2250	38.7	2300	38.7	2340	41.2	2380	49.3	2400	50.9
2450	57.8	2540	60.6	2580	64	2590	64	2600	63.9
2630	63.6	2640	63.5	2650	63.4	2660	63.3	2670	63.3
2680	63.1	2690	63.1	2710	64.6	2720	63.6	2730	61.5
2740	60.6	2850	66.2	2860	67.5	2880	75.1	2890	81.8
2910	90.4	2920	92.9	2930	94.1	2960	94.2	2980	95.1

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1840	.035	2450	.06

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1840 2450 278 278 278 .3 .5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 109276

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
368	77	390	63	417	63	417.1	90	422.9	90
423	63	435	63	455	60	470	57.8	483	54.6
498	47.8	510	44.6	525	43.8	545	44.8	570	37.8
606	37.1	606.1	40	612	90	612.1	37	640	36.6

```
     664    42.8     674    36.5     720    36.4     774    36.3     795    38.3
   795.1      90   800.9      90     801      39     823    40.8     848    38.8
     888    38.5     925    44.3     942    47.8     961      53   983.9    59.5
     984      90   989.9      90     990      61    1000    63.5    1107    63.2
    1149    62.2  1149.1      90  1154.9      90    1155      62    1200    61.8
    1261      62  1261.1      90  1266.9      90    1267      62    1365      62
    1392    63.5    1409    63.5    1412    64.8    1423    66.4  1423.1      90
  1428.9      90    1429    67.1    1495      77

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
     368     .08     455    .035   983.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           455   983.9               162     162     162             .3       .5

BRIDGE


RIVER: RIVER-1
REACH: Reach-1            RS: 109192

INPUT
Description: Bridge #2X-109108 IS THE DS FACE DTM STATION OF RT 476 NORTH
             BRIDGE
X1109108    25    1470    2040     250     250
             250
X-109173 IS THE US FACE DTM STATION OF RT 476 NORTH
             BRIDGE
X1109173    25    1460    2030      65      65
             65
X-109220 IS THE DS FACE DTM STATION OF RT 476 SOUTH
             BRIDGE
X1109220    22    1480    1990      47      47
             47
I-476 (BLUE ROUTE) BRIDGES (TWIN SPAN)
BOTH NORTH BOUND AND
             SOUTH BOUND BRIDGES MODELLED
AS ONE BRIDGE
RT 476 NORTH AND
             SOUTH
HELICOPTER FLIGHT PHOTO #29 AND #29A

Distance from Upstream XS =      .1
Deck/Roadway Width        =   161.8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=       2
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
     368     129      90    1495     129      90
```

Upstream Bridge Cross Section Data
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
368	77	390	63	417	63	417.1	90	422.9	90
423	63	435	63	455	60	470	57.8	483	54.6
498	47.8	510	44.6	525	43.8	545	44.8	570	37.8
606	37.1	606.1	40	612	90	612.1	37	640	36.6
664	42.8	674	36.5	720	36.4	774	36.3	795	38.3
795.1	90	800.9	90	801	39	823	40.8	848	38.8
888	38.5	925	44.3	942	47.8	961	53	983.9	59.5
984	90	989.9	90	990	61	1000	63.5	1107	63.2
1149	62.2	1149.1	90	1154.9	90	1155	62	1200	61.8
1261	62	1261.1	90	1266.9	90	1267	62	1365	62
1392	63.5	1409	63.5	1412	64.8	1423	66.4	1423.1	90
1428.9	90	1429	67.1	1495	77				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
368	.08	455	.035	983.9	.05

Bank Sta: Left	Right	Coeff Contr.	Expan.
455	983.9	.3	.5

Downstream Deck/Roadway Coordinates
num= 2

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
368	129	90	1495	129	90

Downstream Bridge Cross Section Data
Station Elevation Data num= 58

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
368	77	390	63	417	63	417.1	90	422.9	90
423	63	435	63	455	60	470	57.8	483	54.6
498	47.8	510	44.6	525	43.8	545	44.8	570	37.8
606	37.1	606.1	40	612	90	612.1	37	640	36.6
664	42.8	674	36.5	720	36.4	774	36.3	795	38.3
795.1	90	800.9	90	801	39	823	40.8	848	38.8
888	38.5	925	44.3	942	47.8	961	53	983.9	59.5
984	90	989.9	90	990	61	1000	63.5	1107	63.2
1149	62.2	1149.1	90	1154.9	90	1155	62	1200	61.8
1261	62	1261.1	90	1266.9	90	1267	62	1365	62
1392	63.5	1409	63.5	1412	64.8	1423	66.4	1423.1	90
1428.9	90	1429	67.1	1495	77				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
368	.08	455	.035	983.9	.05

Bank Sta: Left	Right	Coeff Contr.	Expan.

```
          455   983.9             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =     129
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Bridge Coefficient Sets =  1

Low Flow Methods and Data
       Energy
Selected Low Flow Methods = Energy

High Flow Method
       Energy Only

Additional Bridge Parameters
       Add Friction component to Momentum
       Do not add Weight component to Momentum
       Class B flow critical depth computations use critical depth
           inside the bridge at the upstream end
       Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 109108

INPUT
Description:
Station Elevation Data    num=      58
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
     368      77     390      63     417      63   417.1      90   422.9      90
     423      63     435      63     455      60     470    57.8     483    54.6
     498    47.8     510    44.6     525    43.8     545    44.8     570    37.8
     606    37.1   606.1      40     612      90   612.1      37     640    36.6
     664    42.8     674    36.5     720    36.4     774    36.3     795    38.3
   795.1      90   800.9      90     801      39     823    40.8     848    38.8
     888    38.5     925    44.3     942    47.8     961      53   983.9    59.5
     984      90   989.9      90     990      61    1000    63.5    1107    63.2
    1149    62.2  1149.1      90  1154.9      90    1155      62    1200    61.8
    1261      62  1261.1      90  1266.9      90    1267      62    1365      62
    1392    63.5    1409    63.5    1412    64.8    1423    66.4  1423.1      90
  1428.9      90    1429    67.1    1495      77

Manning's n Values        num=       3
```

```
     Sta   n Val     Sta   n Val     Sta   n Val
     368     .08     455    .035   983.9     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
           455   983.9              250     250     250             .3       .5

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 108858

INPUT
Description:
Station Elevation Data    num=      37
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   123.3    1110   122.9    1190   117.8    1200     118    1210   116.9
    1320   101.8    1430    94.7    1500    90.6    1610    70.4    1720      54
    1750    48.2    1770    41.5    1880    36.4    1930    35.9    2010    36.1
    2120    37.7    2200    42.6    2210    45.1    2250      59    2260    60.8
    2330    64.3    2370    63.9    2390    63.8    2420    63.3    2530    63.6
    2580    63.5    2590    63.4    2600    63.4    2610    63.7    2620    65.8
    2630      69    2670    85.1    2680    87.1    2690      87    2760    95.8
    2780   101.4    2834   105.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    1000     .08    1720    .035    2250     .05

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          1720    2250              450     421     360             .1       .3

CROSS SECTION


RIVER: RIVER-1
REACH: Reach-1            RS: 108437

INPUT
Description:
Station Elevation Data    num=      38
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    1000   103.3    1110   100.7    1220    95.2    1330    88.8    1440    76.7
    1550    63.7    1660    47.1    1690    41.3    1800    38.9    1830    38.6
    1860    38.4    1940    37.5    1960    37.7    2070    40.1    2080    40.4
    2090    40.4    2120    42.4    2130    44.1    2170    53.8    2213      60
    2240    63.9    2260    64.3    2270    64.2    2380    62.3    2430    62.4
    2540    65.5    2630    68.6    2650    68.7    2760      73    2840    75.9
    2860    75.5    2870    75.5    2910    76.7    2920      79    2930    88.8
    2970   141.1    2980   149.2    2998   152.3
```

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1550	.035	2213	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1550	2213	450	412	380	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 108025

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1280	90.4	1290	87.8	1300	86.6	1380	90.3	1490	78.2
1600	65.1	1710	52.8	1760	54.1	1800	48.5	1820	42.1
1930	39.4	1980	38.5	2070	40.5	2080	40.5	2130	39.7
2180	41.1	2190	41.1	2210	40.8	2280	40.8	2310	42.7
2320	45.3	2350	56.5	2370	57.6	2480	58.4	2500	58.5
2550	59.7	2610	66.9	2650	67.8	2750	68	2860	71.9
2960	76.1	2970	76.1	3030	78.2	3080	90.5	3110	102.6
3220	137.6	3230	139	3240	138.3	3268	130.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1280	.08	1760	.035	2350	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1760	2350	169	169	169	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 107856

INPUT
Description:
Station Elevation Data num= 39

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1280	90.4	1290	87.8	1300	86.6	1380	90.3	1490	78.2
1600	65.1	1710	52.8	1760	54.1	1800	48.5	1820	42.1
1930	39.4	1980	38.5	2070	40.5	2080	40.5	2130	39.7
2180	41.1	2190	41.1	2210	40.8	2280	40.8	2310	42.7
2320	45.3	2350	56.5	2370	57.6	2480	58.4	2500	58.5
2550	59.7	2610	66.9	2650	67.8	2750	68	2860	71.9

2960	76.1	2970	76.1	3030	78.2	3080	90.5	3110	102.6
3220	137.6	3230	139	3240	138.3	3268	130.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1280	.05	1760	.035	2350	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1760	2350	20	20	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 107836

INPUT
Description:
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	87.5	1060	86.3	1080	86.2	1100	86.4	1120	86.4
1230	76.8	1280	74.4	1300	74.9	1390	65	1410	61
1420	60.9	1510	64.7	1520	64.8	1530	62.6	1540	56.7
1550	52.8	1560	51.8	1590	56.1	1600	55.9	1635	55.9
1636	46	1660	46	1720	46	1770	46	1800	46
1830	46	1850	46	1940	46	1950	46	1980	46
2030	46	2060	46	2080	46	2110	46	2164	46
2165	50.2	2200	50.2	2220	53.6	2230	53.8	2240	53.9
2250	53.8	2260	53.8	2370	59.3	2430	66.2	2440	68.6
2450	74.3	2460	81.9	2480	90.6	2520	101.5	2530	102.6
2540	102.6	2570	102.6	2580	102.6	2610	102.6	2640	102.6
2670	102.6	2680	102.6	2700	102.6	2710	102.6	2790	102.6
2860	102.6	2940	102.6	2950	102.6	3000	102.6	3010	102.6
3058	102.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1635	.035	2165	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1635	2165	20	20	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 107816

INPUT
Description: X-107836 IS THE CREST OF PLYMOUTH DAM

X1107836   66   1640
             2180   140   140   140
PLYMOUTH DAM
HELICOPTER FLIGHT
             PHOTO #28A

Station Elevation Data   num=   57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1249.9	87	1250	67.2	1300	67.1	1320	66.6	1330	66.6
1340	67.1	1350	67.1	1360	66.8	1370	66.8	1380	66.6
1410	63	1420	62.7	1480	62.8	1490	62.9	1500	62.8
1510	62.8	1520	63.2	1530	62.9	1540	62.9	1650	65.6
1670	66.3	1680	66	1705	58	1760	40.8	1830	33.6
1840	33.6	1850	33.7	1870	33.7	1910	32.9	1930	32.9
1970	33.8	1980	33.9	2000	34.1	2010	34	2060	33.3
2080	33.2	2120	33.9	2140	34.1	2210	40.2	2220	43.1
2250	53.7	2260	55.6	2270	56.1	2280	55.8	2290	55.7
2390	59.7	2410	59.7	2420	59.6	2430	59.5	2490	65.3
2500	65.4	2520	65.2	2600	67.4	2610	67.2	2630	67.2
2680	68.6	2680.1	89						

Manning's n Values   num=   3

Sta	n Val	Sta	n Val	Sta	n Val
1249.9	.05	1705	.035	2260	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1705	2260	120	120	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1   RS: 107696

INPUT
Description:
Station Elevation Data   num=   57

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1249.9	87	1250	67.2	1300	67.1	1320	66.6	1330	66.6
1340	67.1	1350	67.1	1360	66.8	1370	66.8	1380	66.6
1410	63	1420	62.7	1480	62.8	1490	62.9	1500	62.8
1510	62.8	1520	63.2	1530	62.9	1540	62.9	1650	65.6
1670	66.3	1680	66	1705	58	1760	40.8	1830	33.6
1840	33.6	1850	33.7	1870	33.7	1910	32.9	1930	32.9
1970	33.8	1980	33.9	2000	34.1	2010	34	2060	33.3
2080	33.2	2120	33.9	2140	34.1	2210	40.2	2220	43.1
2250	53.7	2260	55.6	2270	56.1	2280	55.8	2290	55.7
2390	59.7	2410	59.7	2420	59.6	2430	59.5	2490	65.3
2500	65.4	2520	65.2	2600	67.4	2610	67.2	2630	67.2
2680	68.6	2680.1	89						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1249.9	.05	1705	.035	2260	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1705	2260	348	348	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 107348

INPUT
Description:
Station Elevation Data num= 36

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	83.6	1100	68.7	1150	55.7	1160	55.9	1250	65.9
1260	65.9	1370	59.7	1380	59.6	1490	62.4	1510	62.7
1620	62.8	1710	62.8	1770	64.8	1780	64.8	1790	62.8
1840	40.6	1910	34.9	1940	34.9	1980	34.3	1990	34.4
2000	34.5	2010	34.5	2020	34.4	2050	34.4	2110	35
2130	35.1	2240	44.5	2330	52.2	2340	52	2350	52
2440	61.1	2450	60.8	2470	63.3	2580	94.3	2690	120.6
2692	121.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1790	.035	2330	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1790	2330	590	590	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 106758

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	85.6	1020	80.1	1030	78.9	1040	80.6	1060	86.1
1070	85.8	1130	67.4	1240	64.6	1350	61.8	1410	59.2
1460	59.3	1500	60.7	1530	60.4	1590	60.3	1640	61
1650	61	1700	57.9	1710	55.3	1720	50.5	1730	47
1770	40.2	1880	37.1	1930	36.2	1970	36.1	2010	36.9
2030	36.7	2040	36.7	2120	39.8	2210	55.9	2250	58

2290	67.5	2300	67.9	2310	65.3	2320	59	2330	59
2350	63.2	2400	79.3	2420	84.3	2440	87	2450	86.9
2470	86.7	2490	86.5	2510	88.3	2590	108.1	2598	108.5

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1700	.035	2210	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1700	2210	580	709	800	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 106049

INPUT
Description: FROM FILE SCT014.DAT

Station Elevation Data num= 60

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	102.8	1110	90.1	1120	86.3	1140	76.2	1150	72.8
1160	72.8	1210	77.4	1230	77.3	1270	76.6	1380	65.1
1480	58.3	1550	60.9	1560	60.8	1580	60.4	1620	60.4
1700	58.6	1730	58.4	1760	60.1	1780	59.9	1800	60.5
1850	57.8	1910	37.2	1920	36.8	1950	37.7	1960	37.8
2030	34.3	2070	34.5	2090	34.7	2110	34.8	2130	34.4
2180	36.5	2200	40	2215	50	2217	52	2235	54
2280	56	2340	58	2400	60.2	2430	61	2510	61.2
2550	60.7	2560	60.7	2590	61.9	2600	63.5	2610	68.7
2620	77.1	2630	80.1	2640	80.3	2650	80.2	2700	76
2710	76.1	2790	84.1	2810	84	2900	86.3	2910	86.4
3020	89.8	3070	93.4	3100	93.3	3210	100.2	3297	103.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.04	1850	.035	2235	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1850	2235	400	359	320	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 105690

INPUT
Description: X-105514 IS THE US FACE DTM STATION OF FAYETTE ST BRIDGE

X1105514

52	1810	2210	79	79	79

Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	105.2	1110	96.9	1180	94	1290	79	1469.9	79
1470	58.5	1480	58.3	1490	58.9	1510	58.1	1520	58.5
1570	58.5	1590	57.7	1620	52.7	1640	54	1650	56.3
1660	57.1	1670	57.1	1690	53.8	1730	57.5	1730.1	75
1869.9	75	1870	54.8	1880	54.8	1890	55.1	1900	53.6
1950	38.7	1960	37.2	1970	36.9	1980	36.9	2000	37.4
2070	33.6	2090	33.7	2140	34.9	2150	35	2180	35.4
2200	35.5	2260	37.4	2320	57.2	2325	57.9	2505	60
2620	62	2620.1	82	2945	82	3005	82		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.03	1900	.035	2320	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1900	2320	207	207	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 105514

INPUT
Description: This is a REPEATED section.

Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75.2	84.37	75.3	80.97	108.2	69.41	108.3	60.25	125.2	60.13
125.3	58.07	136.2	58.75	136.3	56.81	148.2	57.6	172.2	57.91
188.2	57.91	188.3	71.03	215	58.02	215.1	57.91	253	57.6
265	57.49	265.1	55.73	273	55.7	293	55.2	331	55
331.1	58.32	340	58.45	340.1	54.97	378	55.2	398	55.4
413	55.6	456	55.87	456.1	58.75	465	58.68	465.1	58.68
503	55.9	523	55.9	543	55.92	581	58.98	581.1	58.98
590	59	590.1	44.8	601.5	37	628	36.5	638.5	36.4
648	36.9	668	38.07	673.5	38.09	705.5	34.7	706	59.3
715	59.28	718.5	32.5	753	33	763.5	33.5	773	33.3
783.5	33	790	33.13	793	35.95	798.5	36	818.5	35.1
827	35.12	831	59.5	840	59.59	843	35.17	858.5	35.2
878	35.8	878.5	36.1	898	36	918	36.2	948.5	36.4
956	59.89	965	59.79	968	36.9	978.5	37	1003	44.5
1009.4	47.72	1009.5	57.72	1023	57.8	1043	58	1081	58.2
1081.1	60.09	1090	60.1	1090.1	58.4	1128	58.9	1148	59.32
1168	59.35	1206	59.4	1206.1	60.1	1222.4	71.87	1222.5	59.51

```
  1262.4   59.88  1302.4   61.01  1302.5   71.16  1325.4    79.6  1325.5      83

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    75.2     .03   581.1    .035  1009.5     .03

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
         581.1  1009.5               48      48      48             .3       .5

BRIDGE


RIVER: RIVER-1
REACH: Reach-1            RS: 105474.5

INPUT
Description: Bridge #1X-105435 IS THE DS FACE DTM STATION OF FAYETTE ST
             BRIDGE
X1105435    56    1830    2250     169     169
             169
FAYETTE STREET BRIDGE
HELICOPTER FLIGHT PHOTO #28

Distance from Upstream XS =      .1
Deck/Roadway Width        =    47.8
Weir Coefficient          =     2.6
Upstream  Deck/Roadway Coordinates
    num=      50
     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord     Sta Hi Cord Lo Cord
    75.2   84.37   84.37    75.3   84.37   80.97   108.2      86   69.41
   148.2   86.81   80.61   188.3      87   71.03     215    87.2   58.02
     253    87.6   78.27     273   87.77   79.17     293    87.9   78.27
   331.1      88   58.32     340      88   58.45     378    88.1    78.7
     398    88.2    79.6     413    88.2    78.7   456.1    88.3   58.75
     465    88.3   58.68     503    88.4    55.9     523   88.43    55.9
     543    88.4   55.92   581.1    88.6   58.98     590    88.6      59
     628    88.7   79.25     648   88.75   80.15     668    88.8   79.25
     706    88.9    59.3     715    88.9   59.28     753      89   79.53
     773   89.03   80.43     793    89.1   79.53     831    89.2    59.5
     840    89.2   59.59     878    89.3   79.84     898   89.34   80.74
     918    89.4   79.84     956    89.5   59.89     965    89.5   59.79
    1003    89.5      80    1023   89.54   80.94    1043    89.6   80.04
  1081.1    89.7   60.09    1090    89.7    60.1    1128    89.8   80.35
    1148   89.85   81.25    1168    89.8   80.35  1206.1   89.73    60.1
  1222.4    89.5   71.87  1262.4   89.23   83.03  1302.5      86   71.16
  1325.4      83    79.6  1325.5      83      83

Upstream Bridge Cross Section Data
Station Elevation Data    num=      90
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
```

75.2	84.37	75.3	80.97	108.2	69.41	108.3	60.25	125.2	60.13
125.3	58.07	136.2	58.75	136.3	56.81	148.2	57.6	172.2	57.91
188.2	57.91	188.3	71.03	215	58.02	215.1	57.91	253	57.6
265	57.49	265.1	55.73	273	55.7	293	55.2	331	55
331.1	58.32	340	58.45	340.1	54.97	378	55.2	398	55.4
413	55.6	456	55.87	456.1	58.75	465	58.68	465.1	58.68
503	55.9	523	55.9	543	55.92	581	58.98	581.1	58.98
590	59	590.1	44.8	601.5	37	628	36.5	638.5	36.4
648	36.9	668	38.07	673.5	38.09	705.5	34.7	706	59.3
715	59.28	718.5	32.5	753	33	763.5	33.5	773	33.3
783.5	33	790	33.13	793	35.95	798.5	36	818.5	35.1
827	35.12	831	59.5	840	59.59	843	35.17	858.5	35.2
878	35.8	878.5	36.1	898	36	918	36.2	948.5	36.4
956	59.89	965	59.79	968	36.9	978.5	37	1003	44.5
1009.4	47.72	1009.5	57.72	1023	57.8	1043	58	1081	58.2
1081.1	60.09	1090	60.1	1090.1	58.4	1128	58.9	1148	59.32
1168	59.35	1206	59.4	1206.1	60.1	1222.4	71.87	1222.5	59.51
1262.4	59.88	1302.4	61.01	1302.5	71.16	1325.4	79.6	1325.5	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
75.2	.03	581.1	.035	1009.5	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
581.1	1009.5	.3	.5

Downstream Deck/Roadway Coordinates

num= 50

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
75.2	84.37	84.37	75.3	84.37	80.97	108.2	86	69.41
148.2	86.81	80.61	188.3	87	71.03	215	87.2	58.02
253	87.6	78.27	273	87.77	79.17	293	87.9	78.27
331.1	88	58.32	340	88	58.45	378	88.1	78.7
398	88.2	79.6	413	88.2	78.7	456.1	88.3	58.75
465	88.3	58.68	503	88.4	55.9	523	88.43	55.9
543	88.4	55.92	581.1	88.6	58.98	590	88.6	59
628	88.7	79.25	648	88.75	80.15	668	88.8	79.25
706	88.9	59.3	715	88.9	59.28	753	89	79.53
773	89.03	80.43	793	89.1	79.53	831	89.2	59.5
840	89.2	59.59	878	89.3	79.84	898	89.34	80.74
918	89.4	79.84	956	89.5	59.89	965	89.5	59.79
1003	89.5	80	1023	89.54	80.94	1043	89.6	80.04
1081.1	89.7	60.09	1090	89.7	60.1	1128	89.8	80.35
1148	89.85	81.25	1168	89.8	80.35	1206.1	89.73	60.1
1222.4	89.5	71.87	1262.4	89.23	83.03	1302.5	86	71.16
1325.4	83	79.6	1325.5	83	83			

Downstream Bridge Cross Section Data

Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev

75.2	84.37	75.3	80.97	108.2	69.41	108.3	60.25	125.2	60.13
125.3	58.07	136.2	58.75	136.3	56.81	148.2	57.6	172.2	57.91
188.2	57.91	188.3	71.03	215	58.02	215.1	57.91	253	57.6
265	57.49	265.1	55.73	273	55.7	293	55.2	331	55
331.1	58.32	340	58.45	340.1	54.97	378	55.2	398	55.4
413	55.6	456	55.87	456.1	58.75	465	58.68	465.1	58.68
503	55.9	523	55.9	543	55.92	581	58.98	581.1	58.98
590	59	590.1	44.8	601.5	37	628	36.5	638.5	36.4
648	36.9	668	38.07	673.5	38.09	705.5	34.7	706	59.3
715	59.28	718.5	32.5	753	33	763.5	33.5	773	33.3
783.5	33	790	33.13	793	35.95	798.5	36	818.5	35.1
827	35.12	831	59.5	840	59.59	843	35.17	858.5	35.2
878	35.8	878.5	36.1	898	36	918	36.2	948.5	36.4
956	59.89	965	59.79	968	36.9	978.5	37	1003	44.5
1009.4	47.72	1009.5	57.72	1023	57.8	1043	58	1081	58.2
1081.1	60.09	1090	60.1	1090.1	58.4	1128	58.9	1148	59.32
1168	59.35	1206	59.4	1206.1	60.1	1222.4	71.87	1222.5	59.51
1262.4	59.88	1302.4	61.01	1302.5	71.16	1325.4	79.6	1325.5	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
75.2	.03	581.1	.035	1009.5	.03

Bank Sta: Left	Right	Coeff Contr.	Expan.
581.1	1009.5	.3	.5

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .98
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad Crested

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Selected Low Flow Methods = Energy

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 105435

INPUT
Description:
Station Elevation Data num= 90

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
75.2	84.37	75.3	80.97	108.2	69.41	108.3	60.25	125.2	60.13
125.3	58.07	136.2	58.75	136.3	56.81	148.2	57.6	172.2	57.91
188.2	57.91	188.3	71.03	215	58.02	215.1	57.91	253	57.6
265	57.49	265.1	55.73	273	55.7	293	55.2	331	55
331.1	58.32	340	58.45	340.1	54.97	378	55.2	398	55.4
413	55.6	456	55.87	456.1	58.75	465	58.68	465.1	58.68
503	55.9	523	55.9	543	55.92	581	58.98	581.1	58.98
590	59	590.1	44.8	601.5	37	628	36.5	638.5	36.4
648	36.9	668	38.07	673.5	38.09	705.5	34.7	706	59.3
715	59.28	718.5	32.5	753	33	763.5	33.5	773	33.3
783.5	33	790	33.13	793	35.95	798.5	36	818.5	35.1
827	35.12	831	59.5	840	59.59	843	35.17	858.5	35.2
878	35.8	878.5	36.1	898	36	918	36.2	948.5	36.4
956	59.89	965	59.79	968	36.9	978.5	37	1003	44.5
1009.4	47.72	1009.5	57.72	1023	57.8	1043	58	1081	58.2
1081.1	60.09	1090	60.1	1090.1	58.4	1128	58.9	1148	59.32
1168	59.35	1206	59.4	1206.1	60.1	1222.4	71.87	1222.5	59.51
1262.4	59.88	1302.4	61.01	1302.5	71.16	1325.4	79.6	1325.5	83

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
75.2	.03	581.1	.035	1009.5	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
581.1	1009.5	169	169	.3	.5

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 105266

INPUT
Description:
Station Elevation Data num= 65

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	107.3	1100	97.1	1130	90.7	1240	80	1270	80
1330	80	1340	80	1350	80	1479.9	80	1480	60.2
1490	60.2	1500	55.7	1520	57	1530	56.9	1580	57.8
1590	57.8	1690	54.7	1800	54.6	1820	54.9	1830	54.9

1840	54.8	1840.1	75	1940	75	1979.9	75	1980	54.9
1990	53.7	2040	37.8	2060	36.7	2070	36.7	2100	37
2150	32.7	2160	32.8	2170	32.9	2180	33	2220	34.8
2250	34.8	2280	35.6	2300	35.6	2360	36.9	2370	39.3
2420	57.8	2430	58.5	2440	58.2	2440.1	75	2559.9	75
2560	59.5	2640	60.6	2650	60.7	2660	60.8	2730	67.2
2730.1	87	2840	87	2870	89.9	2900	92.9	2910	92.8
2940	92.1	2950	92	2960	93.8	2970	97.6	2980	99.2
3030	96.4	3040	96.5	3100	98.3	3130	98.4	3184	100.6

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.03	1990	.035	2420	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1990	2420	300	406	480	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 104860

INPUT
Description:
Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	106.6	1110	94.8	1220	81.8	1330	81	1469.9	81
1470	61.2	1480	61.2	1500	62.8	1520	55.1	1530	55.1
1540	56.7	1550	56.7	1590	58.3	1600	58.3	1680	57
1780	56.8	1920	54.1	1920.1	74	2059.9	74	2060	54
2090	53.1	2140	38.8	2250	32.7	2290	33.3	2310	33.3
2340	34.3	2360	34.3	2420	36.6	2430	37.9	2440	41.1
2470	55.6	2480	58.1	2490	58.2	2530	58.3	2530.1	75
2649.9	75	2650	60.5	2670	60.7	2680	61.1	2710	69.9
2820	90.3	2880	94.4	2900	99.8	2970	107.9	2981	110.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.03	2090	.035	2480	.03

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2090	2480	380	516	600	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 104344

INPUT
Description:
Station Elevation Data num= 52

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	115.8	1030	113	1050	106.9	1100	98.9	1110	95.9
1130	94.1	1140	94.2	1150	94.3	1160	94.4	1170	94.1
1190	86.7	1270	79.6	1280	74.5	1390	66	1500	57.6
1530	53.2	1540	56.1	1600	58.5	1610	58.4	1670	58.4
1690	58.7	1710	58.7	1740	58.4	1790	58	1900	56.9
1910	56.9	2020	56.5	2030	56.5	2130	58.7	2140	58.7
2150	58.6	2170	58.5	2180	58.1	2190	56.2	2240	39.3
2350	31.8	2360	31.5	2380	31.9	2390	31.9	2400	31.8
2410	31.8	2520	37.8	2530	40.8	2550	49.6	2560	52.4
2640	61.6	2670	68.9	2700	71	2740	89.9	2780	119.6
2790	123.4	2840	125.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2190	.035	2560	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2190	2560	551	551	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 103793

INPUT
Description: FROM FILE SCT013.DAT
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	108.8	1110	97.4	1190	91.8	1200	89	1210	83.3
1409.9	83	1410	63	1440	61.2	1540	57.1	1550	53.5
1580	57.3	1580.1	77	1829.9	77	1830	56.6	1910	57.1
1970	57.7	2000	57.9	2090	58.8	2110	58.9	2170	53.4
2280	57.9	2290	58.2	2300	56.4	2360	36.8	2470	29.4
2490	28.9	2600	35.3	2620	38.1	2630	40.6	2662	56
2670	59.8	2680	61.4	2690	65.8	2720	86.1	2730	88.9
2740	90.1	2829	122.2						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2300	.035	2662	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2300	2662	470	515	550	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 103278

INPUT
Description:
Station Elevation Data num= 452

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	165.24	1.9	165.12	2.9	164.58	4.9	164.55	5.9	164.01
8	163.99	9	163.5	11.9	163.47	12.9	162.94	14.9	162.94
15.9	162.41	17.9	162.41	18.9	161.97	21.9	161.97	22.9	161.53
24.9	161.53	25.9	161.09	27.9	161.09	28.9	160.66	32	160.66
33	160.16	35	160.16	36	159.56	38	159.56	39	159
41	159	42	158.56	51	158.25	52	157.84	59	157.38
84	157.22	115.1	155.06	143.1	155.81	154.2	155.02	176.2	155.03
183.2	154.61	184.2	153.64	186.2	153.77	187.2	152.91	189.2	153.07
190.2	152.03	193.2	152.33	194.2	150.83	196.2	151.06	197.2	149.71
199.2	149.75	200.2	147.97	203.2	147.97	204.2	146.56	206.2	146.56
207.2	145.38	209.2	145.38	210.2	144.38	212.3	144.38	213.3	143.41
216.3	143.49	217.3	142.2	219.3	142.39	220.3	141.24	222.3	141.44
223.3	140.61	226.3	140.79	227.3	140	230.3	139.8	245.3	139.91
246.3	139.09	249.3	139.09	250.3	138.41	252.3	138.41	253.3	137.94
255.3	137.94	263.3	136.81	278.4	136.72	288.4	136.19	289.4	135.62
291.4	135.62	292.4	134.22	295.4	134.22	296.4	132.16	298.4	132.16
299.4	130.42	301.4	130.47	302.4	129.59	311.4	129	312.4	128.31
341.5	127.94	362.5	125.94	375.5	126.48	390.5	126.34	398.6	125.81
430.6	126.09	440.6	125.41	466.7	124.75	486.7	122.98	489.7	123.07
490.7	122.38	492.7	122.5	493.7	115.94	495.7	115.94	496.7	111.75
499.7	111.75	500.7	111.16	506.7	110.88	518.8	110.94	526.5	111.59
532.8	111.34	533.8	110.19	535.8	110.19	536.8	108.97	538.8	108.97
539.8	107.78	548.8	107.06	549.8	106.53	551.8	106.53	552.8	105.59
555.8	105.64	556.8	105.16	558.8	105.15	559.8	104.44	561.8	104.44
562.8	103.19	564.8	103.19	565.8	100.19	568.8	100.19	569.8	98.06
571.9	98.06	572.9	98.69	574.9	98.69	575.9	99.03	578.9	99.03
608.9	97.47	624.9	97.19	625.9	96.84	627.9	96.84	628.9	96.22
659	94.97	681	95.5	685	94.75	687	94.75	688	94.31
690	94.31	691.1	93.88	694.1	93.88	695.1	93.44	697.1	93.44
698.1	93	700.1	93.01	701.1	92.61	704.1	92.65	708.1	91.86
710.1	91.88	711.1	91.45	713.1	91.46	714.1	91.04	717.1	91.06
718.1	90.66	720.1	90.66	721.1	90.22	723.1	90.22	724.1	89.81
727.1	89.81	728.1	89.47	736.1	89.14	737.3	88.66	740.1	88.64
741.1	87.94	766.2	86.94	769.2	86.66	770.2	85.88	773.2	85.88
774.2	84.41	776.3	84.41	777.3	82.94	779.3	82.94	780.3	80.97
782.4	80.97	783.4	78.75	786.4	78.43	787.5	76.08	789.5	75.94
790.5	73.22	792.6	73.22	793.6	71.38	862.8	70.22	873	69.78
880.1	68.91	886.3	68.72	887.3	66.16	889.3	66.19	890.3	65.05
892.4	65.04	893.4	64.5	895.4	64.47	896.4	64.09	912.7	63.91
919.9	63.41	939.2	63.91	940.2	63.5	952.5	62.81	959.6	61.72
965.8	61.41	969.9	60.68	982.2	59.69	983.2	59.34	992.4	59

1009.9	57.16	1026.3	56.91	1060.1	54.43	1099.1	54.44	1120.6	54.84
1132.9	54.5	1134	53.84	1136	53.84	1137	52.16	1140.1	52.12
1141.1	51.3	1144.2	51.28	1146.3	51.34	1147.3	52.25	1149.3	52.25
1150.4	52.91	1153.5	52.91	1154.5	53.66	1156.5	53.7	1157.6	54.84
1163.7	55.19	1166.8	55.19	1167.8	54.81	1170.9	54.56	1180.1	54.62
1181.1	54.06	1183.2	54.06	1184.2	53.53	1193.5	53.66	1203.7	54.84
1223.2	54.75	1243.7	54.01	1252.9	54.69	1254	55.19	1257	55.19
1258.1	55.62	1260.1	55.62	1261.1	56.06	1263.2	56.06	1264.2	56.5
1266.3	56.5	1267.3	56.94	1279.6	56.67	1323.7	57.12	1344.2	57.88
1380.1	57.53	1400.6	58.51	1407.8	59.16	1424.2	59.22	1438.6	60.34
1464.2	60.44	1482.7	61.35	1498.1	61.33	1520.1	62.41	1534.7	62.31
1545.2	63.16	1556.1	63.5	1567.8	63	1568.8	62.56	1581.1	61.94
1588.3	63.12	1600.6	63.81	1601.7	64.5	1604.7	64.99	1607.8	65
1608.8	63.94	1610.9	63.94	1611.9	62.88	1614.9	62.83	1616	61.81
1618.1	61.81	1619.1	60.75	1621.1	60.97	1622.2	60	1624.2	60.25
1625.2	59.34	1628.3	59.34	1629.3	58.59	1631.4	58.59	1632.4	58.19
1635.5	57.91	1638.6	57.94	1641.7	58.44	1647.8	57.88	1648.8	57.5
1652.9	57.52	1656	56.88	1658.1	57.24	1661.1	57.16	1662.2	56.81
1664.3	56.79	1665.2	56.38	1669.3	56.11	1671.4	56.33	1678.6	55.97
1701.1	55.84	1708.5	56.19	1779.1	55	1852.9	54.5	1865.2	54.59
1876.5	55.38	1886.8	55.66	1942.2	55.16	1943.2	54.68	1945.2	54.64
1946.3	53.75	1949.3	53.72	1950.4	52.59	1952.4	52.59	1953.5	51.84
1962.7	51.66	1963.7	51	1965.8	50.94	1966.8	49.88	1968.8	49.88
1969.9	47.59	1971.9	47.59	1972.9	42.91	1976	42.91	1976.6	40.4321
1977	38.78	1979.1	38.78	1980.1	38.31	1983.2	37.91	2256.5	37.91
2300.1	37.91	2301.1	38.69	2303.2	38.68	2304.2	40.97	2306.3	40.68
2307.3	43.36	2310.4	43.34	2311.4	45.78	2313.5	45.78	2314.5	48
2316.5	48	2317.6	50.12	2319.6	50.12	2320.7	52.22	2323.7	52.44
2324.7	54.03	2326.8	54.03	2327.8	55.31	2329.9	55.31	2330.9	56.72
2334	56.72	2334.9	57.6	2337	57.62	2338.1	58.34	2340.1	58.38
2341.1	59	2343.2	59	2344.2	59.5	2365.4	60.34	2370.6	60.06
2371.7	59.41	2378.3	59.47	2379.5	61.31	2381.7	61.31	2382.8	64.21
2385	64.66	2386.1	67.34	2389.3	67.47	2390.6	69.62	2392.8	69.81
2393.9	72.34	2396.1	72.34	2397.2	75.03	2399.5	74.94	2400.6	78.03
2402.8	78.03	2403.9	80.34	2407.2	80.34	2408.4	83.99	2409.7	83.38
2410.6	83.38	2411.7	86.62	2413.9	86.62	2415	89.13	2417.2	88.66
2418.4	90.97	2421.7	90.97	2422.8	91.81	2425	91.99	2426.1	93.16
2428.4	93.16	2429.5	94.09	2431.7	93.92	2432.8	94.97	2436.1	94.97
2437.2	96.06	2439.5	96.06	2440.6	97.78	2442.8	97.78	2443.9	100.25
2446.1	100.25	2447.2	103.04	2449.5	103.28	2450.7	106.14	2453.9	106.28
2455	109.16	2457.3	109.37	2458.4	112.28	2460.6	112.28	2461.7	116.03
2463.9	116.64	2465	118.5	2468.4	118.5	2469.5	120.34	2471.7	120.32
2472.8	120.86	2473.8	120.91	2478.3	120.72	2487.3	121.16	2507.3	121.34
2512.8	121.75	2516.2	121.44	2532.8	121.5	2537.3	121.84	2544.2	121.35
2550.6	121.5	2551.7	122.88	2553.9	122.52	2555	123.09	2561.7	123.44
2562.8	124.72	2565.1	124.72	2566.2	128.88	2567.8	128.88	2568.4	129.54
2569.5	139.5	2570.1	140.16	2571.7	140.16	2572.8	148.78	2574.7	148.78
2576.2	149.99	2577.3	159.28	2579.5	159.28	2580.6	162.62	2582.8	162.62
2583.9	165.31	2586.2	166.09	2587.3	169.5	2590.6	169.5	2591.7	172.91
2593.9	173.28	2595	175.87						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1942.2	.035	2344.2	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1942.2	2344.2	185	215	200	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 103063

INPUT
Description:
Station Elevation Data num= 452

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	171.12	1.3	170.44	10.3	170.09	14.3	169.31	17.3	169.31
21.3	168.62	23.3	168.62	24.3	168.25	37.3	167.44	46.3	167.31
47.3	166.97	50.4	166.97	51.4	166.5	53.4	166.5	54.4	166.16
63.4	166.22	70.4	165.31	79.4	164.75	80.4	164.19	82.4	164.19
83.4	163.69	86.4	163.69	87.4	163.31	92.4	162.97	93.4	162.62
96.4	162.62	97.4	161.97	99.4	161.97	100.4	161.31	102.4	161.32
103.4	160.67	105.4	160.67	106.4	160.04	109.4	160.06	110.5	159.22
112.5	159.21	113.5	158.22	115.5	158.22	116.5	157.38	119.5	157.38
120.5	156.56	122.5	156.56	123.5	155.72	125.5	155.72	126.5	154.69
128.5	154.69	129.5	153.94	132.5	153.94	133.5	153.31	135.5	153.31
136.5	152.73	138.5	152.75	139.5	151.72	142.5	151.86	143.5	150.47
145.5	150.63	146.5	149	148.5	149.21	149.5	146.81	152.5	147.1
153.5	144.72	155.5	144.72	156.5	143.12	158.5	143.12	159.5	142.53
161.5	142.53	162.5	142	165.5	142	166.5	141.47	168.5	141.47
169.5	140.91	171.6	140.88	172.6	140.19	175.6	140.16	176.6	139.53
178.6	139.52	179.6	138.91	181.6	138.87	182.6	138.4	191.6	137.5
192.6	137.03	194.6	137.03	195.6	136.62	198.6	136.62	199.6	136.09
201.6	136.09	202.6	135.53	204.6	135.53	205.6	134.92	207.6	134.88
208.6	134.27	211.6	134.23	212.6	133.65	214.6	133.63	215.6	133.06
217.6	133.04	218.6	132.53	221.6	132.5	222.6	131.94	224.6	131.94
225.6	131.47	237.7	130.19	238.7	129.69	240.7	129.69	241.7	129.03
244.7	129.03	245.7	128.56	247.7	128.59	248.7	128.11	253.7	127.76
254.7	127.38	263.7	127.41	283.7	126.78	293.8	126.16	296.8	125.88
297.8	125.47	300.8	125.47	301.8	125.06	307.8	124.69	323.8	124.75
324.8	124.16	326.8	124.16	327.8	123.57	329.8	123.62	330.8	123.03
332.8	123.03	333.8	122.44	336.8	122.44	337.8	121.84	339.8	121.84
340.8	121.25	342.8	121.25	343.8	120.66	346.8	120.66	347.8	120.06
349.8	120.06	350.9	119.47	352.9	119.47	353.9	118.88	355.9	118.88
356.9	118.31	359.9	118.31	360.9	117.81	365.9	117.69	366.9	117.16
369.9	117.34	370.9	116.28	372.9	116.28	373.9	115.81	382.9	115.25
383.9	114.75	385.9	114.75	386.9	114.28	395.9	113.66	396.9	113.34
423	111.78	432	111.55	435	111.36	436	110.83	439	110.89

440	108.87	442	109.06	443	106.59	449	106.34	450	105.97
458	105.81	491.1	104.03	492.1	99.91	495.1	99.91	496.1	94.88
498.1	94.88	499.1	92.03	511.1	91.82	512.1	92.17	518.1	92.34
519.1	92.78	521.1	92.78	522.1	93.22	524.1	93.22	525.1	93.66
529.1	94.06	538.2	93.22	544.2	93.26	545.2	92.94	547.2	92.99
548.2	92.58	551.2	92.65	558.2	91.81	564.2	91.56	565.2	90.94
574.2	90.41	578.2	89.72	583.2	89.44	584.2	89.06	587.2	89.22
588.2	88.81	590.3	88.81	591.3	88.34	620.3	86.72	627.3	85.88
633.3	85.59	634.3	85.22	639.3	84.91	640.3	84.5	643.3	84.5
644.3	84.16	649.3	83.84	650.4	83.44	656.4	83.1	657.4	82.69
662.4	82.39	663.4	82.01	666.4	82.02	667.4	81.62	672.4	81.25
673.4	80.84	679.4	80.5	680.4	80.09	685.4	79.69	686.4	79.28
689.4	79.28	690.4	78.88	692.4	78.88	693.4	78.45	695.4	78.47
696.4	78.13	699.4	78.14	700.4	77.79	709.4	77	725.6	76.12
732.7	75.04	735.7	75.03	736.7	74.66	744.9	74.06	745.9	73.69
748.9	73.69	756	72.53	762.1	72.19	769.2	71.31	772.2	71.31
778.3	70.52	779.3	70.13	785.4	69.78	795.6	68.53	798.6	68.52
805.7	67.44	814.9	67.09	815.9	66.47	822	66.45	823	65.61
828	65.19	830.1	63.84	845.3	62.69	871.7	61	892.1	61
892.3	61	906.5	60.12	907.7	60.35	956.3	58.55	990.8	58
995.8	56.31	999.9	56.22	1001.9	56.72	1003.9	56.72	1015.1	55.69
1031.3	54.81	1086.8	54.72	1089.8	54.41	1090.8	52.81	1092.9	52.88
1093.9	51.6	1100	51.69	1101	52.94	1103	52.94	1104	53.94
1107.1	54.17	1136.5	53.72	1153.7	54.9	1159.2	54.59	1173	54.66
1187.2	54	1199.4	54.41	1202.4	54.85	1203.4	56.14	1205.5	56.21
1206.5	57.22	1209.5	57.33	1210.5	57.83	1285.6	57.56	1305.2	57.86
1316.1	57.38	1335.3	57.44	1355.6	58.5	1378	58.66	1395.2	59.2
1399.3	59.65	1431.7	60.31	1449	61.23	1458.1	60.81	1468.3	61.58
1481.4	61.81	1482.5	62.16	1494.6	61.81	1508.8	62.54	1531.2	61.09
1532.2	61.58	1534.2	61.39	1538.3	62.66	1540.3	62.47	1541.3	62.93
1544.3	62.69	1545.4	63.25	1550.4	63.59	1551.4	63.03	1553.5	63.03
1554.5	62.47	1557.5	62.23	1558.6	61.5	1560.6	61.88	1561.6	61.31
1563.6	61.05	1564.6	60.32	1566.7	60.05	1567.7	59.38	1570.7	59.38
1571.7	58.34	1573.8	58.34	1574.8	57.69	1580.9	57.7	1584.9	58.5
1590	58.24	1594.1	58.47	1598.1	59.12	1605.2	59.39	1608.3	59.91
1613.3	59.56	1626.6	59.78	1632.6	59.69	1640.7	59.06	1652.9	59
1667.1	58	1680.3	57.62	1703.6	56.28	1734.1	55.41	1788.9	55.06
1866	53.94	1875.1	54.18	1876.1	53.84	1879.5	53.71	1914.7	52.88
1915.7	52.47	1918.7	52.47	1919.7	51.95	1927.9	51.31	1928.9	50.75
1930.2	50.75	1931.9	50.75	1932.9	49.56	1935	49.56	1936	46.19
1938	46.19	1939	39.84	1942.1	39.76	1943.1	37.88	2224.238.00519	
2279.9	38.03	2280.9	39.44	2283	39.44	2284	43.12	2286	43.12
2287	45.75	2289.1	45.75	2290.1	48.03	2293.1	48.03	2294.1	49.78
2296.2	49.86	2297.2	52.29	2299.2	52.57	2300.2	55.4	2303.4	55.5
2304.5	57.25	2306.6	57.25	2307.7	58.5	2309.9	58.41	2310.9	58.96
2313.1	58.94	2314.2	59.5	2327.1	59.81	2328.2	60.13	2337.9	60.34
2339	59.84	2344.4	60	2345.4	61.34	2348.7	61.6	2349.8	64.38
2351.9	64.38	2353	67.16	2355.2	67.18	2356.2	69.88	2358.4	69.97
2359.5	72.34	2362.7	72.34	2363.8	74.56	2365.9	74.61	2367	77.28
2369.2	77.44	2370.2	80.81	2372.4	80.81	2373.5	84.14	2375.6	84.72

2376.7	84.29	2377.8	87.88	2380	88.12	2381	91.06	2383.2	91.06
2384.3	93.22	2386.4	93.62	2387.5	95.5	2390.7	95.5	2391.8	97.53
2394	97.53	2395	99.78	2397.2	100.33	2398.3	102.81	2400.4	102.81
2401.5	105.28	2404.8	105.78	2405.8	108.03	2408	108.03	2409.1	110.53
2411.2	110.53	2412.3	113.12	2413.5	113.12	2414.5	113.65	2415.5	116.55
2416.2	116.81	2425.2	116.84	2433.9	117.45	2459.7	117.69	2460.8	117.95
2466.2	117.69	2487.8	117.97	2498.6	117.66	2499.6	118.51	2501.8	118.94
2502.9	120.03	2506.1	120.03	2507.2	120.48	2509.3	120.78	2510.4	122.22
2512.6	122.22	2513.9	127.28						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.05	1875.1	.035	2300.2	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1875.1	2300.2	195	220	230	.1	.3

Blocked Obstructions num= 1

Sta L	Sta R	Elev
892.3	1031.3	67

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 102843

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
158	59	159	59	160	59	250	56	329.9	56
330	76	859.9	76	860	56	970	56	971	56
1000	55	1060	52.6	1070	52.7	1080	53.3	1090	51.9
1110	38.8	1120	36.1	1150	34.5	1190	34.6	1270	30.4
1280	30.4	1390	35	1430	36.8	1440	38.5	1472	52
1490	59.3	1500	61.4	1510	64.5	1570	103		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
158	.05	1090	.035	1472	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1090	1472	638	638	638	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 102205

INPUT
Description:
Station Elevation Data num= 33

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
499.9	86	500	66	520	64	560	60	620	60
860	56.8	860.1	79	1180	79	1290	79	1329.9	79
1330	58.5	1340	58.5	1350	58.6	1370	58.6	1450	56.1
1460	53.8	1500	37.6	1510	35.6	1540	34.1	1570	34
1660	30.9	1720	30.7	1830	35	1840	35.8	1850	38.5
1860	44.9	1870	53.8	1880	60.7	1890	62	1900	64.9
1940	93.9	1950	99.4	1961	104.1				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
499.9	.05	1450	.035	1870	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1450	1870	538	538	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 101667

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
940	80	960	76	970	68	990	60	991	60
1000	56.3	1010	54.5	1030	55	1060	54.6	1070	54.6
1090	53.3	1110	50.1	1120	50.6	1140	54.9	1189.9	55.3
1190	75	1270	75	1360	75	1410	75	1659.9	75
1660	54.6	1700	54.5	1790	52.8	1800	50.9	1830	37.6
1840	34.3	1860	34.2	1970	31.2	2020	30.1	2030	30.1
2050	30.3	2060	30.4	2150	36	2193	53	2210	59.8
2220	61.3	2230	64.6	2292	98				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
940	.05	1790	.035	2193	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1790	2193	572	572	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 101095

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	83	1110	83	1160	83	1170	83	1249.9	83
1250	62.5	1310	60	1340	53.7	1350	53.4	1370	53.9
1380	53.9	1400	54.2	1410	54.1	1430	53.5	1460	49.1
1480	54.1	1480.1	73	1510	73	1570	73	1590	73
1829.9	73	1830	52.5	1880	52.2	1990	50.2	2040	49.5
2050	49.6	2060	49.6	2090	48.5	2100	46.6	2110	41.8
2120	33.1	2130	30.4	2150	33.8	2260	29.4	2290	29
2310	28.8	2420	34.6	2440	37.3	2475	50	2500	58.9
2510	61	2520	61.4	2530	65	2598	105.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2100	.035	2475	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2100	2475	604	604	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 100491

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	83.5	1040	82.3	1090	82.3	1200	78.2	1310	77
1380	77	1480	77	1590	77	1729.9	77	1730	57.2
1750	57.1	1860	53.3	1900	52.3	1950	52.3	2000	51.1
2010	51.1	2060	51.6	2080	51.6	2180	50.6	2190	50.7
2280	54.5	2310	52.2	2320	52.3	2370	53.3	2380	53
2420	41.2	2430	35.6	2440	33.1	2450	33	2460	33
2570	29.9	2580	29.8	2600	29.7	2620	29.5	2660	29.4
2750	34	2770	37.6	2806	53	2820	58.8	2840	61.8
2895	88.4								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2380	.035	2806	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2380	2806	788	788	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 99703

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	111.4	1110	95.5	1170	89.8	1190	89.7	1270	85.4
1380	77	1440	77	1470	77	1580	77	1690	77
1800	77	1830	77	1840	77	1850	77	1959.9	77
1960	56.9	1980	56.7	2050	54.1	2070	54.4	2130	53.2
2130.1	74	2349.9	74	2350	54.2	2400	54.9	2410	55
2420	55	2430	51.9	2480	48.5	2520	36.6	2630	31.5
2740	29.8	2770	29.4	2860	33	2870	32.7	2880	32.7
2910	37.3	2960	51.9	2970	56.8	2980	60.2	2990	61.1
3040	93								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2420	.035	2970	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2420	2970	592	592	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 99111

INPUT
Description:
Station Elevation Data num= 44

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	93	1010	93.4	1020	93.4	1080	92.1	1090	92.1
1100	91.7	1130	85.1	1150	79	1160	79	1180	79
1290	79	1400	79	1510	79	1550	79	1620	79
1730	79	1740	79	1760	79	1889.9	79	1890	58.7
1900	58.7	2010	53.6	2030	53.1	2030.1	74	2209.9	74
2210	54.4	2230	54.6	2260	53.7	2310	36.1	2420	30.8
2470	30.7	2490	31.1	2530	30.1	2550	30	2630	33.5
2640	33.4	2650	33.2	2680	35.8	2690	37.8	2747	54
2770	60.4	2780	61.4	2790	64.1	2881	108.6		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	2260	.035	2747	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
2260 2747 720 672 600 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 98439

INPUT
Description:
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	91.3	1110	86.1	1220	79.2	1330	75	1340	75
1350	75	1380	75	1390	75	1450	75	1560	75
1570	75	1659.9	75	1660	55	1720	52.8	1750	53.7
1760	53.7	1770	53.5	1800	53.3	1900	50.2	1920	50.1
1930	50.2	1940	50.2	1950	46.5	1960	39.5	1970	35
2070	27.8	2080	27.8	2190	31.1	2260	32.9	2310	32.9
2360	36.3	2410	48.6	2490	61.4	2500	61.6	2510	61.6
2520	62.4	2530	64.8	2640	114.9	2660	123.9	2670	126.1
2721	128.2								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.05	1940	.035	2410	.07

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
1940 2410 850 727 620 .1 .3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 97712

INPUT
Description:
Station Elevation Data num= 42

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	71	1020	71	1120	71	1130	71	1240	71
1350	71	1360	71	1470	71	1560	71	1580	71
1759.9	71	1760	50.6	1870	52.5	1890	52.8	1970	52.6
1990	53	2040	53.3	2110	50	2120	48.4	2160	33.4
2180	30	2190	30.1	2220	31	2230	31	2260	29
2280	29.4	2310	29.5	2360	30.4	2400	30.4	2510	33.2
2560	36.9	2570	39.3	2600	49.6	2610	50.8	2670	44.7
2690	45.6	2760	60.7	2810	64.4	2820	66.7	2920	122.4
2930	125.4	2941	127.6						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	2120	.035	2600	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2120	2600	720	653	550	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 97059

INPUT
Description: FROM FILE SCT012.DAT

Station Elevation Data num= 32

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	95.3	1110	74.2	1180	62.1	1200	61.9	1210	61.8
1320	53.7	1430	49.2	1450	48.7	1520	40	1540	32.5
1550	30.1	1560	28.8	1610	34	1640	30.7	1660	31
1740	29.1	1850	34	1890	36.3	1900	38.1	1930	48.6
1940	50.6	1960	49.4	1970	50.3	2030	61.5	2040	62.1
2150	107	2190	124	2200	125.7	2210	126	2240	124.8
2250	125.5	2259	130.1						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.07	1450	.035	1940	.07

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1450	1940	965	965	965	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 96094

INPUT
Description:
Station Elevation Data num= 29

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	111.7	1080	86.8	1130	62.3	1140	61.4	1150	61.9
1160	61.2	1180	55.6	1290	46.6	1320	46.1	1350	40.6
1370	33	1450	30.2	1510	29.8	1620	26.5	1670	32.1
1690	40.2	1800	51	1810	52.4	1820	54.8	1830	59.8
1840	59.5	1850	58.1	1860	57.8	1950	107.4	1960	108
2000	106	2010	104.3	2020	98.9	2027	94.2		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1320	.035	1690	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1320	1690	880	784	650	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 95310

INPUT
Description:
Station Elevation Data num= 35

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	133.2	1060	103.7	1110	68.9	1120	63.5	1180	52.1
1220	48.4	1240	43.7	1250	40.1	1260	34.8	1270	32.3
1290	31.1	1310	31.5	1340	30.8	1400	33.5	1440	39
1450	39.1	1470	34	1480	33.3	1510	33.3	1570	30.4
1620	30.3	1690	34.7	1700	37.2	1750	54.6	1760	56.9
1790	59.5	1840	58.5	1850	58.5	1860	60.7	1920	93.1
1940	94.5	1960	94.2	1970	94.3	1980	97.4	2014	113.7

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1180	.035	1750	.08

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1180	1750	1025	1025	1025	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 94285

INPUT
Description:
Station Elevation Data num= 37

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	117.2	1070	69.1	1080	64.3	1090	60.6	1130	52.3
1150	50.3	1180	36.5	1190	33.4	1290	28.6	1310	28.6
1340	29	1370	28.5	1400	31.1	1430	30.2	1450	30.5
1480	30.4	1500	30.2	1510	30.2	1620	33.4	1630	34
1640	36.3	1650	42.3	1660	50.9	1670	56.9	1690	59.2
1700	59.4	1740	58.3	1750	58.2	1850	59.7	1910	59.5
1920	60.3	1950	70.5	1960	72.2	2010	74	2070	88
2090	98.1	2092	98.9						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1150	.03	1660	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1150	1660	1052	1052	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 93233

INPUT
Description:
Station Elevation Data num= 38

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	112	1060	91.4	1120	81.9	1220	53.7	1240	52
1290	38.8	1300	34.4	1310	32.7	1420	30.3	1450	29.9
1460	29.9	1520	34.8	1580	31.6	1590	31.7	1650	35.1
1700	31.6	1710	31.6	1750	35.7	1760	37.9	1770	43.5
1780	52	1790	57.2	1810	59.6	1820	59.5	1840	58.8
1910	58.5	1930	58.3	1950	58.3	2060	59.7	2080	60.2
2090	62.2	2120	73.6	2140	76.1	2160	75.3	2200	81.6
2220	90.1	2240	102.5	2300	125.7				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1240	.03	1780	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1240	1780	1200	1200	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 92033

INPUT
Description:
Station Elevation Data num= 56

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	102.3	1110	82	1220	71.5	1330	64.2	1340	65.9
1360	73.6	1370	73.5	1420	57.9	1530	49.7	1580	42.2
1610	43.3	1620	41.5	1640	33.6	1660	30.2	1670	29.8
1780	30	1790	30.1	1810	34.7	1820	34.7	1830	32.6
1840	32.1	1950	36.4	2020	38.4	2030	41.6	2040	46.2
2050	49.7	2060	50.6	2070	50.5	2150	48.8	2160	46.1

2180	38.6	2290	32.8	2300	32.5	2330	36.1	2340	39.6
2370	54.2	2380	57.4	2400	60.3	2410	60.7	2420	60.7
2470	59.8	2530	61.4	2570	80.7	2580	83.1	2590	83.1
2600	83.6	2610	83.6	2630	82.7	2650	83.2	2660	82.8
2670	80.5	2680	79.7	2710	84.5	2720	84.5	2730	84.4
2829	96.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.08	1530	.025	2370	.05

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1530	2370	580	627	700	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 91406

INPUT
Description: FROM FILE SCT011.DAT

Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	77	1010	77	1030	77	1050	77	1070	77
1080	77	1090	77	1180	77	1210	77	1240	77
1250	77	1280	77	1489.9	77	1490	56.6	1550	53.2
1590	49.7	1600	47.8	1630	34.5	1650	29.7	1660	28.7
1670	28.7	1780	30.1	1820	32.4	1860	32.1	1940	34.1
1960	33.8	1970	33.9	2000	37.9	2110	38	2140	38.3
2150	38.3	2220	32.3	2240	35	2280	47.7	2390	49.6
2430	50.6	2510	61.8	2540	59.9	2550	61.6	2610	86.1
2630	87.5	2640	87.5	2660	87.2	2670	87.2	2700	88.3
2740	105.4	2750	105.3	2780	99.9	2890	105.6	3000	109.7
3094	114.6								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.03	1600	.025	2280	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1600	2280	650	632	580	.1	.3

CROSS SECTION

RIVER: RIVER-1
REACH: Reach-1 RS: 90774

INPUT
Description: FROM FILE SCT010.DAT
THIS QT CARD APPLIES FROM UPSTREAM
WISSAHICKON CREEK TO DOWNSTREAM OF
PERKIOMEN CREEK. THE
DISCHARGES APPLY TO A DRAINAGE AREA OF 1690 SQ MI
WHICH
CORRESPONDS TO THE PORT KENNEDY GAGE LOCATION
ALL X-SECTIONS
AFTER X-90774 ARE FROM DTM SEGMENTS SCT011 TO SCT021
RECIEVED
FROM FPMS ON 21 SEP 1993.

Station Elevation Data num= 49

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
1000	120.3	1010	117.8	1020	113.9	1050	82.9	1060	77.3
1080	76.5	1090	80.1	1100	90.7	1110	94	1200	67.1
1310	61.3	1350	60.4	1370	60.3	1390	58.1	1420	53
1470	53.1	1510	47.2	1530	40	1590	29.8	1660	27.9
1680	27.9	1710	28.2	1800	28.9	1840	29.4	1880	29.6
1950	30.2	2000	30.1	2040	29.5	2080	33.7	2100	38.8
2110	44	2120	45.8	2130	46	2190	46.3	2280	49
2370	61.3	2380	61.3	2400	59.7	2430	61.2	2450	59.4
2460	59.8	2490	84.5	2500	89.3	2510	89.5	2520	88.7
2550	90.1	2600	88.6	2610	89.5	2627	96.3		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
1000	.03	1510	.025	2110	.04

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
1510	2110	0	0	.1	.3

SUMMARY OF MANNING'S N VALUES

River:RIVER-1

Reach	River Sta.	n1	n2	n3	n4	n5
Reach-1	148266	.05	.032	.07		
Reach-1	147996	.07	.032	.07		
Reach-1	147978.5	Bridge				
Reach-1	147961	.07	.032	.07		

Reach-1	147907		.07	.032	.07		
Reach-1	147855		.07	.032	.07		
Reach-1	147816	Bridge					
Reach-1	147777		.07	.032	.07		
Reach-1	147468		.07	.032	.07		
Reach-1	146836		.07	.032	.07		
Reach-1	146261		.07	.032	.07		
Reach-1	145718		.07	.032	.07		
Reach-1	145322		.07	.032	.07		
Reach-1	144123		.07	.032	.07		
Reach-1	143224		.05	.032	.07		
Reach-1	142252		.05	.032	.07		
Reach-1	141305		.05	.032	.04		
Reach-1	140315		.05	.032	.07		
Reach-1	139246		.05	.032	.07		
Reach-1	138319		.05	.032	.07		
Reach-1	137179		.05	.032	.07		
Reach-1	136547		.07	.032	.07		
Reach-1	135965		.07	.032	.07		
Reach-1	135309		.07	.032	.08		
Reach-1	134634		.07	.032	.08		
Reach-1	133727		.07	.032	.07		
Reach-1	132707		.07	.032	.07		
Reach-1	132065		.07	.032	.07		
Reach-1	131298		.07	.035	.07	.035	.06

Reach-1	130606		.07	.035	.07	.035	.06
Reach-1	129999		.06	.035	.07	.035	.06
Reach-1	129552		.06	.035	.05	.035	.06
Reach-1	129008		.06	.035	.05	.035	.06
Reach-1	128834		.06	.035	.05	.035	.06
Reach-1	128814.5	Bridge					
Reach-1	128795		.06	.035	.05	.035	.06
Reach-1	128638		.06	.035	.05	.035	.06
Reach-1	128215		.06	.035	.05	.035	.06
Reach-1	127766		.05	.035	.05	.035	.06
Reach-1	127339		.05	.035	.07	.035	.06
Reach-1	127040		.06	.035	.08	.035	.06
Reach-1	127032	Bridge					
Reach-1	127024		.06	.035	.08	.035	.06
Reach-1	126951		.05	.035	.08	.035	.06
Reach-1	126845		.05	.035	.08	.035	.06
Reach-1	126779		.05	.035	.08	.035	.06
Reach-1	126715		.05	.035	.08	.035	.05
Reach-1	126702	Bridge					
Reach-1	126689		.05	.035	.08	.035	.05
Reach-1	126497		.05	.035	.08	.035	.05
Reach-1	126190		.06	.035	.08	.035	.05
Reach-1	125738		.04	.035	.04		
Reach-1	125718		.04	.035	.04		
Reach-1	125698		.04	.035	.04		
Reach-1	125608		.04	.035	.04		
Reach-1	125596	Bridge					

Reach-1	125584		.04	.035	.04
Reach-1	125295		.04	.035	.04
Reach-1	124990		.04	.035	.04
Reach-1	124959.5	Bridge			
Reach-1	124929		.04	.035	.04
Reach-1	124445		.04	.035	.04
Reach-1	123663		.04	.035	.04
Reach-1	122951		.05	.035	.05
Reach-1	122312		.05	.035	.05
Reach-1	121490		.05	.035	.05
Reach-1	120802		.06	.035	.05
Reach-1	120200		.06	.035	.05
Reach-1	119282		.06	.035	.06
Reach-1	118934		.04	.035	.06
Reach-1	118798		.04	.035	.05
Reach-1	118737		.04	.035	.05
Reach-1	118675		.04	.035	.05
Reach-1	118651		.04	.035	.05
Reach-1	118490		.04	.035	.05
Reach-1	118005		.06	.035	.05
Reach-1	117330		.06	.035	.05
Reach-1	116307		.06	.035	.07
Reach-1	115807		.06	.035	.07
Reach-1	114577		.06	.035	.07
Reach-1	114062		.07	.035	.07
Reach-1	113859		.07	.035	.07

Reach-1	113835	Bridge			
Reach-1	113811		.07	.035	.07
Reach-1	113597		.08	.035	.08
Reach-1	112467		.08	.035	.08
Reach-1	111334		.08	.035	.08
Reach-1	110666		.08	.035	.06
Reach-1	110054		.08	.035	.06
Reach-1	109548		.08	.035	.06
Reach-1	109276		.08	.035	.05
Reach-1	109192	Bridge			
Reach-1	109108		.08	.035	.05
Reach-1	108858		.08	.035	.05
Reach-1	108437		.08	.035	.05
Reach-1	108025		.08	.035	.05
Reach-1	107856		.05	.035	.05
Reach-1	107836		.05	.035	.05
Reach-1	107816		.05	.035	.05
Reach-1	107696		.05	.035	.05
Reach-1	107348		.05	.035	.05
Reach-1	106758		.04	.035	.03
Reach-1	106049		.04	.035	.03
Reach-1	105690		.03	.035	.03
Reach-1	105514		.03	.035	.03
Reach-1	105474.5	Bridge			
Reach-1	105435		.03	.035	.03
Reach-1	105266		.03	.035	.03

Reach-1	104860	.03	.035	.03
Reach-1	104344	.05	.035	.07
Reach-1	103793	.05	.035	.07
Reach-1	103278	.05	.035	.07
Reach-1	103063	.05	.035	.07
Reach-1	102843	.05	.035	.07
Reach-1	102205	.05	.035	.07
Reach-1	101667	.05	.035	.07
Reach-1	101095	.05	.035	.07
Reach-1	100491	.05	.035	.07
Reach-1	99703	.05	.035	.07
Reach-1	99111	.05	.035	.07
Reach-1	98439	.05	.035	.07
Reach-1	97712	.07	.035	.07
Reach-1	97059	.07	.035	.07
Reach-1	96094	.08	.035	.08
Reach-1	95310	.08	.035	.08
Reach-1	94285	.08	.03	.05
Reach-1	93233	.08	.03	.05
Reach-1	92033	.08	.025	.05
Reach-1	91406	.03	.025	.04
Reach-1	90774	.03	.025	.04

SUMMARY OF REACH LENGTHS

River: RIVER-1

Reach	River Sta.	Left	Channel	Right
Reach-1	148266	288	288	288
Reach-1	147996	17	17	17
Reach-1	147978.5	Bridge		
Reach-1	147961	54	54	54
Reach-1	147907	60	60	60
Reach-1	147855	70	70	70
Reach-1	147816	Bridge		
Reach-1	147777	309	309	309
Reach-1	147468	632	632	632
Reach-1	146836	575	575	575
Reach-1	146261	543	543	543
Reach-1	145718	396	396	396
Reach-1	145322	1199	1199	1199
Reach-1	144123	899	899	899
Reach-1	143224	972	972	972
Reach-1	142252	947	947	947
Reach-1	141305	990	990	990
Reach-1	140315	1200	1069	900
Reach-1	139246	950	927	850
Reach-1	138319	1140	1140	1140
Reach-1	137179	632	632	632
Reach-1	136547	582	582	582
Reach-1	135965	656	656	656
Reach-1	135309	700	675	580
Reach-1	134634	907	907	907
Reach-1	133727	1020	1020	1020
Reach-1	132707	642	642	642
Reach-1	132065	767	767	767
Reach-1	131298	692	692	692
Reach-1	130606	607	607	607
Reach-1	129999	447	447	447
Reach-1	129552	580	544	320
Reach-1	129008	188	188	188
Reach-1	128834	25	25	25
Reach-1	128814.5	Bridge		
Reach-1	128795	157	157	157
Reach-1	128638	423	423	423
Reach-1	128215	449	449	449
Reach-1	127766	427	427	427
Reach-1	127339	289	289	289
Reach-1	127040	26	26	26
Reach-1	127032	Bridge		
Reach-1	127024	73	73	73
Reach-1	126951	106	106	106
Reach-1	126845	66	66	66

Reach-1	126779	56	56	56
Reach-1	126715	34	34	34
Reach-1	126702	Bridge		
Reach-1	126689	192	192	192
Reach-1	126497	307	307	307
Reach-1	126190	452	452	452
Reach-1	125738	20	20	20
Reach-1	125718	20	20	20
Reach-1	125698	96	96	96
Reach-1	125608	18	18	18
Reach-1	125596	Bridge		
Reach-1	125584	289	289	289
Reach-1	125295	380	298	250
Reach-1	124990	68	68	68
Reach-1	124959.5	Bridge		
Reach-1	124929	484	484	484
Reach-1	124445	782	782	782
Reach-1	123663	712	712	712
Reach-1	122951	639	639	639
Reach-1	122312	822	822	822
Reach-1	121490	688	688	688
Reach-1	120802	650	602	550
Reach-1	120200	1150	918	650
Reach-1	119282	348	348	348
Reach-1	118934	147	147	147
Reach-1	118798	50	50	50
Reach-1	118737	57	57	57
Reach-1	118675	29	29	29
Reach-1	118651	161	161	161
Reach-1	118490	485	485	485
Reach-1	118005	720	675	600
Reach-1	117330	1150	1023	850
Reach-1	116307	500	500	500
Reach-1	115807	1230	1230	1230
Reach-1	114577	515	515	515
Reach-1	114062	229	229	229
Reach-1	113859	22	22	22
Reach-1	113835	Bridge		
Reach-1	113811	214	214	214
Reach-1	113597	1130	1130	1130
Reach-1	112467	1133	1133	1133
Reach-1	111334	580	668	780
Reach-1	110666	612	612	612
Reach-1	110054	420	506	600
Reach-1	109548	278	278	278
Reach-1	109276	162	162	162
Reach-1	109192	Bridge		
Reach-1	109108	250	250	250
Reach-1	108858	450	421	360
Reach-1	108437	450	412	380

Reach-1	108025	169	169	169
Reach-1	107856	20	20	20
Reach-1	107836	20	20	20
Reach-1	107816	120	120	120
Reach-1	107696	348	348	348
Reach-1	107348	590	590	590
Reach-1	106758	580	709	800
Reach-1	106049	400	359	320
Reach-1	105690	207	207	207
Reach-1	105514	48	48	48
Reach-1	105474.5	Bridge		
Reach-1	105435	169	169	169
Reach-1	105266	300	406	480
Reach-1	104860	380	516	600
Reach-1	104344	551	551	551
Reach-1	103793	470	515	550
Reach-1	103278	185	215	200
Reach-1	103063	195	220	230
Reach-1	102843	638	638	638
Reach-1	102205	538	538	538
Reach-1	101667	572	572	572
Reach-1	101095	604	604	604
Reach-1	100491	788	788	788
Reach-1	99703	592	592	592
Reach-1	99111	720	672	600
Reach-1	98439	850	727	620
Reach-1	97712	720	653	550
Reach-1	97059	965	965	965
Reach-1	96094	880	784	650
Reach-1	95310	1025	1025	1025
Reach-1	94285	1052	1052	1052
Reach-1	93233	1200	1200	1200
Reach-1	92033	580	627	700
Reach-1	91406	650	632	580
Reach-1	90774	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: RIVER-1

Reach	River Sta.	Contr.	Expan.
Reach-1	148266	.3	.5
Reach-1	147996	.3	.5
Reach-1	147978.5	Bridge	
Reach-1	147961	.3	.5
Reach-1	147907	.3	.5

Reach-1	147855		.3	.5
Reach-1	147816	Bridge		
Reach-1	147777		.3	.5
Reach-1	147468		.1	.3
Reach-1	146836		.1	.3
Reach-1	146261		.1	.3
Reach-1	145718		.1	.3
Reach-1	145322		.1	.3
Reach-1	144123		.1	.3
Reach-1	143224		.1	.3
Reach-1	142252		.1	.3
Reach-1	141305		.1	.3
Reach-1	140315		.1	.3
Reach-1	139246		.1	.3
Reach-1	138319		.1	.3
Reach-1	137179		.1	.3
Reach-1	136547		.1	.3
Reach-1	135965		.1	.3
Reach-1	135309		.1	.3
Reach-1	134634		.1	.3
Reach-1	133727		.1	.3
Reach-1	132707		.1	.3
Reach-1	132065		.1	.3
Reach-1	131298		.1	.3
Reach-1	130606		.1	.3
Reach-1	129999		.1	.3
Reach-1	129552		.1	.3
Reach-1	129008		.1	.3
Reach-1	128834		.1	.3
Reach-1	128814.5	Bridge		
Reach-1	128795		.1	.3
Reach-1	128638		.1	.3
Reach-1	128215		.1	.3
Reach-1	127766		.1	.3
Reach-1	127339		.1	.3
Reach-1	127040		.1	.3
Reach-1	127032	Bridge		
Reach-1	127024		.1	.3
Reach-1	126951		.1	.3
Reach-1	126845		.1	.3
Reach-1	126779		.1	.3
Reach-1	126715		.1	.3
Reach-1	126702	Bridge		
Reach-1	126689		.1	.3
Reach-1	126497		.1	.3
Reach-1	126190		.1	.3
Reach-1	125738		.3	.5
Reach-1	125718		.3	.5
Reach-1	125698		.3	.5
Reach-1	125608		.3	.5

Reach-1	125596	Bridge		
Reach-1	125584		.3	.5
Reach-1	125295		.3	.5
Reach-1	124990		.3	.5
Reach-1	124959.5	Bridge		
Reach-1	124929		.3	.5
Reach-1	124445		.1	.3
Reach-1	123663		.1	.3
Reach-1	122951		.1	.3
Reach-1	122312		.1	.3
Reach-1	121490		.1	.3
Reach-1	120802		.1	.3
Reach-1	120200		.1	.3
Reach-1	119282		.1	.3
Reach-1	118934		.3	.5
Reach-1	118798		.3	.5
Reach-1	118737		.3	.5
Reach-1	118675		.3	.5
Reach-1	118651		.3	.5
Reach-1	118490		.1	.3
Reach-1	118005		.1	.3
Reach-1	117330		.1	.3
Reach-1	116307		.1	.3
Reach-1	115807		.1	.3
Reach-1	114577		.1	.3
Reach-1	114062		.3	.5
Reach-1	113859		.3	.5
Reach-1	113835	Bridge		
Reach-1	113811		.3	.5
Reach-1	113597		.1	.3
Reach-1	112467		.1	.3
Reach-1	111334		.1	.3
Reach-1	110666		.1	.3
Reach-1	110054		.1	.3
Reach-1	109548		.3	.5
Reach-1	109276		.3	.5
Reach-1	109192	Bridge		
Reach-1	109108		.3	.5
Reach-1	108858		.1	.3
Reach-1	108437		.1	.3
Reach-1	108025		.1	.3
Reach-1	107856		.3	.5
Reach-1	107836		.3	.5
Reach-1	107816		.1	.3
Reach-1	107696		.1	.3
Reach-1	107348		.1	.3
Reach-1	106758		.1	.3
Reach-1	106049		.1	.3
Reach-1	105690		.3	.5
Reach-1	105514		.3	.5

Reach-1	105474.5	Bridge	
Reach-1	105435	.3	.5
Reach-1	105266	.1	.3
Reach-1	104860	.1	.3
Reach-1	104344	.1	.3
Reach-1	103793	.1	.3
Reach-1	103278	.1	.3
Reach-1	103063	.1	.3
Reach-1	102843	.1	.3
Reach-1	102205	.1	.3
Reach-1	101667	.1	.3
Reach-1	101095	.1	.3
Reach-1	100491	.1	.3
Reach-1	99703	.1	.3
Reach-1	99111	.1	.3
Reach-1	98439	.1	.3
Reach-1	97712	.1	.3
Reach-1	97059	.1	.3
Reach-1	96094	.1	.3
Reach-1	95310	.1	.3
Reach-1	94285	.1	.3
Reach-1	93233	.1	.3
Reach-1	92033	.1	.3
Reach-1	91406	.1	.3
Reach-1	90774	.1	.3

Profile Output Table - Standard Table 1

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Reach-1	148266	10-yr	62900.00	51.60	75.81	76.30	0.000271	5.70	11931.70	738.89	0.22	
Reach-1	148266	50-yr	93700.00	51.60	80.54	81.21	0.000286	6.73	15491.95	766.74	0.24	
Reach-1	148266	100-yr	109000.00	51.60	82.60	83.36	0.000292	7.16	17111.38	808.73	0.24	
Reach-1	148266	500-yr	146000.00	51.60	87.17	88.11	0.000299	8.04	21166.71	950.09	0.25	
Reach-1	147996	10-yr	62900.00	50.38	75.64	61.90	76.19	0.000392	5.95	10567.13	504.77	0.23
Reach-1	147996	50-yr	93700.00	50.38	80.23	64.48	81.05	0.000476	7.28	12900.55	511.05	0.25

Reach-1	147996	100-yr	109000.00	50.38	82.23			
65.64	83.18	0.000513	7.85	13922.87	513.77	0.26		
Reach-1	147996	500-yr	146000.00	50.38	86.61			
68.23	87.88	0.000592	9.07	16186.16	519.76	0.28		

Reach-1	147978.5	Bridge						

Reach-1	147961	10-yr	62900.00	50.38	75.63			
76.18	0.000393	5.96	10563.54	504.76	0.23			
Reach-1	147961	50-yr	93700.00	50.38	80.22			
81.05	0.000476	7.28	12896.07	511.03	0.25			
Reach-1	147961	100-yr	109000.00	50.38	82.22			
83.18	0.000514	7.85	13917.97	513.76	0.26			
Reach-1	147961	500-yr	146000.00	50.38	86.60			
87.87	0.000593	9.07	16180.38	519.74	0.28			

Reach-1	147907	10-yr	62900.00	50.90	75.53			
76.14	0.000337	6.30	10112.09	542.76	0.25			
Reach-1	147907	50-yr	93700.00	50.90	80.10			
81.00	0.000377	7.63	12647.06	565.51	0.27			
Reach-1	147907	100-yr	109000.00	50.90	82.09			
83.13	0.000393	8.20	13782.04	575.41	0.28			
Reach-1	147907	500-yr	146000.00	50.90	86.47			
87.82	0.000423	9.40	16361.60	638.80	0.30			

Reach-1	147855	10-yr	62900.00	49.60	75.45			
62.27	76.10	0.000507	6.52	9754.53	512.58	0.25		
Reach-1	147855	50-yr	93700.00	49.60	79.98			
65.03	80.95	0.000605	7.91	12122.91	531.17	0.28		
Reach-1	147855	100-yr	109000.00	49.60	81.96			
66.25	83.07	0.000648	8.51	13178.04	539.25	0.29		
Reach-1	147855	500-yr	146000.00	49.60	86.30			
69.13	87.76	0.000735	9.76	15719.10	624.79	0.31		

Reach-1	147816	Bridge						

Reach-1	147777	10-yr	62900.00	49.60	75.41			
76.07	0.000510	6.53	9734.71	512.42	0.26			
Reach-1	147777	50-yr	93700.00	49.60	79.94			
80.91	0.000608	7.93	12098.00	530.98	0.28			
Reach-1	147777	100-yr	109000.00	49.60	81.90			
83.03	0.000652	8.53	13150.73	539.04	0.29			

Reach-1	147777	500-yr	146000.00	49.60	86.24	
87.71	0.000739	9.78	15682.61	624.40	0.31	
Reach-1	147468	10-yr	62900.00	50.40	75.35	
75.90	0.000279	5.94	10745.06	572.87	0.23	
Reach-1	147468	50-yr	93700.00	50.40	79.88	
80.69	0.000322	7.25	13638.26	697.96	0.25	
Reach-1	147468	100-yr	109000.00	50.40	81.86	
82.79	0.000338	7.79	15021.13	702.68	0.26	
Reach-1	147468	500-yr	146000.00	50.40	86.21	
87.42	0.000365	8.92	18145.10	761.48	0.28	
Reach-1	146836	10-yr	62900.00	50.30	75.04	
75.68	0.000372	6.52	10761.18	804.24	0.26	
Reach-1	146836	50-yr	93700.00	50.30	79.60	
80.47	0.000389	7.66	15288.48	1141.18	0.27	
Reach-1	146836	100-yr	109000.00	50.30	81.62	
82.56	0.000387	8.06	17659.35	1204.52	0.28	
Reach-1	146836	500-yr	146000.00	50.30	86.07	
87.15	0.000376	8.82	23273.66	1327.80	0.28	
Reach-1	146261	10-yr	62900.00	50.30	74.76	
75.46	0.000396	6.76	10164.47	797.15	0.27	
Reach-1	146261	50-yr	93700.00	50.30	79.28	
80.23	0.000418	7.97	13812.85	815.39	0.28	
Reach-1	146261	100-yr	109000.00	50.30	81.26	
82.32	0.000425	8.46	15436.73	823.38	0.29	
Reach-1	146261	500-yr	146000.00	50.30	85.60	
86.89	0.000437	9.49	19044.16	844.03	0.30	
Reach-1	145718	10-yr	62900.00	50.40	74.58	
75.24	0.000364	6.65	11048.72	844.89	0.26	
Reach-1	145718	50-yr	93700.00	50.40	79.11	
79.99	0.000386	7.81	14925.87	867.55	0.27	
Reach-1	145718	100-yr	109000.00	50.40	81.09	
82.07	0.000394	8.30	16658.06	880.21	0.28	
Reach-1	145718	500-yr	146000.00	50.40	85.43	
86.64	0.000407	9.31	20550.73	912.79	0.29	
Reach-1	145322	10-yr	62900.00	48.80	74.53	
75.08	0.000285	5.99	11812.18	864.24	0.23	
Reach-1	145322	50-yr	93700.00	48.80	79.06	
79.81	0.000312	7.13	15769.70	882.83	0.25	
Reach-1	145322	100-yr	109000.00	48.80	81.05	
81.89	0.000321	7.60	17530.76	890.98	0.25	

Reach-1	145322	500-yr	146000.00	48.80	85.40	
86.44	0.000338	8.57	21443.01	908.82	0.27	
Reach-1	144123	10-yr	62900.00	52.50	74.26	
74.72	0.000274	5.49	12076.16	782.68	0.22	
Reach-1	144123	50-yr	93700.00	52.50	78.78	
79.42	0.000289	6.49	16622.07	1176.48	0.23	
Reach-1	144123	100-yr	109000.00	52.50	80.78	
81.48	0.000289	6.86	19025.58	1242.99	0.24	
Reach-1	144123	500-yr	146000.00	52.50	85.17	
86.01	0.000290	7.62	24867.26	1442.11	0.24	
Reach-1	143224	10-yr	62900.00	51.20	74.00	
74.45	0.000308	5.61	13478.18	1117.37	0.23	
Reach-1	143224	50-yr	93700.00	51.20	78.59	
79.13	0.000286	6.27	18755.76	1182.48	0.23	
Reach-1	143224	100-yr	109000.00	51.20	80.61	
81.19	0.000278	6.55	21172.97	1211.13	0.23	
Reach-1	143224	500-yr	146000.00	51.20	85.03	
85.71	0.000267	7.16	26701.50	1329.46	0.23	
Reach-1	142252	10-yr	62900.00	49.90	73.75	
74.18	0.000246	5.48	14337.10	1157.41	0.21	
Reach-1	142252	50-yr	93700.00	49.90	78.36	
78.87	0.000241	6.20	19748.39	1194.61	0.22	
Reach-1	142252	100-yr	109000.00	49.90	80.38	
80.93	0.000239	6.49	22183.49	1210.98	0.22	
Reach-1	142252	500-yr	146000.00	49.90	84.81	
85.45	0.000235	7.12	27685.74	1306.61	0.22	
Reach-1	141305	10-yr	62900.00	51.80	73.56	
73.94	0.000229	5.10	14437.87	1092.43	0.20	
Reach-1	141305	50-yr	93700.00	51.80	78.16	
78.63	0.000229	5.81	19515.93	1115.20	0.21	
Reach-1	141305	100-yr	109000.00	51.80	80.19	
80.70	0.000227	6.11	21784.91	1126.44	0.21	
Reach-1	141305	500-yr	146000.00	51.80	84.62	
85.22	0.000223	6.72	27206.35	1331.02	0.21	
Reach-1	140315	10-yr	62900.00	52.70	73.35	
73.70	0.000234	4.90	14495.11	1039.95	0.20	
Reach-1	140315	50-yr	93700.00	52.70	77.95	
78.40	0.000228	5.59	19359.10	1071.69	0.21	
Reach-1	140315	100-yr	109000.00	52.70	79.98	
80.47	0.000225	5.89	21543.75	1092.45	0.21	

Reach-1	140315	500-yr	146000.00	52.70	84.42	
85.00	0.000220	6.49	27143.03	1429.49	0.21	
Reach-1	139246	10-yr	62900.00	52.00	73.16	
73.45	0.000202	4.41	15047.03	1107.91	0.19	
Reach-1	139246	50-yr	93700.00	52.00	77.77	
78.16	0.000196	5.08	20497.89	1292.17	0.19	
Reach-1	139246	100-yr	109000.00	52.00	79.80	
80.23	0.000194	5.36	23386.53	1483.70	0.19	
Reach-1	139246	500-yr	146000.00	52.00	84.26	
84.76	0.000185	5.87	30535.85	1650.64	0.19	
Reach-1	138319	10-yr	62900.00	51.70	72.75	
73.22	0.000287	5.54	12150.13	769.04	0.23	
Reach-1	138319	50-yr	93700.00	51.70	77.27	
77.91	0.000299	6.53	15688.42	796.15	0.24	
Reach-1	138319	100-yr	109000.00	51.70	79.26	
79.98	0.000304	6.95	17280.69	808.05	0.24	
Reach-1	138319	500-yr	146000.00	51.70	83.62	
84.50	0.000307	7.77	22353.55	1346.63	0.25	
Reach-1	137179	10-yr	62900.00	50.60	72.48	
72.90	0.000253	5.19	12291.28	701.67	0.21	
Reach-1	137179	50-yr	93700.00	50.60	76.98	
77.57	0.000270	6.20	15524.23	734.70	0.23	
Reach-1	137179	100-yr	109000.00	50.60	78.96	
79.63	0.000277	6.62	16990.90	749.20	0.23	
Reach-1	137179	500-yr	146000.00	50.60	83.31	
84.15	0.000283	7.45	22220.89	1552.81	0.24	
Reach-1	136547	10-yr	62900.00	51.10	72.33	
72.73	0.000243	5.12	12707.45	726.65	0.21	
Reach-1	136547	50-yr	93700.00	51.10	76.82	
77.40	0.000262	6.13	16031.81	753.32	0.22	
Reach-1	136547	100-yr	109000.00	51.10	78.80	
79.45	0.000269	6.56	17560.96	874.50	0.23	
Reach-1	136547	500-yr	146000.00	51.10	83.15	
83.97	0.000277	7.39	22353.60	1135.65	0.24	
Reach-1	135965	10-yr	62900.00	51.10	72.22	
72.59	0.000234	4.89	13068.27	760.85	0.20	
Reach-1	135965	50-yr	93700.00	51.10	76.71	
77.24	0.000246	5.81	16538.92	781.18	0.22	
Reach-1	135965	100-yr	109000.00	51.10	78.69	
79.28	0.000251	6.20	18654.92	1231.75	0.22	

Reach-1	135965	500-yr	146000.00	51.10	83.07	
83.79	0.000249	6.90	24247.77	1323.40	0.23	
Reach-1	135309	10-yr	62900.00	50.50	72.01	
72.42	0.000268	5.28	14529.85	1134.45	0.22	
Reach-1	135309	50-yr	93700.00	50.50	76.53	
77.07	0.000269	6.12	20453.35	1443.12	0.23	
Reach-1	135309	100-yr	109000.00	50.50	78.52	
79.11	0.000269	6.48	23584.12	1660.28	0.23	
Reach-1	135309	500-yr	146000.00	50.50	82.94	
83.61	0.000254	7.01	31317.08	1805.60	0.23	
Reach-1	134634	10-yr	62900.00	49.50	71.79	
72.23	0.000281	5.49	14393.98	1154.60	0.22	
Reach-1	134634	50-yr	93700.00	49.50	76.31	
76.88	0.000281	6.34	19856.93	1274.13	0.23	
Reach-1	134634	100-yr	109000.00	49.50	78.30	
78.93	0.000281	6.70	22502.35	1386.14	0.23	
Reach-1	134634	500-yr	146000.00	49.50	82.69	
83.42	0.000276	7.39	28752.44	1456.77	0.24	
Reach-1	133727	10-yr	62900.00	49.80	71.55	
71.98	0.000269	5.28	12851.28	1062.96	0.22	
Reach-1	133727	50-yr	93700.00	49.80	76.07	
76.63	0.000271	6.14	18013.22	1187.84	0.23	
Reach-1	133727	100-yr	109000.00	49.80	78.06	
78.68	0.000269	6.47	20428.79	1247.25	0.23	
Reach-1	133727	500-yr	146000.00	49.80	82.44	
83.18	0.000267	7.18	26402.99	1465.49	0.23	
Reach-1	132707	10-yr	62900.00	52.50	71.46	
71.71	0.000175	4.03	16269.63	1164.93	0.17	
Reach-1	132707	50-yr	93700.00	52.50	76.01	
76.34	0.000170	4.66	21934.78	1305.16	0.18	
Reach-1	132707	100-yr	109000.00	52.50	78.02	
78.39	0.000168	4.91	24586.92	1333.54	0.18	
Reach-1	132707	500-yr	146000.00	52.50	82.43	
82.88	0.000164	5.46	30905.33	1540.03	0.18	
Reach-1	132065	10-yr	62900.00	51.50	71.42	
71.59	0.000118	3.36	19690.21	1347.77	0.14	
Reach-1	132065	50-yr	93700.00	51.50	75.99	
76.22	0.000116	3.91	26040.58	1426.75	0.15	
Reach-1	132065	100-yr	109000.00	51.50	78.01	
78.27	0.000116	4.14	28951.29	1460.35	0.15	

Reach-1	132065	500-yr	146000.00	51.50	82.43	
82.75	0.000116	4.63	35806.05	1642.14	0.15	
Reach-1	131298	10-yr	62900.00	51.50	71.24	
71.46	0.000253	3.79	16760.93	1431.34	0.19	
Reach-1	131298	50-yr	93700.00	51.50	75.84	
76.10	0.000223	4.10	23702.88	1566.25	0.17	
Reach-1	131298	100-yr	109000.00	51.50	77.87	
78.15	0.000214	4.24	26928.87	1611.06	0.17	
Reach-1	131298	500-yr	146000.00	51.50	82.33	
82.64	0.000197	4.55	34634.42	1827.62	0.16	
Reach-1	130606	10-yr	62900.00	51.50	71.01	
71.26	0.000314	4.02	15825.26	1459.85	0.21	
Reach-1	130606	50-yr	93700.00	51.50	75.66	
75.93	0.000261	4.21	23346.85	1733.32	0.18	
Reach-1	130606	100-yr	109000.00	51.50	77.71	
77.99	0.000244	4.30	26930.73	1769.50	0.18	
Reach-1	130606	500-yr	146000.00	51.50	82.19	
82.49	0.000217	4.53	35189.35	1910.49	0.17	
Reach-1	129999	10-yr	62900.00	51.60	70.66	
71.04	0.000366	4.98	12983.67	1066.34	0.23	
Reach-1	129999	50-yr	93700.00	51.60	75.38	
75.75	0.000309	4.91	20219.68	1744.50	0.24	
Reach-1	129999	100-yr	109000.00	51.60	77.46	
77.82	0.000287	4.87	23883.89	1783.80	0.22	
Reach-1	129999	500-yr	146000.00	51.60	81.98	
82.35	0.000249	4.92	32452.72	1962.05	0.20	
Reach-1	129552	10-yr	62900.00	52.40	70.52	
70.88	0.000344	4.84	13649.24	1075.19	0.22	
Reach-1	129552	50-yr	93700.00	52.40	75.25	
75.62	0.000290	4.93	20348.13	1558.23	0.23	
Reach-1	129552	100-yr	109000.00	52.40	77.32	
77.69	0.000270	4.98	23649.82	1639.13	0.22	
Reach-1	129552	500-yr	146000.00	52.40	81.84	
82.23	0.000237	5.14	31357.44	1729.38	0.20	
Reach-1	129008	10-yr	62900.00	52.40	70.23	
70.66	0.000423	5.28	12094.51	888.23	0.24	
Reach-1	129008	50-yr	93700.00	52.40	74.91	
75.42	0.000372	5.80	16784.01	1158.53	0.25	
Reach-1	129008	100-yr	109000.00	52.40	76.98	
77.51	0.000353	5.89	19391.05	1361.97	0.26	

Reach-1	129008	500-yr	146000.00	52.40	81.52			
82.07	0.000312	6.05	25813.03	1450.94	0.24			
Reach-1	128834	10-yr	62900.00	50.25	70.16			
59.52	70.57	0.000498	5.13	12268.83	815.09	0.23		
Reach-1	128834	50-yr	93700.00	50.25	74.83			
61.65	75.34	0.000497	5.74	16458.68	1020.28	0.25		
Reach-1	128834	100-yr	109000.00	50.25	76.90			
62.58	77.43	0.000483	5.89	18748.23	1262.45	0.26		
Reach-1	128834	500-yr	146000.00	50.25	81.46			
64.60	82.00	0.000419	5.95	25493.27	1563.74	0.24		
Reach-1	128814.5	Bridge						
Reach-1	128795	10-yr	62900.00	50.25	70.15			
70.56	0.000499	5.14	12258.07	814.98	0.23			
Reach-1	128795	50-yr	93700.00	50.25	74.81			
75.33	0.000498	5.74	16441.62	1019.71	0.25			
Reach-1	128795	100-yr	109000.00	50.25	76.86			
77.40	0.000486	5.90	18696.78	1260.07	0.26			
Reach-1	128795	500-yr	146000.00	50.25	81.41			
81.96	0.000422	5.96	25421.55	1563.36	0.24			
Reach-1	128638	10-yr	62900.00	52.40	70.05			
70.48	0.000433	5.32	12193.17	927.40	0.24			
Reach-1	128638	50-yr	93700.00	52.40	74.74			
75.26	0.000374	5.81	16979.89	1154.68	0.26			
Reach-1	128638	100-yr	109000.00	52.40	76.80			
77.33	0.000357	5.89	19627.10	1493.94	0.28			
Reach-1	128638	500-yr	146000.00	52.40	81.38			
81.89	0.000308	5.88	26634.89	1556.89	0.24			
Reach-1	128215	10-yr	62900.00	52.50	69.87			
70.29	0.000464	5.18	12314.72	962.87	0.25			
Reach-1	128215	50-yr	93700.00	52.50	74.66			
75.07	0.000359	5.19	18535.00	1514.07	0.26			
Reach-1	128215	100-yr	109000.00	52.50	76.74			
77.15	0.000325	5.17	21701.86	1532.80	0.24			
Reach-1	128215	500-yr	146000.00	52.50	81.32			
81.74	0.000271	5.26	28902.11	1618.10	0.21			
Reach-1	127766	10-yr	62900.00	52.50	69.49			
70.04	0.000590	5.96	10645.09	823.55	0.28			

Reach-1	127766	50-yr	93700.00	52.50	74.39				
74.88	0.000455	5.70	17225.20	1931.50	0.31				
Reach-1	127766	100-yr	109000.00	52.50	76.54				
76.99	0.000390	5.40	21466.87	1991.75	0.27				
Reach-1	127766	500-yr	146000.00	52.50	81.22				
81.61	0.000290	5.09	31165.87	2125.28	0.22				
Reach-1	127339	10-yr	62900.00	52.50	69.46				
69.77	0.000372	4.42	14365.50	1419.76	0.24				
Reach-1	127339	50-yr	93700.00	52.50	74.38				
74.67	0.000288	4.31	22408.87	1854.49	0.21				
Reach-1	127339	100-yr	109000.00	52.50	76.52				
76.80	0.000260	4.28	26868.10	2239.04	0.19				
Reach-1	127339	500-yr	146000.00	52.50	81.21				
81.46	0.000204	4.14	38529.64	2544.72	0.17				
Reach-1	127040	10-yr	62900.00	50.30	69.19				
59.70	69.61	0.000693	5.18	12131.19	842.40	0.24			
Reach-1	127040	50-yr	93700.00	50.30	74.02				
61.64	74.52	0.000658	5.71	16633.59	1102.32	0.24			
Reach-1	127040	100-yr	109000.00	50.30	76.13				
62.49	76.67	0.000621	5.89	19402.34	1350.63	0.23			
Reach-1	127040	500-yr	146000.00	50.30	80.83				
64.53	81.35	0.000520	5.93	27057.24	2418.56	0.29			
Reach-1	127032	Bridge							
Reach-1	127024	10-yr	62900.00	50.30	69.17				
69.59	0.000696	5.19	12115.01	842.39	0.24				
Reach-1	127024	50-yr	93700.00	50.30	73.93				
74.44	0.000669	5.74	16535.47	1098.33	0.24				
Reach-1	127024	100-yr	109000.00	50.30	75.97				
76.52	0.000638	5.94	19187.23	1350.62	0.24				
Reach-1	127024	500-yr	146000.00	50.30	80.52				
81.07	0.000546	6.09	26335.46	2272.34	0.29				
Reach-1	126951	10-yr	62900.00	52.50	69.22				
69.52	0.000377	4.42	14219.62	1308.60	0.24				
Reach-1	126951	50-yr	93700.00	52.50	74.04				
74.35	0.000298	4.42	21460.88	1861.14	0.21				
Reach-1	126951	100-yr	109000.00	52.50	76.12				
76.42	0.000271	4.42	25560.06	2107.90	0.20				
Reach-1	126951	500-yr	146000.00	52.50	80.68				
80.96	0.000221	4.35	36551.47	2564.56	0.18				

Reach-1	126845	10-yr	62900.00	50.10	69.20				
69.46	0.000524	4.08	15408.39	1519.01	0.23				
Reach-1	126845	50-yr	93700.00	50.10	74.04				
74.30	0.000408	4.11	23106.26	1768.85	0.19				
Reach-1	126845	100-yr	109000.00	50.10	76.11				
76.37	0.000380	4.17	27034.98	1985.76	0.18				
Reach-1	126845	500-yr	146000.00	50.10	80.66				
80.93	0.000334	4.29	36561.72	2204.38	0.16				
Reach-1	126779	10-yr	62900.00	50.10	69.17				
69.43	0.000529	4.10	15352.78	1518.62	0.23				
Reach-1	126779	50-yr	93700.00	50.10	74.01				
74.27	0.000410	4.12	23056.67	1766.76	0.19				
Reach-1	126779	100-yr	109000.00	50.10	76.08				
76.35	0.000382	4.18	26983.15	1984.93	0.18				
Reach-1	126779	500-yr	146000.00	50.10	80.64				
80.91	0.000335	4.29	36511.48	2203.50	0.16				
Reach-1	126715	10-yr	62900.00	50.10	69.13				
59.42	69.40	0.000469	4.15	15432.41	1442.02	0.22			
Reach-1	126715	50-yr	93700.00	50.10	73.98				
61.35	74.25	0.000394	4.22	22968.21	1776.78	0.19			
Reach-1	126715	100-yr	109000.00	50.10	76.05				
62.73	76.33	0.000358	4.26	26925.76	1995.43	0.18			
Reach-1	126715	500-yr	146000.00	50.10	80.62				
64.72	80.89	0.000296	4.31	36214.93	2073.21	0.17			
Reach-1	126702	Bridge							
Reach-1	126689	10-yr	62900.00	50.10	69.12				
69.38	0.000471	4.15	15407.71	1441.66	0.22				
Reach-1	126689	50-yr	93700.00	50.10	73.95				
74.22	0.000396	4.22	22918.29	1775.10	0.19				
Reach-1	126689	100-yr	109000.00	50.10	76.01				
76.29	0.000361	4.27	26845.71	1994.75	0.18				
Reach-1	126689	500-yr	146000.00	50.10	80.56				
80.84	0.000299	4.32	36095.57	2072.23	0.17				
Reach-1	126497	10-yr	62900.00	52.40	69.00				
69.29	0.000431	4.39	14823.01	1622.74	0.24				
Reach-1	126497	50-yr	93700.00	52.40	73.88				
74.15	0.000305	4.30	22788.54	1644.20	0.20				

Reach-1	126497	100-yr	109000.00	52.40	75.94	
76.23	0.000279	4.37	26346.61	1877.00	0.19	
Reach-1	126497	500-yr	146000.00	52.40	80.49	
80.79	0.000233	4.49	35949.44	2190.07	0.17	
Reach-1	126190	10-yr	62900.00	52.70	68.78	
69.11	0.000828	4.64	14066.81	1533.60	0.25	
Reach-1	126190	50-yr	93700.00	52.70	73.72	
74.03	0.000523	4.54	21716.20	1563.03	0.20	
Reach-1	126190	100-yr	109000.00	52.70	75.79	
76.11	0.000476	4.66	25180.68	1786.57	0.20	
Reach-1	126190	500-yr	146000.00	52.70	80.37	
80.69	0.000375	4.74	34156.01	2020.09	0.18	
Reach-1	125738	10-yr	62900.00	52.70	68.61	
68.90	0.000275	4.39	15273.86	1274.23	0.20	
Reach-1	125738	50-yr	93700.00	52.70	73.57	
73.88	0.000217	4.69	22936.80	1695.73	0.18	
Reach-1	125738	100-yr	109000.00	52.70	75.66	
75.98	0.000199	4.79	26528.35	1743.26	0.18	
Reach-1	125738	500-yr	146000.00	52.70	80.25	
80.58	0.000168	4.97	34568.56	1751.07	0.17	
Reach-1	125718	10-yr	62900.00	58.30	68.09	
68.77	0.001243	6.80	9897.54	1227.06	0.38	
Reach-1	125718	50-yr	93700.00	58.30	73.30	
73.82	0.000569	6.12	17750.83	1689.50	0.28	
Reach-1	125718	100-yr	109000.00	58.30	75.44	
75.93	0.000452	5.96	21433.41	1738.40	0.25	
Reach-1	125718	500-yr	146000.00	58.30	80.11	
80.55	0.000308	5.78	29600.34	1751.07	0.22	
Reach-1	125698	10-yr	62900.00	44.00	68.36	
68.49	0.000074	2.98	22120.04	1251.48	0.11	
Reach-1	125698	50-yr	93700.00	44.00	73.46	
73.64	0.000079	3.51	29918.09	1693.27	0.12	
Reach-1	125698	100-yr	109000.00	44.00	75.58	
75.78	0.000081	3.72	33559.49	1741.52	0.12	
Reach-1	125698	500-yr	146000.00	44.00	80.21	
80.44	0.000081	4.10	41660.20	1751.07	0.12	
Reach-1	125608	10-yr	62900.00	43.50	68.35	
51.22	68.48	0.000118	2.99	21440.68	1173.32	0.11
Reach-1	125608	50-yr	93700.00	43.50	73.45	
52.84	73.63	0.000132	3.51	28143.72	1443.33	0.12

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  Reach-1       125608        100-yr    109000.00       43.50       75.56
53.59       75.77     0.000138       3.72    31197.96     1443.52          0.12
  Reach-1       125608        500-yr    146000.00       43.50       80.18
55.26       80.43     0.000152       4.14    37974.04     1499.71          0.13


  Reach-1       125596                      Bridge



  Reach-1       125584        10-yr      62900.00       43.50       68.34
       68.48     0.000118       2.99    21438.13     1173.30          0.11
  Reach-1       125584        50-yr      93700.00       43.50       73.45
       73.63     0.000132       3.51    28140.21     1443.33          0.12
  Reach-1       125584        100-yr    109000.00       43.50       75.56
       75.77     0.000138       3.72    31194.28     1443.52          0.12
  Reach-1       125584        500-yr    146000.00       43.50       80.15
       80.40     0.000152       4.15    37929.20     1499.70          0.13


  Reach-1       125295        10-yr      62900.00       46.00       68.25
       68.43     0.000128       3.44    18451.34     1058.78          0.14
  Reach-1       125295        50-yr      93700.00       46.00       73.33
       73.58     0.000127       4.00    24206.89     1160.05          0.14
  Reach-1       125295        100-yr    109000.00       46.00       75.43
       75.71     0.000129       4.25    26646.34     1160.07          0.15
  Reach-1       125295        500-yr    146000.00       46.00       79.98
       80.33     0.000132       4.79    31925.03     1160.11          0.15


  Reach-1       124990        10-yr      62900.00       45.00       68.17
52.76       68.38     0.000166       3.71    16968.95      843.63          0.15
  Reach-1       124990        50-yr      93700.00       45.00       73.21
54.67       73.52     0.000174       4.41    21534.10      994.92          0.15
  Reach-1       124990        100-yr    109000.00       45.00       75.30
55.54       75.64     0.000179       4.71    23700.20     1091.31          0.16
  Reach-1       124990        500-yr    146000.00       45.00       79.83
57.42       80.26     0.000186       5.32    28907.41     1160.08          0.17


  Reach-1       124959.5                    Bridge



  Reach-1       124929        10-yr      62900.00       45.00       68.12
       68.34     0.000167       3.72    16929.99      843.58          0.15
  Reach-1       124929        50-yr      93700.00       45.00       73.10
       73.41     0.000177       4.43    21424.99      991.73          0.16
  Reach-1       124929        100-yr    109000.00       45.00       75.14
       75.48     0.000183       4.74    23521.74     1082.63          0.16
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Reach-1	124929	500-yr	146000.00	45.00	79.49	
79.93	0.000193	5.38	28512.22	1160.07	0.17	
Reach-1	124445	10-yr	62900.00	44.10	67.92	
68.22	0.000190	4.44	14405.11	1003.03	0.17	
Reach-1	124445	50-yr	93700.00	44.10	72.90	
73.29	0.000192	5.14	19896.21	1110.04	0.18	
Reach-1	124445	100-yr	109000.00	44.10	74.93	
75.37	0.000195	5.44	22154.33	1110.06	0.18	
Reach-1	124445	500-yr	146000.00	44.10	79.28	
79.81	0.000200	6.07	26980.99	1110.11	0.19	
Reach-1	123663	10-yr	62900.00	43.20	67.48	
68.01	0.000330	5.82	11201.56	828.97	0.22	
Reach-1	123663	50-yr	93700.00	43.20	72.45	
73.08	0.000318	6.58	16685.46	1240.08	0.23	
Reach-1	123663	100-yr	109000.00	43.20	74.50	
75.15	0.000309	6.83	19228.50	1240.12	0.23	
Reach-1	123663	500-yr	146000.00	43.20	78.88	
79.60	0.000293	7.32	24669.45	1240.21	0.23	
Reach-1	122951	10-yr	62900.00	42.70	66.98	
67.71	0.000474	6.88	9736.09	858.86	0.27	
Reach-1	122951	50-yr	93700.00	42.70	71.91	
72.79	0.000453	7.75	14548.88	1004.18	0.27	
Reach-1	122951	100-yr	109000.00	42.70	73.93	
74.86	0.000448	8.11	16583.44	1010.99	0.27	
Reach-1	122951	500-yr	146000.00	42.70	78.26	
79.31	0.000439	8.85	21903.98	1270.28	0.28	
Reach-1	122312	10-yr	62900.00	43.60	66.83	
67.38	0.000383	5.97	10741.74	668.68	0.24	
Reach-1	122312	50-yr	93700.00	43.60	71.76	
72.48	0.000378	6.90	15555.41	1362.82	0.25	
Reach-1	122312	100-yr	109000.00	43.60	73.80	
74.55	0.000369	7.19	18541.22	1569.91	0.25	
Reach-1	122312	500-yr	146000.00	43.60	78.21	
78.99	0.000332	7.56	25726.53	1650.94	0.24	
Reach-1	121490	10-yr	62900.00	44.00	66.56	
67.08	0.000343	5.85	11407.42	743.38	0.23	
Reach-1	121490	50-yr	93700.00	44.00	71.47	
72.17	0.000353	6.85	15227.02	830.46	0.24	
Reach-1	121490	100-yr	109000.00	44.00	73.46	
74.25	0.000365	7.33	17052.83	993.83	0.25	

Reach-1	121490	500-yr	146000.00	44.00	77.74	78.68	0.000373	8.16	21494.17	1046.00	0.26
Reach-1	120802	10-yr	62900.00	42.50	66.24	66.81	0.000408	6.22	11212.03	865.79	0.25
Reach-1	120802	50-yr	93700.00	42.50	71.18	71.91	0.000394	7.11	15591.30	914.65	0.25
Reach-1	120802	100-yr	109000.00	42.50	73.18	73.98	0.000400	7.54	17470.45	964.03	0.26
Reach-1	120802	500-yr	146000.00	42.50	77.43	78.41	0.000409	8.42	22188.34	1207.37	0.27
Reach-1	120200	10-yr	62900.00	41.50	65.92	66.56	0.000411	6.48	10317.79	699.33	0.25
Reach-1	120200	50-yr	93700.00	41.50	70.79	71.65	0.000425	7.58	14030.20	823.62	0.26
Reach-1	120200	100-yr	109000.00	41.50	72.76	73.72	0.000438	8.08	15702.95	896.77	0.27
Reach-1	120200	500-yr	146000.00	41.50	76.95	78.13	0.000459	9.09	20176.28	1453.55	0.28
Reach-1	119282	10-yr	62900.00	40.60	65.47	66.16	0.000463	6.72	9992.66	673.10	0.26
Reach-1	119282	50-yr	93700.00	40.60	70.31	71.23	0.000481	7.86	13700.34	959.18	0.28
Reach-1	119282	100-yr	109000.00	40.60	72.27	73.29	0.000489	8.34	15824.15	1120.43	0.28
Reach-1	119282	500-yr	146000.00	40.60	76.52	77.70	0.000486	9.17	20766.47	1201.78	0.29
Reach-1	118934	10-yr	62900.00	40.00	65.20	65.98	0.000516	7.16	9450.98	605.48	0.28
Reach-1	118934	50-yr	93700.00	40.00	70.02	71.04	0.000535	8.35	12911.33	827.19	0.29
Reach-1	118934	100-yr	109000.00	40.00	71.93	73.09	0.000554	8.93	14546.69	873.59	0.30
Reach-1	118934	500-yr	146000.00	40.00	76.11	77.50	0.000565	9.92	18323.07	932.30	0.31
Reach-1	118798	10-yr	62900.00	39.40	64.86	53.04	65.82	0.000934	7.99	8402.28	526.36	0.30
Reach-1	118798	50-yr	93700.00	39.40	69.64	56.25	70.87	0.001059	9.26	11523.90	792.39	0.32
Reach-1	118798	100-yr	109000.00	39.40	71.61	57.71	72.93	0.001096	9.70	13120.28	825.15	0.32

Reach-1	118798	500-yr	146000.00	39.40	75.87		
61.44	77.35	0.001149	10.49	16692.90	846.04		0.33
Reach-1	118737	10-yr	62900.00	39.40	64.81		
53.04	65.78	0.000942	8.01	8373.99	526.03		0.31
Reach-1	118737	50-yr	93700.00	39.40	69.57		
56.25	70.82	0.001069	9.29	11472.53	791.31		0.32
Reach-1	118737	100-yr	109000.00	39.40	71.54		
57.71	72.88	0.001106	9.73	13064.44	824.03		0.32
Reach-1	118737	500-yr	146000.00	39.40	75.80		
61.44	77.29	0.001159	10.52	16632.85	845.78		0.33
Reach-1	118675	10-yr	62900.00	39.88	64.77		
53.18	65.71	0.000945	7.95	8482.59	575.77		0.31
Reach-1	118675	50-yr	93700.00	39.88	69.54		
56.36	70.73	0.001041	9.12	11628.60	707.99		0.32
Reach-1	118675	100-yr	109000.00	39.88	71.50		
57.99	72.80	0.001082	9.59	13033.50	724.47		0.32
Reach-1	118675	500-yr	146000.00	39.88	75.71		
61.68	77.22	0.001163	10.53	16262.58	787.15		0.33
Reach-1	118651	10-yr	62900.00	39.88	64.74		
53.18	65.68	0.000950	7.96	8464.54	574.42		0.31
Reach-1	118651	50-yr	93700.00	39.88	69.50		
56.36	70.70	0.001046	9.14	11603.45	707.69		0.32
Reach-1	118651	100-yr	109000.00	39.88	71.46		
57.99	72.76	0.001087	9.61	13006.65	724.16		0.32
Reach-1	118651	500-yr	146000.00	39.88	75.67		
61.68	77.19	0.001168	10.55	16231.00	786.97		0.33
Reach-1	118490	10-yr	62900.00	39.50	64.81		
65.42	0.000425	6.33	10404.47	625.62	0.25		
Reach-1	118490	50-yr	93700.00	39.50	69.58		
70.42	0.000448	7.46	13787.61	823.47	0.27		
Reach-1	118490	100-yr	109000.00	39.50	71.54		
72.47	0.000455	7.92	15451.50	872.95	0.27		
Reach-1	118490	500-yr	146000.00	39.50	75.75		
76.88	0.000464	8.84	19322.39	960.20	0.28		
Reach-1	118005	10-yr	62900.00	39.50	64.64		
65.21	0.000375	6.07	10484.05	697.86	0.24		
Reach-1	118005	50-yr	93700.00	39.50	69.43		
70.19	0.000386	7.09	15034.93	1113.38	0.25		
Reach-1	118005	100-yr	109000.00	39.50	71.41		
72.24	0.000387	7.48	17285.68	1160.73	0.25		

Reach-1	118005	500-yr	146000.00	39.50	75.68	
76.62	0.000384	8.20	22385.46	1226.92	0.26	
Reach-1	117330	10-yr	62900.00	40.60	64.32	
64.93	0.000450	6.29	9998.22	535.98	0.26	
Reach-1	117330	50-yr	93700.00	40.60	69.03	
69.89	0.000470	7.44	12905.66	764.30	0.27	
Reach-1	117330	100-yr	109000.00	40.60	70.96	
71.93	0.000482	7.95	14674.80	1193.24	0.28	
Reach-1	117330	500-yr	146000.00	40.60	75.25	
76.33	0.000458	8.60	21287.51	1654.64	0.28	
Reach-1	116307	10-yr	62900.00	38.50	63.55	
64.38	0.000601	7.30	8682.05	503.05	0.30	
Reach-1	116307	50-yr	93700.00	38.50	68.27	
69.34	0.000592	8.41	13185.39	1162.52	0.31	
Reach-1	116307	100-yr	109000.00	38.50	70.23	
71.37	0.000585	8.82	15556.27	1260.26	0.31	
Reach-1	116307	500-yr	146000.00	38.50	74.54	
75.80	0.000553	9.52	21281.82	1377.48	0.31	
Reach-1	115807	10-yr	62900.00	37.40	63.26	
64.08	0.000592	7.28	8645.90	470.25	0.29	
Reach-1	115807	50-yr	93700.00	37.40	67.93	
69.03	0.000602	8.51	12554.26	988.01	0.31	
Reach-1	115807	100-yr	109000.00	37.40	69.86	
71.07	0.000605	8.99	14520.68	1051.08	0.31	
Reach-1	115807	500-yr	146000.00	37.40	74.10	
75.50	0.000596	9.88	19117.50	1117.08	0.32	
Reach-1	114577	10-yr	62900.00	37.60	62.70	
63.41	0.000457	6.83	10222.76	690.22	0.26	
Reach-1	114577	50-yr	93700.00	37.60	67.35	
68.33	0.000494	8.12	13991.90	956.20	0.28	
Reach-1	114577	100-yr	109000.00	37.60	69.28	
70.35	0.000504	8.60	15854.21	979.10	0.29	
Reach-1	114577	500-yr	146000.00	37.60	73.50	
74.79	0.000515	9.57	20096.99	1027.10	0.30	
Reach-1	114062	10-yr	62900.00	36.70	62.64	
63.15	0.000325	5.75	11340.12	637.34	0.22	
Reach-1	114062	50-yr	93700.00	36.70	67.31	
68.04	0.000360	6.93	14476.39	726.15	0.24	
Reach-1	114062	100-yr	109000.00	36.70	69.21	
70.06	0.000378	7.46	15910.50	768.54	0.25	

Reach-1	114062	500-yr	146000.00	36.70	73.40				
74.49	0.000410	8.53	19206.83	805.39	0.27				
Reach-1	113859	10-yr	62900.00	36.20	62.54				
47.66	63.06	0.000506	5.78	11067.60	555.71	0.21			
Reach-1	113859	50-yr	93700.00	36.20	67.15				
50.22	67.92	0.000647	7.09	13945.44	656.65	0.24			
Reach-1	113859	100-yr	109000.00	36.20	69.03				
51.37	69.93	0.000715	7.67	15220.68	739.00	0.25			
Reach-1	113859	500-yr	146000.00	36.20	73.16				
53.96	74.34	0.000854	8.85	18275.83	739.00	0.27			
Reach-1	113835	Bridge							
Reach-1	113811	10-yr	62900.00	36.20	62.53				
63.05	0.000506	5.79	11061.04	555.58	0.21				
Reach-1	113811	50-yr	93700.00	36.20	67.13				
67.90	0.000648	7.10	13935.31	656.55	0.24				
Reach-1	113811	100-yr	109000.00	36.20	69.01				
69.91	0.000716	7.68	15207.96	739.00	0.25				
Reach-1	113811	500-yr	146000.00	36.20	73.14				
74.32	0.000855	8.85	18260.41	739.00	0.27				
Reach-1	113597	10-yr	62900.00	37.90	62.47				
62.94	0.000311	5.53	11662.64	651.94	0.22				
Reach-1	113597	50-yr	93700.00	37.90	67.08				
67.76	0.000343	6.66	14802.68	719.44	0.24				
Reach-1	113597	100-yr	109000.00	37.90	68.96				
69.75	0.000362	7.18	16184.54	747.99	0.24				
Reach-1	113597	500-yr	146000.00	37.90	73.09				
74.13	0.000395	8.25	19403.77	810.10	0.26				
Reach-1	112467	10-yr	62900.00	40.50	62.11				
62.57	0.000343	5.41	11730.50	692.24	0.22				
Reach-1	112467	50-yr	93700.00	40.50	66.72				
67.35	0.000355	6.40	15046.02	747.70	0.24				
Reach-1	112467	100-yr	109000.00	40.50	68.59				
69.32	0.000368	6.87	16482.50	806.68	0.24				
Reach-1	112467	500-yr	146000.00	40.50	72.72				
73.66	0.000387	7.81	20080.91	890.01	0.26				
Reach-1	111334	10-yr	62900.00	38.90	61.88				
62.21	0.000242	4.59	13758.28	785.99	0.19				

Reach-1	111334	50-yr	93700.00	38.90	66.50				
66.96	0.000252	5.45	17798.19	944.55	0.20				
Reach-1	111334	100-yr	109000.00	38.90	68.38				
68.91	0.000262	5.85	19638.14	1024.40	0.21				
Reach-1	111334	500-yr	146000.00	38.90	72.54				
73.21	0.000276	6.65	24491.87	1326.52	0.22				
Reach-1	110666	10-yr	62900.00	37.60	61.74				
62.05	0.000214	4.48	14156.08	791.86	0.18				
Reach-1	110666	50-yr	93700.00	37.60	66.36				
66.80	0.000230	5.34	18730.91	1182.76	0.19				
Reach-1	110666	100-yr	109000.00	37.60	68.24				
68.73	0.000237	5.70	21025.38	1225.16	0.20				
Reach-1	110666	500-yr	146000.00	37.60	72.41				
73.02	0.000245	6.40	26188.07	1251.00	0.21				
Reach-1	110054	10-yr	62900.00	36.80	61.50				
61.90	0.000258	5.09	13230.70	883.90	0.20				
Reach-1	110054	50-yr	93700.00	36.80	66.09				
66.63	0.000277	6.04	17804.56	1083.65	0.21				
Reach-1	110054	100-yr	109000.00	36.80	67.95				
68.56	0.000288	6.46	19879.45	1145.62	0.22				
Reach-1	110054	500-yr	146000.00	36.80	72.08				
72.84	0.000302	7.27	24890.64	1266.01	0.23				
Reach-1	109548	10-yr	62900.00	36.00	61.25				
61.73	0.000362	5.60	11400.10	737.89	0.23				
Reach-1	109548	50-yr	93700.00	36.00	65.79				
66.46	0.000373	6.59	15463.14	1037.86	0.24				
Reach-1	109548	100-yr	109000.00	36.00	67.64				
68.38	0.000380	7.00	17413.99	1066.63	0.25				
Reach-1	109548	500-yr	146000.00	36.00	71.76				
72.65	0.000384	7.80	21870.80	1100.54	0.26				
Reach-1	109276	10-yr	62900.00	36.30	60.94				
48.07	61.57	0.000559	6.37	9880.91	525.76	0.26			
Reach-1	109276	50-yr	93700.00	36.30	65.40				
50.81	66.27	0.000612	7.53	13552.28	997.06	0.27			
Reach-1	109276	100-yr	109000.00	36.30	67.24				
52.04	68.19	0.000630	7.97	15393.31	1008.00	0.28			
Reach-1	109276	500-yr	146000.00	36.30	71.34				
54.78	72.45	0.000646	8.77	19601.48	1042.47	0.29			
Reach-1	109192	Bridge							

Reach-1	109108	10-yr	62900.00	36.30	60.84	
61.48	0.000568	6.40	9828.72	525.08	0.26	
Reach-1	109108	50-yr	93700.00	36.30	65.29	
66.16	0.000623	7.57	13438.48	996.08	0.28	
Reach-1	109108	100-yr	109000.00	36.30	67.12	
68.08	0.000641	8.01	15273.76	1007.00	0.28	
Reach-1	109108	500-yr	146000.00	36.30	71.22	
72.34	0.000656	8.82	19474.20	1041.45	0.29	
Reach-1	108858	10-yr	62900.00	35.90	60.80	
61.30	0.000317	5.69	11195.57	585.66	0.22	
Reach-1	108858	50-yr	93700.00	35.90	65.24	
65.98	0.000363	6.92	14513.59	972.73	0.24	
Reach-1	108858	100-yr	109000.00	35.90	67.06	
67.89	0.000379	7.41	16301.67	991.54	0.25	
Reach-1	108858	500-yr	146000.00	35.90	71.14	
72.17	0.000399	8.34	20427.70	1029.35	0.26	
Reach-1	108437	10-yr	62900.00	37.50	60.66	
61.15	0.000397	5.64	11147.14	647.40	0.24	
Reach-1	108437	50-yr	93700.00	37.50	65.12	
65.79	0.000417	6.62	14669.83	988.43	0.25	
Reach-1	108437	100-yr	109000.00	37.50	66.95	
67.70	0.000420	7.02	16545.70	1059.52	0.26	
Reach-1	108437	500-yr	146000.00	37.50	71.06	
71.96	0.000412	7.76	21250.63	1222.64	0.26	
Reach-1	108025	10-yr	62900.00	38.50	60.51	
60.99	0.000355	5.61	12104.23	915.76	0.23	
Reach-1	108025	50-yr	93700.00	38.50	64.99	
65.62	0.000362	6.53	16375.23	993.07	0.24	
Reach-1	108025	100-yr	109000.00	38.50	66.82	
67.53	0.000370	6.95	18220.21	1023.75	0.25	
Reach-1	108025	500-yr	146000.00	38.50	70.91	
71.79	0.000381	7.81	23048.98	1280.97	0.26	
Reach-1	107856	10-yr	62900.00	38.50	60.46	
60.93	0.000354	5.59	12052.48	914.79	0.23	
Reach-1	107856	50-yr	93700.00	38.50	64.94	
65.56	0.000357	6.48	16325.73	992.21	0.24	
Reach-1	107856	100-yr	109000.00	38.50	66.77	
67.46	0.000363	6.87	18172.06	1022.96	0.24	
Reach-1	107856	500-yr	146000.00	38.50	70.88	
71.71	0.000370	7.69	23000.38	1279.58	0.25	

Reach-1	107836	10-yr	62900.00	46.00	59.87	
60.79	0.001080	7.93	8945.61	840.37	0.38	
Reach-1	107836	50-yr	93700.00	46.00	64.45	
65.44	0.000832	8.41	13115.58	1004.40	0.35	
Reach-1	107836	100-yr	109000.00	46.00	66.28	
67.34	0.000796	8.77	15008.82	1051.94	0.34	
Reach-1	107836	500-yr	146000.00	46.00	70.48	
71.62	0.000685	9.23	19547.20	1103.17	0.33	
Reach-1	107816	10-yr	62900.00	32.90	60.13	
60.51	0.000214	4.95	13038.78	738.22	0.18	
Reach-1	107816	50-yr	93700.00	32.90	64.66	
65.21	0.000250	6.04	16826.31	1014.45	0.20	
Reach-1	107816	100-yr	109000.00	32.90	66.48	
67.12	0.000267	6.52	18835.02	1185.49	0.21	
Reach-1	107816	500-yr	146000.00	32.90	70.66	
71.42	0.000279	7.29	24641.29	1430.03	0.22	
Reach-1	107696	10-yr	62900.00	32.90	60.11	
60.49	0.000215	4.96	13018.85	737.85	0.18	
Reach-1	107696	50-yr	93700.00	32.90	64.62	
65.18	0.000251	6.05	16793.85	1012.44	0.20	
Reach-1	107696	100-yr	109000.00	32.90	66.44	
67.09	0.000268	6.53	18794.11	1183.94	0.21	
Reach-1	107696	500-yr	146000.00	32.90	70.62	
71.39	0.000280	7.30	24588.75	1430.03	0.22	
Reach-1	107348	10-yr	62900.00	34.30	59.87	
60.38	0.000340	5.77	11371.15	716.69	0.23	
Reach-1	107348	50-yr	93700.00	34.30	64.37	
65.06	0.000368	6.81	15775.26	1281.16	0.24	
Reach-1	107348	100-yr	109000.00	34.30	66.21	
66.97	0.000372	7.19	18233.52	1370.76	0.25	
Reach-1	107348	500-yr	146000.00	34.30	70.45	
71.28	0.000354	7.75	24113.13	1407.11	0.25	
Reach-1	106758	10-yr	62900.00	36.10	59.46	
60.13	0.000488	6.57	9678.40	654.61	0.27	
Reach-1	106758	50-yr	93700.00	36.10	63.94	
64.80	0.000488	7.58	13723.87	1049.05	0.28	
Reach-1	106758	100-yr	109000.00	36.10	65.78	
66.70	0.000485	7.95	15734.87	1138.74	0.28	
Reach-1	106758	500-yr	146000.00	36.10	70.05	
71.03	0.000441	8.42	20940.82	1249.93	0.27	

Reach-1	106049	10-yr	62900.00	34.30	58.65	
59.68	0.000713	8.18	7898.94	573.98	0.32	
Reach-1	106049	50-yr	93700.00	34.30	63.13	
64.35	0.000690	9.22	12191.61	1188.66	0.33	
Reach-1	106049	100-yr	109000.00	34.30	65.09	
66.28	0.000636	9.32	14557.07	1222.87	0.32	
Reach-1	106049	500-yr	146000.00	34.30	69.60	
70.68	0.000510	9.29	20186.65	1274.07	0.30	

Reach-1	105690	10-yr	62900.00	33.60	58.57	
59.39	0.000558	7.33	9028.27	758.27	0.29	
Reach-1	105690	50-yr	93700.00	33.60	63.11	
64.05	0.000521	8.12	13249.50	1010.10	0.29	
Reach-1	105690	100-yr	109000.00	33.60	65.05	
66.01	0.000497	8.34	15206.56	1010.14	0.29	
Reach-1	105690	500-yr	146000.00	33.60	69.50	
70.48	0.000436	8.66	19698.08	1010.23	0.27	

Reach-1	105514	10-yr	62900.00	32.50	58.45	
45.75	59.24	0.000735	7.20	9338.71	873.35	0.27
Reach-1	105514	50-yr	93700.00	32.50	63.08	
48.68	63.84	0.000667	7.48	14405.43	1165.52	0.27
Reach-1	105514	100-yr	109000.00	32.50	65.04	
49.99	65.79	0.000604	7.50	16701.42	1172.34	0.26
Reach-1	105514	500-yr	146000.00	32.50	69.53	
52.93	70.26	0.000487	7.47	21996.06	1188.26	0.24

Reach-1	105474.5	Bridge

Reach-1	105435	10-yr	62900.00	32.50	58.40	
59.19	0.000741	7.22	9293.53	863.70	0.27	
Reach-1	105435	50-yr	93700.00	32.50	62.89	
63.68	0.000694	7.59	14185.32	1164.87	0.27	
Reach-1	105435	100-yr	109000.00	32.50	64.79	
65.57	0.000635	7.63	16410.61	1171.48	0.26	
Reach-1	105435	500-yr	146000.00	32.50	69.15	
69.92	0.000518	7.65	21545.12	1186.61	0.24	

Reach-1	105266	10-yr	62900.00	32.70	58.32	
59.07	0.000507	7.02	9600.62	797.27	0.28	
Reach-1	105266	50-yr	93700.00	32.70	62.66	
63.55	0.000496	7.91	13405.16	940.50	0.28	

Reach-1	105266	100-yr	109000.00	32.70	64.49	
65.43	0.000488	8.23	15139.55	960.51	0.28	
Reach-1	105266	500-yr	146000.00	32.70	68.73	
69.76	0.000450	8.74	19306.09	990.31	0.28	
Reach-1	104860	10-yr	62900.00	32.70	57.84	
58.81	0.000670	7.97	8392.11	776.38	0.32	
Reach-1	104860	50-yr	93700.00	32.70	62.22	
63.31	0.000625	8.79	12293.12	945.25	0.31	
Reach-1	104860	100-yr	109000.00	32.70	64.07	
65.20	0.000605	9.08	14057.78	960.30	0.31	
Reach-1	104860	500-yr	146000.00	32.70	68.39	
69.55	0.000531	9.42	18241.39	975.16	0.30	
Reach-1	104344	10-yr	62900.00	31.50	57.31	
58.43	0.000759	8.50	7678.00	694.39	0.34	
Reach-1	104344	50-yr	93700.00	31.50	61.55	
62.93	0.000775	9.77	12169.57	1191.21	0.35	
Reach-1	104344	100-yr	109000.00	31.50	63.41	
64.83	0.000748	10.09	14426.01	1223.60	0.35	
Reach-1	104344	500-yr	146000.00	31.50	67.86	
69.24	0.000647	10.42	20028.82	1299.72	0.33	
Reach-1	103793	10-yr	62900.00	28.90	56.90	
58.01	0.000738	8.49	7660.64	574.69	0.33	
Reach-1	103793	50-yr	93700.00	28.90	60.99	
62.48	0.000813	10.06	11155.61	982.24	0.36	
Reach-1	103793	100-yr	109000.00	28.90	62.79	
64.39	0.000811	10.53	12967.49	1019.79	0.36	
Reach-1	103793	500-yr	146000.00	28.90	67.18	
68.84	0.000735	11.12	17480.54	1032.17	0.35	
Reach-1	103278	10-yr	62900.00	37.91	55.94	
57.46	0.001438	9.92	6793.95	848.88	0.44	
Reach-1	103278	50-yr	93700.00	37.91	60.45	
61.98	0.001198	10.44	11585.52	1248.74	0.41	
Reach-1	103278	100-yr	109000.00	37.91	62.41	
63.88	0.001064	10.48	14122.69	1359.20	0.39	
Reach-1	103278	500-yr	146000.00	37.91	67.09	
68.34	0.000773	10.15	20970.74	1499.06	0.35	
Reach-1	103063	10-yr	62900.00	37.88	55.67	
57.12	0.001487	9.70	6810.19	750.43	0.44	
Reach-1	103063	50-yr	93700.00	37.88	60.10	
61.71	0.001241	10.51	10902.37	1158.20	0.42	

Reach-1	103063	100-yr	109000.00	37.88	62.07	
63.64	0.001112	10.60	13315.92	1313.71	0.40	
Reach-1	103063	500-yr	146000.00	37.88	66.83	
68.16	0.000801	10.28	19861.62	1398.54	0.35	
Reach-1	102843	10-yr	62900.00	30.40	55.79	
56.78	0.000650	8.00	8064.50	504.22	0.31	
Reach-1	102843	50-yr	93700.00	30.40	60.09	
61.43	0.000709	9.49	11296.31	805.69	0.34	
Reach-1	102843	100-yr	109000.00	30.40	61.94	
63.42	0.000721	10.04	12800.30	813.71	0.34	
Reach-1	102843	500-yr	146000.00	30.40	66.27	
67.96	0.000706	10.98	16350.98	824.77	0.35	
Reach-1	102205	10-yr	62900.00	30.70	55.50	
56.35	0.000567	7.42	8483.13	419.84	0.29	
Reach-1	102205	50-yr	93700.00	30.70	59.70	
60.97	0.000667	9.09	10817.88	765.90	0.32	
Reach-1	102205	100-yr	109000.00	30.70	61.52	
62.96	0.000691	9.70	12359.42	871.56	0.33	
Reach-1	102205	500-yr	146000.00	30.70	65.85	
67.51	0.000680	10.66	16268.10	929.91	0.34	
Reach-1	101667	10-yr	62900.00	30.10	55.09	
56.02	0.000627	7.75	8439.44	695.80	0.31	
Reach-1	101667	50-yr	93700.00	30.10	59.35	
60.60	0.000677	9.16	11567.40	746.25	0.33	
Reach-1	101667	100-yr	109000.00	30.10	61.18	
62.57	0.000693	9.73	12945.04	762.12	0.34	
Reach-1	101667	500-yr	146000.00	30.10	65.51	
67.14	0.000687	10.72	16294.37	785.45	0.34	
Reach-1	101095	10-yr	62900.00	28.80	54.83	
55.67	0.000526	7.47	9541.40	803.98	0.28	
Reach-1	101095	50-yr	93700.00	28.80	59.12	
60.20	0.000566	8.73	13055.67	836.88	0.30	
Reach-1	101095	100-yr	109000.00	28.80	60.95	
62.15	0.000581	9.26	14617.09	872.70	0.31	
Reach-1	101095	500-yr	146000.00	28.80	65.33	
66.70	0.000571	10.12	18638.18	930.69	0.31	
Reach-1	100491	10-yr	62900.00	29.40	54.57	
55.33	0.000514	7.08	9988.01	986.58	0.28	
Reach-1	100491	50-yr	93700.00	29.40	58.91	
59.83	0.000514	8.06	14548.33	1090.72	0.29	

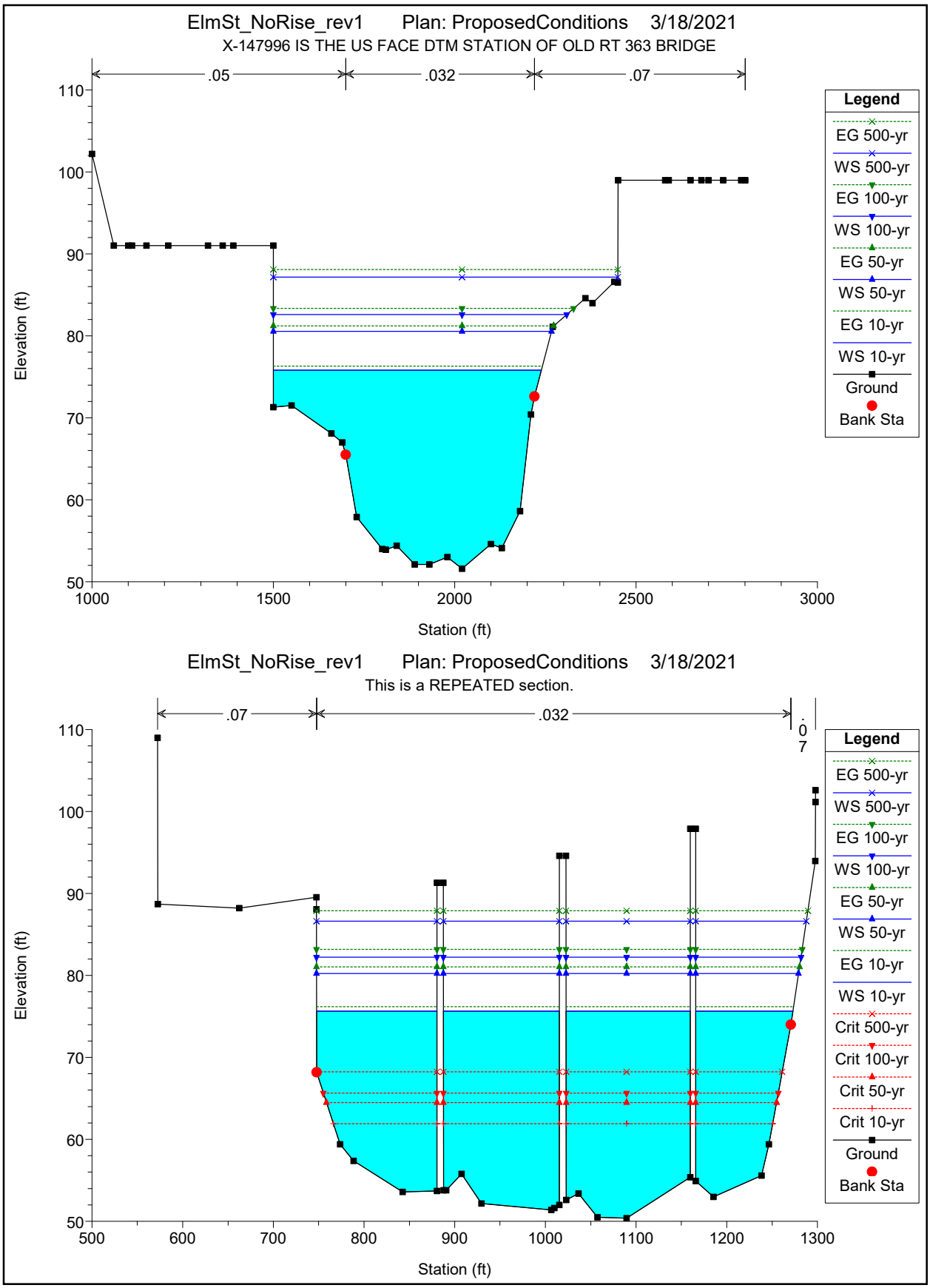
Reach-1	100491	100-yr	109000.00	29.40	60.78	
61.75	0.000506	8.40	16607.65	1103.24	0.29	
Reach-1	100491	500-yr	146000.00	29.40	65.26	
66.29	0.000464	8.92	21581.28	1117.19	0.28	
Reach-1	99703	10-yr	62900.00	29.40	54.26	
54.90	0.000486	6.41	9843.12	615.32	0.27	
Reach-1	99703	50-yr	93700.00	29.40	58.52	
59.41	0.000524	7.60	13044.59	795.12	0.28	
Reach-1	99703	100-yr	109000.00	29.40	60.35	
61.34	0.000533	8.08	14504.31	801.77	0.29	
Reach-1	99703	500-yr	146000.00	29.40	64.70	
65.89	0.000523	8.94	18032.18	815.79	0.30	
Reach-1	99111	10-yr	62900.00	30.00	53.84	
54.59	0.000544	6.92	9100.06	516.40	0.28	
Reach-1	99111	50-yr	93700.00	30.00	57.97	
59.05	0.000612	8.38	11610.10	665.55	0.31	
Reach-1	99111	100-yr	109000.00	30.00	59.74	
60.97	0.000637	8.98	12824.59	697.68	0.32	
Reach-1	99111	500-yr	146000.00	30.00	63.99	
65.51	0.000645	10.05	15844.02	719.72	0.33	
Reach-1	98439	10-yr	62900.00	27.80	53.56	
54.23	0.000445	6.59	9911.42	720.56	0.26	
Reach-1	98439	50-yr	93700.00	27.80	57.70	
58.64	0.000500	7.91	13163.11	806.88	0.28	
Reach-1	98439	100-yr	109000.00	27.80	59.48	
60.53	0.000519	8.44	14607.58	818.00	0.29	
Reach-1	98439	500-yr	146000.00	27.80	63.78	
65.04	0.000523	9.38	18231.24	865.78	0.30	
Reach-1	97712	10-yr	62900.00	29.00	53.29	
53.91	0.000410	6.35	10824.98	964.12	0.25	
Reach-1	97712	50-yr	93700.00	29.00	57.41	
58.26	0.000457	7.58	14844.42	984.80	0.27	
Reach-1	97712	100-yr	109000.00	29.00	59.19	
60.14	0.000474	8.09	16599.87	993.03	0.28	
Reach-1	97712	500-yr	146000.00	29.00	63.50	
64.64	0.000477	8.98	20961.37	1037.93	0.29	
Reach-1	97059	10-yr	62900.00	28.80	52.79	
53.57	0.000600	7.09	9161.41	641.17	0.29	
Reach-1	97059	50-yr	93700.00	28.80	56.77	
57.88	0.000666	8.54	11893.42	726.28	0.32	

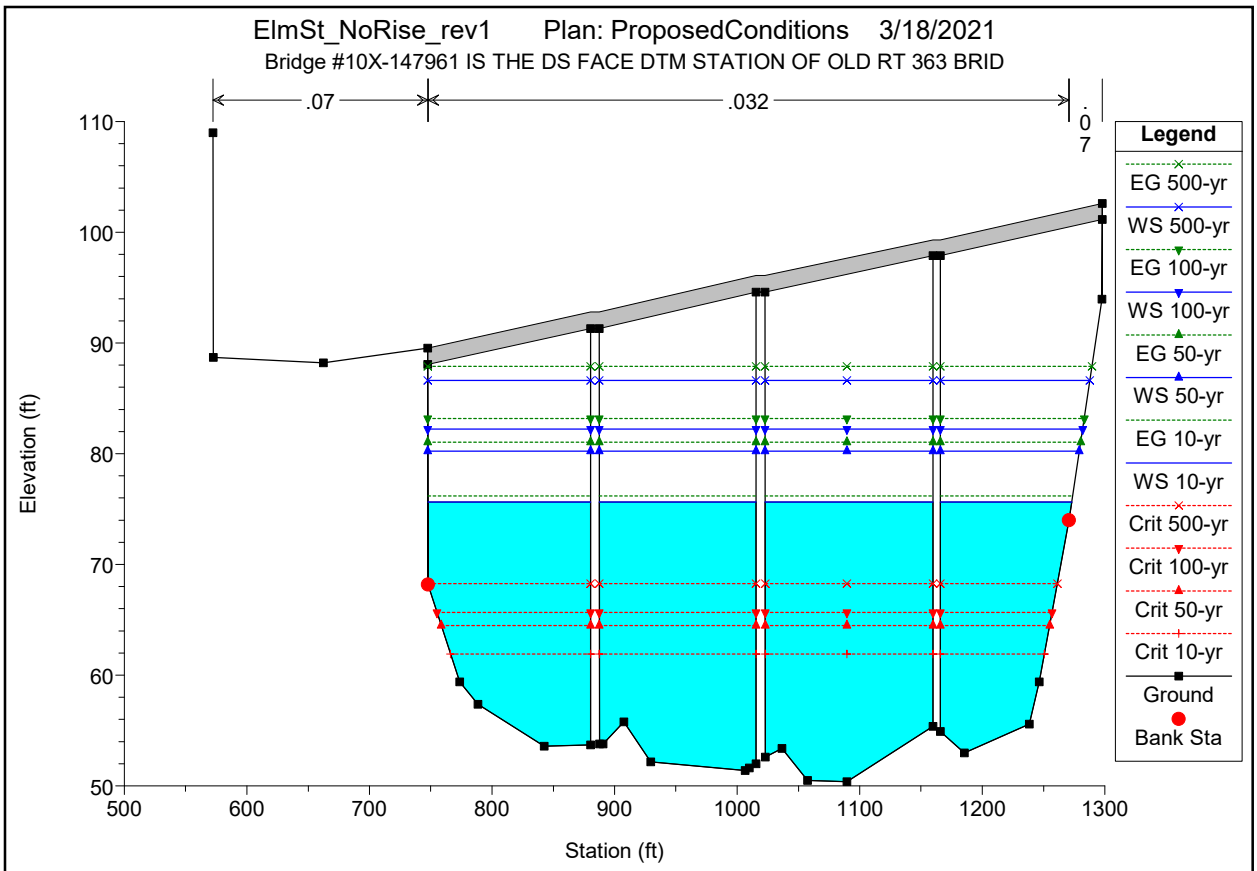
Reach-1	97059	100-yr	109000.00	28.80	58.47	
59.74	0.000693	9.15	13156.27	758.50	0.33	
Reach-1	97059	500-yr	146000.00	28.80	62.66	
64.22	0.000697	10.23	16527.49	864.63	0.34	
Reach-1	96094	10-yr	62900.00	26.50	51.94	
52.94	0.000662	8.11	8612.21	582.01	0.32	
Reach-1	96094	50-yr	93700.00	26.50	55.62	
57.13	0.000815	10.05	10869.04	641.72	0.36	
Reach-1	96094	100-yr	109000.00	26.50	57.19	
58.94	0.000879	10.88	11879.87	650.44	0.38	
Reach-1	96094	500-yr	146000.00	26.50	61.14	
63.38	0.000942	12.40	14575.87	705.86	0.40	
Reach-1	95310	10-yr	62900.00	30.30	51.58	
52.34	0.000681	7.01	8966.77	555.70	0.31	
Reach-1	95310	50-yr	93700.00	30.30	55.27	
56.39	0.000778	8.47	11084.96	589.63	0.34	
Reach-1	95310	100-yr	109000.00	30.30	56.85	
58.14	0.000810	9.11	12026.42	604.78	0.35	
Reach-1	95310	500-yr	146000.00	30.30	60.90	
62.51	0.000802	10.20	14733.75	726.70	0.36	
Reach-1	94285	10-yr	62900.00	28.50	51.19	
51.83	0.000338	6.44	9772.27	519.36	0.26	
Reach-1	94285	50-yr	93700.00	28.50	54.77	
55.78	0.000422	8.07	11692.92	548.37	0.30	
Reach-1	94285	100-yr	109000.00	28.50	56.30	
57.50	0.000459	8.80	12538.23	558.28	0.31	
Reach-1	94285	500-yr	146000.00	28.50	60.29	
61.86	0.000492	10.08	15123.82	828.46	0.33	
Reach-1	93233	10-yr	62900.00	29.90	50.61	
51.39	0.000494	7.10	8859.86	533.10	0.31	
Reach-1	93233	50-yr	93700.00	29.90	54.06	
55.24	0.000592	8.74	10745.47	565.22	0.35	
Reach-1	93233	100-yr	109000.00	29.90	55.53	
56.92	0.000631	9.46	11582.20	573.26	0.36	
Reach-1	93233	500-yr	146000.00	29.90	59.50	
61.26	0.000637	10.66	14088.22	833.94	0.37	
Reach-1	92033	10-yr	62900.00	29.80	50.23	
50.82	0.000370	6.16	10210.70	812.48	0.31	
Reach-1	92033	50-yr	93700.00	29.80	53.78	
54.57	0.000371	7.11	13281.04	893.94	0.32	

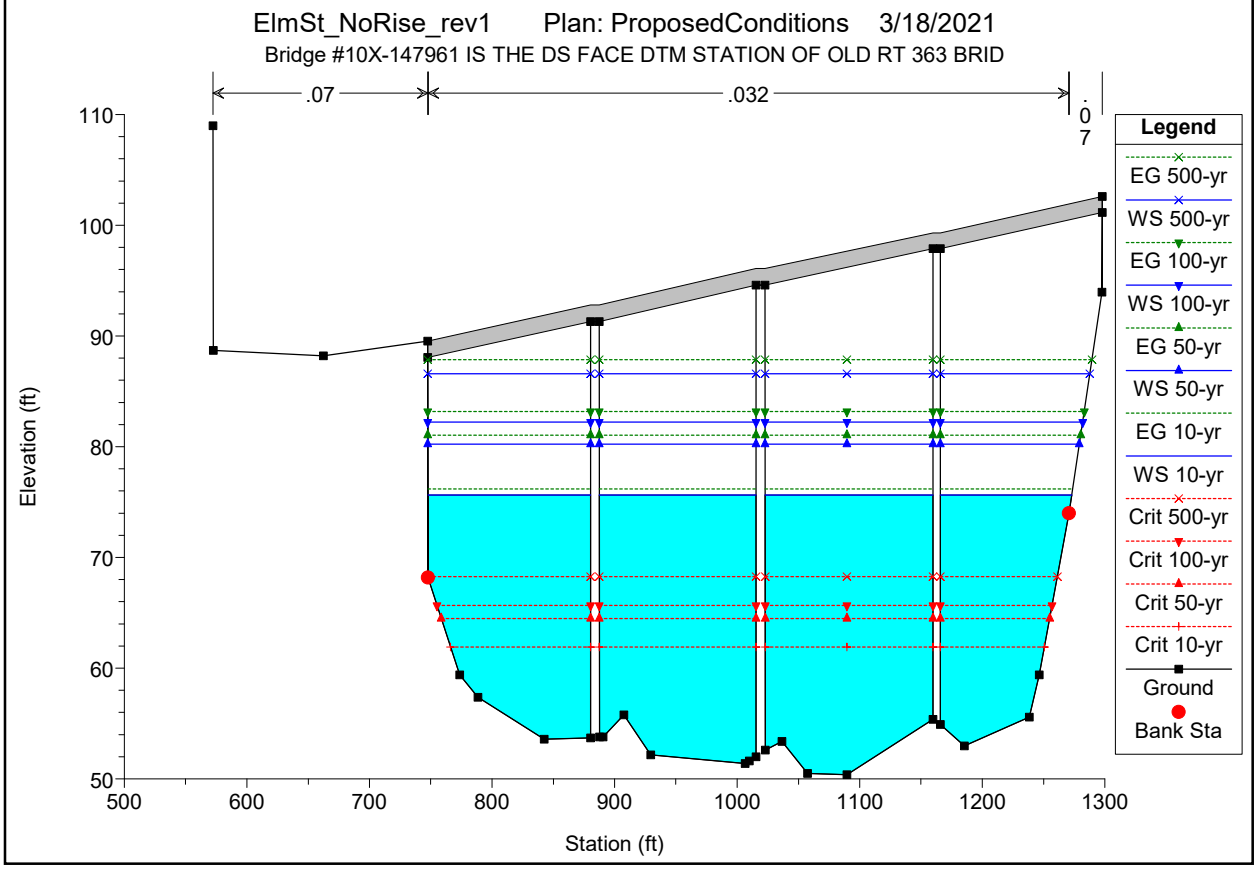
Reach-1	92033	100-yr	109000.00	29.80	55.32						
56.20	0.000368	7.53	14670.65	918.86	0.32						
Reach-1	92033	500-yr	146000.00	29.80	59.50						
60.51	0.000317	8.09	18653.35	979.61	0.31						

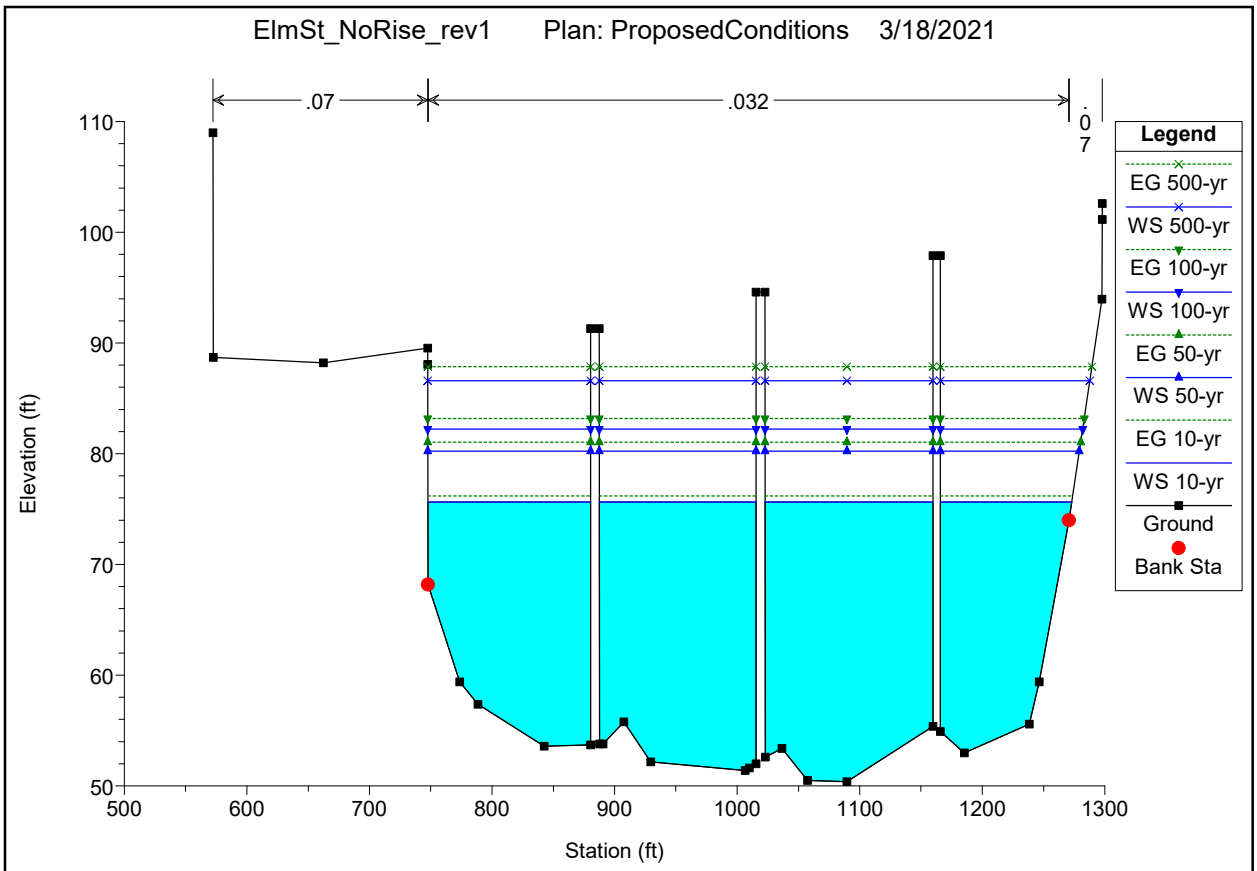
Reach-1	91406	10-yr	62900.00	28.70	50.07						
50.62	0.000260	5.94	10752.12	823.15	0.27						
Reach-1	91406	50-yr	93700.00	28.70	53.59						
54.36	0.000285	7.12	13816.65	908.16	0.29						
Reach-1	91406	100-yr	109000.00	28.70	55.11						
55.99	0.000295	7.62	15226.18	945.86	0.30						
Reach-1	91406	500-yr	146000.00	28.70	59.30						
60.33	0.000272	8.28	19348.98	1002.18	0.29						

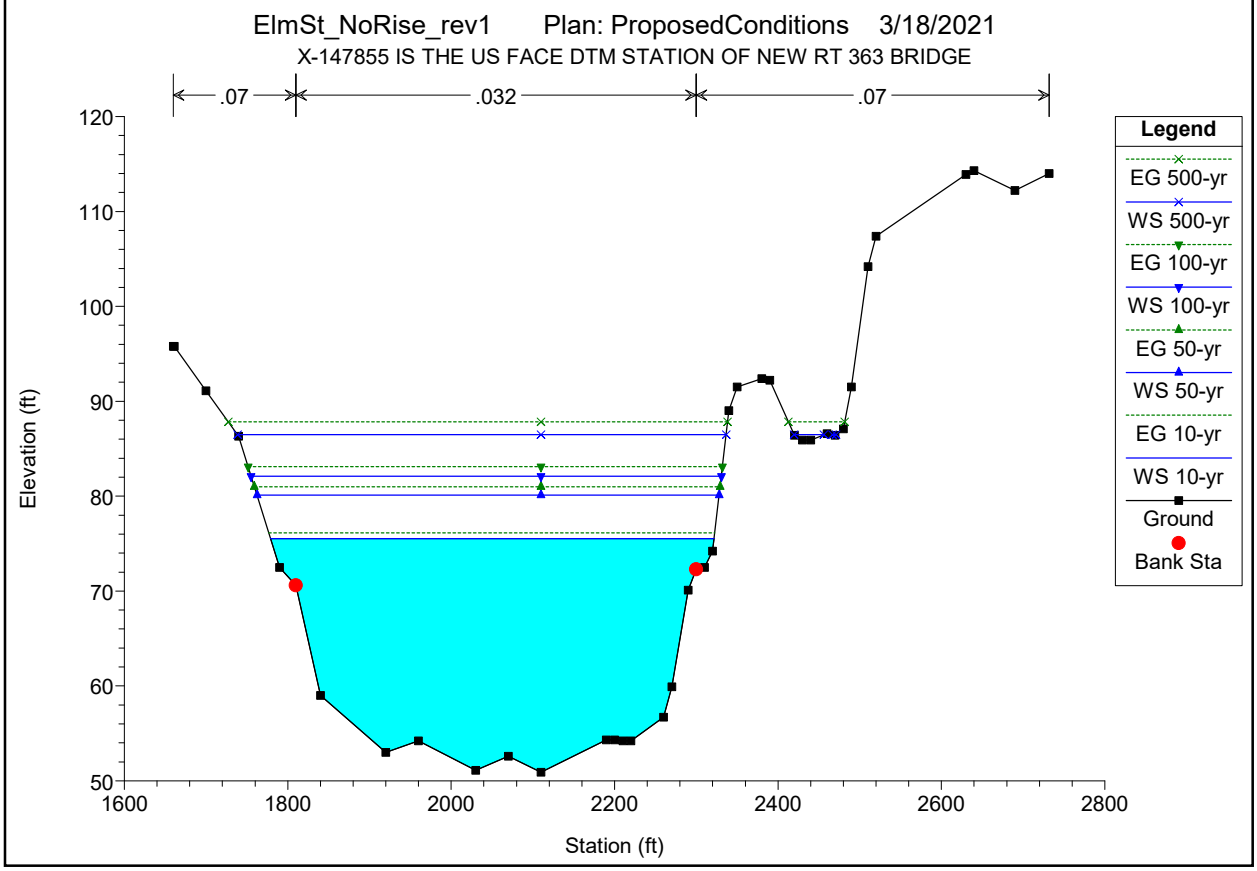
Reach-1	90774	10-yr	62900.00	27.90	50.01						
37.27	50.46	0.000163	5.42	12076.70	796.44	0.22					
Reach-1	90774	50-yr	93700.00	27.90	53.50						
39.61	54.19	0.000201	6.72	14964.82	895.87	0.25					
Reach-1	90774	100-yr	109000.00	27.90	55.01						
40.65	55.81	0.000216	7.27	16332.63	915.80	0.26					
Reach-1	90774	500-yr	146000.00	27.90	59.19						
42.91	60.16	0.000217	8.10	20277.89	974.47	0.27					

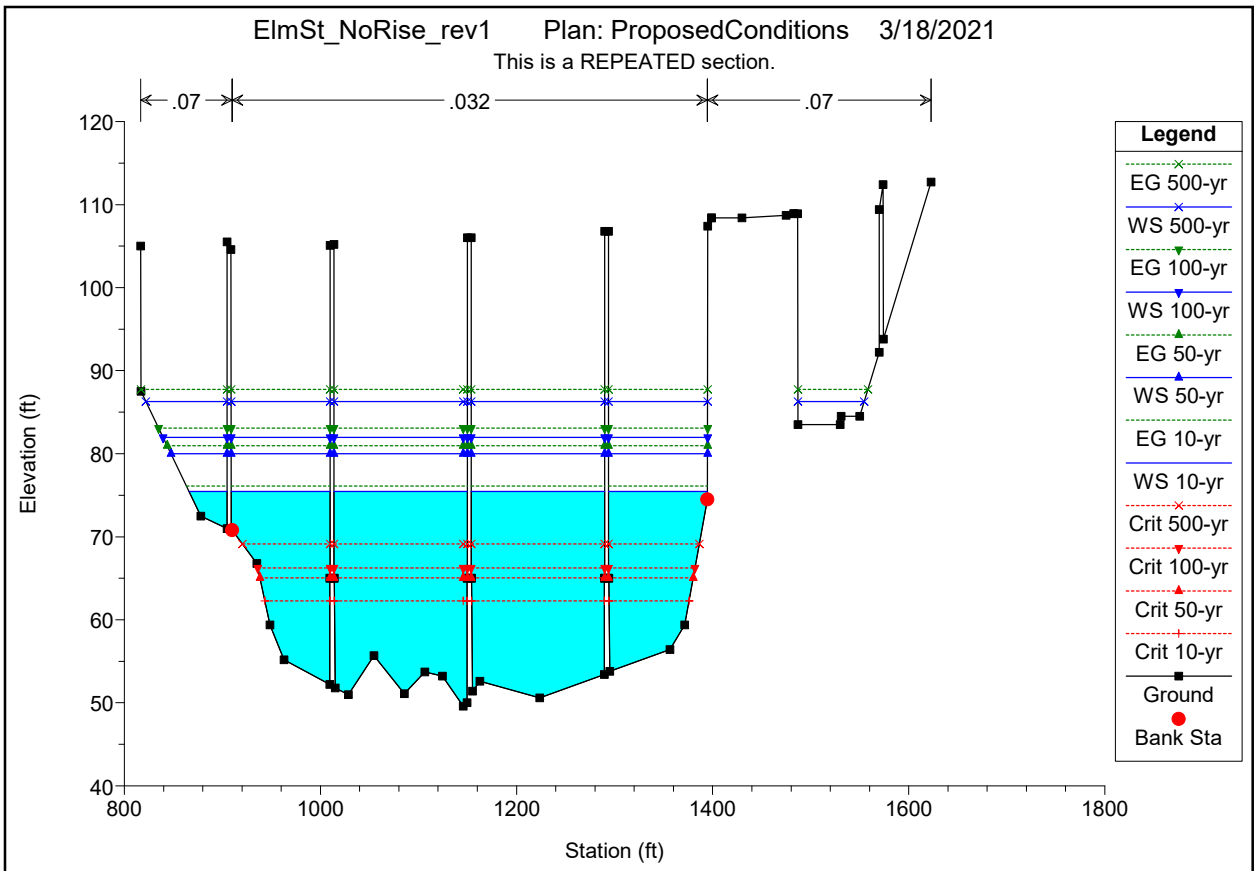

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-147996 IS THE US FACE DTM STATION OF OLD RT 363 BRIDGE
.05
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

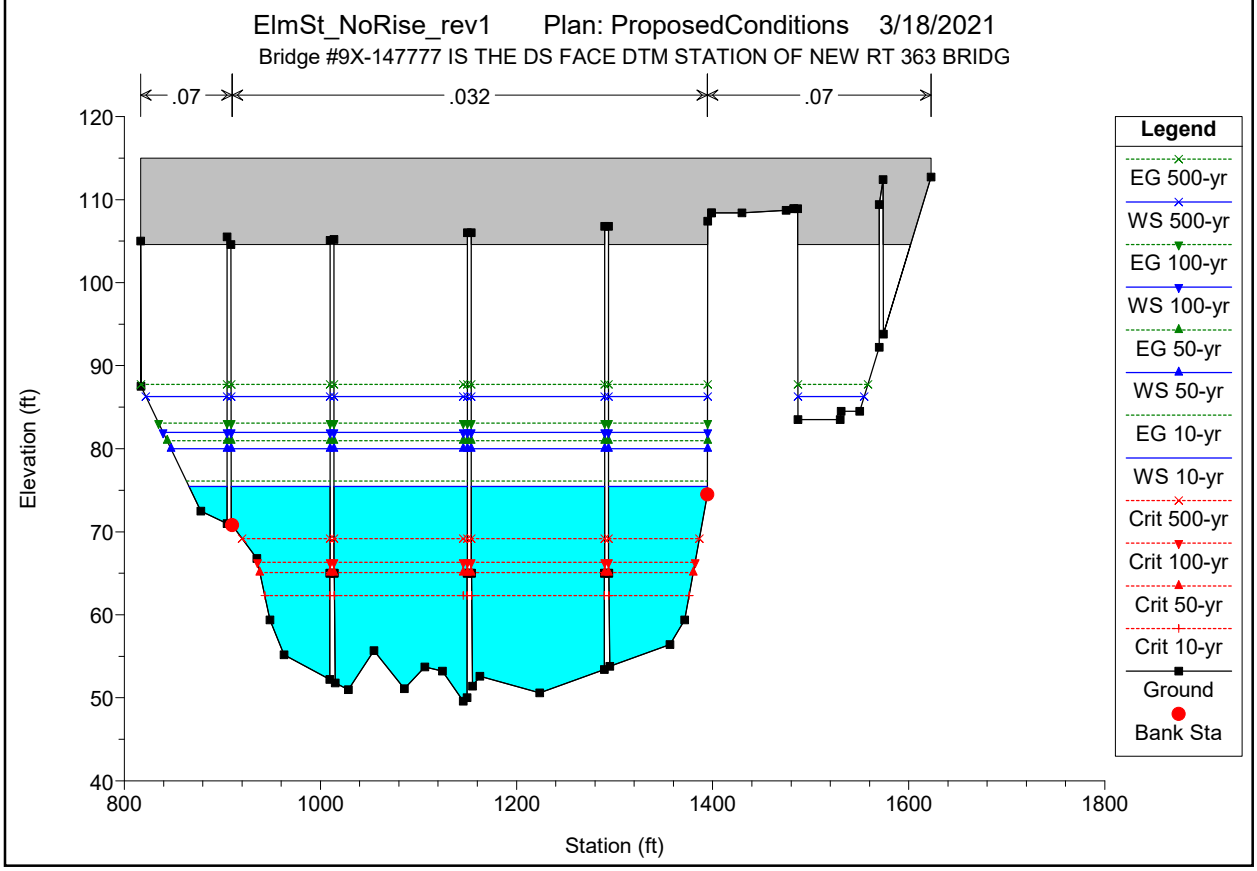

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #10X-147961 IS THE DS FACE DTM STATION OF OLD RT 363 BRID
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

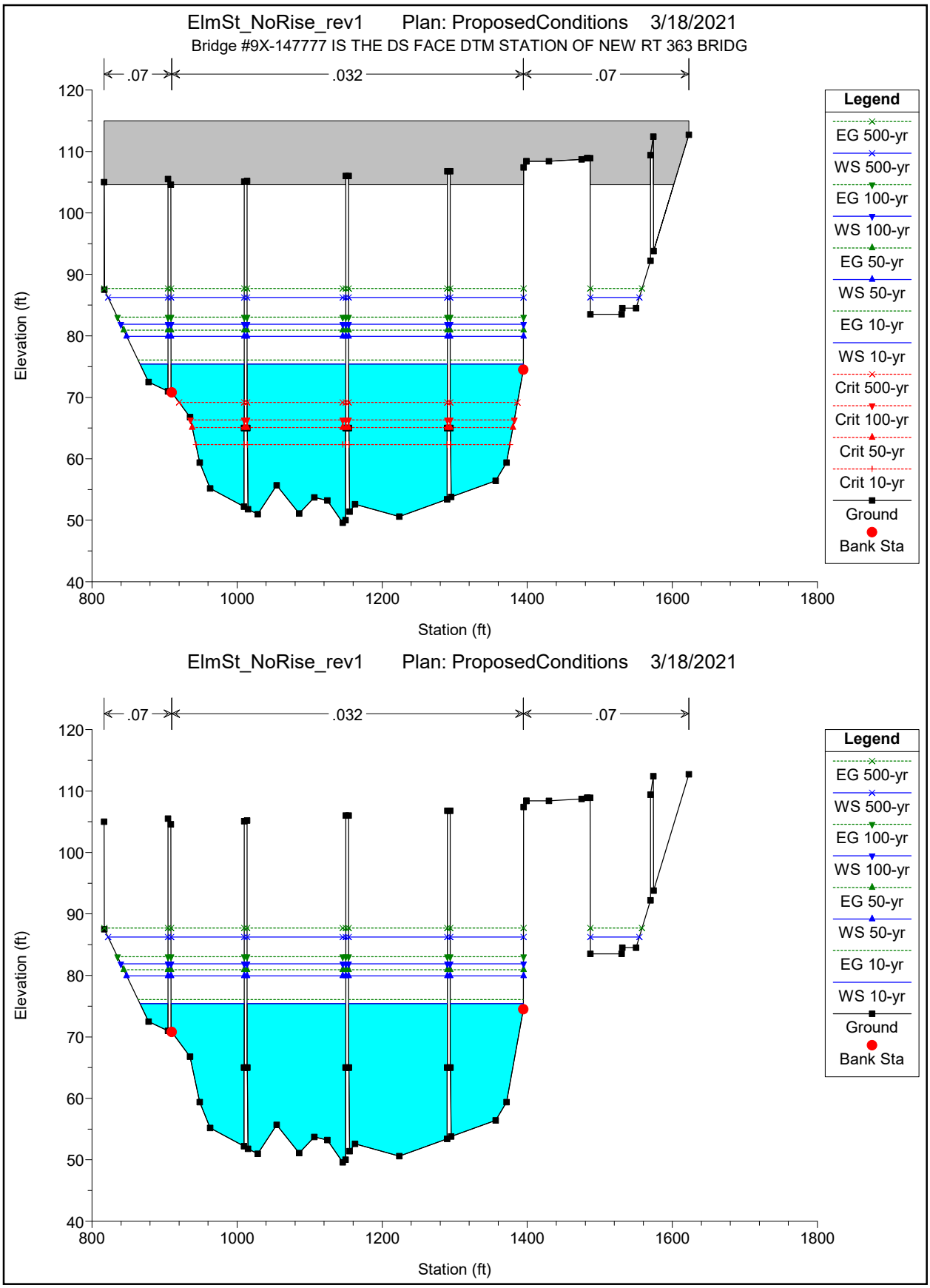

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #10X-147961 IS THE DS FACE DTM STATION OF OLD RT 363 BRID
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

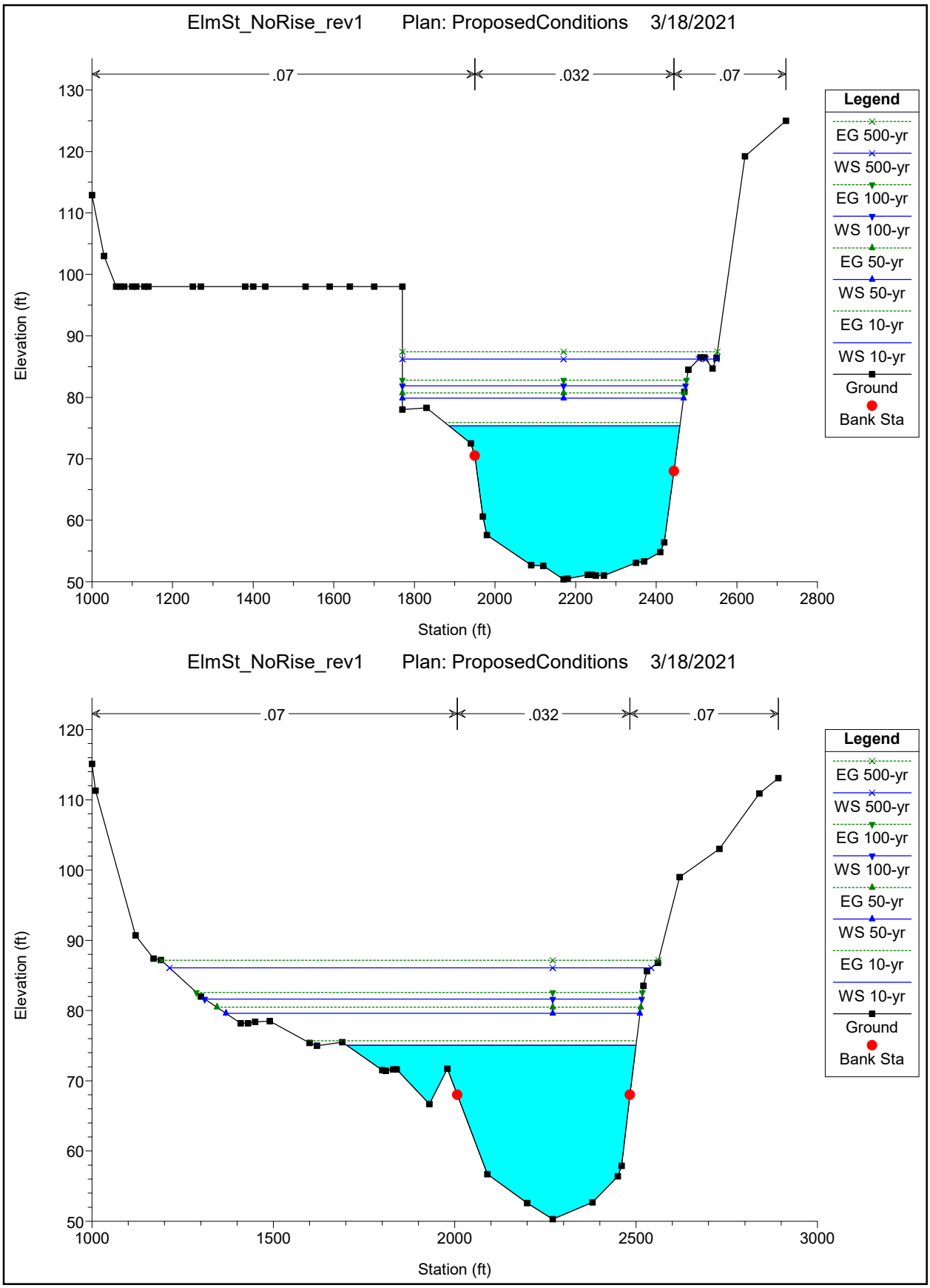

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
110
100
90
80
70
60
50
500
600
700
800
900
1000
1100
1200
1300

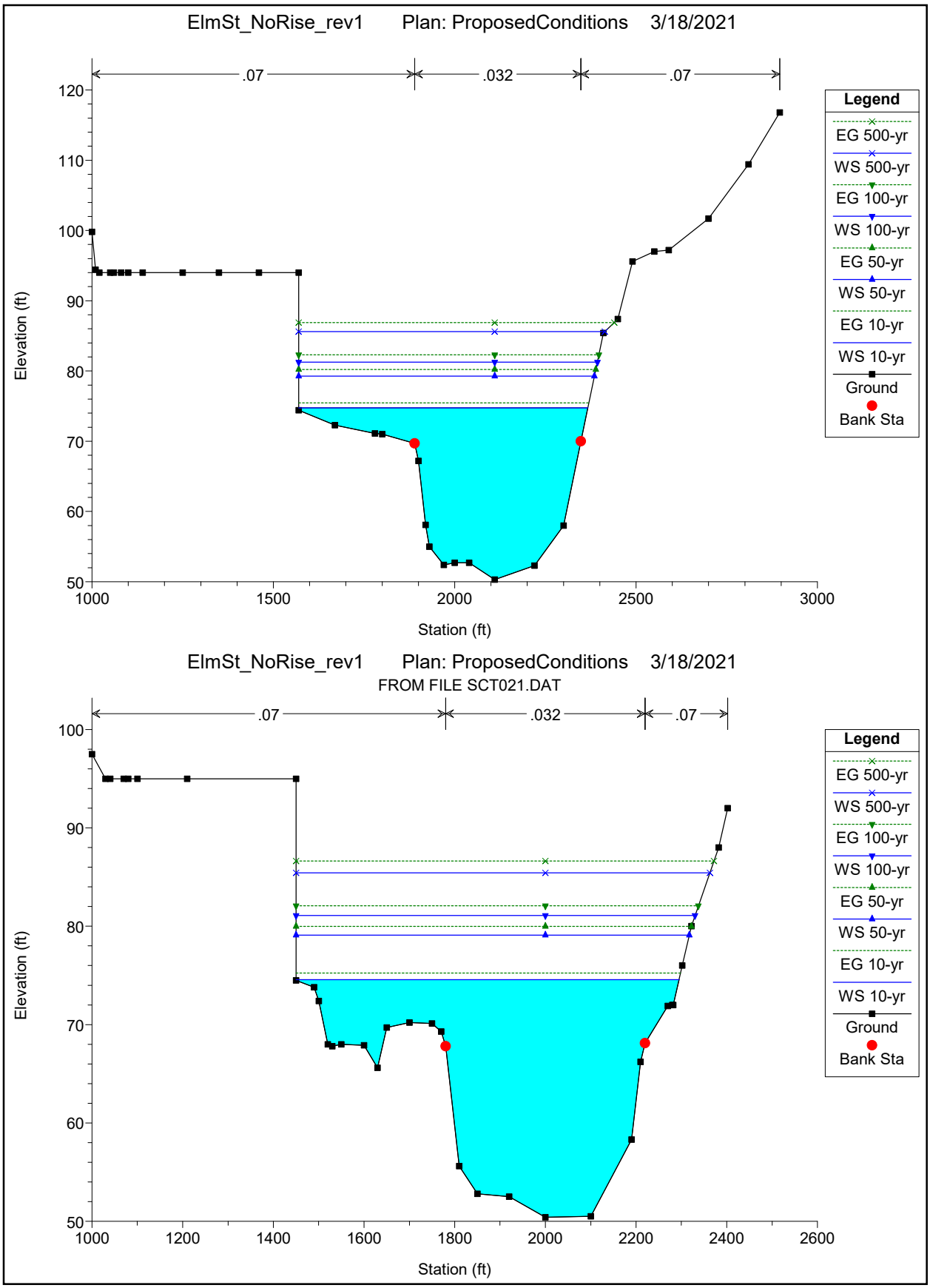

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-147855 IS THE US FACE DTM STATION OF NEW RT 363 BRIDGE
.07
.032
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
120
110
100
90
80
70
60
50
1600
1800
2000
2200
2400
2600
2800


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #9X-147777 IS THE DS FACE DTM STATION OF NEW RT 363 BRIDG
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #9X-147777 IS THE DS FACE DTM STATION OF NEW RT 363 BRIDG
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
130
120
110
100
90
80
70
60
50
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
120
110
100
90
80
70
60
50
1000
1500
2000
2500
3000


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
120
110
100
90
80
70
60
50
1000
1500
2000
2500
3000
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
FROM FILE SCT021.DAT
.07
.032
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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80
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60
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1600
1800
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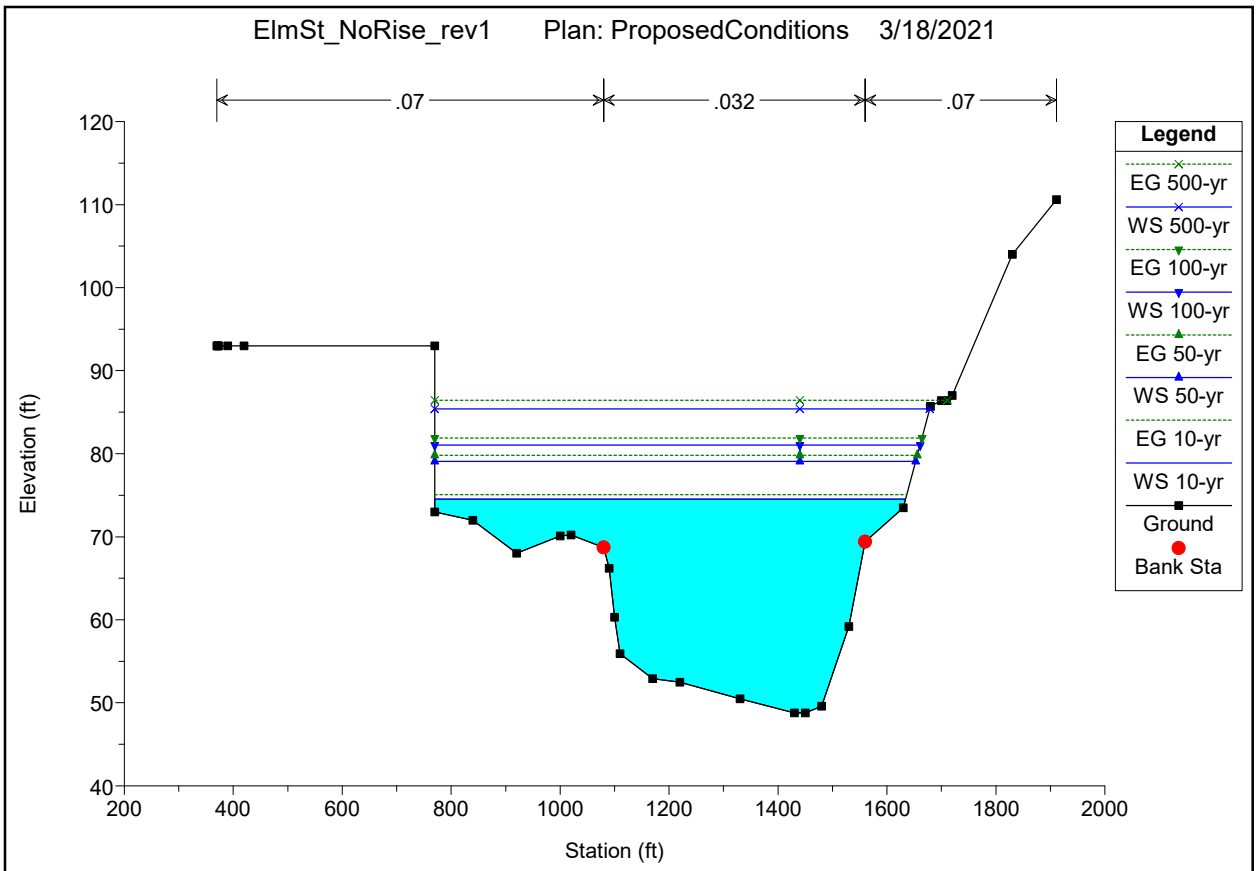
2200
2400
2600


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
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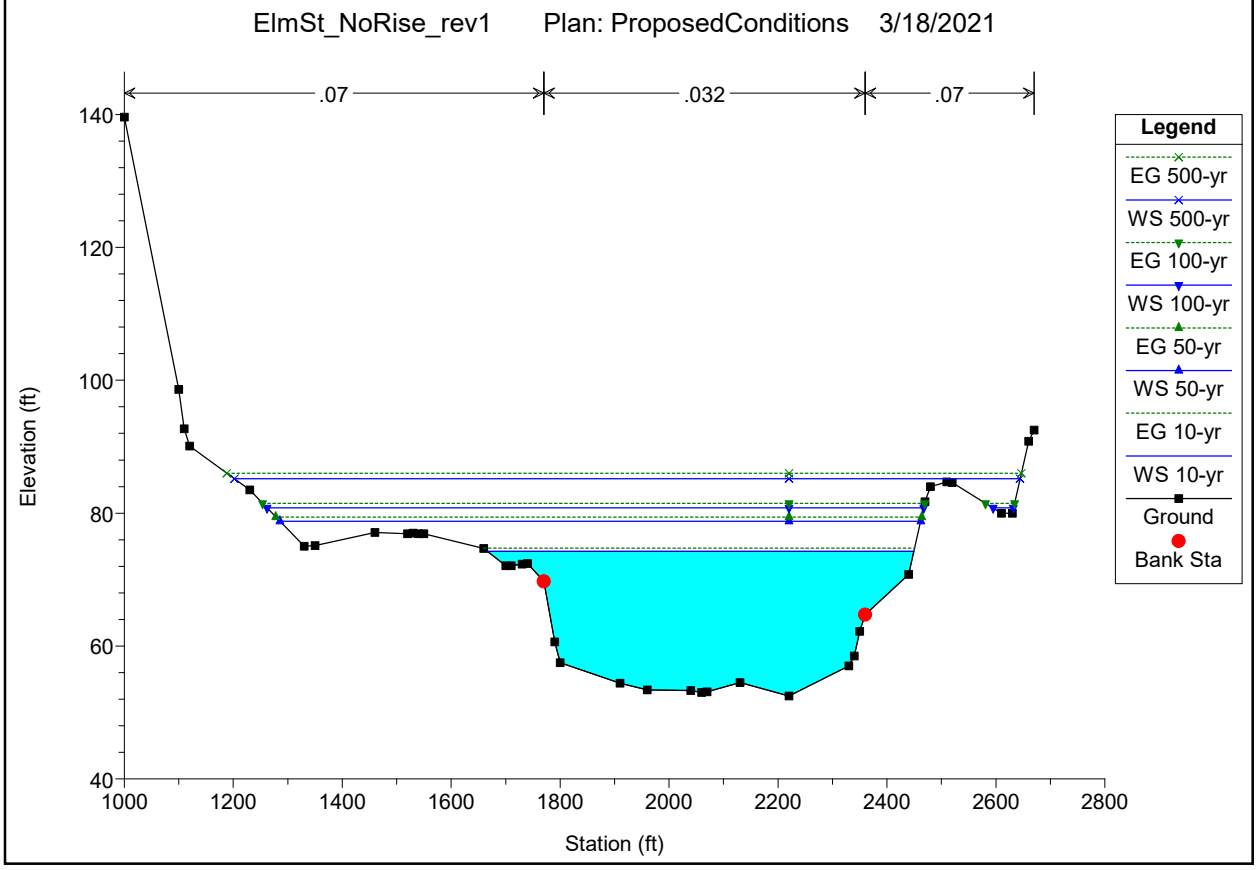
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
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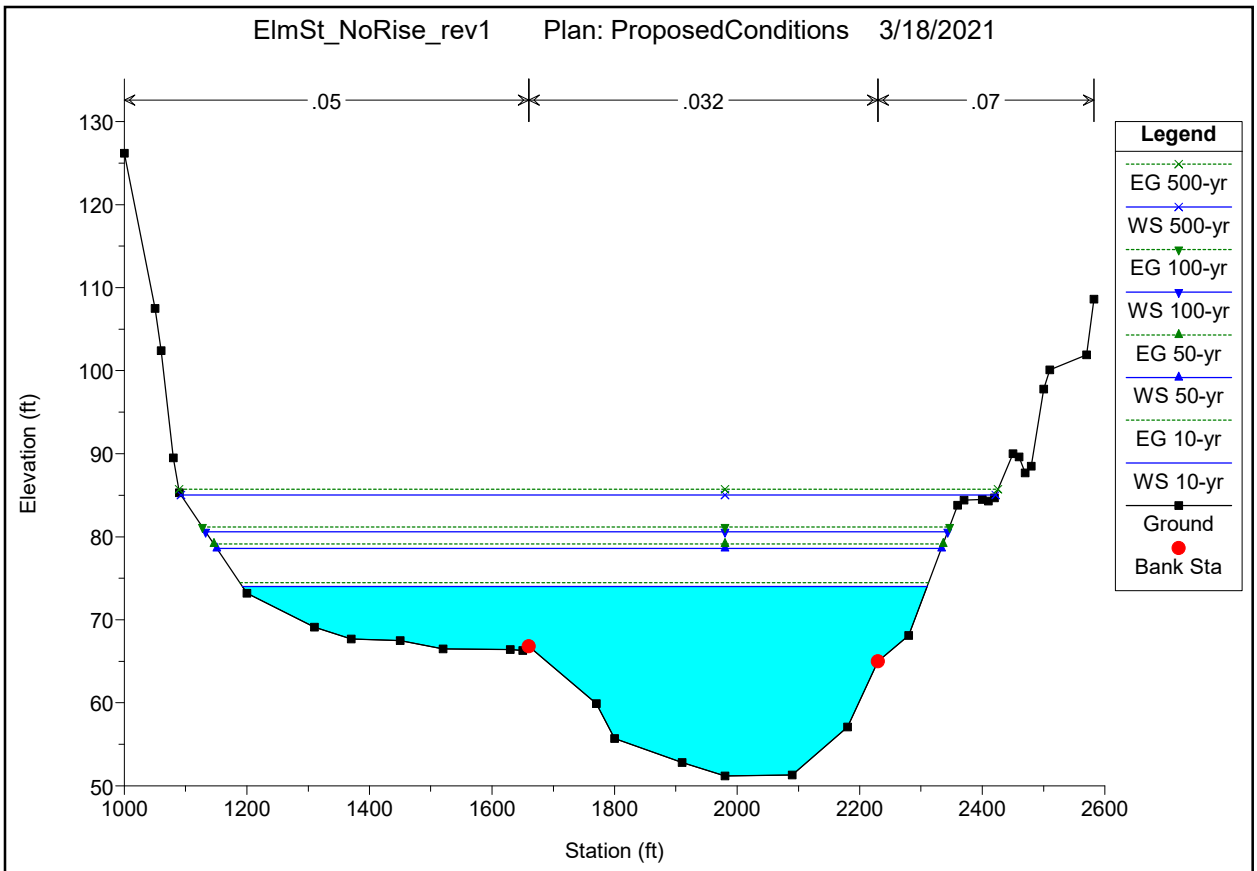
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.032
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
130
120
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100
90
80
70
60
50
1000
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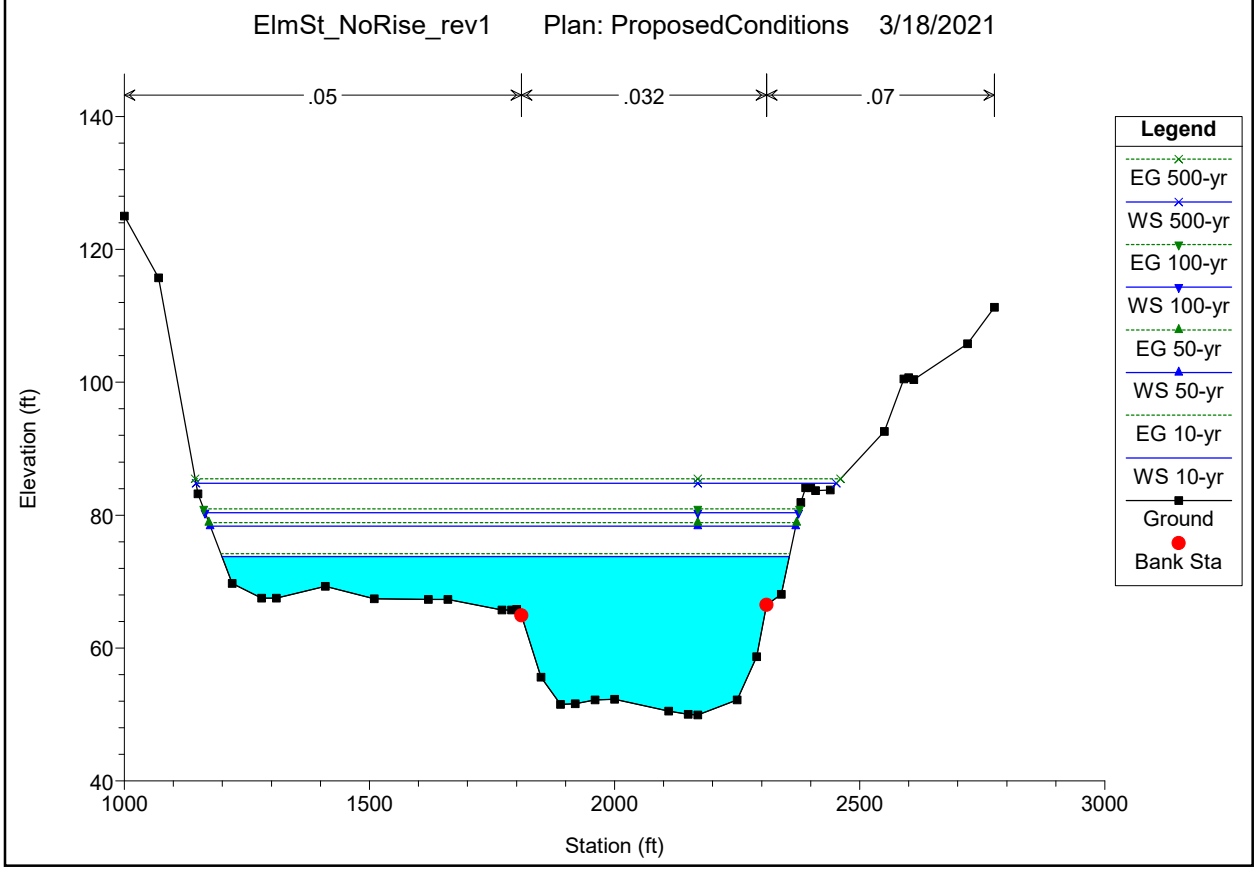
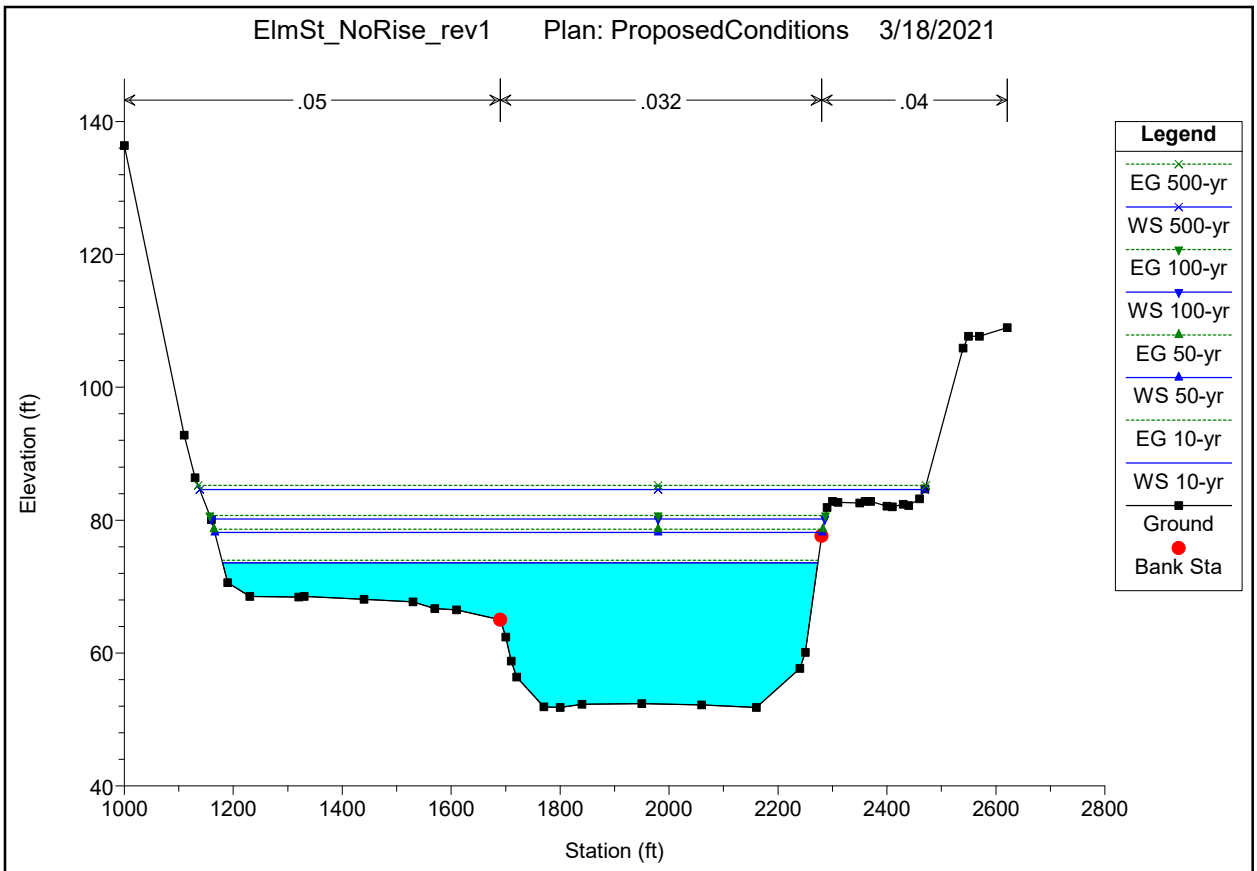
1400
1600
1800
2000
2200
2400
2600


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.032
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
140
120
100
80
60
40
1000
1500
2000
2500
3000


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.032
.04
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
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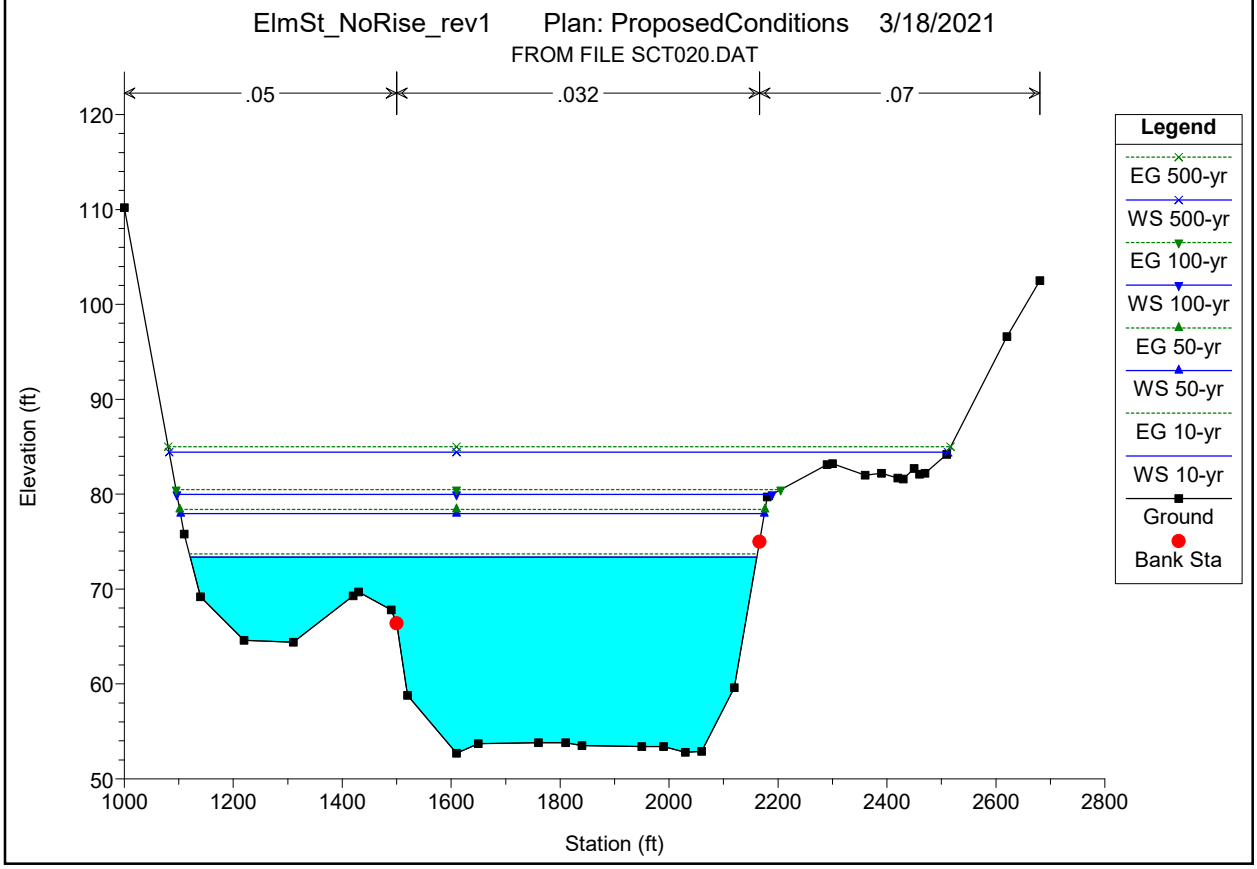
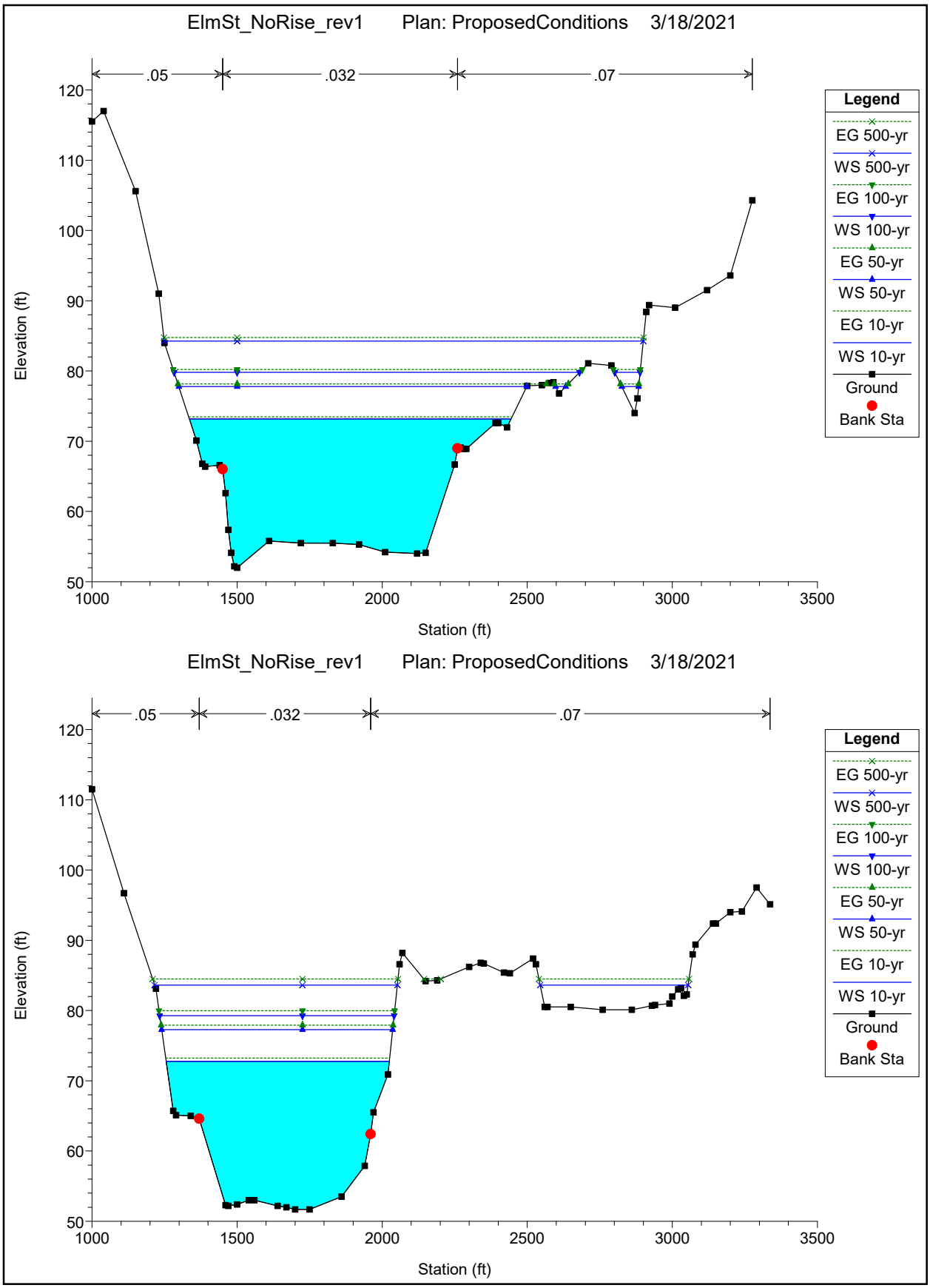
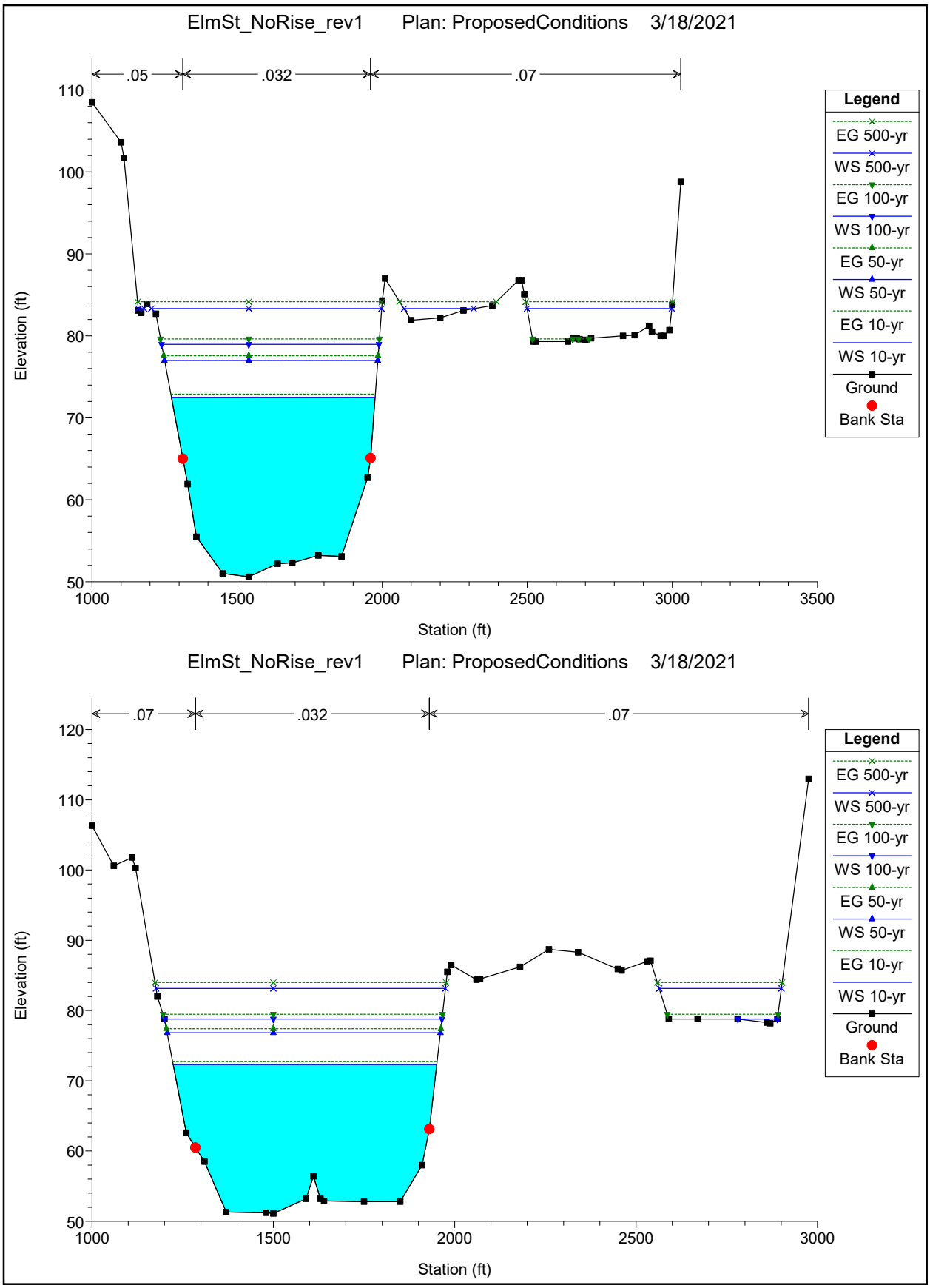
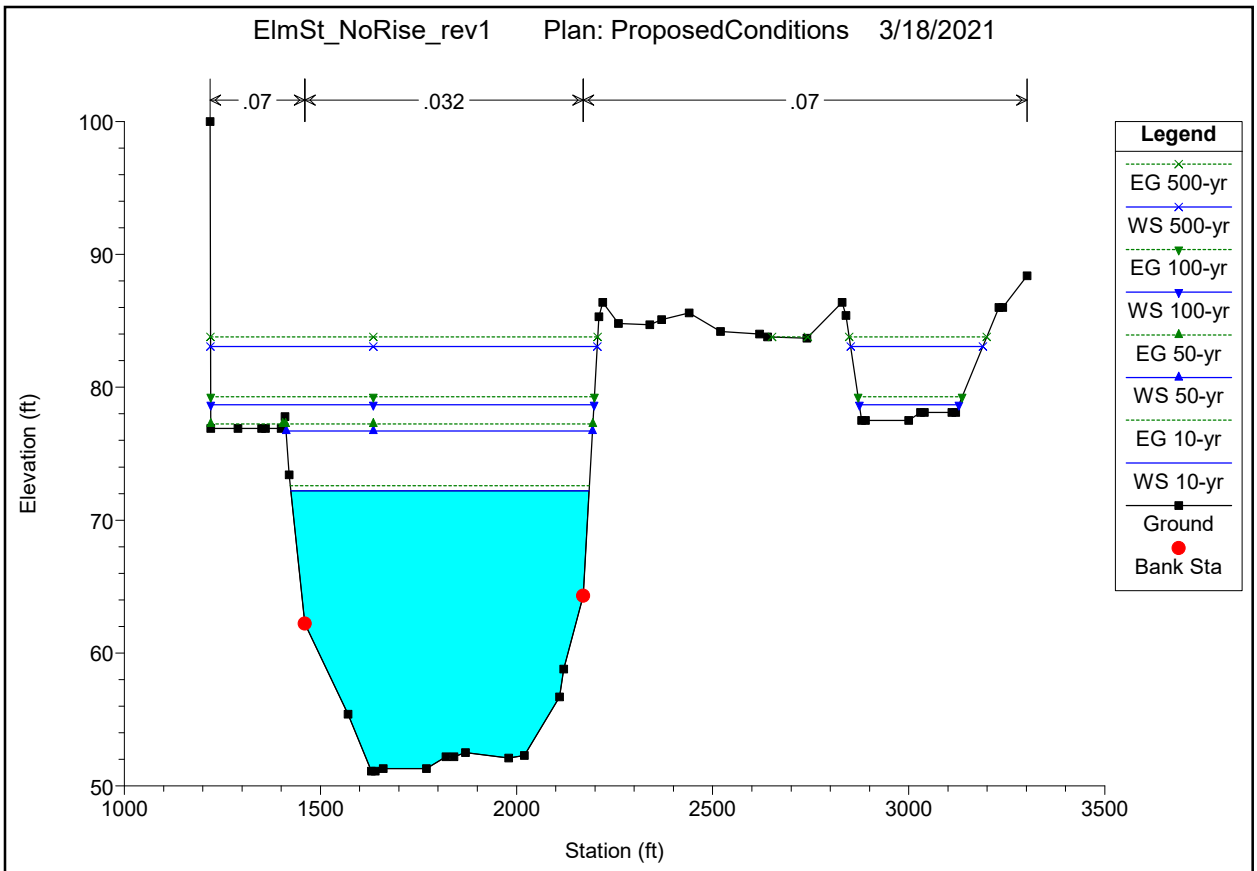
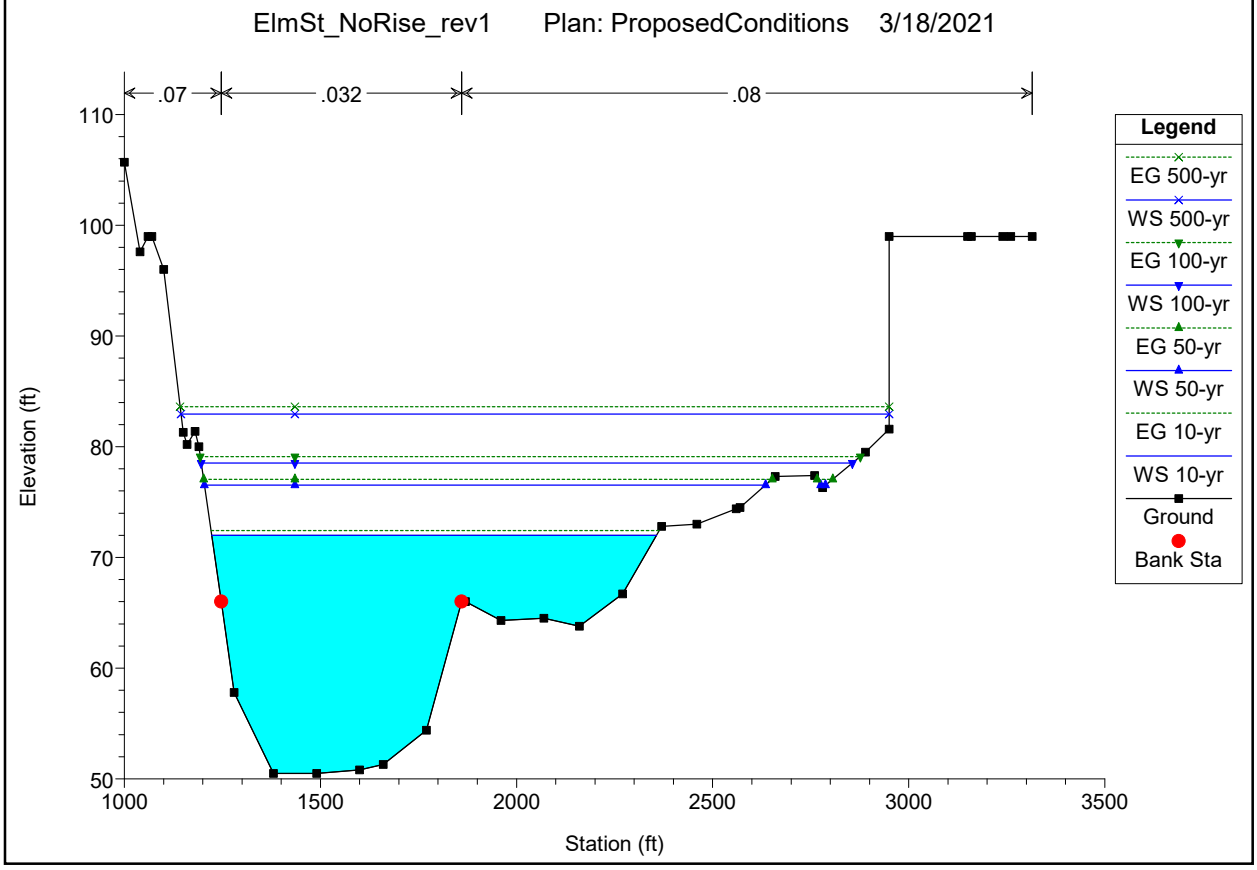
120
100
80
60
40
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800

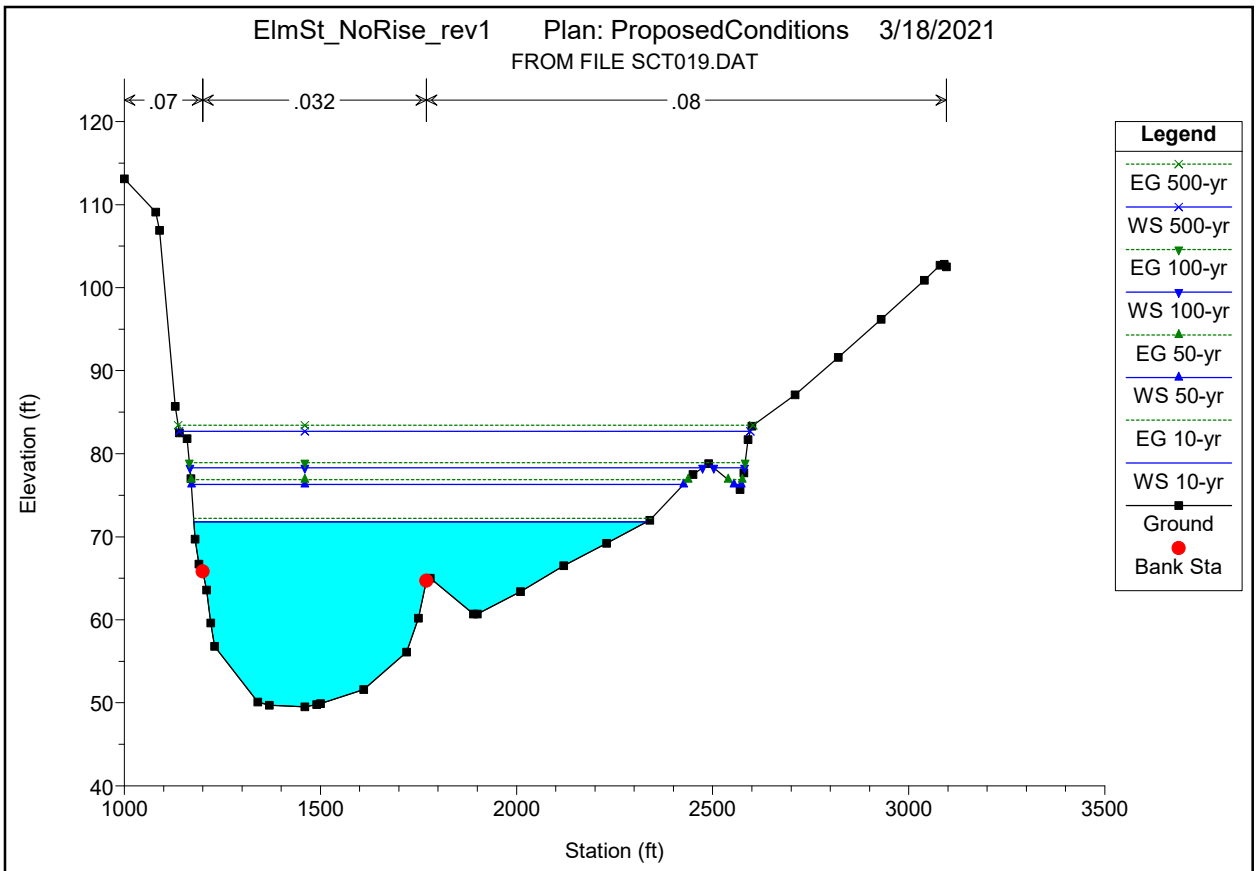

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
FROM FILE SCT020.DAT
.05
.032
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
120
110
100
90
80
70
60
50
1000
1200
1400
1600
1800
2000
2200
2400
2600
2800

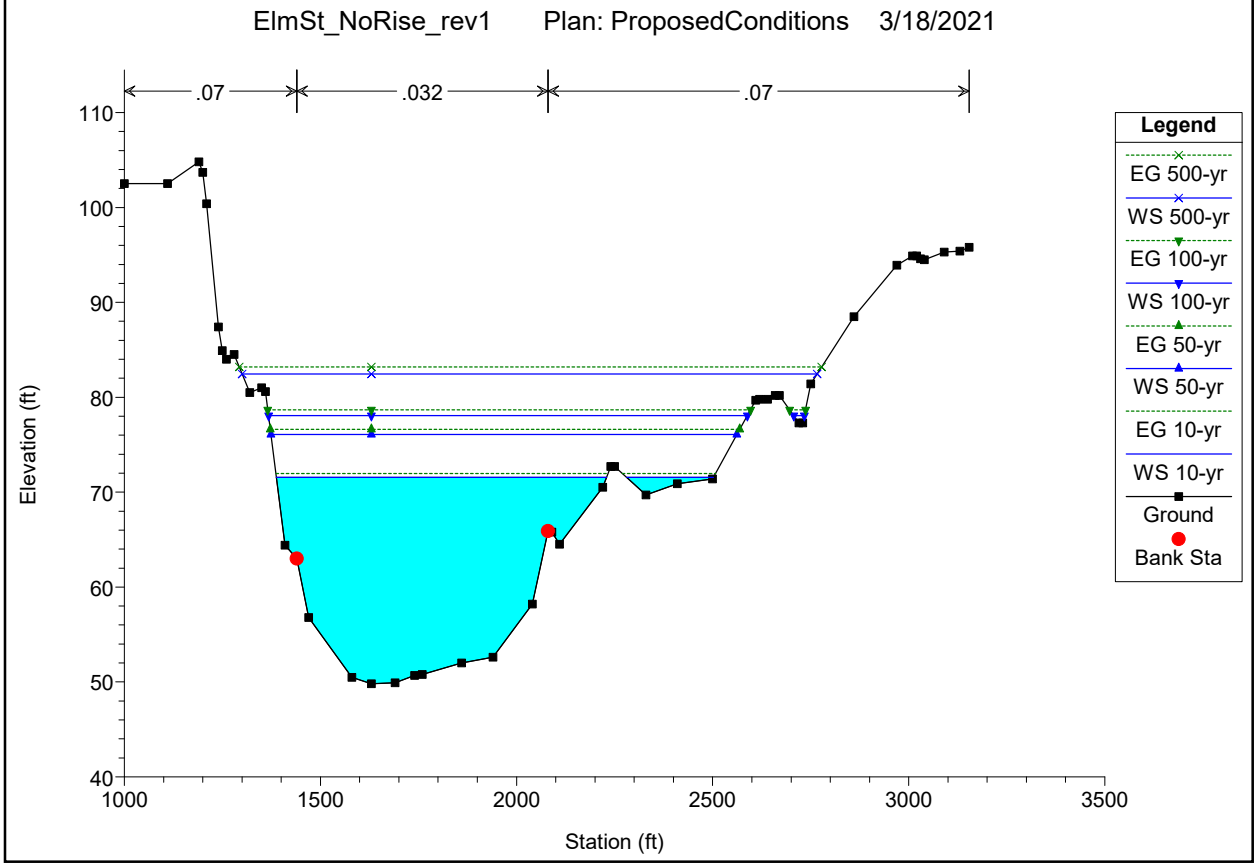

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

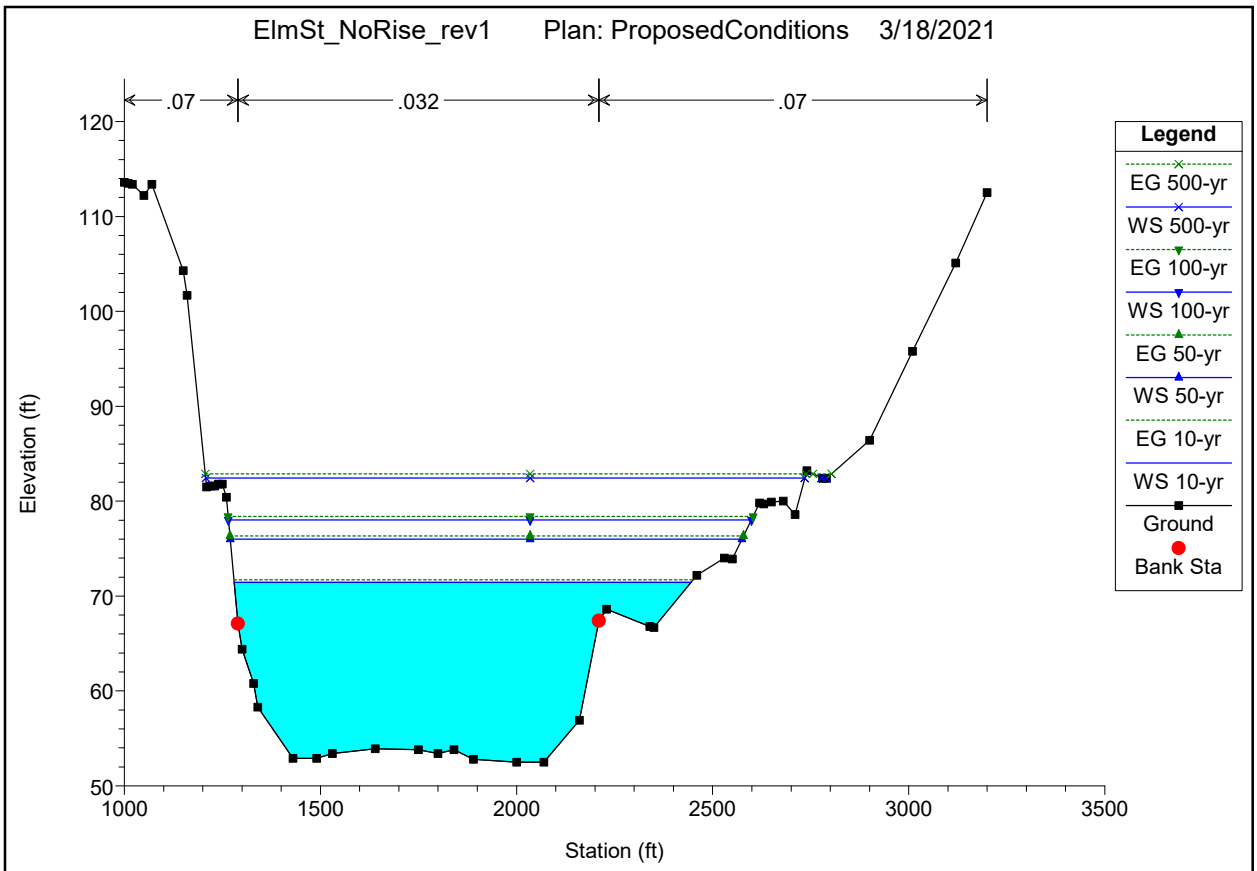

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

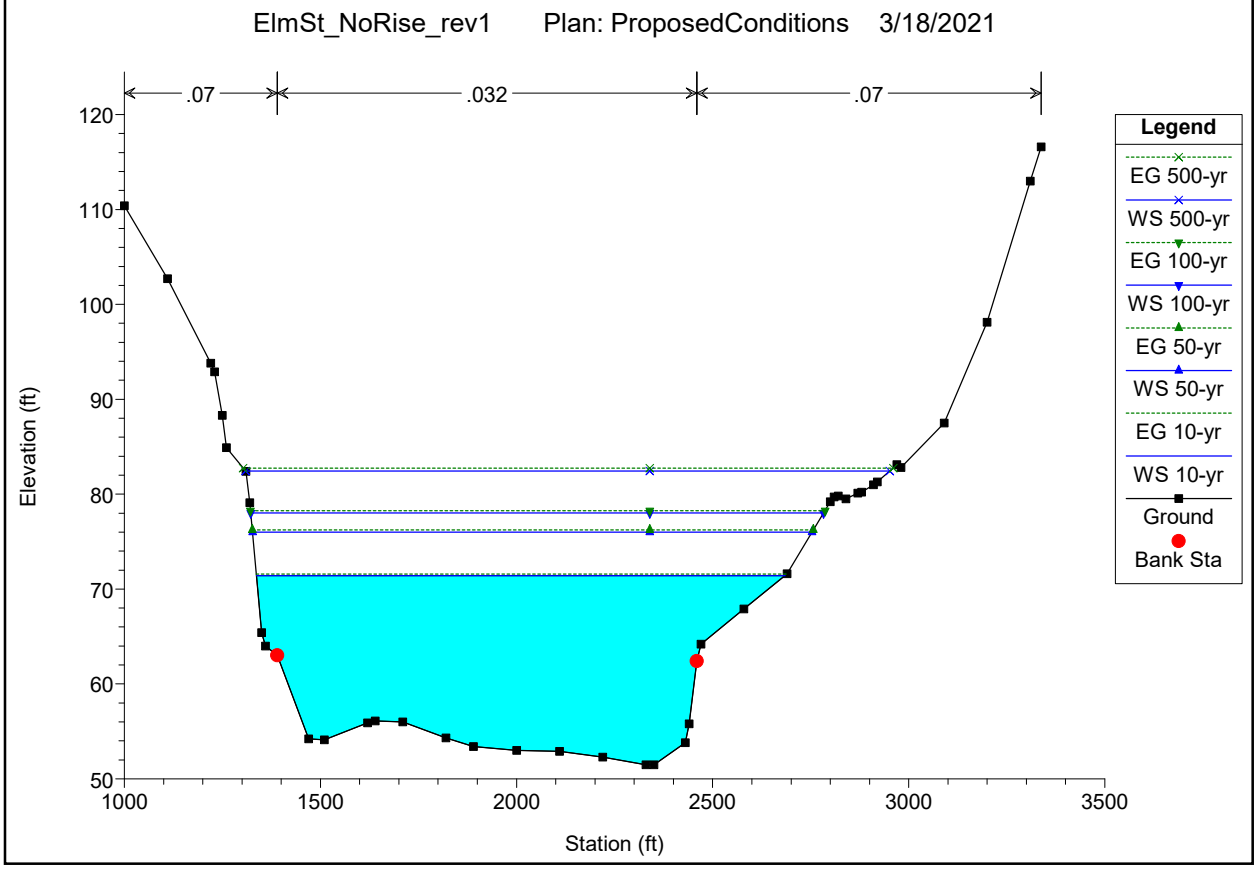

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

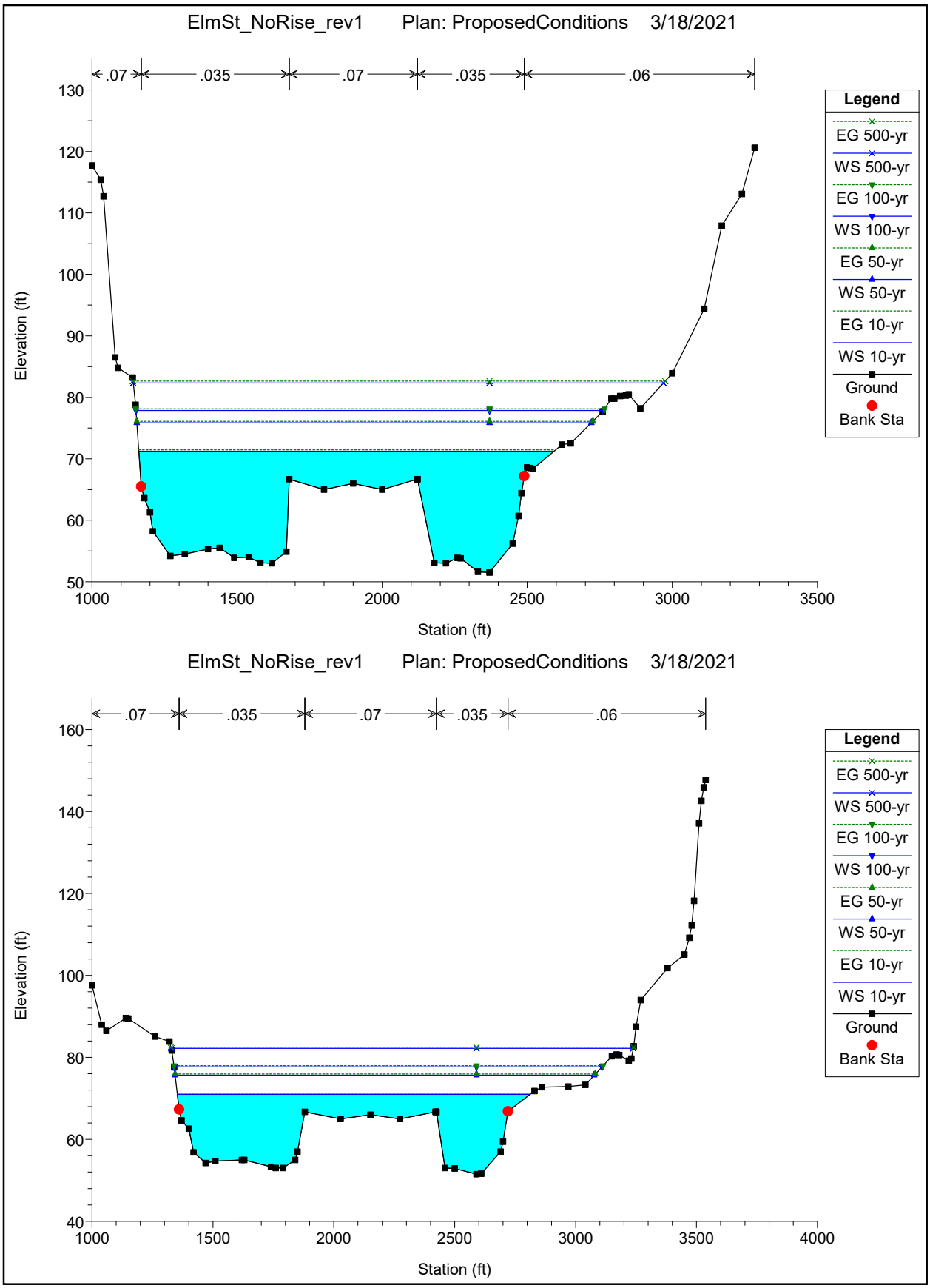

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.08
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

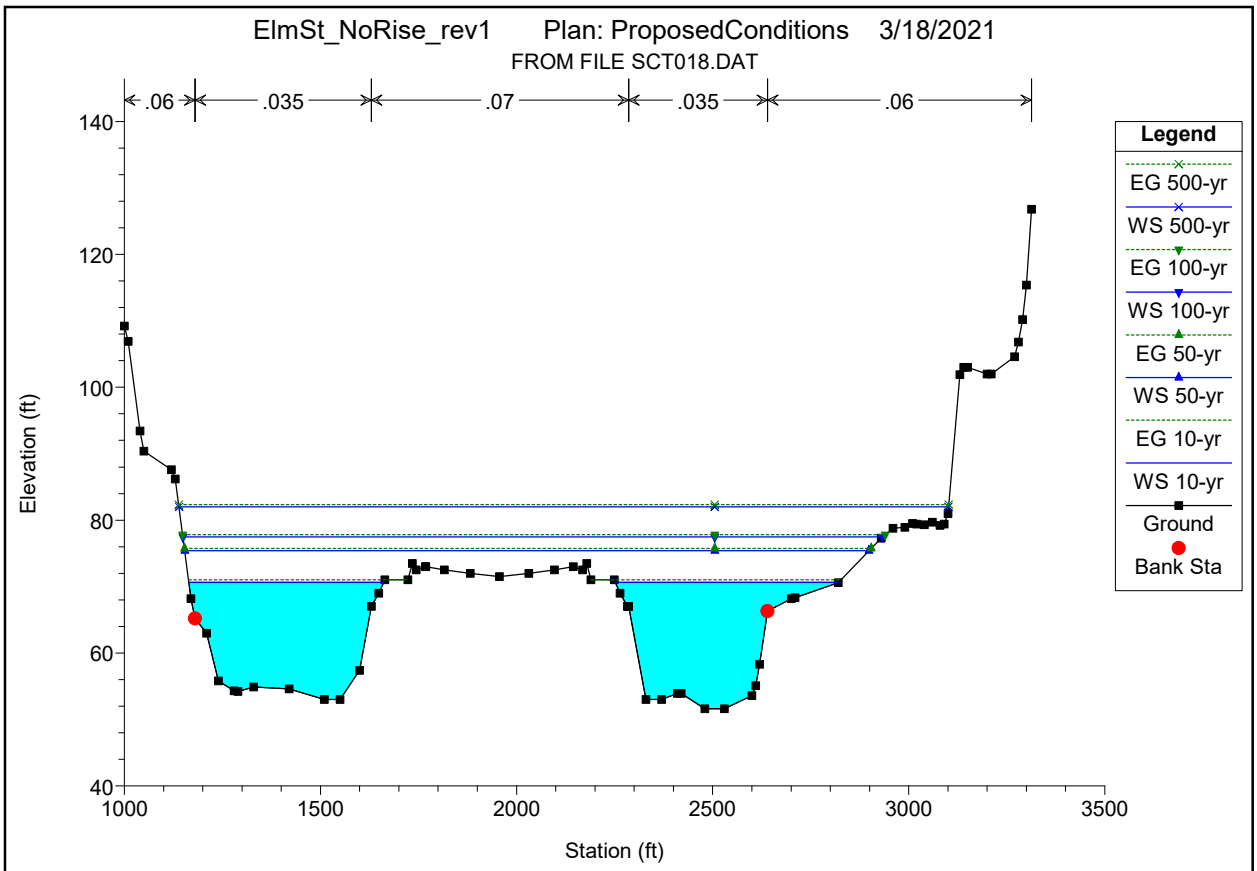

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
FROM FILE SCT019.DAT
.07
.032
.08
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

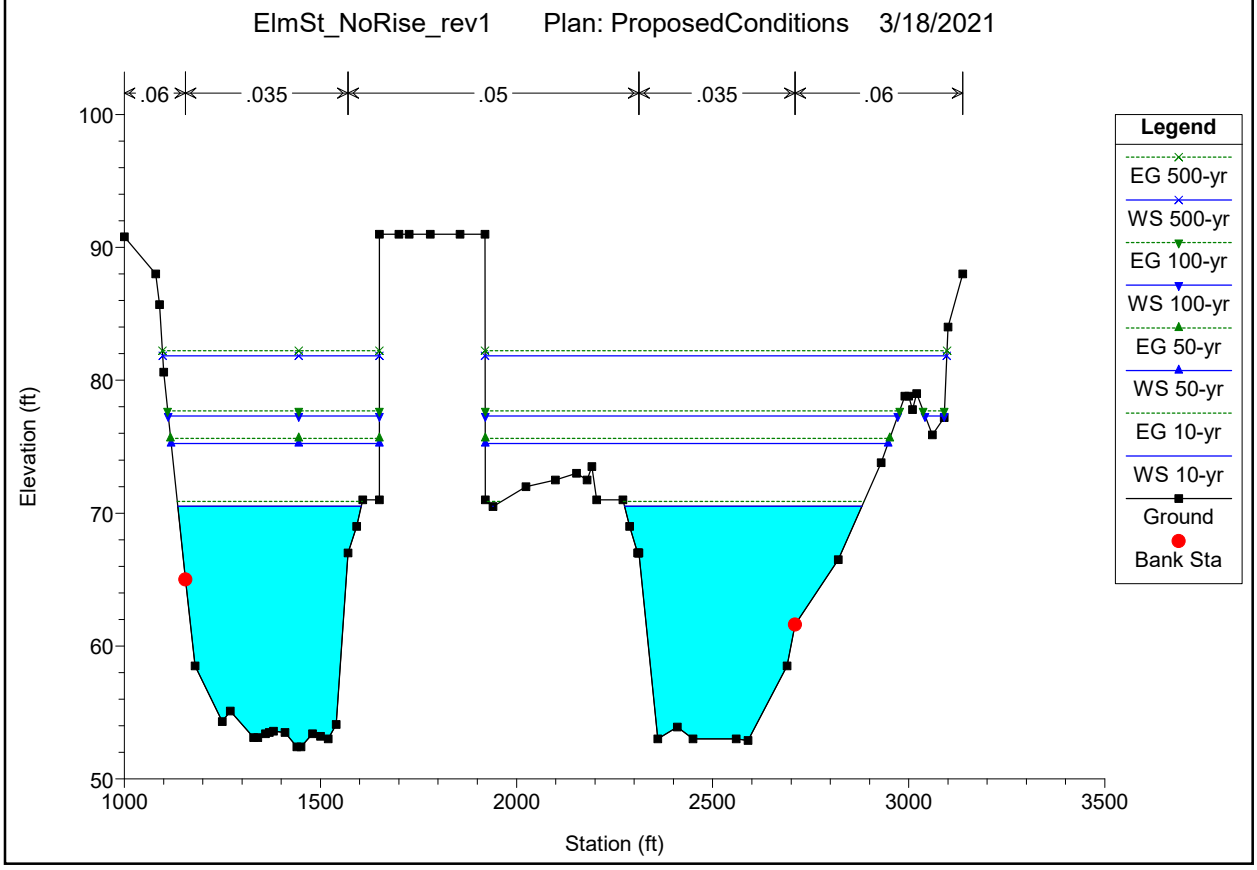

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

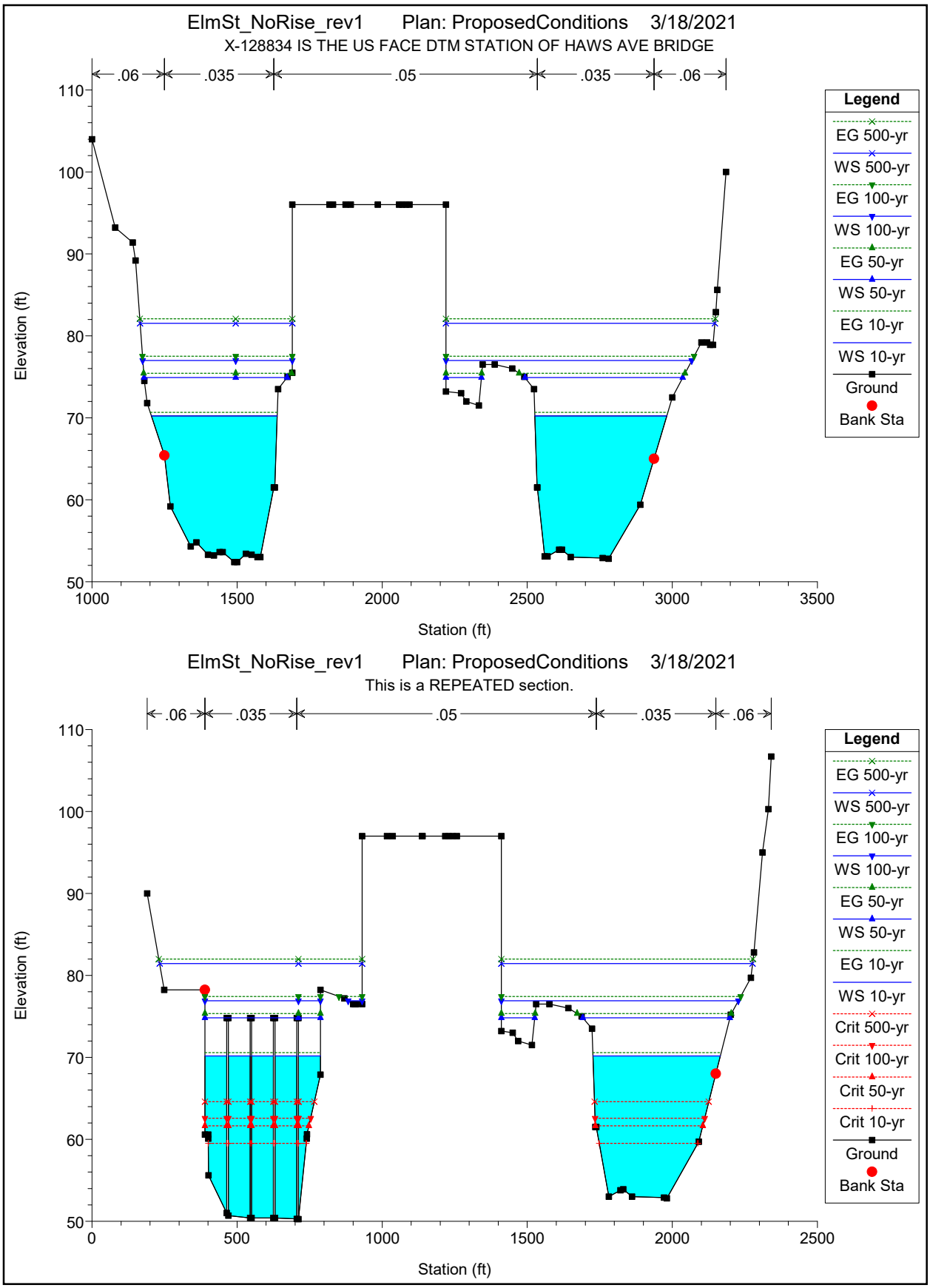

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

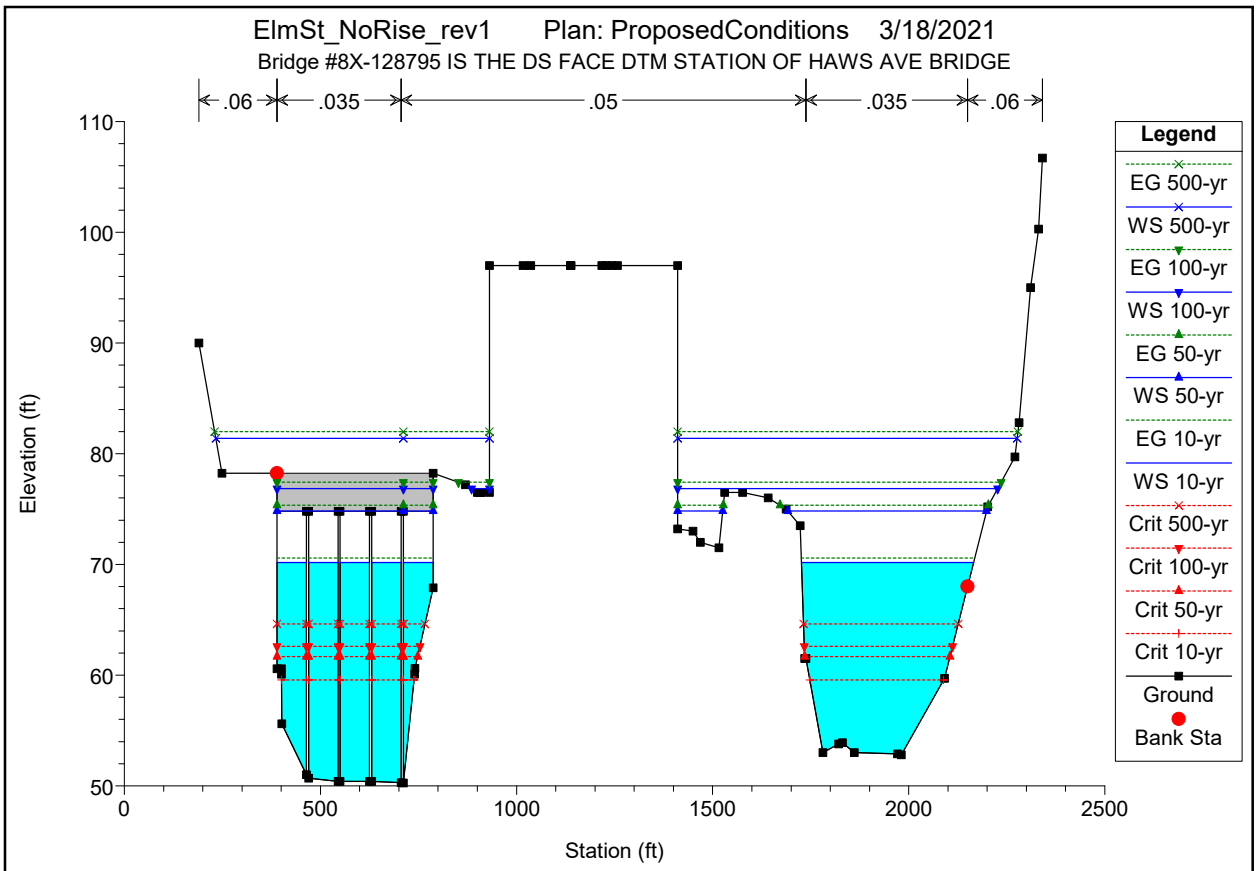

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.032
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

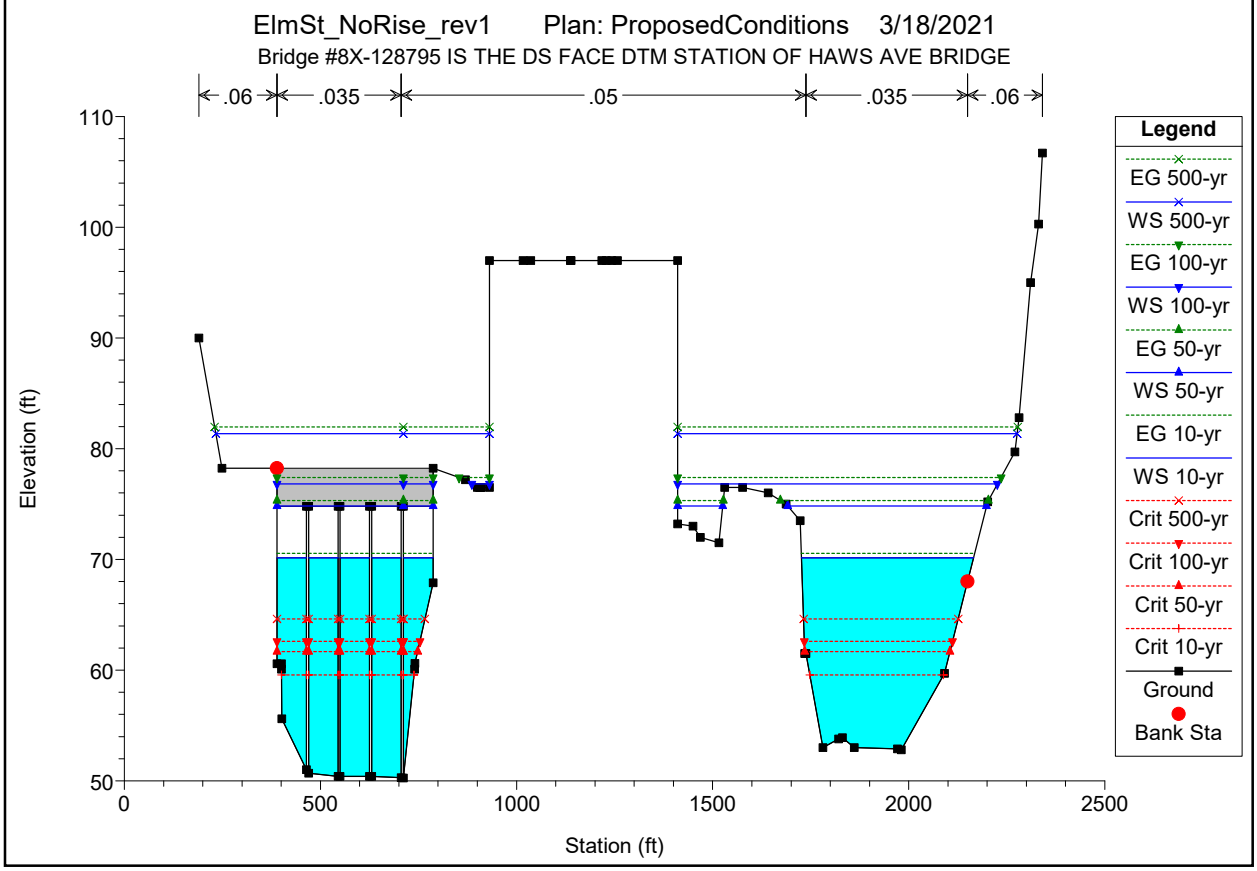

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.035
.07
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.035
.07
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

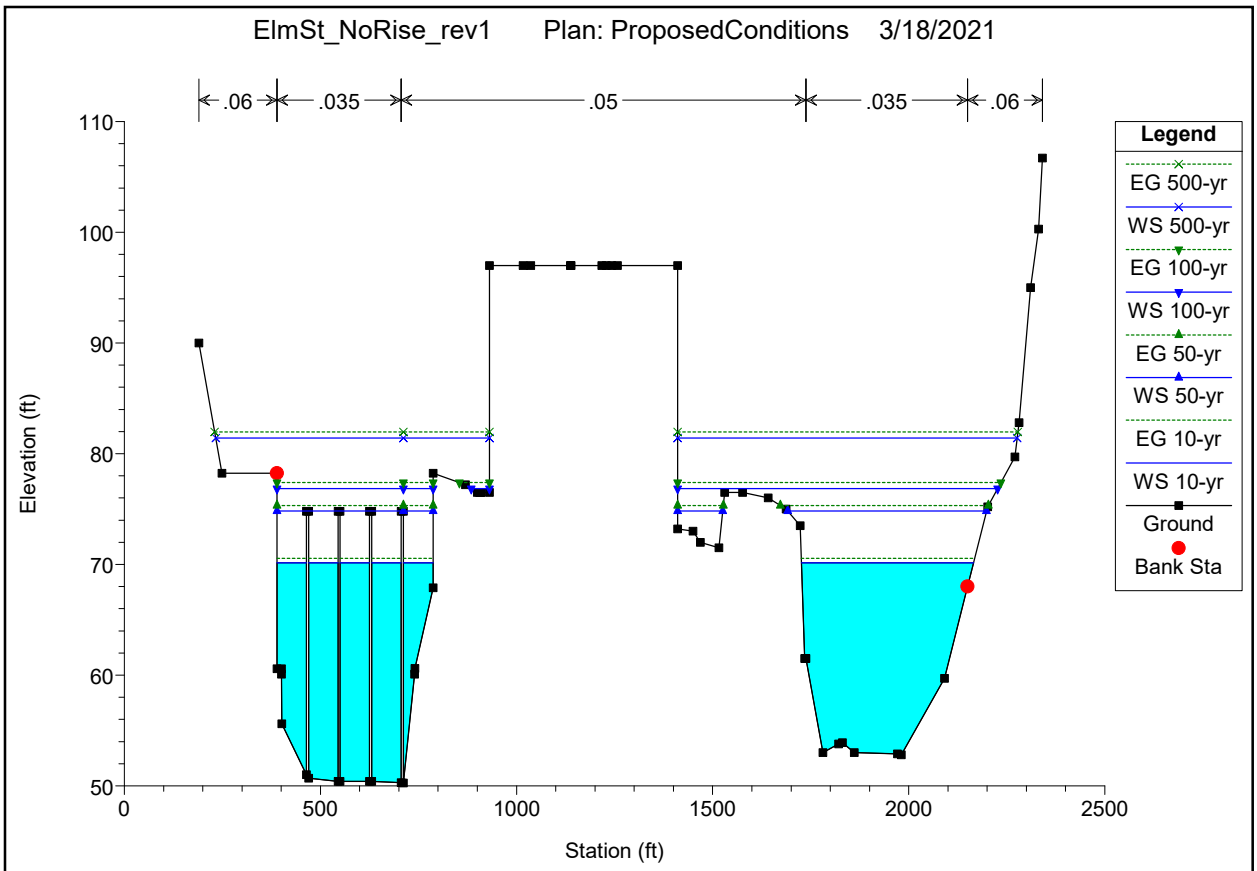

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
FROM FILE SCT018.DAT
.06
.035
.07
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

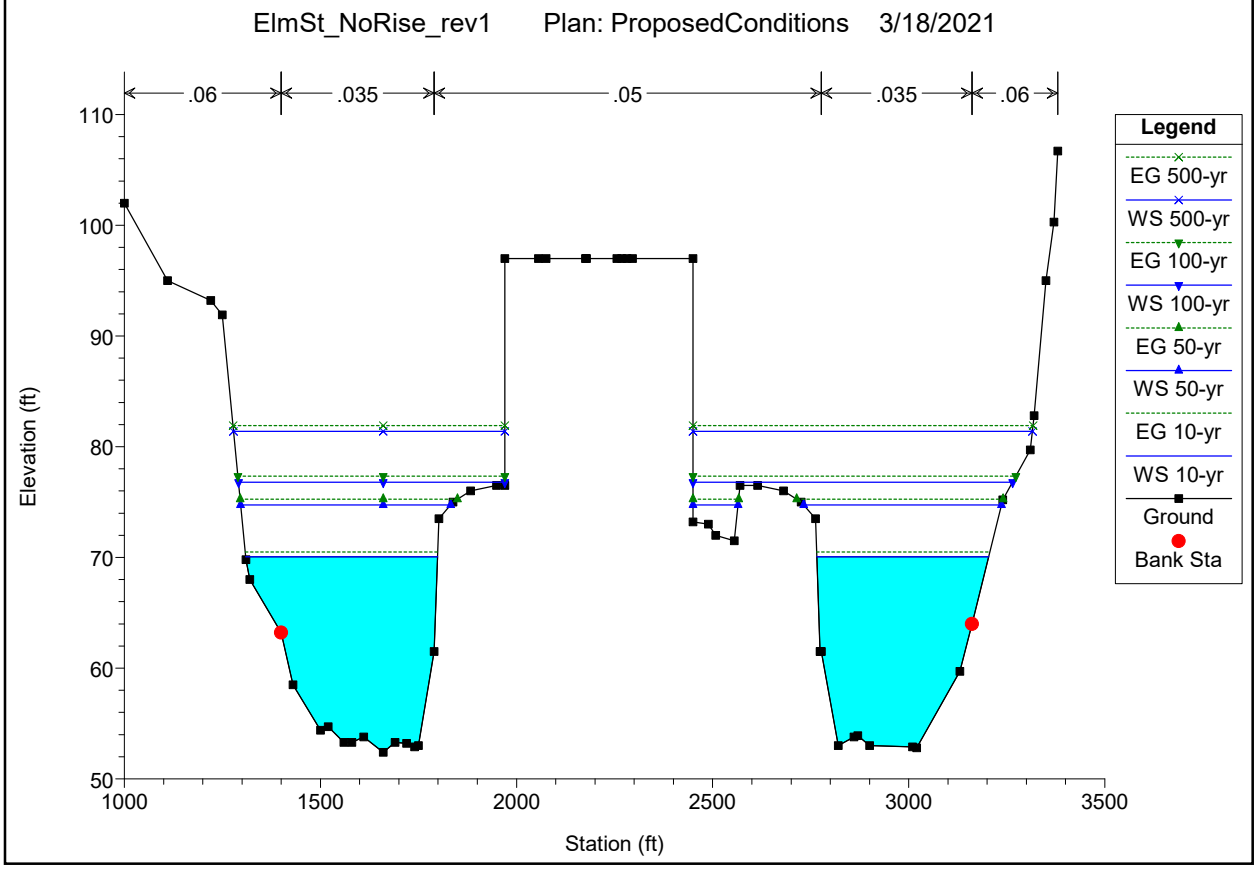

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.05
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

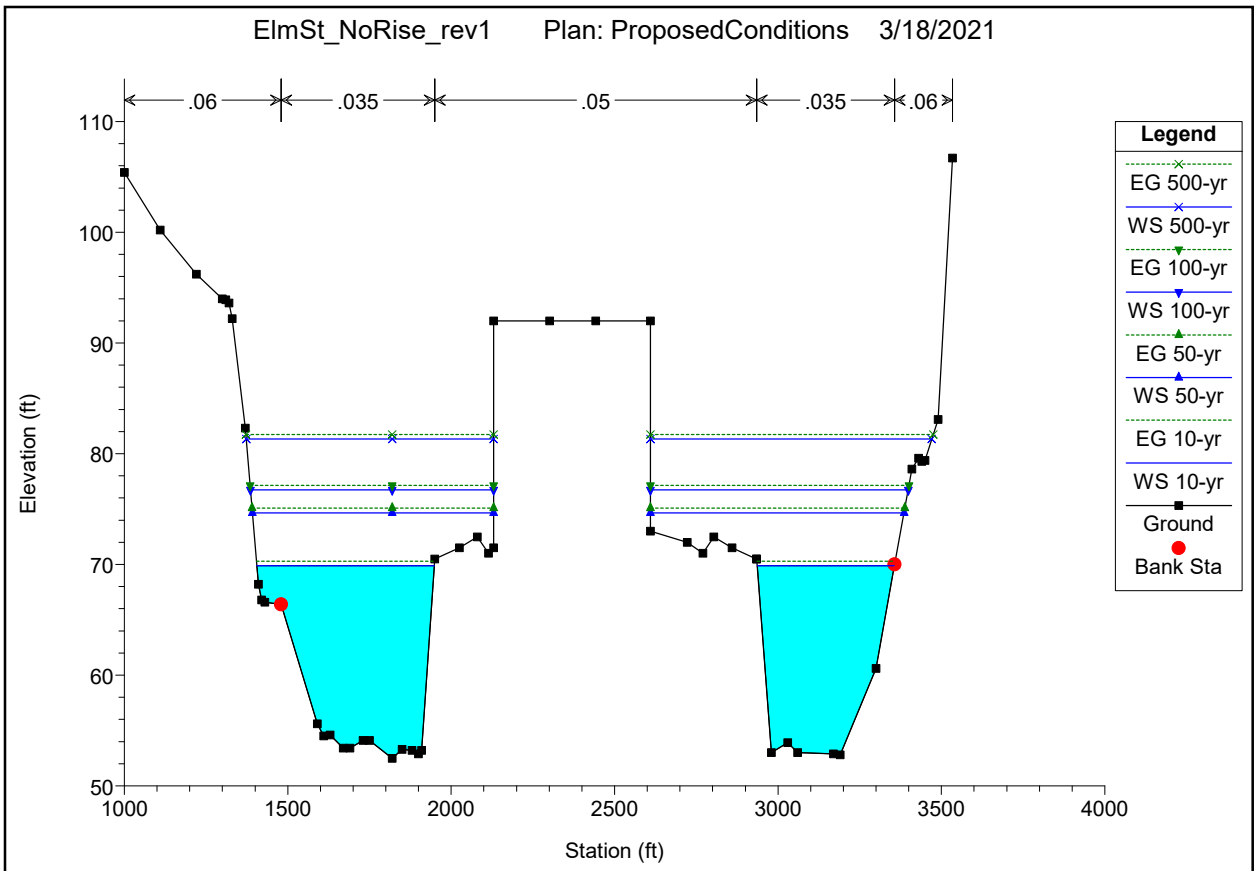

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-128834 IS THE US FACE DTM STATION OF HAWS AVE BRIDGE
.06
.035
.05
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.06
.035
.05
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

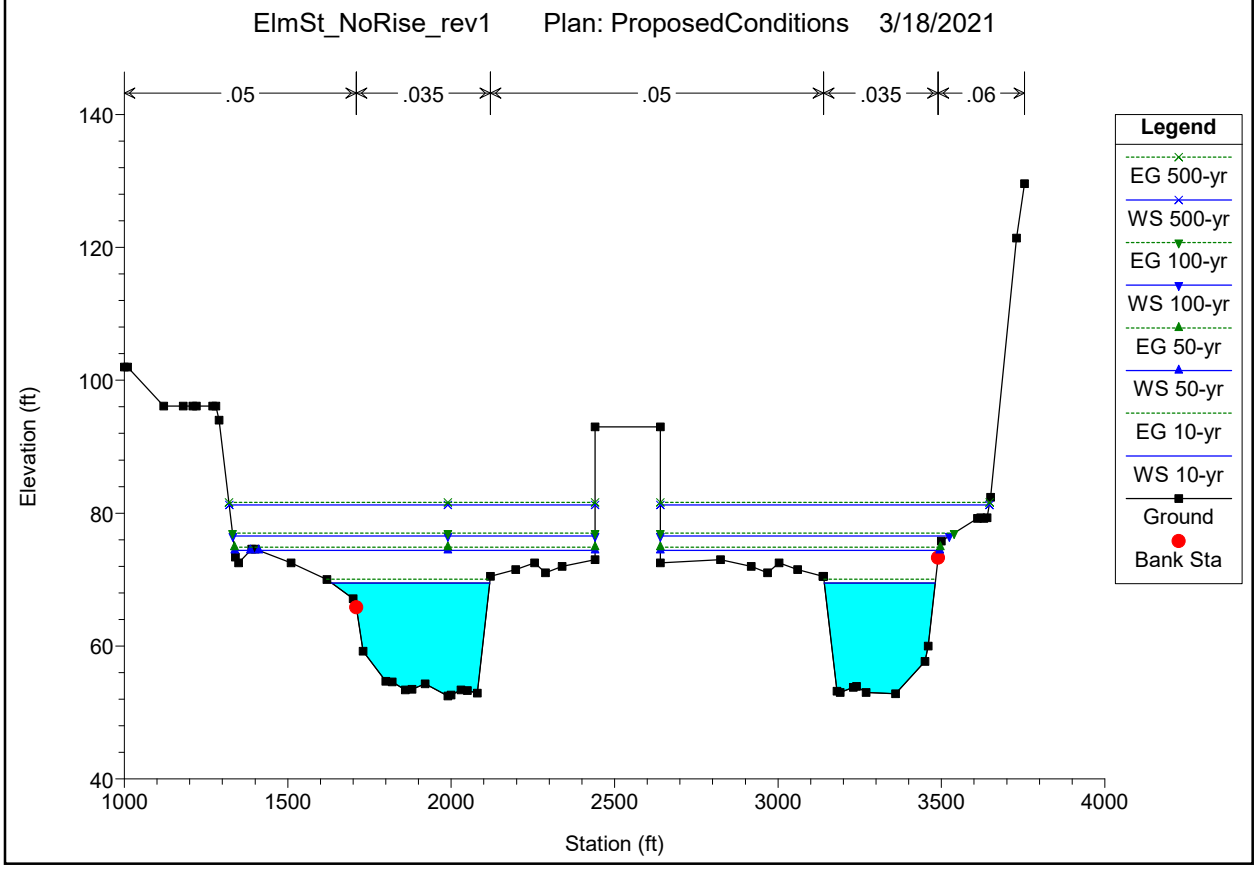

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #8X-128795 IS THE DS FACE DTM STATION OF HAWS AVE BRIDGE
.06
.035
.05
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

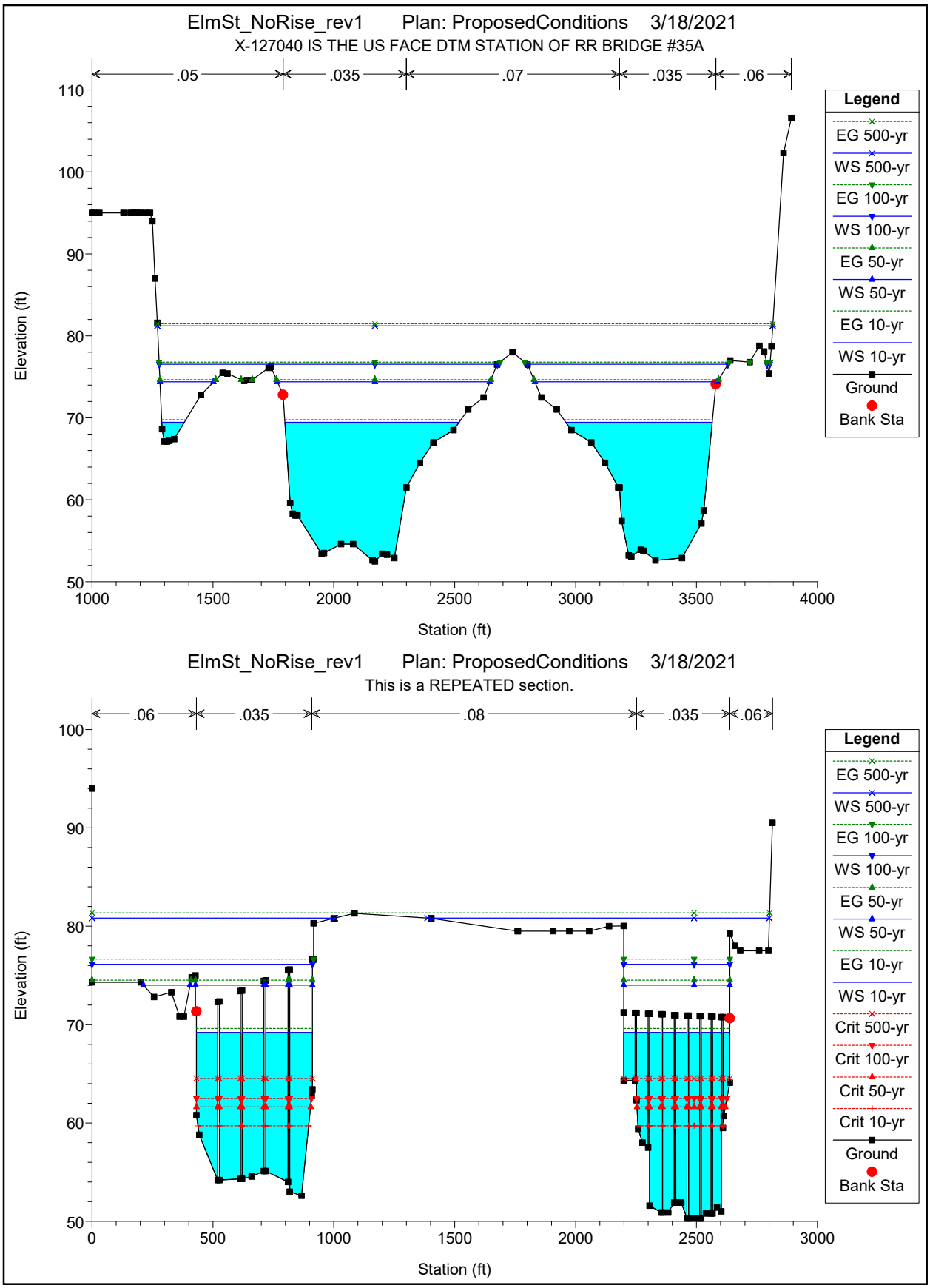

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #8X-128795 IS THE DS FACE DTM STATION OF HAWS AVE BRIDGE
.06
.035
.05
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

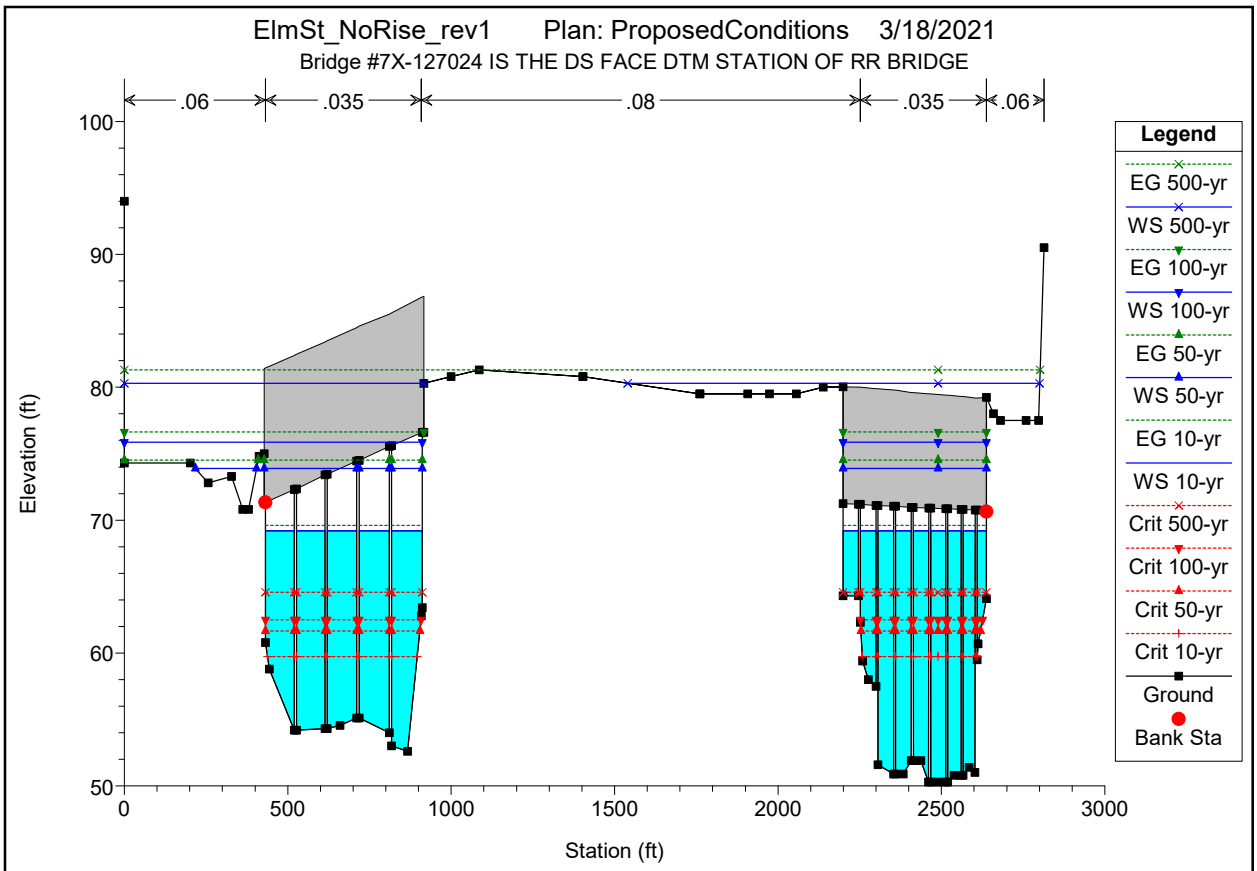

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.05
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

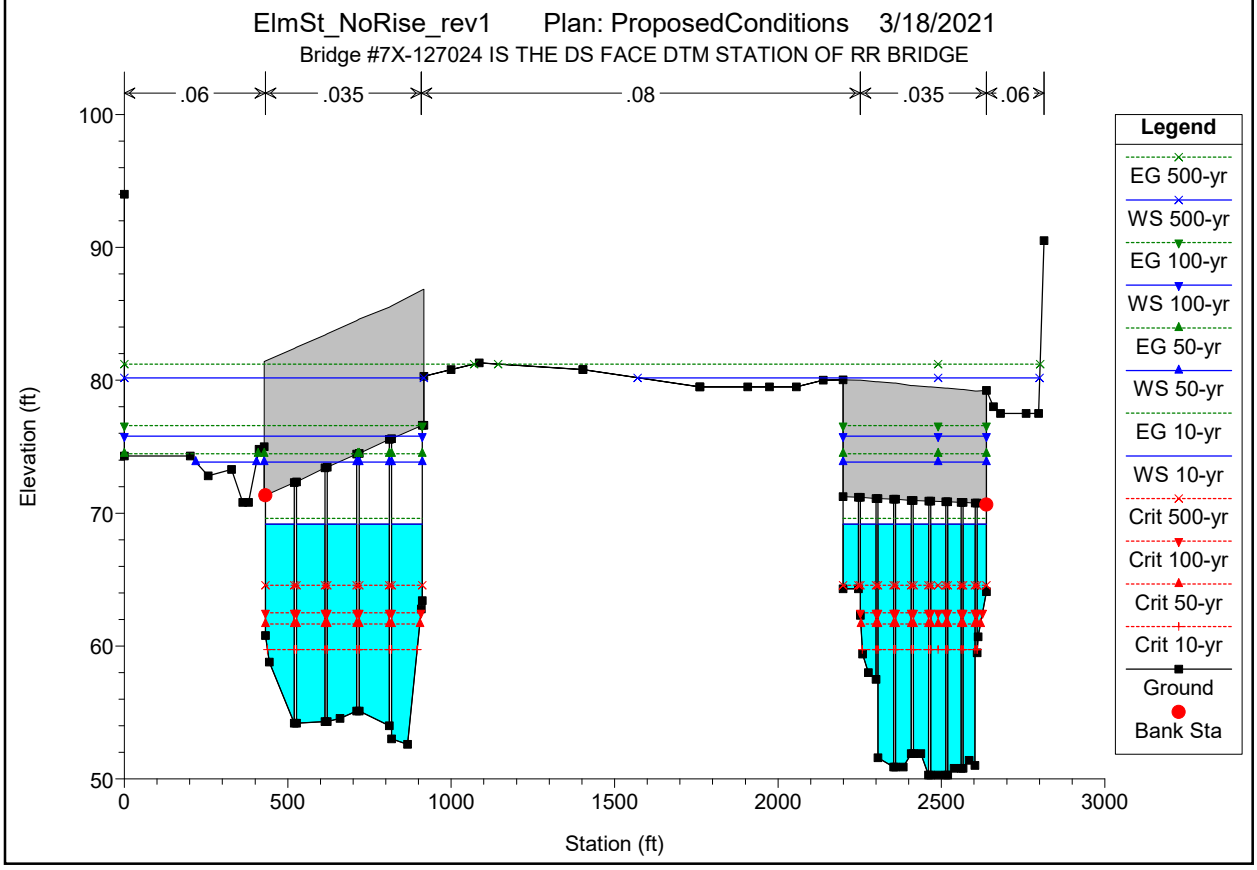

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.05
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

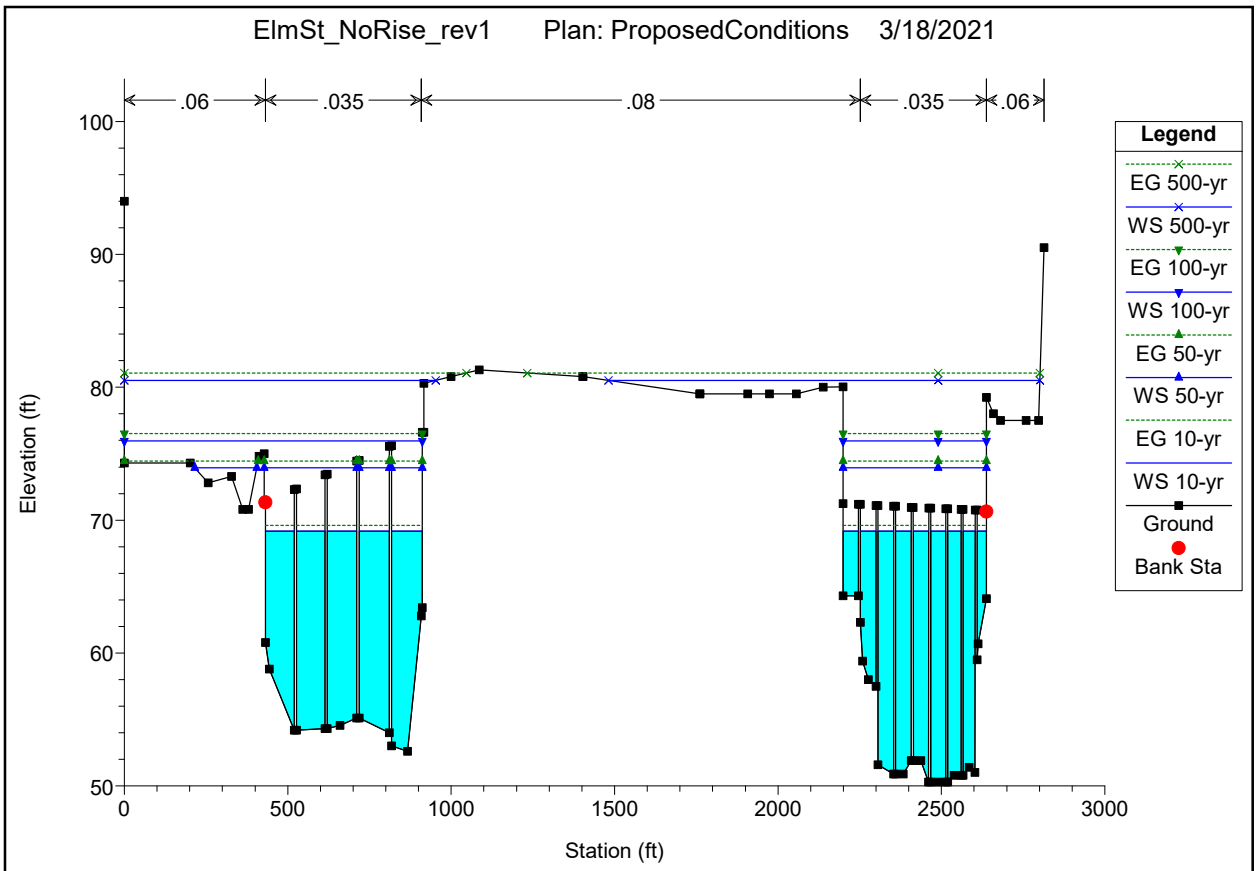

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.05
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

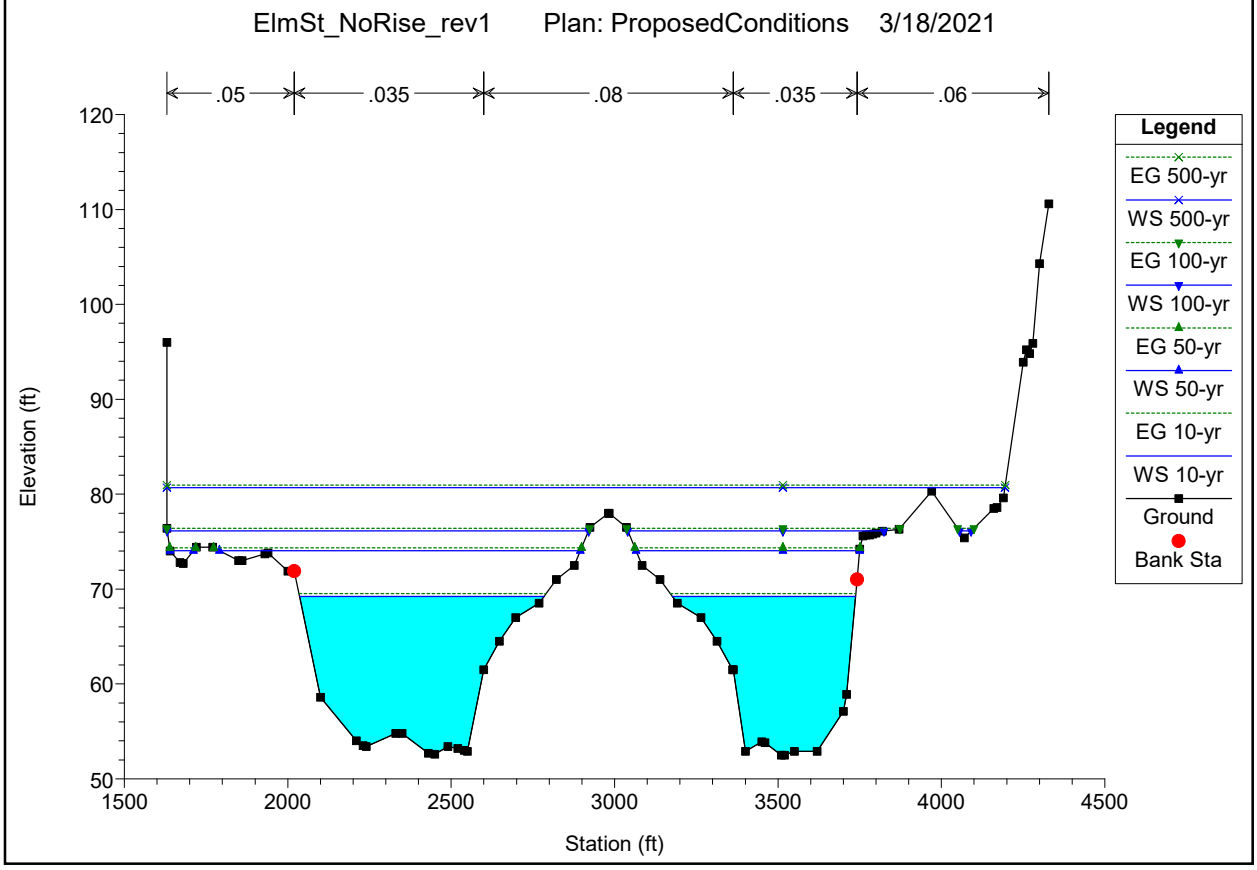

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.035
.05
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

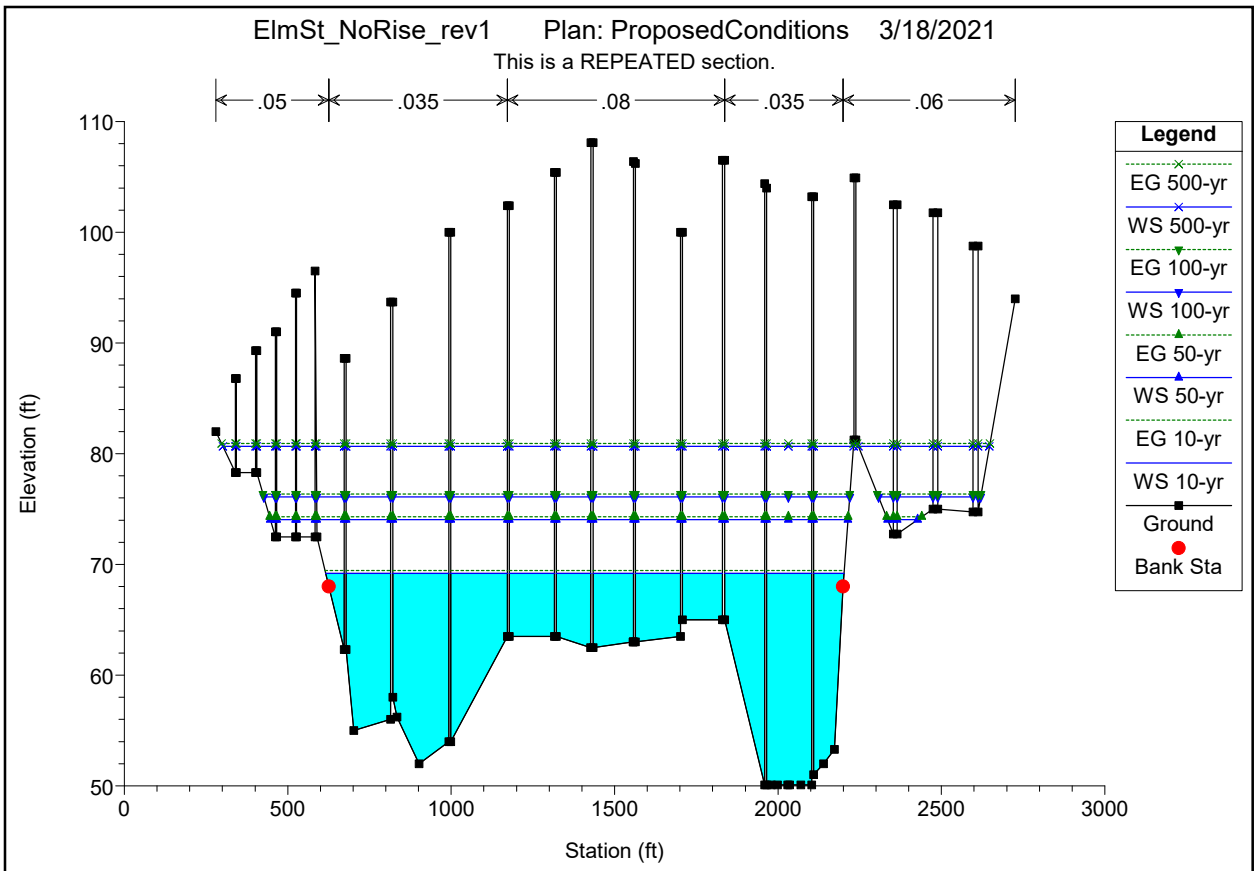

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-127040 IS THE US FACE DTM STATION OF RR BRIDGE #35A
.05
.035
.07
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.06
.035
.08
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

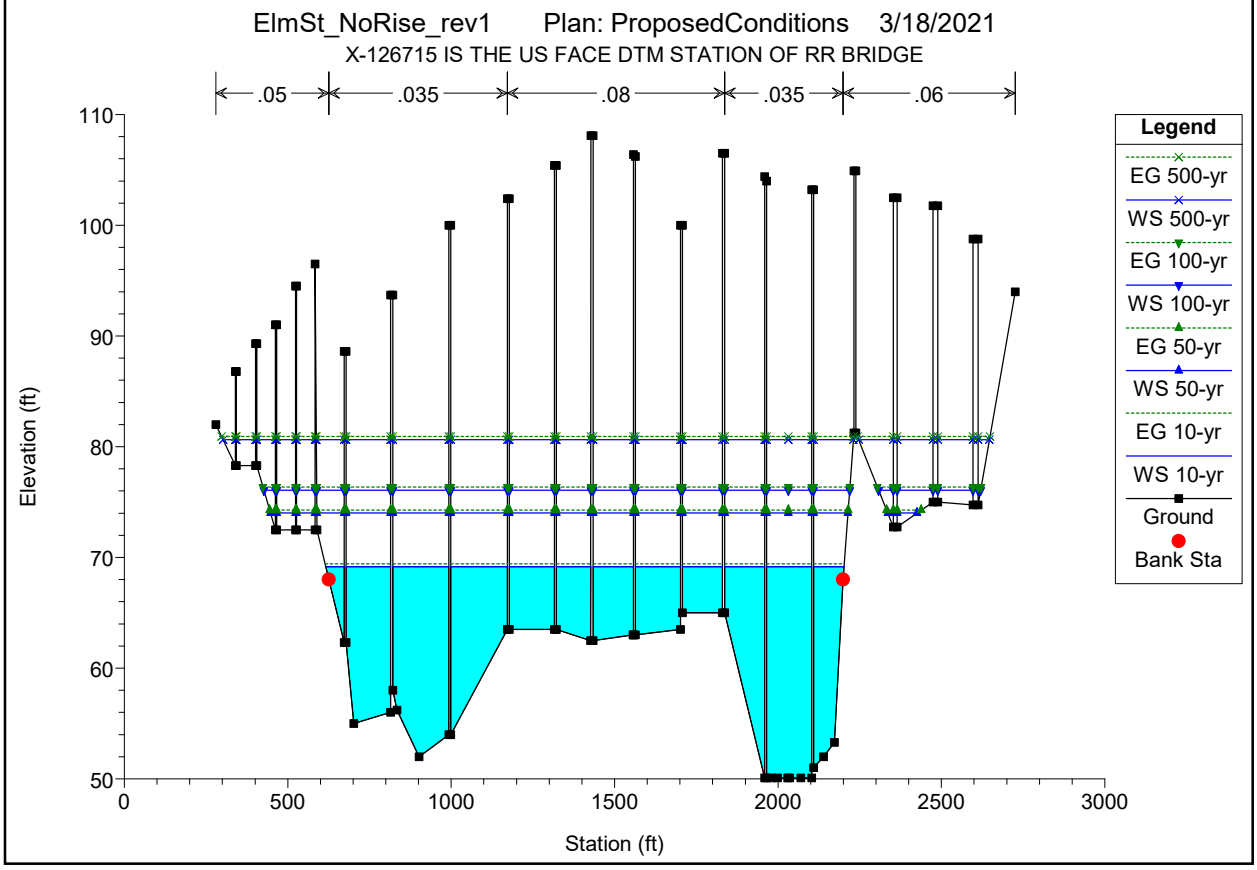

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #7X-127024 IS THE DS FACE DTM STATION OF RR BRIDGE
.06
.035
.08
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

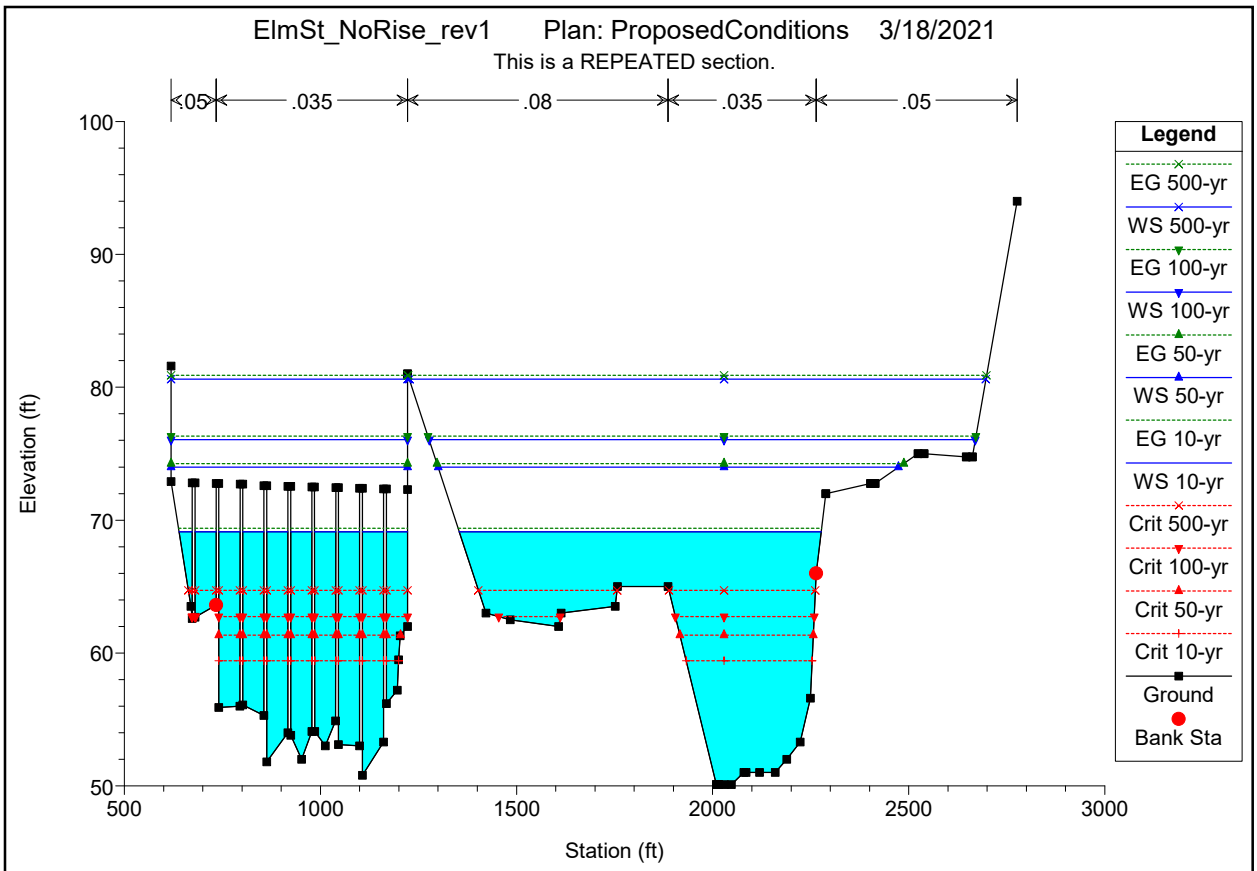

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #7X-127024 IS THE DS FACE DTM STATION OF RR BRIDGE
.06
.035
.08
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

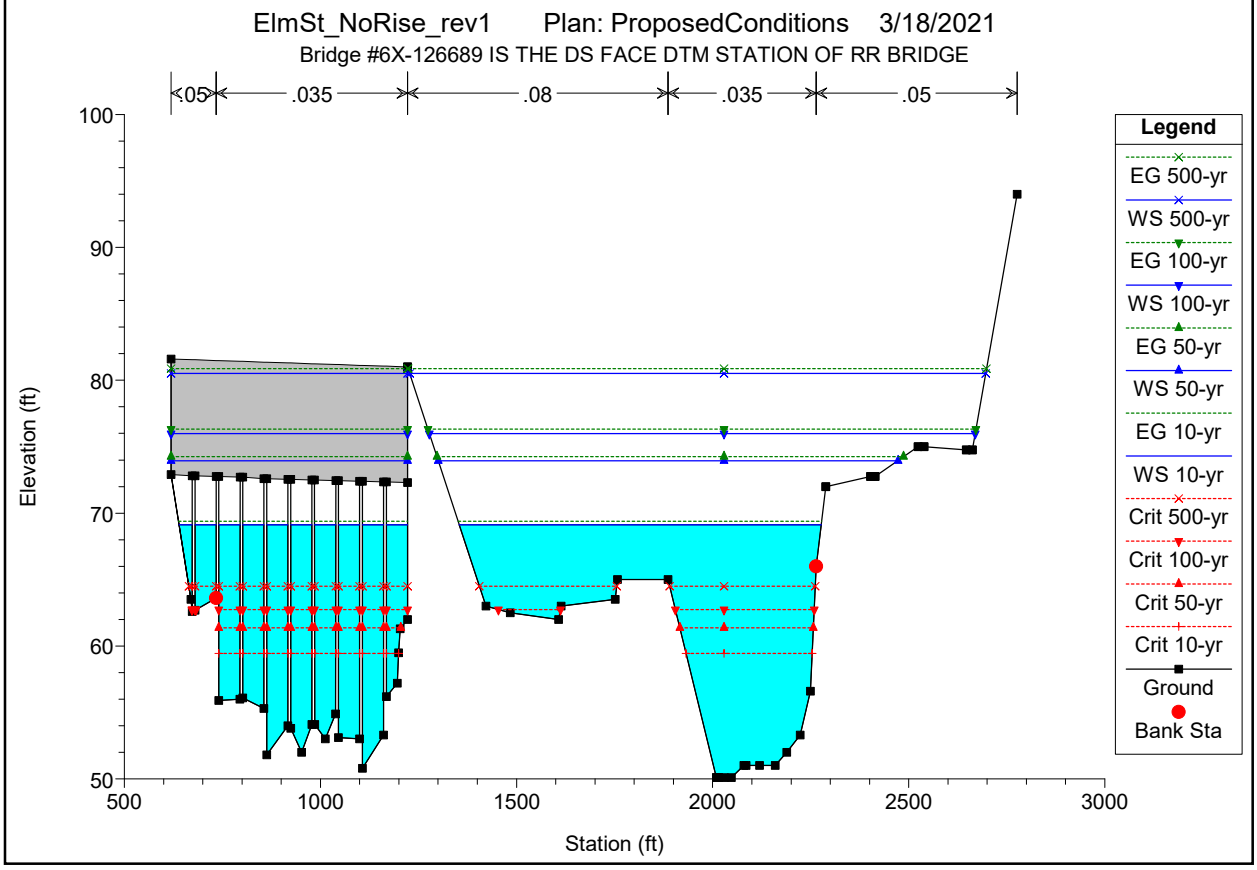

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.08
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

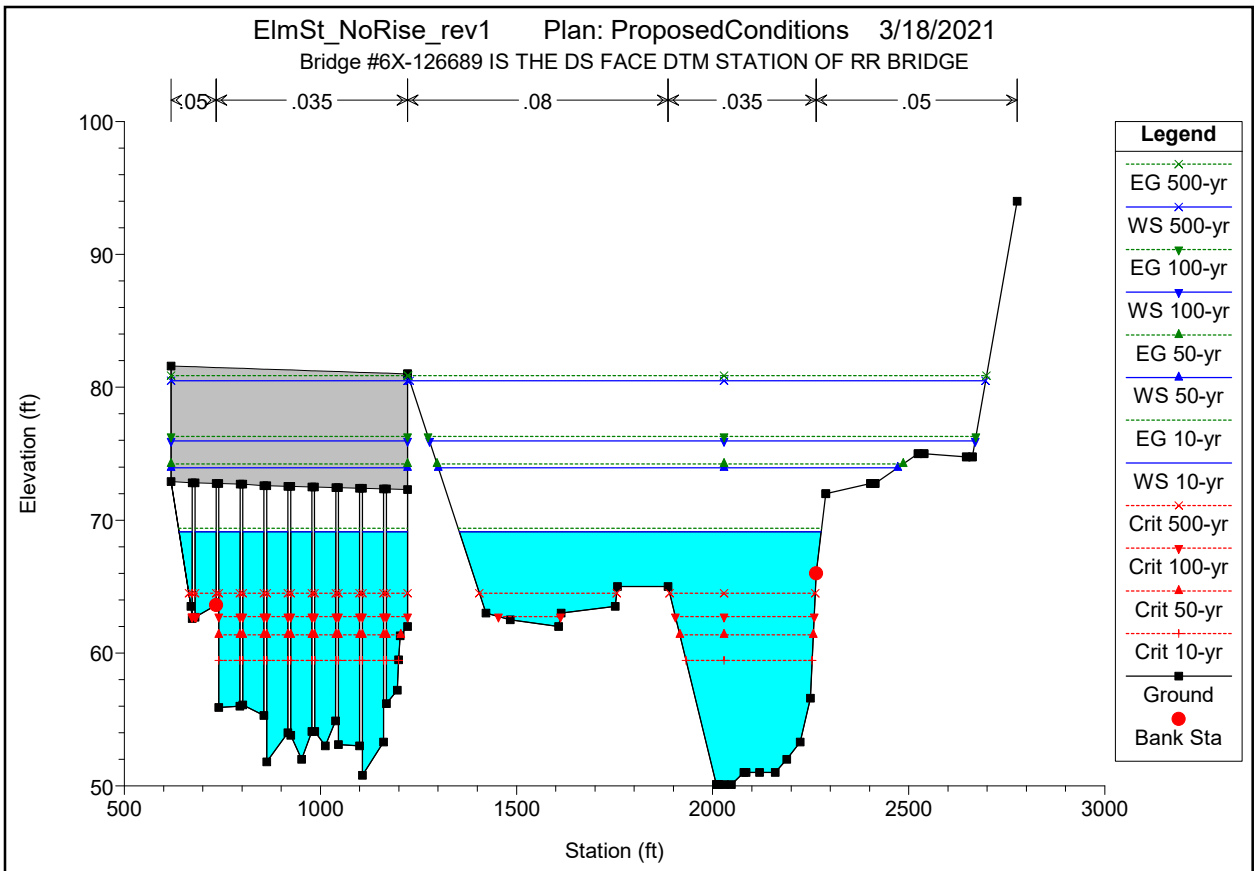

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.035
.08
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

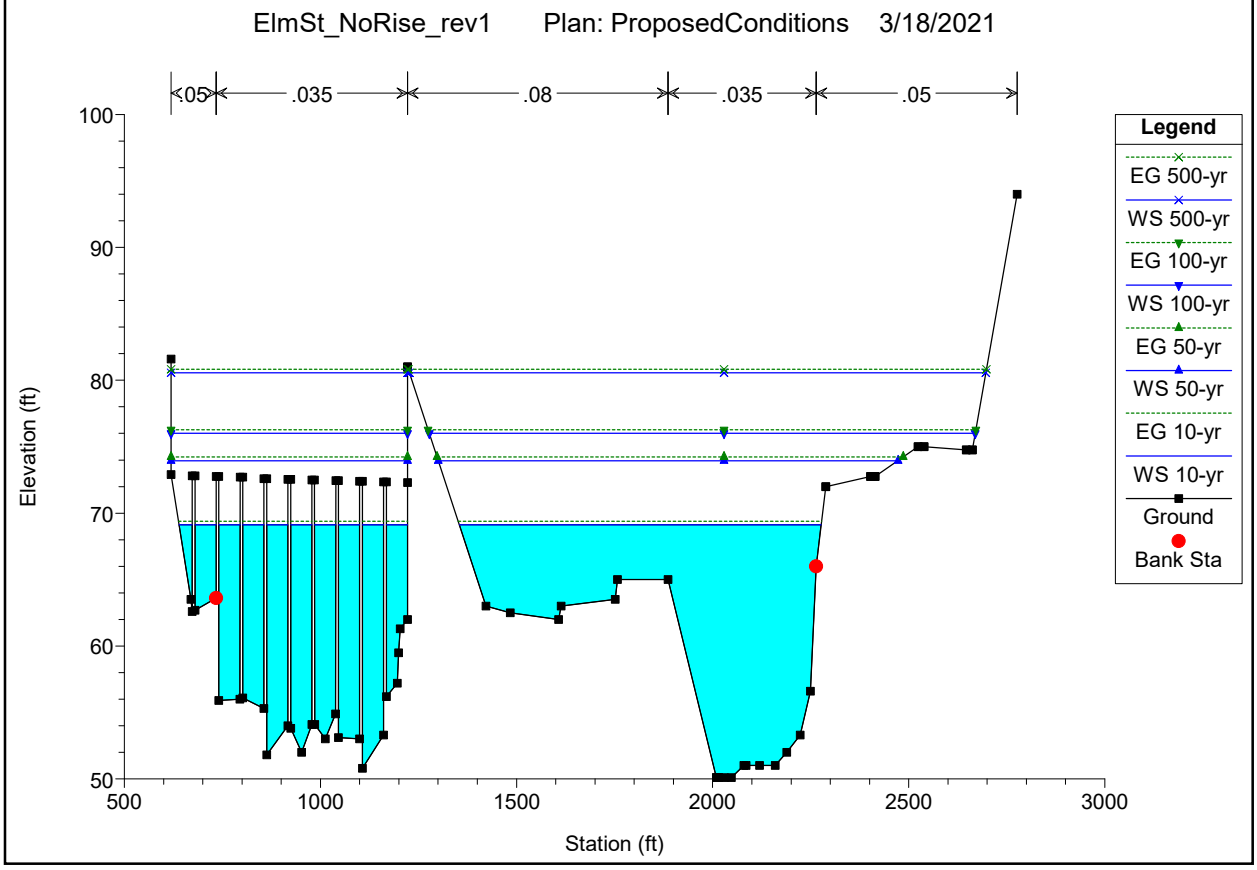

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.05
.035
.08
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

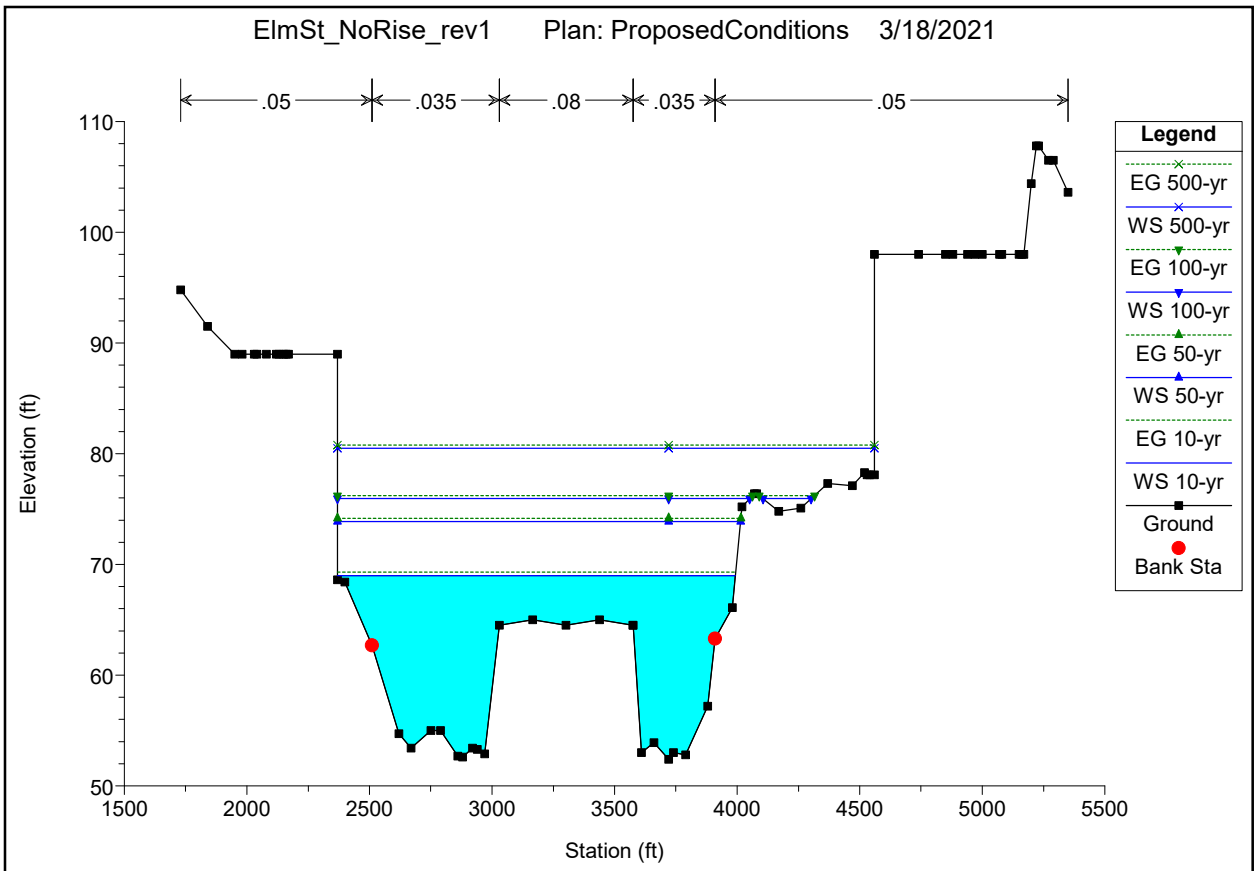

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-126715 IS THE US FACE DTM STATION OF RR BRIDGE
.05
.035
.08
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

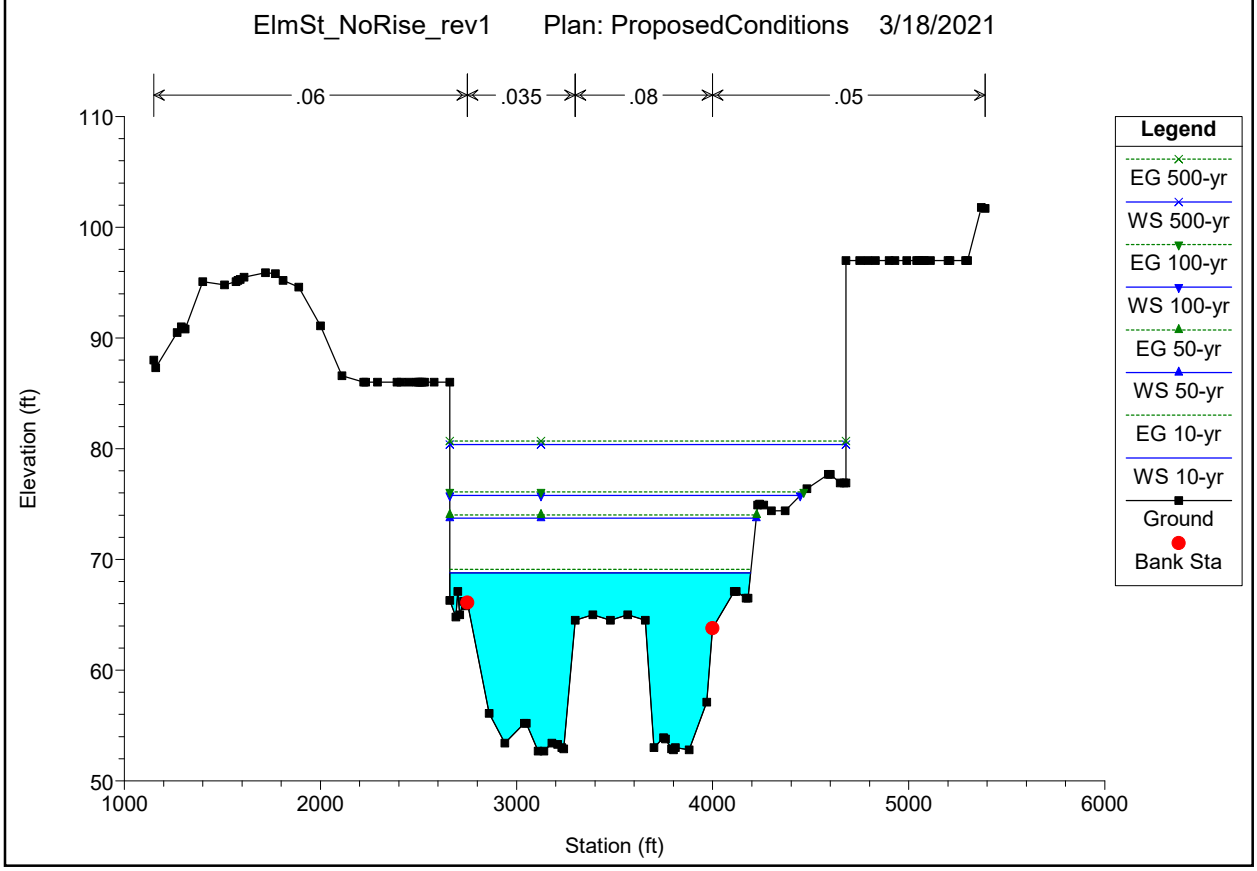

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.05
.035
.08
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

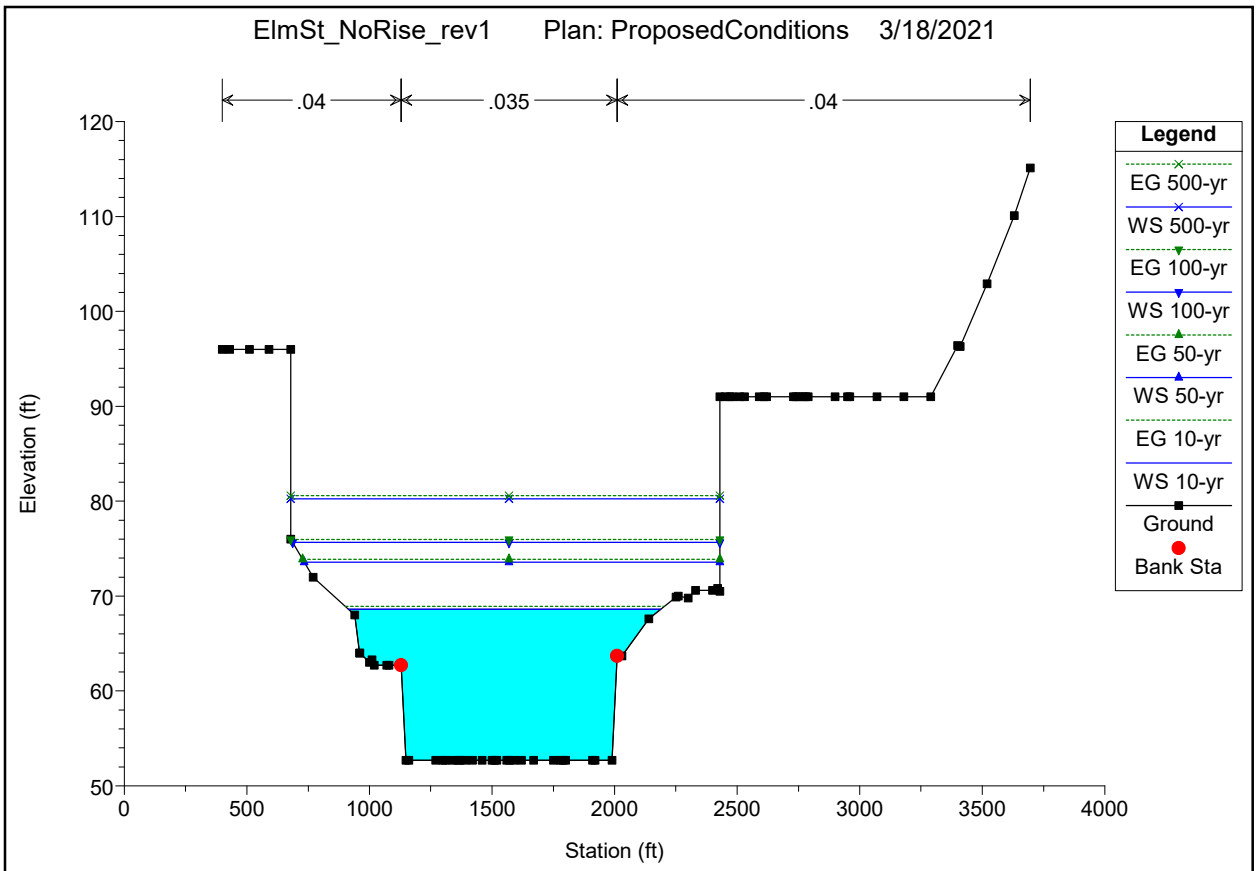

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #6X-126689 IS THE DS FACE DTM STATION OF RR BRIDGE
.05
.035
.08
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

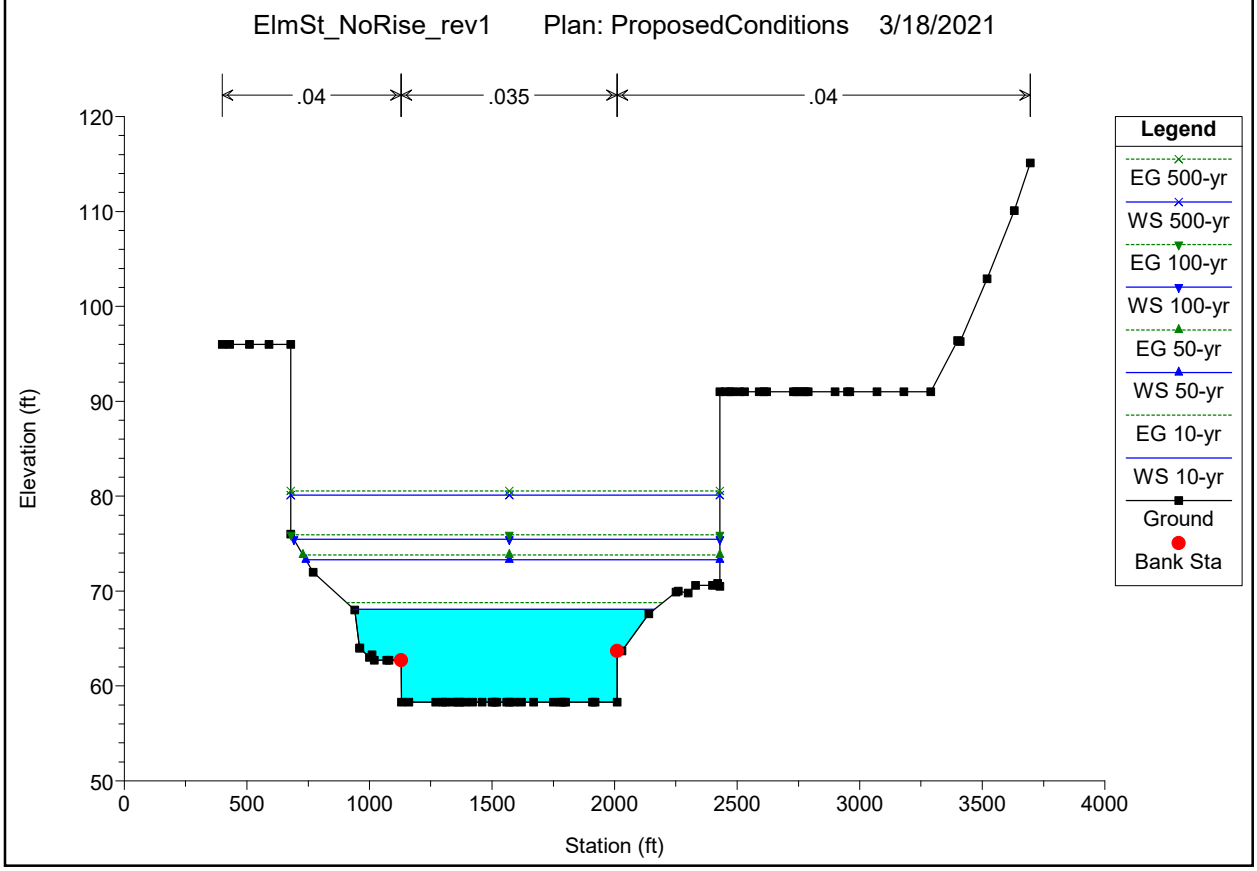

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #6X-126689 IS THE DS FACE DTM STATION OF RR BRIDGE
.05
.035
.08
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

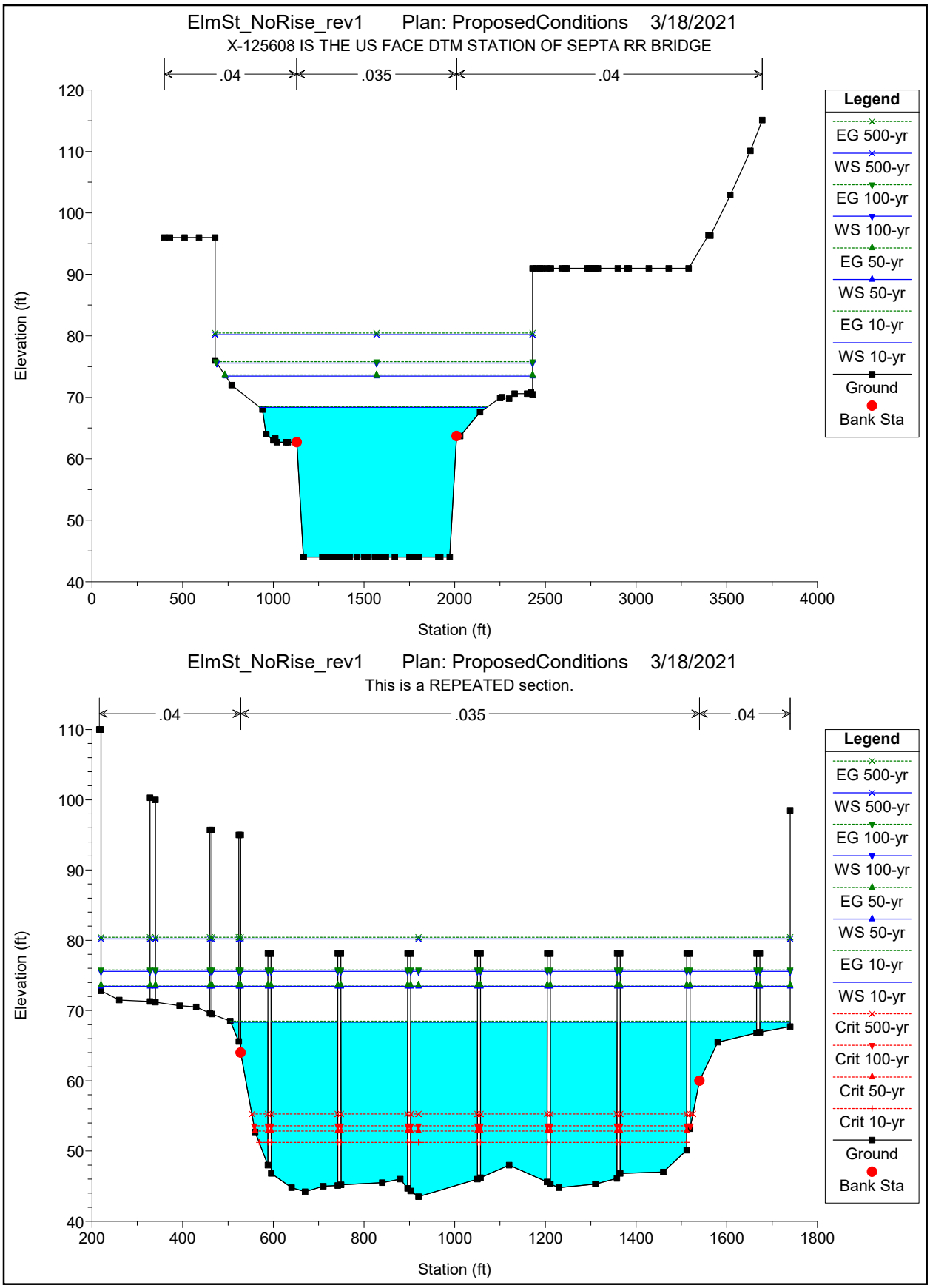

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.035
.08
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

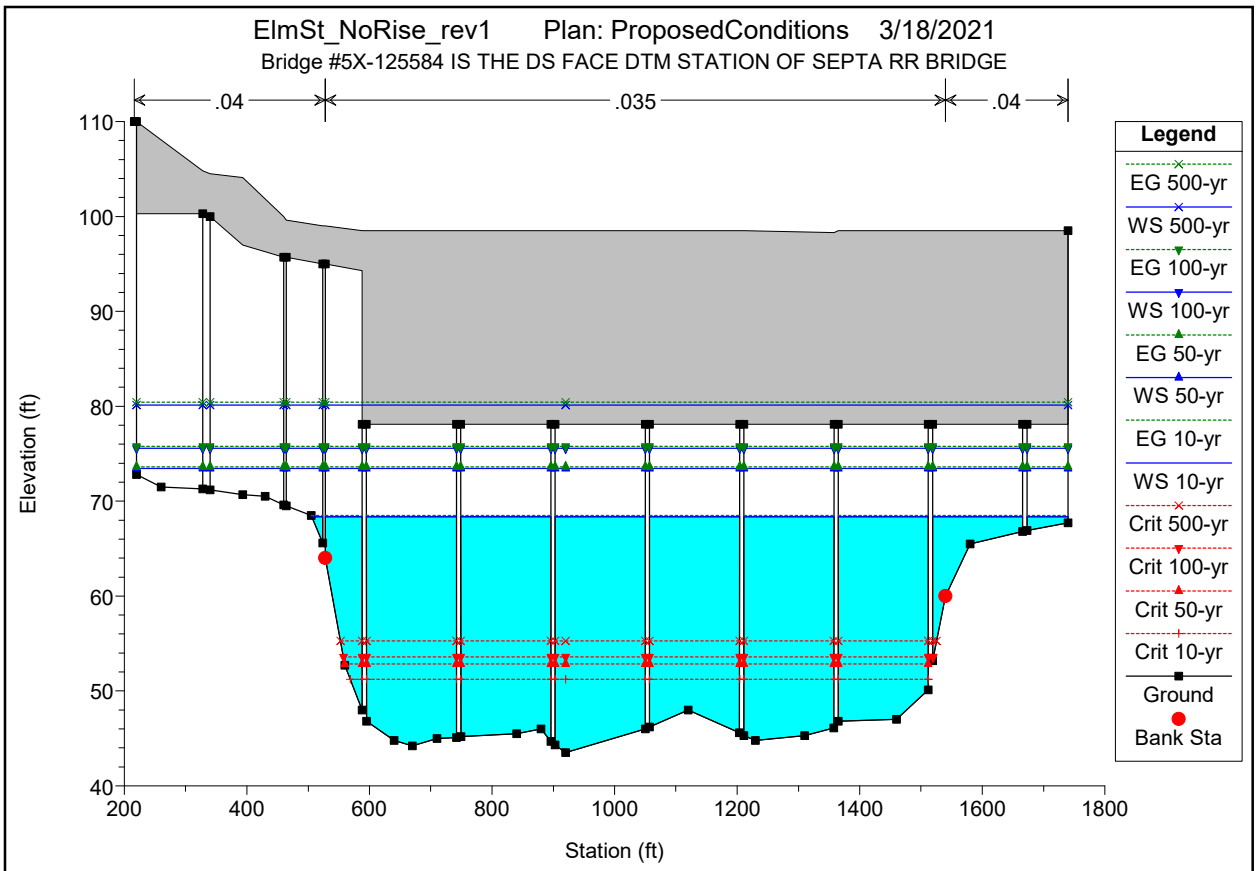

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.035
.08
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

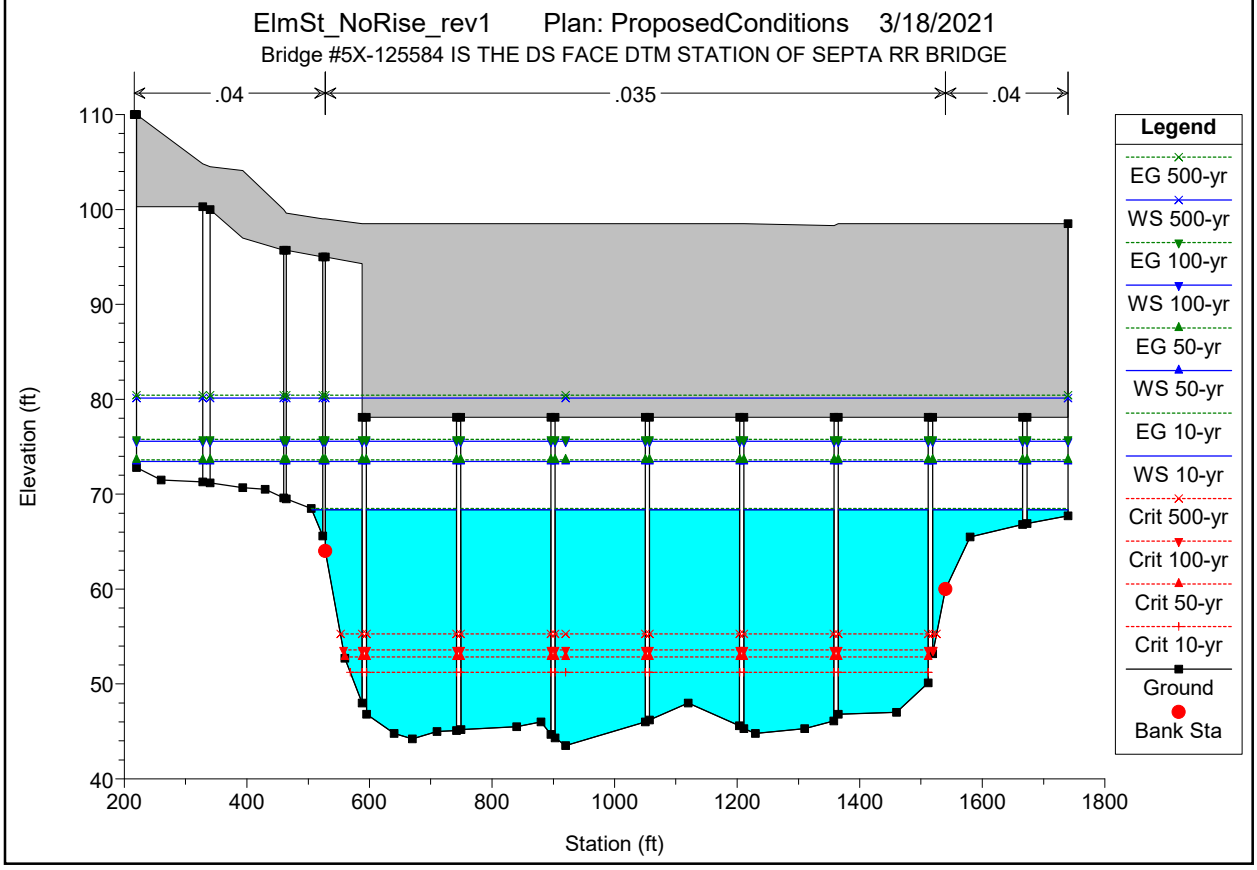

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.08
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

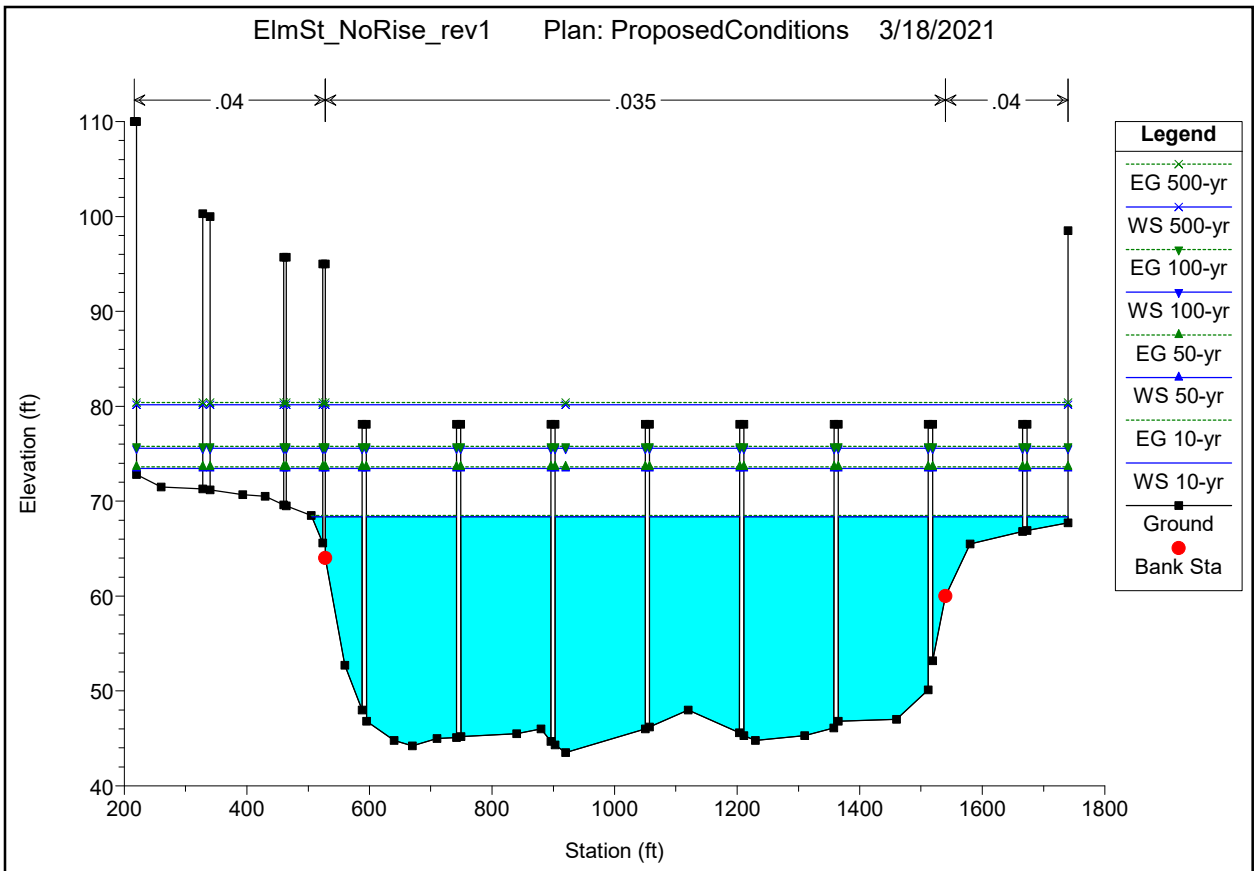

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

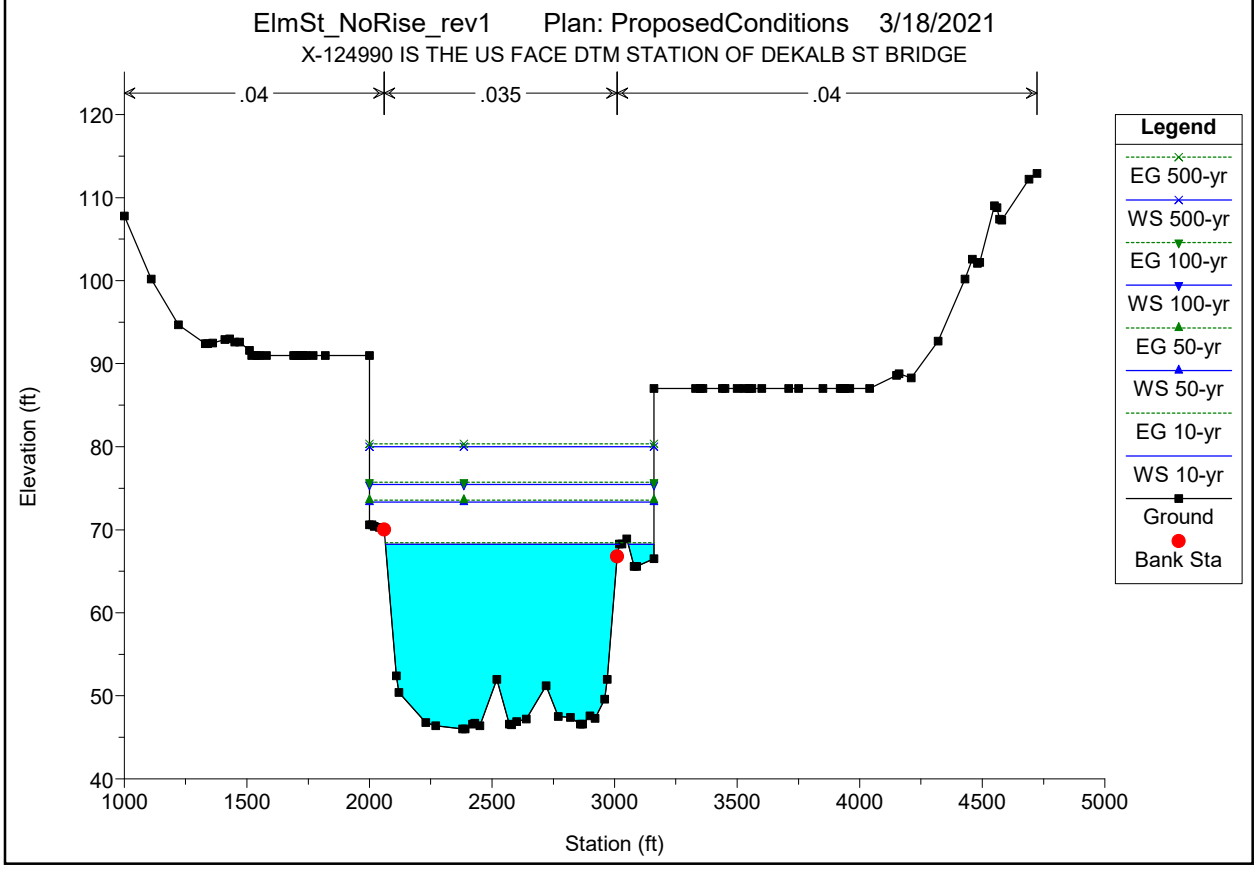

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

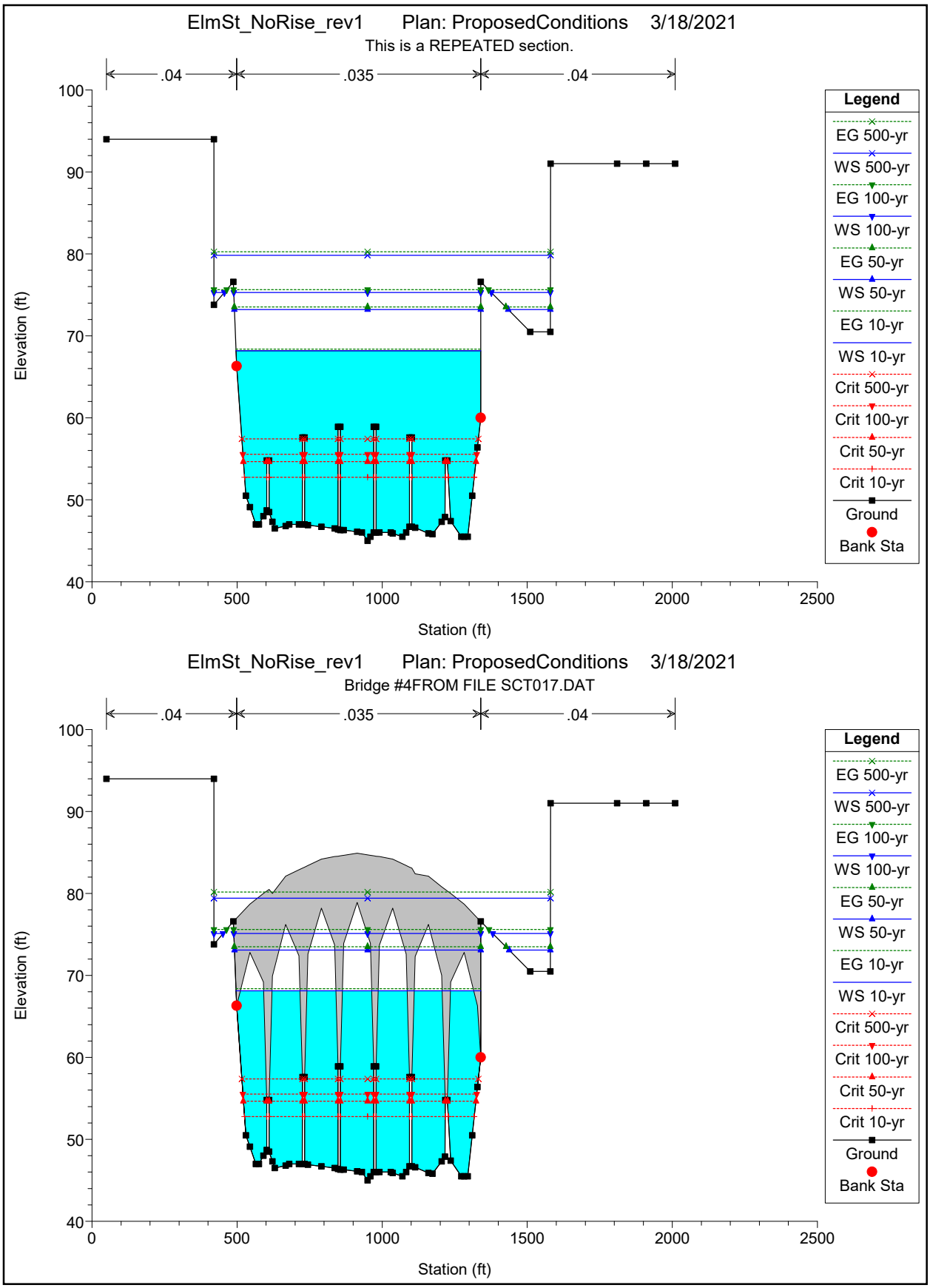

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-125608 IS THE US FACE DTM STATION OF SEPTA RR BRIDGE
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

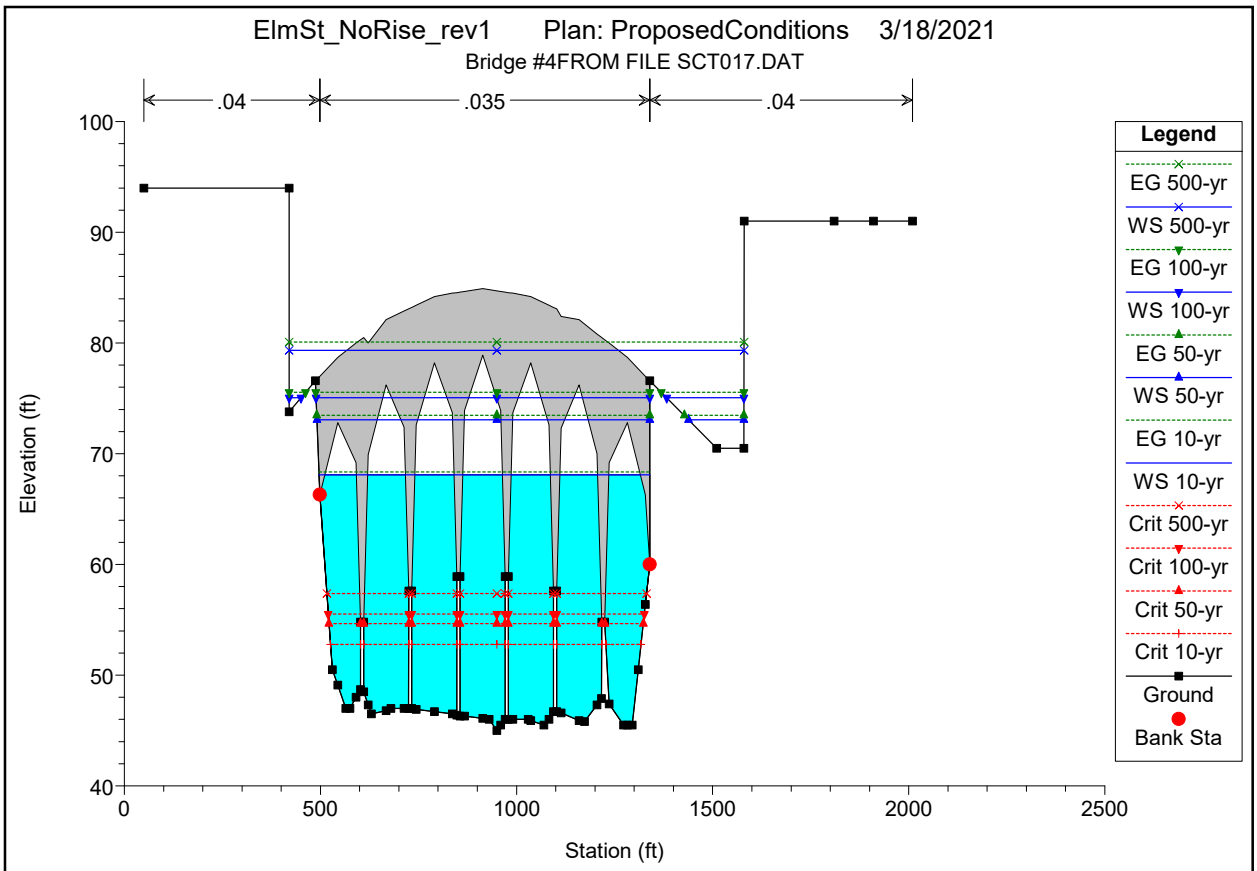

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #5X-125584 IS THE DS FACE DTM STATION OF SEPTA RR BRIDGE
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

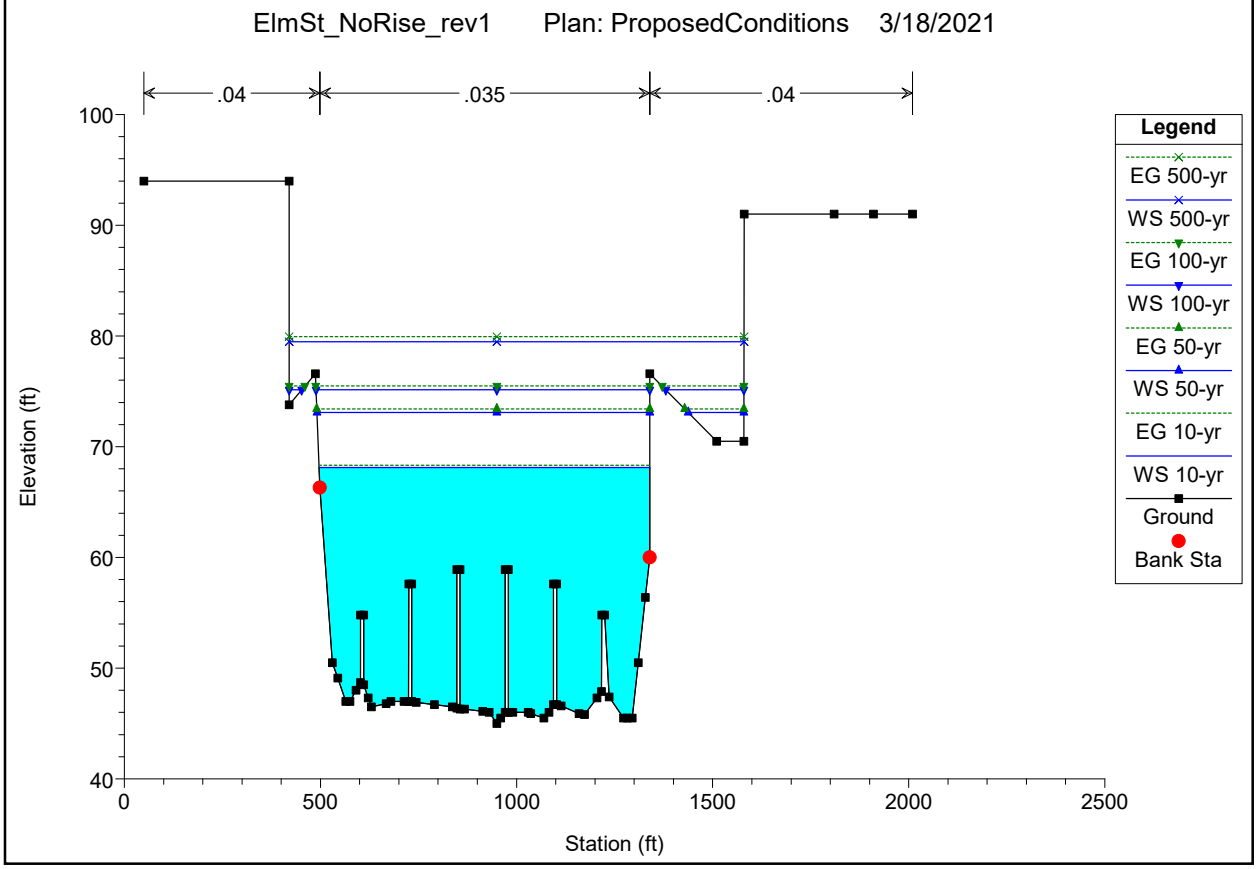

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #5X-125584 IS THE DS FACE DTM STATION OF SEPTA RR BRIDGE
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

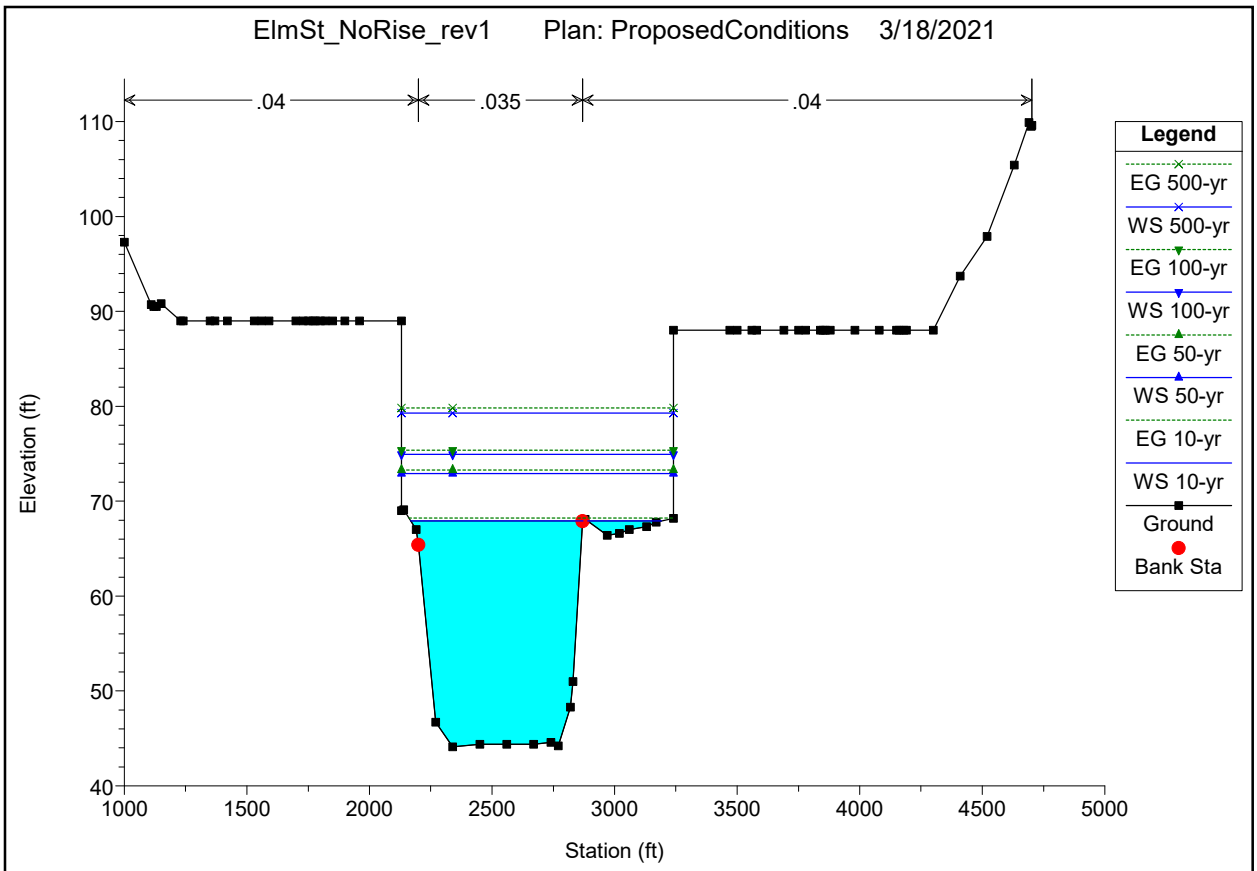

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.04
.035
.04
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

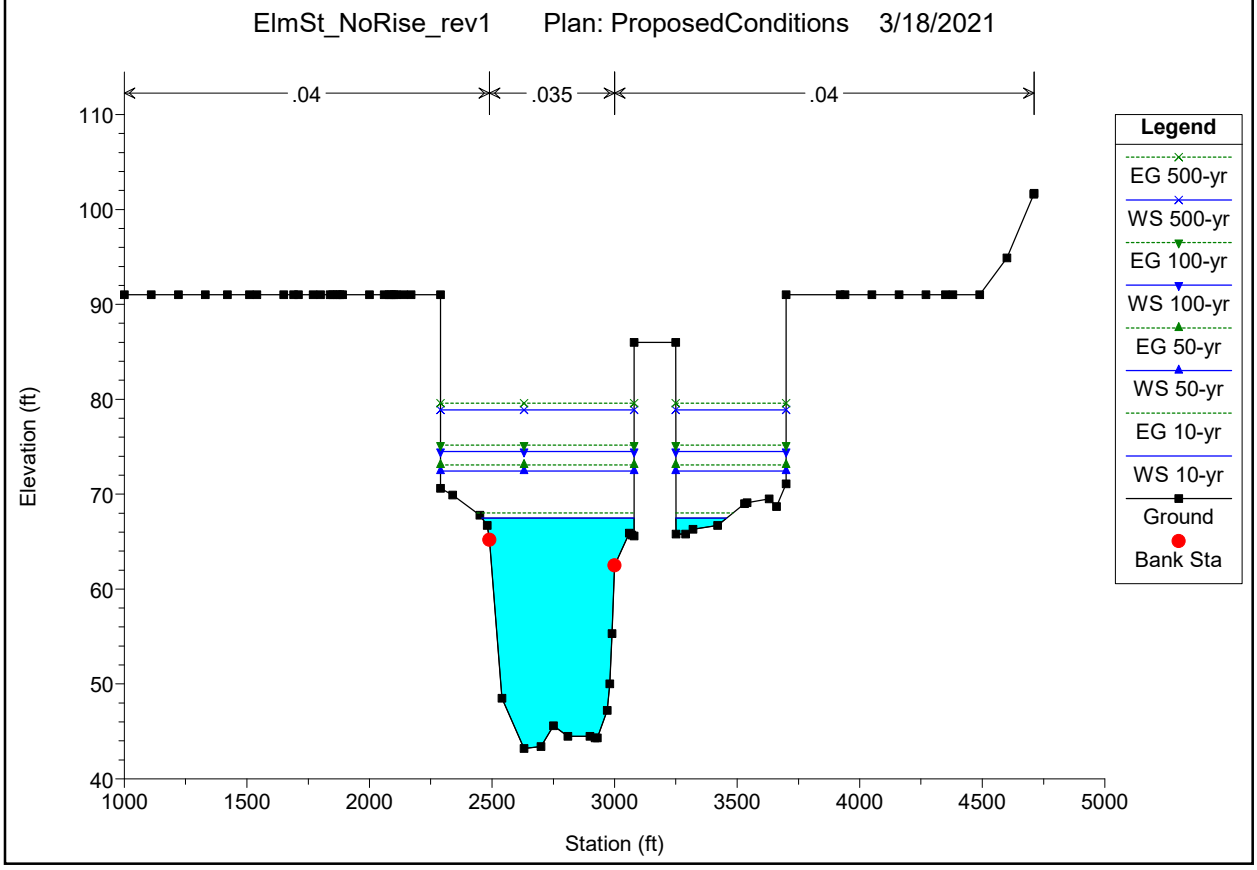

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-124990 IS THE US FACE DTM STATION OF DEKALB ST BRIDGE
.04
.035
.04
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)

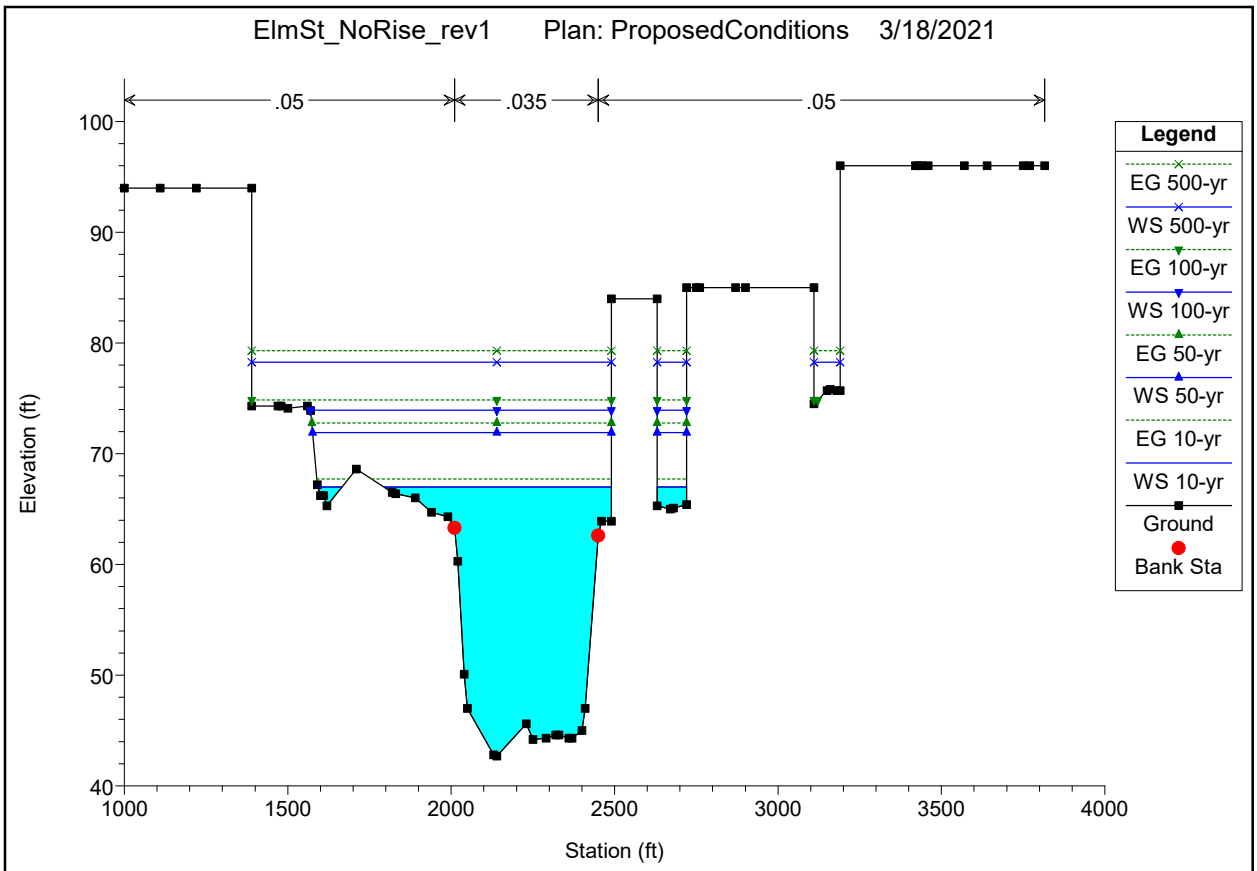

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #4FROM FILE SCT017.DAT
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

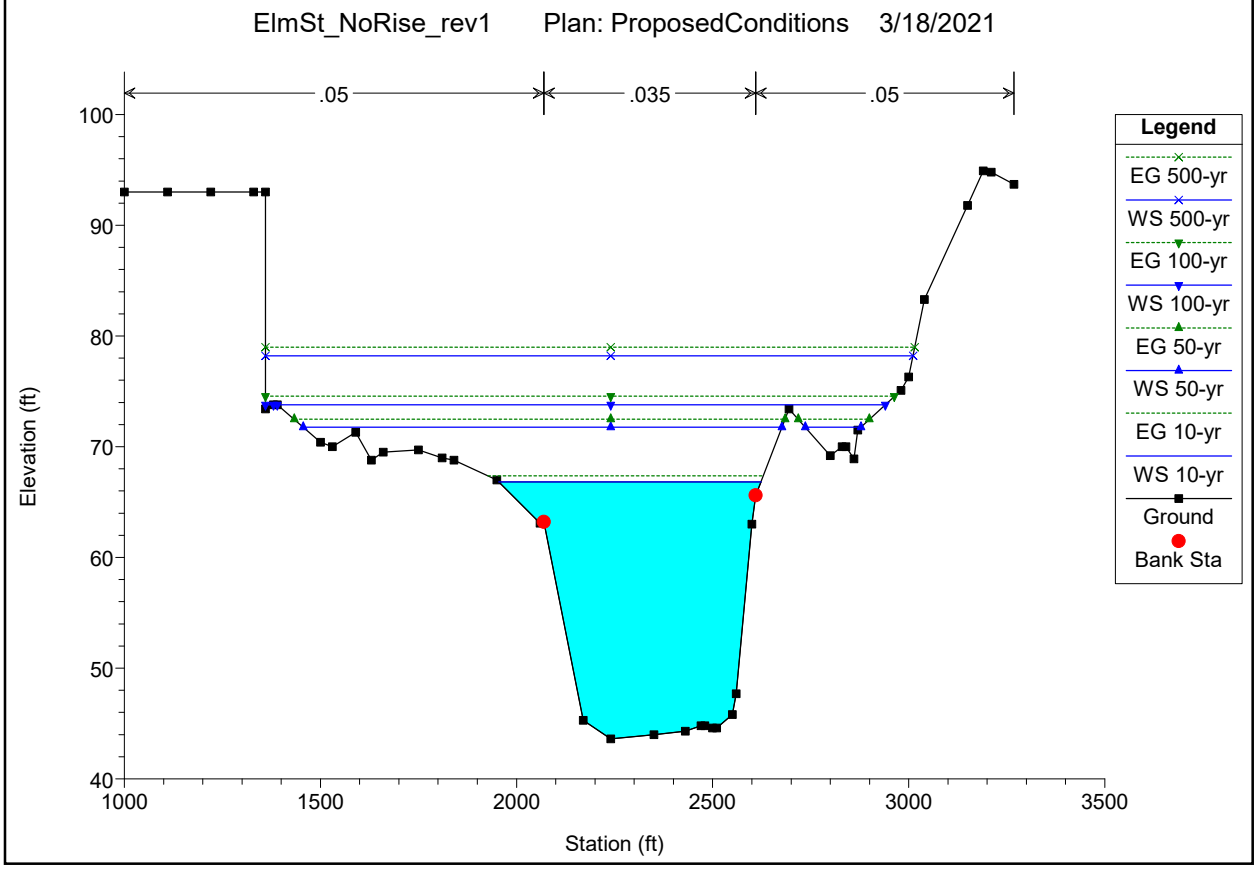

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #4FROM FILE SCT017.DAT
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

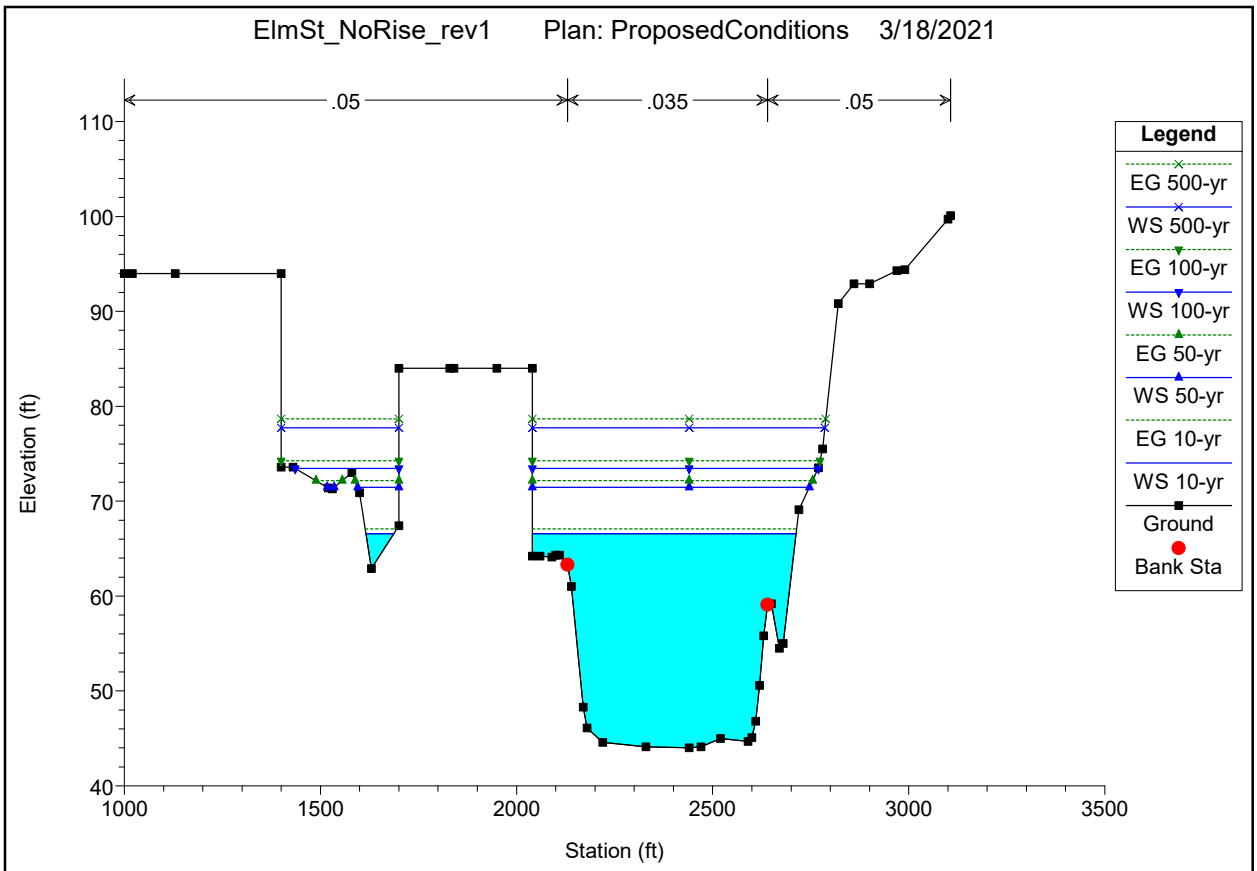

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

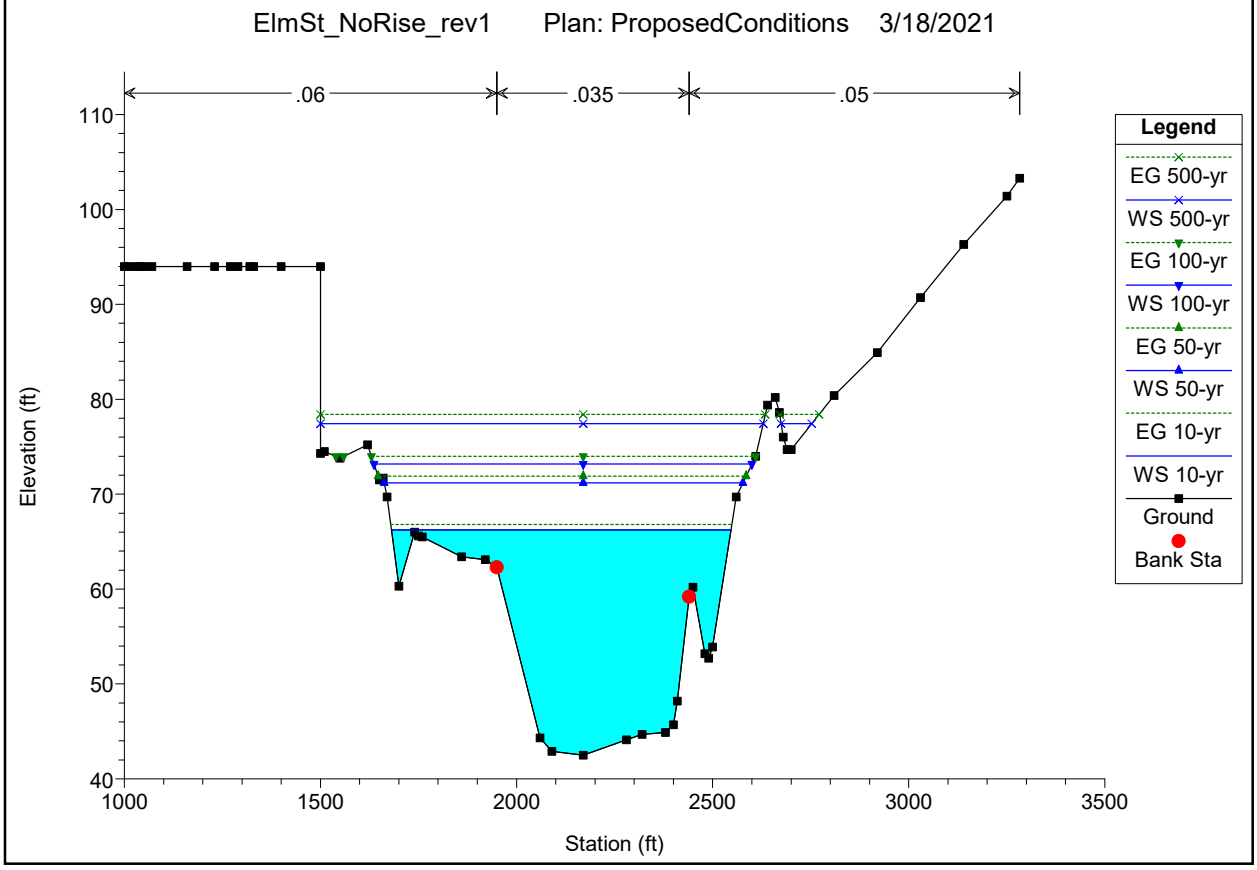

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

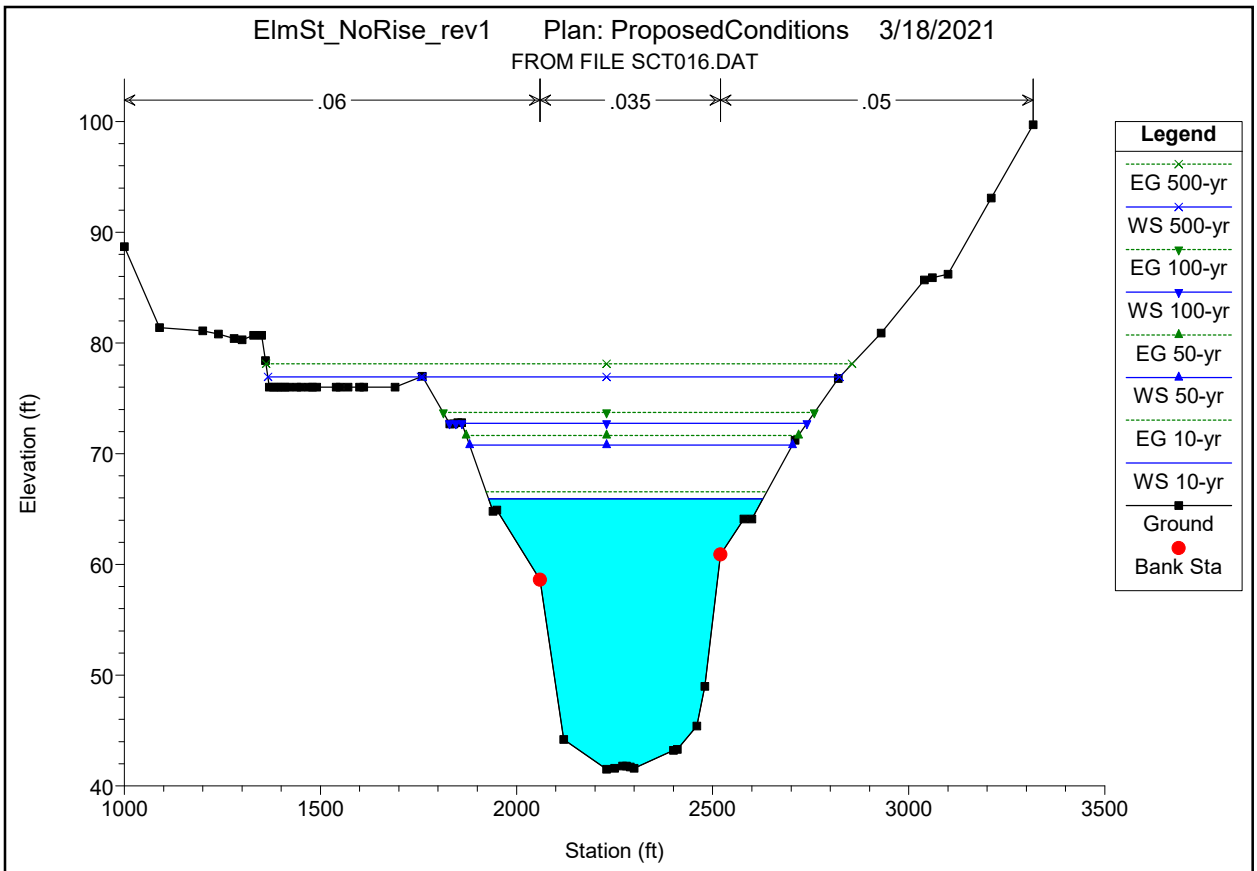

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.04
.035
.04
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

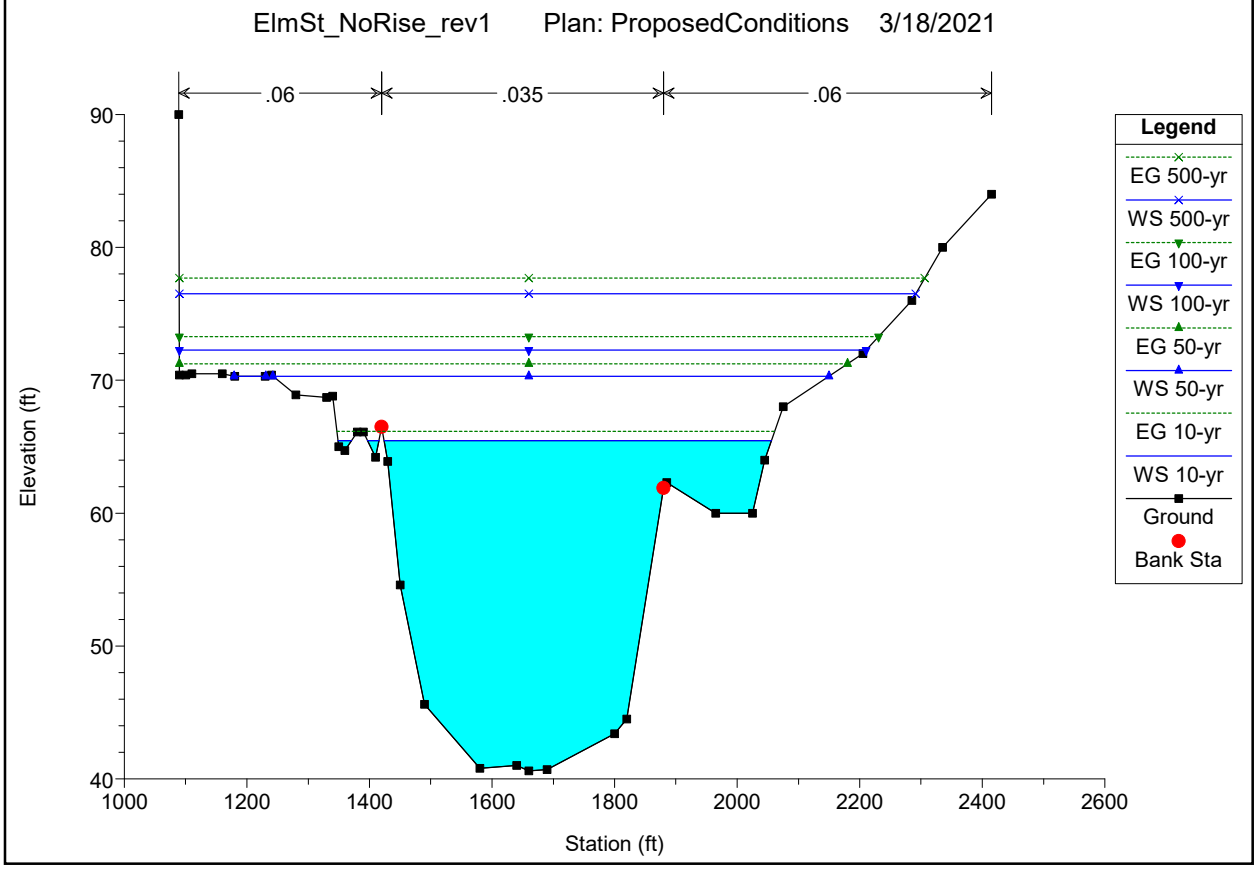

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

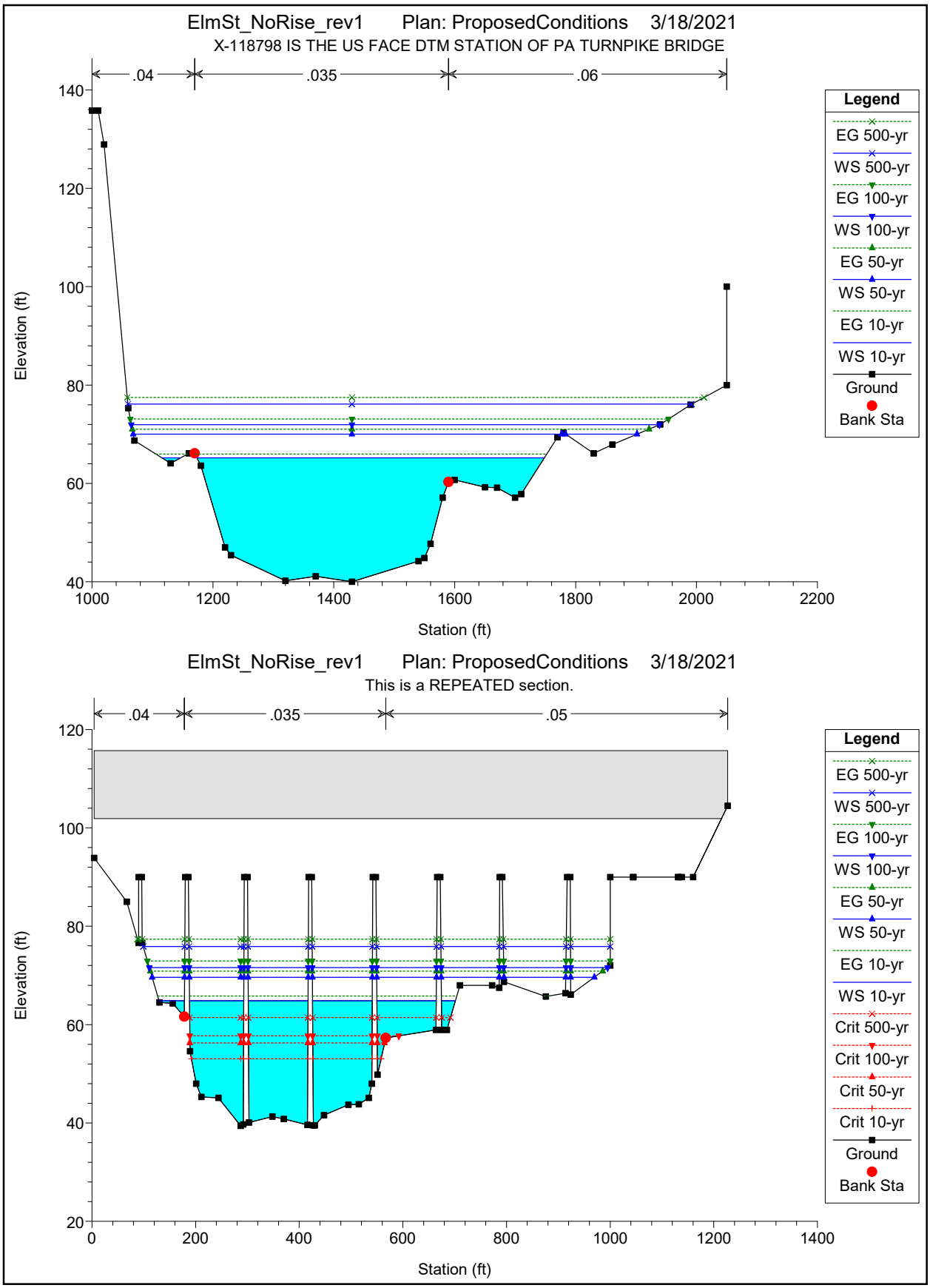

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

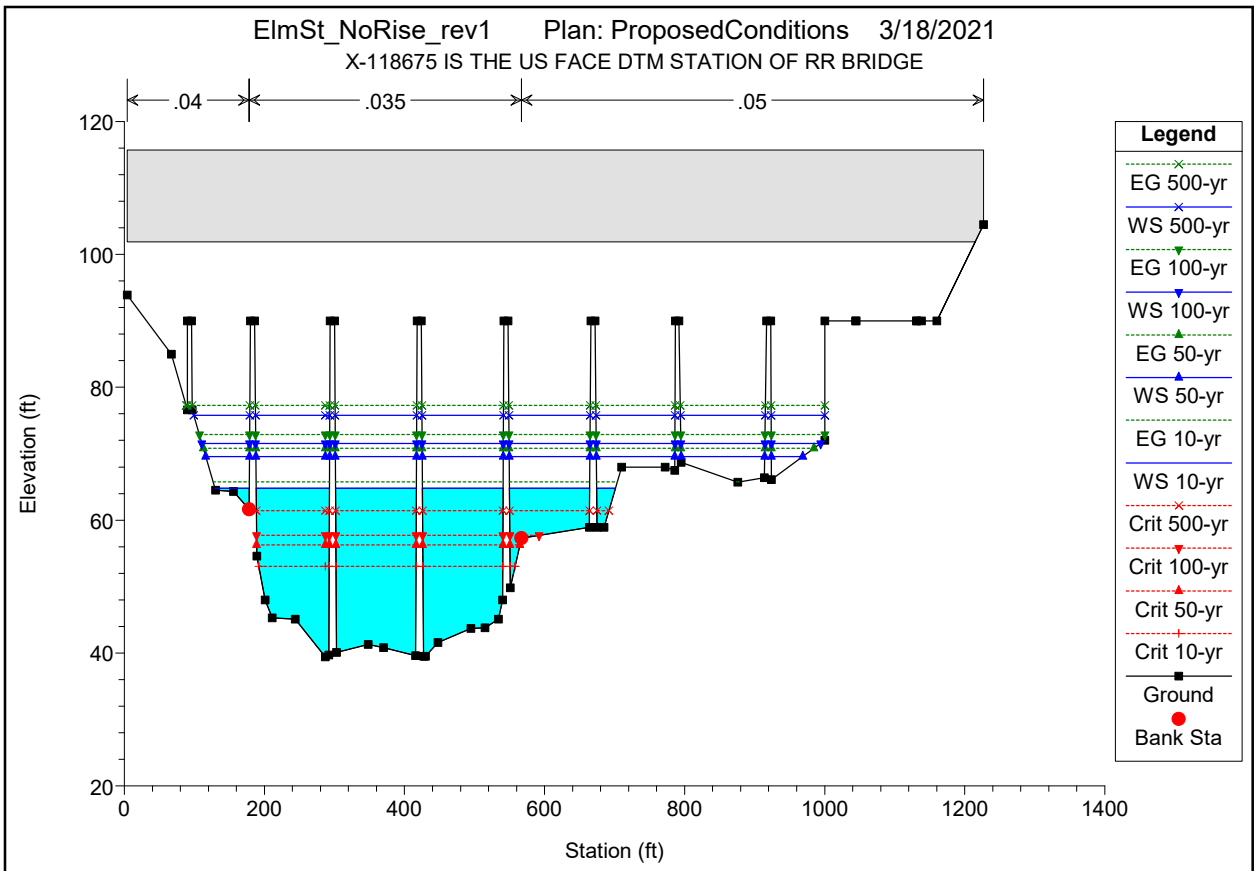

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

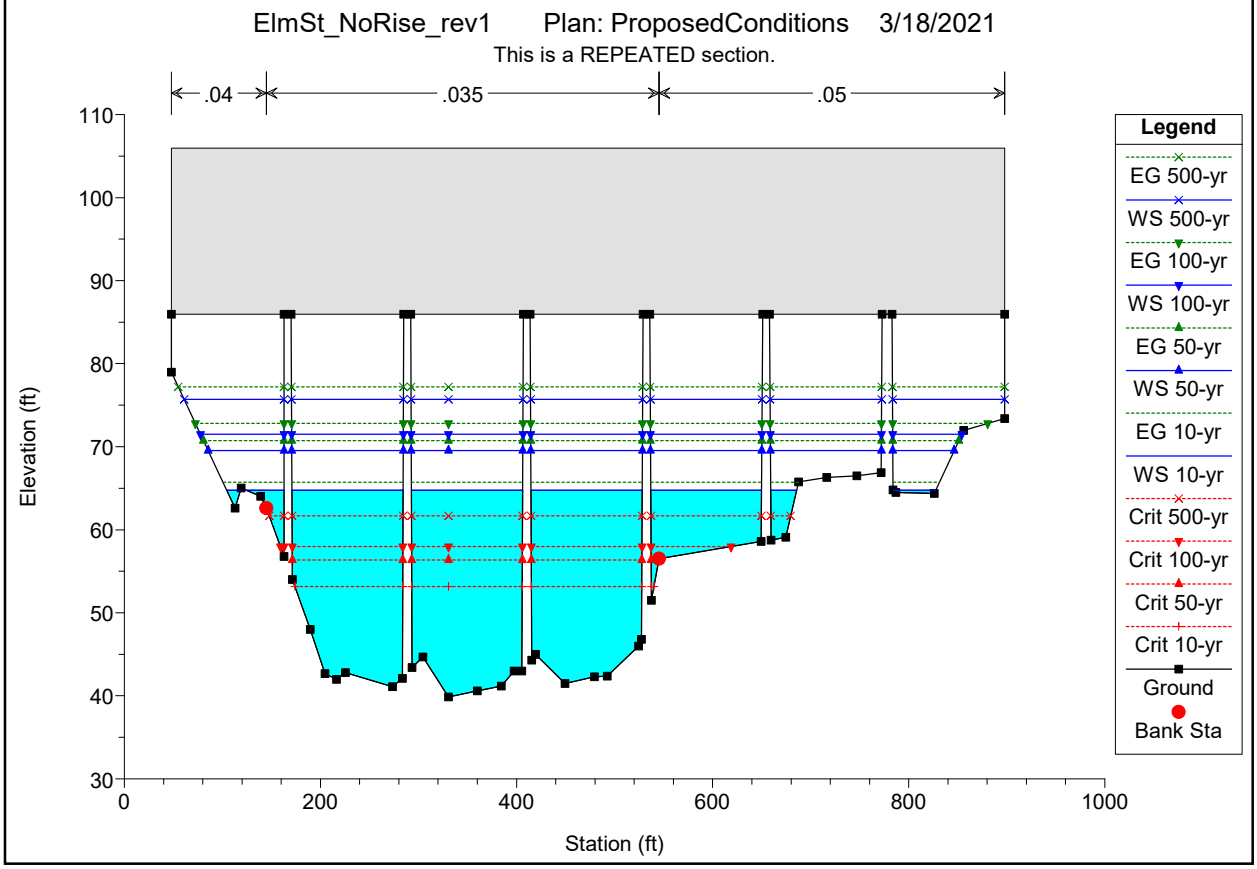

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

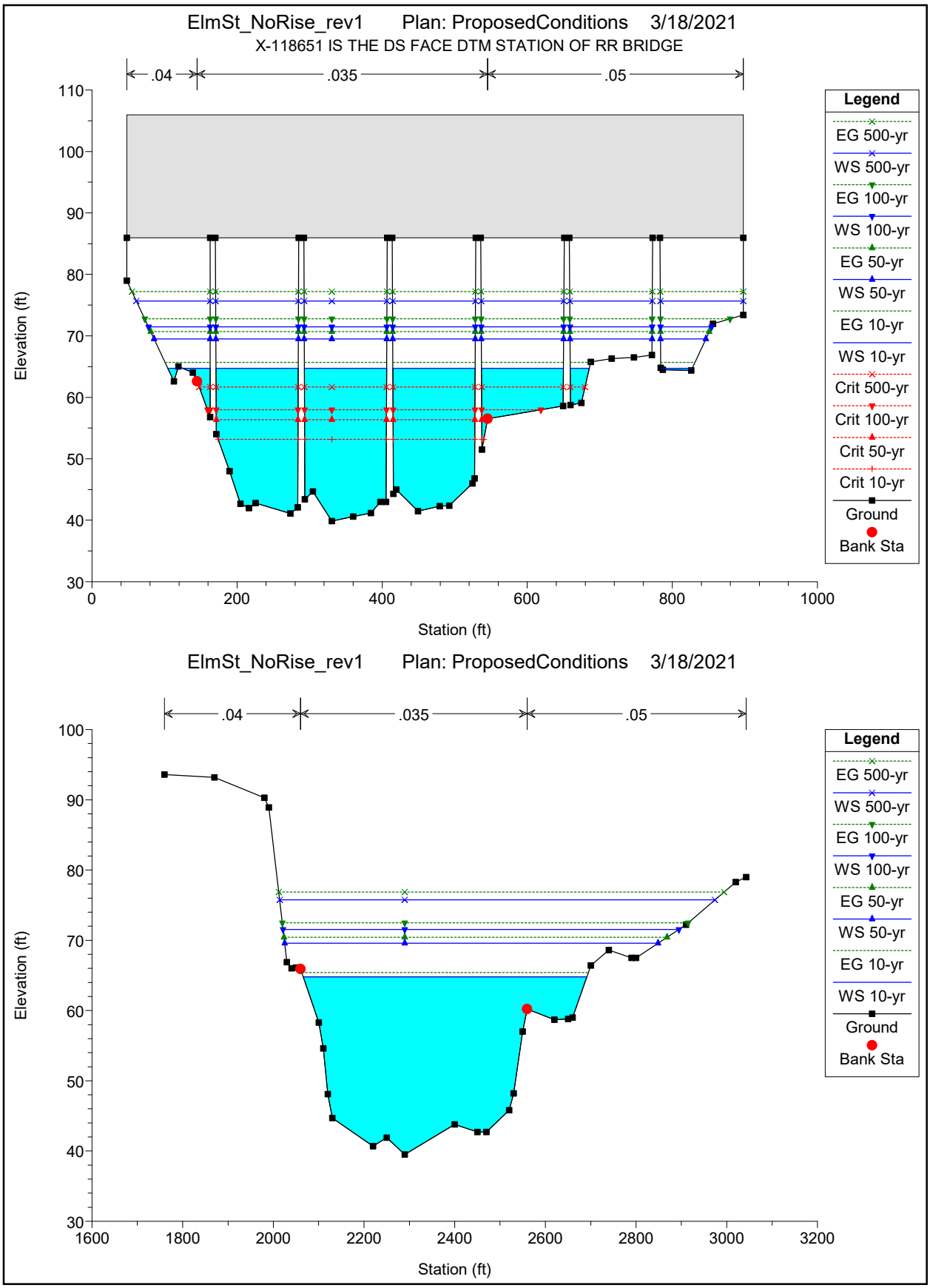

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
FROM FILE SCT016.DAT
.06
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

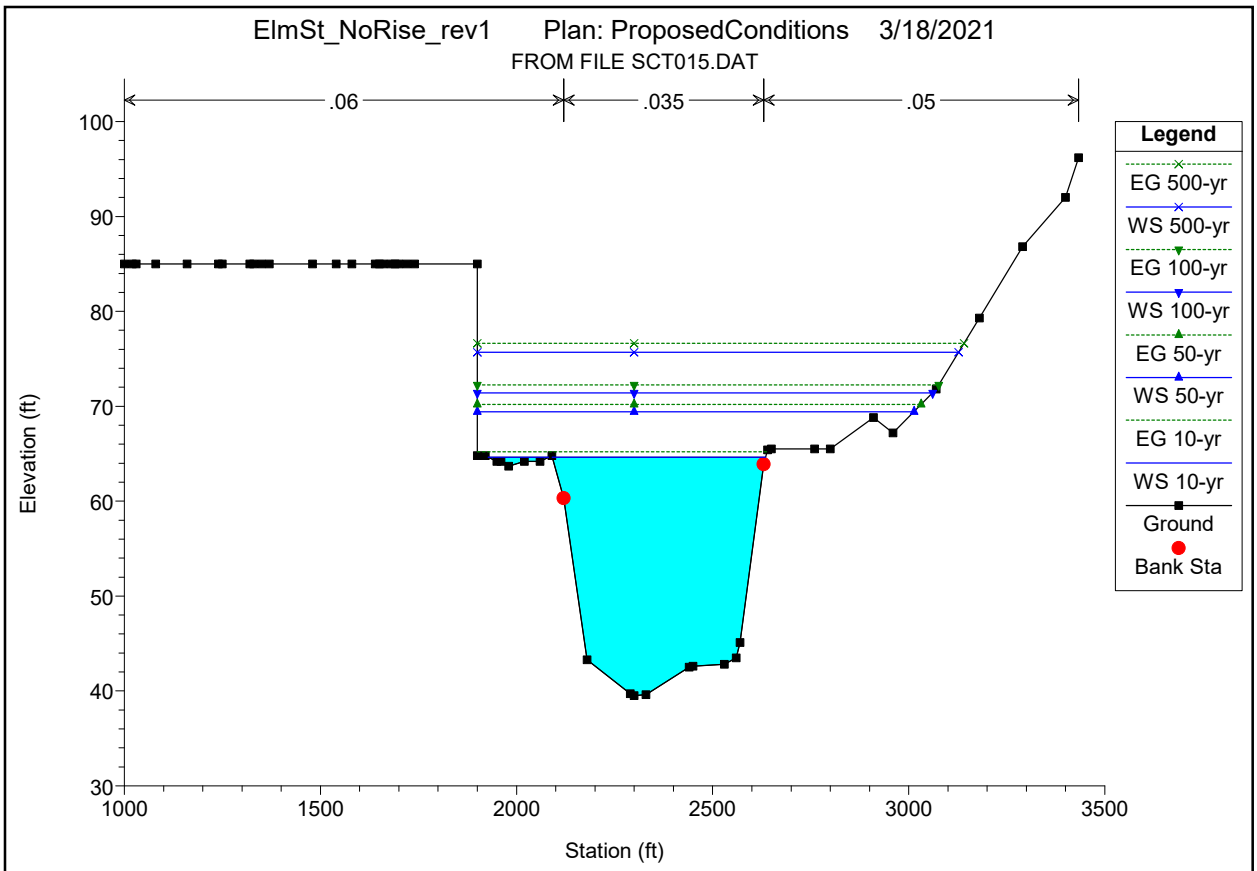

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

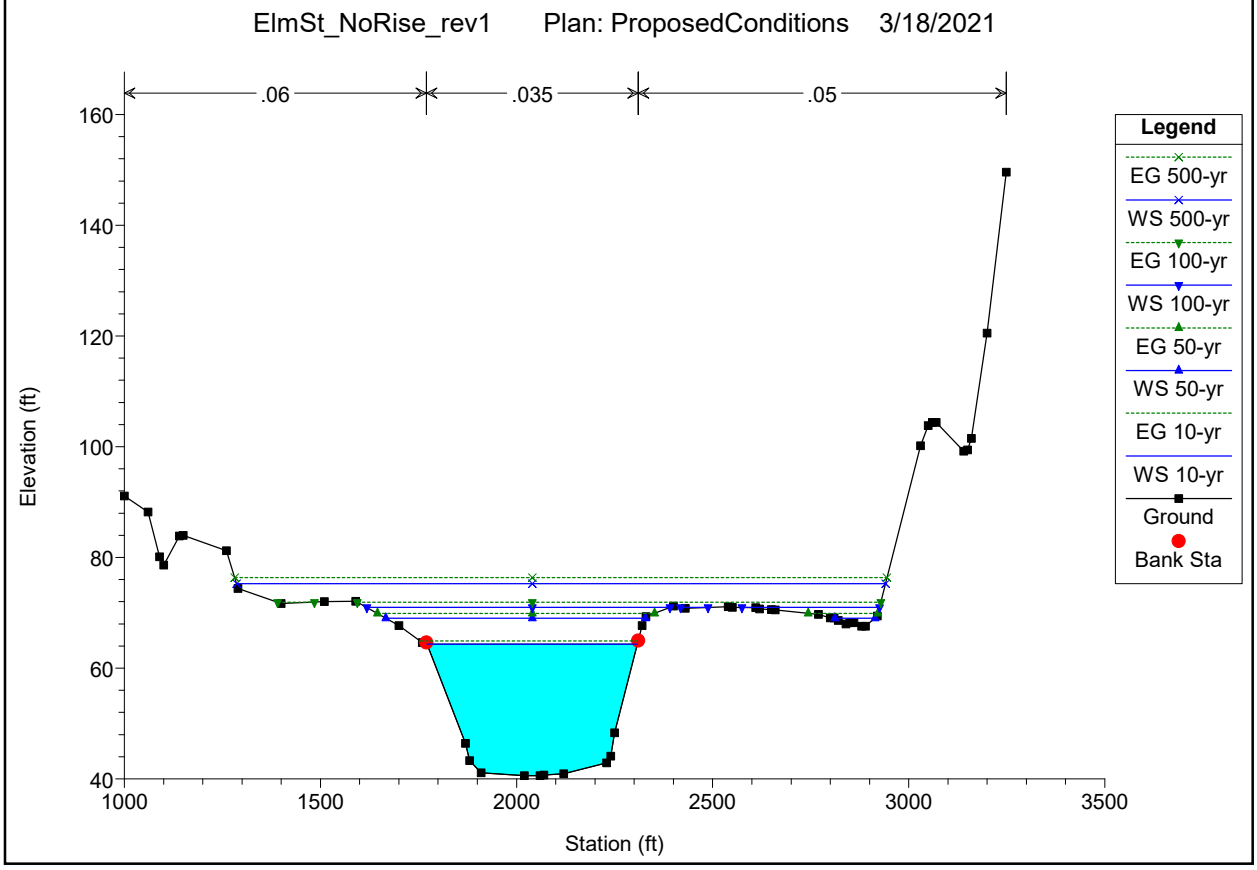

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-118798 IS THE US FACE DTM STATION OF PA TURNPIKE BRIDGE
.04
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.04
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

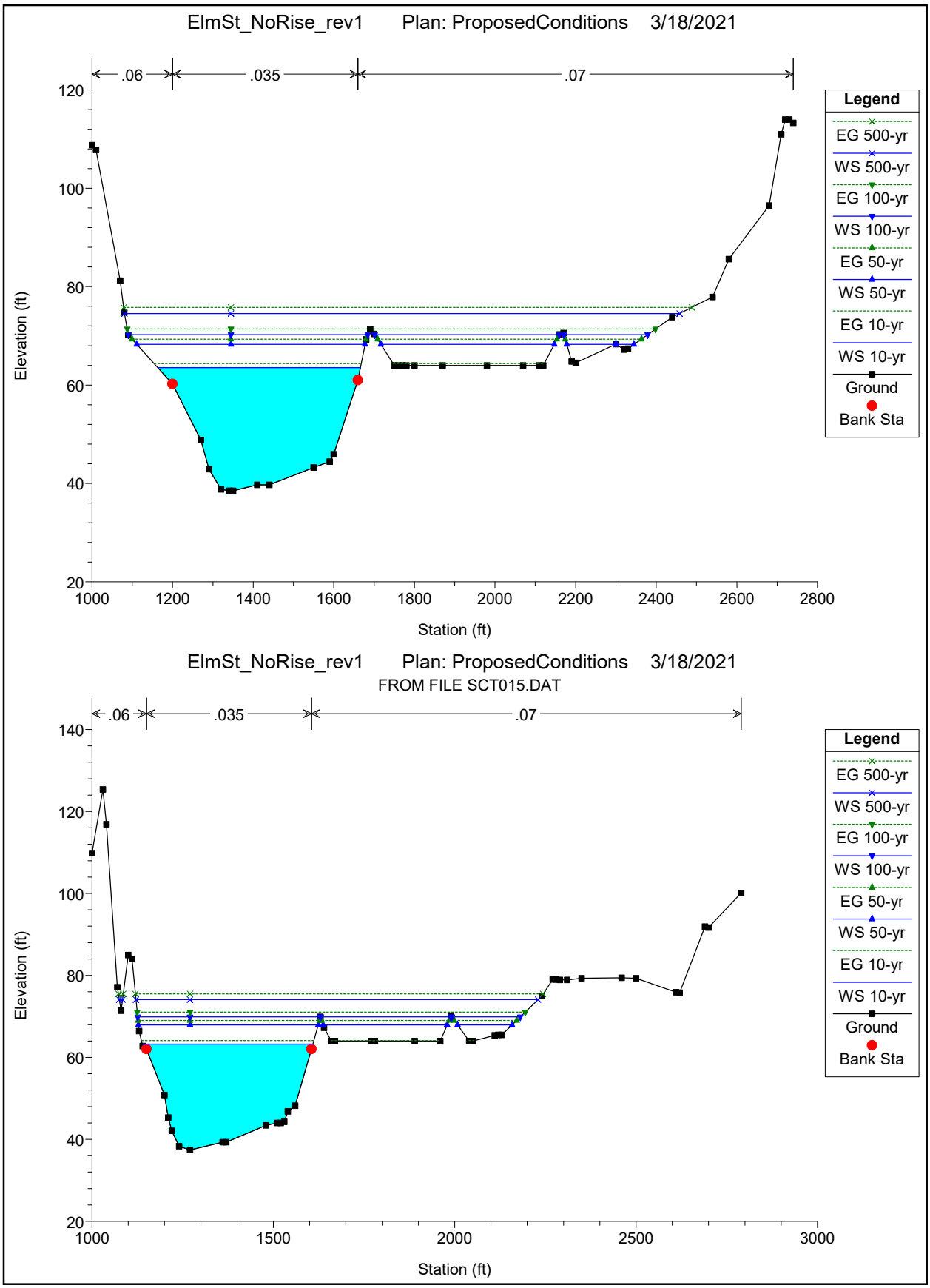

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-118675 IS THE US FACE DTM STATION OF RR BRIDGE
.04
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

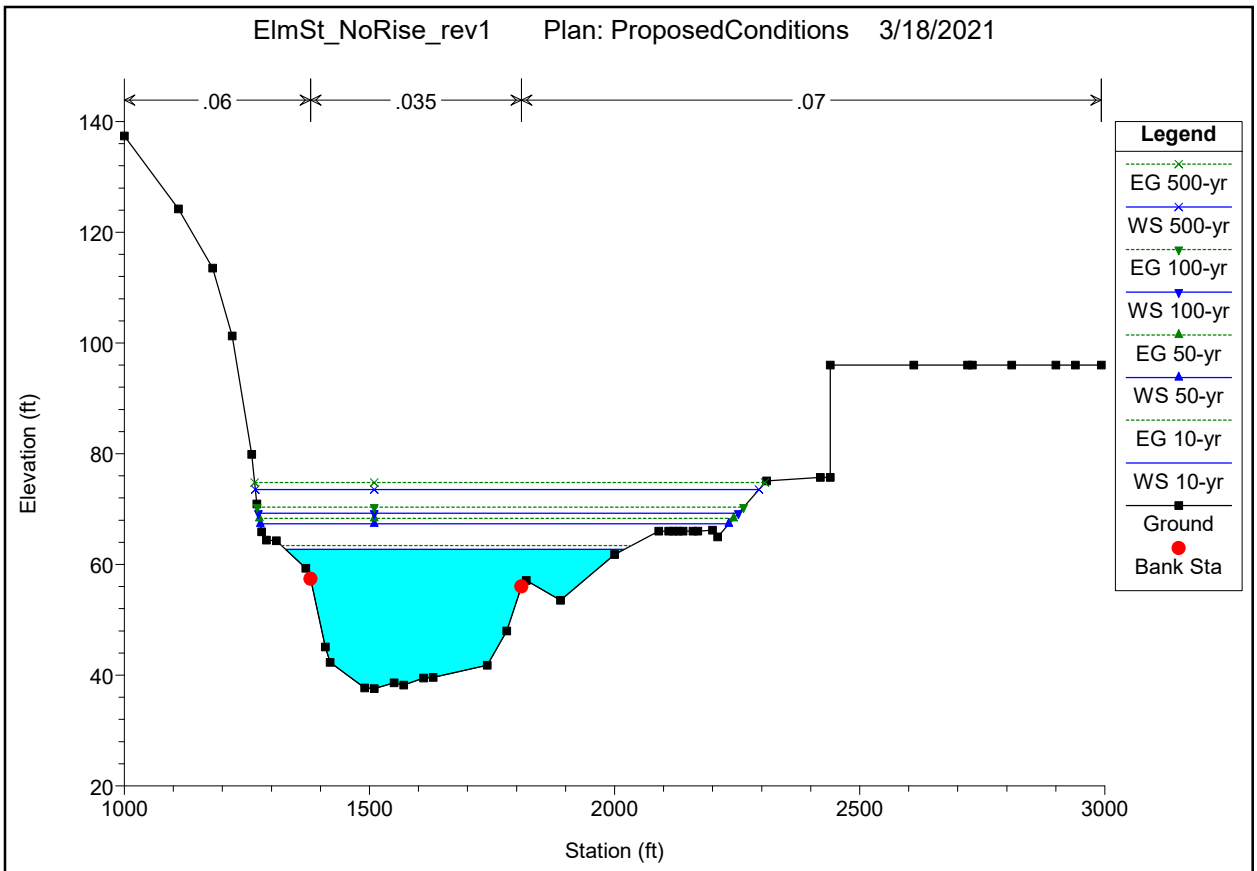

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.04
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

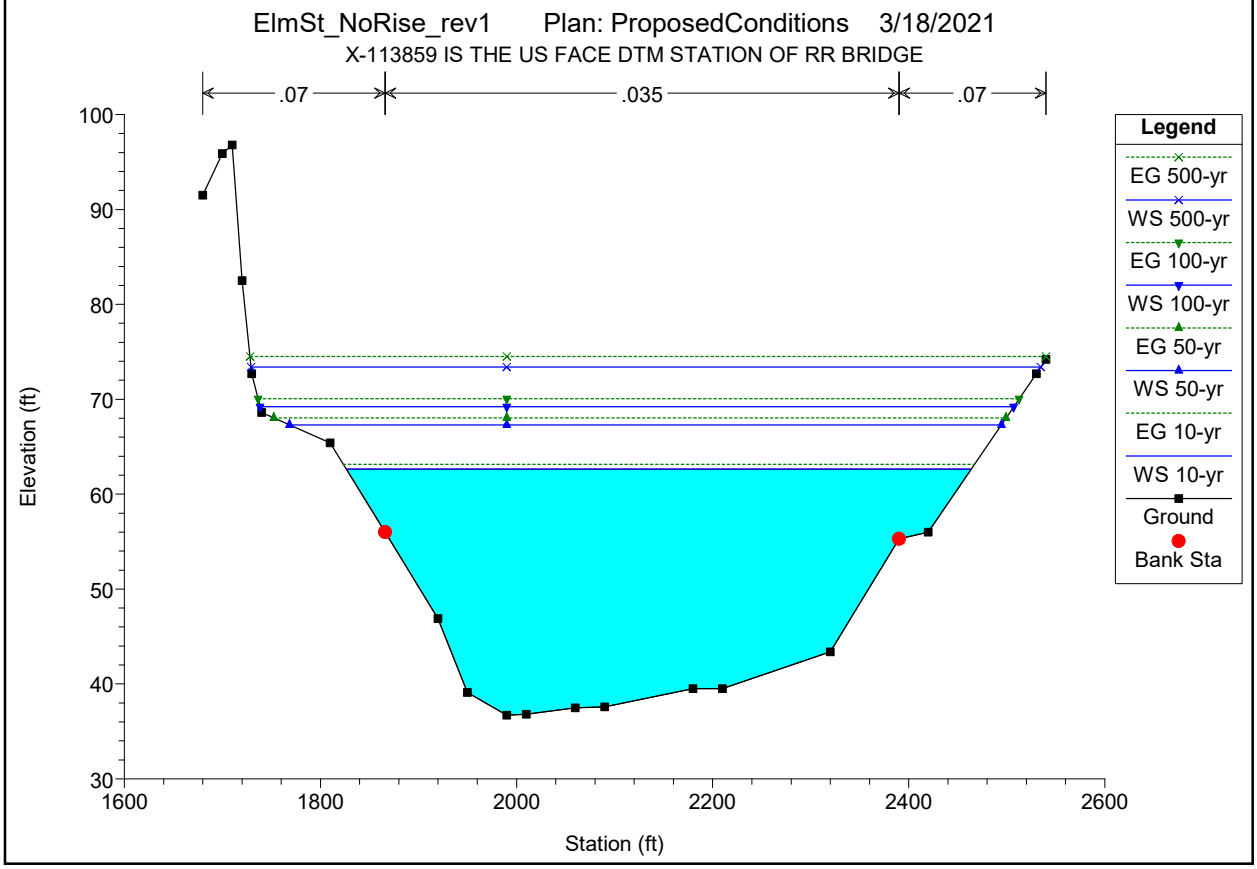

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-118651 IS THE DS FACE DTM STATION OF RR BRIDGE
.04
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.04
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

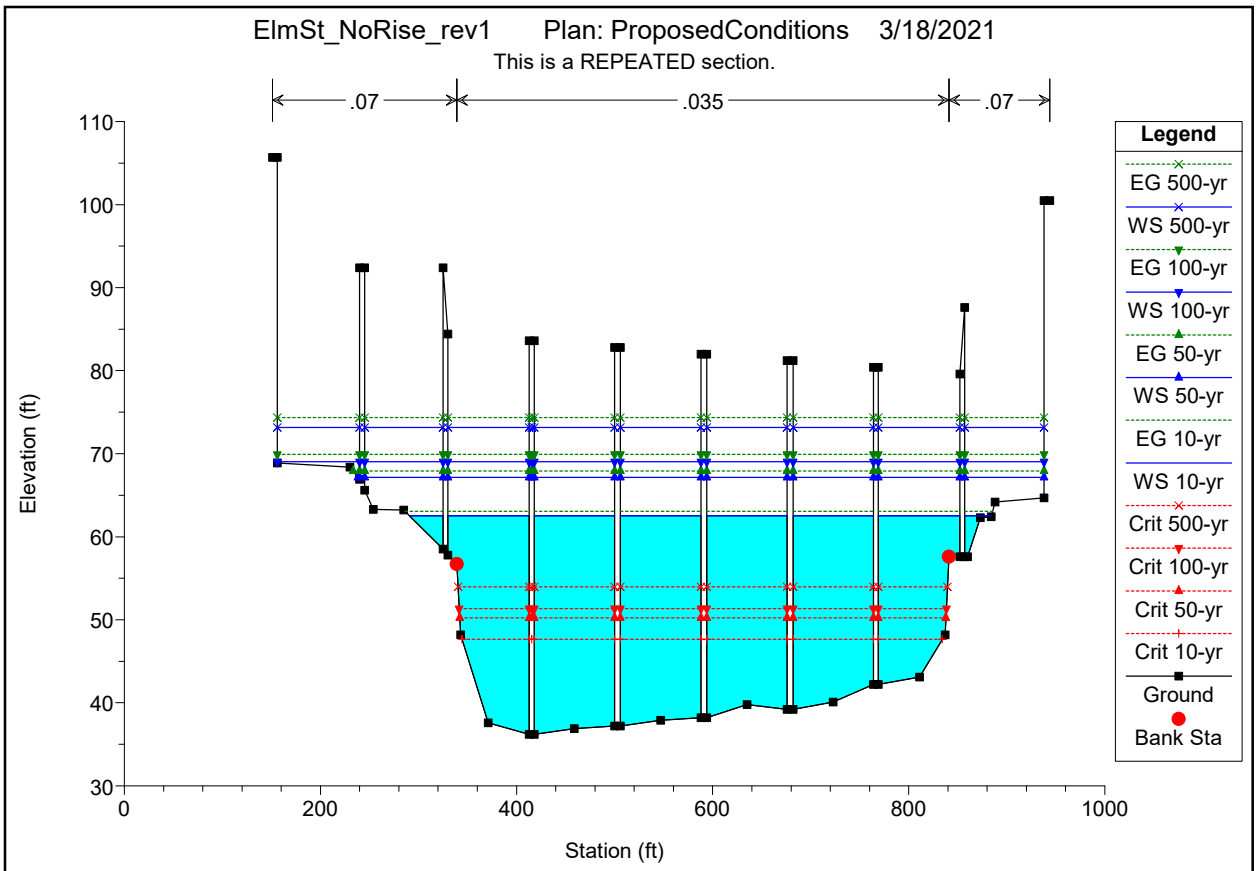

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
FROM FILE SCT015.DAT
.06
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

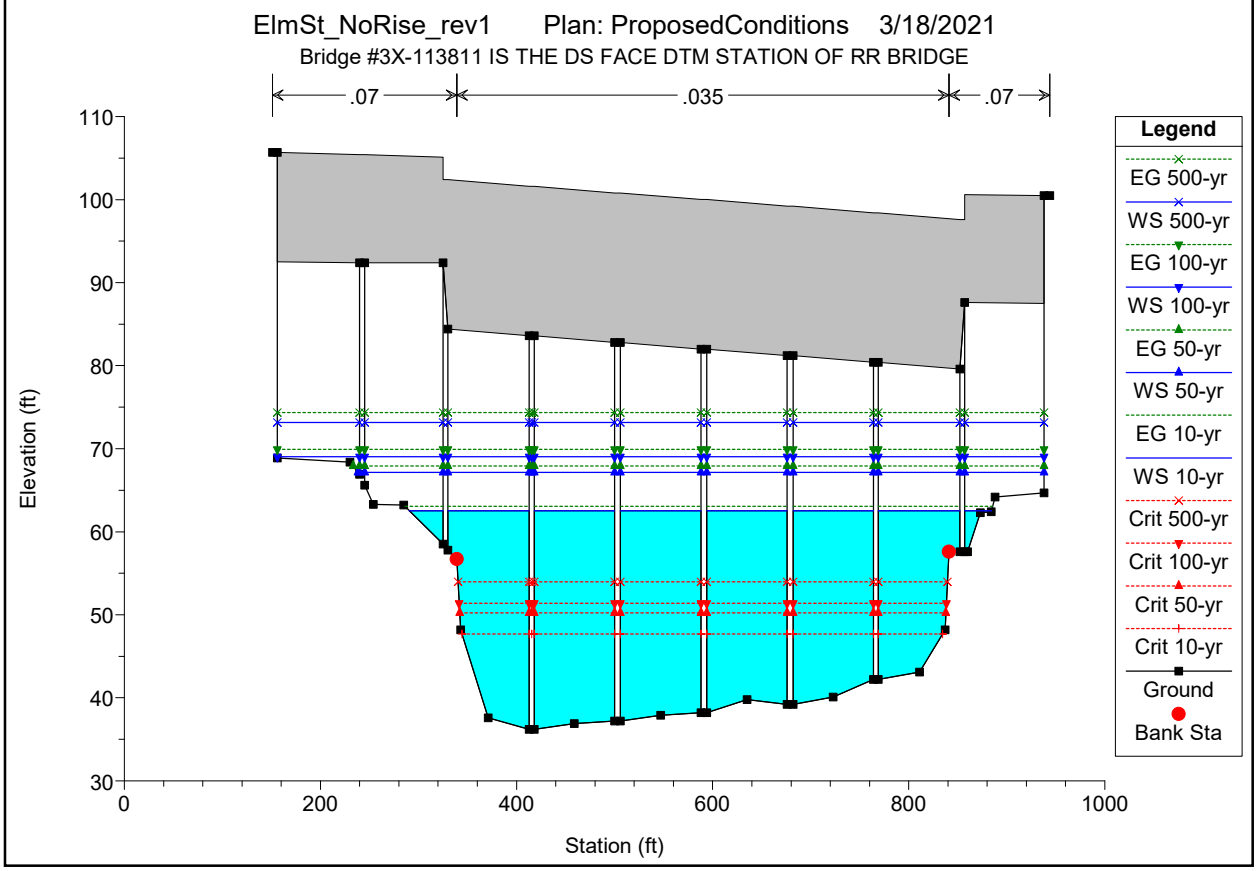

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

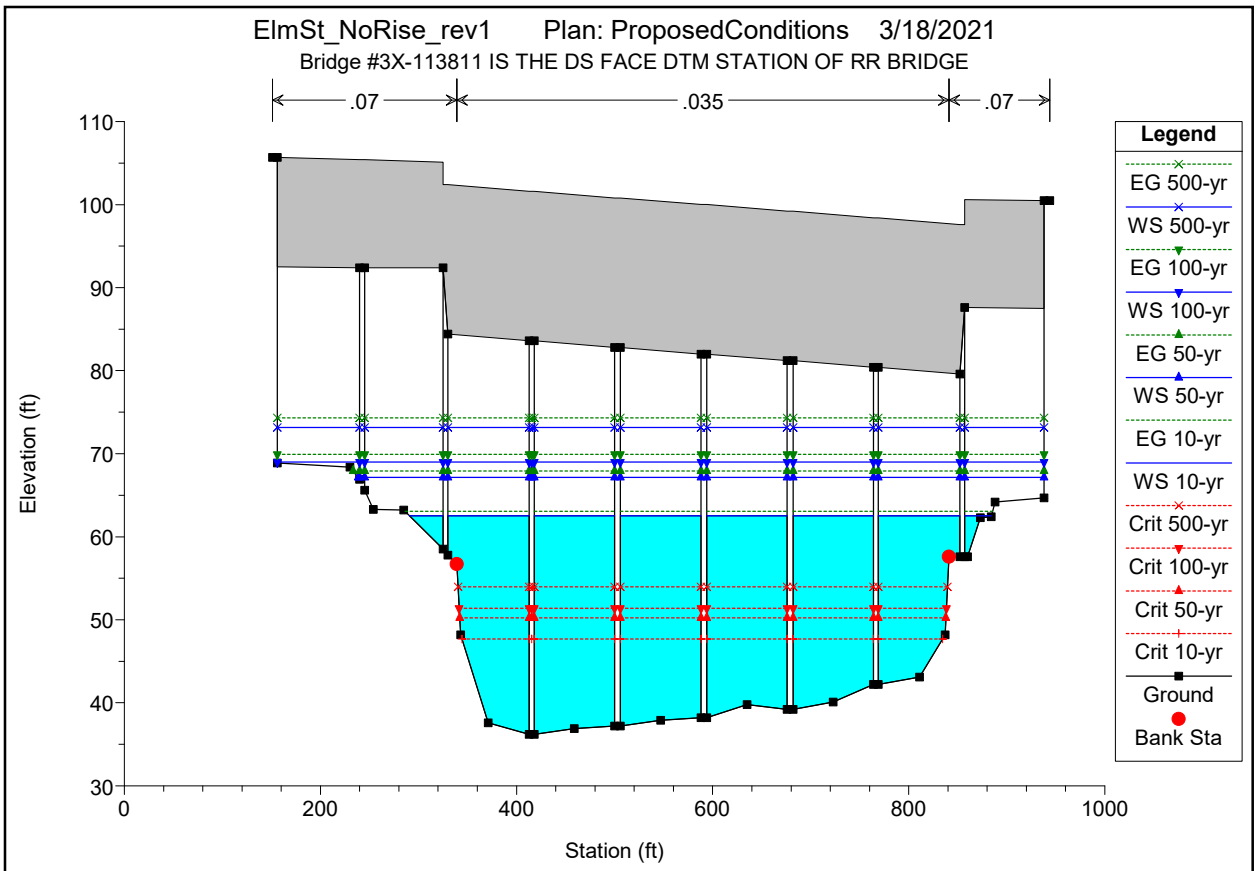

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
FROM FILE SCT015.DAT
.06
.035
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

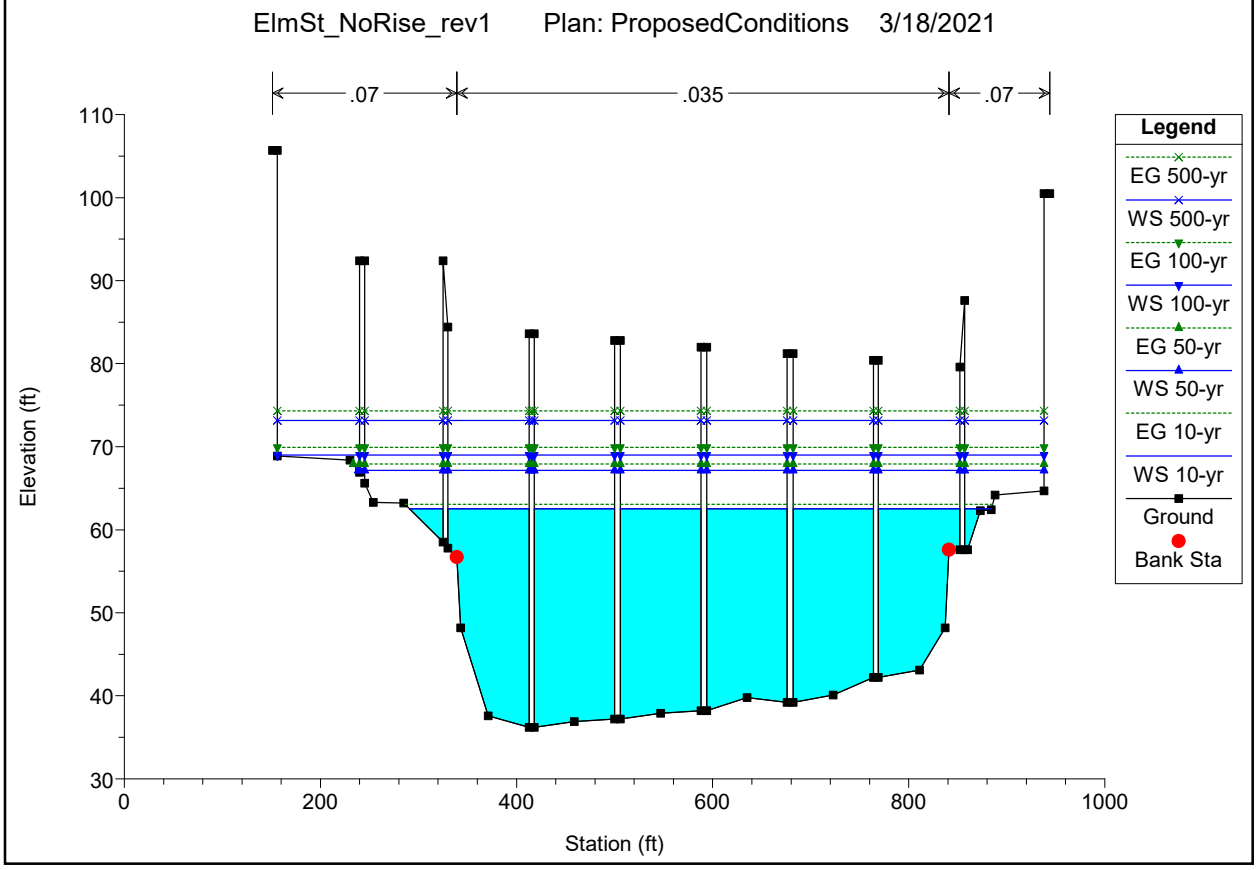

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.06
.035
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
140
120
100
80
60
40
20
1000
1500
2000
2500
3000

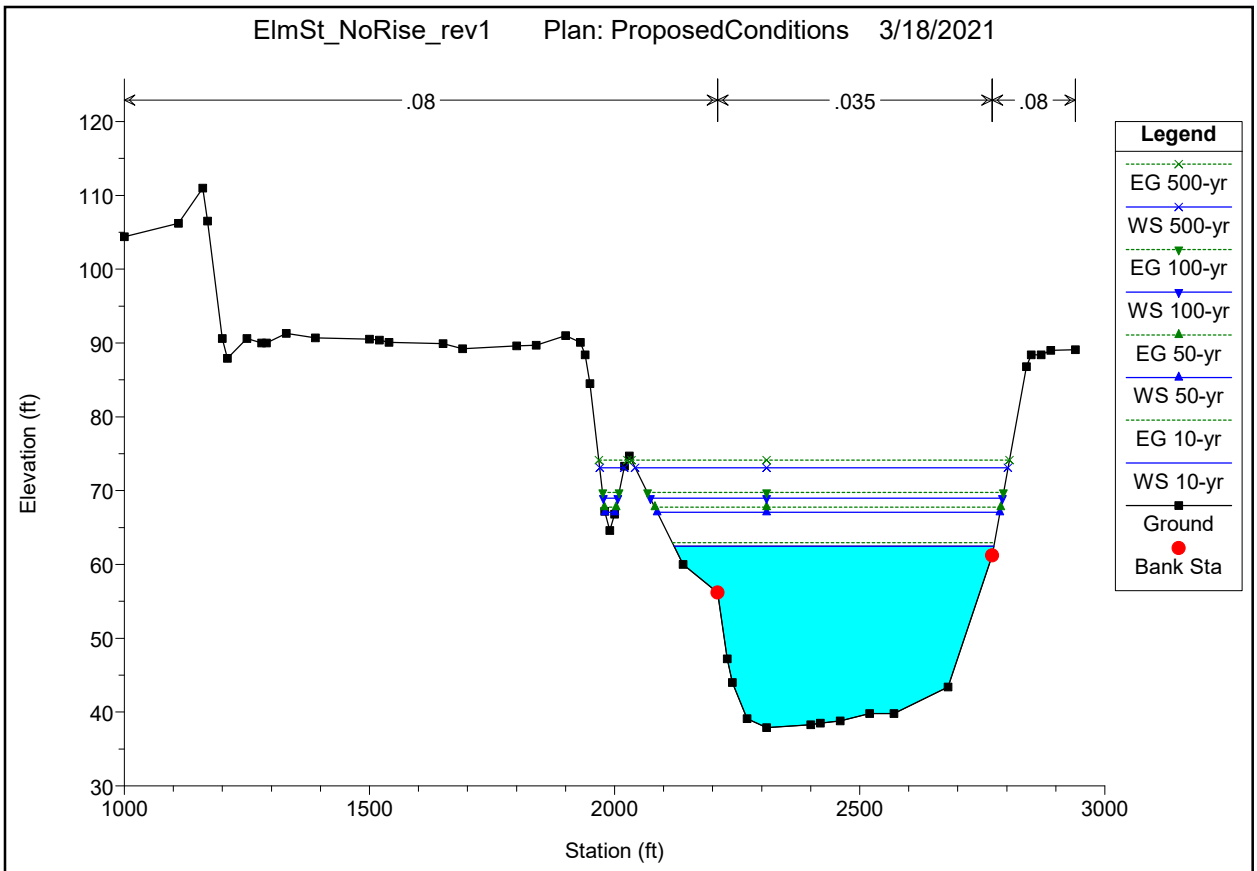

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-113859 IS THE US FACE DTM STATION OF RR BRIDGE
.07
.035
.07
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
100
90
80
70
60
50
40
30
1600
1800
2000
2200
2400
2600

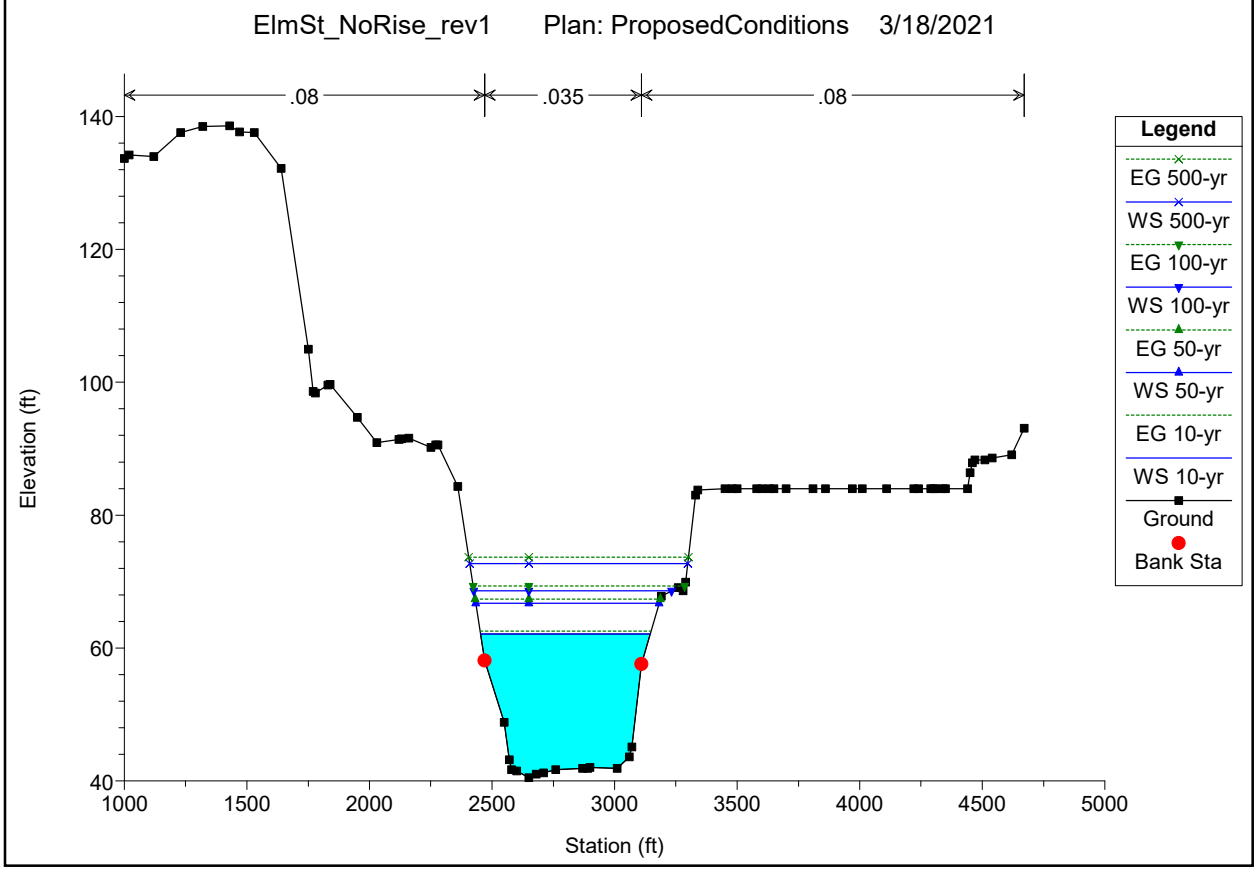

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.07
.035
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

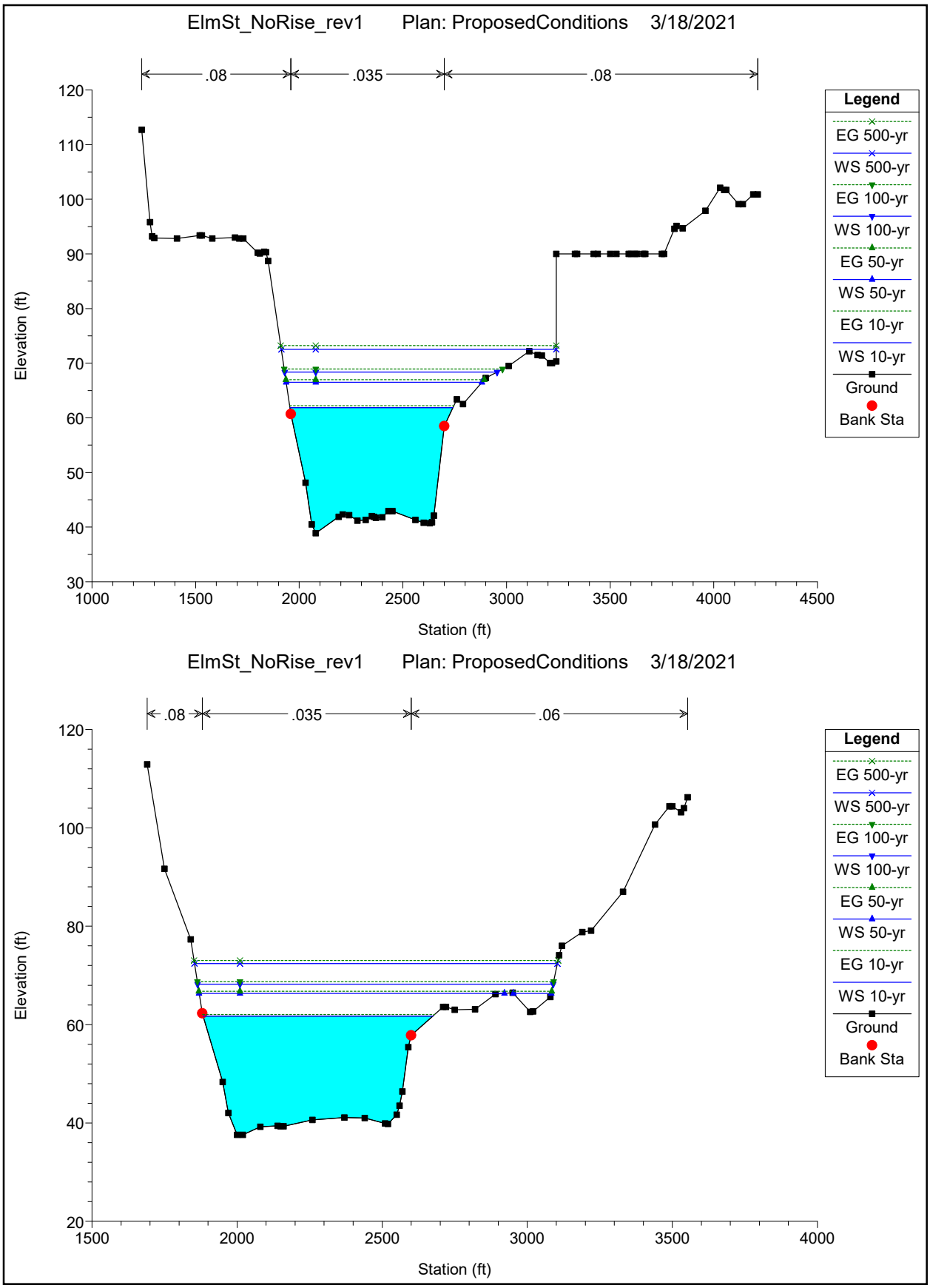

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #3X-113811 IS THE DS FACE DTM STATION OF RR BRIDGE
.07
.035
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

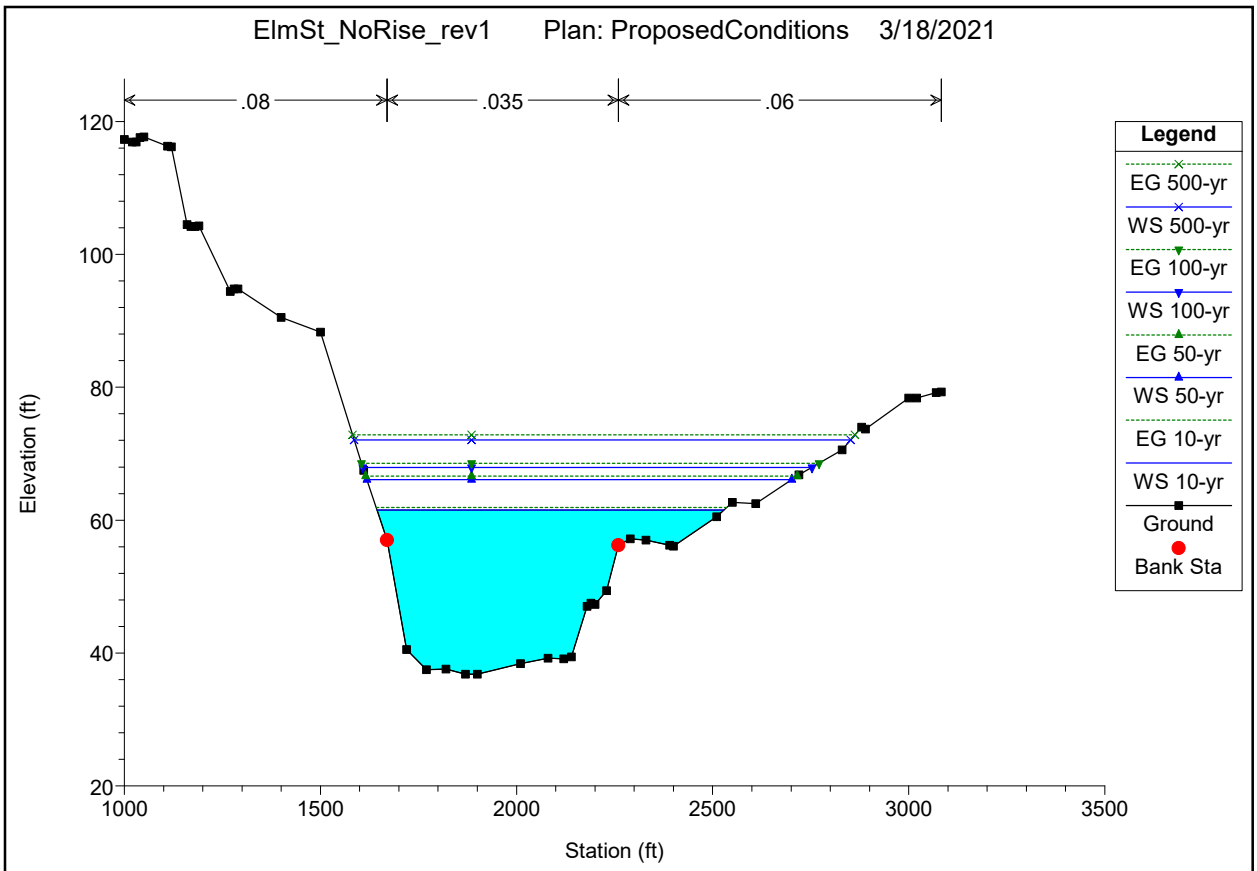

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #3X-113811 IS THE DS FACE DTM STATION OF RR BRIDGE
.07
.035
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

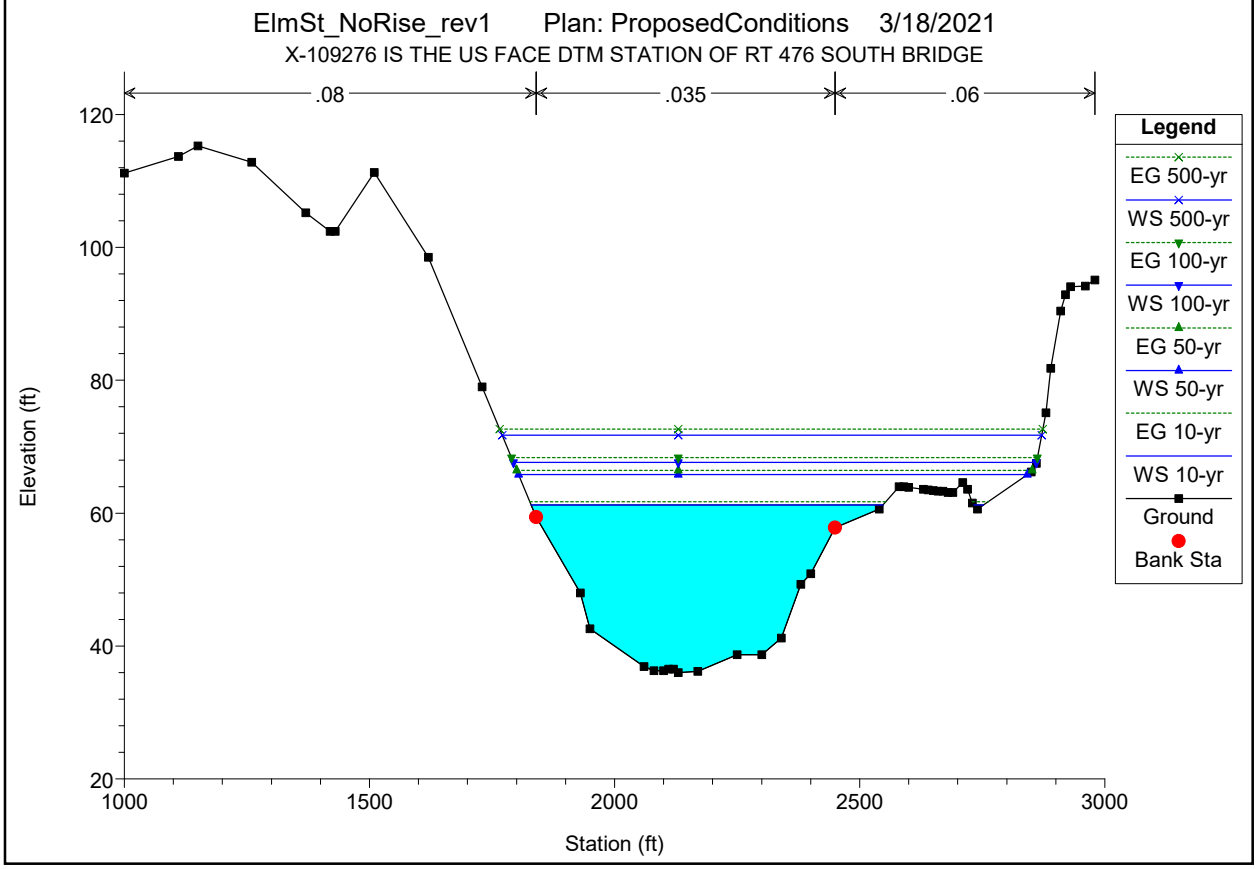

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.07
.035
.07
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

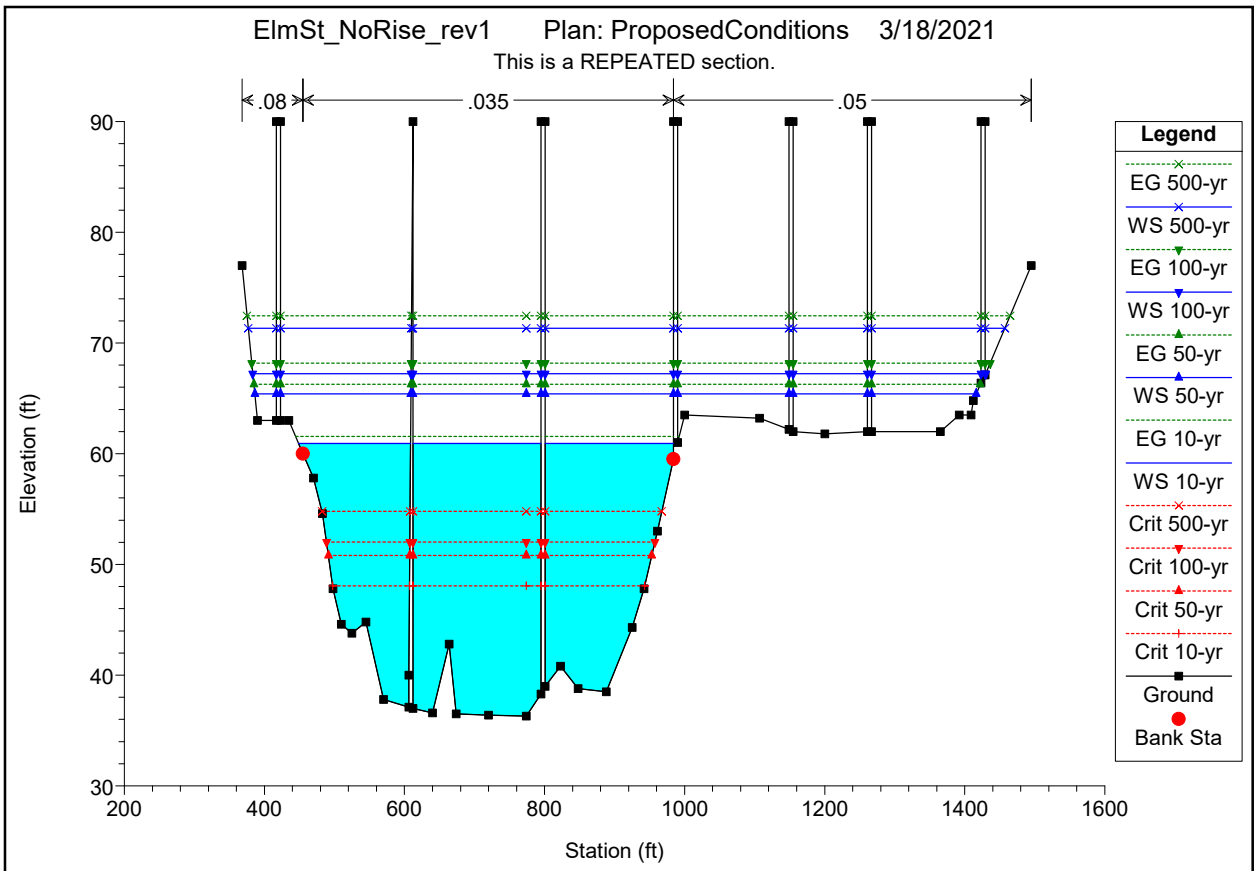

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.08
.035
.08
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
120
110
100
90
80
70
60
50
40
30
1000
1500
2000
2500
3000

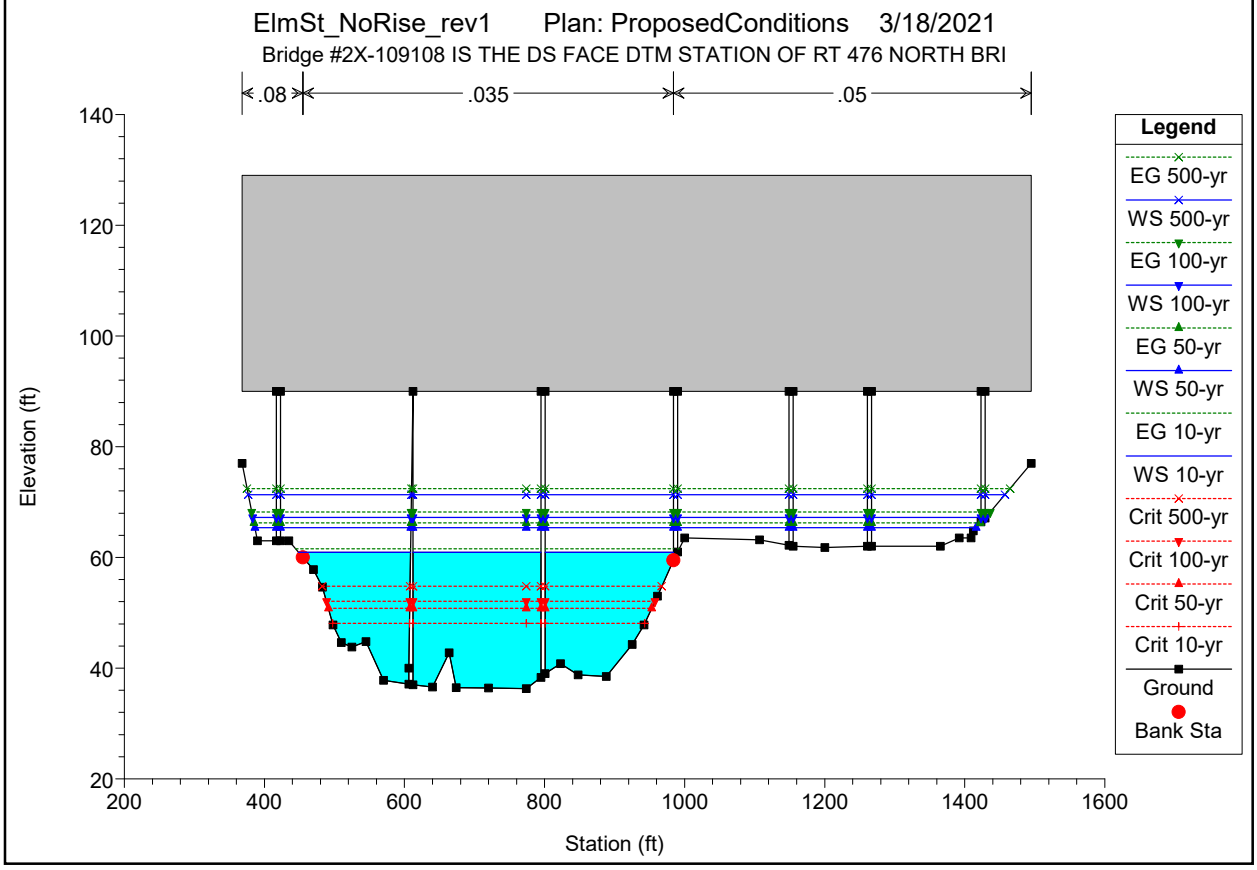

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.08
.035
.08
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
140
120
100
80
60
40
1000
1500
2000
2500
3000
3500
4000
4500
5000

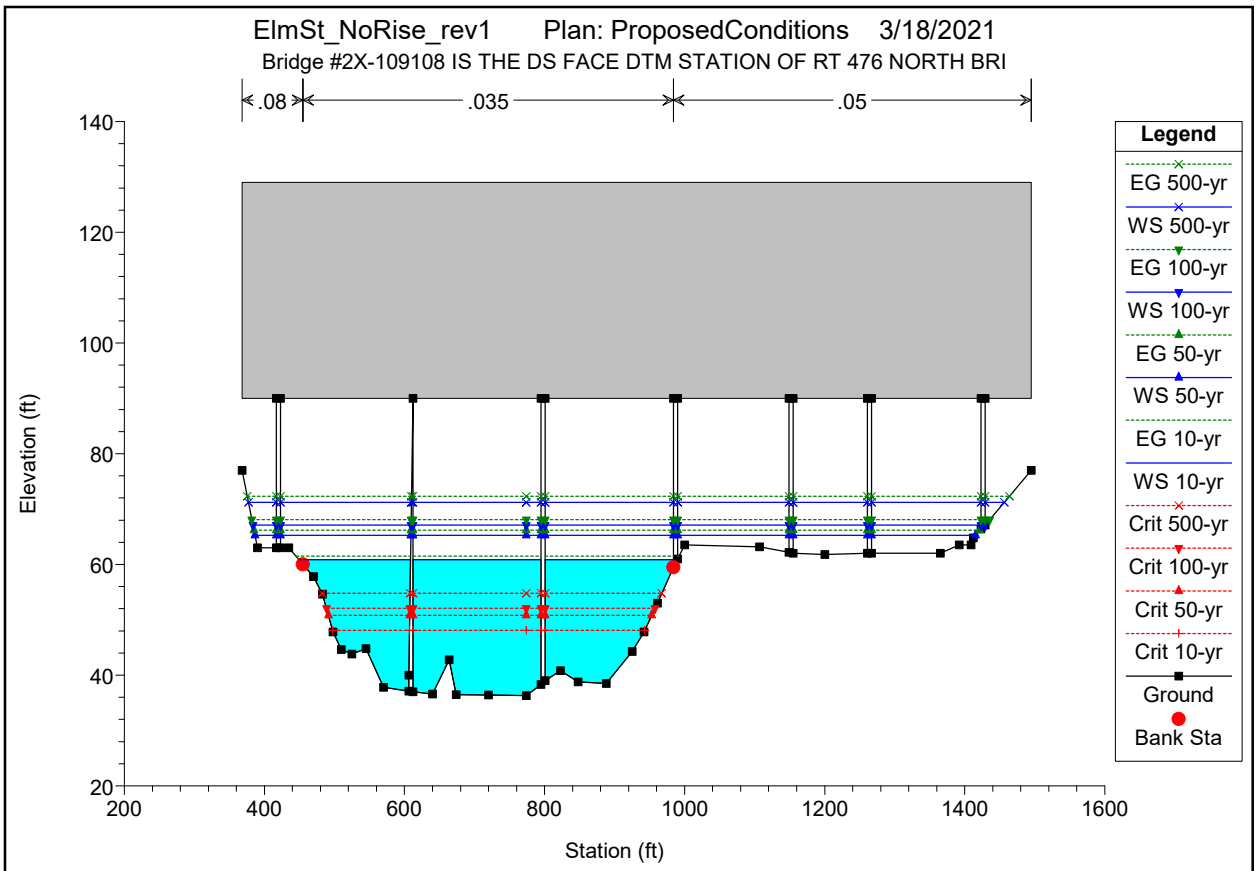

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.08
.035
.08
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.08
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

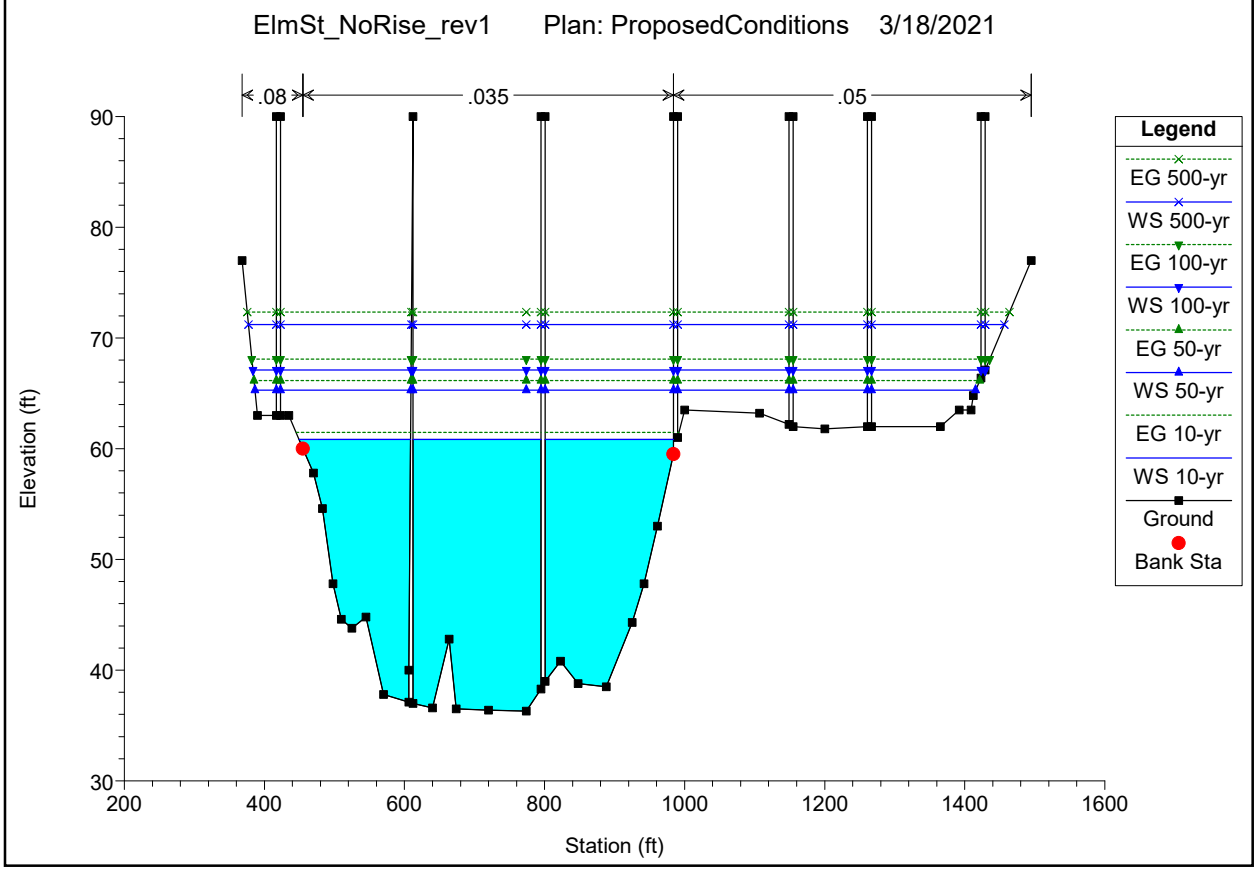

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.08
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

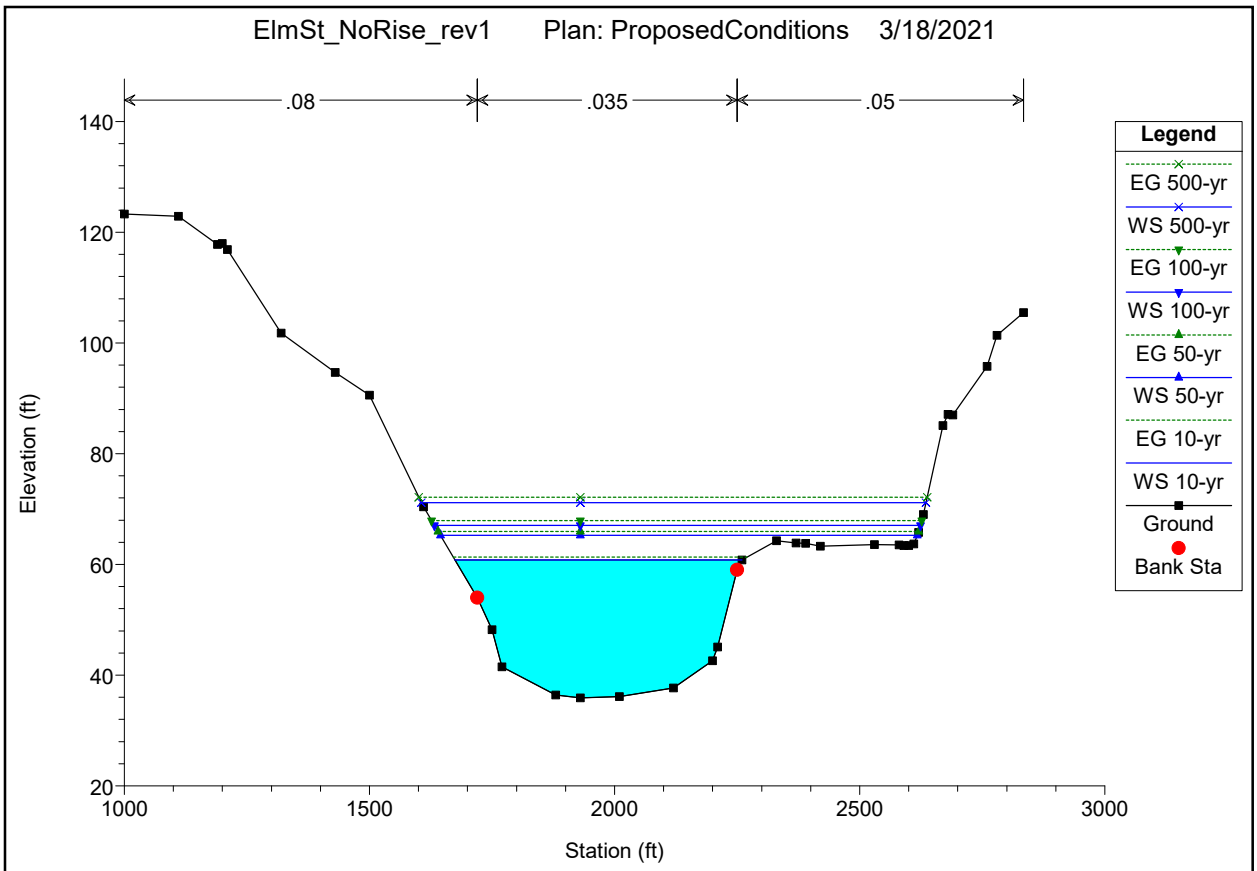

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-109276 IS THE US FACE DTM STATION OF RT 476 SOUTH BRIDGE
.08
.035
.06
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

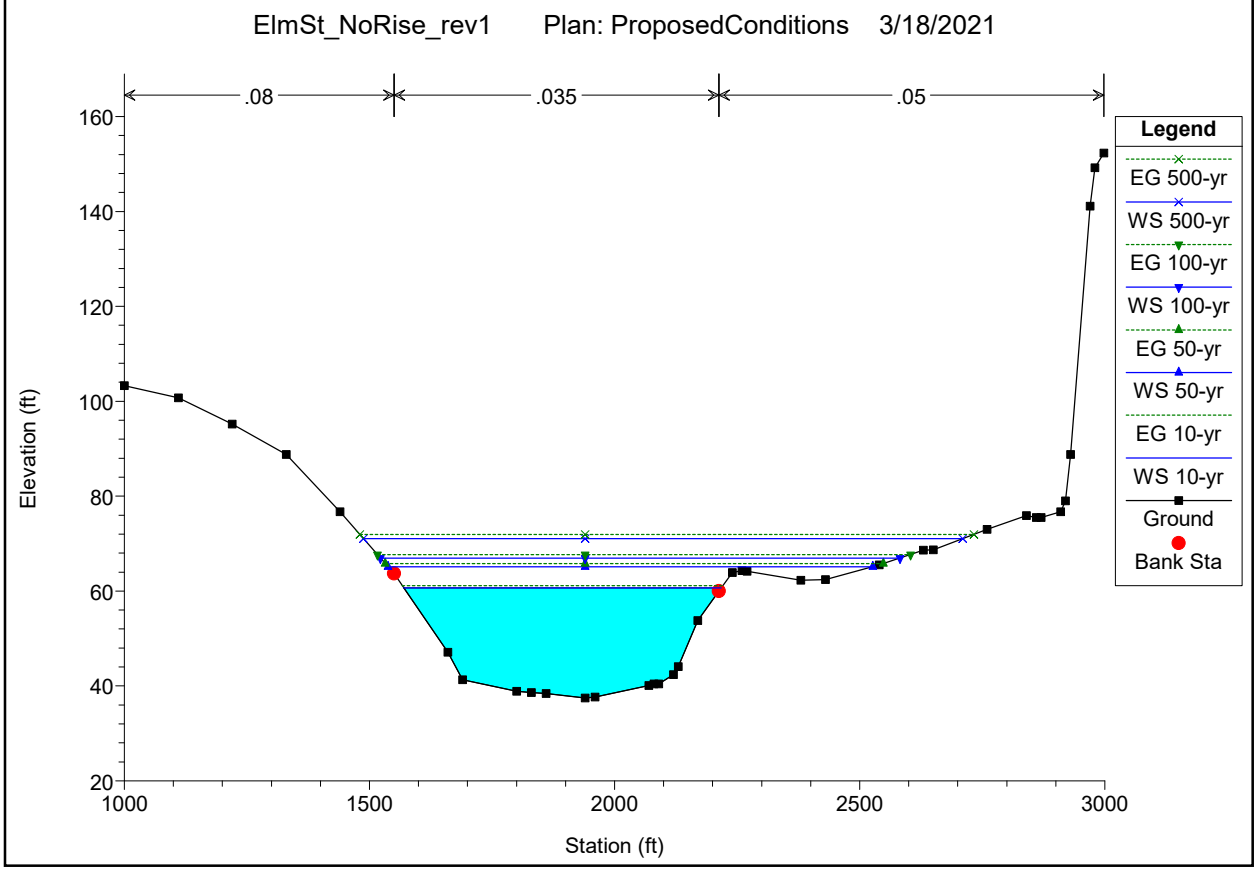

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
This is a REPEATED section.
.08
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

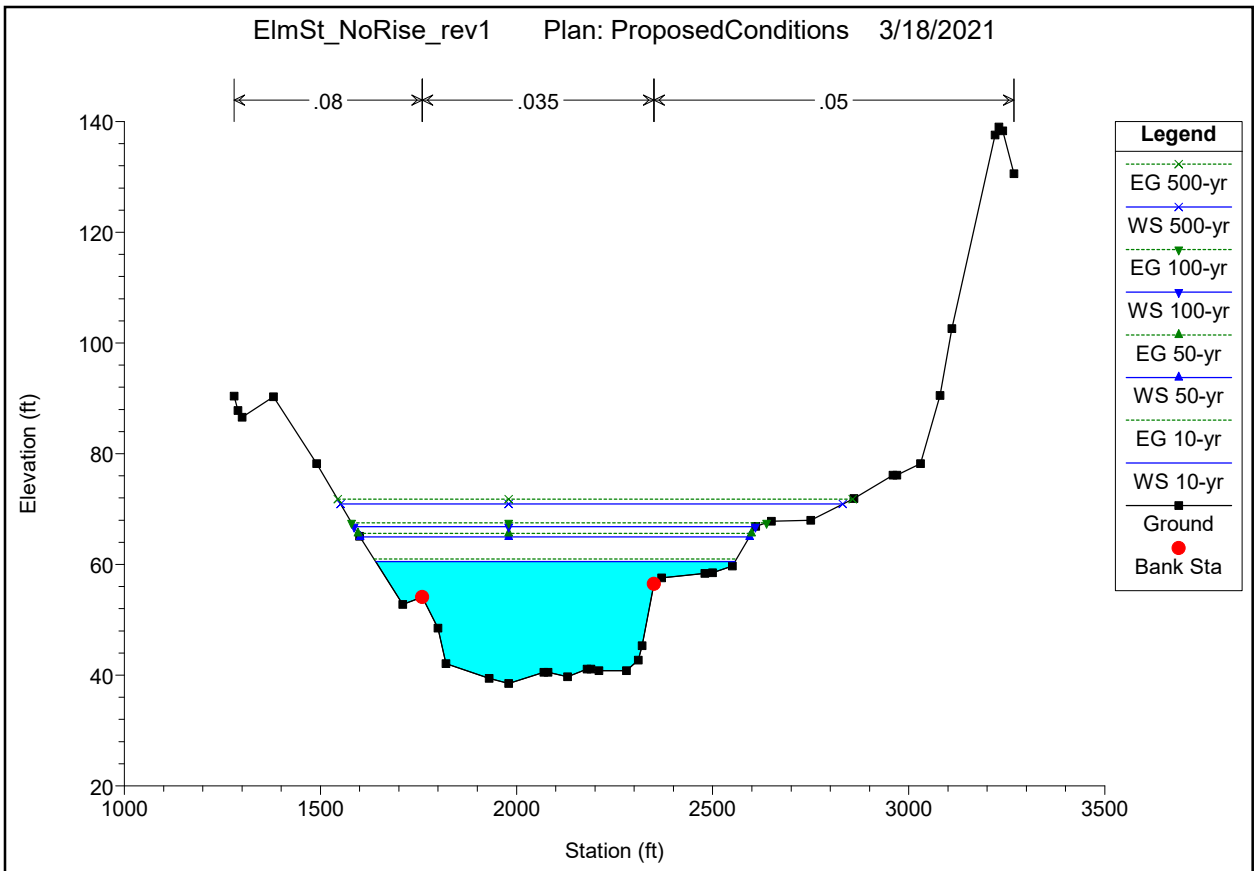

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #2X-109108 IS THE DS FACE DTM STATION OF RT 476 NORTH BRI
.08
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

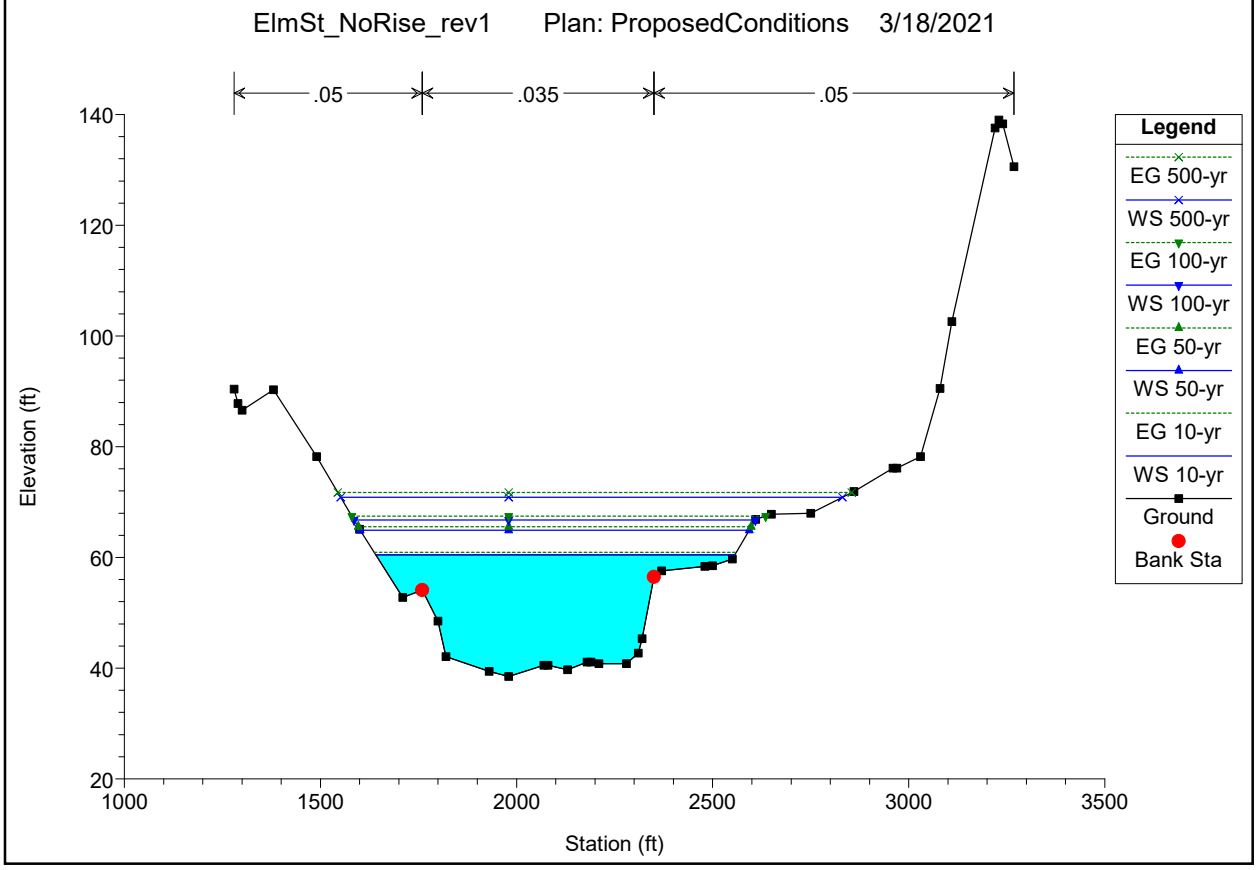

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
Bridge #2X-109108 IS THE DS FACE DTM STATION OF RT 476 NORTH BRI
.08
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Crit 500-yr
Crit 100-yr
Crit 50-yr
Crit 10-yr
Ground
Bank Sta

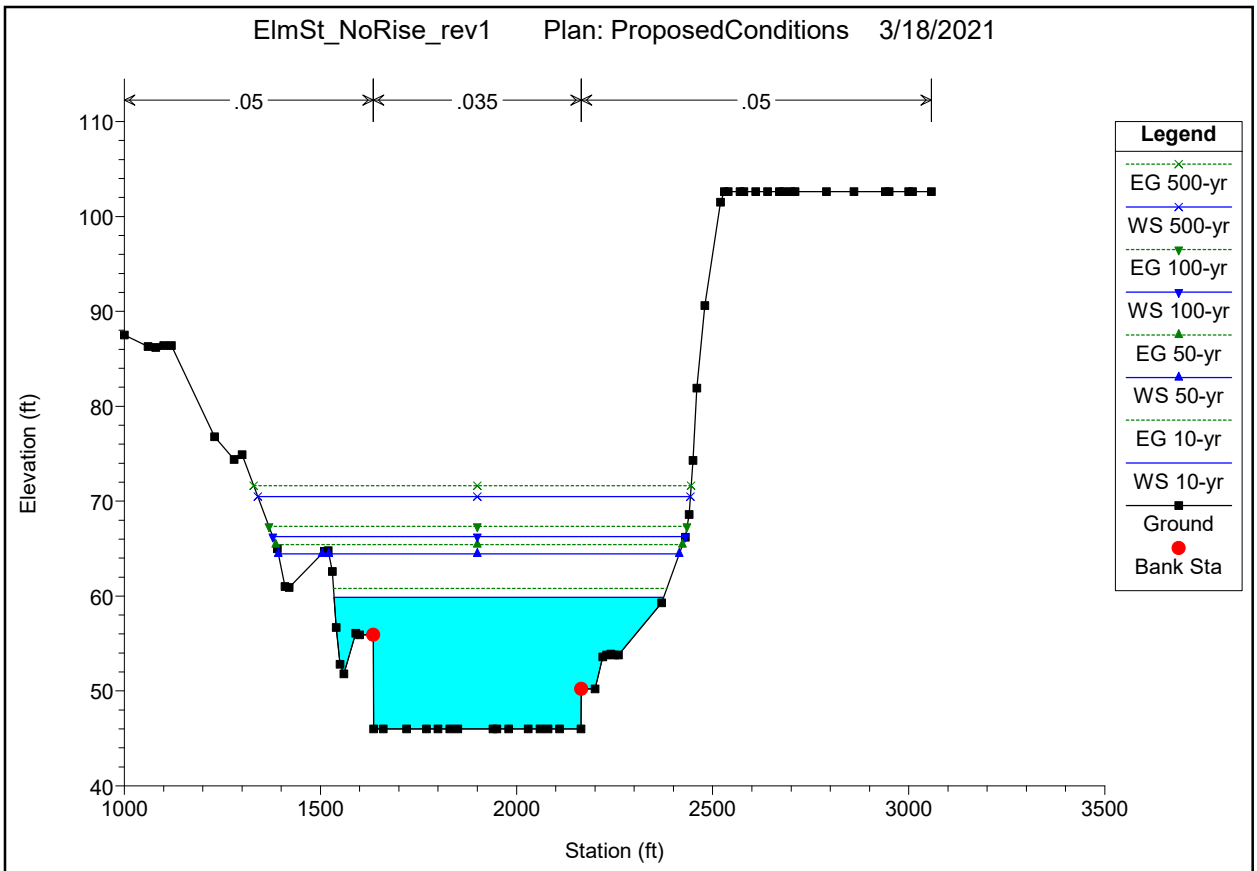

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.08
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta

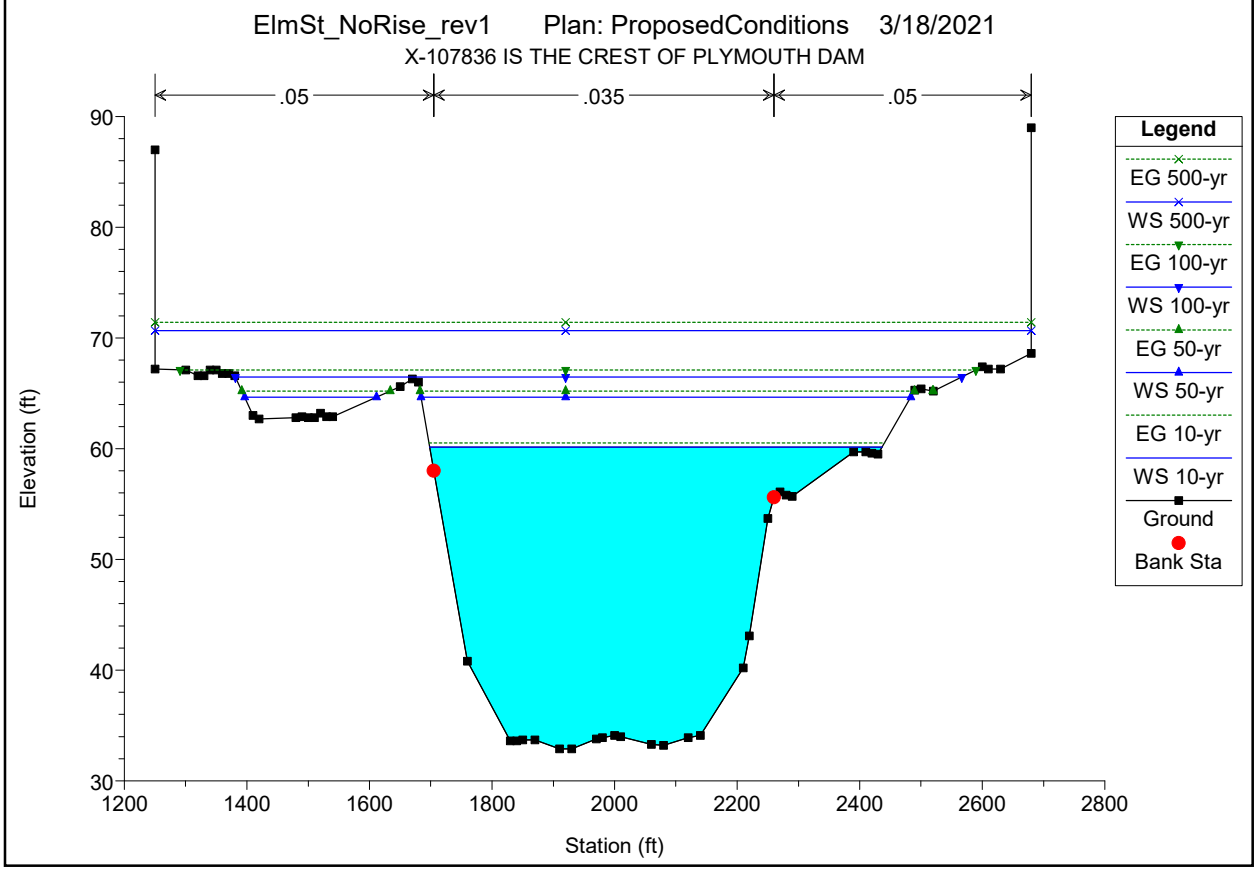

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.08
.035
.05
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
40
60
80
100
120
140
1000
1500
2000
2500
3000

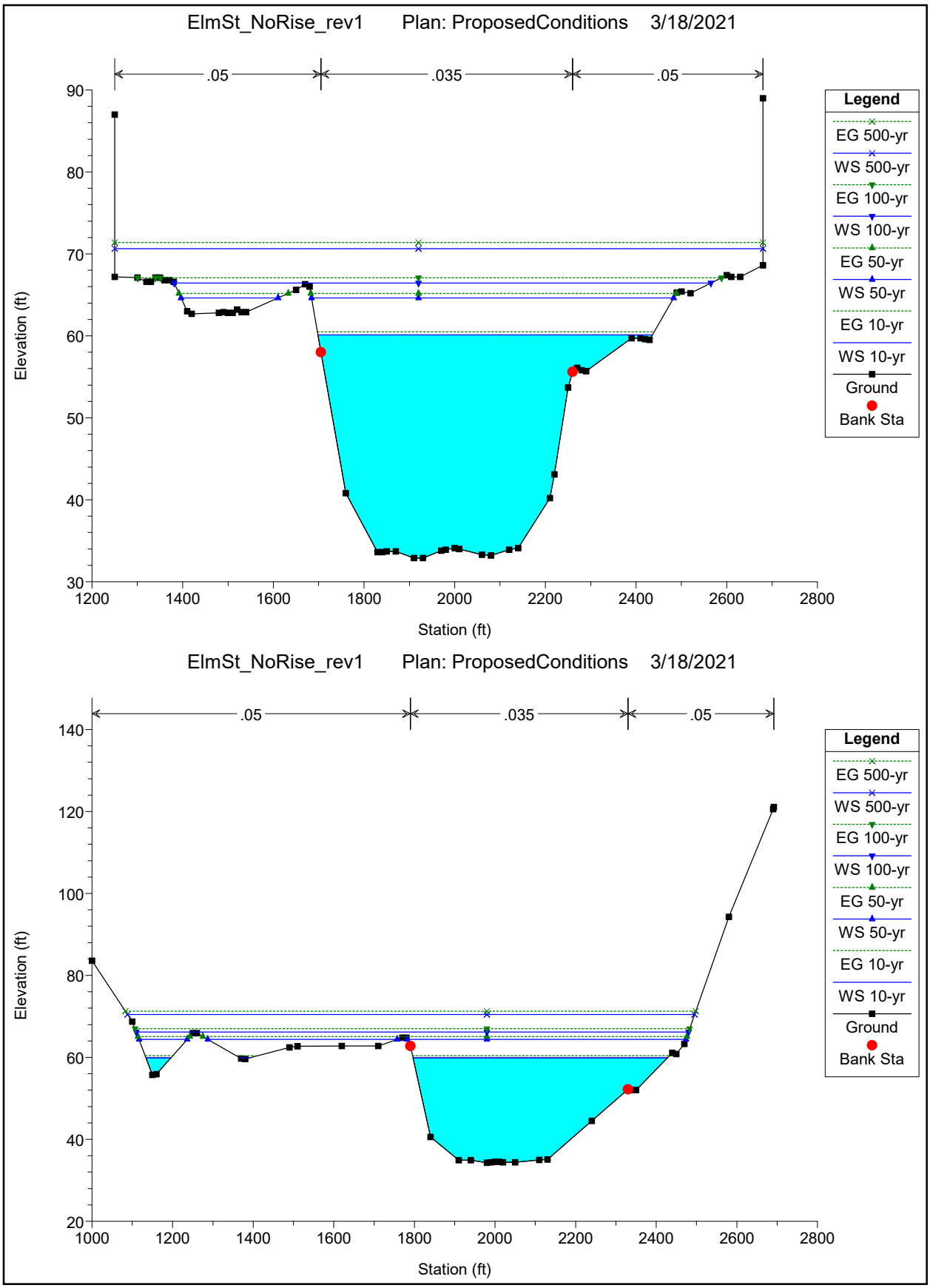

ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.08
.035
.05
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta
Elevation (ft)
Station (ft)
20
40
60
80
100
120
140
160
1000
1500
2000
2500
3000


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.08
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
X-107836 IS THE CREST OF PLYMOUTH DAM
.05
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
WS 10-yr
Ground
Bank Sta


ElmSt_NoRise_rev1 Plan: ProposedConditions 3/18/2021
.05
.035
.05
Elevation (ft)
Station (ft)
Legend
EG 500-yr
WS 500-yr
EG 100-yr
WS 100-yr
EG 50-yr
WS 50-yr
EG 10-yr
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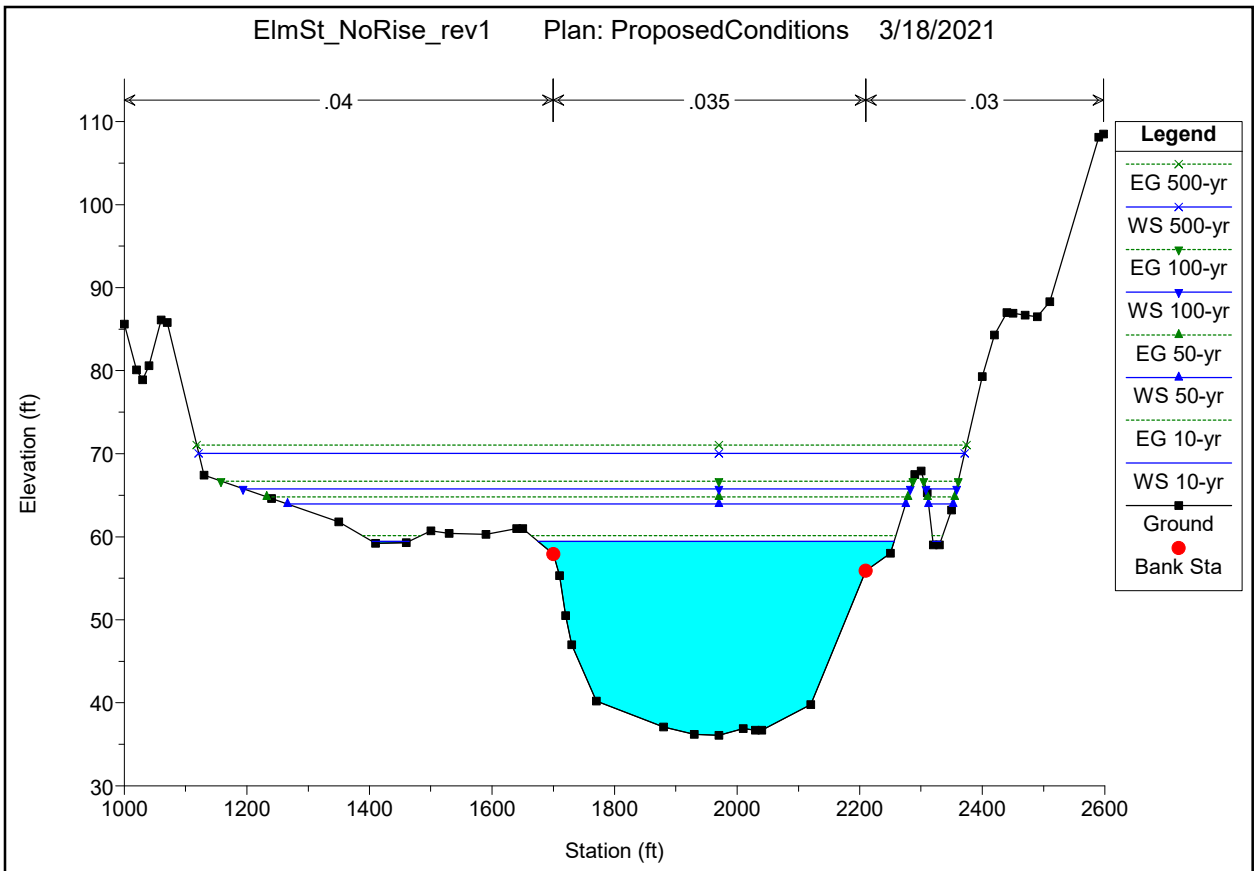
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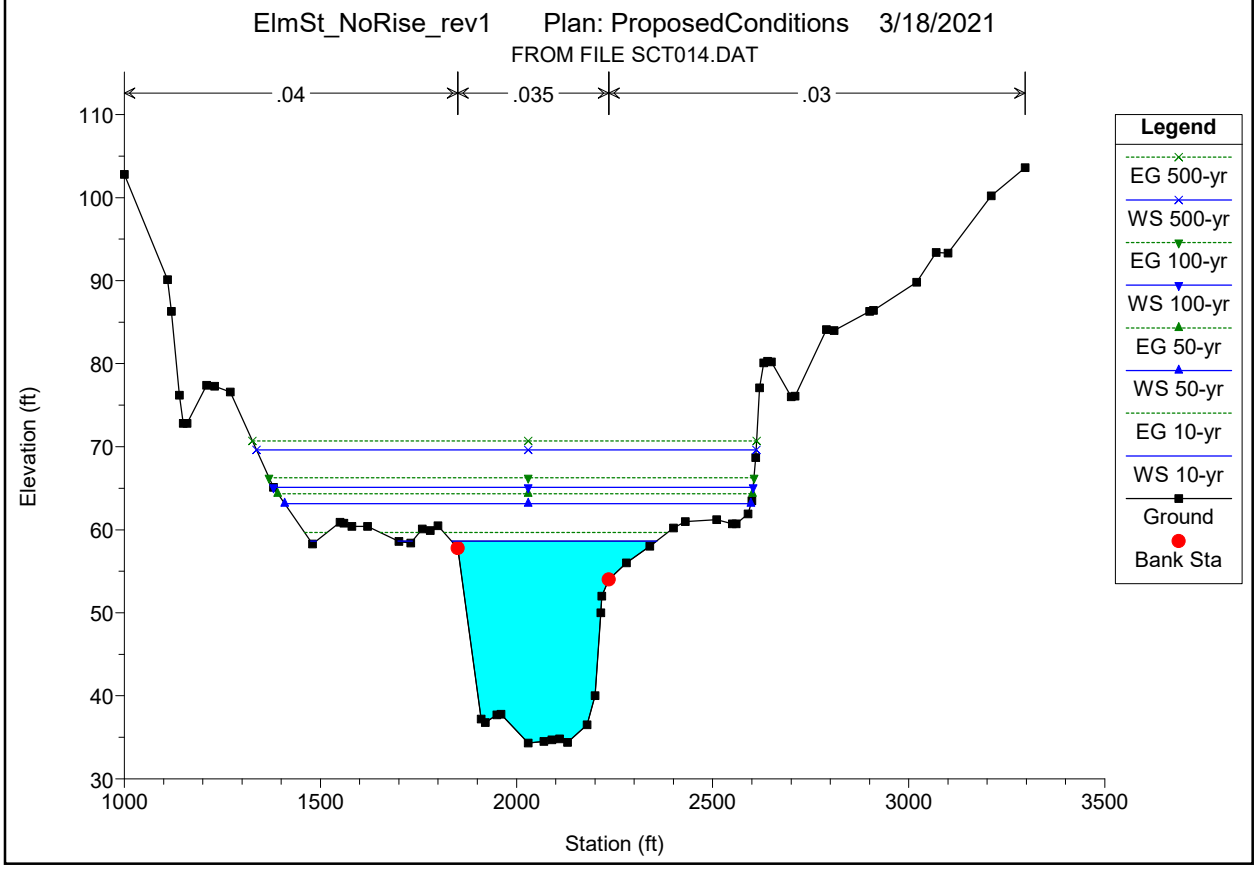
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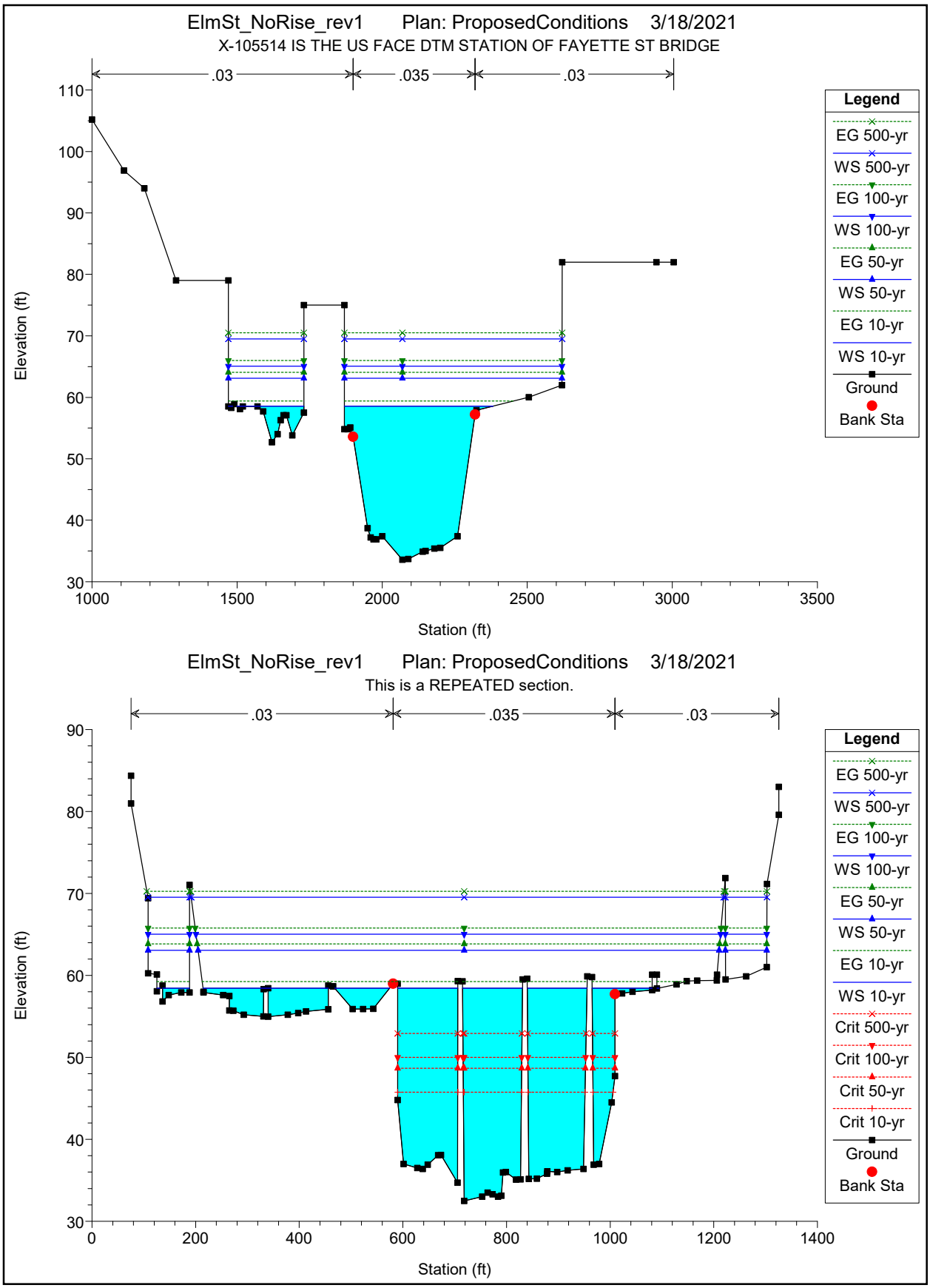
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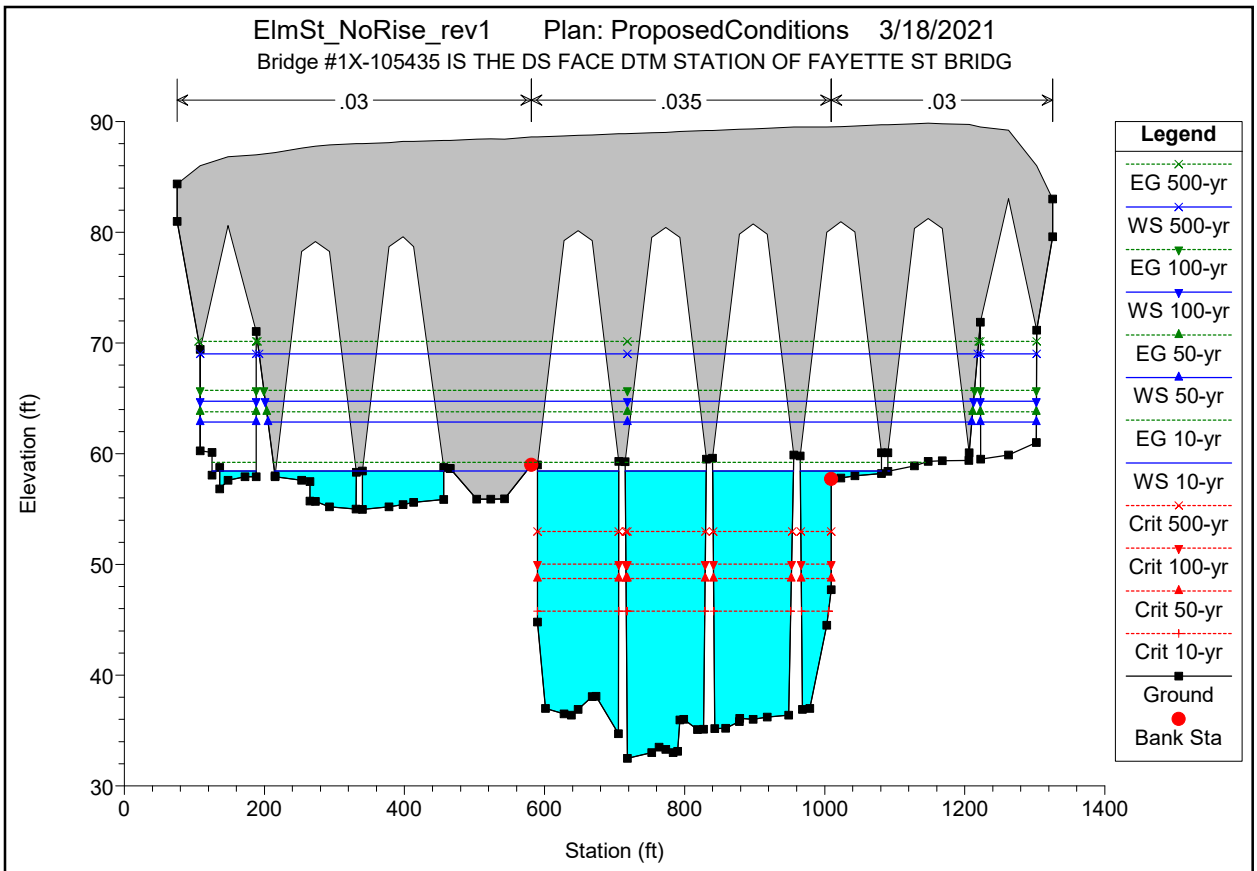
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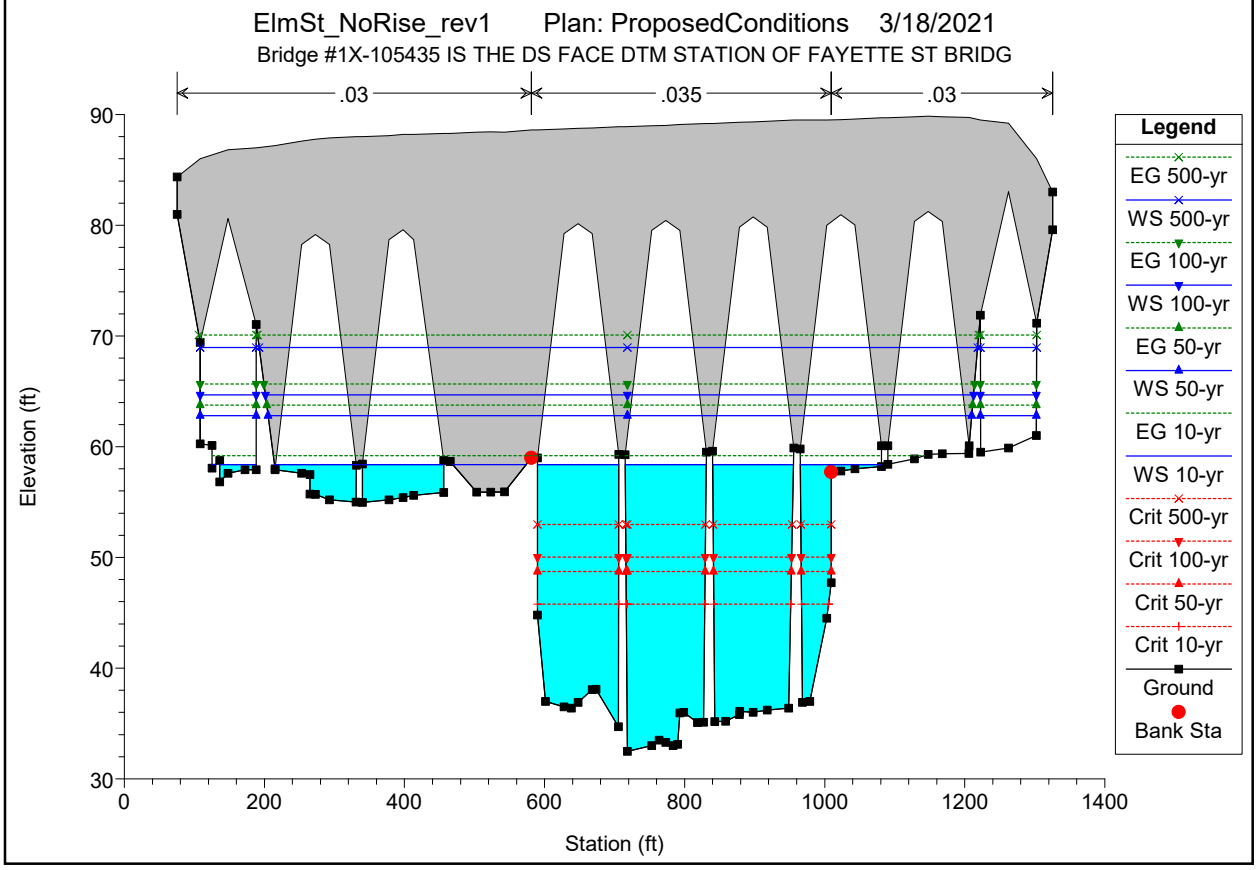
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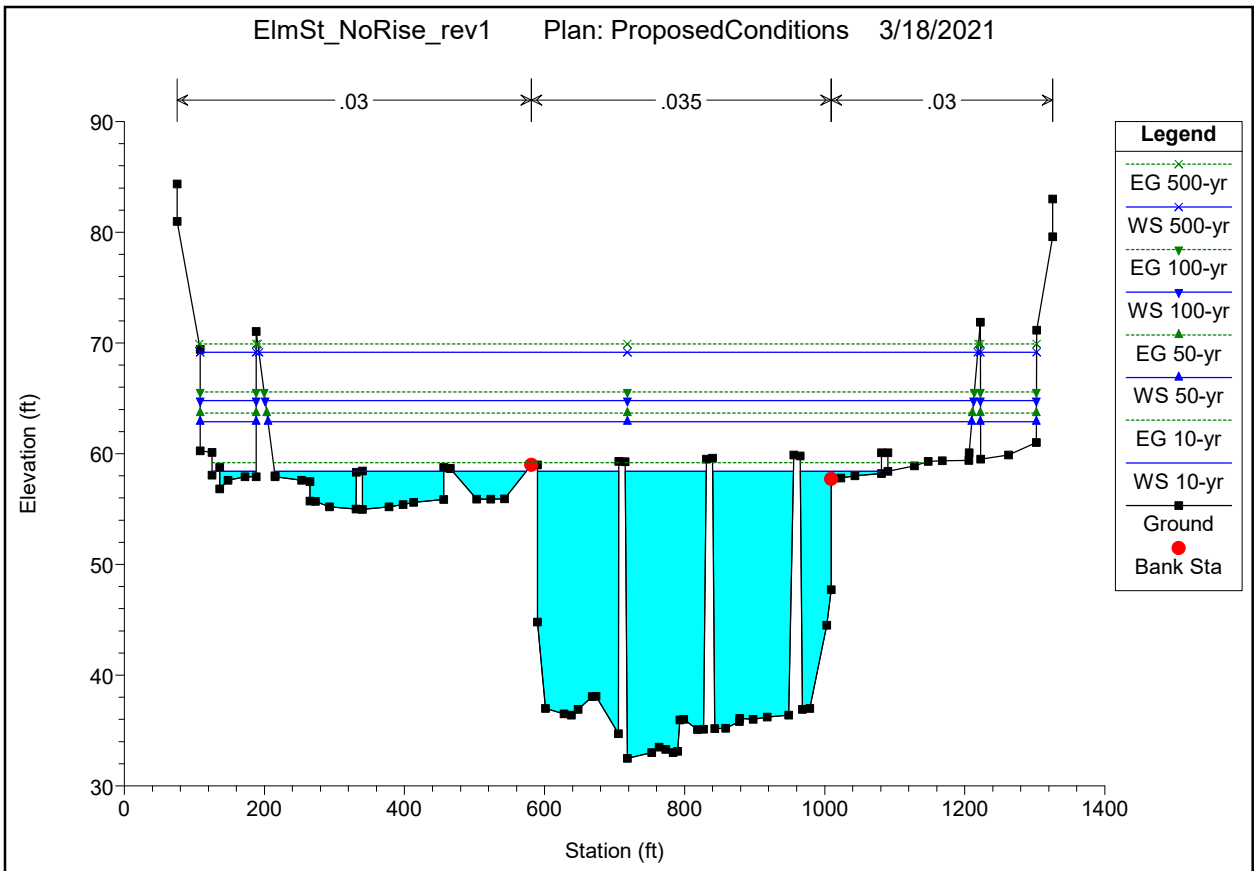
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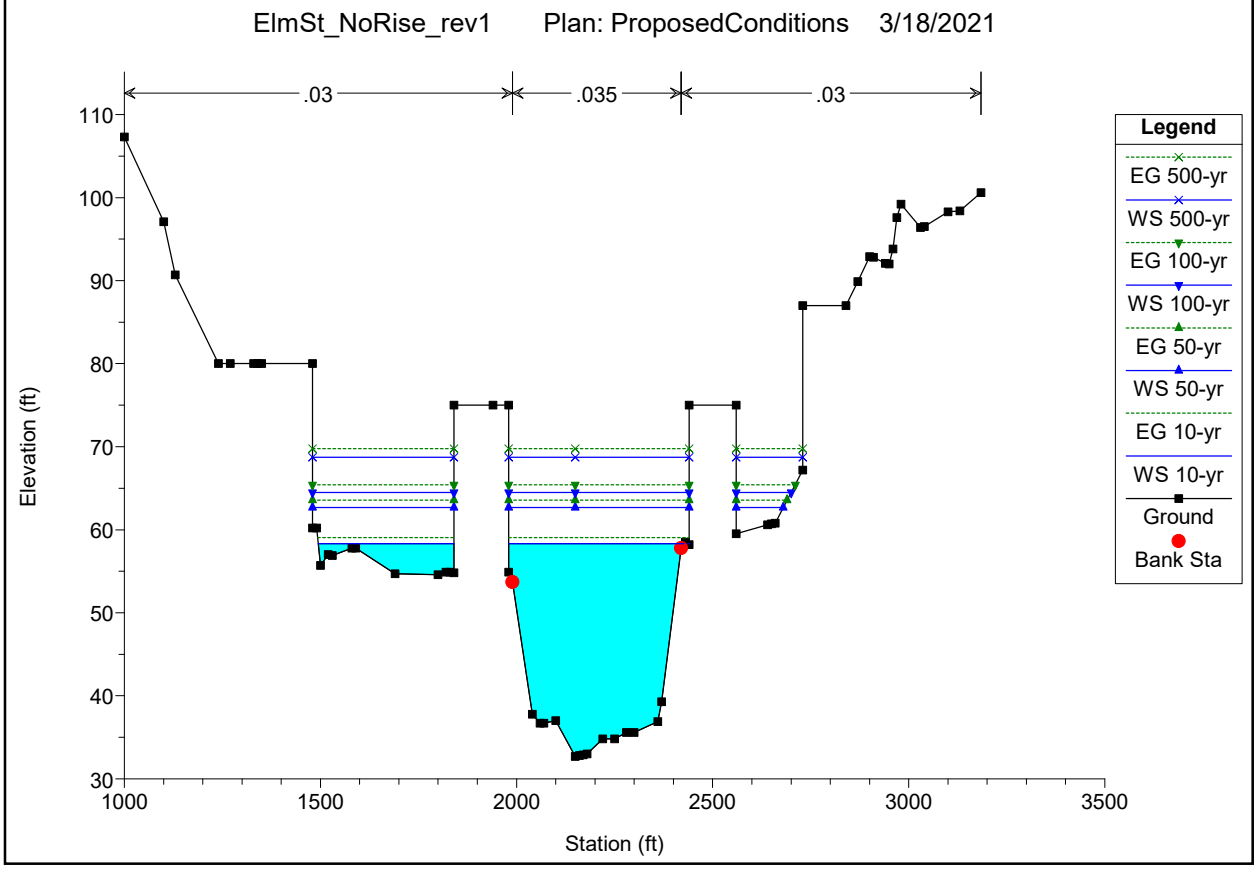
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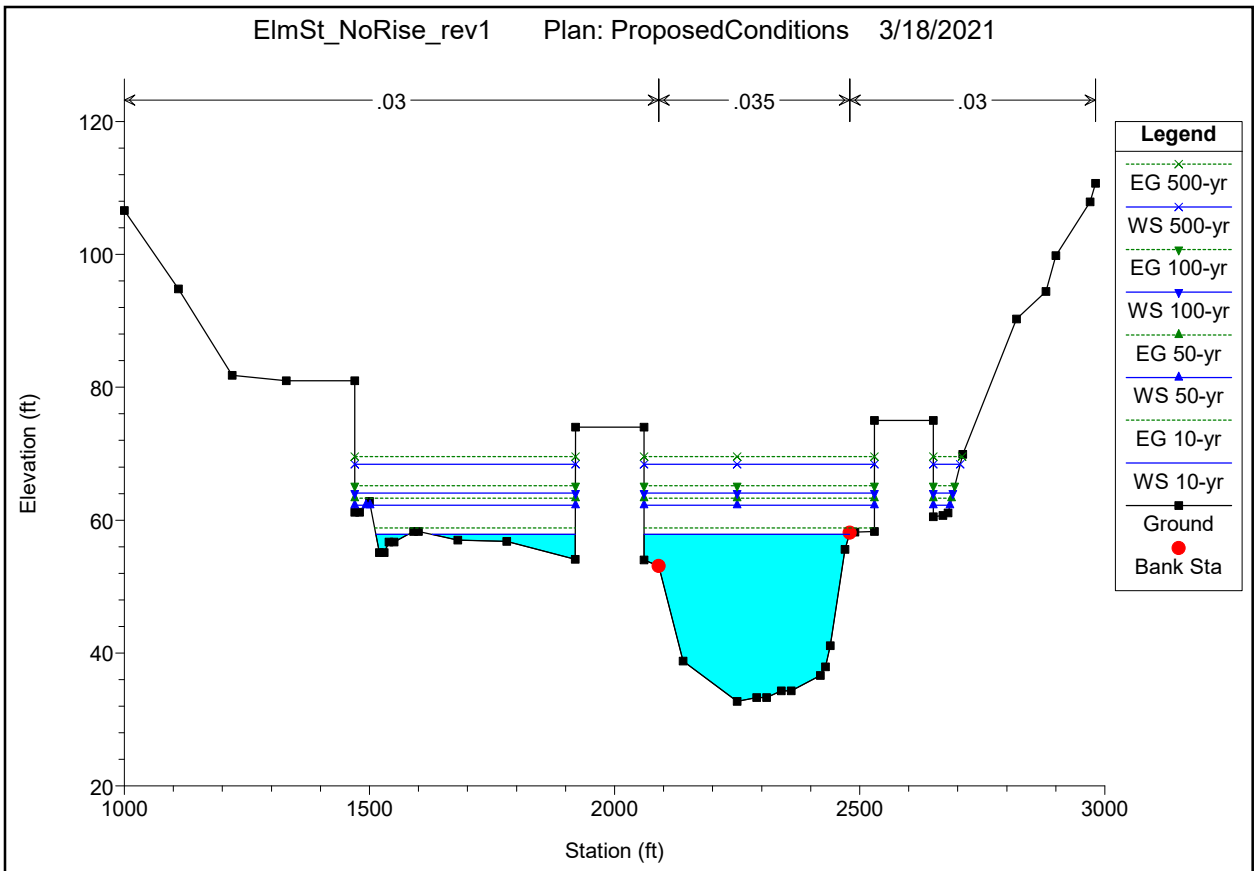
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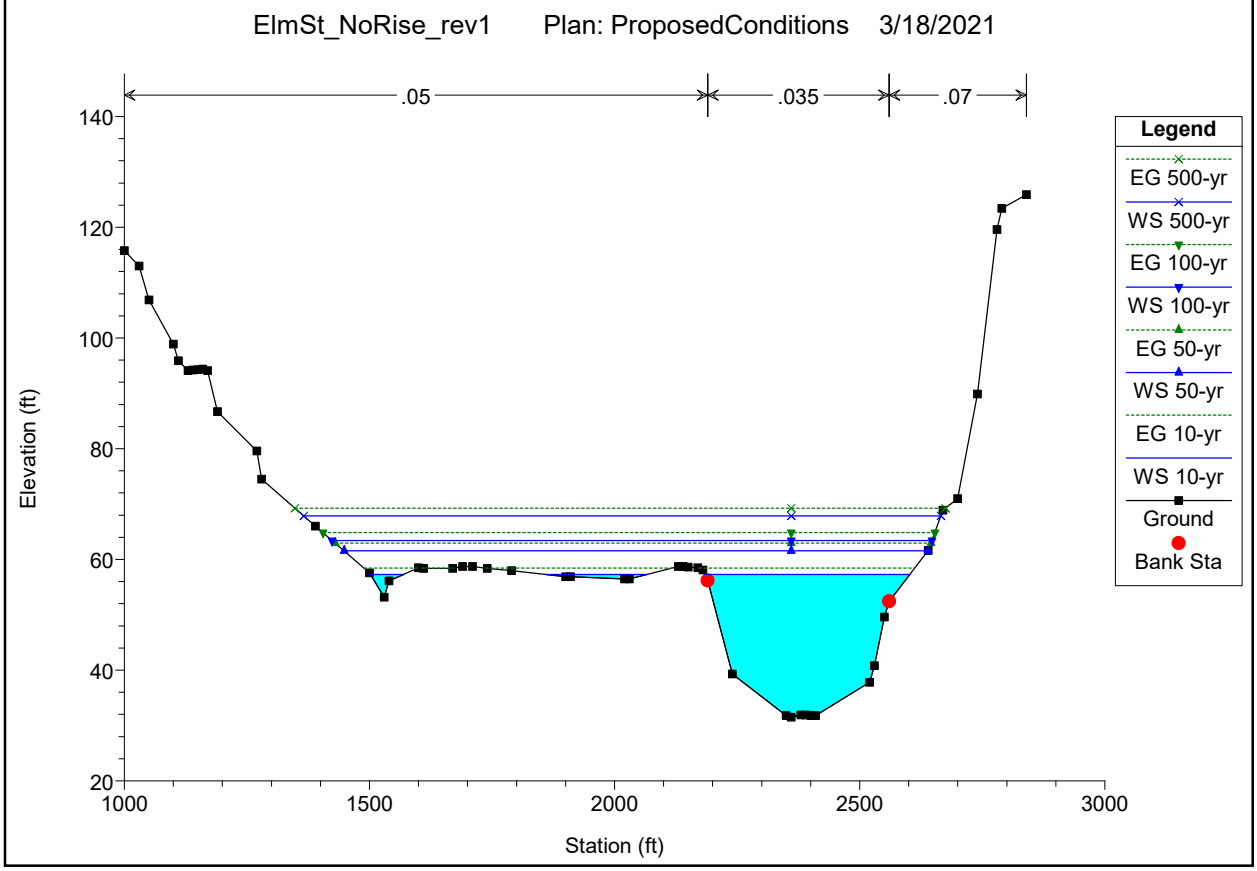
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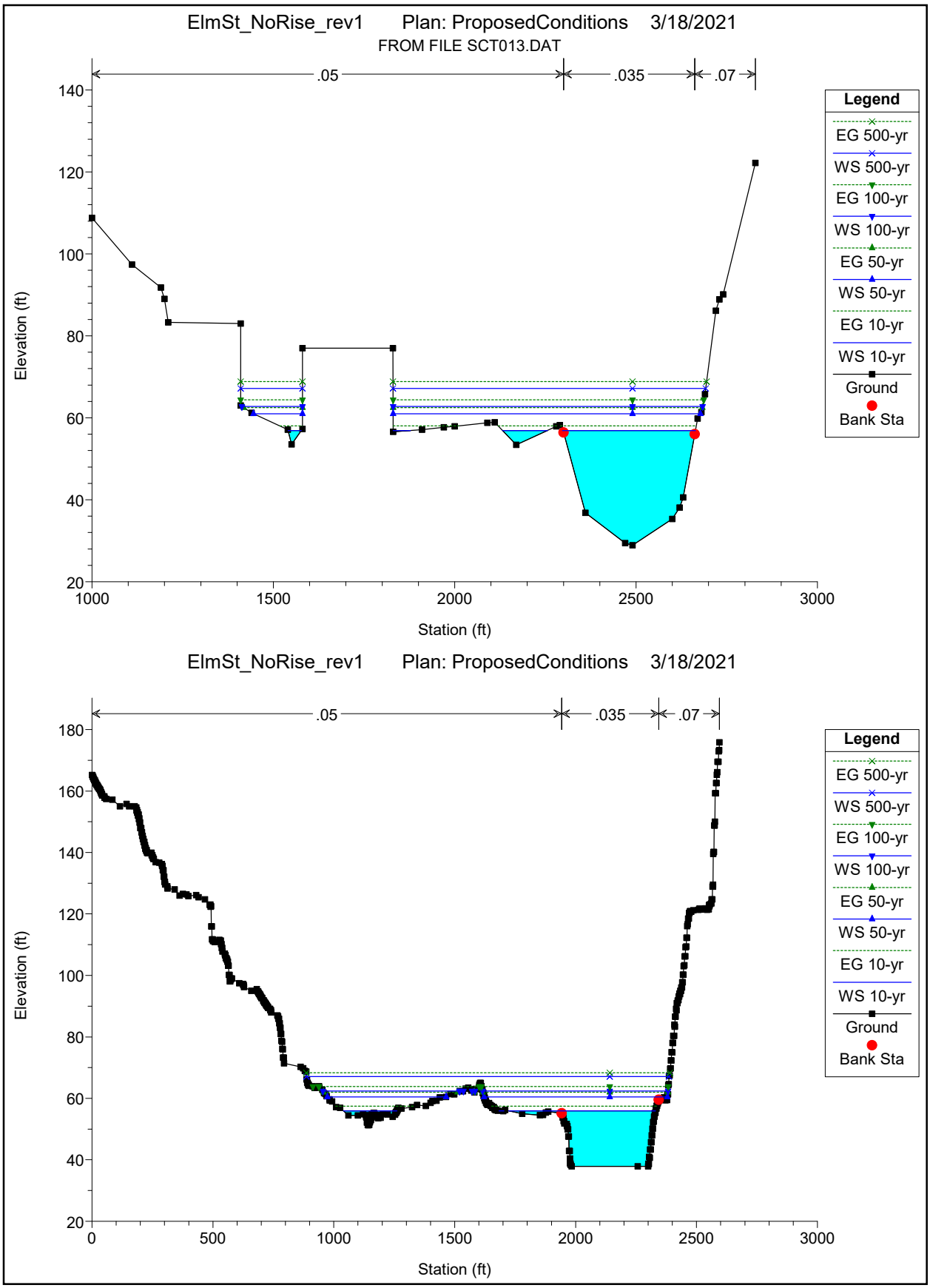
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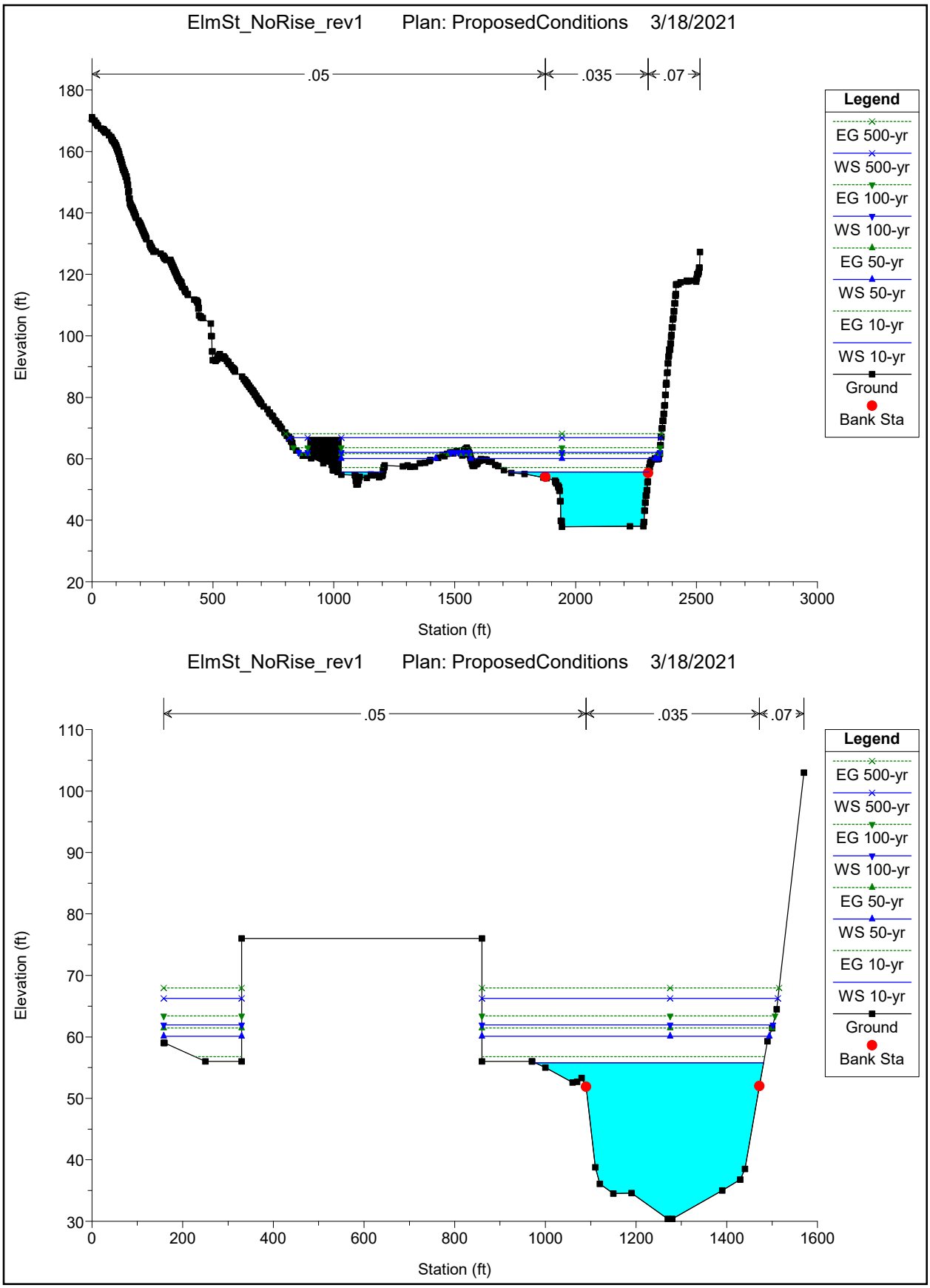
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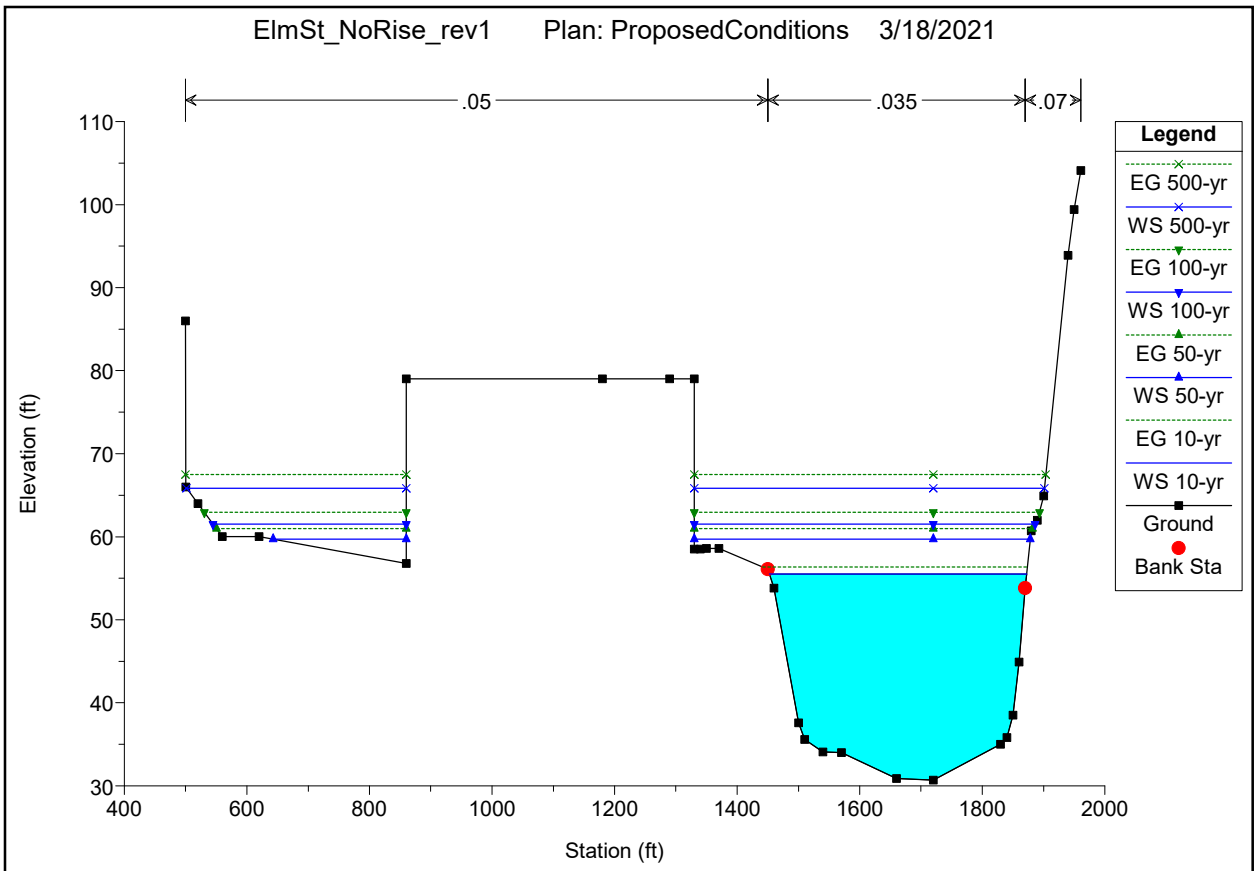
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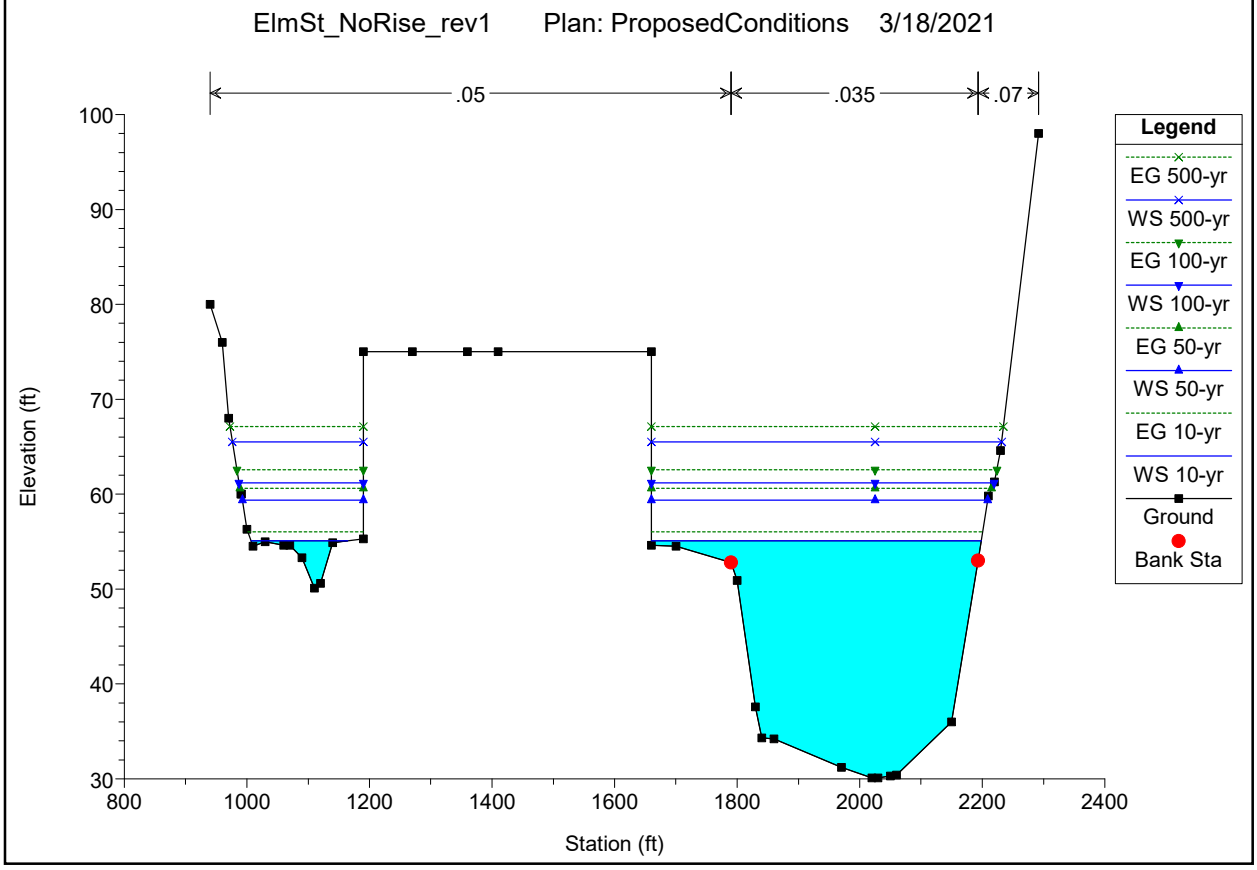
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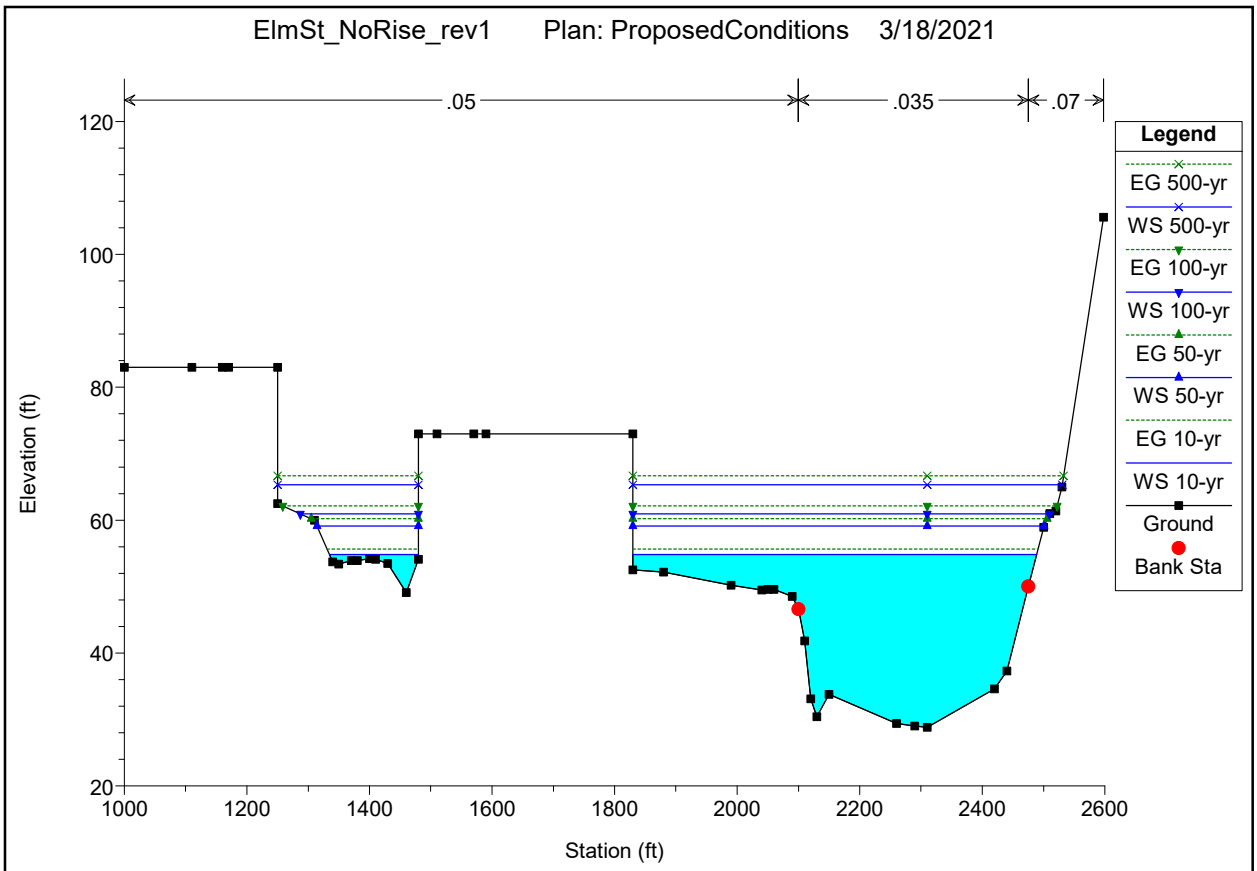
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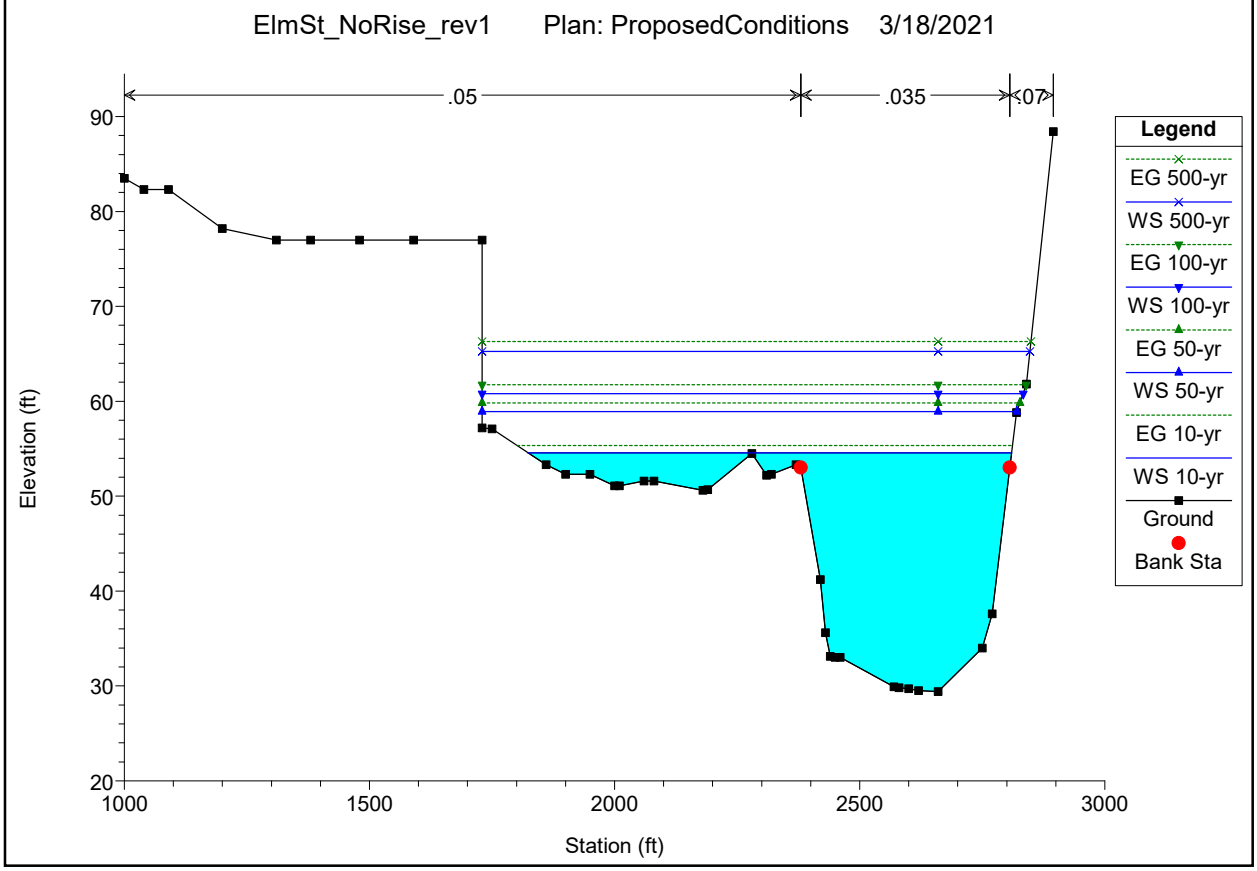
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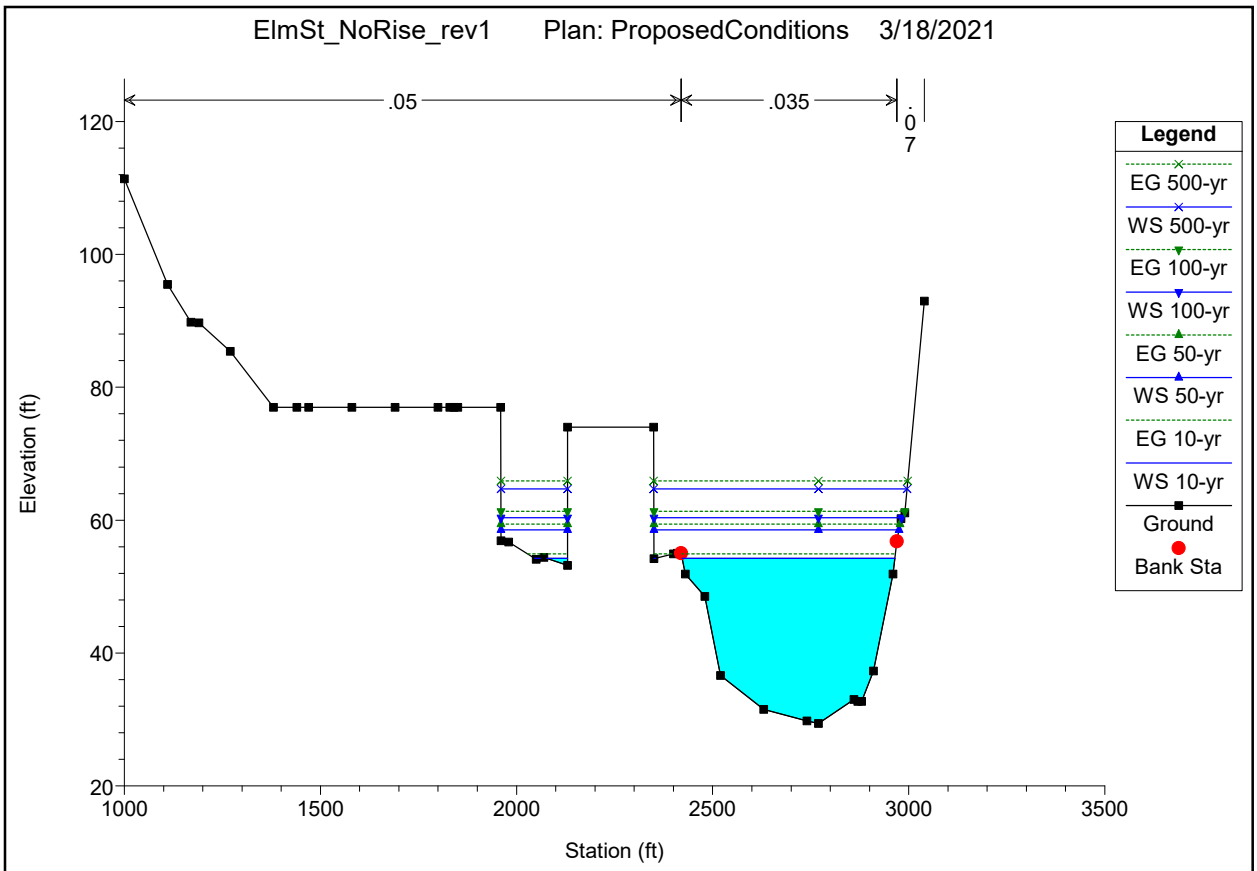
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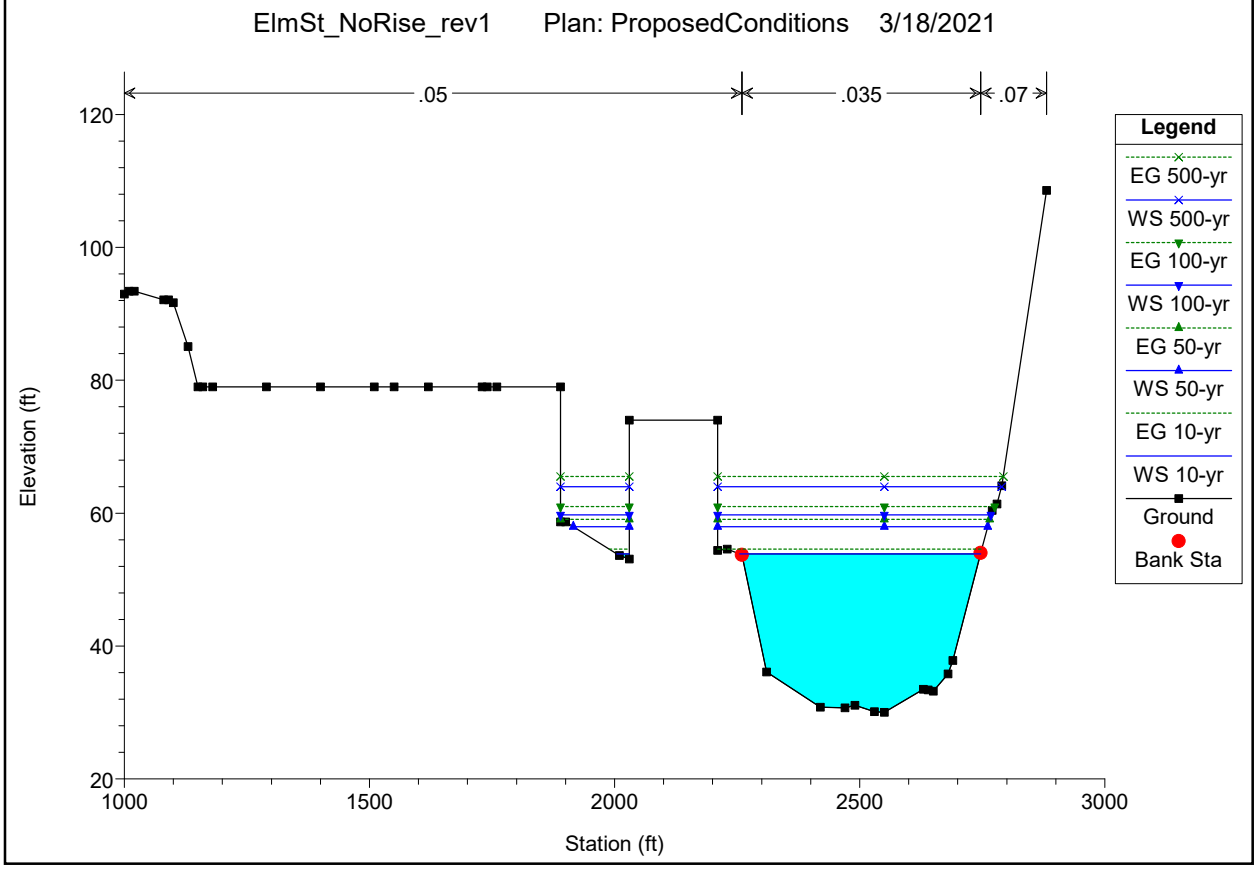
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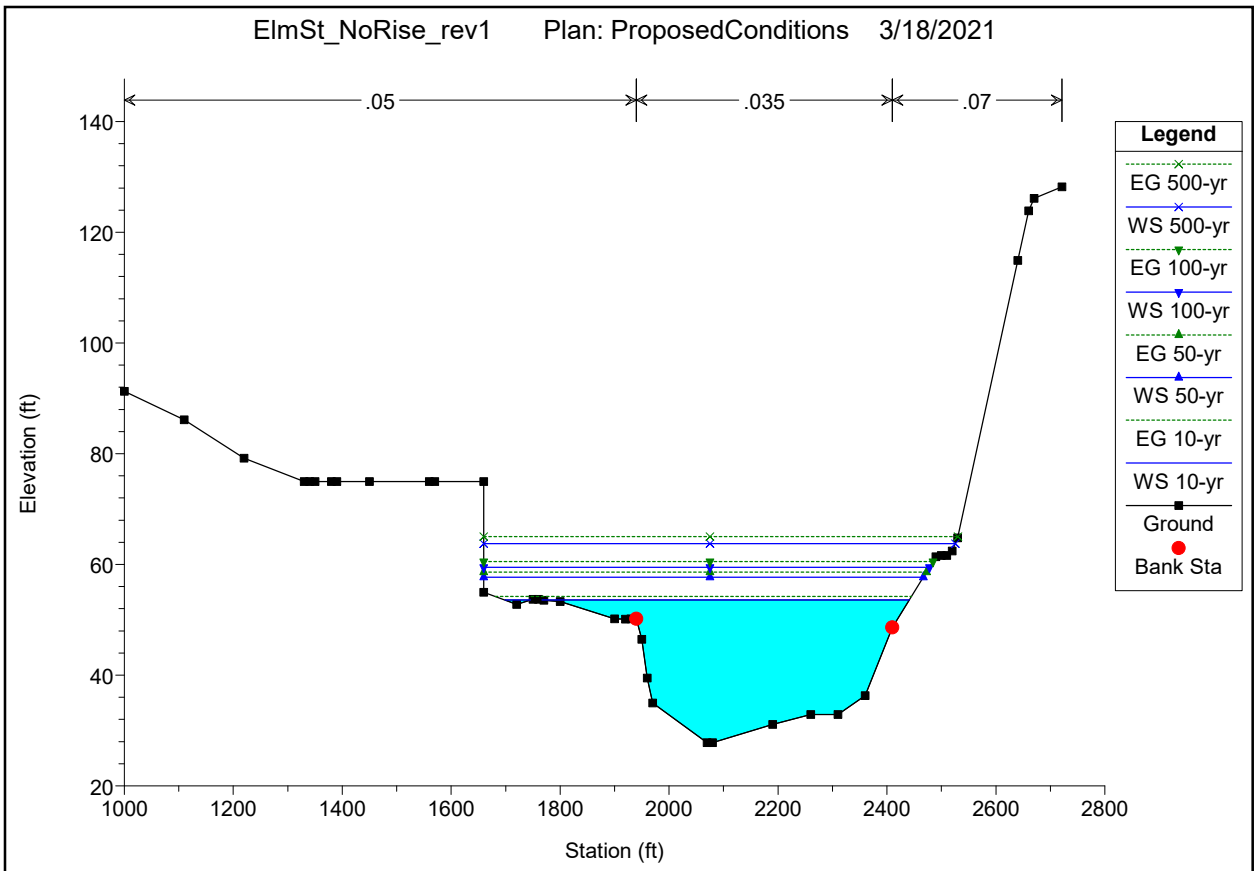
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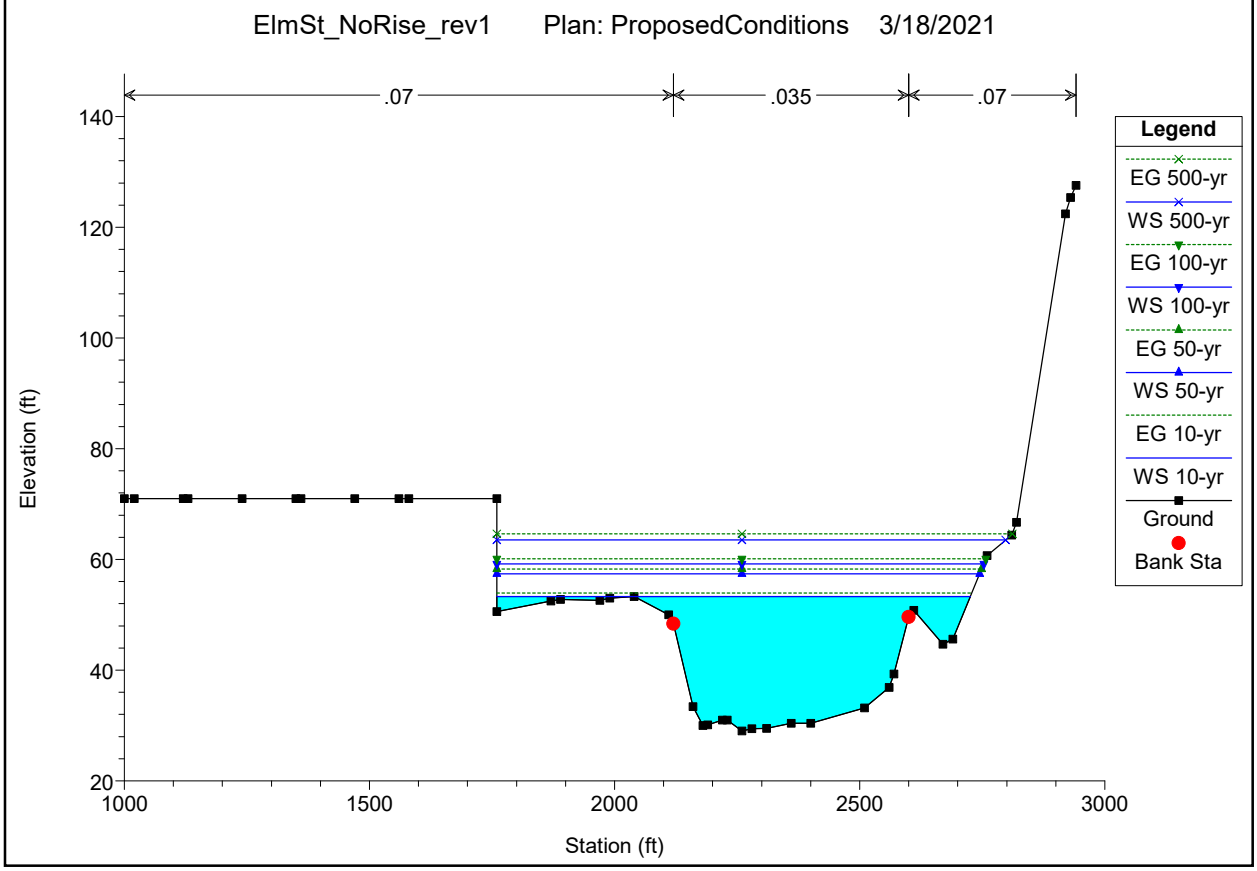
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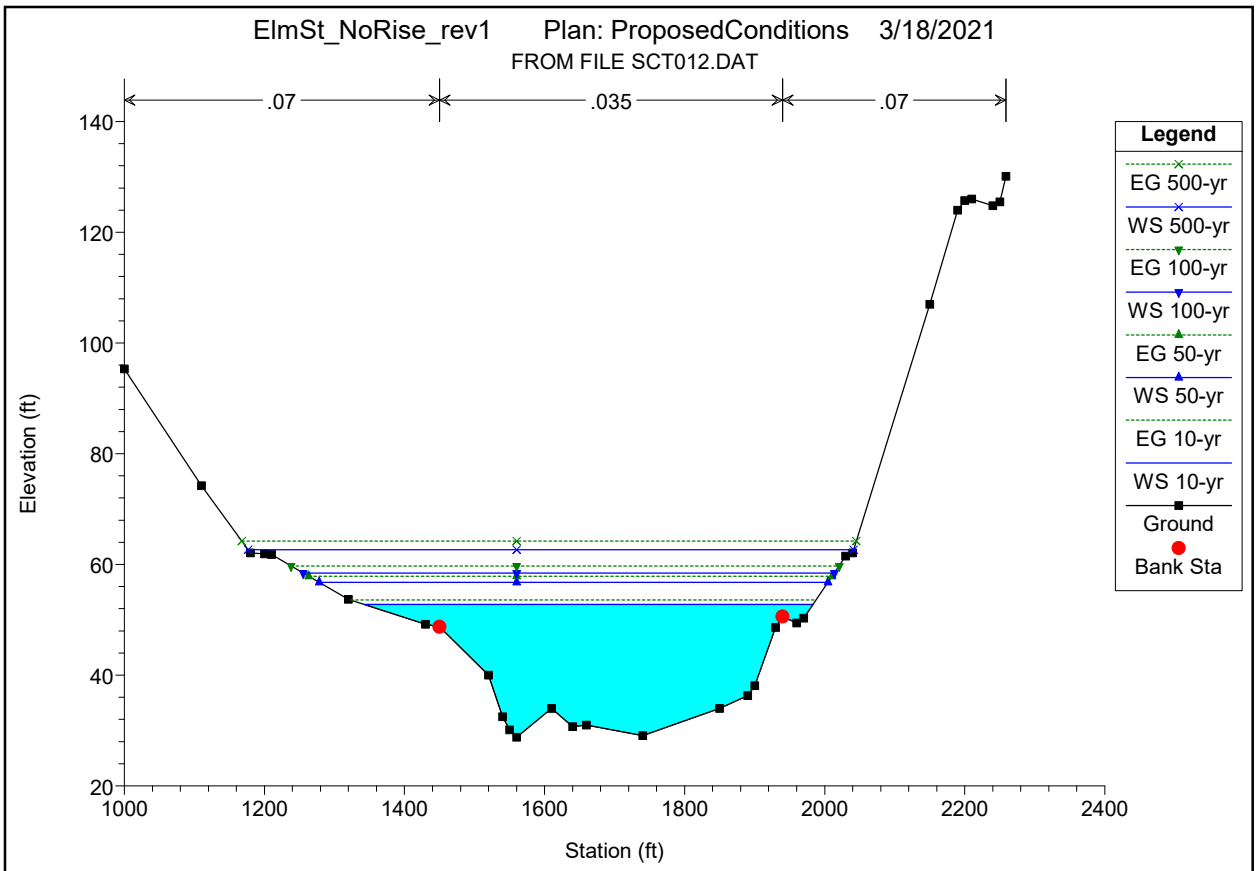
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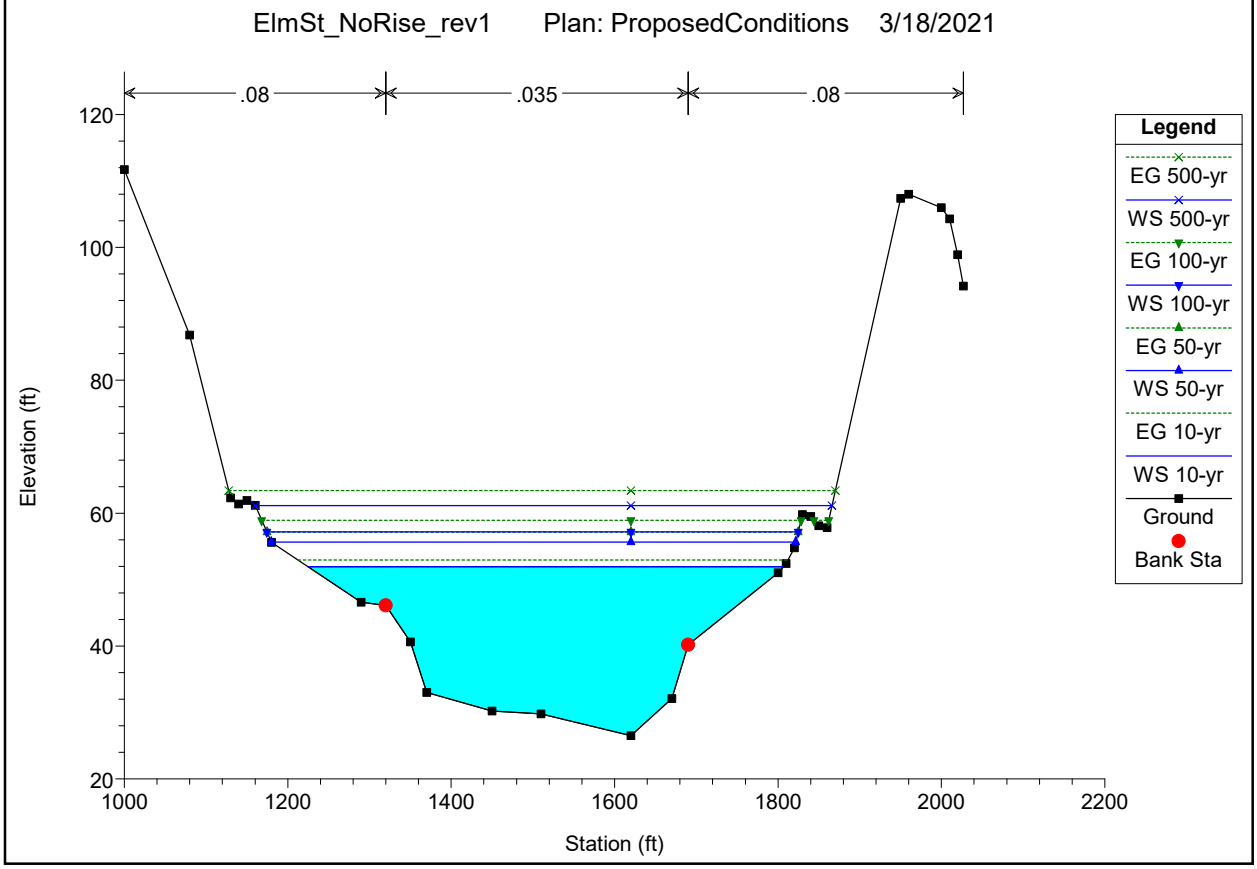
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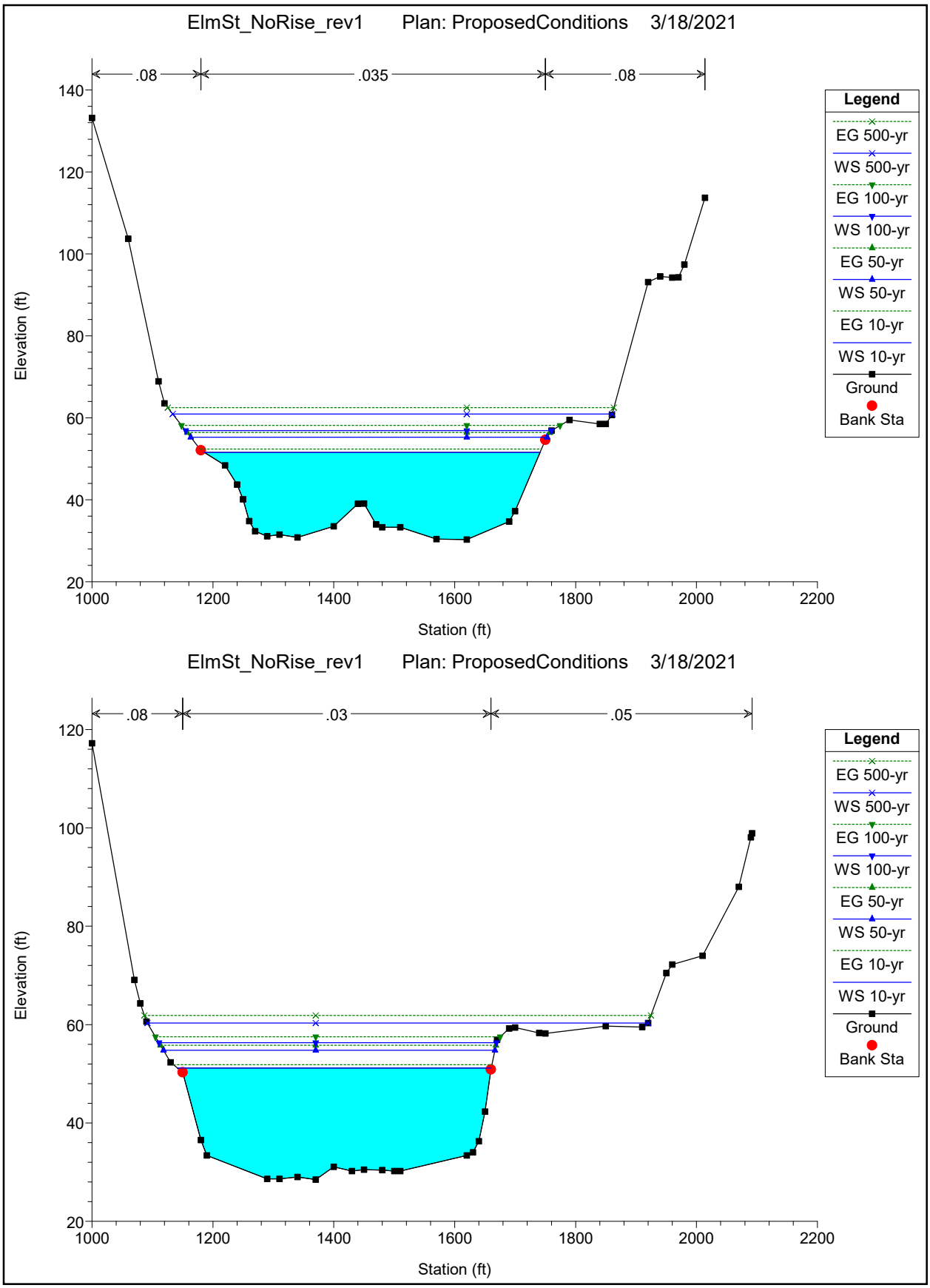
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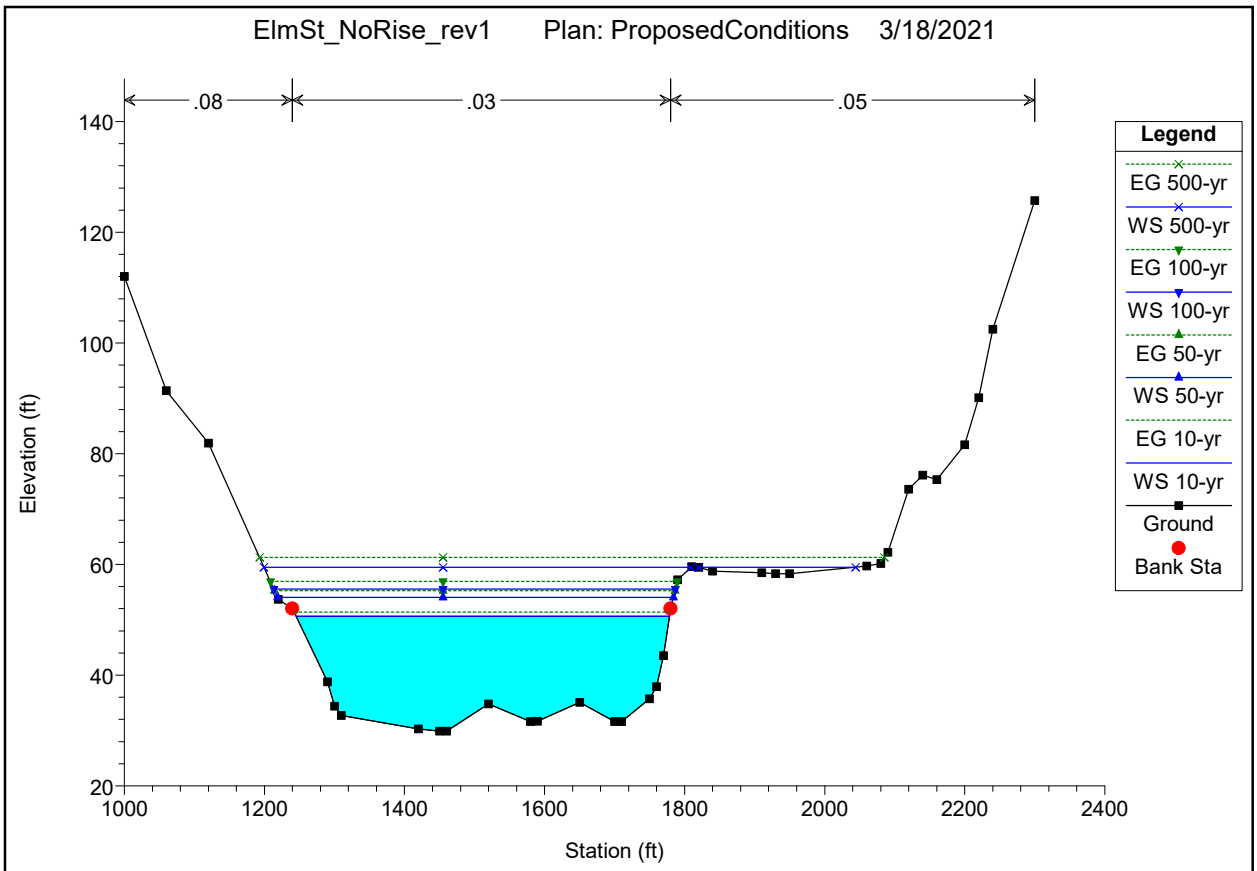
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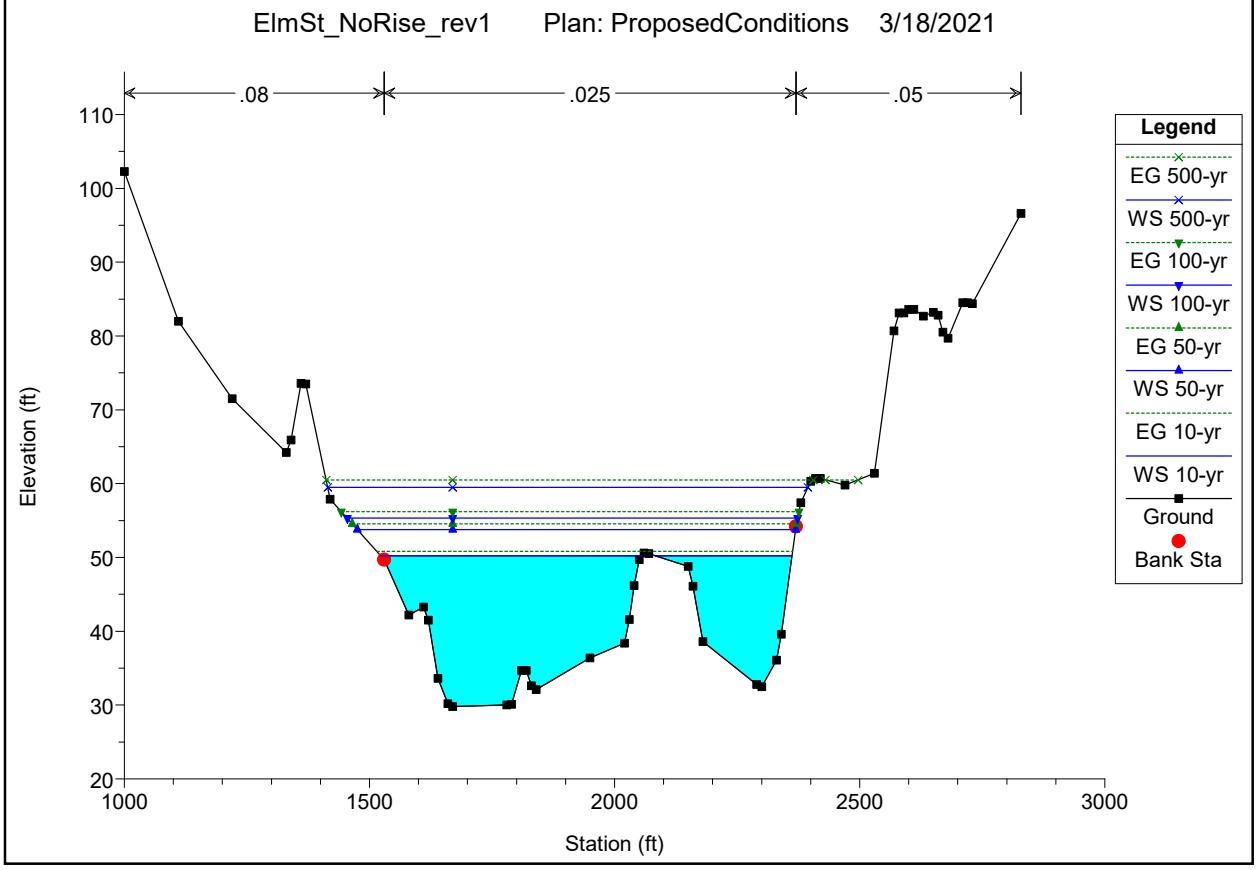
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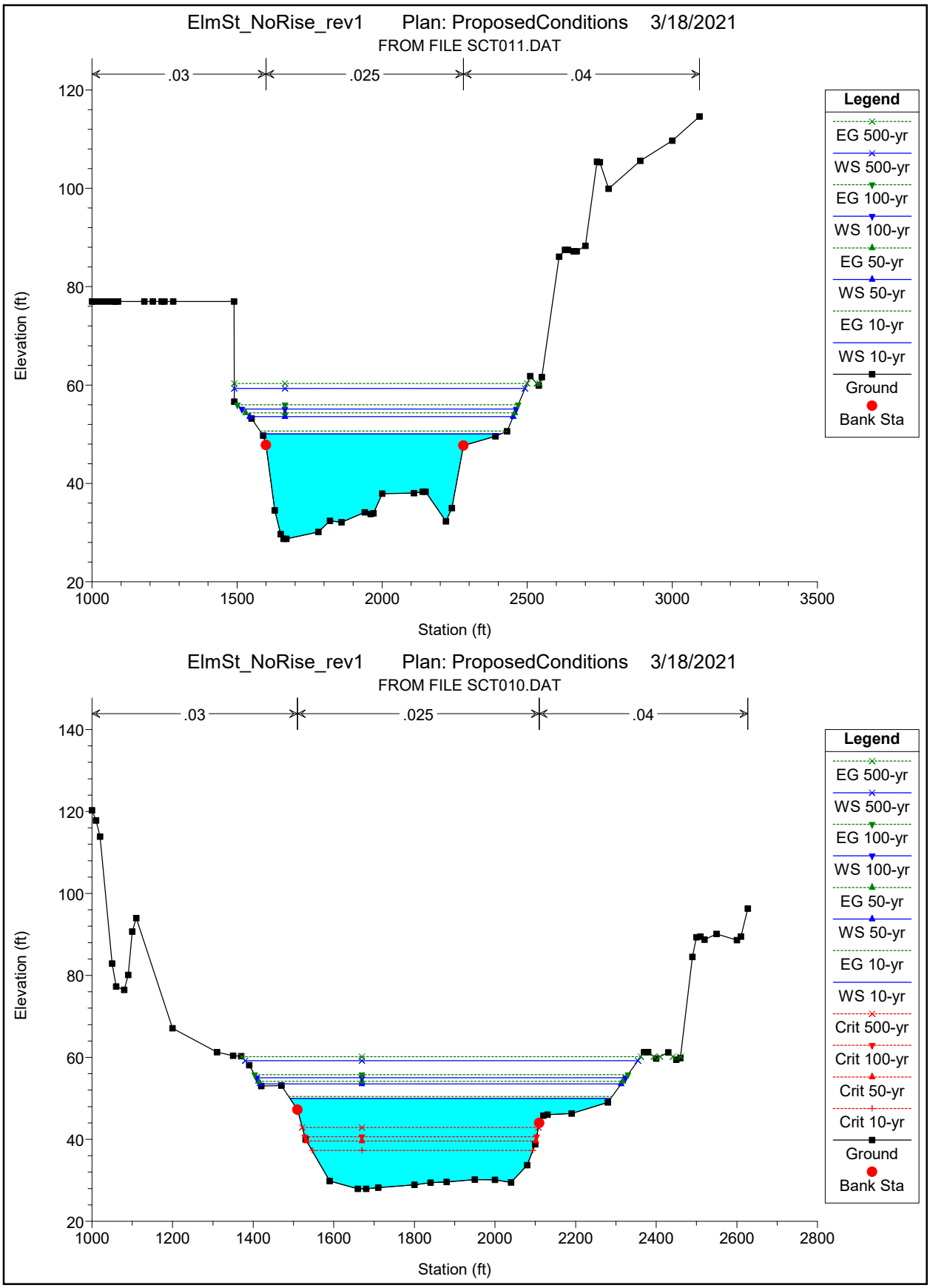
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3100 Horizon Drive
Suite 200
King of Prussia, PA 19406
T: 610-277-2402
F: 610-277-7449

www.pennoni.com

May 11, 2021

BCONS 20023

Stephanie Cecco, Borough Manager
Conshohocken Borough
400 Fayette Street, Suite 200
Conshohocken, PA 19428

RE: Floodplain Study Review
261-263 E. Elm Street – Variance Application

Dear Ms. Cecco:

As requested, we reviewed the following in connection with the referenced project:

- *"261-263 E. Elm St. Preliminary Floodplain Study,"* prepared by Kimley Horn, dated March 18, 2021.

The flood analysis was submitted in support of the applicant's request for variances from §27-1714.1.A to permit the proposed residential development within the Floodplain Conservation District. We have reviewed the provided flood analysis and find it technically complete and meeting the conditions for granting a variance in the Floodplain Conservation District as outlined in §27-1718.

If the requested variances are granted, the technical provisions outlined in Code Section 17, Article G, will apply, including the requirement for the applicant to obtain all required approvals from the Commonwealth of Pennsylvania and FEMA.

If you have any questions or concerns, please feel free to contact the undersigned.

Sincerely,

Eric P. Johnson

Eric P. Johnson, PE
Zoning Officer
PENNONI ASSOCIATES INC.

EPJ/

cc: Brittany Rogers, Executive Assistant
Mike Peters, Esq., Solicitor
Alex Glassman, Esq., Zoning Hearing Board Solicitor
Karen MacNair, PE Borough Engineer
Debra Shulski, Esq., Riley, Riper Hollin & Calagreco

HEINRICH & KLEIN ASSOCIATES, INC.

TRAFFIC ENGINEERING & PLANNING
1134 Heinrich Lane • Ambler, Pennsylvania 19002
215-793-4177 • FAX 215-793-4179

MEMORANDUM

TO: Ryan Alexaki
Craft Custom Homes, LLC

FROM: Andreas Heinrich, P.E., P.T.O.E.

DATE: July 16, 2020

RE: Traffic Generation Analysis
261-263 Elm Street
Borough of Conshohocken, Montgomery County, PA

As requested, please accept the results of this Traffic Generation Analysis for redevelopment of the property situated at 261-263 Elm Street in the Borough of Conshohocken, Montgomery County, Pennsylvania. The site is currently occupied by a commercial building comprised of 14,086 square feet of floor space. It is my understanding that it is proposed to redevelop the property for 21 multi-family residential dwelling units. It is proposed to provide 42 off-street parking spaces, with additional on-street parking in the surrounding neighborhood. Access will be provided via a driveway that will intersect Elm Street at a point west of Poplar Street, and a driveway that will intersect Poplar Street at a point south of Elm Street.

Based on the commercial floor area and the number of dwelling units, an estimate of the potential existing and projected traffic demand can be calculated. The anticipated traffic generation of the potential land uses is estimated from trip generation data compiled by the Institute of Transportation Engineers and documented in the publication entitled Trip Generation Manual[1]. The Trip Generation Manual is a commonly accepted resource to establish traffic generation of various land uses. The attached Table 1 presents the estimated trip generation for the existing commercial uses versus the proposed residential development. The top half of Table 1 presents the calculated/average trip rates per 1,000 square feet of office floor space or per dwelling unit, while the bottom half of Table 1 presents the calculated number of trips in a daily basis, and on the basis of the weekday morning and weekday afternoon peak hours.

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(1) *Trip Generation Manual, 10th Edition, Institute of Transportation Engineers, Washington DC, 2017.*

TABLE 1

TRAFFIC GENERATION CHARACTERISTICS
261-263 ELM STREET
BOROUGH OF CONSHOHOCKEN, MONTGOMERY COUNTY, PENNSYLVANIA

TRIP RATES[1]

Description	Daily	Morning Peak Hour In	Morning Peak Hour Out	Morning Peak Hour Total	Afternoon Peak Hour In	Afternoon Peak Hour Out	Afternoon Peak Hour Total
CURRENT							
Retail (6,735 SF)[2]	37.75	0.58	0.36	0.94	1.83	1.98	3.81
General Office (4,704 SF)[2]	9.74	1.00	0.16	1.16	0.18	0.97	1.15
Health/Fitness Club (2,647 SF)[2]	NA	0.67	0.64	1.31	1.97	1.48	3.45
PROPOSED							
Multi-Family Housing (21 DU)[3]	5.61	0.12	0.40	0.52	0.44	0.26	0.70

TRAFFIC VOLUMES

CURRENT							
Retail (6,735 SF)	254	4	2	6	12	14	26
General Office (4,704 SF)	46	4	1	5	1	4	5
Health/Fitness Club (2,647 SF)	NA	2	1	3	5	4	9
Total Trips	300+	10	4	14	18	22	40
PROPOSED							
Multi-Family Housing (21 DU)	118	3	8	11	9	6	15
Trip Reduction	182+	--	--	3	--	--	25

(1) *Trip Generation Manual, 10th Edition, Institution of Transportation Engineers, Washington, D.C., 2017 (ITE Land Use Codes 820, 710, 492, and 220).*

(2) *Trips per 1,000 square feet (SF) of floor space.*

(3) *Trips per dwelling unit (DU).*

As shown in Table 1, it is estimated that the existing commercial use of the building would be expected to generate a total of more than 300 trips per day (total inbound and outbound)[2] with peak hour trip generation of 14 trips per hour during the weekday morning peak hour and 40 trips per hour during the weekday afternoon peak hour. It is estimated that redevelopment of the site for 21 multi-family residential dwelling units as proposed would generate a total of 118 trips per day (total inbound and outbound) with peak hour trip generation of 11 trips per hour during the weekday morning peak hour and 15 trips per hour during the weekday afternoon peak hour.

The net change in trip generation can be expected to result in a reduction in daily trip generation of more than 118 trips (total inbound and outbound)[2], a reduction in morning peak hour trip generation of 3 trips, and a reduction in afternoon peak hour trip generation of 15 trips.

If you should have any questions, or wish to discuss these calculations in greater detail, please call me at your convenience.

Andreas Heinrich, P.E., P.T.O.E.
Principal

AH:rh

cc: Nicholas L. Vastardis, P.E.

(2) *There is no weekday daily trip generation data available for Health/Fitness Clubs. The estimate of 300 daily trips is, therefore, a conservatively low estimate of the potential trip generation for the current use of the site; and, the estimated reduction of 118 trips for redevelopment of the site is understated.*

HEINRICH & KLEIN ASSOCIATES, INC.

TRAFFIC ENGINEERING & PLANNING
1134 Heinrich Lane • Ambler, Pennsylvania 19002
215-793-4177 • FAX 215-793-4179

MEMORANDUM

TO: Ryan Alexaki
Craft Custom Homes, LLC

FROM: Andreas Heinrich, P.E., P.T.O.E.

DATE: August 31, 2020

RE: Parking Assessment
261-263 Elm Street
Borough of Conshohocken, Montgomery County, PA

In accordance with your request, please accept the results of this Parking Assessment for the re-development of the property at 261-263 Elm Street in the Borough of Conshohocken, Montgomery County, Pennsylvania. The site is currently occupied by a commercial building comprised of 14,086 square feet of floor space. It is my understanding that it is proposed to redevelop the property for 21 multi-family residential dwelling units. It is proposed to provide 42 off-street parking spaces, with additional on-street parking in the surrounding neighborhood. The site is located near the downtown area of the Borough taking advantage of the walkable streets and the proximity of public transportation provided within three blocks of the site via the Conshohocken Train Station of the SEPTA Manyunk/Norristown high-speed rail line, and the Route 97 bus which has a designated bus stop at the intersection of Elm Street and Poplar Street adjacent to the site. It is anticipated that many residents will have reduced reliance on automobiles for transportation, and that auto ownership will be reduced in comparison with the typical suburban multi-family residential development.

The parking supply requirement for a typical suburban multi-family residential development as proposed will result in the need for a total of up to 42 parking spaces based on parking demand indices published by the Eno Foundation for Transportation[1]. This is based on a parking ratio of 2.0 parking spaces per dwelling unit for the two-bedroom units equals 42 parking spaces.

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(1) *Parking, Eno Foundation for Transportation, Robert A. Weant and Herbert S. Levinson, Westport CT, 1990.*

It is my understanding, based on the nature and location of a proposed development, that relief has been granted in a growing number of municipalities from the typical requirement of 2.0 parking spaces per dwelling unit down to 1.5 parking spaces per dwelling unit or less, depending on the proximity of public transportation and pedestrian facilities. Applied to the proposed development, a ratio of 1.5 parking spaces per dwelling unit will result in the requirement for 32 parking spaces.

As noted previously, due to the nature of the proposed residential development and the proximity of pedestrian facilities and public transportation, it is anticipated that many residents will have reduced reliance on automobiles for transportation, and that auto ownership will be reduced in comparison with the typical suburban multi-family residential development. Recommended parking guidelines contained in the Manual of Best Practices for Transit-Oriented Development[(2)] include a recommendation that parking requirements for sites within walking distance of a heavy rail, light rail and bus transit station should be reduced and that minimum on-site parking requirements should be avoided whenever possible. It is reported in Parking Generation[(3)] that smart growth developments located within one-third of a mile of rail transit exhibit auto ownership rates of 1.0 to 1.3 vehicles owned, which is substantially lower than the national average of 2.0 vehicles per household per the 2000 U.S. Census. Data presented in the Parking Generation Manual[(4)] indicates that multifamily housing (low-rise) developments located within one-half of a mile of rail transit exhibit a parking supply ratio of 0.6 parking spaces per dwelling unit in a dense multi-use urban setting, and 1.5 parking spaces per dwelling unit in general urban/suburban setting.

Finally, even without accounting for the availability of other modes of transportation and reduced auto ownership, which will result in a reduced parking demand for the proposed development, there is an available on-street parking supply, which overnight is available to the nearby surrounding residential neighborhood and during the day is available for use by commercial development in the area.

An inventory of the available parking supply in the immediate vicinity of the site indicates a total of 31 marked and unmarked parking spaces adjacent to the site – 22 marked parking spaces along Elm Street and 9 unmarked parking spaces along Poplar Street. While obviously available for use by residents and businesses in the neighborhood, some of these on-street parking spaces will also be available for residents of the proposed development.

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(2) *Manual of Best Practices for Transit-Oriented Development, NJDOT/NJ TRANSIT, September 2013.*

(3) *Parking Generation, 3rd Edition, Institute of Transportation Engineers, Washington DC, 2004.*

(4) *Parking Generation Manual, 5th Edition, Institute of Transportation Engineers, Washington DC, January 2019.*

Conclusions

The foregoing Parking Assessment for the redevelopment of the of the property at 261-263 Elm Street in the Borough of Conshohocken, Montgomery County, Pennsylvania, demonstrates that provision of an off-street parking supply of 2.0 parking spaces per dwelling unit, as proposed, will provide a more than adequate parking supply for the proposed residential development with excess unused parking spaces likely to be available at all times.

Andreas Heinrich, P.E., P.T.O.E.
Principal

AH:rh

cc: Nicholas L. Vastardis, P.E.