

PIKE SOLAR LLC



Appendix O- PPRBD Correspondence

Claire Gerrish

From: Keith Curtis <keith@pprbd.org>
Sent: Tuesday, April 6, 2021 12:33 PM
To: Claire Gerrish
Subject: RE: Floodplain Crossings Pike Solar Project
Attachments: FLPLApplication.pdf

Looks good, can you fill out and return the attached application.

From: Claire Gerrish <cgerrish@juwiamericas.com>
Sent: Tuesday, April 6, 2021 12:13 PM
To: Keith Curtis <keith@pprbd.org>
Subject: RE: Floodplain Crossings Pike Solar Project

Keith,

Please see the attached corrected Floodplain Permit letter from Core Consultants with the proper wording to clarify the planned project crossings will have a less than one foot rise in the 100-year flood elevation zones.

Thank you for your patience in having this clarified.

Claire Gerrish
Project Planner

juwi Inc. • 1710 29th Street, Suite 1068 • Boulder, Colorado 80301 • USA
+1.303.996.4154 • fax. +1.303.442.1981
cgerrish@juwiamericas.com • www.juwiamericas.com
juwi • Energy is here

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From: Claire Gerrish
Sent: Tuesday, March 30, 2021 2:30 PM
To: Keith Curtis <keith@pprbd.org>
Subject: RE: Floodplain Crossings Pike Solar Project

I believe the attached letter from our civil consultants was what you were looking for? This verifies the design details a bit further. Is there something else I may provide or do you want us to fill out a formal request for your approval?

Claire Gerrish
Project Planner

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From: Keith Curtis <keith@pprbd.org>
Sent: Monday, March 1, 2021 2:53 PM
To: Claire Gerrish <cgerrish@juwiamericas.com>
Subject: Re: Floodplain Crossings Pike Solar Project

Looks good , I need a less than one foot rise certification letter for the a zone crossings

Keith

From: Claire Gerrish <cgerrish@juwiamericas.com>
Sent: Monday, March 1, 2021 2:31:44 PM
To: Keith Curtis <keith@pprbd.org>
Subject: Floodplain Crossings Pike Solar Project

Keith,

Hope you are doing well. I wanted to follow up regarding a conversation we had late last year on our solar project and the road crossings needed over the floodplains. I have attached a formal letter outlining our additional details about the proposed crossings, locations and design. I just wanted to provide you some additional color and let you know we will be submitting our 1041 permitting application to the county in the next week or so.

Claire Gerrish
Project Planner

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PIKES PEAK REGIONAL FLOODPLAIN MANAGMENT OFFICE

Floodplain Development Permit Application

Date

This application is required for authorization of any construction or modification within a designated floodplain. If you need further information regarding this application and regulations, call 719-327-2898. Submit application and attachments to the Regional Floodplain Administration at Pikes Peak Regional Building Department.

OFFICE USE ONLY

F.P. Permit # Building Permit #

Property Owner

Address City State Zip Code email Phone Contact Phone email **Project Address/Location** Community # Zip Code Creek Parcel # FIRM # **Base Flood Elevation** **Contractor** Phone Number email Fax Number

Project Type: (Check all that apply to your project.)

- ☐ New Construction
☐ Addition/Remodel Repair

- ☐ Single Family
☐ Multi-Family
☐ Manufactured Unit
☐ Non-Residential Use

- ☐ Water course modification
☐ Fill/Excavation
☐ Bridge
☐ Culvert
☐ Other

Project Description:

Requirements of construction plans include:

- ☐ Label mean sea level elevations of proposed lowest floor. Flood proofing level must be noted on plans for new structures.
☐ All structural elements must be designed to withstand the effects of flooding by an engineer licensed by the state of Colorado.
☐ A state of Colorado licensed engineer must certify that construction in a *floodway* will not increase of flood elevations.
☐ Plans must be drawn to scale and include applicable items (listed in box).

- ☐ Drawn to Scale
☐ Dimensions
☐ Elevations
☐ Located correctly on site
☐ All structures on plan
☐ Fill areas indicated
☐ Drainage Plan

- ☐ Preliminary Elevation Certificate
☐ Finished Elevation Certificate

Created by

Office Use Only: FEMA Submittals

- ☐ CLOMR ☐ Approved Date
☐ CLOMR-F ☐ Approved Date
☐ LOMR ☐ Approved Date
☐ LOMR-F ☐ Approved Date



February 24, 2021

Attn: Keith Curtis
Pikes Peak Regional Building Department
Denver, CO 80910

Re: Pike Solar Project and 100-year Floodplain

Mr. Curtis,

As a follow up to our call on November 4, 2020, Pike Solar LLC (“Pike”) would like to reiterate our discussion and provide further detail on the planned crossings for the Pike Solar Project to ensure adherence to the guidelines within the Pikes Peak Regional Building Department Code.

Pike Solar LLC is working with El Paso County on an application for a Wind/Solar Energy Overlay (WSE-O) and 1041 Permit. The attached Project Memo covers the high-level details of the Project along with an Exhibit “A” showing the crossings existing and proposed to facilitate development throughout the Project site.

There will be three road crossings within the 100-year floodplain required for our design and one pre-existing crossing already in place. The road crossings will be concrete pads built and designed as ‘no-rise’ crossings to maintain consistent flow rates in the area. The material will likely include a gravel-base with poured concrete on top. The design may include culverts, rip rap, and other features to ensure flow and prohibit any adverse effects to the floodplain. Additionally, silt fences or filters such as straw wattles or Filtrexx will be used to mitigate dust and debris impact. Preliminary designs of these crossings are attached for your review as Exhibit “B”. The final design materials and plans will also be submitted during the building department permitting process.

The Pike’s Peak Regional Building Department Code identifies this project as Nonresidential Construction outlined in the RBC313.19.2. During our phone call you verified that this project is not defined as a Critical Facility because it will be unmanned and should the facility be impacted by a flood, the result would not likely cause any shortages in power provided by the Colorado Springs Utilities. Within our 1041 application, we will verify the other requirements listed within the Nonresidential Construction provisions. The application will outline further details as to how the structural components of the crossings will be capable of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

Pike Solar requests your concurrence with the interpretation of the PPRBD Code for this project and plans forward as it relates to the planned floodplain crossings. This project will adhere to all Building Department Codes and will submit required permits following the 1041 county approvals. Should there be any questions with our interpretation of the floodplain crossing plans and associated code guidelines, please advise. Please let me know if you have any questions regarding this letter and associated appendices.

Sincerely,

Claire Gerrish, Project Planner
juwi Inc.
303.996.4154
cgerrish@juwiamerica.com



Project Memo

Project Name: Pike Solar

Project Applicant: Pike Solar LLC and juwi, Inc.

Project Contact: Claire Gerrish (juwi Inc.), Project Planner

Date of Memo: 2/24/2021

Project Overview:

- Size: 175 megawatt (AC)
- Technology: Photovoltaic Panels on Single Axis Trackers
- Battery Energy Storage System: 25 MW X 4 Hour
- Key infrastructure: Perimeter/security fencing, access roads, 1 substation, arrays, Operations and Maintenance Shed, Inverters, Transformers, underground electrical (distribution) line between areas
- Design: Majority of the site will consist of steel poles rammed into the ground with solar arrays connected and standing, at a minimum, approximately 3 feet off the ground
- Acres: 1,170 acres project footprint
- Location: portions of Sections 11, 12, 13, 14, 23, 24, 25, 26, 36 Township 16S, Range 65W and portions of Sections 7 18, 19, 30, 31 Township 16S R64W
- Access:
 1. Access from the north off Squirrel Creek Road on unnamed road heading south
 2. Access from the west via Birdsell Road off Old Pueblo Road to an unnamed temporary construction road heading east

Site Overview:

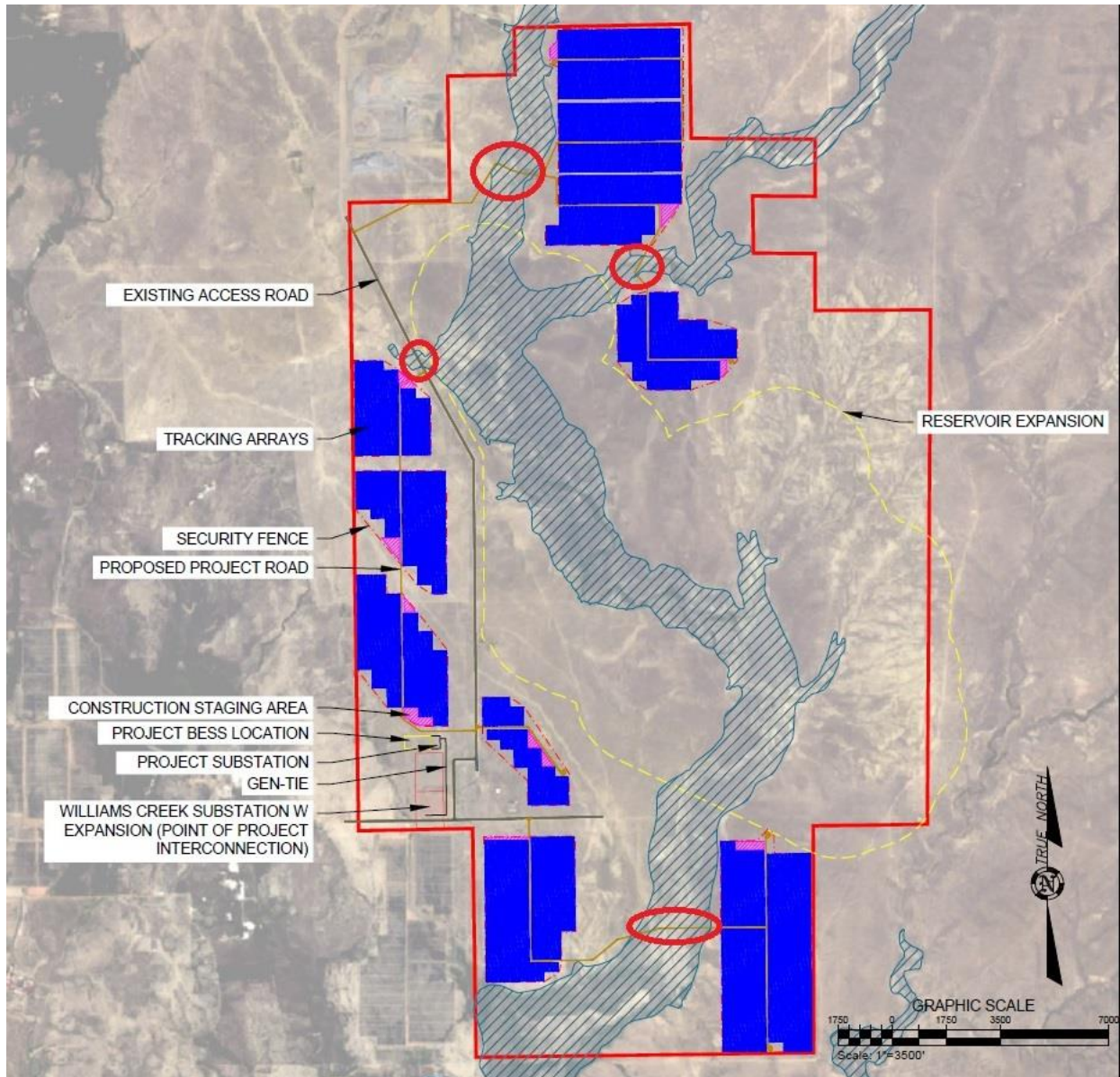
- Current use: Combination of grazing and vacant land with transmission lines and other electrical infrastructure
- Description of lands: Project area is generally flat with some rolling hills. Irrigation ditches and arroyos flow generally south and east towards Fountain Creek. Vegetative cover includes blue gramma dominated shortgrass prairie and cholla/saltbush shrublands. The area is used as rangeland for livestock and to grow hay.
- Historic use: rangeland use
- Elevation: 5,385-5,585 feet
- El Paso County Zoning: Rural-residential 5 (RR-5), Agricultural-5 (A-5) and Agricultural-35 (A-35)
- Construction period for the complete site: 21-24 months
- Targeted Construction Start: November 2021
- Targeted Construction Finish: December 2023

Permitting Overview and requested PPRBD involvement:

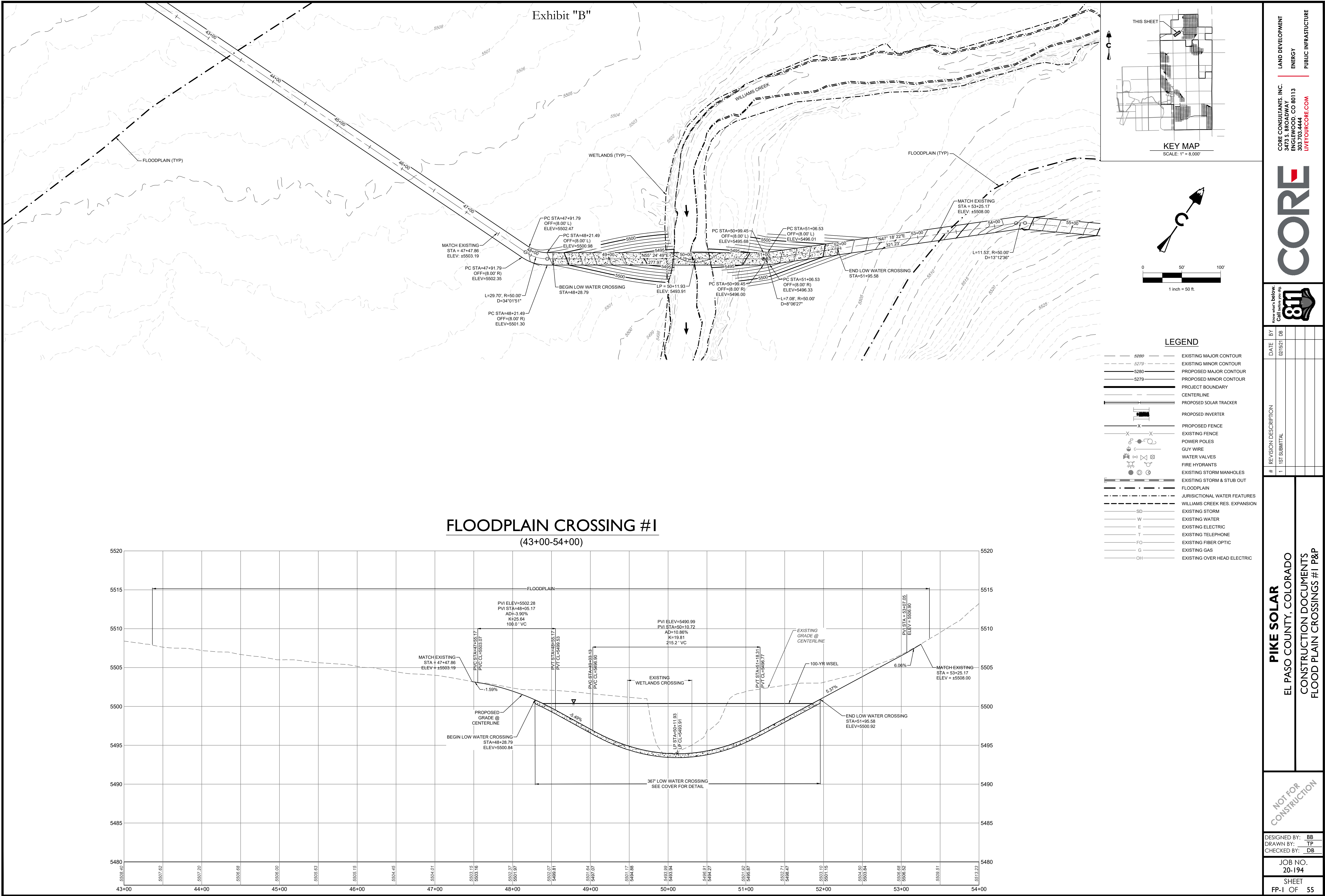
- El Paso County and Local Permits
 - o Wind/Solar Energy Overlay (WSEO Rezone Amendment)
 - Status: Beginning phases
 - PPRBD: Incorporate any correspondence with the PPRBD regarding the 100-year floodplain
 - o 1041 Permit
 - Status: Run concurrently with 1041
 - PPRBD: Incorporate any correspondence with the PPRBD regarding the 100-year floodplain
 - o Site Plan Review
 - Status: Following WSEO and 1041

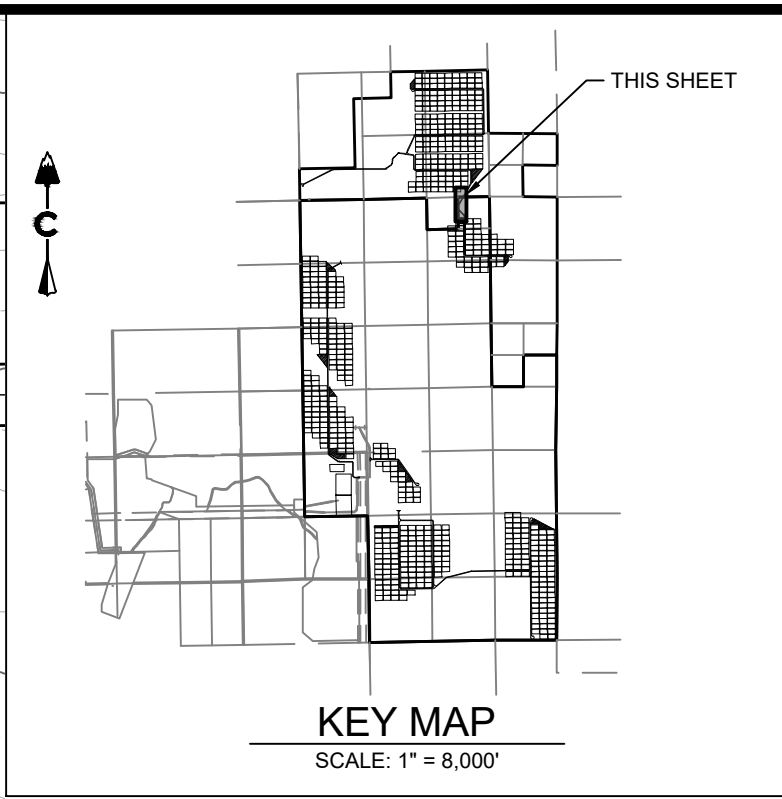
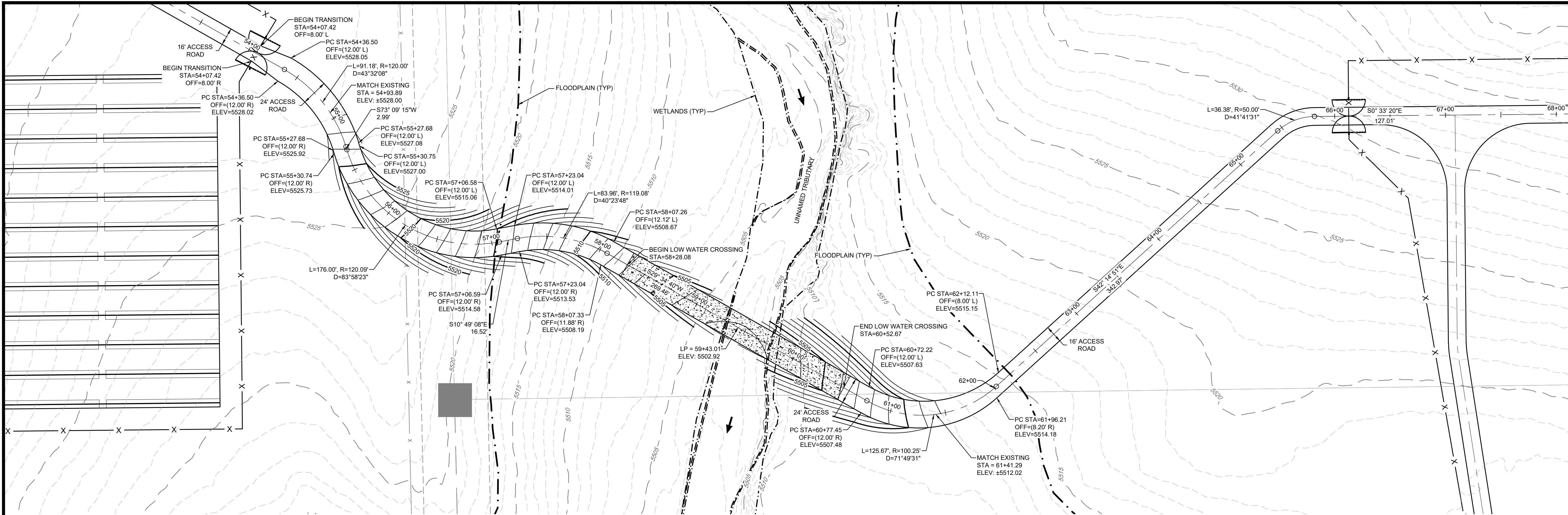


Exhibit "A"

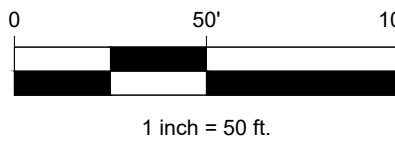


2/8/2024 12:45 PM X:\20-104 PIKE SOLAR\CIVIL\CADD\PLANS\FILING 1\CD\SFLOOD PLAN CROSSINGS.DWG





KEY MAP
SCALE: 1" = 8,000'

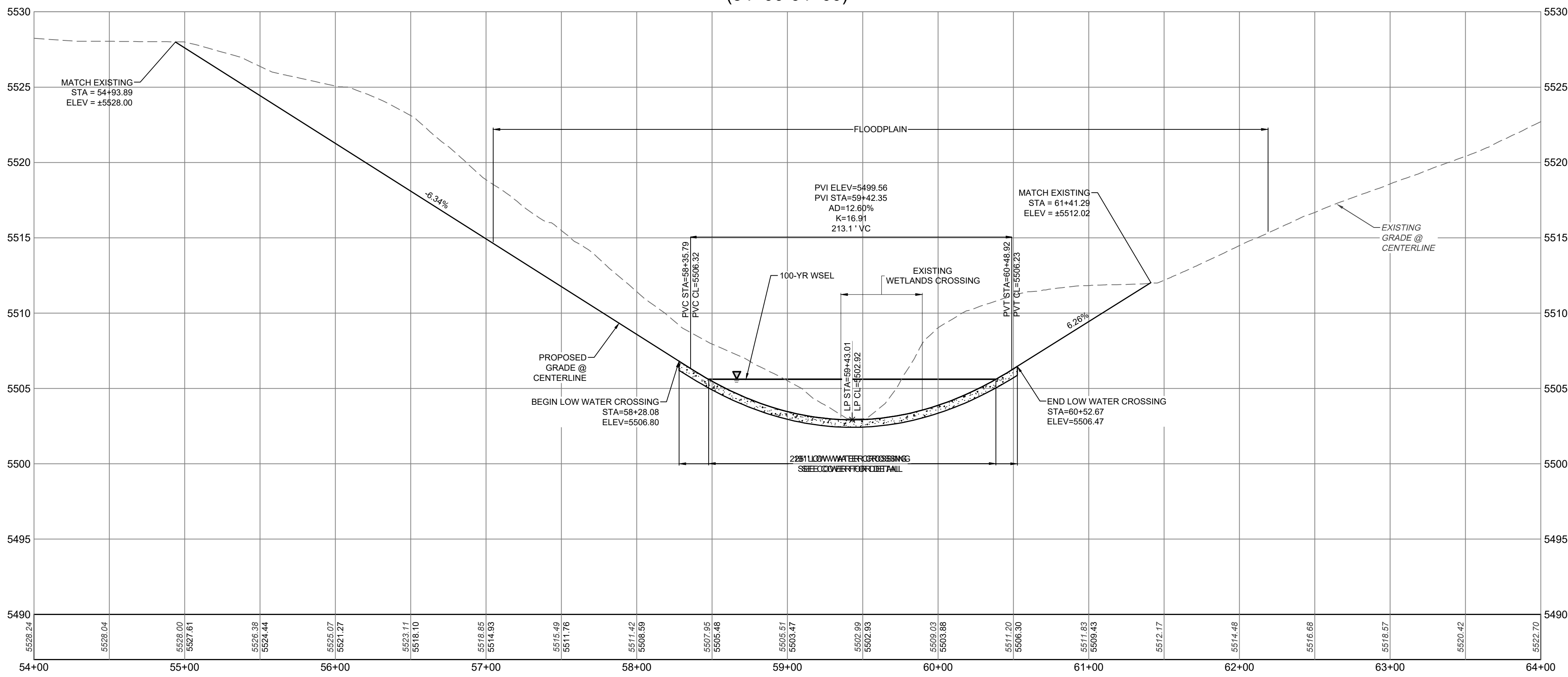


LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROJECT BOUNDARY
- CENTERLINE
- PROPOSED SOLAR TRACKER
- PROPOSED INVERTER
- PROPOSED FENCE
- EXISTING FENCE
- POWER POLES
- GUY WIRE
- WATER VALVES
- FIRE HYDRANTS
- EXISTING STORM MANHOLES
- EXISTING STORM & STUB OUT
- FLOODPLAIN
- JURISDICTIONAL WATER FEATURES
- WILLIAMS CREEK RES. EXPANSION
- EXISTING STORM
- EXISTING WATER
- EXISTING ELECTRIC
- EXISTING TELEPHONE
- EXISTING FIBER OPTIC
- EXISTING GAS
- EXISTING OVER HEAD ELECTRIC

FLOODPLAIN CROSSING #2

(54+00-64+00)



PIKE SOLAR

EL PASO COUNTY, COLORADO

CONSTRUCTION DOCUMENTS

FLOOD PLAN CROSSINGS #2 P&P

NOT FOR
CONSTRUCTION

DESIGNED BY: BB
DRAWN BY: TP
CHECKED BY: DB

JOB NO.
20-194

SHEET
FP-2 OF 55

Know what's below.
Call before you dig.

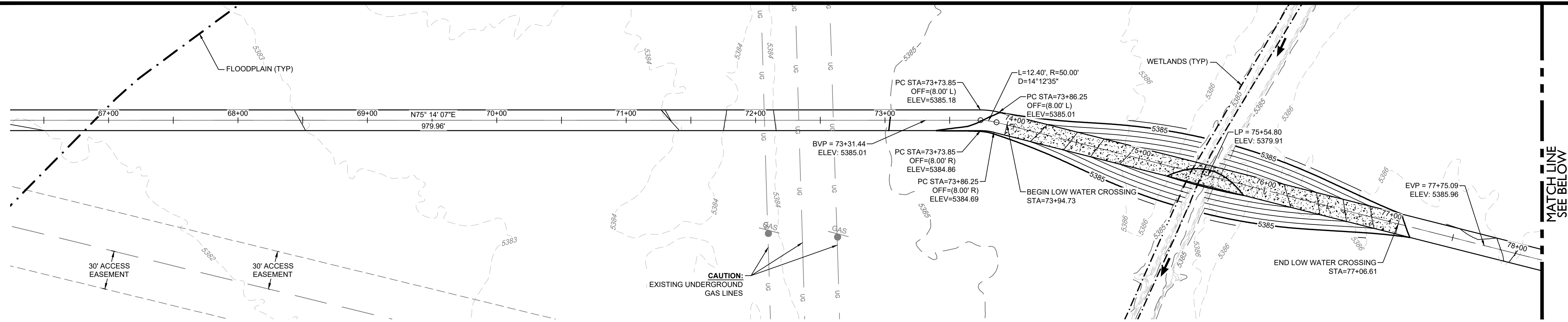


#	REVISION DESCRIPTION	DATE	BY
1	1ST SUBMITTAL	02/15/21	DB

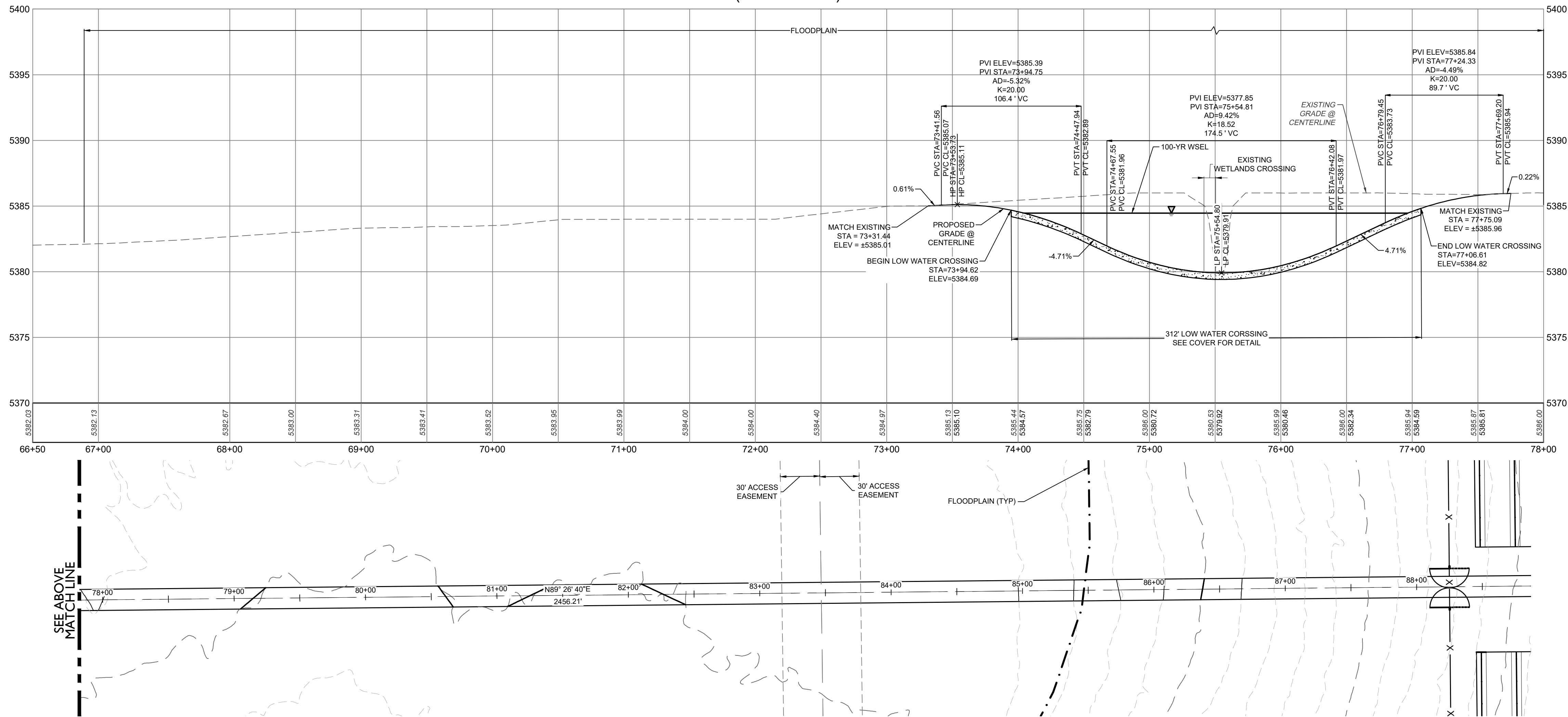
CORE CONSULTANTS, INC.
3473 S. BROADWAY
DENVER, CO 80113
303.703.4444
LIVE@CORE.COM

CORE

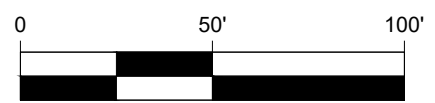
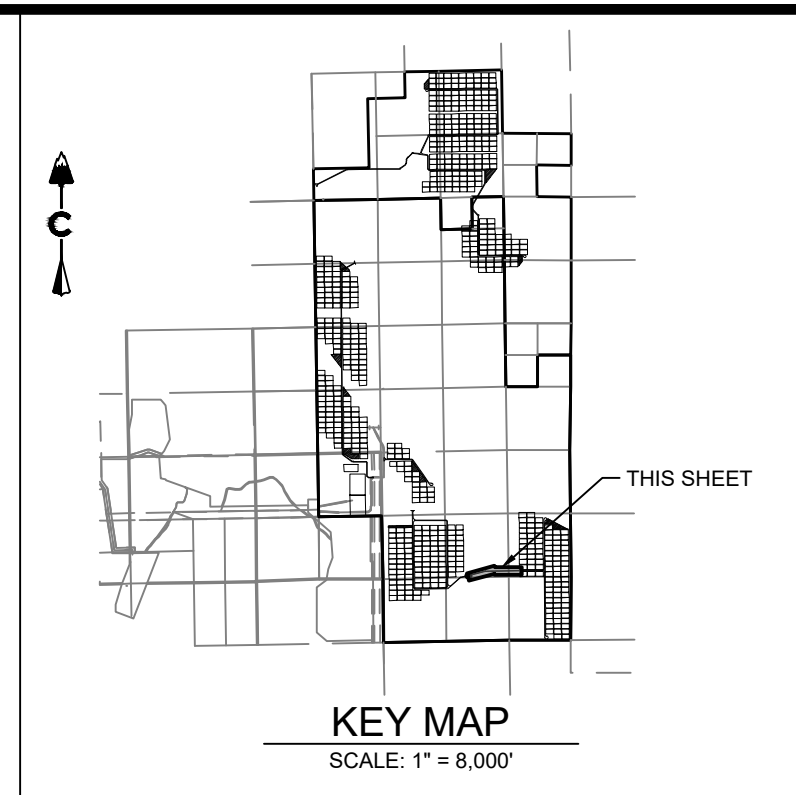
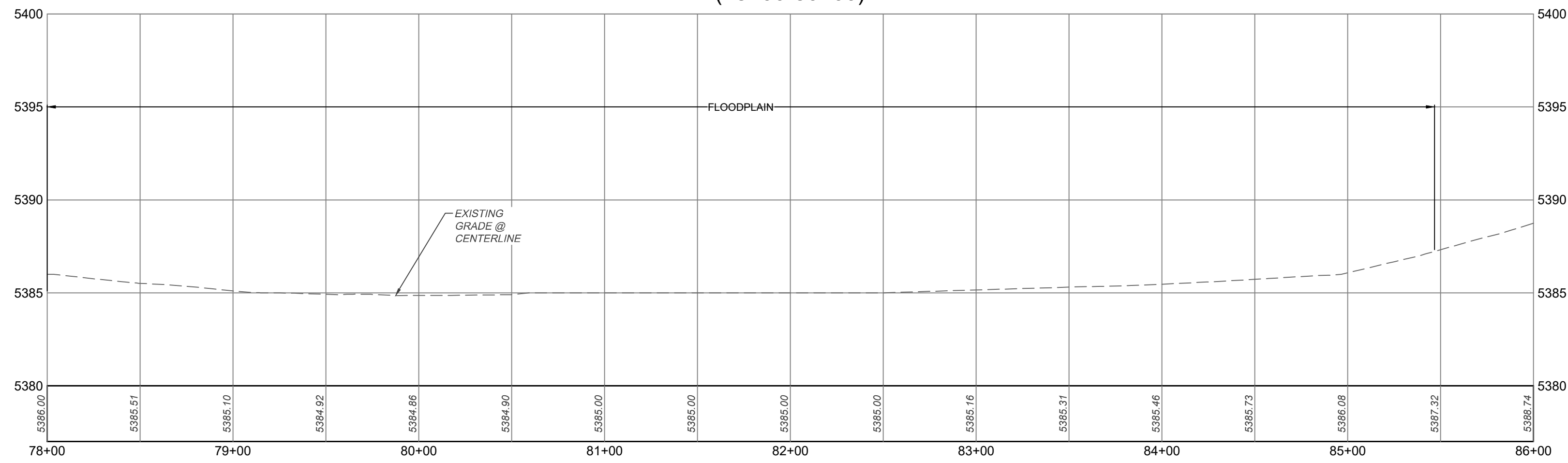
LAND DEVELOPMENT
ENERGY
PUBLIC INFRASTRUCTURE



FLOODPLAIN CROSSING #3
(66+50-78+00)



FLOODPLAIN CROSSING #3
(78+00-86+00)



LEGEND

- 5280 EXISTING MAJOR CONTOUR
- 5279 EXISTING MINOR CONTOUR
- 5280 PROPOSED MAJOR CONTOUR
- 5279 PROPOSED MINOR CONTOUR
- PROJECT BOUNDARY
- CENTERLINE
- PROPOSED SOLAR TRACKER
- PROPOSED INVERTER
- PROPOSED FENCE
- EXISTING FENCE
- POWER POLES
- GUY WIRE
- WATER VALVES
- FIRE HYDRANTS
- EXISTING STORM MANHOLES
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- WILLIAMS CREEK RES. EXPANSION
- SD EXISTING STORM
- W EXISTING WATER
- E EXISTING ELECTRIC
- T EXISTING TELEPHONE
- FO EXISTING FIBER OPTIC
- G EXISTING GAS
- OH EXISTING OVER HEAD ELECTRIC

Know what's below.
Call before you dig.



#	REVISION DESCRIPTION	DATE	BY
1	1ST SUBMITTAL	02/15/21	DB

PIKE SOLAR
EL PASO COUNTY, COLORADO
CONSTRUCTION DOCUMENTS
FLOOD PLAN CROSSINGS #3 P&P

NOT FOR
CONSTRUCTION

DESIGNED BY: BB
DRAWN BY: TP
CHECKED BY: DB

JOB NO.
20-194
SHEET
FP-3 OF 55

CORE CONSULTANTS, INC.
3473 S. BROADWAY
DENVER, CO 80113
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LIVEYOURCORE.COM

CORE

LAND DEVELOPMENT
ENERGY
PUBLIC INFRASTRUCTURE



April 6, 2021

Keith Curtis
Pikes Peak Regional Building Department
2800 International Circle
Colorado Springs, Colorado 80910

RE: Pike Solar Project – Floodplain Use Permit

Dear Mr. Curtis:

This letter has been prepared to provide information in support of the issuance of a Floodplain Use Permit for the Pike Solar Project (the "Project"). The Project is currently a vacant site located on approximately 1,240 acres southeast of City of Fountain in El Paso County, Colorado and is bound by Squirrel Creek Road to the north, Hammer Road to the east, Hanover Road to the south, and Old Pueblo Road to the west. The proposed improvements to the site consist of 175 megawatt (MW) photovoltaic solar facility and up to 50 MW battery energy storage system consisting of photovoltaic modules aligned in arrays and affixed to a single-axis tracking system. The project is tributary to Williams Creek with portions of the site falling within Zone A on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panels 08041C0967G, 08041C0970G, 08041C1000G, 08041C1160G, and 08041C1180G.

Construction activities that would occur in the mapped floodplain consist of three separate access road crossings within the floodplain boundary. The access road crossings will be cut into the existing topography, guaranteeing that no fill will be placed within the mapped floodplain. In accordance with Pikes Peak Regional Building Department (PPRBD) guidelines for solar array projects within a mapped Zone A, the following basic design requirements have been met.

1. The mapped floodplain within the project boundary have been determined and are represented in the Preliminary Drainage Report and Wind/Solar Energy Generation Overlay (WSE-O) Plan.
2. Grading along site boundaries will be constructed at or below grades and will be compatible with upstream and downstream conditions.
3. Access drives across the mapped floodplain will be constructed at or below existing grades.
4. All electrical service equipment will be buried under the floodplain. There will be no permanent vertical structures, but there will be concrete low water crossings within the floodplain.
5. Access drives across the mapped floodplain will be constructed at or below existing grades.
6. There are no Regulated Riparian Habitats present on site.

I certify that I am a duly qualified registered Professional Engineer licensed in the state of Colorado. Using standard Engineering practice, I have evaluated the unstudied A zone

floodplain in the area of the proposed project, and I have determined pre-project 100-year flood depths. I certify that the cumulative effects of the proposed project Pike Solar as detailed on construction drawing sheets 49-51 will result in less than one foot rise in the 100-year flood elevations that I have determined for Williams Creek and Unnamed Tributary, which is shown on FEMA map 08041C0967G, 08041C1000G, and 08041C1180G. This certification is intended as proof of meeting the requirements set forth in the Federal Code 44CFR Chp. 1, 60.3.c.10.

I offer the following documentation in accordance with standard Engineering practice to support my findings:

- a) Cross Section 1 – 5 year – Existing
- b) Cross Section 1 – 5 year – Proposed
- c) Cross Section 1 – 100 year – Existing
- d) Cross Section 1 – 100 year – Proposed
- e) Cross Section 2 – 5 year – Existing
- f) Cross Section 2 – 5 year – Proposed
- g) Cross Section 2 – 100 year – Existing
- h) Cross Section 2 – 100 year – Proposed
- i) Cross Section 3 – 5 year – Existing
- j) Cross Section 3 – 5 year – Proposed
- k) Cross Section 3 – 100 year – Existing
- l) Cross Section 3 – 100 year – Proposed
- m) Pike Solar Construction Documents

CORE consultants believes that the proposed Pike Solar Project meets PPRBD's basic design requirements for Solar Array Projects and respectfully requests the issuance of a Floodplain Use Permit. All required WSE-O submittal documents and exhibits are being submitted along with this letter to El Paso County Development Services Department.

If you have any questions, please do not hesitate to call me at 303.730.5974.

Sincerely,
CORE Consultants, Inc.



David Bacchi
Senior Project Engineer

Claire Gerrish

From: Keith Curtis <keith@pprbd.org>
Sent: Wednesday, January 20, 2021 4:24 PM
To: Claire Gerrish
Subject: RE: Pike Solar LLC

Claire,

This all looks good to me. If you would like to get the flood plain permit in place prior to the 1041, just get me the construction drawings for the crossings and the less than one foot rise certification letter with supporting calculations and I can pull together the permit.

Thanks

From: Claire Gerrish <cgerrish@juwiamericas.com>
Sent: Wednesday, January 20, 2021 4:16 PM
To: Keith Curtis <keith@pprbd.org>
Subject: RE: Pike Solar LLC

Keith,

I just wanted to follow up from our discussion back in November. We will be working to submit our 1041 permit to the county next month and wanted to provide you a letter and recap from our discussion of our understanding of the floodplain and our design plans. I also wanted to supply you a bit more information as we had it pertaining to our design. If you have time, would you be able to provide a letter of concurrence we could also supply to the county for our submittal? I appreciate your time. Thank you and hope your new year is off to a good start.

Claire Gerrish
Project Planner

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From: Claire Gerrish
Sent: Wednesday, November 4, 2020 9:57 AM
To: Keith Curtis <keith@pprbd.org>
Subject: Pike Solar LLC

Keith,

Please see the attached map for our discussion today regarding the floodplain areas that fall within the boundary of the proposed project.

Claire Gerrish
Project Planner

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Channel Report

Cross Section 1 - 5 year - Existing

User-defined

Invert Elev (ft) = 5494.00
Slope (%) = 0.10
N-Value = 0.030

Calculations

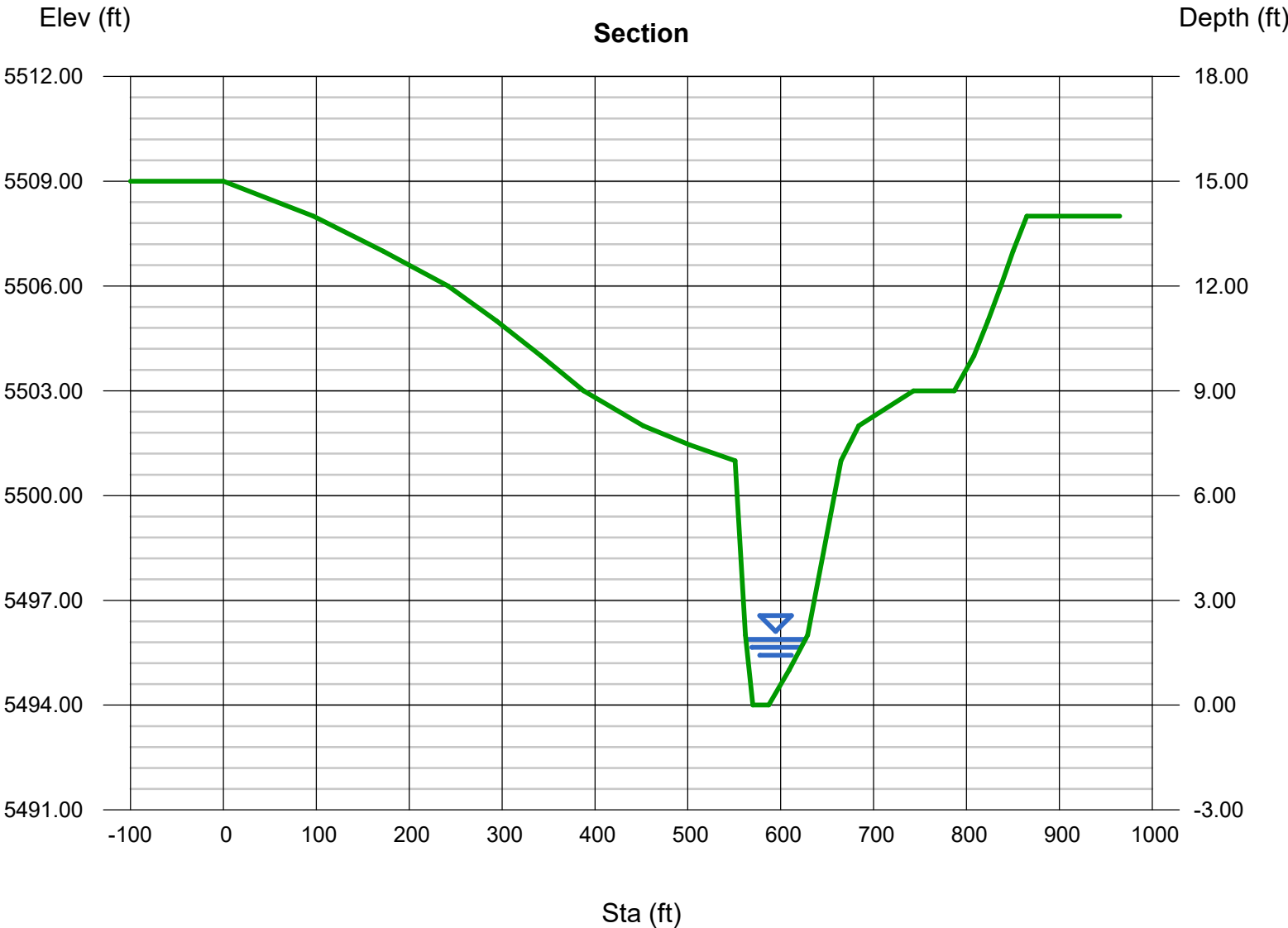
Compute by: Known Q
Known Q (cfs) = 135.30

Highlighted

Depth (ft) = 1.88
Q (cfs) = 135.30
Area (sqft) = 77.13
Velocity (ft/s) = 1.75
Wetted Perim (ft) = 64.39
Crit Depth, Yc (ft) = 0.98
Top Width (ft) = 64.12
EGL (ft) = 1.93

(Sta, El, n)-(Sta, El, n)...

(0.00, 5509.00)-(97.00, 5508.00, 0.030)-(172.00, 5507.00, 0.030)-(242.00, 5506.00, 0.030)-(294.00, 5505.00, 0.030)-(342.00, 5504.00, 0.030)-(388.00, 5503.00, 0.030)-(452.00, 5502.00, 0.030)-(502.00, 5501.45, 0.030)-(551.00, 5501.00, 0.030)-(562.00, 5496.00, 0.030)-(570.00, 5494.00, 0.030)-(587.00, 5494.00, 0.030)-(609.00, 5496.00, 0.030)-(629.00, 5496.00, 0.030)-(665.00, 5501.00, 0.030)-(684.00, 5502.00, 0.030)-(743.00, 5503.00, 0.030)-(787.00, 5503.00, 0.030)-(808.00, 5504.00, 0.030)-(823.00, 5505.00, 0.030)-(837.00, 5506.00, 0.030)-(850.00, 5507.00, 0.030)-(865.00, 5508.00, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Tuesday, Mar 9 2021

Cross Section 1 - 5 year - Proposed

User-defined

Invert Elev (ft) = 5493.81
Slope (%) = 0.10
N-Value = 0.030

Calculations

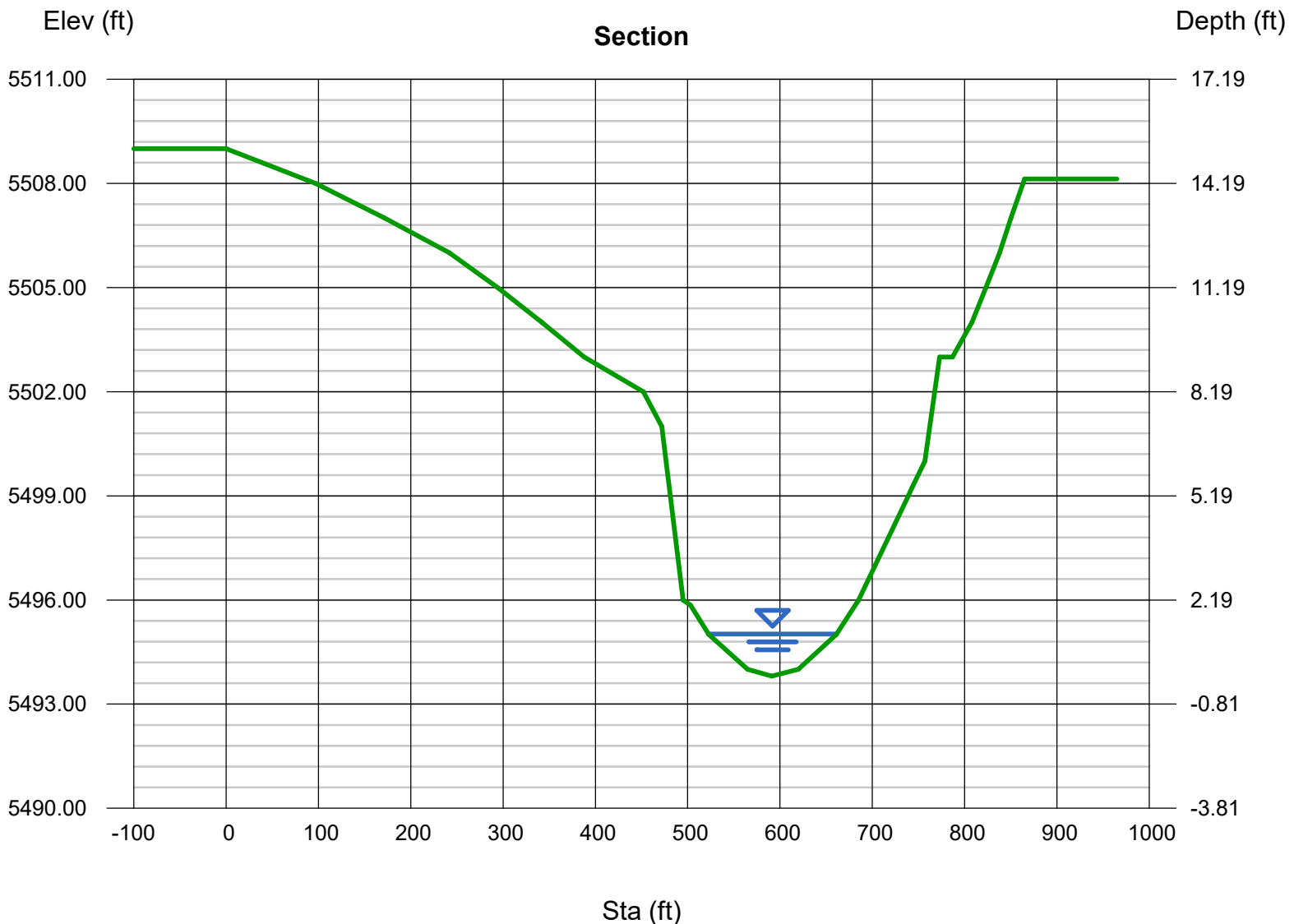
Compute by: Known Q
Known Q (cfs) = 135.30

Highlighted

Depth (ft) = 1.21
Q (cfs) = 135.30
Area (sqft) = 104.50
Velocity (ft/s) = 1.29
Wetted Perim (ft) = 138.98
Crit Depth, Yc (ft) = 0.63
Top Width (ft) = 138.95
EGL (ft) = 1.24

(Sta, El, n)-(Sta, El, n)...

(0.00, 5509.00, 0.030)-(97.00, 5508.00, 0.030)-(172.00, 5507.00, 0.030)-(242.00, 5506.00, 0.030)-(294.00, 5505.00, 0.030)-(342.00, 5504.00, 0.030)-(388.00, 5503.00, 0.030)-(452.00, 5502.00, 0.030)-(472.00, 5501.00, 0.030)-(495.00, 5496.00, 0.030)-(503.00, 5495.85, 0.030)-(523.00, 5495.00, 0.030)-(565.00, 5494.00, 0.030)-(591.00, 5493.81, 0.030)-(620.00, 5494.00, 0.030)-(661.00, 5495.00, 0.030)-(685.00, 5496.00, 0.030)-(703.00, 5497.00, 0.030)-(721.00, 5498.00, 0.030)-(739.00, 5499.00, 0.030)-(743.00, 5500.00, 0.030)-(757.00, 5500.00, 0.030)-(773.00, 5503.00, 0.030)-(787.00, 5503.00, 0.030)-(808.00, 5504.00, 0.030)-(823.00, 5505.00, 0.030)-(838.00, 5506.00, 0.030)-(850.00, 5507.00, 0.030)-(865.00, 5508.13, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Tuesday, Mar 9 2021

Cross Section 1 - 100 year - Existing

User-defined

Invert Elev (ft) = 5494.00
Slope (%) = 0.10
N-Value = 0.030

Calculations

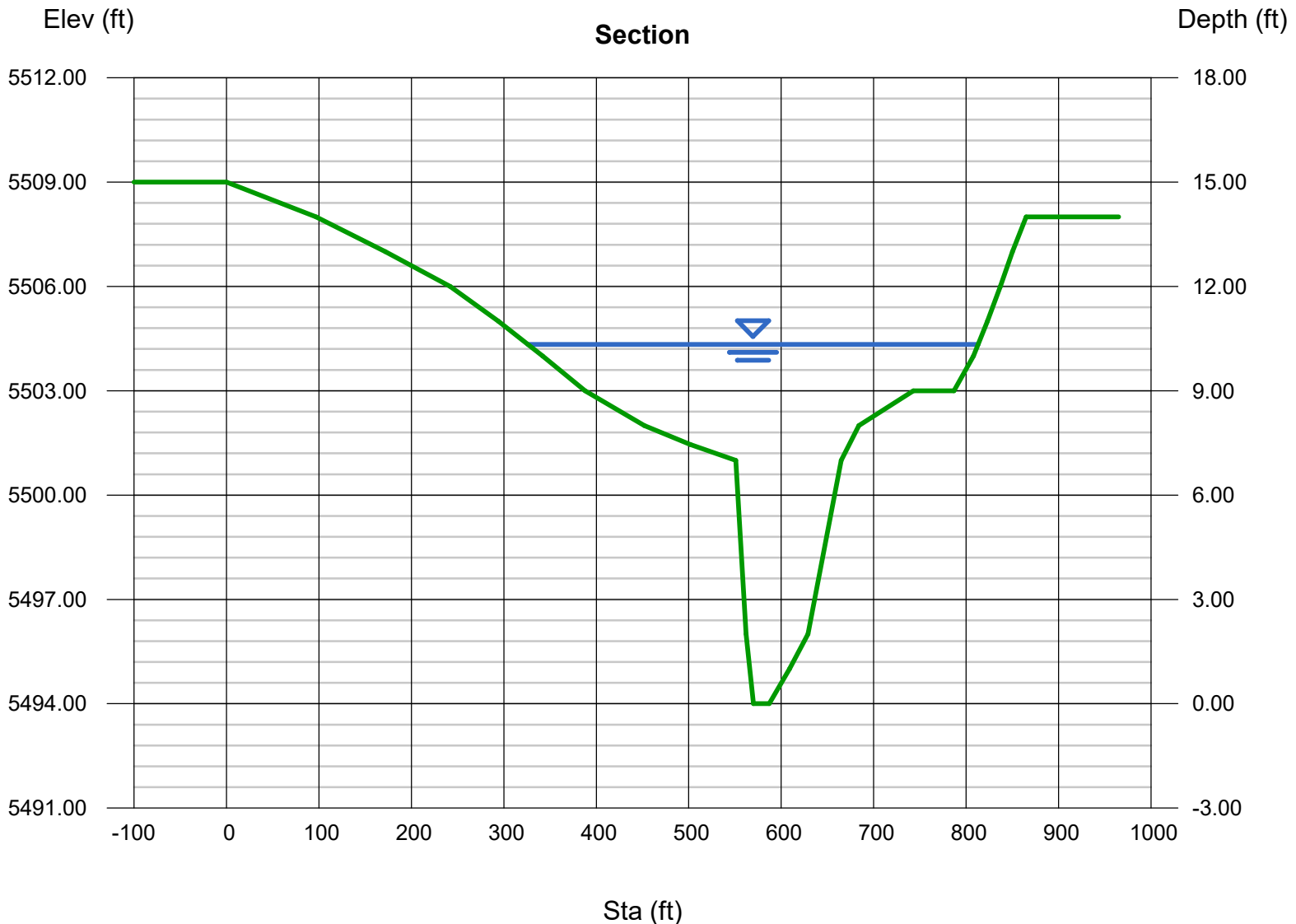
Compute by: Known Q
Known Q (cfs) = 5503.46

Highlighted

Depth (ft) = 10.33
Q (cfs) = 5,503
Area (sqft) = 1595.96
Velocity (ft/s) = 3.45
Wetted Perim (ft) = 488.61
Crit Depth, Yc (ft) = 6.37
Top Width (ft) = 486.79
EGL (ft) = 10.52

(Sta, El, n)-(Sta, El, n)...

(0.00, 5509.00)-(97.00, 5508.00, 0.030)-(172.00, 5507.00, 0.030)-(242.00, 5506.00, 0.030)-(294.00, 5505.00, 0.030)-(342.00, 5504.00, 0.030)-(388.00, 5503.00, 0.030)-(452.00, 5502.00, 0.030)-(502.00, 5501.45, 0.030)-(551.00, 5501.00, 0.030)-(562.00, 5496.00, 0.030)-(570.00, 5494.00, 0.030)-(587.00, 5494.00, 0.030)-(609.00, 5496.00, 0.030)-(629.00, 5496.00, 0.030)-(665.00, 5501.00, 0.030)-(684.00, 5502.00, 0.030)-(743.00, 5503.00, 0.030)-(787.00, 5503.00, 0.030)-(808.00, 5504.00, 0.030)-(823.00, 5505.00, 0.030)-(837.00, 5506.00, 0.030)-(850.00, 5507.00, 0.030)-(865.00, 5508.00, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Tuesday, Mar 9 2021

Cross Section 1 - 100 year - Proposed

User-defined

Invert Elev (ft) = 5493.81
Slope (%) = 0.10
N-Value = 0.030

Calculations

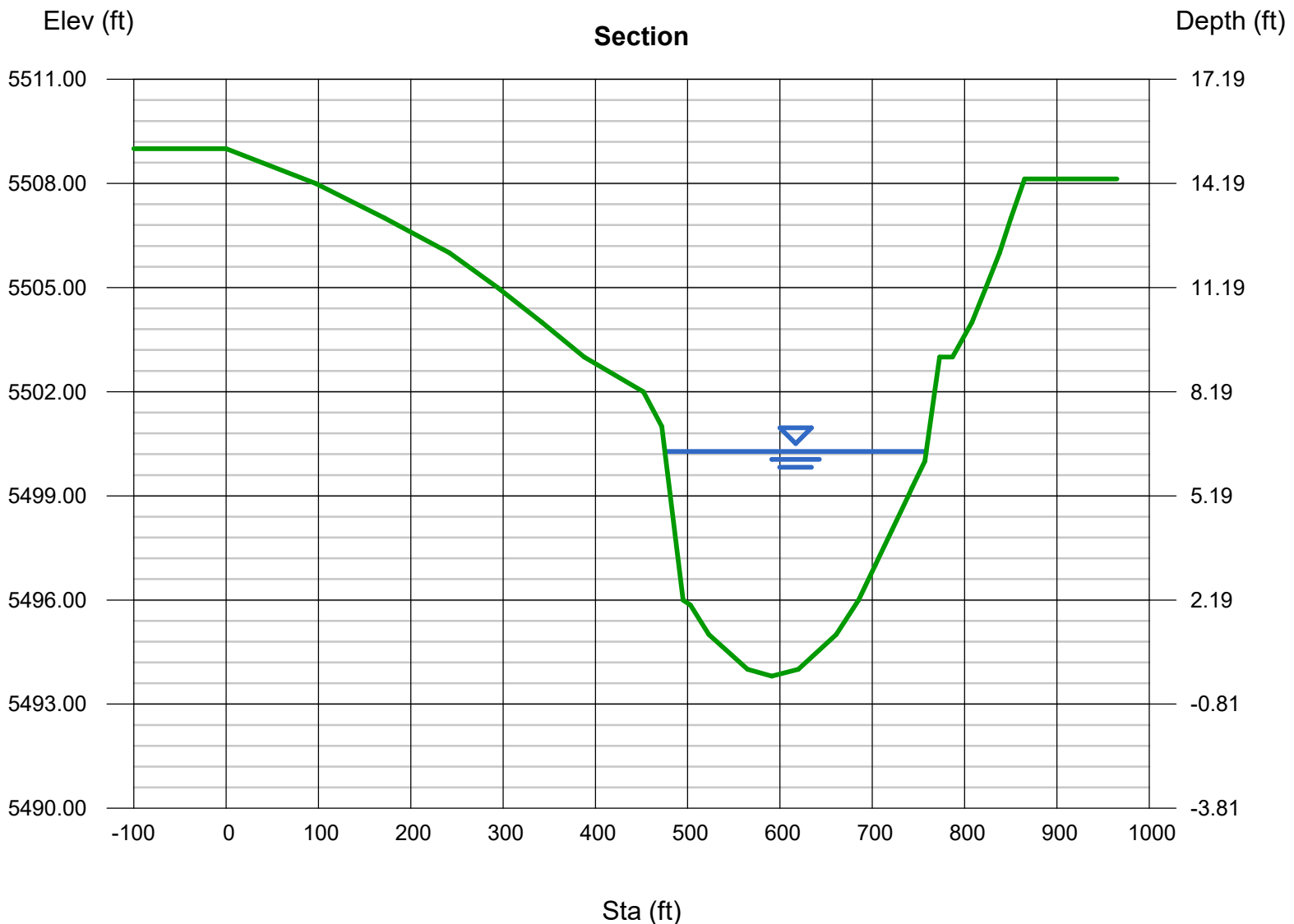
Compute by: Known Q
Known Q (cfs) = 5503.46

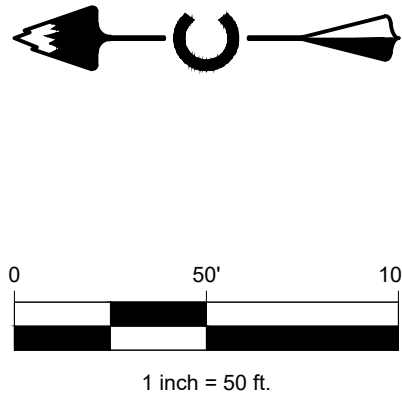
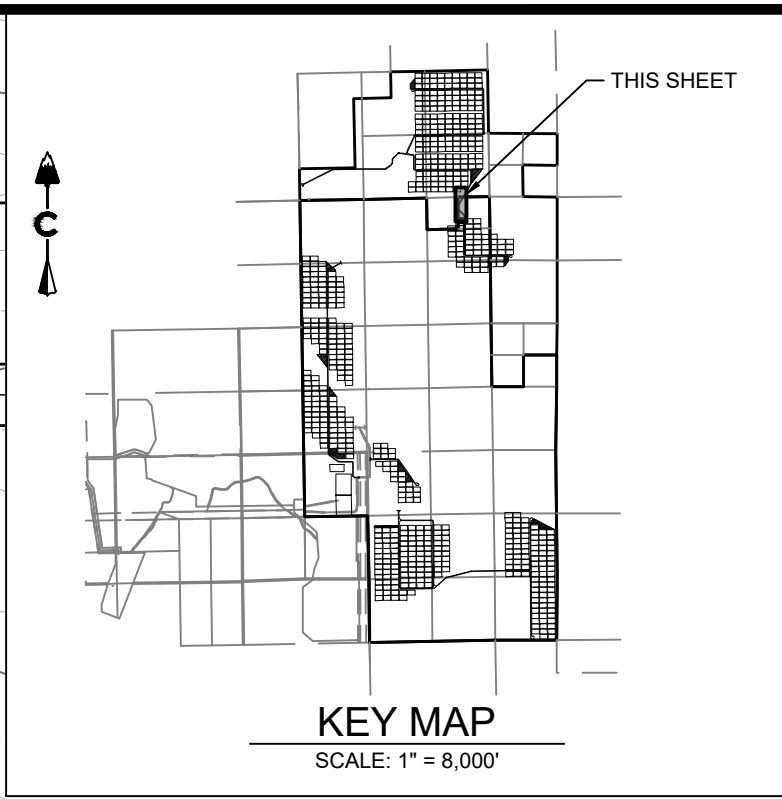
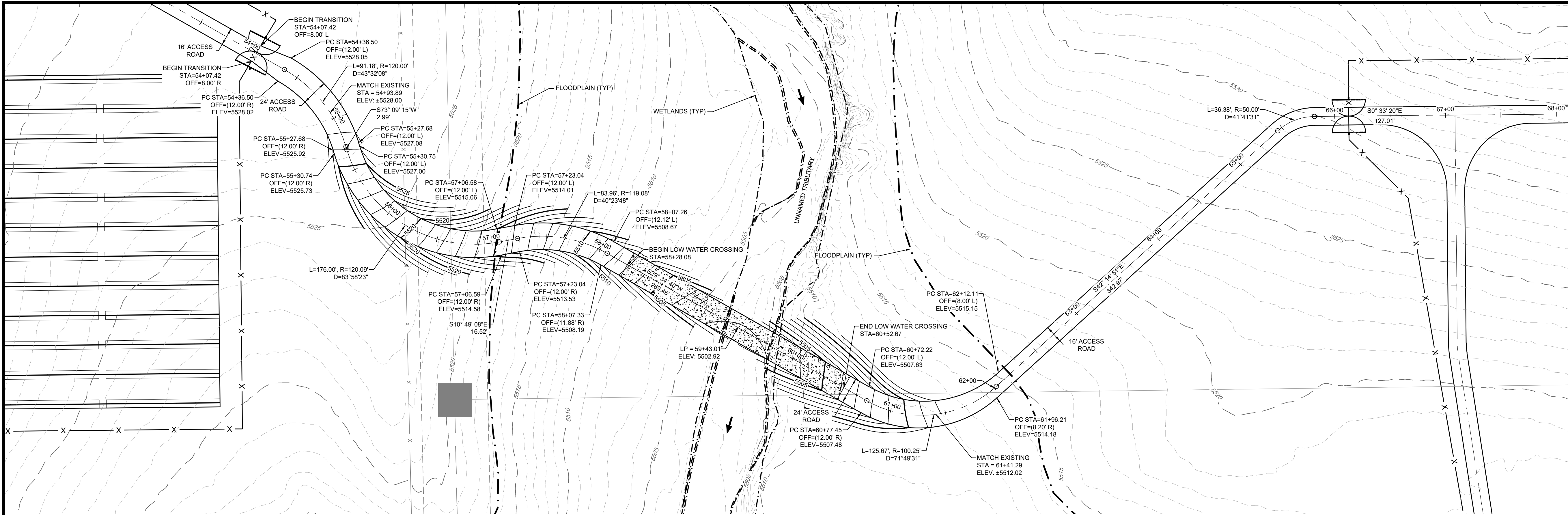
Highlighted

Depth (ft) = 6.47
Q (cfs) = 5,503
Area (sqft) = 1283.53
Velocity (ft/s) = 4.29
Wetted Perim (ft) = 283.85
Crit Depth, Yc (ft) = 3.80
Top Width (ft) = 283.18
EGL (ft) = 6.76

(Sta, El, n)-(Sta, El, n)...

(0.00, 5509.00, 0.030)-(97.00, 5508.00, 0.030)-(172.00, 5507.00, 0.030)-(242.00, 5506.00, 0.030)-(294.00, 5505.00, 0.030)-(342.00, 5504.00, 0.030)-(388.00, 5503.00, 0.030)-(452.00, 5502.00, 0.030)-(472.00, 5501.00, 0.030)-(495.00, 5496.00, 0.030)-(503.00, 5495.85, 0.030)-(523.00, 5495.00, 0.030)-(565.00, 5494.00, 0.030)-(591.00, 5493.81, 0.030)-(620.00, 5494.00, 0.030)-(661.00, 5495.00, 0.030)-(685.00, 5496.00, 0.030)-(703.00, 5497.00, 0.030)-(721.00, 5498.00, 0.030)-(739.00, 5499.00, 0.030)-(743.00, 5500.00, 0.030)-(757.00, 5500.00, 0.030)-(773.00, 5503.00, 0.030)-(787.00, 5503.00, 0.030)-(808.00, 5504.00, 0.030)-(823.00, 5505.00, 0.030)-(838.00, 5506.00, 0.030)-(850.00, 5507.00, 0.030)-(865.00, 5508.13, 0.030)

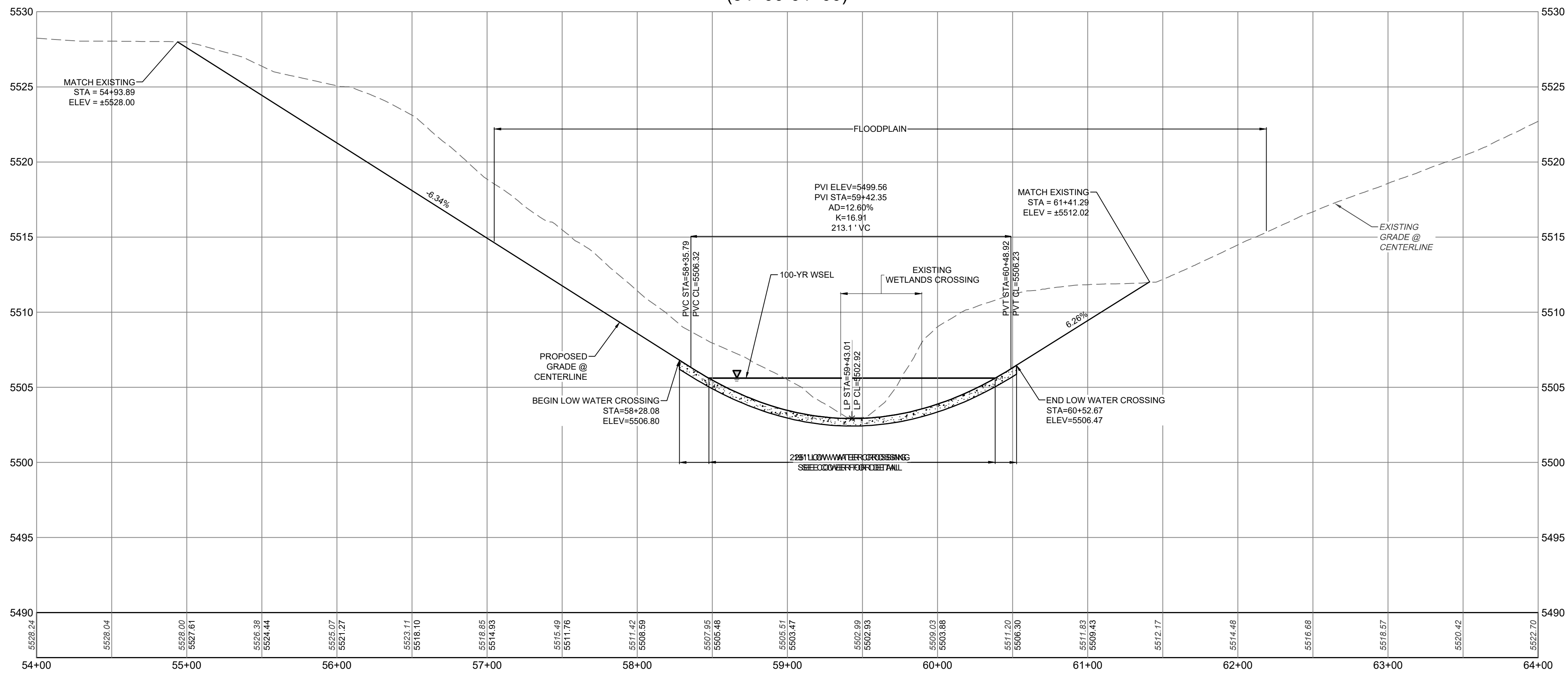




LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROJECT BOUNDARY
- CENTERLINE
- PROPOSED SOLAR TRACKER
- PROPOSED INVERTER
- PROPOSED FENCE
- EXISTING FENCE
- POWER POLES
- GUY WIRE
- WATER VALVES
- FIRE HYDRANTS
- EXISTING STORM MANHOLES
- EXISTING STORM & STUB OUT
- FLOODPLAIN
- JURISDICTIONAL WATER FEATURES
- WILLIAMS CREEK RES. EXPANSION
- EXISTING STORM
- EXISTING WATER
- EXISTING ELECTRIC
- EXISTING TELEPHONE
- EXISTING FIBER OPTIC
- EXISTING GAS
- EXISTING OVER HEAD ELECTRIC

FLOODPLAIN CROSSING #2 (54+00-64+00)



#	REVISION DESCRIPTION	DATE	BY
1	1ST SUBMITTAL	02/15/21	DB

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Tuesday, Mar 9 2021

Cross Section 2 - 5 year - Existing

User-defined

Invert Elev (ft) = 5503.00
Slope (%) = 0.50
N-Value = 0.030

Calculations

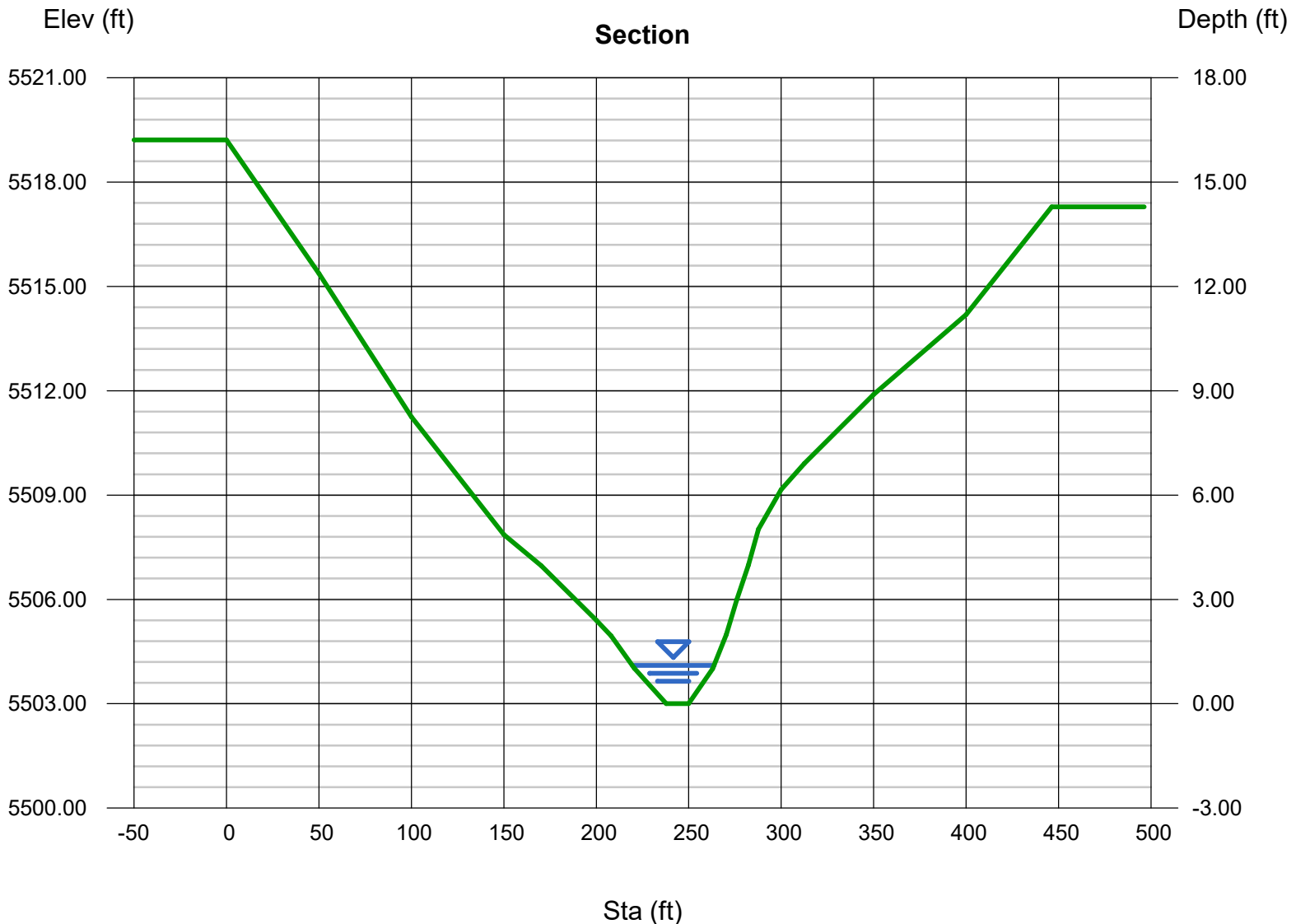
Compute by: Known Q
Known Q (cfs) = 87.09

Highlighted

Depth (ft) = 1.10
Q (cfs) = 87.09
Area (sqft) = 31.44
Velocity (ft/s) = 2.77
Wetted Perim (ft) = 44.28
Crit Depth, Yc (ft) = 0.84
Top Width (ft) = 44.20
EGL (ft) = 1.22

(Sta, El, n)-(Sta, El, n)...

(0.00, 5519.21)-(50.00, 5515.37, 0.030)-(100.00, 5511.25, 0.030)-(150.00, 5507.86, 0.030)-(170.32, 5506.97, 0.030)-(200.00, 5505.40, 0.030)-(208.04, 5504.95, 0.030)-(220.59, 5504.02, 0.030)-(237.78, 5503.00, 0.030)-(250.00, 5503.00, 0.030)-(262.96, 5504.00, 0.030)-(270.36, 5504.99, 0.030)-(275.97, 5506.00, 0.030)-(282.27, 5507.00, 0.030)-(287.77, 5508.02, 0.030)-(300.00, 5509.16, 0.030)-(312.55, 5509.91, 0.030)-(350.00, 5511.89, 0.030)-(400.00, 5514.19, 0.030)-(446.31, 5517.29, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Tuesday, Mar 9 2021

Cross Section 2 - 5 year - Proposed

User-defined

Invert Elev (ft) = 5503.00
Slope (%) = 0.50
N-Value = 0.030

Calculations

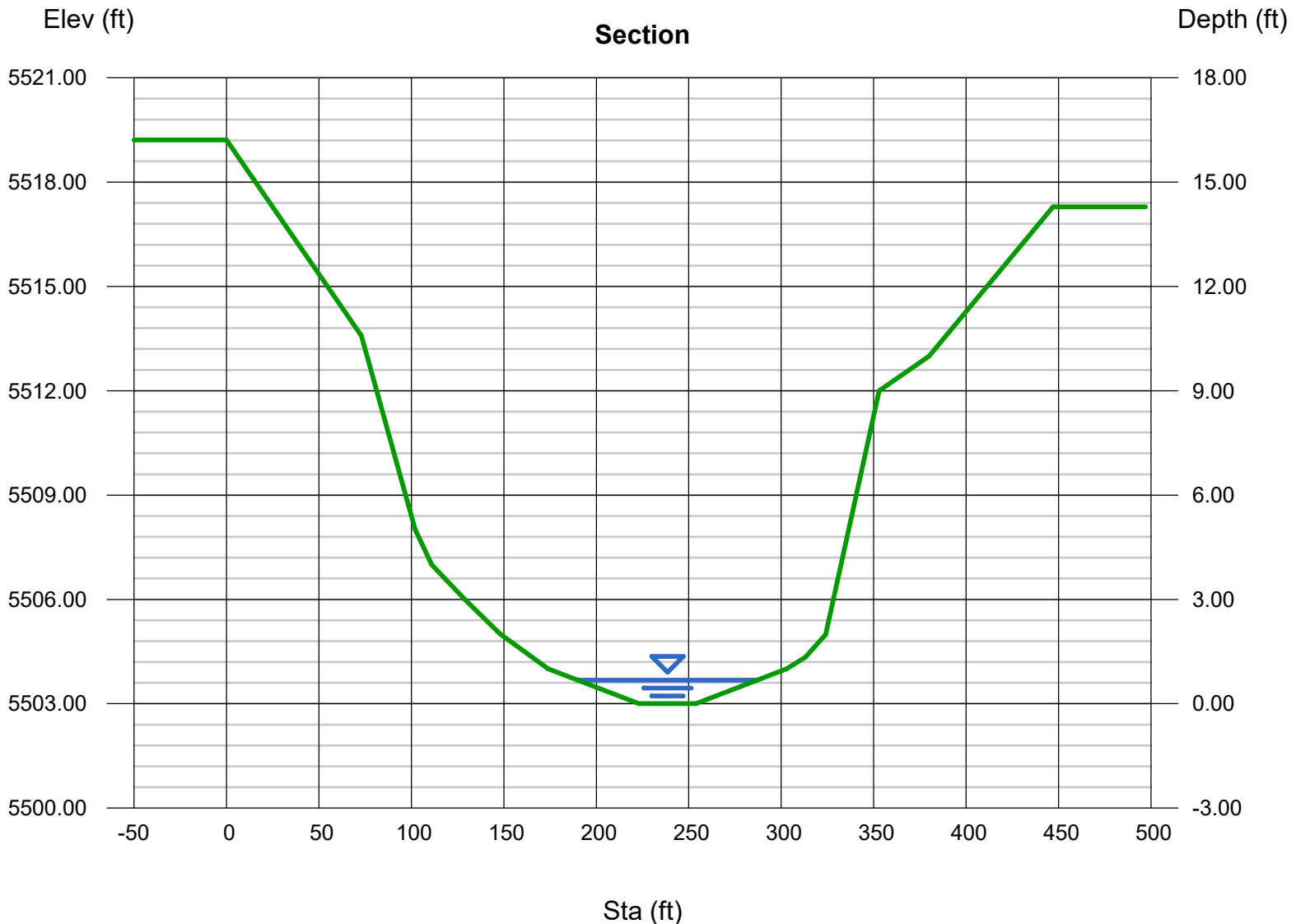
Compute by: Known Q
Known Q (cfs) = 87.09

Highlighted

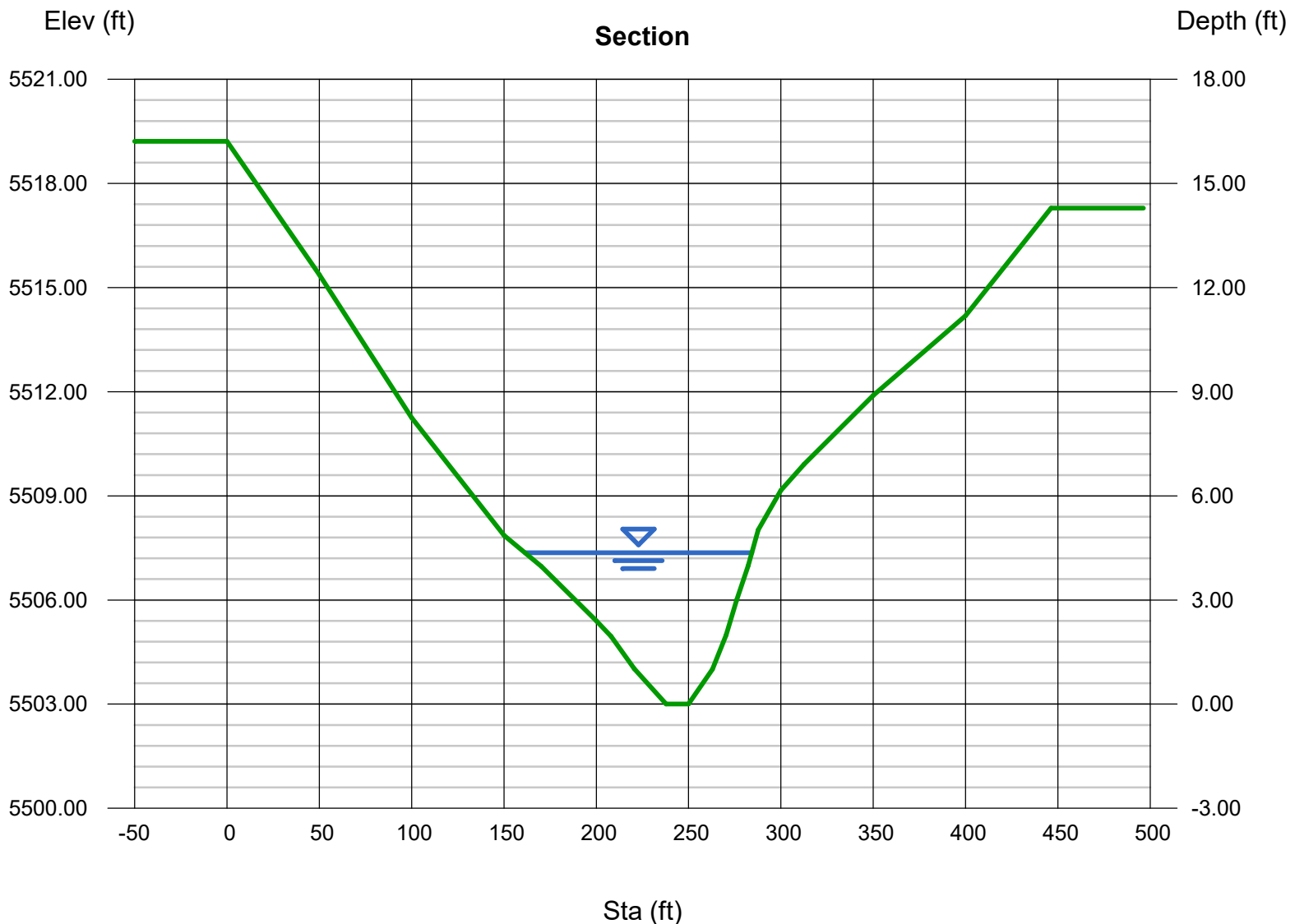
Depth (ft) = 0.68
Q (cfs) = 87.09
Area (sqft) = 43.75
Velocity (ft/s) = 1.99
Wetted Perim (ft) = 97.67
Crit Depth, Yc (ft) = 0.49
Top Width (ft) = 97.66
EGL (ft) = 0.74

(Sta, El, n)-(Sta, El, n)...

(0.00, 5519.21)-(73.00, 5513.58, 0.030)-(102.00, 5508.01, 0.030)-(111.00, 5507.00, 0.030)-(129.00, 5506.00, 0.030)-(148.00, 5505.00, 0.030)-(174.00, 5504.00, 0.030)-(223.00, 5503.00, 0.030)-(254.00, 5503.00, 0.030)-(303.00, 5504.00, 0.030)-(313.00, 5504.34, 0.030)-(324.00, 5504.99, 0.030)-(353.00, 5512.00, 0.030)-(380.00, 5517.29, 0.030)-(447.00, 5517.29, 0.030)



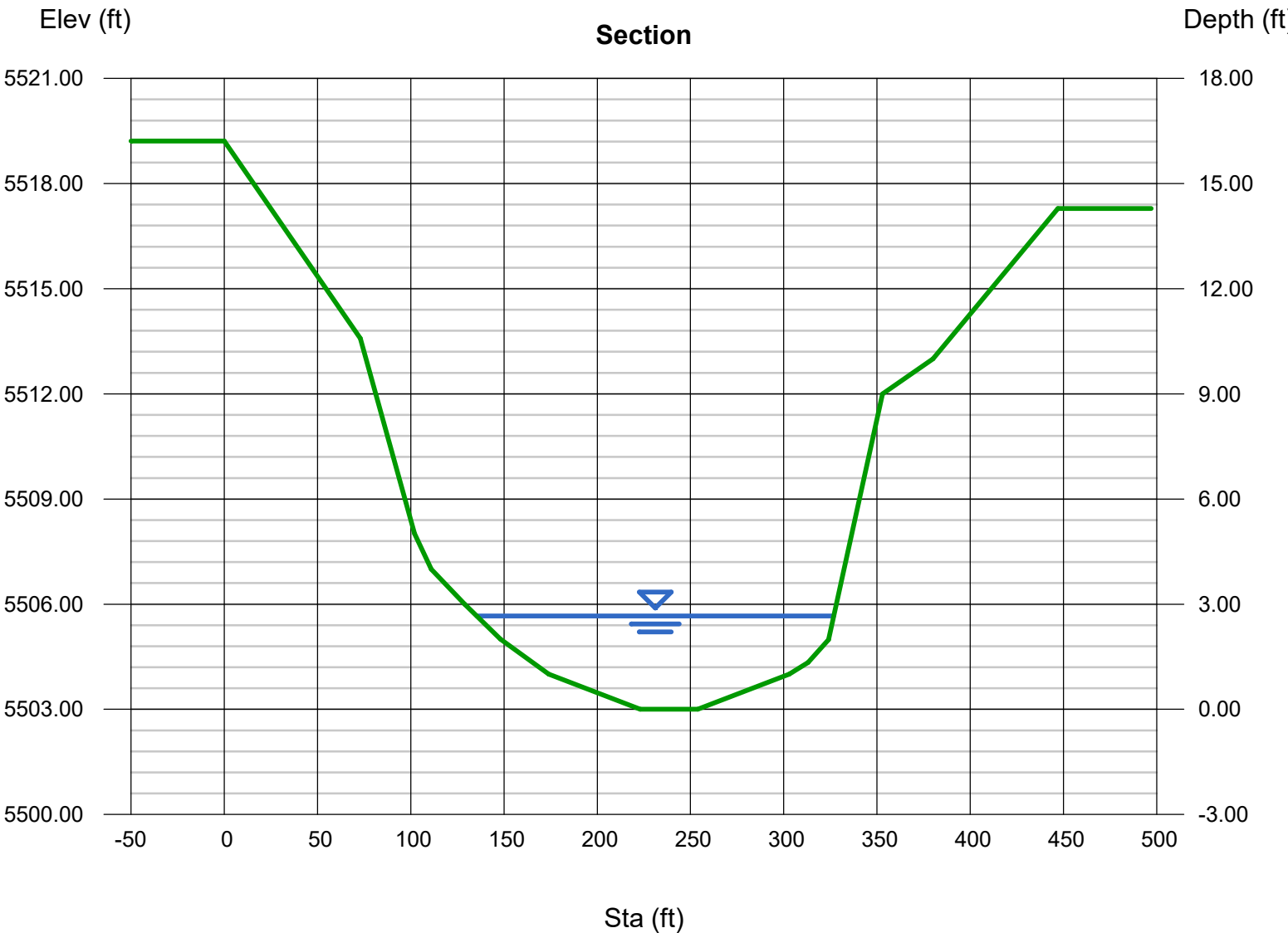
Tuesday, Mar 9 2021

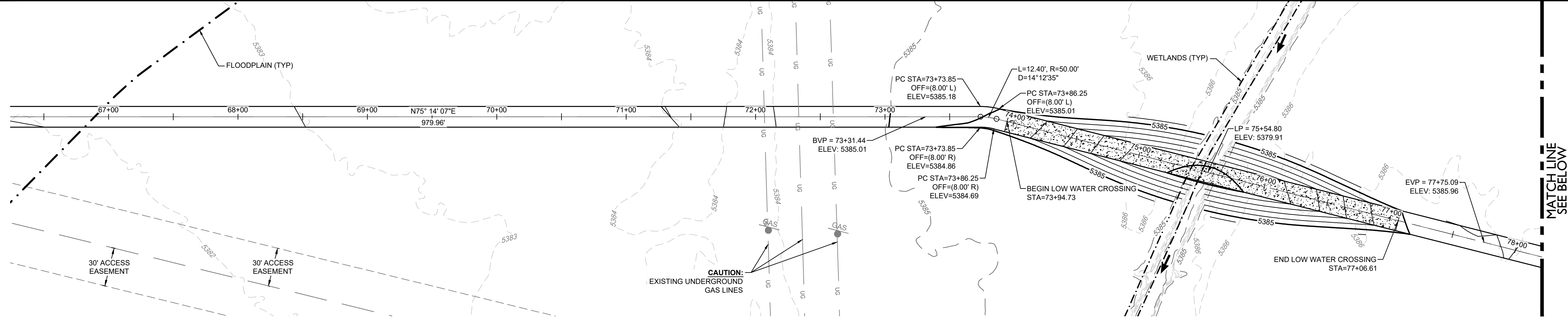


Channel Report

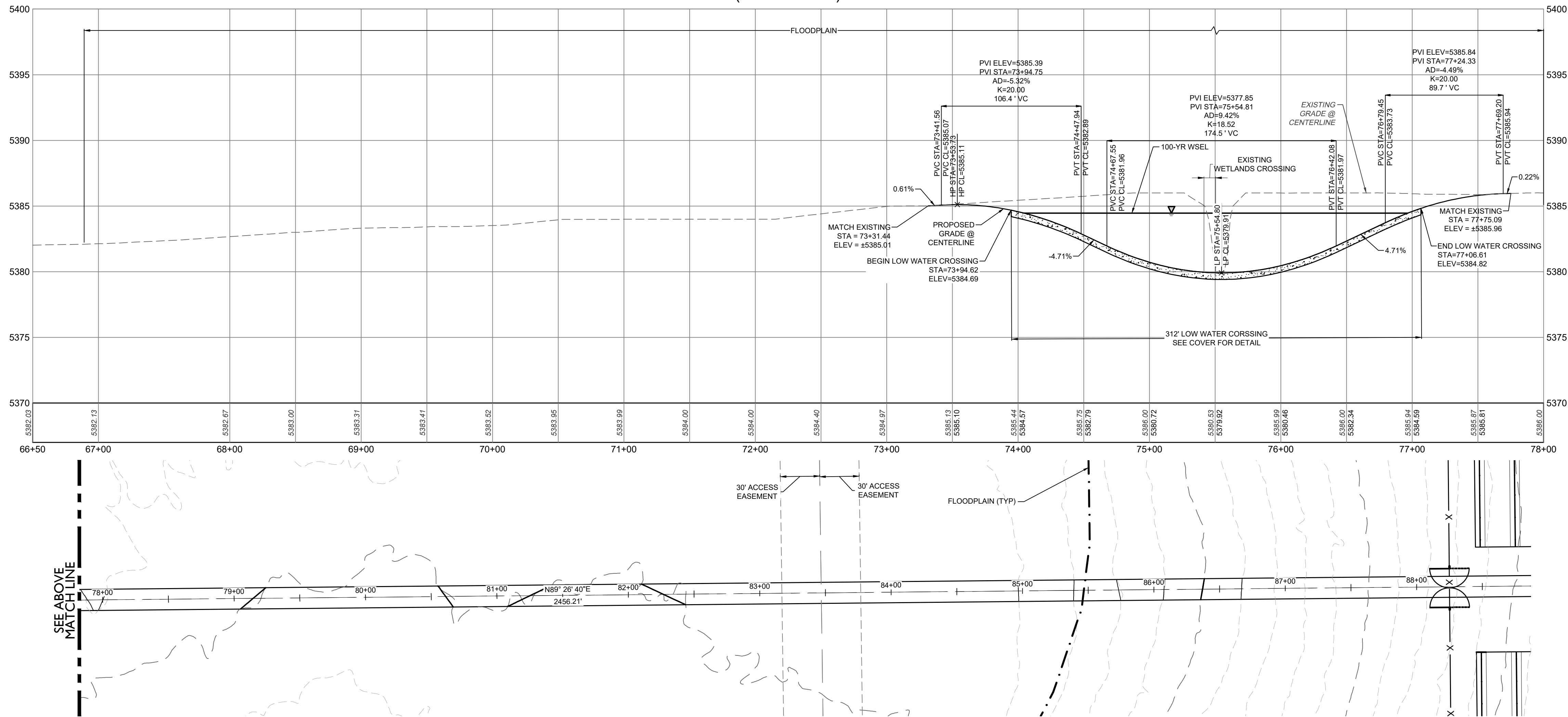
Cross Section 2 - 100 year - Proposed

User-defined		Highlighted	
Invert Elev (ft)	= 5503.00	Depth (ft)	= 2.66
Slope (%)	= 0.50	Q (cfs)	= 1,869
N-Value	= 0.030	Area (sqft)	= 355.24
Calculations		Velocity (ft/s)	= 5.26
Compute by:	Known Q	Wetted Perim (ft)	= 191.48
Known Q (cfs)	= 1868.62	Crit Depth, Yc (ft)	= 2.21
		Top Width (ft)	= 191.31
		EGL (ft)	= 3.09
(Sta, El, n)-(Sta, El, n)...			
(0.00, 5519.21)-(73.00, 5513.58, 0.030)-(102.00, 5508.01, 0.030)-(111.00, 5507.00, 0.030)-(129.00, 5506.00, 0.030)-(148.00, 5505.00, 0.030)-(174.00, 5504.00, 0.030)-(223.00, 5503.00, 0.030)-(254.00, 5503.00, 0.030)-(303.00, 5504.00, 0.030)-(313.00, 5504.34, 0.030)-(324.00, 5504.99, 0.030)-(353.00, 5512.00, 0.030)-(380.00, 5517.29, 0.030)-(447.00, 5517.29, 0.030)			

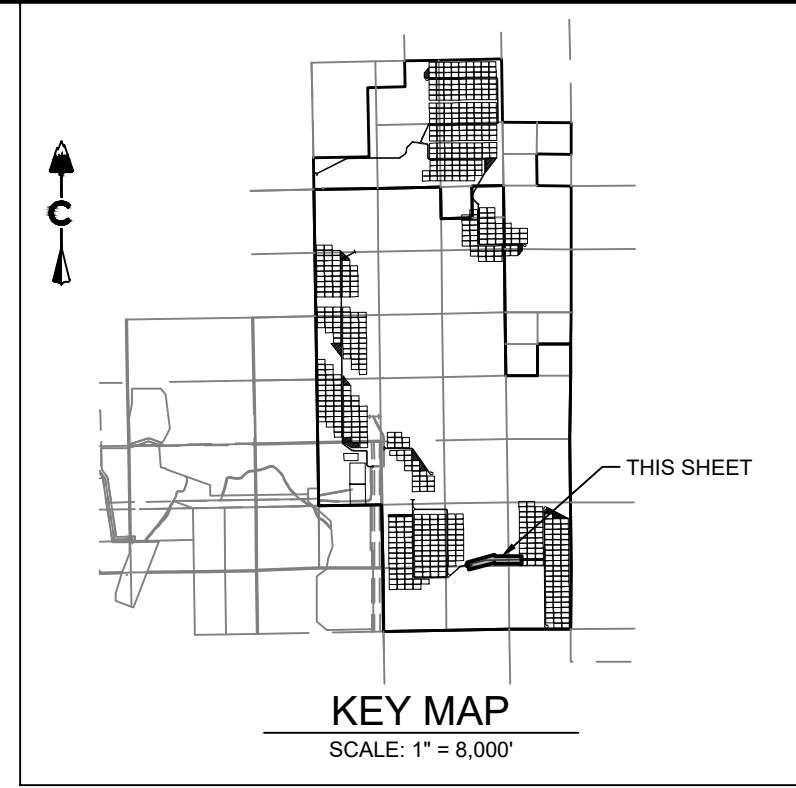
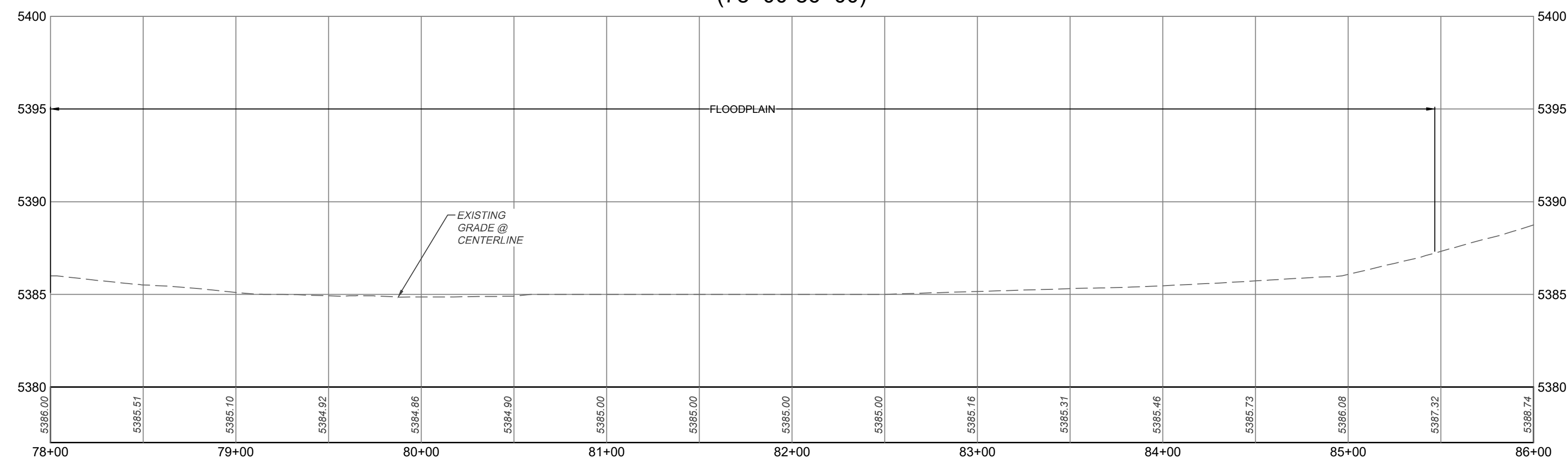




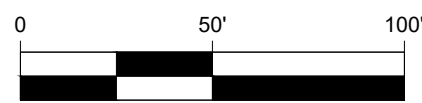
FLOODPLAIN CROSSING #3
(66+50-78+00)



FLOODPLAIN CROSSING #3
(78+00-86+00)



KEY MAP
SCALE: 1" = 8,000'



LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROJECT BOUNDARY
- CENTERLINE
- PROPOSED SOLAR TRACKER
- PROPOSED INVERTER
- PROPOSED FENCE
- EXISTING FENCE
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- EXISTING STORM & STUB OUT
- FLOODPLAIN
- JURISDICTIONAL WATER FEATURES
- WILLIAMS CREEK RES. EXPANSION
- SD - EXISTING STORM
- W - EXISTING WATER
- E - EXISTING ELECTRIC
- T - EXISTING TELEPHONE
- FO - EXISTING FIBER OPTIC
- G - EXISTING GAS
- OH - EXISTING OVER HEAD ELECTRIC

CORE CONSULTANTS, INC.
3473 S. BROADWAY
DENVER, CO 80113
303.703.4444
LIVEYOURCORE.COM

CORE



#	REVISION DESCRIPTION	DATE	BY
1	1ST SUBMITTAL	02/15/21	DB

PIKE SOLAR
EL PASO COUNTY, COLORADO
CONSTRUCTION DOCUMENTS
FLOOD PLAN CROSSINGS #3 P&P

NOT FOR
CONSTRUCTION

DESIGNED BY: BB
DRAWN BY: TP
CHECKED BY: DB

JOB NO.
20-194
SHEET
FP-3 OF 55

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Friday, Jan 29 2021

Existing Floodplain Crossing 3 - 5 year

User-defined

Invert Elev (ft) = 5380.00
Slope (%) = 0.50
N-Value = 0.030

Calculations

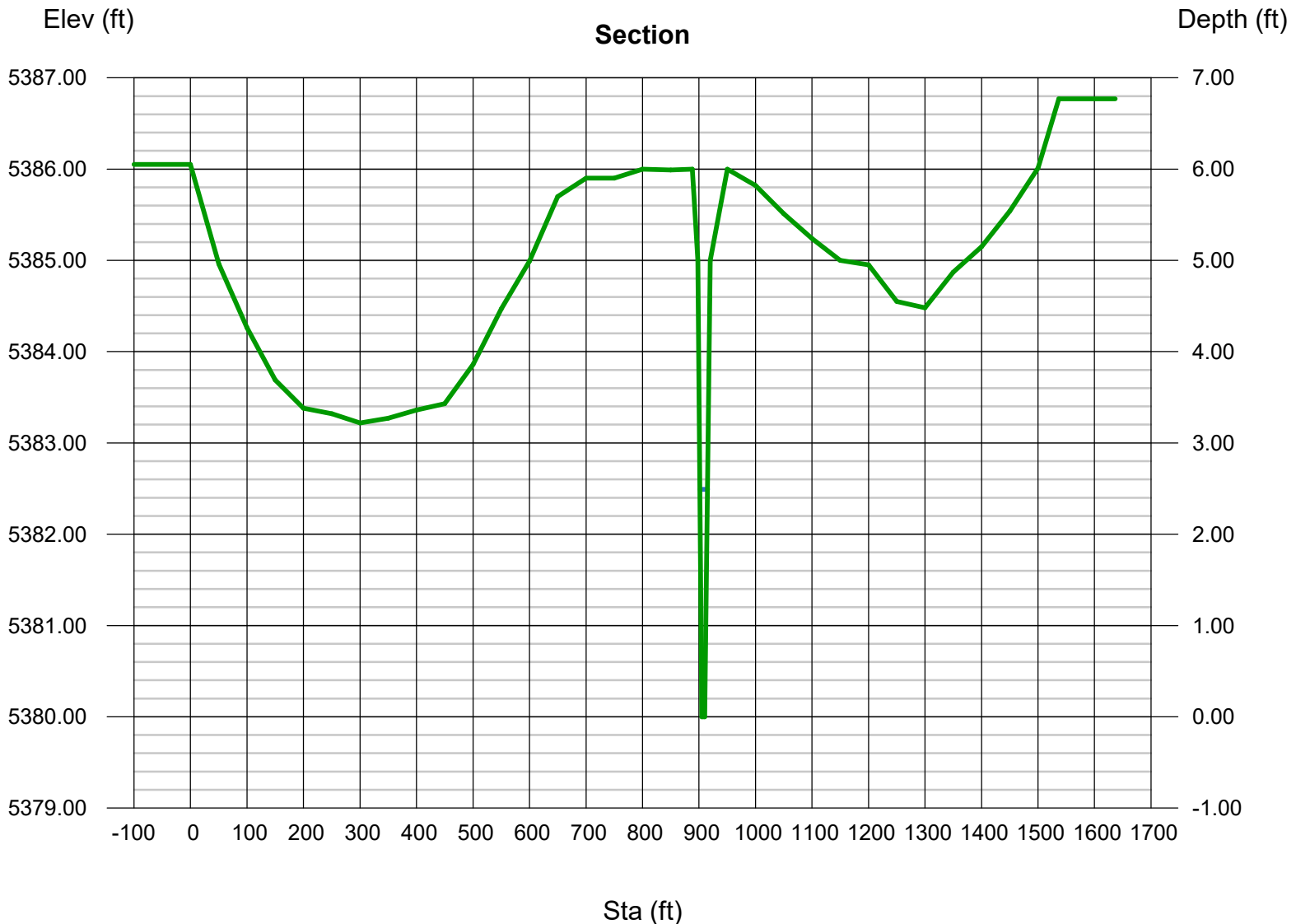
Compute by: Known Q
Known Q (cfs) = 107.79

Highlighted

Depth (ft) = 2.49
Q (cfs) = 107.79
Area (sqft) = 22.99
Velocity (ft/s) = 4.69
Wetted Perim (ft) = 14.85
Crit Depth, Yc (ft) = 1.95
Top Width (ft) = 13.47
EGL (ft) = 2.83

(Sta, El, n)-(Sta, El, n)...

(0.00, 5386.05)-(50.00, 5384.96, 0.030)-(100.00, 5384.26, 0.030)-(150.00, 5383.69, 0.030)-(200.00, 5383.38, 0.030)-(250.00, 5383.32, 0.030)-(300.00, 5383.22, 0.030)-(350.00, 5383.27, 0.030)-(400.00, 5383.36, 0.030)-(450.00, 5383.43, 0.030)-(500.00, 5383.86, 0.030)-(550.00, 5384.47, 0.030)-(600.00, 5384.99, 0.030)-(650.00, 5385.00, 0.030)-(700.00, 5385.90, 0.030)-(750.00, 5385.90, 0.030)-(800.00, 5386.00, 0.030)-(850.00, 5385.99, 0.030)-(888.00, 5386.00, 0.030)-(898.00, 5385.00, 0.030)-(905.00, 5385.00, 0.030)-(910.00, 5380.00, 0.030)-(920.00, 5385.00, 0.030)-(950.00, 5386.00, 0.030)-(1000.00, 5385.82, 0.030)-(1050.00, 5385.51, 0.030)-(1100.00, 5385.24, 0.030)-(1150.00, 5385.24, 0.030)-(1200.00, 5384.95, 0.030)-(1250.00, 5384.55, 0.030)-(1300.00, 5384.48, 0.030)-(1350.00, 5384.87, 0.030)-(1400.00, 5385.15, 0.030)-(1450.00, 5385.54, 0.030)-(1500.00, 5386.77, 0.030)-(1536.76, 5386.77, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Friday, Jan 29 2021

Proposed Floodplain Crossing 3 - 5 year

User-defined

Invert Elev (ft) = 5379.91
Slope (%) = 0.50
N-Value = 0.030

Calculations

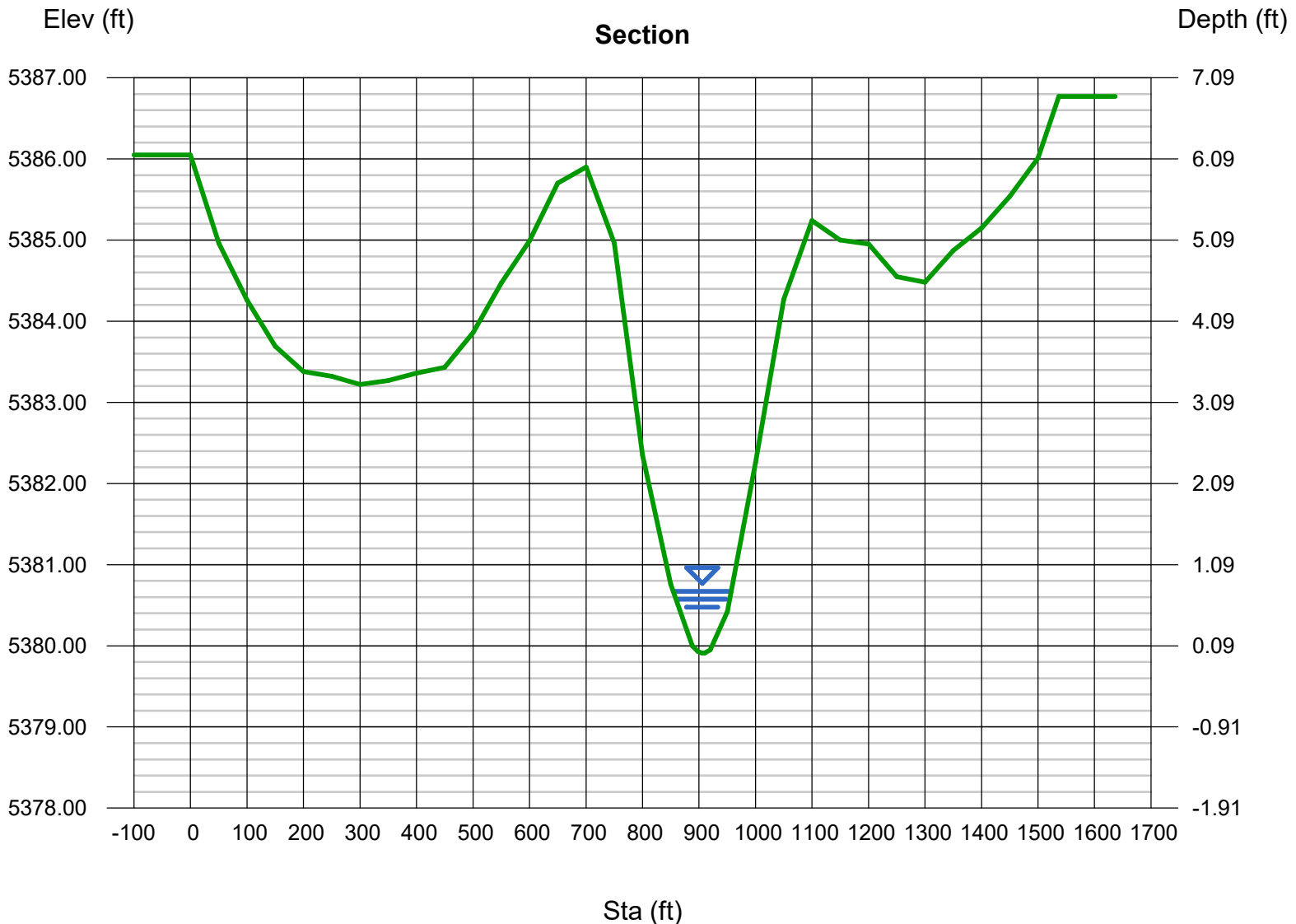
Compute by: Known Q
Known Q (cfs) = 107.79

Highlighted

Depth (ft) = 0.76
Q (cfs) = 107.79
Area (sqft) = 50.11
Velocity (ft/s) = 2.15
Wetted Perim (ft) = 102.32
Crit Depth, Yc (ft) = 0.57
Top Width (ft) = 102.30
EGL (ft) = 0.83

(Sta, El, n)-(Sta, El, n)...

(0.00, 5386.05)-(50.00, 5384.96, 0.030)-(100.00, 5384.26, 0.030)-(150.00, 5383.69, 0.030)-(200.00, 5383.38, 0.030)-(250.00, 5383.32, 0.030)-(300.00, 5383.22, 0.030)-(350.00, 5383.27, 0.030)-(400.00, 5383.36, 0.030)-(450.00, 5383.43, 0.030)-(500.00, 5383.86, 0.030)-(550.00, 5384.47, 0.030)-(600.00, 5384.99, 0.030)-(650.00, 5385.00, 0.030)-(700.00, 5385.90, 0.030)-(750.00, 5384.96, 0.030)-(800.00, 5382.35, 0.030)-(850.00, 5380.76, 0.030)-(888.00, 5380.00, 0.030)-(898.00, 5379.93, 0.030)-(905.00, 5379.91, 0.030)-(920.00, 5379.95, 0.030)-(950.00, 5380.42, 0.030)-(1000.00, 5382.26, 0.030)-(1050.00, 5384.27, 0.030)-(1100.00, 5385.24, 0.030)-(1150.00, 5385.54, 0.030)-(1200.00, 5384.95, 0.030)-(1250.00, 5384.55, 0.030)-(1300.00, 5384.48, 0.030)-(1350.00, 5384.87, 0.030)-(1400.00, 5385.15, 0.030)-(1450.00, 5385.54, 0.030)-(1500.00, 5386.05, 0.030)-(1536.76, 5386.77, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Friday, Jan 29 2021

Existing Floodplain Crossing 3 - 100 year

User-defined

Invert Elev (ft) = 5380.00
Slope (%) = 0.50
N-Value = 0.030

Calculations

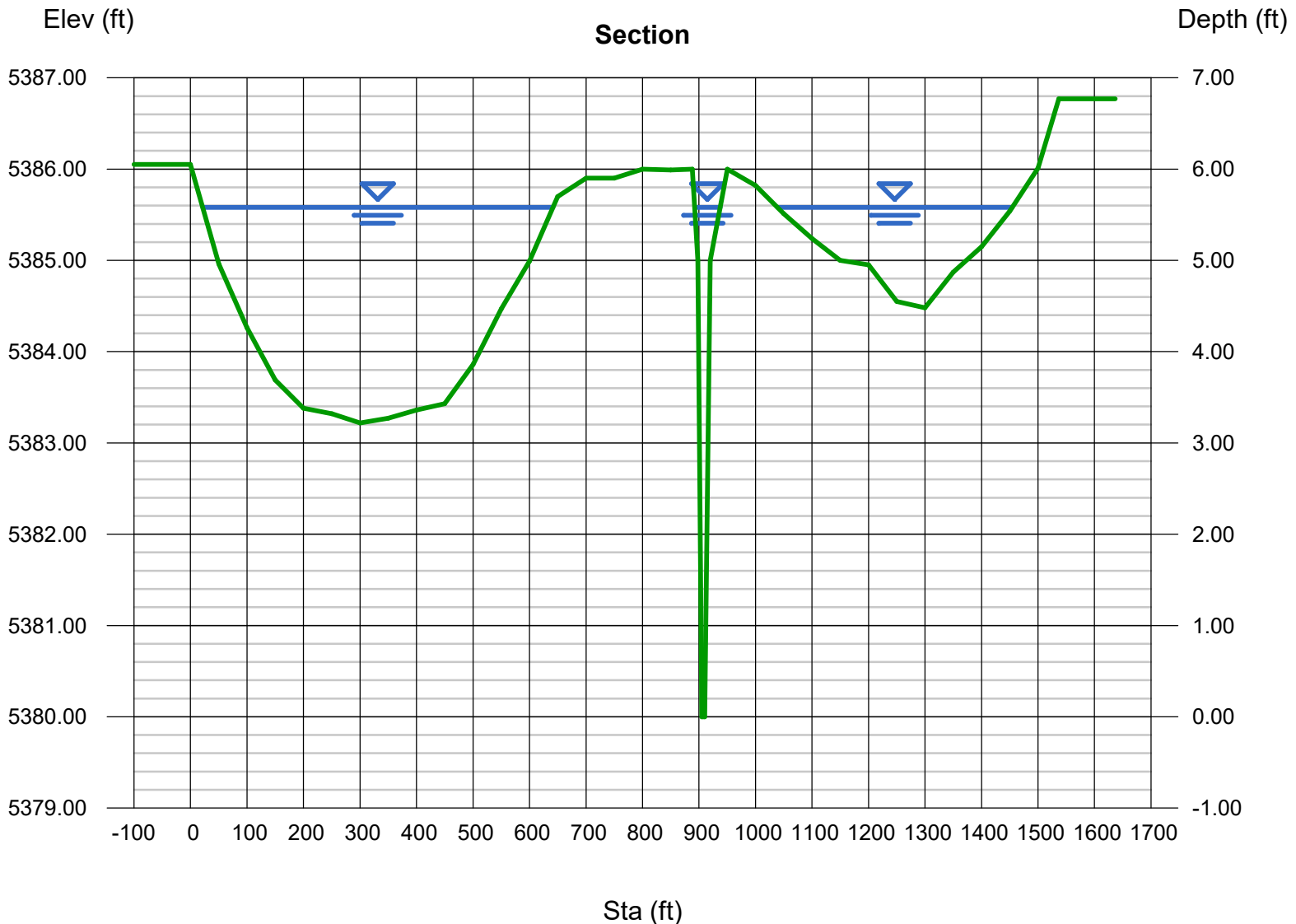
Compute by: Known Q
Known Q (cfs) = 5540.82

Highlighted

Depth (ft) = 5.58
Q (cfs) = 5,541
Area (sqft) = 1359.62
Velocity (ft/s) = 4.08
Wetted Perim (ft) = 1083.65
Crit Depth, Yc (ft) = 5.16
Top Width (ft) = 1080.79
EGL (ft) = 5.84

(Sta, El, n)-(Sta, El, n)...

(0.00, 5386.05)-(50.00, 5384.96, 0.030)-(100.00, 5384.26, 0.030)-(150.00, 5383.69, 0.030)-(200.00, 5383.38, 0.030)-(250.00, 5383.32, 0.030)-(300.00, 5383.22, 0.030)-(350.00, 5383.27, 0.030)-(400.00, 5383.36, 0.030)-(450.00, 5383.43, 0.030)-(500.00, 5383.86, 0.030)-(550.00, 5384.47, 0.030)-(600.00, 5384.99, 0.030)-(650.00, 5385.00, 0.030)-(700.00, 5385.90, 0.030)-(750.00, 5385.90, 0.030)-(800.00, 5386.00, 0.030)-(850.00, 5385.99, 0.030)-(888.00, 5386.00, 0.030)-(898.00, 5385.00, 0.030)-(905.00, 5385.00, 0.030)-(910.00, 5380.00, 0.030)-(920.00, 5385.00, 0.030)-(950.00, 5386.00, 0.030)-(1000.00, 5385.82, 0.030)-(1050.00, 5385.51, 0.030)-(1100.00, 5385.24, 0.030)-(1150.00, 5385.24, 0.030)-(1200.00, 5384.95, 0.030)-(1250.00, 5384.55, 0.030)-(1300.00, 5384.48, 0.030)-(1350.00, 5384.87, 0.030)-(1400.00, 5385.15, 0.030)-(1450.00, 5385.54, 0.030)-(1500.00, 5386.00, 0.030)-(1536.76, 5386.77, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc.

Friday, Jan 29 2021

Proposed Floodplain Crossing 3 - 100 year

User-defined

Invert Elev (ft) = 5379.91
Slope (%) = 0.50
N-Value = 0.030

Calculations

Compute by: Known Q
Known Q (cfs) = 5540.82

Highlighted

Depth (ft) = 4.45
Q (cfs) = 5,541
Area (sqft) = 1171.37
Velocity (ft/s) = 4.73
Wetted Perim (ft) = 741.53
Crit Depth, Yc (ft) = 3.99
Top Width (ft) = 741.35
EGL (ft) = 4.80

(Sta, El, n)-(Sta, El, n)...

(0.00, 5386.05)-(50.00, 5384.96, 0.030)-(100.00, 5384.26, 0.030)-(150.00, 5383.69, 0.030)-(200.00, 5383.38, 0.030)-(250.00, 5383.32, 0.030)-(300.00, 5383.22, 0.030)-(350.00, 5383.27, 0.030)-(400.00, 5383.36, 0.030)-(450.00, 5383.43, 0.030)-(500.00, 5383.86, 0.030)-(550.00, 5384.47, 0.030)-(600.00, 5384.99, 0.030)-(650.00, 5385.38, 0.030)-(700.00, 5385.90, 0.030)-(750.00, 5384.96, 0.030)-(800.00, 5382.35, 0.030)-(850.00, 5380.76, 0.030)-(888.00, 5380.00, 0.030)-(898.00, 5379.93, 0.030)-(905.00, 5380.00, 0.030)-(910.00, 5379.91, 0.030)-(920.00, 5379.95, 0.030)-(950.00, 5380.42, 0.030)-(1000.00, 5382.26, 0.030)-(1050.00, 5384.27, 0.030)-(1100.00, 5385.24, 0.030)-(1150.00, 5385.54, 0.030)-(1200.00, 5384.95, 0.030)-(1250.00, 5384.55, 0.030)-(1300.00, 5384.48, 0.030)-(1350.00, 5384.87, 0.030)-(1400.00, 5385.15, 0.030)-(1450.00, 5385.54, 0.030)-(1500.00, 5386.05, 0.030)-(1536.76, 5386.77, 0.030)

