



Albertson Engineering Inc.

605-343-9606

www.albertsonengineering.com

3202 W. Main, Suite C
Rapid City, SD 57702

315 N. Main Ave., Suite 200
Sioux Falls, SD 57104

201 S. Monroe St., Suite 203A
Winner, SD 57580

CONSTRUCTION CHANGE ORDER NO. 1

Project: Whitewood Creek Restoration – Bid Package 1
 AEI Project #: 2020-096.1
 Owner: City of Deadwood
 Engineer: Albertson Engineering Inc.
 Contract Date: August 1, 2023
 Date of Issuance: 12/07/2023
 Issued to: RCS Construction, PO BOX 9337, Rapid City, SD 57709
 Distribution to: Owner Engineer Contractor

YOU ARE HEREBY DIRECTED TO MAKE THE FOLLOWING CHANGES IN THIS CONTRACT:

1. Phase 2A Replace Rip Rap with Envirolok Wall as per the following attachments:
 1. Cost Proposal #1 by RCS Construction
 2. TDG RFI #1 WWC – Bio Engineering and Tolley Lane Sheet Revisions

Not valid until signed by both the Owner and Contractor. Signature of the Contractor indicates his/her agreement herewith, including any adjustment in the Contract Sum or Contract Time.

CONTRACT STATUS:

The Original Contract Sum	\$7,575,000.00
Net Change by Previously Authorized Change Orders	\$ --
Contract Sum Prior to This Change Order	\$7,575,000.00

Contract Sum Increase Per This Change Order	\$ 37,588.67
New Contract Sum Will Be	\$7,612,588.67

The Contract Time Will Be changed per the following:

Site 1C, 2A, & 2B: Revised to the following:
 May 26, 2024 – Substantial Completion
 June 16, 2024 – Final Completion

Site 3A: Unchanged
 December 1, 2024 – Substantial Completion
 December 15, 2024 – Final Completion

Site 3B: Unchanged
 March 15, 2024 – Site available to Contractor
 October 4, 2024 – Substantial Completion
 October 18, 2024 – Final Completion

AUTHORIZED SIGNATURES

The persons executing this Agreement hereby represent that they have authorization to sign

Owner (Signature)

Contractor (Signature)

(Printed name and title)

(Printed name and title)

CITY OF DEADWOOD

RCS CONSTRUCTION

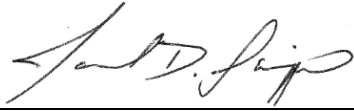
Date

Date

Email

Email





Engineer *(Signature)*

Jared Schippers, PE, Principal
(Printed name and title)

Albertson Engineering Inc.

12/7/2023
Date

jared@albertsonengineering.com
Email



Albertson Engineering Inc.

605-343-9606
www.albertsonengineering.com
Rapid City, Sioux Falls, and Winner



December 7, 2023

Jared Schippers, PE
jared@albertsonengineering.com
Albertson Engineering Inc.
3202 West Main Street, Suite C
Rapid City SD 57702

RE: Whitewood Creek Restoration, Deadwood SD
Sites 1C, 2A, 2B, 3A, & 3B
Cost Proposal #01 - TDG RFI #1 WWC – Bio Engineering and Trolley Lane Sheet Revisions

Dear Jared,

We are pleased to provide you with the following proposal for cost changes related to TDG RFI #1 WWC – Bio Engineering and Trolley Lane Sheet Revisions dated November 08, 2023. RCS Construction is requesting a time extension related to the quoted work. RCS is proposing to eliminate the retaining wall and creek-side work substantial completion date of April 12, 2024 for sites 1C, 2A and 2B. The project substantial completion date for these sites would remain May 26, 2024.

Phase 1C Trolley Lane Area Changes:
Deduct Cobble Landscape Area (\$600.00)
Additional Asphalt Pavement Area \$4,212.00
Total Change Related to Trolley Lane Change: \$3,612.00

Phase 2A Replace Rip Rap with Envirolok Wall
Deduct Rip Rap Material (\$11,235.00)
Add Envirolok Wall \$48,823.67
Total Change for Envirolok Wall: \$37,588.67

Total Cost Changes for TDG RFI #1 WWC: \$41,200.67

Please review the following inclusions and exclusions on page 2 for this work.



Safety • Quality • Communication • Timeliness

P.O. Box 9337 • Rapid City, SD 57709-
9337 Phone (605) 342-3787 • Fax (605)
348-4041

www.rcsconst.com



We Include:

- Envirolok wall based on design provided by Envirolok dated November 2023
- Backfill material is assumed to be on-site material.
- 4" Drain pipe with clean rock wrapped in fabric behind wall is included
- Envirolok wall will be hydroseeded to provide vegetation on face of wall

We Exclude:

- **Live plantings and/or sod on Envirolok wall**
- **Testing**

We appreciate the opportunity to provide this proposal and should you have any questions or comments please don't hesitate to contact our office.

Kind Regards,

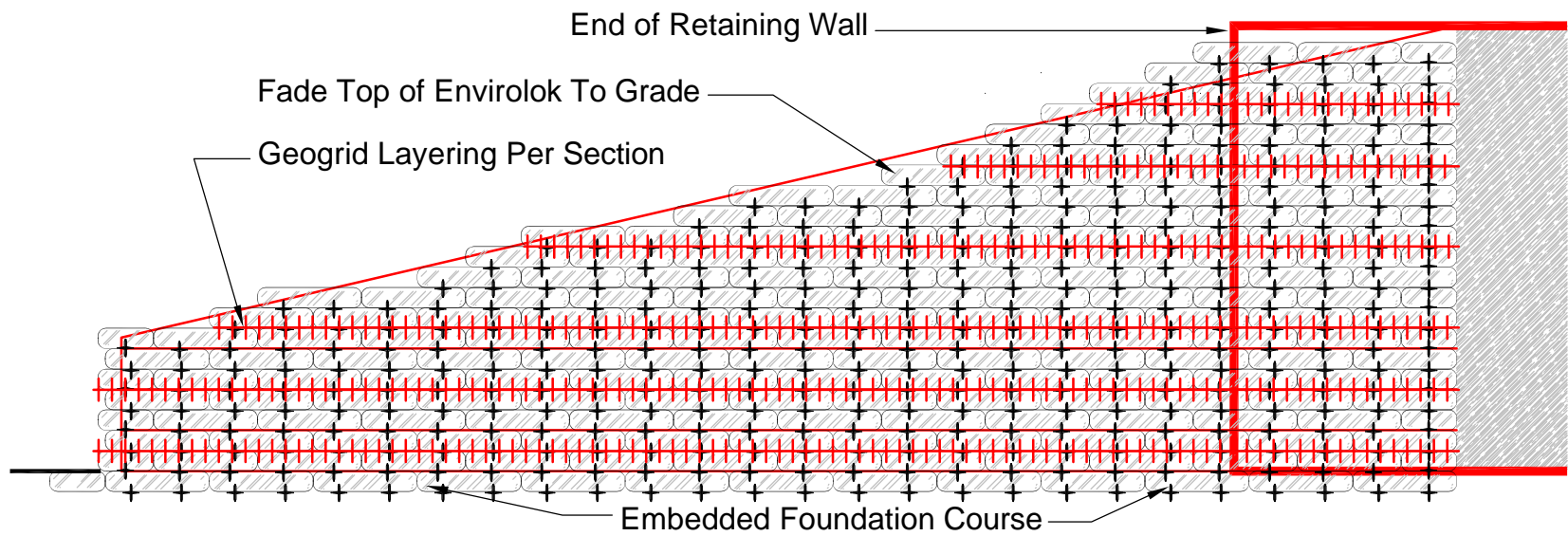
Reid Hansen

Reid Hansen
Project Manager

Safety • Quality • Communication • Timeliness

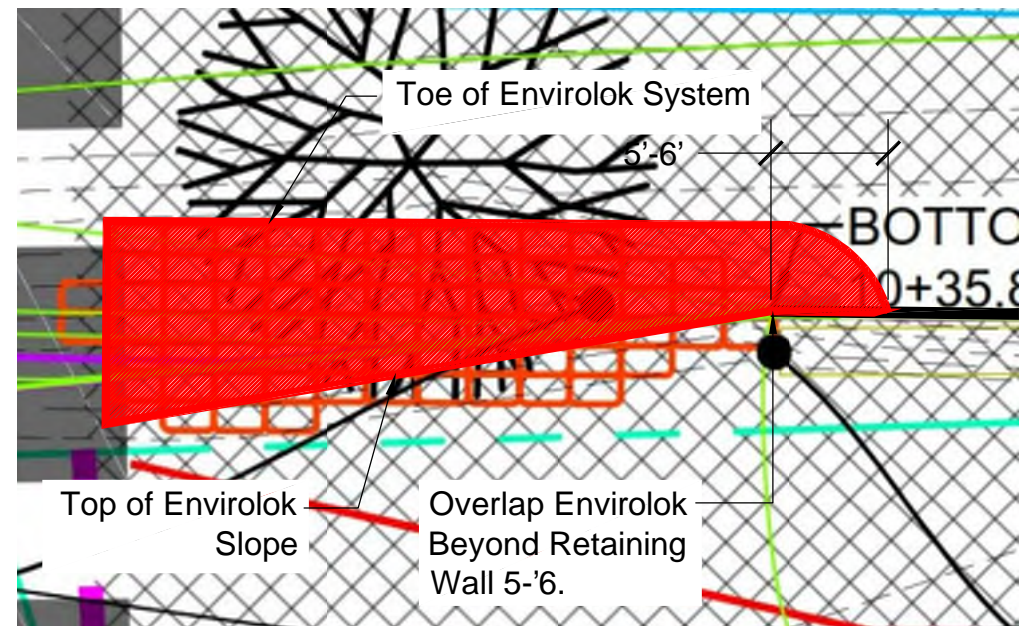
P.O. Box 9337 • Rapid City, SD 57709-
9337 Phone (605) 342-3787 • Fax (605)
348-4041

www.rcsconst.com



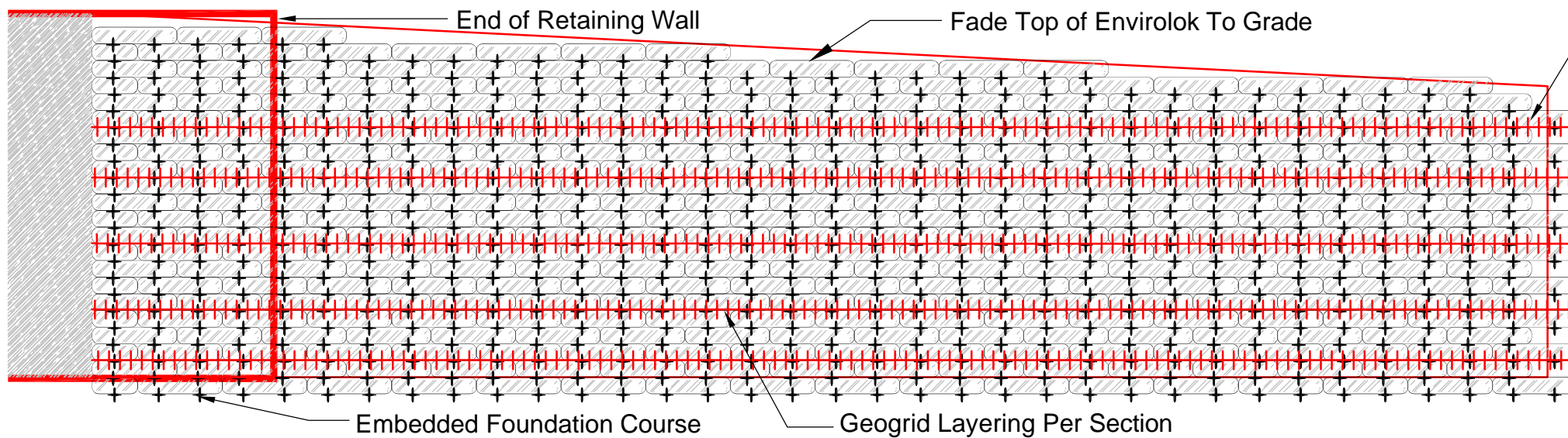
Envirolok Elevation @ Wall 2A (Sheet C-406R)

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



Envirolok Plan @ Wall 2A (Sheet C-406R)

SCALE: 1/8"=1'-0"

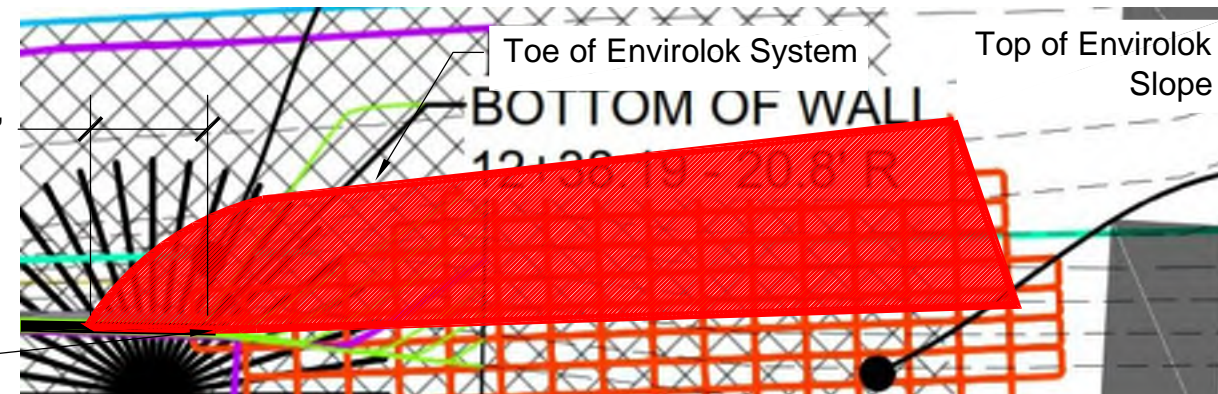


Envirolok Elevation @ Wall 2A (Sheet C-407R)

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

Toe of Envirolok System

Toe of Envirolok System



Envirolok Plan @ Wall 2A (Sheet C-407R)

SCALE: 1/8"=1'-0"

REVISIONS

Envirolok
DESIGNED FOR NATURE. ENGINEERED FOR LIFE.

10101 N. Casey Road
Evansville, WI 53536
(P) 608.226.2565

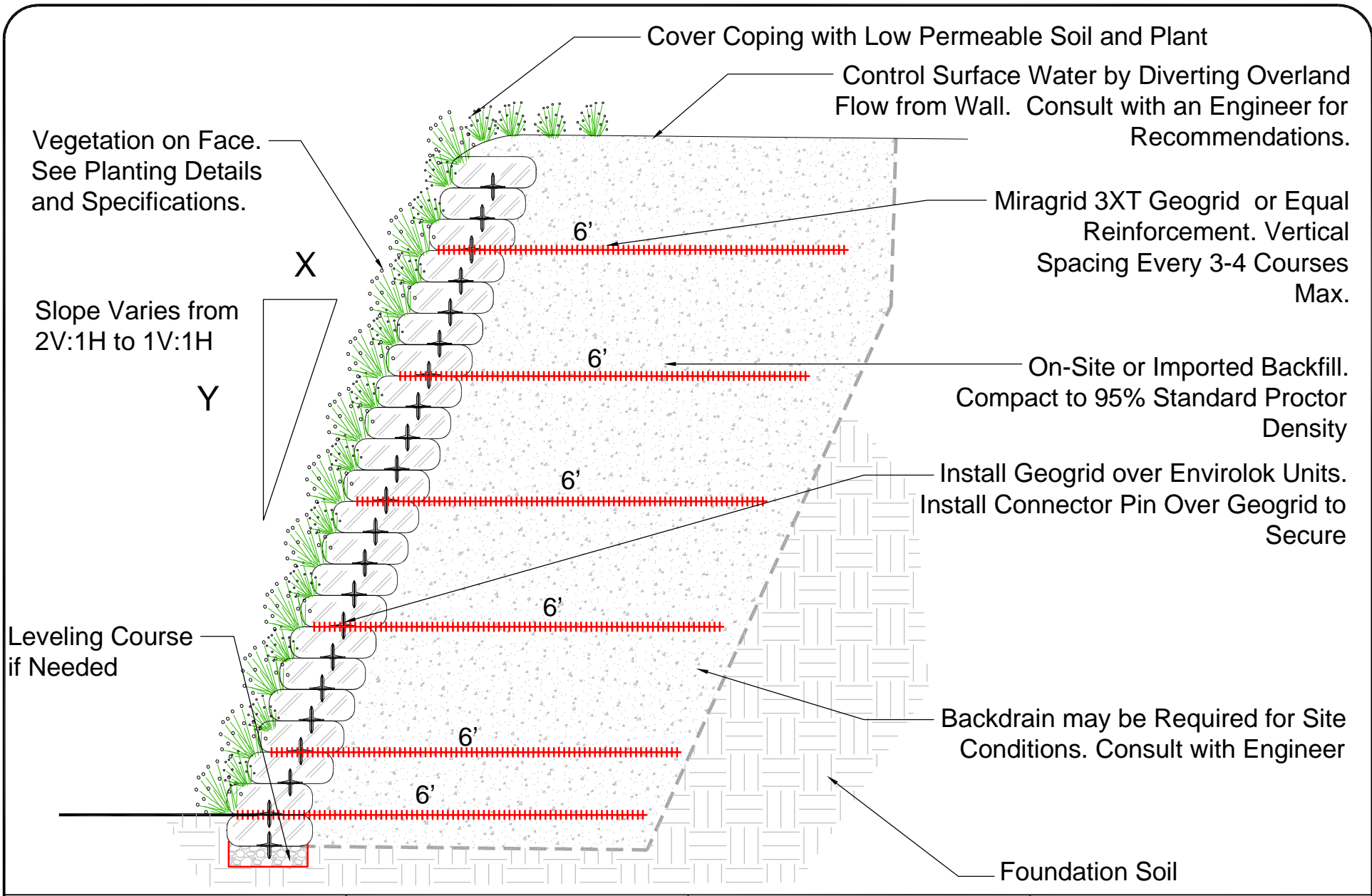
TITLE
**WHITEWOOD CREEK
SLOPE STABILIZATION**

DATE
NOVEMBER 2023

SHEET
SHEET 1 OF 2

This is a typical, non-site specific design. Envirolok LLC makes these documents available on an "as is" basis. All CAD (dwg) and PDF (.pdf) files were created as a service to our customers. Final determination of the suitability of any information or materials for the construction of any project should be made by the user. A final project specific design should be prepared by a qualified, licensed professional engineer. THIS DRAWING IS NOT FOR CONSTRUCTION. Copyright 2020, Envirolok LLC

www.envirolok.com
ecosolutions@envirolok.com
(F) 608.894.4640



This is a typical, non-site specific design. Envirolok LLC makes these documents available on an "as is" basis. All CAD (.dwg) and PDF (.pdf) files were created as a service to our customers. Final determination of the suitability of any information or material for the use contemplated, and its manner of use, is the sole responsibility of the user. A final project specific design should be prepared by a qualified, licensed, professional engineer. THIS DRAWING IS NOT FOR CONSTRUCTION. Copyright 2020, Envirolok LLC

TITLE
**GEOGRID LAYERING
 REINFORCEMENT**

DATE
 NOVEMBER 2023

SCALE
 1/2" = 1' - 0"

SHEET
 SHEET 2 OF 2



10101 N. Casey Road
 Evansville, WI 53536
 (P) 608.226.2565

www.envirolok.com
 ecosolutions@envirolok.com
 (F) 608.884.4640

REVISIONS

NO.	DESCRIPTION



Date: November 08, 2023

Client: Jared Schippers
Albertson Engineering

Engineer: Michael Towey
Towey Design Group, Inc.

RE: **TDG RFI #1 WWC – Bio Engineering and Trolley Lane Sheet Revisions**

All,

This letter is to support revised sheets C-307R, C-404R, C-406R, C-407R, C-707, C-708.

Sheet C-307R includes changes the trolley lane area. These changes were done to allow semi-truck traffic to drive through the trolley lane area to safely exit Water Street. The changes include;

- Changing the **INSIDE** radius of the trolley lane curve **FROM A** 100' radius (at TBC) **TO A** 268.33' radius (at TBC). The outer radius of the trolley lane curve remained unchanged at 113.34' (at TBC).
- Changing the affected elevation points. The affected points changed location and or elevation based on the radius change. Affected areas include:
 - Concrete Transformer Pad
 - 6' Sidewalk near the changed radius
 - TBC along the changed radius
 - TBC along the east curb of Trolley Lane
- No other points were changed south of Inset B (HC ramp nearest the Trolley shelter location) or north of the two HC ramps nearest the east most parking lot.

Sheet C-404R includes replacing riprap with the "Bio-engineering" substitute "Envirolok" wattles. Instead of riprap transitioning from the wall to the natural hillside grade, the Envirolok wattles will be used. This is a permanent erosion control device to not be removed after construction is complete.

Sheet C-406R shows the removed riprap from the east side of the 2A wall.

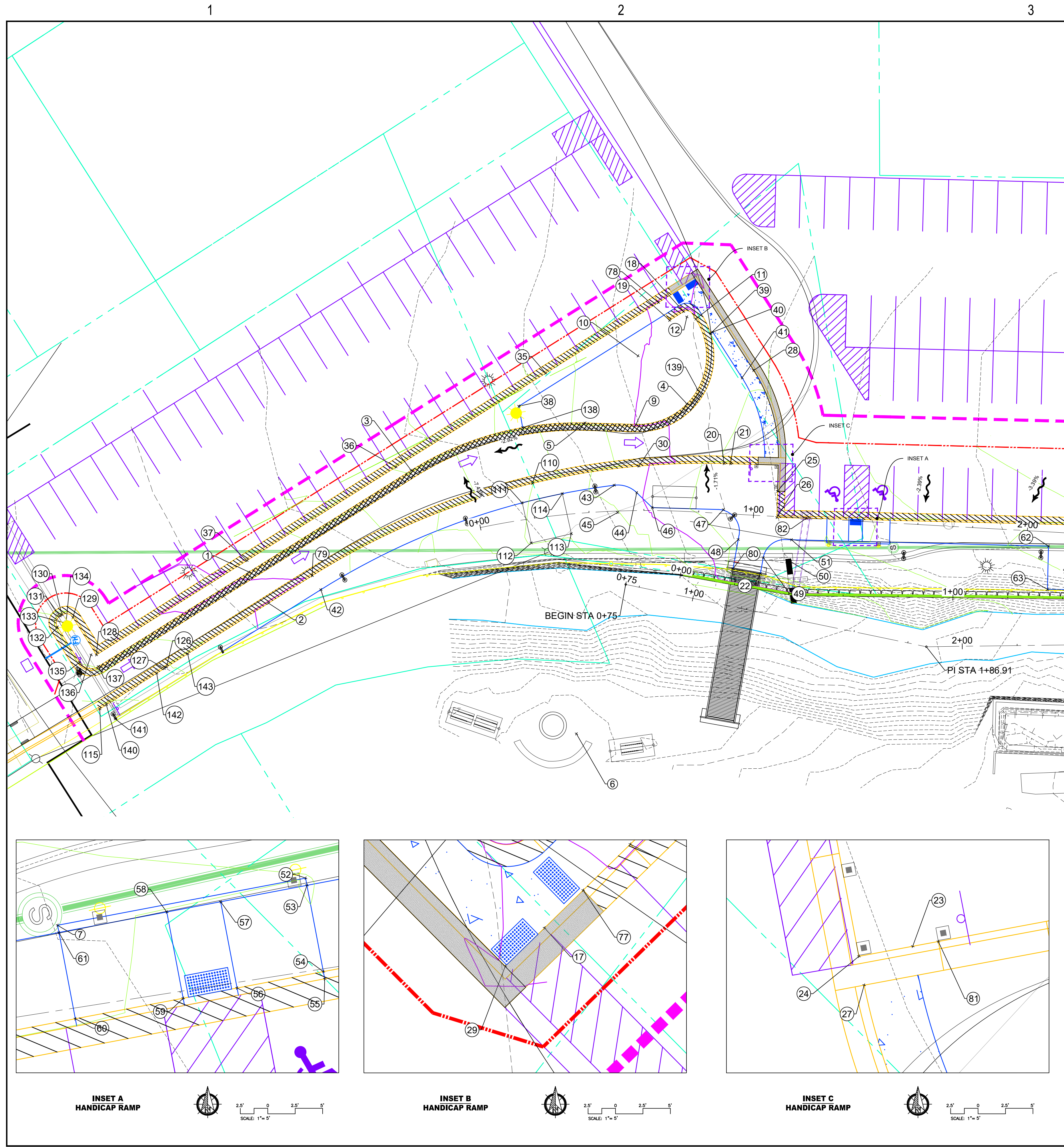
Sheet C-407-R shows the removed riprap from the west side of the 2A wall.

Sheets C-707 and C-708 include details for the installation of the Envirolok wattle wall transition.

Please Email or Call Brandon Kruse for any questions you have.

Email: brandon@toweydesigngroup.com

Call: 605.600.3758



COORDINATE TABLE					COORDINATE TABLE				
Point #	Northing	Easting	Elevation	Description	Point #	Northing	Easting	Elevation	Description
1	218918.35	993868.12	4560.56	TBC	60	218684.96	993846.16	4567.25	TBC
2	218913.33	993855.76	4560.13	TBC	61	218686.55	993838.32	4567.37	WALK
3	218853.71	993894.36	4562.04	TBC	62	218629.75	993826.84	4568.22	WALK
4	218750.51	993900.79	4565.96	TBC	63	218632.86	993811.38	4567.68	WALK
5	218788.27	993900.36	4564.20	TBC	77	218748.79	993941.27	4564.84	TBC
6	218811.08	993789.34	94.11	RADIUS	78	218754.35	993939.01	4565.16	TBC
7	218686.68	993837.66	4567.37	TBC	79	218895.92	993862.83	4560.56	TBC
9	218770.09	993896.63	4565.28	TBC	80	218744.42	993838.66	4566.50	WALK
10	218765.06	993921.12	25.00	RADIUS	81	218728.85	993874.54	4566.47	TBC
11	218741.98	993930.72	4565.69	TBC	82	218714.86	993852.20	4567.25	TBC
12	218745.03	993932.00	2.33	RADIUS	110	218811.01	993882.05	4562.99	TBC
17	218744.24	993943.11	4564.91	TBC	111	218815.95	993875.69	4562.93	CONC
18	218745.91	993934.16	4565.44	TBC	112	218815.21	993860.71	4563.08	CONC
19	218751.47	993931.90	4565.26	TBC	113	218800.23	993861.48	4563.23	CONC
20	218741.01	993877.04	4566.41	TBC	114	218800.92	993876.46	4563.49	CONC
21	218738.65	993876.55	4566.54	TBC	115	218980.58	993828.46	4559.10	TBC
22	218734.91	993835.17	4566.50	WALK	126	218954.02	993839.24	4559.10	METAL
23	218726.52	993874.06	4566.44	TBC	127	218954.95	993838.86	4559.07	METAL
24	218721.63	993873.06	4566.37	TBC	128	218978.36	993848.08	4559.69	TBC
25	218723.52	993863.69	4566.74	TBC	129	218984.42	993863.01	4559.57	TBC
26	218725.40	993854.33	4566.69	TBC	130	218988.22	993864.61	4559.45	TBC
27	218721.08	993875.67	4566.42	TBC	131	218989.00	993864.29	4559.43	TBC
28	218724.46	993908.56	4565.88	TBC	132	218990.60	993860.50	4559.31	TBC
29	218739.61	993945.00	4564.98	TBC	133	218987.90	993861.60	2.91	RADIUS
30	218771.72	993881.51	4564.80	TBC	134	218987.12	993861.91	2.91	RADIUS
35	218799.29	993920.77	4563.87	TBC	135	218984.91	993846.49	4559.31	TBC
36	218858.98	993896.54	4562.03	TBC	136	218980.28	993848.37	5.00	RADIUS
37	218918.37	993872.43	4564.99	TBC	137	218978.40	993843.74	4559.56	TBC
38	218810.99	993910.62	4563.25	WALK	138	218810.99	993902.68	4563.30	TBC
39	218737.60	993924.55	4565.10	TBC	139	218745.77	993905.21	4565.92	TBC
40	218736.68	993924.93	4565.35	TBC	140	218977.97	993829.52	4559.04	WALK
41	218729.08	993906.64	4565.89	WALK	141	218975.71	993823.96	4559.19	WALK
42	218893.67	993857.26	4560.43	WALK	142	218957.89	993837.67	4558.74	TBC
43	218781.74	993876.19	4564.44	WALK	143	218945.55	993842.68	4559.34	TBC
44	218774.17	993872.09	4564.87	WALK					
45	218782.25	993866.20	4563.95	RADIUS					
46	218769.54	993865.74	4565.23	WALK					
47	218744.12	993860.52	4566.56	WALK					
48	218740.68	993848.86	4566.64	WALK					
49	218732.86	993840.75	4566.61	WALK					
50	218723.18	993837.55	8.00	RADIUS					
51	218721.60	993845.40	4566.77	WALK					
52	218709.22	993842.21	4567.02	TBC					
53	218709.09	993842.87	4567.03	WALK					
54	218707.51	993850.71	4566.91	TBC					
55	218707.37	993851.37	4566.41	TBC					
56	218699.67	993849.13	4566.63	RAMP					
57	218701.25	993841.29	4566.75	RAMP					
58	218696.35	993840.30	4566.85	RAMP					
59	218694.76	993848.14	4566.70	RAMP					

- B- GUTTER SEE SHEET C-700
- P- GUTTER SEE SHEET C-700
- T- GUTTER SEE SHEET C-700

CUT - 576.45 CY
 FILL - 850.62 CY
 NET - 274.18 CY



Albertson Engineering Inc.
 3202 W. MAIN, SUITE C
 RAPID CITY, SD 57702
 605.343.9606

CONSULTANT
TDG
 Towey Design Group
 475 Villa Drive, Suite #3
 Box Elder, SD 57719
 605.600.3758

PROJECT IDEN:
 WHITEWOOD CREEK RESTORATION
 BID PACKAGE 1
 SITES 1C, 2A, 2B, 3A, 3B
 FEMA PROJECT NO. 123108
 DEADWOOD, SOUTH DAKOTA

ISSUE BLOCK:		
NO	ISSUE TYPE	ISSUE DATE
	65% PRELIM	12/30/2022
	100% CD	5/18/2023
	TDG RFI #1	11/08/2023

MANAGEMENT:
 PROJECT NO: 20-096.1
 DRAWN BY: NR
 DESIGNED BY: BMK
 CHECKED BY: MT
 SHEET TITLE:

SITE 1C GRADING

SHEET IDENTIFICATION:

C-307R

- 1 STA. 10+51.3 @ 163.8' L
-INLET PROTECTION AT STREET
- 2 STA. 14+01.9 @ 180.4' L
-INLET PROTECTION AT STREET
- 3 STA. 12+58.4 @ 41.2' R
-VEHICLE TRACKING CONTROL
- 4 STA. 14+25.1 @ 52.1' L
-VEHICLE TRACKING CONTROL

- 5 STA. 14+02.8 @ 28.5' L
-CONCRETE WASHOUT AREA
- 6 STA. 10+10.4 @ 48.9' R TO 12+74.6 @ 47.5' R
-WATTLE START AND END
- 7 STA. 10+04.40 @ 23.9' R TO 12+84.39 @ 16.0' R
-RIGHT WATER DIVERSION BARRIER
- 8 STA. 6+74.03 @ 20.15' L
-WATTLE START

- 9 STA. 17+49.4 @ 4.6' L
-WATTLE END
- 10 STA. 7+60.9 @ 8.1' L TO STA. 17+53.2 @ 3.2' L
-LEFT WATER DIVERSION BARRIER

1413 LINEAR FEET OF WATTLE
 1130 LINEAR FEET OF LEFT BARRIER
 285 LINEAR FEET OF RIGHT BARRIER

SITE 2A/B



Albertson Engineering Inc.
 3202 W. MAIN, SUITE C
 RAPID CITY, SD 57702
 605.343.9606

CONSULTANT
TDG
 Towey Design Group
 475 Villa Drive, Suite #3
 Box Elder, SD 57719
 605.600.3758

PROJECT IDEN:
 WHITEWOOD CREEK RESTORATION
 BID PACKAGE 1
 SITES 1C, 2A, 2B, 3A, 3B

FEMA PROJECT NO. 123108
 DEADWOOD, SOUTH DAKOTA

ISSUE BLOCK:

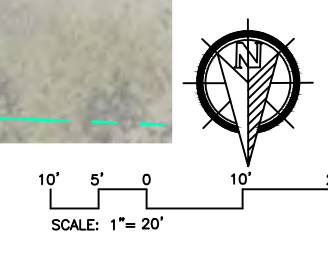
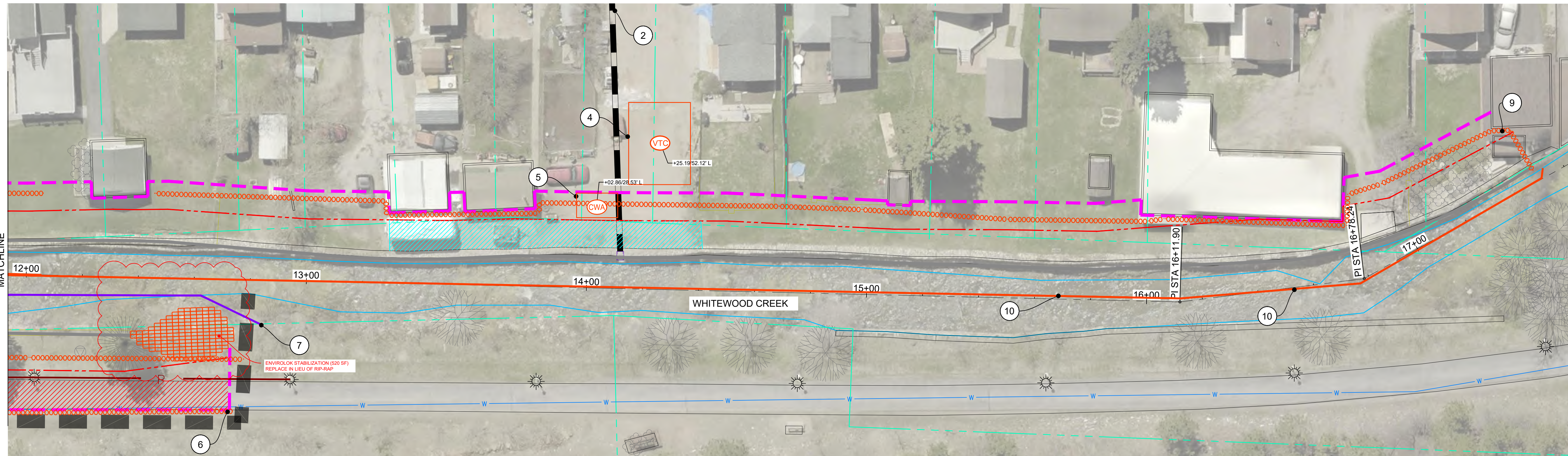
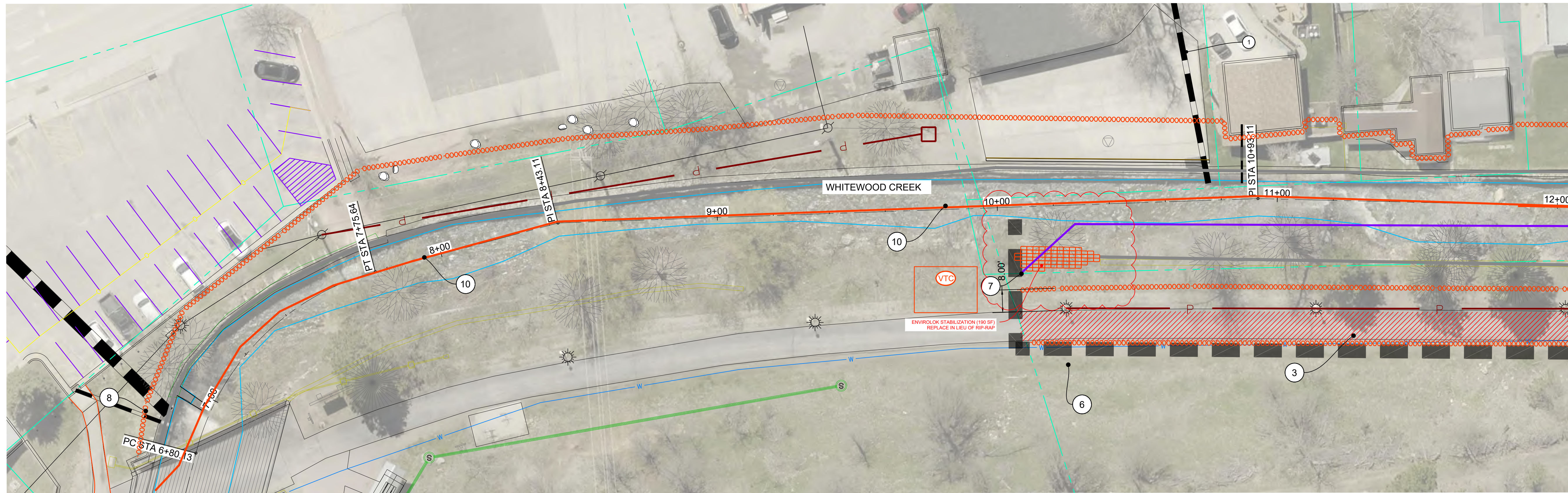
NO	ISSUE TYPE	ISSUE DATE
	65% PRELIM	12/30/2022
	100% CD	5/18/2023
	TDG RFI #1	11/08/2023

MANAGEMENT:
 PROJECT NO: 20-096.1
 DRAWN BY: NR
 DESIGNED BY: BMK
 CHECKED BY: MT
 SHEET TITLE:

SITE 2A AND 2B
 EROSION CONTROL PLAN

SHEET IDENTIFICATION:

C-404R



- 1 STA. 6+76.30 @ 13.65' L
- BEGIN 2B WALL- SEE STRUCTURAL
- 2 STA. 7+63.1, STA. 8+58.8 AND 9+40.5
REMOVE EXISTING POWER POLES
COORDINATE WITH BLACK HILLS
ENERGY
- 3 NEW ELECTRIC JUNCTION BOX
STA. 1+29.56 @ 18.5' L

- 4 REFERENCE ALL ELECTRIC TO SECTION
800 SHEETS
- 5 STA 10+76.2 L TO 13+29.1 L
SOD DISTURBED AREA SEE LANDSCAPE
SPECIFICATIONS
- 6 STA 9+94.1 @ 26.1' L TO 10+76.1 @ 22.1'
INSTALL 130 SY OF PCC CONCRETE
DRIVE PAVEMENT 2/C-700 DOWEL INTO
EXISTING PAVEMENT PER DETAIL
1/C-706 INSTALL 113 LF OF 24" TALL
C-WALL 1/C-701

- 7 STB. 1+62.0 @ 11.7' L
CONSTRUCT 19 SF OF PCC SIDEWALK
SEE DETAIL 2/C-700
- 8 BEGIN 2A WALL
STA 10+36.01 @ 16.2' R (+/-)
- 9 STA 6+80.0 L TO 10+76.2 L (473 SY)
STA 10+05.8 R TO 12+69.8 R (868 SY)
SEED, FERTILIZE AND MULCH
SEE LANDSCAPE SPECIFICATIONS

- 10 SEED, FERTILIZE, & MULCH PER
LANDSCAPE SPECS
- 11 2" ELECTRICAL CONDUIT
STA. 10+23.3 TO STA. 12+00 - 175 LF
PLACE SALVAGED TOPSOIL (145 SY)
- 12 STA. 10+75.5
INSTALL 10 LF OF 24" HDPE
SEE DETAIL 4/C-701

- 13 STA. 10+36.01 R
CLASS C RIP RAP 8" X 28" DEPTH 3.5'
SEE DETAIL 3/C-701
- 14 STA. 10+57.58 L
8" PVC PIPE PROTECT IN PLACE
- 15 REPLANT REMOVED TREES
COORDINATE WITH LANDSCAPE
- 16 INSTALL 2'X3' TYPE B INLET W/ 22 LF OF
12" HDPE

- 17 INSTALL CONCRETE WEIR (INSET F)
- 18 INSTALL 10 LF OF 54" HDPE AND 10 LF
OF 16" HDPE

LEGEND

- SOD PER LANDSCAPE PLANS
- SEED, FERTILIZE AND MULCH (NON IRRIGATED) PER LANDSCAPE PLANS
- ASPHALT
- CONCRETE

SITE 2A/B



Albertson Engineering Inc.
3202 W. MAIN, SUITE C
RAPID CITY, SD 57702
605.343.9606

CONSULTANT
TDG
Towey Design Group
475 Villa Drive, Suite #3
Box Elder, SD 57719
605.600.3758

PROJECT IDEN:
WHITEWOOD
CREEK
RESTORATION
BID PACKAGE 1
SITES 1C, 2A, 2B,
3A, 3B

FEMA PROJECT NO. 123108
DEADWOOD, SOUTH DAKOTA

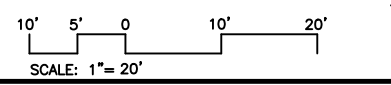
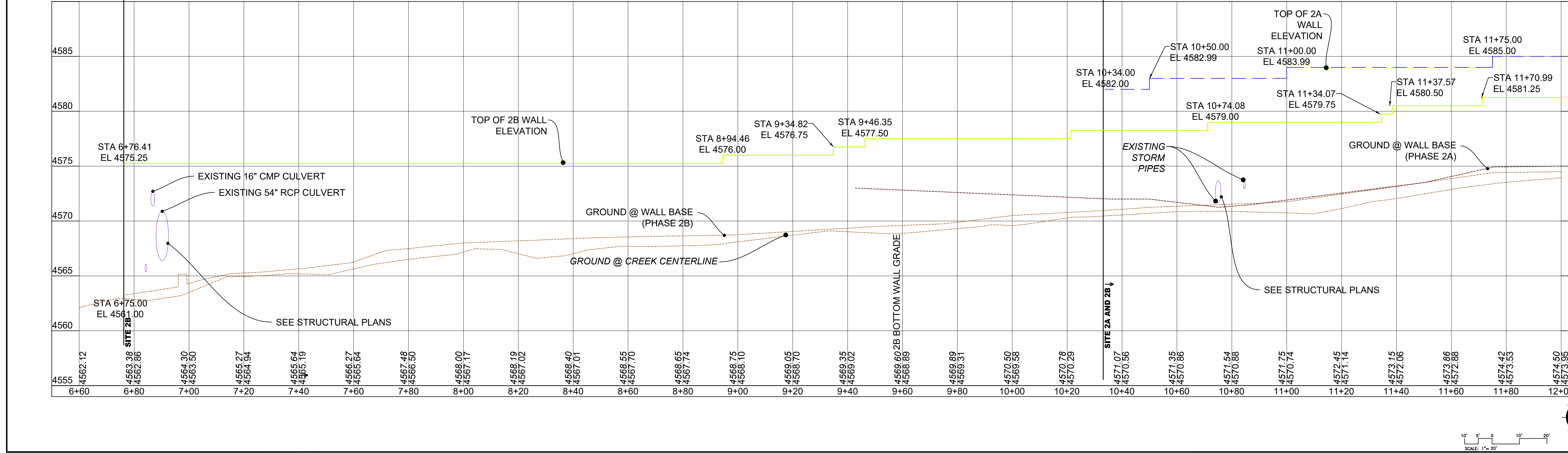
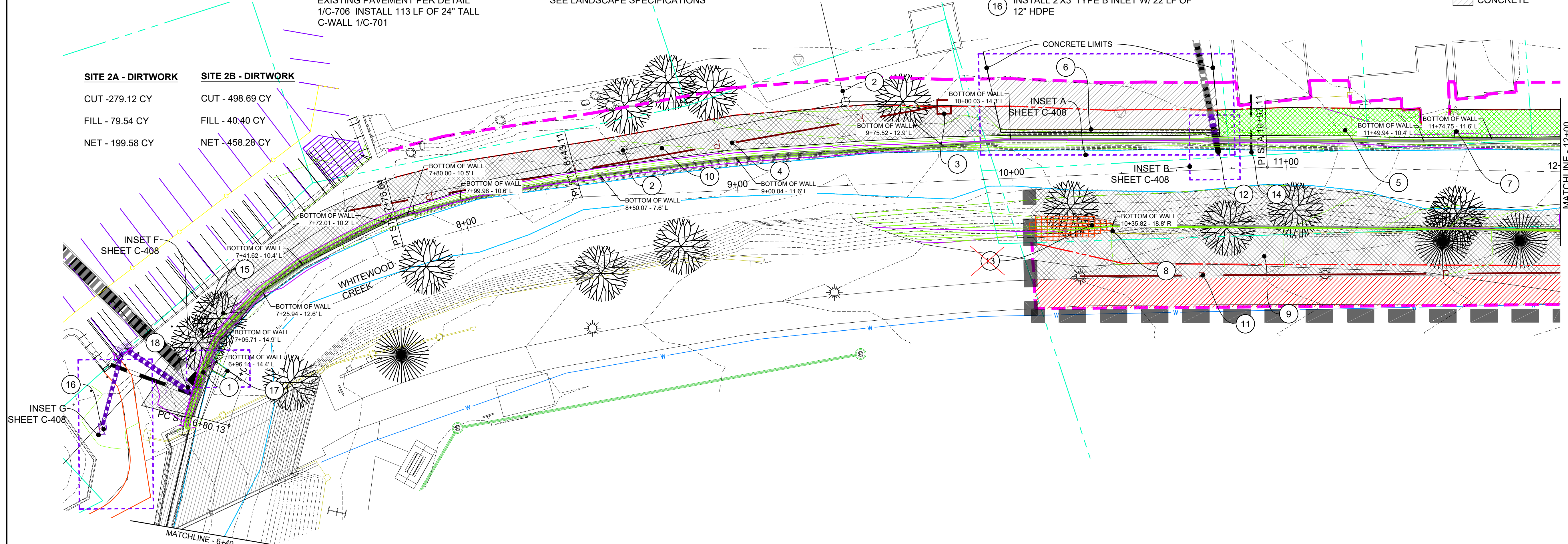
ISSUE BLOCK:

NO	ISSUE TYPE	ISSUE DATE
	65% PRELIM	12/30/2022
	100% CD	5/18/2023
	TDG RFI #1	11/08/2023

MANAGEMENT:
PROJECT NO: 20-096.1
DRAWN BY: NR
DESIGNED BY: BMK
CHECKED BY: MT
SHEET TITLE:

SITE 2A AND 2B
PLAN AND
PROFILE
6+80-12+00

SHEET IDENTIFICATION:
C-406R



- 1 STA 10+76.2 L TO 13+29.1 L
SOD DISTURBED AREA COORDINATE WITH
LANDSCAPE
- 2 END 2A WALL - SEE STRUCTURAL
STA 12+38.21 @ 17.8' R (+/-)
- 3 END 2B WALL - SEE STRUCTURAL
STA 17+49.97 @ 3.6' L (+/-)
- 4 STA 10+05.8 R TO 12+69.8 R
SEED, FERTILIZE AND MULCH DISTURBED
AREA (868 SY)
PER LANDSCAPE SPECIFICATIONS
- 5 STA. 13+29.3 L (+/-) TO 14+40.3 L (+/-)
CONSTRUCT 127 SY OF GRAVEL DRIVE
SEE DETAIL 2/C-700
- 6 STA 14+40.5 L TO 17+06.5 L
SOD DISTURBED AREA PER LANDSCAPE
PLANS
- 7 STA 16+91.8 @ 14.5' L (+/-)
CONSTRUCT CONCRETE PAD (106 SF)
SEE DETAIL 2/C-700
SEE INSET E C-408
- 8 STA 17+25.3 @ 17.5' L (+/-)
COORDINATE WITH LANDOWNER FOR ON
SITE STAGING LOCATION UNTIL AREA CAN
BE RESTORED (727 SF)
- 9 STA. 14+12.0
INSTALL 10 LF OF 24" HDPE
SEE DETAIL 4/C-701
- 10 STA -10+36.01
CLASS C RIP RAP 20' X 30' DEPTH = 3.5'
SEE DETAIL 3/C-701
- 11 RESET FENCE (26.2 LF)

LEGEND

- SOD PER LANDSCAPE PLANS
- SEED, FERTILIZE AND MULCH (NON IRRIGATED) PER LANDSCAPE PLANS
- ASPHALT



Albertson Engineering Inc.
3202 W. MAIN, SUITE C
RAPID CITY, SD 57702
605.343.9606

TDG
Towey Design Group
475 Villa Drive, Suite #3
Box Elder, SD 57719
605.600.3758

PROJECT IDEN:
WHITEWOOD
CREEK
RESTORATION
BID PACKAGE 1
SITES 1C, 2A, 2B,
3A, 3B
FEMA PROJECT NO. 123108
DEADWOOD, SOUTH DAKOTA

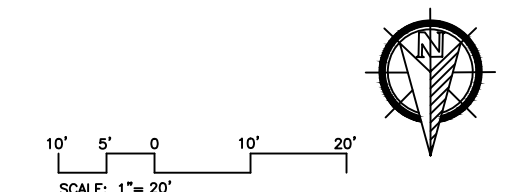
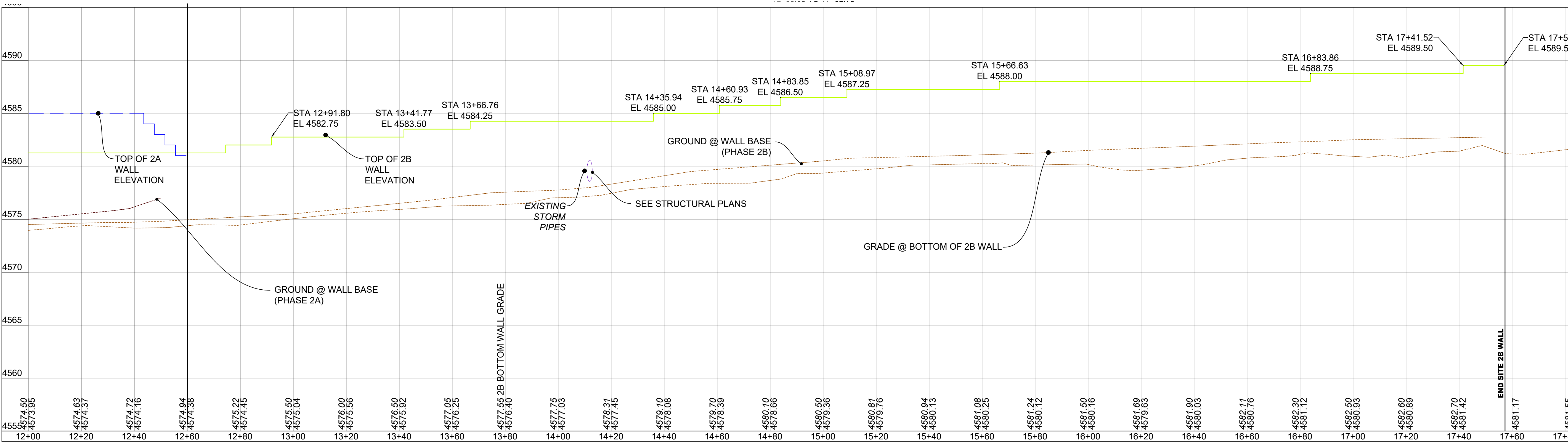
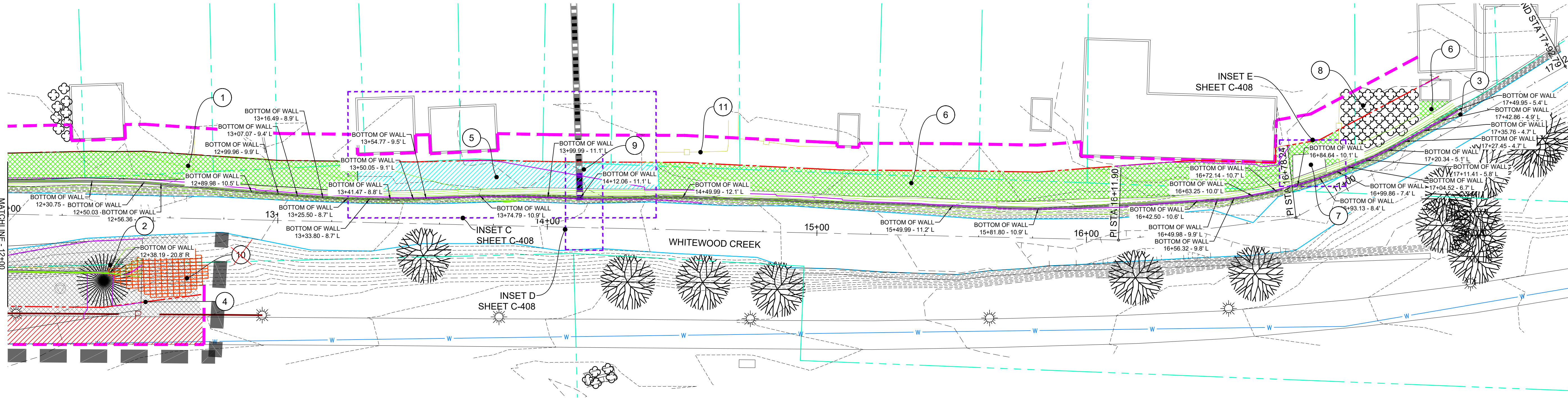
ISSUE BLOCK:

NO	ISSUE TYPE	ISSUE DATE
	65% PRELIM	12/30/2022
	100% CD	5/18/2023
	TDG RFI #1	11/08/2023

MANAGEMENT:
PROJECT NO: 20-096.1
DRAWN BY: NR
DESIGNED BY: BMK
CHECKED BY: MT
SHEET TITLE:

SITE 2A AND 2B
PLAN AND
PROFILE 12+00-
18+00
SHEET IDENTIFICATION:

C-407R



C

BAG PLAN VIEW
Face Area: 2.7 sq ft (.25 m²)

BAG ELEVATION
Face Area: 1 sq ft (.093 m²)

BAG END VIEW

ENVIROLOK BAG SPECIFICATION:

- Calculated Unit Fill: 1.25 cu ft (.0354 m³/unit)
- Face Area (Slope Application): 1 sq ft (.093 m²)
- Face Area (Mattress Application): 2.7 sq ft (.25 m²/unit)

ENVIROLOK BAG-FILL SPECIFICATION:

- Bag-Fill Volume: 1.25 cu ft (.0354 m³/unit)
- Bag-Fill Content: 80% Granular Sand / 20% Topsoil
- 3/4" Clear Gravel may be Substituted as Bag-Fill for Embedded Bags
- See Sheet GN1-20 And Project Specifications for Additional Notes.

NOTE:

- Two Connector Pins shall be installed per bag, interconnecting the bags vertically
- Connector Pins shall be used to connect the first row of bags to the base setting course.
- Connector Pins shall penetrate each bag and/or base course minimum of 2".
- Pin locations will vary with the slope of the structure and should be placed in the center of the bag contact area between courses.

ENVIROLOK CONNECTOR PIN (SPIKES)
SCALE: 1/2" = 1'-0"

This is a typical, non-site specific design. Envirolok LLC makes these documents available on an "as is" basis. All CAD (.dwg) and PDF (.pdf) files were created as a service to our customers. Final determination of the suitability of any information or material for the use contemplated, and its manner of use, is the sole responsibility of the user. A final project specific design should be prepared by a qualified, licensed, professional engineer. THIS DRAWING IS NOT FOR CONSTRUCTION. Copyright 2021, Envirolok LLC

TITLE	STANDARD UNIT DETAIL			REVISIONS
DATE	JANUARY 2020	SCALE	1" = 1'-0"	
SHEET	SHEET S1-21	DESIGNED FOR NATURE...ENGINEERED FOR LIFE. 10101 N. Casey Road Evansville, WI 53536 (P) 608.226.2265		

B

NOTE:

- Limit Changes in Foundation Course Elevation to Two Courses per Step to Avoid Differential Settling
- Install Steps as Needed to Minimize Number of Buried Units and Maintain Required Minimum Embedment
- Initial Foundation Course and Coping Course may be set Perpendicular to Face of Wall for Larger or More Complex Installations. Consult an Engineer for Walls over 48" in Exposed Height.*
- See Sheet GN1-21 and Project Specifications for Additional Details & Installation Instructions

ELEVATION

This is a typical, non-site specific design. Envirolok LLC makes these documents available on an "as is" basis. All CAD (.dwg) and PDF (.pdf) files were created as a service to our customers. Final determination of the suitability of any information or material for the use contemplated, and its manner of use, is the sole responsibility of the user. A final project specific design should be prepared by a qualified, licensed, professional engineer. THIS DRAWING IS NOT FOR CONSTRUCTION. Copyright 2021, Envirolok LLC

TITLE	STEPS FOUNDATION COURSE DETAIL			REVISIONS
DATE	MARCH 2021	SCALE	1/4" = 1'-0"	
SHEET	SHEET S5-21	DESIGNED FOR NATURE...ENGINEERED FOR LIFE. 10101 N. Casey Road Evansville, WI 53536 (P) 608.226.2265		

A

0:1 SETBACK SLOPE

1:4 SETBACK SLOPE

1:3 SETBACK SLOPE

1:2 SETBACK SLOPE

1:1 SETBACK SLOPE

2:1 SETBACK SLOPE

NOTE:

- In slope applications, the normal force is the weight of the bag over the shear connectors. In flat slopes, the normal force is minimal.
- Additional Reinforcement may be Required for Site Specific Applications
- See Sheet GN1-21 and Project Specifications for Additional Details & Installation Instructions
- Min. of 4" (10 cm) Bag Overlap Required for Proper Spike Connection
- See Sheets SD 3.21 & 4.21 for Slopes < 2H:1V

This is a typical, non-site specific design. Envirolok LLC makes these documents available on an "as is" basis. All CAD (.dwg) and PDF (.pdf) files were created as a service to our customers. Final determination of the suitability of any information or material for the use contemplated, and its manner of use, is the sole responsibility of the user. A final project specific design should be prepared by a qualified, licensed, professional engineer. THIS DRAWING IS NOT FOR CONSTRUCTION. Copyright 2021, Envirolok LLC

TITLE	STANDARD SETBACKS FOR SLOPE APPLICATIONS			REVISIONS
DATE	MARCH 2021	SCALE	1/4" = 1'-0"	
SHEET	SHEET S2-21	DESIGNED FOR NATURE...ENGINEERED FOR LIFE. 10101 N. Casey Road Evansville, WI 53536 (P) 608.226.2265		

NOTE:

- See Sheet GN1-21 and Project Specifications for Additional Details & Installation Instructions

ELEVATION

SECTION

This is a typical, non-site specific design. Envirolok LLC makes these documents available on an "as is" basis. All CAD (.dwg) and PDF (.pdf) files were created as a service to our customers. Final determination of the suitability of any information or material for the use contemplated, and its manner of use, is the sole responsibility of the user. A final project specific design should be prepared by a qualified, licensed, professional engineer. THIS DRAWING IS NOT FOR CONSTRUCTION. Copyright 2021, Envirolok LLC

TITLE	STANDARD SLOPE DETAIL 1 OF 2			REVISIONS
DATE	MARCH 2021	SCALE	1/2" = 1'-0"	
SHEET	SHEET S6-21	DESIGNED FOR NATURE...ENGINEERED FOR LIFE. 10101 N. Casey Road Evansville, WI 53536 (P) 608.226.2265		

PLAN VIEW

ELEVATION

NOTE:

- See Sheet GN1-21 and Project Specifications for Additional Details & Installation Instructions

This is a typical, non-site specific design. Envirolok LLC makes these documents available on an "as is" basis. All CAD (.dwg) and PDF (.pdf) files were created as a service to our customers. Final determination of the suitability of any information or material for the use contemplated, and its manner of use, is the sole responsibility of the user. A final project specific design should be prepared by a qualified, licensed, professional engineer. THIS DRAWING IS NOT FOR CONSTRUCTION. Copyright 2021, Envirolok LLC

TITLE	STANDARD SLOPE DETAIL 2 OF 2			REVISIONS
DATE	MARCH 2021	SCALE	1/2" = 1'-0"	
SHEET	SHEET S7-21	DESIGNED FOR NATURE...ENGINEERED FOR LIFE. 10101 N. Casey Road Evansville, WI 53536 (P) 608.226.2265		

ELEVATION

PLAN VIEW

NOTE:

- See Sheet GN1-21 and Project Specifications for Additional Details & Installation Instructions

This is a typical, non-site specific design. Envirolok LLC makes these documents available on an "as is" basis. All CAD (.dwg) and PDF (.pdf) files were created as a service to our customers. Final determination of the suitability of any information or material for the use contemplated, and its manner of use, is the sole responsibility of the user. A final project specific design should be prepared by a qualified, licensed, professional engineer. THIS DRAWING IS NOT FOR CONSTRUCTION. Copyright 2021, Envirolok LLC

TITLE	COPING COURSE DETAIL 2 OF 2			REVISIONS
DATE	MARCH 2021	SCALE	1/2" = 1'-0"	
SHEET	SHEET S9-21	DESIGNED FOR NATURE...ENGINEERED FOR LIFE. 10101 N. Casey Road Evansville, WI 53536 (P) 608.226.2265		



Albertson Engineering Inc.
3202 W. MAIN, SUITE C
RAPID CITY, SD 57702
605.343.9606

CONSULTANT

Towey Design Group
475 Villa Drive, Suite #3
Box Elder, SD 57719
605.600.3758

PROJECT IDEN:
WHITEWOOD CREEK RESTORATION
BID PACKAGE 1
SITES 1C, 2A, 2B, 3A, 3B

FEMA PROJECT NO. 123108
DEADWOOD, SOUTH DAKOTA

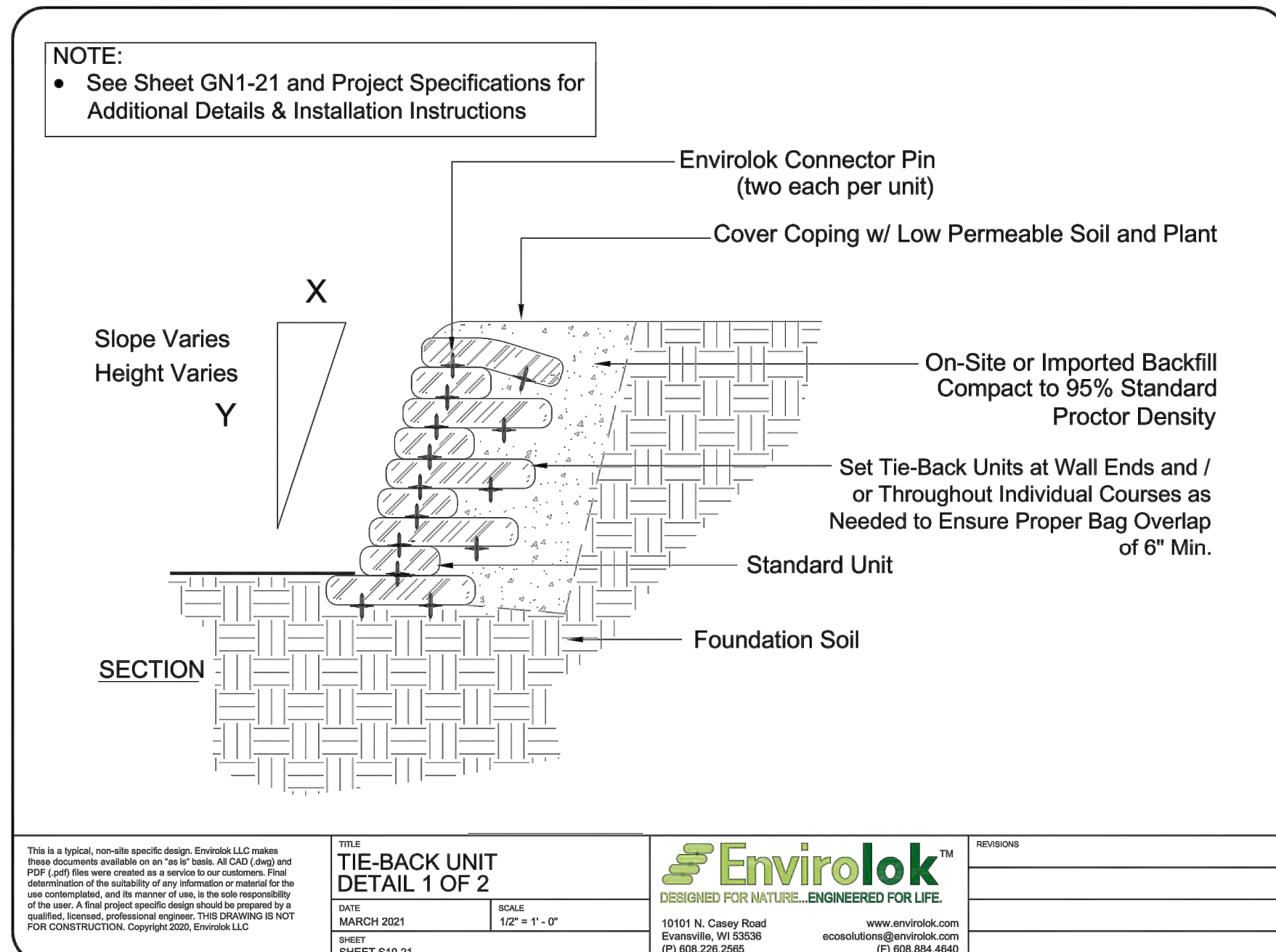
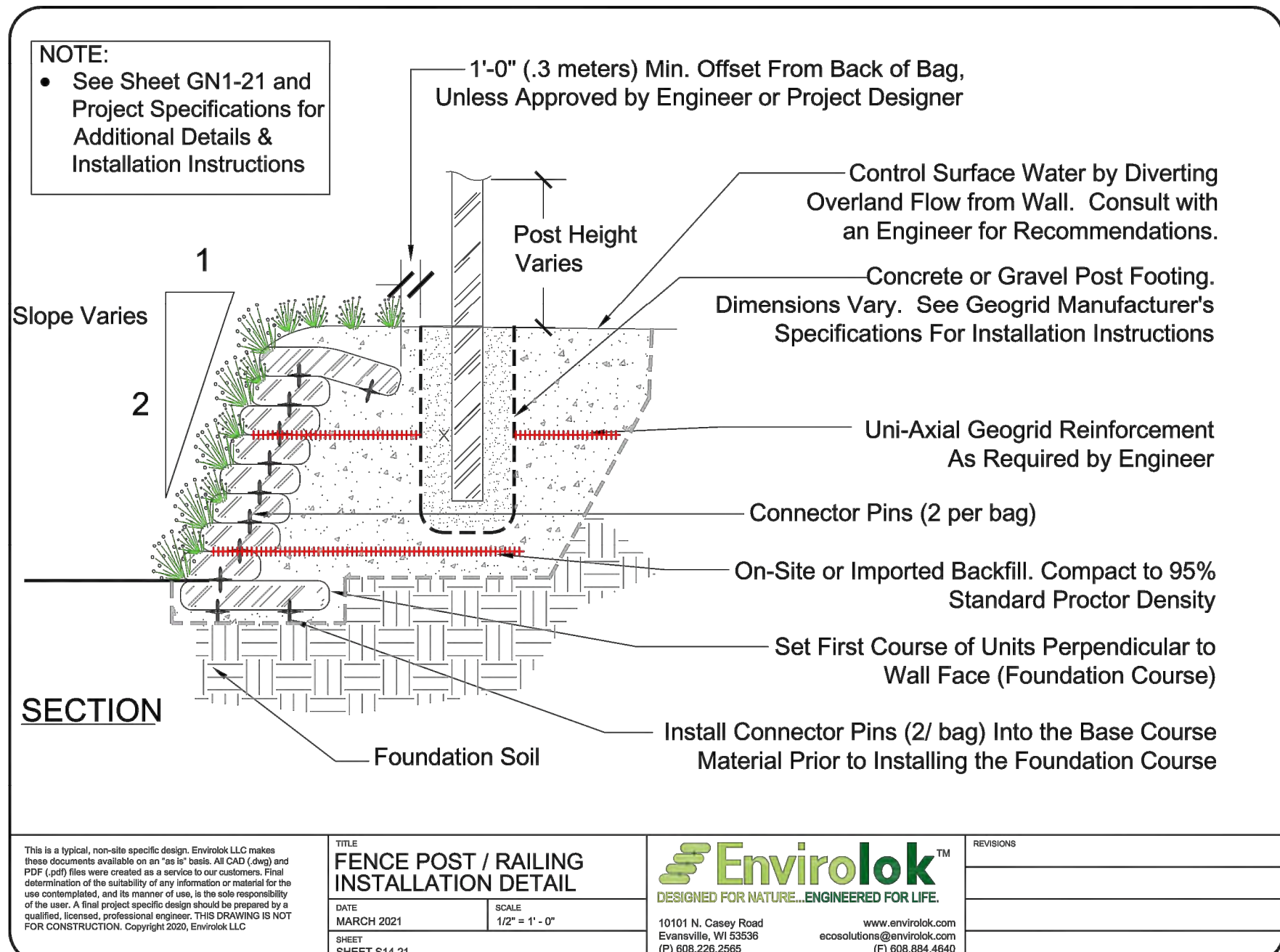
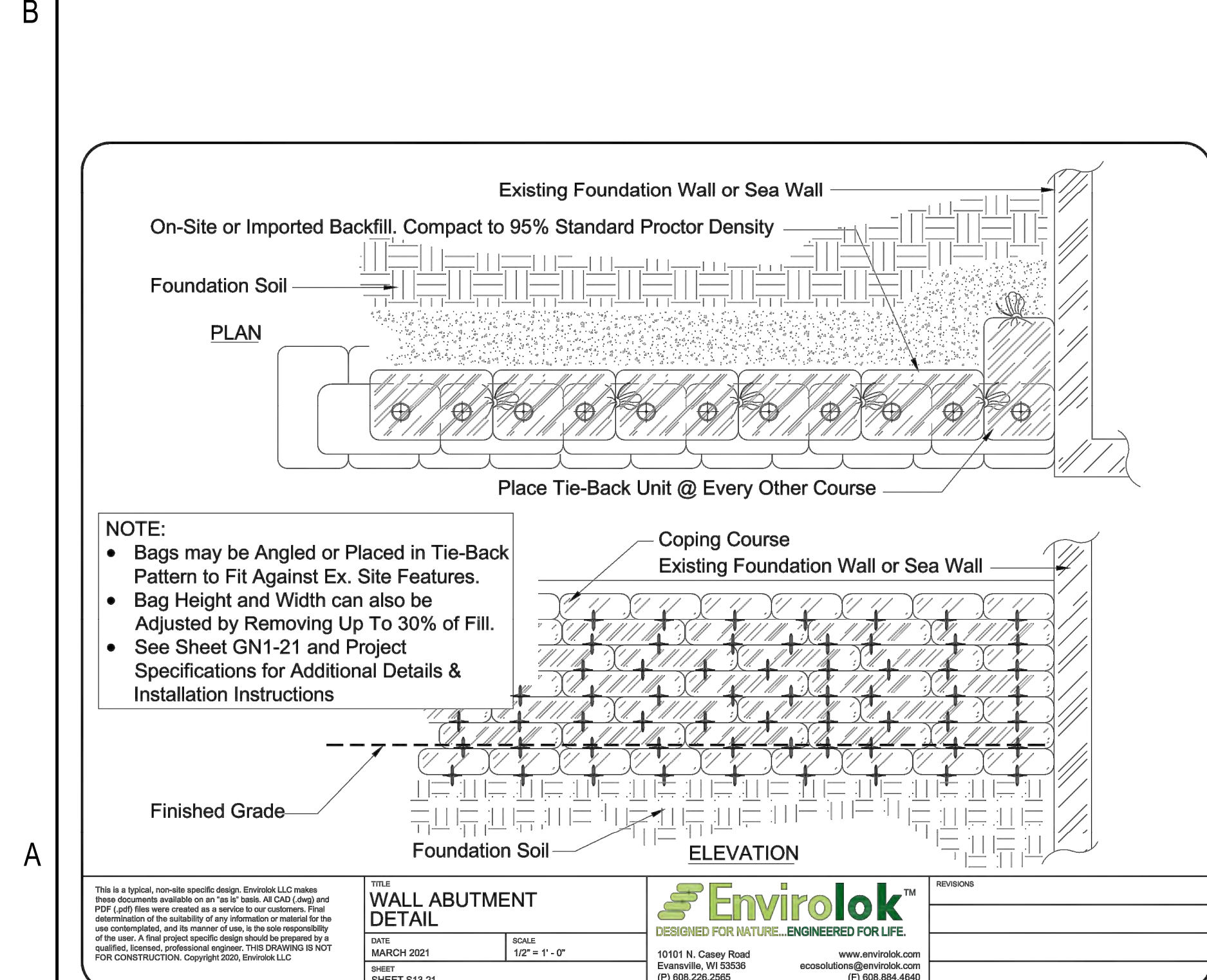
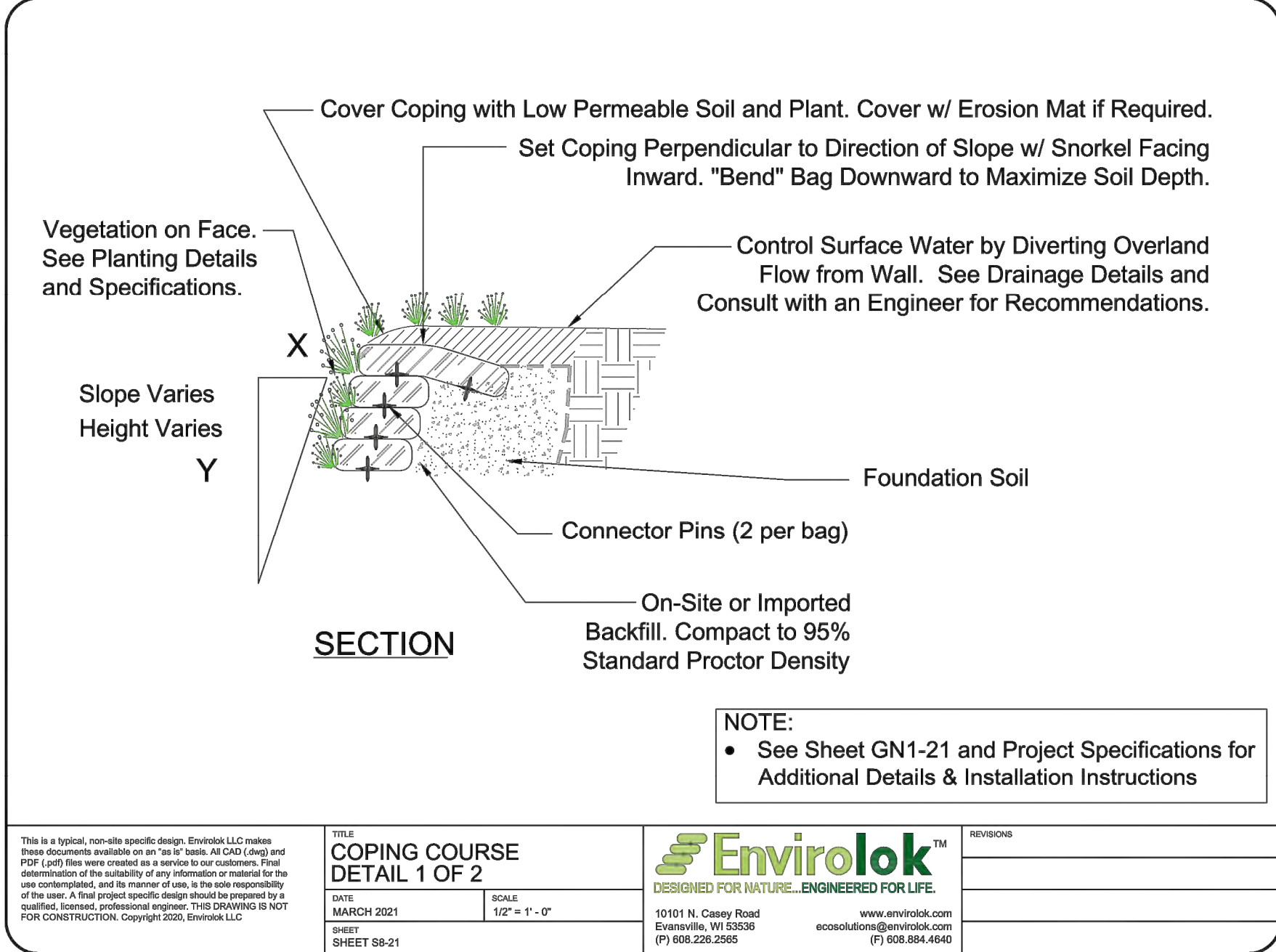
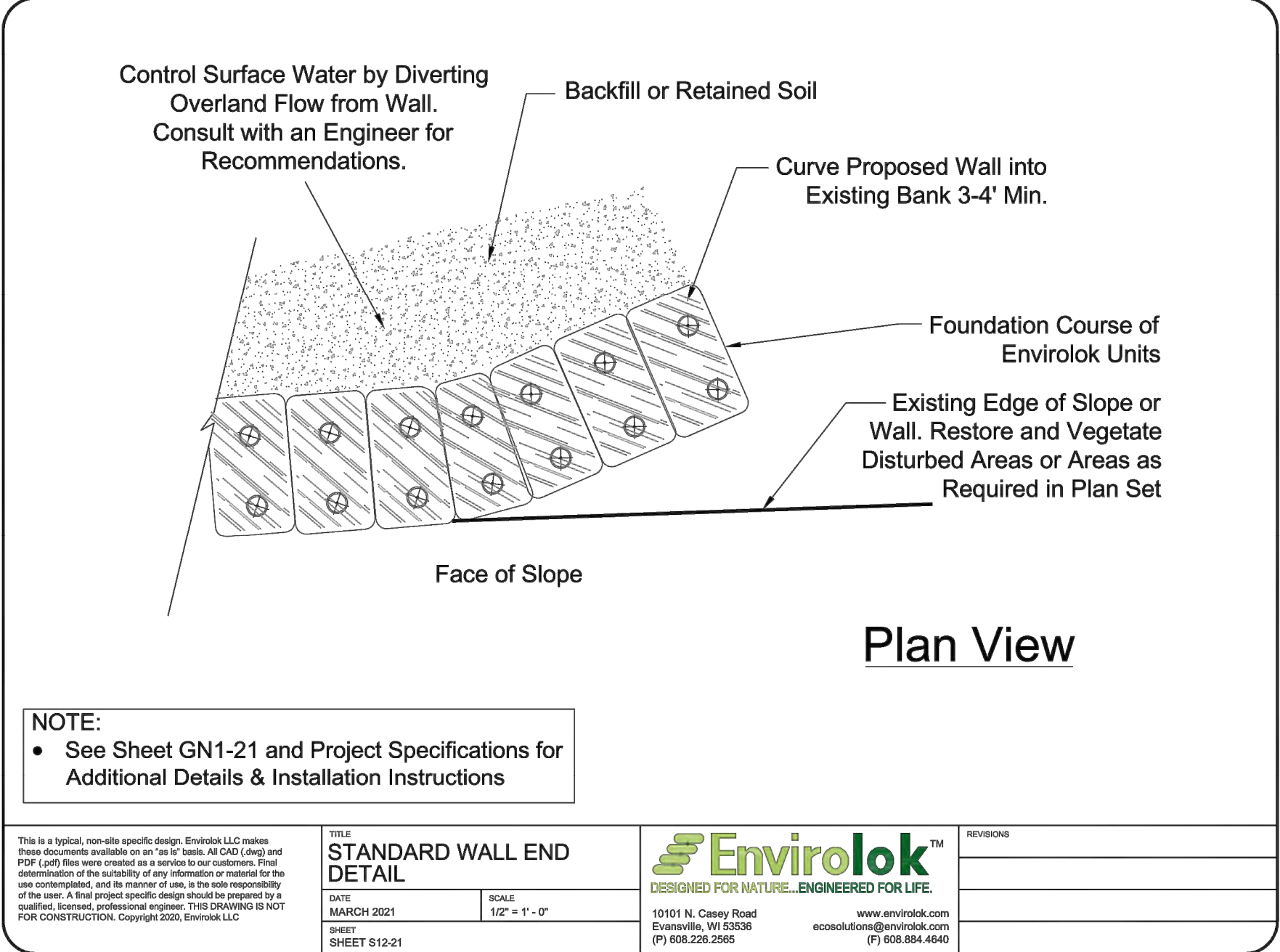
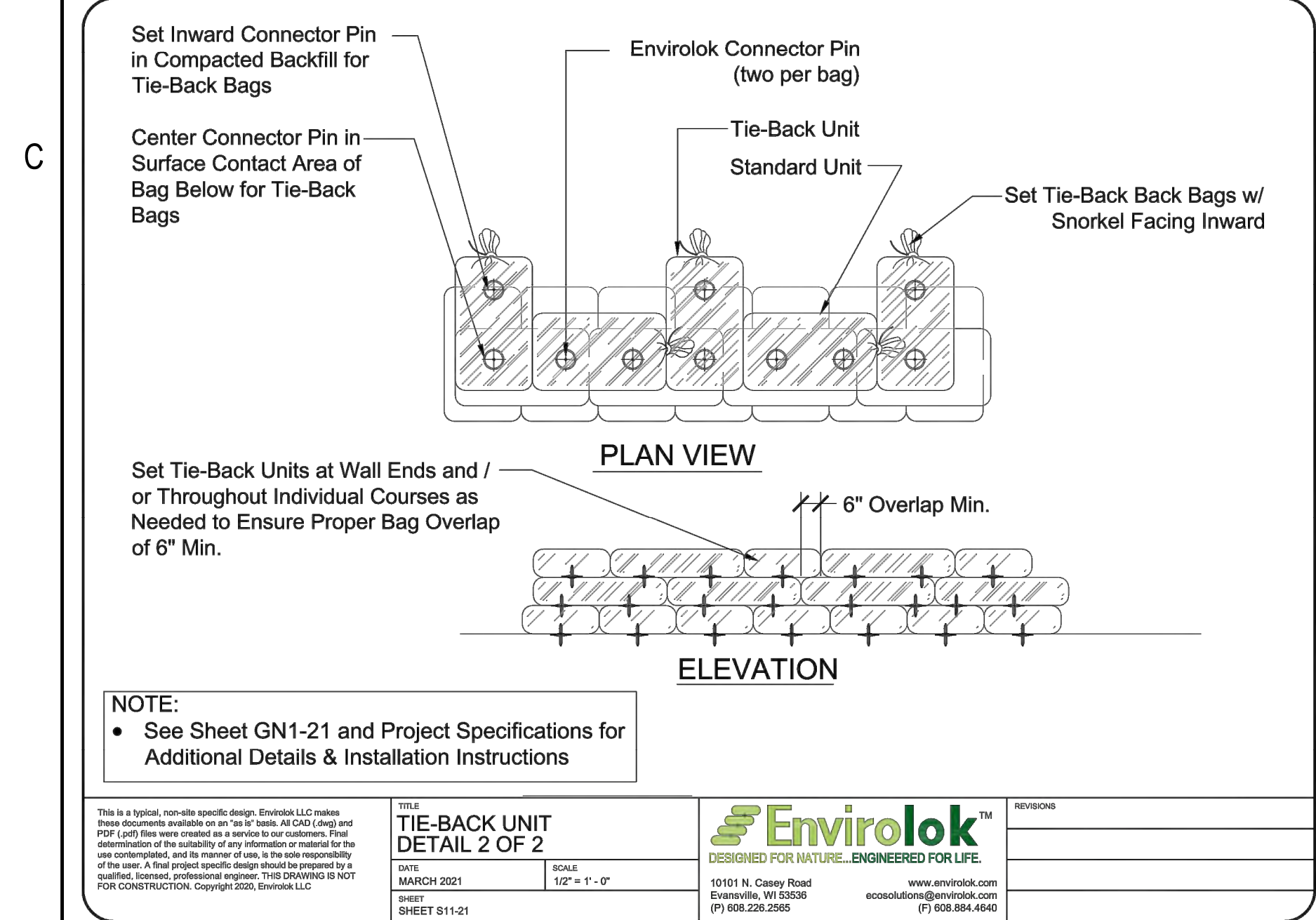
ISSUE BLOCK:

NO	ISSUE TYPE	ISSUE DATE
1	RFI #1	09/25/2023

MANAGEMENT:
PROJECT NO: 20-096.1
DRAWN BY: NR
DESIGNED BY: BMK
CHECKED BY: MT
SHEET TITLE:

ENVIROLOK DETAILS

SHEET IDENTIFICATION:
C-707



Albertson Engineering Inc.
 3202 W. MAIN, SUITE C
 RAPID CITY, SD 57702
 605.343.9606

CONSULTANT
TDG
 Towey Design Group
 475 Villa Drive, Suite #3
 Box Elder, SD 57719
 605.600.3758

PROJECT IDEN:
 WHITEWOOD CREEK RESTORATION
 BID PACKAGE 1 SITES 1C, 2A, 2B, 3A, 3B

FEMA PROJECT NO. 123108
 DEADWOOD, SOUTH DAKOTA

ISSUE BLOCK:

NO	ISSUE TYPE	ISSUE DATE
1	RFI #1	09/25/2023

MANAGEMENT:
 PROJECT NO: 20-096.1
 DRAWN BY: NR
 DESIGNED BY: BMK
 CHECKED BY: MT
 SHEET TITLE:

ENVIROLOK DETAILS

SHEET IDENTIFICATION:

C-708