Public Notice

U.S. Army Corps
of Engineers
Tulsa District

Reply To:

U.S. Army Corps of Engineers
ATTN: Regulatory Office
2488 East 81st Street
Tulsa, OK 74137-4290

SWT-2022-00073
Public Notice No.

August 24, 2022
Public Notice Date

September 23, 2022
Expiration Date

PURPOSE
The purpose of this public notice is to inform you of a proposal for work in which you might be interested and to solicit your comments and information to better enable us to make a reasonable decision on factors affecting the public interest.

SECTION 10
The U.S. Army Corps of Engineers is directed by Congress through Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) to regulate all work or structures in or affecting the course, condition, or capacity of navigable waters of the United States. The intent of this law is to protect the navigable capacity of waters important to interstate commerce.

SECTION 404
The U.S. Army Corps of Engineers is directed by Congress through Section 404 of the Clean Water Act (33 U.S.C. 1344) to regulate the discharges of dredged and fill material into all waters of the United States. These waters include lakes, rivers, streams, mudflats, sandflats, sloughs, wet meadows, natural ponds, and wetlands adjacent to other waters. The intent of the law is to protect these waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical, and biological integrity.

NOTICE TO PUBLISHERS
This public notice has been provided as a public service and may be reprinted at your discretion. However, any cost incurred as a result of reprinting or further distribution shall not be a basis for claim against the Government.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT
2488 EAST 81ST STREET
TULSA, OKLAHOMA 74137-4290

Application No. SWT-2022-00073

JOINT PUBLIC NOTICE
U.S. ARMY CORPS OF ENGINEERS
AND
OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ)
(30-DAY COMMENT PERIOD)

Interested parties are hereby notified that the District Engineer (DE) has received an application for a Department of the Army (DA) permit and water quality certification pursuant to Sections 404 and 401 of the Clean Water Act (CWA). The ODEQ hereby incorporates this public notice and procedure as its own public notice and procedure by reference thereto.

Applicant: Mr. Scott Sturtz
City of Norman
201 West Gray, Building A
Norman, OK 73069

Agent: Mr. Clint Porter
Blackbird Environmental, LLC
PO Box 720100
Norman, OK 73070

Location: The proposed project is in Section 12, Township 8 North, Range 3 West; Cleveland County, Oklahoma. The project site can be found on the Norman, Oklahoma 7.5 Minute USGS Quadrangle map at North Latitude 35.18759 and West Longitude 97.45930.

Project Description: The application is for the construction of a Sierra Slope Retention System or similar material along the left descending bank of Imhoff Creek to stabilize and support vegetative growth along the existing eroded stream bank, and to construct cross vanes to limit further down cutting of the stream channel.

Purpose: The overall purpose of this work is to stabilize the reach of Imhoff Creek to prevent loss of adjacent infrastructure and property. The project is not a water dependent activity.

Summary Table of Impacts:

Original Proposal					
Number or Location	Impact Activity	Type of Water	Type of Fill Material	Qty of Material cys below OHWM	Footprint (ac and/or lf)
Right descending bank	Temporary Construction Road	Stream – Imhoff Creek	Rock – Crusher Run or Similar Material	812 cys	1,160 lf
Within Stream Channel	11 - Temporary Construction Pads	Stream – Imhoff Creek	Rock - #57 (1”-1.5” gravel) or Crusher Run	3,050 cys total (278 cys per pad)	1,100 lf
Within Stream Channel	Temporary Filtered Check Dams	Stream – Imhoff Creek	Rock – Type 1 Riprap (12” -18”) or Similar Material	52 cys	23 lf
Within Stream Channel	2 – Permanent Cross Vanes	Stream – Imhoff Creek	Rock – 18”-24” Limestone Rock	17 cys; 23 cys	15 lf; 15lf
Right descending bank	Bank Stabilization – 2 Reaches Construction Pad Access/Rock Toe Revetment	Stream – Imhoff Creek	Rock – 18”-24” Limestone Rock	227 cys; 414 cys	175 lf; 319lf
Left descending bank	Bank Stabilization - Reinforced Soil Slope	Stream – Imhoff Creek	SierraScape Retaining Wall System or similar material	4,210 cys	1,100 lf
cubic yards (cys), ordinary high water mark (OHWM), acre (ac), linear feet (lf)					

Description of Work: The applicant proposes to construct a reinforced soil slope wall along the left descending bank of Imhoff Creek that would occur on a rock stabilized toe with the permanent placement of fill material to support the reinforced soil slope wall. The placement of fill material would occur between Sta. 17+00 and Sta. 31+00 (1,100

linear feet) (exception between Sta. 19+00 and Sta. 22+00) and include the permanent placement of approximately 4,210 cubic yards of galvanized baskets containing #57 aggregate (1”-2” stone) within the wire framing and potential embankment material if it meets geotechnical specifications or offsite soil fill material below the OHWM.

Additionally, two (2) permanent cross vanes would be constructed across Imhoff Creek to prevent future down-cutting of the stream bed and support continued function of the reinforced soil slope wall. The southern cross vane would be located at Sta. 23+98 and would include the placement of approximately 17 cubic yards of 18-24” limestone rock riprap within 15 linear feet of stream. The northern cross vane would be located at Sta. 28+98 and would include the placement of approximately 23 cubic yards of 18” -24” limestone rock riprap within 15 linear feet of stream. Each cross vanes would have a center core consisting of steel sheet pile surrounded by rock riprap.

The proposed construction project would also include a rock toe revetment below the OHWM and placement of rock, along the properly sloped bank, above the OHWM. The southern reach would occur between Sta. 23+45 and Sta. 25+20 (175 linear feet) and include the permanent placement of approximately 227 cubic yards of 18 to 24” limestone rock below the OHWM. The northern reach would occur between Sta. 27+65 and Sta. 30+84 (319 linear feet) and include the permanent placement of approximately 414 cubic yards of rock below the OHWM.

Temporary construction pads would be built across the stream to allow construction access from the western side of the stream channel. The existing single-family residences along the left descending bank would limit access from the eastern side. The construction pads would include #57 rock material or crusher run and a properly sized pipeline to allow base stream flow during construction. A total of 11 construction pads would be built during construction. The pads would be built sequentially as construction progresses. The existing pad would be removed prior to construction of the following pad. The total linear length of temporary disturbance proposed within Imhoff Creek is approximately 1,100 feet and the total volume is approximately 3,050 cubic yards (278 cubic yards per each pad). The material would be removed once construction is complete.

Temporary filtered check dams would be constructed as a best management practice to prevent discharge of sediment-laden storm water down-stream of each temporary construction pad. The temporary structures would include filter wrapped Type 1 riprap or similar rock and 12” layer of gravel, and all material would be removed once construction is complete. The total linear length of each check dam is approximately 23 linear feet and the volume is approximately 52 cubic yards for each check dam. The rock would be removed once construction is complete.

A temporary construction road along the toe of the left descending bank to allow for construction of a reinforced soil slope wall. The temporarily road would be approximately 10 feet wide and 18 inches deep. The road would be constructed of crusher run or equivalent rock and would include the temporary placement of

approximately 812 cubic yards of fill below the OHWM. The road would be approximately 1,160 linear feet. The rock would be removed once construction is complete.

Avoidance and Minimization Information: The applicant provided the following statement with regard to how avoidance and minimization of impacts to aquatic resources was incorporated into the project plan:

The proposed project was selected for stabilizing the eroded banks of Imhoff Creek, preventing the loss of adjacent infrastructure and property and supporting the least environmentally damaging practicable alternative (LEDPA).

Mitigation: Furthermore, the applicant proposes the following as compensatory mitigation for the unavoidable impacts to aquatic resources expected from the proposed project:

The applicant does not propose mitigation. The project was designed to incorporate a reinforced soil slope wall promoting vegetative growth and preventing the continued discharge of silt and clay down-stream due to current unstable conditions. In addition, the proposed cross vanes would limit the current down-cutting of the stream bed and promote stabilization of the stream banks to prevent continued erosion and bank instability.

This mitigation plan is the applicant's proposal. The Corps has made no determination at this time with regard to the adequacy of the proposed mitigation relative to the federal mitigation rules and guidance, including Tulsa District's Mitigation and Monitoring Guidelines. Compensatory Mitigation for unavoidable impacts may be required to ensure that this activity requiring a Section 404 permit, if issued, complies with the Section 404 (b)(1) Guidelines. The Corps bears the final decision on the need for and extent of mitigation required if the project proposed herein is authorized.

Government Authorizations obtained or received: The U.S. Department of Homeland Security, Federal Emergency Management Agency is providing funding for the proposed action.

Project Setting: The proposed project is located within the Cross Timbers Transition of the Central Great Plains ecoregion of central Oklahoma. The Central Great Plains ecoregion includes scattered hills, low mountains, gypsum karst and sandy flats. Upland natural vegetation in this dry-subhumid area is predominately mixed grass prairie, but honey mesquite (Prosopis glandulosa) and buffalograss (Bouteloua dactyloides) are native to the south and to sandy areas. Mean annual rainfall increases to the east and varies from approximately 22 to 38 inches. The localized general vicinity of the proposed project area includes residential development along with associated infrastructure.

Existing Condition: Imhoff Creek was delineated as a relatively wide perennial stream channel with sand, silt, gravel, and hardpan clay substrates. The stream was

dominated by a forested riparian corridor within the study area. The stream embeddedness was estimated at 10 to 15 percent and a few silt bars/islands were observed within the study area. The left descending bank was vertical and relatively high at several locations. Significant volumes of broken concrete and rip rap were embedded within the left descending bank to limit soil erosion along the back of existing single-family residential lots. The stream provided in-channel structural habitat for Notropis spp. and Lepomis spp. Several Lepomis nests were observed within the gravel substrates. Significant filamentous algae growth was also observed within the stream channel.

Cultural Resources: The DE is responsible to ensure compliance with the National Historic Preservation Act of 1966 (NHPA) (Public Law 89-665), as amended, and other cultural resources laws and Executive Orders. A preliminary review of the state's records has been completed for the presence of sites included in, or eligible for, inclusion in the National Register of Historic Places, as well as the Oklahoma Landmark Inventory Database. There are no known historic properties, as defined by the NHPA, in or within the vicinity of the proposed permit area. Additionally, a letter dated March 2, 2022, the Oklahoma Archeological Survey (No. OAS FY22-0804) indicated a survey of the proposed project area was completed and no archaeological materials were encountered.

Threatened and Endangered Species: The following federally listed species are known to occur in the vicinity or are listed for the county in which the proposed action is located: Piping Plover (*Charadrius melodus*), Red Knot (*Calidris canutus rufa*), Whooping Crane (*Grus americana*), Arkansas River Shiner (*Notropis Girardi*), Peppered Chub (*Macrhybopsis tetranema*), Monarch Butterfly (*Danaus plexippus*). A copy of this notice is being furnished to the U.S. Fish and Wildlife Service and appropriate state agencies. The IPAC consultation number is 2022-0039688.

We are currently assessing the potential effects of the proposed action on these species and will comply with the Endangered Species Act with regard to any effect of our decision on this permit application.

Evaluation Factors: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity and its intended use on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof: conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownerships, and, in general, the needs and welfare of the people. A permit will be denied if the discharge does not comply with the Environmental Protection Agency's 404(b)(1)

Guidelines. Subject to the 404(b)(1) Guidelines and any other applicable guidelines or criteria, a permit will be granted unless the DE determines that it would be contrary to the public interest.

Plans and Data: Plans showing the location of the proposed activity and other data are enclosed with this notice. If additional information is desired, it may be obtained from Mr. Rob Hoffmann, Tulsa District Corps of Engineers, ATTN: Regulatory Office, 2488 East 81st Street, Tulsa, OK 74137; or telephone 918-669-7400.

Comments: The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Any comments on this proposal must be submitted to be received by the Corps by the expiration date of this public notice comment period. Comments received after this date will not be considered in our decision. You may submit comments to mailing address Tulsa District Corps of Engineers, ATTN: Regulatory Office, 2488 East 81st Street, Tulsa, OK 74137 or email CESWT-RO@usace.army.mil. Please include the public notice number SWT-2022-00073 in the subject line of your email message.

Comments concerning water quality impacts will be forwarded to ODEQ for consideration in issuing a Section 401 Water Quality Certification for the proposed project. Work may **not** commence until decisions have been made on both Sections 401 and 404.

Andrew R. Commer
Chief, Regulatory Office

Enclosures

SWT-2022-00073
City of Norman
Imhoff Creek Bank Stabilization
Cleveland County, Oklahoma
Enclosure 1 of 6

LEGEND

- TEMP. CONSTRUCTION ROAD
- ROCK TOE REVETMENT
- RSS WALL
- EXCAVATION
- TEMP. CONSTRUCTION EASEMENT
- EX GAS
- EX UNDERGROUND ELEC.
- EX SAN. SEWER
- EX TELECOM.

WALL
BEGIN/END
STATION=31+05
OFFSET=12.9R
NORTHING=675861.11
EASTING=2130630.66

ROCK REVETMENT BEGIN/END
STATION=30+75
OFFSET=12.6L
NORTHING=675823.47
EASTING=2130615.48

PROPOSED CROSS VANE
SEE DETAIL
STATION=28+98
NORTHING=675653.60
EASTING=2130661.12

ROCK REVETMENT BEGIN/END
STATION=27+67
OFFSET=5.4L
NORTHING=675544.30
EASTING=2130604.09

ROCK REVETMENT BEGIN/END
STATION=25+20
OFFSET=9.3L
NORTHING=675399.77
EASTING=2130404.45

PROPOSED CROSS VANE
SEE DETAIL
STATION=23+98
NORTHING=675342.75
EASTING=2130303.95

ROCK REVETMENT BEGIN/END
STATION=23+45
OFFSET=9.8L
NORTHING=675326.39
EASTING=2130252.07

WALL
BEGIN/END
STATION=22+00
OFFSET=6.8R
NORTHING=675267.75
EASTING=2130121.97

EASEMENT GRANTED FROM LEVEE TO LIMITS OF FLOOD PLAIN BOOK 265 PAGE 420 LOCATION OF LEVEE UNDEFINED

33' STATUTORY R/W
EAST LINE SEC 12
WEST LINE SECTION 7

N

0 20 40 80
SCALE IN FEET

NORTH

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
MESHEK & ASSOCIATES, L.L.C.
1437 S. BOULDER AVENUE, SUITE 1550 TULSA, OK 74119 (918)392-5620
2000 N. CLASSEN BLVD., E250 OKLAHOMA CITY, OK 73106 (405)594-0127

REVISION	BY	DATE

DRAWN	CGH	7/2022
DESIGNED	HCW	7/2022
SURVEY	MR	7/2021

C.A. 1487 EXPIRES 6/30/23

SHEET: 1 OF 2

PRINT DATE: 7/25/22 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_WORK_OVERVIEW_MAP.dwg

SWT-2022-00073
City of Norman
Imhoff Creek Bank Stabilization
Cleveland County, Oklahoma
Enclosure 2 of 6

WALL
BEGIN/END
STATION=17+50
OFFSET=38.1R
NORTHING=674976.57
EASTING=2130103.29

WALL
BEGIN/END
STATION=16+40
OFFSET=24.4R
NORTHING=674838.24
EASTING=2130091.76

100' TEMPORARY CONSTRUCTION PLATFORM (MOVES WITH CONSTRUCTION)

TEMPORARY ROCK FILTER CHECK DAM TO FOLLOW CONSTRUCTION PAD

LEGEND

- TEMP. CONSTRUCTION ROAD
- ROCK TOE REVETMENT
- RSS WALL
- EXCAVATION
- TEMP. CONSTRUCTION EASEMENT
- G — EX GAS
- UGE — EX UNDERGROUND ELEC.
- SS — EX SAN. SEWER
- UGT — EX TELECOM.

N

0 20 40 80
SCALE IN FEET

PRINT DATE: 7/25/22 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_WORK_OVERVIEW_MAP.dwg

SOUTH

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

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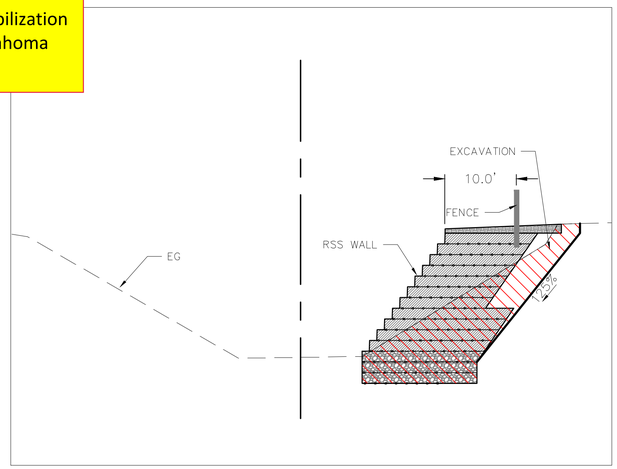
C.A. 1487 EXPIRES 6/30/23

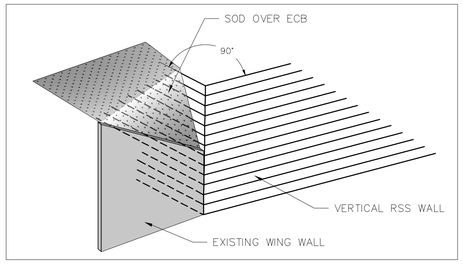
SHEET: 2 OF 2

SWT-2022-00073
City of Norman
Imhoff Creek Bank Stabilization
Cleveland County, Oklahoma
Enclosure 3 of 6



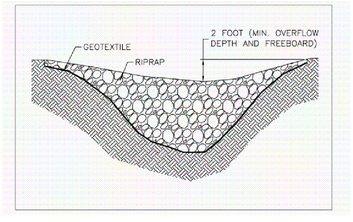
1 BENCHING DETAIL

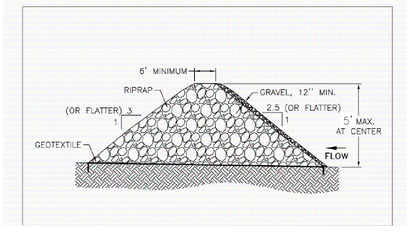
SCALE: NONE



2 WALL TIE–IN DETAIL

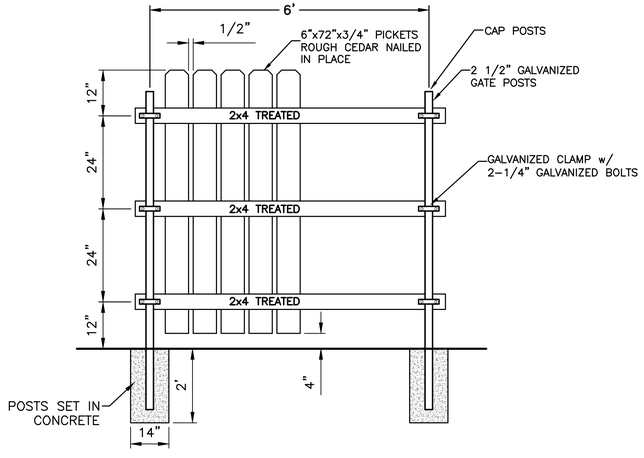
SCALE: NONE
STA. 31+05





3 ROCK FILTER DAM

SCALE: NONE
STA. 21+82
STA. 15+36



4 6' PRIVACY FENCE

SCALE: NONE

MESHEK DETAILS

IMHOFF CREEK BANK STABILIZATION

CITY OF NORMAN

PLANS AND ESTIMATES PREPARED BY:
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REVISION	BY	DATE

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DESIGNED	HCW	5/2022
SURVEY	MR	7/2021
C.A. 1487 EXPIRES 6/30/23		
SHEET: 23 OF 27		

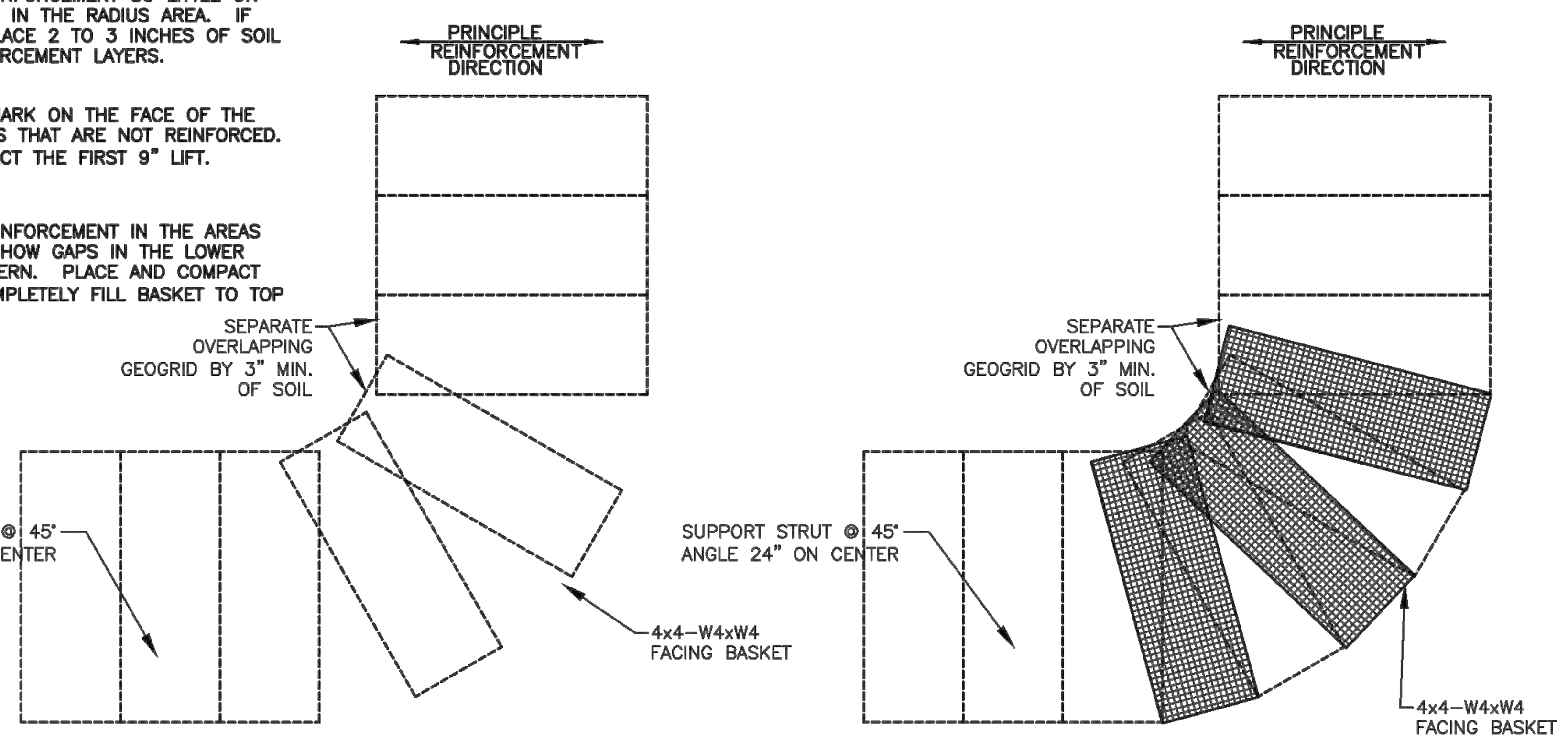
PRINT DATE: 6/8/22 M:\City_of_Norman\15NOR01_Lower_Imhoff_Creek\Design\Drawings\15NOR01_MESHEK_DETAILS.dwg

SWT-2022-00073
City of Norman
Imhoff Creek Bank Stabilization
Cleveland County, Oklahoma
Enclosure 4 of 6

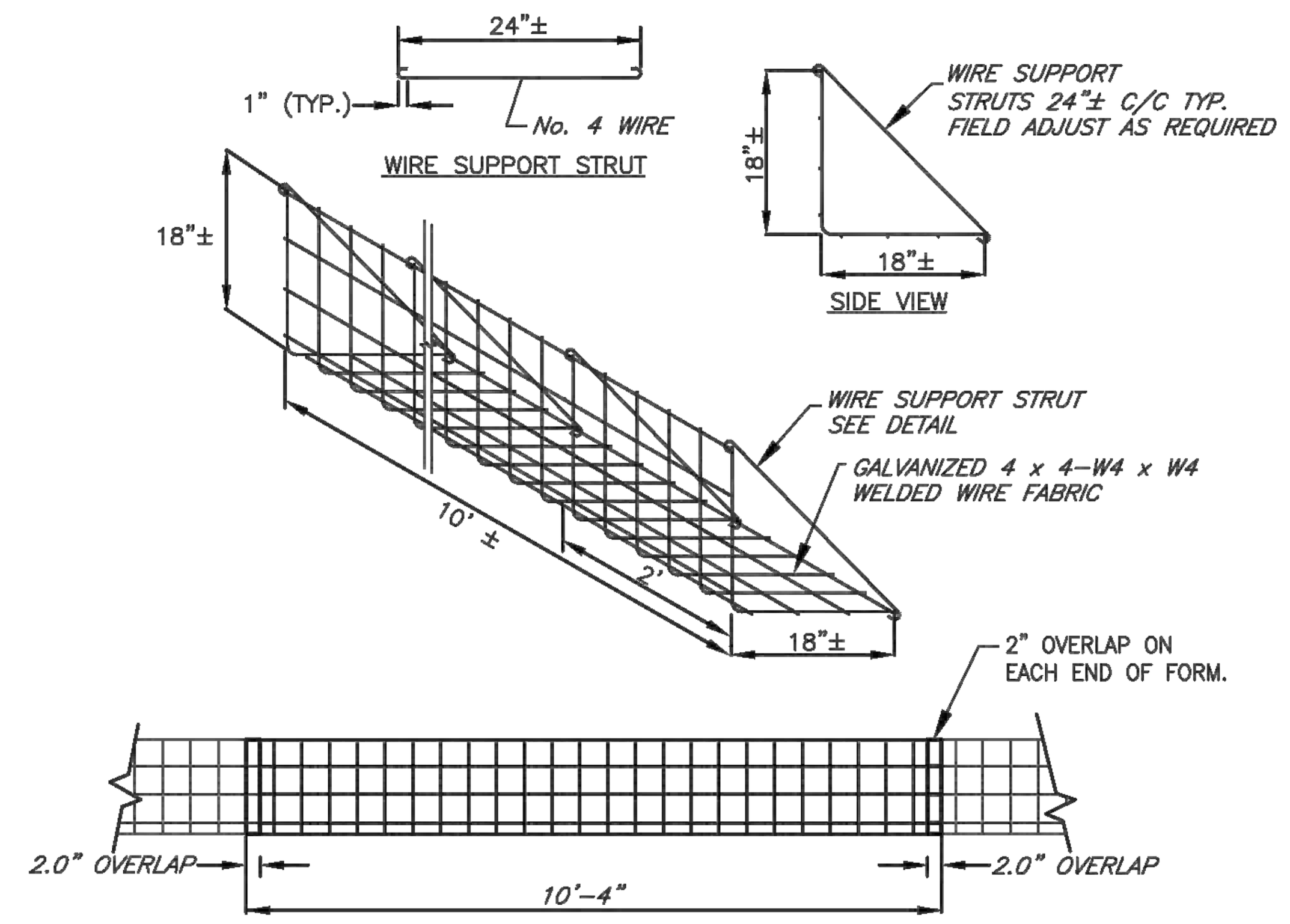
STEP 1 – PLACE REINFORCEMENT SO LITTLE OR NO OVERLAP OCCURS IN THE RADIUS AREA. IF OVERLAP OCCURS, PLACE 2 TO 3 INCHES OF SOIL BETWEEN THE REINFORCEMENT LAYERS.

STEP 2 – MAKE A MARK ON THE FACE OF THE BASKET IN THE AREAS THAT ARE NOT REINFORCED. BACKFILL AND COMPACT THE FIRST 9" LIFT.

STEP 3 – PLACE REINFORCEMENT IN THE AREAS WHERE THE MARKS SHOW GAPS IN THE LOWER REINFORCEMENT PATTERN. PLACE AND COMPACT NEXT 9" LIFT TO COMPLETELY FILL BASKET TO TOP WHEN COMPACTED.

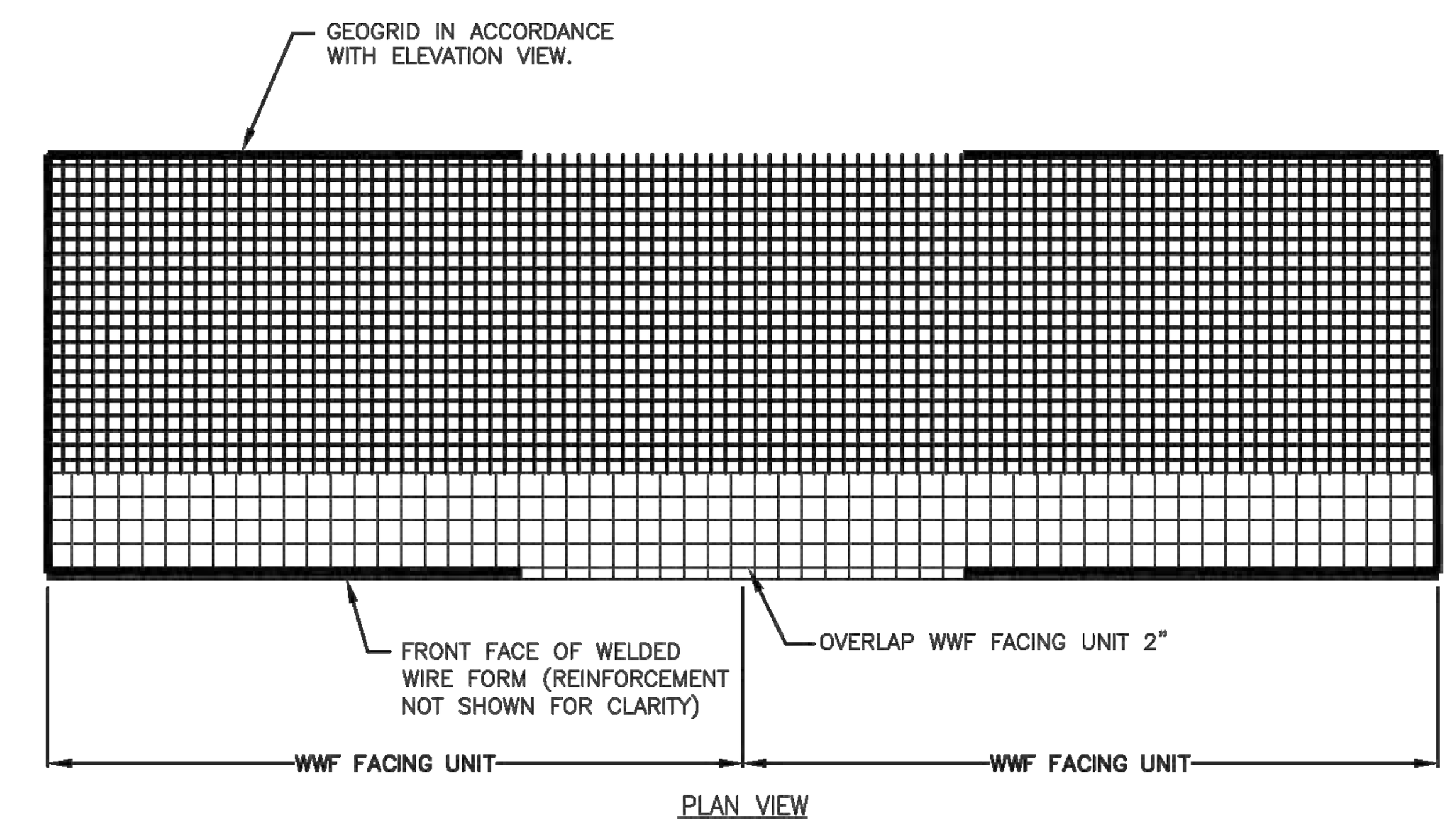


1/02 OUTSIDE CURVE DETAIL
(SCALE: N.T.S.)



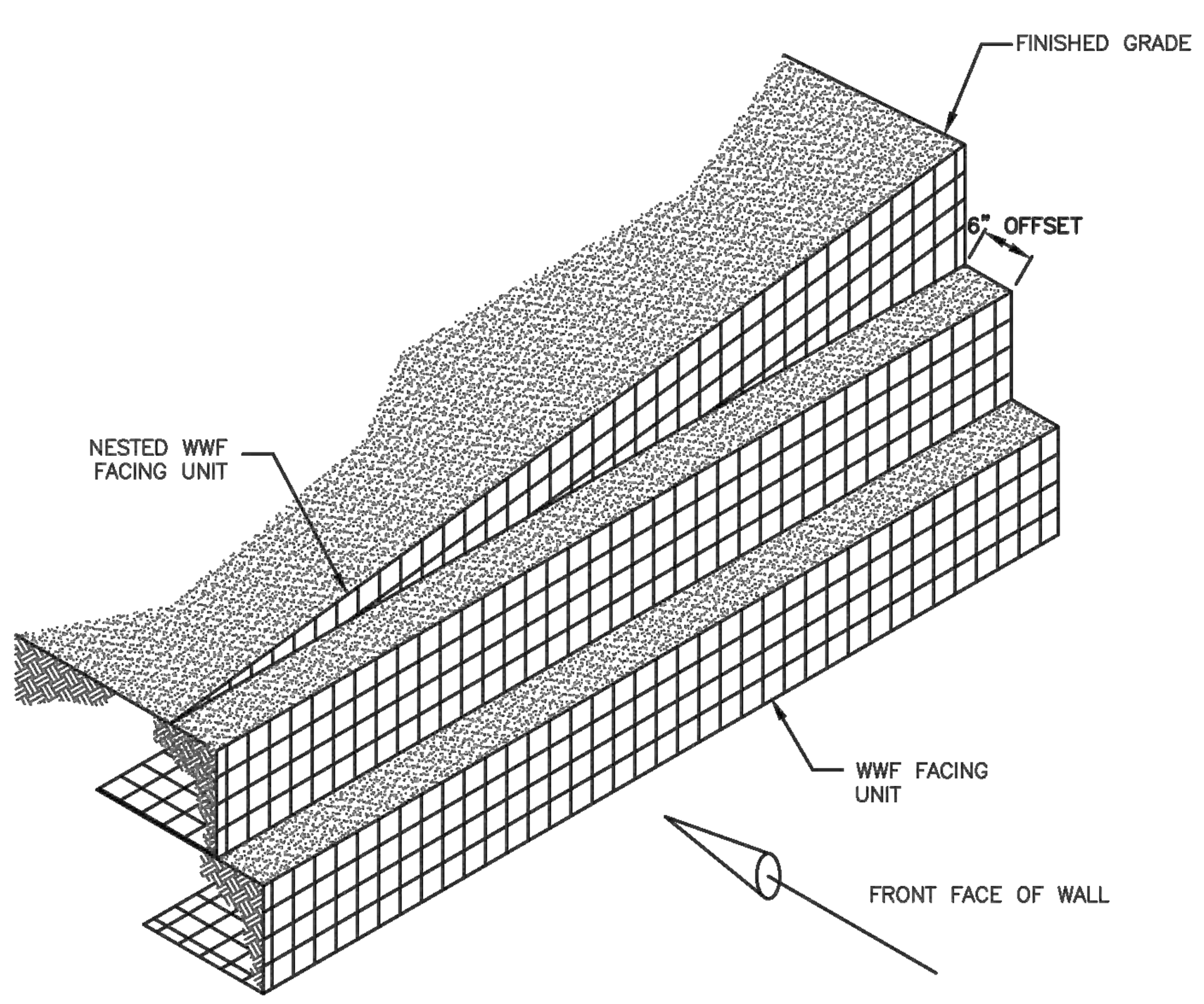
NOTES:
1. RSS FACING TO CONSIST OF PREFABRICATED GALVANIZED STEEL WELDED WIRE FABRIC, 4x4–W4xW4 FORMS.
2. OVERALL LENGTH OF WIRE FORMS IS 10'-4"±. EFFECTIVE CONSTRUCTED WIDTH IS 10 FT WITH 2" OVERLAPPING ON EACH END OF FORM.
3. FORMS AS MANUFACTURED BY DIMENSION FABRICATORS, INC. OR APPROVED EQUAL.

2/02 ELEVATION VIEW DETAIL
(SCALE: N.T.S.)

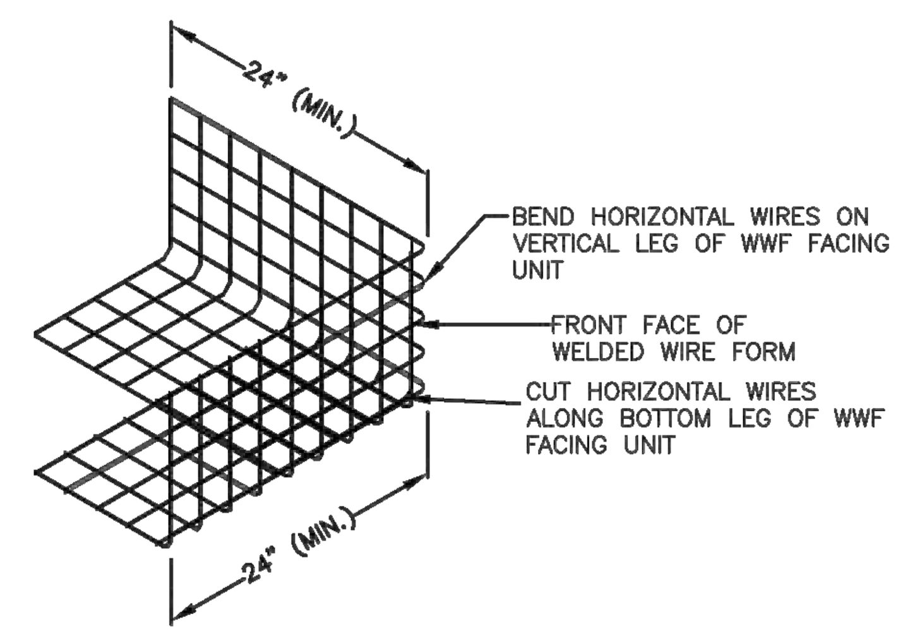


NOTES:
1. SEE WELDED WIRE FORM (WWF) FACING UNIT DETAIL FOR FACING MATERIALS AND DIMENSIONS.
2. INSTALL ADJACENT WWF FACING UNITS TO PROVIDE 2" OVERLAP OF HORIZONTAL WIRES.
3. WHEN MSE LAYOUT INCLUDES A CORNER/TURN, FULL GEOGRID COVERAGE IS REQUIRED. REFER TO ELEVATION VIEW FOR LIMITS OF FULL GEOGRID COVERAGE.

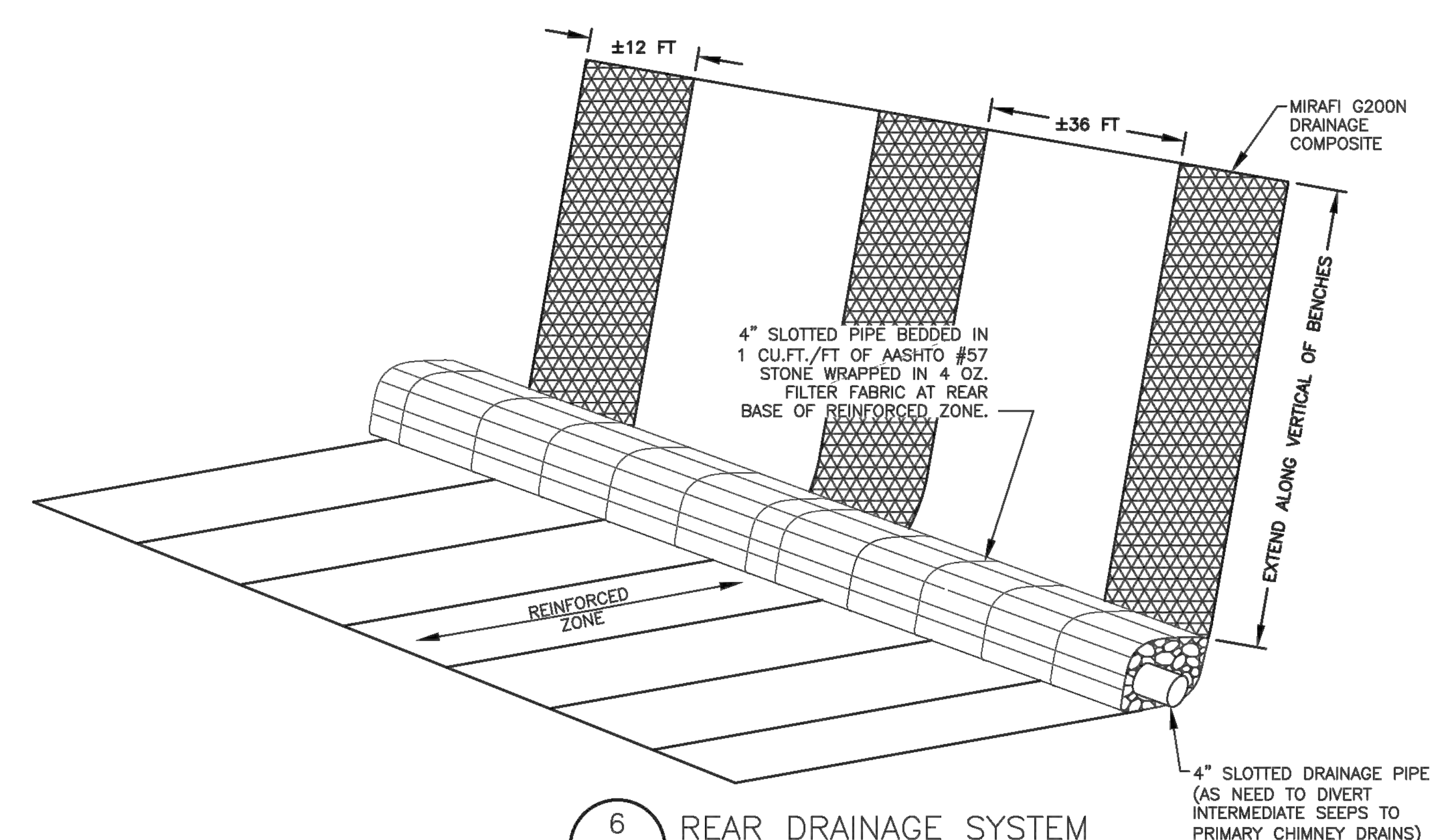
3/02 TYPICAL WWF GEOGRID COVERAGE
(NOT TO SCALE)



4/02 TOP OF WWF WALL NESTING DETAIL
(NOT TO SCALE)



5/02 WELDED WIRE FORM
OUTSIDE CORNER UNIT
(NOT TO SCALE)



6/02 REAR DRAINAGE SYSTEM
(NOT TO SCALE)

REVISIONS:

wood.
Environment & Infrastructure Solutions, Inc.
245 N. WACO AVENUE, SUITE 110
WICHITA, KANSAS 67202
PHONE: 316-448-2711
FAX: 316-448-2711

REINFORCED SOIL SLOPE WALL DETAIL STR-002

IMHOFF CREEK BANK STABILIZATION
CITY OF NORMAN, OKLAHOMA

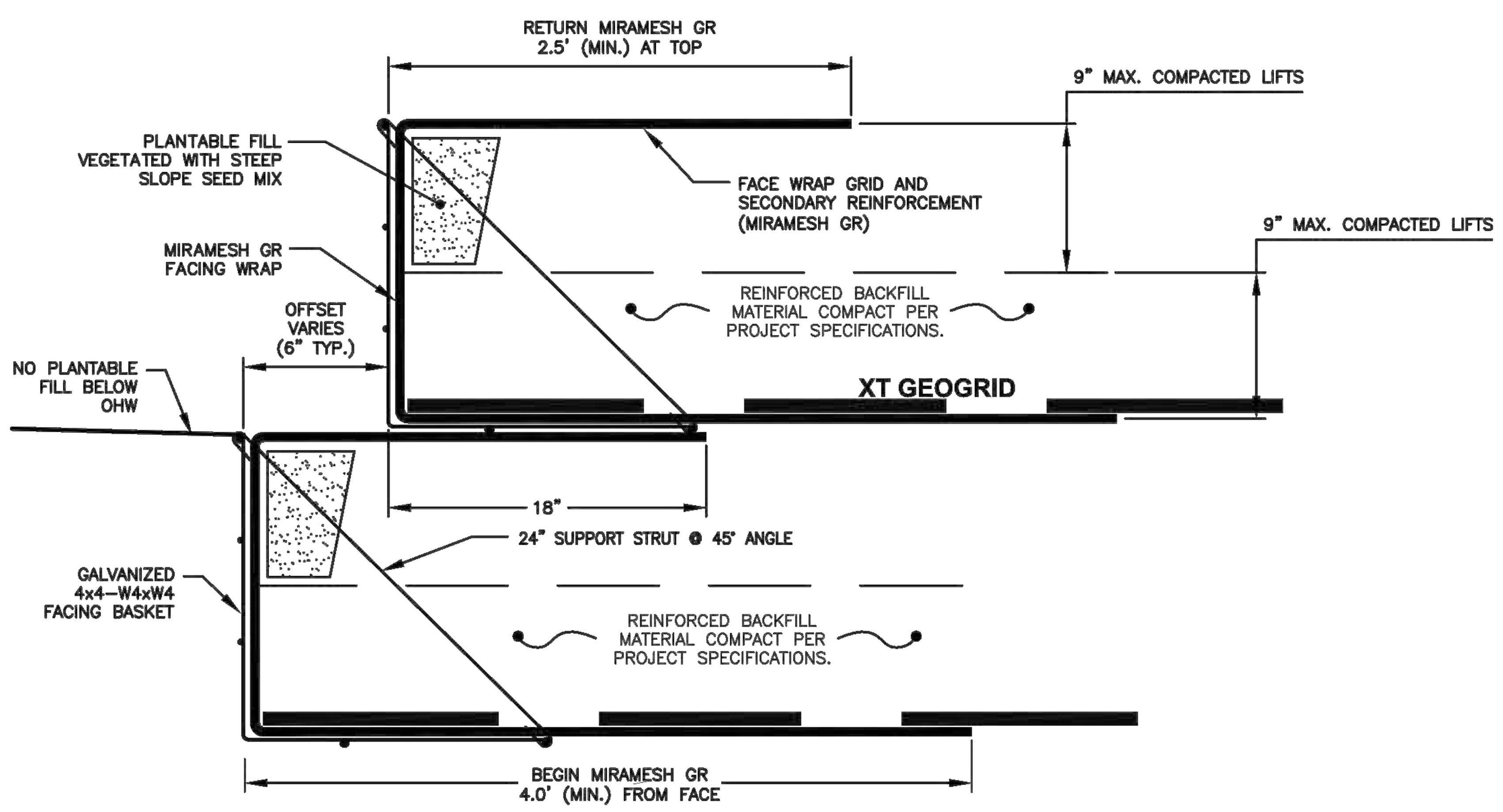
DESIGNED BY: CR
DRAWN BY: AJM
CHECKED BY: EJB
DATE: May 26, 2022

90% DESIGN
NOT FOR CONSTRUCTION
OR
RECORDING

PROJECT NO.
8275000431

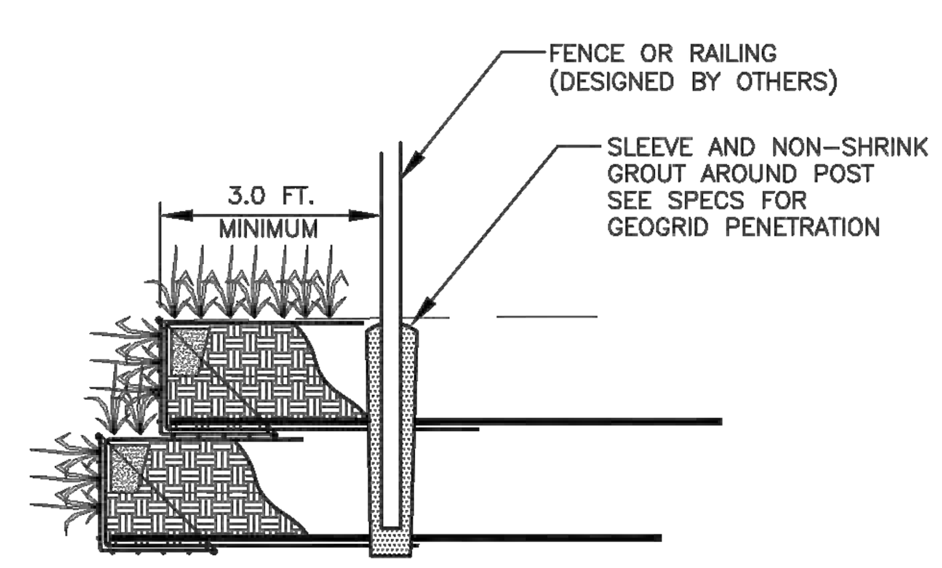
SHEET NO.
25 OF 27

SWT-2022-00073
City of Norman
Imhoff Creek Bank Stabilization
Cleveland County, Oklahoma
Enclosure 5 of 6

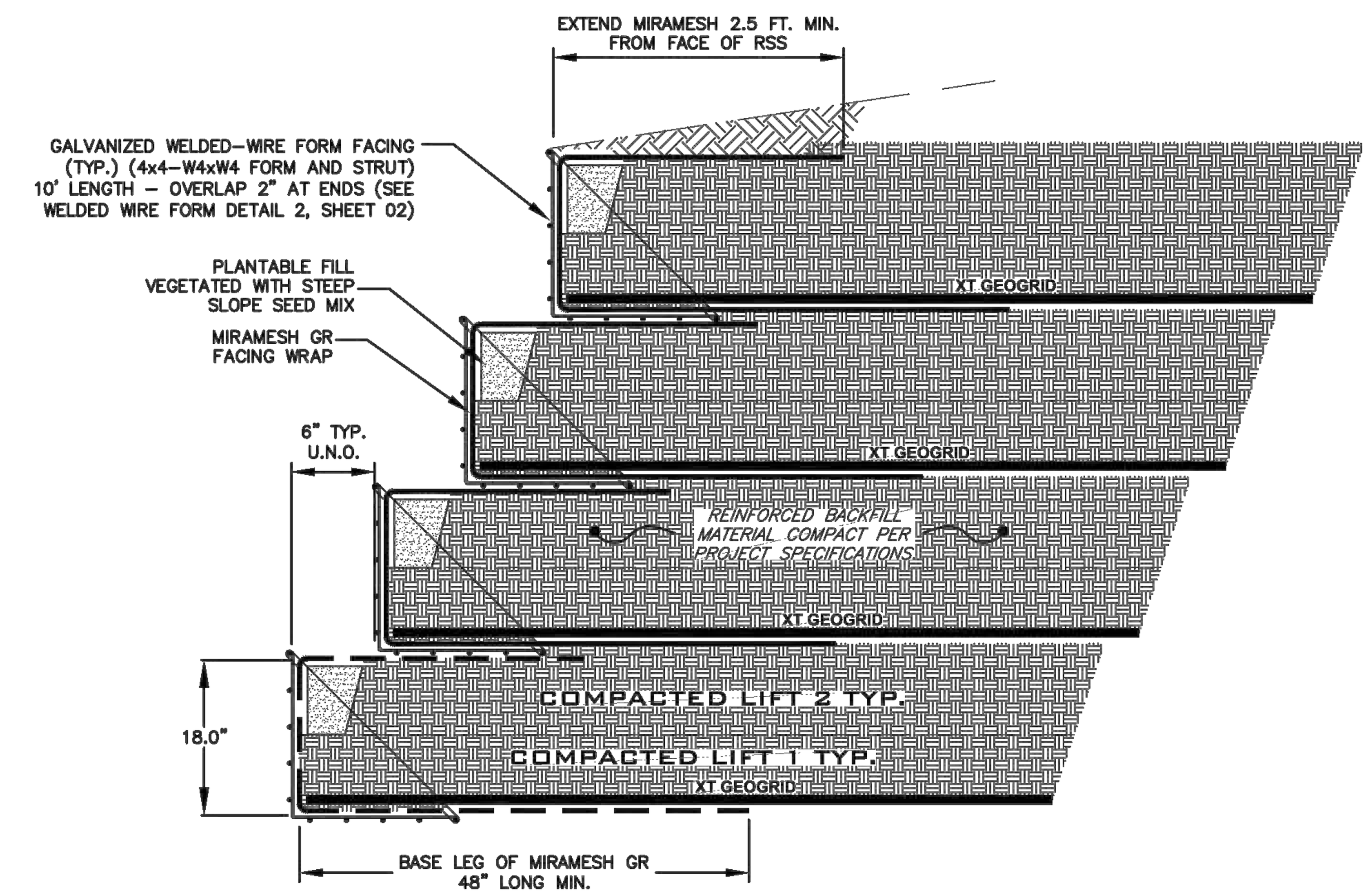


NOTE:
PLACE WELDED WIRE FORMS AS NEEDED TO CREATE THE PROPER SLOPE GEOMETRY.

1/03 PLANTABLE FACING DETAIL BLOW–UP
(SCALE: N.T.S.)



2/03 TYPICAL FENCE DETAIL
(SCALE: N.T.S.)

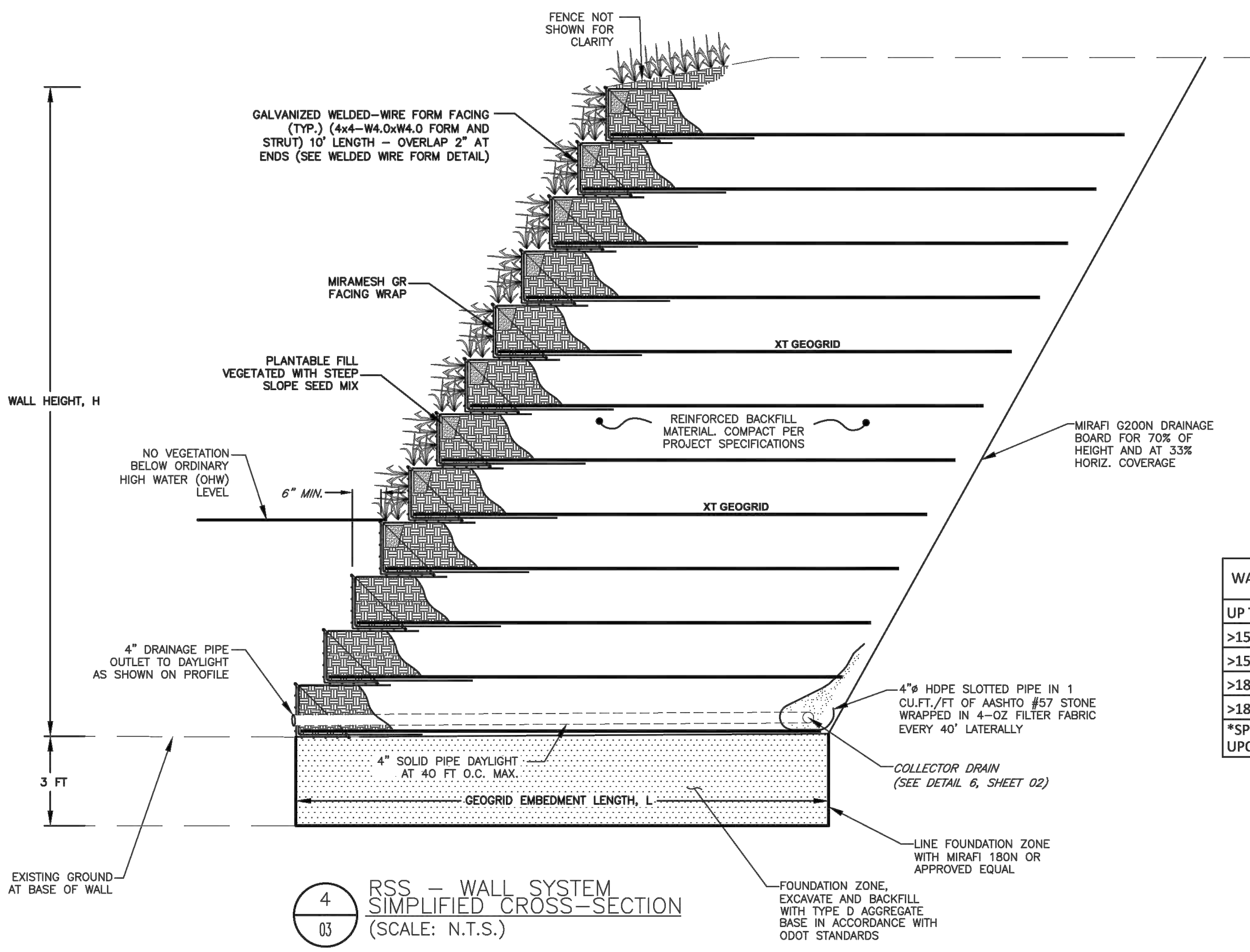


NOTES:
1. FACING TO CONSIST OF PREFABRICATED WWF, 4x4–W4xW4.
2. OVERALL LENGTH OF WIRE FORMS IS 10'–4"±.

3/03 TYPICAL DIMENSIONS AND SETBACK DETAIL
(SCALE: N.T.S.)

GENERALIZED CONSTRUCTION SEQUENCE:

1. SET WELDED WIRE FORM AT CORRECT ELEVATION AND ALIGNMENT PER PLAN GEOMETRY.
2. INSTALL WIRE STRUTS IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
3. PLACE MIRAMESH GR AT FACE OF FORM TO PROVIDE A 48" HORIZONTAL BASE LENGTH, LAY MIRAMESH GR UP REAR FACE OF WELDED WIRE FORM, AND TEMPORARILY DRAPE REMAINING 30" LENGTH OF MIRAMESH GR OVER THE FRONT OF THE FORM. CUT SMALL SLOTS AS NECESSARY TO ACCOMMODATE STRUTS.
4. PLACE AND COMPACT A 9" THICK (FINAL COMPACTED LIFT THICKNESS) LAYER OF PROCESSED BACKFILL MATERIAL PER PROJECT SPECIFICATIONS. CARE SHALL BE TAKEN TO ENSURE ADEQUATE COMPACTION AT WALL FACE.
5. PLACE AND COMPACT THE FINAL LAYER OF PROCESSED BACKFILL MATERIAL FOR THIS WIRE FORM PER PROJECT SPECIFICATIONS, LEAVING A TROUGH DIRECTLY BEHIND THE WELDED WIRE FORM TO ACCOMMODATE THE GROWTH MEDIUM (PLANTABLE FILL).
6. PLACE PLANTABLE FILL AND STEEP SLOPE SEED MIX INTO TROUGH. BASE OF TROUGH SHALL BE NO LESS THAN 4" WIDE, TOP OF TROUGH SHALL BE 6" WIDE. TROUGH SHALL BE 9" HIGH SO VEGETATION OCCURS IN TOP HALF VERTICALLY AND ON THE 9" HORIZONTAL BENCH OF THE WELDED WIRE FORM. COMPACT PLANTABLE FILL IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
7. FOLD BACK MIRAMESH AND PULL TAUGHTLY OVER THE TOP OF BACKFILLED WELDED WIRE FORM WITH A MINIMUM HORIZONTAL RETURN OF 30".
8. SET THE NEXT WELDED WIRE FORM PER HORIZONTAL AND VERTICAL PLAN GEOMETRY AND REPEAT STEPS 2–7 ABOVE.



4/03 RSS – WALL SYSTEM SIMPLIFIED CROSS–SECTION
(SCALE: N.T.S.)

WALL HEIGHT, H (FT)	GEOGRID EMBEDMENT LENGTH, L (FT)	GEOGRID LOCATION, MEASURED FROM BOTTOM OF WALL (FT)	GEOGRID*
UP TO 15'	9	1.5, 3, 4.5, 6, 9, 12	MIRAFI 5XT
>15' AND UP TO 18'	16	1.5, 4.5, 6	MIRAFI 20XT
>15' AND UP TO 18'	12	7.5, 10.5, 13.5, 16.5, 19.5	MIRAFI 5XT
>18' AND UP TO 22'	16	1.5, 3, 4.5, 6, 7.5	MIRAFI 20XT
>18' AND UP TO 22'	12	9, 12, 15, 18, 21	MIRAFI 7XT

*SPECIFIED GEOGRID SIZES ARE AS PRODUCED BY TENCATE. EQUIVALENT GEOGRID MAY BE SUBSTITUTED UPON APPROVAL OF THE ENGINEER.

REVISIONS:

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245 N. WACO AVENUE, SUITE 110
WICHITA, KANSAS 67202
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wood.

REINFORCED SOIL SLOPE WALL DETAIL STR-003

IMHOFF CREEK BANK STABILIZATION
CITY OF NORMAN, OKLAHOMA

DESIGNED BY: CR
DRAWN BY: AJM
CHECKED BY: EJB
DATE: May 26, 2022

90% DESIGN
NOT FOR
CONSTRUCTION
OR
RECORDING

PROJECT NO.
8275000431

SHEET NO.
26 OF 27

GENERAL NOTES

1. NOTIFY OKLAHOMA 811 ONE-CALL. CONFIRM THE LOCATIONS OF ALL SURFACE OR SUBSURFACE FEATURES, INCLUDING UTILITIES, WHICH HAVE A BEARING UPON THE PROPOSED CONSTRUCTION PRIOR TO BEGINNING CONSTRUCTION. VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND REPORT ANY DISCREPANCIES IMMEDIATELY PRIOR TO CONTINUANCE OF WORK. COORDINATE WITH LOCAL UTILITY COMPANIES PRIOR TO UTILITY DISCONNECT.
2. PERFORM ALL WORK IN ACCORDANCE WITH DRAWINGS AND ALL APPLICABLE CODES AND REGULATIONS UNLESS OTHERWISE NOTED. COMPLY WITH THE REQUIREMENTS OF THE VARIOUS FEDERAL, STATE, AND LOCAL SAFETY CODES (E.G. OSHA).
3. UNLESS NOTED OTHERWISE (UNO), EXISTING FEATURES SHALL REMAIN. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF EXISTING FEATURES, INCLUDING EXISTING UTILITIES.
4. OBTAIN ALL REQUIRED PERMITS PRIOR TO EXECUTION OF THE WORK.
5. NOTIFY THE WOOD OF ALL ITEMS OF CONSTRUCTION REMAINING AND NOT SPECIFICALLY MENTIONED THAT INTERFERE WITH THE NEW CONSTRUCTION.
6. MAINTAIN CONDITION OF EXCAVATION SLOPE(S) AND PROVIDING SAFE WORKING CONDITIONS FOR ALL PERSONS ON THE PROJECT SITE THROUGHOUT THE CONSTRUCTION PROCESS.

SUGGESTED SEQUENCE OF CONSTRUCTION

1. LAYOUT LIMITS OF SHEET PILE BASED UPON TOTAL STREAM WIDTH.
2. DRIVE SHEET PILE TO MINIMUM TOE EMBEDMENT AS INDICATED IN THE SECTIONS. PROVIDE DRIVING LOGS TO ENGINEER WITHIN 24 HOURS OF PILE DRIVING COMPLETION. LOGS AT A MINIMUM SHALL STATE BLOWS PER FOOT, HAMMER SIZE AND ENERGY.
3. PLACE RIPRAP AS SHOWN IN THE DRAWINGS

DESIGN CRITERIA

1. SHEET PILES SIZED BASED ON SHEAR AND BENDING MOMENTS ESTIMATED USING "NAVFAC DESIGN MANUAL 7.02 FOUNDATIONS AND EARTH STRUCTURES. MAXIMUM ANTICIPATED LATERAL MOVEMENT AT TOP-OF-SHEET PILE IS 1 INCH.
2. DESIGN GROUNDWATER LEVEL IS ASSUMED AT A STATIC LEVEL EQUAL TO THE STREAM INVERT.
3. SHEET PILE DESIGNED IN ACCORDANCE WITH ALLOWABLE STRESS DESIGN (ASD) PROVISIONS OF THE "AISC STEEL CONSTRUCTION MANUAL", 14TH EDITION.

MATERIAL SPECIFICATIONS:

1. STEEL SHEET PILES SHALL BE NZ14, OR APPROVED EQUIVALENT, CONFORMING TO ASTM A572, GRADE 50.

PILE WALL TOLERANCES

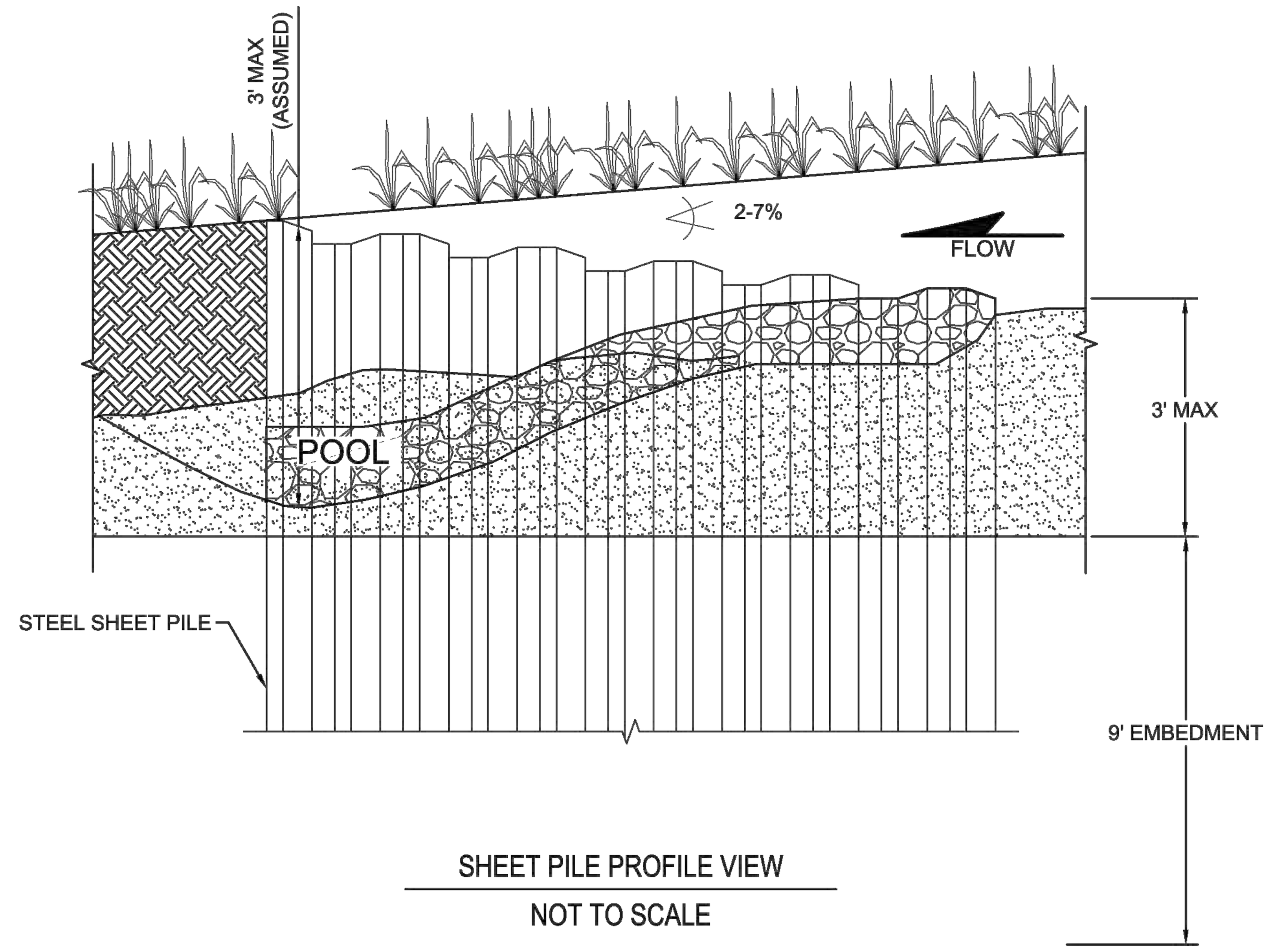
1. PLACE SHEET PILES AT THE LOCATIONS SHOWN ON THE PLAN VIEW. DO NOT DEVIATE BY MORE THAN 3 INCHES IN ANY DIRECTION FOR OF THE WALL.

FIELD TESTING INSPECTION

1. PROVIDE MINIMUM 24 HOUR NOTICE TO INSPECTION ENGINEER'S STAFF OF CONSTRUCTION ACTIVITY REQUIRING TESTS.

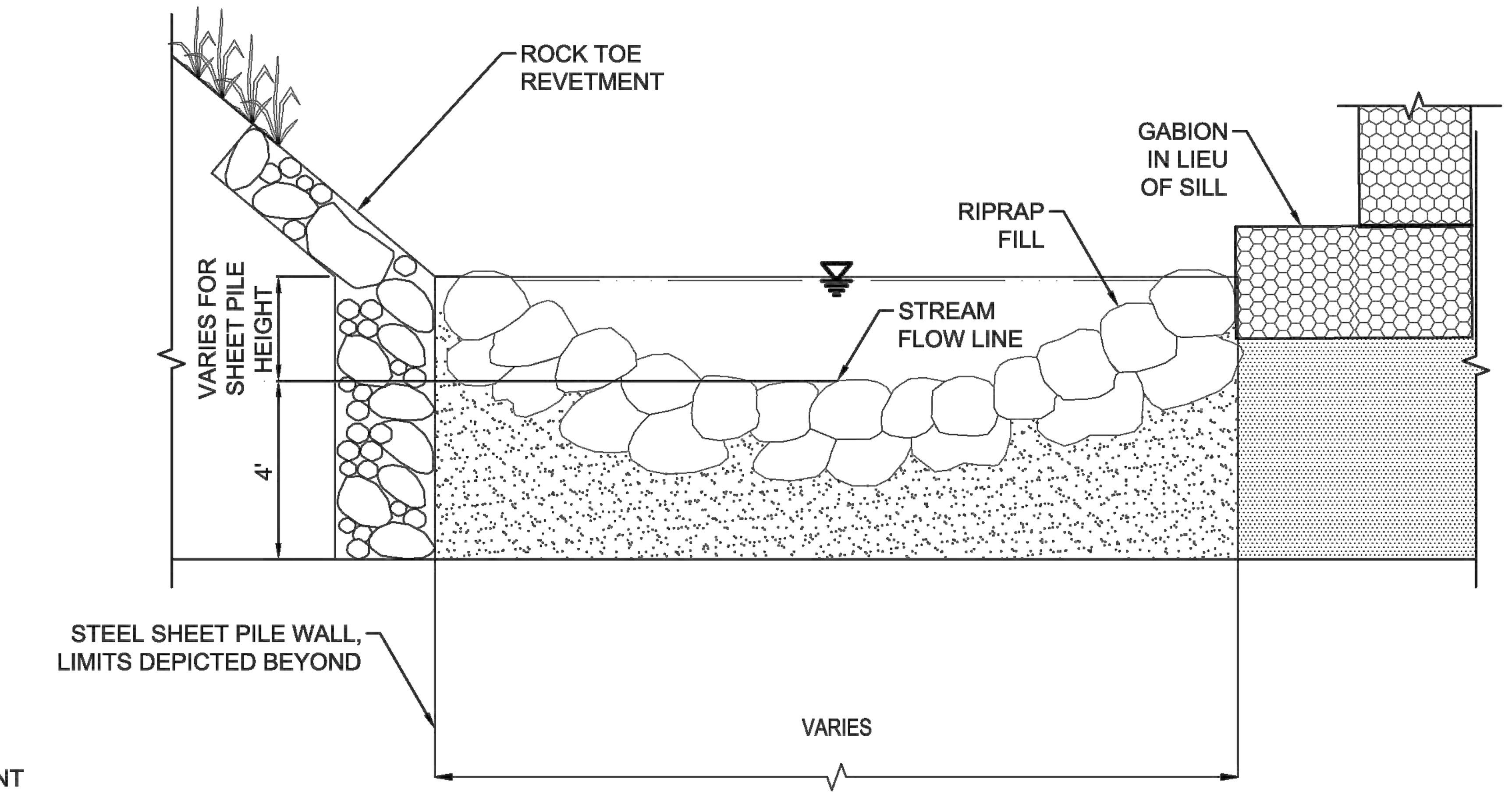
SUBMITTALS

1. PROVIDE PILE DRIVING LOGS TO WOOD WITHIN 24 HOURS OF PILE INSTALLATION COMPLETION.



SHEET PILE PROFILE VIEW

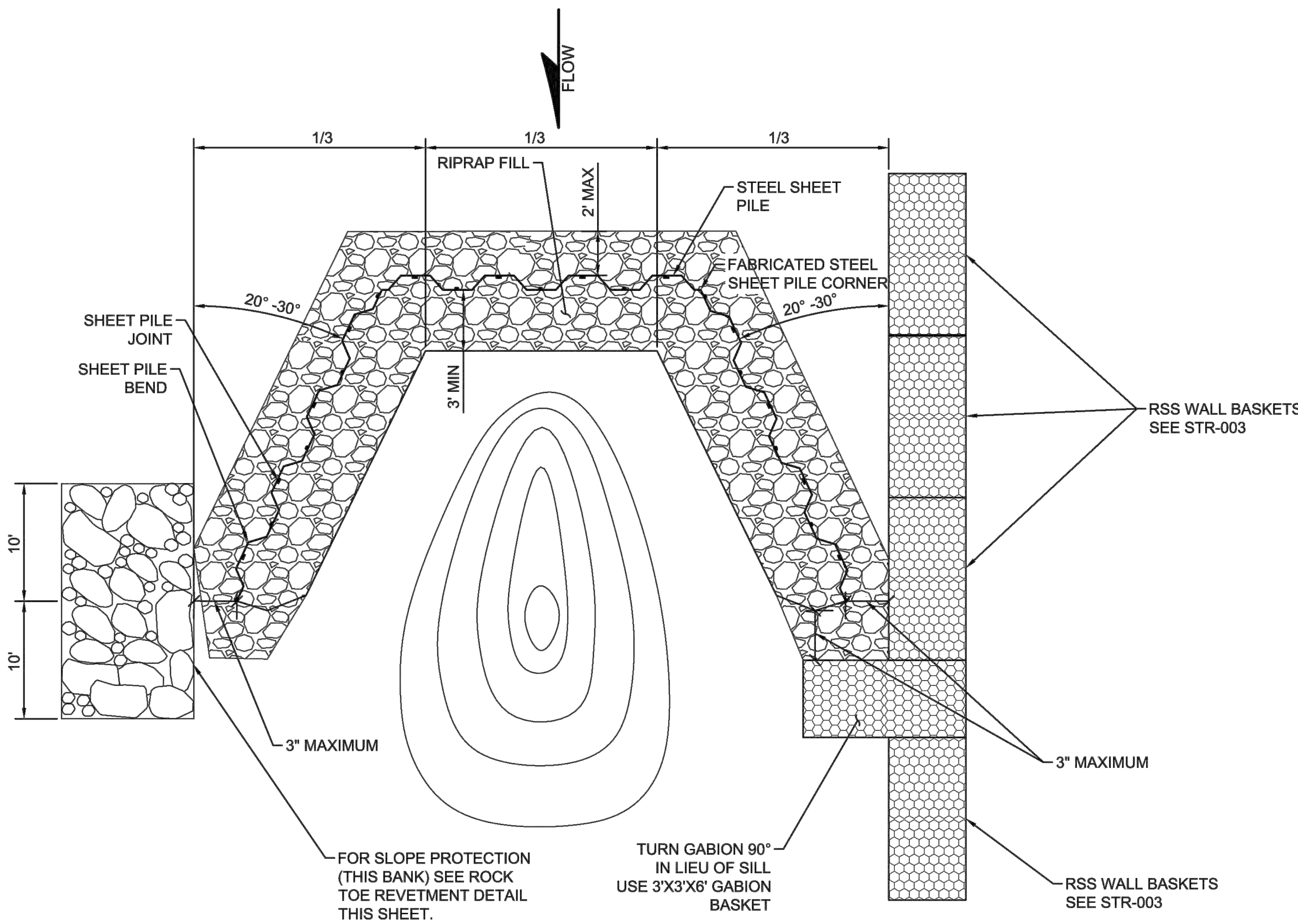
NOT TO SCALE



SHEET PILE CROSS SECTION VIEW

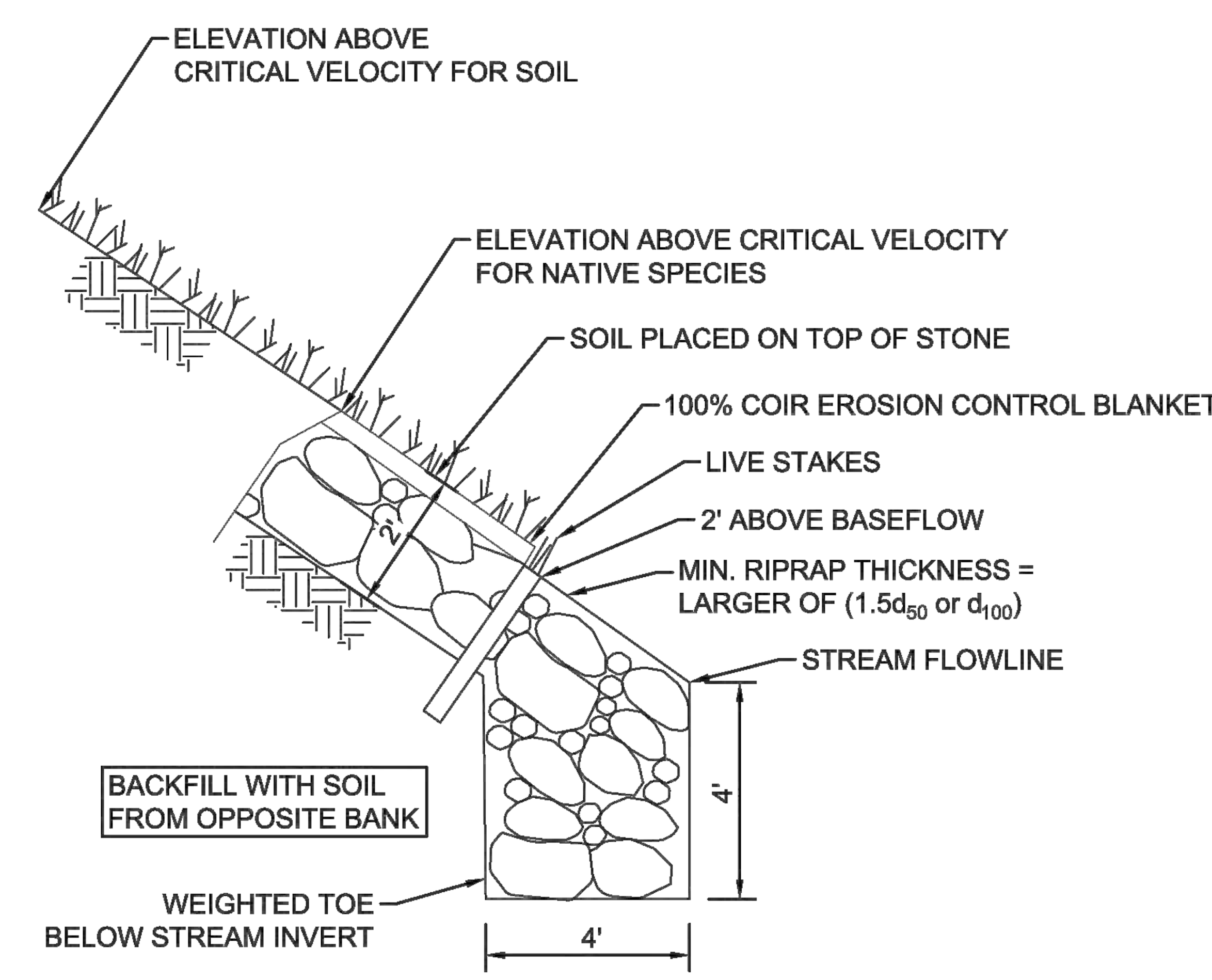
NOT TO SCALE

CROSS VANE LOCATION	CRITICAL VELOCITY ELEVATION (FT)
STA. 24+69.22	1100.3'
STA. 27+89.22	1098.3'



SHEET PILE LAYOUT DETAIL

NOT TO SCALE



ROCK TOE REVETMENT WITH LIVE SOIL

NOT TO SCALE

SWT-2022-00073
City of Norman
Imhoff Creek Bank Stabilization
Cleveland County, Oklahoma
Enclosure 6 of 6

REVISIONS:

wood.
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SHEET PILE DETAIL STR-004

IMHOFF CREEK BANK STABILIZATION
CITY OF NORMAN, OKLAHOMA

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