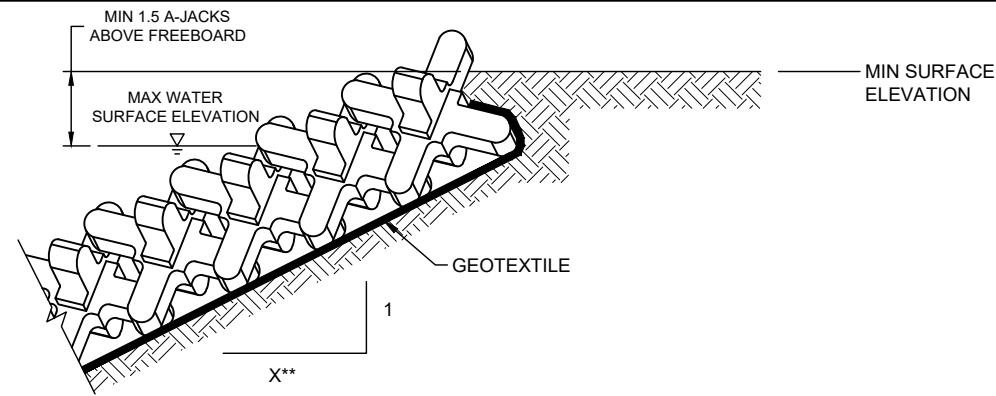
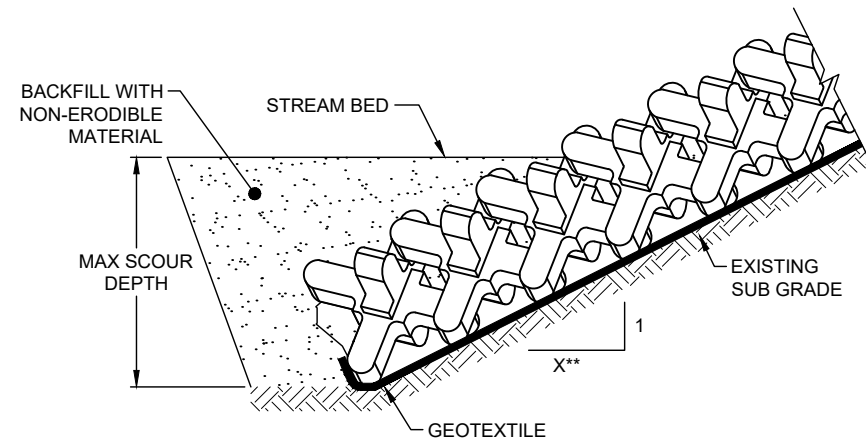


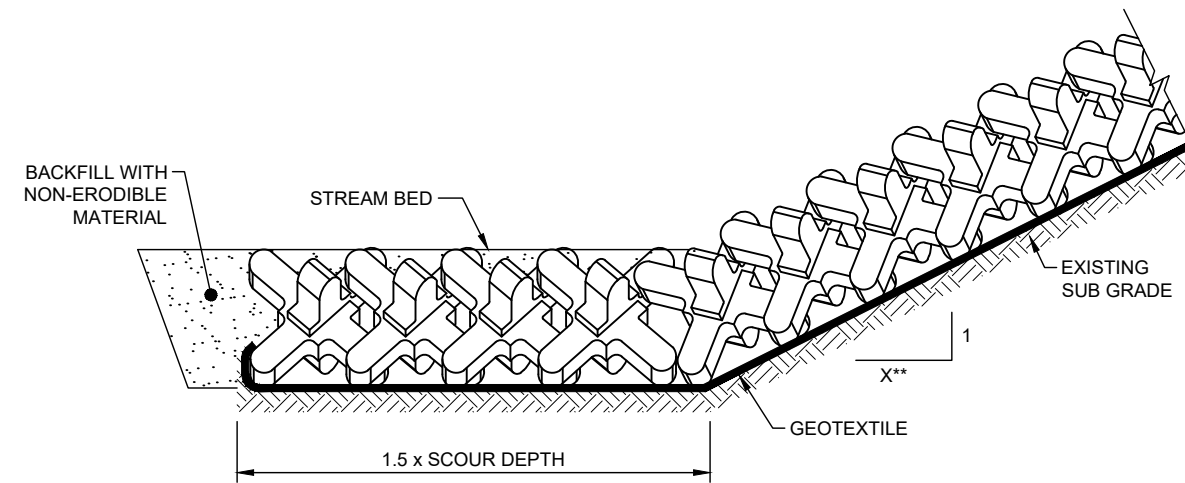
D1: TOP TERMINATION
N.T.S.



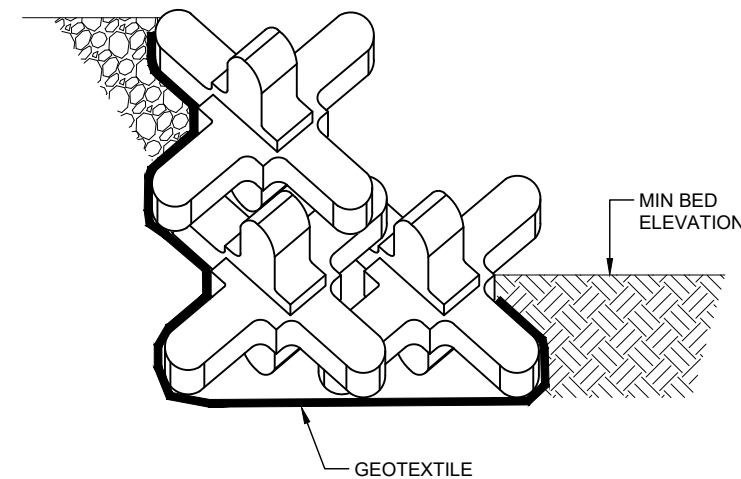
D2: TOP TERMINATION
N.T.S.



D3: TOE TERMINATION
N.T.S.



D4: TOE TERMINATION
N.T.S.



D6: 2x1 STACK DETAIL
N.T.S.

- GENERAL NOTES:**
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 3. GRADED GRANULAR FILTER MAY BE DESIGNED IN LIEU OF GEOTEXTILE.
 4. BALLAST STONE MAY BE PLACED ON TOP OF GEOTEXTILE IF INSTALLATION PROCESS WARRANTS.
 5. BALLAST: AASHTO COURSE AGGREGATE NO. 3 OR SIMILAR.
- X* NO STEEPER THAN 1:1
X** NO STEEPER THAN 2:1

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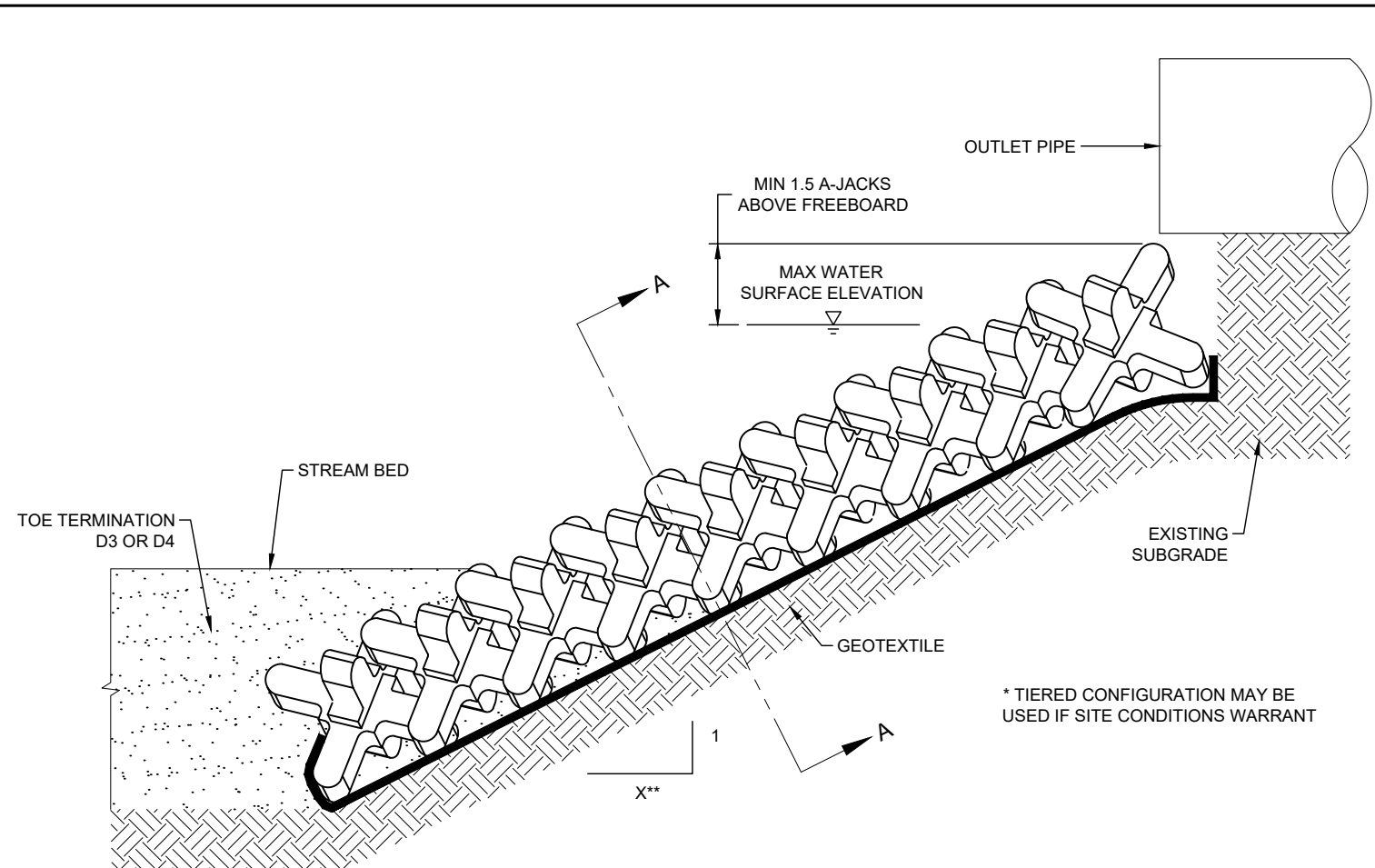
A QUIKRETT COMPANY
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX



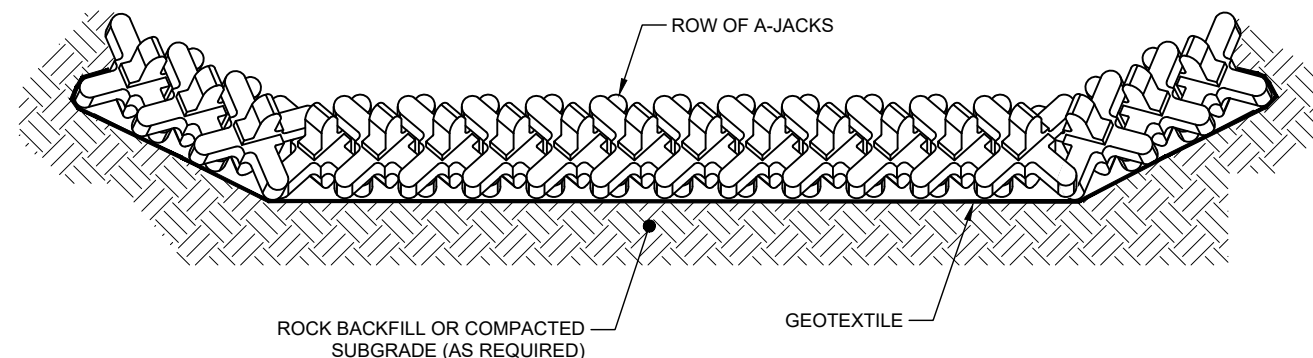
CONTECH
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STANDARD CHANNEL DETAILS

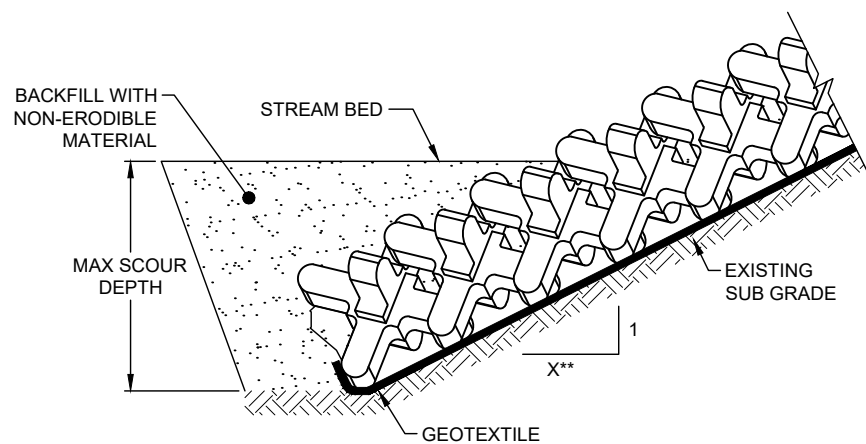
PROJECT No.: ----	SEQ. No.: ----	DATE: 09/25/2024
DESIGNED: BL	DRAWN: MG	
CHECKED: BL	APPROVED:	
SHEET NO.: CT1 OF CT6		



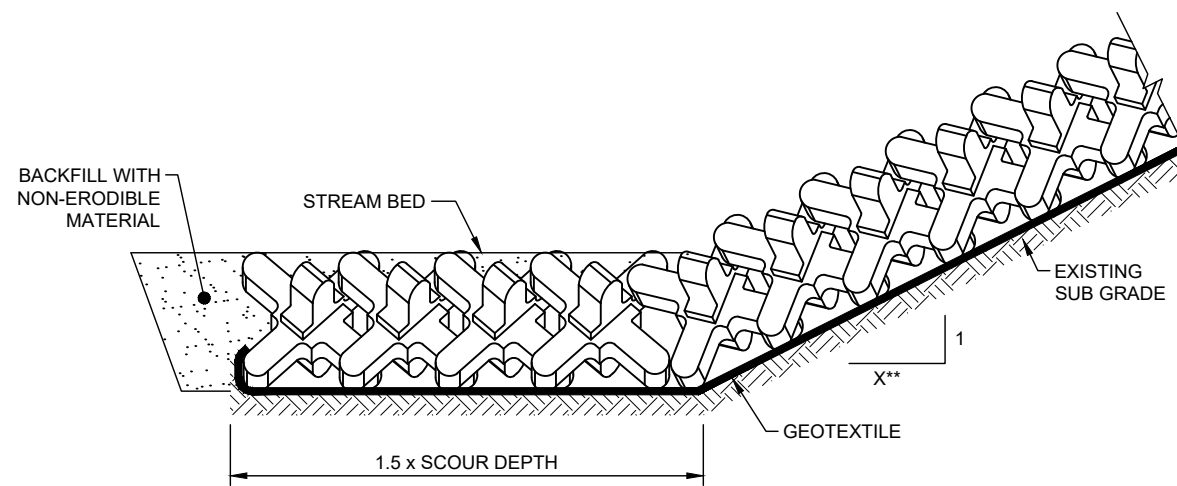
**NON-TIERED
STEEP OUTFALL PROFILE**
N.T.S. (B)



**SECTION
A**
N.T.S.



D3: TOE TERMINATION
N.T.S.



D4: TOE TERMINATION
N.T.S.

- GENERAL NOTES:**
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- X* NO STEEPER THAN 1:1
X** NO STEEPER THAN 2:1

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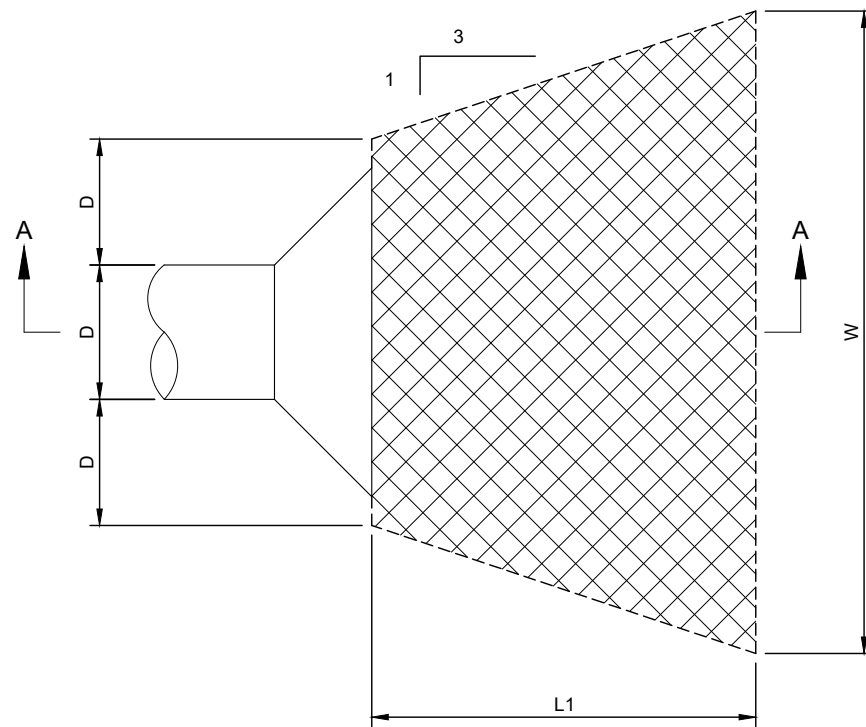
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ARMORTEC
Erosion Control Solutions

CONTECH
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DRAWING

SLOPED OUTFALL DETAILS

PROJECT No.: ----	SEQ. No.: ----	DATE: 09/25/2024
DESIGNED: BL	DRAWN: MG	
CHECKED: BL	APPROVED:	
SHEET NO.: CT2 OF CT6		

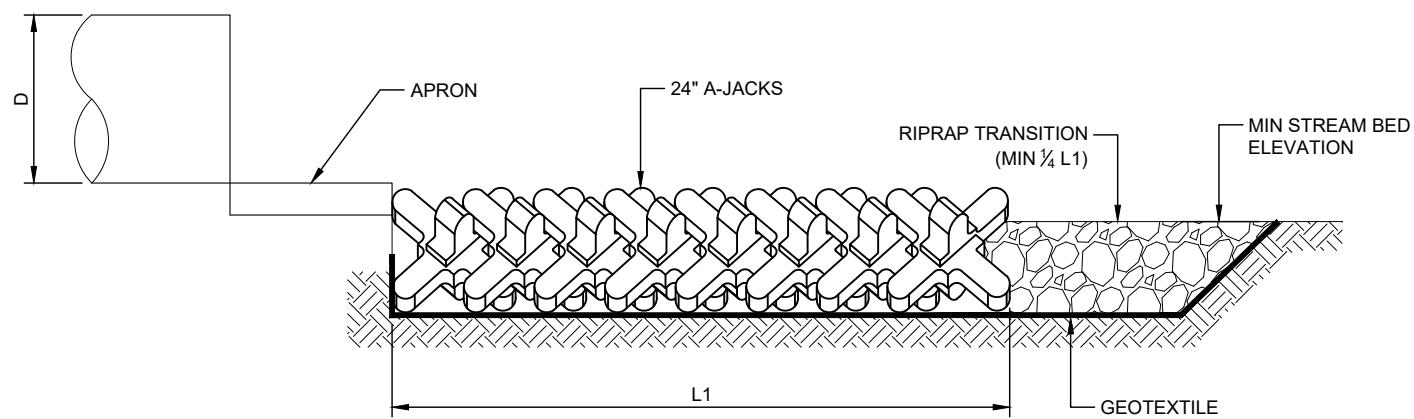


A-JACKS OUTFALL ARMORING
N.T.S.

24" A-JACKS		
VELOCITY (FT/S)	LENGTH OF A-JACK APRON (L1)	WIDTH OF APRON (W)
6	2.7D	5.7D
8	3.3D	6.6D
10	4.0D	7.0D
11	4.7D	7.7D
12	5.3D	8.3D

* BASED ON FHWA RIP-RAP APRON GUIDANCE AND USBR RIP-RAP SIZING.

NOTES:
 - $D_{PIPE} < 60"$
 - IF PIPE HAS NO APRON, ADD ADDITIONAL 3' TO L1
 - MANNING FOR A-JACKS = 0.1



SECTION A
N.T.S.

- GENERAL NOTES:**
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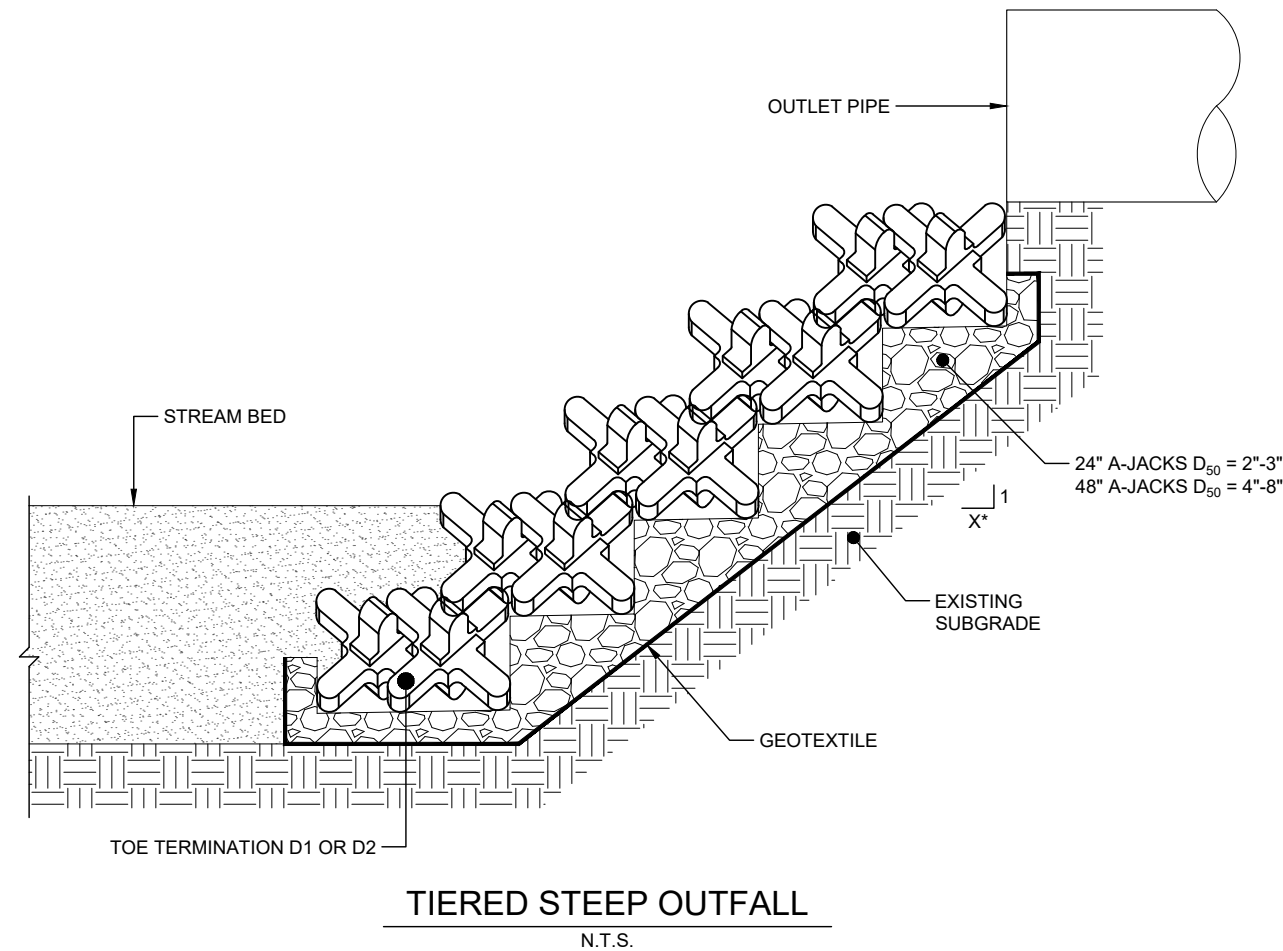
ARMORTEC
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CONTECH CONTRACT DRAWING

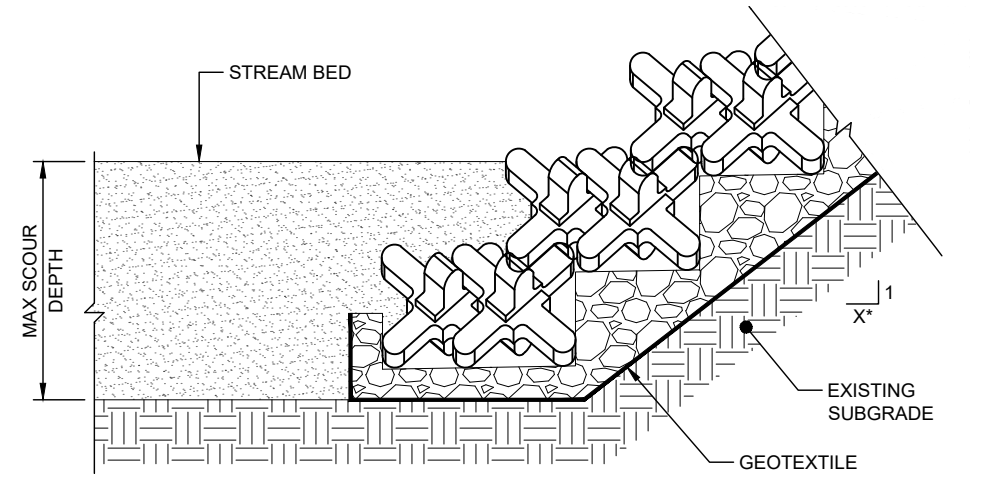
24" A-JACK STANDARD OUTFALL DETAILS

PROJECT No.: ----	SEQ. No.: ----	DATE: 09/25/2024
DESIGNED: BL	DRAWN: MG	
CHECKED: BL	APPROVED:	
SHEET NO.: CT3 OF CT6		

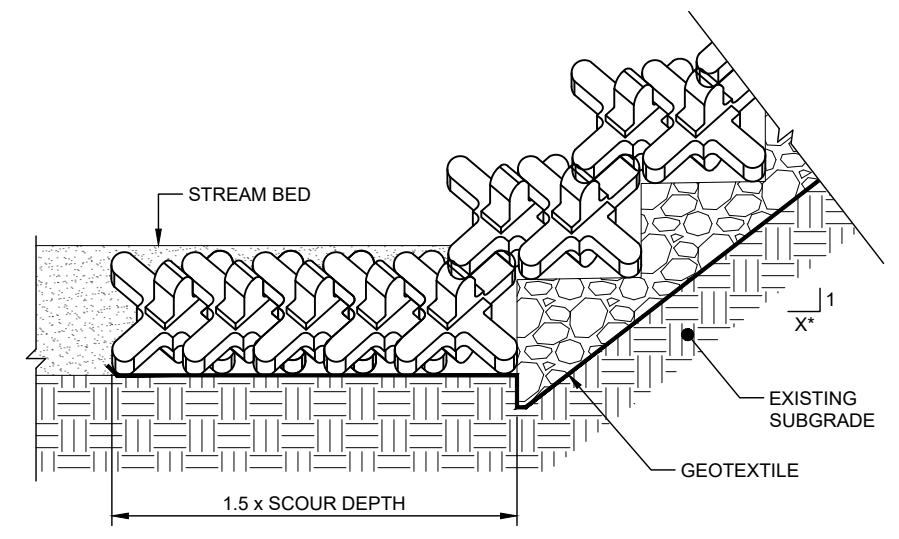
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TIERED STEEP OUTFALL
N.T.S.



D1: TOE TERMINATION
N.T.S.



D2: TOE TERMINATION
N.T.S.

- GENERAL NOTES:**
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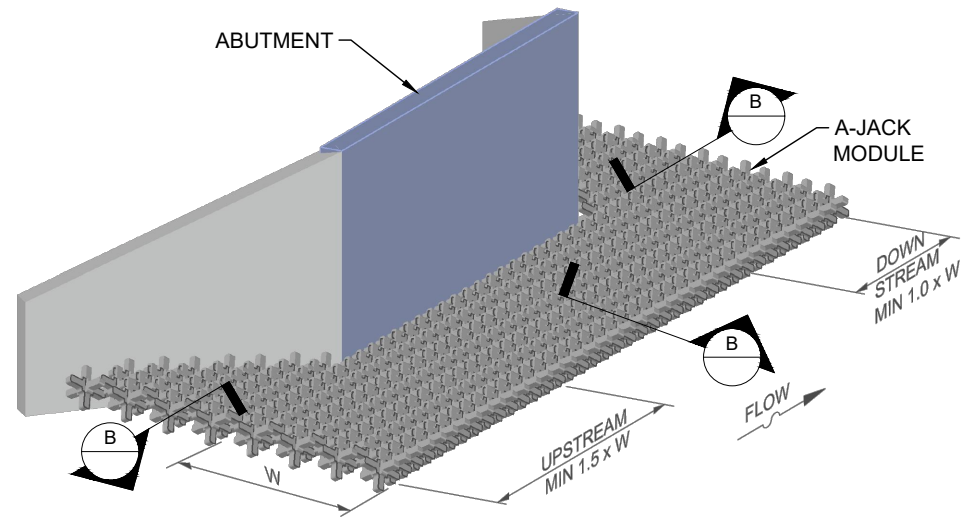
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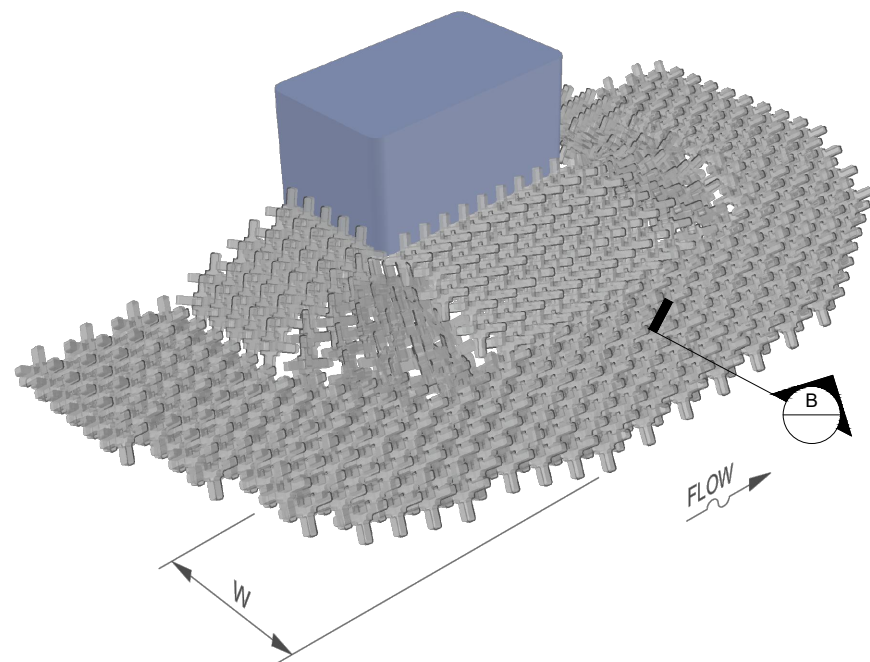
STEEP OUTFALL DETAILS

PROJECT No.: ----	SEQ. No.: ----	DATE: 09/25/2024
DESIGNED: BL	DRAWN: MG	
CHECKED: BL	APPROVED:	
SHEET NO.: CT4 OF CT6		



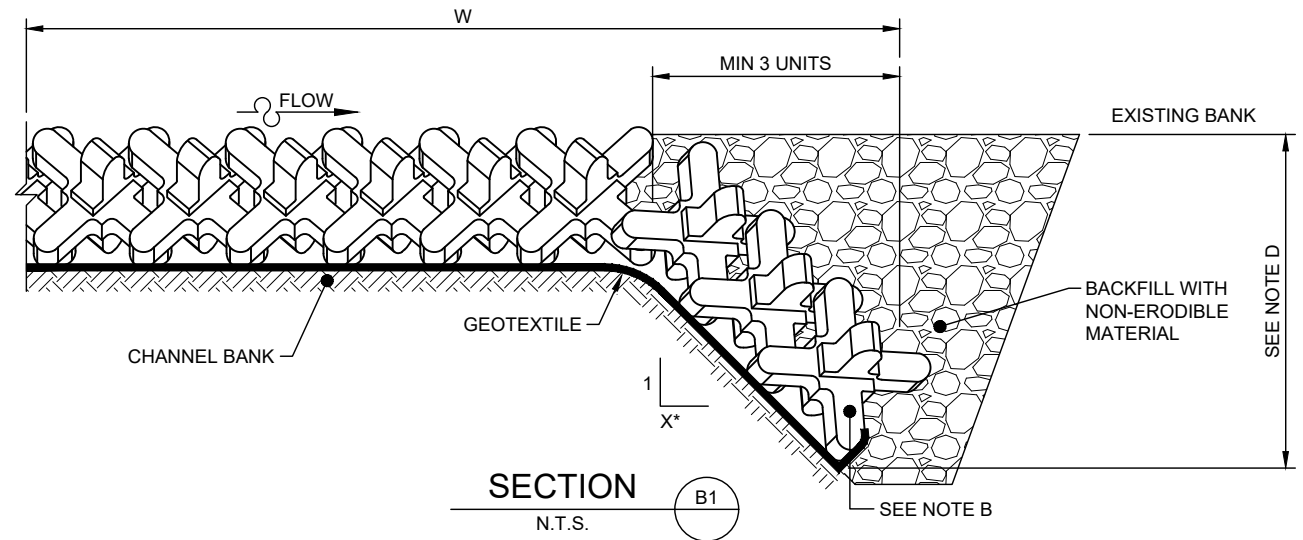
WINGWALL ABUTMENT / STRUCTURE
PLAN VIEW

N.T.S.



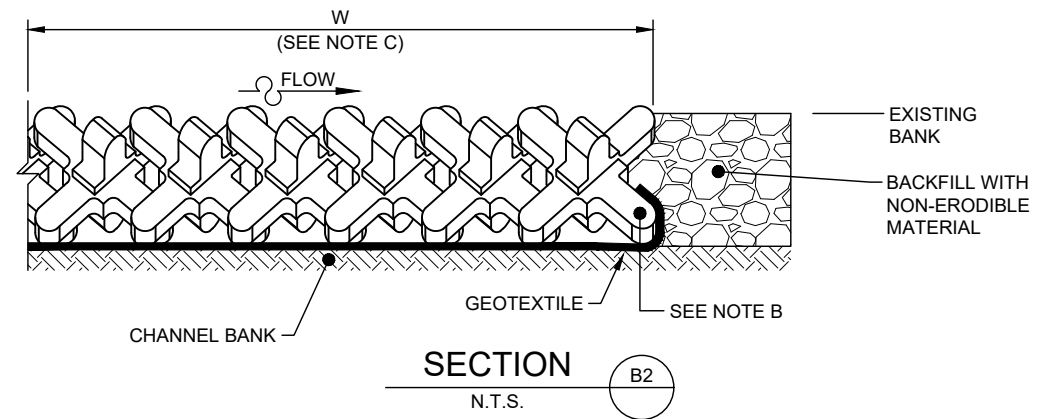
SPILL THROUGH ABUTMENT / STRUCTURE
PLAN VIEW

N.T.S.



SECTION
N.T.S.

B1



SECTION
N.T.S.

B2

NOTES:

- A. WIDTH "W" DETERMINED AS 1.25 TIMES PREDICTED SCOUR DEPTH. UPSTREAM AND DOWNSTREAM EXTENTS ARE 1.5W AND W.
- B. TURN DOWN TERMINATION B1 IS RECOMMENDED UNLESS SITE CONDITIONS WARRANT.
- C. WIDTH OF PROTECTION, "W", REQUIRES AN ADDITIONAL 3'.
- D. TYPICAL (3) UNIT @ 1:1 TERMINATION WOULD REQUIRE A MAX 2.5' OF VERTICAL EMBEDMENT.

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X** NO STEEPER THAN 2:1

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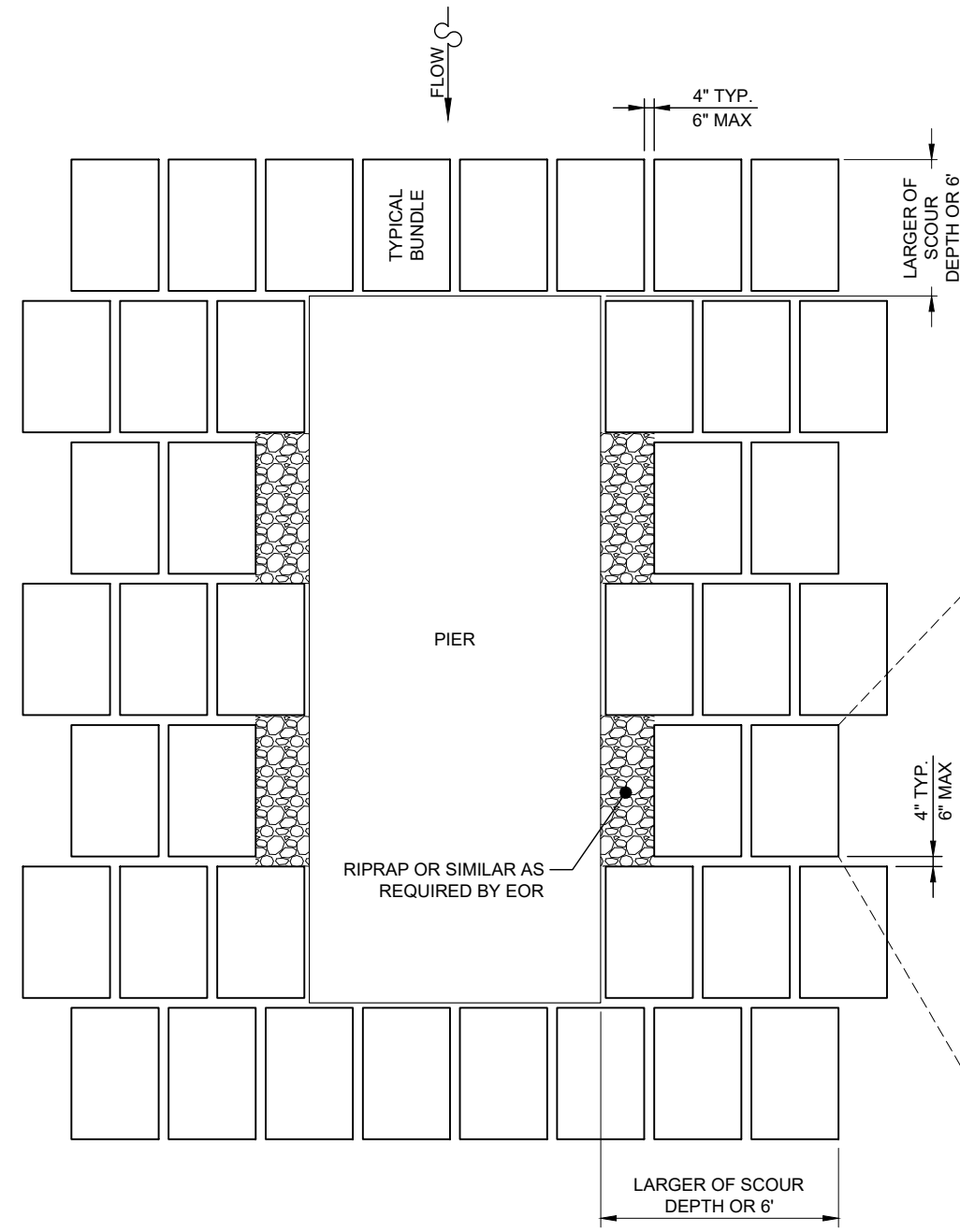
ARMORTEC
Erosion Control Solutions

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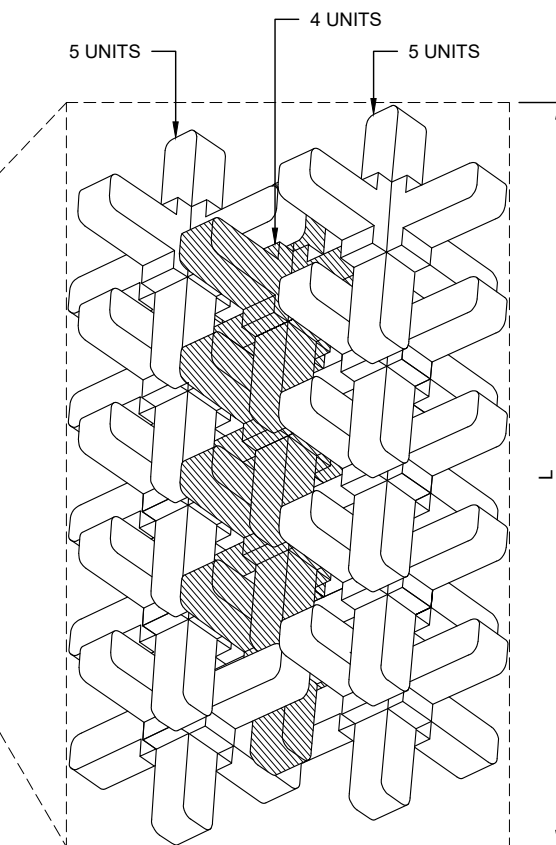
ABUTMENT DETAILS

PROJECT No.: ----	SEQ. No.: ----	DATE: 09/25/2024
DESIGNED: BL	DRAWN: MG	
CHECKED: BL	APPROVED:	
SHEET NO.: CT5 OF CT6		

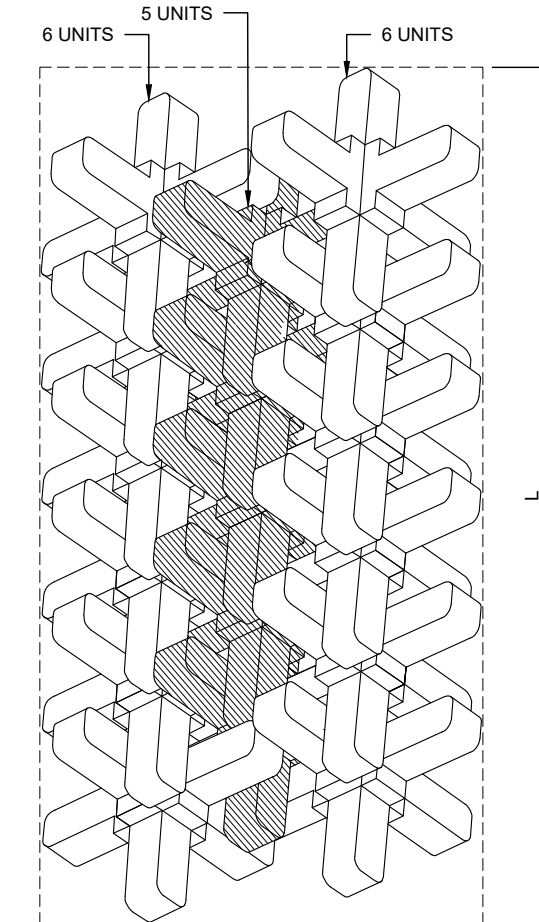
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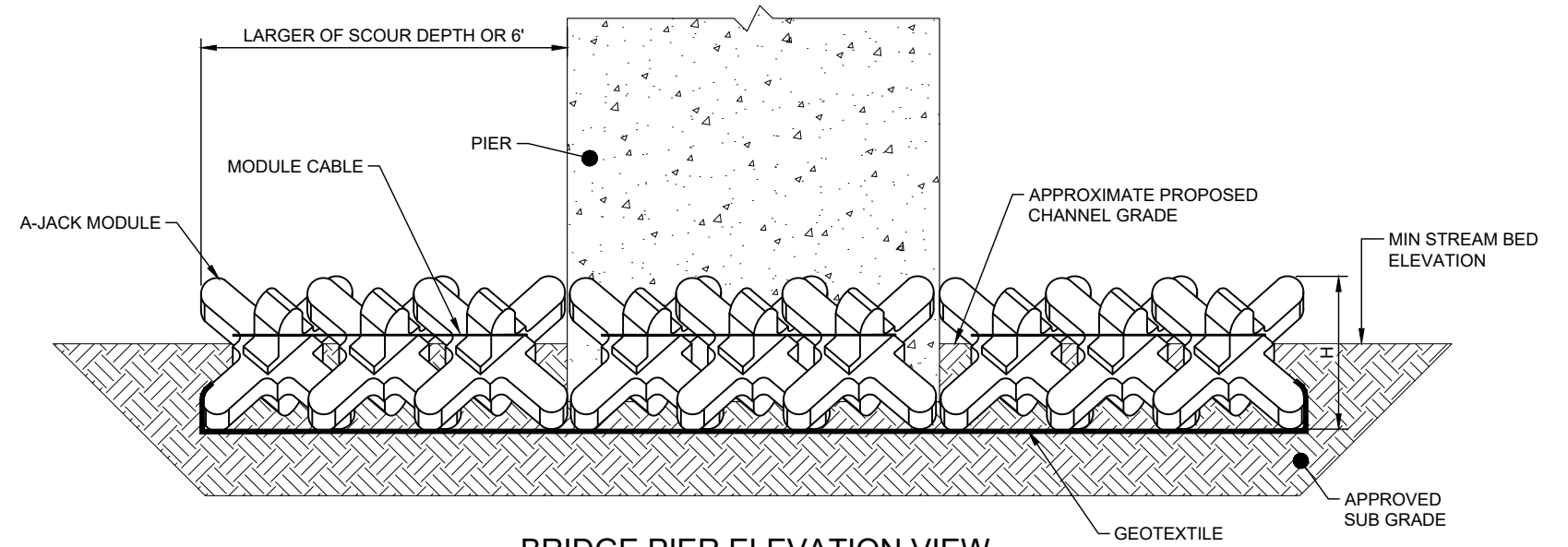
BRIDGE PIER / PLAN VIEW
N.T.S.



5x4x5 BUNDLE LAYOUT PLAN
N.T.S.



6x5x6 BUNDLE LAYOUT PLAN
N.T.S.



BRIDGE PIER ELEVATION VIEW
N.T.S.

EXAMPLE MODULE DIMENSIONS					
A-JACK SIZE	MODULE SIZE	DESIGN HEIGHT, D	WIDTH, B	LENGTH L	MODULE HEIGHT, H
24"	5 X 4 X 5	1.3'	2.8'	4.32'	1.5'
	6 X 5 X 6	1.3'	2.8'	5.07'	1.5'
48"	5 X 4 X 5	2.67'	5.7'	8.7'	3'
	6 X 5 X 6	2.67'	5.7'	10.2'	3'

* LAYOUT AND MODULE DIMENSIONS PER HEC-23 DESIGN GUIDELINE 19.

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PIER SCOUR STANDARD DETAILS

PROJECT No.: ----	SEQ. No.: ----	DATE: 09/25/2024
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CHECKED: BL	APPROVED:	
SHEET NO.: CT6 OF CT6		