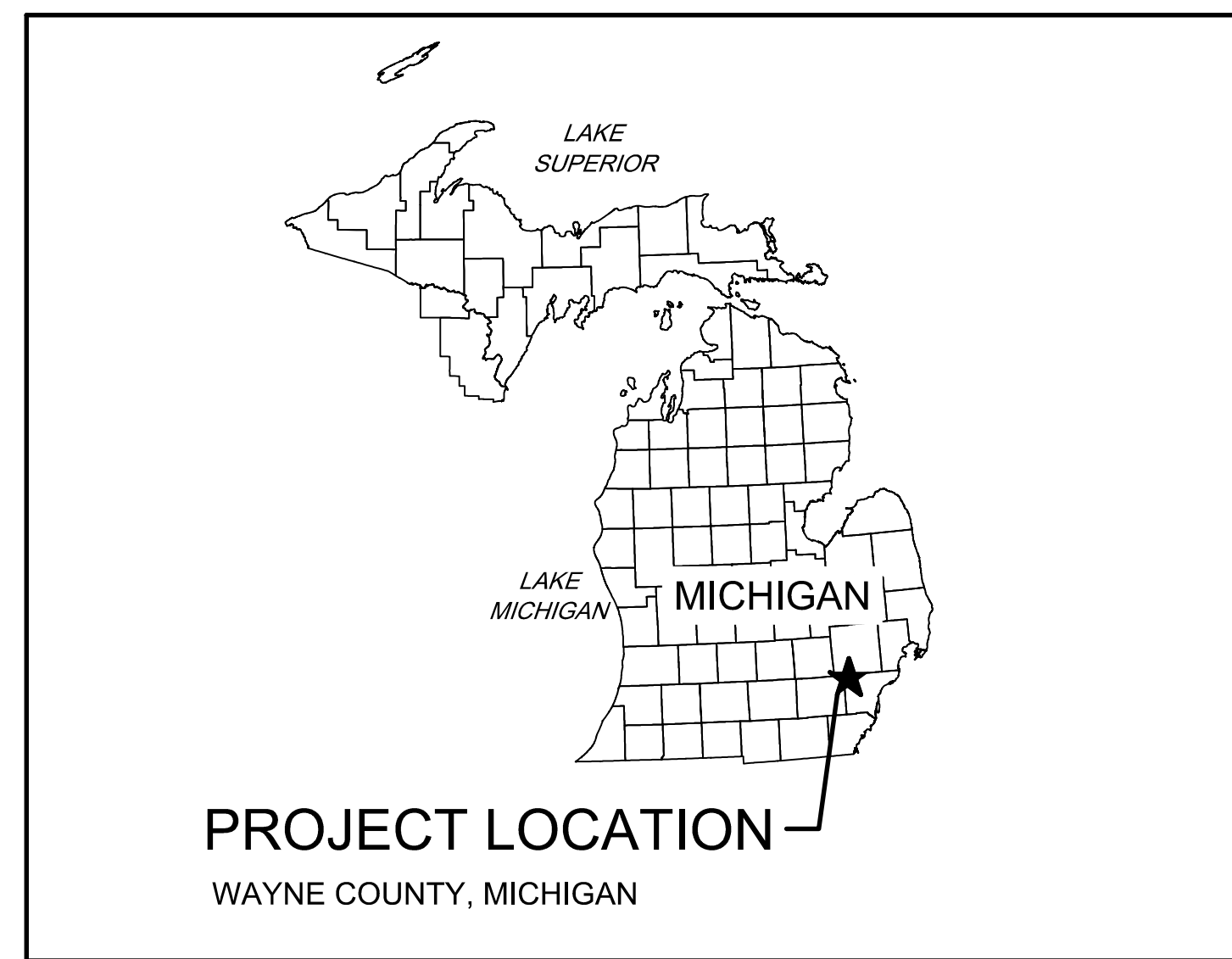


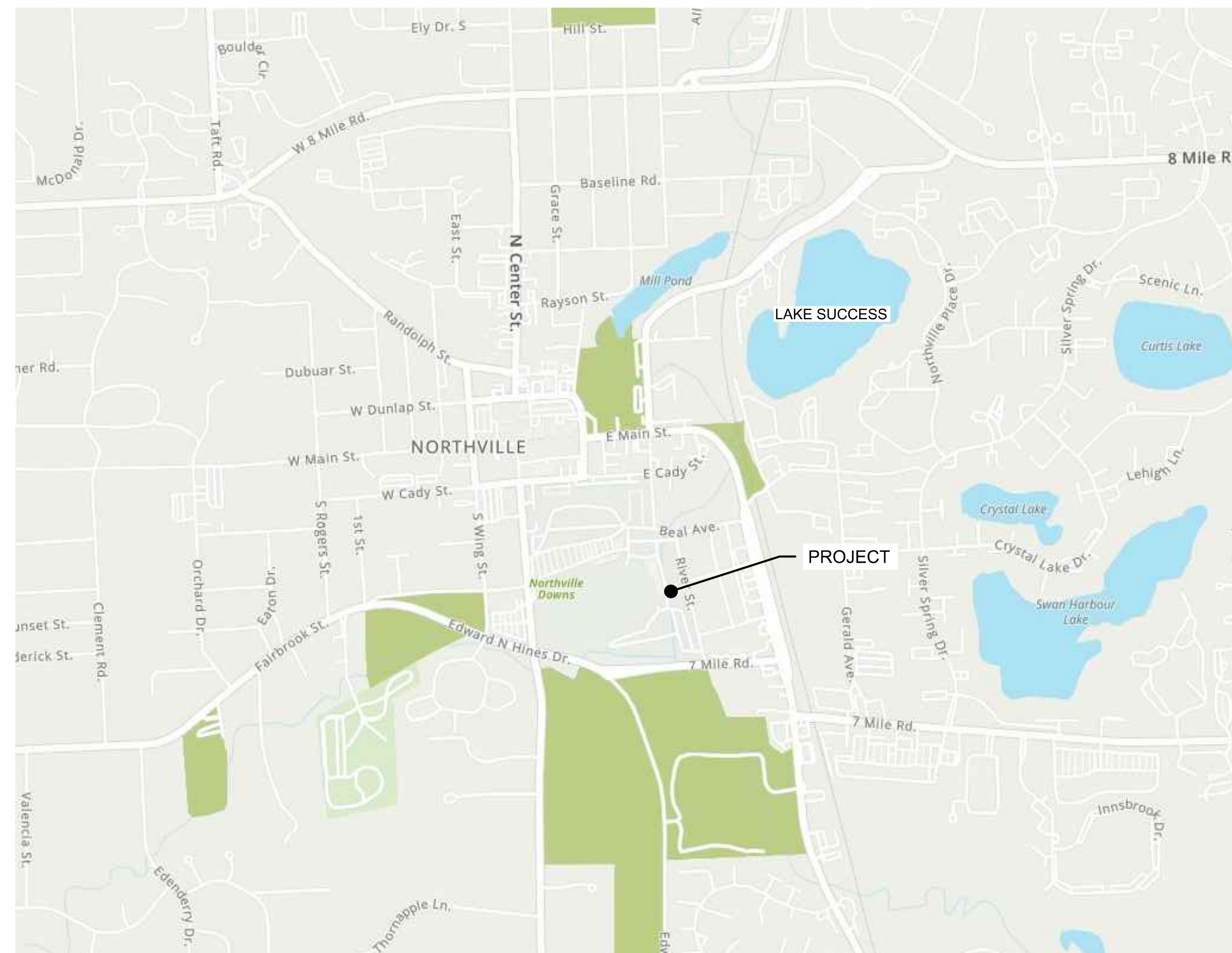
WALLED LAKE BRANCH OF THE ROUGE RIVER DAYLIGHTING

THE DOWNS

CITY OF NORTHVILLE, MICHIGAN



LOCATION MAP



VICINITY MAP
NOT TO SCALE

SHEET INDEX

SHEET	TITLE
G-01	COVER SHEET, INDEX AND VICINITY MAP
C-00	EXISTING CONDITIONS
C-01	PLAN AND PROFILE
C-02	FLOODPLAIN EXCAVATION PLAN
C-03	STABILIZATION PLAN
C-04	STABILIZATION DETAILS
C-05	STABILIZATION DETAILS
C-06	STABILIZATION DETAILS
C-07	RESTORATION PLAN
C-08	RESTORATION DETAILS
C-09	RESTORATION SECTIONS
C-10	RESTORATION SECTIONS

REFERENCING

LIMITS OF SECTION CUT

SECTION IDENTIFIER

SECTION REFERENCES
(SHEET SECTION IS LOCATED ON)

SECTION IDENTIFIER

SECTION: GRAPHICS STANDARDS

1"=1'-0"

SECTION REFERENCES
(SHEET SECTION IS CALLED-OUT ON)



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NOT FOR CONSTRUCTION

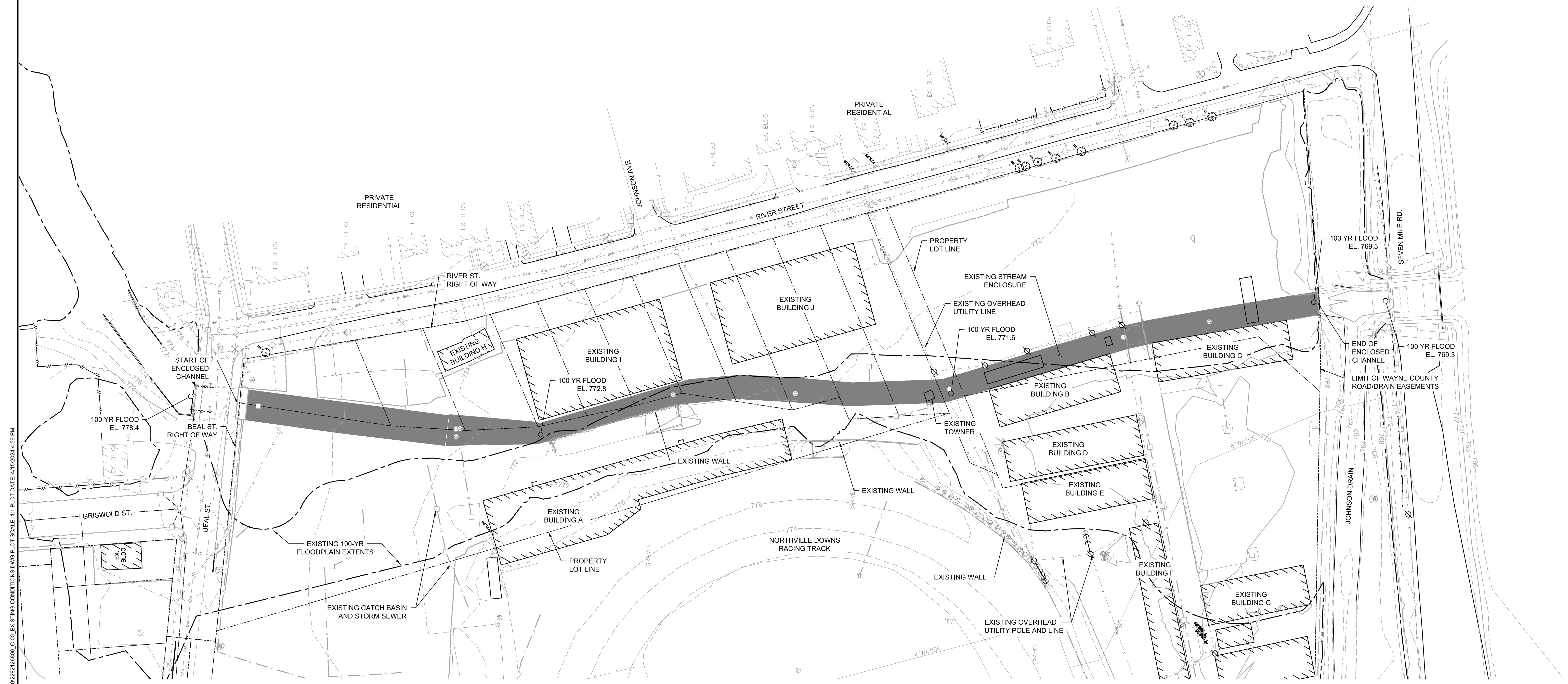
NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION

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PERMIT	10/30/23	11/08/23	11/15/23				
BID				04/15/24			
CONSTRUCTION							
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BARR Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277	Project Office: BARR ENGINEERING CO. 3005 BOARDWALK STREET SUITE 100 ANN ARBOR, MI 48108 Ph: 1-800-270-5017 Fax: (732) 922-4401 www.barr.com	Scale: AS SHOWN Date: 04/15/24 Drawn: MJJ Checked: PJH2 Designed: BARR Approved: MES2	HUNTER PASTEUR HOMES NORTHVILLE, LLC 32300 NORTHWESTERN HIGHWAY, SUITE 125 FARMINGTON HILLS, MI 48334	THE DOWNS NORTHVILLE, MICHIGAN COVER SHEET AND SHEET INDEX	BARR PROJECT No. 22821268.00 CLIENT PROJECT No. DWG. No. G-01 REV. No. 0
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EXISTING CONDITIONS LEGEND

---	PROPERTY LINE	█	EXISTING ENCLOSURE TO BE ABANDONED
- - - -	EXISTING EASEMENT	---	EXISTING ASPHALT
---	PROPERTY LOT LINE	- x - x - x -	EXISTING FENCE
— 920 —	EXISTING MAJOR CONTOUR	- u - u - u -	EXISTING OVERHEAD UTILITY
- - - 918 - - -	EXISTING MINOR CONTOUR	- st - st - st -	EXISTING STORMSEWER
---	EXISTING 100-YR FLOODPLAIN EXTENTS	- san - san - san -	EXISTING SANITARY SEWER



1 PLAN: EXISTING CONDITIONS
 0 50 100
 SCALE IN FEET

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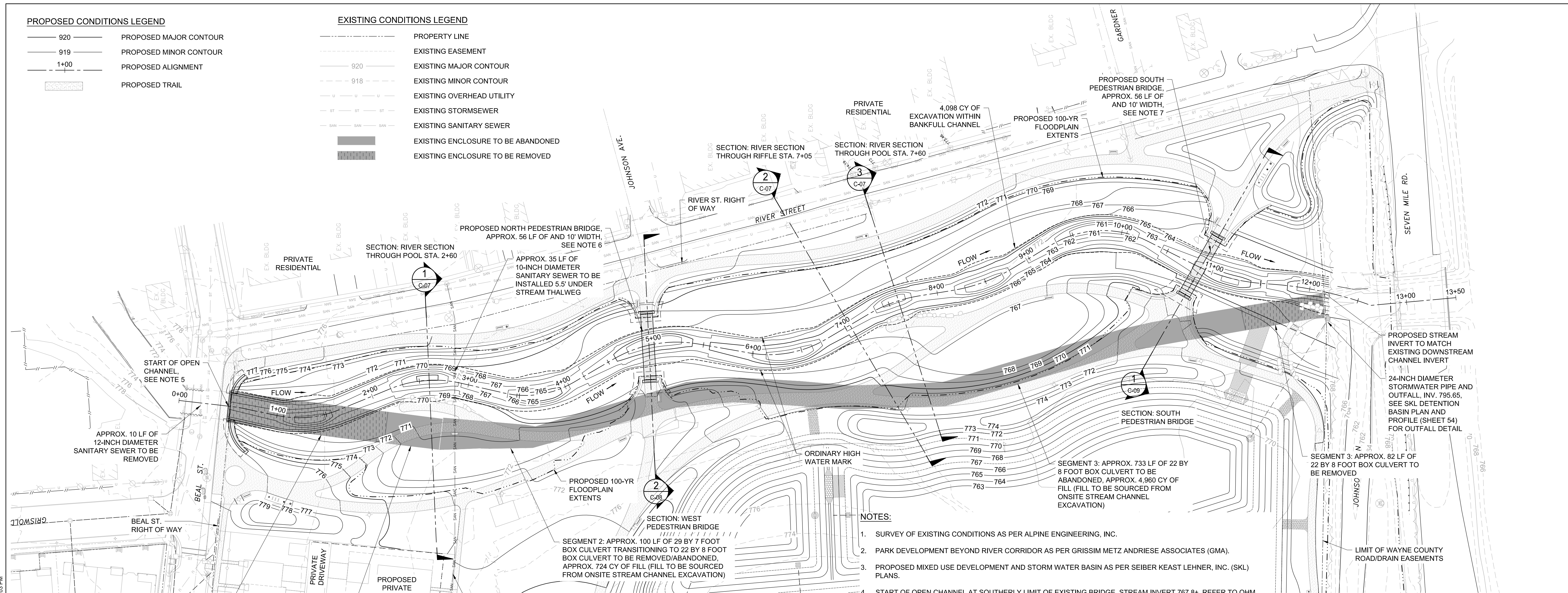
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PROPOSED CONDITIONS LEGEND

- 920 — PROPOSED MAJOR CONTOUR
- 919 — PROPOSED MINOR CONTOUR
- 1+00 — PROPOSED ALIGNMENT
- PROPOSED TRAIL

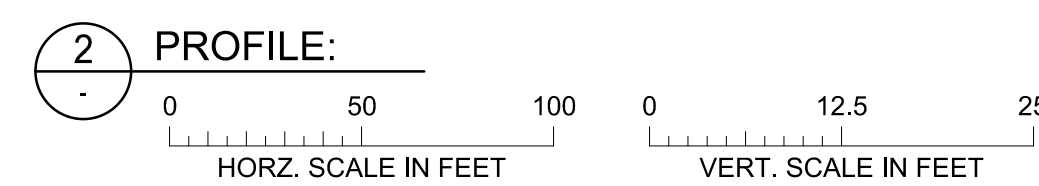
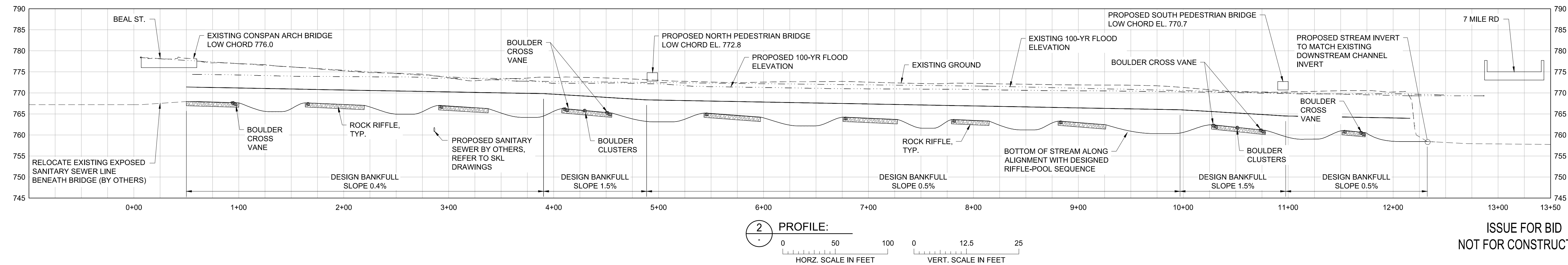
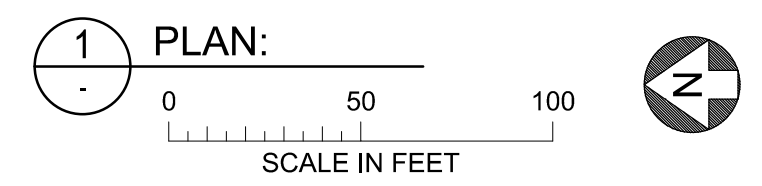
EXISTING CONDITIONS LEGEND

- — — — — PROPERTY LINE
- — — — — EXISTING EASEMENT
- 920 — EXISTING MAJOR CONTOUR
- 918 — EXISTING MINOR CONTOUR
- — — — — EXISTING OVERHEAD UTILITY
- — — — — EXISTING STORMSEWER
- — — — — EXISTING SANITARY SEWER
- ■ ■ ■ ■ EXISTING ENCLOSURE TO BE ABANDONED
- ■ ■ ■ ■ EXISTING ENCLOSURE TO BE REMOVED



- NOTES:**
1. SURVEY OF EXISTING CONDITIONS AS PER ALPINE ENGINEERING, INC.
 2. PARK DEVELOPMENT BEYOND RIVER CORRIDOR AS PER GRISSIM METZ ANDRIESE ASSOCIATES (GMA).
 3. PROPOSED MIXED USE DEVELOPMENT AND STORM WATER BASIN AS PER SEIBER KEAST LEHNER, INC. (SKL) PLANS.
 4. START OF OPEN CHANNEL AT SOUTHERLY LIMIT OF EXISTING BRIDGE. STREAM INVERT 767.8'. REFER TO OHM PLANS DATED 4/18/2008 FOR BEAL STREET OVER MIDDLE ROUGE RIVER AND CONTECH BRIDGE SOLUTIONS, INC. PLANS DATED 7/18/2008 FOR BEAL STREET OVER MIDDLE ROUGE RIVER FOR BRIDGE DETAILS AND SPECIFICATIONS.
 5. PROPOSED NORTH PEDESTRIAN BRIDGE. 60' CLEAR SPAN WITH LOW CHORD ELEVATION 772.8. REFER TO GMA PLANS FOR ADDITIONAL ABUTMENT AND PEDESTRIAN BRIDGE DETAIL.
 7. PROPOSED SOUTH PEDESTRIAN BRIDGE. 60' CLEAR SPAN WITH LOW CHORD ELEVATION 770.7. REFER TO GMA PLANS FOR ADDITIONAL ABUTMENT AND PEDESTRIAN BRIDGE DETAIL.
 8. CONTRIBUTING DRAINAGE AREA AT BEAL STREET 24.68 SQ MI. PER EGLE HSU REPORT DATED 08/04/2006.

STREAM IMPACT TABLE	
DESCRIPTION	VOLUME (CY)
CUT/EXCAVATION IN THE PROPOSED STREAM	4,098
FILL IN THE EXISTING ENCLOSED WATERWAY (SEGMENTS 1-3)	6,099



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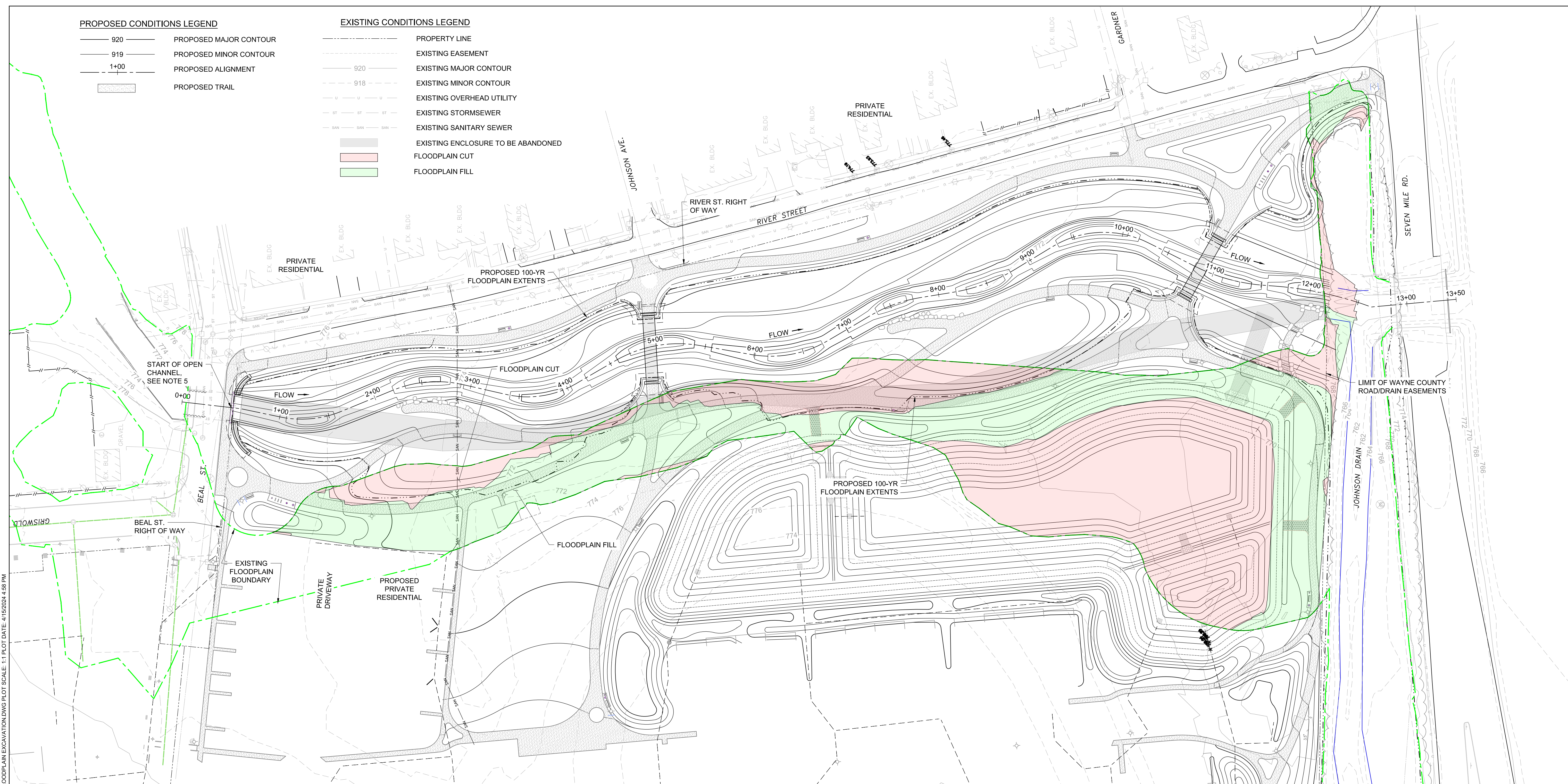
<p>HUNTER PASTEUR HOMES NORTHVILLE, LLC 32300 NORTHWESTERN HIGHWAY, SUITE 125 FARMINGTON HILLS, MI 48334</p>		<p>THE DOWNS NORTHVILLE, MICHIGAN STREAM PLAN AND PROFILE</p>		<p>BARR PROJECT No. 22821268.00 CLIENT PROJECT No. C-01</p>	
<p>Project Office: BARR ENGINEERING CO. 3005 BOARDWALK STREET SUITE 100 ANN ARBOR, MI 48108 Ph: 1-800-270-5017 Fax: (732) 922-4401 www.barr.com</p>		<p>Scale: AS SHOWN Date: 04/15/24 Drawn: MJJ Checked: PJH2 Designed: BARR Approved: MES2</p>		<p>DWG. No. C-01 REV. No. 0</p>	

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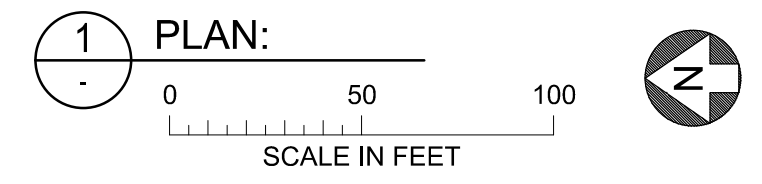
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- PROPOSED CONDITIONS LEGEND**
- 920 — PROPOSED MAJOR CONTOUR
 - 919 — PROPOSED MINOR CONTOUR
 - 1+00 — PROPOSED ALIGNMENT
 - PROPOSED TRAIL
- EXISTING CONDITIONS LEGEND**
- — PROPERTY LINE
 - — EXISTING EASEMENT
 - 920 — EXISTING MAJOR CONTOUR
 - 918 — EXISTING MINOR CONTOUR
 - — EXISTING OVERHEAD UTILITY
 - — EXISTING STORMSEWER
 - — EXISTING SANITARY SEWER
 - — EXISTING ENCLOSURE TO BE ABANDONED
 - FLOODPLAIN CUT
 - FLOODPLAIN FILL



FLOODPLAIN IMPACT TABLE		
DESCRIPTION	VOLUME (CY)	IMPACT AREA (Ac.)
CUT/EXCAVATION BELOW 100-YR FLOODPLAIN ELEVATION	9,740	1.63
FILL BELOW 100-YR FLOODPLAIN ELEVATION	3,650	1.37



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CONSTRUCTION						
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Scale	AS SHOWN
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Approved	MES2

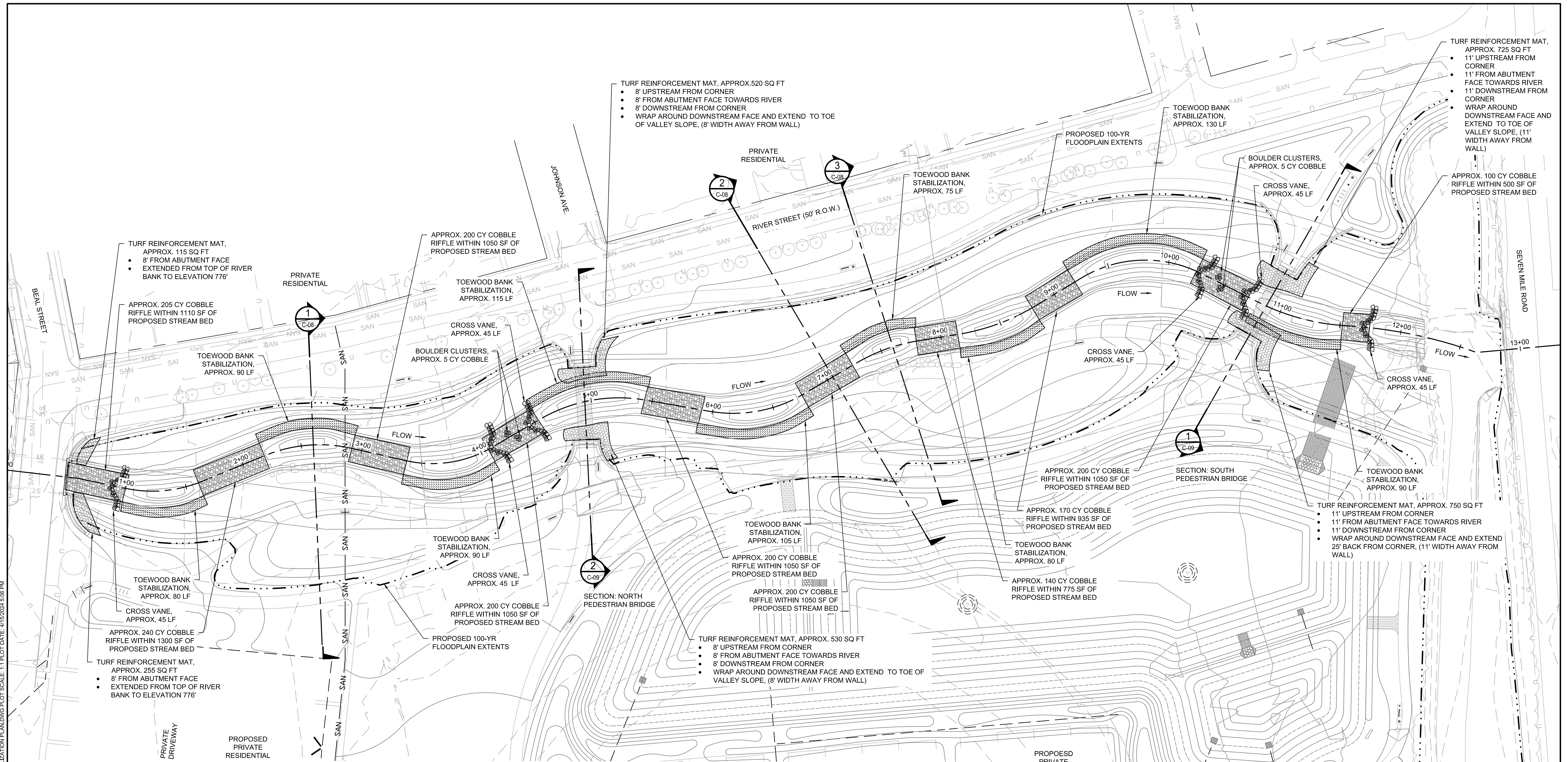
**HUNTER PASTEUR HOMES
 NORTHVILLE, LLC**
 32300 NORTHWESTERN HIGHWAY, SUITE 125
 FARMINGTON HILLS, MI 48334

**THE DOWNS
 NORTHVILLE, MICHIGAN**
**FLOODPLAIN
 EXCAVATION PLAN**

BARR PROJECT No. 22821268.00	
CLIENT PROJECT No.	
DWG. No. C-02	REV. No. 0

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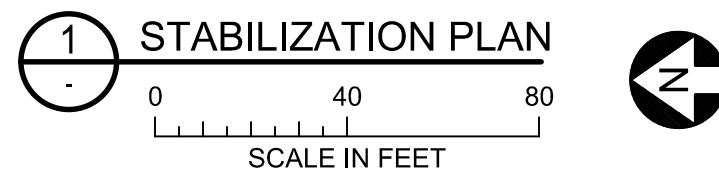
PROPOSED CONDITIONS LEGEND

- 920 PROPOSED MAJOR CONTOUR
- 919 PROPOSED MINOR CONTOUR
- 1+00 PROPOSED ALIGNMENT
- TOE WOOD
- BOULDER CROSS VANE
- ROCK RIFFLE
- TURF REINFORCED MAT (TRM)
- BOULDER CLUSTERS

* SEE SHEET C-03 & C-04 FOR STABILIZATION STRUCTURE DETAILS

EXISTING CONDITIONS LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EXISTING EASEMENT
- 920 EXISTING MAJOR CONTOUR
- 918 EXISTING MINOR CONTOUR
- U EXISTING OVERHEAD UTILITY
- ST EXISTING STORMSEWER
- SAN EXISTING SANITARY SEWER



NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION

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Checked	PJH2
Designed	PJH2
Approved	MES2

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 NORTHVILLE, LLC
 32300 NORTHWESTERN HIGHWAY, SUITE 125
 FARMINGTON HILLS, MI 48334

THE DOWNS
 NORTHVILLE, MICHIGAN
 STREAM
 STABILIZATION PLAN

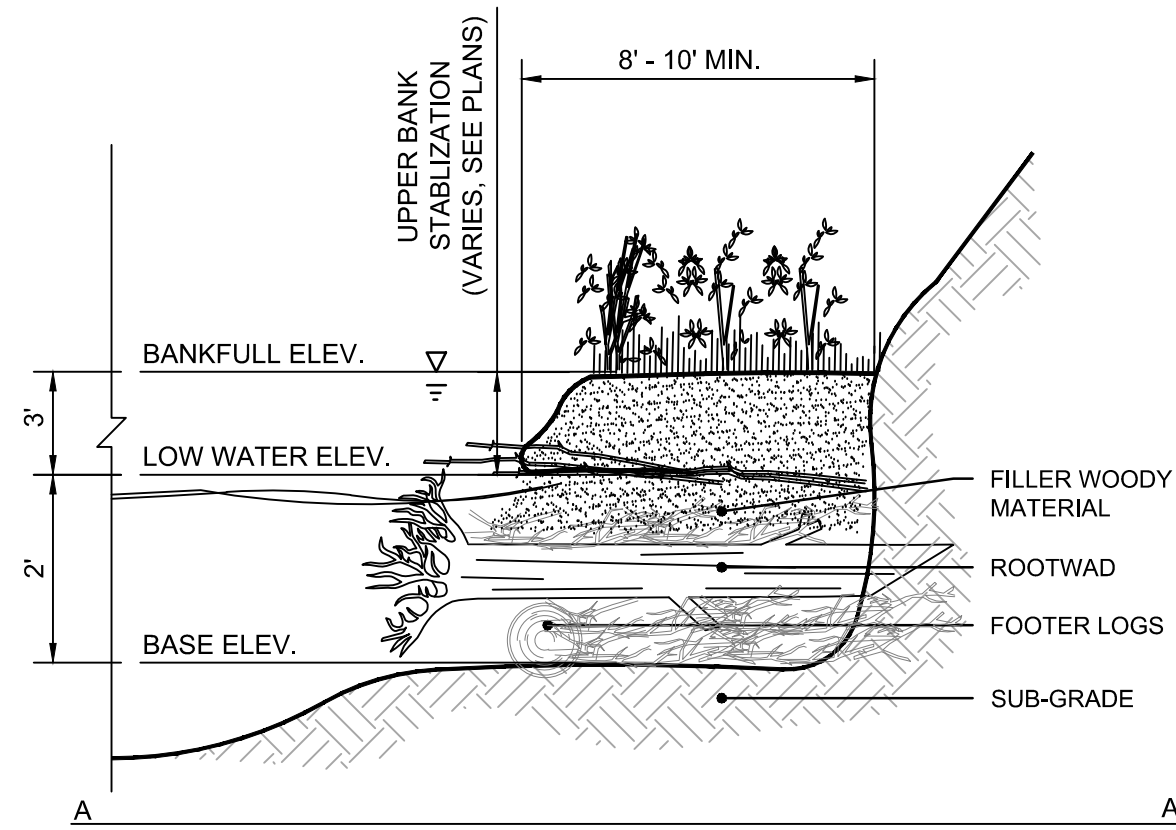
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CLIENT PROJECT No.	
DWG. No.	C-03
REV. No.	0

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1. INSTALLATION SUMMARY

DESIGN CONSULTANT MUST BE PRESENT FOR INSTALLATION OF TOEWOOD.

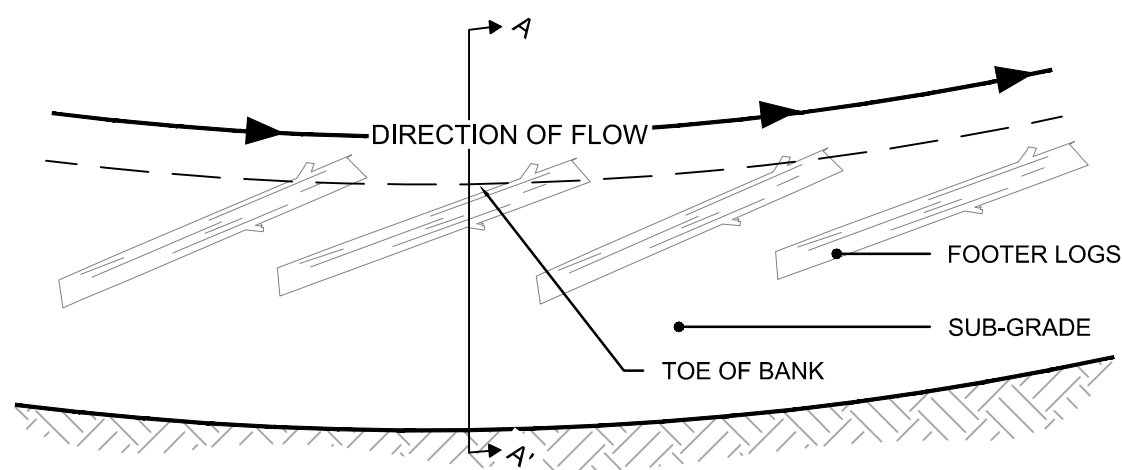
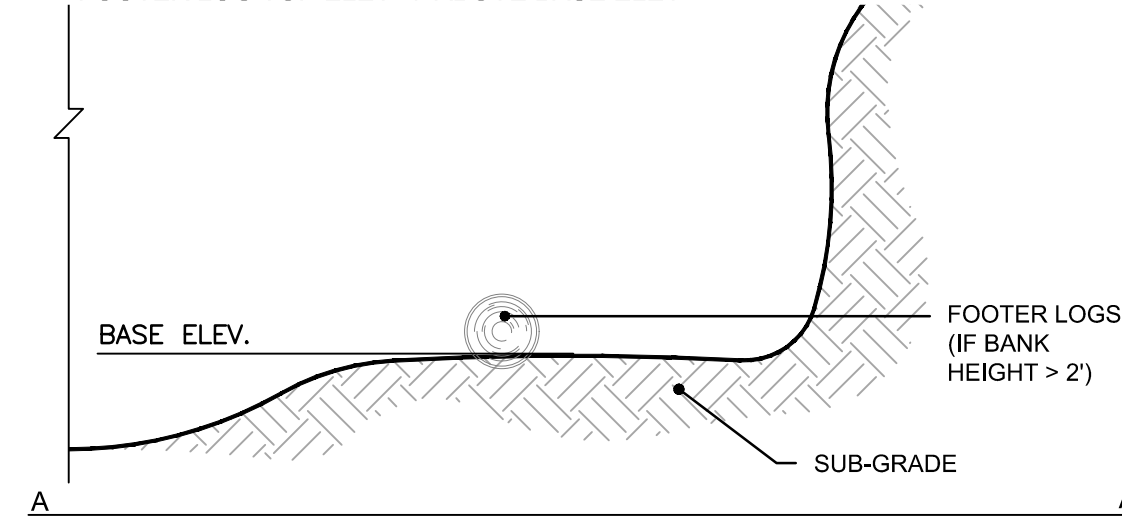
THE SCHEMATICS ON THIS PAGE ARE NOT TO SCALE.



2. SUBGRADE AND FOOTER LOGS

SPECIFICATION:
 - 8" TO 1" DIAMETER
 - LIMBS REMOVED
 - APPROX 12' LENGTH

PLACEMENT:
 - EXCAVATE BENCH OR TRENCHES TO BASE ELEVATION - CONTRACTOR SHALL MAKE EFFORT TO SEPARATE GRANULAR AND FINE FILL NATIVE MATERIAL FOR USE IN STEPS 4 AND 6.
 - FOOTER LOGS NOT USED FOR POOL DEPTH < 2.5'
 - PLACE ONE FOOTER LOG (IF USED) PER ROOT WAD
 - PLACE FOOTER LOGS (IF USED) 30 DEGREES FROM PARALLEL TO STREAM FLOW WITH UPSTREAM END EMBEDDED IN STREAM BANK AT LEAST 50% OF LOG LENGTH (PLAN VIEW BELOW)
 - FOOTER LOG TOP ELEV. 1' ABOVE BASE ELEV.

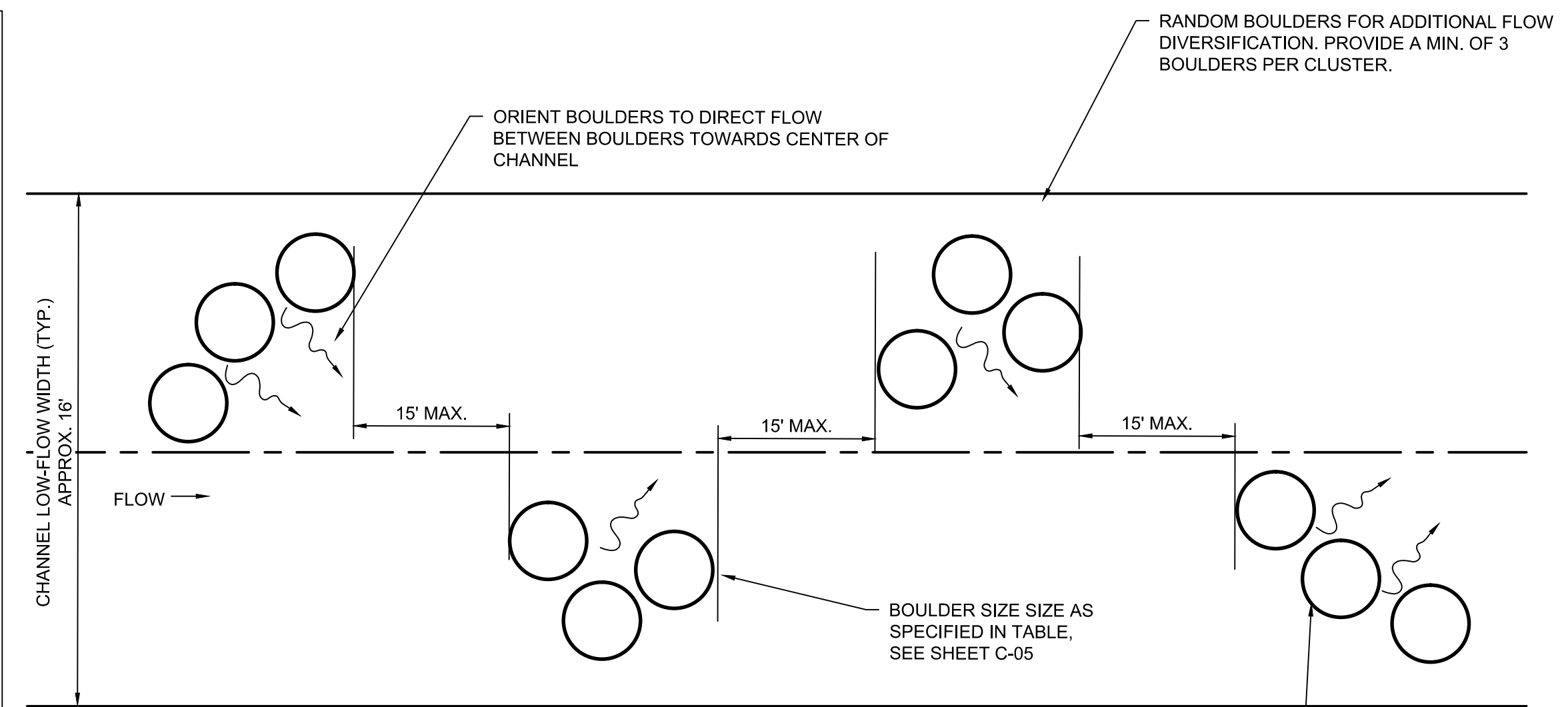
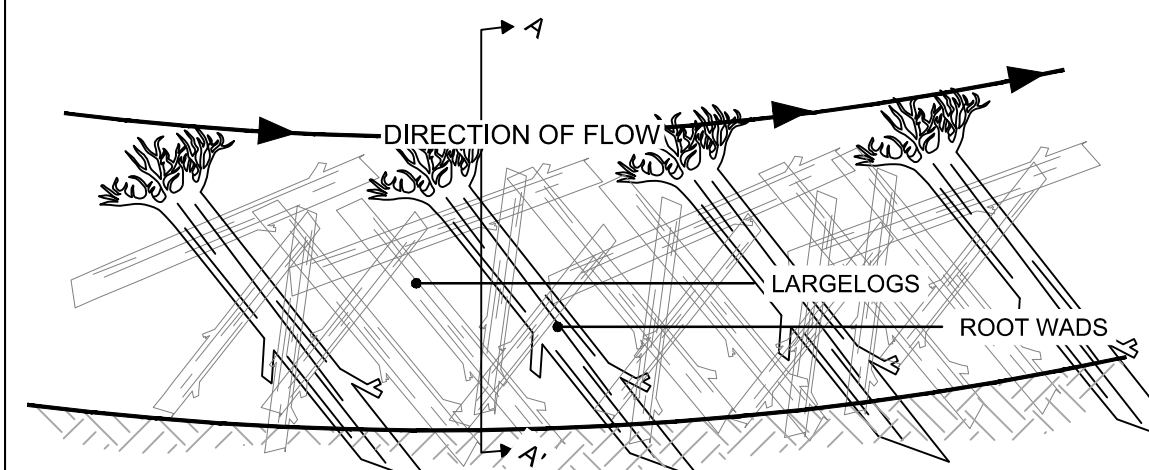
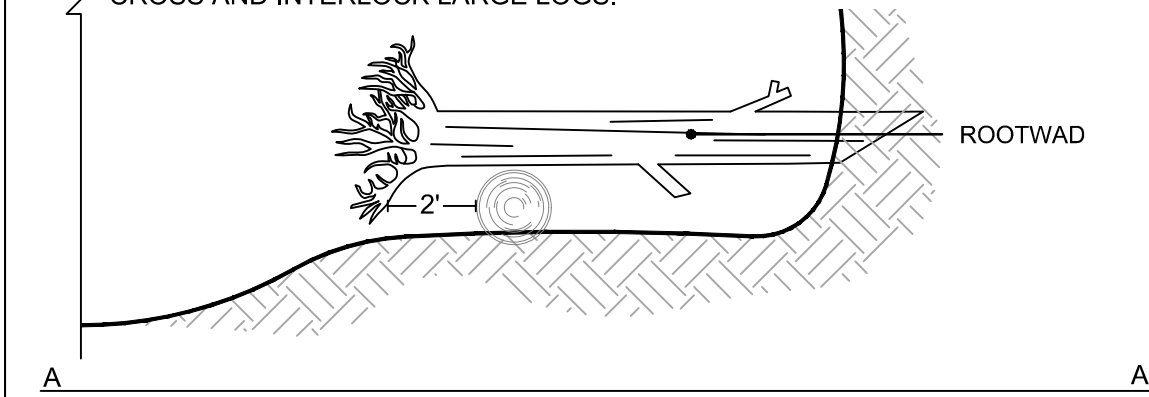


3. ROOT WADS & LARGE LOGS

ROOT WAD SPECIFICATION:
 - 8" MIN DIAMETER, MAX DIAMETER EQUAL TO BANK HEIGHT
 - LENGTH INDICATED IN DESIGN CROSS SECTION OR 8' MIN.
 - LIMBS REMOVED
 - ROOT WADS LEFT INTACT, 4" MIN ROOT FAN DIAMETER
 - ENDS SHARPENED TO A POINT

LARGE LOG SPECIFICATION:
 - 8" MIN DIAMETER, MAX DIAMETER EQUAL TO BANK HEIGHT
 - LENGTH SIMILAR TO ROOT WAD LOGS

PLACEMENT:
 - PLACE ROOT WADS HORIZONTALLY ON TOP OF FOOTER LOGS (IF USED), OVERHANG ROOT WAD LOGS 2'
 - ANGLE ROOTWADS UPSTREAM
 - DRIVE SHARPENED TRUNKS MIN. 3' INTO BANK OR DIG IN.
 - SPACE ROOTWADS 8' O.C. (TYP)
 - PLACE 5 TO 7 LARGE LOGS BETWEEN ROOT WADS, CROSS AND INTERLOCK LARGE LOGS.



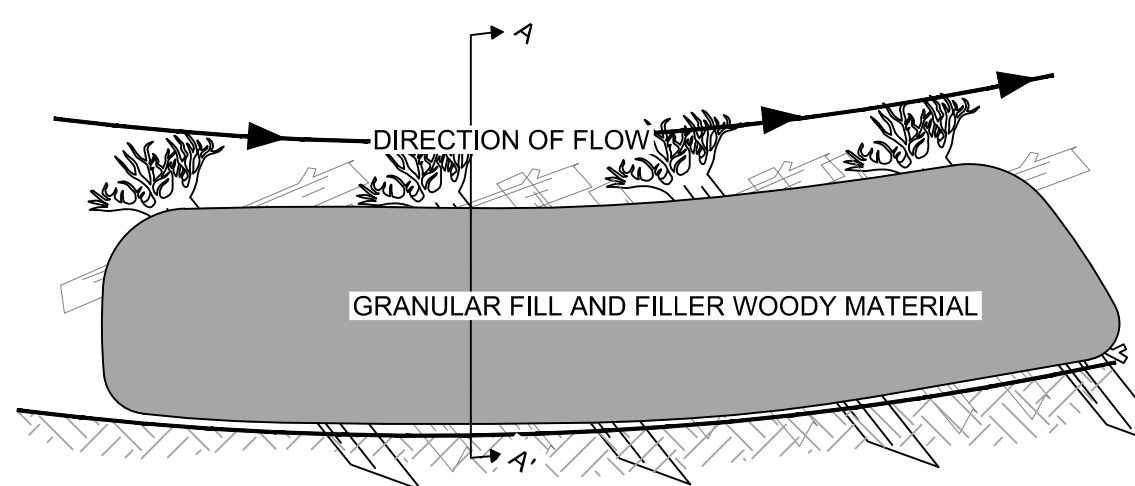
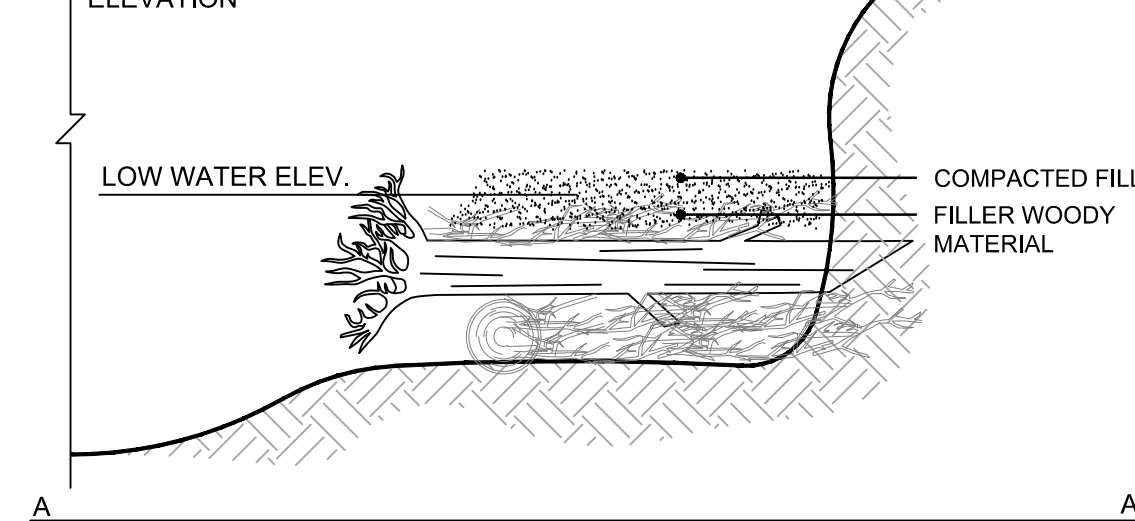
- NOTES:**
- NUMBER OF BOULDER CLUSTERS AS NOTED ON STREAM STABILIZATION PLAN
 - SPACING TO BETWEEN BOULDERS OF A SINGLE CLUSTER TO BE 6" - 12" APART.

2 **DETAIL: BOULDER CLUSTERS**
 NOT TO SCALE

4. FILLER WOODY MATERIAL & GRANULAR FILL

SPECIFICATION:
 - FILLER WOODY MATERIAL (COMPOSED OF SMALL LIMBS AND BRANCHES, APPROX. 4" MAX DIAMETER AND SMALLER)
 - DO NOT USE ROTTEN WOODY MATERIAL
 - NATIVE GRANULAR FILL

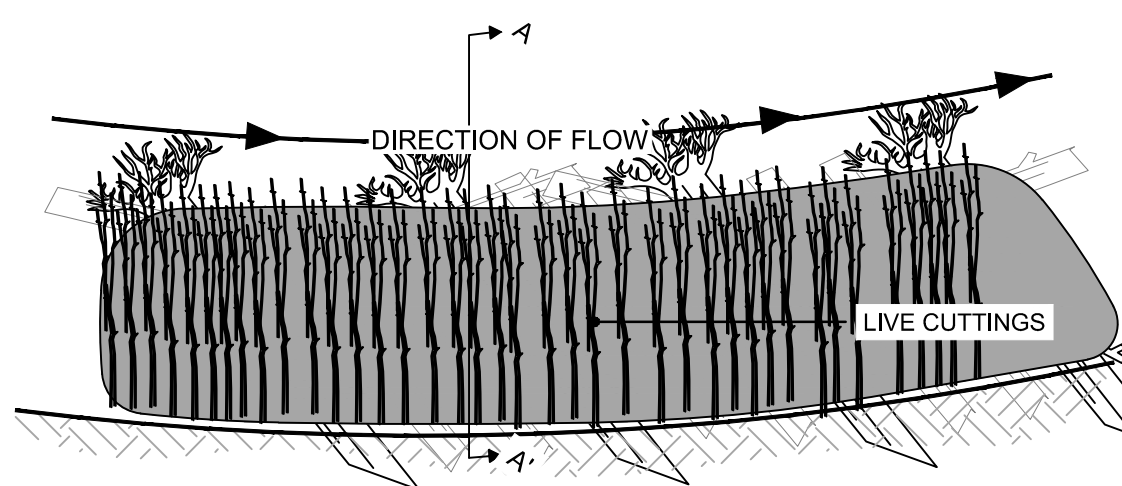
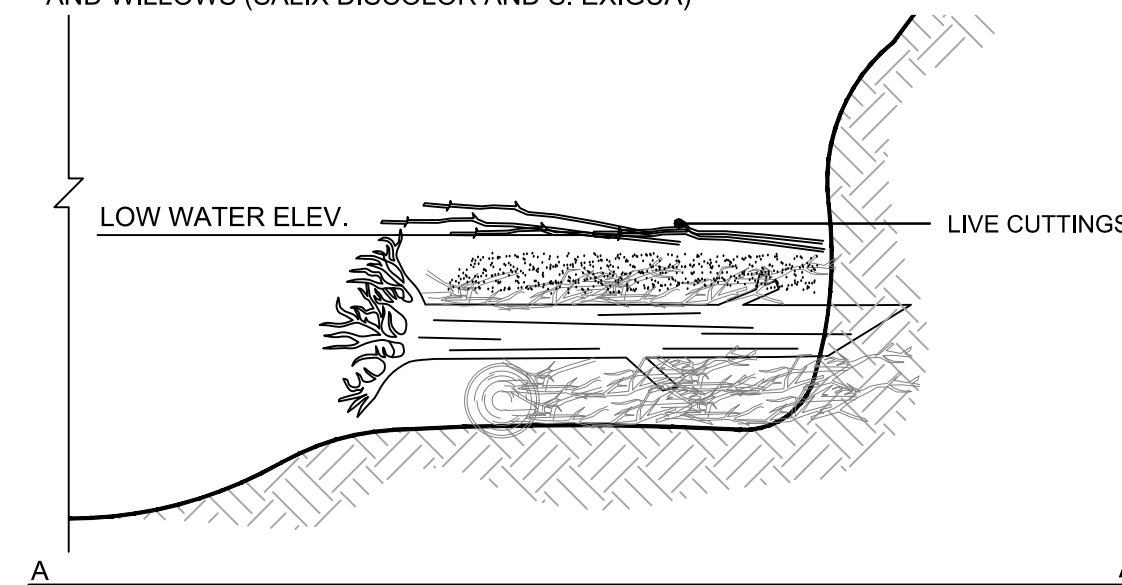
PLACEMENT:
 - FILL BETWEEN FOOTER LOGS AND ROOTWADS WITH FILLER WOODY MATERIAL
 - STACK FILLER WOODY MATERIAL TO LOW WATER ELEVATION
 - LAYER NATIVE GRANULAR FILL ON TOP OF FILLER WOODY MATERIAL AND TO REDUCE VOIDS
 - COMPACT SO THAT SETTLING OF FILL IS MINIMIZED BUT DEBRIS IS NOT DISPLACED
 - COMPACTED FILL WILL MEET 2"-5" ABOVE LOW WATER ELEVATION



5. LIVE CUTTINGS

SPECIFICATION:
 - 1/2"-1.5" DIAMETER
 - 4' MIN LENGTH
 - DORMANT LIVE CUTTING

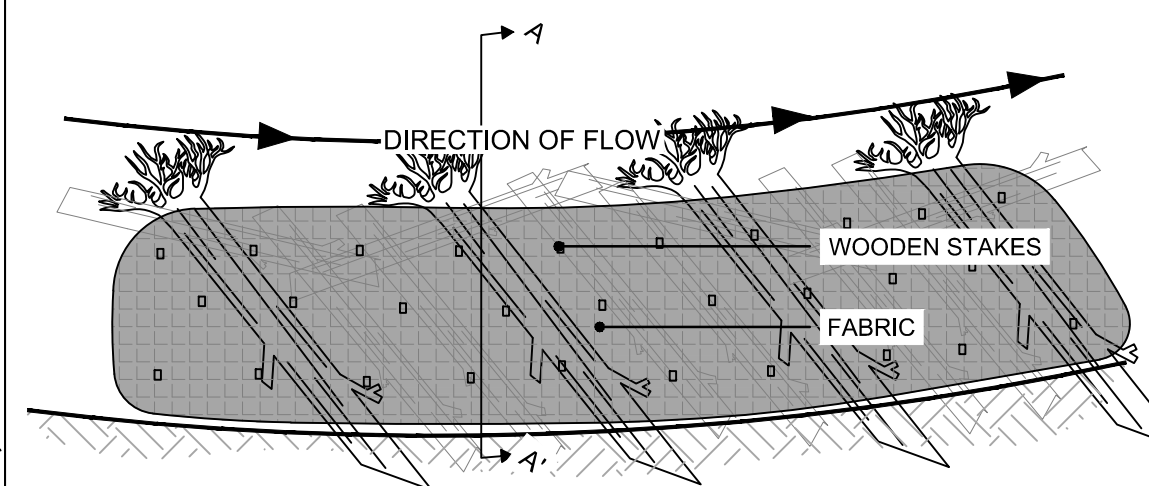
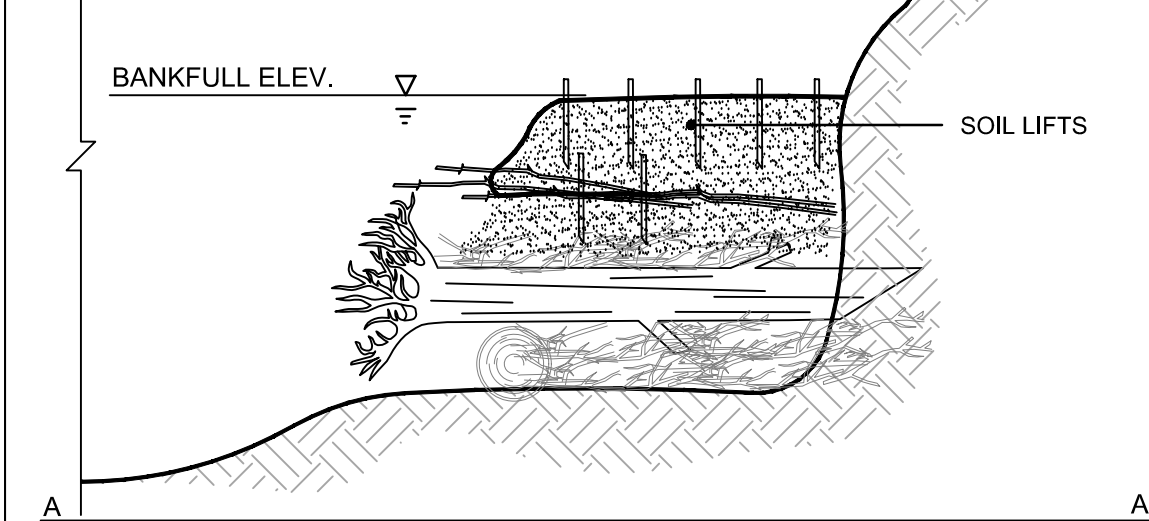
PLACEMENT:
 - LAY CUTTINGS WITH A DENSITY OF 2-3 CUTTINGS PER LINEAL FOOT
 - TOPS OF CUTTING POINT TOWARD CHANNEL, BUDS RIGHT SIDE UP
 - TRIM EXPOSED ENDS OF CUTTINGS, LEAVE 6-12" EXPOSED
 - DEPOSIT NATIVE FILL OVER CUTTINGS AND WATER LIBERALLY, COMPRESS FILL TO 2"-4" FINAL THICKNESS
 - LIVE CUTTINGS TO BE DOGWOODS (CORNUS AMOMUM AND C. FOEMINA) AND WILLOWS (SALIX DISCOLOR AND S. EXIGUA)



6. SOIL LIFTS

SPECIFICATION:
 - COMMON FILL (LOWER LIFTS) AND COMMON TOPSOIL (UPPER 6")
 - USE 1" TALL FORMS
 - MIN 6.5" WIDE ROLANKA BIOMAT 90, GEOCOIR 900, OR APPROVED SUBSTITUTE LINED WITH BIONET C125BN OR APPROVED SUBSTITUTE
 - 18" WOODEN STAKES (2X4 CUT AT ANGLE), PLACED AT 3' SPACING

PLACEMENT:
 - PLACE FORM OVER LIVE CUTTINGS
 - LAY MIN 2.5' OF FABRIC (COCONUT BLANKET AND LINER) ALONG BENCH, STAKE DOWN
 - PLACE FILL ON TOP OF MAT AND COMPACT TO GRADE OR 1" MAX LIFT HEIGHT
 - INSTALL SPECIFIED SEED MIX
 - WRAP FILL TIGHTLY WITH REMAINING BLANKET AND SECURE WITH STAKES
 - FOR MULTIPLE LIFTS, REPEAT LIVE CUTTINGS BETWEEN LIFTS, SEE #5
 - REPEAT AS NEEDED UNTIL BANKFULL ELEVATION IS MET, STEP EACH LIFT BACK 1'

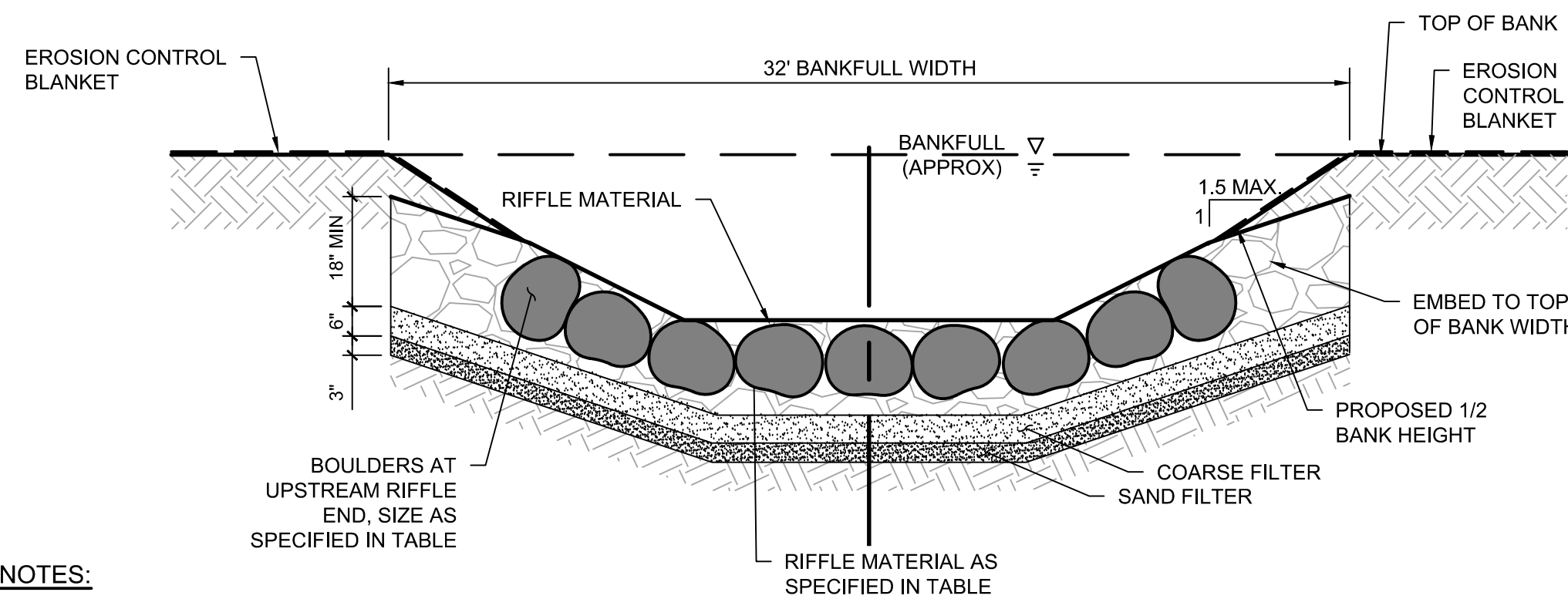


1 **DETAIL: TOE WOOD**
 NOT TO SCALE

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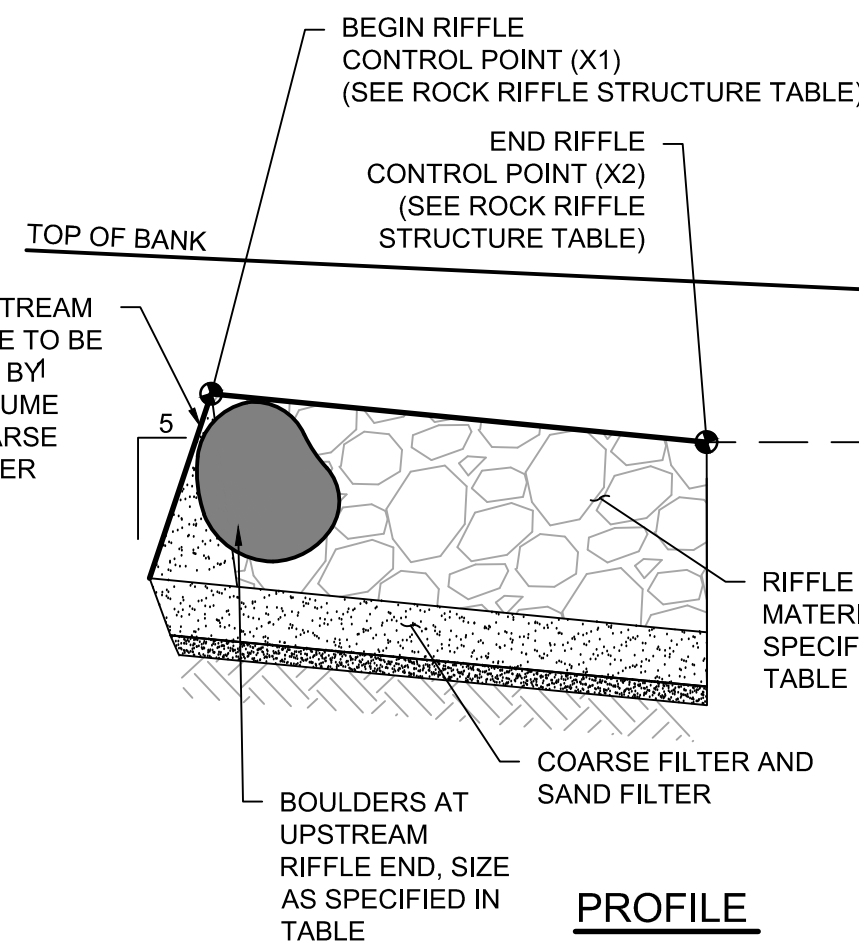
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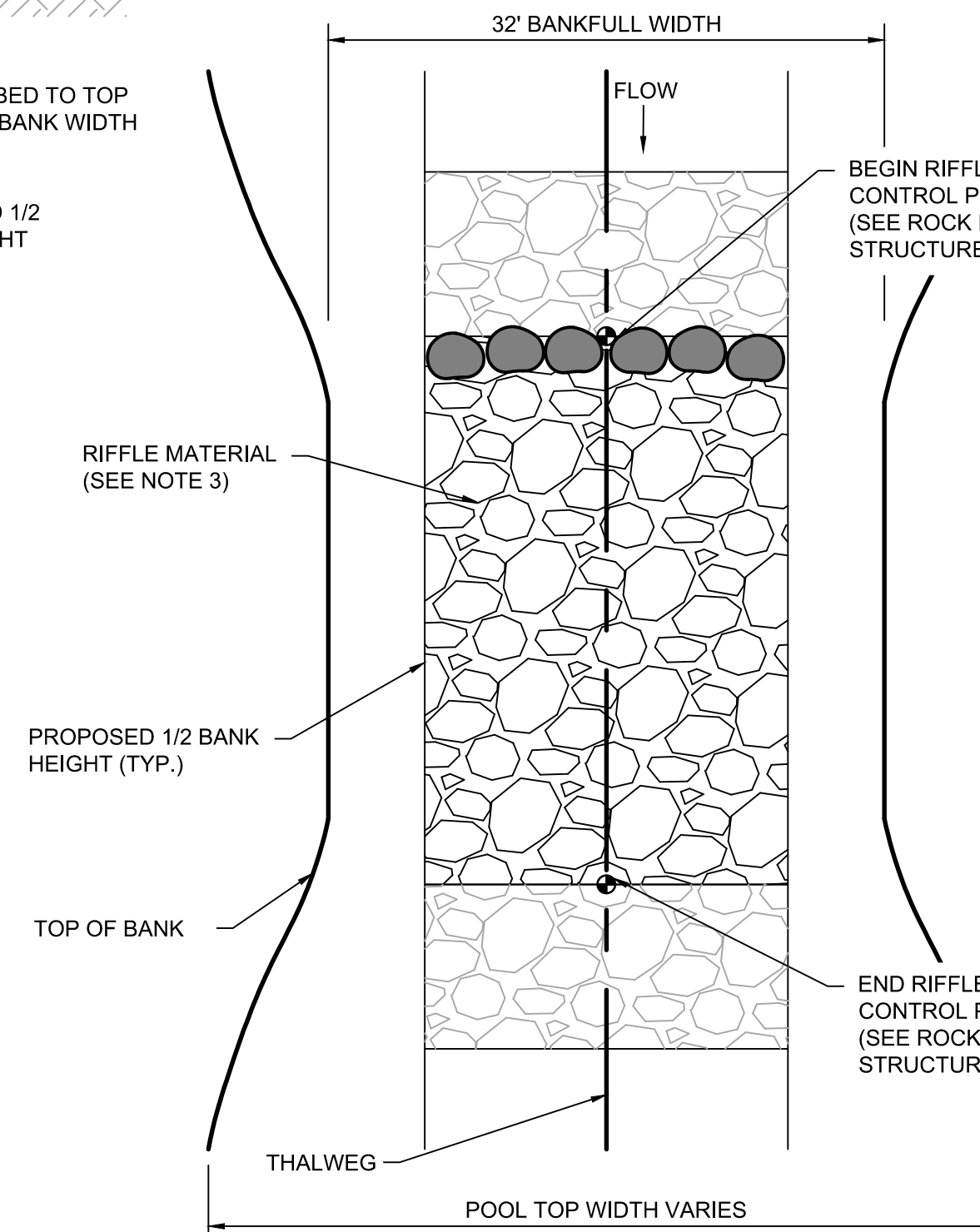
RIFFLE CROSS SECTION

NOTES:

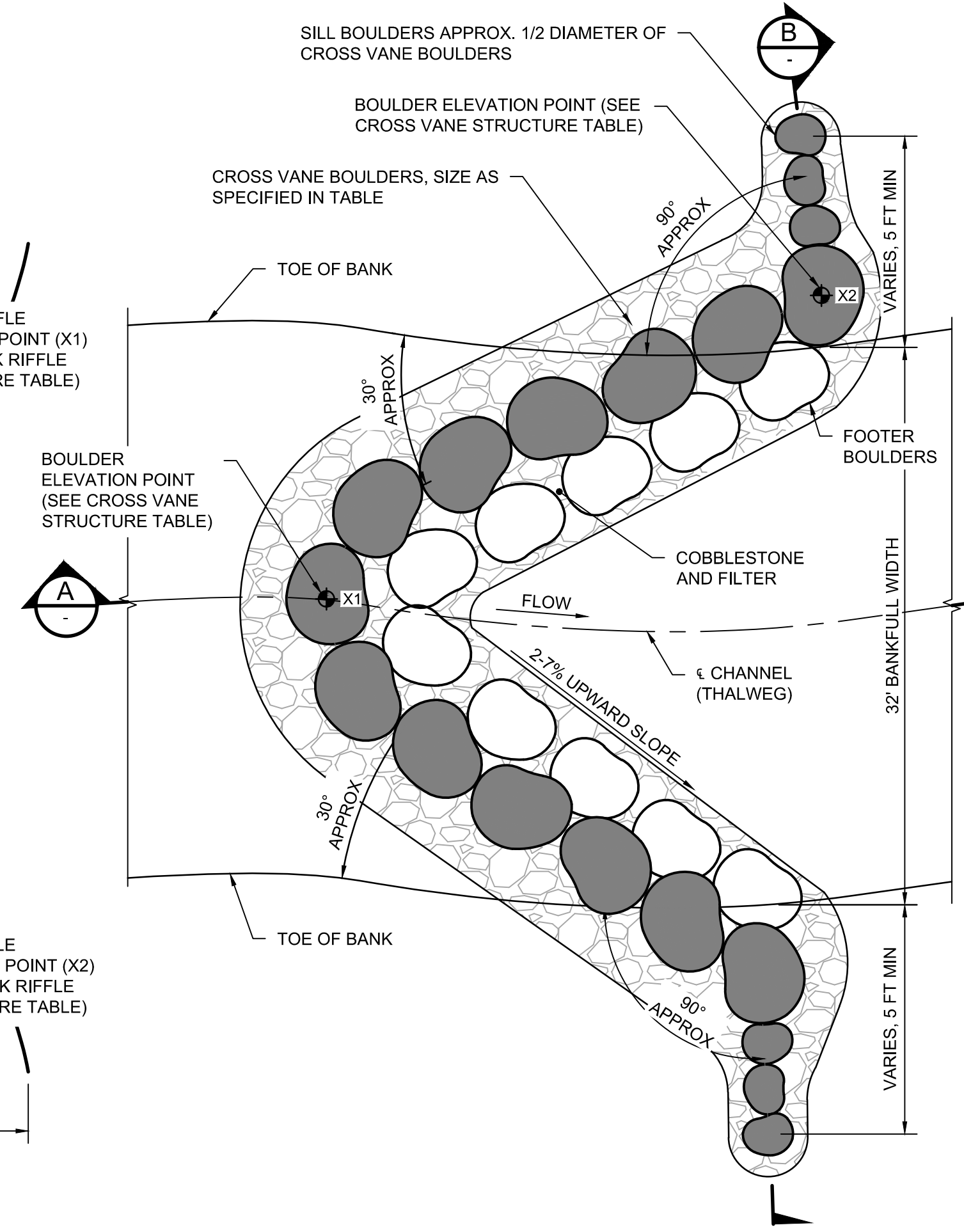
1. CONSTRUCTED RIFFLES SHALL BE INSTALLED IN NEWLY GRADED CHANNEL SECTION.
2. ELEVATION CONTROL POINTS SHALL BE DESIGNATED AT THE BEGINNING AND END OF RIFFLE POINTS TO ESTABLISH PART OF THE PROFILE OF THE CHANNEL. SURVEY OF CONTROL POINTS SHALL BE REQUIRED TO ESTABLISH ACCURATE RIFFLE INSTALLATION.
3. RIFFLE MATERIAL SHALL BE OF A TYPE, SIZE, AND GRADATION AS SPECIFIED (SEE TABLE).
4. BOULDERS AT UPSTREAM RIFFLE END ARE INCIDENTAL TO ROCK RIFFLE CONSTRUCTION.
5. THE FACE OF THE RIFFLE UPSTREAM OF THE BEGIN RIFFLE CONTROL POINT SHALL BE 50% BY VOLUME COARSE FILTER AGGREGATE TO REDUCE VOID SPACES. FILTER AGGREGATE SHALL BE INCIDENTAL TO THE RIFFLE MATERIAL.
6. THE PLACEMENT OF BACKFILL AND/OR RIFFLE MATERIAL SHALL BE DONE IN A MANNER TO CREATE A SMOOTH PROFILE, WITH NO ABRUPT 'JUMP' (TRANSITION) BETWEEN THE UPSTREAM POOL-Glide AND THE RIFFLE, AND LIKEWISE NO ABRUPT 'DROP' (TRANSITION) BETWEEN THE RIFFLE AND THE DOWNSTREAM RUN-POOL. ALSO A THALWEG SHALL BE FASHIONED WITHIN THE RIFFLE WIDTH SO THAT THE FINISHED CROSS SECTION OF THE RIFFLE MATERIAL MATCHES THE SHAPE AND DIMENSIONS SHOWN ON THE RIFFLE TYPICAL SECTION.
7. SURFACE LAYER OF COBBLESTONE AREA TO INCLUDE ADDITIONAL 0.17 CY COARSE FILTER PER SY COBBLESTONE AREA TO FILL VOIDS IN SURFACE COBBLESTONE.
8. FOR RIFFLES CONSTRUCTED WITH WITH CROSS VANE - DOUBLE BOULDER, REPLACE BOULDERS AT UPSTREAM RIFFLE END WITH CROSS VANE - DOUBLE BOULDER.



PROFILE



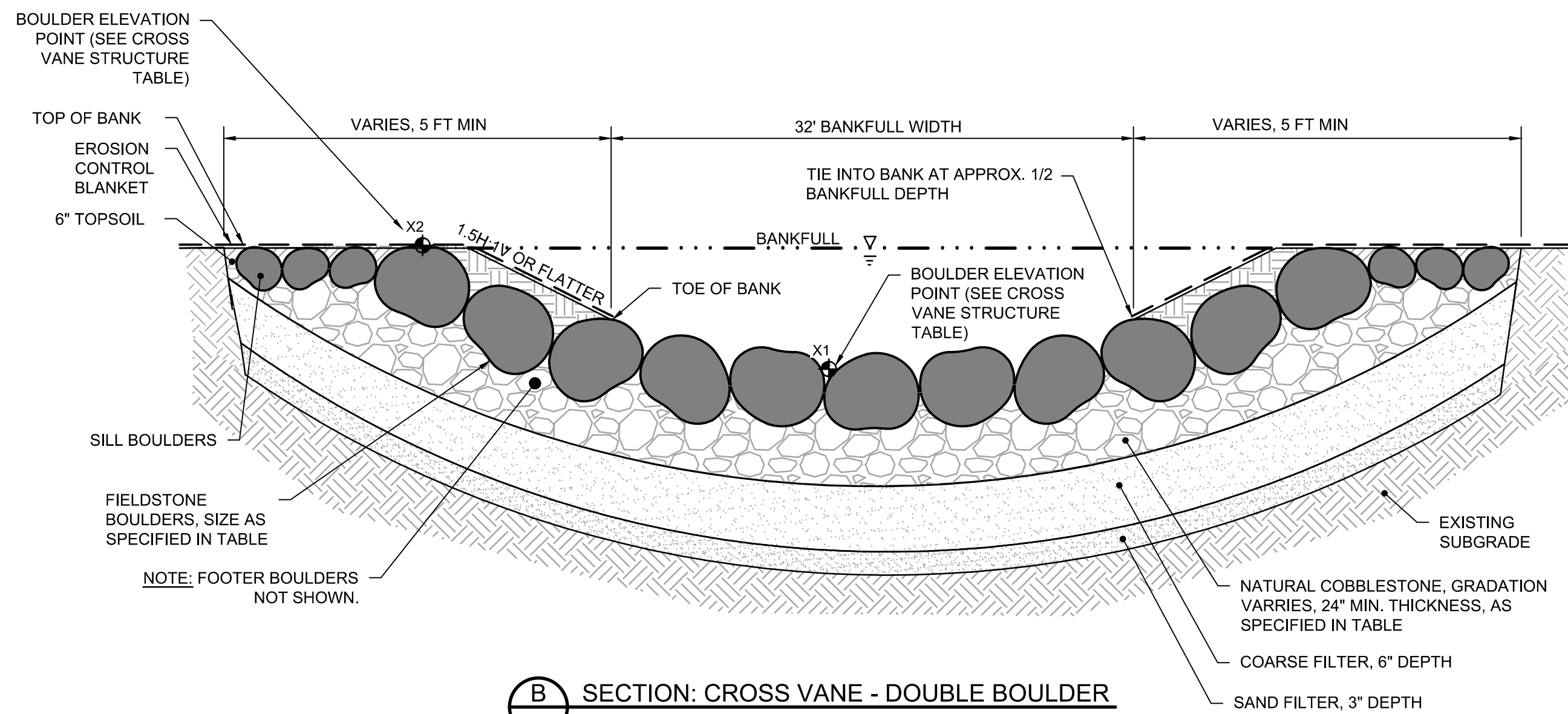
DETAIL: ROCK RIFFLE
NOT TO SCALE



DETAIL: CROSS VANE - DOUBLE BOULDER

STRUCTURE TABLE				
	STATION START	STATION END	EL. AT X1	EL. AT X2
ROCK RIFFLE STRUCTURE	0+50.00	1+00.00	767.9	767.6
	1+63.71	2+19.75	767.6	767.0
	2+89.90	3+37.90	767.0	766.2
	4+07.74 (2)	4+55.47	766.2	765.2
	5+44.33	5+97.29	765.2	764.2
	6+77.14	7+27.65	764.2	763.7
	7+80.69	8+14.92	763.7	763.3
	8+80.66	9+26.31	763.3	762.4
	10+26.17 (2)	10+78.53	762.4	761.1
	11+53.02	11+73.69	761.1	760.6
STATION START			EL. AT X1	EL. AT X2
CROSS VANE STRUCTURE	0+87.37		767.7	771.4
	4+08.23		766.3	769.3
	4+43.50		765.5	768.9
	10+25.35		762.4	765.5
	10+65.48		761.4	764.8
11+67.71		760.7	764.1	
STATION START		STATION END	LENGTH (LF)	
1+00.00		2+19.75	63.7	
2+19.75		2+91.15	110.9	
3+37.1		4+09.14	47.2	
4+55.47		5+44.92	101.4	
5+97.29		6+77.13	175.4	
7+27.65		7+80.69	108.3	
8+14.92		8+81.91	96.8	
9+25.98		10+27.29	54.3	
10+78.73		11+53.35	133.1	
POOL STATIONING (1)	STATION		MAX DEPTH EL.	MAX DEPTH FROM BANKFULL (FT)
	1+40.57		765.54	5.4
	2+64.4		764.93	5.5
	3+81.96		764.18	5.7
	4+95.75		763.11	5.2
	6+47.62		762.15	5.5
	7+61.62		761.59	5.5
	8+56.53		761.2	5.4
	9+92.26		760.34	5.7
	11+13.53		758.98	5.5
12+04.79		758.45	5.6	
POOL DEPTH				
	STATION		MAX DEPTH EL.	MAX DEPTH FROM BANKFULL (FT)
	1+40.57		765.54	5.4
	2+64.4		764.93	5.5
	3+81.96		764.18	5.7
	4+95.75		763.11	5.2
	6+47.62		762.15	5.5
	7+61.62		761.59	5.5
	8+56.53		761.2	5.4
	9+92.26		760.34	5.7
11+13.53		758.98	5.5	
12+04.79		758.45	5.6	

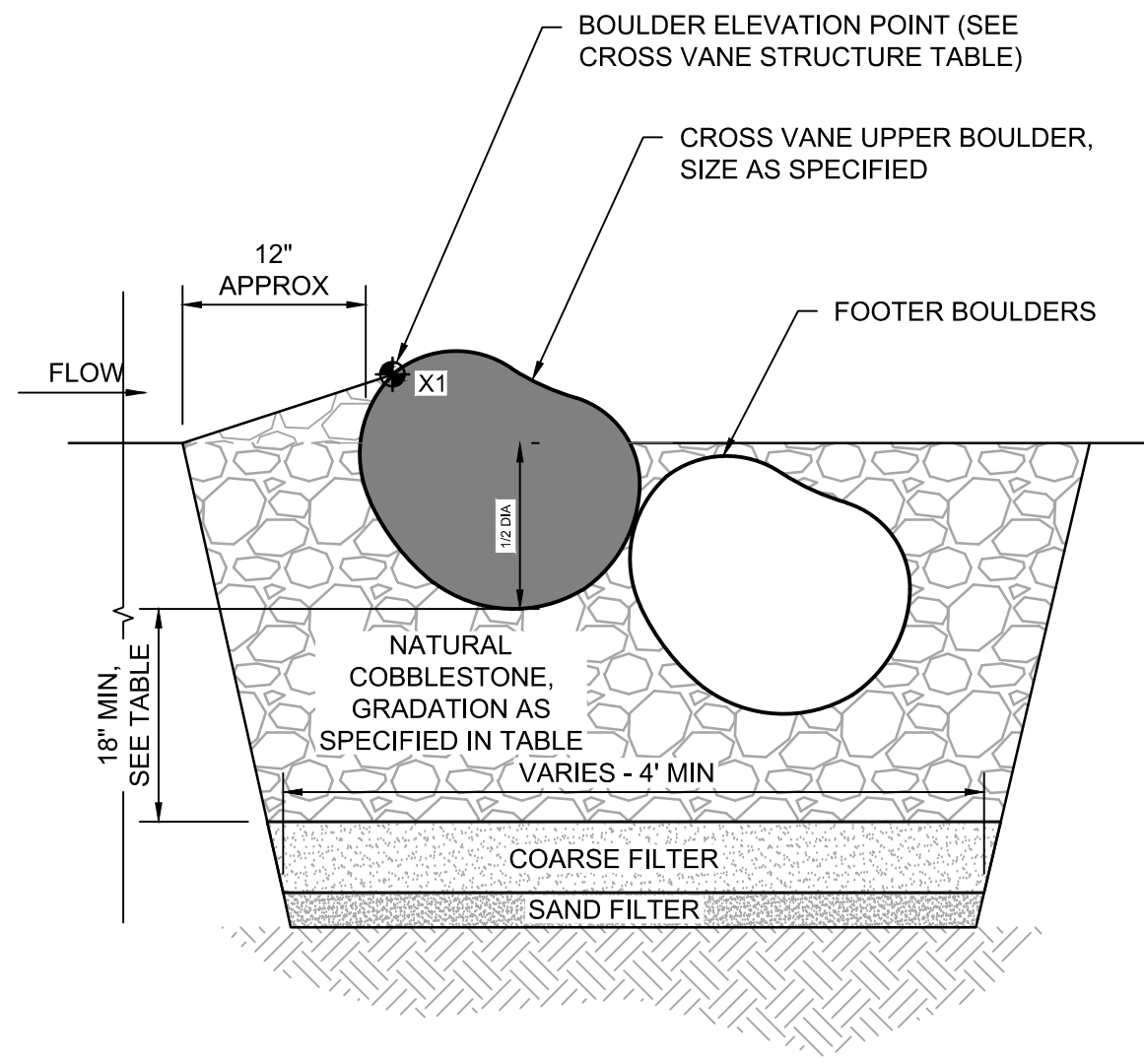
- NOTES:
 (1) POOL START/END STATIONING INCLUSIVE OF RUN, POOL, AND GLIDE FACETS.
 (2) UPSTREAM END OF RIFFLES TO BE CONSTRUCTED WITH CROSS VANE - DOUBLE BOULDER IN LIEU OF BOULDERS AT UPSTREAM RIFFLE END.



SECTION: CROSS VANE - DOUBLE BOULDER

NOTES:

1. CROSS VANE LOCATIONS AND ELEVATIONS ARE APPROXIMATE AND MAY BE MODIFIED IN THE FIELD BY THE DESIGN CONSULTANT.
2. FINAL BOULDER PLACEMENT TO BE APPROVED BY THE DESIGN CONSULTANT IN THE FIELD. CONTRACTOR MAY BE REQUIRED TO ADJUST BOULDER ELEVATIONS AND ROTATION.
3. THERE SHALL BE NO SIGNIFICANT GAPS BETWEEN BOULDERS. COBBLESTONE BEDDING SHALL BE PLACED ON THE UPSTREAM SIDE OF THE BOULDERS TO PLUG SMALL GAPS (MAY REQUIRE HAND PLACEMENT).
4. BOULDERS OF AN UNSUITABLE SHAPE MAY BE RE-LOCATED OR REJECTED.
5. BOULDER CUTOFF SILL IS INCIDENTAL TO BOULDER VANE CONSTRUCTION AT THE LENGTH SHOWN IN THE DRAWINGS (5 FT MIN).
6. SURFACE LAYER OF COBBLESTONE AREAS TO INCLUDE ADDITIONAL 0.17 CY COARSE FILTER PER SY COBBLESTONE AREA TO FILL VOIDS IN SURFACE COBBLESTONE.



SECTION: CROSS VANE - DOUBLE BOULDER

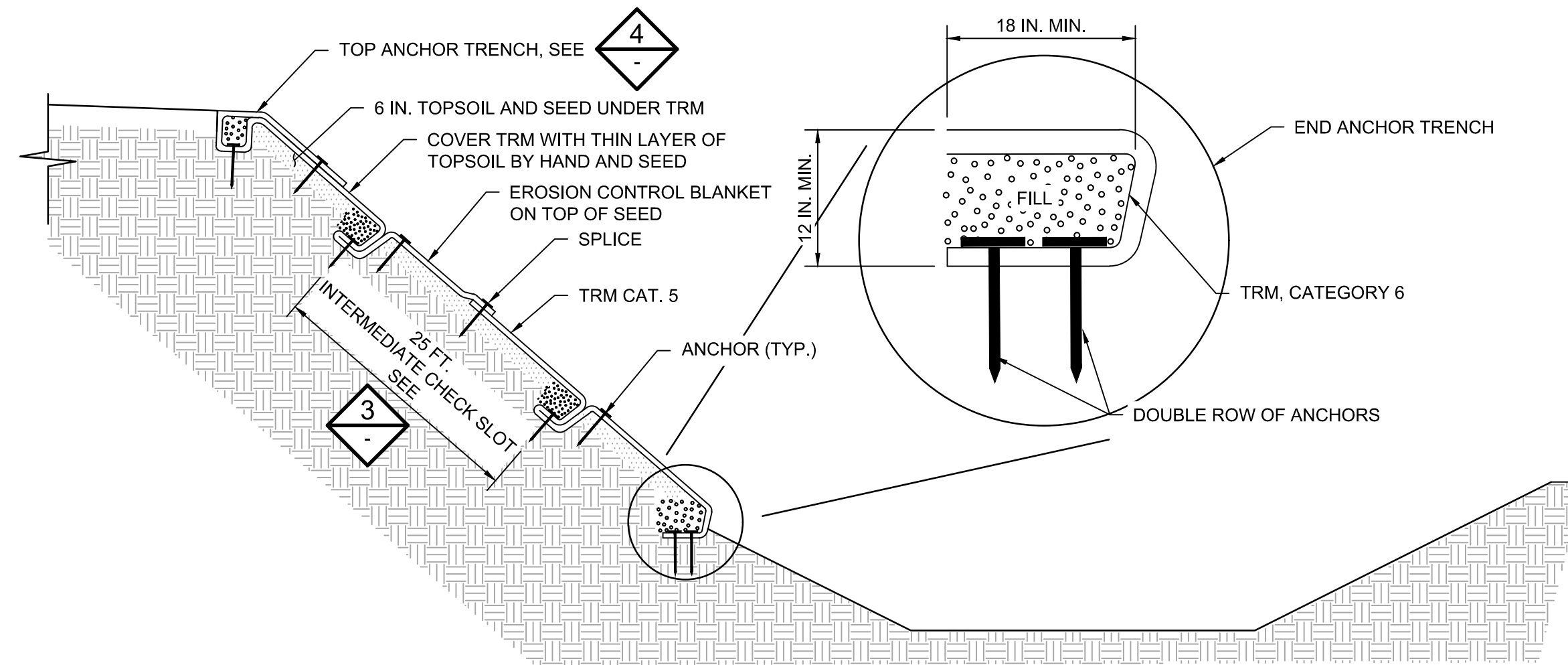
AGGREGATE SIZING TABLE	
USE	SIZE (IN)
RIFFLE BOULDER	36"-42"
BOULDER CLUSTER	36"-42"
CROSS VANE UPPER BOULDER	36"-42"
CROSS VANE FOOTER BOULDER	24"-36"
CROSS VANE SILL BOULDER	18"-24"
NATURAL COBBLESTONE (RIFFLES)	18" MAX, 9" D50
NATURAL COBBLESTONE (STEEP RIFFLES & AT BOULDER VANES)	24" MAX, 12" D50
COARSE FILTER MIN THICKNESS	6"
SAND FILTER MIN THICKNESS	3"

ISSUE FOR BID
NOT FOR CONSTRUCTION

CADD USER: ANDREW M. PAPIKE-LARSON FILE: O:\DESIGN\22821268\00\22821268\00_C-05_C-06_STABILIZATION DETAILS.DWG PLOT SCALE: 1:1 PLOT DATE: 4/15/2024 5:00 PM

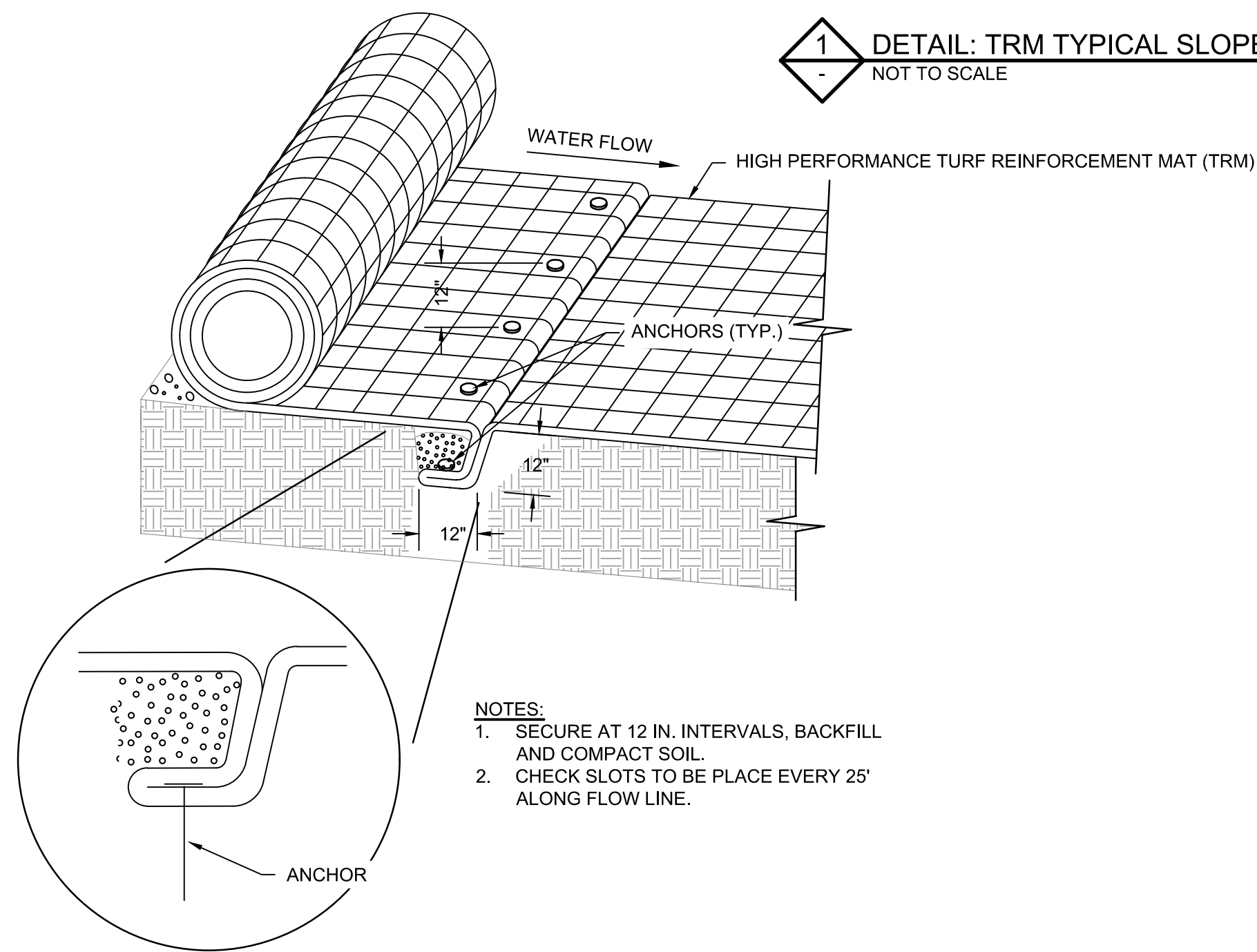
NO.		BY	CHK	APP	DATE	REVISION DESCRIPTION	CLIENT		04/25/23	09/01/23	10/30/23	11/08/23	11/15/23	04/15/24	Project Office:	Scale	AS SHOWN	HUNTER PASTEUR HOMES		THE DOWNS		BARR PROJECT No.	
							BARR ENGINEERING CO.								3005 BOARDWALK STREET	Date	04/15/24	NORTHVILLE, LLC		NORTHVILLE, MICHIGAN		22921268.00	
							SUITE 100								ANN ARBOR, MI 48108	Drawn	AMP3	32300 NORTHWESTERN HIGHWAY, SUITE 125		STREAM		CLIENT PROJECT No.	
							ANN ARBOR, MI 48108								Ph: 1-800-270-5017	Checked	PJH2	FARMINGTON HILLS, MI 48334		STABILIZATION DETAILS		DWG. No.	
							Corporate Headquarters:								Minneapolis, Minnesota	Designed	PJH2					REV. No.	
							Ph: 1-800-632-2277								Fax: (732) 922-4401	Approved	MES2					C-05	
							www.barr.com															0	

CADD USER: ANDREW M. PAPIKE-LARSON FILE: O:\DESIGN\22821268\00\22821268\00_C-06_C-06_STABILIZATION DETAILS.DWG PLOT SCALE: 1:1 PLOT DATE: 4/15/2024 5:00 PM



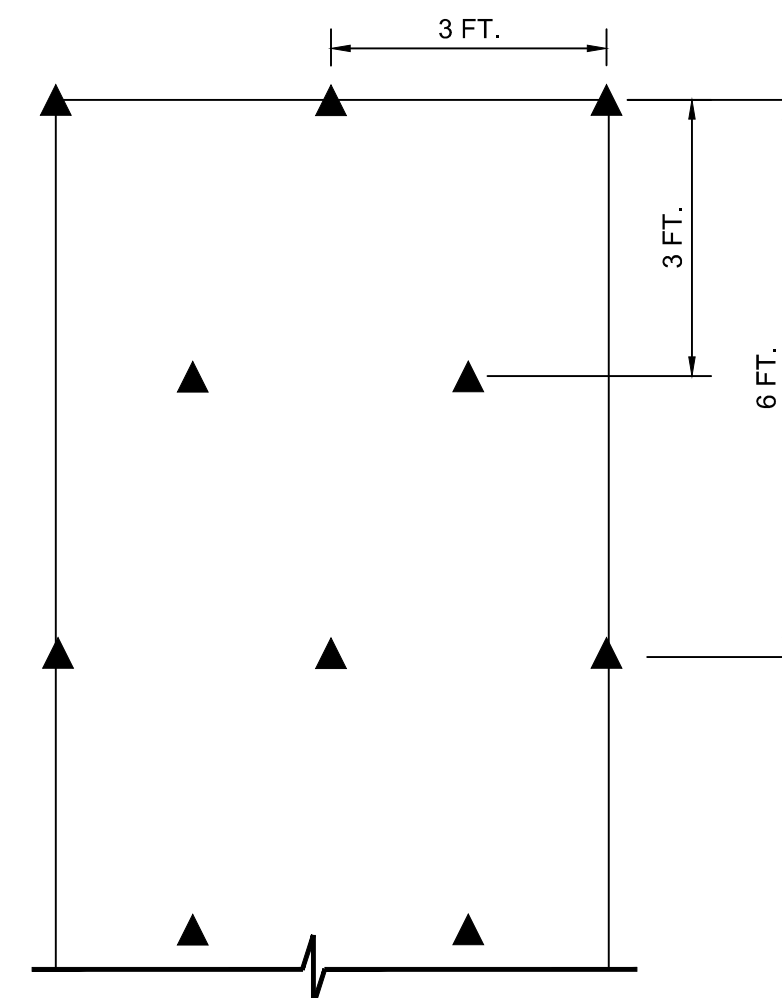
- NOTES:**
- SEE DETAIL 5 FOR APPROPRIATE ANCHORS AND SPLICE/OVERLAP AND EDGE/OVERLAP.
 - BROADCAST 50% SEED MIX OVER SMOOTH TOPSOIL FREE OF CLUMPS AND ROCKS PRIOR TO PLACEMENT OF TRM.
 - INSTALL HIGH PERFORMANCE TURF REINFORCEMENT MAT.
 - HAND RAKE A THIN LAYER OF PULVERIZED TOPSOIL OVER THE TRM TO FILL THE MATRIX AND LIGHTLY COVER TRM SO IT IS NOT VISIBLE.
 - RAKE IN 50% OF THE SEED OVER THE TRM.
 - PLACE EROSION CONTROL BLANKET AND SECURELY ANCHOR.
 - ANCHOR TO BE ANCHOR TO BE BIODEGRADABLE E STAPLES.

1 DETAIL: TRM TYPICAL SLOPE CROSS SECTION & END ANCHOR TRENCH
NOT TO SCALE



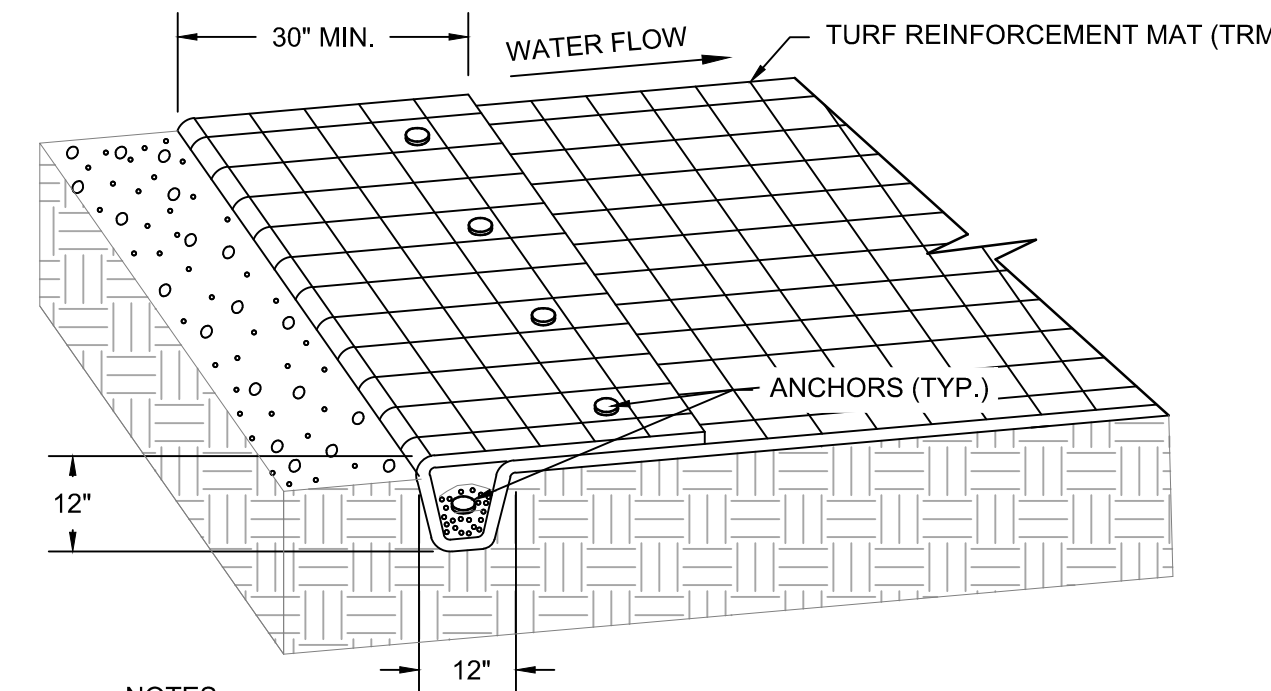
- NOTES:**
- SECURE AT 12 IN. INTERVALS, BACKFILL AND COMPACT SOIL.
 - CHECK SLOTS TO BE PLACED EVERY 25' ALONG FLOW LINE.

2 DETAIL: TRM INTERMITTENT CHECK SLOT
NOT TO SCALE



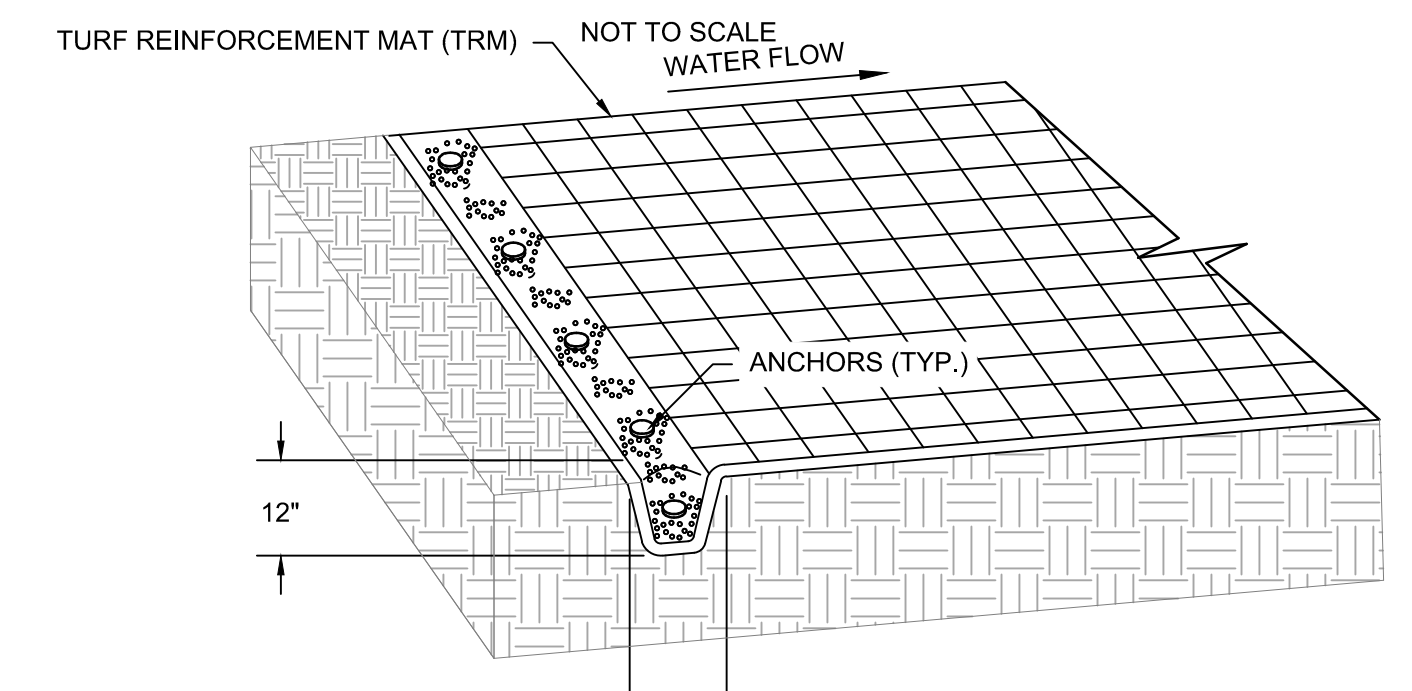
- NOTES:**
- PLACE 3-4 ANCHORS/SY.
 - EDGE OVERLAP BETWEEN ROLLS IS 12 IN. MINIMUM.
 - SPLICE BETWEEN ROLL ENDS IS 18 IN. MINIMUM.
 - ALWAYS INSTALL DOUBLE ROW OF PINS SPACED 18" APART AT ALL ROLL SPLICES.
 - INSTALL PINS DOWN THE CENTER OF EACH MAT STAGGERING THE OUTSIDE PINS.
 - 18 IN. STEEL NAIL WITH 1-1/2 IN. WASHER OR 18 IN. U-SHAPED WIRE STAPLES.

3 DETAIL: TRM ANCHORS & SPLICE & EDGE OVERLAP
NOT TO SCALE



- NOTES:**
- SECURE AT 12 IN. INTERVALS, BACKFILL AND COMPACT SOIL.
 - FOR SLOPES, CONSTRUCT TOP ANCHOR TRENCH 2 FT. BEYOND CREST OF SLOPE.

4 DETAIL: TRM TOP ANCHOR TRENCH
NOT TO SCALE



- NOTE:**
- SECURE AT 12 IN. INTERVALS, BACKFILL AND COMPACT SOIL.

5 DETAIL: TRM EDGE TERMINATION ANCHOR TRENCH
NOT TO SCALE

ISSUE FOR BID
NOT FOR CONSTRUCTION

NO.	BY	CHK	APP	DATE	REVISION DESCRIPTION

CLIENT	04/25/23	09/01/23	10/30/23	11/08/23	11/15/23	04/15/24
PERMIT						
BID						
CONSTRUCTION						
RECORD						
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DATE RELEASED						

BARR Engineering Co.
3005 BOARDWALK STREET
SUITE 100
ANN ARBOR, MI 48108
Ph: 1-800-270-5017
Fax: (732) 922-4401
www.barr.com

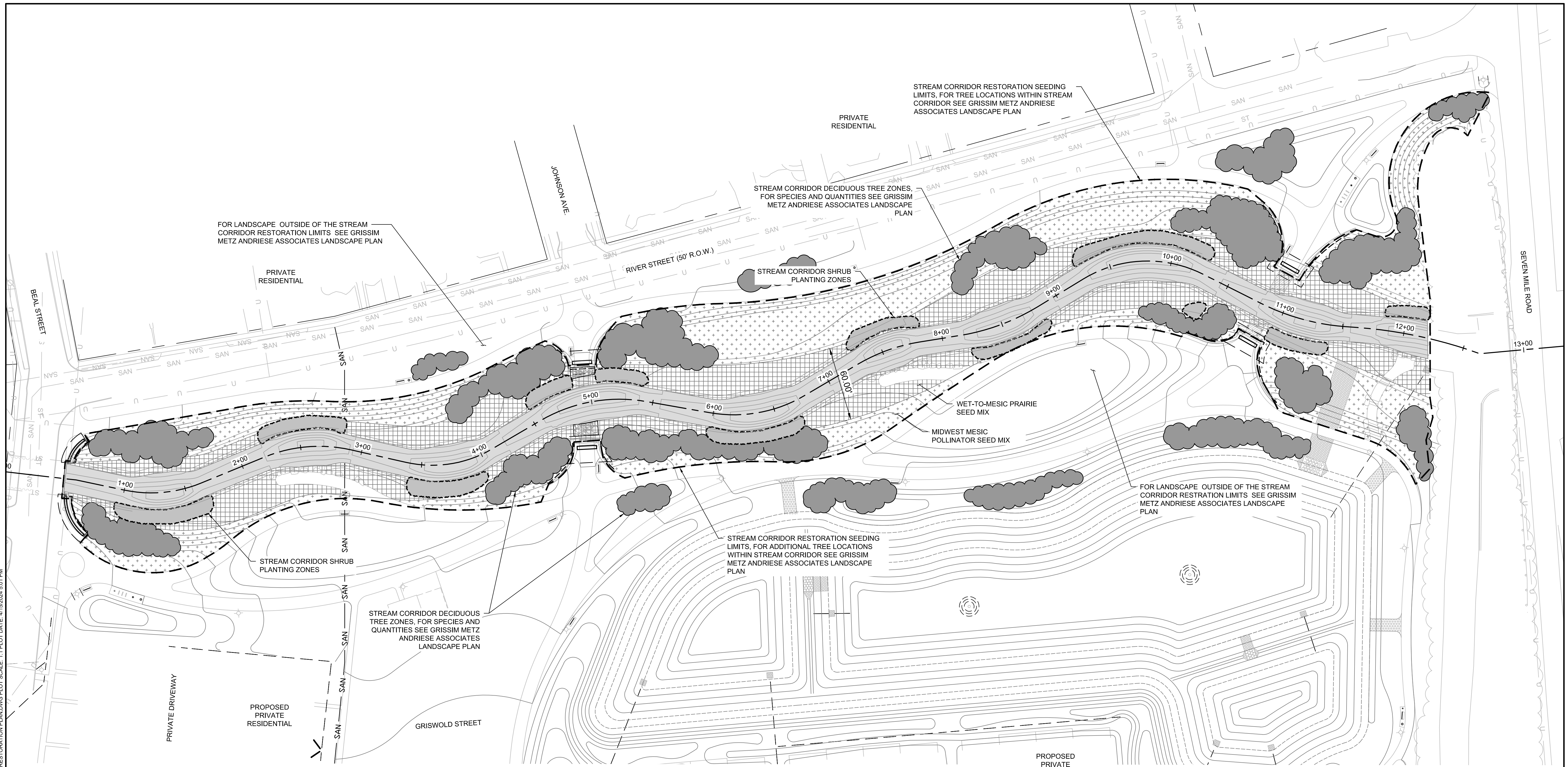
Scale	AS SHOWN
Date	04/15/24
Drawn	AMP3
Checked	PJH2
Designed	PJH2
Approved	MES2

**HUNTER PASTEUR HOMES
NORTHVILLE, LLC**
32300 NORTHWESTERN HIGHWAY, SUITE 125
FARMINGTON HILLS, MI 48334

**THE DOWNS
NORTHVILLE, MICHIGAN**
STREAM
STABILIZATION DETAILS

BARR PROJECT No.	22921268.00
CLIENT PROJECT No.	
DWG. No.	C-06
REV. No.	0

CADD USER: ANDREW M. PAPIKE-LARSON FILE: O:\DESIGN\22821268.00\22821268_00_C-07_C-08_RESTORATION PLAN.DWG PLOT SCALE: 1:1 PLOT DATE: 4/15/2024 5:01 PM



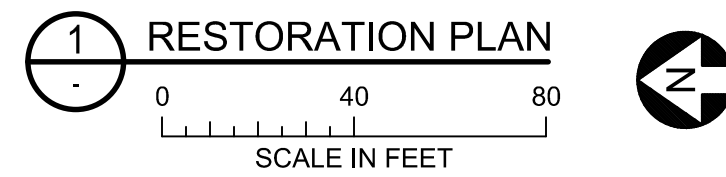
PROPOSED CONDITIONS LEGEND

- 920 — PROPOSED MAJOR CONTOUR
- 919 — PROPOSED MINOR CONTOUR
- 1+00 — PROPOSED ALIGNMENT
- — PROPOSED CENTERLINE
- — SHRUB PLANTING ZONE

* SEE SHEET C-08 FOR RESTORATION SEED MIXES & DETAILS

EXISTING CONDITIONS LEGEND

- — LIMITS OF CONSTRUCTION
- — PROPERTY LINE
- — EXISTING EASEMENT
- 920 — EXISTING MAJOR CONTOUR
- 918 — EXISTING MINOR CONTOUR
- U — EXISTING OVERHEAD UTILITY
- ST — EXISTING STORMSEWER
- SAN — EXISTING SANITARY SEWER



PROPOSED PRIVATE RESIDENTIAL

SEED MIX SCHEDULE

SYMBOL	01 GENERAL DESCRIPTION	QTY
[Grid Pattern]	WET-TO-MESIC PRAIRIE SEED MIX NA GREEN C125BN E.C.B	37,080 SF
[Dotted Pattern]	MIDWEST MESIC POLLINATOR SEED MIX NA GREEN SC150BN E.C.B	64,244 SF
[Solid Grey]	SHRUB PLANTING ZONE	7,855 SF

**ISSUE FOR BID
NOT FOR CONSTRUCTION**

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PERMIT						
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DATE RELEASED						

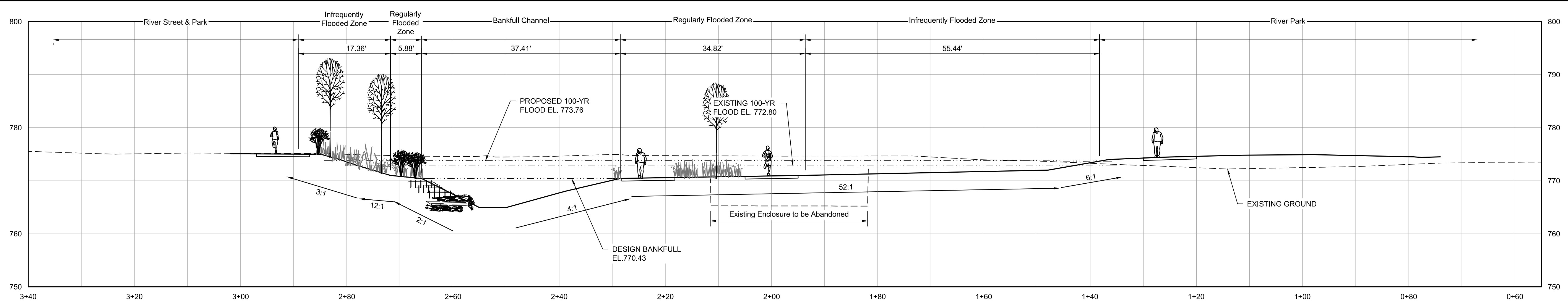
BARR
 Project Office:
 BARR ENGINEERING CO.
 3005 BOARDWALK STREET
 SUITE 100
 ANN ARBOR, MI 48108
 Corporate Headquarters:
 Minneapolis, Minnesota
 Ph: 1-800-270-5017
 Fax: (732) 922-4401
 www.barr.com

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Designed	PJH2
Approved	MES2

**HUNTER PASTEUR HOMES
NORTHVILLE, LLC**
 32300 NORTHWESTERN HIGHWAY, SUITE 125
 FARMINGTON HILLS, MI 48334

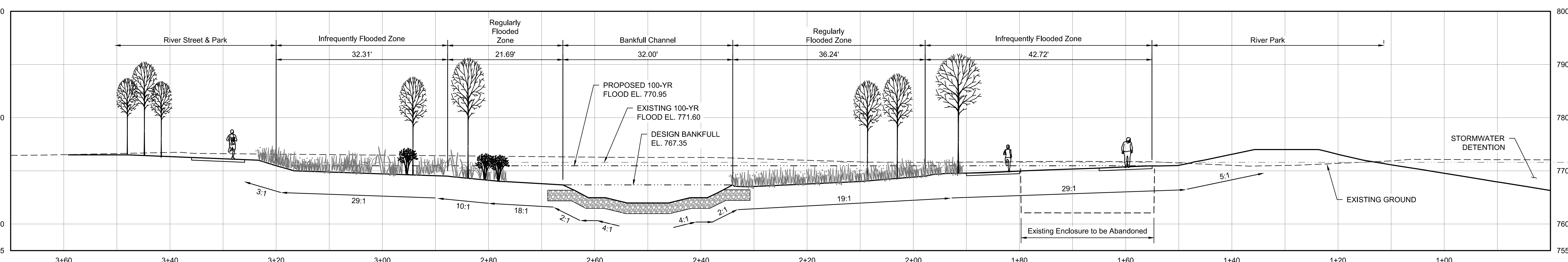
**THE DOWNS
NORTHVILLE, MICHIGAN**
**STREAM
RESTORATION PLAN**

BARR PROJECT No.	22921268.00
CLIENT PROJECT No.	
DWG. No.	C-07
REV. No.	0



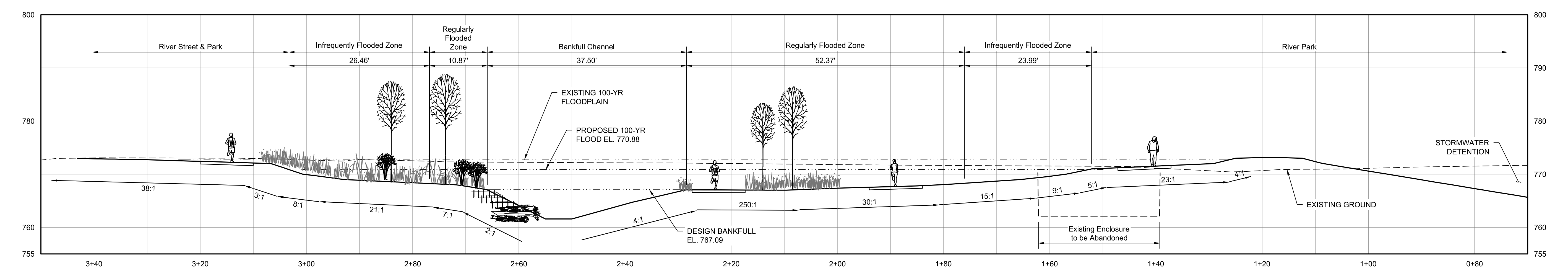
1 SECTION: RIVER SECTION THROUGH POOL STA. 2+60

- NOTES:
- BANKFULL WIDTH = 37.4 LF
 - BANKFULL MAX DEPTH = 5.5 FT
 - BANKFULL AREA = 113.7 SQ FT



2 SECTION: RIVER SECTION THROUGH RIFFLE STA. 7+05

- NOTES:
- BANKFULL WIDTH = 32.0 LF
 - BANKFULL MAX DEPTH = 3.4 FT
 - BANKFULL AREA = 77.1 SQ FT



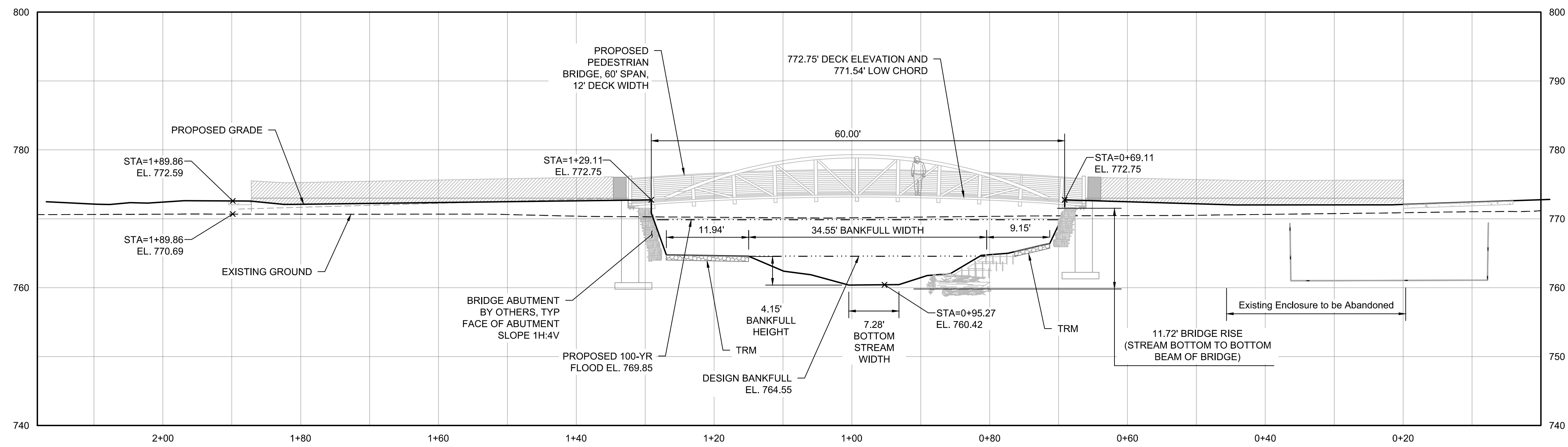
3 SECTION: RIVER SECTION THROUGH POOL STA. 7+60

- NOTES:
- BANKFULL WIDTH = 37.5 LF
 - BANKFULL MAX DEPTH = 5.5 FT
 - BANKFULL AREA = 114.1 SQ FT

ISSUE FOR BID
NOT FOR CONSTRUCTION

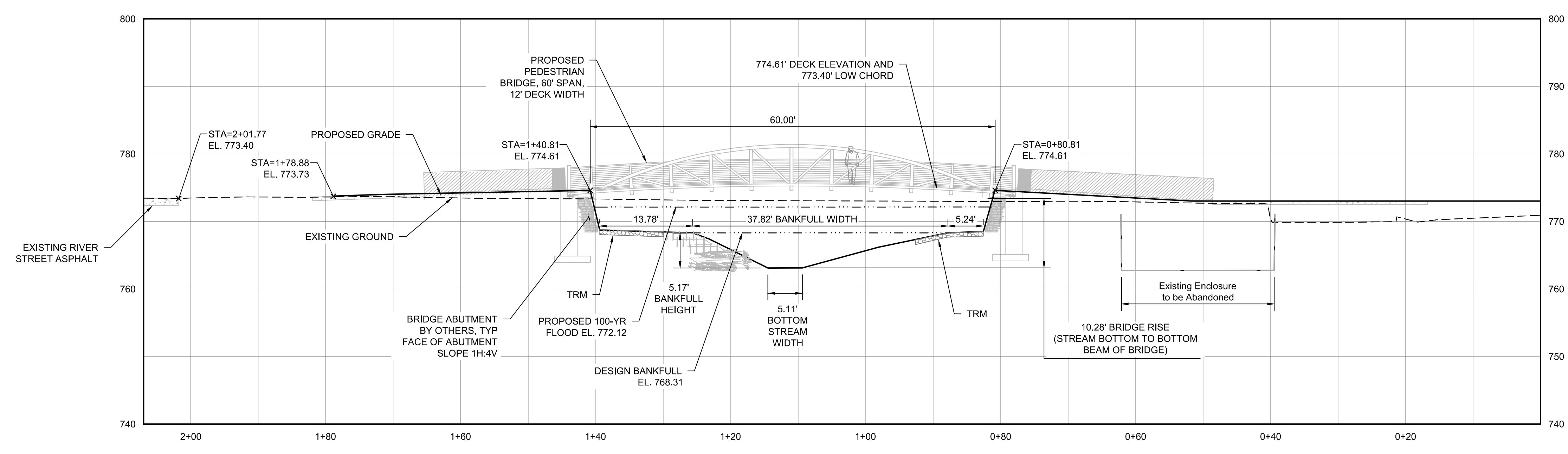
CADD USER: ANDREW M. PAPIKE-LARSON FILE: O:\DESIGN\22821268\00\22821268\00_C-09_C-10_LANDSCAPE SECTIONS.DWG PLOT SCALE: 1:1 PLOT DATE: 4/15/2024 5:01 PM

NO.		BY	CHK	APP	DATE	REVISION DESCRIPTION	CLIENT		BARR BARR ENGINEERING CO. 3005 BOARDWALK STREET SUITE 100 ANN ARBOR, MI 48108 Ph: 1-800-270-5017 Fax: (732) 922-4401 www.barr.com		Project Office: BARR ENGINEERING CO. 3005 BOARDWALK STREET SUITE 100 ANN ARBOR, MI 48108 Ph: 1-800-270-5017 Fax: (732) 922-4401 www.barr.com		Scale: AS SHOWN Date: 04/15/24 Drawn: MES2 Checked: PJH2 Designed: PJH2 Approved: MES2		HUNTER PASTEUR HOMES NORTHVILLE, LLC 32300 NORTHWESTERN HIGHWAY, SUITE 125 FARMINGTON HILLS, MI 48334		THE DOWNS NORTHVILLE, MICHIGAN STREAM RESTORATION SECTIONS		BARR PROJECT No. 22921268.00 CLIENT PROJECT No.		DWG. No. C-09 REV. No. 0	
							CLIENT: 04/25/23 09/01/23 PERMIT: 10/30/23 11/08/23 11/15/23 BID: 04/15/24 CONSTRUCTION: RECORD: RELEASED TO/FOR: A B C D E O 1 DATE RELEASED:															



1 SECTION: SOUTH PEDESTRIAN BRIDGE (STA. 10+95)

- NOTES:**
- BANKFULL WIDTH = 34.5 LF
 - BANKFULL MAX DEPTH = 4.1 FT
 - BANKFULL AREA = 92.9 SQ FT
 - FINAL BRIDGE ARCHITECTURAL DETAILS SUBJECT TO CHANGE.



3 SECTION: NORTH PEDESTRIAN BRIDGE (STA. 4+95)

- NOTES:**
- BANKFULL WIDTH = 37.8 LF
 - BANKFULL MAX DEPTH = 5.2 FT
 - BANKFULL AREA = 106.1 SQ FT
 - FINAL BRIDGE ARCHITECTURAL DETAILS SUBJECT TO CHANGE.

ISSUE FOR BID
NOT FOR CONSTRUCTION

CADD USER: ANDREW M. PAPIKE-LARSON FILE: O:\DESIGN\22821268\10\22821268\0_C-10_LANDSCAPE SECTIONS.DWG PLOT SCALE: 1:1 PLOT DATE: 4/15/2024 5:02 PM

NO.		BY	CHK	APP	DATE	REVISION DESCRIPTION	<table border="1"> <tr> <td>CLIENT</td> <td>04/25/23</td> <td>09/01/23</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PERMIT</td> <td></td> <td>10/30/23</td> <td>11/08/23</td> <td>11/15/23</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>BID</td> <td></td> <td></td> <td></td> <td>04/15/24</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CONSTRUCTION</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>RECORD</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>							CLIENT	04/25/23	09/01/23									PERMIT		10/30/23	11/08/23	11/15/23							BID				04/15/24							CONSTRUCTION											RECORD											<p>BARR Corporate Headquarters: Minneapolis, Minnesota Ph: 1-800-632-2277</p>		<p>Project Office: BARR ENGINEERING CO. 3005 BOARDWALK STREET SUITE 100 ANN ARBOR, MI 48108 Ph: 1-800-270-5017 Fax: (732) 922-4401 www.barr.com</p>		<p>Scale: AS SHOWN Date: 04/15/24 Drawn: MES2 Checked: PJH2 Designed: PJH2 Approved: MES2</p>		<p>HUNTER PASTEUR HOMES NORTHVILLE, LLC 32300 NORTHWESTERN HIGHWAY, SUITE 125 FARMINGTON HILLS, MI 48334</p>		<p>THE DOWNS NORTHVILLE, MICHIGAN STREAM RESTORATION SECTIONS</p>		<p>BARR PROJECT No. 22921268.00 CLIENT PROJECT No. DWG. No. C-10 REV. No. 0</p>	
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