

CONSTRUCTION PLANS FOR
IDALS NO. HAM892326B
 NUTRIENT REDUCTION WETLAND
HAMILTON COUNTY, IOWA
 JANUARY 2026

GOVERNING SPECIFICATIONS

THE SPECIFICATIONS AS PREPARED BY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP AND BOLTON & MENK, INC. SHALL BE CONSIDERED AS PART OF THIS DOCUMENT. NATURAL RESOURCES CONSERVATION SERVICE CONSTRUCTION SPECIFICATIONS SHALL APPLY.

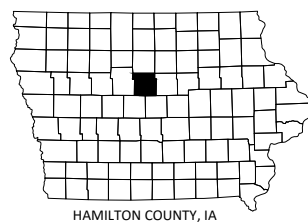
THE CURRENT EDITION OF THE "IOWA STATEWIDE URBAN STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS" SHALL GOVERN.

IOWA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION" AND ALL CURRENT GENERAL SUPPLEMENTAL SPECIFICATIONS AND MATERIALS INSTRUCTIONAL MEMORANDUM SHALL GOVERN AS REFERENCED.

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.



THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."
 THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING IOWA ONE CALL BY PHONE AT 811, OR ON THE WEB AT [HTTP://WWW.IOWAONECALL.COM/](http://www.iowaonecall.com/). TICKET# _____
 TICKET NUMBER MUST BE PROVIDED TO THE NRCS PRIOR TO COMMENCEMENT OF WORK.



NOTES

- IF A CULTURAL RESOURCE IS IDENTIFIED DURING CONSTRUCTION, STOP WORK IMMEDIATELY AND NOTIFY THE LOCAL NATURAL RESOURCES CONSERVATION SERVICE OFFICE.
- THERE IS NO GUARANTEE THAT THE WETLAND WILL FILL OR REMAIN FILLED WITH WATER.



SHEET LIST TABLE

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A.02	PLAN OVERVIEW SHEET
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M.01	PLAN AND PROFILE - TILE RELAYS
M.02	PARTIAL CAPTURE INLET & PRIVATE TILE RE-LAY
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CONSERVATION PRACTICE STANDARDS USED:
 656 - CONSTRUCTED WETLAND

NRCS JOB CLASS: IV
 300 AC<WATERSHED AREA<1000 AC

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGEMENT, AND BELIEF, THESE PLANS MEET APPLICABLE NRCS STANDARDS AND APPLICABLE LAWS AND REGULATIONS.

CLIENT ACCEPTANCE

SIGNATURE _____ DATE _____

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

BRANDON C. SHORT, PE
 LICENSE NUMBER: 29449 DATE: 01/22/2026

MY LICENSE RENEWAL DATE IS 12/31/2026

PAGES OR SHEETS COVERED BY THIS SEAL:
 ALL SHEETS _____

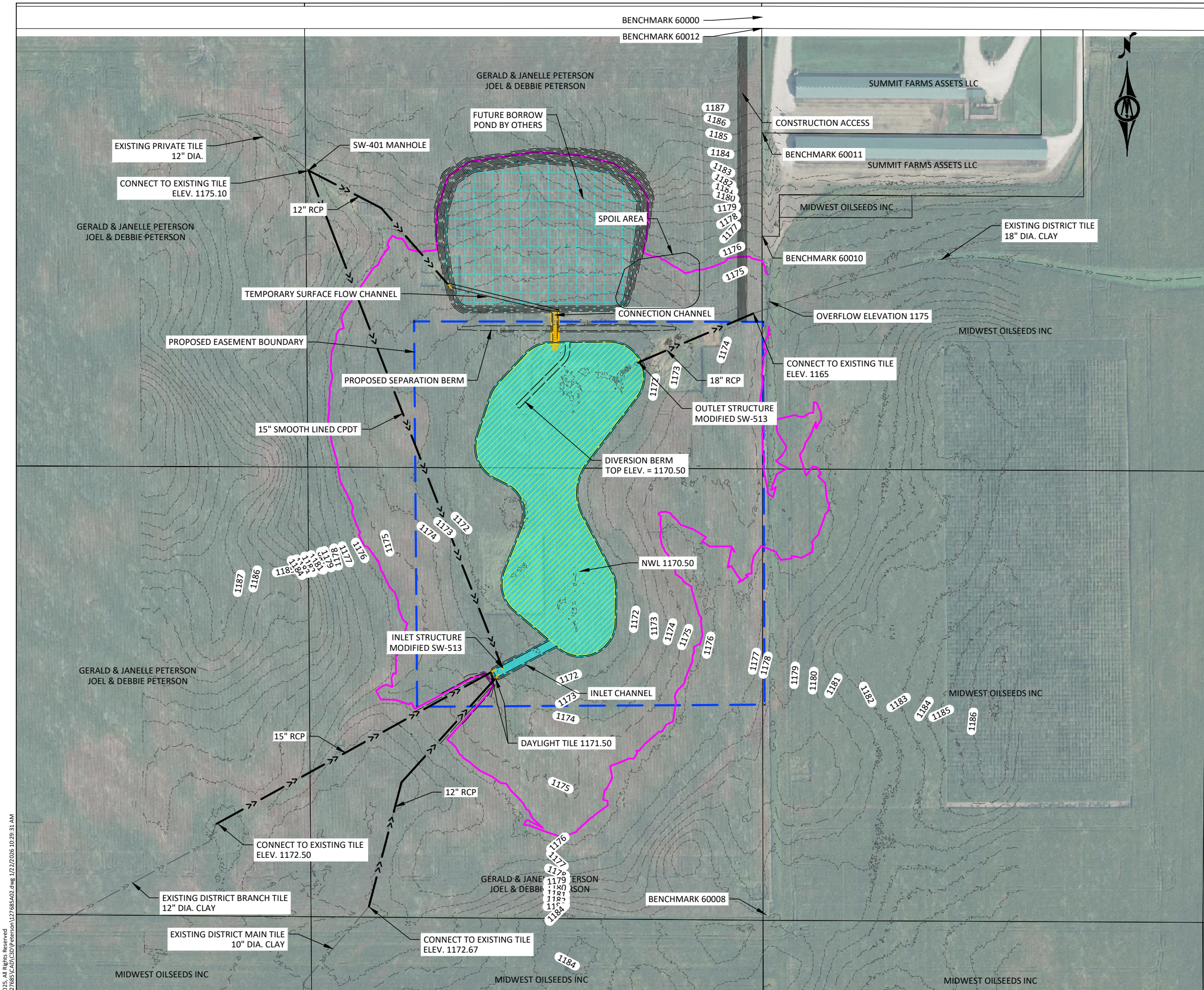
PROJECT DATUM: STATE PLANE
 HORIZONTAL: IOWA NORTH
 VERTICAL: NAVD 1988

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BCS	1.1	BID PLANS	01-22-2026
NVD			
JPR			
CLIENT PROJ. NO. 0A1.127685			

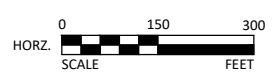


DESIGN CRITERIA	VALUE	UNIT	REQUIREMENT
WATERSHED AREA	605	ACRES	
POOL NORMAL WATER LEVEL (NWL) ELEV	1170.50	FT	
DESIGNED WETLAND POOL AREA (@ NWL)	6.5	ACRES	
PERCENT POOL AREA TO WATERSHED AREA	1.1	%	Range 0.5% to 2% of watershed area
MAXIMUM POOL DEPTH	1.0	FT	
AVERAGE POOL DEPTH	1.0	FT	
DEEP WATER AREA (DEPTH > 3 FT)	0.0	ACRES	
PERCENT DEEP WATER TO POOL AREA	0.0	%	Less than 25%
POOL STORAGE VOLUME AT NWL	3.1	ACRE-FT	
OVERFLOW ELEVATION	1174.25	FT	Natural Berm
POOL STORAGE VOLUME AT OVERFLOW	53.0	ACRE-FT	
PRIMARY WEIR ELEVATION	1170.50	FT	Conveys Tile Flow Only
PRIMARY WEIR WIDTH	4	FT	SUDAS SW-513 Outlet Structure
TOTAL EASEMENT AREA	26.5	ACRES	
AREA OF BUFFER	20.0	ACRES	
RATIO BUFFER AREA TO NWL POOL AREA	3.1		Less than 4
AVERAGE CAPTURE FLOW		CFS	
25-YEAR STORM HWL IN POOL	1175.76	FT	
25-YEAR PEAK INFLOW	621	CFS	
25-YEAR PEAK OUTFLOW	624.00	CFS	
100-YEAR STORM HWL IN POOL	1176.02	FT	
100-YEAR PEAK INFLOW	864	CFS	
100-YEAR PEAK OUTFLOW	868	CFS	

BENCHMARK NO.	NORTHING	EASTING	DESCRIPTION
60000	3645311.12	4913536.06	LMFR /SCR 34IN
60008	3642649.16	4913546.24	LMFR /SCR MCAP 15745
60010	3644660.40	4913538.68	LMFR /34 LEAN N
60011	3644968.05	4913537.44	LMFR /58 OPC 15745
60012	3645278.06	4913536.18	LMFR /58 OPC 15745

LEGEND	
NORMAL POOL (1170.50)	
100-YEAR HWL (1175.31)	
PROPOSED EASEMENT BOUNDARY	
EXCAVATE TO 1169.50	

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HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
PLAN OVERVIEW SHEET
SHEET
A.02

- NOTES:**
1. ALL CLAY TILES TO BE DEMOLISHED MAY BE REMOVED OR CRUSHED IN PLACE.
 2. PLASTIC TILES SHALL BE REMOVED AND DISPOSED OF WHERE BROKEN.
 3. ALL TILE SHALL BE DESTROYED THROUGH WETLAND POOL.

GERALD & JANELLE PETERSON
JOEL & DEBBIE PETERSON

SUMMIT FARMS ASSETS LLC

SUMMIT FARMS ASSETS LLC

MIDWEST OILSEEDS INC

GERALD & JANELLE PETERSON
JOEL & DEBBIE PETERSON

PROPOSED EASEMENT BOUNDARY

EXISTING STORM BOUNCES
GREEN: 5-YEAR (1175.43)
ORANGE: 10-YEAR (1175.58)
YELLOW: 25-YEAR (1175.76)
PURPLE: 100-YEAR (1176.03)

EXPOSE, CRUSH AND BURY
EXISTING TILE

EXISTING TILE
FLOW LINE ELEV. = 1165.42

EXISTING TILE
FLOW LINE ELEV. = 1166.04

EXPOSE, CRUSH AND BURY
EXISTING TILE

EXISTING TILE
FLOW LINE ELEV. = 1168.51
TOP OF PIPE = 1169.20

EXPOSE, CRUSH AND BURY
EXISTING TILE

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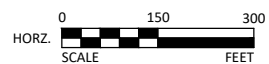
MIDWEST OILSEEDS INC

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HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
EXISTING CONDITIONS & REMOVALS

LEGEND	
PROPOSED EASEMENT BOUNDARY	
TILE REMOVAL	

SHEET
A.03

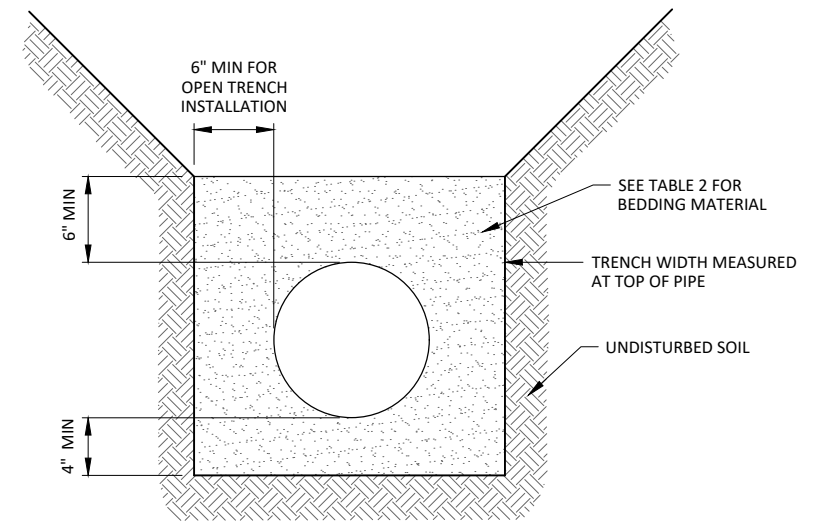
**CORRUGATED POLYETHYLENE DRAINAGE TUBING
MATERIAL & INSTALLATION NOTES**

1. ALL CPDT AND CONNECTORS FURNISHED SHALL BE IN COMPLIANCE WITH MATERIAL STANDARDS ASTM F405 AND F667, AS APPLICABLE, AND SHALL BE CLASSIFIED AS HEAVY-DUTY UNDER THOSE STANDARDS.
2. EXCEPT MODIFIED HEREIN OR OTHERWISE APPROVED BY ENGINEER, ALL CPDT SHALL BE INSTALLED IN COMPLIANCE WITH THE ASTM 449 STANDARD PRACTICE.
3. FOR PIPES 6" DIAMETER AND SMALLER A 90° V GROOVE BOTTOM MAY BE USED, FOR ALL LARGER PIPE A TRAPEZOIDAL BOTTOM OR A CIRCULAR BOTTOM CONFORMING TO THE OUTSIDE DIAMETER OF THE PIPE SHALL BE USED. PRIOR TO THE INSTALLATION OF CPDT, CONTRACTOR MUST PROVE TO ENGINEER THAT THE INSTALLATION REQUIREMENTS, INCLUDING THE SHAPE OF THE TRENCH BOTTOM, WILL BE ACCOMPLISHED.
4. WHERE TRENCH BOTTOM IS IN FIRM UNDISTURBED SOIL, SHAPE TRENCH BASE GROOVE. WHERE EXCESS CUT OCCURS, OVEREXCAVATE AND PLACE MINIMUM THREE (3) INCH THICK, GRAVELLY SAND BEDDING TO RESTORE GRADE. THIS BEDDING SHALL MEET THAT REQUIRED FOR TRENCH INSTALLATION TYPE 3 ON PLAN SHEET C.02. IF DUE TO CONTRACTOR ERROR THIS MATERIAL AND WORK IS SUBSIDIARY TO THE INSTALLATION OF THE PIPE. CONTRACTOR MAY SUBSTITUTE PIPE BEDDING ROCK AS THE BEDDING MATERIAL.
5. NATIVE SOILS MAY BE USED AS BACKFILL MATERIAL UNLESS UNSTABLE TRENCH CONDITIONS PREVENT THE TRENCH BOTTOM HOLDING THE SHAPED GROOVE. IF TRENCH BOTTOM WILL NOT HOLD GROOVE SHAPE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY. A FLAT BOTTOM TRENCH INSTALLATION WILL THEN BE ASSUMED. THE REQUIRED BEDDING MATERIAL WILL BE PAID UNDER THE TILE TRENCH STABILIZATION AND CRADLING ROCK BID ITEM.
6. MINIMUM TRENCH WIDTH IS PIPE OUTSIDE DIAMETER PLUS FOUR (4) INCHES FOR PLOWED INSTALLATION AND PIPE OUTSIDE DIAMETER PLUS TWELVE (12) INCHES FOR OPEN TRENCH INSTALLATION.
7. ALL LATERAL CONNECTIONS, ELBOWS, TEES, ALIGNMENT CURVES, START HOLES AND ALL PORTIONS OF THE TRENCH NOT MEETING THE GROOVED TRENCH INSTALLATION REQUIREMENTS SHALL BE FILLED TO A MINIMUM OF SIX (6) INCH COVER OVER THE PIPE WITH GRADED CRUSHED STONE OR GRAVEL AS SHOWN ON TABLE 2 OF THIS SHEET. UNLESS DUE TO CONTRACTOR ERROR THIS BEDDING MATERIAL WILL BE PAID UNDER THE TILE TRENCH STABILIZATION AND CRADLING ROCK BID ITEM.
8. MANUFACTURER'S ENDCAPS SHALL BE INSTALLED AT THE TERMINATION OF EACH LINE UNLESS A CONNECTION TO AN EXISTING DRAIN IS MADE.
9. WITH THE INSTALLATION OF THE FIRST REACH OF CPDT ON THE PROJECT, CONTRACTOR IS REQUIRED TO WORK WITH THE ENGINEER TO CHECK AND CONFIRM THAT THE PIPE STRETCH, IF ANY, DOES NOT EXCEED 5%.
10. ALIGNMENT TURNS MAYBE MADE USING EITHER A MANUFACTURED FITTING OR CURVING THE LINE WITH A 25' MINIMUM RADIUS.

Nominal Pipe Diameter (IN)	Pipe Quality (ASTM)	Trench Width at Top of the Pipe (FT)			
		12"	18"	24"	30" or Greater
4	Standard	13	7	5.5	5
	Heavy-duty	Any	10	7	6
6	Standard	10	7	5.5	5
	Heavy-duty	Any	9.5	6.5	6
8	Standard	10	7	5.5	5
	Heavy-duty	Any	10	7	6
10	Heavy-duty	...	9	7	6
12	Heavy-duty	...	9	7	6
15	Heavy-duty	7	6

Description	Percentage Passing Sieve Sizes			Minimum Standard Density (%)	Maximum Compaction Layer Height (IN.)
	1"	3/4"	No. 4		
Crushed Stone Crushed Gravel*	100%	> 95%	< 5%	Dumped	18

* Class 1 Bedding Material Per SUDAS 3010.202A is an Allowable Substitute

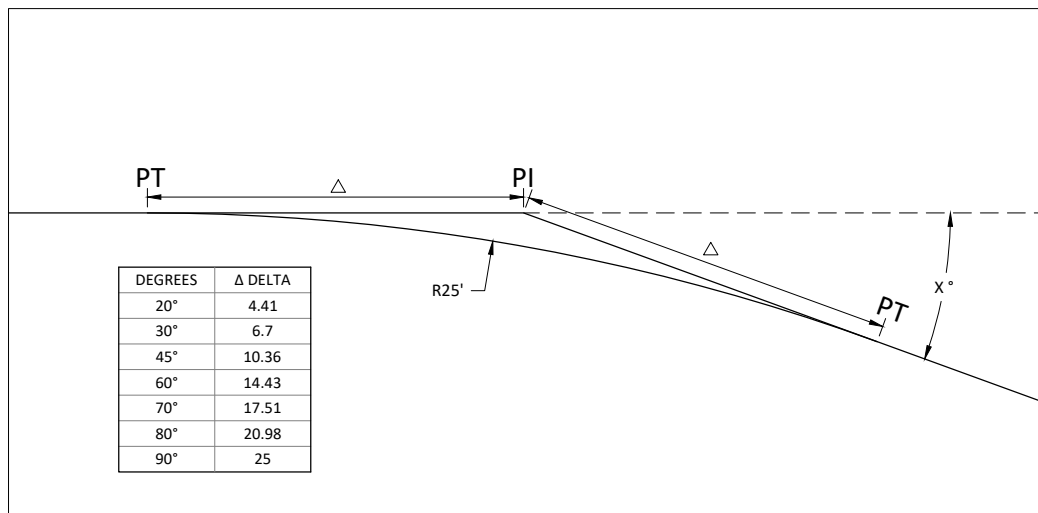


FILL TRENCH TO 6" ABOVE TOP OF PIPE WITH CRUSHED STONE OR GRAVEL MEETING THE REQUIREMENTS IN TABLE 2. BEDDING MATERIAL SHALL BE INCIDENTAL TO THE PIPE INSTALLATION.

FLAT BOTTOM TRENCH INSTALLATION

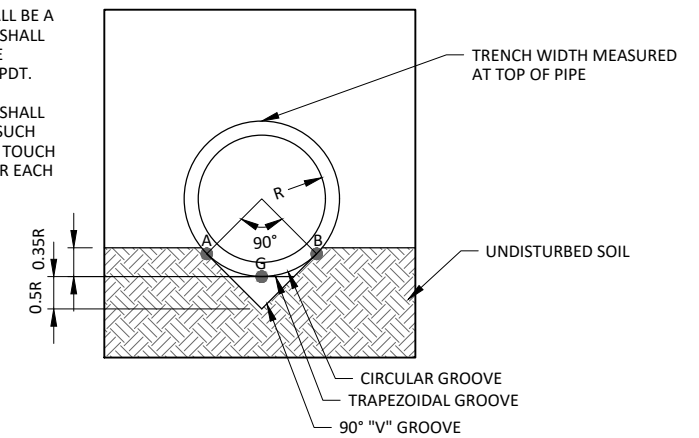
NOT TO SCALE
SOURCE: ASTM F449

NOTE: THIS IS AN ALLOWED ALTERNATIVE INSTALLATION FOR CPDT



THE CIRCULAR GROOVE SHALL BE A MINIMUM 0.35R DEEP AND SHALL MATCH THE OUTSIDE CURVE SHAPE OF THE DEFLECTED CPDT.

THE TRAPEZOIDAL GROOVE SHALL BE SHAPED AND ADJUSTED SUCH THAT POINTS A, B, & C WILL TOUCH THE UNDEFLECTED CPDT FOR EACH SIZE INSTALLED.



PREFERRED TRENCH INSTALLATION BOTTOM

TRAPEZOIDAL GROOVE, "V" GROOVE, & CIRCULAR GROOVE
NOT TO SCALE
SOURCE: ASTM F449

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HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
CPDT INSTALLATION DETAIL

SHEET
B.01

PIPE HAUNCH FILL AND COMPACTION METHOD PLAN REQUIREMENTS COMPLIANCE VERIFICATION

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE INSTALLATION OF ALL PIPE ACCORDING TO PLAN REQUIREMENTS. THE CONTRACTOR'S PARTICIPATION IN AND COMPLIANCE WITH THE FOLLOWING PROCEDURE IS REQUIRED AND WILL ALLOW FOR FEWER SOIL DENSITY TESTS TO ENSURE PROPER PIPE INSTALLATION.

STEP 1
BEFORE COMMENCING PIPE INSTALLATION, STANDARD SOIL PROCTOR DENSITY TEST RESULTS OF REPRESENTATIVE SAMPLE(S) OF PIPE HAUNCH FILL SHALL BE PROVIDED BY AN INDEPENDENT QUALIFIED SOILS TESTING LAB. THE SELECTION OF THE SAMPLE(S) WILL BE MADE BY THE ENGINEER AND CONTRACTOR (WHEN SPECIFIED).

STEP 2
CONTRACTOR MAY BEGIN EXCAVATING THE MODIFIED TYPE 4 TRENCH WITH THE REQUIRED SHAPED BOTTOM GROOVE AND PLACE SEVERAL PIPE SECTIONS ONLY WHEN BOTH ENGINEER AND TESTING LAB TECHNICIAN ARE PRESENT

CONTRACTOR SHALL DEMONSTRATE THE INTENDED METHODS FOR COMPACTING THE FILL FOR THE PIPE HAUNCH AREAS. SOIL DENSITY TESTS SHALL BE TAKEN AT LOCATIONS DESIGNATED BY THE ENGINEER TO CONFIRM THAT THE INTENDED METHODS FOR FILL AND COMPACTION OF THE PIPE HAUNCH AREAS SATISFIES THE PLAN REQUIREMENTS. CONTRACTOR SHALL MODIFY THE INSTALLATION METHODS AND REPEAT STEP 2 UNTIL ACCEPTABLE TESTS RESULTS ARE ACHIEVED.

STEP 3
CONTRACTOR MAY INSTALL THE NEXT SEVERAL HUNDRED FEET OF PIPE. ENGINEER SHALL DESIGNATE SEVERAL LOCATIONS (APPROXIMATELY 10% OF THE INSTALLED LENGTH) WHERE CONTRACTOR SHALL LEAVE THE PIPE UNBLINDED FOR FURTHER DENSITY TESTS OF THE HAUNCH FILL AREA. ALL DENSITY TESTS MUST MEET PLAN REQUIREMENTS BEFORE WORK MAY PROCEED FURTHER.

IF DENSITY TESTING DATA CONFIRMS TO THE SATISFACTION OF THE ENGINEER THAT THE CONTRACTOR'S INSTALLATION METHOD WILL PRODUCE CONSISTENT COMPLIANCE WITH PLAN REQUIREMENTS, CONTRACTOR MAY CONTINUE INSTALLATION OF THE PIPE WITH NO ADDITIONAL TESTING REQUIRED. IF NOT, STEPS 2 AND 3 SHALL BE REPEATED UNTIL A RELIABLE, SUCCESSFUL METHOD OF PIPE INSTALLATION THAT PRODUCES SATISFACTORY RESULTS IS ESTABLISHED.

CONTRACTOR IS REQUIRED TO PROPERLY AND ADEQUATELY INSTRUCT SUBCONTRACTORS AND/OR SUBSEQUENT PIPE INSTALLATION WORKERS ON THE PROPER INSTALLATION METHOD.

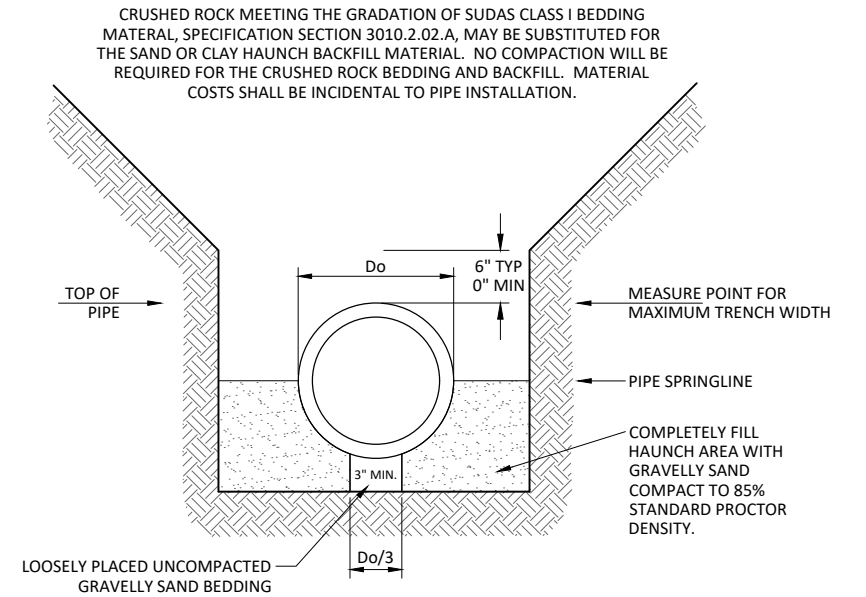
STEP 4A SOIL OR TRENCH CONDITION CHANGES

TO VERIFY CONTRACTOR'S COMPLIANCE WITH PLAN REQUIREMENTS UNDER THE CHANGED CONDITIONS, ENGINEER MAY STOP WORK AND REQUIRE ADDITIONAL SOIL PROCTOR TESTS AND/OR SOIL DENSITY TESTS SIMILAR TO STEPS 1 THROUGH 3. THE WORK AND COSTS OF THE FIRST TWO REVERIFICATIONS IS SUBSIDIARY TO THE PIPE INSTALLATION. SUBSEQUENT VERIFICATIONS WILL BE CONSIDERED EXTRA WORK.

STEP 4B CONTRACTOR FAILS TO CONSISTENTLY PERFORM INSTALLATION METHOD OR INSTRUCT OTHER INSTALLERS

IF CONTRACTOR FAILS TO CONSISTENTLY PERFORM OR ADEQUATELY INSTRUCT SUBCONTRACTORS AND/OR SUBSEQUENT PIPE INSTALLATION WORKERS ON THE APPROVED INSTALLATION METHOD, ENGINEER MAY STOP WORK AND REQUIRE ADDITIONAL SOIL PROCTOR TESTS AND/OR SOIL DENSITY TESTS SIMILAR TO STEPS 1 THROUGH 3 TO VERIFY CONTRACTOR'S COMPLIANCE WITH PLAN REQUIREMENTS. THE WORK AND COSTS OF ALL VERIFICATIONS UNDER SUCH CONDITIONS IS SUBSIDIARY TO THE PIPE INSTALLATION.

EXCEPTION
IF CONTRACTOR ELECTS TO SHAPE THE TRENCH BOTTOM SUCH THAT A MINIMUM OF 45% OF THE OUTER CIRCUMFERENCE OF THE PIPE IS FIRMLY BEDDED IN AND CONSISTENTLY SUPPORTED BY UNDISTURBED SOIL, PIPE HAUNCH FILL COMPACTION TESTING WILL NOT BE REQUIRED. THE CONTRACTOR IS REQUIRED TO COMPLY WITH A PROPER INSTALLATION METHOD AND TO FULLY COMPLY WITH THE REQUIREMENTS OF THE VERIFICATION OUTLINED ABOVE FOR ALL SITUATIONS WHERE THIS EXCEPTION IS NOT MET.

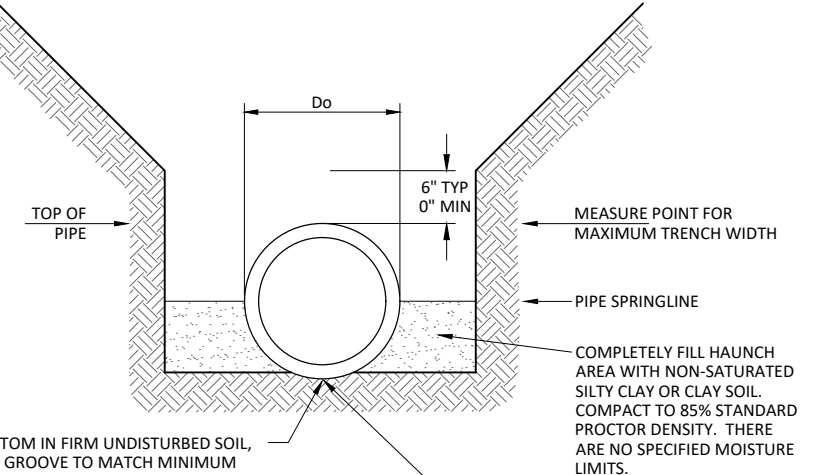


GRAVELLY SAND BEDDING SHALL BE CONSISTENT WITH THE GRADATION AND OTHER CHARACTERISTICS OF STANDARD AASHTO A1 OR A3 SOIL. A REPRESENTATIVE SAMPLE OF THE MATERIAL AND A GRADATION REPORT OR SUPPLIER'S CERTIFICATION OF COMPLIANCE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO DELIVERY TO SITE. SEE SOIL DATA IN APPENDIX OF SPECIFICATIONS BOOKLET.

TRENCH INSTALLATION TYPE 3

NOT TO SCALE
SOURCE: AMERICAN CONCRETE PIPE ASSOCIATION
CONCRETE PIPE DESIGN MANUAL

MINIMUM TRENCH WIDTH SHALL BE OUTSIDE DIAMETER OF PIPE PLUS 12" OR THAT WIDTH WHICH IS REQUIRED FOR COMPACTION, WHICHEVER IS GREATER

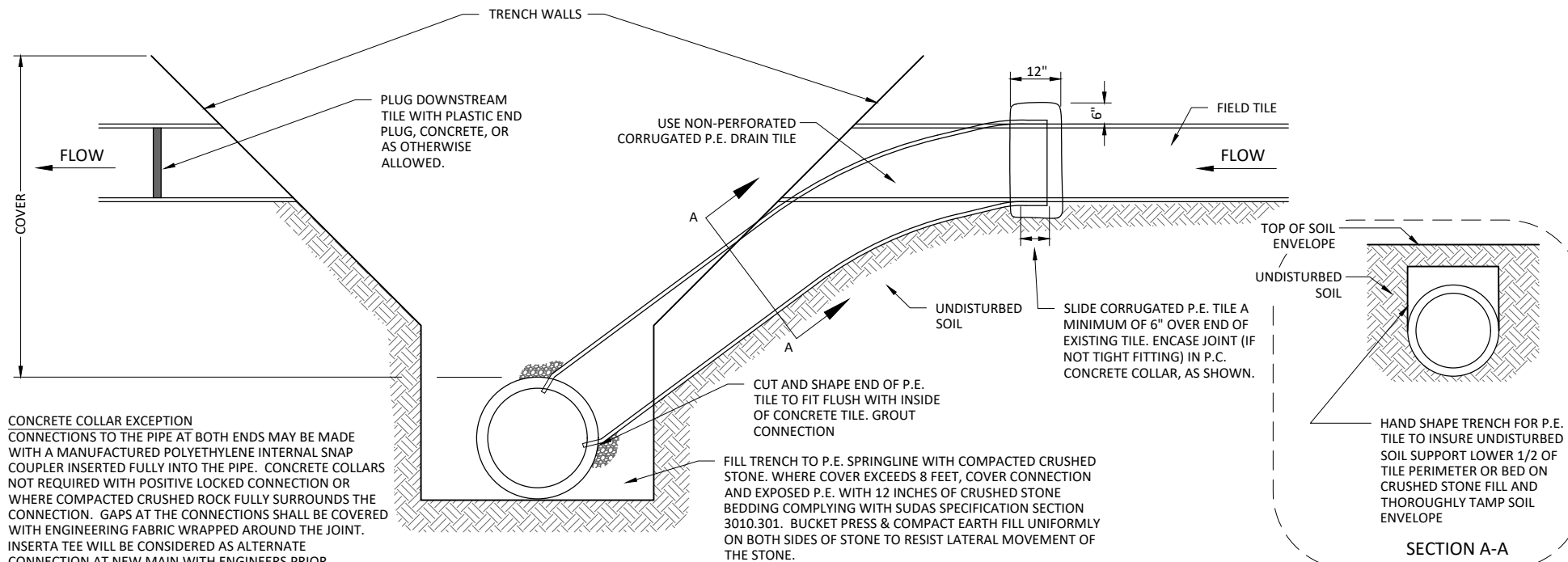


WHERE TRENCH BOTTOM IN FIRM UNDISTURBED SOIL, SHAPE TRENCH BASE GROOVE TO MATCH MINIMUM 1/6 OF THE OUTER CIRCUMFERENCE OF THE PIPE. WHERE THE SHAPED GROOVE CANNOT BE CONSTRUCTED INTO UNDISTURBED GROUND OR WHERE EXCESS CUT OCCURS OVER EXCAVATE AND PLACE MINIMUM 3-INCH THICK COMPACTED GRAVELLY SAND BEDDING TO RESTORE GRADE SUCH THAT 1/6 OR MORE OF THE OUTER CIRCUMFERENCE OF THE PIPE IS BEDDED. THIS MATERIAL AND WORK IS SUBSIDIARY TO THE INSTALLATION OF THE PIPE. CONTRACTOR MAY SUBSTITUTE PIPE BEDDING ROCK AS THE BEDDING MATERIAL. IT ALSO IS SUBSIDIARY.

WHERE FIRM BASE IS NOT ENCOUNTERED. OVER EXCAVATE AS DIRECTED BY ENGINEER. PLACE CRADLING ROCK AND BED PIPE IN IT SUCH THAT 1/6 OR MORE OF THE OUTER CIRCUMFERENCE OF THE PIPE IS SUPPORTED. THIS ROCK IS PAID FOR UNDER A SEPARATE BID ITEM.

MODIFIED TRENCH INSTALLATION TYPE 4

NOT TO SCALE
SOURCE: AMERICAN CONCRETE PIPE ASSOCIATION
CONCRETE PIPE DESIGN MANUAL



TYPICAL FIELD TILE CONNECTION
FOR FIELD TILE UP TO 10" DIAMETER

CONCRETE COLLAR EXCEPTION
CONNECTIONS TO THE PIPE AT BOTH ENDS MAY BE MADE WITH A MANUFACTURED POLYETHYLENE INTERNAL SNAP COUPLER INSERTED FULLY INTO THE PIPE. CONCRETE COLLARS NOT REQUIRED WITH POSITIVE LOCKED CONNECTION OR WHERE COMPACTED CRUSHED ROCK FULLY SURROUNDS THE CONNECTION. GAPS AT THE CONNECTIONS SHALL BE COVERED WITH ENGINEERING FABRIC WRAPPED AROUND THE JOINT. INSERTA TEE WILL BE CONSIDERED AS ALTERNATE CONNECTION AT NEW MAIN WITH ENGINEERS PRIOR APPROVAL AND INSTALLATION PER MANUFACTURERS RECOMMENDATION.



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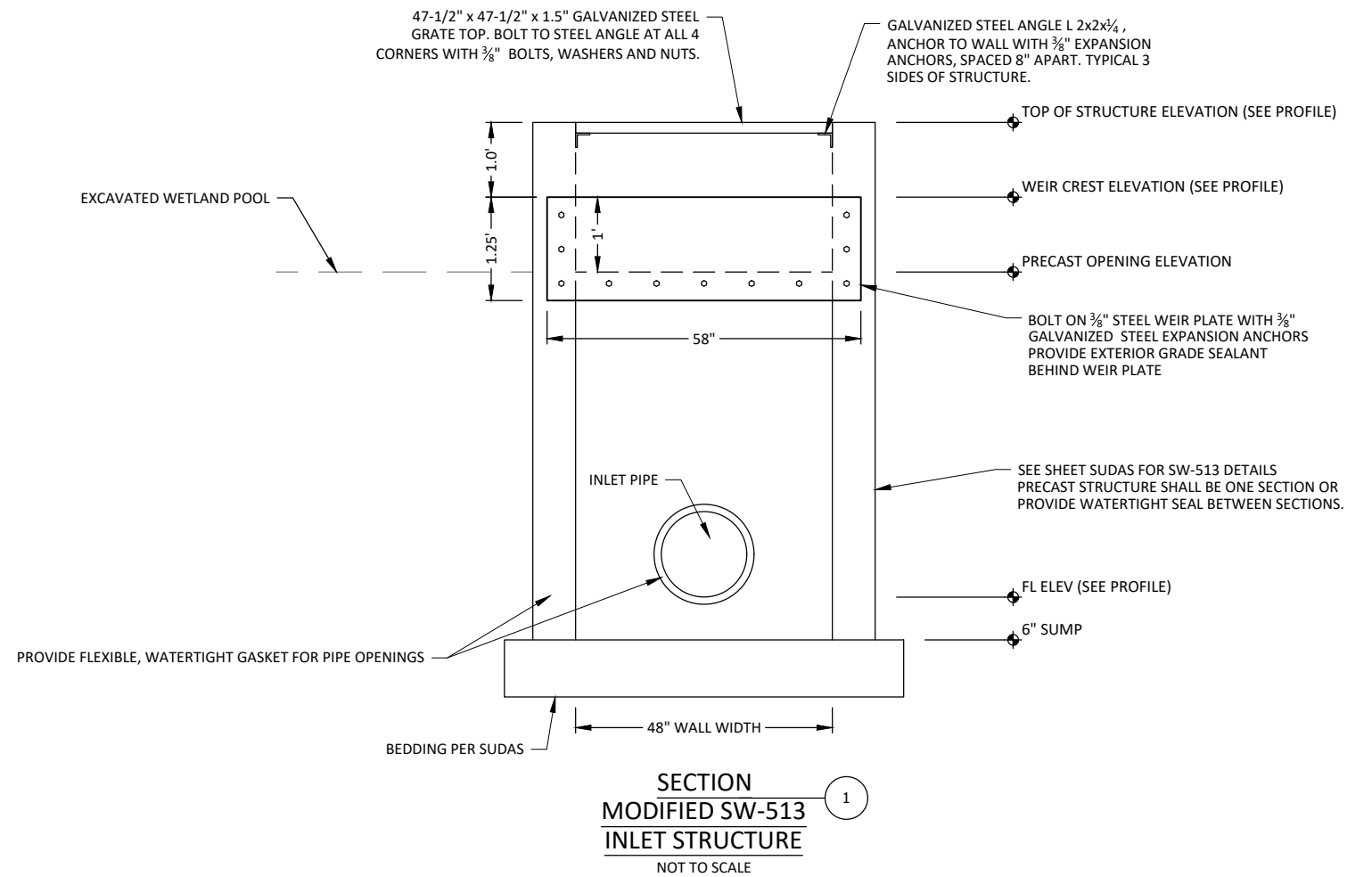
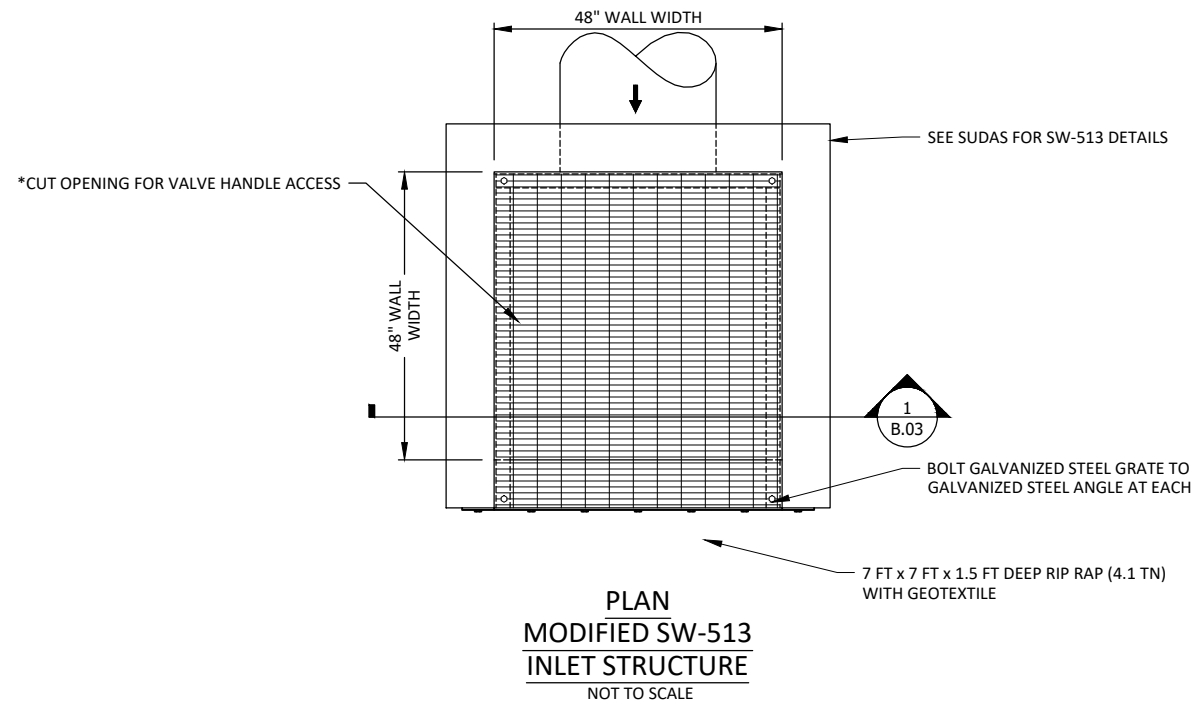
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HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
RCP INSTALLATION DETAIL

SHEET
B.02

NOTES:

1. BAR GRATE SHALL BE McNICHOLS HEAVY DUTY WELDED GHB-100, 19 W-4, OR APPROVED EQUAL.
2. ALL FASTENERS SHALL BE GALVANIZED OR STAINLESS STEEL.
3. WEIR PLATE, STEEL GRATE, AND ALL HARDWARE AND APPURTENANCES SHOWN ON THIS PAGE OR REQUIRED FOR INSTALLATION ARE SUBSIDIARY TO THE INLET STRUCTURE.



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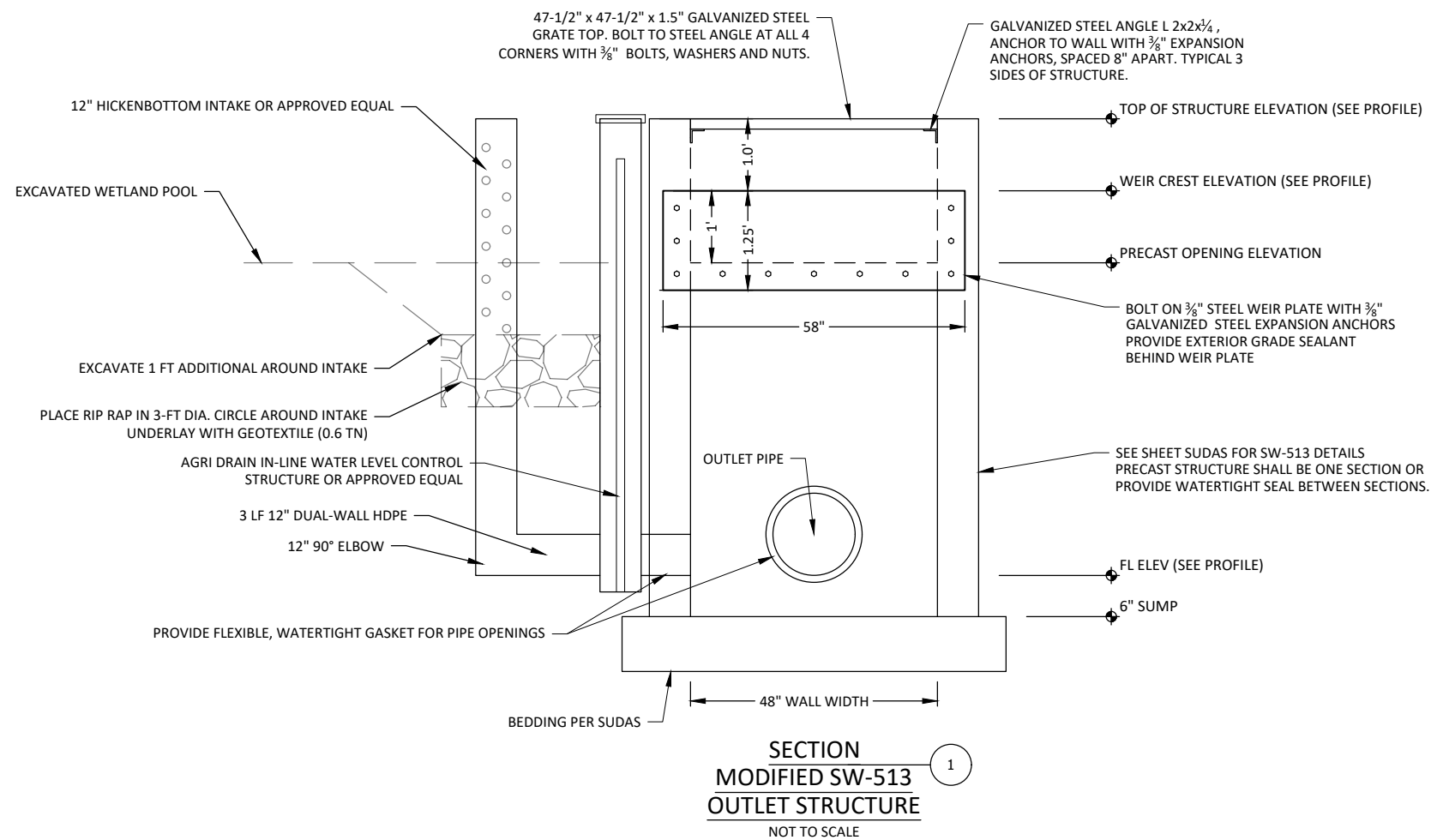
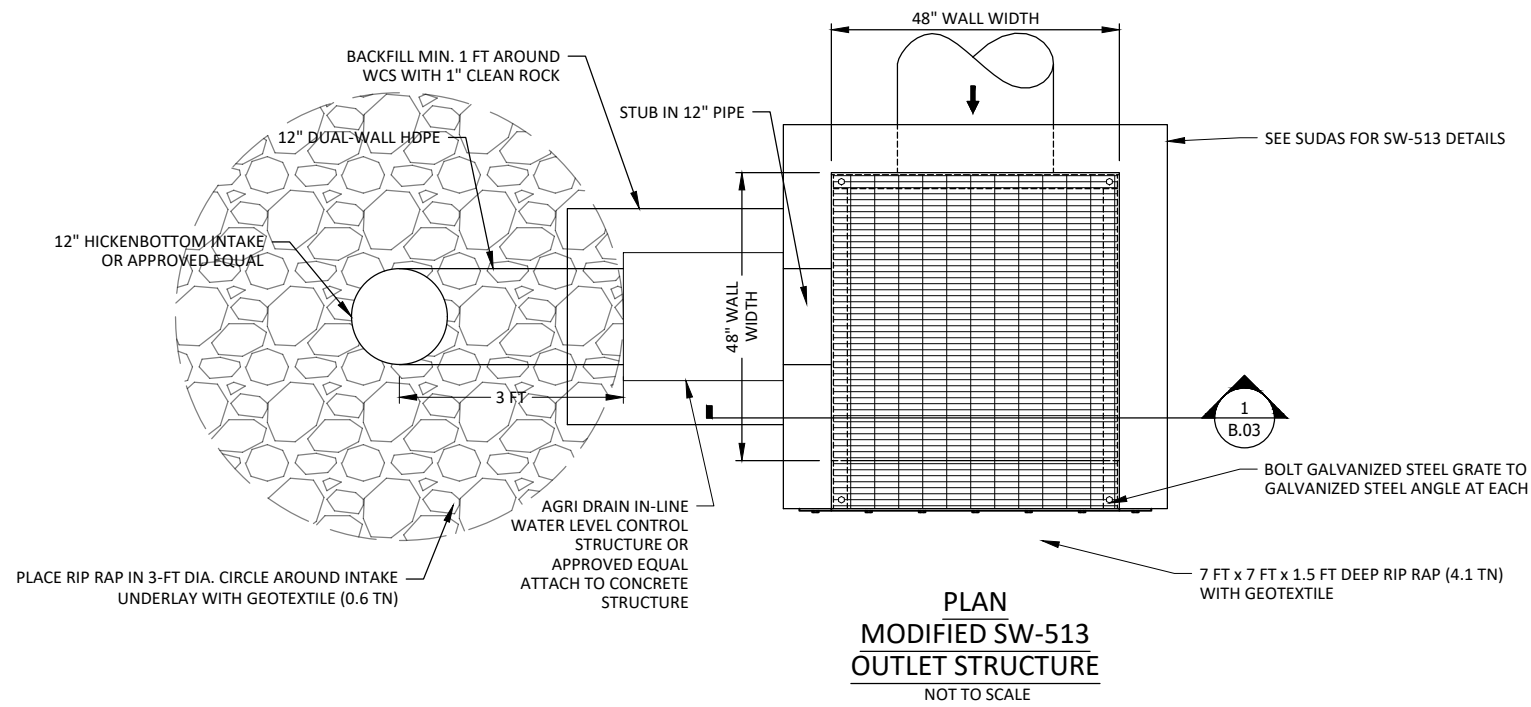


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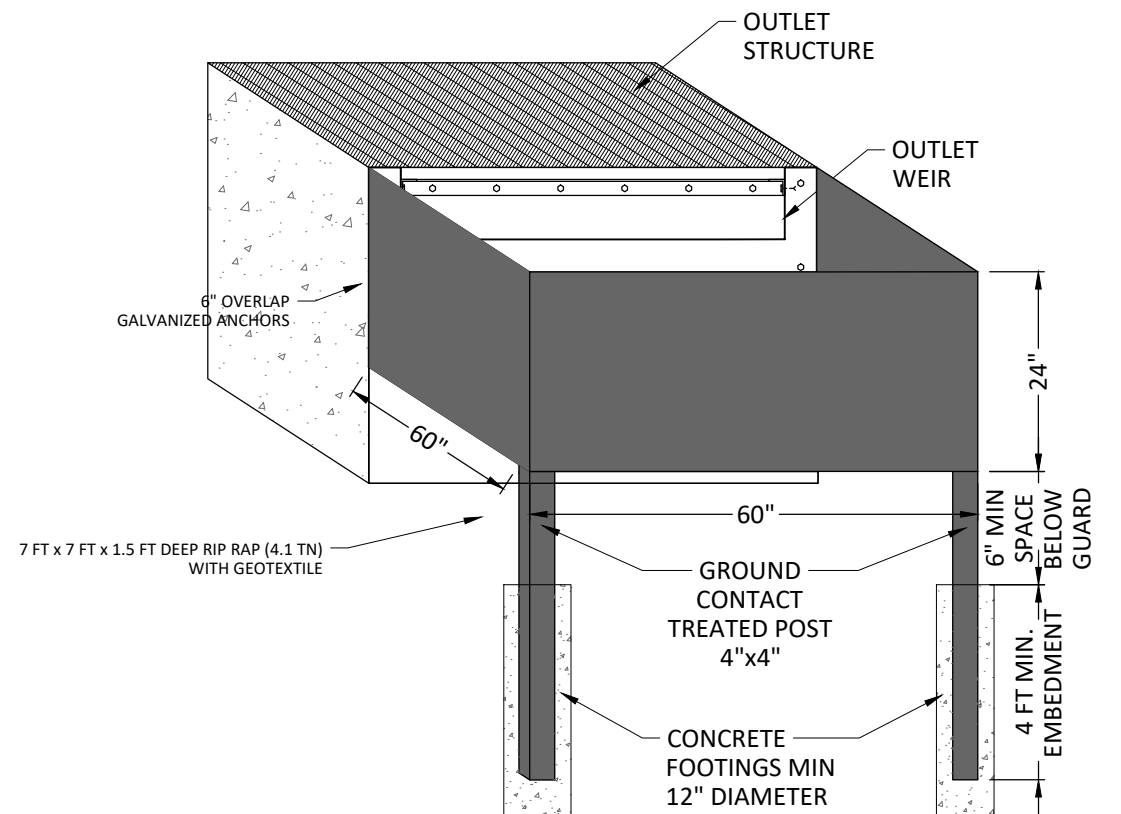
HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
WETLAND INLET STRUCTURE

SHEET
B.03



TRASH GUARD FOR WETLAND OUTLET STRUCTURE

NOT TO SCALE



- 1 - STEEL SHEET - 60" x 24" x 3/8"
- 2 - STEEL SHEETS - 72" x 24" x 3/8"
- ANGLE IRON--EITHER WELDED OR BOLTED--ON TOP AND BOTTOM OF EACH SHEET AS BRACE
- BOLT TRASH GUARD ONTO OUTLET STRUCTURE
- GRADE AS NECESSARY TO ALLOW FLOW OF WATER UNDER TRASH GUARD WITH 6" MINIMUM CLEARANCE

NOTES:

1. BAR GRATE SHALL BE McNICHOLS HEAVY DUTY WELDED GHB-100, 19 W-4, OR APPROVED EQUAL.
2. INSTALL WITH ALL STOPLOGS IN PLACE.
3. ALL FASTENERS SHALL BE GALVANIZED OR STAINLESS STEEL.
4. DUAL-WALL HDPE, FIELD INTAKE, KNIFE/GATE VALVE, WEIR PLATE, TRASH GUARD, STEEL GRATE, AND ALL HARDWARE AND APPURTENANCES SHOWN ON THIS PAGE OR REQUIRED FOR INSTALLATION ARE SUBSIDIARY TO THE OUTLET STRUCTURE.

DESIGNED	REV	DESCRIPTION	DATE
BCS	1.1	BID PLANS	01-22-2026
NVD			
JPR			
CLIENT PROJ. NO.	0A1.127685		

Bid Item	Sub - Item	Description	Specifications		Plan No.	Estimated Quantities	
			No.	Page		Quantity	Unit or Select
1	-	Site Stripping & Preparation	IA CS-001			1.0	LS
2	-	Crop Damage	IA CS-001			0.0	AC
3	-	Structure & Channel Seeding	IA CS-006			2.5	AC
4	-	Buffer Seeding	IA CS-006			0.4	AC
5	-	Mobilization and Demobilization	IA CS-008			1.0	LS
6	-	Drain Tile Investigation and Removal	IA CS-009			4	HR
7	-	Excavation (General)	IA CS-021			19671	CY
8	-	Earthfill (General)	IA CS-023			1464	CY
9	-	Reinforced Concrete Pipe					
	A.	12" Diameter	IA CS-031			1344	LF
	B.	15" Diameter	IA CS-031			932	LF
	C.	18" Diameter	IA CS-031			369	LF
10	-	Smooth Lined CPDT Pipe (15" Diameter)	IA CS-046			1579	LF
11	-	Tile Connection - 10" Dia. or Smaller	IA CS-046			1	EA
12	-	Tile Connection - 12" Dia. or Larger	IA CS-046			2	EA
13	-	Modified SW-513 Inlet Structure	IA CS-031			1	EA
14	-	Modified SW-513 Outlet Structure	IA CS-031			1	EA
15	-	SW-401 Concrete Manhole Structure	IA CS-031			1	EA
16	-	Reinforced Concrete Apron, Footing, Bar Guard					
	A.	12" Diameter	IA CS-031			2	EA
	B.	15" Diameter	IA CS-031			1	EA
17	-	Tied Concrete Block Mat	IA CS-031			2350	SF
18	-	Riprap (Class E)	IA CS-061			33.3	TN

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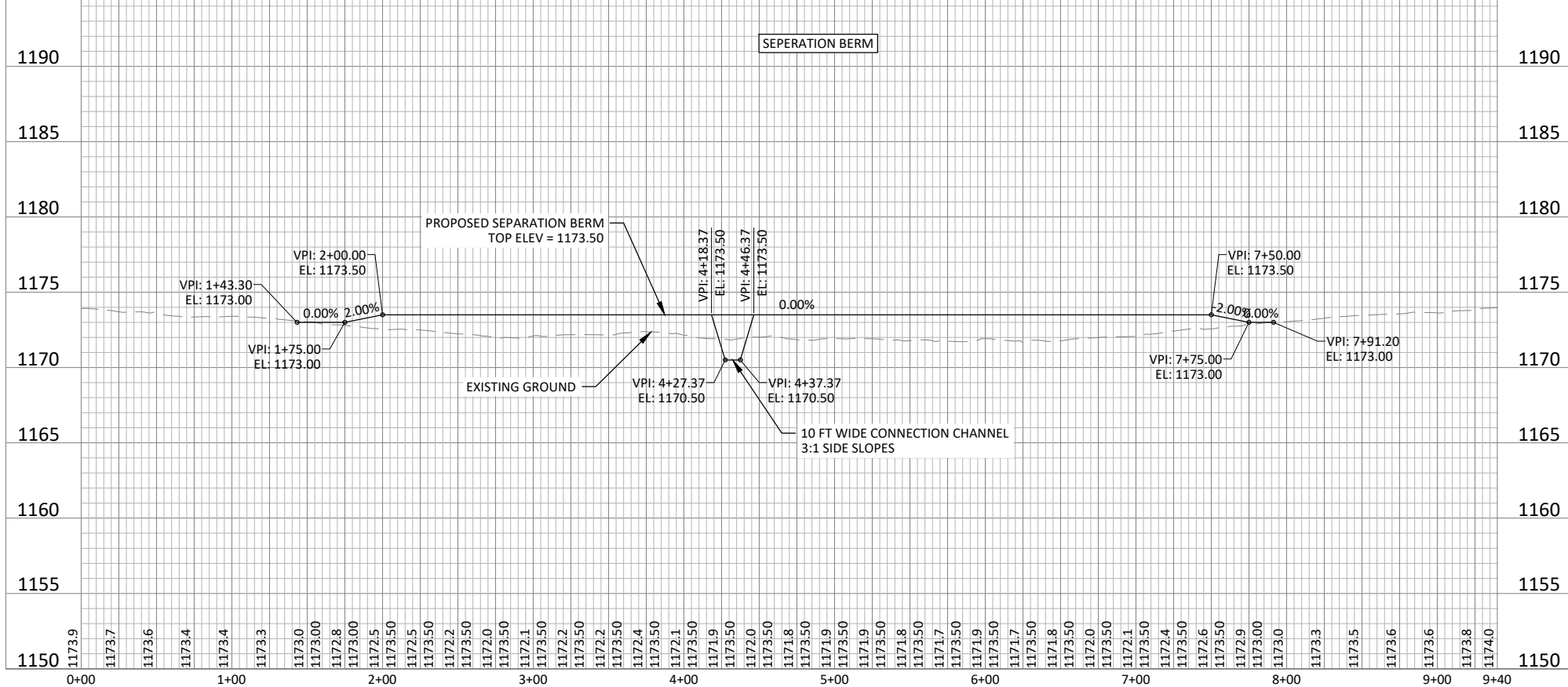
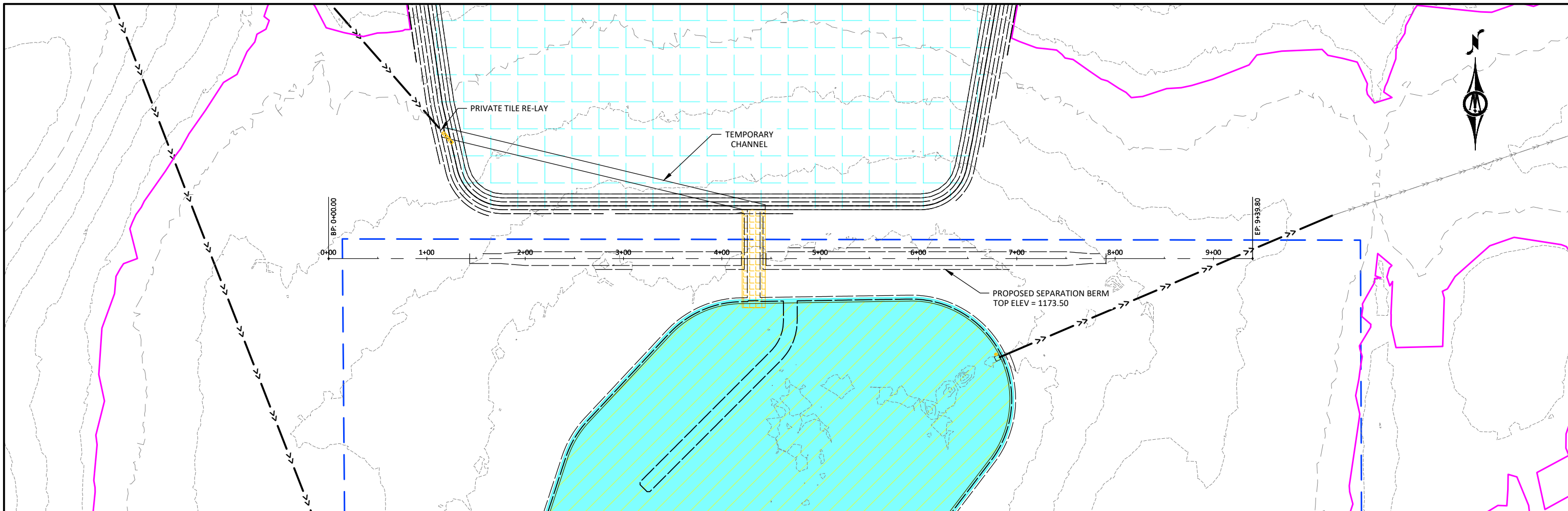


1519 BALTIMORE DRIVE
AMES, IA 50010
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www.bolton-menk.com

DESIGNED	REV	DESCRIPTION	DATE
BCS	1.1	BID PLANS	01-22-2026
DRAWN	NVD		
CHECKED	JPR		
CLIENT PROJ. NO.	0A1.127685		

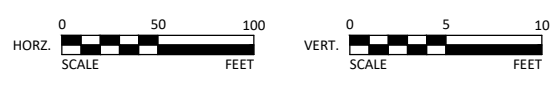
HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
ESTIMATED QUANTITIES

SHEET
C.01



LEGEND

- NORMAL POOL (1171.00)
- DEEP WATER AREA (<1168.00)
- 100-YEAR HWL (1175.31)
- PROPOSED EASEMENT BOUNDARY
- EXCAVATE TO 1170.50
- RIP-RAP
- FLEXAMAT CONCRETE BLOCK MAT



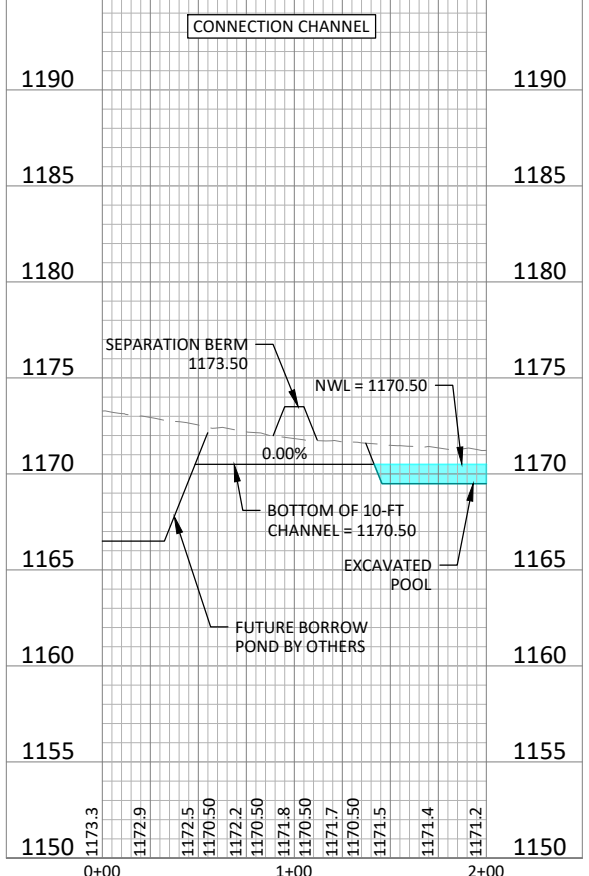
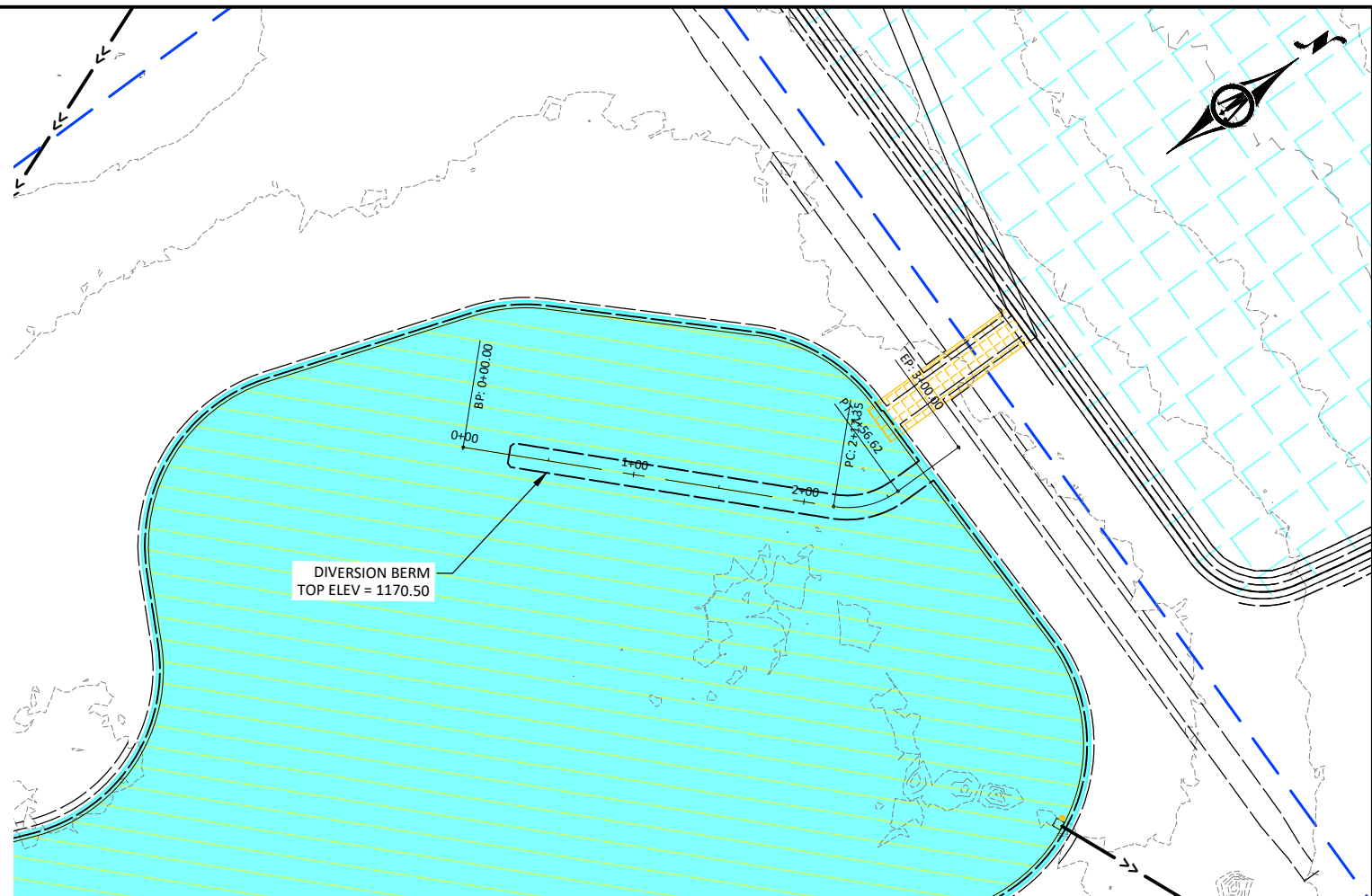
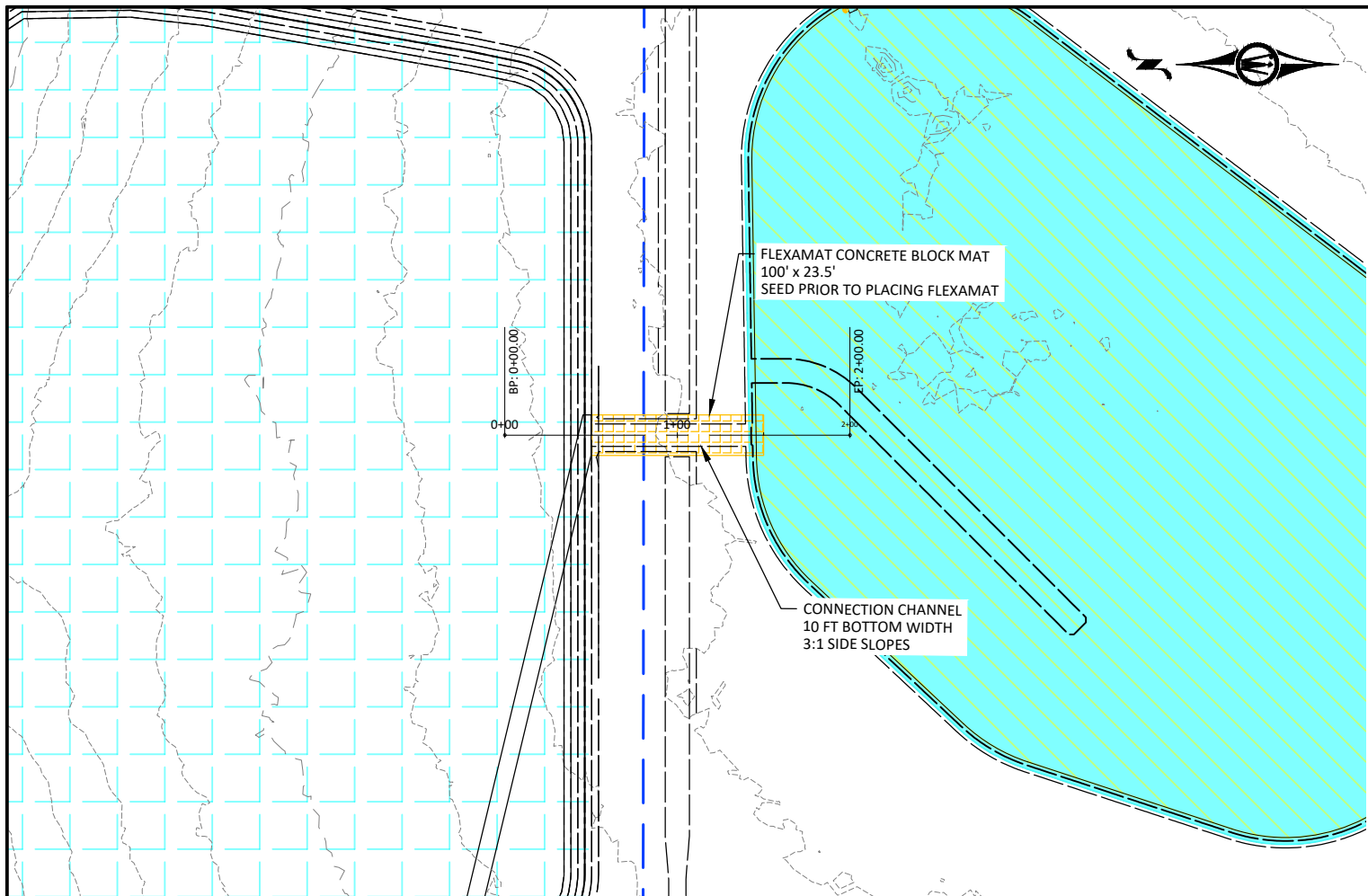
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DESIGNED	REV	DESCRIPTION	DATE
BCS	1.1	BID PLANS	01-22-2026
NVD			
JPR			
CLIENT PROJ. NO.	0A1.127685		

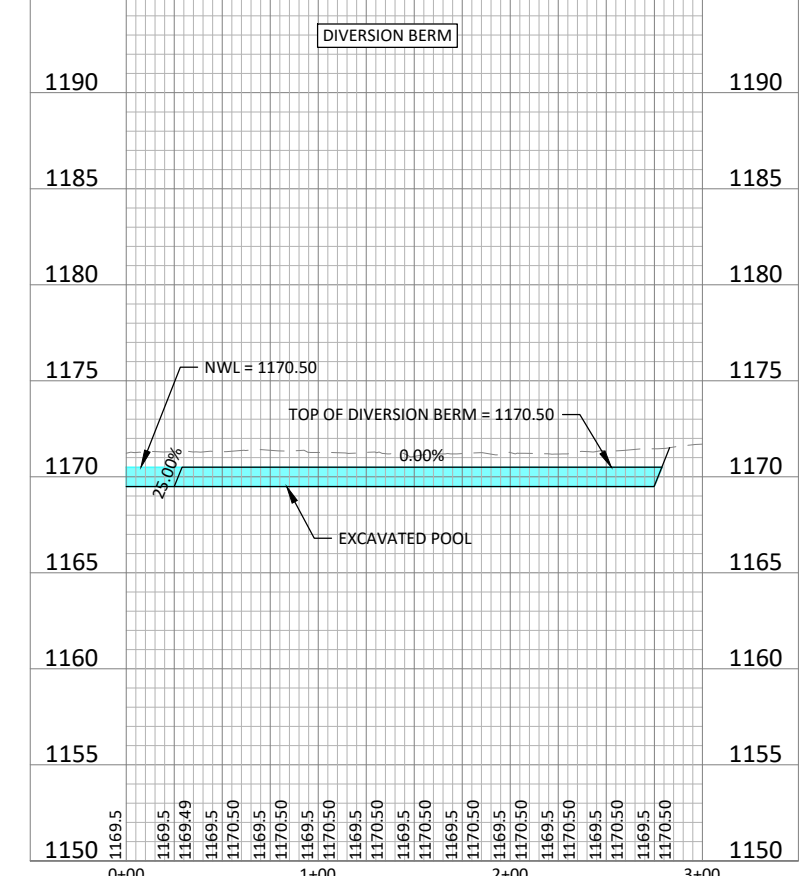
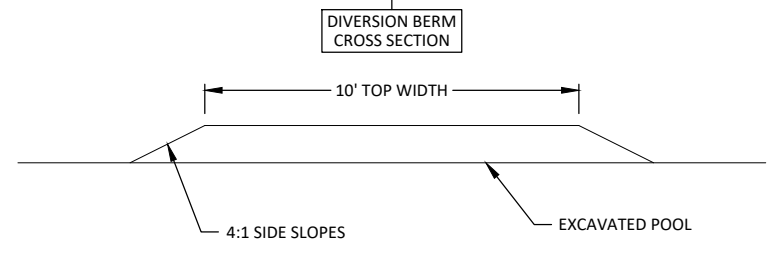
HAMILTON COUNTY, IOWA
 HAM892326B NUTRIENT REDUCTION WETLAND
 SEPERATION BERM PLAN & PROFILE

SHEET
D.01

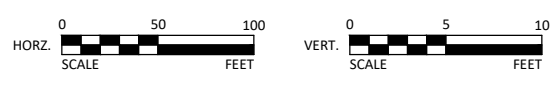
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- LEGEND**
- NORMAL POOL (1171.00) [Cyan hatched]
 - DEEP WATER AREA (<1168.00) [Blue hatched]
 - 100-YEAR HWL (1175.31) [Pink hatched]
 - PROPOSED EASEMENT BOUNDARY [Blue dashed line]
 - EXCAVATE TO 1170.50 [Cyan hatched]
 - RIP-RAP [Orange hatched]
 - FLEXAMAT CONCRETE BLOCK MAT [Yellow dashed line]



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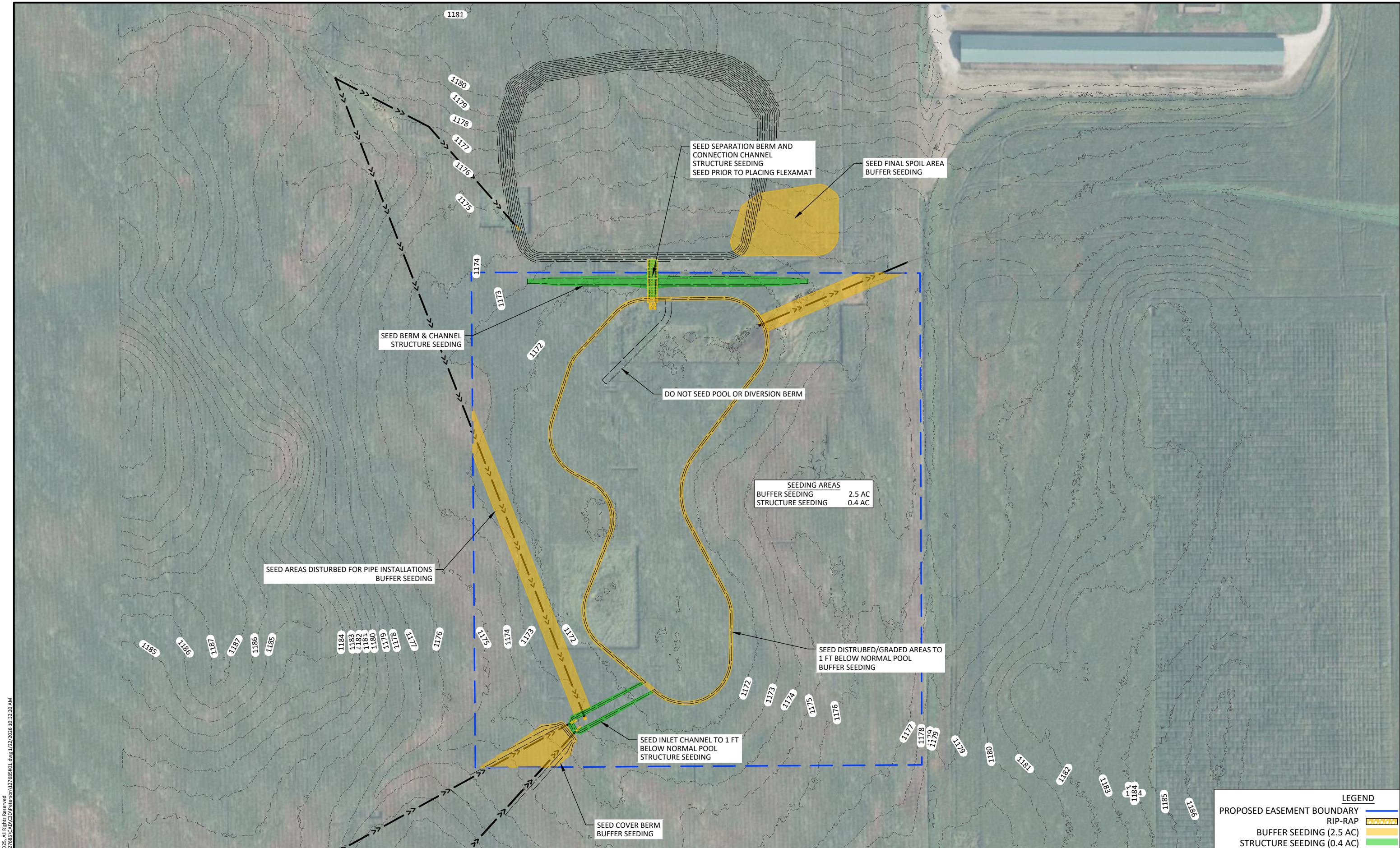


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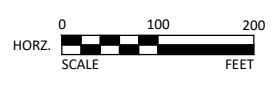
DESIGNED	REV	DESCRIPTION	DATE
BCS	1.1	BID PLANS	01-22-2026
NVD			
JPR			
CLIENT PROJ. NO.		0A1.127685	

HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
CONNECTION CHANNEL & DIVERSION BERM

SHEET
D.02



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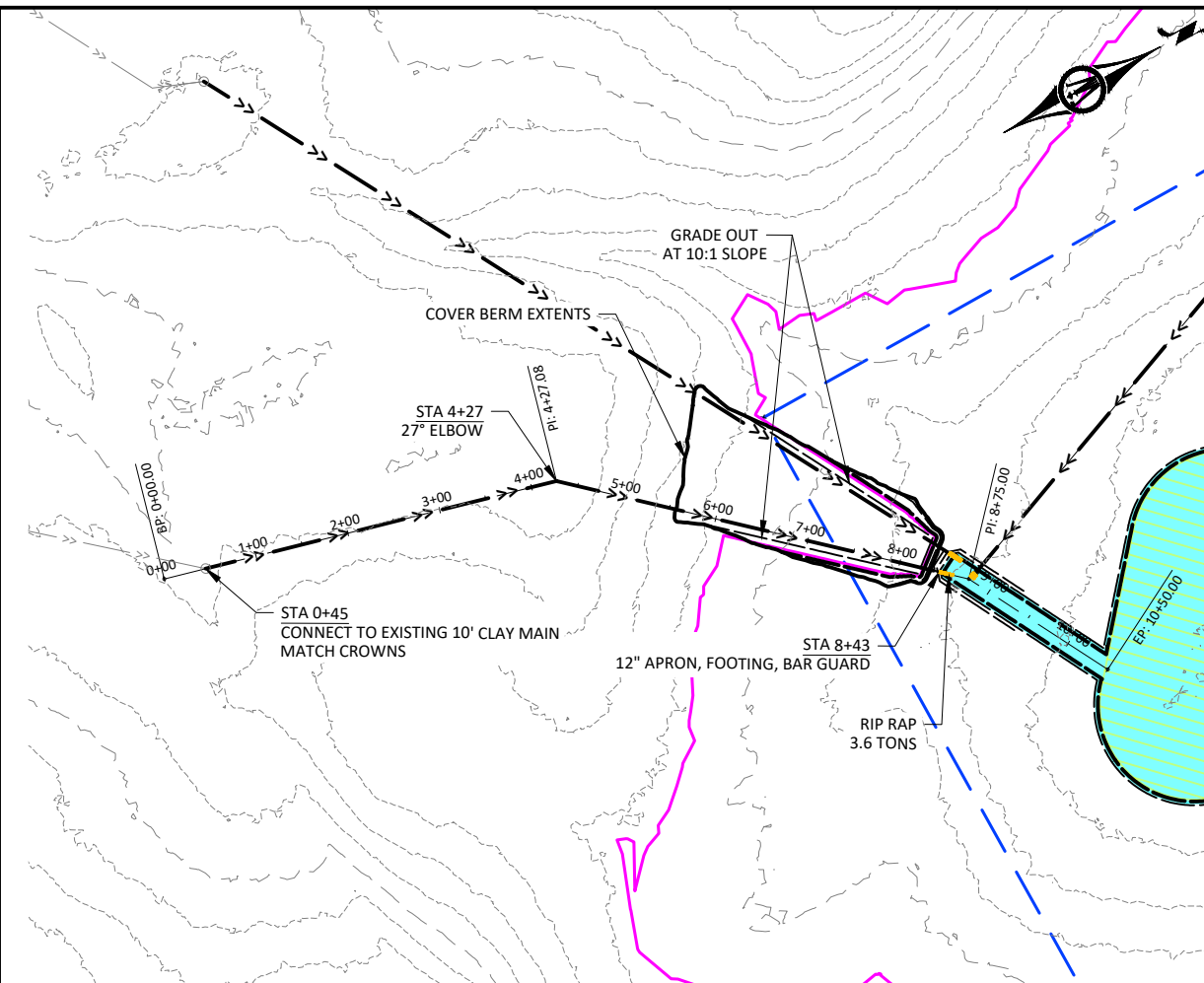
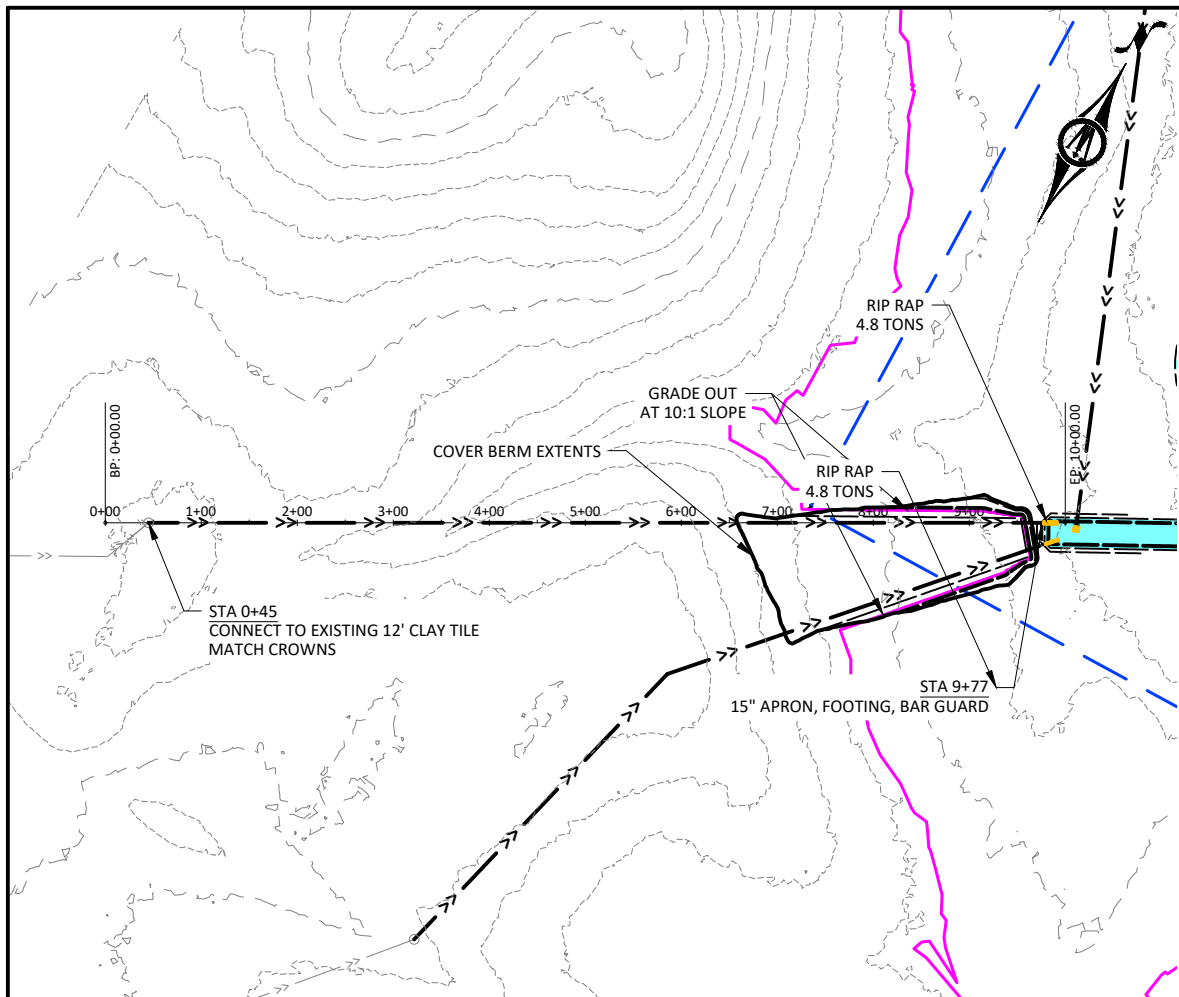
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DESIGNED	REV	DESCRIPTION	DATE
BCS	1.1	BID PLANS	01-22-2026
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JPR			
CLIENT PROJ. NO.	0A1.127685		

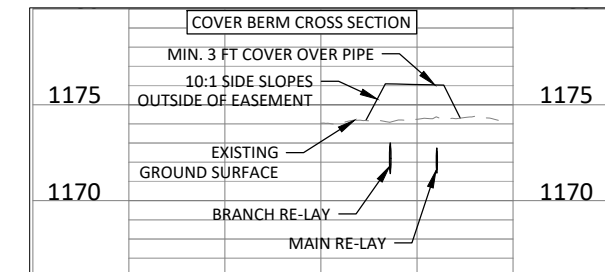
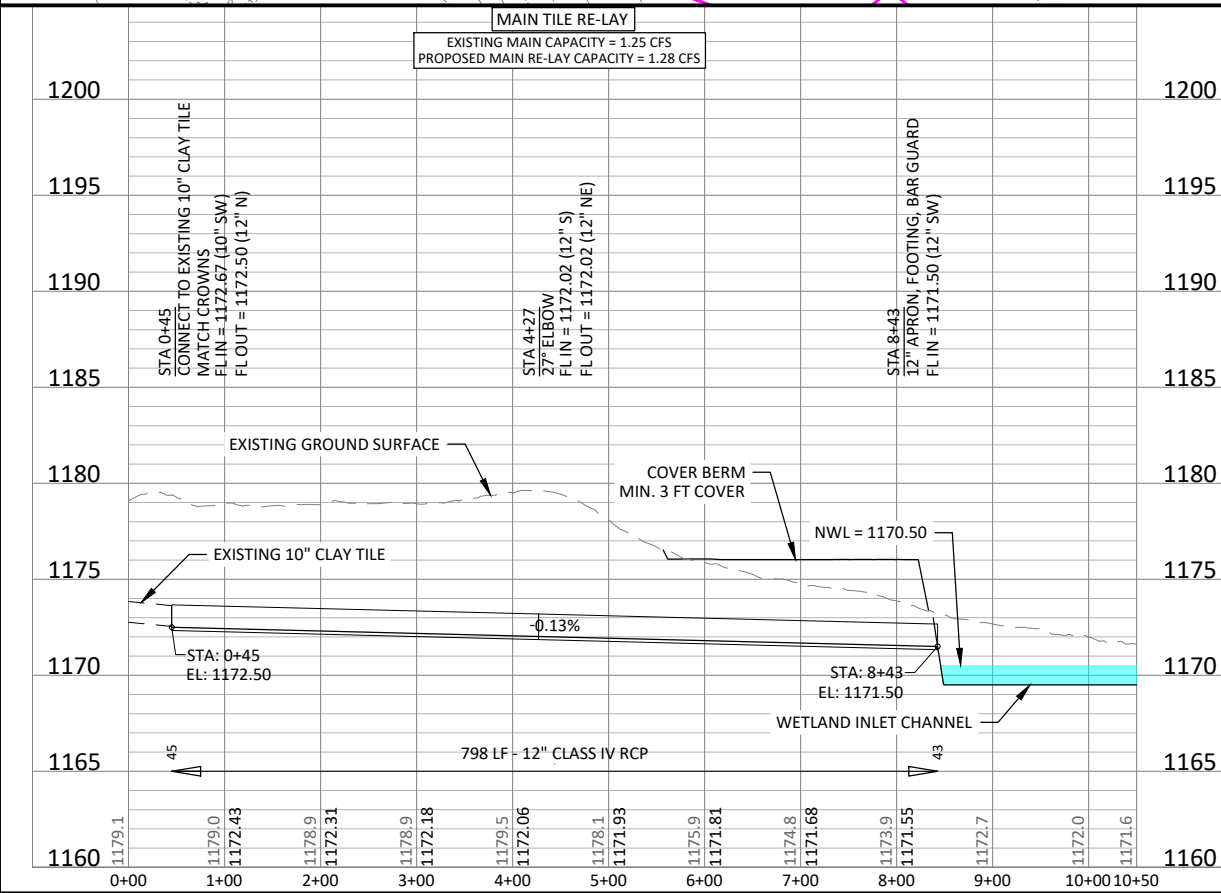
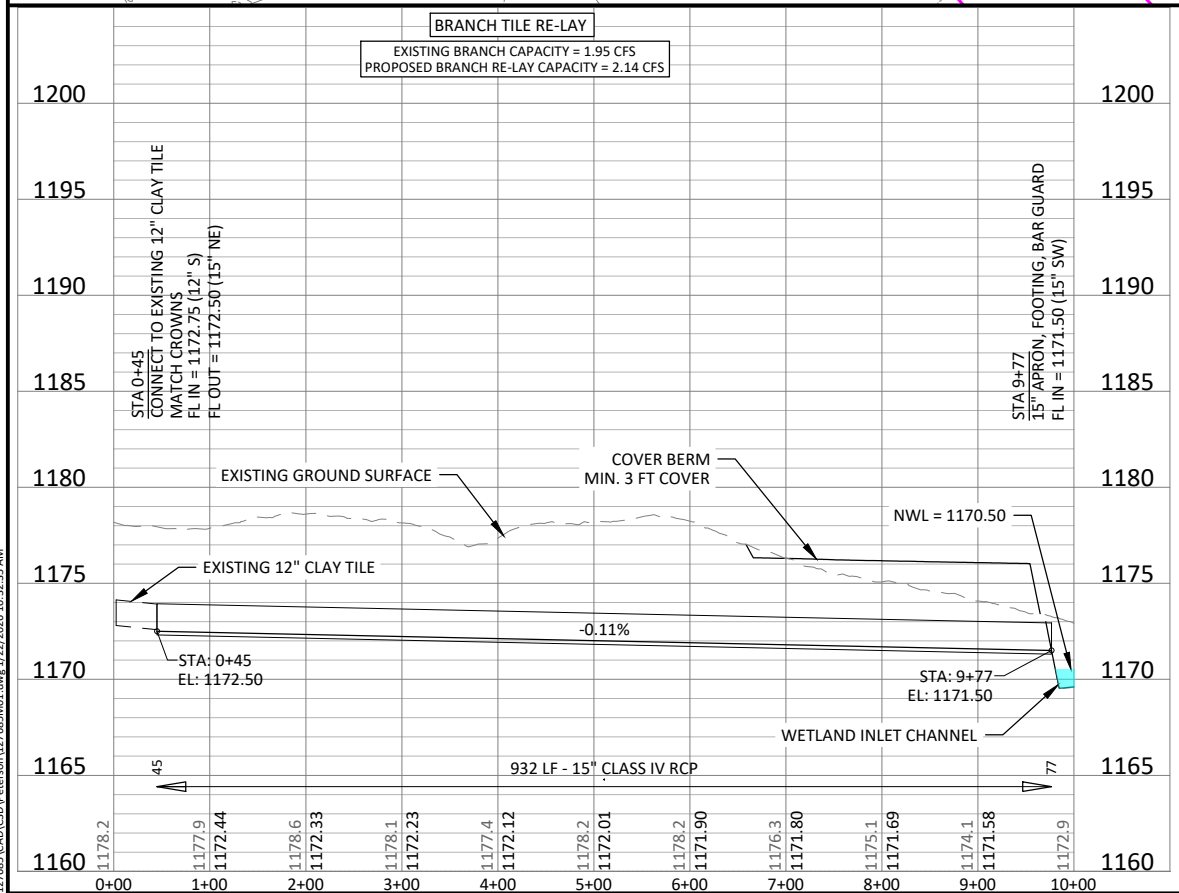
HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
SEEDING PLAN

LEGEND	
PROPOSED EASEMENT BOUNDARY	
RIP-RAP	
BUFFER SEEDING (2.5 AC)	
STRUCTURE SEEDING (0.4 AC)	

SHEET
K.01



LEGEND	
NORMAL POOL (1171.00)	
DEEP WATER AREA (<1168.00)	
100-YEAR HWL (1175.31)	
PROPOSED EASEMENT BOUNDARY	
RIP-RAP	
EXCAVATE TO 1170.50	
FLEXAMAT CONCRETE BLOCK MAT	



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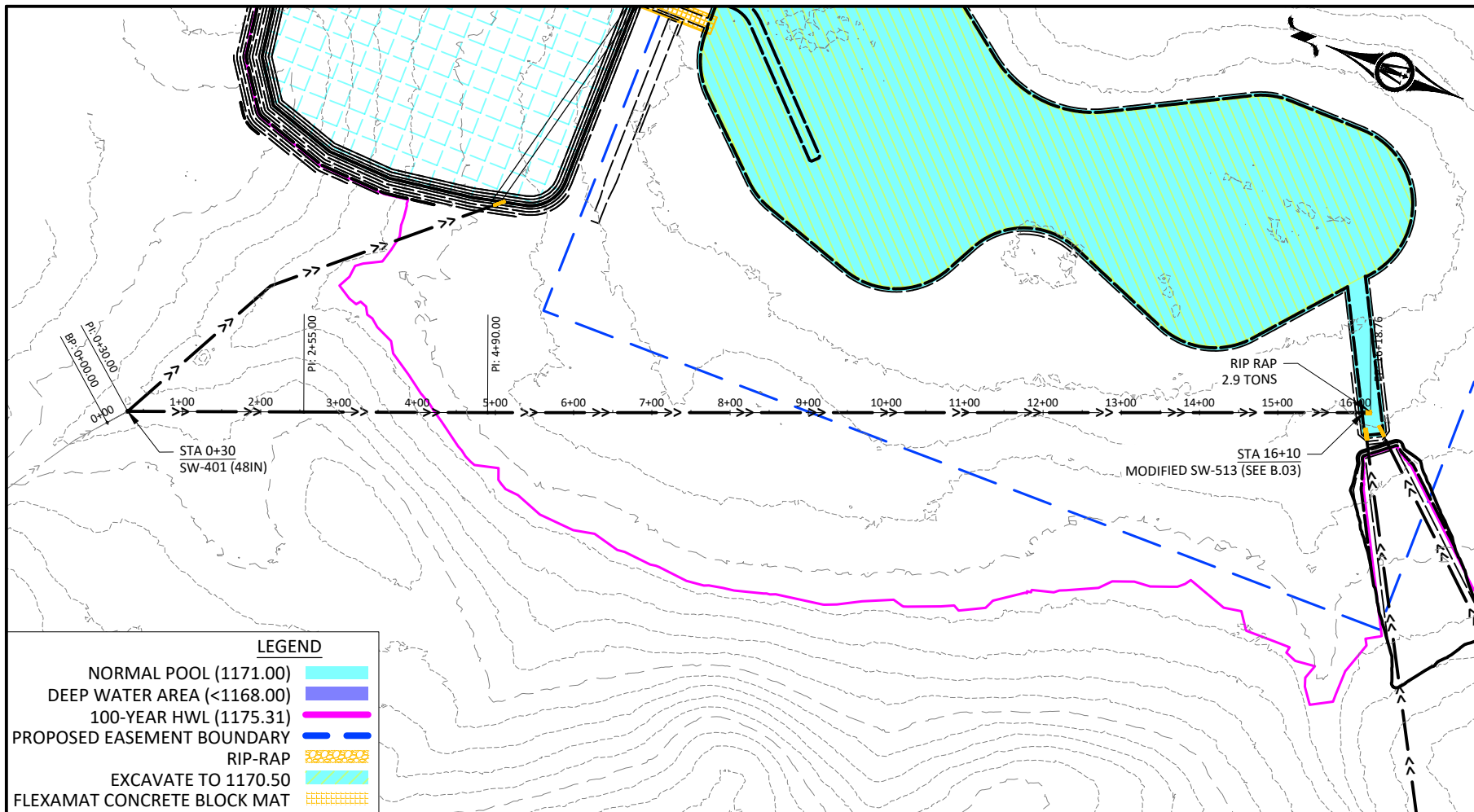


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DESIGNED	REV	DESCRIPTION	DATE
BCS	1.1	BID PLANS	01-22-2026
NVD			
JPR			
CLIENT PROJ. NO.		0A1.127685	

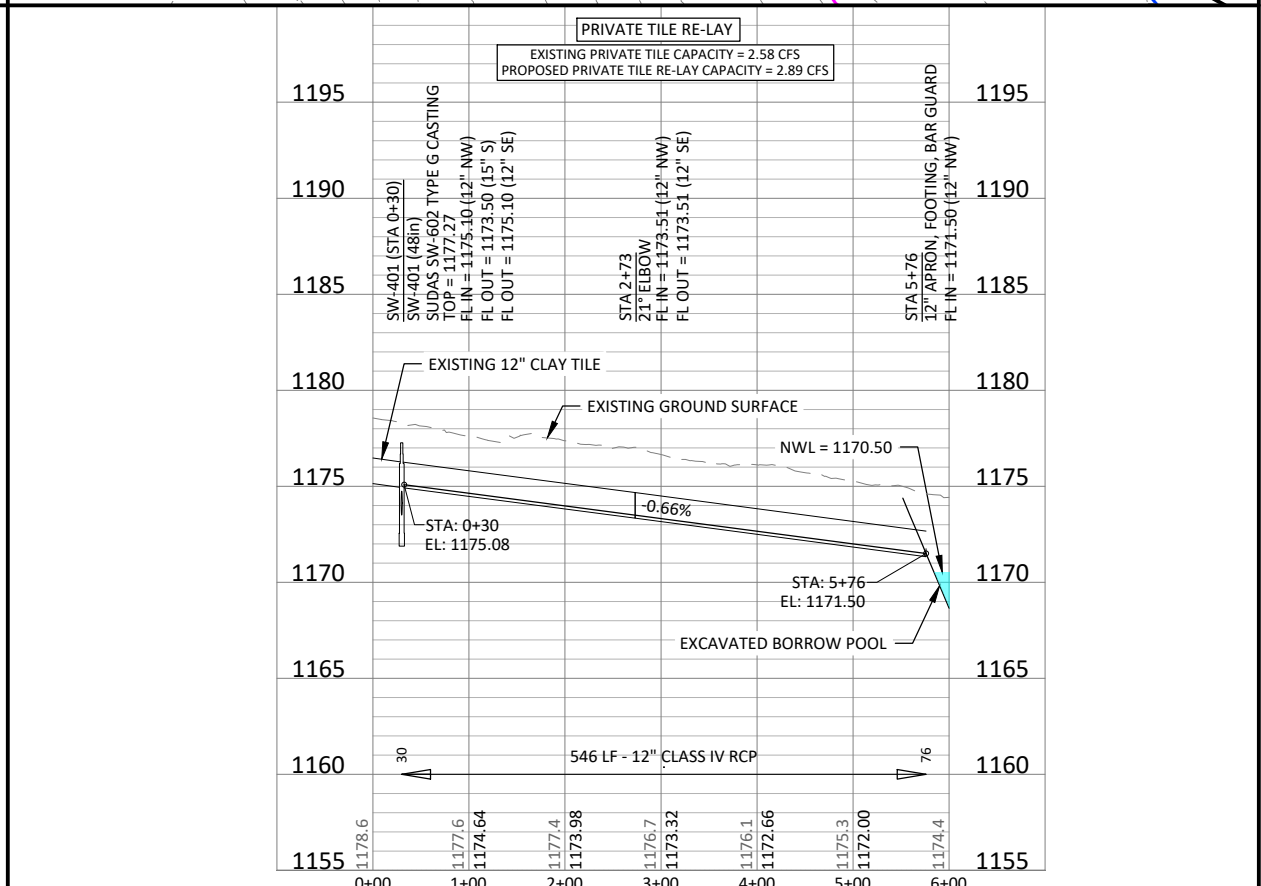
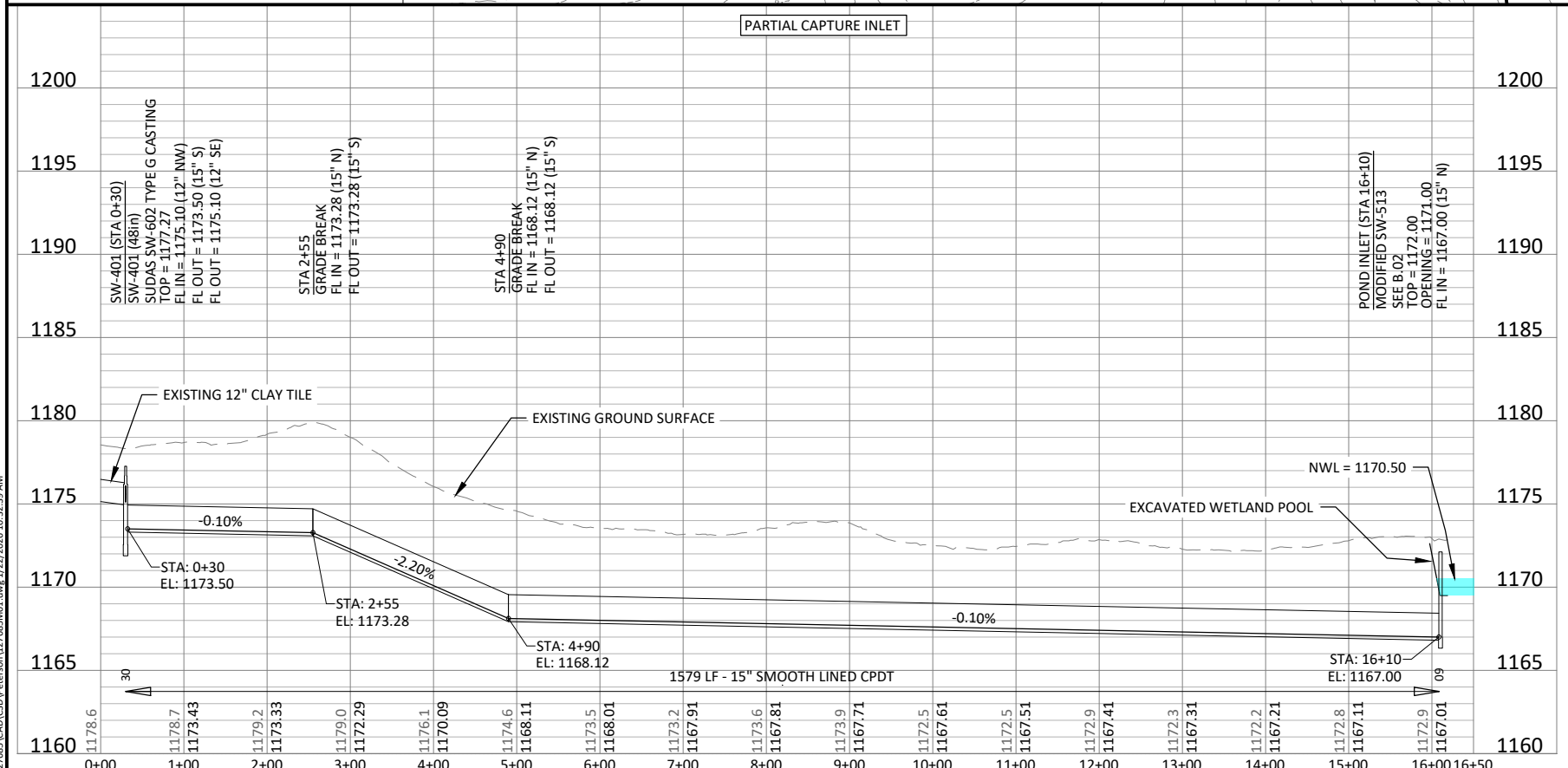
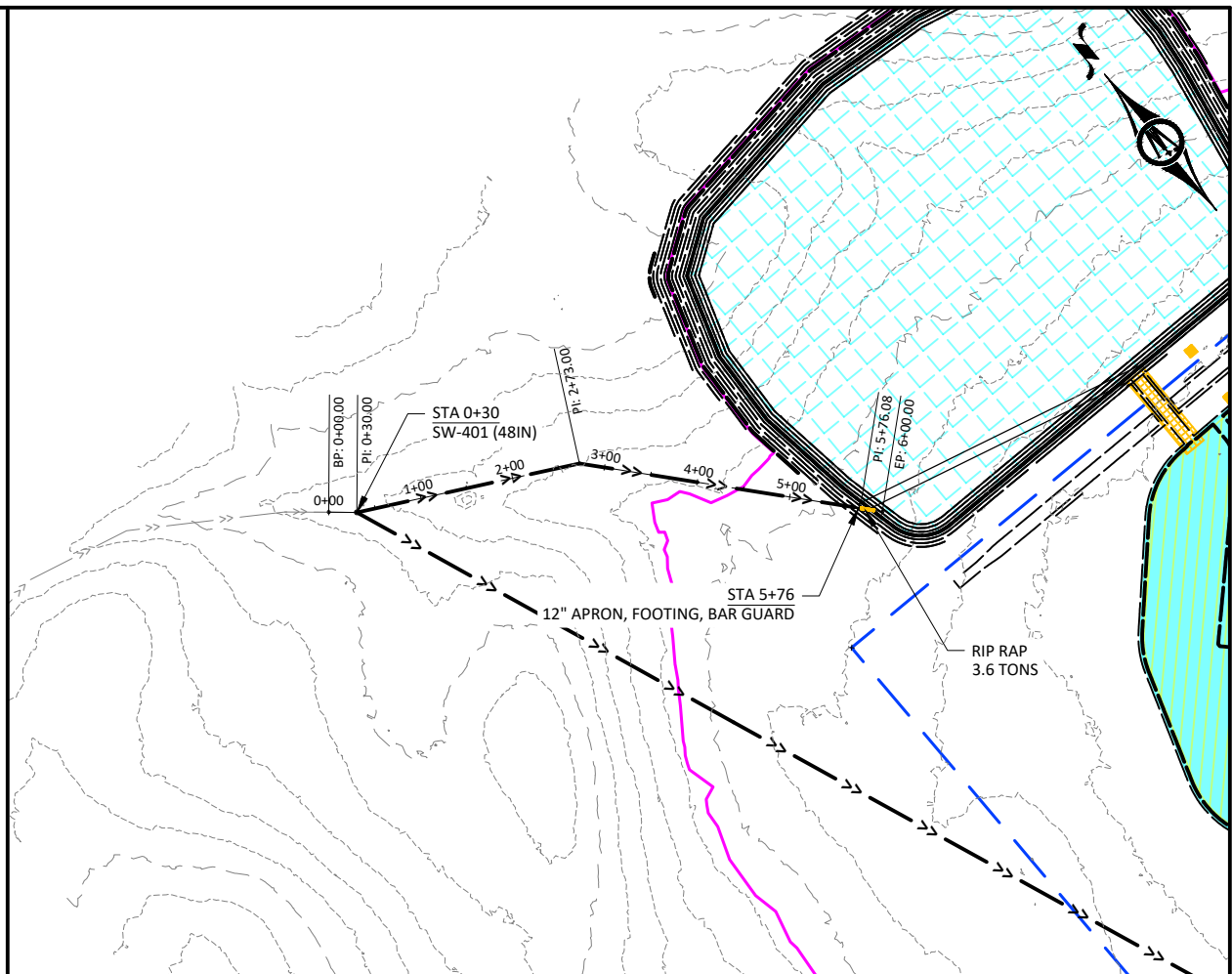
HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
PLAN AND PROFILE - TILE RELAYS

SHEET
M.01

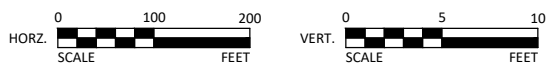


LEGEND

- NORMAL POOL (1171.00)
- DEEP WATER AREA (<1168.00)
- 100-YEAR HWL (1175.31)
- PROPOSED EASEMENT BOUNDARY
- RIP-RAP
- EXCAVATE TO 1170.50
- FLEXAMAT CONCRETE BLOCK MAT



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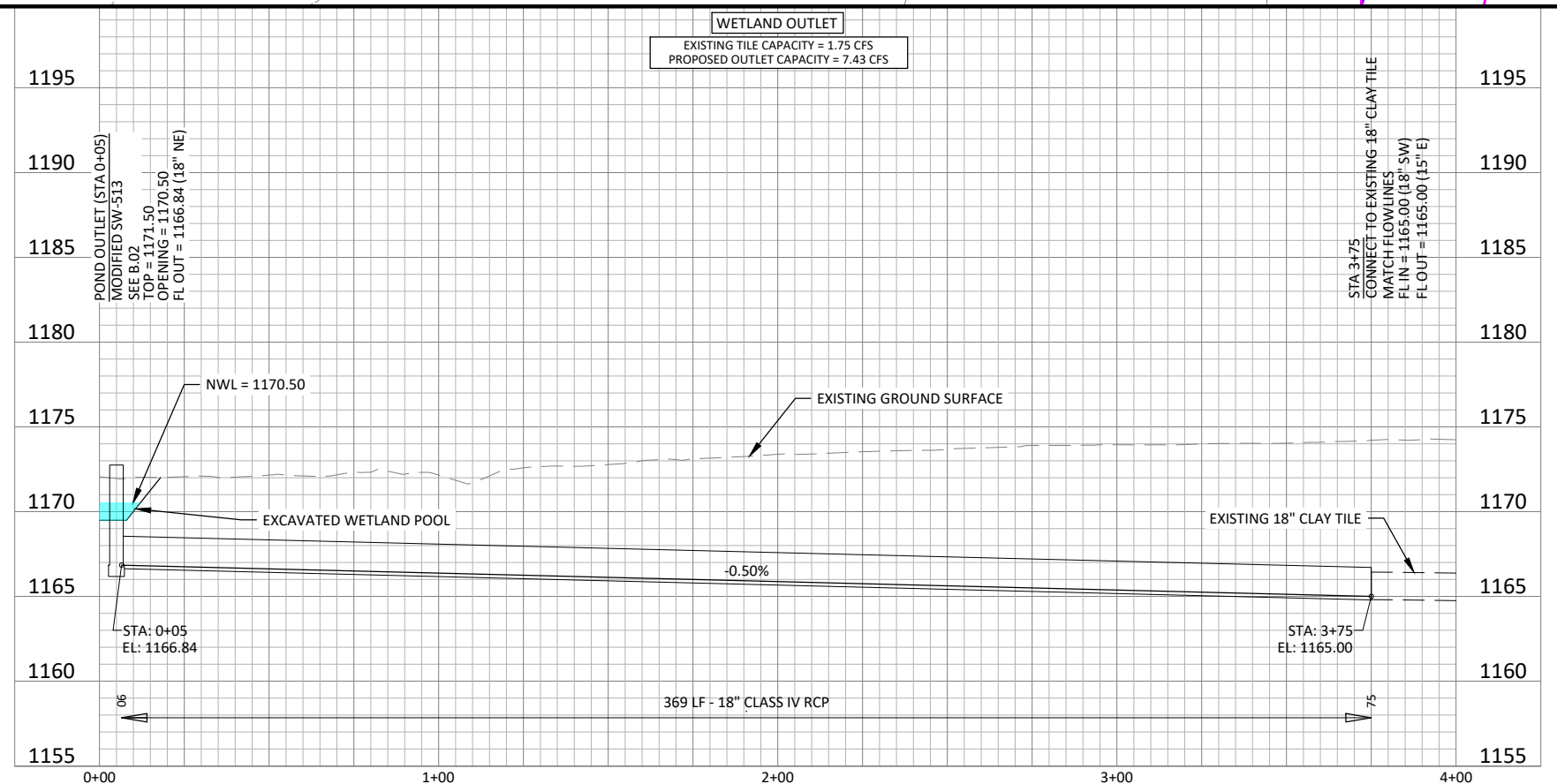
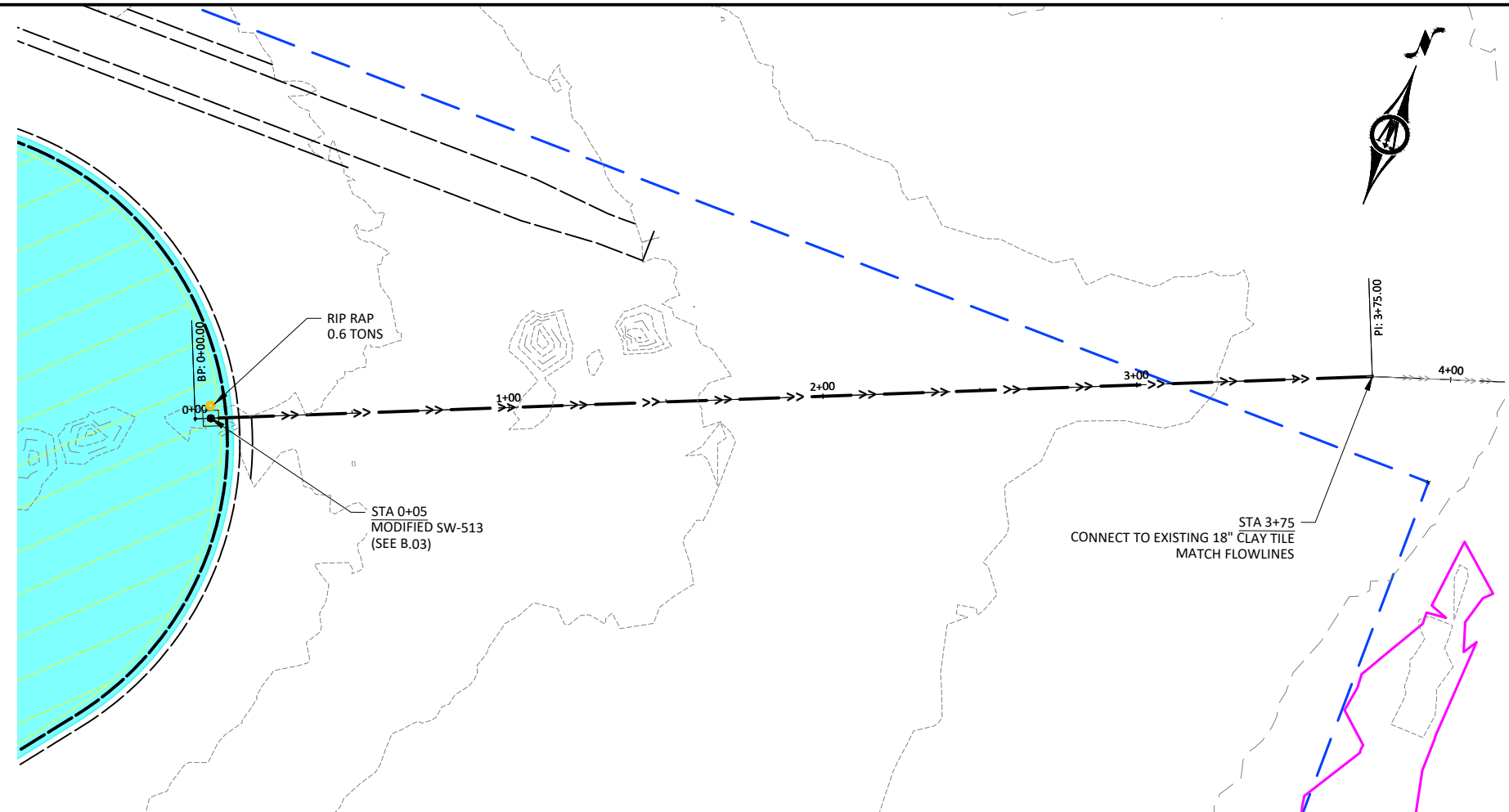


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DRAWN	NVD		
CHECKED	JPR		
CLIENT PROJ. NO.	0A1.127685		

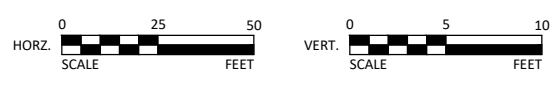
HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
PARTIAL CAPTURE INLET & PRIVATE TILE RE-LAY

SHEET
M.02



LEGEND	
NORMAL POOL (1171.00)	
100-YEAR HWL (1175.31)	
PROPOSED EASEMENT BOUNDARY	
EXCAVATE TO 1170.50	

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DESIGNED	REV	DESCRIPTION	DATE
BCS	1.1	BID PLANS	01-22-2026
NVD			
JPR			
CLIENT PROJ. NO. 0A1.127685			

HAMILTON COUNTY, IOWA
HAM892326B NUTRIENT REDUCTION WETLAND
WETLAND OUTLET

SHEET
M.03