C:\Users\aschippers\Ducks Unlimited Incorporated\Iowa - Documents\Iowa\02_C3D Projects\IA-340-2 CREP PROJECTS\EMMET NEARBY\C3D_DRAWING\IA-340-13 Cover & Specs.dwg, 4/23/2025 12:05 PM, Andrew Schippers, Cover, None

DUCKS UNLIMITED

IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP

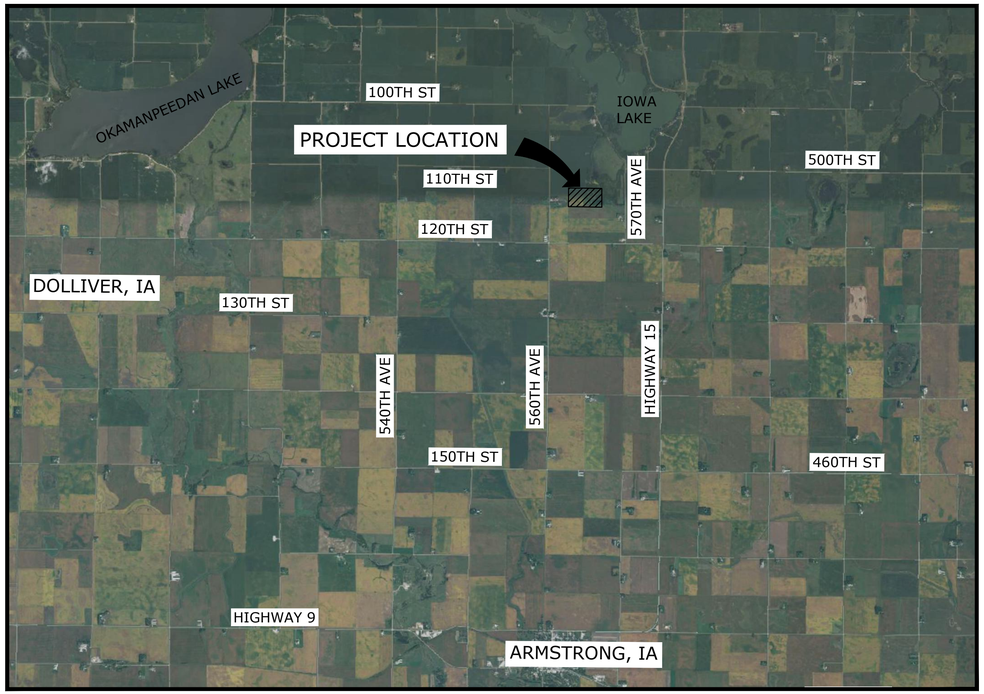
PROJECT NO. EMM1003114B

CONSTRUCTED WETLAND FOR NUTRIENT REMOVAL
EMMET COUNTY
S14, T100N, R31W
IOWA

IN COOPERATION WITH

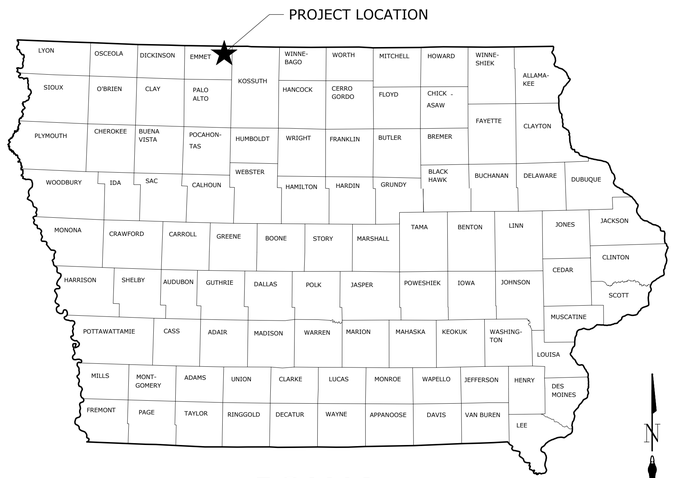
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP & UNITED STATES DEPARTMENT OF AGRICULTURE

IOWA ENGINEERING JOB CLASS V



PROJECT LOCATION MAP

SCALE: 1" = 5000'



IOWA

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
C001	COVER SHEET
C002	SPECIFICATIONS, QUANTITIES, & NOTES
C051	TOPOGRAPHY & EXISTING CONDITIONS
C052	ENLARGED TOPOGRAPHY & EXISTING CONDITIONS
C101	SITE PLAN
C102	ENLARGED SITE PLAN
C201	EMBANKMENT PLAN & PROFILE
C202	WETLAND PROFILES
C203	SEDIMENT BASIN PLAN & PROFILE
C204	TILE #1 PLAN & PROFILE
C301	SHEET PILE DETAILS
C302	CONSTRUCTION DETAILS
C303	WATER CONTROL STRUCTURE DETAILS 1
C304	WATER CONTROL STRUCTURE DETAILS 2
C305	FILTER DIAPHRAGM DETAILS
C401	SEEDING PLAN

Know what's below. Call before you dig.

UTILITIES NOTE:
BEFORE THE START OF CONSTRUCTION, THE OWNER OF ANY UTILITIES INVOLVED MUST BE NOTIFIED. THE EXCAVATOR/CONTRACTOR IS RESPONSIBLE FOR GIVING THIS NOTICE BY CALLING "IOWA ONE CALL" AT (800) 292-8989 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION.

TICKET #: -

LICENSED PROFESSIONAL ENGINEER
ANDREW A. SCHIPPERS
P26317
IOWA

To the best of my professional knowledge, judgement, and belief, these plans meet applicable NRCS Standards

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.

Andrew Schippers — Digitally signed by Andrew Schippers Date: 2025.04.23 12:38:42 -05'00'

Andrew Schippers, P.E. — Date

License No: P26317
License renewal date: December 31, 2025
Pages of sheets covered by this seal: 1 - 16 (C001 - C401)

GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 2, STE. 200
DEXTER, MICHIGAN 48130
(734) 623-2000
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COVER SHEET
PROJECT NO. EMM1003114B
EMMET COUNTY
IOWA

Revision	Sheet	Revisions	Date	By
1	C001-C401	FINAL SITE PLAN	12-10-2024	W.A.J.
2	C001-C401	IDALS REVISIONS	1-31-2025	A.S.
3	C001-C401	IDALS REVISIONS	4-23-2025	A.S.

CAD FILE: IA-340-13 Cover & Specs
DESIGNED BY: AS
DRAWN BY: CK, WAJ
SURVEYED BY: AS, AB
REVIEWER: TP
DATE: 4-23-2025
PROJECT NUMBER: US-IA-340-13

C001

NOT FOR CONSTRUCTION

ESTIMATED QUANTITIES

NOTE #	BID ITEM #	SPEC #	DESCRIPTION	QUANTITY	UNIT
1	1	IA CS-001	STRIPPING	LS	1
2	2	IA CS-001	CROP DAMAGE	AC	0
3	3	IA CS-006	STRUCTURE SEEDING	AC	0.5
4	4	IA CS-006	BUFFER SEEDING	AC	16.8
5	5	CS-008	MOBILIZATION & DEMOBILIZATION	LS	1
6	6	IA CS-009	DRAINAGE TILE INVESTIGATION	LS	1
7	7	IA CS-013	STEEL SHEET PILING	SF	2,172
8	8	IA CS-021	EXCAVATION (GENERAL)	CY-P	979
9	9	IA CS-023	EARTHFILL (GENERAL)	CY-P	1,348
10	10	IA CS-023	EARTHFILL (GENERAL DAM)	CY-P	337
11	11	IA CS-023	EARTHFILL (DAM CORE)	CY-P	826
12	12	IA CS-024	DRAINFILL (SAND)	TN	60
13	13	IA CS-026	TOPSOIL PLACEMENT	CY-P	2,483
14	14	IA CS-046	TOE DRAIN (6"Ø PERFORATED CPP)	LF	104
15	15	IA CS-046	12"Ø HDPE DUAL-WALL	LF	151
16	16	IA CS-051	ALUMINUM WATER CONTROL STRUCTURE (WCS)	LS	1
17	17	IA CS-051	ALUMINUM CMP DRAWDOWN PIPE	LF	123
18	18	IA CS-046, IA CS-081	STOPLOG STORAGE STRUCTURE	LS	1
19	19	IA CS-051	CMP OUTLET - 8"Ø	LF	40
20	20	IA CS-051	CMP OUTLET - 15"Ø	LF	20
21	21	IA CS-061	RIPRAP (IA DOT CLASS E)	TN	672
22	22	IA CS-062	CONCRETE GROUT	CY	118
23	23	IA CS-051	36" ALUMINUM CMP RISER INLET	LS	1

CONSTRUCTION NOTES:

1. BID ITEM FOR STRIPPING SHALL INCLUDE REMOVAL OF THE FIRST 12" OF TOPSOIL MATERIAL BELOW THE BERM, SUBMERGED BERMS, SEDIMENTATION BASIN, CHANNEL FILL AREA, AND TILE COVER AREA (ESTIMATED STRIPPING QUANTITY IS 1,993 C.Y.). THIS MATERIAL SHALL BE STOCKPILED ON-SITE FOR RESPREAD, WHICH IS INCLUDED IN A SEPARATE BID ITEM. DNR HAS ALREADY CUT DOWN TREES TO WAIST HEIGHT WITHIN THE FOOTPRINT OF THE STRUCTURES AND WITHIN 25 FEET OF THE STRUCTURES. CONTRACTOR SHALL MOVE CUT DOWN TREES/BRUSH AND STOCKPILE ON-SITE TO BURN OR REMOVE. CONTRACTOR SHALL FINISH CUTTING DOWN STUMPS TO GROUND LEVEL AND GRUB STUMPS IN ACCORDANCE WITH SPECIFICATIONS.
2. CROP DAMAGES WILL BE A PASS-THROUGH COST BY THE CONTRACTOR TO THE LANDOWNER. ENGINEER WILL MEASURE THIS AREA AND IDALS WILL AGREE WITH THE LANDOWNER ON A UNIT COST DURING CONSTRUCTION. BID ITEM FOR CROP DAMAGE SHALL INCLUDE AREA OF CROPS DAMAGED, AS NECESSARY, IN ORDER TO COMPLETE THE WORK AS DETAILED. CONTRACTOR SHALL MINIMIZE CROP DAMAGE AS MUCH AS POSSIBLE DURING CONSTRUCTION ACTIVITIES.
3. BID ITEM FOR STRUCTURE SEEDING SHALL CONSIST OF SEEDING, MULCHING, AND FERTILIZING ALL STRUCTURES, EMBANKMENTS, AND ALL OTHER DISTURBED AREAS (OUTSIDE OF POOL AREA), AS INDICATED ON THE DRAWINGS OR OTHERWISE DESIGNATED. SEED MIX SHALL BE APPROVED BY ENGINEER AT LEAST 2 WEEKS BEFORE PLANNED SEEDING.
4. BID ITEM FOR BUFFER SEEDING SHALL CONSIST OF SEEDING THE AREAS DESIGNATED ON THE PLANS AS BUFFER SEEDING AND INCLUDE BORROW AREAS, DISTURBED AREAS NOT SEEDED AS PART OF STRUCTURAL SEEDING, AND OTHER AREAS WITHIN THE EASEMENT. SEED MIX SHALL BE APPROVED BY ENGINEER AT LEAST 2 WEEKS BEFORE PLANNED SEEDING.
5. BID ITEM FOR MOBILIZATION & DEMOBILIZATION SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL AND EQUIPMENT TO TRANSPORT ALL NEEDED LABOR, MATERIAL AND EQUIPMENT, TO AND FROM THE PROJECT SITE, TO SUCCESSFULLY COMPLETE THE PROJECT AS SHOWN ON THE PLANS. ANY ADDITIONAL MOBILIZATION OF MANPOWER, EQUIPMENT, OR MATERIALS REQUIRED TO COMPLETE THE PROJECT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE.
6. BID ITEM FOR DRAINAGE TILE INVESTIGATION SHALL CONSIST OF INVESTIGATION, LOCATION, REPAIR, REMOVAL AND/OR CAPPING/PLUGGING OF SUBSURFACE DRAINS (TILE) IN WETLAND RESTORATION AREA, ENHANCEMENT, OR CREATION PROJECT AREAS, OR OTHER SITUATIONS WHERE SUBSURFACE DRAINS MAY BE PRESENT. THIS BID ITEM DOES NOT INCLUDE INSTALLATION OF NEW TILE, WHICH IS INCLUDED IN SEPARATE LINE ITEMS.
7. BID ITEM FOR STEEL SHEET PILING SHALL CONSIST OF FURNISHING AND DRIVING THE SPECIFIED SHEET PILING AT THE LOCATION SHOWN ON THE DRAWINGS. THIS BID ITEM SHALL INCLUDE SHEET PILING CAP AND ALL OTHER LABOR AND MATERIALS NECESSARY TO PROVIDE A COMPLETE INSTALLATION. SHOP DRAWINGS SHALL BE REQUIRED FOR SHEET PILE STRUCTURE.
8. BID ITEM FOR EXCAVATION (GENERAL) SHALL CONSIST OF EXCAVATION AND GRADING OF MATERIAL NEEDED FOR THE BERM CORE TRENCH, SEDIMENTATION BASIN, AND INLET/OUTLET CHANNELS. IT IS ESTIMATED THAT 490 C.Y. WILL BE UTILIZED AS GENERAL FILL AND 489 C.Y. WILL BE SPOILED.
9. BID ITEM FOR EARTHFILL (GENERAL) SHALL CONSIST OF THE EARTHFILL NECESSARY TO CONSTRUCT THE SUBMERGED BERMS, CHANNEL FILL AND ADDITIONAL FILL TO BE PLACED OVER THE TILE TO PROVIDE ADEQUATE COVER. COHESIVE MATERIAL FOUND DURING GENERAL EXCAVATION CAN BE USED FOR THESE AREAS. SAND AND GRAVEL FOUND ON SITE SHALL NOT BE USED FOR THIS EARTHFILL. IT IS ESTIMATED THAT 858 C.Y. OF GENERAL FILL MATERIAL WILL NEED TO BE EXCAVATED FROM THE BORROW AREA FOR THE GENERAL EARTHFILL.
10. BID ITEM FOR EARTHFILL (GENERAL DAM) SHALL CONSIST OF EXCAVATING, PLACING AND COMPACTING EARTHFILL NECESSARY TO CONSTRUCT THE PORTION OF THE EMBANKMENT THAT IS NOT CONSIDERED PART OF THE EMBANKMENT CORE. COHESIVE MATERIAL FOUND DURING GENERAL EXCAVATION CAN BE USED FOR THIS AREA. SAND AND GRAVEL FOUND ON SITE SHALL NOT BE USED FOR FILL FOR THIS ITEM. IT IS ESTIMATED THAT 337 C.Y. OF GENERAL FILL MATERIAL WILL NEED TO BE EXCAVATED FROM THE BORROW AREA FOR GENERAL (DAM) CONSTRUCTION.
11. BID ITEM FOR EARTHFILL (DAM CORE) SHALL CONSIST OF EXCAVATING, PLACING AND COMPACTING EARTHFILL NECESSARY TO CONSTRUCT THE PORTION OF THE EMBANKMENT DESIGNATED THE EMBANKEMENT CORE, INCLUDING THE CORE TRENCH. COHESIVE MATERIAL TAKEN FROM THE DESIGNATED BORROW AREA SHOULD BE USED FOR THIS AREA (ESTIMATED 826 C.Y.). ESTIMATED PLAN VALUE INCLUDES 25% SHRINKAGE FACTOR.
12. BID ITEM FOR DRAINFILL (SAND) SHALL CONSIST OF FURNISHING AND PLACING DRAINFILL REQUIRED IN THE CONSTRUCTION OF STRUCTURE DRAINAGE SYSTEMS AND FILTER DIAPHRAGMS AROUND CONDUITS. THIS ITEM WILL CONSIST OF THE EXCAVATION NECESSARY TO CONSTRUCT THE TOE DRAINS, INCLUDING BACKFILL WITH MATERIAL MEETING THE REQUIREMENTS OF FINE DRAINFILL. GRADATIONS SHALL BE PROVIDED TO ENGINEER PRIOR TO ARRIVING ON-SITE.
13. BID ITEM FOR TOPSOIL PLACEMENT SHALL CONSIST OF SPREADING SALVAGED AND STOCKPILED TOPSOIL AS THE SURFACE LAYER OF ALL EXCAVATIONS AND EARTHFILLS THAT WILL BE SEEDED. TOPSOIL SHALL BE PLACED AS THE FINAL LIFT. AREAS TO RECEIVE A MINIMUM OF 6" LAYER OF TOPSOIL INCLUDE AREAS OF THE EMBANKMENT THAT DO NOT HAVE RIPRAP, BORROW AREA, AND ADDITIONAL FILL PLACED OVER NEW TILE. FOR THIS QUANTITY, 2,052 C.Y. IS PLANNED TO BE RE-SPREAD OUTSIDE OF POOL AREA WITHIN EASEMENT, WHILE 431 C.Y. IS PLANNED TO UTILIZED AS THE FINAL 6" LIFT FOR THE BERMS AND TILE COVER..
14. BID ITEM FOR TOE DRAIN (6"Ø PERFORATED CPP) SHALL CONSIST OF FURNISHING AND INSTALLING 6-INCH PERFORATED CORRUGATED POLYETHYLENE TUBING (SINGLE WALL) USED AS A DRAIN TILE FOR THE TOE DRAIN AS SHOWN ON THE DRAWINGS. SAND BACKFILL AROUND THE TILE SHALL BE PAID UNDER A SEPARATE BID ITEM. 20' LENGTHS OF 8"Ø GALVANIZED CMP SHALL BE UTILIZED AT THE EXPOSED OUTLETS OF THE TOE DRAIN TILE (TWO LOCATIONS). THE METAL OUTLET SHALL BE PAID UNDER A SEPARATE BID ITEM.
15. BID ITEM FOR 12"Ø HDPE DUAL-WALL SHALL CONSIST OF FURNISHING AND INSTALLING 12-INCH, NON-PERFORATED, HDPE, DUAL-WALL CORRUGATED POLYETHYLENE TUBING USED AS A DRAIN TILE AS SHOWN ON THE DRAWINGS. MEASUREMENT AND PAYMENT FOR 12-INCH NON-PERFORATED DUAL-WALL POLYETHYLENE TUBING SHALL BE ON AN INSTALLED LINEAR FOOT BASIS, AND SHALL INCLUDE ALL NECESSARY FITTINGS AND ADAPTERS. A 20' LENGTH OF 15"Ø GALVANIZED CMP SHALL BE UTILIZED AT THE EXPOSED OUTLET OF THE TILE (ONE LOCATION). THE METAL OUTLET SHALL BE PAID UNDER A SEPARATE BID ITEM.
16. BID ITEM FOR ALUMINUM WATER CONTROL STRUCTURE SHALL CONSIST OF PROVIDING AND INSTALLING THE ALUMINUM DRAW DOWN STRUCTURE, STOP LOGS, AND CONCRETE BASE AS SHOWN ON THE DRAWINGS AND DETAIL SHEETS. THE WCS SHALL BE FROM WISCONSIN FLOWGATE, OR APPROVED EQUAL. SHOP DRAWINGS SHALL BE APPROVED BY ENGINEER PRIOR TO FABRICATION.
17. BID ITEM FOR ALUMINUM CMP DRAWDOWN PIPE SHALL CONSIST OF PROVIDING AND INSTALLING THE 15-INCH DIAMETER CMP INLET AND OUTLET PIPES AS SHOWN ON THE DRAWINGS.
18. THE BID ITEM FOR STOPLOG STORAGE BOX SHALL INCLUDE ALL LABOR AND MATERIALS TO PROVIDE THE STOPLOG STORAGE BOX, AS DETAILED IN THE PLANS. EXACT LOCATION SHALL BE DETERMINED IN THE FIELD WITH APPROVAL FROM ENGINEER.
19. BID ITEM FOR CMP OUTLET 8"Ø SHALL CONSIST OF FURNISHING AND INSTALLING THE 8"Ø CMP AND FITTINGS SHOWN ON THE PLANS FOR THE TOE DRAIN OUTLETS (2 LOCATIONS), INCLUDING ANIMAL GUARD AT OUTLET END OF PIPE.
20. BID ITEM FOR CMP OUTLET - 15"Ø SHALL CONSIST OF FURNISHING AND INSTALLING THE 15"Ø CMP AND FITTINGS SHOWN ON THE PLANS FOR TILE OUTLETS, INCLUDING ANIMAL GUARD AT OUTLET END OF PIPE.
21. BID ITEM FOR RIPRAP (IA DOT CLASS E) SHALL CONSIST OF FURNISHING AND PLACING THE ROCK RIPRAP IN THE LOCATIONS AS SHOWN ON THE DRAWINGS. ROCK SHALL BE CLASS E REVETMENT STONE AS DEFINED BY IOWA DEPARTMENT OF TRANSPORTATION. NON-WOVEN FILTER FABRIC IS REQUIRED BENEATH ALL ROCK/RIPRAP AND SHALL BE SECURED TO SLOPES AND BOTTOM, USING PINS, AS NOTED IN THE SPECIFICATIONS. QUANTITY IS BASED ON TONS. CONTRACTOR SHALL PROVIDE SCALE TICKETS WITH WEIGHTS INCLUDING TARE WEIGHTS, GROSS WEIGHTS, AND NET WEIGHTS OF MATERIAL DELIVERED. CONTRACTOR SHALL PROVIDE GRADATIONS TO ENGINEER PRIOR TO RIPRAP ARRIVING ON-SITE.
22. BID ITEM FOR CONCRETE GROUT SHALL CONSIST OF FURNISHING AND PLACING CONCRETE GROUT ON THOSE PORTIONS OF THE RIPRAP SHOWN ON THE DRAWINGS. GROUT FILL QUANTITY IS BASED ON AN APPLICATION RATE OF $0.6FT^3/FT^2$ OF RIPRAP. WHITE PIGMENTED CURE SHALL BE APPLIED AND IS INCIDENTAL TO THIS BID ITEM.
23. BID ITEM FOR 36"Ø ALUMINUM CMP RISER INLET SHALL CONSIST OF PROVIDING AND INSTALLING THE 36-INCH DIAMETER CMP RISER IN WETLAND AS SHOWN ON THE DRAWINGS. SHOP DRAWINGS SHALL BE APPROVED BY ENGINEER PRIOR TO FABRICATION.
24. DEWATERING AND WATER MAINTENANCE IS THE CONTRACTOR'S RESPONSIBILITY, AND IS CONSIDERED INCIDENTAL TO THE PROJECT.

NRCS SPECIFICATIONS:

IA CS-001	SITE PREPARATION
IA CS-005	POLLUTION CONTROL
IA CS-006	SEEDING AND MULCHING FOR PROTECTIVE COVER
CS-008	MOBILIZATION & DEMOBILIZATION
IA CS-009	SUBSURFACE DRAIN INVESTIGATION, REMOVAL, AND REPAIR
IA CS-011	REMOVAL OF WATER
IA CS-013	SHEET PILING
IA CS-021	EXCAVATION
IA CS-023	EARTHFILL
IA CS-024	DRAINFILL (SAND)
IA CS-026	TOPSOILING
IA CS-031	CONCRETE
IA CS-046	TILE DRAINS FOR LAND DRAINAGE
IA CS-051	CORRUGATED METAL PIPE CONDUITS
IA CS-061	LOOSE ROCK RIPRAP
IA CS-062	CONCRETE GROUT FOR RIPRAP
IA CS-081	METAL FABRICATION AND INSTALLATION
IA CS-095	GEOTEXTILE

ADDITIONAL NOTES:

1. THE PROJECT SPECIFICATIONS AS PREPARED BY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP AND DUCKS UNLIMITED, INC. SHALL BE CONSIDERED AS PART OF THIS DOCUMENT. THE NATURAL RESOURCES CONSERVATION SERVICE CONSTRUCTION SPECIFICATIONS SHALL ALSO APPLY.
2. ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.
3. USDA, IDALS, AND DU DO NOT GUARANTEE THE WETLAND WILL FILL OR REMAIN FILLED WITH WATER TO THE PRINCIPAL CREST ELEVATION.
4. IF CULTURAL RESOURCE IS IDENTIFIED DURING CONSTRUCTION, STOP IMMEDIATELY AND NOTIFY ENGINEER AND IDALS.
5. PRODUCT DATA SHEETS SHALL BE PROVIDED FOR ALL BID ITEM MATERIALS, AS WELL AS ANY OTHER MATERIALS, AS REQUESTED BY THE ENGINEER.
6. NO ACTIVITY WILL BE AUTHORIZED WHICH JEOPARDIZES THE CONTINUED EXISTENCE OF A THREATENED OR ENDANGERED SPECIES OR A SPECIES PROPOSED FOR SUCH DESIGNATION, AS INDENTIFIED UNDER THE FEDERAL ENDANGERED SPECIES ACT, OR WILL DESTROY OR ADVERSELY MODIFY THE CRITCIAL HABITAT OF SUCH A SPECIES. THE ENGINEER WILL CONSULT WITH A QUALIFIED BIOLOGIST IF SUCH A SITUATION IS BELIEVED TO EXIST ONSITE AND A COURSE OF ACTION DETERMINED. EXISTING EAGLE NESTS WILL BE PROVIDED WITH A 660' BUFFER ZONE UNLESS OTHERWISE INDICATED BY THE NATIONAL BALD EAGLE MANAGEMENT GUIDELINES PUBLISHED BY THE US FISH AND WILDLIFE SERVICE MAY 2007.
7. TO PROTECT THREATEND/ENDANGERED BATS, TREES SHALL BE REMOVED IN ACCORDANCE WITH IOWA DOT ARTICLE 2101.10 BETWEEN **OCTOBER 1ST AND MARCH 31ST**. TREE FELLING IN THAT TIME WILL ONLY REQUIRE TREES 3" IN DIAMETER AND LARGER TO BE CUT 3 TO 4 FEET ABOVE GROUND LINE. THE CONTRACTOR SHALL LIMIT REMOVAL OF FOREST COVER TO THOSE AREAS WHICH ARE NECESSARY FOR THE CONSTRUCTION OF THE WORK AND AS DIRECTED BY THE ENGINEER.

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SPECIFICATIONS, QUANTITIES, & NOTES
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CAD FILE:
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DESIGNED BY: AS
DRAWN BY: CK, WAJ
SURVEYED BY: AS, AB
REVIEWER: TP
DATE:
4-23-2025
PROJECT NUMBER:
US-IA-340-13

C002

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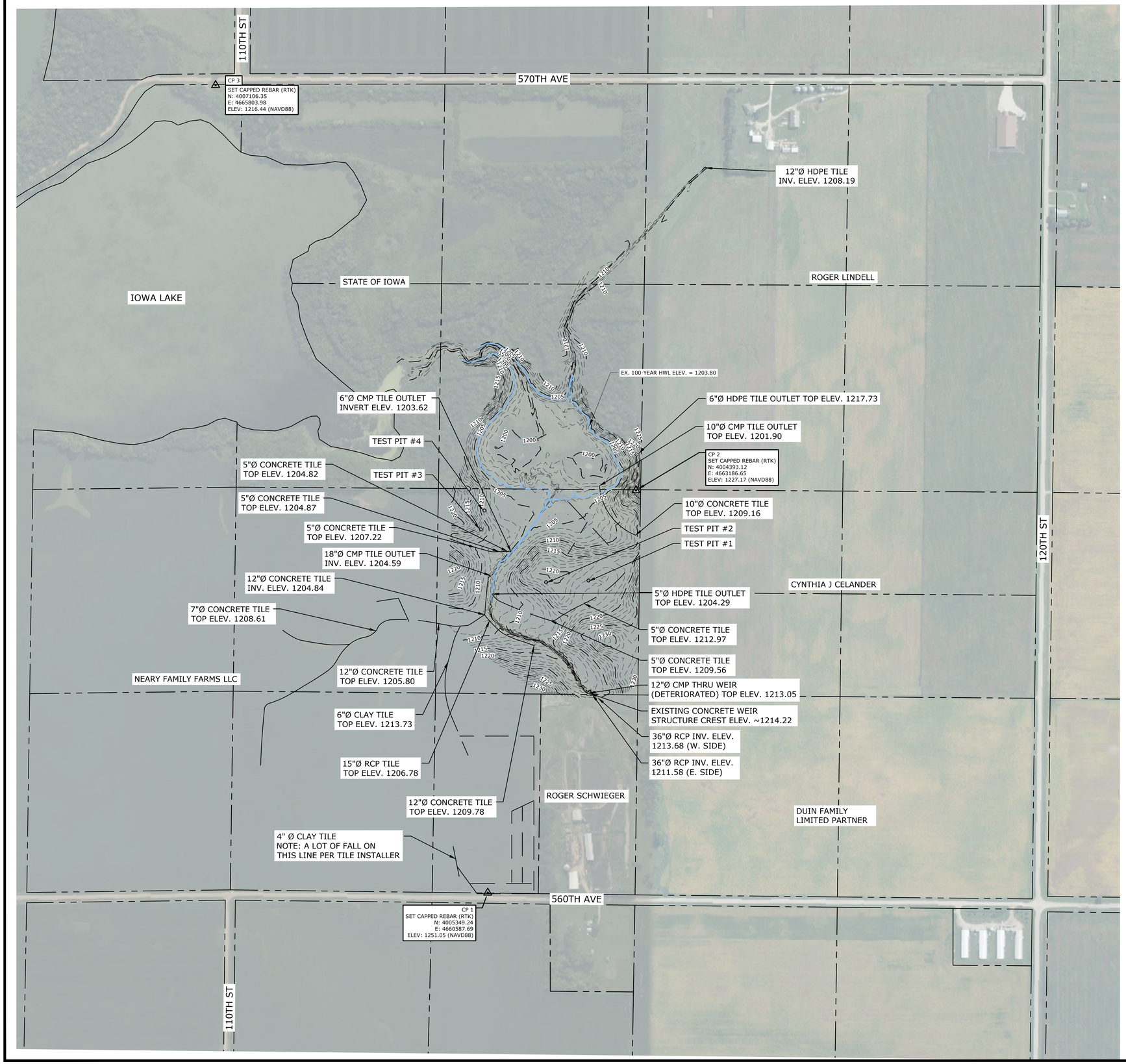

LEGEND

- DIKE
- CHANNEL
- DITCH
- MAJOR CONTOUR
- MINOR CONTOUR
- TREE LINE
- EDGE OF VEGETATION
- EDGE OF CULTIVATION
- EDGE OF CATAILS
- OUTSIDE EDGE OF CATAILS
- APPROXIMATE WATERLINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- GAS LINE
- SANITARY SEWER
- WATER SERVICE LINE
- STORM SEWER
- STORM TILE
- UNDERGROUND UTILITY
- RAILROAD TRACK
- EDGE OF RIP-RAP
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- ROAD OR TRAIL
- FENCE LINE
- FENCE POST
- APPROXIMATE PROPERTY LINE
- APPROXIMATE RIGHT-OF-WAY LINE
- GUARD RAIL
- EDGE OF WETLAND
- SPOT ELEVATION
- HORIZONTAL & VERTICAL CONTROL
- BENCHMARK
- SOIL BORING
- WATER CONTROL STRUCTURE
- FOUND PROPERTY CORNER
- UTILITY POLE
- GUY WIRE
- GUY POLE
- LIGHT POLE
- TELEPHONE PEDESTAL
- CATCH BASIN
- MANHOLE
- WELL
- HYDRANT
- SINGLE SIGN
- DOUBLE SIGN
- MAILBOX
- RAILROAD CROSSING

March 27, 2023

US-IA-340-13, NEARY

HORIZONTAL CONTROL
Coordinates are NAD 83 (2011), Iowa State Plane North Zone 1402, and units of measurement are in U.S. Survey Feet. Raw data was collected for 9 hours and 53 minutes on March 27, 2023 using a Trimble R12 GPS base receiver. Coordinates were initially established from an autonomous survey, and post-processed with the NGS OPUS (National Geodetic Survey, Online Positioning User Service) solution for the occupied Control Point 01.

VERTICAL CONTROL
Elevations were established from the OPUS solution for Control Point 01 using (GEOID18) CONUS file, elevation 1251.047 on the NAVD 88.

CONTROL POINT DATA				
POINT #	ELEVATION	NORTH	EAST	DESCRIPTION
1	1251.047	4005349.237	4660587.693	SET CAPPED REBAR
2	1227.167	4004393.118	4663186.653	SET CAPPED REBAR
3	1216.437	4007106.347	4665803.978	SET CAPPED REBAR

TEST PIT SOIL DATA				
LOCATION	TEST PIT #1	TEST PIT #2	TEST PIT #3	TEST PIT #4
TOP	24" TOPSOIL	24" TOPSOIL	12" TOPSOIL (SANDY)	24" TOPSOIL
ELEV. RANGE	1214.89–1216.89	1217.68–1219.68	1212.15–1213.15	1206.50–1208.50
BOTTOM	BROWN/GRAY SANDY CLAY MIX	BROWN SANDY CLAY (DRY)	SANDY BROWN CLAY (DRY)	SANDY BROWN CLAY (DRY)
ELEV. RANGE	1210.71–1214.89	1212.82–1217.68	1206.68–1212.15	1202.50–1206.50

GRAPHIC SCALE

300 0 150 300 600 1200

1 inch = 300 feet

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CAD FILE:
IA-340-13 Topo Survey

DESIGNED BY: AS
DRAWN BY: CK, WAJ
SURVEYED BY: AS, AB
REVIEWER: TP
DATE:
4-23-2025
PROJECT NUMBER:
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C051

NOT FOR CONSTRUCTION

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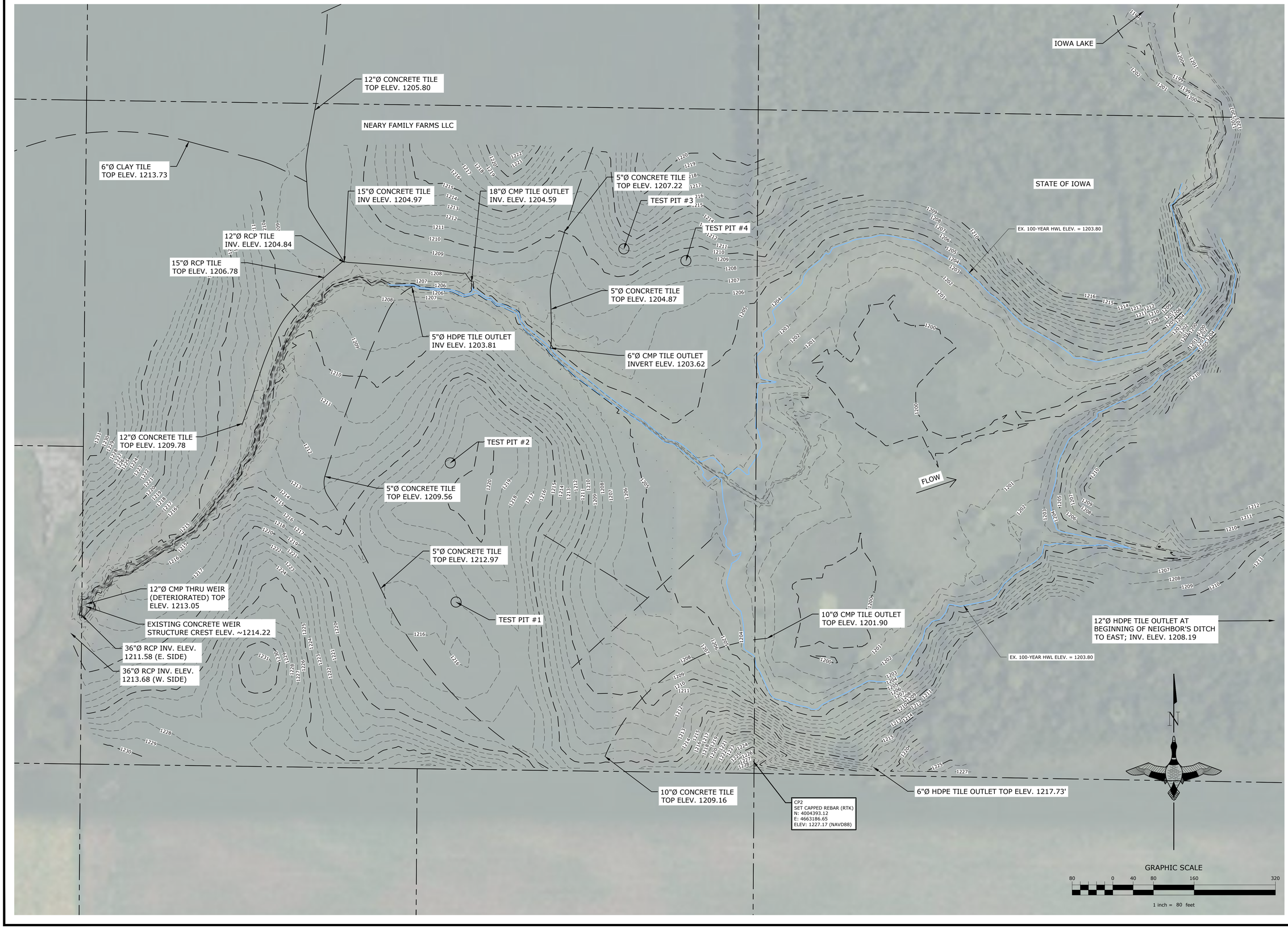

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IA-340-13 Topo Survey
DESIGNED BY: AS
DRAWN BY: CK, WAJ
SURVEYED BY: AS, AB
REVIEWER: TP
DATE:
4-23-2025
PROJECT NUMBER:
US-IA-340-13

C052

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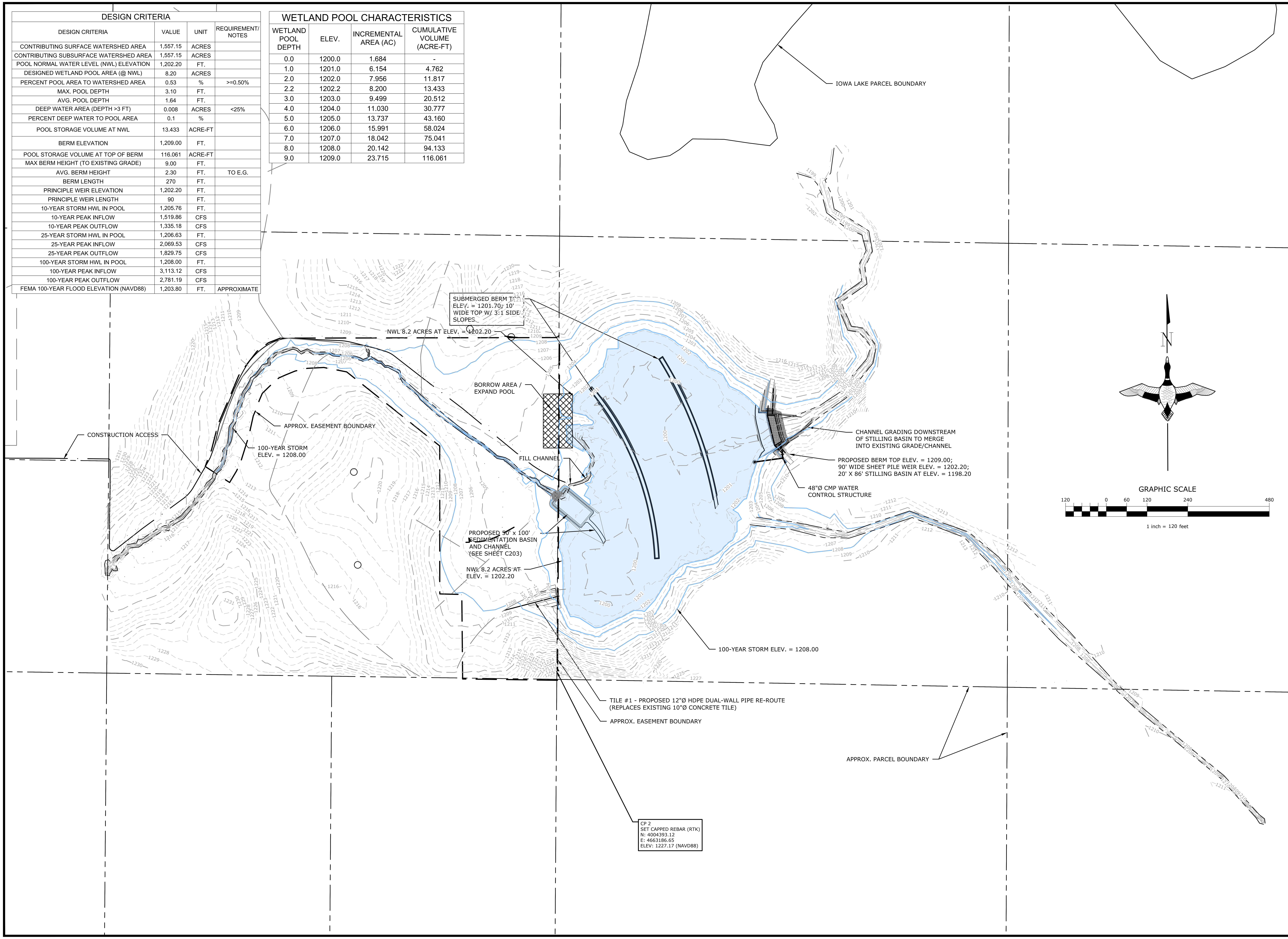
DESIGN CRITERIA

DESIGN CRITERIA	VALUE	UNIT	REQUIREMENT/ NOTES
CONTRIBUTING SURFACE WATERSHED AREA	1,557.15	ACRES	
CONTRIBUTING SUBSURFACE WATERSHED AREA	1,557.15	ACRES	
POOL NORMAL WATER LEVEL (NWL) ELEVATION	1,202.20	FT.	
DESIGNED WETLAND POOL AREA (@ NWL)	8.20	ACRES	
PERCENT POOL AREA TO WATERSHED AREA	0.53	%	>=0.50%
MAX. POOL DEPTH	3.10	FT.	
AVG. POOL DEPTH	1.64	FT.	
DEEP WATER AREA (DEPTH >3 FT)	0.008	ACRES	<25%
PERCENT DEEP WATER TO POOL AREA	0.1	%	
POOL STORAGE VOLUME AT NWL	13.433	ACRE-FT	
BERM ELEVATION	1,209.00	FT.	
POOL STORAGE VOLUME AT TOP OF BERM	116.061	ACRE-FT	
MAX BERM HEIGHT (TO EXISTING GRADE)	9.00	FT.	
AVG. BERM HEIGHT	2.30	FT.	TO E.G.
BERM LENGTH	270	FT.	
PRINCIPLE WEIR ELEVATION	1,202.20	FT.	
PRINCIPLE WEIR LENGTH	90	FT.	
10-YEAR STORM HWL IN POOL	1,205.76	FT.	
10-YEAR PEAK INFLOW	1,519.86	CFS	
10-YEAR PEAK OUTFLOW	1,335.18	CFS	
25-YEAR STORM HWL IN POOL	1,206.63	FT.	
25-YEAR PEAK INFLOW	2,069.53	CFS	
25-YEAR PEAK OUTFLOW	1,829.75	CFS	
100-YEAR STORM HWL IN POOL	1,208.00	FT.	
100-YEAR PEAK INFLOW	3,113.12	CFS	
100-YEAR PEAK OUTFLOW	2,781.19	CFS	
FEMA 100-YEAR FLOOD ELEVATION (NAVD88)	1,203.80	FT.	APPROXIMATE

WETLAND POOL CHARACTERISTICS

WETLAND POOL DEPTH	ELEV.	INCREMENTAL AREA (AC)	CUMULATIVE VOLUME (ACRE-FT)
0.0	1200.0	1.684	-
1.0	1201.0	6.154	4.762
2.0	1202.0	7.956	11.817
2.2	1202.2	8.200	13.433
3.0	1203.0	9.499	20.512
4.0	1204.0	11.030	30.777
5.0	1205.0	13.737	43.160
6.0	1206.0	15.991	58.024
7.0	1207.0	18.042	75.041
8.0	1208.0	20.142	94.133
9.0	1209.0	23.715	116.061



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SITE PLAN
PROJECT NO. EMM1003114B
EMMET COUNTY
IOWA

Revision	Sheet	Revisions	Date	By
1	C001-C401	FINAL SITE PLAN	12-10-2024	W.A.J.
2	C001-C401	IDALS REVISIONS	1-31-2025	A.S.
3	C001-C401	IDALS REVISIONS	4-23-2025	A.S.

CAD FILE:
IA-340-13 Site Plan

DESIGNED BY: AS

DRAWN BY: CK, WAJ

SURVEYED BY: AS, AB

REVIEWER: TP

DATE:
4-23-2025

PROJECT NUMBER:
US-IA-340-13

C101

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NOTE:
ALL OTHER TILE IN DITCH ON SHEETS C051 & C052 ARE CURRENTLY OUTLETTING WITH INVERTS AT LEAST 1.0' ABOVE THE PROPOSED NWL.

APPROX. PARCEL BOUNDARY

WETLAND PROFILE #2
(SEE SHEET C202 FOR PROFILE)

APPROX. EASEMENT BOUNDARY

100-YEAR STORM ELEV. = 1208.00

SUBMERGED BERM TOP ELEV. = 1201.70;
10' WIDE TOP W/ 3:1 SIDE SLOPES

CONSTRUCTION ACCESS

BORROW AREA /
EXPAND POOL
(SEE NOTES THIS
SHEET)

FILL CHANNEL
FROM BEND TO
WETLAND

NWL 8.2 ACRES AT
ELEV. = 1202.20

IA DOT CLASS E RIPRAP AT 1.5' DEPTH

EXCAVATE 50' X 100' SEDIMENTATION
BASIN AND CHANNEL TO DIRECT WATER
TOWARDS SOUTH END OF WETLAND

APPROX. EASEMENT BOUNDARY

NWL 8.2 ACRES AT
ELEV. = 1202.20

PROPOSED 15"Ø CMP OUTLET
INV. ELEV. =1203.20

TILE #1 - PROPOSED 12"Ø HDPE
DUAL-WALL INTERCEPT WITH EXISTING
10"Ø CONCRETE TILE AT INV. ELEV. =
1204.36; PROVIDE 3' MIN. COVER

PROPOSED BERM TOP ELEV. = 1209.00;
12' WIDE TOP W/ 3:1 SIDE SLOPES; 10'
WIDE WAVE BERM ON UPSTREAM SIDE

6" CPP TOE DRAIN

90' WIDE CREST SHEET PILE
WEIR STRUCTURE ELEV. =
1202.20; TOP OF SIDEWALLS
1208.00

GRADE DOWNSTREAM SIDE
BANKS/CHANNEL TO MERGE
INTO EXISTING GRADE

20' X 86' GROUTED RIPRAP STILLING
BASIN; BOTTOM ELEV. = 1198.20

6" CPP TOE DRAIN

48"Ø ALUMINUM WCS
INV. = 1200.00

36"Ø ALUMINUM CMP SLOTTED
INTAKE RISER WITH MOUNDED
RIPRAP; RIM ELEV. = 1202.20

100-YEAR STORM ELEV. = 1208.00

WETLAND PROFILE #1
(SEE SHEET C202 FOR PROFILE)

APPROX. EASEMENT BOUNDARY

NOTES:
1. STRIP 12" - 24" TOP SOIL BEFORE OBTAINING BORROW MATERIAL. BORROW AREA TO BE EXCAVATED TO APPROXIMATELY 3.5' DEPTH AFTER TOPSOIL REMOVAL. TOPSOIL TO BE PLACED BACK INTO EXCAVATED AREA AND SPREAD OUT AT COMPLETION.

GRAPHIC SCALE
50 0 25 50 100 200
1 inch = 50 feet

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ENLARGED SITE PLAN
PROJECT NO. EMM1003114B
EMMET COUNTY
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Revision	Sheet	Revisions	Date	By
1	C001-C401	FINAL SITE PLAN	12-10-2024	W.A.J.
2	C001-C401	IDALS REVISIONS	1-31-2025	A.S.
3	C001-C401	IDALS REVISIONS	4-23-2025	A.S.

CAD FILE:
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DRAWN BY: CK, WAJ
SURVEYED BY: AS, AB
REVIEWER: TP
DATE:
4-23-2025
PROJECT NUMBER:
US-IA-340-13

C102

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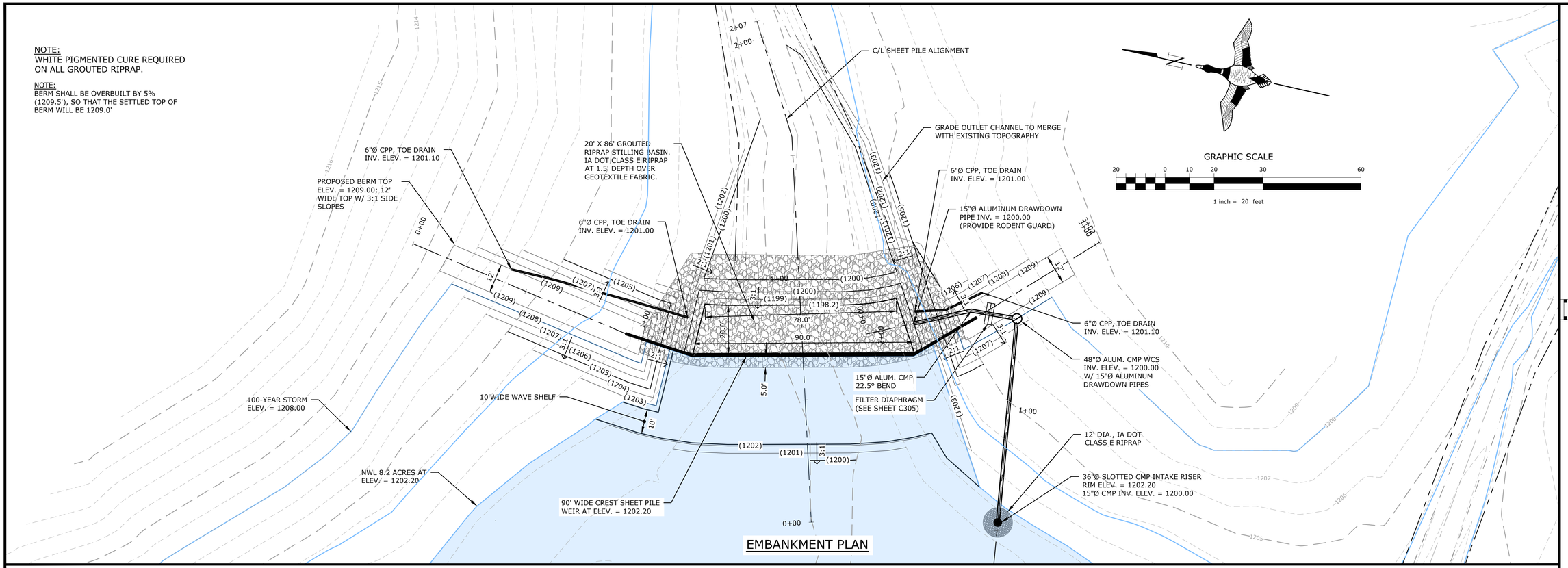
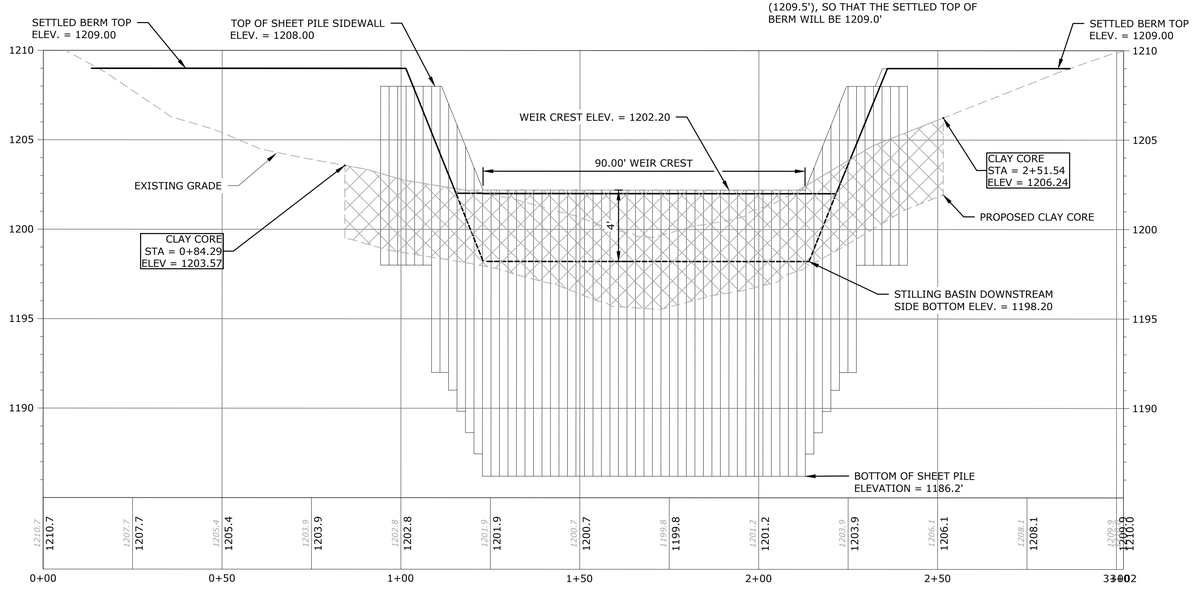
NOTE:
WHITE PIGMENTED CURE REQUIRED ON ALL GROUTED RIPRAP.

NOTE:
BERM SHALL BE OVERBUILT BY 5% (1209.5'), SO THAT THE SETTLED TOP OF BERM WILL BE 1209.0'



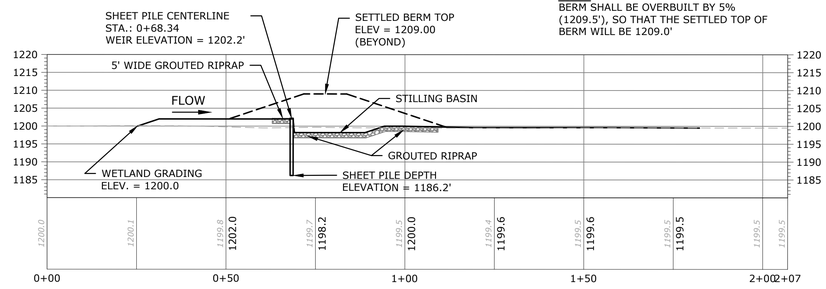
EMBANKMENT PLAN



NOTE:
CLAY CORE FROM STA: 0+84.29 TO STA: 2+51.54

EMBANKMENT & SHEET PILE WEIR PROFILE

(5:1 VERTICAL EXAGGERATION)
SCALE: 1" = 20'



SHEET PILE CENTERLINE PROFILE

(1:1 VERTICAL EXAGGERATION)
SCALE: 1" = 20'

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EMBANKMENT PLAN & PROFILE
PROJECT NO. EMM1003114B
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CAD FILE:
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DRAWN BY: CK, WAJ
SURVEYED BY: AS, AB
REVIEWER: TP
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PROJECT NUMBER:
US-IA-340-13

C201

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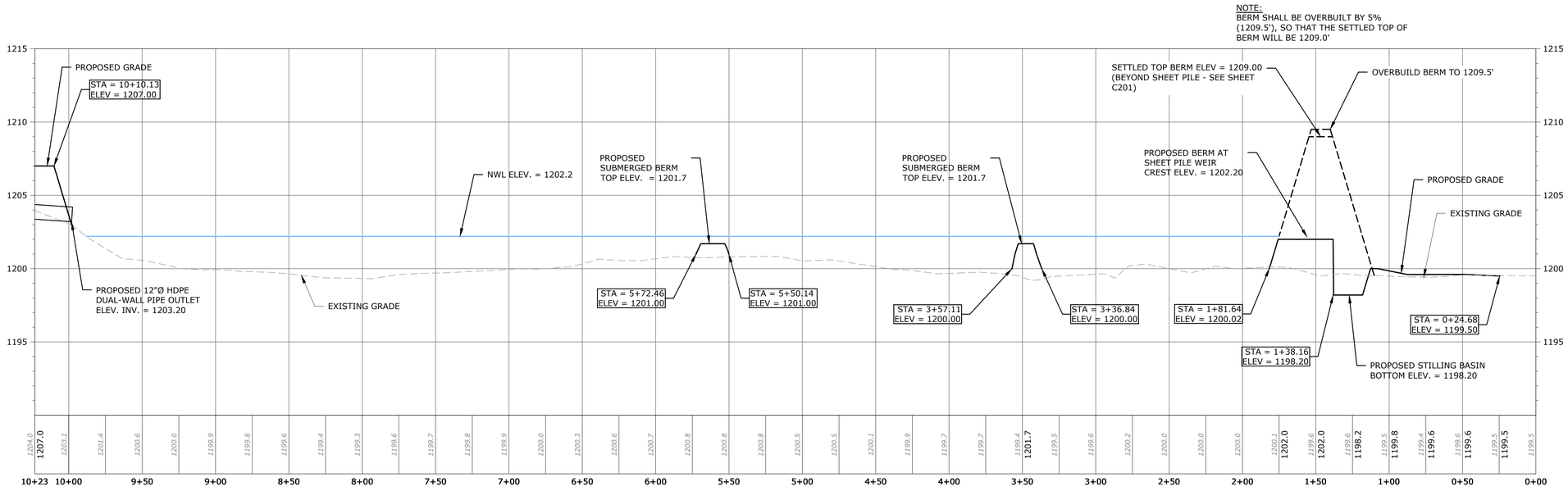
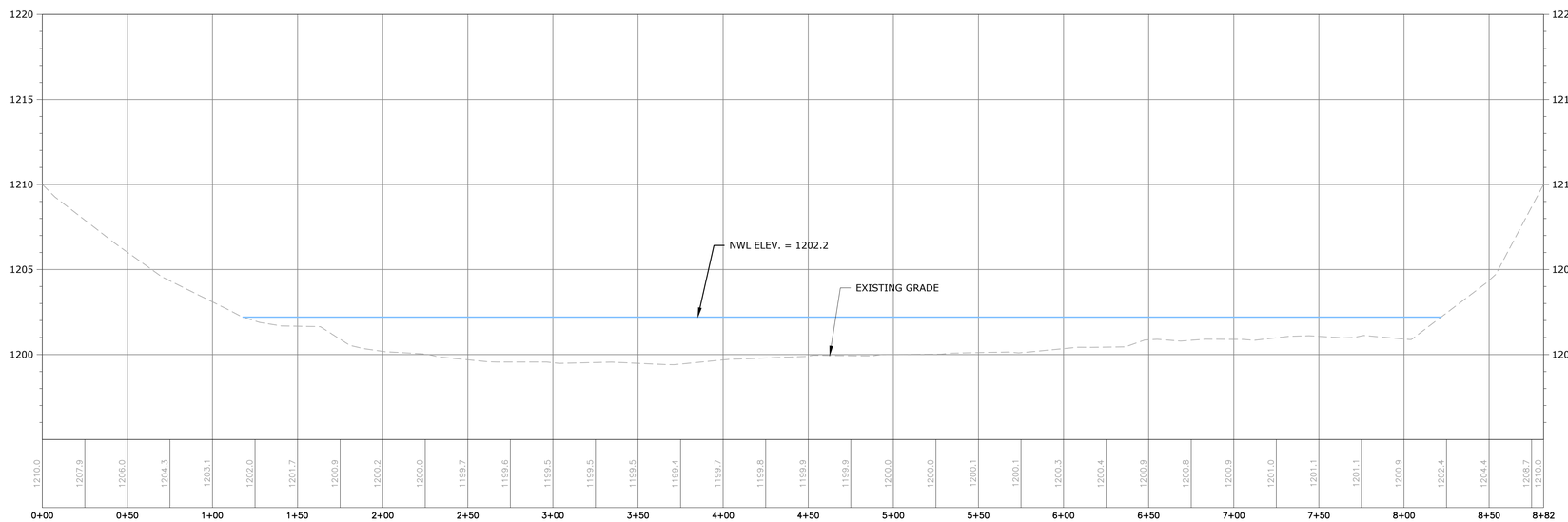


PROFILE - WETLAND 1 (FLOW PATH)
(10:1 VERTICAL EXAGGERATION)



PROFILE - WETLAND 2
(10:1 VERTICAL EXAGGERATION)

HORIZONTAL SCALE
40 0 20 40 80
1 inch = 40 feet

VERTICAL SCALE
4 0 2 4 8
1 inch = 4 feet

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WETLAND PROFILES
PROJECT NO. EMM1003114B
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C202

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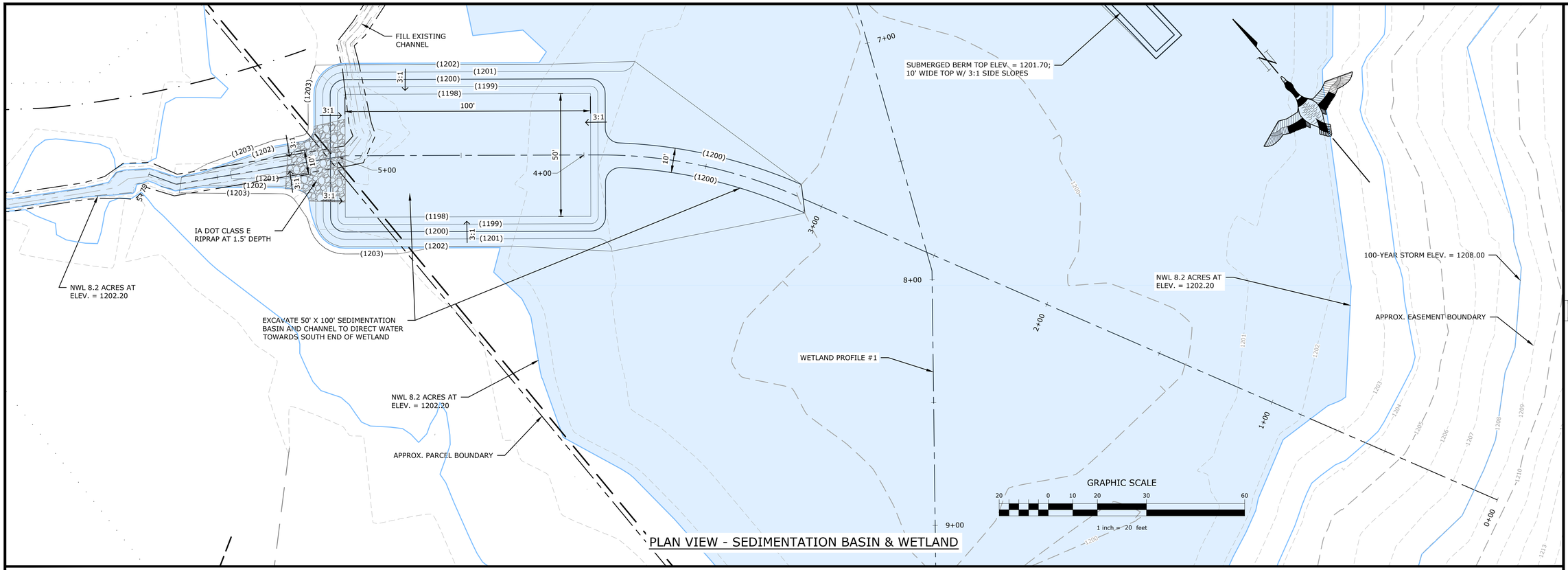
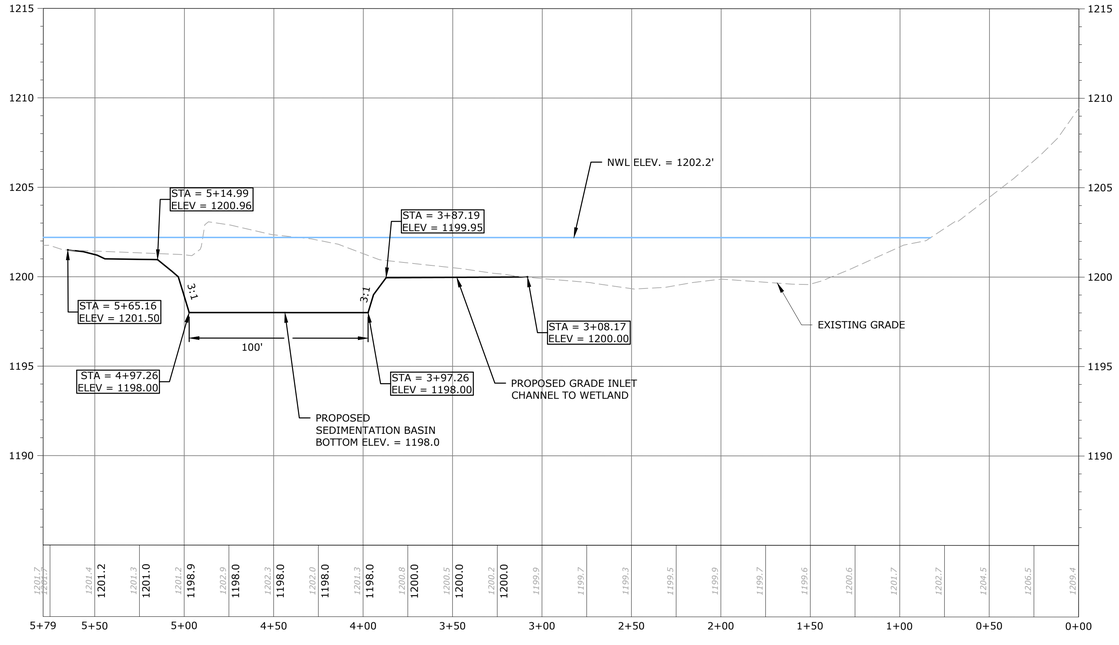


PLAN VIEW - SEDIMENTATION BASIN & WETLAND



PROFILE - SEDIMENTATION BASIN & WETLAND
(10:1 VERTICAL EXAGGERATION)
SCALE: 1" = 40'

HORIZONTAL SCALE
40 0 20 40 80
1 inch = 40 feet

VERTICAL SCALE
4 0 2 4 8
1 inch = 4 feet

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SEDIMENT BASIN PLAN & PROFILE
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IA-340-13 Site Plan

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DRAWN BY: CK, WAJ
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REVIEWER: TP
DATE:
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PROJECT NUMBER:
US-IA-340-13

C203

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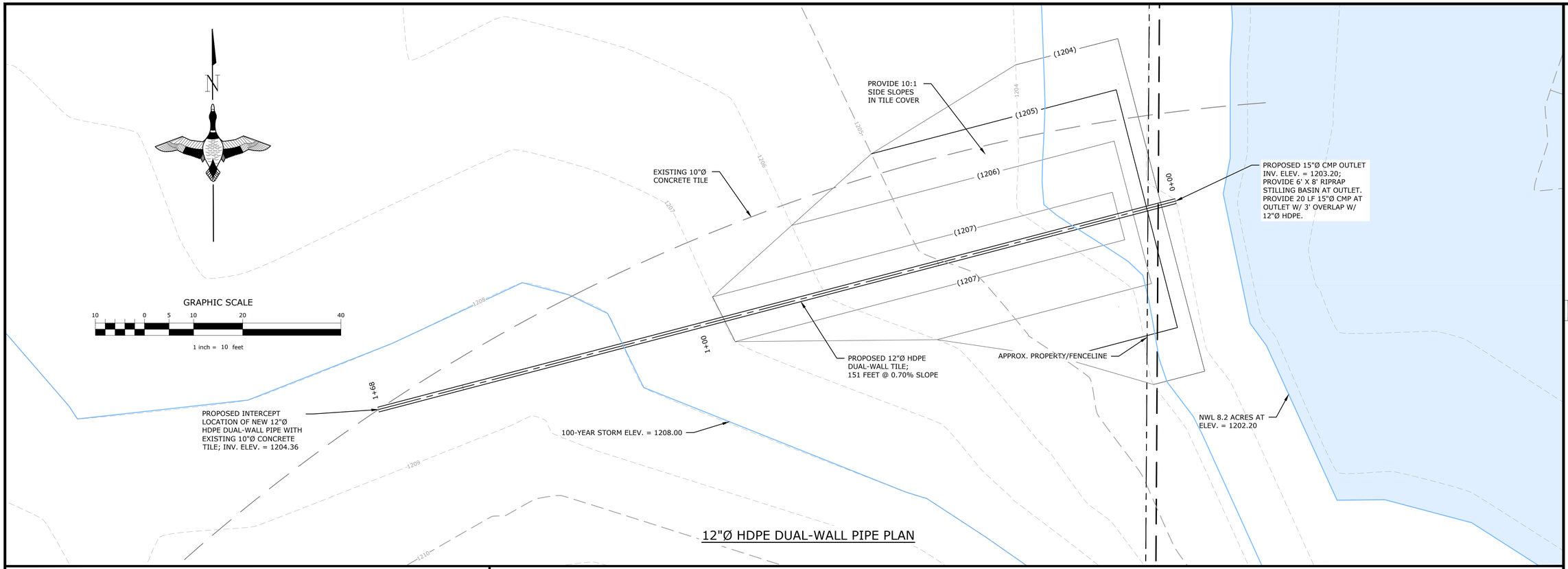
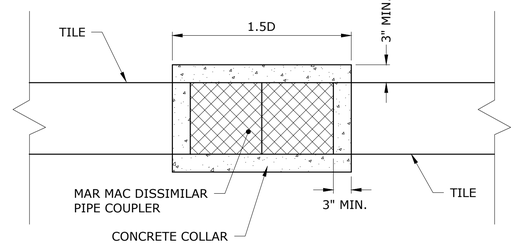
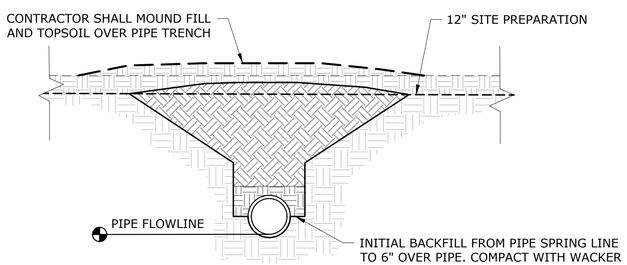


12"Ø HDPE DUAL-WALL PIPE PLAN



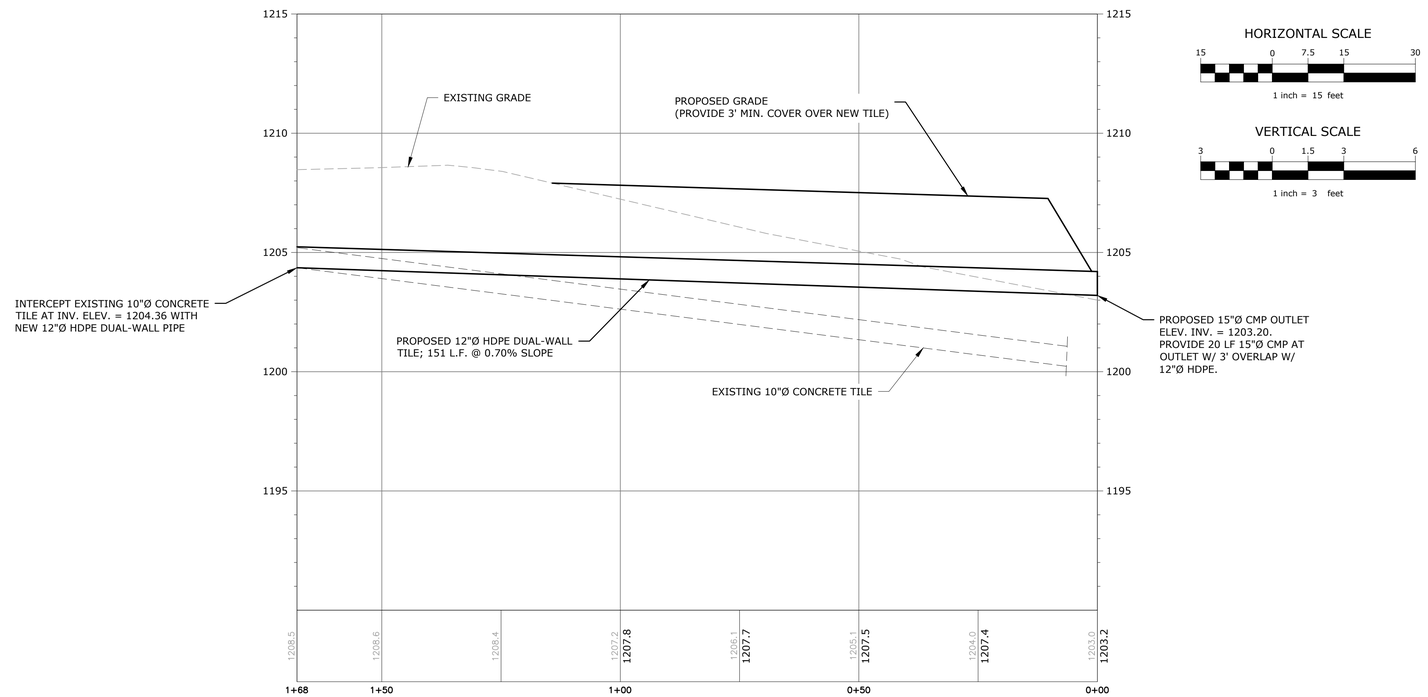
TYPICAL TILE CONNECTION DETAIL

NOT TO SCALE



TILE PIPE BEDDING DETAIL

NOT TO SCALE



12"Ø HDPE DUAL-WALL PIPE PROFILE

(5:1 VERTICAL EXAGGERATION)
SCALE: 1" = 15'

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TILE #1 PLAN & PROFILE
PROJECT NO. EMM1003114B
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CAD FILE:
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4-23-2025
PROJECT NUMBER:
US-IA-340-13

C204

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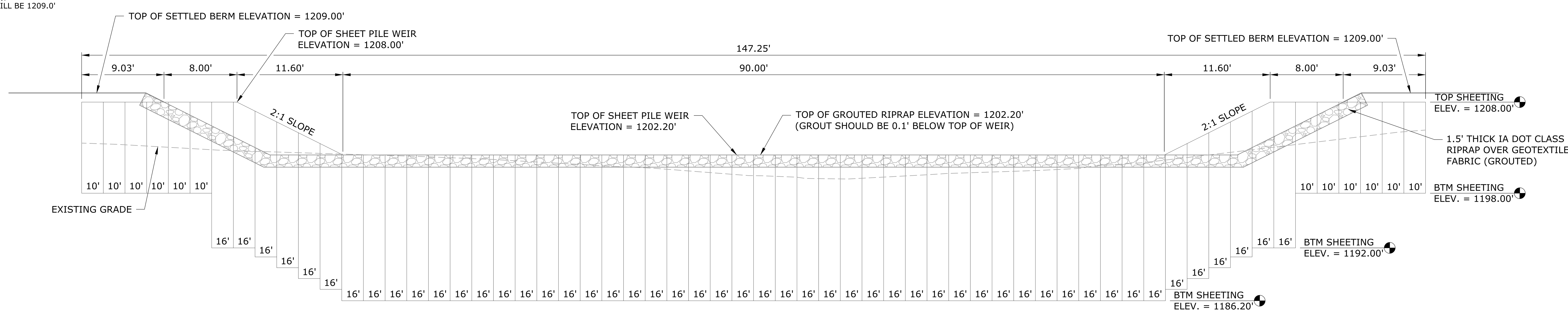
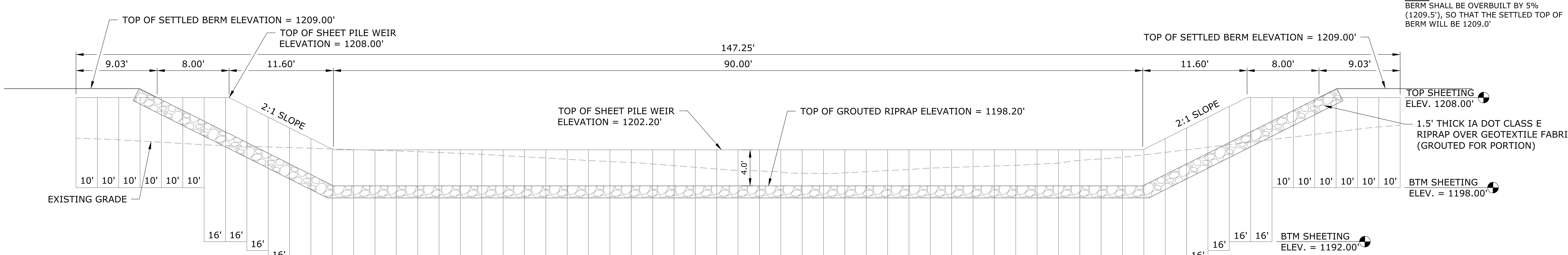
NOTE:
BERM SHALL BE OVERBUILT BY 5% (1209.5'), SO THAT THE SETTLED TOP OF BERM WILL BE 1209.0'



ELEVATION - SHEET PILE WEIR (UPSTREAM)

SCALE: 1" = 6'

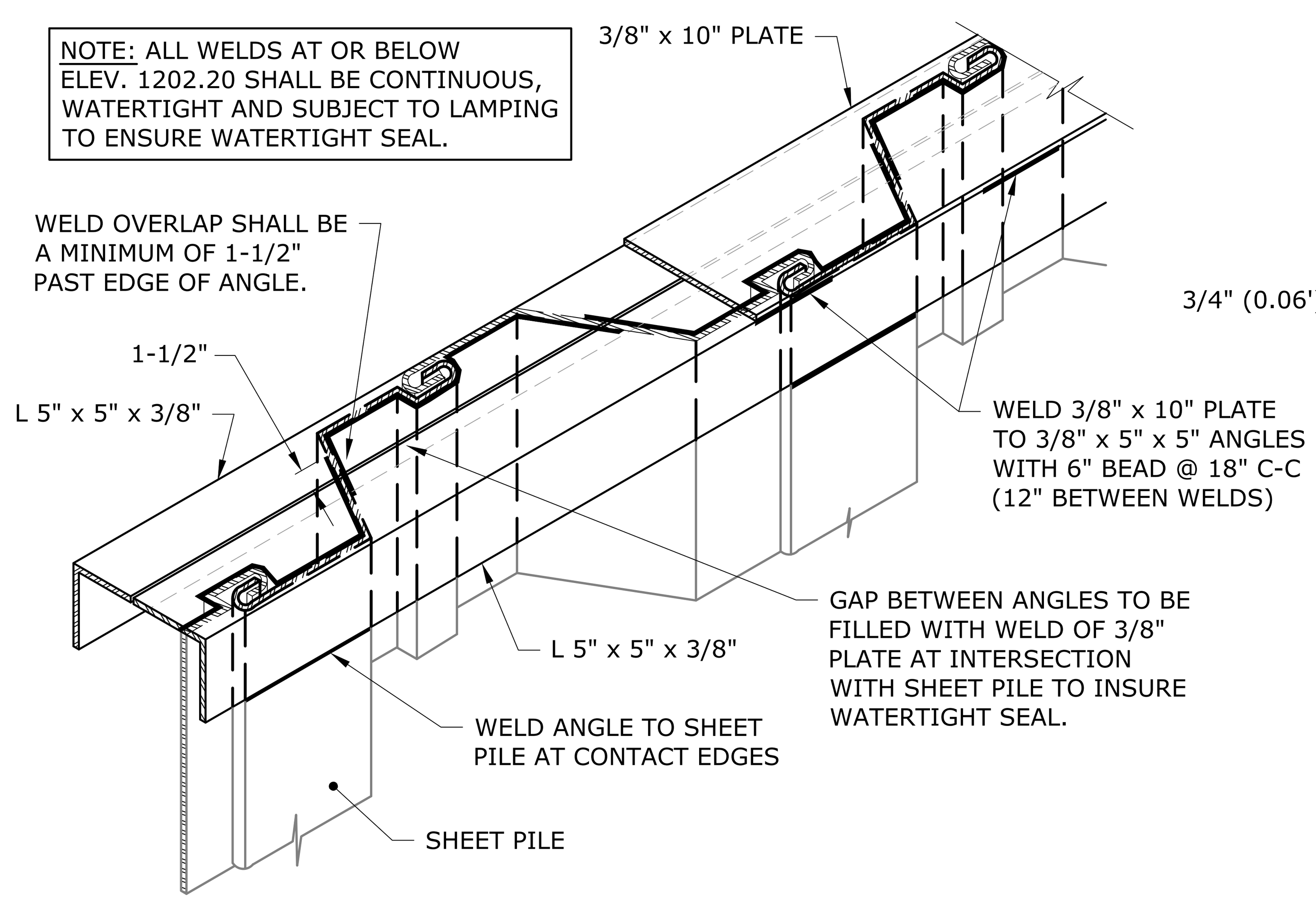
NOTE:
BERM SHALL BE OVERBUILT BY 5% (1209.5'), SO THAT THE SETTLED TOP OF BERM WILL BE 1209.0'



RECOMMENDED SHEET PILE:
1. TYPE: SCZ 21N (OR APPROVED EQUAL)
2. SECTION MODULUS: 21.43 IN^3/FT.
3. THICKNESS: 0.375 IN
4. STEEL GRADE: 50 KSI
5. DETAILS BASED ON 28.5" WIDE SHEETS

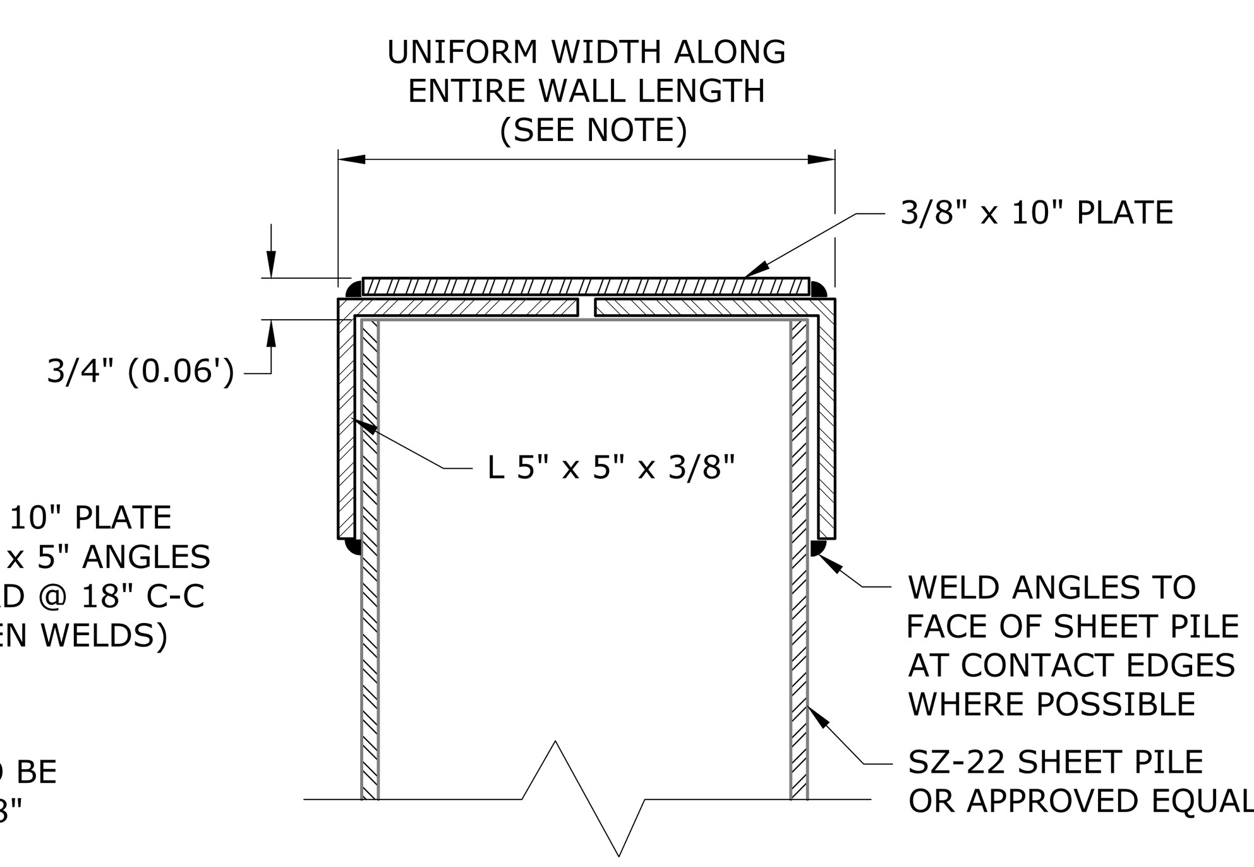
ELEVATION - SHEET PILE WEIR (DOWNSTREAM)

SCALE: 1" = 6'



SHEET PILE CAP FABRICATION DETAIL

NOT TO SCALE



NOTE: CAP WIDTH VARIES DEPENDING ON ALIGNMENT OF SHEET PILE WALL; HOWEVER, ONCE THE APPROPRIATE WIDTH IS DETERMINED, IT SHALL REMAIN UNIFORM ALONG ENTIRE LENGTH OF WALL.

PILE CAP SECTION VIEW

NOT TO SCALE

SHEET PILE MINIMUM DESIGN CRITERIA:
1. TYPE: SCZ
2. SECTION MODULUS: 4.4 IN^3/FT.
3. THICKNESS: 0.25 IN
4. MOMENT OF INERTIA: 8.1 IN^4/FT.
5. STEEL GRADE: 50 KSI

NOTE: SHOPS DRAWINGS ARE REQUIRED.

NOTES:
1. ALL WELDS TO BE 1/4" FILLET WELDS (SEE DU SPECIFICATIONS).
2. ALL WELDS WILL BE SUBJECT TO LAMPING. ANY AREAS FAILING WILL BE RE-WELDED BEFORE ACCEPTANCE OF PROJECT.
3. TOP OF SHEET PILE SHALL BE TRIMMED TO GRADES INDICATED ON PLANS TO REMOVE ANY DAMAGE CAUSED BY DRIVING. ANY TRIMMING OVER 3" SHALL BE CONSIDERED CUT-OFF AND WILL BE DEDUCTED FROM THE COST OF "SHEET PILE INSTALLATION & MATERIALS".
4. ABOVE ELEV. 1202.20 PILE CAP NEED NOT BE WATERTIGHT, WELDS SHALL, CONSIST OF A 6" BEAD AT 18" C-C (12" BETWEEN WELDS).
5. LENGTH OF PILE CAP AS SHOWN ON THE PLANS.

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SHEET PILE DETAILS
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EMMET COUNTY
IOWA

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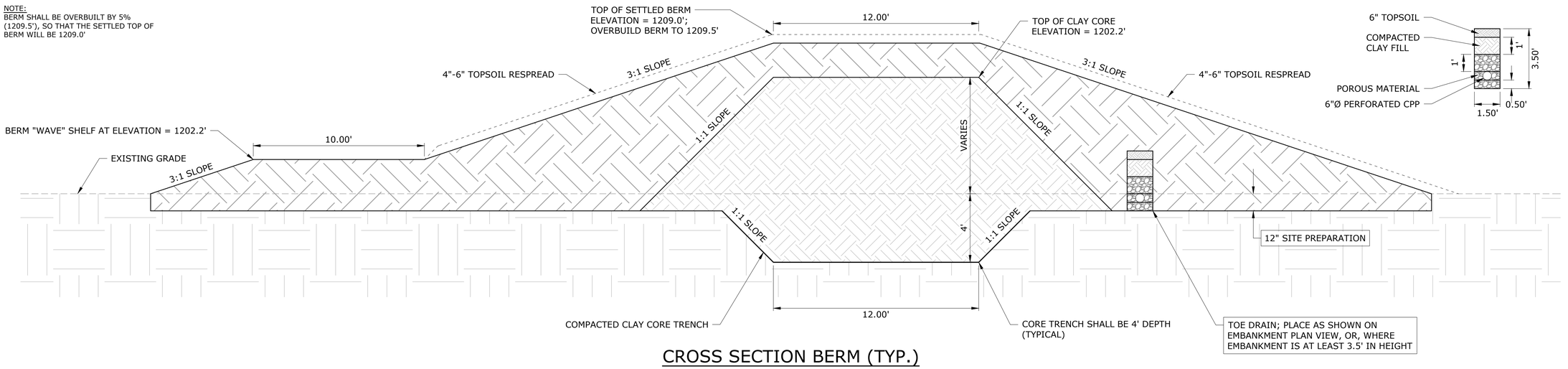
C301

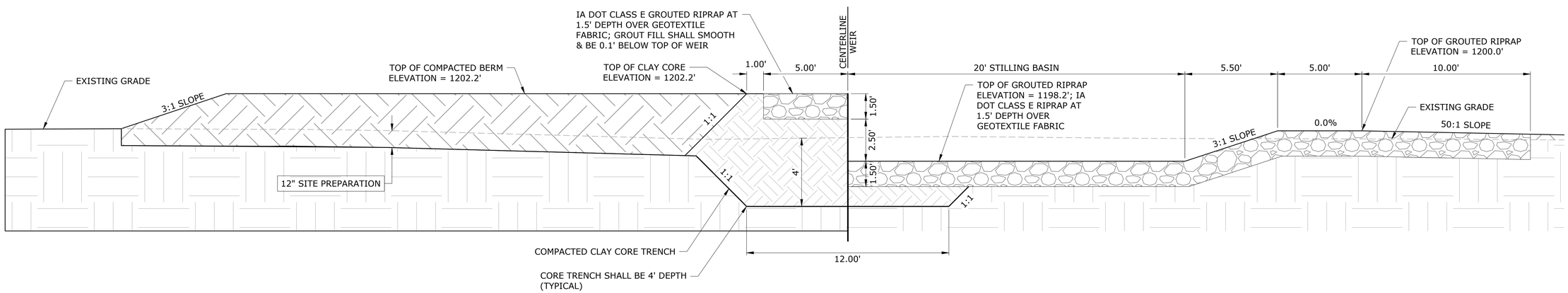
NOT FOR CONSTRUCTION

NOTE:
BERM SHALL BE OVERBUILT BY 5%
(1209.5'), SO THAT THE SETTLED TOP OF
BERM WILL BE 1209.0'



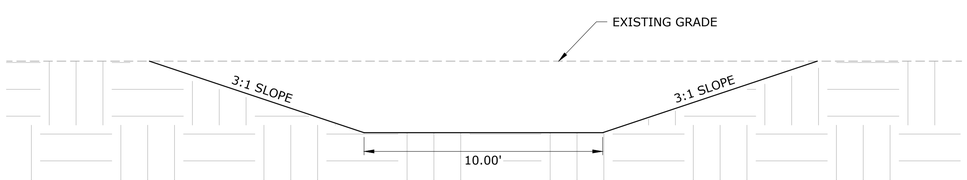
CROSS SECTION BERM (TYP.)

SCALE: 1" = 3'



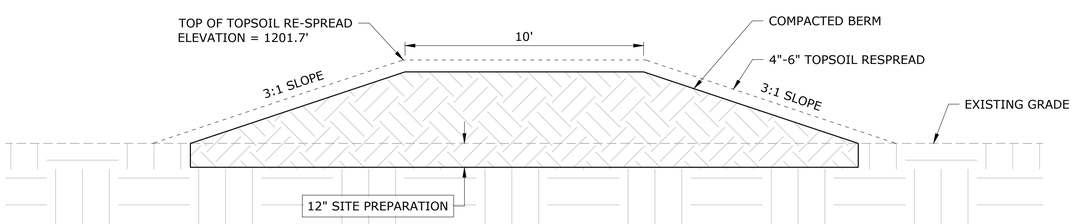
CROSS SECTION SPILLWAY (TYP.)

SCALE: 1" = 3'



CROSS SECTION INLET CHANNEL (TYP.)

SCALE: 1" = 3'



CROSS SECTION SUBMERGED BERM (TYP.)

SCALE: 1" = 3'

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2	C001-C401	IDALS REVISIONS	1-31-2025	A.S.
3	C001-C401	IDALS REVISIONS	4-23-2025	A.S.

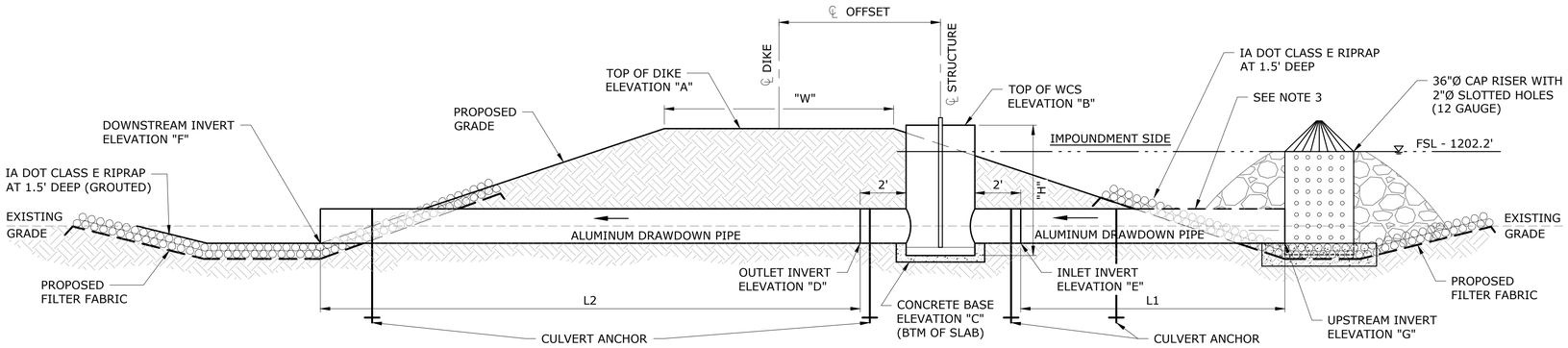
CAD FILE:
IA-340-13 Details
DESIGNED BY: AS
DRAWN BY: CK, WAJ
SURVEYED BY: AS, AB
REVIEWER: TP
DATE:
4-23-2025
PROJECT NUMBER:
US-IA-340-13

C302

NOT FOR CONSTRUCTION

C:\Users\aschippers\Ducks Unlimited Incorporated\Lowa - Documents\Iowa\02_C3D Projects\IA-340-2 CREP PROJECTS\EMMET NEARBY\C3D_DRAWINGS\IA-340-13 Details.dwg, 4/23/2025 12:09 PM, Andrew Schippers, Details - CROSS SECTIONS, None

FABRICATOR NOTE:
NOTE 95° ANGLE BETWEEN INLET/OUTLET
PIPES IN WCS (SEE SHEET C201 & C305)

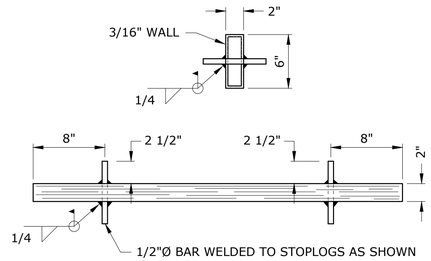


PROFILE OF ALUMINUM CMP WATER CONTROL STRUCTURE (DRAW DOWN STRUCTURE)

NOT TO SCALE

STRUCTURE	DRAWDOWN PIPE		WCS		TOP OF DIKE EL. "A"	TOP OF WCS EL. "B"	CONCRETE BASE EL "C"	OUTLET I.E. EL. "D"	INLET I.E. EL. "E"	DOWNSTREAM INV. "F"	UPSTREAM INV. "G"	TOP WIDTH "W"	INLET LENGTH "L1"	OUTLET LENGTH "L2"	℄ - ℄ OFFSET	WCS HEIGHT "H"	No. OF STOPLOGS	FULL SERVICE LEVEL
	SIZE	GA.	SIZE	GA.														
WCS 1	15"	12	48"	12	1209.0'	1210.0'	1199.0'	1200.0'	1200.0'	1200.0'	1200.0'	12'	81'	42'	9'	10.5'	20	1202.2'

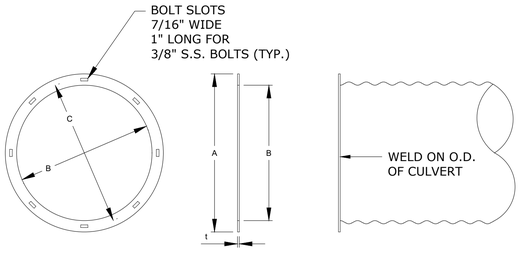
NOTES:
1. DIMENSION "H" INCLUDES 0.5 FOOT OF RISER, EMBEDDED IN CONCRETE.
2. ALL METAL PIPE SHALL BE CONNECTED WITH FLANGE COUPLERS.
3. DOWNSTREAM PIPE OUTLET SHALL CONFORM TO SLOPE FOR PIPE DIAMETERS 30 INCHES AND LARGER.
4. INLET AND/OR OUTLET PIPES GREATER THAN 20 LINEAR FEET SHALL BE FABRICATED USING MULTIPLE SECTIONS, NOT TO EXCEED 20 LINEAR FEET, CONNECTED WITH FLANGE COUPLERS. A FULL 20 FOOT SECTION MUST BE UTILIZED AS THE END SECTION OF PIPE.
5. BOTTOM 6"-8" OF ALUMINUM MUST BE COATED WITH FOUNDATION COATING BEFORE EMBEDMENT INTO CONCRETE.



NOTE:
1. WELD 1/2" Ø BAR IN STOPLOGS.
2. STOPLOGS SHALL BE 1" SHORTER THAN WIDTH BETWEEN STOPLOG GUIDES.
3. FABRICATOR TO PROVIDE 1-2" & 1-3" STOPLOG IN ADDITION TO STOPLOGS SPECIFIED.

ALUMINUM STOPLOG DETAIL

NOT TO SCALE

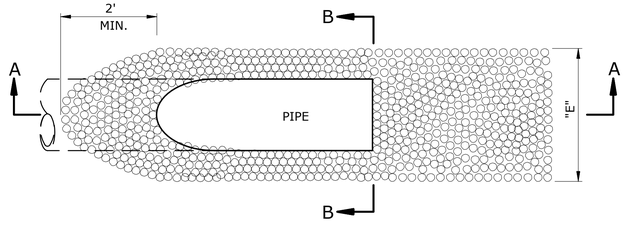


FLANGE SIZE	ALUMINUM GAUGE (t)	FLANGE O.D. (A)	FLANGE I.D. (B)	BOLT SLOTS	BOLT SLOT CIRCLE Ø (C)	GASKETS PER SECTION
6"	3/16"	10"	6"	6	8"	1
8"	3/16"	12"	8"	6	10"	1
12"	3/16 "	16"	12"	10	14"	1
15"	3/16"	19"	15"	12	17"	1
18"	3/16"	22"	18"	14	20"	1
21"	3/16"	25"	21"	16	23"	1
24"	3/16"	28"	24"	18	26"	1
30"	3/16"	34"	30"	22	32"	2
36"	3/16"	40"	36"	26	38"	2
42"	1/4"	46"	42"	30	44"	2
48"	1/4"	52"	48"	34	50"	2

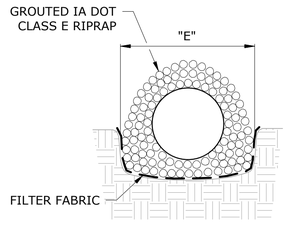
NOTES:
1. 6"-36" FLANGES CUT FROM 3/16" ALUMINUM PLATE.
2. GASKETS TO BE CUT FROM 1/8" PVC NITRILE FOAM ENSOLITE AND MATCHED TO CORRESPONDING FLANGE DIMENSIONS, WITH NO HOLES.
3. 2 WASHERS PER BOLT/SLOT.

FLANGE COUPLER DETAIL

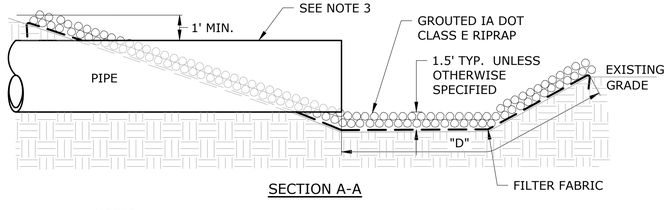
NOT TO SCALE



PLAN VIEW



SECTION B-B



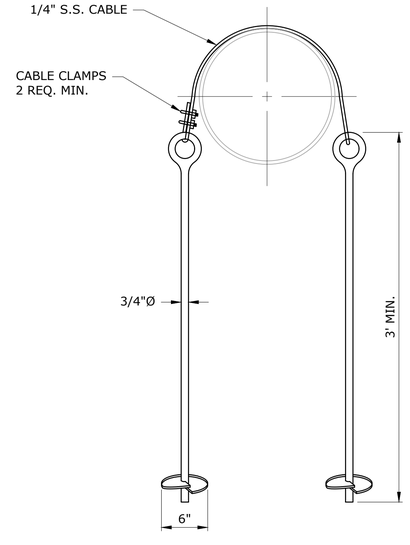
SECTION A-A

NOTES:

1. IF THE RIPRAP CLASS DESIGNATION IS NOT SPECIFIED ON THE CONSTRUCTION PLANS, IA DOT CLASS E RIPRAP SHALL BE UTILIZED. THE ROCK SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
2. UNLESS OTHERWISE SPECIFIED, NON-WOVEN FILTER FABRIC SHALL BE UTILIZED IN THE INSTALLATION OF RIPRAP.
3. DOWNSTREAM CMP PIPE OUTLET SHALL CONFORM TO SLOPE FOR PIPE DIAMETERS 30" AND LARGER.

OUTLET AND RIPRAP DETAIL

NOT TO SCALE



CULVERT ANCHOR

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WATER CONTROL STRUCTURE DETAILS 1
PROJECT NO. EMM1003114B
EMMET COUNTY
IOWA

Revision	Sheet	Revisions	Date	By
1	C001-C401	FINAL SITE PLAN	12-10-2024	W.A.J.
2	C001-C401	IDALS REVISIONS	1-31-2025	A.S.
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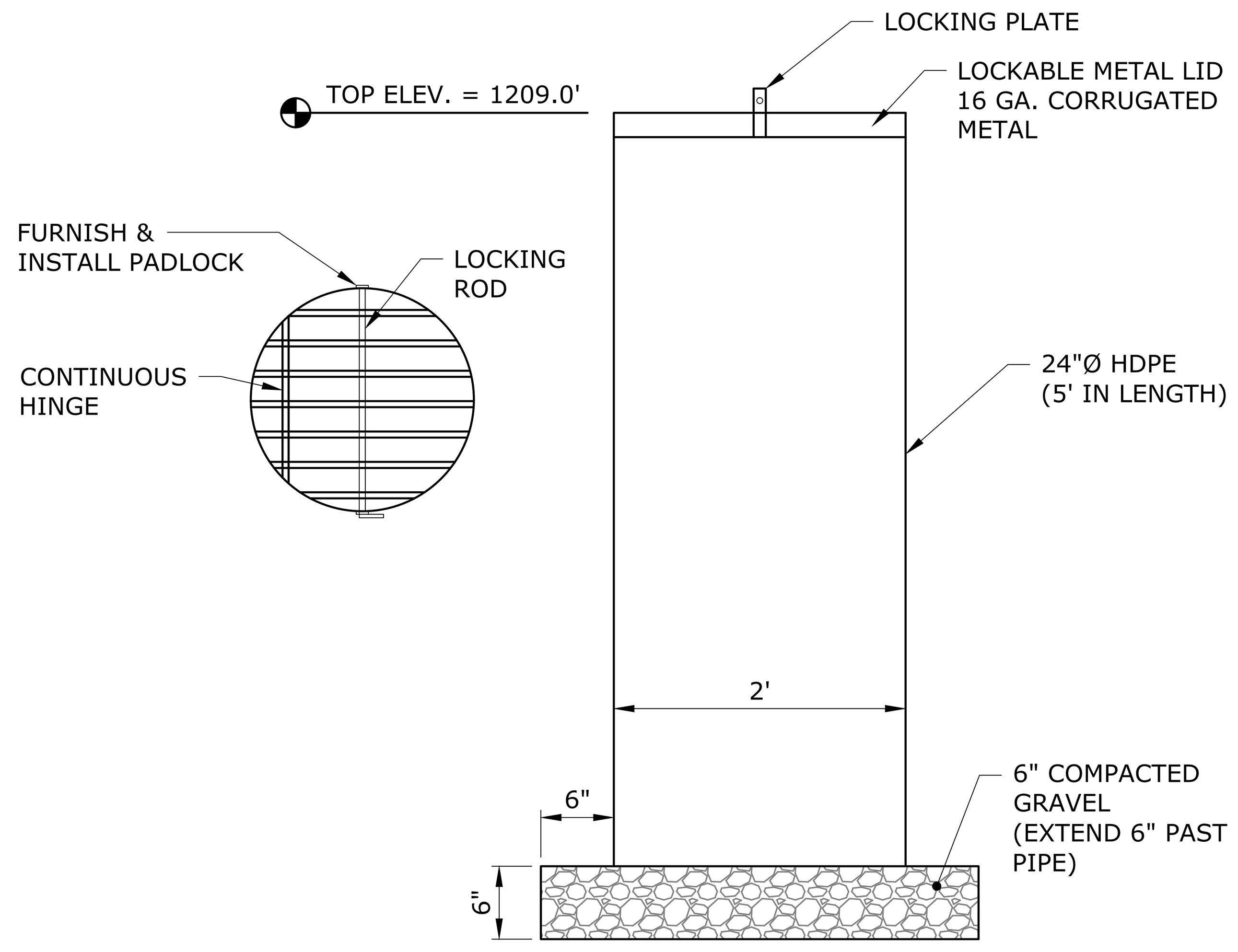
CAD FILE:
IA-340-13 Details
DESIGNED BY: AS
DRAWN BY: CK, WAJ
SURVEYED BY: AS, AB
REVIEWER: TP
DATE:
4-23-2025
PROJECT NUMBER:
US-IA-340-13

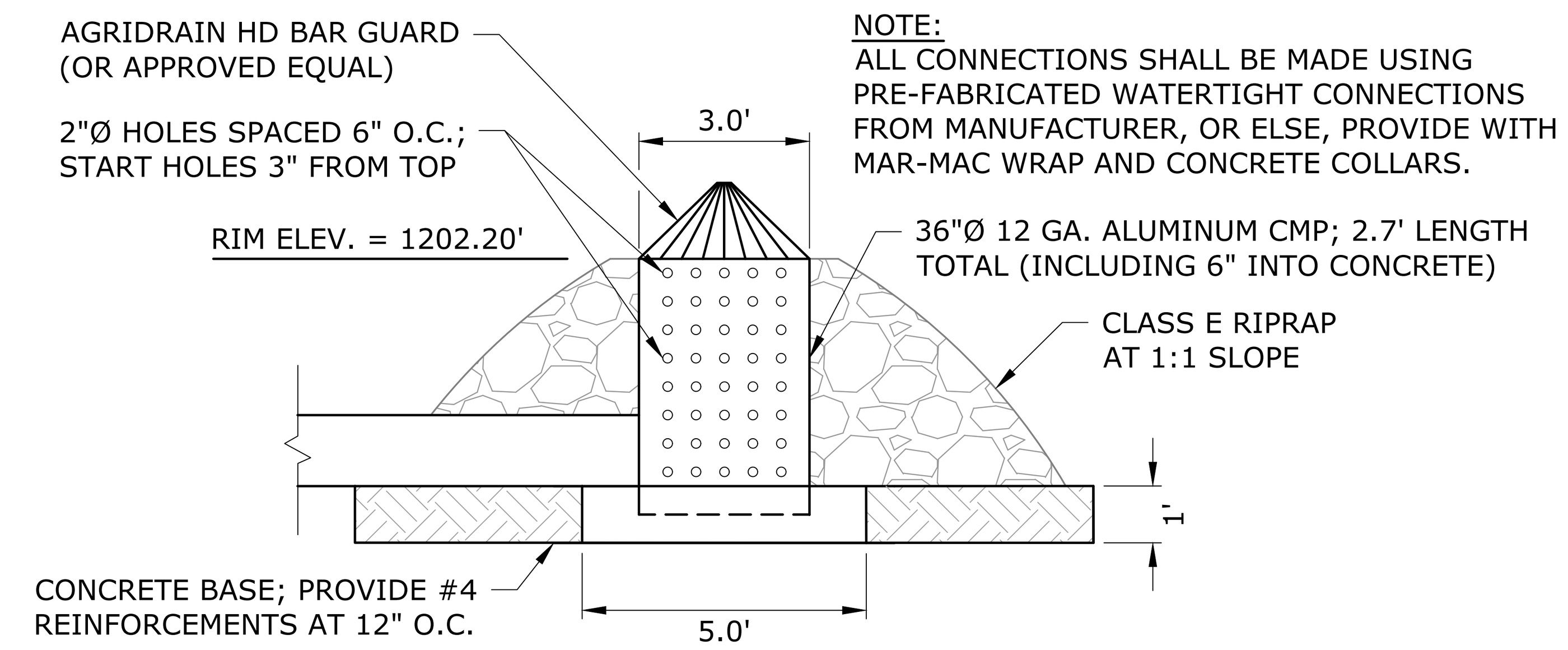
C303

NOT FOR CONSTRUCTION



STOPLOG STORAGE BOX DETAIL (24"Ø HDPE)

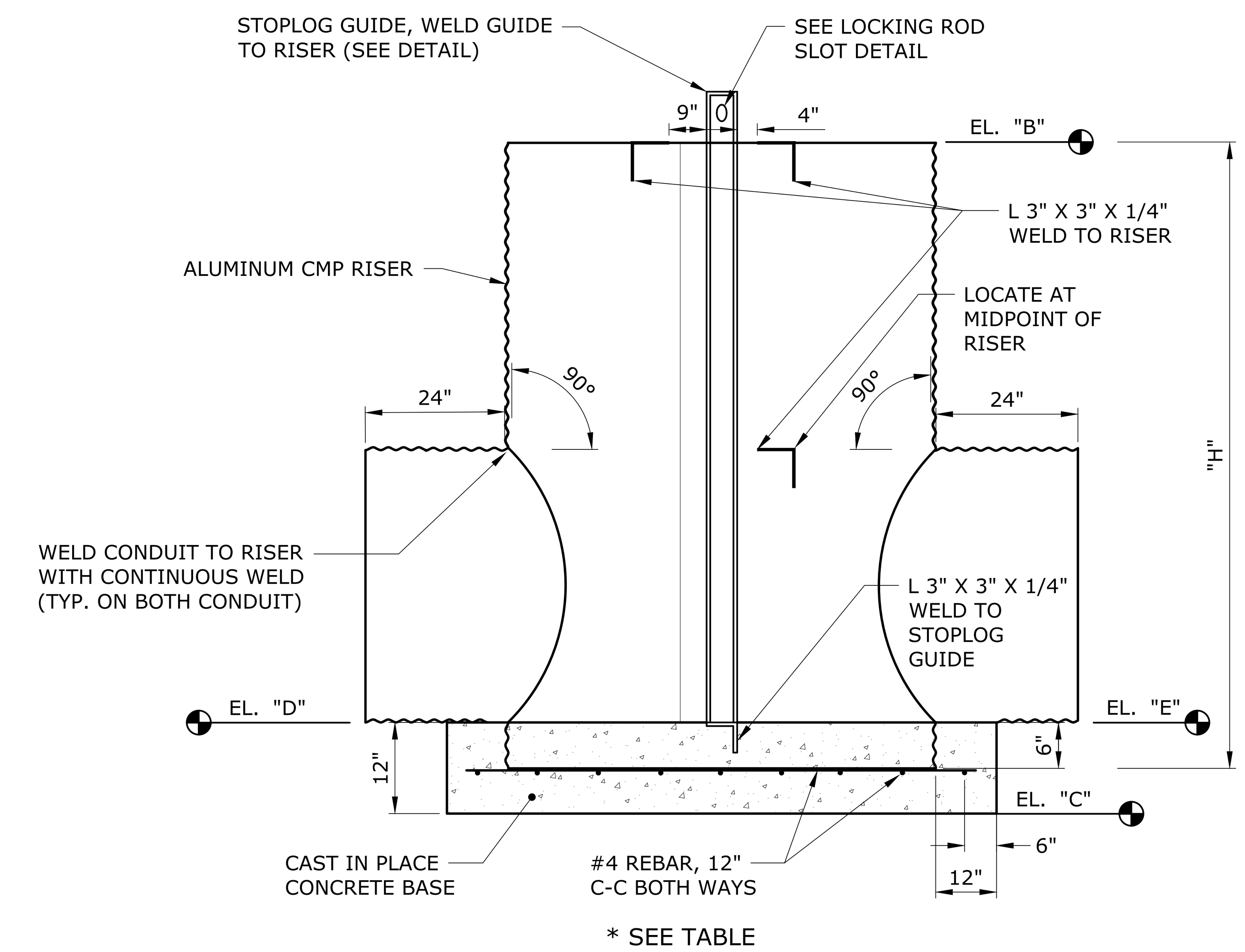
NOT TO SCALE



NOTE:
ALL CONNECTIONS SHALL BE MADE USING PRE-FABRICATED WATERTIGHT CONNECTIONS FROM MANUFACTURER, OR ELSE, PROVIDE WITH MAR-MAC WRAP AND CONCRETE COLLARS.

INLET RISER DETAIL

SCALE: 1" = 3'

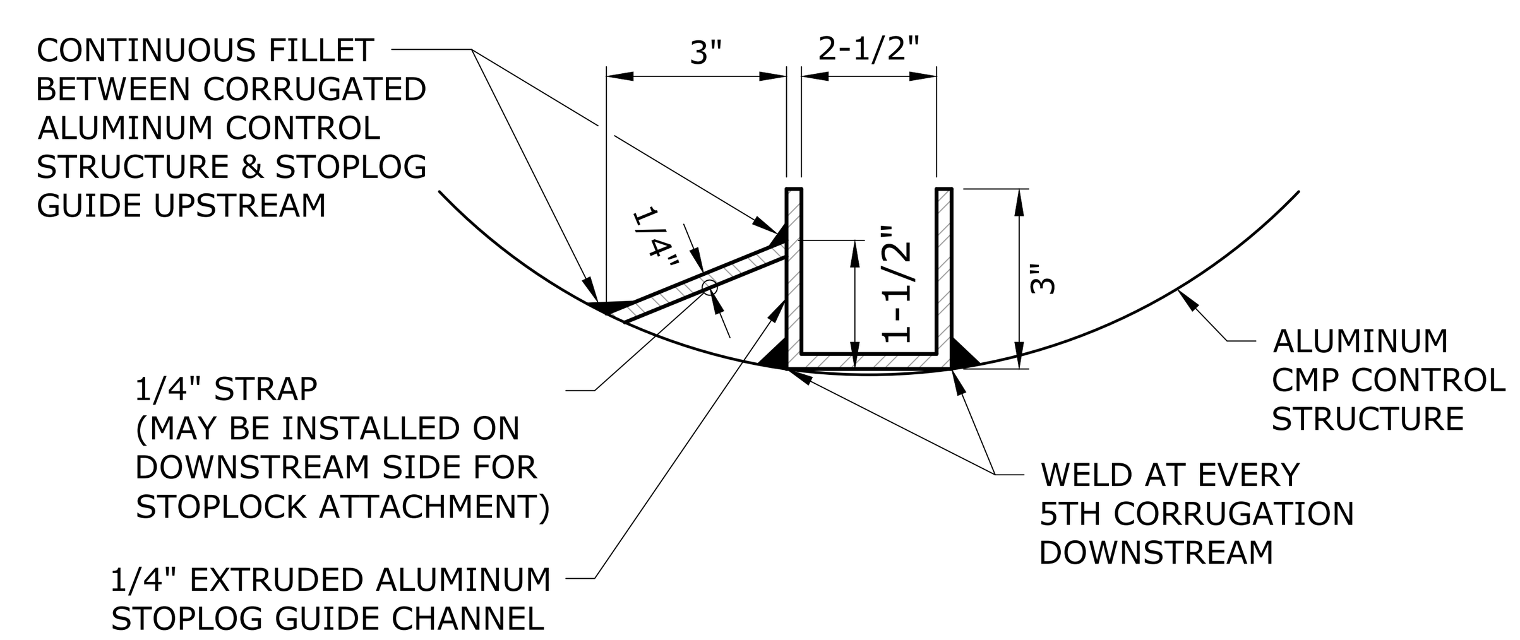


* SEE TABLE

NOTE: BOTTOM 6" - 8" OF ALUMINUM RISER SHALL BE COATED WITH FOUNDATION COATING BEFORE EMBEDMENT INTO CONCRETE.

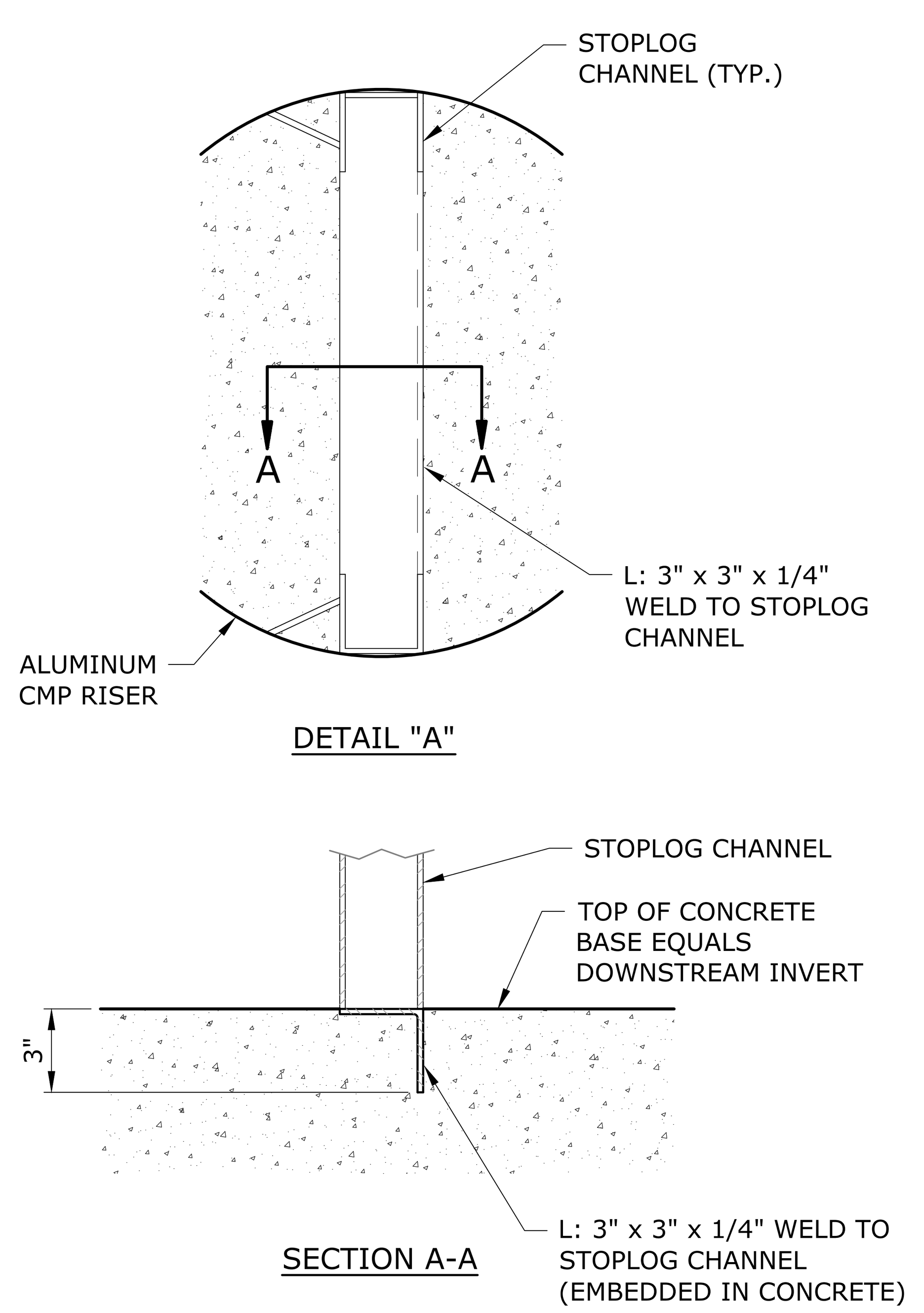
WATER CONTROL STRUCTURE (WCS)

NOT TO SCALE



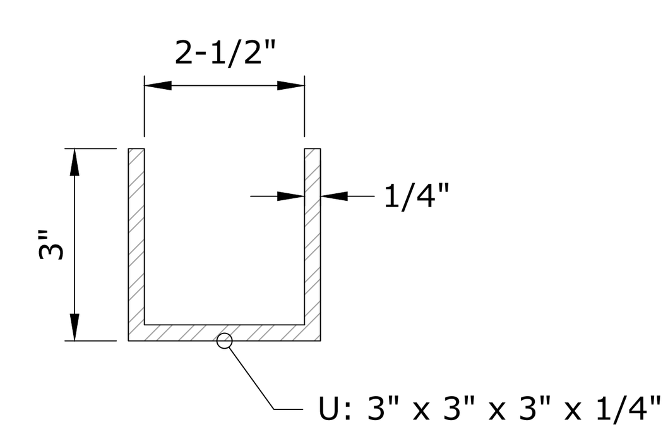
STOPLOG GUIDE DETAIL

NOT TO SCALE



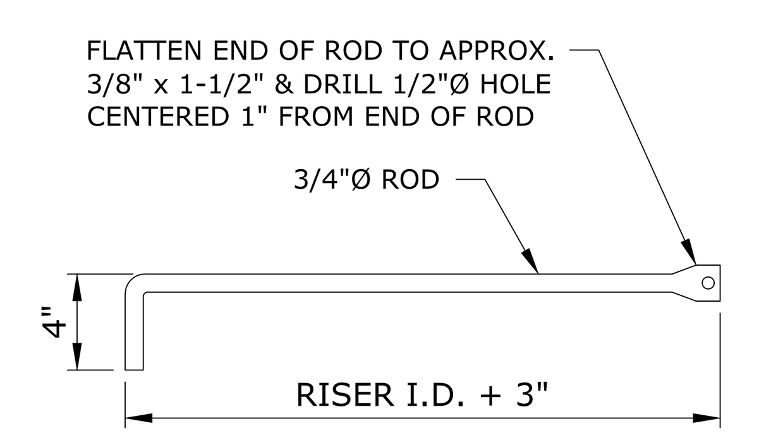
STOPLOG DETAIL A & SECTION DETAIL

NOT TO SCALE



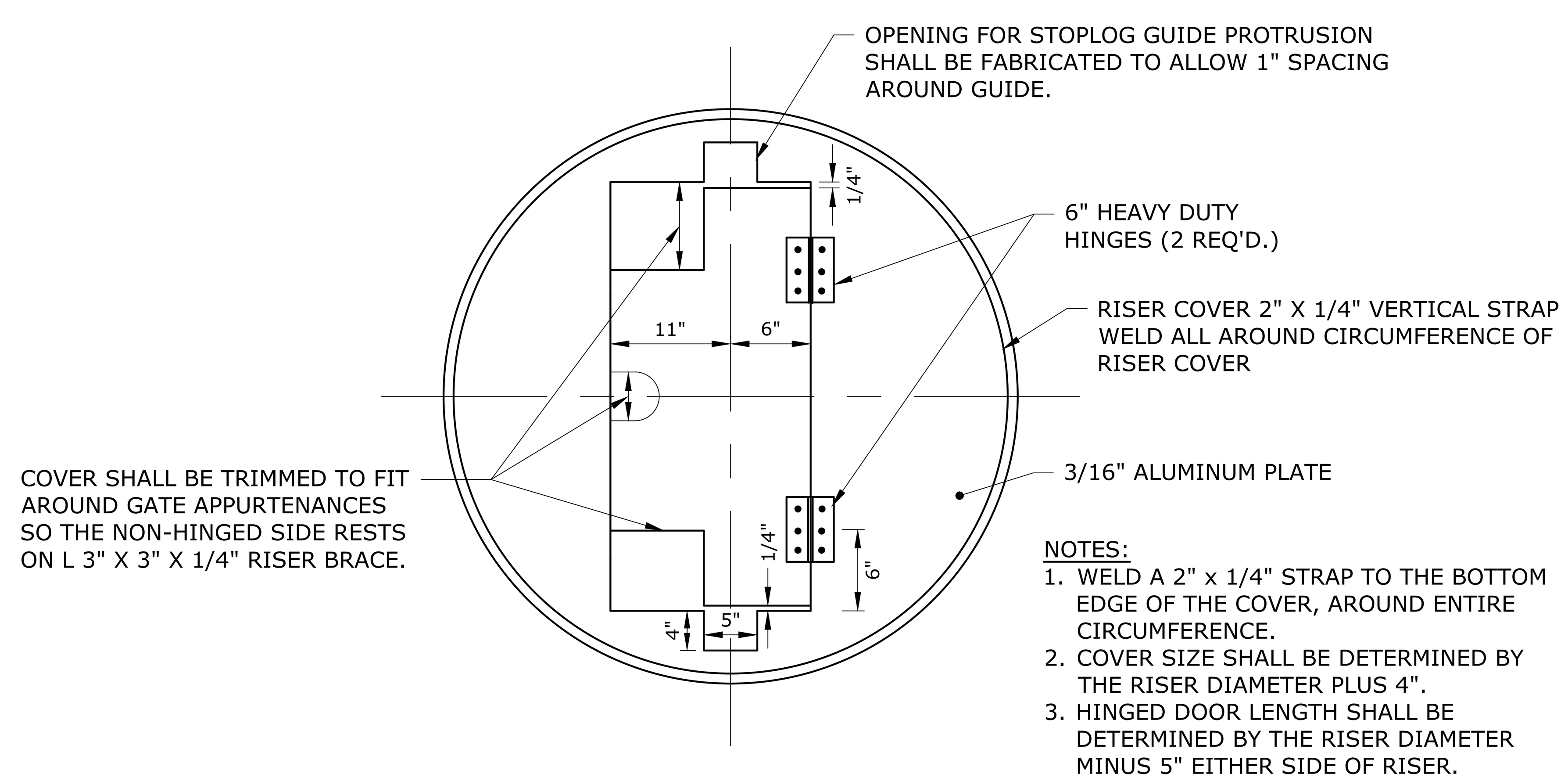
ALUMINUM STOPLOG CHANNEL DETAIL

NOT TO SCALE



LOCKING ROD DETAIL

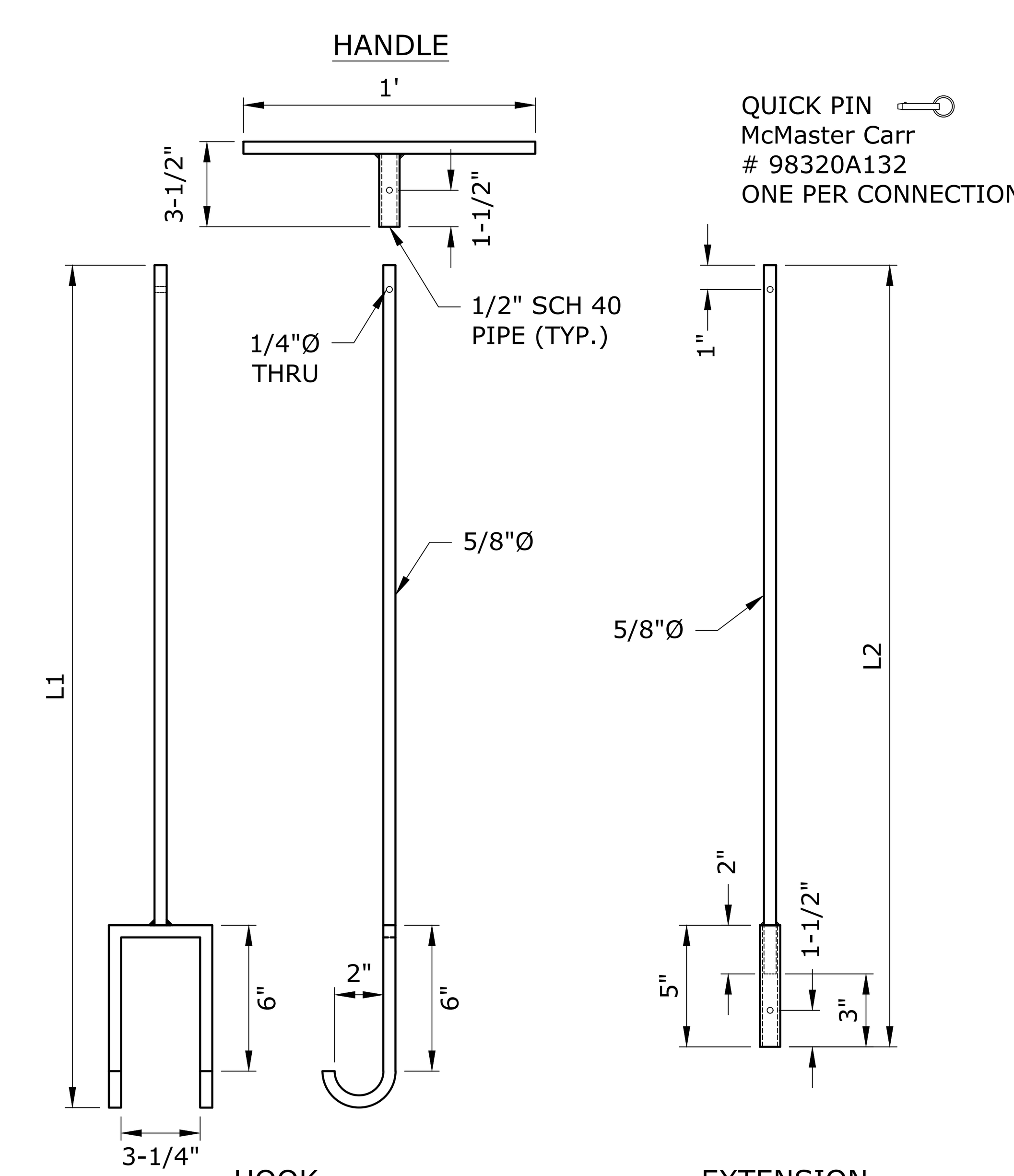
NOT TO SCALE



NOTES:
1. WELD A 2" x 1/4" STRAP TO THE BOTTOM EDGE OF THE COVER, AROUND ENTIRE CIRCUMFERENCE.
2. COVER SIZE SHALL BE DETERMINED BY THE RISER DIAMETER PLUS 4".
3. HINGED DOOR LENGTH SHALL BE DETERMINED BY THE RISER DIAMETER MINUS 5" EITHER SIDE OF RISER.

ALUMINUM COVER DETAIL WCS

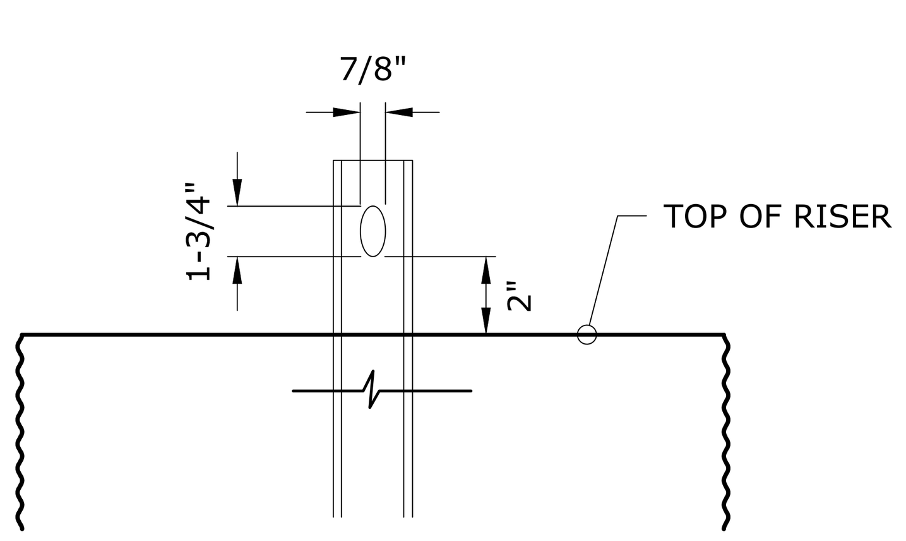
NOT TO SCALE



NOTE:
L1 AND L2 EQUAL HEIGHT OF RISER PLUS 1' MAX LENGTH FOR EACH 5'. AFTER ADD A SECOND EXTENSION L3 2 PER STRUCTURE. MATERIAL TO BE STEEL.

STOPLOG LIFTING HOOK DETAIL

NOT TO SCALE



LOCKING ROD SLOT DETAIL

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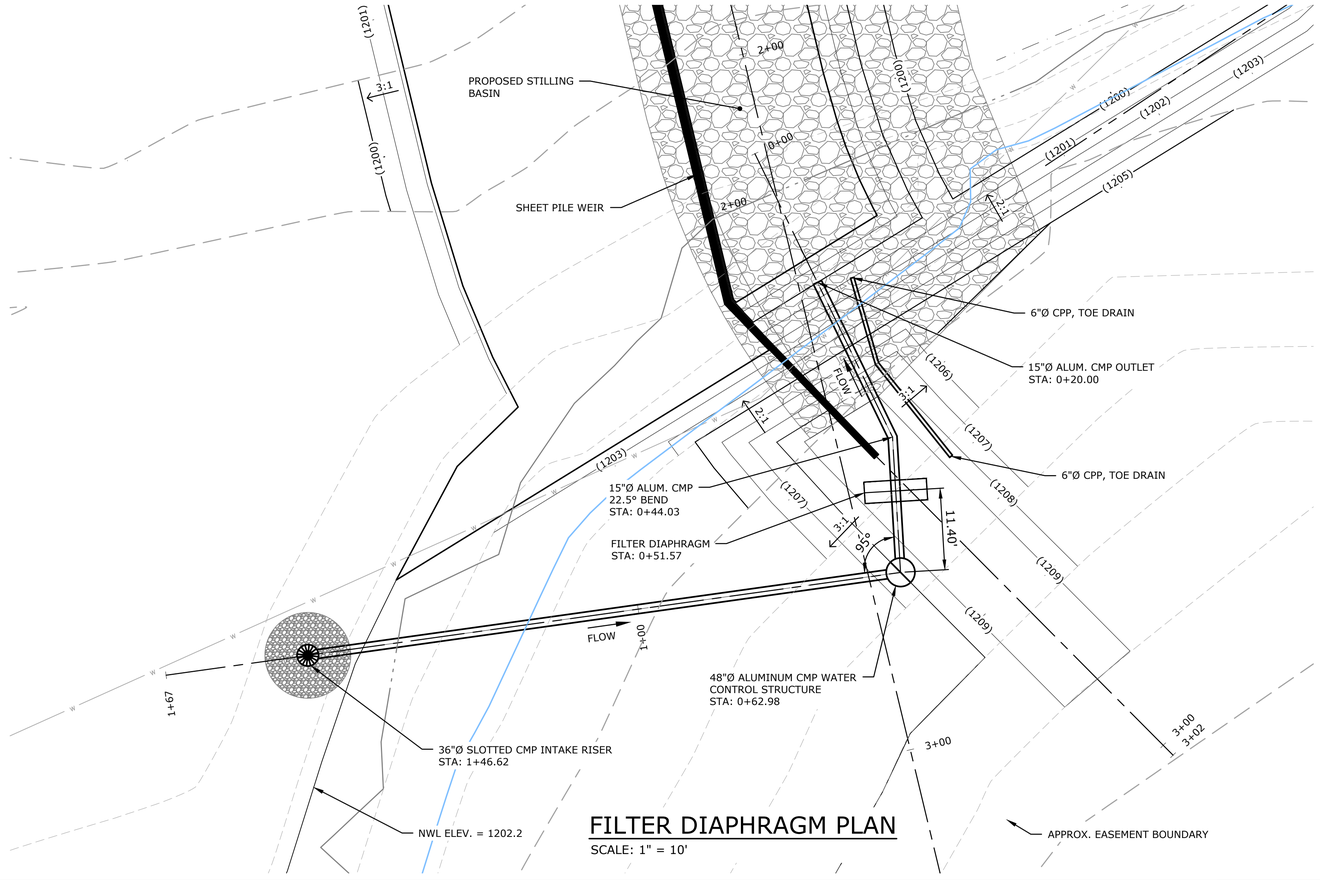
WATER CONTROL STRUCTURE DETAILS 2
PROJECT NO. EMM1003114B
EMMET COUNTY
IOWA

Revision	Sheet	Revisions	Date	By
1	C001-C401	FINAL SITE PLAN	12-10-2024	W.A.J.
2	C001-C401	IDALS REVISIONS	1-31-2025	A.S.
3	C001-C401	IDALS REVISIONS	4-23-2025	A.S.

CAD FILE: IA-340-13 Details
DESIGNED BY: AS
DRAWN BY: CK, WAJ
SURVEYED BY: AS, AB
REVIEWER: TP
DATE: 4-23-2025
PROJECT NUMBER: US-IA-340-13

C304

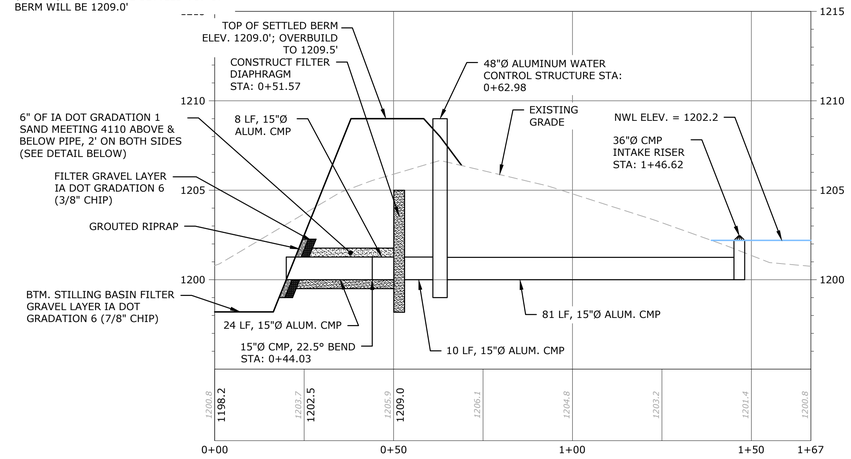
NOT FOR CONSTRUCTION



FILTER DIAPHRAGM PLAN

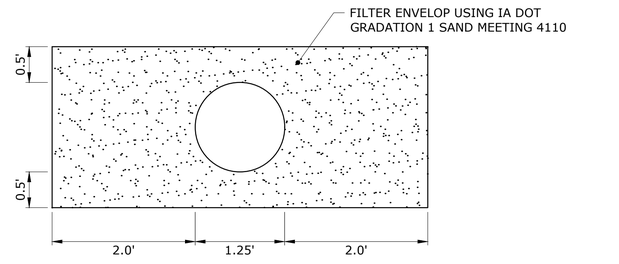
SCALE: 1" = 10'

NOTE:
BERM SHALL BE OVERBUILT BY 5% (1209.5'), SO THAT THE SETTLED TOP OF BERM WILL BE 1209.0'



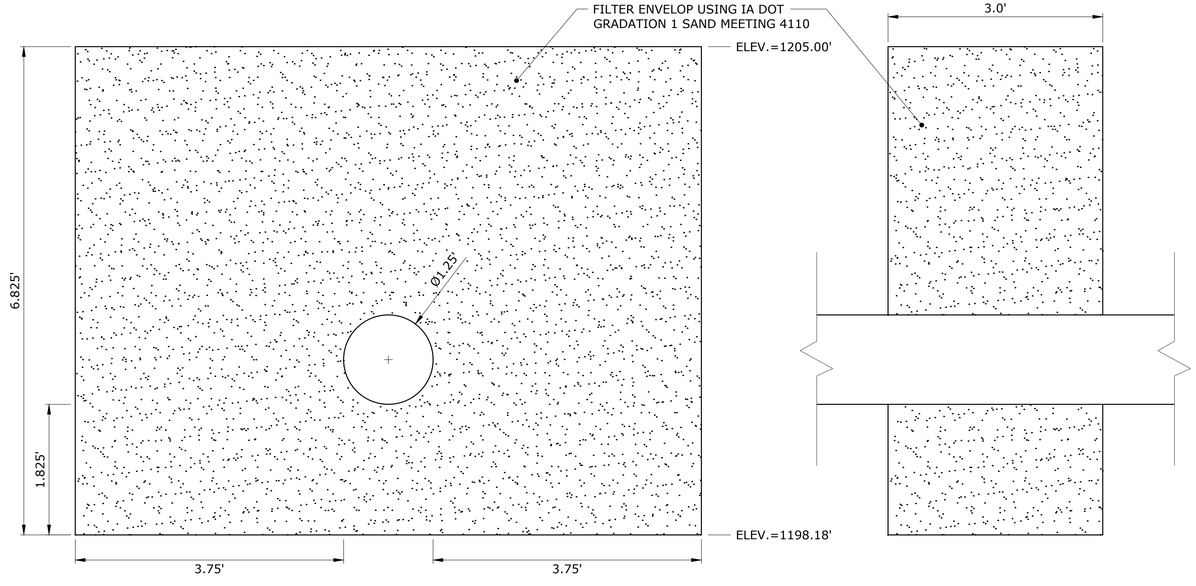
FILTER DIAPHRAGM PROFILE

SCALE: 1" = 10'



SECTION DETAIL - FILTER DIAPHRAGM FILTER ENVELOPE

NOT TO SCALE

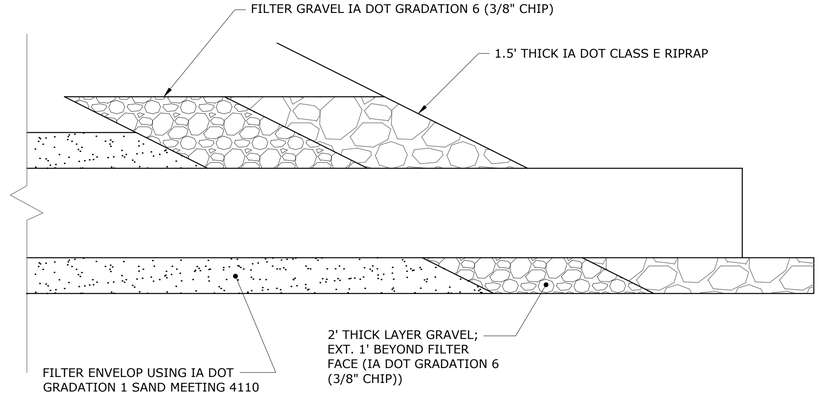


ELEVATION DETAIL - FILTER DIAPHRAGM

NOT TO SCALE

SECTION DETAIL - FILTER DIAPHRAGM

NOT TO SCALE



PROFILE DETAIL - FILTER DIAPHRAGM END SECTION

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FILTER DIAPHRAGM DETAILS
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EMMET COUNTY
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C305

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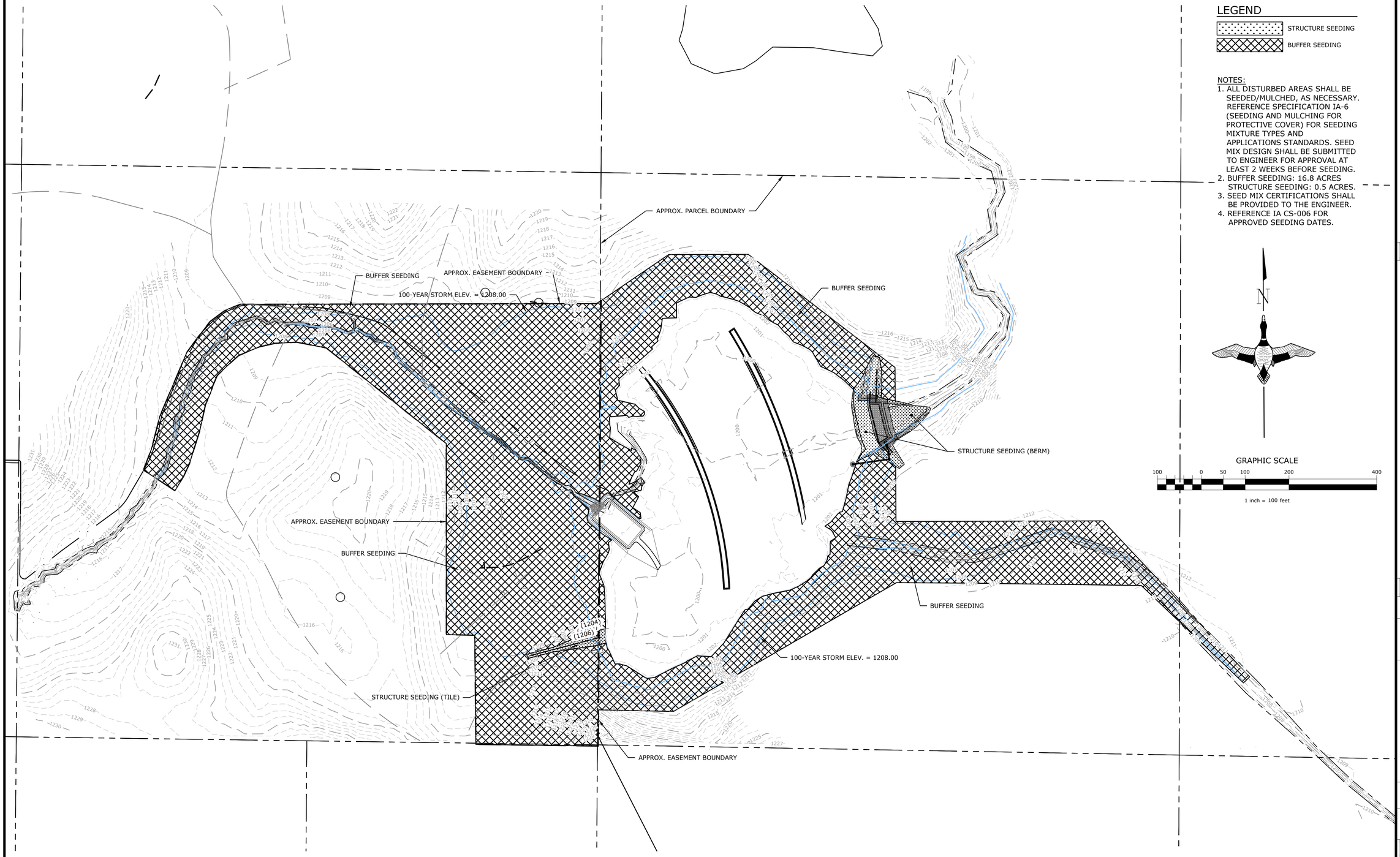

LEGEND

- STRUCTURE SEEDING
- BUFFER SEEDING

NOTES:

1. ALL DISTURBED AREAS SHALL BE SEEDED/MULCHED, AS NECESSARY. REFERENCE SPECIFICATION IA-6 (SEEDING AND MULCHING FOR PROTECTIVE COVER) FOR SEEDING MIXTURE TYPES AND APPLICATIONS STANDARDS. SEED MIX DESIGN SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL AT LEAST 2 WEEKS BEFORE SEEDING.
2. BUFFER SEEDING: 16.8 ACRES
   STRUCTURE SEEDING: 0.5 ACRES.
3. SEED MIX CERTIFICATIONS SHALL BE PROVIDED TO THE ENGINEER.
4. REFERENCE IA CS-006 FOR APPROVED SEEDING DATES.

N

GRAPHIC SCALE

100 0 50 100 200 400

1 inch = 100 feet

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SEEDING PLAN
PROJECT NO. EMM1003114B
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CAD FILE:
IA-340-13 Site Plan

DESIGNED BY: AS
DRAWN BY: CK, WAJ
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4-23-2025
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C401

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