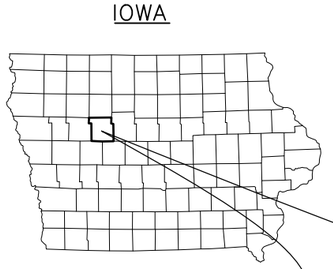
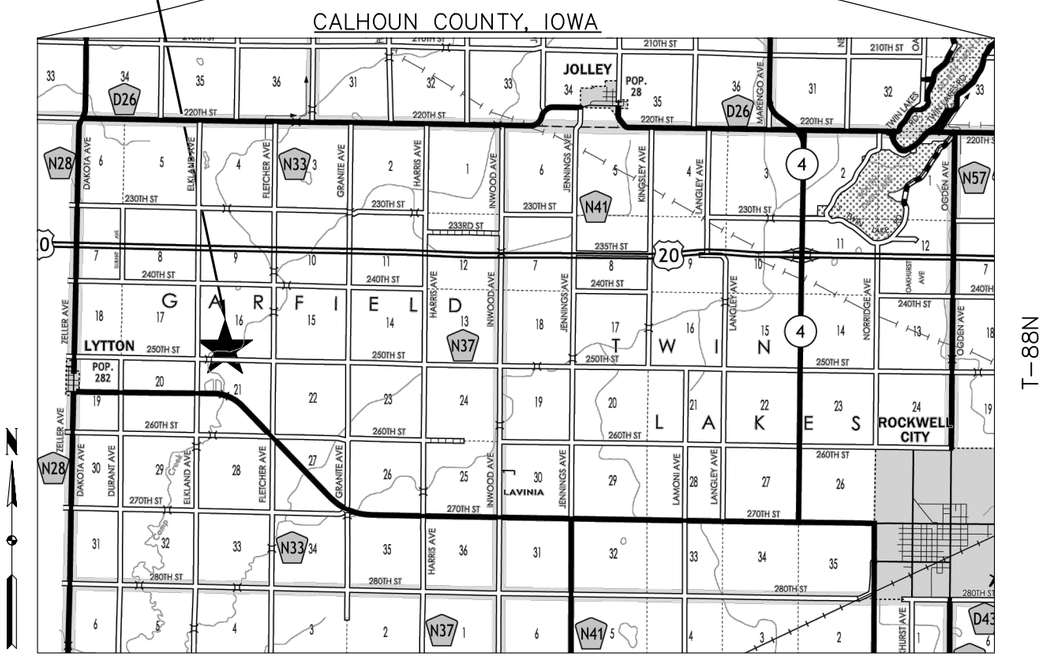
PLANS

WQI WETLAND PROJECT
CAL883416C
CALHOUN COUNTY, IOWA



PROJECT LOCATION



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NRCS SPECIAL NOTE

NOTE, THIS PROJECT IS IOWA ENGINEER JOB CLASS IV.

GENERAL NOTES

WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNER OF THESE UTILITIES BY CALLING IOWA ONE CALL (1-800-292-8989) AT LEAST 48 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE RECORDS AND SURVEYS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

SURVEY AND DATUM

VERTICAL DATUM: NAVD88
HORIZONTAL DATUM: NAD83/UTM ZONE 15N, IN US SURVEY FEET
NOTE, TOPOGRAPHIC SURVEY WAS PROVIDED BY NRCS.
A LOCAL BENCHMARK/CONTROL WILL BE SET BY THE ENGINEER PRIOR TO THE START OF CONSTRUCTION AND PROVIDED TO THE CONTRACTOR.

IOWA ONE CALL
1-800-292-8989
www.iowaonecall.com
Know what's below. Call before you dig.

PROJECT PARTNERS

IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP

USDA

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engineers + planners + land surveyors

REVISIONS

NO.	DATE	DESCRIPTION

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.
Meghan M. Funke, PE
License number 27166
My license renewal date is December 31, 2024
Pages or sheets covered by this seal:
ALL SHEETS
Date: 12-2-2024

PROFESSIONAL ENGINEER
MEGHAN M. FUNKE
27166
IOWA

TITLE SHEET
WQI CAL883416C
CALHOUN COUNTY, IOWA

SCALE: AS SHOWN
PROJECT NO. 9394
DRAWN BY: JRD
CHECKED BY: MMF
SHEET A-1

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GENERAL PROJECT INFORMATION		
Project ID	Cal883416C	
Landowner(s)	Mark Schleisman	
Preliminary or Final Design	Final	
Wetland Drainage Area	154	Acres
W. Fork Camp Cr. Drainage Area	32,192	Acres
Time of Concentration	1.75	Hours
Weighted Runoff Curve Number	91	-----
Length of Berm	1885	Feet
Wetland Pool Area	12.5	Acres
Deep Water Area (>3 ft deep)	3.0	Acres
Normal Pool Elevation	1196.5	Feet
Average Pool Depth	2.9	Feet
Maximum Pool Depth	5.5	Feet
Pool Storage	32.0	Acre-Feet
Berm Elevation	1199.0	Feet
Berm Storage	73.9	Acre-Feet
Primary Spillway 24-HR Design	5	YR
Primary Spillway Elevation	1196.5	Feet
Primary Spillway Weir Width	16	Feet
5-year Storm Peak Inflow	156	CFS
5-year Storm Routed Discharge	91	CFS
5-year Max Surface Elevation	1197.4	Feet
Auxiliary Spillway 24-HR Design	100	YR
Auxiliary Spillway Elevation	1197.5	Feet
Auxiliary Spillway Width	10	Feet
100-year Storm Peak Inflow	361	CFS
100-year Storm Routed Discharge	273	CFS
100-year Max Surf. Elevation	1198.6	Feet

ESTIMATED QUANTITIES OF WORK AND LIST OF SPECIFICATIONS

ITEM	DESCRIPTION		UNIT QUANTITY	UNIT
1	SITE STRIPPING & PREPARATION	IA CS-001	1	LS
2	STRUCTURE & CHANNEL SEEDING	IA CS-006	3.0	AC
3	BUFFER SEEDING	IA CS-006	17.6	AC
4	MOBILIZATION	IA CS-008	1	LS
5	DRAIN TILE INVESTIGATION & REMOVAL	IA CS-009	1	LS
6	ALUMINUM TOE WALL OUTLET STRUCTURE	IA CS-081	1	LS
7	EXCAVATION, GENERAL (P)	IA CS-021	53,800	CY
8	EARTHFILL, GENERAL (P)	IA CS-023	31,500	CY
9	EARTHFILL, EMBANKMENT (P)	IA CS-023	13,400	CY
10	EARTHFILL, CORE TRENCH (P)	IA CS-023	8,500	CY
11	TOPSOILING (P)	IA CS-026	11,400	CY
12	6" DRAIN TILE, PERF. POLYETHYLENE	IA CS-046	200	LF
13	12" DRAIN TILE, PERF. POLYETHYLENE	IA CS-046	641	LF
14	4" TOE DRAIN TILE, PERF. POLYETHYLENE	IA CS-046	1,855	LF
15	6" DRAIN TILE OUTLET	IA CS-051	20	LF
16	12" DRAIN TILE OUTLET	IA CS-051	40	LF
17	18" CORRUGATED METAL PIPE	IA CS-051	212	LF
18	DRAWDOWN STRUCTURE	IA CS-051	1	LS
19	RISER INLET STRUCTURE	IA CS-051	1	LS
20	STOP LOG STORAGE STRUCTURE	IA CS-051	1	LS
21	WET WELL & PUMP SYSTEM		1	LS
22	ROCK RIPRAP (IADOT CLASS E)	IA CS-061	653	TON
23	EROSION STONE	IA CS-061	60	TON
24	CROP DAMAGE	IA CS-001	--	AC

EARTHWORK BALANCE SUMMARY

EARTHWORK BALANCE SUMMARY		
Item	**Cubic Yards**	**Comment**
Excavation, General	53800	Total excavation required for finish grading of the pool area, channels, core trench, sediment basins, auxiliary spillway, borrow and any other miscellaneous excavation required for the project. Anticipated Borrow = 0 CY. No Shrinkage Factor.
Earthfill, General	31500	Total earthfill required for submerged berms, adjacent fill areas, and additional fill to be placed over tiles to provide adequate cover. 20% Shrinkage Factor
Earthfill, Embankment	13400	Earthfill necessary to construct the embankment. 20% Shrinkage Factor
Earthfill Core Trench.	8500	Earthfill necessary to fill core trench. 20% Shrinkage Factor
Topsoil	11400	Total stripped topsoil to be respread. Use stripped topsoil to minimally cover embankment, tiles, and other disturbances. Remaining site topsoil to be used for infills on north side of project. Does not include excess topsoiling for borrow areas. Borrow area topsoiling is incidental. No Shrinkage Factor

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PROJECT INFORMATION & QUANTITIES
WQI CAL883416C
CALHOUN COUNTY, IOWA

SCALE: AS SHOWN
PROJECT NO. 9394
DRAWN BY: JRD
CHECKED BY: MMF
SHEET A-2

NOTES

1. CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ALL PREVIOUSLY UNKNOWN TILE LINES WITHIN THE PROJECT AREA. DISCOVERED TILE LINES SHALL REMAIN UNCOVERED FOR FURTHER EVALUATION.
2. ALL DRAIN TILE FOUND DURING THE EXCAVATION OF THE CORE TRENCH SHALL BE REMOVED EXTENDING 10 FEET BEYOND THE EMBANKMENT FOOTPRINT.
3. TOPSOIL SHALL NOT BE PLACED BACK IN CORE TRENCH.
4. THE CORE TRENCH SHALL BE PLACED & COMPACTED IN 6" LIFTS MAXIMUM.
5. ACCESS TO SITE PROVIDED VIA 250TH STREET. CONTRACTOR SHALL REPAIR ANY DAMAGE TO THE ROAD THAT OCCURS DUE TO CONSTRUCTION ACTIVITIES.

TILE EXPLORATORY PIT

PERMANENT EASEMENT (TYP)

CRUSH OR REMOVE DRAINAGE TILE (TYP.)

EXISTING TILE LINES

STRIP TOPSOIL & EXCAVATE 6'.0 DEEP (MINIMUM) CORE TRENCH WITH 8' WIDE BOTTOM WIDTH. SEE NOTES. PROFILE SHOWN ON SHEETS C-2 THROUGH C-3.

1210 1205 1205 1210 1205 1205 1200 1195 1205 1200 1195 1200 1205 1210

CULTURAL RESOURCE NOTE

IF A CULTURAL RESOURCE IS FOUND DURING CONSTRUCTION STOP IMMEDIATELY AND NOTIFY THE LOCAL NATURAL RESOURCE CONSERVATION SERVICE (NRCS) OFFICE.

LEGEND

- EXISTING DRAIN TILE
- EASEMENT
- CONSTRUCTION EASEMENT
- SITE STRIPPING LIMITS
- SOIL BORING
- TILE EXPLORATION PIT
- TILE REMOVAL

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100 0 100 200

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EXISTING CONDITIONS & REMOVALS
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CALHOUN COUNTY, IOWA

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SHEET R-1

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MASS GRADING NOTES

1. BORROW AREAS TO HAVE MAX 3:1 SIDE SLOPES.
2. TOPSOIL WITHIN THE DISTURBED BORROW AREA SHALL BE STRIPPED, STOCKPILED, AND REPLACED UPON COMPLETION.
3. SUBMERGED BERMS SHALL BE 10' WIDE WITH 3:1 SIDE SLOPES.
4. BORROW AREAS CAN BE BACKFILLED WITH EXCESS/SPOIL MATERIALS.
5. CONSTRUCTION SITE ACCESS SHALL BE FROM 250TH ST.

LEGEND
- WETLAND EXTENTS
- DEEP WATER EXTENTS
- 100-YR FLOOD EXTENTS

TEMPORARY CONSTRUCTION EASEMENT
EXISTING TILE
TILE 3. SEE SHEET T-3 PERFORM TILE INVESTIGATION & DAYLIGHT DRAIN TILE
PERMANENT EASEMENT
TOE OF THE EAST SIDE OF SPOIL PILE SHALL BE SET BACK 150-FT FROM TOP OF BANK.
EXISTING CREEK
TILE 2. SEE SHEET T-2 PERFORM TILE INVESTIGATION & DAYLIGHT DRAIN TILE
APPROXIMATE 100-YR POOL EL: 1198.6
APPROXIMATE WETLAND BOUNDARY NORMAL POOL EL: 1196.5
SUBMERGED BERM TOP EL. 1195.0
APPROXIMATE WETLAND BOUNDARY NORMAL POOL EL: 1196.5
APPROXIMATE 100-YR POOL EL: 1198.6
EXISTING TILE
EXISTING TILE
PROPOSED DEEP WATER AREA FOR FLOATING IRRIGATION PUMP
PROPOSED EQUIPMENT PAD (MIN. ELEV. 1200')
0.4 ACRES
0.2 ACRES
0.5 ACRES
0.5 ACRES
0.5 ACRES
0.5 ACRES
CHANNEL MAINTENANCE SPOILS AT THE TOP OF BANK ON BOTH SIDES OF THE CHANNEL SHALL BE GRADED FLAT WITH THE ADJACENT FLOODPLAIN FROM THE NORTH END OF SPOIL PILE TO BERM STATION 11+00.
EXISTING TILE
TILE 1. SEE SHEET T-1. PERFORM TILE INVESTIGATION & DAYLIGHT DRAIN TILE
PERMANENT EASEMENT
TOE OF SOUTH END OF SPOIL PILE SHALL BE SET BACK 100-FT FROM TOP OF BANK.
PROPOSED EARTHEN EMBANKMENT. TOP ELEVATION 1199.0' SEE SHEET C-2 TO C-3
RISER & DRAWDOWN SYSTEM SEE SHEET C-5
ALUMINUM TOE WALL OUTLET STRUCTURE. SEE SHEET C-4
MANHOLE / WET WELL PROPOSED LOCATION LIFT STATION WITH ELECTRIC PUMP. SEE SHEET C-6
APPROXIMATE 100-YR POOL EL: 1198.6
APPROXIMATE WETLAND BOUNDARY NORMAL POOL EL: 1196.5
PROPOSED EARTHEN EMBANKMENT. SEE SHEET C-2 TO C-3
WEST FORK CAMP CREEK
EXISTING CREEK
PERMANENT EASEMENT

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HORIZ.
100 0 100 200

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NO.	DATE	DESCRIPTION

PROJECT OVERVIEW
WQI CAL883416C
CALHOUN COUNTY, IOWA

SCALE:	AS SHOWN
PROJECT NO.	9394
DRAWN BY:	JRD
CHECKED BY:	MMF
SHEET	C-1

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NOTE:

1. EMBANKMENT SHALL BE PLACED IN 6" LIFTS MAXIMUM.

REMOVE TILE UNDER UNDERNEATH AND EXTENDING 10 FEET BEYOND THE EMBANKMENT FOOTPRINT

REMOVE TILE UNDER UNDERNEATH AND EXTENDING 10 FEET BEYOND THE EMBANKMENT FOOTPRINT

EMBANKMENT TOP EL. 1199.0

APPROXIMATE 100-YR POOL EL: 1198.6

APPROXIMATE WETLAND BOUNDARY NORMAL POOL EL: 1196.5

PLACE 4" OF TOPSOIL ON EMBANKMENT FACES PRIOR TO SEEDING

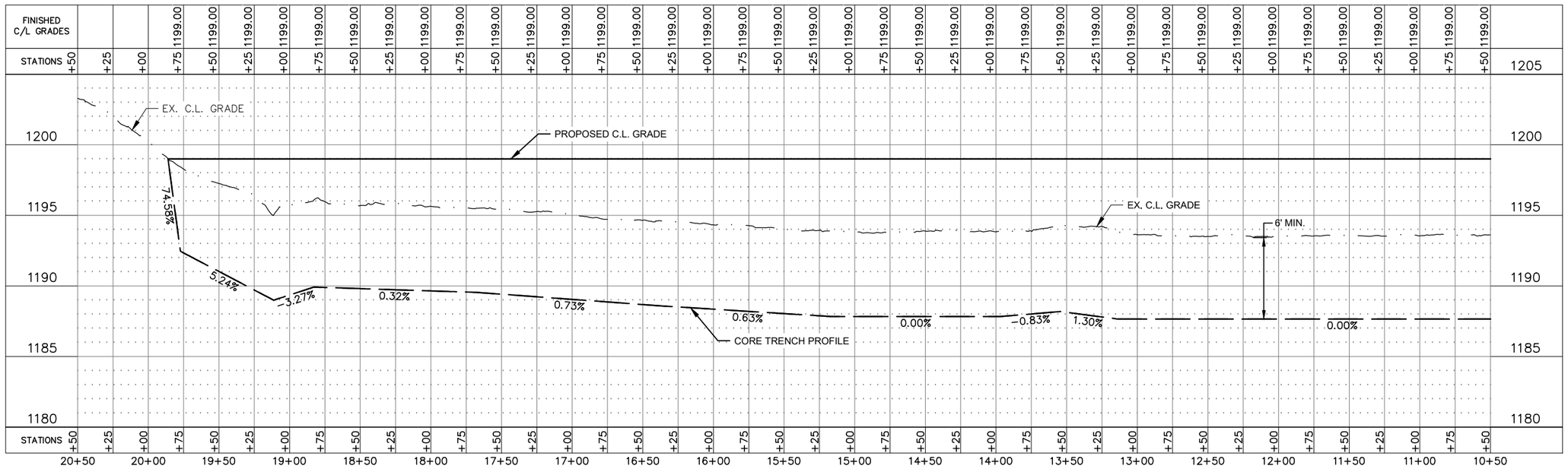
MANHOLE / WET WELL PROPOSED LOCATION LIFT STATION WITH ELECTRIC PUMP. SEE SHEET C-6

STRIP TOPSOIL UNDER EMBANKMENT FOOTPRINT

PERMANENT EASEMENT

HORIZ.
40 0 40 80

VERT.
4 0 4 8



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NO.	DATE	DESCRIPTION

EMBANKMENT PLAN & PROFILE 1

WQI CAL883416C

CALHOUN COUNTY, IA

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SHEET C-2

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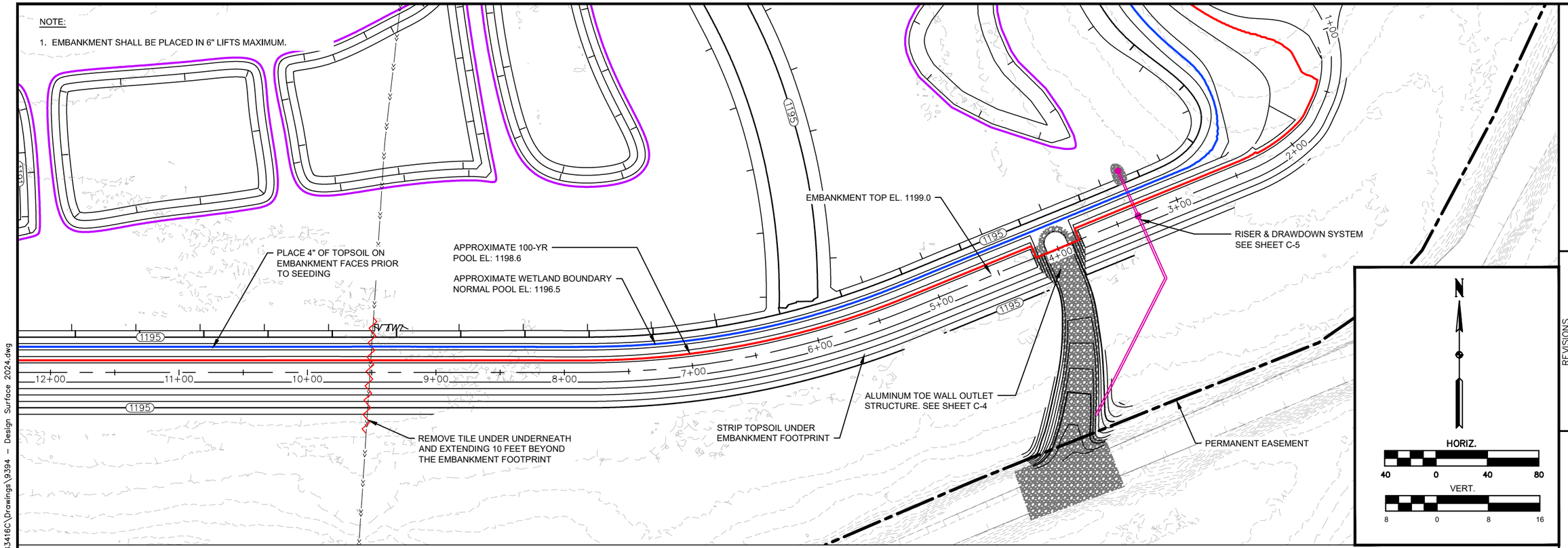
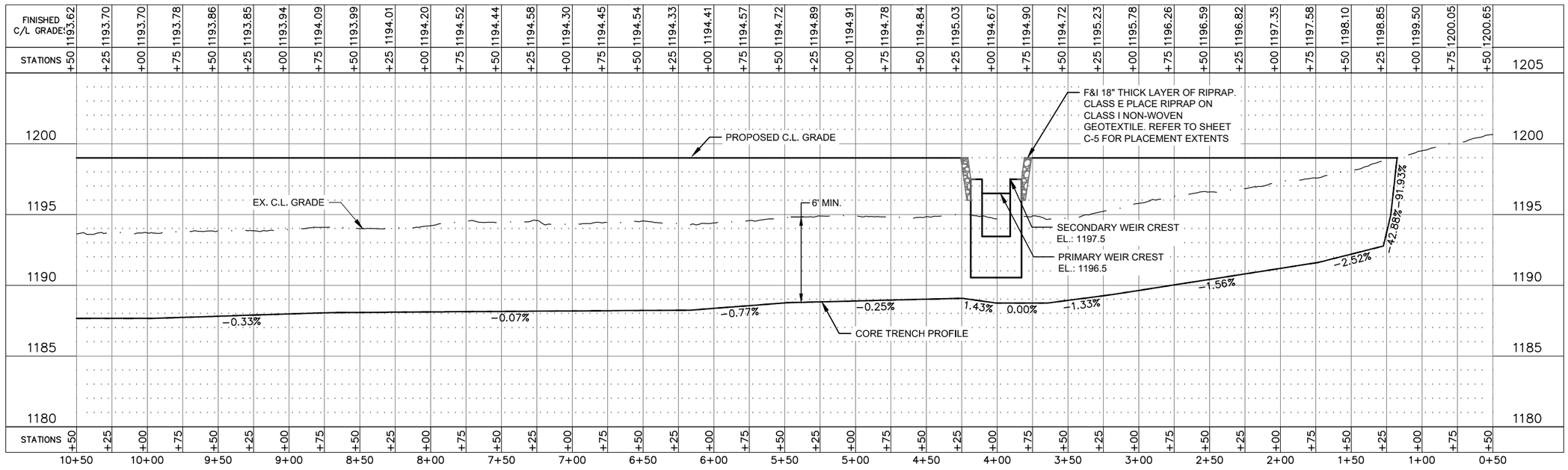
NOTE:

1. EMBANKMENT SHALL BE PLACED IN 6" LIFTS MAXIMUM.





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NO.	DATE	DESCRIPTION

EMBANKMENT PLAN & PROFILE 2
WQI CAL883416C
CALHOUN COUNTY, IA

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SHEET	C–3

EXTEND RIPRAP TO TOP OF EMBANKMENT (BOTH SIDES)

REFER TO SHEETS S-4 TO S-6 FOR ALUMINUM TOE WALL DETAIL

PLACE RIPRAP AS SHOWN. TAMP RIPRAP DOWN TO CREATE REASONABLY SMOOTH SURFACE NO HIGHER THAN 1196.5

APPROXIMATE WETLAND BOUNDARY
NORMAL POOL EL: 1196.5

PERMANENT EASEMENT

CONSTRUCT CLASS E RIPRAP ARMORED CHANNEL 18" DEPTH

CONSTRUCT CLASS E RIPRAP ARMORED CHANNEL. 18" DEPTH

GRADE BANK AS NECESSARY FOR RIPRAP PLACEMENT

GRADE 2H:1V

PROPOSED EMBANKMENT C.L. GRADE

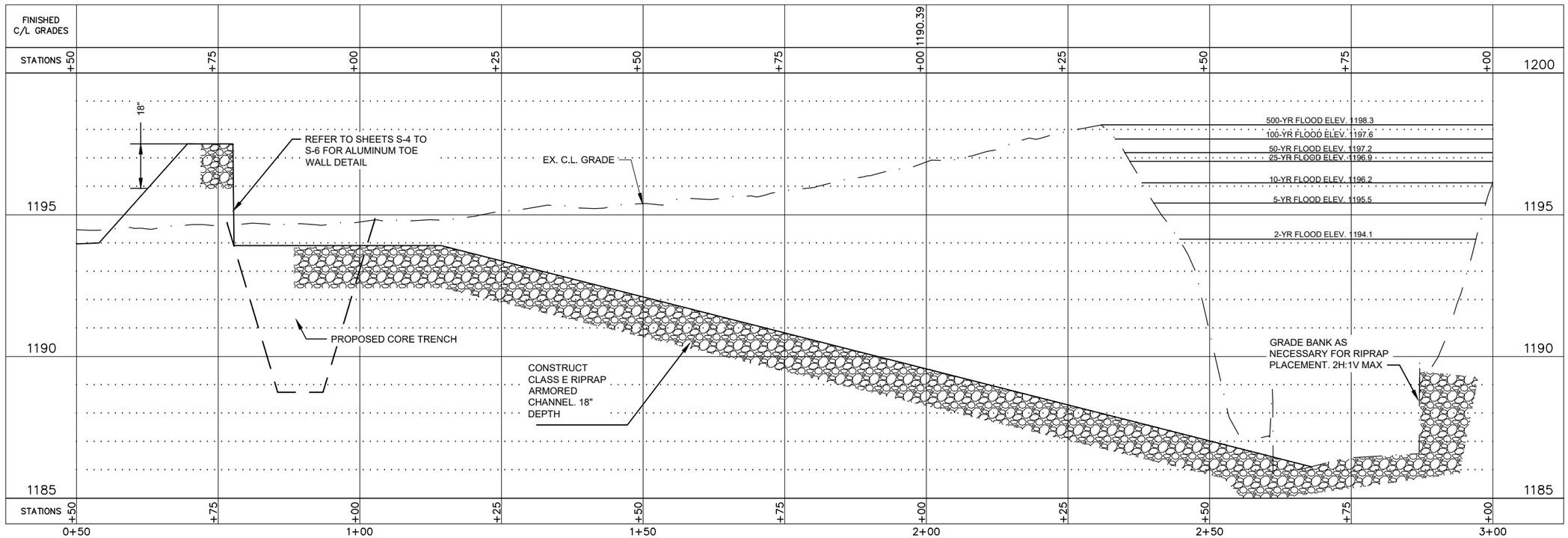
0+00 1+00 2+00 3+00 3+21 4+00 5+00

1195 1200

NOTES

1. GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP.

HORIZ.
10 0 10 20
VERT.
5 0 5 10



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ALUMINUM TOE WALL OUTLET STRUCTURE
WQI CAL883416C
CALHOUN COUNTY, IA

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SHEET C-4

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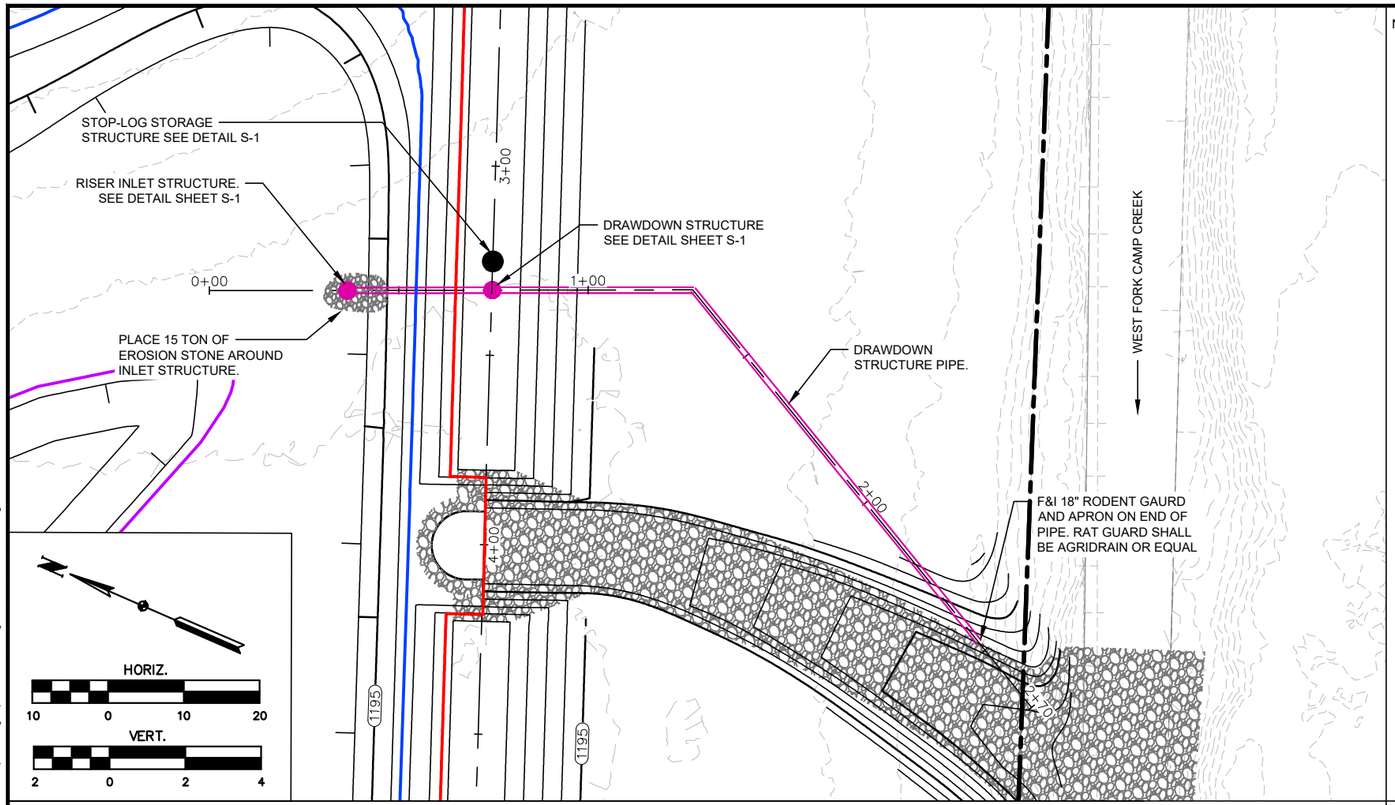
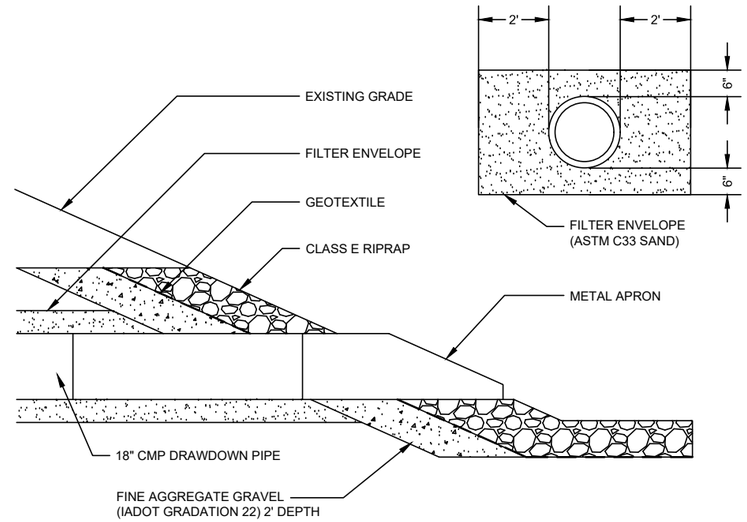
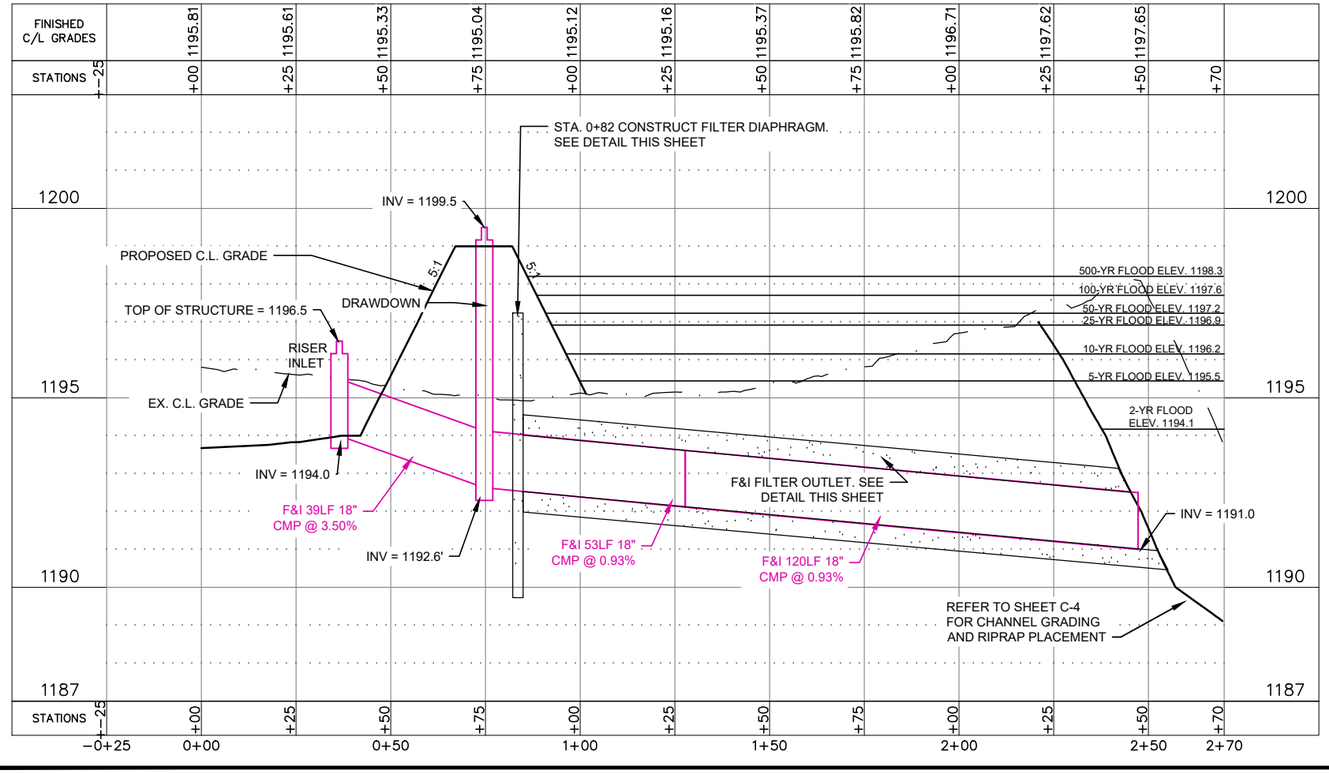


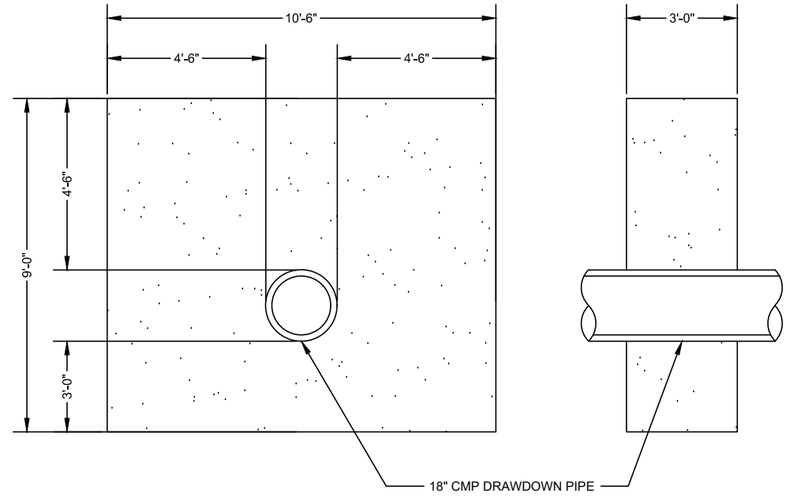
NOTES:
1. THE FILTER ENVELOPE SHALL FULLY SURROUND THE OUTLET PIPE FROM THE FILTER DIAPHRAGM TO OUTLET.
2. EXTEND GRAVEL LAYER 1' BEYOND FILTER FACE IN ALL DIRECTIONS.



FILTER OUTLET DETAIL
NOT TO SCALE



NOTES:
1. DRAINAGE DIAPHRAGM AND FILTER OUTLET MATERIAL SHALL BE ASTM C33 SAND
2. FILTER MATERIAL SHALL BE PLACE IN 8" LISTS MAXIMUM



FILTER DIAPHRAGM DETAIL
NOT TO SCALE

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NO.	DESCRIPTION	DATE

DRAWDOWN STRUCTURE PLAN & PROFILE
WQI CAL883416C
CALHOUN COUNTY, IA

SCALE:	AS SHOWN
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SHEET	C–5

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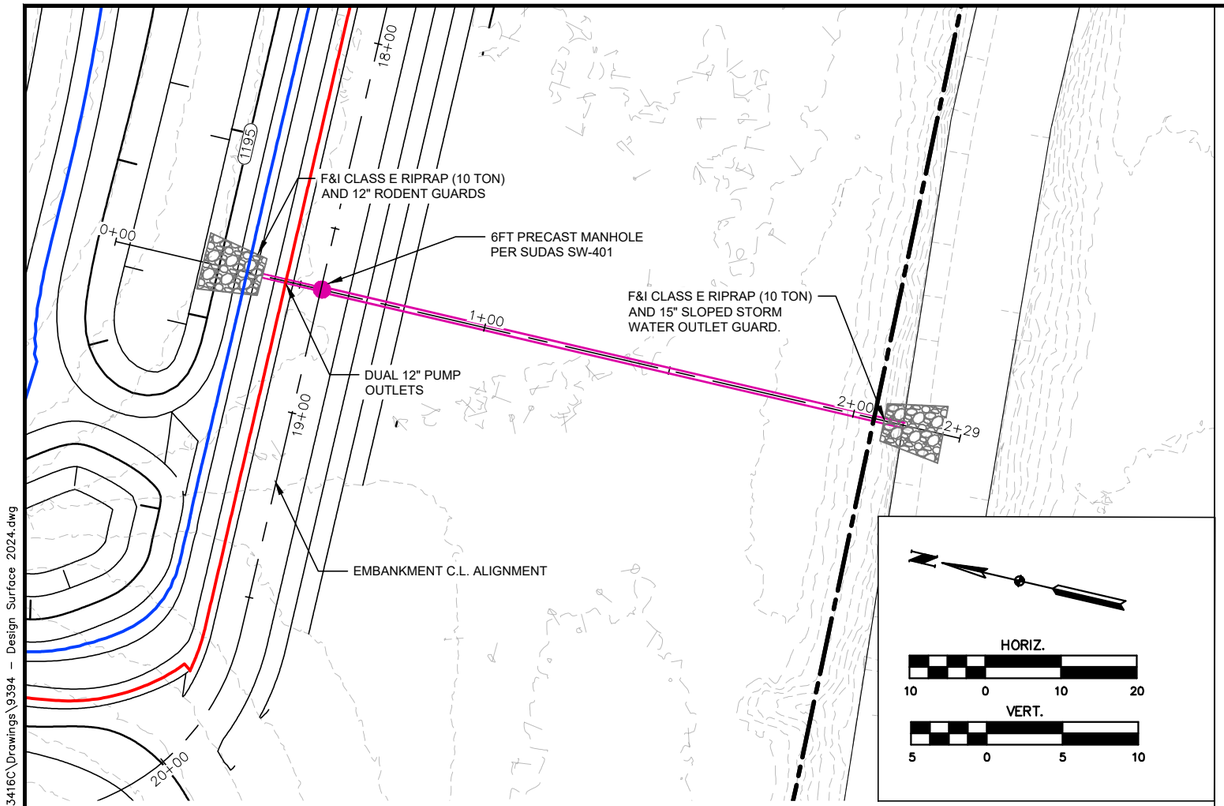
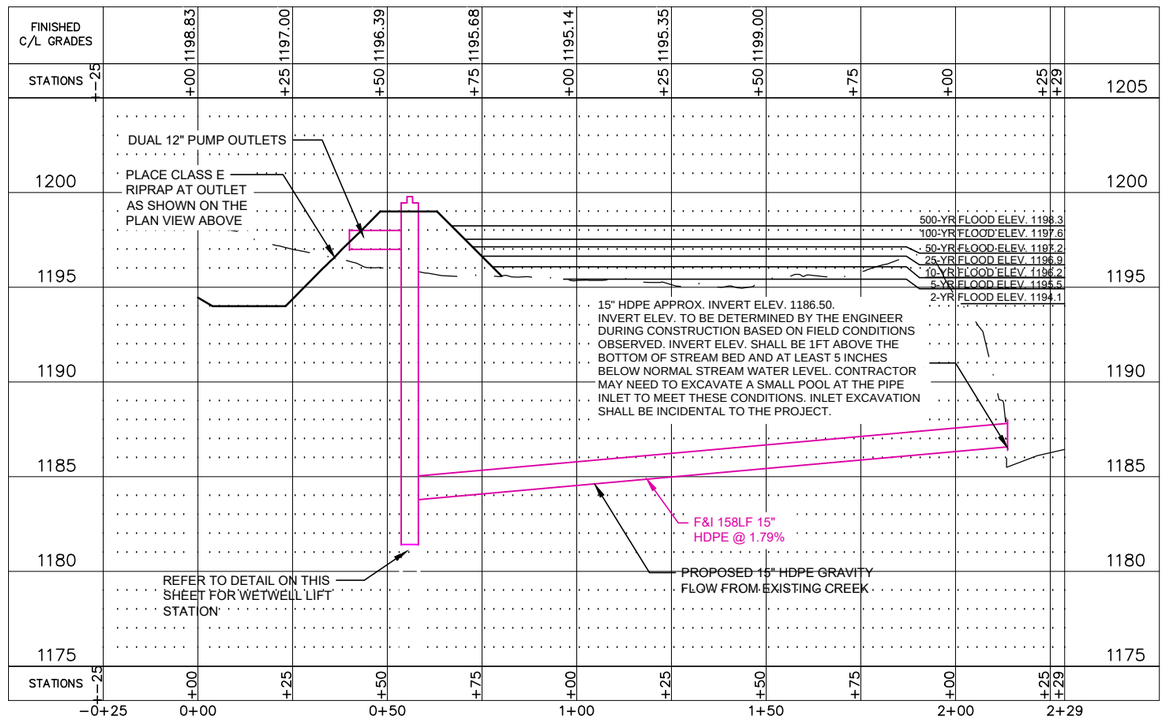
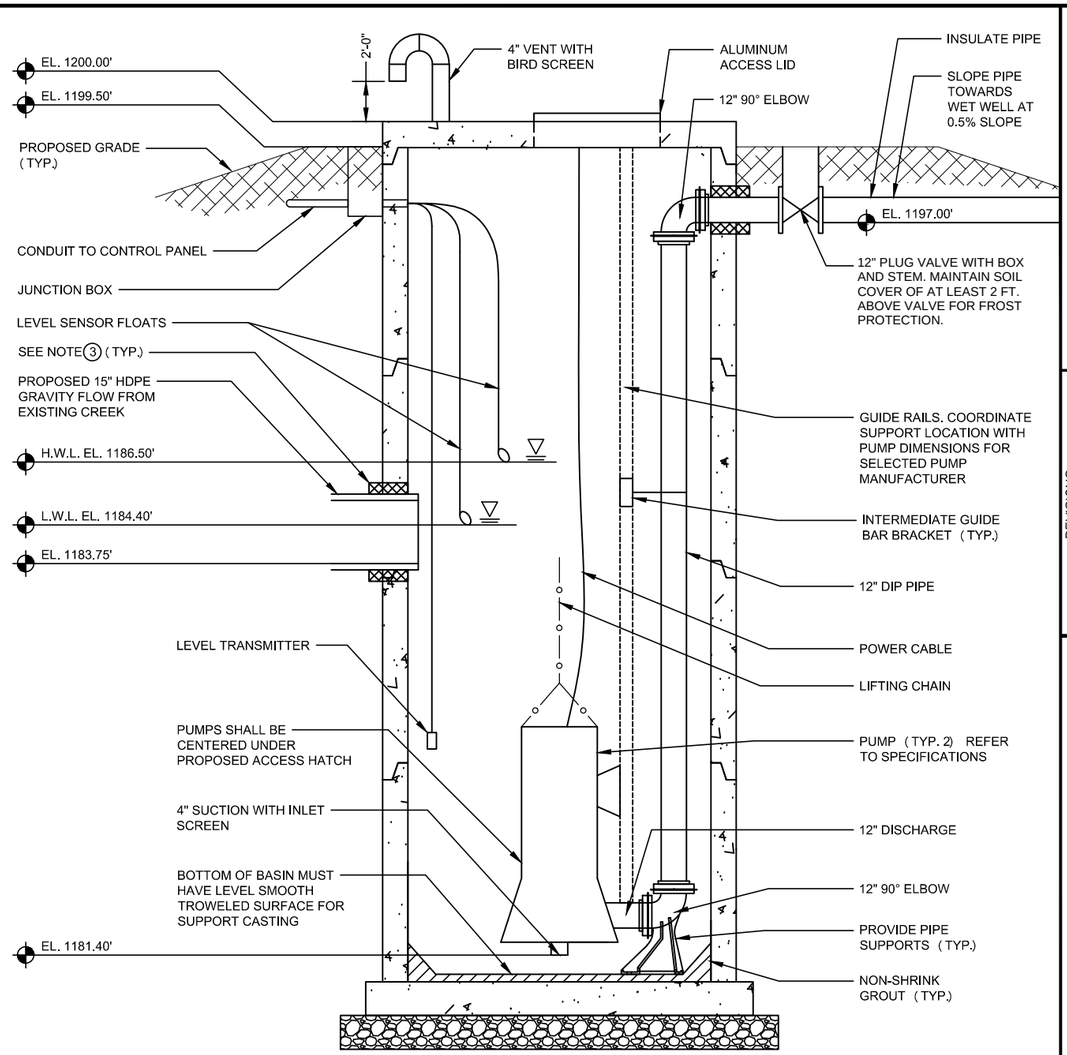
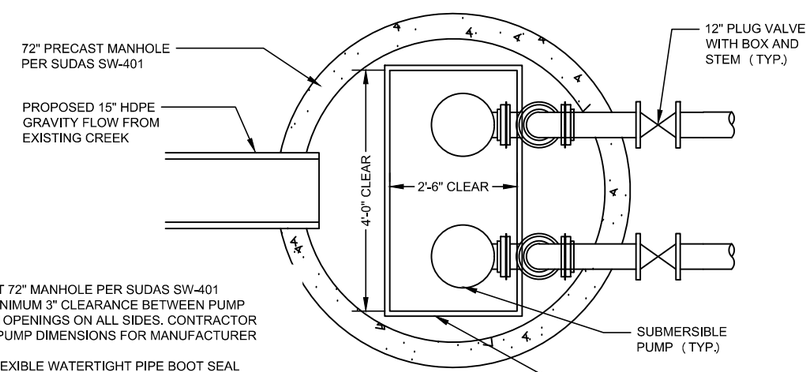






WET WELL LIFT STATION DETAIL

NOT TO SCALE



NOTES:

1. CONSTRUCT 72" MANHOLE PER SUDAS SW-401
2. PROVIDE MINIMUM 3" CLEARANCE BETWEEN PUMP AND HATCH OPENINGS ON ALL SIDES. CONTRACTOR TO VERIFY PUMP DIMENSIONS FOR MANUFACTURER SELECTED.
3. PROVIDE FLEXIBLE WATERTIGHT PIPE BOOT SEAL CONNECTION. SEAL NON-SHRINK GROUT AROUND INTERIOR PIPE OPENING FLUSH WITH INTERIOR WALL.
4. METAL ITEMS IN THE STRUCTURES INCLUDING BUT NOT LIMITED TO PIPING, SUPPORTS, CONDUITS, PUMPING EQUIPMENT, ETC. SHALL BE PAINTED.

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WET WELL LIFT STATION PLAN & PROFILE

WQI CAL883416C

CALHOUN COUNTY, IA

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SHEET C-6

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APPROXIMATE WETLAND BOUNDARY
NORMAL POOL EL: 1196.5

APPROXIMATE 100-YR
POOL EL: 1198.6

PERMANENT EASEMENT

F&I EROSION STONE BELOW
OUTLET (5 TON). PLACE 12" RODENT
GUARD AT END OF PIPE

BREAK AND CONNECT TO EXISTING 6" & 4"
TILES. F&I FITTING AS REQUIRED. USE FIELD
REPAIR JOINT. SEE DETAIL SHEET S-3.

BREAK AND CONNECT TO EXISTING 6" & 4"
TILES. F&I FITTING AS REQUIRED. USE FIELD
REPAIR JOINT. SEE DETAIL SHEET S-3.

NOTES

1. SEE DETAIL SHEET S-3 FOR REPAIR JOINT CONNECTION AND TILE OUTLET DETAIL.
2. THE EXISTING TILE ALIGNMENT AND INVERT ELEVATIONS SHOWN ARE APPROXIMATE.
3. THE CONTRACTOR SHALL FIELD VERIFY ALL TILE LOCATIONS, ELEVATIONS, AND SIZES.
4. MINOR MODIFICATIONS TO THE SHOWN ALIGNMENTS AND PIPE SLOPES MAY BE MADE IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
5. UNKNOWN LATERAL LINES CONNECTING TO MAIN MAY EXIST. CONNECT TO ALL UNKNOWN LATERALS CROSSED DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF UNKNOWN TILES AND STAKE LOCATIONS.
6. F&I MANUFACTURER FITTINGS AS REQUIRED (INCIDENTAL).

HORIZ.
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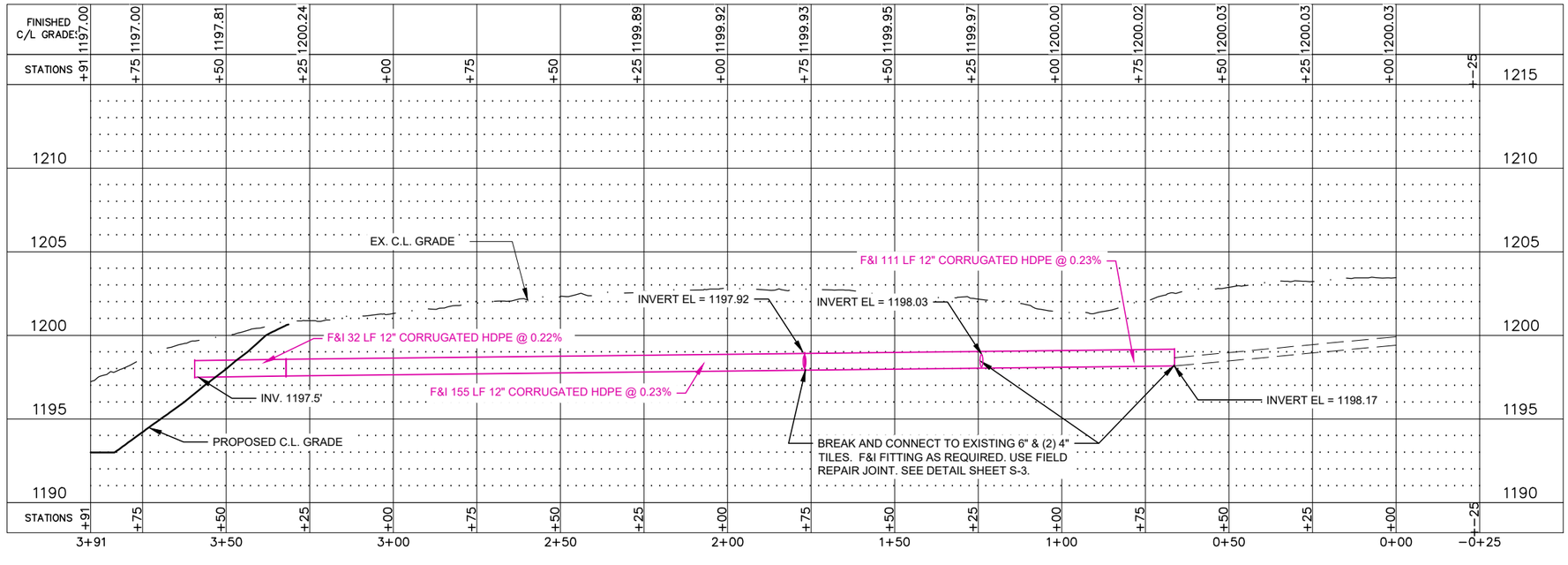

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TILE 1 – PLAN & PROFILE
WQI CAL883416C
9394 – WQI CAL883416C

SCALE: AS SHOWN
PROJECT NO. 9394
DRAWN BY: JRD
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SHEET T–1

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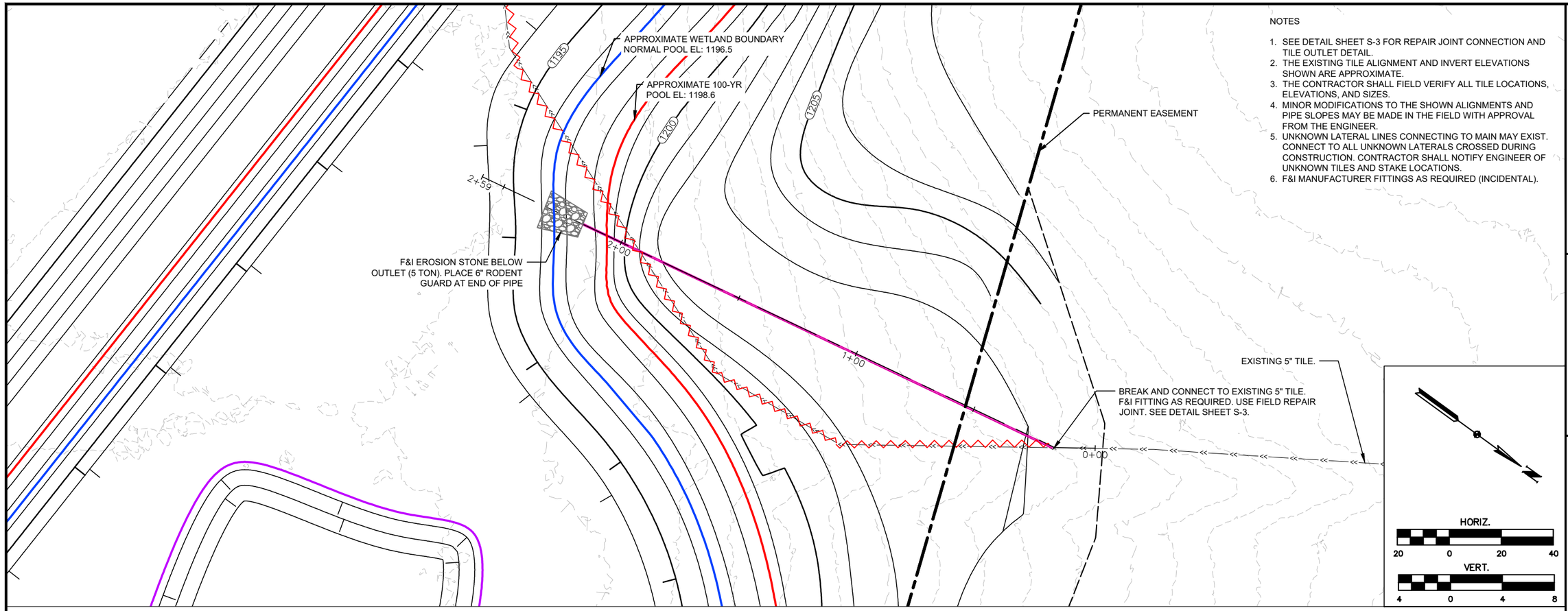
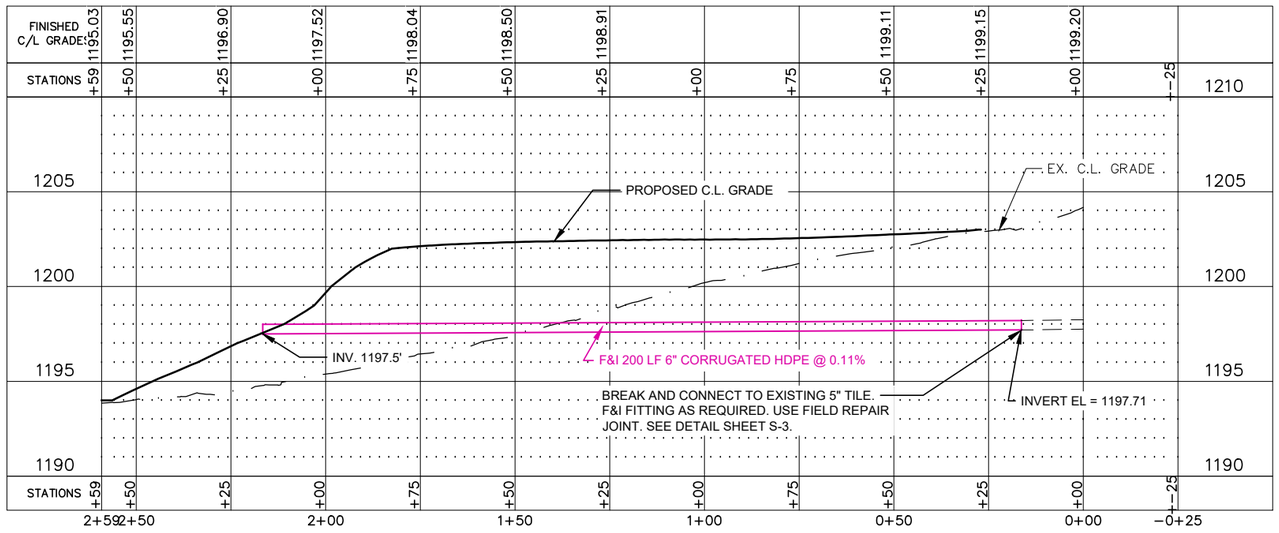


NOTES

1. SEE DETAIL SHEET S-3 FOR REPAIR JOINT CONNECTION AND TILE OUTLET DETAIL.
2. THE EXISTING TILE ALIGNMENT AND INVERT ELEVATIONS SHOWN ARE APPROXIMATE.
3. THE CONTRACTOR SHALL FIELD VERIFY ALL TILE LOCATIONS, ELEVATIONS, AND SIZES.
4. MINOR MODIFICATIONS TO THE SHOWN ALIGNMENTS AND PIPE SLOPES MAY BE MADE IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
5. UNKNOWN LATERAL LINES CONNECTING TO MAIN MAY EXIST. CONNECT TO ALL UNKNOWN LATERALS CROSSED DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF UNKNOWN TILES AND STAKE LOCATIONS.
6. F&I MANUFACTURER FITTINGS AS REQUIRED (INCIDENTAL).



REVISIONS

NO.	DATE	DESCRIPTION

TILE 2 – PLAN & PROFILE

WQI CAL883416C

9394 – WQI CAL883416C

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PROJECT NO.	9394
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SHEET	T–2

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NOTES

1. SEE DETAIL SHEET S-3 FOR REPAIR JOINT CONNECTION AND TILE OUTLET DETAIL.
2. THE EXISTING TILE ALIGNMENT AND INVERT ELEVATIONS SHOWN ARE APPROXIMATE.
3. THE CONTRACTOR SHALL FIELD VERIFY ALL TILE LOCATIONS, ELEVATIONS, AND SIZES.
4. MINOR MODIFICATIONS TO THE SHOWN ALIGNMENTS AND PIPE SLOPES MAY BE MADE IN THE FIELD WITH APPROVAL FROM THE ENGINEER.
5. UNKNOWN LATERAL LINES CONNECTING TO MAIN MAY EXIST. CONNECT TO ALL UNKNOWN LATERALS CROSSED DURING CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF UNKNOWN TILES AND STAKE LOCATIONS.
6. F&I MANUFACTURER FITTINGS AS REQUIRED (INCIDENTAL).

PERMANENT EASEMENT

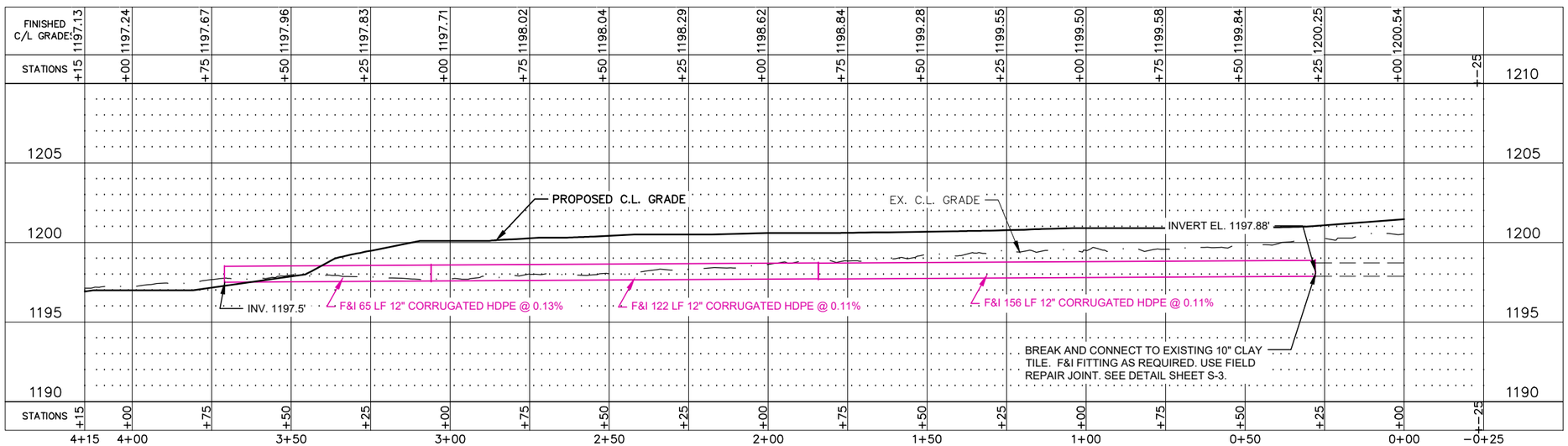
APPROXIMATE WETLAND BOUNDARY
NORMAL POOL EL: 1196.5

APPROXIMATE 100-YR
POOL EL: 1198.6

F&I EROSION STONE BELOW OUTLET TO POOL ELEVATION 35 TON). PLACE 12" RODENT GUARD AT END OF PIPE

REPLACE EXISTING TILE AT SUFFICIENT SLOPE TO DAYLIGHT AT 1' ABOVE NORMAL POOL ELEVATION

BREAK AND CONNECT TO EXISTING 10" CLAY TILE. F&I FITTING AS REQUIRED. USE FIELD REPAIR JOINT. SEE DETAIL SHEET S-3.



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REVISIONS

NO.	DATE	DESCRIPTION

TILE 3 – PLAN & PROFILE
WQI CAL883416C
9394 – WQI CAL883416C

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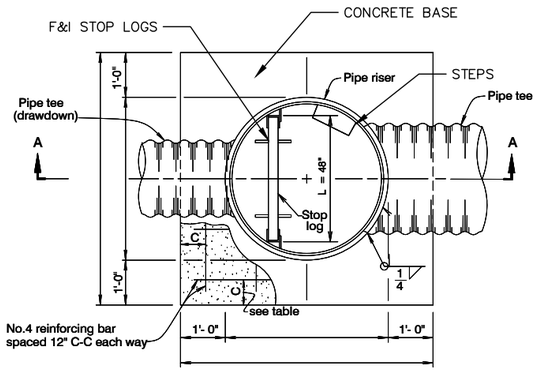
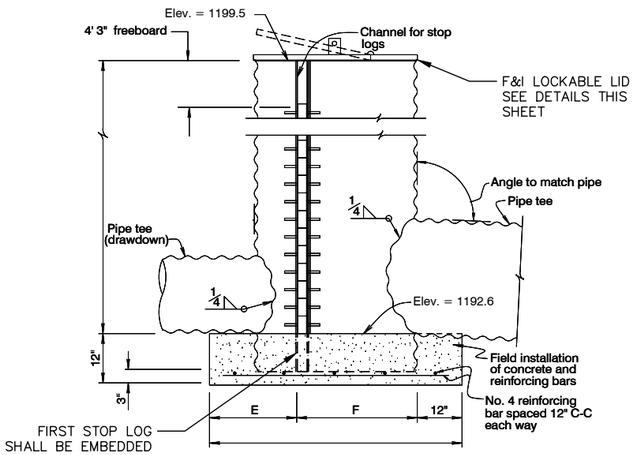


PLAN



SECTIONAL ELEVATION A-A
STOP LOG FLOW CONTROL- FULL RISER

NOTES

1. F&I 8, 2" WIDE X 6" DEEP STOP-LOGS, EXTENDING FROM INVERT EL. 1192.63 TO EL. 1196.50. STOP-LOGS SHALL BE MANUFACTURED ALUMINUM OR PVC.
2. STOP LOG CHANNELS SHALL BE CONSTRUCTED TO ACCOMMODATE THE SUPPLIED STOP LOGS ACCORDING TO THE MANUFACTURER'S REQUIREMENTS. PRE-FABRICATED CHANNELS MAY USED IN LIEU OF CHANNEL SHOWN. CHANNEL AND STOP LOGS MUST PROVIDE A WATER-TIGHT SEAL. BOTTOM CHANNEL SHALL BE PROVIDED AND MAY BE SET INTO CONCRETE. CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS OF CONTROL STRUCTURE.
3. STOP-LOG SET LEVEL SHALL BE AS DIRECTED BY THE OWNER. DO NOT SET LOGS UNTIL DIRECTED.
4. CONTRACTOR SHALL FURNISH 2 10-LONG LIFTING RODS. SEE SPECIFICATIONS.

REQUIREMENT TABLE

X IN BOX INDICATES THE REQUIREMENTS THAT APPLY TO STRUCTURE ▨ INDICATES - NOT APPLICABLE

CONCRETE: CLASS [ ] 3000 [ ] 3000M [X] 4000

CORRUGATED METAL PIPE RISER: 54 " DIA., 12 GA., 10.25 FT.
PIPE TEE: 18 " DIA., 14 GA., 4 FT. NOMINAL LENGTH, WELDED TO RISER
PIPE TEE (DRAWDOWN): 18 " DIA., 14 GA., 4 FT. NOMINAL LENGTH, WELDED TO RISER

PIPE CLASSIFICATION	RISER	PIPE TEE	DRAWDOWN
ANNULAR CORRUGATION	X	X	X
HELICAL CORRUGATION			
[ ] TYPE I, FULL CIRCULAR CROSS-SECTION FABRICATED			
[ ] TYPE II, THIS IS TYPE I PIPE WHICH HAS BEEN REFORMED INTO A PIPE ARCH HAVING APPROXIMATELY A FLAT BOTTOM	▨		▨
CORRUGATION REQUIREMENTS - NOMINAL SIZE (INCH)			
[X] 2 2/3 x 1/2	X	X	X
[ ] 3 x 1			
COATINGS AND FABRICATION			
SEE METAL PIPE REQUIREMENTS AND COUPLING BANDS SHEET			

FABRICATION AND INSTALLATION NOTES:

1. FOR FABRICATION OF RISERS ON HELICAL PIPE A FILLER STRIP MAY BE USED TO INSURE A WATERTIGHT SEAL BETWEEN THE RISER AND TEE.
2. WHEN MORE THAN ONE COATING IS CHECKED IN THE COLUMN BOXES EACH TYPE IS ACCEPTABLE BUT ONLY ONE TYPE OF COATING SHALL BE USED IN EACH INSTALLATION.
3. ALL WELDS AND HEAT AFFECTED AREAS ON GALVANIZED METAL TO BE TREATED IN ACCORDANCE WITH SPECIFICATIONS.
4. NO.4 REINFORCED BAR = 1/2" DIA. = 0.668 LB. PER LIN. FT.
5. ALL SEAMS CUT, DUE TO FABRICATING IN HELICAL PIPE, SHALL BE WELDED FOR A LENGTH OF 1' FROM THE EDGE OF THE CUT AND TREATED ACCORDING TO SPECIFICATIONS.
6. THE "L" DIMENSION OF THE RISER SHALL BE CHECKED PRIOR TO FABRICATION OF THE STRUCTURAL TUBING LENGTH.
7. THE LOCKABLE LID SHALL BE FABRICATED FROM CMP, AND CUT IN A CIRCULAR SHAPE TO FIT THE RISER. HOLES SHALL BE DRILLED THROUGH THE CORRUGATIONS TO PASS THE LOCKING BAR.

MATERIAL LIST FOR RISER CONCRETE BASE

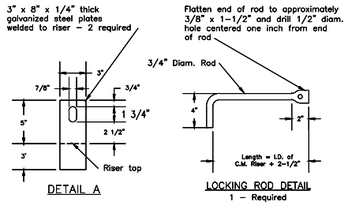
DIA. OF RISER IN INCHES	48	54	60	66	72	78
CONCRETE, CU.YDS.	1.33	1.56	1.81	2.08	2.37	2.68
NO. 4 REINFORCING BAR, LIN.FT.	66	84	91	112	120	144
LENGTH OF EACH BAR, FT.-IN.	5-6	6-0	6-6	7-0	7-6	8-0
TOTAL NUMBER OF BARS	12	14	14	16	16	18
TOTAL WEIGHT - NO. 4 BARS, LBS.	44.1	56.1	60.8	74.8	80.2	96.2

NO. 4 REINFORCING BAR = 1/2 IN. DIA. = 0.668 LBS./LIN.FT.

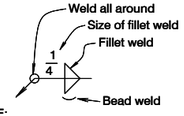
TABLE FOR DIMENSIONS

DIA. OF RISER IN INCHES	48	54	60	66	72	78
C SPACING IN INCHES	6	3	6	3	6	3
FOR L = 4' - 0"						
E SPACING IN FT/IN	3'-0"	2'-3"	2'-0"	1'-10"	1'-9"	1'-8"
F SPACING IN FT/IN	2'-0"	3'-3"	4'-0"	4'-8"	5'-3"	5'-10"
FOR L = 4' - 6"						
E SPACING IN FT/IN	3'-3"	2'-5"	2'-2"	2'-0"	1'-11"	
F SPACING IN FT/IN	2'-3"	3'-7"	4'-4"	5'-0"	5'-7"	
FOR L = 5' - 0"						
E SPACING IN FT/IN	3'-6"	2'-7"	2'-4"	2'-2"		
F SPACING IN FT/IN	2'-6"	3'-11"	4'-8"	5'-4"		

LOCKING LID DETAILS

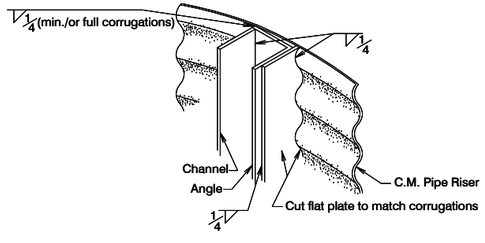


WELD SYMBOLS



NOTE:
Weld symbol placed above line indicates weld is on opposite side of joint to which arrow points.

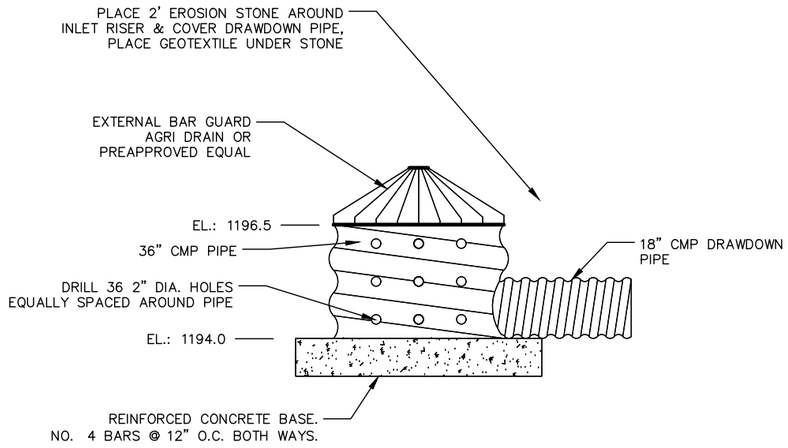
Weld symbol below line indicates weld is on side of joint to which arrow points.



CHANNEL INSTALLATION

* THIS PLAN ADAPTED FROM NRCS STANDARD DETAIL

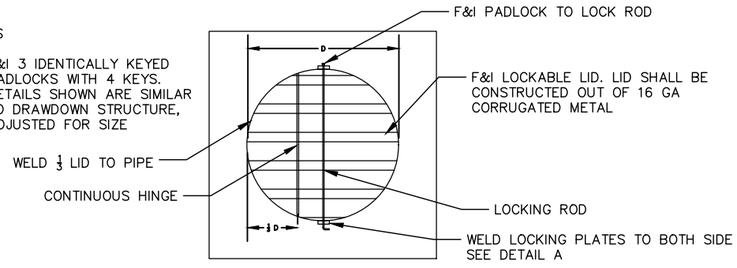
DRAWDOWN STRUCTURE DETAIL
SCALE: NONE

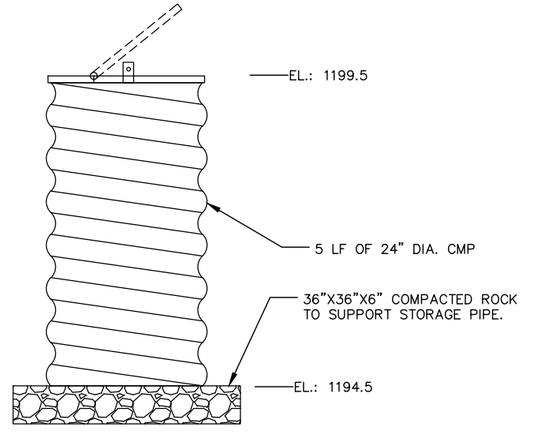


RISER INLET STRUCTURE DETAIL
NOT TO SCALE

NOTES

1. F&I 3 IDENTICALLY KEYED PADLOCKS WITH 4 KEYS.
2. DETAILS SHOWN ARE SIMILAR TO DRAWDOWN STRUCTURE, ADJUSTED FOR SIZE





STOP LOG STORAGE STRUCTURE DETAIL
NOT TO SCALE

REVISIONS

NO.	DATE	DESCRIPTION

DRAWDOWN STRUCTURE DETAILS
WQI CAL883416C
CALHOUN COUNTY, IA

SCALE: AS SHOWN
PROJECT NO. 9394
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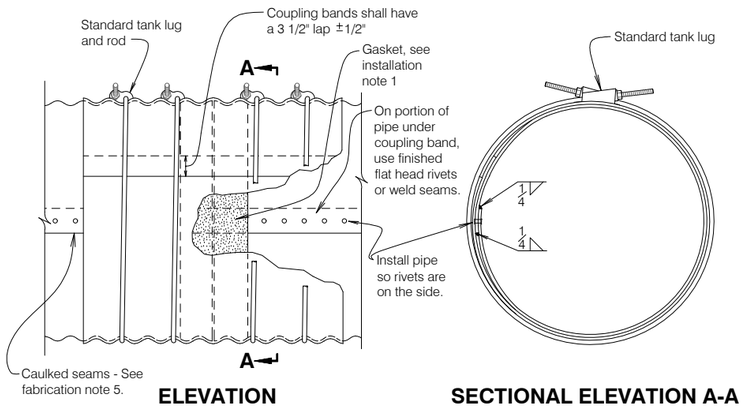
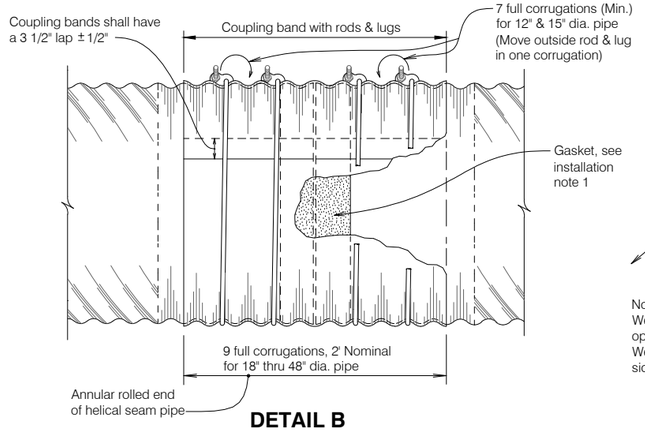


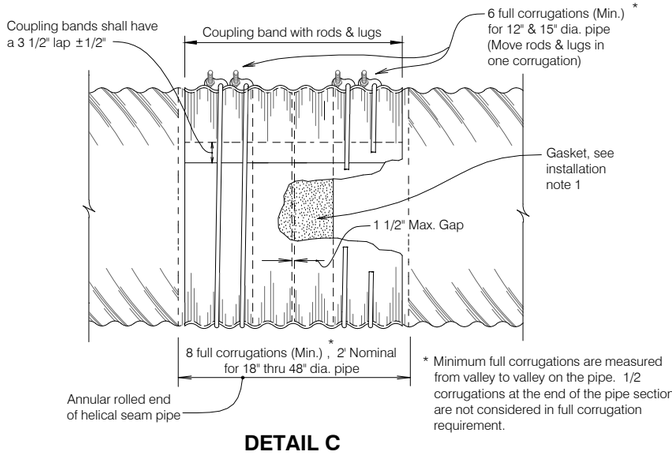
ELEVATION DETAIL A

SECTIONAL ELEVATION A-A

WATER TIGHT COUPLING BAND FOR ANNULAR PIPE



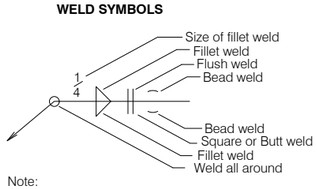
DETAIL B
WATER TIGHT COUPLING BAND FOR HELICAL PIPE
(Re-rolled pipe ends at corrugation peak)



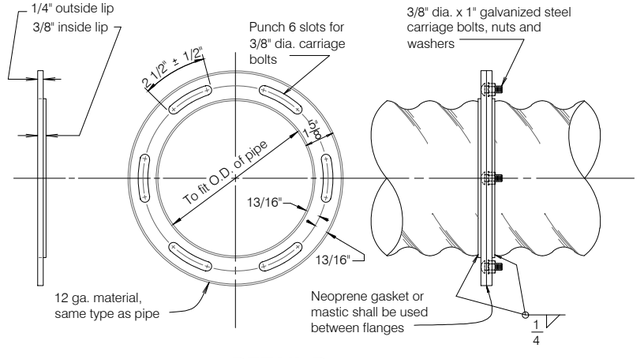
* Minimum full corrugations are measured from valley to valley on the pipe. 1/2 corrugations at the end of the pipe section are not considered in full corrugation requirement.

DETAIL C
WATER TIGHT COUPLING BAND FOR HELICAL PIPE
(Re-rolled pipe ends at corrugation valley)

WELD SYMBOLS



Note:
Weld symbol above line indicates weld is on opposite side of joint to which arrow points.
Weld symbol below line indicates weld is on side of joint to which arrow points.



DETAIL D
FLANGE COUPLING FOR 8" & 10" DIA. PIPE

FABRICATION NOTES

1. WHEN SEVERAL DIFFERENT COATINGS OR CORRUGATIONS ARE CHECKED IN THE COLUMN BOXES, EACH TYPE IS ACCEPTABLE, BUT ONLY ONE TYPE SHALL BE USED IN EACH INSTALLATION.
2. COUPLING BANDS PER DETAILS "A", "B" AND "C" SHALL HAVE THE SAME CORRUGATION REQUIREMENT AND THE SAME COATING AS THE DESIGNATED PIPE.
3. ALL WELDS AND ALL HEAT AFFECTED AREAS ON COATED STEEL SHALL BE THOROUGHLY CLEANED AND TREATED IN ACCORDANCE WITH ASTM'S.
4. ROD SIZE FOR 8" THRU 15" DIAMETER PIPE SHALL BE 3/8" DIAMETER. FOR PIPE LARGER THAN 15" DIAMETER THE ROD SHALL BE 1/2" DIAMETER. DIAMETER OF HOLES IN THE LUGS SHALL BE 1/8" LARGER THAN THE DIAMETER OF THE ROD USED.
5. DURING FABRICATION, WHEN ASPHALT COATING IS NOT USED, RIVETED SEAMS SHALL BE CAULKED WITH AN ASPHALT OR TAR BASED MATERIAL MEETING ASTM A849 TO PROVIDE A WATERTIGHT SEAM. ALL CIRCUMFERENTIAL AND LONGITUDINAL SEAMS SHALL BE CAULKED BEFORE RIVETING. THIS SHALL BE ACCOMPLISHED BY APPLYING A UNIFORM BEAD OF THE ASPHALT OR TAR BASED COMPOUND TO THE INNER LAP SURFACE BEFORE RIVETING SUCH THAT WHEN THE RIVETS ARE IN PLACE, ALL VOIDS ARE FILLED.
6. CLOSE RIVETED PIPE SHALL BE FABRICATED SO THAT THE RIVET SPACING IN THE CIRCUMFERENTIAL SEAMS SHALL NOT EXCEED 3 INCHES, EXCEPT THAT 12 RIVETS SHALL BE SUFFICIENT ON 12" DIA. PIPE.

INSTALLATION NOTES

1. THE SLEEVE TYPE NEOPRENE GASKET SIZE SHALL BE 3/8" THICK WITH A MINIMUM WIDTH OF 7" CENTERED ON THE PIPE JOINT AND FASTENED AT ENDS TO FORM A FULL CIRCLE. IN LIEU OF A NEOPRENE GASKET, ASPHALT OR TAR BASED MASTIC MAY BE USED FOR DETAIL "A", "B" AND "C". (SEE NOTE 5)
2. IN CONNECTING THE PIPE SECTIONS, THE COUPLING BANDS WILL BE CENTERED ON THE PIPE JOINT AND ALIGNED FOR COMPLETE AND TIGHT NESTING OF CORRUGATIONS BETWEEN COUPLING BAND AND EACH PIPE SECTION. THE GAP BETWEEN THE PIPE SECTIONS, PER DETAIL "A", "B" AND "C" SHALL NOT EXCEED 1 1/2". RODS AND LUGS ON COUPLING BANDS WILL BE INSTALLED ACCORDING TO THE DRAWINGS. THE LUGS FOR DETAIL "C" WILL BE LOCATED IN THE PIPE CORRUGATIONS SO THEY DO NOT INTERFERE WITH EACH OTHER WHEN TIGHTENED. THE NUTS ON THE RODS WILL BE TIGHTENED WITHOUT OVER STRESS AND WILL BE RETIGHTENED AT LEAST TWICE AFTER INITIAL INSTALLATION, AT INTERVALS OF APPROXIMATELY 1/2 HOUR. THE FINAL TENSION ON THE RODS SHALL BE DETERMINED BY THE ENGINEER. BACKFILLING AROUND THE PIPE, EXCEPT AT COUPLING BANDS, MAY PROCEED DURING THE INTERVALS REQUIRED FOR TIGHTENING BANDS.
3. BEFORE COUPLING BANDS ARE INSTALLED ON RIVETED PIPE, THE PIPE SECTIONS THAT ARE TO BE CONNECTED SHALL BE ROTATED SO RIVETS OF PIPE ARE ON THE SIDE OF THE PIPE (SEE DETAIL "A") AND THE INSIDE LAPS ARE POINTED DOWNSTREAM.
4. ON BITUMINOUS COATED PIPE, REMOVE EXCESS BITUMINOUS COATING FROM CORRUGATIONS WHERE BANDS AND PIPE JOIN.
5. THE ENDS OF THE TWO PIPE SECTIONS AND LAP SEAM WILL BE COATED WITH 1/4" OF ASPHALT OR TAR BASED MASTIC (ASTM A849, TROWEL GRADE) FOR DETAIL "A" AND "B" COUPLING BANDS. THE MASTIC COATED AREAS SHOULD BE KEPT FREE OF ALL DIRT, GRAVEL, AND OTHER FOREIGN MATERIAL UNTIL BANDS ARE IN PLACE AND TIGHTENED. WHEN AIR TEMPERATURE IS 50° F, OR LOWER, HEAT WILL BE APPLIED TO SOFTEN, BUT NOT BURN OR MELT, THE MASTIC.
6. FLANGE COUPLING BANDS SHALL BE ALIGNED WITH MATCHING SLOTS, AND NUTS ON THE BOLTS TIGHTENED SECURELY. NEOPRENE GASKET OR MASTIC SHALL BE USED BETWEEN FLANGES, AND NUTS WILL BE RETIGHTENED AFTER COMPLETE ASSEMBLY.
7. COUPLING BANDS, PER DETAIL "B" AND "C" SHALL NOT EXTEND PAST THE RE-ROLLED END OF THE PIPE SECTION ONTO THE HELICAL CORRUGATIONS.

METAL PIPE REQUIREMENTS

NOTE:

THE FOLLOWING DESIGNATIONS FOR PIPE CLASSIFICATIONS, CORRUGATIONS AND COATINGS WHEN REFERRED TO ON THE DRAWINGS ARE IN ACCORDANCE WITH CURRENT ASTM'S:

A760 STANDARD SPECIFICATION FOR CORRUGATED STEEL PIPE, METALLIC-COATED FOR SEWERS AND DRAINS.

A761 STANDARD SPECIFICATION FOR CORRUGATED STEEL STRUCTURAL PLATE, ZINC-COATED, FOR FIELD BOLTED PIPE, PIPE ARCHES, AND ARCHES.

A762 STANDARD SPECIFICATION FOR CORRUGATED STEEL PIPE, POLYMER PRECOATED FOR SEWERS AND DRAINS.

A849 STANDARD SPECIFICATION FOR POST-APPLIED COATINGS, PAVINGS, AND LININGS FOR CORRUGATED STEEL SEWER AND DRAINAGE PIPE.

PIPE CLASSIFICATION

- ☒ TYPE I FULL CIRCULAR CROSS-SECTION
- ☐ TYPE II, THIS IS TYPE I PIPE WHICH HAS BEEN REFORMED INTO A PIPE ARCH HAVING APPROXIMATELY A FLAT BOTTOM

CORRUGATION REQUIREMENTS FOR TYPE I AND II PIPE

NOMINAL SIZE (INCH)

- ☐ 1 1/2 x 1/4 (AVAILABLE ONLY IN HELICALLY CORRUGATED PIPE)
- ☒ 2 2/3 x 1/2 (STANDARD CORRUGATIONS)
- ☐ 3 x 1

COATINGS - SEE FABRICATION NOTE NO. 1

- ☐ ALUMINUM COATED STEEL - SEE FABRICATION NOTE NO. 5
- ☐ ZINC COATED STEEL - SEE FABRICATION NOTE NO. 5
- ☒ POLYMER PRECOATED - SEE FABRICATION NOTE NO. 5
- ☐ ARAMID FIBER COMPOSITE, BITUMINOUS COATED
- ☐ FULLY BITUMINOUS COATED

*CORRUGATION TYPES - SEE FABRICATION NOTE NO. 1

- ☐ ANNULAR, CLOSE RIVETED
- ☐ HELICAL

*NOTE: EITHER ANNULAR OR HELICAL CORRUGATION MAY BE USED

COUPLING BAND REQUIREMENTS

GAGE	BAND TYPE AND NUMBER OF RODS REQUIRED	NUMBER BANDS REQUIRED	SEE DETAIL
14	☒ 2 FT. WITH 4 RODS FOR 18 " DIA. PIPE		☐ A ☐ B ☐ C
	☐ 4 FT. WITH 6 RODS FOR _____ " DIA. PIPE		☐ A ☐ B ☐ C
	☐ FLANGE FOR 8" AND 10" PIPE		☐ D
	☐ HUGGER WITH 2 RODS FOR _____ " DIA. PIPE		☐ E

whks engineers + planners + landsurveyors

REVISIONS

NO.	DATE	DESCRIPTION
1	3/29/23	ISSUED FOR REVIEW ONLY

METAL PIPE REQUIREMENTS
WQI CAL883416C
CALHOUN COUNTY, IA

SCALE: AS SHOWN
PROJECT NO. 9394
DRAWN BY: JRD
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SHEET S-2

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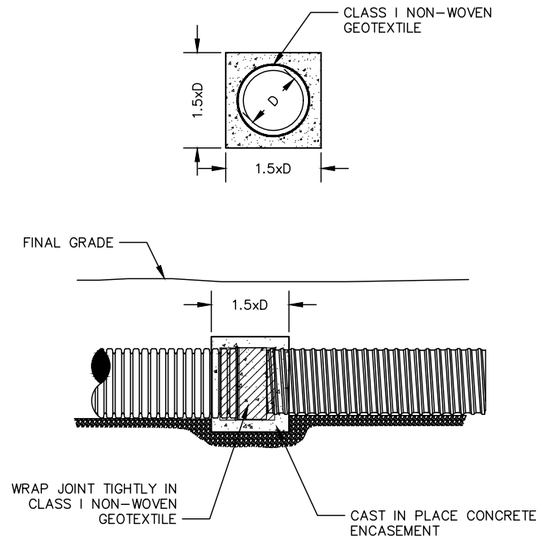

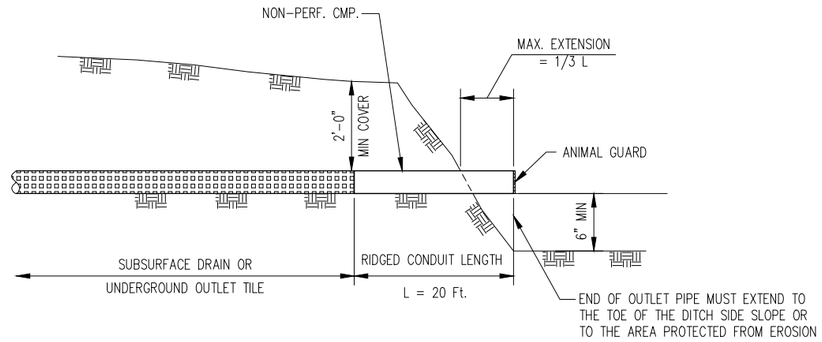

CROSS SECTION AT CENTERLINE OF PIPE

NOTE:
1. TILE OUTLETS MAY BE CONNECTED TO THE UPSTREAM TILE WITH THE SAME NOMINAL DIAMETER PIPE SIZE, OR OUTLET MAY BE ONE NOMINAL SIZE LARGER WITH UPSTREAM TILE INSERTED INTO RIDGED PIPE. WHERE THE SAME NOMINAL DIAMETER PIPE SIZES ARE USED, GROUT ANNULAR SPACE AROUND JOINT. SEE FIELD TILE REPAIR JOINT DETAIL. OUTLETS LISTED ON BID SHEET ASSUME SAME NOMINAL DIAMETER. NO ADDITIONAL PAYMENT (FOR BOTH THE OUTLET PIPE AND INSERTED TILE) SHALL BE MADE IF LARGER NOMINAL DIAMETER PIPE IS USED.

whks	FIELD TILE REPAIR JOINT DETAIL	REVISED: 2/01/08 SHEET: PLATE NO.		DRAIN TILE OUTLET	REVISED: 8/11/18 SHEET: 1 OF 1 PLATE NO. WMA-01

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REVISIONS

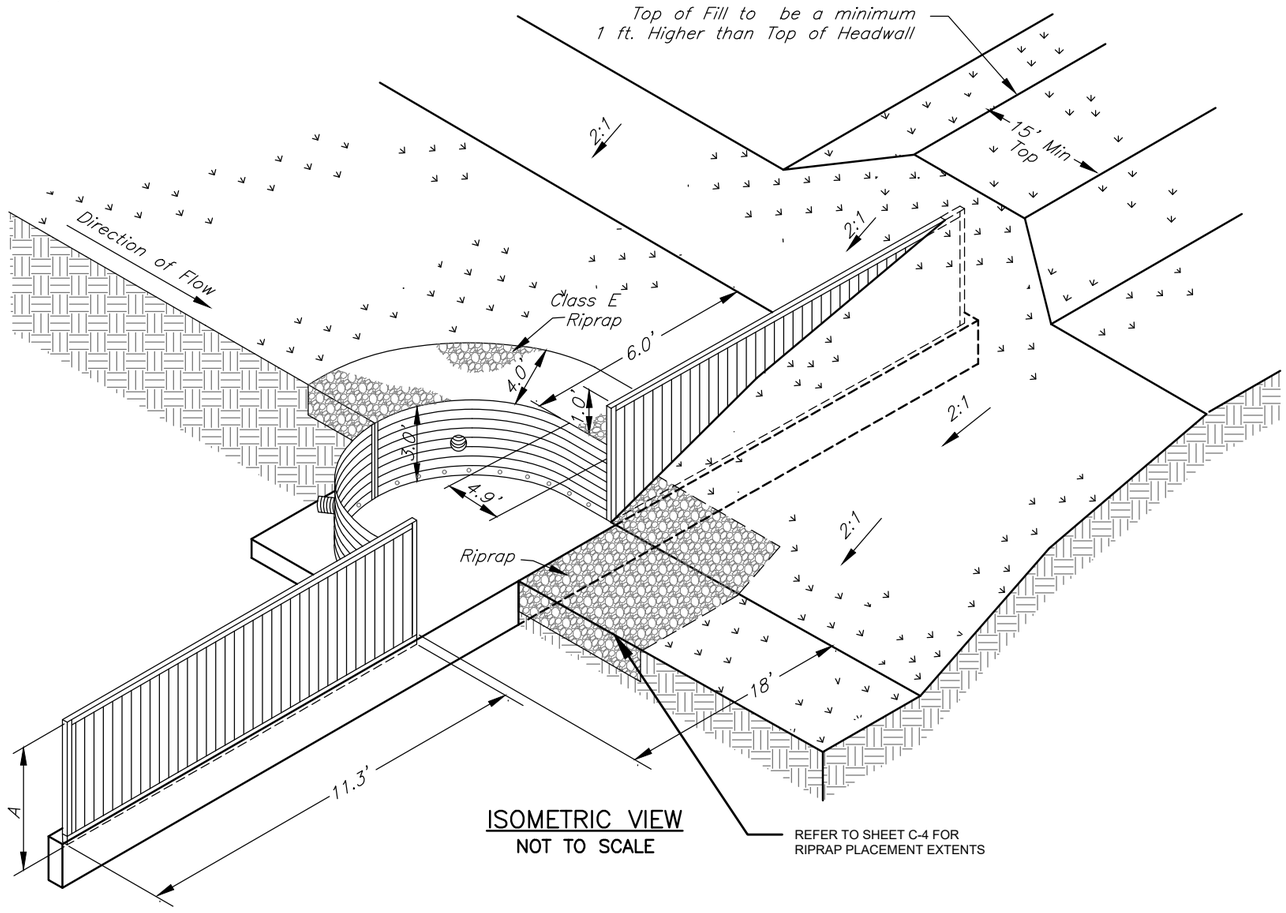
NO.	DATE	DESCRIPTION
1	3/29/23	ISSUED FOR REVIEW ONLY

DRAIN TILE DETAILS
WQI CAL883416C
CALHOUN COUNTY, IA

SCALE: AS SHOWN
PROJECT NO. 9394
DRAWN BY: JRD
CHECKED BY: MMF
SHEET S-3

FILE PATH: F:\WHKS & CO\WHKS Water Resources Collaboration - Documents\9394 - WQI Pumped Wetland Cal883416C\Drawings\9394_Design-ML.dwg

SOURCE: E.G., NRCS STANDARD DWG IA-1410



ISOMETRIC VIEW
NOT TO SCALE

REFER TO SHEET C-4 FOR
RIPRAP PLACEMENT EXTENTS

MATERIAL NOTES

1. *Concrete shall have a minimum compressive strength at 28 days equal to 3500 psi.*
2. *All reinforcing steel bars shall be Grade 60 – #4 bars.*
3. *Aluminum sheets shall be structural plate (2 1/2" x 9" corrugations) 0.100" thickness and shall be Alloy 5052 conforming to ASTM B 209 or AASHTO M21.*
4. *Aluminum angles shall be Alloy 6061–T6 conforming to ASTM B 308.*
5. *Bolts shall be 3/4" diameter galvanized carbon steel conforming to ASTM A 307.*
6. *Seam sealant shall be knife–grade asphalt mastic or polymer adhesive sealant tape, Manus–Bond 64–A, or equal.*
7. *Drainfill aggregate shall meet the standard gradation of ASTM C 33 size 57 or 67. Do not place geotextile between the drainfill and 1/2" weep holes.*
8. *Riprap shall consist of well–graded rock, minimum size of 4", maximum size of 8". Riprap shall be underlain by nonwoven geotextile bedding.*

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REVISIONS

NO.	DATE	DESCRIPTION

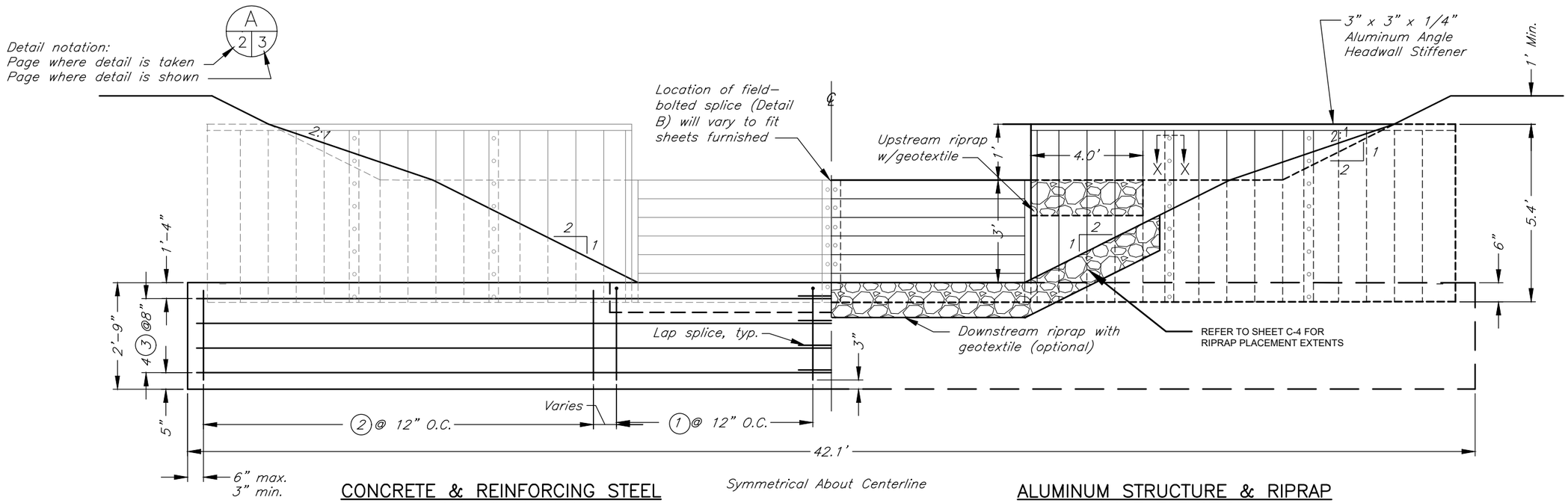
DETAILS

MULTI–STAGE OVERFLOW WEIR DETAILS
WQI CAL883416C
CALHOUN COUNTY, IA

SCALE:	AS SHOWN
PROJECT NO.	9394
DRAWN BY:	JRD
CHECKED BY:	MMF
SHEET	S–4

FILE PATH: C:\Users\jdunagan\WHKS & CO\WHKS Water Resources Collaboration – Documents\9394 – WQI Pumped Wetland Cal883416C\Drawings\OLD\9394_Design Old.dwg

SOURCE: E.G., NRCS STANDARD DWG IA-1410

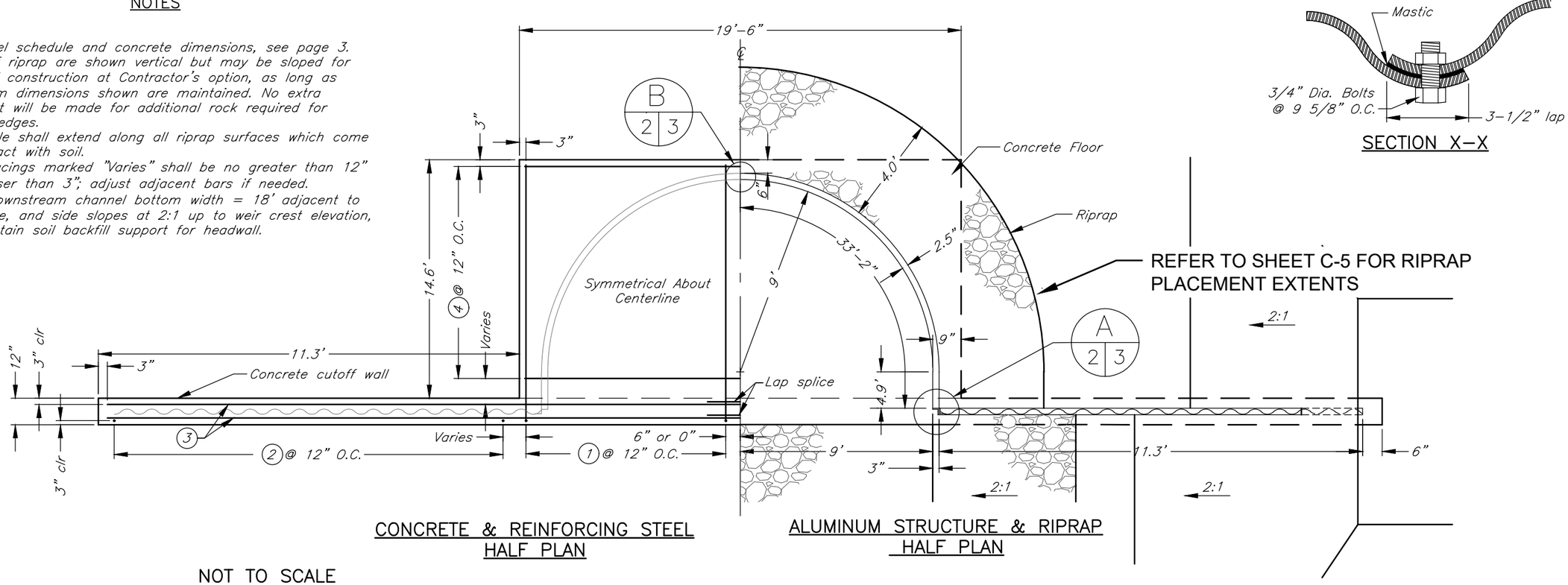


CONCRETE & REINFORCING STEEL
HALF ELEVATION
(Looking Upstream)

ALUMINUM STRUCTURE & RIPRAP
HALF ELEVATION
(Looking Upstream)

NOTES

1. *For steel schedule and concrete dimensions, see page 3.*
2. *Ends of riprap are shown vertical but may be sloped for ease of construction at Contractor's option, as long as minimum dimensions shown are maintained. No extra payment will be made for additional rock required for sloped edges.*
3. *Geotextile shall extend along all riprap surfaces which come in contact with soil.*
4. *Bar spacings marked "Varies" shall be no greater than 12" nor closer than 3", adjust adjacent bars if needed.*
5. *Keep downstream channel bottom width = 18' adjacent to structure, and side slopes at 2:1 up to weir crest elevation, to maintain soil backfill support for headwall.*



CONCRETE & REINFORCING STEEL
HALF PLAN

ALUMINUM STRUCTURE & RIPRAP
HALF PLAN

SECTION X-X

NOT TO SCALE

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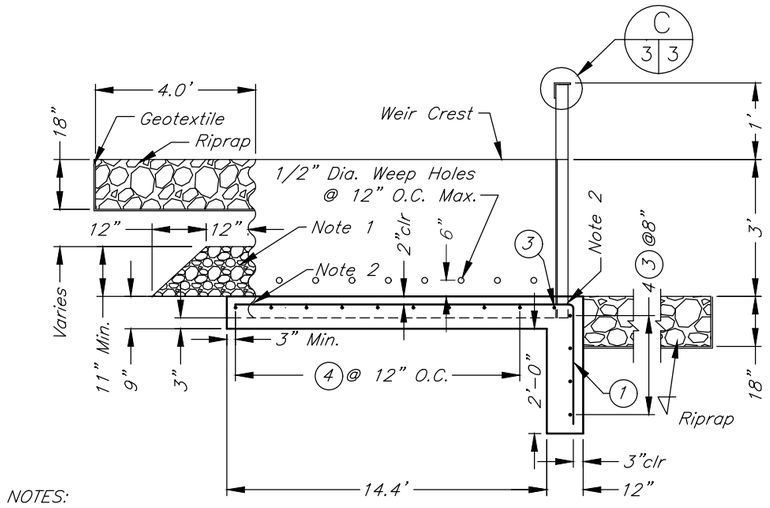
REVISIONS

NO.	DATE	DESCRIPTION

MULTI-STAGE OVERFLOW WEIR DETAILS
WQI CAL883416C
CALHOUN COUNTY, IA

SCALE:	AS SHOWN
PROJECT NO.	9394
DRAWN BY:	JRD
CHECKED BY:	MMF
SHEET	S-5

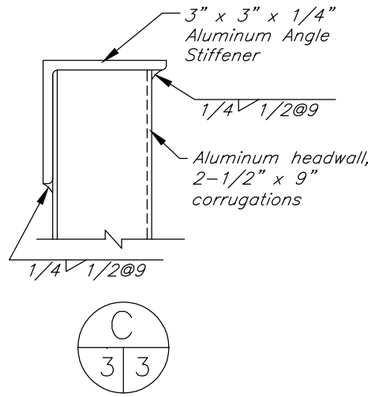
SOURCE: E.G., NRCS STANDARD DWG IA-1410



NOTES:

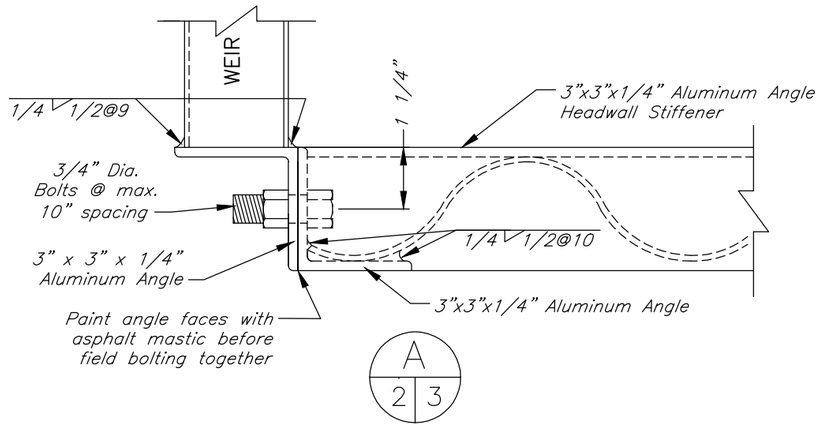
1. *Drainfill extends completely around weir.*
2. *Field drill 7/8" holes as required in the aluminum structure. Place steel reinforcement through holes. Wrap rebar as described in Construction Note 4.*

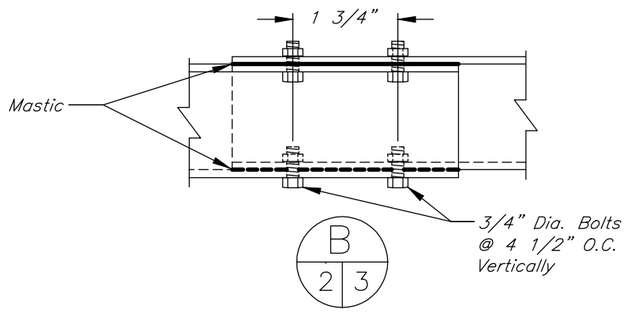
SECTION ON CENTERLINE



CONSTRUCTION NOTES

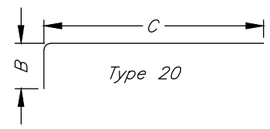
1. *Forms are not required for concrete apron or cutoff wall if excavated soil will stand vertically. Side slopes above the top of the concrete shall be 1.5:1 or flatter.*
2. *When necessary, the site shall be dewatered in accordance with Iowa Construction Specification IA-11, Removal of Water. A sump pump and crushed rock may be needed.*
3. *Set aluminum structure to grade and place reinforcing bars. Apply asphalt mastic between aluminum sheets before bolting together. Check elevations of the weir, top of floor and bottom of cutoff trench. Check that the reinforcing steel has the required minimum cover.*
4. *Wrap reinforcing bars with three layers of electrical tape, or equal, where they pass through the aluminum sheets.*
5. *Place the concrete floor and cutoff wall in one continuous pour.*
6. *After a minimum of 24 hours, place drain fill*
7. *Backfill around structure with moist soil. Place backfill in 6 inch layers and tamp to a density equivalent to adjacent required earthfill. Remove dry soil from sides of excavations as backfill is placed so that moist soil is tamped against moist soil. Keep backfill approximately level around all parts of the structure.*
8. *Place riprap with geotextile bedding and complete grading and shaping.*
9. *Seed, fertilize and mulch all disturbed areas in accordance with the seeding plan.*

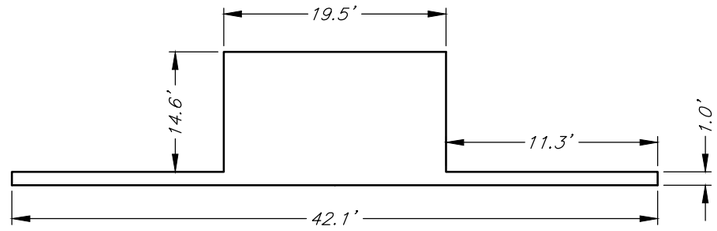




STEEL REINFORCING NOTES:

1. *Radius of bend for Type 20 bar = 2".*
2. *Alternate splice locations for Mark (3) bars may be used at Contractor's option, with Engineer's approval. Minimum splice length is 1'-9".*
3. *Minimum splice length for Mark (4) bars is 1'-4".*





CONCRETE DIMENSIONS SUMMARY

STEEL SCHEDULE (All #4 bars)

Mark	Type	B	C	Quantity	Length	Total Length	
1	20	2'-4"	14'-11"	20	17'-3"	345'	
2	Str.	–	–	23	2'-4"	53'-8"	
3	Str.	–	–	10	21'-8½"	218'	
4	Str.	–	–	15	19	285'	
					Total Length	901'-8"	lin. ft.
					Weight = Total Length x 0.668 lb./lin. ft.	602.3	lb.

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REVISIONS

NO.	DATE	DESCRIPTION

MULTI-STAGE OVERFLOW WEIR DETAILS
WQI CAL883416C
CALHOUN COUNTY, IA

SCALE: AS SHOWN
PROJECT NO. 9394
DRAWN BY: JRD
CHECKED BY: MMF
SHEET S-6

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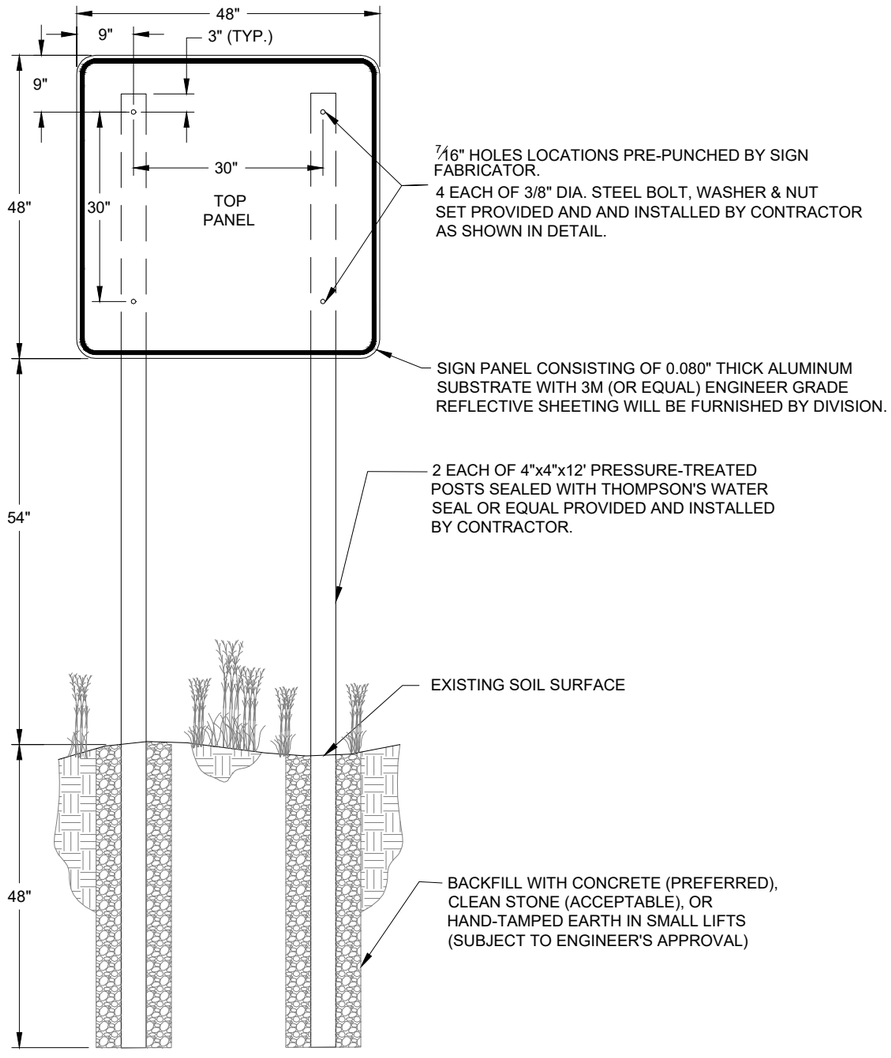


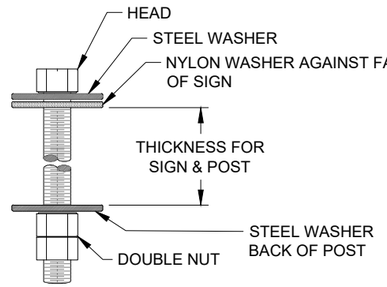
7/16" HOLES LOCATIONS PRE-PUNCHED BY SIGN FABRICATOR.
4 EACH OF 3/8" DIA. STEEL BOLT, WASHER & NUT SET PROVIDED AND AND INSTALLED BY CONTRACTOR AS SHOWN IN DETAIL.

SIGN PANEL CONSISTING OF 0.080" THICK ALUMINUM SUBSTRATE WITH 3M (OR EQUAL) ENGINEER GRADE REFLECTIVE SHEETING WILL BE FURNISHED BY DIVISION.

2 EACH OF 4"x4"x12' PRESSURE-TREATED POSTS SEALED WITH THOMPSON'S WATER SEAL OR EQUAL PROVIDED AND INSTALLED BY CONTRACTOR.

EXISTING SOIL SURFACE

BACKFILL WITH CONCRETE (PREFERRED), CLEAN STONE (ACCEPTABLE), OR HAND-TAMPED EARTH IN SMALL LIFTS (SUBJECT TO ENGINEER'S APPROVAL)



BOLT, WASHER, & NUT FASTENER DETAIL
NOT TO SCALE

SIGNAGE NOTES:

1. DIVISION WILL FURNISH SIGN PANEL. CONTRACTOR IS RESPONSIBLE FOR PROVIDING POSTS, HARDWARE, AND INSTALLATION .

2. ALL EXPOSED WOOD SHALL BE SEALED WITH THOMPSON'S WATER SEAL OR EQUAL MEETING ASTM D-4446-08.

3. ALL STEEL HARDWARE PIECES SHALL BE GALVANIZED OR RUST RESISTANT.

4. NYLON AND STEEL WASHERS SHALL BE USED AS SHOWN ON THE BOLT, WASHER, NUT FASTENER DETAIL ABOVE.

5. CLEAR UTILITIES WITH IOWA ONE-CALL AT 811 OR (800) 292-8989 BEFORE EXCAVATING FOR POSTS.

6. SECURE DIVISION AND LANDOWNERS APPROVAL FOR SIGN LOCATION BEFORE INSTALLATION.

7. COSTS FOR POSTS, HARDWARE, WOOD SEALANT AND SIGN INSTALLATION SHALL BE INCIDENTAL TO MOBILIZATION.

8. CONTRACTOR SHALL INSTALL SIGN POSTS USING A PLYWOOD OR OTHER SUITABLE TEMPLATE TO MAINTAIN ACCURATE POST SPACING AND ALIGNMENT DURING BACKFILLING OF THE POST HOLES. TO AVOID BENDING OF THE SIGN PANELS, POSTS SHALL NOT BE INSTALLED OR BACKFILLED WITH SIGN PANELS ATTACHED.

9. ONE (1) PROJECT SIGN SHALL BE INSTALLED UNLESS NOTED OTHERWISE.

STANDARD DETAIL FOR SIGN INSTALLATION

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REVISIONS

NO.	DATE	DESCRIPTION
1	3/29/23	ISSUED FOR REVIEW ONLY

SIGN INSTALLATION DETAIL
WQI CAL883416C
CALHOUN COUNTY, IA

SCALE: AS SHOWN
PROJECT NO. 9394
DRAWN BY: JRD
CHECKED BY: MMF
SHEET S-7

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TEMPORARY CONSTRUCTION EASEMENT

PERMANENT EASEMENT

APPROXIMATE 100-YR POOL EL: 1198.6

APPROXIMATE WETLAND BOUNDARY NORMAL POOL EL: 1196.5

PERMANENT EASEMENT

LEGEND

BROME SEED MIX (STRUCTURAL SEEDING) (3.0 ACRES)

BUFFER SEED MIX (17.6 ACRES)

NOTE

SEED MISCELLANEOUS DISTURBED AREAS INSIDE OF EASEMENT AND ABOVE POOL ELEVATIONS WITH BUFFER SEED MIX. INCLUDE NON-CHANNEL DISTURBED AREAS DOWNSTREAM OF EMBANKMENT

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NO.	DATE	DESCRIPTION

SEEDING PLAN
WQI CAL883416C
CALHOUN COUNTY, IOWA

SCALE:	AS SHOWN
PROJECT NO.	9394
DRAWN BY:	JRD
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SHEET	SP-1

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