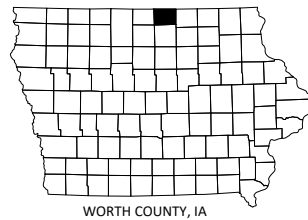


THE SPECIFICATIONS AS PREPARED BY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP AND BOLTON & MENK, INC. SHALL BE CONSIDERED AS PART OF THIS DOCUMENT. NATURAL RESOURCES CONSERVATION SERVICE CONSTRUCTION SPECIFICATIONS SHALL APPLY.

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.

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

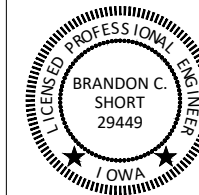


IOWA DEPARTMENT OF  
**AGRICULTURE &  
LAND STEWARDSHIP**

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

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



ALL SHEETS

SHEET

.01 |



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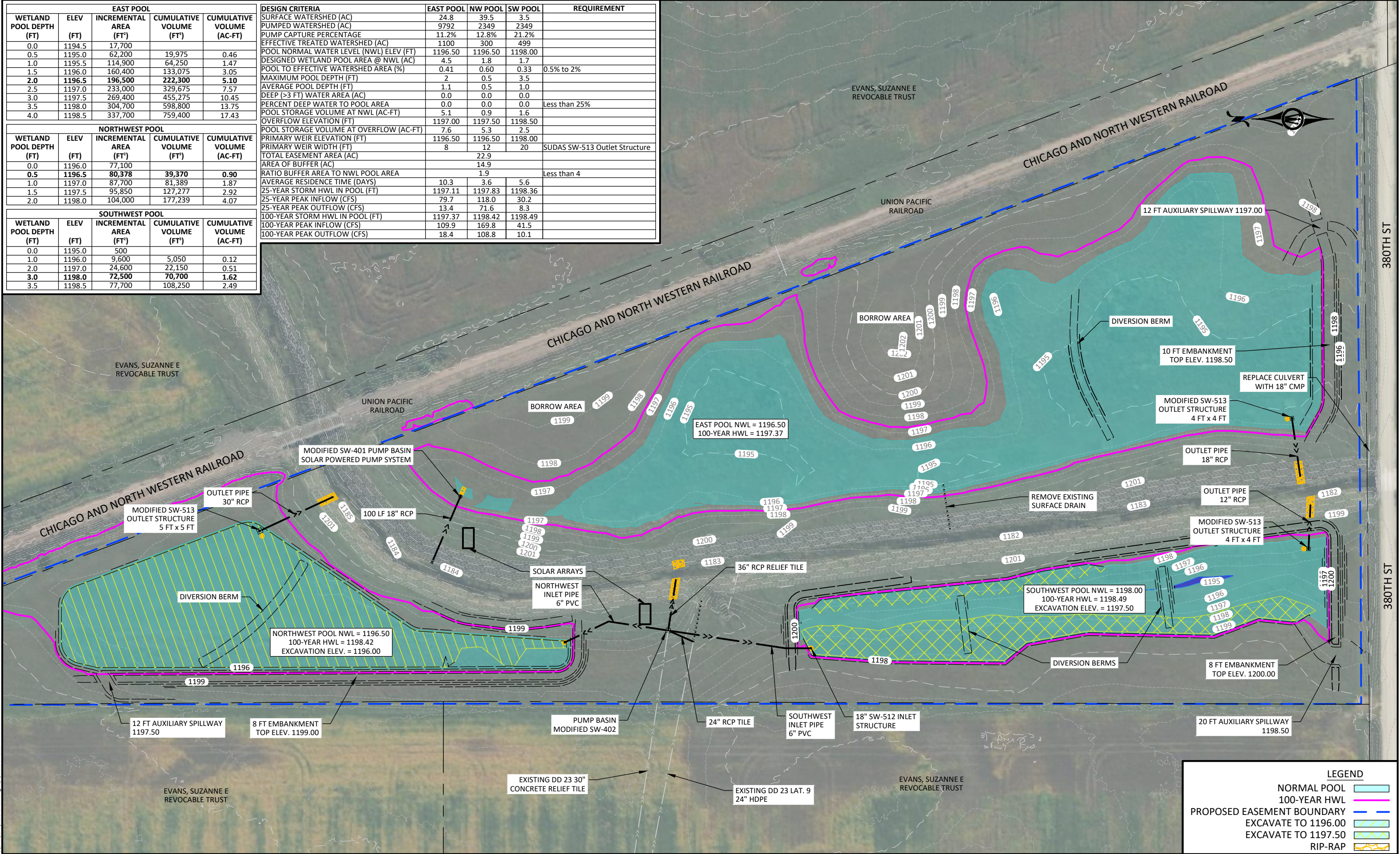
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| EAST POOL               |           |                        |                         |                           |
|-------------------------|-----------|------------------------|-------------------------|---------------------------|
| WETLAND POOL DEPTH (FT) | ELEV (FT) | INCREMENTAL AREA (FT²) | CUMULATIVE VOLUME (FT³) | CUMULATIVE VOLUME (AC-FT) |
| 0.0                     | 1194.5    | 17,700                 |                         |                           |
| 0.5                     | 1195.0    | 62,200                 | 19,975                  | 0.46                      |
| 1.0                     | 1195.5    | 114,900                | 64,250                  | 1.47                      |
| 1.5                     | 1196.0    | 160,400                | 133,075                 | 3.05                      |
| 2.0                     | 1196.5    | 196,500                | 222,300                 | 5.10                      |
| 2.5                     | 1197.0    | 233,000                | 329,675                 | 7.57                      |
| 3.0                     | 1197.5    | 269,400                | 455,275                 | 10.45                     |
| 3.5                     | 1198.0    | 304,700                | 598,800                 | 13.75                     |
| 4.0                     | 1198.5    | 337,700                | 759,400                 | 17.43                     |

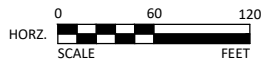
| NORTHWEST POOL          |           |                        |                         |                           |
|-------------------------|-----------|------------------------|-------------------------|---------------------------|
| WETLAND POOL DEPTH (FT) | ELEV (FT) | INCREMENTAL AREA (FT²) | CUMULATIVE VOLUME (FT³) | CUMULATIVE VOLUME (AC-FT) |
| 0.0                     | 1196.0    | 77,100                 |                         |                           |
| 0.5                     | 1196.5    | 80,378                 | 39,370                  | 0.90                      |
| 1.0                     | 1197.0    | 87,700                 | 81,389                  | 1.87                      |
| 1.5                     | 1197.5    | 95,850                 | 127,277                 | 2.92                      |
| 2.0                     | 1198.0    | 104,000                | 177,239                 | 4.07                      |

| SOUTHWEST POOL          |           |                        |                         |                           |
|-------------------------|-----------|------------------------|-------------------------|---------------------------|
| WETLAND POOL DEPTH (FT) | ELEV (FT) | INCREMENTAL AREA (FT²) | CUMULATIVE VOLUME (FT³) | CUMULATIVE VOLUME (AC-FT) |
| 0.0                     | 1195.0    | 500                    |                         |                           |
| 1.0                     | 1196.0    | 9,600                  | 5,050                   | 0.12                      |
| 2.0                     | 1197.0    | 24,600                 | 22,150                  | 0.51                      |
| 3.0                     | 1198.0    | 72,500                 | 70,700                  | 1.62                      |
| 3.5                     | 1198.5    | 77,700                 | 108,250                 | 2.49                      |

| DESIGN CRITERIA                         |  |  |  |  | EAST POOL |  | NW POOL | SW POOL | REQUIREMENT                   |  |
|-----------------------------------------|--|--|--|--|-----------|--|---------|---------|-------------------------------|--|
| SURFACE WATERSHED (AC)                  |  |  |  |  | 24.8      |  | 39.5    | 3.5     |                               |  |
| PUMPED WATERSHED (AC)                   |  |  |  |  | 9792      |  | 2349    | 2349    |                               |  |
| PUMP CAPTURE PERCENTAGE                 |  |  |  |  | 11.2%     |  | 12.8%   | 21.2%   |                               |  |
| EFFECTIVE TREATED WATERSHED (AC)        |  |  |  |  | 1100      |  | 300     | 499     |                               |  |
| POOL NORMAL WATER LEVEL (NWL) ELEV (FT) |  |  |  |  | 1196.50   |  | 1196.50 | 1198.00 |                               |  |
| DESIGNED WETLAND POOL AREA @ NWL (AC)   |  |  |  |  | 4.5       |  | 1.8     | 1.7     |                               |  |
| POOL TO EFFECTIVE WATERSHED AREA (%)    |  |  |  |  | 0.41      |  | 0.60    | 0.33    | 0.5% to 2%                    |  |
| MAXIMUM POOL DEPTH (FT)                 |  |  |  |  | 2         |  | 0.5     | 3.5     |                               |  |
| AVERAGE POOL DEPTH (FT)                 |  |  |  |  | 1.1       |  | 0.5     | 1.0     |                               |  |
| DEEP (>3 FT) WATER AREA (AC)            |  |  |  |  | 0.0       |  | 0.0     | 0.0     |                               |  |
| PERCENT DEEP WATER TO POOL AREA         |  |  |  |  | 0.0       |  | 0.0     | 0.0     | Less than 25%                 |  |
| POOL STORAGE VOLUME AT NWL (AC-FT)      |  |  |  |  | 5.1       |  | 0.9     | 1.6     |                               |  |
| OVERFLOW ELEVATION (FT)                 |  |  |  |  | 1197.00   |  | 1197.50 | 1198.50 |                               |  |
| POOL STORAGE VOLUME AT OVERFLOW (AC-FT) |  |  |  |  | 7.6       |  | 5.3     | 2.5     |                               |  |
| PRIMARY WEIR ELEVATION (FT)             |  |  |  |  | 1196.50   |  | 1196.50 | 1198.00 |                               |  |
| PRIMARY WEIR WIDTH (FT)                 |  |  |  |  | 8         |  | 12      | 20      | SUDAS SW-513 Outlet Structure |  |
| TOTAL EASEMENT AREA (AC)                |  |  |  |  |           |  | 22.9    |         |                               |  |
| AREA OF BUFFER (AC)                     |  |  |  |  |           |  | 14.9    |         |                               |  |
| RATIO BUFFER AREA TO NWL POOL AREA      |  |  |  |  |           |  | 1.9     |         | Less than 4                   |  |
| AVERAGE RESIDENCE TIME (DAYS)           |  |  |  |  | 10.3      |  | 3.6     | 5.6     |                               |  |
| 25-YEAR STORM HWL IN POOL (FT)          |  |  |  |  | 1197.11   |  | 1197.83 | 1198.36 |                               |  |
| 25-YEAR PEAK INFLOW (CFS)               |  |  |  |  | 79.7      |  | 118.0   | 30.2    |                               |  |
| 25-YEAR PEAK OUTFLOW (CFS)              |  |  |  |  | 13.4      |  | 71.6    | 8.3     |                               |  |
| 100-YEAR STORM HWL IN POOL (FT)         |  |  |  |  | 1197.37   |  | 1198.42 | 1198.49 |                               |  |
| 100-YEAR PEAK INFLOW (CFS)              |  |  |  |  | 109.9     |  | 169.8   | 41.5    |                               |  |
| 100-YEAR PEAK OUTFLOW (CFS)             |  |  |  |  | 18.4      |  | 108.8   | 10.1    |                               |  |



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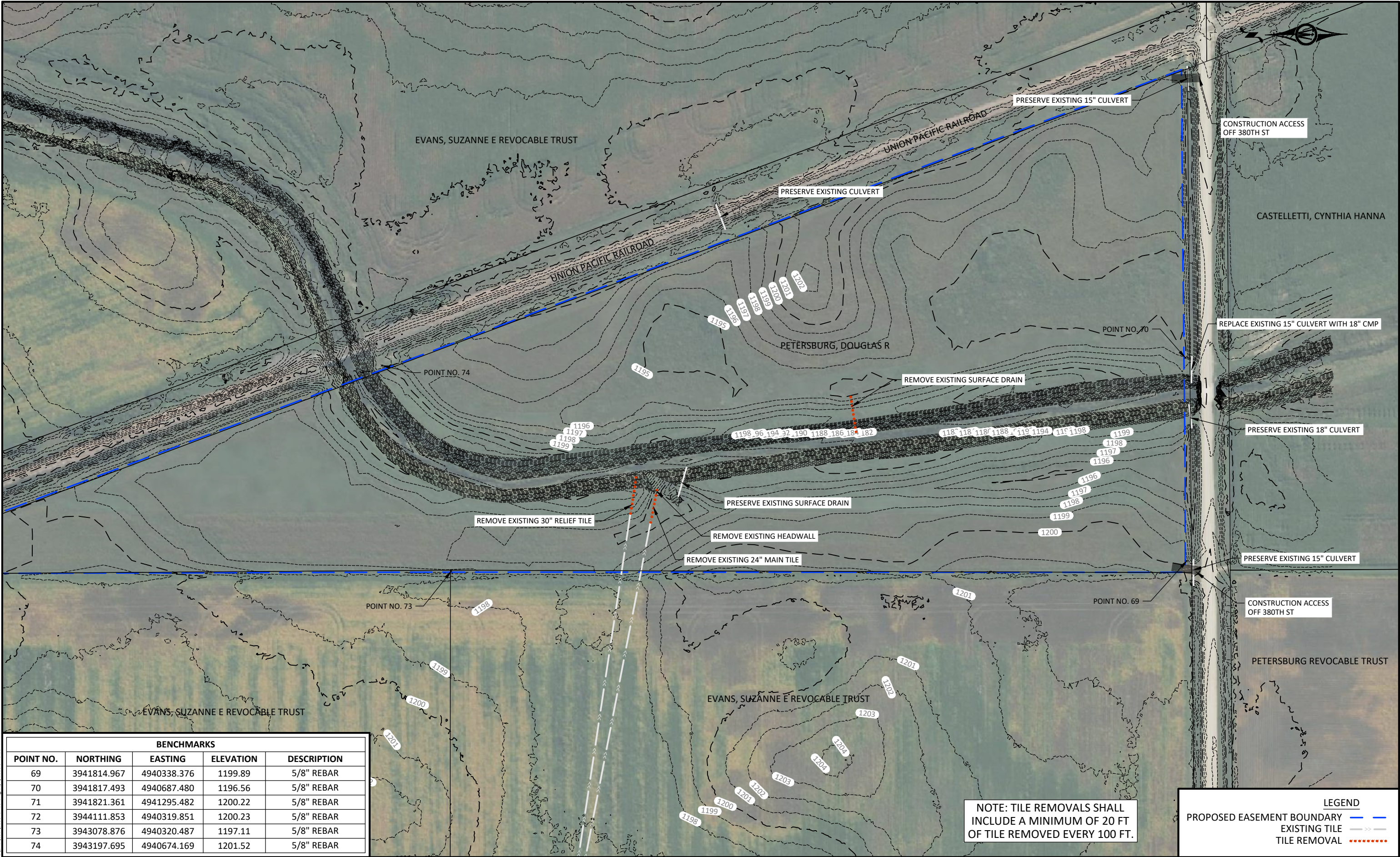


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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
WOR982210D (D PETERSBURG)  
PLAN OVERVIEW SHEET

SHEET  
A.02



| BENCHMARKS |             |             |           |             |
|------------|-------------|-------------|-----------|-------------|
| POINT NO.  | NORTHING    | EASTING     | ELEVATION | DESCRIPTION |
| 69         | 3941814.967 | 4940338.376 | 1199.89   | 5/8" REBAR  |
| 70         | 3941817.493 | 4940687.480 | 1196.56   | 5/8" REBAR  |
| 71         | 3941821.361 | 4941295.482 | 1200.22   | 5/8" REBAR  |
| 72         | 3944111.853 | 4940319.851 | 1200.23   | 5/8" REBAR  |
| 73         | 3943078.876 | 4940320.487 | 1197.11   | 5/8" REBAR  |
| 74         | 3943197.695 | 4940674.169 | 1201.52   | 5/8" REBAR  |

NOTE: TILE REMOVALS SHALL  
INCLUDE A MINIMUM OF 20 FT  
OF TILE REMOVED EVERY 100 FT.

LEGEND

PROPOSED EASEMENT BOUNDARY

EXISTING TILE

TILE REMOVAL

PIPE HAUNCH FILL AND COMPACTION METHOD  
PLAN REQUIREMENTS COMPLIANCE VERIFICATION

THE CONTRACTOR IS SOLEY 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 INTENDNE METHODS FOR FILL AND COMPACTION OF THE PIPE HAUNCH AREAS SATIFIES 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.

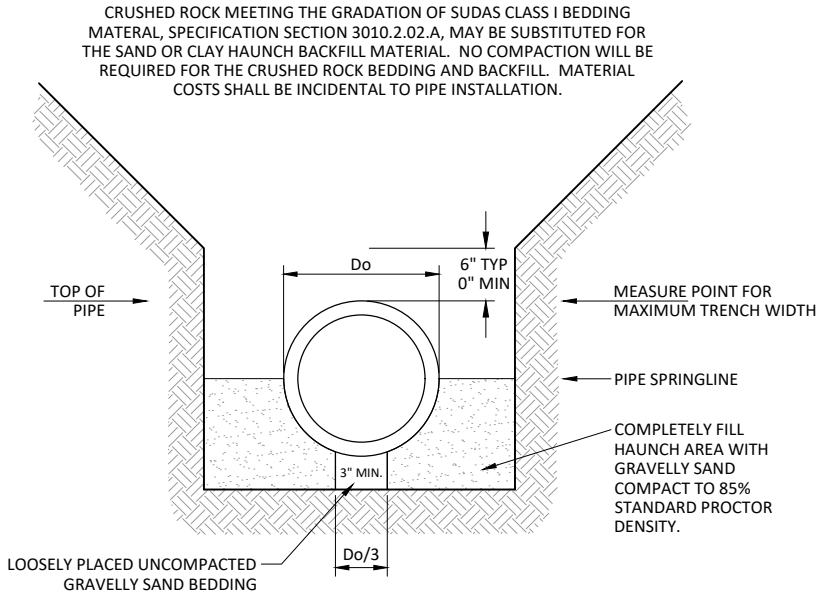
STEP 4A  
SOIL OR TRENCH CONDITION CHANGES

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.



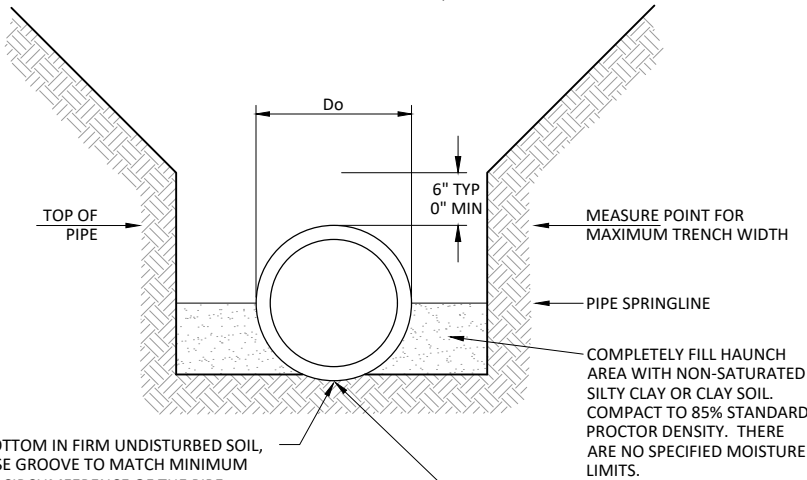
GRAVELLY SAND BEDDING SHALL BE CONSISTENT WITH THE GRADATION AND OTHER CHARACTERISTICS OF STANDARD AASHTO A1 OR A3 SOIL. A REPRESENTATIVE SAMPLE OF THE MATERIAL AND A GRADATION REPORT OR SUPPLIER'S CERTIFICATION OF COMPLIANCE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO DELIVERY TO SITE.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



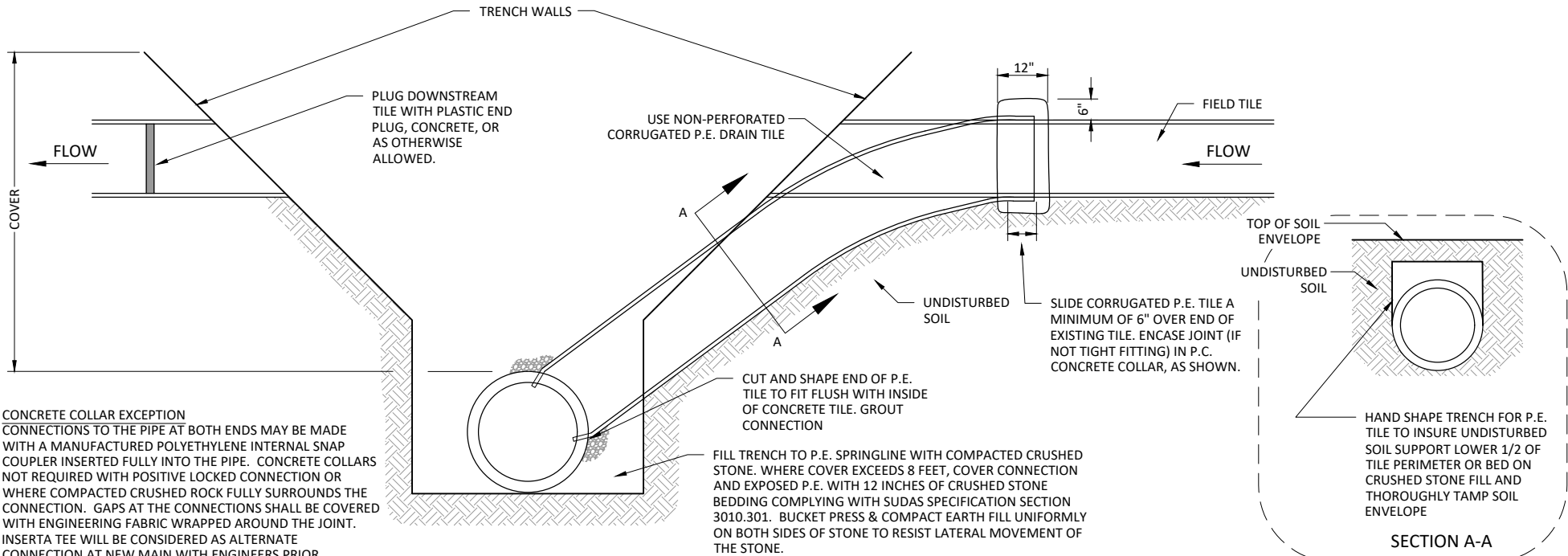
WHERE TRENCH BOTTOM IN FIRM UNDISTURBED SOIL, SHAPE TRENCH BASE GROOVE TO MATCH MINIMUM 1/6 OF THE OUTER CIRCUMFERENCE OF THE PIPE. WHERE THE SHAPED GROOVE CANNOT BE CONSTRUCTED INTO UNDISTURBED GROUND OR WHERE EXCESS CUT OCCURS OVER EXCAVATE AND PLACE MINIMUM 3-INCH THICK COMPACTED GRAVELLY SAND BEDDING 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



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.

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



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RCP INSTALLATION DETAIL

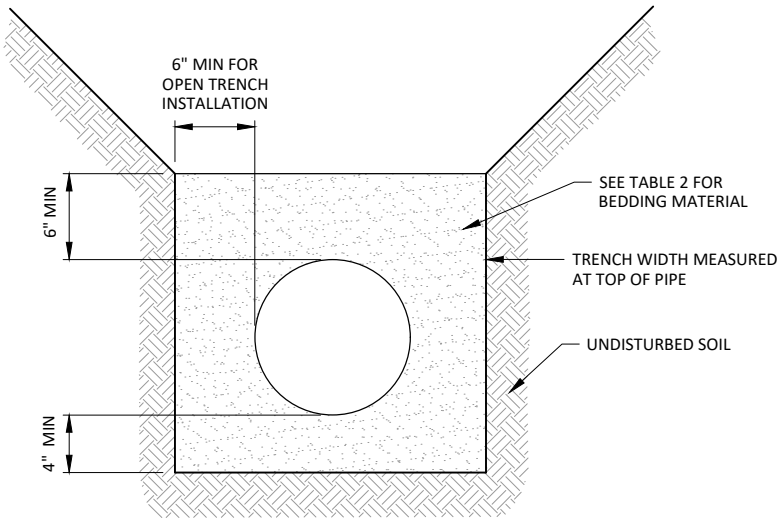
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CORRUGATED POLYETHYLENE DRAINAGE TUBING  
MATERIAL & INSTALLATION NOTES

- 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.
- EXCEPT MODIFIED HEREIN OR OTHERWISE APPROVED BY ENGINEER, ALL CPDT SHALL BE INSTALLED IN COMPLIANCE WITH THE ASTM 449 STANDARD PRACTICE.
- 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.
- 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 B.02. THIS MATERIAL AND WORK SHALL BE INCIDENTAL TO THE INSTALLATION OF THE PIPE. CONTRACTOR MAY SUBSTITUTE PIPE BEDDING ROCK AS THE BEDDING MATERIAL.
- 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 SHALL BE INCIDENTAL TO THE INSTALLATION OF THE PIPE.
- 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.
- 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. BEDDING MATERIAL SHALL BE INCIDENTAL TO THE INSTALLATION OF THE PIPE.
- MANUFACTURER'S ENDCAPS SHALL BE INSTALLED AT THE TERMINATION OF EACH LINE UNLESS A CONNECTION TO AN EXISTING DRAIN IS MADE.
- 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%.
- ALIGNMENT TURNS MAYBE MADE USING EITHER A MANUFACTURED FITTING OR CURVING THE LINE WITH A 25' MINIMUM RADIUS.

| Table 1<br>Maximum Allowable Buried Depth to Flowline of CPDT             |                                |                                      |       |                              |                                       |
|---------------------------------------------------------------------------|--------------------------------|--------------------------------------|-------|------------------------------|---------------------------------------|
| 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                            | 6                                     |
| Table 2<br>Acceptable Bedding Material and Compaction Requirements        |                                |                                      |       |                              |                                       |
| Description                                                               | Percentage Passing Sieve Sizes |                                      |       | Minimum Standard Density (%) | Maximum Compaction Layer Height (IN.) |
|                                                                           | 1"                             | 3/4"                                 | No. 4 |                              |                                       |
| Crushed Stone<br>Crushed Gravel*                                          | 100%                           | > 95%                                | < 5%  | Dumped                       | 18                                    |
| * Class 1 Bedding Material Per SUDAS 3010.202A is an Allowable Substitute |                                |                                      |       |                              |                                       |



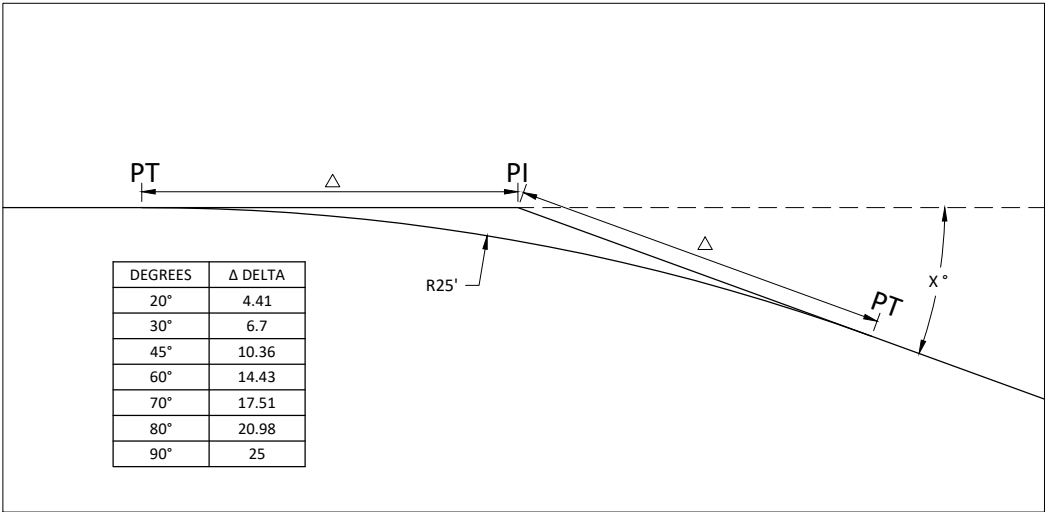
FILL TRENCH TO 6" ABOVE TOP OF PIPE WITH CRUSHED STONE OR GRAVEL MEETING THE REQUIREMENTS IN TABLE 2. BEDDING MATERIAL SHALL BE INCIDENTAL TO THE PIPE INSTALLATION.

FLAT BOTTOM TRENCH INSTALLATION

NOT TO SCALE  
SOURCE: ASTM F449

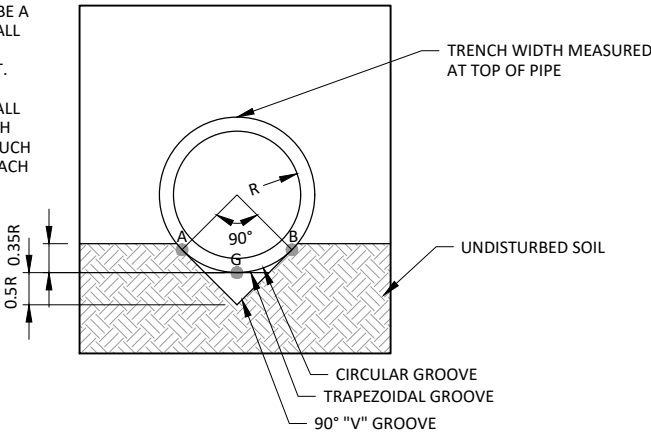
NOTE: THIS IS AN ALLOWED ALTERNATIVE INSTALLATION FOR CPDT

DISTRICT TILE MAIN SHALL BE  
INSTALLED WITH A FLAT BOTTOM  
TRENCH AND BEDDED AS SHOWN.



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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| DESIGNED         | REV            | DESCRIPTION | DATE |
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| BCS              |                |             |      |
| DRAWN            | BCS            |             |      |
| CHECKED          | JPR            |             |      |
| CLIENT PROJ. NO. | 24X.135549.000 |             |      |

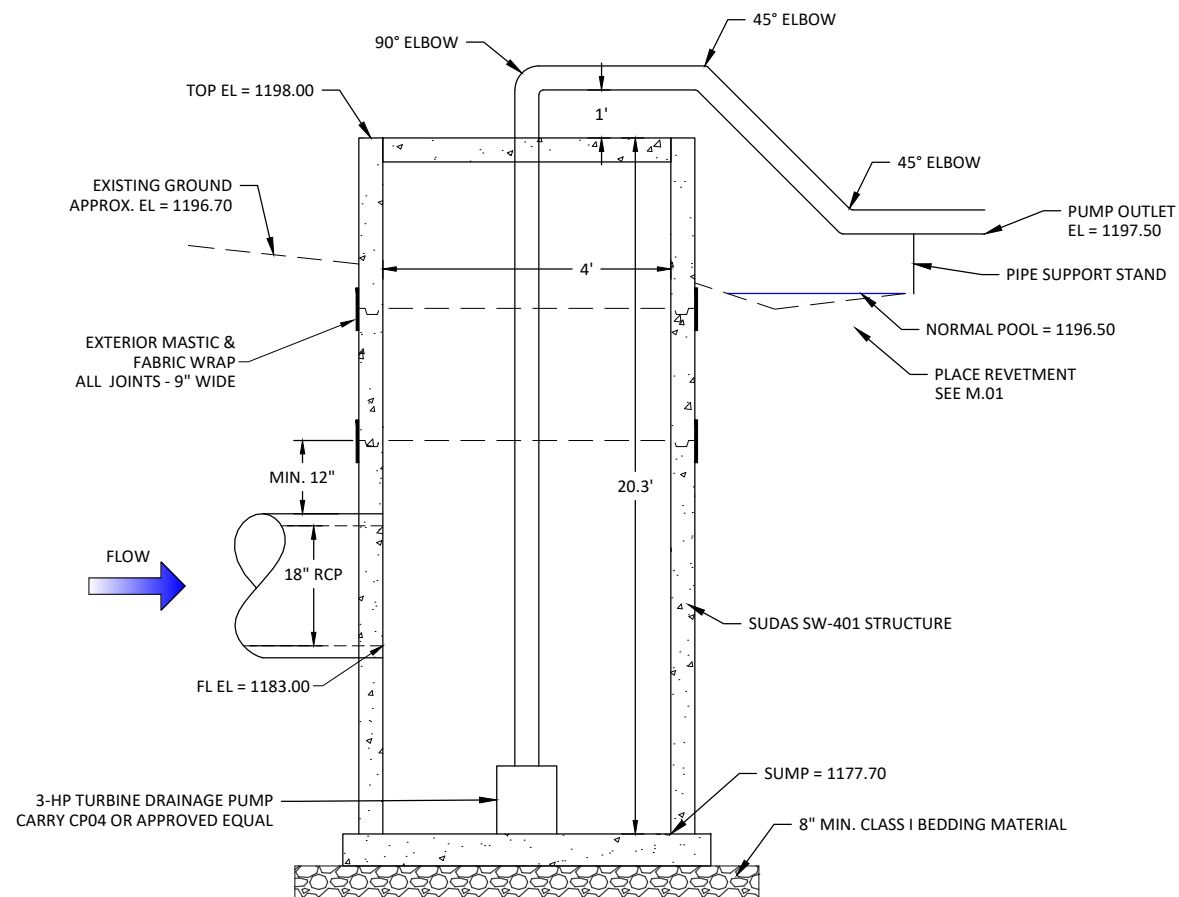
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

WOR982210D (D PETERSBURG)

CPDT INSTALLATION DETAIL

SHEET

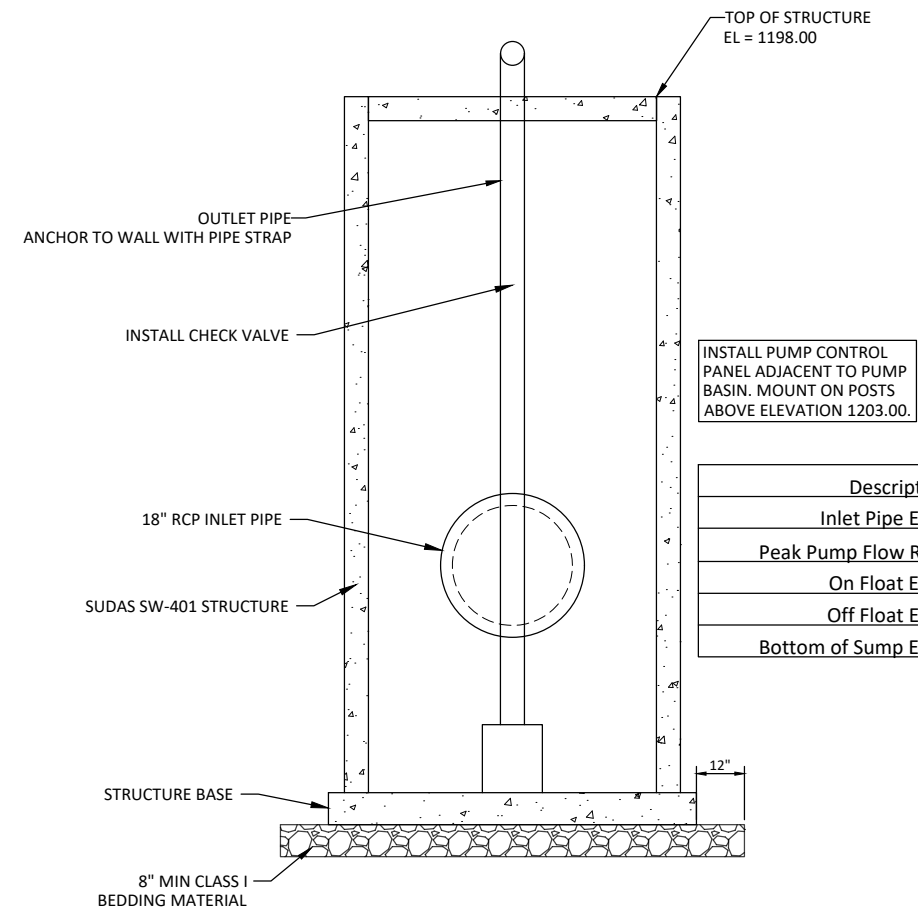
B.02



SW-401 PUMP BASIN ELEVATION

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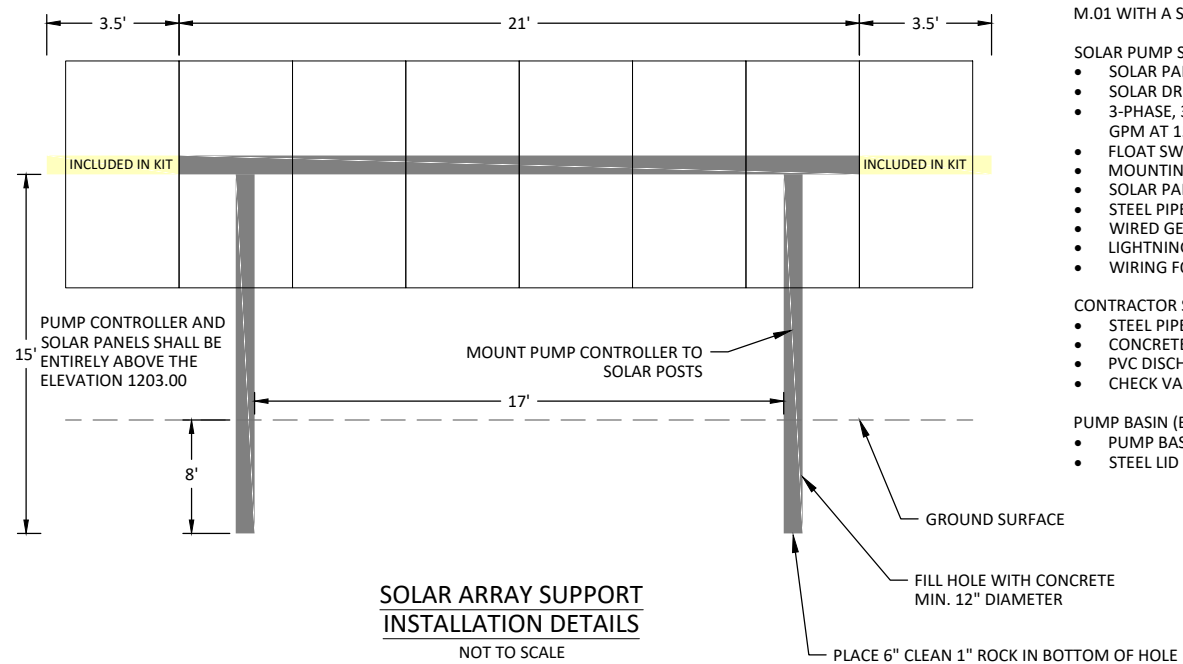
NOT TO SCALE



SW-401 PUMP BASIN SECTION

---

NOT TO SCALE



SOLAR ARRAY SUPPORT  
INSTALLATION DETAILS  
NOT TO SCALE

NOTE: SOLAR PANELS SHALL BE INSTALLED IN THE LOCATION SHOWN ON A.02 AND M.01 WITH A SOUTHWARD ORIENTATION.

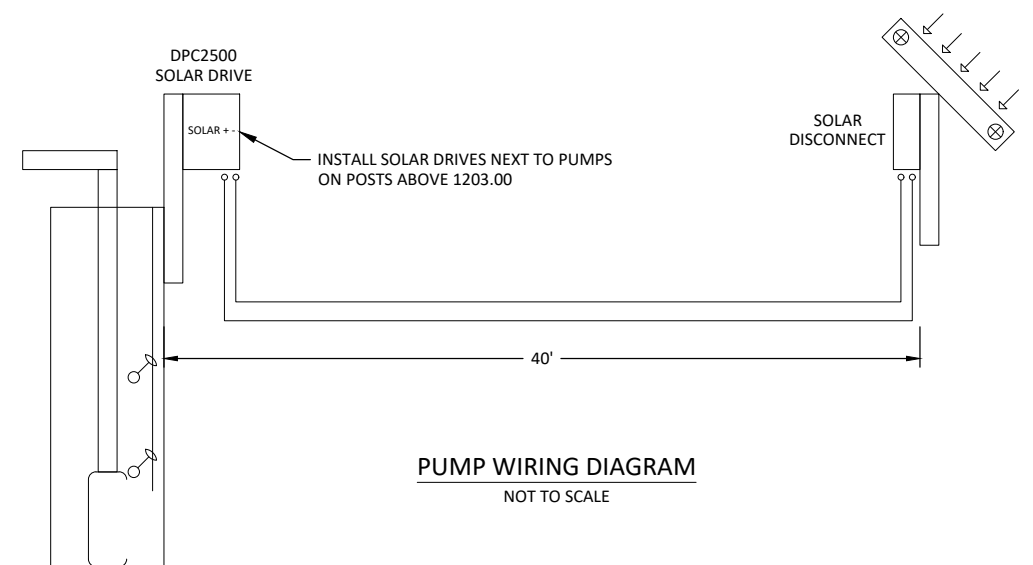
- SOLAR PUMP SYSTEM (BID ITEM 22) SHALL INCLUDE THE FOLLOWING:**
- SOLAR PANELS
  - SOLAR DRIVE
  - 3-PHASE, 3 HP TURBINE PUMP (CARRY CP-04 OR APPROVED EQUAL, PROVIDING 295 GPM AT 15 FT TDH)
  - FLOAT SWITCH
  - MOUNTING CLAMPS FOR CONTROLLER
  - SOLAR PANEL MOUNTING KIT
  - STEEL PIPE EXTENDERS
  - WIRED GENERATOR PLUG
  - LIGHTNING & SURGE PROTECTOR
  - WIRING FOR PANELS, PUMP, AND CONTROLLER

CONTRACTOR SHALL PROVIDE THE FOLLOWING, SUBSIDIARY TO BID ITEM 22:

- STEEL PIPE FOR MOUNTING
- CONCRETE AND ROCK BEDDING FOR MOUNTING POLES
- PVC DISCHARGE PIPE
- CHECK VALVE

PUMP BASIN (BID ITEM 20) SHALL INCLUDE THE FOLLOWING:

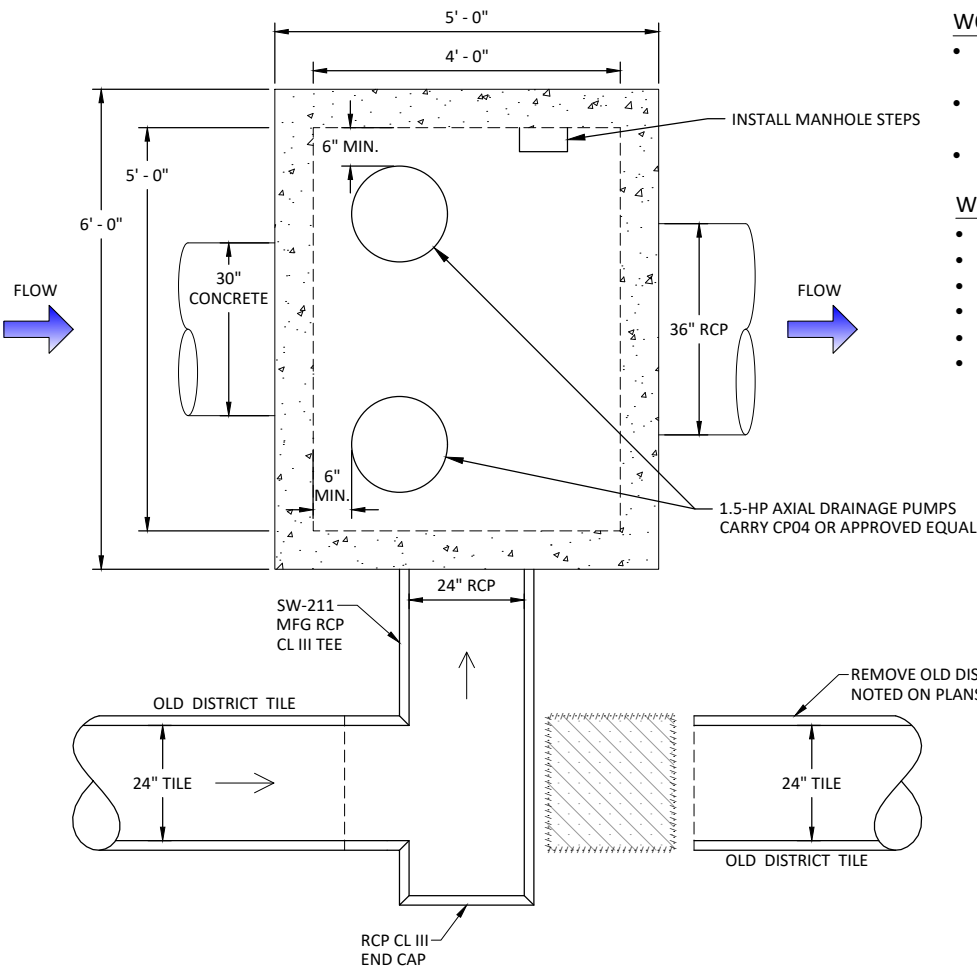
- PUMP BASIN (MODIFIED SW-401, SEE DETAILS)
- STEEL LID WITH STAND



### PUMP WIRING DIAGRAM

NOT TO SCALE

SW-402 PUMP BASIN PLAN VIEW  
NOT TO SCALE



WORK INCLUDED IN 24" RCP TEE BID ITEM

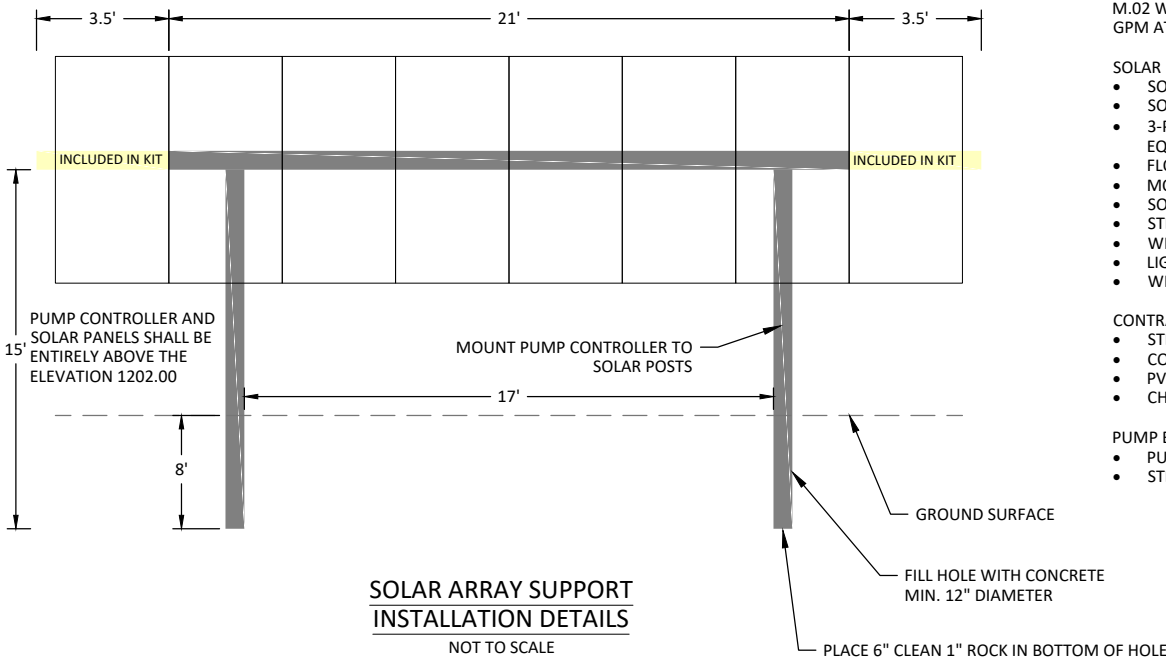
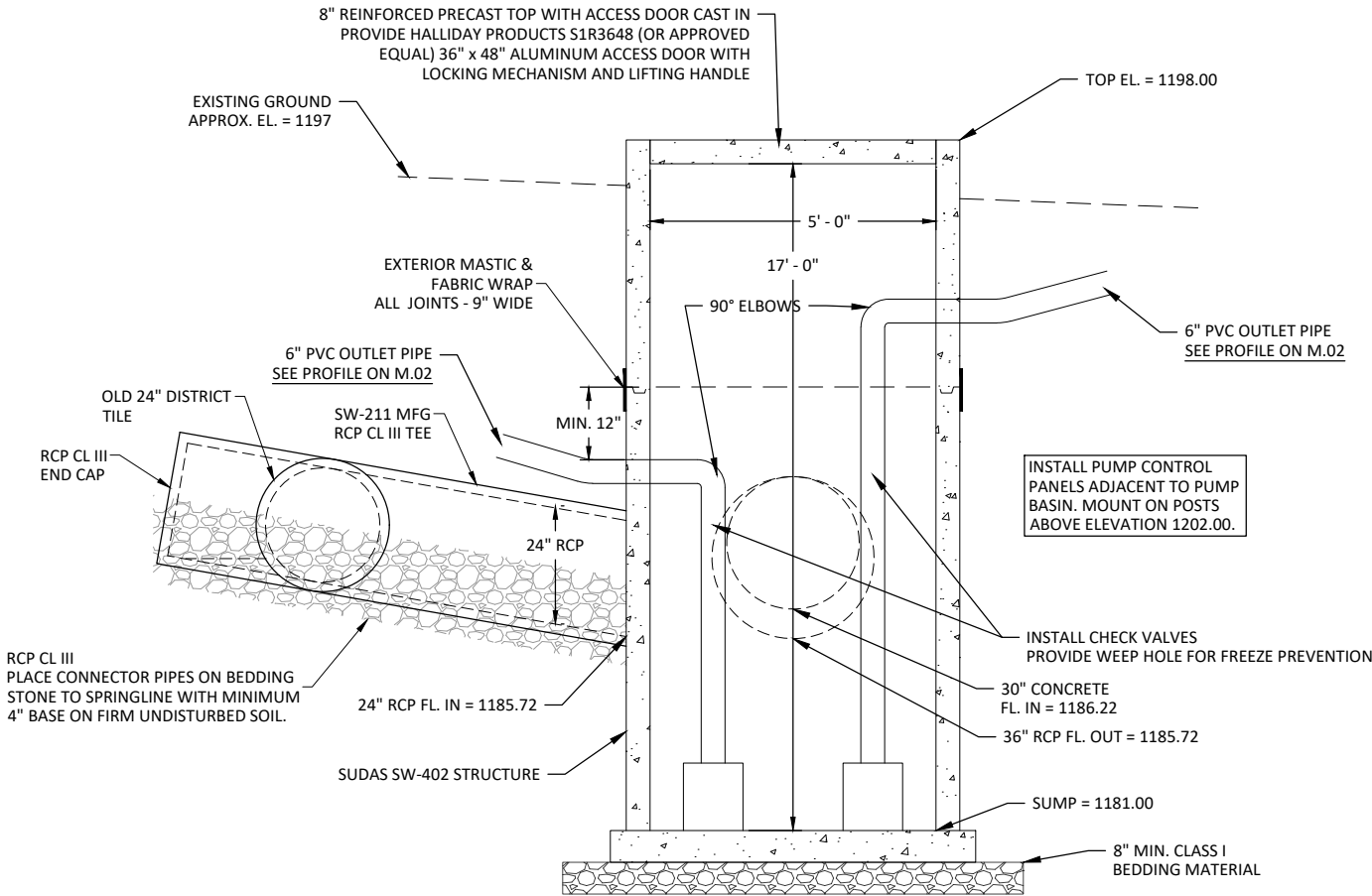
- ADDITIONAL HANDLING AND WORK BEYOND THAT INCLUDED IN SEPARATE BID ITEMS.
- PIPE CUTTING, WORKING OF JOINTS, NECESSARY CONCRETE COLLARS WHERE NOT FULLY SEATED PIPE JOINTS.
- CONNECTING RCP TEE TO OLD TILE AND FILLING PIPE OPENING.

WORK PAID UNDER SEPARATE BID ITEMS

- ADDITIONAL RCP PIPE, TEES, END CAPS
- BEDDING STONE
- TOPSOIL WORK, WHERE APPLICABLE
- MOBILIZATION
- REMOVE & DISPOSED DRAIN TILE
- TILE SEARCH

| Description                     | Value   |
|---------------------------------|---------|
| Inlet Pipe Elev.                | 1185.72 |
| Peak Pump Flow Rate (Northwest) | N=200   |
| Peak Pump Flow Rate (Southwest) | S=180   |
| On Float Elev.                  | 1185.50 |
| Off Float Elev.                 | 1182.75 |
| Bottom of Sump Elev.            | 1181.00 |

SW-402 PUMP BASIN PROFILE VIEW  
NOT TO SCALE



SOLAR ARRAY SUPPORT  
INSTALLATION DETAILS  
NOT TO SCALE

NOTE: SOLAR PANELS SHALL BE INSTALLED IN THE LOCATION SHOWN ON A.02 AND M.02 WITH A SOUTHWARD ORIENTATION. NORTHWEST INLET PUMP SHALL PROVIDE 200 GPM AT 13.65 TDH. SOUTHWEST INLET PUMP SHALL PROVIDE 180 GPM AT 15.75 TDH.

SOLAR POWERED PUMP SYSTEM (BID ITEM 23) SHALL INCLUDE THE FOLLOWING:

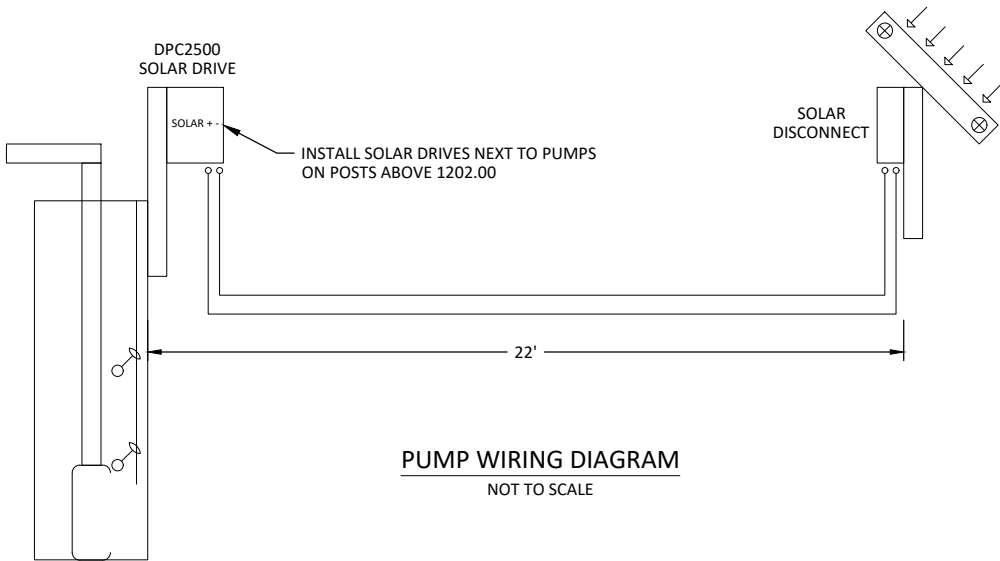
- SOLAR PANELS
- SOLAR DRIVE
- 3-PHASE, 1.5 HP AXIAL PUMP (CARRY CP-04 WITH 11" IMPELLER OR APPROVED EQUAL)
- FLOAT SWITCH
- MOUNTING CLAMPS FOR CONTROLLER
- SOLAR PANEL MOUNTING KIT
- STEEL PIPE EXTENDERS
- WIRED GENERATOR PLUG
- LIGHTNING & SURGE PROTECTOR
- WIRING FOR PANELS, PUMP, AND CONTROLLER

CONTRACTOR SHALL PROVIDE THE FOLLOWING, SUBSIDIARY TO BID ITEM 23:

- STEEL PIPE FOR MOUNTING
- CONCRETE AND ROCK BEDDING FOR MOUNTING POLES
- PVC DISCHARGE PIPE
- CHECK VALVE

PUMP BASIN (BID ITEM 21) SHALL INCLUDE THE FOLLOWING:

- PUMP BASIN (MODIFIED SW-402, SEE DETAILS)
- STEEL LID WITH STAND



PUMP WIRING DIAGRAM  
NOT TO SCALE



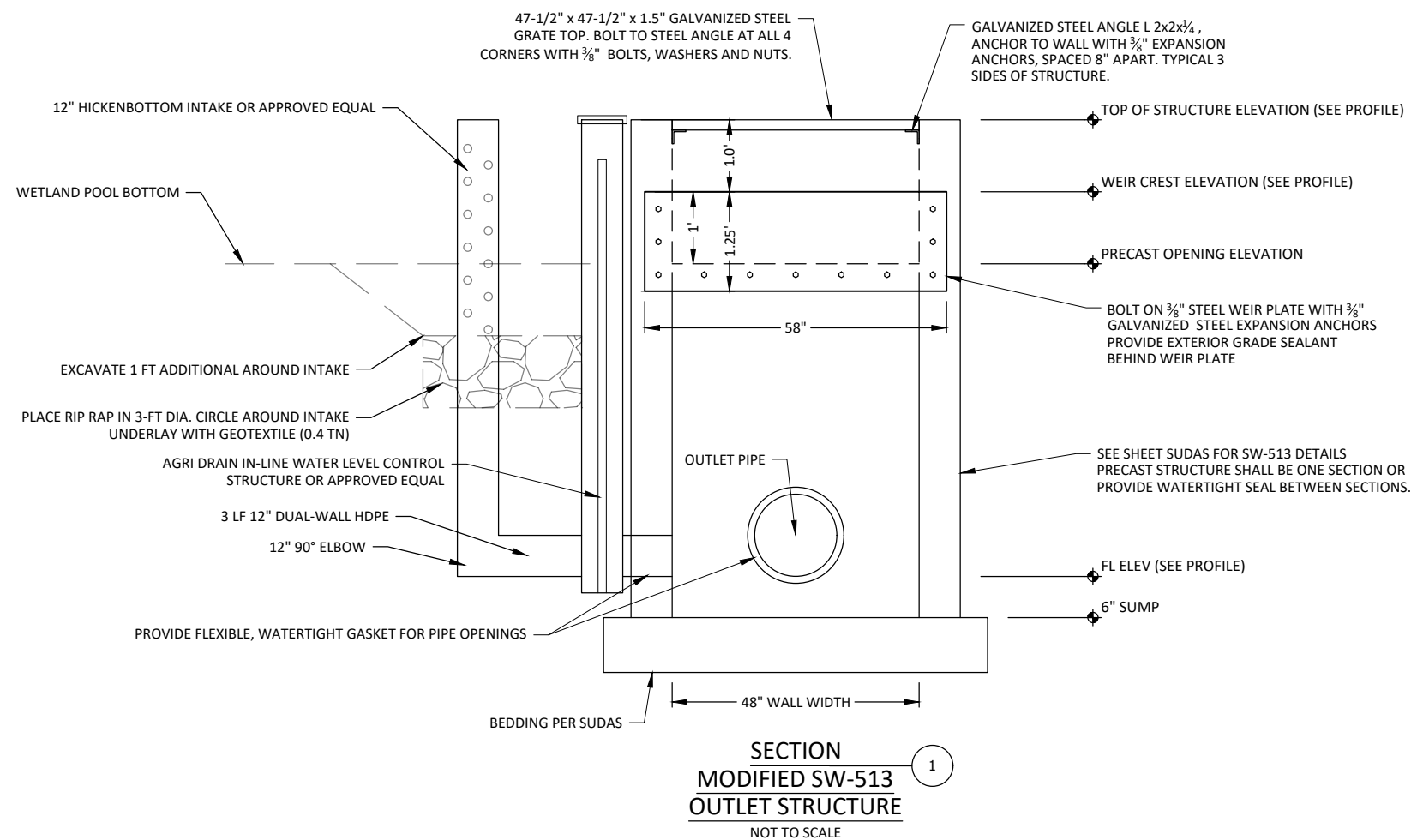
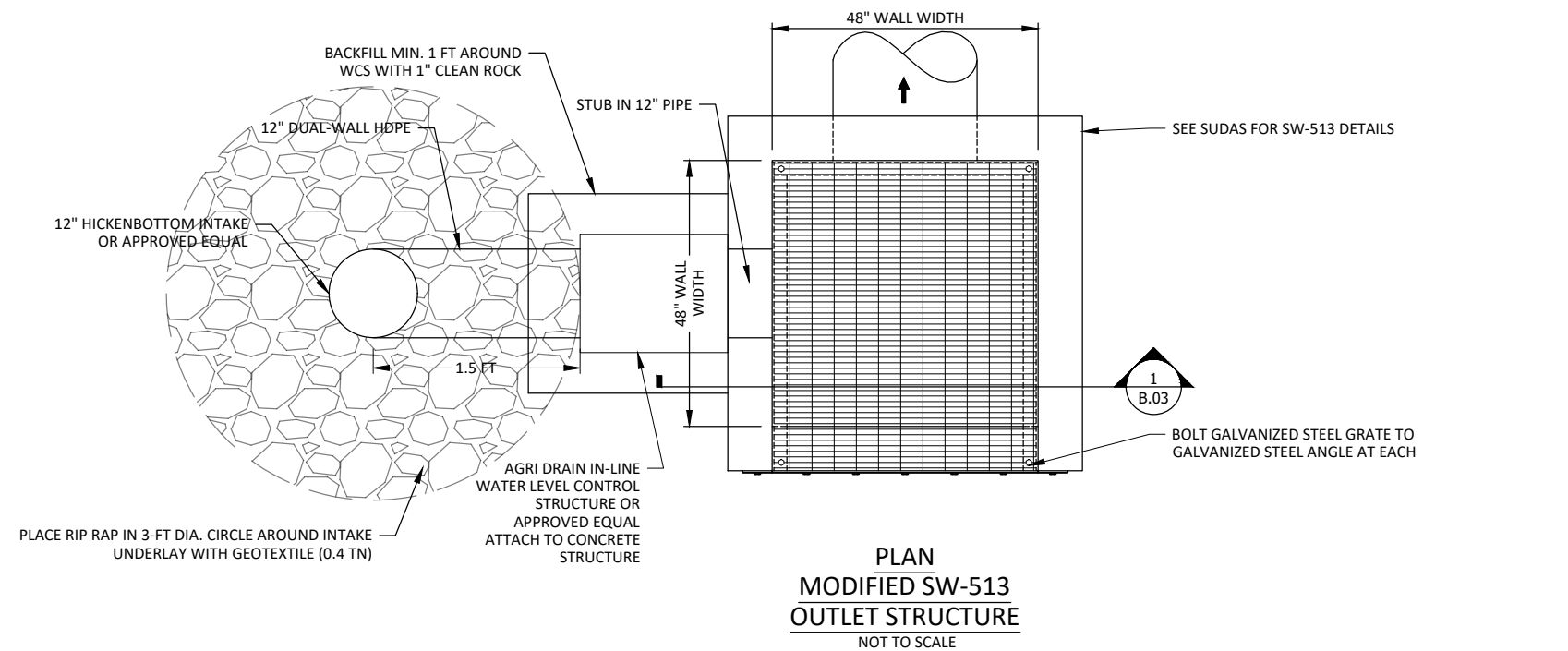
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| DRAWN            |     |             |      |
| BCS              |     |             |      |
| CHECKED          |     |             |      |
| JPR              |     |             |      |
| CLIENT PROJ. NO. |     |             |      |
| 24X.135549.000   |     |             |      |

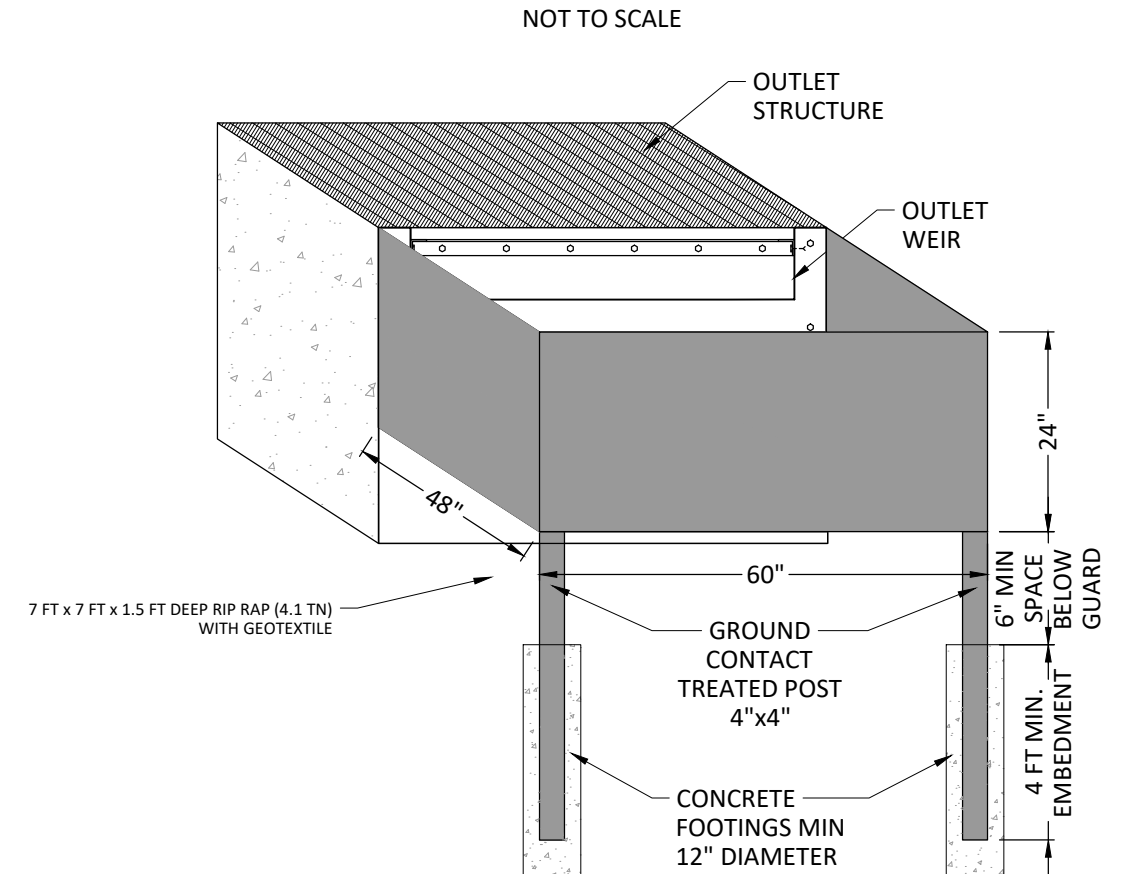
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WOR982210D (D PETERSBURG)  
WEST INLET PUMP BASIN & SOLAR ARRAY DETAILS

SHEET

B.04



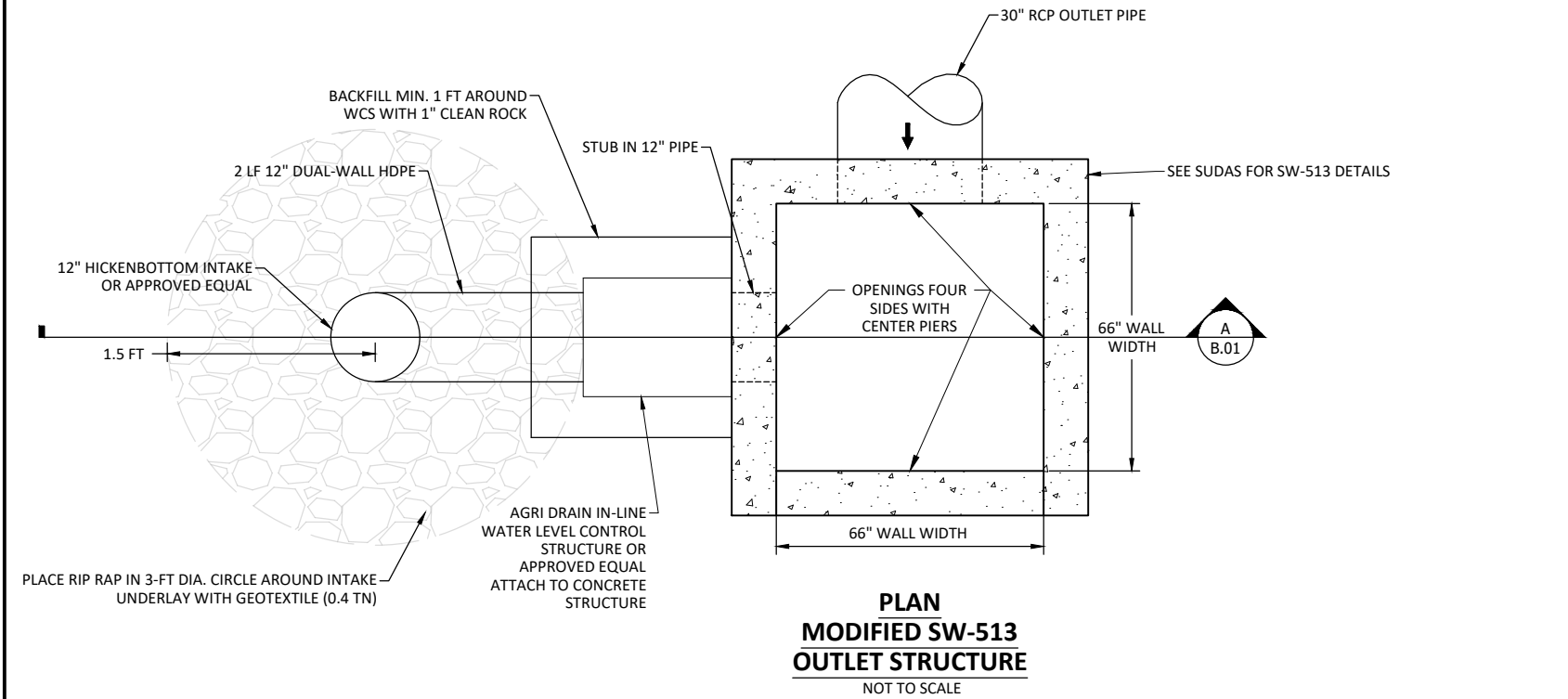
## TRASH GUARD FOR WETLAND OUTLET STRUCTURE



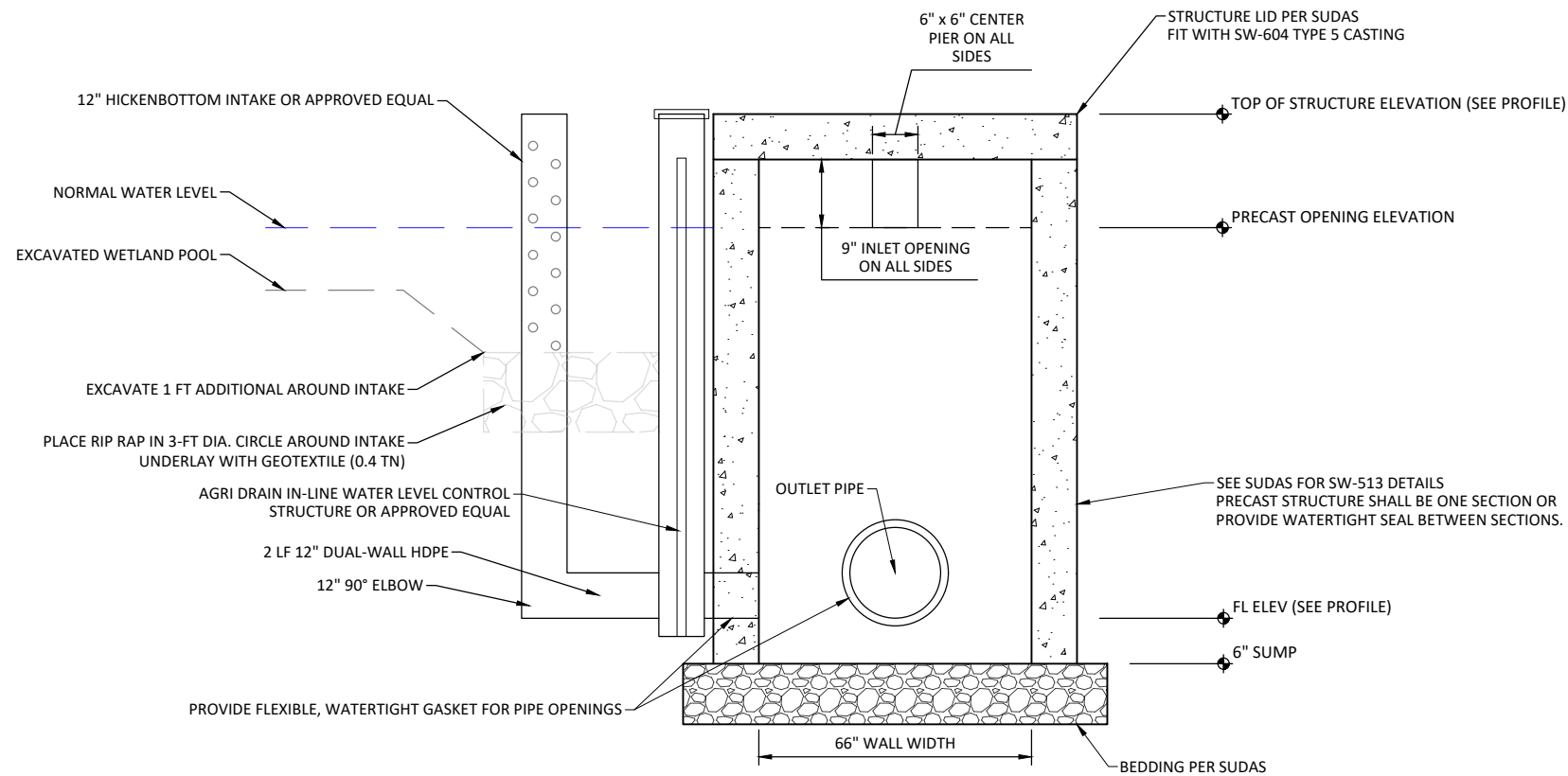
- 1 - STEEL SHEET - 60" x 24" x 3/8"  
 2 - STEEL SHEETS - 48" x 24" x 3/8"  
 ANGLE IRON--EITHER WELDED OR BOLTED--ON TOP AND BOTTOM OF EACH SHEET AS BRACE  
 BOLT TRASH GUARD ONTO OUTLET STRUCTURE  
 GRADE AS NECESSARY TO ALLOW FLOW OF WATER UNDER TRASH GUARD WITH 6" MINIMUM CLEARANCE

### 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.

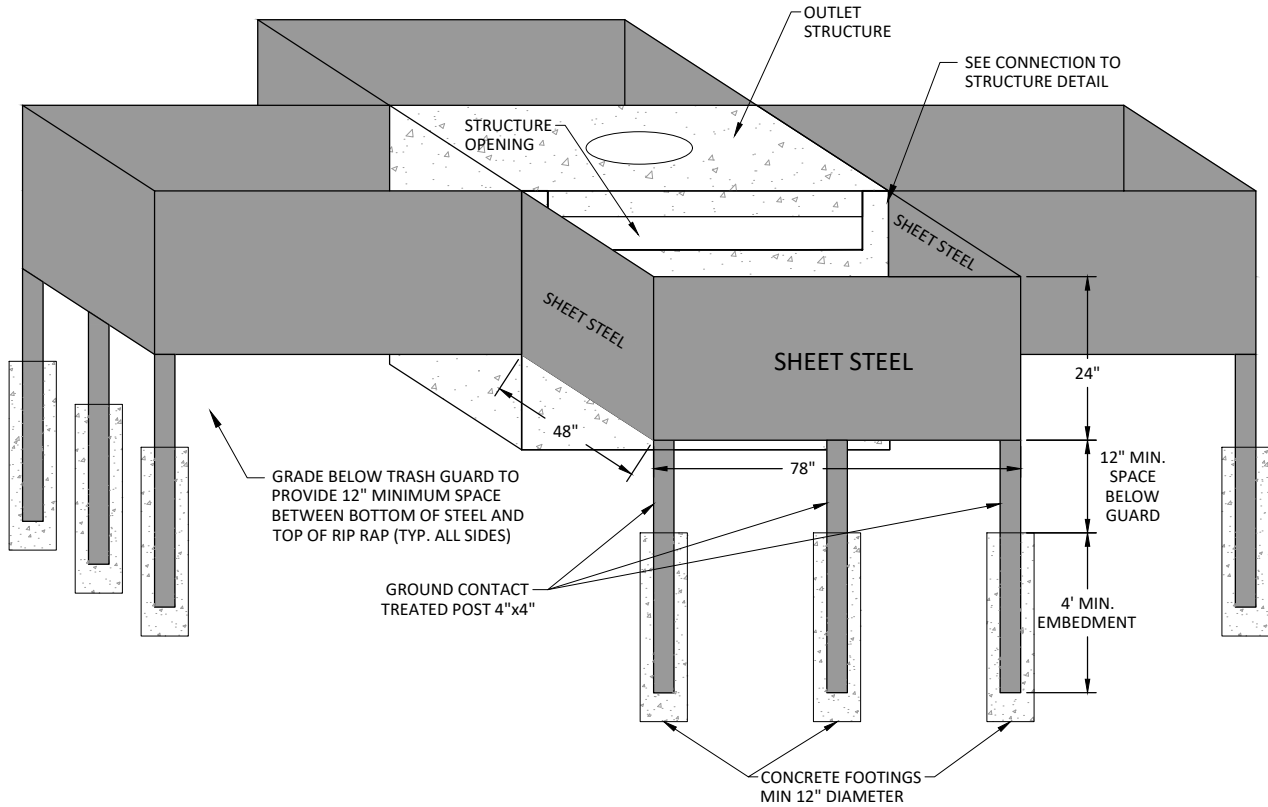


**PLAN**  
**MODIFIED SW-513**  
**OUTLET STRUCTURE**  
NOT TO SCALE

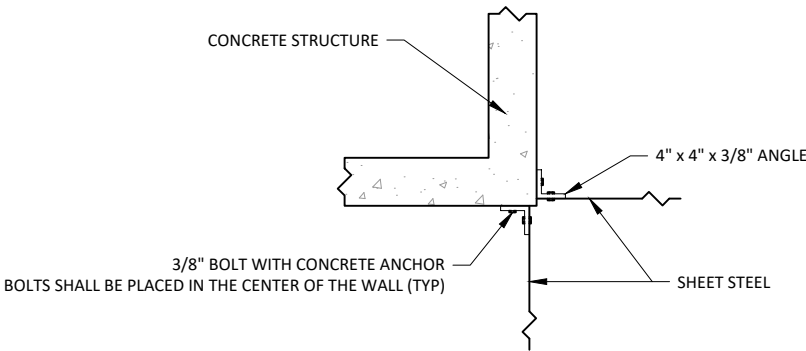


**SECTION**  
**MODIFIED SW-513**  
**OUTLET STRUCTURE**  
NOT TO SCALE

- NOTES:
1. ALL FASTENERS SHALL BE GALVANIZED OR STAINLESS STEEL.
  2. HICKENBOTTOM INTAKE, WATER LEVEL CONTROL STRUCTURE, DUAL-WALL HDPE, ELBOW, TRASH GUARD, CASTING, AND ALL HARDWARE AND APPURTENANCES SHOWN ON THIS PAGE OR REQUIRED FOR INSTALLATION ARE SUBSIDIARY TO THE OUTLET STRUCTURE.



**TRASH GUARD FOR WETLAND OUTLET STRUCTURE**  
NOT TO SCALE



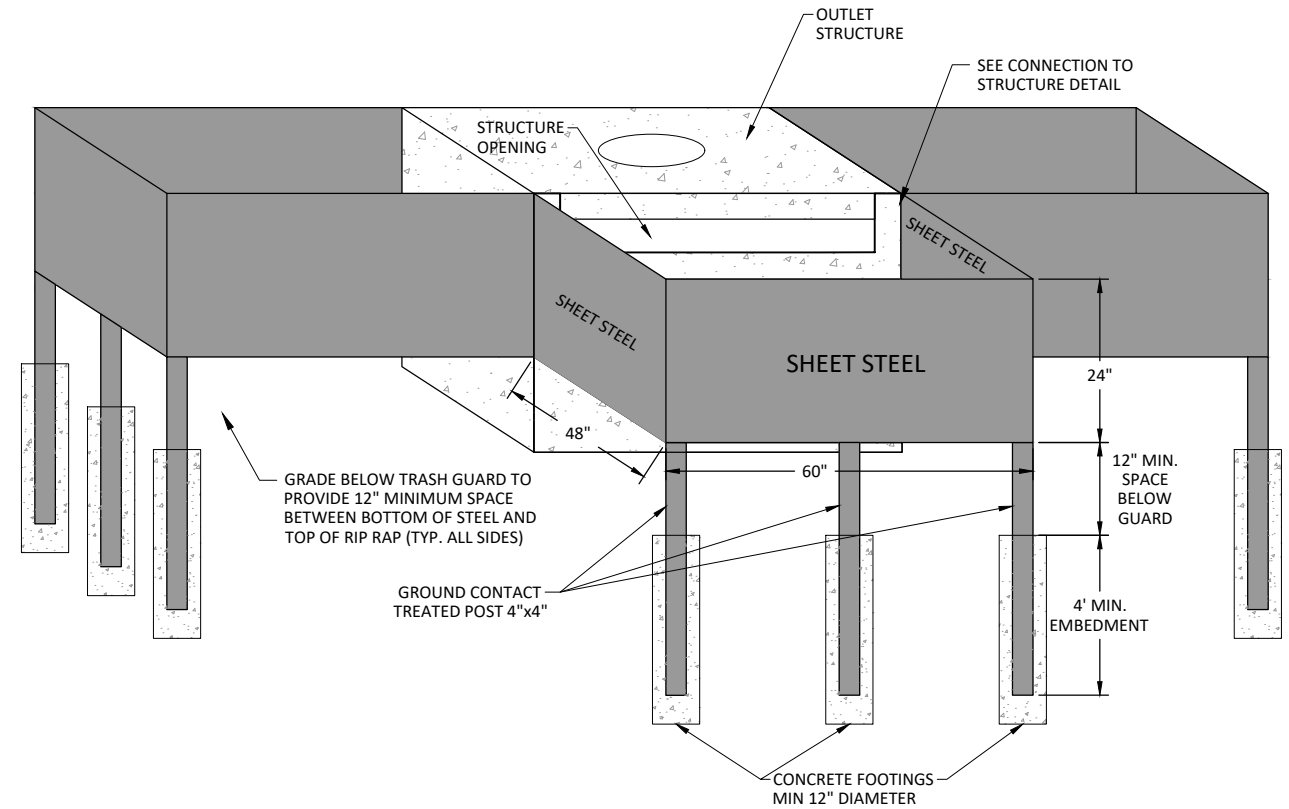
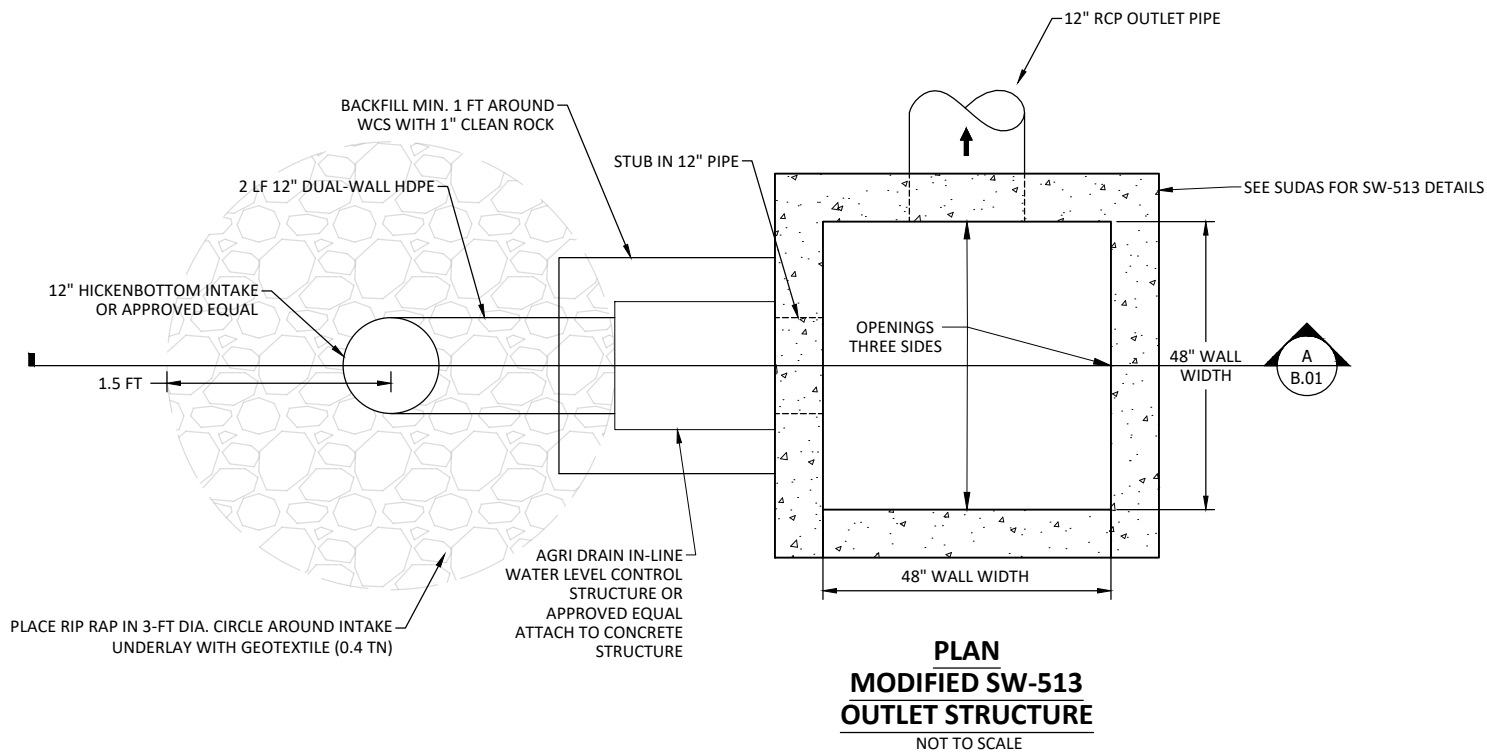
**TRASH GUARD CONNECTION TO STRUCTURE**  
NOT TO SCALE

**NOTE:** TRASH GUARD AND APPURTENANCES ARE TYPICAL FOR ALL SIDES OF OUTLET STRUCTURE. QUANTITIES AND DIMENSIONS FOR STEEL SHEETS PER SIDE OF STRUCTURE ARE AS FOLLOWS:

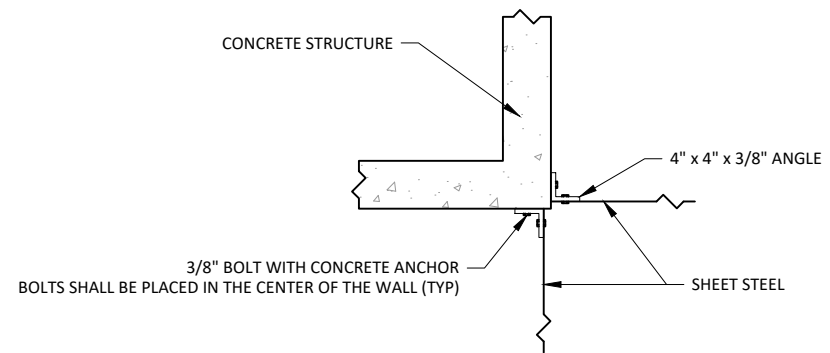
- 1 - STEEL SHEET - 78" x 24" x 3/8"
- 2 - STEEL SHEETS - 48" x 24" x 3/8"

ANGLE IRON--EITHER WELDED OR BOLTED--ON TOP AND BOTTOM OF EACH SHEET AS BRACE. BOLT TRASH GUARD ONTO ANGLE IRON ANCHORED TO OUTLET STRUCTURE. PROVIDE THREE POSTS WITH CONCRETE FOOTINGS ON EACH SIDE GRADE AS NECESSARY TO ALLOW FLOW OF WATER UNDER TRASH GUARD WITH 12" MINIMUM CLEARANCE.

ALL FASTENERS SHALL BE GALVANIZED OR STAINLESS STEEL



**TRASH GUARD FOR WETLAND OUTLET STRUCTURE**  
NOT TO SCALE



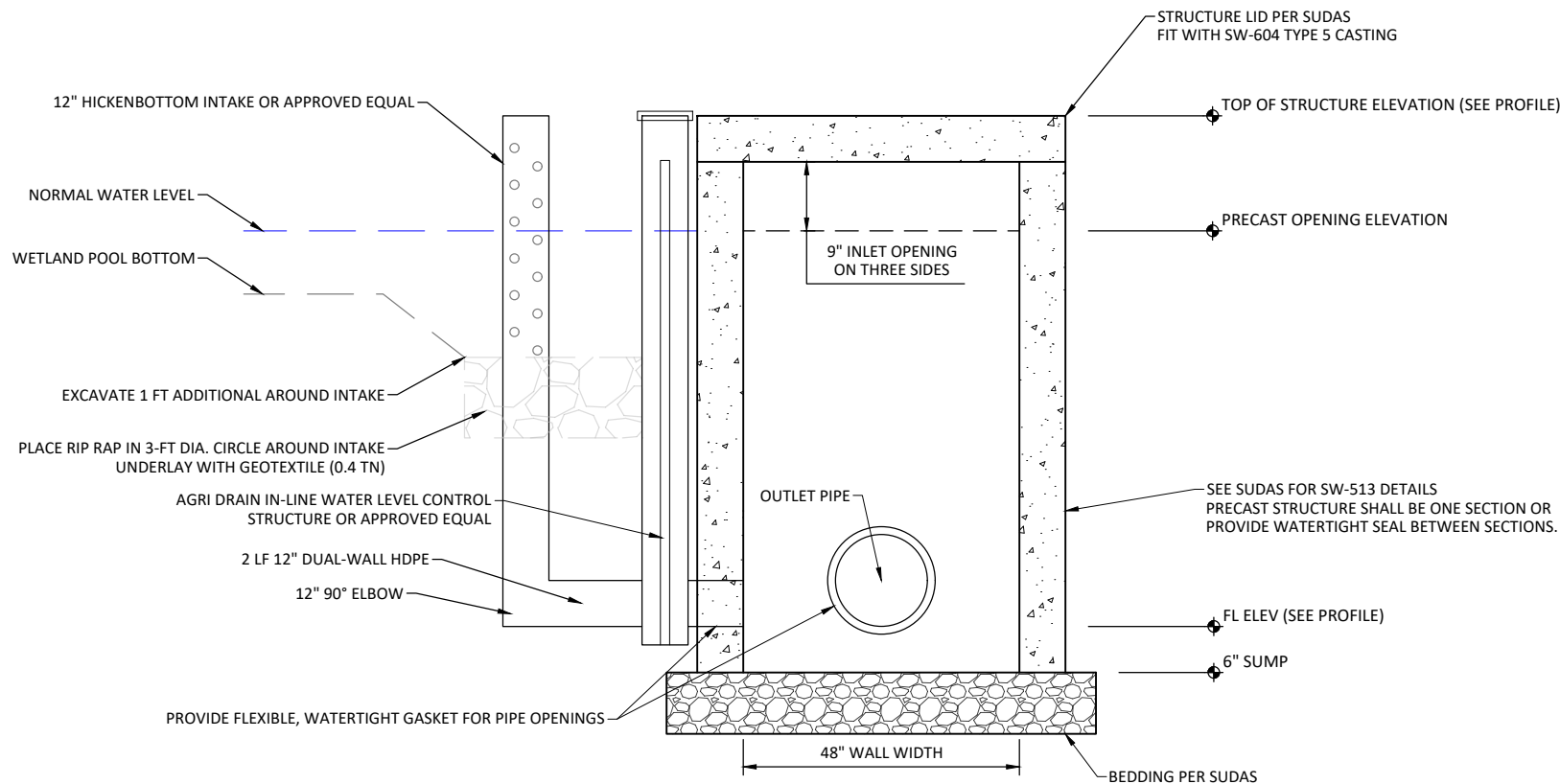
**TRASH GUARD CONNECTION TO STRUCTURE**  
NOT TO SCALE

**NOTE:** TRASH GUARD AND APPURTENANCES ARE TYPICAL FOR THREE SIDES OF OUTLET STRUCTURE. QUANTITIES AND DIMENSIONS FOR STEEL SHEETS PER SIDE OF STRUCTURE ARE AS FOLLOWS:

- 1 - STEEL SHEET - 60" x 24" x 3/8"
- 2 - STEEL SHEETS - 48" x 24" x 3/8"

ANGLE IRON--EITHER WELDED OR BOLTED--ON TOP AND BOTTOM OF EACH SHEET AS BRACE. BOLT TRASH GUARD ONTO ANGLE IRON ANCHORED TO OUTLET STRUCTURE. PROVIDE THREE POSTS WITH CONCRETE FOOTINGS ON EACH SIDE GRADE AS NECESSARY TO ALLOW FLOW OF WATER UNDER TRASH GUARD WITH 12" MINIMUM CLEARANCE.

ALL FASTENERS SHALL BE GALVANIZED OR STAINLESS STEEL



**SECTION**  
**MODIFIED SW-513**  
**OUTLET STRUCTURE**  
NOT TO SCALE

**NOTES:**

1. ALL FASTENERS SHALL BE GALVANIZED OR STAINLESS STEEL.
2. HICKENBOTTOM INTAKE, WATER LEVEL CONTROL STRUCTURE, DUAL-WALL HDPE, ELBOW, TRASH GUARD, CASTING, AND ALL HARDWARE AND APPURTENANCES SHOWN ON THIS PAGE OR REQUIRED FOR INSTALLATION ARE SUBSIDIARY TO THE OUTLET STRUCTURE.



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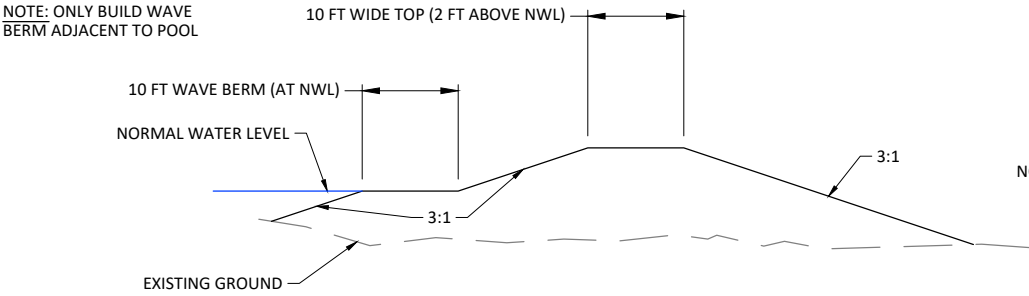
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| BCS              |     |             |      |
| BCS              |     |             |      |
| JPR              |     |             |      |
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SOUTHWEST POOL OUTLET STRUCTURE DETAIL

SHEET  
B.07

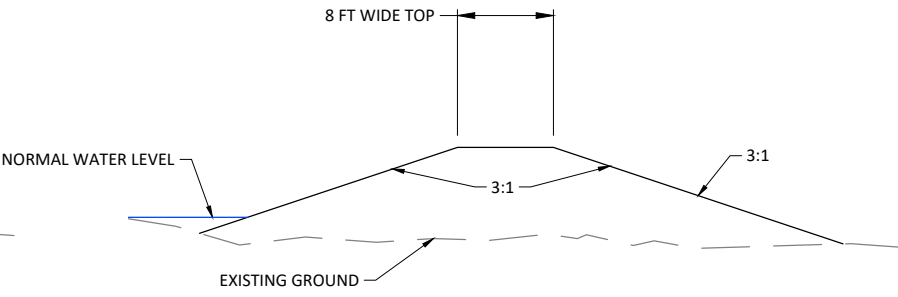
EAST EMBANKMENT  
TYPICAL CROSS SECTION

NOT TO SCALE

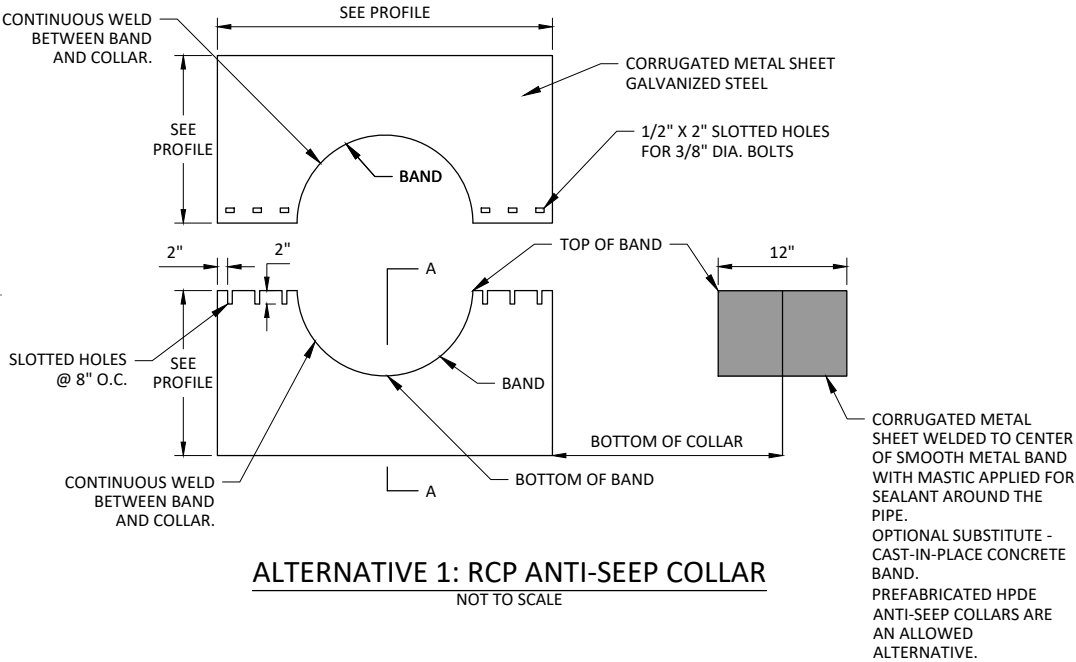


NW & SW EMBANKMENTS  
TYPICAL CROSS SECTION

NOT TO SCALE

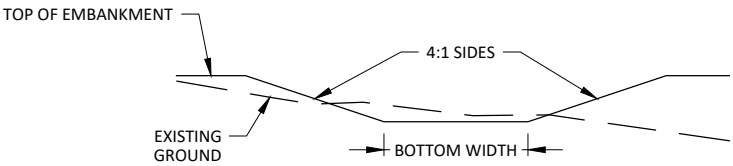


ANTI-SEEP COLLAR DETAILS



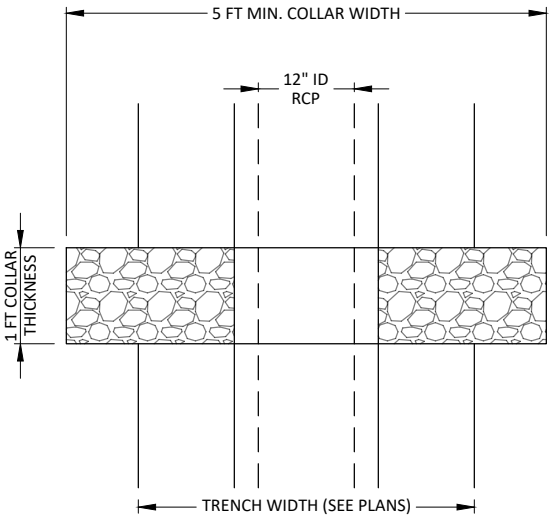
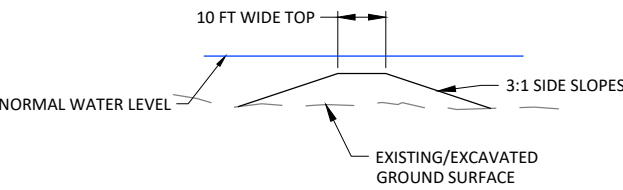
AUXILIARY SPILLWAY SECTION THROUGH EMBANKMENT

NOT TO SCALE



DIVERSION BERM TYPICAL CROSS SECTION

NOT TO SCALE



- NOTES:
1. COMPOSITE BENTONITE AGGREGATE (CBA) SHALL BE AQUABLOK OR APPROVED EQUAL.
  2. COLLAR SHALL EXTEND 1.75 FT BELOW BOTTOM OF PIPE AND 1.75 FT ABOVE TOP OF PIPE
  3. COLLAR SHALL BE A MINIMUM OF 5 FT WIDE AND EXTEND A MINIMUM OF 6" BEYOND EDGE OF TRENCH
  4. NO COMPACTION OF CBA IS REQUIRED.
  5. EXCAVATE AND BACKFILL THE REMAINDER OF THE TRENCH AS NOTED IN THE PLANS.

ALTERNATIVE 2: COMPOSITE BENTONITE AGGREGATE COLLAR

NOT TO SCALE



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| BCS              |     |             |      |
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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

WOR982210D (D PETERSBURG)

TYPICAL CROSS SECTION DETAILS

SHEET

B.08

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A:\DMS\24X135549\001\CD\CD135549.dwg 10/7/2025 9:43:28 AM

| Bid Item | Sub-Item | Description                                               | Specifications |      | Plan No.  | West Est.<br>Quantity | East Est.<br>Quantity | TOTAL Estimated |      |
|----------|----------|-----------------------------------------------------------|----------------|------|-----------|-----------------------|-----------------------|-----------------|------|
|          |          |                                                           | No.            | Page |           |                       |                       | Quantity        | Unit |
| 1        | -        | Site Stripping & Preparation                              | IA CS-001      | 3    | A.02      | 0.5                   | 0.5                   | 1               | LS   |
| 2        | -        | Crop Damage                                               | IA CS-001      |      |           | 0                     | 0                     | 0               | AC   |
| 3        | -        | Structure and Channel Seeding                             | IA CS-006      | 7    | K.01      | 1.2                   | 0.4                   | 1.6             | AC   |
| 4        | -        | Buffer Seeding                                            | IA CS-006      | 7    | K.01      | 0                     | 0.9                   | 0.9             | AC   |
| 5        | -        | Mobilization and Demobilization                           | IA CS-008      | 11   |           | 0.5                   | 0.5                   | 1               | LS   |
| 6        | -        | Headwall and Tile Removal                                 | IA CS-009      | 14   | A.03      | 1                     | 1                     | 2               | HR   |
| 7        | -        | Excavation (General)                                      | IA CS-021      | 20   | D.01      | 2752                  | 0                     | 2752            | CY   |
| 8        | -        | Earthfill (General)                                       | IA CS-023      | 23   | D.01      | 165                   | 100                   | 265             | CY   |
| 9        | -        | Earthfill (General Dam)                                   | IA CS-023      | 23   | D.01      | 2156                  | 845                   | 3001            | CY   |
| 10       | -        | Topsoil Placement                                         | IA CS-026      | 27   | D.01      | 1169                  | 327                   | 1496            | CY   |
| 11       | -        | Reinforced Concrete Pipe (RCP)                            |                |      |           |                       |                       |                 |      |
|          | 11.1     | 12" Dia. RCP                                              | IA CS-031      | 29   | M.03      | 60                    | 0                     | 60              | LF   |
|          | 11.2     | 18" Dia. RCP                                              | IA CS-031      | 29   | M.01      | 0                     | 180                   | 180             | LF   |
|          | 11.3     | 24" Dia. RCP                                              | IA CS-031      | 29   | M.02      | 38                    | 0                     | 38              | LF   |
|          | 11.4     | 30" Dia. RCP                                              | IA CS-031      | 29   | M.03      | 111                   | 0                     | 111             | LF   |
|          | 11.5     | 36" Dia. RCP                                              | IA CS-031      | 29   | M.02      | 70                    | 0                     | 70              | LF   |
| 12       | -        | Reinforced Concrete Apron, Footing, Bar Guard             |                |      |           |                       |                       |                 |      |
|          | 12.2     | 18" Dia.                                                  | IA CS-031      | 29   | M.01      | 0                     | 1                     | 1               | EA   |
| 13       | -        | 24" Reinforced Concrete Tee                               | IA CS-031      | 29   | M.02      | 1                     | 0                     | 1               | EA   |
| 14       | -        | Modified SW-401 Pump Basin                                | IA CS-031      | 29   | M.01      | 0                     | 1                     | 1               | EA   |
| 15       | -        | Modified SW-402 Pump Basin                                | IA CS-031      | 29   | M.02      | 1                     | 0                     | 1               | EA   |
| 16       | -        | Solar Pump System (3 HP Turbine)                          | IA CS-031      | 29   | M.01      | 0                     | 1                     | 1               | EA   |
| 17       | -        | Solar Pump System (1.5 HP Axial)                          | IA CS-031      | 29   | M.02      | 2                     | 0                     | 2               | EA   |
| 18       | -        | Concrete Strucutres (Inlet)                               |                |      |           |                       |                       |                 |      |
|          | 18.1     | SW-512 Circular Area Intake (18")                         | IA CS-031      | 29   | M.02      | 2                     | 0                     | 2               | EA   |
| 19       | -        | Concrete Strucutres (Outlet)                              |                |      |           |                       |                       |                 |      |
|          | 19.1     | Modified SW-513 Outlet Structure (One-Sided, 48" x 48")   | IA CS-031      | 29   | M.01      | 0                     | 1                     | 1               | EA   |
|          | 19.2     | Modified SW-513 Outlet Structure (Three-Sided, 48" x 48") | IA CS-031      | 29   | M.03      | 1                     | 0                     | 1               | EA   |
|          | 19.3     | Modified SW-513 Outlet Structure (Four-Sided, 66" x 66")  | IA CS-031      | 29   | M.03      | 1                     | 0                     | 1               | EA   |
| 20       | -        | 6" Dia. PVC Pipe                                          | IA CS-045      | 36   | M.02      | 236                   | 0                     | 236             | LF   |
| 21       | -        | Tile Connection - 10" Dia. Or Smaller                     | IA CS-046      | 40   |           | 2                     | 1                     | 3               | EA   |
| 22       | -        | Tile Connection - 12" Dia. Or Larger                      | IA CS-046      | 40   | M.02      | 1                     | 1                     | 2               | EA   |
| 23       | -        | CMP Tile Outlet                                           |                |      |           |                       |                       |                 |      |
|          | 23.1     | 15" Dia.                                                  | IA CS-051      |      | M.03      | 1                     | 0                     | 1               | EA   |
|          | 23.2     | 24" Dia.                                                  | IA CS-051      |      | M.01      | 0                     | 1                     | 1               | EA   |
|          | 23.3     | 36" Dia.                                                  | IA CS-051      |      | M.03      | 1                     | 0                     | 1               | EA   |
|          | 23.4     | 42" Dia.                                                  | IA CS-051      |      | M.02      | 1                     | 0                     | 1               | EA   |
| 24       | -        | Riprap (Class E)                                          | IA CS-061      | 46   | M.01-M.03 | 99                    | 30                    | 129             | TN   |



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| DESIGNED         | BCS            |
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| CLIENT PROJ. NO. | 24X.135549.000 |

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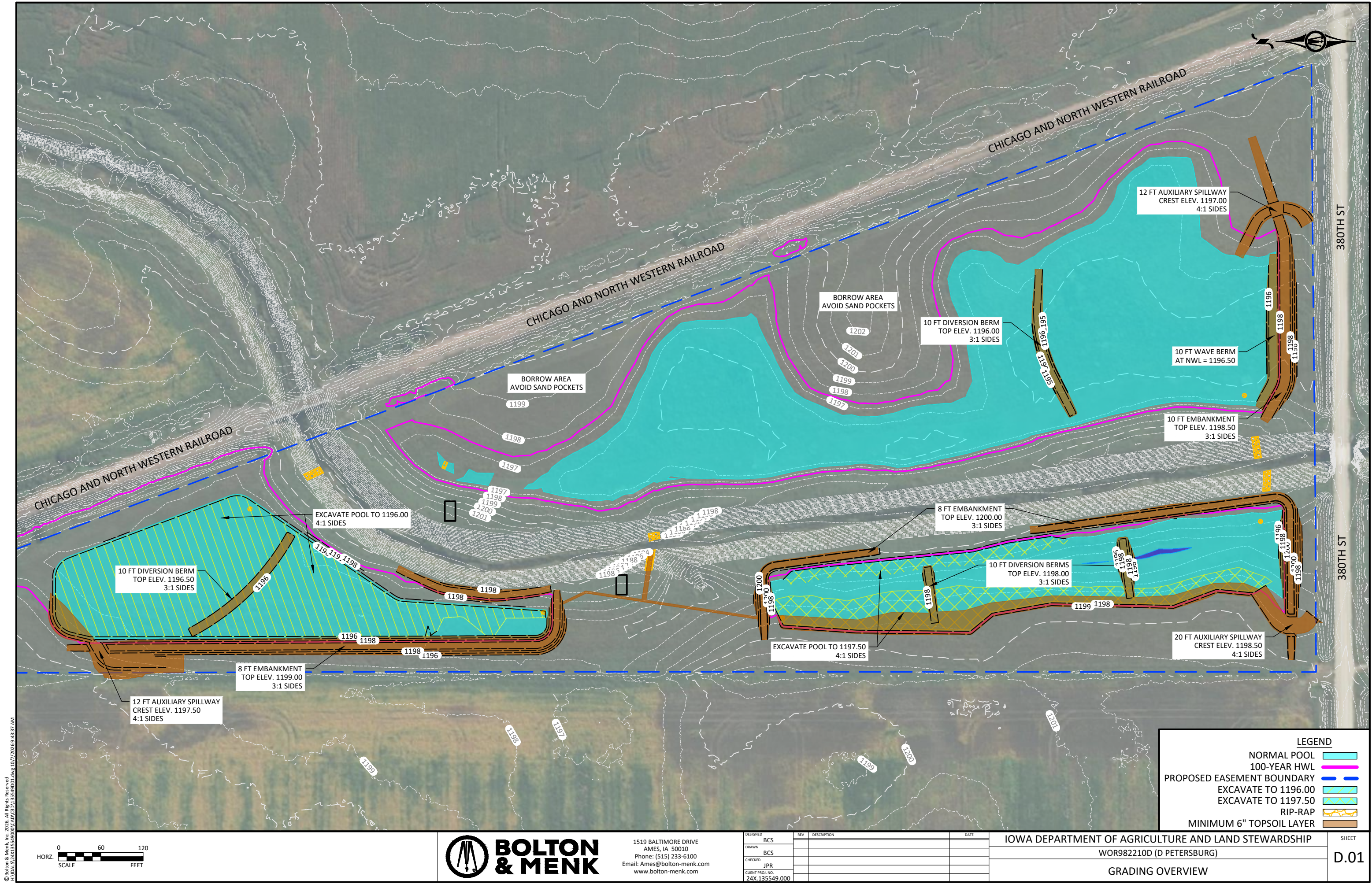
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

WOR982210D (D PETERSBURG)

ESTIMATED QUANTITIES

SHEET

C.01



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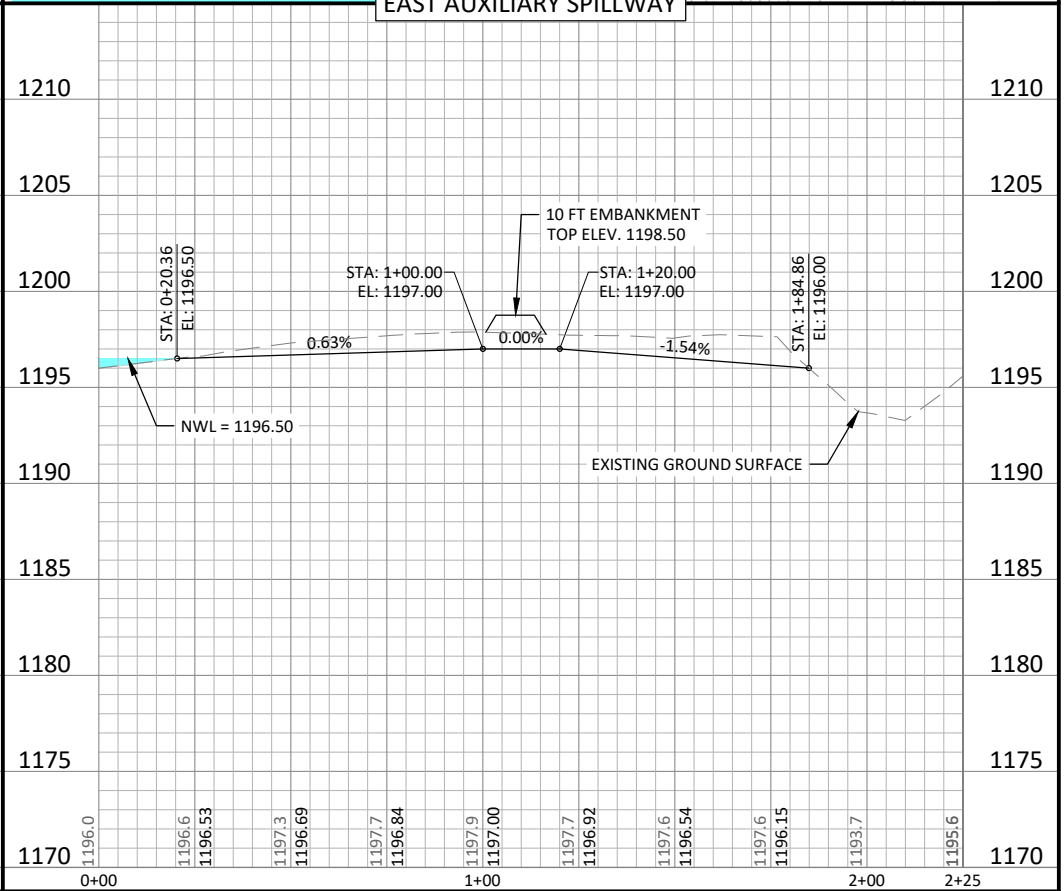
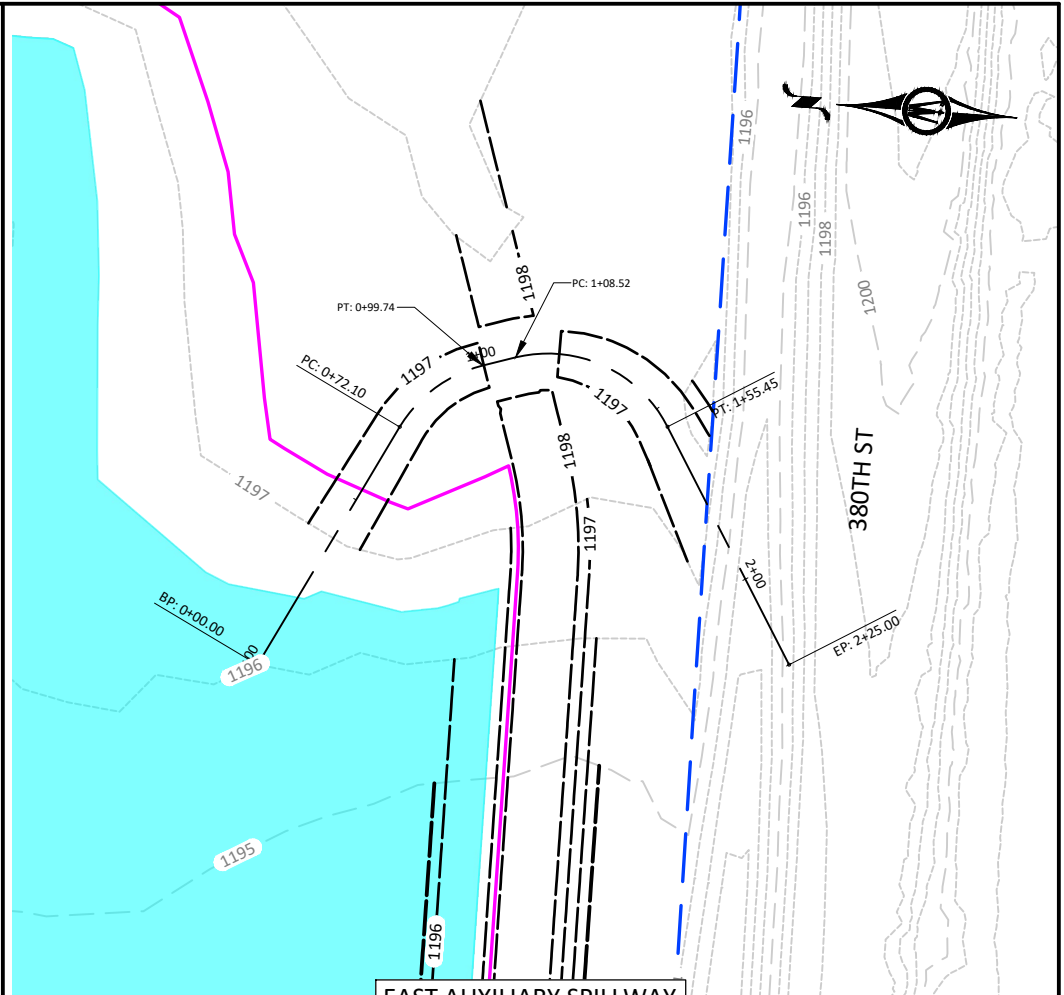
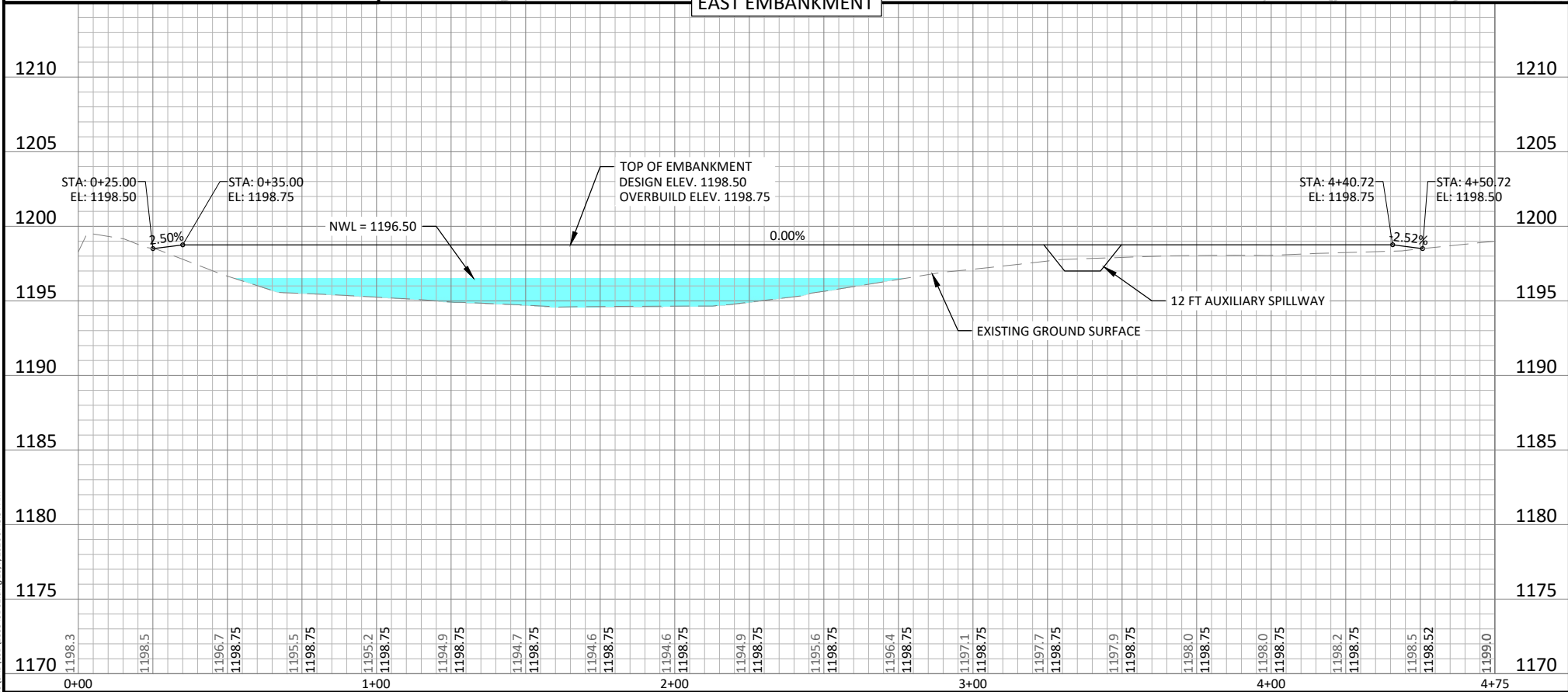
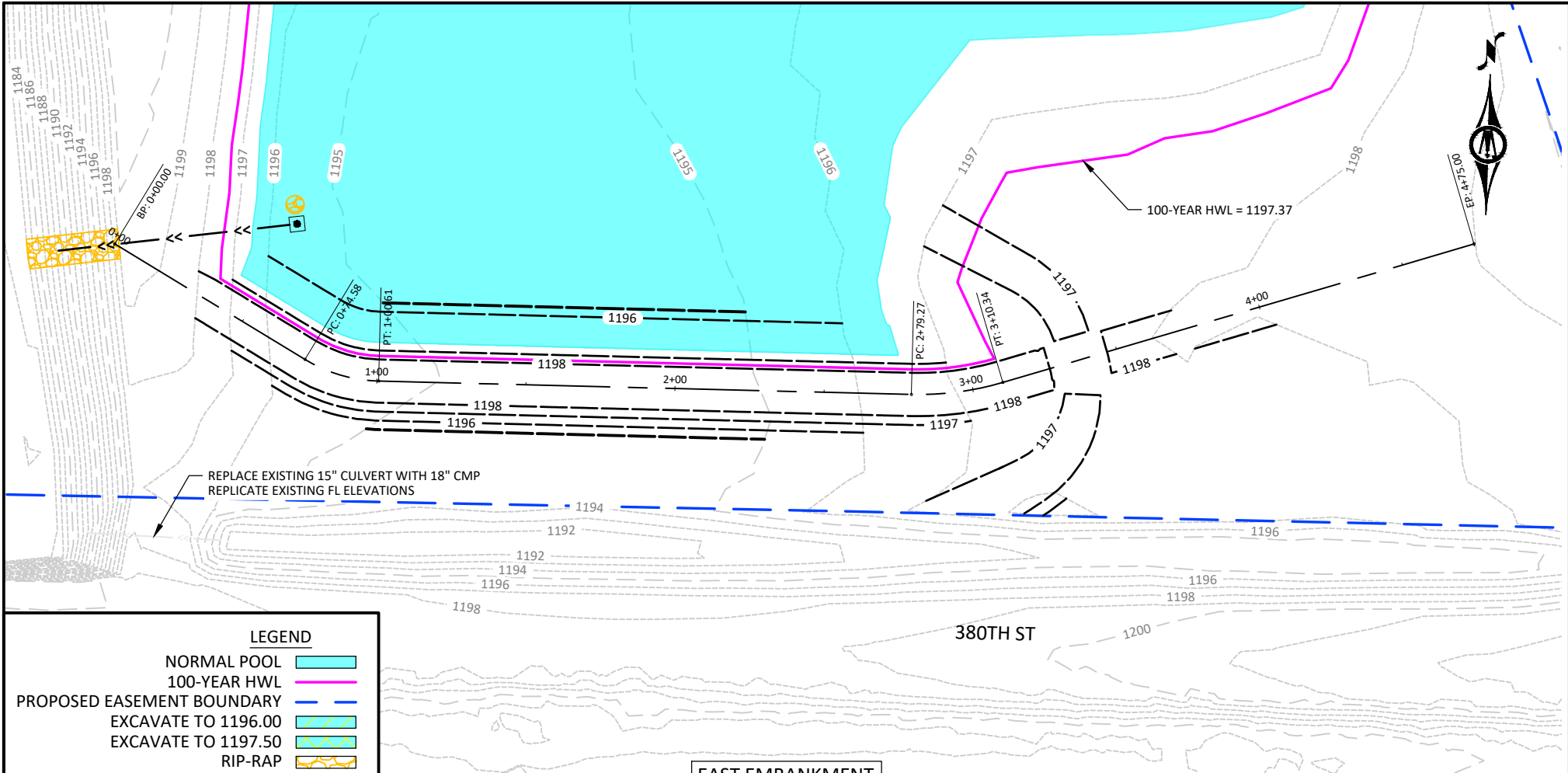
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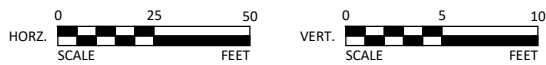
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
WOR982210D (D PETERSBURG)  
GRADING OVERVIEW

SHEET  
D.01

| LEGEND                     |  |
|----------------------------|--|
| NORMAL POOL                |  |
| 100-YEAR HWL               |  |
| PROPOSED EASEMENT BOUNDARY |  |
| EXCAVATE TO 1196.00        |  |
| EXCAVATE TO 1197.50        |  |
| RIP-RAP                    |  |
| MINIMUM 6" TOPSOIL LAYER   |  |



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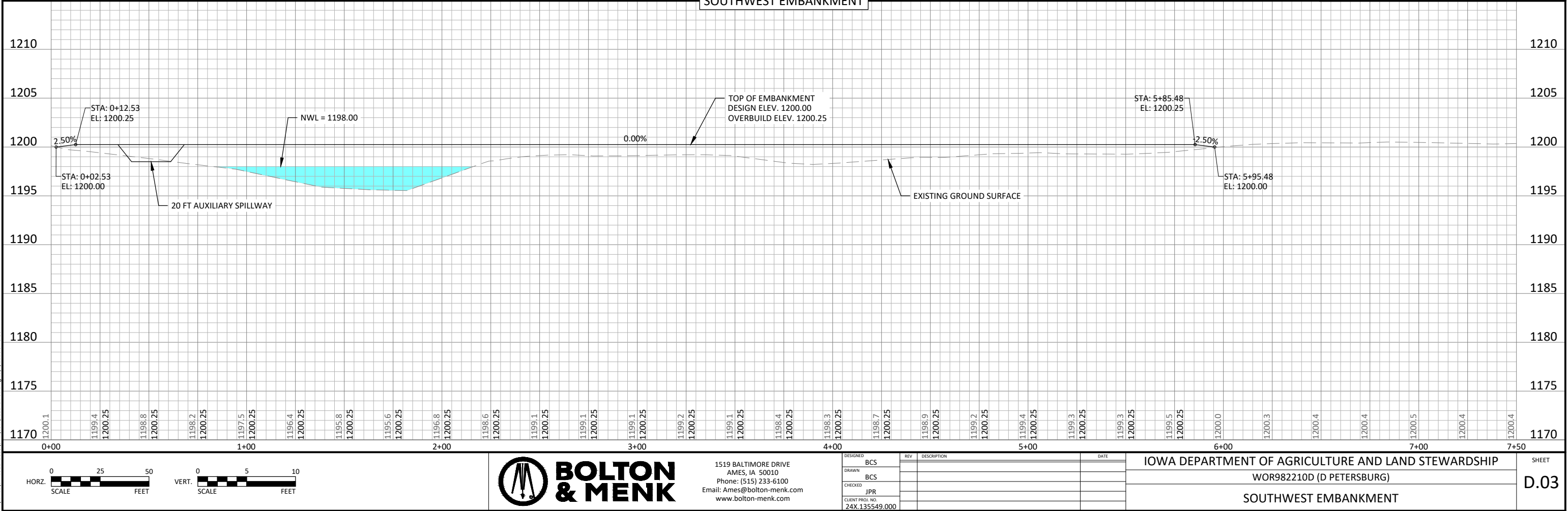
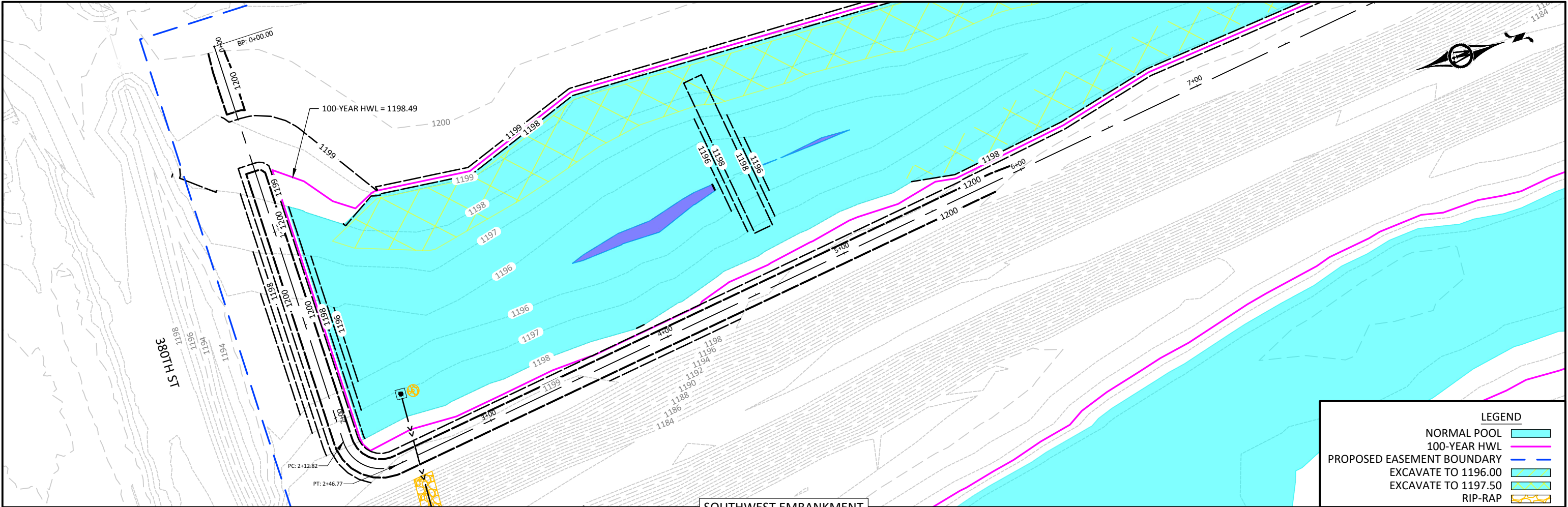


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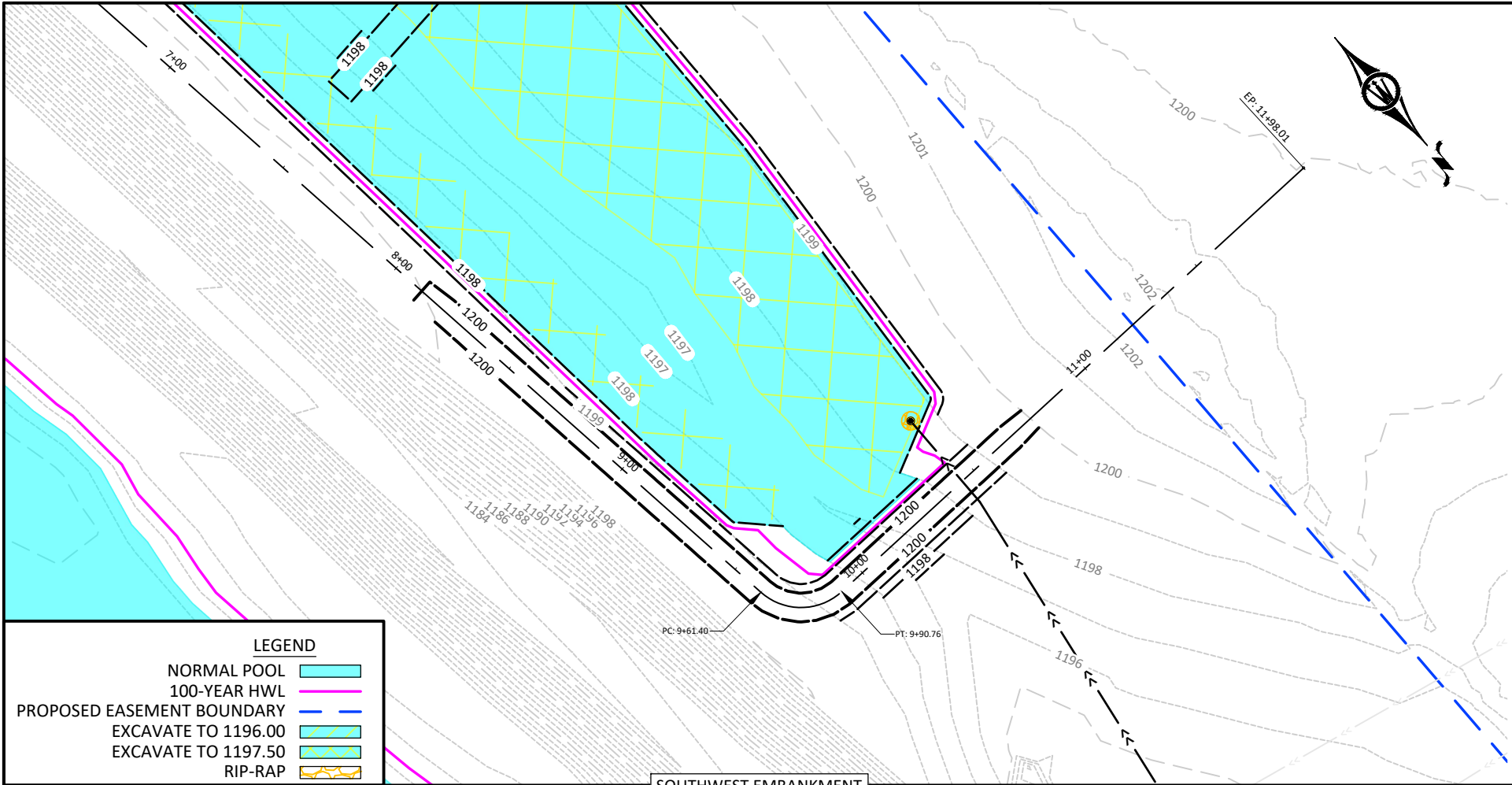
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| JPR              |     |             |      |
| CLIENT PROJ. NO. |     |             |      |
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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
WOR982210D (D PETERSBURG)  
EAST EMBANKMENT AND AUXILIARY SPILLWAY

SHEET  
D.02



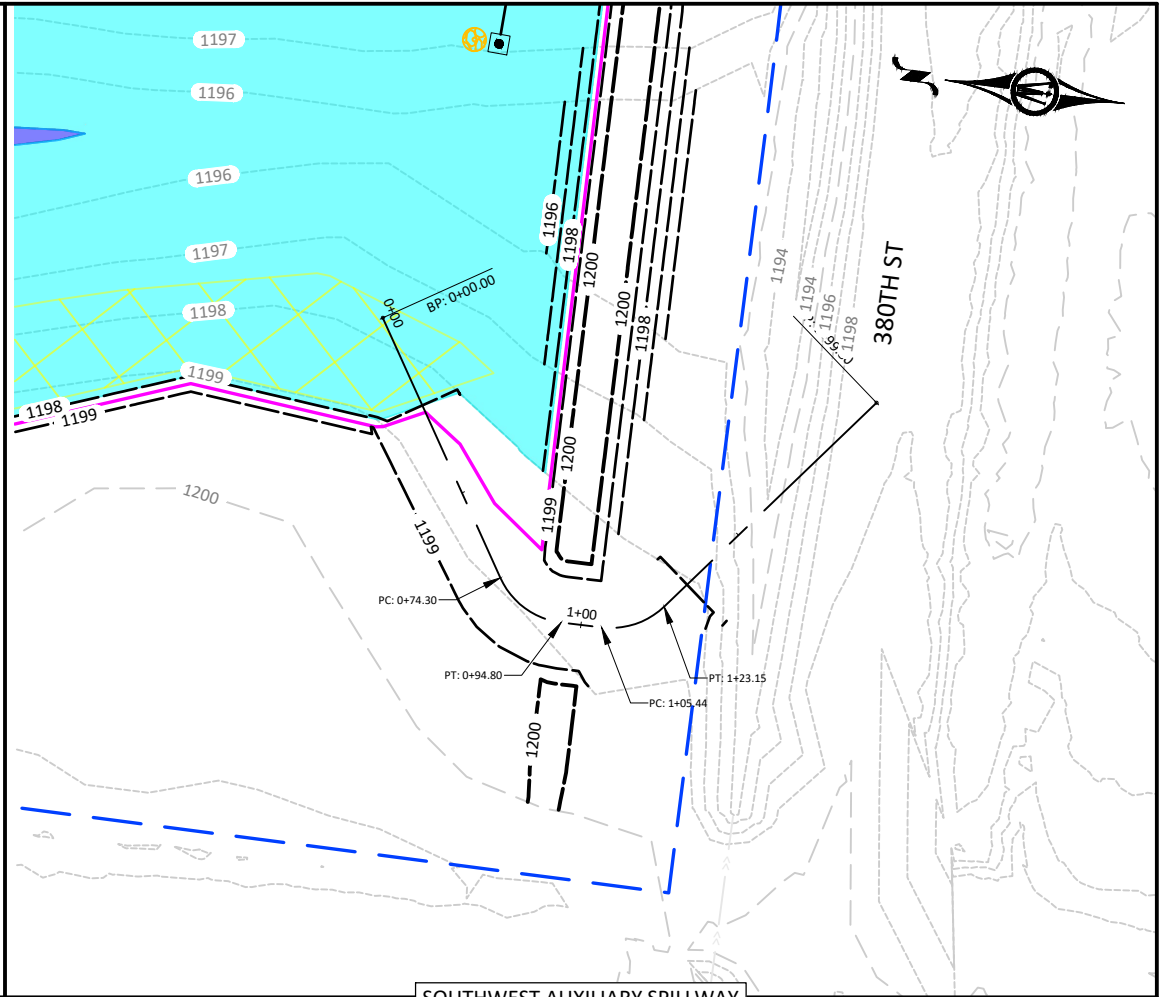
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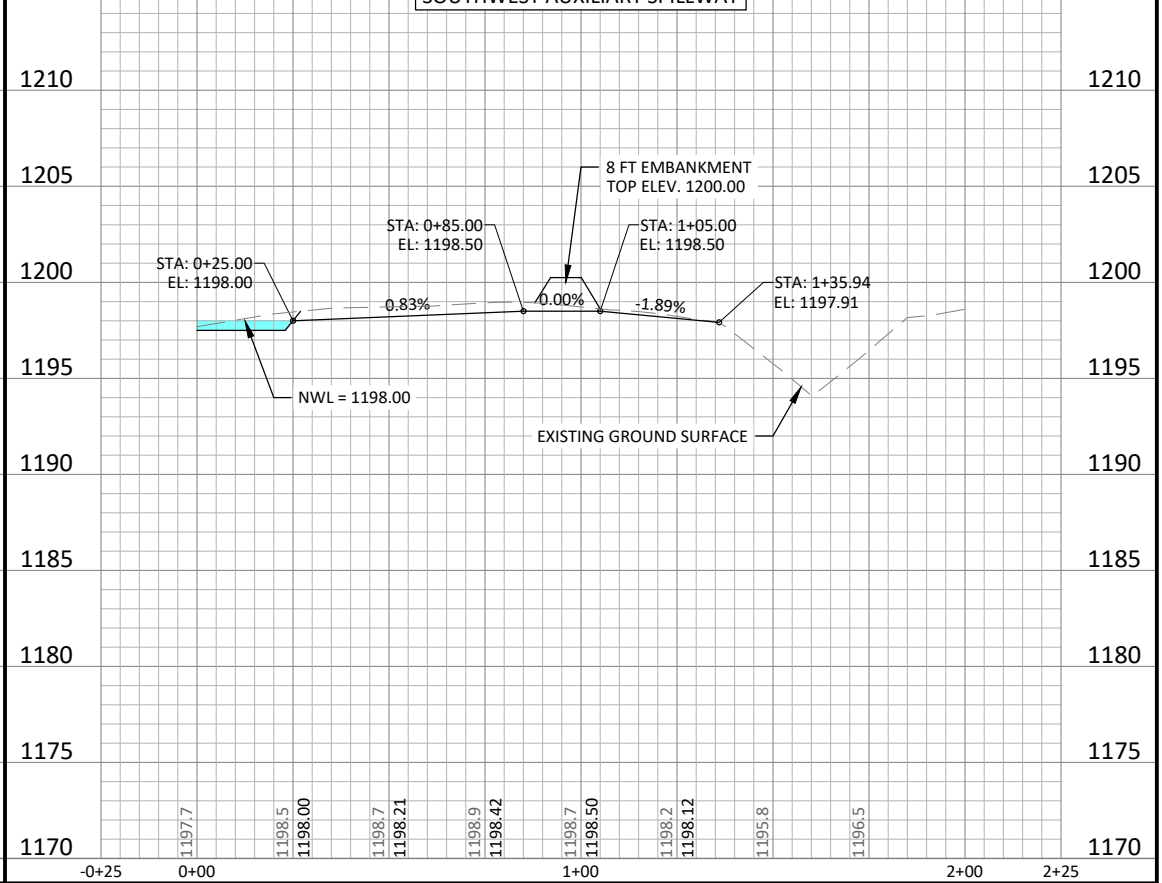
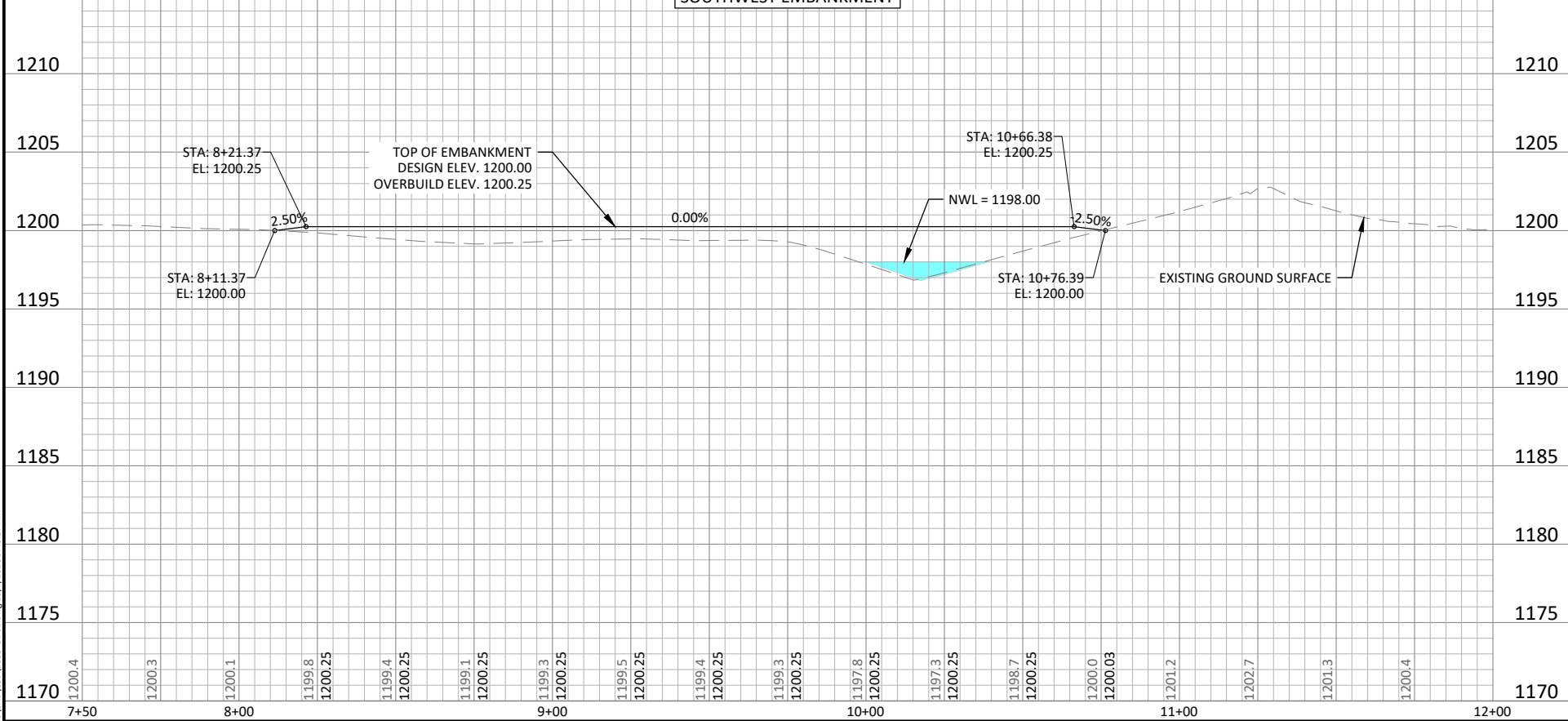
**LEGEND**

- NORMAL POOL
- 100-YEAR HWL
- PROPOSED EASEMENT BOUNDARY
- EXCAVATE TO 1196.00
- EXCAVATE TO 1197.50
- RIP-RAP

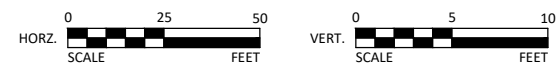
SOUTHWEST EMBANKMENT



SOUTHWEST AUXILIARY SPILLWAY



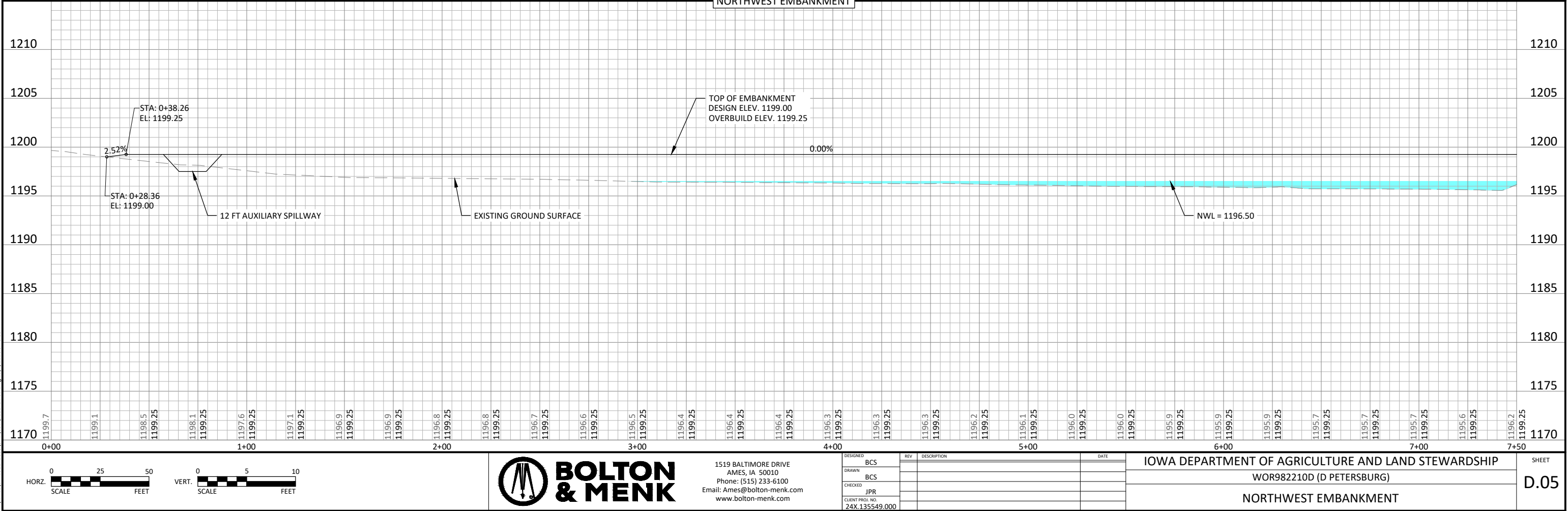
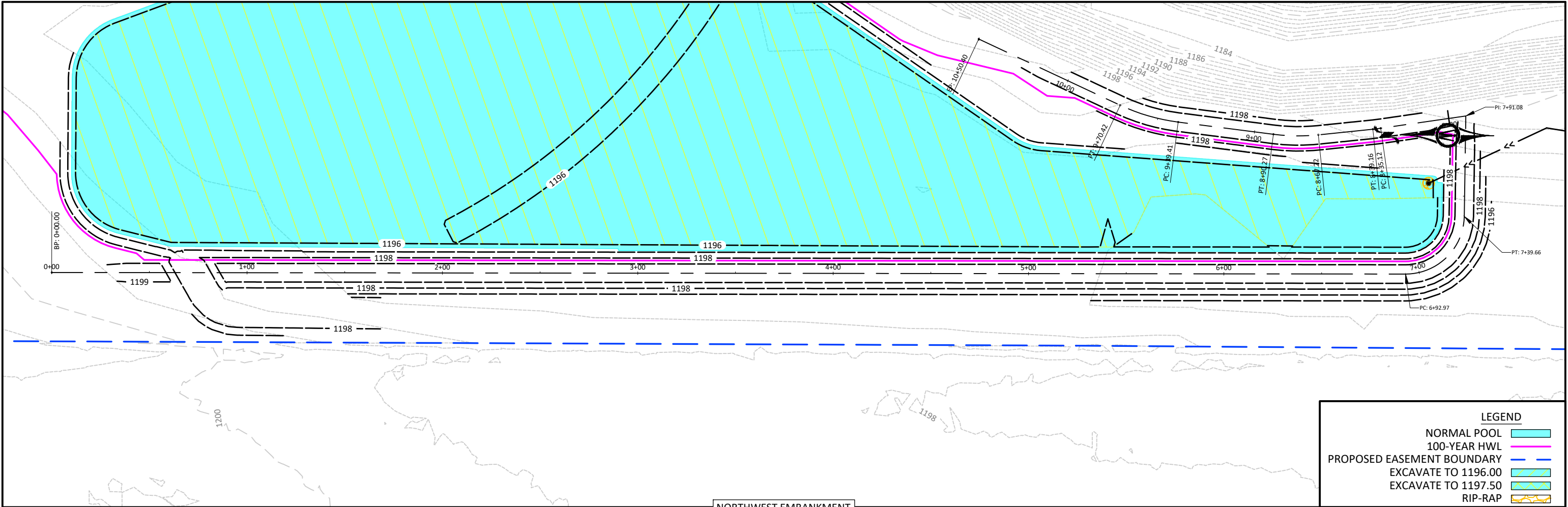
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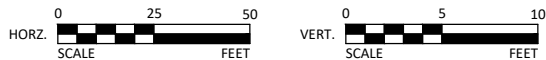
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|------------------|----------------|-----|-------------|------|
| DESIGNED         | BCS            | REV | DESCRIPTION | DATE |
| DRAWN            | BCS            |     |             |      |
| CHECKED          | JPR            |     |             |      |
| CLIENT PROJ. NO. | 24X.135549.000 |     |             |      |

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| IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP | SHEET<br><br>D.04 |
| WOR982210D (D PETERSBURG)                           |                   |
| SOUTHWEST EMBANKMENT (CONT.) & AUXILIARY SPILLWAY   |                   |



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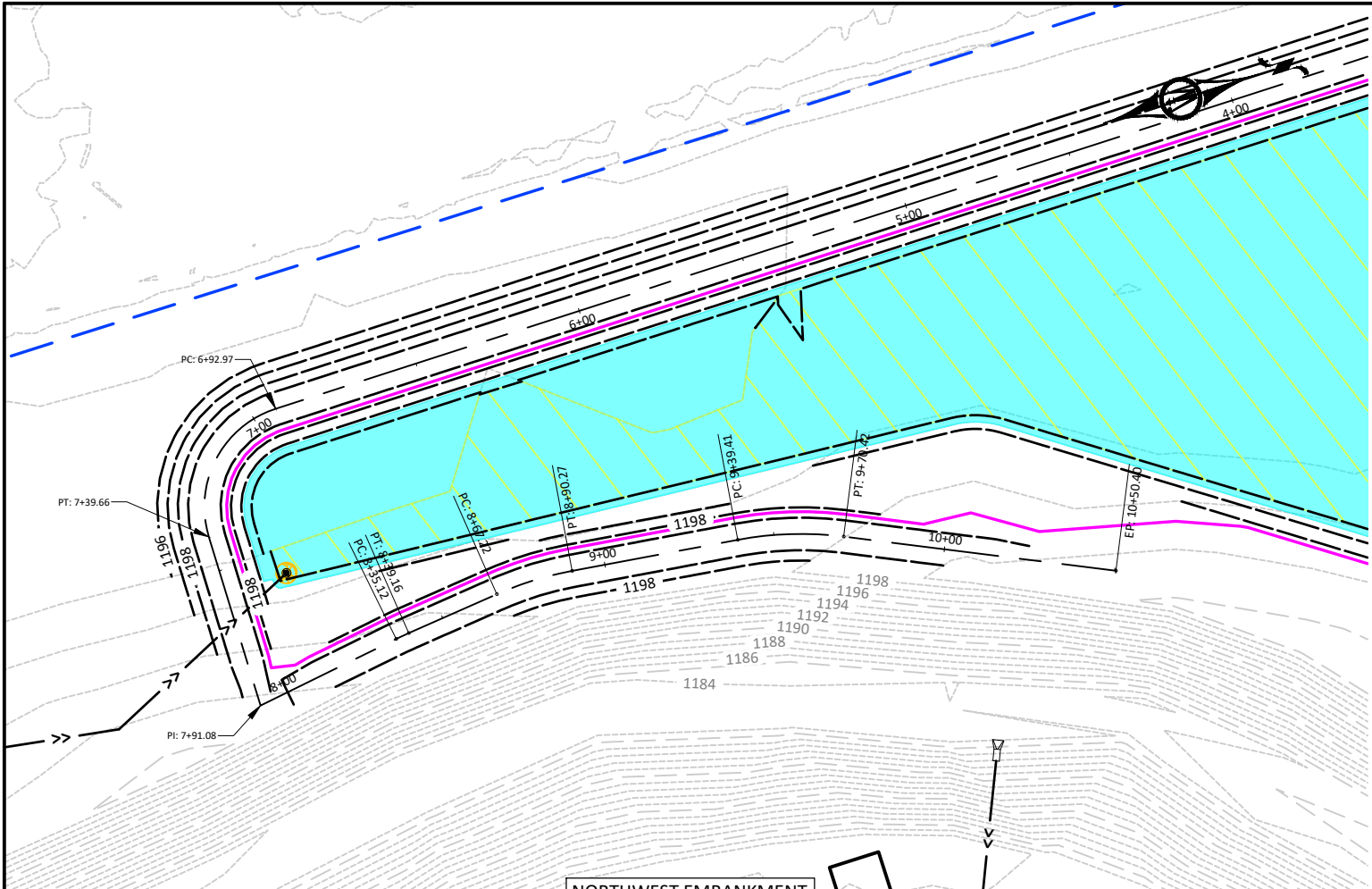


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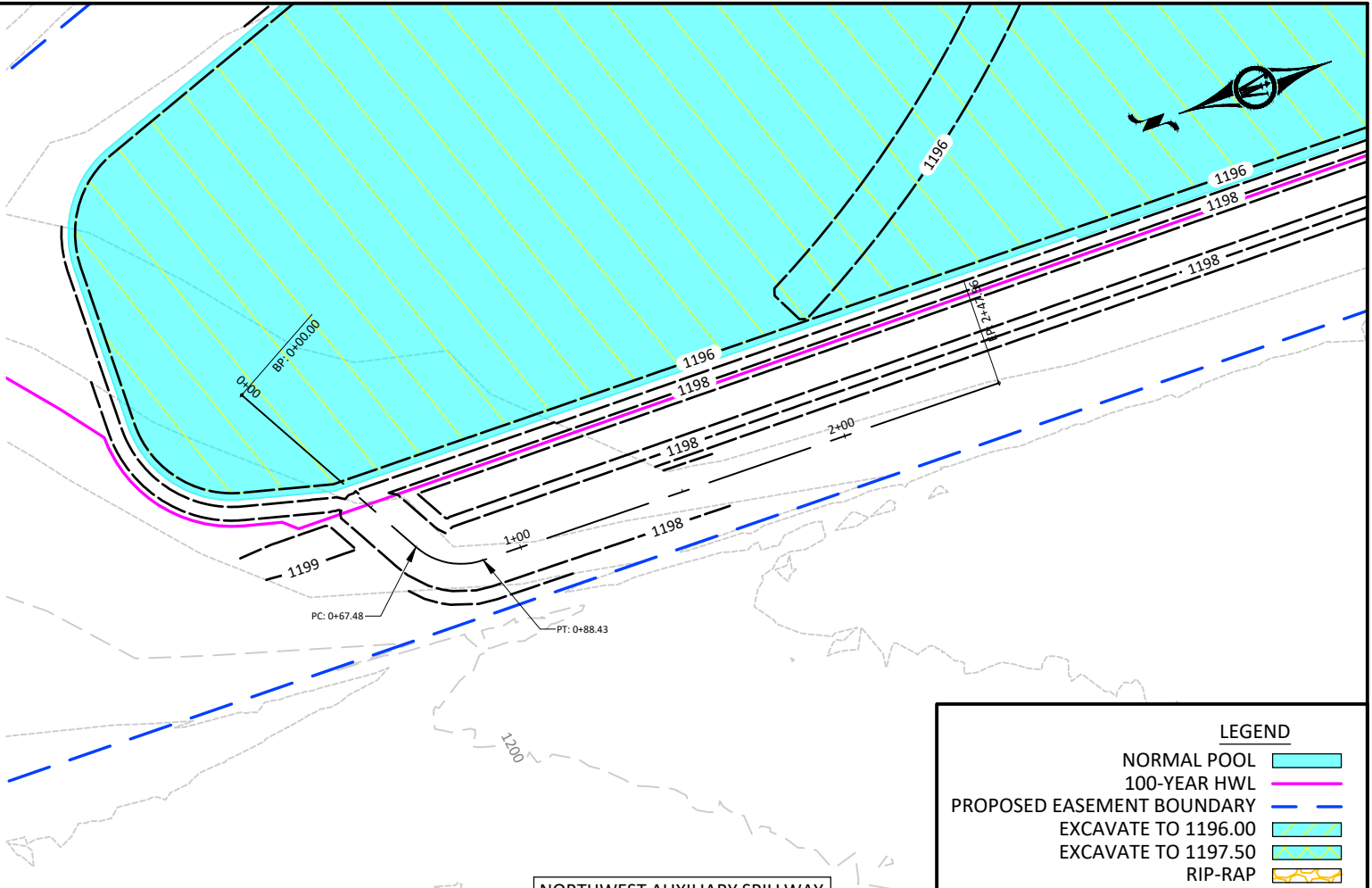
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WOR9822210D (D PETERSBURG)  
NORTHWEST EMBANKMENT

SHEET  
D.05



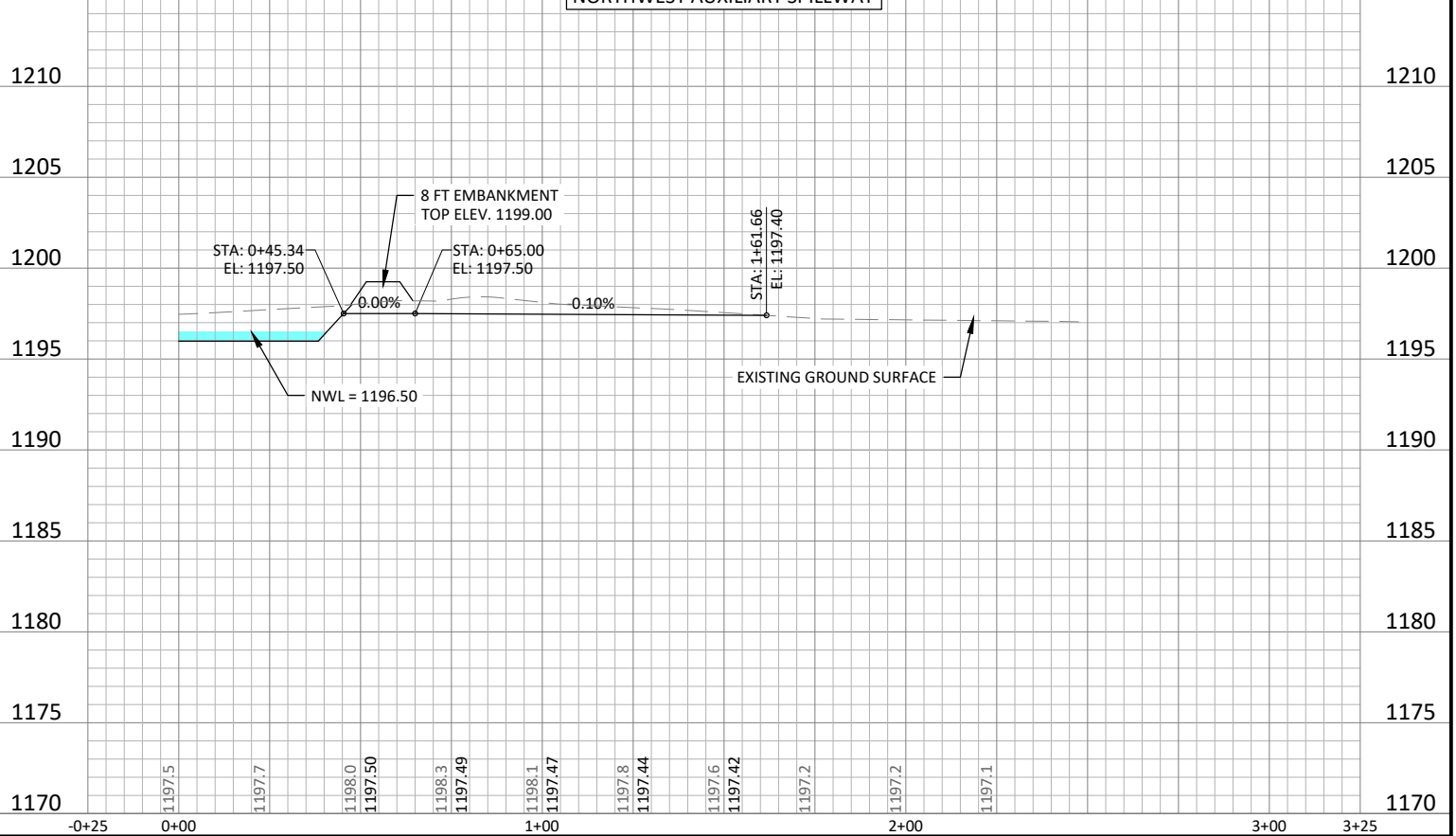
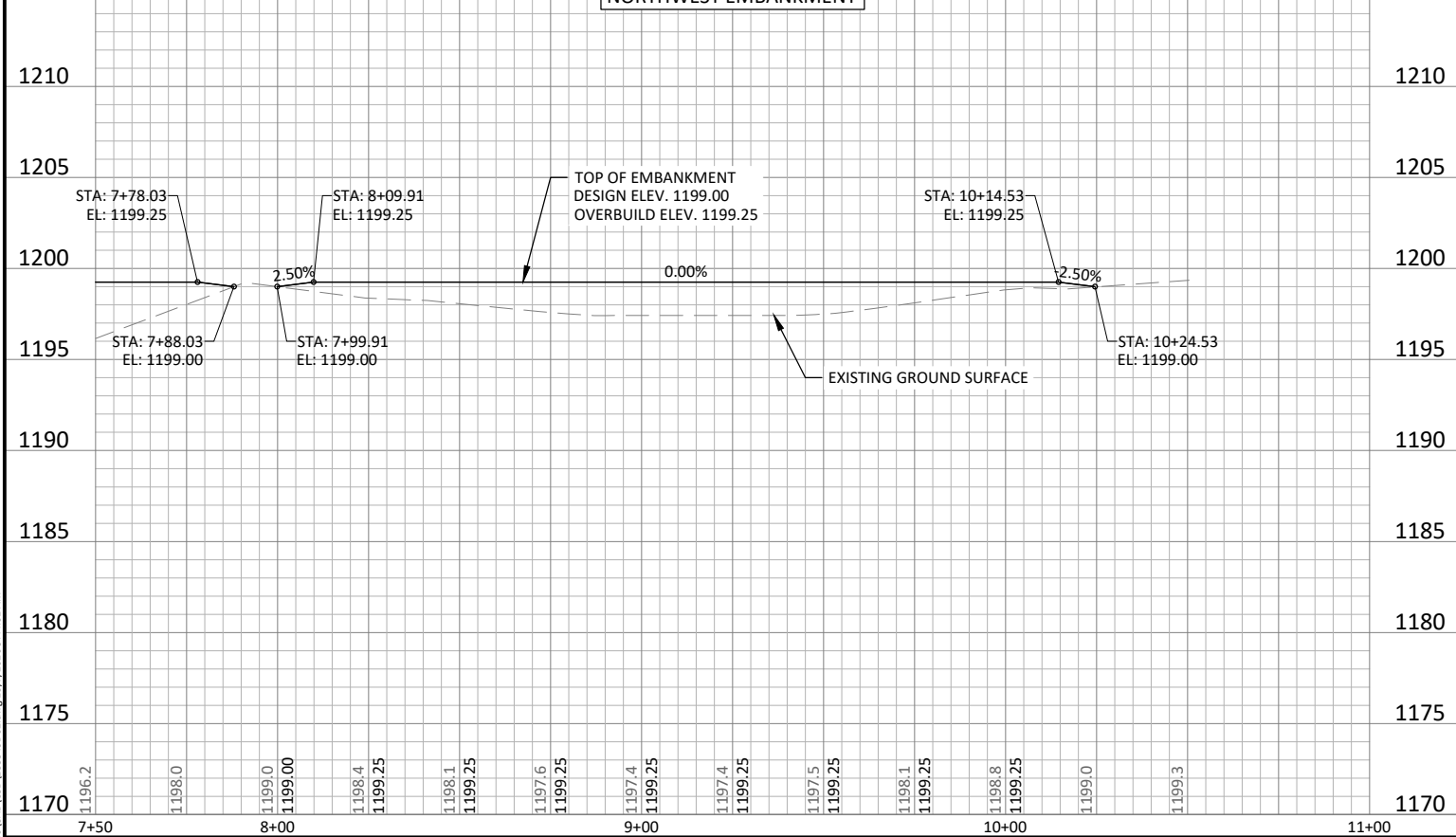
NORTHWEST EMBANKMENT



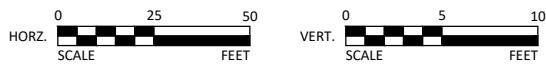
NORTHWEST AUXILIARY SPILLWAY

**LEGEND**

- NORMAL POOL
- 100-YEAR HWL
- PROPOSED EASEMENT BOUNDARY
- EXCAVATE TO 1196.00
- EXCAVATE TO 1197.50
- RIP-RAP



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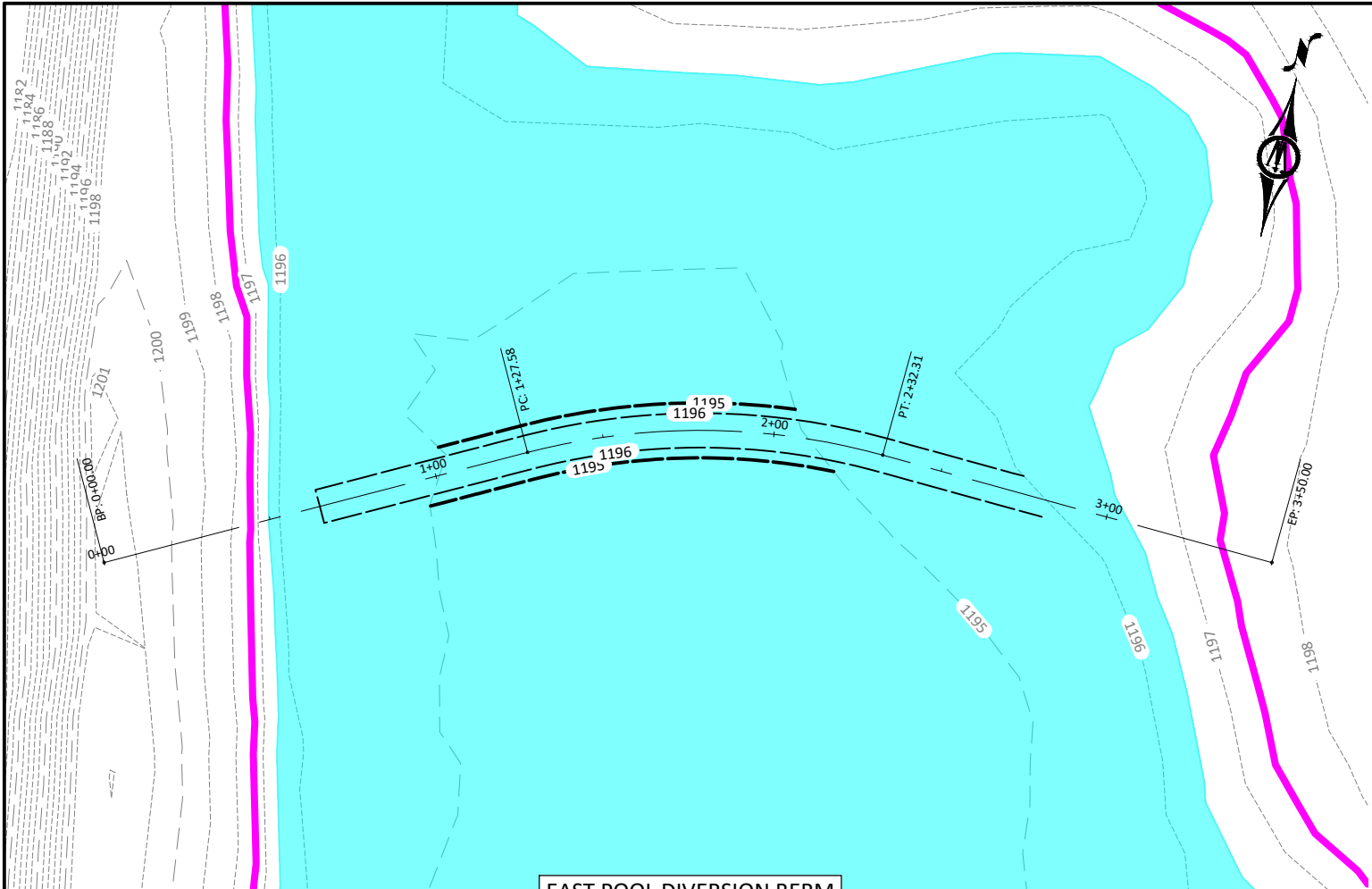


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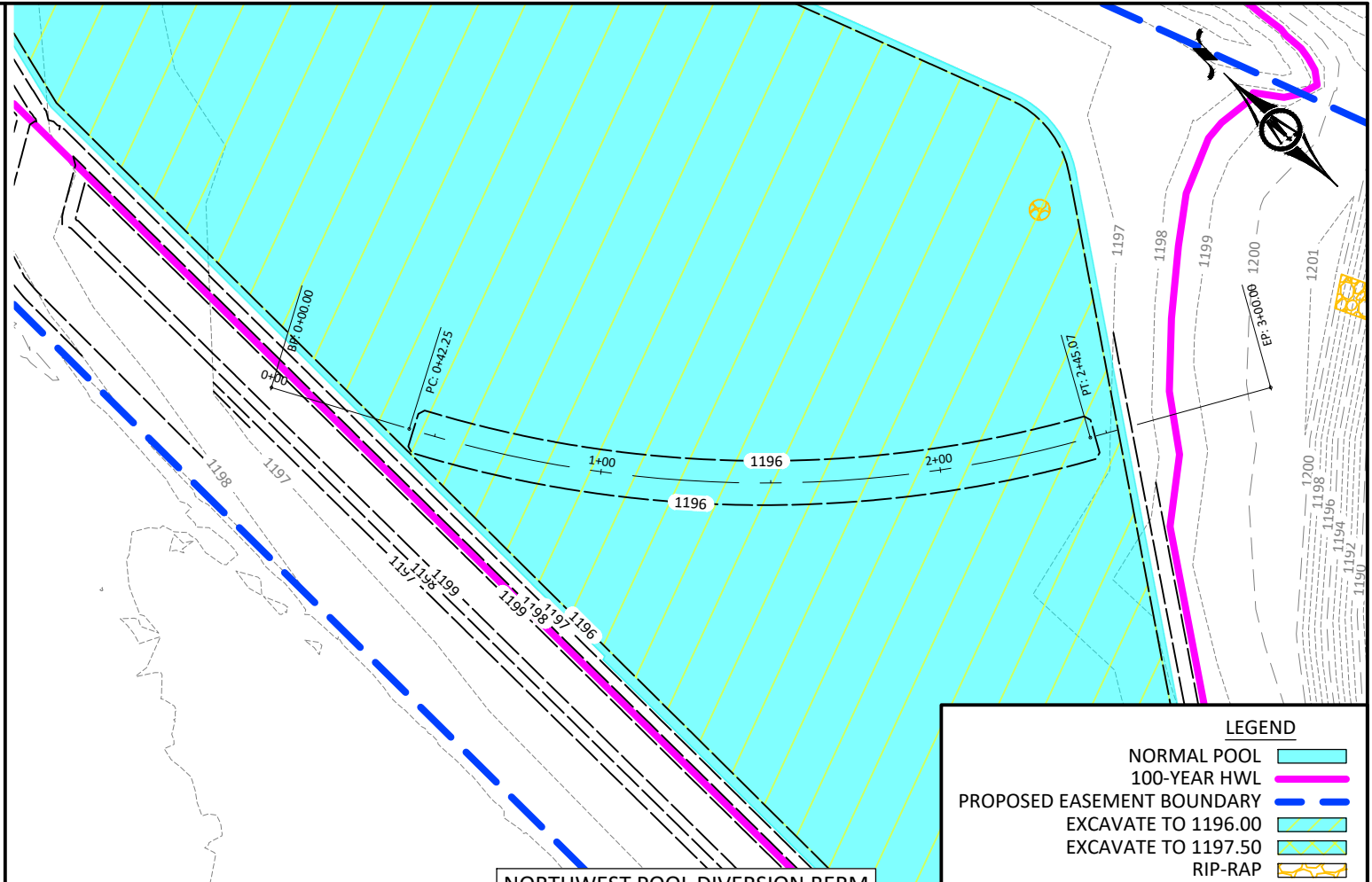
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WOR982210D (D PETERSBURG)  
NORTHWEST EMBANKMENT (CONT.) & AUXILIARY SPILLWAY

SHEET  
D.06



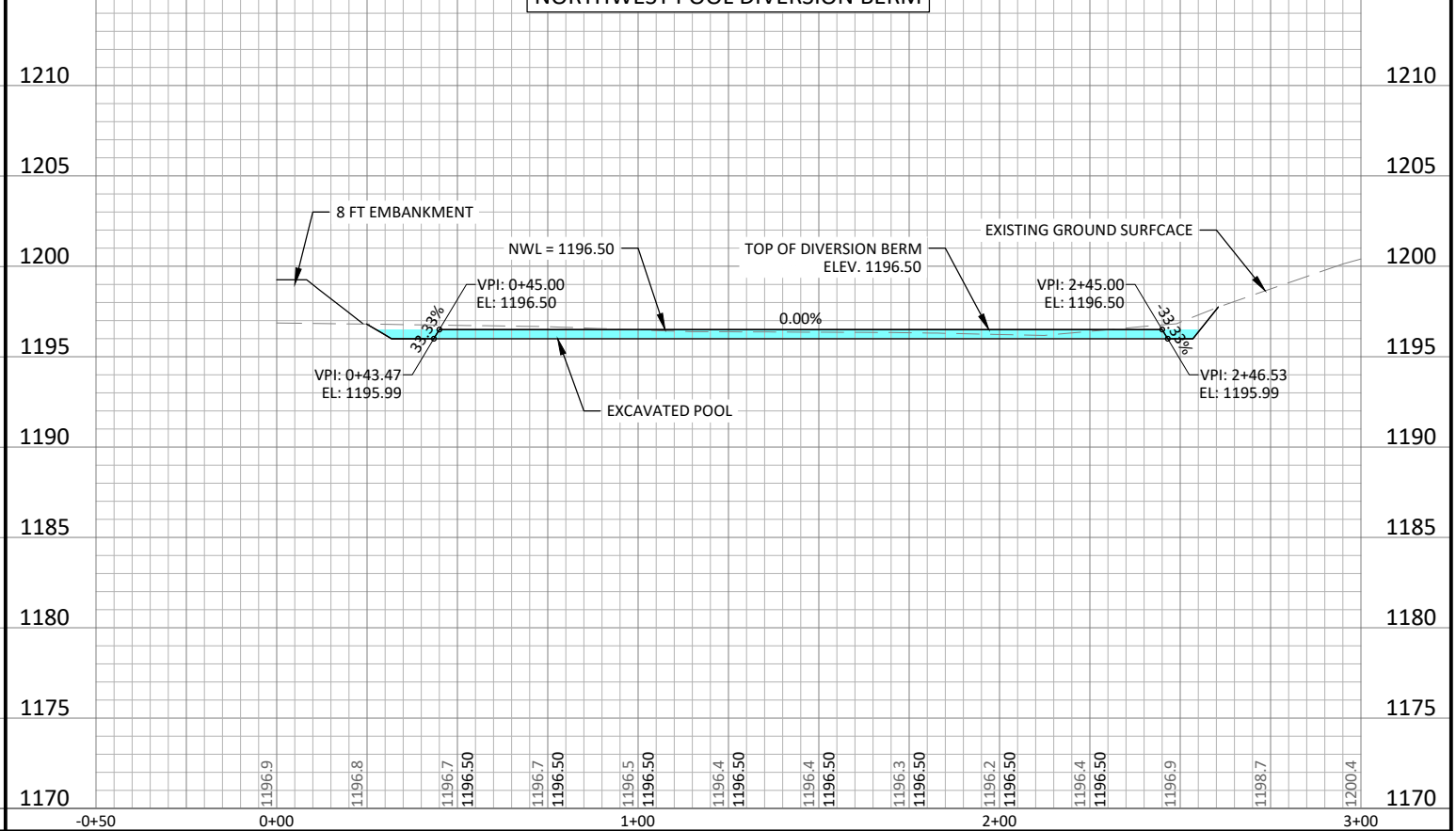
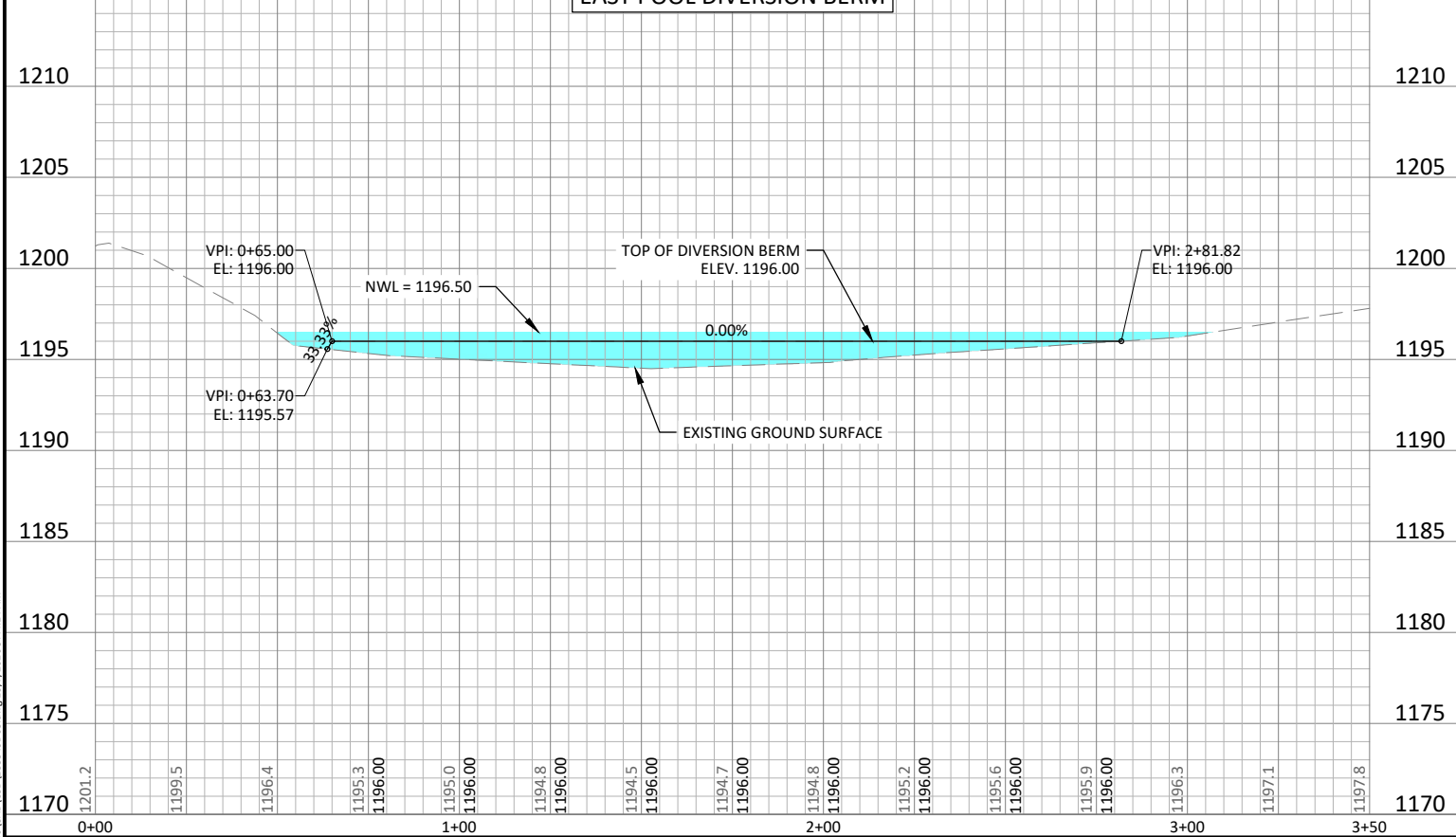
EAST POOL DIVERSION BERM



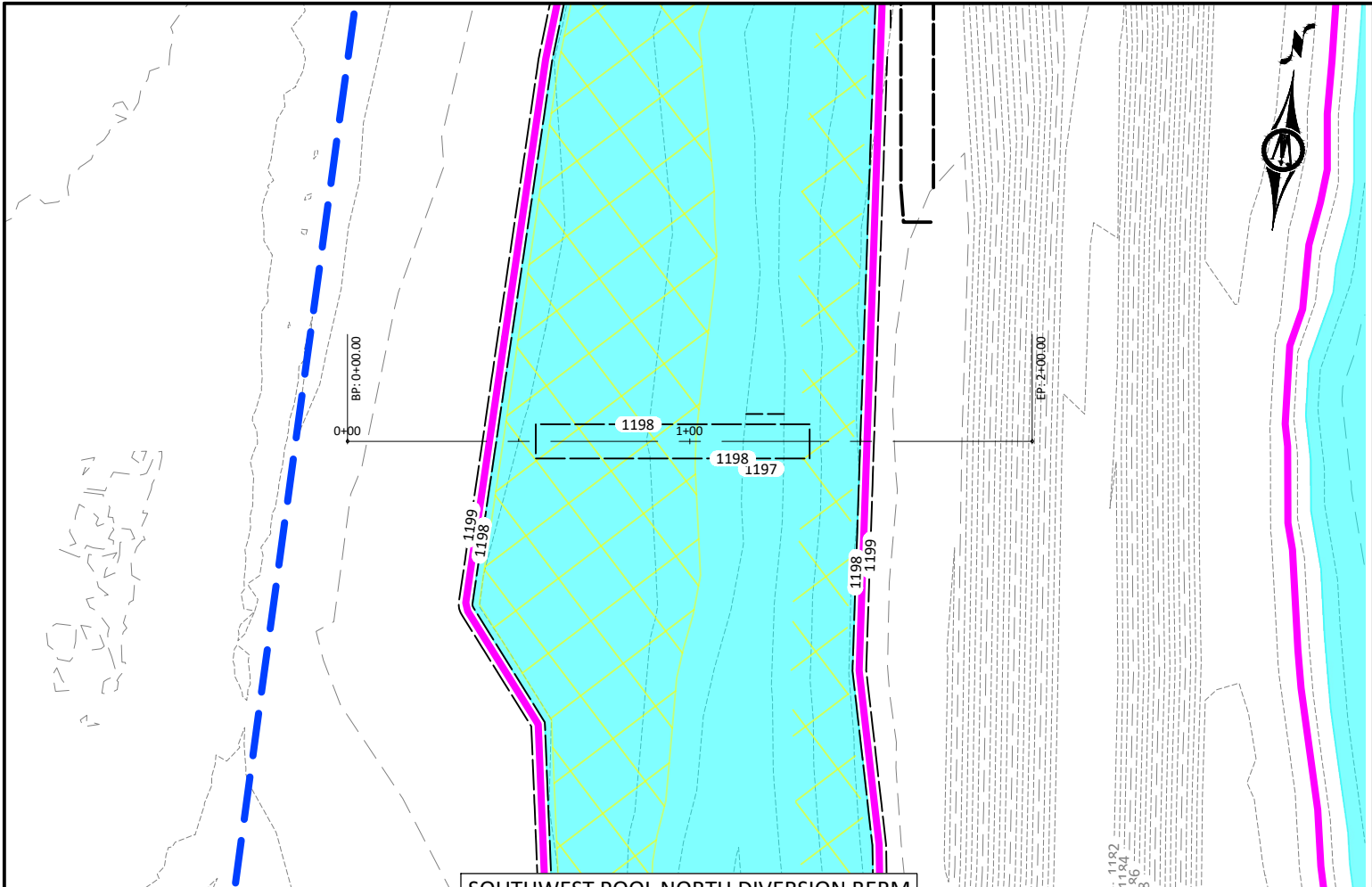
NORTHWEST POOL DIVERSION BERM

**LEGEND**

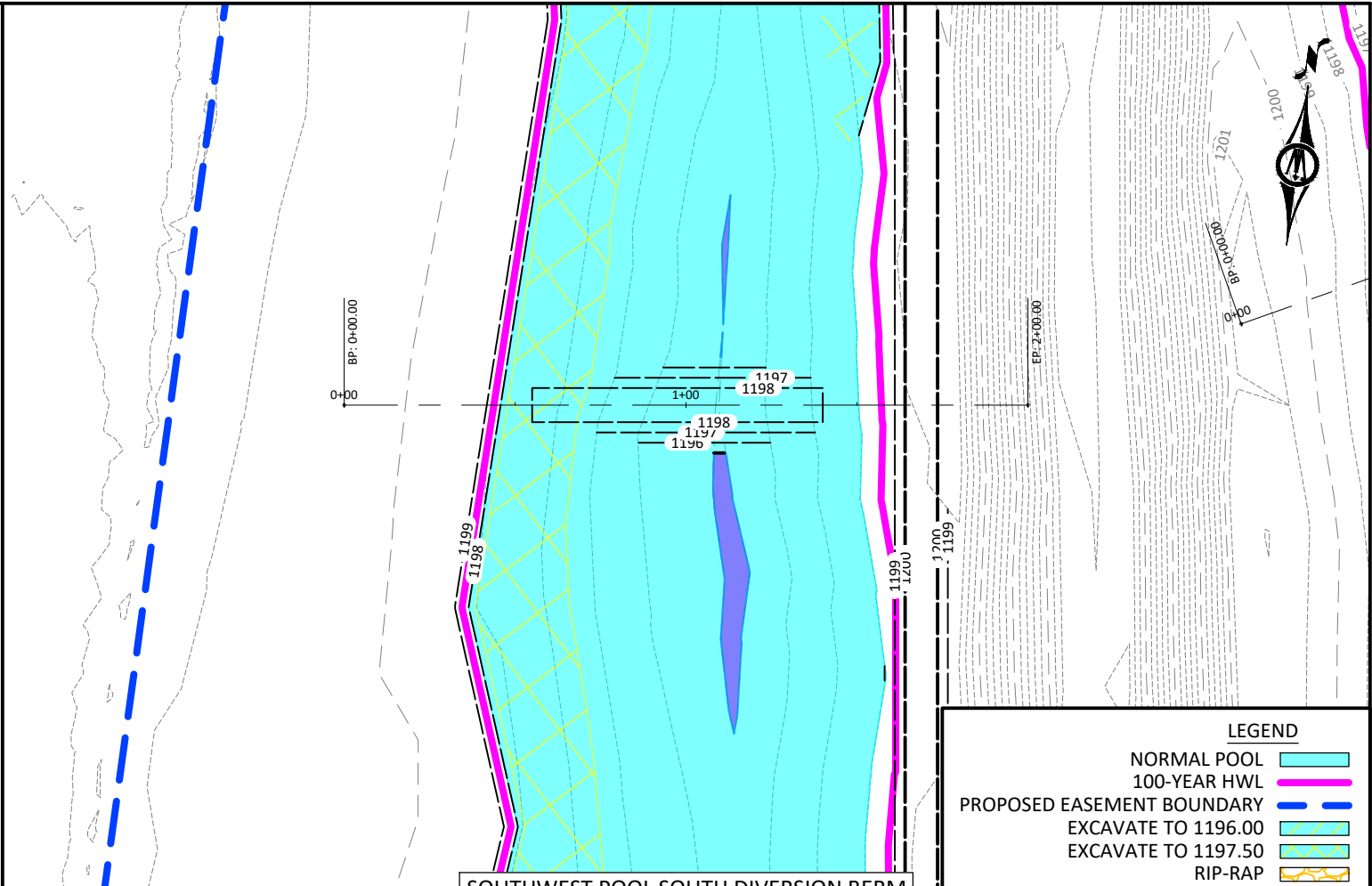
- NORMAL POOL
- 100-YEAR HWL
- PROPOSED EASEMENT BOUNDARY
- EXCAVATE TO 1196.00
- EXCAVATE TO 1197.50
- RIP-RAP



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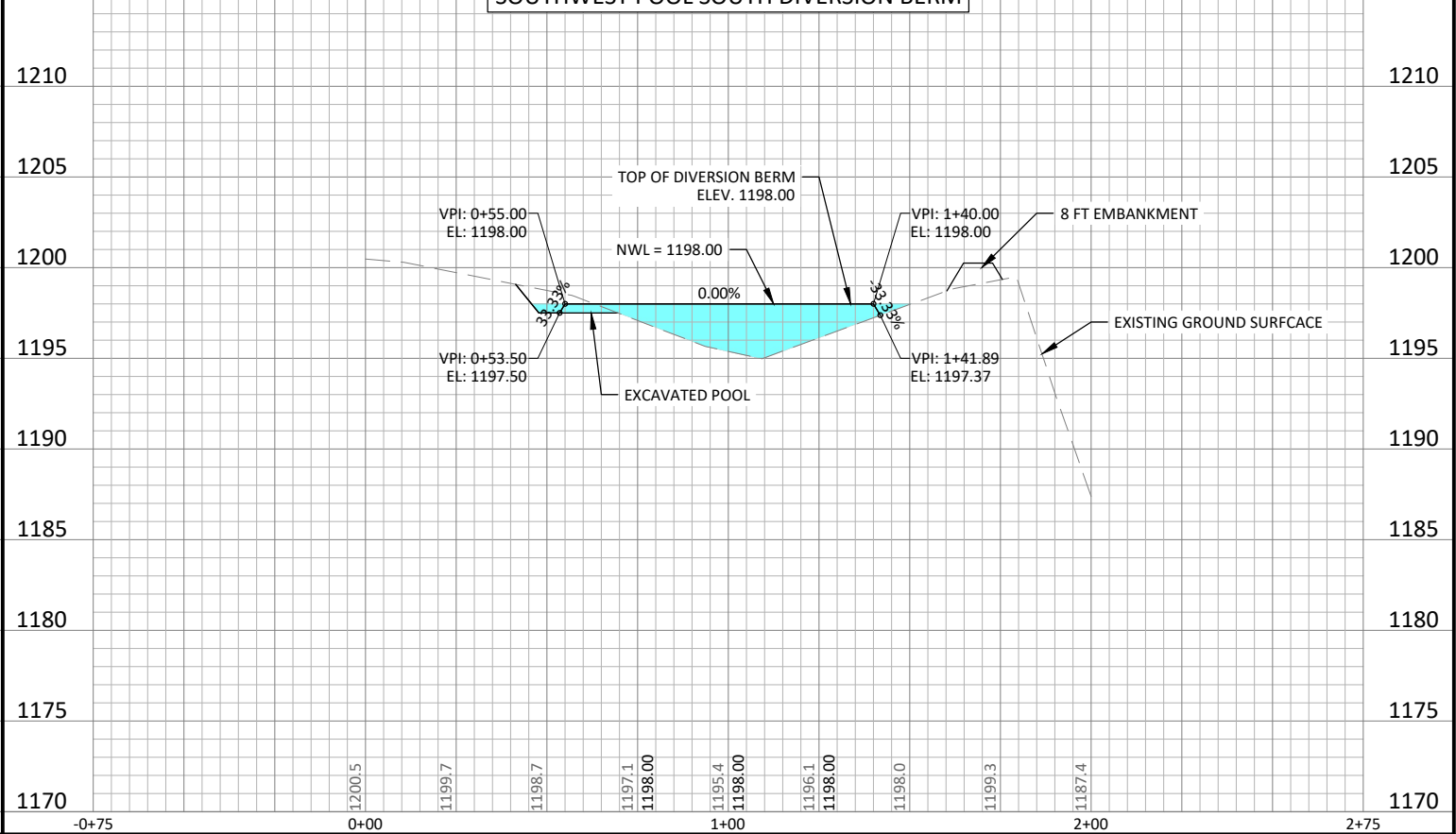
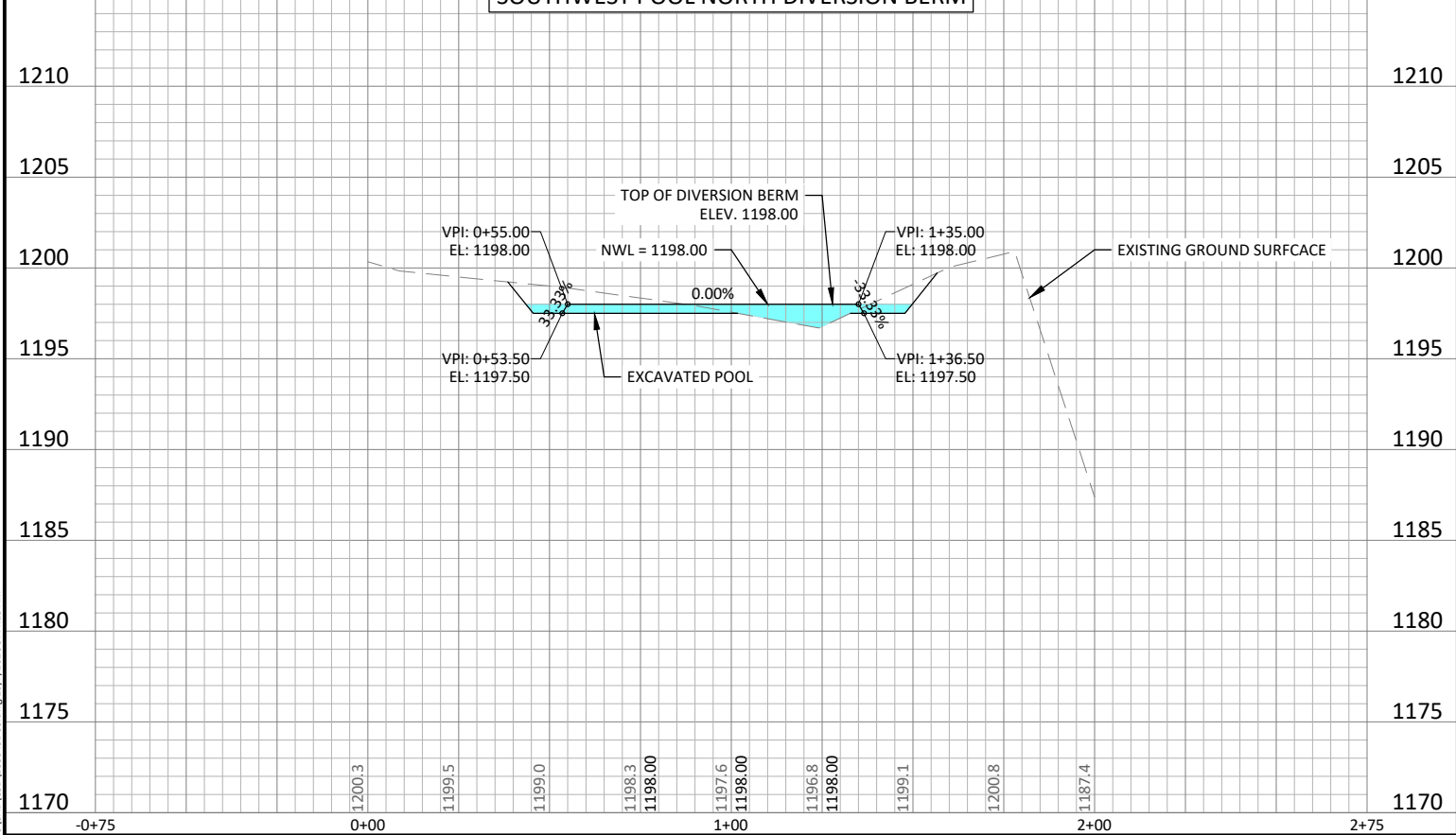
SOUTHWEST POOL NORTH DIVERSION BERM



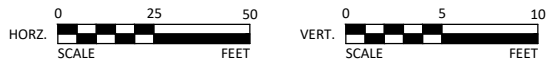
SOUTHWEST POOL SOUTH DIVERSION BERM

**LEGEND**

- NORMAL POOL
- 100-YEAR HWL
- PROPOSED EASEMENT BOUNDARY
- EXCAVATE TO 1196.00
- EXCAVATE TO 1197.50
- RIP-RAP



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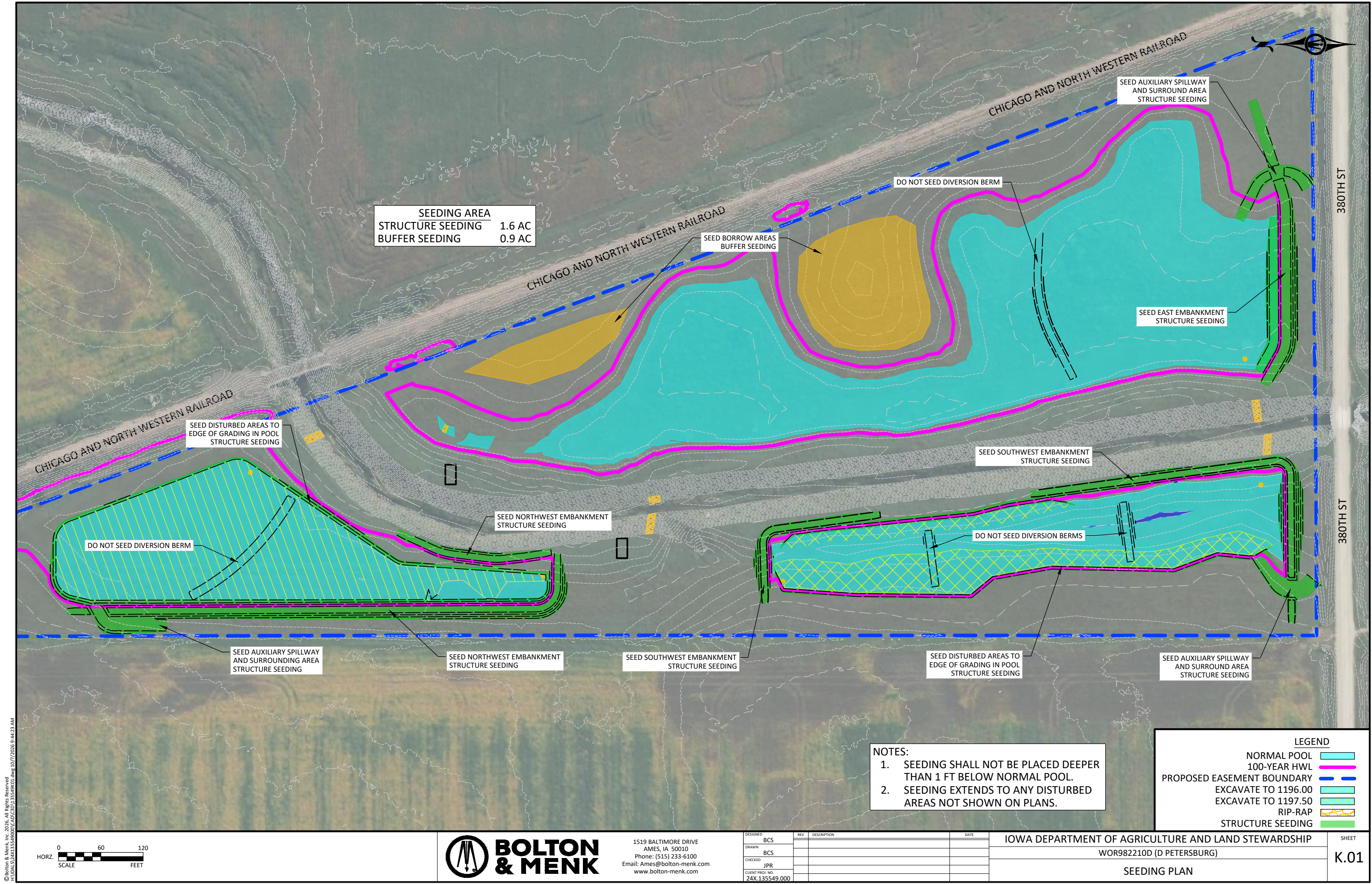


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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
WOR982210D (D PETERSBURG)  
SOUTHWEST DIVERSION BERMS

SHEET  
D.08



SEEDING AREA  
STRUCTURE SEEDING 1.6 AC  
BUFFER SEEDING 0.9 AC

SEED BORROW AREAS  
BUFFER SEEDING

DO NOT SEED DIVERSION BERM

SEED AUXILIARY SPILLWAY  
AND SURROUND AREA  
STRUCTURE SEEDING

SEED EAST EMBANKMENT  
STRUCTURE SEEDING

SEED DISTURBED AREAS TO  
EDGE OF GRADING IN POOL  
STRUCTURE SEEDING

SEED SOUTHWEST EMBANKMENT  
STRUCTURE SEEDING

SEED NORTHWEST EMBANKMENT  
STRUCTURE SEEDING

DO NOT SEED DIVERSION BERMS

DO NOT SEED DIVERSION BERM

SEED AUXILIARY SPILLWAY  
AND SURROUNDING AREA  
STRUCTURE SEEDING

SEED NORTHWEST EMBANKMENT  
STRUCTURE SEEDING

SEED SOUTHWEST EMBANKMENT  
STRUCTURE SEEDING

SEED DISTURBED AREAS TO  
EDGE OF GRADING IN POOL  
STRUCTURE SEEDING

SEED AUXILIARY SPILLWAY  
AND SURROUND AREA  
STRUCTURE SEEDING

- NOTES:
- SEEDING SHALL NOT BE PLACED DEEPER THAN 1 FT BELOW NORMAL POOL.
  - SEEDING EXTENDS TO ANY DISTURBED AREAS NOT SHOWN ON PLANS.

| LEGEND                     |  |
|----------------------------|--|
| NORMAL POOL                |  |
| 100-YEAR HWL               |  |
| PROPOSED EASEMENT BOUNDARY |  |
| EXCAVATE TO 1196.00        |  |
| EXCAVATE TO 1197.50        |  |
| RIP-RAP                    |  |
| STRUCTURE SEEDING          |  |

0 60 120  
HORIZ. SCALE FEET

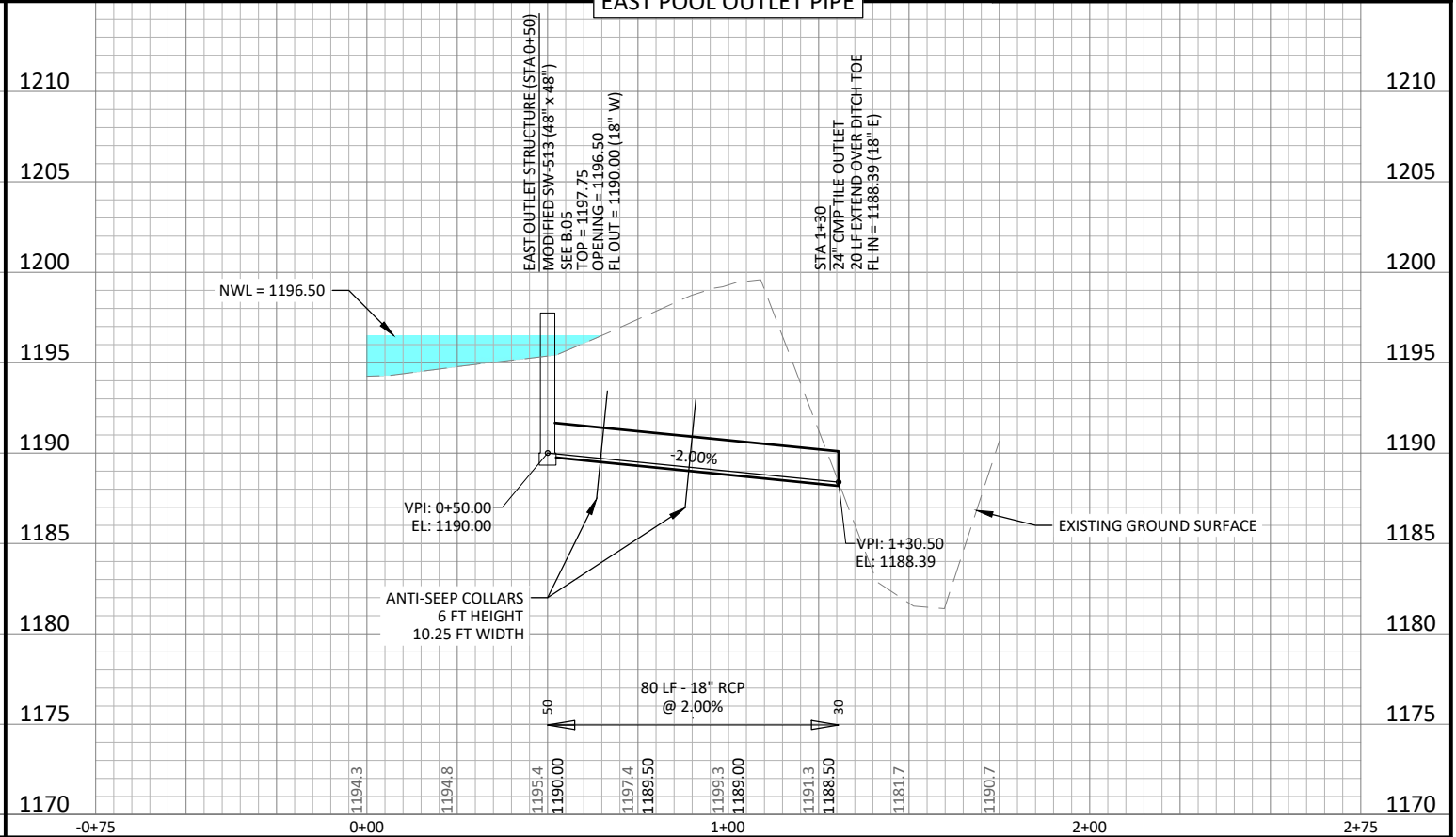
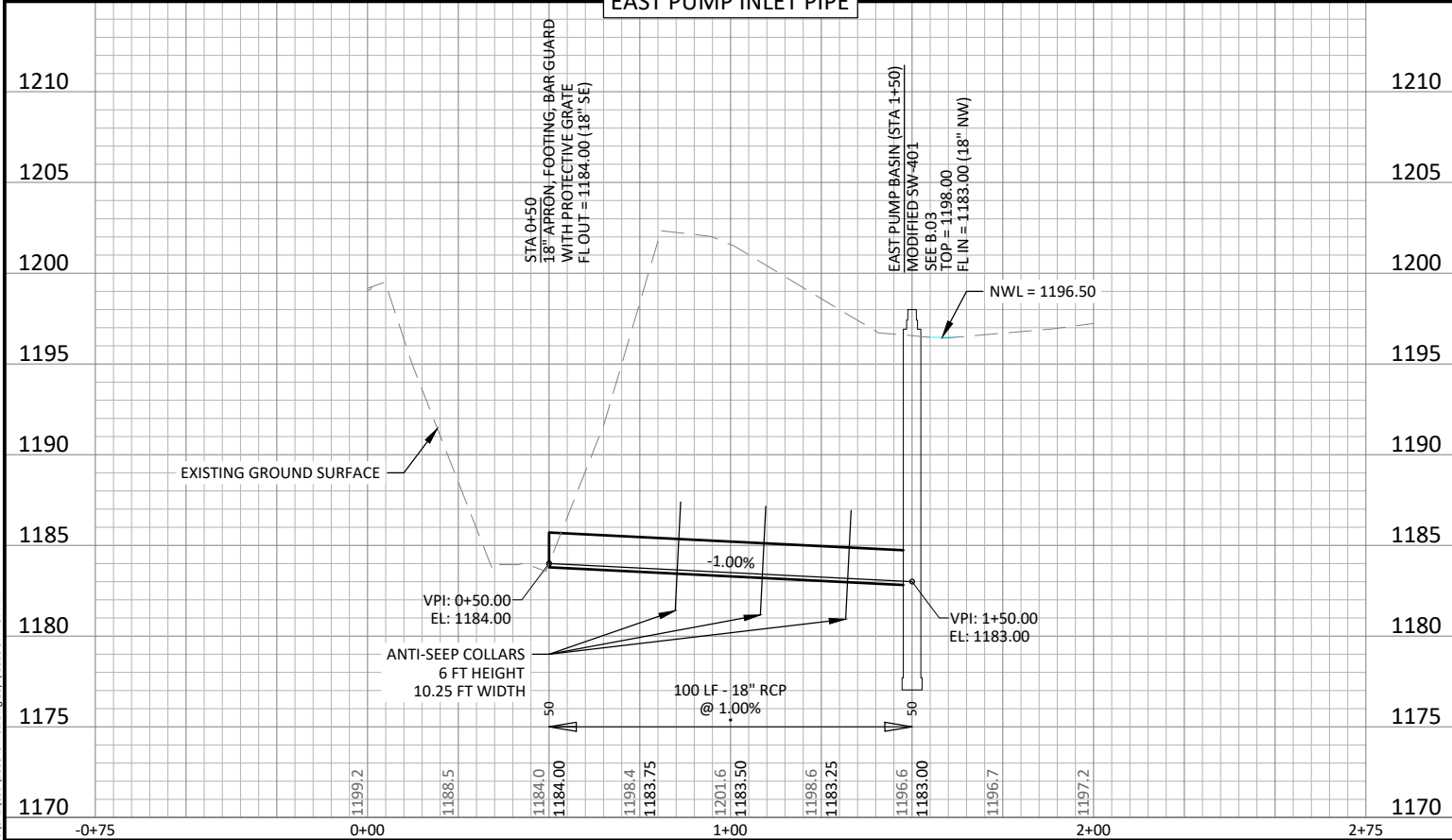
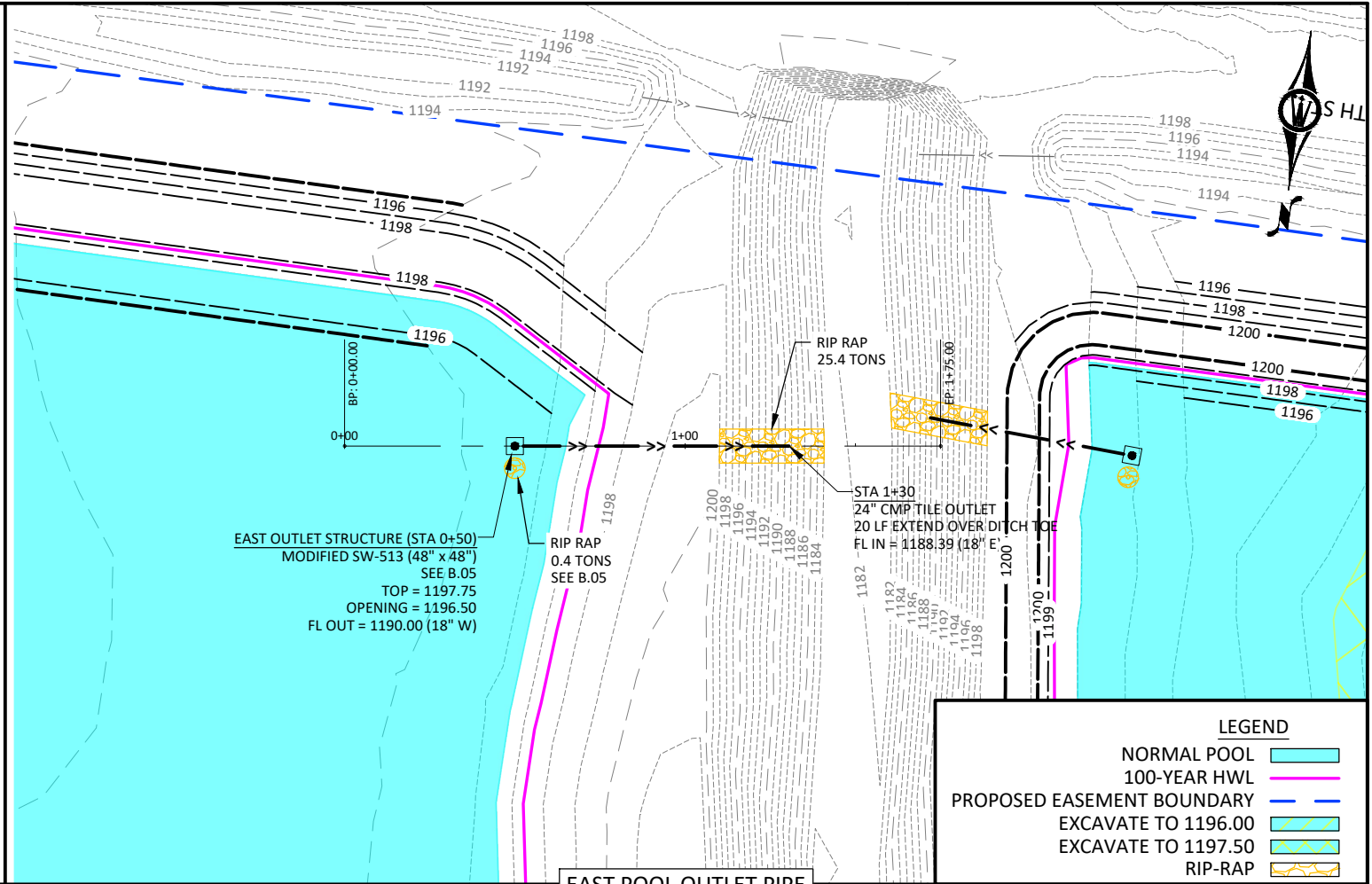
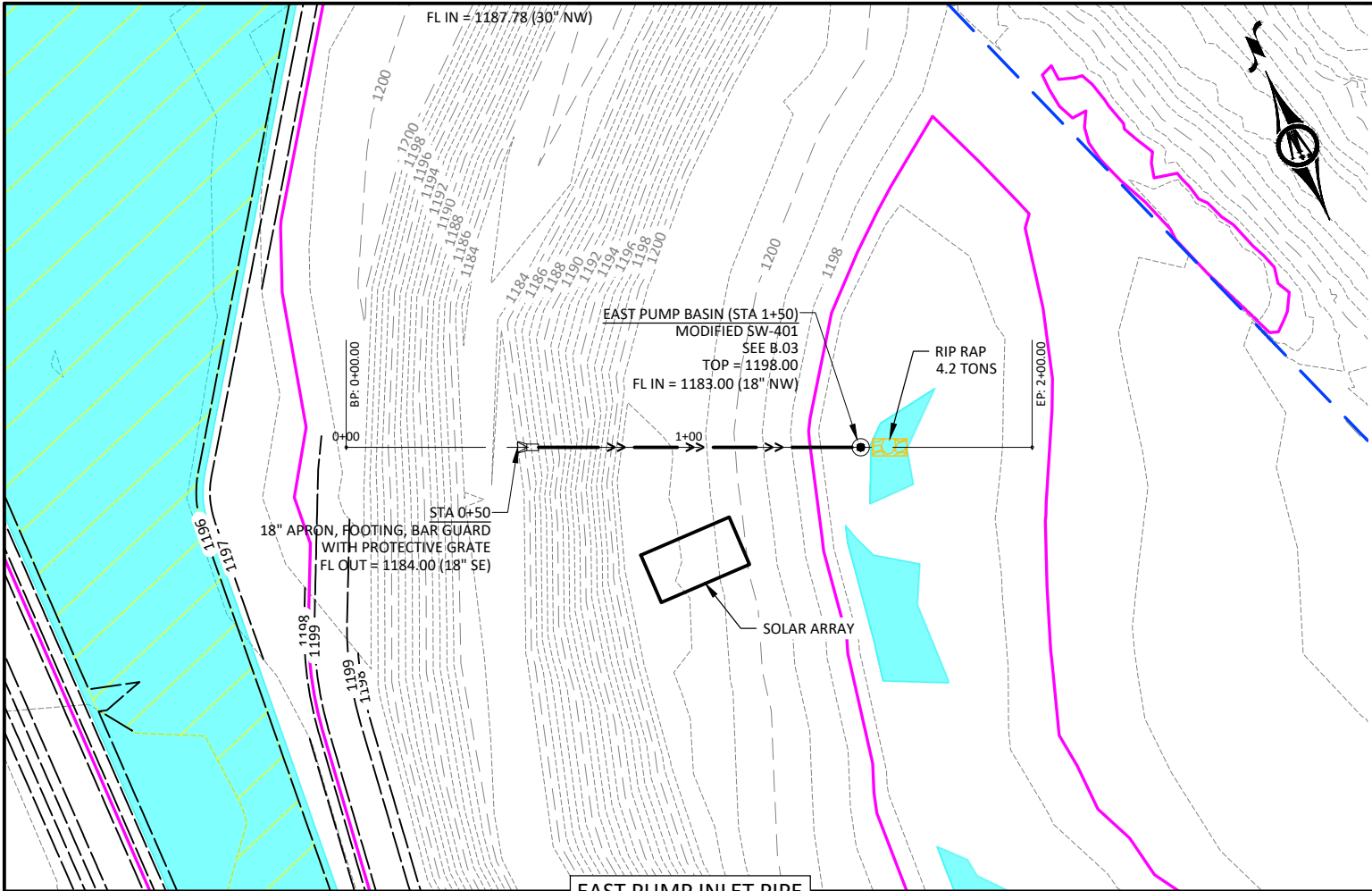


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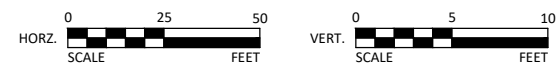
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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
WOR982210D (D PETERSBURG)  
SEEDING PLAN

SHEET  
K.01



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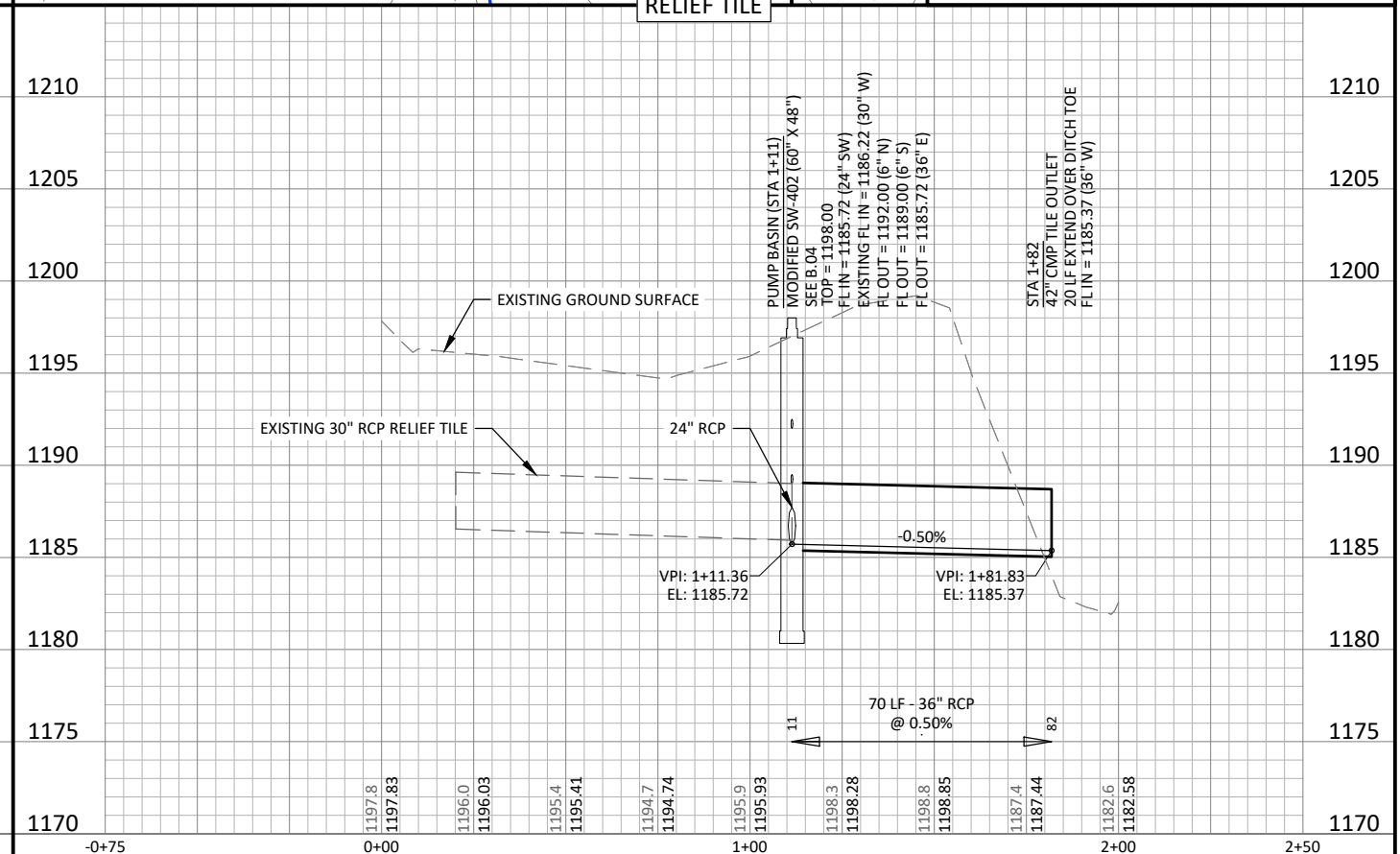
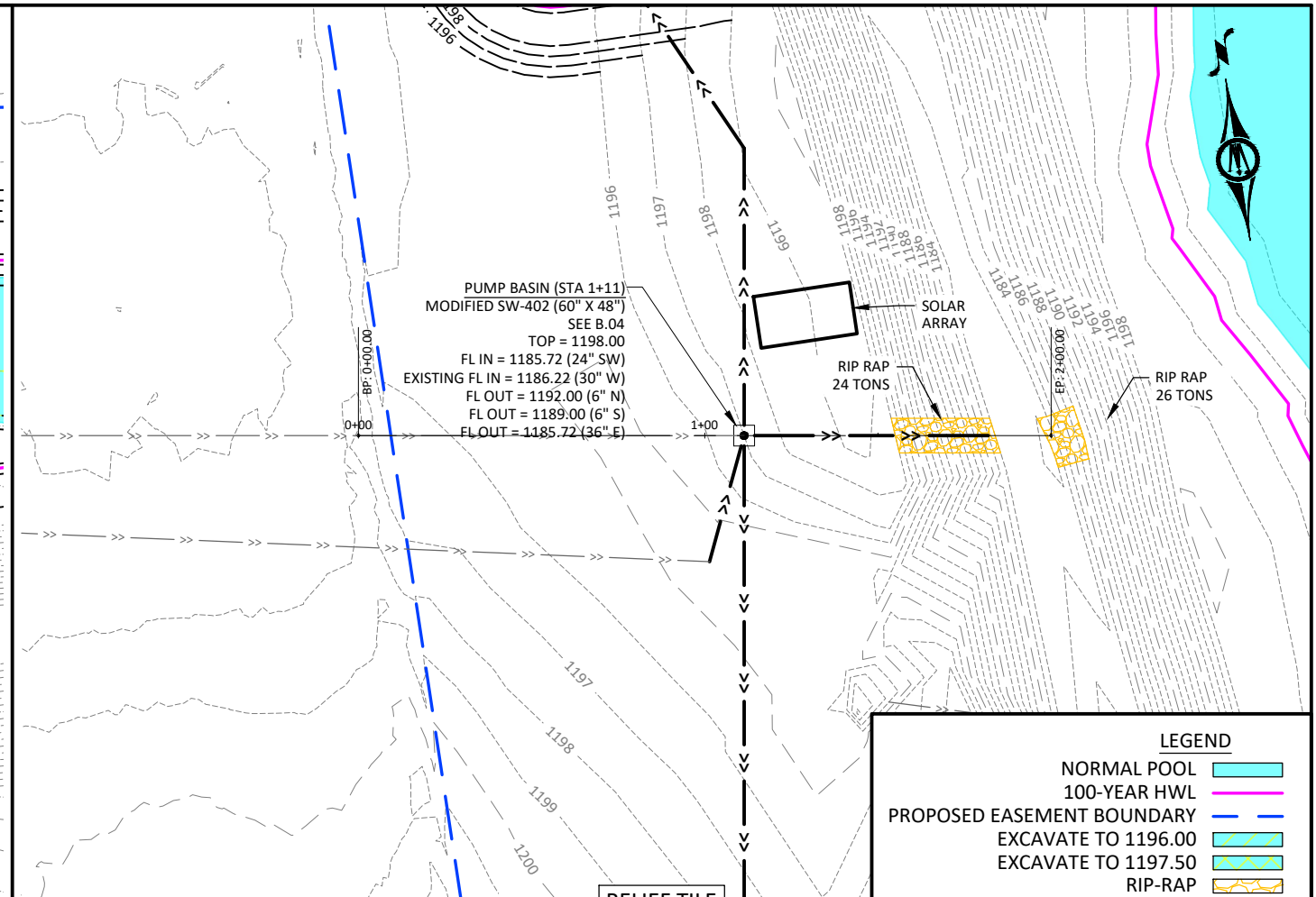
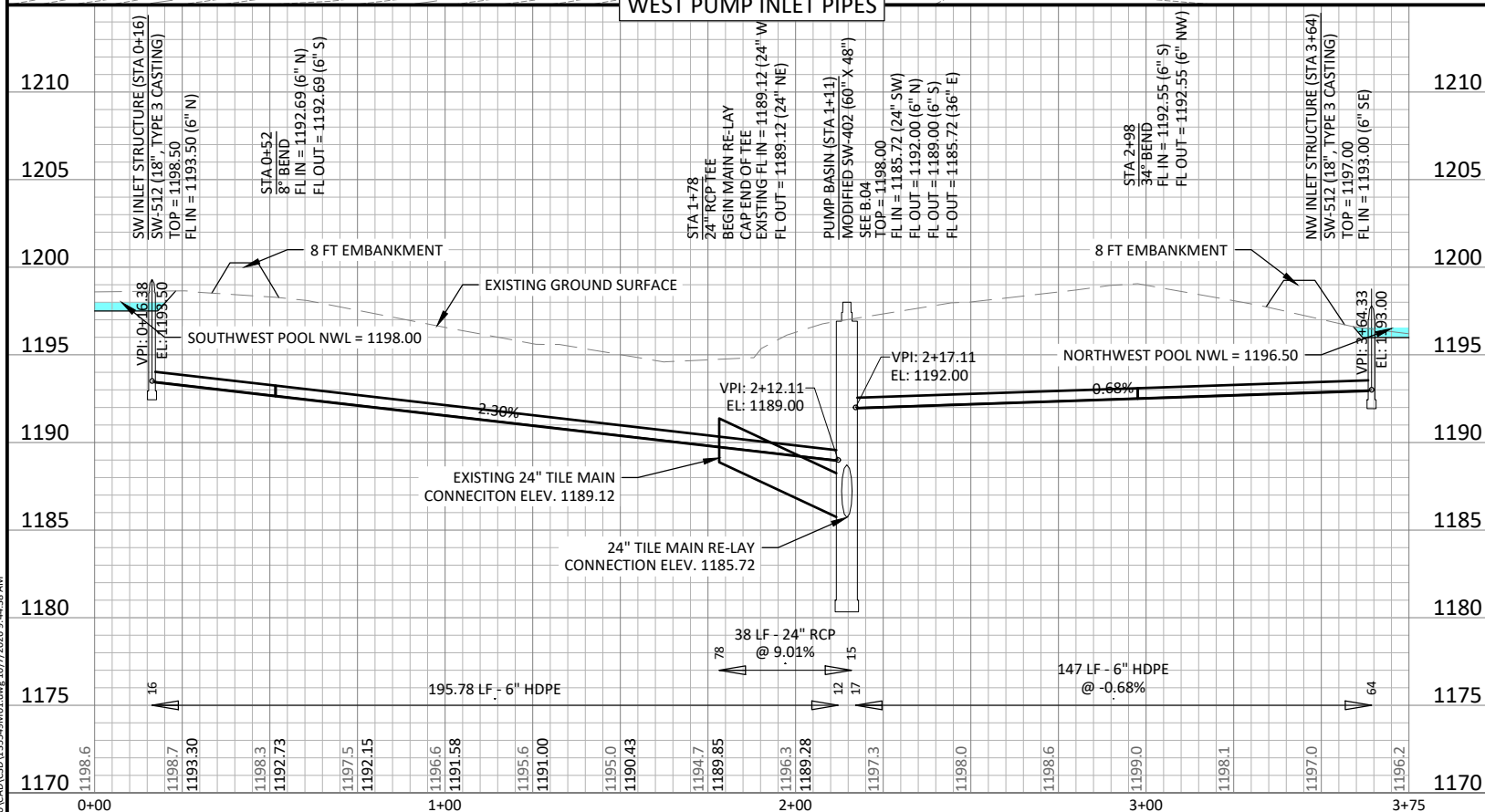
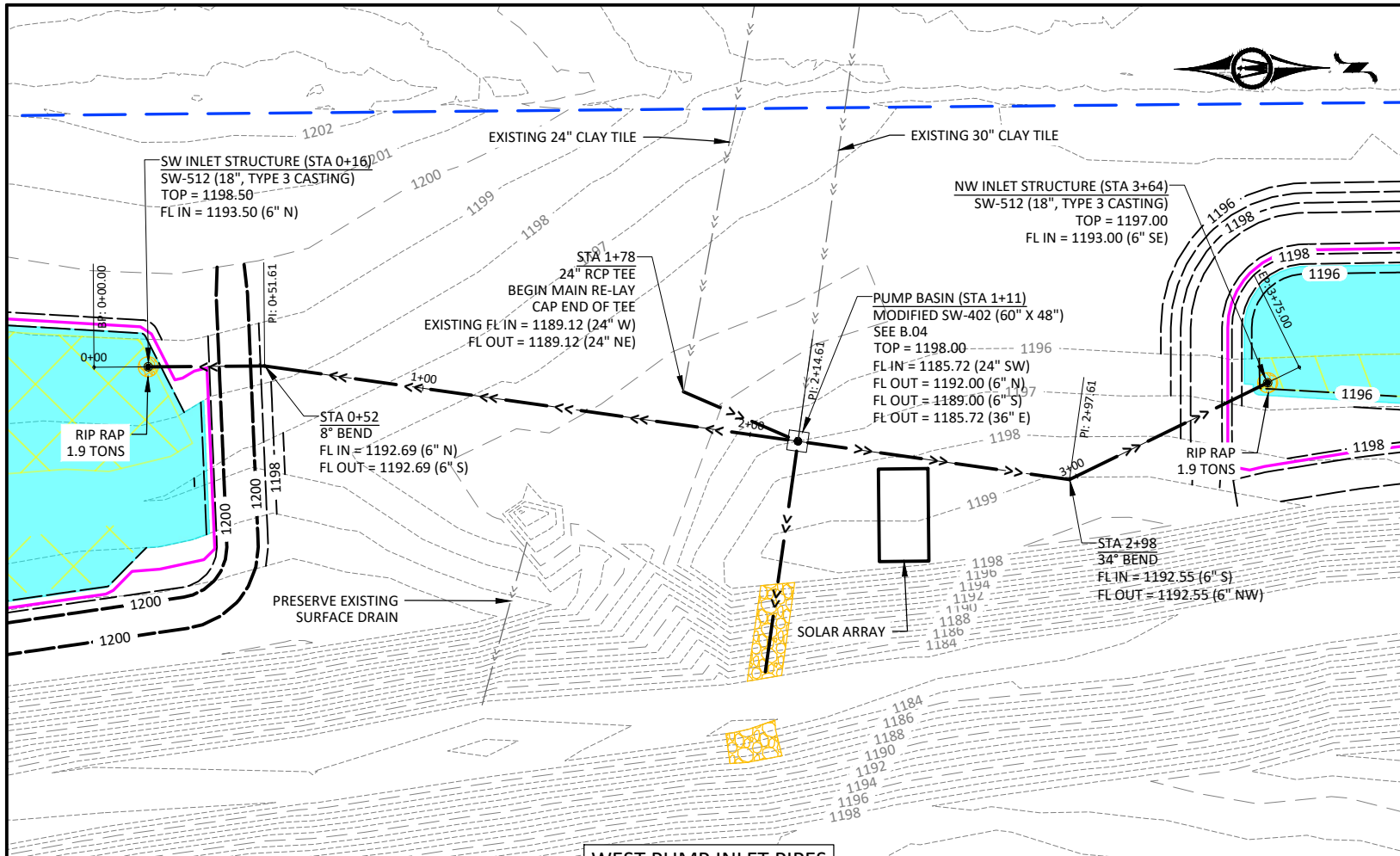
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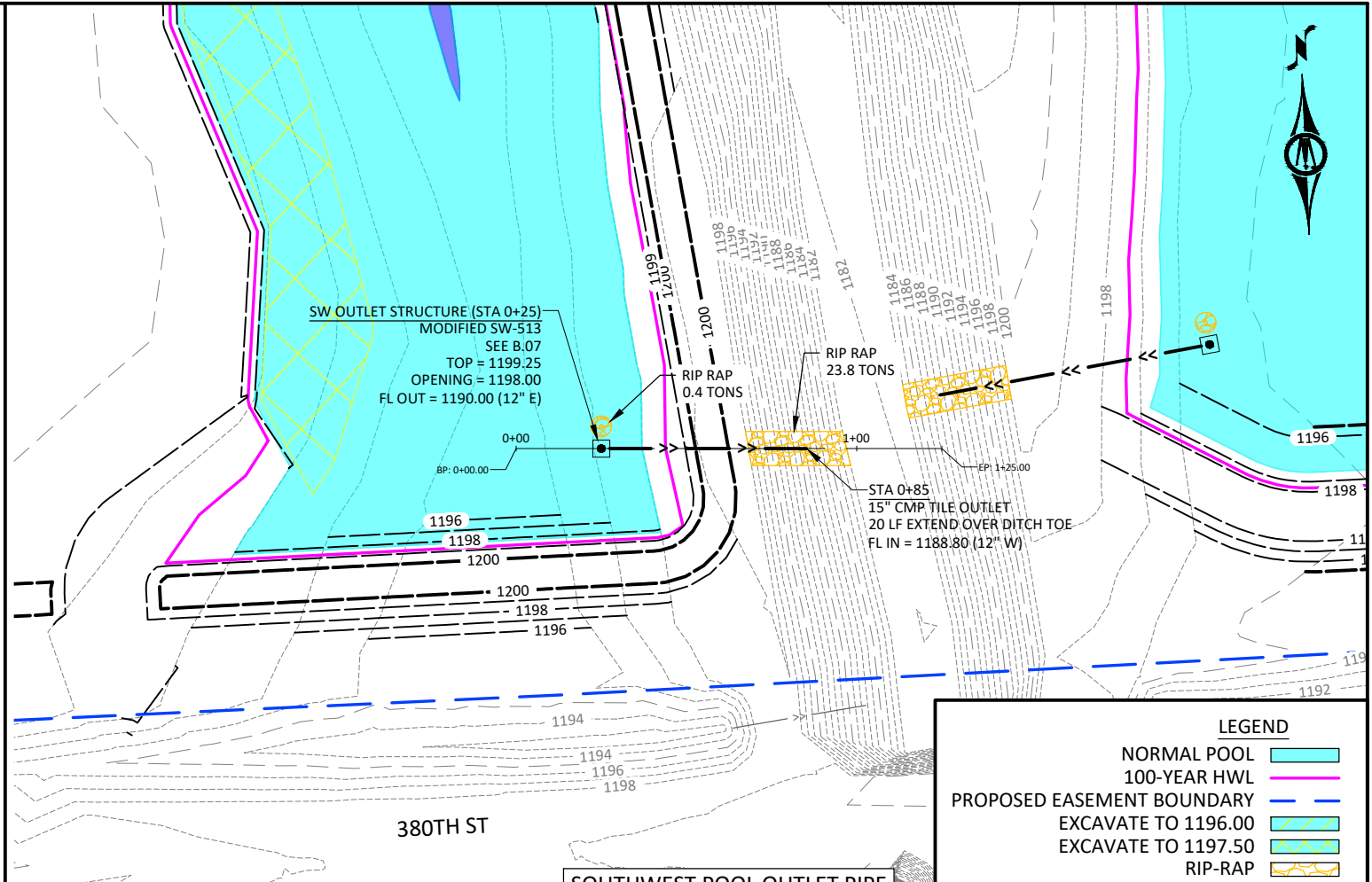
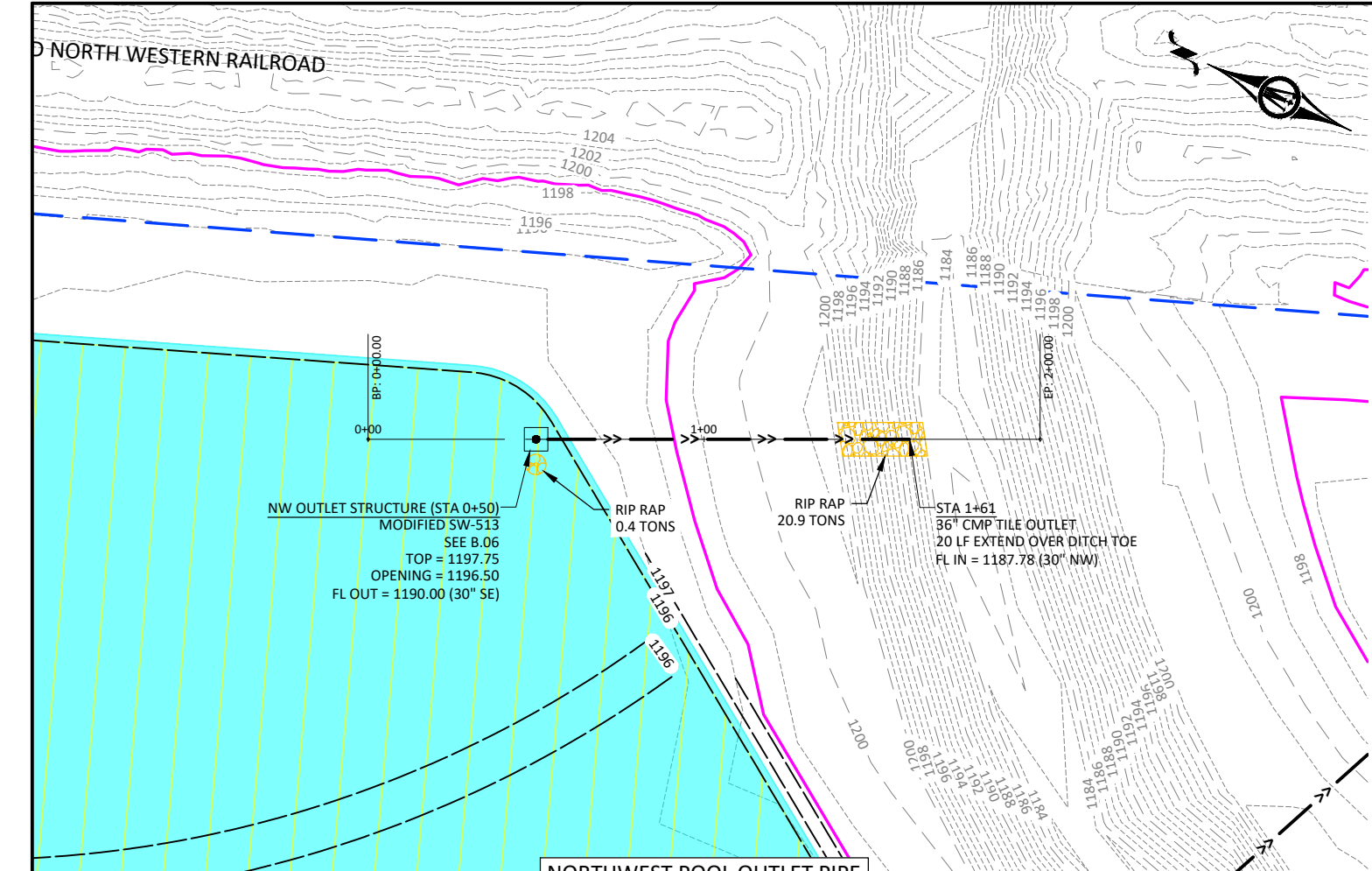
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
WOR982210D (D PETERSBURG)

EAST PUMP INLET PIPE & OUTLET PIPE

SHEET  
M.01

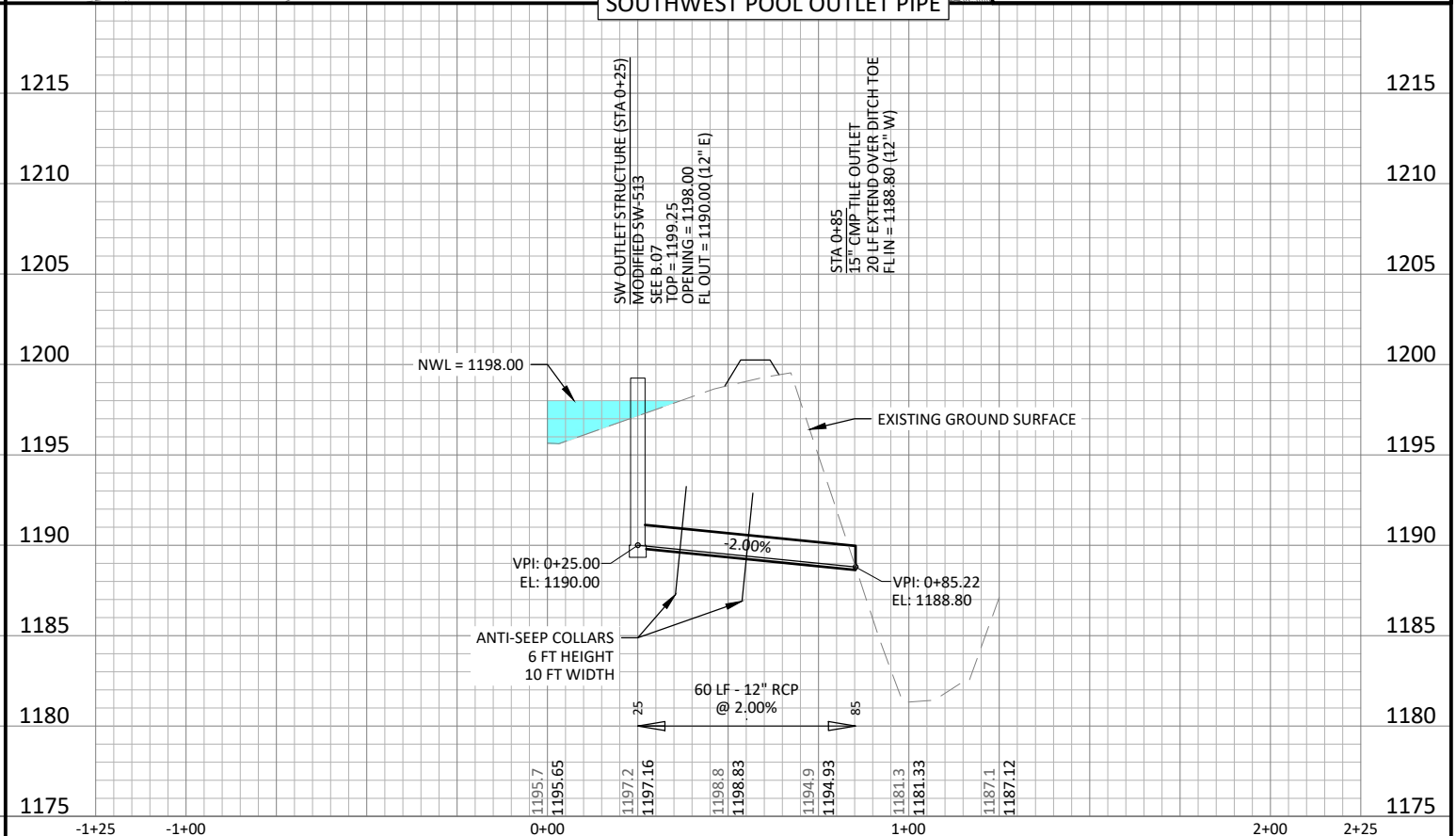
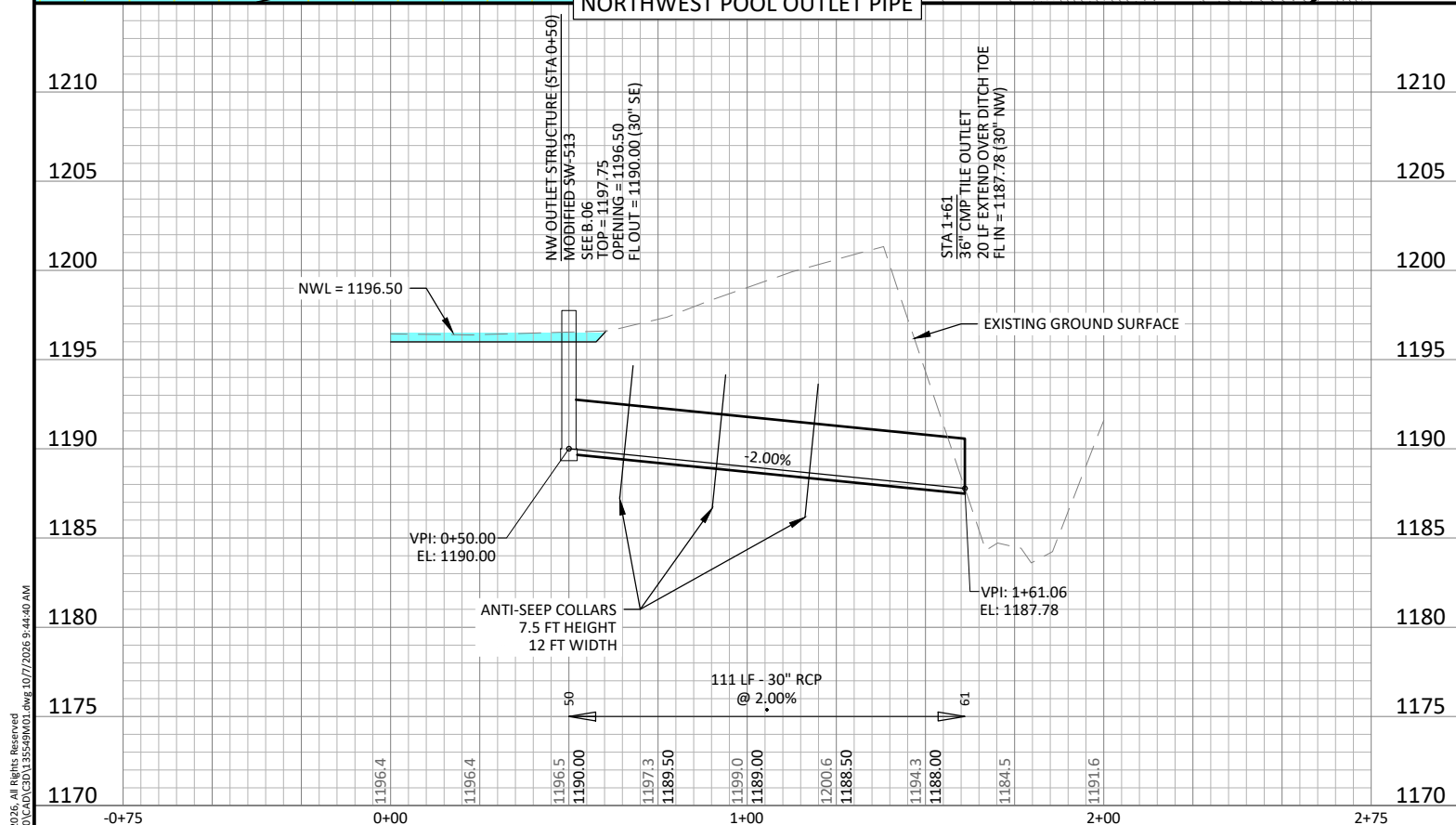
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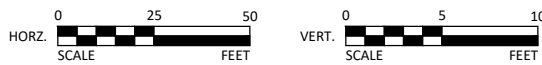


**LEGEND**

- NORMAL POOL
- 100-YEAR HWL
- PROPOSED EASEMENT BOUNDARY
- EXCAVATE TO 1196.00
- EXCAVATE TO 1197.50
- RIP-RAP



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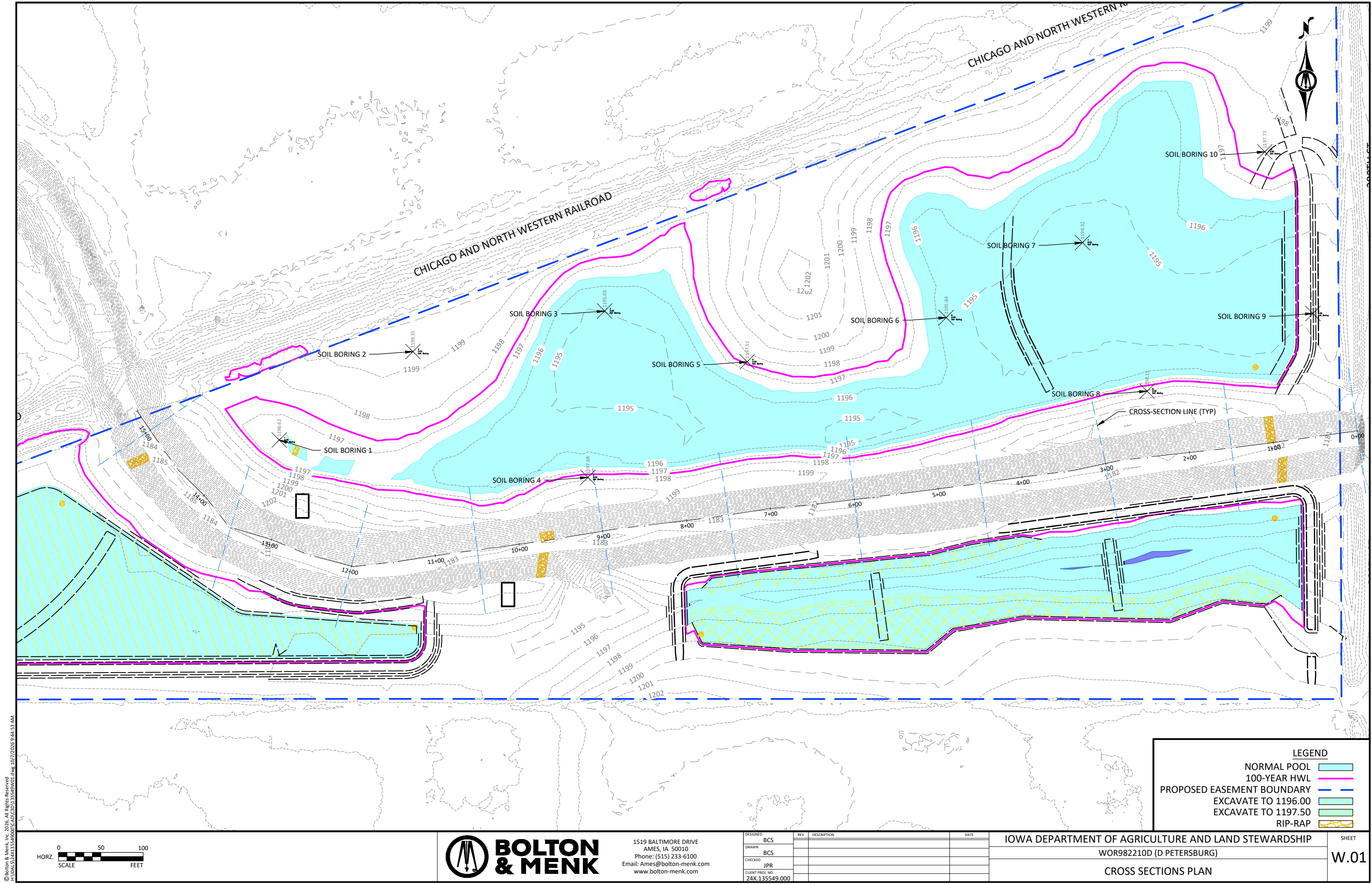


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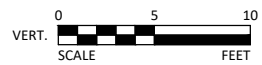
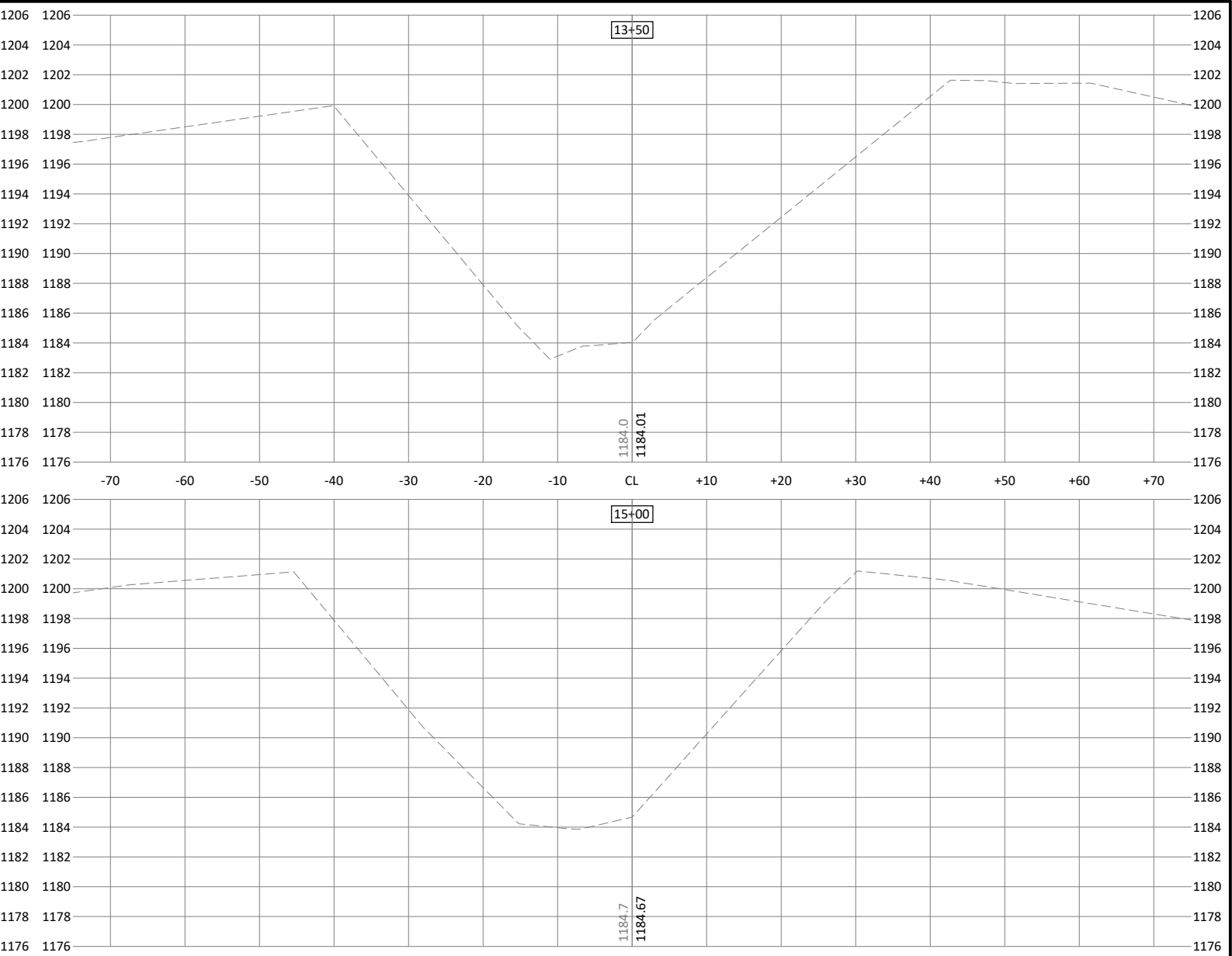
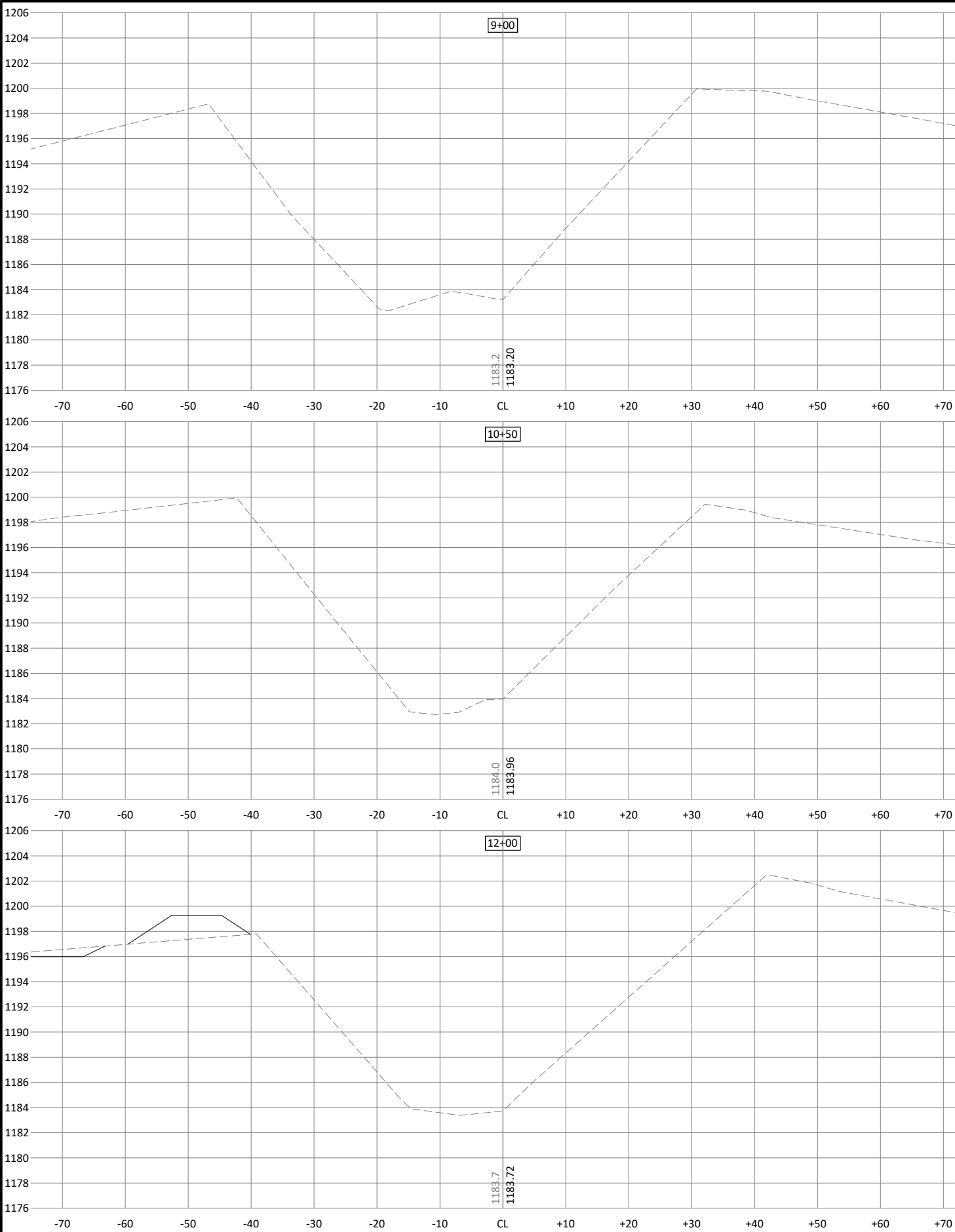
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP  
WOR982210D (D PETERSBURG)  
NORTHWEST & SOUTHWEST OUTLET PIPES

SHEET  
M.03





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|------------------|----------------|-----|-------------|------|
| DESIGNED         | BCS            | REV | DESCRIPTION | DATE |
| DRAWN            | BCS            |     |             |      |
| CHECKED          | JPR            |     |             |      |
| CLIENT PROJ. NO. | 24X.135549.000 |     |             |      |

|                                                     |  |                   |
|-----------------------------------------------------|--|-------------------|
| IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP |  | SHEET<br><br>W.03 |
| WOR982210D (D PETERSBURG)                           |  |                   |
| CROSS SECTIONS 2                                    |  |                   |