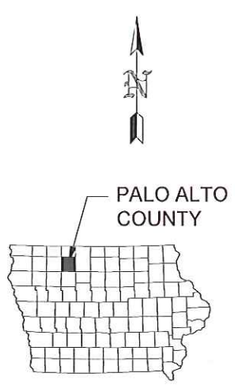
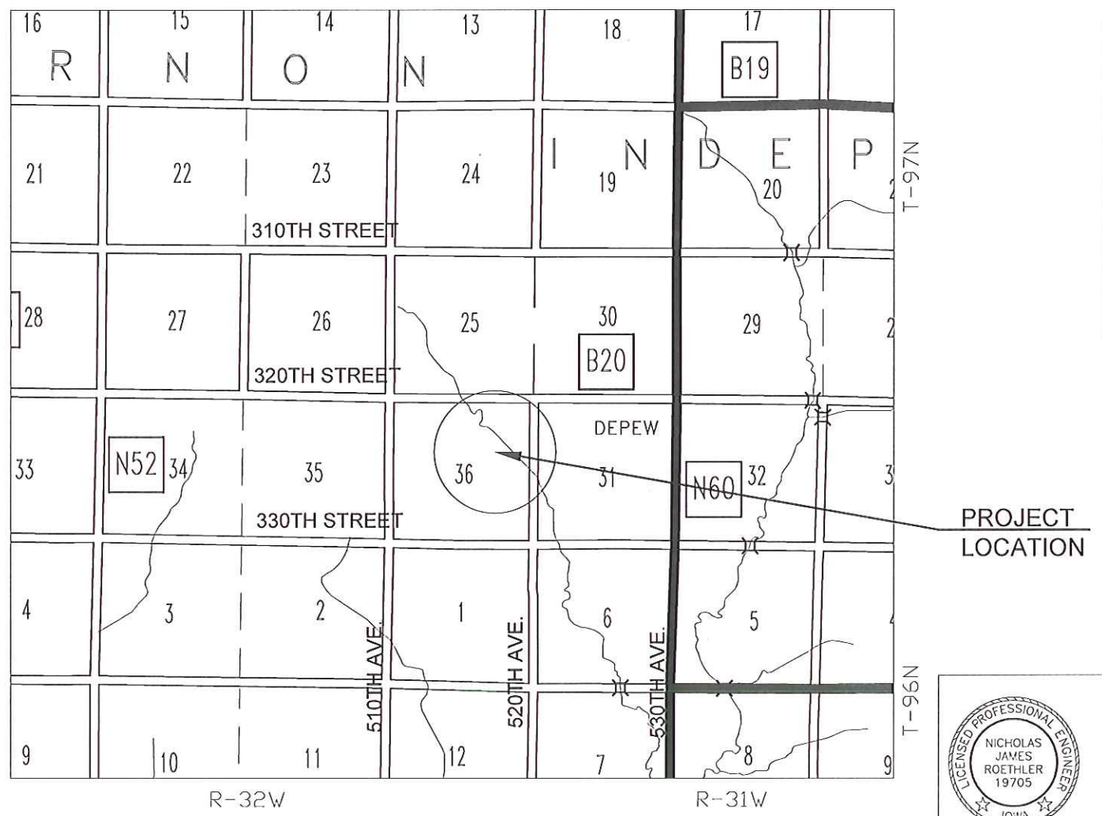
PALO ALTO COUNTY CREP SITE PAL973236A
WETLAND DEVELOPMENT PROJECT

NE 1/4 SECTION 36 T-97-N R-32-W

PALO ALTO COUNTY, IOWA

ESTIMATED SITE CHARACTERISTICS		
PROJECT ID	PAL97326A	
TILE DRAINAGE AREA	3970	ACRES
SURFACE DRAINAGE AREA	4130	ACRES
WETLAND POOL AREA	25.69	ACRES
DEEP POOL AREA (>3 FT DEEP)	6.94	ACRES
NORMAL POOL ELEVATION	1270.00	FEET
AVERAGE POOL DEPTH	2.73	FEET
MAXIMUM POOL DEPTH	12.00	FEET
POOL STORAGE	61.67	ACRE-FEET
BERM ELEVATION	1274.00	FEET
BERM STORAGE	179.89	ACRE-FEET
LENGTH OF BERM	1766	FEET
AUXILIARY SPILLWAY ELEVATION	NA	FEET
AUXILIARY SPILLWAY WIDTH	NA	FEET
WEIR WIDTH	35.00	FEET
DROP HEIGHT	12.50	FEET
POOL PORTION	0.65%	PERCENT
DEEP WATER	27.01	PERCENT
SHALLOW POOL DISTURBANCE	43.80	PERCENT
BUFFER TO POOL RATIO	1.14:1	
EASEMENT	54.95	ACRES





LOCATION MAP

SECTION 36, T-97-N, R-32-W, PALO ALTO COUNTY, IOWA

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D.08	GRADING PLAN

LICENSED PROFESSIONAL ENGINEER
NICHOLAS JAMES ROETHLER
19705
IOWA

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.

Nicholas J. Roethler OCTOBER 5, 2012

NICHOLAS JAMES ROETHLER Date

Pages or sheets covered by this seal: ALL SHEETS LISTED IN THE INDEX OF DRAWINGS

My license renewal date is January 1, 2014.

IDALS PROJECT NO. E11-06 (PAL973236A)

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NO.	REVISIONS	BY	DATE

A.01 Title.dwg

ENGINEER: N. J. ROETHLER
DESIGNER: NJR/JPM
DRAFTSMAN: JPM/JRF
CHECKER: NJR/DDC

TITLE SHEET
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

PROJECT NO. 14072 | DATE 10-5 2012

SHEET A.01

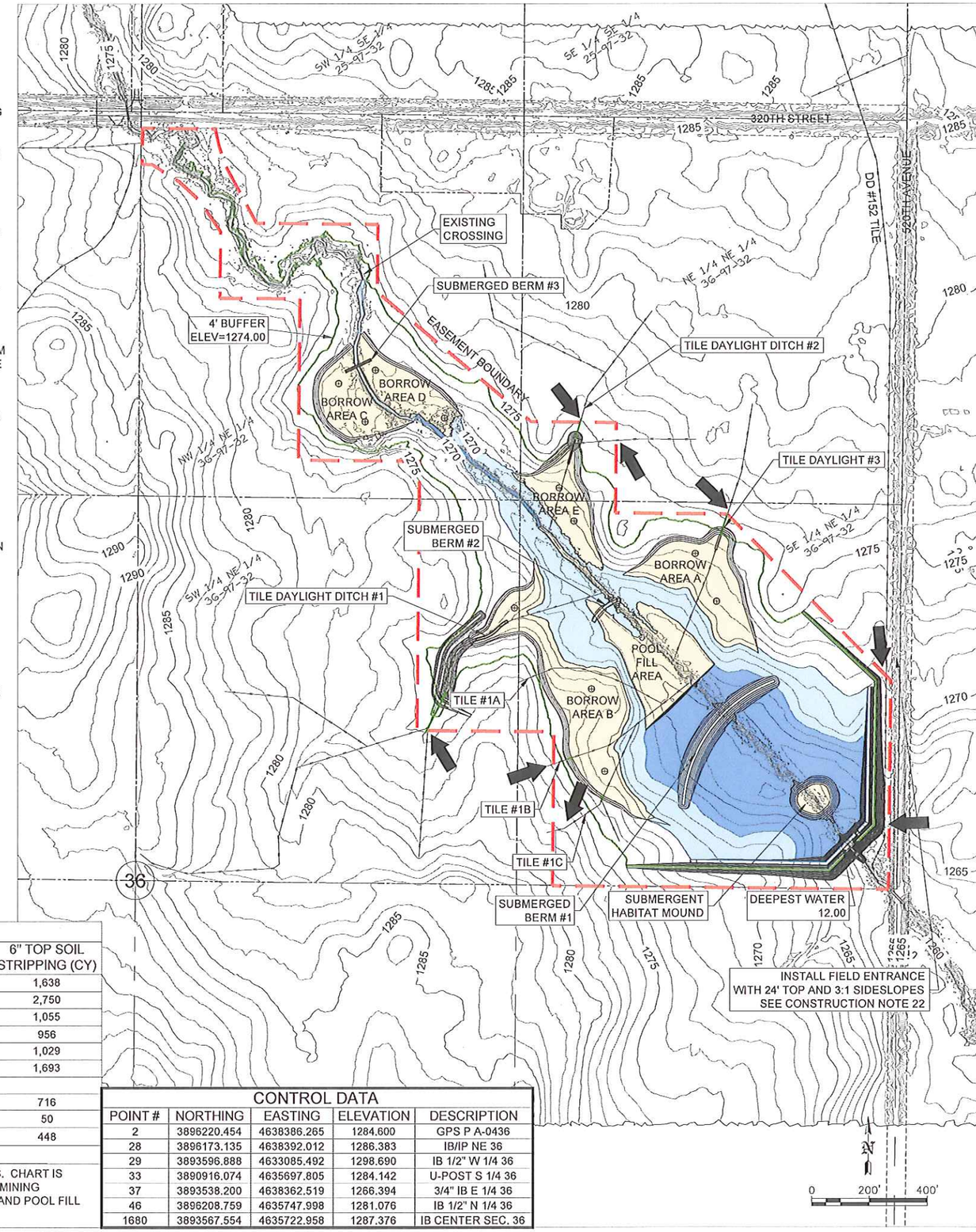
I:\14000\14072 Palo Alto CREP #PAL973236A Cert-Survey\Civil Production Drawings\A.01 Title.dwg
Plot Date: 10/5/2012

CONSTRUCTION NOTES

1. ALL RIPRAP PLACED BETWEEN STA. 1+10 AND STA. 1+60.11 SHALL BE GROUTED. CARE SHOULD BE TAKEN TO ENSURE THAT FINISH ELEVATION OF GROUT AND RIPRAP IS NOT ABOVE WEIR ELEVATION.
2. ALL RIPRAP LAYERS SHALL BE PLACED 18" THICK OVER GEOTEXTILE FABRIC.
3. RIPRAP IS TO BE CLASS E REVETMENT STONE AS DEFINED BY SECTION 4130 OF THE CURRENT IDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.
4. GEOTEXTILE FABRIC SHALL MEET REQUIREMENTS FOR A CLASS I WOVEN FABRIC. (SEE TABLE 1 OF CONSTRUCTION SPECIFICATION IA-95) IT SHALL CONFORM TO THE REQUIREMENTS AS DEFINED IN SECTION 4196 OF THE IDOT STD. SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.
5. THE GEOTEXTILE SHALL BE PLACED WITH LONG DIMENSION PARALLEL TO THE CHANNEL.
6. ALL EXCAVATION AND FILL AREAS OUTSIDE OF THE NORMAL POOL AREA ARE TO BE STRIPPED OF SIX (6) INCHES TOPSOIL (UNLESS DIRECTED OTHERWISE BY PLAN NOTE) TO REMOVE VEGETATION. THE POOL GRADING AND BORROW AREAS INSIDE THE NORMAL POOL ARE TO BE STRIPPED OF NINE (9) INCHES OF TOPSOIL.
7. ALL EXPOSED SURFACES TO BE REVEGETATED SHALL BE TOPSOILED TO A MINIMUM DEPTH OF FOUR (4) INCHES (UNLESS OTHERWISE SPECIFIED BY NOTE). AREAS OF POOL GRADING AND BORROW AREAS INSIDE THE NORMAL POOL ARE TO BE COVERED WITH RESPREAD TOPSOIL TO A MINIMUM DEPTH OF SIX (6) INCHES.
8. ALL AREAS UNDER STRUCTURE FILL SHALL BE SCARIFIED TO A DEPTH OF SIX (6) INCHES AND BE RECOMPACTED IN ACCORDANCE WITH STD. SPEC. IA-23, SECTION 6, METHOD 1.
9. CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE CALL: 1-800-292-8989
10. ALL WORK SHALL BE DONE ACCORDING TO OSHA STANDARDS FOR PROTECTION OF LIFE. NOTHING INDICATED ON THE DRAWINGS SHALL RELIEVE THE CONTRACTOR FROM COMPLYING WITH ANY APPROPRIATE SAFETY REGULATIONS.
11. ALL TILE LINES UNDER FOOTPRINT OF STRUCTURE ARE TO BE LOCATED DURING CORE TRENCH EXCAVATION AND REMOVED BETWEEN 15' UPSTREAM TO 15' DOWNSTREAM OF STRUCTURE FOOTPRINT. TILE DRAINS EXPOSED BY DAYLIGHT DITCHES OR BORROW SITES SHALL BE SEPARATED AND BE DISPOSED OF BY BURIAL.
12. THE EASEMENT BOUNDARY PINS AND MARKERS HAVE BEEN SET. CONTRACTOR SHALL PROTECT ALL FROM DISTURBANCE AND IF DISTURBED THEY WILL BE RESET BY ENGINEER AT CONTRACTOR'S EXPENSE.
13. BORROW SITES, POOL EXPANSION AREAS, AND POOL GRADING AREAS SHALL BE GRADED WITH MINIMUM 4:1 CUT AND FILL SLOPES. FINISH TARGET ELEVATION OF THE BORROW SITE SHALL BE NO MORE THAN 3' BELOW POOL ELEV. 1270.00. WITH PRIOR APPROVAL CONTRACTOR MAY DEVIATE FROM THIS TARGET ELEVATION.
14. EXISTING TILE LINES SHOWN ON PLANS ARE APPROXIMATE LOCATIONS. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF TILE DRAINS THAT ARE TO BE DAYLIGHTED AND WHERE OTHERWISE NOTED BEFORE TILE DITCHES ARE CONSTRUCTED.
15. CONTRACTOR SHALL IMMEDIATELY REPORT TO ENGINEER ALL PREVIOUSLY UNKNOWN TILE LINES ENCOUNTERED DURING THE WORK AND LEAVE THE TILE LINES UNCOVERED FOR EVALUATION BY ENGINEER.
16. CONTRACTOR IS TO INSTALL A SHEET PILE INSTALLATION BERM TO MAINTAIN PLUMB SHEET PILING. THIS WORK IS TO BE DONE PRIOR TO INSTALLATION OF THE SHEET PILING. SEE DETAILS ON SHEET D.01.
17. CONTRACTOR IS TO EXCAVATE A TILE LOCATION TRENCH TO A DEPTH OF 6 FOOT TO DETERMINE IF DRAINAGE TILE ARE PRESENT IN THE INDICATED TILE LOCATE AREAS.
18. CONTOURS SHOWN AT 1' INTERVALS
19. CONTRACTOR SHALL EXERCISE CARE AS NOT DAMAGE DRAINAGE DISTRICT #152 MAIN TILE SOUTH AND EAST OF WETLAND DIKE WITH HEAVY EQUIPMENT.
20. CONTRACTOR SHALL EXCAVATE TEST HOLES IN AREAS SHOWN WITH ENGINEER PRESENT TO DETERMINE IF MATERIAL IS SUITABLE FOR BORROW PRIOR TO STRIPPING TOPSOIL.
21. CLEARING AND GRUBBING SHALL BE DONE SOUTH OF THE EXISTING CROSSING IN THE WETLAND POOL AND INCLUDES LARGE TREE AT THE GROSSING. TREES ARE TO BE BURNED AND BURIED OUTSIDE OF THE POOL AREA INSIDE THE EASEMENT
22. CONTRACTOR SHALL INSTALL A FIELD ENTRANCE FOR CONSTRUCTION ACCESS AFTER SECURING A FIELD ENTRANCE PERMIT FROM THE COUNTY ENGINEER.

LEGEND

- POOL GRADING
- DEEP POOL
- SHALLOW POOL
- PROPERTY LINE
- ROAD ROW
- EASEMENT BOUNDARY
- BUFFER BOUNDARY (5' RISE)
- PROPOSED TILE
- DRAIN TILE (EXISTING)
- FENCE LINE
- TILE LOCATE AREA
- BORROW EXCAVATION TEST HOLE



POOL FILL/BORROW AREA CHART

ID	AREA (SF)	CUT (CY)	FILL (CY)	6" TOP SOIL STRIPPING (CY)
BORROW AREA A	88,500	7,384		1,638
BORROW AREA B	148,480	11,113		2,750
BORROW AREA C	56,980	4,311		1,055
BORROW AREA D	51,650	3,782		956
BORROW AREA E	55,590	3,318		1,029
POOL FILL AREA	91,430		3,874	1,693
CORE TRENCH		4,000		
SUBMERGED BERM #1	38,670		4052	716
SUBMERGED BERM #2	2,720		43	50
HABITAT MOUND	24,180		2679	448
CHANNEL FILL AREAS	2,000		620	

ALL AREAS ARE ESTIMATED AND VOLUMES ARE RAW QUANTITIES. CHART IS PROVIDED AS AN ESTIMATE FOR CONTRACTOR TO USE IN DETERMINING EFFICIENT EARTHWORK OPERATIONS FOR BORROW, EARTHFILL AND POOL FILL PLACEMENT.

CONTROL DATA

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
2	3896220.454	4638386.265	1284.600	GPS P A-0436
28	3896173.135	4638392.012	1286.383	IB/IP NE 36
29	3893596.888	4633085.492	1298.690	IB 1/2" W 1/4 36
33	3890916.074	4635697.805	1284.142	U-POST S 1/4 36
37	3893538.200	4638362.519	1266.394	3/4" IB E 1/4 36
46	3896208.759	4635747.998	1281.076	IB 1/2" N 1/4 36
1680	3893567.554	4635722.958	1287.376	IB CENTER SEC. 36

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NO.	REVISIONS	BY	DATE

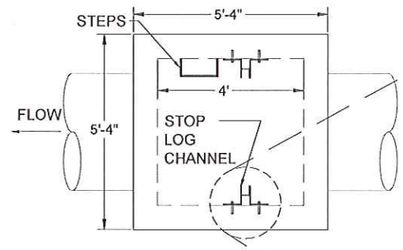
Site Plan.dwg

ENGINEER: DESIGNER: N.M.J./JRK
DRAFTSMAN: JRF/NRF
CHECKER: N.M.J/DDC

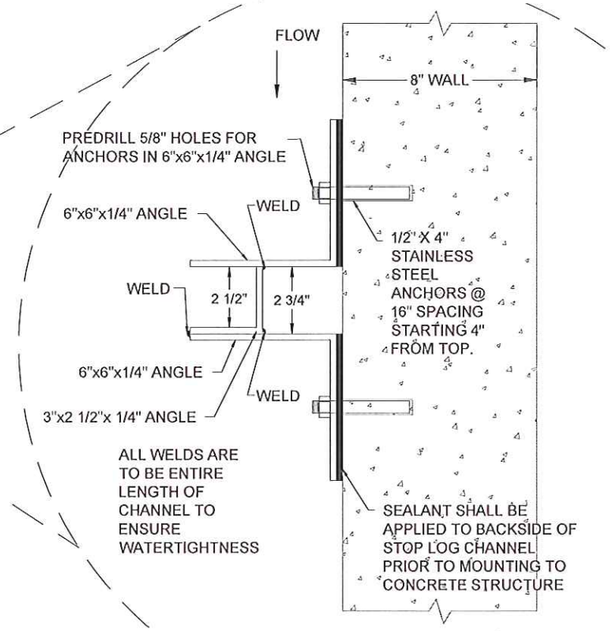
SITE PLAN
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

PROJECT NO. 14072 | DATE 10-5-2012

SHEET A.02



PLAN VIEW
NOT TO SCALE



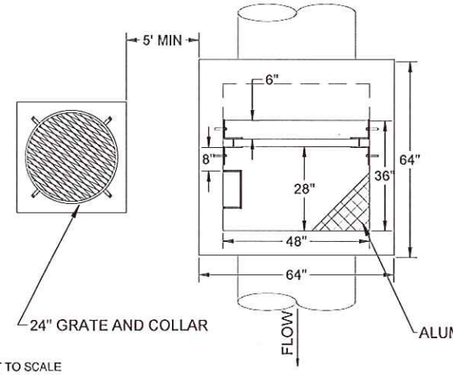
STOP LOG CHANNEL DETAIL
NOT TO SCALE

STOP LOG CHANNEL NOTES:

1. ALL STEEL SHALL BE FY=36 KSI.
2. ANCHORS SHALL BE STAINLESS STEEL FURNISHED W/ NUTS, WASHERS AND LOCK WASHERS.
3. STOP LOG CHANNEL SHALL BE FURNISHED AS ONE CONTINUOUS PIECE W/ CONTINUOUS WELDS.
4. ALL STEEL STOP LOG CHANNEL COMPONENTS ARE TO BE GALVANIZED AFTER WELDING AND DRILLING IS COMPLETE.
5. CONTRACTOR IS TO APPLY SEALANT VERY GENEROUSLY TO BACKSIDE OF STOP LOG CHANNEL AND STRUCTURE TO ENSURE WATERTIGHT SEAL. SEALANT SHALL BE SIKA 30 YEAR INDUSTRIAL CAULK IN LIMESTONE GREY OR APPROVED EQUIVALENT.

WATER CONTROL STRUCTURE NOTES:

1. STRUCTURE SHOP DRAWINGS ARE REQUIRED FOR ENGINEER'S REVIEW AND APPROVAL BEFORE FABRICATION OF WATER CONTROL STRUCTURE.
2. PRECAST WATER CONTROL STRUCTURE SHALL BE SUPPLIED IN 2 OR 3 SECTIONS, PLUS AN 8" THICK COVER SECTION. SECTION SIZE IS LEFT TO CONTRACTOR'S DISCRETION EXCEPT BOTTOM SECTION SHALL INCLUDE BASE AND WALLS TO 12" ABOVE INLET HOLE.
3. STOP LOG CHANNEL IS TO BE ANCHORED TO THE WALLS AND FLOOR PRIOR TO PLACING CONCRETE INVERT.
4. A CONCRETE INVERT IS TO BE INSTALLED AFTER STOP LOG CHANNEL IS INSTALLED. THE BOTTOM STOP LOG IS TO BE CAST INTO THE INVERT WITH THREE HALF INCH Ø "J BOLTS" FASTENED TO THE BOTTOM STOP LOG. NO LIFTING HOLES ARE REQUIRED FOR THIS BOTTOM LOG.
5. ALL SECTIONS OF THE STRUCTURE ARE TO HAVE "TONGUE AND GROOVE" JOINTS SEALED WITH ROPE MASTIC GASKETS IN THE JOINT AND MASTIC AND FABRIC WRAP ON THE STRUCTURE EXTERIOR.
6. ALL REINFORCEMENT FOR WATER CONTROL STRUCTURE SHALL BE ONE LAYER OF #4 REBAR @12" SPACING. CENTERED IN WALL, TWO #4 HOOP BARS ARE TO BE USED AT EACH OPENING.
7. PLACE BASE OF STRUCTURE ON FIRM UNDISTURBED EARTH FOUNDATION APPROVED BY ENGINEER.
8. MANHOLE STEPS ARE TO BE INSTALLED FOR MAINTENANCE ACCESS TO THE STOP LOGS. STEPS ARE TO BE PER IDOT 4149.04L.
9. A-LOK'S (OR EQUIVALENT) WATERTIGHT SEALS ARE REQUIRED FOR PIPE CONNECTIONS TO THE WATER CONTROL STRUCTURE.



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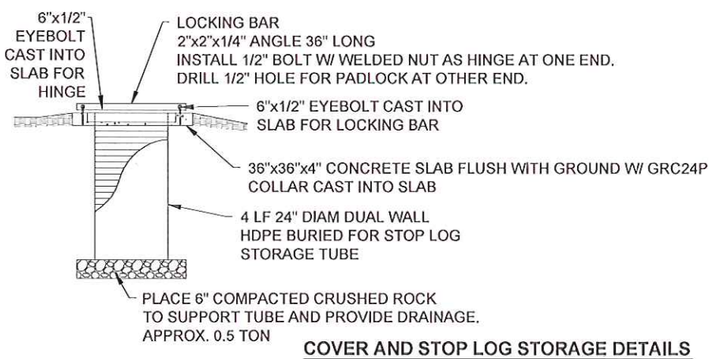
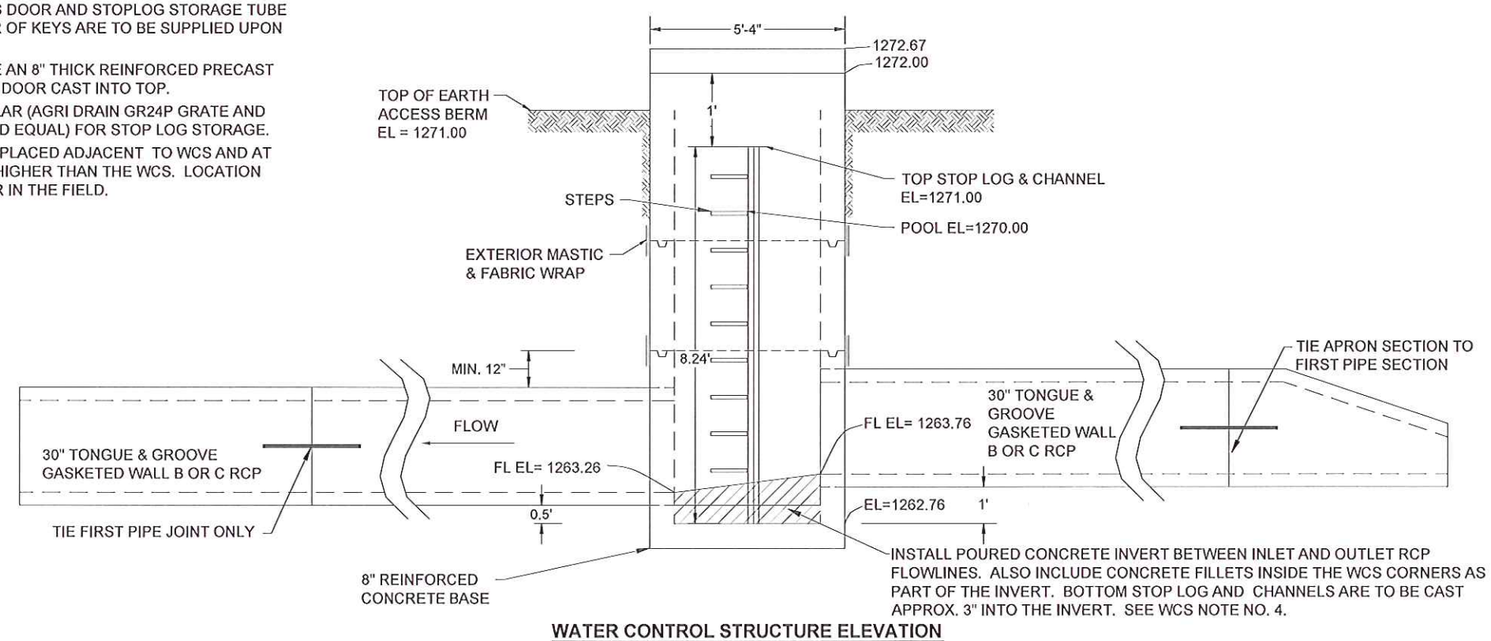
COVER/STOP LOG STORAGE NOTES:

1. PROVIDE (HALLIDAY PRODUCTS MODEL S1R3648 OR APPROVED EQUAL)36"x48" ALUMINUM ACCESS DOOR WITH LOCKING MECHANISM AND LIFTING HANDLE.
2. BOTH PADLOCKS FOR ACCESS DOOR AND STOPLOG STORAGE TUBE SHALL BE KEYED ALIKE. FOUR OF KEYS ARE TO BE SUPPLIED UPON PROJECT COMPLETION.
3. TOP OF STRUCTURE SHALL BE AN 8" THICK REINFORCED PRECAST TOP WITH ALUMINUM ACCESS DOOR CAST INTO TOP.
4. PROVIDE 24" GRATE AND COLLAR (AGRI DRAIN GR24P GRATE AND GRC24P COLLAT OR APPROVED EQUAL) FOR STOP LOG STORAGE.
5. STOP LOG STORAGE IS TO BE PLACED ADJACENT TO WCS AND AT AN ELEVATION EQUAL TO OR HIGHER THAN THE WCS. LOCATION WILL BE STAKED BY ENGINEER IN THE FIELD.



COVER AND STOP LOG STORAGE DETAILS
NOT TO SCALE



WATER CONTROL STRUCTURE ELEVATION
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Minnesota: Mankato • Fairmont
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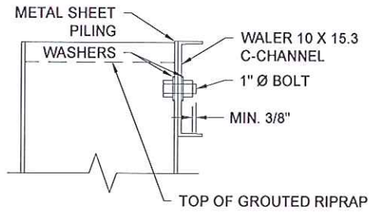
NO.	REVISIONS	BY	DATE

Water Control Structure Details.dwg

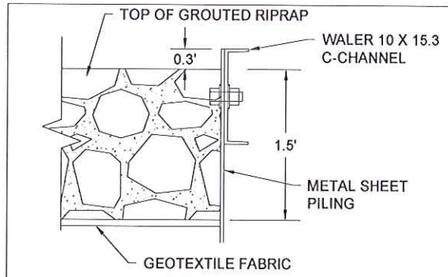
ENGINEER: N. J. ROETHLER
DESIGNER: ---
DRAFTSMAN: ---
APPRENTICE: ---
CHECKER: ---

WATER CONTROL STRUCTURE DETAILS
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

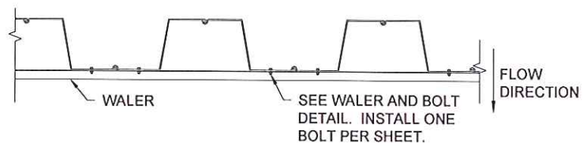
PROJECT NO. 14072
DATE 10-5 2012
SHEET B.01



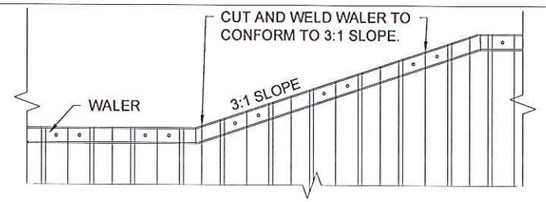
TYPICAL WALER AND BOLT DETAIL
NOT TO SCALE



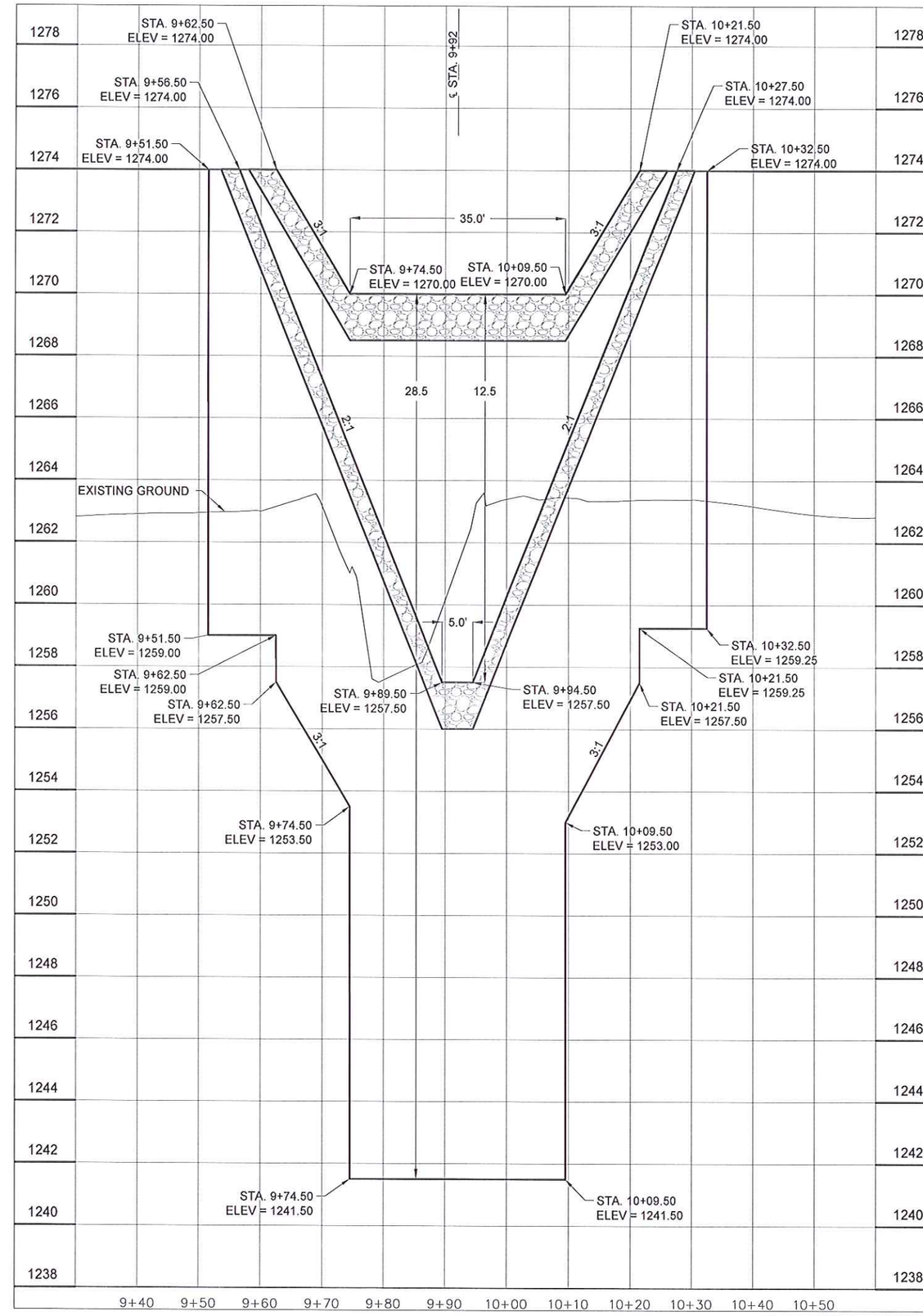
TYPICAL GROUTED RIPRAP DETAIL
NOT TO SCALE



TYPICAL PLAN VIEW WALER BOLT PLACEMENT
NOT TO SCALE



TYPICAL FRONT VIEW WALER BOLT PLACEMENT
NOT TO SCALE



SHEET PILING REQUIREMENTS

DESIGN SHEET PILING AREA = 1724 SF
MINIMUM SECTION MODULUS OF 24.61 CUBIC INCHES PER FOOT OF WALL
MINIMUM GRADE OF STEEL 36 KSI.
MINIMUM MOMENT OF INERTIA OF 228 INCHES ^ 4 PER FOOT OF WALL.
ALL SHEETING SHALL MEET ASTM A-328, A-572 GR50 OR A-690.

SHEETING WHICH MEETS THE REQUIREMENTS:

SHORELINE STEEL MSZ 18-312 OR EQUIVALENT
CONTECH XZ95, JZ 112 OR EQUIVALENT
LB FOSTER/ GERDAU AMERISTEEL PZC 18 OR EQUIVALENT
SKYLINE STEEL AZ17, SKZ20, PZ 35 OR EQUIVALENT

SHEET PILING NOTES:

1. SHEETING CHOICES NOT LISTED ABOVE MAY BE ALLOWED WITH PRIOR APPROVAL OF ENGINEER, THIS ALLOWED SHEETING MUST MEET ENGINEERS DEFLECTION REQUIREMENTS.
2. CONTRACTOR IS RESPONSIBLE TO CONFIRM AND PROVIDE INSTALLATION EQUIPMENT THAT IS COMPATIBLE WITH THE SHEETING TO BE USED. SOME INSTALLATION METHODS MAY WORK BETTER WITH HEAVIER SHEETPILE.

SHEET PILE INSTALLATION NOTES:

1. ALL BOLTS WILL BE 1" DIA. W/2 WASHERS. BOLT SHALL EXTEND AT MINIMUM 3/8"BEYOND NUT
2. ALL HOLES SHALL BE FIELD DRILLED 1/16" DIA. LARGER THAN THE BOLTS.
3. THE WALER SHALL BE PLACED ON THE DOWNSTREAM SIDE OF THE WEIR.
4. AFTER INSTALLATION ANY HOLES LEFT IN SHEET PILE (LIFTING HOOKS ETC.) SHALL BE CLOSED OFF TO NOT ALLOW WATER TO FLOW THROUGH.
5. AFTER SHEETING AND WALER INSTALLATION ALL SHEETING IS TO BE CUT TO CONFORM WITH 3:1 SLOPE.

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NO.	REVISIONS	BY	DATE

Sheet Pile Structure.dwg

ENGINEER: N. J. ROETHLER
DESIGNER: ----
DRAFTSMAN: JVT/ANT
CHECKER: ----

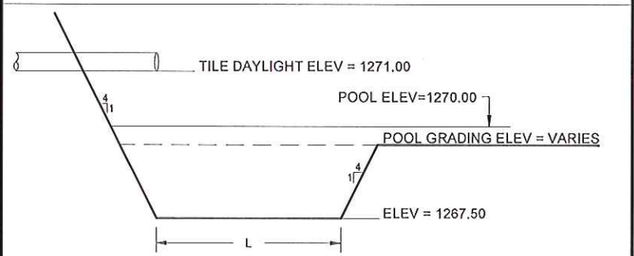
SHEET PILE STRUCTURE AND DETAILS
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

PROJECT NO	DATE
14072	8-30 2012

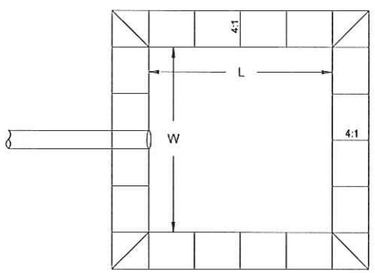
SHEET
B.02

F:\14000\14072 Palo Alto CREP #73231\12-14072 Civil\Survey\Civil Production Drawings\Sheet Pile Structure.dwg
PDF SAVE: 10/4/2012

TYPICAL TILE OUTLET PLUNGE POOL



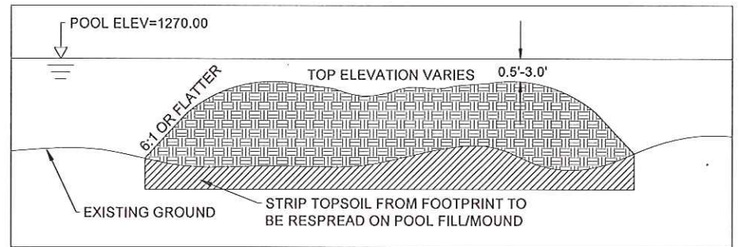
PROFILE VIEW
NOT TO SCALE



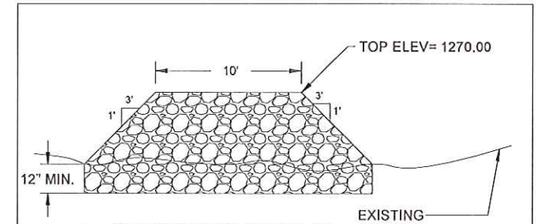
PLAN VIEW
NOT TO SCALE

NOTES:

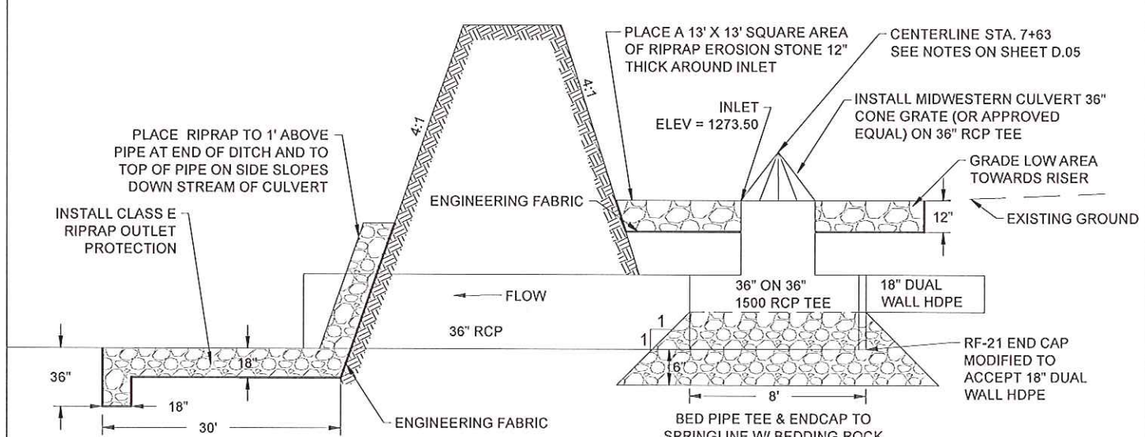
1. LARGE PLUNGE POOL FOR TILE 12" OR LARGER: L = 20', W = 20'
2. SMALL PLUNGE POOL FOR TILE 10" OR SMALLER: L = 10', W = 20'
3. SMALL PLUNGE POOL EXCAVATION IS APPROXIMATELY 30 CUBIC YARDS
4. LARGE PLUNGE POOL EXCAVATION IS APPROXIMATELY 70 CUBIC YARDS
5. ALL SIDE SLOPES ARE TO BE 4:1



POOL FILL, DIVERSION BERM AND HABITAT MOUND TYPICAL SECTION



SUBMERGED BERM #3
NOT TO SCALE



DAYLIGHT #1 - INLET DETAIL
NOT TO SCALE

TILE #1 INLET STRUCTURE NOTES, WORK AND MATERIALS

- THE RIM ELEV. OF INLET STRUCTURE SHALL BE VERIFIED BY ENGINEER PRIOR TO PLACEMENT OF RIPRAP.
- GRADE AREA TO DRAIN TO INLET.
- INCLUDES CONNECTION TO 18" DUAL WALL HDPE, BUT NOT THE PIPE MATERIAL.
- BEDDING ROCK IS ONLY TO BE INSTALLED AT THE 36" ON 36" RCP TEE, ALL OTHER PIPE BEDDING IS TO BE EARTH MATERIAL

INLET STRUCTURE ITEM

- TOPSOILING EXCAVATION, BACKFILL, MECHANICAL COMPACTION AND GRADING
- 1 - 36" ON 36" RCP TEE SECTION INCLUDING FABRICATION
- 1 - 36" RCP MODIFIED PRE-CAST RF-21 CONCRETE PIPE END CAP
- 1 - MIDWESTERN CULVERT 36" CONE GRATE

SEPARATE ITEMS

- IDOT EROSION STONE, 10 TON
- GEOTEXTILE FABRIC, 19 SY
- 36" 1500D RCP, 59 LF
- 18" DUAL WALL HDPE, 88 LF

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B.03 - Inlet Structure And Grading Details.dwg

ENGINEER: N.J. ROETHLER
DESIGNER: N.J. ROETHLER
DRAFTSMAN: NSF/AJF
CHECKER: N.J. ROETHLER

INLET STRUCTURE AND GRADING DETAILS
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

PROJECT NO.	DATE
14072	10-5 2012

SHEET
B.03

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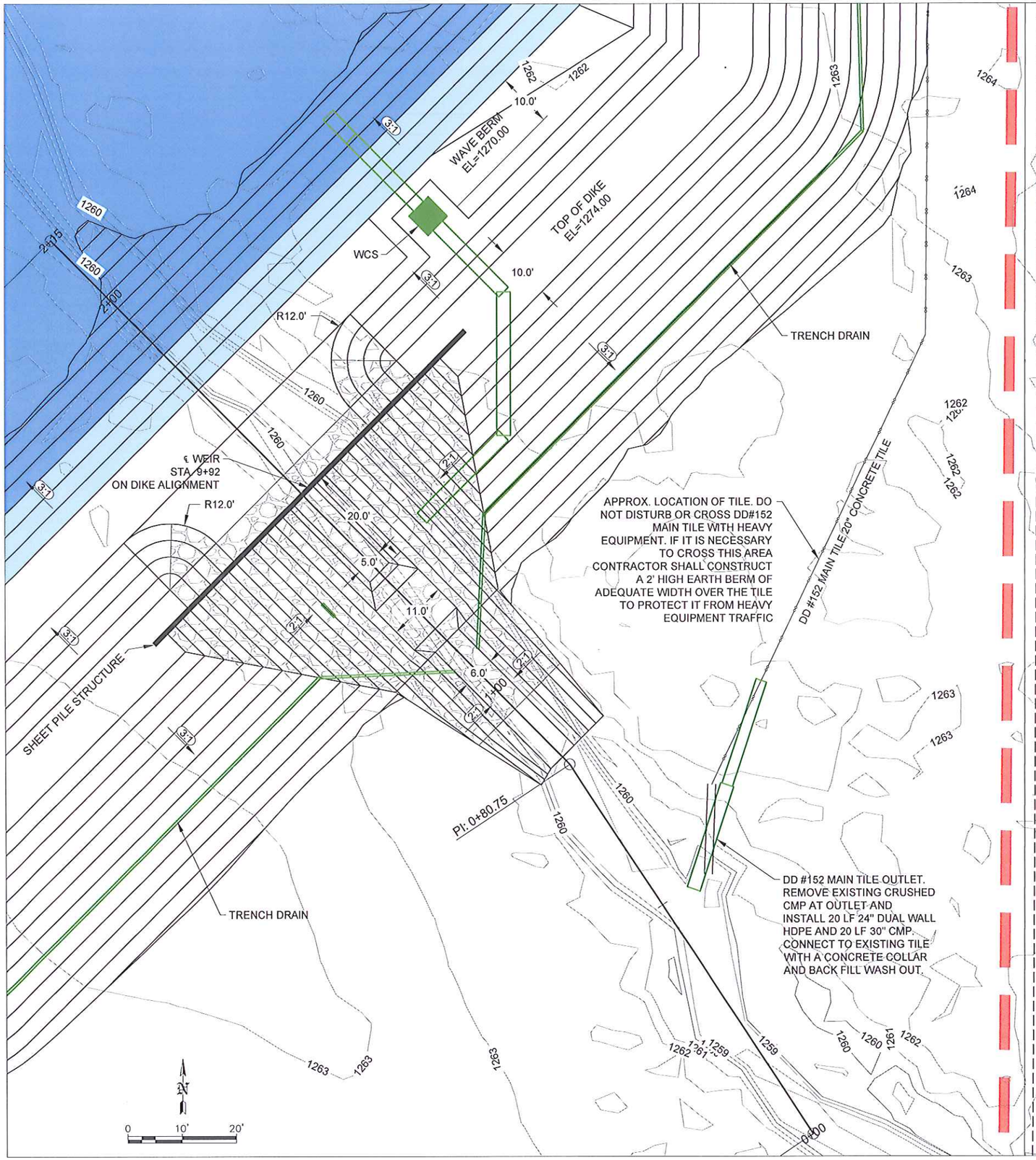
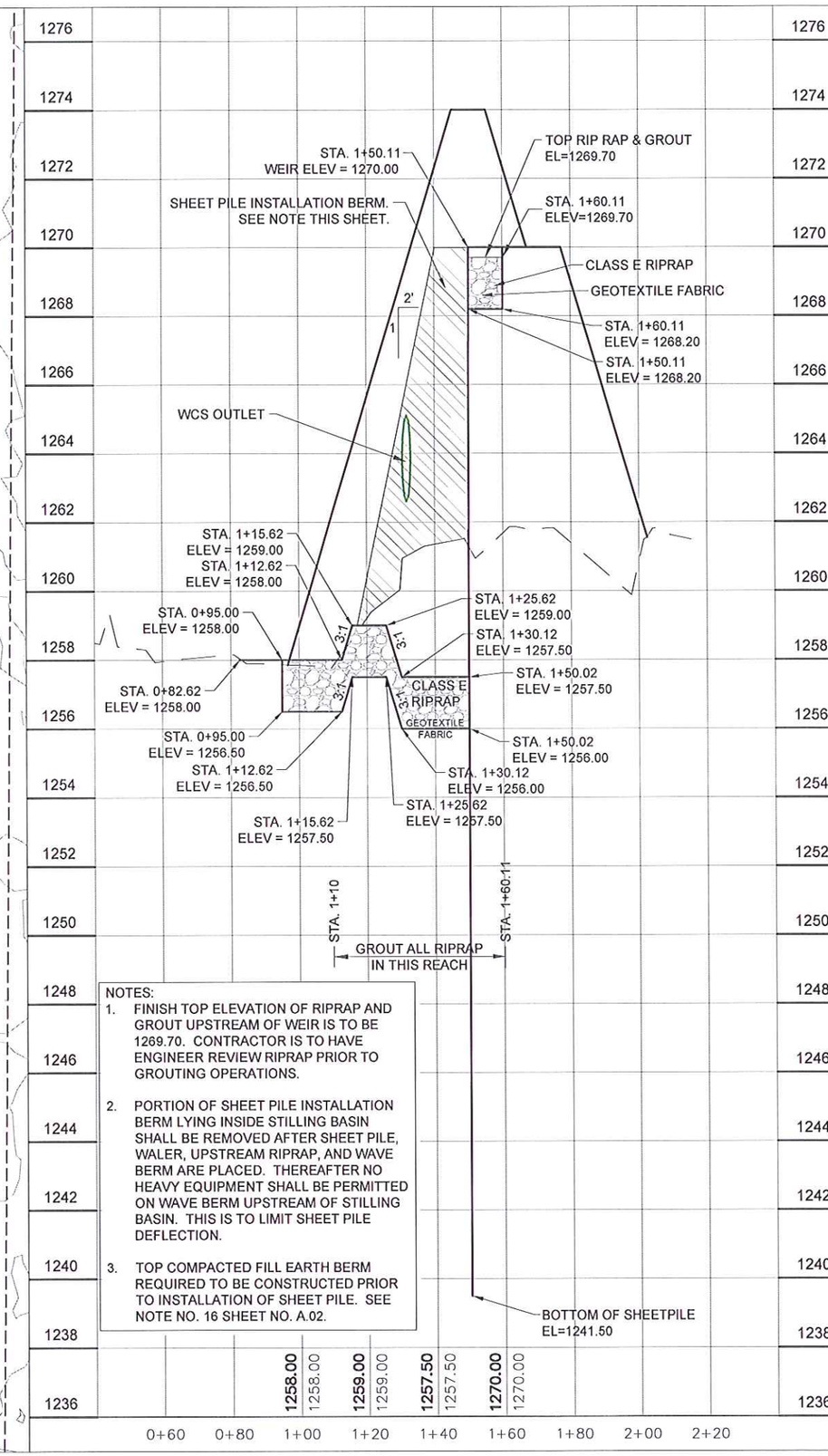
Last Edit: 10/2/2012





NOTES:

1. FINISH TOP ELEVATION OF RIPRAP AND GROUT UPSTREAM OF WEIR IS TO BE 1269.70. CONTRACTOR IS TO HAVE ENGINEER REVIEW RIPRAP PRIOR TO GROUTING OPERATIONS.
2. PORTION OF SHEET PILE INSTALLATION BERM LYING INSIDE STILLING BASIN SHALL BE REMOVED AFTER SHEET PILE, WALER, UPSTREAM RIPRAP, AND WAVE BERM ARE PLACED. THEREAFTER NO HEAVY EQUIPMENT SHALL BE PERMITTED ON WAVE BERM UPSTREAM OF STILLING BASIN. THIS IS TO LIMIT SHEET PILE DEFLECTION.
3. TOP COMPACTED FILL EARTH BERM REQUIRED TO BE CONSTRUCTED PRIOR TO INSTALLATION OF SHEET PILE. SEE NOTE NO. 16 SHEET NO. A.02.

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Stilling Basin Plan And Profile.dwg

ENGINEER: N. J. ROETHLER
DESIGNER: N.J.R./J.P.R.
DRAFTSMAN: J.K.F./N.K.F.
CHECKER: N.J.R./D.D.E.

STILLING BASIN PLAN AND PROFILE
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

PROJECT NO. 14072
DATE 9-4 2012

SHEET D.01

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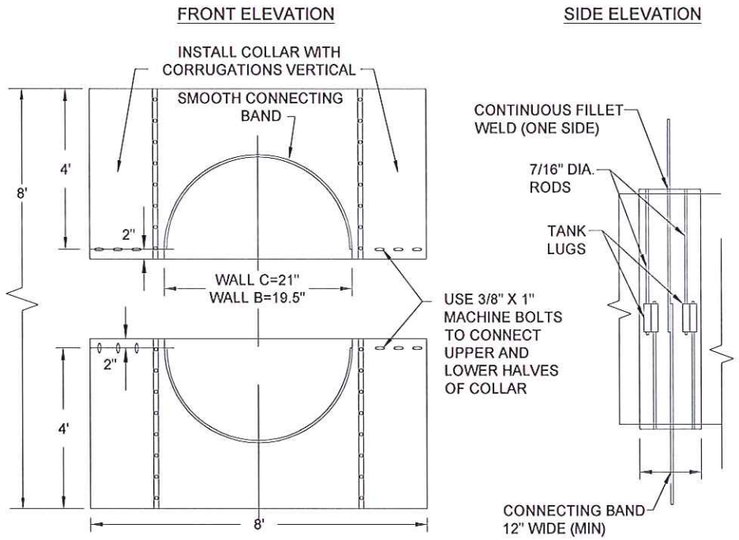
PDF DATE: 9/4/2012

WATER CONTROL STRUCTURE INSTALLATION NOTES:

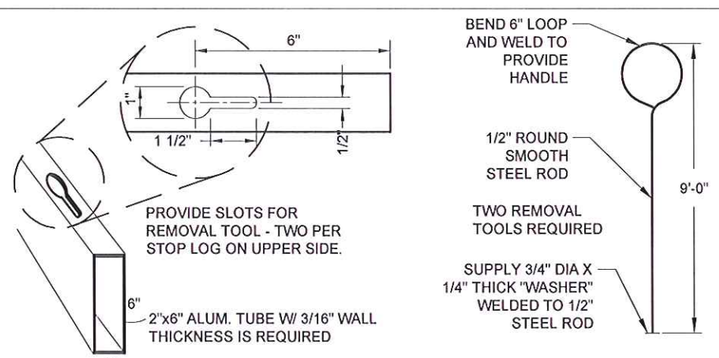
1. PIPE SHALL BE TONGUE & GROOVE GASKETED RCP WALL B OR C PER ASTM C361. THE JOINT SHALL COMPLY WITH ASTM C443.
2. PIPE EMBEDMENT AND BACKFILL MATERIALS SHALL BE CONSISTENT WITH SPEC IA-23. A DEWATERED DRY TRENCH IS REQUIRED. PLACE AND COMPACT FILL AROUND PIPE AND STRUCTURE IN ACCORDANCE WITH SPEC IA-23, SECTION 6 AND AS TRENCH IS FILLED OR DIKE FILL IS RAISED. NO GRANULAR BEDDING ALONG PIPE IS ALLOWED. SUITABLE EARTH BACKFILL MUST BE USED.
3. THE COMPACTION OF EACH BACKFILL LAYER MUST BE APPROVED BY ENGINEER'S REPRESENTATIVE PRIOR TO PLACEMENT OF THE NEXT LAYER. DENSITY TESTING NOT REQUIRED.
4. RCP APRON SECTION SHALL BE COMPATIBLE WITH THE MAIN LINE PIPE.
5. RCP APRON GUARD IS TO BE AN IDOT RF-26 OR APPROVED EQUAL.
6. FURNISH AND INSTALL 2" X 6" ALUMINUM STOP LOGS AND TWO REMOVAL TOOLS. LOGS ARE TO BE FIELD CUT 1" SHORTER THAN OPENING TO FIT THE FABRICATED STOP LOG CHANNEL. WHEN INSTALLING STOP LOG CHANNEL AND CASTING BOTTOM LOG INTO THE INVERT VERIFY WITH THE ENGINEER THAT POOL ELEVATION CAN BE MET WITH 6" STOP LOGS.

ANTI-SEEP COLLAR NOTES:

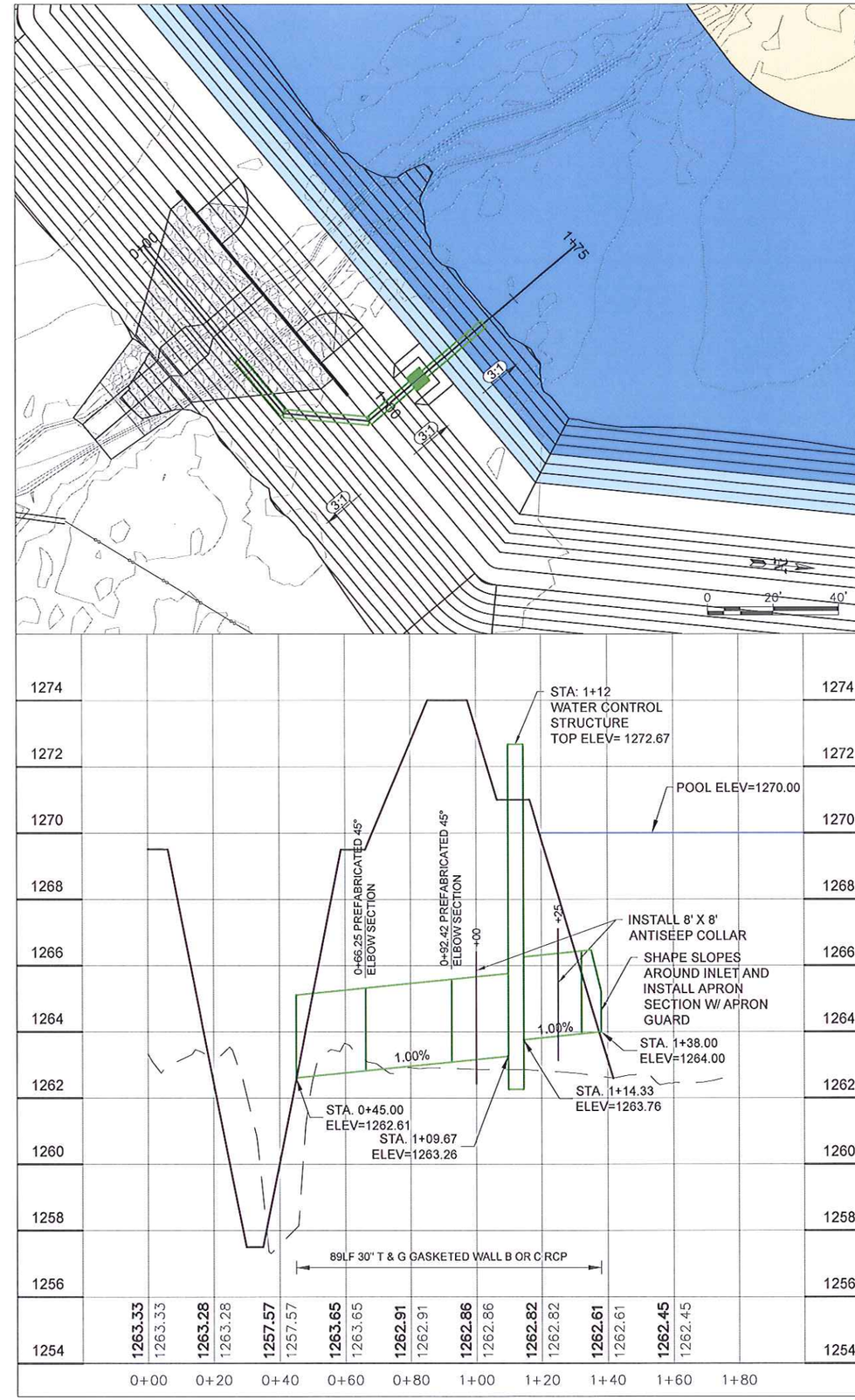
1. USE TWO PIECE CORRUGATED STEEL DIAPHRAGM (14 GAUGE) WITH 2-2/3" X 1/2" CORRUGATIONS. CONNECTING BAND SHALL BE SMOOTH AND COMPATIBLE WITH THE TONGUE & GROOVE GASKETED WALL B OR C RCP PIPE. MASTIC SEALANT SHALL BE APPLIED TO THE CONNECTING BAND TO PROVIDE A LEAK-PROOF STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR ENSURING ANTI-SEEP COLLAR IS COMPATIBLE WITH PIPE SUPPLIED.
2. PLACE ANTI-SEEP COLLARS AS SHOWN ON THE PLANS AND A MINIMUM OF 2 FEET FROM PIPE JOINTS.



ANTI-SEEP COLLAR
NO SCALE



STOP LOG & REMOVAL TOOL DETAILS



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Water Control Structure.dwg

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ENGINEER: N.J. ROETHLER
DESIGNER: N.J.K./J.P.R.
DRAFTSMAN: J.K.T./N.K.J.
CHECKER: N.J.K./D.D.E.

WATER CONTROL STRUCTURE
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

PROJECT NO 14072
DATE 9-4 2012
SHEET D.02

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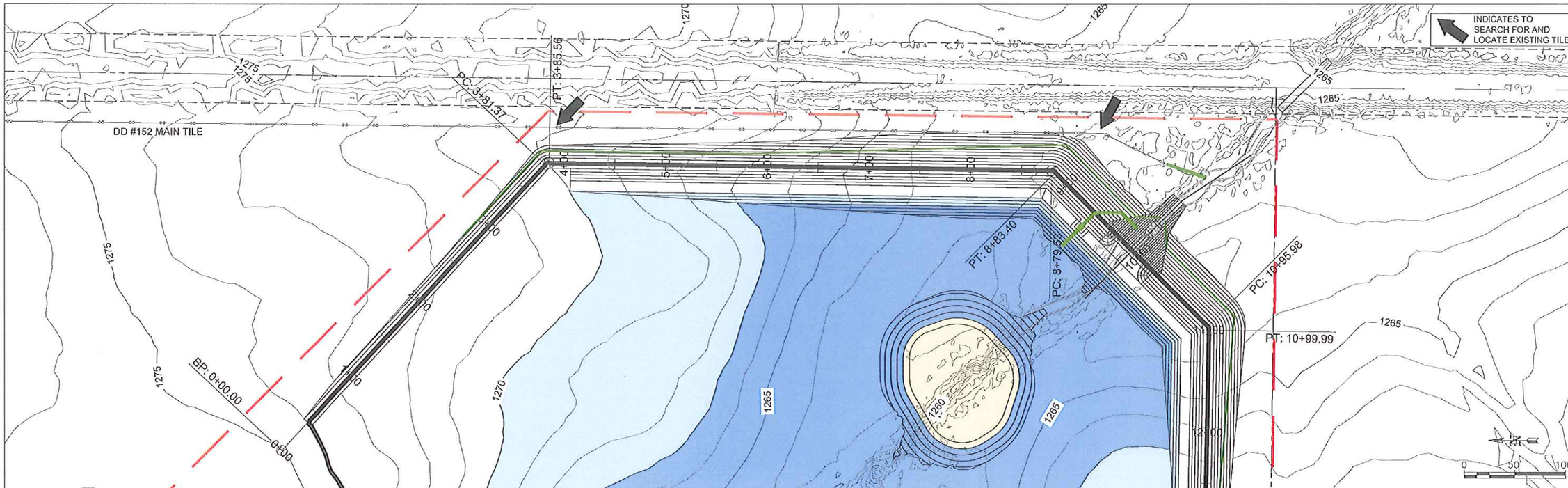

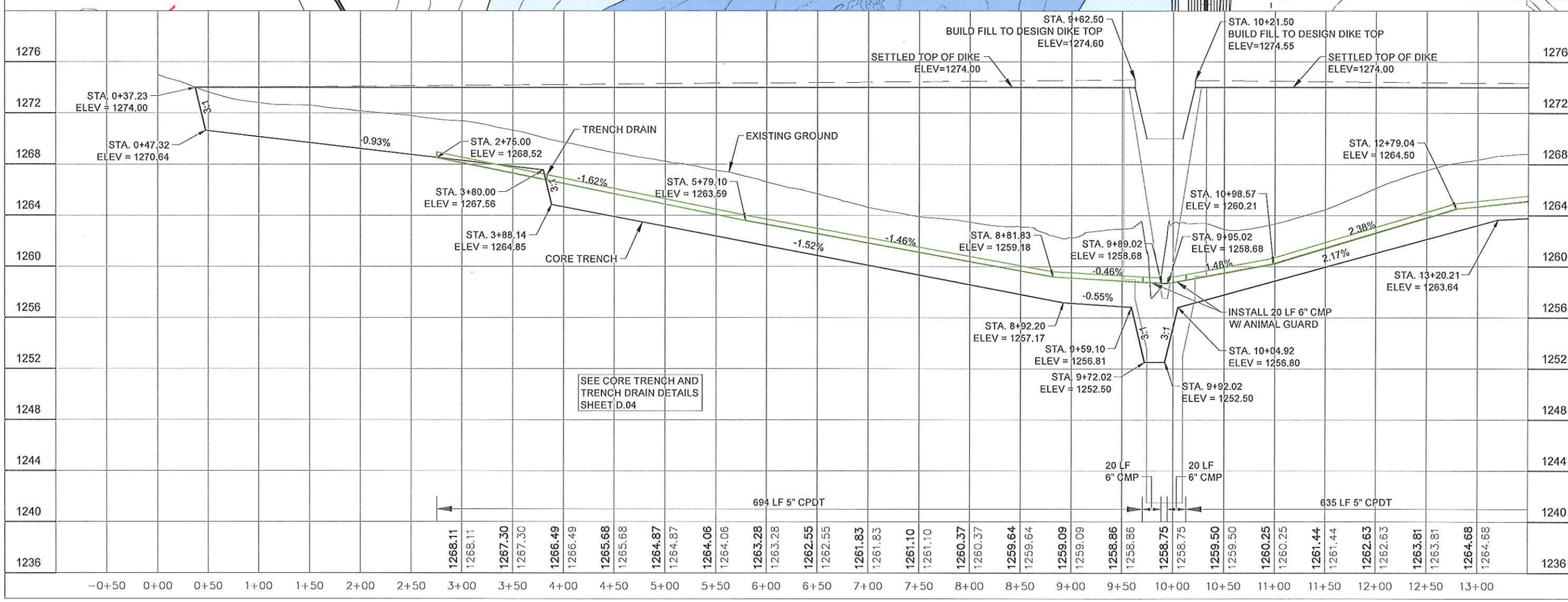

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Trench Drain Core Trench.dwg

ENGINEER: N.J. KOESTHLER
DESIGNER: N.J.K./J.P.S.
DRAFTSMAN: JST/NSF
CHECKER: N.J.K./D.D.E.

CORE TRENCH-TRENCH DRAIN PLAN AND PROFILE
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

PROJECT NO.	DATE
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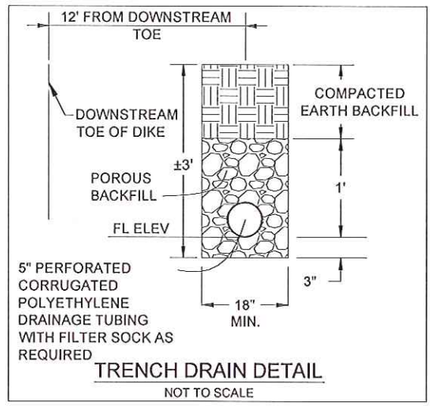
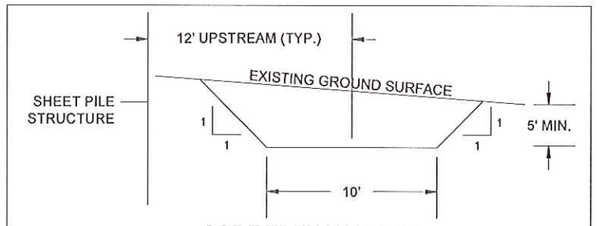
PLOT DATE: 10/5/2012



TRENCH DRAIN DETAIL

NOT TO SCALE



CORE TRENCH DETAIL

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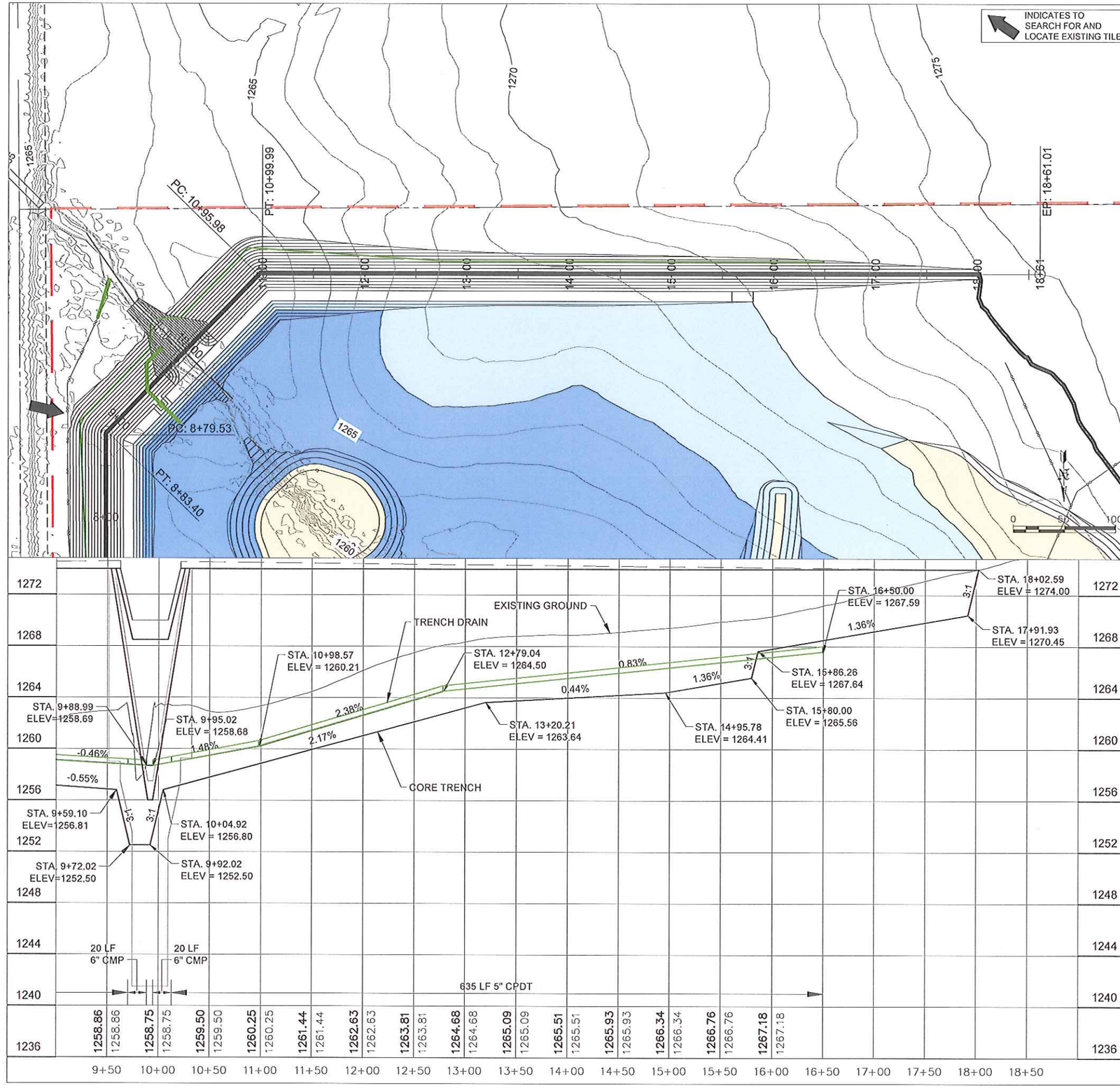

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Trench Drain Core Trench.dwg

ENGINEER: N.J. LOFTHILER
DESIGNER: N.J.R./J.P.S.
DRAFTSMAN: JRF/NSF
CHECKER: N.J.R./D.D.E.

CORE TRENCH-TRENCH DRAIN PLAN AND PROFILE
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

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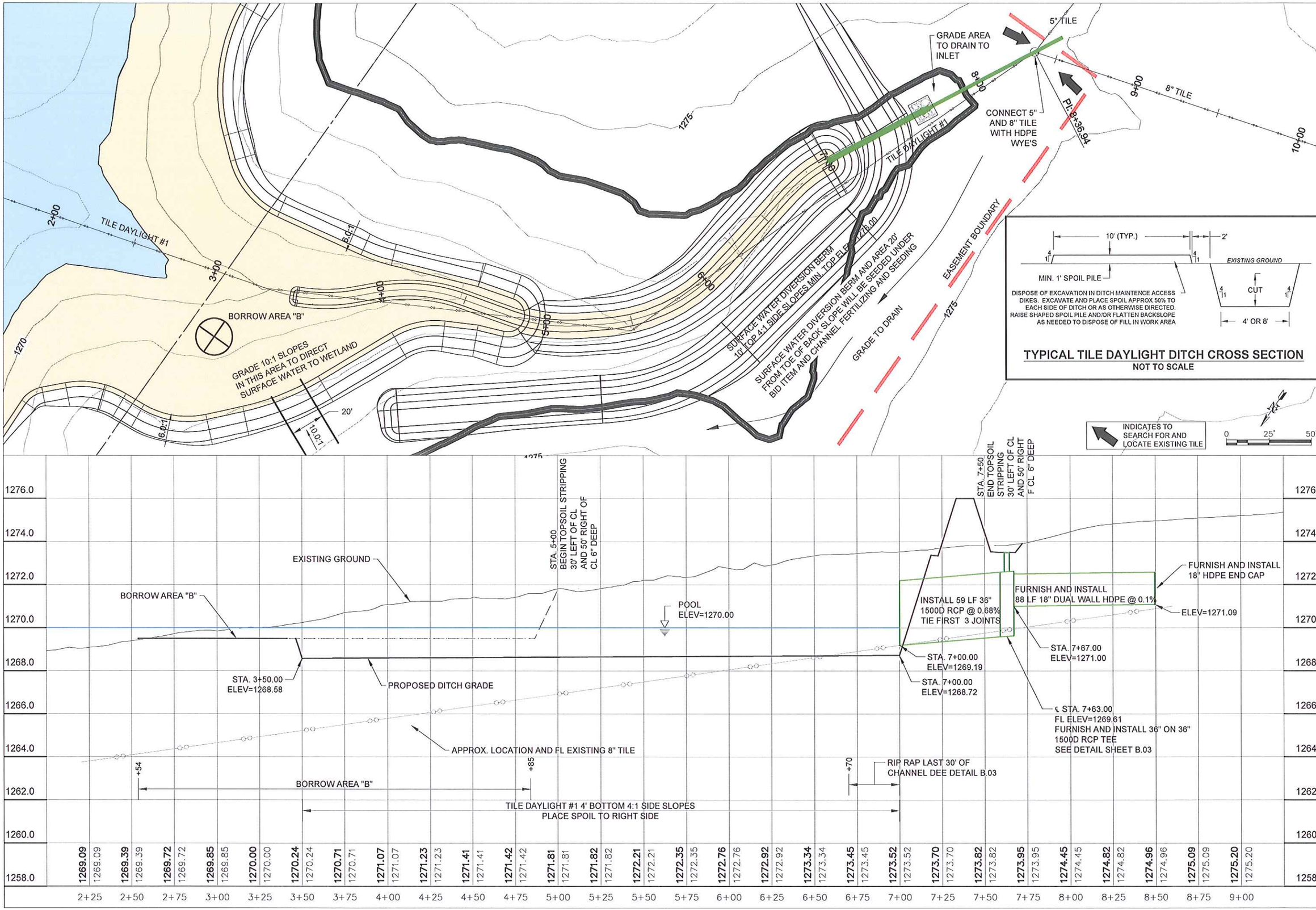

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Tile Daylight Ditch Plan And Profiles.dwg

ENGINEER: N. J. ROETHLER
DESIGNER: N.J. ROETHLER
DRAFTSMAN: N.J. ROETHLER
CHECKER: N.J. ROETHLER

TILE DAYLIGHT #1
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

PROJECT NO 14072
DATE 9-4 2012
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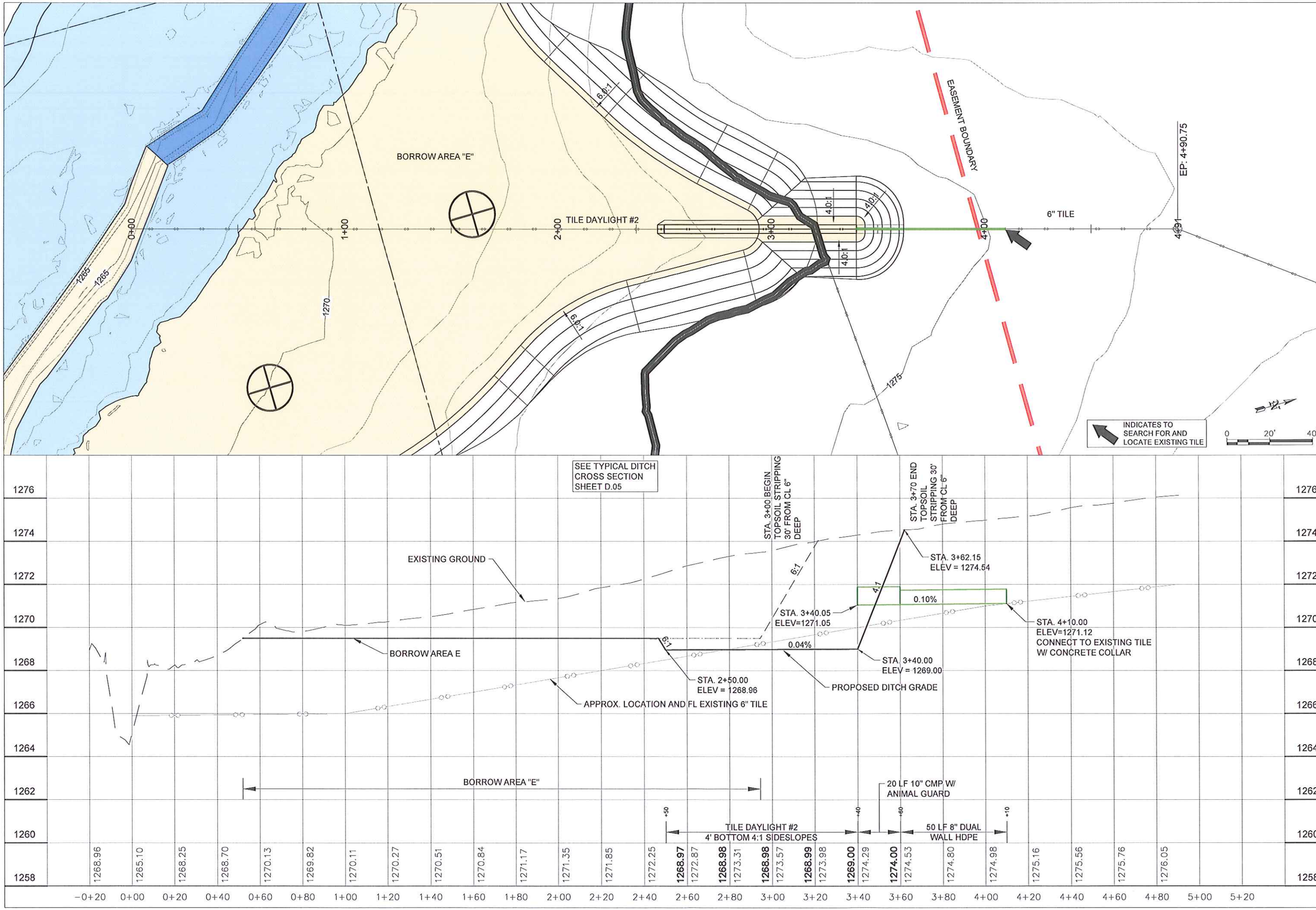

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ENGINEER: ----
DESIGNER: N.J. KOETHLER
DRAFTSMAN: JKF/KNF
CHECKER: N.J. KOETHLER

TILE DAYLIGHT #2
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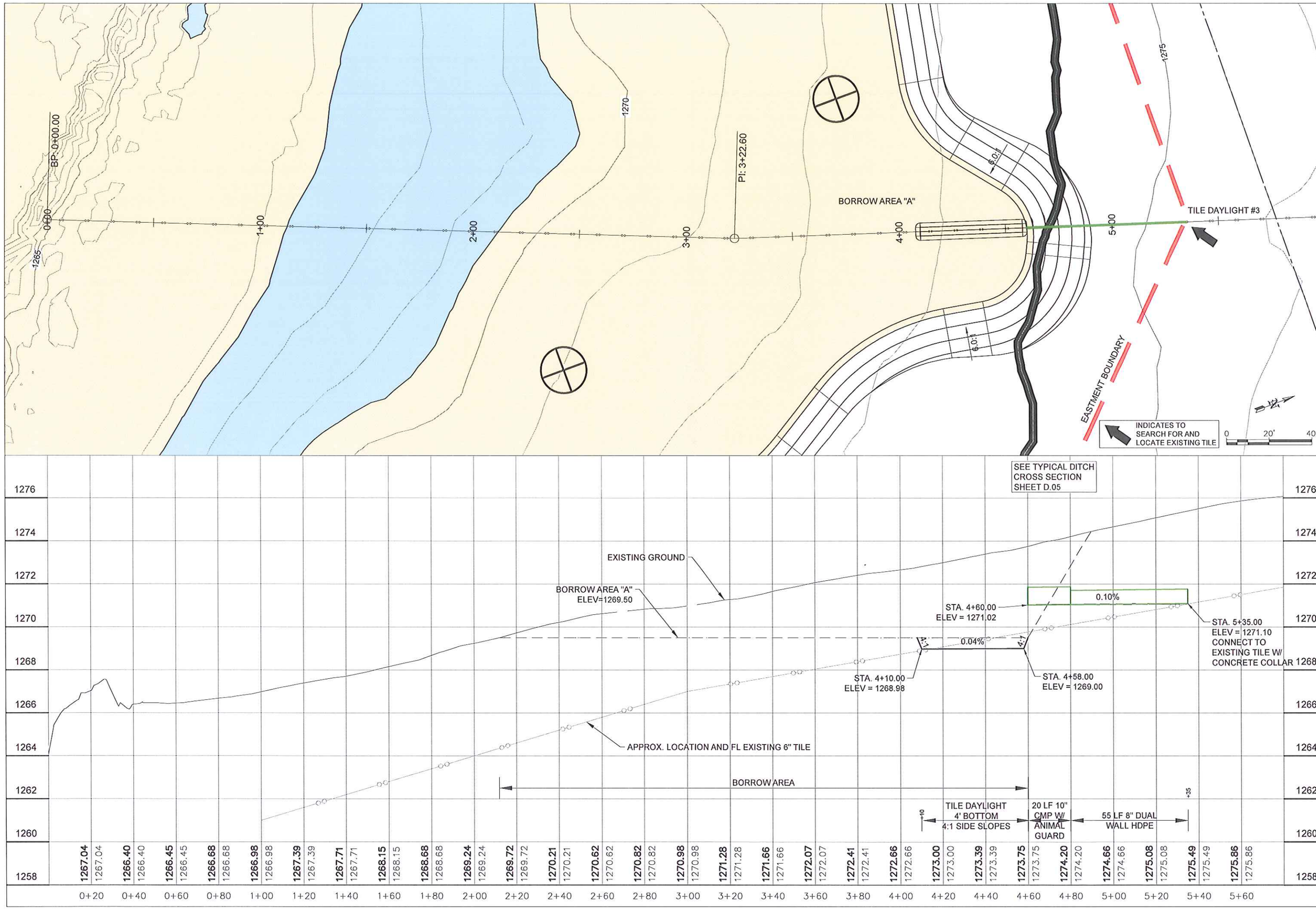

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Tile Daylight Ditch Plan And Profiles.dwg

ENGINEER: ----
DESIGNER: N.J. ROETHLER
DRAFTSMAN: ----
CHECKED: ----
N.J. ROETHLER

TILE DAYLIGHT #3
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

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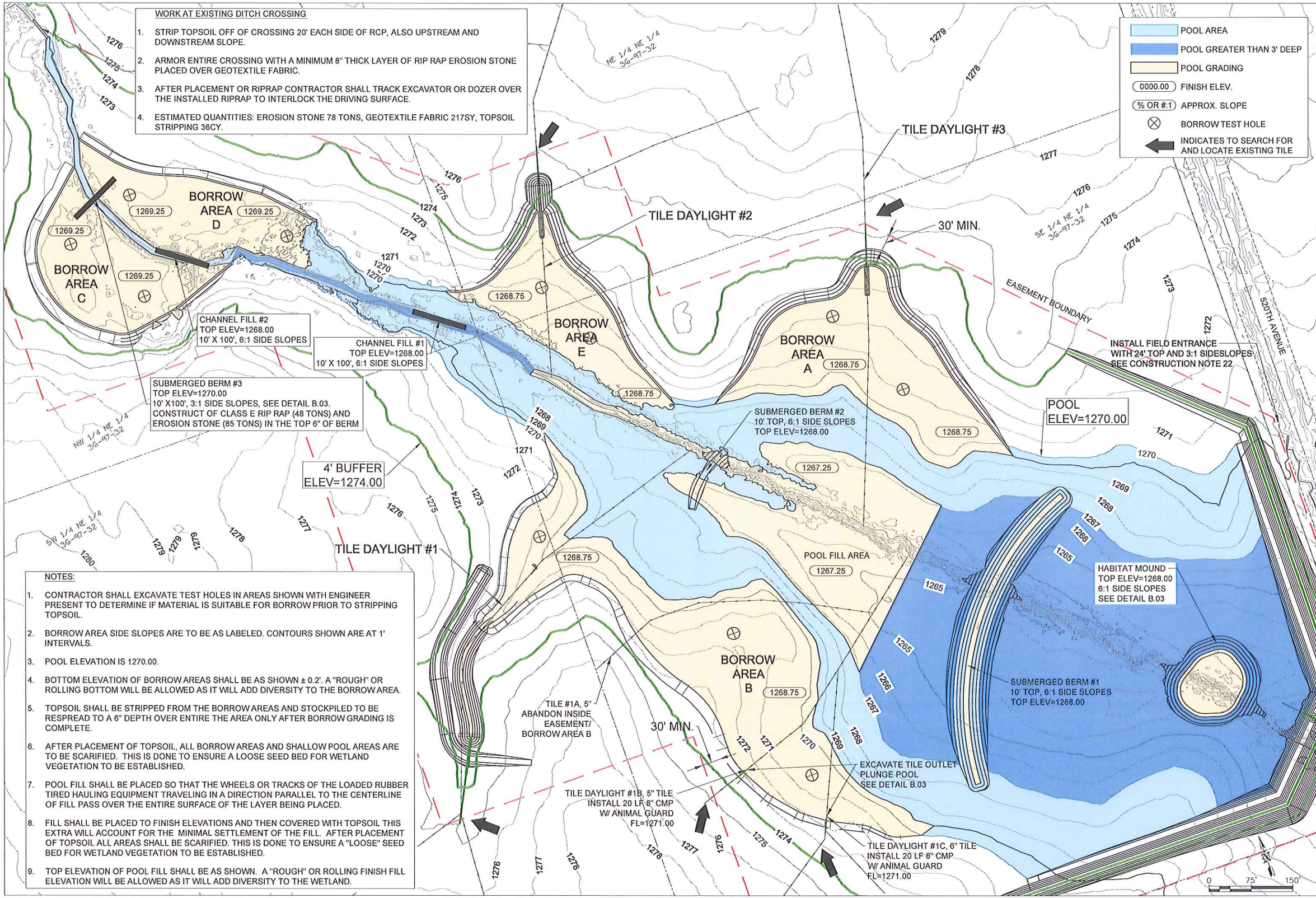
PLOT DATE: 9/4/2012

WORK AT EXISTING DITCH CROSSING

1. STRIP TOPSOIL OFF OF CROSSING 20' EACH SIDE OF RCP, ALSO UPSTREAM AND DOWNSTREAM SLOPE.
2. ARMOR ENTIRE CROSSING WITH A MINIMUM 8" THICK LAYER OF RIP RAP EROSION STONE PLACED OVER GEOTEXTILE FABRIC.
3. AFTER PLACEMENT OR RIPRAP CONTRACTOR SHALL TRACK EXCAVATOR OR DOZER OVER THE INSTALLED RIPRAP TO INTERLOCK THE DRIVING SURFACE.
4. ESTIMATED QUANTITIES: EROSION STONE 78 TONS, GEOTEXTILE FABRIC 217SY, TOPSOIL STRIPPING 36CY.



NOTES:

1. CONTRACTOR SHALL EXCAVATE TEST HOLES IN AREAS SHOWN WITH ENGINEER PRESENT TO DETERMINE IF MATERIAL IS SUITABLE FOR BORROW PRIOR TO STRIPPING TOPSOIL.
2. BORROW AREA SIDE SLOPES ARE TO BE AS LABELED. CONTOURS SHOWN ARE AT 1' INTERVALS.
3. POOL ELEVATION IS 1270.00.
4. BOTTOM ELEVATION OF BORROW AREAS SHALL BE AS SHOWN ± 0.2'. A "ROUGH" OR ROLLING BOTTOM WILL BE ALLOWED AS IT WILL ADD DIVERSITY TO THE BORROW AREA.
5. TOPSOIL SHALL BE STRIPPED FROM THE BORROW AREAS AND STOCKPILED TO BE RESPREAD TO A 6" DEPTH OVER ENTIRE THE AREA ONLY AFTER BORROW GRADING IS COMPLETE.
6. AFTER PLACEMENT OF TOPSOIL, ALL BORROW AREAS AND SHALLOW POOL AREAS ARE TO BE SCARIFIED. THIS IS DONE TO ENSURE A LOOSE SEED BED FOR WETLAND VEGETATION TO BE ESTABLISHED.
7. POOL FILL SHALL BE PLACED SO THAT THE WHEELS OR TRACKS OF THE LOADED RUBBER TIRED HAULING EQUIPMENT TRAVELING IN A DIRECTION PARALLEL TO THE CENTERLINE OF FILL PASS OVER THE ENTIRE SURFACE OF THE LAYER BEING PLACED.
8. FILL SHALL BE PLACED TO FINISH ELEVATIONS AND THEN COVERED WITH TOPSOIL THIS EXTRA WILL ACCOUNT FOR THE MINIMAL SETTLEMENT OF THE FILL. AFTER PLACEMENT OF TOPSOIL ALL AREAS SHALL BE SCARIFIED. THIS IS DONE TO ENSURE A "LOOSE" SEED BED FOR WETLAND VEGETATION TO BE ESTABLISHED.
9. TOP ELEVATION OF POOL FILL SHALL BE AS SHOWN. A "ROUGH" OR ROLLING FINISH FILL ELEVATION WILL BE ALLOWED AS IT WILL ADD DIVERSITY TO THE WETLAND.

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Grading Plan.dwg

ENGINEER: N. J. ROETHLER
DESIGNER: NJR/JPR
DRAFTSMAN: JKT/RNT
CHECKER: NJR/JDE

GRADING PLAN
PALO ALTO COUNTY CREP SITE PAL973236A
PALO ALTO COUNTY, IOWA

PROJECT NO 14072
DATE 9-4 2012

SHEET D.08

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