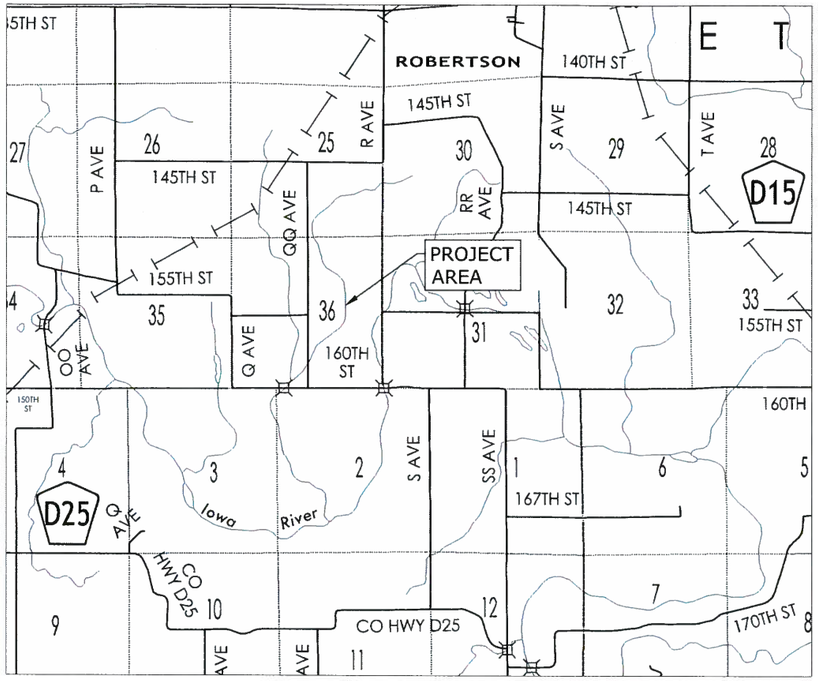
PLANS OF PROPOSED IMPROVEMENTS FOR

CREP WETLAND PROJECT

HAR892036A

HARDIN COUNTY, IOWA

2013



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C.08	EXCAVATION CUT/FILL MAP

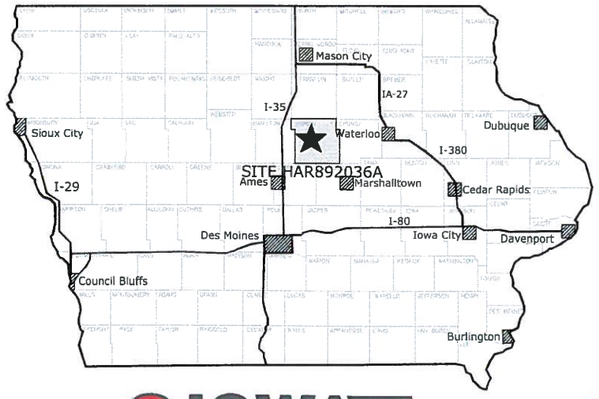
SURVEY CONTROL

Point No.	Description
8058	N = 3634932.8600 ' E = 5019885.4100 ' ELEV = 1078.16' Hardin County G.P.S. Monument #8058 Existing Aluminum disk set in concrete in the center of grass island at the intersection of 160th St. and Railroad Ave.
6	N = 3639410.6635' E = 5014446.7875 ' ELEV = 1135.38' Hub with Mag-Nail 1,975'± North of 155th St. and QQ Ave. Intersection on the East side of QQ Ave. on the South side of field entrance, 6.50' ± North of Existing Power Pole.
7	N = 3637444.4048 ' E = 5014353.8135' ' ELEV = 1077.92 Cut "X" on concrete box culvert on the North side of 155th St. 63' ± West of 155th St. and QQ Ave. Intersection.

LEGEND

PROPOSED	EXISTING
	Beehive Intake
Concrete Paving	Bollard
	Building
Sidewalk	UGP Buried Power
	Bushes
	Cable Pedestal
Cleanout	Cleanout
	18" CMP Culvert
	Curb Stop
	Electric Pedestal
	X Fence
	FO Fiber Optic
	FM Force Main
	G Gas Line
	Gas Meter
	Gas Valve
	Hydrant
	Electric Junction Box
	Light Post
	Mailbox
	Manhole
	OT Overhead Communication
	OHP Overhead Power
	Power Pole
	Property Pin
	Property/Right-Of-Way Line
	Railroad Tracks
Sanitary Manhole	Sanitary Manhole
SAN Sanitary Sewer	SAN Sanitary Sewer
	Sign
Storm Intakes	Storm Intakes
Storm Sewer	Storm Sewer
Storm Sewer Manhole	Storm Sewer Manhole
SubDrain	Stump
	T Buried Communication
	Telephone Manhole
	Telephone Pedestal
	Telephone Pole
	Traffic Pole
	Treeline
	Trees
W Water Line	W Water Line
	Water Manhole
	Water Meter
Water Valve	Water Valve
	Witness Post
Yard Hydrant	Yard Hydrant
Normal Pool Elevation	Existing Topography
25-Yr Pool Elevation	
100-Yr Pool Elevation	
Proposed Topography	

VICINITY MAP



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

GENERAL NOTE : ALL UTILITIES ARE ONLY GENERALLY LOCATED. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND EXPOSING ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION BEFORE CONSTRUCTION BEGINS.

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

FOX engineering

STEVEN P. SOUPIR LICENSED 18924 IOWA PROFESSIONAL ENGINEER

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.

STEVEN P. SOUPIR, P.E. — DATE 8/29/13
License number 18924

My license renewal date is December 31, 2013.

Pages or sheets covered by this seal:
G.01 – G.06, G.08
C.01 – C.09

JASON R. BROWN LICENSED 18655 IOWA PROFESSIONAL ENGINEER

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.

JASON R. BROWN, P.E. — DATE 9-3-2013
License number 18655

My license renewal date is December 31, 2013.

Pages or sheets covered by this seal:
G.07
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LAYER MNGR NAME:
LAYOUT NAME: G.01

DATE	BY	REVISION	DATE
DESIGNED:	SPS		
DRAWN:	JAZ		
CHECKED:	SPS		
LAST UPDATE:	08/29/13		

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414 South 17th Street, Suite 107
Ames, Iowa 50010
Phone: (515) 233-0000
FAX: (515) 233-0103

FOX engineering

COVER SHEET
HAR892036A
WETLANDS CREP
HARDIN COUNTY
IOWA

PROJECT NO. 7048-12A

SHEET G.01

GENERAL CONSTRUCTION NOTES

1. All construction materials, dumpsters, detached trailers, or similar items are prohibited on public streets or within the public right of way.
2. All utilities are only generally located. The Contractor is responsible for locating and exposing all utilities that may interfere with construction before construction begins.
3. The design of the project is based on existing topographic features and utilities shown on a topographic survey.

All work is to be performed in accordance with federal, state, and local requirements. The contractor shall be responsible for abidding by all conditions and requirements of the permits for the project.

WORK TO BE COMPLETED PRIOR TO CONSTRUCTION:

Contractor shall set up a One-Call meeting & joint utility meeting.

Preconstruction meeting with the Contractor, the Engineer, Owner, utilities and other parties that may have interest in the construction. Contractor shall complete exploratory digging at all necessary potential utility conflict locations (incidental).

SCHEDULE

Contractor shall schedule and hold regular progress meetings as requested by the Owner or required by progress of the Work. Contractor, Owner, Engineer, and all subcontractors active on the site shall be represented at each meeting. Contractor may, at his discretion or at the request of the Engineer, have representatives of suppliers, manufacturers, and other subcontractors attend meetings.

The Engineer shall preside at the meetings and provide for keeping and distribution of minutes. The purpose of the meetings will be to review the progress of the Work, maintain coordination of efforts, discuss changes in schedule, and resolve other problems, which may arise.

LAND FOR CONSTRUCTION PURPOSES

Contractor will be permitted to use available land belonging to or leased by the Owner, on or near the site of the Work, for construction purposes and for the storage of materials and equipment. The location and extent of the areas available to the Contractor shall be as indicated on the drawings. Any additional easement area desired by the Contractor shall be acquired at his expense, and the Contractor shall hold harmless the Owner, and Engineer from claims for damages made by the owners of such additional easement.

SITE ACCESS

All construction access shall be from available public access areas as shown on the plans.

NOTICES

Contractor shall notify owners of adjacent properties and utilities when prosecution of the Work may affect them. When it is necessary to temporarily deny access by owners or tenants to their property, or when any utility service connection must be interrupted, the Contractor shall give notices sufficiently in advance to enable the affected persons to provide for their needs. Notices whether given orally or in writing shall include appropriate information concerning the interruption and instruction on how to limit their inconvenience.

LINES AND GRADES

All Work shall be done to the lines, grades, and elevations indicated on the Drawings. The Engineer will provide construction staking for this project. The Contractor shall preserve the stakes. Any restaking will be paid for by the Contractor at $150 per hour plus expenses. The Contractor shall give the Engineer 48 hours notice prior to the need for stakes. The Contractor shall contact Steven Soupir at FOX Engineering at the office at 515-233-0000 or mobile at 515-451-7498.

CONNECTIONS TO EXISTING FACILITIES

Unless otherwise specified or indicated, Contractor shall make all necessary connections to existing facilities, including structures, drainlines, and utilities. In each case, Contractor shall receive permission from Owner or the owning utility prior to undertaking connections. Contractor shall protect facilities against deleterious substances and damage.

UNFAVORABE CONSTRUCTON CONDITIONS

During unfavorable weather, wet ground, or other unsuitable construction conditions, the Contractor shall confine his operations to work, which will not be affected adversely by such conditions.

No portion of the Work shall be constructed under conditions, which would affect adversely the quality or efficiency thereof, unless special means or precautions are taken by the Contractor to perform the work in a proper and satisfactory manner.

CLEAN UP

Contractor shall keep the premises occupied by the Contractor free from accumulations of waste materials and rubbish at all times.

DETERMINATION OF QUANTITIES

See specifications. The Contractor may request a digital copy of the plans by calling Steven Soupir at Fox Engineering at 515-233-0000. The Engineer does not assume any liability for providing the digital drawing to the Contractor. The Contractor shall provide his quantities at the preconstruction meeting for the project.

GENERAL UTILITY NOTES

Coordinate all utility connections.

Underground utilities shall be installed in trenches with bedding per the specifications, and as indicated on the plans and details.

All utility work shall be visually observed by the Owner prior to backfilling trenches, with all deficiencies corrected by the Contractor. The Contractor shall be responsible for notification of appropriate officials prior to commencement of work.

Final acceptance shall not be made until all work shown on approved plans are completed included grading and seeding and all required adjustments and shall be subject to approval by the Owner.

GRADING NOTES

Install erosion control measures where necessary prior to the start of grading. The Owner will obtain both the State of Iowa and the Owner erosion control permits. The Contractor shall be responsible for meeting the requirements as indicated in the permits.

Strip all topsoil from disturbed areas on the site and stockpile. The downstream perimeter of the stockpile shall have silt fence installed.

Staging of Grading - The Contractor shall have a staging plan in place prior to starting grading of the project. The Contractor shall identify the methods of erosion and storm water control used to runoff from the site. The Contractor shall have a plan in place that prohibits inflow of sediment into the excavation. Transport of sediment through vehicular traffic to the roadway or any road surfaces is prohibited and shall be corrected at the Contractor's expense.

Determination of Excavation/Fill Quantities - The Contractor is responsible for determining the quantities of earthwork for this site. The Engineer's estimated quantities are based on available information.

Topsoil Stripping - A minimum of 6" of black topsoil shall be stripped and stockpiled in disturbed areas. See the specifications for details.

Topsoil Respread - A minimum of 6" black topsoil shall be respread over the disturbed areas. See specifications for details. Topsoil shall be left in a prepared seedbed condition free of debris, rocks, and clay.

The waste excavation on the site shall be stockpiled on site according to the plans and specifications.

The contractor shall be responsible for adjusting all structures to final grade.

Satisfactory materials for fill and backfill are those as indicated in the specifications. Material shall be free of organic matter and rock fragments exceeding 3 in. in any dimension, and any other deleterious material.

CONSTRUCTION NOTES

Safety Requirements

The Contractor shall be solely and exclusively responsible for providing temporary ladders, guard rails, shoring, bracing, dewatering (if required), warning signs, night lights, and other safeguards desirable or required, and shall comply with all Federal, State and Municipal Safety Requirements. The Contractor shall be solely and exclusively responsible for the design, construction, inspection and continual maintenance of such facilities at all times. The Contractor shall be responsible for protecting the work and stored materials until completion and acceptance of the work by the Owner. It shall be the sole and exclusive responsibility of the Contractor to provide a safe place to work for all laborers, mechanics, and other persons employed and/or pedestrian traffic on or in connection with the project, and nothing in these Contract Documents shall be construed to give any of such responsibility to the Owner or the Engineer.

	BID ITEM QUANTITIES				
ITEM NO.	DESCRIPTION	Spec. No.	UNIT	BID QUANTITY	AS BUILT QUANTITY
1	SITE PREPARATION	IA-1	LS	1	
2	STRUCTURE & CHANNEL FERTILIZER AND SEEDING	IA-6	AC	1.8	
3	BUFFER SEEDING	IA-6	AC	13.4	
4	MOBILIZATION AND DEMOBILIZATION	IA-8	LS	1	
5	DRAINAGE TILE INVESTIGATION AND REMOVAL	IA-9	LS	1	
6	STEEL SHEET PILE	IA-13	SF	1,670	
7	EXCAVATION	IA-21	CY	9,032	
8	EARTHFILL, EMBANKMENT AND CORE TRENCH, CONTROLLED DENSITY	IA-23	CY	5,908	
9	EARTHFILL, POOL	IA-23	CY	1,610	
10	DRAINFILL, FINE	IA-24	TON	82	
11	CORRUGATED POLYETHYLENE TUBING, 5-INCH	IA-46	LF	345	
12	CORRUGATED POLYETHYLENE TUBING, 8-INCH	IA-46	LF	200	
13	CMP TILE OUTLET PIPE, 6-INCH	IA-51	LF	40	
14	CMP TILE OUTLET PIPE, 10-INCH	IA-51	LF	20	
15	CMP PIPE, 18-INCH	IA-51	LF	112	
16	CMP WATER CONTROL STRUCTURE WITH STOP LOGS, 48-INCH	IA-51	EA	1	
17	CMP RISER INLET STRUCTURE, 30-INCH	IA-51	EA	1	
18	RIPRAP, CLASS E	IA-61	TON	551	
19	RIPRAP, EROSION STONE	IA-61	TON	88	
20	CONCRETE GROUT FOR RIPRAP	IA-62	CY	89	
21	GEOTEXTILE FABRIC	IA-95	SY	747	

DATE	BY	REVISION	DATE

DESIGNED:
DRAWN: JAZ
CHECKED:
CHECKED
LAST UPDATE: 09/03/13

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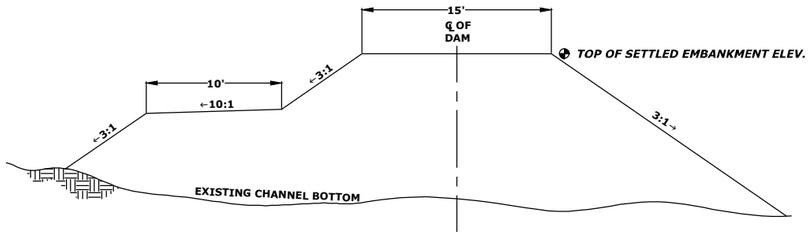
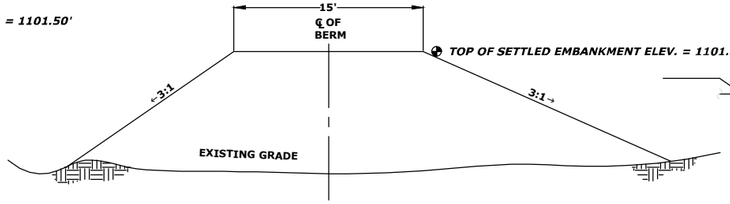
GENERAL NOTES
HAR892036
IDALS CREP
HARDIN COUNTY
IOWA

PROJECT NO.
7048-12A

SHEET
G.02



1 TYPICAL EMBANKMENT CROSS SECTION DETAIL
NOT TO SCALE



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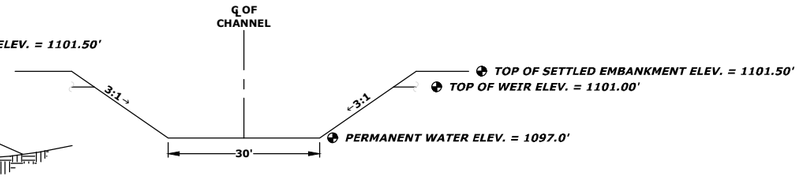

6 TYPICAL WEIR PROFILE DETAIL
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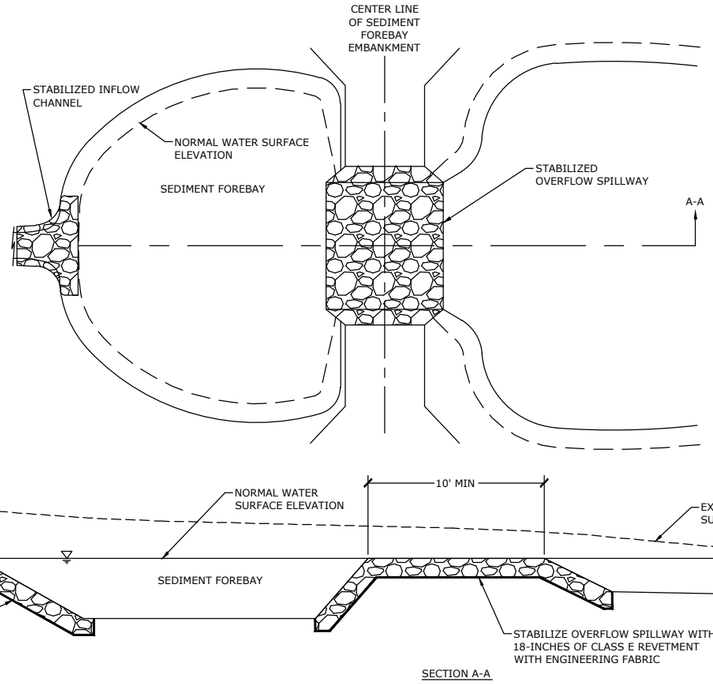
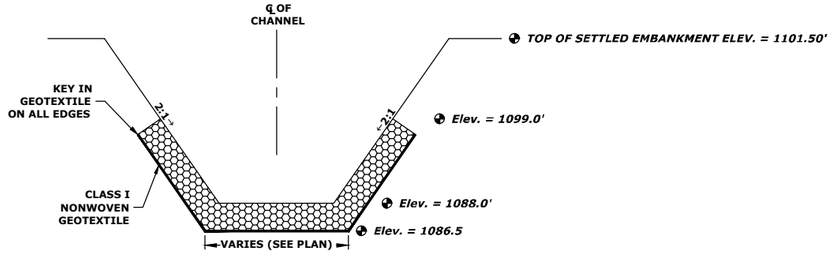


3 TYPICAL SEDIMENT FOREBAY PLAN AND PROFILE
NOT TO SCALE



7 TYPICAL DOWNSTREAM CHANNEL CROSS SECTION DETAIL
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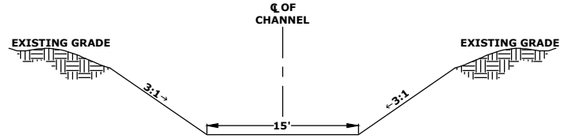

8 TYPICAL CHANNEL CROSS SECTION DETAIL
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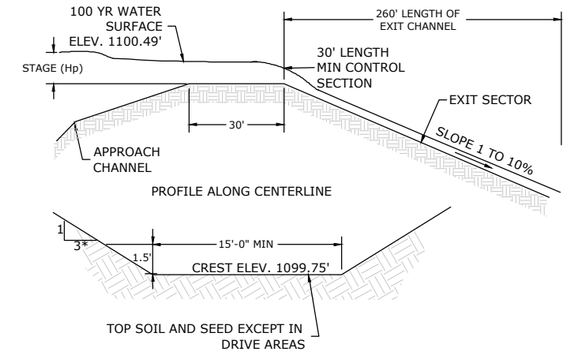

9 AUXILIARY SPILLWAY CROSS SECTION DETAIL
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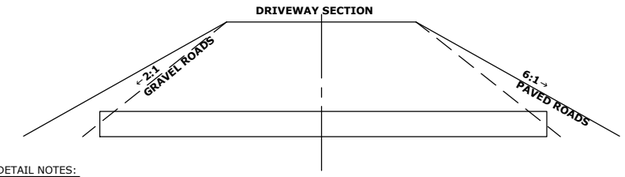
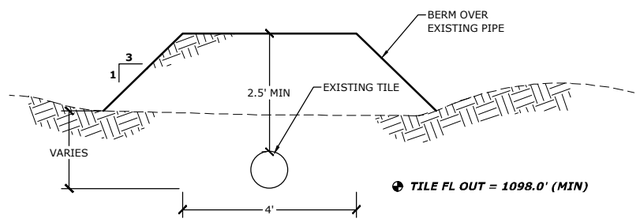


DETAIL NOTES:
1. DRIVEWAY SIDE SLOPES ON GRANULAR SURFACED ROADS SHALL BE NO STEEPER THAN 2:1 SLOPE. DRIVEWAYS ON PAVED ROADS SHALL HAVE SIDE SLOPES OF 10:1 WITHOUT CULVERY (DRY FILLS) AND 8:1 TO 6:1 WHEN A CULVERT IS REQUIRED
2. (NUMBER OF FEET OF PIPE DEPENDS ON HOW DEEP DITCH IS. SIX FEET OF PIPE FOR EVERY FOOT OF DITCH DEPTH.
3. ONLY NEW STANDARD CULVERT PIPE SHALL BE INSTALLED. CONCRETE OR CORRUGATED METAL PIPE, MEETING I.D.O.T. SPECIFICATIONS, SHALL BE USED. MINIMUM CULVERT DIAMETER SIZE IS 18-INCHES.
4. SIZE AND LENGTH OF CULVERT TO BE IN ACCORDANCE WITH THE COUNTY'S RECOMMENDATIONS AND TOP OF DRIVEWAY SHALL BE A MINIMUM OF 24 FEET WIDE.
5. ALL DRIVEWAYS SHALL BE SURFACED WITH A MINIMUM OF 2-INCH CRUSHED ROCK.

4 COUNTY ENTRANCE REQUIREMENTS DETAIL
NOT TO SCALE



5 TILE OUTLET CROSS SECTION DETAIL
NOT TO SCALE

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LAYOUT NAME: ----

DATE	BY	REVISION	DATE
		DESIGNED:	
		DRAWN: JAZ	
		CHECKED: CHECKED	
		LAST UPDATE: 08/29/13	

FOX Engineering Associates, Inc.
414 South 17th Street, Suite 107
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Phone: (515) 233-0000
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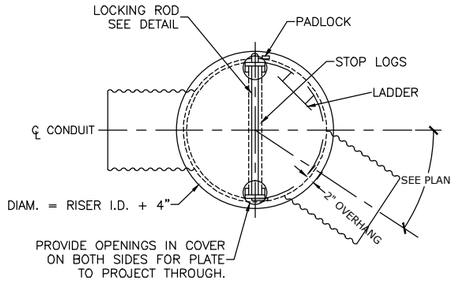
DETAILS
HAR8920136A
IDALS CREP
STORY COUNTY
IOWA

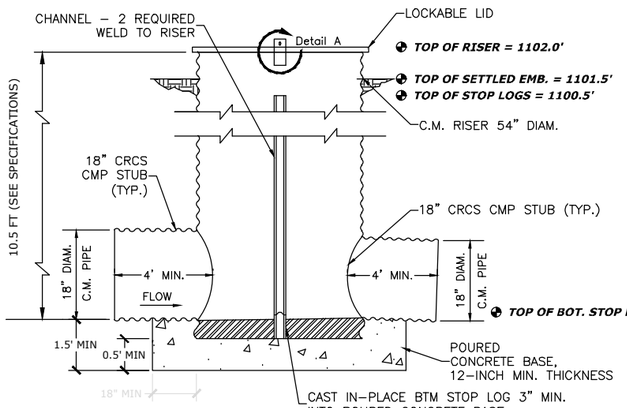
PROJECT NO.
7048-12A

SHEET
G.03

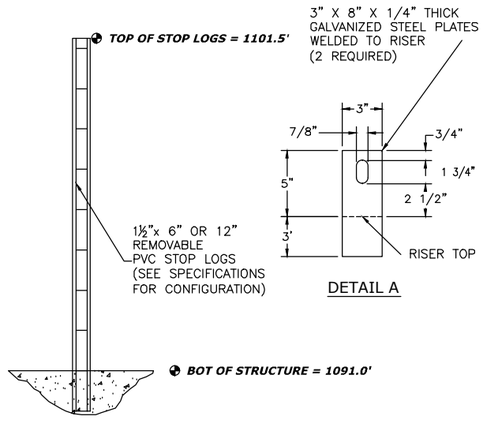


COVER TO BE MADE OF C.M. METAL
THICKNESS = 0.138 " WITH CORRUGATIONS
RUNNING PARALLEL TO CONDUIT.

PLAN VIEW FOR COVER



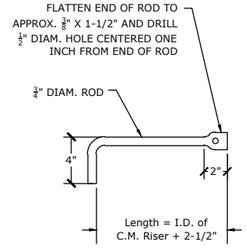
SECTION ON CENTERLINE OF STRUCTURE
(STOP LOGS AND COVER NOT SHOWN)



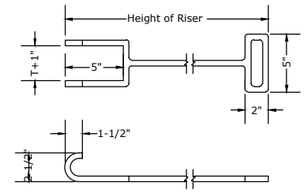
DETAIL A

PVC STOP LOGS

10 INLINE CONTROL STRUCTURE DETAIL
NOT TO SCALE



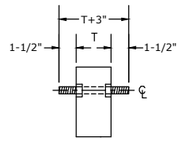
LOCKING ROD DETAIL
1 – Required



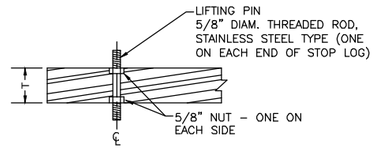
STOP LOG LIFTING HOOK
2 – Required

Note: Stop logs shall be tongue and grooved to reduce leakage.

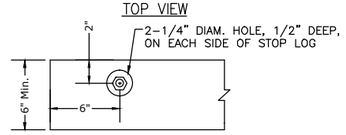
T = actual thickness of stop log



END VIEW

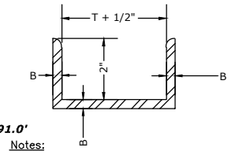


TOP VIEW



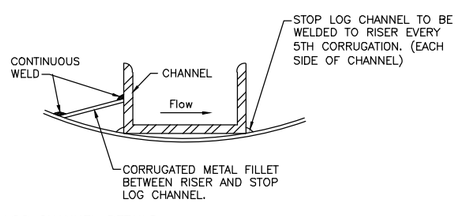
FRONT VIEW

STOP LOG DETAILS



Notes:

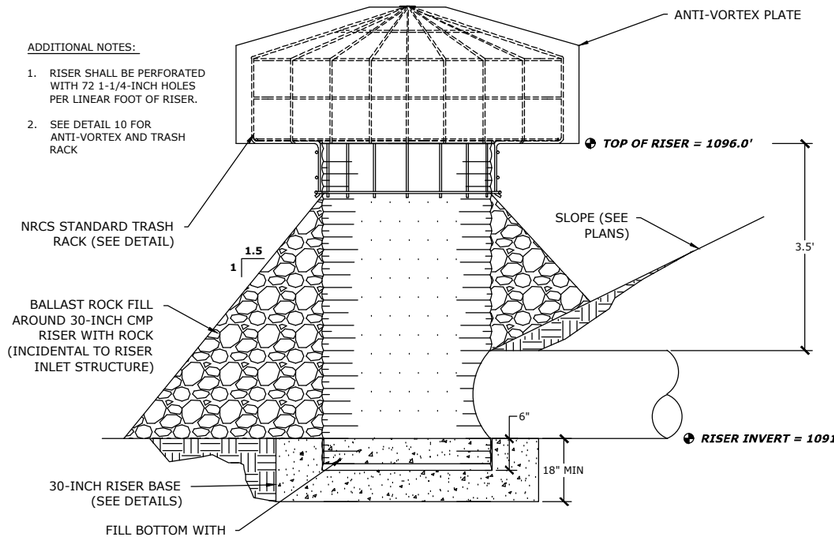
Stop logs shall conform to IA Construction Specifications.
2. B = Min. of 3/16" for 2" stop logs and 1/4" for thicker stop logs.
3. Channels may be fabricated from 2 angles welded together.



STOP LOG CHANNEL DETAILS

ADDITIONAL NOTES:

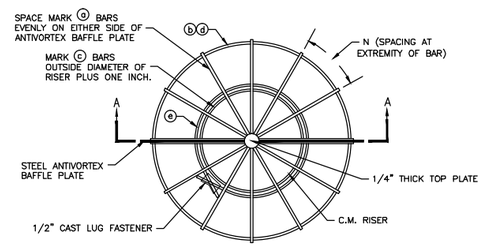
1. RISER SHALL BE PERFORATED WITH 72 1-1/4-INCH HOLES PER LINEAR FOOT OF RISER.
2. SEE DETAIL 10 FOR ANTI-VORTEX AND TRASH RACK



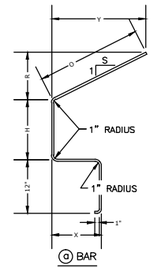
11 RISER INLET STRUCTURE DETAILS
NOT TO SCALE

TABLE OF DIMENSIONS AND QUANTITIES												
	ⓐ BARS 5/8" DIAMETER									ANTIVORTEX BAFFLE PLATE		
H	R	X	Y	S	O	TOTAL	NO.	N	L	P	F	V
INCHES	INCHES	INCHES	INCHES		INCHES	LENGTH	REQ'D	INCHES		INCHES	INCHES	INCHES
18" DIAMETER CORRUGATED METAL RISER												
9	14-1/8	6	14-1/8	1	20	4'	10	11-7/16	3"	21	8	8
21" DIAMETER CORRUGATED METAL RISER												
12	9-1/4	9	18-1/2	2	20-5/8	4' 6-5/8"	12	12-3/8	4'	18	12	6
24" DIAMETER CORRUGATED METAL RISER												
15	11-3/8	12	22-3/4	2	25-3/8	5' 5-3/8"	12	14-13/16	4'-6"	24	18	9
30" DIAMETER CORRUGATED METAL RISER												
18	9-1/2	15	28-1/2	3	30	6' 4"	14	15-13/16	6'	24	21	7
36" DIAMETER CORRUGATED METAL RISER												
21	12-1/2	21	37-5/8	3	39-1/2	7'10-1/2"	16	17-5/16	7'-6"	30	30	10

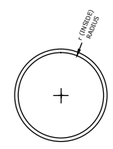
TABLE OF DIMENSIONS AND QUANTITIES												
ⓑ BARS 5/8" DIAMETER			ⓒ BARS 5/8" DIAMETER			ⓓ BARS 5/8" DIAMETER			ⓔ BARS 5/8" DIAMETER			TOP PLATE
NO.	r	LENGTH	NO.	r	LENGTH	NO.	r	LENGTH	NO.	r	LENGTH	DIAM.
REQ'D.	INCHES	INCHES	REQ'D	INCHES	INCHES	REQ'D	INCHES	INCHES	REQ'D	INCHES	INCHES	INCHES
18" DIAMETER CORRUGATED METAL RISER												
2	14-5/16	46	1	10	62-10	1	14-5/16	92	1	10-1/4	73	3
21" DIAMETER CORRUGATED METAL RISER												
2	18-13/16	60	1	11-1/2	72-1/4	1	18-13/16	120	1	11-3/4	82-1/2	3-1/2
24" DIAMETER CORRUGATED METAL RISER												
2	23-5/16	74	1	13	81-8	1	23-5/16	148	1	13-1/4	91-1/2	3-1/2
30" DIAMETER CORRUGATED METAL RISER												
2	29-5/16	93	1	16	100-1/2	1	29-5/16	186	1	16-1/4	111	4
36" DIAMETER CORRUGATED METAL RISER												
2	38-3/8	121-1/2	1	19	119-5	1	38-3/8	243	1	19-1/4	129	4



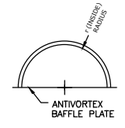
PLAN VIEW



ⓐ BAR



ⓒ AND ⓓ BARS



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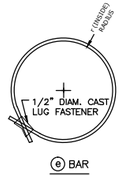

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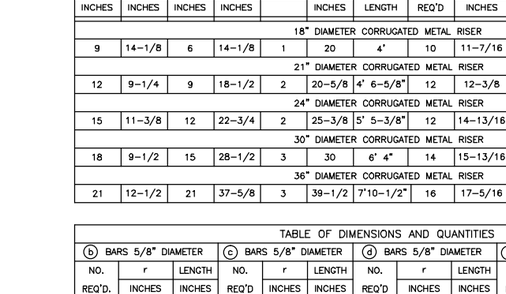

SECTION A–A

ALL BARS FORMING CONICAL TRASH RACK ARE MARK ⓐ BARS, UNLESS OTHERWISE NOTED.

NOTES:

1. WELD 4 MARK ⓐ BARS TO BAFFLE PLATE AND TO TOP PLATE. WELD MARK ⓒ AND MARK ⓓ BARS TO 4 MARK ⓐ BARS. WELD MARK ⓑ BAR TO MARK ⓐ BARS. WELD REMAINING MARK ⓐ BARS TO MARK ⓑ, MARK ⓒ, AND MARK ⓓ BARS AND TOP PLATE.
2. THE TRASH RACK AND ANTIVORTEX BAFFLE PLATE, MAY BE FABRICATED AS A UNIT, OR TRASH RACK MAY BE FABRICATED IN IDENTICAL HALVES AND ATTACHED TO BAFFLE PLATE WITH 1/2" DIAM. U BOLTS SPACED APPROXIMATELY 12 INCHES CENTER TO CENTER ALONG THE VERTICAL AND INCLINED SECTIONS OF THE MARK ⓒ BARS NEXT TO THE PLATE.
3. ALL BARS ARE SMOOTH ROUND BARS.
4. COAT WITH A RUST INHIBITIVE PAINT.

12 INLET STRUCTURE ANTI-VORTEX AND TRASH RACK DETAILS
NOT TO SCALE

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LAYOUT NAME

LAYER MNGR NAME

PLOT STYLE TABLE
FoxGrayScale.ctb

DATE	BY	REVISION	DATE

DESIGNED:
DRAWN: JAZ
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LAST UPDATE: 08/28/13

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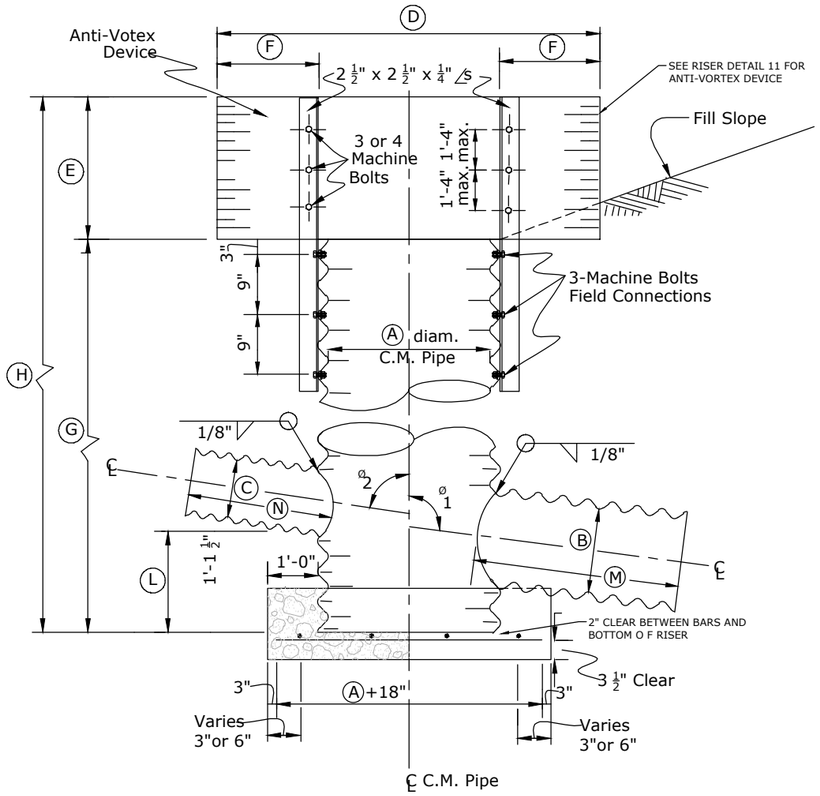
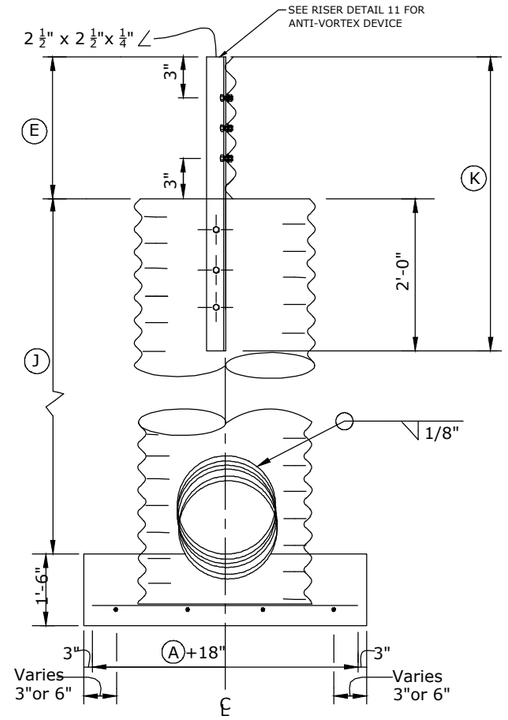
DETAILS
HAR892036A
IDALS CREP
HARDIN COUNTY
IOWA

PROJECT NO.
7048-12A

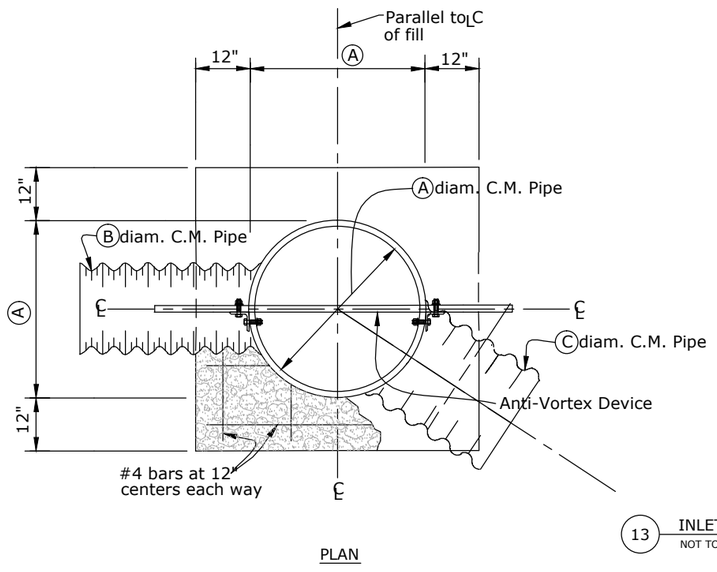
SHEET
G.04



SECTION ON CENTERLINE OF RISER



REAR ELEVATION



PLAN

13 INLET DETAILS
NOT TO SCALE

Notes:

All holes for bolts shall be 9/16" diam.

Vertical Inlet to be shop fabricated. After welding, damaged coatings shall be repaired as specified in Construction SpecificationS.

Minimum (M) Dimension

B≤ 36" M=2'-1 ½"

B> 36" M=4'-1 ½"

Minimum (N) Dimension

N=2'-1 ½"

ADDITIONAL NOTES:

1. RISER SHALL BE PERFORATED WITH 72 1-1/4-INCH HOLES PER LINEAR FOOT OF RISER.
2. ANTI-VORTEX PLATE SHALL BE REPLACED WITH DETAIL 10 FOR ANTI-VORTEX AND TRASH RACK.

TABLE-DIMENSIONS AND MATERIAL

	DIMENSIONS
(A)	30
(B)	18
(C)	18
(D)	SEE DETAIL 13
(E)	SEE DETAIL 13
(F)	SEE DETAIL 13
(G)	6.0'
(H)	SEE DETAIL 13
(J)	5.5'
(K)	SEE DETAIL 13
(L)	N/A
(M)	2' 1-1/2"
(N)	N/A
Sheet Thickness for (A) diam.	14
Corrugations for (A) diam.	2' 2-2/3" X 1/2"
Sheet Thickness for (B) diam.	16
Corrugations for (B) diam.	2' 2-2/3" X 1/2"
Sheet Thickness for (C) diam.	N/A
Corrugations for (C) diam.	N/A
Sheet Thickness for Anti-Vortex Device	N/A
Corrugations for Anti-Vortex Device	N/A
MATERIAL ITEMS	QUANTITY REQUIRED
2 ½" x 2 ½" x ¼" ∠s x (K) Galv.	N/A
(D) x (E) Corr. Metal Sheets Galv.	N/A
½" x 1 ¼" Steel Cadmium Plated Mach. Bolts	N/A
½" Steel Split Lockwashers	N/A
½" Steel Cadmium Plated Nuts	N/A
Ø Degrees-Angles ø1 / ø2	2.0 / 2.0
Slope of (B) diam. pipe in ft./ft.	0.01
Slope of (C) diam. pipe in ft./ft.	0.01

VERTICAL INLET BASE QUANTITIES

Dimension (in) (A)	Concrete Cu.Yd.	Steel Reinforcement #4 Bar		
		Length Each Bar	Number of Bars	Total Weight Pounds
18"	0.68	3'-0"	8	16.0
24"	0.89	3'-6"	8	18.7
30"	1.13	4'-0"	10	26.7
36"	1.39	4'-6"	10	30.1
42"	1.68	5'-0"	12	40.1
48"	2.00	5'-6"	12	44.1
54"	2.35	6'-0"	14	56.1
60"	2.72	6'-6"	14	60.8

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LAYOUT NAME: ----

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DETAILS
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STORY COUNTY
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7048-12A

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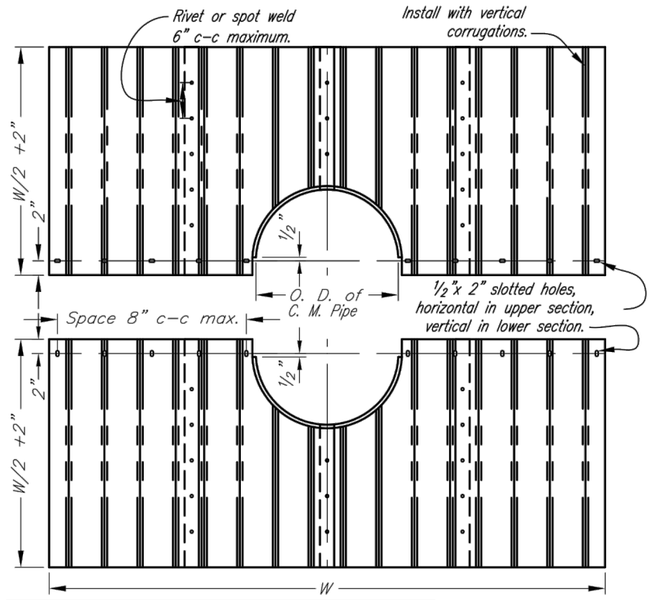
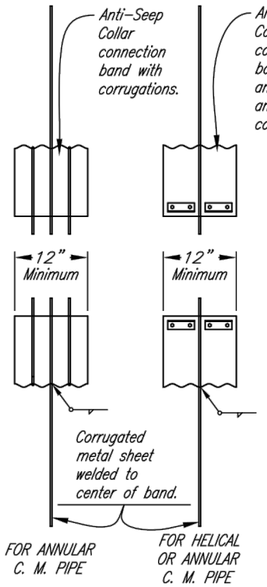
G.05





ANTI–SEEP COLLAR DIMENSION TABLE		
Pipe Diam.	No. Used	W (inches)
18-INCHES	4	72

*Anti–Seep Collar dimensions shown may be increased to allow fabrication from standard size sheets.

Anti–Seep Collars for 18" to 48" corrugated metal pipe to be connected with two ½" diameter rods with tank lugs.

Anti–Seep Collars for 8" to 15" corrugated metal pipe to be connected with angles riveted or spot welded to band and connected with bolts.

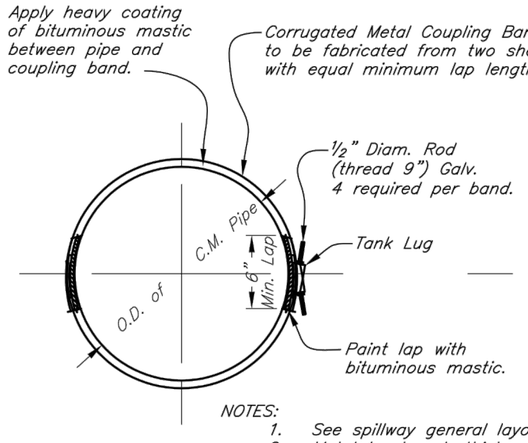
Materials and Fabrication Requirements

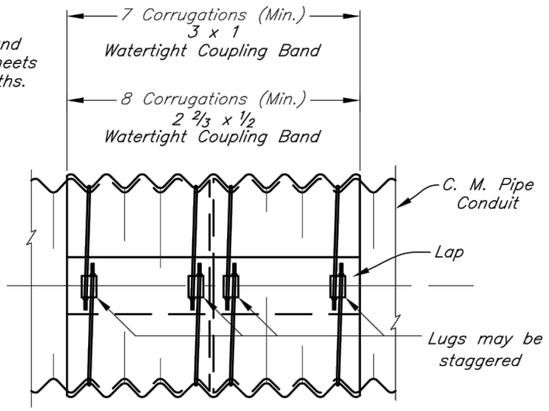
1. Materials and fabrication shall be in accordance with Construction Specification 51A or IA 51 and the following:
   - A. Sheet material for the anti–seep collar and connection bands shall conform to the requirements specified for the pipe material itself.
   - B. The anti–seep collar sheets shall be corrugated as specified for the spillway pipe.
   - C. The anti–seep collar and connection bands shall be of equal thickness. They may be the next thickness lighter than that of the pipe to which attached, but not lighter than nominal 16 gage nor heavier than nominal 12 gage.
   - D. Metal sheets shall be fastened together to form anti–seep collar halves with either rivets or resistance spot welds as specified for fabrication of pipe; and as shown on this drawing.
   - E. Anti–seep collar connection bands shall be as shown on this drawing. Bands with annular corrugations shall be corrugated as specified for annular pipe. Bands with helical corrugations shall be corrugated as specified for helical pipe.
   - F. Connection angles and connection bolts shall be as specified for coupling bands except,
     - (1) The length of each angle shall be ½ the band width minus 1".
     - (2) 4 bolts (2 each side) are required,
     - (3) Integral formed flanges instead of angles may be used on 6", 8", 10" and 12" diameter helical pipe anti–seep collar connection bands.
   - G. Connection rods with lugs shall be used where specified on this drawing. The rods shall be made from structural quality steel and shall be galvanized. The lug may be standard tank type or other commercial type.
   - H. The anti–seep collar halves shall be welded to the connection band as shown on this drawing. All welds shall be treated as specified for "Repair of Damaged Coatings".
   - I. The anti–seep collar halves shall be slotted as shown on this drawing for connecting together with ⅜" diameter bolts. The bolts shall be of quality equal to the connection bolts and shall be galvanized or cadmium plated.
2. Shop assemble match and mark anti–seep collar halves.
3. Apply heavy coating of bituminous mastic or ⅜" x 7" neoprene gasket between anti–seep collar halves to produce watertight joints. Bituminous mastic shall also be applied between the connecting band and pipe to produce a watertight connection.

STANDARD DWG. IA–1228	
DATE *July 2008*	SHEET *1* OF *1*

ANTI–SEEP COLLAR FOR 6" TO 48" DIA. C. M. PIPE

14



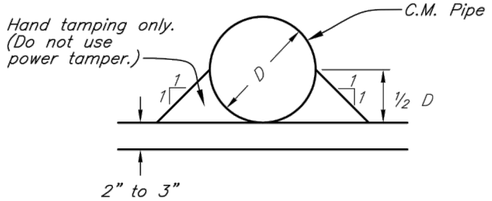


NOTES:

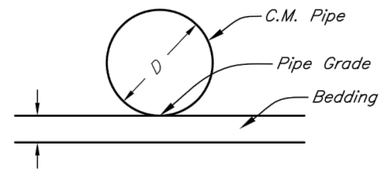
1. See spillway general layout drawing for location of watertight bands.
2. Metal treatment, thickness, and coating of watertight coupling bands shall be as specified for the pipe.
3. Rivets in longitudinal seams of C.M. Pipe under watertight coupling band shall be flat head or omitted and seams welded inside and outside with a continuous ⅛" fillet weld.
4. All welded areas shall be treated as specified for "Repair of Damaged Coatings." Refer to Construction Specification 51A or IA–51.
5. Rods and lugs on coupling bands shall be installed according to the drawing; the nuts on the rods shall be tightened equally on either side of the lug and shall be retightened at least twice after initial installation. Striking each rod sharply with a hammer at several locations around the circumference of the rod will help to draw the band tighter.

DETAILS OF WATERTIGHT COUPLING BAND

Note
Begin backfill immediately after pipe has been placed.

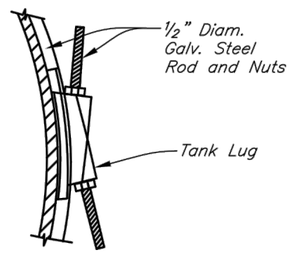


CORRUGATED OR SMOOTH METAL PIPE PRINCIPAL SPILLWAY BACKFILL DETAIL



Excavate 2 to 3 inches below pipe grade. Then backfill with damp friable soil free from lumps and raked or graded to a true plane before placing C.M. Pipe. No compaction of bedding is required.

CORRUGATED OR SMOOTH METAL PIPE PRINCIPAL SPILLWAY BEDDING DETAIL



DETAIL OF TANK LUG

NRCS STANDARD DETAILS
DETAILS OF ANTI-SEEP COLLAR, WATERTIGHT COUPLING BAND, TANK LUG, BEDDING AND BACKFILL

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REVISION	BY	DATE

DESIGNED: | DRAWN: JAZ | CHECKED: | CHECKED | LAST UPDATE: 08/28/13

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STORY COUNTY
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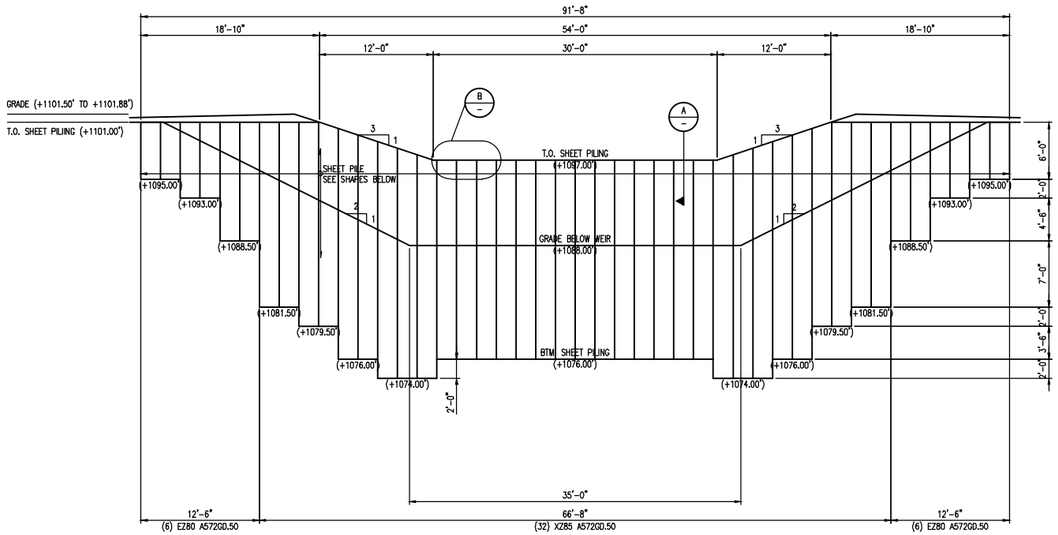
PROJECT NO. 7048-12A

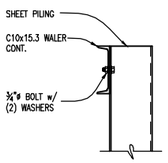
SHEET G.06



SHEET PILE ELEVATION

SCALE: ⅛" = 1'-0"

NOTE: FIELD CUT SHEET PILING



NOTE: 1 BOLT TO BE PLACED ON EACH SIDE OF SPLICE

A SECTION
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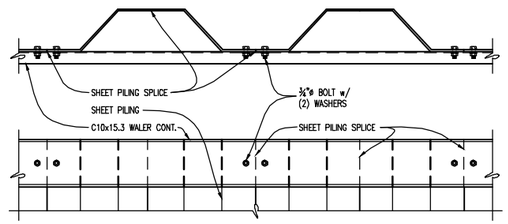

B SECTION
SCALE: N.T.S.

15 SHEET PILING DETAILS
SEE DETAIL

GENERAL NOTES

BUILDING CODE

INTERNATIONAL BUILDING CODE – 2009 EDITION

SOIL DESIGN PARAMETERS

COHESION: 2000 PSF GLACIAL TILL
VALUE LISTED IS FOR SOILS BELOW FROST DEPTH OR WHERE GROUTED RIP-RAP IS IN CONTACT WITH THE SHEET PILE.

REMOVE EXISTING ORGANIC TOPSOIL AND REPLACE WITH ACCEPTABLE COMPACTED STRUCTURAL FILL.

DESIGN SOIL PARAMETERS ARE AS NOTED. ACTUAL ALLOWABLE SOIL PARAMETERS MUST BE VERIFIED ON SITE. REFERENCE GEOTECHNICAL ENGINEERING REPORT NO., 1-3285, DATED APRIL 11, 2013 PREPARED BY TEAM SERVICES; DES MOINES, IOWA.

STRUCTURAL STEEL

ROLLED SHAPES :	ASTM A36
SHEET PILE :	ASTM A572 GRADE 50
BOLTS :	ASTM F593B S.S. OR A325 GALV.

STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST SPECIFICATION OF AISC. FABRICATOR SHALL SUBMIT SHOP DRAWINGS. FABRICATE AFTER ENGINEERS REVIEW.

IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LIVE LOADS.

PROVIDE ALL NECESSARY TEMPORARY BRACING, SHORING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION.

CORROSION PROTECTION SHALL BE A CATHODIC PROTECTION SYSTEM OR EPOXY COATING SYSTEM FOR FRESH WATER IMMERSION. CORROSION PROTECTION SYSTEM IS TO BE APPROVED BY OWNER.

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PLOT STYLE TABLE: FoxGrayScale.ctb
LAYER MNGR NAME
LAYOUT NAME: G.07

DATE	REVISION	BY

DESIGNED: JB
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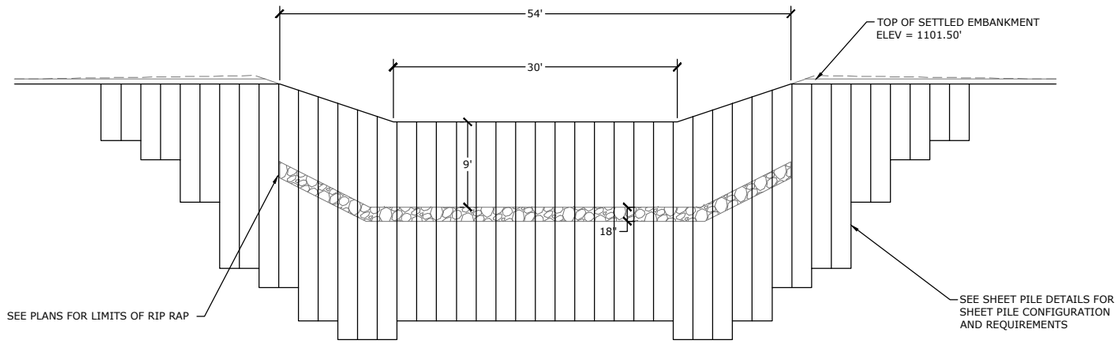

16 SHEET PILE DOWNSTREAM SECTION DETAIL
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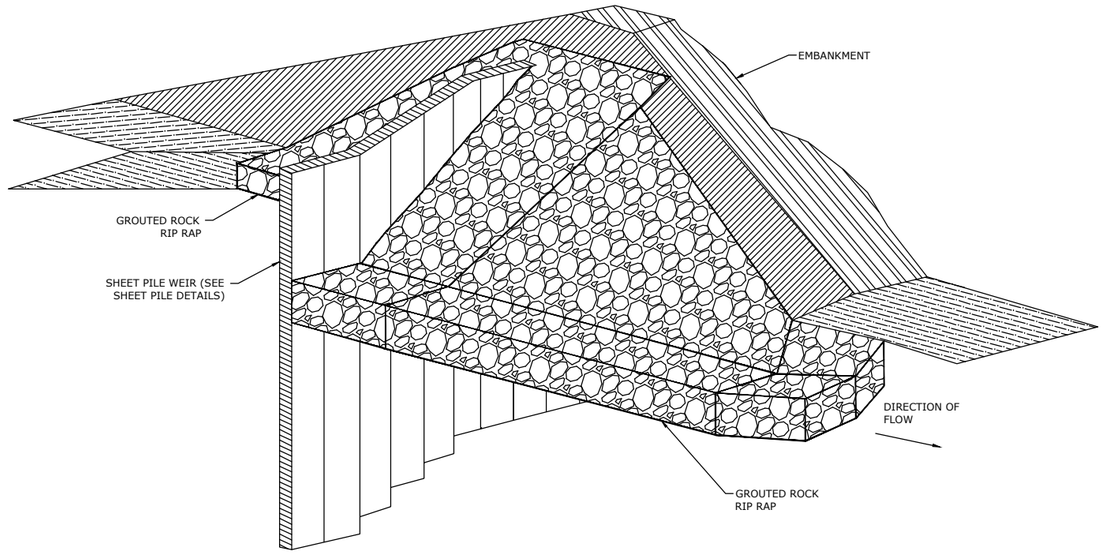
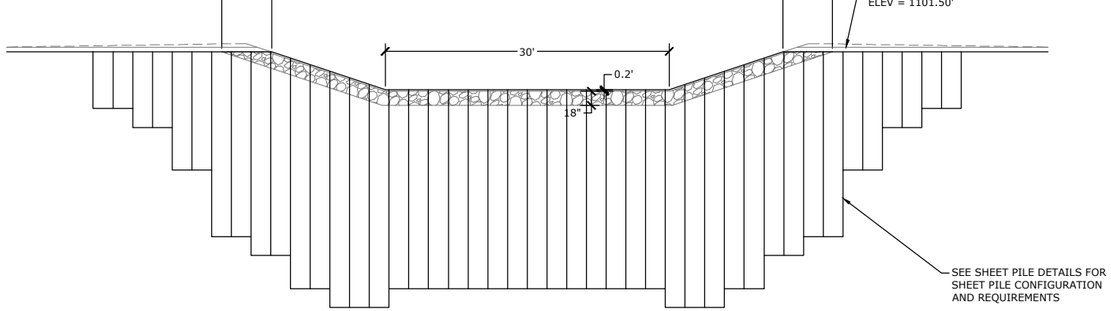


18 TYPICAL ISOMETRIC VIEW OF WEIR, DIKE, AND RIPRAP PLACEMENT
NOT TO SCALE



17 SHEET PILE UPSTREAM SECTION DETAIL
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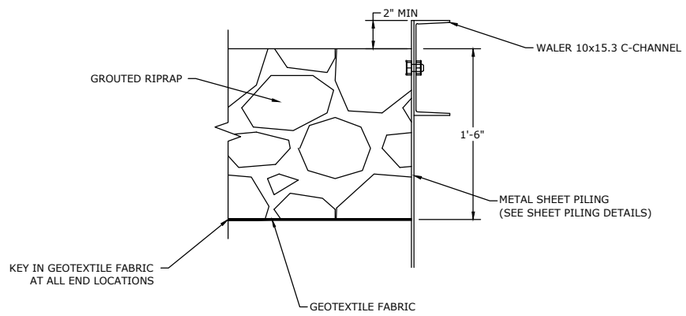

19 TYPICAL GROUTED RIPRAP DETAIL
NOT TO SCALE

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PLOT STYLE TABLE
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LAYER MNGR NAME
LAYOUT NAME
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REVISION	DATE	BY

DESIGNED: JB
DRAWN: JB
CHECKED: JB
LAST UPDATE: 09/03/13

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HARDIN COUNTY
IOWA

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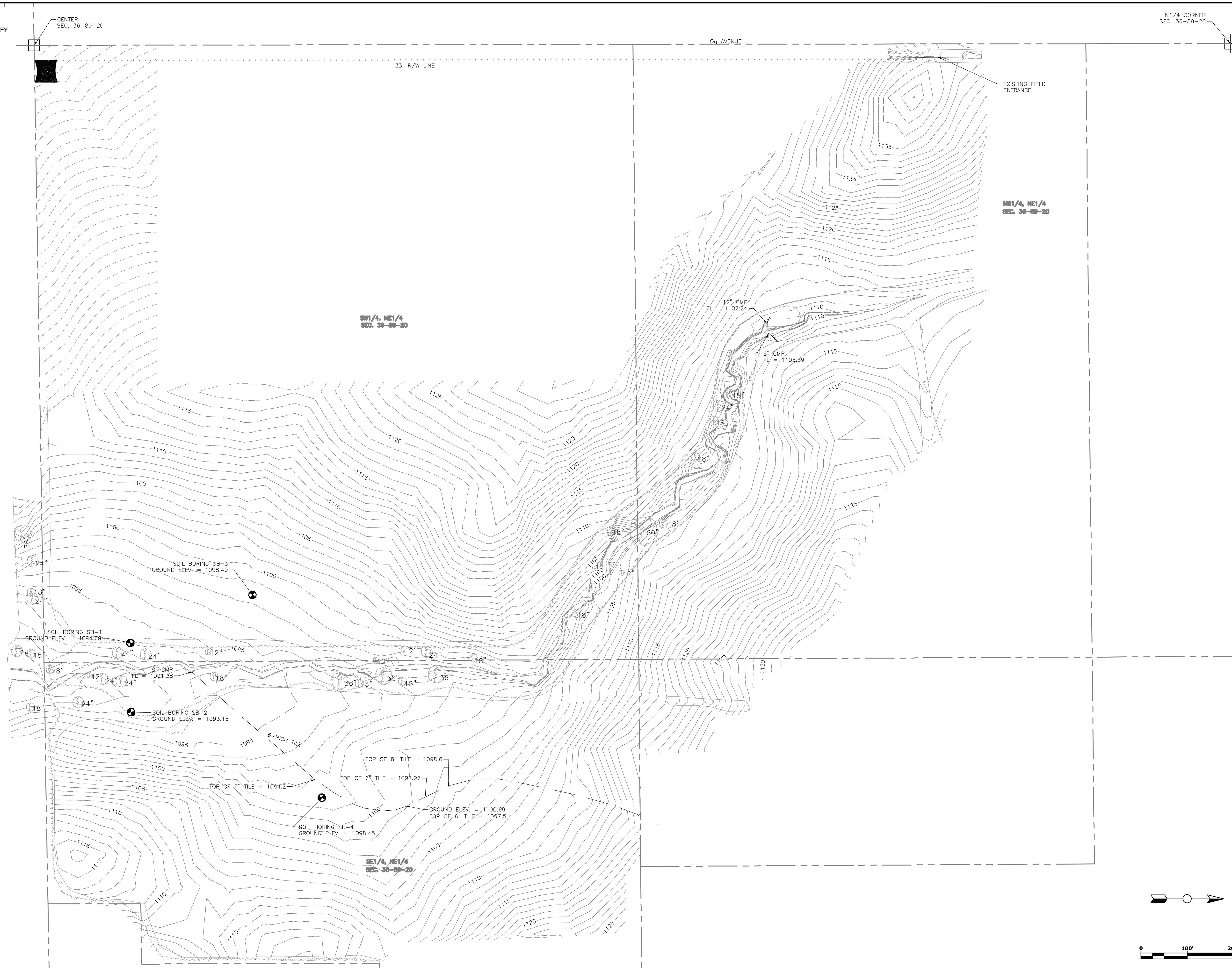
SHEET
G.08

GENERAL NOTES:

1. ALL EXISTING TOPOGRAPHY BASED ON SURVEY COMPLETED BY FOX ENGINEERING ASSOCIATES, INC. IN NOVEMBER OF 2012.



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DATE	BY	REVISION

	BY	DATE
DESIGNED:	SPS	08/13
DRAWN:	JAZ	08/13
CHECKED:		
LAST UPDATE:		08/28/13

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EXISTING CONDITIONS

HAR892036A
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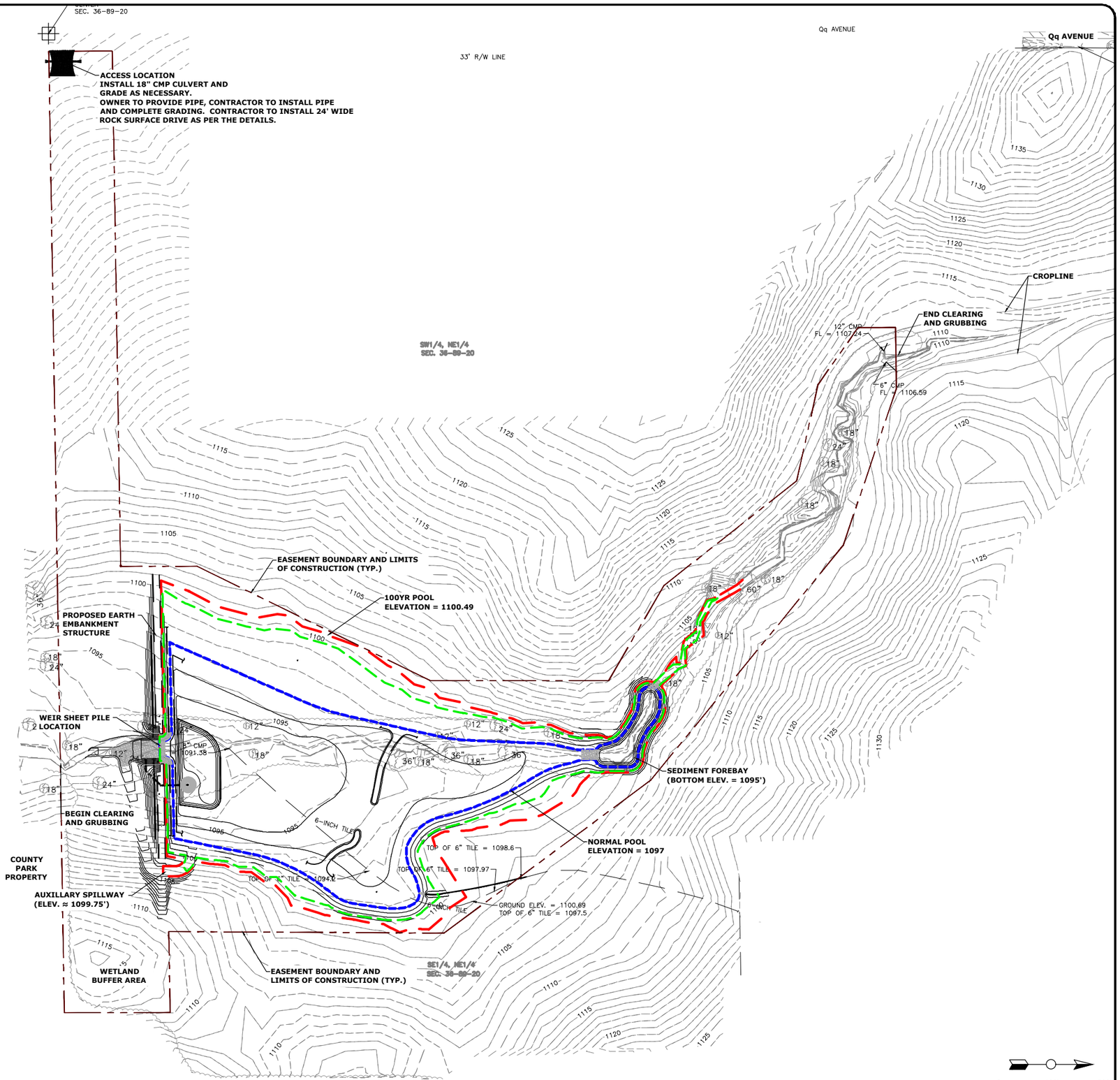
V.01

GENERAL NOTES:

1. ALL RIPRAP PLACED BETWEEN STA 100+50 AND STA 101+58 SHALL BE GROUTED.
2. ALL RIPRAP LAYERS SHALL BE PLACED A MINIMUM OF 18-INCHES THICK OVER GEOTEXTILE FABRIC WITH THE EXCEPTION OF THE INLET STRUCTURE RIP RAP, WHICH SHALL BE A MINIMUM OF 12-INCHES IN THICKNESS.
3. RIPRAP TO BE CLASS E REVETMENT STONE OR EROSION STONE AS SPECIFIED AND AS DEFINED IN 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 I-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. STRIP, SALAVAGE, AND REPLACE SIX (6) INCHES OF TOPSOIL FROM ALL DISTURBED AREAS.
7. GRADE BORROW AREAS TO DRAIN WITH 3:1 SLOPES OR FLATTER.
8. ALL AREAS UNDER STRUCTURE FILL SHALL BE SCARIFIED TO A DEPTH OF SIX (6) INCHES AND BE RECOMPACTED IN ACCORANCE WITH STD. SPEC. IA-23, SECTION 6, METHOD 1.
9. ALL EXPOSED SURFACES TO BE REVEGETATED SHALL BE TOPSOILED TO A MINIMUM DEPTH OF 6-INCHES (UNLESS OTHERWISE SPECIFIED BY NOTE OR BY THE ENGINEER).
10. CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE CALL: 1-800-292-8989.
11. THE EASEMENT BOUNDARY PINS AND MARKERS HAVE BEEN SET. CONTRACTOR SHALL PROTECT ALL PROPERTY INFORMATION, PINS, AND MARKERS FROM DISTURBANCE. THE CONTRACTOR IS RESPONSIBLE FOR RESETTING DAMAGED EASEMENT BOUNDARY MARKERS AND PINS AND SHALL BE CONSIDERED INCIDENTAL.
12. ALL TILE LINES UNDER THE FOOTPRINT OF THE STRUCTURE ARE TO BE LOCATED DURING CORE TRENCH EXCAVATION AND REMOVED BETWEEN 15 FEET UPSTREAM TO 15 FEET DOWNSTREAM OF STRUCTURE FOOTPRINT AND GROUT PLUGGED.
13. BORROW AREAS FOR THE EMBANKMENT STRUCTURE SHALL BE EXCAVATED AND RETURNED TO PLAN ELEVATIONS. BORROW AREA SOILS SHALL BE APPROVED SOIL MATERIAL GENERALLY INDICATED AS "GLACIAL TILL" AS ON THE SUBSURFACE EXPLORATION REPORT. ALL EXCAVATION NECESSARY TO EXPOSE BORROW SOILS TO THE DEPTHS PRESENT AND REPLACEMENT TO PLAN ELEVATIONS SHALL BE CONSIDERED INCIDENTAL.
14. PRIOR TO ANY WORK AT THE SITE, CONTRACTOR SHALL EXAMINE ANY APPLICABLE DRAWINGS AVAILABLE FROM THE OWNER OR ENGINEER, AND CONSULT WITH THE OWNER AND UTILITY COMPANY REPRESENTATIVES. NO COMPENSATION WILL BE ALLOWED FOR DAMAGES RESULTING FROM FAILURE TO COMPLY WITH THIS REQUIREMENT.
15. ALL WORK SHALL BE DONE ACCORDING TO OSHA STANDARDS. NOTHING INDICATED ON THE DRAWINGS SHALL RELIEVE THE CONTRACTOR FROM COMPLYING WITH ANY APPROPRIATE SAFETY REQUIREMENTS AND REGULATIONS.
16. CLEARING AND GRUBBING WILL BE COMPLETED ALONG WITH STREAM CORRIDOR CHANNEL AND IN THE POOL GRADING AREA AS SHOWN ON THE PLANS. IT SHALL CONFORM TO THE REQUIREMENTS AS DEFINED IN SECTION 2101.02 OF THE IDOT STD. SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.
17. CONTRACTOR SHALL KEEP ALL WORK OPERATIONS WITHIN THE EASEMENT BOUNDARY.
18. TILE INVESTIGATION TRENCH SHALL BE COMPLETED IN ACCORDANCE WITH IA-9 AND SHALL BE COMPLETED PRIOR TO INITIATION OF OTHER CONSTRUCTION ACTIVITIES.
19. CONTRACTOR SHALL PHASE OPERATIONS TO MAINTAIN FLOW IN THE CHANNEL THROUGH CONSTRUCTION.
20. ALL EXCAVATED PIPE MATERIALS SHALL BE REMOVED AND DISPOSED OF OFF-SITE AND SHALL BE CONSIDERED INCIDENTAL.
21. THIS PROJECT HAS GENERALLY BEEN DESIGNED IN ACCORDANCE WITH THE NRCS STANDARDS AND GUIDELINES.
22. ACCESS TO SITE AS DIRECTED BY THE OWNER AND ENGINEER.
23. ACCESS SHALL BE FROM 590TH AVENUE AT THE LOCATIONS INDICATED ON THE PLANS.
24. CONTRACTOR SHALL RESTORE AND INSTALL TEMPORARY ACCESS DRIVES AND ROAD SURFACES AND SHALL BE CONSIDERED INCIDENTAL.
25. SOIL SPOILS FROM EXCAVATIONS SHALL BE PLACED IN THE EXISTING DRAINAGE CHANNEL AND SHALL BE CONSIDERED INCIDENTAL. IF THE DRAINAGE CHANNEL IS FILLED, THEN DISPOSE OF SOILS OUTSIDE THE POOL AREAS IN THE DESIGNATED AREAS AND SHALL BE CONSIDERED INCIDENTAL.
26. CONTRACTOR TO INSTALL A CULVERT AND ENTRANCE AT THE Qq AVENUE ACCESS LOCATION AS LOCATED ON THE PLANS. ENTRANCE SHALL BE INSTALLED PER THE COUNTY REQUIREMENTS AND PER THE PLANS. THE ENTRANCE CONTRUCTION SHALL BE CONSIDERED INCIDENTAL.



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LAYER MNGR NAME
LAYOUT NAME: C.01

REVISION	DATE	BY

DESIGNED: SPS 08/13
DRAWN: JAZ 08/13
CHECKED:
LAST UPDATE: 08/29/13

FOX Engineering Associates, Inc.
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FOX engineering

OVERALL SITE PLAN

HAR892036A
IDALS CREP
HARDIN COUNTY, IOWA
IOWA

PROJECT NO.
7048-12A

SHEET
C.01

EMBANKMENT LOCATION

TOP OF EMBANKMENT ELEV. 1101.50'

WEIR CREST ≈ 1097'
WEIR LENGTH ≈ 30'
PRIMARY SPILLWAY DROP ≈ 9'

STILLING BASIN ELEV. ≈ 1088.00'

EXISTING CHANNEL ELEV. ≈ 1089.5'

SETTLING BASIN (BOTTOM ELEV. 1091')

BORROW AREA

SPOILS AREA

NORMAL POOL ELEVATION ≈ 1097'

CLASS E REVETMENT

SUBMERGED DIVERSION BERM TOP = 1096.5

SEDIMENT FOREBAY (BOTTOM ELEV. ≈1094')

ROCK POND 1 ENTERANCE

≈112' OF 18" CMP

30" CMP PERFORATED RISER

48-INCH CMP CONTROL STRUCTURE

APPROXIMATE 25 YR POOL ELEVATION ≈ 1099.7'

ROCK CHANNEL WITH CLASS E REVETMENT (SEE DETAILS) 1096.5 BOTTOM

APPROXIMATE 100 YR POOL ELEVATION ≈ 1100.5'

SUBMERGED DIVERSION BERM TOP = 1096.5

TOP OF 6" TILE = 1098.6

TOP OF 6" TILE = 1097.97

GROUND ELEV. = 1100.69
TOP OF 6" TILE = 1097.5

TOP OF 6" TILE = 1097.2

LOCATE EX. TILE AND CONNECT FL ≈ 1098.10'

REPLACE 8-INCH TILE AT 0% GRADE TO DAYLIGHT (COVER PIPE WITH MIN. 2.5' COVER PER DETAILS)

ABANDON EX. 6-INCH TILE IN PLACE

AUXILLARY SPILLWAY (ELEV. ≈ 1099.75')

PRIMARY BORROW AREA FOR CORE TRENCH AND EMBANKMENT (SEE GEOTECHNICAL REPORT)

FL OUT = 1098.0'
OUTLET NEW TILE AT WATER LINE WITH EROSION STONE AND 20 L.F. OF 10" CMP WITH RODENT GUARD.

BORROW AREA

SPOILS AREA

COUNTY PARK PROPERTY

CROP LINE

6-INCH TILE

SB-1 SB-2 SB-3 SB-4

100 + 00 101 + 00 102 + 00 103 + 00 104 + 00 105 + 00 106 + 00 107 + 00 108 + 00 109 + 00 110 + 00 111 + 00 112 + 00 112 + 31

1 TYPICAL DIVERSION BERM DETAIL
NTS

10' TOP 1096.5 1:4

0 50' 100'

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LAYER MNGR. NAME:
LAYOUT NAME: C.02

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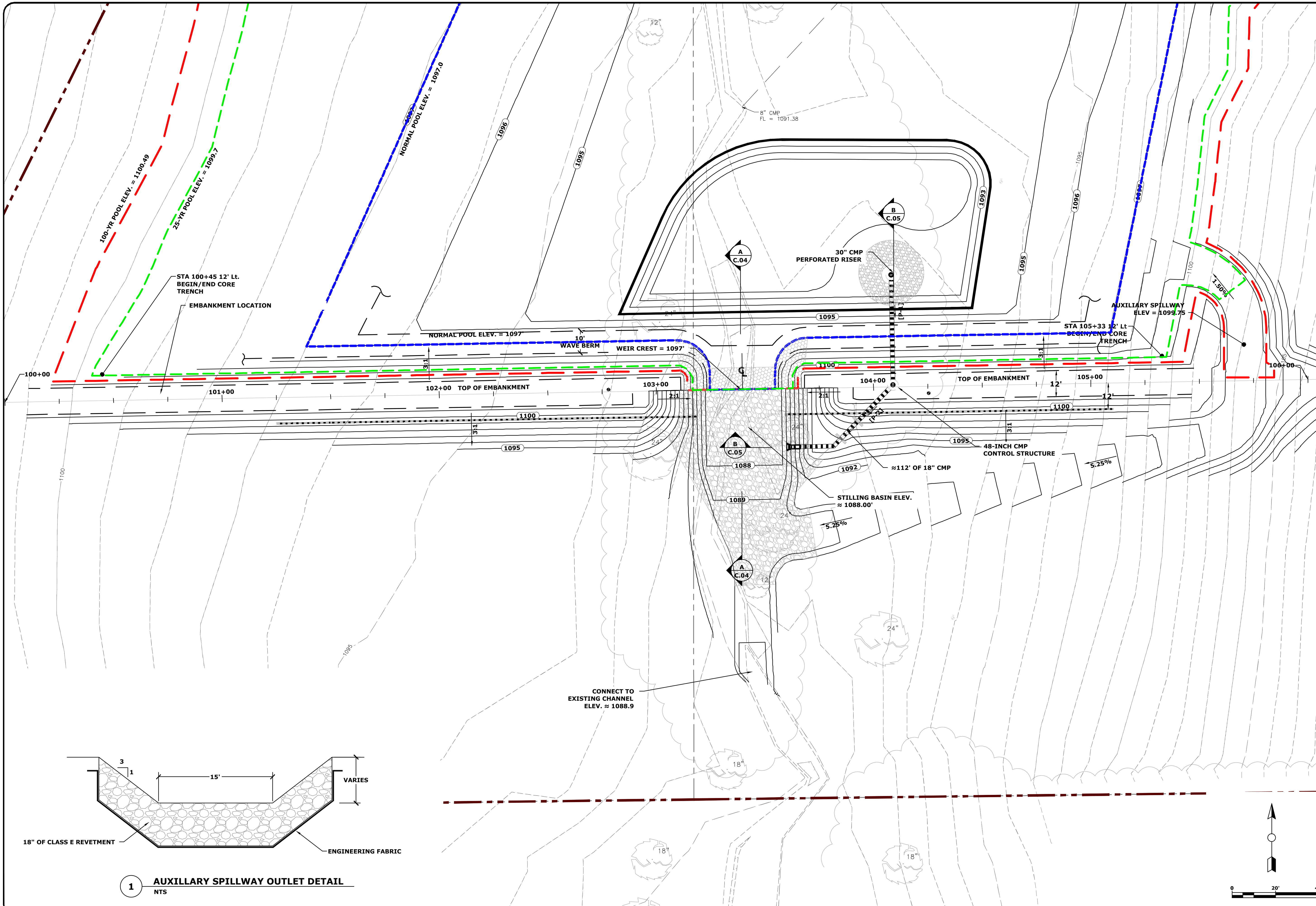
POOL AREA PLAN
HAR892036A
IDALS-CREP
HARDIN COUNTY, IOWA
IOWA

PROJECT NO. 7048-12A

SHEET C.02



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LAYOUT NAME
C.03

LAYER MNGR NAME

PLOT STYLE TABLE
FoxGrayScale.ctb

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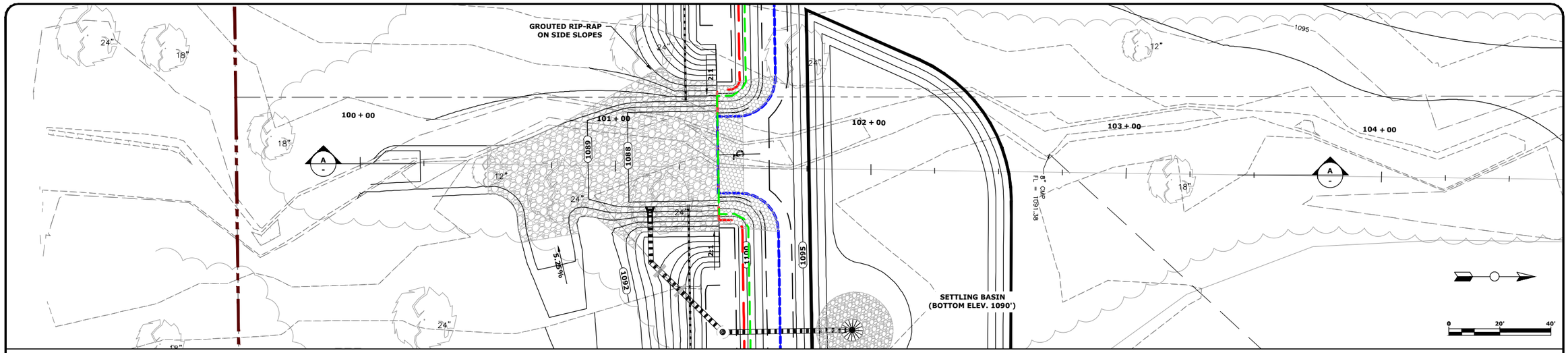
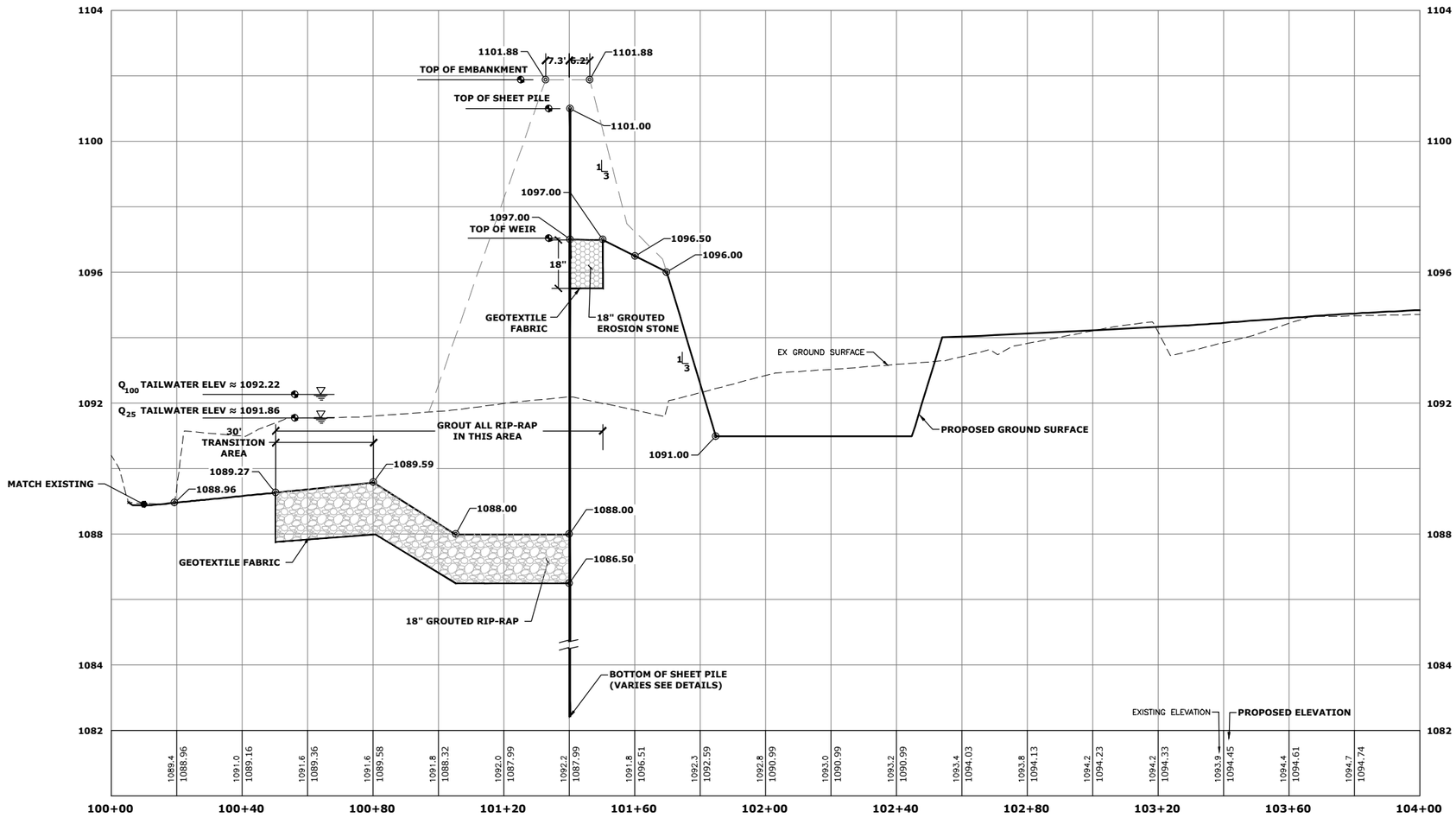
EMBANKMENT SITE PLAN

HAR892036A
IDALS CREP
HARDIN COUNTY, IOWA
IOWA

PROJECT NO.
7048-12A

SHEET
C.03





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EX. GRADE
PROFILE GRADE
STATION

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08/13	DRAWN: JAZ	
	CHECKED:	
LAST UPDATE: 08/29/13		

REVISION

DATE

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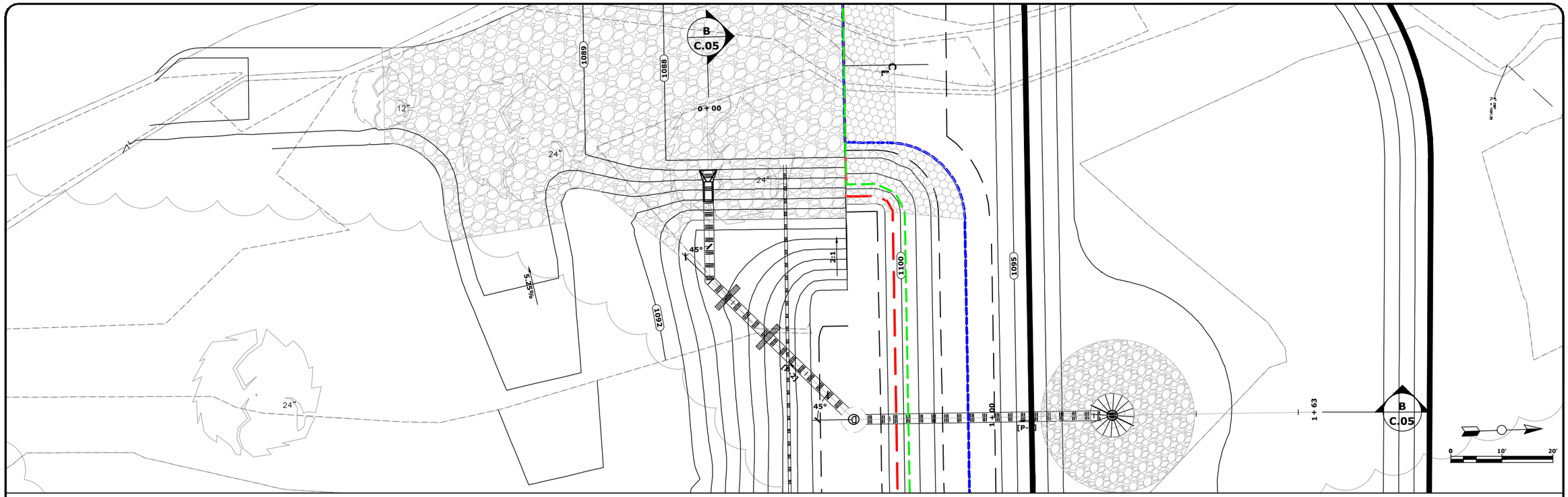
SECTION "A" PLAN AND PROFILE

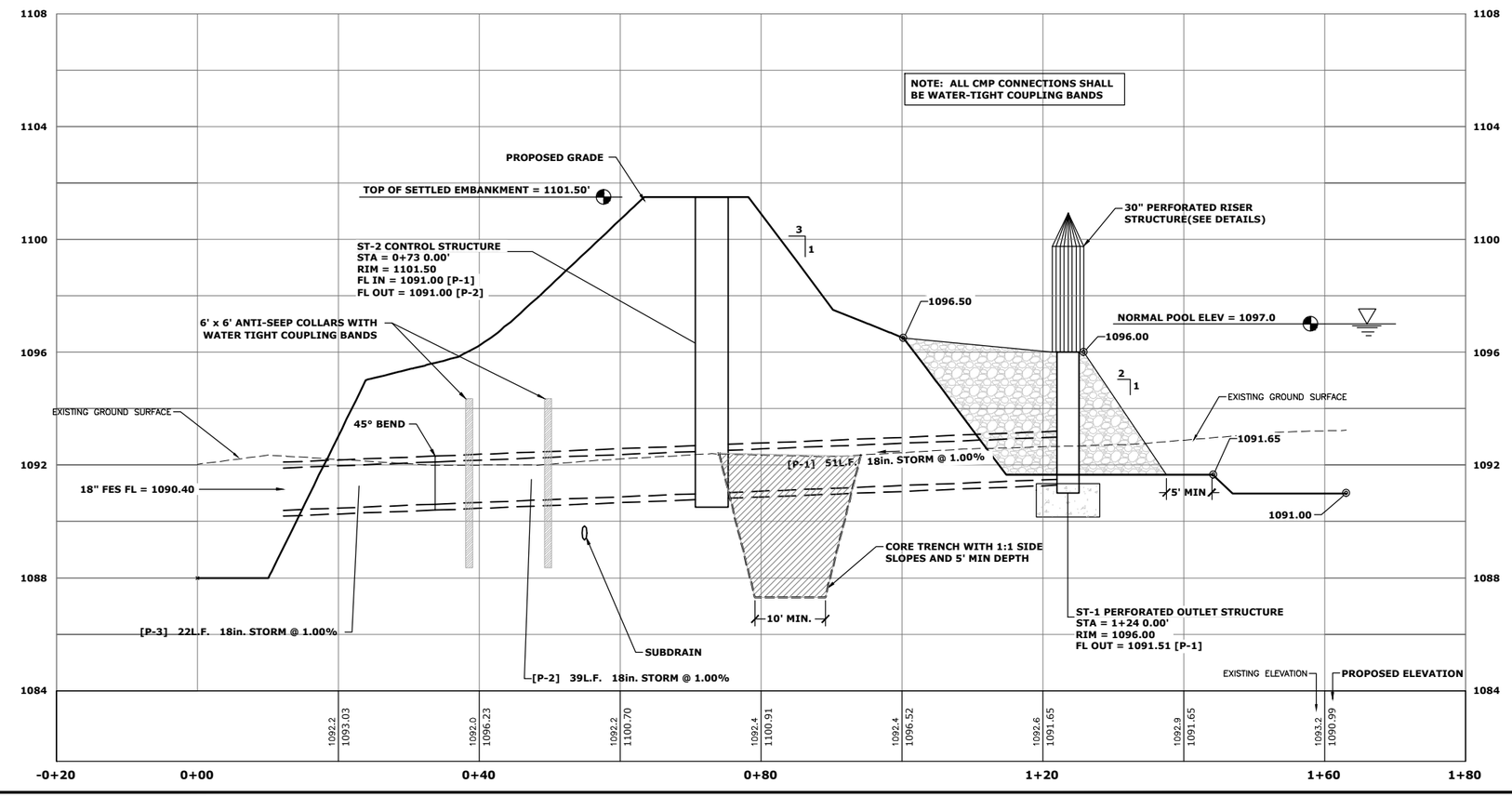
HAR892036A
IDALS CREP
HARDIN COUNTY, IOWA
IOWA

PROJECT NO.
7048-12A

SHEET
C.04

EX. GRADE
PROFILE GRADE
STATION





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DESIGNED: SPS 08/13
DRAWN: JAZ 08/13
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LAST UPDATE: 08/29/13

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SECTION "B" PLAN AND PROFILE
HAR8920136A
IDALS CREP
HARDIN COUNTY, IOWA

PROJECT NO.
7048-12A

SHEET
C.05

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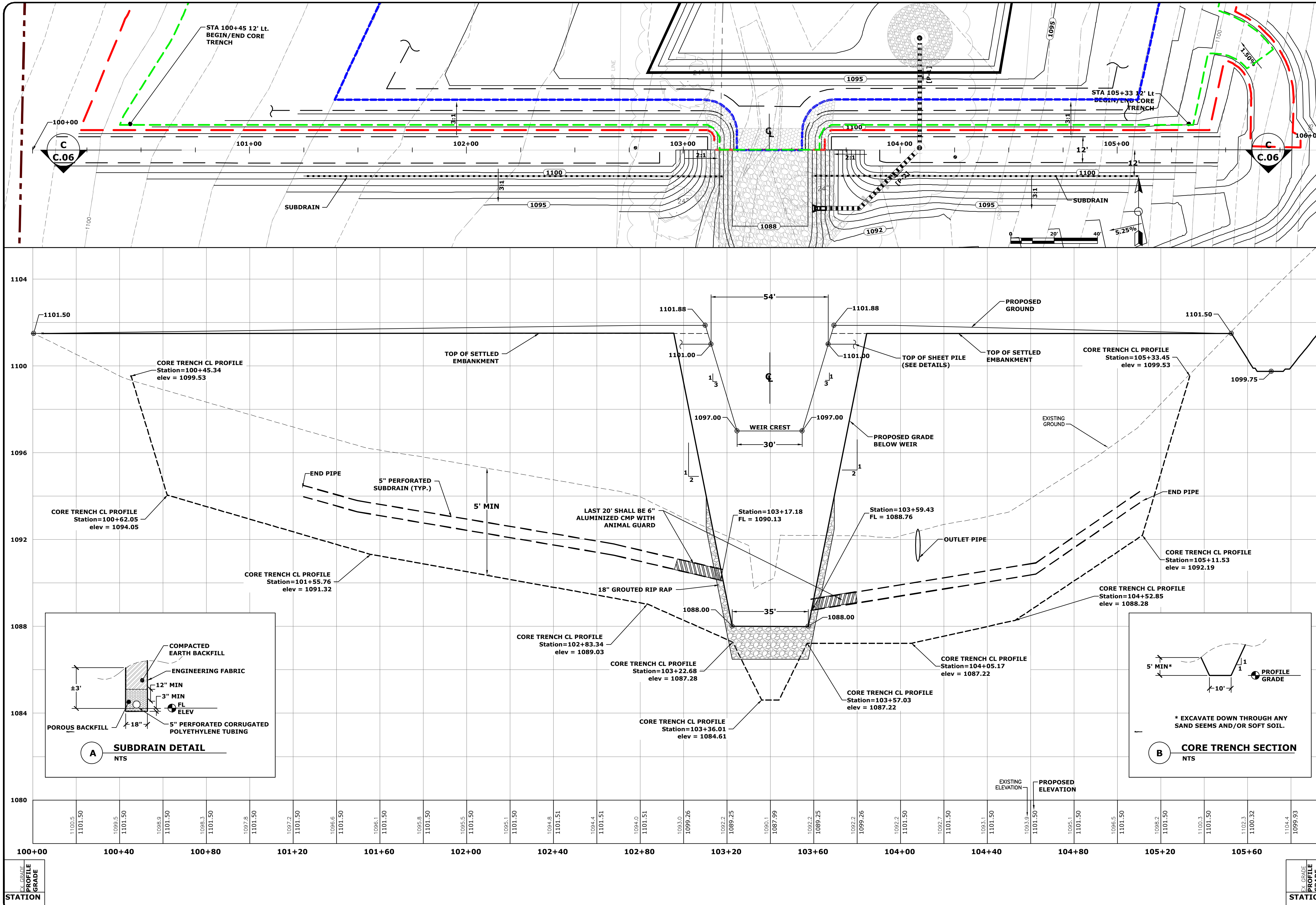

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08/13 | JAZ | DRAWN:
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SECTION "C" PLAN AND PROFILE
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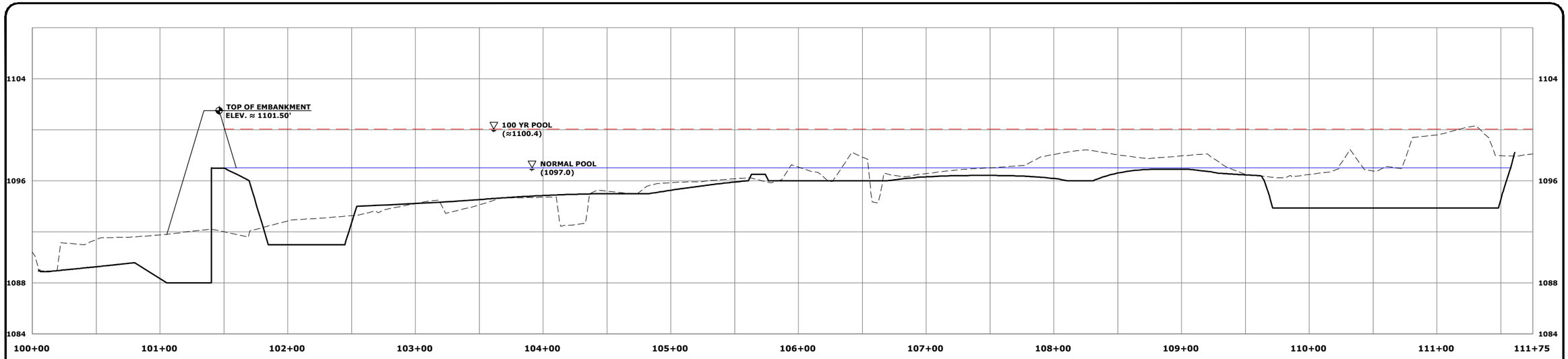
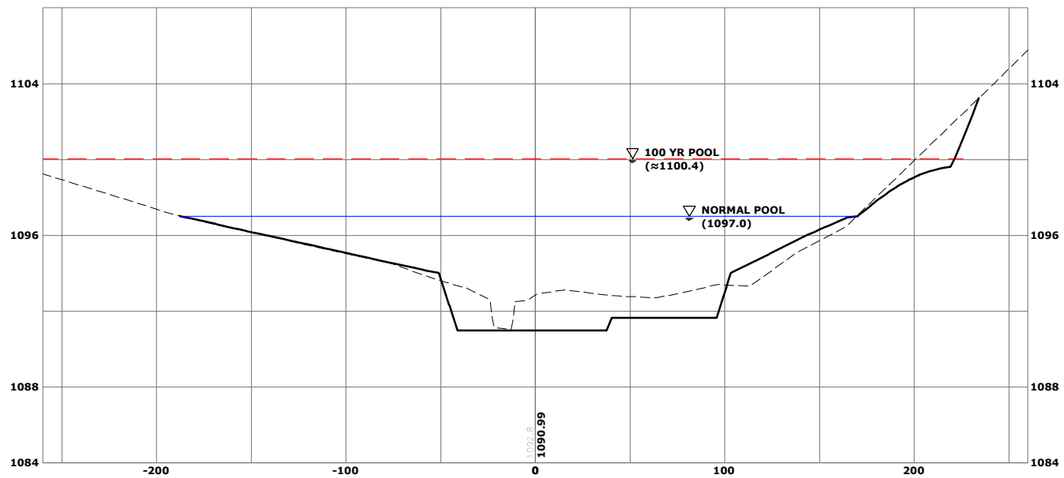
IDALS CREP
HARDIN COUNTY, IOWA
IOWA

PROJECT NO.
7048-12A
SHEET
C.06



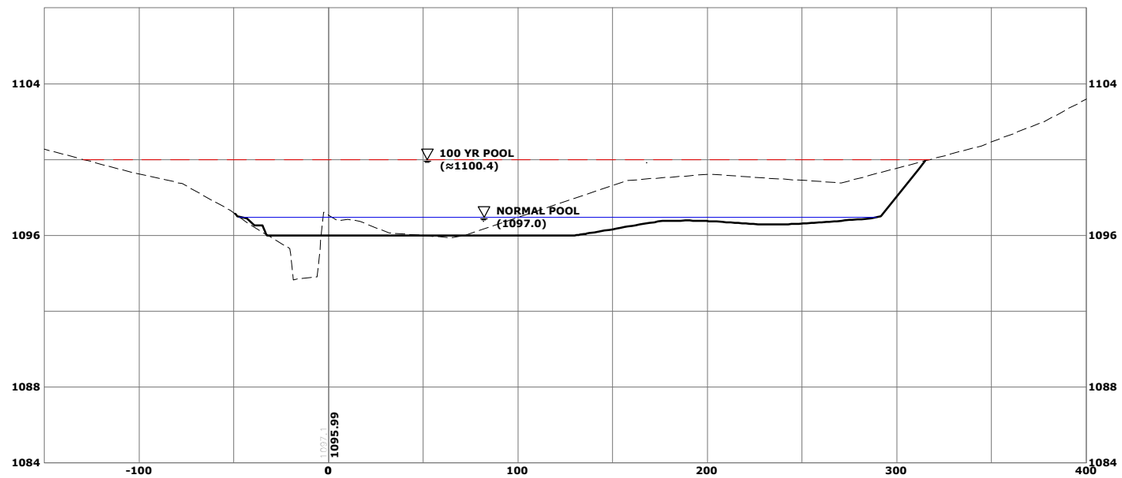
A **PROFILE VIEW**

102+00



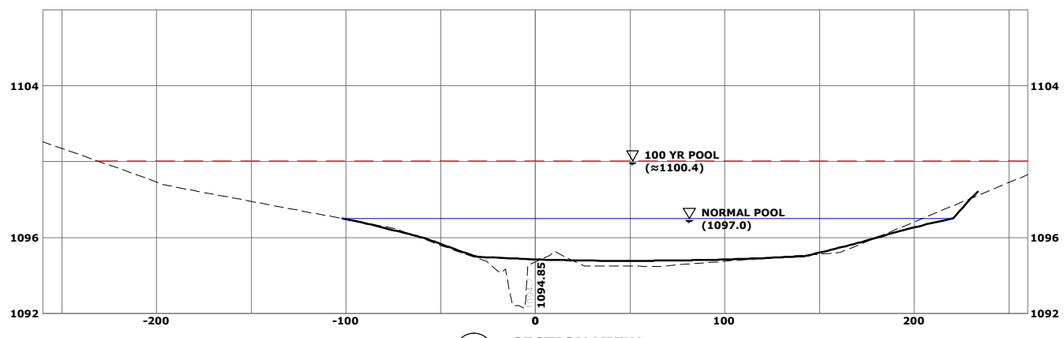
D **SECTION VIEW**

106+00



F **SECTION VIEW**

104+00



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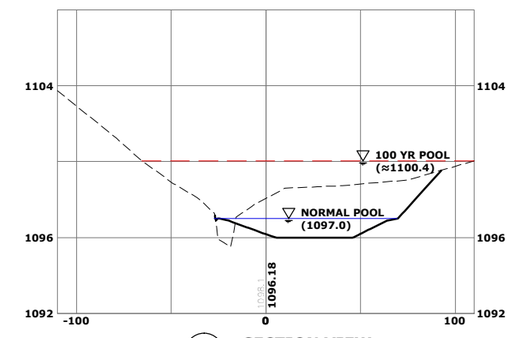
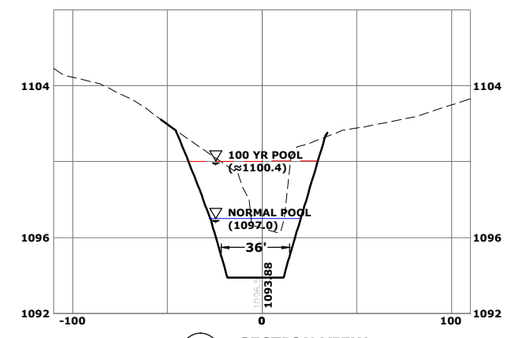


G **SECTION VIEW**

110+00



H **SECTION VIEW**

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PLOT STYLE TABLE	LAYER MNGR NAME	LAYOUT NAME
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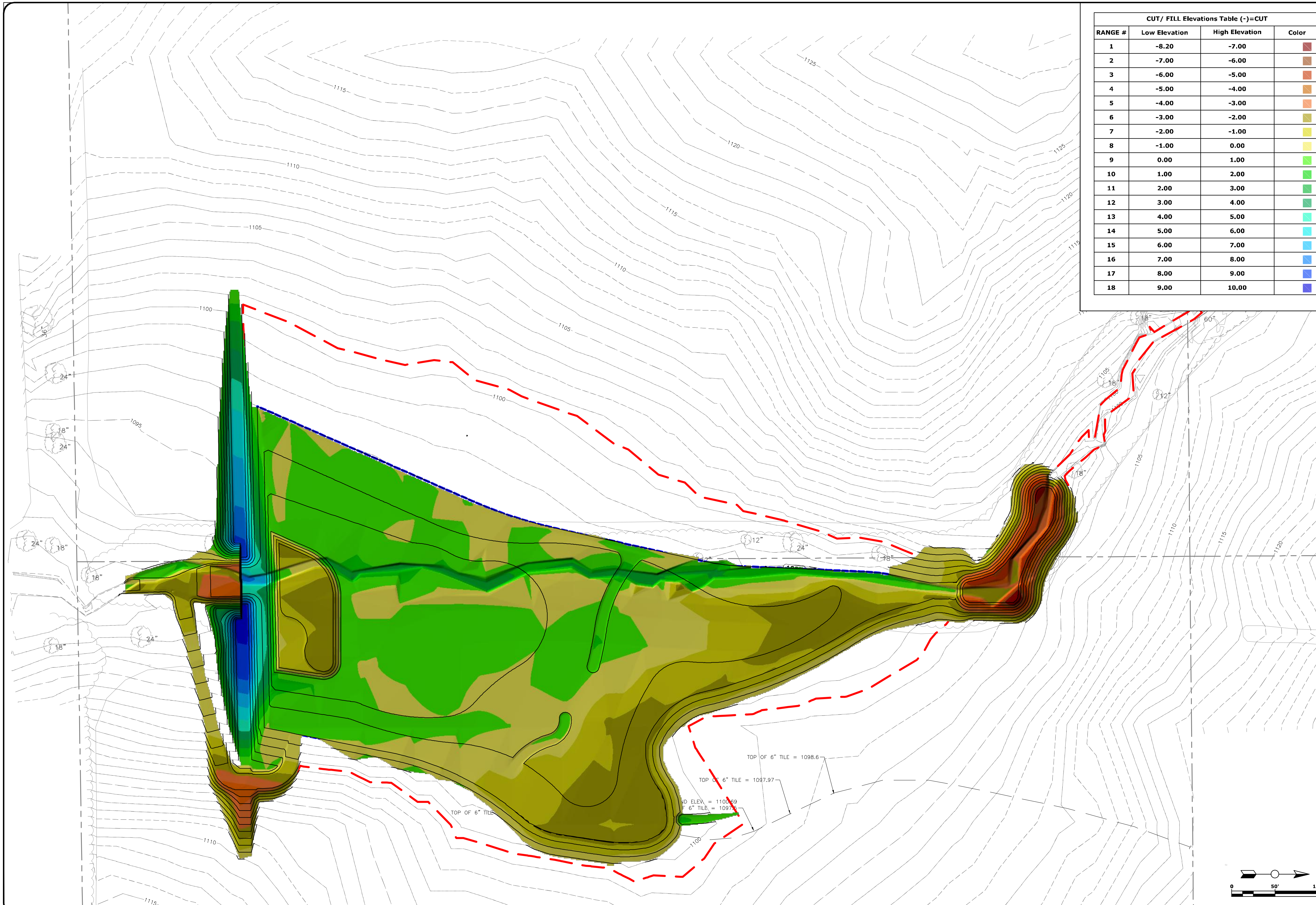
PROFILE AND SECTION VIEWS
HAR892036A
IDALS CREP
HARDIN COUNTY, IOWA
IOWA

PROJECT NO.
7048-12A

SHEET
C.07



CUT/ FILL Elevations Table (-)=CUT

RANGE #	Low Elevation	High Elevation	Color
1	-8.20	-7.00	
2	-7.00	-6.00	
3	-6.00	-5.00	
4	-5.00	-4.00	
5	-4.00	-3.00	
6	-3.00	-2.00	
7	-2.00	-1.00	
8	-1.00	0.00	
9	0.00	1.00	
10	1.00	2.00	
11	2.00	3.00	
12	3.00	4.00	
13	4.00	5.00	
14	5.00	6.00	
15	6.00	7.00	
16	7.00	8.00	
17	8.00	9.00	
18	9.00	10.00	

DATE	REVISION	BY	DATE

	BY	DATE
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GRADING CUT FILL MAP
HAR892036A
IDALS CREP
HARDIN COUNTY
IOWA

PROJECT NO.
7048-12A

SHEET
C.08

DRAWING FILENAME
K:\!proj\7000\7048-12A IDALS CREP 2012\Drawings\Civil\7048-12A CUT FILL MAP.dwg

LAYER MNGR NAME

LAYOUT NAME
C.08

PLOT STYLE TABLE
FoxGrayScale.ctb