

| Bill of Materials | |
|--|--|
| 108"-8"Ø Helical Corrugated Metal Pipe (HCMP) with hooded inlet. To include: 1-20' 16 gauge section with one flanged end and one hooded inlet 1-26' and 2-20' 16 gauge sections each with two flanged ends 1-22' 16 gauge outlet section with one flanged end and an 8.2" elbow 2' from the flanged end | |
| 12,193 yd ³ Earthfill, includes 696 yd ³ of stripping and 1,005 yd ³ to core trench. | |
| 3 each 48" x 48" 14 gauge anti-seep collars for 8"Ø HCMP | |
| 2-1 gallon buckets of asphaltic mastic sealer. | |
| 2 Acres seeding on embankment. In addition, all disturbed areas shall be seeded to the recommendations made by the park officials. | |

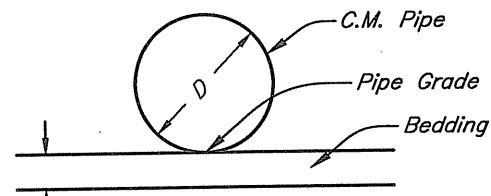
Date: RLH 03-2009
 Designed: RLH 03-2009
 Drawn: *D. Baker*
 Checked: *D. Baker*
 Approved: *5/09*

PROFILE
 BILL OF MATERIALS



File No: og1.DWG
 Drawing No.
 6/22/09 9:52 AM
 Sheet 3 of 4

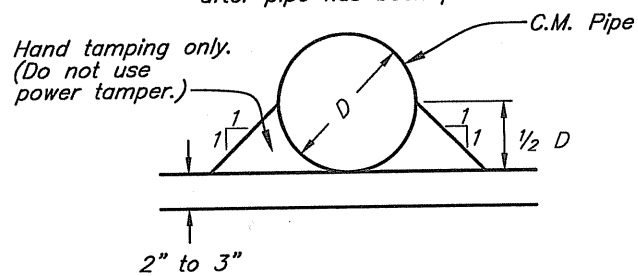
Jasper County, IA
 Rock Creek Lake, Site 3



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

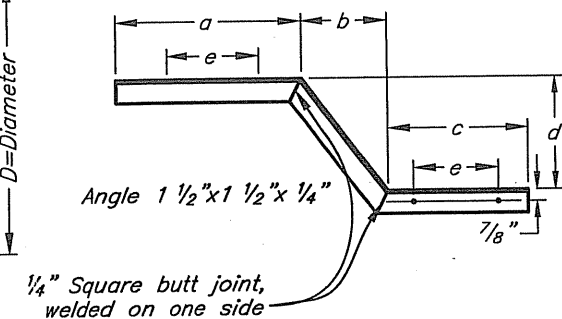
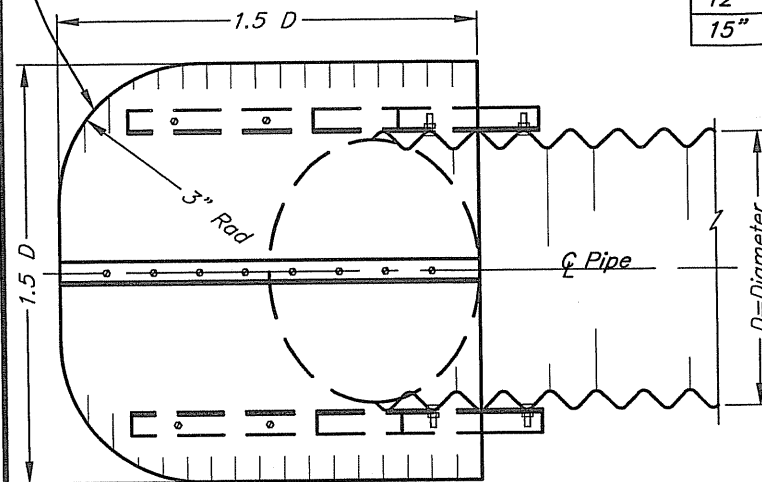
Note
Begin backfill immediately after pipe has been placed.



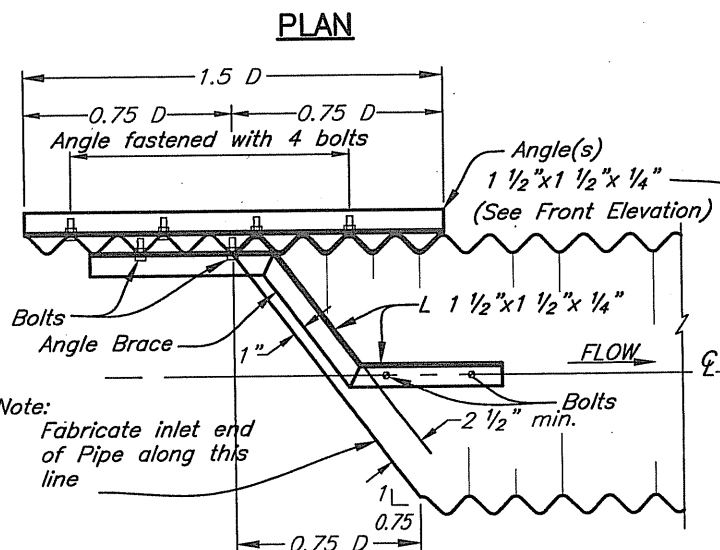
CORRUGATED OR SMOOTH METAL PIPE PRINCIPAL SPILLWAY BACKFILL DETAIL

| GAGE OF METAL BAFFLE AND DIMENSIONS OF ANGLE BRACE | | | | | | | |
|--|------------------------|------|---------------------------------|-------|---|-------|-------|
| Diam. of Pipe | Sheet Thick. of Baffle | | Angle Brace Dimensions (Inches) | | | | |
| | Steel | Al. | a | b | c | d | e |
| 6" | .064 | .105 | Not Required | | | | |
| 8" | .064 | .105 | | | | | |
| 10" | .064 | .105 | | | | | |
| 12" | .064 | .105 | 8 | 3 3/4 | 9 | 5 | 5 1/3 |
| 15" | .064 | .105 | 9 | 4 7/8 | 9 | 6 1/2 | 5 1/3 |

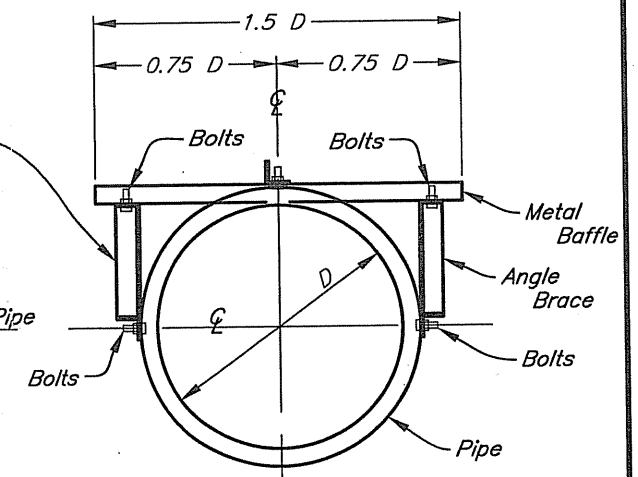
Metal Baffle shall have the same coating as the pipe to which it is attached. Where Metal Baffle is fabricated of more than one piece of metal, the separate pieces shall be securely fastened to each other. Sharp corners shall be removed. At contractors option, Metal Baffle may be made of corrugated or sheet metal and shaped circular, square or as shown.



ANGLE BRACE DETAIL
(1 left and 1 right required for each baffle)



SIDE ELEVATION



FRONT ELEVATION

Note:
Fabricate inlet end of Pipe along this line

Notes:
USE ALUMINUM BAFFLE AND ANGLES WITH ALUMINUM PIPE.
USE STEEL BAFFLE AND ANGLES WITH STEEL OR IRON PIPE.
All bolts shall be 3/8" x 1 1/2" with nut and split washers.
All holes for bolts shall be drilled 7/16" diameter.
All nuts, bolts and washers shall be galvanized, cadmium plated, or stainless steel.
All cuts shall be saw or shear cuts.
Holes in the angle brace shall be spaced and located to match corrugations in pipe and baffle.
Steel angles shall be galvanized.

STANDARD DWG. IA-1205

DATE July 2008 SHEET 1 OF 1



DETAILS OF CORRUGATED OR SMOOTH METAL PIPE PRINCIPAL SPILLWAY BEDDING AND BACKFILL

Rock Creek Lake, Site #3

Designed RLH Date 3/09
Drawn Standard
Checked _____
Approved _____

File Name _____
Drawing Name _____
Sheet 4 of 4

STANDARD DWG. IA-1210

DATE July 2008 SHEET 1 OF 1

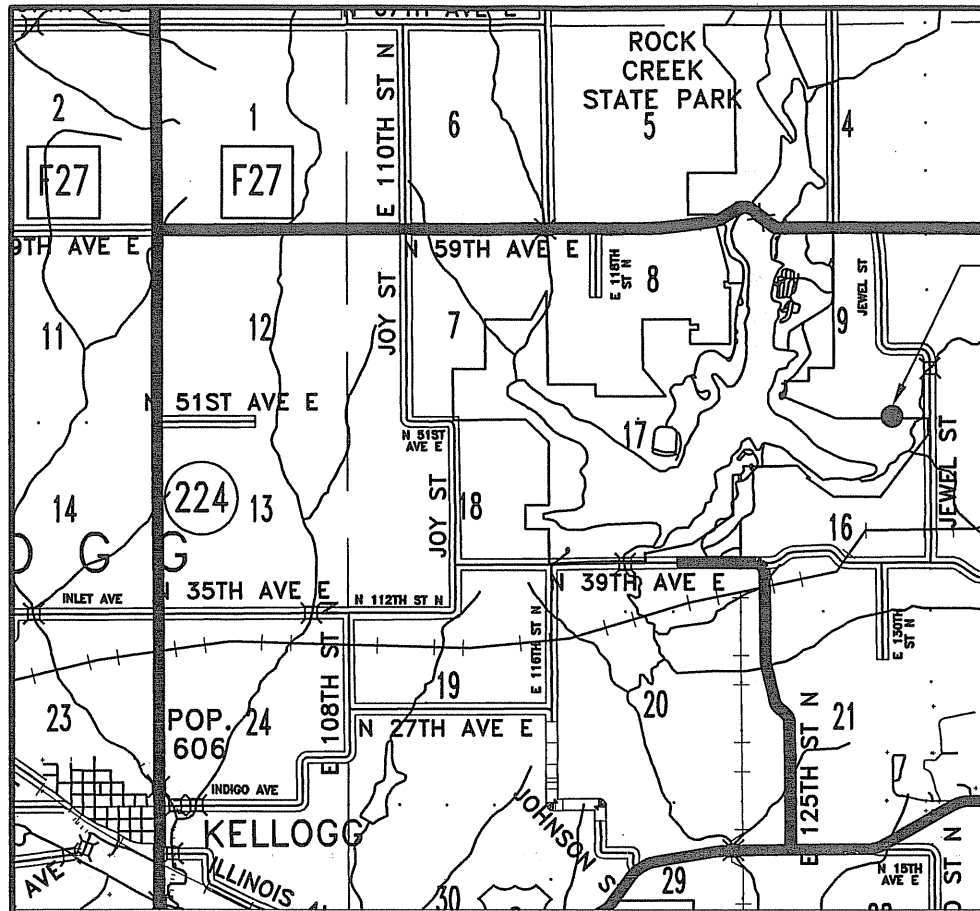


DETAILS OF HOOD INLET FOR ANNULAR OR SPIRAL C.M. PIPE 6-15 INCH DIAM.

Rock Creek Lake, Site #3

Designed RLH Date 3/09
Drawn Standard
Checked D/Baker 5/09
Approved _____

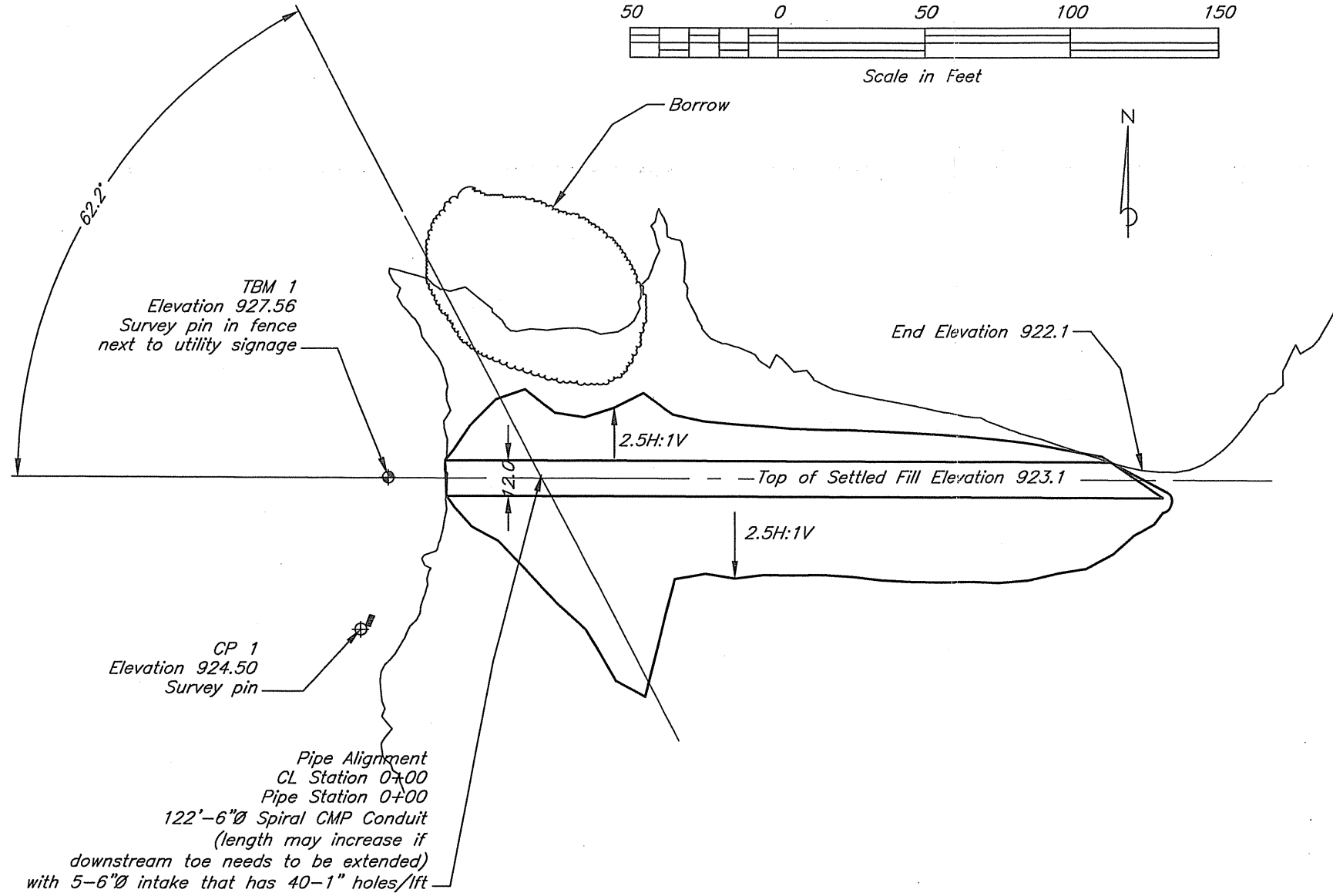
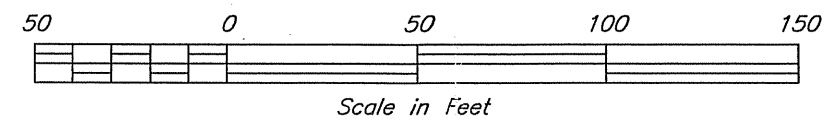
File Name _____
Drawing Name _____
Sheet 4 of 4



Location:
NE 1/4 NE 1/4 Sec. 16
T80N R17W Rock Creek Twp.

CONTRACTOR IS RESPONSIBLE
FOR CALLING IOWA ONE CALL
1-800-292-8989

If a cultural resource is
identified during construction,
stop immediately and notify the
Natural Resources Conservation
Service Archeologist at
(515) 284-4370.



- All work shall be performed as shown on the plans and the attached specifications.
- Centerline, embankment toes, and benchmarks shall be staked in the field prior to construction.
- Borrow shall be removed from area indicated.

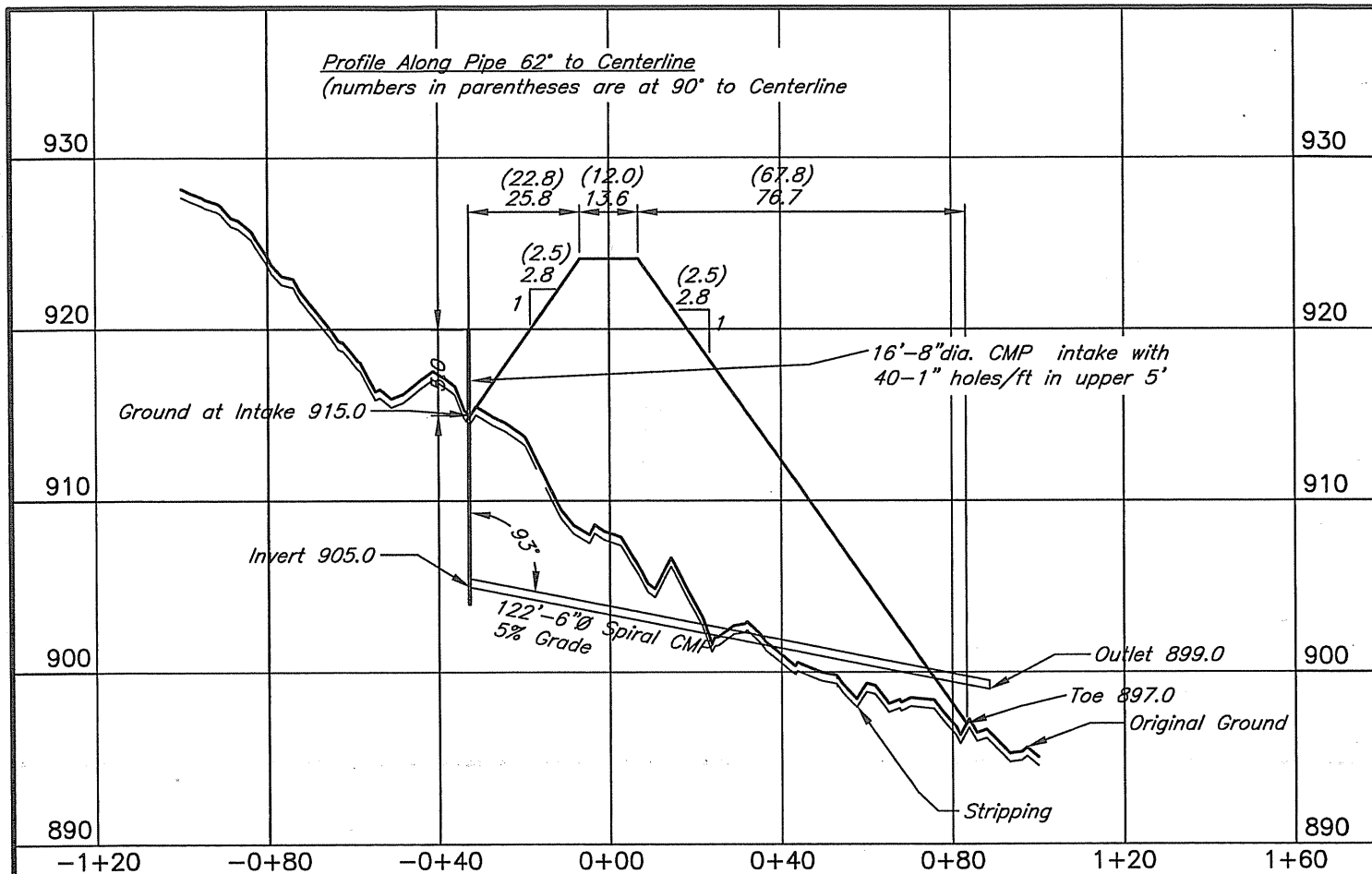
OPERATION AND MAINTENANCE REQUIREMENTS:

1. Remove sediment build-up in basin channel and around the intake to maintain the required capacity.
2. Repair sections of the basin which have eroded or have excessive settlement.
3. Reseed and fertilize, as needed, to maintain good vegetation.
4. Repair or replace intake as needed.
5. Remove trash from around and in the tile intake.
6. Inspect, and remove any trash or sediment accumulated at the outlet.
7. Control weeds, brush, and trees by mechanical methods or chemicals.
8. Do not operate farm equipment on steep front slopes and/or back slopes.

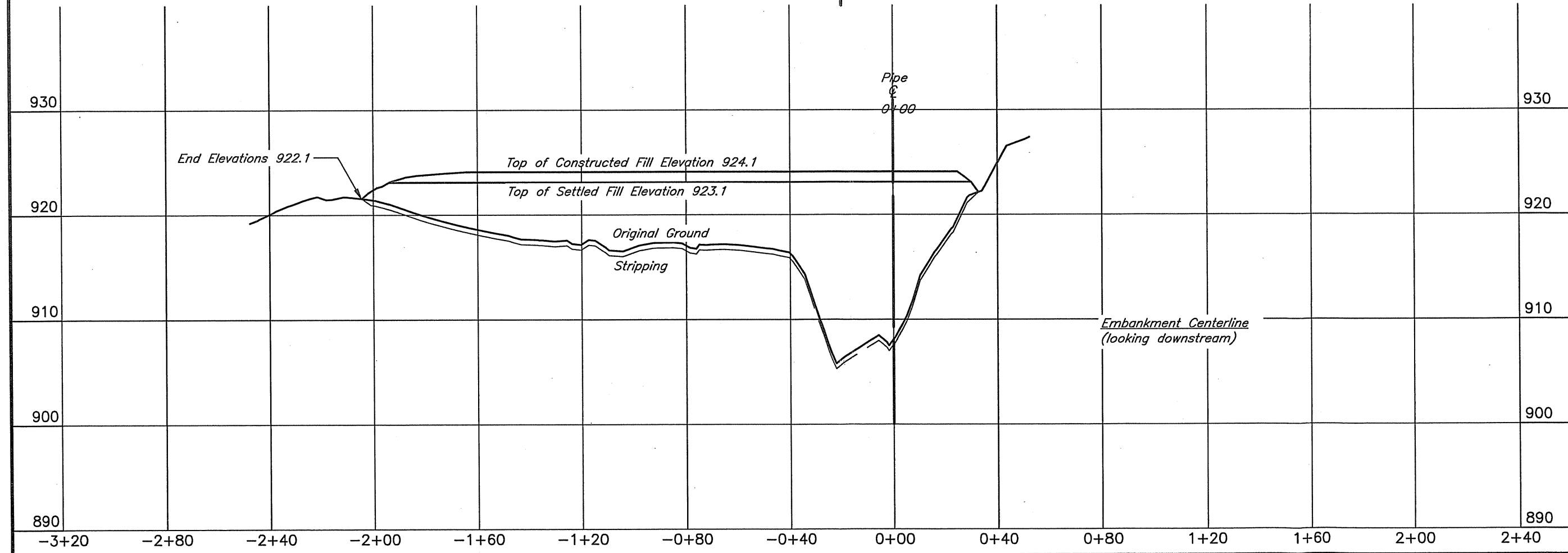
Date: RHathcock 04/2009
Designed: RHathcock 04/2009
Drawn: DVB 8/09
Checked: [Signature]
Approved: [Signature] 8/17/09

Jasper County, Iowa
Rock Creek Site #4
PLAN VIEW
Job Class III

File No. site.dwg
Drawing No.
6/23/09 10:10 AM
Sheet 1 of 3



| BILL OF MATERIALS | |
|---|--|
| 122'-6"Ø Spiral Corrugated Metal Pipe (CMP). 2' is connected to intake/riser with a flanged end; 5-20' intermediate sections each with two flanged ends; 1-20' outlet section with one flanged end. | |
| 16'-6"Ø Spiral (CMP) Intake. Top 5' with 40 - 1" holes per foot and 2'-6"Ø stub with flange welded 1' from the bottom at 93° vertical angle. | |
| 2 gallon Asphaltic Mastic Sealer | |
| 2,704 CY Earthwork—Includes 0.5' Stripping | |
| 0.6 ac Seeding | |



Date
RHathcock 04/2009
Designed
RHathcock 04/2009
Drawn
DWBaker
Checked
8/09
Approved

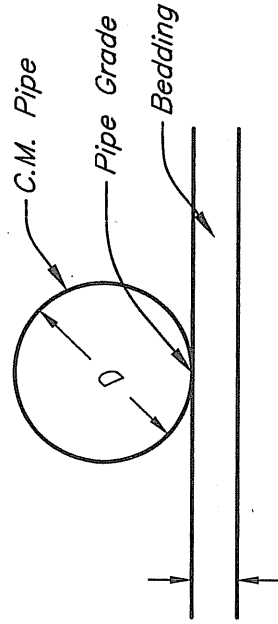
CROSS SECTIONS
Site 4

Jasper County, Iowa

Rock Creek Site #4



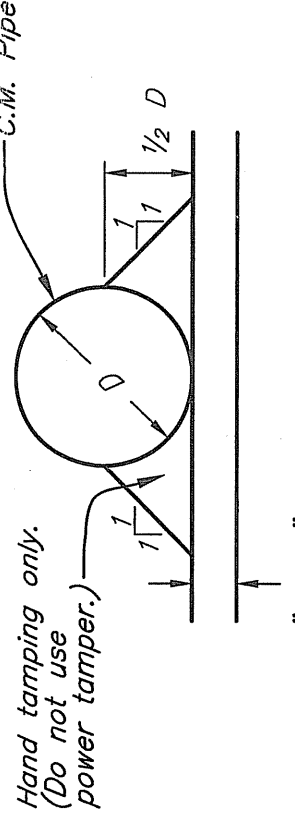
File No.
site.dwg
Drawing No. ...
6/22/09 8:13 AM
Sheet 2 of 3



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

Note
Begin backfill immediately after pipe has been placed.



Hand tamping only. (Do not use power tamper.)

CORRUGATED OR SMOOTH METAL PIPE PRINCIPAL SPILLWAY BACKFILL DETAIL

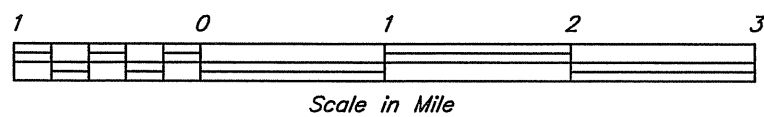
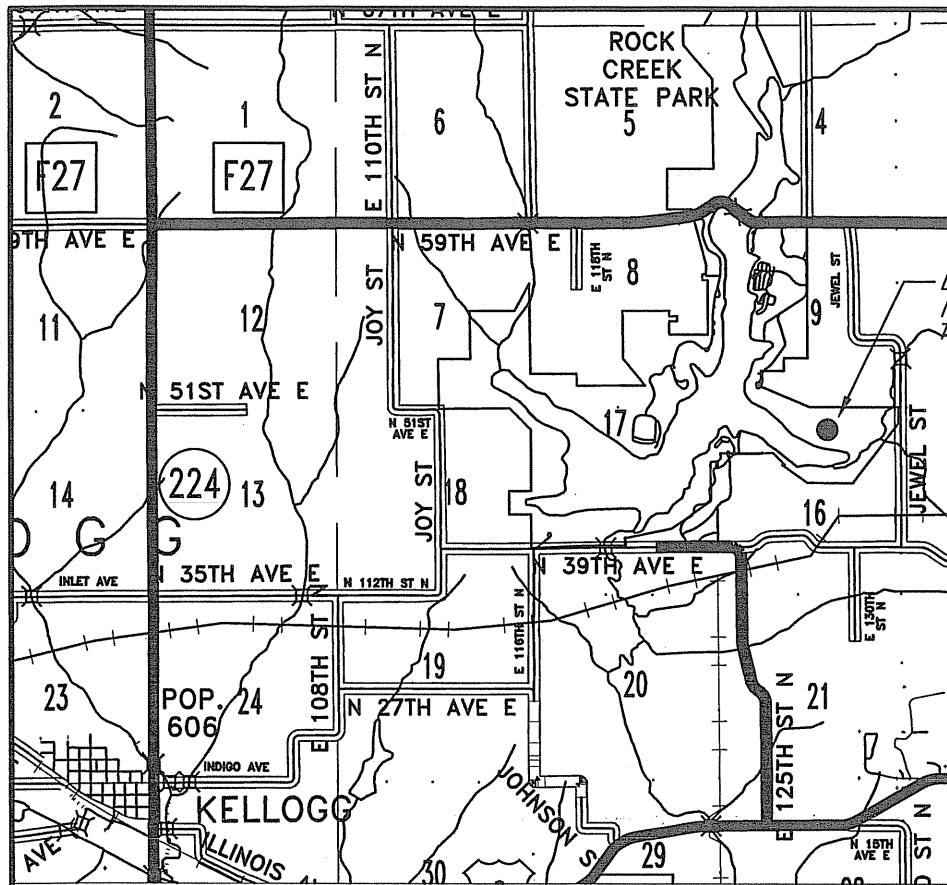
STANDARD DWG. IA-1205

DATE July 2008 SHEET 1 OF 1



DETAILS OF CORRUGATED OR SMOOTH METAL PIPE PRINCIPAL SPILLWAY BEDDING AND BACKFILL
Rock Creek, Site #4

| | | |
|---------------------------|---------------------|----------------------------|
| Designed <i>RHathcock</i> | Date <i>04/2009</i> | File Name |
| Drawn <i>RHathcock</i> | <i>04/2009</i> | Drawing Name |
| Checked <i>DV Baker</i> | <i>8/09</i> | Sheet <i>3</i> of <i>3</i> |
| Approved _____ | | |



SHEET INDEX

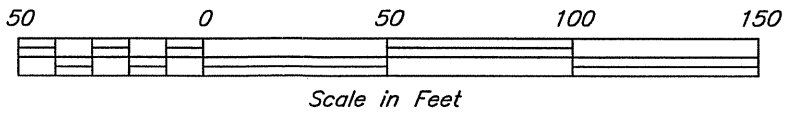
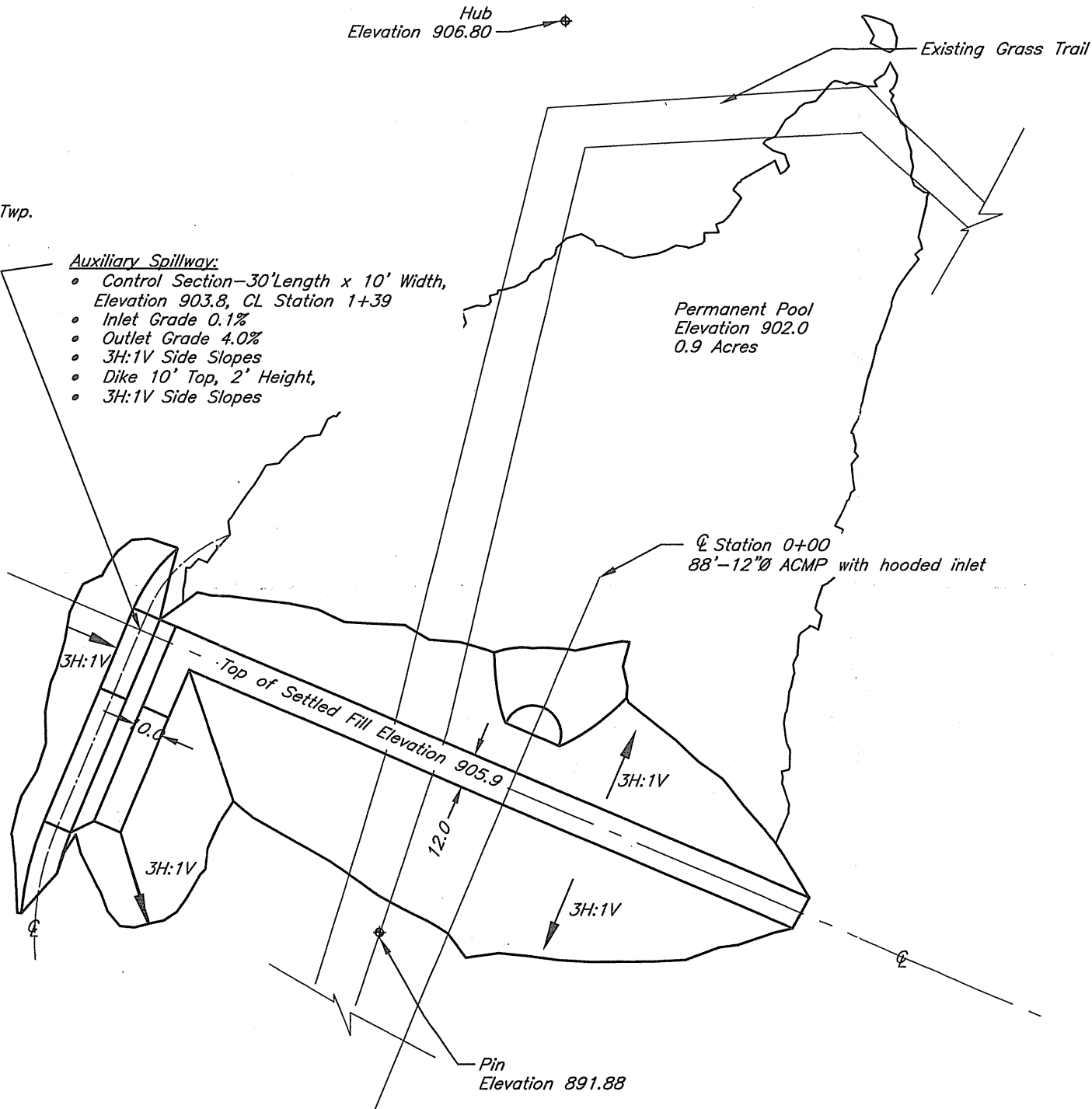
- Sheet #1 Plan View/Location
- Sheet #2 Auxiliary and Centerline Detail
- Sheet #3 Pipe Profile and Bill of Materials
- Sheet #4 Details of Hood Inlet
- Sheet #5 Details of Anti-Seep Collar, Watertight Coupling Band, Tank Lug, Bedding and Backfill

CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE CALL 1-800-292-8989

- All work shall be performed as shown on the plans and the attached specifications.
- Centerline, embankment toes, and benchmarks shall be staked in the field prior to construction.
- Borrow area shall be determined during pre-construction meeting with park officials
- Park officials shall have the opportunity to remove trees prior to clearing.

OPERATION AND MAINTENANCE REQUIREMENTS:

1. Remove sediment build-up in storage area as needed to maintain the required capacity.
2. Repair sections of the embankment and auxiliary spillway which have eroded or have excessive settlement.
3. Reseed and fertilize, as needed, to maintain good vegetation.
4. Remove trash from around the pipe inlet
5. Inspect, and remove any trash or sediment accumulated at the outlet.
6. Control weeds, brush, and trees by mechanical methods or with chemicals.
7. Do not operate farm equipment on steep frontslopes and/or backslopes.



NRCS does not guarantee that this structure will fill and/or remain filled with water to the principal spillway crest elevation.

If a cultural resource is identified during construction, stop immediately and notify the Natural Resources Conservation Service Archeologist at (515) 284-4370.

Date: RHathcock 06/2009
 Designed: RHathcock 06/2009
 Drawn: D. Baker 8/09
 Checked: M. Baker
 Approved: M. Baker

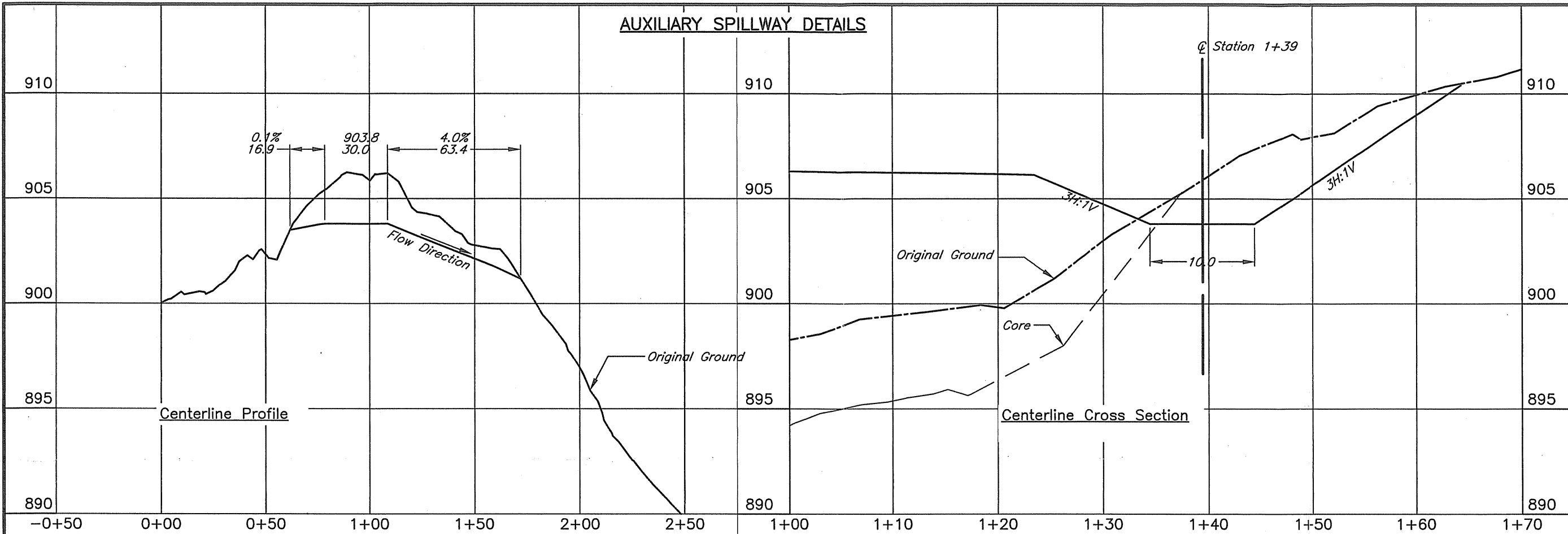
PLAN VIEW
 Job Class III

Jasper County, Iowa
 Rock Creek Lake, Site #5
 8/11/09

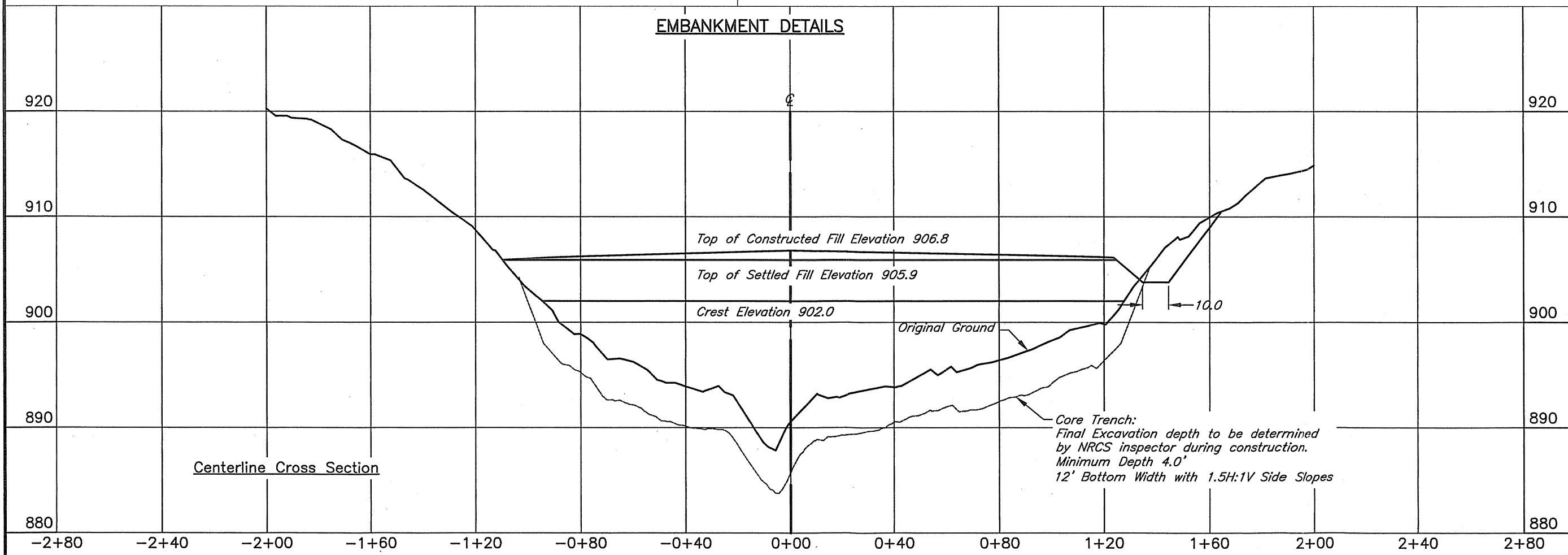


File No.
 Drawing No.
 8/13/09 12:56 PM
 Sheet 1 of 5

AUXILIARY SPILLWAY DETAILS



EMBANKMENT DETAILS



Date: 06/20/09
 Designed: RHathcock
 Drawn: RHathcock
 Checked: DVBaker
 Approved: [Signature]

**AUXILIARY DETAILS
 EMBANKMENT DETAILS**

Jasper County, Iowa

Rock Creek Lake, Site #5



File No: site5.dwg
 Drawing No.:
 08/13/09 12:56 PM
 Sheet 2 of 5

| BILL OF MATERIALS | |
|---|-----|
| 88'-12"Ø, 16 gauge Annular Corrugated Metal Pipe (CMP) with hooded inlet. Pipe shall be close riveted, caulked seamed with 2-2/3" x 1/2" corrugations. To include: 1-32' hooded inlet, section; 1-34' intermediate section and 1-22' outlet section with a 6.9' elbow fabricated 2' from the upper end. | 920 |
| 5,764 yd ³ Earthfill, includes 0.5' stripping and 615 yd ³ for core trench. | 915 |
| 2 each 60" x 60" 16 gauge anti-seep collars for 12"Ø CMP. Each with 2 rods and lugs. | 915 |
| 2 each 24" Wide 2 piece, 16 gauge, coupling bands for 12"Ø CMP each with 4 rods and lugs | 915 |
| 1-5gallon bucket asphaltic mastic sealer. | 910 |
| 1.0 seeding on embankment. In addition, all disturbed areas shall be seeded to the recommendations made by the park officials. | 910 |

Date
RHathcock 06/2009

Designed
RHathcock 06/2009

Drawn
DJBaker 8/09

Checked
Approved

PIPE PROFILE
BILL OF MATERIALS

Jasper County, Iowa

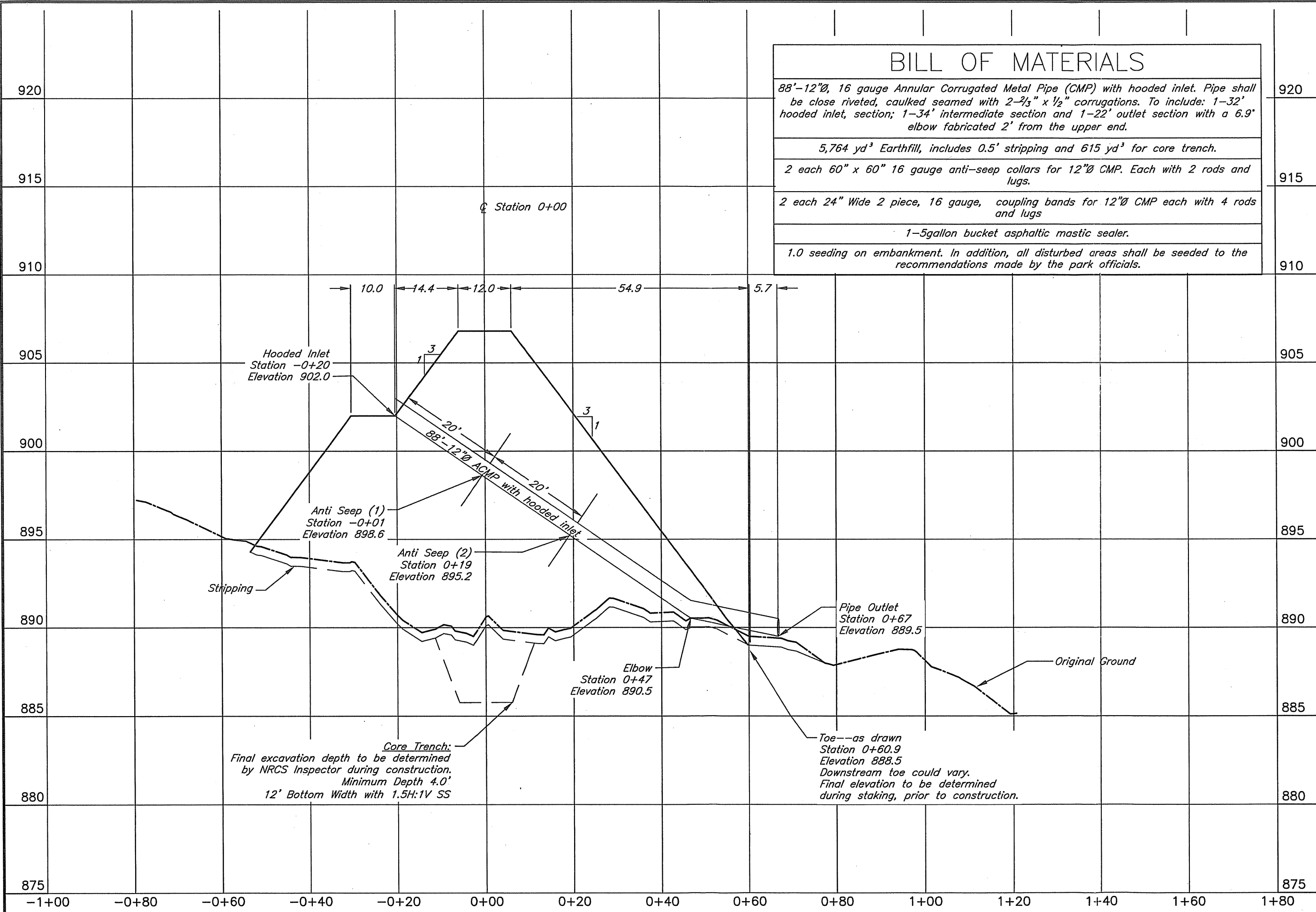
Rock Creek Lake Site #5



File No.
site5.dwg

Drawing No.

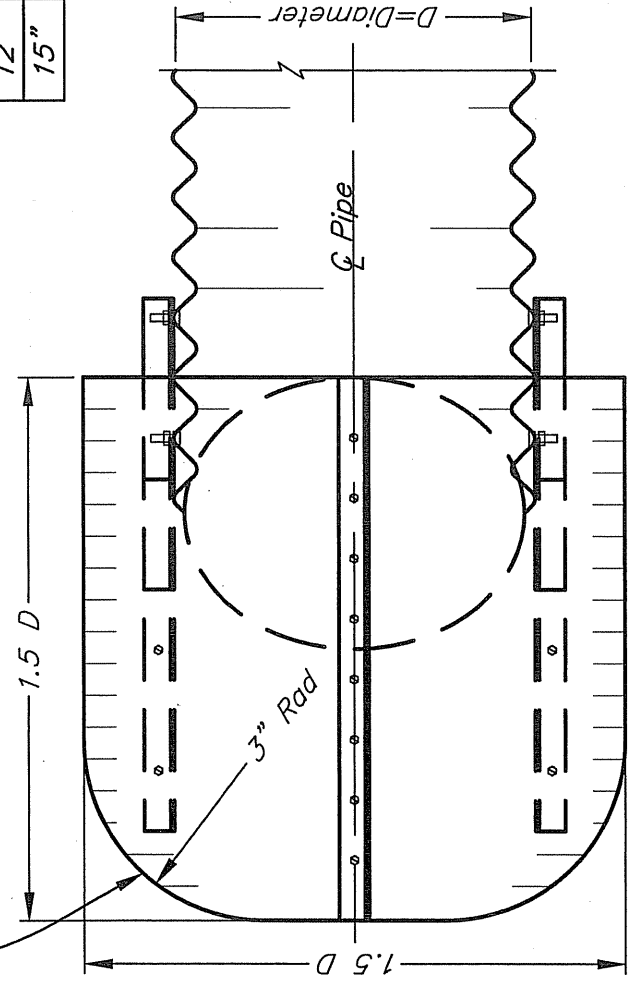
8/13/09 12:56 PM
Sheet 3 of 5



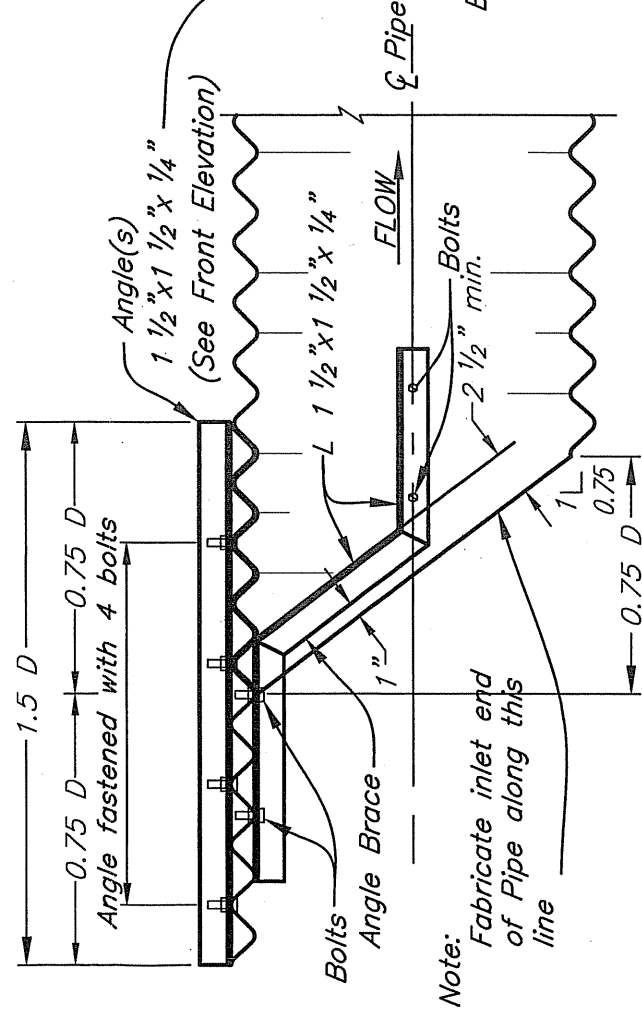
Core Trench:
Final excavation depth to be determined
by NRCS Inspector during construction.
Minimum Depth 4.0'
12' Bottom Width with 1.5H:1V SS

Toe—as drawn
Station 0+60.9
Elevation 888.5
Downstream toe could vary.
Final elevation to be determined
during staking, prior to construction.

Metal Baffle shall have the same coating as the pipe to which it is attached. Where Metal Baffle is fabricated of more than one piece of metal, the separate pieces shall be securely fastened to each other. Sharp corners shall be removed. At contractor's option, Metal Baffle may be made of corrugated or sheet metal and shaped circular, square or as shown.



PLAN



Note:
Fabricate inlet end of Pipe along this line

SIDE ELEVATION

FRONT ELEVATION

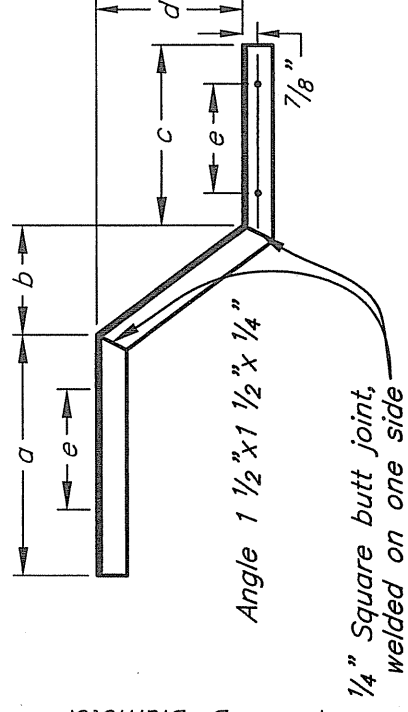
Notes:
USE ALUMINUM BAFFLE AND ANGLES WITH ALUMINUM PIPE.
USE STEEL BAFFLE AND ANGLES WITH STEEL OR IRON PIPE.
All bolts shall be 3/8" x 1 1/2" with nut and split washers.
All holes for bolts shall be drilled 7/16" diameter.
All nuts, bolts and washers shall be galvanized, cadmium plated, or stainless steel.
All cuts shall be saw or shear cuts.
Holes in the angle brace shall be spaced and located to match corrugations in pipe and baffle.
Steel angles shall be galvanized.

STANDARD DWG. IA-1210

DATE July 2008 SHEET 1 OF 1

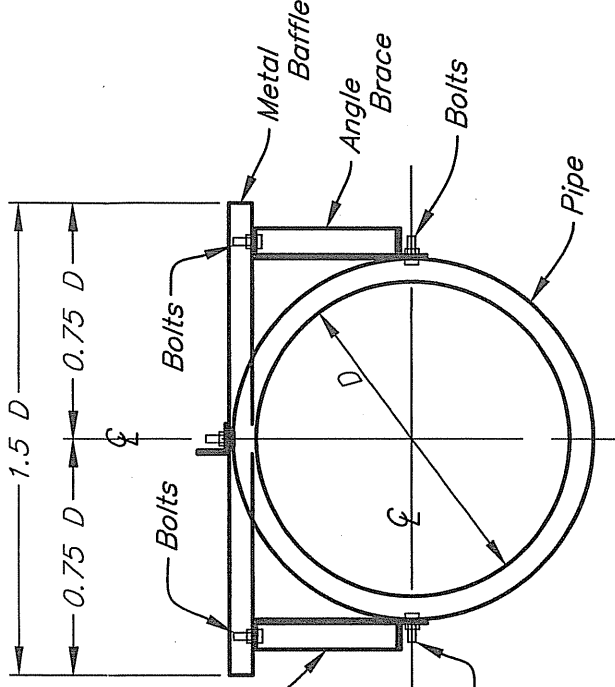
GAGE OF METAL BAFFLE AND DIMENSIONS OF ANGLE BRACE

| Diam. of Pipe D | Sheet Thick. of Baffle | | Angle Brace Dimensions (Inches) | | | | |
|--------------------|------------------------|------|---------------------------------|-------|---|-------|-------|
| | Steel | Al. | a | b | c | d | e |
| 6" | .064 | .105 | Not Required | | | | |
| 8" | .064 | .105 | | | | | |
| 10" | .064 | .105 | | | | | |
| 12" | .064 | .105 | 8 | 3 3/4 | 9 | 5 | 5 1/3 |
| 15" | .064 | .105 | 9 | 4 7/8 | 9 | 6 1/2 | 5 1/3 |



ANGLE BRACE DETAIL

(1 left and 1 right required for each baffle)



Natural Resources Conservation Service
United States Department of Agriculture

DETAILS OF HOOD INLET FOR ANNULAR OR SPIRAL C.M. PIPE 6-15 INCH DIAM.

Rock Creek Lake, Site #5

File Name

Designed RLH Date 06/2009

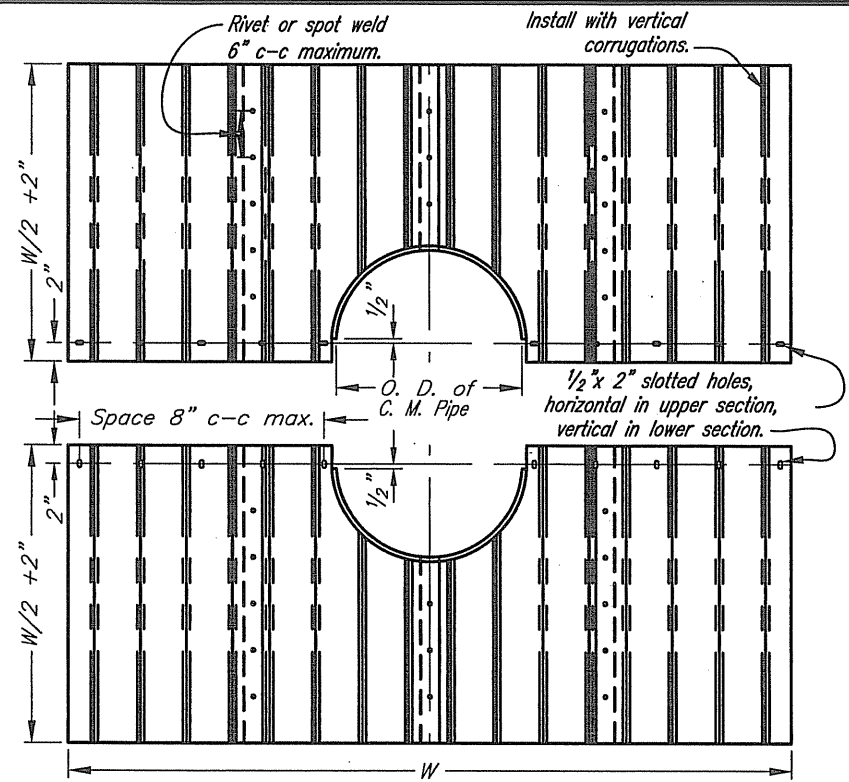
Drawing Name

Drawn DWBatar 8/09

Checked

Approved

Sheet 4 of 5

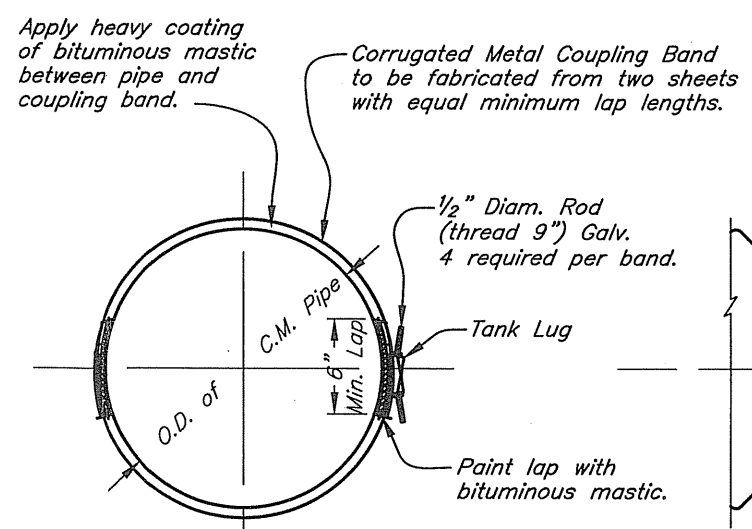
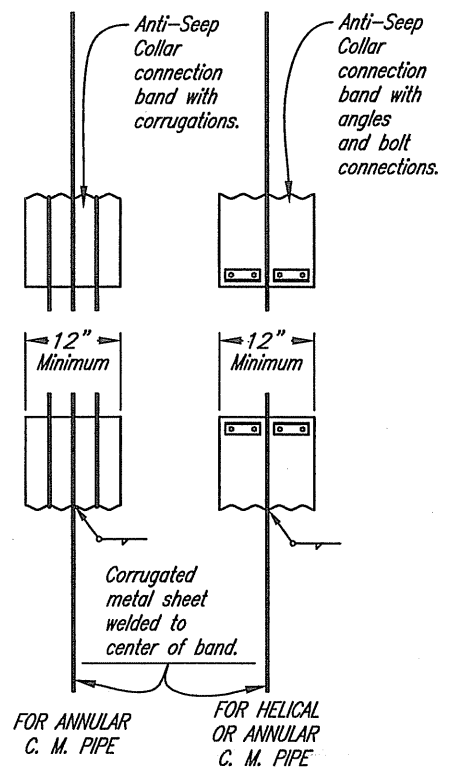


| ANTI-SEEP COLLAR DIMENSION TABLE | | |
|----------------------------------|----------|------------|
| Pipe Diam. | No. Used | W (inches) |
| 12 inch | 2 | 48 inch |

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

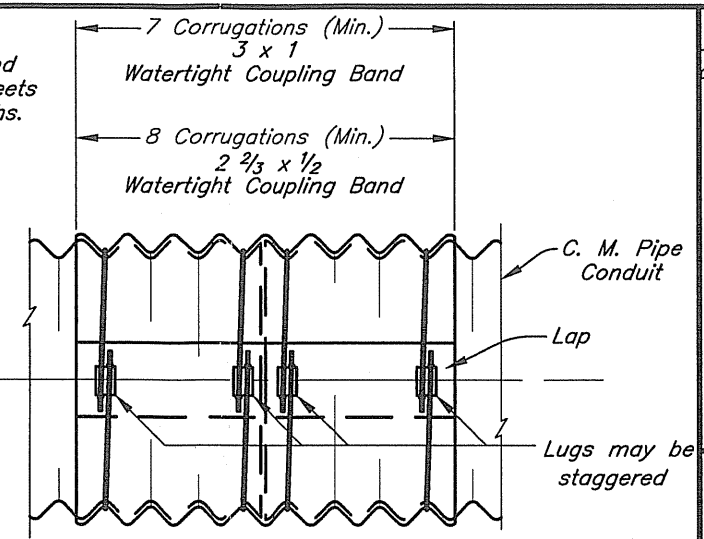
Materials and Fabrication Requirements

- Materials and fabrication shall be in accordance with Construction Specification 51A or IA 51 and the following:
 - Sheet material for the anti-seep collar and connection bands shall conform to the requirements specified for the pipe material itself.
 - The anti-seep collar sheets shall be corrugated as specified for the spillway pipe.
 - 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.
 - 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.
 - 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.
 - Connection angles and connection bolts shall be as specified for coupling bands except,
 - The length of each angle shall be 1/2 the band width minus 1".
 - 4 bolts (2 each side) are required,
 - Integral formed flanges instead of angles may be used on 6", 8", 10" and 12" diameter helical pipe anti-seep collar connection bands.
 - 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.
 - 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".
 - The anti-seep collar halves shall be slotted as shown on this drawing for connecting together with 3/8" diameter bolts. The bolts shall be of quality equal to the connection bolts and shall be galvanized or cadmium plated.
- Shop assemble match and mark anti-seep collar halves.
- Apply heavy coating of bituminous mastic or 3/8" 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.



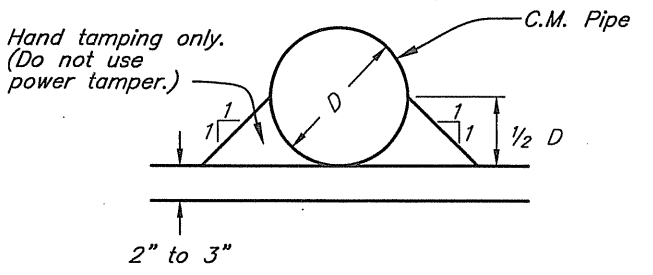
NOTES:

- See spillway general layout drawing for location of watertight bands.
- Metal treatment, thickness, and coating of watertight coupling bands shall be as specified for the pipe.
- 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 1/8" fillet weld.
- All welded areas shall be treated as specified for "Repair of Damaged Coatings." Refer to Construction Specification 51A or IA-51.
- 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.

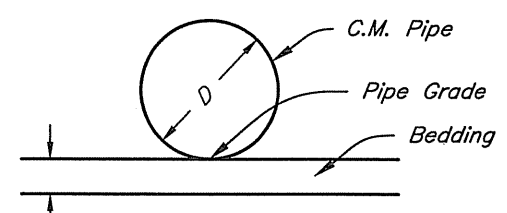


DETAILS OF WATERTIGHT COUPLING BAND

Note
Begin backfill immediately after pipe has been placed.

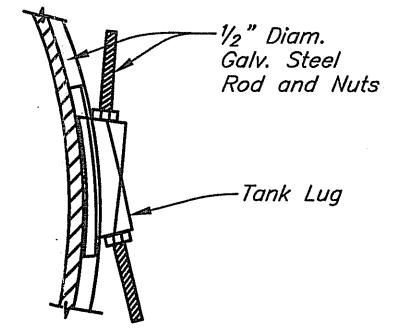


CORRUGATED OR SMOOTH METAL PIPE PRINCIPAL SPILLWAY BACKFILL DETAIL



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

Date: Rhathcock 06/2009
Designed: DWEaker
Drawn: DWEaker
Checked: DWEaker
Approved: DWEaker

DETAILS OF ANTI-SEEP COLLAR, WATERTIGHT COUPLING BAND, TANK LUG, BEDDING AND BACKFILL
Jasper County, Iowa
Rock Creek Lake, Site #5

