Otter Tail Power Company – Coyote Plant
Nelsen Pond
History of Construction
October 2016

GENERAL

This History of Construction has been written in order so Otter Tail Power Company's (OTP) Nelsen Pond can maintain compliance with 40 CFR 257. This report also satisfies the Coal Combustion Residual rule requirement for the construction history of an existing CCR surface impoundment *(§257.73 (c)(1))*.

OWNERSHIP NAME AND ADDRESS *§ 257.73(c)(1)(i)*

The Coyote Station Plant is owned by:

Otter Tail Power Company
215 South Cascade Street
Fergus Falls, MN 56538

Minnkota Power Cooperative, Inc.
1822 Mill Road
Grand Forks, ND 58203

Montana-Dakota Utilities Co.
400 North 4th Street
Bismarck, ND 58501

NorthWestern Energy
310 W. 69th Street
Sioux Falls, SD 57108

OTP operates Coyote Station and the associated CCR units including Nelsen Pond.

LOCATION OF CCR UNIT *§ 257.73(c)(1)(ii)*

See Appendix A for the attached 7.5 minute topographic quadrangle indicating Nelsen Pond location.

STATEMENT OF PURPOSE *§ 257.73(c)(1)(iii)*

Nelsen Pond serves as a dewatering pond for slag dredged from the existing Slag Pond.

WATERSHED NAME AND SIZE *§ 257.73(c)(1)(iv)*

The Coyote Station is located within the Knife River watershed in North Dakota. It is approximately 1,580,000 acres in size.

PHYSICAL AND ENGINEERING PROPERTIES *§ 257.73(c)(1)(v)-(vi)*

Material geotechnical properties are discussed in the Safety Factor Assessment report for Nelsen Pond. The material comprising the dikes and underlying soils is classified as Coleharbor Till; a Pleistocene age deposit that generally has greater than 70% fines, a liquid limit of approximately 40% or greater, and a moisture content of less than 36%. The pond is constructed with 3H:1V slopes on the sides with a 10

foot wide top. A two foot thick compacted clay liner is located on the bottom and inslopes of the pond. See Appendix B for construction drawings.

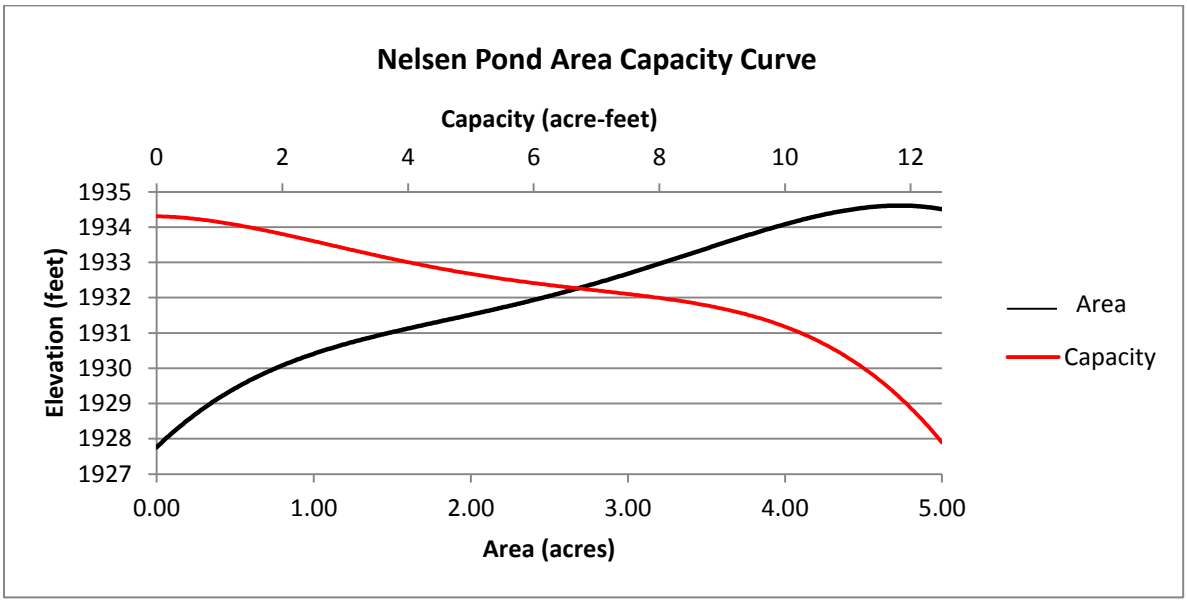
SCALED, DETAILED ENGINEERING DRAWINGS *§ 257.73(c)(1)(vii)*
See Appendix B for construction drawings.

Perimeter dikes around Nelsen Pond prevent stormwater runoff from entering the pond. Therefore, the maximum pool elevation from an inflow design flood would be equivalent to the inches of rainfall from the design flood. The National Oceanic and Atmospheric and Administration states that a 24 hour, 100 year storm event for the location of Nelsen Pond, yields 4.81 inches of rain. An inflow design flood would increase the pool elevation by 4.81 inches.

The expected maximum depth of CCR is seven feet.

DESCRIPTION OF EXISTING INSTRUMENTATION *§ 257.73(c)(1)(viii)*
Nelsen Pond does not have any dedicated instrumentation installed.

AREA-CAPACITY CURVE *§ 257.73(c)(1)(ix)*



SPILLWAY AND DIVERSION DESIGN *§ 257.73(c)(1)(x)*
Nelsen Pond has two discharge pipes located at the southeast end of the pond that gravity flow to the Sluice Outfall downgradient of Nelsen Pond. The construction drawings in Appendix B indicate one of the lines is approximately 165 linear feet of 12 inch diameter pipe installed at a 2.94% slope. The second line is approximately 120 linear feet of 12 inch diameter pipe installed at a 2.94% slope.

SURVEILLANCE, MAINTENANCE, AND REPAIR *§ 257.73(c)(1)(xi)*

Nelsen Pond is inspected per CCR rule *§ 257.83 (a)(1)(i).* If any structural or maintenance issues are noticed during these required inspections, they will be addressed and repaired as soon as possible. Plant personnel are also instructed to report any maintenance or structural issues at any time during plant operations.

STRUCTURAL INSTABILITY *§ 257.73(c)(1)(xii)*

There is no knowledge of structural instability at Nelsen Pond.

AMENDMENTS *§ 257.73(c)(2)*

If there is any significant change to information compiled in this document, the History of Construction will be updated. An updated document will be included in the facility's operating record.

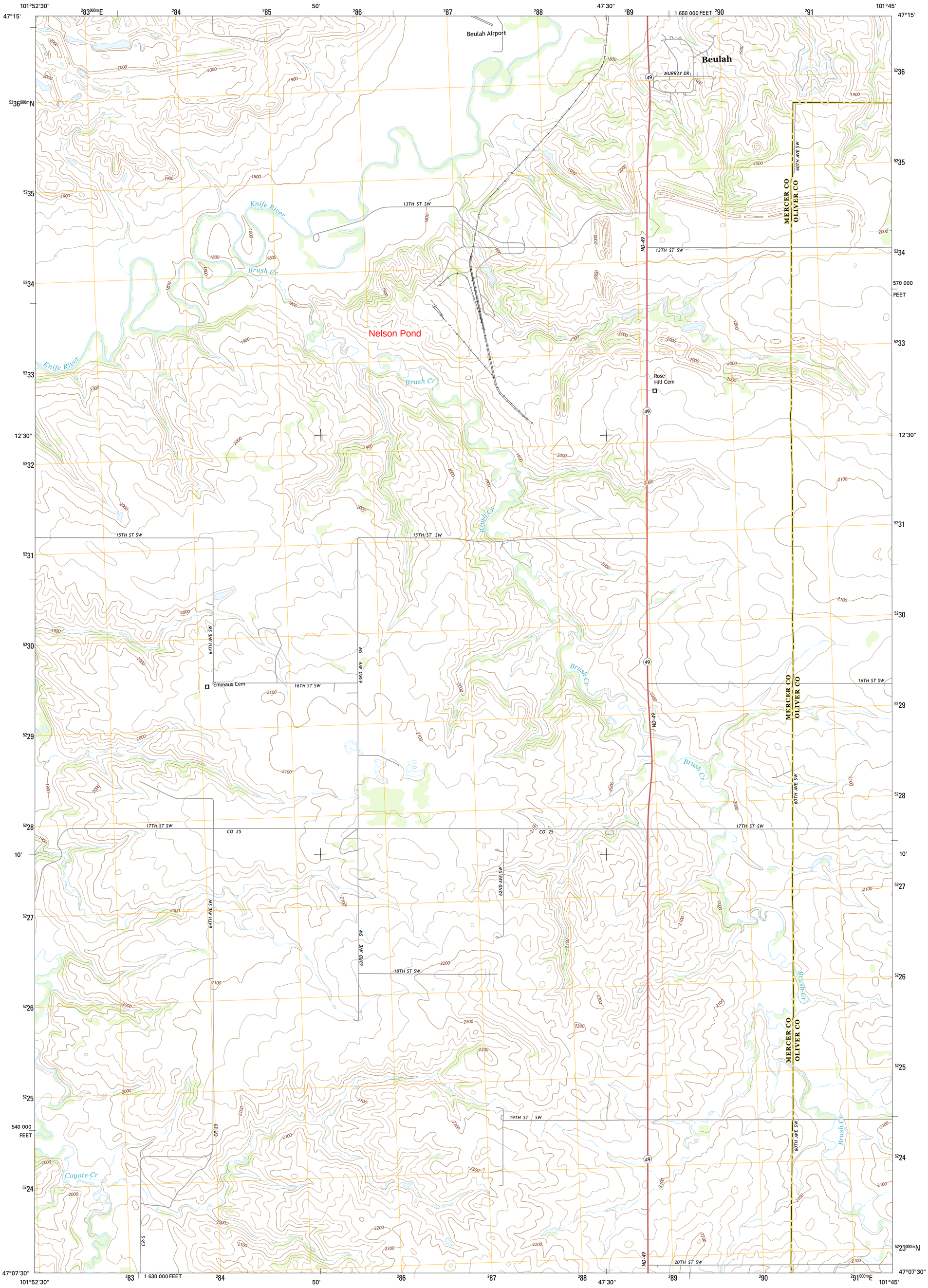
Appendix A

7.5 Quadrangle Map

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

MEDICINE BUTTE NE QUADRANGLE
NORTH DAKOTA
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 14T
10 000-foot ticks: North Dakota Coordinate System of 1983
(south zone)

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, July 2012
Roads..... HERE, ©2013
Names.....GNIS, 2013
Hydrography.....National Hydrography Dataset, 2012
Contours.....National Elevation Dataset, 2009
Boundaries.....Multiple sources; see metadata file 1972 - 2013

UTM GRID AND 2014 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
KT
Grid Zone Designation
14T

SCALE 1:24 000

1 KILOMETERS 0.5 0 1 2
1000 METERS 500 0 1000 2000
1 MILES 0.5 0 1
1000 FEET 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.16

NORTH DAKOTA
QUADRANGLE LOCATION

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Zap
2 Beulah
3 Hazen West
4 Medicine Butte
5 Red Butte NW
6 Medicine Butte SW
7 Medicine Butte SE
8 Red Butte SW

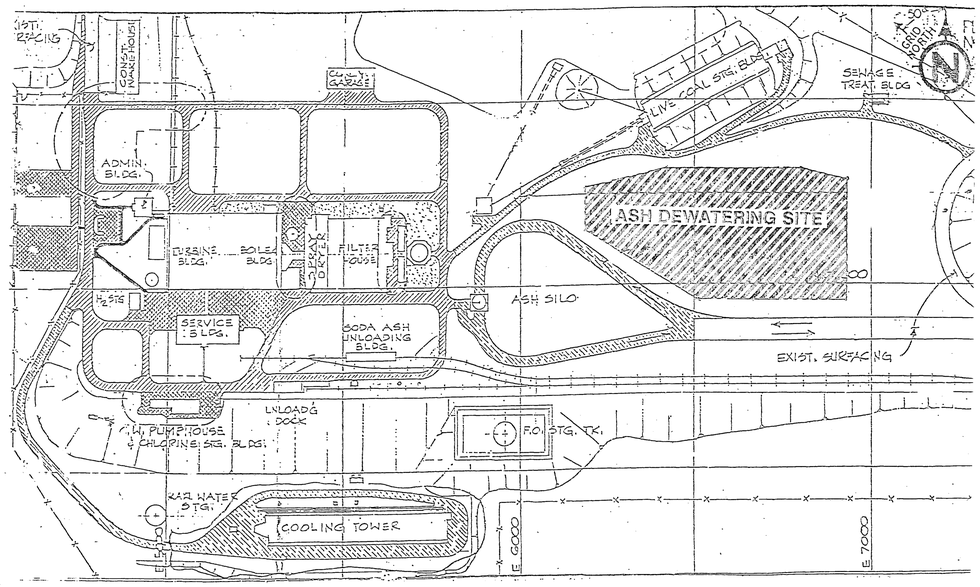
MEDICINE BUTTE NE, ND
2014

Appendix B

Construction Drawings

MDU COYOTE STATION

PLANS FOR ASH DEWATERING SITE
BEULAH, NORTH DAKOTA



SUMMARY OF QUANTITIES

NO.	ITEM	UNIT	EST. QTY.	FINAL QTY.
1	EARTHWORK			
	UNCLASSIFIED EXCAVATION	CY	~~35,600~~	32,450
	LINER CONSTRUCTION	SY	~~24,800~~	24,110
2	PIPING FITTINGS AND VALVES			
	~~INSTALL 16" D.I. PIPE~~	~~LF~~	~~390~~	—
	INSTALL 12" D.I. PIPE	LF	~~105~~ 291	291
	COLLECTION HEADER	LF	230	230
	~~16"X 12" TEE~~	~~EA~~	~~1~~	—
	~~16"X 14"X14" TEE~~	~~EA~~	~~1~~	—
	~~16" - 22 1/2° BEND~~	~~EA~~	~~2~~	—
	12" - 90° BEND	EA	2	2
	12" ~~16"~~ BUTTERFLY VALVE AND BOX	EA	1	1
3	CONCRETE HEADWALL	LS	—	—
4	WATER	"M"GAL	300	

SHEET INDEX

SHEET NO.	DESCRIPTION
L-1	PLAN LAYOUT
P-1	PIPING AND DETAILS
S-1	CROSS SECTIONS
S-1A	CROSS SECTIONS
S-1B	CROSS SECTIONS

PREPARED BY:

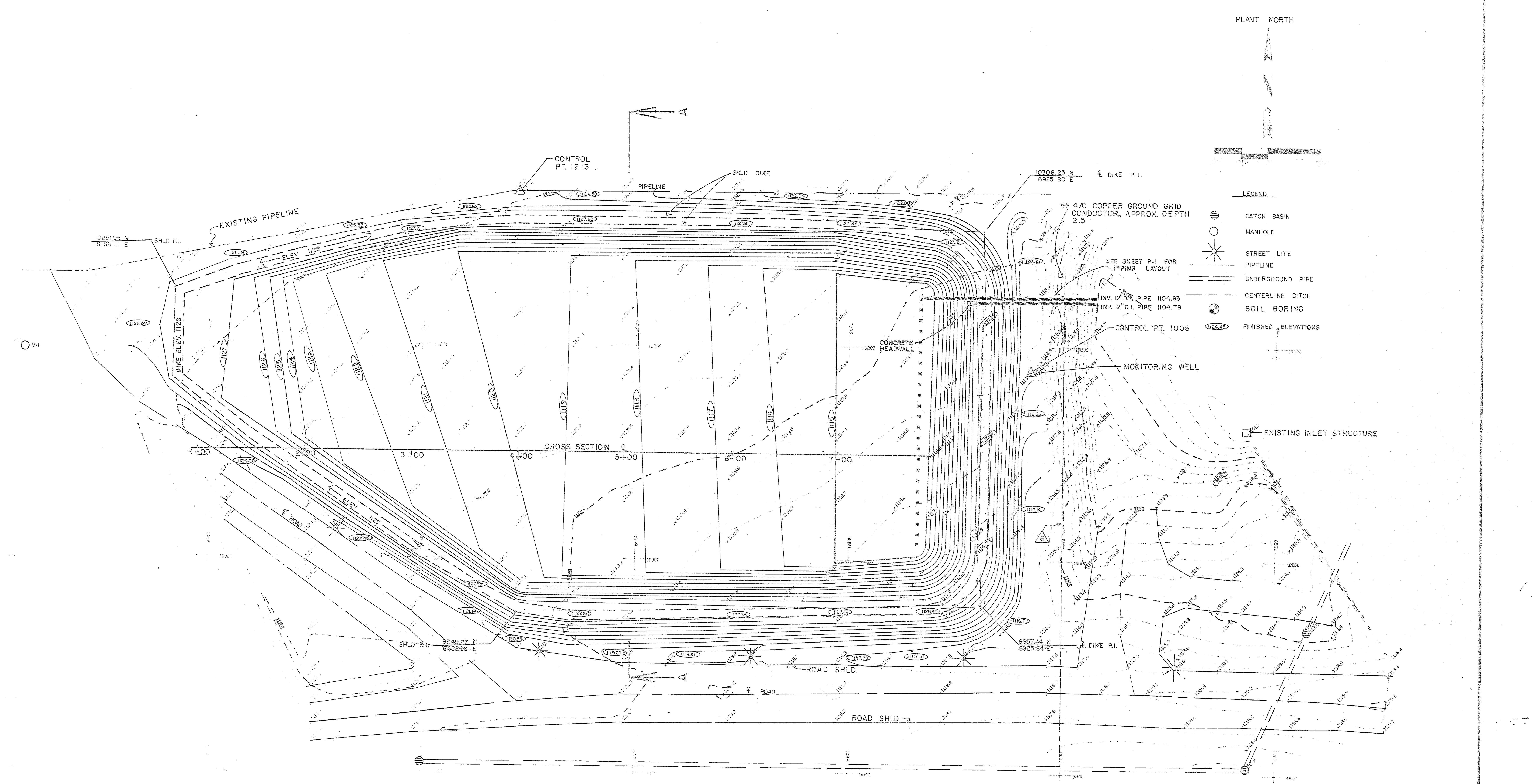
ULTEIG ENGINEERS INC.

BISMARCK, FARGO and MINOT, NORTH DAKOTA and MINNEAPOLIS, MINNESOTA

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NORTH DAKOTA.

Brandt Mickelson

DATE 2-21-92 REG NO. [illegible]



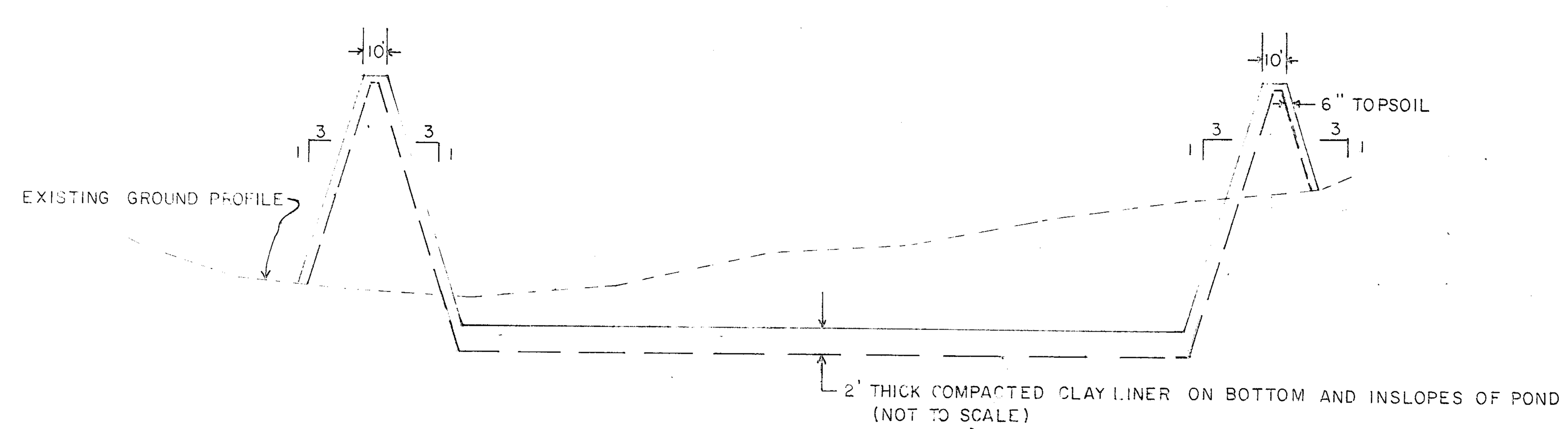
CONSTRUCTION NOTES

1. OUTSIDE TOE OF DIKES TO BE A MINIUM OF 5' FROM THE PIPELINE AND STREET LITES
2. DO NOT DISTURB MONITORING WELL
3. STRIP SITE TOPSOIL TO A MINIMUM DEPTH OF 6"
4. ALL STRIPPED MATERIAL TO BE PLACED ON OUTSIDE SLOPES OF DIKES
5. ~~COPPER GROUND GRID CONDUCTOR TO BE ABANDONED ON EAST - WEST RUN, COORDINATE WITH OWNER~~
6. DO NOT CUT COPPER GROUND GRID CONDUCTOR WHEN INSTALLING 16" D.I. PIPE
7. CONTRACTOR MUST COORDINATE STOCKPILE LOCATIONS WITH OWNER

SURVEY CONTROL POINTS

NO.	NORTH	EAST	ELEV.	DESCRIPTION
1001	9932.92	6537.72	1119.91	5/8" REBAR
1006	10,176.49	6970.66	1119.33	5/8" REBAR
1213	10,342.78	6490.22	1125.44	5/8" REBAR

COORDINATE VALUES AND ELEVATIONS ARE BASED ON PLANT DATUM



SECTION A-A

HORIZ. SCALE 1" = 50'
VERT. SCALE 1" = 5'

Record Drawing

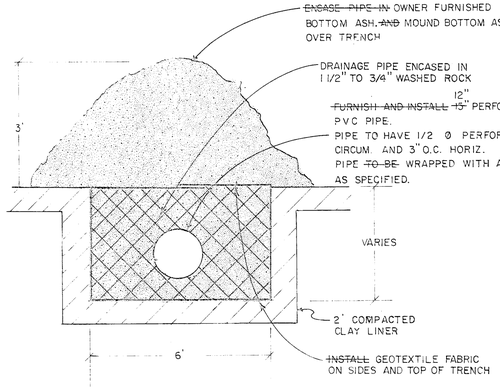
REV.	DATE	DESCRIPTION	BY
▲	5-6-92	AS-BUILTS	TF

ASH DEWATERING SITE
MDU COYOTE STATION
BEULAH, NORTH DAKOTA

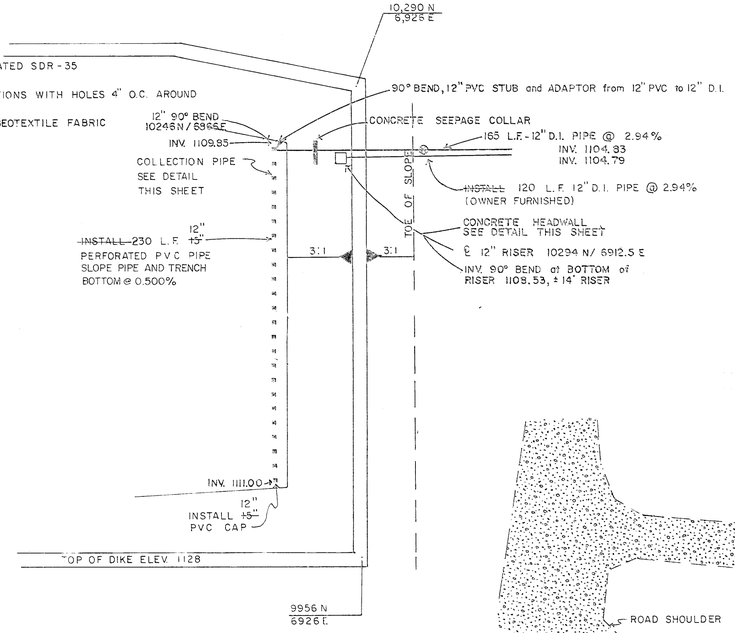
POND LAYOUT AND FINAL CONTOURS

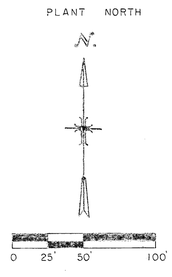
ULTEIG ENGINEERS, INC. CONSULTING ENGINEERS FARGO • BISMARCK • MINNEAPOLIS

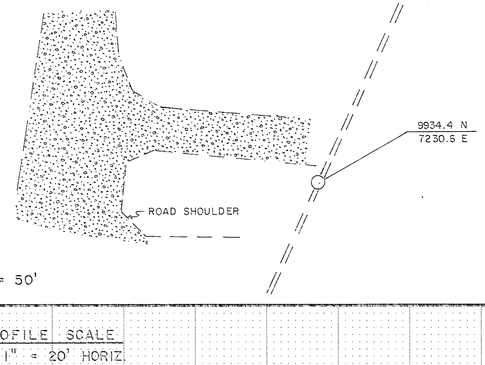
DRAWN BY:
CHECKED BY: awk
APPROVED BY: BPM
SCALE:
DATE:
PROJECT NO.
SHEET L-1



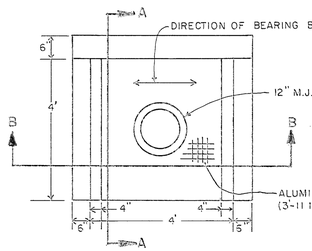
COLLECTION PIPE DETAIL



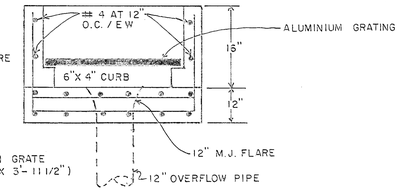




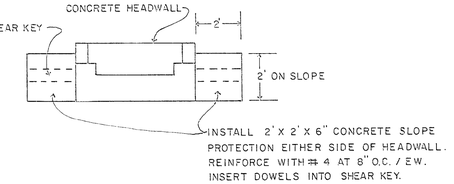
PLAN SCALE 1" = 50'

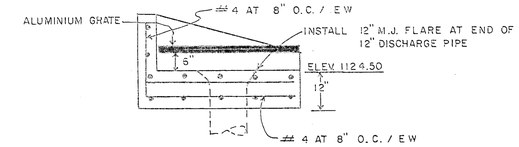


PLAN VIEW



SECTION B-B



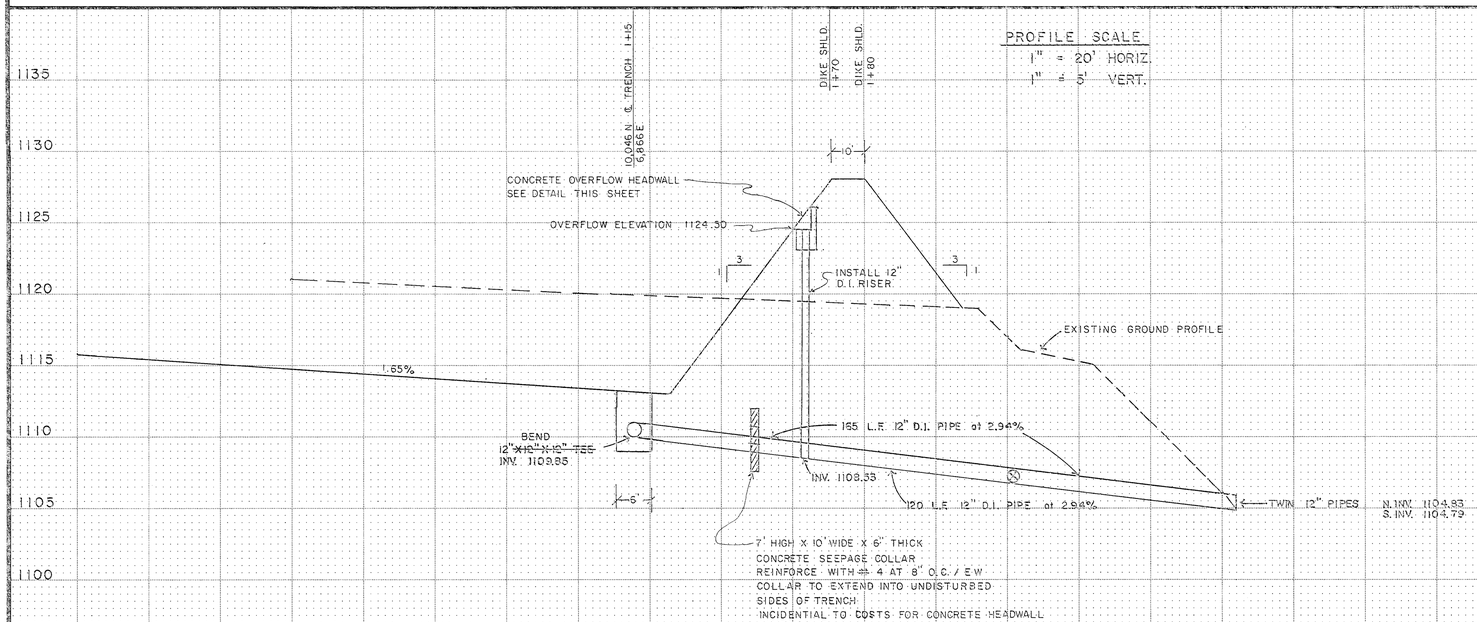


SECTION A-A

CONCRETE HEADWALL AND SLOPE PROTECTION DETAIL
NOT TO SCALE

CONSTRUCTION NOTES

1. ALL PIPE FITTINGS AND VALVES MUST BE FURNISHED AND INSTALLED.
2. CONTRACTOR MUST FURNISH GASKETS FOR ALL OWNER SUPPLIED PIPE.
3. REMOVE AND REPLACE ROAD GRAVEL, INCIDENTIAL.
4. ALL PIPE BEDDING BACK OF STA. 2+00 TO BE CLAY. USE GRANULAR AHEAD OF STA. 2+00
5. EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF AS DIRECTED BY ENGINEER AT NO ADDITIONAL COST TO OWNER.



REV	DATE	DESCRIPTION	BY
1	5-6-92	AS-BUILTS	TF
2			
3			
4			

ASH DEWATERING SITE
MDU COYOTE STATION
BEULAH, NORTH DAKOTA

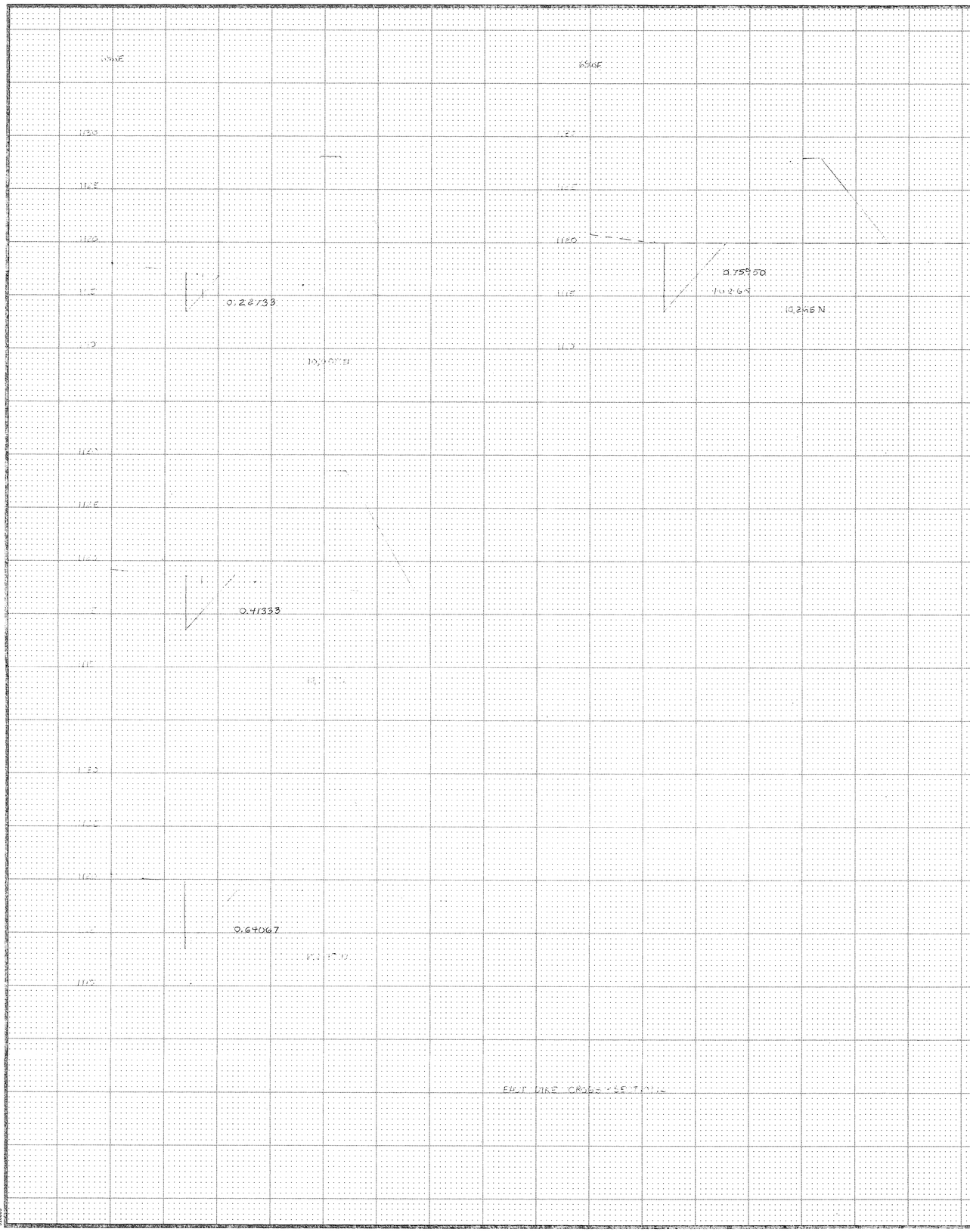
DISCHARGE PIPING LAYOUT

ULTEIG ENGINEERS, INC. CONSULTANT ENGINEERS • FARGO BISMARCK • MINNEAPOLIS • MINOT

DRAWN BY	SCALE AS SHOWN	PROJECT NO 92604
CHECKED BY	DATE 13 FEB 1992	SHEET P-1 of
APPROVED BY BPM		

ULTEIG ENGINEERS

532838



EMBANKMENT CROSS-SECTIONS

Record Drawing

REV.	DATE	DESCRIPTION	BY
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ASH DEWATERING SITE
MDU COYOTE STATION
BEULAH, NORTH DAKOTA

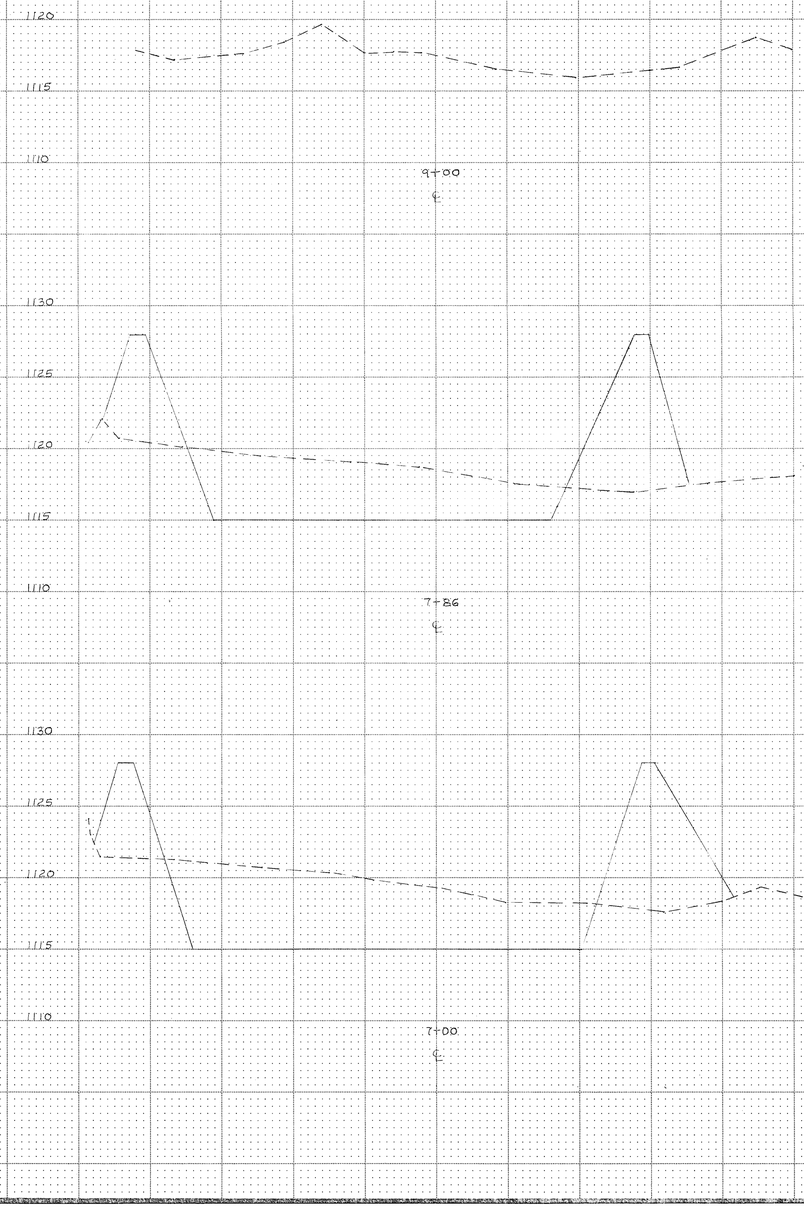
AS-BUILT CROSS SECTIONS

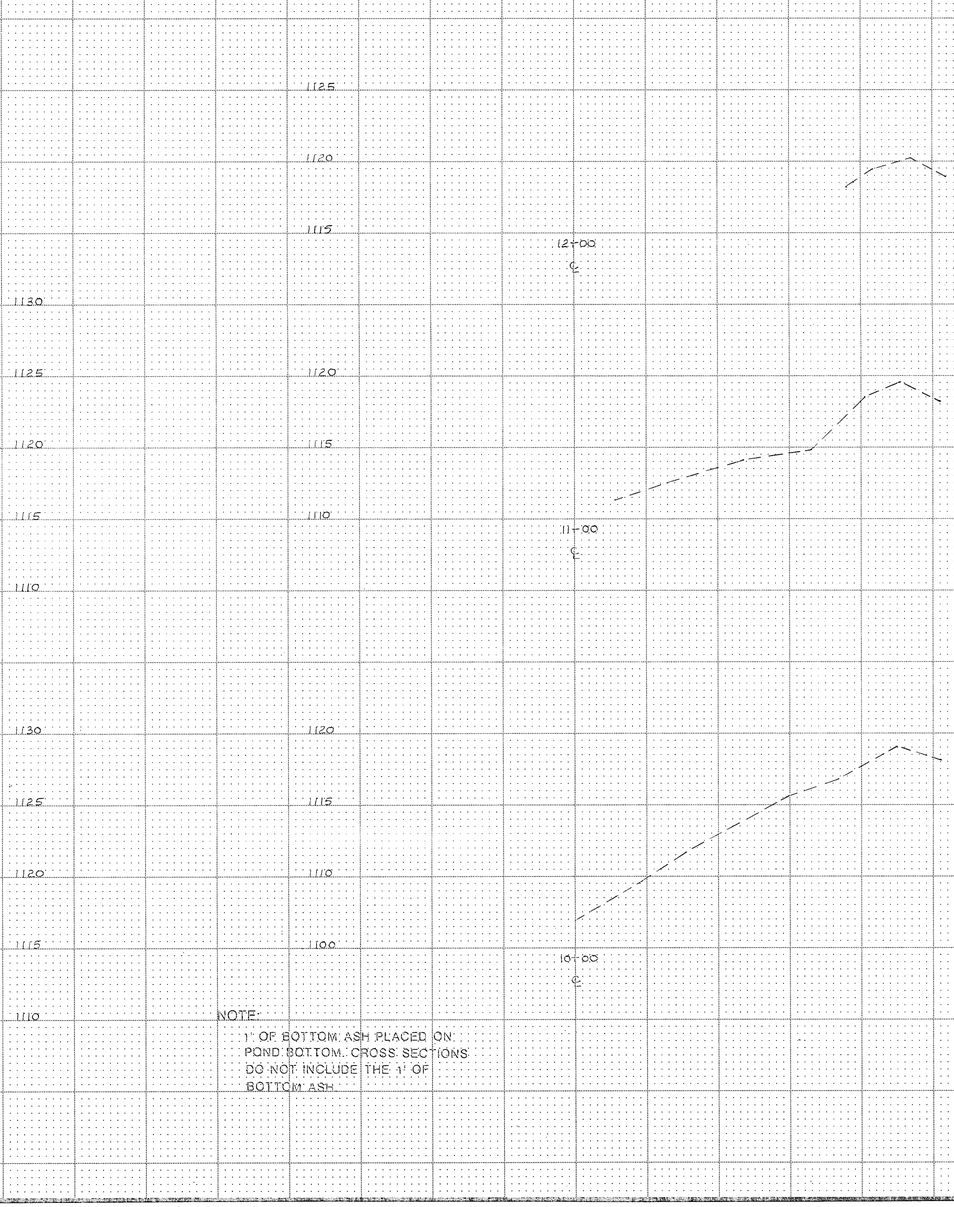
ULTEIG ENGINEERS, INC. CONSULTANT ENGINEERS • BISMARCK • MINNEAPOLIS • FARGO • MINOT

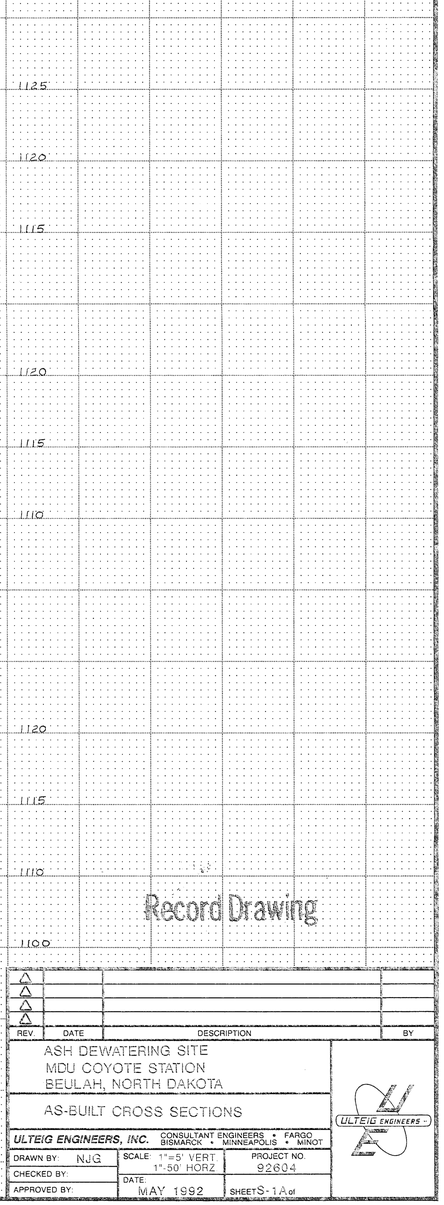
DRAWN BY	SCALE 1"=5' VERT. 1"=20' HORZ	PROJECT NO. 92604
CHECKED BY	DATE MAY, 1992	SHEET S1-8 of
APPROVED BY		

ULTEIG ENGINEERS

S92603







NOTE:
1' OF BOTTOM ASH PLACED ON POND BOTTOM. CROSS SECTIONS DO NOT INCLUDE THE 1' OF BOTTOM ASH.

Record Drawing

REV.	DATE	DESCRIPTION	BY
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△			

ASH DEWATERING SITE
MDU COYOTE STATION
BEULAH, NORTH DAKOTA

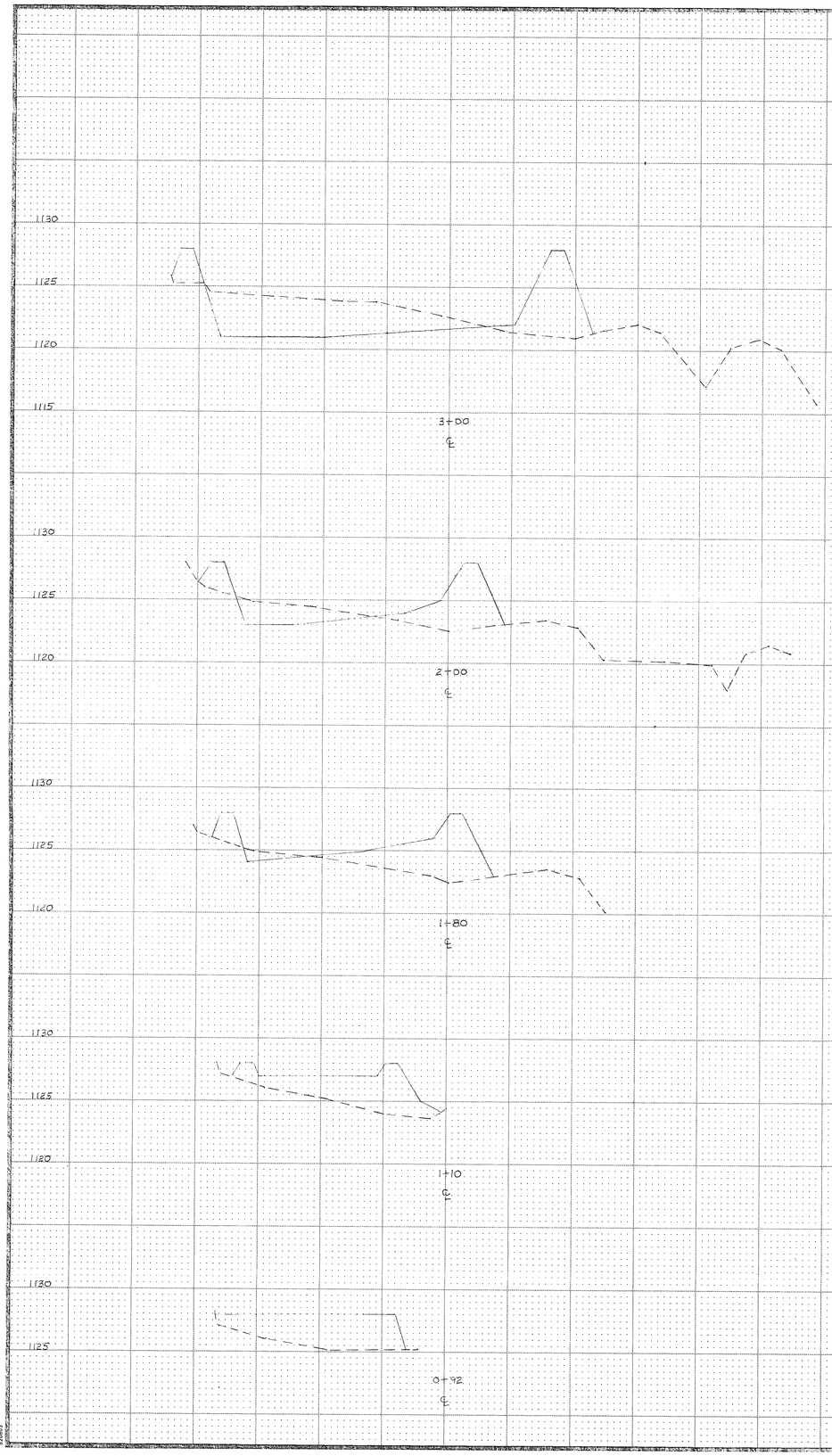
AS-BUILT CROSS SECTIONS

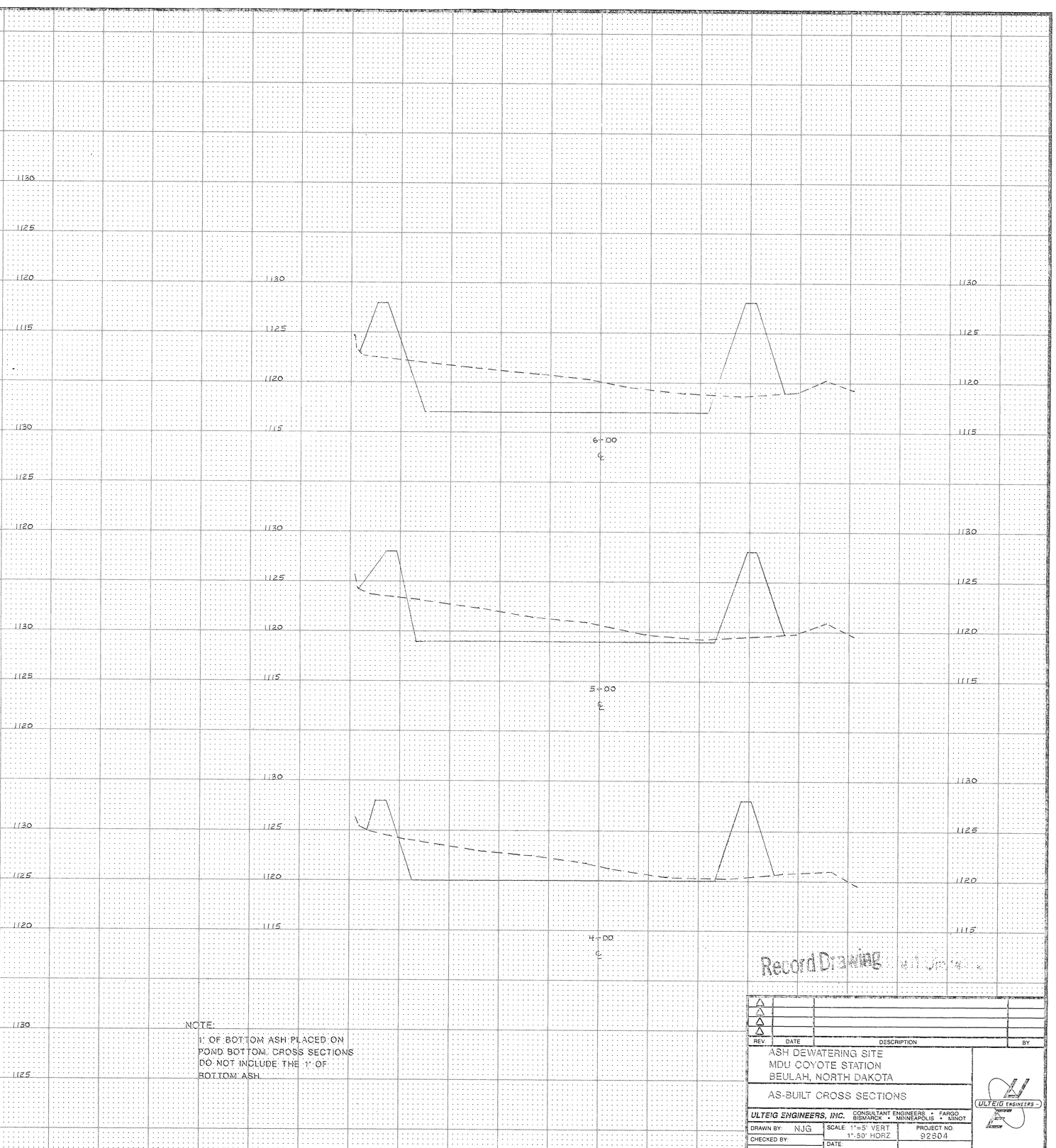
ULTEIG ENGINEERS, INC. CONSULTANT ENGINEERS • BISMARCK • MINNEAPOLIS • FARGO • MINOT

DRAWN BY: NJG	SCALE: 1"=5' VERT, 1"=50' HORZ	PROJECT NO. 92604
CHECKED BY:	DATE: MAY 1992	SHEET S-1A of
APPROVED BY:		

ULTEIG ENGINEERS

520803





NOTE:

1' OF BOTTOM ASH PLACED ON POND BOTTOM. CROSS SECTIONS DO NOT INCLUDE THE 1' OF BOTTOM ASH.

Record Drawing

REV.	DATE	DESCRIPTION	BY
1			
2			
3			
4			

ASH DEWATERING SITE
MDU COYOTE STATION
BEULAH, NORTH DAKOTA

AS-BUILT CROSS SECTIONS

ULTEIG ENGINEERS, INC. CONSULTANT ENGINEERS • FARGO BISMARCK • MINNEAPOLIS • MINOT

ULTEIG ENGINEERS

DRAWN BY: NJG	SCALE: 1"=5' VERT 1"=50' HORZ	PROJECT NO. 92504
CHECKED BY:	DATE: MAY 1992	SHEET S-1 of
APPROVED BY:		

S20869