ALLIANT ENERGY
Interstate Power and Light Company
Lansing Generating Station

CCR SURFACE IMPOUNDMENT

HISTORY OF CONSTRUCTION

Report Issued: December 10, 2021
Revision 1

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

EXECUTIVE SUMMARY

This History of Construction (Report) is prepared in accordance with the requirements of the United States Environmental Protection Agency (USEPA) published Final Rule for Hazardous and Solid Waste Management System – Disposal of Coal Combustion Residual (CCR) from Electric Utilities (40 CFR Parts 257 and 261, also known as the CCR Rule) published on April 17, 2015 and effective October 19, 2015.

This Report documents the construction history of each CCR unit at Lansing Generating Station in Lansing, Iowa in accordance with §257.73(c) of the CCR Rule. For purposes of this Report, the term "CCR unit" only refers to existing CCR surface impoundments.

Primarily, this Report is focused on providing history of construction information for each CCR surface impoundment to the extent feasible, provided that such information is reasonably and readily available.

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1 INTRODUCTION

The owner/operator of the CCR unit must provide a history of construction for the existing CCR surface impoundment at Lansing Generating Station (LAN) in Lansing, Iowa in accordance with §257.73(c)(1) of the CCR Rule. Hard Hat Services, on behalf of Interstate Power and Light Company, has provided history of construction information for the existing CCR surface impoundment to the extent feasible, provided that such information is reasonably and readily available.

1.1 CCR Rule Applicability

The CCR Rule requires that an owner/operator of the CCR unit must provide a history of construction for existing CCR surface impoundments with a height of 5 feet or more and a storage volume of 20 acre-feet or more (§257.73(b)(1)); or the existing CCR surface impoundment has a height of 20 feet or more (§257.73(b)(2)).

1.2 History of Construction Applicability

LAN has one existing CCR surface impoundment, identified as the LAN Upper Ash Pond, that meets the requirements of §257.73(b)(1) and/or §257.73(b)(2),.

2 FACILITY DESCRIPTION

The following sub-sections provide a general facility description.

2.1 Name and Address - §257.73(c)(1)(i)

Included below is the name and address of the owner/operator of the CCR unit, name of the CCR unit, and state identification number for the CCR Unit.

Owner/Operator Name and Address:

Interstate Power and Light Company (*an Alliant Energy Company*)
Lansing Generating Station
2320 Power Plant Drive
Lansing, IA 52151

The name of the CCR Unit located at LAN is the LAN Upper Ash Pond. The state identification number that has been assigned to the CCR unit at LAN, by the Iowa Department of Natural Resources (DNR), is 03-UDP-01-15.

2.2 General Facility History

LAN is located approximately three miles southeast of the City of Lansing, Iowa on the western shore of the Mississippi River in Allamakee County. Figure 1 provides both a topographic map and an aerial photograph of the LAN facility location, with the approximate property boundary of the facility identified.

LAN, originally owned/operated by the Interstate Power Company, initiated facility operations in 1948. At the time of initial operations LAN was a fossil–fueled electric generating station that consisted of one steam electric generating unit (Unit 1) which at the time used bituminous coal as its fuel source. The initial steam electric generating unit at LAN had a nameplate rating of 15 Megawatts (MW). The original CCR surface impoundment that was constructed at the time of initial facility operations was located west of the generating plant. The area of the original CCR surface impoundment was constructed by the dredging of the sandy material that was present in the area. The dredged sand was used to construct the base for the area of the generating plant.

The CCR that was produced from the burning of coal included bottom ash and fly ash. The bottom ash that was produced was sluiced to the original CCR surface impoundment. The fly ash that was produced was collected in a hopper below the stack that was either transported off-site for beneficial reuse or sluiced to the original CCR surface impoundment.

In 1949, a second steam electric generating unit (Unit 2) was constructed and initiated operations. Unit 2 had a nameplate rating of 12 MW. In 1957, a third steam electric generating unit (Unit 3) was constructed and initiated operations. Unit 3 had a nameplate rating of 38 MW. Similar to Unit 1, the bottom ash that was produced from Unit 2 and Unit 3 was sluiced to the original CCR surface impoundment. The fly ash that was produced was collected in a hopper below the stack that was either transported off-site for beneficial reuse or sluiced to the original CCR surface impoundment. CCR was sluiced to the original CCR surface impoundment from 1948 to 1974.

In 1974, two new CCR surface impoundments were constructed southwest of the generating plant. The two CCR surface impoundments were identified as the Primary Ash Settling Basin and the Secondary Ash Settling Basin. The Primary Ash Settling Basin, currently known as the LAN Upper Ash Pond, was constructed south of Power Plant Drive while the Secondary Ash Settling Basin, currently known as the LAN Lower Ash Pond, was constructed north of Power Plant Drive. The original CCR surface impoundment ceased being a primary receiver of sluiced CCR after the two new CCR surface impoundments were constructed. The CCR that was previously sluiced to the original CCR surface impoundment was rerouted to the Primary Ash Settling Basin. Additionally, the CCR that had previously been deposited in the original CCR surface impoundment was dredged and transported to the Primary Ash Settling Basin for disposal. The original CCR surface impoundment was then backfilled with sand dredged from the Mississippi River. The dredged sand was used to construct the base for the area that is currently identified as the coal pile storage area at LAN.

Also in 1974, the electrostatic precipitators for Unit 1, Unit 2, and Unit 3 were constructed. With the construction of the electrostatic precipitators, fly ash from Unit 1, Unit 2, and Unit 3 was collected and a hydroveyor system was used to sluice the fly ash to the LAN Upper Ash Pond.

In 1977, a fourth steam electric generating unit (Unit 4) was constructed and initiated operations. Unit 4 had a nameplate rating of 275 MW. The bottom ash that was produced from Unit 4 was sluiced to the Primary Ash Settling Basin. The fly ash was collected by the electrostatic precipitators associated with Unit 4. A hydroveyor system associated with Unit 4 was used to transport the fly ash to a storage silo. Additional discussions on historical operations and handling of the CCR at LAN is provided in further detail throughout Section 3.

From 1948 to 1998 the owner/operator of LAN was the Interstate Power Company. In 1998, a three-way merger was completed between IES Industries, Interstate Power Company, and Wisconsin Power and Light Company forming Interstate Energy Corporation. In 1999, Interstate Energy Corporation changed its name to Alliant Energy Corporation.

As LAN exists today, the generating plant consists of one steam electric generating unit (Unit 4). Unit 1 was retired in 2006, Unit 2 was retired in 2010, and Unit 3 was retired in 2013. Sub-bituminous coal is the primary fuel for producing steam. The burning of coal at LAN produces two types of CCR, which includes bottom ash and fly ash. Current CCR operations at LAN include bottom ash being sluiced to what is now identified as the LAN Upper Ash Pond (formerly identified as the Primary Ash Settling Basin), which is the only existing CCR surface impoundment present at LAN. The bottom ash is dredged from the LAN Upper Ash Pond on a regular basis and temporarily stockpiled adjacent to the existing CCR surface impoundment for dewatering prior to transporting to the on-site active dry ash landfill for disposal. The fly ash produced at LAN is collected by the electrostatic precipitators and conveyed to the on-site fly ash storage silos or collected by

a fabric filter bag house and automatically routed to an on-site byproduct storage silo. Approximately 90% of the fly ash produced at LAN is transported off-site for beneficial reuse while the remainder is transported to the on-site active dry ash landfill for disposal.

As of September 2015, the CCR surface impoundment that was identified as the Lower Ash Pond (formerly identified as the Secondary Ash Settling Basin) no longer exists, as the CCR was removed, and the impoundment was permanently and properly closed prior to the effective date of the CCR Rule. The CCR that was present in the Lower Ash Pond was hydraulically dredged and transported to the LAN Upper Ash Pond for disposal. The Lower Ash Pond was then backfilled. Additional discussion on the closure of the Lower Ash Pond is provided in further detail throughout Section 3.

On September 30, 2021, the LAN Upper Ash Pond Reroute Project was commissioned. This project involved the modification of Weir Box #1 into an emergency stormwater overflow from the impoundment. Additionally, a new discharge Weir Box structure was installed in the northeast corner of the impoundment. Piping directed process water discharging from the new Weir Box north below Power Plan Drive and the railroad tracks, then east where the Outfall 010 discharge is directed into the Mississippi River.

In October 2021, an upgrade to the fly ash handling system eliminated the possibility of sluicing fly ash to the LAN Upper Ash Pond. Prior to this upgrade, the facility periodically sluiced fly ash to the LAN Upper Ash Pond during startup operations or if there was a malfunction in the hydroveyor system.

3 HISTORY OF CONSTRUCTION - §257.73(c)(1)

This Report documents the history of construction information for each existing CCR surface impoundment to the extent feasible, given the information that is reasonably and readily available. The following activities were completed in order to reasonably collect and assemble the readily available history of construction information:

- File review at the local regulatory agency;
- Historical aerial photography review;
- Historical topography review;
- Onsite design drawing, specification, and report review;
- Electronic design drawing, specification, and report review; and
- Interview(s) with onsite personnel with historical knowledge of the existing CCR surface impoundment.

3.1 LAN Upper Ash Pond

The following subsections are intended to meet the requirements of the CCR Rule §257.73(c)(1) for the LAN Upper Ash Pond.

3.1.1 CCR Unit Location - §257.73(c)(1)(ii)

The LAN Upper Ash Pond is located southwest of the generating plant and south of Power Plant Drive. The location of the LAN Upper Ash Pond, in reference to the surrounding topography, is identified on both a USGS 7 ½ minute topographic quadrangle map and aerial photograph on Figure 1. The location of the LAN Upper Ash Pond, in reference to the immediate surroundings within the LAN property, is identified on Figure 2.

3.1.2 Statement of Purpose - §257.73(c)(1)(iii)

The LAN Upper Ash Pond is the primary receiver of sluiced bottom ash at LAN. The bottom ash is sluiced from the generating plant to the southeast corner of the LAN Upper Ash Pond where the majority of the bottom ash settles out. Ongoing maintenance dredging is conducted in the southern portion of the LAN Upper Ash Pond. The dredged bottom ash is stockpiled along the edge of the LAN Upper Ash Pond and dewatered prior

to being transported to the on-site active dry ash landfill located south of the existing CCR surface impoundment.

The LAN Upper Ash Pond is also a primary receiver of process water flows from the generating plant, which includes flows from the Unit 4 boiler floor sumps and water treatment sumps. The process water flows discharge into the northeast corner of the LAN Upper Ash Pond. Additionally, the LAN Upper Ash Pond is also a primary receiver of storm water runoff from the adjacent hillside and the on-site active dry ash landfill.

The water used to sluice bottom ash that is discharged into the southeast corner of the LAN Upper Ash Pond flows to the west prior to flowing north through a series of five interconnected settling ponds separated by intermediate dikes. The intermediate dikes consist of 30-inch diameter corrugated metal pipes (CMPs) on the west and east sides, which hydraulically connects the five settling ponds. The water from each settling pond flows north until it enters the large open settling pond area of the LAN Upper Ash Pond.

The hydraulic structure associated with the LAN Upper Ash Pond discharge is located in the northeast corner of the existing CCR surface impoundment. The hydraulic structure consists of a concrete water level control structure that controls the LAN Upper Ash Ponds water level, and is identified as Weir Box. The water in the LAN Upper Ash Pond overtops the weir boards in the Weir Box, enters a 16-inch HDPE pipe, flows under Power Plant Drive and into Manhole 1. The manhole outlet pipe increases is a 20-inch HDPE pipe and directs process water below the railroad tracks into Manhole 2. The pipe leaves Manhole 2 east toward Manhole 3. Manhole 3 is the compliance sampling point prior to discharge through Outfall 010 into the Mississippi River.

Emergency stormwater overflow from the LAN Upper Ash Pond occurs through Weir Box #1, which is located in the middle of the north embankment. The emergency discharge is directed through a 24-inch diameter CMP and through a second water level

control structure identified as Weir Box #2. The water then flows through a 24-inch diameter high density polyethylene (HDPE) pipe, which connects Weir Box #2 to Weir Box #3. The water flows through Weir Box #3 and discharges to the west through a 24-inch diameter CMP into Unnamed Creek #1. Unnamed Creek #1 flows to the north and combines with the condenser discharge water. Unnamed Creek #2 is a short section of the condenser discharge channel, which then combines with Unnamed Creek #1 and discharges into the Mississippi River.

3.1.3 Physical Layout Information - §257.73(c)(1)(iv)

As identified in an Inflow Flood Control Plan[1] prepared for LAN in accordance with §257.82 of the CCR Rule, the LAN Upper Ash Pond has a watershed of approximately 87 acres. The drainage areas of the watershed include 54 acres of 19% slope hillside, 16 acres of the on-site active dry ash landfill, 11.5 acres of the LAN Upper Ash Pond surface area, and 5.5 acres of embankment.

As discussed in an Annual Inspection Report[2] prepared for LAN in accordance with §257.83 of the CCR Rule, the LAN Upper Ash Pond is incised along the east and south sides of the CCR unit. The west embankment of the LAN Upper Ash Pond has a height of approximately 20 feet from the crest to the toe of the downstream slope of the embankment at its greatest height. The interior storage depth of the LAN Upper Ash Pond is approximately 28 feet. The total volume of impounded CCR and water within the LAN Upper Ash Pond is approximately 587,000 cubic yards.

3.1.4 Foundation and Abutment Properties - §257.73(c)(1)(v)

As identified in a Safety Factor Assessment[3] prepared for LAN in accordance with §257.73(e) of the CCR Rule, the LAN Upper Ash Pond is constructed in the valley of Unnamed Creek #1 located south of the generating plant. The Unnamed Creek #1 was rerouted from the east side of the valley to the west side of the valley in the northern half

[1] Inflow Flood Control Plan, Lansing Generating Station, 2016, Hard Hat Environmental Services
[2] Annual Inspection Report, Lansing Generating Station, 2016, Hard Hat Environmental Services
[3] Safety Factor Assessment, Lansing Generating Station, 2016, Hard Hat Environmental Services

of the LAN Upper Ash Pond when the existing CCR surface impoundment was constructed in 1974. At the north end of the LAN Upper Ash Pond, Unnamed Creek #1 drops over a manmade riffle structure under the Power Plant Drive bridge losing approximately 14 feet of elevation to reach the elevation of Pool #9 of the Mississippi River. The drop structure prevents backwater flooding of the Mississippi River from encroaching on the toe of the west embankment of the LAN Upper Ash Pond.

In 1973, soil borings were installed in the area of the LAN Upper Ash Pond prior to construction of the existing CCR surface impoundment. The locations of the installed soil borings, as well as the soil boring logs, are included in Appendix D.

In 2015, soil borings were advanced in the area of the LAN Upper Ash Pond along the north and west embankments (Appendix E) in order to determine the types and density of soil present in the embankments and foundation. The soil boring logs, including the penetration resistance measured by the Standard Split Spoon (SPT), are included in Appendix E. The results of laboratory testing on selected soil samples for grain size, water content, and Atterberg limits are included in Appendix F. Information on additional soil borings that were installed along the north and west embankments of the LAN Upper Ash Pond is provided in an Ash Pond Slope Stability and Hydraulic Analysis Report[4] that was completed for LAN in 2015.

The laboratory test results indicate that a very loose to loose silt is present under the northern portion of the embankments, and below that is a medium dense gravel. In the southern portion of the west embankment the silt is thin and overlies the same medium dense gravel. The silt deposit in the northern portion is from backwater deposition by the Mississippi River prior to the construction of the LAN Upper Ash Pond and the thin silt layer to the south is natural deposition from flooding of the Unnamed Stream #1. The Iowa Bedrock Survey Map available from the Iowa Geology and Water Survey, July 2013

[4] Slope Stability & Hydraulic Analysis Report, Lansing Generating Station, May 29, 2015, Revision 1.1, Hard Hat Environmental Services

indicates that bedrock is at elevation 564 feet above mean sea level (depth of 90 feet below the top of embankment) in the northern portion of the LAN Upper Ash Pond. The bedrock rises in elevation moving south up the valley of the Unnamed Stream #1.

3.1.5 Historical Construction and Use - §257.73(c)(1)(vi)

The LAN Upper Ash Pond, formerly identified as the Primary Ash Settling Basin in site development drawings (Appendix A), was constructed in 1974 in an area located south of the generating plant and south of Power Plant Drive. Historical aerial photographs (Appendix B) confirm the LAN Upper Ash Pond was constructed within this time frame.

There are no known reasonably and readily available documents that detail the method of site preparation and construction of each zone of the LAN Upper Ash Pond. Site development drawings (Appendix A) provide details of the original design of the LAN Upper Ash Pond at the time of construction. In addition to the site development drawings, the in-situ soil properties of the CCR unit were identified in a Safety Factor Assessment[5] prepared for LAN in accordance with §257.73(e) of the CCR Rule. As discussed in the Safety Factor Assessment, soil borings were advanced in the vicinity of the LAN Upper Ash Pond along the north and west embankments in 2015 (Appendix E). Soil samples were collected from the 2015 soil borings in order to determine grain size, water content, and Atterberg limits (Appendix F). The soil boring data, along with soil sample laboratory analytical results, indicated that the embankments were constructed of uniform fine to medium sand (SP). The sand was compacted to medium dense to dense consistency as shown by the SPT results.

Historical use of the LAN Upper Ash Pond since the existing CCR surface impoundment was constructed in 1974 has consisted of being the primary receiver of CCR. Following construction of the existing CCR surface impoundment, LAN rerouted the sluiced bottom ash from the original CCR surface impoundment to the LAN Upper Ash Pond. In

[5] Safety Factor Assessment, Lansing Generating Station, 2016, Hard Hat Environmental Services

addition to rerouting the sluiced bottom ash, the CCR that was dredged from the original CCR surface impoundment was also deposited into the LAN Upper Ash Pond.

In 1974, the electrostatic precipitators were constructed for Unit 1, Unit 2, and Unit 3. With the construction of the electrostatic precipitators, fly ash from Unit 1, Unit 2, and Unit 3 was collected and a hydroveyor system was used to sluice the fly ash to the LAN Upper Ash Pond.

In 1977, Unit 4 was constructed and the bottom ash that was produced was sluiced to the LAN Upper Ash Pond. The fly ash that was collected by the electrostatic precipitators was conveyed to a truck silo for storage. From the truck silo the fly ash was pneumatically conveyed to the LAN Upper Ash Pond for disposal. A dust suppressant was applied to the fly ash to prevent any fugitive dust. The fly ash was pneumatically conveyed to the LAN Upper Ash Pond until 1984.

From the time the impoundment was constructed in 1974 until September 30, 2021 the impoundment discharged though Weir Box #1, Weir Box #2 and Weir Box #3 and into Unnamed Creek #1. Unnamed Creek #1 flows to the north and combines with the condenser discharge water. Unnamed Creek #2 is a short section of the condenser discharge channel, which then combines with Unnamed Creek #1 and discharges into the Mississippi River.

On September 30, 2021, the LAN Upper Ash Pond Reroute Project was commissioned. This project involved the modification of Weir Box #1 into an emergency stormwater overflow from the impoundment. Additionally, a new discharge Weir Box structure was installed in the northeast corner of the impoundment. The piping directed process water north below Power Plan Drive and the railroad tracks, then east where the Outfall 010 discharge is directed into the Mississippi River. Record drawings for the project have been included in Appendix G. Currently, the majority of the CCR sluiced to the LAN Upper Ash Pond discharged into the southern portion of the existing CCR surface

impoundment. The water used to sluice the CCR flows towards the northern portion of the existing CCR surface impoundment where the new Weir Box structure was located in the northeast corner of the embankment. The Weir Box consists of a concrete water level control structure that controls the LAN Upper Ash Ponds water level. The water in the LAN Upper Ash Pond overtops the weir boards in the Weir Box, enters a 16-inch HDPE pipe, flows under Power Plant Drive and into Manhole 1. A 20-inch HDPE pipe exits Manhole 1 and directs process water below the railroad tracks into Manhole 2. The pipe leaves Manhole 2 east toward Manhole 3. Manhole 3 is the compliance sampling point prior to discharge through Outfall 010 into the Mississippi River.

Emergency stormwater overflow from the Upper Ash Pond occurs through the modified Weir Box #1, which is located in the middle of the north embankment. The emergency discharge is directed through a 24-inch diameter CMP, and through a second water level control structure identified as Weir Box #2. The water then flows through a 24-inch diameter high density polyethylene (HDPE) pipe, which connects Weir Box #2 to Weir Box #3. The water flows through Weir Box #3 and discharges to the west through a 24-inch diameter CMP into Unnamed Creek #1. Unnamed Creek #1 flows to the north and combines with the condenser discharge water. Unnamed Creek #2 is a short section of the condenser discharge channel, which then combines with Unnamed Creek #1 and discharges into the Mississippi River.

The following list provides a general overview of known modifications associated with the LAN Upper Ash Pond since construction of the existing CCR surface impoundment.

- The Primary Ash Settling Basin was re-identified as the LAN Upper Ash Pond. The timeframe of this modification has not been documented.

- The LAN Upper Ash Pond became a primary receiver of process water flows from the generating plant. The timeframe of this modification has not been documented.

- The hydraulic structure associated with the LAN Upper Ash Pond was listed with the State of Iowa in the facilities National Pollutant Discharge Elimination System (NPDES) Permit as NPDES Outfall 002. The timeframe of this modification has not been documented.

- Until 2018, CCR dredging activities have occurred within the LAN Upper Ash Pond on an ongoing basis. The CCR material that was dredged was transported to the on-site active dry ash landfill located south of the existing CCR surface impoundment.

- The intermediate dikes within the LAN Upper Ash Pond were constructed out of bottom ash dredged from the LAN Upper Ash Pond. The timeframe of this modification has not been documented.

- In 2015, LAN completed a seep investigation[6] of the west embankment of the LAN Upper Ash Pond, as well as along the west embankment of the Lower Ash Pond. The seep investigation analyzed the conditions of the embankment by conducting soil borings, soil cataloging, soil sampling for grain size analysis, and temporary groundwater level monitoring. The seep investigation activities were conducted in order to determine whether the water in the LAN Upper Ash Pond and the Lower Ash Pond were hydraulically connected to potential seepage observed along the toe of the exterior slopes of the embankments. The investigation determined the source of seepage observed along the exterior slopes of the embankments was primarily from the LAN Upper Ash Pond and Lower Ash Pond.

[6] Seep Investigation Report, Lansing Generating Station, May 18, 2015, Revision 3, Hard Hat Environmental Services

In addition to the seep investigation, LAN completed an ash pond slope stability and hydraulic analysis[7] in order to evaluate the LAN Upper Ash Pond and lower ash pond under a 100-year storm flow, as well as for static, and seismic, induced slope stability. The analysis determined the north embankment of the LAN Upper Ash Pond did not have an acceptable factor of safety of 1.5 for static stability. Additionally, the west embankment of the Lower Ash Pond did not meet the required minimum factor of safety of 1.5.

As a result of the seep investigation and slope stability and hydraulic analysis, LAN permanently closed the Lower Ash Pond and installed a low permeability cut off wall in the west embankment of the LAN Upper Ash Pond. The two modifications eliminated the identified seepage through the west embankments of the LAN Upper Ash Pond and the Lower Ash Pond, as well as increased the factor of safety for static stability along the north embankment of the LAN Upper Ash Pond.

The Lower Ash Pond closure[8] was completed by dredging the CCR from the surface impoundment and hydraulically transporting it to the LAN Upper Ash Pond for disposal. The Lower Ash Pond was then backfilled with quarry shot rock, followed by general fill material from an on-site borrow material source. The hydraulic structures Weir Box #2 and Weir Box #3 were connected with a 24-inch HDPE pipe in order to route the water from the LAN Upper Ash Pond through all of the hydraulic structures and into Unnamed Creek #1. The permanent closure of the Lower Ash Pond was completed prior to the effective date of the CCR Rule.

[7] Slope Stability & Hydraulic Analysis Report, Lansing Generating Station, May 29, 2015, Revision 1.1, Hard Hat Environmental Services

[8] Lower Ash Pond Closure Construction Completion Report, Lansing Generating Station, January 2016, Hard Hat Environmental Services

The LAN Upper Ash Pond cut off wall[9] was installed along the west embankment using a blast furnace slag-cement bentonite (SCB) slurry. The purpose of the cut off wall was to construct a vertical barrier from the crest of the embankment into the silt layer below the base of the west embankment. The length of the installed cut off wall was approximately 1,500 linear feet. A total of six piezometers were installed along the west embankment in order to monitor the groundwater performance within the embankment on either side of the cut off wall. The installation of the cut off wall was completed in October 2015.

On September 30, 2021, the LAN Upper Ash Pond Reroute Project was commissioned. This project involved the modification of Weir Box #1 into an emergency stormwater overflow from the impoundment. Additionally, a new discharge Weir Box structure was installed in the northeast corner of the impoundment. The piping directed process water north below Power Plan Drive and the railroad tracks, then east where the Outfall 010 discharge is directed into the Mississippi River. Record drawings of this project are located in Appendix G.Historical aerial photographs (Appendix B) and historical topographic maps (Appendix C) identify the topographic changes to the LAN Upper Ash Pond that have occurred since the time of initial facility operations.

3.1.6 Structures, Appurtenances, and Operations- §257.73(c)(1)(vii)

Detailed dimensional drawings of the LAN Upper Ash Pond that were reasonably and readily available are identified below. The detailed dimensional drawings were obtained from various designs, plans, and reports that were assembled during the historical information review.

- Unit 4 Boring Location Plan (1973) - Drawings prepared by Sargent & Lundy provide historical soil boring locations and soil boring logs that were completed prior to construction of the LAN Upper Ash Pond (Appendix D).

[9] Upper Ash Pond Cut Off Wall Construction Completion Report, Lansing Generating Station, January 2016, Hard Hat Environmental Services

- Site Development Drawings (1974) – Drawings prepared by Sargent & Lundy provide details of the original design of the LAN Upper Ash Pond prior to construction. Drawings identify foundation materials below the proposed LAN Upper Ash Pond, the original topography in the area of the proposed LAN Upper Ash Pond, original design contours of the proposed LAN Upper Ash Pond, as well as detailed information of the original hydraulic structures associated with the LAN Upper Ash Pond (Appendix A).

- Lower Ash Pond Closure (2015) – As-built drawings identify the dredging and closure of the lower ash pond, as well as modification of the existing hydraulic structures that was completed in 2015 by Hard Hat Services. Included with the drawings are specifications detailing the closure requirements (Appendix G).

- LAN Upper Ash Pond Bathymetric Survey (2015) – Drawing provides bathymetric survey data of the LAN Upper Ash Pond that was completed in September 2015 by Brennan (Appendix G)

- Slurry Wall Construction and Seep Repair (2015) – As-built drawings identify the location of the low permeability cut off wall that was installed along the west embankment of the LAN Upper Ash Pond in 2015 by Hard Hat Services. Included with the drawings are specifications detailing the installation requirements (Appendix G).

- Outfall 010 Upper Ash Pond Reroute (2021) – As-built drawings identify the location of the new outfall discharging to the Mississippi River (Appendix G).

- Groundwater Interception Drain Line Abandonment (2021) – As-built drawing identify how the interception drain line was abandoned Appendix G).

3.1.7 Instrumentation - §257.73(c)(1)(viii)

Instrumentation used to support the operation of the LAN Upper Ash Pond consists of two ultrasonic transducer down-look sensors mounted over the Weir Box and Emergency

Stormwater Weir Box #1. The ultrasonic transducer down-look sensors collect flow data in accordance with the requirements of the facility's NPDES permit for NPDES Outfall 010 and Outfall 002.

Prior to the closure of the Lower Ash Pond in 2015, the ultrasonic transducer down-look sensor was located at Weir Box #3 along the western portion of the Lower Ash Pond. There is no known readily available information on when the ultrasonic transducer was initially installed, or what instrumentation was utilized prior to the ultrasonic transducer.

3.1.8 Area-Capacity Curve - §257.73(c)(1)(ix)

An area-capacity curve identifies the relationship between the surface area of the existing CCR surface impoundment and an elevation, which corresponds to an available storage capacity. After review of readily available historical documents, there is no readily available information regarding area-capacity curves for the LAN Upper Ash Pond.

3.1.9 Spillway and Diversion Features - §257.73(c)(1)(x)

The LAN Upper Ash Pond is equipped with two main hydraulic structures. The first hydraulic structure is identified as the Weir Box in the northeast corner of the LAN Upper Ash Pond. The second main hydraulic structure is identified as Emergency Stormwater Overflow Weir Box #1 and is located in the center of the north embankment of the LAN Upper Ash Pond.

The hydraulic structures are constructed of non-erodible material and designed to carry sustained flows. Additional information regarding the hydraulic capacity of the hydraulic structure associated with the LAN Upper Ash Pond is provided in the Inflow Flood Control Plan[10].

[10] Inflow Flood Control Plan, Lansing Generating Station, 2016, Hard Hat Environmental Services

3.1.10 Construction Specifications, Surveillance, Maintenance, and Repair - §257.73(c)(1)(xi)

LAN implements a Site-Specific Inspection and Maintenance (I&M) Plan[11], in accordance with an Alliant Energy I&M Plan[12]. The Site-Specific I&M Plan has been implemented at LAN in order to identify the factors which may affect the long-term stability of the existing CCR surface impoundment. The Site-Specific I&M Plan identifies existing operation and maintenance activities, and identifies the inspection, monitoring, maintenance, and recordkeeping requirements as outlined in the Alliant Energy I&M Plan in order to maintain the integrity of the existing CCR surface impoundment.

Visual inspections of the LAN Upper Ash Pond are completed in accordance with §257.83 of the CCR Rule. At intervals not exceeding seven days, the LAN Upper Ash Pond is visually inspected for any appearances of structural weakness or other conditions which are disrupting or have the potential to disrupt the operation or safety of the existing CCR surface impoundment. In addition to seven-day inspections, at intervals not exceeding thirty days, all instrumentation supporting the operation of the LAN Upper Ash Pond is monitored for detecting discernible or significant changes in the operation of the CCR unit.

LAN also conducts event-related inspections which may include inspections following storm events, seismic events, major maintenance activities, as well as other unusual events. Annual inspections are conducted by a qualified PE who is familiar with the requirements of the CCR Rule, the Alliant Energy I&M Plan, the LAN Site-Specific I&M Plan, and other facility specific information pertaining to the existing CCR surface impoundment.

Maintenance activities that are completed at LAN may include routine maintenance, event-related maintenance, and long-term maintenance. Routine maintenance activities may include management of vegetation (or other forms of slope protection), tree and

[11] Inspection and Maintenance (I&M) Plan, Lansing Generating Station, October 2015, Version 2.0-Revision 0.0
[12] Inspection and Maintenance (I&M) Plan, Alliant Energy, September 2015, Version 2.0-Revision 0.0

sapling removal, reseeding of disturbed vegetated areas, removal of debris from collection and diversion channels, and repair of eroded areas. Event-related maintenance activities may include maintenance after unusual events such as heavy rainfall, periods of very high winds, or seismic activity. Maintenance may include repair of eroded areas or removal of damaged vegetation. Long-term maintenance activities are identified as part of the ongoing inspection program, through the annual inspections, or through other engineering evaluations and may include larger remediation activities.

3.1.11 Structural Instability Records - §257.73(c)(1)(xii)

After review of readily available historical documents the following list identifies records of structural instability associated with the LAN Upper Ash Pond.

- In 2015, LAN completed an Ash Pond Slope Stability and Hydraulic Analysis[13] in order to evaluate the LAN Upper Ash Pond and Lower Ash Pond for static, and seismic, induced slope stability. The analysis determined the north embankment of the LAN Upper Ash Pond had a safety factor less than 1.5 for static stability as required by the CCR Rule.

  In order to achieve an acceptable safety factor that exceed the required minimum, LAN permanently closed the Lower Ash Pond. Additional details of the modifications that were completed are identified in Section 3.1.5 and 3.1.6.

[13] Slope Stability & Hydraulic Analysis Report, Lansing Generating Station, May 29, 2015, Revision 1.1, Hard Hat Environmental Services

4 CHANGES TO THE HISTORY OF CONSTRUCTION

If there is a significant change to any information compiled within the Report, the owner or operator of the CCR unit must update the relevant information and place into the facility's operating record as required by §257.105(f)(g).

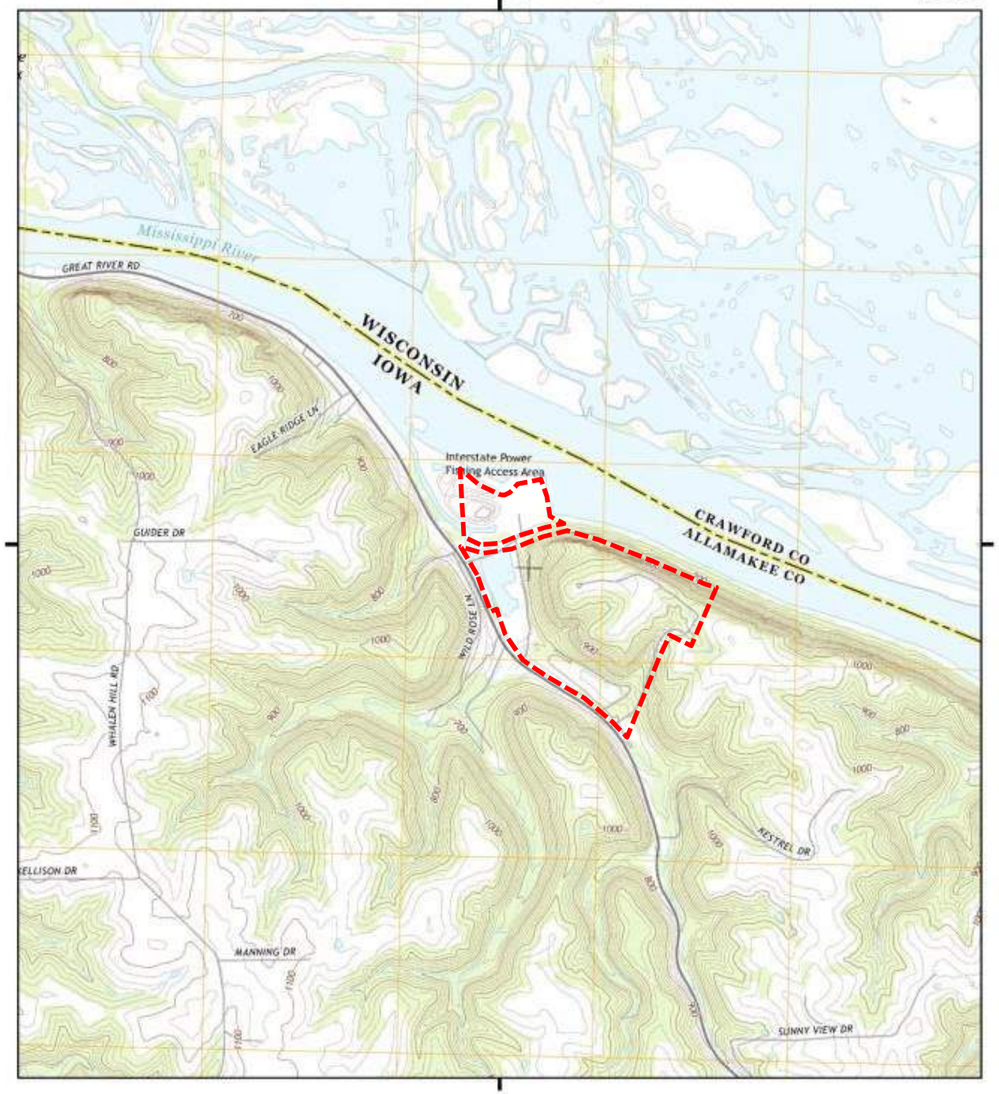
FIGURES

Alliant Energy
Interstate Power and Light Company
Lansing Generating Station
Lansing, Iowa

History of Construction

Historical Topo Map

2013



This report includes information from the following map sheet(s).

TP, Lansing, 2013, 7.5-minute

NW N NE
W E
SW S SE

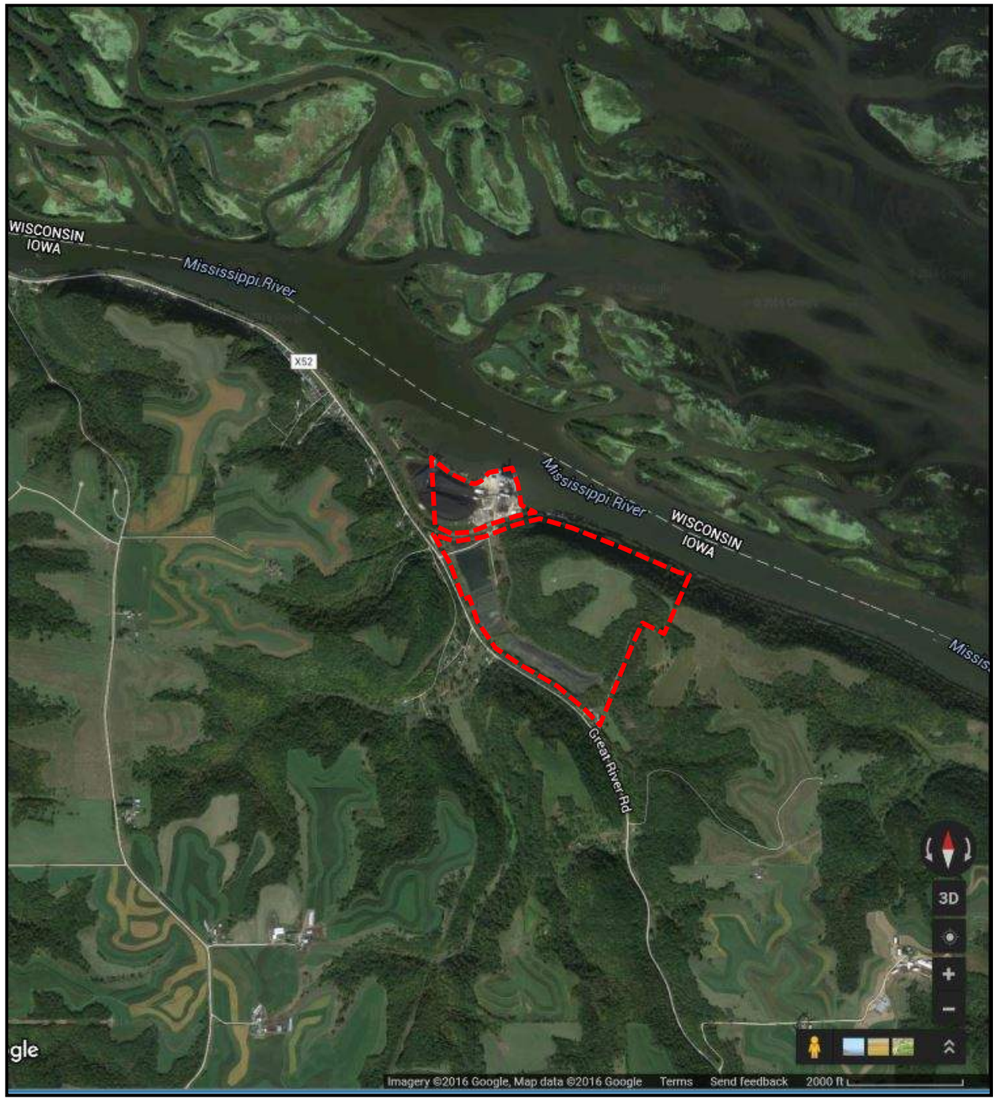
Miles 0.25 0.5 1 1.5

SITE NAME: Lasing Generating Station
ADDRESS: 2364-2366 Power Plant Dr
Lansing, IA 52151
CLIENT: Environmental Site Assessors

N

4555570 - 1 page 5

Historical Aerial Photo



Approximate Property Boundary

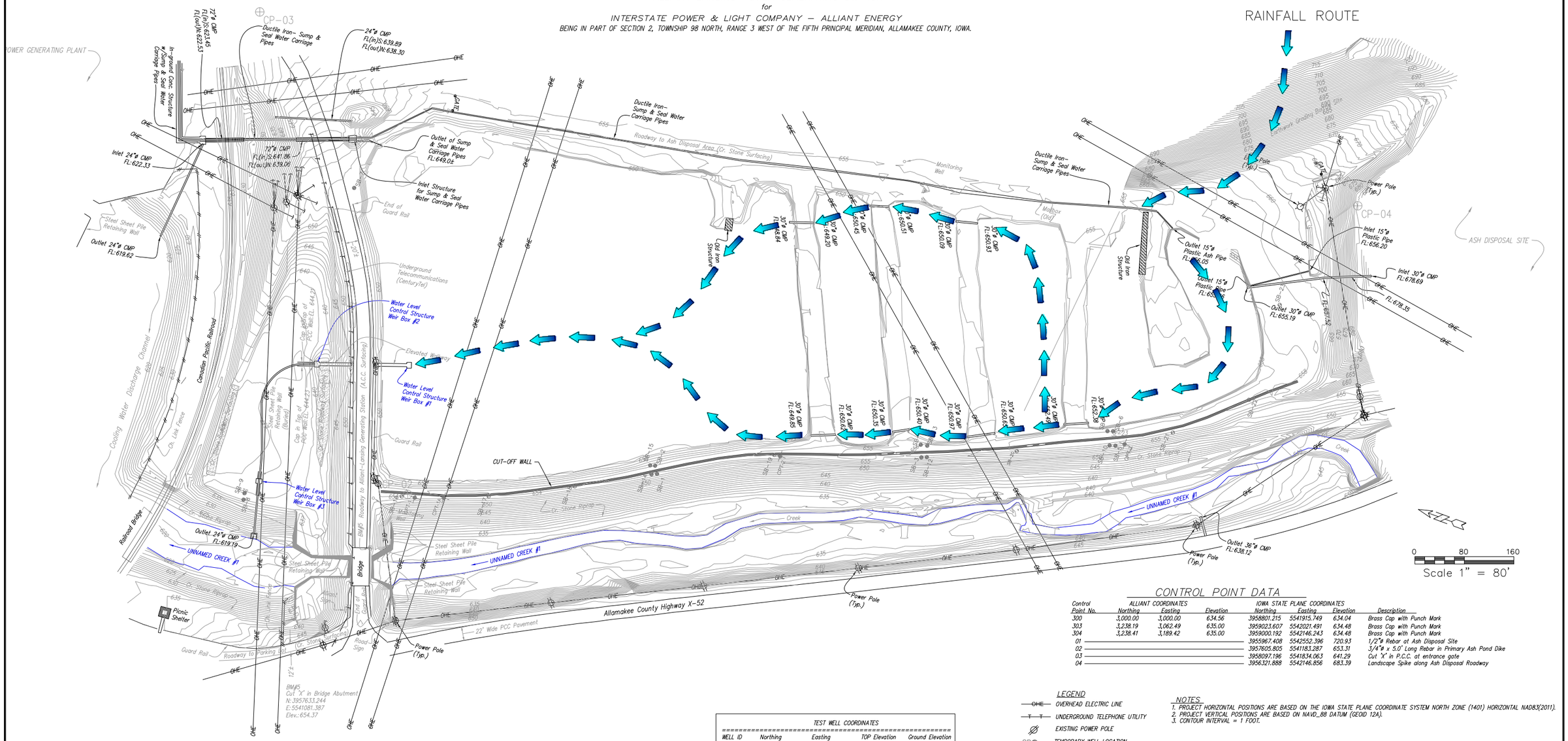
HARD HAT SERVICES™
Engineering, Construction and Management Solutions

Site Location
Lansing Generating Station
Intersate Power and Light Company

Drawing
Figure 1

Date
6/7/2016

UPPER AND LOWER CCR POND TOPOGRAPHIC SURVEY AND LOWER CCR POND BATHYMETRY
at
ALLIANT LANSING POWER GENERATING STATION
for
INTERSTATE POWER & LIGHT COMPANY – ALLIANT ENERGY
BEING IN PART OF SECTION 2, TOWNSHIP 98 NORTH, RANGE 3 WEST OF THE FIFTH PRINCIPAL MERIDIAN, ALLAMAKEE COUNTY, IOWA.



CONTROL POINT DATA

Control Point No.	ALLIANT COORDINATES Northing	Easting	Elevation	IOWA STATE PLANE COORDINATES Northing	Easting	Elevation	Description
300	3,000.00	3,000.00	634.56	3958801.215	5541915.749	634.04	Brass Cap with Punch Mark
303	3,238.19	3,062.49	635.00	3959023.607	5542021.491	634.48	Brass Cap with Punch Mark
304	3,238.41	3,189.42	635.00	3959000.192	5542146.243	634.48	Brass Cap with Punch Mark
01				3955967.408	5542552.396	720.93	1/2"ø Rebar at Ash Disposal Site
02				3957605.805	5541183.287	653.31	3/4"ø x 5.0' Long Rebar in Primary Ash Pond Dike
03				3958097.196	5541834.063	641.29	Cut "X" in P.C.C. at entrance gate
04				3956321.888	5542146.856	683.39	Landscape Spike along Ash Disposal Roadway

TEST WELL COORDINATES

WELL ID	Northing	Easting	TOP Elevation	Ground Elevation
SB-1	3957238.28	5541352.23	653.36	653.26
SB-2	3957245.81	5541363.76	652.66	652.63
SB-3	3956845.82	5541523.57	656.39	655.37
SB-4	3956853.80	5541542.37	655.88	655.34
SB-5	3956557.49	5541648.53	656.70	655.80
SB-6	3956569.09	5541669.35	656.19	655.97
SB-7	3957856.52	5541618.95	653.45	653.33
SB-8	3957852.40	5541084.50	641.74	638.43
SB-9	3957854.40	5541094.88	640.63	638.52
SB-10	NS	NS	656.38	655.85
SB-11	NS	NS	656.38	656.17
SB-12	NS	NS	656.40	655.44
SB-13	NS	NS	656.43	655.27
SB-14	NS	NS	654.37	653.15
SB-15	NS	NS	652.75	652.67

LEGEND

- OHE — OVERHEAD ELECTRIC LINE
- T T — UNDERGROUND TELEPHONE UTILITY
- EXISTING POWER POLE
- SB — TEMPORARY WELL LOCATION
- SB — SOIL BORING LOCATION
- CPT — CONE PENITROMETER TEST LOCATION
- CP — CONTROL POINT

NOTES
1. PROJECT HORIZONTAL POSITIONS ARE BASED ON THE IOWA STATE PLANE COORDINATE SYSTEM NORTH ZONE (1401) HORIZONTAL NAD83(2011).
2. PROJECT VERTICAL POSITIONS ARE BASED ON NAVD_88 DATUM (GEOID 12A).
3. CONTOUR INTERVAL = 1 FOOT.

NOTE:
1. SURVEY INFORMATION PROVIDED ABOVE WAS COMPILED BY MOHN SURVEYING, INC. 1890 GREAT RIVER ROAD LANSING, IOWA 52151, APRIL 2015.
2. ALLIANT ENERGY REQUIRES 20 FEET OVERHEAD SEPARATION DISTANCE FOR EQUIPMENT OPERATING UNDER POWERLINES.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1				

SCALE: AS SHOWN | DATE: 5-19-16
DRAWN BY: JFD | CHECKED BY: CTS | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
History of Construction
SITE PLAN

JOB 154.018.012.002
SHT. FIGURE 2
DWG. 154.018.012.002-D2

APPENDIX A – Site Development Drawings – 1974

Alliant Energy
Interstate Power and Light Company
Lansing Generating Station
Lansing, Iowa

History of Construction

Note: Reference plats indicate a 30' ROW each side of the Illinois Central RR. This should be confirmed at Railroad.

E 10+00
E 15+00
E 20+00
E 25+00
E 30+00
E 35+00
N 30+00
N 25+00
N 20+00
N 15+00
N 10+00
N 5+00

SEE NOTE NO. 4

UNIT 4 - NORTH - SOUTH BASE LINE

UNIT 4 - EAST - WEST BASE LINE

NORTH

NOTES

1. ALL CLEARING NORTH & SOUTH OF THE C.M.,ST.P.,& P. RR. AS SHOWN ON THIS DRAWING SHALL BE PERFORMED BY PHASE 1 GENERAL WORK CONTRACTOR UNDER SPEC. G-3105.
2. INDICATES AREAS TO BE CLEARED.
3. INDICATES STRUCTURES TO BE DEMOLISHED OR RELOCATED.
4. FOR SWITCH YARD FENCE ALTERATIONS SEE DWG S-21.

REFERENCE DRAWINGS

S-11 SITE DEVELOPMENT ~ PLANT FILL
S-21 DRAINAGE & ROADWAY ~ PLANT AREA - UNIT 4

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.

Signed R. N. Bergstrom Date 6-5-1974

R. N. Bergstrom, Jr., Iowa Reg. No. 4480

Drawing Release Record			
Rev.	Date	Init.	Description
	5-30-73	WC	ISSUED WITH PRELIMINARY DRAWINGS
	1-21-74	WC	ISSUED WITH PRELIMINARY DRAWINGS
A	2-7-74	RCO	ISSUED WITH S-1
B	12-3-74	WC	ISSUED WITH S-1

SITE CLEARING & DEMOLITION PLAN UNIT 4 LANSING POWER STATION INTERSTATE POWER COMPANY LANSING, IOWA

SCALE 1" = 100'
DRAWN WM. L. VOLK 3-15-73
CHECKED R. C. OSBORD 5-28-74
ENGINEER R. N. Bergstrom 5-31-74
APPROVED R. N. Bergstrom 6-5-74
JOB NO. 4644-03

SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-9

ASH BASIN & MISC. SITE WORK POINTS

WORK POINT	LOCATION		WORK POINT	LOCATION	
* 200	N 16+29.88	E 22+50.57	220	N 19+80.60	E 23+67.38
* 201	16+95.36	23+63.99	221	N 19+77.50	E 23+55.50
202	17+55.61	24+68.34	222	19+48.50	23+59.50
203	18+92.15	27+04.84	223	18+30.00	24+05.00
204	19+18.48	27+50.45	224		
205	N 19+55.71	E 27+87.68	225	N 20+28.00	E 29+95.03
206	20+28.00	28+59.97	226	19+70.31	30+52.72
207	20+68.21	29+00.18	227	17+90.00	23+09.50
208	21+13.59	29+21.34	228	17+09.00	22+64.00
209	23+10.00	30+12.92	229	19+90.50	22+50.00
210	N 23+10.00	E 27+28.24	230	N 20+22.36	E 22+50.00 *
211	25+19.05	26+53.04	231	27+70.67	20+08.00
212	16+10.79	25+51.95	232	27+70.67	25+15.00
213	15+45.60	25+89.59	233	23+70.00	26+27.38
214	14+88.57	26+38.73	234	17+90.81	26+85.31 *
215	N 12+31.64	E 28+60.12	235	N 19+08.40	E 24+02.30
216	11+04.85	29+21.27	236	30+58.68	13+34.81
217	7+54.17	31+53.81	237	24+40.00	24+32.00
218	5+48.18	33+38.28	238	26+92.84	34+30.91
219	6+00.16	35+83.82			

SEE NOTE NO. 6

* COORDINATES SO NOTED FURNISHED BY FIELD 5-14-75.

DREDGE AS REQUIRED TO PROVIDE LANDFILL FOR COAL HANDLING AREA AND TO MAKE UP DEFICIT OF FILL FOR CONSTRUCTION OF ASH POND DIKES.
MINIMUM ELEV. OF DREDGING REQ'D FOR DOCK - EL 607.

NOTES

1. ALL EARTHWORK NORTH OF THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC RAILROAD INCLUDING DREDGING, LAND FILL AND GRADING SHALL BE PERFORMED BY PHASE I GENERAL WORK CONTRACTOR UNDER SPECIFICATION G-3105.
2. ALL SLOPES ARE 3:1 UNLESS NOTED.
3. THE ALLAMAKEE COUNTY, IOWA HIGHWAY DEPT. WILL PROVIDE A SURFACE COURSE MATERIAL CONSISTING OF 2" ASPHALTIC CONCRETE OVER A 4" CRUSHED STONE BASE COURSE. THIS ROADWAY MATERIAL WILL BE APPLIED FROM COUNTY ROAD NEAR W.P. 200 TO W.P. 207 AT THIS TIME.
4. PLACE BENTONITE IN STRICT ACCORDANCE WITH APPROVED MANUFACTURER'S INSTRUCTIONS ALONG ALL INSIDE SURFACES OF DIKES IN THE PRIMARY ASH SETTLING BASIN AND THE SECONDARY ASH SETTLING BASIN AS DETERMINED BY LABORATORY SOIL TESTING. PLACE A ONE FOOT PROTECTIVE COMPACTED SAND BED OVER BENTONITE AREAS.
5. TOP OF ASH BASIN DIKES EL. 664.0' UNLESS NOTED.
6. SEE DWG. S-10 FOR COFFERDAM & DREDGING COORDINATES.
7. FUTURE DITCH FOR COAL PILE DRAINAGE WILL BE BUILT WITH COAL PILE.

REFERENCE DRAWINGS

[illegible]
S-14 SITE DEVELOPMENT ~ ASH DIKE SECTIONS [illegible]
S-16 SITE DEVELOPMENT ~ REROUTED CREEK [illegible]

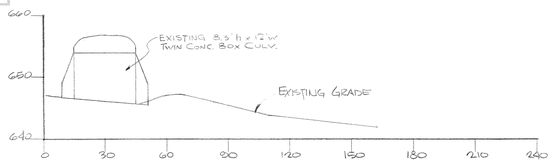
I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.
Signed R. N. Bergstrom, P.E., Iowa Reg. No. 4480 Date 6-5 1974

SITE DEVELOPMENT
PLANT FILL ~ UNIT 4
LANSING POWER STATION
INTERSTATE POWER COMPANY
LANSING, IOWA

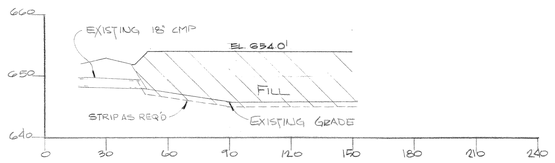
SCALE 1" = 100'
DRAWN W.N. VOLK 4-16-73
CHECKED R. C. ODEGARD 5-28-74
ENGINEER [illegible]
APPROVED [illegible] 6-3-74

SARGENT & LUNDY ENGINEERS CHICAGO

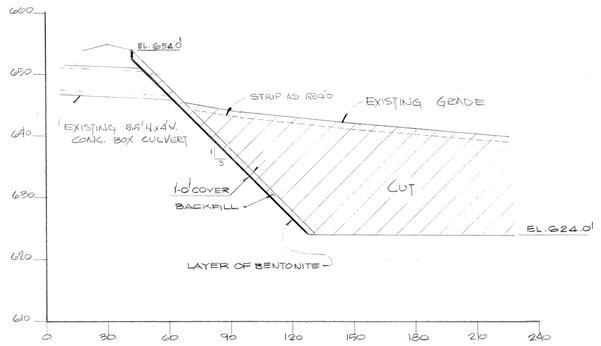
DRAWING S-11

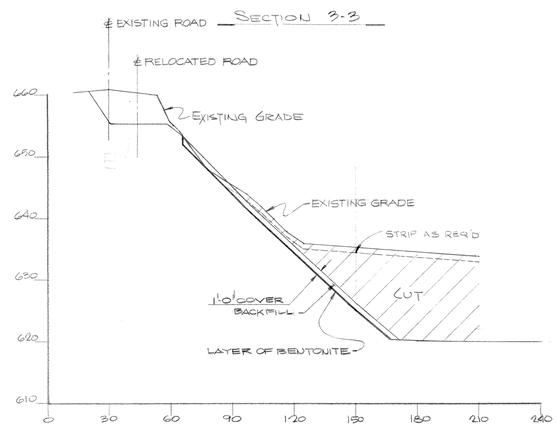


SECTION 1-1

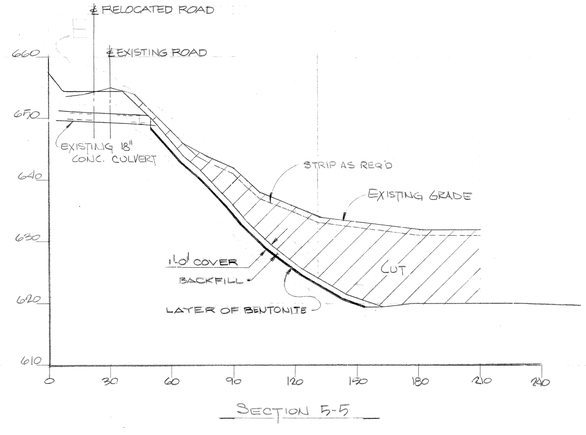


SECTION 2-2

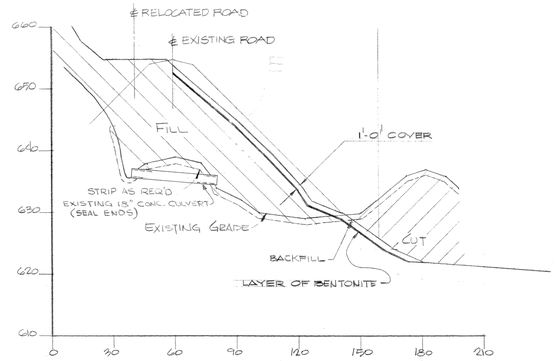




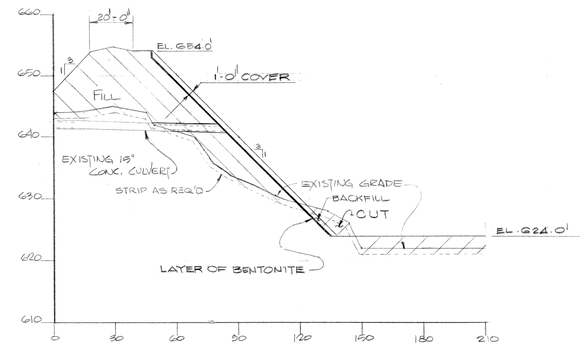
SECTION 4-4



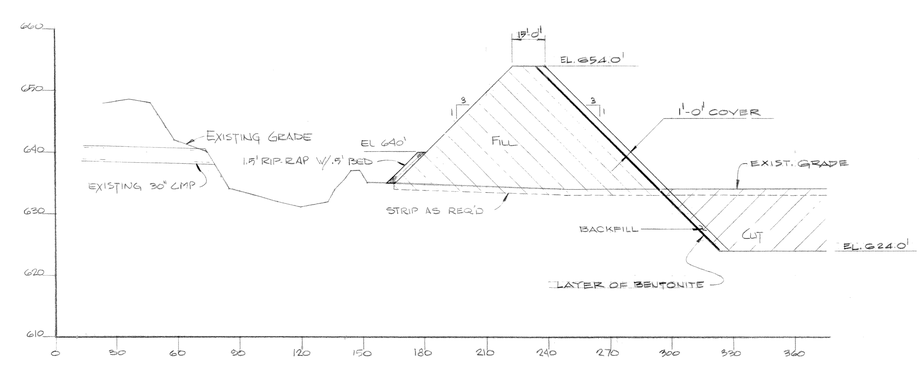
SECTION 5-5



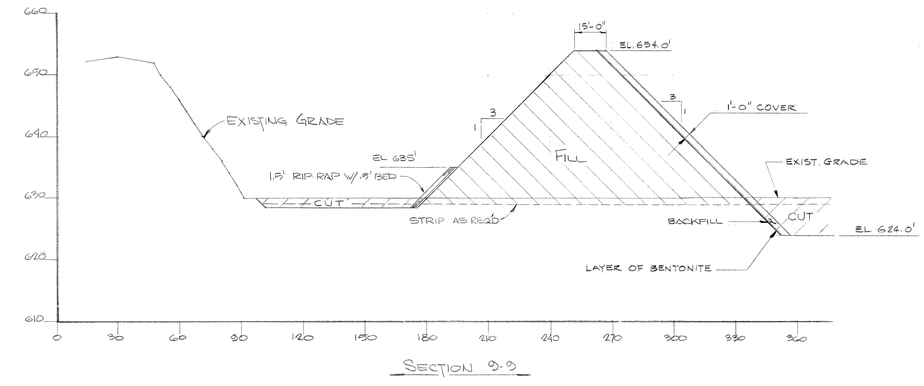
SECTION 6-6



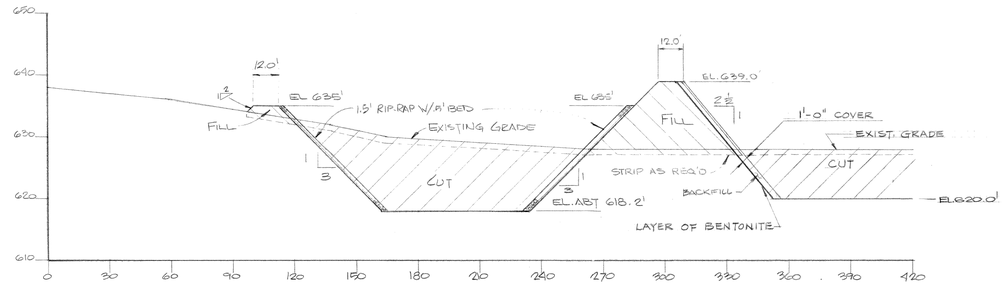
SECTION 7-7



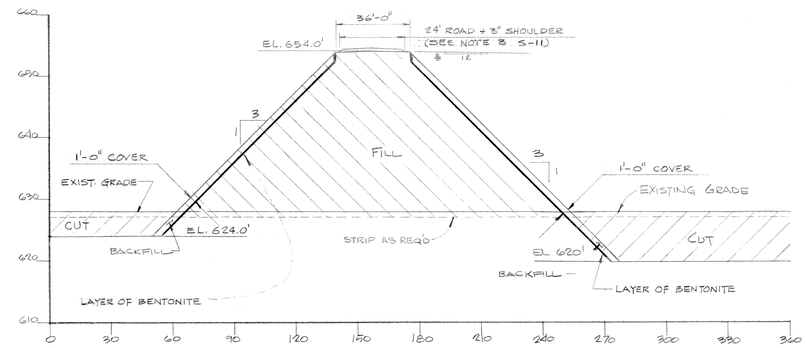
SECTION 8-8



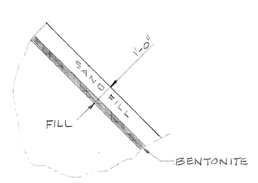
SECTION 9-9



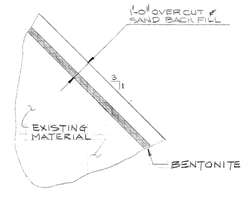
SECTION 10-10



SECTION 11-11



TYPICAL NEW SLOPED DIKE SECTION



TYPICAL EXISTING SLOPED DIKE SECTION

NOTES

1. WORK THIS DWG. WITH DWGS S-10 & S-11
2. ALL FILL SHALL CONFORM TO SPEC G-3105.
3. ASH DIKE SECTIONS 4, 5 & 6 REVISED AS PER FIELD INFORMATION DATED 7/30/76.

REFERENCE DRAWINGS

S-10	SITE DEVELOPMENT-COFFERDAM & DREDGING PLAN
S-11	SITE DEVELOPMENT-PLANT FILL - UNIT 4

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.

Signed R.W. Bezdek Date 6-5-74

R. W. Bezdek Reg. No. 6480

Drawing Release Record

Rev.	Date	Init.	Description
	6-7-74	RCO	ORIG. CONST.
A	12-23-74		AS BUILT
B	6-23-75	GHV	REVISE CHART
C	8-5-76	GHV	REV. SEC 10-10
D	7-30-76	GHV	REVISE SECTIONS 4, 5 & 6 PER FIELD INFO.
E	9-9-77	GHV	REVISED BENCHMARK

SITE DEVELOPMENT ASH DIKE SECTIONS - SHEET 1 LANSING POWER STATION INTERSTATE POWER COMPANY LANSING, IOWA

SCALE VERT 1"=10' HORIZ 1"=30'

DRAWN G.R. BOLE 5-20-74

CHECKED R.C. ODEGARD 5-28-74

ENGINEER [signature] 5-31-74

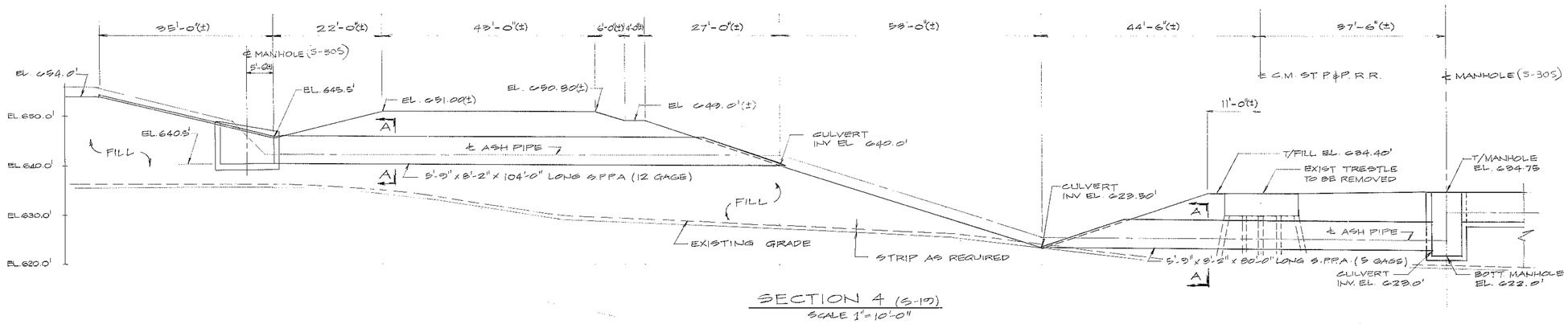
APPROVED [signature] 6-5-74

JOB NO. A6414-65

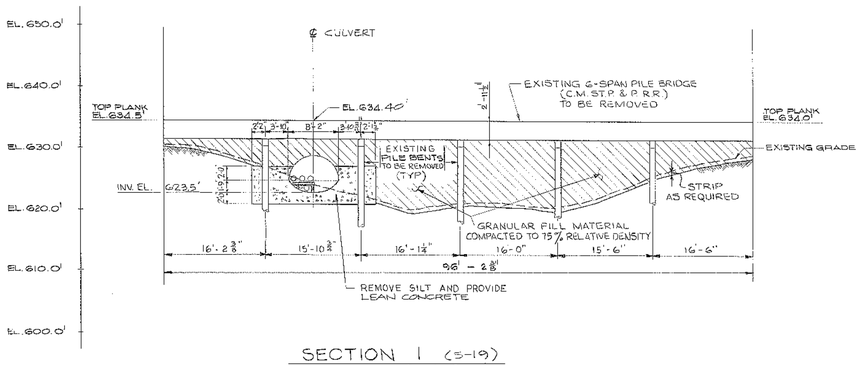
SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-14

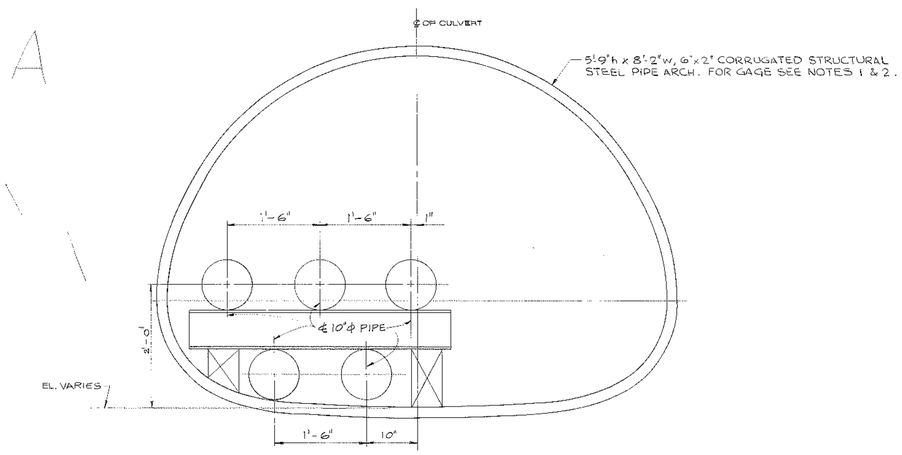
02-5



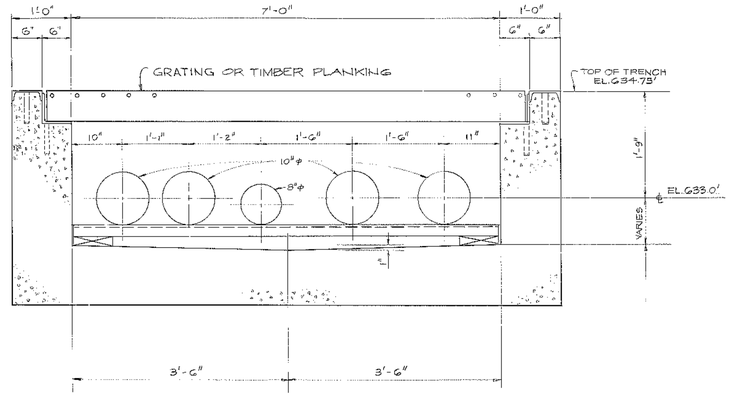
SECTION 4 (S-19)
SCALE 1"=10'-0"



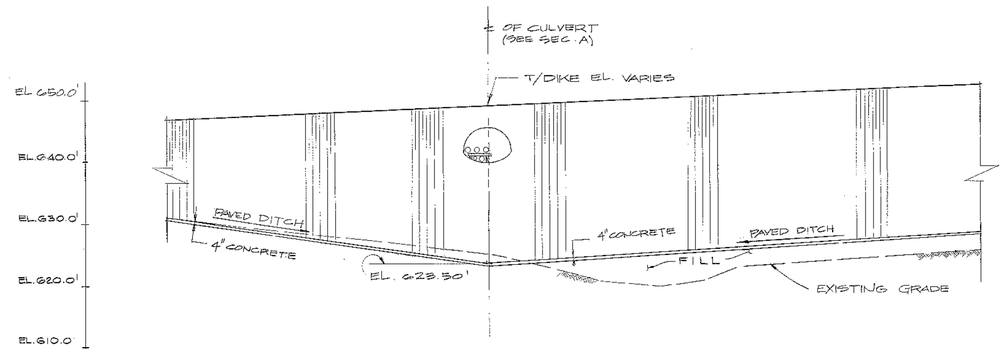
SECTION 1 (S-19)
SCALE 1"=10'-0"



SECTION A
SCALE : 1" = 1'-0"



SECTION 3 (S-19)
SCALE 1" = 1'-0"



SECTION 2 (S-19)
SCALE : 1" = 10'-0"

NOTES

1. 5'-9" x 8'-2" STEEL PIPE ARCH PASSING UNDER C.M.ST.P.&P.R.R. SHALL BE #5 GAGE.
2. 5'-9" x 8'-2" STEEL PIPE ARCH PASSING UNDER ROADWAY SHALL BE #12 GAGE.

REFERENCE DRAWINGS

S-11	SITE DEVELOPMENT - PLAN FILL - UNIT 4
S-17	SITE DEVELOPMENT - DOCK COFFERDAM SECTIONS - SHEET 1
S-19	ASH PIPE LINE CROSSING UNDER RAILROAD & FINAL GRADING PLAN
S-21	DRAINAGE & ROADWAY - PLANT AREA - UNIT 4
S-305	ASH PIPE TRENCH MANHOLE & CATCH BASIN DETAILS.

A

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.
Signed R.M. Bergstrom Date 1-6 19 76
R. M. Bergstrom, P.E. Iowa Reg. No. 4480

R. M. BERGSTROM REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

Drawing Release Record			
Rev.	Date	Init.	Description
	6-13-75		ORIGINAL
A	12-23-75	GHV	REVISED TO SECT. 4

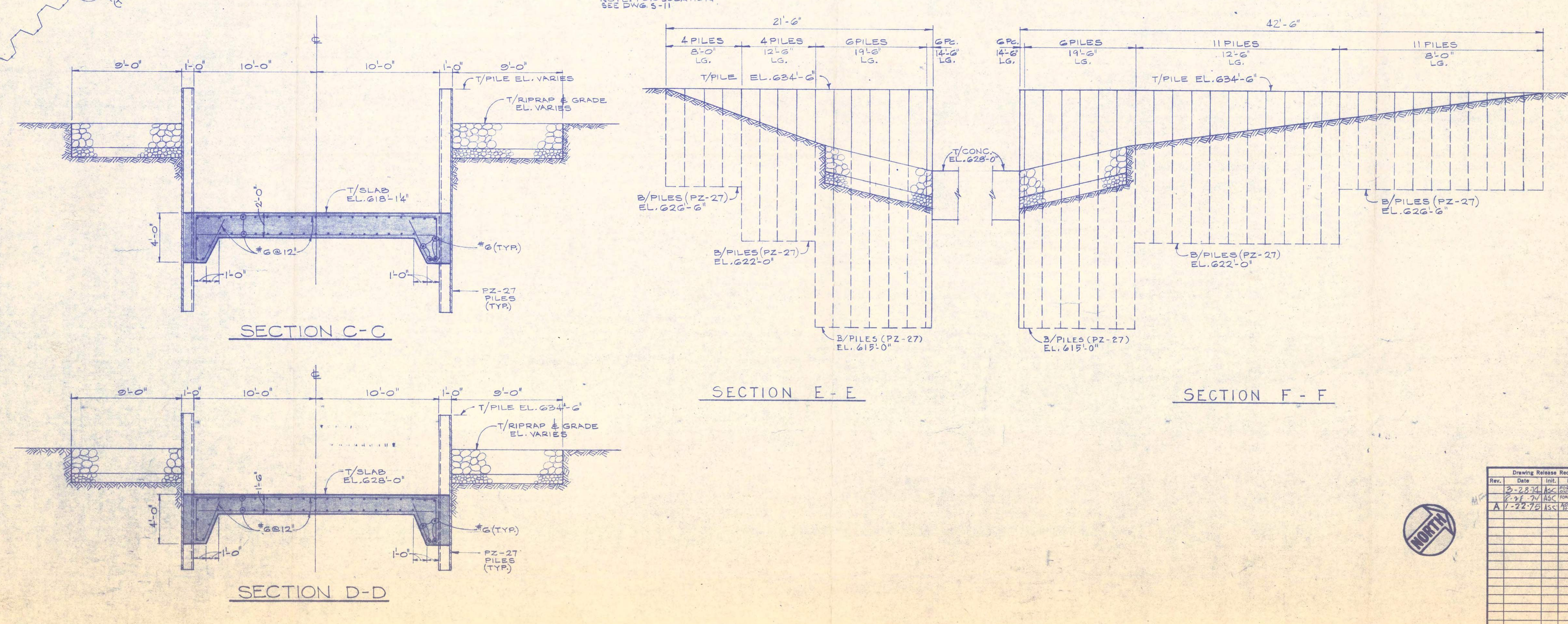
ASH PIPE LINE
SECTIONS & DETAILS
LANSING POWER STATION
INTERSTATE POWER COMPANY
LANSING, IOWA

SCALE AS SHOWN
DRAWN B. SANCHEZ 4-11-75
CHECKED C.R. Bhattacharya 6-12-75
ENGINEER 6-12-75
APPROVED 1-6-76
JOB NO. 4444-03

SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-20

CUSHING 2-CC 4
01/12/2022 - Classification: Internal - ECRM12747440



NOTES

1. FOR GENERAL NOTES SEE DWG. S-

REFERENCE DRAWINGS

S-11 SITE DEVELOPMENT, PLANT FILL-UNIT 4

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.

Signed R.N. Bergstrom Date 8-14 1974

R. N. Bergstrom, P.E., Iowa Reg. No. 4480

R. N. BERGSTROM REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

Drawing Release Record			
Rev.	Date	Init.	Description
	3-28-74	ASC	FOR MATERIAL ONLY
	8-28-74	ASC	FOR CONSTRUCTION
A	1-22-75	ASC	ADDED WEEP HOLES

SPILLWAY STRUCTURE PLAN, SECTIONS & DETAILS

LANSING POWER STATION UNIT 4
INTERSTATE POWER CO.
LANSING, IOWA

SCALE 1/4"=1'-0" & AS SHOWN

DRAWN R.R. LUTZ JR. 9-25-73

CHECKED S. K. JUNG 8-12-74

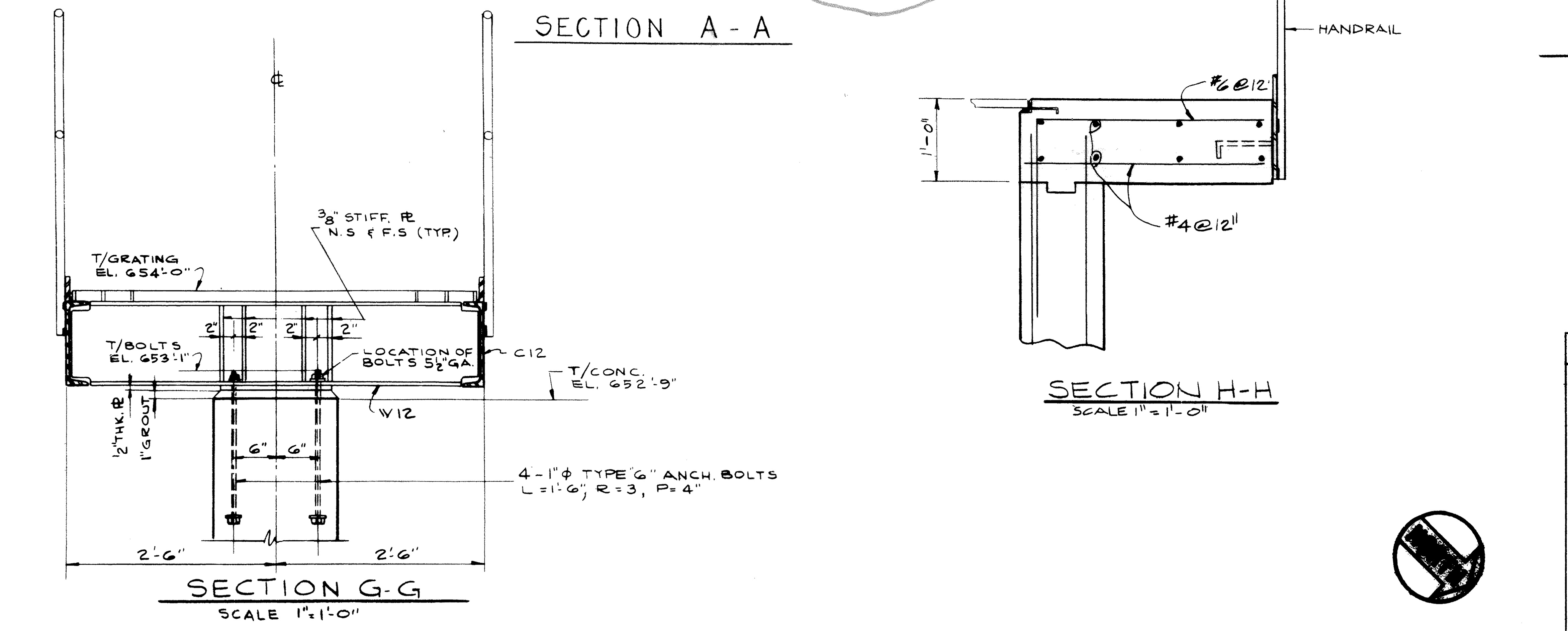
ENGINEER [signature] 8-13-74

APPROVED R.N. Bergstrom 8-14-74

JOB NO. 4644

SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-210



NOTES

1. FOR GENERAL NOTES SEE DWG. S-
2. ALL GRATINGS, CURB ANGLES, HANDRAIL & HANDRAIL POSTS SHALL BE GALVANIZED.
3. STOP LOG TIMBER SHALL BE - DENSE SELECTED STRUCTURAL GRADE DOUGLAS-FIR AND BE TREATED WITH CREOSOTE PRESERVATIVE, 1" MIN. PENETRATION & CREOSOTE RETENTION OF 8.0 LBS PER CUBIC FOOT.
4. FURNISH ONE "SECTION" OF STOP LOG WHICH CONSISTS OF 3-5½"x11½" WIDE TIMBERS FASTENED TOGETHER AS A UNIT AS INDICATED IN S.&L. STD. DWG. 1743-6 FOR BOTTOM PART OF EACH "SET". COAT HEAVILY WITH BITUMINOUS PAINT BETWEEN TIMBERS. FURNISH SINGLE 5½"x11½" WIDE STOP LOGS FOR ALL OTHERS.

REFERENCE DRAWINGS

S-215	WEIR BOX Nº1, Nº2 & Nº3 - SECTIONS & DETAILS

Drawing Release Record

Rev.	Date	Init.	Description
	3-28-74	ASC	FOR MATERIAL ONLY
A	5-28-74	ASC	FOR CONSTRUCTION
B	9-5-74	ASC	STOP LOGS CHG'D
C	9-25-74		DIMENSIONS CHANGED
D	1-7-75	ASC	REV. ELEVATIONS REV. PILING
E	2-25-75		COMPACTED GRAVEL FILL ADDED

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.

Signed [signature] Date 8-14-1974

R. N. Bergstrom, P.E., Iowa Reg. No. 4480

R. N. BERGSTROM REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

WEIR BOX NO. 1 & NO. 2 - PLAN SECTIONS & DETAILS ASH SETTLING BASIN

LANSING POWER STATION UNIT 4
INTERSTATE POWER CO.
LANSING, IOWA

SCALE 1/4"=1'-0" UNLESS NOTED

DRAWN S.J.C. 12-13-73

CHECKED S. K. JUNG 8/12/74

ENGINEER [signature] 8-12-74

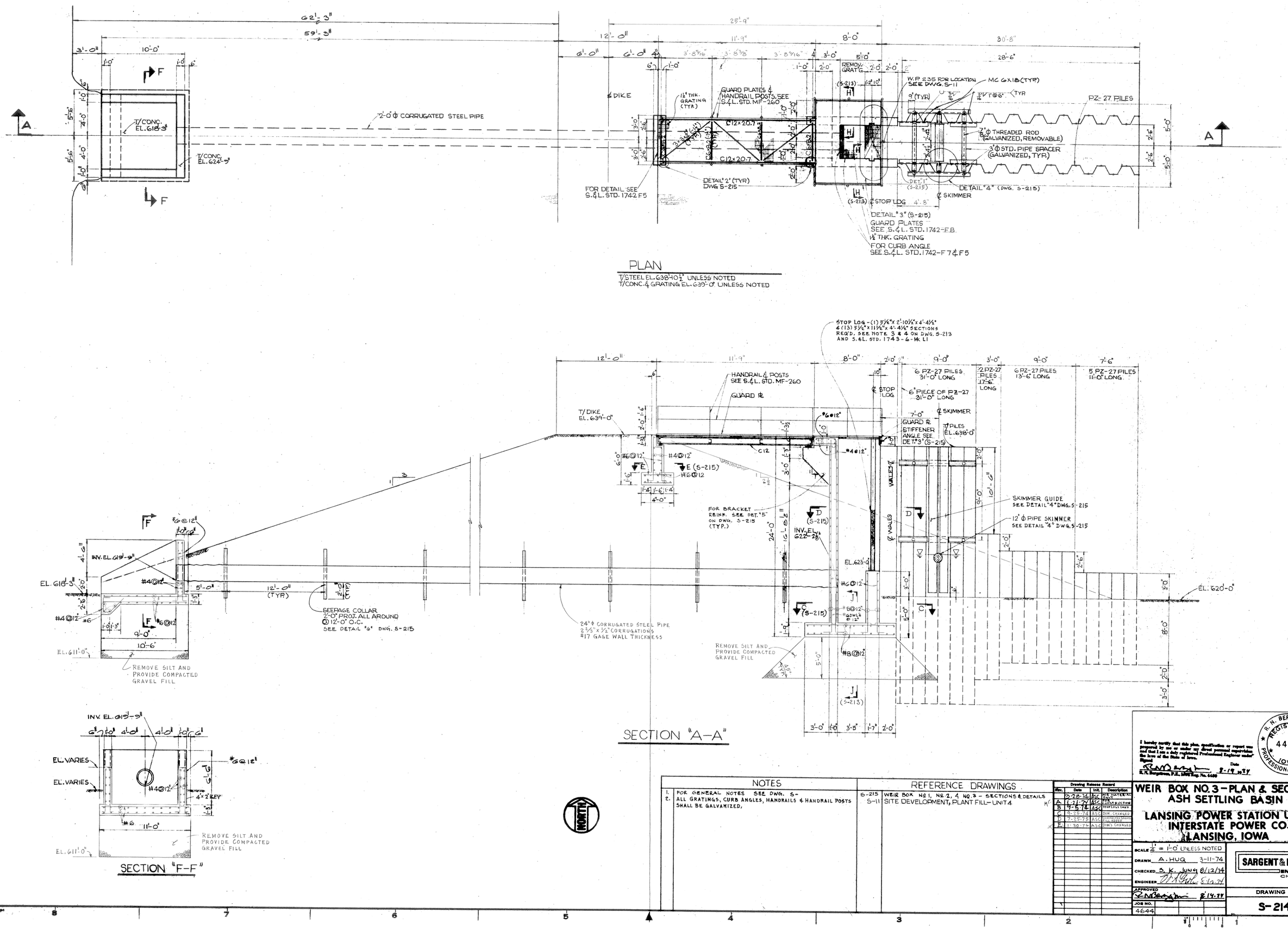
APPROVED [signature] 8.14.74

JOB NO. 4644

SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-213

S-214



PLAN

T/STEEL EL. 638-10½" UNLESS NOTED
T/CONC. & GRATING EL. 639'-0" UNLESS NOTED

SECTION "A-A"

SECTION "F-F"

NORTH

NOTES

1. FOR GENERAL NOTES SEE DWG. S-
2. ALL GRATINGS, CURB ANGLES, HANDRAILS & HANDRAIL POSTS SHALL BE GALVANIZED,

REFERENCE DRAWINGS

S-215	WEIR BOX NO. 1, NO. 2, & NO. 3 - SECTIONS & DETAILS
S-11	SITE DEVELOPMENT, PLANT FILL - UNIT 4

Drawing Release Record			
Rev.	Date	Init.	Description
A	2-28-74	ASC	FOR BIDDING
B	4-5-74	ASC	FOR CONSTRUCTION STOP LOGS CHGD
C	9-25-74	ASC	DIM. CHANGED
D	7-25-75	ASC	CONCRETE PADS ADDED
E	11-30-76	ASC	DIM'S CHANGED

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.

Signed R. N. Bergstrom, P.E., Iowa Reg. No. 4480 Date 8-19-74

R. N. BERGSTROM REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

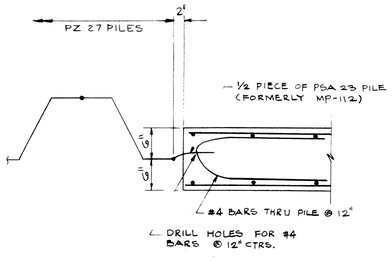
WEIR BOX NO. 3 - PLAN & SECTIONS ASH SETTLING BASIN

LANSING POWER STATION UNIT 4 INTERSTATE POWER CO. LANSING, IOWA

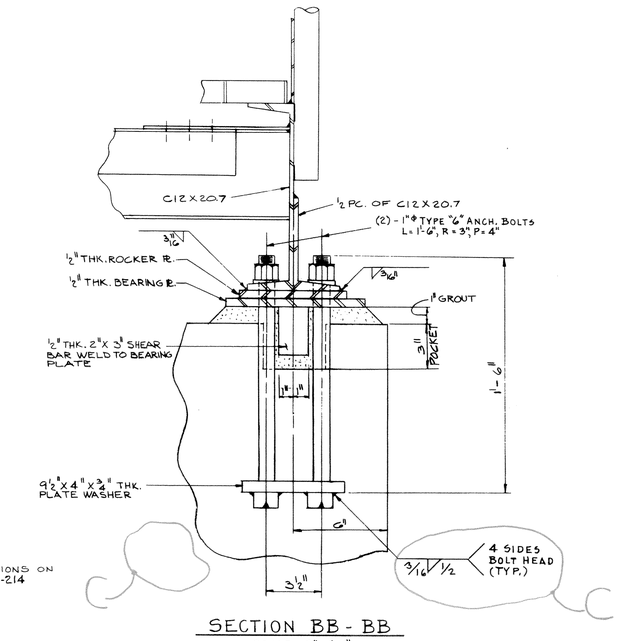
SCALE 1" = 1'-0" UNLESS NOTED
DRAWN A. HUQ 3-11-74
CHECKED S. K. JUNG 8/12/74
ENGINEER 8-19-74
APPROVED 8-19-74
JOB NO. 4644

SARGENT & LUNDY ENGINEERS CHICAGO

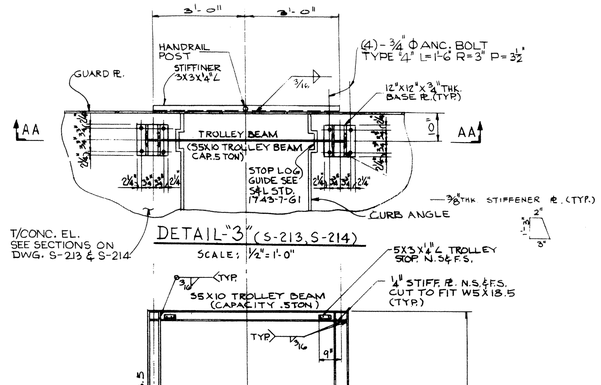
DRAWING NO. S-214



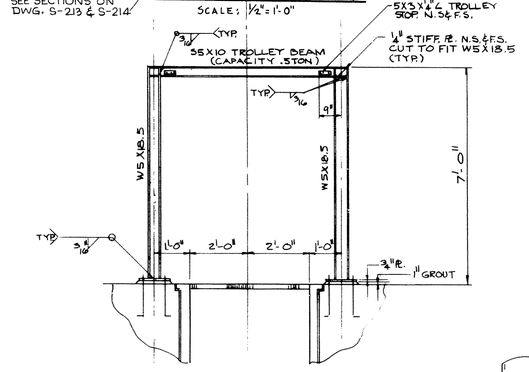
DETAIL - "1" (S-213, S-214)
SCALE: 1" = 1'-0"



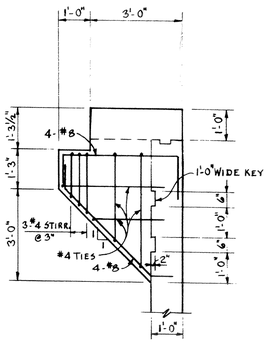
SECTION BB - BB
SCALE: 3" = 1'-0"



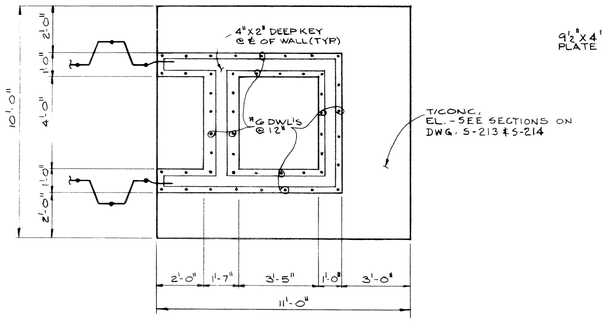
DETAIL - "3" (S-213, S-214)
SCALE: 1/2" = 1'-0"



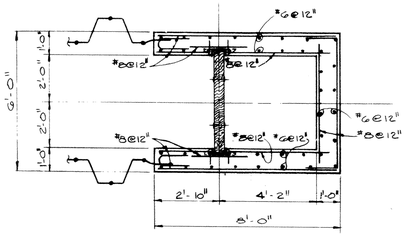
SECTION AA-AA
SCALE: 1/2" = 1'-0"



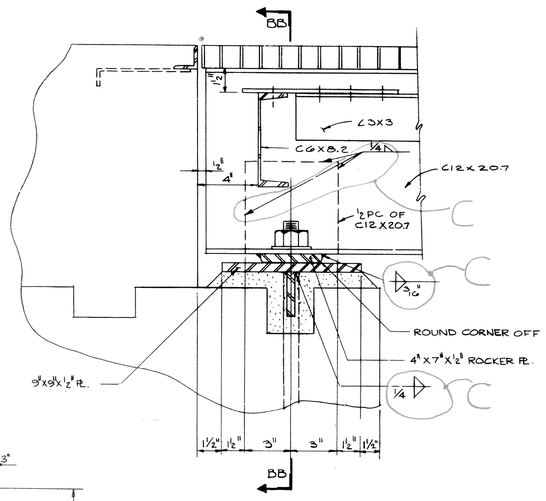
DETAIL - "5" (S-213, S-214)
SCALE: 1/2" = 1'-0"



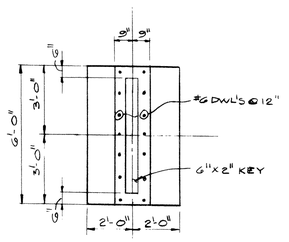
SECTION C-C (S-213, S-214)
SCALE: 3/8" = 1'-0"



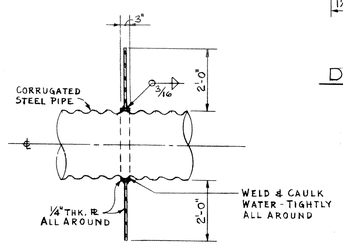
SECTION D-D (S-213, S-214)
SCALE: 3/8" = 1'-0"



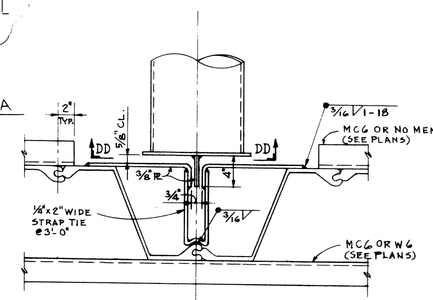
DETAIL - "2" (S-213, S-214)
SCALE: 3" 1'-0"



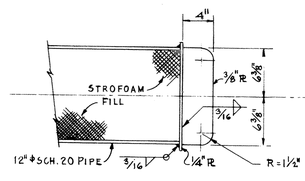
SECTION E-E (S-213, S-214)
SCALE: 3/8" = 1'-0"



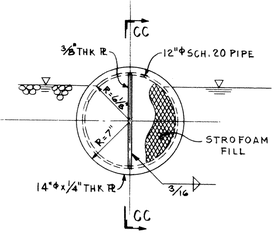
DETAIL - "6" (S-211, S-212, S-214)
TYPICAL DETAIL OF SEEPAGE COLLAR
SCALE: 1/2" = 1'-0"



DETAIL - "4" (S-212, S-213, S-214)
SCALE: 1 1/2" = 1'-0"



SECTION CC-CC
SCALE: 1 1/2" = 1'-0"



SECTION DD-DD
SCALE: 1 1/2" = 1'-0"

NOTES

1. FOR GENERAL NOTES SEE DWG. S-

REFERENCE DRAWINGS

S-211	WEIR STRUCTURE - PLAN, SECTIONS & DETAILS @ COAL PILE AREA.
S-213	WEIR BOX NO. 1 & NO. 2 - PLAN, SECTIONS & DETAILS @ ASH SETTLING BASIN.
S-214	WEIR BOX NO. 3 - PLAN & SECTIONS @ ASH SETTLING BASIN.
S-11	SITE DEVELOPMENT, PLANT FILL - UNIT 4

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.

Signed _____ Date 8-14-74

R. N. Bergstrom, P.E. Iowa Reg. No. 4480

R. N. BERGSTROM REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

Drawing Release Record			
Rev.	Date	Init.	Description
	8-29-74	ASC	FOR MATERIALS
A	9-19-74	ASC	FOR CONSTRUCTION
B	12-26-74	ASC	DETAIL "H" CHANGE
C	2-25-75	ASC	DETAILS CHANGE

MP
MP

WEIR BOX NO. 1, NO. 2 & NO. 3 SECT'S & DET'S ASH SETTLING BASIN

LANSING POWER STATION UNIT 4 INTERSTATE POWER CO. LANSING, IOWA

SCALE: AS NOTED
DRAWN: M. VENEGAS 3-15-74
CHECKED: S. K. JUNG 8-13-74
ENGINEER: 8-13-74
APPROVED: 8-14-74
JOB NO. 4644

SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-215

APPENDIX B – EDR Historical Aerial Photograph Package

Alliant Energy
Interstate Power and Light Company
Lansing Generating Station
Lansing, Iowa

History of Construction

Lasing Generating Station
2364-2366 Power Plant Dr
Lansing, IA 52151

Inquiry Number: 4555570.2
March 08, 2016

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography March 08, 2016

Target Property:

2364-2366 Power Plant Dr
Lansing, IA 52151

Year	***Scale***	***Details***	***Source***
1940	Aerial Photograph. Scale: 1"=1200'	Flight Year: 1940	DOT
1952	Aerial Photograph. Scale: 1"=1200'	Flight Year: 1952	USDA
1957	Aerial Photograph. Scale: 1"=1200'	Flight Year: 1957	USDA
1965	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1965	USGS
1971	Aerial Photograph. Scale: 1"=1200'	Flight Year: 1971	USDA
1982	Aerial Photograph. Scale: 1"=1200'	Flight Year: 1982	NHAP
1994	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1994	USGS/DOQQ
1994	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1994	USGS/DOQQ
1994	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1994	USGS/DOQQ
1994	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1994	USGS/DOQQ
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2007	Aerial Photograph. Scale: 1"=500'	Flight Year: 2007	USDA/NAIP

Year	*Scale*	*Details*	*Source*
2007	Aerial Photograph. Scale: 1"=500'	Flight Year: 2007	USDA/NAIP
2007	Aerial Photograph. Scale: 1"=500'	Flight Year: 2007	USDA/NAIP
2007	Aerial Photograph. Scale: 1"=500'	Flight Year: 2007	USDA/NAIP
2008	Aerial Photograph. Scale: 1"=500'	Flight Year: 2008	USDA/NAIP
2008	Aerial Photograph. Scale: 1"=500'	Flight Year: 2008	USDA/NAIP
2008	Aerial Photograph. Scale: 1"=500'	Flight Year: 2008	USDA/NAIP
2008	Aerial Photograph. Scale: 1"=500'	Flight Year: 2008	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP

INQUIRY #: 4555570.2

YEAR: 1940

= 1200'

N

EDR

INQUIRY #: 4555570.2

YEAR: 1952

N

EDR

= 1200'


INQUIRY #: 4555570.2
YEAR: 1957
= 1200'
N
EDR


INQUIRY #: 4555570.2
YEAR: 1965
= 1000'
N
EDR


INQUIRY #: 4555570.2
YEAR: 1971
= 1200'
N
EDR

INQUIRY #: 4555570.2

YEAR: 1982

= 1200'

N

EDR


INQUIRY #: 4555570.2
YEAR: 2007
= 500'
N
EDR

INQUIRY #: 4555570.2

YEAR: 2007

= 500'

N

EDR


INQUIRY #: 4555570.2
YEAR: 2008
= 500'
N
EDR

INQUIRY #: 4555570.2

YEAR: 2008

= 500'

N

EDR

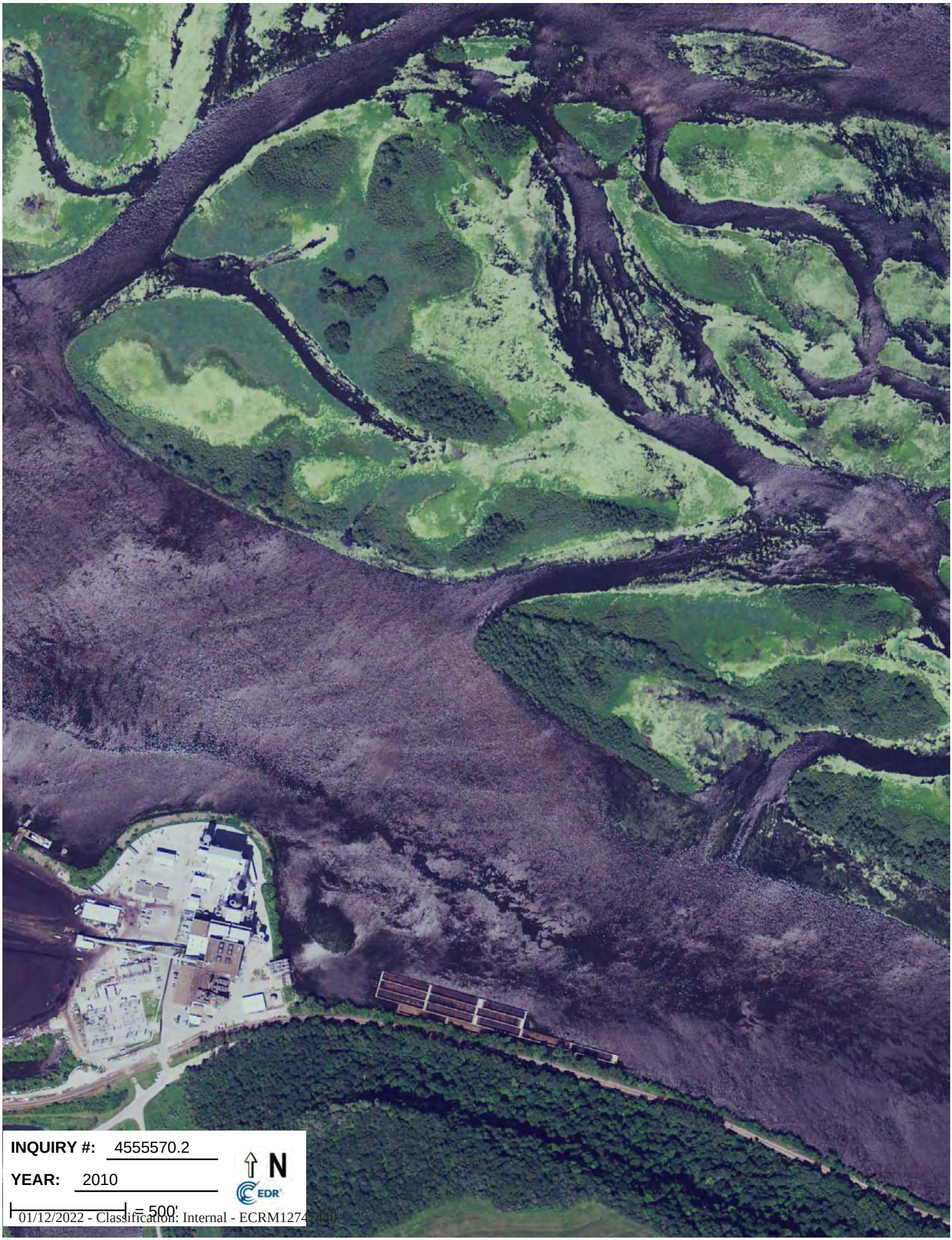
INQUIRY #: 4555570.2

YEAR: 2008

= 500'

N

EDR



APPENDIX C – EDR Historical Topographic Map Report

Alliant Energy
Interstate Power and Light Company
Lansing Generating Station
Lansing, Iowa

History of Construction

Lasing Generating Station
2364-2366 Power Plant Dr
Lansing, IA 52151

Inquiry Number: 4555570.1
March 04, 2016

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

03/04/16

Site Name:
Lasing Generating Station
2364-2366 Power Plant Dr
Lansing, IA 52151
EDR Inquiry # 4555570.1

Client Name:
Environmental Site Assessors
932 North Wright Street, Suite 1(
Naperville, IL 60563
Contact: Mark W Loerop

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Environmental Site Assessors were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

Site Name: Lasing Generating Station
Address: 2364-2366 Power Plant Dr
City,State,Zip: Lansing, IA 52151
P.O.# 154.018.012.002
Project: LGS Historical Docs

Coordinates:

Latitude: 43.3341 43° 20' 3" North
Longitude: -91.168831 -91° 10' 8" West
UTM Zone: Zone 15 North
UTM X Meters: 648445.85
UTM Y Meters: 4799545.30
Elevation: 625.36' above sea level

Maps Provided:

2013
1983
1966
1932
1929
1903

Topo Sheet Thumbnails

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

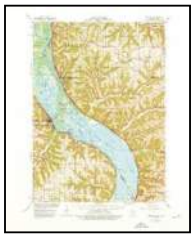
2013 Source Sheets

Lansing
2013
7.5-minute, 24000

1983 Source Sheets

Lansing
1983
7.5-minute, 24000
Aerial Photo Revised 1981
Edited 1983

1966 Source Sheets



Ferryville
1966
15-minute, 62500
Aerial Photo Revised 1965

1932 Source Sheets

Ferryville
1932
15-minute, 62500

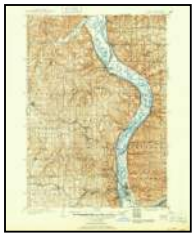
Topo Sheet Thumbnails

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1929 Source Sheets

Ferryville
1929
15-minute, 62500

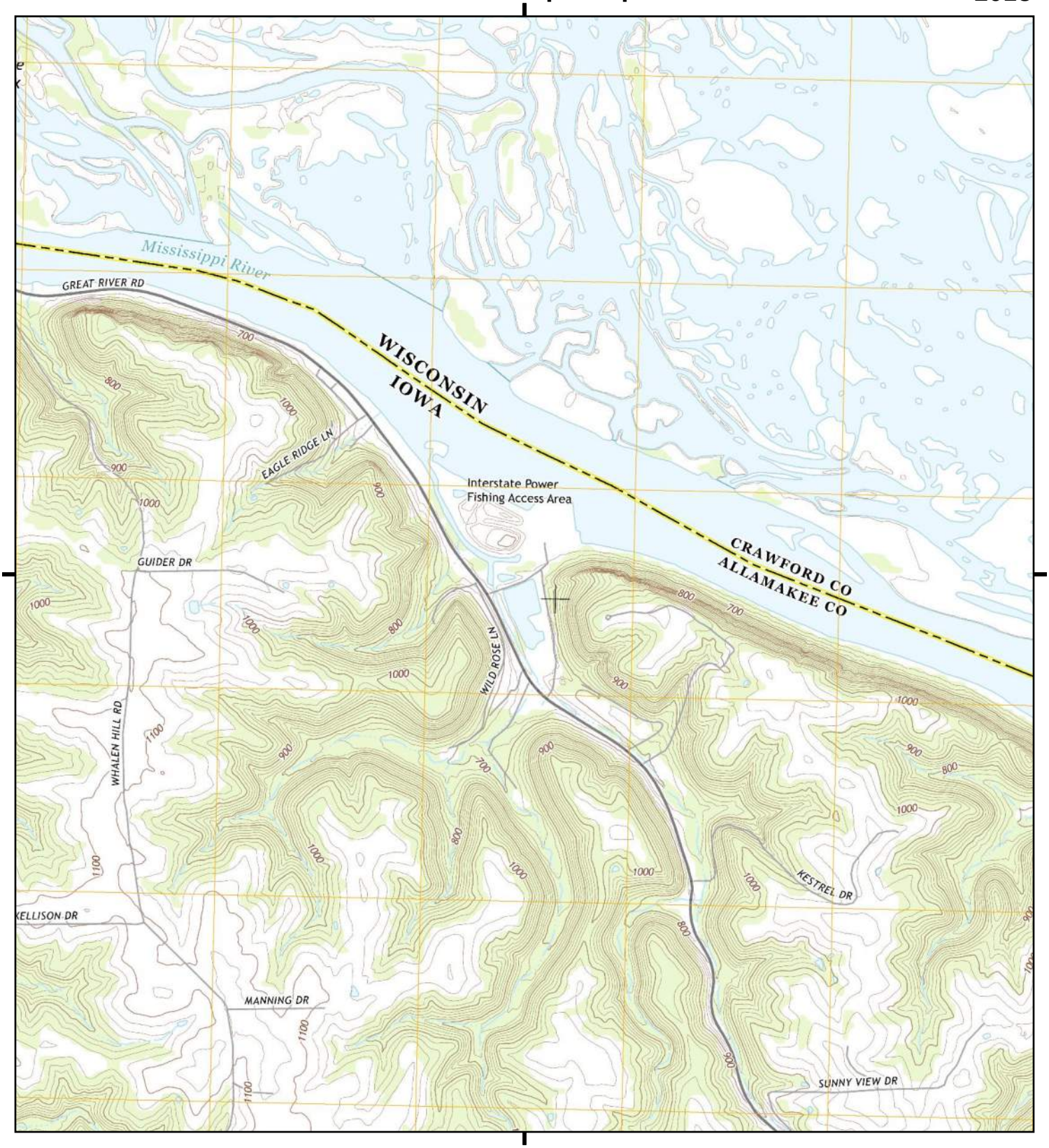
1903 Source Sheets



Waukon
1903
30-minute, 125000

Historical Topo Map

2013



This report includes information from the following map sheet(s).

Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

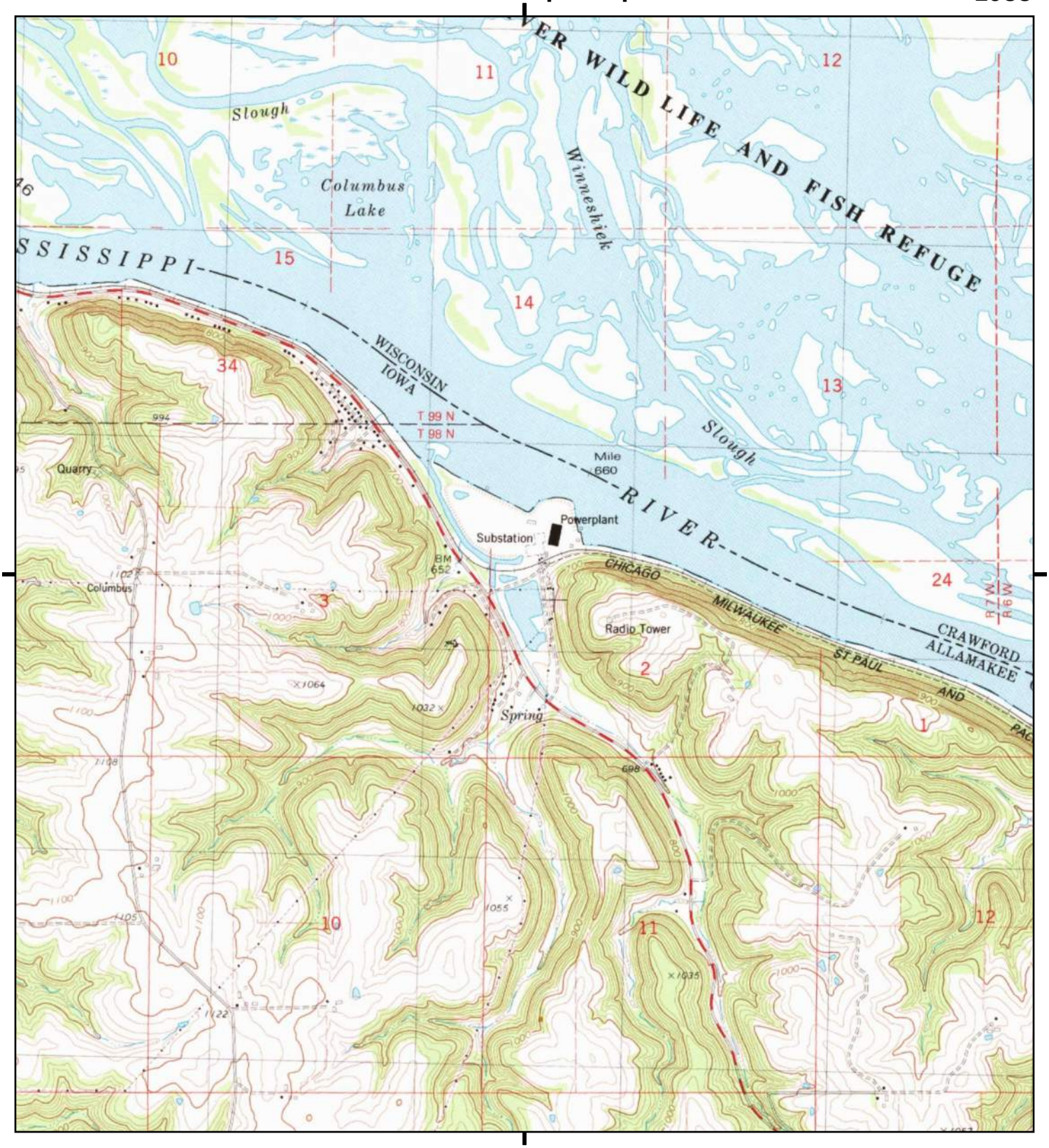
TP, Lansing, 2013, 7.5-minute

SITE NAME: Lasing Generating Station
ADDRESS: 2364-2366 Power Plant Dr
Lansing, IA 52151
CLIENT: Environmental Site Assessors

N

Historical Topo Map

1983



This report includes information from the following map sheet(s).

Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Lansing, 1983, 7.5-minute

SITE NAME: Lasing Generating Station
ADDRESS: 2364-2366 Power Plant Dr
Lansing, IA 52151
CLIENT: Environmental Site Assessors

N

Historical Topo Map

1966

This report includes information from the following map sheet(s).

Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

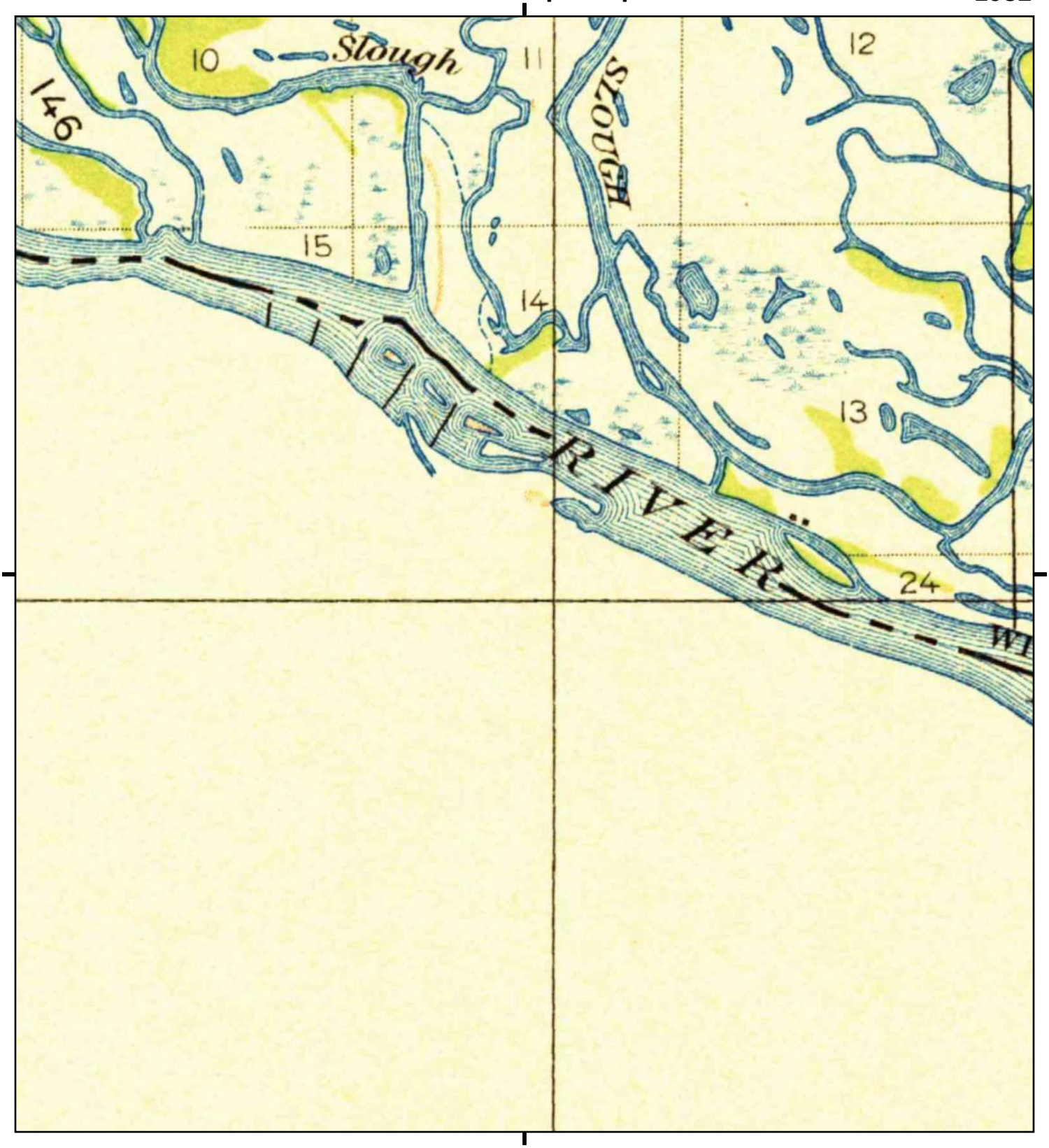
TP, Ferryville, 1966, 15-minute

SITE NAME: Lasing Generating Station
ADDRESS: 2364-2366 Power Plant Dr
Lansing, IA 52151
CLIENT: Environmental Site Assessors

N

Historical Topo Map

1932



This report includes information from the following map sheet(s).

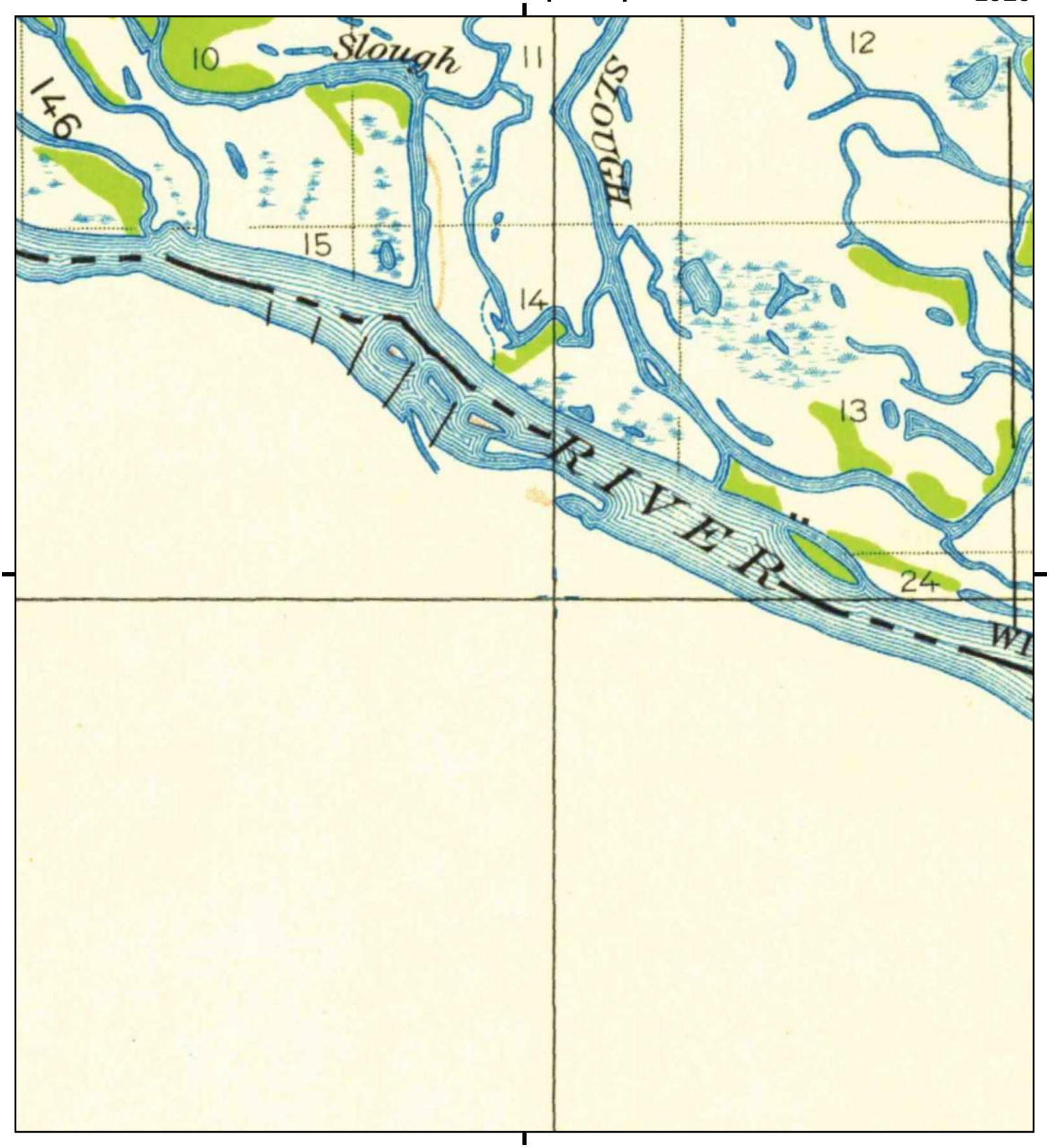
Miles 0.25 0.5 1 1.5

NW N NE
W E
SW SE

TP, Ferryville, 1932, 15-minute

SITE NAME: Lasing Generating Station
ADDRESS: 2364-2366 Power Plant Dr
Lansing, IA 52151
CLIENT: Environmental Site Assessors

N



This report includes information from the following map sheet(s).

Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

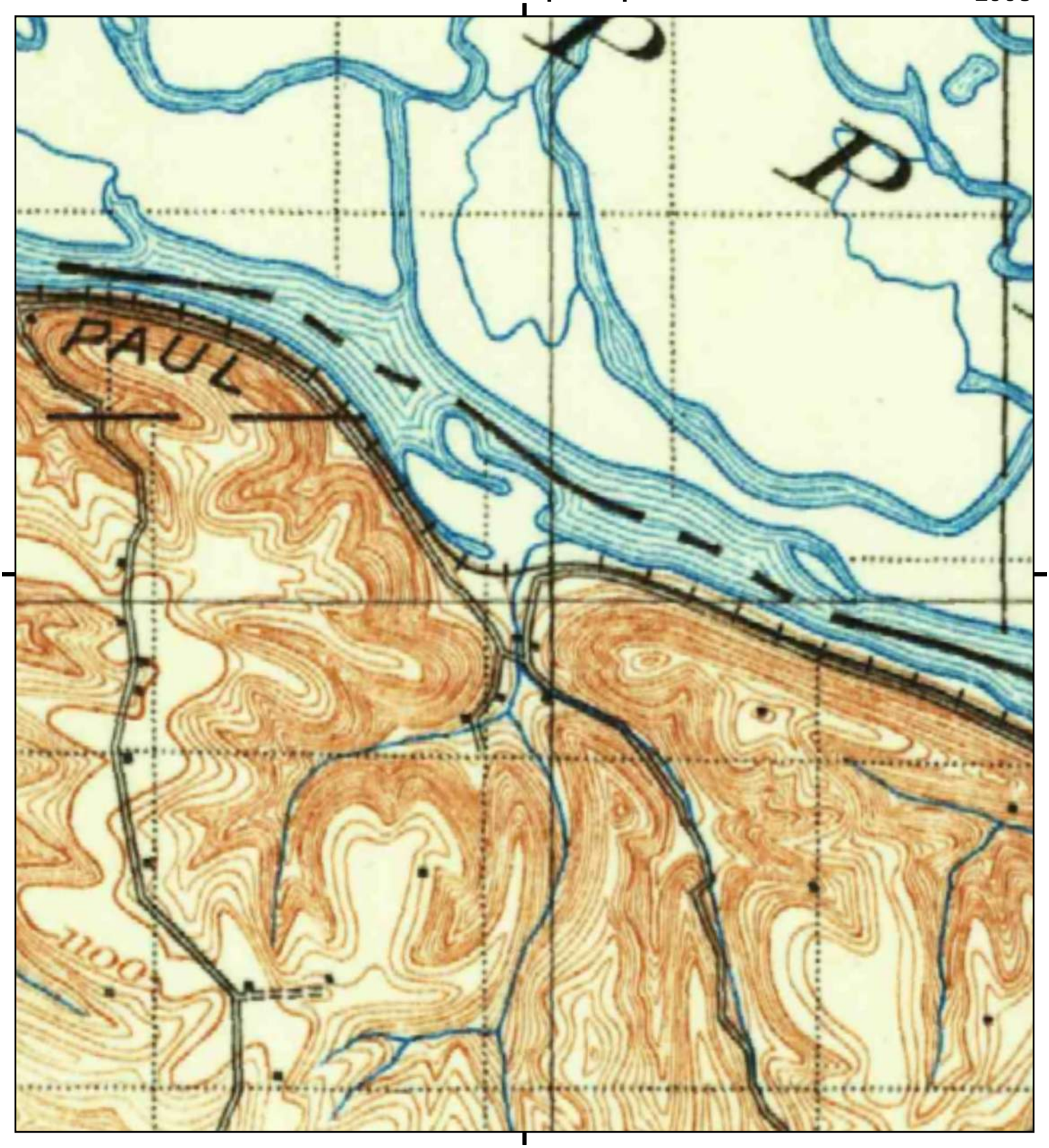
TP, Ferryville, 1929, 15-minute

SITE NAME: Lasing Generating Station
ADDRESS: 2364-2366 Power Plant Dr
Lansing, IA 52151
CLIENT: Environmental Site Assessors

N

Historical Topo Map

1903



This report includes information from the following map sheet(s).

Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Waukon, 1903, 30-minute

SITE NAME: Lasing Generating Station
ADDRESS: 2364-2366 Power Plant Dr
Lansing, IA 52151
CLIENT: Environmental Site Assessors

N

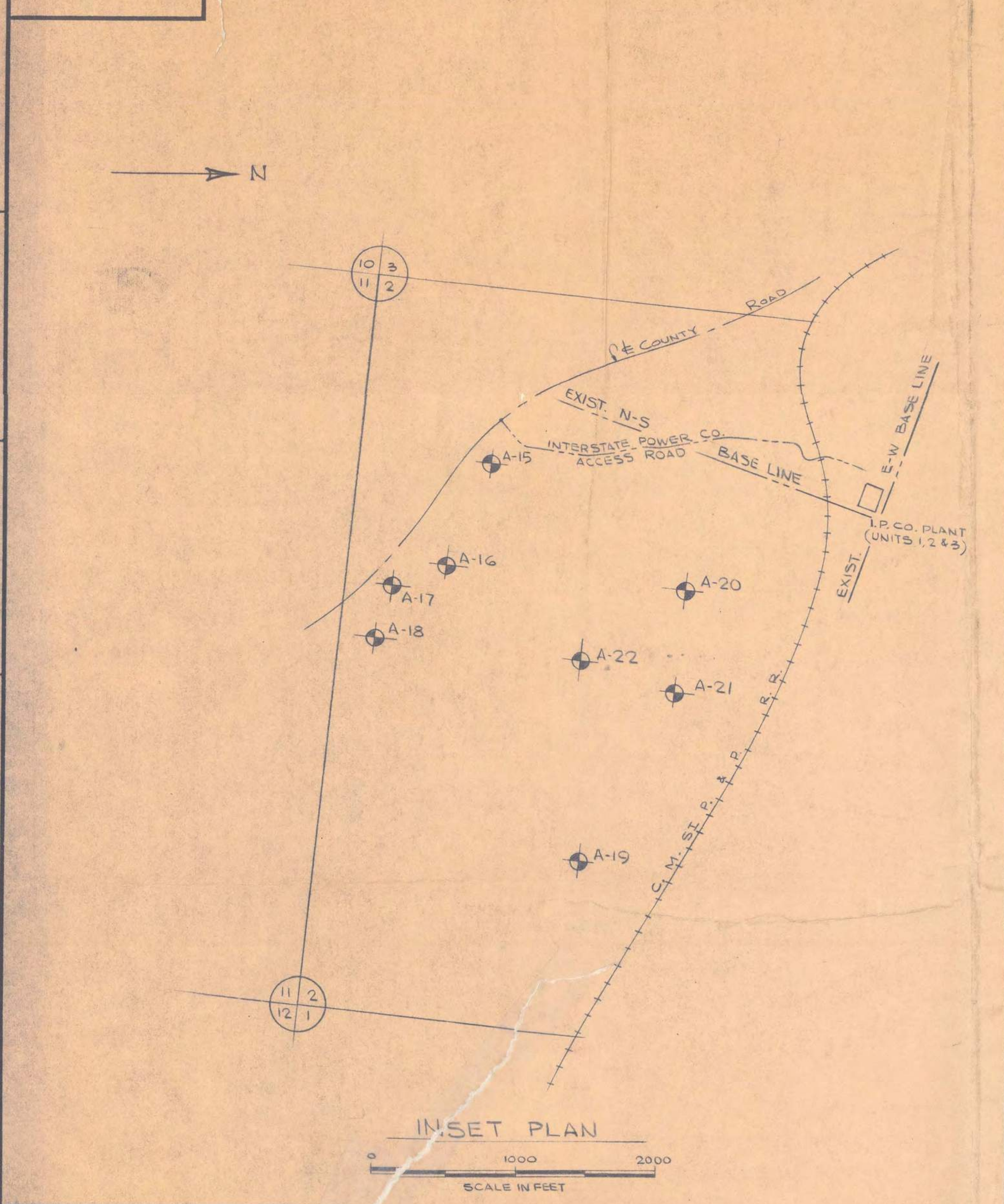
APPENDIX D – Geoprobe Soil Borings - 1973

Alliant Energy
Interstate Power and Light Company
Lansing Generating Station
Lansing, Iowa

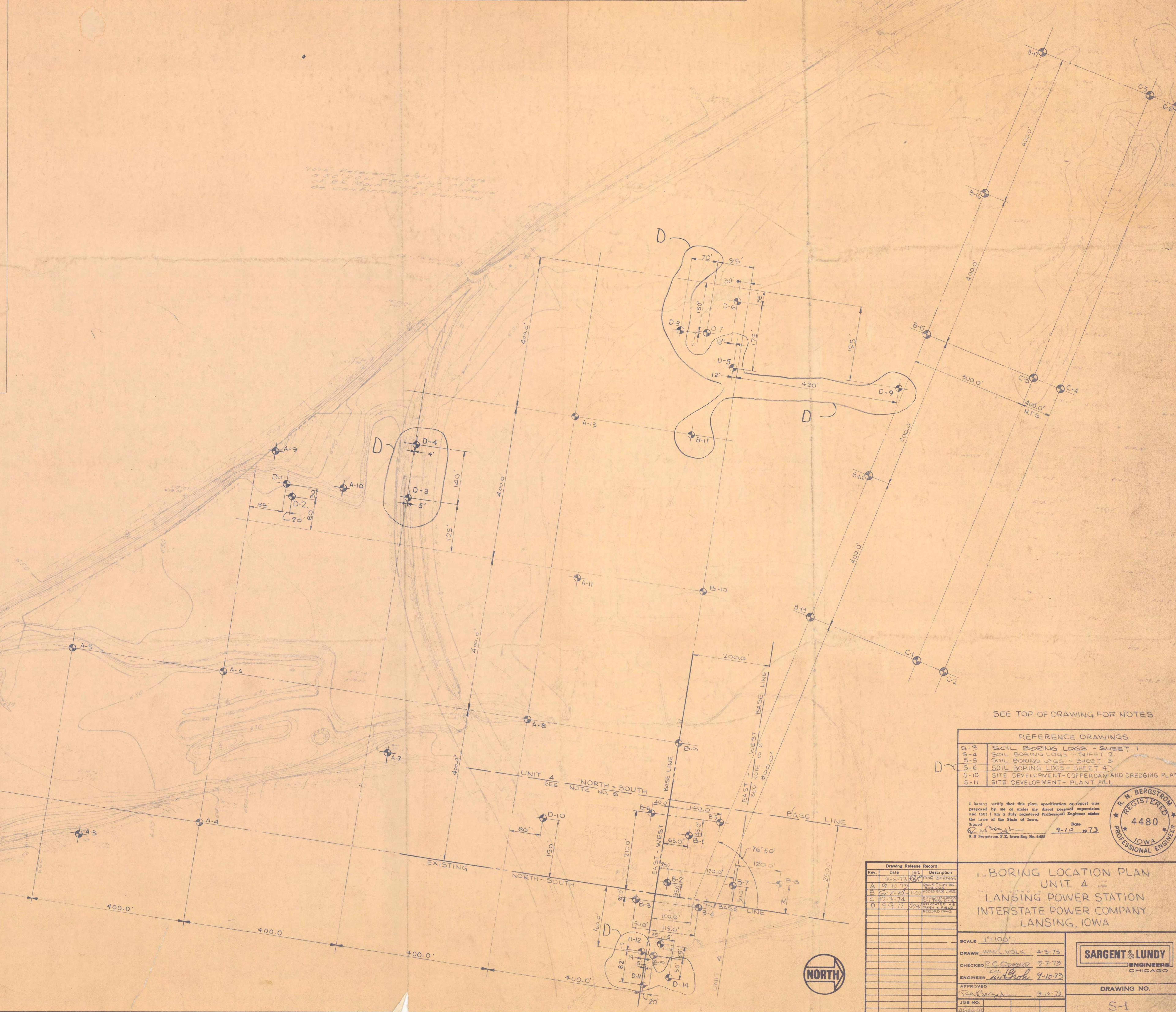
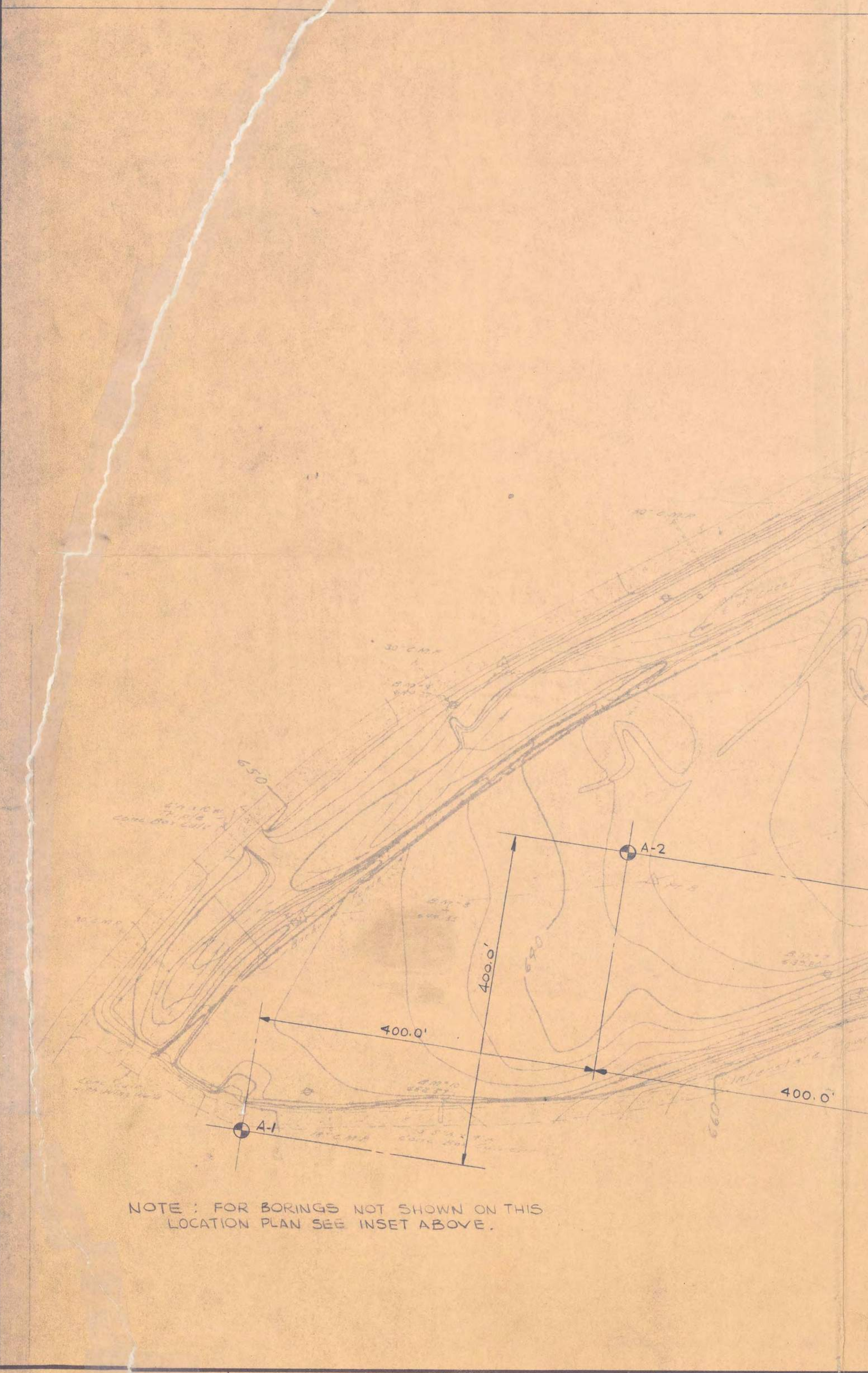
History of Construction

NOTES

1. A-1 THRU A-22 25' MAXIMUM OR TO ROCK.
2. B-1 AND B-2 CORE 10' INTO SOLID ROCK, B-3 THRU B-19 TO ROCK.
3. C-1 THRU C-6 25' MAXIMUM BELOW WATER LEVEL OR TO ROCK.
4. STANDARD PENETRATION TEST BLOW COUNTS AT 5' INTERVALS OR CHANGE IN STRATA SHALL BE PROVIDED FOR EACH SAMPLE OF GRANULAR SOIL ENCOUNTERED.
5. STANDARD PENETRATION TEST BLOW COUNTS, FIELD POCKET PENETROMETER TESTS, AND WATER CONTENT DETERMINATIONS AT 5' INTERVALS OR CHANGE IN STRATA, SHALL BE PROVIDED FOR EACH SAMPLE OF COHESIVE SOIL ENCOUNTERED.
6. THE TYPE, CONSISTENCY, RECOVERY RATIO, ROCK QUALITY DESIGNATION AND LABORATORY UNCONFINED COMPRESSION TESTS ON REPRESENTATIVE ROCK SAMPLES SHALL BE PROVIDED FOR EACH ROCK CORE.
7. OBTAIN REPRESENTATIVE SOIL SAMPLES FROM THE RIVER BOTTOM, BORINGS NO. C-1 THRU C-6 AND THE SOUTHERN HALF OF THE SITE, BORINGS NO. A-1 THRU A-11, A-14, A-15 & A-18. PERFORM MODIFIED PROCTOR DENSITY TESTS AND GRAIN SIZE ANALYSIS ON REPRESENTATIVE SAMPLES.
8. FOR THE COMPLETE UNIT 4 BASE LINE & GRID SYSTEM SEE DWG S-11.
9. D-1 THRU D-14 TO ROCK.



INSET PLAN

NOTE: FOR BORINGS NOT SHOWN ON THIS LOCATION PLAN SEE INSET ABOVE.

SEE TOP OF DRAWING FOR NOTES

REFERENCE DRAWINGS	
S-3	SOIL BORING LOGS - SHEET 1
S-4	SOIL BORING LOGS - SHEET 2
S-5	SOIL BORING LOGS - SHEET 3
S-6	SOIL BORING LOGS - SHEET 4
S-10	SITE DEVELOPMENT - COFFERDAM AND DREDGING PLAN
S-11	SITE DEVELOPMENT - PLANT FILL

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.
Signed [signature] Date 9-10 1973
R. N. Bergstrom, P.E. Iowa Reg No. 4480

R. N. BERGSTROM REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

Drawing Release Record

Rev.	Date	Init.	Description
	4-6-73	RBK	FOR BORINGS
A	9-10-73		DELETED REV. BORINGS
B	6-7-74	FCO	ADDED BASE LINES
C	12-3-74		ADDED BORINGS D-1 THRU D-14
D	9-9-77		RELOCATED AS TAKEN IN FIELD RECORD DWG.

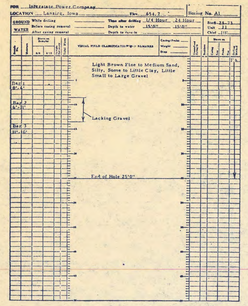
BORING LOCATION PLAN UNIT 4
LANSING POWER STATION
INTERSTATE POWER COMPANY
LANSING, IOWA

SCALE 1" = 100'
DRAWN WM. L. VOLK 4-3-73
CHECKED R. C. ODEGARD 9-7-73
ENGINEER [signature] Groh 9-10-73
APPROVED [signature] 9-10-73
JOB NO. 4644-03

SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-1

BORING A-1



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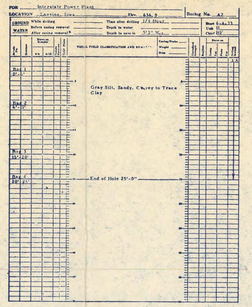

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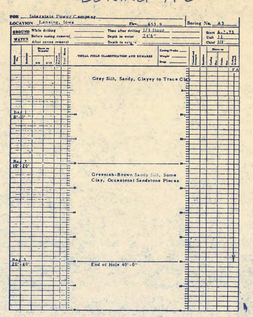
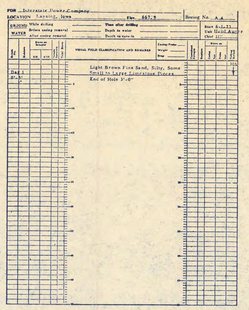
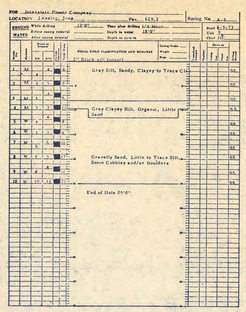


BORING A-4



BORING A-5



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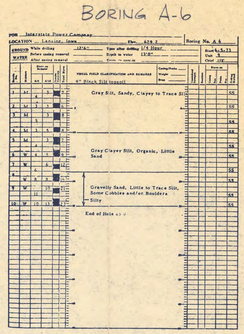
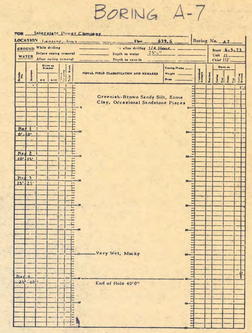
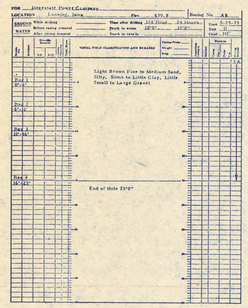


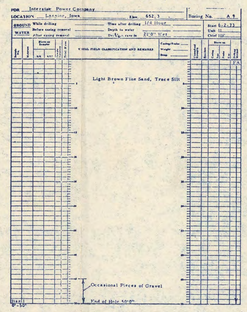
BORING A-7



BORING A-8



BORING A-9



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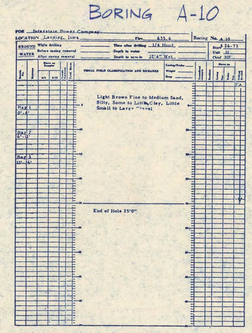

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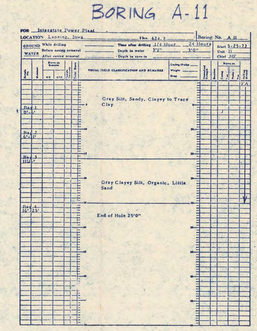

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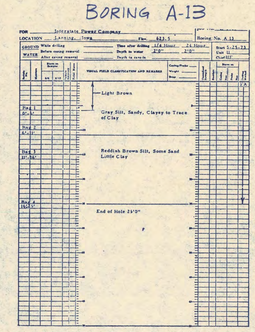

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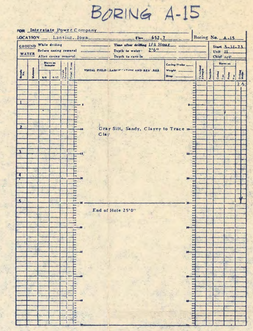

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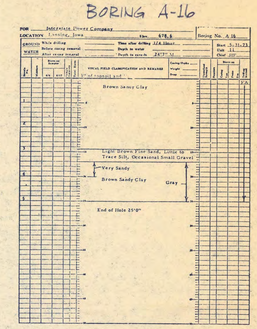

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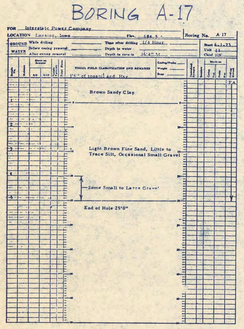

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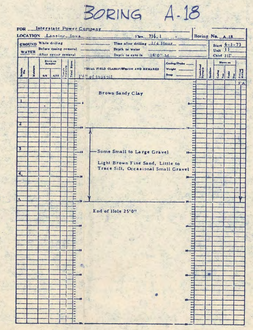

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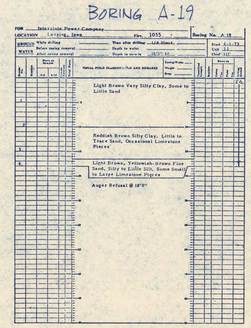

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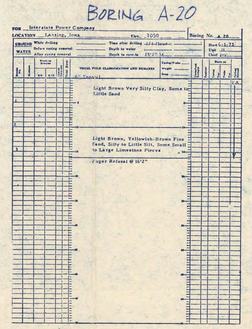

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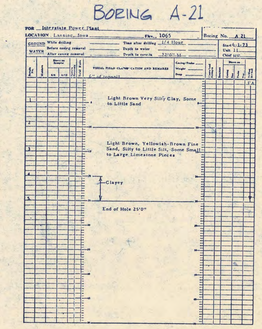

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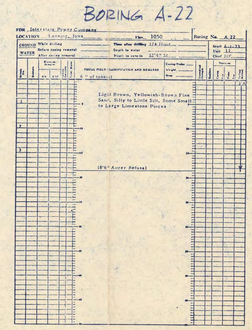

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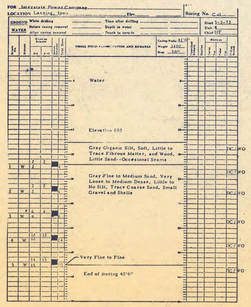

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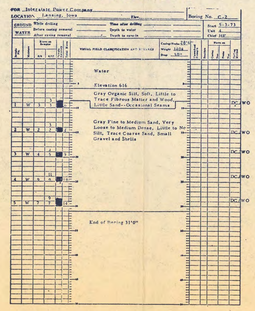

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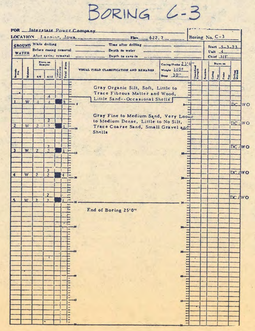

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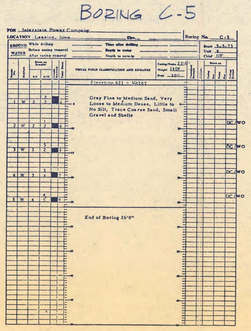
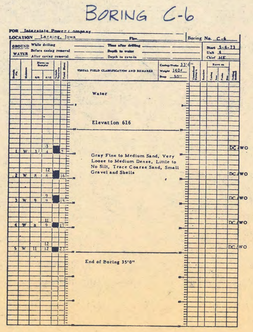
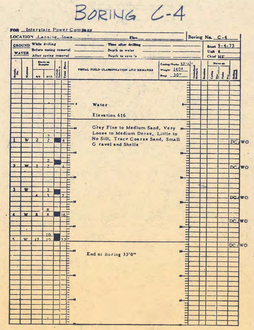


BORING C-6



BORING C-4



REFERENCE
BID SPEC. G-3105
1-21-74

NOTES

1. LEGEND FOR DRILLING METHODS

SS: Split--Spoon--2" O.D.
DC: Drove Casing--2½" I.D., except where noted
WO: Washed Out
RC: Rock Coring
RQD: Rock Quality Designator
FA: Flight Auger
HA: Hand Auger

REFERENCE DRAWINGS

INTERSTATE POWER CO
LANSING PLANT
LANSING IA 52151
ATTN MEL BREESER

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.

Signed _____ Date _____

R. H. Bergstrom, P. E. Iowa Reg. No. 4480

R. H. BERGSTROM REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

Drawing Release Record			
Rev.	Date	Init.	Description
	9-10-73		CONSTR

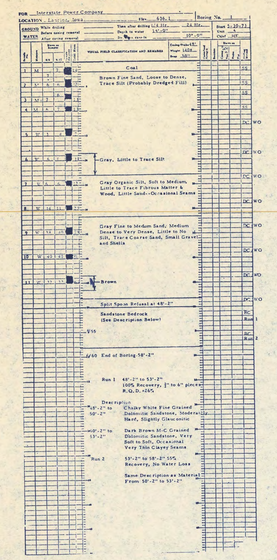
SOIL BORING LOGS
SHEET 1
LANSING POWER STATION
INTERSTATE POWER COMPANY
LANSING, IOWA

SCALE NONE
DRAWN J. CASTRO 8-24-73
CHECKED R.C. OSBORN 9-7-73
ENGINEER R. H. Groh 9-7-73
APPROVED R.C. Osborn 9-10-73
JOB NO. 4644-03

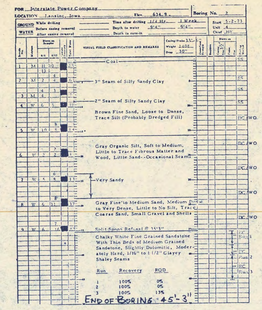
SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-3

Boring B-1



Boring B-2



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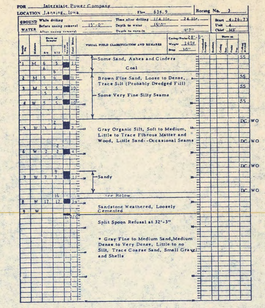

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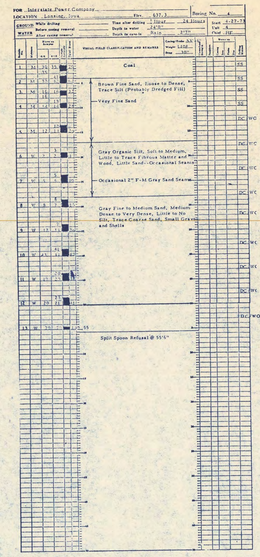

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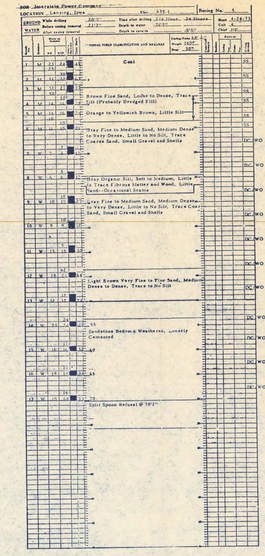

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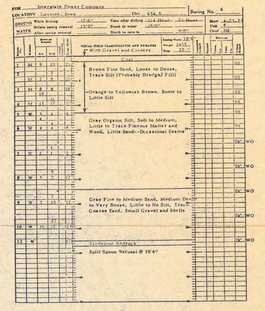
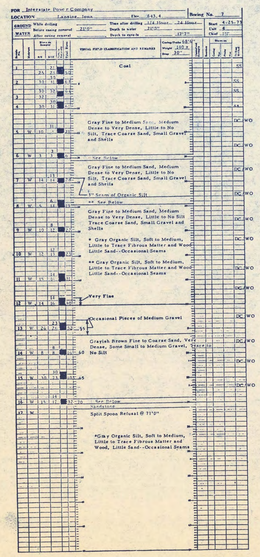
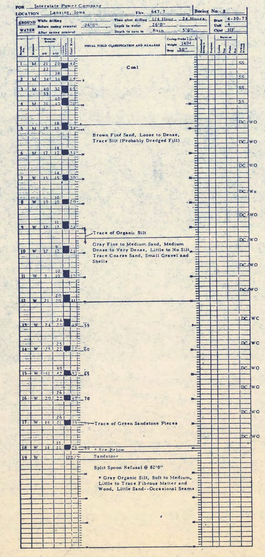


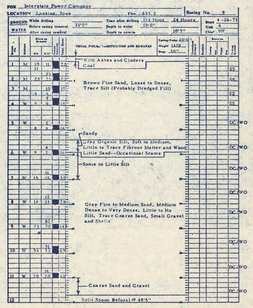
Boring B-7



Boring B-8



Boring B-9



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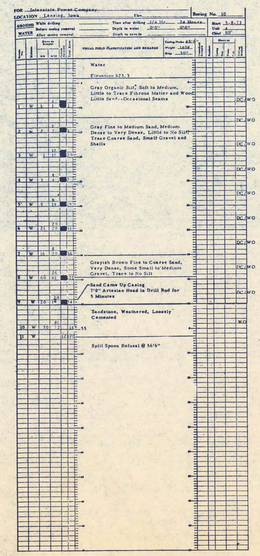

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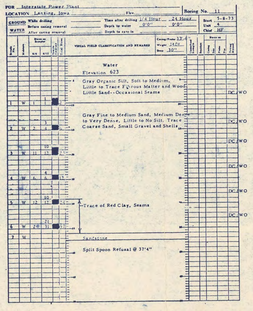


REFERENCE
BID SPEC. G-3105
1-21-74

NOTES

1 LEGEND FOR DRILLING METHODS

SS:	Split--Spoon--2" O.D.
DC:	Drove Casing--2½" I.D., except where noted
WO:	Washed Out
RC:	Rock Coring
RQD:	Rock Quality Designator
FA:	Flight Auger
HA:	Hand Auger

REFERENCE DRAWINGS

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.

Signed _____ Date _____, 19__

E. N. Bergstrom, P. E., Iowa Reg. No. 4480

E. N. BERGSTROM REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

Drawing Release Record			
Rev.	Date	Init.	Description
	9-10-73		Consent

SOIL BORING LOGS
SHEET 2
LANSING POWER STATION
INTERSTATE POWER COMPANY
LANSING, IOWA

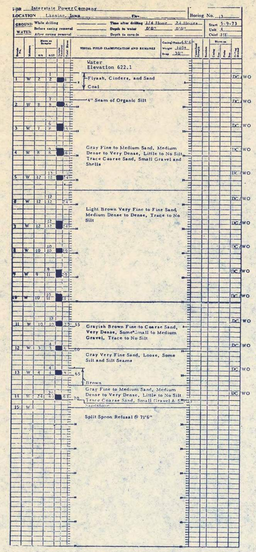
SCALE NONE
DRAWN R MONTGOMERY 8-23-73
CHECKED R.C. OBRIGARD 9-7-73
ENGINEER W.A. Groth 9-7-73
APPROVED R.N. Bergstrom 9-10-73
JOB NO. 4644-08

SARGENT & LUNDY ENGINEERS CHICAGO

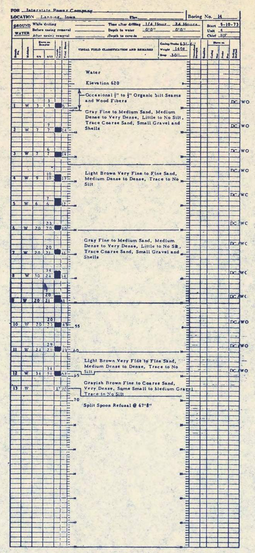
DRAWING NO. S-4

FORMERLY S-3

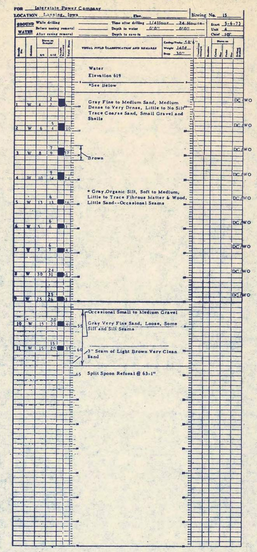
BORING B-13



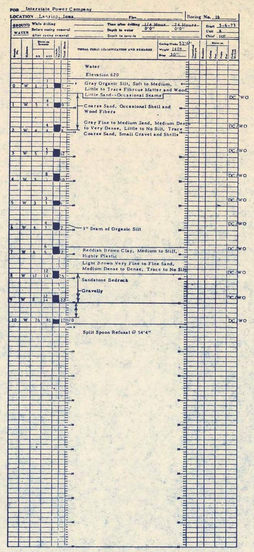
BORING B-14



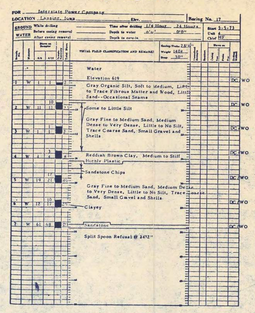
BORING B-15



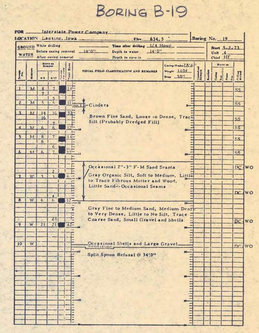
BORING B-16



BORING B-17



BORING B-19



REFERENCE
BID SPEC. G-3105
1-21-74

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R. H. Bergstrom, P. E. Iowa Reg. No. 4480

R. H. BERGSTROM REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

Drawing Release Record			
Rev.	Date	Init.	Description
	5-10-73		CANCEL

SOIL BORING LOGS
SHEET 3
LANSING POWER STATION
INTERSTATE POWER COMPANY
LANSING, IOWA

SCALE NONE
DRAWN J. CASTRO 8-24-73
CHECKED R.C. Odegard 2-7-73
ENGINEER R. A. Gish 2-7-73
APPROVED R. H. Bergstrom 9-10-73
JOB NO. 4644-03

SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-5

2-CC 4

BORING D-1

LOG OF TEST BORING NO. D-1

PROJECT: Interstate Power Company — LOCATION: Lansing, Iowa — CONTRACT NO. C 5766
SURFACE ELEVATION: 631.9 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	5.0	AS			Brown Very Fine SAND, Little Silt
2	10.0	AS			
3	15.0	AS			
4	20.0	AS			Brown Fine SAND, Little To Trace Silt
5	25.0	AS			
6	30.0	AS			Brown Very Fine Silty SAND, Trace Clay
7	35.0	AS			
8	40.0	AS			Gray-Brown Sandy CLAY, Trace Fine Gravel

BORING D-1 CONT'D

LOG OF TEST BORING NO. D-1 Continued

PROJECT: Interstate Power Company — LOCATION: Lansing, Iowa — CONTRACT NO. C 5766

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
9	45.0	AS			Gray-Brown Sandy CLAY, Trace Fine Gravel
10	50.0	AS			Augered Moderately to Hard in Boulders from 54' to 60'; Green-Brown Sandy CLAY, Trace Fine Gravel
11	70.0	AS			Sandstone ROCK; End of Boring

Water Level Observations: 12/11/74, ½ hr, 10'6"; 12/20/74, 2 days, 10'0"
General Notes: Start 12/11/74, Complete 12/11/74; Crew Chief LS; Rig Bombardier; Method IA 0' to 70.5'

BORING D-2

LOG OF TEST BORING NO. D-2

PROJECT: Interstate Power Company — LOCATION: Lansing, Iowa — CONTRACT NO. C 5766
SURFACE ELEVATION: 679.0 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	5.0	AS			Dark Brown Fine SAND, Some to Little Silt
2	10.0	AS			Gray-Brown Silt Seam from 7.5' to 8.5'
3	15.0	AS			Brown Fine SAND, Trace Silt
4	20.0	AS			
5	25.0	AS			Gray-Brown Sandy SILT
6	30.0	AS			
7	35.0	AS			Gray Sandy CLAY, Little to Trace Fine Gravel, Occasional Boulders
8	40.0	AS			

BORING D-2 CONT'D

LOG OF TEST BORING NO. D-2 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
9	45.0	AS			Brown Sandy CLAY, Little Gravel, Occasional Boulders
10	50.0	AS			Dark Gray Sandy Clayey SILT, Trace Gravel, Occasional Boulders
11	55.0	AS			
12	60.0	AS			Brown Fine to Medium SAND, Little Silt, Trace Gravel
13	65.0	AS			
14	70.0	AS			Sandstone ROCK; End of Boring

Water Level Observations: 12/10/74, ½ hr, 5'0"; 12/20/74, 10 days, 3'6"
General Notes: Start 12/10/74, Complete 12/10/74; Crew Chief LS; Rig Bombardier; Method IA 0' to 71'

BORING D-3

LOG OF TEST BORING NO. D-3 (Moved 20' South of railroad tracks)

SURFACE ELEVATION: 679.8 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	5.0	AS			FILL: Fine to Medium SAND, Little to Some Silt, Occasional Gravel, Stone Chips
2	10.0	AS			Gray Fine to Coarse SAND, Little Silt, Occasional Gravel
3	15.0	AS			Black Organic SILT
4	20.0	AS			Sandy from 22.5' to 30'
5	25.0	AS			
6	30.0	AS			Brown Fine SAND, Trace Silt
7	35.0	AS			Brown Sandy SILT, 6"-12" Sand Seams from 38.5' to 40'
8	40.0	AS			

BORING D-3 CONT'D

LOG OF TEST BORING NO. D-3 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
9	45.0	AS			Brown Silty CLAY, Trace Sand and Gravel, Occasional Cobbles and Boulders
10	50.0	AS			Augered Moderate to Hard in Layers from 54' to 76'
11	60.0	AS			
12	76.0	AS			Sandstone ROCK; End of Boring

Water Level Observations: 12/11/74, ½ hr, 7'4"; 12/20/74, 9 days, 7'6"
General Notes: Start 12/11/74, Complete 12/11/74; Crew Chief LP; Rig Bombardier; Method IA 0' to 77.5'

BORING D-4

LOG OF TEST BORING NO. D-4 (Moved 16' South of railroad tracks)

SURFACE ELEVATION: 633.6 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	5.0	AS			Dark Gray Sandy CLAY
2	10.0	AS			Brown Fine to Medium SAND, Trace Coarse Sand, Fine Gravel and Silt
3	15.0	AS			
4	20.0	AS			Brown Fine SAND, Trace Silt
5	25.0	AS			Brown Sandy SILT
6	30.0	AS			
7	35.0	AS			Gray Sandy SILT
8	40.0	AS			

BORING D-4 CONT'D

LOG OF TEST BORING NO. D-4 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
9	45.0	AS			Brown Clayey SAND
10	50.0	AS			Brown Silty CLAY, Little Sand and Fine Gravel; Augered Moderate to Hard in Layers from 50' to 74.5'
11	70.0	AS			
12	75.0	AS			Sandstone ROCK; End of Boring

Water Level Observations: 12/17/74, ½ hr, 9'2"; 12/20/74, 3 days, 9'2"
General Notes: Start 12/17/74, Complete 12/17/74; Crew Chief LP; Rig Bombardier; Method IA 0' to 75.5'

BORING D-5

LOG OF TEST BORING NO. D-5

SURFACE ELEVATION: 635.0 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	2.5	SS	12"	14	Gray-Brown Fine to Medium SAND, Trace Silt
2	5.0	SS	18"	40	
3	7.5	SS	16"	28	
4	10.0	SS	16"	19	
5	12.5	SS	18"	9	
6	15.0	SS	18"	3	Some Wood Chips from 14' to 14.5'
7	20.0	SS	18"	2	Gray Organic Silt
8	25.0	SS	12"	7	Gray Fine to Medium SAND, Little Silt with Occasional 1" to 6" Silt Seams
9	30.0	SS	14"	5	Trace Shells from 32' to 39'
10	35.0	SS	12"	4	
11	40.0	SS	12"	17	

BORING D-5 CONT'D

LOG OF TEST BORING NO. D-5 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
12	45.0	SS	NR/15	15	Occasional 2" to 4" Clay Seams from 39' to 43'
13	50.0	SS	NR/15	12	Gray-Brown Fine to Coarse SAND, Trace Fine Gravel and Silt
14	55.0	SS	NR/18	19	
15	60.0	SS	NR/18	26	Brown Fine Silty SAND and Limestone Chips
16	65.5	SS	12"	87	Casing Drove Hard from 60' to 63.5'
17	70.0	SS	16"	120/10"	Yellow Sandstone ROCK
18	74.0	SS	NR	170/?"	End of Boring

Water Level Observations: While Drilling 12'6"; 12/19/74, ½ hr, 13'6"

BORING D-6

LOG OF TEST BORING NO. D-6

SURFACE ELEVATION: 636.0 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	2.5	SS	12"	11	Gray Fine to Medium SAND, Trace Silt
2	5.0	SS	18"	24	
3	7.5	SS	18"	30	
4	10.0	SS	18"	38	
5	12.5	SS	18"	38	
6	15.0	SS	10"	19	
7	20.0	SS	18"	2	Gray Organic Silt — 0.6 (Pocket Penetrometer)
8	25.0	SS	18"	4	Gray Fine to Medium SAND, Little to Trace Silt With Occasional 1" to 2" Silt Seams
9	30.0	SS	NR/16	17	
10	35.0	SS	NR/16	8	
11	40.0	SS	12"	21	

BORING D-6 CONT'D

LOG OF TEST BORING NO. D-6 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
12	45.0	SS	12"	20	Brown Fine to Coarse SAND, Little Fine to Medium Gravel
13	50.0	SS	NR/16	24	Lost Water at 53.5'; Casing 11 Drove Hard
14	55.0	SS	9"	60/1"	Sandstone ROCK
15	59.0	SS	NR	60/1"	End of Boring

Water Level Observations: While Drilling 13'6"; 12/20/74, ½ hr, 12'6"; 12/21/74, 1 day, 13'
General Notes: Start 12/20/74

BORING D-7

LOG OF TEST BORING NO. D-7

SURFACE ELEVATION: 635.0 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	2.5	SS	12"	6	Dark Gray Fine to Medium SAND, Some Silt
2	5.0	SS	18"	8	Brown Fine to Medium SAND, Trace Silt, Occasional Fine Gravel
3	7.5	SS	12"	6	
4	10.0	SS	18"	5	
5	12.5	SS	18"	6	
6	15.0	SS	18"	8	Dark Gray Fine to Medium SAND, Some Silt, Trace Cinders
7	20.0	SS	18"	2	Gray Organic SILT, Occasional ½" Silty Sand Seams
8	25.0	SS	18"	6	Gray Fine to Medium SAND, Little Silt, Trace Shells
9	30.0	SS	18"	13	
10	35.0	SS	12"	5	
11	40.0	SS	9"	16	

BORING D-7 CONT'D

LOG OF TEST BORING NO. D-7 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
12	45.0	SS		7	Brown Fine to Coarse SAND, Trace Fine Gravel
13	50.0	SS		17	Sand came up casing at 53.5. Had to use drilling mud to wash out
14	55.0	SS		22	
15	60.0	SS	12"	23	Brown Fine Silty SAND and Limestone Chips
16	65.0	SS	12"	39	Casing Drove 100 BPI from 67' to 68.5'
17	68.5	SS		120/1"	End of Boring

Water Level Observations: While Drilling 12'3"

BORING D-8

LOG OF TEST BORING NO. D-8

SURFACE ELEVATION: 633.0 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	2.5	SS	12"	2	Gray Organic SILT
2	5.0	SS	18"	4	
3	7.5	SS	12"	3	
4	10.0	SS	18"	9	Brown Fine to Medium SAND, Trace Silt
5	15.0	SS	9"	6	Gray Fine to Medium SAND, Trace Silt with Occasional Silt Seams, Trace Shells
6	20.0	SS	3"	4	
7	25.0	SS	NR/18	1	Brown Fine to Coarse SAND, Trace Fine Gravel
8	30.0	SS	2"	2	Lost "fines" from Samples No. 8-10
9	35.0	SS	2"	9	
10	40.0	SS	2"	10	

BORING D-8 CONT'D

LOG OF TEST BORING NO. D-8 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
11	45.0	SS	12"	82	Brown Fine Silty SAND, Some Fine to Large Gravel and Limestone Chips, Trace Clay
12	50.0	SS	3"	7	Gray Sandy SILT
13	55.0	SS		60/3"	Sandstone ROCK
14	58.5	SS		100/1"	End of Boring

Water Level Observations: 12/19/74, ½ hr, 2'6"; 12/20/74, 2 day, 1'6"
General Notes: Start 12/18/74, Complete 12/18/74; Crew Chief LS; Rig Bombardier; Method CS 0' to 10', HSA 10' to 58.5'

BORING D-9

LOG OF TEST BORING NO. D-9 (Moved 40' South to shore)

SURFACE ELEVATION: 623.1 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
					Crushed Limestone Fine to Medium SAND
1	5.0	AS			Gray Silty CLAY, Slightly Organic
2	10.0	AS			
3	15.0	AS			Gray Fine to Medium SAND, Little Silt
4	20.0	AS			
5	25.0	AS			
6	30.0	AS			Brown Fine to Medium SAND, Trace Silt
7	35.0	AS			
8	40.0	AS			Gray Fine to Medium SAND, Trace Silt

BORING D-9 CONT'D

LOG OF TEST BORING NO. D-9 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
9	45.0	AS			Red-Brown Sandy CLAY, Occasional Fine Gravel
10	50.0	AS			Gray Sandy Silt
11	70.0	AS			Brown Silty SAND, Little Fine to Large Gravel and Cobbles, Trace CLAY; Augered Moderate to Hard in Layers from 68' to 80.5'

BORING D-9 CONT'D

LOG OF TEST BORING NO. D-9 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
12	83.5	AS			Sandstone ROCK, Augered Hard; End of Boring

Water Level Observations: 12/12/74, ½ hr, 2'4"; 12/20/74, 8 day, 1'6"
General Notes: Start 12/12/74, Complete 12/12/74; Crew Chief LP; Rig Bombardier; Method IA 0' to 83.5'

BORING D-10

LOG OF TEST BORING NO. D-10

SURFACE ELEVATION: 635.0 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	5.0	AS			Brown Clayey SILT
2	10.0	AS			Green-Brown Dolomitic Sandstone ROCK; End of Boring; Auger Refusal

* Crushed Stone

Water Level Observations: 12/12/74, ½ hr, 10'
General Notes: Start 12/12/74, Complete 12/12/74; Crew Chief LP; Rig Bombardier; Method IA 0' to 10'

BORING D-11

LOG OF TEST BORING NO. D-11 (Moved 12' East)

SURFACE ELEVATION: Not Given — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
	0'				WATER
1	2.5	SS	12"	2	Gray Fine to Medium SAND, Trace Coarse Sand and Silt
2	5.0	SS	9"	3	
3	7.5	SS	18"	2	
4	10.0	SS	12"	4	Clayey at 10'
5	15.0	SS	12"	8	
6	20.0	SS	18"	3	Gray Organic SILT — 0.2 Pocket Penetrometer
7	25.0	SS	6"	60/6"	Sandstone ROCK; End of Boring

Water Level Observations: 12/30/74, ½ hr, 0'
General Notes: Start 12/30/74, Complete 12/30/74; Rig Bombardier; Method CS 0' to 10', HSA 10' to 26'

BORING D-12

LOG OF TEST BORING NO. D-12 (Moved 16' North to avoid underground utilities)

SURFACE ELEVATION: 635.0 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	2.5	SS	18"	25	Gray Fine to Medium SAND, Trace Silt
2	5.0	SS	18"	26	
3	7.5	SS	18"	21	(Continuous Sampled to Check for Utilities)
4	10.0	SS	18"	12	
5	15.0	AS			
6	20.0	AS			Gray Organic SILT
7	25.0	AS			
8	30.0	AS			Gray Fine SAND, Little Silt
9	35.0	AS			Gray-Green Sandy CLAY, Trace Gravel and Limestone Chips (Possibly ROCK); Augered Hard from 33.5' to 42'

BORING D-12 CONT'D

LOG OF TEST BORING NO. D-12 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
10	42.0	AS			Gray-Green Sandy CLAY, Trace Gravel and Limestone Chips; End of Boring

Water Level Observations: 12/17/74, ½ hr, 13'9"; 12/20/74, 3 day, 12'6"
General Notes: Start 12/17/74, Complete 12/17/74; Crew Chief LS; Rig Bombardier; Method CS 0' to 10', IA 10' to 42'

BORING D-13

LOG OF TEST BORING NO. D-13

SURFACE ELEVATION: 635.0 — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
1	5.0	AS			Brown Fine to Medium SAND, Trace Silt
2	10.0	AS			
3	15.0	AS			
4	20.0	AS			Gray Organic Silt, Occasional Silty Sand Seams
5	25.0	AS			
6	30.0	AS			Gray Fine to Medium SAND, Little to Trace Silt
7	35.0	AS			
8	40.0	AS			Gray-Green Sandy CLAY and Limestone Chips (Possible ROCK)

BORING D-13 CONT'D

LOG OF TEST BORING NO. D-13 Continued

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
9	42.5	AS			Gray-Green Sandy CLAY and Limestone Chips, Augered Hard from 38' to 42.5'; End of Boring

Water Level Observations: 12/18/74, ½ hr, 13'6"; 12/20/74, 2 day, 12'0"
General Notes: Start 12/18/74, Complete 12/18/74; Crew Chief LS; Rig Bombardier; Method IA 0' to 42.5'

BORING D-14

LOG OF TEST BORING NO. D-14 (Moved 10' East)

SURFACE ELEVATION: Not Given — REFERENCE DATUM: Not Given

No.	Depth in Feet	Type	Rec.	N	Visual Classification and Remarks
					WATER
	11.0				Gray Fine SAND, Little Silt and Pieces of Coal
1	15.0	SS	12"	12	
2	20.0	SS	12"	36	Gray Fine to Medium SAND, Little to Trace Silt
3	25.0	SS	12"	28	
4	30.0	SS	9"	33	Yellow and Green Dolomitic Sandstone Rock
5	33.5	SS		60/4"	End of Boring

Water Level Observations: 12/31/74, ½ hr, 0'
General Notes: Start 12/31/74, Complete 12/31/74; Crew Chief JVS; Rig Bombardier; Method HSA 0' to 33.5'

GENERAL NOTES

1. DRILLING AND SAMPLING SYMBOLS

- SS — 2" Diameter Split-Barrel Sample
- 2ST — 2" Diameter Thin-Walled Tube Sample
- 3ST — 3" Diameter Thin-Walled Tube Sample
- PT — 3" Diameter Piston Tube Sample
- AS — Auger Sample
- WS — Wash Sample
- PTS — Peat Sample
- PS — Pitcher Sample
- NR — No Recovery
- S — Sounding
- PMT — Borehole Pressuremeter Test
- VS — Vane Shear Test
- WPT — Water Pressure Test

REFERENCE DRAWINGS

S-1 BORING LOCATION PLAN - UNIT 4

I hereby certify that this plan, specification or report was prepared by me or under my direct personal supervision and that I am a duly registered Professional Engineer under the laws of the State of Iowa.
Signed R.N. Bergstrom — Date 9-9-1977
R.N. Bergstrom, P.E., Iowa Reg. No. 4480

R. N. BERGSTROM REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

DRAWING RELEASE RECORD

REV.	SPEC. NO.	DATE	DRAWN	CHECKED	ENGR. APPROVAL	DESCRIPTION	FILM
A	G-3105		Wm. Volk	JDVoss		RECORD DRAWING	

DRAWN: WM. L. VOLK 1-22-75 — SCALE: NONE
CHECKED: 9-9-77 — ENGINEER: 9-9-77 — APPROVED: R.N. Bergstrom 9-9-77
PROJECT NUMBER 4644-03

SOIL BORING LOGS SHEET 4
LANSING POWER STATION
INTERSTATE POWER COMPANY
LANSING, IOWA

SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-6 — REV. A

DO NOT USE I, O, Q OR X FOR REVISION

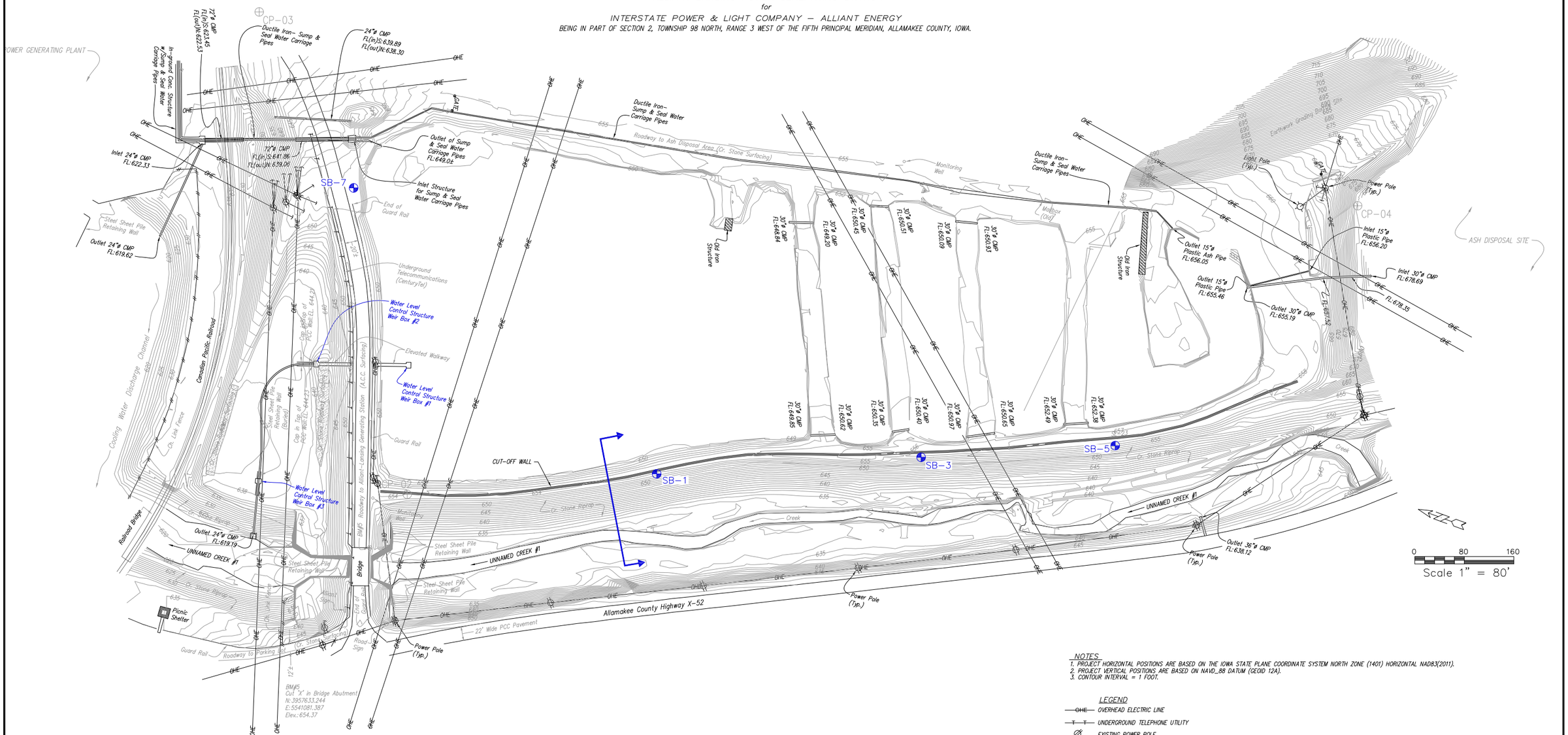
2-CC 4

APPENDIX E – Geoprobe Soil Borings - 2015

Alliant Energy
Interstate Power and Light Company
Lansing Generating Station
Lansing, Iowa

History of Construction

UPPER AND LOWER CCR POND TOPOGRAPHIC SURVEY AND LOWER CCR POND BATHYMETRY
at
ALLIANT LANSING POWER GENERATING STATION
for
INTERSTATE POWER & LIGHT COMPANY – ALLIANT ENERGY
BEING IN PART OF SECTION 2, TOWNSHIP 98 NORTH, RANGE 3 WEST OF THE FIFTH PRINCIPAL MERIDIAN, ALLAMAKEE COUNTY, IOWA.



NOTES
1. PROJECT HORIZONTAL POSITIONS ARE BASED ON THE IOWA STATE PLANE COORDINATE SYSTEM NORTH ZONE (1401) HORIZONTAL NAD83(2011).
2. PROJECT VERTICAL POSITIONS ARE BASED ON NAVD_88 DATUM (GEOID 12A).
3. CONTOUR INTERVAL = 1 FOOT.

LEGEND
- OHE — OVERHEAD ELECTRIC LINE
- T T — UNDERGROUND TELEPHONE UTILITY
- EXISTING POWER POLE
- SB — SOIL BORING LOCATION
- ANALYSIS CROSS-SECTION

NOTE:
1. SURVEY INFORMATION PROVIDED ABOVE WAS COMPILED BY MOHN SURVEYING, INC. 1890 GREAT RIVER ROAD LANSING, IOWA 52151, APRIL 2015.
2. ALLIANT ENERGY REQUIRES 20 FEET OVERHEAD SEPARATION DISTANCE FOR EQUIPMENT OPERATING UNDER POWERLINES.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1				

SCALE: AS SHOWN | DATE: 5-19-16
DRAWN BY: JFD | CHECKED BY: CTS | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SOIL BORING AND
SLOPE STABILITY CROSS-SECTION LOCATION

JOB 154.018.012.002
SHT. FIGURE 2
DWG. 154.018.012.002-D2

BORING LOG

CABENO Environmental Field Services, LLC
More Than Just A Probing Company

CLIENT: Hard Hat

COORDINATES: *N NOT SURVEYED* *E NOT SURVEYED*

PROJECT: Lansing, IA

BORING NO.: *SB1*

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Mark Loerop*
DATE BEGAN: *1/22/15*
DATE FINISHED: *1/2213/15*
GROUND SURFACE ELEVATION: *NOT MEASURED*

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	SAMPLE INFROMATION BLOW COUNTS	N-VALUE	SOIL CONSISTENCY HISTOGRAM	DEPTH IN FEET	PROFILE	DESCRIPTION
▽	SS1	18"	4 4 5	9.0		0		SILT; brown; plastic; moist; trace clay
	SS2	18"	4 5 10	15.0		-2		
	SS3	18"	3 6 9	15.0		-4		SAND; brown; fine grained; poorly graded; well sorted; dry to moist
	SS4	18"	7 9 11	20.0		-6		1'-5' sample collected for geotech analysis
	SS5	18"	7 10 13	23.0		-8		
	SS6	18"	7 11 18	29.0		-10		@ 9'2" black stained with plant matter
	SS7	18"	8 11 14	25.0		-12		
	SS8	18"	8 11 13	24.0		-14		SAND; gray; fine to medium grained; moist; graded; trace gravel and snail shells
	SS9	18"	8 11 11	22.0		-16		
	SS10	18"	4 7 7	14.0		-18		@ 15' grades wet
	SS11	18"	2 3 6	8.0		-20		15'-20' sample collected for geotech analysis
	SS12	18"	0 0 0	0.0		-22		@17.5' grades brown
	SS13	18"	0 0 0	0.0		-24		
	SS14	18"	1 1 2	3.0		-26		@23.5' grades fine to coarse, well graded
	SS15	18"	3 4 4	8.0		-28		SILT; gray; non plastic; wet; trace clay
	SS16	18"	0 9 11	20.0		-30		28'-32' sample collected for geotech analysis
	SS17	18"	5 11 10	21.0		-32		@29' grades trace plant matter and snail shells
	SS18	18"	4 5 7	12.0		-34		
	SS19	18"	3 4 8	12.0		-36		
						-38		GRAVEL; brown; coarse; poorly graded; wet; trace cobbles
						-40		40'-50' sample collected for geotech analysis
						-42		
						-44		
						-46		
						-48		SAND; light gray; coarse grained; poorly graded; wet
						-50		
						-52		Bottom of boring @ 50' 1" PVC temp well installed @ 50'. 10' screen, natural sand pack
						-54		

BORING LOG

CABENO Environmental Field Services, LLC
More Than Just A Probing Company

CLIENT: Hard Hat

COORDINATES: *N NOT SURVEYED* *E NOT SURVEYED*

PROJECT: Lansing, IA

BORING NO.: *SB3*

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Mark Loerop*
DATE BEGAN: *1/22/15*
DATE FINISHED: *1/22/15*
GROUND SURFACE ELEVATION: *NOT MEASURED*

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	SAMPLE INFROMATION BLOW COUNTS	N-VALUE	SOIL CONSISTENCY HISTOGRAM	DEPTH IN FEET	PROFILE	DESCRIPTION
▽	SS1	18"	6 7 7	14.0		0		SILT; gray to black; non plastic; moist; some bottom ash
	SS2	18"	4 9 10	19.0		-2		SAND; brown; fine grained; poorly graded; moist
	SS3	18"	5 10 19	29.0		-4		2'-5' sample collected for geotech analysis
	SS4	18"	7 13 16	29.0		-6		
	SS5	18"	6 12 17	29.0		-8		
	SS6	18"	6 12 16	28.0		-10		13'-20' sample collected for geotech analysis
	SS7	18"	12 21 21	42.0		-12		@13.5' grades wet and trace snail shells
	SS8	18"	8 12 15	27.0		-14		
	SS9	18"	8 19 21	40.0		-16		@16' grades fine to medium grained; graded
	SS10	18"	8 5 6	11.0		-18		
	SS11	18"	6 8 15	23.0		-20		
	SS12	18"	5 5 10	15.0		-22		
	SS13	18"	3 1 1	2.0		-24		24'-27' sample collected for geotech analysis
	SS14	18"	6 10 10	20.0		-26		SILT; gray; non plastic to low plasticity; wet; some clay; trace organic plant matter
	SS15	18"	4 6 12	18.0		-28		GRAVEL; gray; coarse to cobbles; poorly graded; wet; trace to some sand
	SS16	18"	10 9 7	16.0		-30		27'-32' sample collected for geotech analysis
	SS17	18"	6 8 10	18.0		-32		SILT; gray to black; non plastic; wet; trace to some clay and organic plant matter
	SS18	18"	22 24 21	45.0		-34		GRAVEL; gray; coarse to cobbles; poorly graded; wet; trace to some sand
	SS19	18"	10 10 12	22.0		-36		
	SS20	18"	14 9 12	21.0		-38		
						-40		
						-42		
						-44		
						-46		
						-48		
						-50		Bottom of boring @ 50'
						-52		1" PVC temp well installed @ 50'.
						-54		10' screen, natural sand pack

BORING LOG

CABENO Environmental Field Services, LLC
More Than Just A Probing Company

CLIENT: Hard Hat

COORDINATES: *N NOT SURVEYED* *E NOT SURVEYED*

PROJECT: Lansing, IA

BORING NO.: *SB5*

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Mark Loerop*
DATE BEGAN: *1/23/15*
DATE FINISHED: *1/23/15*
GROUND SURFACE ELEVATION: *NOT MEASURED*

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	SAMPLE INFROMATION BLOW COUNTS	N-VALUE	SOIL CONSISTENCY HISTOGRAM	DEPTH IN FEET	PROFILE	DESCRIPTION
▽	SS1	18"	4 4 3	7.0		0		SILT; black; non plastic; dry to moist
	SS2	18"	5 7 12	19.0		-2		SAND; brown; fine grained; poorly graded; moist; trace to some bottom ash
	SS3	18"	5 13 19	32.0		-4		5' bottom ash grades out
	SS4	18"	5 13 15	28.0		-6		
	SS5	18"	5 11 13	24.0		-8		
	SS6	18"	6 12 16	28.0		-10		10'-16' sample collected for geotech analysis
	SS7	18"	12 14 17	31.0		-12		@12' grades wet and trace snail shells
	SS8	18"	3 2 2	4.0		-14		
	SS9	18"	4 4 4	8.0		-16		@ 16' grades gray to olive
	SS10	18"	14 9 2	11.0		-18		
	SS11	18"	2 2 4	6.0		-20		Silty CLAY; black to dark gray; low plasticity; moist; trace fine sand and organic plant matter
	SS12	18"	6 7 8	15.0		-22		18.5'-20' sample collected for geotech analysis
	SS13	18"	9 10 10	20.0		-24		SAND & GRAVEL; black; fine to coarse; well graded; wet; trace to some silt
	SS14	18"	10 36 8	44.0		-26		22'-27.5' sample collected for geotech analysis
	SS15	18"	15 12 9	21.0		-28		
	SS16	18"	20 14 14	28.0		-30		
	SS17	18"	11 12 18	30.0		-32		
	SS18	18"	17 14 15	29.0		-34		
	SS19	18"	13 14 17	31.0		-36		
	SS20	18"	18 19 24	43.0		-38		
						-40		40'-45' sample collected for geotech analysis
						-42		
						-44		@43.5' grades brown
						-46		
						-48		
						-50		Bottom of boring @ 50'
						-52		1" PVC temp well installed @ 50'.
						-54		10' screen, natural sand pack

BORING LOG

CABENO Environmental Field Services, LLC
More Than Just A Probing Company

CLIENT: Hard Hat

COORDINATES: *N NOT SURVEYED* *E NOT SURVEYED*

PROJECT: Lansing, IA

BORING NO.: *SB7*

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Mark Loerop*
DATE BEGAN: *1/23/15*
DATE FINISHED: *1/23/15*
GROUND SURFACE ELEVATION: *NOT MEASURED*

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	SAMPLE INFROMATION BLOW COUNTS	N-VALUE	SOIL CONSISTENCY HISTOGRAM	DEPTH IN FEET	PROFILE	DESCRIPTION
▽	SS1	18"	3 2 2	4.0		0		Bottom ASH; black; fine grained; poorly graded
	SS2	18"	9 11 19	20.0		-2		SAND; brown; fine grained; poorly graded; moist
	SS3	18"	4 5 13	18.0		-4		
	SS4	18"	7 14 18	32.0		-6		4'-10' sample collected for geotech analysis
	SS5	18"	5 11 20	31.0		-8		
	SS6	18"	8 15 20	35.0		-10		
	SS7	18"	7 12 14	26.0		-12		
	SS8	18"	7 9 14	23.0		-14		
	SS9	18"	11 13 17	30.0		-16		@16' grades wet
	SS10	18"	8 12 14	26.0		-18		
	SS11	18"	2 3 3	6.0		-20		19'-25' sample collected for geotech analysis
	SS12	18"	1 1 1	2.0		-22		@ 21' grades gray
	SS13	18"	3 3 6	9.0		-24		
	SS14	18"	2 3 4	7.0		-26		
	SS15	18"	1 2 2	4.0		-28		
	SS16	18"	0 0 0	0.0		-30		SILT; black to gray; no plasticity; moist to wet; trace clay
	SS17	18"	2 3 4	7.0		-32		29'-32.5' sample collected for geotech analysis
	SS18	18"	3 2 2	4.0		-34		
	SS19	18"	8 4 7	11.0		-36		36'-40' sample collected for geotech analysis
	SS20	18"	2 8 9	17.0		-38		
						-40		
						-42		@ 41' grading trace organic plant matter and trace intermittent 1/16" sand seams
						-44		@ 44' is a thin, 1" gravel seam
						-46		
						-48		GRAVEL; brown; coarse; poorly graded; wet; trace to some silt and sand 46'-50' sample collected for geotech analysis last spoon blocked with large gravel
						-50		
						-52		Bottom of boring @ 50' 1" PVC temp well installed @ 50'. 10' screen, natural sand pack
						-54		

APPENDIX F – Laboratory Testing on CCR Embankment Soils - 2015

Alliant Energy
Interstate Power and Light Company
Lansing Generating Station
Lansing, Iowa

History of Construction

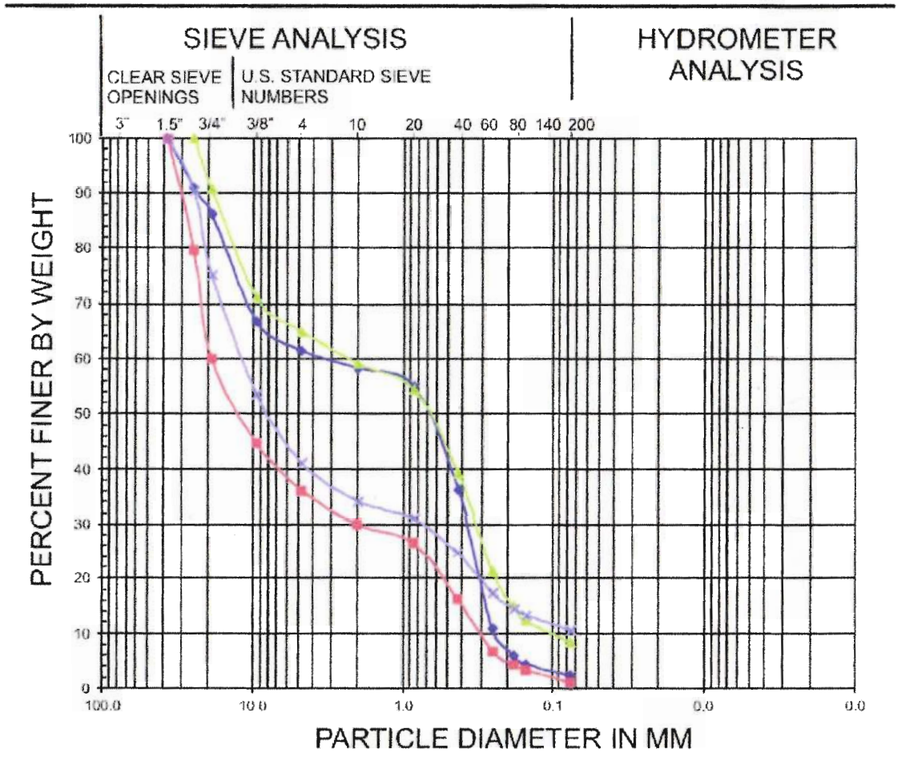
APPENDIX B

UPDATE TO ADD SB-7
SEPARATE 8½x11

HARD HAT SERVICES
Engineering, Construction and Management Solutions

Particle Size Distribution

Project: IPL Lansing Generating Station — Tested By: Test America — Date: 2/3/2015
Boring No.: SB-1, SB-3 & SB-5 **"SAND & GRAVEL"**



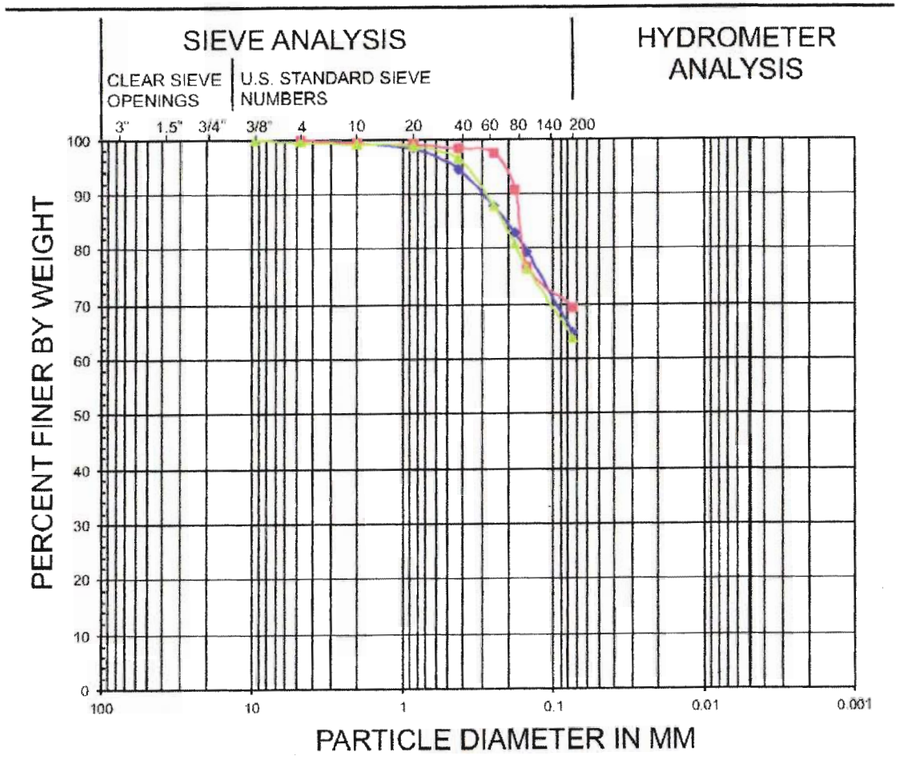
COBBLES	GRAVEL		SAND			SILT AND CLAY FRACTION
	coarse	fine	coarse	medium	fine	

SYMBOL	BORING	DEPTH (FT.)	SOIL DESCRIPTION	U.S.C.S.	W %
	SB-1	40 - 50	SAND & GRAVEL	SW / GW	16.5
	SB-3	27 - 32	SAND & GRAVEL	SW / GW	13.4
	SB-5	22 - 27.5	SAND & GRAVEL	SW / GW	32.1
	SB-5	44 - 45	SAND & GRAVEL	SW / GW	9.8

HARD HAT SERVICES
Engineering, Construction and Management Solutions

Particle Size Distribution

Project: IPL – Lansing Generating Station — Tested By: Test America — Date: 2/3/2015
Boring No.: SB-1, SB-3 & SB-5 **"SANDY SILT"**



COBBLES	GRAVEL		SAND			SILT AND CLAY FRACTION
	coarse	fine	coarse	medium	fine	

SYMBOL	BORING	DEPTH (FT.)	SOIL DESCRIPTION	U.S.C.S.	L.L.	P.L.	W %
	SB-1	28 - 32	Sandy Silt	ML	28	26	36.1
	SB-3	24.5 - 27	Sandy Silt	ML	27	23	25.4
	SB-5	18.5 - 20	Sandy Silt	ML	24	20	21.8

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
PARTICLE SIZE DISTRIBUTION
SB-1 & SB-3

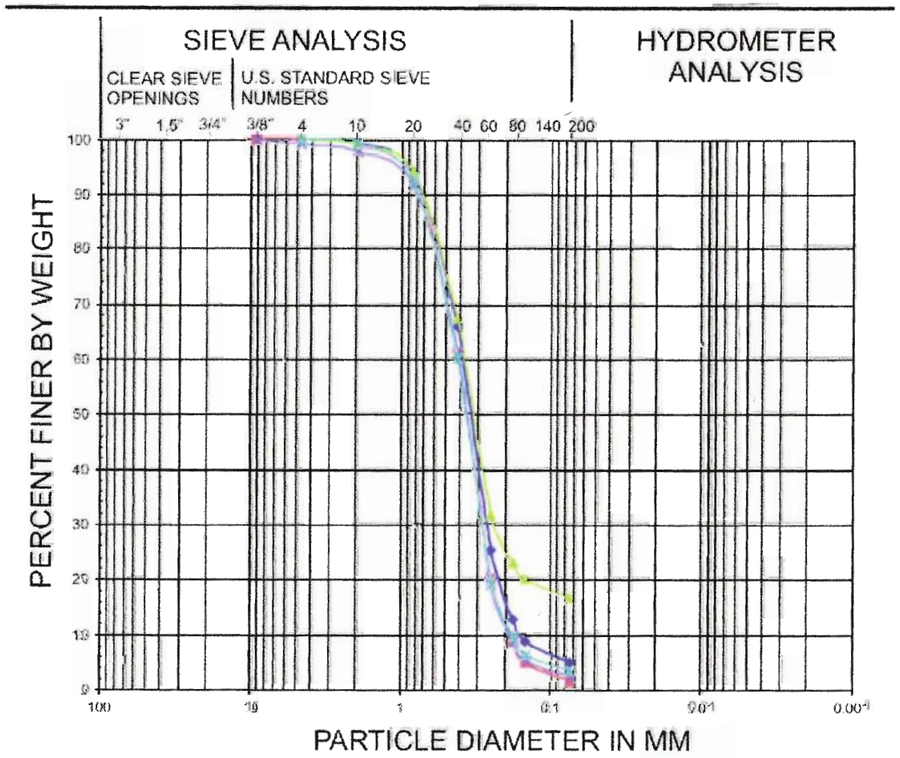
JOB 154.021.003
SHT. 8
DWG. 154021SW-08-12

APPENDIX B
UPDATE TO ADD SB-7
SEPARATE 8½x11

HARD HAT SERVICES
Engineering, Construction and Management Solutions

Particle Size Distribution

Project: IPL Lansing Generating Station — Tested By: Test America — Date: 2/3/2015
Boring No.: SB-1, SB-3 & SB-5 "UPPER SAND"



COBBLES	GRAVEL		SAND			SILT AND CLAY FRACTION
	coarse	fine	coarse	medium	fine	

SYMBOL	BORING	DEPTH (FT.)	SOIL DESCRIPTION	U.S.C.S.	W%
	SB-1	1 - 5	Medium - Fine Sand	SP	4.1
	SB-1	15 - 20	Medium - Fine Sand	SP	29.1
	SB-3	2 - 5	Silty Medium - Fine Sand	SM	3.1
	SB-3	13 - 20	Medium - Fine Sand	SP	19.0
	SB-5	10 - 16	Medium - Fine Sand	SP	13.3

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPRDVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE PDWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
232D PDWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
PARTICLE SIZE DISTRIBUTION
SB-5

JOB 154.021.0D3
SHT. 9
DWG. 154021SW-08-12

HEC
Harrington Engineering & Construction, Inc.

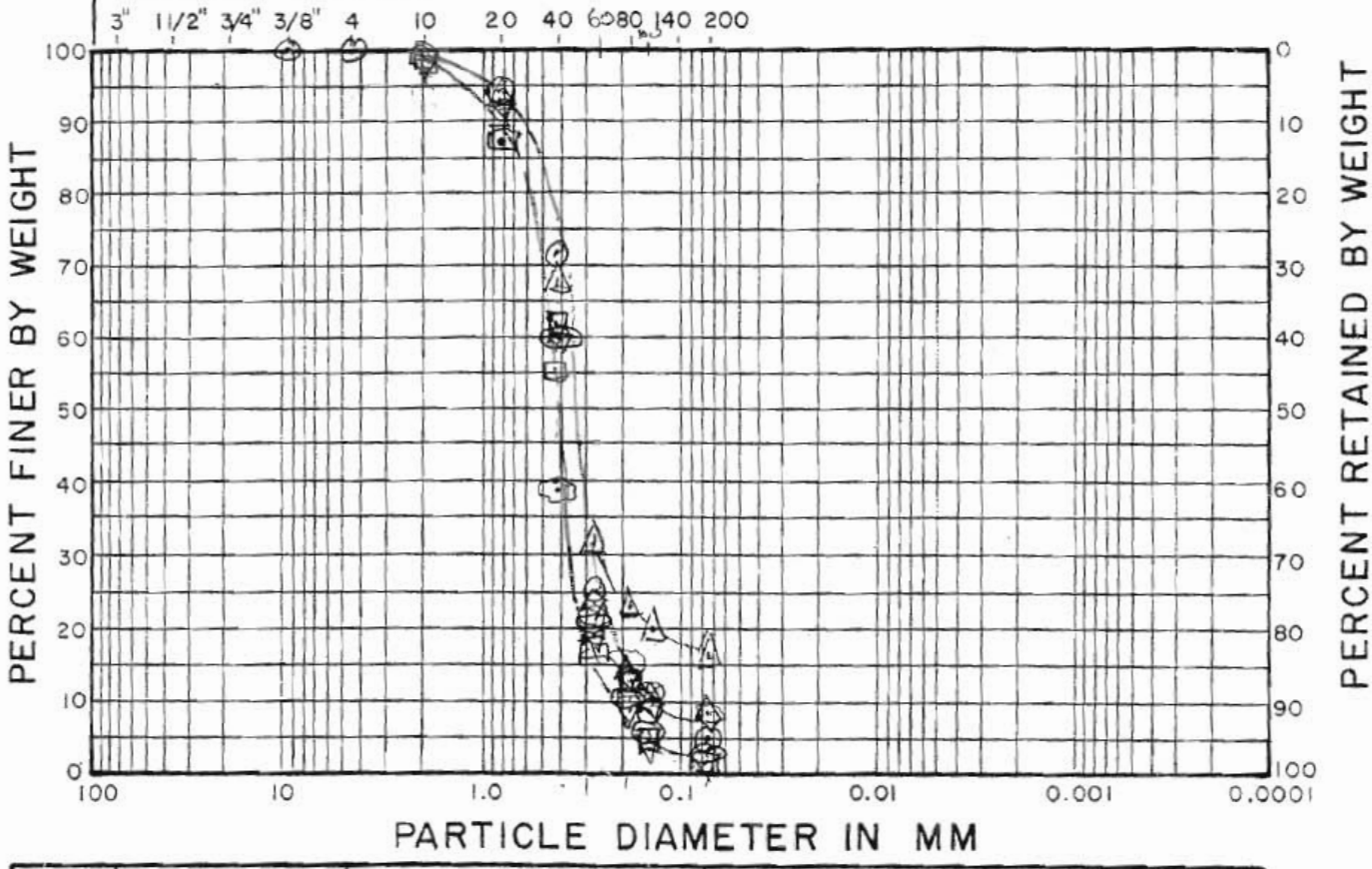
Particle Size Distribution

" UPPER SAND "

PROJECT _____ TESTED BY _____ DATE _____
PROJECT NO. _____ CALC BY _____ DATE _____
BORING NO. _____ CHKD BY _____ DATE _____

SIEVE ANALYSIS | HYDROMETER ANALYSIS

CLEAR SIEVE OPENINGS | U.S. STANDARD SIEVE NUMBERS



COBBLES	GRAVEL		SAND			SILT AND CLAY FRACTION
	coarse	fine	coarse	medium	fine	

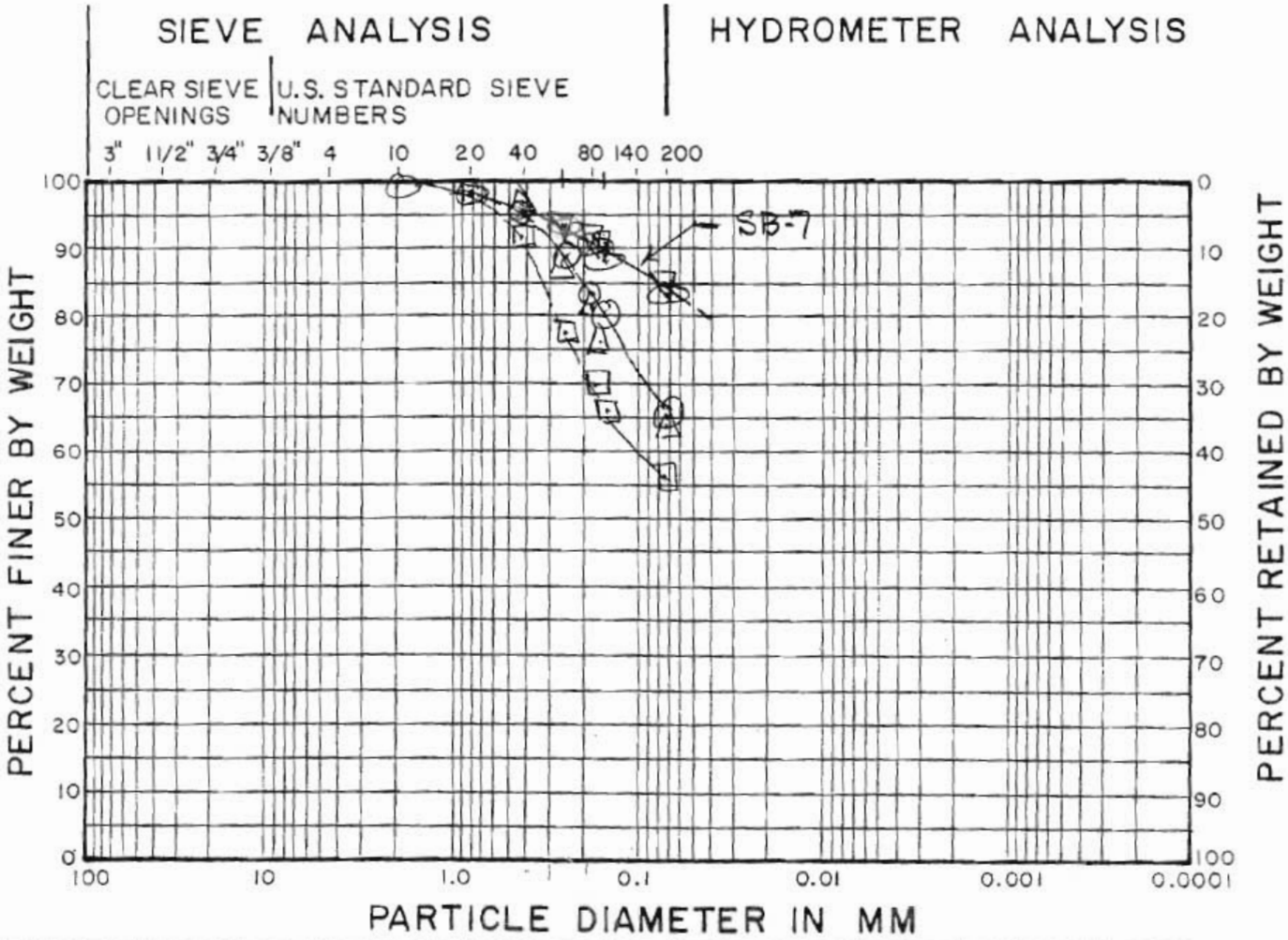
SYMBOL	BORING	SAMPLE	DEPTH	SOIL DESCRIPTION	U.S.C.S.	L.L.	P.L.	W%
⊙	SB-1		1-5	MED-FINE SAND	SP			4.1
⊡	SB-1		15-20	"	SP			20.1
△	SB-3		2-5	SILTY MED-FINE SAND	SM			3.1
▽	SB-3		13-20	MED-FINE SAND	SP			19.0
⊙	SB-5		10-16	"	SP			13.3
◇	SB-7		4-10	"	SP-SM			3.1
▭	SB-7		19-25	"	SP			17.1

HEC
Harrington Engineering & Construction, Inc.

Particle Size Distribution

"SANDY SILT"

PROJECT _____ TESTED BY _____ DATE _____
PROJECT NO. _____ CALC BY _____ DATE _____
BORING NO. _____ CHKD BY _____ DATE _____



COBBLES	GRAVEL		SAND			SILT AND CLAY FRACTION
	coarse	fine	coarse	medium	fine	

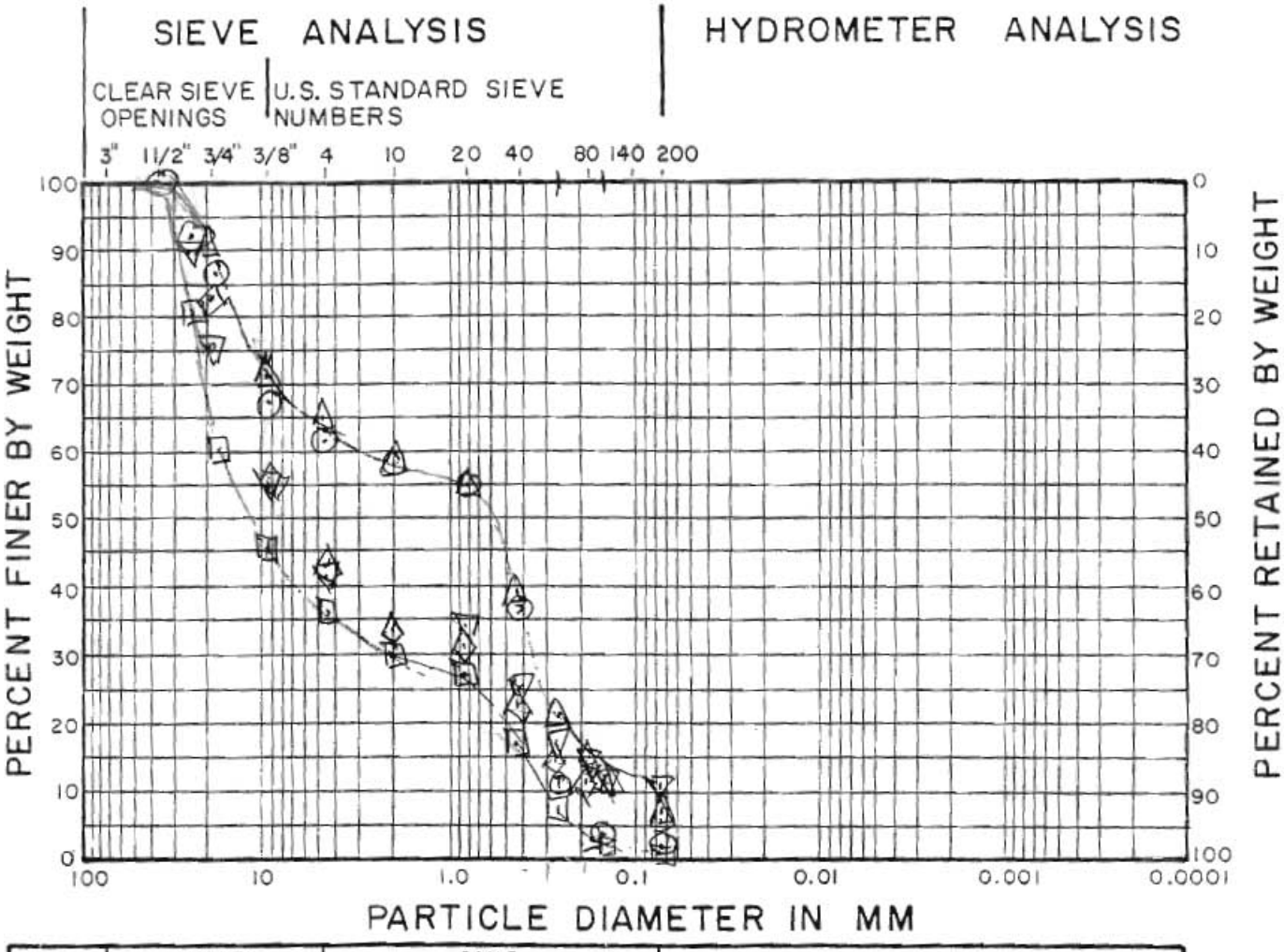
SYMBOL	BORING	SAMPLE	DEPTH	SOIL DESCRIPTION	U.S.C.S.	L.L.	P.L.	W%
○	SB-1		28-32	SANDY SILT	ML	28	26	36.1
□	SB-3		24.5-27	SANDY SILT	ML	27	23	23.4
△	SB-5		18.5-20	SANDY SILT	ML	24	20	21.8
▽	SB-7		29-32.5	SANDY SILT	ML	29	25	27.0
◇	SB-7		36-40	SANDY SILT	ML	31	26	35.7

HEC
Harrington Engineering & Construction, Inc.

Particle Size Distribution

"SANDY GRAVEL"

PROJECT _____ TESTED BY _____ DATE _____
PROJECT NO. _____ CALC BY _____ DATE _____
BORING NO. _____ CHKD BY _____ DATE _____



COBBLES	GRAVEL		SAND			SILT AND CLAY FRACTION
	coarse	fine	coarse	medium	fine	

SYMBOL	BORING	SAMPLE	DEPTH	SOIL DESCRIPTION	U.S.C.S.	L.L.	P.L.	W%
○	SB-1		40-50	SAND & GRAVEL	SW/GW			16.5
□	SB-3		27-32	"	"			13.4
△	SB-5		22-27.5	"	"			32.1
▽	SB-5		44-45	"	"			9.8
◇	SB-7		46-50	"	"			35.7

APPENDIX G – LAN Upper Ash Pond Drawings

Alliant Energy
Interstate Power and Light Company
Lansing Generating Station
Lansing, Iowa

History of Construction

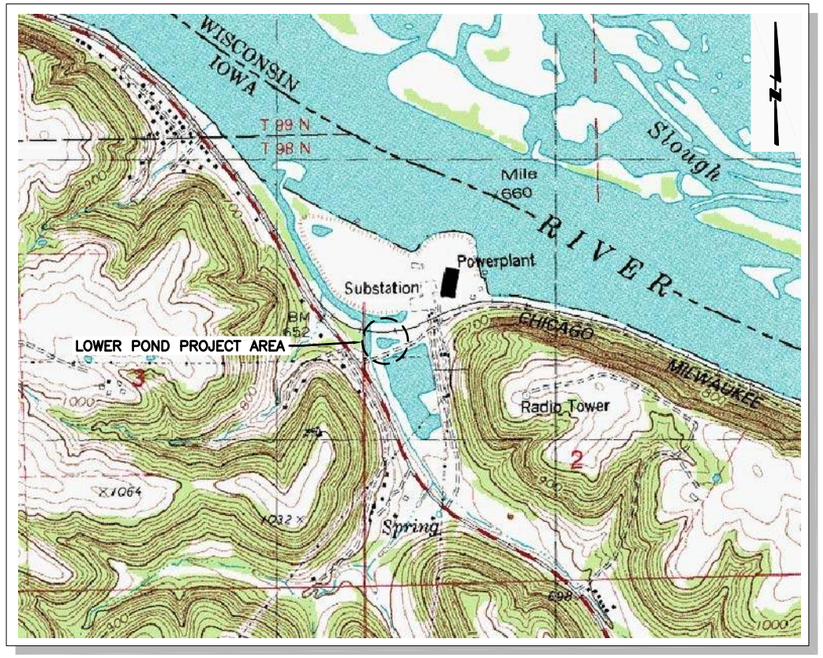
INTERSTATE POWER AND LIGHT (IPL) COMPANY

LANSING GENERATING STATION PROJECT

LOWER POND DREDGING AS-BUILT DRAWINGS

2320 POWER PLANT DR
LANSING, IA 52151

JANUARY 2016



LOCATION MAP

NOT TO SCALE

1. COVER SHEET
2. APRIL 2015 SITE SURVEY (PRE-CONSTRUCTION)
3. POST-DREDGING SURVEY REVIEW
4. POST-DREDGING CROSS SECTIONS
5. BORING LOGS LP-1 & LP-2
6. BORING LOGS LP-3 & LP-4
7. BORING LOGS LP-5 & LP-6
8. BORING LOGS LP-7 & LP-8
9. BORING LOGS LP-9 & LP-10
10. BORING LOGS LP-11 & LP-12
11. BORING LOGS LP-13 & LP-14
12. BORING LOGS LP-15 & LP-16
13. BORING LOGS LP-17 & LP-18
14. BORING LOGS LP-19
15. POST-DREDGING CONFIRMATION CORE LOGS CC-1 & CC-2
16. POST-DREDGING CONFIRMATION CORE LOGS CC-3 & CC-4
17. POST-DREDGING CONFIRMATION CORE LOGS CC-5 & CC-6
18. POST-DREDGING CONFIRMATION CORE LOGS CC-7 & CC-8

SHEET INDEX

PRE-CONSTRUCTION AERIAL MAP

NOT TO SCALE

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

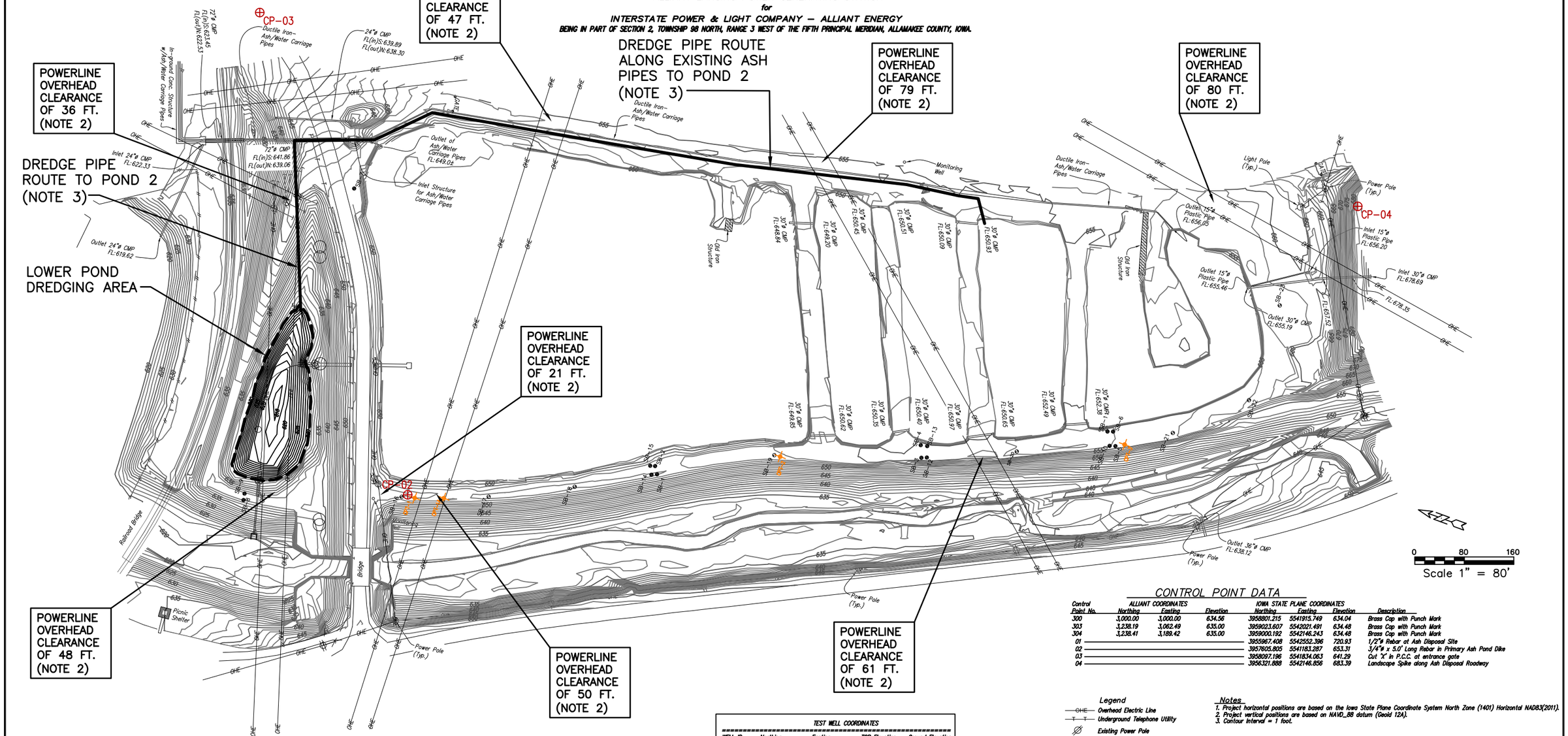
HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
COVER SHEET

JOB 154.021.003
SHT. 1
DWG. 154021DD-01

UPPER AND LOWER CCR POND TOPOGRAPHIC SURVEY AND LOWER CCR POND BATHYMETRY
at
ALLIANT LANSING POWER GENERATING STATION
for
INTERSTATE POWER & LIGHT COMPANY — ALLIANT ENERGY
BEING IN PART OF SECTION 2, TOWNSHIP 98 NORTH, RANGE 3 WEST OF THE FIFTH PRINCIPAL MERIDIAN, ALLAMAKEE COUNTY, IOWA.



CONTROL POINT DATA

Control Point No.	ALLIANT COORDINATES Northing	Easting	Elevation	IOWA STATE PLANE COORDINATES Northing	Easting	Elevation	Description
300	3,000.00	3,000.00	634.56	3958801.215	5541915.749	634.04	Brass Cap with Punch Mark
303	3,238.19	3,062.49	635.00	3959023.807	5542021.491	634.48	Brass Cap with Punch Mark
304	3,238.41	3,189.42	635.00	3959000.192	5542146.243	634.48	Brass Cap with Punch Mark
01				3955967.408	5542552.396	720.93	1/2"ø Rebar at Ash Disposal Site
02				3957605.805	5541183.287	653.31	3/4"ø x 5.0' Long Rebar in Primary Ash Pond Dike
03				3958097.196	5541834.063	641.29	Cut "X" in P.C.C. at entrance gate
04				3956321.888	5542146.856	683.39	Landscape Spike along Ash Disposal Roadway

TEST WELL COORDINATES

WELL ID	Northing	Easting	TOP Elevation	Ground Elevation
SB-1	3957238.28	5541352.23	653.36	653.26
SB-2	3957245.81	5541363.76	652.66	652.63
SB-3	3956845.82	5541523.57	656.39	655.37
SB-4	3956851.80	5541542.37	655.88	655.34
SB-5	3956557.49	5541648.53	656.70	655.80
SB-6	3956569.09	5541669.35	656.19	655.97
SB-7	3957856.52	5541618.95	653.45	653.33
SB-8	3957852.40	5541084.50	641.74	638.43
SB-9	3957854.40	5541094.88	640.63	638.52
SB-10	NS	NS	656.38	655.85
SB-11	NS	NS	656.38	656.17
SB-12	NS	NS	656.40	655.44
SB-13	NS	NS	656.43	655.27
SB-14	NS	NS	654.37	653.15
SB-15	NS	NS	652.75	652.67

Legend
- OHE — Overhead Electric Line
- T T — Underground Telephone Utility
- Existing Power Pole
- SB● — Temporary Well Location
- SB⊕ — Soil Boring Location
- CPT — Cone Penitrometer Test Location
- CP — Control Point

Notes
1. Project horizontal positions are based on the Iowa State Plane Coordinate System North Zone (1401) Horizontal NAD83(2011).
2. Project vertical positions are based on NAVD_88 datum (Geoid 12A).
3. Contour Interval = 1 foot.

NOTE:
1. SURVEY INFORMATION PROVIDED ABOVE WAS COMPILED BY MOHN SURVEYING, INC. 1890 GREAT RIVER ROAD LANSING, IOWA 52151, APRIL 2015.
2. ALLIANT ENERGY REQUIRES 20 FEET OVERHEAD SEPARATION DISTANCE FOR EQUIPMENT OPERATING UNDER POWERLINES.
3. DREDGE PIPING AND EQUIPMENT REMOVED AFTER DREDGING ACTIVITIES COMPLETED.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
2	6-24-15	TJH	MWL	INCORPORATE IPL COMMENTS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

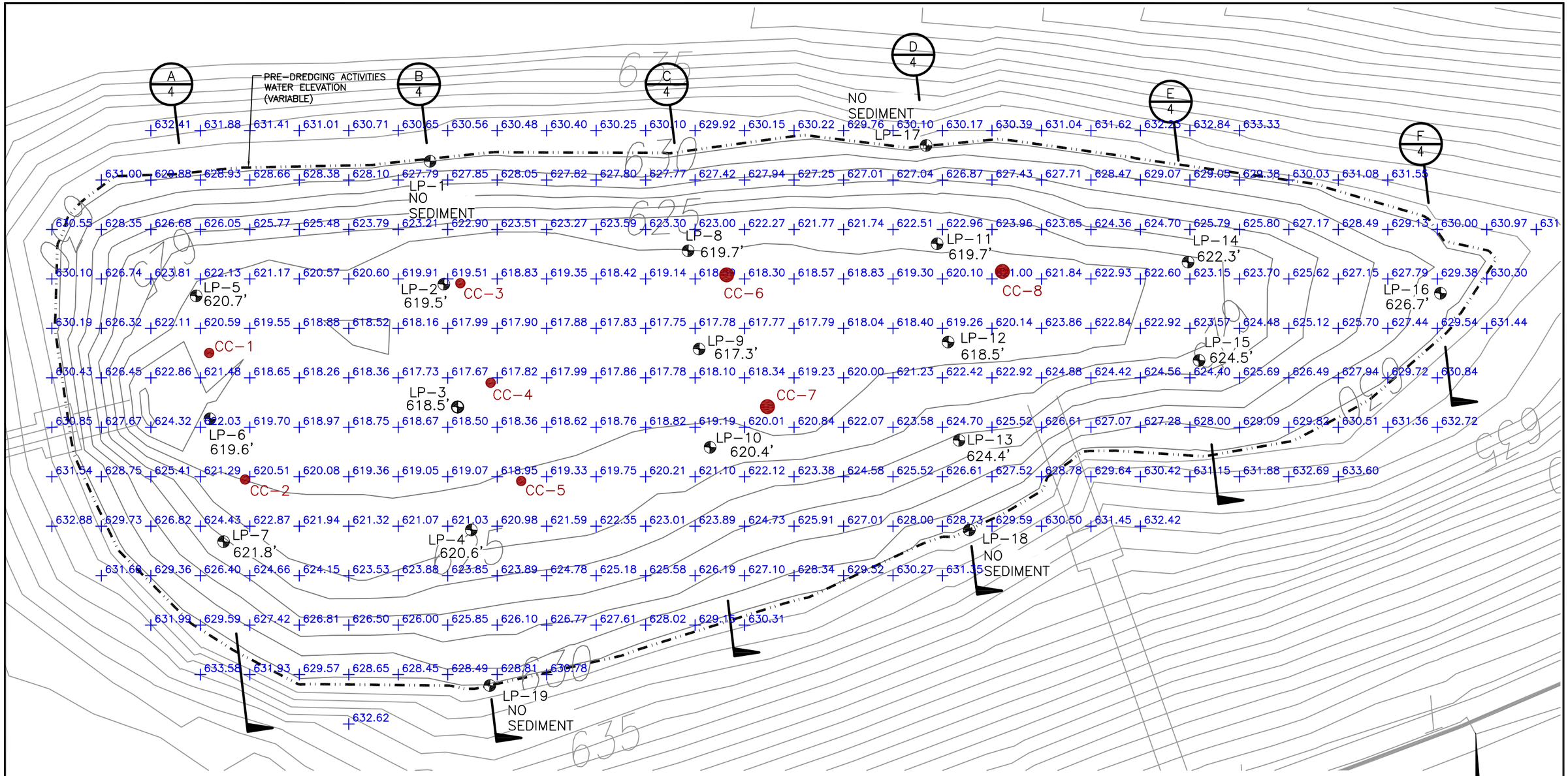
SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
APRIL 2015 SITE SURVEY
(PRE-CONSTRUCTION)

JOB 154.021.003
SHT. 2
DWG. 154021DD-02



LEGEND:

- ELEV — POST-DREDGE SURVEY POINT (10'x10' GRID)
- CC-1 — CONFIRMATION CORE LOCATION
- LP-1 — PRE-DREDGING PROBE ID
- 620.7' — (DESIGN) ELEVATION AT BOTTOM OF SEDIMENT REMOVAL
- 630 — PRE-DREDGING CONTOURS

NOTES:
1. DURING DREDGING, WATER ELEVATION IN LOWER POND WAS NOT ALLOWED TO DROP BELOW ELEVATION 627 FEET. CONTRACTOR WAS RESPONSIBLE FOR RETURNING WATER TO MAINTAIN MINIMUM ELEVATION.
2. WATER IN LOWER POND WAS NOT ALLOWED TO OVERFLOW INTO WEIR BOX 3 WHEN DREDGE WAS OPERATING.
3. CONTRACTOR INSTALLED AND BEGIN OPERATING GRAVITY FLOW BYPASS PIPING FROM WEIR BOX 2 TO WEIR BOX 3 PRIOR TO BEGINNING DREDGING.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	1-6-16	DLS	MWL	AS-BUILT DRAWINGS

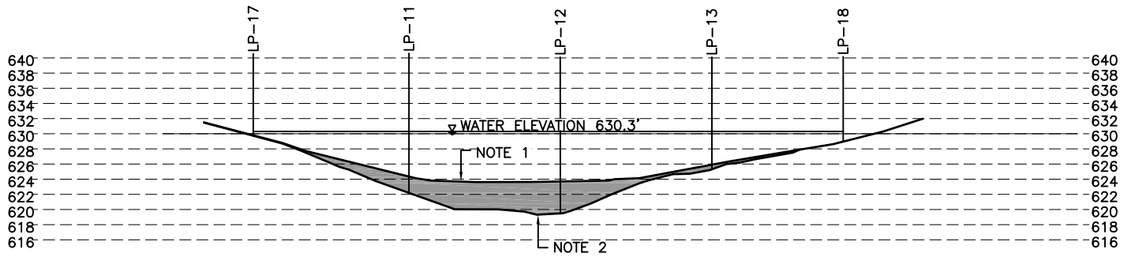
SCALE: AS SHOWN | DATE: 9-8-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

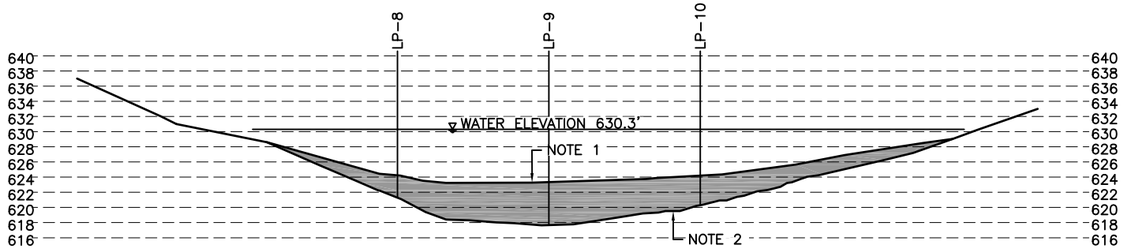
CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
POST-DREDGING SURVEY REVIEW

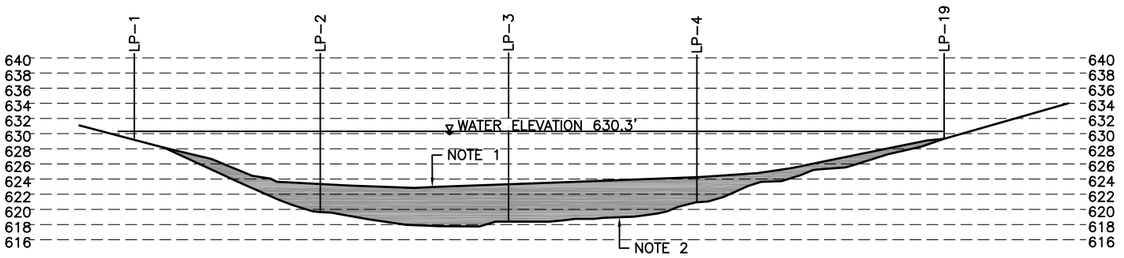
JOB 154.021.003
SHT. 3
DWG. 154021DD-03



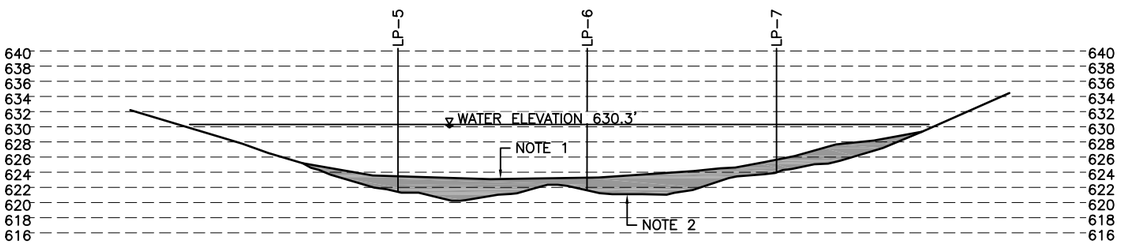
DREDGING SECTION D / 3



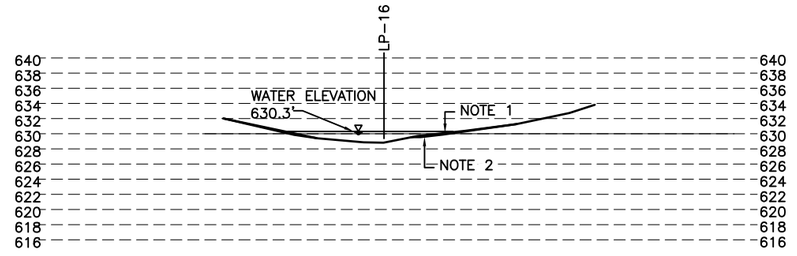
DREDGING SECTION C / 3



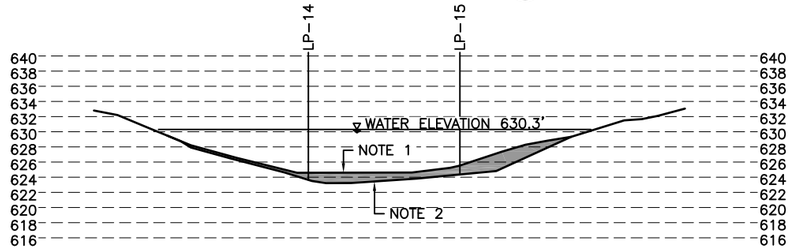
DREDGING SECTION B / 3



DREDGING SECTION A / 3



DREDGING SECTION F / 3



DREDGING SECTION E / 3

NOTES:
1. TOP OF SEDIMENT SURFACE OBTAINED FROM APRIL 2015 SURVEY AS SHOWN ON SHEETS 2.
2. DREDGE TO DEPTHS BASED ON POST – DREDGING BATHYMETRIC SURVEY GENERATED ON 9–08–15 AS SHOWN ON SHEET 3.
3. POND ELEVATION OF 630.3' WAS RECORDED WHEN THE FACILITY WAS NOT OPERATING (PRE–DREDGING ACTIVITIES).
4. SOLIDS CONTENT OF COAL COMBUSTION RESIDUE AND UNDERLYING SEDIMENT SHOWN ON SEDIMENT LOGS LP–9 & LP–12.

0 10' 20'
SCALE: 1"=20'–0"

LEGEND:

POND SEDIMENT DREDEGED (COAL COMBUSTION RESIDUE)

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	1–6–16	DLS	MWL	AS–BUILT DRAWINGS
1	6–15–15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5–14–15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS–BUILT DRAWINGS
POND CROSS SECTIONS

JOB 154.021.003
SHT. 4
DWG. 154021DD–04

BORING LOG

HARD HAT SERVICES™
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PROJECT No. 154.021.003
BORING No. LP-1
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/28/15

ELEV	SAMPLE No.	SAMPLE TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
630.7													Black, Moist, Medium Dense, Organic Silt (Surface Soil with Plant Materials)	
630.6								65	OL					
630.5														
630.4													Grey Wet, Medium Dense, Silty Sand	
630.3														
630.2														
630.1														
630.0								65	SM					
629.9														
629.8														
629.7														
629.6														
629.5														
629.4													Dark Grey, Wet, Medium Dense, High Plasticity	
629.3														
629.2														
629.1								65	CH					
629.0														
628.9														
628.8														
628.7													Grey Wet, Medium Dense, Silty Sand	
628.6														
628.5								65	SM					
628.4														
628.3														
628.2														
													General Notes: Sampled with 4 foot core, 10 lb. slide hammer. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 65%.	

= Push only
= Use of 10 lb slide hammer

BORING LOG

HARD HAT SERVICES™
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PROJECT No. 154.021.003
BORING No. LP-2
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/28/15

ELEV	SAMPLE No.	SAMPLE TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
623.5													Top of Sediment at Elev. 623.5 Black, Wet, Very Loose, Organic Silt,	
623.4														
623.3														
623.2														
623.1														
623.0														
622.9														
622.8														
622.7														
622.6														
622.5														
622.4														
622.3														
622.2														
622.1														
622.0														
621.9														
621.8														
621.7														
621.6														
621.5								30	OL					
621.4														
621.3														
621.2														
621.1														
621.0														
620.9														
620.8														
620.7														
620.6														
620.5														
620.4														
620.3														
620.2														
620.1														
620.0														
619.9														
619.8														
619.7														
619.6														
619.5														
619.4													Black, Wet, Medium Dense, Oprganic Sandy Silt	
619.3														
619.2														
619.1														
619.0														
618.9								90	OL					
618.8														
618.7														
618.6														
618.5														
618.4														
618.3														
618.2													Dark Gray, Wet, Medium Dense, Silty Sand	
618.1								90	SM					
618.0														
617.9														
													General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 55%.	

= Push only
= Use of 10 lb slide hammer

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
BORING LOGS
LP-1 & LP-2

JOB 154.021.003
SHT. 5
DWG. 154021DD-05

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-3
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/28/15

ELEV	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0"–6"	BLOW COUNT 6"–12"	BLOW COUNT 12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
623.4–622.5								50	OL				Top of Sediment at Elev. 623.4 Black, Wet, Very Loose, Organic Silt.	
621.5–620.6								50	OL				Black, Wet, Very Loose, Organic Silt, with Layers of Cemented Silts	
619.6–618.7								50	OL				Black, Wet, Very Loose, Organic Silt	
618.4–618.0								90	SM				Dark Gray, Wet, Medium Dense, Silty Sand	
617.8–617.5								90	OL				Dark Gray, Wet, Medium Dense, Organic Silt with Trace Sand	
617.3														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 55%.

LAN Lower Ash Pond Sediment Borings

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-4
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/28/15

ELEV	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0"–6"	BLOW COUNT 6"–12"	BLOW COUNT 12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
624.5–622.8								45	OL				Top of Sediment at Elev. 624.5 Black, Wet, Very Loose, Organic Silt (Trace amounts of cemented layers)	
622.7–621.1								45	OL				Black, Wet, Very Loose, Organic Silt (Pieces of cemented layers)	
621.0–620.0								90	SP				Brown, Wet, Loose, Sand (medium grain), Trace Silt	
619.9–619.5								100	CH				Light Grey, Wet, Clay, High Plasticity (Bentonite Layer)	
619.4–618.7								90	SM				Dark Black, Wet, Medium Dense, Sand	
618.6														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 60%.

LAN Lower Ash Pond Sediment Borings

REV	DATE	BY	APP	DESCRIPTION
3				
4				
5				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
BORING LOGS
LP-3 & LP-4

JOB 154.021.003
SHT. 6
DWG. 154021DD-06

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-5
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/28/15

ELEV	SAMPLE No.	SAMPLE TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"–6"	BLOW COUNT 6"–12"	BLOW COUNT 12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
623.6													Top of Sediment at Elev. 623.6 Black, Wet, Very Loose, Organic Silt	
623.5														
623.4														
623.3														
623.2														
623.1														
623.0														
622.9														
622.8														
622.7														
622.6														
622.5														
622.4														
622.3														
622.2														
622.1								40	OL					
622.0														
621.9														
621.8														
621.7														
621.6														
621.5														
621.4														
621.3														
621.2														
621.1														
621.0														
620.9														
620.8														
620.7														
620.6														
620.5								90	SM				Black, Wet, Medium Dense, Silty Sand	
620.4														
620.3														
620.2								90	OL				Black, Wet, Medium Dense, Organic Silt (plant materials intermixed within silt)	
620.1														
620.0														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 50%.

LAN Lower Ash Pond Sediment Borings

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-6
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/28/15

ELEV	SAMPLE No.	SAMPLE TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"–6"	BLOW COUNT 6"–12"	BLOW COUNT 12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
623.4													Top of Sediment at Elev. 623.4 Black, Wet, Very Loose, Organic Silt (Trace amounts of small cemented layers)	
623.3														
623.2														
623.1														
623.0														
622.9														
622.8														
622.7														
622.6														
622.5														
622.4														
622.3								55	OL					
622.2														
622.1														
622.0														
621.9														
621.8														
621.7														
621.6														
621.5														
621.4														
621.3														
621.2													Dark Black, Wet, Loose, Organic Silt	
621.1														
621.0														
620.9														
620.8								55	OL					
620.7														
620.6														
620.5														
620.4													Black, Wet, Loose, Organic Silt (Pieces of cemented layers)	
620.3														
620.2														
620.1														
620.0								55	OL					
619.9														
619.8														
619.7														
619.6														
619.5														
619.4													Grey, Wet, Medium Dense, Silty Sand	
619.3								90	SM					
619.2														
619.1														
619.0														
618.9								90	OL				Black, Wet, Medium Dense, Organic Silt (plant materials intermixed within silt)	
618.8														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 60%.

LAN Lower Ash Pond Sediment Borings

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
BORING LOGS
LP-5 & LP-6

JOB 154.021.003
SHT. 7
DWG. 154021DD-07

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-7
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/28/15

ELEV	SAMPLE No.	SAMPLE TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	DEPTH OF CONTACT	SOIL DESCRIPTION AND REMARKS	PIEZO
624.7													Top of Sediment at Elev. 624.7 Black, Wet, Very Loose, Organic Silt (Trace amounts of small cemented layers and coal fines)	
624.6														
624.5														
624.4														
624.3														
624.2														
624.1														
624.0														
623.9														
623.8														
623.7														
623.6														
623.5														
623.4														
623.3														
623.2								30	OL					
623.1														
623.0														
622.9														
622.8														
622.7														
622.6														
622.5														
622.4														
622.3														
622.2														
622.1														
622.0														
621.9														
621.8														
621.7													Grey, Wet, Medium Dense, Silty Sand	
621.6								90	SM					
621.5														
621.4								100	CH				Grey, Wet, Clay, High Plasticity (Bentonite	
621.3													Brown, Wet, Medium Dense, Silty Sand	
621.2														
621.1														
621.0														
620.9														
620.8								90	SP					
620.7														
620.6														
620.5														
620.4														
620.3														
620.2													Black, Wet, Medium Dense, Organic Silt (plant materials intermixed within silt)	
620.1								90	OL					
620.0														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 55%.

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-8
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/28/15

ELEV	SAMPLE No.	SAMPLE TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	DEPTH OF CONTACT	SOIL DESCRIPTION AND REMARKS	PIEZO
623.6													Top of Sediment at Elev. 623.6 Black, Wet, Very Loose, Organic Silt (cemented layers)	
623.5														
623.4														
623.3														
623.2														
623.1														
623.0														
622.9														
622.8														
622.7														
622.6														
622.5														
622.4														
622.3														
622.2														
622.1														
622.0														
621.9														
621.8														
621.7								45	OL					
621.6														
621.5														
621.4														
621.3														
621.2														
621.1														
621.0														
620.9														
620.8														
620.7														
620.6														
620.5														
620.4														
620.3														
620.2														
620.1														
620.0														
619.9														
619.8														
619.7														
619.6								100	CH				Grey, Wet, Clay, High Plasticity (Bentonite	
619.5													Brown, Wet, Medium Dense, Organic Silt (plant materials intermixed within silt)	
619.4														
619.3														
619.2														
619.1														
619.0														
618.9														
618.8								90	OL					
618.7														
618.6														
618.5														
618.4														
618.3														
618.2														
618.1														
618.0								90	OL				Grey, Wet, Medium Dense, Organic Silt (plant materials intermixed within silt)	
617.9														
617.8														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 60%.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
BORING LOGS
LP-7 & LP-8

JOB 154.021.003
SHT. 8
DWG. 154021DD-08

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-9
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/28/15

ELEV	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"–6"	6"–12"	12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	DEPTH OF CONTACT	SOIL DESCRIPTION AND REMARKS	PIEZO
623.4													Top of Sediment at Elev. 623.4 Black, Wet, Very Loose, Organic Silt (cemented layers)	
623.3														
623.2														
623.1														
623.0														
622.9										38%				
622.8														
622.7														
622.6														
622.5														
622.4														
622.3														
622.2														
622.1														
622.0														
621.9														
621.8														
621.7														
621.6														
621.5														
621.4														
621.3														
621.2														
621.1														
621.0														
620.9														
620.8														
620.7														
620.6														
620.5														
620.4								50	OL					
620.3														
620.2														
620.1														
620.0														
619.9														
619.8										38%				
619.7														
619.6														
619.5														
619.4														
619.3														
619.2														
619.1														
619.0														
618.9														
618.8														
618.7														
618.6														
618.5														
618.4														
618.3														
618.2														
618.1														
618.0														
617.9														
617.8														
617.7														
617.6														
617.5														
617.4														
617.3										59%				
617.2								100	CH				Grey, Wet, Clay, High Plasticity (Bentonite Layer)	
617.1														
617.0								90	SM				Black, Wet Medium Dense, Silty Sand	
616.9														
616.8														
616.7														
616.6								90	OL				Grey, Wet, Medium Dense, Organic Silt (plant materials intermixed within silt)	
616.5														
616.4														
616.3														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 55%.

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-10
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/28/15

ELEV	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"–6"	6"–12"	12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	DEPTH OF CONTACT	SOIL DESCRIPTION AND REMARKS	PIEZO
624.3													Top of Sediment at Elev. 624.3 Black, Wet, Very Loose, Organic Silt (thin cemented layers)	
624.2														
624.1														
624.0														
623.9														
623.8														
623.7														
623.6														
623.5														
623.4														
623.3														
623.2														
623.1														
623.0														
622.9														
622.8														
622.7														
622.6								50	OL					
622.5														
622.4														
622.3														
622.2														
622.1														
622.0														
621.9														
621.8														
621.7														
621.6														
621.5														
621.4														
621.3													Black, Wet, Very Loose, Organic Silt (half inch cemented layers)	
621.2														
621.1														
621.0														
620.9								50	OL					
620.8														
620.7														
620.6														
620.5														
620.4													Black, Wet Medium Dense, Silty Sand	
620.3														
620.2								90	SM					
620.1														
620.0														
619.9														
619.8								100	CH				Grey, Wet, Clay, High Plasticity (Bentonite	
619.7													Black, Wet Medium Dense, Silty Sand	
619.6								90	SM					
619.5														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 60%.

REV	DATE	BY	APP	DESCRIPTION
3				
4				
5				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
BORING LOGS
LP-9 & LP-10

JOB 154.021.003
SHT. 9
DWG. 154021DD-09

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-11
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/29/15

ELEV	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"–6"	6"–12"	12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
623.8													Top of Sediment at Elev. 623.8 Black, Wet, Very Loose, Organic Silt, Trace Sand (thin cemented layers)	
623.7														
623.6														
623.5														
623.4														
623.3														
623.2														
623.1														
623.0														
622.9														
622.8														
622.7														
622.6														
622.5														
622.4														
622.3														
622.2														
622.1														
622.0														
621.9														
621.8								40	OL					
621.7														
621.6														
621.5														
621.4														
621.3														
621.2														
621.1														
621.0														
620.9														
620.8														
620.7														
620.6														
620.5														
620.4														
620.3														
620.2														
620.1														
620.0														
619.9														
619.8														
619.7								90	OL				Grey, Wet, Medium Dense, Organic Silt (plant materials intermixed within silt)	
619.6														
619.5														
619.4														
619.3														
619.2														
619.1														
619.0														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 50%.

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-12
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/29/15

ELEV	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"–6"	6"–12"	12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
623.5													Top of Sediment at Elev. 623.5 Black, Wet, Very Loose, Organic Silt, Trace Sand (thin cemented layers)	
623.4														
623.3														
623.2														
623.1														
623.0										36%				
622.9														
622.8														
622.7														
622.6														
622.5														
622.4														
622.3														
622.2														
622.1														
622.0														
621.9														
621.8														
621.7														
621.6														
621.5														
621.4														
621.3														
621.2														
621.1														
621.0								50	OL					
620.9														
620.8										54%				
620.7														
620.6														
620.5														
620.4														
620.3														
620.2														
620.1														
620.0														
619.9														
619.8														
619.7														
619.6														
619.5														
619.4														
619.3														
619.2														
619.1														
619.0														
618.9														
618.8														
618.7														
618.6														
618.5														
618.4								90	SM				Black, Wet, Medium Dense, Silty Sand	
618.3														
618.2														
618.1														
618.0														
617.9														
617.8														
617.7														
617.6														
617.5														
617.4														
617.3														
617.2														
617.1														
617.0								90	OL	73%			Grey, Wet, Medium Dense, Organic Silt (plant materials intermixed within silt)	
616.9														
616.8														
616.7														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 60%.

REV	DATE	BY	APP	DESCRIPTION
3				
4				
3				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
BORING LOGS
LP-11 & LP-12

JOB 154.021.003
SHT. 10
DWG. 154021DD-10

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-13
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/29/15

ELEV	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"-6"	6"-12"	12"-18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
626.0													Top of Sediment at Elev. 626.0	
625.9													Black, Wet, Very Loose, Organic Silt (No	
625.8													recovery, but likely silts are present)	
625.7														
625.6														
625.5														
625.4														
625.3														
625.2								0	OL					
625.1														
625.0														
624.9														
624.8														
624.7														
624.6														
624.5														
624.4														
624.3													Brown, Wet, Medium Dense, Sand	
624.2														
624.1														
624.0														
623.9								90	SP					
623.8														
623.7														
623.6														
623.5														
623.4														
623.3								100	CH				Grey, Wet, Clay, High Plasticity (Bentonite	
623.2													Brown, Wet, Medium Dense, Sand	
623.1								90	SP					
623.0														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 40%.

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-14
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/29/15

ELEV	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"-6"	6"-12"	12"-18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
624.3													Top of Sediment at Elev. 624.3	
624.2													Black, Wet, Very Loose, Organic Silt (cemented	
624.1													layers)	
624.0														
623.9														
623.8														
623.7														
623.6														
623.5														
623.4														
623.3								30	OL					
623.2														
623.1														
623.0														
622.9														
622.8														
622.7														
622.6														
622.5														
622.4														
622.3														
622.2								90	OL				Brown, Wet, Medium Dense, Organic Silt (plant	
622.1													materials intermixed within silt)	
622.0													Brown, Wet, Medium Dense, Silty Sand	
621.9														
621.8								90	SM					
621.7														
621.6														
621.5														
621.4								90	OL				Grey, Wet, Medium Dense, Organic Silt (plant	
621.3													materials intermixed within silt) Bottom of Core	

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 45%.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
BORING LOGS
LP-13 & LP-14

JOB 154.021.003
SHT. 11
DWG. 154021DD-11

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-15
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/29/15

ELEV	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
625.0													Top of Sediment at Elev. 625.0	
624.9													Black, Wet, Very Loose, Organic Silt (cemented	
624.8								65	OL				layers)	
624.7														
624.6														
624.5													Dark Grey, Wet, Medium Dense, Silty Sand	
624.4														
624.3								90	SM					
624.2														
624.1														
624.0														
623.9								100	CH				Grey, Wet, Clay, High Plasticity (Bentonite	
623.8													Brown, Wet, Medium Dense, Sand	
623.7														
623.6								90	SP					
623.5														
623.4														
623.3														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 90%.

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-16
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/29/15

ELEV	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
628.2													Top of Sediment at Elev. 628.2	
628.1													Black, Wet, Very Loose, Organic Silt (No	
628.0													recovery, but likely silts are present)	
627.9														
627.8														
627.7														
627.6														
627.5														
627.4								0	OL					
627.3														
627.2														
627.1														
627.0														
626.9														
626.8														
626.7														
626.6													Black, Wet, Loose, Silty Sand (with leaves and	
626.5								90	SM				twigs)	
626.4														
626.3													Black, Wet, Loose Silty Sand	
626.2								90	SM					
626.1														
626.0													Black, Wet, Very Loose, Organic Silt, Trace	
625.9													Sand	
625.8														
625.7														
625.6														
625.5								90	OL					
625.4														
625.3														
625.2														
625.1														
625.0													Dark Grey, Wet, Medium Dense, Silty Sand	
624.9														
624.8														
624.7														
624.6								90	SM					
624.5														
624.4														
624.3														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 55%.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
BORING LOGS
LP-15 & LP-16

JOB 154.021.003
SHT. 12
DWG. 154021DD-12

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-17
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/29/15

ELEV	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0"-6"	BLOW COUNT 6"-12"	BLOW COUNT 12"-18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
630.7								75	OL				Black, Moist, Medium Dense, Organic Silt (Surface Soil with Plant Materials)	
630.6														
630.5														
630.4														
630.3														
630.2														
630.1														
630.0								75	SP				Brown, Wet, Medium Dense, Sand, Trace Silts	
629.9														
629.8														
629.7														
629.6														
629.5								75	SP				Grey, Wet, Medium Dense, Sand, Trace Silts	
629.4														
629.3														
629.2														
629.1														
629.0														
628.9														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 75%.

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-18
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION Lansing Iowa — WATER ELEVATION Pond @ 630.3
DRILLER Hard Hat Services — DATE: START 4/28/15 FINISH 4/29/15

ELEV	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0"-6"	BLOW COUNT 6"-12"	BLOW COUNT 12"-18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
630.7								75	OL				Tan, Dry, Medium Dense, Silt (Fly Ash on Ground Surface)	
630.6														
630.5														
630.4								100	CH				Grey, Wet, Clay, High Plasticity (Bentonite Layer)	
630.3														
630.2													Brown, Wet, Medium Dense, Sand (Sample fell out from the core barrel)	
630.1														
630.0														
629.9														
629.8														
629.7														
629.6														
629.5														
629.4														
629.3														
629.2														
629.1														
629.0								40	SP					
628.9														
628.8														
628.7														
628.6														
628.5														
628.4														
628.3														
628.2														
628.1														
628.0														
627.9														
627.8														
627.7														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 45%.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
BORING LOGS
LP-17 & LP-18

JOB 154.021.003
SHT. 13
DWG. 154021DD-13

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 154.021.003
BORING No. LP-19
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME: Lansing Generating Station Lower Ash Pond Sediment Investigation
BORING LOCATION: Lansing Iowa — WATER ELEVATION: Pond @ 630.3
DRILLER: Hard Hat Services — DATE: START 4/28/15 FINISH 4/29/15

ELEV	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT	DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
630.7								50	OL					Black, Moist, Organic Silt (Plant Materials)	
630.6															
630.5														Brown, Moist, Medium Dense, Sand	
630.4															
630.3															
630.2															
630.1															
630.0								90	SP						
629.9															
629.8															
629.7															
629.6															
629.5														Grey, Wet, Medium Dense, Clay, High Plasticity (Bentonite Layer)	
629.4								100	CH						
629.3														Brown, Wet, Medium Dense, Sand (Sample fell out from the core barrel)	
629.2															
629.1															
629.0															
628.9															
628.8															
628.7															
628.6															
628.5								35	SP						
628.4															
628.3															
628.2															
628.1															
628.0															
627.9															
627.8															
627.7															

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 55%.

LAN Lower Ash Pond Sediment Borings

REV	DATE	BY	APP	DESCRIPTION
3				
4				
3				
2	1-6-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: NONE — DATE: 5-14-15
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
BORING LOGS
LP-19

JOB 154.021.003
SHT. 14
DWG. 154021DD-14

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 300.021.001
BORING No. CC-1
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Pond Post Dredging Confirmation Cores
BORING LOCATION Lansing Iowa — WATER ELEVATION 630.1
DRILLER Hard Hat Services — DATE: START 9/3/15 FINISH 9/3/15

ELEV	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"–6"	BLOW COUNT 6"–12"	BLOW COUNT 12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
619.1													Top of Sediment at Elev. 619.1	
619.0													Gray, Wet, Soft, Organic Silt with Sand	
618.9								55	OL					
618.8														
618.7														
618.6													Gray, Wet, Medium Dense, Organic Silt	
618.5														
618.4														
618.3														
618.2														
618.1														
618.0								55	OL					
617.9														
617.8														
617.7														
617.6														
617.5														
617.4													Gray, Wet, Medium Dense, Organic Silt with clay	
617.3														
617.2														
617.1														
617.0														
616.9														
616.8								55	OL					
616.7														
616.6														
616.5														
616.4														
616.3														
616.2														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 55%.

LAN Lower Ash Pond Confirmation Cores

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 300.021.001
BORING No. CC-2
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Pond Post Dredging Confirmation Cores
BORING LOCATION Lansing Iowa — WATER ELEVATION 630.1
DRILLER Hard Hat Services — DATE: START 9/3/15 FINISH 9/3/15

ELEV	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"–6"	BLOW COUNT 6"–12"	BLOW COUNT 12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
618.9								100	CH				Top of Sediment at Elev. 618.9	
618.8													Grey, Wet, Clay, High Plasticity (Bentonite	
618.7													Brown, Wet, Medium Dense, Silty Sand	
618.6														
618.5														
618.4														
618.3														
618.2														
618.1								80	SP					
618.0														
617.9														
617.8														
617.7														
617.6														
617.5														
617.4													Black, Wet, Medium Dense, Organic Silt (plant	
617.3													materials intermixed within silt)	
617.2														
617.1														
617.0								80	OL					
616.9														
616.8														
616.7														
616.6														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 80%.

LAN Lower Ash Pond Confirmation Cores

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	1–6–16	DLS	MWL	AS–BUILT DRAWINGS

SCALE: NONE — DATE: 1–6–16
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS–BUILT DRAWINGS
POST–DREDGING CONFIRMATION CORE LOGS
CC–1 & CC–2

JOB 154.021.003
SHT. 15
DWG. 154021DD–15

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 300.021.001
BORING No. CC-3
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Pond Post Dredging Confirmation Cores
BORING LOCATION Lansing Iowa — WATER ELEVATION 630.1
DRILLER Hard Hat Services — DATE: START 9/3/15 FINISH 9/3/15

ELEV	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	DEPTH OF CONTACT	SOIL DESCRIPTION AND REMARKS	PIEZO
618.3													Top of Sediment at Elev. 618.3	
618.2													Black, Wet, Loose, Silty Sand	
618.1								55	SM					
618.0														
617.9														
617.8													Grey, Wet, Medium Stiff Organic Silt (plant	
617.7													materials intermixed within silt)	
617.6														
617.5								55	OL					
617.4														
617.3														
617.2														
617.1														
617.0								55	OL				Black, Wet, Soft, Sandy Silt	
616.9													Grey, Wet, Medium Stiff Organic Silt (plant	
616.8													materials intermixed within silt)	
616.7														
616.6								55	OL					
616.5														
616.4														
616.3														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 55%.

LAN Lower Ash Pond Confirmation Cores

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 300.021.001
BORING No. CC-4
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Pond Post Dredging Confirmation Cores
BORING LOCATION Lansing Iowa — WATER ELEVATION 630.1
DRILLER Hard Hat Services — DATE: START 9/3/15 FINISH 9/3/15

ELEV	SAMPLE No.	SAMPLE TYPE	SAMPLE INTERVAL FROM	SAMPLE INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	DEPTH OF CONTACT	SOIL DESCRIPTION AND REMARKS	PIEZO
617.7													Top of Sediment at Elev. 617.7	
617.6								75	SM				Gray, Wet, Soft, Silt with trace Sand	
617.5														
617.4													Grey, Wet, Medium Stiff Organic Silt (plant	
617.3													materials intermixed within silt)	
617.2														
617.1														
617.0														
616.9														
616.8														
616.7														
616.6														
616.5								75	OL					
616.4														
616.3														
616.2														
616.1														
616.0														
615.9														
615.8														
615.7														
615.6														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 75%.

LAN Lower Ash Pond Confirmation Cores

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	1-6-16	DLS	MWL	AS-BUILT DRAWINGS

SCALE: NONE — DATE: 1-6-16
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
POST-DREDGING CONFIRMATION CORE LOGS
CC-3 & CC-4

JOB 154.021.003
SHT. 16
DWG. 154021DD-16

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 300.021.001
BORING No. CC-5
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Pond Post Dredging Confirmation Cores
BORING LOCATION Lansing Iowa — WATER ELEVATION 630.1
DRILLER Hard Hat Services — DATE: START 9/3/15 FINISH 9/3/15

ELEV	SAMPLE No.	SAMPLE TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"–6"	BLOW COUNT 6"–12"	BLOW COUNT 12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
619.4								90	SM				Brown, Wet, Loose, Sand with trace Silt	
619.3								90	CH				Grey, Wet, Clay, High Plasticity (Bentonite	
619.2													Gray, Wet, Medium Dense, Sand with trace Silt	
619.1														
619.0								90	SM					
618.9														
618.8														
618.7														
618.6													Gray, Wet, Medium Stiff, Silt with trace Sand	
618.5														
618.4								90	OL					
618.3														
618.2														
618.1														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 90%.

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 300.021.001
BORING No. CC-6
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Pond Post Dredging Confirmation Cores
BORING LOCATION Lansing Iowa — WATER ELEVATION 630.1
DRILLER Hard Hat Services — DATE: START 9/3/15 FINISH 9/3/15

ELEV	SAMPLE No.	SAMPLE TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0"–6"	BLOW COUNT 6"–12"	BLOW COUNT 12"–18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
618.9													Black, Wet, Loose, Silt (Trace CCR ~ 1/4 inch)	
618.8													Brown, Wet Loose, Silty Sand	
618.7								60	SM					
618.6														
618.5														
618.4														
618.3													Brown, Wet, Loose, Sand	
618.2														
618.1														
618.0														
617.9								60	SM					
617.8														
617.7														
617.6														
617.5														
617.4														
617.3													Brown, Wet, Medium Stiff, Organic Silt (plant materials intermixed within silt)	
617.2								60	OL					
617.1														
617.0														
616.9								90	CH				Grey, Wet, Clay, High Plasticity (Bentonite Layer)	
616.8														
616.7													Grey, Wet, Medium Stiff Organic Silt (plant materials intermixed within silt)	
616.6														
616.5														
616.4														
616.3														
616.2								60	OL					
616.1														
616.0														
615.9														
615.8														
615.7														
615.6														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 60%.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	1-6-16	DLS	MWL	AS-BUILT DRAWINGS

SCALE: NONE — DATE: 1-6-16
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
POST-DREDGING CONFIRMATION CORE LOGS
CC-5 & CC-6

JOB 154.021.003
SHT. 17
DWG. 154021DD-17

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 300.021.001
BORING No. CC-7
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Pond Post Dredging Confirmation Cores
BORING LOCATION Lansing Iowa — WATER ELEVATION 630.1
DRILLER Hard Hat Services — DATE: START 9/3/15 FINISH 9/3/15

ELEV	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
622.0													Gray, Wet, Soft, Silt	
621.9								80	OL					
621.8														
621.7														
621.6														
621.5														
621.4													Brown, Wet, Medium Dense, Sand	
621.3														
621.2														
621.1														
621.0														
620.9								80	SM					
620.8														
620.7														
620.6														
620.5														
620.4														
620.3														
620.2														
620.1														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 80%.

LAN Lower Ash Pond Confirmation Cores

BORING LOG

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

PROJECT No. 300.021.001
BORING No. CC-8
LOGGED BY Mark Loerop
PAGE No. 1 of 1

PROJECT NAME Lansing Generating Station Lower Pond Post Dredging Confirmation Cores
BORING LOCATION Lansing Iowa — WATER ELEVATION 630.1
DRILLER Hard Hat Services — DATE: START 9/3/15 FINISH 9/3/15

ELEV	SAMPLE No.	TYPE	INTERVAL FROM	INTERVAL TO	BLOW COUNT 0" to 6"	BLOW COUNT 6" to 12"	BLOW COUNT 12" to 18"	REC (%)	USCS SOIL TYPE	% SOLIDS	qu (TSF)	CONTACT DEPTH	SOIL DESCRIPTION AND REMARKS	PIEZO
622.3								65	OL				Black, Wet, Loose, Silt (Trace CCR ~ 1/4 inch)	
622.2													Brown, Wet, Loose to Medium Dense, Sand	
622.1														
622.0														
621.9														
621.8														
621.7														
621.6														
621.5														
621.4								65	SM					
621.3														
621.2														
621.1														
621.0														
620.9														
620.8														
620.7														
620.6														
620.5														
620.4														
620.3														

= Push only
= Use of 10 lb slide hammer

General Notes: Sampled with 4 foot core, 10 lb. slide hammer. An 8-inch diameter Secchi Disk was used to determine the top of sediment elevation. USCS was based on visual appearance only. Percent Recovery was estimated along the length of the core by material type. Total recovery is 65%.

LAN Lower Ash Pond Confirmation Cores

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	1-6-16	DLS	MWL	AS-BUILT DRAWINGS

SCALE: NONE — DATE: 1-6-16
DRAWN BY: JFD — CHECKED BY: TJH — APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND DREDGING AS-BUILT DRAWINGS
POST-DREDGING CONFIRMATION CORE LOGS
CC-7 & CC-8

JOB 154.021.003
SHT. 18
DWG. 154021DD-18

INTERSTATE POWER AND LIGHT (IPL) COMPANY

LANSING GENERATING STATION PROJECT

LOWER POND CLOSURE AS-BUILT DRAWINGS

2320 POWER PLANT DR
LANSING, IA 52151

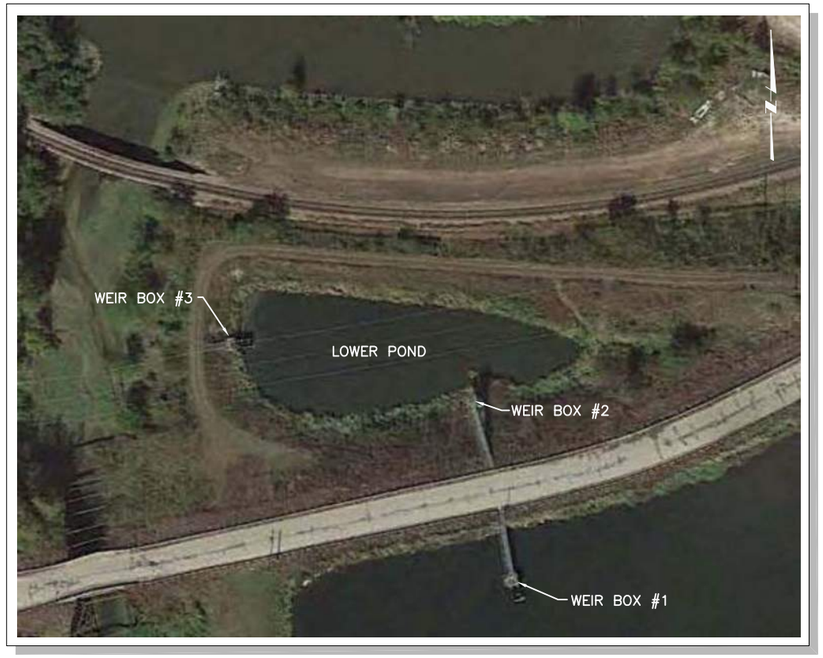
JANUARY 2016

LOCATION MAP

NOT TO SCALE

1. COVER SHEET
2. APRIL 2015 SITE SURVEY PRE-CONSTRUCTION
3. PIPE CONNECTION AND WEIR MODIFICATIONS - PLAN VIEW
4. FINAL GRADING PLAN
5. POND CLOSURE BACKFILL - GENERAL SECTION
6. WEIRS #2 AND #3 WALL ADDITIONS - DETAIL PAGE 1
7. WEIRS #2 AND #3 WALL ADDITIONS - DETAIL PAGE 2
8. PIPING SECTIONS AND DETAILS - PAGE 1
9. PIPING SECTIONS AND DETAILS - PAGE 2

SHEET INDEX



AERIAL MAP

NOT TO SCALE

REV	DATE	BY	APP	DESCRIPTION
3				
2				
1				
2	1-28-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

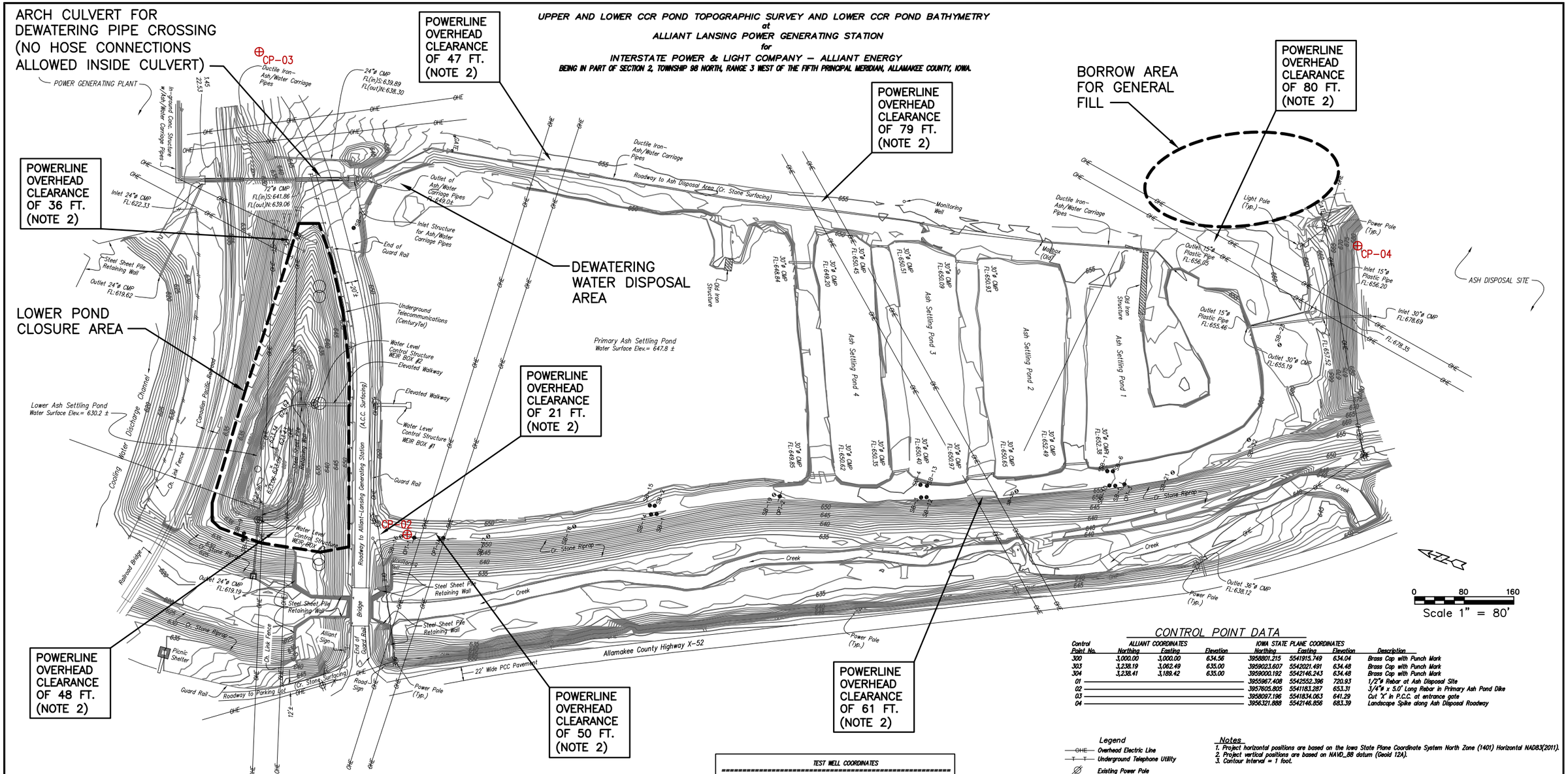
HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND CLOSURE AS-BUILT DRAWINGS
COVER SHEET

JOB 154.021.003
SHT. 1
DWG. 154021PC-01

UPPER AND LOWER CCR POND TOPOGRAPHIC SURVEY AND LOWER CCR POND BATHYMETRY
at
ALLIANT LANSING POWER GENERATING STATION
for
INTERSTATE POWER & LIGHT COMPANY — ALLIANT ENERGY
BEING IN PART OF SECTION 2, TOWNSHIP 98 NORTH, RANGE 3 WEST OF THE FIFTH PRINCIPAL MERIDIAN, ALLAMAKEE COUNTY, IOWA.



CONTROL POINT DATA

Control Point No.	ALLIANT COORDINATES Northing	Easting	Elevation	IOWA STATE PLANE COORDINATES Northing	Easting	Elevation	Description
300	3,000.00	3,000.00	634.56	3958801.215	5541915.749	634.04	Brass Cap with Punch Mark
303	3,238.19	3,062.49	635.00	3959023.807	5542021.491	634.48	Brass Cap with Punch Mark
304	3,238.41	3,189.42	635.00	3959000.192	5542146.243	634.48	Brass Cap with Punch Mark
01				3955967.408	5542552.396	720.93	1/2"ø Rebar at Ash Disposal Site
02				3957605.805	5541183.287	653.31	3/4"ø x 5.0' Long Rebar in Primary Ash Pond Dike
03				3958097.196	5541834.063	641.29	Cut "X" in P.C.C. at entrance gate
04				3956321.888	5542146.856	683.39	Landscape Spike along Ash Disposal Roadway

TEST WELL COORDINATES

WELL ID	Northing	Easting	TOP Elevation	Ground Elevation
SB-1	3957238.28	5541352.23	653.36	653.26
SB-2	3957245.81	5541363.76	652.66	652.63
SB-3	3956845.82	5541523.57	656.39	655.37
SB-4	3956851.80	5541542.37	655.88	655.34
SB-5	3956557.49	5541648.53	656.70	655.80
SB-6	3956569.09	5541669.35	656.19	655.97
SB-7	3957856.52	5541618.95	653.45	653.33
SB-8	3957852.40	5541084.50	641.74	638.43
SB-9	3957854.40	5541094.88	640.63	638.52
SB-10	NS	NS	656.38	655.85
SB-11	NS	NS	656.38	656.17
SB-12	NS	NS	656.40	655.44
SB-13	NS	NS	656.43	655.27
SB-14	NS	NS	654.37	653.15
SB-15	NS	NS	652.75	652.67

Legend
- OHE — Overhead Electric Line
- T T — Underground Telephone Utility
- Existing Power Pole
- SB● — Temporary Well Location
- SB⊕ — Soil Boring Location
- CPT — Cone Penitrometer Test Location
- CP ⊕ — Control Point

Notes
1. Project horizontal positions are based on the Iowa State Plane Coordinate System North Zone (1401) Horizontal NAD83(2011).
2. Project vertical positions are based on NAVD_88 datum (Geoid 12A).
3. Contour Interval = 1 foot.

NOTE:
1. SURVEY INFORMATION PROVIDED ABOVE WAS COMPILED BY MOHN SURVEYING, INC. 1890 GREAT RIVER ROAD LANSING, IOWA 52151, APRIL 2015.
2. ALLIANT ENERGY REQUIRES 20 FEET OVERHEAD SEPARATION DISTANCE FOR EQUIPMENT OPERATING UNDER POWERLINES.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3	1-18-16	DLS	MWL	AS-BUILT DRAWINGS
2	6-24-15	TJH	MWL	INCORPORATE IPL COMMENTS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

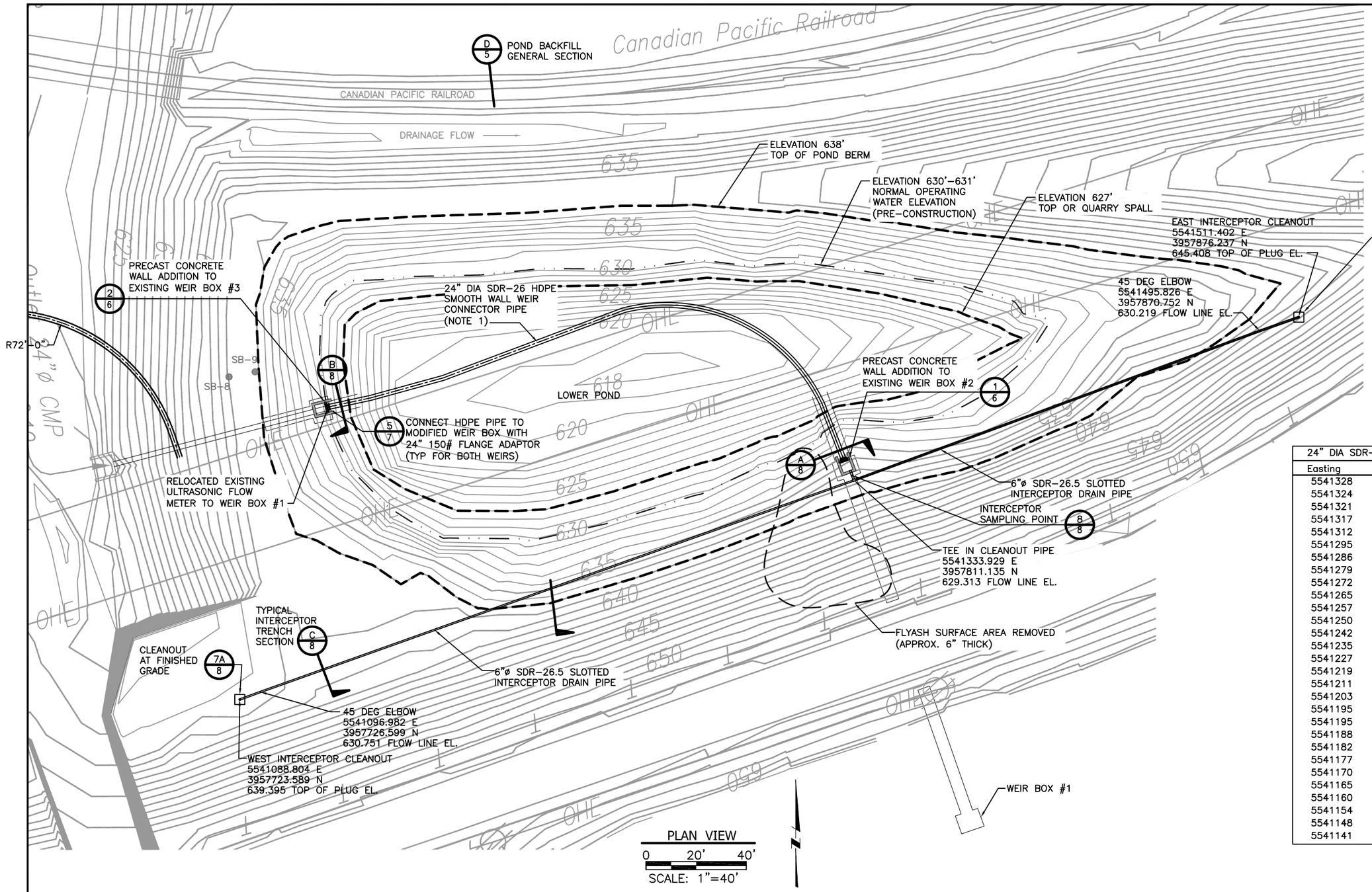
SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND CLOSURE DESIGN
APRIL 2015 SITE SURVEY
PRE-CONSTRUCTION

JOB 154.021.003
SHT. 2
DWG. 154021PC-02



NOTE:
1. 24" WEIR CONNECTOR PIPE WAS ROUTED TO ACCOMMODATE A MINIMUM BEND RADIUS OF 72'. APPROXIMATE LENGTH OF PIPE RUN IS 240' WITH A CONSTANT PIPE SLOPE.

24" DIA SDR–26 HDPE PIPE AS–BUILT SURVEY DATA		
Easting	Northing	Pipe Invert Elev.
5541328	3957824	627.378
5541324	3957834	
5541321	3957842	
5541317	3957849	
5541312	3957856	627.154
5541295	3957871	
5541286	3957876	
5541279	3957878	626.680
5541272	3957880	
5541265	3957881	
5541257	3957881	
5541250	3957880	
5541242	3957879	626.065
5541235	3957876	
5541227	3957873	
5541219	3957870	625.845
5541211	3957867	
5541203	3957864	
5541195	3957861	
5541195	3957861	625.789
5541188	3957858	
5541182	3957856	
5541177	3957854	
5541170	3957852	625.800
5541165	3957851	
5541160	3957849	
5541154	3957848	
5541148	3957846	
5541141	3957844	625.337

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	1–28–16	DLS	MWL	AS–BUILT DRAWINGS
1	6–15–15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5–14–15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

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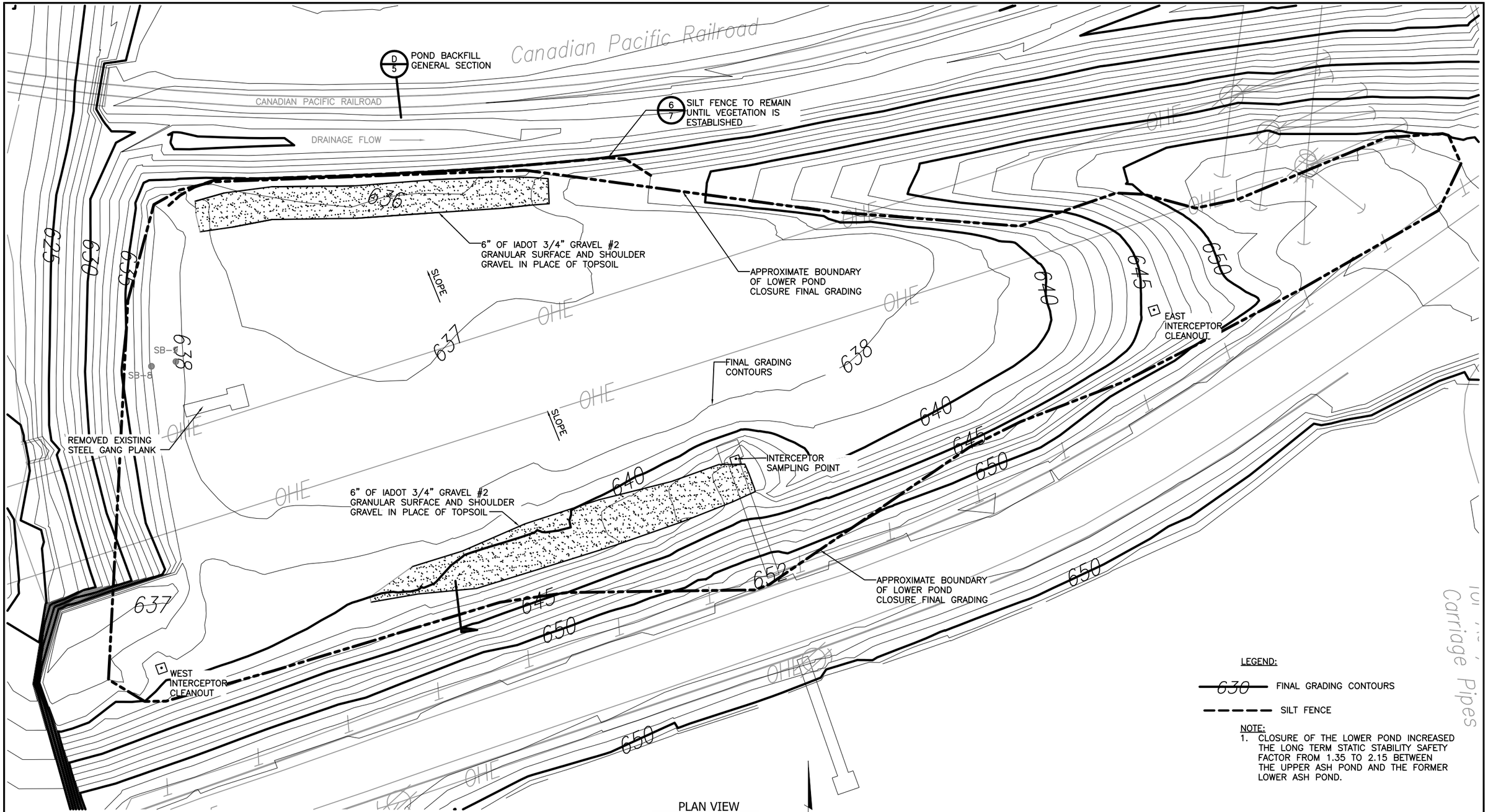
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND CLOSURE AS–BUILT DRAWINGS
PIPE CONNECTION AND WEIR MODIFICATIONS
PLAN VIEW

JOB 154.021.003
SHT. 3
DWG. 154021PC–03



LEGEND:

630 FINAL GRADING CONTOURS

SILT FENCE

NOTE:

1. CLOSURE OF THE LOWER POND INCREASED THE LONG TERM STATIC STABILITY SAFETY FACTOR FROM 1.35 TO 2.15 BETWEEN THE UPPER ASH POND AND THE FORMER LOWER ASH POND.

PLAN VIEW

0 20' 40'

SCALE: 1"=40'

REV	DATE	BY	APP	DESCRIPTION
3				
4				
3				
2	1-28-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

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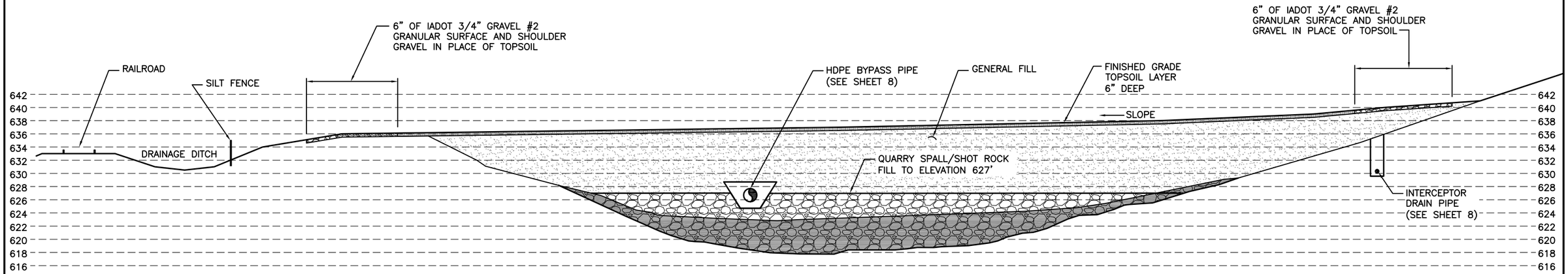
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND CLOSURE AS-BUILT DRAWINGS
FINAL GRADING PLAN

JOB 154.021.003
SHT. 4
DWG. 154021PC-04



POND BACKFILL GENERAL SECTION (D/3, D/4)

0 15'

SCALE: 1"=15'-0"

LEGEND:

- TOPSOIL
- GENERAL FILL
- QUARRY SPALL/SHOT ROCK FILL
- POND SEDIMENT DREDGED PRIOR TO POND BACKFILL

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3	1-28-16	DLS	MWL	AS-BUILT DRAWINGS
2	6-24-15	TJH	MWL	INCORPORATE IPL COMMENTS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

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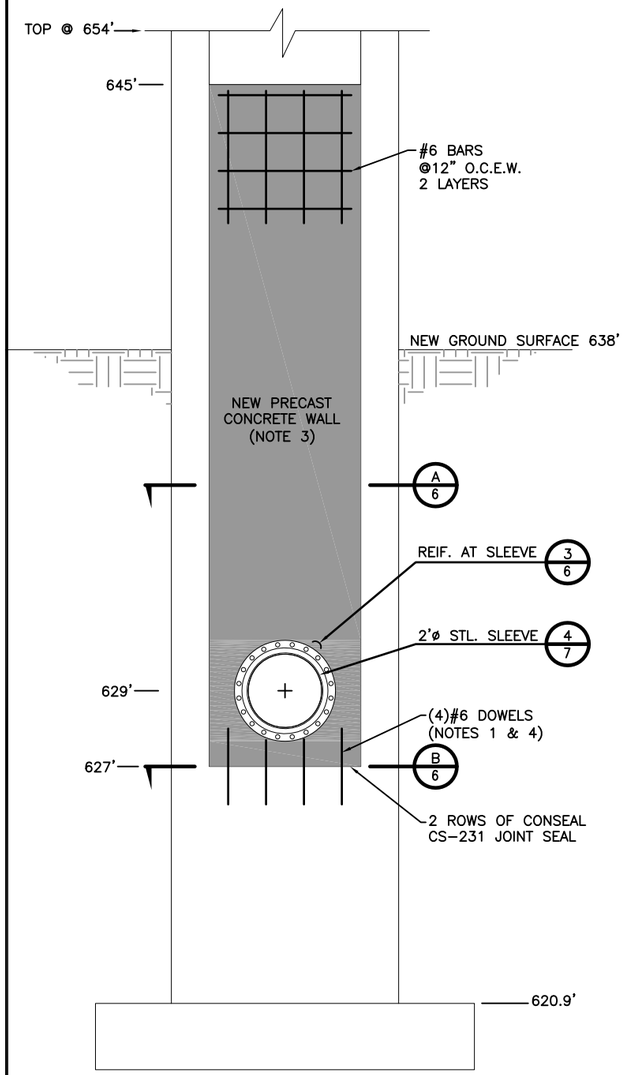
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND CLOSURE AS-BUILT DRAWINGS
POND CLOSURE BACKFILL
GENERAL SECTION

JOB 154.021.003
SHT. 5
DWG. 154021PC-05

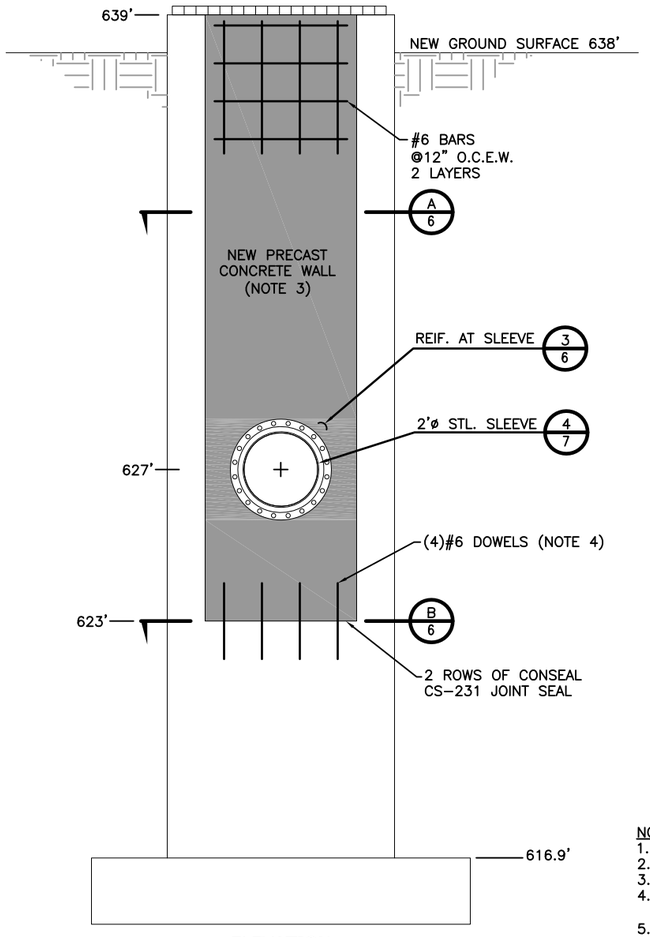


ELEVATION

PRECAST CONCRETE WALL ADDITIONS - WEIR BOX #2 (1/3)

0 2' 4'

SCALE: 1/4"=1'-0"

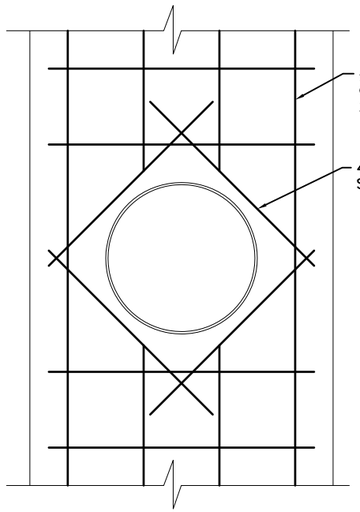


ELEVATION

PRECASTCONCRETE WALL ADDITIONS - WEIR BOX #3 (2/3)

0 2' 4'

SCALE: 1/4"=1'-0"

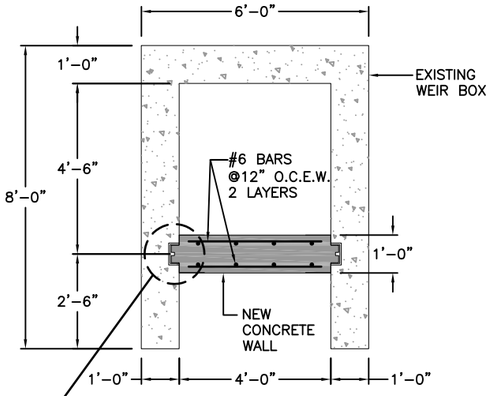


REINFORCEMENT AROUND SLEEVE (3/6)

TYP. WEIR BOXES 2&3

0 1' 2'

SCALE: 1/2"=1'-0"

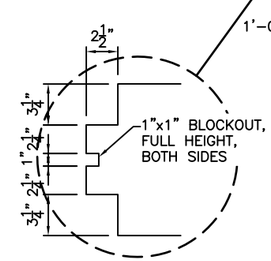


SECTION (A/6)

TYP. WEIR BOXES 2&3

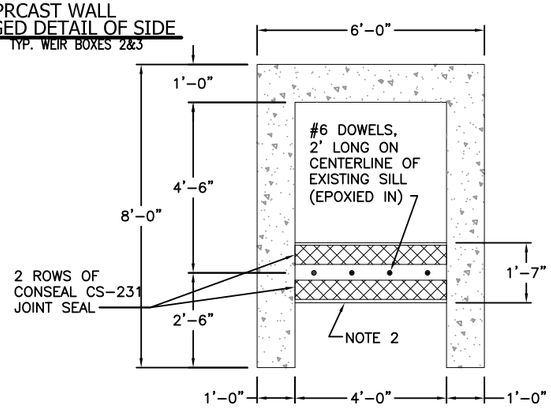
0 2' 4'

SCALE: 1/4"=1'-0"



PRCAST WALL ENLARGED DETAIL OF SIDE

TYP. WEIR BOXES 2&3



SECTION (B/6)

TYP. WEIR BOXES 2&3

0 2' 4'

SCALE: 1/4"=1'-0"

NOTES:

1. TRIM DOWELS THAT INTERFERE WITH SLEEVE.
2. ANY LOOSE CONCRETE WAS REMOVED BY CHIPPING.
3. INSIDE OF WEIR BOXES WERE POWER WASHED.
4. DEWATER TO INSTALL NEW CONCRETE ONLY AFTER PLACING QUARRY SPALL TO ELEVATION 627'.
5. PUREFOAM SEAL WAS TREMMIED INTO KEYWAY JOINT JOINING PRECAST PANEL EDGES TO WEIR BOX TO FORM A WATER TIGHT SEAL.

REV	DATE	BY	APP	DESCRIPTION
3				
4				
5				
2	1-28-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5-14-15

DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

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CLIENT / LOCATION

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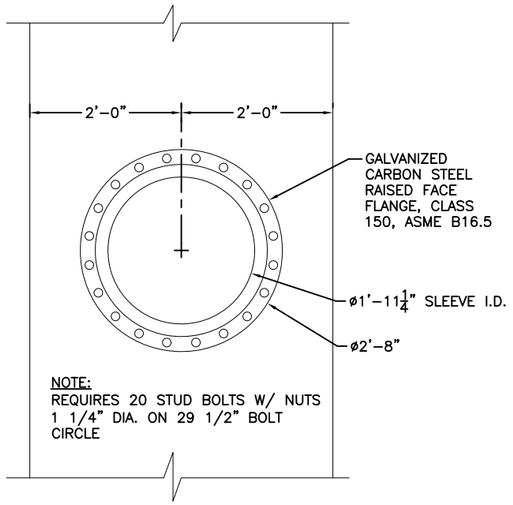
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

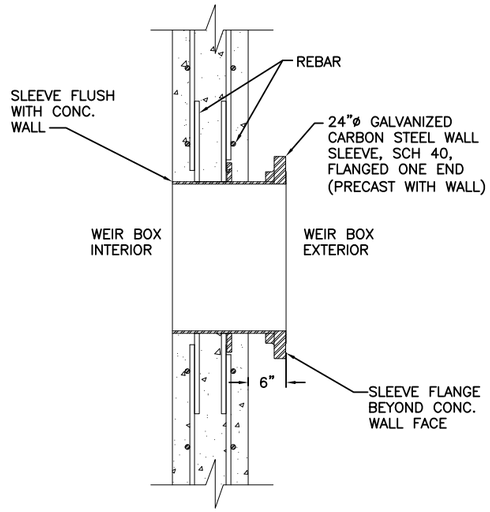
DRAWING DESCRIPTION

LOWER POND CLOSURE AS-BUILT DRAWINGS
WEIRS #2 & #3 WALL ADDITIONS
DETAILS PAGE 1

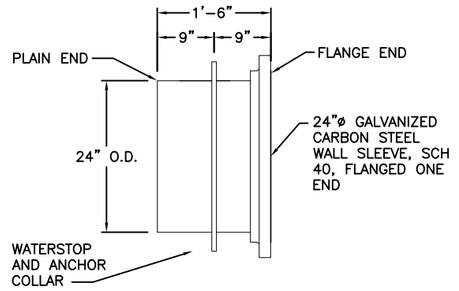
JOB 154.021.003
SHT. 6
DWG. 154021PC-06-09



ELEVATION



SECTION THROUGH SLEEVE

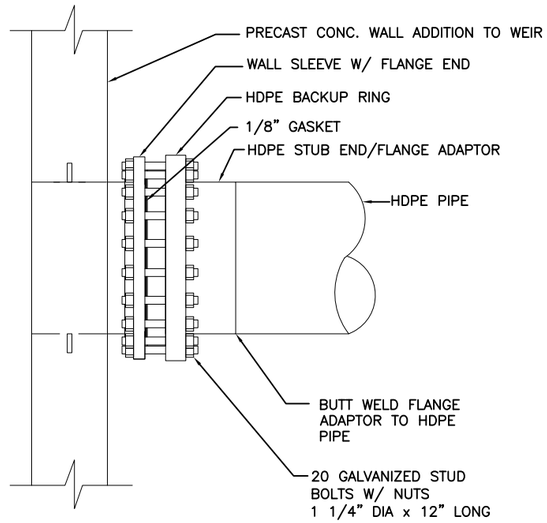


SLEEVE DIMENSIONS

CAST-IN WALL SLEEVE INSERT (4/6)
TYP. WEIR BOXES 2&3

0 1' 2'

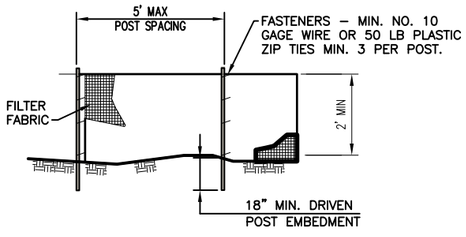
SCALE: 1/2"=1'–0"



FLANGE CONNECTION DETAIL (5/3)
TYP. WEIR BOXES 2&3

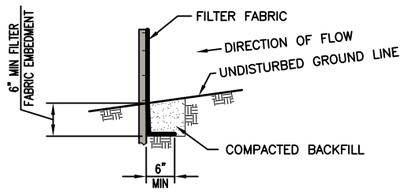
0 1' 2'

SCALE: 1/2"=1'–0"

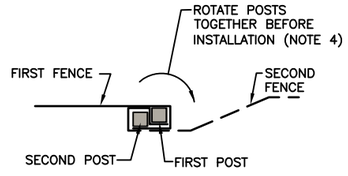


ELEVATION

NOTES:
1. TEMPORARY SILT FENCE WAS INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. FENCE WAS MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REMOVED IN CONJUNCTION WHEN VEGETATION IS WELL ESTABLISHED.
2. FILTER FABRIC SHALL MET THE REQUIREMENTS OF SPECIFICATIONS WITH EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.
3. FENCE POSTS SWERE WOOD POST WITH A MINIMUM CROSS–SECTIONAL AREA OF 1.5" X 1.5".
4. WHEN SPLICES ARE NECESSARY MAKE SPLICE AT POST ACCORDING TO SPLICE DETAIL. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE. ROTATE BOTH POSTS TOGETHER AT LEAST 180 DEGREES TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL. CUT THE FABRIC NEAR THE BOTTOM OF THE POSTS TO ACCOMMODATE THE 6 INCH FLAP. THEN DRIVE BOTH POSTS AND BURY THE FLAP. COMPACT BACKFILL WELL.



FABRIC ANCHOR DETAIL



SPLICE DETAIL-PLAN VIEW

SILT FENCE DETAIL (6/4)
SCALE: NONE

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	1–28–16	DLS	MWL	AS–BUILT DRAWINGS
1	6–15–15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5–14–15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

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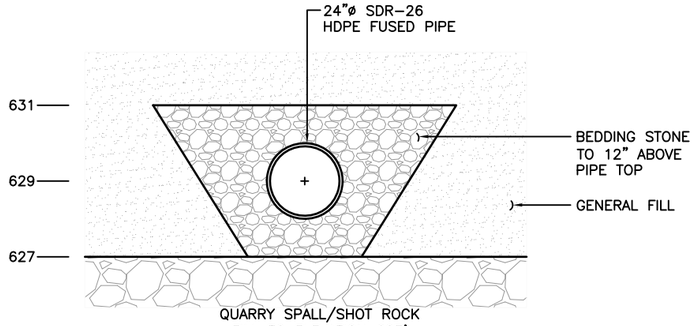
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
LOWER POND CLOSURE AS–BUILT DRAWINGS
WEIRS #2 & #3 WALL ADDITIONS
DETAILS PAGE 2

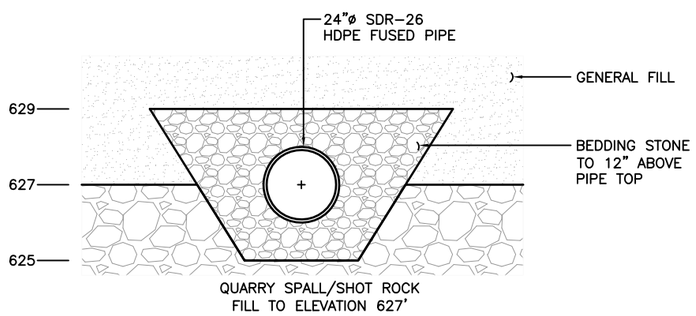
JOB 154.021.003
SHT. 7
DWG. 154021PC–06–09



SECTION AT WEIR BOX #2 (A/3)

0 2' 4'

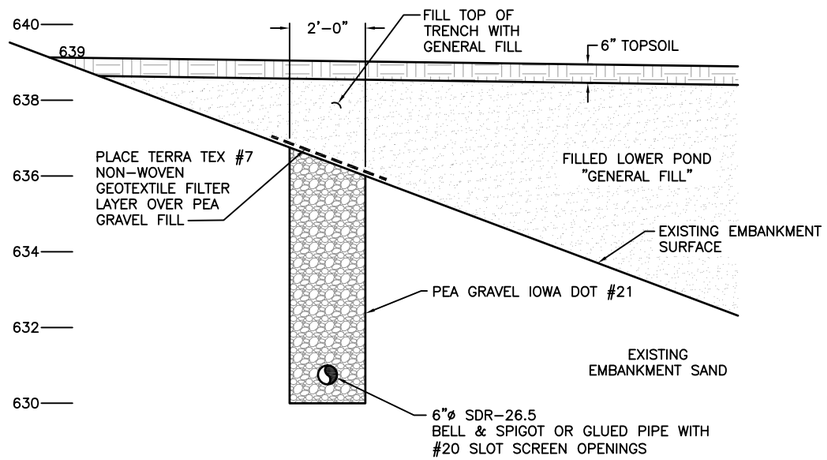
SCALE: 1/4"=1'-0"



SECTION AT WEIR BOX #3 (B/3)

0 2' 4'

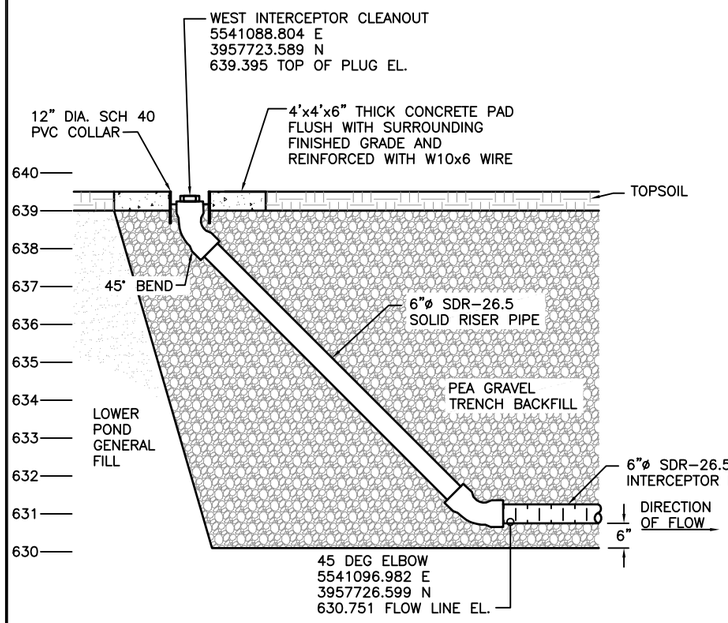
SCALE: 1/4"=1'-0"



SURFACE INTERCEPTOR DRAIN
TYPICAL SECTION (C/3)

0 2' 4'

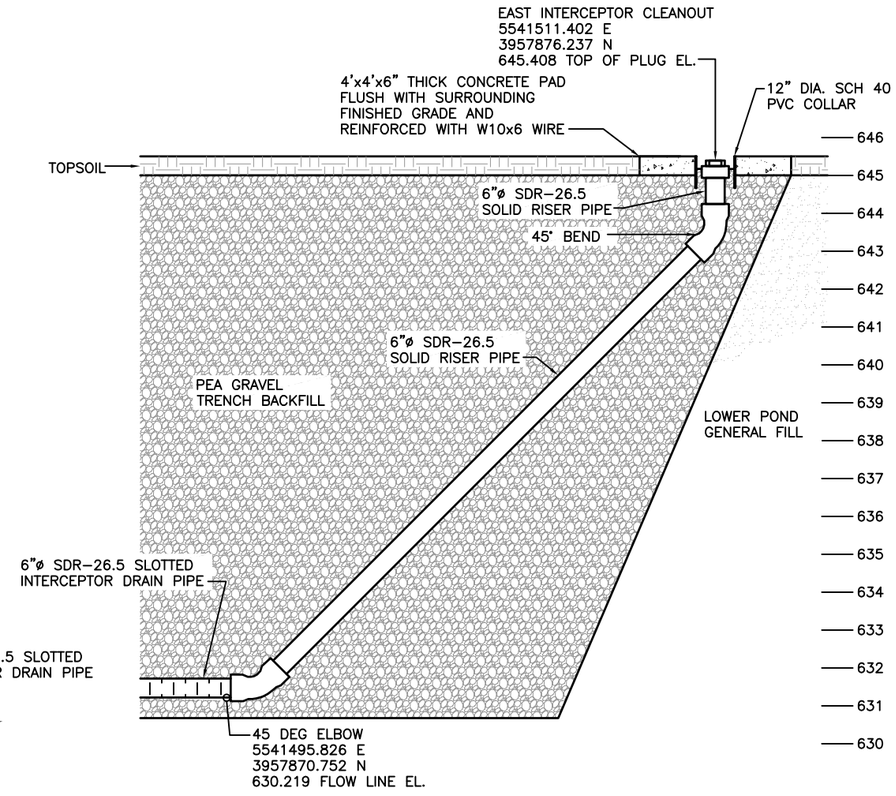
SCALE: 1/4"=1'-0"



WEST INTERCEPTOR CLEAN OUT DETAIL (7A/3)

0 2' 4'

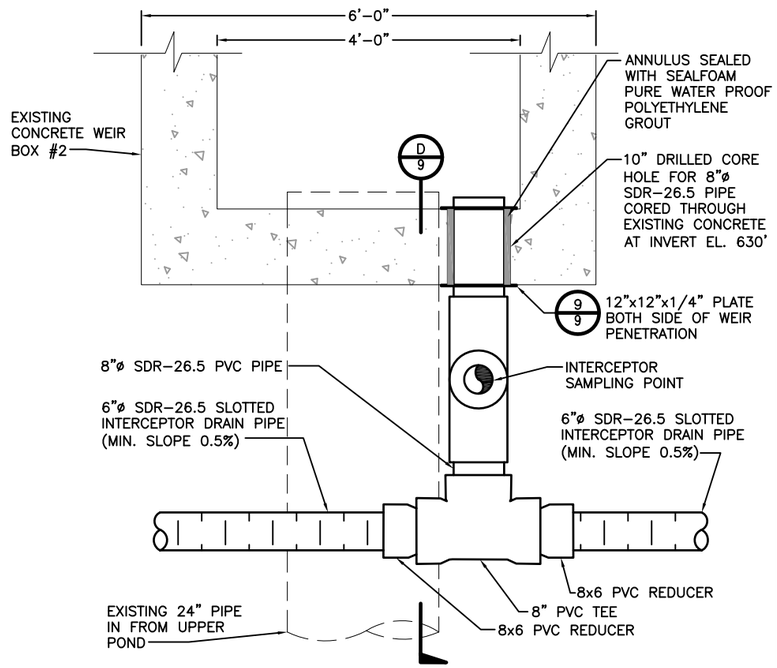
SCALE: 1/4"=1'-0"



EAST INTERCEPTOR CLEAN OUT DETAIL (7B/3)

0 2' 4'

SCALE: 1/4"=1'-0"



INTERCEPTOR CONNECTION
TO WEIR BOX (8/3)

0 1' 2'

SCALE: 1/2"=1'-0"

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3	1-28-16	DLS	MWL	AS-BUILT DRAWINGS
2	6-24-15	TJH	MWL	INCORPORATE IPL COMMENTS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5-14-15
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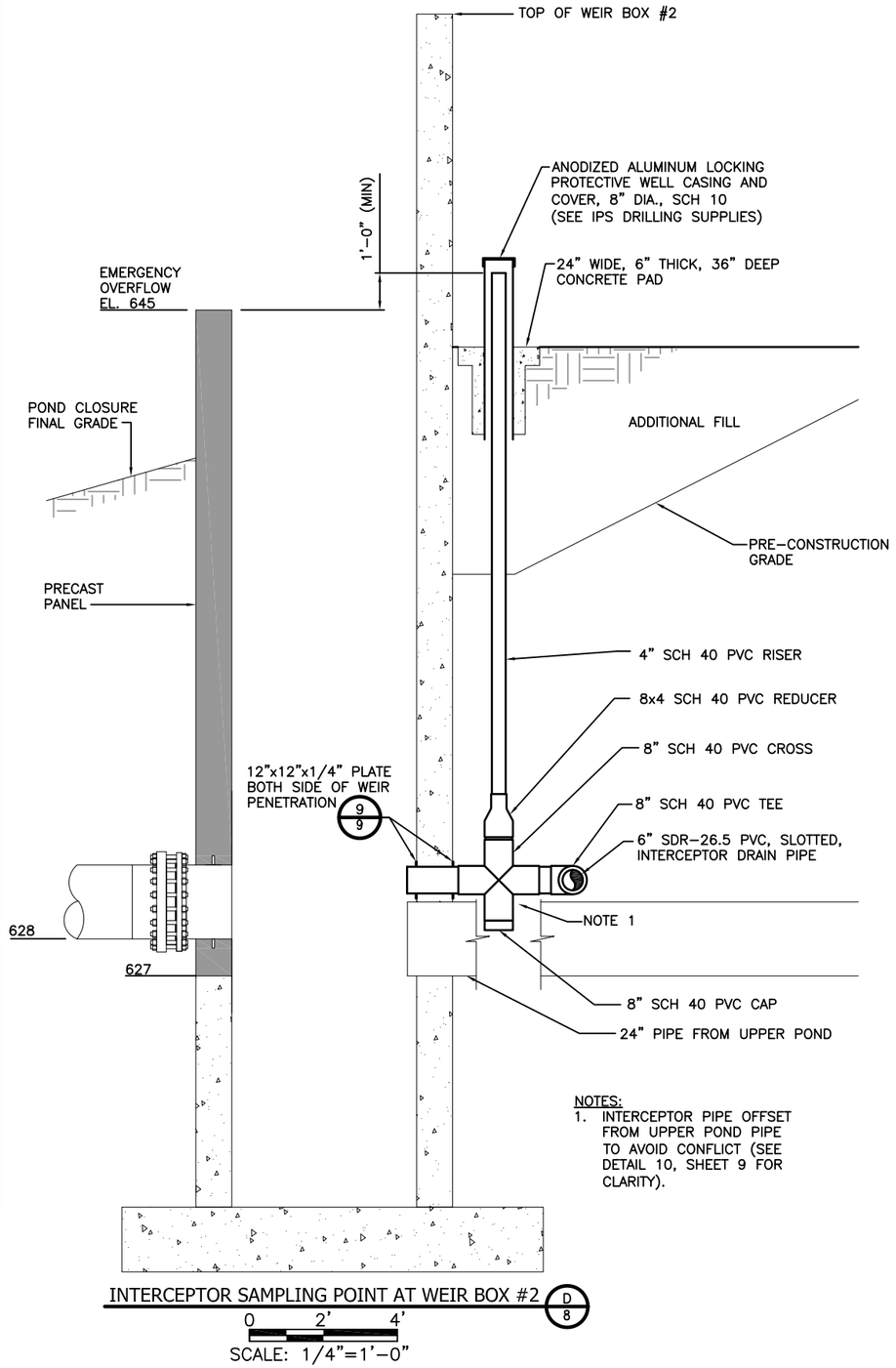
DRAWING DESCRIPTION
LOWER POND CLOSURE AS-BUILT DRAWINGS
PIPING SECTIONS AND DETAILS
PAGE 1

JOB 154.021.003
SHT. 8
DWG. 154021PC-06-09

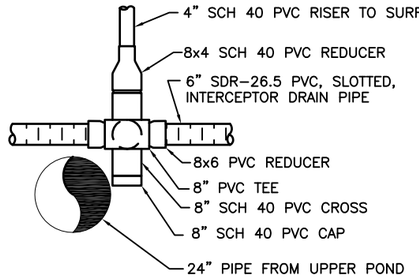


NOTES:
1. INTERCEPTOR PIPE OFFSET FROM UPPER POND PIPE TO AVOID CONFLICT (SEE DETAIL 10, SHEET 9 FOR CLARITY).

INTERCEPTOR SAMPLING POINT AT WEIR BOX #2 D/8

0 2' 4'

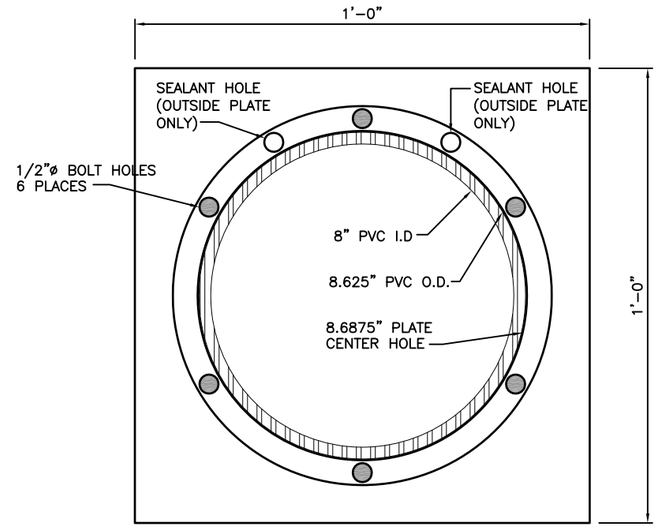
SCALE: 1/4"=1'-0"



PIPE OFFSETS 10/9

0 2' 4'

SCALE: 1/4"=1'-0"



NOTES:
1. 2 PLATES 12"x12"x1/4" INSIDE AND OUTSIDE.
2. USED 3/8" BOLTS x 14" LONG. bOLT HEADS AT INSIDE PLATE.
3. SEAQLANT HOLES ON OUTSIDE PLATE ONLY. SEAL WITH SEALFOAM PURE WATER PROOF POLYETHYLENE GROUT.

8" PVC PIPE CONNECTION PLATES TO WEIR 9/8 9/9

SCALE: NOT TO SCALE

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	1-28-16	DLS	MWL	AS-BUILT DRAWINGS

SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

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DRAWING DESCRIPTION
LOWER POND CLOSURE AS-BUILT DRAWINGS
PIPING SECTIONS AND DETAILS
PAGE 2

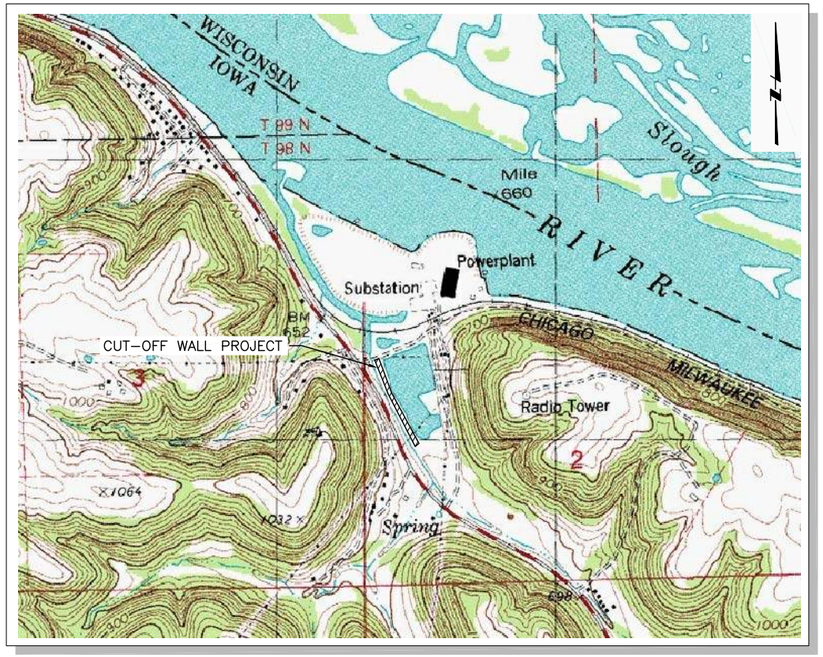
JOB 154.021.003
SHT. 9
DWG. 154021PC-06-09

INTERSTATE POWER AND LIGHT (IPL) COMPANY

LANSING GENERATING STATION PROJECT

SEEPAGE CONTROL CUT-OFF WALL AS-BUILT DRAWINGS

2320 POWER PLANT DR
LANSING, IA 52151
FEBRUARY 2016



LOCATION MAP

NOT TO SCALE

1. COVER SHEET
2. APRIL 2015 SITE SURVEY (PRE-CONSTRUCTION)
3. ALIGNMENT PLAN
4. PROFILE ALONG ALIGNMENT
5. CUT-OFF WALL GENERAL SECTION AND DETAILS
6. PERFORMANCE MONITOR DETAILS STA 4+53 & 8+21
7. PERFORMANCE MONITOR DETAILS STA 10+91
8. PIEZOMETER BORING LOGS PZ-1 & PZ-2
9. PIEZOMETER BORING LOGS PZ-3 & PZ-4
10. PIEZOMETER BORING LOGS PZ-5 & PZ-6
11. PIEZOMETER CONSTRUCTION LOGS PZ-1 & PZ-2
12. PIEZOMETER CONSTRUCTION LOGS PZ-3 & PZ-4
13. PIEZOMETER CONSTRUCTION LOGS PZ-5 & PZ-6

SHEET INDEX

AERIAL MAP

NOT TO SCALE

REV	DATE	BY	APP	DESCRIPTION
3				
4				
3				
2	2-29-16	DLS	MWL	AS–BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5–14–15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

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CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
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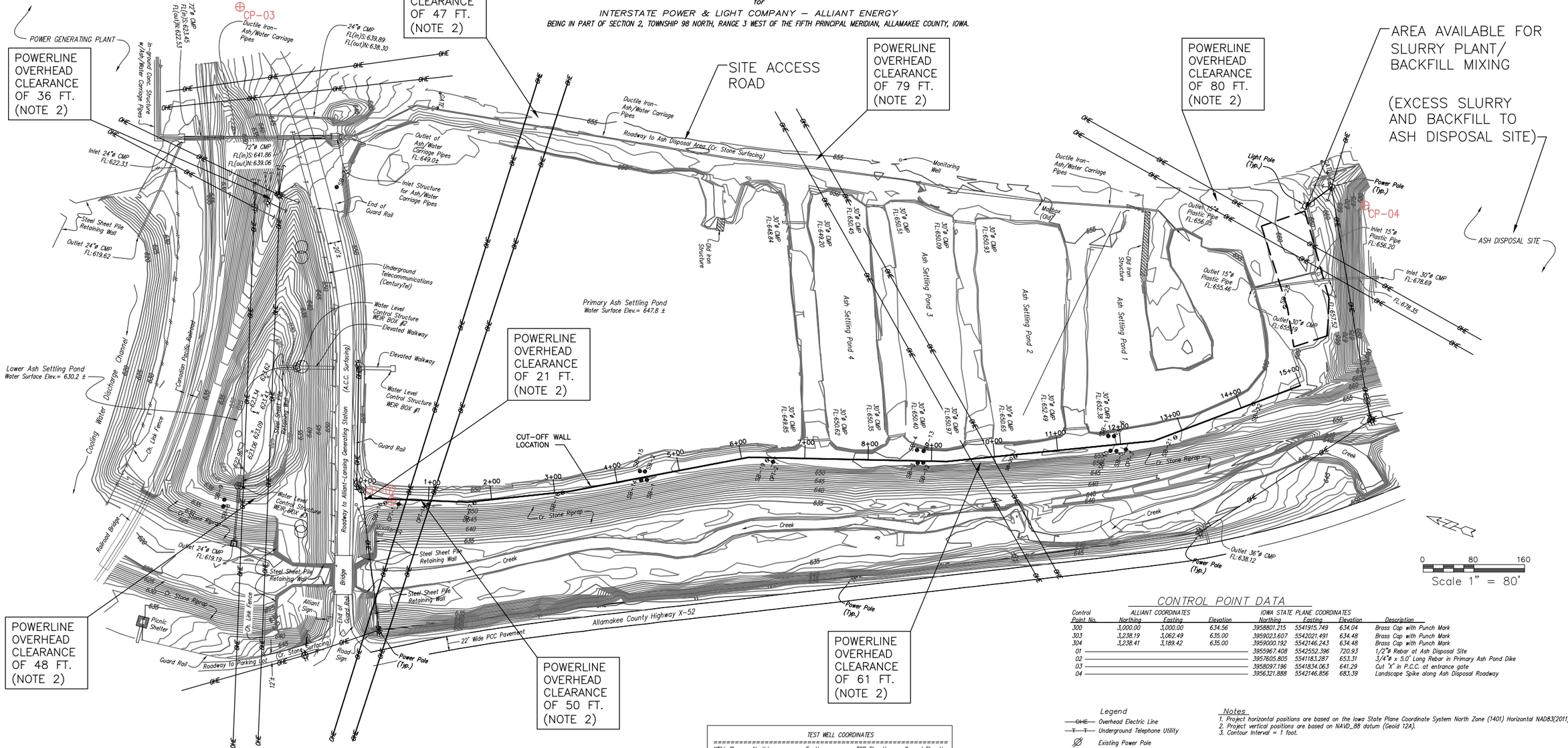
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT–OFF WALL
AS–BUILT DRAWINGS
COVER SHEET

JOB 154.021.003
SHT. 1
DWG. 154021SW–01

UPPER AND LOWER CCR POND TOPOGRAPHIC SURVEY AND LOWER CCR POND BATHYMETRY
at
ALLIANT LANSING POWER GENERATING STATION
for
INTERSTATE POWER & LIGHT COMPANY – ALLIANT ENERGY
BEING IN PART OF SECTION 2, TOWNSHIP 98 NORTH, RANGE 3 WEST OF THE FIFTH PRINCIPAL MERIDIAN, ALLAMAKEE COUNTY, IOWA.



CONTROL POINT DATA

Control Point No.	ALLIANT COORDINATES Northing	Easting	Elevation	IOWA STATE PLANE COORDINATES Northing	Easting	Elevation	Description
300	3,000.00	3,000.00	634.56	3958801.215	5541915.749	634.04	Brass Cap with Punch Mark
303	3,238.19	3,062.49	635.00	3959023.607	5542021.491	634.48	Brass Cap with Punch Mark
304	3,238.41	3,189.42	635.00	3959000.192	5542146.243	634.48	Brass Cap with Punch Mark
01				3955967.408	5542552.396	720.93	1/2"ø Rebar at Ash Disposal Site
02				3957605.805	5541183.287	653.31	3/4"ø x 5.0' Long Rebar in Primary Ash Pond Dike
03				3958097.196	5541834.063	641.29	Cut 'X' in P.C.C. at entrance gate
04				3956321.888	5542146.856	683.39	Landscape Spike along Ash Disposal Roadway

TEST WELL COORDINATES

WELL ID	Northing	Easting	TOP Elevation	Ground Elevation
SB-1	3957238.28	5541352.23	653.36	653.26
SB-2	3957245.81	5541363.76	652.66	652.63
SB-3	3956845.82	5541523.57	656.39	655.37
SB-4	3956853.80	5541542.37	655.88	655.34
SB-5	3956557.49	5541648.53	656.70	655.80
SB-6	3956569.09	5541669.35	656.19	655.97
SB-7	3957856.52	5541618.95	653.45	653.33
SB-8	3957852.40	5541084.50	641.74	638.43
SB-9	3957854.40	5541094.88	640.63	638.52
SB-10	NS	NS	656.38	655.85
SB-11	NS	NS	656.38	656.17
SB-12	NS	NS	656.40	655.44
SB-13	NS	NS	656.43	655.27
SB-14	NS	NS	654.37	653.15
SB-15	NS	NS	652.75	652.67

Legend
- OHE — Overhead Electric Line
- T T — Underground Telephone Utility
- Existing Power Pole
- SB● — Temporary Well Location
- SB● — Soil Boring Location
- CPT — Cone Penitrometer Test Location
- CP — Control Point

Notes
1. Project horizontal positions are based on the Iowa State Plane Coordinate System North Zone (1401) Horizontal NAD83(2011).
2. Project vertical positions are based on NAVD_88 datum (Geoid 12A).
3. Contour Interval = 1 foot.

NOTE:
1. SURVEY INFORMATION PROVIDED ABOVE WAS COMPILED BY MOHN SURVEYING, INC. 1890 GREAT RIVER ROAD LANSING, IOWA 52151, APRIL 2015.
2. ALLIANT ENERGY REQUIRES 20 FEET OVERHEAD SEPARATION DISTANCE FOR EQUIPMENT OPERATING UNDER POWERLINES.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	2-29-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

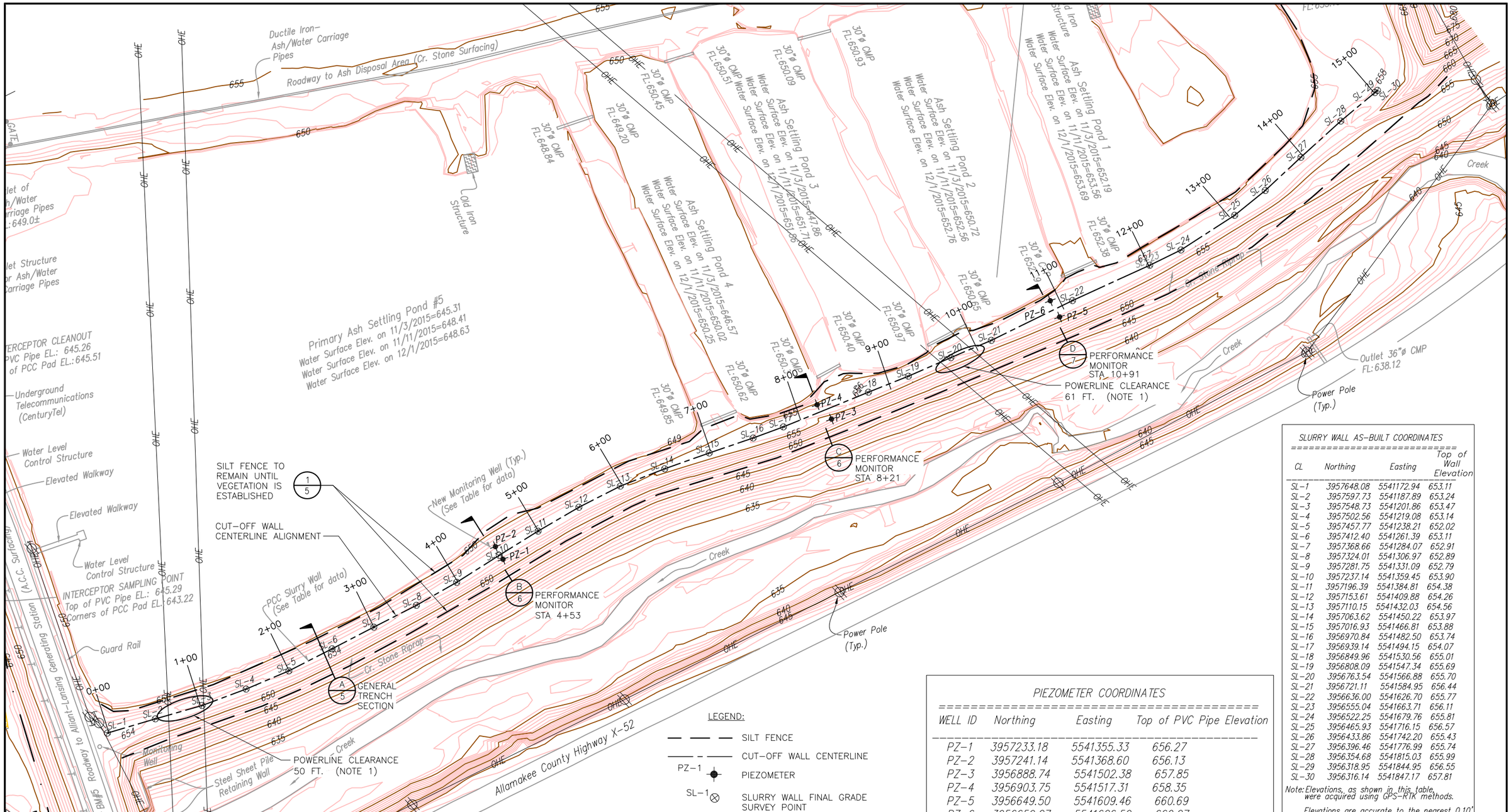
SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
AS-BUILT DRAWINGS
APRIL 2015 SITE SURVEY (PRE-CONSTRUCTION)

JOB 154.021.003
SHT. 2
DWG. 154021SW-02



LEGEND:

- SILT FENCE
- CUT-OFF WALL CENTERLINE
- PZ-1 PIEZOMETER
- SL-1 SLURRY WALL FINAL GRADE SURVEY POINT

NOTE:
1. INSTALLATION OF THE CUT OFF WALL INCREASED THE LONG TERM STATIC STABILITY SAFETY FACTOR FROM 1.6 TO 2.0 ON THE WEST EMBANKMENT OF THE UPPER ASH POND.

SLURRY WALL AS-BUILT COORDINATES

CL	Northing	Easting	Top of Wall Elevation
SL-1	3957648.08	5541172.94	653.11
SL-2	3957597.73	5541187.89	653.24
SL-3	3957548.73	5541201.86	653.47
SL-4	3957502.56	5541219.08	653.14
SL-5	3957457.77	5541238.21	652.02
SL-6	3957412.40	5541261.39	653.11
SL-7	3957368.66	5541284.07	652.91
SL-8	3957324.01	5541306.97	652.89
SL-9	3957281.75	5541331.09	652.79
SL-10	3957237.14	5541359.45	653.90
SL-11	3957196.39	5541384.81	654.38
SL-12	3957153.61	5541409.88	654.26
SL-13	3957110.15	5541432.03	654.56
SL-14	3957063.62	5541450.22	653.97
SL-15	3957016.93	5541466.81	653.88
SL-16	3956970.84	5541482.50	653.74
SL-17	3956939.14	5541494.15	654.07
SL-18	3956849.96	5541530.56	655.01
SL-19	3956808.09	5541547.34	655.69
SL-20	3956763.54	5541566.88	655.70
SL-21	3956721.11	5541584.95	656.44
SL-22	3956636.00	5541626.70	655.77
SL-23	3956555.04	5541663.71	656.11
SL-24	3956522.25	5541679.76	655.81
SL-25	3956465.93	5541716.15	656.57
SL-26	3956433.86	5541742.20	655.43
SL-27	3956396.46	5541776.99	655.74
SL-28	3956354.68	5541815.03	655.99
SL-29	3956318.95	5541844.95	656.55
SL-30	3956316.14	5541847.17	657.81

Note: Elevations, as shown in this table, were acquired using GPS-RTK methods.
Elevations are accurate to the nearest 0.10'.

PIEZOMETER COORDINATES

WELL ID	Northing	Easting	Top of PVC Pipe Elevation
PZ-1	3957233.18	5541355.33	656.27
PZ-2	3957241.14	5541368.60	656.13
PZ-3	3956888.74	5541502.38	657.85
PZ-4	3956903.75	5541517.31	658.35
PZ-5	3956649.50	5541609.46	660.69
PZ-6	3956659.27	5541626.50	660.27

Note: Elevations, as shown in this table, were acquired using conventional level survey methods.

0 50' 100'
SCALE: 1"=100'

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	2-29-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

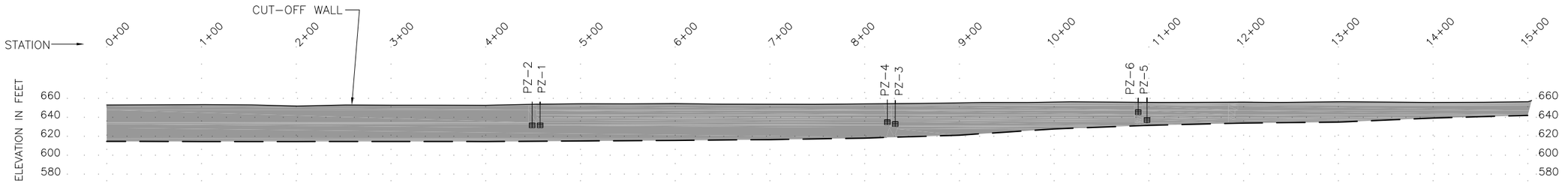
SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
AS-BUILT DRAWINGS
ALIGNMENT PLAN

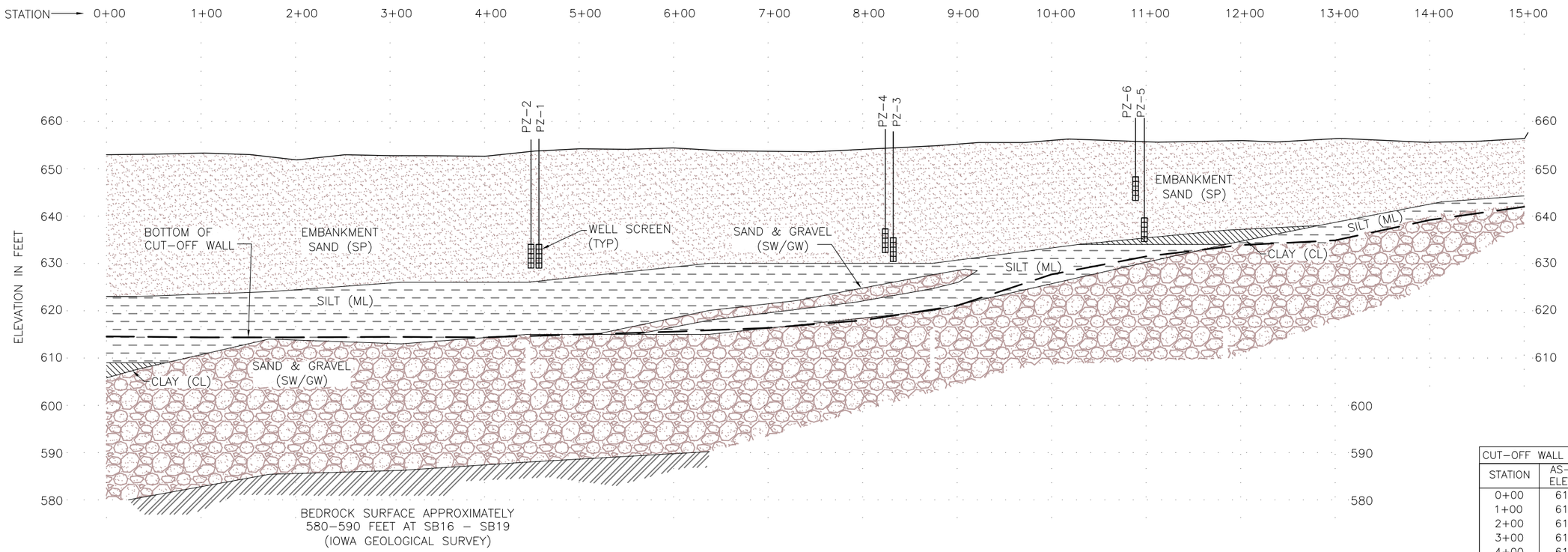
JOB 154.021.003
SHT. 3
DWG. 154021SW-03



CUT-OFF WALL ALIGNMENT PROFILE

0 60 120 180

SCALE IN FEET



CUT-OFF WALL ALIGNMENT PROFILE SHOWING EXISTING GEOLOGY

VERTICALLY EXAGGERATED 5x

0 60 120 180

HORIZONTAL SCALE IN FEET

NOTES:
1. ELEVATIONS IN FEET NAVD (1988) DATUM.

BLAST FURNACE SLAG, CEMENT, BENTONITE WALL MIX DESIGN
GROUND BLAST FURNACE SLAG = 7.0%
PORTLAND CEMENT = 0.3%
PREMIUM GEL BENTONITE = 4.4%
WATER = 88.2%
POLYMAX ADDITIVE = 0.1%

CUT–OFF WALL BOTTOM DEPTH

STATION	AS–BUILT ELEVATION	DEPTH BGS
0+00	614.6'	39'
1+00	614.4'	38.5'
2+00	614.4'	38.5'
3+00	614.5'	38.5'
4+00	614.4'	38.5'
5+00	615.0'	38'
6+00	615.6'	38'
7+00	616.4'	38'
8+00	618.0'	37'
9+00	621.1'	34.5'
10+00	627.7'	28'
11+00	631.5'	24.5'
12+00	633.9'	25'
13+00	634.9'	21.5'
14+00	639.2'	17.5'
15+00	642.0'	14.5'

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	2–29–16	DLS	MWL	AS–BUILT DRAWINGS
1	6–15–15	TJH	MWL	INCORPORATE IPL COMMENTS

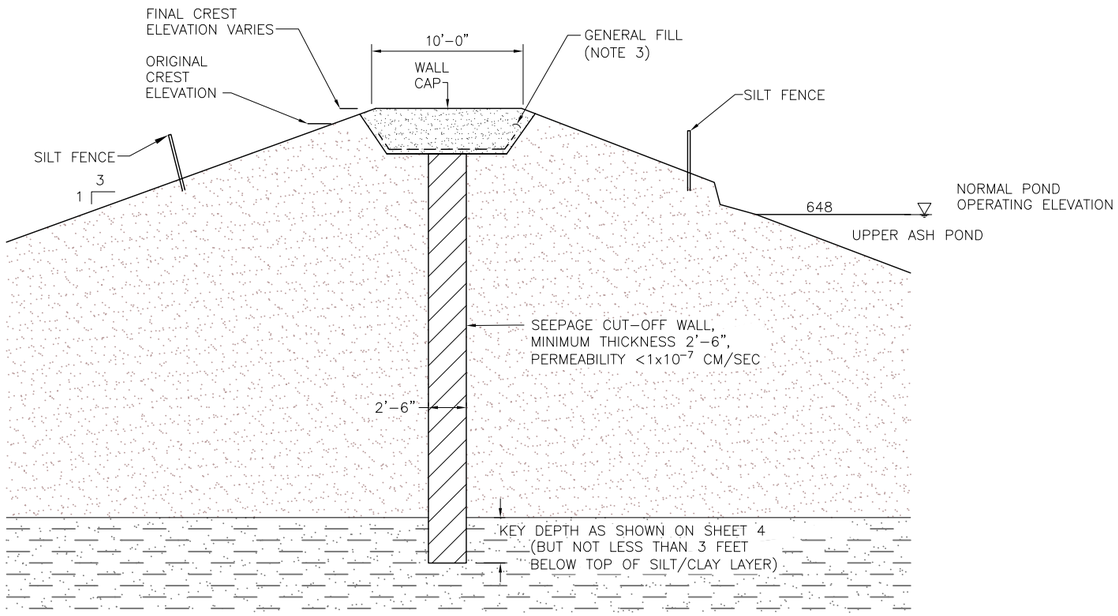
SCALE: AS SHOWN | DATE: 5–14–15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT–OFF WALL
AS–BUILT DRAWINGS
PROFILE ALONG ALIGNMENT

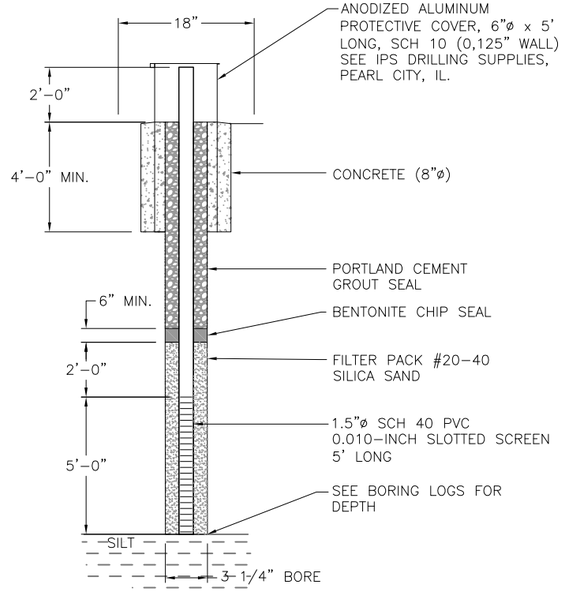
JOB 154.021.003
SHT. 4
DWG. 154021SW–04



CUT-OFF WALL GENERAL SECTION (A/3)

0 5 10

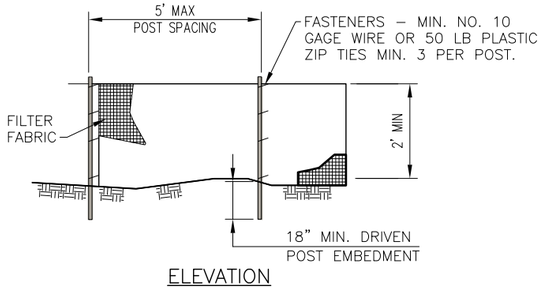
SCALE IN FEET



NOTE:
1. REFER TO WELL CONSTRUCTION LOGS, SHEETS 11, 12, 13 FOR FURTHER CONSTRUCTION DETAILS.

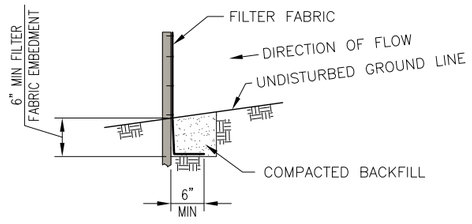
PIEZOMETER DETAIL (2/6 & 2/7)

(TYPICAL OF 6)

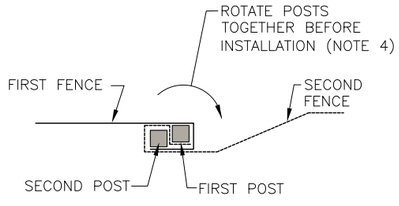


ELEVATION

NOTES:
1. TEMPORARY SILT FENCE WAS INSTALLED PRIOR TO ANY GRADING WORK IN THE AREA TO BE PROTECTED. FENCE WAS MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD AND REMOVED IN CONJUNCTION WHEN VEGETATION IS WELL ESTABLISHED.
2. FILTER FABRIC MET THE REQUIREMENTS OF SPECIFICATIONSWITH EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN.
3. FENCE POSTS WERE BOTH WOOD POST WITH A MINIMUM CROSS-SECTIONAL AREA OF 1.5" X 1.5" AND A STANDARD STEEL POST.
4. ALL SPLICES WERE COMPLETED AT A POST ACCORDING TO SPLICE DETAIL. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE. ROTATE BOTH POSTS TOGETHER AT LEAST 180 DEGREES TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL. CUT THE FABRIC NEAR THE BOTTOM OF THE POSTS TO ACCOMMODATE THE 6 INCH FLAP. THEN DRIVE BOTH POSTS AND BURY THE FLAP. COMPACT BACKFILL WELL.



FABRIC ANCHOR DETAIL



SPLICE DETAIL–PLAN VIEW

SILT FENCE DETAIL (1/3)

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	2-29-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
AS-BUILT DRAWINGS
CUT-OFF WALL GENERAL SECTION AND DETAILS

JOB 154.021.003
SHT. 5
DWG. 154021SW-05-07

BORING LOG

CABENO Environmental Field Services, LLC — More than just a Probing Company

CLIENT: Alliant Energy

COORDINATES: *N NOT SURVEYED* / *E NOT SURVEYED*

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-1*

page 1 of 1

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	SAMPLE INFROMATION	PID READINGS	PID GRAPH	DEPTH IN FEET	PROFILE	DESCRIPTION
	SS1	1.2'/3'				0		SAND; brown; fine grained; well sorted; moist; trace silt
	SS2	4'/5'				-2 to -8		
	SS3	5'/5'				-10 to -14		@14.6' grades gray
	SS4	5'/5'				-16 to -20		
▽	SS5	2.5'/5'				-22		@ 22.5' grades wet
						-24 to -30		Bottom of boring @ 25' bgs. Boring advanced using Geoprobe Model 7822 w/ 3.25" OD Dualtube system for well installation and 2.25" OD Macro discrete for soil sampling.1.5" diameter, sch. 40 PVC well installed to 25'bgs with 5' prepack well screen, bentonite sleeve and foam bridge.Silver anodized alum protop cover installed.

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Bob Solak*
DATE BEGAN: *02/23/16*
DATE FINISHED: *02/23/16*
GROUND SURFACE ELEVATION: *NOT MEASURED*

BORING LOG

CABENO Environmental Field Services, LLC — More than just a Probing Company

CLIENT: Alliant Energy

COORDINATES: *N NOT SURVEYED* / *E NOT SURVEYED*

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-2*

page 1 of 1

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	SAMPLE INFROMATION	PID READINGS	PID GRAPH	DEPTH IN FEET	PROFILE	DESCRIPTION
	SS1	3'/3'				0		SAND; brown; fine grained; well sorted; moist; trace silt
▽	SS2	4'/5'				-2 to -8		@ 8' grades wet
	SS3	4.5'/5'				-10		@ 9.7' is a 3" dense sand with silt and clay; black to dark gray; moist
	SS4	5'/5'				-12 to -16		@ 14.7' is a 3" sandy CLAY; black to dark, moist @ 15' grades gray
	SS5	3'/5'				-18 to -20		@ 16.5' grades brown
						-22		@ 20' heaving into DT. Switch to discrete macro from 20'-25'.
						-24 to -30		@ 23.8' is a 4" black; hard; silty clay Blind drilled using 4 1/4" ID auger to 2-feet bgs. Bottom of boring @ 25' bgs. Boring advanced using Geoprobe Model 7822 w/ 3.25" OD Dualtube system for well installation and 2.25" OD Macro discrete for soil sampling.1.5" diameter, sch. 40 PVC well installed to 25'bgs with 5' prepack well screen, bentonite sleeve and foam bridge.Silver anodized alum protop cover installed.

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Bob Solak*
DATE BEGAN: *02/23/16*
DATE FINISHED: *02/23/16*
GROUND SURFACE ELEVATION: *NOT MEASURED*

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	2-29-16	DLS	MWL	AS-BUILT DRAWINGS

SCALE: NONE | DATE: 2-29-16
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
AS-BUILT DRAWINGS
PIEZOMETER BORING LOGS
PZ-1 & PZ-2

JOB 154.021.003
SHT. 8
DWG. 154021SW-08-13

BORING LOG

CABENO Environmental Field Services, LLC — More Than Just A Probing Company

CLIENT: Alliant Energy

COORDINATES: N NOT SURVEYED, E NOT SURVEYED

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-3*

page 1 of 1

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Bob Solak*
DATE BEGAN: *02/24/16*
DATE FINISHED: *02/24/16*
GROUND SURFACE ELEVATION: *NOT MEASURED*

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	SAMPLE INFROMATION	PID READINGS	PID GRAPH	DEPTH IN FEET	PROFILE	DESCRIPTION
						0		SAND; black to gray; fine to coarse; poorly sorted; moist; trace to some silt & bottom ash.
	SS1	3.8'/5'				-2		SAND; brown; fine grained; well sorted; moist; trace silt
	SS2	4.5'/5'				-4		
						-6		
						-8		
						-10		
	SS3	4.7'/5'				-12		@ 12' grades wet (?) @12.5'-13.8' is gray
						-14		
						-16		
	SS4	5'/5'				-18		
						-20		
						-22		@ 22' grades gray
▽	SS5	4'/5'						@ 23' grades wet
						-24		
						-26		Bottom of boring @ 25' bgs. Boring advanced using Geoprobe Model 7822. 2.25" OD Macro discrete for soil sampling and 4.25" ID augers blind drilled to depth for well installation. 1.5" diameter, sch. 40 PVC well installed to 25'bgs with 5' prepack well screen, bentonite sleeve and foam bridge.Silver anodized alum protop cover installed.
						-28		
						-30		

BORING LOG

CABENO Environmental Field Services, LLC — More Than Just A Probing Company

CLIENT: Alliant Energy

COORDINATES: N NOT SURVEYED, E NOT SURVEYED

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-4*

page 1 of 1

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Bob Solak*
DATE BEGAN: *02/23/16*
DATE FINISHED: *02/23/16*
GROUND SURFACE ELEVATION: *NOT MEASURED*

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	SAMPLE INFROMATION	PID READINGS	PID GRAPH	DEPTH IN FEET	PROFILE	DESCRIPTION
						0		SAND; brown to black; fine to coarse grained; poorly sorted; moist; trace to some silt and bottom ash.
▽	SS1	3.2'/5'				-2		
						-4		
	SS2	4'/5'				-6		SAND; brown; fine grained; well sorted; wet; trace silt
						-8		
						-10		
	SS3	5'/5'				-12		
						-14		
						-16		
	SS4	5'/5'				-18		
						-20		@ 20' grades light gray
	SS5	5'/5'				-22		
						-24		
						-26		Blind drilled using 4 1/4" ID auger to 2-feet bgs. Bottom of boring @ 25' bgs. Boring advanced using Geoprobe Model 7822 w/ 3.25" OD Dualtube system for well installation and 2.25" OD Macro discrete for soil sampling.1.5" diameter, sch. 40 PVC well installed to 25'bgs with 5' prepack well screen, bentonite sleeve and foam bridge.Silver anodized alum protop cover installed.
						-28		
						-30		

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	2-29-16	DLS	MWL	AS-BUILT DRAWINGS

SCALE: NONE | DATE: 2-29-16
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
AS-BUILT DRAWINGS
PIEZOMETER BORING LOGS
PZ-3 & PZ-4

JOB 154.021.003
SHT. 9
DWG. 154021SW-08-13

BORING LOG

CABENO Environmental Field Services, LLC — More Than Just A Probing Company

CLIENT: Alliant Energy

COORDINATES: *N NOT SURVEYED* *E NOT SURVEYED*

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-5*

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	SAMPLE INFROMATION	PID READINGS	PID GRAPH	DEPTH IN FEET	PROFILE	DESCRIPTION
	SS1	3.2'/5'				0		SAND; black to gray; fine to medium grained; moist; sorted; trace to some silt and bottom ash.
	SS2	4.'/5'				-6		SAND; brown; fine grained; well sorted; moist; trace silt
	SS3	4.5'/5'				-14		@ 13.5' grades gray
▽	SS4	3'/5'				-16		@ 17' grades wet
						-20		Bottom of boring @ 20' bgs. Boring advanced using Geoprobe Model 7822. 2.25" OD Macro discrete for soil sampling and 4.25" ID augers blind drilled to depth for well install. 1.5" diameter, sch. 40 PVC well installed to 20'bgs with 5' prepack well screen, bentonite sleeve and foam bridge.Silver anodized alum protop cover installed.

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Bob Solak*
DATE BEGAN: *02/24/16*
DATE FINISHED: *02/24/16*
GROUND SURFACE ELEVATION: *NOT MEASURED*

BORING LOG

CABENO Environmental Field Services, LLC — More Than Just A Probing Company

CLIENT: Alliant Energy

COORDINATES: *N NOT SURVEYED* *E NOT SURVEYED*

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-6*

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	SAMPLE INFROMATION	PID READINGS	PID GRAPH	DEPTH IN FEET	PROFILE	DESCRIPTION
▽	SS1	3.8'/5'				0		SAND; black to gray; fine to medium grained; sorted; moist; trace to some bottom ash.
	SS2	4.5'/5'				-6		@ 5.5' grades wet
	SS3	5'/5'				-10		SAND; brown; fine to medium grained; sorted; wet; trace silt
						-16		Blind drilled using 4 1/4" ID auger to 2-feet bgs. Bottom of boring @ 15' bgs. Boring advanced using Geoprobe Model 7822 w/ 3.25" OD Dualtube system for well installation and 2.25" OD Macro discrete for soil sampling.1.5" diameter, sch. 40 PVC well installed to 15'bgs with 5' prepack well screen, bentonite sleeve and foam bridge.Silver anodized alum protop cover installed.

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Bob Solak*
DATE BEGAN: *02/24/16*
DATE FINISHED: *02/24/16*
GROUND SURFACE ELEVATION: *NOT MEASURED*

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	2-9-16	DLS	MWL	AS-BUILT DRAWINGS

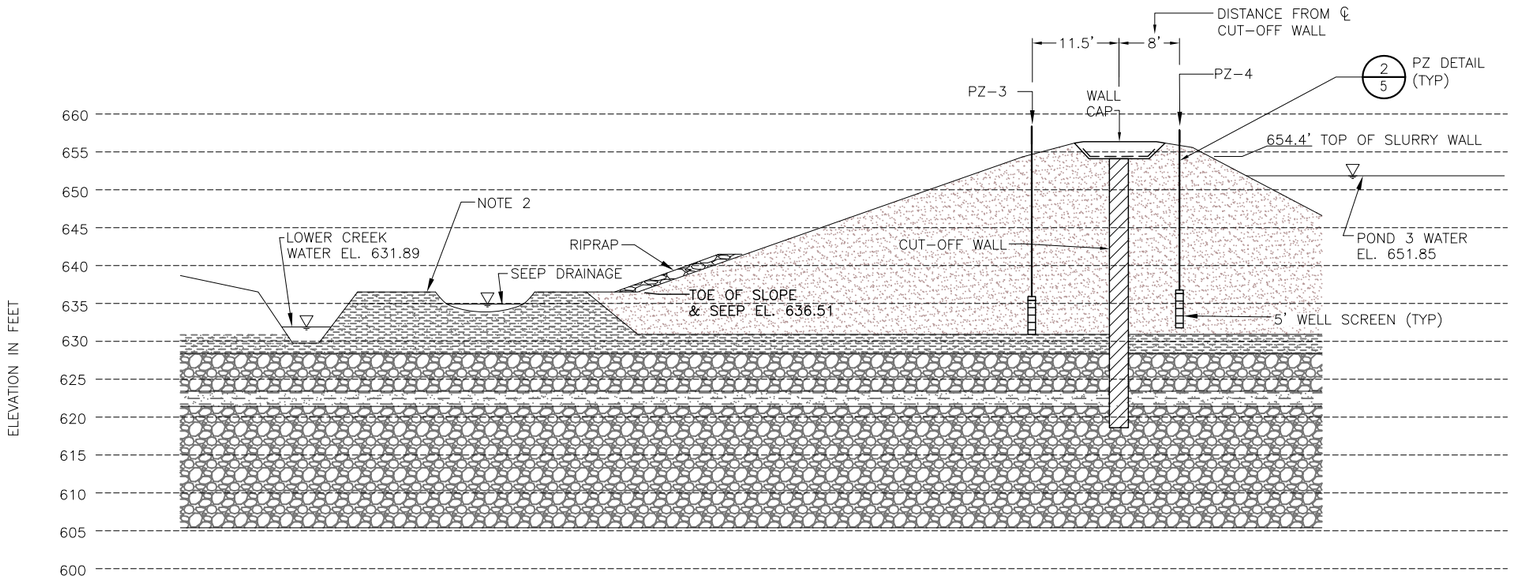
SCALE: NONE | DATE: 2-29-16
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
AS-BUILT DRAWINGS
PIEZOMETER BORING LOGS
PZ-5 & PZ-6

JOB 154.021.003
SHT. 10
DWG. 154021SW-08-13



PERFORMANCE MONITOR (STA 8+21) C/3

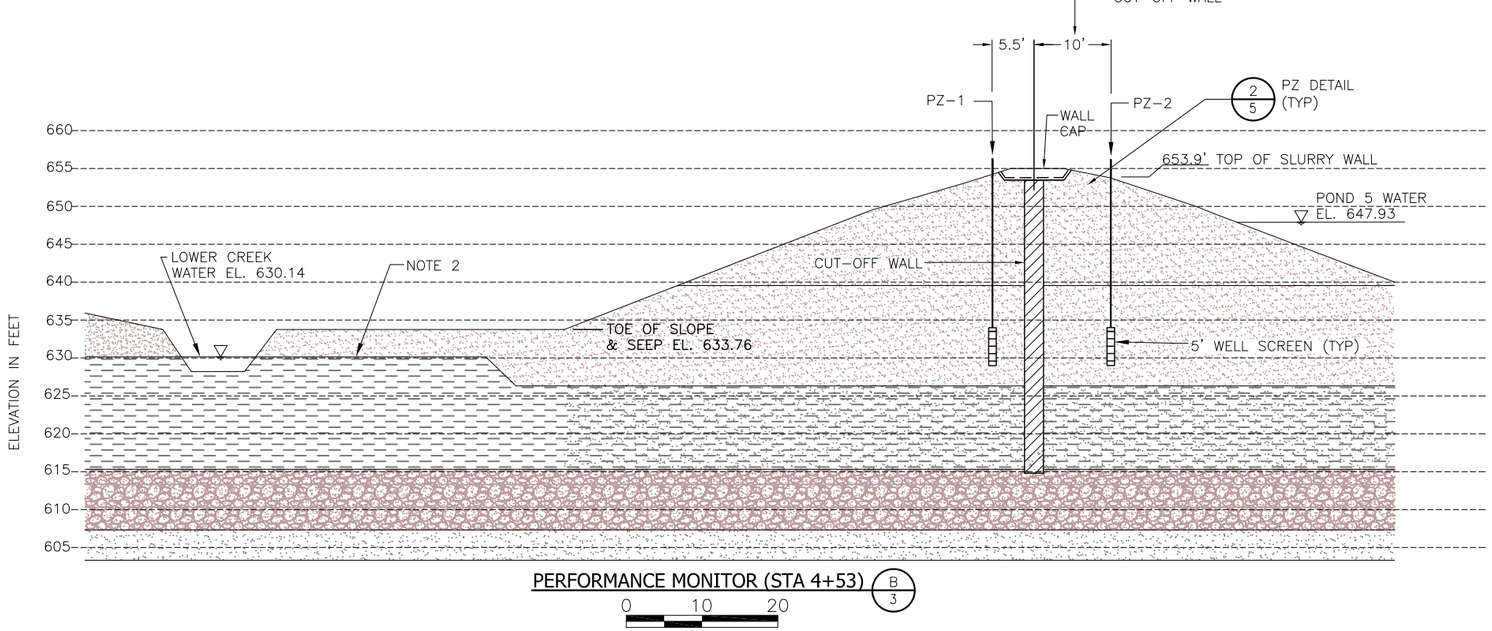
0 10 20

SCALE IN FEET

LEGEND:

- MEDIUM DENSE BROWN FINE TO MEDIUM SAND (SP)
- MEDIUM DENSE GRAY SANDY SILT (ML)
- MEDIUM DENSE GRAY GRAVEL (GW)
- VERY LOOSE GRAY SANDY SILT (ML)
- SURFACE WATER ELEVATION
- GROUND WATER ELEVATION

NOTES:
1. SEE SOIL BORING LOGS FOR ADDITIONAL DETAILS REGARDING SOIL PROPERTIES.
2. ORIGINAL GRADE SARGENT & LUNDY S–1.



PERFORMANCE MONITOR (STA 4+53) B/3

0 10 20

SCALE IN FEET

LEGEND:

- MEDIUM DENSE BROWN FINE TO MEDIUM SAND (SP)
- LOOSE BROWN FINE TO MEDIUM SAND (SP)
- VERY LOOSE GRAY SANDY SILT (ML)
- MEDIUM DENSE BROWN SAND AND GRAVEL (SW/GW)
- MEDIUM DENSE LIGHT GRAY COARSE GRAINED SAND

NOTES:
1. ORIGINAL GRADE SARGENT & LUNDY S–1.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	2-29-16	DLS	MWL	AS–BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

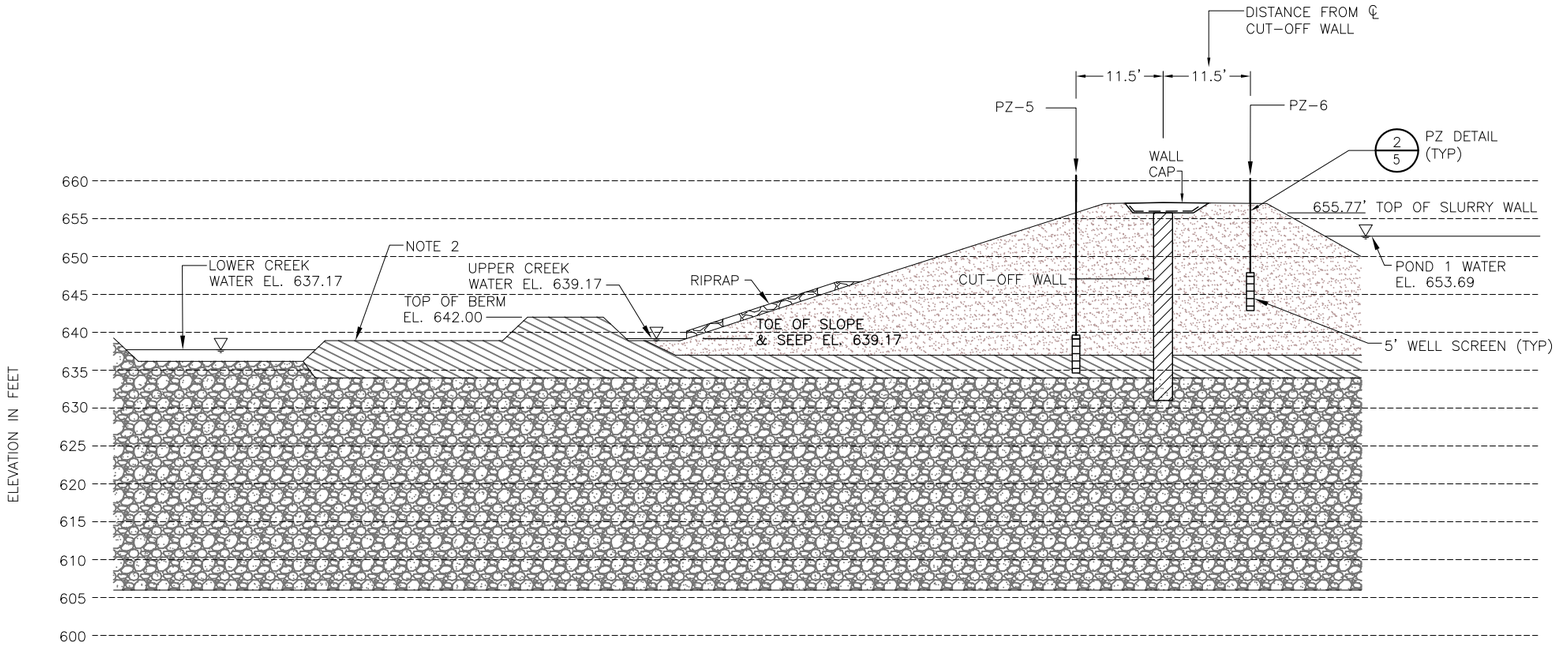
SCALE: AS SHOWN | DATE: 5–14–15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT–OFF WALL
AS–BUILT DRAWINGS
PERFORMANCE MONITOR DETAILS
STA 4+53& 8+21

JOB 154.021.003
SHT. 6
DWG. 154021SW–05–07



PERFORMANCE MONITOR (STA 10+91) D/3

0 10 20

SCALE IN FEET

NOTES:
1. ORIGINAL GRADE SARGENT & LUNDY S-1.

LEGEND:

- MEDIUM DENSE BROWN FINE TO MEDIUM SAND (SP)
- SOFT BLACK SILTY CLAY (CL)
- MEDIUM DENSE SAND AND GRAVEL (SW/GW)

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2	2-29-16	DLS	MWL	AS-BUILT DRAWINGS
1	6-15-15	TJH	MWL	INCORPORATE IPL COMMENTS

SCALE: AS SHOWN | DATE: 5-14-15
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
AS-BUILT DRAWINGS
PERFORMANCE MONITOR DETAILS
STA 10+91

JOB 154.021.003
SHT. 7
DWG. 154021SW-05-07

BORING LOG

CABENO Environmental Field Services, LLC — More than just A Probing Company

CLIENT: Alliant Energy

COORDINATES: *N NOT SURVEYED* / *E NOT SURVEYED*

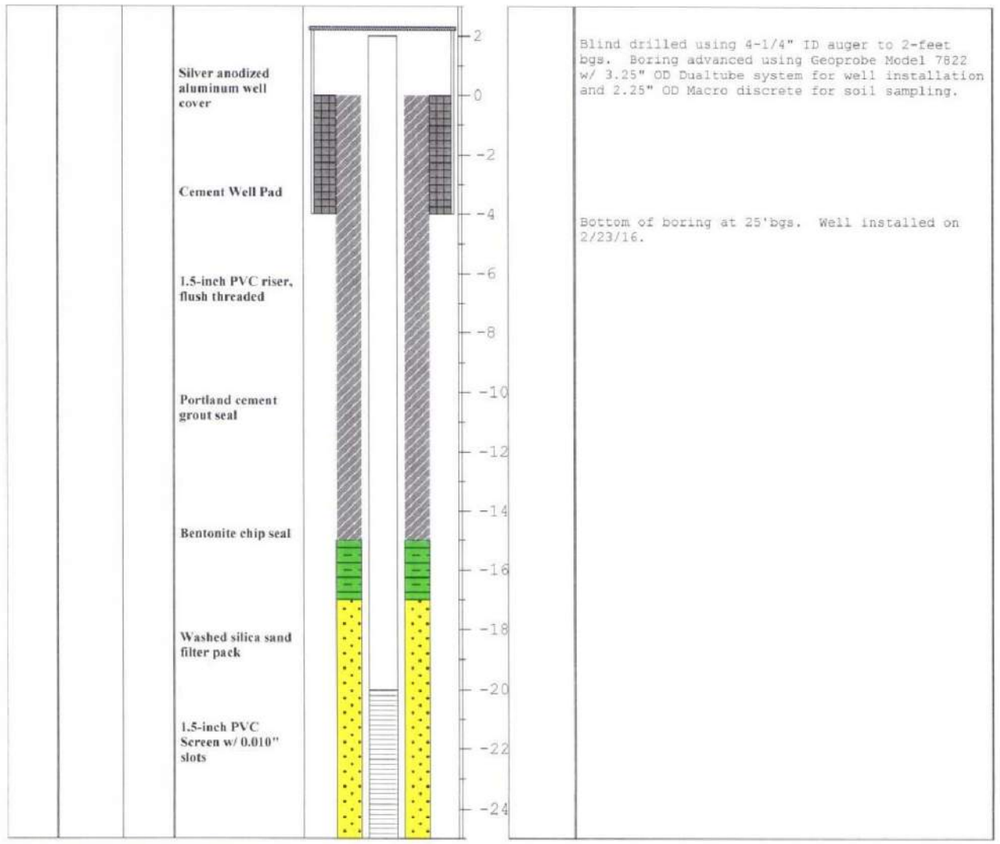
PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-1*

page 1 of 1

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	WELL CONSTRUCTION	WELL CONSTRUCTION	DEPTH IN FEET	PROFILE	DESCRIPTION

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Bob Solak*
DATE BEGAN: *02/23/16*
DATE FINISHED: *02/23/16*
GROUND SURFACE ELEVATION:



Blind drilled using 4-1/4" ID auger to 2-feet bgs. Boring advanced using Geoprobe Model 7822 w/ 3.25" OD Dualtube system for well installation and 2.25" OD Macro discrete for soil sampling.

Bottom of boring at 25'bgs. Well installed on 2/23/16.

BORING LOG

CABENO Environmental Field Services, LLC — More than just A Probing Company

CLIENT: Alliant Energy

COORDINATES: *N NOT SURVEYED* / *E NOT SURVEYED*

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-2*

page 1 of 1

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	WELL CONSTRUCTION	WELL CONSTRUCTION	DEPTH IN FEET	PROFILE	DESCRIPTION

LOGGED BY: *John Noyes*
EDITED BY: *John Noyes*
CHECKED BY: *Bob Solak*
DATE BEGAN: *02/23/16*
DATE FINISHED: *02/23/16*
GROUND SURFACE ELEVATION:

Blind drilled using 4-1/4" ID auger to 2-feet bgs. Boring advanced using Geoprobe Model 7822 w/ 3.25" OD Dualtube system for well installation and 2.25" OD Macro discrete for soil sampling.

Bottom of boring at 25'bgs. Well installed on 2/23/16.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	2-29-16	DLS	MWL	AS-BUILT DRAWINGS

SCALE: NONE | DATE: 6-29-16
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
AS-BUILT DRAWINGS
PIEZOMETER CONSTRUCTION LOGS
PZ-1 & PZ-2

JOB 154.021.003
SHT. 11
DWG. 154021SW-08-13

BORING LOG

CABENO Environmental Field Services, LLC
More Than Just A Probing Company

CLIENT: Alliant Energy

COORDINATES: *N NOT SURVEYED* *E NOT SURVEYED*

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-3*

page 1 of 1

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	WELL CONSTRUCTION	WELL CONSTRUCTION	DEPTH IN FEET	PROFILE	LOGGED BY: *John Noyes* EDITED BY: *John Noyes* CHECKED BY: *Bob Solak* DATE BEGAN: *02/24/16* DATE FINISHED: *02/24/16* GROUND SURFACE ELEVATION: DESCRIPTION

Boring advanced using Geoprobe Model 7822. 2.25" OD Macro discrete for soil sampling and 4.24" ID augers were blind drilled to deoth after sampling for well installation.

Bottom of boring at 25'bgs. Well installed on 2/24/16.

BORING LOG

CABENO Environmental Field Services, LLC
More Than Just A Probing Company

CLIENT: Alliant Energy

COORDINATES: *N NOT SURVEYED* *E NOT SURVEYED*

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-4*

page 1 of 1

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	WELL CONSTRUCTION	WELL CONSTRUCTION	DEPTH IN FEET	PROFILE	LOGGED BY: *John Noyes* EDITED BY: *John Noyes* CHECKED BY: *Bob Solak* DATE BEGAN: *02/24/16* DATE FINISHED: *02/24/16* GROUND SURFACE ELEVATION: DESCRIPTION

Blind drilled using 4-1/4" ID auger to 2-feet bgs. Boring advanced using Geoprobe Model 7822 w/ 3.25" OD Dualtube system for well installation and 2.25" OD Macro discrete for soil sampling.

Bottom of boring at 25'bgs. Well installed on 2/24/16.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	2-29-16	DLS	MWL	AS-BUILT DRAWINGS

SCALE: NONE | DATE: 6-29-16
DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION
INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION
SEEPAGE CONTROL CUT-OFF WALL
AS-BUILT DRAWINGS
PIEZOMETER CONSTRUCTION LOGS
PZ-3 & PZ-4

JOB 154.021.003
SHT. 12
DWG. 154021SW-08-13

BORING LOG

CABENO Environmental Field Services, LLC — More Than Just A Probing Company

CLIENT: Alliant Energy

COORDINATES: *N NOT SURVEYED* / *E NOT SURVEYED*

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-5*

page 1 of 1

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	WELL CONSTRUCTION	WELL CONSTRUCTION	DEPTH IN FEET	PROFILE	LOGGED BY: *John Noyes* EDITED BY: *John Noyes* CHECKED BY: *Bob Solak* DATE BEGAN: *02/24/16* DATE FINISHED: *02/24/16* GROUND SURFACE ELEVATION: DESCRIPTION

Boring advanced using Geoprobe Model 7822. 2.25" OD Macro discrete for soil sampling and 4.25" ID augers blind drilled to depth for well installation.

Bottom of boring at 20'bgs. Well installed on 2/24/16.

BORING LOG

CABENO Environmental Field Services, LLC — More Than Just A Probing Company

CLIENT: Alliant Energy

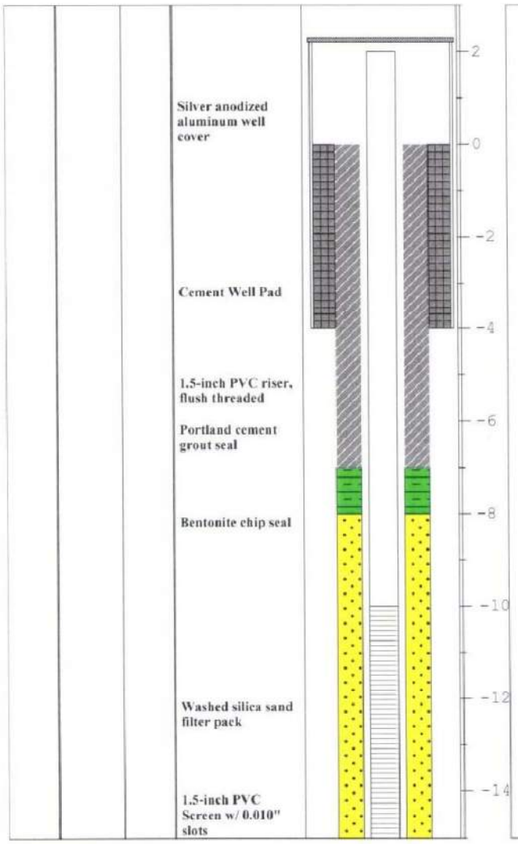
COORDINATES: *N NOT SURVEYED* / *E NOT SURVEYED*

PROJECT: Lansing Cutoff Wall

BORING NO.: *PZ-6*

page 1 of 1

DEPTH TO WATER WHILE DRILLING	SAMPLE NO. AND TYPE	SAMPLE RECOVERY	WELL CONSTRUCTION	WELL CONSTRUCTION	DEPTH IN FEET	PROFILE	LOGGED BY: *John Noyes* EDITED BY: *John Noyes* CHECKED BY: *Bob Solak* DATE BEGAN: *02/24/16* DATE FINISHED: *02/24/16* GROUND SURFACE ELEVATION: DESCRIPTION



Blind drilled using 4-1/4" ID auger to 2-feet bgs. Boring advanced using Geoprobe Model 7822 w/ 3.25" OD Dualtube system for well installation and 2.25" OD Macro discrete for soil sampling.

Bottom of boring at 15'bgs. Well installed on 2/24/16.

REV	DATE	BY	APP	DESCRIPTION
5				
4				
3				
2				
1	2-29-16	DLS	MWL	AS-BUILT DRAWINGS

SCALE: NONE | DATE: 6-29-16

DRAWN BY: JFD | CHECKED BY: TJH | APPROVED BY: MWL

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

CLIENT / LOCATION

INTERSTATE POWER AND LIGHT (IPL)
LANSING GENERATING STATION PROJECT
2320 POWER PLANT DR
LANSING, IA 52151

DRAWING DESCRIPTION

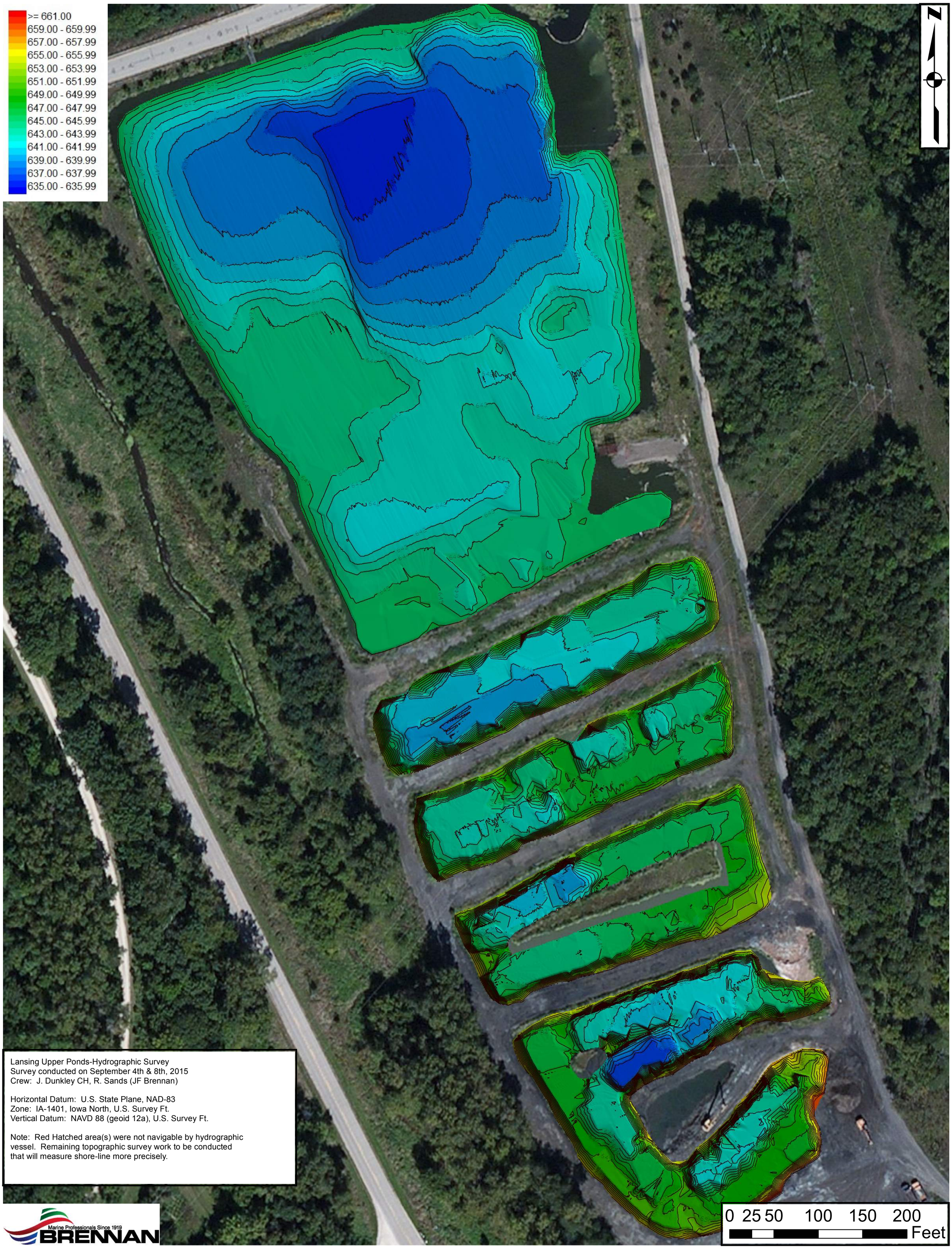
SEEPAGE CONTROL CUT-OFF WALL
AS-BUILT DRAWINGS

PIEZOMETER CONSTRUCTION LOGS
PZ-5 & PZ-6

JOB 154.021.003

SHT. 13

DWG. 154021SW-08-13



Lansing Upper Ponds-Hydrographic Survey
Survey conducted on September 4th & 8th, 2015
Crew: J. Dunkley CH, R. Sands (JF Brennan)

Horizontal Datum: U.S. State Plane, NAD-83
Zone: IA-1401, Iowa North, U.S. Survey Ft.
Vertical Datum: NAVD 88 (geoid 12a), U.S. Survey Ft.

Note: Red Hatched area(s) were not navigable by hydrographic vessel. Remaining topographic survey work to be conducted that will measure shore-line more precisely.

Marine Professionals Since 1919
BRENNAN

INTERSTATE POWER AND LIGHT (IPL) COMPANY

UPPER ASH POND OUTFALL REROUTE ASBUILT

LANSING GENERATING STATION - ISSUED FOR CONSTRUCTION

2320 POWER PLANT DRIVE
LANSING, IOWA 52151

NOVEMBER 2021

2

LOCATION MAP

NOT TO SCALE

SHEET LIST

AERIAL MAP

NOT TO SCALE

INTERSTATE POWER AND LIGHT COMPANY

NO.	DATE	REVISION	BY	CHK'D	APV'D
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
2	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
1	10-2-20	ADD LOW VOLUME WASTE WATER FLOWS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

LANSING GENERATING STATION Unit 0
UPPER ASH POND OUTFALL REROUTE ASBUILT
COVER & SHEET LIST
Scale: AS SHOWN
DWG. NO. G-100

1.1 PROJECT SUMMARY

A. PROJECT NAME: UPPER ASH POND OUTFALL REROUTE PROJECT
B. OWNER: INTERSTATE POWER AND LIGHT (IPL) COMPANY
C. SITE: LANSING GENERATING STATION (LAN)
D. ADDRESS: 2320 POWER PLANT DRIVE, LANSING, IA 52151

1.2 GENERAL REQUIREMENTS

A. PERFORM ALL WORK IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, LOCAL CODES AND ORDINANCES, AND OWNER WORK AND SAFETY PROCEDURES AND REQUIREMENTS.
B. ALL MATERIALS AND EQUIPMENT TO BE PROVIDED AS PART OF THIS PROJECT TO INCLUDE CERTIFICATION DOCUMENTATION (EG., UL 508A) REQUIRED BY APPLICABLE CODES AND ORDINANCES FOR INSTALLATION AND OPERATION OF SAID MATERIALS/EQUIPMENT AS INTENDED IN THIS PROJECT.
C. VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING ANY EARTHWORK OR CONSTRUCTION.
D. PROTECT EXISTING STRUCTURES, PIPES, PUMPS, INSTRUMENTS, PAVEMENT, CONDUIT, AND OTHER ITEMS THAT ARE TO REMAIN.
E. THE CONTRACTOR SHALL BE RESPONSIBLE FOR UNLOADING, RIGGING, SETTING, ANCHORING, ADJUSTMENT, CONNECTION, INSTALLATION AND START-UP OF ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
G. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THIS DRAWING SET HAS BEEN ISSUED/RELEASED FOR CONSTRUCTION PRIOR TO PURCHASING EQUIPMENT OR MATERIALS AND COMMENCING CONSTRUCTION. RELEASE FOR CONSTRUCTION WILL BE INDICATED IN THE REVISION SECTION OF TITLE BLOCKS OF EACH SHEET. REVISION 0 WILL STATE "ISSUED FOR CONSTRUCTION".
H. THE DRAWINGS DO NOT ATTEMPT TO SHOW EXACT DETAILS OF ALL PIPING, EQUIPMENT AND STRUCTURES. LOCAL OBSTRUCTIONS, VARIATIONS IN EQUIPMENT CONNECTION LOCATIONS AND TOLERANCES, VARIANCES IN EQUIPMENT LOCATIONS, AND VARIATIONS IN IN-LINE COMPONENT DIMENSIONS THAT REQUIRE ADJUSTMENTS MAY BE ENCOUNTERED. ALL MEASUREMENTS AND DIMENSIONS SHALL BE VERIFIED ON SITE.

1.3 REFERENCED SPECIFICATIONS

A. ALL TECHNICAL SPECIFICATIONS ARE CONTAINED IN THIS DRAWING SET.

1.4 APPLICABLE CODES AND CERTIFICATIONS

A. NATIONAL ELECTRIC CODE (NEC), 2014 EDITION.
B. AMERICAN CONCRETE INSTITUTE (ACI), BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14) AND SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301-16).
C. AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA) SPECIFICATIONS.
D. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM D2321).
E. AMERICAN WATER WORKS ASSOCIATION (AWWA MANUAL M-55).
F. AMERICAN SOCIETY OF MECHANICAL ENGINEERS, B31.1-2016, POWER PIPING.
G. PLASTICS PIPE INSTITUTE (PPI HANDBOOKS).
H. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
I. CODES AND STANDARDS INCORPORATED BY REFERENCE IN MANUFACTURER'S INSTRUCTIONS FOR ANY ITEMS, EQUIPMENT, OR COMPONENTS PROVIDED DURING THE COMPLETION OF THIS WORK.

1.5 EXISTING SURVEYS, BASE MAPS, AND SITE DATA

A. EXISTING TOPOGRAPHIC AND BATHYMETRIC SURVEYS:
   1. TOPOGRAPHIC AND BATHYMETRIC SURVEY DRAWING, JULY 25, 2018, MOHN SURVEYING, INC.
   2. LANSING UPPER PONDS HYDROGRAPHIC SURVEY, SEPTEMBER 4TH & 8TH, 2015, JF BRENNAN
B. GEOTECHNICAL REPORTS & DOCUMENTS:
   1. DRAWING S-1, REV: D, BORING LOCATION PLAN UNIT-4, 9SEP77, SARGENT & LUNDY.
   2. DRAWING S-3, SOIL BORING LOGS SHEET 1, 10SEP73, SARGENT & LUNDY.
   3. DRAWING S-4, SOIL BORING LOGS SHEET 2, 10SEP73, SARGENT & LUNDY.
   3. DRAWING S-5, SOIL BORING LOGS SHEET 3, 10SEP73, SARGENT & LUNDY.
C. UTILITY DRAWINGS PROVIDED TO ENGINEER DURING DESIGN:
   1. LANSING ENTRANCE DRIVE PROJECT, MARCH 12, 2013, SHIVEHATTERY.
D. UPPER ASH POND HISTORICAL DRAWINGS
   1. SEEPAGE CONTROL CUT-OFF WALL AS-BUILT DRAWINGS, FEBRUARY 29, 2016, HARD HAT SERVICES
   2. DRAWING S-20, ASH PIPE LINE SECTIONS & DETAILS, 06JAN76, SARGENT & LUNDY
   3. DRAWING S-213, WEIR BOX NO. 1 & NO. 2 - PLAN SECTIONS & DETAILS ASH SETTLING BASIN, 25FEB75, SARGENT & LUNDY
   4. DRAWING S-215, WEIR BOX NO. 1, NO. 2 & NO. 3 SECT'S & DET'S ASH SETTLING BASIN, 25MAY75, SARGENT & LUNDY
E. ARCHITECTURAL REPORTS & DOCUMENTS
   1. PHASE 1A ARCHAELOICAL RECONNAISSANCE SURVEY OF PROPOSED IC&E/ALLIANT ENERGY RAILROAD IMPROVEMENTS AND RECYCLING RELOCATION PROJECT (DNI PROJECT NUMBER 5037), ALLAMAKEE COUNTY, IOWA, CONTRACT COMPLETION REPORT 1331, THE UNIVERSITY OF IOWA OFFICE OF THE STATE ARCHAEOLOGIST, 2005

1.6 UTILITY LOCATE

A. THE CONTRACTOR SHALL CONTACT THE JOINT UTILITY LOCATION ORGANIZATION RESPONSIBLE FOR THE INSTALLATION LOCATIONS AT LEAST 48 HOURS IN ADVANCE OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL NOT PROCEED WITH ANY SUBSURFACE WORK UNTIL THE UTILITIES ARE EITHER MARKED OR CLEARED. CONTRACTOR SHALL PROTECT ALL UTILITIES.
B. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE UTILITY LOCATES ARE CURRENT FOR EACH SITE AND TO RESCHEDULE UTILITY LOCATES AS NEEDED. EVEN IF PREVIOUS UTILITY LOCATES INDICATED THAT THE AREA WAS CLEAR OF UTILITIES.
C. THE CONTRACTOR SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES DURING CONSTRUCTION.

1.7 AS-BUILT SURVEYS, BASE MAPS, AND SITE DATA

A. SURVEYING: THE CONTRACTOR SHALL PERFORM ALL SURVEYS NECESSARY TO COMPLETE THE SCOPE OF WORK.
B. THE HORIZONTAL AND VERTICAL DATUM USED ARE TO BE THOSE REFERENCED ON THE DRAWINGS OR USED BY THE OWNER. AT A MINIMUM, THE FOLLOWING CONSTRUCTION SURVEYS SHALL BE COMPLETED BY THE CONTRACTOR:
   1. NORTHINGS, EASTINGS, TOP OF SLAB ELEVATION, AND GRADE ELEVATIONS FOR EACH CORNER OF NEW STRUCTURES.
   2. NORTHINGS, EASTINGS AND TOP OF PIPE ELEVATIONS OF BURIED PIPES AND CONDUITS SURVEYED EVERY 10 FEET AT A MINIMUM.
   3. ALIGNMENT OF NEW ROADS AND PAVED AREAS.
   4. NORTHING AND EASTINGS OF NEW EXTERIOR PIPE AND CONDUIT SUPPORT STRUCTURES.CONTOURS OF AREAS THAT WERE REGRADED AT A MINIMUM OF 10-FOOT GRID INTERVAL, AND ADDITIONAL POINTS AS NECESSARY TO PRODUCE A 1-FOOT CONTOUR INTERVAL TOPOGRAPHIC MAP.
   5. NORTHING, EASTING, TOP OF RIM ELEVATION, AND PIPE INVERT ELEVATIONS FOR ALL NEW LIFT STATIONS, VAULTS, ETC.

1.8 SHOP DRAWINGS

A. ITEMS THAT REQUIRE SHOP DRAWING SUBMITTAL ARE LISTED IN NOTES/SPECIFICATIONS SHEETS BY DISCIPLINE.
B. CONTRACTOR'S RESPONSIBILITIES:
   1. CONTRACTOR SHALL REVIEW SHOP DRAWINGS, CONFIRM THAT CONTENTS COMPLY WITH THE PHYSICAL AND DOCUMENTATION REQUIREMENTS OF THE PROJECT AND APPROVE SHOP DRAWINGS PRIOR TO SUBMITTAL TO OWNER.
   2. DETERMINE AND VERIFY FOLLOWING.
      A. FIELD MEASUREMENTS AND QUANTITIES. CONFIRM THAT THE QUANTITY AND PHYSICAL DIMENSIONS OF THE SUBMITTAL ITEM MATCHES THE SPECIFIED ITEM(S) AND WILL FIT (INCLUDING INSTALLATION/REMOVAL SPACE) WITHIN THE AVAILABLE SPACE IN THE FIELD.
      B. FIELD CONSTRUCTION CRITERIA.
      C. CATALOG NUMBERS AND SIMILAR DATA. CONFIRM MANUFACTURERS, PART NUMBERS, PROPERTIES, AND DIMENSIONS MATCH THOSE SPECIFIED IN THE DRAWINGS.
      D. CONFIRM OVERALL CONFORMANCE WITH THE DRAWINGS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.
   3. COORDINATE EACH SUBMITTAL WITH REQUIREMENTS OF WORK AND CONTRACT DOCUMENTS.
C. SUBMITTAL OF ALTERNATES
   1. IF THE CONTRACTOR WISHES TO SUBMIT AN ALTERNATE TO A SPECIFIED MANUFACTURER AND MODEL OR MANUFACTURER/MODEL IDENTIFIED AS "STANDARD OF ACCEPTANCE", IT IS THE RESPONSIBILITY OF THE CONTRACTOR:
      A. TO CLEARLY IDENTIFY THAT THE SUBMITTAL INCLUDES AN ALTERNATE
      B. PROVIDE JUSTIFICATION FOR THE ALTERNATE
      C. DEMONSTRATE CONFORMITY WITH THE DRAWINGS, SPECIFICATIONS, AND OTHER CONTRACT DOCUMENTS
      D. IDENTIFY ALL VARIANCES FROM THE SPECIFIED MANUFACTURER/MODEL INCLUDING BUT NOT LIMITED TO PERFORMANCE DIFFERENCES, DIMENSIONAL DIFFERENCES, WEIGHT DIFFERENCES, SUPPORT AND ANCHORAGE REQUIREMENTS, UTILITY AND ELECTRICAL NEEDS, MATERIAL CHANGES, AND OTHER INSTALLATION DIFFERENCES/REQUIREMENTS.
      E. NOTIFY OWNER OF OTHER DESIGN PARAMETERS AND CONSTRUCTION TRADES THAT MAY BE IMPACTED BY APPROVAL OF THE ALTERNATE.
   2. IF INSTALLATION OF AN ALTERNATE REQUIRES DESIGN MODIFICATIONS, CHANGES TO CONTRACTOR SCOPE OF WORK, OR CHANGES TO OTHER CONTRACTOR'S SCOPE OF WORK, THE CONTRACTOR TO REIMBURSE OWNER FOR THOSE COSTS EVEN IF COSTS ARE IDENTIFIED AFTER APPROVAL OF SUBMITTALS.
D. SUBMITTALS SHALL CONTAIN THE FOLLOWING:
   1. DATE OF SUBMITTAL AND DATES OF PREVIOUS SUBMITTALS.
   2. PROJECT TITLE AND NUMBER.
   3. NAMES OF: VENDOR AND CONTRACTOR
   4. IDENTIFICATION OF PRODUCT WITH IDENTIFICATION TAG NUMBERS, IF LISTED ON THE DRAWINGS.
   5. DRAWING SHEET AND/OR SPECIFICATION SECTION NUMBERS FROM WHICH ITEM REQUIREMENTS ARE PROVIDED.
   6. MANUFACTURER, SERIES, AND COMPLETE PART/MODEL NUMBER. THE ACTUAL PART NUMBER IS TO BE IDENTIFIED IF SHOP DRAWING IS GENERIC OR APPLICABLE TO MORE THAN ONE PART/MODEL NUMBER.
   7. CLEARLY IDENTIFY CONFORMANCE WITH THE PROJECT REQUIREMENTS INCLUDING MATERIALS OF CONSTRUCTION; ELECTRICAL POWER REQUIREMENTS; MEASURING RANGES; OUTPUT TYPES, RATINGS, AND SCALED RANGES; PERFORMANCE DATA/CAPACITIES AT EACH DESIGN POINT; VOLUMES, AND OTHER DETAILS REQUIRED ON THE DRAWINGS AND/OR IN THE SPECIFICATIONS.
   8. FIELD DIMENSIONS, CLEARLY IDENTIFIED. INCLUDING PHYSICAL DIMENSIONS, PROCESS AND ELECTRICAL CONNECTION SIZES AND TYPES; FOUNDATION/SUPPORT LOCATIONS AND ANCHORAGE LOCATIONS, TYPES, AND SIZES, MAINTENANCE/ACCESS/INSTALLATION SPACE REQUIREMENTS.
   9. WEIGHT, CENTER OF GRAVITY AND ANCHORAGE/SUPPORT REQUIREMENTS FOR ALL ITEMS OVER 50 POUNDS.
   10. IDENTIFICATION OF INSTALLATION REQUIREMENTS (SPACE REQUIREMENTS, SUPPORT/ANCHORAGE, UTILITIES, ETC.) THAT VARY FROM OR IN ADDITION TO WHAT IS SHOWN ON THE DRAWINGS.
   11. APPLICABLE STANDARDS, SUCH AS ASTM OR FEDERAL SPECIFICATION NUMBERS.
   12. IDENTIFICATION OF DEVIATIONS FROM DRAWINGS, SPECIFICATIONS, OR CONTRACT DOCUMENTS.
   13. RELATION TO ADJACENT OR CRITICAL FEATURES OF WORK OR MATERIALS.
   14. BLANK SPACE FOR CONTRACTOR, OWNER AND ENGINEER STAMPS.
   15. CONTRACTOR'S STAMP AND/OR SIGNATURE, CERTIFYING REVIEW OF SUBMITTAL AND ITS CONFORMANCE WITH THE REQUIREMENTS IDENTIFIED IN THESE DRAWINGS, SPECIFICATIONS, AND CONTRACT DOCUMENTS.

1.9 DESIGN CRITERIA

A. SEE "BASIS OF DESIGN, UPPER ASH POND OUTFALL REROUTE PROJECT", HARD HAT SERVICES.

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1	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION Unit 0
UPPER ASH POND OUTFALL REROUTE ASBUILT
GENERAL NOTES & BASIS OF DESIGN
Scale: NONE
DWG. NO. G-200

1.1 TEMPORARY FACILITIES AND CONTROL

A. DUST CONTROL: THE CONTRACTOR SHALL PROVIDE POSITIVE METHODS AND APPLY DUST CONTROL WATER TO MINIMIZE RAISING DUST FROM CONSTRUCTION OPERATION AND PROVIDE POSITIVE MEANS TO PREVENT AIRBORNE DUST FROM DISPERSING INTO THE ATMOSPHERE. CHEMICAL DUST SUPPRESSANT SHALL NOT BE USED. DUST SUPPRESSANTS SHALL BE APPROVED BY OWNER PRIOR TO USE.

B WATER CONTROL

1. THE CONTRACTOR SHALL PROVIDE METHODS TO CONTROL SURFACE WATER TO PREVENT DAMAGE TO THE PROJECT, THE SITE, OR ADJOINING PROPERTIES. THE CONTRACTOR SHALL CONTROL FILL, GRADING AND DITCHING TO DIRECT SURFACE DRAINAGE AWAY FROM EXCAVATIONS, PITS, TUNNELS AND OTHER CONSTRUCTION AREAS; AND TO DIRECT RUNOFF TO PROPER DRAINAGE.
2. THE CONTRACTOR SHALL PROVIDE, OPERATE, AND MAINTAIN HYDRAULIC EQUIPMENT OF ADEQUATE CAPACITY TO CONTROL SURFACE EROSION.
3. THE CONTRACTOR SHALL DISPOSE OF DRAINAGE WATER IN A MANNER TO PREVENT FLOODING, EROSION, OR OTHER DAMAGE TO ANY PORTION OF THE SITE OR TO ADJOINING AREAS.

C. EROSION CONTROL

1. THE CONTRACTOR SHALL PLAN AND EXECUTE CONSTRUCTION AND EARTHWORK USING METHODS TO CONTROL SURFACE DRAINAGE FROM CUTS AND FILLS AND STOCKPILES IN ORDER TO PREVENT EROSION AND SEDIMENTATION; AND SHALL:
   A. HOLD THE NUMBER AND SIZE OF AREAS OF BARE SOIL EXPOSED AT ONE TIME TO A MINIMUM.
   B. PROVIDE TEMPORARY CONTROL MEASURES SUCH AS BERMS, DIKES, SILT FENCE, SILT DAMS, DRAINS, ETC., AS NEEDED FOR EROSION CONTROL.
2. THE CONTRACTOR SHALL CONSTRUCT FILLS BY SELECTIVE PLACEMENT TO ELIMINATE ERODIBLE SURFACE SOILS.
3. THE CONTRACTOR SHALL INSPECT EARTHWORK TO DETECT ANY EVIDENCE OF THE START OF EROSION, AND APPLY CORRECTIVE MEASURES AS REQUIRED TO CONTROL EROSION.
4. TEMPORARY PERIMETER EROSION CONTROL:
   A. THIS SYSTEM CONSISTS OF A CONTINUOUS BARRIER ADJACENT TO AN AREA OF CONSTRUCTION TO INTERCEPT WATER BORNE SILT AND PREVENT IT FROM LEAVING THE AREA OF CONSTRUCTION. THE BARRIER SHALL BE OF SUFFICIENT LENGTH AND HEIGHT TO CAPTURE ALL CONSTRUCTION RUNOFF.
   B. SILT FILTER FENCE SHALL BE SUPPORTED ON POSTS AT LEAST 6 FT IN LENGTH AND SPACED ON 5 FT. CENTERS OR LESS. THE FABRIC SHALL BE INSTALLED IN A BACKFILLED TRENCH 6 INCHES DEEP AND SECURELY ATTACHED TO THE POSTS BY METHOD APPROVED BY OWNER.
   C. PERIMETER EROSION BARRIER SHALL BE A MANUFACTURED SILT FENCE (SUPAC4-1/2 NP (UV) OR APPROVED EQUAL) MADE OF WOVEN POLYPROPYLENE WITH PRE-SEWN POST POCKETS AND TOP AND BOTTOM TENSIONING ROPES.

1.2 DEMOLITION

A. REGULATORY REQUIREMENTS

1. CONFORM TO APPLICABLE CODE FOR DEMOLITION OF STRUCTURES, SAFETY OF ADJACENT STRUCTURES, DUST CONTROL, AND DISPOSAL.
2. CONFORM TO APPLICABLE REGULATORY PROCEDURES WHEN DISCOVERING HAZARDOUS OR CONTAMINATED MATERIALS.

B. SCHEDULING

1. SCHEDULE WORK TO PRECEDE CONCURRENTLY WITH THE INSTALLATION OF THE REPLACEMENT SYSTEMS.
2. SCHEDULE WORK AS TO MINIMIZE IMPACT ON FACILITY OPERATIONS.
3. SCHEDULE WORK TO MINIMIZE THE TIME THAT TEMPORARY SYSTEMS MAY BE NEEDED TO MAINTAIN SYSTEM FUNCTIONALITY.

C. DEMOLITION REQUIREMENTS

1. THE CONTRACTOR SHALL EXERCISE EXTREME CARE TO PREVENT DAMAGE TO STRUCTURES, UTILITIES, AND FACILITIES NOT DESIGNATED TO BE REMOVED. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGING EXISTING PAVED AREAS AT THE SITE. THE COST FOR REPAIR OF ANY DAMAGE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. ALL SUPPORTS AND FOUNDATIONS FOR DEMOLISHED EQUIPMENT SHALL BE REMOVED ALSO UNLESS SPECIFIED ON THE DRAWINGS.
3. CONTRACTOR SHALL REMOVE ALL ELECTRICAL WIRING, CONTROL/SIGNAL WIRING, AND CONDUIT FROM THE REMOVED EQUIPMENT TO THE NEAREST DISCONNECT POINT. THE ELECTRICAL/WEATHER/ACCESS INTEGRITY OF THE CONNECTION POINT MUST BE RESTORED AFTER DEMOLITION.
4. DURING THE DEMOLITION WORK THE CONTRACTOR SHALL CONTINUOUSLY EVALUATE THE CONDITIONS OF THE STRUCTURES BEING DEMOLISHED AND TAKE IMMEDIATE ACTION TO PROTECT ALL PERSONNEL WORKING IN AND AROUND THE DEMOLITION SITE. NO AREA, SECTION, OR COMPONENT OF STRUCTURAL ELEMENTS WILL BE ALLOWED TO BE LEFT STANDING WITHOUT SUFFICIENT BRACING, SHORING, OR LATERAL SUPPORT TO PREVENT COLLAPSE OR FAILURE WHILE WORKMEN REMOVE DEBRIS OR PERFORM OTHER WORK IN THE IMMEDIATE AREA. STRUCTURAL COMPONENTS THAT ARE DESIGNED AND CONSTRUCTED TO STAND WITHOUT LATERAL SUPPORT OR SHORING, AND ARE DETERMINED TO BE IN STABLE CONDITION, MAY BE ALLOWED TO REMAIN STANDING WITHOUT ADDITIONAL BRACING, SHORING, OR LATERAL SUPPORT UNTIL DEMOLISHED. THE CONTRACTOR SHALL ENSURE THAT NO ELEMENTS DETERMINED TO BE UNSTABLE ARE LEFT UNSUPPORTED AND SHALL BE RESPONSIBLE FOR PLACING AND SECURING BRACING, SHORING, OR LATERAL SUPPORTS AS MAY BE REQUIRED AS A RESULT OF ANY CUTTING, REMOVAL, OR DEMOLITION WORK PERFORMED UNDER THIS CONTRACT.
5. THE CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS TO PROTECT ALL IDENTIFIED COMMUNICATION LINES AND UTILITIES IN THE AREA OF THE PROPOSED DEMOLITION ACTIVITIES. THE CONTRACTOR SHALL VERIFY THAT ON-SITE ELECTRICAL WIRING ENTERING ALL STRUCTURES TO BE DEMOLISHED OR IN CLOSE ENOUGH PROXIMITY TO BE DAMAGED BY THE DEMOLITION OPERATIONS ARE DISCONNECTED AND/OR DE-ENERGIZED PRIOR TO PROCEEDING WITH DEMOLITION OPERATIONS. IF NOT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACCOMPLISHING THE SAME. THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL ELECTRICAL UTILITY COMPANY FOR ANY NECESSARY RELOCATION OF UTILITIES AND BE RESPONSIBLE FOR ANY ASSOCIATED FEES OR EXPENSES.
6. THE CONTRACTOR SHALL VERIFY THAT ON-SITE WATER LINES ENTERING ALL STRUCTURES TO BE DEMOLISHED OR IN CLOSE ENOUGH PROXIMITY TO BE DAMAGED BY THE DEMOLITION OPERATIONS ARE DISCONNECTED AND CAPPED PRIOR TO PROCEEDING WITH DEMOLITION OPERATIONS. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO AVOID DAMAGE TO ANY EXISTING FIRE CONTROL HYDRANTS AND WILL REPAIR DAMAGED HYDRANTS AT NO ADDITIONAL COST.
7. THE CONTRACTOR SHALL VERIFY THAT ON-SITE GAS LINES/MAINS ENTERING ALL STRUCTURES OR IN CLOSE ENOUGH PROXIMITY TO BE DAMAGED AS A RESULT OF THE DEMOLITION OPERATIONS BE CAPPED OR DISCONNECTED PRIOR TO PROCEEDING WITH THE DEMOLITION OPERATIONS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT COST OF UTILITIES DAMAGED DURING THE COURSE OF THE WORK CAUSED BY THE CONTRACTOR.
9. THE CONTRACTOR SHALL PERFORM SUCH CLEANING OF THE REMOVED EQUIPMENT, MATERIALS, AND COMPONENTS AS REQUIRED FOR DISPOSAL.
10. ALL DEMOLITION WORK IS TO BE COORDINATED WITH OWNER SO AS TO NOT INTERRUPT FACILITY OPERATIONS.
11. MARK LOCATION OF UTILITIES.

1.3 EXCAVATION

A. CONTRACTOR RESPONSIBLE FOR JOINT UTILITY LOCATES FOR IDENTIFICATION OF BURIED PUBLIC AND PRIVATE UTILITIES.
B. UNDERPIN ADJACENT STRUCTURES THAT MAY BE DAMAGED BY EXCAVATION WORK, INCLUDING UTILITIES AND PIPE CHASES.
C. EXCAVATE SUBSOIL REQUIRED TO ACCOMMODATE SITE STRUCTURES AND CONSTRUCTION OPERATIONS.
D. GRADE TOP PERIMETER OF EXCAVATION TO PREVENT SURFACE WATER FROM DRAINING INTO EXCAVATION.
E. NOTIFY OWNER OF UNEXPECTED SUBSURFACE CONDITIONS AND DISCONTINUE AFFECTED WORK IN AREA UNTIL NOTIFIED TO RESUME WORK.
F. CORRECT UNAUTHORIZED EXCAVATION AT NO EXTRA COST TO OWNER.
G. NON-NATIVE SOILS UNDER FOUNDATION AREAS TO BE REMOVED UNTIL NATIVE SOILS ARE ENCOUNTERED UNLESS APPROVED OTHERWISE BY OWNER.
H. WORK, INCLUDING PROVIDING SHEETING/BRACING AND EXCAVATION ACCESS, SHALL BE PERFORMED AS NECESSARY TO PROTECT LIFE OR PROPERTY AND CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND OSHA CODES.
I. CONTRACTOR SHALL PROVIDE AND MAINTAIN BARRICADES AROUND OPEN EXCAVATIONS FOR THE DURATION THAT THE EXCAVATION IS OPEN.
J. CONTRACTOR TO DEWATER OPEN EXCAVATIONS AS NEEDED TO INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS AND THE REQUIREMENTS OF THESE DRAWINGS. CONTRACTOR TO COORDINATE DEWATERING WATER DISCHARGE LOCATION, PROCEDURES, AND RESTRICTIONS WITH OWNER.
K. HYDRO EXCAVATION IS RECOMMENDED NEAR EXISTING UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR HYDRO EXCAVATION PERMITS AND PROCEDURES.

1.4 GEOTEXTILE FABRIC

A. TYPE: WOVEN, FOR MATERIAL SEPARATION
B. PROPERTIES

PROPERTY	METHOD	VALUE
MASS PER UNIT AREA	ASTM D3776	5.6 OZ/SQ YD MIN.
GRAB STRENGTH	ASTM D4632	200 LB. MIN
TRAPEZOIDAL TEAR STRENGTH	ASTM D4533	100 X 60 LB MIN.
PUNCTURE RESISTANCE	ASTM D4833	120 LB MIN.
BURST STRENGTH	ASTM D 3786	450 PSI MIN.
AOS	ASTM D4751	30 US STD. SIEVE
PERMITTIVITY	ASTM D4491	0.005 PER SECOND.
SEAM BREAKING STRENGTH MIN.	ASTM D4632	180 LB

C. PROVIDE A SMOOTH FAIRLY LEVEL SURFACE UPON WHICH TO PLACE THE GEOTEXTILE FREE OF DEBRIS, ROOTS, AND STONES TO PREVENT DAMAGE FROM TEARING OR PUNCTURE DURING GEOTEXTILE PLACEMENT AND COVERING.
D. FILL DEPRESSIONS OR HOLES SO THAT THE GEOTEXTILE WILL NOT HAVE TO BRIDGE THEM AND POSSIBLY BE TORN WHEN MATERIALS ARE INSTALLED OVER GEOTEXTILE.
E. PLACE GEOTEXTILE RELATIVELY FLAT WITH A MINIMUM OF WRINKLES.
F. PROVIDE A MINIMUM OVERLAP OF 12 INCHES.
G. IF THE GEOTEXTILE IS SEAMED, PROVIDE SEAM STRENGTH (FACTORY OR FIELD) WHICH MEETS OR EXCEEDS THE STRENGTH REQUIREMENTS IDENTIFIED ABOVE.

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Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY

LANSING GENERATING STATION Unit 0

UPPER ASH POND OUTFALL REROUTE ASBUILT

CIVIL NOTES & SPECIFICATIONS (1 OF 2)

Scale: NONE

DWG. NO. C-100

1.6 EARTHWORK

A. GRADING. AS SHOWN ON THE DRAWINGS WITH THE FOLLOWING ADDITIONAL REQUIREMENTS:
   1. MINIMUM PAVEMENT SLOPES ARE TO BE AS FOLLOWS:
      A. CONCRETE PAVEMENT: 0.5%
      B. ASPHALT PAVEMENT: 1.0%
      C. GRAVEL SURFACES: 1.0%
   2. MAXIMUM SLOPES ARE TO BE AS FOLLOWS:
      A. ROADWAYS: 4%
      B. LAWN AREAS: 4:1
      C. BERMS: 3:1

B. FILL & AGGREGATE MATERIAL
   1. GENERAL FILL
      A. SUBSOIL FREE OF ROOTS, ROCKS, AND DEBRIS.
      B. ON-SITE SOILS BELOW THE STRIPPED LAYER OF TOPSOIL THAT CONTAIN LESS THAN 1% BY WEIGHT ORGANIC CONTENT MAY BE USED AS GENERAL FILL.
      C. IF OFFSITE BORROW IS NEEDED, SILTY OR CLAYEY SANDS OR LOW PLASTICITY CLAYS (HAVING A UNIFIED SOIL CLASSIFICATION OF SM, SC, AND CL) SHALL BE USED.
      D. GENERAL FILL SOIL SHALL NOT CONTAIN ROCKS OR LUMPS LARGER THAN 6 INCHES IN GREATEST DIMENSION, WITH NOT MORE THAN 15% LARGER THAN 2 ½ INCHES. IMPORTED GENERAL FILL SHALL BE GRANULAR WITH A PLASTICITY INDEX OF 12 OR LESS OR LOW PLASTICITY CLAY (USCS SYMBOL CL).
   2. STRUCTURAL AGGREGATE
      A. PIT RUN STONE (MIXTURE OF GRAVEL, CRUSHED STONE, AND SAND), FREE OF SHALE, CLAY, FRIABLE MATERIAL AND DEBRIS MEETING ASTM D2940 AND STATE DEPARTMENT OF TRANSPORTATION REQUIREMENTS FOR STRUCTURAL BASES AND SUBBASES.
      B. GRADATION FOR BASE MATERIAL SHALL BE REASONABLE CLOSE TO 100% PASSING 1.5 INCH SIEVE, 95+/-5% PASSING 1 INCH SIEVE, 75+/-% PASSING ½ INCH SIEVE, 43+/-13% PASSING NO. 4 SIEVE, 25+/-15% PASSING NO. 16 SIEVE, AND A MAXIMUM 8+/-4% PASSING NO. 200 SIEVE. IOWA DEPARTMENT OF TRANSPORTATION COARSE AGGREGATE 4115, OR EQUIVALENT.
      C. GRADATION FOR SUBBASE MATERIAL SHALL BE REASONABLE CLOSE TO MINIMUM 90% PASSING 1.5 INCH SIEVE AND MAXIMUM 12 PERCENT PASSING NO. 200 SIEVE. IOWA DEPARTMENT OF TRANSPORTATION GRANULAR SUBBASE 4121 OR 12A, OR EQUIVALENT.
   3. TOP SOIL
      A. REMOVE, STOCKPILE, AND REINSTALL AFTER ROUGH GRADING IS COMPLETE.
      B. IMPORTED TOPSOIL: FRIABLE LOAM FREE OF ROOTS, ROCKS, SUBSOIL, AND DEBRIS.
      C. INSTALLED DEPTH:
         1. FOR GRASS SEEDING: 6 INCHES.
         2. FOR SODDING: 4 INCHES.
         3. SHRUB BEDS: 18 INCHES.
      D. EXCAVATE AND PLACE TOPSOIL IN DRY WEATHER.
   4. SAND: NATURAL RIVER OR BANK SAND, WASHED.
   5. RIP RAP
      A. CONSIST OF SOUND AND DURABLE LIMESTONE, DOLOMITE, OR QUARTZITE IN ACCORDANCE WITH AASHTO T 96.
      B. BROKEN CONCRETE, RUBBLE, OR SHALE, ORGANIC MATERIAL IS NOT ACCEPTABLE.
      C. NOMINAL TOP SIZE IS 250 LBS. AT LEAST 50% OF STONES TO WEIGHT MORE THAN 90 LBS. AT LEAST 90% OF STONES TO WEIGH MORE THAN 5 LBS. REMOVE MATERIAL LESS THAN 3 INCHES.
      D. CONFORM TO IOWA DOT SECTION 4130 FOR CLASS E REVETMENT.
   6. NON-STRUCTURAL AGGREGATE
      A. PIT RUN STONE, FREE OF SHALE, CLAY, FRIABLE MATERIAL AND DEBRIS.

C. PLACING FILL MATERIALS
   1. RIP RAP
      A. PLACEMENT OF RIPRAP SHALL BEGIN AT THE TOE OF THE SLOPE AND PROCEED UP THE SLOPE. THE ROCK MAY BE PLACED BY DUMPING AND MAY BE SPREAD BY BULLDOZERS OR OTHER SUITABLE EQUIPMENT AS LONG AS THE UNDERLYING GEOTEXTILE IS NOT DAMAGED. ROCK SHALL BE PLACED SO AS TO PROVIDE A MINIMUM OF VOIDS. SMALLER STONES SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT THE MASS. SUFFICIENT HAND WORK SHALL BE DONE TO PRODUCE A NEAT AND UNIFORM SURFACE, TRUE TO THE LINES, GRADES, AND SECTIONS SHOWN.
      B. WHERE RIPRAP IS PLACED OVER A GEOTEXTILE FABRIC, THE RIPRAP SHALL BE PLACED SO AS TO AVOID DAMAGE TO THE GEOTEXTILE. STONES SHALL NOT BE DROPPED FROM A HEIGHT GREATER THAN 3 FEET, NOR SHALL LARGE STONES BE ALLOWED TO ROLL DOWNSLOPE. DAMAGE TO THE GEOTEXTILE DUE TO THE CONTRACTOR'S RIPRAP PLACEMENT METHODS SHALL BE REPAIRED BY THE CONTRACTOR AT THE DIRECTION OF THE OWNER.
   2. FILLING AND BACKFILLING:
      A. DO NOT USE FROZEN FILL MATERIALS.
      B. PLACE AND COMPACT IN LAYERS NOT MORE THAN 8 INCHES THICK PRIOR TO COMPACTION, UNLESS OTHERWISE INDICATED.
      C. FILL AND COMPACT SO THAT FINAL GRADE DOES NOT SETTLE.
      D. FILL AND COMPACT TO A THICKNESS TO ALLOW OBTAINING FINAL GRADE.
      E. ON-SITE SOIL TO BE REUSED AS GENERAL FILL SHALL BE CONDITIONED TO OPTIMUM TO 4% ABOVE OPTIMUM AT COMPACTION.
   3. COMPACTION:
      1 a. COMPACTION WAS COMPLETED TO THE SATISFACTION OF THE ENGINEER.

1.7 BITUMINOUS PAVEMENT

A. STANDARDS: COMPLY WITH STANDARDS OF STATE HIGHWAY DEPARTMENT.
   1. AUTOMOBILE PARKING LOTS:
      A. GRANULAR BASE: 6 INCHES STRUCTURAL FILL MIN.
      B. BASE COMPACTION: SEE COMPACTION REQUIREMENTS FOR STRUCTURAL FILL IN EARTHWORK.
      C. BINDER COURSE: 2 INCHES ASPHALT
      D. FINAL COURSE: 2 INCHES ASPHALT
   2. ROADWAYS AND TRUCK TRAFFIC/PARKING LOTS:
      A. GRANULAR BASE: 6 INCHES STRUCTURAL FILL MIN.
      B. BASE COMPACTION: SEE COMPACTION REQUIREMENTS FOR STRUCTURAL FILL IN EARTHWORK.
      C. BINDER COURSE: 4 INCHES ASPHALT
      D. FINAL COURSE: 2 INCHES ASPHALT

B. COMPACTION OF SUBGRADE: AS SPECIFIED IN EARTHWORK.
C. SUBBASE: SEE EARTHWORK. THICKNESS AS INDICATED ON THE DRAWINGS.
D. BASE: SEE EARTHWORK. THICKNESS AS INDICATED ON THE DRAWINGS.
E. PAVEMENT MATERIALS:
   1. COARSE AGGREGATE: ASTM D 692-1994A.
   2. FINE AGGREGATE: ASTM D 1073-1994, LIMITED TO MAXIMUM OF 20 PERCENT OF AGGREGATE MIX.
   3. ASPHALT CEMENT: ASTM D 3381-1992.
   4. PRIME COAT: ASTM D 2027-1976(R92), OR AS REQUIRED BY STATE DOT REQUIREMENTS.
F. MIXES: PROVIDE MIXES WITH HISTORY OF SATISFACTORY PERFORMANCE IN PROJECT AREA.
G. PLACEMENT: PLACE MIXTURE BY MACHINE IN CONSECUTIVE STRIPS NOT LESS THAN 10 FT WIDE, EXCEPT AT EDGES AND ODDLY SHAPED AREAS, AND AT TEMPERATURE NOT LESS THAN 250 DEGREES F (120 DEGREES C).
   1. BASE COURSE: PLACE IN SINGLE LIFT TO THICKNESS INDICATED.
   2. SURFACE COURSE: PLACE IN SINGLE LIFT TO THICKNESS INDICATED.
H. COMPACTION: ACHIEVE AVERAGE DENSITY OF 96 PERCENT OF THEORETICAL MAXIMUM, PER ASTM D 2041-1995, BEFORE MIX TEMPERATURE COOLS TO BELOW 185 DEGREES F (85 DEGREES C).
I. FINISH ROLLING: REMOVE ROLLER MARKS WHILE MIXTURE IS STILL WARM.

1.8 SEEDING

A. SEEDING SHALL BE IN ACCORDANCE WITH THE FOLLOWING REGULATIONS AND GUIDELINES:
   1. AGRICULTURAL MARKETING SERVICE (AMS) - AMS-01 FEDERAL SEED ACT REGULATIONS (PART 20): CERTIFIED SEED REGULATIONS
   2. COMMERCIAL ITEM DESCRIPTION (CID) – CID A-A-1909: (BASIC) FERTILIZER
   3. FEDERAL SPECIFICATIONS - FS JJJ-S-181: (REV B) SEEDS, AGRICULTURAL
   4. DEPARTMENT OF TRANSPORTATION (DOT): DOT REQUIREMENTS FOR THE STATE IN WHERE THE WORK IS BEING PERFORMED.
B. SEED MIXTURES: SEED MIXTURES FOR PERMANENT COVER SHALL CONSIST OF THE FOLLOWING AT THE POUNDS PURE LIVE SEED PER ACRE IDENTIFIED IN PARENTHESES AFTER EACH SPECIES KENTUCKY 31 FESCUE (95), PERENNIAL RYEGRASS (65), JASPER RED FESCUE (10).
C. SOIL AMENDMENTS SHALL CONSIST OF FERTILIZER MEETING THE FOLLOWING REQUIREMENTS:
   1. LIME: AGRICULTURAL LIMESTONE WITH A MINIMUM CALCIUM CARBONATE OF 90 PERCENT.
   2. FERTILIZER: COMMERCIAL-GRADE, FREE FLOWING, LOW IN SALTS, AND UNIFORM IN COMPOSITION.
   3. TOPSOIL: MEETING THE REQUIREMENTS OF EARTHWORK.
D. MULCH: CONTRACTOR MAY USE HAY OR STRAW FIXED IN PLACE WITH MECHANICAL ANCHORING EQUIPMENT ON SURFACES WITH SLOPES LESS THEN 20%. SLOPES GREATER THAN 20% WILL REQUIRE ORGANIC EROSION CONTROL BLANKET. WOOD CELLULOSE FIBER MULCH WITH TACKIFIER APPLIED SIMULTANEOUSLY WITH GRASS SEED AND FERTILIZER MAY BE USED AS AN OPTION.
E. SEED INSTALLATION:
   1. SEED MAY BE PLACED BY ONE OF THE FOLLOWING METHODS: BROADCAST SEEDING, DRILL SEEDING, OR HYDROSEEDING.
   2. MULCH SHALL BE PERFORMED THE SAME DAY AS SEEDING AND MAY CONSIST OF ONE OF THE FOLLOWING: STRAW OR HAY MULCH, MECHANICAL ANCHORING, OR WOOD CELLULOSE FIBER.

1.8 SURVEYING

A. SEE SHEET G-200.

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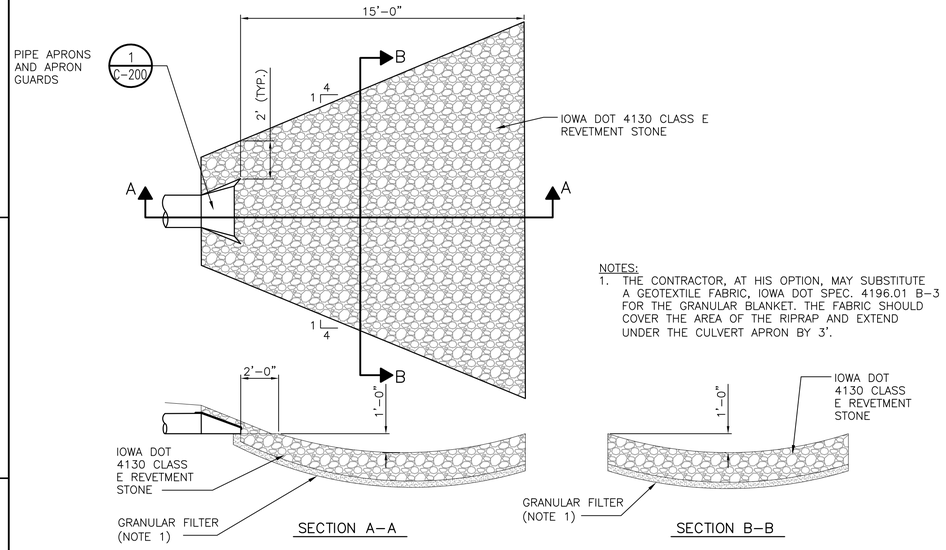
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION Unit 0
UPPER ASH POND OUTFALL REROUTE ASBUILT
CIVIL NOTES & SPECIFICATIONS (2 OF 2)
Scale: NONE
DWG. NO. C-101



NOTES:
1. THE CONTRACTOR, AT HIS OPTION, MAY SUBSTITUTE A GEOTEXTILE FABRIC, IOWA DOT SPEC. 4196.01 B–3 FOR THE GRANULAR BLANKET. THE FABRIC SHOULD COVER THE AREA OF THE RIPRAP AND EXTEND UNDER THE CULVERT APRON BY 3'.

OUTFALL DETAIL
N.T.S.
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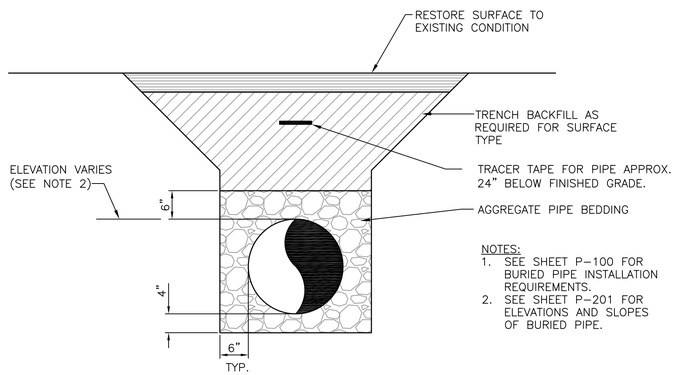
C-300



NOTES:
1. SEE SHEET P–100 FOR BURIED PIPE INSTALLATION REQUIREMENTS.
2. SEE SHEET P–201 FOR ELEVATIONS AND SLOPES OF BURIED PIPE.

TYPICAL PIPE TRENCH DETAIL
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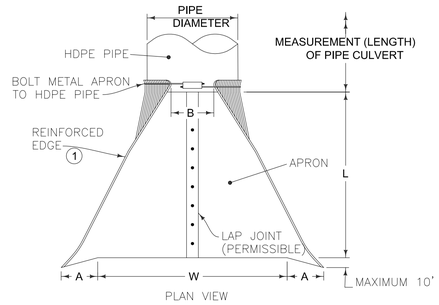
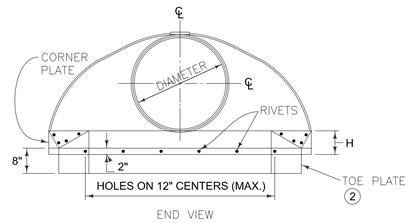
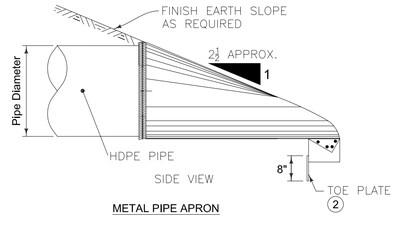
C-300



PLAN VIEW



END VIEW



SIDE VIEW

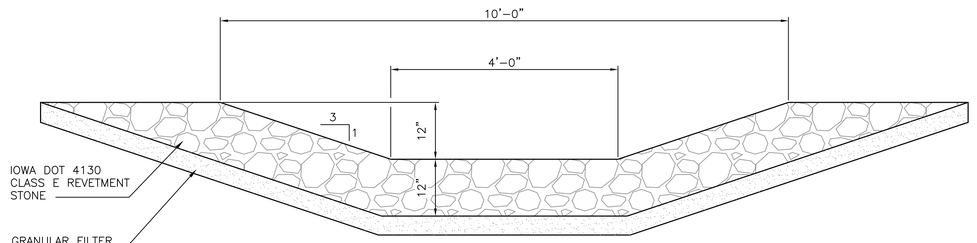
METAL PIPE APRON

1. ON SIZES 60 INCHES AND LARGER, SUPPLEMENT THE REINFORCED EDGE WITH A GALVANIZED STIFFENER ANGLE ATTACHED WITH BOLTS.
2. INSTALL A GALVANIZED TOE PLATE (OF THE SAME GAGE METAL AS APRON) ON ALL APRONS 24 INCH DIAMETER AND LARGER.

DIMENSIONS					
PIPE DIAM.	A (±1")	B MAX.	H (±1")	L (±1¼")	W (±2")
6"	4½"	1"	3"	8¾"	12"
8"	5⅝"	3"	4"	14¼"	16"
10"	7½"	6"	6"	21"	24"
12"	4¾"	6"	6"	21"	24"
15"	6"	8"	6"	26"	30"
18"	7"	9"	6"	31"	36"
21"	8¼"	11"	6"	36"	42"
24"	9½"	12"	6"	42"	48"
30"	12"	15"	7½"	52½"	60"
36"	14"	18"	9"	63"	72"
42"	16"	21"	10½"	73½"	84"
48"	18"	27"	12"	84"	90"
54"	18"	30"	12"	84"	102"
60"	18"	33"	12"	87"	114"
66"	18"	36"	12"	87"	120"
72"	18"	39"	12"	87"	126"
78"	18"	42"	12"	87"	132"
84"	18"	45"	12"	87"	138"
90"	24"	37"	11"	87"	144"
96"	25"	35"	12"	87"	150"

DETAIL SOURCE:
SUDAS STANDARD SPECIFIACTIONS 4040.225
METAL PIPE APRONS

PIPE APRON
N.T.S.
1
C-200



CHANNEL RIPRAP DETAIL
N.T.S.
B
C-300

NO.	DATE	REVISION	BY	CHK'D	APV'D
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
1	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION Unit 0
UPPER ASH POND OUTFALL REROUTE ASBUILT
CIVIL DETAILS
Scale: AS SHOWN
DWG. NO. C-200


AREA OF CONCRETE REMOVED DUE TO PIPE INSTALLATION TO BE REPLACED WITH AGGREGATE TO MATCH SURROUNDING GRADE
AREA OF CONCRETE REMOVED DUE TO PIPE INSTALLATION TO BE REPLACED TO PREVIOUSLY EXISTING CONDITIONS WITHIN THIS AREA
WITHIN 25' OF TRACK CENTERLINE TOP OF CARRIER PIPE AND PIPE SLEEVE MUST BE MINIMUM 5.5' BELOW BASE OF RAIL. WITHIN ALL PORTIONS OF THE RIGHT-OF-WAY NOT DIRECTLY UNDER THE TRACK THE TOP OF PIPE MUST BE 3' BELOW GRADE OR BOTTOM OF DITCH.
MINIMUM COVER OF 5' OUTSIDE 25' OFFSET OF CENTERLINE OF RAILROAD TRACKS AS MEASURED PERPENDICULAR TO RAILROAD TRACKS REQUIRED FOR FREEZE PROTECTION.
REGRADING ENLARGEMENT 1 C-301
ABANDONED RAILROAD SIDING (SEE NOTE 6)
HACH AS950 REFRIGERATED SAMPLER
SAMPLE AND RETURN LINE
TYPICAL PIPE TRENCH A C-200
WAREHOUSE/RECEIVING BUILDING EXISTING A/C UNIT TO BE PROTECTED DURING PIPE INSTALLATION
SEE NOTE 4
OUTFALL DETAIL 5 C-200 (INVERT EL. 624.0')
CHANNEL RIPRAP B C-200
NEW 20" O.D. DR 17 HDPE PIPE
PRECAST CONCRETE MANHOLE #3 (NPDES OUTFALL SAMPLE LOCATION)
APPROXIMATE BOUNDARY OF ASPHALT RESTORED DURING RESTORATION 3
NEW 20" O.D. DR 17 HDPE PIPE
PROTECTED AREA (SEE NOTE 1)
PRECAST CONCRETE MANHOLE #2
NEW 20" O.D. DR 17 HDPE PIPE WITH 36" O.D. STEEL CASING PIPE SLEEVE
PRECAST CONCRETE MANHOLE #1 (SEE NOTE 7)
NEW 16" O.D. DR 17 HDPE PIPE 1
EXISTING CMP CULVERT
NEW 16" O.D. DR 17 HDPE PIPE (SEE NOTE 5) 1
NEW 16" O.D. DR 17 HDPE PIPE 1
CO2 CYLINDER STORAGE PAD
UNDERFLOW WEIR (NPDES OUTFALL FLOW METERING AND CO2 INJECTION LOCATION)
UNIT 4 SUMP PIPE AND DEMINERALIZER PIPE TO REMAIN IN PLACE AND ACTIVE 2
NEW 24" O.D. DR 17 HDPE PIPE
SEE NOTE 8 2
NOTE 9 3
RR ROW
Warehouse/Receiving Building
Assembly Building
Guard Building
Recycling Building
Ash Settling Pond
Roadway (Cr. Stone Surfacing)
HMA Pavement
Chain Link Fence
Tracks of CP Railroad
0 40' 80'
SCALE: 1" = 40'-0"

NOTES:

1. PROTECTED AREA: NO CONSTRUCTION ACTIVITIES OR LAYDOWN IN THE PROTECTED MOUND AREA LOCATED DIRECTLY EAST OF THE ALLIANT ENERGY ACCESS ROAD AND SOUTH OF THE ALLAMAKEE COUNTY HIGHWAY X-52.
2. CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE CANADIAN PACIFIC RAILWAY WHILE WORKING WITHIN THE DESIGNATED RIGHT-OF-WAY.
3. CONSTRUCTION BENEATH OVERHEAD POWERLINES MUST MEET THE MINIMUM CLEARANCE DISTANCE IN ACCORDANCE WITH OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION (OSHA) REQUIREMENTS.
4. MISCELLANEOUS PIPE STORAGE LOCATED SOUTH OF WAREHOUSE/RECEIVING BUILDING AND CONTAINMENT STRUCTURE. CONTRACTOR MAY RELOCATE AND REPLACE IF REQUIRED DURING PIPE INSTALLATION.
5. EXISTING 10" DIAMETER STEEL PIPE (FORMER FLY ASH PIPE) AND EXISTING 12" DIAMETER STEEL PIPE (FORMER BOTTOM ASH PIPE) TO BE REMOVED.
6. ABANDONED RAILROAD SIDING AND ASSUMED RAIL BED LOCATED SOUTH OF THE ASSEMBLY BUILDING WHERE 20" O.D. DR 17 HDPE PIPE IS TO BE INSTALLED. CONTRACTOR TO CUT, REMOVE, AND DISPOSE OF RAILROAD SIDING AND RAIL BED AS NECESSARY TO INSTALL NEW PIPE.
7. EXISTING SPRING LOCATED IN AREA WHERE PRECAST CONCRETE MANHOLE #1 AND ASSOCIATED HDPE PIPING IS TO BE INSTALLED. CONTRACTOR SHALL BE REQUIRED TO DEWATER EXCAVATION AREAS AS NECESSARY TO INSTALL NEW MANHOLE STRUCTURES AND PIPING. DEWATERING EFFORTS SHALL BE COORDINATED WITH THE OWNER AND SHALL BE COMPLETED IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS.
8. FINGER SHALL BE CONSTRUCTED TO ELEVATION 650 USING SEDIMENT REMOVED FROM THE INSTALLATION OF THE 24" HDPE INLET PIPE. THE AREA NEAR THE UNIT 4 SUMP PIPE AND THE DEMORALIZER PIPE SHALL BE REMOVED DOWN TO ELEVATION 645. 2
9. CONTOURS SHOWN ARE APPROXIMATE OF ACTUAL CONTOURS. 3

NO.	DATE	REVISION	BY	CHK'D	APV'D
-	-	-	-	-	-
-	-	-	-	-	-
3	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
2	10-15-20	CLIENT COMMENTS	JFD	MWL	RAS
1	10-2-20	ADD LOW VOLUME WASTE WATER FLOWS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY

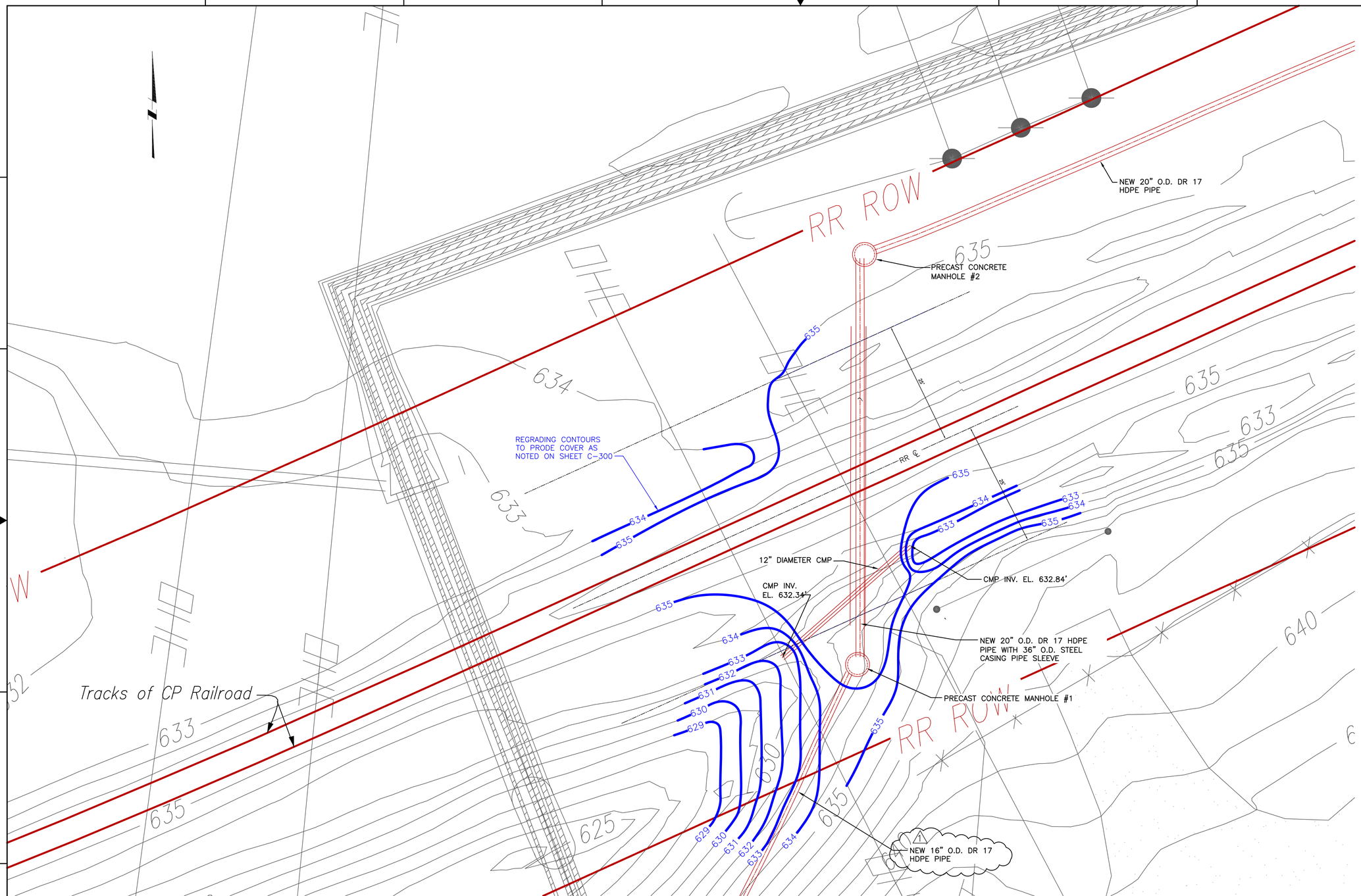
LANSING GENERATING STATION Unit 0

UPPER ASH POND OUTFALL REROUTE ASBUILT

CIVIL SITE GRADING

Scale: AS SHOWN

DWG. NO. C-300



REGRADING ENLARGMENT DETAIL 1 C-300

0 10' 20'

SCALE: 1" = 10'-0"

NOTES:
1. CONTOURS SHOWN ARE APPROXIMATE OF ACTUAL CONTOURS.

INTERSTATE POWER AND LIGHT COMPANY

NO.	DATE	REVISION	BY	CHK'D	APV'D
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
2	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
1	10-2-20	ADD LOW VOLUME WASTE WATER FLOWS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

LANSING GENERATING STATION Unit 0

UPPER ASH POND OUTFALL REROUTE ASBUILT

CIVIL SITE GRADING

CMP CULVERT (NORTH SIDE)

Scale: AS SHOWN

DWG. NO. C-301

1.1 DEMOLITION

A. SEE SHEET C-100 AND C-101.

1.2 DESIGN CRITERIA

A. FROST DEPTH: 60 INCHES

B. RAIN: 10-YR 24-HR STORM RAINFAL = 4.34 INCHES.

1.3 CAST IN PLACE CONCRETE

A. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY UNCONFINED COMPRESSIVE STRENGTH OF 4,000 POUNDS PER SQUARE INCH (PSI).

B. ALL REINFORCING BARS SHALL BE GRADE-60 STEEL (ASTM A-615).

C. CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF ACI 301 AND ACI 318.

D. REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY PIPE, PIPE FLANGE, METAL CONDUIT, OR OTHER METAL PARTS EMBEDDED IN THE CONCRETE.

E. REINFORCING STEEL SHALL HAVE A MINIMUM 3-INCH OF CONCRETE COVER BETWEEN STEEL AND SOIL.

F. REINFORCING STEEL SHALL HAVE A MINIMUM 1.5-INCH OF CONCRETE COVER IN CONCRETE FACES NOT CONTACTING SOIL.

G. EXCEPT AS OTHERWISE REQUIRED EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE ¾-INCH CHAMFERS.

H. EXCAVATION BOTTOMS SHALL BE INSPECTED PRIOR TO CONCRETE PLACEMENT. SOFT AND/OR UNACCEPTABLE SOILS SHALL BE REMOVED AND REPLACED WITH STRUCTURAL AGGREGATE PER CIVIL NOTES SHEET, EARTHWORK.

I. A GEOTEXTILE FABRIC SHALL BE PLACED BENEATH THE STRUCTURAL AGGREGATE. SEE SHEET C-100.

J. STRUCTURAL AGGREGATE BASE SHALL MEET THE REQUIREMENTS SPECIFIED ON SHEET C-101.

K. A 6-MIL VAPOR BARRIER SHALL BE PLACED BENEATH CONCRETE SLABS FOR BUILDINGS AND OTHER ENCLOSED STRUCTURES.

L. A BONDING AGENT SHALL BE APPLIED TO EXISTING CONCRETE SLABS AND FLOOR SLABS PRIOR TO INSTALLING HOUSEKEEPING PADS. BONDING AGENT SHALL COMPLY WITH ASTM C1059 AND BE APPLIED PER THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

M. REINFORCING BAR LAPS SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

BAR SIZE	MINIMUM LAP (INCHES)
4	28
5	36
6	42
7	62
8	72

N. REINFORCEMENT TO BE SUPPORTED IN SPECIFIED LOCATIONS USING REINFORCEMENT CHAIRS.

O. THE PROPOSED CONCRETE MIX DESIGN SHALL BE SUBMITTED TO OWNER FOR APPROVAL SEVEN DAYS PRIOR TO INSTALLATION. PROPOSED CONCRETE ADDITIVES ARE TO BE SUBMITTED ALONG WITH THE PROPOSED CONCRETE MIX DESIGN.

P. NO WATER SHALL BE ADDED TO THE CONCRETE ON SITE UNLESS AT THE DIRECTION OF THE OWNER.

Q. CONCRETE CONTRACTOR TO COLLECT FIVE CONCRETE SAMPLES CYLINDERS FROM THE FIRST TRUCK TO CONCRETE PLACEMENT LOCATION AND FROM EVERY TENTH TRUCK FOLLOWING. CONCRETE CONTRACTOR SHALL CONTRACT AN INDEPENDENT TESTING COMPANY TO PERFORM COMPRESSION TESTS IN ACCORDANCE WITH ASTM C-39 AT 3 DAYS, 7 DAYS, AND 28 DAYS AFTER PLACEMENT. THE REMAINING TESTS ARE TO BE HELD FOR TEST VERIFICATION. CYLINDER COLLECTION AND TESTING IS THE RESPONSIBILITY OF THE CONTRACTOR.

R. A SLUMP TEST SHALL BE TAKEN WITH EACH SET OF CYLINDERS. THE SLUMP SHALL MEET THE REQUIREMENTS OF THE CONCRETE MIX SPECIFICATION. SLUMP TESTING IS THE RESPONSIBILITY OF THE CONCRETE CONTRACTOR.

S. CRACK CONTROL SAW CUTS SHALL BE MADE WITHIN 12 HOURS OF CONCRETE POUR IN ACCORDANCE WITH ACI STANDARDS.

T. CONCRETE FLOORS SHALL BE BROOM FINISHED.

1.4 CONCRETE COATINGS

A. INTERIOR CONCRETE SURFACES INCLUDING BUILDING FLOOR SLAB, HOUSEKEEPING PADS, TRENCH DRAINS, AND SUMP PITS TO BE COATED WITH AN EPOXY FLOOR COATING INSTALLED PER THE MANUFACTURER'S REQUIREMENTS.

B. STANDARDS OF ACCEPTANCE:

1. SIKAFLOOR: 107 PRIMER AND TOP COAT WITH 700 EPOXY TOP COAT.
2. GENERAL POLYMERS (SHERWIN WILLIAMS): 3579 STANDARD PRIMER / BONDER WITH 3525E STATIC CONTROL EPOXY TOP COAT.

1.5 PRECAST CONCRETE STRUCTURES

A. .PRECAST CONCRETE CATCH BASINS, LIDS, AND ACCESS HATCHES.

1. INSTALL IN ACCORDANCE WITH IOWA DEPARTMENT OF TRANSPORTATION SECTION 2435.03.
2. BASE, RISER SECTION, AND FLAT TOP SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 AND ASTM C913.
3. JOIN BASE, RISER SECTIONS, AND FLAT TOP SLABS USING RUBBER O-RING OR PROFILE GASKET PER ASTM C443
4. APPLY NON-SHRINK GROUT TO INTERIOR/EXTERIOR JOINTS OF PRECAST STRUCTURES.
5. INSTALL RUBBER PLUG IN LIFT HOLES. COVER PLUG AND HOLE WITH NON-SHRINK GROUT.
6. CONNECTIONS BETWEEN MANHOLE STRUCTURE AND PIPES SHALL MEET ASTM C923. INSTALL FLEXIBLE BOOT-TYPE CONNECTORS AT ALL MANHOLE TO PIPE CONNECTIONS USING KOR-N-SEAL, PRES-SEAL, OR APPROVED ALTERNATE CONNECTORS.
7. MANHOLE STEPS
   a. MEET OSHA STANDARDS
   b. PROVIDE PLASTIC COATED STEEL STEPS WITH MAXIMUM 16-INCH SPACING. M.A. INDUSTRIES PS1-PF OR NEENAH R-1981-J OR EQUAL.
   c. TOP STEP TO BE A MAXIMUM OF 14 INCHES BELOW TOP OF BASE SURFACE IN ORDER TO ENABLE CLEAR ACCESS THROUGH COVER.
8. LIDS AND ACCESS HATCHES
   a. LIDS: CASTINGS SHALL BE AS INDICATED ON THE DRAWINGS OR APPROVED EQUAL. IF NOT INDICATED ON THE DRAWINGS, CASTINGS SHALL BE CAST IRON FRAME AND LID NEENAH R-1792-EL OR EQUAL
9. GRATING .
   a. SEE DRAWINGS.
   b. INSTALL IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS.
   c. ACCEPTABLE MANUFACTURERS: FIBERGRATE COMPOSITE STRUCTURES OR APPROVED EQUAL
   d. FIBERGRATE MOLDED GRATING, 2" DEPTH, 2"X2" MESH OPENING.
   e. MINIMUM UNIFORM LOAD CAPACITY OF 100 POUNDS PER SQUARE FOOT.
   f. MINIMUM CONCENTRATED POINT LOAD CAPACITY OF 500 POUNDS.
   g. MINIMUM CONCENTRATED LINE LOAD CAPACITY OF 200 POUNDS PER FOOT OF WIDTH.
   h. GRATINGS SHALL BE FIRMLY FASTED TO THEIR SUPPORTS (CONCRETE) USING A MINIMUM OF TWO "M" STYLE HOLD DOWN CLIPS AT A MAXIMUM SPACING OF 4'-0" ON CENTER PER SUPPORT BEAM WITH A MINIMUM OF FOUR HOLD DOWN CLIPS PER GRATING PANEL.
   i. ABUTTING EDGES OF MOLDED GRATING PANELS SHOULD BE SUPPORTED BY STRUCTURAL MEMBERS OR FASTENED TOGETHER USING "F" STYLE CLIPS AT A MAXIMUM SPACING OF 24" ON CENTER TO PREVENT DIFFERENTIAL DEFLECTION WHEN ONE OF THE ABUTTING GRATINGS IS LOADED.
   j. AS A RULE OF THUMB, AS LONG AS NO MORE THAN 1/3 OF THE INDIVIDUAL GRATING PANEL WIDTH IS REMOVED BY AN INTERIOR CUT OUT HOLE, NO ADDITIONAL SUPPORT WILL BE REQUIRED.
10. INTERIOR COATINGS
    a. FURNISH/INSTALL NON-SHRINK GROUT TO THE INTERIOR JOINTS OF THE CATCH BASIN STRUCTURE
    b. INSTALL COATINGS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTUIONS
    c. APPLY COATINGS BEFORE INTERIOR OF CATCH BASIN IS EXPOSED TO STANDING WATER.
11. INSTALLATION
    a. FORM BOTTOM OF EXCAVATION CLEAN AND SMOOTH TO CORRECT ELEVATION.
    b. INSTALL SUBGRADE PER SPECIFICATIONS
    c. USE ADJUSTING RINGS AS REQUIRED (IF NEEDED), BUT NO MORE THAN 4, TO OBTAIN PROPER RIM ELEVATIONS.
    d. APPLY NON-SHRINK GROUT TO JOINTS OF CATCH BASIN, PLASTER OUTSIDE AND STRIKE INSIDE CLEAN.

1.6 STOP LOGS AND GUIDE FRAME

A. SEE DRAWINGS.

B. INSTALL IN ACCORDANCE WITH MANUFACTURER'S SUPPLIED INSTALLATION DRAWINGS AND REQUIREMENTS.

C. ACCEPTABLE MANUFACTURERS: PLASTI-FAB OR APPROVED EQUAL.

D. SUBMITTAL OF SHOP DRAWING BY MANUFACTURER REQUIRED.

NO.	DATE	REVISION	BY	CHK'D	APV'D
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-	-	-	-	-	-
1	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY

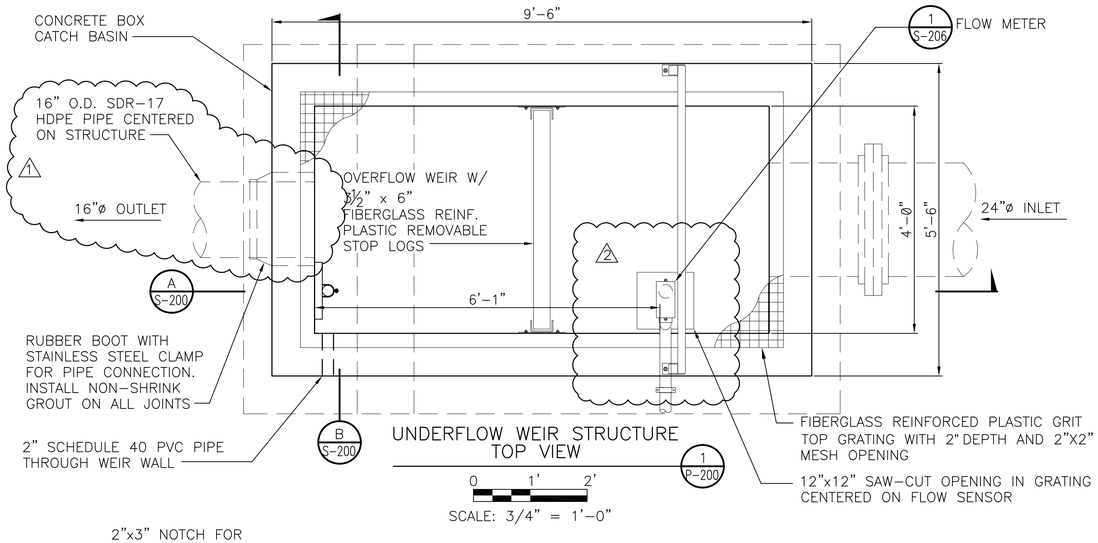
LANSING GENERATING STATION Unit 0

UPPER ASH POND OUTFALL REROUTE ASBUILT

STRUCTURAL NOTES & SPECIFICATIONS

Scale: NONE

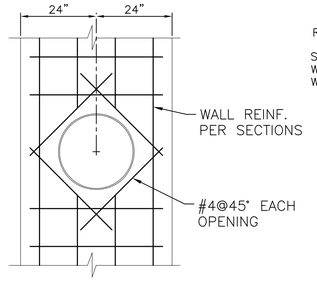
DWG. NO. S-100



UNDERFLOW WEIR STRUCTURE TOP VIEW — 1 P-200

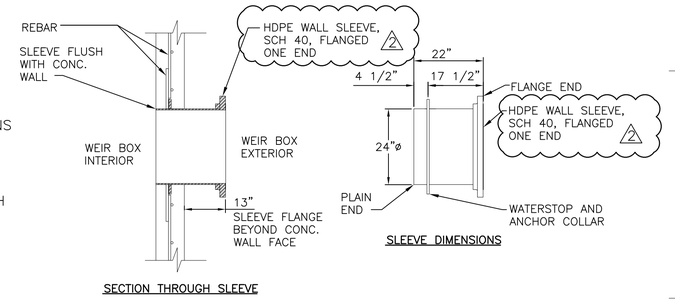
0 1' 2'

SCALE: 3/4" = 1'-0"



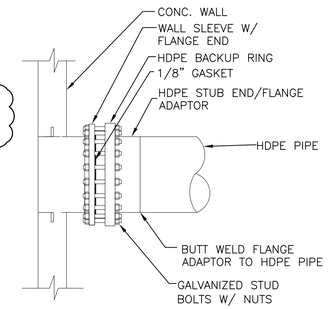
TYPICAL REINF. AT OPENINGS — 2 S-200

N.T.S.



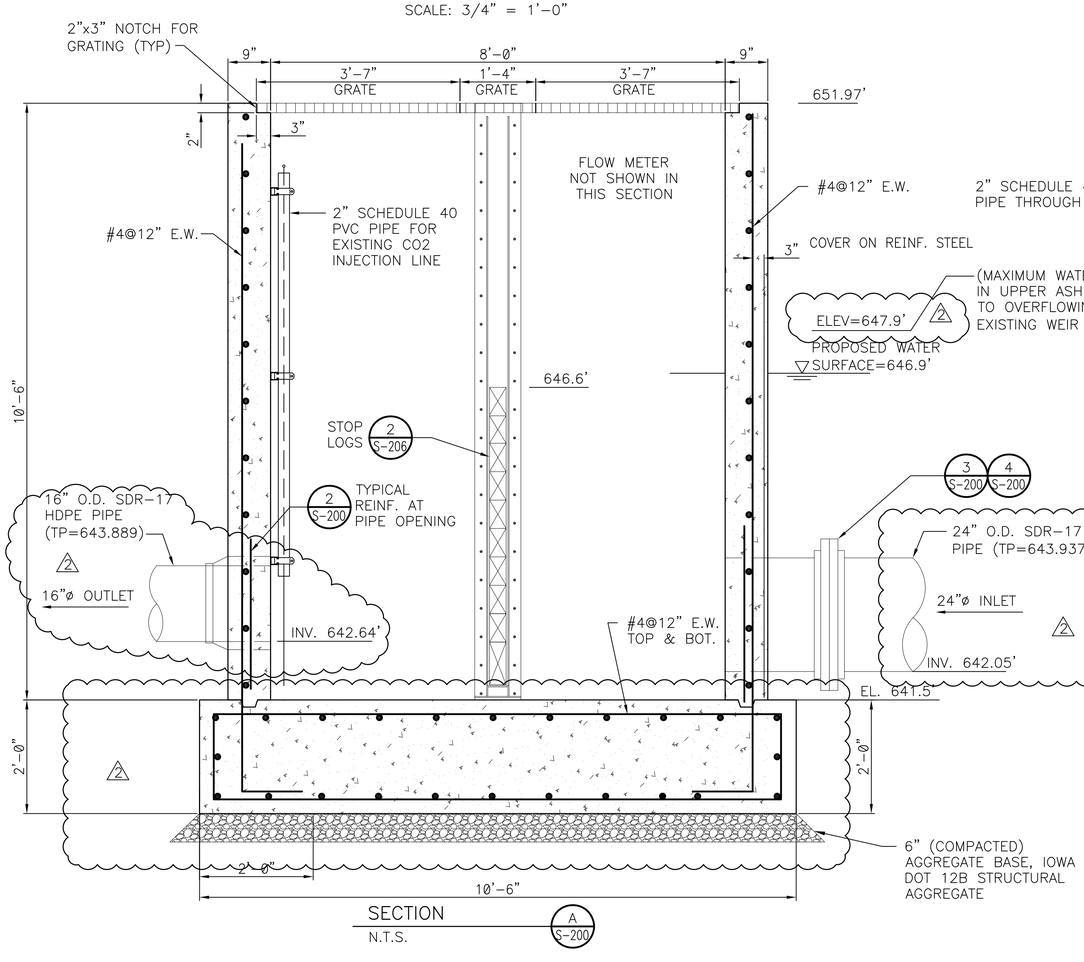
24"ø WALL SLEEVE — 3 S-200

N.T.S.



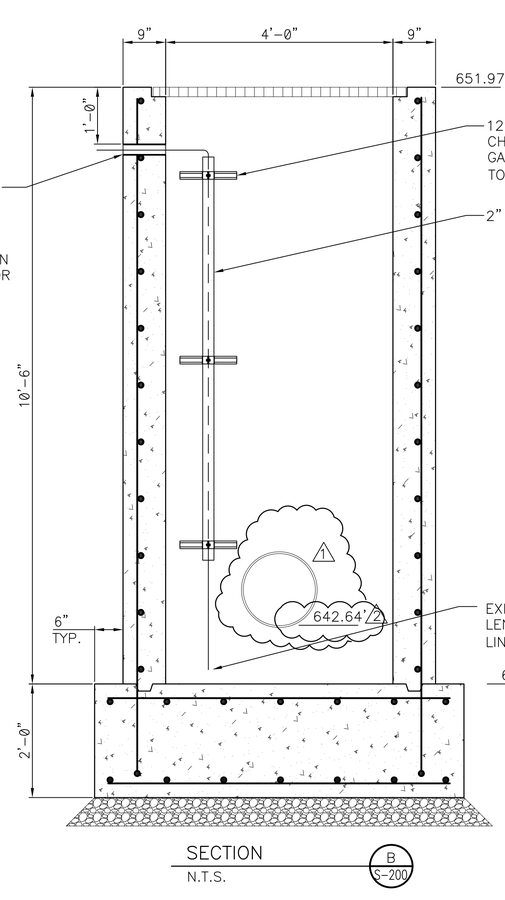
FLANGE CONNECTION TO WALL SLEEVE — 4 S-200

N.T.S.



SECTION — A S-200

N.T.S.



SECTION — B S-200

N.T.S.

NOTES:

1. CONTRACTOR SHALL BE REQUIRED TO DEWATER EXCAVATION AREAS AS NECESSARY TO INSTALL NEW CAST-IN-PLACE CONCRETE WEIR STRUCTURE AND ASSOCIATED HDPE PIPING. DEWATERING EFFORTS SHALL BE COORDINATED WITH THE OWNER AND SHALL BE COMPLETED IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS.
2. CAST-IN-PLACE CONCRETE UNDERFLOW WEIR STRUCTURE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 301 AND ACI 318 (SEE NOTES AND SPECIFICATIONS FOR ADDITIONAL DETAILS REGARDING CAST-IN-PLACE CONCRETE STRUCTURE CONSTRUCTION AND INSTALLATION).
3. INSTALL STOP LOGS AND IN-CHANNEL MOUNT GUIDE FRAME PER MANUFACTURER SPECIFICATIONS.
4. INSTALL FIBERGLASS REINFORCED PLASTIC GRATING PER MANUFACTURER SPECIFICATIONS.

NO.	DATE	REVISION	BY	CHK'D	APV'D
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
2	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
1	10-2-20	ADD LOW VOLUME WASTE WATER FLOWS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY

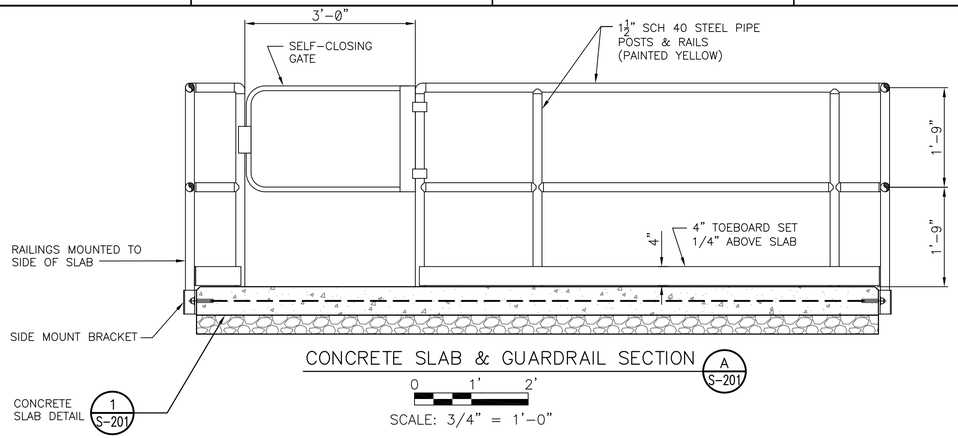
LANSING GENERATING STATION — Unit 0

UPPER ASH POND OUTFALL REROUTE ASBUILT

CONCRETE PLAN AND DETAILS UNDERFLOW WEIR

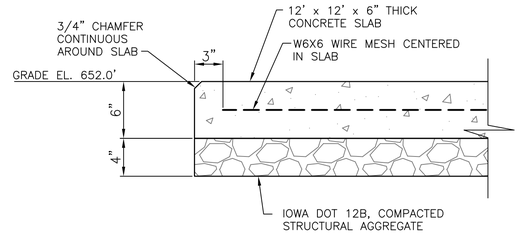
Scale: AS SHOWN

DWG. NO. S-200



CONCRETE SLAB & GUARDRAIL SECTION A S-201

SCALE: 3/4" = 1'-0"



CONCRETE SLAB DETAIL 1 S-201

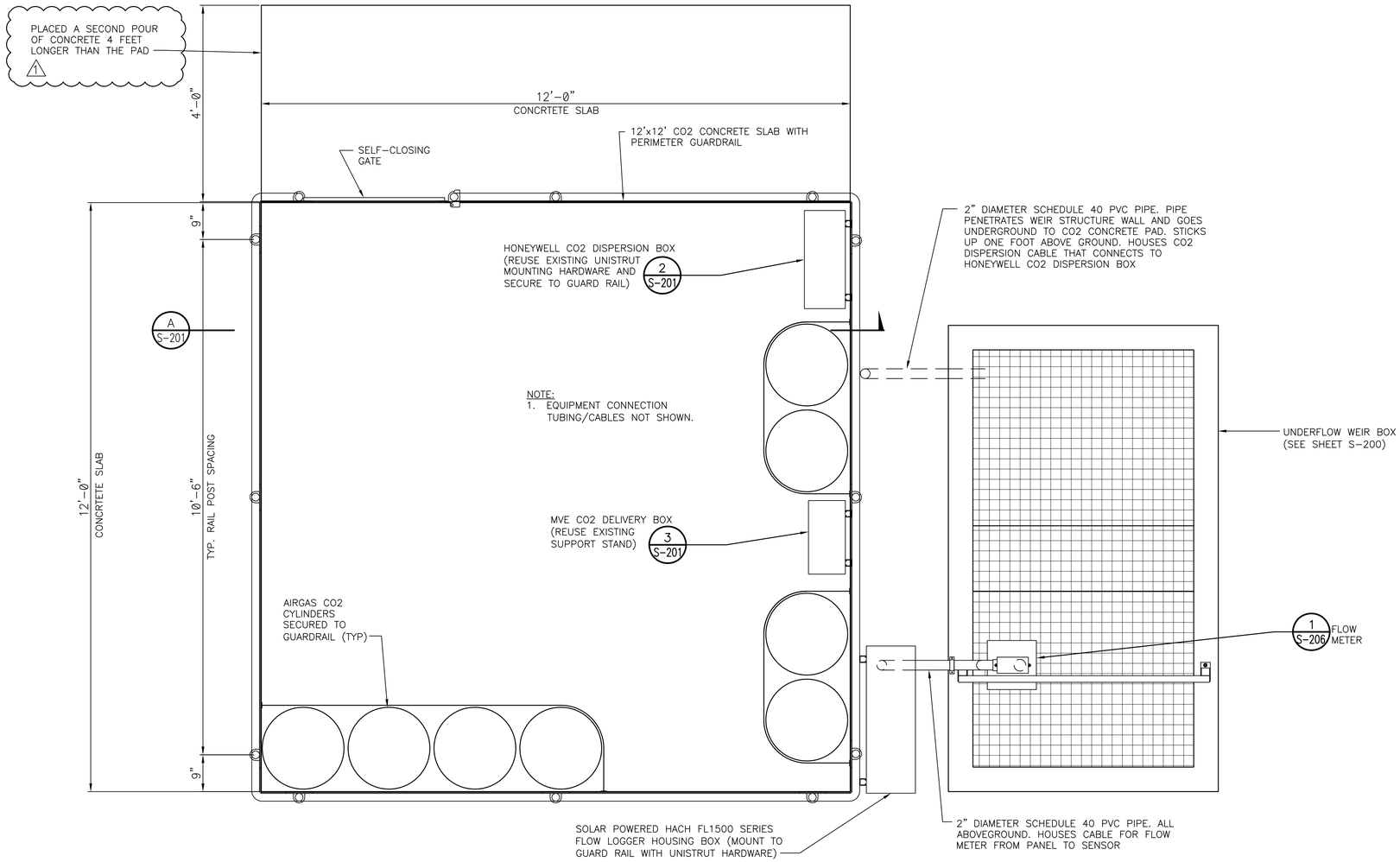
N.T.S.

HONEYWELL CO2 DISPERSION BOX 2 S-201

N.T.S.

MVE CO2 DELIVERY BOX 3 S-201

N.T.S.



PLAN VIEW

0 1' 2'

SCALE: 3/4" = 1'-0"

INTERSTATE POWER AND LIGHT COMPANY

NO.	DATE	REVISION	BY	CHK'D	APV'D
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-	-	-	-	-	-
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-	-	-	-	-	-
1	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

LANSING GENERATING STATION Unit 0

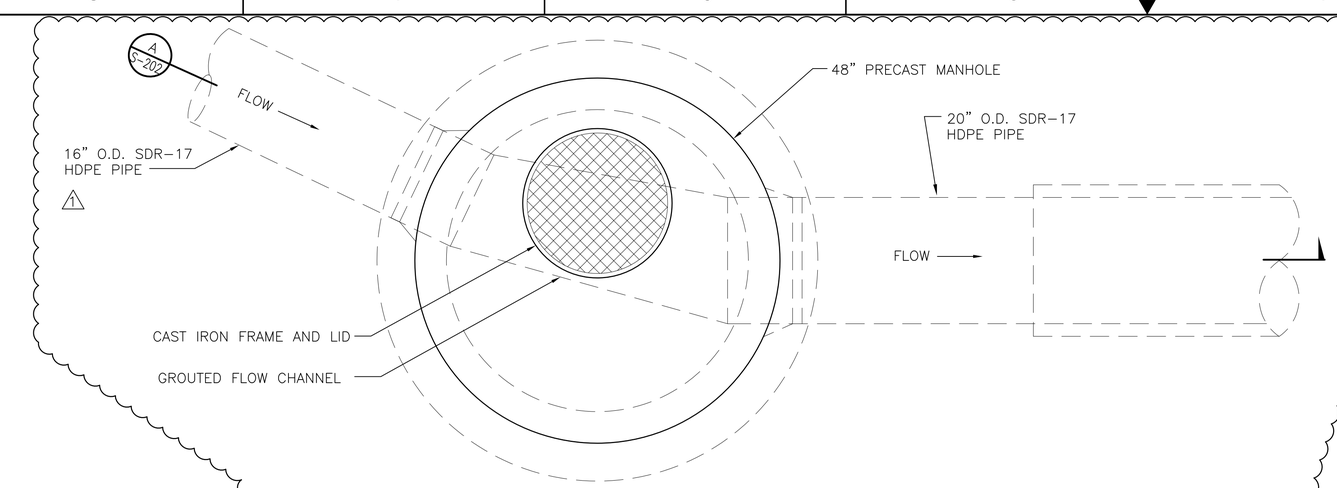
UPPER ASH POND OUTFALL REROUTE ASBUILT

CONCRETE PLAN AND DETAILS

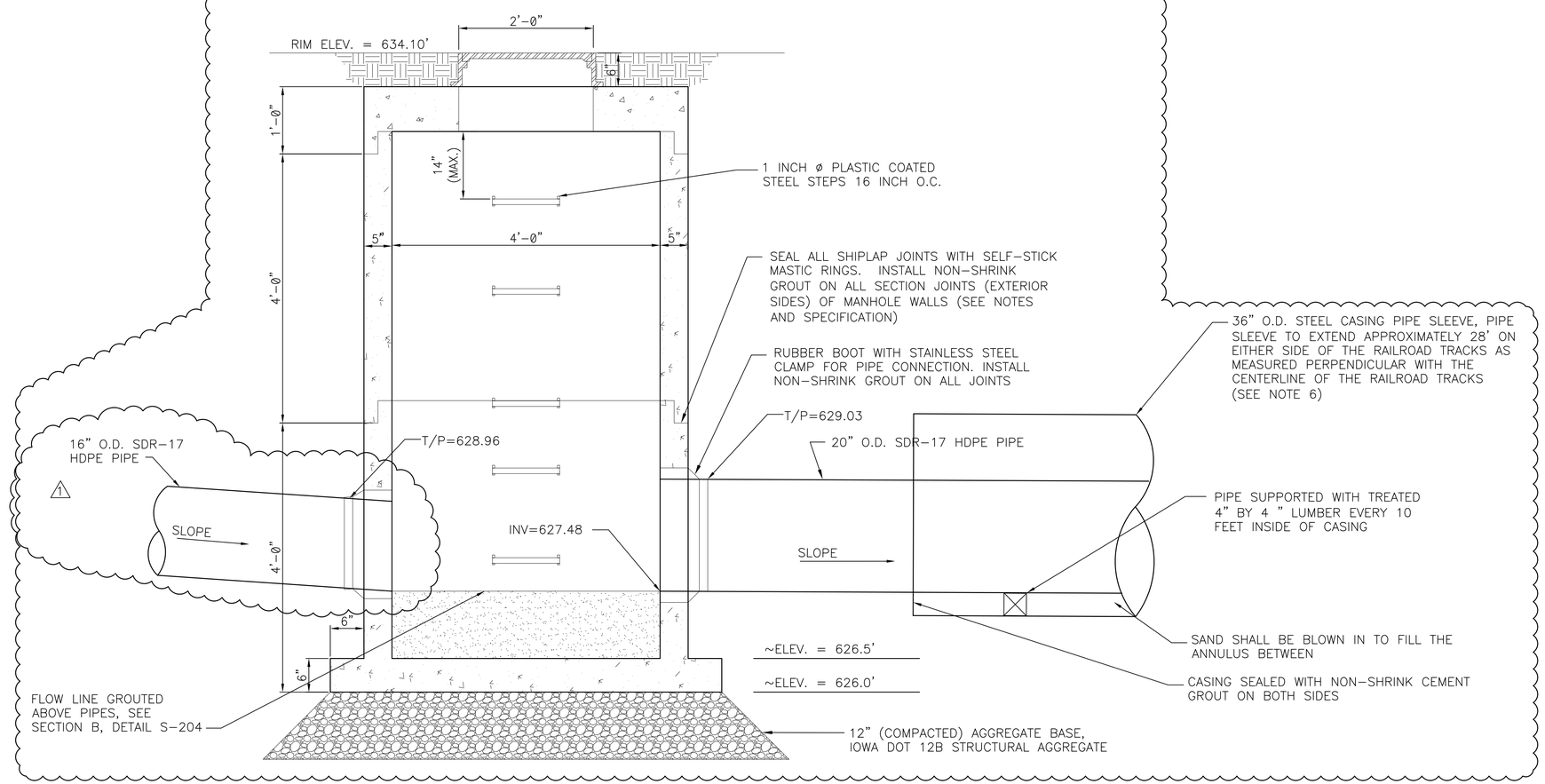
CO2 CYLINDER PAD

Scale: AS SHOWN

DWG. NO. S-201



PRECAST CONCRETE MANHOLE #1 (2 / P-200)
NOT TO SCALE



SECTION (A / S-202)
NOT TO SCALE

NOTES:
1. 1. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEWATERING TO PROPERLY INSTALL CONCRETE MANHOLE. DEWATERING EFFORTS SHALL BE COORDINATED WITH THE OWNER AND SHALL BE COMPLETED IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS.
2. BASE, RISER SECTIONS, AND FLAT TOP SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (SEE NOTES AND SPECIFICATIONS FOR ADDITIONAL DETAILS REGARDING PRECAST CONCRETE STRUCTURE CONSTRUCTION AND INSTALLATION REQUIREMENTS).
3. LADDER STEPS SHALL MEET REQUIREMENTS OF OSHA 29 CFR 1910.27.
4. SDR-17 HDPE PIPE SIZE.
5. ASTM A252 GRADE 2 STEEL CASING PIPE SLEEVE.
6. CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE CANADIAN PACIFIC RAILWAY WHILE WORKING WITHIN THE DESIGNATED RIGHT-OF-WAY.
7. CONSTRUCTION BENEATH OVERHEAD POWERLINES MUST MEET THE MINIMUM CLEARANCE DISTANCE IN ACCORDANCE WITH OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION (OSHA) REQUIREMENTS.

NO.	DATE	REVISION	BY	CHK'D	APV'D
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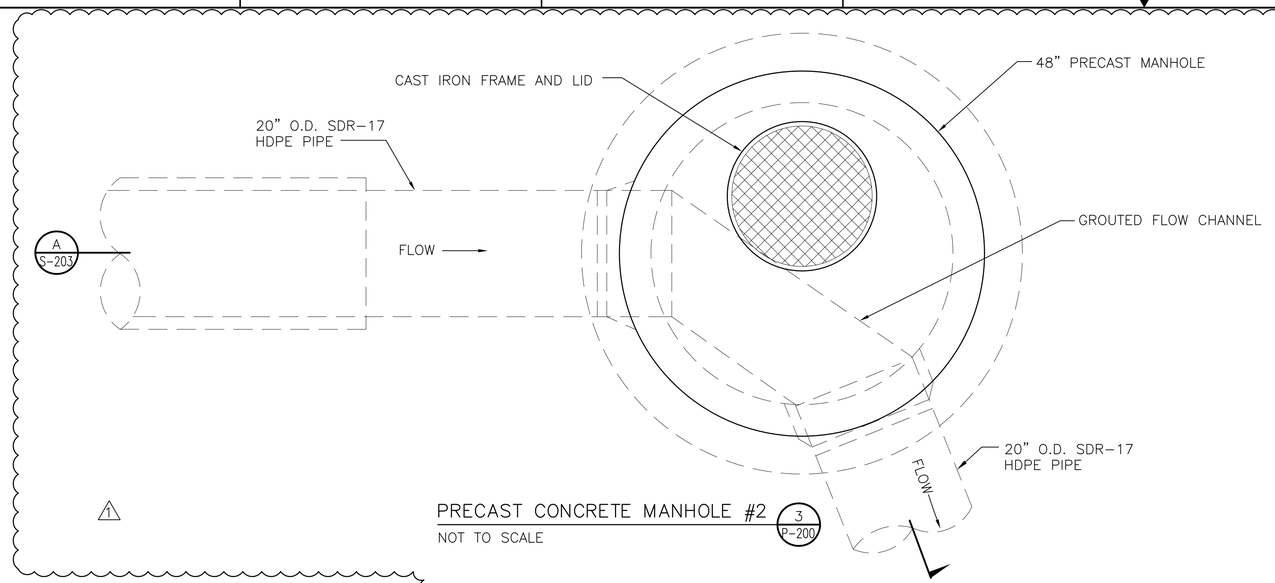
-	-	-	-	-	-
2	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
1	10-2-20	ADD LOW VOLUME WASTE WATER FLOWS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

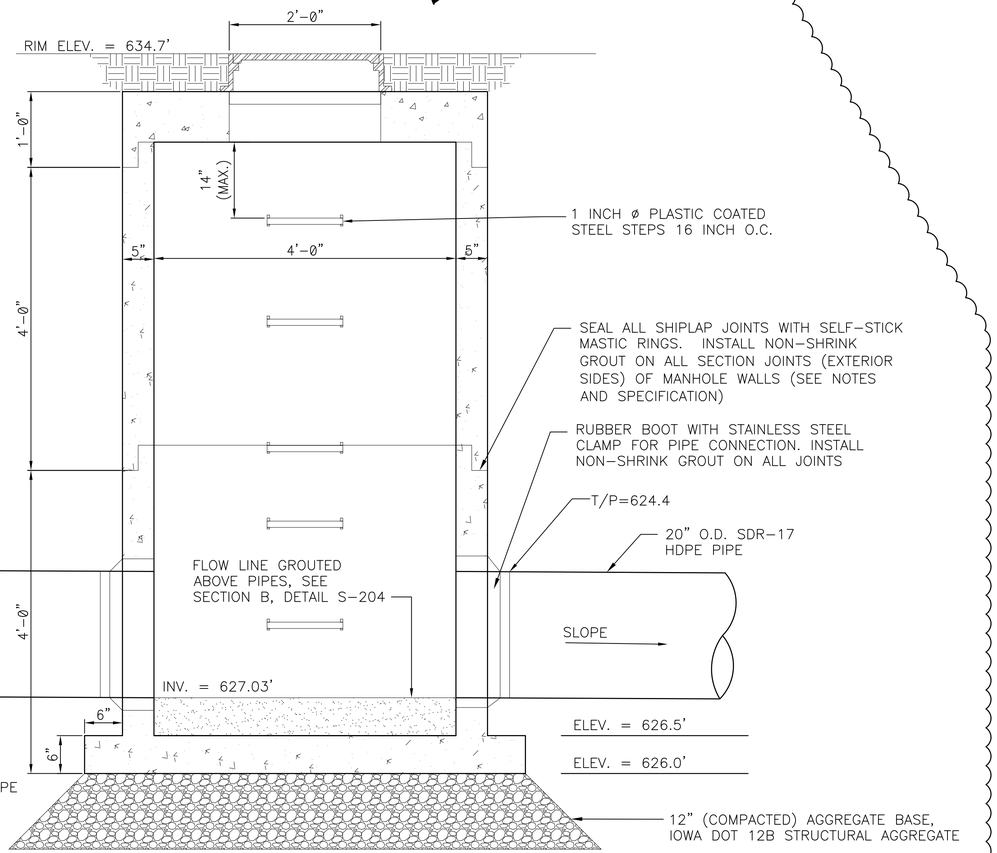
INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION Unit 0
UPPER ASH POND OUTFALL REROUTE ASBUILT
CONCRETE PLAN AND DETAILS
MANHOLE STRUCTURE #1
Scale: AS SHOWN
DWG. NO. S-202



1

PRECAST CONCRETE MANHOLE #2 (3 / P-200)

NOT TO SCALE



SECTION (A / S-203)

NOT TO SCALE

NOTES:
1. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEWATERING TO PROPERLY INSTALL CONCRETE MANHOLE. DEWATERING EFFORTS SHALL BE COORDINATED WITH THE OWNER AND SHALL BE COMPLETED IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS.
2. BASE, RISER SECTIONS, AND FLAT TOP SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (SEE NOTES AND SPECIFICATIONS FOR ADDITIONAL DETAILS REGARDING PRECAST CONCRETE STRUCTURE CONSTRUCTION AND INSTALLATION REQUIREMENTS).
3. LADDER STEPS SHALL MEET REQUIREMENTS OF OSHA 29 CFR 1910.27.
4. SDR-17 HDPE PIPE SIZE.
5. ASTM A252 GRADE 2 STEEL CASING PIPE SLEEVE.
6. CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE CANADIAN PACIFIC RAILWAY WHILE WORKING WITHIN THE DESIGNATED RIGHT-OF-WAY.
7. CONSTRUCTION BENEATH OVERHEAD POWERLINES MUST MEET THE MINIMUM CLEARANCE DISTANCE IN ACCORDANCE WITH OCCUPATIONAL HEALTH AND SAFETY (OSHA) REQUIREMENTS.

NO.	DATE	REVISION	BY	CHK'D	APV'D
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-	-	-	-	-	-
1	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY

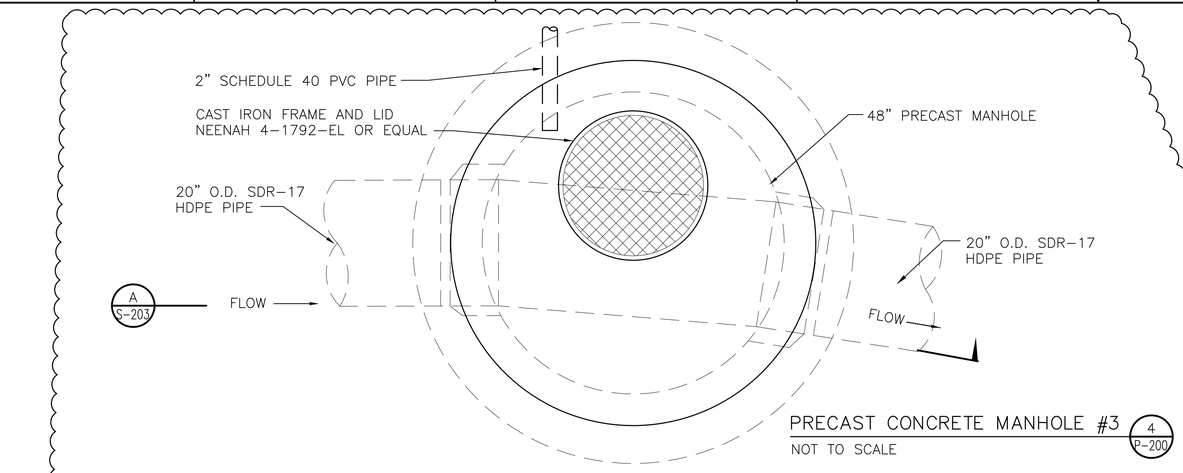
LANSING GENERATING STATION — Unit 0

UPPER ASH POND OUTFALL REROUTE ASBUILT

CONCRETE PLAN AND DETAILS
MANHOLE STRUCTURE #2

Scale: AS SHOWN

DWG. NO. S-203

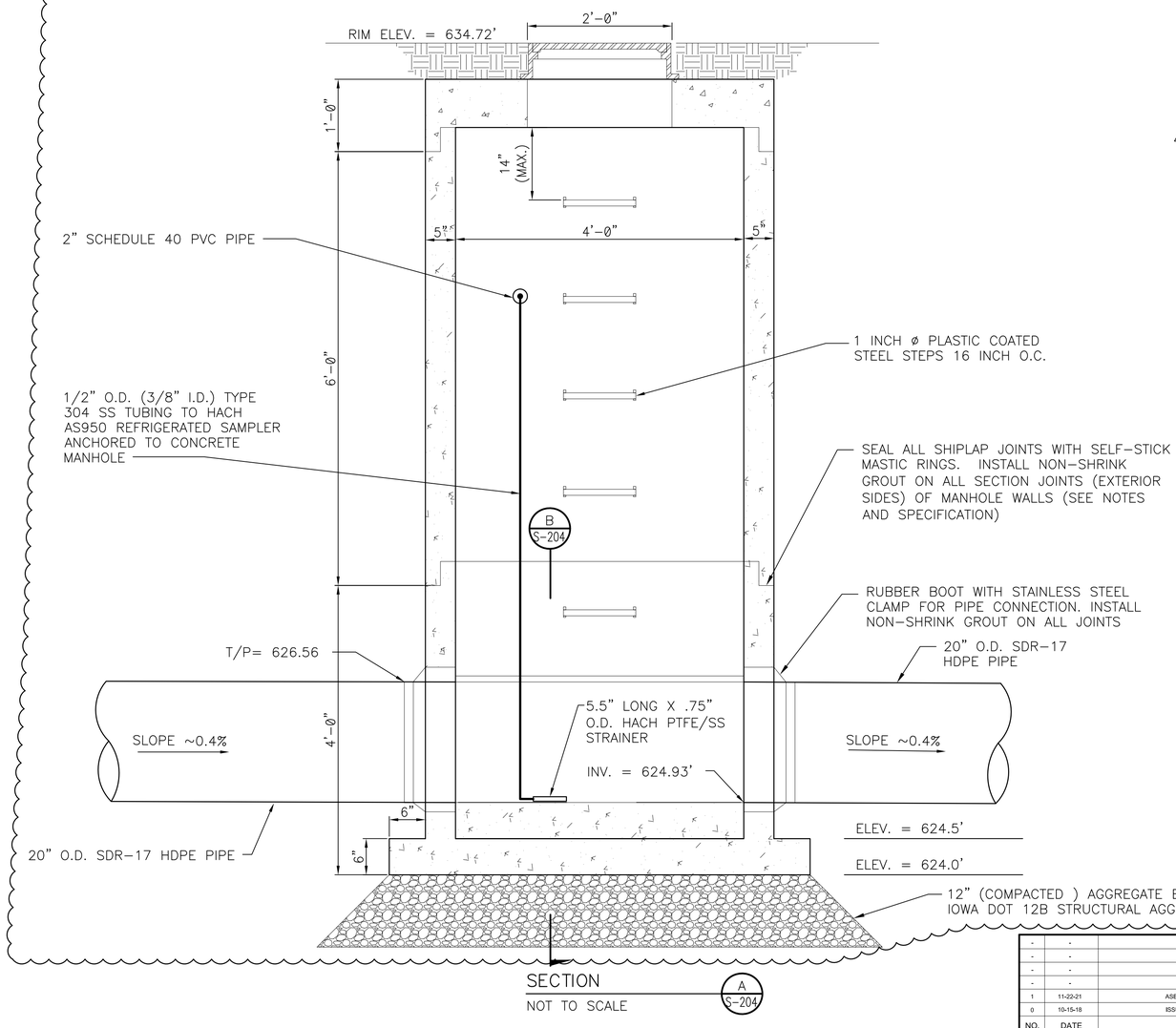


PRECAST CONCRETE MANHOLE #3 (4 / P-200)

NOT TO SCALE

NOTES:

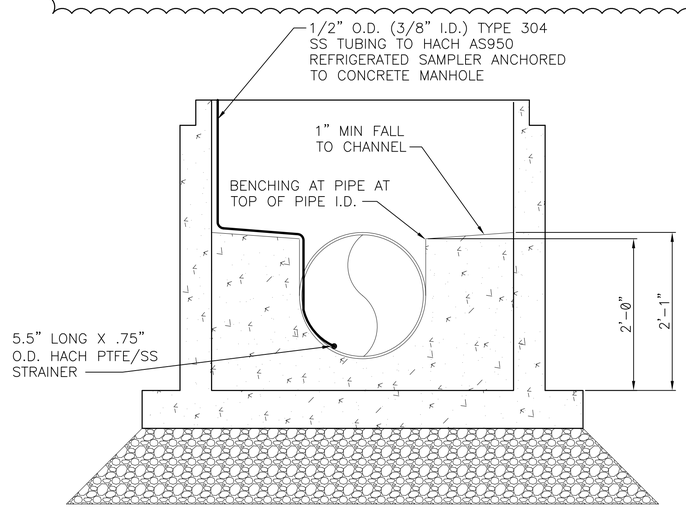
1. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEWATERING TO PROPERLY INSTALL CONCRETE MANHOLE. DEWATERING EFFORTS SHALL BE COORDINATED WITH THE OWNER AND SHALL BE COMPLETED IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS.
2. BASE, RISER SECTIONS, AND FLAT TOP SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C478 (SEE NOTES AND SPECIFICATIONS FOR ADDITIONAL DETAILS REGARDING PRECAST CONCRETE STRUCTURE CONSTRUCTION AND INSTALLATION REQUIREMENTS).
3. LADDER STEPS SHALL MEET REQUIREMENTS OF OSHA 29 CFR 1910.27.
4. SDR-17 HDPE PIPE SIZE.
5. ASTM A252 GRADE 2 STEEL CASING PIPE SLEEVE.
6. CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE CANADIAN PACIFIC RAILWAY WHILE WORKING WITHIN THE DESIGNATED RIGHT-OF-WAY.
7. SAMPLE AND RETURN LINE LOCATED WITHIN 2" DIAMETER SCHEDULE 40 PVC PIPE BELOW GROUND SURFACE FROM MANHOLE #3 TO EXTERIOR OF SOUTH SIDE OF WAREHOUSE. PENETRATES WALL ABOVEGROUND AT THAT POINT. ABOVEGROUND PVC PIPE TO BE HEAT TRACED AND INSULATED.



SECTION (A / S-204)

NOT TO SCALE

1



SECTION (B / S-204)

NOT TO SCALE

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1	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY

LANSING GENERATING STATION — Unit 0

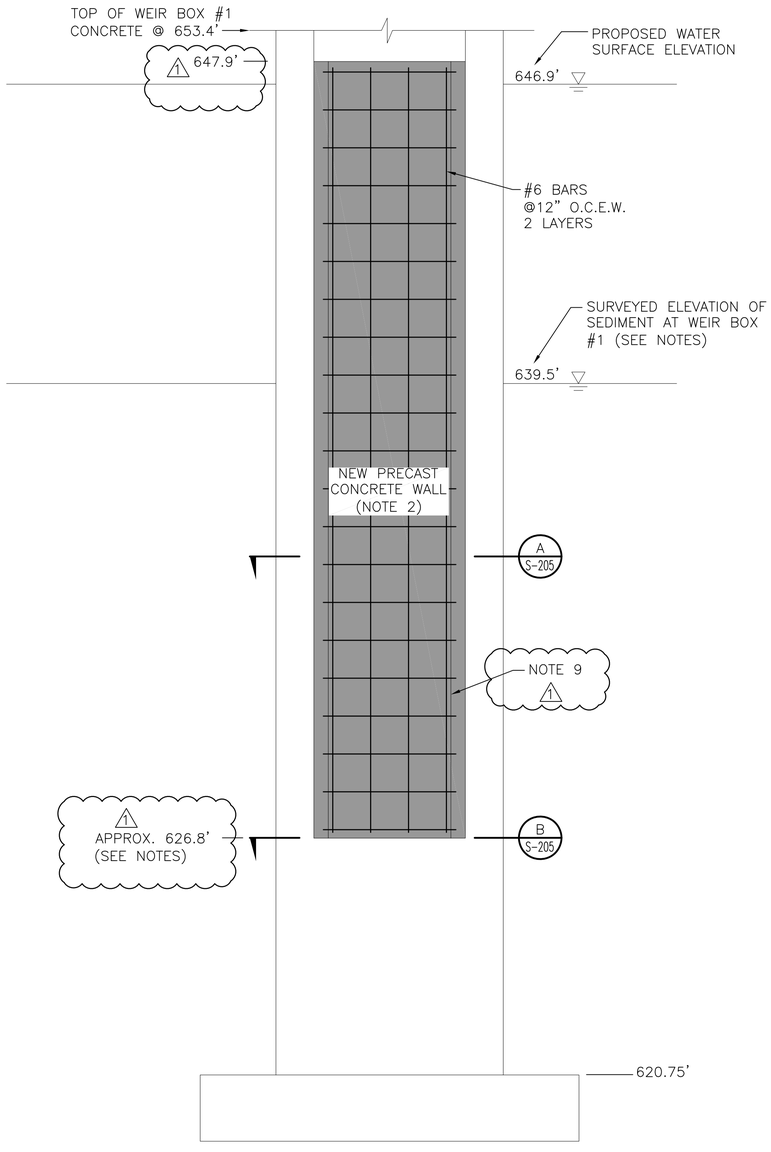
UPPER ASH POND OUTFALL REROUTE ASBUILT

CONCRETE PLAN AND DETAILS

MANHOLE STRUCTURE #3

Scale: AS SHOWN

DWG. NO. S-204



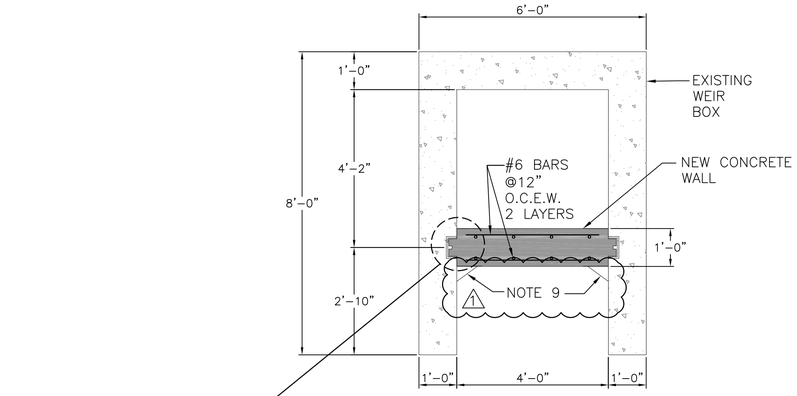
PRECAST CONCRETE WALL ADDITIONS
WEIR BOX #1

0 2' 4'

SCALE: 1/2" = 1'-0"

6

P-200

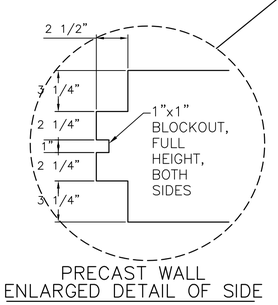


SECTION

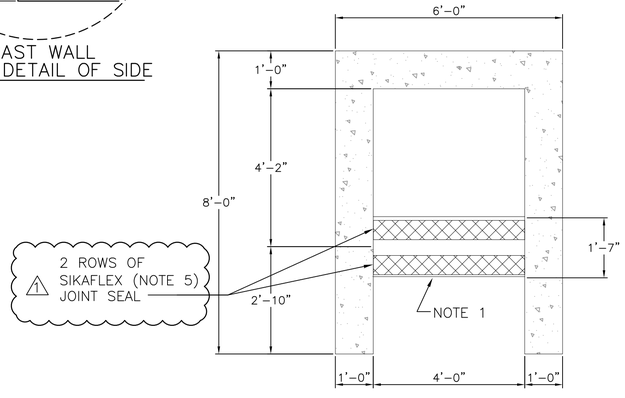
0 2' 4'

A S-205

SCALE: 1/2" = 1'-0"



PRECAST WALL
ENLARGED DETAIL OF SIDE



SECTION

0 2' 4'

B S-205

SCALE: 1/2" = 1'-0"

NOTES:

1. ANY LOOSE CONCRETE TO BE REMOVED BY CHIPPING.
2. INSIDE OF WEIR BOXES TO BE POWER WASHED PRIOR TO INSTALLATION OF NEW PRECAST CONCRETE WALL.
3. DEWATER LAN UPPER ASH POND TO ELEVATION NECESSARY IN ORDER TO INSTALL NEW PRECAST CONCRETE WALL. DEWATERING EFFORTS SHALL BE COORDINATED WITH THE OWNER AND SHALL BE COMPLETED IN ACCORDANCE WITH ALL PERMIT REQUIREMENTS.
4. 1 SIKAFLEX POLYURETHANE SEALANT ALTERNATE BY CONTRACTOR INSTALLED INTO KEYWAY JOINT.
5. EXISTING HACH SC200 FLOW METER INSTRUMENTATION TO REMAIN AND BE REPROGRAMED FOR NEW PRECAST CONCRETE WALL AT WEIR BOX #1.
6. BASED ON 2018 SURVEY BY HARD HAT SERVICES, SURVEYED TOP OF SEDIMENT ELEVATION ADJACENT TO WEIR BOX #1 STOP LOGS APPROXIMATELY 639.5'. THUS, REMOVAL OF SEDIMENT IN FRONT OF WEIR BOX #1 STRUCTURE PRIOR TO INSTALLATION OF NEW CONCRETE WALL WILL BE REQUIRED.
7. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS/ELEVATIONS OF EXISTING WEIR BOX #1 WHERE NEW PRECAST CONCRETE WALL TO BE INSTALLED.
8. WEIR BOX #1 EXISTING STOP LOGS, AS WELL AS STEEL LIFTING BEAM (AND STEEL COLUMNS) AT END OF CAT WALK USED TO REMOVE EXISTING STOP LOGS, SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR.
9. 1 50% WATERSTOP(TM) FAST SETTING MORTAR 50% SPEED CRETE BLUE LINE PLACED FROM TOP TO BOTTOM OF PRECAST CONCRETE PANEL.

NO.	DATE	REVISION	BY	CHK'D	APV'D
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1	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY

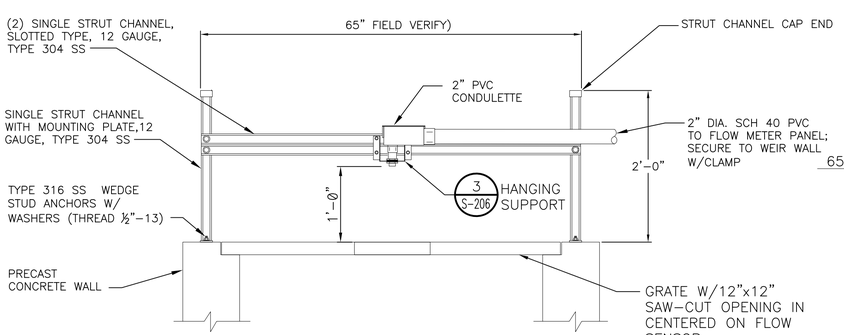
LANSING GENERATING STATION Unit 0

UPPER ASH POND OUTFALL REROUTE

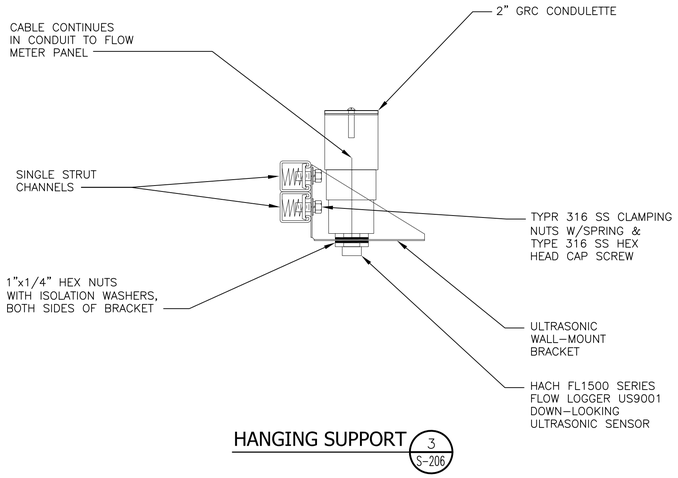
CONCRETE PLAN AND DETAILS
EXISTING WEIR BOX #1 PANEL

Scale: AS SHOWN

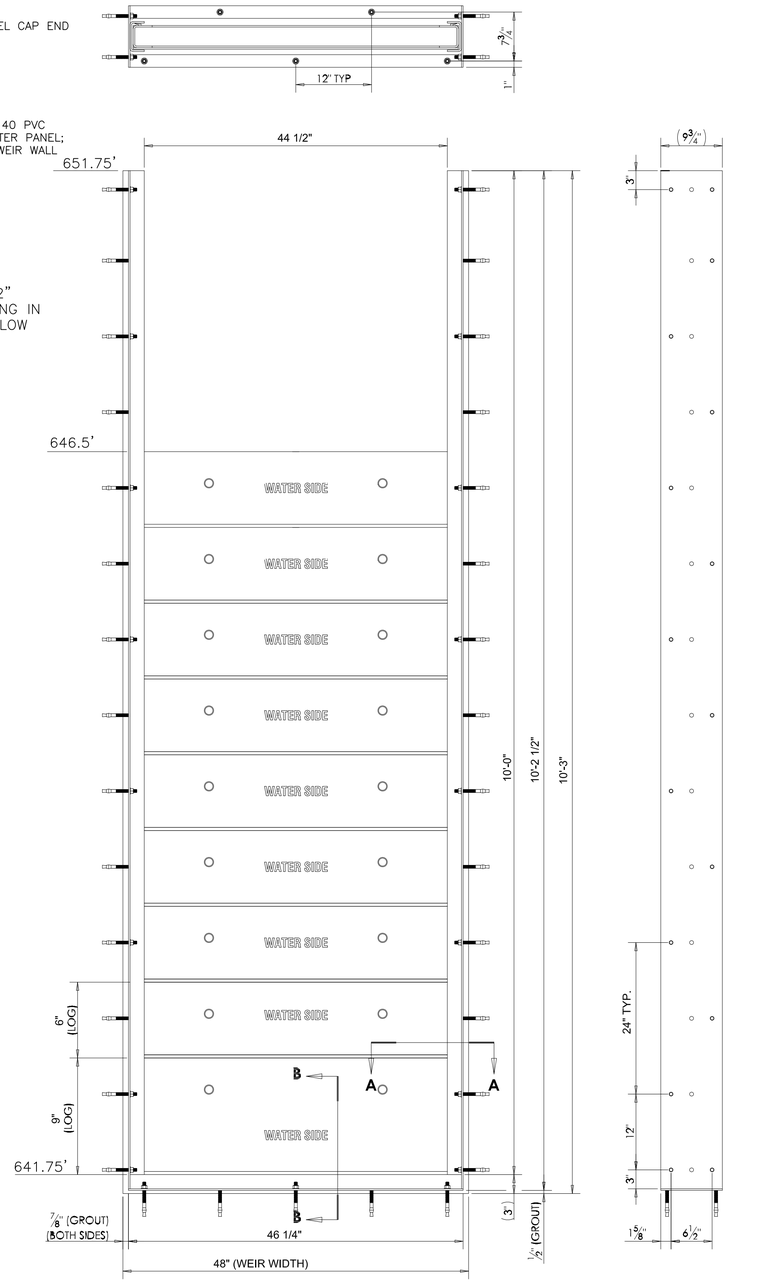
DWG. NO. S-205

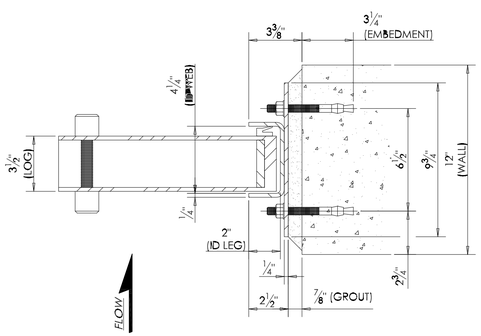


FLOW METER AND SUPPORT 1 S-200



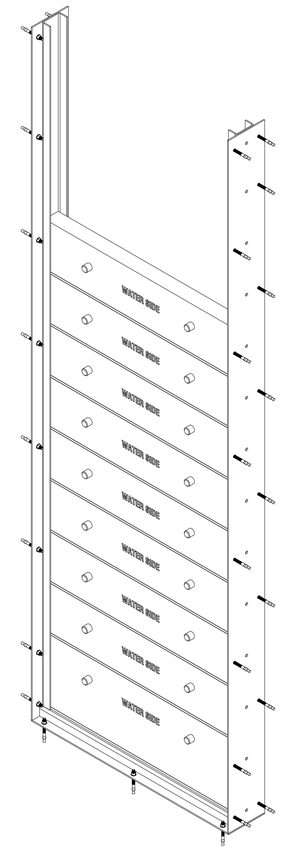
HANGING SUPPORT 3 S-206





SECTION A-A
SCALE 1 : 4

SECTION B-B
SCALE 1 : 4



NOTES:
1. STOP LOG GUIDE FRAME TO BE T304L S/S WELDED CONSTRUCTION.
2. STOP LOGS TO BE STEEL GLASSSTEEL WEIR BOARD SYSTEM, FIBERGLASS WIER BOARDS.
3. ALL STOP LOG HARDWARE TO BE T304 S/S.
4. FLOW METER TO BE HACH FL1500 SERIES FLOW LOGGER WITH SOLAR PANEL POWER SUPPLY (SEE SHEET P-101 FOR INSTRUMENTATION SPECIFICATIONS). FLOW METER PANEL AND SOLAR PANEL TO BE MOUNTED TO CO2 CYLINDER STORAGE PAD GUARD RAIL (SEE SHEET S-201).

STOP LOG DETAIL 2 S-200

INTERSTATE POWER AND LIGHT COMPANY

NO.	DATE	REVISION	BY	CHK'D	APV'D
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1	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

LANSING GENERATING STATION Unit 0

UPPER ASH POND OUTFALL REROUTE ASBUILT

STRUCTURAL DETAILS
FLOW METER AND STOP LOGS

Scale: AS SHOWN

DWG. NO. S-206

NEW CONCRETE WALL PANEL (6 / S-205)

NOTES:
1. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS/ELEVATIONS OF EXISTING WEIR BOX #1 WHERE NEW PRECAST CONCRETE WALL TO BE INSTALLED.

S-213

PLAN
T/GRATING EL. 654'-0"
T/CONCRETE EL. 654'-0" UNLESS NOTED
T/STEEL EL. 653'-10½" UNLESS NOTED

SECTION A-A
SCALE 1"=1'-0"

SECTION B-B

SECTION F-F
SCALE ½"=1'-0"

SECTION H-H
SCALE 1"=1'-0"

SECTION J-J

SECTION G-G
SCALE 1"=1'-0"

NOTES
1. FOR GENERAL NOTES SEE DWG. S-
2. ALL GRATINGS, CURB ANGLES, HANDRAIL & HANDRAIL POSTS SHALL BE GALVANIZED.
3. STOP LOG TIMBER SHALL BE - DENSE SELECTED STRUCTURAL GRADE DOUGLAS-FIR AND BE TREATED WITH CREOSOTE PRESERVATIVE, 1" MIN. PENETRATION & CREOSOTE RETENTION OF 8.0 LBS PER CUBIC FOOT.
4. FURNISH ONE "SECTION" OF STOP LOG WHICH CONSISTS OF 3-5½"x11½" WIDE TIMBERS FASTENED TOGETHER AS A UNIT AS INDICATED IN S.&L. STD. DWG. 1743-6 FOR BOTTOM PART OF EACH "SET". COAT HEAVILY WITH BITUMINOUS PAINT BETWEEN TIMBERS. FURNISH SINGLE 5½"x11½" WIDE STOP LOGS FOR ALL OTHERS.

REFERENCE DRAWINGS
S-215 WEIR BOX NO.1 & NO.2 - SECTIONS & DETAILS

Drawing Release Record			
Rev.	Date	Init.	Description
A	5-27-74	ASC	FOR ESTIMATE
B	9-5-74	ASC	FOR CONSTRUCTION
C	12-13-74	ASC	AS-BUILT
D	1-7-76	ASC	AS-BUILT
E	2-13-76	ASC	AS-BUILT

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.
Date 2-14-77
F. N. BERGSTEN REGISTERED 4480 IOWA PROFESSIONAL ENGINEER

WEIR BOX NO.1 & NO.2-PLAN SECTIONS & DETAILS ASH SETTLING BASIN
LANSING POWER STATION UNIT 4
INTERSTATE POWER CO.
LANSING, IOWA

SCALE 1/4"=1'-0" UNLESS NOTED
DRAWN S.T.C. 12-13-73
CHECKED S.K. 12-13-73
ENGINEER
APPROVED 2-14-77
JOB NO. 4444

SARGENT & LUNDY ENGINEERS CHICAGO

DRAWING NO. S-213

NO.	DATE	REVISION	BY	CHK'D	APV'D
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1	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION Unit 0
UPPER ASH POND OUTFALL REROUTE ASBUILT
STRUCTURAL DETAILS
EXISTING WEIR BOX #1
Scale: AS SHOWN
DWG. NO. S-207

1.1 GENERAL REQUIREMENTS

A. PERFORM ALL WORK IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND ORDINANCES.
B. VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING ANY EARTHWORK OR CONSTRUCTION.
C. PROTECT EXISTING STRUCTURES, PIPES, PUMPS, INSTRUMENTS, INSTRUMENTS AND ITEMS TO REMAIN.
D. PLASTIC PIPING TO BE INSTALLED IN ACCORDANCE WITH PIPE MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
E. THE DRAWINGS DO NOT ATTEMPT TO SHOW EXACT DETAILS OF ALL PIPING. LOCAL OBSTRUCTIONS, VARIATIONS IN EQUIPMENT CONNECTION LOCATIONS, AND VARIATIONS IN IN-LINE COMPONENT DIMENSIONS THAT REQUIRE OFFSETS MAY BE ENCOUNTERED. ALL MEASUREMENTS AND DIMENSIONS SHALL BE VERIFIED ON SITE.

1.2 PIPING AND FITTINGS

A. HDPE PIPE:
1. SDR: SEE DRAWINGS
2. CONFORMING TO ASTM D1248, D3350, AND D3261.
3. COMPLIES WITH ASTM D1248 AS TYPE III, CLASS C, CATEGORY 5, GRADE P34 AND WITH ASTM D3350 AS A 345465C CELL CLASS MATERIAL.
4. HDPE PIPING SHALL CONFORM TO ASTM D 3350. THE JOINTS SHALL BE BUTT FUSION WELDED, FLANGED OR FLUSH THREADED AS SHOWN ON THE DRAWINGS.
5. FITTINGS:
   a. ALL HDPE PIPE FITTINGS SHALL BE CLASSIFIED AS SOLID, TYPE III, GRADE PE 3408 HDPE FITTINGS.
   b. PIPE AND FITTINGS SHALL BE JOINED USING FUSION THERMAL WELDING, FLANGES, OR FLUSH THREADED CONNECTIONS, EXCEPT AS SPECIFIED IN THE DRAWINGS.

B. PVC PIPE:
1. SEE DRAWINGS
2. CONFORM TO GRADE 1, GRAY, ASTM D1784, ASTM D1785, ASTM D3915
3. FITTINGS:
   a. SOCKET END/FITTINGS: CONFORM TO ASTM D2466, ASTM D2467, ASTM D3915, AND ASTM F1970
   b. THREADED END/FITTINGS: CONFORM TO ASTM D2464 AND ANSI B1.20.1
   c. FITTINGS SHALL BE SAME GRADE AS AND CLASS AS PIPE

C. KYNAR/PVDF TUBING:
1. WORKING PRESSURE: UP TO 80 PSIG
2 WALL THICKNESS: 1/16"
3. NO SPLICES PERMITTED IN MID-RUN.
4. NON-COLLAPSING
5. ABRASION RESISTANT.
6. COLOR: TRANSLUCENT

D. STAINLESS STEEL TUBING:
1. SEE DRAWINGS.
2. COMPLY WITH ASTM A269 WALL THICKNESS: 0.035" (3/8" AND 1/2" DIAMETER TUBING). 0.028" (1/4" DIAMETER TUBING).
3. WELDED, ANNEALED.
4. FITTINGS: DOUBLE FERRULE COMPRESSION. SWAGELOK OR PARKER HENNIFIN.
5. NO SPLICES PERMITTED IN MID-RUN.

E. STEEL CASING PIPE SLEEVE:
1. SEE DRAWINGS.
2. ASTM A252 GRADE 2 STEEL CASING PIPE SLEEVE.
3. E-80 LOADING.
4. MINIMUM YIELD STRENGTH 35,000 PSI.
5. INSTALL IN ACCORDANCE WITH AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA) MANUAL FOR RAILWAY ENGINEERING CHAPTER 1 PART 5 SECTION 5.3, LATEST EDITION.
   a. STEEL CASING PIPE BY BORING ONLY.
   b. CASING PIPE SHALL EXTEND A MINIMUM DISTANCE OF TEN FEET PLUS 1.5 X D (D=DEPTH OF BOTTOM OF CASING BELOW BASE OF RAIL) MEASURED AT RIGHT ANGLES FROM CENTER LINE OF TRACKS.
   c. SPACE BETWEEN CARRIER AND CASING PIPES SHALL BE BLOWN FULL OF DRY SAND AND ENDS OF CASING PIPE SEALED.
   d. INSIDE DIAMETER OF CASING PIPE SHALL BE AT LEAST 2" GREATER THAN THE LARGEST OUTSIDE DIAMETER OF THE CARRIER PIPE, JOINTS OR COUPLINGS, FOR CARRIER PIPES LESS THAN 6" DIAMETER AND AT LEAST 4" GREATER FOR CARRIER PIPES 6" AND OVER. IN ALL CASES IT SHALL BE LARGE ENOUGH FOR CARRIER PIPE TO BE REMOVED.
   e. WITHOUT PROTECTIVE COATING AND CATHODIC PROTECTION, WALL THICKNESS SHALL BE INCREASED TO NEAREST STANDARD SIZE WHICH IS A MINIMUM OF 0.063" GREATER FOR ALL DIAMETERS EXCEPT THOSE UNDER 12 3/4".

F. PIPE FASTENERS
1. TYPE 304 STAINLESS STEEL
   a. STUDS/BOLTS: ASTM A193-B8 CLASS 1, UNC. A320-B8 CLASS 1, UNC ALLOWED FOR PIPE PRESSURES LESS THAN 150 PSIG.
   b. HEX NUTS: DOUBLE ASTM A194-8, 18-8, UNC
   c. SAE FLAT WASHERS: 18-8
   d. SPLIT RING LOCK WASHERS: 18-8

1.3 PIPE SLEEVES

A. CONCRETE; WATERTIGHT – STANDARD WEIGHT STEEL SLEEVE WITH CONTINUOUS WELDED 2 INCH WATER COLLAR. SEALS SHALL BE LINK-SEAL OR EQUAL.
B. CAST-IN-PLACE CONCRETE AND MASONRY; NON-WATERTIGHT – STANDARD WEIGHT STEEL SLEEVE WITH OAKUM OR CAULK SEAL.
C. FLOOR SLEEVES IN EXPOSED AREAS – SCHEDULE 40 GALVANIZED STEEL PIPE SLEEVE.

1.4 HANGERS, SUPPORTS, AND ANCHORS

A. PROVIDE CONCRETE INSERTS, CLAMPS, PIPE HANGERS, ANCHORS AND EQUIPMENT SUPPORTS REQUIRED TO RIGIDLY SUPPORT THE SYSTEMS AND EQUIPMENT INSTALLED. HANGER DESIGN SHALL PERMIT VERTICAL ADJUSTMENT AND LATERAL MOVEMENT TO ALLOW PIPE EXPANSION.
B. HORIZONTAL PIPING HANGERS AND SUPPORTS. UNLESS OTHERWISE INDICATED AND EXCEPT AS SPECIFIED ELSE WERE, INSTALL THE FOLLOWING TYPES:
1. ADJUSTABLE STEEL CLEVIS HANGERS (MSS TYPE 1): FOR SUSPENSION OF STATIONARY PIPES NPS ½" TO NPS 30".
2. U-BOLTS (MSS TYPE 24) FOR SUPPORT OF HEAVY PIPE NPS ½" TO NPS 30".
3. PIPE HANGERS (MSS TYPE 5): FOR SUSPENSION OF PIPES NPS ½" TO 4" TO ALLOW OFF-CENTER CLOSURE FOR HANGER INSTALLATION BEFORE PIPE ERECTION.

C. VERTICAL PIPING CLAMPS. UNLESS OTHERWISE INDICATED AND EXCEPT AS SPECIFIED ELSE WERE, INSTALL THE FOLLOWING TYPES:
1. EXTENSION PIPE OR RISER CLAMPS (MSS TYPE 8): FOR SUPPORT OF PIPE RISERS NPS ¾" TO NPD 20".
2. CARBON- OR ALLOY-STEEL RISER CLAMPS (MSS TYPE 42): FOR SUPPORT OF PIPE RISERS NPS ¾" TO NPD 20" IF LONGER ENDS ARE REQUIRED FOR RISER CLAMPS.

D. SADDLES FOR 4" AND LARGER PIPING SHALL BE FABRICATED OF 14 GAUGE GALVANIZED IRON AND FOR SMALLER PIPING SHALL BE FABRICATED OF 16 GAUGE GALVANIZED IRON. SADDLES SHALL ENCOMPASS ONE HALF OF THE DIAMETER OF THE COVERING.
E. PIPES TO BE SUPPORTED SUCH THAT VALVES AND FLOW ELEMENTS MAY BE REMOVED.

1.5 BURIED PIPE INSTALLATION

A. EXISTING UTILITIES, PIPING, AND STRUCTURES
1. EXISTING UTILITIES AND STRUCTURES:
   A. EXISTING STRUCTURES, UTILITIES, AND PIPING ARE SHOWN ON THE DRAWINGS ONLY BY GENERAL LOCATION AND THE OWNER WILL MAKE ALL OTHER KNOWN RECORDS AVAILABLE. HOWEVER, THE OWNER DOES NOT GUARANTEE THE LOCATIONS AS SHOWN ON THE DRAWINGS.
   B. THE CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY FOR PROVIDING TEMPORARY SUPPORT AND FOR PROTECTING AND MAINTAINING ALL EXISTING UTILITIES, PIPING, AND STRUCTURES IN THE PROJECT AREA DURING THE ENTIRE PERIOD OF CONSTRUCTION.
2. DEVIATIONS OCCASIONED BY OTHER UTILITIES, PIPE, AND STRUCTURES:
   A. WHEREVER EXISTING UTILITIES, PIPE, OR STRUCTURES PRESENT OBSTRUCTIONS TO THE GRADE AND ALIGNMENT OF THE PIPE, THEY SHALL BE PERMANENTLY SUPPORTED, REMOVED, RELOCATED OR RECONSTRUCTED BY THE CONTRACTOR THROUGH COOPERATION WITH OWNER. IN THOSE INSTANCES WHERE THE RELOCATION OR RECONSTRUCTION IS IMPRACTICABLE, A DEVIATION FROM THE GRADE WILL BE ORDERED AND THE CHANGE SHALL BE MADE IN THE MANNER DIRECTED.

B. EXCAVATION TO BE CONDUCTED PER EXCAVATION SPECIFICATION/NOTES.
C. PIPE TRENCH AND BACKFILL AND BEDDING MATERIALS
1. FOLLOW PIPE AND FITTING MANUFACTURER'S RECOMMENDATIONS.
2. PLACE PIPE BEDDING BELOW PIPE BARREL (BEFORE SETTING PIPE) IN MAXIMUM 12 INCHES LIFTS AND COMPACT TO 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D 1557). PIPE BEDDING TO BE 3/4 INCH CRUSHED STONE OR SAND.
3. COVER PIPE WITH BEDDING IN MAXIMUM 12 INCHES LIFTS AND COMPACT TO 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D 1557). BACKFILL TO BE 3/4 INCH CRUSHED STONE OR NATURAL SOILS.
4. EMPLOY A PLACEMENT METHOD THAT DOES NOT DISTURB OR DAMAGE PIPING IN TRENCHES.
5. DO NOT BACKFILL OVER POROUS, WET, FROZEN OR SPONGY SUBGRADE SURFACES.
6. MAKE GRADE CHANGES GRADUAL AND BLEND WITH SURROUNDING AREA. GRADE TO DRAIN.
7. RESTORE SURFACE TO PRE-EXISTING CONDITIONS UNLESS NOTED OTHERWISE.

D. PLACEMENT OF PIPE WITHIN TRENCHES: INSTALL PIPE, FITTINGS, AND ACCESSORIES IN ACCORDANCE WITH SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS AND AT THE GRADE AND SLOPE INDICATED ON THE DRAWINGS. BLOW OUT WITH COMPRESSED AIR ALL PIPING OR TUBING TO REMOVE ALL FOREIGN MATERIAL.
E. PLASTIC TRACER TAPE
1. PLASTIC TRACER TAPE IS TO BE PLACED ABOVE BURIED PIPE UNLESS SPECIFIED OTHERWISE. PLACE TRACER TAPE APPROXIMATELY 2.5 FEET ABOVE THE PIPE CENTERLINE BUT NOT LESS THAN 12 INCHES DEEP. FOR PIPES BURIED 8 FEET DEEP OR GREATER, TRACER TAPE IS TO BE PLACED 12 INCHES BELOW GROUND. .
2. TRACER TAPE IS TO BE 6 INCHES WIDE, COLORED TO MATCH THE PIPE SERVICE, AND MADE OF INERT PLASTIC MATERIAL SUITABLE FOR DIRECT BURIAL. IF PIPE COLOR CODING IS NOT SPECIFIED, TRACER TAPE IS TO BE YELLOW.
3. TRACE TAPE LABELING SHALL CONTAIN BOLD LETTERS APPROXIMATELY 2 INCHES HIGH. MESSAGE TO BE "CAUTION _____ PIPE BURIED BELOW. THE BLANK TO INDICATE THE PIPE CONTENTS. THE MESSAGE IS TO BE REPEATED EVERY 2 FEET.
4. STANDARDS OF ACCEPTANCE: W. H. BRADY CO., SETEN NAME PLATE CORPORATION, MARKING SERVICES, INC.

F. LEAK TESTING SHALL BE CONDUCTED AS DETAILED IN FIELD QUALITY CONTROL.

NO.	DATE	REVISION	BY	CHK'D	APV'D
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1	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION Unit 0
UPPER ASH POND OUTFALL REROUTE ASBUILT
PIPE NOTES & SPECIFICATIONS (1 OF 2)
Scale: NONE
DWG. NO. P-100

1.6 ABOVE GROUND PIPE INSTALLATION

A. PIPES SHALL BE ROUND AND STRAIGHT. CUTTING SHALL BE DONE WITH PROPER TOOLS AND PIPES SHALL BE REAMED TO FULL SIZE AFTER CUTTING.
B. PIPING SHALL BE PROPERLY ENCLOSED, SUPPORTED, GUIDED, ANCHORED, SWAY BRACED, CONNECTED, TESTED, CLEANED AND FLUSHED OUT, AND SHALL BE PROPERLY INSULATED AND PROTECTED WHERE REQUIRED.
C. INSTALL PIPING FREE OF SAGS AND BENDS.
D. PIPES SHALL BE RUN WITH PROPER SLOPE TO PROVIDE FOR EASY DRAINING, IN GROUP RUNS WHERE APPLICABLE, AND IN A NEAT AND ORDERLY MANNER.
E. SIZES SHOWN IN THE DRAWINGS ARE NOMINAL PIPE SIZES AND NOT OUTSIDE DIAMETERS.
F. PIPES SHALL BE INSTALLED SUBSTANTIALLY AS INDICATED IN THE DRAWINGS.
G. PIPING SHALL BE INSTALLED WITH AMPLE PROVISIONS FOR EXPANSION AND CONTRACTION. SUCH PROVISIONS SHALL BE MADE BY MEANS OF PIPING OFFSETS, CHANGES IN DIRECTION, EXPANSION LOOPS, AND EXPANSION JOINTS. EXPANSION JOINTS SHALL NOT BE USED IN LIEU OF OFFSETS, CHANGES IN DIRECTION OR LOOPS, EXCEPT WHERE SPECIFIED OR INDICATED IN THE CONTRACT DOCUMENTS OR WHERE OTHERWISE NECESSARY.
H. CONNECTIONS TO APPARATUS AND EQUIPMENT SHALL BE WITH FLANGES, UNIONS, ETC., FOR EASY REMOVAL.
I. INSTALL FITTINGS FOR CHANGES IN DIRECTIONS AND BRANCH CONNECTIONS.
J. INSTALL MANUAL DRAIN VALVES AT EVERY LOW POINT OF WATER PIPING SYSTEMS AND A MANUAL AIR VENT AT EVERY HIGHPOINT OF WATER PIPING SYSTEMS. EXACT LOCATION OF DRAIN AND VENT VALVES TO BE APPROVED BY DESIGN-BUILDER'S ENGINEER.
K. CHANGES IN PIPE SHALL BE MADE WITH REDUCING ELBOWS, REDUCING TEES OR INCREASERS. INCREASERS MAY BE CONCENTRIC. REDUCERS SHALL BE ECCENTRIC; FLAT ON TOP FOR WATER, FLAT ON BOTTOM FOR COMPRESSED AIR. REDUCERS IN VERTICAL PIPE TO BE CONCENTRIC.
L. CAP OR COVER ALL OPEN PIPING DURING ERECTION TO PREVENT ENTRY OF FOREIGN MATERIAL.
M. BLOW OUT WITH COMPRESSED AIR ALL PIPING OR TUBING TO BE ERECTED TO REMOVE ALL FOREIGN MATERIAL.
O. LEAK TESTING SHALL BE CONDUCTED AS DETAILED IN FIELD QUALITY CONTROL.

1.7 FIELD QUALITY CONTROL

A. NON-DESTRUCTIVE EXAMINATION(S) TO BE PERFORMED USING THE METHODS AND FREQUENCIES SPECIFIED IN THE APPLICABLE ASME B31 STANDARD, AWWA, OR DOT STANDARD. TESTING/EXAMINATION PERSONNEL SHALL BE TRAINED AND CERTIFIED TO PERFORM THE TEST/EXAMINATIONS.
B. LEAK TEST - GENERAL: ALL PIPELINES SHALL BE TESTED FOR LEAKS AND EXFILTRATION AS SPECIFIED.
   1. TEMPORARY VALVES, PLUGS, BULKHEADS, AND OTHER PRESSURE TESTING AND WATER CONTROL EQUIPMENT AND MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR SUBJECT TO OWNER'S REVIEW. NO MATERIALS SHALL BE USED WHICH WOULD BE INJURIOUS TO PIPELINE STRUCTURE, FUTURE FUNCTION, AND SITE PERSONNEL. AIR TEST GAGES SHALL BE LABORATORY-CALIBRATED TEST GAGES AND SHALL BE RECALIBRATED BY A CERTIFIED LABORATORY AT THE CONTRACTOR'S EXPENSE PRIOR TO THE LEAKAGE TEST, IF REQUIRED BY OWNER.
   2. UNLESS OTHERWISE SPECIFIED, CLEAN WATER FOR TESTING SHALL BE FURNISHED BY THE CONTRACTOR. THE CONTRACTOR SHALL MAKE ALL NECESSARY PROVISIONS FOR CONVEYING THE WATER FROM THE SOURCE TO THE POINTS OF USE.
   3. EACH SECTION OF PIPE SHALL BE INSTALLED PRIOR TO TESTING.
   4. EACH SECTION OF PIPE SHALL BE TESTED AS A SINGLE UNIT USING PLUGS OR VALVES.
   5. ALL TESTING OPERATIONS SHALL BE PERFORMED IN THE PRESENCE OF OWNER.
C. LEAK TEST PROCEDURES
   1. PIPES FOR COMPRESSED AIR SERVICE.
      a. COMPRESSED AIR SHALL THEN BE INTRODUCED INTO THE ISOLATED TEST SECTION UNTIL THE INTERNAL PRESSURE STABILIZES AT THE PRESSURES SPECIFIED IN ITEM D – TEST PRESSURES.
      b. FOLLOWING PRESSURE STABILIZATION, THE PIPE SECTION SHALL REMAIN PRESSURIZED FOR A PERIOD OF 15 MINUTES. AT THE END OF THIS TIME THE PIPE PRESSURE SHALL MEET THE REQUIREMENTS SPECIFIED IN ITEM E – ACCEPTABLE TEST CRITERIA.
      c. IF THE RESULTS ARE UNACCEPTABLE, CONTRACTOR TO PROCEED AS DETAILED IN SECTION FE – REQUIRED TEST FAILURE ACTIONS.
      d. IF RESULTS ARE ACCEPTABLE, RELEASE OF PRESSURE FROM THE PIPELINES SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACTOR'S PROPOSED TESTING PLAN AS APPROVED BY OWNER.
      e. ALL TESTING PLUGS, VALVES, AND FITTINGS SHALL BE SUBSEQUENTLY REMOVED FROM THE DISCHARGE PIPING FOLLOWING TESTING.
   2. PIPES LIQUID SERVICE.
      a. WATER SHALL BE INTRODUCED INTO THE ISOLATED TEST SECTION AND PRESSURIZED TO THE EXTENT PRACTICAL.
      b. COMPRESSED AIR SHALL THEN BE INTRODUCED INTO THE ISOLATED TEST SECTION UNTIL THE INTERNAL PRESSURE STABILIZES AT THE PRESSURES SPECIFIED IN ITEM D – TEST PRESSURES.
      c. FOLLOWING PRESSURE STABILIZATION, THE PIPE SECTION SHALL REMAIN PRESSURIZED FOR A PERIOD OF 15 MINUTES. AT THE END OF THIS TIME THE PIPE PRESSURE SHALL MEET THE REQUIREMENTS SPECIFIED IN ITEM E – ACCEPTABLE TEST CRITERIA.
      d. IF THE RESULTS ARE UNACCEPTABLE, CONTRACTOR TO PROCEED AS DETAILED IN SECTION F – REQUIRED TEST FAILURE ACTIONS.
      e. IF RESULTS ARE ACCEPTABLE, RELEASE OF WATER FROM PIPELINES SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACTOR'S PROPOSED TESTING PLAN AS APPROVED BY OWNER.
      f. ALL TESTING PLUGS, VALVES, AND FITTINGS SHALL BE SUBSEQUENTLY REMOVED FROM THE DISCHARGE PIPING FOLLOWING TESTING.
   3. ADDITIONAL REQUIREMENTS FOR BURIED PIPING
      a. ALL PIPE TRENCHES SHALL BE PARTIALLY BACKFILLED PRIOR TO TESTING.
      b. ONCE THE BURIED PIPE HAS BEEN PROPERLY TESTED, THE PIPE WILL BE COMPLETELY BACKFILLED AND TEST AGAIN IN PLACE TO ENSURE THAT ALL JOINTS AND APPURTENANCES ARE FREE FROM LEAKS.
D. TEST PRESSURES
   1. GRAVITY AND VACUUM PIPE: TEST PRESSURE TO BE AS SPECIFIED IN THE PIPE SCHEDULE. IF TEST PRESSURES ARE NOT LISTED IN A PIPE SCHEDULE, THE TEST PRESSURE SHALL BE 5 PSIG.
   2. FORCEMAINS AND PRESSURIZED PIPE: TEST PRESSURE TO BE AS SPECIFIED IN THE PIPE SCHEDULE. IF TEST PRESSURES ARE NOT LISTED IN A PIPE SCHEDULE, THE TEST PRESSURE SHALL BE 150% OF THE DESIGN PRESSURE OR THE PIPE'S MAXIMUM ALLOWABLE INTERNAL PRESSURE, WHICHEVER IS LESS.
E. ACCEPTABLE TEST CRITERIA. THE PRESSURE WITHIN THE PIPE SHALL NOT DEVIATE (CONSIDERING NO APPLICABLE CHANGE IN ATMOSPHERIC CONDITIONS) BY MORE THAN 2 PERCENT DURING TEST PERIOD FOR FORCEMAINS AND PRESSURE PIPES OR 0.5 PSIG FOR GRAVITY FLOW AND VACUUM PIPES.
F. REQUIRED TEST FAILURE ACTIONS. WHEN LEAKAGE EXCEEDS THE AMOUNT ALLOWED, THE CONTRACTOR, SHALL LOCATE THE LEAKS AND MAKE THE NECESSARY REPAIRS OR REPLACEMENTS, TO REDUCE THE LEAKAGE TO THE SPECIFIED LIMITS. ANY INDIVIDUALLY DETECTABLE LEAKS SHALL BE REPAIRED, REGARDLESS OF THE RESULTS OF THE TESTS. THE PIPE SECTIONS SHALL BE TESTED AGAIN BY THE CONTRACTOR.

1.8 PIPE IDENTIFICATION

A. PIPE MARKERS
   1. SHALL IDENTIFY CONVEYED LIQUID AND DIRECTION OF FLOW.
   2. SHALL BE ADHESIVE-TYPE, GENERATED BY AN INDUSTRIAL LABEL MAKER. BRADY OR EQUAL.
   5. MARKERS SHALL CONFORM TO ANSI A13.1 AND OSHA REQUIREMENTS FOR MARKER SIZE, MARKER COLOR, LEGEND SIZE, AND LEGEND COLOR.
B. PLACEMENT
   1. EACH PIPE SHALL BE LABELED WITH A MINIMUM OF TWO (2) MARKERS PER ROOM OR AREA.
   2. MARKERS SHALL BE INSTALLED ON ALL BRANCH LINES OF ALL HEADER PIPES.
   3. MARKERS SHALL BE INSTALLED ON ALL HEADER LINES BETWEEN BRANCHES.
   4. WHERE THE SAME PIPE GOES THROUGH A WALL OR PIECE OF EQUIPMENT, MARKERS SHALL BE PLACED ON EACH SIDE.

1.9 PIPE HEAT TRACE AND INSULATION

A. HEAT TRACING SHALL CONSIST OF ELECTRICAL HEATING CABLES AS RECOMMENDED BY MANUFACTURER AND SUBSEQUENT INSULATION, SEALED, AND WEATHERPROOFED. THE HEAT TRACING SYSTEM SHALL BE INSTALLED COMPLETE IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS.
B. STANDARDS OF ACCEPTANCE:
   1. FROSTGUARD SELF REGULATING HEATING CABLE OR APPROVED EQUAL, WET OR DRY, 120VAC, 3-PRONG GROUNDED.
C. INSULATION AND JACKETING
   1. INSULATION SHALL CARRY THE FOLLOWING COMPOSITE (INSULATION, JACKET OR FACING, AND ADHESIVE USED TO ADHERE THE FACING OR JACKET TO THE INSULATION) FIRE AND SMOKE HAZARD RATINGS (UNLESS SPECIFICALLY EXCLUDED) TESTED IN ACCORDANCE WITH ASTM E84, NFPA 255 AND UL 723.
      a. FLAME SPREAD: 25 OR LESS
      b. SMOKE DEVELOPED: 50 OR LESS
   2. ACCESSORIES, SUCH AS ADHESIVES, MASTICS, CEMENTS, TAPES, GLASS FABRIC AND CLOTH FOR FITTINGS SHALL HAVE THE SAME COMPONENT RATINGS AS SPECIFIED ABOVE.
   3. SEAL JACKETS AND END LAPS WITH MASTIC APPLIED TO TWO SURFACES OR WITH SELF-SEALING TYPE LAP SYSTEM. SEAL EXPOSED ENDS OF INSULATION WITH A FULL COAT OF MASTIC.
   4. INSULATION
      a. CONTENT TEMPERATURE LESS THAN 500°F: GLASS FIBER INSULATION WITH AVERAGE THERMAL CONDUCTIVITY NOT EXCEEDING .23 BTU-IN. PER SQ. FT. PER DEGREE FAHRENHEIT PER HOUR AT MEAN TEMPERATURE OF 75° F, AND RATED AT 500°F, "MICRO-LOC" (MANVILLE CORP.); OR ACCEPTABLE SUBSTITUTE. TYPE AP ALL PURPOSE JACKET. INSULATION SHALL COMPLY WITH ASTM C547 AND ASTM C975.
      b. CONTENT TEMPERATURE LESS THAN 1200°F: HYDROUS CALCIUM SILICATE, RIGID MOLDED ASBESTOS-FREE INSULATION WITH AVERAGE "K" VALUE 0.44 AT 300°F PER ASTM C177 AND ASTM C518. DENSITY TO BE 15 LB/CUBIC FOOT.
      c. MINIMUM INSULATION THICKNESS
         1. PIPE SIZES 2-INCH AND SMALLER: 1-INCH.
         2. PIPE SIZES 2-1/2 INCH TO 8-INCH: 1-1/2 INCHES.
         3. PIPE SIZES 10-INCH AND LARGER: 2 INCHES.
   5. JACKETING:
      a. ALUMINUM: PROTECT PIPE INSULATION WITH 0.016-INCH SMOOTH OR CORRUGATED ALUMINUM JACKETING WITH FACTORY-APPLIED GALVANIC ACTION BARRIER AND 3/4-INCH WIDE BANDS.
      b. PVC: ONE PIECE MOLDED-TYPE FITTING COVERS AND SHEET MATERIAL. OFF-WHITE COLOR. THICKNESS OF 15 MIL WITH BRUSH ON WELDING ADHESIVE CONNECTION AND A MAXIMUM VAPOR PERMEABILITY OF 0.002 PER INCH PER ASTM E96.

2.0 INSTRUMENTS

A. SEE DRAWINGS.
B. PERFORM ALL WORK IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND ORDINANCES.
C. INSTALL INSTRUMENTS IN ACCORDANCE WITH MANUFACTURER'S SUPPLIED INSTALLATION DRAWINGS AND REQUIREMENTS.
D. FLOW METER AND SENSOR
   1. FLOW METER - HACH FL1500 SERIES FLOW LOGGER, HACH MODEL #: LFV001.99.D2NXH
      a. POWER REQUIREMENTS: DC: 10-30 VDC, 15 WATTS
      b. POWER SOURCE: SOLAR PANEL SYSTEM (AS RECOMMENDED BY MANUFACTURER) AND 12 VDC BATTERY
   2. SENSOR - HACH US9001 DOWN-LOOKING ULTRASONIC SENSOR
      a. POWER REQUIREMENTS: 12 VDC, 0.0416 A, 0.5 W
      b. WALL/RAIL MOUNT BRACKET: HACH CAT. NO. 2974
E. SAMPLER
   1. SAMPLER - HACH AS950 REFRIGERATED SAMPLER, 115V, 1 - 5.5 GALLON BOTTLE, HACH PRODUCT # ASR.CXXX1X11XX
   2. STRAINER - HACH PTFE/STAINLESS STEEL 5.5" LONG X .75" OD, HACH PRODUCT #926

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0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY

LANSING GENERATING STATION Unit 0

UPPER ASH POND OUTFALL REROUTE ASBUILT

PIPE NOTES & SPECIFICATIONS (2 OF 2)

Scale: NONE

DWG. NO. P-101

SAMPLE AND RETURN LINE LOCATED WITHIN 2" DIAMETER SCHEDULE 40 PVC PIPE BELOW GROUND SURFACE FROM MANHOLE STRUCTURE #3 TO EXTERIOR OF SOUTH SIDE OF WAREHOUSE. PENETRATES WALL ABOVEGROUND AT THAT POINT. ABOVEGROUND PVC PIPE HEAT TRACED AND INSULATED

HACH AS950 REFRIGERATED SAMPLER

TYPICAL PIPE TRENCH A C-200

4 S-204 PRECAST CONCRETE MANHOLE #3 (NPDES OUTFALL SAMPLE LOCATION)

5 C-200 OUTFALL DETAIL (INVERT EL. 623.916')

NEW 20" O.D. DR 17 HDPE PIPE
PIPE INVERT ELEVATION AT MANHOLE STRUCTURE #3 = 624.93'
PIPE INVERT ELEVATION AT NPDES OUTFALL DISCHARGE INTO MISSISSIPPI RIVER = 623.92'
PIPE LENGTH APPROXIMATELY 200'
PIPE SLOPE APPROXIMATELY .4%

BORING PIT (12' X 35') SHOULD BE NO CLOSER THEN 25' TO CL OF RR TRACKS

3 S-203 PRECAST CONCRETE MANHOLE #2

OVERHEAD POWERLINES (SEE NOTE 4)

1 NEW 16" O.D. DR 17 HDPE PIPE
PIPE INVERT ELEVATION (SOUTH OF RAILROAD TRACKS AT LOCATION OF SECOND 45 DEGREE ELBOW) = 633'

2 PIPE INVERT ELEVATION AT MANHOLE STRUCTURE #1 = 627.72'
PIPE LENGTH APPROXIMATELY 75'
PIPE SLOPE APPROXIMATELY 7.5%

NEW 20" O.D. DR 17 HDPE PIPE
PIPE INVERT ELEVATION AT MANHOLE STRUCTURE #2 = 626.84' 2
PIPE INVERT ELEVATION AT MANHOLE STRUCTURE #3 = 625'
PIPE LENGTH APPROXIMATELY 525'
PIPE SLOPE APPROXIMATELY .4%

APPROXIMATE BOUNDARY OF ASPHALT RESTORED DURING RESTORATION 3

PROTECTED AREA (SEE NOTE 1)

1 NEW 16" O.D. DR 17 HDPE PIPE
PIPE INVERT ELEVATION AT NORTH SIDE OF CMP CULVERT (AT LOCATION OF 45 DEGREE ELBOW) = 640'
PIPE INVERT ELEVATION (SOUTH OF RAILROAD TRACKS AT LOCATION OF SECOND 45 DEGREE ELBOW) = 633'
PIPE LENGTH APPROXIMATELY 16'
PIPE SLOPE APPROXIMATELY 44%

NEW 20" O.D. DR 17 HDPE PIPE WITH 36" O.D. STEEL CASING PIPE SLEEVE.
PIPE SLEEVE TO EXTEND APPROXIMATELY 28' ON EITHER SIDE OF THE RAILRAOAD TRACKS AS MEASURED PERPENDICULAR WITH THE CENTERLINE OF THE RAILROAD TRACKS (SEE NOTE 3)

12" DIAMETER CMP
INLET INVERT 632.842' EAST SIDE
OUTLET INVERT 632.343' WEST SIDE
(SEE C-301)

2 S-202 PRECAST CONCRETE MANHOLE #1

PIPE INVERT ELEVATION AT MANHOLE STRUCTURE #1 (SOUTH OF RAILROAD TRACKS) = 627.48'
PIPE INVERT ELEVATION AT MANHOLE STRUCTURE #2 (NORTH OF RAILROAD TRACKS) = 627.07' 2
PIPE LENGTH APPROXIMATELY 78'
PIPE SLOPE APPROXIMATELY .65%

BORING RECEIVING PIT (12' X 20') SHOULD BE NO CLOSER THEN 25' TO CL OF RR TRACKS

1 45 DEGREE ELBOW BUTT FUSION WELDED TO 16" O.D. DR 17 HDPE PIPE

6 P-202 16x4 DR 17 HDPE REDUCING TEE VENT TIED INTO NEW 16" O.D. DR 17 HDPE PIPE

1 TIE INTO NEW 16" O.D. DR 17 HDPE PIPE. 45 DEGREE ELBOW BUTT FUSION WELDED TO HDPE PIPE AT TIE IN POINT

EXISTING CMP CULVERT (SEE SHEET P-202)

SEE NOTE 5 1

1 SAW CUT HOLE THROUGH EXISTING CONCRETE STRUCTURE FOR 16" O.D. DR 17 HDPE PIPE PENETRATION. (SEE SHEET P-202)

INSTALL NON-SHRINK GROUT AT JOINT TO PROVIDE WATER TIGHT SEAL

1 EXISTING 10" DIAMETER STEEL PIPE (OLD FLY ASH PIPE) AND 12" DIAMETER STEEL PIPE (OLD BOTTOM ASH PIPE) TO BE REMOVED. NEW 16" O.D. DR 17 HDPE PIPE TO BE INSTALLED AT LOCATION OF OLD FLY ASH PIPE

PIPE INVERT ELEVATION AT SOUTH SIDE OF CMP CULVERT = 640.5'

PIPE INVERT ELEVATION AT NORTH SIDE OF CMP CULVERT = 640.0'

PIPE LENGTH APPROXIMATELY 100'
PIPE SLOPE APPROXIMATELY .5%

1 NEW 16" O.D. DR 17 HDPE PIPE.
PIPE INVERT ELEVATION AT UNDERFLOW WEIR STRUCTURE = 642.64' 2

CO2 CYLINDER STORAGE PAD 1 S-201

1 S-200 UNDERFLOW WEIR

NEW 24" O.D. DR 17 HDPE PIPE W/ PRECAST CONCRETE PIPE COLLARS ON PIPE EVERY 20'

PIPE INVERT ELEVATION AT UNDERFLOW WEIR STRUCTURE = 642.07'
PIPE INLET INVERT ELEVATION AT POND = 642.02' 2
APPROXIMATE PIPE LENGTH TO EXISTING 642' CONTOUR ELEVATION WITHIN POND APPROXIMATELY 110'

6 S-205 WEIR BOX #1 NEW CONCRETE WALL PANEL

Ash Settling Pond

0 40' 80'
SCALE: 1" = 40'-0"

NOTES:
1. PROTECTED AREA: NO CONSTRUCTION ACTIVITIES OR LAYDOWN IN THE PROTECTED MOUND AREA LOCATED DIRECTLY EAST OF THE ALLIANT ENERGY ACCESS ROAD AND SOUTH OF THE ALLAMAKEE COUNTY HIGHWAY X-52.
2. CONTRACTOR SHALL MEET ALL REQUIREMENTS OF THE CANADIAN PACIFIC RAILWAY WHILE WORKING WITHIN THE DESIGNATED RIGHT-OF-WAY.
3. WITHIN 25' OF TRACK CENTERLINE TOP OF CARRIER PIPE AND PIPE SLEEVE MUST BE MINIMUM 5.5' BELOW BASE OF RAIL. WITHIN ALL PORTIONS OF THE RIGHT-OF-WAY NOT DIRECTLY UNDER THE TRACK THE TOP OF PIPE MUST BE 3' BELOW GRADE OR BOTTOM OF DITCH.
4. CONSTRUCTION BENEATH OVERHEAD POWERLINES MUST MEET THE MINIMUM CLEARANCE DISTANCE IN ACCORDANCE WITH OCCUPATIONAL HEALTH AND SAFETY ADMINISTRATION (OSHA) REQUIREMENTS.
5. CONTRACTOR TO FIELD VERIFY ALL EXISTING AND PROPOSED PIPE LOCATIONS PRIOR TO CONSTRUCTION.

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2	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
1	10-2-20	ADD LOW VOLUME WASTE WATER FLOWS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

Alliant Energy

INTERSTATE POWER AND LIGHT COMPANY

LANSING GENERATING STATION Unit 0

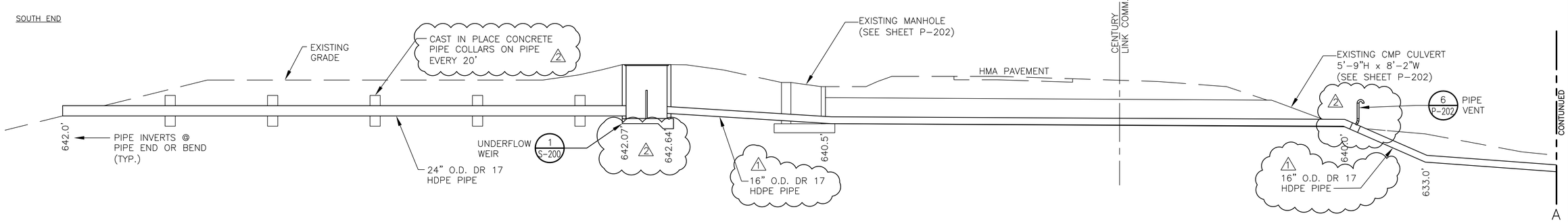
UPPER ASH POND OUTFALL REROUTE ASBUILT

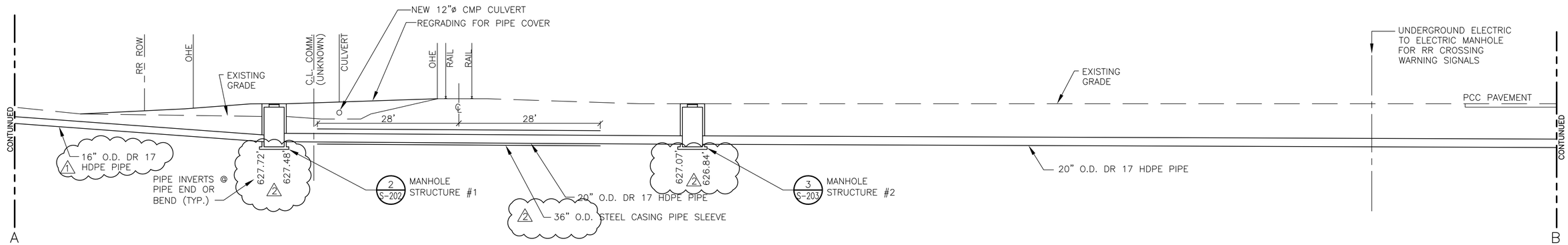
PIPING PLAN (W/UTILITIES)

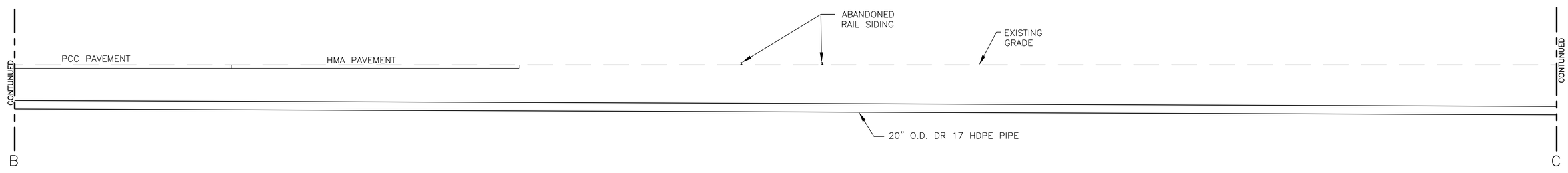
Scale: AS SHOWN

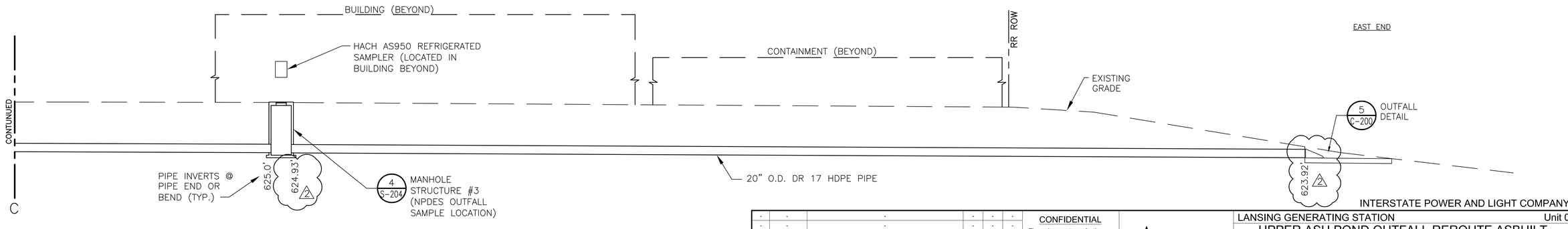
DWG. NO. P-200

SOUTH END









0 10' 20'

SCALE: 1" = 10'-0"

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INTERSTATE POWER AND LIGHT COMPANY

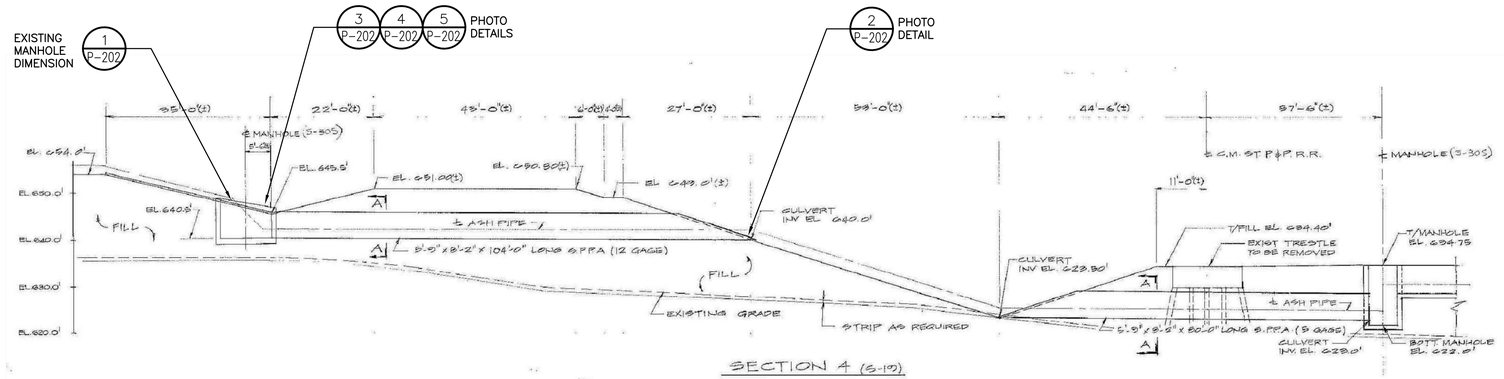
LANSING GENERATING STATION Unit 0

UPPER ASH POND OUTFALL REROUTE ASBUILT

PIPING CROSS-SECTION

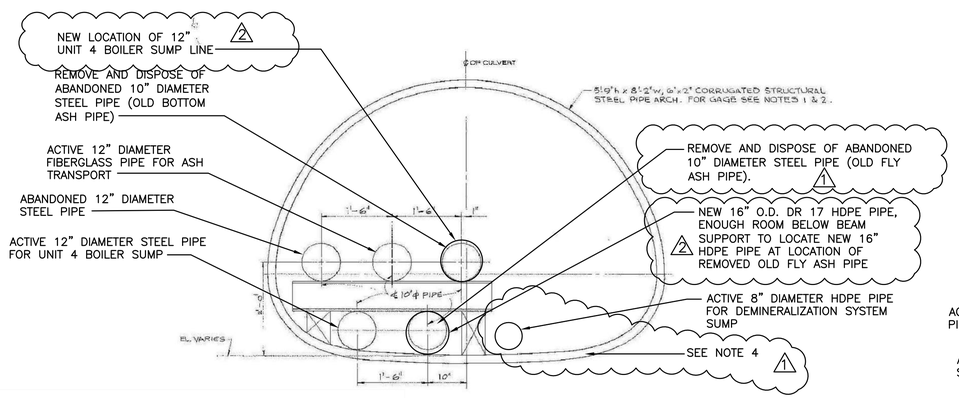
Scale: AS SHOWN

DWG. NO. P-201



SECTION 4 (S-19)
NOT TO SCALE

DRAWING SOURCE:
ASH PIPE LINE SECTIONS & DETAILS
DRAWING S-20 (1976)



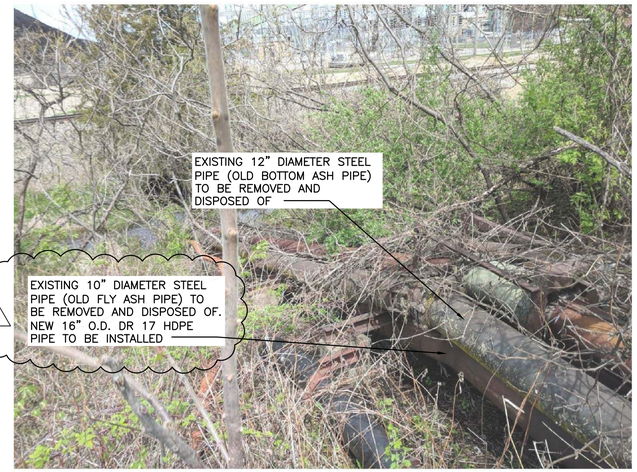
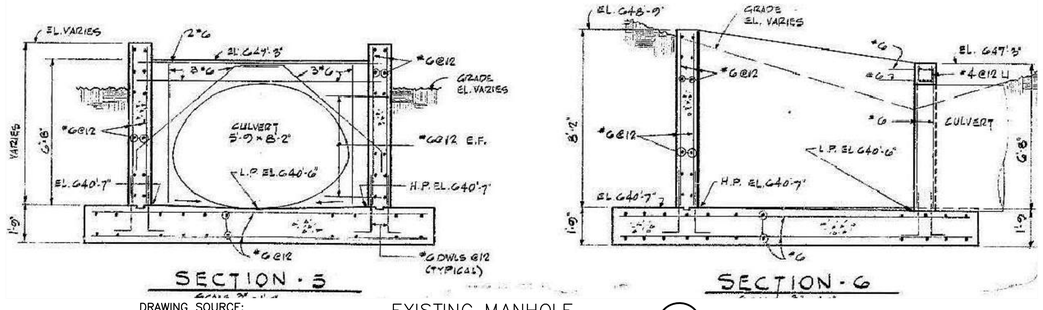


PHOTO DETAIL
NORTH SIDE OF CMP CULVERT 2 P-202
NTS



SECTION - 5

SECTION - 6

SECTION A
NOT TO SCALE

DRAWING SOURCE:
ASH PIPE CATCH BASIN DETAILS
DRAWING S-305 (1976)

EXISTING MANHOLE 1 P-202
NTS

NOTES:
1. SECTION OF EXISTING 8" DIAMETER HDPE PIPE BURIED BENEATH SILT WITHIN CONCRETE STRUCTURE. SILT TO BE REMOVED

PHOTO DETAIL 5 P-202
NTS

REMOVE AND DISPOSE OF ABANDONED 10" DIAMETER STEEL PIPE (OLD BOTTOM ASH PIPE)

REMOVE AND DISPOSE OF ABANDONED 10" DIAMETER STEEL PIPE (OLD FLY ASH PIPE). REPLACE WITH NEW 16" O.D. DR 17 HDPE PIPE
1

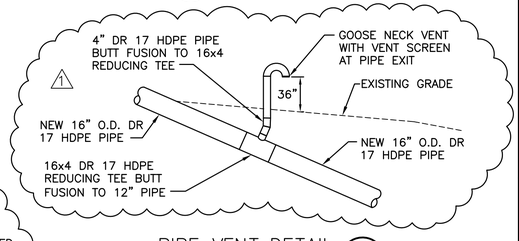
REMOVE AND RELOCATE 12" UNIT 4 BOILER SUMP LINE
2

PIPE PENETRATION (SEE NOTES)
NEW 16" O.D. DR 17 HDPE PIPE
1
45 DEGREE ELBOW BUTT FUSION WELDED TO NEW 16" O.D. DR 17 HDPE PIPES
INVERT ELEVATION OF NEW 16" O.D. DR 17 HDPE PIPE AT ENTRANCE OF CMP = 640.5'

PHOTO DETAIL 4 P-202
NTS

NOTES:
1. SAW CUT HOLE THROUGH EXISTING CONCRETE STRUCTURE FOR 16" O.D. DR 17 HDPE PIPE PENETRATION.
2. INSTALL NON-SHRINK GROUNT AT JOINT TO PROVIDE WATER TIGHT SEAL.
3. SILT PRESENT WITHIN BOTTOM OF CMP TO BE REMOVED PRIOR TO INSTALLATION OF NEW 16" O.D. DR 17 HDPE PIPE. DEPTH OF SILT AT ENTRANCE TO SOUTH SIDE OF CMP APPROXIMATELY 1.5'.
4. CONTRACTOR TO FIELD VERIFY ALL EXISTING AND PROPOSED PIPE LOCATIONS PRIOR TO CONSTRUCTION.

PHOTO DETAIL 3 P-202
NTS



PIPE VENT DETAIL 6 P-200
NTS

INTERSTATE POWER AND LIGHT COMPANY

NO.	DATE	REVISION	BY	CHK'D	APV'D
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
2	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS
1	10-2-20	ADD LOW VOLUME WASTE WATER FLOWS	JFD	MWL	RAS
0	10-15-18	ISSUED FOR CONSTRUCTION	JFD	CTS	MWL

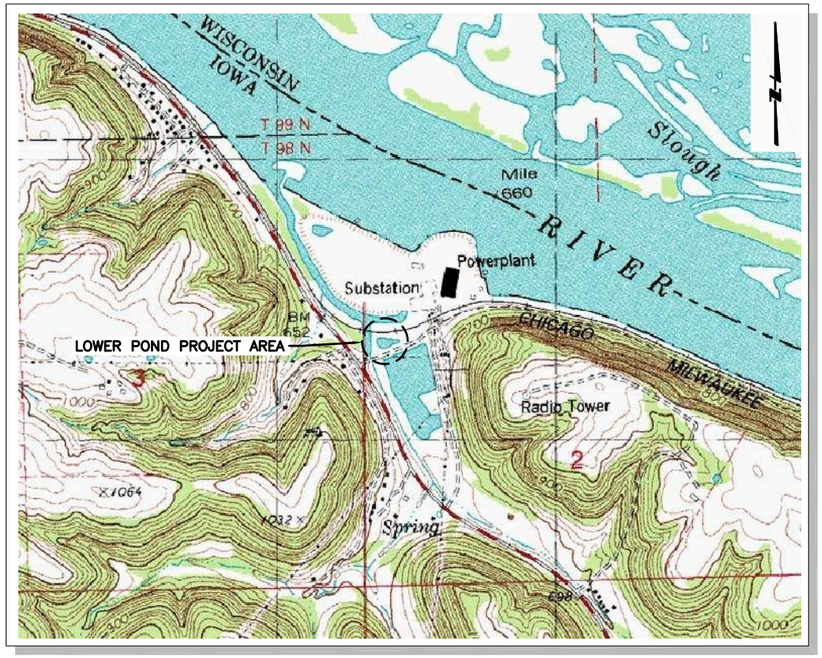
Alliant Energy

LANSING GENERATING STATION Unit 0
UPPER ASH POND OUTFALL REROUTE ASBUILT
PIPING PLAN AND DETAIL
CMP CULVERT
Scale: AS SHOWN
DWG. NO. P-202

INTERSTATE POWER AND LIGHT (IPL) COMPANY

LANSING GENERATING STATION PROJECT
GROUNDWATER INTERCEPTION DRAIN LINE ABANDONMENT
(ASBUILT)

2320 POWER PLANT DR
LANSING, IA 52151
NOVEMBER 2021

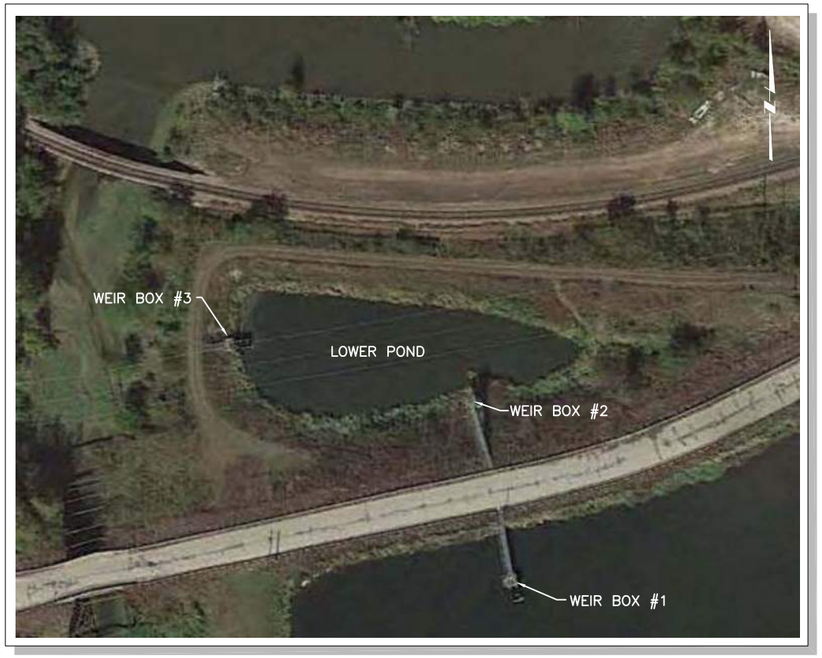


LOCATION MAP
NOT TO SCALE

1. COVER SHEET
2. PIPE CONNECTION AND WEIR MODIFICATIONS - PLAN VIEW
3. EXISTING GRADING PLAN
4. PIPING SECTIONS AND DETAILS - PAGE 1
5. PIPING SECTIONS AND DETAILS - PAGE 2

SHEET INDEX

GENERAL NOTE:
1. INTERCEPTION DRAIN LINE ABANDONMENT MODIFICATIONS SHOWN IN BLUE TEXT.



AERIAL MAP
NOT TO SCALE

NO.	DATE	REVISION	BY	CHK'D	APV'D
0	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS

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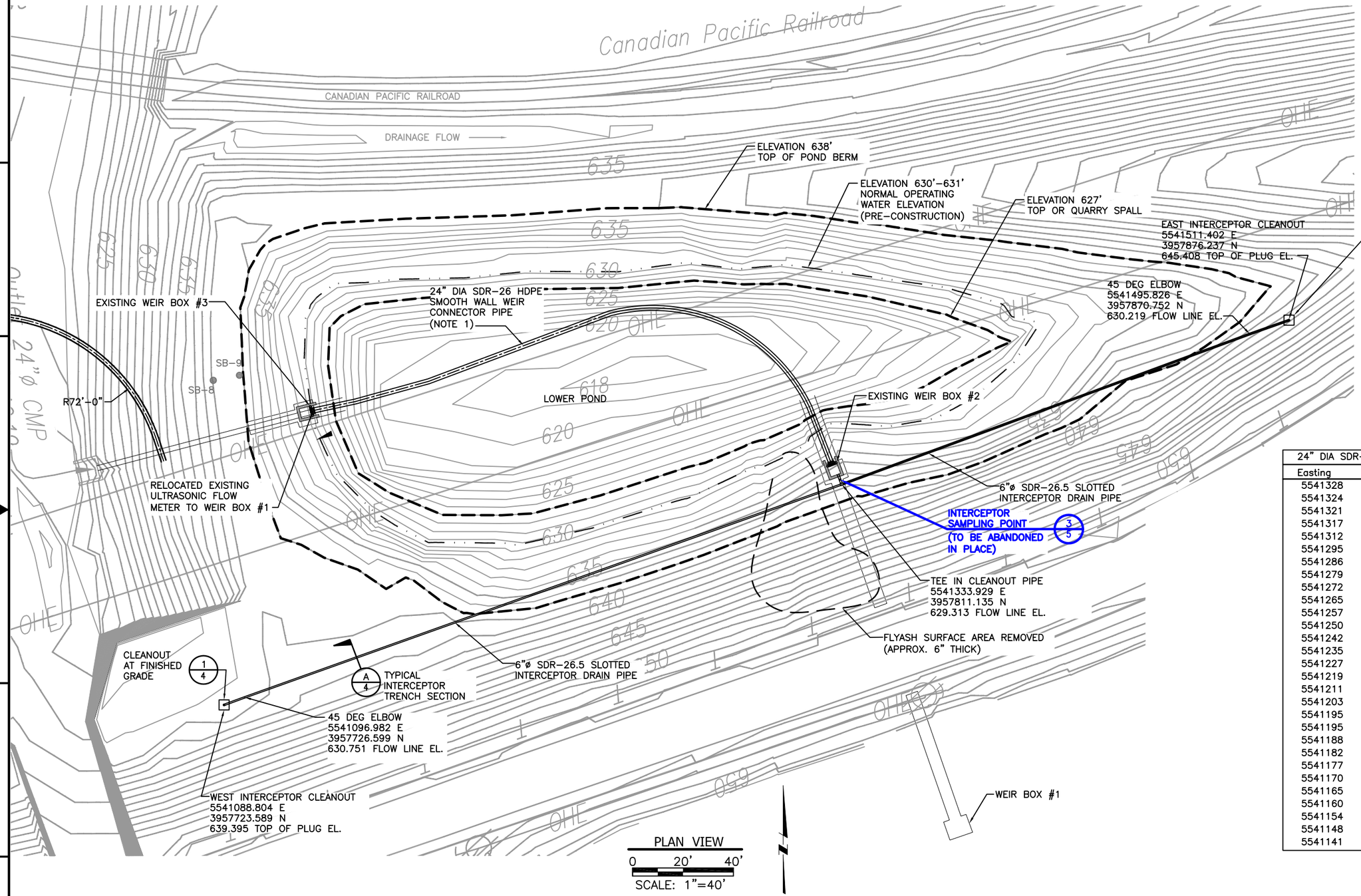
INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION Unit 0
GROUNDWATER INTERCEPTION DRAIN LINE ABANDONMENT
COVER SHEET (ASBUILT)
Scale: NONE
DWG. NO. FIGURE 1



NOTE:
1. 24" WEIR CONNECTOR PIPE WAS ROUTED TO ACCOMMODATE A MINIMUM BEND RADIUS OF 72'. APPROXIMATE LENGTH OF PIPE RUN IS 240' WITH A CONSTANT PIPE SLOPE.

24" DIA SDR-26 HDPE PIPE AS-BUILT SURVEY DATA		
Easting	Northing	Pipe Invert Elev.
5541328	3957824	627.378
5541324	3957834	
5541321	3957842	
5541317	3957849	
5541312	3957856	627.154
5541295	3957871	
5541286	3957876	
5541279	3957878	626.680
5541272	3957880	
5541265	3957881	
5541257	3957881	
5541250	3957880	
5541242	3957879	626.065
5541235	3957876	
5541227	3957873	
5541219	3957870	625.845
5541211	3957867	
5541203	3957864	
5541195	3957861	
5541195	3957861	625.789
5541188	3957858	
5541182	3957856	
5541177	3957854	
5541170	3957852	625.800
5541165	3957851	
5541160	3957849	
5541154	3957848	
5541148	3957846	
5541141	3957844	625.337

PLAN VIEW
0 20' 40'
SCALE: 1"=40'

GENERAL NOTE:
1. INTERCEPTION DRAIN LINE ABANDONMENT MODIFICATIONS SHOWN IN BLUE TEXT.

NO.	DATE	REVISION	BY	CHK'D	APV'D
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS

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INTERSTATE POWER AND LIGHT COMPANY
LANSING GENERATING STATION Unit 0
GROUNDWATER INTERCEPTION DRAIN LINE ABANDONMENT
PIPE CONNECTION AND WEIR MODIFICATIONS
PLAN VIEW (ASBUILT)
Scale: AS SHOWN
DWG. NO.
FIGURE 2

CANADIAN PACIFIC RAILROAD

DRAINAGE FLOW

6" OF IADOT 3/4" GRAVEL #2 GRANULAR SURFACE AND SHOULDER GRAVEL IN PLACE OF TOPSOIL

APPROXIMATE BOUNDARY OF LOWER POND CLOSURE FINAL GRADING

SLOPE

OHE

FINAL GRADING CONTOURS

EAST INTERCEPTOR CLEANOUT

SB-8

REMOVED EXISTING STEEL GANG PLANK

INTERCEPTOR SAMPLING POINT

6" OF IADOT 3/4" GRAVEL #2 GRANULAR SURFACE AND SHOULDER GRAVEL IN PLACE OF TOPSOIL

APPROXIMATE BOUNDARY OF LOWER POND CLOSURE FINAL GRADING

WEST INTERCEPTOR CLEANOUT

Canadian Pacific Railroad

Carriage Pipes

LEGEND:

630 FINAL GRADING CONTOURS

PLAN VIEW

0 20' 40'

SCALE: 1"=40'

GENERAL NOTE:

1. INTERCEPTION DRAIN LINE ABANDONMENT MODIFICATIONS SHOWN IN BLUE TEXT.

NO.	DATE	REVISION	BY	CHK'D	APV'D
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS

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INTERSTATE POWER AND LIGHT COMPANY

LANSING GENERATING STATION Unit 0

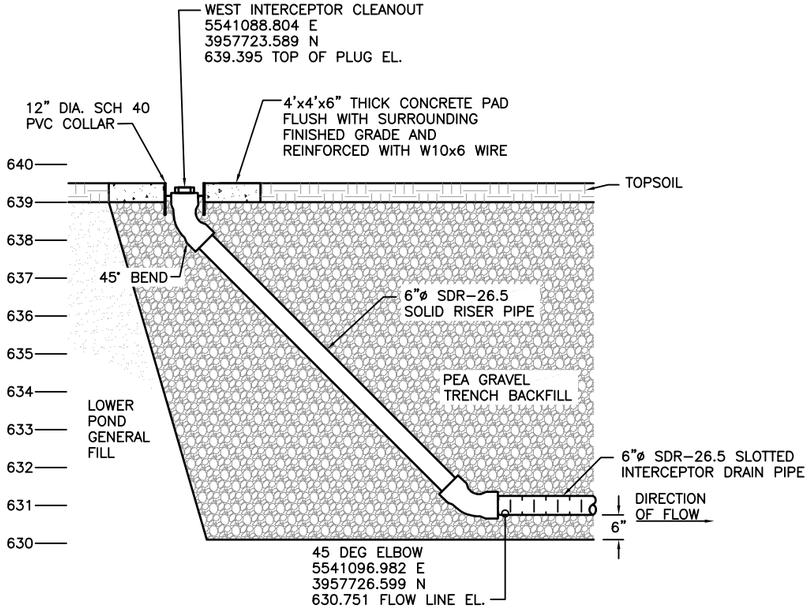
GROUNDWATER INTERCEPTION DRAIN LINE ABANDONMENT

EXISTING GRADING PLAN (ASBUILT)

Scale: AS SHOWN

DWG. NO.

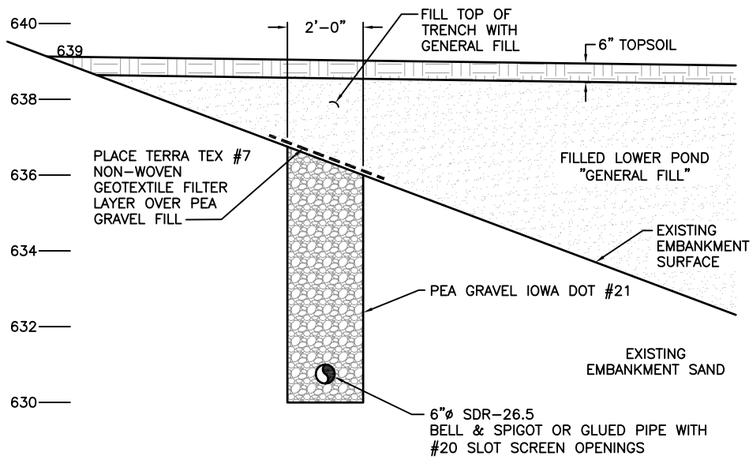
FIGURE 3



WEST INTERCEPTOR CLEAN OUT DETAIL (1/2)

0 2' 4'

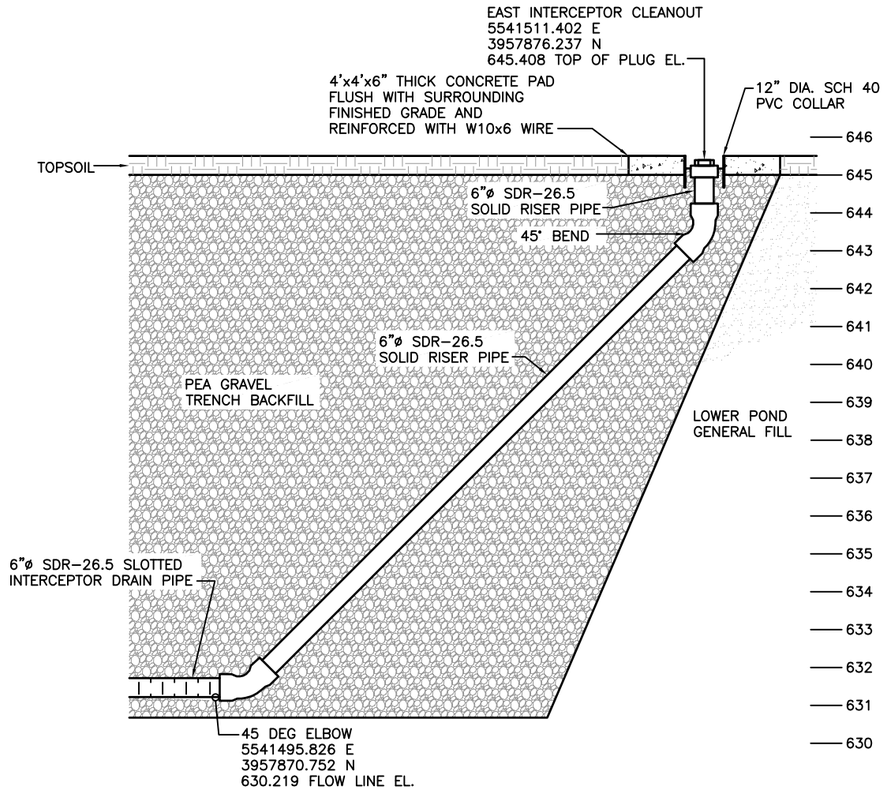
SCALE: 1/4"=1'-0"



SURFACE INTERCEPTOR DRAIN
TYPICAL SECTION (A/2)

0 2' 4'

SCALE: 1/4"=1'-0"



EAST INTERCEPTOR CLEAN OUT DETAIL (2/2)

0 2' 4'

SCALE: 1/4"=1'-0"

GENERAL NOTE:

1. INTERCEPTION DRAIN LINE ABANDONMENT MODIFICATIONS SHOWN IN BLUE TEXT.

INTERSTATE POWER AND LIGHT COMPANY

NO.	DATE	REVISION	BY	CHK'D	APV'D
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
0	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS

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LANSING GENERATING STATION Unit 0

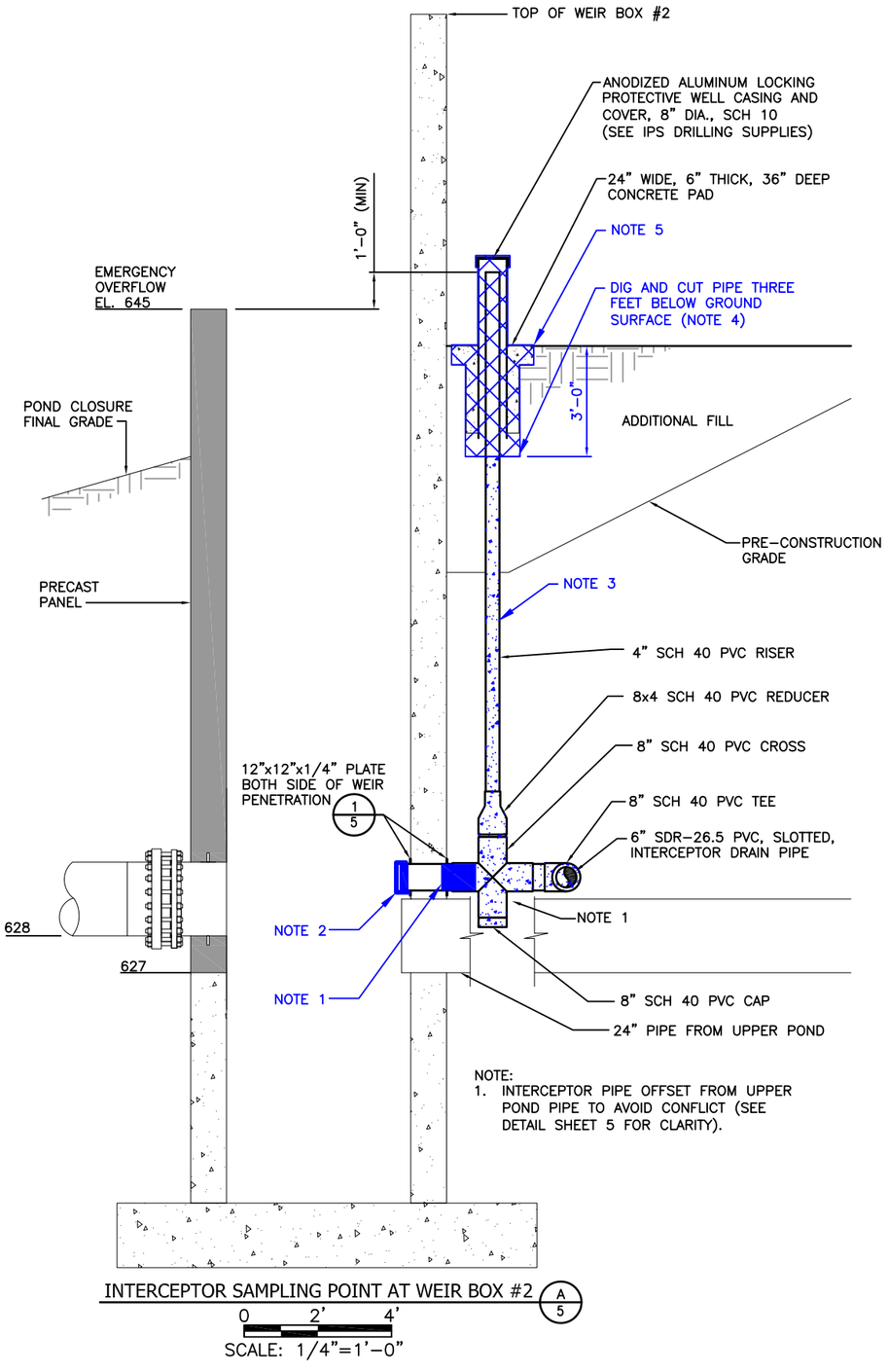
GROUNDWATER INTERCEPTION DRAIN LINE ABANDONMENT

PIPING SECTIONS AND DETAILS

PAGE 1 (ASBUILT)

Scale: AS SHOWN

DWG. NO. FIGURE 4

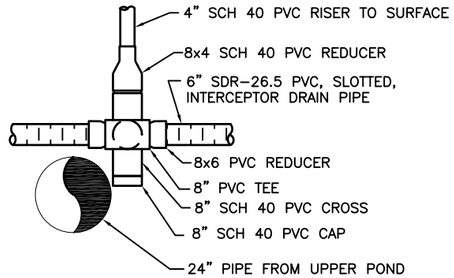


NOTE:
1. INTERCEPTOR PIPE OFFSET FROM UPPER POND PIPE TO AVOID CONFLICT (SEE DETAIL SHEET 5 FOR CLARITY).

INTERCEPTOR SAMPLING POINT AT WEIR BOX #2 (A/5)

0 2' 4'

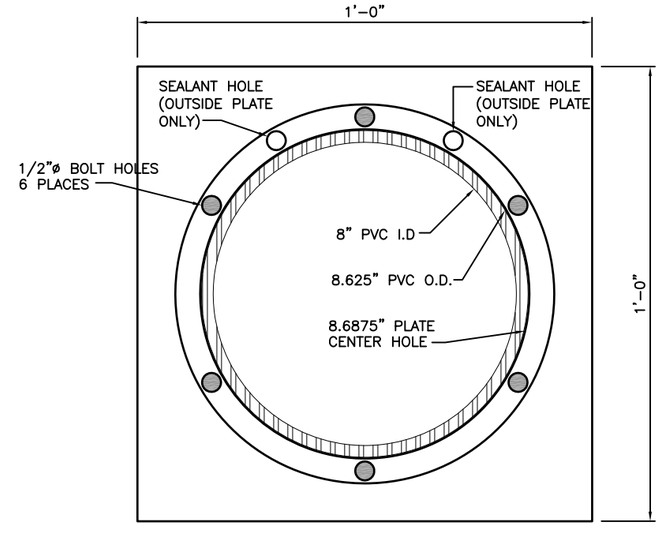
SCALE: 1/4"=1'-0"



PIPE OFFSETS (2/5)

0 2' 4'

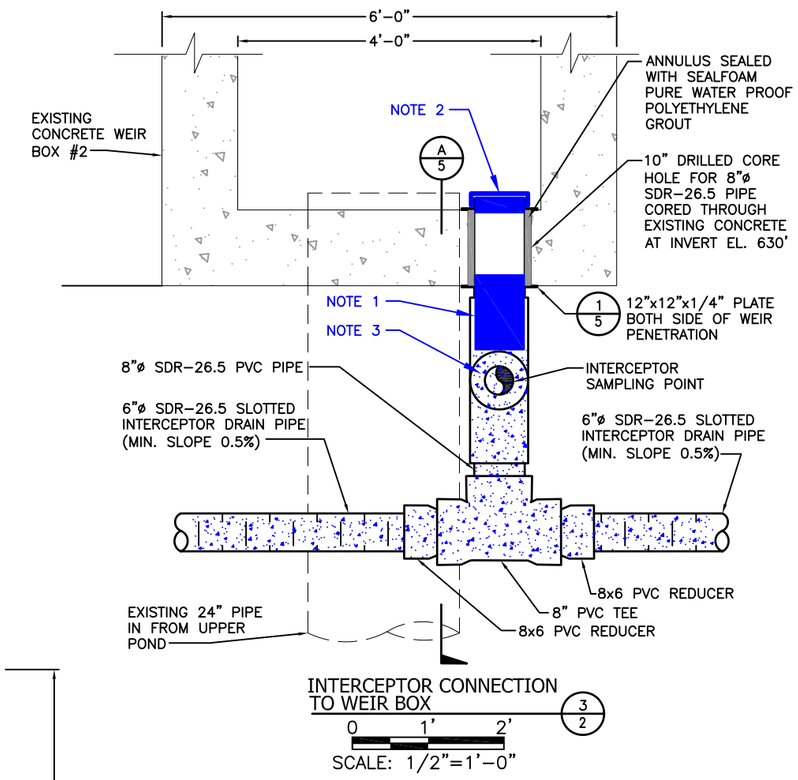
SCALE: 1/4"=1'-0"



NOTES:
1. 2 PLATES 12"x12"x1/4" INSIDE AND OUTSIDE.
2. USED 3/8" BOLTS x 14" LONG. bOLT HEADS AT INSIDE PLATE.
3. SEAQLANT HOLES ON OUTSIDE PLATE ONLY. SEAL WITH SEALFOAM PURE WATER PROOF POLYETHYLENE GROUT.

8" PVC PIPE CONNECTION PLATES TO WEIR (1/5)

SCALE: NOT TO SCALE



INTERCEPTOR CONNECTION TO WEIR BOX (3/2)

0 1' 2'

SCALE: 1/2"=1'-0"

NOTES:
1. CONTRACTOR TO INSTALL 8 INCH INFLATABLE PLUG TO STOP GROUNDWATER DISCHARGE.
2. CONTRACTOR TO SOLVENT WELD PVC PIPE EXTENDER AND 8-INCH CAP OR SLIP PLUG IN PLACE.
3. CONTRACTOR TO INSTALL TREMIE LINE THROUGH SAMPLE DROP PIPE TO PLACE PORTLAND CEMENT ASTM TYPE III OR API CLASS C WITHIN THE INTERCEPTOR DRAIN PIPE. IF USING TYPE III, USE A MIX RATIO OF 94 POUNDS CEMENT TO NOT MORE THAN 6 GALLONS WATER. GROUT FROM THE BOTTOM UP TO THREE FEET BELOW GROUND SURFACE. THE TREMIE PIPE SHOULD BE SEQUENTIALLY RAISED TO PREVENT IT FROM BECOMING STUCK IN TH ANNULUS. TREMIE SHOULD REMAIN SUBMERGED DURING WITHDRAWAL. GROUT A MINIMUM OF 7 CUBIC FEET OF CONCRETE.
4. CONTRACTOR TO REMOVE PROTECTIVE WELL CASING, DIG AND CUT PIPE THREE FEET BELOW GROUND SURFACE.
5. SOIL SHALL BE REPLACED, COMPACTED, AND RESTORED WITH GRASS SEED AND MULCH IN THE DISTRIBUTED AREA.

GENERAL NOTE:
1. INTERCEPTION DRAIN LINE ABANDONMENT MODIFICATIONS SHOWN IN BLUE TEXT.

NO.	DATE	REVISION	BY	CHK'D	APV'D
0	11-22-21	ASBUILT RECORD DRAWINGS	JFD	MWL	RAS

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INTERSTATE POWER AND LIGHT COMPANY

LANSING GENERATING STATION Unit 0

GROUNDWATER INTERCEPTION DRAIN LINE ABANDONMENT

PIPING SECTIONS AND DETAILS

PAGE 2 (ASBUILT)

Scale: AS SHOWN

DWG. NO. FIGURE 5