HARD HAT SERVICES™
Engineering, Construction and Management Solutions

932 N. Wright Street, Suite 160, Naperville, IL 60563
Phone (877) 630-7428
www.hardhatinc.com

VIA EMAIL

September 29, 2016

Mr. Jeffrey Maxted
Alliant Energy – Sr. Environmental Specialist
4902 North Biltmore Lane
Madison, WI 53718-2148

Re: Hazard Potential Classification Assessment - §257.73(a)(2)
Alliant Energy – Interstate Power and Light Company
IPL – Ottumwa Generating Station
Ottumwa, Iowa

Dear Mr. Maxted;

Hard Hat Services (HHS) completed the hazard potential classification assessment for the existing and inactive CCR surface impoundments located at the Interstate Power and Light Company (IPL) Ottumwa Generating Station in Ottumwa, Iowa.

Background Information
In accordance with the requirements set forth in §257.73(a)(2) of the CCR Rule, an owner or operator of an existing or inactive CCR surface impoundment must conduct initial and periodic hazard potential classification assessments of their CCR surface impoundment, except for those existing CCR surface impoundments that are incised. The owner or operator must determine each CCR surface impoundment hazard potential classification through a hazard potential classification assessment.

FEMA (FEMA Publication 333, Federal Guidelines for Dam Safety, Hazard Potential Classification System for Dams, April 2004) developed a "hazard potential" classification in order to classify surface impoundments based on the probable loss of human life, and the impacts on economic, environmental, and lifeline interests in the event of an unintentional release from a surface impoundment. Three hazard potential classification levels are used, as follows:

1. High Hazard Potential – Assigned to surface impoundments where failure or mis-operation will probably cause loss of human life.
2. Significant Hazard Potential – Assigned to surface impoundments where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, or disruption of lifeline facilities or can impact other concerns. Significant hazard potential classification dams are often located in predominantly rural

or agricultural areas but could be located in areas with population and significant infrastructure.

3. Low Hazard Potential – Assigned to surface impoundments where failure or mis-operation has no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.

Facility Specific Information

The IPL – Ottumwa Generating Station (OGS) is located at 20775 Power Plant Road Ottumwa, IA 52501. Figure 1 provides both a topographic map and an aerial of the OGS facility location, with the approximate property boundary of the facility identified. OGS has two CCR surface impoundments, which are identified as follows:

- Existing CCR surface impoundment: OGS Ash Pond
- Inactive CCR surface impoundment: OGS Zero Liquid Discharge Pond

OGS Ash Pond

The OGS Ash Pond is located east of the generating plant on the eastern portion of the site. The OGS Ash Pond receives influent flows from the generating plant floor drains, oil/water separator, boiler blow down water, solid contact unit sludge, sluiced CCR (bottom ash and economizer fly ash), recirculating media sanitary treatment plant, and surface water runoff from the generating site proper.

The sluiced CCR is discharged into the west end of the OGS Ash Pond. The sluiced CCR is discharged into a collection pad area where the majority of CCR is recovered. A dozer is used to scrape the collection pad and push the CCR into a stockpile for dewatering. Once dewatered, the CCR is then loaded into over-the-road haul trucks for transporting off-site. The sluiced water from the CCR drains into a narrow channel that flows into the southwest portion of the OGS Ash Pond. Routine maintenance dredging of the narrow channel occurs as the CCR settles out in the channel.

The water in the OGS Ash Pond flows to the east and discharges through the facility's National Pollution Discharge Elimination System (NPDES) Outfall 001, located in the northeast corner of the OGS Ash Pond. NPDES Outfall 001 consists of a concrete discharge structure that includes a Parshall flume and instrumentation to measure the flow of the discharged water. The water flows through the NPDES Outfall 001 and discharges into an unnamed creek. The unnamed creek flows into the Des Moines River downstream of the water intake structure and before the confluence of Middle Avery Creek.

The McNeese Wildlife Area is located immediately south and east of the OGS Ash Pond. The wildlife area is described by the Wapello County conservation board as a small wildlife area (14 acres) located between County Road H21 and the Alliant Energy Power Plant. The area consists of mixed hardwoods, red cedar and a large open roadside area. It is stated to be an excellent bird watching site.

Within the wildlife area, the U.S Fish and Wildlife Service National Wetlands Inventory indicates that there is a 0.43 acre of "Freshwater Forested/Shrub Wetland" (classification code of PFO1A).

The surface area of the OGS Ash Pond is approximately 18 acres and has an embankment height of approximately 22 feet from the crest to the toe of the downstream slope. The interior storage depth of the OGS Ash Pond is approximately 20 feet. The total volume of impounded CCR and water within the OGS Ash Seal Pond is approximately 556,000 cubic yards.

OGS Zero Liquid Discharge Pond

The OGS Zero Liquid Discharge (ZLD) Pond is located northeast of the generating plant on the eastern portion of the site and north of the OGS Ash Pond. The OGS ZLD Pond historically received influent flows from the generating plant that consisted of boiler wash water, air heater wash, turbine chemical cleaning water, and boiler chemical cleaning water. Presently, the OGS ZLD Pond only receives storm water runoff from the surrounding area, which includes the inactive C-stone pile (hydrated fly ash) located west of the surface impoundment, as well as occasional storm water runoff from the coal pile storage area. One 24-inch diameter high-density polyethylene culvert connects the coal pile runoff pond to the OGS ZLD Pond. The culvert is used as an emergency overflow to route storm water from the coal pile runoff Pond into the OGS ZLD Pond.

The OGS ZLD Pond does not discharge through any regulated outfall. Two 48-inch diameter concrete culverts, located along the south embankment, previously connected the OGS ZLD Pond to the OGS Ash Pond prior to being permanently sealed off with concrete.

East of the OGS ZLD Pond, the U.S Fish and Wildlife Service National Wetlands Inventory indicates that there is 6.71 acres of "Freshwater Forested/Shrub Wetland" (classification code of PFO1A).

The OGS ZLD Pond covers a surface area of approximately 17 acres and has an embankment height of approximately 22 feet from crest to toe of the downstream slope. The interior storage depth of the OGS ZLD Pond is approximately 20 feet. Based on readily available information, the OGS ZLD Pond has a total storage capacity of approximately 515,000 cubic yards.

Hazard Potential Classification

Each existing CCR surface impoundment has been assigned a hazard potential classification, as identified below.

OGS Ash Pond

OGS Ash Pond has been assigned a **Low Hazard Potential** classification. Mis-operation or failure will likely not result in loss of life as there are no occupied buildings or residences located in the immediate vicinity of the CCR surface impoundment. IPL owns most the property surrounding the OGS Ash Pond which includes approximately 750 feet between the impoundment and the Des Moines River. However, IPL does not own property along Middle Avery Creek. A release to the north would be contained within the OGS ZLD Pond. A release to the east and south would impact Middle Avery Creek. In all cases, a release from the surface impoundment would principally be limited to the facility property and there would likely be low economic losses and environmental damages.

OGS Zero Liquid Discharge Pond

OGS ZLD Pond has been assigned a **Low Hazard Potential** classification. Mis-operation or failure will likely not result in loss of life as there are no occupied buildings or residences located in the immediate vicinity of the CCR surface impoundment. IPL owns the property surrounding the OGS ZLD Pond which includes approximately 750 feet between the impoundment and the Des Moines River. The west portion of the impoundment is incised. A release to the north would be contained within the coal pile runoff pond. A release to the south would be contained within the OGS Ash Pond. A release to the east would impact the land between the impoundment and Des Moines River. In all cases, a release from the surface impoundment would principally be limited to the facility property and there would likely be low economic losses and environmental damages.

Qualified Professional Engineer Certification

To meet the requirements of 40 CFR 257.73(a)(2)(ii), I Mark W. Loerop hereby certify that I am a licensed Professional Engineer in the State of Iowa; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in 40 CFR 257.73(a)(2).

By: _____

Name: MARK LOEROP

Date: 9/30/2016

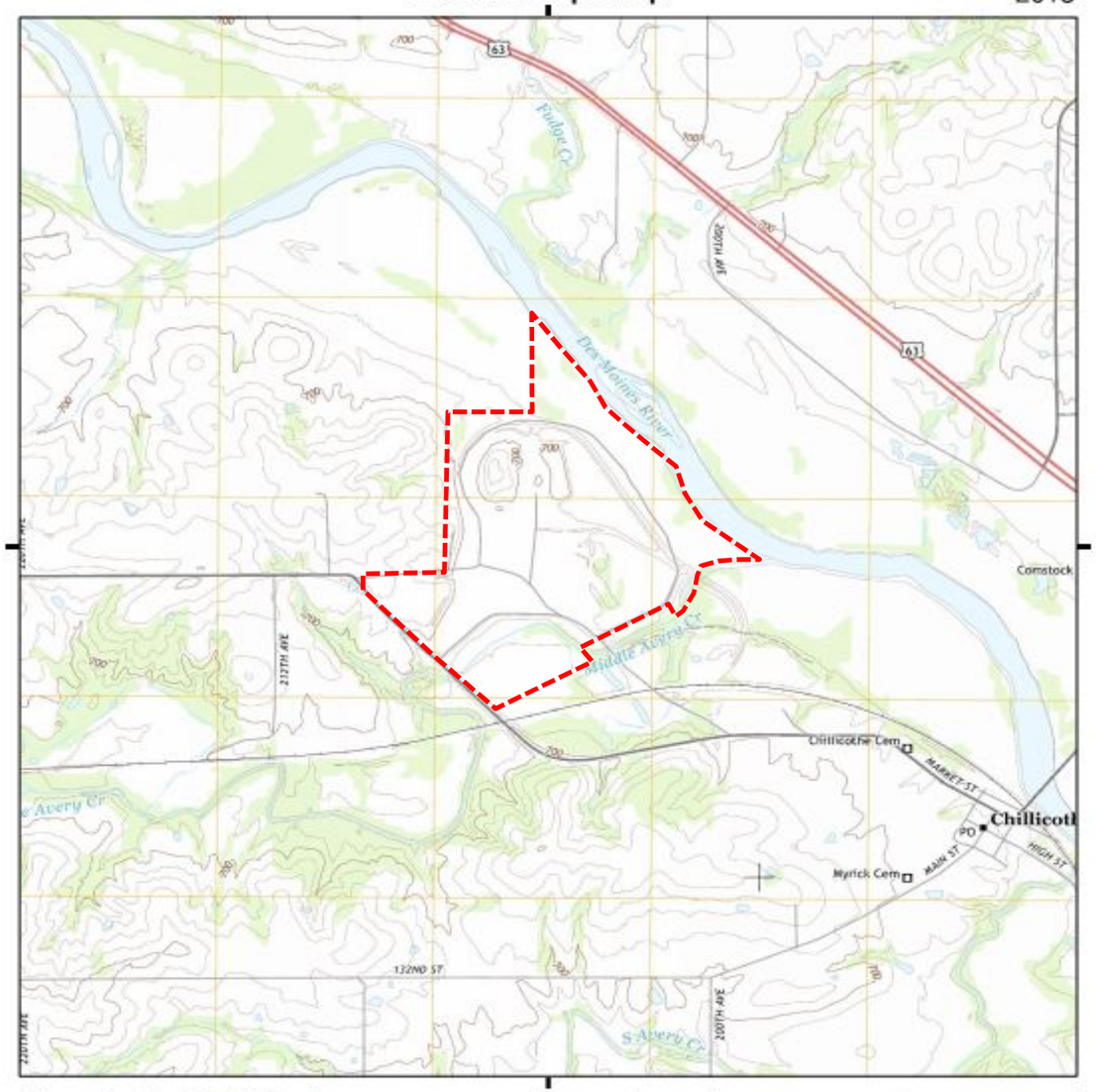
cc: Tony Morse, Alliant Energy

att: Figure 1 – Facility Location Map
Figure 2 – Wetland Location Map

MWL/tjh/CTS
C:\Egnyte\Shared\Projects\154 - Alliant Energy\154.018 - CCR Projects\012 - 2016 CCR Compliance Program\003 - OGS\Hazard Potental Classification\OGS Hazard Potential Analysis - FINAL.docx

Historical Topo Map

2013



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

TP, Chillicothe, 2013, 7.5-minute

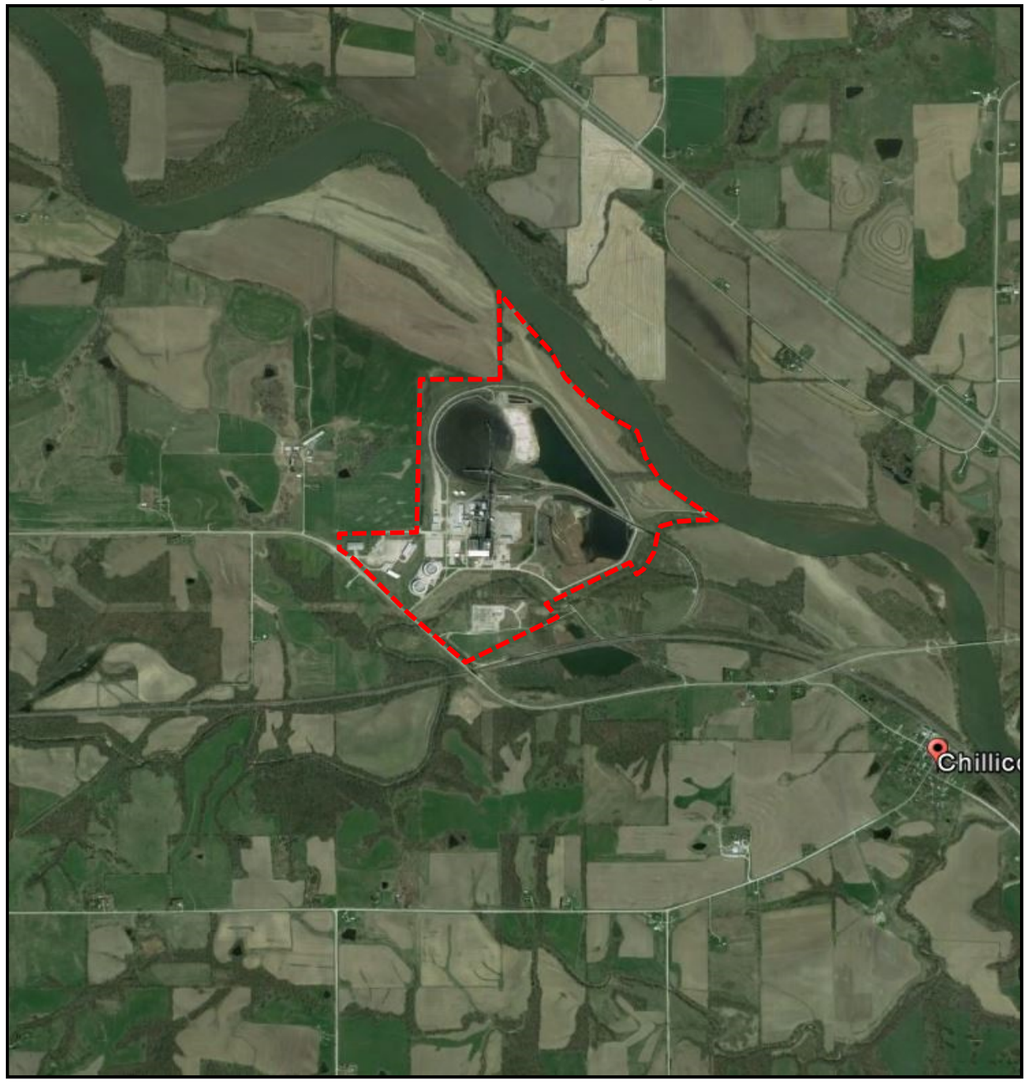
NW N NE
W E
SW S SE

Miles 0.25 0.5 1 1.5

SITE NAME: Ottumwa Generating Station
ADDRESS: 20775 Power Plant Road
Ottumwa, IA 52501
CLIENT: Environmental Site Assessors

N

Historical Aerial Photo 4/13/2016



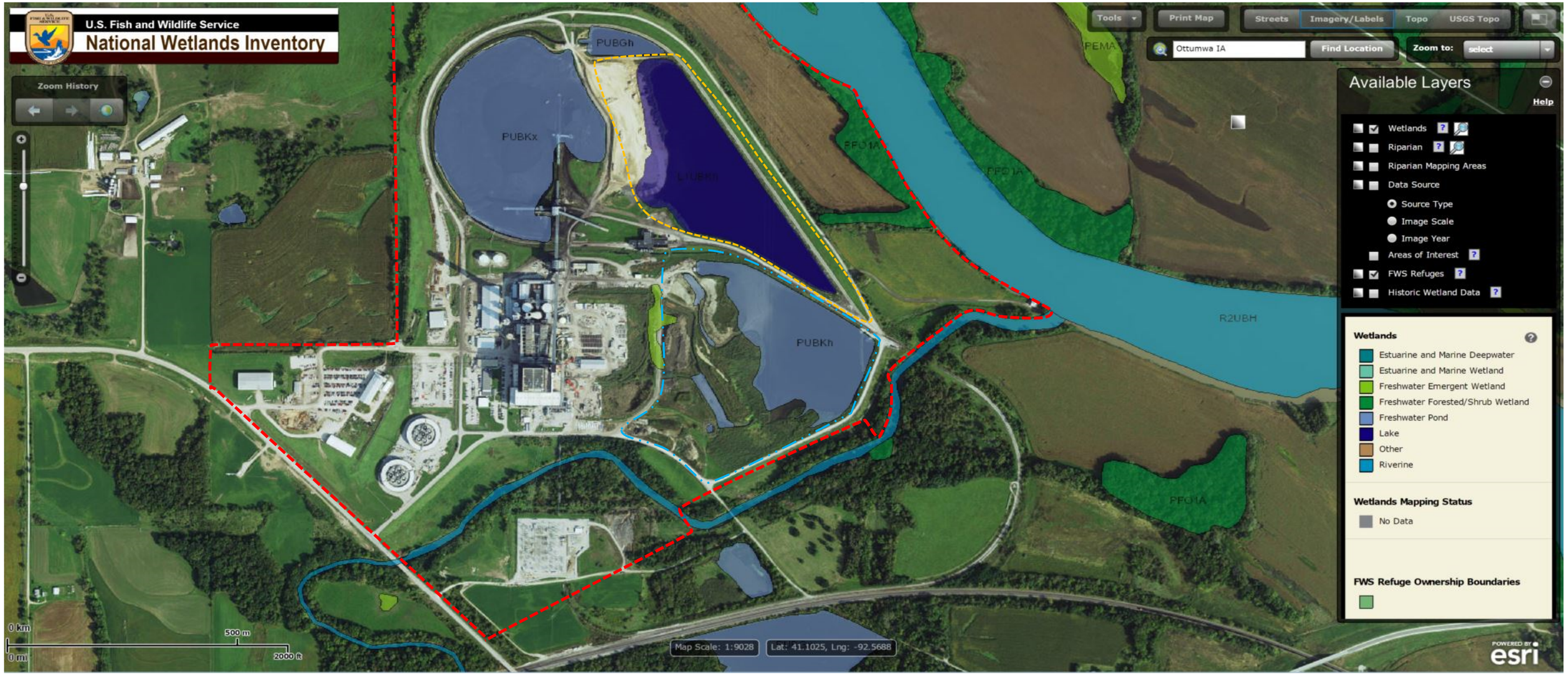
Approximate Property Boundary

HARD HAT SERVICES ™
Engineering, Construction and Management Solutions

Site Location
Ottumwa Generating Station
Intersate Power and Light Company

Drawing
Figure 1

Date
7/12/2016



Approximate Property Boundary
OGS Ash Pond
OGS ZLD Pond

HARD HAT SERVICES™
Engineering, Construction and Management Solutions

Wetland Location Map
Ottumwa Generating Station
Intersate Power and Light Company

Drawing
Figure 2

Date
7/12/2016