

**VIA EMAIL**

September 29, 2016

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

**Re: Liner Design Criteria for Existing CCR Surface Impoundments - §257.71(a)  
Interstate Power and Light Company (IPL)  
Ottumwa Generating Station  
Ottumwa, Iowa**

Dear Mr. Maxted;

Hard Hat Services (HHS) assessed the liner design criteria for the CCR surface impoundments located at the Ottumwa Generating Station in Ottumwa, Iowa.

**Background Information**

In accordance with the requirements set forth in §257.71(a) of the CCR Rule (40 CFR 257.50-107), an owner or operator of an existing CCR surface impoundment must document whether or not the CCR unit was constructed with a liner that meets, at a minimum, one of the following three categories:

- i. A liner consisting of a minimum of two feet of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec,
- ii. A composite liner that meets the requirements of §257.70(b) - A composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner, and the lower component consisting of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec. Geomembrane liner components consisting of high density polyethylene must be at least 60-mil thick. The geomembrane liner or upper liner component must be installed in direct and uniform contact with the compacted soil or lower liner component. The composite liner must meet the requirements specified in §257.70 (b)(1) through (4).
- iii. An alternative composite liner that meets the requirements of §257.70(c). An alternative composite liner shall meet the following requirements:
  - An alternative composite liner must consist of two components; the upper component consisting of, at a minimum, a 30-mil geomembrane liner, and a

lower component, that is not a geomembrane, with a liquid flow rate no greater than the liquid flow rate of two feet of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec. Geomembrane liner components consisting of high density polyethylene must be at least 60-mil thick. If the lower component of the alternative liner is compacted soil, the geomembrane liner must be installed in direct and uniform contact with the compacted soil.

- The owner or operator must obtain certification from a qualified professional engineer that the liquid flow rate through the lower component of the alternative composite liner is no greater than the liquid flow rate through two feet of compacted soil with a hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec. The hydraulic conductivity for the two feet of compacted soil used in the comparison shall be no greater than  $1 \times 10^{-7}$  cm/sec. The hydraulic conductivity of any alternative to the two feet of compacted soil must be determined using recognized and generally accepted methods.
- The alternative composite liner must meet the requirements specified in §257.70 (b)(1) through (4).

On August 5<sup>th</sup>, 2016, the United States Environmental Protection Agency (USEPA) published revisions to the CCR Rule (the “Extension Rule”) that extend the above requirements to inactive CCR surface impoundments. The Extension Rule will go into effect on October 4<sup>th</sup>, 2016, unless USEPA receives adverse comments.

### **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. Figure 2 identifies each CCR Unit and illustrates the storm water and process water route. OGS has one existing and one inactive CCR surface impoundment, which are identified as follows:

- OGS Ash Pond (existing)
- OGS Zero Liquid Discharge Pond (inactive)

### **Liner Determination**

After review of the reasonably and readily available documentation, the following CCR Units were determined to not meet the requirements of §257.71(a)(1)(i), (ii), or (iii):

- OGS Ash Pond
- OGS Zero Liquid Discharge Pond

Although a consistent and continuous layer of clay is known to exist below the impoundments, insufficient data is available to make the determination that the soils meet the requirement of two feet of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec. A

determination may be possible if an additional investigation to determine the soil hydraulic conductivity is performed.

All existing unlined CCR surface impoundments are subject to the closure or retrofit requirements of §257.101(a).

#### **Qualified Professional Engineer Certification**

The owner or operator of the CCR unit must obtain a certification from a qualified professional engineer attesting that the documentation as to whether a CCR unit meets the requirements 40 CFR 257.71(a) is accurate.

To meet the requirements of 40 CFR 257.71(b), 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 257.71(a).



By: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

*[Signature]*  
MARK LOEROP  
9/30/2016

cc: Tony Morse, Alliant Energy

att: Figure 1 – Site Location  
Figure 2 – Storm Water Routing

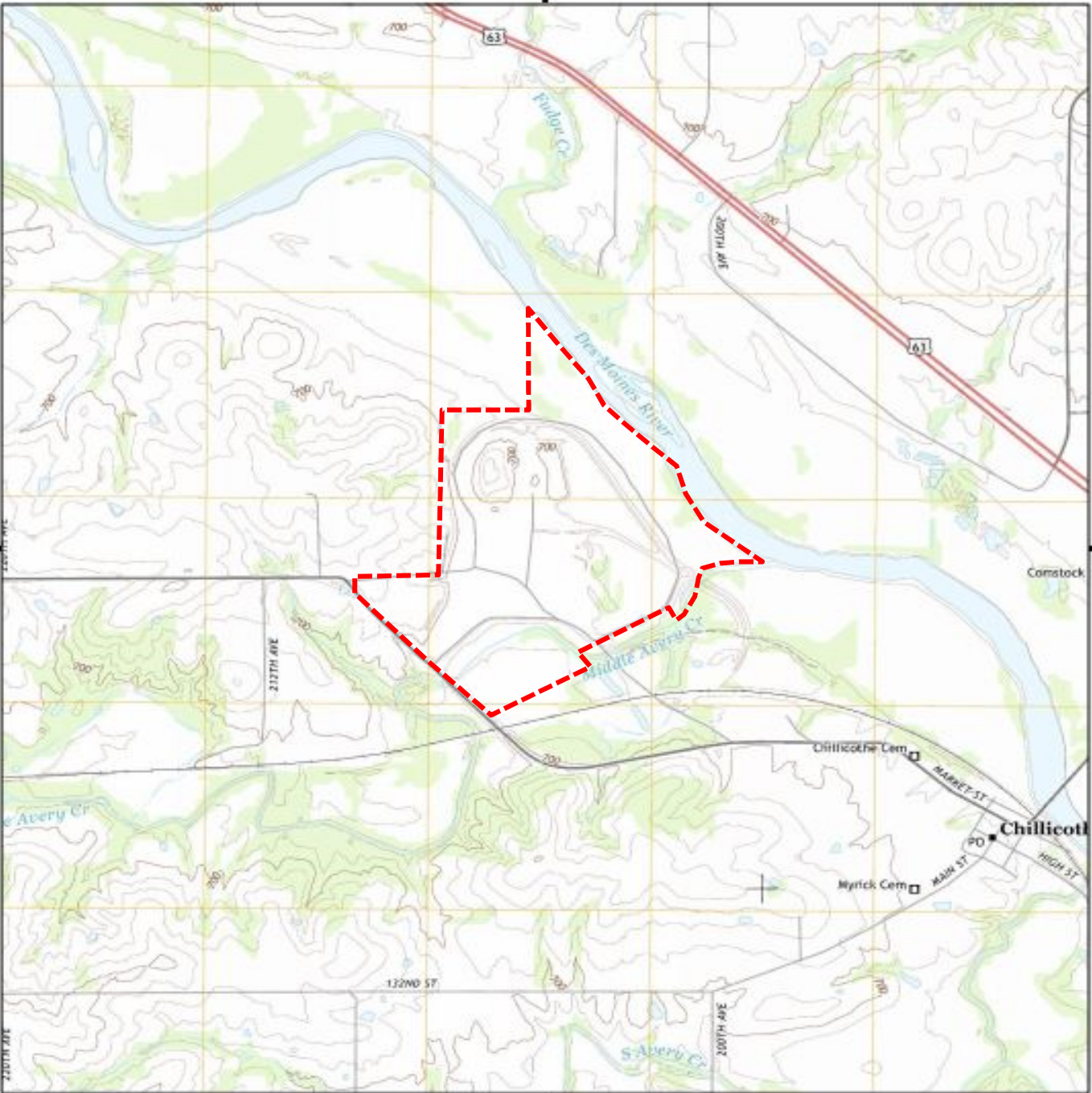
MWL/tjh/CTS

C:\Egnyte\Shared\Projects\154 - Alliant Energy\154.018 - CCR Projects\012 - 2016 CCR Compliance Program\003 - OGS\Liner Determination Letter\OGS Liner Design Criteria - FINAL.doc

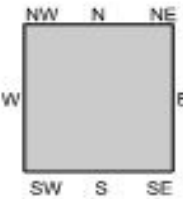


Historical Topo Map

2013



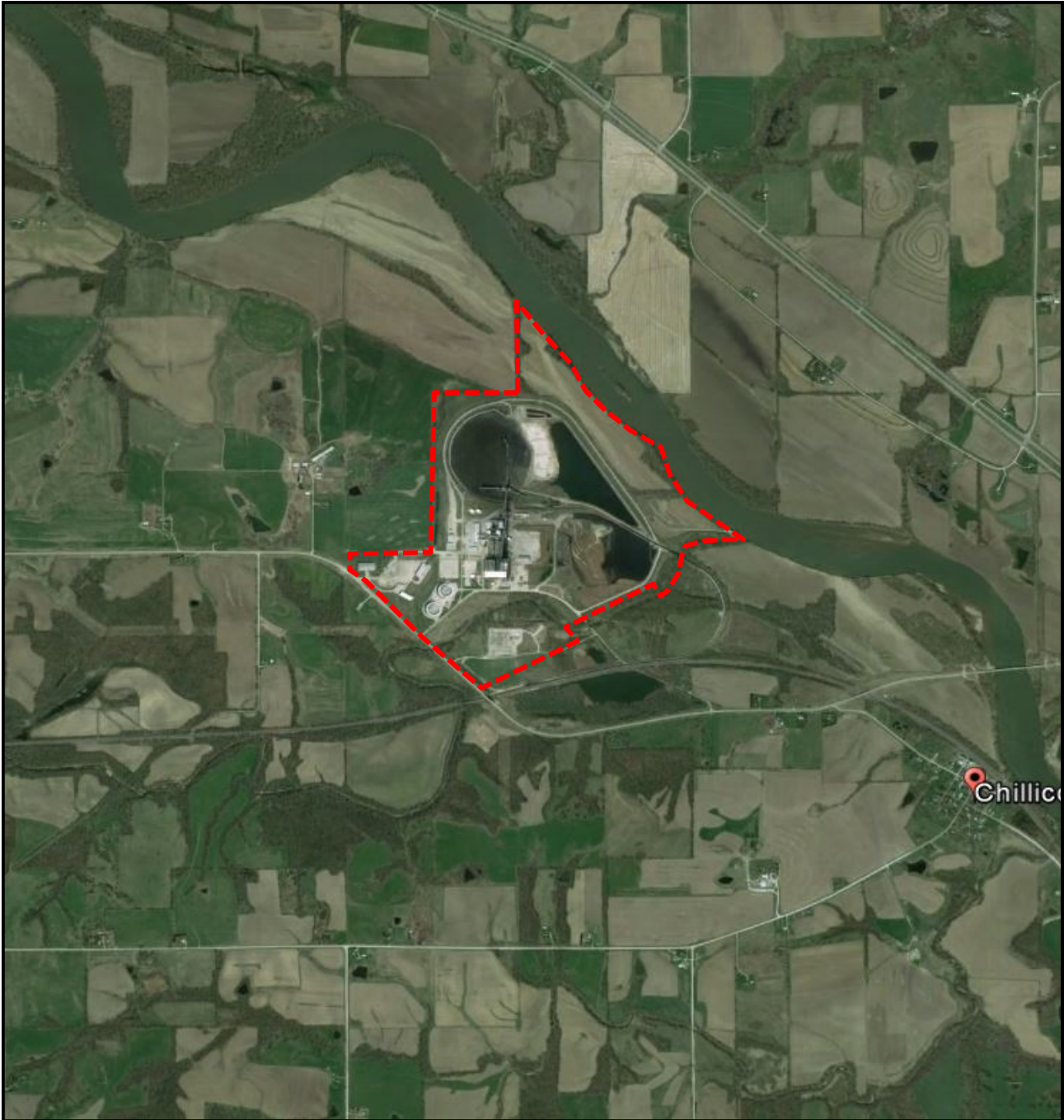
This report includes information from the following map sheet(s).



TP, Chillicothe, 2013, 7.5-minute

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

Historical Aerial Photo 4/13/2016



----- Approximate Property Boundary

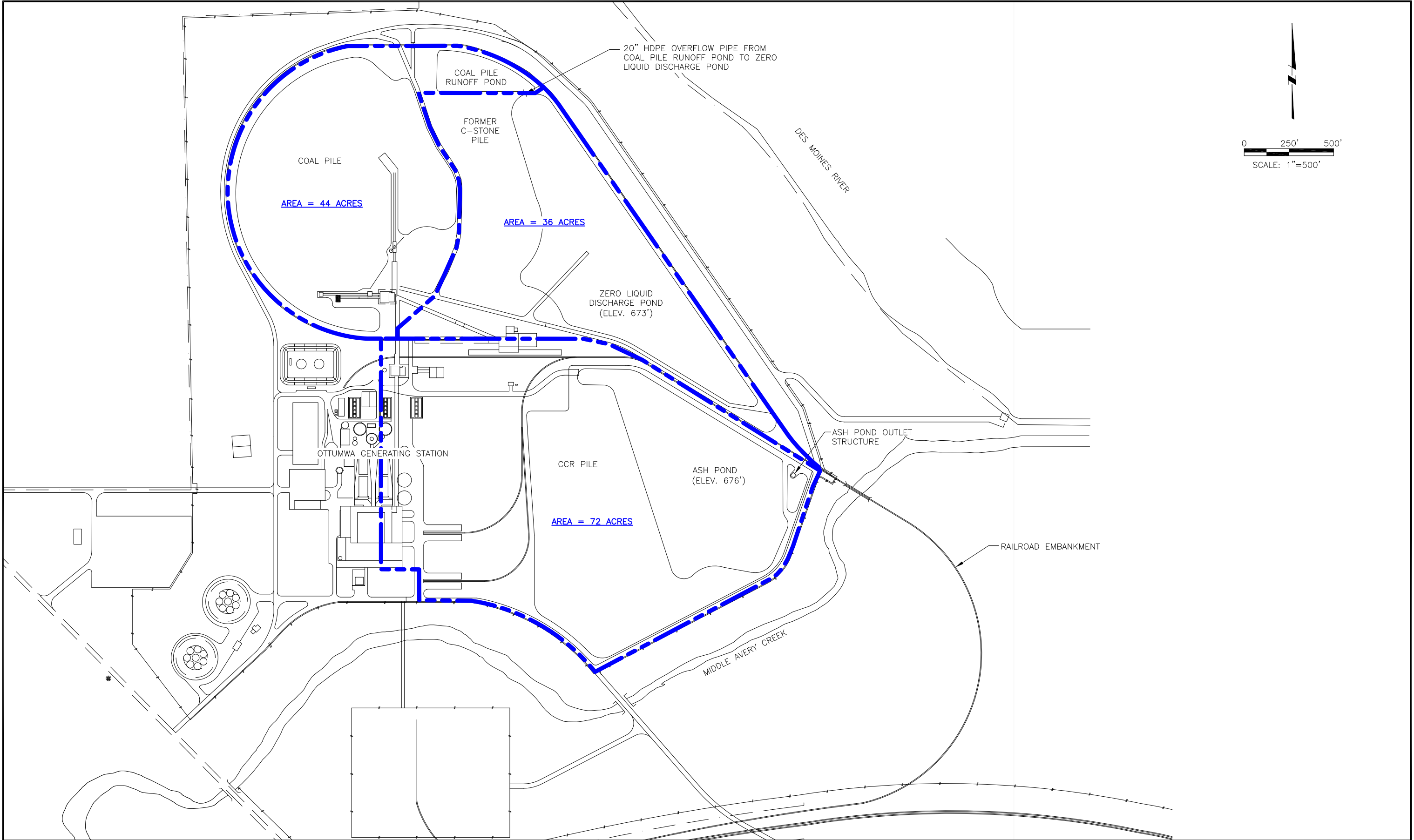








**HARD HAT SERVICES**<sup>TM</sup>  
Engineering, Construction and Management Solutions

Site Location  
Otumwa Generating Station  
Intersate Power and Light Company

Drawing  
Figure 1  
Date  
7/12/2016





NOTICE THIS DRAWING IS THE PROPERTY OF HARD HAT SERVICES AND IS NOT TO BE REPRODUCED, CHANGED, OR COPIED IN ANY FORM OR MANNER WITHOUT PRIOR WRITTEN PERMISSION. ALL RIGHTS RESERVED.					 <b>hard hat</b> <sup>™</sup> SERVICES solutions and action	SCALE: AS SHOWN	CLIENT / LOCATION  INTERSTATE POWER AND LIGHT (IPL) OTTUMWA GENERATING STATION OTTUMWA, IA	DRAWING DESCRIPTION  Liner Determination Criteria	JOB	154.018.002.003
						DATE: 8-29-16			SHT.	FIGURE 2
						DRAWN BY: JFD			DWG.	154.018.002.003-D2
						CHKD BY: THJ				
						APRVD BY: MWL				
	REV	DATE	BY	DESCRIPTION						