



Submitted to
Southern Indiana
Gas & Electric Company
Inc. (SIGECO)
One Vectren Square
Evansville, IN 47708

Submitted by
AECOM
1300 East 9th Street
Suite 500
Cleveland, Ohio 44114

September 10, 2021

CCR Certification:
Written Closure Plan
§257.102 (b) & (d)

for the

East Ash Pond

at the

F.B. Culley Generating Station

Revision 1

Table of Contents

Executive Summary..... 1

1 Introduction..... 1-1

 1.1 Purpose of this Report 1-1

 1.2 Brief Description of Impoundment 1-1

2 Written Closure Plan 2-1

 2.1 Content of the Plan..... 2-1

 2.1.1 Closure Plan Description 2-1

 2.1.2 Inventory and Area Estimates..... 2-2

 2.1.3 Closure Schedule..... 2-2

 2.2 Achievement of Closure by Removal..... 2-3

 2.3 Amendment to Initial or any Subsequent Written Closure Plan 2-3

3 Certification..... 3-1

4 Limitations..... 4-1

Tables

Table ES-1 Certification Summary

Table 1-1 CCR Rule Cross Reference Table

Table 2-1 Closure Schedule

Appendices

Appendix A Figures

 Figure 1 – Location Map

 Figure 2 – Site Map

Executive Summary

This Coal Combustion Residuals (CCR) Written Closure Plan (Closure Plan) for the East Ash Pond at the Southern Indiana Gas & Electric Company Inc., F.B. Culley Generating Station has been prepared in accordance with the requirements specified in the USEPA CCR Rule under 40 Code of Federal Regulations §257.102. These regulations require that the specified documentation, assessments and plans for an existing CCR surface impoundment be prepared by October 13, 2016. The Initial Closure Plan proposed a Closure-in-Place (CiP) methodology and was prepared in accordance with these requirements. This Closure Plan (Rev. 1) represents an update to the Initial Closure Plan (Rev. 0) considering recent developments to implement a closure by removal (CbR) methodology for closure of the East Ash Pond.

This Closure Plan meets the regulatory requirements as summarized in **Table ES-1**.

Table ES-1 – Certification Summary				
Report Section	CCR Rule Reference	Requirement Summary	Requirement Met?	Comments
Closure Plan				
2.1	§257.102 (b)	<i>A written closure plan must be prepared that describes the steps necessary to close the unit</i>	Yes	This Closure Plan has been prepared based on a closure design. All steps necessary to close the unit and information as required concerning the unit are included in the Closure Plan.
2.2	§257.102 (c)	<i>Closure by Removal</i>	Yes	This Closure Plan has been prepared based on a closure by removal design. All steps necessary to close the unit and information as required concerning the unit are included in the Closure Plan.

The East Ash Pond at the F.B. Culley Generating Station is currently an active surface impoundment. Upon decision and/or requirement to close this surface impoundment, a Notification of Intent to Initiate Closure will be placed in the Operating Record, closure operations will commence, and the surface impoundment will be closed within the time frame as allowed in the CCR Rule. It is anticipated that the East Ash Pond will initiate closure by March 2023.

1 Introduction

1.1 Purpose of this Report

The purpose of the Closure Plan is to document that the requirements specified in 40 Code of Federal Regulations (CFR) §257.102 have been met to support the certification required under each of the applicable regulatory provisions for the East Ash Pond at F.B. Culley Generating Station. The East Ash Pond is an existing coal combustion residuals (CCR) surface impoundment as defined by 40 CFR §257.53. The CCR Rule requires that the Initial Written Closure Plan for an existing CCR surface impoundment be prepared by October 13, 2016. The Initial Closure Plan proposed a Closure-in-Place (CiP) methodology and was prepared in accordance with these requirements. This Closure Plan (Rev. 1) represents an update to the Initial Closure Plan (Rev. 0) considering recent developments to implement a closure by removal (CbR) methodology for closure of the East Ash Pond.

The following table summarizes the documentation required within the CCR Rule and the sections that specifically respond to those requirements of this plan.

Table 1-1 – CCR Rule Cross Reference Table		
Report Section	Title	CCR Rule Reference
2.1	Content of the Plan	§257.102 (b)(1)
2.2	Achievement of Performance Standards	§257.102 (c)

1.2 Brief Description of Impoundment

The Culley station is located in Warrick County, Indiana, southeast of Newburgh, Indiana, and is owned and operated by Southern Indiana Gas and Electric Company (SIGECO). The Culley station (Culley) is located along the north bank of the Ohio River and the west bank of Little Pigeon Creek along the southeast portion of the site. Culley historically has had two CCR surface impoundments, identified as the West Ash Pond and the East Ash Pond. The East Ash Pond actively receives CCR materials and the West Ash Pond has since closed and no longer receives or manages CCR materials. This Closure Plan has been developed for the East Ash Pond. The East Ash Pond is approximately 10 acres in size.

The history of construction report for the East Ash Pond indicates that the pond construction commenced in the 1971. The original design plans indicate that earthen embankments for the East Ash Pond were constructed by placing fill along the south side (adjacent to the Ohio River) and the east side (adjacent to Little Pigeon Creek), and tying into existing high ground at the north and west sides. Prior to the construction of the generating station, Little Pigeon Creek originally ran through the footprint of the East Ash Pond, continuing through the current location of the generating station and the former West Ash Pond. During the construction of the generating station in the 1950s, Little Pigeon Creek was re-routed to the Ohio River east of the Culley Station. The top of the East Ash Pond embankment was constructed to an approximate elevation of 397 feet. Interior side slopes of the pond vary, but original design documents indicate that the slopes are approximately 2.5H:1V (horizontal to vertical) from the top

of the dike to approximately halfway down the interior slope until a flat bench. From the bench to the bottom of the pond, the slope is approximately 2H:1V. The embankment of the East Ash Pond is approximately 1,200 feet long, 15 feet wide at the crest, 30 feet high, and has approximately 2.5H:1V exterior side slopes covered with trees, riprap, concrete rubble and undergrowth vegetation. The surface area of the impoundment is approximately 9.8 acres. Within the pond, there are two small pools. One is being utilized as a settling basin for the discharge from the FGD wastewater treatment system. The ponded water has a surface area of approximately 7 acres and has a normal operating level of 386.5 feet.

A Site Location Map showing the area surrounding the station is included as **Figure 1 of Appendix A**. **Figure 2 in Appendix A** presents the F.B. Culley Site Map.

2 Written Closure Plan

Regulatory Citation: 40 CFR §257.102 (b); Written closure plan—

- (1) *Content of the plan. The owner or operator of a CCR unit must prepare a written closure plan that describes the steps necessary to close the CCR unit at any point during the active life of the CCR unit consistent with recognized and generally accepted good engineering practices. The written closure plan must include, at a minimum, the information specified in paragraphs (b)(1)(i) through (vi) of this section.*

The Written Closure Plan for the East Ash Pond is described in this section. Information about operational and maintenance procedures was provided by Culley plant personnel. The Culley station follows an established maintenance program that quickly identifies and resolves issues of concern.

2.1 Content of the Plan

2.1.1 Closure Plan Description

Regulatory Citation: 40 CFR §257.102 (b)(1);

- (i) *Narrative description of how the CCR unit will be closed in accordance with this section.*

The entire footprint of the East Ash Pond will be excavated to remove CCR to historical/pre-development grades. The East Ash Pond will be dewatered to facilitate CCR excavation. Excavated CCR materials will be either beneficially reused or disposed at a third party disposal site. The existing southern embankment will be breached to direct stormwater to an NPDES permitted outfall. Closure operations will involve:

- 1) Dewatering the impoundment;
- 2) Excavation and removal of all CCR materials;
- 3) Dike breach & outfall construction; and
- 4) Seeding and final vegetative stabilization

In accordance with §257.102(b)(3), this Closure Plan will be amended as needed to provide additional details after the final engineering design is completed. This Closure Plan reflects the information available to date.

Regulatory Citation: 40 CFR §257.102 (b)(1);

- (ii) *If closure of the CCR unit will be accomplished through removal of CCR from the CCR unit, a description of the procedures to remove the CCR and decontaminate the CCR unit in accordance with paragraph (c) of this section.*

Excavation in the East Ash Pond footprint will advance until historical/pre-development grades have been achieved and all CCR has been removed from within the CCR unit. Upon attaining pre-development grades, a visual inspection will be conducted to identify any remnant CCR materials. Remnant CCR materials identified by this inspection will subsequently be removed by additional excavation. This process may be supplemented by analytical testing to satisfy state-specific closure protocols, as appropriate. Following completion of this process and

consistent with current regulatory provisions, groundwater monitoring will be conducted until it can be confirmed that concentrations do not exceed the groundwater protection standard established pursuant to §257.95(h) for constituents listed in Appendix IV.

Regulatory Citation: 40 CFR §257.102 (b)(1);

- *(iii) If closure of the CCR Unit will be accomplished by leaving CCR in place, a description of the final cover system and methods and procedures used to install the final cover.*

Not applicable.

2.1.2 Inventory and Area Estimates

Regulatory Citation: 40 CFR §257.102 (b);

- *(iv) An estimate of the maximum inventory of CCR ever on-site over the active life of the CCR unit.*

An estimate of the maximum inventory of CCR ever on-site over the active life is 349,000 cubic yards.

Regulatory Citation: 40 CFR §257.102 (b);

- *(v) An estimate of the largest area of the CCR unit ever requiring a final cover as required by paragraph (d) of this section at any time during the CCR unit's active life.*

Not applicable.

2.1.3 Closure Schedule

Regulatory Citation: 40 CFR §257.102 (b)(1);

- *(vi) Schedule for completing all activities necessary to satisfy the closure criteria in this section, including an estimate of the year in which all closure activities for the CCR unit will be completed.*

The milestones and the associated timeframes are initial estimates. Some of the activities associated with the milestones will overlap. Amendments to the milestones and timeframes will be made as more information becomes available.

Table 2-1 – Closure Schedule	
Milestone	Schedule
Initial Written Closure Plan (Rev. 0)	October 13, 2016
Written Closure Plan (Rev. 1)	September 10, 2021
Notification of Intent to Close Placed in Operating Record	March 2023 or no later than the date closure of the CCR unit is initiated. Closure to commence in accordance with the applicable timeframes in 40 CFR 257.102(e).

Table 2-1 – Closure Schedule

Milestone	Schedule
Agency coordination and permit acquisition <ul style="list-style-type: none"> – Coordinating with state agencies for compliance. – Acquiring state permits. 	2021-2023 2022-2023
Mobilization	March 2023
Closure Construction Activities CCR <ul style="list-style-type: none"> – Complete dewatering, as necessary – Complete excavation of CCR – Final Dike Breach/Final Stabilization 	June 2024 June 2024 December 2024
Estimate of Year in which all closure activities will be completed.	2024-2025

2.2 Achievement of Closure by Removal

Regulatory Citation: 40 CFR §257.102 (c); Closure by removal of CCR

An owner or operator may elect to close a CCR unit by removing and decontaminating all areas affected by releases from the CCR unit. CCR removal and decontamination of the CCR unit are complete when constituent concentrations throughout the CCR unit and any areas affected by releases from the CCR unit have been removed and groundwater monitoring concentrations do not exceed the groundwater protection standard established pursuant to §257.95(h) for constituents listed in appendix IV to this part.

Excavation in the East Ash Pond footprint will advance until historical/pre-development grades have been achieved and all CCR has been removed from within the CCR unit. Upon attaining pre-development grades, a visual inspection will be conducted to identify any remnant CCR materials. Remnant CCR materials identified by this inspection will subsequently be removed by additional excavation. This process may be supplemented by analytical testing to satisfy state-specific closure protocols, as appropriate. Following completion of this process and consistent with current regulatory provisions, groundwater monitoring will be conducted until it can be confirmed that concentrations do not exceed the groundwater protection standard established pursuant to §257.95(h) for constituents listed in Appendix IV.

2.3 Amendment to Initial or any Subsequent Written Closure Plan

The Initial Written Closure Plan (Rev. 0) dated October 13, 2016 is hereby being amended by this Written Closure Plan (Rev. 1) on September 10, 2021 as required by §257.102 (b)(3).

3 Certification

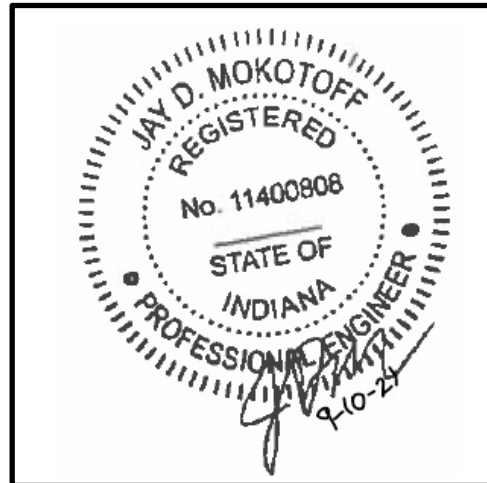
This Certification Statement documents that the East Ash Pond at the F.B. Culley Generating Station meets the Written Closure Plan requirements specified in 40 CFR §257.102 (b) and the closure by removal requirements as specified in 40 CFR §257.102 (c). The East Ash Pond is an existing CCR surface impoundment as defined by 40 CFR §257.53. The CCR Rule requires that the Initial Written Closure Plan for an existing CCR surface impoundment be prepared by October 13, 2016. An amendment to the Initial Written Closure Plan is provided herein, dated September 10, 2021.

CCR Unit: Southern Indiana Gas & Electric Company; F.B. Culley Generating Station; East Ash Pond

I, Jay Mokotoff, being a Registered Professional Engineer in good standing in the State of Indiana, do hereby certify, to the best of my knowledge, information, and belief that the information contained in this certification has been prepared in accordance with the accepted practice of engineering. I certify, for the above referenced CCR Unit, that the Initial Written Closure Plan dated October 13, 2016 and hereby amended on September 10, 2021 meets the requirements of 40 CFR § 257.102.

Jay D. Mokotoff
Printed Name

September 10, 2021
Date



4 Limitations

Background information, design basis, and other data which AECOM has used in preparing this report have been furnished to AECOM by SIGECO. AECOM has relied on this information as furnished and is not responsible for the accuracy of this information. Our recommendations are based on available information from previous and current investigations. These recommendations may be updated as future investigations are performed.

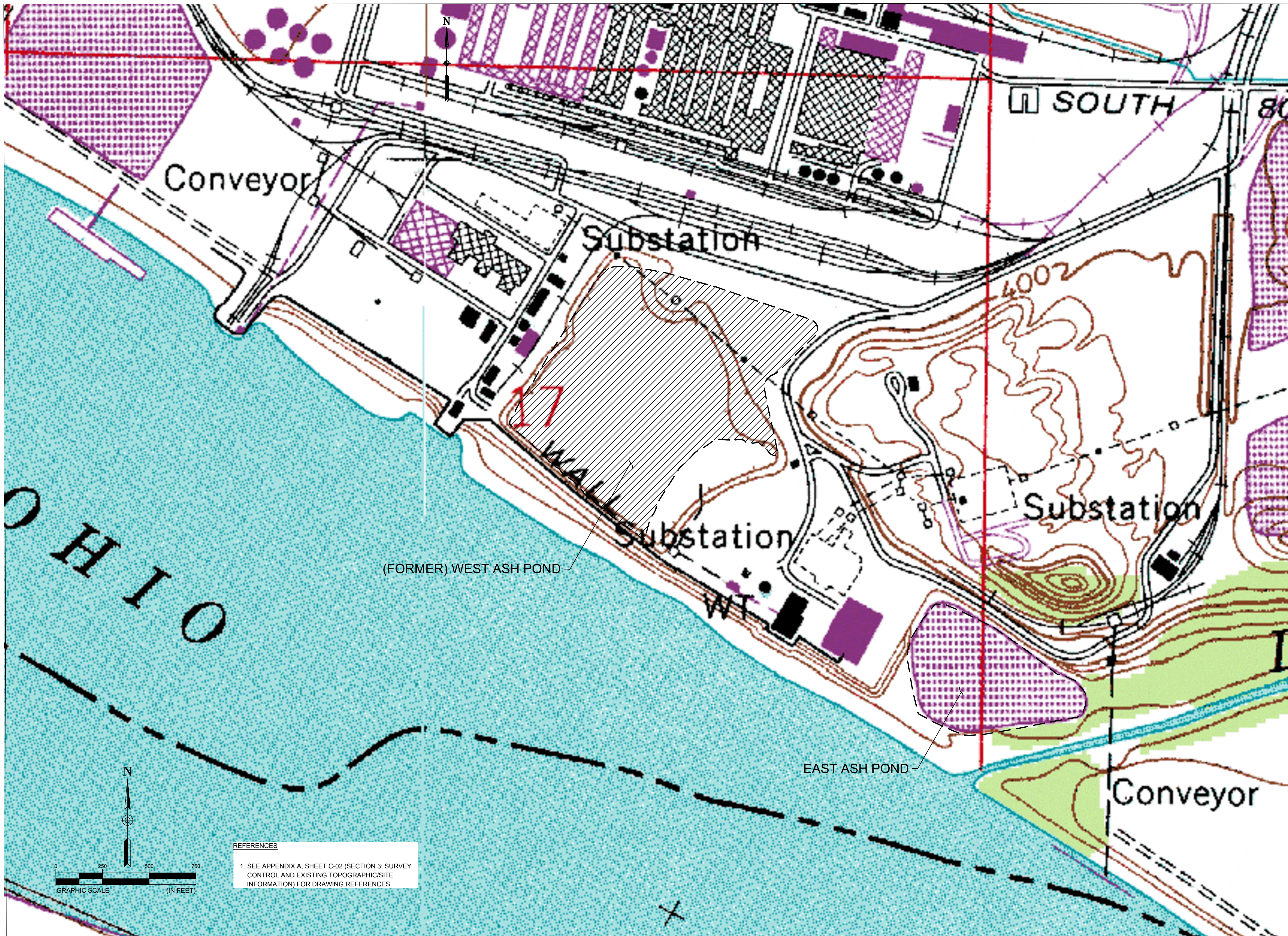
The conclusions presented in this report are intended only for the purpose, site location, and project indicated. The provisions and recommendations presented in this report should not be used for other projects or purposes. Conclusions or recommendations made from these data by others are their responsibility. The conclusions and recommendations are based on AECOM's understanding of current plant operations, maintenance, stormwater handling, and ash handling procedures at the station, as provided by SIGECO. Changes in any of these operations or procedures may invalidate the findings in this report until AECOM has had the opportunity to review the findings and revise the report if necessary.

This development of the Closure Plan was performed in accordance with the standard of care commonly used as state-of-practice in our profession. Specifically, our services have been performed in accordance with accepted principles and practices of the engineering profession. The conclusions presented in this report are professional opinions based on the indicated project criteria and data available at the time this report was prepared. Our services were provided in a manner consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representation is intended.

Appendix A Figures

Figure 1 – Location Map
Figure 2 – Site Map

PHANOR PIERRE, WADSON C. 8/2/2021 2:14 PM



REFERENCES
 1. SEE APPENDIX A, SHEET C-02 (SECTION 3: SURVEY CONTROL AND EXISTING TOPOGRAPHIC/SITE INFORMATION) FOR DRAWING REFERENCES.

AECOM

1300 E 9th St.
 Suite 500
 Cleveland, Oh 44114
 216 622-2300 (phone)
 216 622-2464 (fax)

CenterPoint Energy

P.O. BOX 209
 EVANSVILLE, IN 47702
 1-800-227-1376

F.B. CULLEY
 GENERATING STATION
 NEWBURGH, INDIANA

CLOSURE BY REMOVAL
 OF EAST ASH POND

CLOSURE PLAN

NOT FOR
 CONSTRUCTION

ISSUED FOR BIDDING _____ DATE BY _____

ISSUED FOR CONSTRUCTION _____ DATE BY _____

REVISIONS

NO.	DESCRIPTION	DATE
△		
△		
△		
△		
△		

AECOM PROJECT NO: 60586569
 DRAWN BY: WCPP
 DESIGNED BY: AG
 CHECKED BY: JDM
 DATE CREATED:
 PLOT DATE: 07/29/2021
 SCALE: NOTED
 ACAD VER: 2019

SHEET TITLE

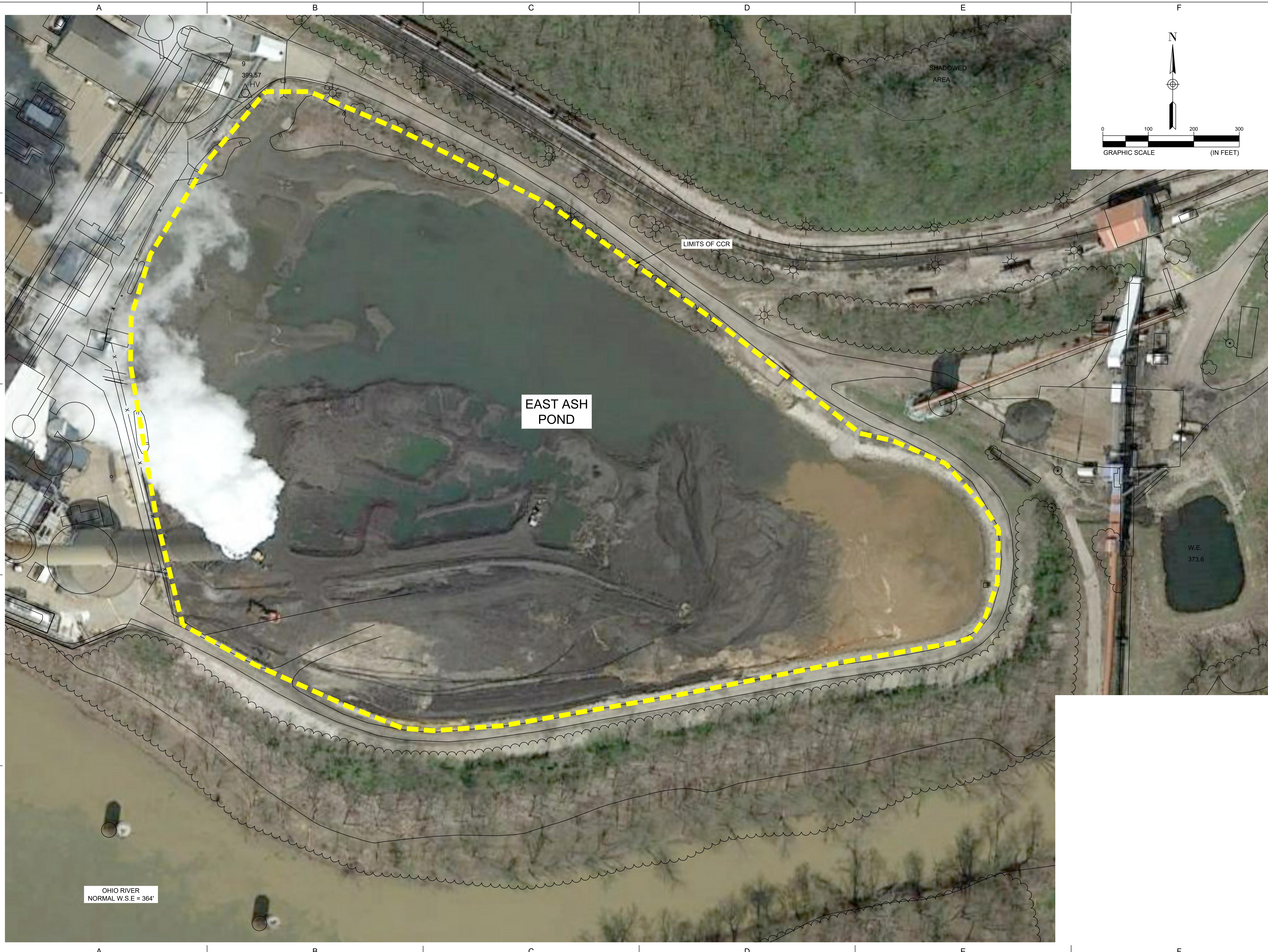
SITE LOCATION

FIGURE 1

SHEET 1 OF 2

PHANORD PIERRE, WADSON C, 8/2/2021 2:20 PM

AECOM DRAWING PATH: C:\Users\Wadson.Phanord\Desktop\Phanord\Culley East\IDEM Version\Appendices\Figures\Figure 2 - Site Aerial.dwg



AECOM

1300 E 9th St.
Suite 500
Cleveland, Oh 44114
216 622-2300 (phone)
216 622-2464 (fax)

CenterPoint Energy

P.O. BOX 209
EVANSVILLE, IN 47702
1-800-227-1376

F.B. CULLEY GENERATING STATION NEWBURGH, INDIANA

CLOSURE BY REMOVAL OF EAST ASH POND

CLOSURE PLAN

NOT FOR CONSTRUCTION

ISSUED FOR BIDDING _____ DATE BY _____

ISSUED FOR CONSTRUCTION _____ DATE BY _____

REVISIONS

NO.	DESCRIPTION	DATE
△		
△		
△		
△		
△		

AECOM PROJECT NO: 60586669

DRAWN BY: WCPP

DESIGNED BY: AG

CHECKED BY: JDM

DATE CREATED:

PLOT DATE: 07/29/2021

SCALE: NOTED

ACAD VER: 2019

SHEET TITLE

AERIAL SITE MAP

FIGURE 2

SHEET 2 OF 2

About AECOM

AECOM (NYSE: ACM) is a global provider of professional technical and management support services to a broad range of markets, including transportation, facilities, environmental, energy, water and government. With nearly 100,000 employees around the world, AECOM is a leader in all of the key markets that it serves. AECOM provides a blend of global reach, local knowledge, innovation, and collaborative technical excellence in delivering solutions that enhance and sustain the world's built, natural, and social environments. A Fortune 500 company, AECOM serves clients in more than 100 countries and has annual revenue in excess of \$19 billion.

AECOM
9400 Amberglen Boulevard
Austin, Texas 78729
1-512-454-4797

About AECOM

AECOM (NYSE: ACM) is a global provider of professional technical and management support services to a broad range of markets, including transportation, facilities, environmental, energy, water and government. With nearly 100,000 employees around the world, AECOM is a leader in all of the key markets that it serves. AECOM provides a blend of global reach, local knowledge, innovation, and collaborative technical excellence in delivering solutions that enhance and sustain the world's built, natural, and social environments. A Fortune 500 company, AECOM serves clients in more than 100 countries and has annual revenue in excess of \$19 billion.

More information on AECOM and its services can be found at www.aecom.com.