City Water, Light & Power
Lakeside & Dallman Ash Ponds
Springfield, Sangamon County, Illinois

Lakeside and Dallman Ash Ponds Location Restrictions – Unstable Areas

July 2025

Prepared for:
City Water, Light & Power
3100 Stevenson Drive
Springfield, Illinois 62703

ANDREWS ENGINEERING

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ILLINOIS | MISSOURI | INDIANA

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1. INTRODUCTION

CWLP owns and operates two (2) existing CCR surface impoundments. The CWLP CCR surface impoundments are located north and east of the former Lakeside Power Generating Station and Dallman Power Generating Station in the Eastern ½ of Section 12, Township 15 North, Range 5 West, in Springfield, Illinois (see Figure 1). These CCR surface impoundments are identified as the Lakeside Ash Pond and the Dallman Ash Pond (see Figure 2).

The former Lakeside Power Generating Station and Dallman Power Generating Station are situated on the northwestern bank of Lake Springfield in Springfield, Illinois. The Lakeside Ash Pond is immediately north of Spaulding Dam at the northern end of Lake Springfield. The Dallman Ash Pond is immediately northwest of the Lakeside Ash Pond. Placed into service prior to 1958, the Lakeside Ash Pond is primarily a diked embankment. The Lakeside Ash Pond consists of four separate ponds (i.e., three ponds formerly used for storage of lime softening sludge and the settling pond) totaling approximately 35.0 acres. The three lime softening sludge ponds were taken out of service in September 2023 with the completion of the construction of the new lime softening sludge-processing area. The Lakeside Ash Pond ceased receiving ash in 2009. The Dallman Ash Pond was placed into service in approximately 1976 and is also a diked embankment. The Dallman Ash Pond is approximately 34.5 acres and ceased receiving ash in 2021.

As of October 13, 2023, all CCR and non-CCR waste streams ceased flowing into the Lakeside Ash Pond and Dallman Ash Pond.

2. SUBSURFACE INVESTIGATIONS

The subsurface conditions of the area in and surrounding Lakeside and Dallman Ash Ponds have been characterized through multiple subsurface investigations, including the hydrogeologic investigation of the permitted Subtitle D landfill. These investigations were as follows:

- Professional Service Industries (PSI), June 1989. This investigation consisted of five soil borings within the east section of the south cell (Cell 1).
- Andrews Environmental Engineering, Inc., February 1990. This investigation was performed for Cell 2 and consisted of 13 soil borings. The drilling and testing were completed by PSI.
- Andrews Environmental Engineering, Inc., March 1990. This investigation was performed to install six wells at the Facility. The drilling and testing were completed by PSI.
- Patrick Engineering, Inc. (PEI), July 1992. This investigation was performed to further characterize the hydrogeology of the landfill setting. Approximately 44 soil borings and piezometers were installed by PEI.

- Stabilize, Inc. (SI), December 2008. This investigation installed three new monitoring wells as part of an assessment program for the landfill. The drilling, soil testing, and well construction was performed by Reynolds Well Drilling.
- City Water, Light and Power (CWLP), April 2010. This investigation was performed to install four piezometers on the west side of the CCR surface impoundments along Sugar Creek. The drilling and testing were completed by PSI.
- Stabilize, Inc. (SI), May 2011. This investigation installed four new monitoring wells to further the characterization of the CCR surface impoundments. The drilling, soil testing, and well construction was performed by PSI.
- Andrews Engineering, Inc., January 2012. This investigation was performed to replace CCR surface impoundment wells and install an additional background well. The drilling and well installation were completed by TerraDrill.
- Andrews Engineering, Inc., July 2017. This project included drilling peripheral to the Dallman Ash Pond.
- Andrews Engineering, Inc., June 2019. This investigation advanced 7 direct push borings peripheral to the Dallman Ash Pond and included the installation 2 new monitoring wells as part of an assessment program for the CCR ash impoundments.
- Andrews Engineering, Inc., October 2023. This investigation consisted of 34 borings next to the impoundments and 4 next to landfill Unit 1, to investigate the CCR ash surface impoundment berm construction materials and the installation of 29 vibrating wire piezometers to characterize pore water pressure in the soils.
- Andrews Engineering, Inc., February 2024. This investigation consisted of 14 borings using cone penetrometer testing adjacent to and within the Dallman and Lakeside Ash ponds.
- Andrews Engineering, Inc., April/May 2024. This investigation consisted of installation of six monitoring wells on the periphery of Lakeside and Dallman Ash Ponds, the advancement of a 100-foot boring northwest of the Dallman Ash Pond, and 4 borings in each of the ash ponds.

3. UNSTABLE AREAS

The United States Environmental Protection Agency (USEPA) promulgated new regulations for Coal Combustion Residual (CCR) slurry impoundments that took effect on October 14, 2015. By rule, existing CCR slurry impoundments were required to provide documentation that the slurry impoundment is not located in an unstable area unless the owner or operator demonstrates by October 17, 2018 that recognized and generally accepted good engineering practices have been incorporated into the design of the CCR slurry impoundment to ensure that the integrity of the structural components of the CCR slurry impoundment will not be disrupted.

Pursuant to comments presented by the USEPA, Andrews Engineering, Inc. is providing the following analysis on the historic underground coal mining to address the unstable areas requirement (§257.64), demonstrating that the area of the CWLP Lakeside and Dallman Ash Ponds are stable.

3.1 Coal Mining

The CWLP property area is assumed to have underground mine works listed by the Illinois DNR Mine Database as Mine Index 122 – Brewerton Coal Company, Brewerton No. 81 Mine; formerly known as the Jefferson (Mine No. 81), Middle States (Mine No. 26), and Brewerton (Mine No. 1). The available information lists the mine as mining the Springfield No. 5 Coal Seam at a depth of 235 feet. The mine portal at the surface was reported at an elevation of 580 feet MSL. Subtracting the depth to the coal seam from the mine portal elevation provides the elevation of the top of coal seam as 345 feet MSL. The Springfield No. 5 Coal Seam in this mine was reported to have a thickness ranging from 5.0 feet to 6.0 feet and an average thickness of 5.5 feet. The mine map depicts 765 acres with an additional 25 acres mined-out after the map date. The Coal Mines in Illinois – Springfield East/West Quadrangle, Sangamon County map prepared by the Illinois State Geological Survey is included in Attachment 1 with the location and postulated extents of the Brewerton Coal Company Brewerton No. 81, Mine Index 122 portion of the Springfield East/West Quadrangle map shown as Figure 2.

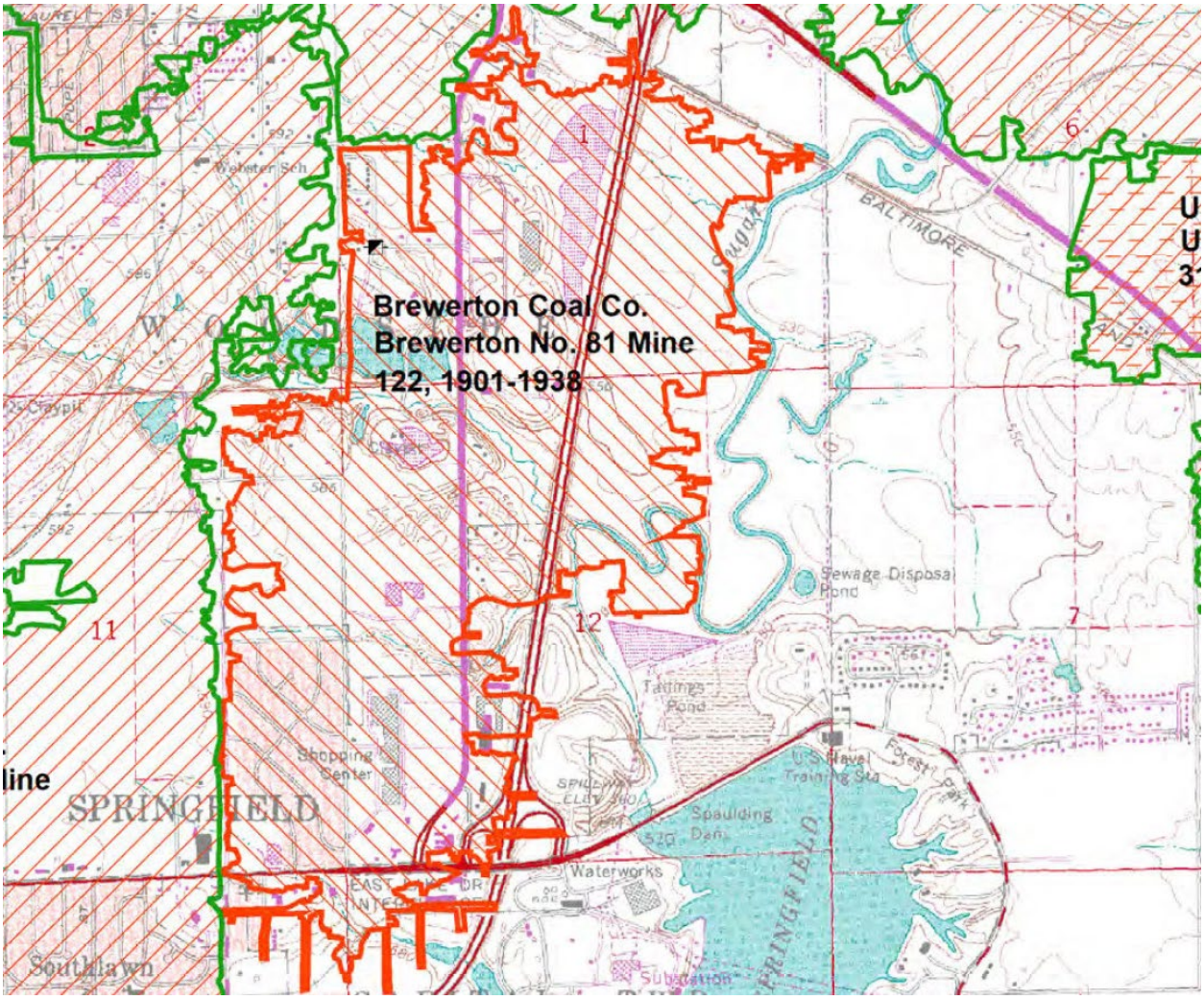

Figure 2. Excerpt from Coal Mines in Illinois – Springfield East/West Quadrangle, Sangamon County

The majority of Dallman Ash Pond is located within the boundary of the mineral rights for the coal mine and thus may have been undermined while Lakeside Ash Pond is clearly outside of the boundary of the mineral rights for the coal mine. Figure 3 below depicts a portion of the mined area directly beneath Dallman Ash Pond, including the limits of mining as presented in the Map of Brewerton Coal Company Mine No. 18 dated February 22, 1938. The available Map of Brewerton Coal Company Mine No. 81, February 22, 1938 is included in Attachment 2. Based upon the Map of Brewerton Coal Company Mine No. 81, February 22, 1938, the eastern half of the northeast quarter of Section 12 Township 15 North, Range 5 West is excluded from the mineral rights with no mining shown in the area.

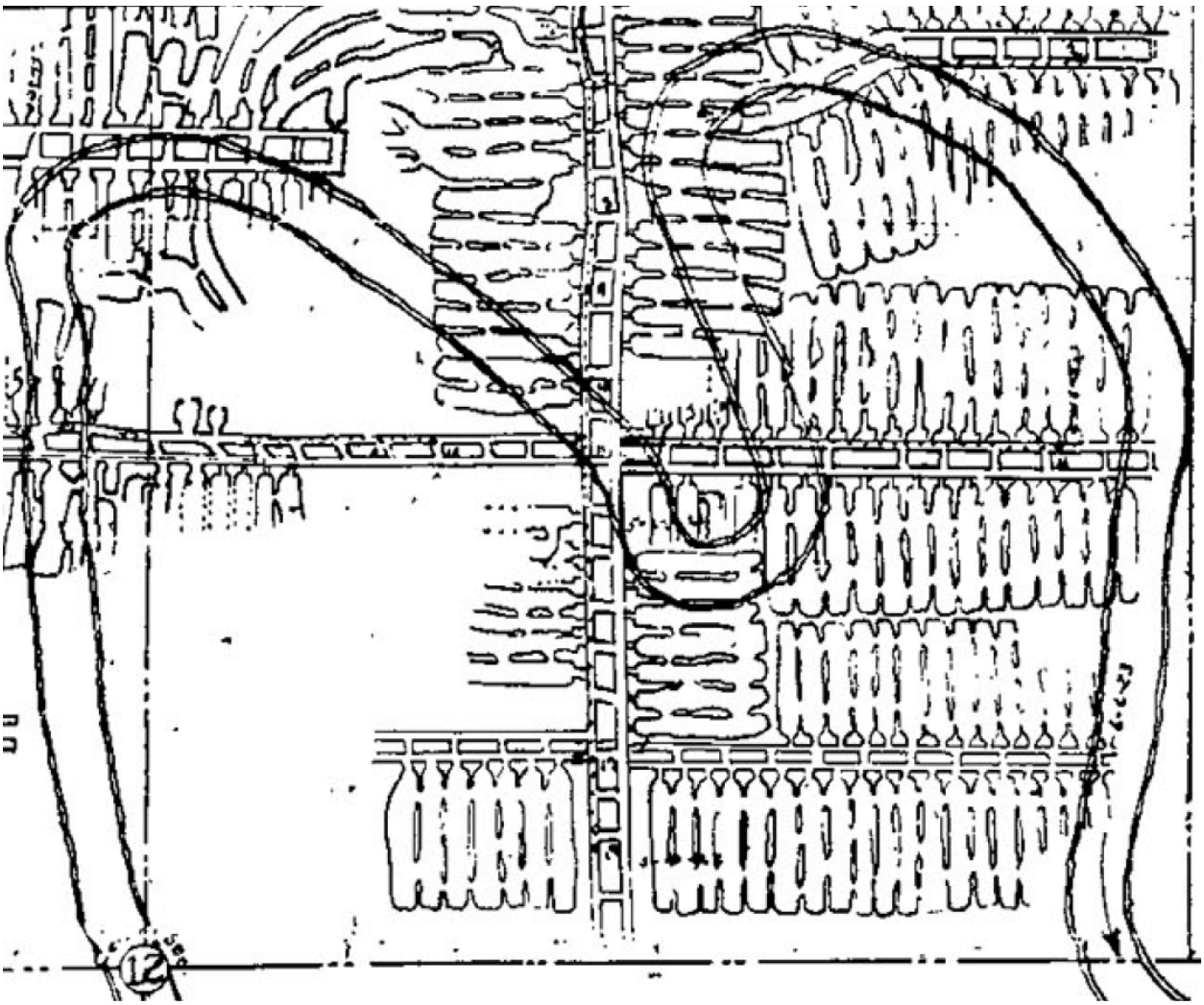

Figure 3. Excerpt from Map of Brewerton Coal Company Mine No. 81, February 22, 1938

The relationship of the former Sugar Creek channel as depicted in the mine map is similar to the channel as depicted in the Dallman Ash Pond Grading Plan dated August 13, 1976. The eastern berm of the Dallman Ash Pond is the eastern limits of the Brewerton Coal Company Mine No. 81 limits. Figure 4 depicts the same area as depicted in Figure 3 based upon the location of Sugar Creek. The Dallman Ash Pond Grading Plan dated August 13, 1976 is included in Attachment 3.

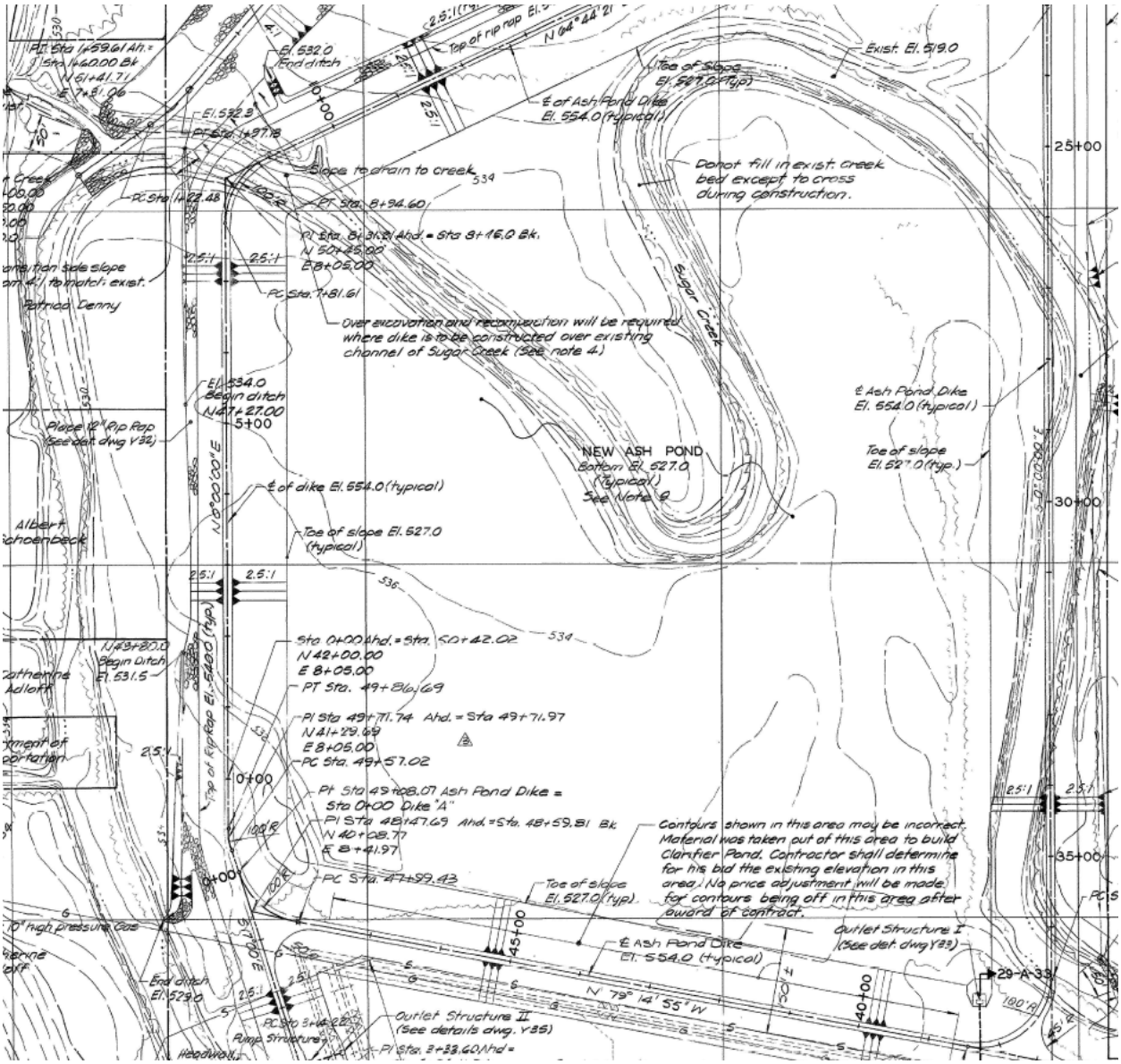

Figure 4. Excerpt from Dallman Ash Pond Grading Plan dated August 13, 1976

3.2 Estimated Extraction Rate

An estimate of the extraction rate was undertaken based upon the total production of the mine in tons of 4,099,901 tons provided in the production history and the average thickness of the mined seam of 5.5 feet. The total mined-out acreage that was shown is 765 acres with an approximate 25 additional acres mined after the map date for a total of 790 acres. A general extraction rate is computed by converting the tonnage to pounds and dividing that by the density of insitu bituminous coal estimated at 84 pounds per cubic foot to determine the total cubic footage mined. Then using the average seam thickness and the total area of the mine, an extraction rate is

approximated. The estimated general extraction rate is 0.54, which is within the expected range of extraction rate for a room-and-pillar panel mine.

3.3 Breakthrough, Pillar and Floor Failure Analyses

A breakthrough, pillar and floor failure analyses were completed relying upon much of the data available from past site investigations for the CWLP facilities and the IL DNR Mines Database. Using the guidelines for mining under or near bodies of water for room and pillar mining presented in Table 8.5 of the MSHA Design Manual 2009, the Babcock and Hooker, 1977 method was utilized. The average extraction thickness was presented as 5.5 feet, the entry width is noted as 24 feet on page 16 of 19 in the Mine Notes for Mine 122 available from IL DNR and the top elevation of the coal seam listed was 345 feet MSL. In the area of the northwest corner of Dallman Ash Pond, the minimum top of bedrock is 501 feet MSL based upon boring B100 drilled in April 2024 and the minimum top of bedrock is 496 feet MSL along the east side of Dallman Ash Pond in the area of Unit 2 Landfill. Taking the difference between the top of bedrock, conservatively 496 feet MSL, and the top of the coal seam, the minimum solid overburden is 151 feet. The criterion requires that both thicknesses of minimum solid overburden must be exceeded using the formulas of 10t and 5s. The minimum solid overburden required is calculated at 10 x 5.5 = 55 feet or 5 x 24 = 120 feet. The minimum solid overburden thickness is 151 feet which exceeds the 120 feet.

A pillar evaluation was conducted for both the pillar failure and the floor failure supporting the pillar. The average stress imposed on the pillars by the overburden was calculated based upon an estimated maximum final capped elevation of 580 feet. Based upon “The State-of-the-Art in Coal Pillar Design” by Chris Mark, the pillars of this mine would be considered between intermediate and slender pillars since the width to height is estimated at approximately 3 and maybe susceptible to pillar squeeze failure. The formula to determine the overburden stresses is provided in the MSHA Design Manual 2009 on page 8-25, formula (8-1) which is presented below.

$$S_p = 1.1 * H * [(w + B) / w] * [(L + B) / L]$$

$$S_p = 1.1 * (580 – 345) * [(15 + 24) / 15] * [(50 + 24) / 50]$$

$$S_p = 995 \text{ psi}$$

The pillar strength was calculated using the Mark-Bieniawski Rectangular Pillar Strength Formula provided below.

$$\sigma_p = \sigma_{cube} (0.64 + 0.36 w/h)$$

$$\sigma_p = 930 (0.64 + 0.36 (15 / 5.5)$$

$$\sigma_p = 1{,}508 \text{ psi}$$

The factor of safety against pillar failure is the pillar strength divided by the overburden stress. Below is the calculation for the factor of safety against pillar failure. The minimum factor of safety as provided on page 8-27 of the MSHA Design Manual is 1.5 for pillars with less than 750 feet of cover.

$$F.S. = \sigma_p / S_p$$

$$F.S. = 1{,}508 / 995 = 1.52$$

The floor failure analysis for pillar punching is presented below using the same data presented above and using the Vesic-Gadde Equation to determine the strength of the underclay. This mine is in the western shelf of the Illinois Basin as presented in the Murali Gadde, PhD dissertation titled “Weak Floor Stability in the Illinois Basin Underground Coal Mines”. The expected floor cohesion is calculated using equation (3.9) on page 144 combined with equation (3.17) on page 148 from Dr. Gadde’s dissertation. The average moisture of the Springfield No. 5 Coal underclay is 5.48% in the Illinois Western Basin. The underclay 12 feet in thickness, reported as fireclay (kaolin claystone).

$$c_1 = 1905e^{(-0.1MC)} / 6.17$$

$$c_1 = 178 \text{ psi} = 25{,}632 \text{ psf}$$

The underclay is assumed to have a friction angle of 19 degrees and a saturated unit weight of 120 pounds per cubic foot. The calculations for a floor failure analysis are provided on page 8-27 of the MSHA Design Manual formula (8-3) for pillars with an L to B ratio less than ten. Presented below are the calculations against a floor failure.

$$Q_u = ½(\gamma\ B\ N_1\ S_1) + (c \cot \phi\ N_q\ S_q – c \cot \phi)$$

$$N_q = [\exp(\pi \tan \phi)]\ [\tan^2(45 + \phi/2)] = 5.80$$

$$N_1 = 1.5(N_q + 1) \tan \phi = 3.51$$

$$S_1 = 1.0 – 0.4\ (B/L) = 0.808$$

$$S_q = 1.0 - \sin \phi\ (B/L) = 0.844$$

$$Q_u = ½(120 * 24 * 3.51 * 0.808) + (25{,}632 * \cot(19) * 5.80 * 0.844 – 25{,}632 * \cot(19))$$

$$Q_u = 293{,}625 \text{ psf} = 2{,}039 \text{ psi}$$

The factor of safety against a floor failure from pillar punching is calculated from the bearing capacity of the floor divided by the average pillar stress. The minimum factor of safety required against pillar punching into the floor is generally at least 1.5 for long-term stability.

$$F.S. = Q_u / S_p$$

$$F.S. = 2{,}039 / 995 = 2.05$$

Based upon all the mine analyses, the underground coal mine pillars will support the site features with a factor of safety exceeding 1.5.

4. STATEMENT

This Location Restrictions – Unstable Areas for Coal Combustion Residuals in Slurry Impoundments was completed for CWLP by Andrews Engineering, Inc. in accordance with the requirements under 40 CFR 257.64.

Signature: Karl W. Finke

Illinois P.E. No: 062.068571

Date: 07/11/25

Lic. Exp. 11/30/25

FIGURE 1

NOTES

1. LIDAR DATA DERIVED FROM USGS WEBSITE (FLIGHT DATE: JUNE 20, 2023).
2. BACKGROUND IMAGE FROM GOOGLE EARTH, DATED FEBRUARY 24, 2024.

N

0 200 400 800

SCALE: IN FEET

NO.	DATE	REVISION DESCRIPTION	BY

ANDREWS ENGINEERING
3300 GINGER CREEK DRIVE
SPRINGFIELD, ILLINOIS 62711-7233
PH (217) 787-2334 WWW.ANDREWS-ENG.COM
PONTIAC, IL • LOMBARD, IL • INDIANAPOLIS, IN • WARRENTON, MO

APPROVED BY: KWF | DESIGNED BY: KWF | DRAWN BY: BCK

SITE PLAN MAP

PREPARED FOR
CITY WATER, LIGHT, AND POWER
SPRINGFIELD, SANGAMON COUNTY, ILLINOIS

DATE: JUNE 2024

PROJECT ID: 220408/0029

SHEET NUMBER:

FIG. 1

Tab: Layout1 Last Saved: June 26, 2024, by Ben Karpus Plotted: Wednesday, June 26, 2024 2:30:58 PM
J:\S\Springfield CWLP\CWLP Ash Pond\DWG\2024\Site Map with February 2024 background.dwg

ATTACHMENT 1:

Coal Mines in Illinois
Springfield East/West Quadrangle
Sangamon County

ILLINOIS STATE GEOLOGICAL SURVEY
PRAIRIE RESEARCH INSTITUTE

ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

For further information contact:
Prairie Research Institute
Illinois State Geological Survey
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615 East Peabody Drive
Champaign, Illinois 61820-6964
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http://www.isgs.illinois.edu

Coal Mines in Illinois
SPRINGFIELD EAST/WEST QUADRANGLE
SANGAMON COUNTY
Springfield Seam

Mined Out Quadrangle Map Series

THIS MAP ACCOMPANIES THE COAL MINES DIRECTORY FOR THE SPRINGFIELD EAST/WEST QUADRANGLE. CONSULT THE DIRECTORY FOR A COMPLETE EXPLANATION OF THE INFORMATION SHOWN ON THIS MAP

The most recent mined out quadrangle maps are available as downloadable PDF files at: http://www.isgs.illinois.edu

Mine Outlines Compiled by
Margaret Bargh & C. Chenoweth
July 13, 1999 Revised 2014 & 2017

This product is under review and may not meet the standards of the Illinois State Geological Survey.

ATHENS

WILLIAMSVILLE

NEW CITY

Peabody Coal Co.
Mine No. 51
412, 1905-1934

Sangamon Valley Coal Co.
Sangamon Valley Mine
3389, 1939-1947

Peabody Coal Co.
Mine No. 6
39, 1904-1928

Peabody Coal Co.
Mine No. 52
36, 1894-1932

Barcley Coal & Mng.
3357, pre 1882-1916

Peabody Coal Co.
Peabody No. 51 Mine
412, 1904-1934

Peabody Coal Co.
Peabody No. 6
39, 1904-1928

7737, circa 1876

Barcley Coal Mining Co.
Barclay Mine
3357, pre 1881-1916

Spaulding Coal Co.
Spaulding No. 1 Mine
310, 1883-1913

Panther Creek Mines, Inc.
Panther Creek No. 5 Mine
3351, 1875-1952

Chicago-Springfield Coal Co.
Chicago-Springfield Mine
3347, 1904-1927

Bissell Coal Co.
Clear Lake Mine
121, 1892-1923

Springfield Coal & Mining Co.
Springfield No. 1 Mine
3345, pre1881-1911

Peabody Coal Co.
Peabody No. 52 Mine
36, 1894-1932

Number Twelve Coal Co.
Joseph Taylor's Mine
3349, 1909-1941

Lincoln Coal Corp.
Empire Mine
119, pre 1882-1933

Peabody Coal Co.
Peabody No.59 Mine
37, 1884-1951

Peabody Coal Co.
Peabody No.59 Mine
37, 1884-1951

Panther Creek Mines, Inc.
Panther Creek No. 2 Mine
3350, 1900-1948

Cantrall Coop. Coal Co.
Republic Mine
3348, pre 1882-1914

Springfield Coal & Mining Co.
Springfield No. 3 Mine
3352, pre 1881-1911

Panther Creek Mines, Inc.
Pather Creek No. 3 Mine
120, 1906-1939

Panther Creek Mines, Inc.
Panther Creek No. 4 Mine
618, 1871-1946

Sangamon Coal Co.
Sangamon No. 2 Mine
807, 1881-1936

Mine B Coal Co.
Mine "A"
616, 1893-1944

Citizens Mining & Sales Co.
Mine "B"
617, 1897-1947

Peabody Coal Co.
Peabody No. 57 Mine
440, 1888-1950

Peabody Coal Co.
Peabody No. 57 or Capital Mine
440, 1888-1950

Union Fuel Co.
Union Fuel No. 2 Mine
312, 1903-1924

Springfield Coal & Mining Co.
Springfield No. 4 Mine
3339, pre 1881-1909

Brewerton Coal Co.
Brewerton No. 81 Mine
122, 1901-1938

Riverton Coal Co.
Riverton No. 3 Mine
313, pre 1882-1902

Peabody Coal Co.
Peabody No. 55 Mine
3340, pre 1902-1930

Peabody Coal Co.
Peabody No. 53 Mine
38, 1887-1944

Peabody Coal Co.
Peabody No. 55
3340, 1882-1940

Peabody Coal Co.
Peabody No. 53
38, 1888-1944

Peabody Coal Co.
Peabody No. 53 Mine
38, 1888-1944

1:24,000
0 1,000 2,000 3,000 4,000 5,000
Feet

Quadrangle Outline
Pennsylvanian Extent

Herrin Coal Depth
Springfield Coal Depth
Colchester Coal Depth
SPRINGFIELD EASTWEST SANGAMON COUNTY

Legend

Faults

Springfield Depth new
DEPTH_SPRING
0 to 100 ft
100 to 200 ft
200 to 300 ft
300 to 400 ft
400 to 500 ft
500 to 600 ft
600 to 700 ft
700 to 800 ft
800 to 900 ft
900 to 1000 ft
1000 to 1100 ft
1100 to 1200 ft
1200 to 1300 ft
1300 to 1400 ft
1400 to 1500 ft

Colchester Depth new
DEPTH_COLCH
0 to 100 ft
100 to 200 ft
200 to 300 ft
300 to 400 ft
400 to 500 ft
500 to 600 ft
600 to 700 ft
700 to 800 ft
800 to 900 ft
900 to 1000 ft
1000 to 1100 ft
1100 to 1200 ft
1200 to 1300 ft
1300 to 1400 ft
1400 to 1500 ft

Herrin Coal Thickness
Springfield Coal Thickness
Colchester Coal Thickness

Insufficient data
<28 inches
28 to 42 inches
42 to 66 inches
>66 inches
Channel
Split Coal

Completed Quadrangles
Mining Method
Room & Pillar (RP)
Room & Pillar Basic (RPB)
Modified Room & Pillar (MRP)
Room & Pillar Panel (RPP)
Blind Room & Pillar (BRP)
Checkerboard Room & Pillar (CRP)
High Extraction Retreat (HER)
Longwall (LW)
Underground, Method Unknown
Strip Mine
Auger Mine
General Area of Mining

Other Areas Depicted
Non-Coal Mines

Point Locations
Strip Mine Tipple - Active
Strip Mine Tipple - Abandoned
Mine Shaft - Active
Mine Shaft - Abandoned
Mine Slope - Active
Mine Slope - Abandoned
Mine Drift - Active
Mine Drift - Abandoned
Air Shaft
Uncertain Location
Uncertain Type of Opening
Non-Coal Mines

Source of Mine Outline
Final Mine Map
Not Final Mine Map
Undated Mine Map
Incomplete Mine Map
Secondary Source Map

Mine Annotation
(space permiting)
Company
Mine Name
ISGS Index No., Years of Operation

Status of Neighboring Mined Out Area Quadrangle
Completed
Not Completed
No Known Mining

Not Completed Quadrangle Mining Type
Underground
Surface
General Area of Mining

Other Points Depicted

Map Explanation

Note that each quadrangle scale mined-out area map requires the use of the associated text directory for full explanation of map features and mine attributes. Also note that some quadrangles have multiple seams of mining and therefore more than one map may be available for a particular quadrangle. Please take care to check for multiple maps, as extensive mining may exist in the other seams.

The maps and digital files used for these studies were compiled from data obtained from a variety of public and private sources and have varying degrees of completeness and accuracy. This compilation map presents reasonable interpretation of the geology of the area and is based on available data. Locations of some mine features may be offset by 500 feet or more due to errors in the original source maps, the compilation process, digitizing, or a combination of these factors. These data are not intended for use in site-specific screening or decision-making.

These maps were designed for use at 1:24,000. Enlarging the map may reduce accuracy, as the original scale of the source maps used to compile the outlines shown varies from 1:400 to 1:150,000, and some mine locations are known only from text descriptions. See the accompanying mine directory for the original scale of the source map used for a specific mine to check accuracy of a given portion of the map. Areas with no mines shown may still be undermined; see the unlocated mines list at the back of each mine directory.

The image of the U.S.G.S. topographic base map was projected from the original UTM to Lambert Conformal Conic.

Disclaimer

The Illinois State Geological Survey and the University of Illinois make no guarantee, expressed or implied, regarding the correctness of the interpretations presented in this data set and accept no liability for the consequences of decisions made by others on the basis of the information presented here.

ATTACHMENT 2:

Brewerton Coal No. 81

PART 1 OF 2

MAP OF
BREWERTON COAL COMPANY
Mine No. 81

IN SEC. 1, 2, 11, 12, 13, 14 TWP. 15 N. R 5 W. 3RD. P M.
& SEC. 6. - TWP. 15 N. R 4 W. 3RD. P M.
SANGAMON CO, ILL.

SCALE 1 IN. = 200 FT.

Grady & Dan Engineers
224½ S. 5th Street
Springfield Illinois
Extended July '20

REFERENCE

& ——— DENOTES BOUNDARY LINE OF COAL RIGHT

THIS MAP EXTENDED TO [redacted]
June 13, 1923 - R.W. Lone
November 1, 1923 - R.W. Lone
February 5 1926 - R.W. Lone
North Side Extended 4-21-1928
South " " 11-8-1927
C.B. Drake,
1-24-1930
ENTRIES EXTENDED

NORTH SIDE EXTENDED 2-21-33
NORTH SIDE EXTENDED 2-21-34
North Side Extended 2-15-35
R.W. Lone

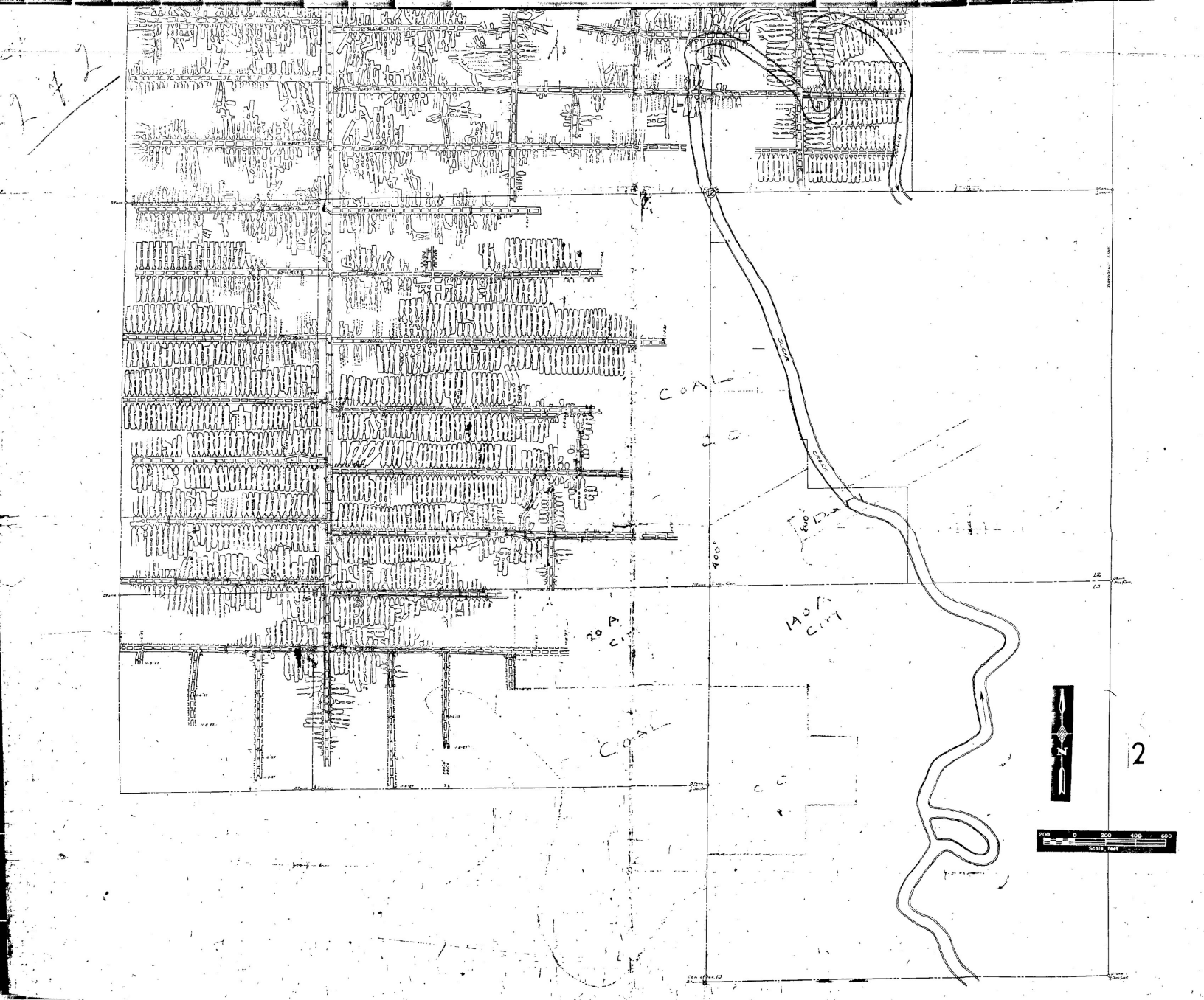
200 0 200 400 600
Scale, feet

N

1

Stopping Balance for Rooms - 1611

Room - 23	260'0
" 30	290'0
" 31	320'0
" 32	350'0
" 33	380'0


COAL
COAL
200 0 200 400 600
Scale, feet

ATTACHMENT 3:
Dallman Ash Pond Grading Plan

NO.	DATE	BY	REVISION
1	12-7-76	TKP	(M,T) Added 6" topsoil to dike. (L,B) Removed Bench Mark and note 8.
	12-10-76	LNB	ISSUED
2	4-27-77	MGH	Changed Dike Access Rd. and exist. dike alignments. Removed 300' pipe. Moved exist. pipe.
	4-27-77	LNB	ISSUED
3	5-26-77	DEJ	Revised dike alignment along So. side of Ash Pond.
	5-31-77	LNB	ISSUED
4	2-1-79	DLM	CONFORMING TO CONSTRUCTION RECORDS

CURVE DATA (Arc Def.)
Δ = 60°00'00"
D = 19°05'55"
R = 300.00
L = 314.16
T = 173.21

CURVE DATA (Arc Def.)
Δ = 60°00'00"
D = 19°05'55"
R = 300.00
L = 314.16
T = 173.21

CURVE DATA (Arc Def.)
Δ = 29°15'28"
D = 19°05'55"
R = 300.00
L = 153.21
T = 78.55

CURVE DATA (Arc Def.)
Δ = 16°18'23"
D = 19°05'55"
R = 300.00
L = 71.65
T = 37.52

CURVE DATA (Arc Def.)
Δ = 50°00'00"
D = 19°05'55"
R = 300.00
L = 261.80
T = 139.99

Notes:
1. Two 36" Corregated Metal Pipe, 16 gauge, Bituminous coated, 2 ⅔" x ½" corrugations, with 2 end sections required.
2. Excavate for Relocated Sugar Creek from Sta. 2+00 to Sta 19+00 leaving excavation isolated from Sugar Creek waters until excavation and Rip Rap is completed between the above mentioned stations.
3. Area is susceptable to Flooding
4. Over excavate at least 4.0 feet under dike below exist. channel banks and bottom. (See cross sections.) Fill with cohesive material and compact to at least 90%
5. Form a greenbelt on both sides of Relocated Sugar Creek. Areas within Greenbelt which are cleared or disturbed during construction shall be topsoiled & seeded. Plant trees on 25Ctr. On ground above el. 540.0 10 trees shall be Hard Maple the rest shall be Sycamore. On ground that is below El. 540.0 10 trees shall be Pin Oak the rest shall be Sycamore. Do not plant trees on ash pond dike
6. Clearing Limits as shown outside of Purchasers property lines. Within Purchasers property clear as necessary for const. Keep clearing limits as close to work as possible
7. Waste area is north of Green Belt. Grade waste area to drain and to present a neat appearance. Seed and mulch Waste Area.
8. Borrow material for the Ash Pond Dikes shall come from center of pond and Relocated Sugar Creek. If in the opinion of the engineer material taken from the pond area is too wet to dry in a reasonable length of time the contractor will be permitted to borrow from the area directly north of Relocated Sugar Creek as long as the borrow area is topsoiled, seeded, and mulched, and graded to drain as directed by engineer.

CONTRACT NO. 3333
ASH POND
V.Y. DALLMAN POWER STATION - UNIT 33
SPRINGFIELD, ILLINOIS

GRADING PLAN
Burns & McDonnell
Engineers - Architects - Consultants
KANSAS CITY, MISSOURI

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