2016 ANNUAL INSPECTION REPORT

CCR LANDFILL
ANNUAL INSPECTION REPORT
BYPRODUCT STORAGE AREA
DECEMBER 2016

Lakeland Electric
C.D. McIntosh Power Plant
3030 East Lake Parker Drive
Lakeland, Florida

Submitted to: City of Lakeland
Department of Electric Utilities
501 East Lemon Street
Lakeland, FL 33801 USA

Submitted by: Golder Associates Inc.
9428 Baymeadows Road, Suite 400
Jacksonville, FL 32256 USA

January 2017 **15-45454.4**

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Golder Associates

INTRODUCTION

Golder Associates Inc. (Golder) conducted the annual coal combustion residual (CCR) landfill inspection of the Byproduct Storage Area (BSA) at Lakeland Electric's C.D. McIntosh Power Plant (MPP). The annual inspection conducted on December 7, 2016, and this report are intended to comply with the requirements of 40 CFR Section (§) 257.84(b).

The MPP, owned and operated by Lakeland Electric (City of Lakeland, Department of Electric Utilities), is located in Lakeland, Florida (see Figure 1). The main entrance of the facility is located at 3030 East Lake Parker Drive, Lakeland, Florida. The BSA is located in the southeast portion of the property and receives CCRs generated by Unit 3, which is the only coal-fired electrical generating unit at MPP (see Figure 2).

REVIEW OF AVAILABLE INFORMATION - §257.84(b)(1)(i)

Golder's inspection team reviewed available information regarding the status and condition of the BSA. The documents reviewed included:

- Operations Manual, Combustion By-Product Storage Facility, Shaw Stone & Webster, Inc., January 3, 2006;
- Design Report – Vertical Expansion, Existing Combustion By-Products Storage Facility, Black & Veatch, February 20, 2004;
- C.D. McIntosh, Jr Power Plant Units 3 and 5 Conditions of Certification, PA 74-06R, Florida Department of Environmental Protection, March 6, 2013; and
- Operating records, including weekly inspection results.

INSPECTION SUMMARY - §257.84(b)(1)(ii)

Golder conducted the visual inspection of the BSA on December 7, 2016, by traversing the BSA on foot in order to observe cover conditions, exterior slope conditions, the presence of any erosional issues, vegetative conditions, placement of CCRs, stormwater management features, the presence of potential slope stability issues, and the presence of other signs of distress or malfunction.

The following summarizes the observations noted during the visual inspection:

Operations

Placement of CCRs in the BSA generally has been limited to gypsum material which is often subsequently reclaimed. During the visual inspection, a dozer was actively grading the gypsum stockpile within the BSA (no placement or reclamation activities occurred during the inspection).

Animal Burrows

LE personnel noted the presence of inactive animal burrows on the northern crest of the exterior slope. LE will continue to monitor the BSA for future animal burrow development.

Erosion

Exterior slope erosion with exposed CCRs was noted on the southern portion of the eastern and western slopes (above the first bench). Erosion features were also noted adjacent to the downslope channel and associated riprap apron. Erosion gullies were noted adjacent to the access ramp. LE has a work order in place to implement repairs necessary to remedy these conditions. Based on review of the weekly inspection report, LE regularly repairs erosion noted during weekly inspections.

Stormwater Management

During the inspection, Golder noted some overgrown vegetation at pipes and within the perimeter ditch. Sediment accumulation was noted at the basin north of the access ramp, at the pipe under the access ramp, and at the outfall into the sedimentation basin. LE has a work order in place to implement repairs necessary to remedy these conditions. Based on review of the weekly inspection reports, LE regularly removes accumulated sediment from stormwater features and addresses overgrown vegetation noted during the weekly inspection.

Vegetation

The overall vegetation condition of the covered slopes was adequate. There were some areas with sparse or dead vegetation (seasonal) noted during the inspection. Some unwanted woody growth and other overgrown vegetation was noted on the southern slopes with no soil cover. Some equipment rutting was noted on the slopes from mowing activities. LE has a work order in place to implement repairs necessary to remedy these conditions.

CHANGES IN GEOMETRY - §257.84(b)(2)(i)

Changes in geometry of the BSA were evaluated by comparing recent aerial photographs, past inspection results, August 2016 topography and the December 7, 2016 visual inspection. The primary changes in geometry in the inactive northern portion of the BSA are due to construction of a stormwater diversion berm, down slope channel and grading the top deck area. The primary changes in geometry in the active southern portion of the BSA are due to stockpiling and reclamation of gypsum.

APPROXIMATE CCR VOLUME - §257.84(b)(2)(ii)

The volume of CCR materials in the BSA at the time of the inspection is estimated to be approximately 2.95 million cubic yards based on August 2016 topographic survey, an assumed subgrade of 138.5 feet, disposal records, previous capacity analysis, and other information provided by Lakeland Electric. The prior CCR volume estimate was based on past capacity analyses and facility production/disposal records.

STRUCTURAL WEAKNESS AND DISRUPTING CONDITIONS - §257.84(b)(2)(iii)

No indications of actual or potential structural weakness were noted during the December 7, 2016 inspection or during the review of available information.

Conditions identified during the inspection that could have the potential to disrupt the operations of the BSA include: erosion of exposed CCRs on exterior slopes, animal burrows and sediment accumulation in stormwater management features. Lakeland Electric has a work order in place to implement repairs necessary to remedy the conditions.

CHANGES AFFECTING THE STABILITY OR OPERATIONS - §257.84(b)(2)(iv)

Based on the December 7, 2016 inspection and review of the available information, no other changes from the previous inspection conducted on December 29, 2015 that may affect the operations or stability of the BSA were observed.

CONCLUSION

Based on the review of the available information noted above, the December 7, 2016 field observations, and subsequent discussions with Lakeland Electric, the BSA's design, construction, operation, and maintenance appear to be consistent with recognized and generally accepted good engineering standards. If you have any questions or comments about this report, please do not hesitate to contact us.

Sincerely,

GOLDER ASSOCIATES INC.

Samuel F. Stafford, PE
Project Engineer

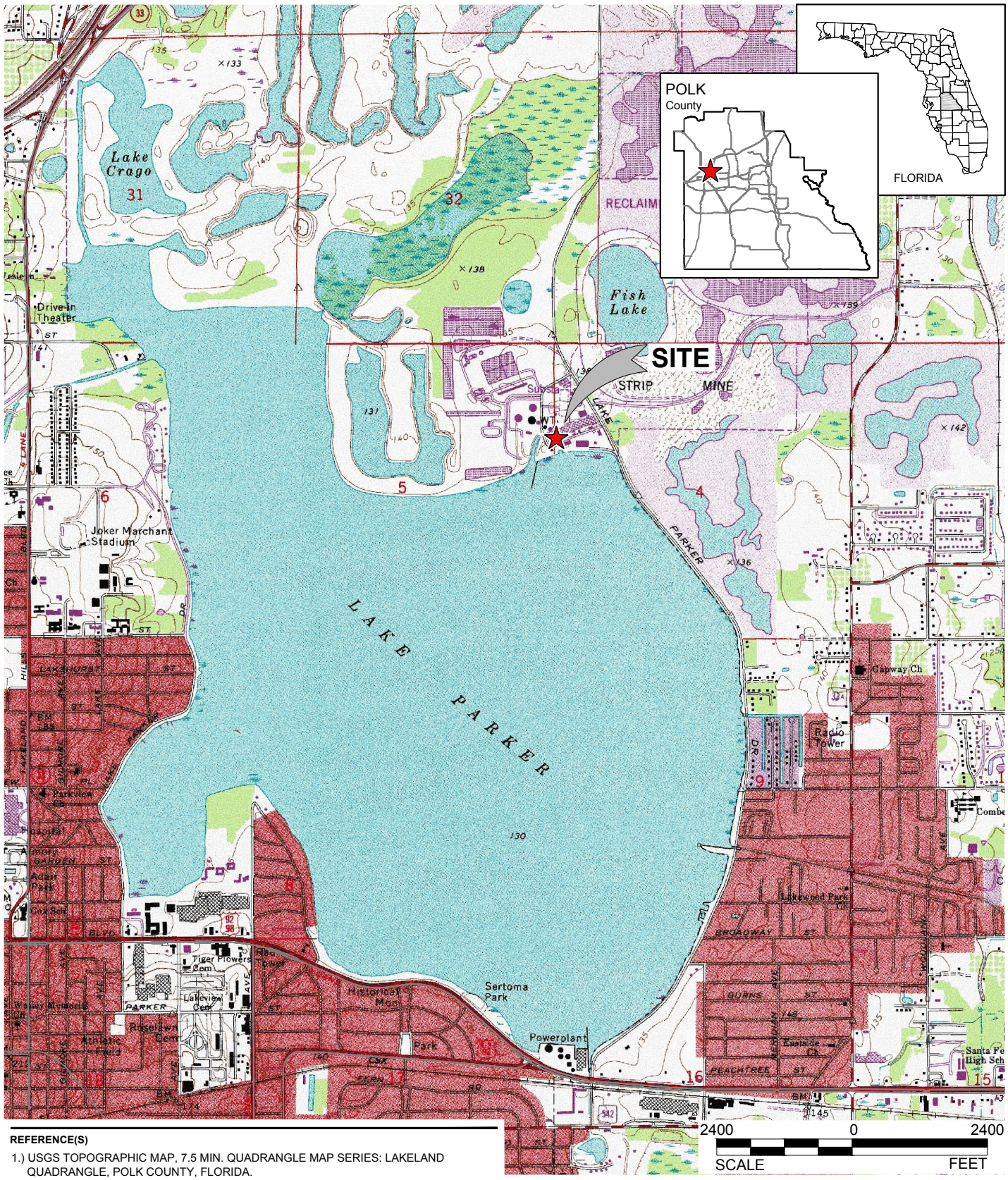
Gregory M. Powell, PhD, PE
Practice Leader and Principal

SFS/GMP/ams

Attachments:
Figure 1 Site Vicinity Map
Figure 2 McIntosh Power Plan Site Plan
Figure 3 Byproduct Storage Area Grid Location Map

FN: G:\Projects\15-\15-45454.4\Report\Final\LE MPP BSA Inspection_2016.docx

FIGURES



REFERENCE(S)

1.) USGS TOPOGRAPHIC MAP, 7.5 MIN. QUADRANGLE MAP SERIES: LAKELAND QUADRANGLE, POLK COUNTY, FLORIDA.

CLIENT
LAKELAND ELECTRIC

CONSULTANT
Golder Associates

YYYY-MM-DD	2017-01-05
DESIGNED	SFS
PREPARED	BCL
REVIEWED	SFS
APPROVED	GMP

PROJECT
2016 ANNUAL INSPECTION
C.D. McINTOSH POWER PLANT
LAKELAND, POLK COUNTY, FLORIDA

TITLE
SITE VICINITY MAP

PROJECT NO.	Phase	REV.	FIGURE
15-45454.4			1

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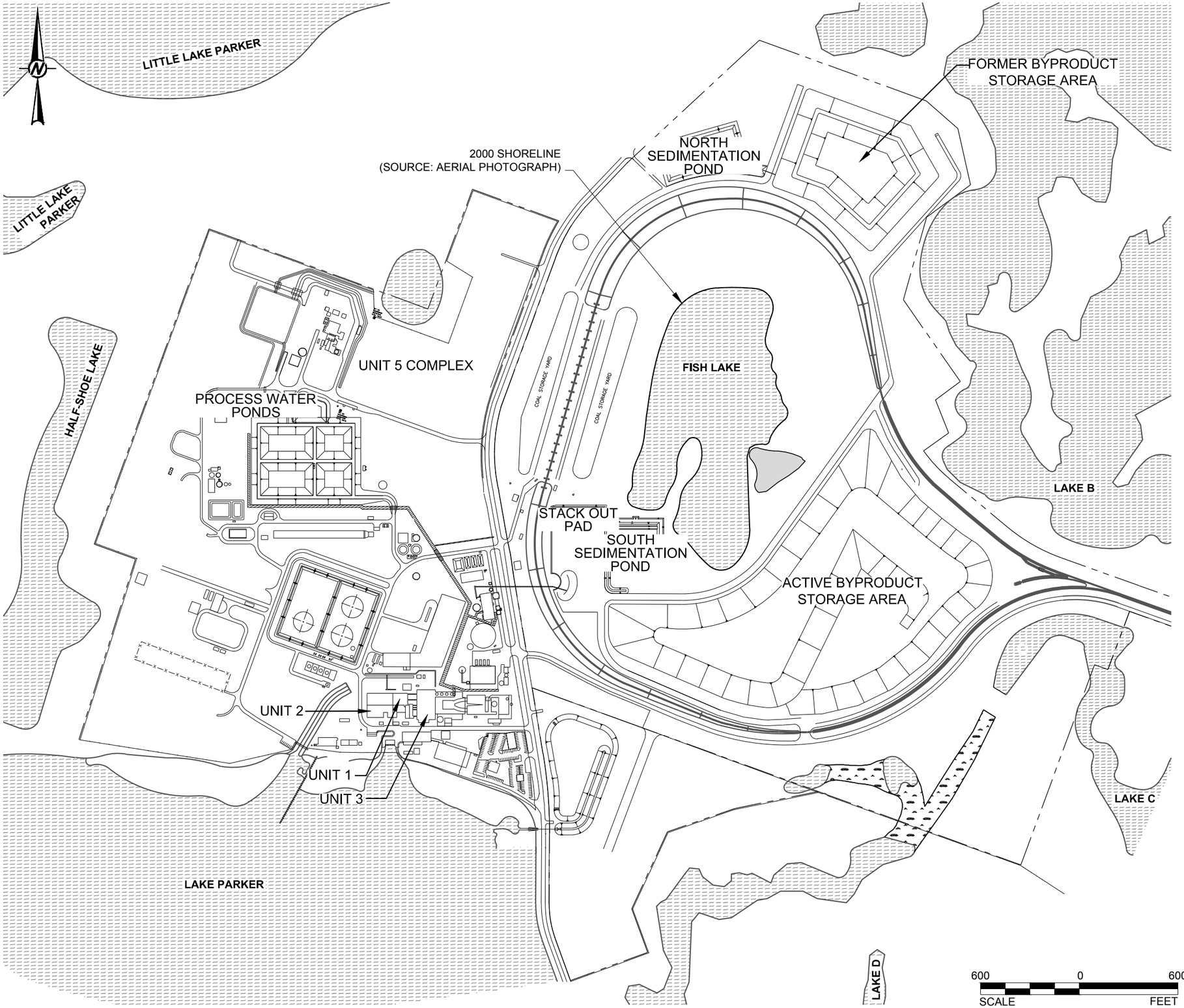

LEGEND

- SURFACE WATER
- PROPERTY BOUNDARY
- FENCE
- WET AREA

REFERENCE(S)

1. BASE MAP MODIFIED FROM SITE PLAN PROVIDED BY LAKELAND ELECTRIC.

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DESIGNED	SFS
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PROJECT
2016 ANNUAL INSPECTION
C.D. McINTOSH POWER PLANT
LAKELAND, POLK COUNTY, FLORIDA

TITLE
McINTOSH POWER PLANT SITE PLAN

PROJECT NO.	Phase	REV.	FIGURE
15-45454.4		----	2

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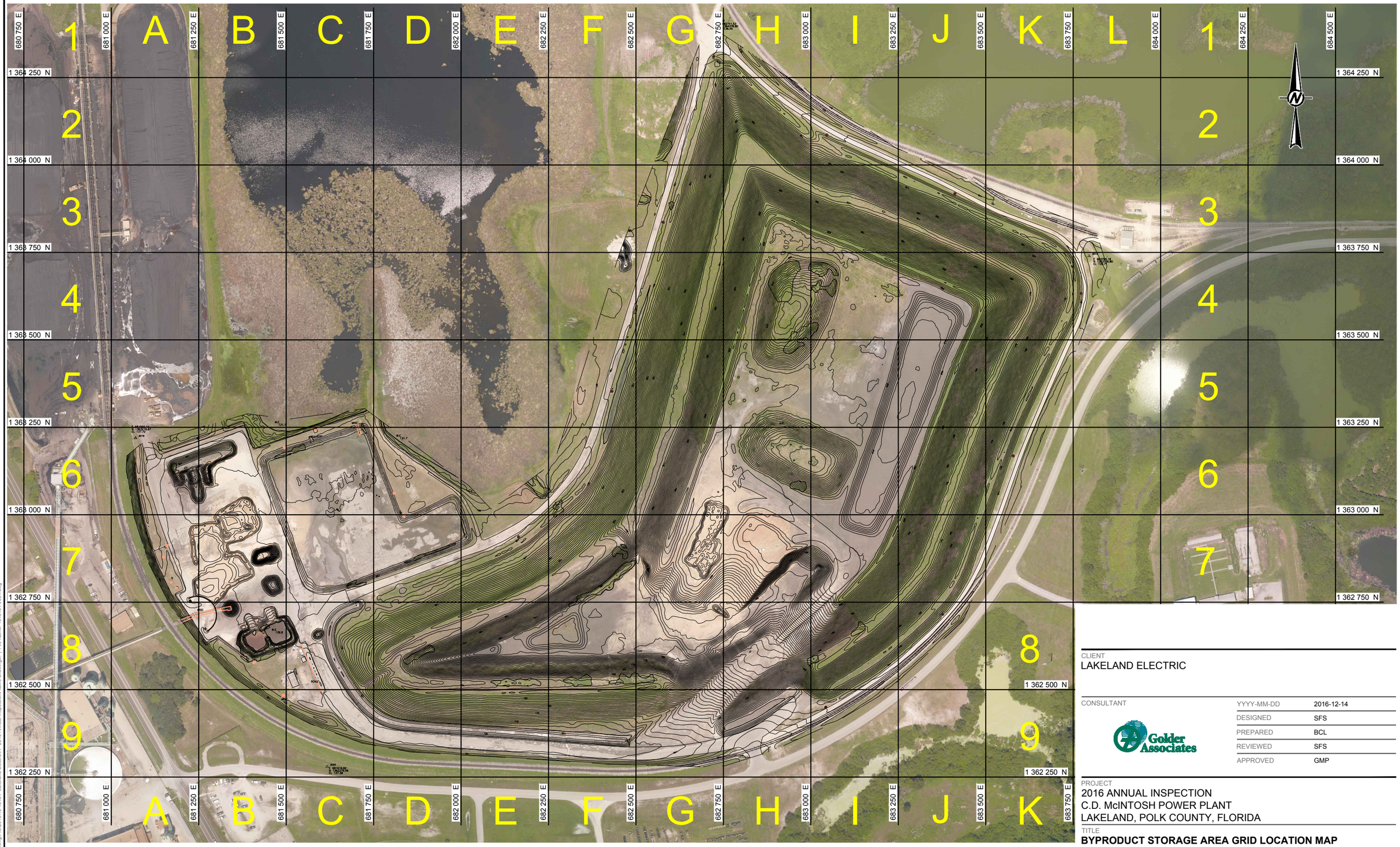

REFERENCE(S)

1. TOPOGRAPHIC SURVEY AND AERIAL PHOTOGRAPH BY PICKETT AND ASSOCIATES DATED 8/11/2016.

250 0 250

APPROXIMATE SCALE FEET

CLIENT
LAKELAND ELECTRIC

CONSULTANT
Golder Associates

YYYY-MM-DD	2016-12-14
DESIGNED	SFS
PREPARED	BCL
REVIEWED	SFS
APPROVED	GMP

PROJECT
2016 ANNUAL INSPECTION
C.D. McINTOSH POWER PLANT
LAKELAND, POLK COUNTY, FLORIDA

TITLE
BYPRODUCT STORAGE AREA GRID LOCATION MAP

PROJECT NO.	Phase	REV.	FIGURE
15-45454.4.4		----	3

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