Winyah Generating Station State Closure Plan for South Ash Pond

PREPARED BY SOUTH CAROLINA PUBLIC SERVICE AUTHORITY (SANTEE COOPER)

August 18, 2025

Winyah Generating Station
State Closure Plan for South Ash Pond

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1 Introduction

1.1 Purpose

The State Closure Plan for the Winyah Generating Station (WGS) South Ash Pond (hereafter, referred to as the "Closure Plan") outlines the process and schedule for the timely and successful closure by removal of the now inactive South Ash Pond. The Closure Plan was prepared pursuant to both South Carolina State and Federal coal combustion residual (CCR)-related regulatory requirements, specifically the Federal CCR Rule Title 40 Code of Federal Regulations (40 CFR) § 257.102(b) and South Carolina Department of Environmental Services (SCDES) Regulation SC R.61-82 (Proper Closeout of Wastewater Treatment Facilities).

The intent of this Closure Plan is to supersede prior closure plans provided for WGS and the South Ash Pond. For future Santee Cooper impoundment closure plans, it is Santee Cooper's aim to integrate best practices and learned outcomes using an adaptive management approach from the South Ash Pond closure strategy.

1.2 Site Overview

Santee Cooper owns and operates WGS located in Georgetown County, South Carolina (Figure 1). WGS operates four coal-fired units that collectively generate 1,130 megawatts of electricity. The first unit began commercial operation in 1975, and the other three units came online in 1977, 1980, and 1981. WGS generates CCRs during power generation and air quality control process operations. Historically, CCRs were managed in six on-site surface impoundments and more recently, in the on-site Class 3 industrial solid waste landfills. In April 2020, a *State Closure Plan for Ash Pond A, Ash Pond B & South Ash Pond* (State Plan) was submitted to SCDES. This State Plan revision is specific to one of these surface impoundments, known as the South Ash Pond.

The South Ash Pond is an approximately 75-acre, unlined CCR surface impoundment which had historically received fly ash, bottom ash, low volume wastewater, and industrial stormwater in accordance with WGS facility National Pollutant Discharge Elimination System (NPDES) Permit No. SC0022471. Historically, the South Ash Pond contained CCR and treated process industrial wastewater and stormwater by removing solids through gravity settling prior to discharge through an internal outfall into the Industrial Cooling Pond by way of the discharge canal. As of April 11, 2021, CCR and CCR wastewater no longer entered the South Ash Pond. As there are no industrial wastewater inflows into the pond, only decanted legacy wastewater and stormwater are currently discharged through a riser structure to the discharge canal and/or to the Low Volume Waste Pond. The South Ash Pond dikes were constructed from silty sands and clayey sands cast up from borrow pits within the pond bottom footprint (Dike Construction Drawing – Appendix 1). Ash was not used to construct the dikes.

The South Ash Pond is regulated under the 2015 Federal CCR Rule and the WGS facility NPDES Permit. Groundwater monitoring of the South Ash Pond has been ongoing from the 1990's to present day under the State-issued WGS NPDES Facility permit with State groundwater monitoring reports submitted to SCDES. Additionally, the South Ash Pond has been regulated since 2015 in accordance with the Federal CCR Rule

with annual reports available on Santee Cooper's public CCR Rule website since the initial report was published in 2018. In accordance with the Federal CCR Rule 40 CFR § 257.95, the South Ash Pond is currently in assessment monitoring. Throughout assessment monitoring of the South Ash Pond, there have been no statistically significant levels above the groundwater protection standard for any of the monitored groundwater constituents.

The South Ash Pond ceased receipt of all CCR waste and wastewater as of April 11, 2021, and closure by removal through excavation of ponded CCR and subsurface soils has been an ongoing operation.

Geosyntec Consultants (Geosyntec) prepared the initial Federal CCR Rule *Closure Plan Narrative South Ash Pond Winyah Generating Station* in October 2016 in accordance with the CCR Rule §257.102(b)(1). This Federal CCR Rule Closure Plan was updated by Santee Cooper in December 2022 to incorporate changes in site conditions and update the closure schedule and is available on Santee Cooper's public CCR Rule website.

2 Geology and Hydrogeology

Regional Geology

Georgetown County is in the Atlantic Coastal Plain physiographic province, which is characterized by Quaternary terrace deposits produced by fluctuating sea levels. Coastal plain sediments are underlain by Tertiary and late Cretaceous sediments to a depth of approximately 2,200 feet below ground surface (bgs) in the Georgetown area. Descriptions of geologic units of interest in the area were provided in a paper by Campbell and Coes, 2010. The thickness of each unit was estimated based on information from several borings referenced in Campbell and Coes (2010). Specifically, these borings include: 1) CHN-0820, which is located approximately 12 miles to the south of WGS, 2) GEO-0088, which is located approximately 7 miles to the southeast of WGS, and 3) GEO-0185, which is located less than 1.5 miles to the northwest of WGS.

General information about the regional geologic units is summarized below, from most recent to oldest:

- **Undifferentiated Quaternary Sediments**: This geologic unit consists of yellowish-brown and reddish orange poorly sorted, very fine to very coarse, clayey sand and gravel. Accessory minerals include opaque heavy minerals, mica, and feldspar. The Undifferentiated Quaternary sediments thickness ranges between 20 and 42 feet in the area.
- **The Williamsburg Formation** (Williamsburg): This geologic unit consists of gray to black interbedded clay and coarse quartz sand overlying shelly clay and calcareous clay. The Williamsburg can include sandy shale, fuller's earth, fossiliferous clayey sand (Lower Bridge Member), and fossiliferous clayey sand and mollusk-rich, bioclastic limestones (Chicora Member). The thickness of the Williamsburg in the vicinity of the site ranges between 30 and 90 feet.
- **The Lang Syne Formation**: As described in the literature by Muthig and Colquhoun (1988), this geologic unit consists of red and yellow (where weathered) or white, gray, and black (where freshly

exposed) interbedded sand, silt, and clay and thin beds of silicified shell debris. Opaline clay stone is the most characteristic lithology of the Lang Syne Formation.

- **The Rhems Formation**: This geologic unit consists of light gray to black shale interlaminated with thin seams of fine-grained sand and mica.
- **The Peedee Formation**: This geologic unit consists of a dark green to gray, fossiliferous, glauconitic clayey sand and silt. The combined thickness of the Lang Syne, Rhems, and Peedee Formations ranges between 185 and 378 feet in the vicinity of WGS.

Additional late Cretaceous Formations are present to a depth of approximately 2,200 feet bgs in the area. These formations, in descending order, include: Donoho Creek, Bladen, Coachman, Cane Acre, Caddin, Sheppard Grove, Pleasant Creek, Cape Fear and undifferentiated Cretaceous sediments.

Foundation Soils

Soil test borings and Cone Penetrometer Test soundings (Geosyntec, 2016a) within the vicinity of the South Ash Pond perimeter dikes were evaluated. Foundation materials were observed to be variable across the South Ash Pond's footprint but consisted primarily of poorly graded to silty sands with shells and pockets of clayey sand to high plasticity clay. A 15- to 20-foot layer of soft clay was observed in the west to southwest corner of the surface impoundment. In isolated areas, the foundation materials were relatively poorly graded clean sands (less than 10 percent [%] fines). The poorly graded and silty sands were composed typically of 60% to 90% sand sized material with 15% to 25% fines (Geosyntec, 2016a). Some samples described historically as "shell hash" contained predominantly shells and fine gravel (Geosyntec, 2016a).

Site Hydrogeology

The aquifers of most interest at this site are the surficial aquifer and Gordon Aquifer. The surficial aquifer is the water table aquifer and consists mainly of terrace sediments that were deposited during transgressions and regressions of a post-Miocene Sea. The surficial aquifer is lithologically heterogeneous but generally consists of quartz gravel and sand, silt, clay, and shelly sand and unconformably overlies the Gordon aquifer, which is the lowermost aquifer of the Floridan Aquifer system. The Gordon Aquifer represents the permeable portion of the Williamsburg Formation (upper Chicora Member) in the vicinity of the site. As detailed in the Site Hydrogeologic Characterization Study Report (Geosyntec, 2016b), the surficial aquifer and Gordon Aquifer exhibit similar hydrogeologic properties and are not separated hydrogeologically. Therefore, the Gordon Aquifer and surficial aquifer are collectively termed the surficial aquifer (Geosyntec, 2016b). Historical groundwater elevation measurements in the surficial aquifer at the site were influenced by the water levels (i.e., hydraulic head) in the slurry ponds and ash ponds. In recent years, Class 3 Landfills Area 1 and Area 2 have been constructed over former impoundments, Unit 2 Slurry Pond and Ash Pond A, respectively. The landfills have been constructed with impermeable liners that will prevent recharge in these areas. Also, once the remaining ponds are dewatered and closed, the effect of the ponds as significant sources of recharge to the water table and thus locally influencing groundwater flow direction will be virtually eliminated.

3 Closure by Removal Sequencing

Closure By Removal Approach

As noted in the Federal CCR Rule Closure Plan for the South Ash Pond, the methodology of closure by removal is being implemented to meet the State closure requirements. As of March 2025, all visual CCRs from the South Ash Pond have been either beneficially used or disposed of in the adjacent on-site Class 3 Landfills. WGS converted to dry bottom ash and fly ash handling in 2018 and all CCR and wastewaters were no longer sluiced to the South Ash Pond as of April 11, 2021.

The general procedure for CCR removal and South Ash Pond closure and post-closure activities is described as follows:

1. All CCR and wastewater streams previously pumped to the South Ash Pond were either converted to dry ash handling, re-routed, or eliminated by April 11, 2021.

2. The South Ash Pond was decanted, and will continue to be decanted, throughout the closure process by a series of variable internal drainage ditches and sock drains within the pond to direct the legacy wastewater and stormwater towards the South Ash Pond outfall. The legacy wastewater and stormwater are then pumped to the Industrial Cooling Pond via the discharge canal and/or the Low Volume Waste Pond. Continual decanting operations are anticipated throughout the duration of closure to minimize the amount of free water present within the CCR impoundment to maintain conditions suitable for excavation. To date, the need for installation of dewatering wells has not been required. Thus, time frames for associated permitting and installation of dewatering wells are not included in this Closure Plan or schedule. If necessary for further dewatering or water treatment, dewatering wells, total suspended solids (TSS) filter systems, and/or wastewater treatment systems will be permitted and employed.

3. The CCRs and subsurface soils were, and will be, dewatered further within the South Ash Pond using stacking and gravity decanting to remove free water until the material can pass United States Environmental Protection Agency (EPA) Method 9095B (paint filter test). All CCR waste and subsurface soil that will be hauled to the on-site Class 3 Landfill or other permitted landfill must first pass this test.

4. All visual CCR material was excavated using conventional equipment (e.g., track hoes). Prior to the start of CCR excavation, the base grades of the WGS CCR ponds were estimated by Geosyntec as detailed in the Winyah Pond Bottom Estimate report from June 6, 2014 (Appendix 2). CCR material intended for beneficial use was excavated and placed in temporary storage piles within the confines of the South Ash Pond. The material was then loaded either in semi-trucks or train cars via an adjacent railway for transportation. All ash transported from the station was covered to prevent discharge. The CCR material was weighed and recorded on certified scales prior to leaving the station. CCR material that was not beneficially used due to customer demand, material quality, or regulatory time

constraints was landfilled by placement in off-road trucks and hauled to and compacted in the on-site Class 3 Landfills.

5. Upon removal of all visual CCRs from the pond, a topographic survey of the footprint was conducted by licensed surveyors to document the pond bottom elevations (Figure 2).

6. A minimum of 6 inches of subsurface soil will be excavated and removed from the pond footprint, including to the top of the inside slope of the dike. CCR removal will be verified through microscopy and subsurface soil will be analyzed for informational purposes as detailed in the Pond Base Verification Soil Sampling section below. CCR removal verification and soil analysis may be performed in phases to facilitate construction and/or water management, as necessary.

7. To verify site elevations after subsurface soil removal, a topographic survey of the footprint will be performed by licensed surveyors and submitted to SCDES. This survey may be performed in phases to facilitate construction and/or water management, as necessary.

8. Erosion and sediment controls will be installed where required to ensure non-contact construction stormwater is controlled in a manner to prevent erosion and sedimentation in areas surrounding the pond. Appropriate stormwater construction and other water permits will be obtained or modified as needed prior to disturbing areas outside the limits of the South Ash Pond.

9. After the CCR and subsurface soil have been removed and the dikes breached, Santee Cooper will certify closure is complete under the Federal CCR Rule requirements. The State Closure Plan activities detailed in this document, including groundwater monitoring, will continue for the constituents cited in the NPDES permit until all SCDES requirements are met. Closure will also be performed in accordance with SCDES NPDES Wastewater Regulation 61-81, including submittal of Industrial Wastewater Facility Closure Form D-1795 or equivalent ePermitting submission and a SCDES inspection. Section 5 of this Closure Plan contains additional groundwater monitoring details.

10. After closure is certified the pond dikes will be leveled, with the dike material used to partially fill the pond excavation areas to provide positive drainage. Additional fill material, sourced from on-site borrow pits or imported from off-site locations, will be utilized as needed and compacted within the pond to raise the overall grade. A stormwater detention pond(s) may be located within a portion of the closed pond footprint in order to attenuate stormwater runoff to existing levels after closure is complete. The area will be graded as required to provide positive drainage and to allow maintenance access and will be permanently seeded. Fill soil requirements are detailed in the Fill Soil Qualification Sampling section below.

Pond Base Verification Soil Sampling

Any need for additional soil removal beyond the minimum of 6 inches will be determined by visual methods and confirmed using microscopy for soil decontamination. Microscopy will be performed by a degreed professional with experience in microscopic analysis and certified under the supervision of a third-party qualified professional engineer. One core sample per acre will be collected throughout the pond bottom and

interior dikes to a depth of 12 inches using a decontaminated stainless steel hand auger to verify no observations of residual ash by a third-party laboratory through microscopic observation of fly ash cenospheres. If cenospheres are present after collection and analysis of a confirmation sample, a second confirmatory sample will be obtained and delineation samples will be collected vertically 6 inches below the confirmatory sample and laterally 25 feet in four directions from the original sample. Additional soil will be removed in this area as necessary until no cenospheres are detected. This sampling and verification may be performed in phases to facilitate construction and/or water management, as necessary.

To further assess baseline information after excavation is completed, a minimum of 1 out of every 10 confirmation samples from the pond bottom that are submitted for visual analysis will be analyzed for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium using EPA Methods 6020B, 7471B, 9056A, and 6010D for a total of 8 samples for the South Ash Pond. These confirmation samples will be collected and evaluated in consideration of the post-closure long-term monitoring and stewardship requirements of the site. Pond closure activities, including dike breaching and removal, may continue while these samples are being analyzed, and the sampling and analysis may be performed in phases to facilitate construction and/or water management, as necessary.

Fill Soil Qualification Sampling

As noted above, the pond dike material will be used to partially fill the pond excavation areas. As shown in the Dike Construction Drawing provided in Appendix 1, the South Ash Pond dikes were constructed using native soil from the base of the pond excavation. The dikes were used as haul roads while the South Ash Pond was in use. The intended reuse of this soil will primarily be beneath the future General Electric (GE) LM6000 turbines' concrete pads. Santee Cooper will collect one soil sample approximately every 500 linear feet to a depth of 12 inches for confirmation of ash removal along the haul road at the top of the dikes using a decontaminated stainless steel hand auger. The soil sample will be analyzed using the same microscopy methodology described above. In addition, samples will be collected from the interior and exterior dike walls approximately every 500 linear feet near the bottom, mid-point, and top of the dike. These dike soil samples will be collected at a depth of 6 to 12 inches and 36 to 42 inches, for a total of 12 samples every 500 linear feet, and composited for analysis of antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium using EPA Methods 6020B, 7471B, 9056A, and 6010D. Laboratory analyses will be conducted by a South Carolina-certified laboratory under standard chain-of-custody procedures. These confirmation samples will be collected and evaluated in consideration of the post-closure long-term monitoring and stewardship requirements of the site. Pond closure activities, including dike breaching and removal, may continue while these samples are being analyzed, and the sampling and analysis may be performed in phases to facilitate construction and/or water management, as necessary.

Any fill material imported from off-site locations will be sampled for analysis of antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, and thallium using EPA Methods 6020B, 7471B, 9056A, and 6010D. Results will be submitted to SCDES for approval prior to bringing soils on-site.

4 Schedule

The schedule for completing all activities required to close the South Ash Pond are detailed below. These dates are approximate and provided to convey the overall sequence and scope of closure activities and to demonstrate their approximate duration. Activities may commence and/or complete earlier or later than shown.

Activity	Anticipated Schedule
Intensification of decanting (increased pumping) and dewatering activities (installation of sock drain)	April 2021 (Completed)
Final receipt of CCR	Apr 11, 2021 (completed)
CCR removal for beneficial use and landfill disposal	April 2021 – March 2025 (completed)
Submit revised State South Ash Pond Closure Plan to SCDES for approval	August 2025
Obtain SCDES approval for State Closure Plan	August 2025
Completion of physical closure by removal for South Ash Pond, dike breach(es), and fill soil qualification sampling	October 2025
Submit notification of closure completion to SCDES for approval and request SCDES closure inspection	October 2025
Obtain SCDES approval of Closure Plan requirements	October-November 2025
Post-Closure Activities for South Ash Pond (dike leveling, additional grading and construction, groundwater monitoring, etc)	October-November 2025 – TBD

5 Post-Closure Activities

Post-closure activities include dike leveling, grading and construction, and groundwater monitoring. Groundwater monitoring associated with the South Ash Pond is currently and will continue to be performed in accordance with the facility NPDES permit and the Federal CCR Rule Groundwater Monitoring Plan. Monitoring well locations are noted on Figure 3. The South Ash Pond is currently in assessment monitoring on a semiannual schedule for Appendix IV constituents and is currently meeting Groundwater Protection Standards under the CCR Rule. Once the South Ash Pond is closed and certified closed pursuant to the CCR Rule, groundwater monitoring under the CCR Rule is no longer required. At that time, Santee Cooper will limit future groundwater monitoring to constituents cited in the NPDES permit or otherwise deemed necessary by SCDES until all SCDES requirements are met.

6 References

1. Campbell, B.G., and Coes, A.L., eds., 2010. *Groundwater availability in the Atlantic Coastal Plain of North and South Carolina: U.S. Geological Survey Professional Paper 1773.*
2. Muthig, M.G., and Colquhoun, D.J., 1988. *Formal recognition of two members within the Rhems Formation in Calhoun County, South Carolina: South Carolina Geology v. 32, nos. 1-2.*
3. Geosyntec Consultants, June 2014. *Memorandum – Pond Bottom Estimate, Winyah Generating Station. Georgetown, South Carolina.*
4. Geosyntec Consultants, October 2016a. *Closure Plan Narrative South Ash Pond Winyah Generating Station, Georgetown, South Carolina.*
5. Geosyntec Consultants, October 2016b. *History of Construction Report – South Ash Pond, Winyah Generation Station.*
6. Santee Cooper, September 2020a. *Winyah Generating Station Ash Ponds – South Ash Pond Bottom of Ash Surface.*
7. Santee Cooper, September 2020b. *Winyah Generating Station Ash Ponds – South Ash Pond Post-Soil Removal Surface.*
8. South Carolina Department of Health and Environmental Control, May 2024. *National Pollutant Discharge Elimination System Permit – Permit No. SC0022471.*
9. South Carolina Public Service Authority (Santee Cooper), May 2021. *Winyah Generating Station State Closure Plan for Slurry Pond 3 & 4.*
10. South Carolina Public Service Authority (Santee Cooper), May 2023. *Winyah Generating Station State Closure Plan for Ash Pond A – Outside Landfill Addendum.*

Certification

I, Brian H. Holmes, being a registered Professional Engineer in the State of South Carolina, do hereby certify to the best of my knowledge, information, and belief that the information contained in this Winyah South Ash Pond Closure Plan dated August 18, 2025 was developed pursuant to the requirements of 40 CFR 257.102 and has been prepared with recognized and generally accepted good engineering practices.

Signature

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 27968
BRIAN H. HOLMES

Date 8/18/25

Figures

LEGEND

CCR UNIT BOUNDARY

PROPERTY BOUNDARY

<BOL>NOTES</BOL>

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI & USGS

N

0 6,250 12,500

SCALE IN FEET

SANTEE COOPER
WINYAH GENERATING STATION
GEORGETOWN, SOUTH CAROLINA

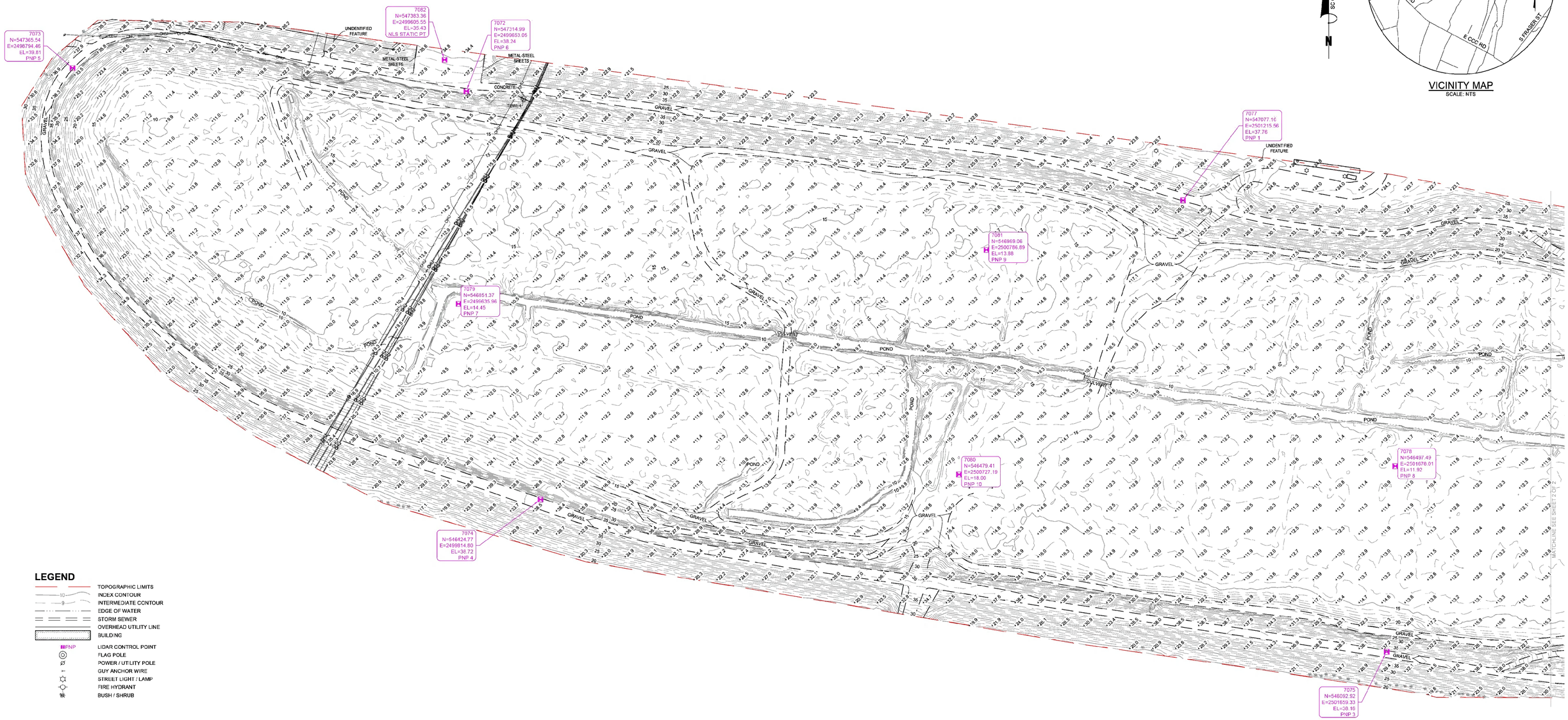
SITE MAP

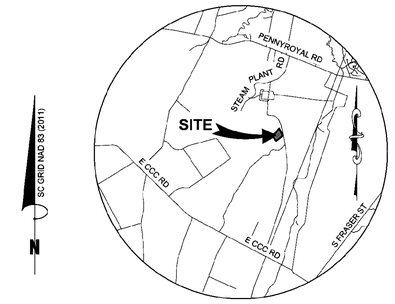
OCTOBER 2020

FIGURE 1

NOTES

1. THE SURVEYED PROPERTY DELINEATED HEREON ARE LOCATED IN GEORGETOWN COUNTY, SOUTH CAROLINA AS TMS# 01-1009-04-00-00.
2. LOCATIONS SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED BY BOWMAN CONSULTING GROUP, LTD. ON MARCH 3, 2025.
3. NORTH MERIDIAN INFORMATION AS SHOWN HEREON IS BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM, NAD 83 INTERNATIONAL FEET, DISTANCES SHOWN ARE HORIZONTAL "GROUND DISTANCES". VERTICAL DATUM IS BASED ON PLANT DATUM PER LANDMARK'S CONTROL POINT #203
4. CONTOUR INTERVALS ARE 1 FOOT.





VICINITY MAP
SCALE: NTS

LEGEND

- TOPOGRAPHIC LIMITS
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- EDGE OF WATER
- STORM SEWER
- OVERHEAD UTILITY LINE
- BUILDING
- PNP — LIDAR CONTROL POINT
- FLAG POLE
- POWER / UTILITY POLE
- GUY ANCHOR WIRE
- STREET LIGHT / LAMP
- FIRE HYDRANT
- BUSH / SHRUB

100 0 100 200
GRAPHIC SCALE

I HEREBY STATE THAT TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARDS OF PRACTICE MANUAL FOR SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS AS SPECIFIED THEREIN.

N. DEEDEE FRASURE
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR
LICENSE NO. 26955

SOUTH CAROLINA BOWMAN CONSULTING GROUP, LTD. NO. 1452 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR N. DEE DEE FRASURE No. 26955

ADVANCED COPY

Figure 2

TOPOGRAPHIC SURVEY OF
WGS SOUTH POND
PROPERTY OWNED BY
S.C. PUBLIC SERVICE AUTHORITY
TMS #01-1009-04-00-00
GEORGETOWN COUNTY, SOUTH CAROLINA

SCALE: 1" = 100' DATE: MARCH 21, 2025

REVISION

Bowman
Bowman Consulting Group Ltd
880 Island Park Drive, Suite 400
Charleston, SC 29492
Phone: (843) 501-0333
www.bowman.com

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DWG: J:\003040 - Santee Cooper\003040-01-005 GLRL - Forsyth Landfill_Closure Cert\Survey\Topo Boundary\South Pond\003040-01-005 Santee Cooper Winyah_SW.DWG | BY: JA | CHK: DF | QC:

BCG PROJECT NO: #003040-01-005	TASK: 0000	SURVEY DATE: MARCH 3, 2025	SHEET 1 OF 2

NOTES

1. THE SURVEYED PROPERTY DELINEATED HEREON ARE LOCATED IN GEORGETOWN COUNTY, SOUTH CAROLINA AS TMS# 01-1009-04-00-00.
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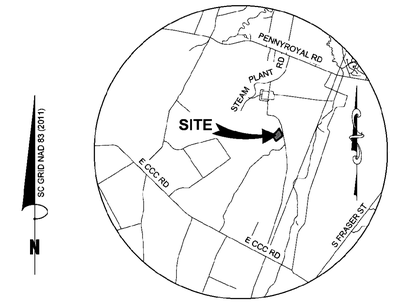
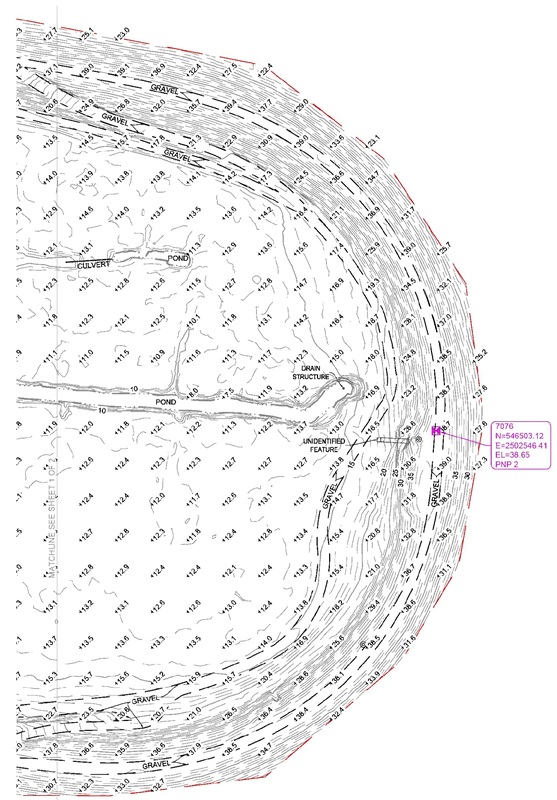
4. CONTOUR INTERVALS ARE 1 FOOT.



VICINITY MAP
SCALE: NTS



LEGEND

- TOPOGRAPHIC LIMITS
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- INTERMEDIATE CONTOUR
- EDGE OF WATER
- STORM SEWER
- OVERHEAD UTILITY LINE
- BUILDING
- PNP — LIDAR CONTROL POINT
- FLAG POLE
- POWER / UTILITY POLE
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- FIRE HYDRANT
- BUSH / SHRUB

100 0 100 200
GRAPHIC SCALE

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N. DEEDEE FRASURE
SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR
LICENSE NO. 26955

SOUTH CAROLINA BOWMAN CONSULTING GROUP LTD. NO. 1429 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL LAND SURVEYOR N. DEE DEE FRASURE No. 26955

ADVANCED COPY

Figure 2

TOPOGRAPHIC SURVEY OF
WGS SOUTH POND
PROPERTY OWNED BY
S.C. PUBLIC SERVICE AUTHORITY
TMS #01-1009-04-00-00
GEORGETOWN COUNTY, SOUTH CAROLINA

SCALE: 1" = 100' DATE: MARCH 21, 2025

REVISION

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Charleston, SC 29492
Phone: (843) 501-0333
www.bowman.com

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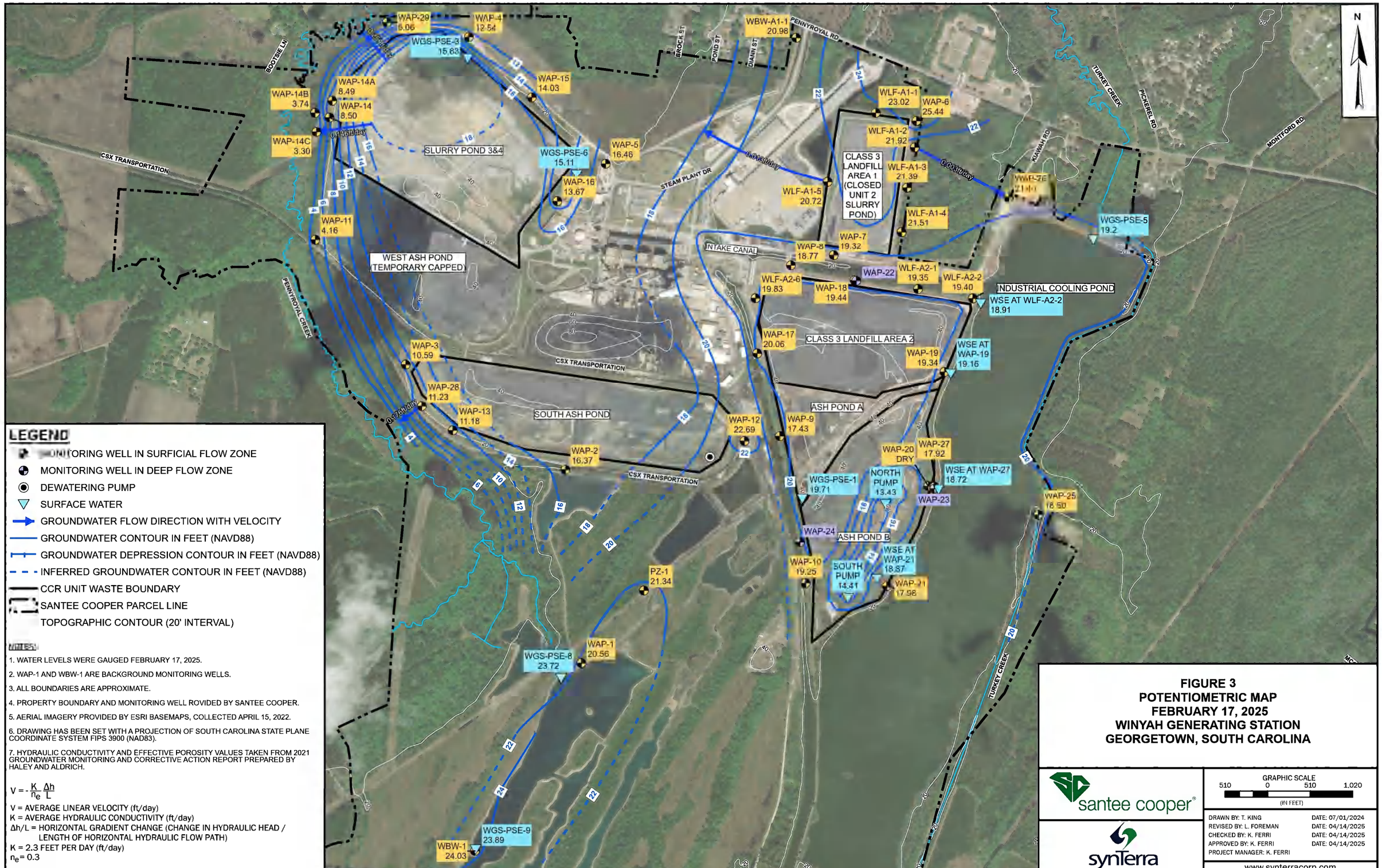
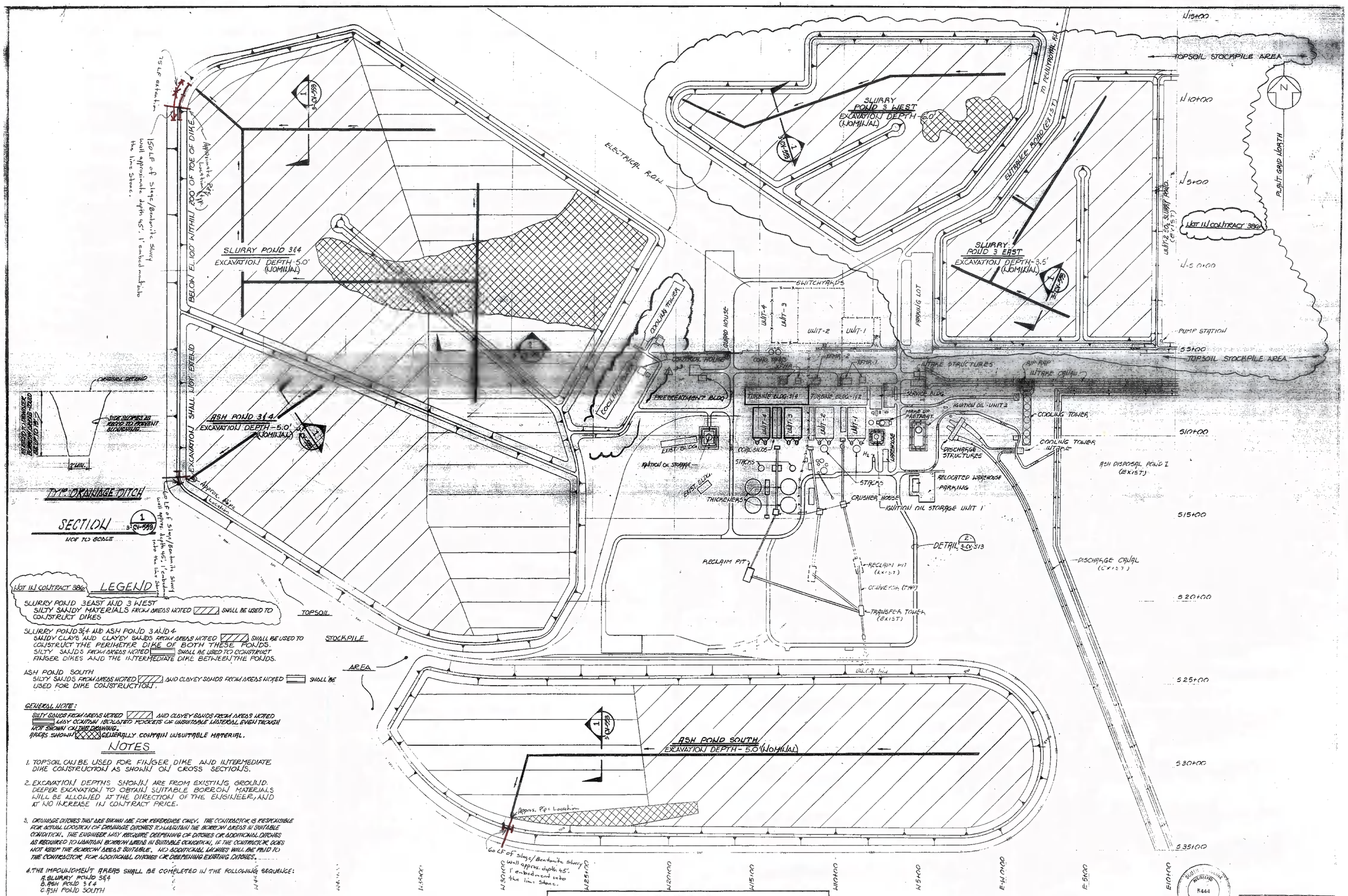
DWG: J:\003040 - Santee Cooper\003040-01-005 (SUR) - Wingo Landfill - Closure Cert\Survey\Topo Boundary\South Pond\003040-01-005 Santee Cooper Wingo_SU1T2002 | BY: JA | CHK: DF | QC:

BCG PROJECT NO: #003040-01-005 | TASK: 0000' | SURVEY DATE: MARCH 3, 2025 | SHEET 2 OF 2


N
WAP-29
6.06
WAP-4
12.54
WGS-PSE-3
15.83
WAP-15
14.03
WAP-14A
8.49
WAP-14B
3.74
WAP-14
8.50
WAP-14C
3.30
0.145ft/day
SLURRY POND 3&4
WGS-PSE-6
15.11
WAP-5
16.46
WAP-16
13.67
WAP-11
4.16
WEST ASH POND
(TEMPORARY CAPPED)
CSX TRANSPORTATION
BOOTSIE LN
PENNYROYAL CREEK
WAP-3
10.59
WAP-28
11.23
0.175ft/day
WAP-13
11.18
SOUTH ASH POND
WAP-2
16.37
WBW-A1-1
20.98
PENNYROYAL RD
BROCK ST
POND ST
DIANN ST
STEAM PLANT DR
0.041ft/day
WLF-A1-1
23.02
WAP-6
25.44
WLF-A1-2
21.92
CLASS 3
LANDFILL
AREA 1
(CLOSED
UNIT 2
SLURRY
POND)
WLF-A1-3
21.39
0.003ft/day
WLF-A1-5
20.72
WLF-A1-4
21.51
TURKEY CREEK
PICKEREL RD
MONTFORD RD
KIAWAH RD
WGS-PSE-5
19.2
WAP-7
19.32
INTAKE CANAL
WAP-8
18.77
WAP-22
WLF-A2-1
19.35
WLF-A2-2
19.40
WLF-A2-6
19.83
WAP-18
19.44
INDUSTRIAL COOLING POND
WSE AT WLF-A2-2
18.91
WAP-17
20.06
CLASS 3 LANDFILL AREA 2
WAP-19
19.34
WSE AT
WAP-19
19.16
ASH POND A
WAP-12
22.69
WAP-9
17.43
WAP-20
DRY
WAP-27
17.92
WSE AT WAP-27
18.72
WGS-PSE-1
19.71
NORTH
PUMP
13.43
WAP-23
WAP-25
18.50
WAP-24
ASH POND B
WAP-10
19.25
SOUTH
PUMP
14.41
WSE AT
WAP-21
18.87
WAP-21
17.98
PZ-1
21.34
WAP-1
20.56
WGS-PSE-8
23.72
WGS-PSE-9
23.89
WBW-1
24.03
LEGEND
MONITORING WELL IN SURFICIAL FLOW ZONE
MONITORING WELL IN DEEP FLOW ZONE
DEWATERING PUMP
SURFACE WATER
GROUNDWATER FLOW DIRECTION WITH VELOCITY
GROUNDWATER CONTOUR IN FEET (NAVD88)
GROUNDWATER DEPRESSION CONTOUR IN FEET (NAVD88)
INFERRED GROUNDWATER CONTOUR IN FEET (NAVD88)
CCR UNIT WASTE BOUNDARY
SANTEE COOPER PARCEL LINE
TOPOGRAPHIC CONTOUR (20' INTERVAL)
NOTES:
1. WATER LEVELS WERE GAUGED FEBRUARY 17, 2025.
2. WAP-1 AND WBW-1 ARE BACKGROUND MONITORING WELLS.
3. ALL BOUNDARIES ARE APPROXIMATE.
4. PROPERTY BOUNDARY AND MONITORING WELL ROVIDED BY SANTEE COOPER.
5. AERIAL IMAGERY PROVIDED BY ESRI BASEMAPS, COLLECTED APRIL 15, 2022.
6. DRAWING HAS BEEN SET WITH A PROJECTION OF SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3900 (NAD83).
7. HYDRAULIC CONDUCTIVITY AND EFFECTIVE POROSITY VALUES TAKEN FROM 2021 GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT PREPARED BY HALEY AND ALDRICH.
$V = -\frac{K}{n_e}\frac{\Delta h}{L}$
V = AVERAGE LINEAR VELOCITY (ft/day)
K = AVERAGE HYDRAULIC CONDUCTIVITY (ft/day)
Δh/L = HORIZONTAL GRADIENT CHANGE (CHANGE IN HYDRAULIC HEAD / LENGTH OF HORIZONTAL HYDRAULIC FLOW PATH)
K = 2.3 FEET PER DAY (ft/day)
n_e = 0.3
FIGURE 3
POTENTIOMETRIC MAP
FEBRUARY 17, 2025
WINYAH GENERATING STATION
GEORGETOWN, SOUTH CAROLINA
santee cooper
synTerra
GRAPHIC SCALE
510 0 510 1,020
(IN FEET)
DRAWN BY: T. KING DATE: 07/01/2024
REVISED BY: L. FOREMAN DATE: 04/14/2025
CHECKED BY: K. FERRI DATE: 04/14/2025
APPROVED BY: K. FERRI DATE: 04/14/2025
PROJECT MANAGER: K. FERRI
www.synterracorp.com
G:\0 ARCGIS PRO PROJECTS\SANTEE_COOPER\WINYAH_STATION\2025\WINYAH_WI_UPDATE_2025.APRX

Appendix 1 –

Dike Construction Drawing



LOT 11 CONTRACT 386

LEGEND

SLURRY POND 3 EAST AND 3 WEST
SILTY SANDY MATERIALS FROM AREAS NOTED ▨ SHALL BE USED TO CONSTRUCT DIKES

SLURRY POND 3&4 AND ASH POND 3 AND 4
SANDY CLAYS AND CLAYEY SANDS FROM AREAS NOTED ▨ SHALL BE USED TO CONSTRUCT THE PERIMETER DIKE OF BOTH THESE PONDS.
SILTY SANDS FROM AREAS NOTED ▭ SHALL BE USED TO CONSTRUCT FINGER DIKES AND THE INTERMEDIATE DIKE BETWEEN THE PONDS.

ASH POND SOUTH
SILTY SANDS FROM AREAS NOTED ▨ AND CLAYEY SANDS FROM AREAS NOTED ▭ SHALL BE USED FOR DIKE CONSTRUCTION.

GENERAL NOTE:
SILTY SANDS FROM AREAS NOTED ▨ AND CLAYEY SANDS FROM AREAS NOTED ▭ MAY CONTAIN ISOLATED POCKETS OF UNSUITABLE MATERIAL EVEN THOUGH NOT SHOWN ON THIS DRAWING.
AREAS SHOWN ▩ GENERALLY CONTAIN UNSUITABLE MATERIAL.

NOTES

1. TOPSOIL CAN BE USED FOR FINGER DIKE AND INTERMEDIATE DIKE CONSTRUCTION AS SHOWN ON CROSS SECTIONS.
2. EXCAVATION DEPTHS SHOWN ARE FROM EXISTING GROUND. DEEPER EXCAVATION TO OBTAIN SUITABLE BORROW MATERIALS WILL BE ALLOWED AT THE DIRECTION OF THE ENGINEER, AND AT NO INCREASE IN CONTRACT PRICE.
3. DRAINAGE DITCHES THAT ARE SHOWN ARE FOR REFERENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ACTUAL LOCATION OF DRAINAGE DITCHES TO MAINTAIN THE BORROW AREAS IN SUITABLE CONDITION. THE ENGINEER MAY REQUIRE DEEPENING OF DITCHES OR ADDITIONAL DITCHES AS REQUIRED TO MAINTAIN BORROW AREAS IN SUITABLE CONDITION. IF THE CONTRACTOR DOES NOT KEEP THE BORROW AREAS SUITABLE, NO ADDITIONAL MONIES WILL BE PAID TO THE CONTRACTOR FOR ADDITIONAL DITCHES OR DEEPENING EXISTING DITCHES.
4. THE IMPOUNDMENT AREAS SHALL BE COMPLETED IN THE FOLLOWING SEQUENCE:
   A. SLURRY POND 3&4
   B. ASH POND 3&4
   C. ASH POND SOUTH

2	2-7-79	INSTALLED SLURRY WALLS TO UNITS 3&4 SLURRY POND AND WEST ASH POND DIKES	CW								
1	2-2-79	REVISED CONTROL HOUSE AREA - PER COAST CONTR 386	CW	PRD							
0	10-6-78	ISSUED FOR BIDS-CONTR 386	CW	PRD							
B	6-21-78	ISSUED FOR OWNER'S REVIEW	CW								
A	5-5-78	BURNS & ROE REVIEW									
rev no		REVISIONS	by	ck.	appr.	mo	date	REVISION	by	ck.	appr.

drawn by CW
dept. ck. P.R. DUSALIA
dept. appr. [signature]
cont. ck.
p.m. appr. WPS
B&R appr. [signature] 1/29/80

BURNS AND ROE, INC.
ENGINEERS AND CONSTRUCTORS
ORADELL, N. J. HEMPSTEAD, N. Y. LOS ANGELES, CALIF.

ATLANTA DALLAS NEW YORK
LOCKWOOD GREENE
ARCHITECTS · ENGINEERS
SPARTANBURG, S.C.

job name
SANTEE COOPER
WINYAH GENERATING STATION UNIT 3
GEORGETOWN, SOUTH CAROLINA

sheet title
SOIL CLASSIFICATION PLAN

scale 1" = 200'
date 5-1-76

386	CONST	2-7-79	1
386	BID	10-6-78	0
386	REV	DATE	REV.

L-G JOB NO. 770143.01
B&R J.O. NO. 3389
dwg no. 3-CV-553
rev no 1

Appendix 2 –

Winyah Pond Bottom Estimate Report

Geosyntec consultants

104 South Main Street, Suite 115
Greenville, South Carolina 29601
PH 864.438.4900
FAX 864.438.4910
www.geosyntec.com

Memorandum

Date: 6 June 2014

To: Robby White, Geosyntec

Copies to:

From: Fabian Benavente, P.E., Geosyntec

Subject: Pond Bottom Estimate
Winyah Generating Station
Georgetown, South Carolina

INTRODUCTION

At the start of the work, the base grades of the Coal Combustion Residual (CCR) ponds were estimated based on historical information. In particular, Geosyntec relied on the data available on the pre-development drawing set by Lockwood Greene prepared in 1978. Since these drawings were not as-built drawings, Geosyntec made some assumptions with regards to the borrow activity that may have taken place, in particular to construct the berms of the ponds, prior to the ponds being used to dispose CCRs. The table below presents the drawings that were used to estimate the pond bottoms for each pond in August 2013.

Pond	Drawings used to estimate pond bottom
Slurry Pond 3&4	Bottom surface: digitized from contours shown on Drawing CV-541, 542, 543, 544, and 545 [Lockwood Greene, 1978]
West Ash Pond	Bottom surface: digitized from contours shown on Drawing CV-544, 545, and 546 [Lockwood Greene, 1978]
South Ash Pond	Bottom surface: digitized from contours shown on Drawing CV-549 and 550 [Lockwood Greene, 1978]
Unit 2 Slurry Pond	Bottom surface: assumed to be 24' based on note on Drawing CV-517 [Lockwood Greene, 1978]
Ash Ponds A&B	Bottom surface: digitized from contours shown on Drawing CV-504 [Lockwood Greene, 1978]

DATA USED

As part of the ongoing work, Geosyntec performed investigations to support the geotechnical evaluation of the ponds. Although not specifically designed for this purpose, these investigations were used to estimate the transition between in-place CCR material and natural soils (i.e., the pond bottom). Three investigation campaigns were performed by Geosyntec, on February 2013, October 2013, and December 2013. In addition, Geosyntec reviewed the logs from borings drilled by Paul C. Rizzo and Associates (PCRA) in 1993 and again in 1999 to help us estimate the pond bottoms. The table below presents the quantity of investigation locations available and frequency (location per acres) for each pond.

Pond	Area (ac)	Number of Investigation Locations	Frequency
Slurry Pond 3&4 and West Ash Pond	162 (103+59)	66	1 location per 2.5 acres
South Ash Pond	73	9	1 location per 8.1 acres
Unit 2 Slurry Pond	31	28	1 location per 1.1 acres
Ash Ponds A&B	152 (88+64)	54	1 location per 2.8 acres

Drawings 1 to 4 present a plan view of the ponds with the spatial distribution of the locations used to estimate the pond bottoms.

SURFACE INTERPOLATION AND VOLUME CALCULATION

AutoCAD Civil 3D was used to interpolate between known data points and build a surface (pond bottom). The upstream slopes of the perimeter and diving dikes were estimated and made part of the surface; in addition, it was necessary to extrapolate the contours to the perimeter of the ponds (upstream slopes of perimeter dikes) in order to have a solid surface from which to work from for quantity take-offs. Drawings 5 to 8 present the pond bottom for each pond.

These pond bottoms were used to estimate the amount of in-place material by subtracting it from the existing ground surface (topographic survey dated 06/29/2011 and revised 1/14/2012 by Thomas & Hutton). Drawings 9 to 12 present the in-place volumes for each pond; the table below summarizes this data.

Pond	Area (ac)	Volume (cy)	Average Depth (ft)	Previously estimated volume (cy)
Slurry Pond 3&4	103	2,578,743	15.5	2,280,000 to 3,111,000
West Ash Pond	59	2,125,756	22.3	1,950,000 to 2,426,000
South Ash Pond	73	1,657,174	14.9	1,172,000 to 1,761,000
Unit 2 Slurry Pond	31	344,279	6.9	388,000
Ash Ponds A&B	152 (88+64)	4,264,211 (2,730,225 + 1,533,886)	17.4	3,804,000

Four (4) cross-sections for each of the ponds are presented in Drawings 13 to 18; these cross-sections show pond bottom, existing ground surface, and also two potentiometric surfaces: the potentiometric surface measured in June 2013 and the potentiometric surface modeled with the assumption that the ponds have been drained.

* * * * *

FIGURES

DRAFT WORK IN PROGRESS
FOR REVIEW ONLY

LEGEND

10	EXISTING MAJOR CONTOUR ELEVATION
	EXISTING MINOR CONTOUR ELEVATION
12.10 B-201	POND BOTTOM ELEVATION / LOCATION ID

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 400' 800'

SCALE IN FEET

SLURRY POND 3 & 4 AND WEST ASH POND -CCR IN PLACE- EXISTING CONDITIONS

SLURRY POND 3 & 4 AND
WEST ASH POND
-CCR IN PLACE-
EXISTING CONDITIONS

Geosyntec consultants

FIGURE 1

PROJECT NO: GSC5242 | JUNE 2014

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-045

0 500' 1000'

SCALE IN FEET

SOUTH ASH POND -CCR IN PLACE- EXISTING CONDITIONS

LEGEND

20	EXISTING MAJOR CONTOUR ELEVATION
	EXISTING MINOR CONTOUR ELEVATION
15.82 CPT-122	POND BOTTOM ELEVATION / LOCATION ID

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

DRAFT WORK IN PROGRESS-FOR REVIEW ONLY

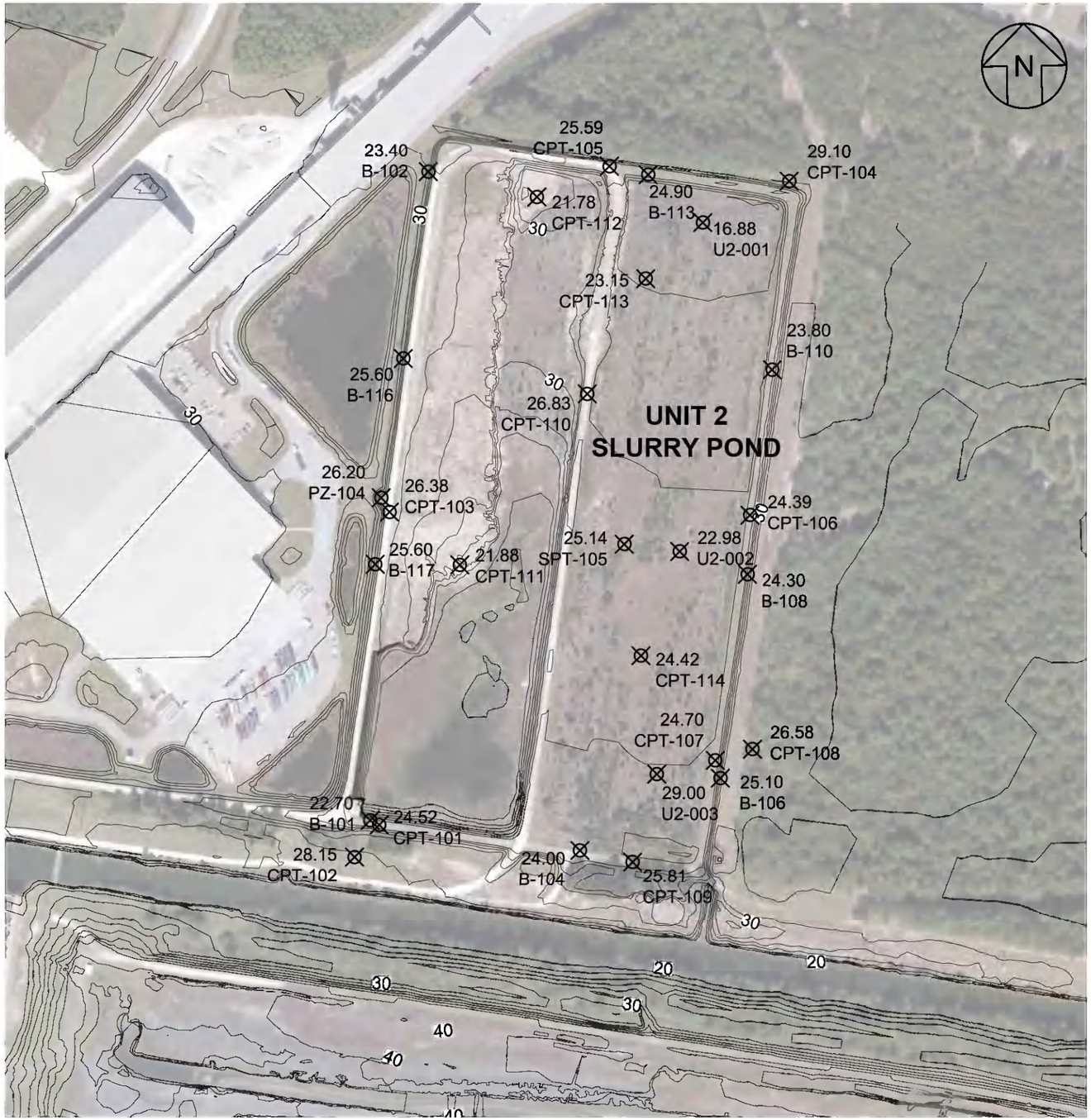
SOUTH ASH POND
-CCR IN PLACE-
EXISTING CONDITIONS

Geosyntec consultants

FIGURE 2

PROJECT NO: GSC5242 | JUNE 2014

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-046



LEGEND

20	EXISTING MAJOR CONTOUR ELEVATION
	EXISTING MINOR CONTOUR ELEVATION
22.70 B-101	POND BOTTOM ELEVATION / LOCATION ID

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 300' 600'

SCALE IN FEET

UNIT 2 SLURRY POND -CCR IN PLACE- EXISTING CONDITIONS

DRAFT WORK IN PROGRESS
FOR REVIEW ONLY

UNIT 2 SLURRY POND
-CCR IN PLACE-
EXISTING CONDITIONS

Geosyntec consultants

FIGURE 3

PROJECT NO: GSC5242 | JUNE 2014

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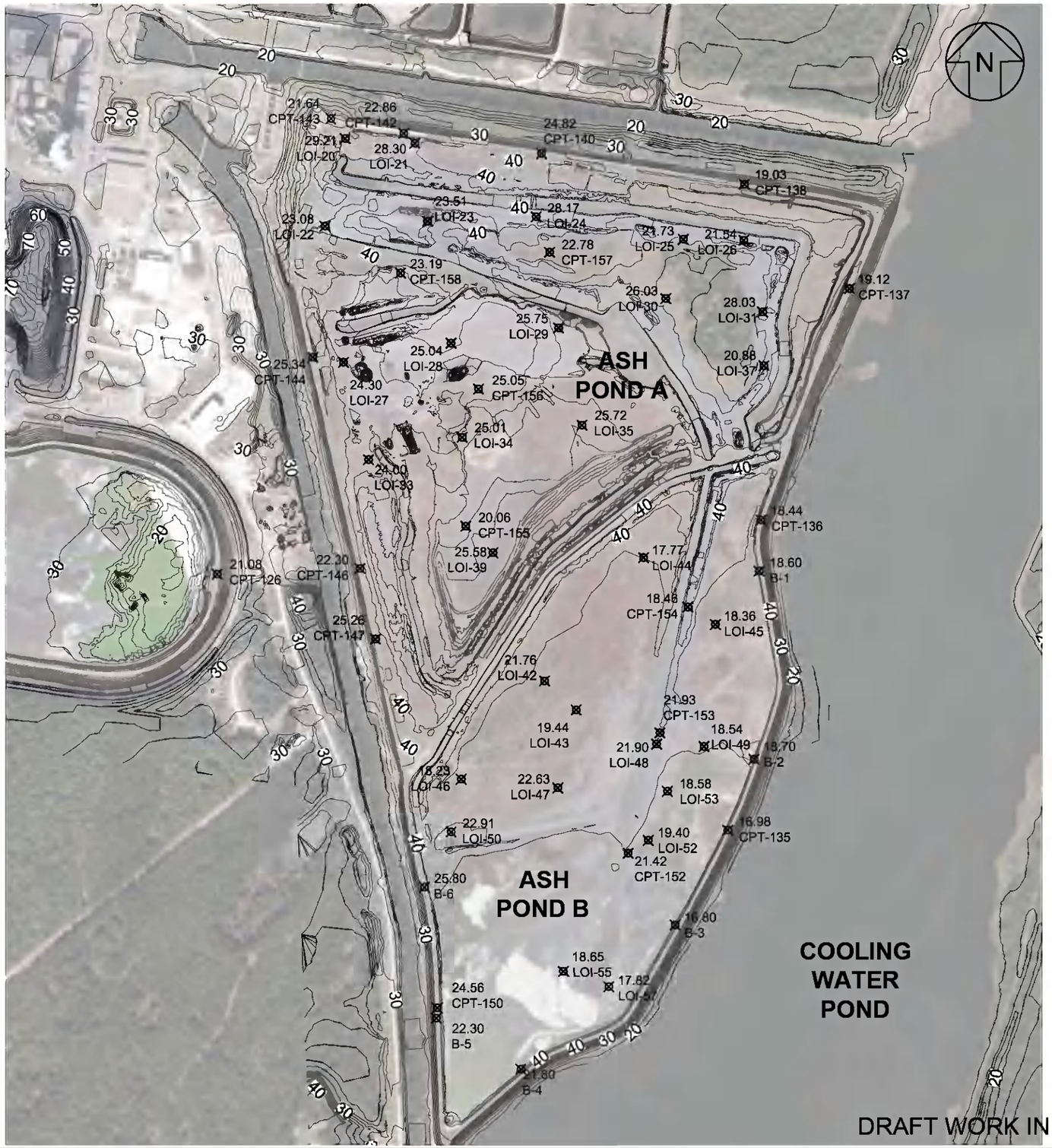

LEGEND

20	EXISTING MAJOR CONTOUR ELEVATION
	EXISTING MINOR CONTOUR ELEVATION
18.60 B-1	POND BOTTOM ELEVATION / LOCATION ID

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 500' 1000'

SCALE IN FEET

ASH POND A & B
-CCR IN PLACE-
EXISTING CONDITIONS

DRAFT WORK IN PROGRESS-FOR REVIEW ONLY

ASH POND A & B
-CCR IN PLACE-
EXISTING CONDITIONS

Geosyntec consultants

FIGURE 4

PROJECT NO: GSC5242 | JUNE 2014

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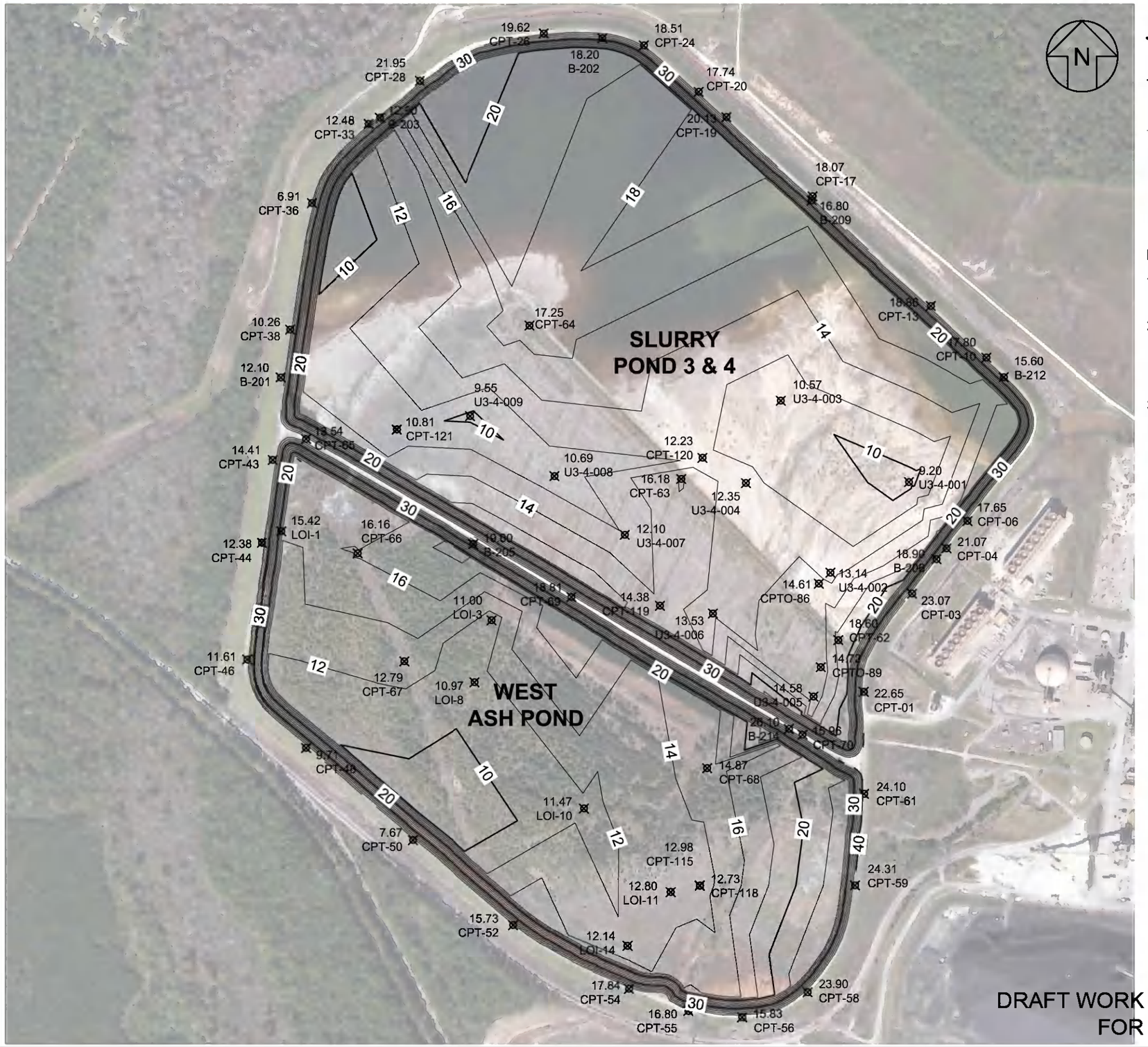


LEGEND

10	ESTIMATED POND BOTTOM MAJOR CONTOUR ELEVATION
	ESTIMATED POND BOTTOM MINOR CONTOUR ELEVATION
12.10 B-201	POND BOTTOM ELEVATION / LOCATION ID

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 400' 800'

SCALE IN FEET

SLURRY POND 3 & 4 AND WEST ASH POND -CCR IN PLACE- ESTIMATED POND BOTTOM

DRAFT WORK IN PROGRESS FOR REVIEW ONLY

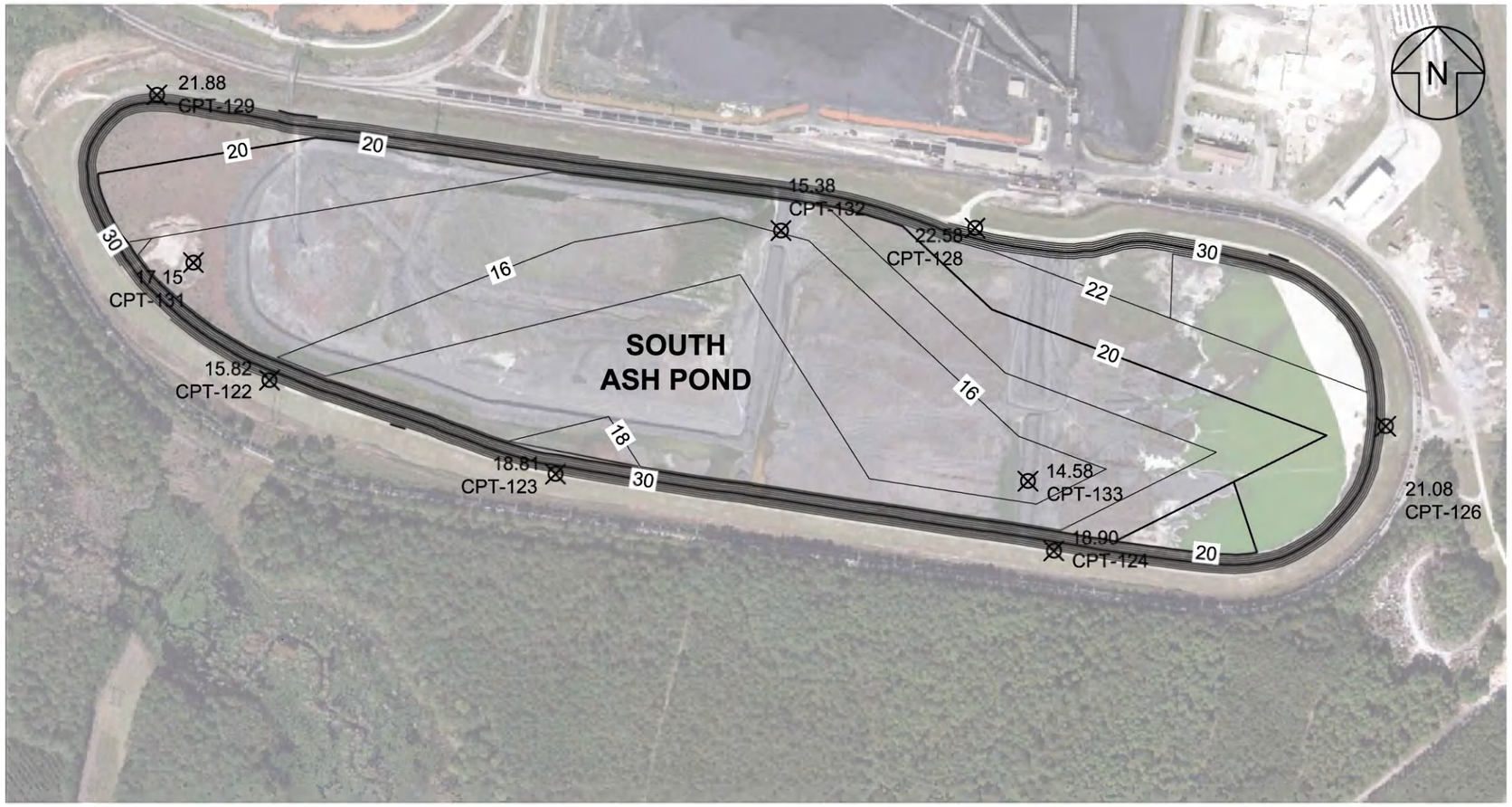
SLURRY POND 3 & 4 AND WEST ASH POND -CCR IN PLACE- ESTIMATED POND BOTTOM

Geosyntec consultants

PROJECT NO: GSC5242 | JUNE 2014

FIGURE 5

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-045



0 400' 800'

SCALE IN FEET

SOUTH ASH POND -CCR IN PLACE- ESTIMATED POND BOTTOM

LEGEND

20	ESTIMATED POND BOTTOM MAJOR CONTOUR ELEVATION
	ESTIMATED POND BOTTOM MINOR CONTOUR ELEVATION
15.82 CPT-122	POND BOTTOM ELEVATION / LOCATION ID

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

DRAFT WORK IN PROGRESS-FOR REVIEW ONLY

SOUTH ASH POND
-CCR IN PLACE-
ESTIMATED POND BOTTOM

Geosyntec consultants

FIGURE 6

PROJECT NO: GSC5242 | JUNE 2014

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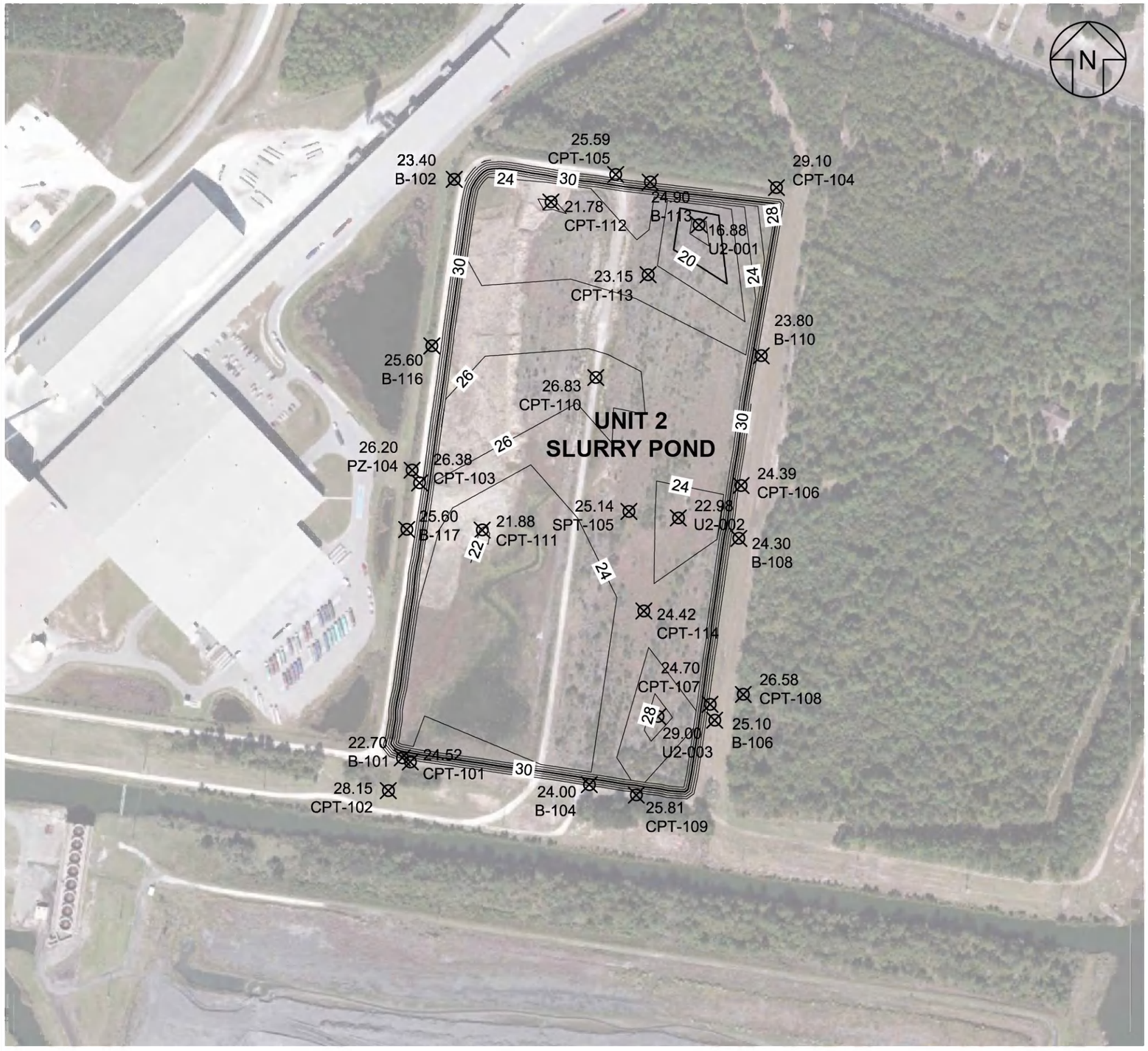

LEGEND

20	ESTIMATED POND BOTTOM MAJOR CONTOUR ELEVATION
	ESTIMATED POND BOTTOM MINOR CONTOUR ELEVATION
22.70 B-101	POND BOTTOM ELEVATION / LOCATION ID

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 300' 600'

SCALE IN FEET

UNIT 2 SLURRY POND -CCR IN PLACE- ESTIMATED POND BOTTOM

DRAFT WORK IN PROGRESS
FOR REVIEW ONLY

UNIT 2 SLURRY POND
-CCR IN PLACE-
ESTIMATED POND BOTTOM

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FIGURE 7

PROJECT NO: GSC5242 | JUNE 2014

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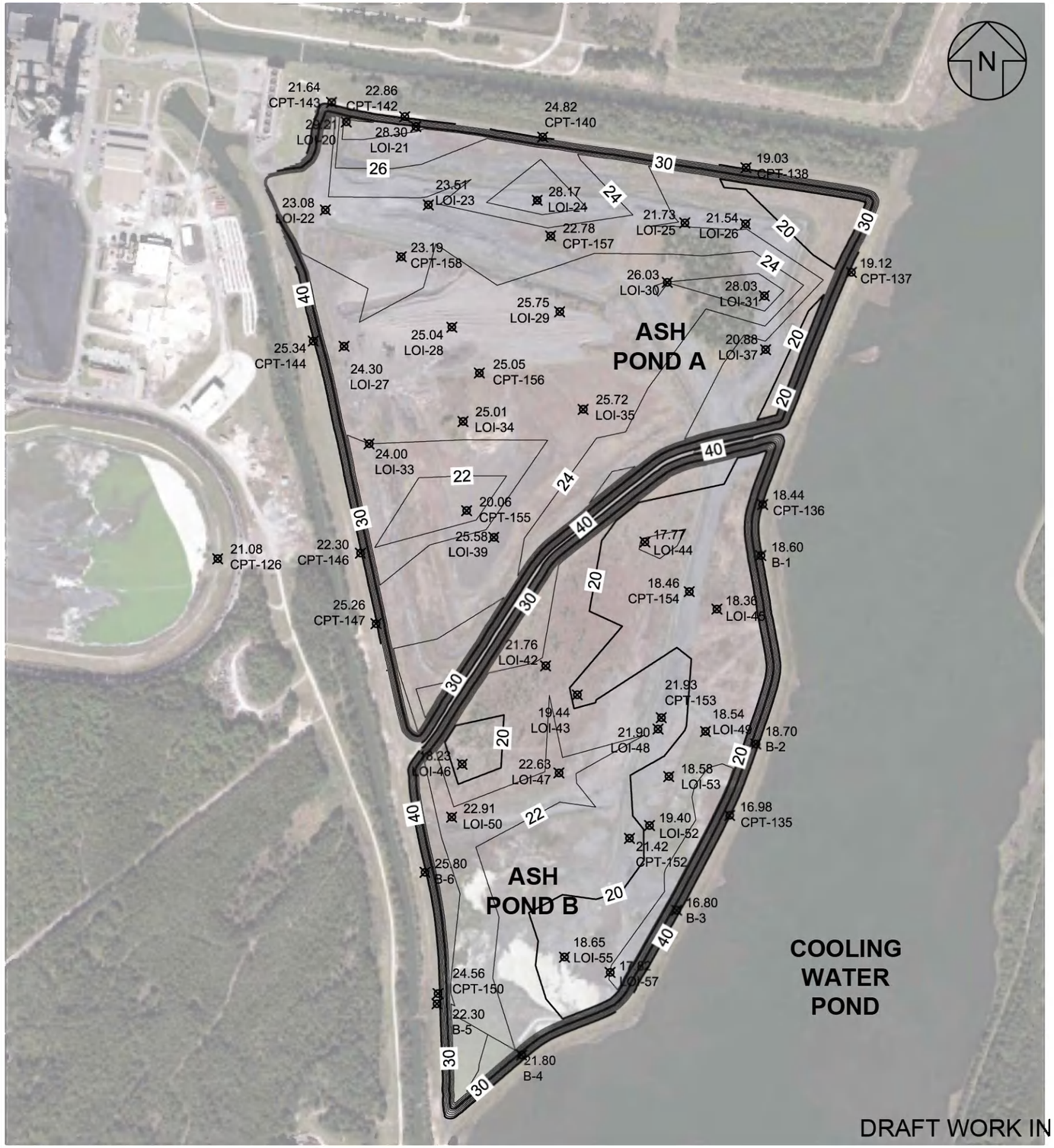


LEGEND

20	ESTIMATED POND BOTTOM MAJOR CONTOUR ELEVATION
	ESTIMATED POND BOTTOM MINOR CONTOUR ELEVATION
18.60 B-1	POND BOTTOM ELEVATION / LOCATION ID

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 500' 1000'

SCALE IN FEET

ASH POND A & B -CCR IN PLACE- ESTIMATED POND BOTTOM

DRAFT WORK IN PROGRESS-FOR REVIEW ONLY

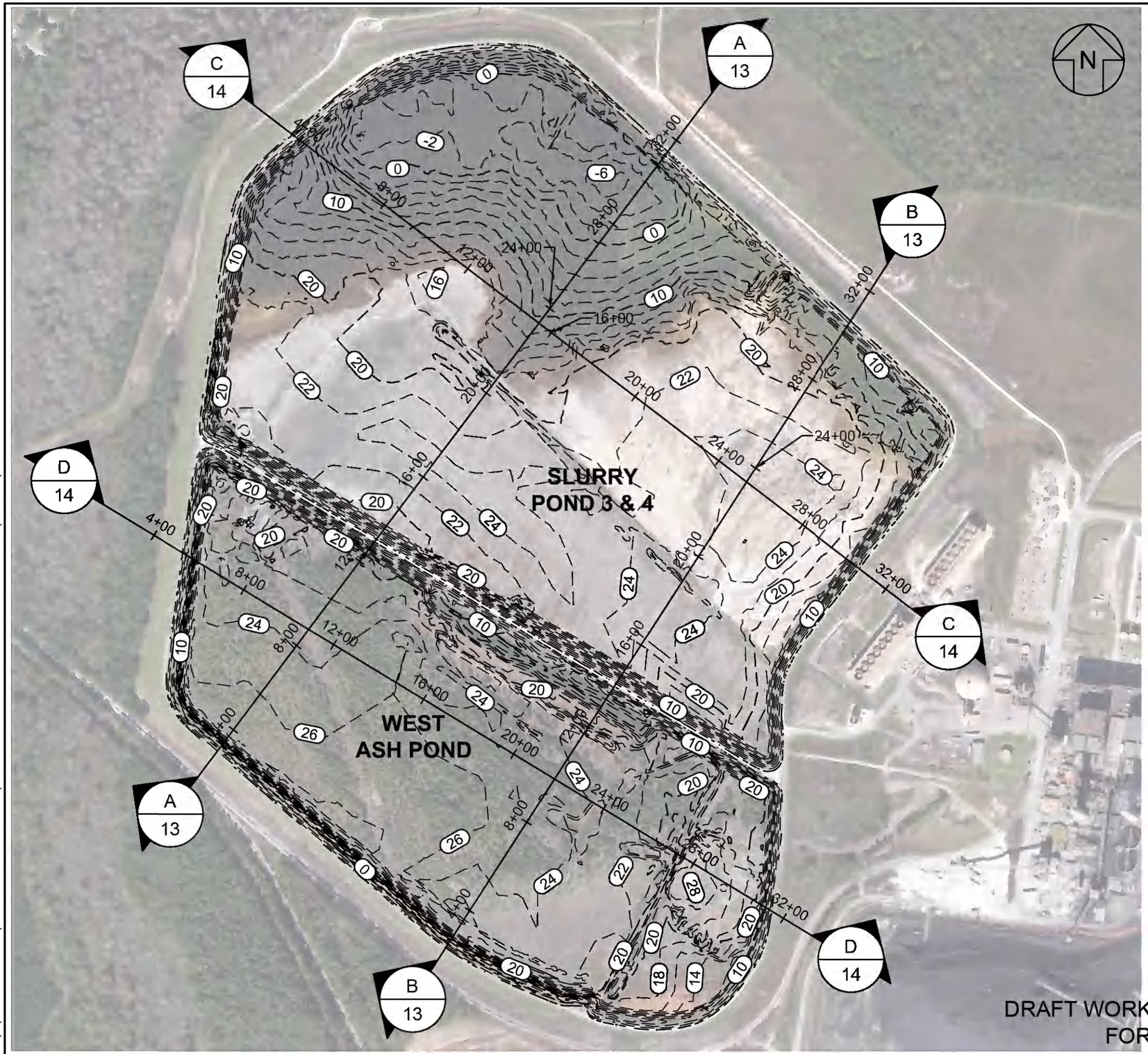
ASH POND A & B
-CCR IN PLACE-
ESTIMATED POND BOTTOM

Geosyntec consultants

FIGURE 8

PROJECT NO: GSC5242 | JUNE 2014

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-048



LEGEND

ISOPACH MAJOR CONTOUR DEPTH

ISOPACH MINOR CONTOUR DEPTH

SLURRY POND 3 & 4	
BASE SURFACE	SLURRY POND 3 & 4 POND BOTTOM
COMPARISON SURFACE	WINYAH EXIST TOPO-SLURRY POND 3 & 4
CUT VOLUME	46302.10 (CY)
FILL VOLUME	2625045.59 (CY)
NET VOLUME	2578743.49 (CY)
WEST ASH POND	
BASE SURFACE	WEST ASH POND BOTTOM
COMPARISON SURFACE	WINYAH EXIST TOPO-WEST ASH POND
CUT VOLUME	640.36 (CY)
FILL VOLUME	2126396.45 (CY)
NET VOLUME	2125756.09 (CY)

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 400' 800'

SCALE IN FEET

SLURRY POND 3 & 4 AND WEST ASH POND -CCR IN PLACE- CCR ISOPACHS

DRAFT WORK IN PROGRESS
FOR REVIEW ONLY

SLURRY POND 3 & 4 AND
WEST ASH POND
-CCR IN PLACE-
CCR ISOPACHS

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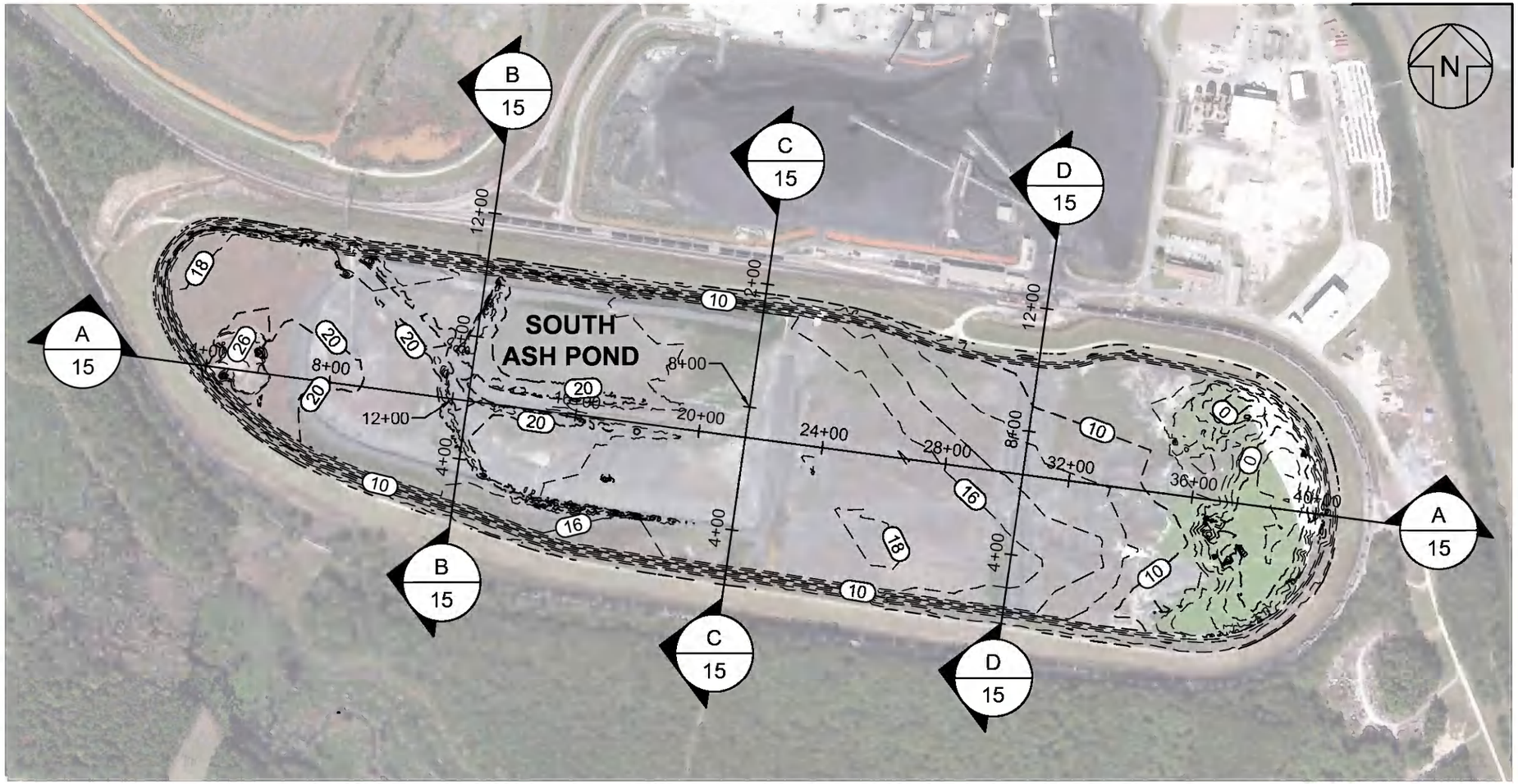
FIGURE 9

PROJECT NO: GSC5242 | JUNE 2014

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-045



LEGEND

0 — ISOPACH MAJOR CONTOUR DEPTH

ISOPACH MINOR CONTOUR DEPTH

SOUTH ASH POND	
BASE SURFACE	SOUTH ASH POND BOTTOM
COMPARISON SURFACE	WINYAH EXIST TOPO-SOUTH ASH POND
CUT VOLUME	6412.01 (CY)
FILL VOLUME	1663585.90 (CY)
NET VOLUME	1657173.89 (CY)

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

SOUTH ASH POND -CCR IN PLACE- CCR ISOPACH

DRAFT WORK IN PROGRESS-FOR REVIEW ONLY

SOUTH ASH POND
-CCR IN PLACE-
CCR ISOPACH

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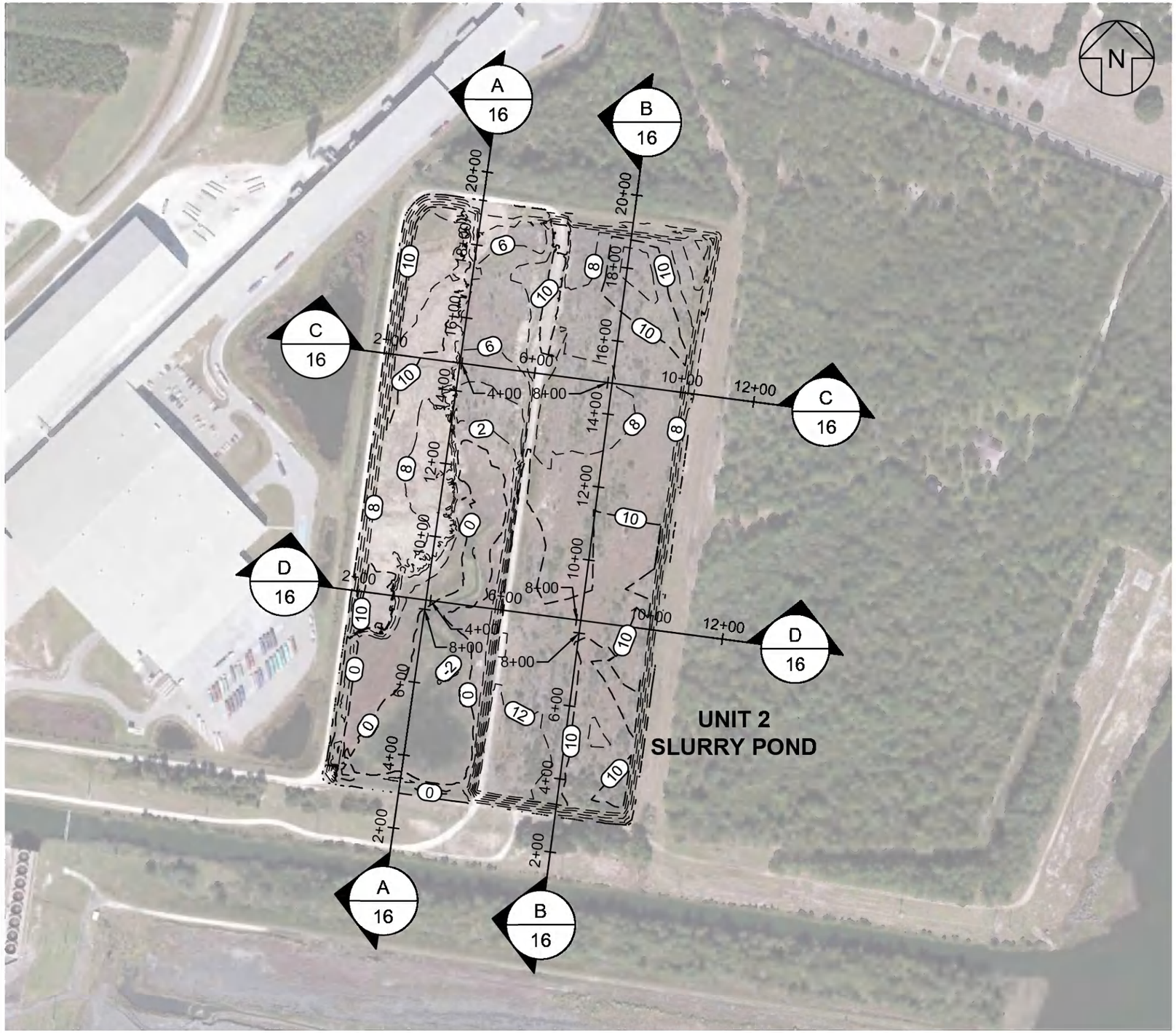
FIGURE 10

PROJECT NO: GSC5242 | JUNE 2014

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-046



LEGEND

- 0 — ISOPACH MAJOR CONTOUR DEPTH
- ISOPACH MINOR CONTOUR DEPTH

UNIT 2 SLURRY POND	
BASE SURFACE	UNIT 2 SLURRY POND BOTTOM
COMPARISON SURFACE	WINYAH EXIST TOPO-UNIT 2 SLURRY POND
CUT VOLUME	5426.84 (CY)
FILL VOLUME	349706.15 (CY)
NET VOLUME	344279.31 (CY)

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 300' 600'

SCALE IN FEET

UNIT 2 SLURRY POND -CCR IN PLACE- CCR ISOPACH

DRAFT WORK IN PROGRESS
FOR REVIEW ONLY

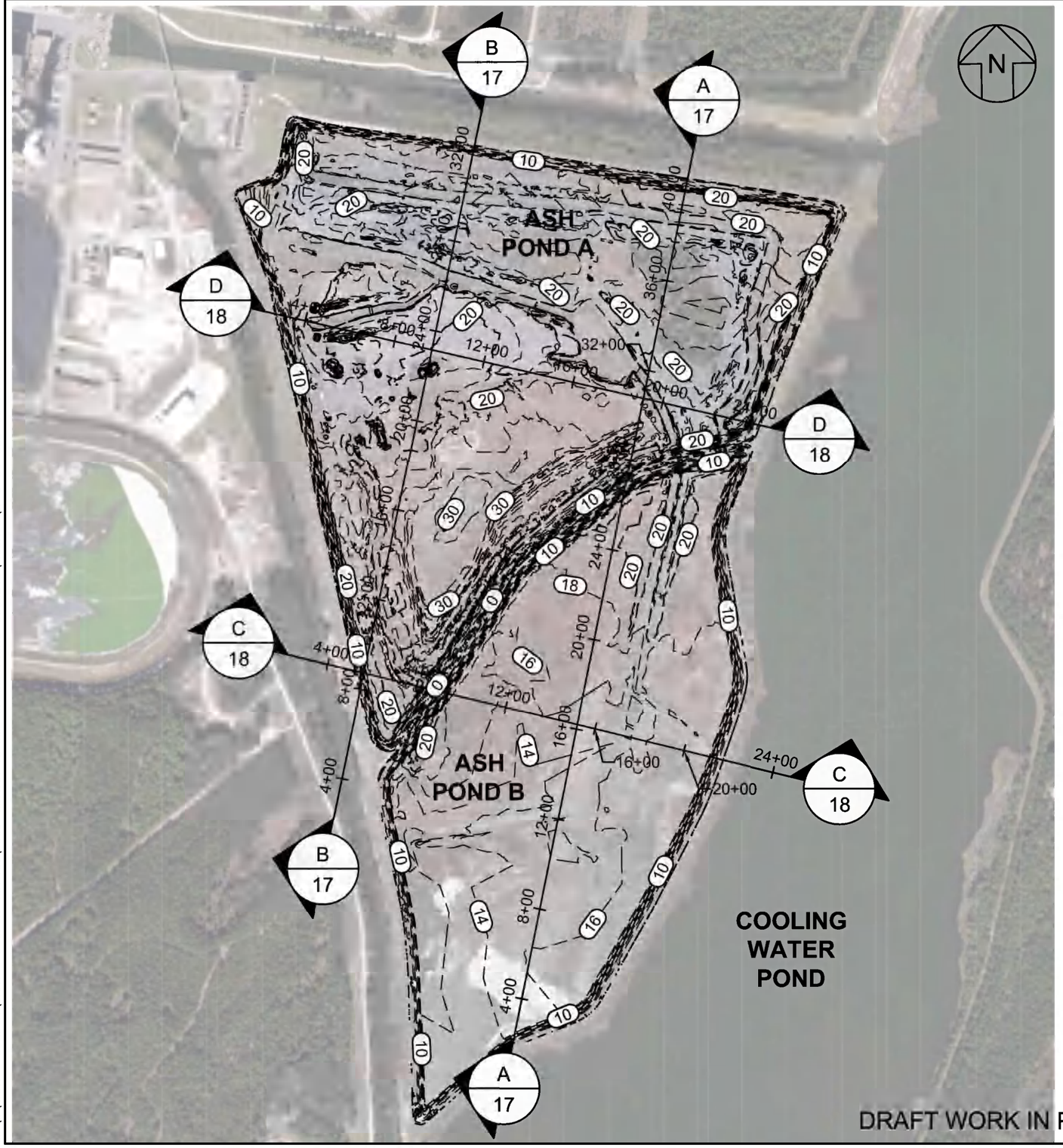
UNIT 2 SLURRY POND
-CCR IN PLACE-
CCR ISOPACH

Geosyntec consultants

FIGURE 11

PROJECT NO: GSC5242 | JUNE 2014

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-047



LEGEND

10 ISOPACH MAJOR CONTOUR DEPTH

ISOPACH MINOR CONTOUR DEPTH

ASH POND A	
BASE SURFACE	ASH POND A BOTTOM
COMPARISON SURFACE	WINYAH EXIST TOPO-ASH POND A
CUT VOLUME	9.04 (CY)
FILL VOLUME	2730334.49 (CY)
NET VOLUME	2730325.45 (CY)
ASH POND B	
BASE SURFACE	ASH POND B BOTTOM
COMPARISON SURFACE	WINYAH EXIST TOPO-ASH POND B
CUT VOLUME	46.78 (CY)
FILL VOLUME	1533932.83 (CY)
NET VOLUME	1533886.06 (CY)

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 500' 1000'

SCALE IN FEET

ASH POND A & B
-CCR IN PLACE-
CCR ISOPACHS

ASH POND A & B
-CCR IN PLACE-
CCR ISOPACHS

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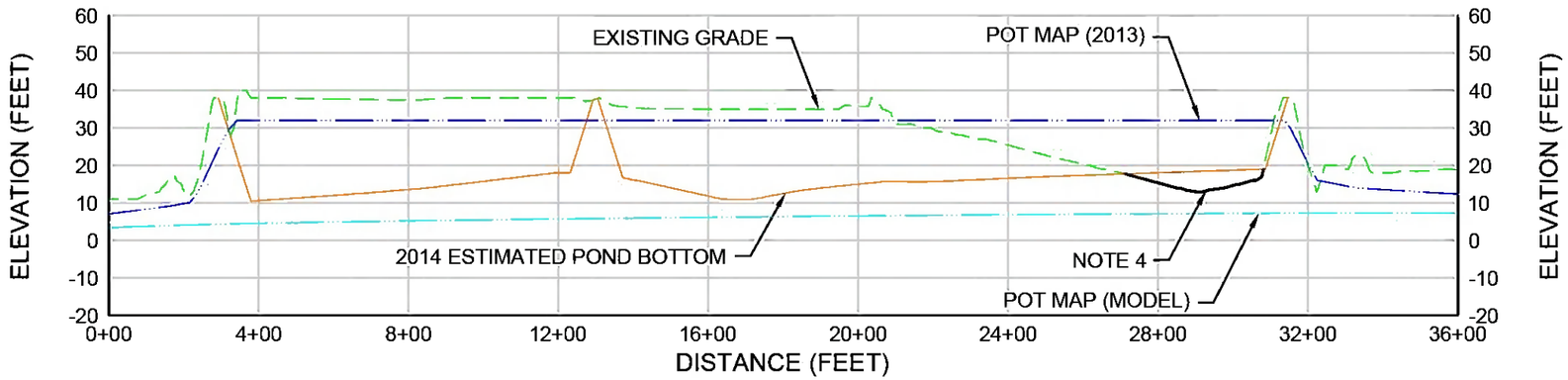
FIGURE 12

PROJECT NO: GSC5242 | JUNE 2014

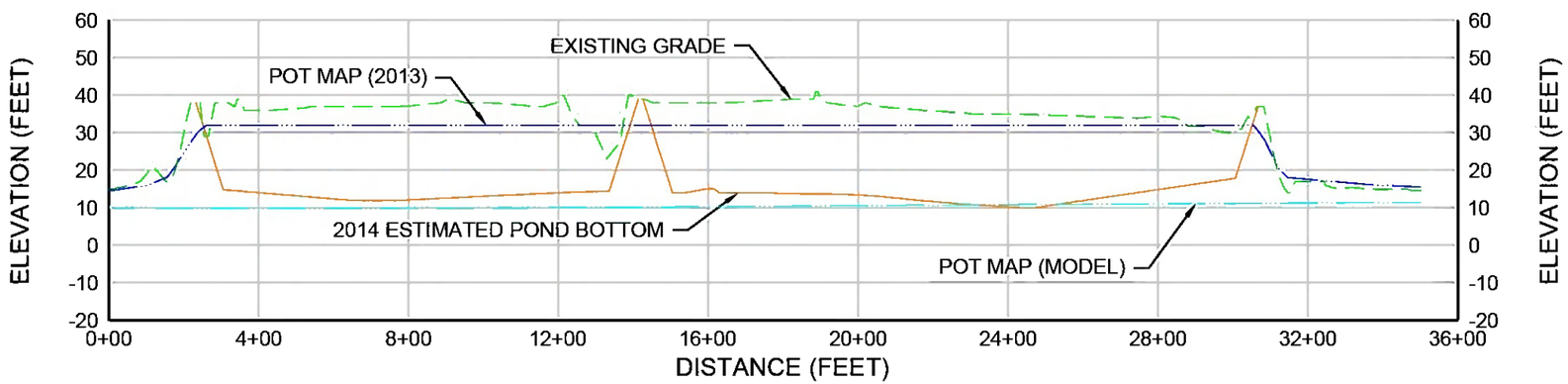
M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-048



A / 9 SECTION

SLURRY POND 3 & 4 AND WEST ASH POND

SCALE: 1" = 400' (HORIZONTAL) 1" = 40' (VERTICAL)
XREF: W-0-SC-585-00-F0006-045



B / 9 SECTION

SLURRY POND 3 & 4 AND WEST ASH POND

SCALE: 1" = 400' (HORIZONTAL) 1" = 40' (VERTICAL)
XREF: W-0-SC-585-00-F0006-045

LEGEND

- EXISTING GRADE
- ESTIMATED POND BOTTOM (2014)
- POTENTIOMETRIC SURFACE (2013)
- POTENTIOMETRIC SURFACE MODEL AS IF PONDS ARE DRAINED

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.
4. ESTIMATED POND BOTTOM IN AREA WAS MANUALLY MADE TO COINCIDE WITH EXISTING GRADE.

0 400' 800'
HORIZONTAL SCALE IN FEET

0 40' 80'
VERTICAL SCALE IN FEET

SLURRY POND 3 & 4 AND WEST ASH POND -CCR IN PLACE- SITE SECTIONS

DRAFT WORK IN PROGRESS
FOR REVIEW ONLY

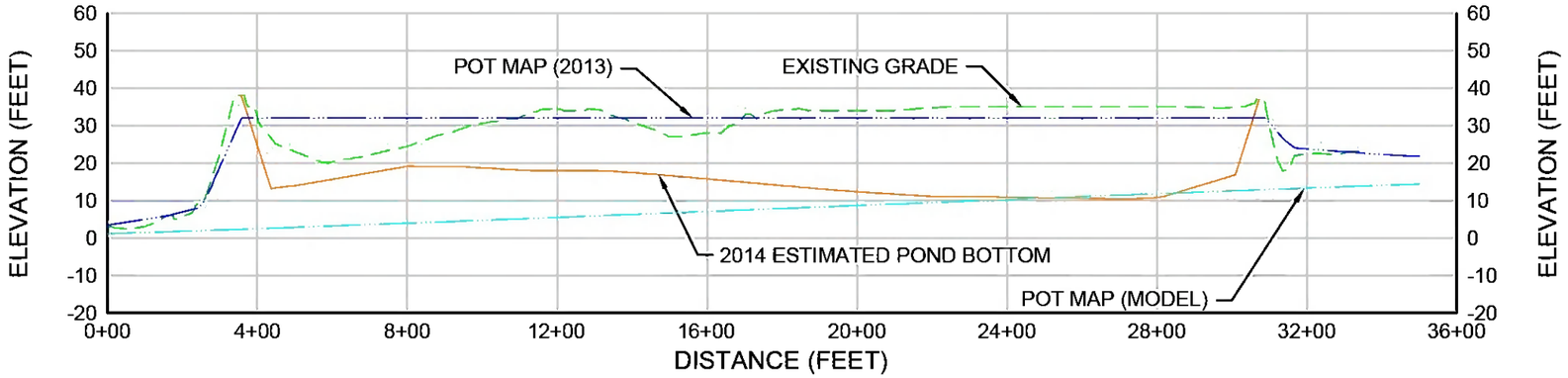
SLURRY POND 3 & 4 AND WEST ASH POND -CCR IN PLACE- SITE SECTIONS

Geosyntec consultants

FIGURE 13

PROJECT NO: GSC5242 | JUNE 2014

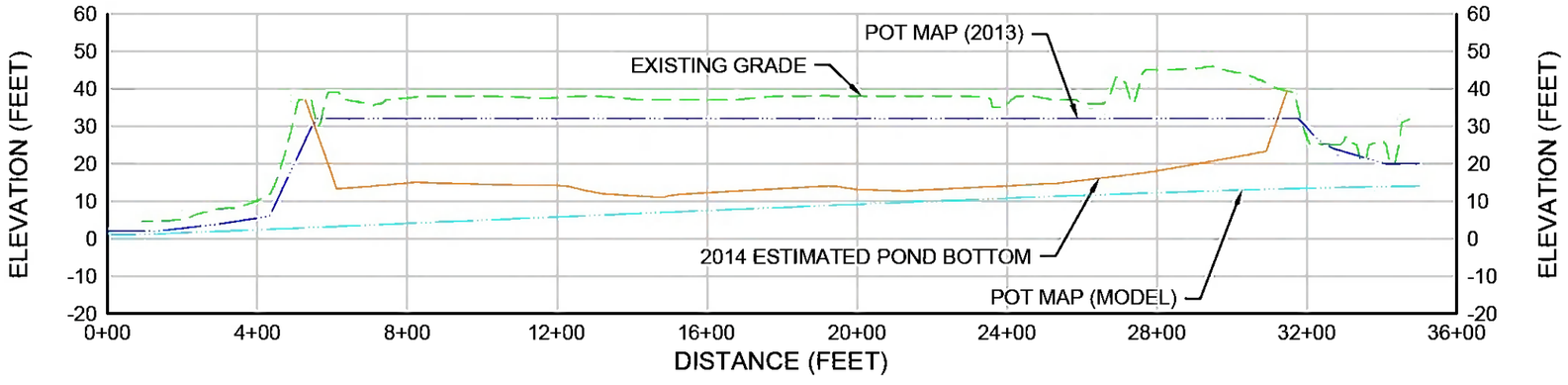
M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-045



C / 9

SECTION
SLURRY POND 3 & 4 AND WEST ASH POND

SCALE: 1" = 400' (HORIZONTAL) 1" = 40' (VERTICAL)
XREF: W-0-SC-585-00-F0006-045



D / 9

SECTION
SLURRY POND 3 & 4 AND WEST ASH POND

SCALE: 1" = 400' (HORIZONTAL) 1" = 40' (VERTICAL)
XREF: W-0-SC-585-00-F0006-045

LEGEND

- EXISTING GRADE
- ESTIMATED POND BOTTOM (2014)
- POTENTIOMETRIC SURFACE (2013)
- POTENTIOMETRIC SURFACE MODEL AS IF PONDS ARE DRAINED

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
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3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 400' 800'
HORIZONTAL SCALE IN FEET

0 40' 80'
VERTICAL SCALE IN FEET

SLURRY POND 3 & 4 AND WEST ASH POND -CCR IN PLACE- SITE SECTIONS

DRAFT WORK IN PROGRESS
FOR REVIEW ONLY

SLURRY POND 3 & 4 AND WEST ASH POND -CCR IN PLACE- SITE SECTIONS

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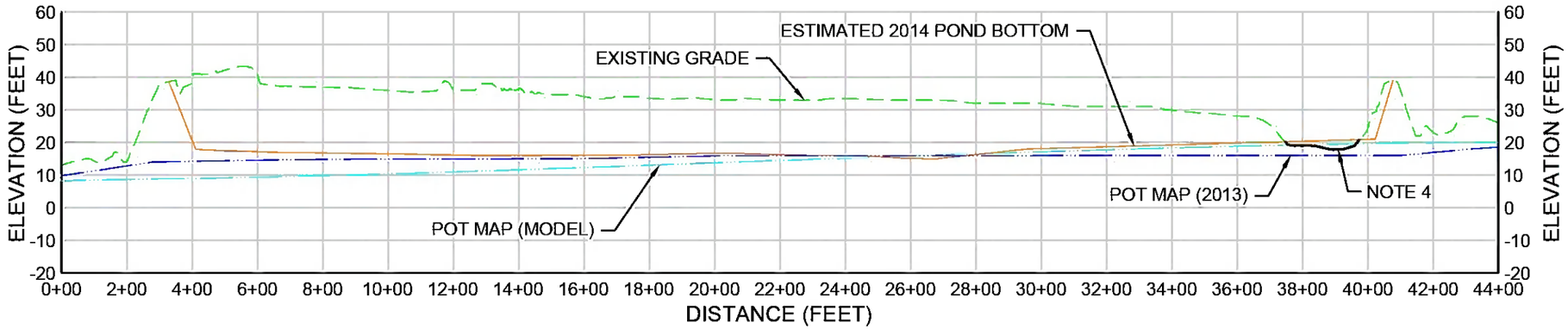
FIGURE 14

PROJECT NO: GSC5242 | JUNE 2014

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-045



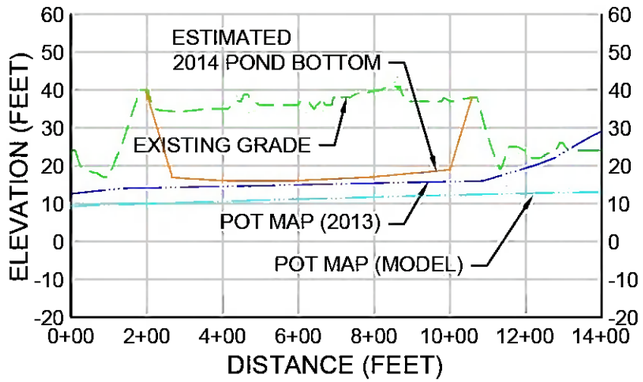
A / 10 SECTION
SOUTH ASH POND
SCALE: 1" = 400" (HORIZONTAL) 1" = 40' (VERTICAL)
XREF: W-0-SC-585-00-F0006-046

LEGEND

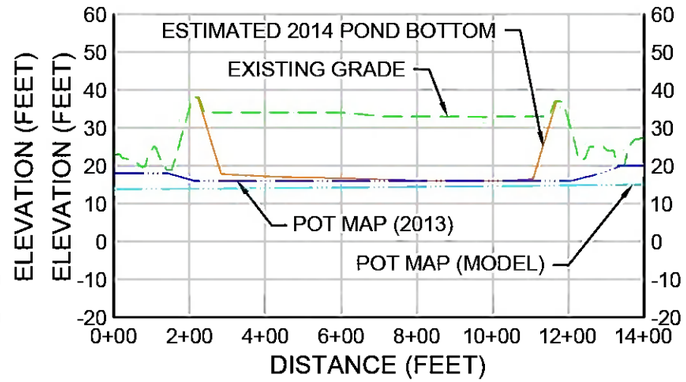
- EXISTING GRADE
- ESTIMATED POND BOTTOM (2014)
- POTENTIOMETRIC SURFACE (2013)
- POTENTIOMETRIC SURFACE MODEL AS IF PONDS ARE DRAINED

NOTES:

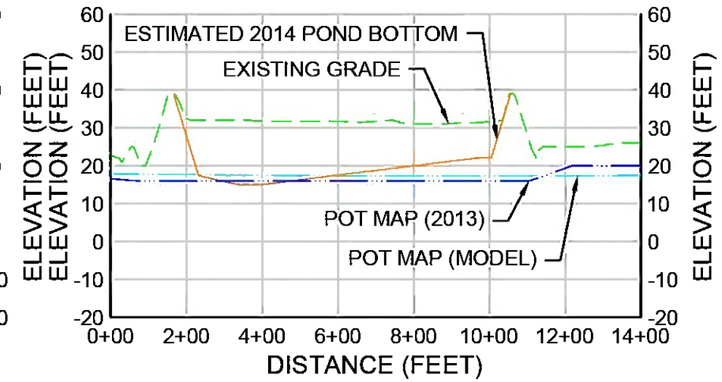
1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.
4. ESTIMATED POND BOTTOM IN AREA WAS MANUALLY MADE TO COINCIDE WITH EXISTING GRADE.



B / 10 SECTION
SOUTH ASH POND
SCALE: 1" = 400" (HORIZONTAL) 1" = 40' (VERTICAL)
XREF: W-0-SC-585-00-F0006-046



C / 10 SECTION
SOUTH ASH POND
SCALE: 1" = 400" (HORIZONTAL) 1" = 40' (VERTICAL)
XREF: W-0-SC-585-00-F0006-046



D / 10 SECTION
SOUTH ASH POND
SCALE: 1" = 400" (HORIZONTAL) 1" = 40' (VERTICAL)
XREF: W-0-SC-585-00-F0006-046

SOUTH ASH POND
-CCR IN PLACE-
SITE SECTIONS

0 400' 800'
HORIZONTAL SCALE IN FEET

0 40' 80'
VERTICAL SCALE IN FEET

DRAFT WORK IN PROGRESS-FOR REVIEW ONLY

SOUTH ASH POND
-CCR IN PLACE-
SITE SECTIONS

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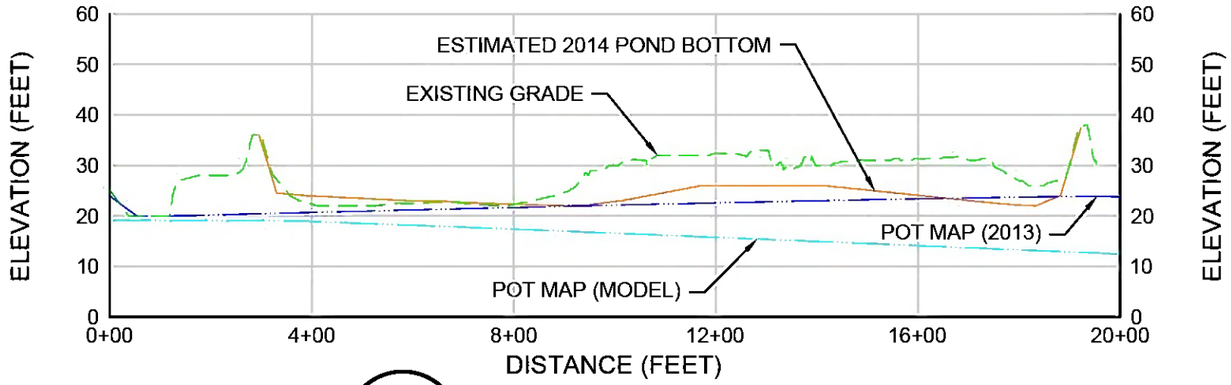
FIGURE 15

PROJECT NO: GSC5242 | JUNE 2014

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-046

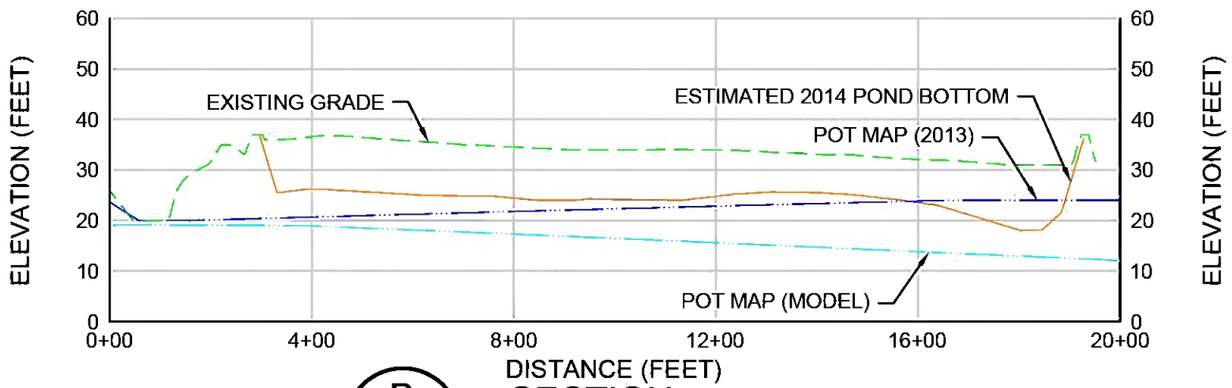


A / 11 SECTION

UNIT 2 SLURRY POND

SCALE: 1" = 300' (HORIZONTAL) 1" = 30' (VERTICAL)

XREF: W-0-SC-585-00-F0006-047

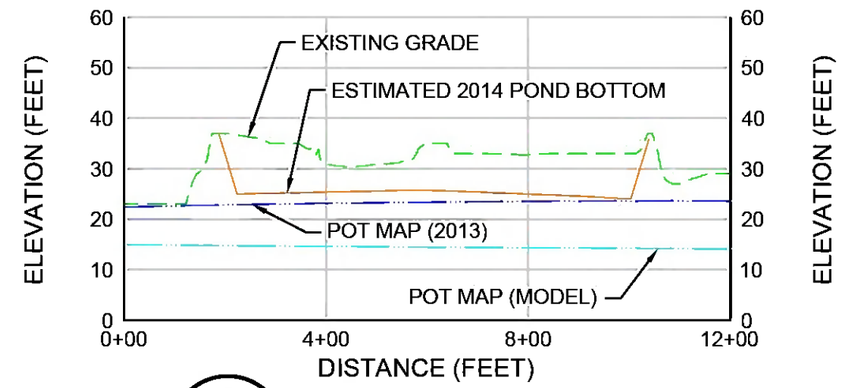


B / 11 SECTION

UNIT 2 SLURRY POND

SCALE: 1" = 300' (HORIZONTAL) 1" = 30' (VERTICAL)

XREF: W-0-SC-585-00-F0006-047

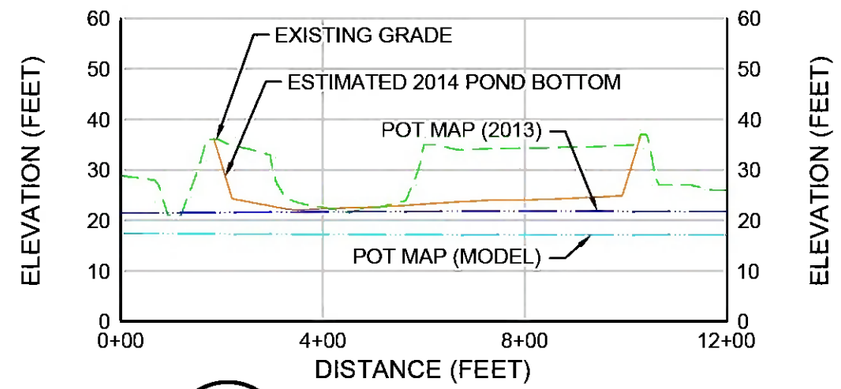


C / 11 SECTION

UNIT 2 SLURRY POND

SCALE: 1" = 300' (HORIZONTAL) 1" = 30' (VERTICAL)

XREF: W-0-SC-585-00-F0006-047



D / 11 SECTION

UNIT 2 SLURRY POND

SCALE: 1" = 300' (HORIZONTAL) 1" = 30' (VERTICAL)

XREF: W-0-SC-585-00-F0006-047

LEGEND

- EXISTING GRADE
- ESTIMATED POND BOTTOM (2014)
- POTENTIOMETRIC SURFACE (2013)
- POTENTIOMETRIC SURFACE MODEL AS IF PONDS ARE DRAINED

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

UNIT 2 SLURRY POND
-CCR IN PLACE-
SITE SECTIONS

0 300' 600'
HORIZONTAL SCALE IN FEET

0 30' 60'
VERTICAL SCALE IN FEET

DRAFT WORK IN PROGRESS-FOR REVIEW ONLY

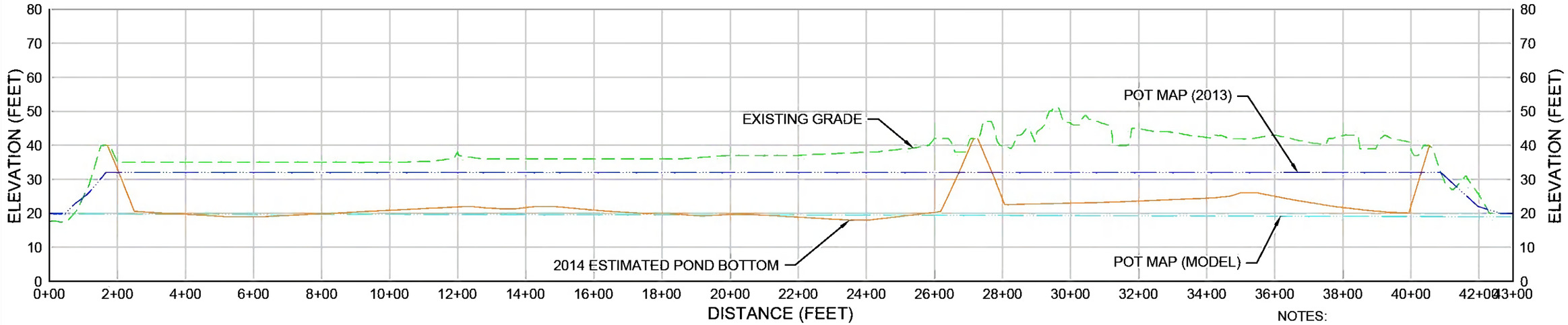
UNIT 2 SLURRY POND
-CCR IN PLACE-
SITE SECTIONS

Geosyntec consultants

FIGURE 16

PROJECT NO: GSC5242 | JUNE 2014

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-047

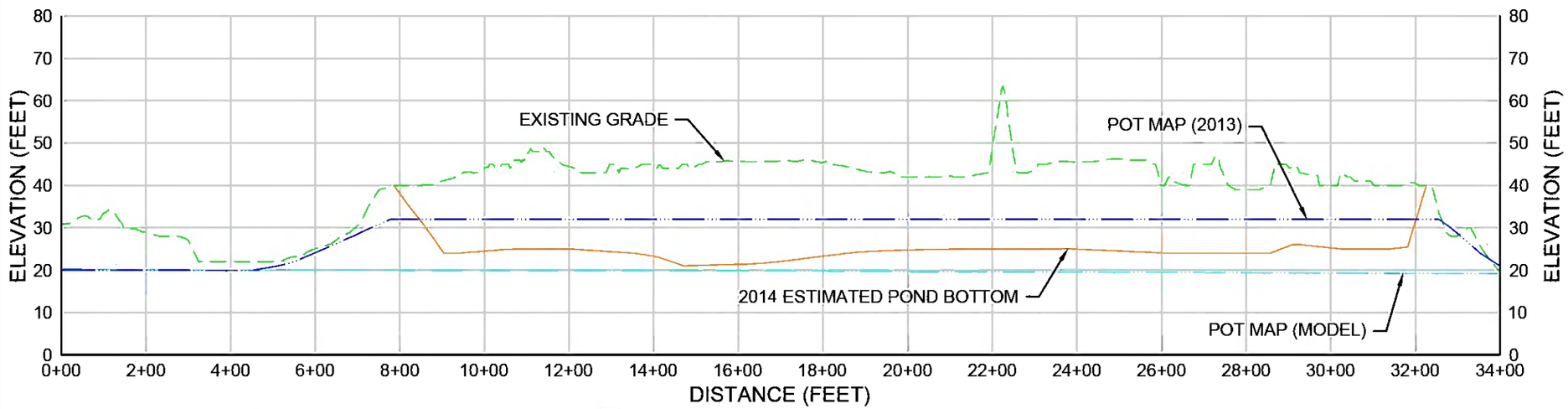


A / 12 SECTION

ASH PONDS A & B

SCALE: 1" = 300' (HORIZONTAL) 1" = 30' (VERTICAL)

XREF: W-0-SC-585-00-F0006-048



B / 12 SECTION

ASH PONDS A & B

SCALE: 1" = 300' (HORIZONTAL) 1" = 30' (VERTICAL)

XREF: W-0-SC-585-00-F0006-048

LEGEND

- EXISTING GRADE
- ESTIMATED POND BOTTOM (2014)
- POTENTIOMETRIC SURFACE (2013)
- POTENTIOMETRIC SURFACE MODEL AS IF PONDS ARE DRAINED

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 300' 600'

HORIZONTAL SCALE IN FEET

0 30' 60'

VERTICAL SCALE IN FEET

ASH POND A & B
-CCR IN PLACE-
SITE SECTIONS

DRAFT WORK IN PROGRESS-FOR REVIEW ONLY

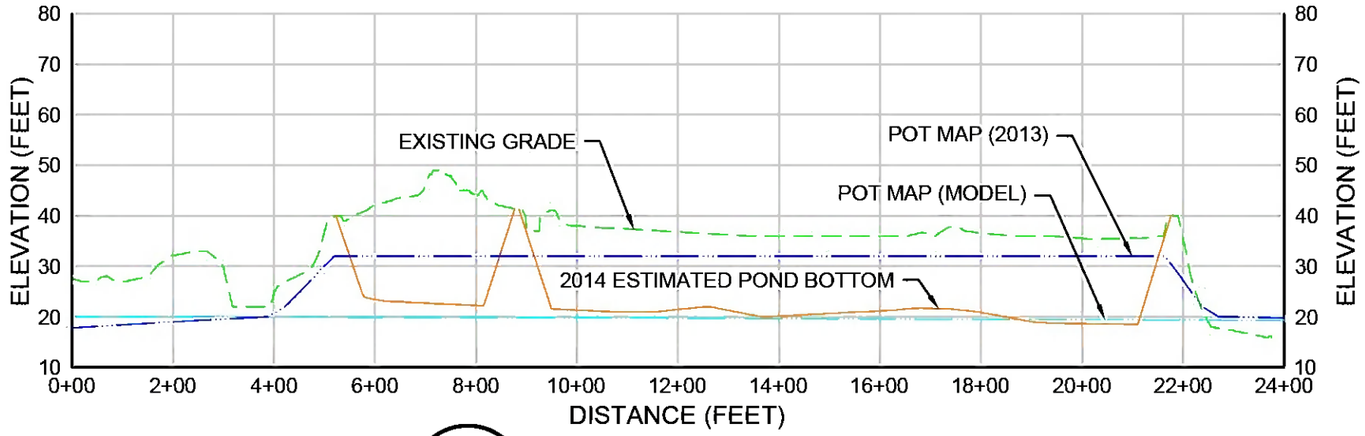
ASH POND A & B
-CCR IN PLACE-
SITE SECTIONS

Geosyntec consultants

PROJECT NO: GSC5242 | JUNE 2014

FIGURE 17

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-048

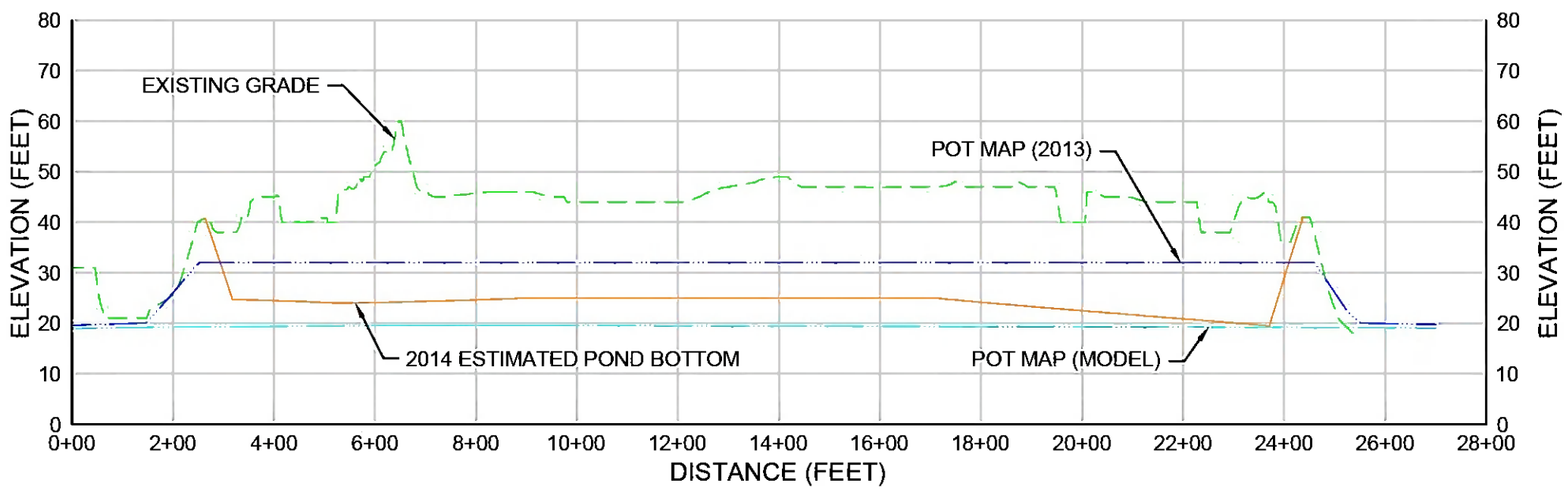


C / 12 SECTION

ASH PONDS A & B

SCALE: 1" = 300' (HORIZONTAL) 1" = 30' (VERTICAL)

XREF: W-0-SC-585-00-F0006-048



D / 12 SECTION

ASH PONDS A & B

SCALE: 1" = 300' (HORIZONTAL) 1" = 30' (VERTICAL)

XREF: W-0-SC-585-00-F0006-048

LEGEND

- EXISTING GRADE
- ESTIMATED POND BOTTOM (2014)
- POTENTIOMETRIC SURFACE (2013)
- POTENTIOMETRIC SURFACE MODEL AS IF PONDS ARE DRAINED

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY THOMAS & HUTTON DATED 06/29/11 AND REVISED ON 01/14/12.
2. COORDINATES AND DIRECTIONS SHOWN ON THIS DRAWING ARE BASED ON SOUTH CAROLINA STATE PLANE COORDINATE SYSTEM (NAD83) (CORS) (INT'L FT). DISTANCES SHOWN ARE GROUND DISTANCES, NOT GRID DISTANCES.
3. ELEVATIONS ON THIS SURVEY ARE REFERENCED TO NGVD 1929 DATUM AS DERIVED FROM NGS MONUMENT PID#DD1957.

0 300' 600'

HORIZONTAL SCALE IN FEET

0 30' 60'

VERTICAL SCALE IN FEET

ASH POND A & B
-CCR IN PLACE-
SITE SECTIONS

DRAFT WORK IN PROGRESS-FOR REVIEW ONLY

ASH POND A & B
-CCR IN PLACE-
SITE SECTIONS

Geosyntec consultants

FIGURE 18

PROJECT NO: GSC5242 | JUNE 2014

M:\S\SANTEE COOPER\SANTEE COOPER-WINYAH\0006-WINYAH VOLUME CALCULATIONS-GSC5242\FIGURES\W-0-SC-585-00-F0006-048