

<p>DUKE ENERGY CAROLINAS, LLC, AND DUKE ENERGY PROGRESS, LLC,</p> <p style="text-align: center;">Petitioners,</p> <p style="text-align: center;">v.</p> <p>NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY,</p> <p style="text-align: center;">Respondent,</p> <p>APPALACHIAN VOICES, THE STOKES COUNTY BRANCH OF THE NAACP, MOUNTAINTRUE, THE CATAWBA RIVERKEEPER FOUNDATION, THE SIERRA CLUB, THE WATERKEEPER ALLIANCE, and THE ROANOKE RIVER BASIN ASSOCIATION,</p> <p style="text-align: center;">Respondent-Intervenors.</p>	<p><b>SETTLEMENT AGREEMENT</b></p>
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THIS SETTLEMENT AGREEMENT (the “Agreement”) is entered into on December 31st, 2019 (“Effective Date”) between the Parties, defined as follows:

- “Duke Energy”: Duke Energy Carolinas, LLC and Duke Energy Progress, LLC
- “DEQ”: The North Carolina Department of Environmental Quality
- “Community Groups”: Appalachian Voices, Stokes County Branch of the NAACP, MountainTrue, The Catawaba Riverkeeper Foundation, Waterkeeper Alliance, Sierra Club, Roanoke River Basin Association, Cape Fear River Watch, Inc., Neuse River Foundation/Sound Rivers, Inc., and NC State Conference of the NAACP.<sup>1</sup>

The Parties enter into this Settlement Agreement in order to resolve the matters referenced herein.

**Background**

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<sup>1</sup> To the extent some of these Community Groups are not party to this litigation but rather to prior litigation addressing other Duke Energy coal ash facilities, they have been consulted by their counsel and agree to the terms and conditions herein only to the extent applied to the facility or facilities about which they have previously been involved in litigation related to the disposition of coal ash or alleged violations related to coal ash.

1. On April 1, 2019, DEQ issued Coal Combustion Residuals Surface Impoundment Closure Determinations (the “Closure Determinations”) pursuant to the Coal Ash Management Act (“CAMA”) for Duke Energy’s Allen, Belews Creek, Cliffside, Marshall, Mayo, and Roxboro Steam Stations (singular, “Facility”; collectively, the “Facilities”). These Closure Determinations ordered excavation of all coal combustion residuals (“CCR”) impoundments at the Facilities.
2. On April 26, 2019, Duke Energy filed Petitions for Contested Case Hearing in the North Carolina Office of Administrative Hearings (“OAH”) in 19 EHR 2398, 19 EHR 2399, 19 EHR 2401, 19 EHR 2403, 19 EHR 2404, and 19 EHR 2406 challenging DEQ’s Closure Determination for each of the Facilities (“OAH Proceedings”).
3. On May 9, 2019, DEQ issued a letter adjusting certain dates and making certain clarifications related to the Closure Determinations.
4. On May 24, 2019, Duke Energy filed Amended Petitions for each Facility in 19 EHR 2398, 19 EHR 2399, 19 EHR 2401, 19 EHR 2403, 19 EHR 2404, and 19 EHR 2406 challenging DEQ’s May 9, 2019 letter in addition to DEQ’s April 1, 2019 Closure Determinations.
5. In addition to the OAH Proceedings, the Parties are involved in the following litigation relating to the Facilities: the State Enforcement Actions (“State of North Carolina *ex rel.* North Carolina Department of Environmental Quality and Roanoke River Basin Association, Sierra Club, Waterkeeper Alliance, Cape Fear River Watch, Inc., Sound Rivers, Inc. and Winyah Rivers v. Duke Energy Progress, LLC 13 CvS 11032 (Wake County)”) and “State of North Carolina *ex rel.* North Carolina Department of Environmental Quality and Catawba Riverkeeper Foundation, Inc., Waterkeeper Alliance, MountainTrue, Appalachian Voices, Yadkin Riverkeeper, Inc., Dan River Basin Association, and

Southern Alliance for Clean Energy v. Duke Energy Carolinas, LLC” 13 CvS 14461 (Mecklenburg County); three federal Clean Water Act lawsuits (“Roanoke River Basin Association v. Duke Energy Progress, LLC” No. 1:16-cv-607 (MDNC) (Mayo), “Roanoke River Basin Association v. Duke Energy Progress, LLC” No. 1:17-cv-452 (MDNC) (Roxboro), and “Appalachian Voices et al v. Duke Energy Carolinas, LLC” No. 1:17-cv-1097 (MDNC) (Belews Creek)); and twelve petitions for judicial review (“PJR”) in North Carolina Superior Court petitioning two Orders issued in the OAH Proceedings (Case Nos. 19 CvS 19908, 19 CvS 19909, 19 CvS 19910, 19 CvS 19911, 19 CvS 19912, 19 CvS 19913, 19 CvS 22714, 19 CvS 22715, 19 CvS 22716, 19 CvS 22717, 19 CvS 22718, and 19 CvS 22719).

6. The Parties desire to resolve and settle any disputes between them in connection with the OAH proceedings, the State Enforcement Actions, the federal Clean Water Act lawsuits, and the PJRs in order to ensure that the impoundments are excavated on an expedited basis and to remove the uncertainty associated with litigation. The Community Groups and Duke Energy further agree that the actions to be taken by DEQ and Duke Energy under this Agreement and related Consent Order will resolve the pending issues in the Clean Water Act lawsuits.

### **The Facilities**

7. This Agreement addresses the following impoundments at the Facilities regulated under CAMA.
  - a. At the Allen Steam Station, there are two CCR impoundments, the Retired Ash Basin and the Active Ash Basin. The Retired Ash Basin is approximately 123 acres

and contains approximately 6,100,000 tons of coal ash and the Active Ash Basin is approximately 170 acres and contains approximately 10,480,000 tons of coal ash.<sup>2</sup>

- b. At the Belews Creek Steam Station, there is one CCR impoundment, the Ash Basin. The Ash Basin is approximately 270 acres and contains approximately 11,970,000 tons of coal ash.
- c. At the Cliffside Steam Station/Rogers Energy Complex, there are two CCR impoundments, the Units 1-5 Inactive Ash Basin and the Active Ash Basin. The Units 1-5 Inactive Ash Basin is approximately 46 acres and contains approximately 2,350,000 tons of coal ash and the Active Ash Basin is approximately 86 acres and contains approximately 5,240,000 tons of coal ash.
- d. At the Marshall Steam Station, there is one CCR impoundment, the Ash Basin. The Ash Basin is approximately 360 acres and contains approximately 17,650,000 tons of coal ash.<sup>3</sup>

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<sup>2</sup> Note that the tonnage of coal ash includes only the coal ash contained within the impoundments and not coal ash in landfills or structural fills. Duke Energy on the one hand, and DEQ and the Community Groups on the other, have a dispute as to whether coal ash under a lawfully permitted landfill is regulated by CAMA. At Allen, the Retired Ash Basin Landfill and subgrade is 25 acres and contains approximately 1,740,000 tons of coal ash. There is approximately 1,392,000 tons of coal ash beneath the Retired Ash Basin Landfill, and approximately 991,000 tons of coal ash in the area designated as the “DORS” area.

<sup>3</sup> Note that the tonnage of coal ash includes only the coal ash contained within the impoundments and not coal ash in landfills or structural fills. Duke Energy on the one hand, and DEQ and the Community Groups on the other, have a dispute as to whether coal ash under a lawfully permitted landfill is regulated by CAMA. At Marshall, the Structural Fill beneath solar panels contains approximately 6,490,000 tons of coal ash. The subgrade fill beneath Industrial Landfill (“ILF”) Cells 1 and 2 contains approximately 460,000 tons of coal ash. The subgrade fill beneath ILF Cells 3 and 4, contains approximately 409,000 tons of coals ash. The Old Ash Fill (1804 Phase I Landfill) contains approximately 626,000 tons of coal ash. The Retired Landfill (1804 Phase II Landfill) contains approximately 4,870,000 tons of coal ash. The ILF (Permit 18-12) contains approximately 2,050,000 tons of coal ash. The Marshall ILF continues to receive production ash and these tonnages represent the approximate tonnages as of the Effective Date.

- e. At the Mayo Steam Station, there is one CCR impoundment, the Ash Basin. The Ash Basin is approximately 153 acres and contains approximately 6,630,000 tons of coal ash.
  - f. At the Roxboro Steam Station, there are two CCR impoundments, the East Ash Basin and the West Ash Basin. The West Ash Basin is approximately 225 acres and contains approximately 12,970,000 tons of coal ash and the East Ash Basin is approximately 71 acres and contains approximately 7,100,000 tons of coal ash.<sup>4</sup>
8. Each of these impoundments is a CCR impoundment as defined by CAMA, N. C. Gen. Stat. § 130A-309.201(6), and the Federal CCR Rule 40 CFR Parts 257 and 261.
9. The total approximate amount of the coal ash set forth in paragraph 7 is estimated to be 80.5 million tons.

**Facility-Specific Obligations of Duke Energy.**

**Allen**

10. **Closure of Coal Ash Impoundments.** At the Allen Steam Station, Duke Energy will excavate and remove all coal ash from the Retired Ash Basin and Active Ash Basin, either (1) to lined onsite locations for disposal in a CCR landfill, industrial landfill, or municipal solid waste landfill or (2) for beneficial use for cementitious purposes or another industrial process at least as environmentally protective. If a process other than a cementitious

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<sup>4</sup> Note that the tonnage of coal ash includes only the coal ash contained within the impoundments and not coal ash in landfills or structural fills. Duke Energy on the one hand, and DEQ and the Community Groups on the other, have a dispute as to whether coal ash under a lawfully permitted landfill is regulated by CAMA. For Roxboro, the Roxboro Monofill contains approximately 6,818,000 tons of coal ash one portion of the landfill and an additional 7,635,000 tons of coal ash in a separate portion of that landfill. The Roxboro Monofill continues to receive production ash and these tonnages represent the approximate tonnages as of the Effective Date.

process is to be used, Duke Energy will provide reasonable notice to the Community Groups and DEQ. Duke Energy shall remove or permanently close all pipes currently running through or beneath the Retired Ash Basin and Active Ash Basin. Duke Energy will thereafter stabilize and close the area where the Retired Ash Basin and Active Ash Basin are located pursuant to applicable law. The total impoundment ash that will be excavated is estimated to be approximately 16,632,000 tons of coal ash.

11. **Disposition of Other Coal Ash.** Additionally, Duke Energy will excavate and remove coal ash from the Storage Areas, Structural Fills, and Landfill from the top of the Retired Ash Basin, either (1) to lined onsite locations for disposal in a CCR landfill, industrial landfill, or municipal solid waste landfill or (2) for beneficial use for cementitious purposes or another industrial process at least as environmentally protective. If a process other than a cementitious process is to be used, Duke Energy will provide reasonable notice to the Community Groups and DEQ. The total non-impoundment ash that will be excavated is estimated to be approximately 2,731,000 tons of coal ash. The closure plan will provide that ash shall remain for structural stability around the footers for the transmission towers, and that all ash that remains will be covered with a geomembrane layer. The amount of coal ash referred to in this paragraph that shall remain is estimated to be between 30,000 and 50,000 tons and is unsaturated.

12. **Deadline for Closure.** Duke Energy projects that it will require until December 31, 2037, to complete all excavation as required in Paragraphs 10 and 11 and the Parties understand that Duke Energy will request variances to meet the deadline imposed by this Agreement. Duke Energy shall complete all excavation required in Paragraphs 10 and 11 by the statutory deadline set forth in CAMA, as amended by House Bill 630, or as may further be

amended from time to time, and subject to any variances granted pursuant to N.C. Gen. Stat. § 130A-309.215, but in any event not later than December 31, 2037. For clarity, this paragraph does not constitute a variance of the CAMA deadline for completion of closure. DEQ will approve or disapprove a request for variance at the appropriate time. The parties are aware that the Closure Plan submitted to DEQ for Allen on December 31, 2019, will not contain complete information reflecting the details of this Agreement. Pursuant to its statutory authority under N.C. Gen. Stat. § 130A-309.214(c), DEQ directs that such information shall be submitted no later than 30 days after the Effective Date.

13. **Groundwater Corrective Action Plan.** No later than December 31, 2019, Duke Energy shall submit a proposed Groundwater Corrective Action Plan to DEQ for its review and approval. The Corrective Action Plan will include active remedial measures designed to address any groundwater contamination as required by N.C. Gen. Stat. § 130A-309.211, 15A NCAC Subchapter 2L (the “2L groundwater rules”), and any other applicable laws, statutes, or regulations, subject to the provisions of Paragraph 51 and provided that active remedial measures shall not be required to remediate areas within the geographic limitation as specified in Paragraph 52.

#### **Belews Creek**

14. **Closure of Coal Ash Impoundments.** At Belews Creek, Duke Energy will excavate and remove all coal ash from the Ash Basin except the impoundment coal ash under or within the waste boundary of the Pine Hall Road Landfill either (1) to lined onsite locations for disposal in a CCR landfill, industrial landfill, or municipal solid waste landfill or (2) for beneficial use for cementitious purposes or another industrial process at least as

environmentally protective. If a process other than a cementitious process is to be used, Duke Energy will provide reasonable notice to the Community Groups and DEQ. Duke Energy shall remove or permanently close all pipes currently running through or beneath the Ash Basin. Duke Energy will thereafter stabilize and close the area where the Ash Basin is located pursuant to applicable law. The total impoundment ash that will be excavated is estimated to be approximately 11,870,000 tons of coal ash. The closure plan will provide that ash shall remain underneath the Pine Hall Road Landfill, which is capped with a geosynthetic cap and has been closed pursuant to permit 8503-INDUS-1984 and stopped receiving coal ash in 2014. The amount of coal ash underneath the Pine Hall Road Landfill is estimated to be no more than 100,000 tons. Provided that, if Duke Energy is not able to demonstrate on or before February 1, 2020, that it is able to meet the requirements of paragraph 17, Duke shall submit an addendum to the closure plan on or before February 15, 2020, providing for the full excavation of this ash.

15. **Deadline for Closure.** Duke Energy projects that it will require until December 31, 2031, to complete all excavation as required in Paragraph 14, and the Parties understand that Duke Energy will request variances to meet the deadline imposed by this Agreement. Duke Energy shall complete all excavation required in Paragraph 14 by the statutory deadline set forth in CAMA, as amended by House Bill 630, or as may further be amended from time to time, and subject to any variances granted pursuant to N.C. Gen. Stat. § 130A-309.215, but in any event not later than December 31, 2034. For clarity, this paragraph does not constitute a variance of the CAMA deadline for completion of closure. DEQ will approve or disapprove a request for variance at the appropriate time.



**16. Structural Stability, Monitoring, and Sampling.** The coal ash under and within the waste boundary of the Pine Hall Road Landfill and within the waste boundary of the Ash Basin shall be stabilized with a permanent structure (“stability feature”) for purposes of preserving the structural stability through the use of a wall unless a slope is shown to be as appropriate, so as to prevent lateral movement of the coal ash pursuant to a plan to be submitted for DEQ approval no later than June 30, 2020. Within seven (7) days of completing the stability feature, Duke Energy shall notify DEQ. Additionally, pursuant to a plan approved by DEQ, following excavation in the footprint of the former Ash Basin and downgradient of the Pine Hall Road Landfill, Duke Energy shall conduct groundwater monitoring (including the installation of new wells if reasonably necessary) and, upon re-formation of surface water features that demonstrate DEQ-confirmed intermittent or perennial flows (not merely precipitation), surface water sampling. Consistent with the provisions of Paragraph 51, the plan shall propose (1) additional groundwater remedial measures for any coal ash constituent if the data indicate an increasing trend in groundwater concentrations in excess of the standards set forth in 15A NCAC 2L. 0202 (“2L groundwater standards”) for four (4) consecutive semi-annual sampling events for that constituent, subject to the provisions of Paragraph 52, and (2) surface water treatment if the data shows impact from coal ash constituents above the 2B standards to waters of the State notwithstanding the provisions of Paragraph 52. This plan shall be submitted to DEQ no later than 120 days following completion of the stability feature. If appropriate, the additional monitoring plan will be integrated into the existing site monitoring plan to avoid redundant or conflicting monitoring programs. This paragraph shall not apply if the coal

ash under and within the waste boundary of the Pine Hall Road Landfill and within the waste boundary of the Ash Basin is excavated.

17. **Groundwater Corrective Action Plan.** No later than December 31, 2019, Duke Energy shall submit a proposed Groundwater Corrective Action Plan to DEQ for its review and approval. The Corrective Action Plan will include active remedial measures designed to address any groundwater contamination as required by N.C. Gen. Stat. § 130A-309.211, the 2L groundwater rules, and any other applicable laws, statutes, or regulations, provided that active remedial measures shall not be required to remediate areas within the geographic limitation as specified in Paragraph 52. If the coal ash under and within the waste boundary of the Pine Hall Road Landfill and within the waste boundary of the Ash Basin is not excavated, then at a minimum, Duke Energy shall remedy violations that DEQ determines are material violations of the 2L groundwater standards attributable to the Ash Basin at or beyond the geographic limitation as described in Paragraph 52 by December 31, 2029, subject to the provisions of Paragraph 51.

**Cliffside/Rogers**

18. **Closure of Coal Ash Impoundments.** At Cliffside Steam Station/Rogers Energy Complex, Duke Energy will excavate and remove all coal ash from the Unit 5 Inactive Ash Basin and Active Ash Basin, either (1) to lined onsite locations for disposal in a CCR landfill, industrial landfill, or municipal solid waste landfill or (2) for beneficial use for cementitious purposes or another industrial process at least as environmentally protective. If a process other than a cementitious process is to be used, Duke Energy will provide reasonable notice to the Community Groups and DEQ. Duke Energy shall remove or

permanently close all pipes currently running through or beneath the Unit 5 Inactive Ash Basin and Active Ash Basin. Duke Energy will thereafter stabilize and close the area where the Unit 5 Inactive Ash Basin and Active Ash Basin are located pursuant to applicable law. The total impoundment ash that will be excavated is estimated to be approximately 7,590,000 tons of coal ash.

19. **Deadline for Closure.** Duke Energy projects that it will require until December 31, 2028, to complete all excavation as required in Paragraph 18. Duke Energy shall complete all excavation required in Paragraph 18 by the statutory deadline set forth in CAMA, as amended by House Bill 630, or as may further be amended from time to time, and subject to any variances granted pursuant to N.C. Gen. Stat. § 130A-309.215, but in any event not later than December 31, 2029.

20. **Groundwater Corrective Action Plan.** No later than December 31, 2019, Duke Energy shall submit a proposed Groundwater Corrective Action Plan to DEQ for its review and approval. The Corrective Action Plan will include active remedial measures designed to address any groundwater contamination as required by N.C. Gen. Stat. § 130A-309.211, the 2L groundwater rules, and any other applicable laws, statutes, or regulations, subject to the provisions of Paragraph 50 and provided that active remedial measures shall not be required to remediate areas within the geographic limitation as specified in Paragraph 52.

### **Marshall**

21. **Closure of Coal Ash Impoundments.** At the Marshall Steam Station, Duke Energy will excavate and remove all coal ash from the Ash Basin, except the coal ash under or within the waste boundaries of the PV Structural Fill and the 1804 Phase II Landfill, either (1) to

lined onsite locations for disposal in a CCR landfill, industrial landfill, or municipal solid waste landfill or (2) for beneficial use for cementitious purposes or another industrial process at least as environmentally protective. If a process other than a cementitious process is to be used, Duke Energy will provide reasonable notice to the Community Groups and DEQ. Duke Energy shall remove or permanently close all pipes currently running through or beneath the Ash Basin. Duke Energy will thereafter stabilize and close the area where the Ash Basin is located pursuant to applicable law. The total ash that will be excavated is estimated to be approximately 16,800,000 tons of coal ash.

22. **Disposition of Other Coal Ash.** Additionally, as part of its groundwater Corrective Action Plan for the Marshall site, Duke Energy will excavate and remove approximately 626,000 tons of coal ash from the 1804 Phase I Landfill (sometimes referred to as the “old ash fill”) adjacent to the Ash Basin either (1) to lined onsite locations for disposal in a CCR landfill, industrial landfill, or municipal solid waste landfill or (2) for beneficial use for cementitious purposes or another industrial process at least as environmentally protective. If a process other than a cementitious process is to be used, Duke Energy will provide reasonable notice to the Community Groups and DEQ. Such excavation shall be complete no later than December 31, 2024. An approximate depiction of this excavation is attached as **Exhibit A**. The total ash that will be excavated from the 1804 Phase I Landfill is approximately 626,000 tons of coal ash.

23. **Deadline for Closure.** Duke Energy projects that it will require until December 31, 2034, to complete all excavation as required in Paragraph 21, and the Parties understand that Duke Energy will request variances to meet the deadline imposed by this Agreement. Duke Energy shall complete all excavation required Paragraph 21 by the statutory deadline set

forth in the CAMA, as amended by House Bill 630, or as may further be amended from time to time, and subject to any variances granted pursuant to N.C. Gen. Stat. § 130A-309.215, but in any event not later than December 31, 2035. For clarity, this paragraph does not constitute a variance of the CAMA deadline for completion of closure. DEQ will approve or disapprove a request for variance at the appropriate time.

24. **Structural Stability, Monitoring, and Sampling.** The coal ash under and within the waste boundary of the PV Structural Fill and the 1804 Phase II Landfill and within the waste boundary of the Ash Basin shall be stabilized with a permanent structure (“stability feature”) for purposes of preserving the structural stability through the use of a wall unless a slope is shown to be as appropriate, so as to prevent lateral movement of the coal ash pursuant to a plan to be submitted for DEQ approval no later than June 30, 2020. Within seven (7) days of completing the stability feature, Duke Energy shall notify DEQ. Additionally, pursuant to a plan approved by DEQ, following excavation in the footprint of the former Ash Basin and downgradient of the PV Structural Fill and the 1804 Phase II Landfill, Duke Energy shall conduct groundwater monitoring (including the installation of new wells if reasonably necessary) and, upon re-formation of surface water features that demonstrate DEQ-confirmed intermittent or perennial flows (not merely precipitation), surface water sampling. Consistent with the provisions of Paragraph 51, the plan shall propose (1) additional groundwater remedial measures for any coal ash constituent if the data indicate an increasing trend in groundwater concentrations in excess of the 2L groundwater standards for four (4) consecutive semi-annual sampling events for that constituent, subject to the provisions of Paragraph 52, and (2) surface water treatment if the data shows impact from coal ash constituents above the 2B standards to waters of the

State notwithstanding the provisions of Paragraph 52. This plan shall be submitted to DEQ no later than 120 days following completion of the stability feature. If appropriate, the additional monitoring plan will be integrated into the existing site monitoring plan to avoid redundant or conflicting monitoring programs.

**25. Groundwater Corrective Action Plan.** No later than December 31, 2019, Duke Energy shall submit a proposed Groundwater Corrective Action Plan to DEQ for its review and approval. As part of the Corrective Action Plan, Duke Energy shall install a geosynthetic cap over the PV Structural Fill and 1804 Phase II Landfill by December 31, 2024. The Corrective Action Plan will include active remedial measures designed to address any groundwater contamination as required by N.C. Gen. Stat. § 130A-309.211, the 2L groundwater rules, and any other applicable laws, statutes, or regulations, subject to the provisions of Paragraph 51 and provided that active remedial measures shall not be required to remediate areas within the geographic limitation as specified in Paragraph 52. At a minimum, Duke Energy shall remedy any material violations of the 2L groundwater standards as determined by DEQ that is attributable to the Ash Basin at or beyond the geographic limitation as described in Paragraph 52 by December 31, 2029, subject to the provisions of Paragraph 50.

### **Mayo**

**26. Closure of Coal Ash Impoundments.** At the Mayo Steam Station, Duke Energy will excavate and remove all coal ash from the Ash Basin either (1) to lined onsite locations for disposal in a CCR landfill, industrial landfill, or municipal solid waste landfill or (2) for beneficial use for cementitious purposes or another industrial process at least as

environmentally protective. If a process other than a cementitious process is to be used, Duke Energy will provide reasonable notice to the Community Groups and DEQ. Duke Energy shall remove or permanently close all pipes currently running through or beneath the Ash Basin. Duke Energy will stabilize and close the area where the Ash Basin is located pursuant to applicable law. The total ash that will be excavated is estimated to be approximately 6,630,000 tons of coal ash.

27. **Deadline for Closure.** Duke Energy projects that it will require until December 31, 2028, to complete all excavation as required in Paragraph 26. Duke Energy may request variances to meet the deadline imposed by this Agreement. Duke Energy shall complete all excavation required in Paragraph 26 by the statutory deadline set forth in CAMA, as amended by House Bill 630, or as may further be amended from time to time, and subject to any variances granted pursuant to N.C. Gen. Stat. § 130A-309.215, but in any event not later than December 31, 2029.

28. **Groundwater Corrective Action Plan.** No later than December 31, 2019, Duke Energy shall submit a proposed Groundwater Corrective Action Plan to DEQ for its review and approval. The Corrective Action Plan will include remedial measures designed to address any groundwater contamination as required by N.C. Gen. Stat. § 130A-309.211, the 2L groundwater rules, and any other applicable laws, statutes, or regulations, subject to the provisions of Paragraph 50 and provided that active remedial measures shall not be required to remediate areas within the geographic limitation as specified in Paragraph 52.

## **Roxboro**

29. **Closure of Coal Ash Impoundments.** At the Roxboro Steam Station, Duke Energy will excavate and remove all coal ash from the West Ash Basin (and its extension impoundment area, sometimes referred to as the “Southern Extension Impoundment”) and all coal ash from the East Ash Basin (and its extension impoundment area, sometimes referred to as the “Eastern Extension Impoundment”) except the coal ash under or within the waste boundary of the Roxboro Monofill, Permit No. 7302-INDUS-1988. The excavated ash will be either (1) disposed of at lined onsite locations for disposal in a CCR landfill, industrial landfill, or municipal solid waste landfill or (2) used for beneficial use for cementitious purposes or another industrial process at least as environmentally protective. If a process other than a cementitious process is to be used, Duke Energy will provide reasonable notice to the Community Groups and DEQ. The scope of excavation is approximately depicted on **Exhibit B** to this agreement. Duke Energy shall remove or permanently close all pipes currently running through or beneath the West Ash Basin and East Ash Basin except those associated with the Roxboro Monofill. Duke Energy will thereafter stabilize and close the area where the West Ash Basin and East Ash Basins are located pursuant to applicable law. The total ash that will be excavated is estimated to be approximately 16,860,000 tons of coal ash. Additionally, Duke Energy will remove all coal ash fill from the Gypsum Pad area following retirement of the coal-fired generating units at Roxboro.
30. **Disposition of Other Coal Ash.** No later than 2 years and 6 months after the retirement of the coal-fired units at Roxboro, the remaining coal ash at the site will be closed and covered with a cap system that meets the requirements of North Carolina and federal law.



31. **Deadline for Closure.** Duke Energy projects that it will require until December 31, 2035, to complete all excavation as required in Paragraph 29, and that the Parties understand that Duke Energy will request variances to meet the deadline imposed by this Agreement. Duke Energy shall complete all excavation required in Paragraph 29 by the statutory deadline set forth in CAMA, as amended by House Bill 630, or as may further be amended from time to time, and subject to any variances granted pursuant to N.C. Gen. Stat. § 130A-309.215, but in any event not later than December 31, 2036. For clarity, this paragraph does not constitute a variance of the CAMA deadline for completion of closure. DEQ will approve or disapprove a request for variance at the appropriate time.

32. **Structural Stability, Monitoring, and Sampling.** The coal ash under and within the waste boundary of the Roxboro Monofill and within the waste boundary of the East Ash Basin shall be stabilized with a permanent structure (“stability feature”) for purposes of preserving the structural stability through the use of a wall unless a slope is shown to be as appropriate so as to prevent lateral movement of the coal ash pursuant to a plan to be submitted for DEQ approval no later than June 30, 2020. Within seven (7) days of completing the stability feature, Duke Energy shall notify DEQ. Additionally, pursuant to a plan approved by DEQ, following excavation in the footprint of the former East Ash Basin and downgradient of the Roxboro Monofill, Duke Energy shall conduct groundwater monitoring (including the installation of new wells if reasonably necessary) and, upon re-formation of surface water features that demonstrate DEQ-confirmed intermittent or perennial flows (not merely precipitation), surface water sampling. Consistent with the provisions of Paragraph 51, the plan shall propose (1) additional groundwater remedial measures for any coal ash constituent if the data indicate an increasing trend in groundwater

concentrations in excess of the 2L groundwater standards for four (4) consecutive semi-annual sampling events for that constituent, subject to the provisions of Paragraph 52, and (2) surface water treatment if the data shows impact from coal ash constituents above the 2B standards to waters of the State notwithstanding the provisions of Paragraph 52. This plan shall be submitted to DEQ no later than 120 days following completion of the stability feature. If appropriate, the additional monitoring plan will be integrated into the existing site monitoring plan to avoid redundant or conflicting monitoring programs.

33. **Groundwater Corrective Action Plan.** No later than December 31, 2019, Duke Energy shall submit a proposed Groundwater Corrective Action Plan to DEQ for its review and approval. The Corrective Action Plan will include active remedial measures designed to address any groundwater contamination as required by N.C. Gen. Stat. § 130A-309.211, the 2L groundwater rules, and any other applicable laws, statutes, or regulations, subject to the provisions of Paragraph 51 and provided that active remedial measures shall not be required to remediate areas within the geographic limitation as specified in Paragraph 52. At a minimum, Duke Energy shall remedy any material violations of the 2L groundwater standards as determined by DEQ that is attributable to the East Ash Basin at or beyond the geographical limitation described in Paragraph 52 by December 31, 2029, subject to the provisions of Paragraph 51.

34. **Progress Towards Groundwater Remediation.** Subject to the provisions of this Agreement regarding substantial compliance in Paragraph 51, no later than June 30, 2020, Duke Energy shall submit a report for approval by DEQ analyzing the progress required by June 30, 2023 and by June 30, 2026 to achieve such compliance with 2L groundwater standards by December 31, 2029. Subject to the provisions of this Agreement regarding

substantial compliance in Paragraph 50, no later than September 30, 2023 and September 30, 2026, Duke Energy shall submit reports demonstrating sufficient progress toward the goal of achieving compliance with the 2L groundwater standards. If DEQ determines that sufficient progress has not been made towards achieving this goal, Duke Energy shall implement additional remedial measures as required by DEQ.

#### **Additional Obligations of Duke Energy**

35. **Submission of Closure Plans.** Duke Energy will submit to DEQ one Closure Plan for each impoundment pursuant to N.C. Gen. Stat. § 130A-309.214(a) for each of the above-referenced Facilities in accord with the provisions of this Agreement on or before December 31, 2019. Within 30 days thereafter, Duke Energy shall submit the supplemental information requested by DEQ in Paragraph 12.

36. **Notice to Community Groups.** During the implementation of the groundwater corrective action plans and any monitoring required by the terms of this Agreement, Duke Energy will provide concurrent copies to the Community Groups of coal ash excavation reports and groundwater monitoring data (including spreadsheets) for the Facilities as these are provided to DEQ. This may occur through U.S. Mail or electronic means to the person designated in Paragraph 67.

#### **Obligations of DEQ**

37. **Review of Closure Plans.** DEQ will review these proposed Closure Plans and provide for public participation consistent with N.C. Gen. Stat. § 130A-309.214(b). The parties recognize that DEQ may request the submittal of additional information pursuant to N.C. Gen. Stat. § 130A-309.214(c). After receiving public comment, DEQ will approve or disapprove the proposed closure plans pursuant to N.C. Gen. Stat. § 130A-309.214(c).

DEQ will not disapprove a proposed closure plan on the basis of the closure methodology employed, to the extent that such methodology is consistent with this Agreement.

38. **Timely Review.** In accordance with applicable law, DEQ agrees to conduct an expeditious review and act expeditiously on all applications by Duke Energy for permits necessary for Duke Energy to undertake the actions required under this Agreement as required by N.C. Gen. Stat. § 130A-309.203.

39. **Review of Variance Requests.** DEQ acknowledges that the deadline for closure is a deadline for which the Secretary is authorized to grant a variance provided that the requirements of N.C. Gen. Stat. § 130A-309.215 are satisfied. DEQ acknowledges that an extension of time required to complete excavation ordered by DEQ and mandated by the terms of this Settlement Agreement may be a valid basis for seeking a variance from CAMA deadlines, including requests for variance under Paragraph 45 below for purposes of beneficiation. DEQ will approve or disapprove a request for variance at the appropriate time.

40. **CCR Rule Deadlines.** DEQ agrees to cooperate with (including as appropriate to support) and not oppose Duke Energy's efforts to extend the deadlines imposed by the federal CCR rule in court or before an administrative body to the extent that such an extension is necessary for Duke Energy to meet its obligations under this Agreement.

41. **Further Excavation.** For impoundments, structural fills, and landfills identified in this Agreement, DEQ shall not require additional excavation for CCR-impacted groundwater at Allen, Belews Creek, Cliffside, Marshall, Mayo, and Roxboro unless DEQ determines (1) there are material violations of the 2L groundwater standards or this Agreement within

the meaning of Paragraph 51 and (2) these material violations cannot reasonably be remedied by active remediation.

### **Obligations of the Community Groups**

42. **CAMA Variance Requests.** The Community Groups will not oppose Duke Energy's requests for variances on the closure deadlines set forth in CAMA in court or before an administrative body, provided Duke Energy does not request to extend such deadlines past December 31, 2034 for basins at Belews Creek, December 31, 2035 for basins at Marshall, December 31, 2036 for basins Roxboro, and December 31, 2037 for basins at Allen.
43. **Closure Plans and CAPs.** The Community Groups agree that they will not challenge in court or before an administrative body DEQ's approval of Duke Energy's Closure Plans, CAPs (including application of a Restricted Designation), CAP implementation, landfill construction or operation permits, components or terms of NPDES permits or modifications to NPDES permits to the extent these components or terms are reasonably necessary for the obligations imposed by this Agreement (including, for example, NPDES permits or modifications relating to decanting and dewatering), stormwater permits, dam removal authorizations, or post-closure monitoring plans for Allen, Belews Creek, Cliffside, Marshall, Mayo, and Roxboro, or such other permits as required by this Agreement, provided those Closure Plans and CAPs conform with the terms of this Agreement.
44. **CCR Rule Deadlines.** The Community Groups agree not to oppose Duke Energy's efforts in court or in an administrative proceeding to extend the deadlines imposed by the federal CCR rule to the extent that such an extension is necessary for Duke Energy to meet its

obligations under this Agreement. If appropriate, the Community Groups will support such requests.

45. **Deadlines for Coal Ash Recycling.** The Community Groups agree not to oppose in court or before an administrative body, extensions to the CAMA closure dates as requested by Duke Energy, for the purposes of completing and beneficiation at Buck, Cape Fear, and HF Lee, through December 31, 2035.

#### **Further Obligations**

46. **Superior Court Consent Order.** The Parties will work together to submit a consent order for injunctive relief incorporating the terms of this Agreement for filing in Wake County and Mecklenburg County Superior Court in Case Nos. 13-CVS-11032 and 13-CVS-14461 (“Consent Order”) on or before January 31, 2020. In order to meet this deadline, the Parties will cooperate in the formation of the Consent Order, including periods for Notices. In the event the Superior Court refuses to enter the Consent Order, the parties agree that all parties shall retain the legal rights and positions that existed as of December 30, 2019 (including as applicable court rulings that constitute the law of the case). This paragraph shall be interpreted and enforced in order to fully effectuate the intent of the parties. To effectuate the intent of this paragraph, the Parties shall not object to the timeliness of any closure plan filed under the provisions of this paragraph and DEQ shall not approve any closure plan submitted under this Agreement prior to the entry of the Consent Order by the Superior Court, provided that DEQ may approve any closure plan on the last day for such approval under CAMA regardless of whether the Consent Order has been entered. It is expressly understood that in the event the Consent Order is not entered, and before the approval of

any closure plan by DEQ, Duke Energy intends to file alternative closure plans. It is further expressly understood that DEQ may not accept or approve these alternative closure plans.

**47. Survival of Terms.** The Parties intend and agree that the rights and obligations imposed by this Agreement shall be fully incorporated into the Consent Order contemplated by this Settlement Agreement, except for the obligations set forth in Paragraphs 48, 49 and 53. With the exception of the obligations set forth in Paragraph 48 (Dismissal of Related Litigation), Paragraph 49 (Compliance with CAMA), Paragraph 50 (DEQ Only State Entity Bound by this Agreement and Consent Order), and Paragraph 53 (Stipulations Between Only the Parties to this Agreement Regarding Rate Recovery Proceedings) this Settlement Agreement shall expire 90 days after entry of the Consent Order.

**48. Dismissal of Related Litigation.** Upon entry of the Consent Order by the North Carolina Superior Court and provided that there are no substantive modifications made by the Superior Court to the Consent Order, the Parties agree that Case Nos. 13 CvS 11032 and 13 CvS 14461 would be resolved. Within 15 days of entry of the Consent Order, Duke Energy shall dismiss with prejudice the following cases in the Office of Administrative Hearings: 19 EHR 2398, 19 EHR 2399, 19 EHR 2401, 19 EHR 2403, 19 EHR 2404, and 19 EHR 2406, and the following cases in North Carolina Superior Court: 19 CvS 19908, 19 CvS 19909, 19 CvS 19910, 19 CvS 19911, 19 CvS 19912, 19 CvS 19913, 19 CvS 22714, 19 CvS 22715, 19 CvS 22716, 19 CvS 22717, 19 CvS 22718, and 19 CvS 22719. Duke Energy and the Community Groups agree that the actions to be taken by Duke Energy and DEQ under this Agreement resolve and render moot the issues raised in the Clean Water Act lawsuits and will work cooperatively to prepare a joint motion dismissing those

claims with prejudice to be filed within 30 days of entry of the Consent Order in Superior Court. Each party shall bear its own costs and attorneys' fees in all litigation.

49. **Compliance with CAMA.** DEQ finds that the provisions of this Agreement satisfy the closure requirements of N.C. Gen. Stat. § 130A-309.214 for Duke Energy's obligations to close the CCR impoundments at the Facilities. In the event of inconsistency between this Agreement and DEQ's April 1 Closure Determinations, the terms of this Agreement shall control.

50. **DEQ Only State Entity Bound by this Agreement and Consent Order.** The Parties expressly acknowledge and agree to each of the following:

- a. The only State entity bound by this Agreement and any related Consent Order is DEQ.
- b. Nothing in this Agreement or any related Consent Order shall limit the arguments that may be made or conclusions that may be drawn by other State entities in any matter or proceeding concerning recovery through rates of costs incurred by Duke Energy.
- c. Neither resolution of cases or issues pursuant to this Agreement, nor the related Consent Orders, shall have any preclusive or *res judicata* effect against other State entities.

The Parties shall work together to ensure that the Consent Order effectuates the intent of this paragraph.

51. **Substantial Compliance.** For any term of this Agreement that requires compliance with the 2L groundwater standards, Duke Energy will not be deemed to be in violation of any such term and shall not be subject to civil penalties or enforcement action by DEQ so long as Duke Energy has used best efforts (as described in Paragraph 55) to implement the corrective action plan and post-closure monitoring and care plan unless DEQ determines



that there are multiple and material deviations from such standards at or beyond the geographic limitation set forth in paragraph 52 .

**52. Geographic Limitation.** Active remediation will not be required in the area within 500 feet of the waste boundary of each impoundments as shown on the most recent NPDES permit for each of the Facilities (except that if a property boundary or body of water is located closer than 500 feet to the waste boundary, that property boundary or body of water shall define the geographic limits for active remediation) (“geographic limitation”), provided that, subject to the provisions of Paragraph 51, coal ash constituents outside the geographic limitation described in this paragraph do not increase beyond the 2L groundwater standards post-closure. It is expressly understood and agreed that DEQ will not assess a civil penalty or pursue an enforcement action for any exceedances of the 2L groundwater standards within the geographical limitation so long as Duke Energy is making best efforts (as defined by paragraph 55) to implement the approved corrective action plan and closure plan as determined by DEQ. The corrective action plans may be periodically updated as required by DEQ if the groundwater cleanup fails to meet projected targets.

**53. Stipulations Between Only the Parties to this Agreement Regarding Rate Recovery Proceedings.**

- a. DEQ and the Community Groups agree that closing the CCR impoundments at the Allen, Belews Creek, Cliffside, Marshall, Mayo, and Roxboro Steam Stations in accord with this Agreement (including the obligations imposed by the Consent Order contemplated by this Agreement) is reasonable, prudent, in the public interest, and consistent with law. This subparagraph applies only to the actions of

Duke Energy in entering into this Agreement and assuming the obligations under this Agreement. For example, and without limitation, the agreement in this subparagraph does not extend, nor shall it be construed to apply, to the issues of (i) whether Duke Energy acted prudently and reasonably in the past, or (ii) whether Duke Energy prudently and reasonably performs its obligations under this Agreement. Nothing in this Agreement shall be taken as an admission of any imprudent or unreasonable actions by Duke Energy.

- b. Nothing in this Agreement, including but not limited to subparagraph (a) above, shall be taken as an endorsement or opposition by DEQ or the Community Groups of recovery through rates of the costs incurred by Duke Energy implementing the terms of this Agreement or related Consent Order.
- c. DEQ and the Community Groups shall not challenge or otherwise object in court or before an administrative body to the reasonableness, prudence, public interest, or legal requirement for Duke Energy to comply with the obligations imposed by this Agreement, related Consent Order, or as to the Agreement itself.
- d. The Parties state and agree that the issue of recovery through rates of the costs imposed by this Agreement and related Consent Order is to be determined by the North Carolina Utilities Commission upon proper application and related legal proceedings. DEQ has no role in making the determination of the issue of recovery through rates of the costs imposed by this Agreement and related Consent Order. DEQ neither endorses nor opposes such recovery.
- e. Nothing in this Agreement shall prevent DEQ from providing factual non-confidential information relating to the matters covered in this Agreement,

provided that it is expressly understood that Duke Energy does not waive any objection to the admissibility of this information based on evidentiary, administrative, statutory, or equitable grounds before any court or administrative body. If DEQ intends to file testimony or amicus briefs or provides discovery concerning the matters that are the subject of this Agreement in connection with ongoing judicial or administrative proceedings, it shall provide reasonable notice of the subject-matter of such testimony or brief or discovery before submitting it to the administrative agency or court.

- f. Nothing in this Agreement shall prevent the Community Groups from participating as permitted by law or agency ruling in rate recovery proceedings or objecting to Duke Energy's rate recovery on grounds not inconsistent with the terms of this Agreement.
- g. The Parties understand and agree that this Agreement and related Consent Order may be presented to the North Carolina Utilities Commission.

54. **No Admission.** By entering into this Agreement, no Party to this Agreement admits wrongdoing or liability related to matters covered in this Agreement.

55. **Force Majeure.** The Parties agree that it will not be a violation of this Agreement if performance of any of the obligations set forth is delayed by an extraordinary event that is beyond the control of Duke Energy, or any entity controlled by Duke Energy or its contractors, despite best efforts to fulfill the obligation. Such causes are war, civil unrest, act of God, or act of a governmental or regulatory body delaying performance or making performance impossible including any appeal or decision remanding, overturning, modifying or otherwise acting (or failing to act) on a permit or similar permission or action

that prevents or delays an action needed for the performance of any of the work contemplated under this Agreement such that it prevents or substantially interferes with Duke Energy's performance within the time frames specified herein. Duke Energy shall bear the burden of proving by a preponderance of the evidence the existence of such circumstances. Such circumstances do not include the financial inability to complete the work, increased cost of performance, or changes in business or economic circumstances.

- a. To qualify as a force majeure under this Agreement, the failure of a permitting authority to issue a necessary permit in a timely fashion which prevents Duke Energy from meeting the requirements in this Agreement must be beyond the control of Duke Energy, and Duke Energy must have taken all steps available to it to obtain the necessary permit, including but not limited to submitting a complete permit application, responding to requests for additional information by the permitting authority in a timely fashion, and accepting lawful permit terms and conditions after expeditiously exhausting any legal rights to appeal those terms and conditions imposed by the permitting authority.
- b. The requirement that Duke Energy use "best efforts" in this Agreement includes using commercially reasonable efforts to anticipate any event that delays its obligations and to address the event in a commercially reasonable manner as it is occurring or following the event such that delay is minimized to the greatest extent possible.

**56. Stay of Pending Proceedings.** Within 15 days of execution of this Agreement, the Parties shall take all actions necessary to stay further proceedings before the Office of Administrative Hearings in matters 19 EHR 02401 (regarding Allen), 19 EHR 02398

(regarding Belews Creek), 19 EHR 02399 (regarding Rogers/Cliffside), 19 EHR 02403 (regarding Marshall), 19 EHR 02404 (regarding Mayo), and 19 EHR 02406 (regarding Roxboro), and all petitions for judicial review related thereto. All stays shall remain in existence until an agreed-upon Consent Order is entered in Superior Court and no further discovery or other proceedings shall occur.

57. **Obligations of Duke Energy.** Upon entry of the Consent Order, Duke Energy Progress, LLC and Duke Energy Carolinas, LLC shall be responsible for carrying out the obligations of the Consent Order until relieved by the Court.

58. **Limitation on Remedy.** Notwithstanding the foregoing, the Parties' sole and exclusive remedy for breach of this Agreement shall be an action for specific performance or injunction. In no event shall any Party be entitled to monetary damages for breach of this Agreement. In addition, no legal action for specific performance or injunction shall be brought or maintained until: (a) the non-breaching Party provides written notice to the breaching Party which explains with particularity the nature of the claimed breach, and (b) within thirty (30) days after receipt of said notice, the breaching Party fails to cure the claimed breach or, in the case of a claimed breach which cannot be reasonably remedied within a thirty (30) day period, the breaching Party fails to commence to cure the claimed breach within such thirty (30) day period, and thereafter diligently complete the activities reasonably necessary to remedy the claimed breach.

59. **Binding Agreement.** This Agreement shall apply to, and be binding on, the Parties and their respective agents, successors, and assigns.

60. **Modification of this Agreement.** This Agreement may not be modified, altered or changed except by written agreement of all Parties, specifically referring to this Agreement.
61. **Counterpart Originals.** This Agreement may be executed in two or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.
62. **Authorization to Sign.** The undersigned representatives of the Parties certify that they are fully authorized by the respective Parties whom they represent to enter into the terms and conditions of this Agreement and to legally bind such Parties to it.
63. **No Limitation on Administrative Process and Judgment.** The Parties recognize that DEQ is a governmental agency with statutory rights or obligations, and must abide by all applicable procedural and substantive laws and regulations in the exercise of such authority during the implementation of this Agreement. No provision in this Agreement shall diminish, modify, or otherwise affect the statutory or regulatory authorities of DEQ. Nothing in this Agreement shall limit the opportunity for the Community Groups to participate in any administrative process to the extent consistent with their commitments in this Agreement.
64. **No Limitation of Administrative and Contractual Rights.** For any provision in this Agreement where DEQ makes a determination on a matter, nothing in this Agreement waives any rights of a Party under the North Carolina Administrative Procedure Act (including the right to appeal, if any), nor does a determination by DEQ on a matter prohibit a challenge to that determination under the terms of this Agreement, where appropriate.

65. **Other Corrective Action.** Nothing in this Agreement supersedes or negates Duke Energy's obligation to conduct groundwater assessment and, if needed, corrective action for sources of groundwater contamination other than coal ash impoundments governed by this Agreement or CAMA at any of the Facilities.

66. **Governing Law.** The Parties agree that this Agreement shall be governed under and controlled by the law of the State of North Carolina.

67. **Notice.** Whenever notice is required to be given or a document is required to be sent by one Party to another under the terms of this Agreement, it shall be provided to all Parties, directed to the individuals at the addresses specified below, unless those individuals or their successors give notice of a change to the other Parties in writing. Notice or submission by electronic mail is acceptable.

a. As to DEQ:

Sheila Holman  
Assistant Secretary for the Environment  
1601 Mail Service Center  
Raleigh, NC 27699-1601  
sheila.holman@ncdenr.gov

Cc: William F. Lane  
General Counsel  
1601 Mail Service Center  
Raleigh, NC 27699-1601  
Bill.Lane@ncdenr.gov

b. As to Duke Energy:

Kodwo Ghartey-Tagoe  
Executive Vice-President and Chief Legal Officer  
Duke Energy Corp.  
Mail Code DEC48H  
550 South Tryon Street  
Charlotte, NC 28202

[Kodwo.Ghartey-Tagoe@duke-energy.com](mailto:Kodwo.Ghartey-Tagoe@duke-energy.com)

c. As to the Community Groups:

Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for Community Groups  
601 West Rosemary Street, Suite 220  
Chapel Hill, NC 27516-2356  
[fholleman@selcnc.org](mailto:fholleman@selcnc.org)

*[signatures on separate pages]*



**SETTLEMENT AGREEMENT**

**DUKE ENERGY CAROLINAS, LLC**

By: Kodwo Ghartey-Tagoe  
Kodwo Ghartey-Tagoe  
Executive Vice-President, Chief Legal Officer  
DUKE ENERGY CAROLINAS, LLC and Authorized  
Designated Official for DUKE ENERGY CAROLINAS, LLC

Date: December 31, 2019

**DUKE ENERGY PROGRESS, LLC**

By: Kodwo Ghartey-Tagoe  
Kodwo Ghartey-Tagoe  
Executive Vice-President, Chief Legal Officer  
DUKE ENERGY PROGRESS, LLC and Authorized  
Designated Official for DUKE ENERGY PROGRESS, LLC

Date: December 31, 2019

**SETTLEMENT AGREEMENT**

**THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY**

By: Michael S. Regan  
Michael Regan  
Secretary

Date: Dec 31, 2019

**SETTLEMENT AGREEMENT**

**THE COMMUNITY GROUPS:**

**APPALACHIAN VOICES**

By: Frank S. Holleman III  
Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for the Community Groups

Date: December 31, 2019

**THE STOKES COUNTY BRANCH OF THE NAACP**

By: Frank S. Holleman III  
Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for the Community Groups

Date: December 31, 2019

**MOUNTAINTRUE**

By: Frank S. Holleman III  
Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for the Community Groups

Date: December 31, 2019

**THE CATAWBA RIVERKEEPER FOUNDATION**

By: Frank S. Holleman III  
Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for the Community Groups

Date: December 31, 2019

**THE SIERRA CLUB**

By: Frank S. Holleman III  
Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for the Community Groups

Date: December 31, 2019

**SETTLEMENT AGREEMENT**

**THE COMMUNITY GROUPS:**

**THE WATERKEEPER ALLIANCE**

By: Frank S. Holleman III  
Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for the Community Groups

Date: December 31, 2019

**THE ROANOKE RIVER BASIN ASSOCIATION**

By: Frank S. Holleman III  
Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for the Community Groups

Date: December 31, 2019

**CAPE FEAR RIVER WATCH, INC.**

By: Frank S. Holleman III  
Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for the Community Groups

Date: December 31, 2019

**NEUSE RIVER FOUNDATION/SOUND RIVERS, INC.**

By: Frank S. Holleman III  
Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for the Community Groups

Date: December 31, 2019

**NORTH CAROLINA STATE CONFERENCE OF THE NAACP**

By: Frank S. Holleman III  
Frank S. Holleman III  
Senior Attorney  
Southern Environmental Law Center  
Counsel for the Community Groups

Date: December 31, 2019



**LEGEND**

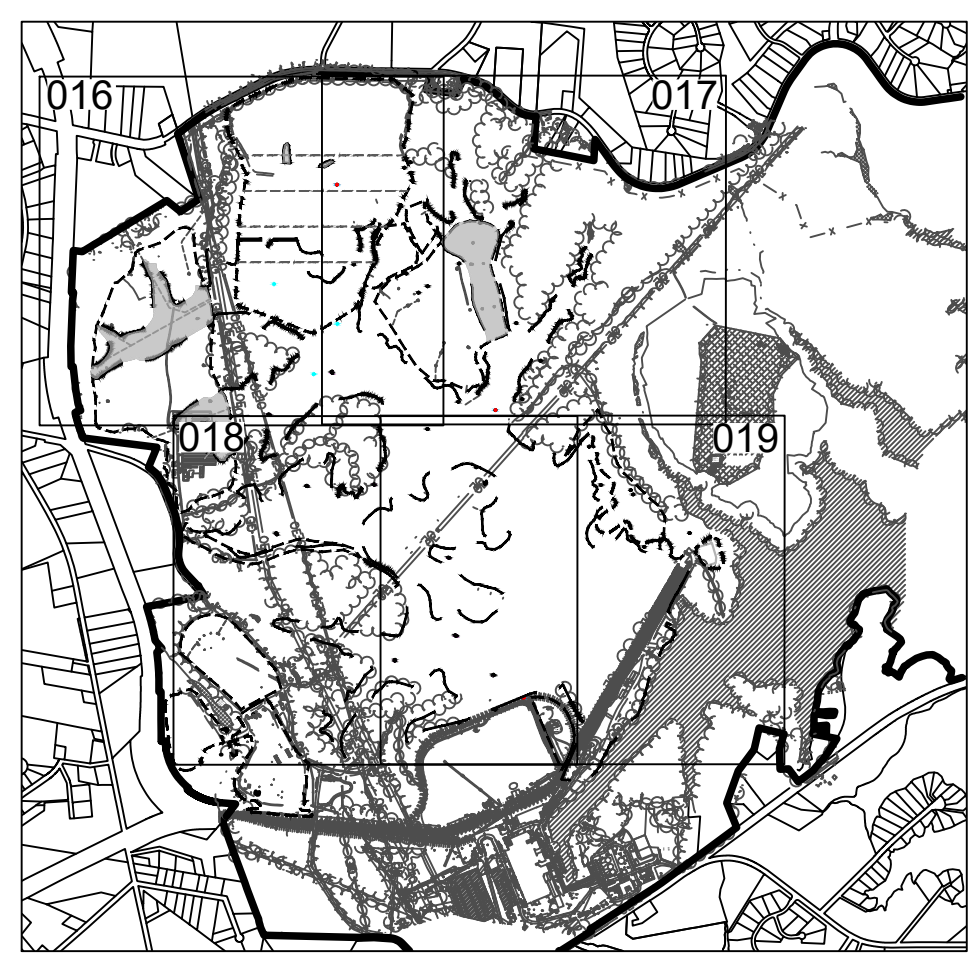
- 800 --- EXISTING MAJOR TOPOGRAPHIC CONTOUR
- --- EXISTING MINOR TOPOGRAPHIC CONTOUR
- 800 --- ESTIMATED BOTTOM OF CCR MAJOR TOPOGRAPHIC CONTOUR
- --- ESTIMATED BOTTOM OF CCR MINOR TOPOGRAPHIC CONTOUR
- - - - - ASH BASIN WASTE BOUNDARY (APPROXIMATE)
- --- MAR-145 UPDATED ASH BASIN WASTE BOUNDARY (APPROXIMATE)
- - - - - EXISTING SITE FEATURE (APPROXIMATE)
- - - - - INDUSTRIAL LANDFILL (ILF) PHASE BOUNDARY (APPROXIMATE)
- --- PROPERTY BOUNDARY

**NOTES**

1. BASIS OF BEARINGS: NC GRID NAD83/2011. ELEVATIONS ARE BASED ON NAVD88.
2. HORIZONTAL LIMITS OF ASH BASIN BASED UPON HISTORICAL TOPOGRAPHIC SURVEYS AND AVAILABLE DESIGN DRAWINGS FROM DUKE ENERGY. ACTUAL LIMITS TO BE ESTABLISHED DURING CLOSURE.
3. VERTICAL EXTENTS OF CCR WITHIN ASH BASIN BASED UPON AVAILABLE PRE-DEVELOPMENT TOPOGRAPHY SURVEY AND 2014 BATHYMETRIC SURVEY. ACTUAL DEPTH OF CCR TO BE DETERMINED DURING ASH BASIN CLOSURE.
4. PHASE I OF THE 1804 LANDFILL AND THE STRUCTURAL FILL ACCESS ROAD TO BE EXCAVATED AND REMOVED AS PART OF ASH BASIN CLOSURE. EXCAVATION GRADES SHOWN ARE APPROXIMATE.
5. CCR EXCAVATION GRADES ADJACENT TO CCR TO REMAIN IN PLACE INSIDE HISTORICAL ASH BASIN LIMITS TO BE ESTABLISHED AFTER ENGINEERING ANALYSES BASED UPON CONDITIONS AT THE TIME OF CLOSURE ARE COMPLETED. SLOPES SHOWN NOT TO EXCEED 5-HORIZONTAL TO 1-VERTICAL FOR PLANNING PURPOSES.
- Rev. E 6. CCR WITHIN THESE AREAS TO REMAIN IN-PLACE AFTER CLOSURE.

**REFERENCES**

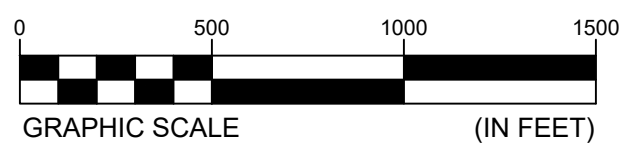
1. SEE SHEET MAR\_C999.002.002 FOR DRAWING REFERENCES.



**DRAWING KEY**

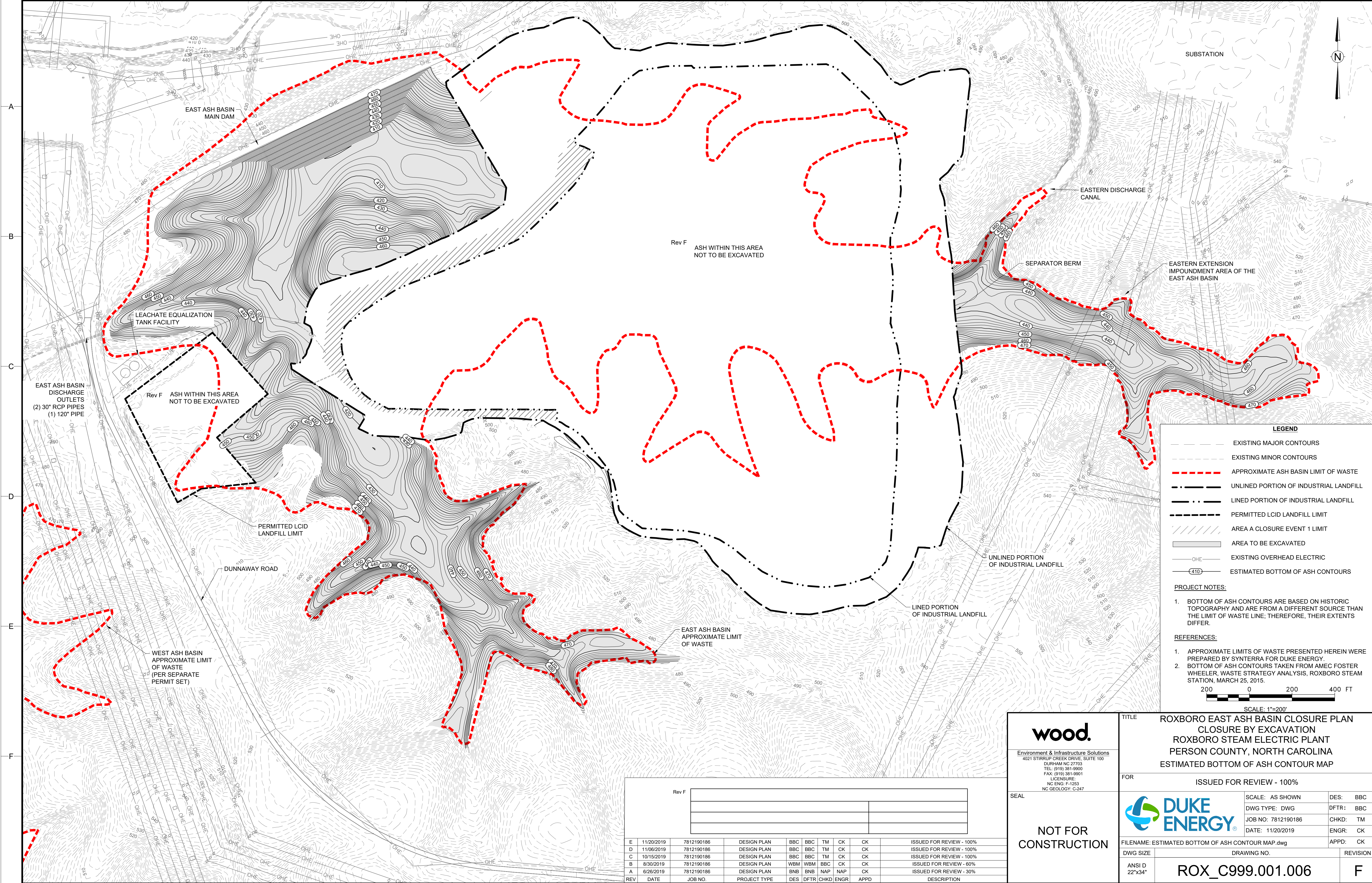
**DRAFT**

**NOT FOR CONSTRUCTION**



REV	DATE	JOB NO.	PROJECT TYPE	DES	DFTR	CHKD	ENG	APPD	DESCRIPTION
A	06/21/19	60603377		JMW	MAW	RJB	RJB	JAB	ISSUED FOR REVIEW (DRAFT 30%)
B	08/30/19	60603377		JMW	MAW	RJB	RJB	JAB	ISSUED FOR REVIEW (DRAFT 60%)
C	10/11/19	60603377		JMW	MAW	RJB	RJB	JAB	ISSUED FOR APPROVAL (DRAFT 100%)
D	11/6/19	60603377		JMW	MAW	RJB	RJB	JAB	ISSUED FOR APPROVAL (DRAFT 100%)

<b>AECOM</b>	<b>ESTIMATED BOTTOM OF ASH CONTOUR MAP (OVERALL)</b>		
	MARSHALL STEAM STATION CLOSURE PLAN (DRAFT 100%) CATAWBA COUNTY, NORTH CAROLINA		
N.C. ENGINEERING LICENSE NO. F-6342	FOR <b>ISSUED FOR APPROVAL (DRAFT 100%)</b>		
SEAL	<b>DUKE ENERGY</b>	SCALE: AS SHOWN	DES: <b>JMW</b>
<b>DRAFT</b>		DWG TYPE: .DWG	DFTR: <b>MAW</b>
		JOB NO: 60603377	CHKD: <b>RJB</b>
DATE: 11/6/2019	ENGR: <b>RJB</b>	APPD: <b>JAB</b>	
FILENAME: EXPECTED BOTTOM OF ASH.DWG	DRAWING NO. <b>MAR_C999.002.015</b>		REVISION <b>E</b>
DWG SIZE			
ANSI D 22.0"x34.0"			



**LEGEND**

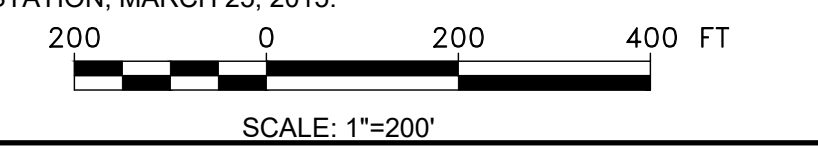
- EXISTING MAJOR CONTOURS
- EXISTING MINOR CONTOURS
- - - - - APPROXIMATE ASH BASIN LIMIT OF WASTE
- · - · - UNLINED PORTION OF INDUSTRIAL LANDFILL
- - - - - LINED PORTION OF INDUSTRIAL LANDFILL
- - - - - PERMITTED LCID LANDFILL LIMIT
- ▨ AREA A CLOSURE EVENT 1 LIMIT
- ▨ AREA TO BE EXCAVATED
- OHE — EXISTING OVERHEAD ELECTRIC
- (410) ESTIMATED BOTTOM OF ASH CONTOURS

**PROJECT NOTES:**

1. BOTTOM OF ASH CONTOURS ARE BASED ON HISTORIC TOPOGRAPHY AND ARE FROM A DIFFERENT SOURCE THAN THE LIMIT OF WASTE LINE; THEREFORE, THEIR EXTENTS DIFFER.

**REFERENCES:**

1. APPROXIMATE LIMITS OF WASTE PRESENTED HEREIN WERE PREPARED BY SYNTERRA FOR DUKE ENERGY.
2. BOTTOM OF ASH CONTOURS TAKEN FROM AMEC FOSTER WHEELER, WASTE STRATEGY ANALYSIS, ROXBORO STEAM STATION, MARCH 25, 2015.



**wood.**  
 Environment & Infrastructure Solutions  
 4021 STIRRUP CREEK DRIVE, SUITE 100  
 DURHAM NC 27703  
 TEL: (919) 381-9900  
 FAX: (919) 381-9901  
 LICENSEURE:  
 NC ENGR: F-1253  
 NC GEOLOGY: C-247

SEAL

**NOT FOR CONSTRUCTION**

TITLE: **ROXBORO EAST ASH BASIN CLOSURE PLAN  
 CLOSURE BY EXCAVATION  
 ROXBORO STEAM ELECTRIC PLANT  
 PERSON COUNTY, NORTH CAROLINA  
 ESTIMATED BOTTOM OF ASH CONTOUR MAP**

FOR: **ISSUED FOR REVIEW - 100%**

SCALE: AS SHOWN	DES: BBC
DWG TYPE: DWG	DFTR: BBC
JOB NO: 7812190186	CHKD: TM
DATE: 11/20/2019	ENGR: CK
APPD: CK	
FILENAME: ESTIMATED BOTTOM OF ASH CONTOUR MAP.dwg	
DWG SIZE: 22"x34"	
DRAWING NO.:	REVISION:
<b>ROX_C999.001.006</b>	<b>F</b>

REV	DATE	JOB NO.	PROJECT TYPE	DES	DFTR	CHKD	ENGR	APPD	DESCRIPTION
E	11/20/2019	7812190186	DESIGN PLAN	BBC	BBC	TM	CK	CK	ISSUED FOR REVIEW - 100%
D	11/06/2019	7812190186	DESIGN PLAN	BBC	BBC	TM	CK	CK	ISSUED FOR REVIEW - 100%
C	10/15/2019	7812190186	DESIGN PLAN	BBC	BBC	TM	CK	CK	ISSUED FOR REVIEW - 100%
B	8/30/2019	7812190186	DESIGN PLAN	WBM	WBM	BBC	CK	CK	ISSUED FOR REVIEW - 60%
A	6/26/2019	7812190186	DESIGN PLAN	BMB	BMB	NAP	NAP	CK	ISSUED FOR REVIEW - 30%