
RE: Dominion Bremo Power Station (SWP618) West Ash pond Closure by Removal letter

1 message

Dennis A Slade <dennis.a.slade@dominionenergy.com>

Fri, Apr 17, 2020 at 3:36 PM

To: "Lyang, Jenghwa" <jenghwa.lyang@deq.virginia.gov>

Cc: Simmerman Graham iej11935 <graham.simmerman@deq.virginia.gov>, Perszyk Kathryn okl86362 <kathryn.perszyk@deq.virginia.gov>, Adamson Gregory frc45260 <gregory.adamson@deq.virginia.gov>, Stuart Laura chd79297 <laura.stuart@deq.virginia.gov>

Thank you JengHwa. Hope everyone is well.

Have a good weekend.

Dennis

From: Lyang, Jenghwa <jenghwa.lyang@deq.virginia.gov>**Sent:** Friday, April 17, 2020 2:48 PM**To:** Dennis A Slade (Services - 6) <dennis.a.slade@dominionenergy.com>**Cc:** Simmerman Graham iej11935 <graham.simmerman@deq.virginia.gov>; Perszyk Kathryn okl86362 <kathryn.perszyk@deq.virginia.gov>; Adamson Gregory frc45260 <gregory.adamson@deq.virginia.gov>; Stuart Laura chd79297 <laura.stuart@deq.virginia.gov>**Subject:** [EXTERNAL] Dominion Bremo Power Station (SWP618) West Ash pond Closure by Removal letter

Dennis,

Attached please find a DEQ letter regarding the Bremo West Ash Pond Closure By Removal Construction Report. A paper copy will not be mailed unless specifically requested. If we may be of further assistance, please feel free to contact me.

JengHwa Lyang, Ph.D., P.E., Solid Waste Permit Writer

Division of Land Protection & Revitalization, DEQ VRO, [4411 Early Road](#), P.O. Box 3000, Harrisonburg, VA 22801
Phone: 540-574-7826; www.deq.virginia.gov

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COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

VALLEY REGIONAL OFFICE

P.O. Box 3000, Harrisonburg, Virginia 22801

(540) 574-7800 Fax (540) 574-7878

Located at 4411 Early Road, Harrisonburg, VA

www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director

Amy Thatcher Owens
Regional Director

April 17, 2020

Dennis A. Slade, CHMM
Corporate Waste and Remediation Manager
Dominion Energy Services
5000 Dominion Boulevard
Glen Allen, VA 23060

RE: Bremono Bluff Power Station, Solid Waste Permit (SWP) 618
Closure by Removal Construction Report – West Ash Pond
Fluvanna County, Virginia

Dear Mr. Slade:

The Department has reviewed the following documents that were prepared on your behalf by Golder Associate Inc. (Golder) for the West Ash Pond in the Bremono Bluff Power Station, SWP618.

- *Closure by Removal Construction Report – West Ash Pond*, dated March 25, 2020 and received on April 3, 2020.
- A construction quality assurance certification, in accordance with the requirements of 9 VAC 20-81-160.D.4. of the Virginia Solid Waste Management Regulations (VSWMR) signed by Andrew T. North, P.E., of Golder and dated March 25, 2020.

The documentation provided indicates that the Coal Combustion Residuals (CCR) in the west Ash Pond has been visually removed and over-excavated in accordance with the Surface Impoundment Closure Plan, Bremono Power Station-West and East Ash Ponds dated May 11, 2018. In addition, the documentation provided satisfies the facility Permit Condition I.F.9.

A copy of the above-mentioned documents and all record drawings must be retained for SWP 618 until closure of the West and East Ash Ponds has been confirmed by the Department. The

remaining closure activity of the West and East Ash Ponds include the completion of the groundwater monitoring in accordance with the Permit Modules XI and XII.

If you have any questions, please do not hesitate to contact JengHwa Lyang, Solid Waste Permit Writer, at (540) 574-7826 or jenghwa.lyang@deq.virginia.gov.

Sincerely,

A handwritten signature in black ink, reading "Graham H. Simmerman, Jr." in a cursive script.

Graham H. Simmerman, Jr., P.G.
Regional Land Protection Manager

cc: Kathryn J. Perszyk, DEQ CO
Gregory W. Adamson, DEQ VRO
Laura A. Stuart, P.G., DEQ VRO
JengHwa Lyang, Ph.D., P.E., DEQ VRO
DEQ File – SWP 618

RE: Re: Brema West Pond CBR Docs

1 message

Dennis A Slade <dennis.a.slade@dominionenergy.com>

Fri, Apr 3, 2020 at 12:29 PM

To: "Lyang, Jenghwa" <jenghwa.lyang@deq.virginia.gov>, Stuart Laura chd79297 <laura.stuart@deq.virginia.gov>

Cc: "graham.simmerman@deq.virginia.gov" <graham.simmerman@deq.virginia.gov>, "Adamson, Gregory"

<gregory.adamson@deq.virginia.gov>

Excellent. Thanks for letting me know JengHwa.

Have a good weekend.

Dennis

From: Lyang, Jenghwa <jenghwa.lyang@deq.virginia.gov>**Sent:** Friday, April 3, 2020 12:27 PM**To:** Dennis A Slade (Services - 6) <dennis.a.slade@dominionenergy.com>; Stuart Laura chd79297 <laura.stuart@deq.virginia.gov>**Cc:** graham.simmerman@deq.virginia.gov; Adamson, Gregory <gregory.adamson@deq.virginia.gov>**Subject:** [EXTERNAL] Re: Brema West Pond CBR Docs

Dennis,

Yes, I have successfully downloaded the report file.

Thanks.

JengHwa Lyang, Ph.D., P.E., Solid Waste Permit Writer

Division of Land Protection & Revitalization, DEQ VRO, [4411 Early Road](#), P.O. Box 3000, Harrisonburg, VA 22801 Phone: 540-574-7826; www.deq.virginia.gov

On Fri, Apr 3, 2020 at 12:16 PM Dennis A Slade <dennis.a.slade@dominionenergy.com> wrote:

Graham,

Find attached a cover letter and the Golder FTP link for the Brema West Ash Pond Closure by Removal Report. Please confirm that you are able to download the file.

Hope everyone is well and you are staying safe.

Thanks,

Dennis A. Slade, CHMM

Corporate Waste and Remediation Manager

Dominion Energy Services

5000 Dominion Boulevard

Glen Allen, VA 23060

(804) 273-2658 desk

(804) 317-7079 mobile

dennis.a.slade@dominionenergy.com

From: Golder Secure Message Center <smc@golder.com> **On Behalf Of** Andrew North

Sent: Wednesday, April 1, 2020 10:16 AM

To: Dennis A Slade (Services - 6) <dennis.a.slade@dominionenergy.com>

Subject: [EXTERNAL] West Pond CBR Docs

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Email	atnorth@golder.com
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Files in this Transfer

To: dennis.a.slade@dominionenergy.com

2020-03-25 - Final WAP CBR Report.pdf

william.a.leatherwood@
dominionenergy.com

Download Link: <https://smc.golder.com/download?id=blfNBjL2MD&password=b%2BYMF1w%2F>

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2020-03-25 - Final WAP CBR Report.pdf

william.a.leatherwood@
dominionenergy.com

Download Link: <https://smc.golder.com/download?id=blfNBjL2MD&password=b%2BYMF1w%2F>

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Closure by Removal Construction

Bremo Power Station

West Ash Pond (VDEQ Permit No. 618)

Submitted to:

Virginia Electric and Power Company d/b/a Dominion Energy Virginia

600 Canal Place

Richmond, Virginia 23219

Submitted by:

Golder Associates Inc.

2108 West Laburnum Ave, Suite 200

Richmond, Virginia 23227

Project No. 19-133736

March 25, 2020



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APPENDICES

Appendix A West Ash Pond Survey Package

Appendix B West Ash Pond Visually Clean Removal Inspection Documentation

B-1 Visual Removal Summary Table

B-2 Visual Removal Reports

B-3 Visual Removal Sketch Maps

Appendix C West Ash Pond Six-Inch Removal Inspection Documentation

C-1 6in Removal Summary Table

C-2 6in Removal Reports

C-3 6in Removal Sketch Maps

Appendix D SWP #618 CCR Closure Plan

Appendix E Notification of Substantial Completion

EXECUTIVE SUMMARY

This report presents a summary of the Construction Quality Assurance (CQA) activities performed by Golder Associates Inc. (Golder) during the construction activities for the Closure by Removal (CBR) of the West Ash Pond at the Bremono Power Station in Bremono Bluff, Virginia. The West Ash Pond is approximately 17.0 acres in size. CBR construction began on approximately July 6, 2016 and was substantially complete on January 30, 2020. CBR construction was performed consistent with the Station's solid waste permit (SWP #618) CCR Closure Plan (Appendix D). Virginia Department of Environmental Quality (DEQ) was notified of the project substantial completion of construction by email on February 7, 2020 (Appendix E).

The Coal Combustion Residuals (CCR) in the West Ash Pond were excavated from July, 2016 through July, 2017 and placed in the North Ash Pond before excavation was paused. CBR construction began again on approximately September 28, 2019, with CCR material being hauled and disposed of in an offsite, licensed municipal solid waste (MSW) landfill. The CBR contractor established a baseline surface to be considered "Visually Clean", meaning no residual CCR materials visible on the remaining soils. Following inspection and documentation of the visually clean (VC) surface by a Virginia licensed Professional Engineer from Golder, a topographic survey was performed to establish the horizontal and vertical limits of the VC surface. Over-excavation of the VC footprint by a minimum of six inches was performed, followed by inspection and documentation by Golder. Upon completion of the over-excavation, test pits were hand excavated, at a minimum frequency of one per acre, to further verify the removal of CCR material. A total of twenty-one test pits were excavated. A final survey of the over-excavated area was performed to verify at least six inches of material had been removed and/or the presence of competent material (e.g., bedrock) preventing further excavation.

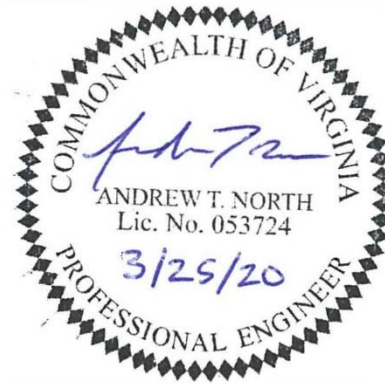
During excavation activities, the following approximate volumes were excavated:

Pond	VC Removal (CY)	Six-Inch Removal (CY)	Total (CY)
West Ash Pond	327,323	21,690	349,013

Earthwork construction was performed by Ryan Incorporated Central of Janesville, WI. Surveying was provided by Flora Surveying Associates of Glens, VA, under contract to Ryan. A list of the key personnel who were involved in the CBR construction is included in Section 2.1 of this report.

1.0 CERTIFICATION

In accordance with the *Virginia Solid Waste Management Regulations 9VAC 20-81-800*, and the United States Environmental Protection Agency (USEPA) *Standards for the Disposal of Coal Combustion Residuals and Surface Impoundments 40CFR §257.102(c)*, this is to certify that the visual CCR removal and six-inch over-excavation for the West Ash Pond, as described in the Closure Plan for the West and East Ash Ponds, has been successfully carried out in accordance with the approved plans and specifications.



Andrew North, P.E.

Certifying Engineer

Dated Signature and Seal

*As used herein, the word *certify* shall mean an expression of the Engineer's professional opinion to the best of his or her information, knowledge and belief, and does not constitute a warranty or guarantee by the Engineer.

2.0 INTRODUCTION

Golder Associates, Inc. (Golder), under contract to Dominion, performed CQA observation and documentation of the CCR and soil excavation portion of the CBR for the West Ash Pond at the Bremo Power Station in Bremo Bluff, Virginia. CBR construction began approximately July 6, 2016 and was substantially complete on January 30, 2020.

2.1 Primary Project Personnel

A list of the organizations and key personnel that participated in the CBR construction is presented below:

Owner

Dominion Energy Virginia
Project Managers – Maria Gwynn and Chris Nunn, P.E.

Earthworks Contractor

Ryan Incorporated Central of Janesville, WI
Superintendent – Mike Thomas / Ken Becker

Surveyor

Flora Surveying Associates, PC, Glenss, VA
Project Manager – Bruce Flora, PLS

CQA Engineer

Golder Associates Inc., Richmond, Virginia
Project Manager – Andrew North, P.E.
Certifying Engineer – Andrew North, P.E.
Field Manager – Wade Bowes
Lead CQA Technician – Richard Siemaszkiewicz

3.0 CLOSURE BY REMOVAL PROTOCOL

CBR construction was performed consistent with the Station's solid waste permit (SWP #618) CCR Closure Plan. The protocol for closure by removal of the West Ash Pond involved removing accumulated CCR such that no residual materials remained visible, then over-excavating the removal footprint by at least six inches. Removed CCR, CCR-mixed soil, and the six-inch over-excavation soil was consolidated in the North Ash Pond CCR impoundment or hauled to an offsite, licensed MSW landfill. To facilitate stormwater management, construction, and/or structural stabilization of embankments or excavations, excavation was sequenced in phases.

3.1 Visually Clean Removal, Inspection, and Survey

Golder provided full-time observation of the CCR excavation in the West Ash Pond. Following achievement of visually clean conditions in an area, Golder inspected the soil surface for evidence of CCR materials. Areas determined to still contain CCR were identified for further excavation and re-inspection. Underlying soils in the pond area included light-colored sands and clays, dark-colored organic layers, light to dark grey clay layers, and light to dark weathered rock and sand. In areas where darker material was observed, a hand microscope was used to verify the absence of cenospheres (shown below), which are a unique identifier for CCR.

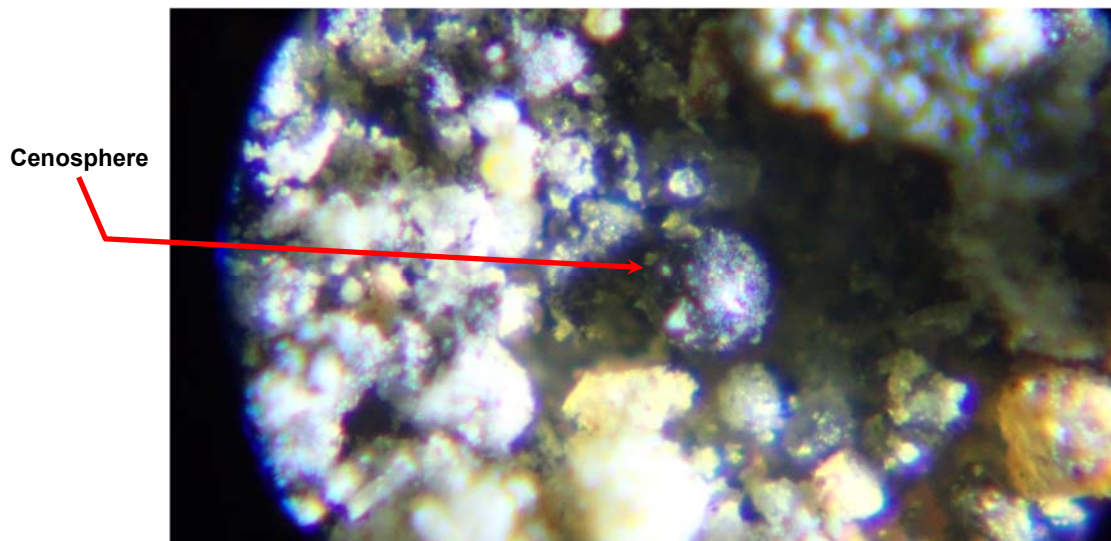


Figure 1: Cenospheres in Soil Matrix

Following Golder's visually clean inspection, areas were surveyed to designate the boundaries of the visually clean area. Construction traffic from non-cleaned areas was diverted around visually clean areas to prevent contact with CCR material.

3.2 Six-Inch Removal, Inspection, and Survey

After survey review and documentation for the visually clean areas, six-inch removal and excavation was initiated by the contractor. Removal of the six-inch material was sequenced by the contractor so that areas of potential CCR contact, such as haul roads or drainage channels, were avoided. Upon completion of six-inch over-excavation in an area, Golder again conducted a physical inspection of the area for the presence of CCR. If CCR was identified, the area was further excavated to at least six-inches below the last-identified

CCR, then re-inspected. Golder hand-excavated targeted soil cores throughout the six-inch removal area at a frequency of at least one hole per acre to further verify removal of CCR. Once Golder's inspection and initial acceptance was determined, the area was surveyed to indicate the six-inch removal boundaries.

Pond	Size (Acres)	Initial Removal (CY)	Six-Inch Removal (CY)	Total Removal (CY)	Test Holes (6-inch Deep)
West Ash Pond	17.0	327,323	21,690	349,013	21

The surveyor compiled a topographic map with contours showing the limits of survey for both the visually clean and six-inch removal conditions. In addition, the surveyor prepared a comparison showing elevation differences between the visually clean and over-excavation surveys to verify six-inch removal. Over-excavation, inspection, and verification surveying was repeated until all areas within the pond limits were at least six-inch over-excavated beyond the visually clean condition survey. Surveys prepared by a licensed Professional Land Surveyor (PLS) for the Visual Clean and Six-Inch Removal for the West Ash Pond are presented in Appendix A.

3.3 Documentation of Removal

After each site visit inspection or major work milestone, a Memorandum for Record was prepared by the certifying engineer detailing the area inspected on that date, including a sketch map and representative photos of the inspected area. Visually Clean documents are included in Appendix B and Six-Inch Removal documents are included in Appendix C.

3.4 Regulatory Site Visits

Representatives from the Virginia Department of Environmental Quality (DEQ) Valley Regional Office visited the site to observe the ongoing CBR progress. A DEQ site visit was made on October 8, 2019, to inspect the initial visually clean area. DEQ was notified of substantial completion of construction on February 7, 2020.

4.0 CONCLUSION

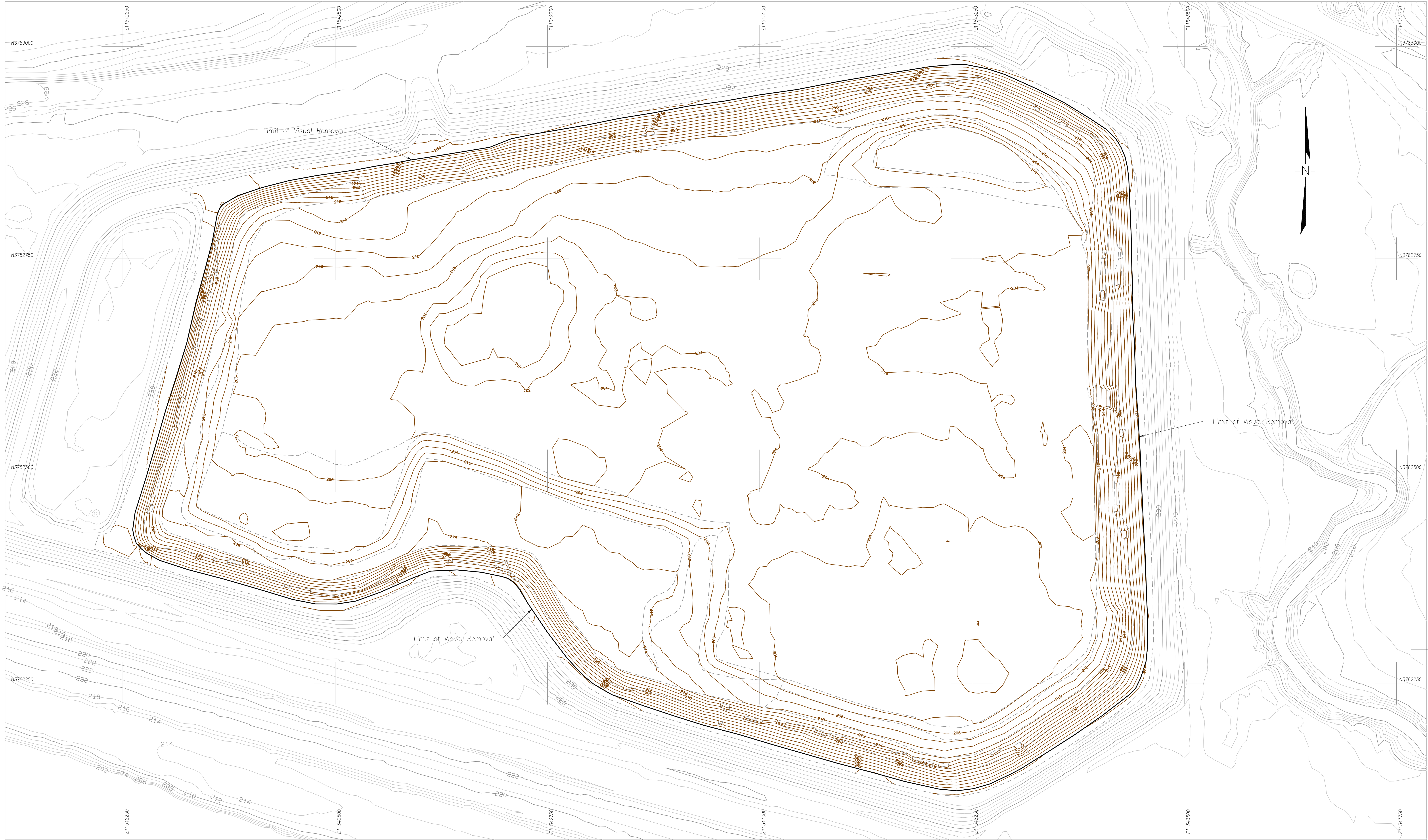
Golder personnel provided full-time CQA services during the CBR excavation of the West Ash Pond at the Bremono Power Station by observing and documenting the following:

- Visually clean excavation;
- Six-inch removal excavation; and,
- Targeted hand excavations at one per acre.

Based on the results of our observations and the completed surveys, it is the opinion of Golder that the CBR excavation has been carried out in general accordance with the approved Closure Plan referenced in Section 1.0.



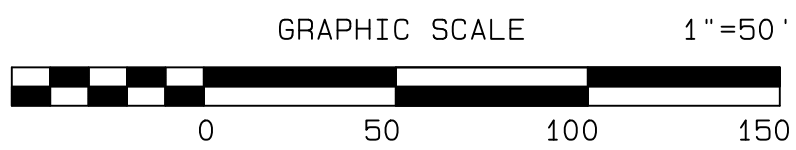
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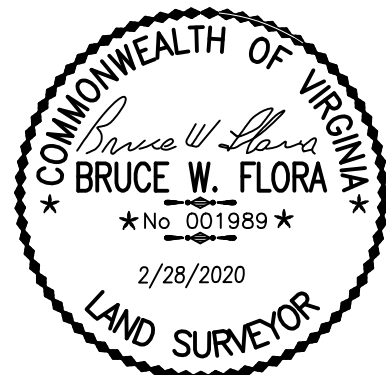
LEGEND

- EXISTING TOPO FROM OTHERS (2' INTERVAL)
- EXISTING TOPO BY RYAN INC. (2' INTERVAL)
- GRADE BREAKLINES

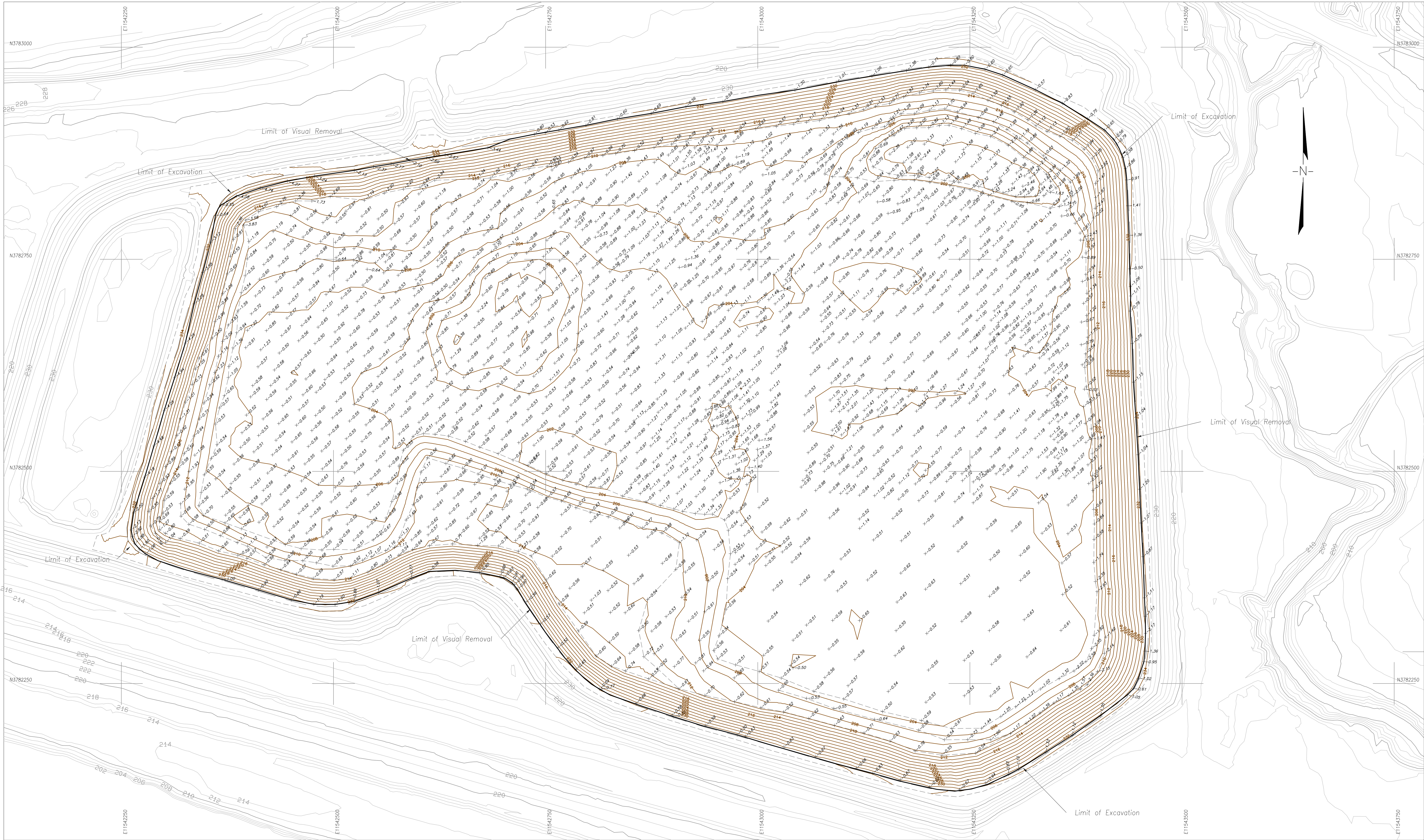
Notes:
1) The information shown was field surveyed between 6/4/2017 and 1/30/2020 and is referenced to Virginia State Plane Coordinate System South Zone, NAD83, and Elevations are referenced to NAVD88.
2) Survey Control was supplied by others.



FLORA
SURVEYING ASSOCIATES
12883 GEORGE WASHINGTON
MEMORIAL HIGHWAY
GLENNES, VIRGINIA 22148
(800) 474-5082 (804) 694-4578



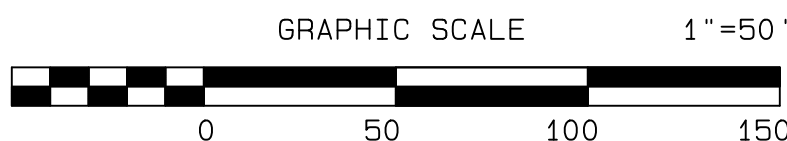
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						DRN BY	A.S.B. 2/20
						CHK BY	B.W.F. 2/20
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PROJECT:		BREMO POWER STATION NEW CANTON, COMMONWEALTH OF VIRGINIA.				DATE:	2/28/2020
SHEET TITLE:						SHEET 1 OF 1	
VISUAL CLEAN SURVEY						DRAWING No.	
						VC-01	



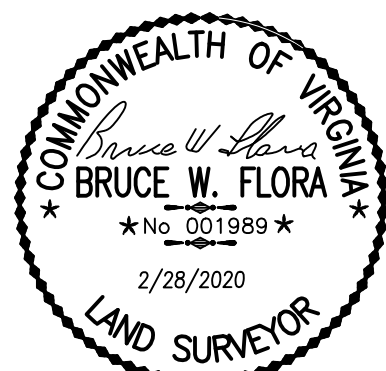
LEGEND

- EXISTING TOPO FROM OTHERS (2' INTERVAL)
- EXISTING TOPO BY RYAN INC. (2' INTERVAL)
- GRADE BREAKLINES
- SURVEY POINT AND THICKNESS

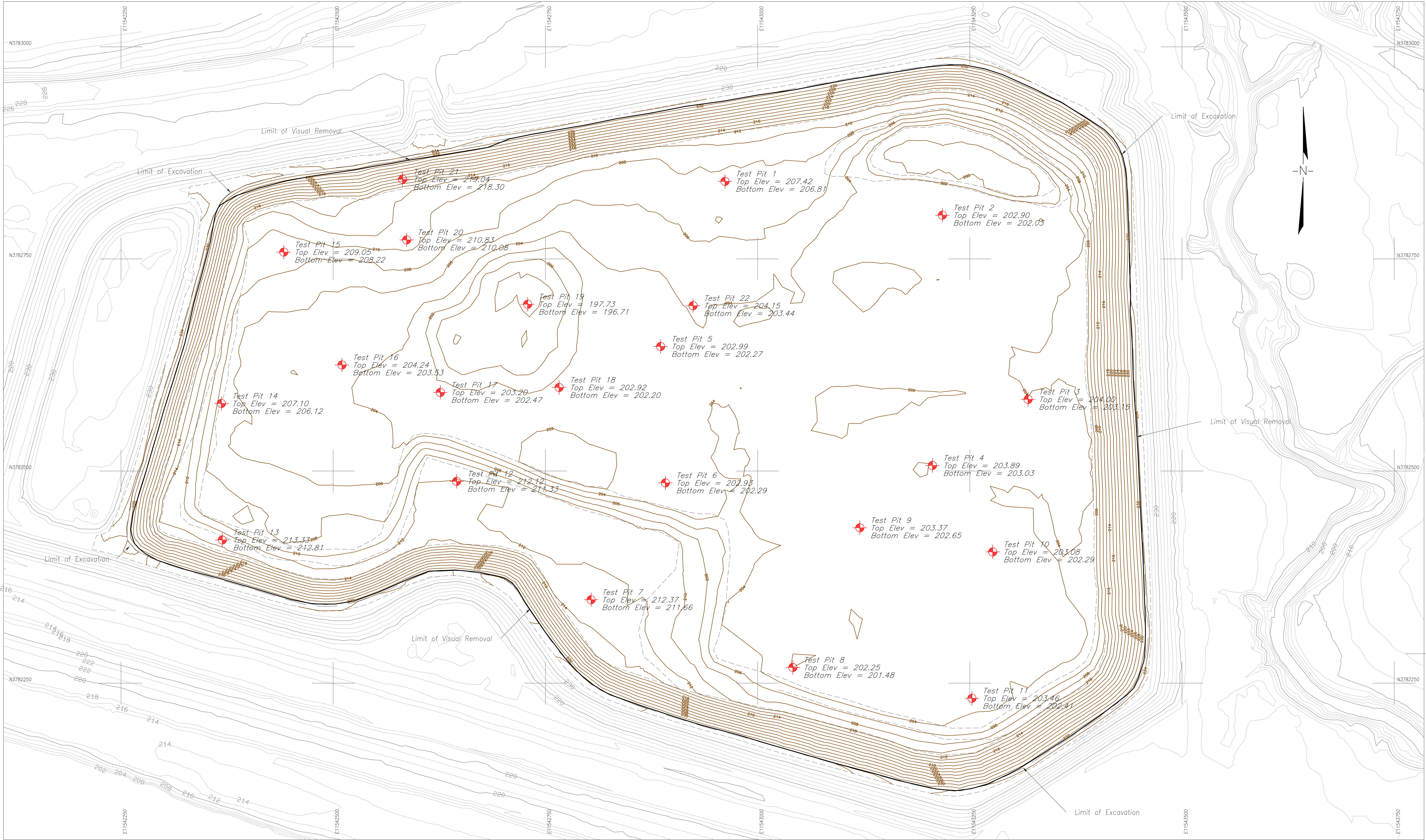
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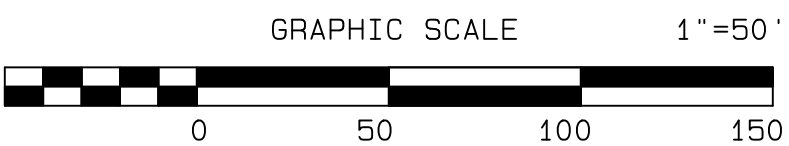
REV.	DATE	DESCRIPTION	DR BY	APP BY	DES BY	DRN BY	CHK BY	REV BY
1	2/28/2020	RYAN-BREMO			A.S.B.	2/20	B.W.F.	2/20
2	2/28/2020	BREMO POWER STATION						
3	2/28/2020	NEW CANTON, COMMONWEALTH OF VIRGINIA.						
SHEET TITLE:					CLOSURE BY REMOVAL THICKNESS SURVEY			
					SHEET 2 OF 2			
					DRAWING No. CBR-02			



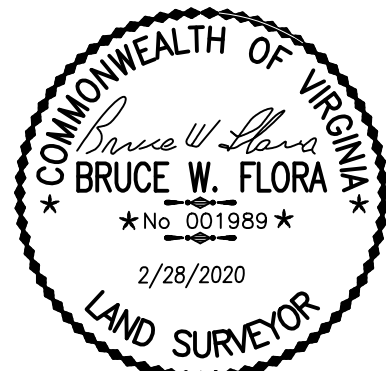
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- EXISTING TOPO BY RYAN INC. (2' INTERVAL)
- GRADE BREAKLINES
- TEST PIT LOCATION

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SURVEYING ASSOCIATES
12883 GEORGE WASHINGTON
MEMORIAL HIGHWAY
GLENNES, VIRGINIA 22148
(800) 474-6062 (804) 694-4576



							DES BY			
							DRN BY	A.S.B. 2/20		
							CHK BY	B.W.F. 2/20		
REV.	DATE	DESCRIPTION			DR BY	APP BY	REV BY			
PROJECT No.		RYAN-BREMO		SCALE: 1"= 50'		APP BY				
PROJECT:		BREMO POWER STATION NEW CANTON, COMMONWEALTH OF VIRGINIA.				DATE:	2/28/2020			
SHEET TITLE:		CLOSURE BY REMOVAL SURVEY					SHEET 1 OF 2			
							DRAWING No.		CBR-01	

Appendix B - SUMMARY TABLE

Visual Removal (VR) Certification					
Reference Number	Approx. Area (ac) +/-	Golder Inspection	DEQ Inspection	VR Survey	Misc. Notes
001	15.5	10/08/19	10/08/19	10/03/19	All but northeast portion
002	0.5	10/29/19	N/A	10/29/19	Northeast Corner
003	0.5	01/15/20	N/A	01/15/20	Bottom of northeast portion
004	0.5	01/30/20	N/A	01/30/20	NE Slope (Access ramp)
TOTAL	17.0 (per survey)				

Date: October 9, 2019

Project No. 1520347QA

Dominion Energy
Bremo Power Station
1038 Bremo Road
Bremo Bluff, VA 23022

RE: BREMO CLOSURE BY REMOVAL VISUAL INSPECTION AND ACCEPTANCE
MEMORANDUM FOR RECORD – AREA 001

On October 8, 2019, Andrew North, P.E. with Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) from within the inspected area (Area 001). The inspected area consisted of Phases 1, 2, 3, 4, and parts of Phase 5 with an approximate size of 15.5 +/- acres, as shown in the attached Area Sketch Map. The weather conditions during the inspection were overcast with temperatures in the low seventies. Please find attached the photographs taken during the inspection to document the inspected area visually absent of CCR material.

On October 8, 2019, Greg Adamson with the Virginia Department of Environmental Quality (DEQ) performed an inspection of the described area. No exceptions were taken aside from the equipment loading area and the surface water present at the time of inspection, which were not included as part of Area 001.

Golder Associates presents this acceptance statement for visual closure by removal of the CCR at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above and represented in the attached area sketch map as visually absent of CCR material and recommend the additional 6-inch subgrade removal.

The use of the word “certify” in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Sincerely,

GOLDER ASSOCIATES INC.



Andrew T. North, P.E.
Project Engineer

Attachments:

- ☒ 1 – “Visual Removal” Inspection Photos
- ☒ 2 – “Visual Removal” Area Sketch Map



Photo #1
Observation:

Western limit of Subject Area looking east, showing area where CCR has been visually removed.



Photo #2
Observation:

Western limit of Subject Area looking southeast.



Photo #3
Observation:

Southern limit of
Subject Area
looking west.



Photo #4
Observation:

Bottom of Subject
Area looking
southeast.





Photo #5
Observation:

Bottom of Subject Area looking east, showing existing riser structure.



Photo #6
Observation:

Bottom of Subject Area looking southwest, showing the southern limit of area.





Photo #7
Observation:

Bottom of Subject Area looking north, showing northern limit of area.



Photo #8
Observation:

Bottom of Subject Area looking southeast.



Photo #9
Observation:

Bottom of Subject
Area looking west.





CLOSURE BY REMOVAL VISUAL REMOVAL

Date: October 30, 2019

Project No. 1520347QA

Dominion Energy
Bremo Power Station
1038 Bremo Road
Bremo Bluff, VA 23022

**RE: BREMO CLOSURE BY REMOVAL VISUAL INSPECTION AND ACCEPTANCE
MEMORANDUM FOR RECORD – AREA 002**

On October 29, 2019, Andrew North, P.E. with Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) from within the inspected area (Area 002). The inspected area consisted of a portion of Phase 5 with an approximate size of 0.5 +/- acres, as shown in the attached Area Sketch Map. The weather conditions during the inspection were overcast with temperatures in the mid-sixties. Please find attached the photographs taken during the inspection to document the inspected area visually absent of CCR material.

Per discussions between Dominion Energy and the Virginia Department of Environmental Quality (DEQ), it was agreed that the additional 6-inch removal over inspected areas could proceed without DEQ inspection of the visual removal areas unless otherwise specified by the DEQ. Golder documented the removal of CCR materials in Area 002 and recommended the additional 6-inch removal over the inspected area.

Golder Associates presents this acceptance statement for visual closure by removal of the CCR at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above and represented in the attached area sketch map as visually absent of CCR material and recommend the additional 6-inch subgrade removal.

The use of the word “certify” in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Sincerely,

GOLDER ASSOCIATES INC.

Andrew T. North, P.E.
Project Engineer

Attachments:

- ☒ 1 – “Visual Removal” Inspection Photos
- ☒ 2 – “Visual Removal” Area Sketch Map



Photo #1
Observation:

Western limit of Subject Area looking northwest, showing area where CCR has been visually removed.



Photo #2
Observation:

Western limit of Subject Area looking north, showing area where CCR has been visually removed.





Photo #3
Observation:

Western limit of Subject Area looking northeast, showing area where CCR has been visually removed.



Photo #4
Observation:

Western limit of Subject Area looking east, showing area where CCR has been visually removed.



Photo #5
Observation:

Western limit of Subject Area looking east, showing area where CCR has been visually removed.



Date: January 15, 2020

Project No. 1520347QA

Dominion Energy
Bremo Power Station
1038 Bremo Road
Bremo Bluff, VA 23022

RE: BREMO CLOSURE BY REMOVAL VISUAL INSPECTION AND ACCEPTANCE
MEMORANDUM FOR RECORD – AREA 003

On January 15, 2020, Andrew North, P.E. with Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) from within the inspected area (Area 003). The inspected area consisted of a portion of Phase 5 with an approximate size of 0.45 +/- acre, as shown in the attached Area Sketch Map. The weather conditions during the inspection were overcast with temperatures in the low fifties. Please find attached the photographs taken during the inspection to document the inspected area visually absent of CCR material.

Per discussions between Dominion Energy and the Virginia Department of Environmental Quality (DEQ), it was agreed that the additional 6-inch removal over inspected areas could proceed without DEQ inspection of the visual removal areas unless otherwise specified by the DEQ. Golder documented the removal of CCR materials in Area 003 and recommended the additional 6-inch removal over the inspected area.

Golder Associates presents this acceptance statement for visual closure by removal of the CCR at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above and represented in the attached area sketch map as visually absent of CCR material and recommend the additional 6-inch subgrade removal.

The use of the word “certify” in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Sincerely,

GOLDER ASSOCIATES INC.



Andrew T. North, P.E.
Project Engineer

Attachments:

- ☒ 1 – “Visual Removal” Inspection Photos
- ☒ 2 – “Visual Removal” Area Sketch Map



Photo #1
Observation:

Northern limit of Subject Area looking southeast, showing area where CCR has been visually removed.



Photo #2
Observation:

Bottom of Subject Area, showing area where CCR has been visually removed.



Photo #3
Observation:

Bottom of Subject Area looking north, showing area where CCR has been visually removed.





Date: January 31, 2020

Project No. 1520347QA

Dominion Energy
Bremo Power Station
1038 Bremo Road
Bremo Bluff, VA 23022

**RE: BREMO CLOSURE BY REMOVAL VISUAL INSPECTION AND ACCEPTANCE
MEMORANDUM FOR RECORD – AREA 004**

On January 30, 2020, Andrew North, P.E. with Golder Associates performed an inspection of the West Ash Pond at the Bremo Power Station to verify the removal of Coal Combustion Residuals (CCR) from within the inspected area (Area 004). The inspected area consisted of a portion of Phase 5 with an approximate size of 0.57 +/- acre, as shown in the attached Area Sketch Map. The weather conditions during the inspection were cloudy with temperatures in the high thirties. Please find attached the photographs taken during the inspection to document the inspected area visually absent of CCR material.

Per discussions between Dominion Energy and the Virginia Department of Environmental Quality (DEQ), it was agreed that the additional 6-inch removal over inspected areas could proceed without DEQ inspection of the visual removal areas unless otherwise specified by the DEQ. Golder documented the removal of CCR materials in Area 004 and recommended the additional 6-inch removal over the inspected area.

Golder Associates presents this acceptance statement for visual closure by removal of the CCR at the Bremo Power Station. This acceptance applies to the area in the West Ash Pond as described above. The area has been visually inspected and documented through field survey in accordance with the Bremo Power Station Inactive CCR Surface Impoundments Closure by Removal Plan (SWP #618). Based on visual inspection, I certify the area described above and represented in the attached area sketch map as visually absent of CCR material and recommend the additional 6-inch subgrade removal.

The use of the word “certify” in this document shall be interpreted and construed as a Statement of Professional Opinion and is not and shall not be interpreted or construed as a guarantee, warranty, or legal opinion.

Sincerely,

GOLDER ASSOCIATES INC.

Andrew T. North, P.E.
Project Engineer

Attachments:

- ☒ 1 – “Visual Removal” Inspection Photos
- ☒ 2 – “Visual Removal” Area Sketch Map



Photo #1
Observation:

Northern limit of Subject Area looking east, showing area where CCR has been visually removed.



Photo #2
Observation:

Bottom of Subject Area looking northwest, showing area where CCR has been visually removed.





Photo #3
Observation:

Bottom of Subject Area looking south, showing area where CCR has been visually removed.



Photo #4
Observation:

Bottom of Subject Area looking east, showing area where CCR has been visually removed.





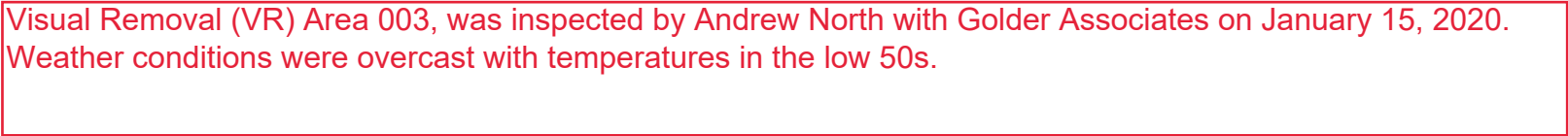
Visual Removal (VR) Area 002, was inspected by Andrew North with Golder Associates on October 29, 2019. Weather conditions were overcast with temperatures in the mid 60's.

GENERAL NOTES

1. EXISTING CONDITIONS COMPILED FROM:
 - a. AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING [H&B]]
 - b. BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15
 - c. EXISTING TOPOGRAPHY WITHIN THE LIMITS OF THE WEST ASH POND BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17. TPO REPRESENTS THE BOTTOM OF POND.
2. SITE DATUM: NAD83 / NAVD88
3. WETLAND DELINEATION BY DOMINION ENVIRONMENTAL SERVICES ON 01/30/15 & 02/05/15 AND BY GOLDER ASSOCIATES ON 03/16/15 & 03/25/15. WATERS OF THE U.S. CONFIRMED BY THE USACE DURING JUNE 4, 2015 SITE VISIT.
4. 100 YEAR FLOOD PLAIN DELINEATION BASED ON FLOOD ELEVATION DATA REPRESENTED ON FEMA FLOOD INSURANCE RATE MAP (FIRM), MAP NUMBER 51065C0260C, EFFECTIVE DATE: 05/16/2008.

1. TOPOGRAPHY SHOWN WITHIN LIMITS OF THE WEST ASH POND, REPRESENTS THE POND BOTTOM BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17.
2. PHASED CLOSURE OF THE WEST POND MAY BE SEQUENCED AS NECESSARY TO ADDRESS ISSUES RELATED TO ACCESS AND SLOPE STABILITY, AND TO MINIMIZE CONTACT STORMWATER AREAS. SUB-PHASES MAY BE REQUIRED FOR REGULATORY APPROVAL.
3. ANY AREA CERTIFIED AS ACHIEVING CLOSURE BY REMOVAL IS TO BE PROTECTED FROM CCR AND CONTACT STORMWATER, AND MAY BE FILLED AND/OR RESHAPED AS NEEDED PRIOR TO ACHIEVING FINAL GRADES.
4. ACCUMULATED CCR SHALL BE REMOVED FROM SURFACES WITHIN THE POND LIMITS SUCH THAT NO CCR REMAINS VISIBLE.
5. FOLLOWING VISUAL-CLEAN CONDITIONS, OVER-EXCAVATE THE REMOVAL FOOTPRINT BY AT LEAST SIX INCHES.
6. VISUAL INSPECTION AND TARGETED SUBGRADE VISUAL SAMPLING TO BE OVERSEEN BY OWNER'S ENGINEER REPRESENTATIVE. SAMPLING TO BE PERFORMED AT A FREQUENCY OF AT LEAST ONE TEST PER ACRE. TARGETED SAMPLING TO CONSIST OF HAND-DUG HOLES AT LEAST SIX INCHES DEEP.
7. EXCAVATION OF SLOPES STEEPER THAN 2:1 SHALL BE SEQUENCED SUCH THAT THE SLOPES CAN BE EXCAVATED, INSPECTED, AND BACKFILLED IN THE SHORTEST TIME POSSIBLE. BACKFILL SLOPES WITH CLEAN SOIL FILL AT NO STEEPER THAN 2:1.
8. EXCAVATED CCR AND SOIL-CCR MIXTURES SHALL BE CONSOLIDATED IN NORTH ASH POND OR TAKEN TO AN OFF-SITE DISPOSAL FACILITY AS DIRECTED BY DOMINION.

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D



GENERAL NOTES

1. EXISTING CONDITIONS COMPILED FROM:
 - a. AERIAL TOPOGRAPHIC SURVEY PREPARED BY MCKENZIE SNYDER, INC., DATE OF AERIAL PHOTO: 1/16/15 [CONTROL PREPARED BY H&B SURVEYING & MAPPING (H&B)]
 - b. BOUNDARY SURVEY PREPARED BY H&B SURVEYING AND MAPPING, LLC DATED 04/27/15.
 - c. EXISTING TOPOGRAPHY WITHIN THE LIMITS OF THE WEST ASH POND BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17. TOPO REPRESENTS THE BOTTOM OF POND.
2. SITE DATUM: NAD83 / NAVD88
3. WETLAND DELINEATION BY DOMINION ENVIRONMENTAL SERVICES ON 01/30/15 & 02/05/15 AND BY GOLDER ASSOCIATES ON 03/16/15 & 03/25/15. WATERS OF THE U.S. CONFIRMED BY THE USACE DURING JUNE 4, 2015 SITE VISIT.
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CLOSURE BY REMOVAL NOTES

1. TOPOGRAPHY SHOWN WITHIN LIMITS OF THE WEST ASH POND, REPRESENTS THE POND BOTTOM BASED ON FIELD SURVEY BY H&B SURVEYING AND MAPPING DATED 07/06/17.
2. PHASED CLOSURE OF THE WEST POND MAY BE SEQUENCED AS NECESSARY TO ADDRESS ISSUES RELATED TO ACCESS AND SLOPE STABILITY, AND TO MINIMIZE CONTACT STORMWATER AREAS. SUB-PHASES MAY BE REQUIRED FOR REGULATORY APPROVAL.
3. ANY AREA CERTIFIED AS ACHIEVING CLOSURE BY REMOVAL IS TO BE PROTECTED FROM CCR AND CONTACT STORMWATER, AND MAY BE FILLED AND/OR RESHAPED AS NEEDED PRIOR TO ACHIEVING FINAL GRADES.
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6. VISUAL INSPECTION AND TARGETED SUBGRADE VISUAL SAMPLING TO BE OVERSEEN BY OWNER'S ENGINEER REPRESENTATIVE. SAMPLING TO BE PERFORMED AT A FREQUENCY OF AT LEAST ONE TEST PER ACRE. TARGETED SAMPLING TO CONSIST OF HAND-DUG HOLES AT LEAST SIX INCHES DEEP.
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8. EXCAVATED CCR AND SOIL-CCR MIXTURES SHALL BE CONSOLIDATED IN NORTH ASH POND OR TAKEN TO AN OFF-SITE DISPOSAL FACILITY AS DIRECTED BY DOMINION.

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ARCH D

