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November 15, 2007

Mr. Edward Mussler
Permitting Supervisor – Solid Waste Section
North Carolina Department of Environment and Natural Resources
Division of Waste Management
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: **Coal Ash Structural Fill Site License Application
O.N. Vaughan Property at 4752 Highway 301 - Halifax, NC
36.3708 N Latitude; 77.595 W Longitude
URS Project No. 31825952**

Dear Mr. Mussler:

On behalf of our client, Westmoreland Partners, Roanoke Valley Energy Plant in Weldon, NC, URS Corporation is submitting herein 2 copies of the above referenced application for a Coal Ash Structural Fill Site in accordance with North Carolina Department of Environment and Natural Resources, Division of Waste Management Regulations; Section .1700 Requirements for Beneficial Use of Coal Combustion By-Products (CCB). Westmoreland Partners and the property owner (O.N. Vaughan) have agreed to beneficially use CCB to reclaim a licensed soil mining site occupying 6-acres on Mr. Vaughan's property. This application seeks approval to restore the soil borrow pit to near its original topography by beneficially using CCB instead of soil as structural fill in order to restore the site to use as pasture land.

The following notifications are provided as required in Section .1703(a):

1. The Structural Fill Site is shown in Figure 1 - Weldon Quadrangle at; 36.3708 N Lat. 77.595 W Long.
2. Structural fill placement is scheduled to begin as soon as approvals are received and should be complete by September 2008.
3. The estimated coal ash volume to be used for this project is 64,000 cubic yards.
4. A recent TCLP analysis of the coal ash is provided in Appendix D.
5. A signed and dated statement from the owner of the structural fill site property is also provided in Appendix D.
6. The CCB generator is:
Westmoreland Partners
Roanoke Valley Energy Facility
290 Power Place
Weldon, NC 27890
Attention: Mr. Glenn Outland
252-536-3200 x 246



The following submittal characterizes the site conditions and documents their conformance with the siting criteria in .1704 of the rules. Further, URS has designed the CCB structural fill facility controls to comply with .1705 and .1706 in the rules. Call us at 919-461-1100 with any questions concerning this application.

Sincerely yours,

A handwritten signature in black ink that reads "Richard K. Lowe".

Richard K. Lowe
Principal Geotechnical Engineer

A handwritten signature in black ink that reads "Ed Edens".

Ed Edens, P.E.
Civil/Roadway Engineering Group Manager



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November 14, 2007

Mr. Glenn W. Outland
Environmental & Fuels Manager
Roanoke Valley Energy Facility
290 Power Place
P.O. Box 351
Weldon, NC 27890

Subject: **Coal Ash Structural Fill Site License Application**
O.N. Vaughan Property at 4752 Highway 301 - Halifax, NC
36.3708 N Latitude; 77.595 W Longitude
URS Project No. 31825952

Dear Mr. Outland:

URS Corporation has completed the above referenced work as outlined in our June 12, 2007 proposal, and authorized by Westmoreland Partners purchase order 2071061 dated August 30, 2007. The purpose of this assignment was to assess and prepare permitting documents for use of the above referenced parcel of property for a Coal Ash Structural Fill site in accordance with the North Carolina Department of Environment and Natural Resources, Division of Waste Management Regulations; Section .1700 Requirements for Beneficial Use of Coal Combustion By-Products (CCB).

Site and Project Specific Information includes:

1. The Structural Fill Site is shown in Figure 1 - Weldon Quadrangle at; 36.3708 N Lat. 77.595 W Long.
2. Structural fill placement is scheduled to begin as soon as approvals are received (December 2007) and should be complete by September 2008.
3. The estimated coal ash volume to be used for this project is 64,000 cubic yards.
4. A recent TCLP analysis of the coal ash is provided in Appendix D.
5. A signed and dated statement from the owner of the structural fill site property is provided in Appendix D.
6. The CCB generator is:

Westmoreland Partners
Roanoke Valley Energy Facility
290 Power Place
Weldon, NC 27890
Attention: Mr. Glenn Outland
252-536-3200 x 246



The following submittal characterizes the site conditions and documents their conformance with the siting criteria in .1704 of the rules. Further, URS has designed the CCB structural fill facility controls to comply with .1705 and .1706 in the rules, and we appreciate the opportunity to be of continued service to Westmoreland Partners. We stand ready to assist you with implementation of this project and ask that you call us at 919-461-1100 with any questions concerning this report.

Sincerely yours,

A handwritten signature in black ink that reads "Richard K. Lowe".

Richard K. Lowe
Principal Geotechnical Engineer

A handwritten signature in black ink that reads "Ed Edens".

Ed Edens, P.E.
Civil/Roadway Engineering Group Manager

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	Signed Landowner Agreement for Structural Fill Placement
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1.1 INTRODUCTION

Westmoreland Partners operates a coal-fired power generating facility in Weldon, North Carolina. The Coal Combustion By-Products (CCB) is proposed for beneficial use in refilling 5.2-acres in a 7-acre (+/-) soil borrow site situated 4.4 miles south of Weldon at 4752 Highway 301 in Halifax County. The soil borrow site is licensed as a mining facility by the property owner, O.N. (Nat) Vaughan. Mr. Vaughan and Westmoreland Partners have an agreement whereby Westmoreland will provide CCB as a structural fill to restore the borrow site as provided for in Section .1700 of the North Carolina Solid Waste Management 15A NCAC 13B Rules.

1.2 BACKGROUND

This report describes the borrow site conditions, characterizes site soil and groundwater conditions, and provides drawings showing the Structural Fill placement and cover requirements prescribed in Section .1700 of the North Carolina Solid Waste Management 15A NCAC 13B Rules, for Beneficial Use of CCB's.

2.1 SITE CONDITIONS

The parcel occupies approximately 7.25-acres of land used as a soil borrow facility, located within a 224-acre parcel of land owned by O. N. (Nat) Vaughan at 4752 Highway 301 in Halifax County, North Carolina. The facility is located immediately across highway 301 from the Halifax County Social Services facility. The site is located 4.4 miles south of Weldon, NC (36.3709 N Latitude; 77.595 W Longitude), as shown in Figure 1.

The site was formerly farmland, and has been licensed as a soil mining facility since the 1980's by the current property owner, Mr. Vaughan. The area was previously a gently sloping mound that drained north, east, and west. An unnamed stream is located about 300 to 400 feet north of the borrow area. The mining permit included provision for soil erosion and sedimentation controls. A sedimentation basin was constructed in the northwest corner of the borrow area (See Figure 2), and discharge from the stilling basin is filtered through two stone check dams (See Figure 3).

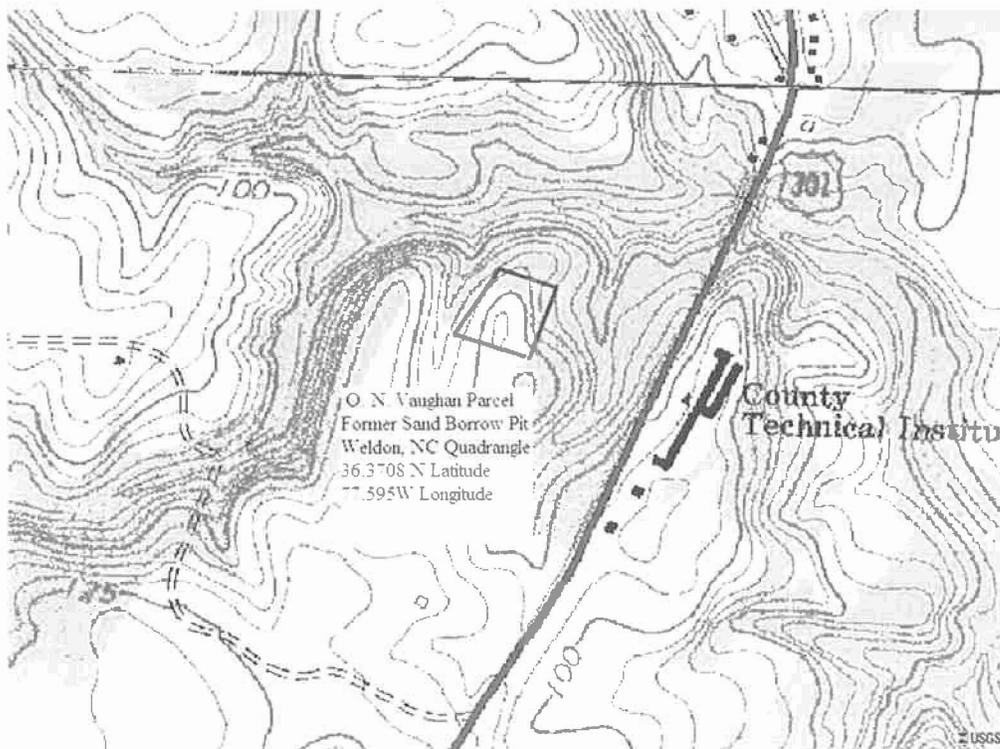


Figure 1 - USGS Quadrangle Map – Weldon, North Carolina



Figure 2 – Stormwater Stilling Basin at Northwest corner of borrow site.



Figure 3 – Stone filter dam forming Stormwater Stilling Basin.

The borrow site was developed in general accordance with the mining permit development plans. The base of the borrow site slopes at approximately 1% from the southeast corner to the stilling basin in the northwest corner. The south bank of the borrow site is a steep scarp averaging 14 feet in height. The other 3 sides of the borrow area are gently sloped, vegetated, and range from

about 4 to 8 feet in height (See Figure 4). Approximately 75,000 cubic yards of soil were reportedly removed from the borrow site according to notes on the mining permit drawing provided by Mr. Vaughan. A windrow of topsoil is present just west of the excavated borrow area. The owner intends to reuse this topsoil in covering the CCB Structural Fill.



Figure 4 – Soil Borrow Site looking South from North Edge.

A topographic survey of the borrow site was conducted by Odom Land Surveying, and the existing site conditions are shown on this map in Appendix A. During the fall of 2007, the borrow site was being used to supply soil for a bridge reconstruction project on Highway 561. The North Carolina Department of Transportation (NCDOT) had recently surveyed in the borrow site as part of this project. Two benchmarks, labeled by the NCDOT, with GPS established elevations, were found at the borrow site. The benchmark used by Odom Land Surveying is identified on the topographic map in Appendix A.

The site appears to satisfy Structural Fill siting criteria specified in Section .1704 of the rules.

2.2 SOIL CONDITIONS

Six hand auger borings were extended to determine the site soil and groundwater conditions. The hand auger borings were drilled at locations shown on the topographic map in Appendix A. Ground surface elevations at each boring location are provided on the boring logs in Appendix B.

The most prevalent soil types were silty clayey fine to medium sands (classified as SC or SM according to the Unified Soil Classification System). Layers of silty clay (CL), silts (ML), or clean uniform sands (SP) were also encountered in the borings. Borings were typically extended 1 or 2 feet into the zone of saturation.

2.3 GROUNDWATER CONDITIONS

3/4 – inch PVC observation wells were placed in each bore hole to allow subsequent water level measurements. Elevations, well dimensions, along with the depth and elevation of the water table measured on several dates are summarized in Table 1 in Appendix B. Groundwater flows in a north – northeasterly direction as shown on Figure 5 in Appendix B. Groundwater was encountered at depths ranging between about 2.1 and 4.5 feet below the ground surface in the six soil borings, as shown on the boring logs in Appendix B.

Except in the stilling basin and drainage ditch at the northwest corner of the borrow site, water levels were typically more than 2 feet below the ground surface across the borrow pit bottom. Two stone check dams were constructed across a discharge channel extending northwest from the stilling basin. This discharge channel leads to an unnamed stream northwest of the borrow site. The stilling basin and check dams appear to be effectively operating as erosion control measures and can be maintained during structural fill placement.

Water levels were recorded over a relatively short period of time. Much of North Carolina was experiencing a significant drought during the summer of 2007. Water levels may vary seasonally and with variations in precipitation.

3.1 NOTIFICATIONS

Section .1703 of the North Carolina Solid Waste Management 15A NCAC 13B Rules requires the following notifications:

- (1) The site is in an active soil borrow pit (licensed mining facility) situated at 4752 Highway 301, 4.4 miles south of Weldon, North Carolina, is proposed for use as a Structural Fill site, wherein Coal Combustion By-Products (CCB) will be beneficially used to restore the borrow pit to near it's original ground surface condition. The site is shown in Figure 1 on the Weldon, NC Quadrangle map.
- (2) Filling on the project site is expected to begin soon after receipt of a permit from the Solid Waste Section (expected in December 2007). Filling should be complete by September 2008.
- (3) The site CCB capacity is 64,000 cubic yards.
- (4) Toxicity Characteristic Leaching Procedure (TCLP) analysis for the CCB are in Appendix D.
- (5) The signed statement from the property owner accepting CCB use to fill the site is in Appendix D.
- (6) The name of the CCB generator is:
 - Westmoreland Power
 - 29 Power Place P. O. Box 351
 - Weldon, NC 27890
 - Don Keisling, General Manager
 - Glenn Outland, Auxiliary Manager 252-536-3201 ext. 246

4.1 STRUCTURAL FILL DEVELOPMENT

Stormwater generated in the borrow area is contained within the site by the surrounding ground surface. Stormwater discharge is limited to an excavated channel leading northwest of an existing stilling basin at the northwest corner of the borrow site (Figure 2). Two stone check dams were previously constructed across this discharge channel, and still function in filtering sediment from discharging stormwater flow (Figure 3).

Figure 6 in Appendix C provides the recommended final surface contours for the Structural Fill Facility. The site should be filled to a high point near the south center of the borrow area to elevation +88 to +90. The CCB surface should be graded to the contours shown on the drawing. Slopes ranging from 7% to 10% are recommended to minimize erosion during active filling.

Filling to the contours shown on Figure 6 will provide site capacities shown in Table 2. Supporting calculations are provided in Appendix C.

CCB Volume	64,000 cubic yards
1 foot soil cover volume	7,500 cubic yards
6" topsoil cover volume	3,700 cubic yards

The horizontal limit of the CCB fill is to remain well within the original borrow site limits in order to provide sufficient space for a perimeter stormwater control ditch. Figure 6 shows the bottom of the perimeter ditch slopes at 2.6% on all but the north side of the site, where the ditch bottom is flatter at a 1% slope. Stormwater runoff and sedimentation controls have been provided for in sizing perimeter ditches, placement and sizing of rock check dams, and in sizing sediment traps near the northwest corner of the site. These features, combined with silt fences or earthen sediment traps near the active fill areas, should provide sufficient erosion control to limit sedimentation into the existing borrow site sediment trap. Appendix E includes the Erosion Control Plan for site development.

The CCB should be moisture conditioned prior to transport, and truck boxes should be covered to control dust and spillage. The final 50-foot of gravel access road adjacent to Highway 301 should be surfaced with coarse aggregate (2" to 3" nominal size) to reduce tracking of soil onto the public right-of-way (see Erosion Control Plan in Appendix E). The CCB should be placed in the site beginning in the southeast corner, and proceeding toward the northwest, filling within the contours shown on Figure 6 in Appendix C. The CCB should be spread in lifts not exceeding 1 foot in thickness, and should be compacted using the spreading and hauling equipment. Active areas in the structural fill should be kept as small as possible in order to reach final grades in portions of the site as soon as practical. Such areas can then be covered to minimize the open area subject to precipitation and wind erosion.

4.1.1 Stormwater Control

Prior to CCB placement an earthen containment berm at least 2 feet in height should be constructed between the stilling basin and the floor of the borrow area. Stormwater runoff from the active CCB filling area should be kept from entering the stilling basin through use of earthen filtering berms and/or silt fence as specified in the site Erosion Control Plan (See Appendix E). Soil cover should be placed over CCB slopes as soon as an area is filled to final grades in order to reduce CCB erosion and to minimize the amount of CCB sediment in perimeter ditches.

Small earthen containment berms and/or silt fences should be constructed on the borrow site floor in advance of the northwesterly filing front. The earthen berms or silt fences will serve to reduce the migration of CCB sediment across the remaining borrow area floor, and keep CCB sediment from entering the stilling basin.

4.2 STRUCTURAL FILL FACILITY CLOSURE

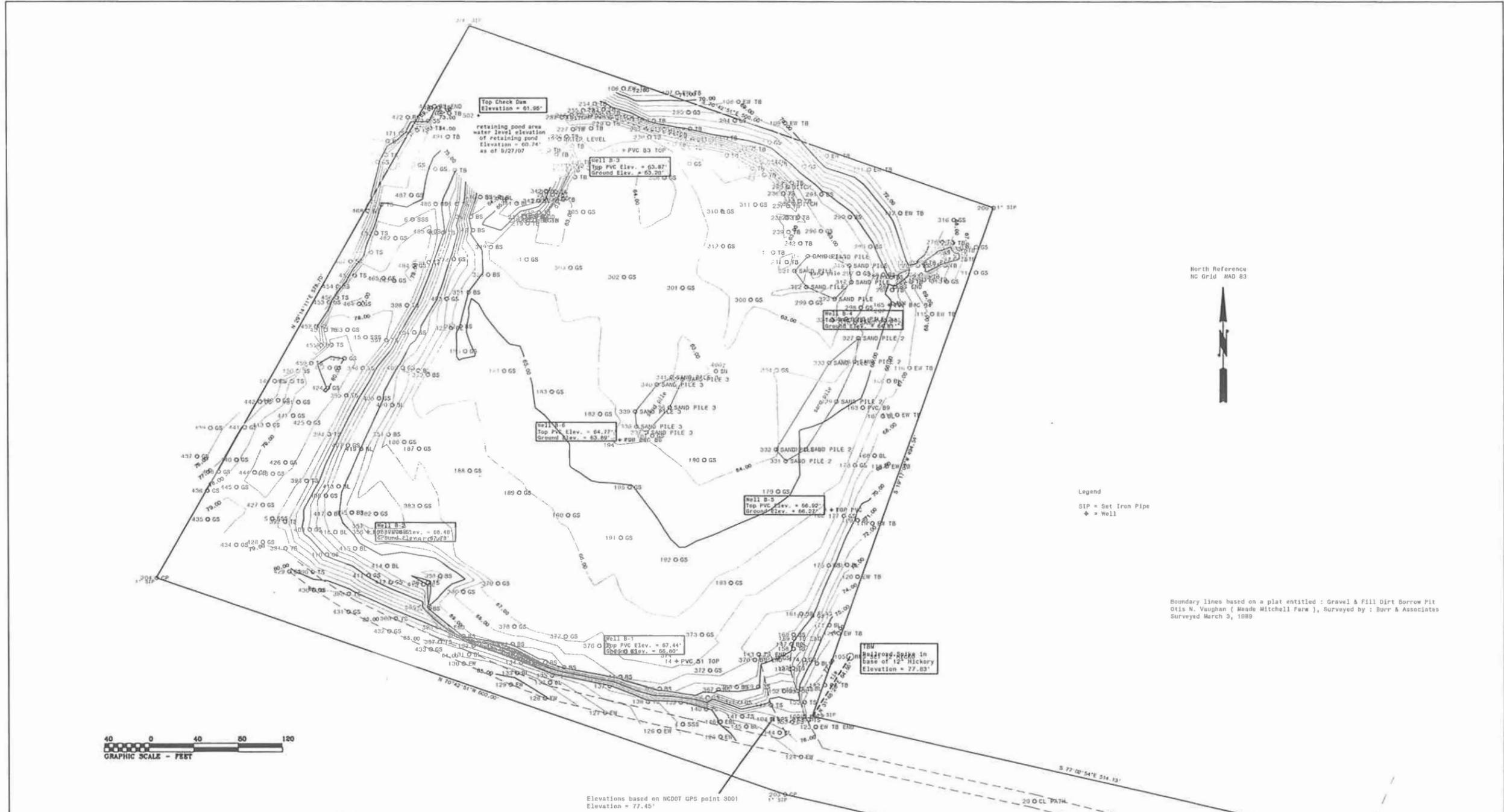
Areas in the CCB Structural fill that reach final grades should be covered with soil according to Section .1705 (j) of the North Carolina Solid Waste Management 15A NCAC 13B Rules. Twelve inches of cover soil, plus six inches of topsoil capable of supporting vegetation, must be used to cap the structural fill facility. Final cover placement must be completed within 30 working (or 60 calendar) days, whichever is less, after CCB filling has ceased.

Closure requirements include establishing vegetation as prescribed on Drawing Sheet 2 (Erosion Control Details) attached hereto. The owner is required to submit certification to the Division of Waste Management, signed and sealed by a registered professional engineer, confirming the requirements of Section .1706 of the North Carolina Solid Waste Management 15A NCAC 13B Rules have been met for the site.

4.3 RECORDATION OF STRUCTURAL FILL FACILITY

Section .1707 of the North Carolina Solid Waste Management 15A NCAC 13B Rules requires the land owner to submit a notarized statement describing the volume and location of coal combustion products to the county Register of Deeds within 90 days after completion of the CCB filling project. This statement must be in the form prescribed by G.S. 47-38 through 47-43, and the Register of Deeds must notify the Waste Management Division of the date, book and page where the notice has been recorded.

APPENDIX A
Structural Fill Site Topographic Map

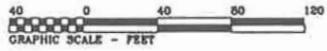


North Reference
NC Grid NAD 83



Legend
SIP = Set Iron Pipe
Well

Boundary lines based on a plat entitled : Gravel & Fill Dirt Borrow Pit
Otis N. Vaughan (Meade Mitchell Farm), Surveyed by : Burr & Associates
Surveyed March 3, 1989



Elevations based on NODOT GPS point 3001
Elevation = 77.45'

Topographic Survey For
URS Corporation
of the
OTIS N. VAUGHAN borrow pit

Township: Halifax	County: Halifax	NC
Date: October 1, 2007	Scale: 1" = 40'	
Coord: URSTOPO.crd	Drawing: URSTopo.dwg	
Map By: Odom Land Surveying Company 130 Mina Street Roanoke Rapids, NC 27870 (252-537-4566)		

APPENDIX B

Soil Boring Logs

Table 1 – Groundwater Level Summary Sheet

Figure 5 – Groundwater Contour Map



BORING LOG: B-1

Client Westmoreland	Drill Date 09/14/07	Site Highway 301
Use Structural Fill		
Address Highway 301 - 4.5 miles south of Weldon, NC	Total Depth (ft) 5.2	
Drilling Method Hand Auger	Boring Depth (ft) 5.2	Boring Diam. (in) 1.25
Backfill Material 3/4" PVC	NA	Static Water Level 4' BGS
Rmrks G. S. Elevation = 66.6	TOC Elevation 67.44	Sample Method Continuous

Depth (ft.)	Sample ID	Sample Depth (ft)	Blows/ 6"	USCS Class Symbol	Soil Description	Well Diagram
0						<p>0.75' stick-up</p> <p>on-site soil backfill</p> <p>Not to Scale</p>
1				(SM-SC)	Orange fine to coarse sand - trace silt, trace clay- moist	
2						
3				(SC-SM)	Orange brown silty clayey fine to coarse sand - moist, becoming wet @ 4'	
4						
5				(SP)	Brown fine to coarse sand - wet - caving into bore hole	
6						

Notes: **Water Level in well @ 3.9' BGS on 9/20/07**

Engineer: **Rich Lowe** Driller: **Rich Lowe**



BORING LOG: B-2

Drill Date	09/14/07	Site	Highway 301		
Client	Westmoreland	Use	Ash Reuse Site		
Address	Highway 301 - 4.4 miles South of Weldon		Total Depth (ft)	5.0	
Drilling Method	Hand Auger	Boring Depth (ft)	5.0	Boring Diam. (in)	1.25
Backfill Material	3/4" PVC		Static Water Level	3' BGS	
Rmrks	G. S. Elevation = 67.8	TOC Elevation	68.48	Sample Method	Continuous

Depth (ft.)	Sample ID	Sample Depth (ft)	Blows/6"	USCS Class Symbol	Soil Description	Well Diagram
0				(CL)	Reddish brown silty sandy clay	<p>0.67' stick-up</p> <p>on-site soil backfill</p>
1				(SM-SC)	Yellowish brown clayey silty fine to coarse sand with trace to some fine gravel - moist	
2				(SC-SM)	Brown silty clayey fine to coarse sand - wet @ 3'	
3				(CL)	Varved Reddish brown silty clay with thin seams of gray silt - moist	
4				(ML)	Gray sandy silt with some clay - wet - soft	
5						
6						

Not to Scale

Notes: Water Level in well @ 2.9' BGS on 9/20/07

Engineer: Rich Lowe Driller: Rich Lowe



BORING LOG: B-3

Drill Date 09/14/07		Site Highway 301	
Client Westmoreland		Use Ash Reuse Site	
Address Highway 301 - 4.4 miles South of Weldon		Total Depth (ft) 5.6	
Drilling Method Hand Auger	Boring Depth (ft) 5.6	Boring Diam. (in) 1.25	
Backfill Material 3/4" PVC		Static Water Level 2.8' BGS	
Rmrks G.S. Elevation = 63.2	TOC Elevation 63.87	Sample Method Continuous	

Depth (ft.)	Sample ID	Sample Depth (ft)	Blows/ 6"	USCS Class Symbol	Soil Description	Well Diagram
0				(SM-SC)	Yellowish brown silty clayey fine to medium sand - moist	
1				(ML)	Gray silt	
2				(SM-SC)	Yellowish brown clayey silty fine to coarse sand - wet	
3				(CL)	Soft wet gray to reddish brown silty clay	
4				(SP)	Brown wet fine to medium sand	
5				(ML)	Gray silt	
6				(SP-SM)	Brown wet fine to medium sand - trace silt	

Notes: **Water Level in well @ 2.7' BGS on 9/20/07**

Engineer: **Rich Lowe** Driller: **Rich Lowe**



BORING LOG: B-4

Client Westmoreland	Drill Date 09/14/07	Site Highway 301
Use Ash Reuse Site		
Address Highway 301 - 4.4 miles South of Weldon	Total Depth (ft) 5.5	
Drilling Method Hand Auger	Boring Depth (ft) 5.5	Boring Diam. (in) 1.25
Backfill Material 3/4" PVC	Static Water Level 4.2' BGS	
Rmrks G.S. Elevation = 64.8	TOC Elevation 65.48	Sample Method Continuous

Depth (ft.)	Sample ID	Sample Depth (ft.)	Blows/ 6"	USCS Class Symbol	Soil Description	Well Diagram
0						
1				(SP)	Yellowish brown to light brown silty fine to medium sand, trace of coarse sand, trace clay	
2						
3						
4				(SM-SC)	Reddish brown mottled silty clayey sand - wet @ 4.2'	
5				(SP-SM)	Wet Light brown fine to coarse sand - trace silt	
6						

Notes: **Water Level in well @ 3.95' BGS on 9/20/07**

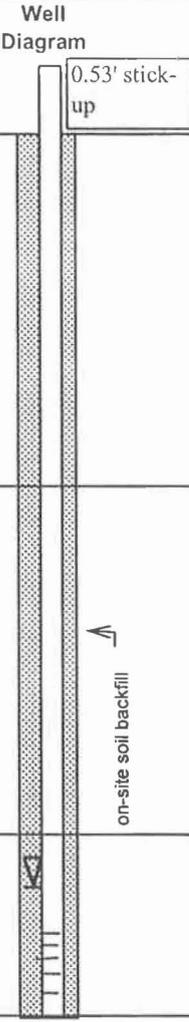
Engineer: **Rich Lowe** Driller: **Rich Lowe**



BORING LOG: B-5

Client	Westmoreland	Drill Date	09/14/07	Site	Highway 301
Address	Highway 301 - 4.4 miles South of Weldon			Total Depth (ft)	5.0
Drilling Method	Hand Auger	Boring Depth (ft)	5.0	Boring Diam. (in)	1.25
Backfill Material	3/4" PVC			Static Water Level	4.6' BGS
Rmrks	G.S. Elevation = 67.3	TOC Elevation	66.92	Sample Method	Continuous

Depth (ft.)	Sample ID	Sample Depth (ft)	Blows/ 6"	USCS Class Symbol	Soil Description	Well Diagram
0						
1				(SM)	Reddish brown silty fine sand, trace clay	
2						
3				(SM-SC)	Brown fine to medium sand, trace silt, trace clay	
4						
5				(SP-SM)	Wet Light brown fine to coarse sand - trace silt, trace clay	
6						



Not to Scale

Notes: Water Level in well @ 4.4' BGS on 9/20/07

Engineer: Rich Lowe Driller: Rich Lowe



BORING LOG: B-6

Client	Westmoreland	Drill Date	09/14/07	Site	Highway 301
Use	Ash Reuse Site				
Address	Highway 301 - 4.4 miles South of Weldon			Total Depth (ft)	5.0
Drilling Method	Hand Auger	Boring Depth (ft)	5.0	Boring Diam. (in)	1.25
Backfill Material	3/4" PVC			Static Water Level	2.0' BGS
Rmrks	G.S. Elevation = 63.9	TOC Elevation	64.77	Sample Method	Continuous

Depth (ft.)	Sample ID	Sample Depth (ft)	Blows/ 6"	USCS Class Symbol	Soil Description	Well Diagram
0						
1				(SP)	Yellowish brown fine to coarse sand	
2				(CL)	Gray to reddish brown silty sandy clay - wet	
3				(SM)	Light brown silty fine sand - wet	
4						
5						
6						

Notes: **Water Level in well @ 2.1' BGS on 9/20/07**
 Engineer: **Rich Lowe** Driller: **Rich Lowe**



PROJECT
Westmoreland Partners Highway 301 Beneficial Ash Reuse Site

SUBJECT
Water Level Summary Sheet

CALCULATION SHEET

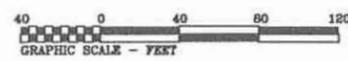
ORIGINATED BY DATE
Rich Lowe 9/24/2007

CHECKED BY DATE

Well Designation	Stick-Up (feet)	Well Depth TPVC (feet)	Ground Surface Elevation	TPVC Elevation (feet MSL)	Water Lvl		Water		Water Lvl		Water		Water Lvl		Water	
					TPVC (9/14/07)	Elevation (9/14/07)	TPVC (9/17/07)	Elevation (9/17/07)	TPVC (9/20/07)	Elevation (9/20/07)	TPVC (10/3/06)	Elevation (10/3/06)	TPVC (10/23/06)	Elevation (10/23/06)		
B-1	0.75	6.04	66.6	67.4	4.45	62.99	4.65	62.79	4.65	62.79	4.8	62.64				
B-2	0.67	5.63	67.8	68.5	5.13	63.35	3.90	64.58	3.60	64.88	3.70	64.78				
B-3	0.56	6.60	63.2	63.9	2.60	61.27	3.37	60.50	3.25	60.62	3.45	60.42				
B-4	0.65	6.33	64.8	65.5	5.73	59.75	4.62	60.86	4.60	60.88	4.60	60.88				
B-5	0.53	5.55	66.3	66.9	5.16	61.76	4.81	62.11	4.90	62.02	4.95	61.97				
B-6	0.70	4.68	63.9	64.8	2.68	62.09	2.70	62.07	2.80	61.97	damaged	na				

Note:

North Reference
NC Grid NAD 83



Boundary lines based on a plat entitled : Gravel & Fill Dirt Borrow Pit
Otis N. Vaughan (Meade Mitchell Farm), Surveyed by : Burr & Associates
Surveyed March 3, 1989

ROANOKE VALLEY FLY ASH DISPOSAL SITE
OTIS N. VAUGHAN BORROW PIT, HALIFAX COUNTY, NC
GROUNDWATER CONTOURS—OCT. 2007

Prepared by
URS
URS Corporation - North Carolina
1800 Perimeter Park Drive
Morrisville, North Carolina 27556
TELEPHONE (919) 481-1100 FAX (919) 461-1418

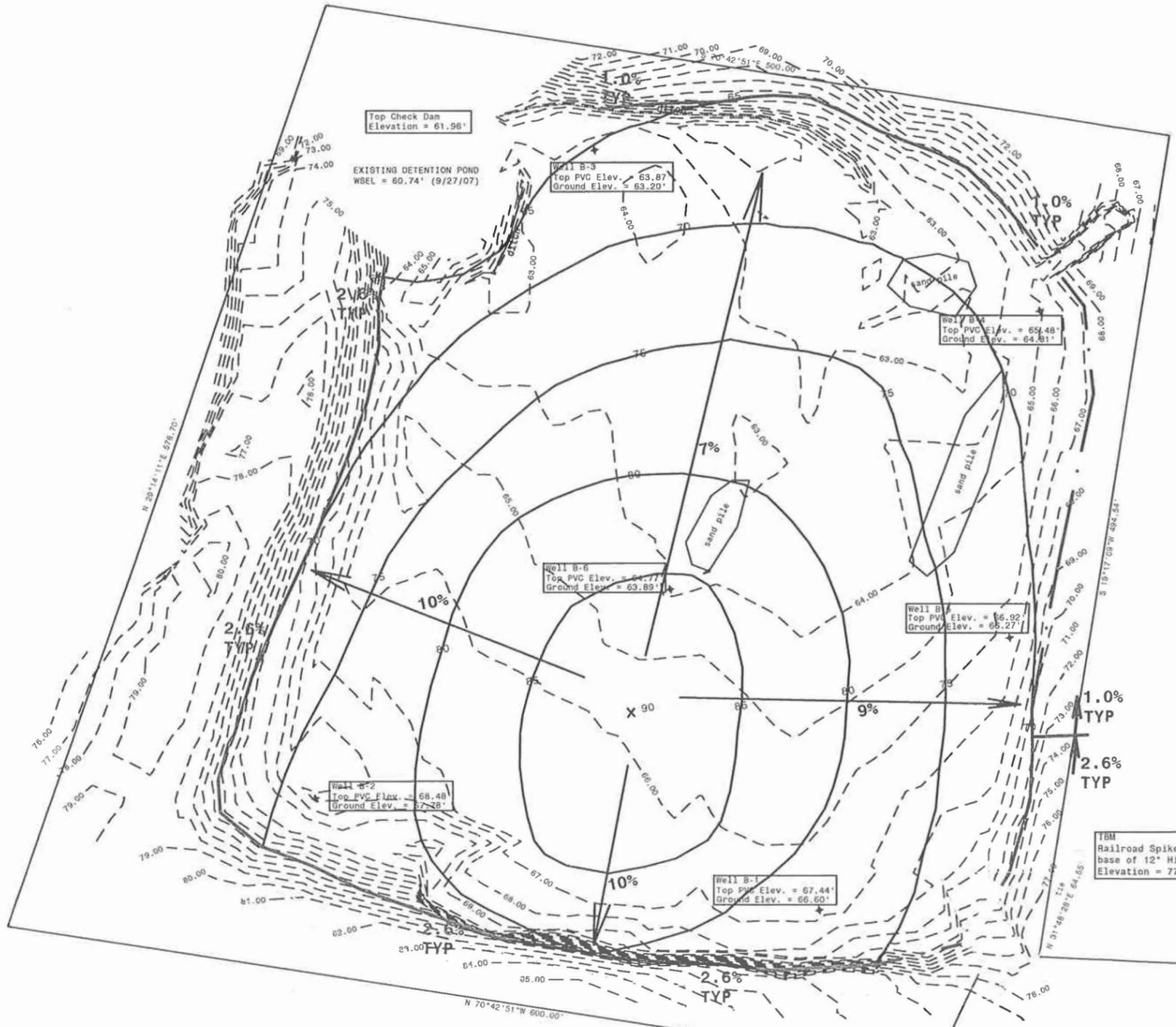


JOB NO.	31825952
SURVEYED	BY ODOM
DESIGNED	BY EGE/RL
DRAWN	BY SMS
CHECKED	BY EGE

FIGURE 5
GROUNDWATER
CONTOUR MAP

APPENDIX C
Figure 6 – Final Contour Map
Volume Calculation Summary Sheet

North Reference
NC Grid NAD 83



-  STRUCTURAL FILL FINAL COVER ELEVATION CONTOUR (18" ABOVE TOP OF ASH)
-  FINAL COVER SLOPE (TYPICAL)
-  PERIMETER STORMWATER DITCH LOCATION AND TYPICAL BOTTOM SLOPE

Elevations based on MCDOT GPS point 3001
Elevation = 77.45'

75' Right of Way
N 77°02'51"W 508.55'

U.S. Highway 301 100' R/W

Fig 6 Final Contour Map

Westmoreland Partners Structural Fill Site Volumes
Highway 301 Site in Halifax County

Fill Volumes

Elevation	Elevation Spacing (feet)	Contour Area (sq. feet)	Average Cont. Area (sq. feet)	Volume (cubic ft)	Volume (cyds)	Cumulative Volume (cyds)
90		0				
	5		9474	47370	1,754	1,754
85		18948				
	5		37922	189608	7,023	8,777
80		56895				
	5		84131	420653	15,580	22,602
75		111366				
	5		133722	668608	24,763	47,365
70		156077				
	5		125625	628123	23,264	70,629
65		95172				
	2		56048	112096	4,152	74,781
63		16924				
	1		8994	8994	333	75,114
62		1064				
	0		532	0	0	75,114
0		0				
	20		0	0	0	75,114
0		0				
						TOTAL
						75,114
cover area	1.5		200533	300,799.50	11,141	
				1 foot thick Soil Cover Volume =		7,427
				6" thick topsoil volume =		3,714
				Net Fillable Airspace for Structural Fill =		63,973

APPENDIX D
Coal Ash TCLP Leaching Test Results
Signed Landowner Agreement for Structural Fill Placement

Certificate of Analysis

Customer: Westmoreland - LG&E Partners
Roanoke Valley Energy Facility
P.O. Box 351
Weldon, NC 27890

Report Date: August 20, 2007
Page 1 of 1

Material Tested: Fly Ash
Date Sampled: 08/03/2007 Time Sampled: 8:30
Date Received: 08/08/2007
Client Sample ID: ROVA 1 Fly Ash

HawkMtn WO #: 0708-00329-001
Sampler: Client
Sample Point ID: ROVA 1

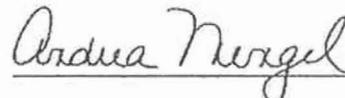
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TCLP, Extraction Fluid ID.	1 Fluid No.	SW846-3010	MC	08/10/2007	13:22
Leachate, Ending pH	5.40 su	SW846-9040	MC	08/10/2007	13:22
Aluminum, leachate	9.87 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Antimony, Leachate	<0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Arsenic, Leachate	0.39 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Barium, Leachate	0.348 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Beryllium, Leachate	0.005 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Cadmium, Leachate	<0.005 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Boron, Leachate	6.09 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Chromium, Leachate	0.030 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Copper, Leachate	<0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Iron, Leachate	7.07 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Lead, Leachate	<0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Manganese, Leachate	0.559 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Mercury, Leachate	0.003 mg/l	SW846-7470A	DDF	08/14/2007	10:30
Molybdenum, Leachate	0.210 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Nickel, Leachate	0.053 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Selenium, Leachate	0.60 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Silver, Leachate	0.040 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Tin, Leachate	<0.050 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Thallium, Leachate	<0.10 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Titanium, Leachate	0.104 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Zinc, Leachate	0.40 mg/l	SW846-6010B	DDF	08/14/2007	18:00

These results relate only to the sample noted above.

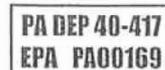
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Ronald Andrae, Technical Director



Andrea Mengel, Environmental Lab Coordinator



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Customer: Westmoreland - LG&E Partners
Roanoke Valley Energy Facility
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Weldon, NC 27890

Report Date: August 20, 2007

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Material Tested: Bottom Ash
Date Sampled: 08/03/2007 Time Sampled: 8:30
Date Received: 08/08/2007
Client Sample ID: ROVA 1 Bottom Ash

HawkMtn WO #: 0708-00329-002
Sampler: Client
Sample Point ID: ROVA 1

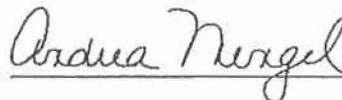
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Leachate, Ending pH	4.99 su	SW846-9040	MC	08/10/2007	13:22
Aluminum, leachate	0.71 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Antimony, Leachate	<0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Arsenic, Leachate	<0.10 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Barium, Leachate	0.618 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Beryllium, Leachate	0.001 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Cadmium, Leachate	<0.005 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Boron, Leachate	0.217 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Chromium, Leachate	<0.005 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Copper, Leachate	0.22 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Iron, Leachate	0.19 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Lead, Leachate	<0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Manganese, Leachate	0.082 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Mercury, Leachate	<0.001 mg/l	SW846-7470A	DDF	08/14/2007	10:30
Molybdenum, Leachate	<0.020 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Nickel, Leachate	<0.020 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Selenium, Leachate	<0.10 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Silver, Leachate	<0.010 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Tin, Leachate	<0.050 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Thallium, Leachate	<0.10 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Titanium, Leachate	<0.020 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Zinc, Leachate	0.25 mg/l	SW846-6010B	DDF	08/14/2007	18:00

These results relate only to the sample noted above.

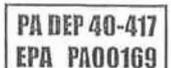
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Ronald Andrae, Technical Director



Andrea Mengel, Environmental Lab Coordinator



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Roanoke Valley Energy Facility
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Weldon, NC 27890

Report Date: August 20, 2007

Page 1 of 1

Material Tested: Fly Ash
Date Sampled: 08/03/2007 Time Sampled: 8:30
Date Received: 08/08/2007
Client Sample ID: ROVA II Fly Ash

HawkMtn WO #: 0708-00329-003
Sampler: Client
Sample Point ID: ROVA II

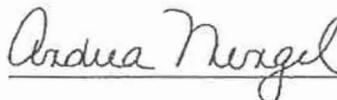
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Leachate, Ending pH	5.04 su	SW846-9040	MC	08/10/2007	13:22
Aluminum, leachate	13.6 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Antimony, Leachate	0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Arsenic, Leachate	0.30 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Barium, Leachate	0.783 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Beryllium, Leachate	0.008 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Cadmium, Leachate	<0.005 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Boron, Leachate	5.49 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Chromium, Leachate	0.028 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Copper, Leachate	<0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Iron, Leachate	15.0 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Lead, Leachate	<0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Manganese, Leachate	0.856 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Mercury, Leachate	0.002 mg/l	SW846-7470A	DDF	08/14/2007	10:30
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Tin, Leachate	<0.050 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Thallium, Leachate	<0.10 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Titanium, Leachate	0.128 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Zinc, Leachate	0.33 mg/l	SW846-6010B	DDF	08/14/2007	18:00

These results relate only to the sample noted above.

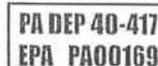
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Ronald Andrae, Technical Director



Andrea Mengel, Environmental Lab Coordinator



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Customer: Westmoreland - LG&E Partners
Roanoke Valley Energy Facility
P.O. Box 351
Weldon, NC 27890

Report Date: August 20, 2007

Page 1 of 1

Material Tested: Bottom Ash
Date Sampled: 08/03/2007 Time Sampled: 8:30
Date Received: 08/08/2007
Client Sample ID: ROVA II Bottom Ash

HawkMtn WO #: 0708-00329-004
Sampler: Client
Sample Point ID: ROVA II

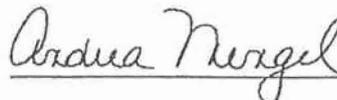
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TCLP, Extraction Fluid ID.	1 Fluid No.	SW846-3010	MC	08/10/2007	13:22
Leachate, Ending pH	4.99 su	SW846-9040	MC	08/10/2007	13:22
Aluminum, leachate	0.87 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Antimony, Leachate	<0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Arsenic, Leachate	<0.10 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Barium, Leachate	0.859 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Beryllium, Leachate	0.003 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Cadmium, Leachate	<0.005 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Boron, Leachate	0.572 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Chromium, Leachate	0.009 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Copper, Leachate	<0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Iron, Leachate	2.71 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Lead, Leachate	<0.05 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Manganese, Leachate	0.210 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Mercury, Leachate	<0.001 mg/l	SW846-7470A	DDF	08/14/2007	10:30
Molybdenum, Leachate	<0.020 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Nickel, Leachate	0.027 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Selenium, Leachate	<0.10 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Silver, Leachate	<0.010 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Tin, Leachate	<0.050 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Thallium, Leachate	<0.10 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Titanium, Leachate	<0.020 mg/l	SW846-6010B	DDF	08/14/2007	18:00
Zinc, Leachate	1.10 mg/l	SW846-6010B	DDF	08/14/2007	18:00

These results relate only to the sample noted above.

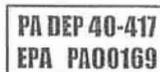
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Ronald Andrae, Technical Director



Andrea Mengel, Environmental Lab Coordinator

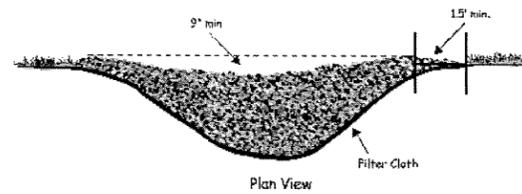


APPENDIX E
Erosion Control Plan

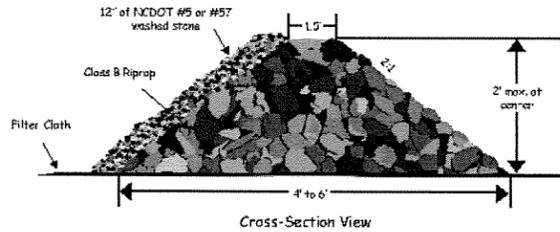
L = The distance such that points A and B are of equal elevation



Figure 6.63a Space check dams in a channel so that the crest of downstream dam is at elevation of the toe of upstream dam

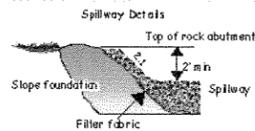


Plan View

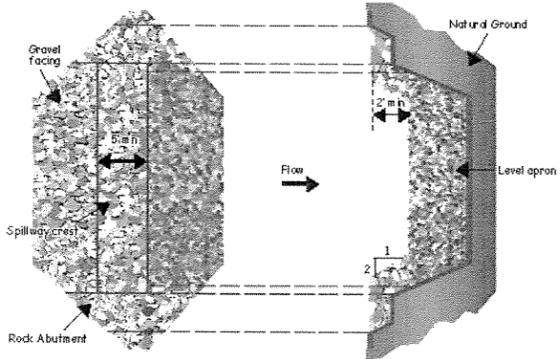


Cross-Section View

Figure 6.63b Rock Dam plan view and spillway details



Spillway Details



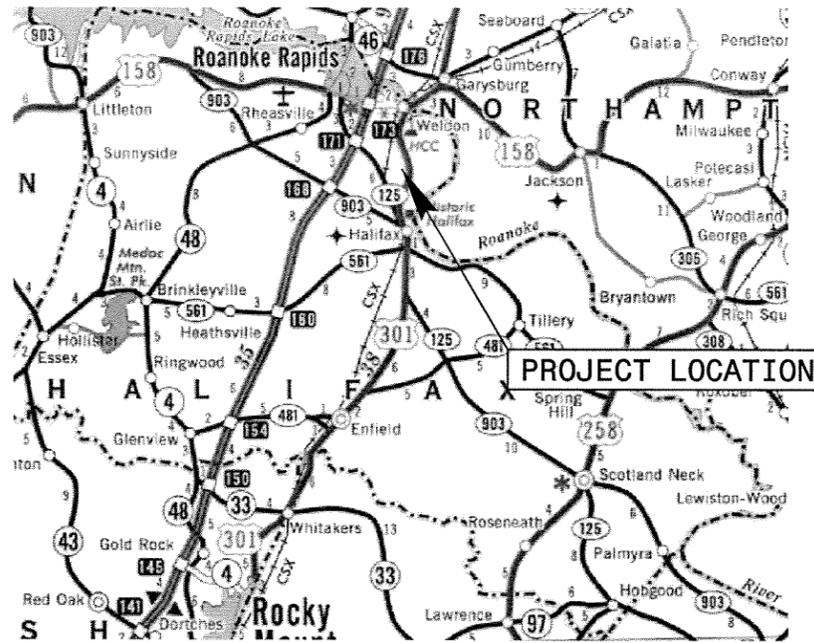
Construction Specifications

1. Clear the areas under the embankment and strip of roots and other objectionable material. Delay cleaning the reservoir area until the dam is in place.
2. Cover the foundation area including the abutments with extra-strength filter fabric before backfilling with rock. If a cutoff trench is required, excavate at center line of dam, extending all the way up the earth abutments. Apply filter fabric under the rockfill embankment from the upstream edge of the dam to the downstream edge of the apron. Overlap fill material a minimum of 1 foot at all joints, with the upstream strip laid over the downstream strip.
3. Construct the embankment with well-graded rock and gravel to the size and dimensions shown on the drawings. It is important that rock abutments be at least 2 feet higher than the spillway crest and at least 1 foot higher than the dam, all the way to the downstream toe, to prevent scour and erosion at the abutments.
4. Sediment-laden water from the construction site should be diverted into the basin reservoir at the furthest area from the dam.
5. Construct the rock dam before the basin area is cleared to minimize sediment yield from construction of the basin. Immediately stabilize all areas disturbed during the construction of the dam except the sediment pool (References: Surface Stabilization).
6. Safety? Sediment basins should be considered dangerous because they attract children. Steep side slopes should be avoided. Fences with warning signs may be needed if trespassing is likely. All state and local requirements must be followed.

Maintenance

Check sediment basins after each rainfall. Remove sediment and restore original volume when sediment accumulates to about one-half the design volume. Sediment should be placed above the basin and adequately stabilized. Check the structure for erosion, piping, and rock displacement weekly and after each significant (1/2 inch or greater) rainstorm and repair immediately. Remove the structure and any unstable sediment immediately after the construction site has been permanently stabilized. Smooth the basin site to blend with the surrounding area and stabilize. All water and sediment should be removed from the basin prior to dam removal. Sediment should be placed in designated disposal areas and not allowed to flow into streams or drainage ways during structure removal.

ROCK CHECK DAM DETAIL



VICINITY MAP

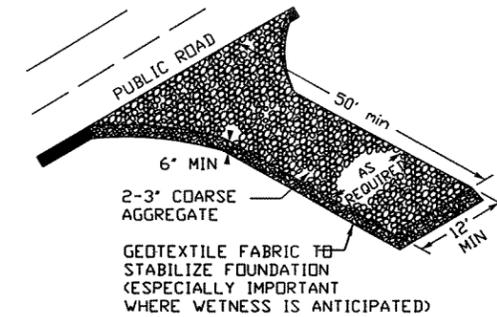


FIGURE 6.06B PLAN OF TEMPORARY CONSTRUCTION ENTRANCE/EXIT.

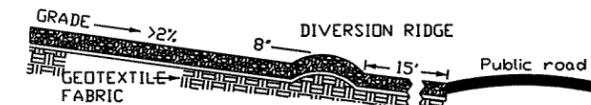


FIGURE 6.06C TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT WITH DIVERSION RIDGE WHERE GRADE EXCEEDS 2%.

CONSTRUCTION SPECIFICATIONS

1. AVOID CURVES IN PUBLIC ROADS AND STEEP SLOPES. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE AND CROWN FOUNDATION FOR POSITIVE DRAINAGE.
2. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6 TO 8 INCHES HIGH WITH 3:1 SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FT FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD (FIGURE 6.06C).
3. PLACE GEOTEXTILE FABRIC ON GRADED FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.
4. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
5. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.
6. INSTALL PIPE UNDER PAD IF NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

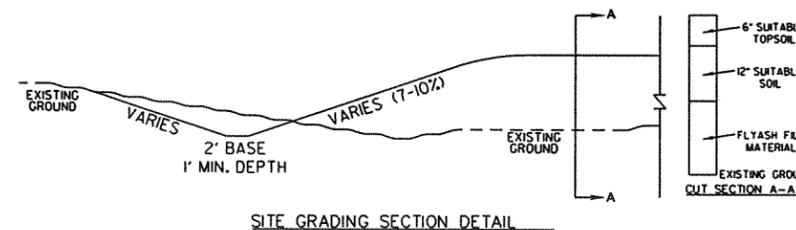
MAINTENANCE

MAINTAIN ENTRANCE AND MAKE REPAIRS AS NECESSARY.

TEMPORARY CONSTRUCTION ENTRANCE/EXIT

LEGEND

- STRUCTURAL FILL FINAL COVER ELEVATION CONTOUR (18" ABOVE TOP OF ASH)
- FINAL COVER SLOPE (TYPICAL)
- PERIMETER STORMWATER DITCH LOCATION AND TYPICAL BOTTOM SLOPE
- SEDIMENT TRAP
- SILT FENCE
- ROCK CHECK DAM



SITE GRADING SECTION DETAIL

ROANOKE VALLEY FLY ASH DISPOSAL SITE
OTIS N. VAUGHAN BORROW PIT, HALIFAX COUNTY, NC

EROSION CONTROL DETAILS

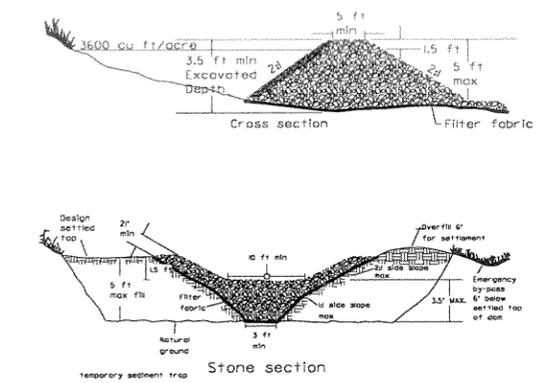
Prepared by
URS
URS Corporation - North Carolina
1600 Perimeter Park Drive
Morrisville, North Carolina 27560
TELEPHONE 1919 461-1100 FAX 1919 461-1415



JOB NO.	31825952
SURVEYED	BY ODOM
DESIGNED	BY EGE
DRAWN	BY SMS
CHECKED	BY EGE

SHEET NO.
1 OF 3

Construction Specifications



1. Clear, grub, and strip the area under the embankment of all vegetation and root mat. Remove all surface soil containing high amounts of organic matter and stockpile or dispose of it properly. Haul all objectionable material to the designated disposal area.
2. Ensure that fill material for the embankment is free of roots, woody vegetation, organic matter, and other objectionable material. Place the fill in lifts not to exceed 9 inches and machine compact it. Over fill the embankment 6 inches to allow for settlement.
3. Construct the outlet section in the embankment. Protect the connection between the riprap and the soil from piping by using filter fabric or a keyway cutoff trench between the riprap structure and the soil.
 - *Place the filter fabric between the riprap and soil. Extend the fabric across the spillway foundation and sides to the top of the dam, or
 - *Excavate a keyway trench along the centerline of the spillway foundation extending up the sides to the height of the dam. The trench should be at least 2-ft deep and 2-ft wide with 1:1 side slopes.
4. Clear the pond area below the elevation of the crest of the spillway to facilitate sediment cleanout.
5. All cut and fill slopes should be 2:1 or flatter.
6. Ensure that the stone (drainage) section of the embankment has a minimum bottom width of 3 ft and maximum side slopes of 1:1 that extend to the bottom of the spillway section.
7. Construct the minimum finished stone spillway bottom width, as shown on the plans, with 2:1 side slopes extending to the top of the over filled embankment. Keep the thickness of the sides of the spillway outlet structure at a minimum of 21 inches. The weir must be level and constructed to grade to assure design capacity.
8. Material used in the stone section should be a well-graded mixture of stone with a d₅₀ size of 9 inches (class B erosion control stone is recommended) and a maximum stone size of 14 inches. The stone may be machine placed and the smaller stones worked into the voids of the larger stones. The stone should be hard, angular, and highly weather-resistant.
9. Discharge inlet water into the basin in a manner to prevent erosion. Use temporary slope drains or diversions with outlet protection to divert sediment-laden water to the upper end of the pool area to improve basin trap efficiency (References: Runoff Control Measures and Outlet Protection).
10. Ensure that the stone spillway outlet section extends downstream past the toe of the embankment until stable conditions are reached and outlet velocity is acceptable for the receiving stream. Keep the edges of the stone outlet section flush with the surrounding ground and shape the center to confine the outflow stream (References: Outlet Protection).
11. Direct emergency bypass to natural, stable areas. Locate bypass outlets so that flow will not damage the embankment.
12. Stabilize the embankment and all disturbed areas above the sediment pool and downstream from the trap immediately after construction (References: Surface Stabilization).
13. Show the distance from the top of the spillway to the sediment cleanout level (one-half the design depth) on the plans and mark it in the field.
14. Install porous baffles as specified in Practice 6.65 of the NCEM Erosion and Sediment Control Planning and Design Manual.

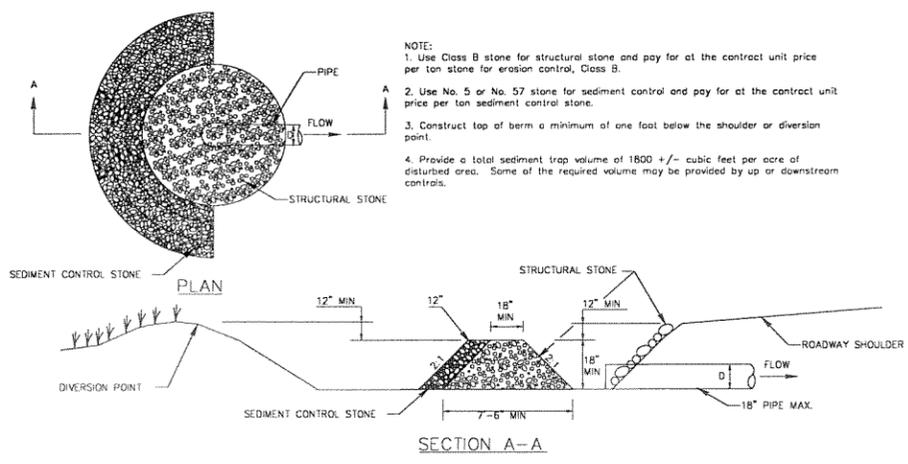
Maintenance

Inspect temporary sediment traps after each period of significant rainfall. Remove sediment and restore the trap to its original dimensions when the sediment has accumulated to one-half the designated disposal area and replace the contaminated part of the gravel facing.

Check the structure for damage from erosion or piping. Periodically check the depth of the spillway to insure it is a minimum of 1.5 ft below the low point of the embankment. Immediately fill any settlement of the embankment to slightly above design grade. Any riprap displaced from the spillway must be replaced immediately.

After all sediment-producing areas have been permanently stabilized, remove the structure and all unstable sediment. Smooth the area to blend with the adjoining areas and stabilize properly. (References: Surface Stabilization).

TEMPORARY SEDIMENT BASIN DETAIL



- NOTE:
1. Use Class B stone for structural stone and pay for at the contract unit price per ton stone for erosion control, Class B.
 2. Use No. 5 or No. 57 stone for sediment control and pay for at the contract unit price per ton sediment control stone.
 3. Construct top of berm a minimum of one foot below the shoulder or diversion point.
 4. Provide a total sediment trap volume of 1800 +/- cubic feet per acre of disturbed area. Some of the required volume may be provided by up or downstream contrals.

Construction Specifications

MATERIALS

1. Use a synthetic filter fabric of at least 95% by weight of polyolefins or polyester, which is certified by the manufacturer or supplier as conforming to the requirements in ASTM D 6461, which is shown in part in Table 6.62b.
- Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0 to 120° F.
2. Ensure that posts for sediment fences are 1.33 lb/linear ft steel with a minimum length of 5 ft. Make sure that steel posts have projections to facilitate fastening the fabric.
 3. For reinforcement of standard strength filter fabric, use wire fence with a minimum 14 gauge and a maximum mesh spacing of 6 inches.

TEMPORARY SILT FENCE MATERIAL PROPERTY REQUIREMENTS					
	TEST MATERIAL	UNITS	SUPPORTED SILT FENCE	UN-SUPPORTED SILT FENCE	TYPE OF VALUE
GRAB STRENGTH	ASTM D 4632	N (lbs)			
MACHINE DIRECTION			400	550	MARV
			(90)	(90)	
X-MACHINE DIRECTION			400	450	MARV
			(90)	(90)	
PERMITTIVITY	ASTM D 4491	sec-1	0.05	0.05	MARV
APPARENT OPENING SIZE	ASTM D 4751	mm	0.60	0.60	Max. ARV
		(US Sieve #)	(30)	(30)	
ULTRAVIOLENT STABILITY	ASTM D 4355	Retained Strength	70% after 500h of exposure	70% after 500h of exposure	Typical

NOTES:

1. Silt Fence support shall consist of 14 gauge steel wire mesh spacing of 150 mm (6 inches), or precast polymer mesh of equivalent strength.
2. These default values are based on empirical evidence with a variety of sediment. For environmentally sensitive areas, a review of previous experience and/or site or regionally specific geologic tests in accordance with Test Method D 5141 should be performed by the agency to confirm suitability of these requirements.
3. As measured in accordance with Test Method D 4632.

CONSTRUCTION

1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground surface. (Higher fences may impound volumes of water sufficient to cause failure of the structure.)
3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.
4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts using heavy duty wire staples at least 1 inch long, or tie wires. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have minimum 50 pound tensile strength.
5. When a wire mesh support fence is used, space posts a maximum of 8 ft apart. Support posts should be driven securely into the ground to a minimum of 24 inches.
6. Extra strength filter fabric with 6-ft post spacing does not require wire mesh support fence. Securely fasten the filter fabric directly to the posts. Wire or plastic zip ties should have a minimum 50 pound tensile strength.
7. Excavate a trench approximately 4 inches wide and 8 inches deep along the proposed line of posts and upslope from the barrier (Figure 6.62e).
8. Place 12 inches of the fabric along the bottom and side of the trench.
9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.
10. Do not attach filter fabric to existing trees.

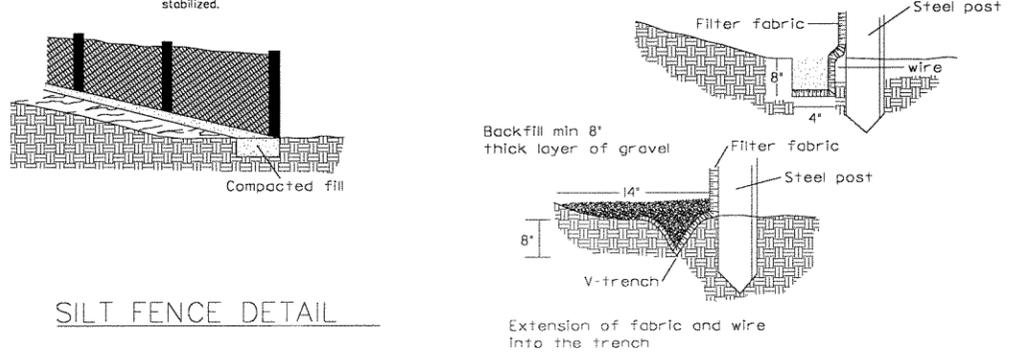
Maintenance

Inspect sediment fences at least once a week and after each rainfall. Make any required repairs immediately.

Should the fabric of a sediment fence collapse, tear, decompose or become ineffective, replace it promptly. Replace fabric every 60 days.

Remove sediment deposits as necessary to provide adequate storage volume for the next rain and to reduce pressure on the fence. Take care to avoid undermining the fence during cleanout.

Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.



SILT FENCE DETAIL

TEMPORARY SEDIMENT BASIN DETAIL

- CONSTRUCTION SEQUENCE**
1. Obtain grading permit.
 2. Install erosion control devices as shown on plans. Clear only as necessary to install these devices.
 3. Call State Erosion Control Local office for on-site inspection. If approved, begin construction.
 4. Install temporary sediment traps in locations as shown on plans. Immediately seed, mulch and anchor upon installation.
 5. Maintain devices as needed. Rough grade site and install drainage systems including permanent and temporary structures. Install inlet protection devices.
 6. Maintain devices as needed. Stabilize site as areas are brought up to finish grade with vegetation, paving, etc.
 7. When construction is complete and all areas are stabilized completely, call for inspection by State Erosion Control Local office.
 8. If site is approved, remove temporary devices and stabilize any resulting bare areas.
- NOTE: Provide a ground cover on exposed slopes within 21 calendar days (whichever is shorter), following completion of any phase of grading and, a permanent groundcover for all disturbed areas within 15 working days or 90 calendar days.

Seeding and Mulching

Seed exposed slopes within 21 calendar days following completion of any temporary phase of grading.

For permanent areas, seed & mulch all disturbed areas within 15 working days or 90 calendar days (whichever is shorter) following completion of construction.

- Permanent Seeding Schedule**
- Shoulders, Side Ditches, Slopes (Max. 3:1)**
- Apply 4,000 lbs. agricultural limestone per acre.
Apply 1,000 lbs. 10-10-10 fertilizer per acre for grass seeding.
Lime and fertilizer are to be disked into the soil surface to a minimum depth of 4 inches.
- Later Winter - Early Spring**
- A. Grass:
(1) Tall Fescue - 150 lbs. per acre.
B. Grass - Legume Mixture:
(1) Tall Fescue - 100 lbs. per acre plus Sericea Lespedeza (scarified) - 60 lbs. per acre.
(2) Tall Fescue - 100 lbs. per acre plus Crownvetch - 25 lbs. per acre.
- Early Spring - Late Spring**
- A. Grass:
(1) Tall Fescue - 150 lbs. per acre.
(2) Tall Fescue - 100 lbs. per acre plus Weeping Lovegrass - 5 lbs. per acre.
B. Grass - Legume Mixture:
(1) Tall Fescue - 100 lbs. per acre plus Sericea Lespedeza (scarified) - 60 lbs. per acre.
- Summer**
- A. Grass:
(1) Tall Fescue - 150 lbs. per acre plus Weeping Lovegrass - 5 lbs. per acre.
(2) Weeping Lovegrass - 5 lbs. per acre plus Browntop Millet or Sorghum-Sudan Hybrids - 50 lbs. per acre.
B. Grass-Legume Mixture:
(1) Weeping Lovegrass - 5 lbs. per acre plus Sericea Lespedeza (scarified) - 60 lbs. per acre.
- Late Summer - Early Winter**
- A. Grass:
(1) Tall Fescue - 150 lbs. per acre.
(2) Tall Fescue - 100 lbs. per acre plus Annual Ryegrass - 25 lbs. per acre.
B. Grass - Legume Mixture:
(1) Tall Fescue - 100 lbs. per acre plus Sericea Lespedeza (unscarified) - 60 lbs. per acre.
(2) Tall Fescue - 100 lbs. per acre plus Crownvetch - 25 lbs. per acre.
(3) Tall Fescue - 75 lbs. per acre plus Annual Ryegrass - 25 lbs. per acre plus Sericea Lespedeza (unscarified) - 60 lbs. per acre.
- After seeding, the area is to be rolled or cultipacked to insure that the seed is pressed into contact with soil surface. All seeded areas are to be mulched with straw mulch at the rate of 3,000 lbs. per acre. (approx. 100 bales per acre.)
- Apply asphalt emulsion to the straw mulch at the rate of 150 gallons per acre.
- Consult Conservation Engineer or Soil Conservation Service for additional information concerning other alternatives for vegetation or denuded areas. The above vegetation are those which do well under local conditions; other seeding rate combinations are possible.
- Seeding mix shall be approved by the Engineer before seeding of the project starts.

- Temporary Seeding Schedule**
- Later Winter - Early Spring**
- A. Rye (grain) - 120 lbs. per acre
B. Annual lespedeza (Kobe in Piedmont and Coastal Plain, Korean in Mountains) - 50 lbs. per acre
Soil Amendments: Follow recommendations of soil tests or apply 2000 lbs/acre ground agricultural limestone and 750 lbs/acre of 10-10-10 fertilizer.
Mulch: Apply 4000 lbs/acre of straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.
Maintenance: Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.
- Summer**
- A. German Millet - 40 lbs. per acre
Soil Amendments: Follow recommendations of soil tests or apply 2000 lbs/acre ground agricultural limestone and 750 lbs/acre of 10-10-10 fertilizer.
Mulch: Apply 4000 lbs/acre of straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.
Maintenance: Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.
- Fall**
- A. Rye (grain) - 120 lbs. per acre
Soil Amendments: Follow recommendations of soil tests or apply 2000 lbs/acre ground agricultural limestone and 1000 lbs/acre of 10-10-10 fertilizer.
Mulch: Apply 4000 lbs/acre of straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.
Maintenance: Repair and refertilize damaged areas immediately. Topdress with 50 lbs/acre of nitrogen in March. If it is necessary to extend temporary cover beyond June 15, overseed with 50 lbs/acre of Kobe (Piedmont and Coastal Plain) or Korean (Mountains) lespedeza in late February or early March.
- ***Temporary - Reseed according to optimum season for desired permanent vegetation. Do not allow temporary cover to grow over 12" in height before mowing, otherwise fescue may be shaded out.

- Seeding Preparation**
1. Chisel compacted areas and spread topsoil 3 inches deep over adverse soil conditions, if available.
 2. Rip the entire area to 6 inches depth.
 3. Remove all loose rock, roots, and other obstructions leaving surface smooth and uniform.
 4. Apply agricultural lime, fertilizer, and super phosphate uniformly and mix with soil (see below).
 5. Continue tillage until a well-pulverized, firm, reasonably uniform seedbed is prepared 4 to 6 inches deep.
 6. Seed on a freshly prepared seedbed and cover seed lightly with seeding equipment or cultipack after seeding.
 7. Mulch immediately after seeding and anchor mulch.
 8. Inspect all seeded areas and make necessary repairs or reseeds within the planting season. If possible, if broadcast should be over 60% damaged, reestablish following original lime, fertilizer and seeding rates.
 9. Consult Conservation Inspector on maintenance treatment and fertilization after permanent cover is established.
- APPLY:
- Agricultural Limestone - 2 tons/acre
Fertilizer - 10-10-10 analysis of 1,000 lbs/acre
Super phosphate - 500 lbs/acre of 20% analysis super phosphate
Mulch - 3000 lbs (approx. 100 bales) small grain straw/acre
Anchor - Tack with emulsified asphalt at 150 gal/acre

ROANOKE VALLEY FLY ASH DISPOSAL SITE
OTIS N. VAUGHAN BORROW PIT, HALIFAX COUNTY, NC

Prepared by
URS
URS Corporation - North Carolina
1600 Perimeter Park Drive
Merrillville, North Carolina 27560
TELEPHONE (919) 461-1100 FAX (919) 461-1415

EROSION CONTROL DETAILS

Prepared by
URS
URS Corporation - North Carolina
1600 Perimeter Park Drive
Merrillville, North Carolina 27560
TELEPHONE (919) 461-1100 FAX (919) 461-1415

SEAL
18478
ENGINEER
GLENN E. BECK

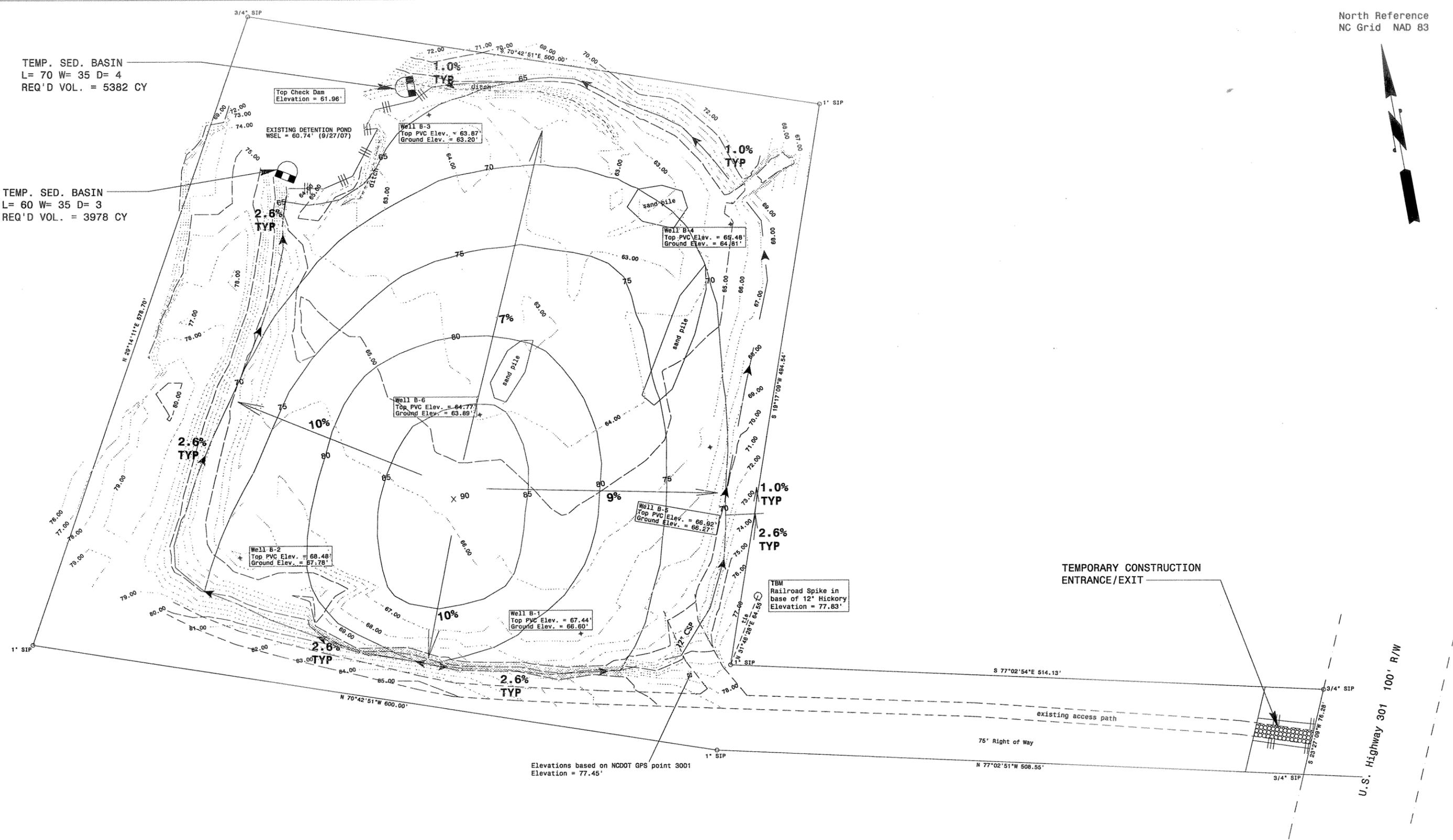
JOB NO. 31825952
SURVEYED BY ODOM
DESIGNED BY EGE
DRAWN BY SMS
CHECKED BY EGE

SHEET NO. 2 OF 3



TEMP. SED. BASIN
L= 70 W= 35 D= 4
REQ'D VOL. = 5382 CY

TEMP. SED. BASIN
L= 60 W= 35 D= 3
REQ'D VOL. = 3978 CY



Elevations based on NCDOT GPS point 3001
Elevation = 77.45'



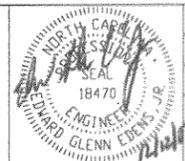
DISTURBED
AREA:
5.20 ACRES

Boundary lines based on a plat entitled : Gravel & Fill Dirt Borrow Pit
Otis N. Vaughan (Meade Mitchell Farm), Surveyed by : Burr & Associates
Surveyed March 3, 1989

ROANOKE VALLEY FLY ASH DISPOSAL SITE
OTIS N. VAUGHAN BORROW PIT, HALIFAX COUNTY, NC

EROSION CONTROL DESIGN

Prepared by
URS
URS Corporation - North Carolina
1600 Perimeter Park Drive
Marrsville, North Carolina 27560
TELEPHONE (919) 461-1100 FAX (919) 461-1415



JOB NO.	31825952
SURVEYED	BY ODOM
DESIGNED	BY EGE
DRAWN	BY SMS
CHECKED	BY EGE

SHEET NO.
3 OF 3

STATEMENT OF LAND OWNER

Otis N. and Judith Vaughan, owner and developer of the land on which the structural fill is to be placed, hereby acknowledge and consent to the use of coal combustion by-products as structural fill and agree to record the fill statement with the register of deeds of Halifax County in accordance with Rule .1707 of the .1700 Regulations and in the form prescribed by G.S. 47-38 through G.S. 47-43.

Otis N. Vaughan

11-9-07

Judith M. Vaughan

11-9-07

Signature of Land Owner(s)

Date