

May 1, 2003

North Carolina Department of  
Environment and Natural Resources  
Division of Waste Management  
Solid Waste Section  
1646 Mail Service Center  
Raleigh, NC 27699-1646

SECTION  
FILE

Attention: Mr. Jim Barber  
Branch Head, Solid Waste Section

Subject: Duke Energy - Belews Creek Steam Station  
Structural Fill Notification  
Permit Number 85-03, Stokes County

Dear Mr. Barber:

Please reference the structural fill notification, which is attached. If additional information is required to ensure a timely response, please contact me at (704) 382-4309.

Sincerely,



Allen Stowe, Scientist  
Environmental Support

Attachments

Notification for Beneficial Use Structural Fill  
Duke Energy Company  
Stokes County, North Carolina

Prepared for:  
Duke Energy Company  
Charlotte, North Carolina

Prepared by:  
Shield Engineering, Inc.  
4301 Taggart Creek Road  
Charlotte, North Carolina 28208

Shield Project No. 1020062

April 2003



April 30, 2003

Mr. Jeff Newell  
Duke Energy  
526 South Church Street  
EC 01U  
Charlotte, North Carolina 28202

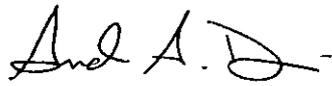
RE: Notification for Beneficial Use Structural Fill  
Belews Creek Steam Station  
Duke Energy Company  
Stokes County, North Carolina  
Shield Project No. 1020062

Dear Mr. Newell,

Shield Engineering, Inc. (Shield) is pleased to present the attached Notification for a Beneficial Use Structural Fill project for the Duke Energy facility. If you have any questions concerning this notification, please do not hesitate to call us at (704) 394-6913.

Sincerely,

*Shield Engineering, Inc.*

  
Andrew A. Davis, P.E.  
Project Engineer

  
Keith A. Anthony, P.E.  
Principal Engineer



## TABLE OF CONTENTS

1.0 NOTIFICATION .....	1
1.1 Project Description.....	1
1.2 Schedule.....	1
1.3 Volumes .....	1
1.4 Ash Characterization.....	1
1.5 Owner's Statement.....	1
2.0 SITING .....	2
3.0 DESIGN, CONSTRUCTION AND OPERATION.....	2
3.1 Protection of the Environment.....	2
3.2 Ash Transportation.....	3
3.3 Ash Placement .....	3
3.4 Equipment.....	3
3.5 Off-Site Discharge .....	3
3.6 Groundwater Protection.....	3
3.7 Stormwater Control.....	3
3.8 Erosion and Sedimentation Control.....	3
3.9 Dust Control.....	4
3.10 Cover Material .....	4
3.11 Slopes.....	4
4.0 CLOSURE .....	4
4.1 Cover Placement .....	4
4.2 Grading and Drainage.....	4
4.3 Vegetation Protection.....	4
4.4 Certification .....	4
5.0 RECORDATION.....	5
6.0 ANNUAL REPORTING .....	5
7.0 LIMITATIONS.....	6

**TABLE OF CONTENTS (continued)**

**TABLES**

Table 1 .....Ash Landfill Volume

**FIGURES**

Drawing 1.....Site Vicinity Map  
Drawing 2.....Site Grading Plan  
Drawing 3.....Construction Plan  
Drawing 4.....Site Closure Plan  
Drawing 5.....Cross-Sections

**APPENDICIES**

Appendix A.....Boring Logs  
Appendix B.....Ash TCLP Analysis  
Appendix C.....Statement of Consent  
Appendix D.....Erosion Control Drawing and Approval

## 1.0 NOTIFICATION

The submittal of this Beneficial Use Structural Fill Notification shall serve as written notice of Duke Energy Company's plan to initiate a beneficial use structural fill project utilizing coal combustion by-products, otherwise called ash. This submittal contains information as required under T15A:13B.1700 - Requirements for Beneficial Use of Coal Combustion By-Products. Also included in this submittal are the construction plans signed and sealed by a North Carolina Registered Professional Engineer.

### 1.1 Project Description

This beneficial use structural fill project is planned for an industrial development site located adjacent to Duke Energy Company's Belews Creek Steam Station. This site has been developed for potential use as an equipment/material staging area and/or overflow parking. The area is currently covered in woodland and is approximately 55 acres in size. The entire Duke Energy Company property, including the proposed area of the structural fill, is designated on the Belews Lake, NC 7.5 minute USGS quadrangle map shown as Drawing 1. Drawing 2 shows the proposed grading to be done on site prior to structural fill placement. Drawing 3 shows the fill progression plan. Drawing 4 shows closure plan details. Drawing 5 shows cross-sections.

### 1.2 Schedule

The estimated schedule for this structural fill project is as follows:

Start Date: June 1, 2003

End Date: June 1, 2006

### 1.3 Volumes

The total ash volume estimated for this project is approximately 1,006,000 cubic yards. It is anticipated that anywhere from 1000 to 1500 cubic yards per day will be transported to the structural fill facility depending on ash sales.

### 1.4 Ash Characterization

Toxicity Characteristic Leaching Procedure (TCLP) analysis have been performed on the ash from the Belews Creek facility. Results of this analysis is included in Appendix B. TCLP analyses will continue to be conducted annually during the duration of the project and the minimum analyses will include: arsenic, barium, cadmium, lead, chromium, mercury, selenium and silver.

### 1.5 Owner's Statement

A signed and dated statement from the owner, acknowledging and consenting to the use of the ash as structural fill on their land, is included in Appendix C.

## 2.0 SITING

A review of the site drawings, a site recognizance and soil boring activities were performed in order to verify siting conditions of this beneficial use structural fill facility. Based on these activities it has been verified that the structural fill will not be placed:

2.1 Within 50 horizontal feet of a jurisdictional wetland.  
This was verified by a site recognizance.

2.2 Within 50 horizontal feet of the top of a bank of a perennial stream or other surface water body.  
This was verified by the site topographic drawing and a site recognizance.

2.3 Within 2 feet of the seasonal high groundwater table.  
This was verified by eight soil borings placed throughout the site as shown on Figure 2 (Borings TW-4 and TW-5 not shown due to location on southern portion of the site). Boring refusal depths varied from 3 to 30 feet with no groundwater encountered in any of the borings. Boring logs are attached in Appendix A. Grading at the site, which is being performed to obtain and stockpile cover soils, will be limited in order to allow at least 4 feet of soil above the auger refusal depth.

2.4 Within 100 horizontal feet of any source of drinking water.  
This was verified by the site topographic drawing as well as Duke Energy Company site personnel.

2.5 Within an area subject to the 100-year flood.  
This was verified by the site topographic drawing.

2.6 Within 25 feet of the property boundary.  
This was verified by the site topographic drawing.

2.7 Within 25 feet of a bedrock outcrop.  
This was verified by a site recognizance.

## 3.0 DESIGN, CONSTRUCTION AND OPERATION

Following are the design, construction and operational procedures, which will be used and/or implemented during this project.

### 3.1 Protection of the Environmental

The structural fill facility will be designed, constructed, operated, closed, and maintained in such a manner as to minimize the potential for release of harmful constituents of ash to the environment or create a nuisance to the public. This

beneficial use structural fill project is located entirely on Duke Energy Company property. The ash will never at any time leave or be transported off the property.

### 3.2 Ash Transportation

Ash shall be collected and transported in a manner that will prevent nuisances and hazards to public health and safety. Coal combustion by-products shall be moisture conditioned, as necessary, to prevent dusting. The ash is generated on-site and, except for two road crossings, will travel solely on Duke Energy Company property to the structural fill area.

### 3.3 Ash Placement

Ash will be placed uniformly and compacted in lifts not exceeding twelve (12) inches in thickness and shall be compacted to standards, including in-situ density, compaction effort and relative density, specified by a registered Professional Engineer for a specific end use purpose.

### 3.4 Equipment

Equipment will be provided which is capable of placing and compacting the ash and handling the earthwork required during periods that ash is received at the fill area.

### 3.5 Off-Site Discharge

The beneficial use structural fill facility will be effectively maintained and operated to prevent discharge of ash to surface water resulting from the operation of the facility. The sediment control basin is designed to contain the 100 year – 24 hour storm event in accordance with North Carolina Erosion and Sediment Control Regulations. Duke Energy will also have the option available to pump the sediment basin to the coal yard sump, which discharges to the Ash Basin.

### 3.6 Groundwater Protection

The ash structural fill facility will be effectively maintained and operated to ensure no violations of groundwater standards, 15A NCAC 2L.

### 3.7 Stormwater Control

Surface waters resulting from precipitation will be diverted away from the active ash placement area during filling and construction activity. Stormwater conveyances at the site will divert any stormwater from flowing onto the project site.

### 3.8 Erosion and Sedimentation Control

Site development will comply with the North Carolina Sedimentation Pollution Control Act of 1973, as amended. An Erosion and Sedimentation Control Plan has been submitted and approved by the North Carolina Department of Environment and Natural Resources. The sediment control drawing and approval are included in Appendix D.

### 3.9 Dust Control

The structural fill project will be operated with sufficient dust control measures to minimize airborne emissions and to prevent dust from creating a nuisance or safety hazard. All attempts will be made to prevent the ash from drying out both for dust control and compaction/moisture requirements.

### 3.10 Cover Material

Upon completion of the project the structural fill will be covered with a minimum of twelve (12) inches compacted earth, and an additional six (6) inches of surface soil capable of supporting native plant growth. In addition, a large portion of the area will be graveled for use as overflow parking.

### 3.11 Slopes

Ash utilized on an exterior slope of a structural fill will not be placed with a slope greater than 3.0 horizontal to 1.0 vertical. The maximum slope on this project is 3.0 horizontal to 1.0 vertical.

## **4.0 CLOSURE**

Following is the closure procedure, which will be utilized upon completion of the structural fill activities for this project. Figures 4 and 5 depict the Closure Design.

### 4.1 Cover Placement

Within 30 working days or 60 calendar days, whichever is less after ash placement has ceased, the final cover will be applied over the ash placement area.

### 4.2 Grading and Drainage

The final surface of the structural fill will be graded and provided with drainage systems that:

- a) Minimize erosion of cover materials; and
- b) Promote drainage of area precipitation, minimize infiltration and prevent ponding of surface water on the structural fill.

### 4.3 Vegetation Protection

Erosion control measures, such as temporary mulching, seeding, or silt barriers will be installed to ensure no visible ash migration to adjacent properties until the beneficial end use of the project is realized.

### 4.4 Certification

Duke Energy Company will submit a certification to the Division signed and sealed by a registered Professional Engineer certifying that all requirements in the Rules of T15A.13B.1700 have been met. The report will be submitted within 30 days of application of the final cover.

## **5.0 RECORDATION**

Following is the recordation procedure, which will be performed upon closure of this structural fill project.

1. Duke Energy Company shall file a statement of the volume and locations of the coal combustion by product (ash) with the Register of Deeds in the Stokes County Office. The statement will identify the parcel of land with a complete legal description on the deed either by metes and bounds or reference to a recorded plat map. The statement shall be signed and acknowledged by Duke Energy Company in the form prescribed by G.S. 47-38 through 47-43.
2. The recordation shall be filed within 90 days after completion of the project.
3. The Register of Deeds shall record the notarized statement and index it in the Grantor Index under the name of the owner of the land. The original notarized statement with the Register's Seal, date, book, and page number of recording shall be returned to the Division after recording.
4. When the property is sold, leased, conveyed, or transferred in any manner, the deed or other instrument of transfer shall contain in the description section, in no smaller type than used in the body of the deed or instrument, a statement that coal combustion by-products have been used as fill material on the property.

## **6.0 ANNUAL REPORTING**

By October 1 of each year, Duke Energy Company will submit an annual summary to the Division. The annual summary shall be for the period July 1 through June 31 and will include:

- 1) Volume of coal combustion by-products produced.
- 2) Volume of coal combustion by-products disposed.
- 3) Volume of coal combustion by-products used in structural fill facilities.
- 4) Volume of coal combustion by-products used for other uses.

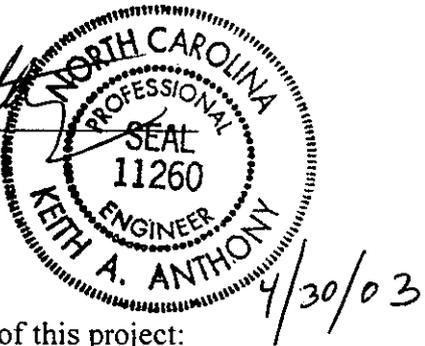
**7.0 LIMITATIONS**

This report has been prepared in accordance with generally accepted civil and environmental engineering practices for the exclusive use of Duke Energy Company, its agents, and/or clients. This report may not be reproduced in whole or in part without the permission of Duke Energy Company.

Our conclusions and recommendations are based upon our site observations, provided survey and Solid Waste Management requirements under T15A:13B.1700 - Requirements for Beneficial Use of Coal Combustion By-Products. We have assumed that information provided to us by others is correct and true, unless otherwise noted. If additional information or changes in information is available in the future we request the chance to review and change our recommendations, if necessary.

The Notification for Beneficial Use Structural Fill was prepared under my direct supervision:

By: *Keith A. Anthony*  
Keith A. Anthony, P.E.  
Principal Engineer



I assisted with the preparation of this project:

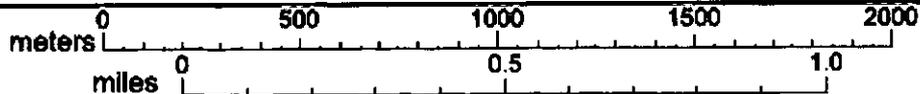
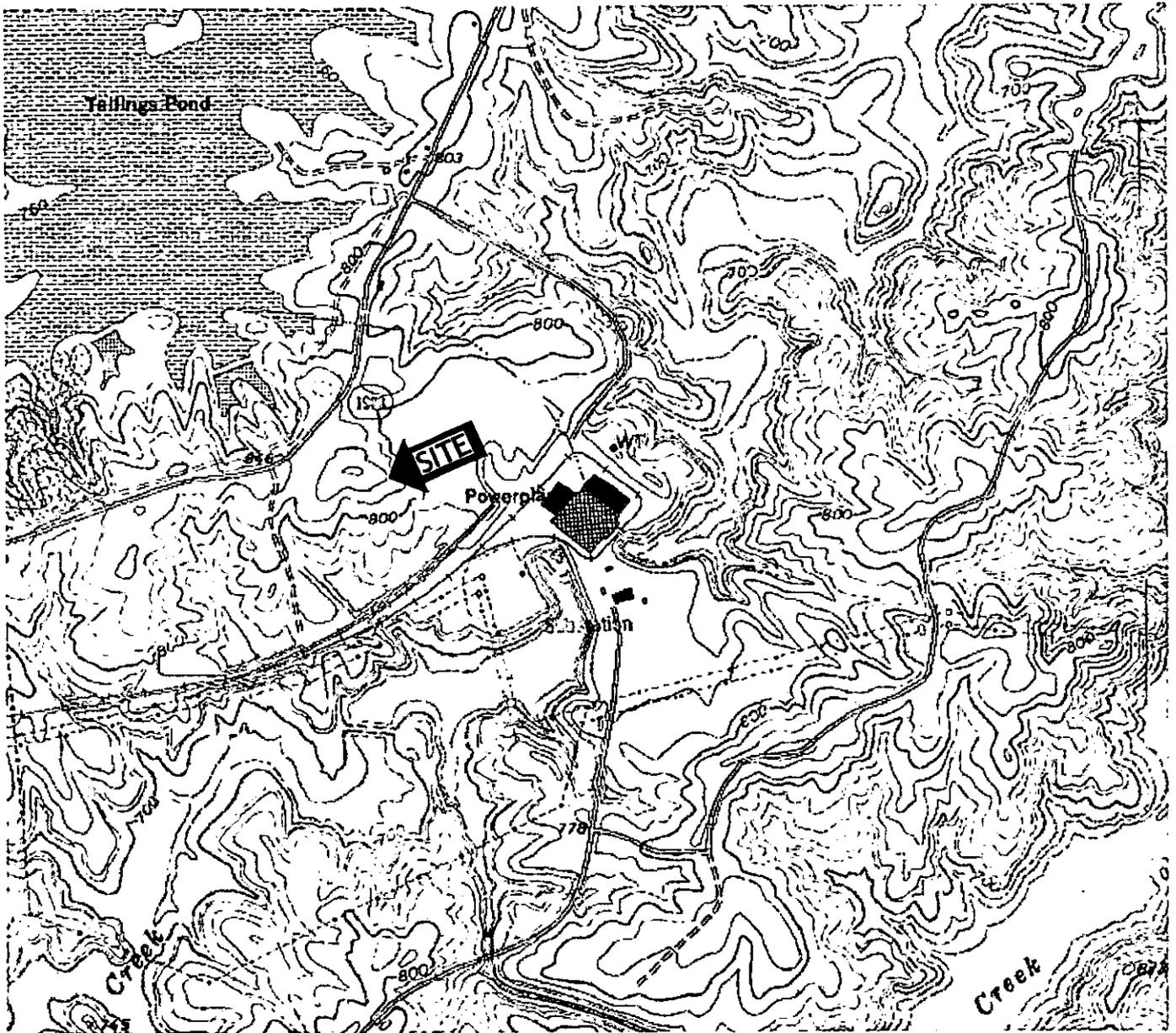
By: *Andrew A. Davis*  
Andrew A. Davis, P.E.  
Project Engineer



Table 1  
 Belews Creek Structural Fill  
 Ash volume calculation

Area #	Area (sq. ft.)	Existing Elevation	Proposed ash elevation	Depth	Volume present
1	44,400	805	870	65	106,889
2	3,400	795	870	75	9,444
3	122,950	815	870	55	250,454
4	40,750	825	870	45	67,917
5	18,800	825	860	35	24,370
6	15,200	815	860	45	25,333
7	5,150	805	860	55	10,491
8	28,100	795	860	65	67,648
9	12,950	805	860	55	26,380
10	14,550	805	860	55	29,639
11	6,250	815	860	45	10,417
12	9,900	825	860	35	12,833
13	32,150	835	860	25	29,769
14	6,075	825	840	15	3,375
15	6,050	815	840	25	5,602
16	5,200	805	840	35	6,741
17	4,100	795	840	45	6,833
18	7,200	785	840	55	14,667
19	4,300	775	840	65	10,352
20	14,600	785	840	55	29,741
21	20,800	795	840	45	34,667
22	4,400	785	840	55	8,963
23	5,100	795	840	45	8,500
24	22,900	805	840	35	29,685
25	6,900	815	840	25	6,389
26	8,100	825	840	15	4,500
27	3,550	815	820	5	657
28	7,900	805	820	15	4,389
29	16,150	795	820	25	14,954
30	3,850	785	820	35	4,991
31	2,050	775	820	45	3,417
32	2,400	765	820	55	4,889
33	12,950	775	820	45	21,583
34	15,950	785	820	35	20,676
35	2,100	775	820	45	3,500
36	1,650	785	820	35	2,139
37	7,150	795	820	25	6,620
38	25,300	805	820	15	14,056
39	11,025	785	800	15	6,125
40	6,900	775	800	25	6,389
41	2,250	765	800	35	2,917
42	1,900	755	800	45	3,167
43	16,325	765	800	35	21,162
44	20,750	775	800	25	19,213
45	2,175	785	800	15	1,208
46	17,200	795	800	5	3,185
<b>Total Volume existing in Area 1</b>					<b>1,006,833</b>





QUADRANGLE LOCATION  
**BELEWS LAKE, NC**

H:\ENGINEERING\3002\10200063\CONSTRUCT\ENGINEERS\FG 1 - VICINITY MAP



**SHIELD**  
 ENGINEERING, INC.

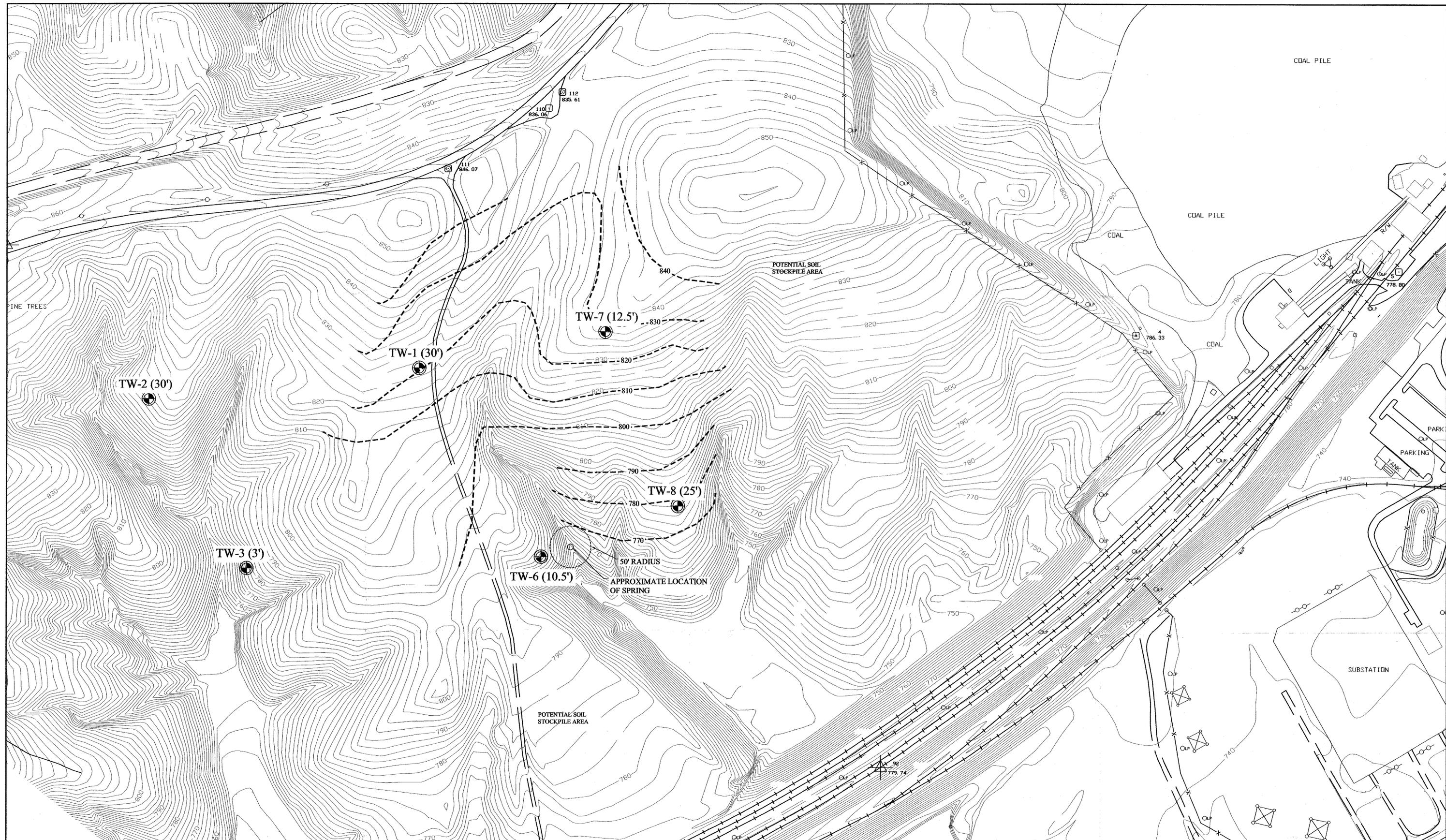
4301 TAGGART CREEK ROAD  
 CHARLOTTE, NC 28208  
 704-394-6913  
 704-394-6968 FAX  
 www.shieldengineering.com

PROJECT#:	10200063
DATE:	1/03
PROJECT MGR:	KAA
DESIGNED BY:	AAD
DRAWN BY:	AAD
SCALE:	AS SHOWN

**BELEWS CREEK ASH LANDFILL DESIGN**  
 DUKE ENERGY  
 STOKES COUNTY, NORTH CAROLINA

**SITE VICINITY MAP**

**DRAWING:**  
 1



**LEGEND**

TEMPORARY BORING (INDICATES REFUSAL DEPTH)  
 PROPOSED NEW 10' CONTOURS

REVISIONS		
REV.	DATE	COMMENTS



**SHIELD**  
ENGINEERING, INC.

4301 TAGGART CREEK ROAD  
CHARLOTTE, NC 28208  
704-394-6913  
704-394-6968 FAX  
www.shieldengineering.com

PROJECT#: 1020062  
DATE: 4/03  
PROJECT MGR: KAA  
DESIGNED BY: AAD  
DRAWN BY: AAD  
SCALE: 1" = 100'

BELEWS CREEK STRUCTURAL FILL  
DUKE ENERGY  
STOKES COUNTY, NORTH CAROLINA

**SITE GRADING PLAN**

DRAWING  
2



REVISIONS		
REV.	DATE	COMMENTS



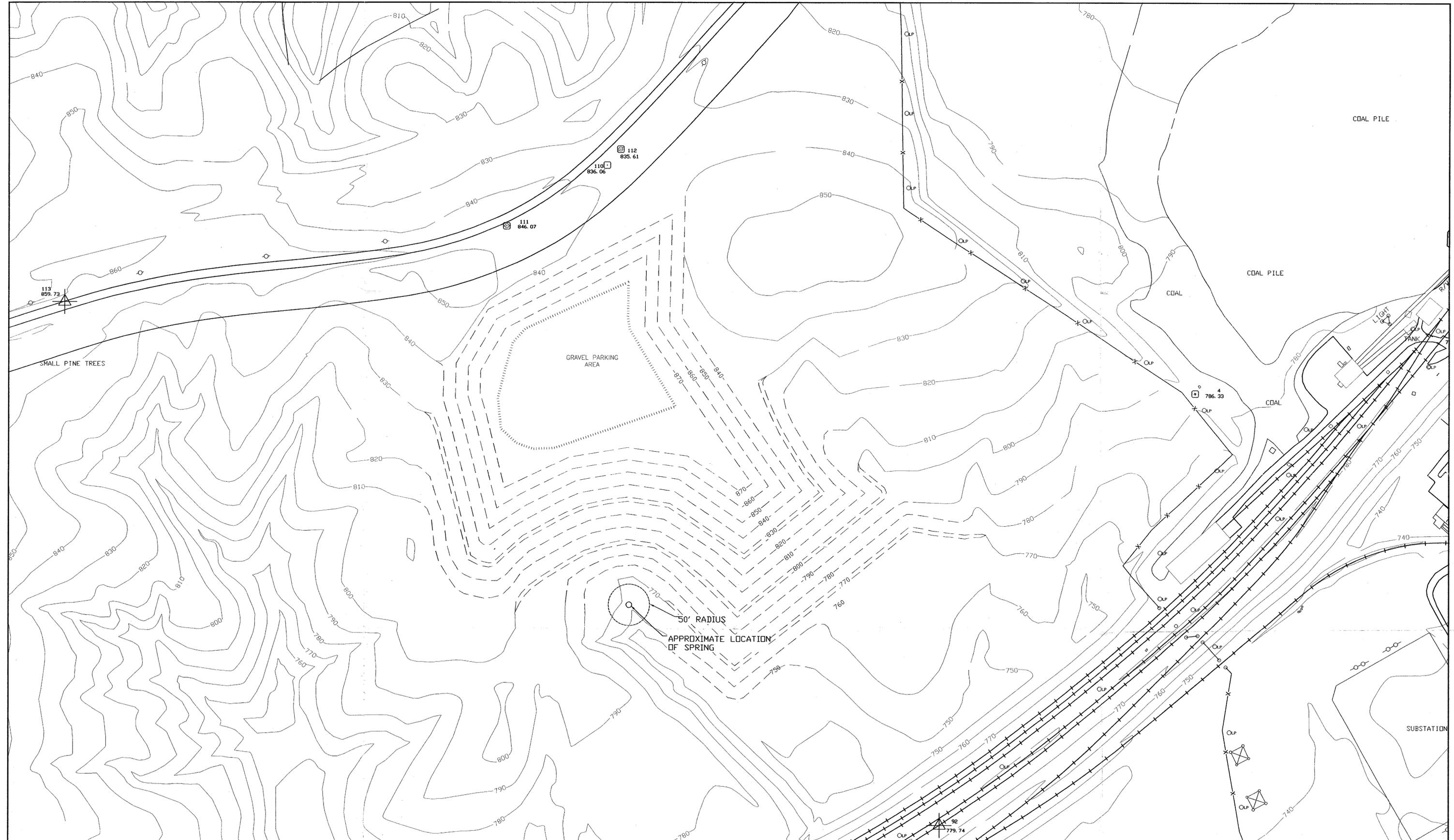
**SHIELD**  
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4301 TAGGART CREEK ROAD  
CHARLOTTE, NC 28208  
704-394-6913  
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PROJECT#: 1020062
DATE: 4/03
PROJECT MGR: KAA
DESIGNED BY: AAD
DRAWN BY: AAD
SCALE: 1" = 100'

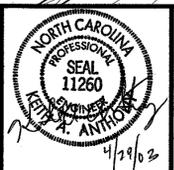
BELEWS CREEK STRUCTURAL FILL  
DUKE ENERGY  
STOKES COUNTY, NORTH CAROLINA

CONSTRUCTION PLAN

DRAWING  
3



REVISIONS		
REV.	DATE	COMMENTS



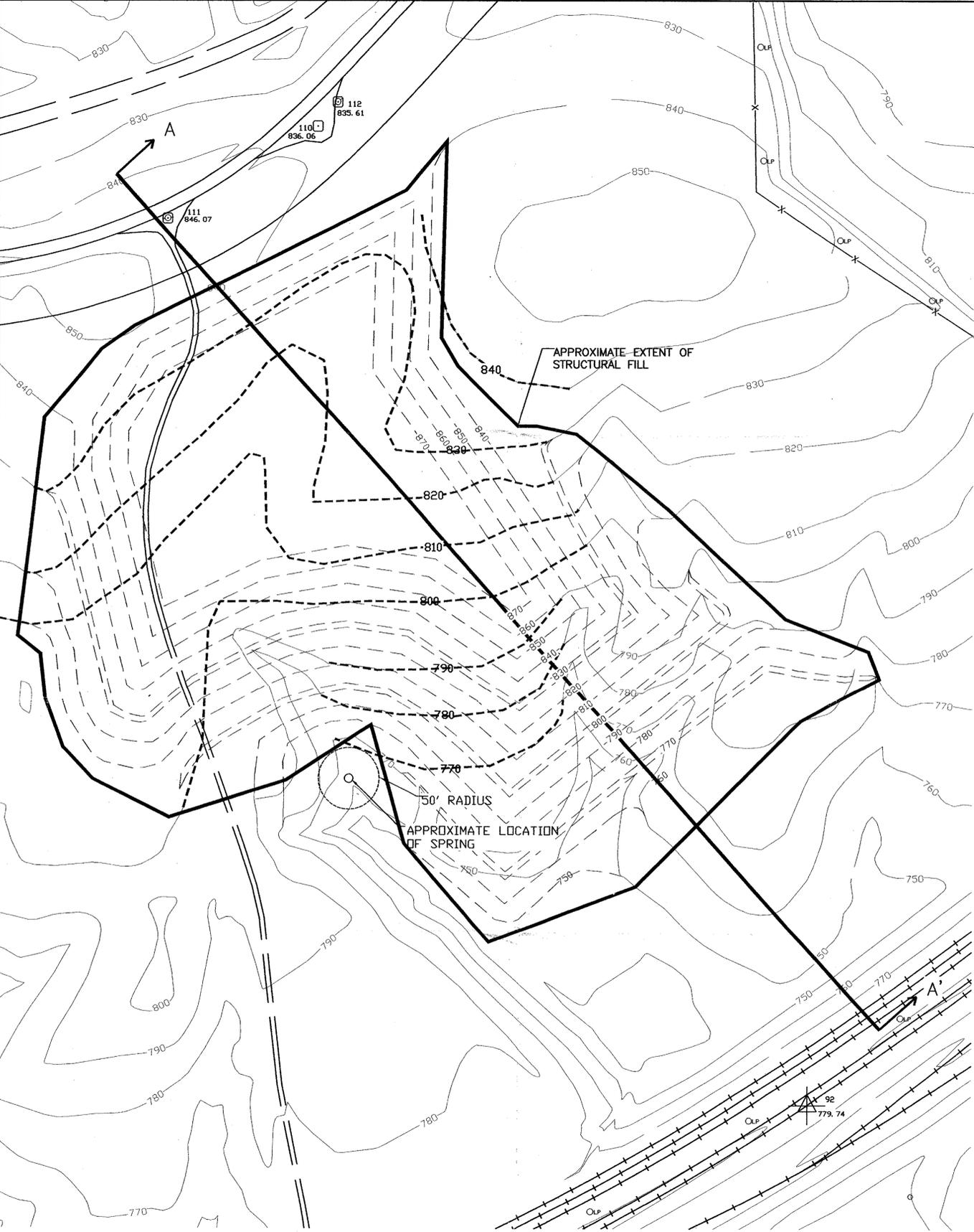
**SHIELD ENGINEERING, INC.**  
 4301 TAGGART CREEK ROAD  
 CHARLOTTE, NC 28208  
 704-394-6913  
 704-394-6968 FAX  
 www.shieldengineering.com

PROJECT#:	1020062
DATE:	4/03
PROJECT MGR:	KA
DESIGNED BY:	AAD
DRAWN BY:	AAD
SCALE:	1" = 100'

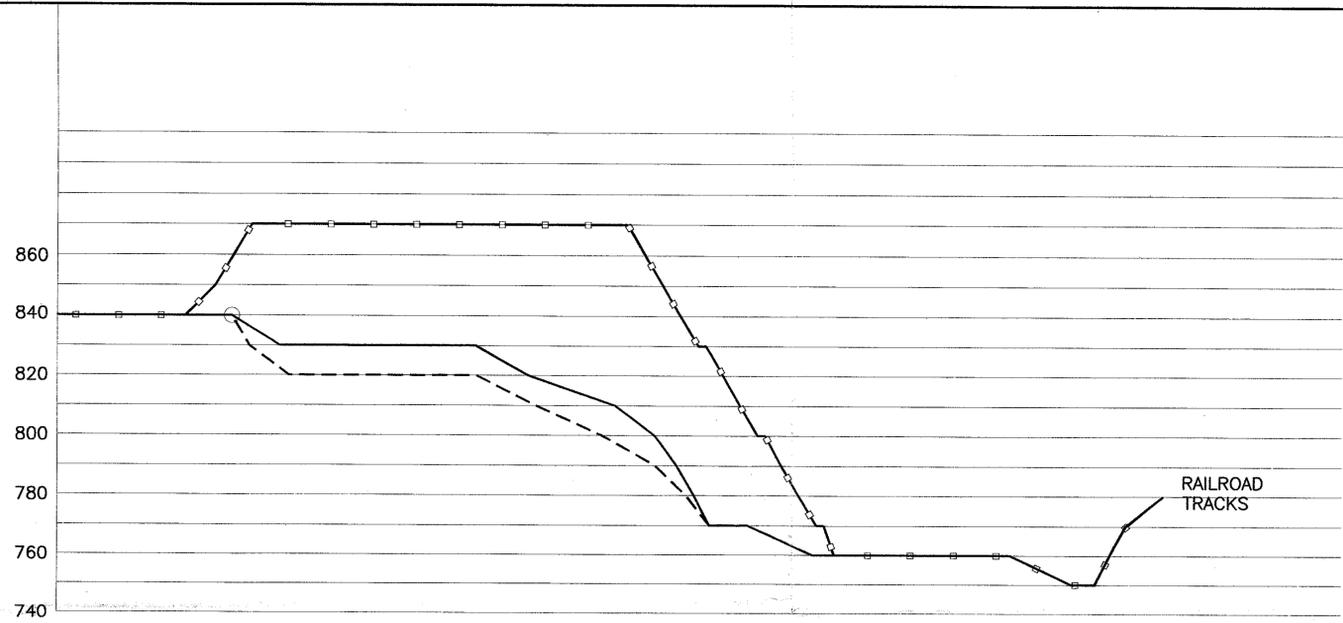
BELEWS CREEK STRUCTURAL FILL  
 DUKE ENERGY  
 STOKES COUNTY, NORTH CAROLINA

**SITE CLOSURE PLAN**

**DRAWING 4**

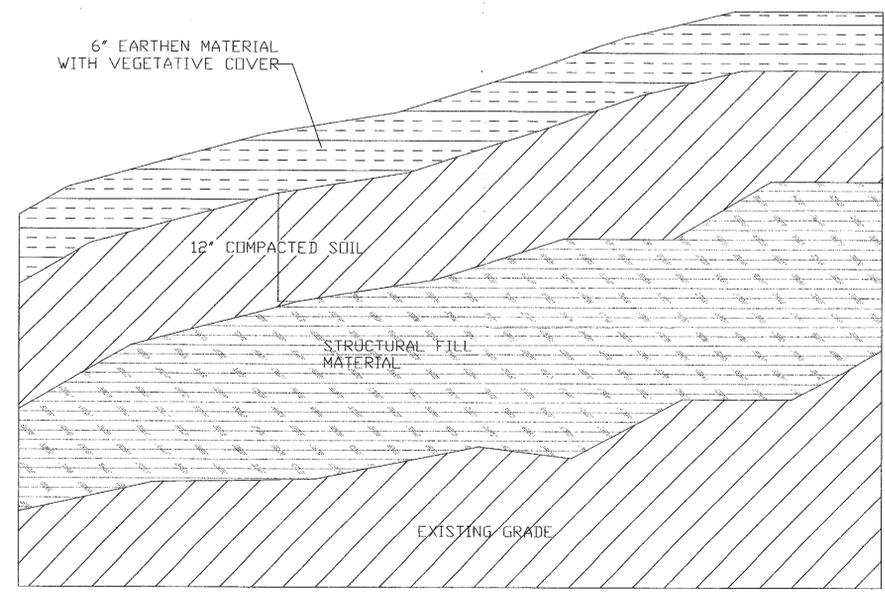


CROSS SECTION SITE MAP  
SCALE: 1" = 100'



— EXISTING GRADES  
 - - - GRADED ELEVATION  
 —□— FINAL ELEVATION

CROSS SECTION A-A'  
not to scale



CROSS SECTION DETAIL  
not to scale

REVISIONS		
REV.	DATE	COMMENTS



**SHIELD**  
 ENGINEERING, INC.  
 4301 TAGGART CREEK ROAD  
 CHARLOTTE, NC 28208  
 704-394-6913  
 704-394-6968 FAX  
 www.shieldengineering.com

PROJECT#: 1020062  
 DATE: 4/3/03  
 PROJECT MGR: KAA  
 DESIGNED BY: AAD  
 DRAWN BY: AAD  
 SCALE: 1" = 100'

BELEWS CREEK STRUCTURAL FILL  
 DUKE ENERGY  
 STOKES COUNTY, NORTH CAROLINA

CROSS SECTIONS      DRAWING  
 5

**APPENDIX A**

SHIELD ENGINEERING, INC.  
 4301 Taggart Creek Road  
 Charlotte, NC 28208

(704) 394-6913  
 (800) 395-5220  
 Fax (704) 394-6968

SOIL BORING LOG

Project Belews Creek

Address Duke Energy, Stokes County, North Carolina

Boring Number TW-1

Date Drilled 2/10/03

Sample Method Not Applicable

Drilling Method HSA

Completion Details 1" Well

Driller SAEDACCO

Log by AD

DEPTH	Well Diagram	Rec. (ft)	VOC's (ppm)	Interval	LITHOLOGY
0				0-6" 6"-20'	Grass, Roots Yellow/Orange SAND, soft
5				20'-30'	Tan Fine Grained SAND, dry
10					
15					
20					
25					
30					
35					
40					
45					
					1" DIA. WELL SET AT 30' 0"-15' SOLID PVC RISER 15'-30' 0.010 SLOTTED PVC SAND 1' ABOVE SCREEN 2' BENTONITE PLUG GROUT TO GRADE

SHIELD ENGINEERING, INC.  
 4301 Taggart Creek Road  
 Charlotte, NC 28208

(704) 394-6913  
 (800) 395-5220  
 Fax (704) 394-6968

SOIL BORING LOG

Project Belews Creek  
 Address Duke Energy, Stokes County, North Carolina  
 Boring Number TW-2 Date Drilled 2/10/03  
 Sample Method Not Applicable Drilling Method HSA  
 Completion Details 1" Well  
 Driller SAEDACCO Log by AD

DEPTH	Well Diagram	Rec. (ft)	VOC's (ppm)	Interval	LITHOLOGY
0				0-6"	Topsoil, Roots
5				6"-30'	Orange SAND with very little trace of Clay
10					
15					
20					
25					
30					
35					
40					
45					
					1" DIA. WELL SET AT 30' WITH 1' STUB UP 0"-15' SOLID PVC RISER 15'-30' 0.010 SLOTTED PVC SAND 1' ABOVE SCREEN 2' BENTONITE PLUG GROUT TO GRADE

SHIELD ENGINEERING, INC.  
 4301 Taggart Creek Road  
 Charlotte, NC 28208

(704) 394-6913  
 (800) 395-5220  
 Fax (704) 394-6968

SOIL BORING LOG

Project Belews Creek

Address Duke Energy, Stokes County, North Carolina

Boring Number TW-3

Date Drilled 2/11/03

Sample Method Not Applicable

Drilling Method HSA

Completion Details No Well Set

Driller SAEDACCO

Log by AD

DEPTH	Well Diagram	Rec. (ft)	VOC's (ppm)	Interval	LITHOLOGY
0				2.5'	First attempt hit bedrock at 2.5 feet below grade. Second attempt (8 feet upgradient) hit refusal at 3.5 feet below grade.
5				3.5'	
10					
15					
20					
25					
30					
35					
40					
45					
					NO WELL SET

SHIELD ENGINEERING, INC.  
 4301 Taggart Creek Road  
 Charlotte, NC 28208

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 Fax (704) 394-6968

SOIL BORING LOG

Project Belews Creek

Address Duke Energy, Stokes County, North Carolina

Boring Number TW-4

Date Drilled 2/11/03

Sample Method Not Applicable

Drilling Method HSA

Completion Details No Well Set

Driller SAEDACCO

Log by AD

DEPTH	Well Diagram	Rec. (ft)	VOC's (ppm)	Interval	LITHOLOGY
0				0-2'	Dark Brown Sandy CLAY, Topsoil
				2'-3'	Dark Gray Bottom Ash
				3'-4'	Dark Orange Sandy CLAY
5				4'-8'	Dark Brown SAND and CLAY with Gravel
10				9'	Competant Rock
15					
20					
25					
30					
35					
40					
45					
					NO WELL SET

SHIELD ENGINEERING, INC.  
 4301 Taggart Creek Road  
 Charlotte, NC 28208

(704) 394-6913  
 (800) 395-5220  
 Fax (704) 394-6968

SOIL BORING LOG

Project Belews Creek  
 Address Duke Energy, Stokes County, North Carolina  
 Boring Number TW-5 Date Drilled 2/11/03  
 Sample Method Not Applicable Drilling Method HSA  
 Completion Details 1" Well  
 Driller SAFDACCO Log by AD

DEPTH	Well Diagram	Rec. (ft)	VOC's (ppm)	Interval	LITHOLOGY
0				0-4'	Orange CLAY, trace Sand
5				6'	Light Orange CLAY, damp
10				10'	Very Light Orange CLAY, dry
15				15'	Light Tan SAND
17				17'	Light Tan SAND with Bits of Rock
20				21'	ROCK
25					
30					
35					
40					
45					
					1" DIA. WELL SET AT 21' WITH 1' STUB UP 0"-11' SOLID PVC RISER 11'-21' 0.010 SLOTTED PVC SAND 1' ABOVE SCREEN 1' BENTONITE PLUG GROUT TO GRADE

SHIELD ENGINEERING, INC.  
 4301 Taggart Creek Road  
 Charlotte, NC 28208

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 (800) 395-5220  
 Fax (704) 394-6968

SOIL BORING LOG

Project Belews Creek  
 Address Duke Energy, Stokes County, North Carolina  
 Boring Number TW-6 Date Drilled 03/12/03  
 Sample Method Not Applicable Drilling Method HSA  
 Completion Details 1" Well  
 Driller SAEDACCO Log by AD

DEPTH	Well Diagram	Rec. (ft)	VOC's (ppm)	Interval	LITHOLOGY
0				0-5'	Orange/Brown Silty CLAY, damp
5				7'-8'	Orange CLAY, damp
				8'-10'	Light Brown Sandy CLAY
10				10.5'	BEDROCK
15					
20					
25					
30					
35					
40					
45					
					1" DIA. WELL SET AT 10' 0"-5' SOLID PVC RISER 5'-10' 0.010 SLOTTED PVC SAND 1' ABOVE SCREEN 1' BENTONITE PLUG GROUT TO GRADE

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 Charlotte, NC 28208

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 (800) 395-5220  
 Fax (704) 394-6968

SOIL BORING LOG

Project Belews Creek  
 Address Duke Energy, Stokes County, North Carolina  
 Boring Number TW-7 Date Drilled 03/12/03  
 Sample Method Not Applicable Drilling Method HSA  
 Completion Details No Well Set  
 Driller SAEDACCO Log by AD

DEPTH	Well Diagram	Rec. (ft)	VOC's (ppm)	Interval	LITHOLOGY
0				0-5'	Orange/Brown CLAY, dry
5					
10				8'-12'	Light Orange Sandy CLAY, dry
15				12.5'	BEDROCK
20					
25					
30					
35					
40					
45					
					NO WELL SET

SHIELD ENGINEERING, INC.  
 4301 Taggart Creek Road  
 Charlotte, NC 28208

(704) 394-6913  
 (800) 395-5220  
 Fax (704) 394-6968

SOIL BORING LOG

Project Belews Creek

Address Duke Energy, Stokes County, North Carolina

Boring Number TW-8

Date Drilled 03/12/03

Sample Method Not Applicable

Drilling Method HSA

Completion Details 1" Well

Driller SAEDACCO

Log by AD

DEPTH	Well Diagram	Rec. (ft)	VOC's (ppm)	Interval	LITHOLOGY
0				0-4'	Dark Orange CLAY
5				4'-5'	Light Brown Sandy CLAY
10				5'-10'	Tan Fine Grained SAND
15					
20				18'	Brown Fine Grained SAND and CLAY
25			25'	BEDROCK	
30					
35					
40					
45					

1" DIA. WELL SET AT 25'  
 0"-15' SOLID PVC RISER  
 15'-25' 0.010 SLOTTED PVC  
 SAND 1' ABOVE SCREEN  
 2' BENTONITE PLUG  
 GROUT TO GRADE

**APPENDIX B**



## Duke Energy Analytical Laboratory

Environment, Health and Safety Services  
 Phone: 704-875-5245      13338 Hagers Ferry Road  
 Fax: 704-875-5038      Huntersville, NC 28078-7829  
 McGuire Nuclear Complex - MG03A2

### Certificate of Analysis

New York State Department of Health Certification # 11717  
 Nevada Department of Conservation and Natural Resources  
 Oklahoma Department of Environmental Quality Certification # 9830  
 Kansas Department of Health and Environment Certificate # E-10311  
 Louisiana Department of Environmental Quality (ELAP) Certificate # 02012  
 North Carolina Department of Health & Human Services Certification # 37804  
 South Carolina (DHEC) Laboratory ID # 99006      North Carolina (DENR) Certification # 248

<u>Field I.D.</u>	<b>BCSS ASH (RUSH)</b>		
<u>Station / Contact</u>	BELEWS	TONY MATHIS	
<u>Collection Date</u>	01/16/03	<u>Analysis Date</u>	01/21/03
<u>Laboratory I.D.</u>	03-JAN-0341	<u>Matrix Type</u>	Solid NA % Volume NA Weight (g)
<u>Laboratory Contact</u>	TROY WHISENANT		

<u>Analyte</u>	<u>T.C.L.P. Conc.</u>	<u>T.C.L.P. Regulatory Limit</u>	<u>Waste Code</u>	<u>Analytical Method</u>
Silver (Ag)	< 0.005 mg/L	5 mg/l	DO11	U.S.E.P.A. SW-846 Methods 6010 6010 6010 6010 6010 6010 6010 6010 6010 6010
Barium (Ba)	0.44 mg/L	100 mg/l	DO05	
Cadmium (Cd)	< 0.03 mg/L	1 mg/l	DO06	
Chromium (Cr)	0.31 mg/L	5 mg/l	DO07	
Lead (Pb)	< 0.09 mg/L	5 mg/l	DO08	
Arsenic (As)	0.1 mg/L	5 mg/l	DO04	
Selenium (Se)	0.1 mg/L	1 mg/l	DO10	
Mercury (Hg)	< 0.01 mg/L	0.2 mg/l	DO09	
Copper (Cu)	mg/L	134 mg/l	---	
Zinc (Zn)	mg/L	130 mg/l	---	
% Ash @ 550° C		N/A	---	ASTM D237/D817 E830 @ 550° C
B.T.U.		N/A	---	ASTM D3286-91
Total Sulfur		N/A	---	ASTM D4239-85
Total Chlorine		N/A	---	EPA 9076
Ignitibility		(Y/N)	---	EPA 1010
pH		< 2.0 or > 12.5	---	EPA 9040
% Water		N/A	---	ASTM D3792



**APPENDIX C**

STATEMENT OF CONSENT

Name of coal combustion by-products Generator: Duke Energy Company – Belews Creek Steam Station

Location of Generating Facility: BELEWS CREEK STEAM STATION  
Stokes County, North Carolina

Address of Generator: 3195 PINE HALL RD.  
BELEW CREEK, NC. 27009

Name of Contact for Generator: RANDY PRICE

Telephone Number of Generator: (336) 445 - 0324

Any changes in this information will require subsequent notification to the Division of Solid Waste Management.

It is hereby stated that I am knowledgeable and consenting to the use of coal combustion by-products as structural fill at the above address. The recordation of the structural fill activities shall comply with T15A:13B.1700 – Requirements for Beneficial Use of Coal Combustion By-Products, Section .1707 - Recordation

JEFFREY W. NEWELL  
Printed Name

PROJECT MANAGER  
Title

Jeffrey W. Newell  
Signature

4-29-03  
Date

I, Gayle H. Walker, a Notary Public for said County and State do hereby certify that Jeffrey W. Newell personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal, this the 29th day of April, 2003  
Gayle H. Walker  
Notary Public

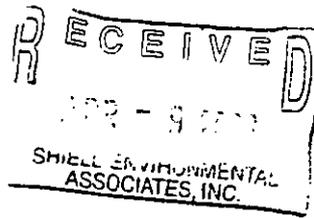
**APPENDIX D**

North Carolina  
Department of Environment and Natural

Michael F. Easley, Governor  
William G. Ross Jr., Secretary

James D. Simons, P.G., P.E., Acting Director  
and State Geologist

April 8, 2002



WINSTON-SALEM REGIONAL OFFICE  
DIVISION OF LAND RESOURCES  
LAND QUALITY SECTION

## LETTER OF APPROVAL WITH MODIFICATIONS

Duke Power – Belews Creek Steam Station  
Attention: Randy Price  
3195 Pine Hall Road  
Belews Creek, NC 27009

Duke Power  
Attention: Michael A. Ruhe  
P.O. Box 1006 Mail Code 11 E  
Charlotte, NC 28201

Dear Mr. Price:

This office has reviewed the subject erosion and sedimentation control plan. We find the plan to be acceptable with modifications and hereby issue this Letter of Approval with Modifications. The Modifications Required for Approval are listed on the attached page. This plan approval shall expire three (3) years following the date of approval, if no land-disturbing activity has been undertaken, as is required by Title 15A NCAC 4B .0029.

Please be advised that Title 15 NCAC 4B.0018 (a) requires that a copy of the approved erosion control plan be on file at the job site. Also, you should consider this letter to give the notice required by G.S. 113A-61.1 (a) of our right of periodic inspection to insure compliance with the approved plan.

North Carolina's Sedimentation Pollution Control Program is performance-oriented, requiring protection of existing natural resources and adjoining properties. If, following the commencement of this project, it is determined that the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation and Pollution Control Act of 1973 (North Carolina General Statute 113A-51 through 66), this office may require revisions to the plan and implementation of the revisions to insure compliance with the Act.

Acceptance and approval of this plan is conditioned upon your compliance with Federal and State water quality laws, regulations, and rules. In addition, local city or county ordinances or rules may also apply to this land-disturbing activity. This approval does not supersede any other permit or approval.

Please be aware that if one acre is to be disturbed by this project, you will be covered by the enclosed general stormwater permit NCGO1000 (Construction Activities). You should first become familiar with all of the requirements for compliance with the enclosed general permit.

585 Waughtown Street, Winston-Salem, North Carolina 27107-2241

Phone: 336-771-4600 \ FAX: 336-771-4631 \ Internet: [www.enr.state.nc.us/ENR/](http://www.enr.state.nc.us/ENR/)

AN EQUAL OPPORTUNITY \ AFFIRMATIVE ACTION EMPLOYER - 50% RECYCLED / 10% POST CONSUMER PAPER

**MODIFICATIONS REQUIRED FOR APPROVAL**

This plan is approved with the following modifications:

1. The enclosed seeding specifications are more suitable than the proposed site.

**LETTER OF APPROVAL WITH MODIFICATIONS – Belews Creek Structural Fill Project**

**April 8, 2003**

**Page 2**

Please note that this approval is based in part on the accuracy of the information provided in the Financial Responsibility Form, which you have provided. You are requested to file an amended form if there is any change in the information included on the form. In addition, it would be helpful if you notify this office of the proposed starting date for this project. Please notify us if you plan to have a preconstruction conference, and we will plan to attend.

Your cooperation is appreciated, and we look forward to working with you on this project.

Sincerely,



Brooks Cole, CPESC  
Assistant Regional Engineer

BC/Is

Enclosure: Certificate of Plan Approval with Modifications  
NPDES

cc: Shield Engineering, Inc.  
WSRO File

PROJECT NAME:	Belews Creek Structural Fill Project
COUNTY:	STOKES
RIVER BASIN:	Roanoke
WATER CLASSIFICATION:	Other
FACILITY NUMBER:	STOKE-2003-013
SUBMITTED BY:	Shield Engineering, Inc.
RECEIVED BY L.Q.S.:	March 17, 2003
NEW SUBMITTAL ( x )	

**Table 6.10c**  
**Temporary Seeding**  
**Recommendations for Fall**

<b>Seeding mixture</b>	<b>Rate (lb/acre)</b>
<b>Species</b> Rye (grain)	120
<b>Seeding dates</b>	
Mountains—Aug. 15 - Dec. 15	
Coastal Plain and Piedmont—Aug. 15 - Dec. 30	
<b>Soil amendments</b>	
Follow soil tests or apply 2,000 lb/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.	
<b>Mulch</b>	
Apply 4,000 lb/acre 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.	
<b>Maintenance</b>	
Repair and refertilize damaged areas immediately. Topdress with 50 lb/acre of nitrogen in March. If it is necessary to extend temporary cover beyond June 15, overseed with 50 lb/acre Kobe (Piedmont and Coastal Plain) or Korean (Mountains) lespedeza in late February or early March.	

*Practice Standards and Specifications*

**Table 6.10b**  
**Temporary Seeding**  
**Recommendations for**  
**Summer**

<b>Seeding mixture</b>	<b>Rate (lb/acre)</b>
<b>Species</b> German millet	40
In the Piedmont and Mountains, a small-stemmed Sudangrass may be substituted at a rate of 50 lb/acre.	
<b>Seeding dates</b>	
Mountains—May 15 - Aug. 15	
Piedmont—May 1 - Aug. 15	
Coastal Plain—Apr. 15 - Aug. 15	
<b>Soil amendments</b>	
Follow recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.	
<b>Mulch</b>	
Apply 4,000 lb/acre 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.	
<b>Maintenance</b>	
Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.	

**Table 6.11e**  
**Seeding No. 3M for: Gentle**  
**Slopes, Average Soils; Low**  
**Maintenance**

Seeding mixture Species <sup>1</sup>	Rate (lb/acre)
Tall fescue	60
Kentucky bluegrass	10
Sericea lespedeza	15
Korean lespedeza	10

#### Seeding notes

1. After Aug. 15, use unscarified sericea seed.
2. Where appearance is a consideration, omit sericea lespedeza and increase Korean lespedeza to 40 lb/acre.

#### Nurse plants

Between May 1 and Aug. 15, add 10 lb/acre German millet or 15 lb/acre Sudangrass. Prior to May 1 or after Aug. 15, add 40 lb/acre rye (grain).

#### Seeding dates

	Best	Possible
Below 2500 ft:	Aug. 15 - Sept. 1	July 25 - Sept. 15
	Mar. 1 - Apr. 1	Mar. 1 - May 10
Above 2500 ft:	July 25 - Aug. 15	July 15 - Aug. 30
	Mar. 20 - Apr. 20	Mar. 5 - May 15

#### Soil amendments

Apply lime and fertilizer according to soil tests, or apply 4,000 lb/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.

#### Mulch

Apply 4,000 lb/acre grain straw. Anchor straw by tacking with asphalt, netting, or roving or by crimping with a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.

#### Maintenance

Refertilize in the second year unless growth is fully adequate. May be mowed once or twice per year, but mowing is not necessary. Reseed, fertilize, and mulch damaged areas immediately.

<sup>1</sup>Refer to *Appendix B.02* for botanical names.

# CERTIFICATE OF PLAN APPROVAL



The posting of this certificate certifies that an erosion and sedimentation control plan has been approved for this project by the North Carolina Department of Environment and Natural Resources in accordance with North Carolina General Statute 113A - 57 (4) and 113A - 54 (d) (4) and North Carolina Administrative Code, Title 15A, Chapter 4B.0007 (c). This certificate must be posted at the primary entrance of the job site before construction begins and until establishment of permanent groundcover as required by North Carolina Administrative Code, Title 15A, Chapter 4B.0027 (b).

*Belews Creek Structural Fill Project*

Project Name and Location

*Stoke - 2003 - 013*

*4-7-03*

Date of Plan Approval

*w/mods.*

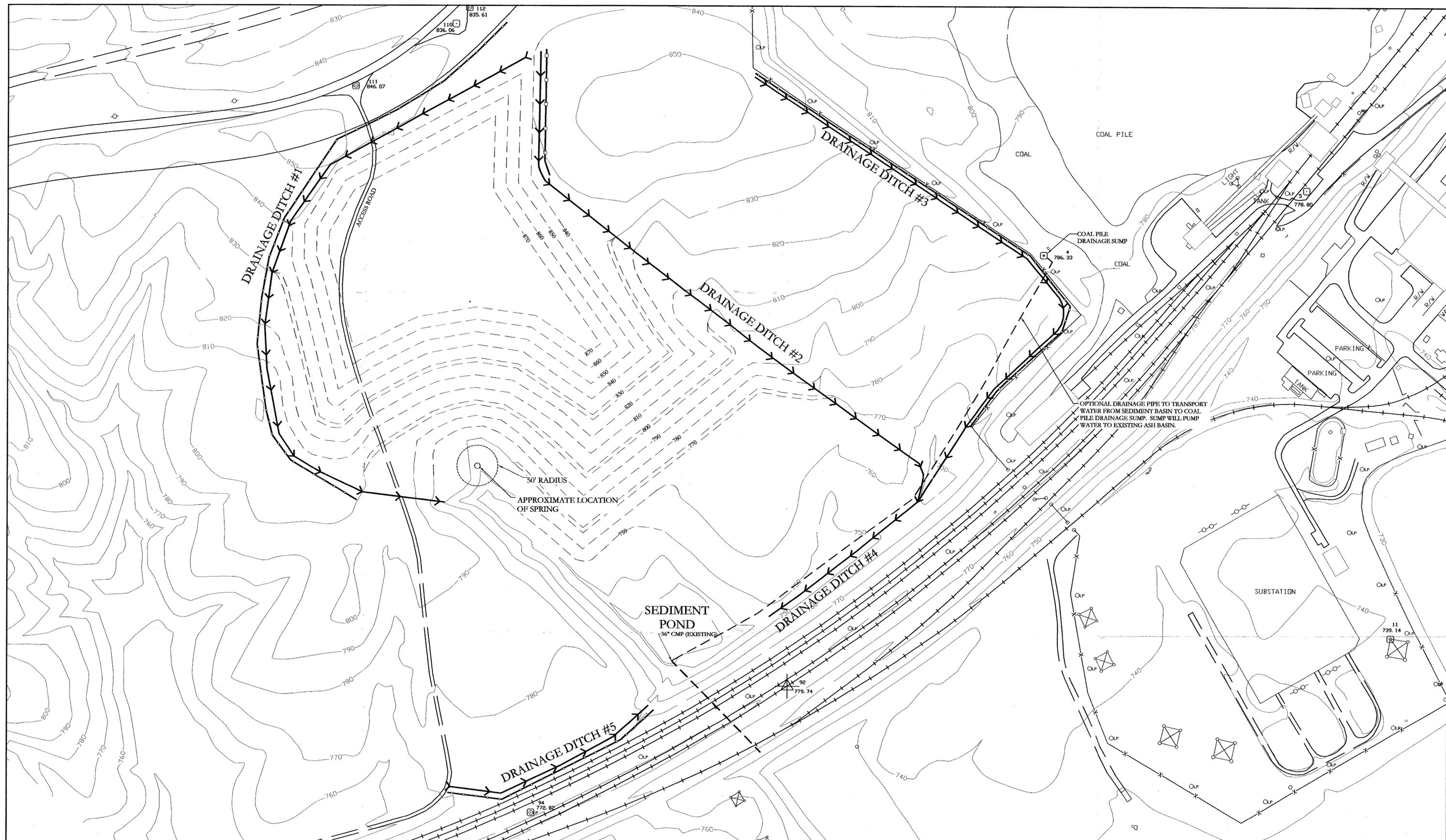


*Assist.*

*[Signature]*

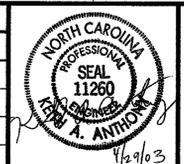
Regional Engineer  
Land Quality Section

DIVISION OF LAND RESOURCES



**LEGEND**  
 - - - SILT FENCE  
 - - -> DRAINAGE DITCH

REVISIONS		
REV.	DATE	COMMENTS



**SHIELD**  
 ENGINEERING, INC.  
 4301 TAGGART CREEK ROAD  
 CHARLOTTE, NC 28208  
 704-394-0913  
 704-394-6968 FAX  
 www.shieldengineering.com

PROJECT#: 1020062  
 DATE: 4/03  
 PROJECT MGR: KAA  
 DESIGNED BY: AAD  
 DRAWN BY: AAD  
 SCALE: 1" = 100'

BELEWS CREEK STRUCTURAL FILL  
 DUKE ENERGY  
 STOKES COUNTY, NORTH CAROLINA  
**EROSION AND SEDIMENT  
 CONTROL PLAN**