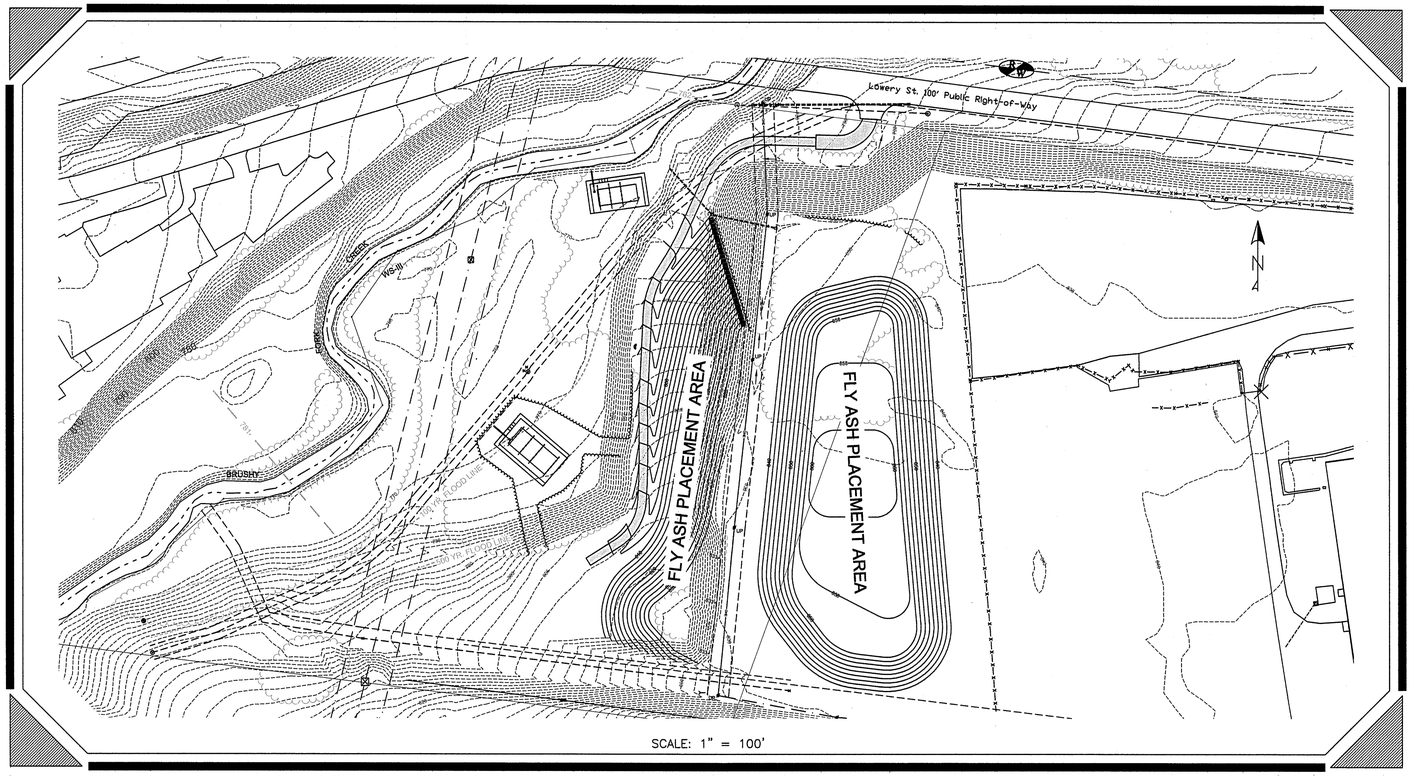
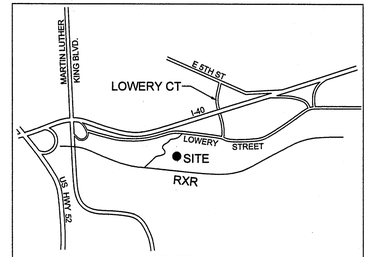


SCALE: 1" = 100'



VICINITY MAP
SCALE:1"=1000'

SHEET INDEX

NO.	TITLE
C1	COVER SHEET
C2	DRAINAGE AREA MAP
C3	EROSION CONTROL PLAN - STAGE 1
C4	EROSION CONTROL PLAN - STAGE 2
C5	EROSION CONTROL PLAN - STAGE 3
C5.1	EROSION CONTROL PLAN - STAGE 4
C6	CONSTRUCTION DETAILS
C7	CONSTRUCTION DETAILS
C8	CONSTRUCTION DETAILS
C9	CONSTRUCTION DETAILS
C10	CONSTRUCTION NOTES & SPECIFICATIONS
C11	CONSTRUCTION NOTES & SPECIFICATIONS

SITE ADDRESS:
2000 LOWERY STREET
WINSTON-SALEM, NC

DISTURBED AREA: 8.20 AC.

OWNER:

THE CITY OF WINSTON-SALEM
BRYCE A. STUART MUNICIPAL BUILDING
100 EAST FIRST STREET, SUITE 235
WINSTON-SALEM, NC 27101

OWNER REPRENTATIVES:

ANDY ALLEN
SPECIAL PROJECTS COORDINATOR
(336) 747-6968

KEITH HUFF, PE
DIRECTOR OF STORMWATER
(336) 747-6962

ENGINEER:

GEOSCIENCE AND TECHNOLOGY, INC.
2050 NORTHPOINT DRIVE, SUITE A
WINSTON-SALEM, NC 27106
(336) 886-1300

CONTRACTOR:

BLYTHE.
P.O. BOX 31635
CHARLOTTE, NC 28206
CONTACT: CHUCK GALLANT
MOB. (704) 634-7246

LEGEND:

- EXISTING TREE LINE
- CL CL — CLEARING LIMITS
- 752 — EXISTING CONTOURS @ 2' INTERVALS
- 750 — EXISTING CONTOURS @ 10' INTERVALS
- 752 — PROPOSED CONTOURS @ 2' INTERVALS
- 750 — PROPOSED CONTOURS @ 10' INTERVALS
- o 750 — PROPOSED SPOT ELEVATION
- TEMPORARY DIVERSION BERM
- TEMPORARY SILT FENCE OR BAFFLE AS NOTED
- SFO — TEMPORARY SILT FENCE STONE OUTLET
- RCD — ROCK CHECK DAM
- TSD — TEMPORARY SLOPE DRAIN
- EASEMENT LINE
- CREEK / WATER SURFACE

REVISIONS

1	01/24/12 MISC. REVS.

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Phone: (336) 886-1300 • Fax: (336) 886-1020
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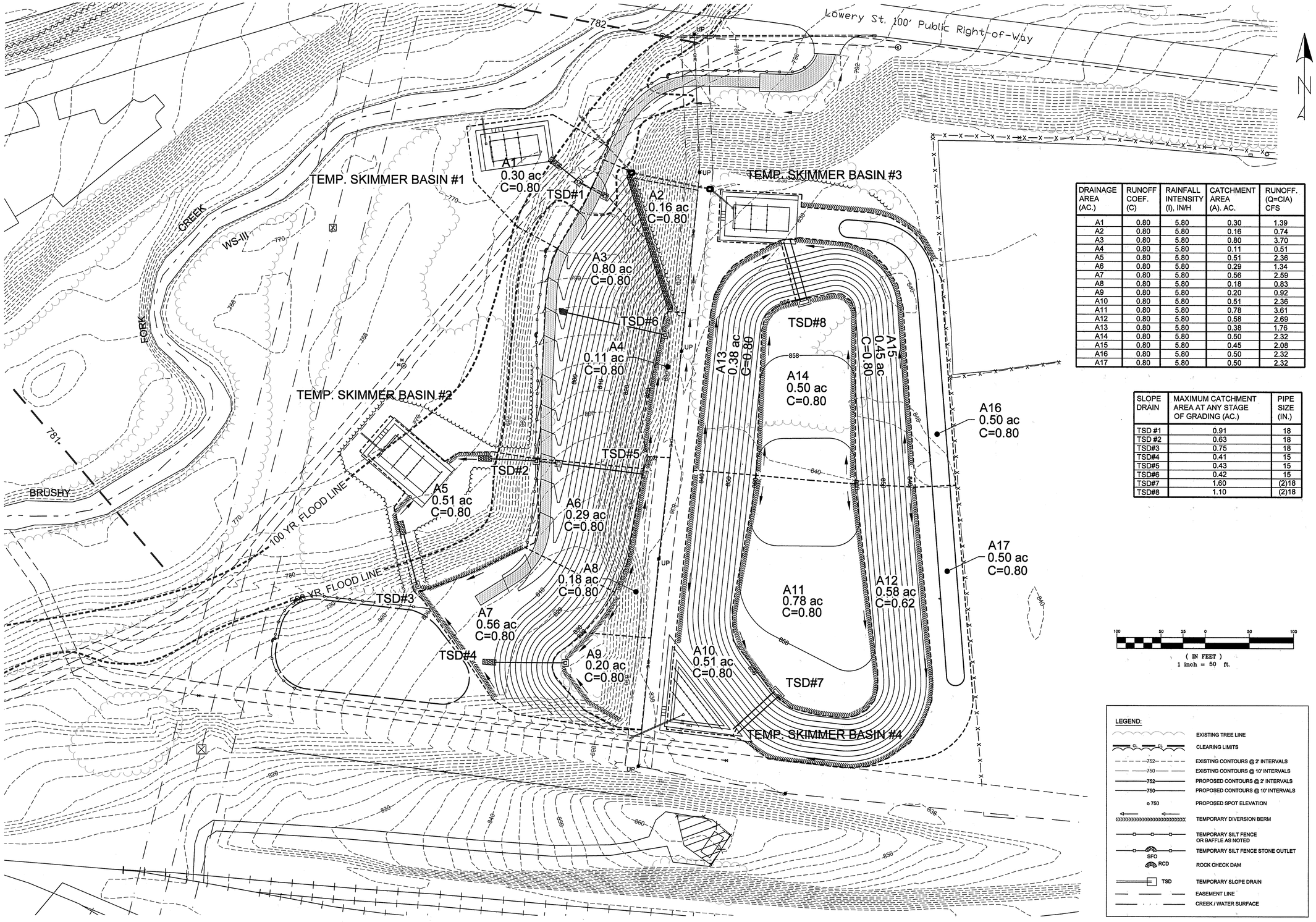
NORTH CAROLINA PROFESSIONAL SEAL 024697 ENGINEER CARL VON ISENBURG 1/25/12

NORTH CAROLINA LICENSED ENGINEERING CORPORATION SEAL C-1179 GEOSCIENCE & TECHNOLOGY, PA

FLY ASH RELOCATION
GRADING AND EROSION CONTROL PLAN
2000 LOWERY STREET
WINSTON-SALEM, NORTH CAROLINA

COVER SHEET	
SCALE: AS SHOWN	
DATE: 12/12/11	
PROJECT: 11.205	
DRAWN BY: JAB	
SHEET	C1

Jan 25, 2012 Z:\heros\A Geosci Projects\2011\11.205 CoWS Bohnson Site\Drawings-Geosci\11.205-EC-01-24-12.dwg Tab Name: COVER



DRAINAGE AREA (AC.)	RUNOFF COEF. (C)	RAINFALL INTENSITY (I), IN/H	CATCHMENT AREA (A). AC.	RUNOFF. (Q=CIA) CFS
A1	0.80	5.80	0.30	1.39
A2	0.80	5.80	0.16	0.74
A3	0.80	5.80	0.80	3.70
A4	0.80	5.80	0.11	0.51
A5	0.80	5.80	0.51	2.36
A6	0.80	5.80	0.29	1.34
A7	0.80	5.80	0.56	2.59
A8	0.80	5.80	0.18	0.83
A9	0.80	5.80	0.20	0.92
A10	0.80	5.80	0.51	2.36
A11	0.80	5.80	0.78	3.61
A12	0.80	5.80	0.58	2.69
A13	0.80	5.80	0.38	1.76
A14	0.80	5.80	0.50	2.32
A15	0.80	5.80	0.45	2.08
A16	0.80	5.80	0.50	2.32
A17	0.80	5.80	0.50	2.32

SLOPE DRAIN	MAXIMUM CATCHMENT AREA AT ANY STAGE OF GRADING (AC.)	PIPE SIZE (IN.)
TSD #1	0.91	18
TSD #2	0.63	18
TSD#3	0.75	18
TSD#4	0.41	15
TSD#5	0.43	15
TSD#6	0.42	15
TSD#7	1.60	(2)18
TSD#8	1.10	(2)18

100 50 25 0 50 100
(IN FEET)
1 inch = 50 ft.

LEGEND:
- EXISTING TREE LINE
- CL CLEARING LIMITS CL
- 752 EXISTING CONTOURS @ 2' INTERVALS
- 750 EXISTING CONTOURS @ 10' INTERVALS
- 752 PROPOSED CONTOURS @ 2' INTERVALS
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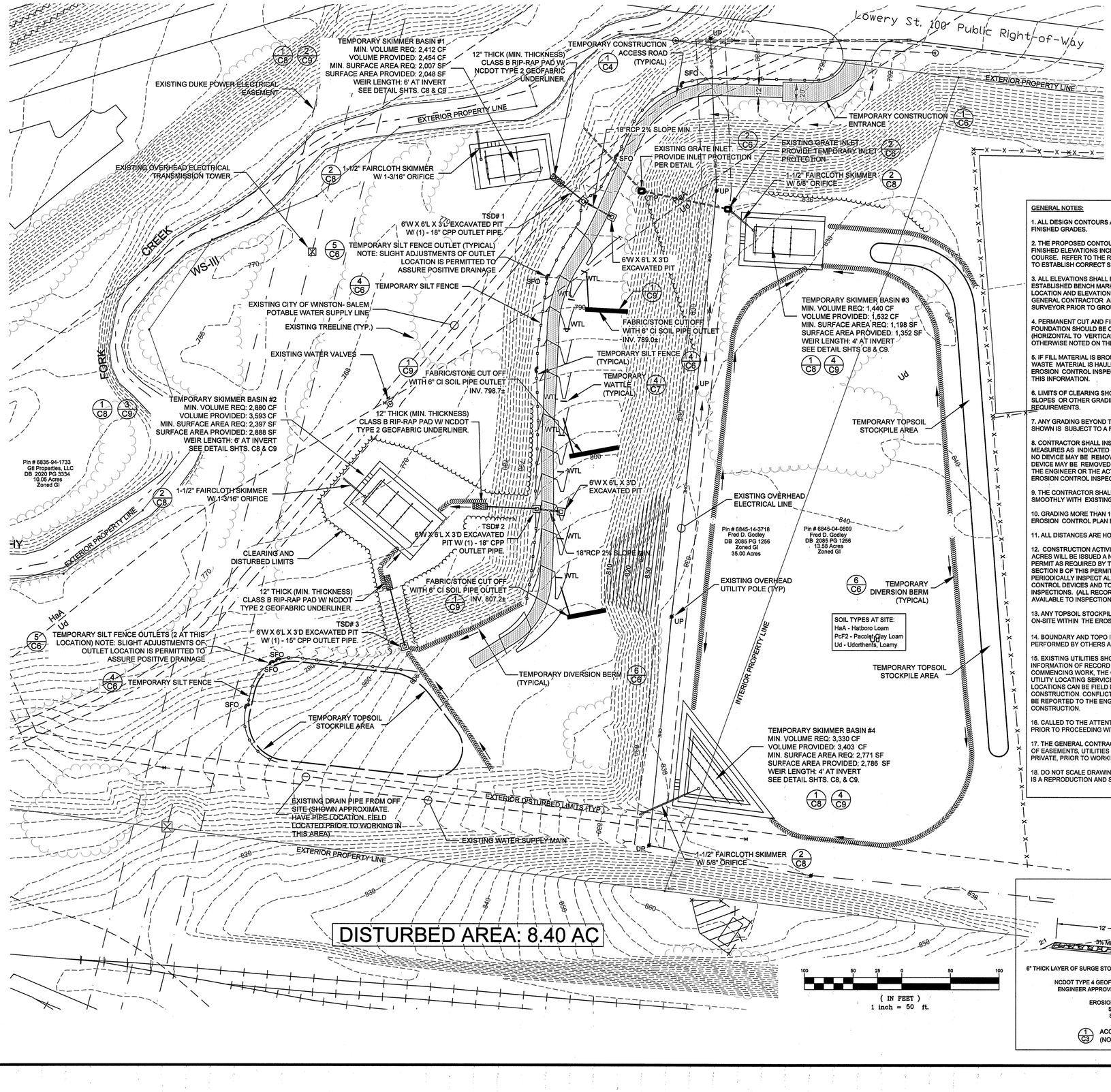
NORTH CAROLINA LICENSED GEOLOGIST SEAL C-1179 GEOSCIENCE & TECHNOLOGY, PA

FLY ASH RELOCATION
GRADING AND EROSION CONTROL PLAN
2000 LOWERY STREET
WINSTON-SALEM, NORTH CAROLINA

DRAINAGE AREA MAP
SCALE: AS SHOWN
DATE: 12/12/11
PROJECT: 11.205
DRAWN BY: JAB
SHEET C2

Jan 24, 2012 J:\BAINSON\11.205-EC-01-24-12 acad2000.dwg Tab Name: DRAIN AREAS



EROSION CONTROL CONSTRUCTION SEQUENCE:

1. CONTRACTOR SHALL ENSURE THAT ALL APPLICABLE PERMITS AND APPROVALS HAVE BEEN OBTAINED PRIOR TO PROCEEDING WITH WORK ASSOCIATED WITH THESE DOCUMENTS.

2. SCHEDULE A PRE-CONSTRUCTION CONFERENCE WITH OWNER, THE ENGINEER, ALL CONTRACTORS FOR LAND DISTURBANCE AND/OR EROSION CONTROL, AND FORSYTH COUNTY EROSION CONTROL AND ENGINEERING PERSONNEL TO DISCUSS THE EROSION CONTROL PLAN.

3. FLAG THE NEW CONSTRUCTION LIMITS AS INDICATED ON THE PLAN, DO NOT EXCEED PROPERTY BOUNDARIES WITHOUT WRITTEN APPROVAL OF ADJACENT PROPERTY OWNERS. FLAG THE CLEARING LIMITS AND VERIFY WITH THE OWNER PRIOR TO CLEARING.

4. INSTALL TEMPORARY CONSTRUCTION ENTRANCE AND STONE ACCESS ROAD PER DETAILS AND TYPICAL SECTIONS. PROVIDE TEMPORARY WATTLES IN THE NEW ROADSIDE DITCH AS SHOWN.

5. BEGIN CLEARING ONLY. THE ENTIRE LIMITS OF DISTURBANCE MAY BE CLEARED BUT NOT GRUBBED. GRUBBING SHALL NOT START UNTIL ALL THE EROSION CONTROL MEASURES HAVE BEEN INSTALLED AROUND THE SITE PERIMETER.

6. INSTALL TEMPORARY SEDIMENT SKIMMER BASINS #1, #2, #3 AND #4 AS SHOWN.

NOTE: BASIN SHALL BE FILLED TO FINISH GRADE WITH STRUCTURAL QUALITY FILL ONCE BASIN IS APPROVED FOR REMOVAL BY THE ACTING FORSYTH COUNTY EROSION CONTROL INSPECTOR. ANY ACCUMULATED SEDIMENT SHALL BE REMOVED PRIOR TO BEING FILLED. SEDIMENT SHALL NOT BE PLACED UNDER BUILDINGS, UTILITIES, ROADWAYS, OR PARKING AREAS. DISPOSE OF SEDIMENT BY MIXING WITH INCOMING FLY ASH. DRY AS NECESSARY PRIOR TO PLACEMENT TO ASSURE COMPACTION.

7. INSTALL TEMPORARY DIVERSION DITCHES, WATTLES, AND SILT FENCE AS SHOWN ON PLANS. BEGIN CONSTRUCTION OF DITCHES FROM THE SEDIMENT BASINS (PONDS) SO THAT ANY EROSION THAT OCCURS DURING THE CONSTRUCTION OF THE DITCH WILL BE CAPTURED BY THE BASIN. SEED AND STABILIZE THE BERM IMMEDIATELY AFTER CONSTRUCTION UNLESS IT WILL REMAIN IN PLACE LESS THAN 30 WORKING DAYS. TEMPORARY DIVERSION DITCHES SHALL BE MAINTAINED TO THE SKIMMER BASINS DURING CONSTRUCTION (SEE MAINTENANCE SCHEDULE).

8. GENERAL CONTRACTOR SHALL ENSURE THAT EROSION CONTROL DEVICES ARE IN PLACE AND FUNCTIONING PRIOR TO GRUBBING THE SITE.

9. PERFORM THE GRUBBING OPERATIONS. STOCKPILE TOPSOIL IN LOCATION SHOWN.

10. BEGIN PLACEMENT OF FLY ASH AND SOIL CAP. THE FLY ASH SHALL BE PLACED IN LIFTS. MINIMUM COMPACTION FOR FLY ASH SHALL BE AT LEAST 80% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY A STANDARD PROCTOR TEST. INSTALL SLOPE DRAINS AND INLET PITS AS EARLY IN THE FILL PROCESS AS PRACTICAL. PLACE FILL SO THAT POSITIVE DRAINAGE TO THE TEMPORARY SLOPE DRAINS IS ACHIEVED. EXTEND THE SLOPE DRAIN PIPES AND RAISE THE PITS AS COMPACTED FILL IS PLACED.

11. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON LARGE DENUDED AREAS AND ESPECIALLY WHEN SPECIFICALLY REQUIRED AS PART OF THE CONSTRUCTION SEQUENCE. IN PARTICULAR:

A. GROUND STABILIZATION MUST BE ACHIEVED ON PERIMETER AREAS AND ALL GRADED AREAS WITH SLOPES EXCEEDING 3:1 WITHIN 7 DAYS.

B. GROUND STABILIZATION MUST BE ACHIEVED ON ALL OTHER GRADED AREAS WITHIN 14 DAYS.

EROSION CONTROL BLANKETS SHALL BE PROVIDED AS SHOWN. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS DICTATED BY FIELD CONDITIONS, THE ENGINEER, THE OWNER, OR THE EROSION CONTROL INSPECTOR.

12. CONTRACTOR SHALL ADJUST EXISTING EROSION CONTROL MEASURES AS REQUIRED DURING THE CONSTRUCTION PROCESS. CONTRACTOR SHALL INSTALL ANY ADDITIONAL EROSION CONTROL MEASURES AS DEEMED NECESSARY BY THE EROSION CONTROL INSPECTOR.

13. GROUND COVER SHALL BE ESTABLISHED ON EXPOSED AREAS WITHIN 21 DAYS FOLLOWING ANY PHASE OF GRADING. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY STORM EVENT, BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY REPAIRS OR CLEANING NECESSARY TO MAINTAIN EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE COMPLETED IMMEDIATELY.

14. ALL SEEDED AREAS SHALL BE REFERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO THE SEEDING SCHEDULE.

15. REMOVE TEMP SILT FENCE, TEMPORARY DIVERSION BERMS, ANY TEMPORARY TREE PROTECTION FENCE, AND SKIMMER BASINS AFTER THE SITE HAS BEEN PERMANENTLY STABILIZED. THE TEMPORARY CONSTRUCTION ENTRANCE AND STABILIZED ACCESS ROAD ARE TO REMAIN IN PLACE FOR USE BY CITY PERSONNEL.

16. THE CONTRACTOR SHALL CONFORM TO ALL CURRENT NPDES REQUIREMENTS AS AN INTEGRAL PART OF THIS PROJECT. THIS INCLUDES OBTAINING ANY REQUIRED PERMITS, TESTING, BMP MAINTENANCE, AND RECORD KEEPING REQUIREMENTS. ALL COST ASSOCIATED WITH MAINTAINING THE EROSION CONTROL AT THE SITE SHALL BE PAID FOR AT THE SOLE EXPENSE OF THE CONTRACTOR. ALL COSTS ASSOCIATED WITH NPDES CONFORMANCE, INCLUDING INSPECTIONS, SHALL BE PAID FOR AT THE CONTRACTORS EXPENSE.

GENERAL NOTES:

1. ALL DESIGN CONTOURS AND SPOT ELEVATIONS REFLECT FINISHED GRADES.

2. THE PROPOSED CONTOURS SHOWN IN ROAD SECTIONS ARE FINISHED ELEVATIONS INCLUDING THE STONE SURFACE COURSE. REFER TO THE ROADWAY CROSS-SECTION DATA TO ESTABLISH CORRECT SUB-BASE FOR ROADWAYS.

3. ALL ELEVATIONS SHALL BE REFERENCED TO AN ESTABLISHED BENCH MARK AT THE SITE. THIS BENCHMARK LOCATION AND ELEVATION SHALL BE VERIFIED BY THE GENERAL CONTRACTOR AND THE CITY OF WINSTON-SALEM SURVEYOR PRIOR TO GROUND BREAKING.

4. PERMANENT CUT AND FILL SLOPES PLACED ON A SUITABLE FOUNDATION SHOULD BE CONSTRUCTED AT 2H:1V (HORIZONTAL TO VERTICAL) OR FLATTER, UNLESS OTHERWISE NOTED ON THE PLANS.

5. IF FILL MATERIAL IS BROUGHT ONTO THE PROPERTY OR IF WASTE MATERIAL IS HAULED FROM THE PROPERTY, THEN THE EROSION CONTROL INSPECTOR MUST BE MADE AWARE OF THIS INFORMATION.

6. LIMITS OF CLEARING SHOWN ARE BASED ON CUT AND FILL SLOPES OR OTHER GRADING/EROSION CONTROL REQUIREMENTS.

7. ANY GRADING BEYOND THE LIMITS OF CONSTRUCTION SHOWN IS SUBJECT TO A FINE.

8. CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES AS INDICATED PRIOR TO GRADING OPERATIONS. NO DEVICE MAY BE REMOVED UNTIL SITE IS STABILIZED. NO DEVICE MAY BE REMOVED WITHOUT AUTHORIZATION FROM THE ENGINEER OR THE ACTING CITY OF WINSTON-SALEM EROSION CONTROL INSPECTOR.

9. THE CONTRACTOR SHALL BLEND NEW EARTHWORK SMOOTHLY WITH EXISTING CONTOURS.

10. GRADING MORE THAN 1 ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS SUBJECT TO A FINE.

11. ALL DISTANCES ARE HORIZONTAL GROUND.

12. CONSTRUCTION ACTIVITIES DISTURBING FIVE OR MORE ACRES WILL BE ISSUED A NPDES STORM WATER DISCHARGE PERMIT AS REQUIRED BY THE FEDERAL CLEAN WATER ACT. SECTION B OF THIS PERMIT REQUIRES THE PERMITEE TO PERIODICALLY INSPECT ALL SEDIMENT AND EROSION CONTROL DEVICES AND TO KEEP A RECORD OF THESE INSPECTIONS. (ALL RECORDS SHALL BE KEPT ON-SITE & AVAILABLE TO INSPECTION STAFF)

13. ANY TOPSOIL STOCKPILE LOCATIONS SHALL BE LOCATED ON-SITE WITHIN THE EROSION CONTROL MEASURES.

14. BOUNDARY AND TOPO INFORMATION FROM FIELD SURVEY PERFORMED BY OTHERS AND NCDOT LIDAR DATA.

15. EXISTING UTILITIES SHOWN APPROXIMATE PER INFORMATION OF RECORD AND SURVEY BY OTHERS. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL CONTACT A UTILITY LOCATING SERVICE SO THAT ACTUAL UTILITY LOCATIONS CAN BE FIELD MARKED PRIOR TO BEGINNING CONSTRUCTION. CONFLICTS WITH SITE IMPROVEMENTS HALL BE REPORTED TO THE ENGINEER FOR RESOLUTION PRIOR TO CONSTRUCTION.

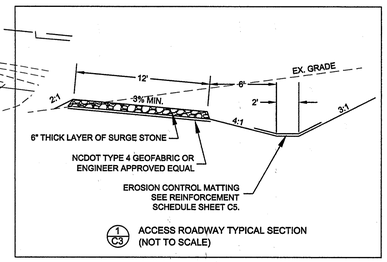
16. CALLED TO THE ATTENTION OF THE OWNER AND ENGINEER PRIOR TO PROCEEDING WITH WORK.

17. THE GENERAL CONTRACTOR SHALL CONTACT ALL OWNERS OF EASEMENTS, UTILITIES AND RIGHT-OF-WAYS, PUBLIC OR PRIVATE, PRIOR TO WORKING IN THESE AREAS.

18. DO NOT SCALE DRAWING FOR ACTUAL DIMENSIONS, AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.

PROJECT NARRATIVE:

THIS GRADING AND EROSION CONTROL PLAN IS INTENDED TO BE UTILIZED DURING THE PLACEMENT OF FLY ASH AND BOILER SLAG ON THIS PROPERTY. THE FLY ASH AND BOILER SLAG WILL COME FROM TWO DIFFERENT SITES THAT HAVE SEPARATE EROSION CONTROL PLANS. BOTH EXPORT SITES ARE ALSO OWNED BY THE CITY OF WINSTON-SALEM. THE FLY ASH WILL BE PLACED IN COMPACTED LIFTS AND SEALED WITH A VEGETATED SOIL CAP. TYPICAL EROSION CONTROL MEASURES WILL INCLUDE SKIMMER BASINS, SLOPE DRAINS, DIVERSION BERMS, AND SILT FENCE. APPROXIMATELY 8.40 ACRES WILL BE DISTURBED DURING THE CONSTRUCTION OF TEMPORARY EROSION CONTROL MEASURES AND PLACEMENT OF THE FLY ASH AND SOIL CAP. THE SITE DRAINS INTO TAR CREEK WHICH ULTIMATELY DISCHARGES INTO THE YADKIN RIVER.



1/C3 ACCESS ROADWAY TYPICAL SECTION (NOT TO SCALE)

LEGEND:

- EXISTING TREE LINE
- CL CL — CLEARING LIMITS
- 752 — EXISTING CONTOURS @ 2' INTERVALS
- 750 — EXISTING CONTOURS @ 10' INTERVALS
- 752 — PROPOSED CONTOURS @ 2' INTERVALS
- 750 — PROPOSED CONTOURS @ 10' INTERVALS
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- TEMPORARY DIVERSION BERM
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REVISIONS

1	12/22/11 PER COMMENTS
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NORTH CAROLINA LICENSED GEOSCIENCE & TECHNOLOGY, PA SEAL C-1179

FLY ASH RELOCATION
GRADING AND EROSION CONTROL PLAN
2000 LOWERY STREET
WINSTON-SALEM, NORTH CAROLINA

EROSION CONTROL PLAN - STAGE 1	
SCALE: AS SHOWN	
DATE: 12/12/11	
PROJECT: 11.205	
DRAWN BY: JAB	
SHEET	C3

Jan 25, 2012 Z:\Jerry\A Geosci Projects\2011\11.205 CoWS Johnson Site\Drawings-Geosci\11.205-EC-01-24-12.dwg Tab Name: EC PLAN-1

Lowery St. 100' Public Right-of-Way

N

BRUSHY FORK CREEK WS-III

TEMP. SKIMMER BASIN #1

MAINTAIN TEMPORARY SKIMMER BASIN. ACCUMULATED SEDIMENT AND FLY ASH DEPTH SHALL NOT EXCEED 1.5'. MUCK SKIMMER BASIN AS REQUIRED.

TSD #1 SEE SHT. C3

PERMANENT DRAINAGE DITCH CLASS "B" RIP-RAP WITH TYPE 4 NCDOT GEOFABRIC UNDERLINER BOTTOM WIDTH: 2' TOP WIDTH: 6' DEPTH: 1' SIDE SLOPES: 2:1

MAINTAIN PREVIOUSLY INSTALLED INLET PROTECTION

MAINTAIN TEMPORARY SKIMMER BASIN. ACCUMULATED SEDIMENT AND FLY ASH DEPTH SHALL NOT EXCEED 1.5'. MUCK SKIMMER BASIN AS REQUIRED.

NOTE!
TEMPORARY SKIMMER BASIN #3 TO BE REMOVED DURING THE 3RD STAGE OF GRADING. ALL CONTRIBUTING UPLAND AREAS SHALL BE STABILIZED PRIOR TO THE REMOVAL AS DETERMINED BY THE ACTING EROSION CONTROL FIELD INSPECTOR. SEE SHEET C5.

TEMP. SKIMMER BASIN #3

PROVIDE CLASS B RIP-RAP OUTLET PAD W/ GEOFABRIC UNDERLINER.
La = 6' (min.length)
Th = 12" (min. thickness)
D50 =4"
Dmax =6"

MAINTAIN TEMPORARY SKIMMER BASIN. ACCUMULATED SEDIMENT AND FLY ASH DEPTH SHALL NOT EXCEED 1.5'. MUCK SKIMMER BASIN AS REQUIRED.

TSD# 7
(2) - 15" CPP'S W/ 6'LX10'LX3'D PIT
EXTEND PIPE AND RAISE PIT AS FILL IS PLACED

TSD# 6
(1) - 15" CPP
EXTEND PIPE AND RAISE BERMS AS FILL IS PLACED

TSD# 5
(1) - 15" CPP
EXTEND P/PE AND RAISE BERMS AS FILL IS PLACED

TEMPORARY TOPSOIL STOCKPILE AREA

TSD #2 SEE SHT. C3

TEMP. SKIMMER BASIN #2

TSD #3 SEE SHT. C3

TSD# 4
(1) - 15" CPP
EXTEND PIPE AND RAISE BERMS AS FILL IS PLACED

TEMPORARY TOPSOIL STOCKPILE AREA

12" THICK (MIN. THICKNESS) CLASS B RIP-RAP PAD W/ GEOFABRIC UNDERLINER.

TEMPORARY DIVERSION BERM RAISE BERM AS FILL IS PLACED (TYPICAL) (6/C6)

TSD# 8
(2) - 15" CPP'S W/ 6'LX10'LX3'D PIT
EXTEND PIPE AND RELOCATE PIT AS FILL IS PLACED

TEMP. SKIMMER BASIN #4

PROVIDE TEMPORARY WATTLES AS SHOWN. SEE PERMANENT REINFORCEMENT SCHEDULE SHEET C5.

MAINTAIN TEMPORARY SKIMMER BASIN. ACCUMULATED SEDIMENT AND FLY ASH DEPTH SHALL NOT EXCEED 1.5'. MUCK SKIMMER BASIN AS REQUIRED.

3:1 MAX.

LEGEND:

- EXISTING TREE LINE
- CLEARING LIMITS
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- 750 — EXISTING CONTOURS @ 10' INTERVALS
- 752 — PROPOSED CONTOURS @ 2' INTERVALS
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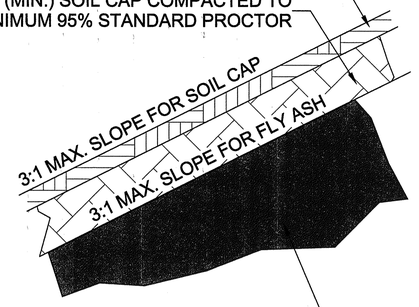
- TEMPORARY SILT FENCE OR BAFFLE AS NOTED
- SFO — TEMPORARY SILT FENCE STONE OUTLET
- RCD — ROCK CHECK DAM
- TSD — TEMPORARY SLOPE DRAIN
- EASEMENT LINE
- CREEK / WATER SURFACE

TOPSOIL LAYER
MINIMUM THICKNESS 6"

24" (MIN.) SOIL CAP COMPACTED TO MINIMUM 95% STANDARD PROCTOR



FLY ASH COMPACTED TO MINIMUM MINIMUM 85% STANDARD PROCTOR OR AS APPROVED BY THE ENGINEER

FLY ASH CAP DETAIL
(NOT TO SCALE)

100 50 25 0 50 100
(IN FEET)
1 inch = 50 ft.

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FLY ASH RELOCATION
GRADING AND EROSION CONTROL PLAN
2000 LOWERY STREET
WINSTON-SALEM, NORTH CAROLINA

EROSION CONTROL PLAN - STAGE 2
SCALE: AS SHOWN
DATE: 12/12/11
PROJECT: 11.205
DRAWN BY: JAB
SHEET C4

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Lowery St. 100' Public Right-of-Way

REMOVE TEMPORARY SEDIMENT SKIMMER BASIN ONLY AFTER ALL CONTRIBUTING UPLAND DRAINAGE AREAS ARE STABILIZED AND REMOVAL IS APPROVED BY THE ACTING EROSION CONTROL INSPECTOR

TEMP. SKIMMER BASIN #1

TSD #1

REMOVE TEMPORARY CONCRETE PIPE AFTER CONTRIBUTING UPLAND DRAINAGE AREAS ARE STABILIZED. REESEED ANY BARE AREAS PER PERMANENT SEEDING SPECIFICATION. BACKFILL AND DIVERT RUNOFF THROUGH PERM. CHANNEL (TYPICAL)

DITCH #1

DITCH #2

REMOVE ALL TEMPORARY WATTLES AND ACCUMULATED FLY ASH. DISPOSE OF FLY ASH WITH FINAL FILL. INSTALL CHANNEL REINFORCEMENT PER SCHEDULE THIS SHEET. INSTALL PERMANENT ROCK CHECK DAMS AS SHOWN.

REMOVE TEMPORARY SILT FENCE AFTER ALL CONTRIBUTING UPLAND DRAINAGE AREAS ARE STABILIZED. REESEED ANY BARE AREAS PER PERMANENT SEEDING SPECIFICATION (TYPICAL)

ACCESS ROAD TO REMAIN AS A PERMANENT FEATURE. REDRESS AS NECESSARY

REMOVE TEMPORARY SEDIMENT SKIMMER BASIN ONLY AFTER ALL CONTRIBUTING UPLAND DRAINAGE AREAS ARE STABILIZED AND REMOVAL IS APPROVED BY THE ACTING EROSION CONTROL INSPECTOR

TEMP. SKIMMER BASIN #2

TSD #2

REMOVE TEMPORARY SEDIMENT BASINS AFTER ALL CONTRIBUTING UPLAND DRAINAGE AREAS ARE STABILIZED. REESEED ANY BARE AREAS PER PERMANENT SEEDING SPECIFICATION (TYPICAL)

REMOVE TEMPORARY SLOPE DRAINS AFTER ALL CONTRIBUTING UPLAND DRAINAGE AREAS ARE STABILIZED. REESEED ANY BARE AREAS PER PERMANENT SEEDING SPECIFICATION (TYPICAL)

TSD #3

REINFORCE ALL 3:1 SLOPES WITH NORTH AMERICAN GREEN S150BN, SC150 OR SC150BN REINFORCEMENT MATTING. OTHER REINFORCEMENT MATTING MAY BE USED WITH PRIOR APPROVAL FROM THE ENGINEER.

RESEED TEMPORARY TOPSOIL STORAGE AREA AFTER TOPSOIL IS PLACED.

DITCH #3

AFTER ALL CONTRIBUTING DRAINAGE AREAS ARE STABILIZED, REMOVE TEMPORARY WATTLES AND ACCUMULATED FLY ASH. DISPOSE OF FLY ASH WITH FINAL FILL. INSTALL CHANNEL REINFORCEMENT PER SCHEDULE THIS SHEET. INSTALL PERMANENT ROCK CHECK DAMS AS SHOWN.

TEMP. SKIMMER BASIN #4

REMOVE TEMPORARY SEDIMENT SKIMMER BASIN ONLY AFTER ALL CONTRIBUTING UPLAND DRAINAGE AREAS ARE STABILIZED AND REMOVAL IS APPROVED BY THE ACTING EROSION CONTROL INSPECTOR

RELOCATE TEMPORARY SLOPE DRAIN #7 PER ADDITIONAL GRADING REQUIREMENTS IN THIS AREA. SEE SHEET C6.

RESEED TEMPORARY TOPSOIL STORAGE AREA AFTER TOPSOIL IS PLACED.

REINFORCE ALL 3:1 SLOPES WITH NORTH AMERICAN GREEN S150BN, SC150 OR SC150BN REINFORCEMENT MATTING. OTHER REINFORCEMENT MATTING MAY BE USED WITH PRIOR APPROVAL FROM THE ENGINEER.

REMOVE TEMPORARY DIVERSION BERMS AND BLEND GRADING WITH FINISH GRADES TO ASSURE POSITIVE DRAINAGE. .

CREEK

WS-III

FORK

BRUSHY

GENERAL NOTES:

1. BASINS SHALL BE FILLED TO FINISH GRADE WITH QUALITY FILL ONCE BASIN IS APPROVED FOR REMOVAL BY THE ACTING FORSYTH COUNTY EROSION CONTROL INSPECTOR. ANY ACCUMULATED SEDIMENT SHALL BE REMOVED PRIOR TO BEING FILLED. SEDIMENT SHALL NOT BE PLACED UNDER BUILDINGS, UTILITIES, ROADWAYS, OR PARKING AREAS.

2. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON LARGE DENUDED AREAS AND ESPECIALLY WHEN SPECIFICALLY REQUIRED AS PART OF THE CONSTRUCTION SEQUENCE. IN PARTICULAR:

A. GROUND STABILIZATION MUST BE ACHIEVED ON PERIMETER AREAS AND ALL GRADED AREAS WITH SLOPES EXCEEDING 3:1 WITHIN 7 DAYS.

B. GROUND STABILIZATION MUST BE ACHIEVED ON ALL OTHER GRADED AREAS WITHIN 14 DAYS.

3. EROSION CONTROL BLANKETS SHALL BE PROVIDED AS SHOWN. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS DICTATED BY FIELD CONDITIONS, THE ENGINEER, THE OWNER, OR THE EROSION CONTROL INSPECTOR.

4. ALL SEEDED AREAS SHALL BE REFERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO THE SEEDING SCHEDULE.

5. REMOVE TEMP SILT FENCE, TEMPORARY DIVERSION BERMS, ANY TEMP TREE PROTECTION FENCE, AND SKIMMER BASINS AFTER THE SITE HAS BEEN PERMANENTLY STABILIZED. THE TEMPORARY CONSTRUCTION ENTRANCE AND STABILIZED ACCESS ROAD ARE TO REMAIN IN PLACE FOR USE BY CITY PERSONNEL.

DITCH REINFORCEMENT SCHEDULE

DITCH #1	STA 0+00 - STA 1+58	NCDOT TYPE 4 GEOFABRIC W/ CLASS B RIP-RAP	
DITCH #2	STA 0+00 - STA 3+00	NAG C125	STA 3+00 - STA 5 + 00 NAG SC150
DITCH #3	STA 0+00 - STA1 + 50	NAG C125	

LEGEND:

- EXISTING TREE LINE
- CLEARING LIMITS
- 752 EXISTING CONTOURS @ 2' INTERVALS
- 750 EXISTING CONTOURS @ 10' INTERVALS
- 752 PROPOSED CONTOURS @ 2' INTERVALS
- 750 PROPOSED CONTOURS @ 10' INTERVALS
- o 750 PROPOSED SPOT ELEVATION
- TEMPORARY DIVERSION BERM
- TEMPORARY SILT FENCE OR BAFFLE AS NOTED
- SFO TEMPORARY SILT FENCE STONE OUTLET
- RCD ROCK CHECK DAM
- TSD TEMPORARY SLOPE DRAIN
- EASEMENT LINE
- CREEK / WATER SURFACE

100 50 25 0 50 100

(IN FEET)
1 inch = 50 ft.

REVISIONS

1 01/24/12 MISC. REVS.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024697 CARL VON ISENBURG

NORTH CAROLINA LICENSED GEOSCIENCE & TECHNOLOGY, PA SEAL C-1179

FLY ASH RELOCATION
GRADING AND EROSION CONTROL PLAN
2000 LOWERY STREET
WINSTON-SALEM, NORTH CAROLINA

EROSION CONTROL PLAN - STAGE 3

SCALE: AS SHOWN

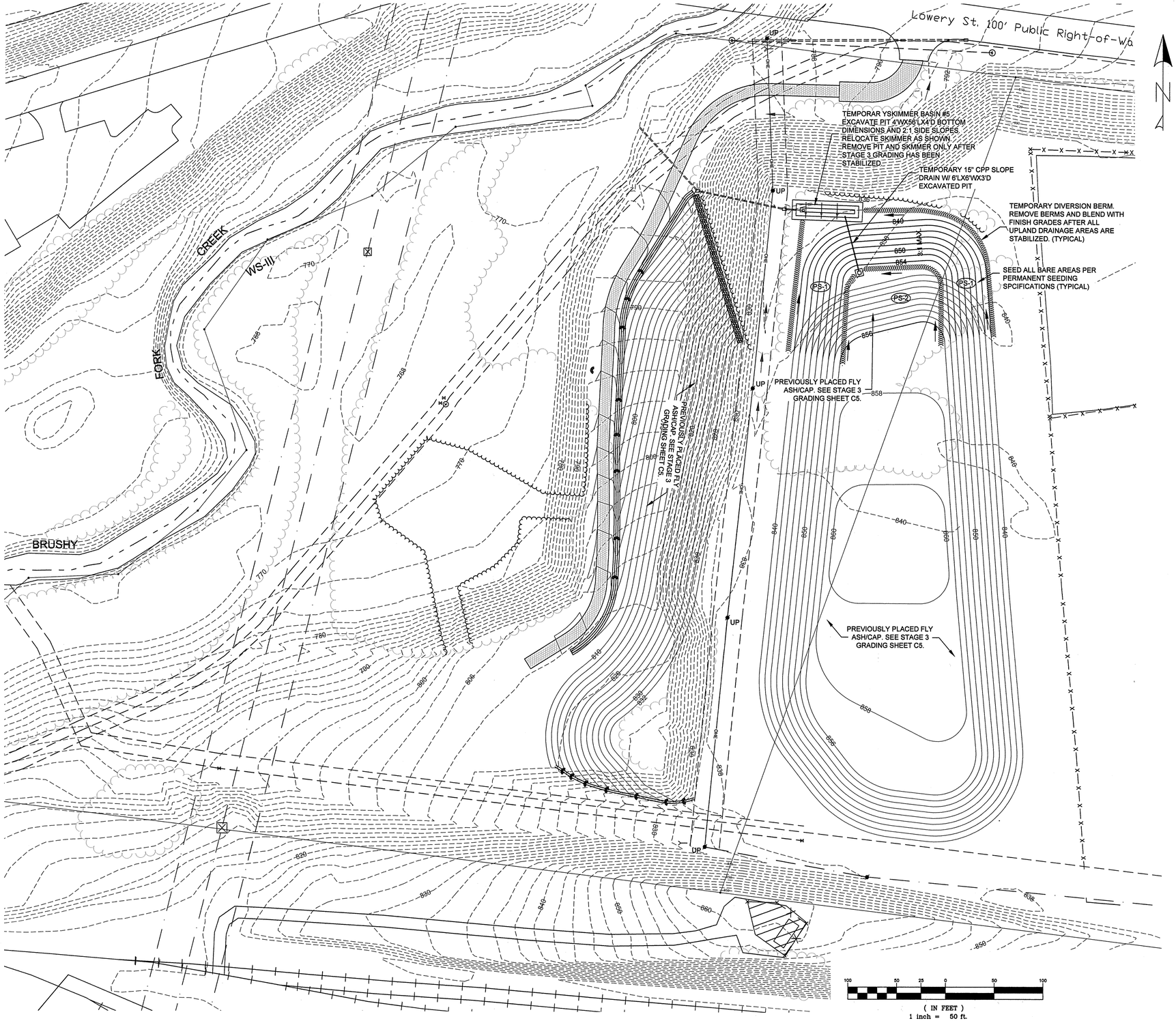
DATE: 12/12/11

PROJECT: 11.205

DRAWN BY: JAB

SHEET C5

Jan 24, 2012 J:\BAINSON\11.205-EC-01-24-12 acad2000.dwg Tab Names: EC PLAN-3



GENERAL NOTES:

1. BASINS SHALL BE FILLED TO FINISH GRADE WITH QUALITY FILL ONCE BASIN IS APPROVED FOR REMOVAL BY THE ACTING FORSYTH COUNTY EROSION CONTROL INSPECTOR. ANY ACCUMULATED SEDIMENT SHALL BE REMOVED PRIOR TO BEING FILLED. SEDIMENT SHALL NOT BE PLACED UNDER BUILDINGS, UTILITIES, ROADWAYS, OR PARKING AREAS.

2. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. TEMPORARY SEEDING IS NECESSARY TO ACHIEVE EROSION CONTROL ON LARGE DENUDED AREAS AND ESPECIALLY WHEN SPECIFICALLY REQUIRED AS PART OF THE CONSTRUCTION SEQUENCE. IN PARTICULAR:

A. GROUND STABILIZATION MUST BE ACHIEVED ON PERIMETER AREAS AND ALL GRADED AREAS WITH SLOPES EXCEEDING 3:1 WITHIN 7 DAYS.

B. GROUND STABILIZATION MUST BE ACHIEVED ON ALL OTHER GRADED AREAS WITHIN 14 DAYS.

3. EROSION CONTROL BLANKETS SHALL BE PROVIDED AS SHOWN. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS DICTATED BY FIELD CONDITIONS, THE ENGINEER, THE OWNER, OR THE EROSION CONTROL INSPECTOR.

4. ALL SEEDED AREAS SHALL BE REFERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO THE SEEDING SCHEDULE.

5. REMOVE TEMP SILT FENCE, TEMPORARY DIVERSION BERMS, ANY TEMP TREE PROTECTION FENCE, AND SKIMMER BASINS AFTER THE SITE HAS BEEN PERMANENTLY STABILIZED. THE TEMPORARY CONSTRUCTION ENTRANCE AND STABILIZED ACCESS ROAD ARE TO REMAIN IN PLACE FOR USE BY CITY PERSONNEL.

STAGE 4 CONSTRUCTION SEQUENCE:

NOTE:
TO OBJECTIVE OF THIS STAGE OF GRADING IS TO MAXIMIZE THE AMOUNT OF MATERIAL THAT CAN BE PLACED ON THE UPPER TIER OF THE SITE. THIS WILL BE ACCOMPLISHED BY REMOVING TEMPORARY SKIMMER BASIN #3 SO THAT THE FILL ARE MAY BE EXTENDED NORTHWARD TO THE GREATEST EXTENT POSSIBLE. PRIOR TO THE REMOVAL OF TEMPORARY SKIMMER BASIN #3, ALL CONTRIBUTING DRAINAGE AREA UPLAND MUST BE STABILIZED. SINCE TEMPORARY SKIMMER BASIN #5 IS SIZED FOR A LIMITED DRAINAGE AREA, CARE SHOULD BE TAKEN TO DIVERT CLEAN WATER AWAY FROM SKIMMER BASIN #5 TO THE GREATEST EXTENT POSSIBLE.

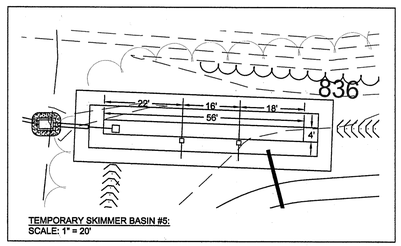
1. STABILIZE ALL PREVIOUSLY PLACED UPLAND AREAS OF FLY ASH/SOIL CAP PRIOR TO PROCEDING WITH STAGE 4 GRADING. BACKFILL PREVIOUSLY CONSTRUCTED DIVERSION BERMS AND REMOVE SLOPE DRAINS.

2. REMOVE TEMPORARY SKIMMER BASIN #4, CONSTRUCT NEW SKIMMER BASIN IN LOCATION SHOWN. REUSE SKIMMER FROM SKIMMER BASIN #4.

3. CONSTRUCT TEMPORARY DIVERSION BERMS TO INTERCEPT RUNOFF FROM STAGE 4 GRADING. INSTALL TEMPORARY 15" CPP SLOPE DRAIN W/ EXCAVATED PIT AS SHOWN. RASIE PIT AND EXTEND PIPE AS FILL IS RASIED.

4. AFTER FINISH GRADES ARE ACHIEVED AND STABILIZED REMOVE TEMPORARY DIVERSION BERMS AND BACKFILL TO BLEND WITH ADJACENT AREA FOR POSITIVE DRAINAGE.

5. SEED ALL BARE OR DENUDED AREAS PER SEEDING SPECIFICATIONS.



TEMPORARY SKIMMER BASIN #5:
SCALE: 1" = 20'

LEGEND:

- EXISTING TREE LINE
- CLEARING LIMITS
- 752 — EXISTING CONTOURS @ 2' INTERVALS
- 750 — EXISTING CONTOURS @ 10' INTERVALS
- 752 — PROPOSED CONTOURS @ 2' INTERVALS
- 750 — PROPOSED CONTOURS @ 10' INTERVALS
- o 750 — PROPOSED SPOT ELEVATION
- TEMPORARY DIVERSION BERM
- TEMPORARY SILT FENCE OR BAFFLE AS NOTED
- SFO — TEMPORARY SILT FENCE STONE OUTLET
- RCD — ROCK CHECK DAM
- TSD — TEMPORARY SLOPE DRAIN
- EASEMENT LINE
- CREEK / WATER SURFACE

REVISIONS

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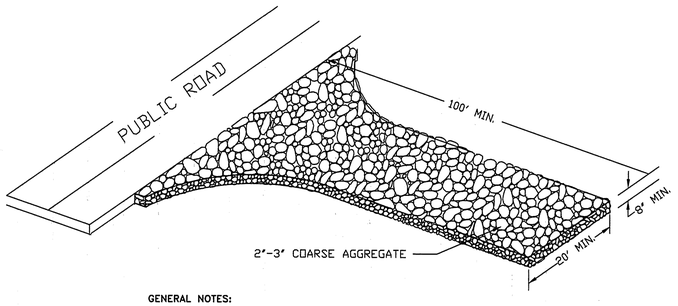
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024097 CARL VON ISENBURG

NORTH CAROLINA LICENSED GEOSCIENCE & TECHNOLOGY, INC. ENGINEERING CORPORATION SEAL C-1179

FLY ASH RELOCATION
GRADING AND EROSION CONTROL PLAN
2000 LOWERY STREET
WINSTON-SALEM, NORTH CAROLINA

EROSION CONTROL PLAN - STAGE 4	
SCALE: AS SHOWN	
DATE: 01/24/12	
PROJECT: 11.205	
DRAWN BY: JAB	
SHEET	C5.1

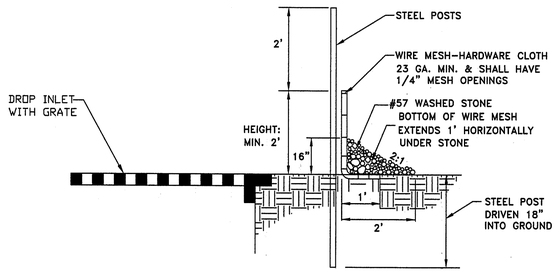
Jan 25, 2012 Z:\Heroj\A Geosci Projects\2011\11.205 CoWS Bohnson Site\Drawings-Geosci\11.205-EC-01-24-12.dwg Tab Name: EC PLAN-4

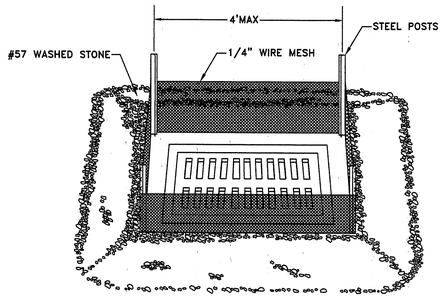


GENERAL NOTES:

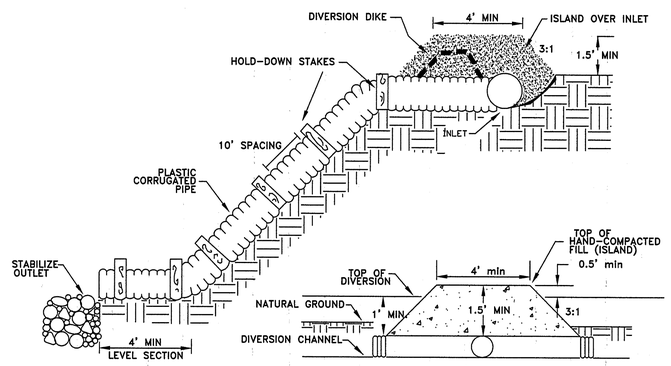
1. A STABILIZED PAD OF CRUSHED STONE SHALL BE LOCATED WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE TO OR FROM A PUBLIC STREET.
2. STONE TO BE 2 – 3 INCH WASHED STONE.
3. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS OR EXISTING PAVEMENT. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
4. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC STREETS MUST BE REMOVED IMMEDIATELY.
5. WHEN NECESSARY WHEELS MUST BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTERING A PUBLIC STREET. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN.
6. FILTER FABRIC SHALL BE PLACED UNDER THE ENTRANCE/EXIT AND SHALL BE MIRAFI 500 OR EQUAL.

1/C6 TEMPORARY CONSTRUCTION ENTRANCE
N.T.S.





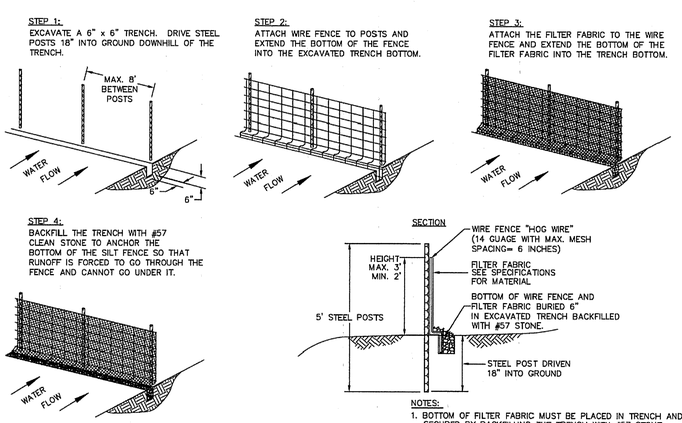
2/C6 TEMPORARY INLET PROTECTION
N.T.S.



CONSTRUCTION SPECIFICATIONS:

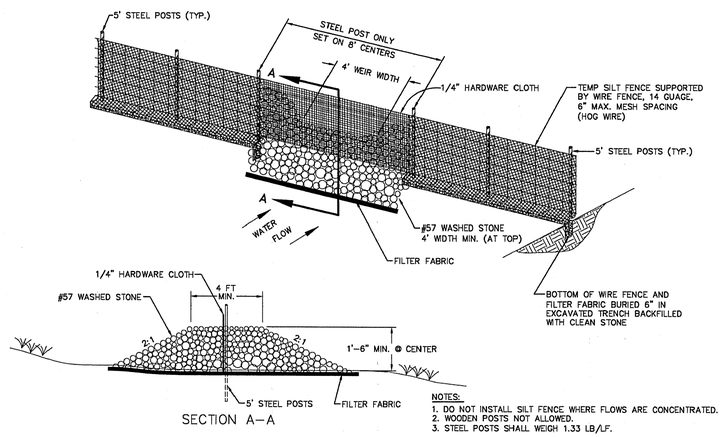
1. PLACE SLOPE DRAINS ON UNDISTURBED SOIL OR WELL-COMPACTED FILL AT LOCATIONS AND ELEVATIONS SHOWN ON THE PLANS.
2. SLIGHTLY SLOPE THE SECTION OF PIPE UNDER THE DIKE TOWARD ITS OUTLET.
3. HAND TAMP THE SOIL UNDER AND AROUND THE ENTRANCE SECTION IN LIFTS NOT TO EXCEED 6 INCHES.
4. ENSURE THAT FILL OVER THE DRAIN AT THE TOP OF THE SLOPE HAS MINIMUM DIMENSIONS OF 1.5 FT DEPTH, 4 FT TOP WIDTH AND 3:1 SIDE SLOPES.
5. ENSURE THAT ALL SLOPE DRAIN CONNECTIONS ARE WATERTIGHT.
6. ENSURE THAT ALL FILL MATERIAL IS WELL-COMPACTED. SECURELY FASTEN THE EXPOSED SECTION OF THE DRAIN WITH GROMMETS OR STAKES SPACED NO MORE THAN 10 FT APART.
7. EXTEND THE DRAIN BEYOND THE TOE OF THE SLOPE AND ADEQUATELY PROTECT THE OUTLET FROM EROSION.
8. MAKE THE SETTLED, COMPACTED DIKE RIDGE NO LESS THAN 1 FT ABOVE THE TOPE OF THE PIPE AT EVERY POINT.
9. IMMEDIATELY STABILIZE ALL DISTURBED AREAS FOLLOWING CONSTRUTION.

3/C6 TEMPORARY SLOPE DRAIN
N.T.S.



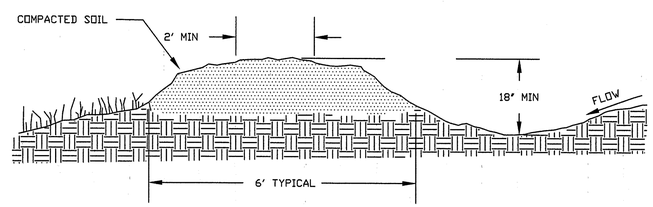
NOTES:
1. BOTTOM OF FILTER FABRIC MUST BE PLACED IN TRENCH AND SECURED BY BACKFILLING THE TRENCH WITH #57 STONE.
2. DO NOT INSTALL SILT FENCE WHERE FLOWS ARE CONCENTRATED.
3. WOODEN POSTS NOT ALLOWED.
4. STEEL POSTS SHALL WEIGH 1.33 LB/LF.

4/C6 TEMPORARY SILT FENCE
N.T.S.



NOTES:
1. DO NOT INSTALL SILT FENCE WHERE FLOWS ARE CONCENTRATED.
2. WOODEN POSTS NOT ALLOWED.
3. STEEL POSTS SHALL WEIGH 1.33 LB/LF.

5/C6 TEMPORARY SILT FENCE OUTLET
N.T.S.



6/C6 TEMPORARY DIVERSION BERM
N.T.S.

REVISIONS

1 12/22/11 PER COMMENTS
2 01/24/12 SHT NUMBER

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024697 CARL VON ISENBURG 1/25/12

NORTH CAROLINA LICENSED GEOSCIENCE & TECHNOLOGY, PA SEAL C-1179 ENGINEERING CORPORATION

FLY ASH RELOCATION
GRADING AND EROSION CONTROL PLAN
2000 LOWERY STREET
WINSTON-SALEM, NORTH CAROLINA

CONSTRUCTION DETAILS
SCALE: AS SHOWN
DATE: 12/12/11
PROJECT: 11.205
DRAWN BY: JAB
SHEET C6

Jan 25, 2012 Z:\Heroic\Geosci Projects\2011\11.205 CoWS Johnson Site\Drawings-Geosci\11.205-EC-112311-DETAILS.dwg Tab Name: DETAILS

Table 6.11a
Suitability of Soil for Establishment of Low-maintenance Vegetation

Criteria	Suitability			Limiting Factors
	Good	Fair	Poor	
pH	5.6-7.8	4.5-5.5	<4.5	Too acid; possible Al, Mn, Fe toxicity
Available water capacity[1]	>.10	.05-.10	<0.5	Too dry
Texture[2]	l, sil, si, sl	scl, sicl, cl	sc, sic, c	Too high in clay
		ls	s	Too high in sand
Coarse fragments[3] (3-10 in) (>10 in)	<15% <3%	15-35 3-10	>35 >10	Lg. stones restrict tillage; droughty
Depth to bedrock (in.)	40	20-40	<20	Insufficient rooting depth
Salinity (mmhos/cm)		8-16	>16	Excess salt

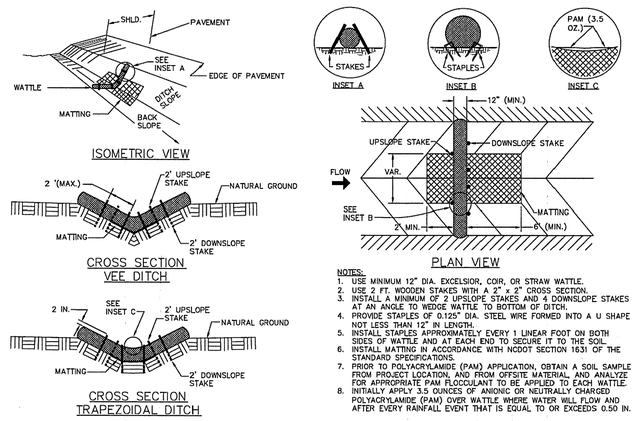
[1]In./in.

[2]Sandy clay loam (scl), silty clay loam (sicl), clay loam (cl), sandy loam (sl), silt loam (sil), loamy sand (ls), sandy clay (sc), silty clay (sic), clay (c), silt (si), sand (s), and loam (l).

[3]Percent by weight.

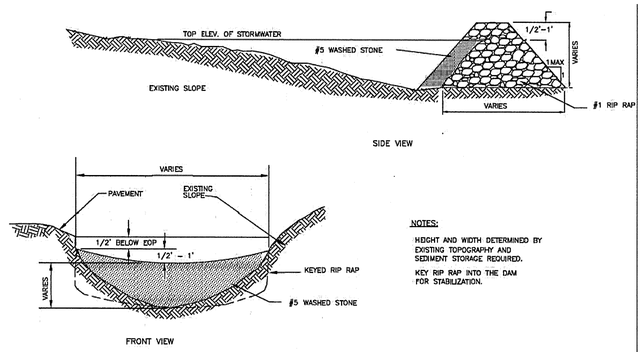
Source: *National Soils Handbook*, USDA-SCS, 1983.

1 / C7 SOIL REQUIREMENTS FOR ESTABLISHMENT OF PERMANENT VEGETATION



NOTES:
1. USE MINIMUM 12" DIA. EXCELSIOR, COIR, OR STRAW WATTLE.
2. USE 2 FT. WOODEN STAKES WITH A 2" x 2" CROSS SECTION.
3. INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
4. PROVIDE STAPLES OF 0.125" DIA. STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
5. INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
6. INSTALL MATTING IN ACCORDANCE WITH NCDOT SECTION 1631 OF THE STANDARD SPECIFICATIONS.
7. PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
8. INITIALLY APPLY 3.5 OUNCES OF ANIONIC OR NEUTRALLY CHARGED POLYACRYLAMIDE (PAM) OVER WATTLE WHERE WATER WILL FLOW AND AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.

2 / C7 TEMPORARY WATTLE DITCH CHECK DAM
N.T.S.



NOTES:
HEIGHT AND WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.
KEY RIP RAP INTO THE DAM FOR STABILIZATION.

3 / C7 PERMANENT ROCK DITCH CHECK DAM
N.T.S.

Table 6.10c
Temporary Seeding Recommendations for Fall

Seeding mixture	
Species	Rate (lb/acre)
Rye (grain)	120

Seeding dates
Mountains—Aug. 15 - Dec. 15
Coastal Plain and Piedmont—Aug. 15 - Dec. 30

Soil amendments
Follow soil tests or apply 2,000 lb/acre ground agricultural limestone and 1,000 lb/acre 10-10-10 fertilizer.

Mulch
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.

Maintenance
Repair and refertilize damaged areas immediately. Topdress with 50 lb/acre of nitrogen in March. If it is necessary to extent 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.

Table 6.11k
Seeding No. 1P for: Steep Slopes or Poor Soils; Low Maintenance

Seeding mixture	
Species[1]	Rate (lb/acre)
Tall fescue	100
Sericea lespedeza	30
Kobe lespedeza	10

Seeding notes
1. In Eastern Piedmont, add 25 lb/acre Pensacola Bahiagrass or 10 lb/ acre common Bermudagrass. Use common Bermudagrass only where it is unlikely to become a pest.
2. After Aug. 15, use unscarified sericea seed.
3. Where a neat appearance is desired, omit sericea and substitute 40 lb/acre Bahiagrass or 15 lb/acre Bermudagrass.
4. To extend spring seeding dates into June, add 15 lb/acre hulled Bermudagrass. However, it is preferable to seed temporary cover and seed fescue in Sept.

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
Fall:	Aug. 25 - Sept. 15	Aug. 20 - Oct. 25
Late Winter:	Feb. 15 - Mar. 21	Feb. 1 - Apr. 15

Fall is best for tall fescue, and lespedezas in late winter. Overseeding of Kobe lespedeza over fall-seeded tall fescue is very effective. Use unhulled Bermudagrass seed in fall.

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 4,000-5,000 lb/acre grain straw or equivalent cover of another suitable mulching material. Anchor mulch by tacking with asphalt, roving, or netting. Netting is the preferred anchoring method on steep slopes.

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

[1]Refer to *Appendix 8.02* for botanical names.

6.11.19

Table 6.11l
Seeding No. 2P for: Gentle Slopes, Average Soil; Low Maintenance

Seeding mixture	
Species[1]	Rate (lb/acre)
Tall fescue	80
Sericea lespedeza	20
Kobe lespedeza	10

Seeding notes
1. After Aug. 15, use unscarified sericea seed.
2. Where periodic mowing is planned or a neat appearance is desired, omit sericea and increase Kobe lespedeza to 40 lb/acre.
3. To extend spring seeding dates into June, add 15 lb/acre hulled Bermudagrass. However, after mid-Apr. it is preferable to seed temporary cover.

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
Fall:	Aug. 25 - Sept. 15	Aug. 20 - Oct. 25
Late Winter:	Feb. 15 - Mar. 21	Feb. 1 - Apr. 15

Fall is best for tall fescue and late winter for lespedezas. Overseeding of Kobe lespedeza over fall-seeded tall fescue is very effective.

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 or equivalent cover of another suitable mulch. 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 a year, but mowing is not necessary. Reseed, fertilize, and mulch damaged areas immediately.

[1]Refer to *Appendix 8.02* for botanical names.

6.11.20

Table 6.11o
Seeding No. 5P for: Grass-lined Channels

Seeding mixture	
Species[1]	Rate (lb/acre)
Tall fescue	200 (4-5 lb/1,000 ft²)

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

Seeding dates
Best: Aug. 25 - Oct.

Possible: Feb. - Apr. 15

Avoid seeding from Nov. to Jan. If seeding must be done at this time, add 40 lb/acre rye grain and use a channel lining that offers maximum protection.

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. Operate tillage equipment across the waterway.

Mulch
Use a rolled erosion control product to cover the bottom of channels and ditches, and staple securely. The lining should extend above the highest calculated depth of flow. On channel side slopes above this height, and in drainages not requiring temporary linings, apply 4,000 lb/acre grain straw, and anchor straw by stapling netting over the top.

Mulch and anchoring materials must not be allowed to wash down slopes where they can clog drainage devices.

Maintenance
Inspect and repair mulch frequently. Refertilize in late winter of the following year; use soil tests or apply 150 lb/acre 10-10-10. Mow regularly to a height of 2-4 inches.

[1]Refer to *Appendix 8.02* for botanical names.

6.11.23

4 / C7 TEMPORARY SEEDING SPECIFICATION

5 / C7 PERMANENT SEEDING SPECIFICATION

NOTE: IT IS THE CONTRACTORS RESPONSIBILITY TO ESTABLISH PROTECTIVE GROUND COVER ON BARE AREAS. THE SUITABILITY OF THE SEEDING SPECIFICATIONS SHOWN ON THIS PLAN FOR THE SOIL CONDITIONS AT THE SITE SHALL BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL OBTAIN REPRESENTATIVE SOIL SAMPLES AND CONTACT THE AGRICULTURAL EXTENSION SERVICE (OR OTHER QUALIFIED AGENCY) TO DETERMINE WHAT SOIL MODIFICATIONS (IF ANY) MAY BE REQUIRED TO ENSURE OPTIMUM GROWING CONDITIONS DURING THE GROUND COVER GROWTH CYCLE. SINCE SOIL QUALITY AND TYPE MAY VARY DURING THE COURSE OF THE PROJECT, NUMEROUS ADJUSTMENTS MAY BE REQUIRED.

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NORTH CAROLINA PROFESSIONAL SEAL 024667 ENGINEER CARL VON ISENBURG — 1/24/12

NORTH CAROLINA LICENSED ENGINEERING CORPORATION SEAL C-1179 GEOSCIENCE & TECHNOLOGY, PA

FLY ASH RELOCATION
GRADING AND EROSION CONTROL PLAN
2000 LOWERY STREET
WINSTON-SALEM, NORTH CAROLINA

CONSTRUCTION DETAILS
SCALE: AS SHOWN
DATE: 12/12/11
PROJECT: 11.205
DRAWN BY: JAB
SHEET C7

Jan 25, 2012 Z:\here\A Geosci Projects\2011\11.205 CoWS Bohnson Site\Drawings-Geosci\11.205-EC-112311-DETAILS.dwg Tab Name: DETAILS (2)

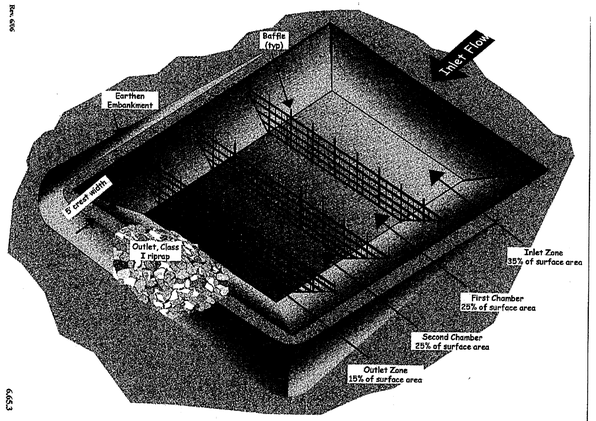


Figure 6.65c Example of porous baffle using silt fence with slits cut in each alternating space of wire backing fence. (City of High Point, NC detail.)

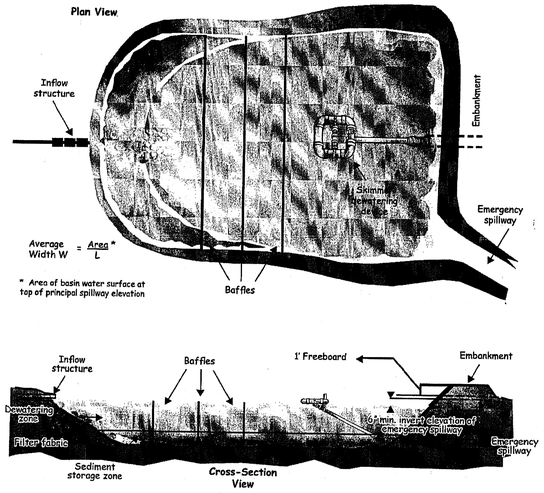


Figure 6.64c Example of a sediment basin with a skimmer outlet and emergency spillway. From Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

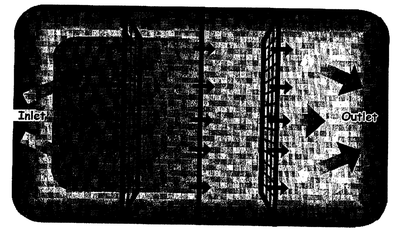


Figure 6.65a Porous baffles in a sediment basin. The flow is distributed evenly across the basin to reduce flow rates and turbulence, resulting in greater sediment retention.

Baffles need to be installed correctly in order fully provide their benefits. Refer to Figure 6.65b and the following key points:

- The baffle material needs to be secured at the bottom and sides using staples or by trenching as for silt fence.
- Most of the sediment will accumulate in the first bay, so this should be readily accessible for maintenance.

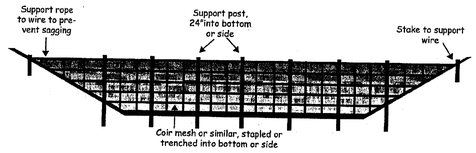


Figure 6.65b Cross-section of a porous baffle in a sediment basin. Note that there is no weir because the water flows through the baffle material.

1 / C8 TEMPORARY SEDIMENT SKIMMER BASIN
N.T.S.

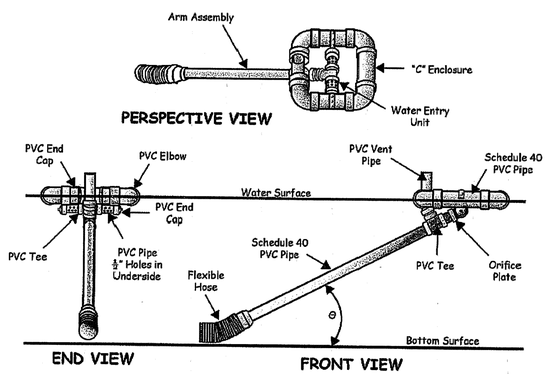
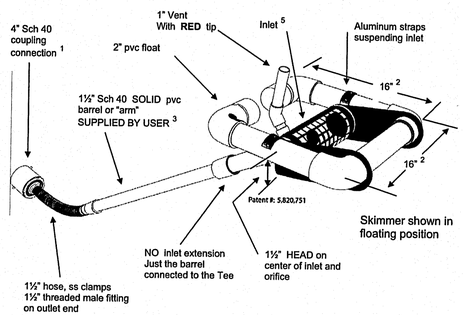


Figure 6.64a Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

1½" *Faircloth Skimmer®* Cut Sheet
J. W. Faircloth & Son, Inc.
www.FairclothSkimmer.com



1. Skimmer can be attached to a straight 4" sch 40 pipe through the dam but the pipe may need to be anchored to the bottom at the connection so it is secure. Coupling can be removed and hose attached to outlet using the threaded 1½" fitting. Typical methods used: on a metal structure a steel stubout welded on the side at the bottom side with a 1½" threaded coupling or reducers; on a concrete structure with a hole or orifice at the bottom, use a steel plate with a hole cut in it and coupling welded to it that will fit over the hole in the concrete and bolted to the structure with sealant; grout a 4" pvc pipe in a hole in the concrete to connect the skimmer.
2. Dimensions are approximate, not intended as plans for construction.
3. Barrel (solid, not foam core pipe) should be 1.4 times the depth of water with **a maximum length of 6'** so the inlet can be pulled to the side for maintenance. Skimmer is made for small sediment "traps" with a maximum depth of 4'.
4. Inlet is 3" pipe between the straps with aluminum screen door for access to the 1½" inlet and orifice inside.
5. **Capacity** 1,728 cubic feet per day maximum with 1½" inlet and 1½" head. Inlet can be reduced by installing a smaller orifice using the plug and cutter provided to adjust flow rate for the particular basin volume and drawdown time required.
6. Shipped assembled. User glues inlet extension and barrel, installs vent, cuts orifice in plug and attaches to outlet pipe or structure. Includes flexible hose, rope, orifice cutter, etc.

1-5inchCut TM 11-07 November 14, 2007

2 / C8 1-1/2" FAIRCLOTH SKIMMER (BASIC DETAIL)
N.T.S.

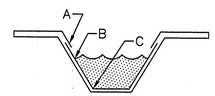
CHANNEL INSTALLATION

NOTE: HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

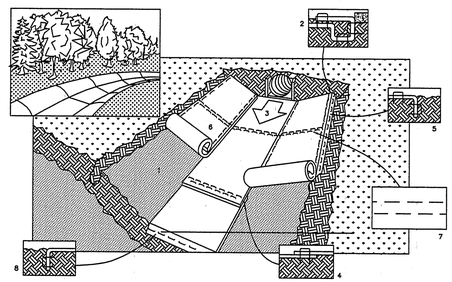
IMPORTANT NOTE:

REFER TO GENERAL STAPLE PATTERN GUIDE FOR CORRECT STAPLE RECOMMENDATIONS FOR CHANNELS.

CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES



NOTE: CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO ENSURE VEGETATION IS ESTABLISHED THROUGH PERMANENT MATTING. IT IS RECOMMENDED THAT THE CONTRACTOR CONSULT WITH MANUFACTURER PRIOR TO INSTALLATION. IF VEGETATION IS NOT ESTABLISHED, THE MATTING WILL BE REMOVED AND REINSTALLED.



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED.

2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW ON BOTTOM OF CHANNEL.

4. PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH A 6" OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES 4" APART TO SECURE BLANKETS.

5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

6. BLANKETS ON SIDE SLOPES MUST BE OVERLAPPED 4" OVER THE CENTER BLANKET AND STAPLED (2" FOR C350 MATTING).

7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A ROW OF STAPLES 4" APART OVER ENTIRE WIDTH OF THE CHANNEL. PLACE A SECOND ROW 4" BELOW THE FIRST ROW IN A STAGGERED PATTERN.

8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

3 / C8 PERMANENT DITCH REINFORCEMENT
N.T.S.

REVISIONS

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024667 CARL VON ISENBURG 1/25/12

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FLY ASH RELOCATION
GRADING AND EROSION CONTROL PLAN
2000 LOWERY STREET
WINSTON-SALEM, NORTH CAROLINA

CONSTRUCTION DETAILS
SCALE: AS SHOWN
DATE: 12/12/11
PROJECT: 11.205
DRAWN BY: JAB
SHEET C8

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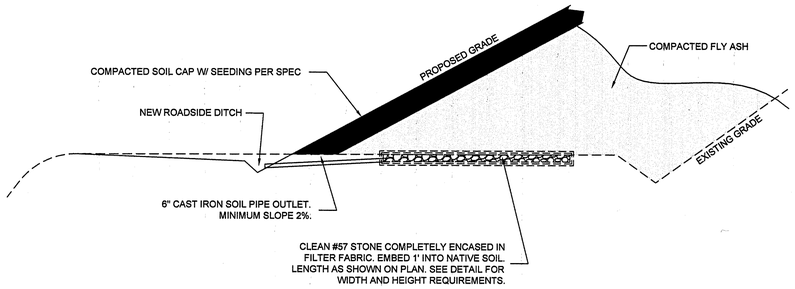
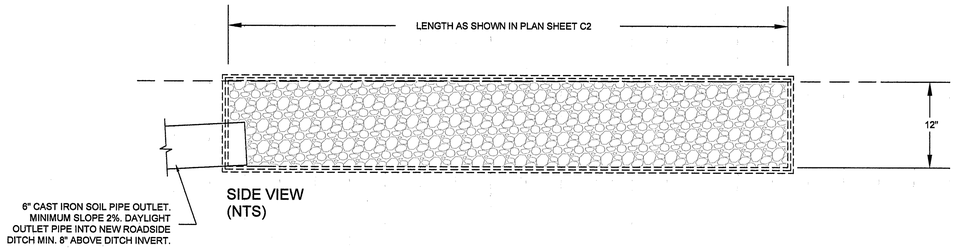
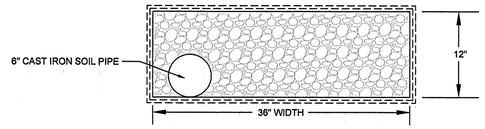


TYPICAL INSTALLATION
(NTS)

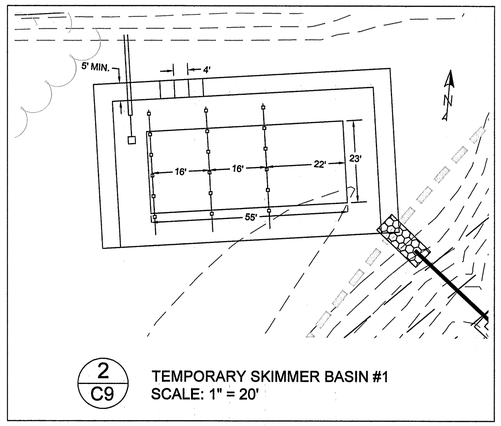


SIDE VIEW
(NTS)

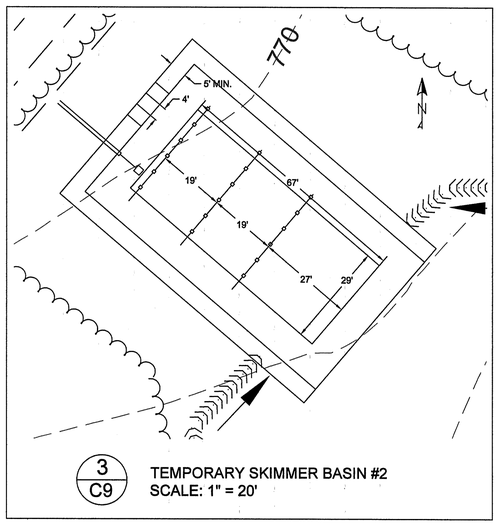


FRONT VIEW
(NTS)

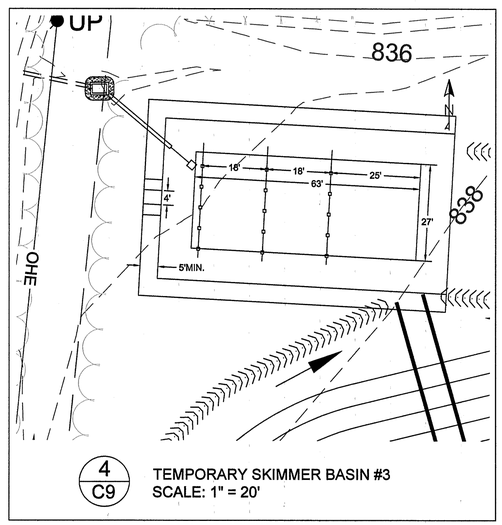
1/C9 FABRIC/STONE INTERCEPTOR DRAIN
N.T.S.



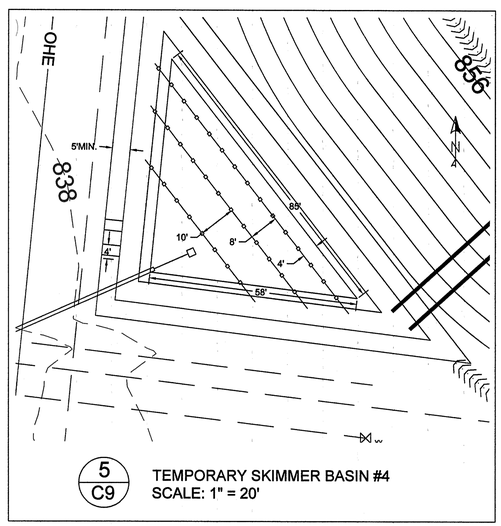
2/C9 TEMPORARY SKIMMER BASIN #1
SCALE: 1" = 20'



3/C9 TEMPORARY SKIMMER BASIN #2
SCALE: 1" = 20'



4/C9 TEMPORARY SKIMMER BASIN #3
SCALE: 1" = 20'



5/C9 TEMPORARY SKIMMER BASIN #4
SCALE: 1" = 20'

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FLY ASH RELOCATION
GRADING AND EROSION CONTROL PLAN
2000 LOWERY STREET
WINSTON-SALEM, NORTH CAROLINA

CONSTRUCTION DETAILS

SCALE: AS SHOWN

DATE: 12/12/11

PROJECT: 11.205

DRAWN BY: JAB

SHEET C9

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MAINTENANCE PLAN

TEMPORARY DIVERSIONS

INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.

TEMPORARY SEDIMENT TRAPS

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 DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN 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 ENSURE 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.

SILT FENCE

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 BURLAP 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.

SEDIMENT BASINS

CHECK SEDIMENT BASINS AFTER PERIODS OF SIGNIFICANT RUNOFF. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA.

CLEARING & GRADING NOTES

1. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ASSUMING THE RESPONSIBILITY OF MAINTAINING ANY EXISTING EROSION CONTROL DEVICES WITHIN THE DISTURBED LIMITS THAT WERE INSTALLED BY OTHERS.

2. CLEARING LIMITS SHALL BE CLEARLY DEFINED PRIOR TO BEGINNING CLEARING OPERATIONS. CLEARING DEBRIS SHALL BE PROPERLY DISPOSED OF OFFSITE IN A PERMITTED LANDFILL FACILITY. TREES OUTSIDE OF THE CLEARING LIMITS SHALL BE PROTECTED DURING CONSTRUCTION.

3. NO CLEARING OR GRADING WORK SHALL COMMENCE UNTIL SEDIMENTATION AND EROSION CONTROL APPROVAL AND GRADING PERMIT HAS BEEN ISSUED AND ALL SEDIMENTATION AND EROSION CONTROL MEASURES FOR THE DISTURBED AREA ARE IN PLACE.

4. ALL CONSTRUCTION FOR EROSION CONTROL STRUCTURES SHALL BE IN ACCORDANCE WITH NCDENR EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL OR CITY OF WINSTON-SALEM STANDARDS.

5. GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL EROSION CONTROL PRACTICES REQUIRED TO MINIMIZE EFFECTS ON ADJACENT PROPERTIES DURING CONSTRUCTION. EROSION CONTROL PRACTICES SHALL BE CONTINUED IN ACCORDANCE WITH THE DETAILS AND ARE TO BE MAINTAINED UNTIL CONTRIBUTING AREAS ARE STABILIZED.

6. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FOLLOWING THE EROSION CONTROL SEQUENCE.

7. PRIOR TO PLACING FILL, ALL FILL AREAS SHALL BE STRIPPED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER TO REMOVE TOPSOIL, STUMPS, ROOTS, ORGANICS AND OTHER UNSUITABLE MATERIAL. STRIPPINGS SHALL BE STOCKPILED AS SHOWN ON THE PLAN STRIPPINGS MAY BE USED FOR BERMING AS DIRECTED BY THE OWNER.

8. THE DISPOSAL OF DEBRIS IS NOT ALLOWED ON SITE.

EROSION & SEDIMENTATION CONTROL NOTES

1. SITE DISTURBED AREA= 126.80 ACRES +/

2. A GRADING PERMIT SHALL BE OBTAINED FROM NCDENR, LAND QUALITY SECTION PRIOR TO ANY LAND DISTURBING ACTIVITY ON THE SITE.

3. CLEARING LIMITS SHALL BE CLEARLY DEFINED PRIOR TO BEGINNING CLEARING OPERATIONS. CLEARING DEBRIS SHALL BE PROPERLY DISPOSED OF OFFSITE IN A PERMITTED LANDFILL FACILITY. TREES OUTSIDE THE CLEARING LIMITS SHALL BE PROTECTED DURING CONSTRUCTION.

4. THE EROSION AND SEDIMENTATION CONTROL PLAN IS INTENDED AS A GUIDE. AFTER GRADING BEGINS, ADDITIONAL MEASURES MAY BE NECESSARY TO CONTROL SEDIMENTATION AND EROSION ONSITE. IF SO, ADDITIONAL MEASURES SHALL BE INSTALLED AS DIRECTED BY THE NCDENR, LAND QUALITY SECTION INSPECTOR.

5. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NCDENR -LAND QUALITY SECTION'S EROSION AND SEDIMENTATION CONTROL PLANNING AND DESIGN MANUAL.

6. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED IN ACCORDANCE WITH THE PERMANENT SEEDING SCHEDULE WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS, WHICHEVER IS SHORTER, AFTER COMPLETION OF CONSTRUCTION OR DEVELOPMENT. ALL SLOPES SHALL BE SEEDED AND MULCHED WITHIN 15 WORKING DAYS OR 30 CALENDAR DAYS, WHICHEVER IS SHORTER, AFTER COMPLETION OF ANY PHASE OF GRADING.

7. ALL SLOPE SURFACES SHALL BE ROUGHENED USING TRACKED EQUIPMENT TO MINIMIZE EROSION UNTIL SEEDING IS DONE.

8. CONTRACTOR IS RESPONSIBLE FOR ALL EROSION CONTROL PRACTICES REQUIRED TO MINIMIZE EFFECTS ON ADJACENT PROPERTIES DURING CONSTRUCTION. EROSION CONTROL PRACTICES SHALL BE CONTINUED IN ACCORDANCE WITH DETAILS AND ARE TO BE MAINTAINED UNTIL CONTRIBUTING AREAS ARE STABLE.

9. PROPERTY OWNER IS RESPONSIBLE FOR ALL PERMANENT MEASURES AFTER CONSTRUCTION IS COMPLETE AND CONTRACTOR IS RELEASED.

10. ALL DISTURBED AREAS NOT OTHERWISE DELINEATED FOR BUILDING, PAVING, SOD, STONE, OR RIPRAP SHALL BE PERMANENTLY SEEDED AS SOON AS POSSIBLE IN ACCORDANCE WITH PERMANENT SEEDING SPECIFICATIONS SHOWN ON THE PLANS.

11. INSPECT AND REPAIR ALL EROSION CONTROL DEVICES ON A WEEKLY BASIS AND INSPECT AND REPAIR IMMEDIATELY FOLLOWING ANY RAINFALL.

12. ANY BORROW SHALL COME FROM A SITE OR SPOIL SHALL BE PLACED ON A SITE APPROVE BY THE PROPER JURISDICTION HAVING APPROVAL AUTHORITY OVER THE SITE.

1) Construction Site Pollutants

Permittee must manage activities on the site such that water quality standards are not violated from site activities or allowed discharges. In addition to stream pollution from sediment discharge, other activities on construction and development sites can result in pollutants reaching the state's waters. EPA has prepared guidance documents that provide best management practices that address many activities. See http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=min_measure&min_measure_id=4

The following activities, and others on a site-specific basis, require oversight throughout the construction and development process to assure that all water quality standards are protected:

a) Equipment Operation and Maintenance - Equipment utilized during the construction activity on a site must be operated and maintained in such a manner as to prevent the potential or actual pollution of the surface or ground waters of the state. Fuels, lubricants, coolants, and hydraulic fluids, or any other petroleum products, shall not be discharged onto the ground or into surface waters. Spent fluids shall be cleaned up and disposed of in a manner so as not to enter the waters, surface or ground, of the state and in accordance with applicable state and federal regulations.
b) Material Handling - Herbicide, pesticide, and fertilizer usage during the construction activity shall be consistent with the Federal Insecticide, Fungicide, and Rodenticide Act and shall be in accordance with label restrictions.
c) Building Material Waste Handling
   i) All wastes composed of building materials shall be disposed of in accordance with North Carolina General Statutes, Chapter 130A, Article 9 - Solid Waste Management, and rules governing the disposal of solid waste (North Carolina Administrative Code Section 15A NCAC 13B).
   ii) Locate areas dedicated for management of land clearing and demolition debris, construction and domestic waste, and hazardous or toxic waste. This location shall be at least 50 feet away from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available.
   iii) Dumping of paint and other liquid building material wastes in storm drains is prohibited.
   iv) Litter and Sanitary Waste - The permittee shall control the management and disposal of litter and sanitary waste from the site.
d) Location of Stock Piles - Locate earthen-material stock pile areas at least 50 feet away from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available.
e) Handling of Concrete
   i) Concrete materials onsite, including excess concrete, must be controlled and managed to avoid contact with surface waters, wetlands or buffers. No concrete or cement slurry shall be discharged from the site. (Note that discharges from onsite concrete plants require coverage under a separate NPDES permit – NCG140000.)
   ii) Any hardened concrete residue will be disposed of, or recycled on site, in accordance with local and state solid waste regulations.

2) Ground Stabilization

a) Soil stabilization shall be achieved on any area of a site where land-disturbing activities have temporarily or permanently ceased according to the following schedule:
   i) All perimeter dikes, swales, ditches, perimeter slopes and all slopes steeper than 3 horizontal to 1 vertical (3:1) shall be provided temporary or permanent stabilization with ground cover as soon as practicable but in any event within 7 calendar days from the last land-disturbing activity.
   ii) All other disturbed areas shall be provided temporary or permanent stabilization with ground cover as soon as practicable but in any event within 14 calendar days from the last land-disturbing activity.
b) Conditions - In meeting the stabilization requirements above, the following conditions or exemptions shall apply:
   i) Extensions of time may be approved by the permitting authority based on weather or other site-specific conditions that make compliance impracticable.
   ii) All slopes 50' in length or greater shall apply the ground cover within 7 days except when the slope is flatter than 4:1. Slopes less than 50' shall apply ground cover within 14 days except when slopes are steeper than 3:1, the 7 day-requirement applies.
   iii) Any sloped area flatter than 4:1 shall be exempt from the 7-day ground cover requirement.
   iv) Slopes 10' or less in length shall be exempt from the 7-day ground cover requirement except when the slope is steeper than 2:1.
   v) Although stabilization is usually specified as ground cover, other methods, such as chemical stabilization, may be allowed on a case-by-case basis.
   vi) For portions of projects within the Sediment Control Commission-defined "High Quality Water Zone" (15A NCAC 04A. 0105) , stabilization with ground cover shall be achieved as soon as practicable but in any event on all areas of the site within 7 calendar days from the last land-disturbing act.
   vii) Portions of a site that are lower in elevation than adjacent discharge locations and are not expected to discharge during construction may be exempt from the temporary ground cover requirements if identified on the approved E&SC Plan or added by the permitting authority.

3) Self Inspection and Reporting Requirements

Minimum self inspection and reporting requirements are as follows unless otherwise approved in writing by the Division of Water Quality.

a) A rain gauge shall be maintained in good working order on the site unless another rain-monitoring device has been approved by the Division of Water Quality.
b) A written record of the daily rainfall amounts shall be retained and all records shall be made available to Division of Water Quality or authorized agent upon request. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, the cumulative rain measurement for those un-attended days will determine if a site inspection is needed. (Note: if no rainfall occurred, the permittee must record "zero").
c) Erosion and sedimentation control measures shall be inspected to ensure that they are operating correctly. Inspection records must be maintained for each inspection event and for each measure. At a minimum, inspection of measures must occur at the frequency indicated below:
   i) All erosion and sedimentation control measures must be inspected by or under the direction of the permittee at least once every seven calendar days, and
   ii) All erosion and sediment control measures must be inspected by or under the direction of the permittee within 24 hours after any storm event of greater than 0.50 inches of rain per 24 hour period.
d) Once land disturbance has begun on the site, stormwater runoff discharge outfalls shall be inspected by observation for erosion, sedimentation and other stormwater discharge characteristics such as clarity, floating solids, and oil sheens. Inspections of the outfalls shall be made at least once every seven calendar days and within 24 hours after any storm event of greater than 0.50 inches of rain per 24 hour period.
e) Inspections are only required to be made during normal business hours. When adverse weather conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection can be delayed until it is deemed safe to perform these duties. (Times when inspections were delayed because of safety issues should be noted in the Inspection Record.) If the inspection cannot be done on that day, it must be completed on the following business day.
f) Twenty-four Hour Reporting for visible sediment deposition
   i) The permittee shall report to the Division of Water Quality central office or the appropriate regional office any visible sediment being deposited in any stream or wetland or any noncompliance which may endanger health or the environment. (See Section VIII of this permit for contact information.) Any information shall be provided orally or electronically within 24 hours from the time the permittee became aware of the circumstances.
   ii) A written submission shall be provided to the appropriate regional office of the Division of Water Quality within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the sediment deposition and actions taken to address the cause of the deposition. The Division of Water Quality staff may waive the requirement for a written report on a case-by-case basis.
g) Records of inspections made during the previous 30 days shall remain on the site and available for agency inspectors at all times during normal working hours, unless the Division of Water Quality provides a site-specific exemption based on unique site conditions that make this requirement not practical. Older records must be maintained for a period of three years after project completion and made available upon request. The records must provide the details of each inspection including observations, and actions taken in accordance with this permit. The permittee shall record the required rainfall and monitoring observations on the Inspection Record form provided by the Division or a similar inspection form that is inclusive of all of the elements contained in the Division's form. Use of electronically-available records, in lieu of the required paper copies for inspection will be allowed if shown to provide equal access and utility as the hard-copy records.
h) Inspection records must include, at a minimum, the following:
   i) Control Measure Inspections: Inspection records must include at a minimum: 1) identification of the measures inspected, 2) date and time of the inspection, 3) name of the person performing the inspection, 4) indication of whether the measures were operating properly, 5) description of maintenance needs for the measure, 6) corrective actions taken (7) date of actions taken, as well as the date and amounts of rainfall received.
   ii) Stormwater Discharge Inspections: Inspection records must include at a minimum: 1) identification of the discharge outfall inspected, 2) date and time of the inspection, 3) name of the person performing the inspection, 4) evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5) indication of visible sediment leaving the site, 6) actions taken to correct/prevent sedimentation and 7) date of actions taken.
   iii) Visible Sedimentation Found Outside the Site Limits: Inspection records must include: 1) an explanation as to the actions taken to control future releases, 2) actions taken to clean up or stabilize the sediment that has left the site limits and 3) the date of actions taken.
   iv) Visible Sedimentation Found in Streams or Wetlands: All inspections should include evaluation of streams or wetlands onsite or offsite (where accessible) to determine if visible sedimentation has occurred.
i) Visible Stream Turbidity - If the discharge from a site results in an increase in visible stream turbidity, inspection records must record that evidence and actions taken to reduce sediment contributions. Sites discharging to streams named on the state's 303(d) list as impaired for sediment-related causes may be required to perform additional monitoring, inspections or

application of more-stringent management practices if it is determined that the additional requirements are needed to assure compliance with the federal or state impaired-waters conditions. If a discharge covered by this permit enters a stream segment that is listed on the Impaired Stream List for sediment-related causes, and a Total Maximum Daily Load (TMDL) has been prepared for those pollutants, the permittee must implement measures to ensure that the discharge of pollutants from the site is consistent with the assumptions and meets the requirements of the approved TMDL. The Division of Water Quality 303(d) list can be found at: http://h2o.enr.state.nc.us/tmdl/General_303d.htm/

4.) Sediment Basins

Sediment basins and traps shall meet the following requirements:

a) Outlet structures shall be utilized that withdraw water from the surface.
b) For basins or traps that have a drainage area of less than 1.0 acre, draw-down designs specified in the Division of Land Resources or delegated local program requirements are acceptable.
c) Chemical treatment
   i) All treatment chemicals must be stored in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures designed to protect adjacent surface waters.
   ii) All treatment chemicals must be used in accordance with dosing specifications and application rates provided by the manufacturer, supplier and as specified by the Division of Water Quality.
   iii) The Permittee must only use chemicals that have been approved by the NC Division of Water Quality and posted on their "North Carolina Division of Water Quality Approved PAMS/Flocculants List" found on their web site at: http://portal.ncdenr.org/web/wq/ws/su ,
   iv) The Permittee must route stormwater treated with polymers, flocculants, or other treatment chemicals through sediment trapping, filtering, and/or settling devices(s) to ensure adequate removal of sediment flocculent prior to discharge to surface waters.
d) Discharge requirement - Discharges must meet the statutory requirements of the Sediment Pollution Control Act and utilize the provisions of Section 6.74 of the Erosion and Sediment Control Planning and Design Manual to assure that buffers and vegetated areas will be used to reduce the potential for visible siltation outside of the 25% buffer zone nearest the land-disturbing activity.

NPDES Stormwater Discharge Permit for Construction Activities (NCGO1) — NCDENR/Division of Water Quality

NEW STABILIZATION TIMEFRAMES
(Effective Aug. 3, 2011)

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
Perimeter dikes, swales, ditches, slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.

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CONSTRUCTION NOTES AND SPECIFICATIONS

SCALE: AS SHOWN

DATE: 12/12/11

PROJECT: 11.205

DRAWN BY: JAB

SHEET C10

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The following shall apply to this project as applicable per the current North Carolina Administrative Code (NCAC):

Section 15A NCAC 13B .1701 - DEFINITIONS

(1) "Beneficial and beneficial use" means projects promoting public health and environmental protection, offering equivalent success relative to other alternatives, and preserving natural resources.

(2) "Coal combustion by-products" means residuals, including fly ash, bottom ash, boiler slag and flue gas desulfurization residue produced by coal fired electrical or steam generation units.

(3) "Jurisdictional wetland" means those areas that meet the criteria established by the United States Environmental Protection Agency for delineating wetlands and are considered by the Division to be waters of the United States.

(4) "Structural fill" means an engineered fill with a projected beneficial end use constructed using coal combustion by-products properly placed and compacted.

Section 15A NCAC 13B .1705 - DESIGN, CONSTRUCTION, AND OPERATION FOR STRUCTURAL FILL FACILITIES

(a) The structural fill facility must be designed, constructed, operated, closed, and maintained in such a manner as to minimize the potential for harmful release of constituents of coal combustion by-products to the environment or create a nuisance to the public.

(b) Coal combustion by-products 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, and transported in covered trucks to prevent dusting.

(c) Coal combustion by-products shall be placed uniformly and compacted in lifts not exceeding one foot 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.

(d) Equipment shall be provided which is capable of placing and compacting the coal combustion by-products and handling the earthwork required during the periods that coal combustion by-products are received at the fill area.

(e) The coal combustion by-product structural fill facility shall be effectively maintained and operated as a non-discharge system to prevent discharge to surface water resulting from the operation of the facility.

(f) The coal combustion by-product structural fill facility shall be effectively maintained and operated to ensure no violations of ground water standards, 15A NCAC 2L.

(g) Surface waters resulting from precipitation shall be diverted away from the active coal combustion by-product placement area during filling and construction activity.

(h) Site development shall comply with the North Carolina Sedimentation Pollution Control Act of 1973, as amended.

(i) The structural fill project must be operated with sufficient dust control measures to minimize airborne emissions and to prevent dust from creating a nuisance or safety hazard and must not violate applicable air quality regulations.

(j) All structural fills shall be covered with a minimum of 12 inches compacted earth, and an additional surface six inches of soil capable of supporting native plant growth.

(k) Compliance with these standards does not insulate any of the owners or operators from claims for damages to surface waters, ground-water or air resulting from the operation of the structural fill facility. If the facility fails to comply with the requirements of this Section, the constructor, generator, owner or operator shall notify the Division and shall take such immediate corrective action as may be required by the Department.

(l) Coal combustion by-products utilized on an exterior slope of a structural fill shall not be placed with a slope greater than 3.0 horizontal to 1.0 vertical.

Section15A NCAC 13B .1707 - RECORDATION OF STRUCTURAL FILL FACILITIES

(a) The owners of land where coal combustion by-products have been utilized in volumes of more than 1,000 cubic yards shall file a statement of the volume and locations of the coal combustion by-products with the Register of Deeds in the county or counties where the property is located. The statement shall identify the parcel of land according to the complete legal description on the recorded deed, either by metes and bounds, or by reference to a recorded plat map. The statement shall be signed and acknowledged by the landowners(s) in the form prescribed by G.S. 47-38 through 47-43.

(b) Recordation shall be required within 90 days after completion of coal combustion by-product fill project.

(c) The Register of Deeds in accordance with G.S. 161-14 shall record the notarized statement and index it in the Grantor Index under the name of the owner(s) of the land. The original notarized statement with the Register's seal and the date, book and page number of recording shall be returned to the Division after recording.

(d) When property with more than 1,000 cubic yards of coal combustion by-products 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.

Section 15A NCAC 13B .1709 - STORAGE AND CONTAINMENT OF COAL COMBUSTION BY-PRODUCTS .

(a) Coal combustion by-products may not be stored or speculatively accumulated at the immediate area where they will be put to beneficial use for a longer period of time than necessary to complete the project. Coal combustion by-products are not being speculatively accumulated when a minimum of 75 percent of the coal combustion by-products are removed from the facility and beneficially used annually.

(b) Compliance with this Section does not exempt the owner or operator of the structural fill facility from applicable North Carolina Water Pollution Control Regulations (15A NCAC 2H), the North Carolina Air Pollution Control Regulations (15A NCAC 2D) and all other federal, state and local laws and regulations.

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