

EROSION AND SEDIMENTATION CONTROL NARRATIVE

PROJECT DESCRIPTION
 The purpose of this project is for the construction of a Hardee's Restaurant. The project is owned by Boddie-Noell Enterprises Inc. The site is currently vacant. Approximately 1.73 acres will be disturbed during construction.
 The project is scheduled to begin construction in Fall 2019 with project completion and final stabilization by Spring 2020. The erosion and sediment control program for this project will include the installation of a suitable construction entrance, silt fence, and inlet protection with seeding.

ADJACENT PROPERTY
 The adjacent property is commercial.
SOILS
 The soil at this site is a sandy clay.

EROSION AND SEDIMENT CONTROL MEASURES
 All vegetative and structural erosion and sediment control practices shall be constructed and maintained by the contractor according to these plans and specifications and the minimum standards of the Dept. of Environmental Management, Land Quality Section and Prince George County. The contractor shall also follow any additional requirements as outlined by the Project Engineer.

Structural Practices
 1. Vehicle wheels shall be clean when leaving the site to prevent the tracking of mud on paved roads.
 2. Construction Road Stabilization: Construction traffic shall be limited to stabilized areas. At a minimum, a temporary gravel construction entrance shall be provided as shown on this drawing.
 3. Silt Fence: Silt fences shall be provided where shown and as needed on the site plan. These barriers shall be used to contain sediment.
 4. Rip Rap/Gravel Filter Sediment Basin: Construct basin to the shape and dimensions shown in the details. The basin is to be placed below the existing ditch flow line by 2' with the berm built above as dimensioned.

Vegetative Practices (Ground Stabilization)

Site Area Description:	Stabilization Time Frame:	Stabilization Time Frame Exceptions:
Perimeter dikes, swales, ditches & slopes.	7 Days	None
High Quality Water (HOW) Zones.	7 Days	None
Slope steeper than 3:1	7 Days	None
Slopes 3:1 or flatter.	10 Days	7 Days for slopes greater than 50 feet in length.

Seeding Schedule

Grading Activity Land left exposed shall be planted or otherwise provided with temporary ground cover, devices, or structures sufficient to restrain erosion within the applicable time period after completion of any phase of grading or period of inactivity as follows: seven (7) days for steep slope or inclination, ten (10) days for a moderate slope, fourteen (14) days for land with no slope or inclination. For purposes of this section, a moderate slope means an inclined area, the inclination of which is less than or equal to three (3) units of horizontal distance to one (1) unit of vertical distance; and a steep slope means an inclined area, the inclination of which is greater than three (3) units of horizontal distance to one (1) unit of vertical distance. No other criteria apply.
Completed Activity For any area of land-disturbing activity where grading activities have been completed, temporary or permanent ground cover sufficient to restrain erosion shall be provided as soon as practicable, but in no case later than seven (7) days after completion of grading.

Management Strategies

1. Perimeter measures are to be installed prior to grubbing or grading.
 2. Tail Ditches shall be stabilized immediately following their construction. As an alternate, rock check dams may be provided at their outlets and/or the terminal downstream end of disturbance until ground cover is implemented.
 3. Stockpile and/or waste areas must be maintained within the limits of the areas protected by the proposed measures and otherwise temporarily seeded if to be left stockpiled over 15 days.
 4. Construction shall be planned so that grading operations can begin and end as quickly as possible.
 5. Silt Fences shall also be installed prior to or as a first step in construction.
 6. The Contractor shall be responsible for the installation and maintenance of all erosion and sediment control practices.

Vegetative Ground Cover

Immediately following grading, all areas shall receive either permanent or temporary seeding, as applicable, as follows:

TEMPORARY SEEDING SPECIFICATIONS

BETWEEN MAY 1 AND AUGUST 15, ADD 40 LB/ACRE GERMAN MILLET. PRIOR TO MAY 1 OR AFTER AUGUST 15, ADD 120 LB/ACRE RYE (GRAIN).
 FALL IS BEST FOR TALL FESCUE AND LATE WINTER FOR LESPEDEZAS. OVERSEEDING OF KOBE LESPEDEZAS OVER THE FALL SEEDED TALL FESCUE IS VERY EFFECTIVE. USE UNHULLED BERMOUDAGRASS SEED IN FALL.

SOIL AMENDMENTS

APPLY LIME AND FERTILIZER ACCORDING TO TESTS, OR APPLY 2,000 LB/ACRE GROUND AGRICULTURE LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER

MULCH

APPLY 4,000 LB/ACRE GRAIN STRAW OR EQUIVALENT COVER OF ANOTHER SUITABLE MULCHING MATERIAL. ANCHOR MULCH BY TACKLING WITH ASPHALT, ROVING OR NETTING. NETTING IS THE PREFERRED ANCHORING METHOD ON STEEP SLOPES.

MAINTENANCE

REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

PERMANENT SEEDING SPECIFICATIONS

ZOYSIA - 200 Lbs./Ac.

SOIL AMENDMENTS

APPLY LIME AND FERTILIZER ACCORDING TO SOIL TEST.

MAINTENANCE

IF GROWTH IS LESS THAN FULLY ADEQUATE, REFERTILIZE THE SECOND YEAR. ACCORDING TO SOIL TESTS OR TOPDRESS WITH 500 LB/ACRE 10-10-10 FERTILIZER. MOW AS NEEDED. REPLACE, FERTILIZE, AND MULCH DAMAGED AREAS IMMEDIATELY.

Maintenance

1. Reseed and mulch bare spots larger than 9 square feet (limited to 5% maximum of total area).
 2. Maintain all seeded areas until uniform stand is acceptable.
 3. If growth is not established by final project inspection, continue specified attention until stand is acceptable.
 4. Correct and repair all undue settling and erosion within 1 year after final project inspection.
 5. Remove from the site, all erosion control structures after completion of stabilization of construction period.
 6. Remove silt from sediment pits and from behind check dams when silt is to a depth of the pit or spillway. Dispose of in an area where silt cannot enter pit / trap.
Calculations
 The practice utilized for the proposed site does require formal calculations. Calculations have been provided.

OWNER

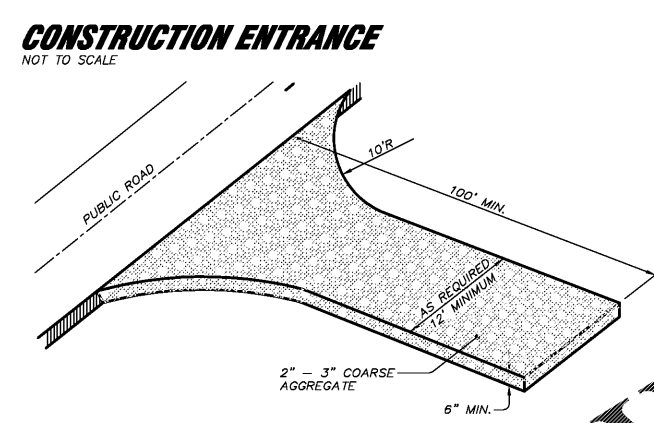
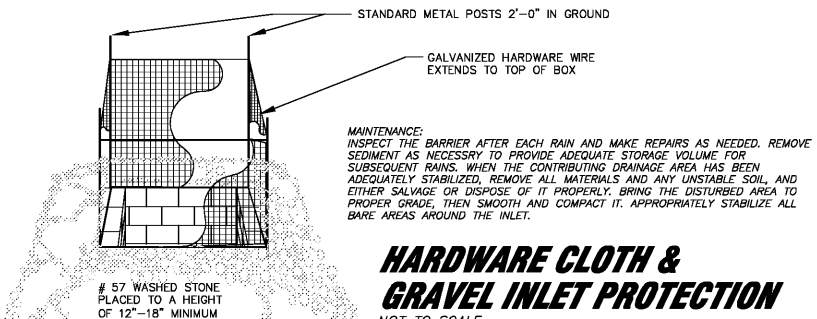
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 Box 1908
 Rocky Mount, NC 27802-1908
 252.937.2800

Maintenance Notes:

1. Follow chart for timelines of when to apply temporary seeding.
 2. Maintain all erosion control measures daily and reseed disturbed areas as needed.
 3. Inspect all erosion control measures weekly and after each rainfall event. Repair as needed.

GENERAL NOTES:

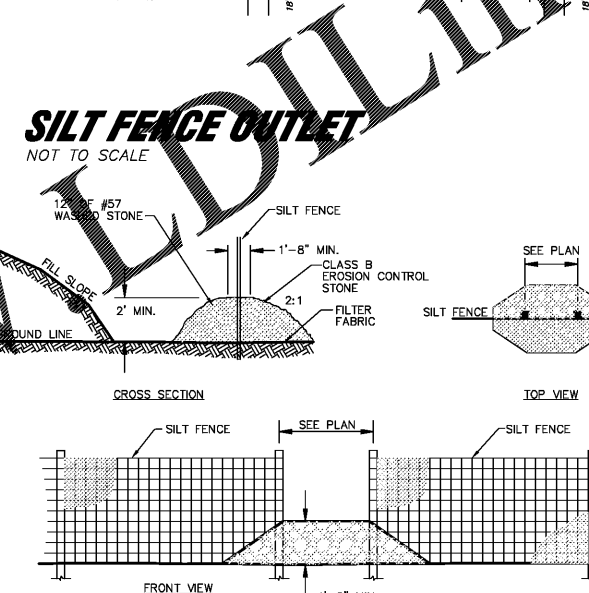
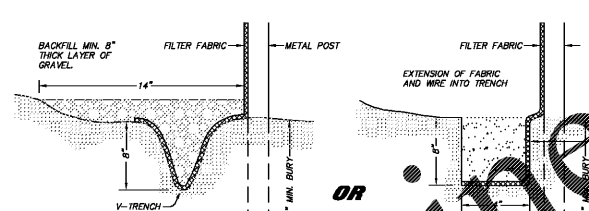
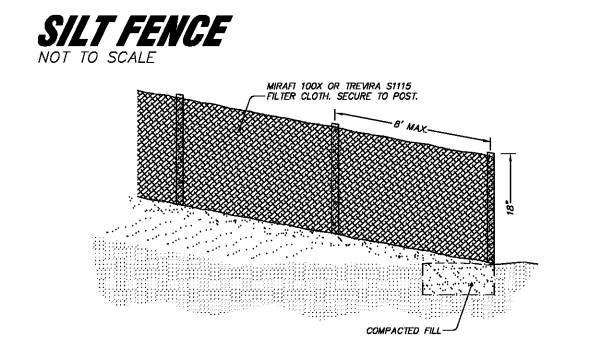
1. All Stockpile areas shall be a minimum of 100' away from surface waters and inside the perimeter EC Measures.
 2. All Concrete Washout areas shall be a minimum of 100' away from surface waters and inside the perimeter EC Measures.
 3. If an offsite soil spill or borrow site is utilized, then the disturbed area for the spill/borrow site must be included in the land-disturbance plan and permit unless the spill/borrow site already has a land-disturbance permit.



CONSTRUCTION SPECIFICATIONS:
 1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
 2. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.
 3. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
 4. USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

MAINTENANCE:
 MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOPDRESSING WITH 2-INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

Construction Sequence
 1. Schedule and hold a pre-construction conference prior to beginning any land-disturbing activities. This conference should be attended by a representative of the financially responsible party and/or the general contractor, grading sub-contractor, erosion control sub-contractor and the Engineer.
 2. Obtain Land Disturbance Permit and placard, and post the placard on site.
 3. Obtain an approved (stamped) S&E control plan and keep it on site, either in the inspection box, construction office or with the contractor.
 4. Install construction access/exit, silt fencing with outlets, inlet/outlet protection, concrete truck wash, and other initial erosion control measures as specified in the plan. Remove only trees and ground cover necessary to install these devices.
 5. Notify the Prince George County S&E site inspector after measures have been installed and project has started.
 6. Begin demolition, clearing, grubbing and grading of site in accordance with the approved S&E control plan.
 7. Provide all disturbed areas with ground cover as per ground stabilization table or after completion of any phase of clearing, grubbing or grading. The seeding, seedbed preparation, mulch and/or rolled erosion control product installation must be in accordance with the seeding schedule provided in the S&E plan.
 8. At the conclusion of building or if land-disturbing activity is stopped temporary or permanent vegetative cover shall be installed in accordance with ground stabilization table. If required include excelsior matting.
 9. Remove all erosion control measures after the Department of Environmental Quality's office approval of permanent stabilization.

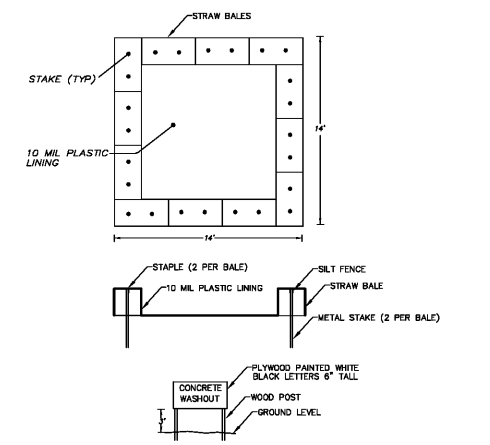


CONSTRUCTION SPECIFICATIONS:
 1. CONSTRUCT THE SEDIMENT BARRIER OF STANDARD OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS.
 2. ENSURE THAT THE HEIGHT OF THE SEDIMENT FENCE DOES NOT EXCEED 24 INCHES ABOVE GRADE SURFACE. (HIGHER FENCES MAY INCREASE VOLUMES OF WATER SUFFICIENT TO CAUSE FAILURE OF THE STRUCTURE).
 3. CONSTRUCT THE FILTER FABRIC FROM A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, SECURELY FASTEN THE FILTER CLOTH ONLY AT A SUPPORT POST WITH 4 FEET MINIMUM OVERLAP TO THE NEXT POST.
 4. SUPPORT STANDARD FILTER FABRIC BY WIRE MESH FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS. EXTEND THE WIRE MESH SUPPORT TO THE BOTTOM OF THE TRENCH. FASTEN THE WIRE REINFORCEMENT, THEN FABRIC ON THE UPSLOPE SIDE OF THE FENCE POST. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
 5. WHEN A WIRE MESH SUPPORT FENCE IS USED, SPACE POSTS A MAXIMUM OF 8 FEET APART. SUPPORT POSTS SHOULD BE DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
 6. EXTRA STRENGTH FILTER FABRIC WITH 6 FEET POST SPACING DOES NOT REQUIRE WIRE MESH SUPPORT FENCE. SECURELY FASTEN THE FILTER FABRIC DIRECTLY TO POSTS. WIRE OR PLASTIC ZIP TIES SHOULD HAVE MINIMUM 50 POUND TENSILE STRENGTH.
 7. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 8 INCHES DEEP ALONG THE PROPOSED LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
 8. PLACE 12 INCHES OF THE FABRIC ALONG THE BOTTOM AND SIDE OF THE TRENCH.
 9. BACKFILL THE TRENCH WITH S&E PLACED OVER THE FILTER FABRIC AND COMPACT. THOROUGH COMPACTING OF THE BACKFILL IS CRITICAL TO SILT FENCE PERFORMANCE.
 10. DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.

MAINTENANCE:
 INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REPAIRS AS NEEDED. THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, OR COMPOSE OR BECOME INEFFECTIVE, REMOVE IT IMMEDIATELY. REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. BE CAREFUL TO AVOID UNDERMINING THE FENCE DURING CLEANING. REMOVE ALL UNSTABLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

CONSTRUCTION SPECS:
 1. CLEAR & GRUB THE AREA AROUND THE SILT FENCE OUTLET AND PROPERLY DISPOSE OF DEBRIS.
 2. PLACE GRAVEL TO THE SPECIFIC GRADE AS SHOWN PER THE DETAIL.
 3. PROPERLY OVERLAP STONE BEYOND EDGES OF SILT FENCE OPENING.

MAINTENANCE:
 INSPECT OUTLETS WEEKLY AND AFTER EACH RAIN EVENT. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR AS NEEDED. CAREFULLY CHECK OUTLETS FOR EROSION AND REPAIR IMMEDIATELY. ENSURE THERE IS NO SCOURING APPARENT DOWNSTREAM OF OUTLET. IMMEDIATELY STABILIZE ANY AREAS THAT NEED REPAIR.



CONSTRUCTION SPECIFICATIONS:
 1. CONCRETE WASHOUT SIGN SHALL BE INSTALLED NO FURTHER THAN 25' FROM THE FACILITY AND SHALL BE VISIBLE TO ALL CONSTRUCTION TRAFFIC.
 2. POLYETHYLENE SHEETING SHALL BE 10 MILS FREE OF HOLES, TEARS, OR LEAKS.

MAINTENANCE:
 FACILITY SHALL NOT BE FILLED MORE THAN 12" FROM THE TOP BEFORE DISPOSING OF CONCRETE. CONCRETE SHALL BE DISPOSED OF IN THE SAME MANNER AS OTHER NON-HAZARDOUS MATERIALS FROM THE SITE OR MAY BE BROKEN UP AND USED AS FILL IN NON-STRUCTURAL AREAS.

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BN

HARDEE'S at PRINCE GEORGE COUNTY, VA.

COMMONWEALTH OF VIRGINIA
 J. MICHAEL STOKES
 Lic. No. 0033008
 Professional Engineer
 8/19/19

EROSION NOTES AND DETAILS

REVISIONS
 12/8/19 PRINCE GEORGE REVIEW

FILE NO. 2017-013
 HORIZ. SCALE: 1"=20'
 VERT. SCALE: NONE

CE-08