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Blue Ridge Paper Products Inc. - Canton Mill / Waynesville Plant

SOLID WASTE SECTION  
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October 1, 2009

Mr. Allen Gaither  
NCDENR  
2090 U.S. Highway 70  
Swannanoa, NC 28778

Fac/Perm/Co ID #	Date	Doc ID#
44-06	10/5/09	8724

Subject: Landfill No. 6, Area 6D-South  
Blue Ridge Paper Products, Inc. – Canton Mill  
Canton, North Carolina

Dear Mr. Gaither:

Blue Ridge Paper Products, Inc. (Blue Ridge) is proceeding with construction of Landfill No. 6, Area 6D under the approved Permit to Construct received from the North Carolina Department of Environment and Natural Resources (NCDENR). Currently, earthmoving and excavations are underway in effort to achieve base grades.

As described in the Sevee and Maher Engineers, Inc. (SME) specification Section-02200 Earthwork, submitted to you in the original application dated November 14, 2008, in-place compaction requires that 90% of the Maximum Dry Density be obtained (as determined by ASTM D-1557, Modified Proctor Test) and tested by means of the Sand Cone Method, ASTM D-1556. These methods are proving to be time consuming due to wetter than normal on-site soil conditions. Therefore, we are seeking revision of Section 02200 as described below and as attached for your reference.

In reaction to this, we are requesting to include additional methods for testing in-place compaction (ASTM D-6938-08a, Nuclear Method and ASTM D-2937, Drive Cylinder Method) and provide an additional reference proctor (ASTM D-698, Standard Proctor Test) that better represents the nature of the soils on the site i.e., higher water content. Revising the reference density and compaction requirement will achieve the same desired densification results while

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providing greater flexibility to adjust for variations in field conditions, and help maintain the high quality control standards desired.

If you have any questions concerning these modifications, please do not hesitate to contact us.

Sincerely,



James A Giaque  
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Attachment

Copy: Paul Dickens  
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File:gaither 6DS 100109

## SECTION 02200

### EARTHWORK

#### 1. GENERAL

##### 1.1 RELATED DOCUMENTS:

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

##### 1.2 DESCRIPTION OF WORK:

Extent of earthwork is indicated on drawings.

Definition: "Excavation" consists of removal of material encountered to subgrade elevations indicated and subsequent disposal or replacement (backfill) of materials removed.

##### 1.3 QUALITY CONTROL:

1.3.1 Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

1.3.2 Testing and Inspection Service: The Contractor shall employ a testing laboratory acceptable to Owner's Representative to perform soil testing of materials at point of source. The Contractor shall perform the following analysis on borrow materials used at the site.

- # 5 Stone:
  - Grain Size (D422) - 1/3000 cy
- #78M Stone:
  - Grain Size (D422) - 1/3000 cy
- #57 Stone:
  - Grain Size (D422) - 1/3000 cy
- Common Borrow (silty sand, sandy silt or clayey soil):
  - Grain Size (D422) - 1/3000 cy
  - Maximum Dry Density (D1557, 698) – 1/3000 cy

#### 1.4 FIELD QUALITY ASSURANCE

1.4.1 Quality Assurance Testing During Construction: Allow testing service to inspect and approve subgrades and fill layers before further construction work is performed.

Testing shall be as follows:

- #78M Stone:
  - Grain Size (D422) - 1/3000 cy
- #57 Stone:
  - Grain Size (D422) - 1/1000 cy

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- Common Borrow (silty sand, sandy silt, etc.):
  - Grain Size (D422) - 1/1000 cy
  - Moisture/Density (D1556, 2937, 6938-08a) - 10/acre/lift

If in opinion of Owner's Representative, based on testing service reports and inspection, subgrade or fills which have been placed are below specified density, provide additional compaction, wetting, drying or removal of material as necessary, and testing at no additional expense.

## 1.5 JOB CONDITIONS:

1.5.1 Site Information: Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data are made available for convenience of Contractor.

Additional test borings and other exploratory operations may be made by Contractor at no cost to Owner.

1.5.2 Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by Owner's Representative and then only after acceptable temporary utility services have been provided.

Provide minimum of 48-hour notice to Owner's Representative, and receive written notice to proceed before interrupting any utility.

Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies for shut-off of services if lines are active.

### 1.5.3 Use of Explosives: (None anticipated)

General: This work shall consist of furnishing, placing and detonating dynamite in places directed for the excavation of related work items in accordance with these specifications and in reasonably close conformity to the lines and grades shown on the plans or as established.

All blasting plans shall be approved prior to placing the explosive charges.

Do not bring explosives onto site or use in work without prior written permission from authorities having jurisdiction.

The Contractor is solely responsible for the handling, storage, and use of explosive materials.

The explosives shall be detonated by the propagation or electric method and shall be detonated the same day it is placed.

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No explosives shall be stored on the site overnight.

1.5.4 Materials: Dynamite and caps shall be from fresh stock and shall have a maximum strength as specified in the approved blasting plan.

1.5.5 Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights.

Operate warning lights as recommended by authorities having jurisdiction.

Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

## 2. PRODUCTS

### 2.1 SOIL MATERIALS:

2.1.1 General: Excavations made at the site for the construction of project facilities will generate unspecified quantities of soil materials. These soils will either be suitable or unsuitable for use as fill in the construction of earth-related portions of the project.

Suitable Materials: Those materials generated from outside excavations that satisfy the specifications for the material for which it is to be used (i.e., compacted silt/sand, common borrow, etc.). Specifications for suitable project materials follow.

Unsuitable Materials: Those materials generated from on-site excavations that do not satisfy the specifications for the project materials identified below. Generally these materials will consist of objectionable quantities of vegetation, organic matter, large stones, debris and frozen material.

2.1.2 #57 Stone: Durable, clean angular rock fragments obtained by breaking and crushing rock material, furnished, and placed to the lines and grades as shown on the Drawings. Sieve analysis by weight:

Sieve Designation	% Passing by Weight
1 1/2"	100
1"	95-100
1/2"	25-60
#4	0- 10
#8	0-5
#200	0-0.6

2.1.3 #78M Stone: #78M Stone shall be furnished and placed to the lines and dimensions as shown on the Drawings to provide a drainage blanket between the synthetic liner and the waste, as identified in the Drawings.

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Sieve Designation	% Passing by Weight
3/4"	100
1/2"	98-100
3/8"	75-100
#4	20-45
#8	0-15
#200	0-0.6

**2.14 # 5 Stone :** #5 Stone shall be furnished and placed to the lines and dimensions as shown on the Drawings to provide a drainage in the sump area.

Sieve Designation	% Passing by Weight
1 1/2"	100
1"	90-100
3/4"	20-55
1/2	0-10
3/8	0-5
#200	0-0.6

**2.1.5 Compacted Soil Liner:** Screened material shall be furnished and placed to the lines and dimensions as shown on the Drawings to construct the cell division berm and any base filling requirements within one (1) foot of the synthetic liner. The soil shall not contain particles of rock which will not pass the 1-inch square mesh sieve. The soil shall have greater than 20 percent passing the U.S. Standard No. 200 Sieve.

**2.1.6 Common Borrow :** Shall be earth suitable for embankment construction for use in any base filling greater than one (1) foot below the synthetic liner. It shall be free of frozen material, perishable rubbish, peat, organic matter, large rock fragments over 12 inches, or other unsuitable material. AASHTO M145 Classifications A-1 through A-5 may be used. Use of other materials as common borrow is at the discretion of the Owner's Representative and only in approved areas.

### 3. EXECUTION

#### 3.1 EXCAVATION:

**3.1.1 Unclassified Excavation** includes excavation of materials and obstructions encountered to subgrade elevations indicated, regardless of character.

**3.1.2 Excavation Classifications:** The following classifications of excavation will be made when rock excavation is encountered in work:

**3.1.3 Earth Excavation** includes excavation of pavements and other obstructions visible on ground surface; underground structures, utilities and other items indicated to be demolished and removed; together with earth and other materials encountered that are not classified as rock or unauthorized excavation.

#### 3.1.4 Rock Excavation:

**Rock excavation in trenches and pits** includes removal and disposal of materials and obstructions encountered which cannot be excavated with a 1.0 cubic yard (heaped) capacity, 42" wide bucket on track-mounted power excavator equivalent to Caterpillar Model 215, rated at not less

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than 90HP flywheel power and 30,000 lb. drawbar pull. Trenches in excess of 10'- 0" in width and pits in excess of 30'-0" in either length or width are classified as open excavation.

Rock excavation in open excavations includes removal and disposal of materials and obstructions encountered which cannot be dislodged and excavated with modern track-mounted heavy-duty excavating equipment without drilling, blasting or ripping. Rock excavation equipment is defined as Caterpillar Model No. 973 or No. 977K, or equivalent track-mounted loader, rated at not less than 170HP flywheel power and developing 40,000 lb. break-out force (measured in accordance with SAE J732C).

Typical materials classified as rock are boulders 3 cu. yd. or more in volume, solid rock, rock in ledges, and rock hard cementitious aggregate deposits.

Intermittent drilling, blasting or ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.

Do not perform rock excavation work until material to be excavated has been cross-sectioned and classified and worksheets submitted to the Owner's Representative.

Rock payment lines are limited to the following:

In pipe trenches, 6 inches below invert elevation of pipe and 18 inches wider than inside diameter of pipe, but not less than 3 ft.

In open areas, 24 inches below base grade elevation.

3.1.5 Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Owner's Representative. Unauthorized excavation, as well as remedial work directed by Owner's Representative, shall be at Contractor's expense.

Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Owner's Representative.

3.1.6 Additional Excavation: When excavation has reached required subgrade elevations, notify Owner's Representative who will make an inspection of conditions. Do not backfill excavations without notifying Owner's Representative.

If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by Owner's Representative.

Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions relative to changes in work.

3.1.7 Stability of Excavations: Slope sides of excavations shall comply with federal and local codes and ordinances having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated.

Maintain sides and slopes of excavations in safe condition through completion of backfilling.

3.1.8 Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition.

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Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction.

Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down shoring and bracing as excavation progresses.

Provide permanent steel sheet piling or pressure creosoted timber sheet piling wherever subsequent removal of sheet piling might permit lateral movement of soil under adjacent structures. Cut off tops as required and leave permanently in place.

3.1.9 Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or run-off areas. Do not use trench excavations as temporary drainage ditches.

Use appropriate erosion control in temporary ditches, as described in Section 02270, Erosion Control.

3.1.10 Material Storage: Stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade, and shape stockpiles for proper drainage. Cover or seed stockpiles when long-term storage indicates the potential for wind or water erosion from the stockpile. Place silt fence around downstream edge of stockpile to prevent transportation of soil.

Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.

Dispose of excess soil material and waste materials as herein specified by Owner's Representative.

3.1.11 Excavation for Structures: Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10', and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, other construction, and for inspection.

3.1.12 Excavation for Trenches: Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide a minimum 6" to 9" clearance on both sides of pipe or conduit as indicated on Drawings.

Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations.

Where rock or unsuitable material is encountered, carry excavation 6" below required elevation and backfill with a 6" layer of crushed stone or gravel, as approved by Owner's Representative, prior to installation of pipe.

For pipes or conduit 6" or larger in nominal size, tanks and other work indicated to receive subbase, excavate to subbase depth or, if not otherwise indicated, to 6" below bottom of work to be supported.

Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.

Do not backfill trenches until tests and inspections have been made and backfilling authorized by Owner's Representative. Use care in backfilling to avoid damage or displacement of pipe systems. Owner's Representative must be notified of any intention to backfill trench or otherwise permanently cover pipe.

3.1.13 Cold Weather Protection: Protect excavation bottoms against freezing when atmospheric temperature is less than 35° F. (1°C).

3.1.14 Final Grading: Perform grading in accordance with Contract Drawings, in order to obtain subgrade elevations prior to the placement of the geomembrane. During the regrading, the Contractor shall fill voids encountered below the subgrade elevations with on-site materials or materials provided by the Owner.

## 3.2 COMPACTION:

3.2.1 General: Control soil compaction during construction providing minimum percentage of density specified for each area classification indicated below.

3.2.2 Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum dry density (determined in accordance with ASTM D 1557 or ASTM D 698.)

Pipeline: Compact top 6" of subgrade and each 12" layer of backfill or fill material at 90% (D 1557 & 698) maximum dry density.

Dikes: Compact each 12" layer of fill material at 90% (D 1557) or 95% (D 698) maximum dry density.

Liner Subgrade: Compact each 12" lift of subgrade at 90% (D 1557) or 95% (D 698) maximum dry density. Maintain these conditions until geomembrane is installed.

3.2.3 Moisture Control: Moisture content of the liner subgrade soil and/or embankments shall be at, but not greater than 6% higher than optimum as determined by ASTM D 1557 (modified proctor) or within +/- 3% of optimum as determined by ASTM D 698 (standard proctor). Where subgrade or layer of soil material must be moisture conditioned to meet the allowable range of water content to achieve compaction, uniformly apply water to surface of subgrade, or layer of soil material. Apply water in manner to prevent free water appearing on surface during or subsequent to compaction operations.

Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

### 3.3 BACKFILL AND FILL:

3.3.1 General: Place acceptable soil material in layers to required subgrade elevations, for each area classification listed below.

In excavations, use satisfactory excavated or borrow material free of frozen material, large stones, brush, roots, sod, or other unsuitable material.

Under grassed areas, use satisfactory excavated or borrow material.

Under piping and conduit, use subbase material where subbase is indicated under piping or conduit; shape to fit bottom 90° of cylinder.

3.3.2 Backfill excavations as promptly as work permits, but not until completion of the following:

Acceptance of construction below finish grade including, where applicable, damproofing, waterproofing, and perimeter insulation.

Inspection by Owner's Representative, testing, approval, and recording locations of underground utilities.

Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities, or leave in place if required.

Removal of trash and debris.

Permanent or temporary horizontal bracing is in place on horizontally supported walls.

3.3.3 Ground Surface Preparation: Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break-up sloped surfaces steeper than 1 vertical to 4 horizontal so that fill material will bond with existing surface.

When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

3.3.4 Placement and Compaction: Place backfill and fill materials in layers not more than 15" in loose depth for material compacted by heavy compaction equipment, and not more than 6" in loose depth for material compacted by hand-operated tampers. Liner subgrade soil shall have a maximum in-place compacted lift thickness of 12 inches.

Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content within the optimum range as determined by the soil testing at point of source. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Take care to prevent wedging action of backfill against structures or displacement of

piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.

To provide for clod break-up of the cover material, a minimum number of 2 passes will be made with deep footed pad roller. To eliminate desiccation cracks the surface will be moistened (as necessary) and reworked with 2 passes of a smooth drum roller. Desiccation is defined as moisture content below optimum, or cracks deeper than 1 inch.

The cover soil shall be compacted and smooth drum rolled at the end of each work day to provide for moisture/density testing and prevent ponding of surface water overnight.

The following equipment will be used for compaction of the cover material:

Caterpillar 815F Pad Foot Roller or equivalent equipment approved by the Engineer. Equivalent equipment shall meet the following specifications:

Minimum Operating Weight	45,900 lbs
Maximum Pad Tip Area	18 square inches
Minimum Pad Height	7.5 inches
Minimum Wheel Diameter	40.5 inches

The passage of compaction equipment in either direction (forward or backward) is considered a "pass."

The following equipment will be used to obtain a smooth roll surface:

Caterpillar CS563 Vibratory Drum Roller or equivalent equipment approved by the Engineer. Equivalent equipment shall meet the following specifications:

Minimum Operating Weight	24,500 lbs
Vibration Frequency	1,400 to 1,800 vpm
Centrifugal Force	
High Amplitude	50,000 lbs
Low Amplitude	35,000 lbs
Maximum Drum Width	7.0 feet

Sealing the lifts will encourage runoff from storms, thus limiting development of excessively moist or wet lenses of soil within the barrier layer. The lift surface shall be scarified or otherwise roughened by tracking with a bulldozer prior to placing the next lift of silt-clay to promote good bonding between lifts.

### 3.4 MAINTENANCE:

3.4.1 Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

3.4.2 Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, gravel road, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

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### 3.5 DISPOSAL OF EXCESS AND WASTE MATERIALS:

3.5.1 Removal to Designated Areas on Owner's Property: Transport acceptable excess excavated material to designated soil storage areas on Owner's property. Stockpile soil and seed or spread and seed as directed by Owner's Representative.

Transport waste material, including unacceptable excavated material, trash and debris to designated spoil areas on Owner's property and dispose of as directed.

END OF SECTION

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