DIVISION 02 – EARTHWORK

02 10 00 GENERAL PROVISIONS

1. All work in this Division shall be completed in accordance with the provisions of Division 2 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures 2006 Edition (hereinafter referred to as *Standard Specifications*) except as amended or supplemented herein.

02 20 00 SPECIAL PROVISIONS-NCDOT

01. CLEARING AND GRUBBING – METHOD II:

(9-17-02) SP2 R01

1. Perform clearing on this project to the limits established by Method "II" shown on Standard No. 200.02 of the *Roadway Standard Drawings*.

02. BURNING RESTRICTIONS:

(7-1-95) SP2 R05

1. Open burning is not permitted on any portion of the right-of-way limits established for this project. Do not burn the clearing, grubbing or demolition debris designated for disposal and generated from the project at locations within the project limits, off the project limits or at any waste or borrow sites in this county. Dispose of the clearing, grubbing and demolition debris by means other than burning, according to state or local rules and regulations.

03. DEMOLITION OF BUILDINGS AND APPURTENANCES:

(1-1-02) (Rev. 9-19-06) SP2 R10

A. Building Removal

1. Demolish the buildings and appurtenances identified in the Contract Documents in accordance with Section 210 of the *Standard Specifications* and the following provisions:
   a. No special provisions beyond those specified in the Standard Specifications are required.
2. Prior to demolishing any building, comply with the notification requirements of Title 40 Code of Federal Regulations, Part 61, Subpart M, which are applicable to asbestos. Give notification to the North Carolina Department of Health and Human Services, Division of Public Health, Health Hazards Control Unit. Submit a copy of the notification to the Engineer prior to the building demolition.
3. The City of Rocky Mount has performed asbestos assessments for building removal items identified in the Contract Documents. Copies of this report may be obtained through the Engineer. When asbestos is discovered after the opening of bids for the project, the cost of asbestos removal and disposal will be paid for in accordance with Article 104-7 of the *Standard Specifications*. Perform removal and disposal of asbestos in accordance with the requirements of *Title 40 Code of Federal Regulations, NCGS 130A-444-452 and 10A NCAC 41C .0600.*
4. Comply with all Federal, State and local regulations when performing building demolition and/or asbestos removal and disposal. Any fines resulting from violations of any regulation are the sole responsibility of the Contractor and the Contractor agrees to indemnify and hold harmless the Department against any assessment of such fines.

B. Underground Storage Tank Removal

1. Prior to removal of any Underground Storage Tank (UST), comply with the notification requirements of the *Title 40 Code of Federal Regulations*, Part 280.71(a). Give notification to the appropriate regional office of the North Carolina Department of Environment, and Natural Resources, Division of Waste Management, UST Section. Submit a copy of the notification to the Engineer prior to the removal of the underground storage tank.
2. Permanently close UST systems by removal and dispose of in compliance with the regulations set forth in *Title 40, Code of Federal Regulations*, Part 280.71 and *North Carolina Administrative Code Title 15A*, Chapter 2, Subchapter 2N and any applicable local regulations. Assess Underground Storage Tank sites at closure for the presence of contamination as required in *North Carolina Administrative Code Title 15A*, Chapter 2, Subchapter 2N, Section .0803 and as directed by the appropriate Regional Office of the Division of Waste Management. Remove and dispose of UST systems and contents in a safe manner in conformance with requirements of *American Petroleum Institute Bulletin 1604*, Removal and Disposal of

Used Underground Petroleum Storage Tanks, Chapters 3 through 6. (Note: As an exception to these requirements, the filling of the tank with water as a means of expelling vapors from the tank as described in section 4.2.6.1 of *American Petroleum Institute Bulletin 1604*, will not be allowed). Where underground storage tanks are indicated below, there will be no direct payment for the closure or assessment, as payment at the contract lump sum price for *Clearing and Grubbing* will be full compensation for all costs of such closure or assessment. When the contract does not indicate the presence of storage tanks and storage tanks are discovered after the opening of bids for the project, the cost of closure, assessment and/or removal will be paid for in accordance with Article 104-7 of the *Standard Specifications*.

3. Disposition of any contaminated material associated with underground storage tanks will be made as provided in Article 107-26 of the *Standard Specifications*.

04. SHOULDER FILL MATERIAL: OPTION A

(5-21-02) SP2 R45 A

A. Description

1. Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 226 of the *2006 Standard Specifications* except as follows:
2. Construct the top 6 inches of shoulder and fill slopes with soils capable of supporting vegetation.
3. Provide soil with a P.I. greater than 6 and less than 25 and with a pH ranging from 5.5 to 6.8. Remove stones and other foreign material 2 inches or larger in diameter. All soil is subject to test and acceptance or rejection by the Engineer.
4. Obtain material from within the project limits or approved borrow source.

B. Measurement and Payment

1. No direct payment will be made for this work, as the cost of this work will be considered to be a part of the work being paid for at the contract lump sum price for *Grading* or the contract unit price for *Borrow Excavation* if suitable on site material is not available.

02 30 00 SPECIAL PROVISIONS-ADDITIONAL

01. BORROW EXCAVATION (IN PLACE MEASUREMENT):

A. The borrow material shall be provided and installed in accordance with the provisions of Subarticle 230-5 of the *Standard Specifications* except that it will be measured and paid by the actual number of cubic yards of approved material measured in its final in place position determined by cross sectioning and computed by average end area method. Contactor may provide load tickets for each truck load of offsite material provided to validate against the amount of calculated Borrow Excavation. Decisions on of the actual amount of Borrow Excavation incorporated into the work will be determined by the Engineer.

02. TESTING AND APPROVAL

A. Soils Laboratory

1. Geotechnical tests for public and private streets shall be performed by a licensed Geotechnical Testing Firm approved by the Engineer and the City of Rocky Mount.
2. The Laboratory conducting the subsurface soils exploration of the proposed street as well as the testing and analysis of the subgrade soils shall be under the responsible charge of a Geotechnical Engineer who shall be qualified in soils technology, experienced in this class of work and be a Registered Professional Engineer. All Soils Reports shall be prepared under the Geotechnical Engineers' direct supervision and shall be transmitted under a cover letter from the Geotechnical Engineer
3. Sampling, transport, storage and handling of soil samples to be tested for this project shall be in accordance with NCDOT procedures and standards. Laboratory testing and analysis of soils shall be in accordance with ASTM Standards and NCDOT Standards where applicable.
4. The Laboratory making the exploration, testing and analysis of soils for this project shall be accredited and approved by the City of Rocky Mount and NCDOT when appropriate. The Laboratory shall have the capability of conducting soils testing and analysis in accordance with ASTM Standards.

B. Subgrade Evaluation for Pavement Design

1. In order for the Contractor to produce a street with a minimum 15 year service life specified in City Policy, subsurface exploration must be made along the location of the proposed street in order for sufficient data to be available to define soil conditions. which could reasonably be expected to be encountered and develop the soils support value on which the pavement design can be based. The extent and depth of low load bearing soils and soils which contain organic material must therefore be determined.
2. A subsurface soils report shall be prepared and submitted to and approved by the City of Rocky Mount Engineering Department prior to placement of any structural base for a public or private street. The report shall be based on the approved project drawings. The report shall detail testing and analysis of subgrade soil samples taken with a 2-1/2" spoon to a depth of 6 ft below the proposed final grade at 200' intervals along the proposed street centerline. The subgrade soil samples shall be taken after the street right of way has been cleared, grubbed and brought to rough subgrade for the final street profile. In areas where the soil type changes between boring locations, additional borings shall be taken at 50' intervals in order to determine the subgrade soil transition locations.
3. The soils laboratory shall test both borrow material and the native in-place sub-grade in order to determine Soil Support Value (SSV) of the subgrade. The SSV of the subgrade soils shall be based on the California Bearing Ratio (CBR) test conducted for each soil type within 2.5 ft of the finished subgrade. The subgrade soil core samples shall be retained in an undisturbed condition by the Geotechnical Engineer in his office for a minimum of 30 calendar days for the purpose of inspection by the City Engineer.
4. The geotechnical report shall include the following:
   a. Map showing each boring location
   b. Boring log w/soil classification
   c. Density curve and bearing capacity of the sub-base using the California Bearing Ratio (CBR) method for all soil types within 2.5 ft of the proposed subgrade.
   d. Narrative description of the subgrade conditions
   e. Pavement design calculation and a recommended pavement section

C. Compaction Densities

1. Any portion of the subgrade inaccessible to the roller or rolling equipment shall be thoroughly compacted with hand or mechanical tampers.
2. Subgrade and backfill shall be compacted at plus or minus two (2%) percent of optimum moisture content and shall yield the following minimum compaction densities when tested in accordance with AASHTO T99 as modified by NCDOT:
   a. Areas within five (5) feet of roadway subgrade or other pavements and structures shall be compacted to at least 98% of the maximum dry density as determined by AASHTO T-99 as modified by the Department.
   b. Areas within 12" of roadway subgrade shall be compacted to at least 100% of the maximum dry density.
   c. All other areas shall be compacted to at least 90% of the maximum dry density..
3. Sample sites shall be tested for each 500 ft of street with at leas one sample being taken for each block of proposed street and least 1 sample taken for each 3000 square yards in surface area. A minimum of two sample sites shall be performed. Samples shall be taken at random locations along the roadway cross section. Additional test sites may be required for changing soil conditions. Contractor shall provide smooth, level surfaces at locations and depths as designated by the Engineer for testing.
4. Samples for fill sections and trench backfills within the roadway or roadway embankment shall be taken for every 2.5 ft of fill at the rate of one sample per 3000 sy or ones sample for every 500 lf of trench.

D. Proofrolling

1. All roadway subgrade shall be tested for bearing capacity by proofrolling with a fully loaded dual or triple rear axle dump truck. Truck shall be sufficiently loaded with ballast to provide a minimum gross weight of thirty (30) tons.
2. Truck shall make sufficient passes over roadway subgrade to test entire surface of subgrade. Truck shall be operated at a speed of between two hundred and twenty-five (225) and three hundred (300) feet per minute.

3. Proofrolling shall be performed in the presence of the geotechnical firm representative and the City of Rocky Mount Construction inspector.
4. Proofrolling must be performed within ten (10) days of placement of stone or pavement. If precipitation occurs after proofrolling but prior to placement of stone or asphalt, then the surface shall be proofrolled again.

E. Borrow Testing

1. Off-site borrow material used for roadway embankment fill, trench backfill in roadway or fill for undercut excavation shall be tested to determine optimum density and bearing capacity. Geotechnical engineer shall provide a certification report to the City of Rocky Mount Engineering Department that the off-site borrow material has adequate bearing capacity to support the approved pavement design.

F. Conformance to Cross-Sections

1. After all excavation, undercutting and backfilling have been completed, the subgrade shall be properly shaped and compacted to conform with the lines and grades shown on the approved Drawings or directed by the Engineer.
2. Subgrade shall be within plus or minus 0.10 ft from the established grade after it has been graded to a uniform surface.

03. BACKFILL ADJACENT TO CURB AND GUTTER AND PAVEMENTS

1. No earth backfill or pavement shall be placed adjacent to concrete curb, curb and gutter, header curb and concrete gutter, sidewalks, driveways, or other paved areas, or the area adjacent to the newly poured concrete until at least three (3) curing days have elapsed. However, earth backfill may be placed within four (4) days of the expiration of the curing period. The quantity and type of backfill shall be approved by the Engineers. Such backfill shall be backfilled, smoothed off, and maintained so as to prevent the accumulation of standing water in the event of rain.

04. PROTECTION OF TREES

1. Trees inside the project limits that are designated to be saved by the Engineer and trees adjacent to the limits of disturbance shall be protected by orange safety fence. Safety fence shall be placed no closer than the drip line of the trees to remain unless otherwise directed by the Engineer. The Contractor shall take all necessary additional precautions to ensure that trees to remain are not damaged. If tree damage does occur, contractor shall take appropriate action as directed by the Engineer to treat the damage. If directed by the Engineer, the contractor shall retain the services of a certified arborist to determine the appropriate treatment of the damage.