

Landscape Special Provisions

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1 TREE PROTECTION FENCE

General Requirements and Restrictions

The preservation of existing trees during this project is extremely important to the community. This will require the utmost care during the construction process since the construction is located in close proximity to many of the trees we desire to preserve. The Contractor will assist the department by educating its employees, subcontractors and any utility companies conducting work in the vicinity, of the efforts and the preservation measures required herein.

Tree Protection Fence consists of furnishing, installing, maintaining, and removing wood slat, polyethylene, or polypropylene fence as specified, in the locations shown on the plans or as directed by the Engineer and in accordance with the special provisions included herein.

Install tree protection fence prior to conducting any other work. All construction, unless approved in writing by the Engineer prior to the activity, will occur outside of the tree protection fence. *Do not trespass* with vehicles or machinery in the areas indicated for tree protection. Do not park, refuel, repair or maintain vehicles or equipment in the tree protection areas. Do not stockpile materials or store equipment in the tree protection areas.

Do not release petroleum products, fuels, paints, or lubricants anywhere within this project in the vicinity of the tree protection areas or in areas that drain into this vicinity. Do not apply or release herbicides, fertilizers or chemicals of any kind that may be toxic to plant life and do not 'clean out' concrete trucks in the vicinity of the tree protection areas, or into areas that drain into this vicinity. Do not burn trash, debris or vegetation in the vicinity of tree protection areas.

Demolition, ground disturbing activities and construction that occurs within the drip line of the tree(s) or within a radius three times the drip line of the tree(s) will be done with utmost care. Accomplish all grading in such a manner as to avoid standing water or saturated soils around root systems of trees that are to remain. Install erosion control devices in a timely manner to prevent sedimentation of the tree root zone in the tree preservation areas. In areas to be 'cut' by grading or where utility trenches or building footings occur, prevent shredding, tearing or exposing roots by excavating a trench not less than 6" wide and to the maximum depth of the cut up to 24" deep. Hand saw any roots 2" or greater in diameter that are encountered to make a clean smooth cut. If necessary, dig out enough soil to reach an undamaged portion of the root to make the smooth cut. To prevent drying out of roots, immediately cover any exposed root surfaces with 6" of approved mulch or soil until 'finish' construction operations dictate removal. Supplemental irrigation may be necessary during periods of drought or stress. Irrigate as directed and approved by the Engineer.

Branches that protrude into the construction area that interfere with construction operations will be tied back if possible or pruned if not. Follow proper pruning techniques as established in American National Standards Institute ANSI Z133.1 and perform pruning by a professional arborist. Submit description of proposed work along with arborist credentials to the Engineer for approval prior to conducting work.

Violation of any of these tree preservation measures will result in suspension of all work until the violation is resolved or repaired to the satisfaction of the Engineer. Such suspension of work will not be considered justification for additional compensation in accordance with Section 104 of the Standard Specifications or extension of the contract time.

Materials

Posts will be nominal 2" x 4" or 4" x 4", lengths as required, structural light framing, grade no. 2, southern yellow pine or steel posts will be a minimum of 1 3/8" wide measured parallel to the fence, with a weight of 1.25 lbs/ft of length. Wood posts will be treated with a preservative in accordance with Section 1082-3 of the Standard Specifications.

Fence fabric will be a barricade or safety barrier type highly visible orange polyethylene or polypropylene mesh that is approved by the Engineer. Fabric will be UV stabilized, flexible and inert to most chemicals and acid.

Signs will be fabricated of a durable weatherproof lightweight material. Signs will have a white background with red lettering. They will be a minimum of 4.5 square feet and clearly display the following message in both English and Spanish:

TREE PROTECTION ZONE

DO NOT ENTER

Submit sample for approval prior to placing. Prefabricated signs are acceptable.

Installation

Erect fence to conform to the general contour of the ground. Do not remove existing plant material in order to install fence unless directed by the Engineer.

Set post and maintain in a vertical position. Post may be hand set or set with a post driver. If hand set, thoroughly tamp all backfill material, if power driven, wood posts may be sharpened to a dull point. Remove and replace any post damaged by power driving prior to final acceptance. Cut the tops of all posts at a 30-degree angle. The posts may, at the option of the Contractor, be cut at this angle either before or after the posts are erected. The Contractor is responsible for locating all utilities prior to installation of fence posts.

Stretch fence fabric taut and attach to post with appropriate means according to post type utilized. In sections where signs will be located, reinforce top of fabric by weaving a 12

gauge galvanized wire in the fabric and firmly attach to the post at each end of section. Place signs every 150 linear feet with a minimum of one sign for each segment facing in a different direction. Secure sign to fence fabric at all four corners placing near the top of the fence fabric where clearly visible.

Tree Protection Fence Maintenance

At any time during the duration of the project if the tree protection fence is not in an upright secure position with no gaps and properly signed, work on the project will be suspended wholly until the fence is properly repaired and determined to be in satisfactory condition by the Engineer. Trim grass and remove any weeds that may sprout along fence edge, both sides, to the satisfaction of the Engineer on a regular basis during the duration of the project. Remove tree protection fence, fill post holes, weed/mow and dispose of debris off site as a last item of work on the project.

Compensation

"Tree Protection Fence" will be paid for as measured along the surface of the ground in linear feet for fence that is installed and accepted.

Such payment will be full compensation for the work described above including furnishing, installing, and removing; fence post, fence bracing, fence fabric, staples, tie wires; all tools, equipment and any other incidentals necessary to complete the work. Pruning, mulch and/or watering required herein will be incidental to the completion of the work.

Payment will be made under.

Tree Protection Fence LF

2 TOPSOIL - STOCKPILED AND REAPPLIED

Description

This work consists of stripping, stockpiling, transporting, and distributing topsoil in accordance with the plans and specifications, and as directed by the Engineer. It is the intent of the Department to utilize the existing topsoil contained within the project limits, if approved, as the final soil layer distributed in the old roadbed area on this project.

Materials

Provide soil consisting of loose and friable material free of subsoil admixtures, refuse, stumps, rocks, roots, root mats, or other unsatisfactory material. Remove stones and other foreign material 3" or larger in diameter.

Construction Methods

Prepare area to receive recycled topsoil by removing all existing pavement and base material and bring soil to within 6" of finish grade with a suitable material capable of supporting vegetation. All soils will be inspected and approved by the Engineer prior to placement.

Measurement and Payment

"*Topsoil - Stockpiled and Reapplied*" will be measured and paid for as the actual number of acres, measured along the surface of the ground, over which topsoil has been distributed. Such price and payment will be full compensation for furnishing, all labor, equipment and all incidentals necessary to complete the work satisfactorily.

Payment will be made under.

Topsoil - Stockpiled and Reapplied Acres

3 TOPSOIL - FURNISHED

Description

This work consist of furnishing, delivering, and placing topsoil at locations shown on the plans and as directed by the Engineer.

Material

Topsoil will be a sandy loam, silt loam or clay loam which contains a reasonable amount of humus material. Topsoil will be of good texture, loose and friable and **representative of topsoil in the general vicinity**. It will be reasonably free from sod, hard lumps, subsoil, large roots, rocks and gravel, noxious weed seeds and/or toxic substances or other material, which would be harmful to plant growth. Topsoil may be approved at the source but will also be approved by the Engineer when delivered to the job site prior to placement.

Installation

Place and spread topsoil evenly to a minimum of 4" or to the depth indicated on the plans and details, which after settlement, shall constitute the finish grade. Do not place topsoil when the ground is frozen, is excessively wet, nor is in a condition that the soil cannot be worked easily and dressed smoothly.

Where topsoil is needed within wooded areas or around existing trees, take precautionary measures to prevent damaging trees or the roots of trees to be retained for landscape purposes. When placing or compacting topsoil or fill material in or adjacent to wooded areas heavy machinery will not be utilized. The Engineer will approve all equipment for placing topsoil and fill material prior to usage.

Method of Measurement

The quantity of topsoil to be paid for will be the actual number of cubic yards of topsoil provided as specified herein and accepted. The topsoil used on this project will be measured for payment by pit measurement or by truck measurement as provided in Section 230-5 and as directed by the Engineer.

Basis of Payment

"Topsoil - Furnished" will be paid for at the contract unit price per cubic yard. Such price and payment will be full compensation for furnishing, all labor, equipment and all incidentals necessary to complete the work satisfactorily.

Payment will be made under

Topsoil - Furnished CY

4 RELOCATION OF POST-TOP LIGHTS

General

Remove and store existing post-top lights at a location approved by the Engineer. Remove, secure and store post top lights in such a manner to prevent damage including breakage, scratching and denting. Reinstall post-top lights at the locations shown on the plans or as directed by the Engineer and in the same manner as found at removal; ie: direct burial of pole or concrete base with anchor bolts, etc and to the satisfaction of the Engineer. Relocation will include, but is not be limited to, dismantling the light and pole; removing the existing concrete foundation, storing items during construction, constructing a new pad and anchor bolts with conduit/wiring, reinstallation of the lights and connecting to electrical source.

Service will be reconnected immediately after the area where they are to be relocated to is available and prepared.

Measurement and Payment

"Relocation of Post Top Lights" will be paid for at the contract unit price each successfully relocated and accepted. Such price and payment will be full compensation for all work covered by this special provision; including but not limited to furnishing all labor, materials, equipment and any other incidentals necessary or required to complete the work and restore service.

Payment will be made under:

Relocation of Post Top Lights EA

5 BRICK SIDEWALK

This provision consist of constructing brick sidewalks at locations shown on plans according to the details and as specified herein.

General

Strip all existing vegetation and remove all unsuitable materials to prepare area. Shape the sidewalk sub-grade to conform to the lines, grades and typical sections shown on the plans and details. "Soft spots", such as utility trenches or other detected unsuitable load supporting soils shall be removed and refilled with suitable compacted material. Compact subsoil to a degree suitable for brick sidewalk application in the area and to the approval of the Engineer.

Place aggregate base course (ABC) carefully to minimize segregation of stone and fines. The aggregate base course may be either watered or dried to obtain optimum moisture content and compacted to at least 100 percent of that obtained by compacting a sample of material in accordance with AASHTO - T180 as modified by the North Carolina Department of Transportation. Shape the aggregate base course surface to a minimum 1/4 inch per foot cross slope from the back edge of the sidewalk to the curb edge or if on a shoulder and not bordering a curb, slope to drain as shown on details. Use metal edging to stabilize pavers if directed by Engineer in the field. Install all edge restraints perpendicular to the brick paver surface. Use intermediate restraints at all interruptions of the brick paver surface and where there are sloped or curved locations.

Brick pavers will match existing brick sidewalk pavers in type, color and size and will be approved by the Engineer prior to installation.

Set brick pavers in setting bed over the compacted aggregate base course. The finished brick surface will have a minimum 1/4 inch per foot cross slope to drain. Lay brick pavers to match the brick pattern of existing adjacent brick sidewalk. Broadcast sand and or screenings over the paver surface. Compact with a vibrating plate-tamp to lock-in paver joints with sand and to set the brick pavers in the underlying setting bed. Sweep remaining sand on the paver surface to fill all open joints or voids and then remove excess.

Measurement and Payment

"Brick Sidewalk" will be measured and paid for as the actual number of square feet, measured along the surface of the ground, that has been acceptably installed.

Payment will be made under.

Brick Sidewalk SF

**6 SOD
(Bermuda-Tifway 419 and Fescue)**

Description

Furnish and place sod at locations shown on plans and as directed by the Engineer in accordance with the *Section 1664* of the *Standard Specifications* and the requirements herein.

Materials and Installation

Use only "approved sod" (trade designation) consisting of Bermuda - Tifway 419 and a Fescue cultivar approved by the Engineer. The sod, machine cut to the suppliers standard width and length, will be 5/8" tall minimum, excluding top growth and thatch, at the time of cutting. Mow sod to a uniform height according to industry standards for the species prior to cutting. Standard sod sections shall be sufficiently strong to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10% of the section. The sod may be furnished either in rolls or strips.

The Contractor will obtain a certificate or limited permit issued by the North Carolina Department Of Agriculture and Consumer Services (1-800-206-9333) or (919-733-6932) stating that the sod has been found to be free of injurious plant pests for each type furnished.

Omit paragraph two of *Section 1664-3(C) of the Standard Specifications* and insert: Sod handling and placement will be a continuous process of cutting, transporting, and installing without appreciable delays. Install sod within 24 hours after being cut and water immediately after installation. Provide a certificate from the sod producer stating the date and time sod was cut when sod arrives at the project site.

The Contractor will provide sufficient water to meet all the requirements of the sod operation whether the irrigation system is active at the time of installation or not. If the irrigation system is active and the Contractor desires to use it for sod watering, the Contractor must obtain permission from the 'Resort' to utilize the system. The Contractor will be responsible for coordinating the rate and timing of applications to ensure that the sod is properly watered and maintained in good quality throughout the length of the contract. Any failures, gaps, or lapses in the irrigation system that result in harm to the sod will be the Contractor's responsibility, and therefore will not result in additional compensation for replacement of sod.

Apply a minimum of 1" of water, 5.6 gallons per square yard immediately after installation of sod. The time interval between sod placement and initial watering will never exceed 2 hours.

Fertilizer and Limestone Applications: the Contractor will take sufficient soil samples for the area to receive sod for testing by the North Carolina Department Of Agriculture and Consumer Services, Agronomic Division, Soil Testing Section, to determine the soil pH and fertilization recommendations. Take samples in the presence of the Engineer in a quantity that is satisfactory to the Engineer. Results are to be sent directly to the Engineer from the North Carolina Department of Agriculture and Consumer Services.

Limestone: based on these results the Contractor will incorporate limestone, if required, to bring the soil pH to 5.0 to 6.0 (opt. 5.5). The Engineer will approve the amount of limestone to be applied prior to application.

Sulfur: based on these results the Contractor shall add sulfur if the pH is greater than 7.0, to bring the soil pH to 5.0 to 6.0 (opt. 5.5). The Engineer will approve the amount of sulfur to be applied prior to application.

Application of limestone, sulfur and fertilizer will be considered incidental to the work of laying sod and no direct payment will be made for such.

Maintenance

Omit Section 1664 -4 Maintenance. The Contractor is responsible year round for all watering and other maintenance required ensuring the livability of the sod in a good healthy condition from the time of installation until final acceptance. This includes monitoring the sod to ensure adequate watering; inspecting for insect and disease problems, mowing and any other maintenance that may be required. The Contractor is responsible for the healthy condition of the sod from the time of installation until completion of the project or a minimum of a 60-day observation period whichever is greater.

Any sod or portions of sod rejected by the Engineer after placement will be replaced with acceptable sod within 10 days of notification. Failure to replace and repair damaged or dead sod as directed may result in sanctions *under Section 108-7 or Section 108-8 of the Standard Specifications.*

Observation Period

The Contractor maintains responsibility for the sod for a 60-day observation period beginning upon the satisfactory completion and acceptance of all sod work. Acceptance of the sod installation and beginning of the 60-day observation period will not begin prior to March 1 of the current year if installed after August of the previous year.

After the first 30 days of the 60-day observation period, the Contractor and Engineer will meet to review the project and identify dead or damaged sod to be replaced. Replace any sod that is not in a living and healthy condition as determined by the Engineer at no additional expense to the Department. Furnish and install sod in accordance with the same requirements as for initial sod operation, except that the amounts of limestone, sulfur, and water may be adjusted as directed by the Engineer. Begin replacement of sod within 10 days of notification. Failure to replace and repair damaged or dead sod as directed may result in sanctions *under Section 108-7 or Section 108-8 of the Standard Specifications.* The remaining 30 days of the observation period begins after completion and acceptance of the initial 30-day review sod repairs if any are required.

At the end of the 60-day observation period, the sod furnished and installed under this contract must be in a living and healthy condition, as determined by the Engineer. Acceptance of sod will be either at the end of the 60-day observation period or at final acceptance of the project, whichever is later. The sod must be weed free at time of final acceptance.

Measurement and Payment

Omit Section 1664 -5 Measurement and Payment.

Sod will be measured and paid for in square yards, measured along the surface of the ground that has been completed and accepted. No direct payment will be made for mowing the sod areas prior to soil preparation, furnishing and applying limestone, sulfur or fertilizer, as such will be incidental to the work covered by this sod provision.

Water will be measured and paid for in 1,000 gallon units. Measurement of water will be made by means of an approved metering device at the source of supply, or by determining the volumetric capacity of tank trucks used to deliver water to the project and recording the number of loads delivered by each truck and completely utilized on the project. Watering that is accomplished utilizing the irrigation system will not be compensated.

All mowing during preparation or after the installation stages and during maintenance and observation periods will be considered incidental to the work and there will be no direct payment.

The above prices and payment will be full compensation for all work covered by *Section 1664 of the Standard Specifications* and by this special provision.

Payment will be made under.

Sod (Bermuda - Tifway 419)	SY
Sod (Fescue)	SY
Water for Sod	M/G

7 PLANT BEDS
(Traffic Circle Annual Bed and Daylily Bed)

General

Prepare plant bed in accordance with all applicable parts of *Standard Specifications Section 1060 - Landscape Development Materials and Section 1670 - Planting.*

Seasonal Limitations

Install plants between October 15th and April 1st unless otherwise approved by the Engineer.

Mulch for Planting

Mulch for planting will be aged pine bark fines.

Herbicides

Post-emergence herbicidal treatment and Pre-emergent herbicidal treatment will consist of the following products and rates unless otherwise approved by the Engineer.

Herbicide Chart

Herbicide Brand Name	Common Name	Formulation	Oral LD/50 (MG/KG)	Amount of Formulation per Acre	Lbs. of Active Ingredient per Acre	Adjuvants	Remarks
Stump Control							
<i>Garlon</i>	Triclopyr	3 S	2,574	1 gal./1 gal. of water	3 #	1 - 2 qts. Surfactant/ acre	Paint or spray, add bullseye dye.
Pre-emergent							
<i>Pennant</i> + <i>Endurance</i> + <i>Gallery</i>	Metolachlor + Prodiamine + Isoxaben	Liquid (5G) + 65 WDG + 75 DF	3750 + >5,000 + 5,000	2 - 3 pts. (40#) + 2# + 1#	1.95 - 2.93# (2#) + 20 lbs. + 1#	NA	Spring application; use tank agitation when mixing.
Post-emergent							
<i>Roundup</i>	Glyphosate	4 S	>5,000	2 - 4 qts.	2 - 4 #	2 - 4 qts. Surfactant/ 100 gals.	NA

**8 MULCH
(Pine Straw)****Materials**

Pine Straw Mulch consists of pine needles and will be reasonably free from pine cones, roots, twigs/branches, noxious weed seeds and/or toxic substances or pests, which would be harmful to plant growth. The Engineer will approve pine straw mulch when delivered to the job site whether or not the source has been previously approved.

Installation

Place pine straw mulch and spread evenly to a settled depth of four inches. Heavy machinery will not be allowed when placing mulch in or adjacent to wooded areas. The Engineer will approve all equipment for placing mulch.

Measurement and Payment

"MULCH-PINE STRAW BALES" will be measure and paid for as the actual number of bales to be furnished, placed and accepted.

Payment will be made under:

Mulch - Pine Straw **BALES** **EA**