

Division 32 – Exterior Improvements

32.1. Asphalt Paving

- a. Asphalt paving shall conform to the latest version of the Virginia Department of Transportation Road and Bridge Specifications, Section 315 as well as all other sections reference therein.
- b. Construction of all roads, drives and parking areas, including sub-grade preparation and all related work, must be constructed by a contractor fully qualified and equipped to perform the work.
- c. The construction of all pavements within public rights-of-way shall be in accordance with the rules, regulations and requirements of the public agency having control and ownership of such rights-of-way.
- d. Bituminous paving for pedestrian walkways shall not be used.
- e. Protect the surface course from vehicular traffic and parking until the pavement has cured.
- f. Repair depressions by cutting out the surfacing with vertical cuts to a minimum depth of 1", filling and rolling. Feathered patches are prohibited.
- g. Minimum slope for all paved surfaces shall be designed to avoid ponding of water on the roads.
- h. Curbs shall comply with 6" standard CG-2 of Virginia Department of Transportation (VDOT). Curb and gutter complying with VDOT CG-6 Standard six-inch (6") Curb and Gutter shall be used to match an existing condition or within City of Norfolk streets. Painted striped crosswalks shall be provided at all road intersections.

- d. Walks adjacent to lawns are to be flush. Walks adjacent to planting beds shall have rolled curb.
- e. Radiused intersections shall be poured monolithic and should extend to the outer limits of the curves. Segmented curves are not permitted.
- f. Scoring type and locations for sidewalks shall be shown on the drawings. All scoring shall be tooled. Saw cut joints shall only be permitted if routed with round over bit.
- g. Cross slope of all walks shall meet the ADA Standards for Accessible Design.
- h. Walks abutting buildings shall bear on the foundation or be dowelled.
- i. The full width of sidewalks adjacent to curbs shall be ¼" above the curb.
- j. Dropped curbs for drive and handicapped access shall be formed for all new work.
- k. Remove existing curb back to nearest existing joint when new curbs extend into existing curb lines.
- l. Where sidewalks abut existing structures, expansion joints shall be provided.
- m. Sidewalks shall be repaired in complete panels as originally scored. Cutting and replacement shall be at existing construction joints as agreed to with ODU Project Manager.
- n. All sidewalks greater than 5' wide will be constructed for vehicular traffic.
- o. The A/E shall verify all scoring patterns with the Project Manager. Scoring pattern design shall take into consideration existing scoring patterns of adjacent walks.
- p. Unless modified by documented site conditions and geotechnical recommendations, concrete paving shall be:

Course/VDOT Specification	Vehicular	Pedestrian
Surface/ Class A3 (3000 psi)	6"	4"
Reinforcing	6x6 *w1.4)	none
Sub-base/#21A	6"	6"
Sub-grade compaction*	95%	95%

*Maximum dry density (ASTM D698, Method D)

32.4. Decorative Concrete Paving

- a. Decorative concrete such as surface-imprinted, stamped, stencil-patterned, or stained finish concrete paving are not permitted on campus.

32.5. Unit Paving

- a. Unit paving, if any, shall be limited due to the impact to stormwater requirements.

32.6. Permeable Unit Paving

- a. Interlocking pavers Nansemond blend #239, herringbone pattern.
 - b. Pavers in pervious applications shall not be sealed.
 - c. Base for pervious pavers shall consist of:
 - Open-graded bedding course: 2" of #8 washed aggregate (was shown in COE, but not on BDC)
 - Open-graded base course: 4" #57 washed aggregate
 - Open-graded subbase on soil subgrade: 10" minimum #2 or 3 washed aggregate with 4" perforated underdrains at 10' on center.
 - Non-woven geotextile fabric on non-compacted subgrade
- Provide drawings detailing the permeable pavement installation as required for stormwater and MS4 permit.

April 15, 2019

- a. Dry-laid concrete masonry unit retaining walls are not permitted on campus.

32.14. Planting Irrigation

- a. It is the intent of the University to restrict the use of permanent irrigations systems to managed lawns. These are limited in use on campus and shall only be included in designs with prior approval of the Ground Manager.
- b. Temporary irrigation for plant establishment is desired and shall be included in each project as appropriate. Temporary irrigation will be abandoned after the establishment period which shall be defined in the specifications by the A/E.
- c. Refer to [APPENDIX N – IRRIGATION SPECIFICATIONS](#)

32.15. Topsoil

- a. Soils in areas to be planted that are compacted above 85% maximum density shall be mechanically loosened to a minimum uniform depth of twenty-four inches (24") below final grade. Inadequate soil conditions must be addressed prior to planting.
- b. Finish Grading: Contractor shall grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit finish grading to areas that can be planted in the immediate future. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

32.16. Turf and Grasses

- a. Turf (sod) shall be certified turfgrass sod is grown from certified seed inspected and certified by the Virginia Crop Improvement Association (VCIA) and bear an official "Certified Turf" label on the bill of lading.
- b. Turf shall be nursery-grown of dense growth, with a strong, fibrous root system, and shall be composed of hybrid Cynodon dactylon, Tifway419, or approved equal, and free of pernicious weeds. Standard sections of turf to be installed shall be of enough strength to support their own weight and to retain their size and shape when held within its upper ten (10) percent and suspended vertically.
- c. Turf shall be machine cut at a uniform thickness of 3/4 inch (plus or minus 1/4 inch) at the time of cutting. This thickness shall exclude shoot growth and thatch. Turf pieces shall be cut the supplier's standard width and length with a 5% deviation acceptable. Torn or uneven pads will not be accepted.
- d. Turf shall be harvested, delivered and installed within a period of 36 hours. Do not lay turf in

- ii. Contractor shall loosen surface soil to a depth of at least 6 inches, remove stones larger than 1 inch in any dimension, sticks, roots, trash and other extraneous matter. Apply soil amendments and fertilizers (applied dir

guying shall be completed immediately after planting. Plants shall stand plumb after staking in accordance with the landscape plan.

- ii. Tree ties shall be used to support and protect tree trunks or limbs which are guyed with wire. Tree ties should contact the trunk or limb with a broad, smooth surface and be elastic enough to minimize abrasion.
- j. Form a watering basin of mulch around trunk holding at least 5 gallons of water for trees and 2½ gallons for shrubs.
- k. Prune dead or broken branches with sharp instruments.
- l. Root Damage during construction: If roots are bigger than your wrist, contact the ODU Grounds Manager to determine how to cut/proceed.

32.19. Warranty

- a. New trees, shrubs, perennials and ground covers shall be guaranteed for one year from the date of issuance of Substantial Completion. The contractor's responsibilities include the protection of plantings, pest control, pruning, watering and plant material during warranty period. All plant material soil conditions must be inspected by ODU Grounds Manager. Warranty shall cover death and improper planting, unsatisfactory growth, neglect or damage by others excluded. The Contractor shall replace unsatisfactory plant materials with healthy, vigorous materials, planted only during the next specified planting season. Borderline plants shall be replaced.
- b. The one year warranty will restart for all replaced plant materials, beginning the day of replanting.

32.20. Inspection for Acceptance:

- a. Inspection of planting to determine completion of Contract work shall be made to confirm that all landscaping conforms to quantities and sizes listed in the planting schedule.
- b. The Contractor shall give at least 7 days notice requesting the inspection to the A/E and the ODU Project Manager who will coordinate inspection by the ODU Grounds Manager in conjunction with the A/E. The A/E will prepare a punch list and work found not in accordance with plans and specifications shall be subject to re-inspection.

32.21. Planting Procedures

- a. The width of each planting hole should be three times (3x) the size of the root ball. The depth of the hole shall be two inches (2") less than the distance from the bottom of the root ball to the root collar. The bottom and sides of the each hole should be scarified to encourage root development. Upon planting, all plants must be inspected to ensure that the root collar is exposed.
- b. Specific plants that require seasonal planting will be indicated on the planting plan.
- c. Actual plant installation shall occur only during periods when weather and soil conditions are favorable. As plants shall not be installed in unfavorable seasons, the Contractor shall indicate in the construction schedul

- f. Plant Placement - Each plant shall be placed in a straight, upright, and centered position in its planting hole or as specified. Balled and burlapped and container grown plants shall be handled only by their roots, balls and containers. Plants may settle after transplanting and water will collect around the trunks. In all but very well drained soils, plants will not establish and thrive if the tops of their root balls are below the level of the surrounding soil. Some plants should be planted slightly higher than they were originally growing to allow for this settling of the backfill or soil conditions. Consult with the A/E for recommendations. In no case, should the top portion of the root ball be exposed above surrounding soil line. Any special directions for planting in poorly drained soils or other specific plant needs will be indicated on the planting plan. Balled and Burlapped plants shall have all synthetic materials removed from the root ball, trunk or crown as they will not decompose and will cause damage to the plant. All synthetic straps, bands and twine shall be removed from one half (½) to one third (1/3) of the top of the root ball and all ropes or wires shall be removed from the plant's trunk or crown. Burlap shall be left intact around the edge of the root ball, but shall not be left on the upper portion of the ball or left exposed above the soil surface.
- g. Plant Selection: The Contractor shall use only plants that are nursery grown, unless otherwise specified and approved by the ODU Grounds Manager. All plants shall be in accordance with American Standard for Nursery Stock, latest edition. All plants shall be typical of their species or cultivar and have a normal growth habit. They shall be healthy, vigorous, well branched, and densely foliated when in leaf. Plants shall be free of disease, nematode, and insect pests, including insect eggs and larvae. They shall have a healthy, well developed root system.
- h. Regional Materials: Refer to [APPENDIX W – PLANT PALLET](#) for the list of acceptable materials. Plants should be sources within 100 miles of the Project site. If the Contractor believes that specified plant material cannot be sourced within 100 miles, the Contractor must inform the A/E and the ODU Project Manager in writing and wait for direction on how to proceed.
- i. Plant Substitutions: All substitutions in genus, species, cultivar or size made by the Contractor must be approved by the A/E and ODU Grounds Manager. Plants larger than specified may be substituted on approval of the A/E, but such plants shall not increase the contract price. If the use of larger plants is approved, the spread of roots or ball of earth shall be increased in proportion to the size of the plant. If larger sizes are used, any future replacements shall match the size installed.

32.22. Mulching

- a. Due to ODU's location and ongoing Stormwater management, it is imperative that the civil engineer and landscape architect coordinate closely to ensure we do not place trees with planned mulch beds, planted within 10 feet of storm drains. Mulch that washes into the Stormwater system creates ongoing flooding issues that we recognize needs to be avoided. If this is unavoidable, then pine straw can be substituted, but only with approval by the Campus Grounds Manager. The university understand mulch contributes to the overall health of plants and trees, so it is a balance between that and Stormwater management.
- b. All planting areas shall receive shredded hardwood bark mulch unless directed otherwise by the ODU Grounds Manager.
- c. Shredded hardwood bark mulched areas:
 - i. All shredded hardwood bark mulch shall be 100% shredded hardwood bark mulch. Each delivery must contain only single ground shredded hardwood bark that is clean, single ground, uniform

particle size (no piece shall be any longer than 3" and not wider than ½"), free of foreign matter, and aged for a minimum of six months.

- ii. The mulching material shall be 100% shredded hardwood bark mulch, applied 3" to 5" thick to achieve a minimum settling depth of 3".
- iii. Note: Only shredded hardwood bark mulch will be accepted; ground wood (not bark) will be rejected.
- d. Pine Straw:
 - i. All pine straw shall be clean, fresh, and free of branches and foreign matter.
 - ii. The mulching material shall be pine straw, applied four inches (4") to six inches (6") thick to achieve a minimum settling depth of three inches (3").
- e. Contractor shall mulch all trees and shrubs immediately after planting, NOT at the end of the entire planting project.
- f. The contractor shall mulch the planting holes and staked areas of individual trees shall be mulched, while the entire planting areas of shrub and ground cover beds shall be uniformly mulched. No soil, rocks, clods, or drip irrigation lines shall be visible through the mulch.
- g. Trees and tree like shrubs planted in turf areas shall have a circular mulch ring with a four foot radius from the trunk of the tree. All areas that are not turf or hardscape shall be mulched, unless otherwise specified. Do not place mulch within 3 inches of trunks or stems.

32.23. Underground Utility Offsets

- a. New utilities should be located so that the construction will not damage or destroy the plants to remain. Utility trenching shall not be located closer than one foot (1'-0") for each (1") in diameter, with a minimum of five feet (5'-0") and a maximum of twenty feet (20'-0") for trees to remain. Damaged trees and plants shall be restored to the satisfaction of the ODU Grounds Manager.
- b. To preserve trees and manage underground utilities, new trees shall not be planted:
 - i. Within ten feet (10'-0") of any existing underground utility lines with joints
 - ii. Within five feet (5'-0") of any existing underground utility lines without joints (joints may occur when they are at least ten feet from the tree center in both directions)
 - iii. Where new storm and sanitary sewer piping alignment cannot be avoided within ten feet (10'-0") of an existing or new tree, use HDPE butt-welded pressure piping.

32.24. Landscape Edging

- a. Landscape edging shall not be used.

32.25. Initial maintenance of trees and shrubs

- a. Trees and shrubs shall be maintained by the Contractor after final planting until final acceptance by the ODU Grounds Manger.
- b. Refer to section 32.15 Planting Irrigation.
- c. The Contractor shall remove weeds, replace mulch and restore eroded watering basins around trunks if needed.
- d. The Contractor shall remove all plant identification tags and labels.
- e. The Contractor shall apply insecticides, fungicides and herbicides if necessary to prevent or correct insect infestation or disease. Contractor shall apply pre-emergent herbicides for all plant beds.
- f. The Contractor shall dig up and correct any trees that are not plumb

32.26. Pruning

- i. Modular Tray Extensive: 1'x2' trays with interlocking capability and positive drainage cells, made with recycled content. Trays shall be set on a slip sheet/root barrier of 45-60 mil with bonded seams, of a material compatible with roofing membrane system. Trays shall be pre-grown for 1

- a. Parking spaces shall be delineated with a single stripe line configuration between 90 degree and angled parking spaces. All parking space lines shall be 4" in width. Ninety degree parking spaces shall be 9 feet wide center to center of the line configuration and 18 feet deep.

- c. Dimensions: 2" Wide x 4 3/4" deep x 1" tall with a 1/8" to 3/8" radius edge.
- d. Anchoring: minimum of two offset anchors set in two-part epoxy.
- e. Spacing: set 18" from end of planters and walls and then 36" +/- on center.
- f. Product: FR 0.12 By Skate Stoppers or equal.