

UNIVERSITY OF NEW HAMPSHIRE  
CONSTRUCTION AND RENOVATION STANDARDS

SECTION 02900 – LANDSCAPE

PART 1 - GENERAL

These standards are intended to assist in the design and construction of campus exterior spaces. Compliance with these standards is not intended to take the place of involving the Grounds and Roads Department in the early stages of the planning process. Involving the Grounds and Roads Manager or their appointee before anything is put on paper will help to insure construction of exterior spaces that are functional, maintainable and attractive for many years.

Before any design work is done for construction or renovation that will affect exterior spaces of the campus a site review shall take place with the manager of Grounds and Roads or their appointee to determine the value of the plant material in the area and what steps should be taken to protect or move it.

Plans for exterior spaces shall generally be designed with low maintenance in mind. Whenever possible areas shall be planned so that they can be maintained with power equipment as opposed to using labor intensive hand work especially for emergency response functions such as snow removal.

Decisions on plant selection and placement shall be made with the mature size of the species and cultivar in mind. Plantings that will require repeated annual prunings, such as sheared hedges and shrubs that grow too large for the spaces they are given shall not be accepted. When the correct selections are made it is possible to keep the shrubs at the desired size and shape through "natural" pruning techniques.

Diversity of plant species is necessary in order to reduce maintenance costs and insure healthy plant growth. Monoculture has been proven to be devastating from an aesthetic, monetary and environmental perspective. To increase bio-diversity on campus it is required that no more than five percent of the plants selected for a project be of one species and no more than ten percent be from one genus. It is extremely important that plant selections are site specific! Plants that are adaptable to a site will thrive, be healthier, more attractive and cost less to maintain over the years.

The most recent version of the following named standard shall be used:

American Standard for Nursery Stock      ANSI Z60.1  
1250 I Street, N.W., Suite 500  
Washington, DC 20005  
(202) 789-2900

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QUALITY ASSURANCE:

1. Landscape work shall be performed by firms specializing in landscaping and by qualified, experienced horticultural technicians.
2. Landscape materials shall comply with applicable governing regulations and be shipped with certificates of inspection. Packaged materials will be shipped in containers showing weight, certified analysis and name of manufacturer.
3. Substitutions shall be approved by Grounds & Roads Manager or his appointee. Submit proof of non-availability.

DELIVERY, STORAGE AND HANDLING:

1. Trees and Shrubs provided will be freshly dug and unpruned prior to delivery. Do not tie them in a manner that will damage bark, break branches or destroy their form. Prevent wind burn by covering plants during delivery. Balled and burlapped material will not be dropped during delivery or planting operations.
2. Deliver trees and shrubs after preparations for planting have been completed and plant immediately. If planting is delayed more than 6 hours after delivery, set trees and shrubs in shade and protect from weather and mechanical damage. Cover roots with mulch or burlap and keep roots moist at all times.

JOB CONDITIONS:

1. Planting schedule for trees and shrubs is recommended between April 1 and June 15 in spring and between Sept. 1 and Oct. 15 in fall.

PART 2 – PRODUCTS

TOPSOIL:

1. Topsoil that will be brought in or reused from the site shall be tested at the UNH Analytical services Lab at contractors expense. A copy of test results and recommendations will be made available to the Manager of Grounds and Roads. No topsoil shall be used until test results have been approved and all required amendments for intended crop have been made.
2. Existing topsoil from on-site shall be stock-piled and may be reused as long as it meets the specifications for off-site topsoil.
3. Off-site topsoil shall be a friable, loam containing 10%-25% organic matter after composting. It shall be free from toxic substances and particles of subsoil, roots, and rocks, over one-half inch in size. It shall also be free from roots and vegetative parts of weeds and noxious weeds seeds. The pH of soil for use with ornamentals shall be adjusted to meet the requirements of the different species to be planted.

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PLANT MATERIALS:

1. Plant Material shall be furnished in accordance with listing on drawings.
  - 1) All plants shall be healthy, freshly dug, and nursery grown under climatic conditions similar to that of the job site and shall conform to the varieties and sizes specified.
  - 2) Plants shall conform to the botanical names and standards of size, culture and quality for the highest grades and standards as complying with requirements of "American Standard for Nursery Stock", ANSI Z60.1 - latest edition, and shall exceed these standards where specimens are called for.
  - 3) Healthy vigorous stock shall be provided, grown in recognized nursery in accordance with good horticultural practice and, free from weeds, disease, insects or their eggs, and defects such as abrasions or improper pruning cuts to limbs or roots.
  - 4) Trees and shrubs shall be of good form and free from defects such as weak crotches and girdling roots. The trunk flare of all woody ornamentals shall be exposed prior to planting and the depth of the hole shall correspond to the height of the ball after any excess soil has been removed.
2. Deciduous trees shall be provided balled and burlapped and will not have been previously grown in containers. Trees shall be of height and caliper scheduled or shown with branching configuration recommended by ANSI Z60.1 for type and species required. Provide single stem, single leader trees except where special forms are shown or listed.
3. Deciduous shrubs shall be provided balled and burlapped and of the height shown or listed and with not less than the minimum number of canes required by ANSI Z60.1 for type and height of shrub required. B&B (balled and burlapped) stock previously grown in containers and showing circling roots will be rejected. Container grown stock may be accepted in lieu of B&B material provided no evidence of circling roots can be found.
4. Coniferous and broadleafed evergreens shall be provided balled and burlapped and at the sizes shown or listed. Dimensions indicate minimum spread for spreading and semi-spreading type evergreens and height for other types, such as globe, dwarf, cone, pyramidal, broad upright, and columnar. Provide normal quality evergreens with well balanced form complying with requirements for other size relationships to the primary dimensions shown. B&B stock previously grown in containers and showing evidence of circling roots will be rejected. Container grown stock may be accepted in lieu of B&B material provided no evidence of circling roots can be found.
5. Ground cover and vines shall be provided established and well rooted in removable containers or integral peat pots and with not less than minimum number and length of runners required by ANSI Z60.1 for the pot size shown or listed.

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6. Bulbs and perennials shall be provided in "top" size or largest size standardly available in conformance with ANSI Z60.1 latest edition.
7. Label at least one plant of each variety with a securely attached waterproof tag with legible designation of botanical and common names. Where formal arrangements or consecutive order of trees or shrubs are shown, select stock for uniform height and spread.
8. A list of desirable plants for the UNH campus follows Part 3.

SOIL AMENDMENTS:

1. Peat Moss shall be completely decomposed and free of fibers and hard lumps. It will be in granular form with pH in the range of plants to be grown.
2. Organic matter may be horticultural compost if it is free from toxins and sewage sludge and meets all state standards. Analysis and certification of compliance will be submitted for approval before use.
3. Organic biostimulant shall be a concentrated organic biostimulant that promotes root and shoot growth, increases stress resistance and reduces fertilizer requirements. At this time Roots produced by Roots Inc. is the only known product available that will accomplish this. This product shall be applied according to manufacturer's instructions.

PLANTING MATERIAL:

1. Mulch shall be partially decomposed shredded bark from pine or spruce trees free from sawdust, wood chips or contaminants.
2. Landscape fabric or weed control fabric shall not be used.
3. Anti-desiccants will be used only when absolutely necessary such as when evergreens are fall planted. When they are used they shall be an emulsion type, film-forming agent designed to reduce transpiration. They shall be applied according to manufacturer's instructions.
4. Tree stakes shall be 3" in diameter x 5' length cedar. Trees under 3" caliper shall have two stakes and trees over 3" caliper shall have three stakes.
5. Bracing materials shall be made of broad bands of soft cloth such as webbing material placed loosely around the trunk of the tree. Rope shall be used to tie webbing to the stakes by folding webbing and making a hole through double layer of material.
6. Tree wrap shall not be used. It is required to protect tree trunks during shipping and handling.

PART 3 - EXECUTION

PREPARATION:

1. Preparation for planting trees and shrubs in beds differs from planting individual specimens or rows of plants.

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- 1) When installing beds soils shall be amended to meet the requirements of the plants to be used as long as the entire area that the roots will grow into is treated.
- 2) When planting in beds the subgrade shall be loosened to a depth of 6" and topsoil spread to minimum depth as required to meet lines grades and elevations shown after light rolling and natural settlement. For trees and shrubs topsoil provided shall be at least one foot deep.
- 3) When the planting of trees and shrubs is to take place in new lawn areas the subgrade shall be loosened and topsoil spread so that it is at least a foot deep in the areas to be planted. This soil shall also be amended if the entire area the roots will grow into is treated.
- 4) When planting trees and shrubs in areas that will not otherwise be disturbed do not disturb the subgrade and do not amend the soil unless the entire area the roots will be growing into can be amended.

PLANTING:

1. Planting trees and shrubs:

- 1) First place plants next to their designated location and removing the rope and burlap from the top of the ball.
- 2) Then look for the trunk flare (the point where the trunk widens and the roots begin). If the trunk flare is not visible gently remove the soil from the top of the ball until the flare and the beginning of the horizontal lateral roots can be seen. Care must be taken to avoid damaging roots. The flare is where the soil line should have been if the plant had been grown and dug properly. The depth of the hole shall be the same as the distance from the bottom of the root ball to the trunk flare.
- 3) The soil shall be loosened far beyond the drip line of the plant and when digging the sides of the hole will slope up gradually away from the center. Any glazed areas in the soil created by the digging process shall be loosened or scored in order to allow roots and water to penetrate. Do not disturb the area below the plant or if it has already been disturbed make sure it is compacted to prevent settling of plant material. If the ball is wrapped only in burlap the top half of the burlap shall be removed after the plant has been placed in the hole. Any synthetic materials (plastic) used to cover root ball shall be removed entirely. Wire cages shall be cut while the tree is next to the hole and the tree shall be rolled off the cage and into the hole. If the ball is loose or likely to fall apart, the bottom of the cage can be removed and the tree can be placed in the hole and the sides of the cage cut and removed.
- 4) Any container grown stock shall be removed from the container and the trunk flare exposed. The roots shall be cut vertically with a sharp knife or pruners at three evenly spaced places before planting.
- 5) Plants shall be backfilled with the same soil that is surrounding the hole and no amendments will be used unless the entire area the roots will grow into is amended likewise. No nitrogen containing fertilizer shall be added at planting time. Once the plant is set and about a third of the backfill is in place saturate the

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soil with water. Fill the remainder of hole to match existing or final grades but do not cover top of rootball. Apply organic biostimulant according to manufacturers instructions and saturate the remainder of the backfill with water. Water out beyond the dripline.

2. Mulching shall be done by spreading around trees and shrubs to a depth of 2 inches. In shrub beds it shall cover the entire area of the bed evenly. For trees planted in turf areas the mulch should extend out to the dripline or for larger trees mulch shall be in a circle at least 8 feet in diameter.
3. Pruning of new Plantings shall not be done except to remove any dead or broken branches. Any excessively pruned or misshapen plants shall be removed and replaced.
4. Staking of trees shall be done immediately after planting and low enough to allow trees to sway. Broad bands of cloth webbing shall be placed loosely around the trunk of the tree with the webbing being tied off to stakes with rope threaded through holes in folded webbing. Two stakes are required for trees 3" caliper and under, three stakes are required for trees over 3".
5. Anti-desiccants shall not be applied except for in extreme conditions such as planting evergreens in mid to late fall.
6. Tree wraps and wound dressings shall not be used under any circumstances.
7. Watering shall be done twice within the first twenty-four hours after plants are installed and at least twice a week until provisional acceptance by the UNH Grounds and Roads Department. Watering shall be done out beyond the root ball in order to encourage root development past the planting hole. The UNH Grounds and Roads Manager shall be notified in writing as to the date that Grounds and Roads is expected to begin maintenance of a completed project.

END OF SECTION