

## LEGAL NOTICE

### TOWN OF WAYLAND ADVERTISEMENT

#### Invitation to Bid:

Notice is hereby given that the Town of Wayland, the Awarding Authority, as represented by the Wayland Board of Selectmen, invites sealed bids to the **North Cemetery Landscaping Improvements, Bid # 12-17**, 41 Cochituate Road, Wayland, MA. 01778.

The work shall consist of clearing, grubbing and landscape planting as indicated on the bidding documents within the North Cemetery property. Quality assurance testing of the work shall be performed in accordance with the plans and specifications.

Bidding procedures shall be in accordance with Chapter 39M of the Massachusetts General Laws as amended.

Sealed bids for the contract will be received by the Office of the Director of Public Buildings, Town of Wayland, 41 Cochituate Road, Wayland, MA 01778 until **2:00 p.m. (Eastern Time) on Thursday, March 1, 2012**. All bids will be publicly opened and read aloud immediately thereafter at the location set forth in the previous sentence.

Bidders may obtain complete sets of the bidding documents, including bid forms, any time after **12:00 p.m. on Wednesday, January 18, 2012** by emailing [jmoynihan@wayland.ma.us](mailto:jmoynihan@wayland.ma.us) or by picking up copies at the Town offices located at 41 Cochituate Road, Wayland, MA.

Every bid shall be accompanied by a bid security equal to five percent (5%) of the bid amount in the form of a bid bond, cash or a certified treasurer's or cashier's check issued by a responsible U.S. bank or trust company, payable to the Town of Wayland. Each bidder shall attach the required bid security to his or her bid form.

The bid securities of all bidders, except those of the three lowest responsible and eligible bidders, will be returned within five (5) days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

The Awarding Authority reserves the right to reject any or all bids if it be in the public interest to do so.

The successful bidders shall be required to furnish a performance bond and a payment bond as required by the contract documents.

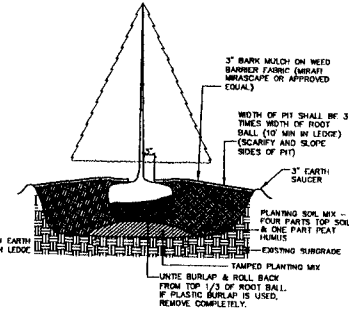
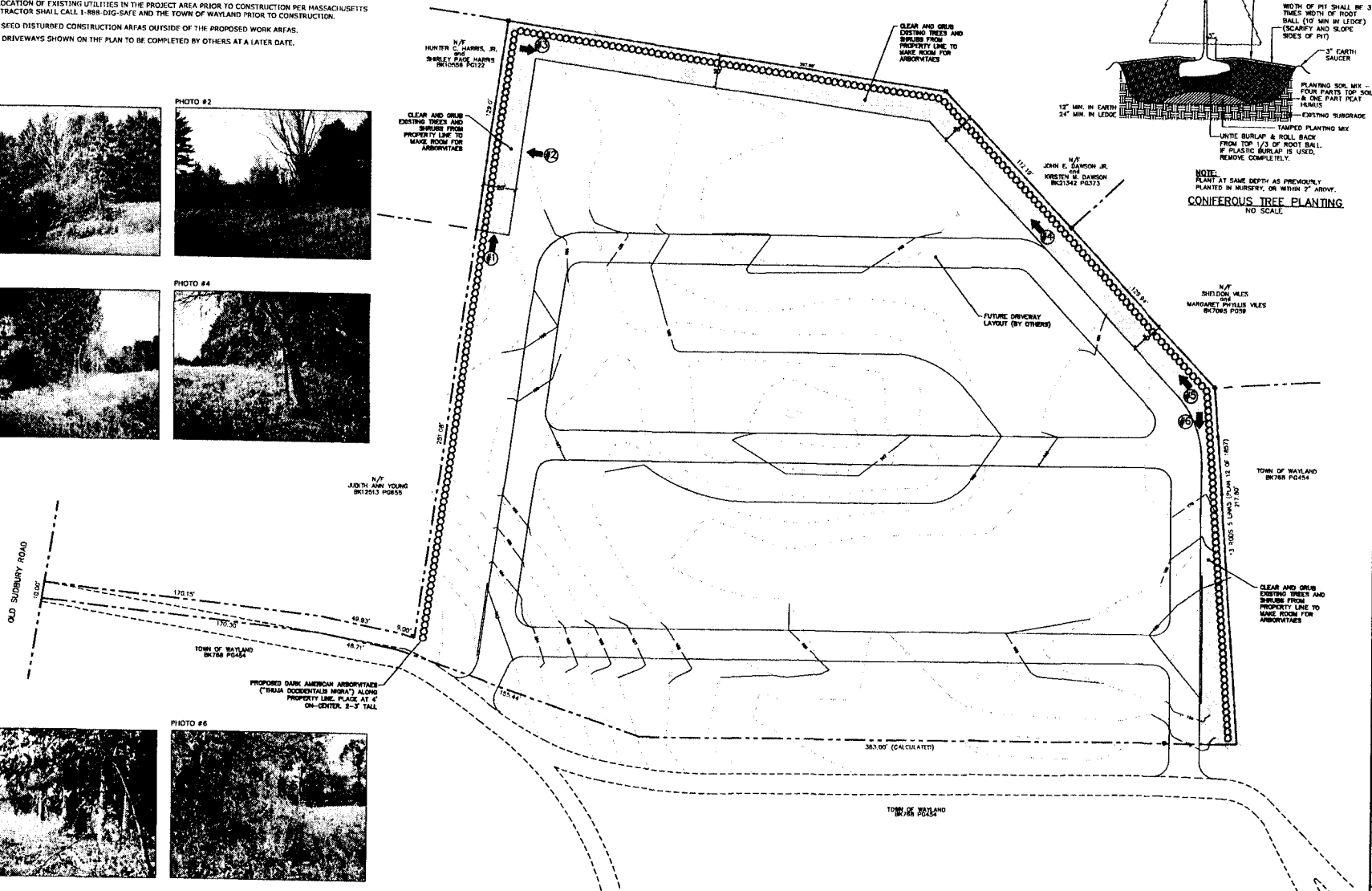
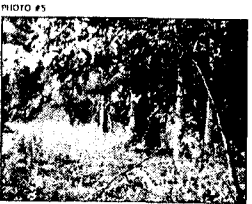
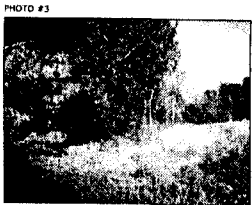
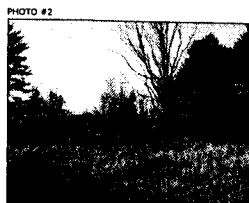
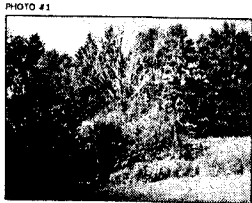
All bids for this project are subject to the provisions of either or both the Massachusetts General Laws (MGL) Chapter 30, Section 39M as amended, and Chapter 149, Sections 44A through 44L inclusive and Sections 26 through 27D inclusive.

No less than the minimum salaries and wages as established by the Massachusetts Department of Labor and Industries shall be paid on this project, as set forth in the contract documents.

All bids shall remain in effect for thirty (30) days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

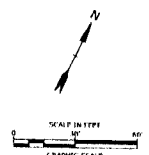
For publication in the *Wayland Town Crier* on Thursday, January 19, 2012

1. TOPOGRAPHICAL BASE PLAN FROM PLAN ENTITLED "TOPOGRAPHICAL PLAN OF LAND, WYLAND, MASSACHUSETTS" DATED NOV. 25, 1998 BY SNEELING & HANSEL ASSOCIATES.
2. ELEVATION BENCH MARKS:  
BMS HIGH POINT OF GRANITE POST AT LOT CORNER. ELEV. = 162.48  
BMS RAILROAD SPIKE SET AT BASE OF A 36" OAK. ELEV. = 172.16  
ELEVATIONS REFER TO N.G.V.D. OF 1929. SEE PLAN REFERENCE IN NOTE 2 ABOVE FOR ADDITIONAL INFORMATION.
3. CONFIRM LOCATION OF EXISTING UTILITIES IN THE PROJECT AREA PRIOR TO CONSTRUCTION PER MASSACHUSETTS LAW. CONTRACTOR SHALL CALL 1-888-DIG-SAFE AND THE TOWN OF WYLAND PRIOR TO CONSTRUCTION.
4. LOAN AND SEED DISTURBED CONSTRUCTION AREAS OUTSIDE OF THE PROPOSED WORK AREAS.
5. PROPOSED DRIVEWAYS SHOWN ON THE PLAN TO BE COMPLETED BY OTHERS AT A LATER DATE.



NOTE:  
PLANT AT SAME DEPTH AS PREVIOUSLY  
PLANTED IN NURSERY, OR WITHIN 2" ABOVE.

CONIFEROUS TREE PLANTING  
NO SCALE



**Town of Wayland**

### North Cemetery Improvements

Wayland, Massachusetts

Mark	Date	Description
		PROJECT NO. 3210051
		FILE: W 16A5 Mill. Carcetry Options.shg
		DRAWN BY: RJL
		CHECKED: RUP
		APPROVED: IRC

**SITE PLAN - OPTION 1**

SCALE: AS SHOWN

SHEET 1 OF 1

SECTION 02200  
SITE PREPARATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes
  - 1. Clearing and grubbing
  - 2. Grading
  - 3. Stripping and stockpiling of soil and sod

1.2 SUBMITTALS

- A. Submit construction methods and equipment that will be utilized for the clearing, grubbing, and waste material disposal specified within this Section.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

- A. Except as otherwise directed, cut, grub, remove and dispose of all trees, stumps, brush, shrubs, roots and any other objectionable material within the limits of the Work on the site and where required to construct the work.
- B. Protect trees or groups of trees, designated by the Engineer to remain, from damage by all construction operations by erecting suitable barriers, or by other approved means. Conduct clearing operations to prevent falling trees from damaging trees designated to remain.
  - 1. All damage done to the trees by the Contractor's operation shall be trimmed and painted where cut as directed or as necessary to provide adequate vertical clearance for construction activities. The dressing or paint shall be applied no later than two days after the cuts are made.
  - 2. Use all necessary precautions to prevent injury to other desirable growth in all areas. Contractor shall assume full responsibility for any damage.
- C. Protect areas outside the limits of clearing from damage. No equipment or materials shall be stored in these areas.
- D. No stumps, trees, limbs, or brush shall be buried in fills or embankments.

3.2 DISPOSAL OF MATERIALS

- A. Remove all tree trunks, limbs, roots, stumps, brush, foliage, other vegetation and objectionable material from the site and dispose of in a legal manner.
- B. Burning or direct burial of cleared and grubbed materials on-site will not be permitted.

### 3.3 GRADING

- A. In preparation for placing loam, paved drives and appurtenances, perform grading to the lines, grades and elevations shown on the Drawings, and otherwise directed by the Engineer and perform in such a manner that the requirements for formation of embankments can be followed. All material encountered, regardless of its nature, within the limits indicated, shall be removed and disposed of as directed. During the process of grading, maintain the subgrade in such condition that it will be well drained at all times. Install temporary drains and drainage ditches to intercept or divert surface water that may affect the work when necessary.
- B. If at the time of grading it is not possible to place material in its final location, stockpile material in approved areas for later use. No extra payment will be made for the stockpiling or double handling of excavated material.
- C. The right is reserved to make minor adjustments or revisions in lines or grades if found necessary as the work progresses.
- D. Stones or rock fragments larger than 4 inches in their greatest dimensions will not be permitted in the top 12 inches of the finished subgrade of all fills or embankments except along the access roadways and rip-rap where shown on the Drawings.
- E. In cuts, loose or protruding rocks on the excavated slopes shall be barred loose or otherwise removed to line or finished grade of slope. Cut and fill slopes shall be uniformly dressed to the slope, cross-section and alignment shown on the Drawings or as directed by the Engineer.

### 3.4 DUTCH ELM WOOD

- A. Dutch Elm diseased wood shall be disposed of in accordance with any local regulations.
- B. Where the work includes the removal of elm trees or the limbs of elm trees, such trees or limbs thereof shall be disposed of immediately after cutting or removal and in such a manner as to prevent the spread of Dutch Elm disease. This shall be accomplished by covering them with earth to a depth of at least 6 inches in areas outside the right-of-way locations where the Contractor has arranged for disposal.
- C. Where the work includes the removal and disposal of stumps of elm trees, such stumps shall be completely disposed of immediately after cutting in the manner specified above.

END OF SECTION

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## SECTION 02230

## SITE CLEARING

## PART 1 GENERAL

## 1.1 SUMMARY

## A. Section Includes

1. Clearing and Grubbing
2. Stripping and Stockpiling of Soil and Sod

## PART 2 PRODUCTS - NOT USED

## PART 3 EXECUTION

## 3.1 CONSTRUCTION

## A. Clearing and Grubbing

1. Confine all work to the location indicated on the Design Plans, as well as any temporary easements obtained for the Work.
2. Carry out all clearing and grubbing in accordance with the Contract Documents. Minimize removal of all vegetation with particular care to protect all trees.
3. Burning of trees, brush, and stumps will not be permitted. Provide a satisfactory method of disposal.
4. In all cleared areas and under all embankments, grub and remove stumps of all trees, brush and major roots.
5. For tree trimming and pruning, painting with an approved tree dressing or paint will be required on all cuts 2 inches or over in diameter. Apply the dressing or paint no later than two days after the cuts are made. All limbs and branches which require removal and all stubs, regardless of age, must be cut flush either to a union with the next larger sound limb or branch or flush to the trunk of the tree. The cutting shall be performed by experienced arborist. Trained tree climbers are required for pruning of tall growth. Prevent injury to trees and shrubs indicated to be preserved. Repair an injury to limbs, bark or roots of such plants, or replace the plants at no additional cost to the Owner.
6. All trees and branches 4 inches to 12 inches in diameter shall be cut in 4 foot lengths and stockpiled on a site designated by the Engineer and shall be removed from the site. Satisfactorily dispose of all remaining wood, stumps, brush, twigs, leaves, roots and trash as soon as practicable and in such a manner as not to detract from the appearance of the area.

## B. Dutch Elm Wood

1. Dispose of Dutch Elm diseased wood in accordance with the provisions of Massachusetts General Law, Chapter 87, Section 5 and Chapter 132, Sections

8 and 11, as amended; and in accordance with any additional local regulations.

2. Dispose of elm trees or limbs immediately after cutting or removal and in such a manner as to prevent the spread of Dutch Elm disease. Accomplish by covering them with earth to a depth of at least 6 inches in areas outside the right-of-way locations where the Contractor has arranged for disposal.
3. Where the work includes the removal and disposal of stumps of elm trees, completely dispose of such stumps immediately after cutting in the manner specified above.

C. Stripping and Stockpiling of Soil and Sod

1. When excavating through existing grass, weed brush or tree-surfaced areas, strip and salvage existing loam and surface materials.
2. Machine-excavate and stockpile the salvage material.
3. Keep stockpile of salvage material separate from the other stockpiles of excavated material.

3.2 PROTECTION

- A. Save trees and shrubs that are specifically designated by the Engineer not to be cut, removed, destroyed or trimmed from harm and injury. All damage done to trees by the Contractor's operation and all branches of trees extending within the roadway shall be trimmed and painted where cut or as necessary to provide adequate vertical clearance for construction, including selective trimming of such trees as directed.
- B. Use all necessary precautions to prevent injury to other desirable growth in all areas. If the existing ground in the area is disturbed by any of the Work or equipment, rough-grade, loam and seed the disturbed areas, at no additional cost to the Owner. After removal, dispose of all stumps including the major root systems where the material will not cause obstructions to streams and will not detract from the appearance of the roadside.

END OF SECTION

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SECTION 02900

LANDSCAPING

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
  - 1. Planting of trees, shrubs and bushes.
- B. Related Sections:

1.2 REFERENCES

- A. Massachusetts Department of Public Works Standard Specifications for Highways and Bridges (MDPW) 1988, as amended.
- B. American Association of Nurserymen (AAN) Specifications.

1.3 SUBMITTALS

- A. Planting Soil Analysis: Furnish a planting soil analysis prepared by a commercial or government agency approved by the Engineer to show that all amendments necessary for good plant growth have been added.
- B. Bark Mulch: Furnish one cubic foot with name and address of the supplier.
- C. Instructions to the Owner: Furnish complete written instructions for maintenance of the plant materials to the Owner at least ten days prior to the end of the maintenance period in order to familiarize the Owner with the proper care and development of the plantings.
- D. Furnish certifications from plant suppliers indicating the botanical name, quantity, and size of plants to be delivered to the project.
- E. Inspection and Acceptance: Submit inspection notice and planting plan per Section 3.11.

1.4 QUALITY ASSURANCE

- A. Perform Work with experienced personnel under the direction of a skilled foreman with a minimum of three years experience with similar type and size projects.
- B. Plants are subject to inspection and approval by the Engineer before delivery for conformity to Specification requirements as to quality, size and variety.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Only deliver plant materials immediately prior to installation.
- B. Deliver plant materials to the site in accordance with the best horticultural practices to prevent damage.
- C. Move and handle plant materials so as to prevent damage to roots and crowns.

- D. "Heal-in" plants that cannot immediately be installed with bark mulch or wood chips in a location that protects the plants from sun and wind. Rootballs and containers shall be completely covered and kept consistently moist until installation.
- E. Replace damaged and unhealthy plant materials prior to installation as directed by the Engineer.

#### 1.6 WARRANTY

- A. Plants shall be true to botanical name and size, and in vigorous healthy growing condition.
- B. Plants shall be guaranteed for 1 year from date of original or replacement installation.

### PART 2 PRODUCTS

#### 2.1 PLANT MATERIALS

- A. Plant material requirements:
  - 1. Nursery grown, conforming to the American Association of Nurserymen Standards.
  - 2. Hardy under climatic conditions similar to those in the locality of the project.
  - 3. Typical of their species or variety, with a normal habit of growth.
  - 4. Sound, healthy and vigorous.
  - 5. Well branched and densely foliated when in leaf.
  - 6. Free of disease, insect pests, eggs or larvae, and with healthy, well-developed root systems.
- B. Substitutions shall be permitted only upon written approval of the Engineer.
- C. Dimensions shall conform to specifications in the current edition of Horticultural Standards of the American Association of Nurserymen.
- D. Types and sizes of deciduous and evergreen plants for this project shall be as shown on the project drawings
- E. Plant sizes shall conform to measurements specified in the Contract Documents. Use of plants larger than specified will be acceptable if approved by the Engineer, and at no increase to the contract price.

#### 2.2 MISCELLANEOUS MATERIALS

- A. Planting soil shall be prepared based on the following proportions.
  - 1. One part dehydrated sterilized manure.
  - 2. One part peat moss.
  - 3. Three parts vegetative support material with a pH of 6.0 to 6.5.
- B. The following amendments shall be incorporated into the prepared planting soil prior to backfilling of planting pits in accordance with the planting soil analysis.



1. Fertilizer: Complete with 70% of the nitrogen derived from organic sources.
  2. Lime: Ground dolomite limestone; 95% passing through a 100-mesh sieve.
  3. Super Phosphate: Finely ground phosphate rock as commonly used for agricultural purposes containing not less than 18% available phosphoric acid.
  4. Bone Meal: Commercial raw bone meal, finely ground, minimum analysis of 1% nitrogen and 18% phosphoric acid.
  5. Peat Moss: Shall be domestic brown sphagnum peat; natural, shredded or granulated with a pH of 4.0 to 5.0; low in woody material content; free from mineral matter such as sulfuric and iron harmful to plant life; water absorbing capacity of 1100% to 2000%; and moisture content of 30%.
- C. Anti-Desiccant shall be "Wilt-Pruf" or equal approved by Engineer, delivered in manufacturer's containers and used according to manufacturer's instruction.
- D. Bark Mulch shall be 100% fine shredded pine or hardwood bark, free of foreign matter size ranging from ¼ inch to 2 inch.

### PART 3 EXECUTION

#### 3.1 PLANTINGS

- A. Plant trees and shrubs in pits 12 inches greater in width than the diameter of the root ball. Pit depth shall be sufficient to ensure a minimum of 6 inches of planting soil mixture under plant root system.
- B. Set plants in center of pits, plumb and straight and at level that top of root ball is 1 inch lower than surrounding finished grade after settlement.
- C. Compact topsoil mixture thoroughly around base of root ball to fill all voids, when plant material is set. Cut all burlap and lacing and remove from top of root ball. Do not pull burlap from under any root ball. Backfill pits halfway with planting soil mixture and thoroughly puddle before backfilling pit. Water planting, again, when each backfill operation is complete.
- D. Thoroughly compact topsoil planting mixture around root balls and water. Immediately after plant pit is backfilled, form a shallow saucer slightly larger than pit with ridge of soil to facilitate and contain watering. Grub out sod or other growth and remove from bed area. Rake bed area smooth and neat.
- E. Pine bark mulch is to be placed in a 3 inch thickness around the planting. The area to be mulched shall be circular with a diameter of 12 inches greater than the plantings root ball.
- F. Mulch is to be contained around the circumference of the planting by means of installing a metal edge strip. Metal edge strips shall be fastened securely in place with tapered metal stakes at 30 inch intervals along the strip. Set edge strips to finished grade.
- G. All plantings 10 feet or higher shall be supported by a minimum of 2 wooden stakes driven into the ground within the mulch area. Guide wires with garden hose protection shall be attached.

- H. Prune each shrub in accordance with American Association of Nurserymen standards to preserve natural form and character of plant. All pruning is to be done with clean, sharp tools and carried out only by workmen thoroughly familiar with this type of work.
- I. Apply antidessicant to all evergreen trees and shrubs and to all deciduous plant materials which are leafed out at time of planting. Rate and method of application in accordance with manufacturer's recommendations.
- J. All plantings shall be in accordance with American Association of Nurserymen standards.

### 3.2 TIME OF PLANTING

- A. The time of planting shall be guided by the schedule below unless otherwise approved by the Engineer based on plant types, weather conditions or other factors that may be detrimental to plant growth.

Material Type	Spring	Fall
Evergreen	March 15 <sup>th</sup> to June 1 <sup>st</sup>	August 15 <sup>th</sup> to October 1 <sup>st</sup>

### 3.3 EXISTING CONDITIONS

- A. Refer to Drawings showing finish grades. No installation of plants shall take place until all subgrade elevations have been completed.
- B. Prior to planting, verify locations and depth of underground utilities. Exercise care when digging in these areas. Assume responsibility for any damage and replace or repair any damage at the Contractor's expense to the satisfaction of the Engineer.

### 3.4 FIELD MEASUREMENTS

- A. Make all necessary measurements to properly locate the plants as shown on the Drawings. Location and arrangement of plants shall be approved by the Engineer prior to installation.
- B. Plants installed prior to approval by the Engineer shall be relocated, if necessary, at no additional cost to the Owner.

### 3.5 PLANTING PITS

- A. Excavate to the depths and widths necessary to achieve the dimensions indicated on the Drawings.
- B. Excavated soil and material may be used as a portion of the backfill and planting soil provided it meets the requirements of Section 02921 and Section 2.2 herein.

### 3.6 INSTALLING EVERGREEN PLANTS

- A. Place sand or stone drainage layer in the bottom of the pit if required due to wet conditions. Place prepared planting soil and tamp firmly until the required depth is achieved. Place the plant in the center of the pit or spaced in beds as indicated on the Drawings. Set the plant plumb and adjust its height to achieve the elevation shown on the Drawings by placing prepared planting soil beneath the rootball. Burlap, rope, wires or other material shall be cut and removed from the top 1/2 of the rootball and not left in the planting pit. Backfill around the rootball with

prepared planting soil. Uniformly compact and water the prepared planting soil to fill all voids and to firmly secure the rootball.

- B. Form a shallow "saucer" at the surface of the planting pit or bed with topsoil. Blend the perimeter of the saucers and beds to form a smooth and uniform transition to the finish grade.
- C. Immediately after planting neatly spiral wrap tree trunks from the bottom to the height of the second set of branches. Secure wrapping using suitable methods.

### 3.7 MULCHING EVERGREEN PLANTS

- A. Cover all tree pits and shrub beds with bark mulch. Neatly outline the edges of the saucer at a uniform radius from the tree trunk.

### 3.8 PRUNING

- A. Prune plants in accordance with American Association of Nurserymen Standards to preserve the natural character of the plant.
- B. Remove all dead wood or suckers and all broken or badly bruised branches. Paint cuts over 1 inch in diameter with a tree paint especially manufactured for this purpose. Cover all exposed cambium as well as other exposed living tissue.

### 3.9 PLANT MAINTENANCE

- A. Begin maintenance immediately after planting and continue for 1 year from date all plantings have been installed. Plantings done in late fall after November 1st shall be maintained until the second spring leafing.
- B. Continue the maintenance period at no additional cost to the Owner until all previously noted deficiencies have been corrected, at which time the final inspection will be made.
- C. All plant materials shall be watered, fertilized, pruned, weeded, and sprayed as required to keep plant material in a healthy growing condition, and to keep planted areas neat and attractive.
- D. Provide all equipment and means for proper application of water to plants.
- E. Fertilize plants in spring and fall.
- F. Protect all planted areas against damage, including erosion and trespassing by providing and maintaining proper safeguards.
- G. Reset settled plants to proper grade and position.

### 3.10 REPLACEMENT OF DECIDUOUS AND EVERGREEN PLANTS

- A. Dead or declining plant material shall be removed immediately and replaced as soon as possible with a new, healthy plant of the same type and size as specified, at no additional cost to the Owner. Replacement plants shall be maintained and guaranteed for 1 year from time of replacement.
- B. All plant material required under this contact, deemed by the Engineer to be unsightly, unhealthy, or excessively pruned, during and at the end of the guarantee period, shall be replaced as soon as conditions permit.

- C. At the end of the maintenance period all plant material shall be in a healthy growing condition.

3.11 INSPECTION AND ACCEPTANCE

- A. The Engineer shall be the sole judge of acceptance.
- B. All materials and workmanship will be subject to inspection and examination by the Engineer, and he/she shall have the right to reject defective materials and workmanship or require corrections.
- C. Submit written notice requesting inspection by the Engineer at least 10 days prior to the end of the maintenance period.
- D. Submit planting plans indicating the dates plants were installed for purposes of establishing warranty and replacement dates.

END OF SECTION

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## SECTION 02920

## LAWNS AND GRASSES

## PART 1 GENERAL

## 1.1 SUMMARY

## A. Section Includes

1. Restoration of all vegetated areas disturbed during construction including:
  - a. Lawn areas
  - b. Grass surfaces
  - c. Tree belts
2. New loam and seed areas
3. Loam, starter fertilizer, lime, lawn seed

## B. Related Sections

1. Section 02230 – Site Clearing

## 1.2 REFERENCES

- A. ASTM D5539 – Standard Specification for Seed Starter Mix

## 1.3 QUALITY ASSURANCE

- A. Place seed only between the periods from April 15<sup>th</sup> to June 1<sup>st</sup>, and from August 15<sup>th</sup> to October 1<sup>st</sup>, unless otherwise approved by the Engineer.

## 1.4 SUBMITTALS

## A. Submit the following for approval:

1. Lawn seed mixture including percent by weight of each seed type, and manufacturer/supplier name.
2. Suitable laboratory analysis of the soil to determine the quantity of fertilizer and lime to be applied.
3. Lime and starter fertilizer application rates based on laboratory soil tests.

## PART 2 PRODUCTS

## 2.1 MATERIALS

## A. Loam

1. Loam shall consist of fertile, friable, natural topsoil typical of the locality without admixture of subsoil, refuse or other foreign materials and shall be obtained from a well-drained arable site. It shall be such a mixture of sand, silt and clay particles as to exhibit sandy and clayey properties in and about equal proportions. It shall be reasonably free of stumps, roots, heavy or stiff

clay, stones larger than 1-inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other litter. Topsoil as delivered to the site or stockpiled shall have pH between 6.0 and 7.0 and shall contain not less than 5 percent or more than 8 percent organic matter as determined by loss of ignition of moisture-free samples dried at 100 degrees Celsius. The topsoil shall meet the following mechanical analysis:

**PERCENTAGE FINER**

1-in screen opening	100
No. 10 mesh	95 to 100
No. 270 mesh	35 to 75
0.002 mm*	5 to 25

\* Clay size fraction determined by pipette or hydrometer analysis.

2. Place a minimum of 4 inches of loam.
- B. Starter Fertilizer
  1. Starter fertilizer shall bear the manufacturer's name and guaranteed statement of analysis, and shall be applied in accordance with the manufacturer's directions.
  2. Starter fertilizer shall be Scott's Starter Fertilizer, or equal, with timed nitrogen release to prevent burning.
- C. Lime
  1. Lime shall be an agricultural type ground limestone.
- D. Lawn Seed
  1. Seed shall be of the previous year's crop.
  2. Required ranges:
    - a. Purity > 90%
    - b. Germination > 80%
    - c. Crop < 0.5%
    - d. Weed < 0.3%
    - e. Noxious Weed - 0%
    - f. Inert < 8%
  3. The standard seed mixture shall be applied at a minimum rate of 175 lbs./acre, 4 lbs./1,000 sf.
  4. Grass seed shall conform to the following mixture in proportion by weight and weed content and shall pass the minimum percentages of purity and germination as indicated for same.

LAWN AREA SEED MIX	% WEIGHT
"Rebel II" Tall Fescue	70%
"Baron" Kentucky Bluegrass	10%
"Palmer" Perennial Ryegrass	20%

5. All seed shall comply with State and Federal seed laws.
6. A sworn certificate indicating each variety of seed, weed content, germination of seed, net weight, date of shipment and manufacturer's name shall accompany each seed shipment. Responsibility for satisfactory results rests entirely on the Contractor.

### PART 3 EXECUTION

#### 3.1 PREPARATION

- A. In accordance with Section 02230, salvage all existing loam and stockpile at an acceptable on-site location.
- B. The ground surface shall be fine graded and raked to prepare the surface of the loam for lime, fertilizer and seed.
- C. Perform a laboratory soil test on the proposed loam before placing any lime, fertilizer, or seed. This work shall be in accordance with ASTM D5539.

#### 3.2 LAWN AREAS

- A. Apply fertilizer and lime to the surface of the ground in accordance with the manufacturers' instructions, and based on the results of the certified soils test.
- B. Place the seed using a drop or rotary spreader at the rate recommended by the seed manufacturer for the intended use of the lawn or grass area being restored.
- C. After spreading the seed, lightly rake the surface to work the seed in. The surface shall then be rolled.

#### 3.3 MAINTENANCE

- A. Maintain loamed and seeded areas by mulching, covering, netting, watering and fencing until an acceptable stand of vegetation is approved by the Engineer.
- B. The dressed and seeded areas shall be sprinkled with water as necessary from time to time. Signs and barricades should be placed to protect the seeded areas. After the grass has started to grow, all areas and parts of areas that fail to show a uniform stand of grass shall be seeded repeatedly until all areas are covered with a satisfactory growth of grass.

#### 3.4 SPECIAL CONSIDERATIONS

- A. Following the final top course of paving, all pavement edges, waterways, sidewalks and berms shall be brought to grade with loam, fine graded, raked, seeded, and rolled to the satisfaction of the Engineer. The final surface of the loam backup shall

slope away from the surface edge to allow proper sheeting of runoff. The Contractor shall protect, maintain, and repair seeded areas until a satisfactory start of healthy grass is established.

### 3.5 RESTORATION

- A. In locations where the Work passes through existing grass, weed brush or tree-surfaced areas that are not covered by a specific lawn repair item, surface restoration shall be as follows:
  - 1. After completion of backfilling, the existing loam and organic ground cover materials that were salvaged during excavation shall be returned to the top of the trench.
  - 2. After natural settlement and compaction has taken place, the trench surface shall be harrowed, dragged and raked as necessary to produce a smooth and level surface.
  - 3. The area is then to be sowed with "orchard grass" or "rye grass" or other such materials to hold the soil and produce a growth similar to that existing prior to construction.

### 3.6 GUARANTEE PERIOD AND FINAL ACCEPTANCE

- A. At the end of the guaranteed period, inspection will be made by the Engineer upon written request submitted at least 10 days before the anticipated date. Seeded areas not demonstrating satisfactory stands as outlined above, as determined by the Engineer, shall be renovated, reseeded and maintained meeting all requirements as specified herein.
- B. After all necessary corrective work has been completed, the Engineer shall certify in writing the final acceptance of the seeded areas.

END OF SECTION

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## SECTION 02921

## VEGETATIVE SUPPORT MATERIAL

## PART 1 GENERAL

## 1.1 SUMMARY

## A. Section Includes

## 1. Topsoil

## 1.2 SUBMITTALS

- A. Provide representative samples of borrow materials taken from the source. Tag, label, and package the samples as requested by the Engineer. Provide access to the borrow site for field evaluation and inspection.
- B. Provide analytical test results at the rate specified. Results shall indicate whether sample was taken from the upper or lower 6 inches of the vegetative support materials. All samples shall be representative and analyzed for the following:

- pH
- Nitrogen
- Phosphorus
- Potash
- Grain size
- Organic content

## PART 2 PRODUCTS

## 2.1 MATERIALS

## A. Vegetative Support Material

- 1. Vegetative support material shall consist of fertile, friable, natural topsoil typical of the locality without admixture of subsoil, refuse or other foreign materials and shall be obtained from a well-drained arable site. It shall be such a mixture of sand, silt and clay particles as to exhibit sandy and clayey properties in and about equal proportions. It shall be reasonably free of stumps, roots, heavy or stiff clay, stones larger than 1-inch in diameter, lumps, coarse sand, noxious weeds, sticks, brush or other litter. Topsoil as delivered to the site or stockpiled shall have pH between 6.0 and 7.0 and shall contain not less than 5 percent or more than 8 percent organic matter as determined by loss of ignition of moisture-free samples dried at 100 degrees Celsius. The topsoil shall meet the following mechanical analysis:

	PERCENTAGE FINER
1-in screen opening	100
No. 10 mesh	95 to 100
No. 270 mesh	35 to 75
0.002 mm*	5 to 25

\* Clay size fraction determined by pipette or hydrometer analysis.

2. Prior to stripping, the topsoil shall have demonstrated; by the occurrence upon it of healthy crops, grass or other vegetative growth; that it is reasonably well drained and that it does not contain toxic amounts of either acid or alkaline elements.

## 2.2 EQUIPMENT

- A. Earth Moving Equipment
- B. Adequate types and number of equipment shall be used to ensure that the vegetative support material is spread evenly and at the proper depth to all areas intended to be covered without damaging underlying soil layers or structures.

## PART 3 EXECUTION

### 3.1 INSTALLATION

- A. Vegetative support material shall be placed over approved areas to a depth sufficiently greater than required so that after natural settlement and light rolling, the complete work will conform to the lines, grades and elevations indicated. No loam shall be spread in water or while frozen or muddy.
- B. The vegetative support material shall be hauled, deposited, spread, compacted, tracked and raked to the lines and grades shown on the Plans or as directed by the Engineer. After the vegetative support material has been spread, it shall be carefully prepared for seeding by spading or harrowing, and raking. All large, stiff clods, lumps, stones, brush, roots, stumps, litter, and other foreign material shall be removed.
- C. The compaction shall be equivalent to that produced by a hand roller weighing from 75 to 100 pounds per foot of width. The compaction may be obtained by rolling, dragging or any method that produces satisfactory results. All depressions caused by settlement or rolling shall be filled with additional materials and the surfaces shall be regraded and rolled until it presents a reasonably smooth and even finish and is up to the required grade.
- D. During hauling operations, all public and private roadway surfaces shall be kept clean and any topsoil or other dirt which may be brought upon the surface shall be removed promptly and thoroughly before it becomes compacted by traffic. If necessary, the wheels of all vehicles used for hauling shall be cleaned frequently and kept clean to avoid bringing any dirt upon the surface.

### 3.2 QUALITY CONTROL

- A. The responsibility for satisfactory results on work carried out under this item rests entirely on the Contractor regardless of the prior approval of the materials and methods on the part of the Engineer.
- B. The Contractor shall provide laboratory test results for the vegetative support material intended for use as specified herein, at a frequency of 1 round per 1,000 cy of material.
- C. The Engineer shall randomly sample the borrow material and have a certified analytical laboratory perform testing as described herein. The testing shall be a verification of the results submitted by the Contractor and shall be entirely at the Contractor's expense.

END OF SECTION

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