

SECTION 02900

LANDSCAPING, TEMPORARY IRRIGATION, and SITE FURNISHINGS

PART 1- GENERAL

1.01 GENERAL PROVISIONS

- A. All of the Contract Documents, including General and Supplementary General Conditions and Division 1 General Requirements, apply to the work of this Section.

1.02 WORK TO BE PERFORMED

- A. Labor, materials, equipment, services and transportation required to complete all landscaping, irrigation and site furnishing work as shown on Drawings, as specified herein, or both, including but not limited to items noted below.
 1. Place and spread existing topsoil, stockpiled under relevant SECTIONS; and furnish and place topsoil, in addition to existing topsoil as necessary to complete the landscaping work.
 2. Perform additional preparation of subgrades, established under relevant SECTIONS, as required to properly receive topsoil.
 3. Furnish and apply soil treatment, as required for existing and new topsoil.
 4. Planting, maintaining, and mulching of new trees and other plants.
 5. Furnish and sow grass seed and/or sod in areas indicated on the Drawings to receive new lawns, and for existing lawn areas that have been disturbed under the work of this Contract.
 6. Provide maintenance for all new plant materials, including, but not limited to, lawns, trees and shrubs, perennials as specified herein.
 7. Furnish and install paving and metal and/or other landscape edging and stakes, where indicated on the Drawings.
 8. Selectively clear and prune designated areas of existing trees and vegetative growth.
 9. Contractor shall notify DIG SAFE one (1) week prior to placement of plant materials.
 10. Furnish and install benches and other site furnishings as indicated on the Drawings.
 11. Existing (on site) granite boulders: Under the direction of the Landscape Architect (LA), place selected boulders to location(s) determined by the LA. Boulders shall be cleaned, repositioned, and set several inches below grade as determined by LA.

12. Furnish and install temporary irrigation for all trees, shrubs, perennial & annual beds, and for lawn areas.

1.03 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specifications, apply to this Section.
- B. PART A and DIVISION 1 of PART B, as listed in the TABLE OF CONTENTS, are hereby made part of this SECTION by reference thereto.
- C. Refer to ALTERNATES SECTION, for alternates that may affect the work of this SECTION.

1.04 RELATED WORK

- A. The following related work shall be performed under the designated SECTIONS:
 - 1. Excavation, stripping and stockpiling of existing topsoil, establishing subgrades, and crushed stone for exposed to view landscaping elements where indicated on the Drawings.

1.05 SUBMITTALS

- A. Test reports: Tests, based on a representative sample of materials to be used. Do not use materials until test results have been reviewed and approved by the Architect. Material used on the project shall be the same as that used in tests. The testing shall be performed by an agency accepted by the Architect. Include all costs for testing in the Base Bid for the work of this SECTION 02900.
 - 1. Topsoil: The following test information is required for new topsoil to be brought to the site, and for existing topsoil to be re-used:
 - a. Mechanical analysis.
 - b. Percentage of organic analysis.
 - c. PH of the soil.
 - 2. No planting shall proceed until these tests have been run, the test results reported to the Architect and the Architect has given approval to proceed with plant excavations.
 - 3. Test results shall include the following:
 - a. Recommendations on the type and quantity of soil additives required to bring nutrients to a satisfactory level for planting.

b. Recommendations on the type and quantity of soil additives required to bring the pH of soil to a value of 5.5 - 7.0.

B. Literature: Written certification from the manufacturer, or actual product labels, which indicate contents percentages, indicating conformance to specified requirements for the following products:

1. Lime.
2. Commercial fertilizer.
3. Benches. Manufacture's catalogue cut and shop drawing of bench and below grade anchoring detail.
4. Temporary Landscape Irrigation System. Submit written detailed description of methods to be used and anticipated watering schedule.

C. Samples:

1. Topsoil: 1 cubic foot.
2. Mulch: 1 cubic foot.
3. Steel edging: 1 linear foot and one of each associated accessory.
4. Wood stakes: 1 linear foot of each type and one of each associated accessory.
5. Seed mixture: 1 quart.
6. Stone Dust, crushed or pea stone, as indicated on the Drawings: 1 quart.
7. Binder for stone dust: Literature & 1 quart. Contractor shall lay example area of 1 sq. foot of base and stone dust with binder for approval. Site of example shall be as directed by Architect.

D. Guarantee: Landscaping installer's written guarantee covering all planting materials for a period of one year from date of Architect's final acceptance of the work of this SECTION 02900; and containing provisions for an extended one-year guarantee for any trees, shrubs and plants, required to replace original materials which have died, become diseased, or are otherwise not in acceptable condition by the end of the initial guarantee period, as determined by Architect at no cost to the Owner.

E. Submit manufacture's literature for each type of edging and site furnishing, including anchoring details, as required by these Specifications.

F. Submit shop drawing for granite paver with quote (Alternate).

1.05 REFERENCE STANDARDS, SPECIFICATIONS, AND CODES

A. The following are hereby made a part of this SECTION by reference thereto:

1. American Joint Committees on Horticultural Nomenclature "Standard Plant Names".
2. American Society for Testing and Materials (ASTM) applicable standards.
3. American National Standards Institute "American Standard for Nursery Stock" ANSI #260.1-1980.
4. U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act.

PART 2 - PRODUCTS

2.01 GENERAL LANDSCAPING MATERIALS

A. Topsoil: Both the stockpiled existing topsoil and any additional topsoil provided from off-site sources, shall be natural, fertile, friable soil neither excessively acid or alkaline, nor contain toxic substances which may be harmful to plant growth. Topsoil shall be without admixture of subsoil and shall be clean and reasonably free from clay, lumps, stones, stumps, roots or other objects that might be a hindrance to the seeding and planting operations. Provide required conditioners to bring the soil to a pH of 5.5 - 6.5.

B. Commercial fertilizer: A complete fertilizer, complying with State and United States Fertilizer Laws. Deliver the fertilizer to the site in the original unopened containers bearing the manufacturer's certificate of compliance to the following ingredients and minimum percentages:

	Nitrogen	Phosphorus	Potash
For deciduous shrubs	8%	6%	4%
For evergreen shrubs	5%	10%	5%

C. Lime: An approved agricultural limestone, ground to such fineness that 50 percent will pass a 100-mesh sieve and 90 percent will pass through a 20-mesh sieve.

D. Water: Furnished by the Contractor. Provide hoses and other watering equipment required for the work.

E. Mulch: A 100 percent shredded leaf mulch, free from lumps, dirt or deleterious materials and dark brown in color.

F. Super-phosphate: Composed of finely ground phosphate rock as commonly used for agricultural purposes containing not less than eighteen percent (18%) available phosphoric acid.

G. Peat Moss: Ground or shredded peat containing not less than 90 percent (90%) organic matter, with acidity in the range pH 4.0 - 7.0.

2.03 LAWN MATERIALS

A. Grass seed: Fresh, clean, new crop seed mixture, purchased from an approved reputable seed supplier, tested to minimum percentages of purity and termination specified, and meeting the standard of the Federal Seed Act. Furnish to the Architect the dealer's guaranteed statement indicating conformity to the composition of the following mixture, with the percentage of purity and germination of each variety:

1. Seed mixture:

<u>Proportion</u>	<u>Name of grass</u>	<u>Purity</u>	<u>Germination/min.%</u>
50%	Kentucky Bluegrass	85	80
30%	Chewings Red Fescue	98	85
10%	Perennial Rye Grass	98	90
10%	Red Top	100	92

2. If special conditions exist which may warrant a variance in the above seed mixture, submit a written request to the Architect stating conditions, and proposed variance. Permission for variance will be given if, in the opinion of the Architect, the variance is warranted. Landscape Architect may request a variance of the seed mixture(s) based on specific site conditions.

B. Crab Grass Preventative: Organic form of Tupersan or approved equal.

C. Broad Leaf Weed Control: 2-4-D material, or approved equal.

D. Soil Insect Control: Organic form of either Diazinon or Chlordane, or approved equal.

E. Hydro-mulch: Weyerhaeuser Silva-Fibre cellulose pulp with non-toxic coloring agent, as close to green as possible.

2.04 PLANT MATERIALS

A. Plant Materials & Plant Selection at Nurseries

1. All plants shall be Nursery-grown unless otherwise indicated.

2. Conform to American Association of Nurserymen's Standards for Nursery Stock for size, number of leaders, shape, health, etc. CONTRACTOR MUST DIRECT NURSERY TO ATTACH LABELS TO EACH PLANT WITH BOTANICAL NAME AND COMMON NAME AS WELL AS SIZE CLEARLY NOTED.

3. Plant names conform to *Standardized Plant Names* by American Joint Committee on Horticultural Nomenclature

4. If discrepancy exists between quantities shown on plan and plant list, those shown on plan govern. However, if Plant List shows a larger amount of plants, that number shall be supplied.
5. Sizes given on plant list are minimum. All plants to equal or exceed those sizes. Plants to be sound, healthy, vigorous and free of plant pests, insects, disease, or injuries.
6. No substitutions will be permitted except on submission of proof that any plant called for is unobtainable. Substitution must be approved by the Architect.
7. Do necessary pruning of deadwood at time of planting. Do not prune plants unless discussed with or directed by the Architect.
8. Root Protection:
 - a. "B&B" plants shall to be dug with firm, natural ball of earth large enough to encompass fibrous and seeding root system necessary for full plant recovery. Wrap with burlap and bind with twine or cord. When necessary to prevent ball from cracking, ball to be secured to a platform.
 - b. Protect "B&B" material that cannot be planted immediately on delivery from drying wind and sun by covering with moist soil or mulch. Water as necessary until planted.
9. **The Contractor shall submit to the Architect the name and location of nurseries that he/she proposes to use as sources of acceptable plant material. The Contractor shall personally inspect all nursery material to determine that the material meets the requirements of this section and as noted on the Drawings. The Contractor prior to viewing by the Architect shall tag proposed materials at the nurseries.**
10. Within five working days of notice to proceed, the Contractor shall schedule, with the Architect, a time for viewing plant material at the nursery. All trips to nurseries shall be efficiently arranged to allow the Landscape Architect to maximize his/her viewing time.
11. Upon arrival at the nursery, the Architect may attach his/her seal to each plant, or representative samples, unless otherwise indicated.
12. When requested by the Architect, photographs of plant materials, or representative samples, shall be submitted for approval.
13. Viewed, approving, or sealing of plant materials by the Architect, at the nursery, does not preclude the Architect's right to reject those plant materials at the project site.
14. The Contractor shall be responsible for providing to the Architect, all transportation services to and from the nursery, meals and lodging during extended nursery visits, at no additional cost to the Owner or Architect. Compensation shall be paid to the Architect, directly by the Landscape Contractor, at the rate of \$130/hour, including travel time. If

Architect provides his/her own transportation, the Contractor shall reimburse the Architect for mileage at \$.57/mile.

2.05 ACCESSORY MATERIALS

- A. Stakes for supporting trees: Sound wood, uniform in size, free of knots and holes, of dimensions as shown on the Drawings.
- B. Wire for tree bracing and guying: Pliable No. 12 gauge galvanized steel.
- C. Hose for covering wire: New or used 2-ply reinforced rubber or vinyl garden hose, not less than 1/2 inch inside diameter.
- D. Wrapping material: First quality, 2 ply, 4" or 6" wide, heavy waterproof crepe paper manufactured for the specific purpose.
- E. Metal landscape edging: Mill finish, 3/16 by 5-1/2 inch corrugated, 6063 T-6 alloy aluminum edging, in 16 foot lengths, with a 4 inch interlocking lap joint at both ends which allows for one continuous smooth and aligned edge. Edging shall have integral loops at 2-foot increments to receive 12 inch barbed aluminum stakes designed to interlock with the edging corrugations. Stakes shall be 6061 T-6 alloy aluminum, CleanLine as manufactured by Permaloc Corp., or equal. Color to be Dark green or black as selected by the Architect.
- F. Organic Mulch: Required in all tree pits and shrub beds. Mulch to be dark brown, shredded leaf mulch. If unavailable, Contractor may obtain double- shredded native, non-dyed dark brown pine bark. Submit sample for Architect's approval. Wood chips are not acceptable. Mulch, when placed, shall be thoroughly wetted down to ensure no fire hazard. Apply water equivalent to 2 inches of rainfall.
- G. Stakes: Sound wood—natural, unstained cedar.
- H. Hose Friction Guards: New or used/clean 5/8 inch diameter, two-ply reinforced rubber garden hose at least ten inches long.
- I. Wire: 12 gauge pliable new annealed iron.

2.06 BENCHES

- A. Furnish and install teak benches as shown on the Drawings. Benches shall be Foxhall Bench by Country Casual or as approved equal. Anchoring shall be below grade per manufacture's specifications and as approved by the Architect.

2.07 BIKE RACKS

- A. Furnish and install bike racks as shown on the Drawings. Bike racks shall be Loopline Model # LL-02-PF (Black) or as approved equal. Anchoring shall be below grade per manufacture's specifications and as approved by the Architect.

2.08 GRANITE PAVER WITH QUOTE (Alternate)

A. Paver shall be 2' thick Barre Granite, thermal finish top with sandblasted quotation. Submit shop drawing and sample piece of granite for approval.

PART 3 - EXECUTION

3.01 LAWN CONSTRUCTION

A. Use only personnel experienced in lawn construction, under the supervision of a qualified foreman.

B. After acceptance of subgrade, as prepared under SECTION 02200 EARTHWORK, perform whatever additional grading is necessary to bring the subgrade to a true smooth slope, parallel to, and 6 inches below, finished grade for all areas to be seeded.

C. Prior to being covered with topsoil, rake or otherwise loosen the top 3 inches of the subgrade, and ensure that the surface is free from stones, rocks, and other foreign material 2 inches or greater in dimensions.

D. Provide sufficient grade stakes to ensure correct line and grade of subgrade and of finished grade.

E. Ensure that the subgrade has been inspected and approved by the Architect before placing topsoil.

F. Place and spread topsoil in layers to a total depth sufficiently greater than 6 inches so that, after natural settlement and light rolling, the completed work will conform to the lines, grades and elevations indicated. Provide additional loam as may be needed, to meet the specified depths and finished grades without additional cost to the Contract.

1. After topsoil has been spread, carefully prepare the surface by scarifying or harrowing and hand raking. Remove all large stiff clods, lumps, brush, roots, stumps, stones over one inch in diameter, litter, and other foreign matter from the topsoil.

2. Apply lime, at the rate recommended in the topsoil analysis, at least 5 days prior to application of fertilizer.

3. Apply commercial fertilizer, of the specified type, and at the rate recommended in the topsoil analysis, within the 10 days immediately prior to seeding.

4. Thoroughly and evenly incorporate the soil amendments into the soil to a depth of 4 inches.

5. Roll the entire surface of the topsoil with a hand roller; rake to remove ridges; and fill all depressions until a smooth even finish is achieved.

G. Perform placement of topsoil only when it can be followed within a reasonable time by the seeding operations. Remove any weed growth, one inch or greater, which may occur, by mechanical means prior to the seeding operation. Do not allow new weed growth to go to seed. After topsoiling and

finish grading, do not permit heavy equipment, trucks and other vehicles to travel on loamed areas. If this should occur, scarify the loamed areas to a depth of four inches, and restore to its original condition.

H. Perform the actual seeding of lawns only during periods within the seasons that are normal for such work, as determined by weather conditions and by accepted practice in this locality. At the option of, and on the responsibility of the Contractor, seeding of lawns may be done under unseasonable conditions, or out of season, without additional compensation, subject to the approval of the Architect, for the time of such work and methods of operation.

I. Seeding:

1. Immediately prior to seeding, restore the ground, as necessary, to a loose friable condition, by disking or other approved method, to a depth of not less than 2 inches. Fine-grade the surfaces to remove all ridges and depressions, and clear the surfaces of all debris and stones 3/4 inch or more in diameter.

2. Seed lawn areas using approved method, at the rate specified herein. Do not perform seeding work when the ground is frozen, excessively wet, or otherwise non-tillable.

3. Lightly rake and roll the seeded ground in two directions, using extreme care in the raking to ensure that no change occurs in the finished grades and that the seed is not raked from one spot to another.

4. On bankings having a slope of 3:1 or greater in area, which are to be seeded, add one pound of annual rye grass per 1000 square feet to the specified seed mix. If seeding is authorized by the Architect to be performed between May 15 and August 15, add one pound of annual rye grass per 1000 square feet to the specified seed mix.

J. Topsoil and seed areas of existing lawn surfaces, which have been disturbed by the operations of this Contract, in the same manner specified herein for new lawns.

K. Water seed or sod per standard practice for this area. See 3.03, below.

3.02 PLANTING OF TREES AND SHRUBS

A. Perform Planting only during periods within the seasons that are normal for such work. Unless directed/approved otherwise by Landscape Architect and depending on weather conditions, planting may be undertaken between April 15-July 15 and September 1-October 15.

B. *The contractor shall place the plant material in locations shown on the Plan for approval by the Landscape Architect prior to excavation.* Mark outlines for planting areas, and obtain Landscape Architect's approval of same before any excavation is made. Contractor shall relocate/adjust locations of plant material if/as directed by Landscape Architect at no additional cost. In the event that pits or areas for planting are prepared and backfilled with the topsoil to grade, prior to commencement of lawn operations, mark such locations in a manner that will permit ready location when the work of planting proceeds. If underground obstructions such as ledges are encountered, change plant locations as directed by the Landscape Architect, without additional cost to the Contract.

B. Excavate pits for trees at least 24 inches greater in diameter than the spread of the diameter of ball; excavate holes for shrubs at least 12 inches greater in diameter than the spread of the root balls. See Planting Details.

C. Thoroughly mix specified commercial fertilizer into the loam to be used for filling tree and plant pits and planters, at the following minimum rates, final rates to be determined in the field by the Architect.

1. Trees: One pound of fertilizer per inch of caliper.
2. Shrubs: 1/2 pound per foot of height.

D. Keep all plant roots and earth balls damp and thoroughly protected from sun or drying winds at all times, from the beginning of the digging operations, during transportation, and on the ground until the final operation of planting. Center the plants in the holes and at the same depth as they previously grew. Do not permit roots of bare-rooted plants to be matted together, but arrange in their natural position with soil worked in among them. Place loam backfill in layers of not more than nine (9) inches and tamp each layer as it is put in place. Use sufficient quantity of topsoil to bring the surface to finish grade when settled. Provide a loam saucer, having a diameter equal to the hole dug for the plant and four (4) inches deep, around each plant.

E. Flood plants with water twice within the first twenty-four (24) hours after of the time of planting.

F. Spread a solid 2-3 inch thick layer of approved mulch over the entire area of the saucer of each tree, and a solid 2-3 inch thick layer over the entire planting bed of shrubs and ground covers. Hold mulch away from direct contact with tree trunks.

G. Stake and guy all trees in an approved manner.

H. IF directed by the Landscape Architect, immediately after trees are planted, protect the trunks by wrapping spirally from bottom to top with specified material, and adequately secure the wrapping. Neatly and snugly overlap the wrapping with a 2-inch lap, and entirely cover the trunk from the ground to the height of the second branches.

I. If and ONLY as directed by the Architect in the field, prune each tree and shrub in accordance with American Nurserymen Association Standards to preserve the natural character of the plant.

1. Remove all dead wood or suckers, and all broken or badly bruised branches.
2. Perform the pruning work with clean, sharp tools.
3. Do not prune central leaders of trees.
4. Do not use tree paint on any plant material.

3.03 MAINTENANCE AND PROTECTION OF NEWLY SEEDED AREAS

A. Be responsible for maintenance of new lawns, including watering, weeding, mowing and replanting as necessary to establish a uniform stand of the specified grasses and until acceptance. In

loamed and seeded areas, scattered bare spots, none of which are larger than (3) square inches, will be allowed up to a maximum to two (2) percent of any lawn area. After the grass has started, re-seed all areas and parts of areas that fail to show a uniform stand of grass, for any reason whatsoever. Repeatedly re-seed such areas, and parts of areas, until all areas are covered with a satisfactory growth of grass.

B. Include in the Base Bid, for the work of this SECTION 02900, all costs for watering of all grass areas to maintain the seedbed in a continuous moist condition satisfactory for good grass growth and germination, and continue the watering operations until all areas are covered with a satisfactory growth of grass as specified herein.

C. In the event that seeding operations are completed too late in the fall for adequate germination and growth of grass, continue the maintenance into the spring.

D. Include in the maintenance operations all temporary protection fences, barriers and signs and all other work incidental to proper maintenance. The Architect prior to installation must approve all fences, barriers and signs.

E. Cut all grass areas when the grass has reached average height of 3 inches. After the first cutting, repair all bare spots and washouts, re-seeding as prescribed above. At the time of the first cutting, set mower blades to a height of at least 2 inches. *Perform at least 2 mowings of all lawns before requesting acceptance of same.*

F. Immediately following the second mowing, apply specified fertilizer to the entire lawn area at the rate per manufacturers instructions.

3.04 MAINTENANCE OF PLANTED AREAS

A. When ready, request in writing an initial inspection of re-planting by the Architect. Protect and maintain planting until inspected and approved by the Architect. Include, in the maintenance operations, watering, weeding, removal of dead materials, and other necessary operations. Promptly repair any damage to lawn areas resulting from planting operations, to the satisfaction of the Architect.

B. Include in the Base Bid for the work of this SECTION 02900 all costs for watering of all plant materials as necessary to establish the plants and lawn areas. Do not request the Architect's inspection and approval of initial planting before this time. Furnish and install temporary irrigation system that will be left in place for the Owner's on-going use. Landscape Contractor shall provide written description of irrigation system, materials and watering schedule for approval by the Architect.

C. Landscape Contractor shall meet with Town Personnel responsible for ongoing maintenance, provide written maintenance manual, and discuss maintenance and watering procedures. Landscape Contractor shall inspect all plant materials at least once every 4 days for 3 weeks after initial planting, then once per week during the growing season, to determine positive health and establishment and to determine if maintenance, including watering, needs adjustment.

3.05 INSPECTION AND ACCEPTANCE OF NEW LAWNS

- A. Submit a written request to the Landscape Architect to inspect all lawn work for Final Acceptance. Ensure that the written request will be received at least ten (10) days before the anticipated date for Final Inspection.
- B. Inspection and acceptance of seeded areas may be requested and granted in part, provided the area for which acceptance is requested is relatively substantial in size and reasonably regular in shape with clearly definable boundaries.
- C. If the grass is in satisfactory condition, the Architect will certify in writing Final Acceptance of the lawns work, and the Contractor's maintenance responsibility, except for watering, will end. If grass stand is unsatisfactory, continue the specified maintenance responsibility until Final Acceptance of lawns is received from the Architect.

3.06 INSTALLATION OF ACCESSORIES AND SITE FURNISHINGS

- A. Install all accessory materials according to good construction practices, with the following additional requirements:
 - 1. Set the metal landscape edging in straight and true to line, and in smooth curves, true to radius, flush with finish grade to 1/2 inch above grade. Finished face of edging shall be set facing lawn areas unless otherwise indicated on the Drawings. Cut back beginnings and ends of runs, when runs begin and end abutting hard surfaces, to remove splicing interlock. Butt ends of edging tightly to surfaces of walls or curbs and double -stake ends.
 - 2. Drive stakes plumb and true, through interlock loops on the back side of edging. Set stakes 1/8 inch below the top of edging, taking special care not to damage the edging while driving stakes.
 - 3. Snap down additional runs of edging firmly into the previous run making sure that runs are fully interlocked and that faces and top edge are smooth and continuous.
 - 4. Set crushed stone or stone dust paving and adjacent loam, flush with top of edging at the finish grades shown on the Drawings. Reroll the loam as specified herein.
 - 5. Install temporary irrigation system sufficient for maintaining the health of all new plant materials, including lawns. See also other relevant sections herein.
 - 6. Install all Site Furnishings, including, but not limited to, benches and bike racks, per manufacture's instructions. All Site Furnishings shall be anchored below grade.
 - 7. Install and clean granite paver (Alternate) with quotation as shown on the Drawings.

3.07 CLEAN-UP

A. Immediately prior to inspection for Substantial Completion of the work of this SECTION 02900, remove all debris, materials, rubbish and excess dirt, resulting from the work of this SECTION 02900, and legally dispose of same off the site, leaving the premises in a clean and presentable condition.

END OF SECTION