

SECTION 329113 – SOIL PREPARATION**PART 1 - GENERAL****1.1 WORK INCLUDED**

- A. Excavation, stockpiling and placing existing topsoil in lawn and planting areas. Stockpile topsoil acquired from development of infiltration rain garden, sidewalks, and paths.
- B. Preparing planting soil materials and areas to be planted with shrubs, ground cover, and lawn at locations indicated on the Drawings and as herein specified.

1.2 REFERENCES

- A. Definition of Noxious Weed: Includes Blackberry, Canada Thistle, Dandelion, Horsetail, Morning Glory, Nut Sedge, Poison Oak, Rush Grass, Annual Bluegrass, Bermuda Grass, Brome, Crabgrass, Johnson Grass, Nut Grass, Quack Grass, and other noxious weeds as designated on State of Oregon Dept. of Agriculture's Noxious Weed List.

1.3 SUBMITTALS

- A. Topsoil:
 - 1. Submit analysis of existing (on-site) topsoil from licensed soils testing laboratory for approval prior to reuse of existing topsoil or delivery of imported topsoil. See paragraph 2.1 A. for test requirements.
 - 2. Sample: Submit 1/2-gallon sample each of existing topsoil.
- B. Submit manufacturer's or vender's certified analysis of compost, fertilizers, and soil amendments.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Meet State of Oregon licensing requirements for the application of herbicides.
- B. Packing and Shipping: Deliver commercial fertilizer in original containers with labels indicating weight, chemical analysis and name of manufacturer.
- C. Storage and Protection:
 - 1. Store fertilizers and amendments in dry place and protect from contamination.
 - 2. Protect soil materials from deterioration by moisture, erosion, freezing temperatures, and chemical contamination during storage and handling.
 - 3. Protect existing and new improvements from damage and staining.
 - 4. Provide protective cover and barriers as necessary to prevent damage and staining.

1.5 SITE CONDITIONS

- A. Environmental Requirements: Prepare soil only when topsoil is not in a wet, muddy, or frozen condition.
- B. Complete subgrade preparation prior to placing topsoil (see paragraph 3.2, this section).
- C. Scheduling: Schedule preparation of lawn areas within 48 hours prior to application of seed.

PART 2 - PRODUCTS**2.1 MATERIALS**

- A. Existing (On-site) Topsoil:
1. Topsoil shall be fertile, friable, natural loam, surface soil, capable of sustaining vigorous plant growth; porous and free draining; free of subsoil clay lumps, brush, noxious weeds, weed seeds, roots, stones larger than 1-1/2 inches in any dimension and other material harmful to plant growth. Topsoil acquired on site shall be amended as necessary to meet this description prior to use in planting.
 2. Topsoil analysis from a licensed soils laboratory shall be submitted to the Landscape Architect for approval prior to use of any topsoil on the project site. Soil sample shall be a composite acquired from four different sections of the stockpiled soil or four different locations on the site at a depth between six and twelve inches, for a total combined quantity of one-half gallon. Sampling shall be observed by the Architect or Inspector of Record and a written verification describing the sampling locations and process observed shall be provided to the Landscape Architect. Soil test shall include the following: sieve analysis of soil particle size; magnesium, nitrogen, phosphorous, and potassium levels; soluble salt level; pH; organic matter; and infiltration rate. Test results shall include specific recommendations for soil conditioners, amendments and fertilizers to adjust the soil to meet the description noted above. A written narrative summarizing the analysis and recommendations shall be included in the submittal.
 3. Acceptable gradation as defined by USDA triangle of physical characteristics as measured by hydrometer:
 - a. Sand: 15 to 60 percent.
 - b. Silt: 10 to 60 percent.
 - c. Clay: 5 to 30 percent.
- B. On-Site or Imported Earth Fill: Approved excavated earth fill materials, free of subsoil clay lumps, brush, weeds, roots, stones larger than 1-1/2 inches in any dimension and other material harmful to plant growth.
- C. Lime: Dolomite limestone, calcium magnesium carbonate, 50% passing through a 100 mesh sieve, 95% to 100% passing through a 20 mesh sieve, agricultural ground grade, minimum neutralizing value of 90%.
- D. Compost: 1/4-inch minus fir or hemlock sawdust aged a minimum of 2 years, or approved substitute.
- E. Fertilizers and Amendments:
1. Lawn Fertilizer: Best Fertilizer Triple Pro 15-15-15, or approved equal
 2. Planting Bed Fertilizer: Best Fertilizer Triple Pro 15-15-15, or approved equal
 3. Mycorrhizae Soil Amendment: Plant Success Mycorrhizae Tablets, or approved equal.

PART 3 - EXECUTION

3.1 PERFORMANCE

- A. Site Verification of Conditions:
1. Examine site for conditions which will adversely affect execution, permanence, quality of work, survival of plant material, and survival of lawn.
 2. Verify that grade and slopes of lawn areas and planting beds are acceptable to the Landscape Architect prior to beginning soil preparation.
 3. Report existing conditions detrimental to completion of soil preparation work.
 4. Begin Work required in this Section only after conditions are satisfactory.
 5. Start of Work in this Section denotes acceptance of existing conditions.
- B. Protection of Existing Site:
1. Protect utility lines and site improvements.
 2. Stake location of underground utilities and avoid excavation in these areas beyond safe limits.
 3. Hand excavate where required to avoid utility line damage.

3.2 SUBGRADE PREPARATION

- A. Aggregate Base Rock Removal:
 - 1. Remove all gravel, aggregate base rock material, asphalt, concrete, and all other construction debris from all planting beds and lawn areas to a minimum depth of 18" inches below finish grade.
 - 2. Replace with earth fill, if necessary, to bring subgrade to correct levels prior to placing topsoil.
 - 3. Verify extent of areas requiring base rock removal with the General Contractor prior to submitting bid.
- B. Scarify Subgrade:
 - 1. Lawn areas: Scarify subgrade to a depth of 6 inches in two directions at 90 degrees to each other, where topsoil is scheduled to be placed, to ensure interfacing of subsoil and topsoil, and to achieve specified compaction
 - 2. Shrub Beds: Scarify subgrade to a depth of 12 inches in two directions at 90 degrees to each other, where topsoil is scheduled to be placed, to ensure interfacing of subsoil and topsoil, and to achieve specified compaction density.

3.3 PREPARATION

- A. Stockpiling:
 - 1. Stockpile and protect existing topsoil on site in designated location as directed by Owner's representative.
 - 2. Do not mix other excavated materials with stockpiles.
- B. Preparing Shrub and Ground Cover Planting Bed Area:
 - 1. Ensure a 12" depth of topsoil meeting the description in 2.1 Materials, part A, at areas to be planted with shrubs and groundcovers.
 - 2. Ensure an 18" depth of topsoil meeting the description in 2.1 Materials, part A, where trees are to be placed in a diameter of 3 times the root ball.
 - 3. Spread 4" depth of compost, and 13.5 pounds per 1,000 square feet of Planting Bed Fertilizer.
 - 4. Apply additional soil amendments as required by soil test analysis at the rate indicated by the analysis.
 - 5. Till soil amendments into topsoil to a minimum depth of 8".
 - 6. Float amended topsoil to 3" below finish elevations.
 - 7. Place Mycorrhizae Tablets in each plant pit at the time of planting according to the manufacturer's specifications:
 - a. 1 tablet for each 4" pot
 - b. 2 tablets for each 1 gallon container
 - c. 4 tablets for each 3 gallon container
 - d. 8 tablets for each 5 gallon container
 - e. 10 tablets per inch of stem width for each tree (e.g. 20 tablets for each 2" caliper tree)
- C. Preparing Lawn Areas:
 - 1. Ensure a 6" depth of topsoil meeting the description in 2.1 Materials, at seeded lawn areas or as indicated on Drawings.
 - 2. Apply lime 2 weeks prior to seeding if indicated by soil test analysis at the rate indicated by the analysis.
 - 3. Spread 2" depth of compost and 6.7 pounds per 1,000 square feet of Lawn Fertilizer.
 - 4. Apply additional soil amendments as required by soil test analysis at the rate indicated by the analysis.
 - 5. Till soil amendments into topsoil to a minimum depth of 6".
- D. Finish Grading Lawn Areas:
 - 1. Remove high spots and fill depressions.

2. Drag and hand rake lawn areas to produce smooth, even grades as indicated on the Drawings.
3. Maintain existing grades at limits of Work.
4. Slope to grades acceptable to the Landscape Architect.
5. Provide positive, 2% minimum drainage and as shown on the Drawings.
6. Remove gravel and stones larger than 1".
7. Remove or break up soil clods larger than 1".
8. Remove sticks, trash, debris, and material deleterious to plant life.

3.4 COMPLETION

- A. Adjusting and Cleaning:
1. Restore eroded, settled, or compacted soil to specified condition prior to landscape planting and seeding.
 2. Remove excess topsoil and soil amendments from adjacent paving, curb, and walk surfaces.
 3. Provide protective cover and barriers as necessary to prevent damage and staining.
 4. Remove debris, topsoil, fertilizer, soil amendments, and soil mixes from curbs, walks, paving, and other improvement surfaces daily.
 5. Sweep and hose down curb, pavement, and walk areas daily as necessary to maintain clean surfaces.
 6. Transport surplus materials to a legal disposal area.

END OF SECTION