

## SECTION 32 9113 - FINISH GRADING AND SOIL PREPARATION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Includes But Not Limited To:
  - 1. Perform finish grading and soil preparation work required to prepare site for installation of landscaping as described in Contract Documents.
  - 2. Furnish and apply imported topsoil as described in Contract Documents.
  - 3. Excavate existing landscape areas in order to implement new lawn and topsoil for patch and repair areas.
- B. Related Sections:
  - 1. Section 32 9223: Sodding
  - 2. Section 31 2216: Fine Grading.

#### 1.2 REFERENCES

- A. American Society For Testing And Materials:
  - 1. ASTM 1557-02, 'Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.'

#### 1.3 SUBMITTALS

- A. Product Data:
  - 1. Product literature and chemical / nutrient analysis of topsoil and fertilizers.
- B. Provide PDF copies of all submittals for this project including irrigation submittals, topsoil test, etc. Submittals shall be received and approved by Landscape Architect and Owner prior to Contractor beginning construction activities.
- C. Quality Assurance / Control:
  - 1. All imported topsoil shall meet minimum specified requirements and be approved by Landscape Architect before use. Provide topsoil test showing topsoil meeting the criteria listed herein.

#### 1.4 QUALITY ASSURANCE

- A. Pre-Installation Conference: Participate in pre-installation conference.

### PART 2 - PRODUCTS

#### 2.1 MATERIALS

- A. Topsoil:

1. Imported topsoil used in landscaped areas shall be fertile, loose, friable soil meeting following criteria:
  - a. Chemical Characteristics:
    - 1) Acidity / alkalinity range: pH 5.5 to 8.0
    - 2) Soluble Salts: less than 3.0 mmhos/cm
    - 3) Sodium Absorption Ratio (SAR): less than 6.0
    - 4) Organic Matter: greater than two percent
  - b. Physical Characteristics:
    - 1) 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.
    - 2) Clean and free from toxic minerals and chemicals, noxious weeds, rocks larger than 1-1/2 inch in any dimension, and other objectionable materials.
    - 3) Soil shall not contain more than 5 percent by volume of rocks measuring 4.75mm to 12mm in largest size.
    - 4) All rocks greater than 12mm shall be screened and removed from the on-site topsoil prior to use. All roots, plants and any other material over 1/2 inch in any dimension shall be screened out of the topsoil prior to reuse in lawn and landscape areas.
2. When calculating quantities for topsoil and amendments, a compaction factor of 10% should be added therefore instead of adding just 4" of topsoil in lawn areas for example, the contractor will really be responsible for spreading 4.4" of topsoil in lawn areas.
3. Incorporate following amendments into imported topsoil meeting the above specifications:
  - a. Acceptable Fertilizers And Application Rates:
    - 1) Type(s) and rate(s) as necessary based on Topsoil Testing Report of imported topsoil. If phosphorus or potassium are recommended to be installed as a result of the soils test, this fertilizer shall be tilled into the top 4" of soil prior to planting. Follow manufacturers instructions for proper application of fertilizer

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Do not commence work of this Section until grading tolerances specified in Section 312216 are met.
- B. Contractor shall field verify all existing and proposed utilities, trees, plants, buildings, structures, roads, curb and gutter, sidewalks, irrigation system, utilities, easements, setbacks, right-of-ways, etc. to make sure no conflicts exist between existing conditions and proposed plans. Contractor shall be responsible to make on-site field adjustments as may be required due to discrepancies found during construction. Contractor and Owner agrees to hold In-Site Design Group harmless for any and all such discrepancies including costs associated with such discrepancies including repair, replacement or anything related to such discrepancies.

#### 3.2 PREPARATION

- A. Protection: Protect utilities and site elements from damage.
- B. Surface Preparation:

1. Haul-off and removal of tree stumps, shrubs, concrete, excavated soils and other materials shall be a lump sum price and shall be part of the base bid.
2. Contractor shall be responsible for removing all unused soils and/or excavated soils and other materials (including excavated rock, mulch, tree stumps, shrubs and other plant material, concrete, asphalt, etc.) from the site at no additional cost to the Owner.
3. Seven days maximum before beginning planting:
  - a. Loosen area 4 inches deep, dampen thoroughly, and cultivate to properly break up clods and lumps.
  - b. Rake area to remove clods, rocks, weeds, roots, and debris.
  - c. Grade and shape landscape area to bring surface to true uniform planes free from irregularities and to provide drainage and proper slope to catch basins.
4. Limit use of heavy equipment to areas no closer than 6' from building or other permanent structures. Use hand held tillers for preparation of subsoil in areas closer than 6.

### 3.3 PERFORMANCE

- A. Site Tolerances:
  1. Total Topsoil Depth:
    - a. New Lawn Planting Areas: 4 inches (plus the 10% for compaction) except where existing tree roots are exposed then install 1-4" depth as necessary.
  2. Finish grade of planting areas before planting and after addition of topsoil and soil additives shall be specified distances below top of adjacent pavement of any kind:
    - a. Sodded Areas: Approx. 1inch below (from top of pavement to top of sod).
- B. Do not expose or damage existing shrub or tree roots. See section 322216 and tree protection plan for more information.
- C. Distribute approved imported topsoil as outlined above. Remove organic material, rocks and clods greater than 1/2 inch in any dimension, and other objectionable materials from topsoil and remove from site as part of the base bid and at no additional cost to the Owner.
- D. Water settle topsoil in lawn areas as may be required so that lawn and irrigation components do not settle and sink. Ensure proper compaction so that irrigation components do no settle.
- E. Where topsoil depth is 12 inches or greater, place topsoil in layers not to exceed 12 inches and, to prevent settling, compact to 85 percent relative density in accordance with ASTM D 1557. Do not place topsoil whose moisture content makes it prone to compaction during placement process.
- F. Slope grade away from building for 12 feet minimum from walls at slope of 1/2 inch in 12 inches minimum unless otherwise noted. Direct surface drainage in manner indicated on Drawings by molding surface to facilitate natural run-off of water. Fill low spots and pockets with topsoil and grade to drain properly.
- G. After landscape areas have been prepared, take no heavy objects over them except lawn rollers. Immediately before planting lawn and with topsoil in semi-dry condition, roll areas that are to receive lawn in two directions at approximately right angles with water ballast roller weighing 100 to 300 lbs, depending on soil type. Rake or scarify and cut or fill irregularities that develop as required until area is true and uniform, free from lumps, depressions, and irregularities.

END OF SECTION 32 9113