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 soil additives as described in Contract Documents.

B. Related Sections:
   1. Section 31 1413: Stripping and storing of existing topsoil.

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: Product literature and chemical / nutrient analysis of soil amendments and fertilizers.

B. Samples: Sample of soil conditioner for approval before delivery to site. Include product analysis list.

C. Quality Assurance / Control:
   1. Delivery slips indicating amount of soil conditioner delivered to Project site.
   2. Submit test on imported topsoil by licensed laboratory before use, using Owner Form ‘Topsoil
      Test Report.’ Imported topsoil shall meet minimum specified requirements and be approved by
      Architect before use.
   3. Submit report stating location of source of imported topsoil and account of recent use.

1.4 QUALITY ASSURANCE

A. Pre-Installation Conference: Participate in pre-installation conference specified in Section 31 2213.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Topsoil:
   1. Topsoil used in landscaped areas, whether imported or from site, 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 one 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 38 mm in any dimension, and other objectionable materials.
   3) Soil shall not contain more than 2 percent by volume of rocks measuring over 3/32 inch 2 mm in largest size.

2. Incorporate following soil amendments into topsoil used from site:
   a. Acceptable Soil Amendments and Application Rates:
      1) <Insert Amendments and Application Rates from Topsoil Testing Report>.
      2) <Insert Amendments and Application Rates from Topsoil Testing Report>.
      3) <Insert Amendments and Application Rates from Topsoil Testing Report>.
      4) Equal as approved by Architect before installation. See Section 01 6000.
   b. Acceptable Fertilizers and Application Rates:
      1) <Insert Fertilizer and Application Rates from Topsoil Testing Report>.
      2) <Insert Fertilizer and Application Rates from Topsoil Testing Report>.
      3) <Insert Fertilizer and Application Rates from Topsoil Testing Report>.
      4) Equal as approved by Architect before installation. See Section 01 6000.
   c. Acceptable Soil Conditioners and Application Rates:
      1) Type One Acceptable Products.
         a) GroPower Plus soil conditioner by GroPower Inc, Chino, CA (800) 473-1307 or (909) 393-3744.
         c) 'Soil Pep.'
         d) 'Soil's Best Friend' Composted Manure, Elberta, UT (801) 667-3500.
         e) EPA Class ‘A’ co-compost or compost with SAR less than 3.0, EC less than 4.0, and CN ratio of 15 to 25:1 passing through 1/2 inch mesh screen or other product approved by Architect before use. See Section 01 6000.

PART 3 - EXECUTION

3.1 EXAMINATION
   A. Do not commence work of this Section until grading tolerances specified in Section 31 2216 are met.

3.2 PREPARATION
   A. Protection: Protect utilities and site elements from damage.

   B. Surface Preparation:
      1. Disk, till, or aerate with approved agricultural aerator to depth of 6 inches 150 mm.
      2. Seven days maximum before beginning seeding and planting:
         a. Loosen area 4 inches 100 mm 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.
      3. Limit use of heavy equipment to areas no closer than 6 feet 1800 mm from building or other permanent structures. Use hand held tillers for preparation of subsoil in areas closer then 6 feet 1800 mm.
3.3 PERFORMANCE

A. Site Tolerances:
   1. Total Topsoil Depth:
      a. Lawn And Groundcover Planting Areas: 5 inches 125 mm minimum.
      b. Shrub Planting Areas: 12 inches 300 mm minimum throughout entire shrub bed area.
   2. Finish grade of planting areas before planting and after addition of soil additives shall be specified
distances below top of adjacent pavement of any kind:
      a. Sodded Areas: 2 inches 50 mm below.
      b. Seeded Areas: One inch 25 mm below.
      c. Shrub And Ground Cover Areas: 2 inches 50 mm below.

B. Do not expose or damage existing shrub or tree roots.

C. Redistribute approved existing topsoil stored on site as a result of work of Section 31 1413. Remove
   organic material, rocks and clods greater than 1-1/2 inch 38 mm in any dimension, and other
   objectionable materials. Provide additional approved imported topsoil required to bring surface to
   specified elevation relative to concrete site elements.

D. Where topsoil depth is 12 inches 300 mm or greater, place topsoil in layers not to exceed 12 inches
   300 mm 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.

E. Slope grade away from building for 12 feet 3600 mm minimum from walls at slope of 1/2 inch in 12
   inches 13 mm in 300 mm minimum unless otherwise noted. High point of finish grade at building
   foundation shall be 6 inches 150 mm minimum below finish floor level. 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.

F. Add specified soil amendments at specified rates to lawn and ground cover areas. Roto-till or
   otherwise mix amendments evenly into top 4 inches 100 mm of topsoil. Incorporate and leach soil
   amendments which require leaching, such as gypsum, within such time limits that soil is sufficiently dry
   to allow proper application of fertilizer and soil conditioners.

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 45
   to 135 kg, 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