

Section 02315

ROADWAY EXCAVATION

PART 1 GENERAL

1.01 SUMMARY

This Section includes:

- A. Excavation and compaction of materials for roadways.
- B. Excavation and compaction of materials for roadside ditches.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

- 1. Payment for roadway excavation, with or without subgrade, is on cubic yard basis. Unless specified otherwise under the borrow (off-site) material or embankment fill Work item, measurement for payment shall be based on the cut quantity calculated from the plans.
- 2. No payment will be made for material excavated under the following conditions:
 - a. More than 2 feet outside of vertical planes behind back of curbs
 - b. For portion within limits of trench for utilities 24-inch and greater constructed by open-cut methods
 - c. As indicated otherwise on plans.
- 3. Measurement for the bid item "Regrade Existing Ditches" is on a linear foot basis. No separate payment will be made for reshaping and regrading roadway ditch shoulder slope and side slope adjacent to installed temporary pavement upon removal of temporary pavement.
- 4. Refer to Section 01270 - "Measurement and Payment" for unit price procedures.

- B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.03 REFERENCES

- A. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400ft-lbf/ft³).

- B. ASTM D2216 - Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass.
- C. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
- D. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.04 SUBMITTALS (NOT USED)

1.05 RELATED REQUIREMENTS

- A. Section 01270 – “Measurement and Payment”
- B. Section 01454 – “Testing Laboratory Services”
- C. Section 01576 – “Waste Material Disposal”
- D. Section 01725 – “Field Surveying”
- E. Section 02330 – “Embankment”
- F. Section 02911 – “Topsoil”

1.06 – 1.13 NOT USED

PART 2 PRODUCTS

2.01 MANUFACTURER(S) (NOT USED)

2.02 MATERIALS AND/OR EQUIPMENT

- A. Use of Excavated Materials
 - 1. Topsoil shall conform to requirements of Section 02911 - “Topsoil”.
 - 2. Excavated materials used for backfill shall be graded free of roots, lumps greater than 6 inches, rocks larger than 3 inches, organic material, and debris.
 - 3. Excavated materials used for structural backfill shall be select material meeting the following requirements:
 - a. Plasticity index: not less than 12 or more than 20.
 - b. Maximum liquid limit: 45

2.03 – 2.04 NOT USED

PART 3 EXECUTION

3.01 GENERAL / MANUFACTURER(S) (NOT USED)

3.02 PREPARATION

- A. Identify required lines, levels, and datum. Coordinate with Section 01725 - "Field Surveying".
- B. Identify and flag surface and aerial utilities.
- C. Notify utility companies to remove or relocate utilities.
- D. Identify, stake, and flag known utility locations below grade. Make temporary or permanent relocation of underground pipes, ducts, or utilities where indicated on Plans.
- E. Upon discovery of unknown or badly deteriorated utilities, or concealed conditions, discontinue Work. Notify Project Manager and obtain instructions before proceeding in such areas.
- F. Obtain approval of top soil quality before excavating and stockpiling.

3.03 ERECTION/INSTALLATION APPLICATION AND/OR CONSTRUCTION

A. Topsoil Removal

- 1. Strip off topsoil from area to be excavated to minimum depth of 6 inches, unless indicated otherwise on Plans.
- 2. Stockpile topsoil in designated location for reuse. Stockpile topsoil to height not exceeding 8 feet. Cover to protect from erosion.

B. Soil Excavation

- 1. Excavate to lines and grades shown on Plans.
- 2. Remove unsuitable material not meeting specifications. Backfill with embankment materials and compact to requirements of Section 02330 - "Embankment".
- 3. Record location and plug and fill inactive water and oil wells. Conform to Texas Department of Health, Texas Commission on Environmental Quality and Texas Railroad Commission requirements. Notify Project Manager prior to plugging wells.
- 4. At intersections, grade back at minimum slope of one inch per foot. Produce smooth riding junction with intersecting street. Maintain proper drainage.
- 5. When area is inadvertently over excavated, fill area in accordance with requirements of Section 02330 - "Embankment" at no additional cost.

6. Remove material not qualified for use and excess soil not being reused from site in accordance with requirements of Section 01576 - "Waste Material Disposal".

C. Compaction

1. Maintain optimum moisture content of subgrade to attain required density.
2. Compact to following minimum densities at moisture content of optimum to 3 percent above optimum as determined by ASTM D698, unless otherwise indicated on Plans:
 - a. Areas under future paving and shoulders: Minimum density of 95 percent of maximum dry density.
 - b. Other areas: Minimum density of 90 percent of maximum dry density.

D. Tolerances

Top of Compacted Surface: Plus or minus ½ inch in cross section, or in 16 foot length.

E. Regarding Ditches

Work shall consist of excavating ditches, rectifying and/or altering existing ditches, placement of erosion control blanket, grading side slopes to line and grade as shown on Plans or as directed by Project Manager; removal and proper utilization or disposal of excavated materials to ensure proper drainage of project area.

3.04 REPAIR/RESTORATION (NOT USED)

3.05 FIELD QUALITY CONTROL

- A. Testing shall be performed under provisions of Section 01454 - "Testing Laboratory Services".
- B. Test and analysis of soil materials shall be performed in accordance with ASTM D4318, ASTM D2216, and ASTM D698.
- C. Compaction testing shall be performed in accordance with ASTM D698 or ASTM D2922 and ASTM D3017.
- D. A minimum of three tests shall be taken for each 1000 linear feet per lane of roadway.
- E. When tests indicate Work does not meet specified compaction requirements, recondition, recompact, and retest at no additional cost.

3.06 – 3.08 NOT USED

3.09 PROTECTION

- A. Protect the following from damage or displacement:
 - 1. Trees, shrubs, lawns, existing structures, and other features outside of grading limits.
 - 2. Utilities either above or below grade, which are to remain.
- B. Prevent erosion at all times. Maintain ditches and cut temporary swales to allow natural drainage in order to avoid damage to roadway. Do not allow water to pond.
- C. Distribute construction traffic evenly over compacted areas, where practical, to aid in obtaining uniform compaction. Protect exposed areas having high moisture content from wheel loads that cause rutting.
- D. Maintain excavation and embankment areas until start of subsequent Work. Repair and recompact slides, washouts, settlements, or areas with loss of density.

3.10 SCHEDULES (NOT USED)

END OF SECTION