

CITY OF MEMPHIS – STANDARD CONSTRUCTION SPECIFICATIONS
SECTION 02335 SUBGRADE AND ROADBED

PART 1 – SCOPE

1.01 This work consists of disposal of unsuitable material from roadbed excavations; construction and removal of temporary detours ordered by the Owner; sloping, shaping and dressing of all slopes; and the construction and preparation of the graded roadbed to receive the construction of a base or pavement.

1.02 Subgrade preparation shall consist of the final grading of the roadbed in both cuts and fills to the density specified, including gravel backfill, gravel stabilization, or cement stabilization when ordered by the Owner.

PART 2 – EQUIPMENT

2.01 All equipment for the satisfactory performance of subgrade preparation shall be on the project and approved by the Owner before the work will be permitted to begin.

2.02 Compacting equipment for final subgrade compaction shall include pneumatic tire rollers with a minimum contact pressure of eighty-five (85) pounds per square inch and a minimum single wheel load of 4,500 pounds. Each roller shall be a wobble-wheel type in which the rear set of wheels will not track the forward set and will be centered between the wheels of the forward set. The roller shall be capable of forward and backward propulsion on any grade encountered, and the Contractor shall furnish to the Owner charts or tabulations of the contact areas and pressure for the full range of tire loadings for each type of compactor tire to be used.

PART 3 – CONSTRUCTION REQUIREMENTS

3.01 GENERAL

A. Prior to beginning subgrade operations all necessary Clearing and Grubbing and Removal of Structures and Obstructions shall have been completed in the area in accordance with Sections 02220 and 02230 of these Specifications. The removal of unsuitable material and/or undercutting ordered by the Owner will not be considered contract items and these two operations will be included in either excavation (unclassified) or embankment (unclassified) respectively.

B. Unsuitable material above subgrade or from undercutting in cuts shall be disposed of as directed by the Owner at no additional cost to the City. Any imbalance of material quantities caused by these operations or change in actual shrinkage factor shall be the Contractor's responsibility. The Owner's decision on the suitability of material or the need for undercutting shall be final.

C. When ordered by the Owner, water used for dust control will be paid for as a contract item.

D. The Contractor shall provide for proper drainage of the project area to protect from ponding and erosion.

3.02 UNDERCUTTING

A. This work shall consist of the removal and disposal of unsatisfactory materials below grade in cut sections. Areas to be undercut may be designated on the Plans if sufficient information is available. However, the Owner may increase, decrease, or change such areas to be undercut if conditions dictate as construction progresses. Undercut areas shall be backfilled with suitable material from excavation quantities, gravel backfill, or material stabilized with gravel or Portland cement as ordered by the Owner..

3.03 SUBGRADE PREPARATION

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A. This work shall consist of the final preparation of the roadbed to receive the immediate construction of a base or pavement, curb and gutter, driveways, or sidewalks thereon.

B. Subgrade preparation in fill sections shall consist of the compaction of the top six (6) inches below subgrade elevation in paved areas only to a density of 100 percent as determined in accordance with the standard specification of compaction and density of soils as defined in Section 02330.

C. Areas in cut sections where required density cannot be obtained may be undercut and backfilled with suitable excavation material, stabilized with gravel or portland cement, or undercut and backfilled with gravel as directed by the Owner, who shall be the sole judge as to the method to be used. Special attention shall be given to areas such as utility trenches and manhole backfill areas. Payment will be made only for the gravel or portland cement used, and no additional compensation will be paid the Contractor for the work.

D. The Contractor shall be held responsible for the proper maintenance of subgrade acceptable to the Owner, and no additional compensation shall be paid to the Contractor to restore any subgrade after preliminary acceptance. The Contractor shall also take all precautions necessary to protect the acceptable subgrade from damage, and hauling over the finished subgrade shall be limited to that which is essential for construction purposes.

PART 4 – MEASUREMENT

4.01 A. Undercut Excavation Undercut excavation will be measured by the inspector and a representative of the Contractor. They will agree on how much material, in cubic yards, was removed from the undercut area.

B. Water. Water for dust control will be measured by the 1,000 gallon unit. No payment will be made for any other water used on the project to maintain moisture control in embankment compaction or for stabilization.

PART 5 – PAYMENT

5.01 UNDERCUT EXCAVATION

A. Payment for undercut excavation will be made at the contract unit price per cubic yard of excavation unclassified (Specification Section 02315 Part 5.01A), which shall be full compensation for hauling and disposal of the unsatisfactory material.

5.02 UNDERCUT BACKFILL

A. Payment for earth material used as undercut backfill will be made at the contract unit price for Embankment (Unclassified) (Specification Section 02330 Part 5.01A), which price will be full compensation for undercutting and for furnishing, depositing, and compacting backfill material and dressing to subgrade or original ground line as directed by the Owner, complete in place.

5.03 GRAVEL FOR UNDERCUT BACKFILL OR SUBGRADE STABILIZATION

A. Gravel for undercut backfill or subgrade stabilization in cut sections will be paid for at the contract unit price per ton, which price shall be full compensation for the excavation, placing and/or mixing gravel with in-place material, compaction, and dressing to plan elevation as directed by the Owner, complete in place.

5.04 PORTLAND CEMENT FOR UNDERCUT BACKFILL OR SUBGRADE STABILIZATION

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A. Portland cement for subgrade stabilization in cut sections or as backfill stabilization for undercut areas will be paid for at the contract unit price per pound in place, which price shall be full compensation for furnishing and placing cement, processing, compaction, and dressing to plan elevation as directed by the Owner, complete in place.

5.05 WATER

A. Water for dust control will be paid for at the contract unit price per 1,000 gallons (M.G.), which price will be full compensation for furnishing and distributing the water as directed by the Owner.

5.06 GENERAL

A. Subgrade preparation is not considered a pay item, and no work involved shall be paid for directly except gravel and/or portland cement as defined in Parts 5.03 and 5.04 above.

5.07 Payment will be made under:

| <u>Item No.</u> | <u>Pay Item</u> | <u>Pay Unit</u> |
|-----------------|---------------------------------------|-----------------|
| 02335-01 | Undercut Excavation | Cubic Yard |
| 02335-02 | Undercut Backfill | Cubic Yard |
| 02335-03 | Gravel for Undercut Backfill | Ton |
| 02335-04 | Portland Cement for Undercut Backfill | Pound |
| 02335-05 | Water | M.G. |

END OF SECTION 02335