TECHNICAL SPECIFICATIONS

ITEM NO. 00705
DIVERSION DIKES AND SWALES

705.1 Description. This work shall consist of the installation of temporary erosion protection and sediment control diversion dikes with swales, utilized during construction operations and prior to final stabilization, in accordance with these specifications and construction drawings, and as directed by the Engineer.

705.2 Materials. Use in-situ materials.

705.3 Construction Methods. No clearing and grubbing or rough cutting, other than as specifically directed by the Engineer to allow for soil testing, surveying and installation of erosion protection measures, shall be permitted until sediment control and erosion protection systems are in-place.

Diversion dikes with swales shall be installed at the locations shown on the construction drawings, and in accordance with the drawing attached to this specification. Diversion dikes with swales shall be constructed in accordance with an approved schedule that clearly describes the timing during the construction process that the various erosion control measures will be implemented.

Unless otherwise indicated, the Contractor shall maintain a minimum dike height of 18-inches, measured from the existing or graded ground at the upslope toe to the top of the dike. A minimum berm width of 2-feet shall be maintained.

The area under dikes shall be cleared, grubbed and stripped of vegetation and root material. All trees, stumps, roots, woody vegetation, rocks, and other objectionable and deleterious material shall be removed from the material used to construct the dike. The embankments of the dike shall be compacted in maximum 8-inch lifts. Each layer or lift shall be compacted to a minimum of 90% of standard proctor density (ASTM Method D 698).

Flow from swales shall be diverted to sediment basins, onto stabilized outlets, or sediment trapping devices of the type and location shown on the drawings. The grade of swales carrying discharge shall be as shown on the constructions drawings and shall be sufficient to provide positive drainage.

Unless otherwise indicated, the Contractor shall maintain a minimum swale depth of 0.5-feet, as shown by the attached drawing. A minimum bottom width of 1-foot shall be maintained, with swale bottom constructed level. Excavation slopes shall be 4:1, or flatter.

The Contractor shall inspect diversion dikes with swales at least once every fourteen calendar days and within 24-hours of the end of a storm event of 0.5 inches rainfall or greater. The Contractor shall remove projections or other irregularities which will impede normal flow. The Contractor shall redress all diversion dikes with swales as needed to maintain the specified thickness, height, depth, width, grades, and slopes. All erosion protection and sediment control systems shall be maintained by the Contractor until final stabilization. Damage caused to erosion protection and sediment control systems shall be repaired immediately. Upon removal of the dike and swale, the area shall be graded as per the construction drawings and stabilized with vegetation.

The Contractor is responsible for removal and disposal of sediment and debris from the diversion dike with swale and as directed by the Engineer. Sediment and debris shall not be allowed to flush into the storm sewer system, waterways, jurisdictional wetlands, or onto adjacent properties. Sediment deposits shall be removed before they reach one-third of the depth of the swale.

Uncontaminated sediment can be placed at the project spoil site or, if properly handled, spread out to supplement fill requirements. The Engineer will designate how the sediment deposits are to be handled. Uncontaminated sediment shall not be placed in waterways or jurisdictional wetlands, unless as approved by the Engineer. If sediment has been contaminated, then it shall be disposed of in accordance with the applicable federal, state and local regulations. Off-site disposal shall be the responsibility of the Contractor.

After final stabilization and at the direction of the Engineer, the Contractor, when required, shall be responsible for removing all erosion protection and sediment control systems, that are not permanent, from the project.

705.4 Quality Assurance. The Contractor is responsible for the control of the quality of materials incorporated into the construction and the quality of completed construction. The City will engage materials engineering services to provide quality assurance testing and inspection to assist the City Engineer in determining the acceptability of materials and completed construction. Quality assurance services provided by the City do not relieve the Contractor of his responsibility for quality control. The Engineer shall not have control of the means, methods, techniques, sequences or procedures of construction selected by the Contractor.

An Engineer will determine the moisture density relationship, to be used in the construction of diversion dikes, in accordance with ASTM Method D 698.

An Engineer will determine the in-place density in accordance with ASTM D 2922 or ASTM D 1556. The minimum level of testing shall be one test per 200 linear feet of dike.

705.5 Measurement and Payment. When paid for directly as a pay item, measurement and payment shall be by the linear foot of diversion dike with swale, complete and in-place, measurement being made along the centerline and top of the diversion dike.

Payment for diversion dikes with swales will include and be full compensation for all labor, equipment, materials, supervision and for all incidental expenses for the construction of these items, complete in-place, including but not limited to furnishing all material, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, removal of erosion protection and sediment control systems after final stabilization.