

1. Description

Live Material Transplants involve the harvesting and re-planting of live plant materials. Transplants may include shrubs, small trees and sod mattresses for the purpose of providing vegetative stabilization to streambanks, and establishing riparian zones. The work consists of soil preparation, fertilizing, harvesting, transporting, installing and maintaining the live plant materials. The Contractor shall provide all labor, materials and equipment required to harvest and install the live transplants as described in this specification, and as shown on the Project Drawings.

2. Harvest & Construction Schedule

- 2.1** When available, the source and location of suitable materials for transplanting will be identified by the GCSWCD. The plant materials to be transplanted will be marked, and identified for the Contractor prior to construction.
- 2.2** Prior to the start of work, the Contractor shall provide a harvesting and planting plan for review and approval by the Contracting Officer and Project Engineer. The Harvesting and Planting Plan shall include, but is not limited to, information on the equipment, methods and staging the Contractor proposes to use to accomplish the transplanting requirements.

3. Materials

3.1 Sod Mattress

- (a) Sod harvested for sod mattresses must be of vigorous growth with minimal weeds or other noxious plants. Sod mattresses shall be free of significant noxious plants to include but not limited to thistles and multiflora rose.
- (b) Sod mattresses shall consist of grass vegetation including species such as fox tail, fescue, brome grass, clovers, perennial rye grasses, bluegrass or similar plants of a perennial type, and should be harvested from an established meadow.

3.2 Shrub & Tree Transplants

- (a) Trees and shrubs to be transplanted on the project site will be marked by the Project Sponsor prior to the start of construction. Materials for transplanting will be native shrubs (Willow, Dogwood, Viburnum etc) and trees (Willow, Poplar, Birch etc).

4. Construction Methods

The success of Live Material Transplants is greatly improved when the Contractor uses suitable equipment, and reasonable care during the harvesting and planting operations. Live Material Transplants must be harvested such that an adequate root-mass is obtained and the plant material receives minimal damage.

4.1 Sod Transplanting

- (a) Unless otherwise directed by the Contracting Officer or Project Engineer, the Contractor shall stage transplanting of sod mats such that the sod can be immediately re-planted on the prepared surface. Double handling of the sod mats shall be avoided when possible.
- (b) The surface that will receive the sod mats shall be graded and loose. Sod mats will not be placed over compacted or currently vegetated soils without cultivating the surface.
- (c) The Contractor shall use suitable equipment so as to obtain a thick mat of vegetation with the root mass intact. Sod mats shall be a minimum of one foot (1') thick, and three foot (3') by four foot (4') size.
- (d) After placement on the prepared slope, the Contractor shall tamp the sod mat to insure it is in full and stable contact with the underlying soil surface. Handwork with sharp shovels may be needed to trim sod mats such that the joints between sod mats are tight, with minimal exposed soil.

4.2 Shrub & Tree Transplanting

- (a) Unless otherwise directed by the Contracting Officer or Project Engineer, the Contractor shall stage transplanting of shrubs/trees such that the materials can be immediately re-planted. Double handling of

the shrubs/trees shall be avoided when possible.

- (b) The Contractor shall use suitable equipment to harvest the shrubs/trees with an adequate root-mass for the plants survival.
- (c) The Contractor shall avoid excessive damage to the shrub/tree tops during the harvesting and planting process. Large shrubs shall be bundled and tied prior to digging to reduce damage to the bark. Tree limbs may be trimmed as is reasonable to avoid damage from the equipment.
- (d) Transplanted shrubs/trees shall be re-planted such that the plants are set into the ground at the same depth they were growing at the harvest location. The shrubs/trees shall be placed in a hole of an adequate size and shall be backfilled and tamped to remove voids in the soil. Water may be used to wash fill material around the root-mass.
- (e) Larger trees may require staking. When specified in the special conditions and/or Project Drawings, trees shall be staked on two sides with wooden stakes, heavy wire and protective collars shall be used where the wire makes contact with the tree bark.

5. Inspections

During the Live Material Transplant operations, the Contracting Officer, Project Engineer and/or their representatives, must be present to observe the work. If the Contractor demonstrates care and consistency in their operations, the Contracting Officer or Project Engineer may allow unsupervised transplanting.

6. Method of Payment

Method 1: Lump Sum

Contractor shall estimate the total required transplants and provide a lump sum price for completion of the work under this specification.

Method 2: Unit Price

Contractor shall provide a unit price for items of work under this specification. The Contractor shall measure and submit to the Contracting Officer for approval, a sum total of the work completed and a total cost based on the contract unit price. The Contractor shall review the submitted units completed and confirm the measurements

prior to payment for work under this specification.

7. Special Conditions

3.1 Sod Mattress

Sod Mats for transplants will be taken from the areas indicated on the project drawings and as designated by the Contracting Officer. Materials will be taken from the proposed borrow areas

3.2 Shrubs & Trees

Clumps of native willows will be transplanted from within the immediate work area as well as from a harvest area at the fringe of the floodplain.

6. Method of Payment

Payment under this specification will be made at the contract unit price.

- 6.1** For sod mats, payment will be based on a per Square Yard (sqyd) basis as measured in its finished conditions.
- 6.2** For shrubs and trees, payment will be made based on the per shrub or tree unit price for plants successfully transplanted.