

17.0 Landscaping

17.1 Design Requirements

17.1.1 Landscape Plan

The Contractor shall prepare a Landscape Plan for all existing plant material in all disturbed areas on the Project. The Landscape Plan shall address both temporary and permanent work. The Landscape Plan shall include the areas to be final seeded and the locations of mitigation Work.

The Landscape Plan is required for any area of the Work where construction disturbance occurs including permanent Right-of-Way (ROW), temporary easements, staging, haul road, locations of borrow, or other areas that are disturbed as part of the Project or Work.

The Landscape Plan shall identify the locations of protected areas. The Contractor shall save, protect, and maintain all existing vegetation in the Project except for the vegetation that must be removed to accommodate construction of the Project. All construction operations shall be performed in such a manner that will avoid these protected areas.

The Landscape Plan shall be developed in conjunction with erosion control requirements, as defined in Book 2, Section 5. The Landscape Plan shall be phased to promote the protection of existing vegetation and working-area-to-completion for final stabilization.

The Landscape Plan shall document the vegetation location and identification. This shall include species, location, condition, size, health, and a recommendation for remaining undisturbed.

The Landscape Plan shall include photo documentation of the vegetation, including grass coverage for the extent of the Project limits.

No plantings shall include any noxious weed species.

Project impacted trees/shrubs within a riparian area (i.e., SB 40 trees and shrubs) shall be mitigated in accordance with Book 2, Section 5.

The Landscape Plan shall include a schedule of when Work shall take place.

The Contractor shall prepare and submit drawings and a narrative as part of the Landscape Plan.

17.2 Construction Requirements

17.2.1 Landscape Plan

The Landscape Plan shall be submitted to CDOT for Acceptance prior to the start of construction. Once the Landscape Plan is Accepted, the Contractor shall install temporary fence around areas to be left undisturbed per the Accepted Landscape Plan and prior to the start of all construction activities. The Contractor shall also conduct a landscape walkthrough with the CDOT Landscape Architect prior to the start of construction.

17.2.2 Clearing and Work Area Limits Identification and Protection

The Contractor shall delineate the clearing and work limits in areas adjacent to existing wetlands, trees, and significant vegetation for Acceptance by CDOT. Upon Acceptance, the Contractor shall install temporary orange fencing in these areas to identify the clearing boundary. No trees shall be removed on this Project. If a tree is removed or damaged, the Contractor shall compensate the USFS per Forest Service requirements.

The Contractor shall repair or replace in-kind all landscape material and vegetation that is disturbed by the Work. Replaced materials shall be equal to or better than the existing materials in size, type, and condition. Revegetation plans for these areas shall be coordinated with CDOT and the USFS.

17.2.3 Protection Areas

The Contractor shall install temporary fence for the protection of all existing vegetation that is designated to remain undisturbed, for Acceptance by CDOT, prior to construction. The Contractor shall use all appropriate care to avoid damage or removal of trees and shrubs.

Construction activities, such as earth disturbance, storage, staging, or parking inside the fenced areas shall be prohibited. No chemicals shall be applied or used around or near these areas that would be detrimental to vegetation health.

The Contractor shall immediately report damage to any tree within the Work area designated to remain undisturbed, to CDOT, for assessment of the damage and survivability.

17.2.4 Trees and Shrubs

17.2.4.1 Removal of Trees and Shrubs

All trees or shrubs removed from the Project shall remain on-Site unless a timber sale agreement is procured from the USFS.

17.2.5 Topsoil

No topsoil shall be imported. All on-Site topsoil removed and stockpiled for later use shall be treated with a noxious weed herbicide prior to final seeding.

17.2.6 Seeding

All disturbed areas within the ROW that are not surfaced shall be seeded to replicate or enhance native vegetative communities. The Contractor shall provide a seed mix, seed vendor, and soil amendment recommendation for approval from the United States Forest Service (USFS).

Slopes shall be designed to be 4:1 or flatter as typical, unless otherwise accepted as a variance by the Contractor's Engineer. Slopes steeper than 4:1 shall be constructed according to additional requirements of this Section. All areas to be seeded shall be accessible to maintenance activities as Accepted by CDOT.

Native grass seed mix shall contain low growing or slow growing, cool and warm season grass seed mix appropriate for the EJMT area and as per CDOT's Policy Directive 503 for landscaping with native grass material. The proposed native seed mix shall be included in the Landscape Plan.

Placement of soil conditioner, topsoil, seeding, mulching (weed free), and mulch tackifier (or soil retention blanket) shall not be done in a single operation, but shall be completed immediately following each area that is to final grade per the Standard Specifications Sections 101, 107, and 208.

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Fertilizer shall not be used adjacent to wetlands and waterways.

Seeding shall be drilled 0.25-inch to 0.5-inch into the soil. In small areas not accessible to drill, the Contractor shall hand-broadcast the seed at double the rate and rake into the soil 0.25-inch to 0.5-inch per Section 212 of the Standard Specifications.

Hydromulching is an acceptable method of stabilization. Hydroseeding shall only be allowed as Accepted by the CDOT Landscape Architect. Hydroseeding and hydromulching shall not be done in the same operation.

All native seeding areas shall be mulched and mechanically crimped with weed free hay per Standard Specifications Section 213.

Soil retention blanket shall be used for slopes steeper than 4:1. If soil retention blanket is used, mulching (weed free) and mulch tackifier are not required. Turf reinforcement mats shall be used in swales steeper than two percent. Soil retention blankets shall be per Standard Specifications Section 216.

The Contractor shall place native seed, mulch (weed free), and mulch tackifier after each construction phase and prior to any winter shutdown Work.

Native seed areas shall contain a minimum of 90 percent grass species and no noxious weeds. Native seed areas shall have 80 percent coverage prior to Interim Acceptance. Any native seed areas having poor germination (less than 80 percent coverage) shall be reseeded until establishment is reached. No bare spots greater than six feet by six feet shall be accepted.

17.2.7 Landscaping Inspection, Establishment, Acceptance, and Warranty Period

17.2.7.1 Interim Landscape Inspections

The following inspection points shall be completed and the Work shall meet the requirements of the Contract Documents prior to proceeding:

1. Completion of the subgrade preparation
2. Completion of finished grade preparation
3. Layout of planting beds
4. Layout of all plant materials
5. Completion of planting operations

Nonconforming Work shall be replaced or repaired promptly by the Contractor at its own expense. When damage endangers public safety or traffic, remedial action shall be taken immediately to ensure safety and prevent further disruption of traffic.

17.2.7.2 Substantial Landscape Completion

Substantial Landscape Completion is defined as when all plant materials have been planted in compliance with the requirements of the Contract Documents. Plants shall be healthy and in flourishing condition and be free of dying branches and branch tips, and shall bear foliage of normal density, size, and color. All mulch beds shall be completely mulched.

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Prior to Substantial Landscape Completion, a landscape inspection shall be held with CDOT to determine Acceptance of plant material and seeding areas. Upon Acceptance CDOT will issue a “Notice of Substantial Landscape Completion”.

17.2.7.3 Landscape Establishment

The Landscape Establishment Period will commence at Interim Acceptance which will be contingent upon receipt of a written “Notice of Substantial Landscape Completion” from CDOT in accordance with the requirements of Standard Specifications Section 214 and herein. The Landscape Establishment Period will last for 12 months and will begin the following spring if Interim Acceptance is issued in the fall.

All landscape installations shall be completely maintained by the Contractor during the Landscape Establishment Period. The Contractor shall submit a detailed Landscape Maintenance Plan in accordance with the requirements of Standard Specifications Section 214 and prior to requesting Interim Acceptance. CDOT will inspect the landscape installations on at least a monthly basis to determine the acceptability of the maintenance Work. Nonconforming maintenance will be brought up to acceptable levels within five days of receipt of notice of maintenance deficiencies.

17.2.7.4 Landscape Acceptance

Upon completion of the Landscape Establishment Period, at the Contractor’s request, CDOT will inspect the landscaping to determine compliance to the requirements of the Contract Documents. All landscape installations shall be fully established, weed-free, clean, smooth, properly graded, and without plant mortality to be Accepted. The Landscape Establishment Period and Contractor maintenance will terminate after Landscape Acceptance is reached. Should CDOT identify any areas of Nonconforming Work, the Contractor shall correct the deficiencies and extend the Landscape Establishment Period for a minimum of one additional growing season at no additional cost to the Project. If Landscape Acceptance occurs in the fall, the Contractor shall continue to maintain the landscaped area until the following spring. Any dead plant material shall be replaced or repaired at no additional cost to the Project.

17.2.7.5 Landscape Warranty Period

All trees, shrubs, and ground covers shall be completely warranted by the Contractor for one calendar year from the date of Landscape Acceptance. Any plant material deemed deficient following this one-year warranty period shall be replaced in-kind by the Contractor at no additional cost to the Project.

If access to a completed landscaped area is required by the Contractor after Landscape Acceptance, landscape materials will be considered existing and shall be protected in accordance with the requirements of the Contract Documents.

17.3 Deliverables

The Contractor shall submit the following to the CDOT for Review, Approval, and/or Acceptance:

Table 17-1: Deliverables by the Contractor

Deliverable	Review, Acceptance, or Approval	Schedule
Landscape Plan	Acceptance	Prior to construction
Landscape walkthrough and installation of temporary fencing for the protection of all existing vegetation that is designated to remain undisturbed	Acceptance	Prior to construction
Substantial Landscape Completion	Acceptance	Prior to Substantial Landscape Completion, a landscape inspection shall be held with CDOT to determine Acceptance of plant material and seeding areas. Upon Acceptance CDOT will issue a “Notice of Substantial Landscape Completion.”
Landscape Maintenance Plan	Acceptance	In accordance with the requirements of the Standard Specifications Section 214 and prior to requesting Project Interim Acceptance
Landscape Acceptance	Acceptance	According to requirements of Section 17.2.7.4

All deliverables shall also conform to the requirements of Book 2, Section 3.

17.4 Project Special Provisions

The following specifications modify and take precedence over the Standard Specifications.

**REVISION OF SECTION 107
PROTECTION OF EXISTING VEGETATION**

Section 107 of the Standard Specifications is hereby revised for this Project as follows:

Subsection 107.12 shall include the following:

The Contractor shall save all existing vegetation (including trees, shrubs, ground covers, grasses, wetlands & riparian) in this area, except for that vegetation, which must be removed to accommodate construction of the Project, per the plans. Specific areas of vegetation to be protected shall be as directed by the Engineer and shall be protected by using orange construction fencing, wire fencing with metal posts or silt fence. Fencing for trees shall be installed at the drip line of the tree or as approved by the Engineer. Equipment shall not be installed or stockpile material placed within 15 feet of existing trees to remain.

The Contractor shall perform all the work in such a manner that the least environmental damage will result. All questionable areas or items shall be brought to the attention of the Engineer for approval prior to removal or any damaging activity.

The Contractor shall promptly report any vegetation damaged or scarred during construction to the Engineer for assessment of damages. Damaged or destroyed fenced vegetation, shall be replaced at the expense of the Contractor. Vegetation of replaceable size shall be replaced at the Contractor's expense. The Contractor shall pay any fines or jail time should a wetland be damaged, at no cost to the Project.

A consulting Wetland Specialist shall determine the value of the wetland or wetland species. This value will be deducted from any money due to the Contractor.

The determination as to whether a plant is of replacement size or beyond will be made by the CDOT Landscape Architect or Wetland Specialist.

If the fence is knocked down or destroyed by the Contractor, the Engineer will suspend the work, wholly or in part, until the fence is repaired to the Engineer's satisfaction at the Contractor's expense. Time lost due to such suspension will not be considered a basis for adjustment of time charges, but will be charged as contract time.

**REVISION OF SECTIONS 207 AND 212
TOPSOIL**

Sections 207 and 212 of the Standard Specification are hereby revised for this Project as follows:

Subsection 207.01 shall include the following:

This Work includes salvaging on-Site topsoil that is to be placed on disturbed areas within the Project. No topsoil shall be imported.

At the Contractor's option soil preparation as described below may be used instead of topsoil.

**REVISION OF SECTION 212
ORGANIC AMMENDMENT**

Subsection 212.01 shall include the following:

The Work shall consist of incorporation of an organic amendment into the top six inches of the soil to be seeded.

Subsection 212.03 shall include the following:

All seeded areas shall be amended with composted organic amendment as shown on the plans, which shall be tilled or ripped, to a depth of six inches into the soil. After ripping, remove all debris such as concrete, rocks (greater than three inches in diameter), and other deleterious or undesirable material from the area.