

**SECTION 577  
REWORKING SHOULDERS**

**577-1 Description.**

Prepare, build-up, and establish a stand of grass on existing shoulders where shown on the plans. Perform shoulder preparation, seeding, fertilizing, mulching, and watering as specified in this Section.

**577-2 Materials.**

Meet the following requirements:

Emulsified Asphalt (Grade SS-1) .....	916-4
Seed.....	981-1
Mulch.....	981-3
Fertilizer.....	982-1
Water.....	Section 983

**577-3 Equipment.**

**577-3.1 Equipment for Mixing Shoulders:** Provide equipment, that may include pulver mixer and rotovators with shovel-like cultivators, of a type that will mix the additional shoulder material with the existing turf to the required depth and which will leave the shoulder in a non-compacted condition.

**577-3.2 Water-metering Devices:** Provide devices as specified in 570-3.6.

**577-4 Construction Methods.**

**577-4.1 Sequence of Construction:** Proceed with the several operations involved in the work in the following sequence: blade shoulders if necessary, add and spread borrow material, and mix borrow material with the underlying turf. Apply hay mulch and/or emulsified asphalt if required by the Contract Documents, and water as specified.

Complete this work prior to the placement of the friction course on adjacent pavement.

**577-4.2 Preparation of Shoulder to be Reworked:** Blade the existing shoulder as necessary to achieve a reasonable uniform plane. Blade turf which has grown over the edge of existing pavement from the pavement for a width of not more than 18 inches [450 mm] from the pavement's edge. Disc the existing shoulders prior to placing additional material.

**577-4.3 Additional Material:** Add and spread borrow material to conform to the desired shoulder configuration. Do not place this added material on the shoulders earlier than seven calendar days before beginning mixing operations in that area.

**577-4.4 Mixing:** Mix the additional shoulder material with the existing turf with a pulver mixer or rotovator mixer to a depth such that the upper 4 inches [100 mm] of the existing turf becomes uniformly mixed with the added material. Add seed and fertilizer after the mixing operation, and incorporate them into the seed bed in an acceptable manner to an average depth of 1/2 inch [13 mm], prior to applying the mulch.

In those areas where the added borrow material exceeds 4 inches [100 mm] in depth, the Engineer will not require mixing of borrow material and turf. At these locations, mix the seed into a seed bed to an average depth of 1/2 inch [13 mm].

Immediately after the above operations, reshape the shoulder area to the required configuration, and lightly roll it.

**577-4.5 Fertilizing and Seeding:** The Contractor may add fertilizer and seed to the specified areas in the same operation. Place the fertilizer at the rate of 400 lbs/Ac [450 kg/ha] to provide equal pounds [kilograms] of plant food per acre [hectare]. Provide 50% of the fertilizer's nitrogen from a slow release source.

The Engineer will not allow fertilizing and seeding operations when conditions prevent a uniform distribution of materials. Sow seed only when the soil is moist and in proper condition to induce growth. Do not seed when the ground is frozen, unduly wet, or otherwise in an untillable condition.

**577-4.6 Mulch:** When mulch is specified in the Contract Documents, apply it in accordance with 570-4.6, prior to the application of the emulsified asphalt.

**577-4.7 Emulsified Asphalt Mulch:** When asphalt mulch is specified in the Contract Documents, use emulsified asphalt diluted with water in a 1:1 ratio. Apply the asphalt mulch in accordance with 300-7.3 within 24 hours after completing the seeding and fertilizing operations. Apply the diluted emulsified asphalt at a rate of not less than 0.30 gal/yd<sup>2</sup> [1.4 L/m<sup>2</sup>]. Depending upon the shoulder material, the Contractor may increase or decrease the diluted application rate as directed by the Engineer.

**577-4.8 Watering:** If, at the time of reworking the shoulder, the Engineer determines the soil is dry, apply water for a period of three weeks from the date of planting unless rainfall occurs providing adequate moisture. Add the water at a minimum rate of 1/2 inch [13 mm] per watering, twice a week. Perform watering in such a manner as to prevent washing of the newly built shoulders.

### **577-5 Method of Measurement.**

**577-5.1 General:** The quantities to be paid for will be for the following items, completed and accepted.

- (1) The area, in square yards [square meters], of reworking shoulders.
- (2) The weight, in pounds [kilograms], of grass seed.
- (3) The weight, in tons [metric tons], of fertilizer.
- (4) The volume, in gallons [liters], of diluted emulsified asphalt.
- (5) The weight, in tons [metric tons], of mulch material.
- (6) The volume, in thousand gallons [kiloliters], of water.

**577-5.2 Reworking Shoulders:** The quantity will be determined as specified in 570-5.2.

**577-5.3 Grass Seed:** The quantity will be determined as specified in 570-5.3.

**577-5.4 Fertilizer:** The quantity will be determined as specified in 570-5.1, except the quantity to be paid for will be the equivalent weight of 16-4-8 fertilizer.

**577-5.5 Emulsified Asphalt:** The quantity will be determined as specified in 300-8, except the quantity to be paid for will be the volume after dilution.

**577-5.6 Mulch Material:** The quantity will be determined as specified in 570-5.4.

**577-5.7 Water:** The quantity of water will be as specified in 570-5.1.

**577-5.8 Borrow Material:** Borrow Material is not included for payment in this Section. Borrow material will be paid for by the cubic yard [cubic meter] truck measure as specified in 120-12.1.3.

### **577-6 Basis of Payment.**

Prices and payments will be full compensation for all of work and materials specified in this Section, including all work and incidentals to complete the work.

Payment will be made under:

Item No. 300-	1-	Bituminous Material - per gallon.
Item No. 2300-	1-	Bituminous Material - per liter.
Item No. 570-	3-	Grass Seed (Permanent Type) - per pound.
Item No. 2570-	3-	Grass Seed (Permanent Type) - per kilogram.
Item No. 570-	4-	Mulch Material - per ton.
Item No. 2570-	4-	Mulch Material - per metric ton.
Item No. 570-	5-	Fertilizer - per ton.
Item No. 2570-	5-	Fertilizer - per metric ton.
Item No. 570-	9-	Water for Grassing - per thousand gallons.
Item No. 2570-	9-	Water for Grassing - per kiloliter.

Item No. 570- 10-	Grass Seed (Quick-Growing Type) - per pound.
Item No. 2570- 10-	Grass Seed (Quick-Growing Type) - per kilogram.
Item No. 577- 70-	Reworking Shoulders - per square yard.
Item No. 2577- 70-	Reworking Shoulders - per square meter.