

612 - METHODS OF MILLING OPERATIONS

612.1 DESCRIPTION

This work will consist of the removal of the existing surface to the depth and limits shown on the Plans or established by the Engineer and in accordance with Section 612 of the Standard Specifications except as otherwise modified herein. It shall also include the loading and stockpiling, if required, of the milled material and the cleaning of milled surfaces prior to applying a tack coat.

612.2 CONSTRUCTION REQUIREMENTS

a. Milling Operations

The nature and condition of the milling equipment and the manner of performance of the work shall be such that the finished milled surface of the pavement is not torn, gouged, shoved, broken, oil coated or otherwise injured by the milling operation.

The milling operation shall provide for a windrowing of cuttings, pick-up and elevation into dump trucks, all in a single lane operation. Use of front-end loaders as the primary means of pick-up will not be construed as a single lane operation, nor will side loading of dump trucks be permitted.

All side streets shall have a butt joint of 1 inch unless otherwise specified on the plans. All driveways greater than 1 inch after milling shall be ramped.

b. Milling Machine and Equipment

The milling machine to be used in this contract shall be designed and built for cold milling work; shall be self-propelled; and shall have a means of milling the old pavement surface. The drum patterns shall leave a grooved surface finish. The milling machine drum shall have its teeth in a triple turn type pattern. The drum shall be totally enclosed to prevent discharge of any loosened material on adjacent work areas. A dust suppression system must be part of the equipment. Maximum width of the milling machine shall be 12'-6"; drum widths shall be minimum to maximum. Smaller machines may be used for auxiliary purposes only. A milling machine attached and powered by a uniloader capable of a 3-1/2 inch to 4 inch deep cut shall be used for asphalt repair work.

The cold milling machine shall have adequate power to force the cutting edge(s) of the drum teeth to the desired depth below the surface of the pavement without causing undue irregularities in the surface of the planned pavement.

The surface shall be milled flush to all curbs, inlets, manholes or other similar obstruction within the paved area.

c. Joints

All areas with 1 inch in depth or greater not replaced within the work day limitations, or as directed by the City Engineer, shall have temporary material placed to allow traffic full access. The temporary material shall be hot mixed asphalt at the taper rate specified in the plans.

d. Limits of Operations for Milling

Milling work shall be limited to 500 running foot maximum lane length operation. This running distance shall be from the milling machine to the last operated piece of equipment in said lane or where circumstances warrant. Operation distance may be increased with the approval of the Engineer. In the event two (2) machines are used in one direction, they will be run in tandem so as to occupy only one lane.

e. Milling (Total Width Cut - Intersection)

Intersections designated for Total Width Cut, sufficient passes or cuts shall be made to the depth required for street drainage. The Contractor shall check the grade by pulling a string between two points located on the curb returns and measuring down to the planed surface a minimum depth equal to the proposed overlay.

All other intersections not designated for total width cut shall be planed straight through or around the curb returns as directed by the Engineer.

f. Milling (Total Width Cut)

Sufficient passes or cuts shall be made at a depth and width as shown on the plans. The milling operation shall provide a smooth profile and cross section that does not require a leveling course prior to the overlay operation. Prior to opening to two-lane traffic, no unevenness within a lane shall exist. The maximum tolerance for Milling (Total Width Cut) in a longitudinal direction shall be 1/2 inch under a 10 foot straight edge and shall be 3/8 inch under an 8 foot straight edge in a transverse direction

g. Milling (Deep Cut)

Deep cuts shall be made to the depth and width for those areas indicated on the plans. The areas to have Deep Cut shall be planed to the existing brick, concrete, subbase, or required depth of the existing asphalt base. Asphalt shall be cut in a neat and straight line.

h. Special Cleaning of Milled Surfaces

Milled surfaces shall be cleaned with a street sweeper immediately prior to applying tack coat. The sweeper shall remain on the project during application of tack. Each lane shall be cleaned to the satisfaction of the City Engineer. Open faced brooms may only be used in conjunction with the sweeper when approved by the City Engineer.

(1) Street Sweeper Brooms

- (a) The sweeper shall have right and left gutter brooms.
- (b) Speed of broom shall be independent of pickup broom speed.
- (c) Gutter brooms shall be adjustable from inside cab for down pressure and wear. Both gutter brooms tilt angle shall be controlled from inside the cab.
- (d) Gutter brooms shall be protected from impact with automatic return to work position.
- (e) Pickup broom shall have hydraulic pickup for transport.
- (f) Pickup broom down pressure shall be manually adjusted.
- (g) Minimum sweep path of 125”.

(2) Pickup brooms adjustments

The pickup broom shall be adjusted to have a heavy sweeping (5” to 7” pattern) (this is the longitudinal contact of the broom with the roadway shall be between 5” and 7”). Each side of the broom shall have the same contact with the roadway.

Additional cleaning may be required using compressed air as directed by the City Engineer.

i. Street Washing

A high pressure type water truck, capable of washing all fines from the planed surface may be required prior to overlaying as directed by the City Engineer. Equipment compliance with this specification shall be by visual observation by the City Engineer at the commencement of washing operations.

j. Time Requirement

No milled surface shall be exposed for more than 14 calendar days, unless otherwise specified in the plans or project special provisions.

612.3 MEASUREMENT AND PAYMENT

The Engineer will measure special cleaning of milled surfaces by lump sum.

Payment for “Special Cleaning of Milled Surfaces” at the contract lump sum price is full compensation for the specified work.

The Engineer will measure the square yard of milled area at the depth indicated on the plans.

Payment for “Milling” of the specified width and depth at the contract unit price bid is full compensation for the specified work.