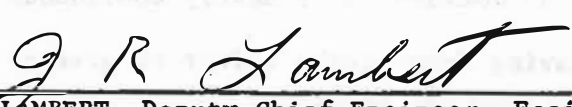


TO:		<b>ENGINEERING INSTRUCTION</b>	
<b>SUPERSEDED BY EB 01-010</b>		NEW YORK STATE DEPARTMENT OF TRANSPORTATION	
<b>EFFECTIVE 2/6/01</b>		SUBJECT: SECTION 490 - COLD MILLING	
		Subject Code: 7.27-1-490	
Distribution:	30 Main Office	32 Regions	34 Special
APPROVED:	 <u>J.R. LAMBERT</u> , Deputy Chief Engineer, Facilities Des. Div.		Code: <u>EI 89-8</u>
			Date: <u>3/15/89</u>
			Supersedes: EI 87-10

Cold Milling of pavements, previously handled by special specifications, is being incorporated into the Standard Specifications under section 490. A copy of the new specification is attached.

DOCUMENTS SUPERSEDED

EI 87-10	
Item 18490.4032	Cold Milling, Shaping and Removal of Bituminous Concrete Pavement
Item 18490.5022	Cold Milling, Shaping and Removal of Portland Cement Concrete Pavement

NEW SPECIFICATIONS

Section 490 - Cold Milling	
Item 490.10	Production Cold Milling of Bituminous Concrete
Item 490.20	Production Cold Milling of Portland Cement Concrete
Item 490.30	Miscellaneous Cold Milling of Bituminous Concrete
Item 490.40	Miscellaneous Cold Milling of Portland Cement Concrete

EFFECTIVE DATE

This Engineering Instruction becomes effective with the letting of August 24, 1989.

DESIGNER INFORMATION

The new 490 specification provides separate pay items for Production Cold Milling and Miscellaneous Cold Milling for both bituminous and portland cement concrete surfaces. There are no differences in specification requirements between Production Cold Milling and Miscellaneous Cold Milling.

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The separate pay items are intended to be used on large, high production milling operations when markedly different milling rates exist and the cost of milling varies appreciably between milled areas.

Consider Production Cold Milling to include the following characteristics.

1. More than 15,000 sq. yds. of continuous or nearly continuous milling.
2. Large milling machines (having drum widths 6 feet or greater in width) would be suitable for the work.

Production milling of pavements, shoulders or medians is a continuous or nearly continuous operation and the contractors usually provide a large milling machine with a cutting drum of 6 feet or wider in width. Milling the approaches of intersecting streets with these large machines is often difficult and costly due to the machine's size, restricted work space and the backing and maneuvering required to mill the short sections of pavement. It is recommended that a miscellaneous cold milling item be utilized at these intersection areas so that the bid prices will better reflect the work involved. If the milling required on an intersecting street exceeds 750 sq. yds. or the milling extends back more than 250 feet from the edge of the mainline milling, it is suggested the area be included under the production milling item.

Contractors usually provide a smaller milling machine behind a large machine to mill along curbs, around manholes etc. This work is considered part of the production milling item.

Miscellaneous Cold Milling is intended to be utilized by the designer for milling operations other than what would be considered production milling. It includes but is not necessarily limited to project milling quantities less than 15,000 sq. yds., intermittent milling of surfaces, repair areas, pavement and median inlays, elimination of bumps, vertical lane tapers for ending overlays, intersections and areas restricted due to space or traffic.

Both Production Cold Milling and Miscellaneous Cold Milling will require plan details showing areas to be milled, depth of removal, slope or whatever is necessary to effect the design or repair.

A payment limit will have to be indicated on the plans between Production Cold Milling and Miscellaneous Cold Milling areas when they abut.

Pavements having slope changes, superelevation and/or grade changes established by milling may require a reference elevation string line located near the edge of the work area. The designer should consider the necessity of such a reference elevation and indicate on the plans the location(s) where it will be required. The specification provides for the use of such a reference string line when indicated on the plans.

## SECTION 490 - COLD MILLING

### 490-1 DESCRIPTION

This work shall consist of the milling, shaping and removal of portions of existing surfaces by a cold milling process, and subsequent cleaning, utilizing equipment and procedures meeting the requirements in this specification.

The work shall consist of Miscellaneous Cold Milling or Production Cold Milling of bituminous or portland cement concrete as indicated in the contract documents and as shown on the plans.

### 490-2 MATERIALS

490-2.01 Equipment. Milling machines shall be power operated, self-propelled machines capable of removing the desired thickness of existing surfaces. The machines shall have sufficient power, traction and stability to accurately maintain depth of cut and slope. They shall be capable of producing a finished profile and cross slope to within 1/4 inch of that required and shall produce a uniform surface texture free from gouges and ridges.

The machines shall be equipped with a means to control dust and other particulate matter created by the cutting action.

The machines shall have an integral loading system or sufficient equipment shall be provided to accomplish complete removal of milled material at a rate equivalent to the milling rate.

Vacuum trucks, street sweepers or power brooms shall be used to clean the milled surfaces. The Engineer may disallow the use of power brooms in urban, residential or other sensitive areas if he deems the dust raised by the broom to be objectionable.

490-2.02 Disposal of Material. Material removed during the milling process, including foreign debris within or on the pavement, shall become the property of the Contractor and shall be disposed of at a site obtained by the Contractor unless the Contract Documents state that the material is to remain the property of the State and is to be hauled to a designated storage site.

### 490-3 CONSTRUCTION DETAILS

490-3.01 General. Milling shall be performed at the locations and in accordance with the details indicated on the plans.

When indicated on the plans, profile and cross slope shall be controlled by a taut reference string line. The reference elevation and string line shall be established by the Contractor and subject to the approval of the Engineer.

Areas not accessible to the milling machine, such as around and/or adjacent to inlets, manholes, curbs and transverse joints on structures, may be removed by a small milling machine, handwork or other methods approved by the Engineer.

All milled material, including that removed by other means, shall be immediately removed from the milled surfaces and adjacent surfaces. Surfaces shall be cleaned of all fines and dust prior to opening to traffic. The Contractor shall conduct his operations in such a manner that dust is controlled and is not objectionable. Milled and adjacent surfaces shall be cleaned again, as directed by the Engineer, prior to the placement of tack coats, or pavement courses if traffic has been allowed on the milled surface and/or if more than 48 hours have elapsed since the initial cleaning.

Milled longitudinal or transverse vertical faces exceeding 1 1/4 inches in height that would be exposed to traffic during non-work hours shall be sloped or tapered in a manner approved by the Engineer so as not to create a traffic hazard. Milling operations shall be conducted to preclude the possibility of pavement runoff collecting along milled joints and creating a traffic hazard.

The Contractor shall maintain drainage at catch basins, according to the details shown on the plans, or in a manner approved by the Engineer.

When working adjacent to traffic, the Contractor shall immediately remove material that is spilled on the traveled way.

Milled surfaces to be overlaid with asphalt concrete shall be covered with at least a single course of asphalt concrete before the end of the paving season. Portland cement concrete overlays shall be completed over milled surfaces before the end of the paving season. Damage to milled surfaces resulting from traffic or other causes such as, but not limited to, raveling, fuel spillage or any contaminants which would inhibit bond, shall be repaired or remilled by the Contractor in a manner approved by the Engineer.

490-3.02 Production Cold Milling. Production cold milling of bituminous or portland cement surfaces shall be performed in accordance with the details and at the locations indicated on the plans.

490-3.03 Miscellaneous Cold Milling. Miscellaneous cold milling of bituminous or portland cement surfaces shall be performed in accordance with the details and at the locations indicated on the plans.

#### 490-4 METHOD OF MEASUREMENT

The quantity shall be measured as the number of square yards of pavement surface milled in accordance with the plans and this specification.

In no case will a deduction in area be made for minor unmilled areas due to catch basins, manholes, transverse joints, or minor low areas in pavements from the measured surface area that has been milled. Minor unmilled or low areas are those areas of 10 square yards or less.

490-5 BASIS OF PAYMENT

The unit price bid per square yard shall include the cost of furnishing all labor and equipment necessary to complete the milling, including the removal of pavement by other means, the removal and disposal of milled material, the removal and hauling of milled material to a designated storage area when indicated in the contract documents and cleaning the resultant surface after milling. No payment will be made for additional cleaning that may be necessary just prior to placement of any overlaying pavement courses or tack coats.

The cost of maintaining drainage shall be included in the price bid for maintenance and protection of traffic. The cost of providing temporary pavement wedges of asphalt concrete around drainage structures, manholes, valve boxes, bridge abutments and beginning and ends of milled pavement shall be paid for as outlined in Section 619-5.12 of the Standard Specifications.

Tack coats and overlay courses shall be paid for under their respective items.

Payment will be made under:

Item No.	Item	Pay Unit
490.10	Production Cold Milling of Bituminous Concrete	Square Yard
490.20	Production Cold Milling of Portland Cement Concrete	Square Yard
490.30	Miscellaneous Cold Milling of Bituminous Concrete	Square Yard
490.40	Miscellaneous Cold Milling of Portland Cement Concrete	Square Yard