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USACE / NAVFAC / AFCEC / NASA **UFGS-32 01 16.71 (February 2017)**

Preparing Activity: USACE **Superseding**
UFGS-32 01 16.17 (August 2008)

UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated January 2021

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02/17

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SECTION 32 01 16.71

COLD MILLING ASPHALT PAVING
02/17

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NOTE: This guide specification covers the requirements for cold milling of bituminous pavement for airfields, roads, streets, parking areas, and other general applications.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).

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PART 1 GENERAL

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NOTE: This guide specification can be used to specify cold milling alone on structurally sound pavements for surface texturing to increase skid resistance of a worn pavement, or for pavement removal to restore roadway geometry. Cold milling can also be used in conjunction with mill and fill operations.

On the project drawings, show:

1. Location and extent of milling operation.

2. Required elevation of milled surface and finish

surface of new pavement.

3. Section indicating in mm inches the depth that existing pavement has to be removed.

4. Location of existing manholes, valve boxes and utility lines.

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1.1 UNIT PRICES

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NOTE: Delete these paragraphs when lump sum bidding is used.

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1.1.1 Measurement

The quantity of milled pavement will be the number of square meters yards completed and accepted as determined by the Contracting Officer. Determine the number of square meters yards of milled pavement by measuring the length and width of the milled surface within the specified work area. Measure the width of the area to the closest mm inch and measure the length of the area to the closest meter foot.

1.1.2 Payment

Payment will be to the nearest square meter yard. No payment will be made for milling outside the specified area of work.

1.2 QUALITY ASSURANCE

1.2.1 Grade

Mill pavement such that the finished surface conforms to the lines, grades, and cross sections indicated. The maximum allowable deviation of the finished milled pavement surfaces from the established plan grade line and elevation will be [0] [6] mm [0] [1/4] inch. The deviations from the plan grade line and elevation will not be permitted in areas of pavements where closer conformance with planned grade and elevation is required for the proper functioning of appurtenant structures involved.

1.2.2 Surface Smoothness

The maximum allowable deviation of the finished surfaces from the testing edge in the transverse or longitudinal direction will be 6 mm 1/4 inch.

1.2.3 Traffic Control

Provide all necessary traffic controls during milling operations.

1.3 EQUIPMENT, TOOLS, AND MACHINES

Maintain in a satisfactory working condition equipment, tools, and machines used in the performance of the work.

1.3.1 Cold-Milling Machine

Provide a cold-milling machine which is self-propelled, capable of milling

the pavement to a specified depth and smoothness and of establishing grade control; with means of controlling transverse slope and dust produced during the pavement milling operation. Machine will have capability of adding water in front of equipment to minimize dust during milling operation. The machine will have the ability to [windrow the millings or cuttings] [remove the millings or cuttings from the pavement and load them into a truck]. The milling machine will not damage any part of the pavement structure that is not to be removed.

1.3.2 Cleaning Equiment

Provide cleaning equipment suitable for removing and cleaning loose material from the pavement surface.

1.3.3 Straightedge

Furnish and maintain at the site, in good condition, one 3.66 meter 12 foot straightedge or other suitable device for each milling machine, for testing the finished surface. Make straightedge available for Government use. Use straightedges constructed of aluminum or other lightweight metal, with blades of box or box-girder cross section with flat bottom reinforced to insure rigidity and accuracy. Use straightedges with handles to facilitate movement on the pavement.

1.4 ENVIRONMENTAL REQUIREMENTS

Do not perform milling when there is accumulation of snow or ice on the pavement surface.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 MILLING OPERATION

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When the milled material (cutting) is to be cold recycled, the maximum size of the cuttings should be equal to or less than one-half of the recycled pavement thickness. Generally, the maximum size for a single 100 mm 4 inch lift of pavement will be 50 mm 2 inches or less. For hot recycling the recommended maximum size of the milled material is 50 mm 2 inches.

If design does not include removal of base course material and it is desired not to disturb the base course then the following may be included in this paragraph:

Conduct cold-milling operation to ensure that only bituminous pavement is removed and base course is not disturbed. Leave in place a layer of bituminous pavement, 25 mm 1 inch thick, over the undisturbed base course.

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A minimum of seven days notice is required, prior to start work, for the Contracting Officer to coordinate the milling operation with other activities at the site. Make sufficient passes so that the designated area is milled to the grades and cross sections indicated. Mill the pavement in depth increments that will not damage the pavement below the designated finished grade. If scabbing occurs, the surface will not meet smoothness requirements. Take steps to modify the process as needed to prevent scabbing from occuring. Repair or replace, as directed, items damaged during milling such as manholes, valve boxes, utility lines, pavement that is torn, cracked, gouged, broken, or undercut. [Window the milled material.] Remove the milled material from the pavement and load into trucks.

3.2 GRADE AND SURFACE-SMOOTHNESS TESTING

3.2.1 Grade-Conformance Tests

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NOTE: For pavements in aircraft traffic areas such as airfield runways and taxiways, lines of levels to determine elevation of the milled pavement will be run longitudinally and transversely at intervals not exceeding 8 meters 25 feet.

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Test the finished milled surface of the pavement for conformance with the plan-grade requirements and for acceptance by the Contracting Officer by running lines of levels at intervals of [7.5] [_____] meters [25] [_____] feet longitudinally and [7.5] [_____] meters [25] [_____] feet transversely to determine the elevation of the completed pavement. Correct variations from the designated grade line and elevation in excess of the plan-grade requirements as directed. Skin patching for correcting low areas will not be permitted. Remove and replace the deficient low area. Remove sufficient material to allow at least 25 mm 1 inch of asphalt concrete to be placed.

3.2.2 Surface-Smoothness Tests

After completion of the final milling, the finished milled surface will be tested by the Government with a straightedge. Other approved devices may be used, provided that when satisfactorily and properly operated, such devices reveal all surface irregularities exceeding the tolerances specified. Correct surface irregularities that depart from the testing edge by more than 6 mm 1/4 inch. Skin patching for correcting low areas will not be permitted. Remove and replace the deficient low area. Remove sufficient material to allow at least 25 mm 1 inch of asphalt concrete to be placed.

3.3 REMOVAL OF MILLED MATERIAL

[Place material that is removed [in the disposal area as specified] [into traveling mixing plant for cold-mix recycling].] [Transport material that is removed to central plant for hot-mix or cold-mix recycling.] [Stockpile material that is removed as specified and in such a manner to prevent segregation or contamination.] [Material that is removed will become the property of the Contractor and removed from the site.]

-- End of Section --