DIVISION 400 - PAVEMENTS

SECTION 401 - HOT MIX ASPHALT (HMA) PAVEMENT

401.01 Description. This section describes furnishing and placing HMA pavement on a prepared surface.

401.02 Materials.

Asphalt Cement (PG 64-16) 702.01
Emulsified Asphalt 702.04
Aggregate for Hot Mix Asphalt Pavement 703.09
Filler 703.15
Hydrated Lime 712.03

(A) General. HMA pavement shall be plant mixed and shall include mixture of aggregate and asphalt cement, and may include reclaimed asphalt pavement (RAP) or filler, or both.

HMA pavement shall include surface course and may include one or more binder courses, depending on HMA pavement thickness indicated in the contract documents.

RAP is defined as removed or reprocessed pavement materials containing asphalt and aggregates. Process RAP by crushing until 100 percent of RAP passes 3/4-inch sieve. Size, grade uniformly, and combine materials such that blend of RAP and aggregate material conforms to grading requirements of Subsection 703.09 - Aggregate for Hot Mix Asphalt Pavement.

In surface and binder courses, aggregate for HMA may include RAP quantities up to 15 percent of total mix weight.

Quantity of filler material to correct deficiencies in aggregate gradation passing the No. 200 sieve shall not exceed 3 percent by weight of fine aggregates.
(B) Job-Mix Formula and Tests. Design job-mix formula in accordance with procedures contained in current edition of Asphalt Institute's Mix Design Methods for Asphalt Concrete and Other Hot Mix Types, Manual Series No. 2 (MS-2) for either Marshall Method or Hveem Method of Mix Design.

Limit compacted lift thickness and asphalt content of job-mix formula as specified in Table 401.02-1 - Limits of Compacted Lift Thickness and Asphalt Content.

<table>
<thead>
<tr>
<th>MIX NO.</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum to Maximum Compacted Thickness for Individual Lifts (Inches)</td>
<td>2-1/4 to 3</td>
<td>2 to 3</td>
<td>1-1/2 to 3</td>
<td>1-1/4 to 3</td>
</tr>
<tr>
<td>Asphalt Content Limits (Percent of Total Weight of Mix)</td>
<td>3.8 to 6.1</td>
<td>4.3 to 6.1</td>
<td>4.3 to 6.5</td>
<td>4.8 to 7.0</td>
</tr>
</tbody>
</table>

Asphalt content limits for porous aggregate may be exceeded only if accepted in writing by the Engineer.
Meet job-mix formula design criteria specified in Table 401.02-2 - Job-Mix Formula Design Criteria.

<table>
<thead>
<tr>
<th>TABLE 401.02-2 - JOB-MIX FORMULA DESIGN CRITERIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hveem Method Mix Criteria (AASHTO T 246 and AASHTO T 247)</td>
</tr>
<tr>
<td>Stability, minimum</td>
</tr>
<tr>
<td>Air Voids (percent)(^1)</td>
</tr>
<tr>
<td>Marshall Method Mix Criteria (AASHTO T 245)</td>
</tr>
<tr>
<td>Compaction (number of blows each end of specimen)</td>
</tr>
<tr>
<td>Stability, minimum (pounds)</td>
</tr>
<tr>
<td>Flow (x 0.01 inch)</td>
</tr>
<tr>
<td>Air Voids (percent)(^1)</td>
</tr>
</tbody>
</table>

**Notes:**
1. Air Voids: AASHTO T 166 or AASHTO T 275; AASHTO T 209, AASHTO T 269.

Minimum percent voids in mineral aggregates (VMA) of job-mix formula shall be as specified in Table 401.02-3 - Minimum Percent Voids in Mineral Aggregates (VMA).

<table>
<thead>
<tr>
<th>TABLE 401.02-3 - MINIMUM PERCENT VOIDS IN MINERAL AGGREGATES (VMA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Maximum Particle Size, (Inches)</td>
</tr>
<tr>
<td>VMA, (percent)(^1)</td>
</tr>
</tbody>
</table>

**Notes:**
1. VMA: See Asphalt Institute Manual MS-2, Chapter 4.
(C) Submittals. Establish and submit job-mix formula for each type of HMA pavement mix indicated in the contract documents as follows:

1. Design percent of aggregate passing each required sieve size.
2. Design asphalt content added to aggregate, based on total weight of mix.
3. Design proportion of processed RAP.
4. Design temperature of mixture at point of discharge at paver.
5. Source of aggregate.
6. Grade of asphalt cement.
7. Test data used to develop job-mix formula.

With the exception of item (4) in this subsection, if design requirements are modified after the Engineer accepts job-mix formula, submit new job-mix formula before using HMA produced from modified mix design.

Submit a certificate of compliance for asphalt cement, accompanied by substantiating test data.

(D) Range of Tolerances for HMA. Provide HMA within allowable tolerances of accepted job-mix formula as specified in Table 401.02-4 - Range of Tolerances for HMA.

<table>
<thead>
<tr>
<th>TABLE 401.02-4 - RANGE OF TOLERANCES FOR HMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passing No. 4 and larger sieves (percent)</td>
</tr>
<tr>
<td>Passing No. 8 to No. 100 sieves (inclusive) (percent)</td>
</tr>
<tr>
<td>Passing No. 200 sieve (percent)</td>
</tr>
<tr>
<td>Asphalt Content (percent)</td>
</tr>
<tr>
<td>Mixture Temperature (degrees F)</td>
</tr>
</tbody>
</table>
401.03 Construction.

(A) Weather Limitations. Placement of HMA will not be allowed under the following conditions:

1. On wet surfaces as determined by the Engineer.

2. When air temperature is below 50 degrees F and falling. HMA may be applied when air temperature is above 40 degrees F and rising. Air temperature will be measured in shade and away from artificial heat.

3. When weather conditions prevent proper method of construction.

(B) Equipment.

1. Mixing Plant. Use mixing plants that conform to AASHTO M 156, supplemented as follows:

   a. All Plants.

   1. Automated Controls. Control proportioning, mixing, and mix discharging automatically. When RAP is incorporated into mixture, provide positive controls for proportioning processed RAP.

   2. Dust Collector. AASHTO M 156, Requirements for All Plants, Emission Controls is amended as follows:

      Equip plant with dust collector. Dispose of collected material. In the case of baghouse dust collectors, dispose of collected material or return collected material uniformly.

   3. Modifications for Processing RAP. When RAP is incorporated into mixture, modify mixing plant in accordance with plant manufacturer's recommendations to process RAP.

   b. Drum Dryer-Mixer Plants.

      1. Bins. Provide separate bin in cold aggregate feeder for each individual aggregate stockpile in mix. Use bins of sufficient size to keep plant in continuous
operation and of proper design to prevent overflow of material from one bin to another.

2. **Stockpiling Procedures.** Separate aggregate into at least three stockpiles with different gradations as follows: coarse, intermediate, and fine. Separate aggregates for Mix V into at least two stockpiles. Stockpile RAP separately from virgin aggregates.

(c) **Batch and Continuous Mix Plants.**

1. **Hot Aggregate Bin.** Provide bin with three or more separate compartments for storage of screened aggregate fractions to be combined for mix. Make partitions between compartments tight and of sufficient height to prevent spillage of aggregate from one compartment into another.

2. **Load Cells.** Calibrated load cells may be used in batch plants instead of scales.

(2) **Hauling Equipment.** Use trucks that have tight, clean, smooth metal beds for hauling HMA.

Thinline coat truck beds with minimum quantity of non-stripping release agent to prevent mixture from adhering to beds. The use of diesel or petroleum-based liquid release agents, except for paraffin oil, will not be allowed.

Equip each truck with tarpaulin conforming to the following:

(a) In good condition, without tears and holes.

(b) Large enough to be stretched tightly over truck bed, completely covering mix.

(3) **Asphalt Pavers.** Use asphalt pavers that are:

(a) Self-contained, power-propelled units.

(b) Equipped with activated screed or strike-off assembly, heated if necessary.

(c) Capable of spreading and finishing courses of HMA mixtures in lane widths applicable to typical section and thicknesses indicated in the contract documents.

(d) Equipped with receiving hopper having sufficient
capacity for uniform spreading operation.

(e) Equipped with automatic feed controls to maintain uniform depth of material ahead of screed.

(f) Equipped with automatic screed controls with sensors capable of sensing grade from outside reference line, sensing transverse slope of screed, and providing automatic signals to control screed grade and transverse slope.

(g) Capable of operating at constant forward speeds consistent with satisfactory laying of mixture.

(4) Rollers. Rollers shall be self-propelled, steel-tired tandem, pneumatic-tired, or vibratory-type rollers capable of reversing without shoving or tearing HMA mixture. Unless otherwise indicated in the contract documents, provide sufficient number, sequencing, type, and weight of rollers to compact mixture to required density while mixture is still in workable condition. Do not use equipment that will excessively crush aggregate. Operate rollers in accordance with manufacturer’s recommendations.

(a) Steel-Tired Tandem Rollers. Steel-tired tandem rollers used for initial breakdown or intermediate roller passes shall have minimum gross weight of 12 tons and shall provide minimum 250-pound weight per linear inch of width on drive wheel.

Steel-tired tandem rollers used for finish roller passes shall have minimum gross weight of 3 tons.

Do not use roller with grooved or pitted rolling drum. Replace excessively worn scrapers and wetting pads.

(b) Pneumatic-Tired Rollers. Pneumatic-tired rollers shall be oscillating-type, equipped with smooth-tread pneumatic tires of equal size and diameter. Maintain tire pressure within 5 pounds per square inch of designated operational pressure when hot. Space tires so that gaps between adjacent tires are covered by following set of tires.
Equip pneumatic-tired rollers used for breakdown or intermediate roller passes, with ballast capable of establishing an operating weight per tire of not less than 3,000 pounds. Equip rollers with tires having minimum 20-inch wheel diameter. Inflate tires to 70 to 75 pounds per square inch pressure when cold and 90 pounds per square inch when hot. Equip rollers with skirt-type devices to maintain temperature of tires during rolling operations.

Equip pneumatic-tired rollers used for kneading finished asphalt surfaces, with ballast capable of establishing an operating weight per tire of not less than 1,500 pounds. Equip rollers with tires having minimum 15-inch wheel diameter. Inflate tires to 50 to 60 pounds per square inch pressure.

(c) **Vibratory Rollers.** Vibratory rollers shall be steel-tired tandem rollers having minimum weight of 3 tons. Equip vibratory rollers with amplitude and frequency controls and speedometer. Operate vibratory roller in accordance with manufacturer's recommendations.

(5) **Hand Tools.** Keep hand tools used in production, hauling, and placement of HMA clean and free of contaminants. Liquids such as diesel or mineral spirits may be used to clean hand tools. Do not contaminate HMA with cleaning liquids. Clean hand tools over catch pan with capacity to hold all the cleaning liquid. Dry hand tools before using with HMA.

(6) **Material Transfer Vehicle (MTV).**

(a) **Usage.** Unless otherwise indicated in the contract documents, MTV usage applies to surface courses of paving projects on all Islands except Lanai. When placing HMA surface course, use MTV to independently deliver mixtures from hauling equipment to paving equipment. MTV usage will not be required for the following:

1. Projects with less than 1,000 tons of HMA.

2. Temporary pavements.

3. Bridge deck approaches.

4. Shoulders.

5. Tapers.

6. Turning lanes.
7. Driveways.

8. Areas with low overhead clearances.

(b) **Equipment.** When using MTV, install minimum 10-ton-capacity hopper insert in conventional paver hopper. Provide the following equipment:

1. High-capacity truck unloading system in MTV capable of receiving HMA from hauling equipment.

2. MTV storage bin with minimum 15-ton capacity.

3. Auger mixing system in MTV storage bin, paver hopper insert, or paver hopper to continuously mix HMA prior to discharging to conveyor system.

Coordinate plant production rate, number of haul units, and MTV and paver speeds to avoid stop-and-go operations and to provide continuous, uniform, segregation-free material flow.

(c) **Performance Evaluation.** The Engineer will evaluate performance of MTV and mixing equipment by measuring mat temperature profile immediately behind paver screed on first day of paving.

Six temperature profile measurements will be taken of mat surface using non-contact thermometers at 50-foot intervals behind paver. Each temperature profile will consist of three surface temperature measurements taken transversely across mat in approximately a straight line from screed while paver is operating. For each profile, temperatures will be measured approximately 1 foot from each edge and in middle of mat; and difference between maximum and minimum temperature measurements within each temperature profile shall not exceed 10 degrees F. If any two or more temperature profiles exceed allowable 10-degree F temperature differential, halt paving operation and adjust MTV or mixing equipment to ensure that material placed by paver meets specified temperature requirements.

Once adjustments are made, the Engineer will repeat measurement procedure to verify that material placed by paver meets specified temperature requirements. Terminate paving if temperature profile requirements are not met during repeated measurement procedure. If equipment fails to meet
requirements after measurement procedure is repeated once, equipment replacement will be required before the Engineer conducts any further temperature profile measurements.

The Engineer may perform additional surface temperature profile measurements at any time during project. If two consecutive temperature profiles fail to comply with specified allowable temperature differential, halt paving operation and adjust MTV or mixing equipment to ensure that HMA placed by paver complies with temperature requirements.

(d) Transport.

1. **Trailered MTV.** Transport MTV by means of truck-tractor/trailer combination in accordance with Chapter 104 of Title 19, Department of Transportation, entitled “The Movement by Permit of Oversize and Overweight Vehicles on State Highways”.

2. **Crossing Bridges for Self-Powered MTV.** When self-powered MTV exceeds legal axle or total weight limits for vehicles under the HRS, Chapter 291, conform to the following when crossing bridges within project limits unless otherwise indicated in the contract documents:
   
   a. Completely remove mix from MTV.
   
   b. Move MTV at relatively constant speed not exceeding 5 miles per hour. MTV will not be allowed to stop on bridge.
   
   c. No other vehicle or equipment will be allowed on bridge.

(C) **Preparation of Surface.** Clean existing pavement in accordance with Section 310 - Brooming Off. Apply tack coat in accordance with Section 407 - Tack Coat.

Where indicated in the contract documents, bring irregular surfaces to uniform grade and cross section by furnishing and placing one or more leveling courses of HMA Mix V. Spread leveling course in variable thicknesses to eliminate irregularities in existing surface. Place leveling course such that maximum depth of each course, when thoroughly compacted, does not exceed 3 inches.
In multiple-lift leveling course construction, spread subsequent lifts beyond edges of previously spread lifts in accordance with procedures contained in current edition of the Asphalt Institute's *Construction of Hot Mix Asphalt Pavements*, Manual Series No. 22 (MS-22) for leveling wedges.

(D) **Plant Operation.**

(1) **Preparation of Asphalt Cement.** Uniformly heat asphalt cement and provide continuous supply of heated asphalt cement from storage to mixer. Do not heat asphalt cement above 350 degrees F.

(2) **Preparation of Aggregate.** Dry and heat aggregate material at temperature sufficient to produce design temperature of job-mix formula. Do not exceed 350 degrees F. Adjust heat source used for drying and heating to avoid damage to and contamination of aggregate. When dry, aggregate shall not contain more than 1 percent moisture by weight.

For batch plants, screen aggregates immediately after heating and drying into three or more fractions. Convey aggregates into separate compartments ready for batching and mixing with asphalt cement.

(3) **Mixing.** Measure aggregate and asphalt; or aggregate, RAP, and asphalt into mixer in accordance with job-mix formula. Mix until components are completely mixed and adequately coated with asphalt in accordance with AASHTO M 156. Percent of coated particles shall be 95 percent when tested in accordance with AASHTO T 195.

(4) **Plant Inspection.** For control and acceptance testing during periods of production, provide testing laboratory next to plant. Provide space, utilities, and equipment required by the Engineer for performing specified tests.

(E) **Spreading and Finishing.** Prior to each day's paving operation, check screed or strike-off assembly surface with straight edge to ensure straight alignment. Provide screed or strike-off assembly that produces finished surface without tearing, shoving, and gouging HMA. Discontinue using spreading equipment that leaves ridges, indentations, or other marks, or combination thereof in surface that cannot be eliminated by rolling or be prevented by adjustment in operation.

Maintain HMA at minimum 250 degrees F temperature at discharge to paver. Measure temperature of mix in hauling vehicle just before depositing into spreader.
Deposit HMA in a manner that minimizes segregation. Raise truck beds with tailgates closed before discharging HMA.

Lay, spread, and strike off HMA upon prepared surface. Use asphalt pavers to distribute mixture.

Control horizontal alignment using automatic grade and slope controls from reference line, ski and slope control device, or dual skis.

Obtain sensor grade reference from 30-foot ski for first pass. For subsequent passes, substitution of one ski with joint-matching shoe riding on finished adjacent pavement is acceptable. Use of a comparable non-contact mobile reference system and joint matching shoe is acceptable.

Avoid stop-and-go operation. Minimize changing forward speed of paver during paving operation.

Offset longitudinal joint in successive lifts by approximately 6 inches. Position joint in surface course at centerline of pavement when roadway comprises two lanes of width, or at lane lines when roadway is more than two lanes in width.

In areas where irregularities or unavoidable obstacles make use of mechanical spreading and finishing equipment impracticable, spread, rake, and lute mixture by hand tools. For such areas, deposit, spread, and screed mixture to required compacted thickness.

Demonstrate competence of personnel operating grade and crown control device before placing surface courses. If automatic control system becomes inoperative during the day’s work, the Engineer will permit the Contractor to finish day’s work using manual controls. Do not resume work until automatic control system is made operative. The Engineer may waive requirement for electronic screed control device when paving gores, shoulders, transitions, and miscellaneous reconstruction areas.

When production of HMA can be maintained and when practicable, use pavers in echelon to place surface course in adjacent lanes.

At the end of each workday, HMA pavement that is open to traffic shall not extend beyond an adjacent panel of new lane pavement by more than distance normally covered in one workday. At end of each workweek, complete full width of pavement, including shoulders, to same elevation with no drop-offs. Construct transition taper along lane line at longitudinal pavement drop-off. Maximum drop-off height shall be 3 inches. Remove and dispose of transition taper before placing adjoining panel.
(F) **Compaction.** Immediately after spreading and striking off HMA and adjusting surface irregularities, uniformly compact mixture by rolling.

Initiate compaction at highest mix temperature allowing compaction without excessive horizontal movement. Temperature shall not be less than 220 degrees F.

Finish rolling using tandem roller while HMA temperature is at or above 175 degrees F.

On superelevated curves, begin rolling at lower edge and progress to higher edge by overlapping of longitudinal trips parallel to centerline.

If necessary, repair damage immediately using rakes and fresh mix. Do not displace line and grade of HMA edges during rolling.

Keep roller wheels properly moistened with water or water mixed with small quantities of detergent. Use of excess liquid, diesel, and petroleum-based liquids will not be allowed on rollers.

Along forms, curbs, headers, walls and other places not accessible to rollers, compact mixture with hot hand tampers, smoothing irons, or mechanical tampers. On depressed areas, trench roller or cleated compression strips under roller may be used to transmit compression.

Remove pavement that is loose, broken, or contaminated, or combination thereof; pavement that shows an excess or deficiency in asphalt cement content; and pavement that is defective in any way. Replace with fresh HMA pavement of same type, and compact. Remove and replace defective pavement and compact at no increase in contract price or contract time.

Operate rollers at slow but uniform speed with drive wheels nearest paver. Continue rolling to attain specified density and until roller marks are eliminated.

(1) **HMA Pavement Courses One and a Half Inches Thick Or Greater.** Where HMA pavement compacted thickness indicated in the contract documents is 1-1/2 inches or greater, compact to not less than 92 percent nor greater than 97 percent of the maximum specific gravity determined in accordance with AASHTO T 209, modified by deletion of Supplemental Procedure for Mixtures Containing Porous Aggregate.
Place HMA pavement in individual lifts that are within minimum and maximum allowable compacted thickness for various types of mixture as specified in Table 401.02-1 - Limits of Compacted Lift Thickness and Asphalt Content.

**(2) HMA Pavement Courses Less Than One and a Half Inches Thick.** Where HMA pavement compacted thickness indicated in the contract documents is less than 1-1/2 inches, compaction to a specified density will not be required.

Initiate rolling using non-vibratory, steel-tired, tandem roller. Roll entire surface with minimum of two roller passes. A roller pass is defined as one trip of the roller in one direction over any one spot.

For intermediate rolling, roll entire surface with minimum of four passes of roller.

Finish rolling using steel-tired, tandem roller. Continue rolling until entire surface has been compacted with minimum of three passes of roller, and roller marks have been eliminated.

Do not use rollers that will excessively crush aggregate.

**(3) HMA Pavement Courses One and a Half Inches Thick Or Greater In Special Areas Not Designed For Vehicular Traffic.** For areas such as bikeways that are not part of roadway and other areas not subjected to vehicular traffic, compact to not less than 90 percent of maximum specific gravity determined in accordance with AASHTO T 209, modified by deletion of Supplemental Procedure for Mixtures Containing Porous Aggregate. Increase asphalt content by at least 0.5 percent above that used for HMA pavements designed for vehicular traffic.

**(G) Joints, Trimming Edges and Utility Marking.** At HMA pavement connections to existing pavements, make joints vertical to depth of new pavement. Saw cut existing pavement and cold plane in accordance with Section 415 - Cold Planing of Existing Pavement to depth equal to thickness of surface course or as indicated in the contract documents.

At HMA connections to previously placed lifts, form joints by cutting back on previous run to expose full depth of course. Dispose of material trimmed from edges. Protect end of freshly laid mixture from rollers.

Apply tack coat in accordance with Section 407 - Tack Coat to contact surfaces of joints before placing additional HMA.
After paving, identify and mark location of existing utility manholes, valves, and handholes on finished surface. Adjust existing frames and covers and valve boxes to final pavement finish grade in accordance with Section 604 - Manholes, Inlets and Catch Basins and Section 626 - Manholes and Valve Boxes for Water and Sewer Systems.

(H) **HMA Pavement Samples.** Obtain test samples from compacted HMA pavement within 72 hours of lay down. Provide minimum 4-inch diameter cores consisting of undisturbed, full-depth portion of compacted mixture taken at locations designated by the Engineer in accordance with the “Sampling and Testing Guide for Acceptance and Verification” in Hawaii DOT Highways Division, *Quality Assurance Manual for Materials*, appendix 3.

Restore HMA pavement immediately after obtaining samples. Apply tack coat in accordance with Section 407 - Tack Coat to vertical faces of sample holes. Fill sampled area with new HMA pavement of same type as that removed, and compact.

Only sample and test leveling course if 1-1/2 inches or greater. No compaction requirements for less than 1-1/2 inches.

(I) **HMA Pavement Surface and Thickness Tolerances.** The Engineer will test surface of completed HMA pavement using 10-foot straightedge placed parallel and at right angles to the roadway centerline at selected locations. Pavement surface that varies more than 3/16 inch from testing edge of straightedge between two contacts exceeds surface tolerance.

Thickness of finished HMA pavement shall be within 1/4 inch of thickness indicated in the contract documents.

Correct pavement exceeding specified tolerances by methods accepted by the Engineer, including removal and replacement, at no increase in contract price or contract time.

(J) **Protection of HMA Pavement.** Except for construction equipment directly connected with paving operations, keep traffic off HMA pavement.

Protect HMA pavement from damage until it has cooled and set.

Do not refuel equipment or clean equipment or hand tools over paved surfaces unless catch pan or device that will contain spilled fuel is provided. After completion of refueling or cleaning, remove catch pan or device.

### 401.04 Measurement.

(A) Asphalt concrete pavement will be paid on a lump sum basis. Measurement for payment will not apply.
(B) The Engineer will measure leveling course per ton in accordance with the contract documents.

401.05 Payment. The Engineer will pay for the accepted pay items listed below at the contract price per pay unit, as shown in the proposal schedule. Payment will be full compensation for the work prescribed in this section and the contract documents.

The Engineer will pay for each of the following pay items when included in the proposal schedule:

<table>
<thead>
<tr>
<th>Pay Item</th>
<th>Pay Unit</th>
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</thead>
<tbody>
<tr>
<td>HMA Pavement, Mix No. ______</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Leveling Course</td>
<td>Ton</td>
</tr>
</tbody>
</table>

(1) 5% of the contract bid price upon submitting a job-mix formula acceptable to the Engineer;

(2) 75% of the contract bid price upon preparing the surface, spreading, and finishing the mixture; and compacting the mixture by rolling;

(3) 20% of the contract bid price upon cutting samples from the compacted pavement for testing; placing and compacting the sampled area with new material conforming to the surrounding area; protecting the pavement; and final analysis and payment reduction.

The Engineer will pay for cold planing in accordance with and under Section 415 - Cold Planing of Existing Pavement.

The Engineer will pay for adjusting existing frames and covers and valve boxes in accordance with and under Section 604 - Manholes, Inlets and Catch Basins and Section 626 - Manholes and Valve Boxes for Water and Sewer Systems.

END OF SECTION 401