STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0016

JOHN ELIAS BALDACCI
GOVERNOR

DAVID A. COLE
COMMISSIONER

December 3, 2010
Subject: **Wells**
Federal Project No: NH-7998(10)E
State Pin No: 007998.10
Amendment No. 4

Dear Sir/Ms:

Make the following changes to the bid Documents:

In the Bid Book (pages 4 thru 14), **REMOVE** the "SCHEDULE OF ITEMS" 11 pages dated 101118 (replaced in amendment #2) and **REPLACE** with the attached new "SCHEDULE OF ITEMS" 11 pages dated 101203.

In the Bid Book, after page 62, **ADD** the attached "SPECIAL PROVISION, SECTION 310, PMRAP" 1 page dated November 29, 2010.

In the Bid Book, before page 63, **ADD** the attached "SPECIAL PROVISION, SECTION 310, PLANT MIXED RECYCLED ASPHALT PAVEMENT" 5 pages dated May 2, 2005.

In the Bid Book (page 108), **REMOVE** "SPECIAL PROVISION, SECTION 652, MAINTENANCE OF TRAFFIC" 1 page dated February 27, 2003 and **REPLACE** with the new attached "SPECIAL PROVISION, SECTION 652, MAINTENANCE OF TRAFFIC" 1 page undated.

In the Plans, SHEET NO 2 OF 153 thru 5 OF 153, **CHANGE** all occurrences of the word "OPTION" to read "**ALTERNATE**". Make this change in pen and ink.

The following questions have been received:

Question: Please provide the minimum parameters required to achieve stabilization of the section being worked to satisfy the Resident and Water Resources Unit?

Response: It is the contractor's responsibility to submit an erosion control plan.

Question: Will the Contractor be allowed to work on multiple portions of the project simultaneously? If yes, please provide the maximum length that can be disturbed prior to stabilization for each area. If no, please provide the maximum length of roadway allowed to be disturbed prior to stabilization.

Response: See Special Provision 652

Question: Utilities – Are there any specific restrictions utilities will have involving what type of equipment and separation distances when working near gas mains?

Response: See Special Provision 104 and will be discussed and coordinated at the Project Pre-construction meeting

Question: Who will be responsible for the cost of the Utilities onsite representative?

Response: See Special Provision 104 and will be discussed and coordinated at the Project Pre-construction meeting

Question: Special Provision, Section 104 indicates it will take the utilities 120 days to do the gas main replacement. Please specify the gas main to be relocated?

Response: To be determined in the field, utilities are located in close proximity to under drain. This will also be discussed and coordinated at the Project Pre-construction meeting

Question: The Boring Logs show a layer of Macadam beneath the existing pavement, when removed should the macadam be considered a contaminated soil that cannot be disposed of in a typical waste yard? If so, how will disposal of the material be paid?

Response: Macadam is not considered a contaminated material.

Question: The Boring Logs show several areas of refusal in close proximity to proposed underdrain, how will the ledge removal be paid in the event that rock is encountered during pipe installation?

Response: Paid for under Item 206.07- Structural Rock Excavation – Drainage and Minor Structures

Question: Are there any nighttime work restrictions?

Response: The Department is not requiring night time work.

Question: SP Section 104 – Utilities calls for 120 working days for Unitil to relocate the existing gas main within the project. Can the Department provide a schedule for when

Unitil plans to commence and end work? Is it the intent for Unitil to work throughout the 2010/2011 winter to finish the relocation?

Response: This will be discussed and coordinated at the Project Pre-construction meeting. Also see Section 104 for Utility contact information.

Question: Special Provision 652 requires a one mile separation between Contractor lane closures. Does this apply to Contractor and utility closures?

Response: The Contractor is responsible to coordinate with utilities.

Question: The bid quantity for item 629.05 – Hand Labor appears to be unusually high. Can the Department provide a better description for usage of this item?

Response: Item 629.05 – Hand Labor has been adjusted please see new schedule of items.

Question: Basis of Award – Amendment #2, page 1 indicates the basis of award will be section 0001 plus chosen option. Amendment #2, page 3 indicates the basis of award will be section 0001 plus the Contractors chosen option. Do we bid only one option? Is it truly the Contractors choice?

Response: Yes, Award section 1 with contractors chosen alternative.

Question: Amendment #2 was issued late Friday (11/19) and was not noticed until Monday morning. The amendment has changed a lot of quantities and added a few items. Because of the short week we have had some vendors and subs take the week off that we need to contact because of the quantity changes. Is there any way to postpone the bid opening date another week because of the many changes made?

Response: Date changed to December 8, 2010

Question: Can the MDOT provide a job mix formula for the PM RAP option?

Response: See Special Provision 310.

Question: Are there any nighttime work restrictions?

Response: The Department is not requiring night time work.

Question: The boring logs show a layer of macadam beneath the existing roadway, once excavated is this material to be treated as a contaminated or is it OK to be used as waste?

Response: Macadam is not considered a contaminated material.

Question: The project includes a mill and overlay section. How will milling/grinding in this area be paid for?

Response: Item 202.202 Remove Pavement Surface has been added.

Question: Will we see a new bid quantity for Item 206.061 Structural Earth? Right now it is the quantity of total available Str. Excavation from the Earthwork Summary.

Response: Yes, please see the attached new Schedule Of Items.

Consider these changes and information prior to submitting your bid on December 8, 2010.

Sincerely,

Scott Bickford
Contracts & Specifications Engineer

CONTRACT ID: 007998.10 PROJECT(S): NH-7998(10)E

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 PROJECT ITEMS					
0010	201.11 CLEARING	1.900 HA				
0020	201.23 REMOVING SINGLE TREE TOP ONLY	43.000 EA				
0030	201.24 REMOVING STUMP	51.000 EA				
0040	202.17 REMOVING EXISTING STRUCTURAL CONCRETE	LUMP	LUMP			
0050	202.191 REMOVING EXISTING PIPE	LUMP	LUMP			
0060	202.202 REMOVING PAVEMENT SURFACE	3400.000 M2				
0070	202.203 PAVEMENT BUTT JOINTS	315.000 M2				
0080	203.21 ROCK EXCAVATION	300.000 M3				
0090	203.2318 DISPOSAL OF SPECIAL WASTE	100.000 MG				
0100	203.25 GRANULAR BORROW	130.000 M3				

CONTRACT ID: 007998.10 PROJECT(S): NH-7998(10)E

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0110	206.061 STRUCTURAL EARTH EXCAVATION - DRAINAGE AND MINOR STRUCTURES, BELOW GRADE	100.000 M3				
0120	206.07 STRUCTURAL ROCK EXCAVATION - DRAINAGE AND MINOR STRUCTURES	25.000 M3				
0130	206.082 STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	100.000 M3				
0140	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	16200.000 M3				
0150	403.208 HOT MIX ASPHALT 12.5 MM, SURFACE	4550.000 MG				
0160	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	420.000 MG				
0170	403.211 HOT MIX ASPHALT (SHIM)	5.000 MG				
0180	409.15 BITUMINOUS TACK COAT APPLIED	5300.000 L				
0190	411.12 CRUSHED STONE SURFACE	15.000 MG				
0200	502.21 STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS	2.000 M3				
0210	502.49 STRUCTURAL CONCRETE CURBS AND SIDEWALKS	LUMP	LUMP			

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0220	503.12 REINFORCING STEEL, FABRICATED AND DELIVERED	605.000 KG				
0230	503.13 REINFORCING STEEL, PLACING	605.000 KG				
0240	504.07 CONCRETE PIPE TIES	2.000 GP				
0250	508.13 MEMBRANE WATERPROOFING	LUMP	LUMP			
0260	511.07 COFFERDAM: CULVERT	LUMP	LUMP			
0270	511.07 COFFERDAM: ROADWAY	LUMP	LUMP			
0280	512.081 FRENCH DRAINS	LUMP	LUMP			
0290	515.20 PROTECTIVE COATING FOR CONCRETE SURFACES	100.000 M2				
0300	534.71 PRECAST CONCRETE BOX CULVERT	LUMP	LUMP			
0310	603.159 300 MM CULVERT PIPE OPTION III	40.000 M				
0320	603.16 375 MM CULVERT PIPE OPTION I	56.000 M				

CONTRACT ID: 007998.10 PROJECT(S): NH-7998(10)E

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0330	603.175 450 MM RCP CLASS III	32.000 M				
0340	603.179 450 MM CULVERT PIPE OPTION III	216.000 M				
0350	603.199 600 MM CULVERT PIPE OPTION III	83.000 M				
0360	603.219 900 MM CULVERT PIPE OPTION III	23.000 M				
0370	604.072 CATCH BASIN TYPE A1-C	3.000 EA				
0380	604.092 CATCH BASIN TYPE B1-C	68.000 EA				
0390	604.182 CLEAN EXISTING CATCH BASIN AND MANHOLE	5.000 EA				
0400	604.248 CATCH BASIN TYPE F6	3.000 EA				
0410	604.249 CATCH BASIN TYPE F6-C	1.000 EA				
0420	604.2494 CATCH BASIN TYPE F7-C	3.000 EA				
0430	604.2495 CATCH BASIN TYPE F8-C	3.000 EA				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0440	604.262 CATCH BASIN TYPE B5-C	3.000 EA				
0450	605.09 150 MM UNDERDRAIN TYPE B	1945.000 M				
0460	605.10 150 MM UNDERDRAIN OUTLET	40.000 M				
0470	605.11 300 MM UNDERDRAIN TYPE C	1564.000 M				
0480	605.12 375 MM UNDERDRAIN TYPE C	51.000 M				
0490	605.13 450 MM UNDERDRAIN TYPE C	413.000 M				
0500	605.15 600 MM UNDERDRAIN TYPE C	438.000 M				
0510	606.23 GUARDRAIL TYPE 3C - SINGLE RAIL	210.000 M				
0520	606.232 GUARDRAIL TYPE 3C - OVER 4.5 M RADIUS	25.000 M				
0530	606.265 TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	1.000 EA				
0540	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	18.000 EA				

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0550	606.356 UNDERDRAIN DELINEATOR POST	4.000 EA				
0560	606.47 SINGLE WOOD POST	52.000 EA				
0570	606.51 MULTIPLE MAILBOX SUPPORT	1.000 EA				
0580	606.74 GUARDRAIL TYPE 3 - SINGLE RAIL BRIDGE MOUNTED	15.500 M				
0590	606.78 LOW VOLUME GUARDRAIL END - TYPE 3	1.000 EA				
0600	606.79 GUARDRAIL 350 FLARED TERMINAL	3.000 EA				
0610	609.31 CURB TYPE 3	4350.000 M				
0620	609.34 CURB TYPE 5	90.000 M				
0630	609.35 CURB TYPE 5 - CIRCULAR	3.000 M				
0640	610.08 PLAIN RIPRAP	65.000 M3				
0650	610.11 STONE BLANKET	55.000 M3				

CONTRACT ID: 007998.10 PROJECT(S): NH-7998(10)E

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0660	610.16 HEAVY RIPRAP	125.000 M3				
0670	613.319 EROSION CONTROL BLANKET	1160.000 M2				
0680	615.07 LOAM	1160.000 M3				
0690	618.1301 SEEDING METHOD NUMBER 1 - PLAN QUANTITY	164.000 UN				
0700	618.1401 SEEDING METHOD NUMBER 2 - PLAN QUANTITY	150.000 UN				
0710	618.1411 SEEDING METHOD NUMBER 3 - PLAN QUANTITY	22.000 UN				
0720	619.12 MULCH	350.000 UN				
0730	620.58 EROSION CONTROL GEOTEXTILE	150.000 M2				
0740	620.60 SEPARATION GEOTEXTILE	35.000 M2				
0750	627.18 300 MM SOLID WHITE PAVEMENT MARK LINE	85.000 M				
0760	627.733 100 MM WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	13000.000 M				

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0770	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	45.000 M2				
0780	627.76 TEMPORARY PAVEMENT MARKING LINE, WHITE OR YELLOW	LUMP	LUMP			
0790	629.05 HAND LABOR, STRAIGHT TIME	40.000 HR				
0800	631.10 AIR COMPRESSOR (INCLUDING OPERATOR)	20.000 HR				
0810	631.11 AIR TOOL (INCLUDING OPERATOR)	20.000 HR				
0820	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	20.000 HR				
0830	631.132 SMALL BULLDOZER (INCLUDING OPERATOR)	20.000 HR				
0840	631.14 GRADER (INCLUDING OPERATOR)	20.000 HR				
0850	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	20.000 HR				
0860	631.18 CHAIN SAW RENTAL (INCLUDING OPERATOR)	20.000 HR				
0870	631.20 STUMP CHIPPER (INCLUDING OPERATOR)	20.000 HR				

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0880	631.22 FRONT END LOADER (INCLUDING OPERATOR)	20.000 HR				
0890	631.32 CULVERT CLEANER (INCLUDING OPERATOR)	10.000 HR				
0900	639.18 FIELD OFFICE TYPE A	1.000 EA				
0910	643.60 FLASHING BEACON AT:	LUMP	LUMP			
0920	645.113 REINSTALL GUIDE SIGN	30.000 EA				
0930	645.116 REINSTALL REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	39.000 EA				
0940	652.33 DRUM	40.000 EA				
0950	652.34 CONE	65.000 EA				
0960	652.35 CONSTRUCTION SIGNS	61.000 M2				
0970	652.361 MAINTENANCE OF TRAFFIC CONTROL DEVICES	LUMP	LUMP			
0980	652.38 FLAGGER	10000.000 HR				

CONTRACT ID: 007998.10 PROJECT(S): NH-7998(10)E

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0990	652.41 PORTABLE CHANGEABLE MESSAGE SIGN	2.000 EA				
1000	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP	LUMP			
1010	658.20 ACRYLIC LATEX COLOR FINISH, GREEN	35.000 M2				
1020	659.10 MOBILIZATION	LUMP	LUMP			
1030	660.21 ON-THE-JOB TRAINING (BID)	2000.000 HR				
	SECTION 0001 TOTAL					.
	SECTION 0002 PAVEMENT ALTERNATE 1 - NO RECYCLED ALT GROUP AP1					
1040	203.20 COMMON EXCAVATION	27833.000 M3				
1050	304.09 AGGREGATE BASE COURSE - CRUSHED	9600.000 M3				
1060	403.207 HOT MIX ASPHALT 19.0 MM NOMINAL MAX SIZE	7500.000 MG				
1070	403.213 HOT MIX ASPHALT 12.5 MM, BASE	4450.000 MG				
	SECTION 0002 TOTAL					.

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0003 PAVEMENT ALTERNATE 2 - WITH RECYCLED ALT GROUP AP2					
1080	203.20 COMMON EXCAVATION	24603.000 M3				
1090	304.09 AGGREGATE BASE COURSE - CRUSHED	6850.000 M3				
1100	310.23 PLANT MIX RECYCLED ASPHALT PAVEMENT - 75 MM DEPTH	38200.000 M2				
1110	310.24 PLANT MIX RECYCLED ASPHALT PAVEMENT - 100 MM DEPTH	7900.000 M2				
1120	403.213 HOT MIX ASPHALT 12.5 MM, BASE	9200.000 MG				
	SECTION 0003 TOTAL					
	TOTAL BID – SECTION 1 + ALTERNATE					

November 29, 2010

SPECIAL PROVISION
SECTION 310
PMRAP

Mix Design

The JMF targets represented in this Special Provision are intended to provide a basis for bidding purposes only. The Department will develop a job mix formula for the PMRAP using the bituminous material salvaged from the project and provided to the Department by the Contractor.

The Recycled Pavement on this project will be treated with the following material proportions:

Emulsion	3.0 %
Water needed to ensure proper foaming	3.0 %
Portland cement (Type I or II)	1.0 %

The optimum moisture content for compaction shall be determined by the Department using samples obtained from the recycled stockpiled material prior to addition of the emulsion, by means of AASHTO T 180, Method D.

A contract modification will be executed if percentages change from the requirements above for added emulsion, Portland cement or lime changes by more than 0.10%. Positive and negative price adjustments will be made. The price adjustment will be based upon receipted bills for materials delivered the project site. If a price adjustment is warranted, the contractor will supply the Department with all receipted bills for emulsion, Portland cement or lime for the entire project. Adjustments in water content exceeding the initial targets shall not be paid for directly, but shall be incidental.

SPECIAL PROVISION
SECTION 310
PLANT MIXED RECYCLED ASPHALT PAVEMENT

310.01 Description This work shall consist of the removal of all bituminous pavement from the existing roadway, hauling the bituminous pavement to an approved location, and processing as per Section 310.020. The gravel base of the existing roadway shall be regraded and compacted to the tolerances shown on the typicals, or as directed by the Resident.

All plant mixed recycled asphalt pavement shall be placed in one or more courses on an approved base and in accordance with these specifications, and in reasonably close conformity with the lines, grades and thicknesses indicated on the plans, or as established by the Resident. Excess recycled material not used in the PMRAP process will become the property and responsibility of the contractor.

MATERIALS

310.020 Composition of Mixture The mixture shall be composed as directed in the job mix formula. The recycled asphalt pavement shall be processed by the Contractor so all material will be no larger than 37.5 mm [1.5 in] and stockpiled so as to minimize segregation. The stockpile shall be free of any materials not generally considered to be asphalt pavement. If additional material is required, the material will be supplied by the State or acquired from the Contractor through the Contract Modification process.

A job mix formula shall be furnished by the Department establishing the percentage of emulsified asphalt cement, Portland Cement, aggregate, and water to be used in the mixture. The JMF additive proportions will be verified by taking a second recycled material sample once the stockpiles have been constructed.

Emulsion, water, aggregate and Portland Cement shall be added in percentage by weight and verified by tank checks done in accordance with the minimum quality control frequencies. Cement additive may be done in dry form or introduced as a cement slurry.

310.021 Emulsified Asphalt The emulsified asphalt shall be grade MS-2, MS-4, CSS-1, or HFMS-2 meeting the requirements of Section 702.04 - Emulsified Asphalt.

310.022 Portland Cement Portland Cement shall be Type I or II meeting the requirements of AASHTO M85.

310.023 Water Water shall be clean and free from deleterious concentrations of acids, alkalis, salts or other organic or chemical substances.

310.024 New Aggregate New aggregate, if required by the contract or job mix, shall meet the requirements of Section 411.02 - Untreated Aggregate Surface Course.

EQUIPMENT

310.030 Mixing Plant The mixing plant shall be of sufficient capacity and coordinated to adequately handle the proposed construction. Either a continuous pugmill mixer or a continuous drum type mixing plant shall be used. If a drum mixing plant is used it shall meet the requirements of Section 401.07. The mixing plant shall be capable of producing a uniform mixture meeting the requirements of the job mix formula.

310.031 Hauling Equipment Trucks used for hauling the mixture shall meet the requirements of Section 401.08.

310.032 Bituminous Pavers Pavers shall meet the requirements of Section 401.09.

310.033 Rollers Rollers shall meet the requirements of Section 401.10.

CONSTRUCTION REQUIREMENTS

310.040 Mixing The recycled asphalt pavement shall be delivered to the mixer at a temperature of not less than 10°C [50°F]. The emulsified asphalt shall meet the mixing temperature requirements listed in Section 702.05 - Application Temperatures. Recycled pavement and emulsified asphalt, and cement shall be proportioned and the mixing time set to produce a mixture in which uniform distribution of the emulsified asphalt and coating of the recycled pavement is obtained.

If a drum type mixing plant is used, the recycled asphalt pavement may be heated prior to being mixed with the emulsified asphalt to a temperature not to exceed 90°C [195°F].

Following mixing, the recycled asphalt pavement material shall be stockpiled and incorporated into the work. The material must be stockpiled, but not for longer than 48 hours.

310.041 Weather Limitations The plant mixed recycled asphalt pavement shall be performed when:

a. PM-RAP operations will be allowed between May 15th and September 15th inclusive in Zone 1 - Areas north of US Route 2 from Gilead to Bangor and north of Route 9 from Bangor to Calais. PM-RAP will be allowed between May 1st and September 30th inclusive in Zone 2 - Areas south of Zone 1 including the US Route 2 and Route 9 boundaries.
b. The atmospheric temperature, as determined by an approved thermometer placed in the shade at the recycling location, is 10°C [50^0F] and rising.
c. When there is no standing water on the surface.
d. During generally dry conditions, or when weather conditions are such that proper pulverizing, adding, mixing, and curing can be obtained using proper procedures, and when compaction can be accomplished as determined by the Resident.
e. When the surface is not frozen and when overnight temperatures are expected to be above 0°C [32^0F].

310.042 Spreading and Finishing The mixture shall be spread and finished in accordance with Section 401.15. Total layer thickness greater than 100 mm [4 in] will be placed in 2 lifts.

310.043 Compaction Compaction of the mixture shall be in accordance with Section 401.16. Rolling may be delayed to avoid lateral displacement as directed by the Resident. See also Section 310.051.

310.044 Joints Joints shall be constructed in accordance with Section 401.17.

310.045 Surface Tolerances The surface tolerances shall be as specified in Section 401.101, except that the maximum allowable variation shall be 10 mm [⅜ in]. The surface tolerance in existing gravel areas covered by PMRAP, with no additional gravel, shall be ± 10 mm [⅜ in].

TESTING REQUIREMENTS

310.050 Quality Control The Contractor shall operate in accordance with the approved Quality Control Plan (QCP) to assure a product meeting the contract requirements. The QCP shall meet the requirements of Section 106.6 - Acceptance and this Section. The Contractor shall not begin recycling operations until the Department approves the QCP in writing.

Prior to performing any recycling process, the Department and the Contractor shall hold a Pre-recycle conference to discuss the recycling schedule, type and amount of equipment to be used, sequence of operations, and traffic control. A copy of the QC random numbers to be used on the project shall be provided to the Resident. All field and plant supervisors including the responsible onsite recycling process supervisor shall attend this meeting.

The QCP shall address any items that affect the quality of the Recycling Process including, but not limited to, the following:

a. JMF(s).
b. Mixing details, pugmill type, production rates, material processing.
c. Make and type of paver(s).
d. Make and type of rollers including weight, weight per inch of steel wheels, and average contact pressure for pneumatic tired rollers.
e. Testing Plan.
f. Transportation including process for ensuring that truck bodies are clean and free of debris or contamination that could adversely affect the finished product, type of release agent used (if required)
g. Laydown operations including procedures for mix design modification, avoiding recycling and curing in inclement weather, material yield monitoring, methods to ensure that segregation is minimized, longitudinal joint construction, procedures to determine the maximum rolling and placing speeds based on field quality control, and achieving the best possible smoothness.
h. Methods for protecting the finished product from damage and procedures for any necessary corrective action.
i. Method of grade checks.
j. Examples of Quality Control forms.
k. Name, responsibilities, and qualifications of the Responsible onsite Recycling Supervisor experienced and knowledgeable with the process.
l. Method for calibration/verification of density gauge.
m. A note that all testing will be done in accordance with AASHTO and MDOT/ACM procedures.
n. Stockpile procedures including method of moisture control.

The Project Superintendent shall be named in the QCP, and the responsibilities for successful implementation of the QCP shall be outlined.

The Contractor shall sample, test, and evaluate the PMRAP process in accordance with the following procedures and minimum frequencies:

MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Density	1 per 300 m [1000 ft] / lane	ASTM D 2950
Air Temperature	4 per day at even intervals	
Surface Temperature	At the beginning and end of each days operation	
Yield of all materials (Both the daily yield and yield since last test)	4 per day at even intervals	

The Contractor shall submit all QC test reports and summaries in writing, signed by the appropriate technician, and present them to the Department's onsite representative by 1:00 P.M. on the next working day, except when otherwise noted in the QCP due to local restrictions. The Contractor shall make all test results, including randomly sampled densities, available to the Department onsite.

Penalties for QCP non-compliance will be in accordance with Standard Specification 106.4.6

The Contractor shall cease recycling operations whenever one of the following occurs:

a. The computed yield differs from the approved Job Mix Formula by 10% or more.
b. The Contractor fails to follow the approved QCP.
c. The Contractor fails to achieve 98% density after corrective action has been taken.
d. The finished product is visually defective, as determined by the Resident.

Recycling operations shall not resume until the Contactor and the Department agree on the corrective action to be taken.

310.051 Test strip The contractor shall assemble all items of equipment for the recycling operation on the first day of the recycling work. The Contractor shall construct a test strip for the project at a location approved by the Resident. The test strip section is required to:

a. Demonstrate that the equipment and processes can produce recycled layers to meet the requirements specified in these special provisions;
b. Determine the effect on the grading of the recycled material by varying the forward speed of the paving machine; and;
c. Determine the sequence and manner of rolling necessary to obtain the compaction requirements and establish a target TMD. The Contractor and the Department will calibrate their respective gauges at this time.

The test strip shall be at least 100 m [300 ft] in length of a full lane-width (or a half-road width).

Full PMRAP production will not begin until an acceptable test strip has been constructed. If a test strip fails to meet the requirements of this specification, the Contractor will be required to repair or replace the test strip to the satisfaction of the Resident. Any repairs, replacement, or duplication of the test strip will be at the Contractor's expense.

Quality Assurance density testing of the recycled material will be performed by the Department using the nuclear method. After the test strip has been placed, it will be rolled as directed until the nuclear density readings show an increase in density of less than 16 kg/m³ [1 pcf] for the final four roller passes. The test strip density will be used as the target density for the recycled material. The remaining PMRAP material shall be compacted to a minimum density of 98% of the target density as determined in the control section.

ACCEPTANCE TEST FREQUENCY

Property	Frequency	Test Method
In-place Density	1 per 600 m [2000 ft] / lane	ASTM D 2950

310.052 Repairs Repairs and maintenance for the PMRAP layers, during and after the curing period, resulting from damage caused by traffic, weather or environmental conditions, or caused by the Contractor's operations or equipment, shall be completed at no additional cost to the Department.

Low areas will be repaired using a hot mix asphalt shim course. Areas up to 25mm [1 in] high can be repaired by milling or shimming with hot mix asphalt. Areas higher than 25mm [1 in] will be repaired using a hot mix asphalt shim. All repair work will be done with the Resident's approval at the Contractor's expense.

310.06 Curing No new hot mix asphalt pavement or additional layers of PM-RAP shall be placed on the recycled asphalt pavement until a curing period of (4) four days has elapsed. The curing period starts once the PM-RAP has been placed in the roadway. When weather conditions are unfavorable, the curing period may be extended by the Resident.

310.07 Method of Measurement Plant Mixed Recycled Asphalt Pavement shall be measured by the square meter [square yard].

310.08 Basis of Payment The accepted quantity of Plant Mixed Recycled Asphalt Pavement will be paid for at the contract unit price per square meter [square yard], complete in-place which price will be full compensation for furnishing all equipment and labor for removing existing pavement, regrading and compacting existing gravel base, processing, mixing, testing, placing, and compacting, excess material relocation, and for all incidentals necessary to complete the work.

Payments will be made under:

Pay Item	Pay Unit
310.23 - 75mm [3 in] Plant Mixed Recycled Asphalt Pavement	Square Meter [yd^2]
310.24 - 100mm [4 in] Plant Mixed Recycled Asphalt Pavement	Square Meter [yd^2]
310.25 - 125mm [5 in] Plant Mixed Recycled Asphalt Pavement	Square Meter [yd^2]
310.26 - 150mm [6 in] Plant Mixed Recycled Asphalt Pavement	Square Meter [yd^2]

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC

Approaches Approach signing shall include the following signs as a minimum. Field conditions may warrant the use of additional signs as determined by the Resident.

Road Work Next x Miles
Road Work 500 Feet
End Road Work

Work Area At each work site, signs and channelizing devices shall be used as directed by the Resident. Signs include:

Road Work xxxx[1]
One Lane Road Ahead
Flagger Sign

Other typical signs include:

Be Prepared to Stop
Low Shoulder
Bump
Pavement Ends

The above lists of Approach signs and Work Area signs are representative of the contract requirements. Other sign legends may be required.

The Contractor shall conduct their operations in such a manner that the roadway will not be restricted to one lane for more than 2,000 ft. at each work area. Where more than one work area restricts traffic to one lane operation, these work areas shall be separated by at least 1.6 km [1 mile] of two way operation.

Temporary Centerline A temporary centerline shall be placed each day on all new pavement to be used by traffic. The temporary centerline, when specified of reflectorized traffic paint, shall conform to the standard marking patterns used for permanent markings.

Failure to apply a temporary centerline daily will result in suspension of paving until temporary markers are applied to all previously placed pavement.

[1] "Road Work Ahead" to be used in mobile operations and "Road Work xx ft" to be used in stationary operations as directed by the Resident.