



**State of New Mexico
General Services Department
Purchasing Division**

Choose an item.

**Awarded Vendor:
3 Vendors**

Number: **90-805-19-16765**

Amendment No.: **One**

Term: **October 18, 2019 – October 17, 2021**

**Ship To:
New Mexico Department of Transportation
1919 Pinon Dr.
Milan, NM 87021**

Procurement Specialist: **Raelynn Lujan**

Telephone No.: **505-827-0484**

Email: **Raelynn.lujan@state.nm.us**

**Invoice:
New Mexico Department of Transportation
PO Box 2160
Milan, NM 87021**

**For questions regarding this contract please contact:
Angela Martinez (505) 570-7940**

Title: Foamed Asphalt Stabilized Base Pavement Cold Central Plant Recycling or Full Depth Reclamation – District 6

This amendment is to be attached to the respective Price Agreement and become a part thereof.

In accordance with Price Agreement provisions, and by mutual agreement of all parties, this Price Agreement is extended from October 18, 2020 to October 17, 2021 at the same price, terms and conditions.

Except as modified by this amendment, the provisions of the Price Agreement shall remain in full force and effect.

Accepted for the State of New Mexico

Valerie Paulk
Mark Hayden, New Mexico State Purchasing Agent

Date: 9/25/2020

x This Agreement was signed on behalf of the State Purchasing Agent



State of New Mexico General Services Department

Price Agreement

Awarded Vendor:
3 Vendors – See page 6 for details

Telephone No.:

Price Agreement Number: 90-805-19-16765

Payment Terms: Net 30

F.O.B.: As Requested

Delivery: See page 6

Ship To:
New Mexico Department of Transportation
1919 Pinon Dr.
Milan, NM 87021

Procurement Specialist: Raelynn Lujan *RL*

Telephone No.: (505) 827-0484

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Invoice:
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PO Box 2160
Milan, NM 87021

For questions regarding this contract please contact:
Angela Martinez (505) 570-7940

Title: Foamed Asphalt Stabilized Base Pavement Cold Central Plant Recycling or Full Depth Reclamation-District - 6

Term: October 18, 2019 thru October 17, 2020

This Price Agreement is made subject to the “terms and conditions” as indicated on subsequent pages.

Accepted for the State of New Mexico

A handwritten signature in black ink, appearing to read "Mark Hayden", written over a horizontal line.

Mark Hayden, New Mexico State Purchasing Division

Date: 10/18/2019

Purchasing Division: 1100 St. Francis Drive, Santa Fe, NM 87505; PO Box 6850, Santa Fe, NM 87502 (505) 827-0472

nm

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-2

Terms and Conditions
(Unless otherwise specified)

1. **General:** When the State Purchasing Agent or his/her designee issues a purchase document in response to the Vendor's bid, a binding contract is created.
2. **Variation in Quantity:** No variation in the quantity of any item called for by this order will be accepted unless such variation has been caused by conditions of loading, shipping, packing or allowances in manufacturing process and then only to the extent, if any, specified in this order.
3. **Assignment:**
 - a. Neither the order, nor any interest therein, nor any claim thereunder, shall be assigned or transferred by the Vendor, except as set forth in Subparagraph 3b or as expressly authorized in writing by the State Purchasing Agent or his/her designee. No such assignment or transfer shall relieve the Vendor from the obligations and liabilities under this order.
 - b. Vendor agrees that any and all claims for overcharge resulting from antitrust violations which are borne by the State as to goods, services, and materials purchased in connection with this bid are hereby assigned to the State.
4. **State Furnished Property:** State furnished property shall be returned to the State upon request in the same condition as received except for ordinary wear, tear and modifications ordered hereunder.
5. **Discounts:** Prompt payment discounts will not be considered in computing the low bid.
6. **Inspection:** Final inspection and acceptance will be made at the destination. Supplies rejected at the destination for nonconformance with specifications shall be removed at the Vendor's risk and expense, promptly after notice of rejection.
7. **Inspection of Plant:** The State Purchasing Agent or his/her designee may inspect, at any reasonable time, the part of the Contractor's, or any subcontractor's plant or place of business, which is related to the performance of this contract.
8. **Commercial Warranty:** The Vendor agrees that the supplies or services furnished under this order shall be covered by the most favorable commercial warranties the Vendor gives for such to any customer for such supplies or services. The rights and remedies provided herein shall extend to the State and are in addition to and do not limit any rights afforded to the State by any other clause of this order. **Vendor agrees not to disclaim warranties of fitness for a particular purpose of merchantability.**
9. **Taxes:** The unit price shall exclude all state taxes.
10. **Packing, Shipping and Invoicing:**
 - a. The State's purchasing document number and the Vendor's name, user's name and location shall be shown on each packing and delivery ticket, package, bill of lading and other correspondence in connection with the shipments. The user's count will be accepted by the Vendor as final and conclusive on all shipments not accompanied by a packing ticket.
 - b. The Vendor's invoice shall be submitted duly certified and shall contain the following information: order number, description of supplies or services, quantities, unit price and extended totals. Separate invoices shall be rendered for each and every complete shipment.
 - c. Invoices must be submitted to the using agency and NOT the State Purchasing Agent.
11. **Default:** The State reserves the right to cancel all or any part of this order without cost to the State, if the Vendor fails to meet the provisions of this order and, except as otherwise provided herein, to hold the Vendor liable for any excess cost occasioned by the State due to the Vendor's default. The Vendor shall not be liable for any excess costs if failure to perform the order arises out of causes beyond the control and without the fault or negligence of the Vendor, such causes include but are not restricted to, acts of God or the public enemy, acts of the State or Federal Government, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, unusually severe weather and defaults of subcontractors due to any of the above, unless the State shall determine that the supplies or services to be furnished by

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-3

the subcontractor were obtainable from other sources in sufficient time to permit the Vendor to meet the required delivery scheduled. The rights of the State provided in this paragraph shall not be exclusive and are in addition to any other rights now being provided by law or under this order.

12. Non-Collusion: In signing this bid the Vendor certifies he/she has not, either directly or indirectly, entered into action in restraint of free competitive bidding in connection with this offer submitted to the State Purchasing Agent or his/her designee.

13. Nondiscrimination: Vendor doing business with the State of New Mexico must be in compliance with the Federal Civil Rights Act of 1964 and Title VII of the Act (Rev. 1979) and the Americans with Disabilities Act of 1990 (Public Law 101-336).

14. The Procurement Code: Sections 13-1-28 through 13-1-199 NMSA 1978, imposes civil and criminal penalties for its violation. In addition the New Mexico criminal statutes impose felony penalties for bribes, gratuities and kickbacks.

15. Items: All bid items are to be NEW and of most current production, unless otherwise specified.

16. Payment for Purchases: Except as otherwise agreed to: late payment charges may be assessed against the user state agency in the amount and under the conditions set forth in Section 13-1-158 NMSA 1978.

17. Workers' Compensation: The Contractor agrees to comply with state laws and rules pertaining to Workers' Compensation benefits for its employees. If the Contractor fails to comply with Workers' Compensation Act and applicable rules when required to do so, this Agreement may be terminated by the contracting agency.

18. Submission of Bid: Bids must be submitted in a sealed envelope with the bid number and opening date clearly indicated on the bottom left hand side of the front of the envelope. Failure to label bid envelope will necessitate the premature opening of the bid in order to identify the bid number.

19. Contractor Personnel: Personnel proposed in the Contractor's written bid to the Procuring Agency are considered material to any work performed under this Price Agreement. Once a Purchase Order or contract has been executed, no changes of personnel will be made by the Contractor without prior written consent of the Procuring Agency. Replacement of any Contractor personnel, if approved, shall be with personnel of equal ability, experience, and qualifications. The Contractor will be responsible for any expenses incurred in familiarizing the replacement personnel to insure their being productive to the project immediately upon receiving assignments. Approval of replacement personnel shall not be unreasonably withheld. The Procuring Agency shall retain the right to request the removal of any of the Contractor's personnel at any time.

20. Subcontracting: The Contractor shall not subcontract any portion of the Price Agreement without the prior written approval of the Procuring Agency. No such subcontracting shall relieve the Contractor from its obligations and liabilities under this Price Agreement, nor shall any subcontracting obligate payment from the Agency.

21. Records and Audit: The Contractor shall maintain detailed time and expenditure records that indicate the date, time, nature, and cost of services rendered during this Price Agreement's term and effect, and retain them for a period of three (3) years from the date of final payment under this Price Agreement. The records shall be subject to inspection by the Agency, State Purchasing Division, Department of Finance and Administration, and for Information Technology contracts, State Chief Information Officer. The Agency shall have the right to audit billings, both before and after payment. Payment for services under this Price Agreement shall not foreclose the right of the Agency to recover excessive or illegal payments.

22. Subcontracts: The foregoing requirements for Contractor Personnel, Subcontracting, and Audit shall be inserted into all subcontracts from the prime contractor to the subcontractor.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-4

New Mexico Employees Health Coverage

A. If Contractor has, or grows to, six (6) or more employees who work, or who are expected to work, an average of at least 20 hours per week over a six (6) month period during the term of the contract, Contractor certifies, by signing this agreement, to have in place, and agrees to maintain for the term of the contract, health insurance for its New Mexico Employees and offer that health insurance to its New Mexico Employees if the expected annual value in the aggregate of any and all contracts between Contractor and the State exceeds \$250,000 dollars.

B. Contractor agrees to maintain a record of the number of its New Mexico Employees who have (a) accepted health insurance; (b) declined health insurance due to other health insurance coverage already in place; or (c) declined health insurance for other reasons. These records are subject to review and audit by a representative of the state.

C. Contractor agrees to advise all of its New Mexico Employees of the availability of State publicly financed health care coverage programs by providing each of its New Mexico Employees with, as a minimum, the following web site link to additional information: <http://www.insurenwnewmexico.state.nm.us/>.

D. For purposes of this Paragraph, the following terms have the following meanings:

- (1) "New Mexico Employee" means any resident of the State of New Mexico employed by Contractor who performs the majority of the employee's work for Contractor within the State of New Mexico, regardless of the location of Contractor's office or offices; and
- (2) "offer" means to make available, without unreasonable restriction, enrollment in one or more health coverage plans and to actively seek and encourage participation in order to achieve the goals of Executive Order 2007-049. This could include State publicly financed public health coverage programs such as *Insure New Mexico!*

Department Price Agreement

Article I – Statement of Work

Under the terms and conditions of this Price Agreement, the using agency may issue orders for items and/or services described herein.

The terms and conditions of this Price Agreement shall form a part of each order issued hereunder.

The items and/or services to be ordered shall be listed under Article IX – Price Schedule. All orders issued hereunder will bear both an order number and this Price Agreement number. It is understood that no guarantee or warranty is made or implied by either the New Mexico State Purchasing Agent or the user that any order for any definite quantity will be issued under this Price Agreement. The Contractor is required to accept the order and furnish the items and/or services in accordance with the articles contained hereunder for the quantity of each order issued.

Article II –Term

The term of this Price Agreement for issuance of orders shall be as indicated in specifications.

Article III –Specifications

Items and/or services furnished hereunder shall conform to the requirements of specifications and/or drawings applicable to items listed under Article IX - Price Schedule. Orders issued against this schedule will show the applicable price agreement item(s), number(s), and price(s); however they may not describe the item(s) fully.

Article IV – Shipping and Billing Instructions

Contractor shall ship in accordance with the instructions of this form. Shipment shall be made only against specific orders which the user may place with the contractor during the term indicated in Article II – Term. The Contractor shall enclose a packing list with each shipment listing the order number, price agreement number and the commercial parts number (if any) for each item. Delivery shall be made as indicated on page 1. If vendor is unable to meet stated delivery the State Purchasing Agent must be notified.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-5

Article V - Termination

The Agency may terminate this Agreement for convenience or cause. The Contractor may only terminate this Agreement based upon the Agency's uncured, material breach of this Agreement. Contractor shall give Agency written notice of termination at least thirty (30) days prior to the intended date of termination, which notice shall (i) identify all the Agency's material breaches of this Agreement upon which the termination is based and (ii) state what the Agency must do to cure such material breaches. Contractor's notice of termination shall only be effective (i) if the Agency does not cure all material breaches within the thirty (30) day notice period or (ii) in the case of material breaches that cannot be cured within thirty (30) days, the Agency does not, within the thirty (30) day notice period, notify the Contractor of its intent to cure and begin with due diligence to cure the material breach. Termination of this Contract, however, shall not affect any outstanding orders. This provision is not exclusive and shall not waive other rights and remedies afforded either party in the event of breach of contract or default. In such instances the contract may be cancelled effective immediately.

Article VI – Amendment

This Price Agreement may be amended by mutual agreement of the New Mexico State Purchasing Agent or his/her designee and the Contractor upon written notice by either party to the other. An amendment to this Price Agreement shall not affect any outstanding orders issued prior to the effective date of the amendment as mutually agreed upon, and as published by the New Mexico State Purchasing Agent or his/her designee. Amendments affecting price adjustments and/or the extension of a price agreement expiration date are not allowed unless specifically provided for in the bid and price agreement specifications.

Article VII – Issuance of Orders

Only written signed orders are valid under this Price Agreement.

Article VIII – Packing (if applicable)

Packing shall be in conformance with standard commercial practices.

Article IX – Price Schedule

Prices as listed in the price schedule hereto attached are firm.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-6

Awarded Vendors:

(AA) 0000047738

Albuquerque Asphalt, Inc.

P.O. Box 66450

Albuquerque, NM 87193

(505)831-7311

bobw@alb-asphalt.com

Delivery: As requested by issuing agency

(AB) 0000079240

Fisher Sand & Gravel - New Mexico, Inc.

P.O. Box 2340

30A Frontage Rd East

Placitas, NM 87043

(505)867-2600

mmoehn@fisherind.com

Delivery:

(AC) 0000047577

Mountain States Constructors, Inc.

3601 Pan American Freeway NE #111

Albuquerque, NM 87107

(505)292-0108

robg@msconstructors.com

Delivery: FOB Destination

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-7

Specifications:

Establish a Price Agreement for the New Mexico Department of Transportation (NMDOT), District Six, for Foamed Asphalt Stabilized Base Pavement, Cold Central Plant Recycling or Full Depth Reclamation.

Term of Agreement:

The term of this agreement shall be for one (1) year from date of award with the option to extend for a period(s) of three (3) additional years, on a year-to-year basis, by mutual agreement of all parties and approval of the New Mexico State Purchasing Agent at the same price, terms and conditions. This agreement shall not exceed four (4) years.

Performance and Material Bonds:

Prior to the issuance of a contract order, the successful awarded Contractor(s) must provide a performance bond and a payment and materials bond equal to 100% of the total contract order. Said bonds must be provided to the requesting district within ten (10) calendar days after notification by the NMDOT and are to be filed with the District's Purchasing Office. Failure to comply shall result in order being issued to another vendor and difference being charged back to the awarded Contractor(s).

The performance bond is to secure the NMDOT for losses and damages sustained by reason of default by vendor. The materials bond is to guarantee availability of equipment and acceptance of product.

Tax Note:

Prices shall not include state gross receipts or local option tax. Taxes shall be added to the invoice at current rates as a separate item to be paid by the users.

Bidding Information:

The prices quoted herein represent the total compensation to be paid by the State for goods and/or services provided. It is understood that the party providing said goods and/or services to the State is responsible for payment of all costs of labor, equipment, tools, materials, federal taxes, permits, licenses, fees, and any other items necessary to complete the work provided. The prices quoted in this price agreement include an amount sufficient to cover such costs.

The conditions and specifications set out in the Invitation for Bid are inseparable and indivisible. Any vendor, by submitting a bid, agrees to be bound by all such conditions and specifications. All conditions and specifications in the invitation to bid, and all other documents required to be submitted, shall be submitted by the vendor in their bid package. Failure to do so or any attempt to vary or change the conditions or specifications of the invitation to bid shall, in the discretion of the State of New Mexico, constitute grounds for rejection of the entire bid.

Vendor is requested to indicate their Federal Tax ID number, New Mexico gross receipts or social security number _____.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-8

Escalation Clause:

In the event of a product cost increase an escalation request will be reviewed by NMDOT. Please be aware this measure is not intended to allow increases in profit margin, only to compensate for an actual cost increase. Price decrease as well as increases shall apply. If vendor's prices are reduced for any reason, DOT shall receive the benefit of such reductions. Price increases will not be retroactive to orders already in house or backorders. Orders will be filled at the price in effect on the date of receipt of the order by the vendor. Effective dates for increases will not be any sooner than fifteen (15) days from the date the written request is received by DOT. To facilitate prompt consideration, all requests for price increase must include all information below:

- a.) Price Agreement number
- b.) Price agreement item number affected
- c.) Current item price
- d.) Proposed new price
- e.) Percentage of increase; and
Mill/supplier notification of price increase indicating percentage of increase.

Bid Review:

The New Mexico Department of Transportation shall perform the review for materially and/or mathematically unbalanced bids received for this Price Agreement. The requirements set forth in the most current edition of the NMDOT Standard Specifications for Highway and Bridge Construction will be used for this review. They are available on the NMDOT website, at the following link:

<http://dot.state.nm.us/content/nmdot/en/Standards.html> and they are available for purchase at the General Office Financial Control Section (505) 827-5159

The New Mexico Department of Transportation is sole authorized agent for official review of unbalanced bids. The final review will be sent to the State Purchasing Agent for his/her determination on this matter.

Method of Award:

Bids must be submit for all items, failure to do so will result in the rejection of bid. In no case shall this agreement be awarded to more than three vendors.

Prices quoted shall include all labor and equipment necessary to accomplish the work.

The following procedure for the utilization of vendors shall be used on multiple source Price Agreements:

1. The selection of a vendor from multiple source Price Agreement to complete a project shall be based on the project estimate (purchase order).
2. The NMDOT shall evaluate the estimated quantities, unit costs, total costs per item, and total project costs for each awarded vendor. The project estimate shall not be modified by adding new items after work has commenced.
3. The vendor selected to perform the work on the project shall be the vendor providing services for the specific project estimate at the lowest overall cost to the NMDOT.
4. A vendor **not** offering the lowest cost to the NMDOT can only be used for the specific project if the vendor providing the lowest overall cost to the NMDOT is unable to perform the work within the specified time due to crew availability. The NMDOT shall require written correspondence from vendor indicating unavailability to perform specified work.

Public Works Minimum Wage Act:

This is a Public Works contract subject to the provisions of the Public Works Minimum Wage Act, Section 13-4-11 through 13-4-17, et seq. NMSA 1978 as amended. Minimum wage rates as determined and published

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-9

by the State of New Mexico Public Employee Labor Relations Board, Albuquerque, New Mexico, shall be in effect and utilized by the vendor during the life of this Price Agreement. If a Contractor or subcontractor is willfully paying his laborers, mechanics or operators less than the rates required by the agreement for the work the labors, mechanics or operators are performing, the contractor or subcontractor may lose his right to proceed with the work.

Contract Order:

At time of every task order issued for projects over sixty thousand dollars (\$60,000.00), a Wage Rate Decision Number must be requested by end user of the user agency. The Wage Rate Decision number can be obtained by contacting New Mexico Work Force Solutions at www.dws.state.nm.us/new/labor_relations/publicworks.html. Wage Rates must be attached to each contract order issued. Contractor must adhere to Wage Rate decision as issued by the New Mexico Department of Workforce Solutions.

The Contractor Agrees to:

- A. Provide competent personnel and equipment capable of performing the required work in a professional manner.
- B. Furnish and install materials as specified by written notification.
- C. Be responsible for cleaning, removal and disposal of all debris emanating from work performed and disposal of all debris generated by repair operations, as approved by the District Engineer or the District Engineer's designee. Final payment may be withheld subject to written approval by the District Engineer or the District Engineer's designee.
- D. **Mobilization:** The Contractor must designate one home office in the State of New Mexico for the terms of this agreement; the Contractor shall furnish the District Engineer or the District Engineer's designee with mileage for every move of thirty (30) miles or more, one way. No payment shall be made for moves less than 30 miles. Payments will be for one way movement only. In cases where the Contractor moves for his convenience, he will not be paid for the mileage upon returning to his previous worksite or to a location within thirty (30) miles of the previous worksite.
- E. **Traffic Control:** The Contractor (or through an approved sub-contractor) shall submit for approval the necessary traffic control plans (TCP) for the location(s) specified by the work. The TCP shall be in conformance with the MUTCD, be computer generated, and be submitted for approval by the District Traffic Engineer at least five (5) working days before work is to commence. The Contractor or approved subcontractor shall furnish all necessary traffic control devices required by the approved TCP. No traffic control at a given location shall be paid for if no work is being performed and the location could be (or is) open to traffic. For payment purposes, this item will be paid from setting up of the traffic control to when the work is completed and will not include the breakdown of the devices for the day.

Urban Traffic Control is defined as within corporate limits of urban areas as designated by District Engineer or designee to include all traffic control devices required for adequate handling of traffic in accordance with the approved TCP.

Rural Traffic Control is defined as areas not within designated corporate limits or as designated by District Engineer or the District Engineer's designee to include all traffic control devices required for adequate handling of traffic in accordance with the approved TCP.

- F. **Temporary Pavement Markings:** The Contractor shall delineate the travel lanes by the following methods: provide and install temporary pavement tabs; install temporary painted markings; or provide and install temporary tape. The Contractor shall properly maintain all reflectorized markings for a period of two (2) weeks after placement. The District Engineer of the using agency

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-10

designee will have the option to decide which type of markings the Contractor is to provide. Pavement markings shall be installed at the end of each day's operations and shall be immediately tamped after application until it thoroughly adheres to the finished asphalt surface. Construction staking will be considered incidental to the work and no separate payment will be made.

- G. **Permanent Pavement Markings:** The Contractor shall apply pavement markings when the pavement surface is dry and the weather is not foggy, rainy, excessively windy, or otherwise detrimental to the application of markings. Pavement markings must be installed per the manufacturer's recommendations. Ensure the surface is free from excess asphalt or other deleterious substances before applying traffic paint or beads. Remove dirt, debris, grease, motor oils, rocks, or chips from the pavement surface before applying markings. Apply paint at a minimum rate of 19.75 gallons per mile of paint for a solid four (4) inch line and 4.94 gallons per mile for a broken four (4) inch line, based on a ten (10) foot stripe and a 30 foot gap. Apply other widths of striping at appropriate multiples of these minimum rates for solid and broken paint stripes. Construction staking will be considered incidental to the work and no separate payment will be made.
- H. The Contractor shall be liable for satisfactory workmanship of all operations for a period of **One (1)** year after initial acceptance. Any defects attributed to faulty workmanship or faulty material shall be satisfactorily repaired, all at no cost to the State, in an acceptable manner and within the time limits set by the District Engineer or the District Engineer's designee. Defects attributed to faulty material will be resolved by the Contractor, supplier and/or manufacturer. If warranties are called for in the specifications or given by manufacturer in excess of **one (1)** year, all defects shall be corrected as stated previously for the warranty period.
- I. Comply with all local, state and federal laws governing safety, health and sanitation. The Contractor shall provide all safeguards, safety devices and protective equipment, and take any other actions necessary to protect the life and health of employees on-the-job and the safety of the public, and to protect property in connection with the performance of the work covered by the price agreement.
- J. Contractor shall indemnify and hold harmless the State, its officers and employees, against liability, claims, damages, losses or expenses arising out of bodily injury to persons or damage to properties caused by, or resulting from, Contractor's and/or its employees, own negligent acts or omissions while Contractor, and/or its employees perform or fail to perform its obligations and duties under the terms and conditions of this Price Agreement. This Save Harmless and Indemnification Clause is subject to the immunities, provisions and limitations of the Tort Claims Act (section 41-4-1, et seq., N.M.S.A. 1978 comp. and section 56-7-1 N.M.S.A. 1978 comp.) and any amendments thereto. It is specifically agreed between parties executing this Price Agreement that it is not intended by any of the provisions of any part of the Price Agreement to create the public or any member thereof a third party beneficiary or to authorize anyone not a party to the Price Agreement to maintain a suit for wrongful death, bodily and/or personal injury to persons, damage to properties and/or any other claim whatsoever pursuant to the provisions of this Price Agreement.
- K. The Contractor agrees to comply with state laws and rules pertaining to Worker's Compensation Insurance coverage for its employees. If Contractor fails to comply with the Worker's Compensation Act and applicable rules when required to do so, the Price Agreement may be cancelled effective immediately.

Special Precautions: Whenever work is to be done at intersections where wire loop sensors are imbedded into the existing pavement, the Traffic Engineer of the using agency shall be notified reasonably in advance so that necessary adjustments may be made to replace any damaged wire loop sensors.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-11

Insurance Requirements:

The Contractor shall procure and maintain, at the Contractor's expense, insurance of the kinds and in amounts herein provided. This insurance shall be provided by insurance companies authorized to do business in New Mexico and shall cover all operations under the Price Agreement, whether performed by the Contractor, or the Contractor's agents or employees or by subcontractors. All insurance provided shall remain in full force and effect for the entire period of the work, up to and including final acceptance, and the removal of all equipment, employees, agents and subcontractors there from.

(A) Public Liability and Automotive Liability Insurance

1. General Liability: Bodily injury liability and property damage liability insurance applicable in full to the subject project shall be provided in the following minimum amounts:

Bodily Injury Liability: \$1,000,000 each person; \$2,000,000 each occurrence (annual aggregate)

Property Damage Liability: \$2,000,000 each occurrence (annual aggregate)

- a. The policy to provide this insurance is to be written on a Comprehensive General Liability Form or Commercial General Liability Form which must include the following:
 1. Coverage for liability arising out of the operation of independent Contractors
 2. Completed operation coverage
 3. Attachment of the Broad Form Comprehensive General Liability Endorsement
 - b. In the event that the use of explosives is a required part of the Price Agreement the Contractor's insurance must include coverage for injury to or destruction of property arising out of blasting or explosion.
 - c. In the event that a form of work next to an existing building or structure is a required part of Price Agreement, the Contractor's insurance must include coverage for injury to or destruction of property arising out of:
 - a) The collapse of or structural injury to building or structures due to excavation, including burrowing, filling or backfilling in connection therewith, or to tunneling, cofferdam work or caisson work or to moving, shoring, underpinning, razing or demolition of building or structures or removal or rebuilding of structural supports thereof.
 - d. Coverage must be included for injury to or destruction of property arising out of injury to or destruction of wires, conduits, pipes, mains, sewers or other similar property or any apparatus in connection therewith below the surface of the ground. If such injury or destruction is caused by or occurs during the use of mechanical equipment for the purpose of excavating, digging or drilling, or to injury to or destruction of property at any time resulting there from.
2. Automobile liability insurance coverage for the Contractor (whether included in the policy providing general liability insurance or in a separate policy) must provide liability for the ownership, operation and maintenance of owned, non-owned, and hired cars. The limits of liability for automobile liability insurance shall be provided in the following amounts:

Bodily Injury Liability: \$1,000,000 each person; \$2,000,000 each occurrence (annual aggregate)

Property Damage Liability: \$2,000,000 each occurrence (annual aggregate)

- (B) Worker's compensation insurance:** The Contractor shall also carry Worker's Compensation Insurance or otherwise fully comply with the provisions of the New Mexico Workman's Compensation Act and Occupational Disease Disablement Law. If the Contractor is an "owner-operator" of such equipment, it is agreed that the State of New Mexico assumes no responsibility,

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-12

financial or otherwise, for any injuries sustained by the "owner-operator" during the performance of said price agreement.

- (C) **Certificate of Insurance/Department as additional Insured:** The Contractor being awarded the Price Agreement shall furnish evidence of Contractor's insurance coverage by a Certificate of insurance. The Certificate of Insurance shall be submitted upon request of the Department.

The Contractor shall have the New Mexico Department of Transportation named as an additional insured on the Comprehensive General Liability Form or Commercial General Liability Form furnished by the Contractor pursuant to Paragraph (A) 1 and (A) 2, of this subsection. The Certificate of Insurance shall state that the coverage provided under the policy is primary over any other valid and collectible insurance.

The Certificate of Insurance shall also indicate compliance with these specifications and shall certify that the coverage shall not be changed, cancelled or allowed to lapse without giving the NMDOT thirty (30) days written notice. Also, a Certificate of Insurance shall be furnished to the NMDOT on renewal of a policy or policies as necessary during the terms of this Price Agreement .

The NMDOT shall not issue a notice to proceed until such time as the above requirements have been met.

- (D) **Umbrella Coverage:** The insurance limits cited in the above paragraphs are minimum limits. This specification is in no way intended to define what constitutes adequate insurance coverage for individual Contractor. The NMDOT will recognize following form excess coverage (Umbrella) as meeting the requirements of Subsection (A)1.a of this Price Agreement , should such insurance otherwise meet all requirements of such subsections.

- (E) **Other Required Insurance:** The Contractor shall procure and maintain, when required by the NMDOT, form and types of Bailee insurance such as, but not limited to, builder's risk insurance, Contractor's equipment insurance, rigger's liability property insurance, etc. In an amount necessary to protect the NMDOT against claims, losses, and expenses arising from the damage, disappearance or destruction of property of others in the care, custody or control or the Contractor, including property of others being installed, erected or worked upon by the Contractor, his agents or subcontractors.

- (F) **Railroad Insurance:** In the event that railroad property is affected by the subject Price Agreement, the Contractor, in addition to the above requirements, shall be required to furnish a Railroad Protective Liability policy in the name of the railroad company involved. In addition, on those rails that are used by the National Railroad Passenger Corporation (NRPC), the Contractor will also obtain a Railroad Protective Liability Policy in the name of NRPC.

The limits of liability for the Railroad Protective Liability Policy (or policies) must be negotiated with the railroad company on a hazard and risk basis. In no event will the limits exceed the following:

Bodily Injury Liability, Property Damage Liability: \$2,000,000 each occurrence

Liability and Physical Damage to Property: \$6,000,000 aggregate

The limits of liability stated above apply to the coverage's as set forth in the Railroad Protective Liability Endorsement Form, subject to the terms, conditions and exclusions found in the form.

The policy must afford coverage as provided in the Standard Railroad Protective Liability Endorsement (AASHTO Form).

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-13

The Contractor shall be considered an independent Contractor and not an employee of the State of New Mexico. However, directions as to the time and place of performance and compliance with rules and regulations may be required by the using Agency.

The conditions listed in the above paragraphs are an integral part of this bid and shall be the conditions regulating the performance of any price agreement between the Vendor and the State of New Mexico and any Commission, Divisions or Department thereof.

Minimum Requirements:

Scope of Work:

This work consists constructing a stabilized base composed of reclaimed asphalt pavement (RAP), reclaimed aggregate material, new aggregates, mineral filler, or any combination of the above, stabilized with foamed asphalt binder. Placing Minor Pavement over the stabilized base.

General Notes:

1. For the determination of any design parameters for Minor Pavement, the estimated traffic shall greater than or equal to three (3) million to less than ten (10) million ESAL's.
2. Vendor is to supply certified scale weigh ticket indicating gross, tare, net weight and purchase order number.

**SPECIAL PROVISIONS
FOR**

**SECTION 301-B: COLD CENTRAL PLANT RECYCLING (CCPR) -
FOAMED ASPHALT STABILIZED BASE**

The 2019 Edition of the New Mexico Department of Transportation Standard Specifications for Highway and Bridge Construction shall apply in addition to the following:

301-B.1 DESCRIPTION

This work consists of constructing a stabilized base composed of reclaimed asphalt pavement (RAP), reclaimed aggregate material, new aggregates, mineral filler, or any combination of the above, stabilized with foamed asphalt binder. The requirements contained within this specification are for cold central plant recycling.

301-B.2 Composition of Mix (Job Mix Formula)

Furnish a mixture composed of reclaimed asphalt pavement (RAP), reclaimed aggregate material, new aggregates, mineral filler, or any combination of the above as indicated in the plans, stabilized with a foamed asphalt binder to meet the mix and design requirements of Table 301-B-1 and Table 301-B-2.

**Table 301-B-1
Cold Central Plant Recycling Foamed Asphalt Stabilized Base Gradation Requirements**

Sieve Size	Percent Passing
1.5 in	100
1.0 in	85 – 100
¾ in	70 – 100
No. 4	40 – 68
No. 10	25 – 55
No. 200	4.0 – 20

Table 301-B-2
Cold Central Plant Recycling Foamed Asphalt Stabilized Base Pavement Mix Requirements

Design Parameters	Value
Marshall Compacted Specimen, AASHTO T245 Compaction, number of blows each end of test specimen	75
Marshall Stability, AASHTO T 245, min, lbs. ⁽¹⁾	1625
Indirect Tensile Strength, AASHTO T 283	
(1) Tensile Strength DRY , min. psi ⁽²⁾	45
(2) Tensile Strength Ratio (TSR), min. %	70
Foamed Asphalt Binder Expansion Characteristics @ 320, 338, & 356°F ⁽³⁾	
(1) Half-Life of foamed expansion, min, second. ⁽⁴⁾	8
(2) Expansion Ratio, min	10

- (1) Cure sample to constant mass at 104°F before testing.
- (2) AASHTO T 283 Section 7 Preparation of Field-Mixed, Laboratory-Compacted Specimens shall be followed. Compact the mixture to the design air voids. In lieu of subsection 7.5 cure pucks for 72 hours in a 104°F (40°C) oven. The contractor shall follow Section 10, Preconditioning of Test Specimens and Section 11, Testing. The air voids requirements, loose mix curing, and freeze-thaw cycles will not be required per AASHTO T 283 test procedure. Conditioned samples shall be soaked for 24 hours.
- (3) Graph half-life to expansion ratio for the three temperatures and percentages of water (1-5%) to determine the minimum foamed asphalt characteristics.
- (4) Total time for foamed asphalt to settle to half of the maximum foamed volume.

Submit written job-mix formulas for approval at least 28 days before production. No work will be allowed until job-mix formulas are approved. Develop enough mix designs to account for variations in pavement section and material thickness along the project length. Samples of existing materials should be taken along the project length, at appropriate intervals sufficient enough to develop mix designs that represent the pavement section variability to the depth of recycling as indicated on the plan sheets. The mix design shall be performed by an AMRL certified laboratory with the proper equipment for determining a foamed asphalt mix design and the requirements of Table 301-B-2. For each location sampled for mix design(s), asphalt cold patch materials shall be used to the width and depth of the materials sampled.

The asphalt and miller filler percent additives provided in the contract documents shall be used for bidding purposes prior to the completed mix design(s). The actual percentages will be adjusted based on the quantity necessary to meet the design requirements of 301-B-2.

For each job-mix formula, the contractor will sample and perform the following tests to determine the job-mix formulas:

- a) **Aggregate:** Provide samples representing the reclaimed asphalt pavement (RAP), reclaimed aggregate material, existing aggregate base, and/or new aggregates, 250 lbs total per each material.

1. Gradation of processed material (AASHTO T27 & T11)
 2. Plasticity Index (AASHTO T89 & T90)
- b) **Foamed Asphalt:** Provide a minimum of five 1-gallon samples of the asphalt binder and the identity of the source of binder.
1. Measure the expansion ratio and foam half-life of the asphalt binder at the three temperatures per Table 301-B-2.
- c) **Water:** Water shall be clean and free from deleterious concentrations of acids, alkalis, salts, or other organic or chemical substances. Water of questionable quality shall be tested per AASHTO T 26. Designate the target moisture content to be used in the recommended mix design(s) used during production.
- d) **Mineral Filler:** If required by the mix design, provide 4 lbs of the mineral filler which meets AASHTO M-17 requirements. Provide the recommended mineral filler content and the identity of the supplier.
- e) **Mix Design of Cold Central Plant Recycling - Foamed Asphalt Stabilized Base:**
1. For each mix design, a minimum of 6 Marshall, per asphalt binder content, prepared specimens per AASHTO T 245, compacted to 75 blows, with a series of test specimens at a range of different asphalt contents so that the test data curves show well defined optimum values. The test specimens will be prepared at ½ percent increments of asphalt content with at least one asphalt content above optimum and at least one below optimum.
 2. AASHTO T 283 Section 7 Preparation of Field-Mixed, Laboratory-Compacted Specimens shall be followed. Compact the mixture to the design air voids. In lieu of subsection 7.5 cure pucks for 72 hours in a 104°F (40°C) oven. The contractor shall follow Section 10, Preconditioning of Test Specimens and Section 11, Testing. The air voids requirements, loose mix curing, and freeze-thaw cycles will not be required per AASHTO T 283 test procedure.
 3. Percentage of foamed asphalt binder to be added based on the total mass of the mixture.
 4. Marshall Stability per AASHTO T 245 each asphalt binder/mineral filler content. Each sample shall be dried to constant mass at 104°F.
 5. At the recommended optimum asphalt cement and mineral filler content, prepare moisture-density relation (AASHTO T 180 method D-Modified; refer to "Appendix A" below for modified test procedures) for wet density. Establish a moisture-density relation for each job-mix formula

Replace material sampled from the existing roadway with suitable material as approved by the Project Manager.

The State Pavement Engineer and State Materials Engineer will evaluate the suitability of the material and proposed job-mix formulas. If not approved, a written reason detailing the basis for rejection will be provided.

If the job-mix formulas are not approved, submit new job-mix formulas as described above.

301-B.03 EQUIPMENT

a) Cold Central Plant Requirements:

- a) Capable of producing a homogeneous mix free from foamed asphalt globules and stringers.
 - b) Capable of mixing the reclaimed asphalt pavement (RAP), reclaimed aggregate material, existing aggregate base, new aggregates, mineral filler, or any combination of the above, and additives meeting the approved job-mix formula and specified gradation to form a homogeneous mass that will bond together when compacted.
 - c) Equipped with a heating system capable of maintaining the asphalt binder in accordance with the binder supplier's recommended temperature.
 - d) Equipped with sufficient number of injection nozzles not more than 6 inches apart to promote atomization and formation of the initial foam expansion system and the ability to verify the nozzles are open and working from within the operator cabin.
 - e) Equipped with an internal electric heat cleaning system for self-cleaning foaming nozzles. No diesel will be allowed for cleaning foaming nozzles.
 - f) Equipped with two (2) microprocessor controlled systems controlling two independent pump systems regulating the application of foamed asphalt stabilizing agent and water in accordance with each approved mix design. The independent application of foamed asphalt and water must be proportionally regulated by the mixing plant per the weight of material being mixed.
 - g) Equipped with a compressor capable of providing a minimum of 45 psi of pressure.
 - h) Equipped with a mineral filler feed auger so that mineral filler will be accurately metered into the material.
- b) Rollers.** Furnish at least three rollers conforming to the following:
- a) Self-propelled and in good mechanical condition.
 - b) Capable of initial compaction using an 18-ton single drum vibratory compression-type roller.
 - c) A minimum 14-ton single drum vibratory steel roller.
 - d) A minimum 18-ton pneumatic tire roller.

Along curbs, headers, walls and places not accessible to the roller, compact the material with approved tampers and compactors.

- c) Water truck.** Furnish a minimum of one water truck with a minimum of 2,000 gallon capacity.
- d) Paver.** Use a self-contained, self-propelled paver with activated screeds or strike-off assemblies and capable of spreading and finishing the cold central plant foamed asphalt stabilized base.

301-B.04 SURFACE PREPARATION. Clear, grub and dispose of all vegetation and debris within 12 inches of the pavement to be recycled.

301-B.05 WEATHER LIMITATIONS. Apply foamed asphalt stabilized base when the surface is dry, and the ambient air temperature is above 50°F and the surface temperature is above 45°F.

Do not begin foamed recycling operations when fog, showers, rain, frost or temperatures below 36°F are anticipated within 24 hours.

When, at the determination of the Project Manager, wind and other weather-related elements adversely affect the materials and placement, the Project Manager, at their discretion, has the right to delay further placement.

301-B.06 PRODUCTION START-UP PROCEDURES. Provide seven (7) days' notice before beginning production of foamed asphalt stabilized base.

At least two (2) weeks prior to the start of foamed asphalt stabilizing operations, arrange for a pre-stabilized base construction conference. Coordinate attendance with the Department and any applicable subcontractors. Discuss and submit the following:

- a) Proposed baseline schedule of paving operations.
- b) List of all equipment (excavation-compaction equipment, paver, haul, etc.), and personnel used in the production and construction of the work.
- c) Discuss Quality Control/Quality Assurance, and minimum frequency schedule for process control sampling and testing.
- d) Discuss Subsections 301-B.06, Production Start-Up Procedures, 301-B.07, Construction, 301-B.08, Contractor Sampling & Testing Requirements, and 301-B.09, Profile and Cross Slope Requirements.
- e) Proposed Traffic Control Plan for construction operations, and the proposed method of dealing with emergencies. Show in detail how traffic will be maintained through the project in the event of equipment breakdown, sudden weather changes, or other unexpected events. Include in the plan how sufficient roadway width for safe passage of travelling public will be maintained.
- f) Proposed plan for maintaining the required moisture content of the foamed recycling areas.

Do not begin production until required submittals have been approved by Department.

Test Strips: Production test strips are required on the first day. Construct the test strip using construction procedures intended for the entire project. Place foamed asphalt stabilized base for one (1) 1,500-foot long test strip, one-lane wide, at the designated plan thickness and designed optimum foamed asphalt and mineral filler content (if required). Construct the test strip on the project at a location approved by the Project Manager. For multiple lift CPR construction, test strip shall be of bottom lift.

Repeat the test strip process until an acceptable test strip is produced. Unacceptable test strips will not be paid for, and may be removed at the sole discretion of the Project Manager. Accepted test strips may remain in place and will be accepted and measured as a part of the completed foamed stabilized base material. Tests used for the test strip will not be included in the evaluation for payment. When a test strip is accepted, full production may begin.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-18

Use these procedures for the initial start up procedures and/or when a change in construction procedures occurs or when resuming production after a termination of production due to unsatisfactory foamed stabilized base material quality.

- a) **Mix Design Verification.** Take at least three test strip stabilized base samples from the test strip before compaction indicating acceptable homogeneous mixing and evaluate according to job mix specifications requirements from Table 301-B-2.
- b) **Compaction.** Take nuclear gauge density readings at a minimum of three locations within the test strip according to Subsection 301-B.07 and 301-B.08 per AASHTO T310. Compact to a minimum density of 97% and correlate to the wet density according to AASHTO T180 method D Modified (refer to "Appendix A" below for modified test procedures). Furnish the Project Manager with the nuclear gauge readings. Take nuclear density readings behind each pass to determine the roller pattern necessary to achieve the required density.

Cease paving operations after construction of the test strip(s) until all test results for the foamed asphalt stabilized base and the test strip are evaluated and accepted by the Department. Allow up to 3 working days for review and acceptance by Department.

301-B.07 CONSTRUCTION. Construct CPR-foamed asphalt stabilized base according to the following:

- a. Prior to beginning the laydown work each day, prepare a work plan detailing proposals for the forthcoming day's work. Provide the following in the work plan to the NMDOT:
 - 1. Diagram showing the overall layout of the length and width of roadway intended for paving during the day.
 - 2. The sequence and length of each pass to be paved before starting on the adjacent or following pass.
 - 3. If applicable, the quantity and location from where the aggregate base is imported.
 - 4. The proposed control testing program conforming to Table 301-B-3.
 - 5. Any other information that is relevant for the intended work.
- b. **Mixing and Placing.** Provide uniform moisture content in the blended mix that is within $\pm 1.0\%$ of the target moisture content provided in the mix design at the time of addition of the asphalt binder.

Apply asphalt binder at the $\pm 0.5\%$ of the rate established in the job-mix formula. Apply the foamed asphalt binder with water added by volume to achieve expansion of the asphalt binder. The application temperature of the foamed asphalt will not be below the mix design requirement as determined in the laboratory analysis of the asphalt binder.

The maximum time period between mixing and compacting shall be 24 hours. Maintain the moisture content to not more than 2.0% below the optimum moisture content.

- c. **Grading and Compaction.** In a single lift, place the total required compacted thickness of not less than 2.5 in. Equal multiple lifts are allowed so long as the combined thickness is met as described in the contract. For multiple lift option, sampling, testing and acceptance criteria shall be performed on each equal lift. For multiple lifts, tack coat shall be applied between each lift.

Compact the mixture to the lines, grades, and depths show on the plans. Do not pave across the centerline to maintain the existing or new crown of the pavement. Compaction shall be monitored using nuclear density testing in accordance with AASHTO T 310, throughout the time compaction is being completed to continuously verify the compaction is within $\pm 5\%$ of the target density established in section 301-B.06, Test Strip; b Compaction. The selected rolling pattern shall be followed unless changes in the recycled mix or placement conditions occur and a new rolling pattern is established at that time. Any type of rolling that causes cracking, major displacement, and/or any other type of pavement distress shall be discontinued until such time as the problem can be resolved. Discontinuation and commencement of rolling operations shall be at the discretion of the Owner Agency.

The recycled mat shall be continuously observed during compaction efforts. If moisture cracking occurs under vibratory compaction mode, the vibrators shall be turned off and static rolling only applied. If moisture cracking of the mat continues under static steel rolling, steel drum compaction shall cease, the mat shall be allowed to cure for a time in order for moisture to escape, and pneumatic rolling commenced, followed by steel rolling to correct irregularities from the pneumatic-tired roller(s). This procedure shall be followed until there is no longer any displacement of the mat observed from roller action on the recycled surface. Furnish the NMDOT with the nuclear gauge readings.

301-B.08 SAMPLING AND TESTING REQUIREMENTS: See Table 301-B-4 for minimum sampling and testing requirements.

301-B.09 PROFILE AND CROSS SLOPE REQUIREMENTS. After the final rolling, measure the profile and cross slope of the foamed asphalt stabilized base. Use a 10-foot metal straightedge to measure at right angles and parallel to the centerline. Correct surface deviations greater than $\frac{1}{2}$ in within 10 ft as directed by the Project Manager.

301-B.10 CURING AND MAINTENANCE. Maintain the CPR - foamed asphalt stabilized base layer until the asphalt concrete overlay has been placed. The Contractor shall repair any deficiencies to the completed foamed asphalt base to the satisfaction of the Project Manager. Said repair(s) shall be incidental work for which no direct compensation will be made therefor.

- a) After final compaction, treat the stabilized surface with a light application or flushing of water and roll with pneumatic-tired roller to create a close and uniform surface. The Pneumatic roller should be fitted with a water spray system and apply light mist to tires while rolling.
- b) The fog seal, tack coat and HMA/WMA overlay shall not be placed until the moisture content of the CCPR foamed asphalt stabilized base is less than 3.0 percent.
- c) Provide a diluted (50/50) HFE-150P emulsion "fog seal", to each lift, in accordance with subsection 402.2.7.2. The application rate of the fog seal shall be 0.05 to 0.15 gal/sq.yd. The fog seal shall be allowed to setup properly (breaking of the emulsion). Traffic may use the stabilized surface immediately after this treatment unless otherwise indicated or instructed by Project Manager.
- d) Prepare the surface for the asphalt concrete overlay according to subsection 423.3.5.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-20

- e) Construct a HMA/WMA overlay over the CCPR-foamed asphalt within 14 days after placement, unless otherwise specified by the Project Manager in the pre-foam construction conference. If the stabilized layer loses stability, density, or finish before placement of overlay, reprocess and re-compact as necessary to restore the strength of the damaged material. Any damage to the foam asphalt stabilized base shall be corrected at the Contractor's expense.

301-B.11 METHOD OF MEASUREMENT. Measure cold central plant recycling – foamed asphalt stabilized base by the square yard.

Measure asphalt binder and mineral filler by the ton.

Longitudinal or transverse overlaps will not be measured for payment.

If contractor chooses to place in equal multiple lifts, measurement will be based on final combined thickness as indicated by the Project Manager.

301-B.12 ACCEPTANCE. See Table 301-B-4 for minimum sampling and testing requirements.

Density - For the purpose of acceptance for density, the average of the density measurements based on the testing frequency indicated in Table 301-B-4 will be compared to the maximum density from the field AASHTO T180 method D Modified (refer to "Appendix A" below for modified test procedures) and/or the field density established in Section 301-B.07, Construction paragraph C to determine the acceptability. Once the average density of the lot has been determined, the Contractor will not be permitted to provide additional compaction to raise the average.

Payment will be made in accordance with the requirements of Table 301-B-3.

Table 301-B-3
Payment Schedule for Lot Densities

% of Density from Approved Mix Design	% of Payment as Applied to FDR-Foamed Asphalt SY Item
>102	90
>97.0 to <102	100
≤96.0 to <97.0	95
≤95.0 to <96.0	90
<95	75

Any results over 102% density will require a new rolling pattern be prepared in accordance with paragraph Section 301-B.07, Construction paragraph C, to prevent damage to the completed lift.

For the purpose of acceptance, each day's production and full lane width shall be considered a lot unless the paving length is less than 2,000 linear feet. When the production is less than 2,000 feet, the production results shall be combined with the previous day's production.

301-B.13 INDEPENDENT ASSURANCE TESTING. Technician Training and Certification Program (TTCP) certified independent personnel will perform Independent Assurance testing on split samples from both the Contractor and the Department to ensure that they are using correct and accurate procedures and the proper Equipment. These personnel will not have direct responsibility for Contractor testing, Department testing or Acceptance testing.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-21

301-B.14 BASIS OF PAYMENT. The accepted quantities, measure as provided above, will be paid at the contract price per unit of measurement for the pay items listed below that are shown in the bid schedule. Payment will be full compensation for the work prescribed in this Section.

Payment will be made under:

Pay Item	Pay Unit
Cold Central Plant Recycle-Foamed Asphalt Stabilized Base	Square Yard
Asphalt Binder	Ton
Mineral Filler	Ton

Payment at the unit price of foamed asphalt stabilized base shall be full compensation for furnishing all equipment, tools, labor, all corrective work, deficiencies, and any incidental work necessary to construct and test the work in place including any costs associated with sampling the existing road, testing, developing the required mix designs, and cold patch replacement materials.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-22

Table 301-B-4 Contractor and NMDOT Sampling and Testing Requirements

Material or Product	Acceptance Type	Characteristic	Test Method Specifications	Sampling Frequency by Contractor (unless specified)	Sampling Frequency by NMDOT (unless specified)	Sampling Frequency by Independent Assurance	Point of Sampling	Reporting Time
Asphalt Binder (Mix Design)	Measured & Tested For Conformance	Quality	AASHTO M 320 Table 1	Required per JMF	NMDOT not required to Test	I.A. not required to test	Refinery	Before Producing
		Foaming Half-Life	Table 301-B-2					
		Expansion Ratio	Table 301-B-2					
Foamed Asphalt Stabilized Base (Mix Design)	Measured & Tested for Conformance	Gradation	AASHTO T 11, AASHTO T27 & Table 301-B-1	Required per JMF	NMDOT not required to test	I.A. not required to test	—	Before Producing
		Plasticity Index	AASHTO T 89 & AASHTO T90					
		Moisture-Density	AASHTO T180 Method D (TTCP Modified)					
		Indirect Tensile Strength ²	AASHTO T 283					
		Marshall Stability ³	AASHTO T 245 & Table 301-B-2					
Foamed Asphalt Stabilized Base (Test Strips)	Measured & Tested for Conformance	Gradation	AASHTO T 11 & T27	1 per test strip	1 per test strip	I.A. not required to test	Plant Feed Belt	Upon Completing Test
		Moisture	AASHTO T 255	3 per test strip	3 per test strip	I.A. not required to test	Behind Laydown Machine before Compaction	Upon Completing Test
		Moisture Density Relation (Wet Density)	AASHTO T 180 Method D, Modified	3 per test strip	3 per test strip	I.A. not required to test	Behind Laydown Machine before Compaction	24 hours
		Density	AASHTO T310	3 per test strip	3 per test strip	I.A. not required to test	In -place after compaction	Upon Completing Test
		Marshall Stability	AASHTO T 245 & Table 301-B-2	1 per test strip	NMDOT not required to test	I.A. not required to test	Behind Laydown Machine before Compaction	Upon Completing Test
		Asphalt Binder Content	-	Daily	NMDOT not required to test	I.A. not required to test	Strap	End Of Day
		Indirect Tensile Strength	AASHTO T283 & Table 301-B-2	1 per test strip	NMDOT not required to test	I.A. not required to test	Behind Laydown Machine before Compaction	Upon Completing Test
	Visual Inspection	Homogeneous Mixing ¹		3 per test strip	3 per test strip	I.A. not required to test	Behind Laydown machine before compaction	Upon Completing Test
Asphalt Binder (Production)	Measured and Tested for Conformance	Binder Temperature		1 Every Load	NMDOT not required to test	I.A. not required to test	Temperature Gauge at Mixing Plant	Upon Completing Test

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-23

Foamed Asphalt Stabilized Base (Production)	Measured and Tested for Conformance	Gradation	AASHTO T11, T27 & Table 301-B-1 and 301-B-2	2 per lane mile	1 per lane mile	Minimum 2 per project	Plant Feed Belt	24 hours
		Moisture	AASHTO T 255	2 per lane mile	1 per lane mile	Minimum 2 per project	Behind Laydown Machine Before Compaction	24 hours
		Asphalt Binder Content	---	Daily	NMDOT not required to test	I.A. not required to test	Strap	End of Each Production Day
		Moisture Density Relation (Wet Density)	AASHTO T 180 Method D Modified	1 Per Mix Design Per Day (required)	As needed	Minimum 2 per project	Behind Laydown Machine before Compaction	24 hours
		Density	AASHTO T 310	1 per 1000 feet per lane (required)	As needed	Min Minimum 2 per project	In-place after compaction	Upon Completing Test
		Marshall Stability	AASHTO T 245 & Table 301-B-2	1 per day	NMDOT not required to test	I.A. not required to test	Behind Laydown Machine before Compaction	Upon Completing Test
		Dry Indirect Tensile Strength And TSR	AASHTO T283 & Table 301-B-2	1 per day	NMDOT not required to test	I.A. not required to test	Behind Laydown Machine before Compaction	Upon Completing Test

1- When sampling for test strip mix design verification testing, visually determine if asphalt globules, stringers, and binder segregation are present. The test strip is considered acceptable for further mix verification testing if adequate homogeneous mixing is observed.

Soil T-180

January 2017

New Mexico Technician Training and Certification Program

Appendix A

**Moisture-Density Relations of Soils using a
4.54-kg (10-lb.) Rammer and a 457-mm (18-in.) Drop
AASHTO T-180-15
(Method D-Modified)
For Use with CCPR Only**

The compaction test for soils and aggregate materials determines the dry weight per cubic foot under a given compactive effort and varying water contents over a sufficient range to indicate the maximum dry weight per cubic foot and the optimum moisture content.

Modification: 1. T-180, Method D, modified shall be used for Cold Central Plant Recycling ONLY.

- 2. A minimum of three (3) points shall be run.*
- 3. A minimum moisture sample size shall be 1000 grams.*
- 4. Only a mechanical hammer will be used.*
- 5. Only a sector face rammer shall be used.*
- 6. Weigh to the nearest 0.1 of a gram or 0.01 of a pound.*

Key Elements:

1. **Obtain Sample.** Obtain sample by AASHTO T-2 from behind the laydown machine. The sample must be large enough that when the oversized (retained on the 19.0-mm (3/4-in.) sieve) particles are removed, 11 lbs. or more of the sample remains (8.1).
2. **Prepare Sample.** The field moisture must be maintained in the sample by storing and transporting the sample in a moisture proof container. The aggregations are to be broken up in such a manner as to avoid reducing the natural size of individual particles (8.1). Various methods of pulverizing may be used as long as it does not cause degradation to the material. Sieve soil over the 19.0-mm (3/4-in.) sieve.

When the sample has oversized particles, use **Annex A1, Correction of Maximum Dry Density and Optimum Moisture Content for Oversized Particles.** *(Correction may of practical significance for materials with only a small percentage of oversized particles. minimum percentage is not specified, correction shall be applied to samples with more percent by weight of oversized particles (A1.1.2).)*

T-180

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than 5

3. **Inspect and Prepare Apparatus.** The apparatus shall consist of the following: cylindrical mold with detachable collar and base plate (3.1). A metal rammer with a mass of 4.536 ± 0.009 kg (10.00 ± 0.02 lb.), and having a sector face with an area equal to 50.80 ± 0.25 mm (2.000 ± 0.01 in) (3.2). A hardened steel straightedge at least 250 mm (10 in.) in length and having one beveled edge (3.6). Balance (3.4), drying oven (3.5), sieves (3.7), graduated cylinder and miscellaneous mixing tools such as mixing pans, spoon, spatula (3.8), sample extruder (3.3), containers (3.9). Only a mechanical compaction hammer will be used, and must be calibrated against a hand hammer of correct weight and drop (3.2.2 & Note 3).
4. **Determine Empty Weight of Cylindrical Mold.** Weigh mold and base plate without detachable collar and record to the nearest 0.1 g or 0.01 of a pound.
5. **Do not add any Moisture to Sample.** The sample of Cold Central Plant Recycling material shall be protected at all times from field moisture loss. The water in the material added during the central plant processing will be the only water added to the sample. Three separate and approximately equal representative samples shall be weighed and placed in a plastic bag used for mixing purposes.
6. **Compact Specimen.** Form a specimen by compacting the prepared soil in a 152.40 mm (6 in.) mold, with collar attached, in five approximately equal layers to give a compacted depth of about 125 mm (5 in.). Prior to compaction, place the loose soil into the mold and spread into a layer of uniform thickness. Lightly tamp the soil prior to compaction until it is not in a loose or fluffy state, using either the manual compaction rammer or similar device having a face diameter of approximately 50 mm (2 in.) (9.2). Each layer shall be compacted by 56 uniformly distributed blows over the surface of the layer (11.1) from the rammer dropping free from a height of 457 ± 2 mm (18.00 ± 0.06 in.) above the elevation of the soil (3.2.1). During compaction, the sector face hammer shall overlap the hammer surface area for each blow. During compaction the mold shall rest firmly on a dense, uniform, rigid and stable foundation or base. This base shall remain stationary during the compaction process (9.2).
7. **Trim Top of Compacted Soil.** With the extension collar removed, carefully trim the compacted soil even with the top of the mold, using the steel straightedge. Holes developed in the surface by removal of coarse material shall be patched with smaller sized material (9.2.1).

8. **Weigh Mold and Base Plate with Compacted Soil.** Clean excess material from the outside of the mold and base. Weigh the mold with soil to the nearest 0.1 g or 0.01 of a pound and record (9.2.1).
9. **Obtain Moisture Sample and Weigh.** Remove the material from the mold; it may be necessary to use a sample extruder to remove the compacted specimen. Slice the specimen vertically through the center. Take a representative sample from one of the cut faces; sample the entire length of the specimen (9.3). Place this moisture sample in a suitable container and weigh to the nearest 0.1 g and record. The moisture sample shall weigh not less than 1000 grams.
10. **Place in oven at $110 \pm 5^{\circ}\text{C}$ ($230 \pm 9^{\circ}\text{F}$) and dry to constant mass.** Dry sample in accordance with AASHTO T-265. Constant mass is defined as after initial drying the weight of the material decreases by less than 0.1% after a minimum of 10 minutes additional drying.
- $$\frac{W1 - W2}{W2} \times 100, \frac{W2 - W3}{W3} \times 100, \text{ etc.}$$
11. **Repeat Steps 5 through 11.** Repeat steps 5 through 11. Prepare 3 specimens total.
12. **Calculate the Wet Weight of Compacted Soil.** Multiply the weight of the compacted specimen, minus the weight of the mold, by 13.33 for masses recorded in pounds (11.1). This result is recorded as the wet weight in pounds per cubic foot (lb/ft³) of the compacted soil.
13. **Perform Calculations.** Calculate the moisture content and the dry weight of the soils as compacted for each specimen (12.1).

$$\begin{aligned} \text{\% Moisture in specimen} &= \frac{A - B}{B - C} \times 100 & A &= \text{Weight of container and wet soil.} \\ & & B &= \text{Weight of container and dry soil.} \\ & & C &= \text{Weight of container.} \\ \text{Dry Weight} &= \frac{W1}{\text{\% Moisture} + 100} \times 100 & W1 &= \text{Wet weight, in lbs/ft}^3 \text{ of compacted soil.} \end{aligned}$$

Calibration of Mechanical Compactor to Manual Compactor

Using the soil prepared in accordance with this T-180, Method D, determine the optimum moisture content and maximum dry density. Prepare one five-point curve using the mechanical compactor and another five-point curve using the manual compactor (calibrated hand hammer). Record the values of both maximum dry density and compare each value. If the difference between the two values is equal to or less than 2.0 pounds per cubic foot apart, the mechanical compactor is satisfactory for immediate use.

If the difference between the two values is greater than 2.0 pounds per cubic foot apart, then obtain two additional sets of data. Using the same soil sample, determine the average percentage difference of the maximum dry density of the three values. If the difference between the averages of the three sets is less than 2.0 pounds per cubic foot, the mechanical compactor is satisfactory for immediate use.

If the difference is still greater than 2.0 pounds per cubic foot, then adjust the rammer mass of the mechanical compactor and perform three new maximum dry density curves. If the new average absolute value of the three maximum dry density curves is still not less than 2.0 pounds per cubic foot, continue to make adjustments and repeat this procedure until it is.

For more information on rammer adjustments, refer to ASTM D2168, 5.5 – 5.7.

**SPECIAL PROVISIONS
FOR**

SECTION 301-A: Full Depth Reclamation (FDR) – Foamed Asphalt Stabilized Base

All provisions of the New Mexico State Department of Transportation Standard Specifications for Highway and Bridge Construction, 2019 Edition, shall apply in addition to the following:

301-A.1 DESCRIPTION

Full Depth Reclamation (FDR) – Foamed Asphalt Stabilized Base is defined as those processes in which all of the asphalt pavement layers (either un-milled or the milled remaining) and some portion of the underlying unbound layers are pulverized and stabilized primarily with foamed asphalt and compacted in place by a self-propelled machine to the lines, grades and depths indicated in the Contract.

301-A.2 Composition of Mix (Job Mix Formula)

Furnish a mixture composed of reclaimed asphalt pavement (RAP), reclaimed aggregate material, mineral filler, or any combination of the above as indicated in the plans, stabilized with a foamed asphalt binder to meet the gradation and mix requirements of Table 301-A-1 and Table 301-A-2.

**Table 301-A-1
Gradation Requirements**

Sieve Size	Minimum Percent Passing
3.0 in	100
2.0 in	95
No. 200	2-20

**Table 301-A-2
Mix Requirements**

Design Parameters	Value
Marshall Compacted Specimen, AASHTO T245 Compaction, number of blows each end of test specimen	75
Marshall Stability, AASHTO T 245, min, lbs. ⁽¹⁾	1625
Indirect Tensile Strength, AASHTO T 283 ⁽²⁾	
(1) Tensile Strength DRY , min. psi	45
(2) Tensile Strength CONDITIONED , min. psi	30
Foamed Asphalt Binder Expansion Characteristics @ 320, 338, & 356°F ⁽³⁾	
(1) Half-Life of foamed expansion, min, second. ⁽⁴⁾	8
(2) Expansion Ratio, min	10

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-27

- (1) Cure sample to constant mass at 104°F before testing.
- (2) AASHTO T 283 Section 7 Preparation of Field-Mixed, Laboratory-Compacted Specimens shall be followed. Compact the mixture to the design air voids. In lieu of subsection 7.5 cure pucks for 72 hours in a 104°F (40°C) oven. The Contractor shall follow Section 10, Preconditioning of Test Specimens and Section 11, Testing. The air voids requirements, loose mix curing, and freeze-thaw cycles will not be required per AASHTO T 283 test procedure. Conditioned samples shall be soaked for 24 hours.
- (3) Graph half-life to expansion ratio for the three temperatures and percentages of water (1-5%) to determine the minimum foamed asphalt characteristics. PG binders must meet the requirements of Section 402 in current NMDOT Specifications.
- (4) Total time for foamed asphalt to settle to half of the maximum foamed volume.

Submit written job-mix formulas for approval at least 28 Days before production to the Project Manager, and the State Pavement Engineer. No Work will be allowed until job-mix formulas are approved. Develop enough mix designs to account for variations in pavement section and Material thickness along the project length. Samples of existing materials should be taken along the project length, at appropriate intervals sufficient enough to develop mix designs that represent the pavement section variability to the depth of reclamation as indicated by the Project Manager. The mix design shall be performed by an Advanced Material Research Laboratory (AMRL) certified laboratory with the proper equipment for determining a foamed asphalt mix design(s) and the requirements of Table 301-A-2.

For each job-mix formula, the Contractor will sample and perform the following tests to determine the job-mix formulas:

- a) **Aggregate:** Provide samples representing the reclaimed asphalt pavement (RAP), reclaimed aggregate material, existing aggregate base, and Corrective RAP, 250 lbs total per each material.
 1. Gradation of processed material (AASHTO T27 & T11)
 2. Plasticity Index (AASHTO T89 & T90)
- b) **Foamed Asphalt Binder:** Provide a minimum of five 1-gallon samples of the asphalt binder and the identity of the source of binder.
 1. Measure the expansion ratio and foam half-life of the asphalt binder at the three temperatures per Table 301-A-2.
- c) **Water:** Water shall be clean and free from deleterious concentrations of acids, alkalis, salts, or other organic or chemical substances. Water of questionable quality shall be tested per AASHTO T 26. Designate the target moisture content to be used in the recommended mix design(s) used during production.
- d) **Mineral Filler:** Hydraulic cement, in either dry or slurry form, may be added to the reclaimed mixture as determined by the mix design. Slurry made from hydraulic cement should contain a minimum of 30 percent dry solids content. Cement used for FDR shall comply with the latest specifications for hydraulic cement (AASHTO M85, AASHTO M240). The ratio of residual asphalt in the bituminous binder to dry cement should be at least 3:1. In addition, the cement should be limited to no more than 1.5 percent by dry weight of reclaimed material. The Contractor at the time of the mix design submittal shall inform the Department of the process to

be used for incorporating cement into the reclaiming process. If required by the mix design, provide 4 lbs. of the mineral filler and provide the recommended mineral filler content and the identity of the supplier.

e) Mix Design of Full Depth Reclamation – Foamed Asphalt Base:

1. For each mix design, a minimum of 6 Marshall, per asphalt binder content, prepared specimens per AASHTO T 245, compacted to 75 blows, with a series of test specimens at a range of different asphalt contents so that the test data curves show well defined optimum values. The test specimens will be prepared at ½ percent increments of asphalt content with at least one (1) asphalt content above optimum and at least one below optimum.
2. AASHTO T 283 Section 7 Preparation of Field-Mixed, Laboratory-Compacted Specimens shall be followed. Compact the mixture to the design air voids. In lieu of subsection 7.5 cure pucks for 72 hours in a 104°F (40°C) oven. The Contractor shall follow Section 10, Preconditioning of Test Specimens and Section 11, Testing. The air voids requirements, loose mix curing, and freeze-thaw cycles will not be required per AASHTO T 283 test procedure. Conditioned samples shall be soaked for 24 hours.
3. Percentage of foamed asphalt binder to be added based on the total mass of the mixture.
4. Marshall Stability per AASHTO T 245 each asphalt binder/mineral filler content. Each sample shall be dried to constant mass at 104°F.
5. At the recommended optimum asphalt cement and mineral filler content, prepare moisture-density relation (AASHTO T 180 method D) for wet density. Establish a moisture-density relation for each job-mix formula.

Replace material sampled from the existing roadway with suitable material as approved by the Project Manager.

If the job-mix formulas are not approved, submit new job-mix formulas as described above. Department concurrence of a mix design will not relieve the Contractor of full responsibility for producing an acceptable mixture.

301-A.3 EQUIPMENT

A. Reclaiming Equipment: Use Equipment that is:

- a) Self-propelled recycler with an adjustable gradation beam.
- b) Equipped with an engine capable of pushing the binder tanker and pulling a water tank (and slurry tanker where applicable). The engine operates the cutter in an upward cutting mode. Capable of passing through existing asphalt with a minimum 8 foot width at a depth of up to 12 inches in one pass. Depths greater than 6 inches, the volume of the recycler's mixing chamber will increase proportionally to the depth of cut.
- c) Capable of producing a homogeneous mix free of foamed asphalt globules and stringers.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-29

- d) Capable of mixing the reclaimed asphalt pavement (RAP), reclaimed aggregate material, existing aggregate base, corrective RAP, mineral filler and additives, or any combination of the above. The combined materials shall meet the approved job-mix formula to form a homogeneous mass that will bond together when compacted.
- e) Equipped so that binder can be added only when the machine is moving and the additive addition is proportional to the working speed.
- f) Equipped with an exterior test nozzle to verify proper foaming action and to provide a representative sample of the foamed asphalt.
- g) Equipped with a heating system capable of maintaining the foamed asphalt spray bar system at a minimum temperature of 250F.
- h) Equipped with sufficient number of injection nozzles to promote atomization and formation of the initial foam expansion system and the ability to verify the nozzles are open and working from within the operator cabin.
- i) Equipped with an internal electric heat cleaning system for self-cleaning foaming nozzles. No diesel will be allowed for cleaning foaming nozzles.
- j) Capable of turning off individual foamed asphalt nozzles.
- k) Equipped with individual microprocessor controlled systems controlling each independent pump system regulating the application of foamed asphalt stabilizing agent and water in accordance with each approved mix design. The independent application of foamed asphalt and water must be proportionally regulated by the recycler per the forward speed and mass of material being recycled.
- l) Equipped with a compressor capable of providing a minimum of 45 psi of pressure.
- m) Use a metered spreader to uniformly apply mineral filler (cement) on the roadway material surface. Use canvas (or similar) skirts around the spreader box to minimize dust.

B. Mobile Slurry Mixing Unit. If slurry method is chosen for delivery of mineral filler to the recycled materials, the recycler shall be fed by a separate mobile slurry mixing unit pushed ahead of the recycler.

Such a mixing unit shall have the following minimum features:

- a) The capability of supplying the cement slurry at the required rate to comply with the specified cement application rate during continuous operation.
- b) Capable of regulating the application rate of cement slurry in accordance with the speed of advance of the recycler and volume of material during continuous operation.
- c) Provide uniform application of cement slurry to the recycled material to produce a homogeneous mixture.
- d) A microprocessor controlled method for monitoring cement usage during operation that can be validated by simple physical measurement for control purposes.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-30

- e) Equipped with a screen with openings not exceeding 5 mm and shall be capable of producing slurry of uniform consistency and constant water at the rate required for stabilization.
 - f) Capable of mechanically attaching to reclaiming equipment.
- C. **Rollers.** The number, weight and types of rollers shall be as necessary to obtain the required compaction, however, at a minimum, furnish at least three rollers conforming to the following:
- a) Self-propelled and in good mechanical condition.
 - b) Capable of initial compaction using an 18-ton single drum vibratory compression-type (padfoot) roller.
 - c) A minimum 25-ton single drum vibratory steel roller.
 - d) A minimum 18-ton pneumatic tire roller. The pneumatic roller should be fitted with a water spray system and apply light mist to tires while rolling.

All rollers must be capable of reversing direction without shoving or tearing the mixture

- D. **Grader.** Furnish a grader with the capability to spread the pulverized material to a uniform grade and cross section, where necessary.
- E. **Water truck.** Furnish a minimum of one water truck with a minimum of 2,000 gallon capacity.

301-A.4 SURFACE PREPARATION. Clear, grub and dispose of all vegetation and debris within 12 inches of the pavement to be recycled.

301-A.5 WEATHER LIMITATIONS. Apply Full Depth Reclamation – Foamed Asphalt base when the surface is dry, and the ambient air temperature is above 50°F and the surface temperature is above 45°F. Do not begin foamed reclamation operations when fog, showers, rain, frost or temperatures below 40°F are anticipated within 24 hours.

Dry mineral filler application shall be temporarily halted when wind is in excess of 25 mph until such time that wind speed decrease below this threshold.

When, at the determination of the Project Manager, weather-related elements adversely affect the mineral filler materials and placement, the Project Manager, at their discretion, has the right to delay further placement.

301-A.6 PRODUCTION START-UP PROCEDURES. Provide seven (7) days' notice before beginning production of FDR-foamed asphalt base.

- A. **Pre-Construction Meeting.** At least two (2) weeks prior to the start of Full Depth Reclamation – Foamed Asphalt Base operations, arrange for a pre-foam construction conference. Coordinate attendance with the Department and any applicable subcontractors. Discuss and submit the following:
- a) Proposed baseline schedule of paving operations as defined in Section 108.3 PROSECUTION AND PROGRESS.
 - b) List of all equipment (excavation-compaction equipment, paver, haul, etc.), and personnel used in the production and construction of the work.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-31

- c) Discuss Quality Control/Quality Assurance, and minimum frequency schedule for process control sampling and testing.
- d) Discuss Subsections 301-A. 6, Production Start-Up Procedures, 301-A. 7, Construction, 301-A. 8, Contractor Sampling & Testing Requirements, and 301-A. 9, Profile and Cross Slope Requirements.
- e) Proposed Traffic Control Plan for construction operations, and the proposed method of dealing with emergencies. Show in detail how traffic will be maintained through the project in the event of equipment breakdown, sudden weather changes, or other unexpected events. Include in the plan how sufficient roadway width for safe passage of travelling public will be maintained.
- f) Proposed plan for maintaining the required moisture content of the FDR areas.

Do not begin production until required submittals have been approved by the Department.

B₂ Test Strips: Production test strips are required on the first day. Construct the test strip using construction procedures intended for the entire project. Stabilize three (3) 150-foot long test strips, one-lane wide, at the designated plan thickness and mix design. Each 150 foot test strip will consist of an individual rate of speed. The three rates are:

- 15-20 feet/minute
- 20-25 feet/minute
- 25-30 feet/minute

After FDR at each rate and before compaction, dig three test pits within each test strip to evaluate the mixing characteristics of the recycler. Verify per visual and physical examination at each test pit that no foamed asphalt globules, stringers or binder segregation is present within the produced mix. If any of the three visual characteristics exist then the rate of speed used for the individual test strip will not be allowed for production.

Use these procedures for the initial start up procedures and/or when a change in construction procedures occurs or when resuming production after a termination of production due to unsatisfactory FDR – foamed asphalt stabilized base material quality.

- a) **Mix Design Verification.** Take at least three FDR-foamed asphalt base samples from the test strip before compaction indicating acceptable homogeneous mixing and evaluate according to job mix specifications requirements from Table 301-A-2.
- b) **Compaction.** Take nuclear gauge density readings at a minimum of three locations within the test strip according to Subsection 301-A.07 and 301-A.08 per AASHTO T310. Compact to a minimum density of 97% and correlate to the wet density according to AASHTO T180 method D. Furnish the Project Manager with the nuclear gauge readings. Take nuclear density readings behind each pass to determine the roller pattern necessary to achieve the required density.

Cease paving operations after construction of the test strip(s) until all test results for the FDR-foamed asphalt base are evaluated and accepted by the Department. Allow up to 3 working days for review and acceptance by Department.

301-A.7 CONSTRUCTION. Construct FDR according to the following:

- A. Prior to beginning the FDR work each day, prepare a production plan detailing proposals for the forthcoming day's work. Provide the following in the production plan to the Department:
- a) Diagram showing the overall layout of the length and width of roadway intended for FDR during the day, broken into the number of parallel passes required to achieve the stated width, and six inch overlap dimensions at each joint between passes.
 - b) The sequence and length of each pass to be stabilized before starting on the adjacent or following pass. Provide nozzle pattern setup indicating which nozzles will be on to ensure proper asphalt binder and overlap coverage for each recycler pass.
 - c) An estimate of the time required for milling, mixing, and compacting the pass. Show on the diagram the expected completion time of each pass.
 - d) The location where samples for determining in-situ moisture contents, and the results of the tests.
 - e) The proposed water addition for each pass.
 - f) If applicable, the quantity and location from where the aggregate base is imported.
 - g) The amount and type of mineral filler to be applied to each pass.
 - h) The Contractor Sampling and Testing Requirements control testing program conforming to Table 301-A-5.
 - i) Verified locations for using Corrective RAP and quantities to be used.
 - j) Any other information that is relevant for the intended work.
- B. **FDR Operations.** FDR stabilizing and mixing operations will be completed in continuous segments. A continuous segment is one full lane width. If one recycler is used, the segment includes full lane width to centerline by the end of the day's production. Segments shall be limited to 2000 lane feet when two passes are required to complete one full lane width. All compaction and grading must be completed prior to advancing to the next segment and pass. Segments lengths may be increased if it is determined proper moisture is being maintained on each pass until final compaction and grading has been completed, and the surface has been sealed as specified in Subsection 301-A.10. Verify the rate or speed of the recycler daily as accepted and determined from the test strip. Maintain this rate unless otherwise directed by the Project Manager. Properly delineate and open to traffic overnight and on all weekends and holidays. Lightly water and broom excess material at the end of each day's production.
- C. **Foamed Stabilizing.** Stabilize the existing pavement, base and/or subgrade material to the depths indicated in the plans. Blend the foamed asphalt binder, base, and/or subgrade material into a homogenous mass for the full specified depth. During foamed asphalt stabilization insure that no foamed asphalt globules or stringers are present within the produced mix. Verify by digging test pits within the newly produced mix. Verify by visually and physically observing the distribution of the foamed asphalt.

For slurry method application, the mineral filler shall be fluidized as slurry by premixing with water and pumped to the recycler for injection through a spray-bar into the mixing process.

For mixtures with a dry mineral filler spread a uniform layer on the prepared roadway surface prior to stabilizing. A metered mechanical spreader shall be used. Spreading of dry mineral filler on the roadway ahead of the reclamation/recycling machine will not be allowed when windy conditions

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-33

adversely affect the operation or create a hazard for the public or workers and slurry method may be specified at the discretion of the Project Manager. Verify rate by using a square yard tarp to weigh and calculate amount of cement used or alternative method approved by Project Manager.

- D. **Mixing.** Obtain moisture contents per AASHTO T 255 test for the in-situ materials a minimum of one per lane 0.5 mile 2 days prior to incorporation of foamed asphalt. Maintain the percentage of water established for specified asphalt foaming while providing uniform moisture content in the blended mix that is within 1 % of the limits established in the design at the time of addition of the asphalt binder. Aerating of the mixture or the addition of water may be required.

Apply asphalt binder in one application to the depth as specified in the plans and at the rate established in the job-mix formula. Apply the foamed asphalt binder with 1-2% water (based on mix design) added by volume to achieve expansion of the asphalt binder. The half-life will determine the temperature that maximizes the foamed asphalt. The application temperature of the foamed asphalt will not be below 320° F or the temperature as determined in laboratory analysis of the asphalt binder. Measure asphalt binder temperature with a calibrated temperature measuring device in a safe manner. Do not use tanker thermometer unless calibration has been completed and documented.

- E. **Grading and Compaction.** Shape, grade and compact the mixture to the lines, grades and depths shown on the plans, cross section and specifications. Maintain the existing or new crown of the pavement. Monitor in-place density during the compaction process with nuclear density gauge per AASHTO T 310. Compact to a minimum density of 97% and correlate to the wet density according to AASHTO T180 method D established in Subsection 301-A.2.f.5 . Obtain the in place density by measuring at the top of foamed stabilized section. Monitor the compaction process by determining the density of foamed stabilized base with a portable nuclear density gauge in accordance with AASHTO T 310. Furnish the nuclear gauge readings.

Once lines, grades and depths are met, excess material shall be hauled back to the stockpile so as to allow for the net placement of new pavement material as specified on the contract plans.

- F. **Unstable areas.** Following the grading and compaction operations, the contractor shall remix and aerate any FDR areas that have excess moisture content due to FDR construction and compaction activities.
- G. **Longitudinal Joints.** Plan longitudinal joints to coincide with changes in cross-slope, regardless of the overlap width. Provide a minimum longitudinal overlap of 6 inches. No payment will be paid for overlap. Do not apply foamed asphalt on previously recycled pavement when overlap occurs. Insure the overlap is compacted to achieve minimum density per the contract.
- H. Rubberized crack filler, pavement markers, loop wires, thermoplastic markers, paving fabric and other similar materials shall be removed as observed from the roadway during the reclaiming process as approved by the Project Manager. Residual materials that cannot be completely removed from the reclaimed materials may be incorporated into the FDR if the Contractor can demonstrate that those added materials will not adversely affect density. Any such materials retained in the mix shall be appropriately sized and blended so as to not adversely affect the appearance and strength of the FDR stabilized base.

301-A.8 CONTRACTOR SAMPLING AND TESTING REQUIREMENTS: See Table 301-A-5 Contractor Sampling and Testing Requirements for specific test requirements to be performed for acceptance.

301-A.9 PROFILE AND CROSS SLOPE REQUIREMENTS. After the final rolling, measure the profile and cross slope of the FDR - foamed asphalt stabilized base. Use a 10-foot metal straightedge to measure at right angles and parallel to the centerline. Correct surface deviations greater than ½ in within 10 ft as directed by the Project Manager.

301-A.10 CURING AND MAINTENANCE. Maintain the FDR - foamed asphalt stabilized base layer until the asphalt concrete overlay has been placed. The Contractor shall repair any deficiencies to the completed foamed asphalt base to the satisfaction of the Project Manager. Said repair(s) shall be incidental work for which no direct compensation will be made therefor. Prepare the surface for the asphalt concrete overlay according to Section 416.3.5.

- A. **Smoothness.** After final compaction, treat the stabilized surface with a light application or flushing of water and roll with pneumatic-tired roller to create a close and uniform surface. The Pneumatic roller should be fitted with a water spray system and apply light mist to tires while rolling.
- B. **Sealant.** Provide a diluted (50/50) HFE-150P emulsion "fog seal" in accordance with Section 402.2.7.2. The application rate of the fog seal shall be 0.05 to 0.15 gal/sq.yd and shall be applied to the FDR-foamed asphalt once the moisture content is at least 2.0% below the optimum moisture content. The fog seal shall be allowed to setup properly (breaking of the emulsion). The Contractor may be required to reapply fog seal at the as directed by the Project Manager. Traffic may use the stabilized surface immediately after this treatment unless otherwise indicated by the Project Manager.
- C. **Moisture Content.** The HMA/WMA overlay shall not be placed until the moisture content of the foamed asphalt stabilized base is less than 50% of the optimum.
- D. **Overlay.** Construct a HMA/WMA overlay over the FDR-foamed asphalt within 14 days after placement, unless otherwise specified by the Project Manager in the pre-foam construction conference. If the stabilized layer loses stability, density, or finish before placement of overlay, reprocess and recompact as necessary to restore the strength of the damaged material. Any damage to the foam asphalt stabilized base shall be corrected at the Contractor's expense.

301-A.11 METHOD OF MEASUREMENT.

Measure FDR-Foamed Asphalt Stabilized Base by the square yard.

Longitudinal or transverse overlaps will not be measured for payment.

Measure asphalt binder by the ton.

Measure mineral filler by the ton.

301-A.12 ACCEPTANCE. See Table 301-A-5 for minimum sampling and testing requirements.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-35

- A. **Density.** For the purpose of acceptance for density, the average of the density measurements based on the testing frequency indicated in Table 301-A-5 will be compared to the maximum density from the approved mix design(s) to determine the acceptability. Once the average density of the lot has been determined, the Contractor will not be permitted to provide additional compaction to raise the average.
- B. **Payment.** Payment will be made in accordance with the requirements of Table 301-A-3.

**Table 301-A-3
Payment Schedule for Lot Densities**

% of Average Density from Approved Mix Design	% of Payment as Applied to FDR-Foamed Asphalt SY Item
>97.0	100
≤96.0 to <97.0	95
≤95.0 to <96.0	90
<95	75

For the purpose of acceptance, each day's production and full lane width shall be considered a lot unless the paving length is less than 2,000 linear feet. When the production is less than 2,000 feet, the production results shall be combined with the previous day's production. For test strip acceptance, lot density shall be defined as the average of the 3 density tests as required per Table 301-A-5 "Contractor and NMDOT Sampling and Testing Requirements", Test Strip requirements.

301-A.13 BASIS OF PAYMENT.

Payment will be made under:

Pay Item	Pay Unit
Full Depth Reclamation (FDR) – Foamed Asphalt Stabilized Base	Square Yard
Asphalt Binder	Ton
Mineral Filler	Ton

301-A.14 Work Included in Payment.

Payment at the unit price of FDR - foamed asphalt stabilized base (SY) shall be full compensation for furnishing all equipment, tools, labor, surface preparation, removals of materials not to be used in the mix design, replacement material at sample locations and any incidental work necessary to construct and test the work in place including any costs associated with sampling the existing road, testing and developing the required mix designs. Overlaps and Excess material removal and delivery to meet final grades is incidental.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-36

**Table 301-A-5
Contractor and NMDOT Sampling and Testing Requirements**

Material or Product	Acceptance Type	Characteristic	Test Method Specifications	Sampling Frequency by Contractor and NMDOT (unless specified)	Point of Sampling	Reporting Time
Asphalt Binder (Mix Design)	Measured & Tested For Conformance	Quality	AASHTO M 320 Table 1	_ (NMDOT not required to Test)	Refinery	Before Producing
		Foaming Half-Life	Table 301-A-2			
		Expansion Ratio	Table 301-A-2			
Full Depth Reclamation – Foamed Asphalt (Mix Design)	Measured & Tested for Conformance	Gradation	AASHTO T 11, AASHTO T27 & Table 301-A-1	_ (NMDOT not required to test)	-	Before Producing
		Plasticity Index	AASHTO T 89 & AASHTO T90			
		Moisture-Density	AASHTO T180 Method D (TTCP Modified)			
		Indirect Tensile Strength	AASHTO T 283 and Table 301-A-2			
		Marshall Stability	AASHTO T 245 & Table 301-A-2			
Asphalt Binder (Test Strip)	Measured & Tested for Conformance	Binder Temperature	-	1 every tank load	Temperature Gauge	Upon Completing Test
Full Depth Reclamation – Foamed Asphalt (Test Strips)	Measured & Tested for Conformance	Gradation	AASHTO T 11 & T27	1 per test strip	Behind Reclaimer before compaction	Upon Completing Test
		Depth Check	Probing, Shovel, Other Means	3 Locations per test strip	Behind Reclaimer before Compaction	Upon Completion of Measurement
		Moisture	AASHTO T 255	3 per test strip	Behind Reclaimer before Compaction	Upon Completing Test
		Moisture-Density	AASHTO T180 Method D (TTCP Modified)	3 per test strip	Behind Reclaimer before Compaction	72 hours
		Density	AASHTO T310	3 per test strip	In –place after compaction	Upon Completing Test
		Asphalt Binder Content	-	Daily	Strap	End Of Day
		Marshall Stability	AASHTO T 245	1 Per Mix Design Per Day (Contractor)	Behind Reclaimer Before Compaction	80 hours
		Indirect Tensile Strength	AASHTO T 283 and Table 301-A-2	1 Per Day of Production (Contractor)	Behind Reclaimer	Upon Completion of Test

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-37

					Before Compaction	
	Visual Inspection	Homogeneous Mixing ¹		3 per test strip	Behind Reclaimer before compaction	Upon Completing Test
Asphalt Binder (Production)	Measured and Tested for Conformance	Binder Temperature		1 Every Load	Temperature Gauge	Upon Completing Test
Full Depth Reclamation – Foamed Asphalt (Production)	Measured and Tested for Conformance	Gradation	AASHTO T11, T27 & Table 301-A-1	2 per lane mile (Contractor) 1 per lane mile (NMDOT)	Behind Reclaimer Before Compaction	Upon Completing Test
		Depth Check	Probing, Shovel, Other Means	3 Locations per test strip	Behind Reclaimer before Compaction	Upon Completion of Measurement
		Moisture	AASHTO T 255	2 per lane mile (Contractor) 1 per lane mile (NMDOT)	Behind Reclaimer Before Compaction	Upon Completing Test
		Asphalt Binder Content	---	Daily (Contractor)	Strap	End of Each Production Day
		Marshall Stability	AASHTO T 245	1 Per Mix Design Per Day (Contractor)	Behind Reclaimer Before Compaction	80 hours
		Density	AASHTO T 310	1 per 500 feet per lane (NMDOT/Contractor)	In-place after compaction	Upon Completing Test
		Indirect Tensile Strength	AASHTO T 283 and Table 301-A-2	1 Per Day of Production (Contractor)	Behind Reclaimer Before Compaction	Upon Completion of Test

1- When sampling for test strip mix design verification testing, visually determine if asphalt globules, stringers, and binder segregation are present. The test strip is considered acceptable for further mix verification testing if adequate homogeneous mixing is observed.

**NEW MEXICO DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION MODIFYING**

SECTION 416: MINOR PAVING

All provisions of SECTION 416 – MINOR PAVING of the New Mexico State Department of Transportation Standard Specifications for Highway and Bridge Construction, 2019 Edition, shall apply as modified herein:

416.1 DESCRIPTION

This Work consists of constructing one (1) or more pavement courses of Hot Mix Asphalt (HMA) or Warm Mix Asphalt (WMA) on a prepared base or milled surface, and to include crushing, stockpiling, hauling, asphalt binder, mineral admixture, mix design, mixing, providing cold feeds, process control testing, and placement.

416.2 MATERIALS

416.2.1 General

HMA is a mixture of asphalt binder, aggregate, blending sand, mineral filler, and mineral admixture. The Department will allow Recycled Asphalt Pavement (RAP) in HMA mixtures as long as the resulting mixture conforms to all specification requirements.

The Contractor shall size, uniformly grade, and combine aggregate fractions in accordance with the Contract. The Contractor shall test Materials in accordance with applicable AASHTO/ASTM methods, as modified by the Department (if applicable) or other test procedures as directed by the Department. The State Materials Bureau will decide all questions pertaining to the interpretation of test procedures.

416.2.2 Aggregate

The Contractor shall ensure the aggregate gradation of the HMA mixture meets the requirements of Table 416.2.2.1:1, "HMA Aggregate Gradation Control Points." The Project Manager may require, at no additional cost to the Department, wet preparation, per AASHTO T 146, Method A, if the Project Manager determines there are Deleterious Materials present in the aggregate stockpiles before aggregate gradation testing. The Contract will specify the type of HMA the Contractor is to use. The Department will allow the Contractor to combine Materials from two (2) or more sources to produce aggregate only when each individual aggregate source meets all applicable quality requirements.

416.2.2.1 Gradation and Quality Requirements

Table 416.2.2.1:1
HMA Aggregate Gradation Control Points
% passing per HMA type

Sieve size	SP-II		SP-III		SP-IV		SP-V	
	Min	Max	Min	Max	Min	Max	Min	Max
two (2) inch	—	—	—	—	—	—	—	—
1 1/2 inch	100	—	—	—	—	—	—	—
One (1) inch	90	100	100	—	—	—	—	—
3/4 inch	—	90	90	100	100	—	—	—
1/2 inch	—	—	—	90	90	100	100	—
3/8 inch	—	—	—	—	—	90	90	100
No. 8	19	45	23	49	28	58	32	67
No. 200	1.0	7.0	2.0	8.0	2.0	10.0	2.0	10.0

416.2.2.1.1 Aggregate Quality

For each Material source, the Contractor shall ensure the HMA coarse aggregate has an AI of 25 or less when calculated in accordance with Section 901, "QUALITY CONTROL/QUALITY ASSURANCE (QC/QA)."

The Contractor shall regulate the crushing of aggregate to:

1. Minimum Fractured Faces content of the plus No. 4 Material complies with the requirements of Table 416.2.2.1.2:1, "Fractured Faces, Sand Equivalent, and Fine Aggregate Angularity," and evaluation by AASHTO 335-09, "*Fractured Face Determination for Coarse Aggregate.*"
2. Ensure the combined plus 3/8 inch material contains no more than 20% flat, elongated particles with a dimensional ratio of 3:1 or greater as determined by ASTM D 4791 (TTCP Modified).
3. Ensure the combined material, excluding RAP; passing the No. 40 sieve is non-plastic.
4. Ensure that before the addition of mineral admixtures, the minimum sand equivalent value and the minimum fine aggregate angularity value of the combined aggregate, excluding RAP, complies with the requirements of Table 416.2.2.1.2:1, "Fractured Faces, Sand Equivalent, and Fine Aggregate Angularity."
5. Determine the Sand Equivalent value in accordance with AASTHO T 176, Alternate Method No. 1, and Fine Aggregate Angularity value in accordance with AASHTO T 304, Method A.

416.2.2.1.2 Fractured Faces

The Department will consider a face to be fractured when at least one-half of the projected particle area exhibits a rough, angular, or broken texture with well-defined edges.

Table 416.2.2.1.2:1

Minimum Fractured Faces, Sand Equivalent, and Fine Aggregate Angularity for Virgin Aggregates

Design Traffic, ESALs ^a x 10 ⁶	Fractured Faces ^b	Sand Equivalent (%)	Fine Aggregate Angularity
< 3.0	75.0 / —	45.0	40.0
≥ 3.0 – < 10.0	85.0 / 80.0	45.0	45.0
≥ 10.0 – < 30.0	95.0 / 90.0	45.0	45.0
≥ 30.0	99.0 / 95.0	50.0	45.0

^aESALs are based on a 20-year design life for all scenarios.

^bUnder "Fractured Faces," 85.0 / 80.0 denotes that 85.0% of the coarse aggregate has at least 1 Fractured Face and 80.0% has at least two (2) Fractured Faces.

Ensure RAP provided from sources outside the Project has at least 75% Fractured Faces (one (1) Fractured Face); however, Sand Equivalent and Fine Aggregate Angularity do not apply.

416.2.2.2 Production

When producing aggregates for HMA, the Contractor shall:

1. Remove natural fines by screening and stockpiling separately;
2. Use a No. 4 screen, minimum, or a larger screen if needed to properly control the crushing and screening operation;
3. Crush the aggregate retained on the scalping screen and separate the crushed Material into at least two (2) stockpiles of fine and coarse aggregates; and
4. Regulate crushing operations to produce Material that meets design requirements when combined.

416.2.2.3 Stockpiling

The following requirements apply to stockpiles:

1. Place stockpiles upon prepared sites;
2. Make stockpiles neat and regular to prevent segregation;
3. Provide enough storage space for each size of aggregate;
4. Separate the aggregate stockpiles far enough apart to prevent mixing, or with walls or partitions;
5. Prevent contamination (store stockpiles away from vehicular and Equipment traffic);
6. Keep the storage yard neat and orderly and keep the stockpiles accessible for sampling; and
7. Keep the aggregate sizes separated until delivered to the cold feed system that feeds the drier.

416.2.2.4 Combining

When combining crushed Materials from different stockpiles, including RAP (if in the mixture); the Contractor shall ensure the product is in accordance with the mix design gradation requirements. The Contractor shall use controlled feeders from each stockpile to combine crushed Material.

416.2.3 Asphalt Binder

The Contract will specify the type and grade of asphalt binder. The Contractor shall provide asphalt binders in accordance with Section 402, "Asphalt Materials and Mineral Admixtures." The Contractor shall not change the asphalt source after approval of the mix design without written approval of the State Materials Bureau.

416.2.4 Mineral Admixtures

The Contractor shall provide mineral admixtures in accordance with Section 402, "Asphalt Materials and Mineral Admixtures."

416.2.5 Blending Sand

Blending sand consists of the following:

1. Natural fines from the scalping process;
2. Concrete sand;
3. Sandy Material; or
4. A combination of these, graded to the mix design requirements.

The Contractor shall determine the need for and percentage (a maximum of 20.0%) of blending sand using mix design tests on samples taken from stockpiles during crushing operations and submitted to an approved testing Laboratory.

416.2.6 Mineral Filler

The Contractor shall, if required by mix design, provide mineral filler in accordance with AASHTO M 17 and approved by the State Materials Bureau. The Department will not allow fly ash as mineral filler for HMA.

Delete the following subsection to include the following:

416.2.7 Reclaimed Asphalt Pavement (RAP)

The Contractor may use RAP removed under the Contract consisting of salvaged, milled, pulverized, broken, or crushed asphalt pavement. The Contractor may use RAP produced from outside sources provided the following is met: After the Contractor obtains sufficient quantities of RAP aggregate samples in accordance with AASHTO T 308; the Department will accept RAP for which the coarse aggregate has a percent wear of 40.0 or less, at 500 revolutions, when tested in accordance with AASHTO T 96. The Contractor shall provide plus No. 4 RAP Material with a minimum of 75% Fractured Faces content (one (1) face). The Department will make no additional payment for the asphalt binder in the RAP or asphalt binder due to asphalt binder grade adjustment.

The Contractor may use a maximum of 15% RAP (by weight) in the production of HMA mixtures without changing the asphalt binder.

For Projects of entirely new construction, the Contractor shall:

1. Limit the RAP to 15% in the top mat or extract, recover and combine the RAP's asphalt binder with a virgin asphalt binder per AASHTO M323, Appendix A.
2. Ensure the resultant binder meets the entire AASHTO M320 (excluding direct tension) required Project PG asphalt binder properties indicated on the approved mix design.

If Plus Grades of PG asphalt binder is specified on the project, for quantities greater than 15% RAP, the Contractor shall extract, recover, and combine the RAP's asphalt binder with a virgin asphalt binder per AASHTO M 323, Appendix A. The Contractor shall ensure the resultant binder meets the entire AASHTO M 320 required Project PG asphalt binder properties indicated on the approved mix design including the additional Plus Grade requirements for Elastic Recovery and Solubility.

The Contractor shall:

1. Process RAP so that 100% passes a 1-1/2-inch sieve. :
2. Maintain adequate stockpile management (i.e. sufficient quantities and shaping of the stockpiles)
3. Address in the Quality Control Plan how RAP will be controlled, such as which screen will be used to split into two (2) stockpiles, or by what method the RAP will be controlled to keep the resultant mix within acceptable limits.
4. Account for the weight of the binder in the RAP when batching aggregates.
5. Provide RAP that is free of Deleterious Materials.
6. Perform Process Control testing in accordance with Section 901, "Quality Control/Quality Assurance (QC/QA)," Table 901.5:3, "Minimum Process Control Guidelines for Aggregates, Base Course, and RAP (QC).", as RAP is produced and prepared for inclusion in the HMA,

If problems with HMA consistency or compliance with Project Specifications occur, additional efforts taken to achieve acceptable levels of consistency and compliance with Contract Specifications, at the Contractor's discretion (at no additional cost to the Department), include, but are not limited to:

1. Reduce the top size of the RAP from 1-1/2 inch to one (1) inch;
2. Fractionate the aggregates on a second screen, such as the 3/8 inch or 1/4 inch Screen so that the RAP is maintained in three (3) stockpiles, one being RAP larger than 1-1/2 inch to two (2) inch, Coarse RAP and the third being Fine RAP;

3. Ensure that the RAP used in the HMA mix design is representative of the RAP available on the Project;
4. Cover the RAP pile(s) so that ambient moisture is not absorbed; and
5. Process and maintain the stockpiles so that the RAP material is equally and uniformly distributed throughout the entire stockpile(s) and is withdrawn such that uniform, non-segregated RAP is delivered to the hoppers.

416.2.8 Mix Design

The Contractor shall provide a mix design developed by a Department approved testing Laboratory, reviewed and signed by a professional Engineer licensed by the New Mexico Board of Registration for Professional Engineers and Land Surveyors. A list of approved private testing laboratories is available from the State Materials Bureau. The Contractor shall develop the mix design at no additional cost to the Department. The Contractor may develop the mix design at any time prior to the Project Pre-Paving Conference.

The Contractor shall provide to the State Asphalt Engineer the mix design developed in accordance with the Contract documents and AASHTO R35 as modified by NMDOT for review and concurrence. The Contractor shall summarize the mix design results from the Department approved testing Laboratory in a format approved by the State Materials Bureau. Department concurrence of a mix design will not relieve the Contractor of full responsibility for producing an acceptable mixture. The mix design may require adjustment in accordance with Section 423.2.9 "Job Mix Formula."

The Department will require a minimum of one percent (1.0%) mineral admixture in all mix designs. The Contractor shall include the mineral admixture in the gradation for developing the mix design. AASHTO T 354 may be used in lieu of AASHTO T 84/T 85. The mix design shall be in accordance with Table 416.2.8:1, "HMA Superpave Design Requirements for Aggregates with Less Than three percent (3.0%) Absorption," or Table 423.2.8:2, "HMA Superpave Design Requirements for Aggregates with three percent (3.0%) or Greater Absorption."

The Contractor shall test the HMA in accordance with AASHTO T 283, as indicated below:

1. Use six (6) inch diameter specimens; Compact all test specimens in accordance with AASHTO T 312.
2. Conditioned specimens shall include one (1) freeze thaw cycle.
3. On the AASHTO T283 Section 11.3 scale of zero (0)-five (5), with five (5) exhibiting the most damage from moisture, visually estimate the amount of damage caused by moisture on the interior surfaces of each broken specimen.
4. The tensile stress ratio shall be a minimum of 85%.

Provide a mixture that meets all applicable criteria. If tests indicate the need for additives or modifiers not specified in the Contract or a change in source of binder to satisfy mix design requirements, perform the required changes at no additional cost to the Department.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-43

Table 416.2.8:1 HMA Superpave Design Requirements for Aggregates with Less Than 3.0% Absorption									
(a) 20-year design ESALs	N initial	N design (b)	N max	Percent Voids in the Mineral Aggregate (VMA) per nominal maximum aggregate size				Voids Filled with Asphalt (VFA) Range, % (c)	Dust to Binder Ratio Range
				One (1) inch (SP-11)	3/4 inch (SP-11)	1/2 inch (SP-11)	3/8 inch (SP-11)		
<0.3	<91.5	96.0	<98.0	12.5	13.5	14.5	15.5	72.0-80.0	0.6 to 1.4
0.3-3.0	<90.5			14.0	15.0	16.0	17.0	68.0-78.0	
≥3.0	<89.0							68.0-75.0	
In Millions Design Air Void Content of four percent (4%) For one (1) inch nominal maximum size mixtures, the specified lower limit of the VFA shall be 70% for the design traffic level <0.3 million ESALs.									

Table 416.2.8:2 HMA Superpave Design Requirements for Aggregates with 3.0% or Greater Absorption									
(a) 20-year design ESALs	N initial	N design (b)	N max	Percent Voids in the Mineral Aggregate (VMA) per nominal maximum aggregate size				Voids Filled with Asphalt (VFA) Range, % (c)	Dust to Binder Ratio Range
				One (1) inch (SP-11)	3/4 inch (SP-11)	1/2 inch (SP-11)	3/8 inch (SP-11)		
<0.3	<91.5	96.5	<98.0	12.0	13.0	14.0	15.0	70.0-80.0	0.6 to 1.4
0.3-3.0	<90.5			14.0	15.0	16.0	17.0	65.0-78.0	
≥3.0	<89.0							65.0-78.0	
In Millions Design Air Void Content of 3.5% For one (1) inch nominal maximum size mixtures, the specified lower limit of the VFA will be 70% for the design traffic level <0.3 million ESALs.									

Department reviewed commercial mix designs are acceptable for use on NMDOT Projects with the concurrence of the State Asphalt Engineer. The commercial mix design will be submitted for review and concurrence by the State Asphalt Engineer for conformance with the contract documents and re-issued with project information.

An approved mix design is valid for one (1) year from the date of review. If the Aggregate Index expires within that year, a new Aggregate Index needs to be established in order to keep the mix design valid. The Contractor shall submit a new mix design if changing the source of Materials.

416.2.9 Job Mix Formula

The Job Mix Formula (JMF) must be in accordance with all aggregate gradation requirements and result in a mix that meets all specified mix design requirements. The Department will refer to the result of the Laboratory mix design developed in accordance with Section 416.2.8, "Mix Design," as JMF1.

Delete the following Subsection to include the following:

416.2.9.1 Job Mix Formula Adjustment

The Contractor may request a modification to the JMF based on field testing of Material produced through the plant. Test results and calculations that verify a proposed JMF adjustment complies with the Specifications will be required prior to being reviewed by the Project Manager, District Lab Supervisor, and concurred by the State Asphalt Engineer. Review and concurrence of a JMF adjustment can only be made after:

1. JMF adjustment results in a new TV that is within the tolerance from the design TV. (Example: If design TV for No. 4 sieve is 30%, then a new TV may be approved in the field from 23% - 37%)
2. Submittal by the Testing Laboratory responsible for the original mix design to the Project Manager with a copy to the State Asphalt Engineer.

Delete the following subsection to include the following:

416.3 CONSTRUCTION REQUIREMENTS

No referee testing will be required for Minor Paving.

416.3.1 General

The Contractor shall:

1. Provide sufficient storage space for each size of aggregate and RAP.
2. Keep the different sizes separate and ensure that segregation, degradation, or combination of Materials of different aggregate sizes does not occur until delivery to the cold feed system.
3. Re-screen or waste segregated or degraded Material.
4. Provide separate storage and feeder for mineral filler if the Contract requires mineral filler.
5. If the Project Manager determines that uncoated aggregate exists, the Contractor shall take corrective action.

416.3.2 Mix and Laydown Temperature Requirements

The Contractor shall not allow the temperature of the HMA discharged from the mixer into the transport vehicle to be greater or less than ten (10) percent of the target mixing temperature specified in the mix design, not to exceed 350° F, unless written concurrence by the asphalt binder supplier and design lab are provided to the Project Manager.

HMA delivered to the Project with mix temperatures outside the acceptable laydown temperature range as specified in the mix design shall, at the sole discretion of the Project Manager, be removed and replaced at no cost to the Department.

416.3.3 Addition of Mineral Admixtures

The Contractor shall:

1. Monitor the out feed of the mineral admixture with sensors that provide audible and visual signals to control the out feed with an accuracy of ± 3.0 % by weight.
2. Control the mineral admixture content such that it meets the range specified in the approved mix design.
3. Add the mineral admixture to the aggregate in an enclosed pug mill immediately after leaving the cold feed and just before introduction into the drier drum or aggregate drier.
4. Minimize the loss of mineral admixture while adding to the aggregate.

When mixing the aggregate and mineral admixture, the Contractor shall maintain the moisture content of the combined aggregate at the recommended moisture content as shown on the approved mix design.

416.3.4 Equipment

416.3.4.1 Mixing Plants

416.3.4.1.1 Plant Scales

The Contractor shall ensure that the scales are accurate to 0.5% of the maximum allowable load in accordance with the Federal Motor Carrier Safety Administration (FMCSA) publication, as certified by a licensed scale technician. Submit a copy of the certification to the Project Manager.

416.3.4.1.2 Storage of Asphalt Binder Materials

The Contractor shall provide storage tanks for asphalt binder capable of holding, heating and circulating the asphalt at the required temperatures and measuring the temperature of the asphalt in the tank.

The Contractor shall allow measuring and sampling of asphalt binder from the delivery trucks upon arrival.

416.3.4.1.3 Feeder for Drier

The Contractor shall equip the plant with an accurate feeding mechanism to deliver the aggregate into the drier and maintain uniform production.

416.3.4.1.4 Drier

The Contractor shall equip the plant with a system to continuously agitate the aggregate during the heating and drying process. Use a drier that can dry and heat the aggregate and prevent fuel oil or carbon from coating the aggregate. Take corrective action if the aggregate becomes coated with burner fuel.

416.3.4.1.5 Bins

The Contractor shall equip the plant with storage bins large enough to supply the mixer when it is operating at full capacity and arrange the bins to ensure separate and adequate storage of the appropriate aggregate sizes. Equip the bins with warning devices that notify the control panel when the bins are low.

416.3.4.1.6 Asphalt Binder Control Unit

The Contractor shall equip the plant with a scale or meter to control the rate of flow to determine the amount of asphalt binder added to the mix.

416.3.4.1.7 Thermometers

The Contractor shall equip the discharge chute of the drier with a recording thermometer to register the temperature of the heated aggregates or mix. Provide the Project Manager with a record of discharge temperatures at the end of each week's production or as requested by the Project Manager.

416.3.4.1.8 Truck Scales

The Contractor shall weigh the HMA on approved plant or truck scales provided by the Contractor or public scales in accordance with Section 109.1, "Measurement of Quantity."

416.3.4.1.9 Requirements for Batching Plants

416.3.4.1.9.1 Weigh Box or Hopper

The Contractor shall provide a batching plant that can accurately weigh aggregate in a weigh box or hopper suspended on scales. Use a weigh box or hopper that can hold a full batch. Ensure that the gate of the weigh box or hopper does not allow material to leak into the mixer while being weighed. The Contractor shall test the scales in accordance with Section 109.1, "Measurement of Quantity."

416.3.4.1.9.3 Mixer

The Contractor shall provide a batch mixer with a capacity of at least 2,000 lb, capable of producing a uniform mixture within specified tolerances.

416.3.4.1.9.4 Control of Mixing Time

The Contractor shall equip the mixer with an accurate timing device that signals the end of the mixing time.

416.3.4.1.10 Drum Mix Plants

The Contractor shall equip the drum mix plant with the following auxiliary Equipment and capabilities:

1. Separate cold feed controls for each Material.
2. An automatic interlocking device for cold feed, asphalt, and mineral admixtures.
3. A means for controlling moisture content of aggregate. A means for sampling individual cold feeds and provisions for sequential sampling of aggregate, RAP, asphalt binder, and mineral admixtures.
4. Equip the bins with mechanical or electrical devices that provide an audible or visual warning when the bins are less than 1/4 full.
5. Bins shall be designed and equipped to prevent segregation.
6. Equip the bin containing fine aggregate and filler, if required, with a device that prevents material hang-up during plant operation.

7. A minimum of one (1) cold feed bin for each aggregate size in the mix.
8. Equip the cold feed with mechanical or electrical devices that indicate with an audible or visual warning when the cold feed belt is not carrying the proper amount of Material.
9. A separate cold feed for RAP Material. Introduce RAP so that it does not come into direct contact with the burner flame.
10. Couple the asphalt feed control with the total-aggregate-weight measurement device to automatically vary the asphalt feed rate to maintain the required proportion.

416.3.4.2 Haul Equipment

The Contractor shall haul asphalt mixtures with trucks that are tarped and have tight, clean, smooth metal beds and a thin coat (a minimal amount) of a Department approved release agent in accordance with Section 423.3.4.2.1 "Asphalt Release Agent (ARA)".

416.3.4.2.1 Asphalt Release Agent (ARA)

Use Asphalt Release Agents (ARA) for prevention of asphalt mixtures adhering to haul trucks and any other type of equipment that is used for asphalt paving operations. ARA shall meet the requirements of Table 416.3.4.2.1:1 and shall be on the NMDOT's Approved Products List. All testing will be in accordance with NTPEP Evaluation of Asphalt Release Agents AASHTO ARA 14.

Table 416.3.4.2.1:1
Asphalt Release Agent Properties

Test	Result
7-Day Asphalt Stripping Test	
Diluted	No Stripping
Full Strength	No Stripping
Mixture Slide Test (truck beds)	10 g retained, maximum
Asphalt Performance Test	Does not fall after 3 pours

416.3.4.3 Pavers

The Contractor shall use self-contained, self-propelled pavers, with activated screeds or strike-off assemblies, heated if necessary, and capable of spreading and finishing courses of HMA.

416.3.4.4 Compaction Equipment

The Contractor shall provide a sufficient number, weight, and type of rollers to obtain the required compaction and specified pavement density while the HMA is in a workable condition. All rollers must be capable of reversing direction without shoving or tearing the mixture.

Delete the following subsection to include the following:

416.3.5 Placement Operations

For cold milled surfaces, the Contractor shall prepare the surface in accordance with Section 414, "Cold Milling." The Contractor shall clean the existing surfaces and apply a tack coat at an application rate as approved by the Project Manager in accordance with Section 407, "Tack Coat."

The Contractor shall place HMA on prepared Base Course in accordance with Section 303 "Base Course". Apply prime coat as required in the Plans or at an application rate as approved by the Project Manager in accordance with Section 408, "Prime Coat."

The Contractor shall place the HMA on the accepted surface, spread and compact to specified width, lift thickness, and cross slope.

Consistently overloading the HMA mix into the paving machine is not acceptable. The Contractor shall coordinate the speed of the paving machine with the production of the plant and keep enough haul Equipment available to achieve continuous operation.

The Contractor shall use the control system on the paving machine to control the grade and the transverse slope by either of the following methods:

1. One end directly and the other indirectly through controlling the transverse slope; or
2. Each end independently, including screed attachments.

The Contractor shall suspend operations if the control system does not achieve the typical section in accordance with the contract. The Contractor shall place, spread, and finish the courses of HMA according to the following:

1. Without segregation or tearing;
2. With self-propelled pavers, except as otherwise directed.

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing Equipment impracticable, the Contractor shall dump, spread, and level the HMA by other methods to achieve the required compacted thickness.

416.3.5.1 Weather Limitations

The Contractor shall not place HMA on wet or frozen surfaces or if weather conditions prevent proper handling, finishing, and compacting. Place HMA when the Chill Factor is at least 40 °F and rising. If the air temperature is 60 °F or warmer do not consider the Chill Factor.

416.3.5.2 Compaction

The Contractor shall:

1. Compact the HMA thoroughly and uniformly immediately after placement.
Operate rollers at speeds slow enough to minimize displacement of the HMA, including the lines and grades of the asphalt edges. Remove marks from pneumatic rollers.
2. Prevent the HMA from sticking to the roller wheels by keeping the wheels moistened with water; water mixed with very small quantities of detergent or other approved material. Do not use diesel fuel or other petroleum diluents.

3. At locations inaccessible to the rollers, the Contractor shall compact the HMA with hot hand tampers, smoothing irons, or mechanical tampers.
4. Use a trench roller or cleated compression strips under the roller to transmit compression to depressed areas.
5. Remove areas that become loose, broken, mixed with dirt, segregated or defective, replace with fresh HMA, and compact to match the surrounding area, at no additional cost to the Department.

416.3.5.3 Not Used

416.3.5.4 Joints

The Contractor shall offset longitudinal joints at least six (6) inches relative to the longitudinal joints of the underlying course.

Unless otherwise specified, the Contractor shall taper transverse and longitudinal joints as follows:

1. At least a three (3) ft taper for transverse joints, with a taper slope no steeper than 24:1.
2. At least a one (1) ft taper or a notched taper, for longitudinal joints, with a taper slope no steeper than 6:1 or a notched taper with a one (1) inch vertical edge at the top of the taper connected to a slope no steeper than 6:1.
3. Cut and square off transverse tapers before commencing new Work.
4. Clean and tack coat longitudinal joints from previous operations.
5. Avoid placing longitudinal joints in the wheel paths, unless approved by the Project Manager.

The Contractor shall completely bond joints and provide smooth surface for each course at the joints. The Department will not allow deviations greater than 3/16 inch when tested with a ten (10) ft straightedge in any direction. When paving under traffic, schedule the daily surfacing operations so that tapered longitudinal joints are not exposed for longer than seven (7) Days.

Delete the following subsection to include the following:

416.3.5.5 Surface Tolerances

The Contractor shall smooth the surface of each completed course and prevent deviations larger than 1/8 inch using a ten (10) foot straightedge in any direction. Immediately correct deviations exceeding this tolerance.

Add the following subsection:

416.3.5.6 Plan Surfacing Thickness

The Contractor shall:

1. Place pavement at the thickness specified in the Contract.
2. Monitor thickness by calculating continuous production yields using the formula found in the MT-1, as maintained by the State Materials Bureau.

3. Calculate the required yield and the corresponding yields for 0.25 inch increase (upper limit) and decrease (lower limit). The Project Manager may adjust the required yield to fit field conditions. If adjusted, the new target yield will be communicated to the Contractor in writing.
4. Control production to keep yield within the upper and lower limits.
5. Correct deficiencies at no cost to the Department.
6. Correct deficient depths during placement.

416.3.1 Sampling and Testing

Delete the following subsection to include the following:

416.3.1.1 Contractor Quality Control

The Contractor shall perform the Quality Control testing using a private testing Laboratory or a Contractor provided Laboratory. The Contractor shall calibrate or check testing Equipment in accordance with AASHTO R-18. The Contractor shall provide written documentation that testing Equipment is calibrated and meets the applicable Specifications.

The Contractor shall provide original Quality Control test results (on approved forms and to include all calculations, scratch sheets, internal forms etc.) to the Project Manager within two (2) Working Days of sampling. Failure to provide the test results of sampling may result in the Project Manager ordering the Contractor to cease associated operations until said results are provided to the Project Manager.

416.3.1.2 Department Quality Assurance

The Department will provide quality assurance measures in accordance with Section 903 "Quality Assurance."

Delete the following subsection to include the following:

416.3.1.2.1 Acceptance

The Department will accept the constructed product based on inspection and on Laboratory testing for conformance with the Contract. The Department will test samples of HMA/WMA taken from the Roadway before compaction. The Department will accept the constructed product based on the following criteria:

1. Air voids as determined from Laboratory-compacted specimens in accordance with AASHTO T 166 and AASHTO T 209;
2. Asphalt content as determined by the tank strap method or plant asphalt metering system (binder ignition oven calibration samples will not be required);
3. Final thickness of the compacted Material as measured from cores in accordance with ASTM D 3549;
4. Density of the compacted Roadbed as determined in accordance with AASHTO T 310, Standard Method of Test for In-Place Density and Moisture Content of Soil-Aggregate by Nuclear Methods (Shallow Depth). Contractor shall provide cores from three (3) locations designated by the Project Manager for correlation with the Nuclear Densometer. A new correlation factor can be requested if a change in materials or conditions has occurred or if the accuracy of the established correlation factor is in question.

The Project Manager may reject material that appears to be defective based on visual inspection.

Department representatives, certified in the relevant test procedures by the State Materials Bureau through TTCP, will perform Acceptance testing in accordance with AASHTO or Department methods, using the test methods and modifications in the current TTCP Manual.

416.3.1.2.1.1 Acceptance Lots and Pay Factor Determination

The Contractor shall identify the proposed Lot size for approval by the Project Manager. The Department will accept density based on the average of all nuclear density tests per Lot, taken at a minimum of ten (10) nuclear density tests per Lot, and will accept air voids and asphalt content based on the average of a minimum of three (3) tests per Lot.

The Department will determine pay factors in accordance with:

1. Table 416.3.1.2.1.1:1, "Price Adjustments for Density,"
2. Table 416.3.1.2.1.1:2, "Price Adjustments for Air Voids,"
3. Table 416.3.1.2.1.1:3, "Price Adjustments for Asphalt Content," and
4. Table 416.3.1.2.1.1:4 "Price Adjustment for Thickness."

The Department will obtain the TVs for asphalt content and air voids from the approved JMF and will determine payment for each Acceptance lot by multiplying the Bid Item Unit Price by the average of the pay factors per lot and multiplying the result by the total lot area or tonnage.

**Table 416.3.1.2.1.1:1
Price Adjustments for Correlated In-place Nuclear Density**

Percent density	Pay factor (%)
> 97.99	Reject
97.0 – 97.99	90
96.0 – 96.99	95
92.50 – 95.99	100
91.50 – 92.49	95
90.50 – 91.49	90
90.00 – 90.49	80
< 90.00	Reject

**Table 416.3.1.2.1.1:2
Price Adjustment for Air Voids**

Percent deviation from TV	Pay factor (%)
< 1.4	100
1.41 – 1.69	90
1.7 – 1.99	75
≥ 2.0	Reject

**Table 416.3.1.2.1.1:3
Price Adjustment for Asphalt Content**

Percent deviation from TV	Pay factor (%)
< 0.35	100
0.36 – 0.55	90
≥0.56	Reject

**Table 416.3.1.2.1.1:4
Price Adjustment for Thickness**

Deficiency from plan minimum thickness	Pay factor (%)
None (Plan Minimum or Thicker)	100
<1/4 inch	100
1/4 inch–1/2 inch	90
1/2 inch–3/4 inch	75
3/4 inch–one (1) inch	50
>one (1) inch	Corrective action

The Contractor shall remove and replace rejected Material identified in Table 416.3.1.2.1:1, “Price Adjustment for Density,” Table 416.3.1.2.1:2, “Price Adjustment for Air Voids,” and Table 416.3.1.2.1:3, “Price Adjustments for Asphalt Content.” Instead of removing and replacing rejected Material, the Project Manager may allow the Material to remain in place at 50% of the Bid Item Unit Price, if in the best interest of the Department.

The Contractor shall take corrective action if specified in Table 416.3.1.2.1:4, “Price Adjustment for Thickness.” Corrective action includes removal and replacement of the unacceptable Material, overlay of the unacceptable Material, or other corrective actions approved by the Project Manager. Thin or feathered edge surface patching is not acceptable. Overlay lift thicknesses must meet the requirement of Table 416.3.1.2.1:5, “HMA Lift Thickness.”

**Table 416.3.1.2.1.1:5
HMA/WMA Lift Thickness**

HMA Type	Lift Thickness (Inches)	
	Minimum	Maximum
SP-III	2.5	3.5
SP-IV	1.5	3.0
SP-V	0.75	1.5

416.3.1.3 Independent Assurance Testing

The Department will perform Independent Assurance sampling and testing in accordance with Section 906, “Minimum Testing Requirements.”

Delete the following subsection to include the following:

416.4 METHOD OF MEASUREMENT

If the Department measures by the square yard, the Department will measure minor pavement using the dimensions provided by the Project Manager or approved field measurements.

416.5 BASIS OF PAYMENT

The Department will adjust payment for minor pavement in accordance with Section 416.3.1.2.1.1, "Acceptance Lots and Pay Factor Determination."

Pay Item	Pay Unit
<i>Minor Pavement</i>	Ton

416.5.1 Price Adjustments

The Department will pay for accepted quantities of Minor Pavement at the Bid Item Unit Price, adjusted in accordance with this section. The Minor Pavement will be evaluated on a lot-by-lot basis at a price determined by multiplying the Bid Item Unit Price by the composite pay factor for the lot. The Department will use the sum of Table 416.5.1.1:1, "Weighting Factors," multiplied by the Pay Factors of Table 416.3.1.2.1:1, "Pay factor for Correlated In-place Nuclear Density", Table 416.3.1.2.1:2, "Pay factor for Air Voids", Table 416.3.1.2.1:3, "Pay factor for Asphalt Content", and Table 416.3.1.2.1:4 "Pay factor for Thickness" to calculate each lot's composite pay factor. If the composite pay factor for a lot is greater than one (1.0), the pay factor will be set at one (1.0).

**Table 416.5.1.1:1
Weighting Factors**

Characteristic	"f" Factor (%)
Correlated In-place Nuclear Density Mat Density	35
Air voids	35
Asphalt Content	20
Thickness	10

Delete the following subsection to include the following:

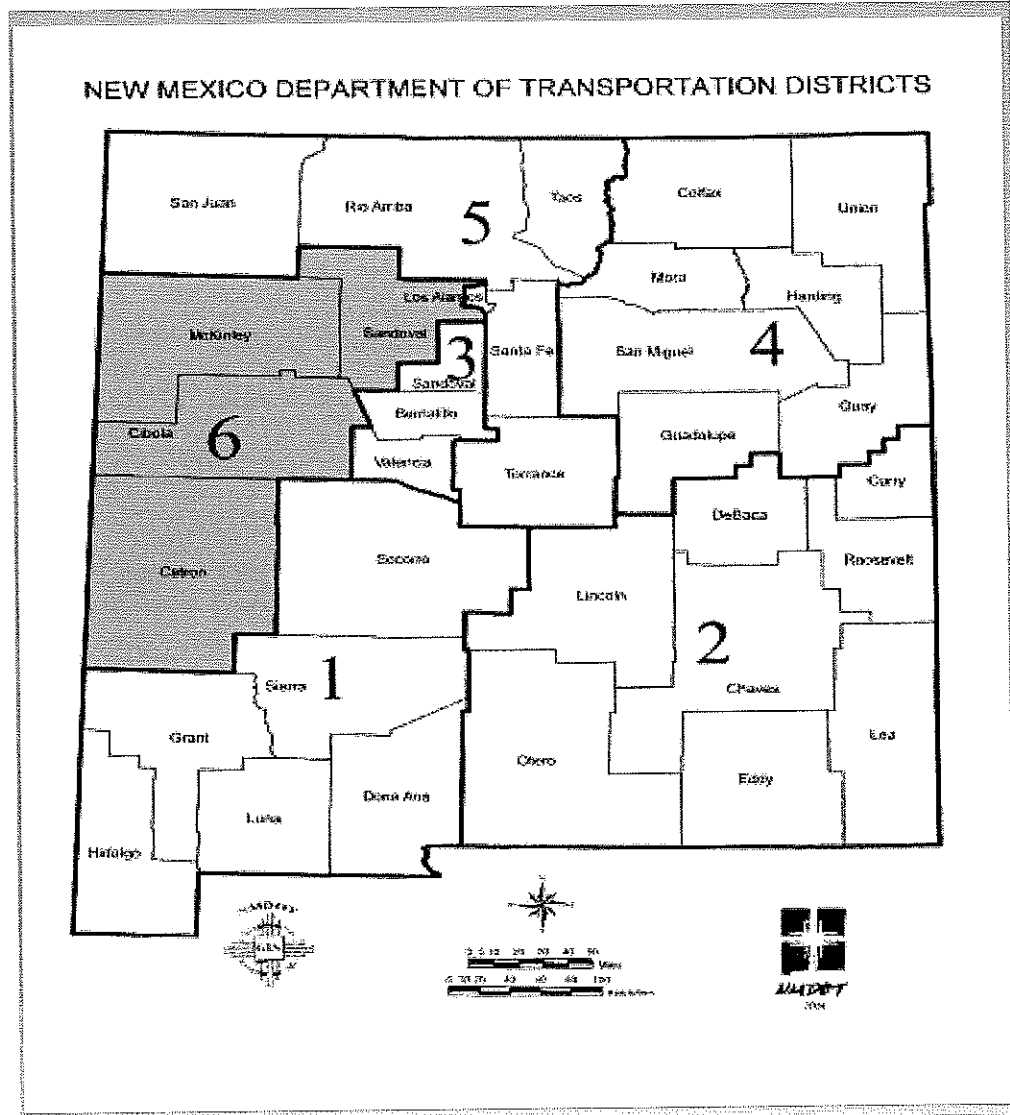
416.5.2 Work Included in Payment

The Department will consider as included in the payment for the pay item(s) listed in this section and will not measure or pay separately for the following Work:

1. Asphalt binder, aggregate, blending sand, mineral filler, mineral admixture, and WMA additive or process as appropriate.
2. Mixing, hauling, placement, and compaction of HMA or WMA.
3. Providing Mix Design in accordance with Section 423.2.8.
4. Quality Control in accordance with Section 902 "Quality Control".
5. Providing and transporting all cores for correlation.

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-54



State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-55

Item	Approx Qty	Unit	Description	Unit Price		
				(AA)	(AB)	(AC)
1	1	Square Yard	Cold Central Plant Recycle 0 - 2000 S.Y.			
			3" to 6" Depth	\$ 22.40	\$ 23.00	\$ 22.00
			6.1" to 9" Depth	\$ 33.50	\$ 30.00	\$ 24.00
			9.1" to 12" Depth	\$ 44.70	\$ 37.00	\$ 26.00
2	1	Square Yard	Cold Central Plant Recycle 2001 - 4000 S.Y.			
			3" to 6" Depth	\$ 12.68	\$ 20.00	\$ 16.50
			6.1" to 9" Depth	\$ 19.00	\$ 27.00	\$ 19.00
			9.1" to 12" Depth	\$ 25.37	\$ 34.00	\$ 22.00
3	1	Square Yard	Cold Central Plant Recycle Above 4000 S.Y.			
			3" to 6" Depth	\$ 8.69	\$ 19.00	\$ 14.30
			6.1" to 9" Depth	\$ 13.47	\$ 24.00	\$ 16.75
			9.1" to 12" Depth	\$ 16.42	\$ 31.25	\$ 19.25
4	1	Square Yard	Full Depth Reclamation 0 - 2000 S.Y.			
			3" to 6" Depth	\$ 25.00	\$ 20.00	\$ 19.00
			6.1" to 9" Depth	\$ 32.00	\$ 23.00	\$ 21.50
			9.1" to 12" Depth	\$ 40.00	\$ 26.00	\$ 24.00
5	1	Square Yard	Full Depth Reclamation 2001 - 4000 S.Y.			
			3" to 6" Depth	\$ 16.00	\$ 17.00	\$ 13.50
			6.1" to 9" Depth	\$ 23.00	\$ 20.00	\$ 15.50
			9.1" to 12" Depth	\$ 31.00	\$ 23.00	\$ 17.75
6	1	Square Yard	Full Depth Reclamation Above 4000 S.Y.			
			3" to 6" Depth	\$ 7.50	\$ 8.00	\$ 6.50
			6.1" to 9" Depth	\$ 8.50	\$ 10.00	\$ 6.75
			9.1" to 12" Depth	\$ 11.15	\$ 12.00	\$ 9.25
7	1	Ton	Asphalt Binder	\$745.00	\$ 675.00	\$625.00
8	1	Ton	Mineral Filler	\$235.00	\$ 250.00	\$185.00

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-56

Item	Approx Qty	Unit	Description	Unit Price		
				(AA)	(AB)	(AC)
9	1	Ton	Placement of Contractor provided Emulsion for Fog Seal Diluted 1:1	\$520.00	\$ 750.00	\$675.00
10	1	Square Yard	Pulverization 0" - 6" depth	\$ 2.15	\$ 2.50	\$ 2.00
11	1	Square Yard	Pulverization 6.1" - 9" depth	\$ 3.00	\$ 3.75	\$ 2.60
12	1	Cubic Yard	Subexcavation and replace with state furnished material	\$ 25.00	\$ 24.00	\$ 25.00
13	1	Ton	Placement of Contractor provided Minor Pavement - SPIII w/PG 70-22, 0 - 1,500 Ton	\$107.27	\$ 110.00	\$ 93.93
14	1	Ton	Placement of Contractor provided Minor Pavement - SPIII w/PG 70-22, 1,501 - 3,000 Ton	\$ 98.63	\$ 100.00	\$ 89.73
15	1	Ton	Placement of Contractor provided Minor Pavement - SPIII w/PG 70-22, Above 3,000 Ton	\$ 95.63	\$ 95.00	\$ 86.00
16	1	Ton	Placement of Contractor provided Minor Pavement - SP IV w/PG 70-22, 0 - 1,500 Ton	\$109.66	\$ 115.00	\$ 99.40
17	1	Ton	Placement of Contractor provided Minor Pavement - SP IV w/PG 70-22, 1,501 - 3,000 Ton	\$101.02	\$ 105.00	\$ 92.05
18	1	Ton	Placement of Contractor provided Minor Pavement - SP IV w/PG 70-22, Above 3,000 Ton	\$ 98.00	\$ 99.00	\$ 86.50
19	1	Ton	Placement of State provided Minor Pavement - SPIII w/PG 70-22, 0 - 1,500 Ton	\$ 32.27	\$ 40.00	\$ 27.08
20	1	Ton	Placement of State provided Minor Pavement - SP III w/PG 70-22, 1,501-3,000 Ton	\$ 23.63	\$ 30.00	\$ 20.33

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-57

Item	Approx Qty	Unit	Description	Unit Price		
				(AA)	(AB)	(AC)
21	1	Ton	Placement of State provided Minor Pavement - SPIII w/PG 70-22. Above 3,000 Ton	\$ 20.63	\$ 24.00	\$ 19.73
22	1	Ton	Placement of State provided Minor Pavement - SPIV w/PG 70-22. 0-1,500 Ton	\$ 34.66	\$ 40.00	\$ 27.40
23	1	Ton	Placement of State provided Minor Pavement - SPIV w/PG 70-22. 1,501-3,000 Ton	\$ 26.02	\$ 30.00	\$ 20.28
24	1	Ton	Placement of State provided Minor Pavement - SPIV w/PG 70-22. Above 3,000 Ton	\$ 23.00	\$ 24.00	\$ 20.05
25	1	Ton	Placement of Contractor provided Tack Coat Material	\$641.00	\$ 700.00	\$600.00
26	1	Ton	Placement of Contractor provided Prime Coat Material	\$593.00	\$ 950.00	\$675.00
27	1	Hour	Traffic Control to include traffic control plan URBAN	\$400.00	\$ 400.00	\$326.00
28	1	Hour	Traffic Control to include traffic control plan RURAL	\$400.00	\$ 350.00	\$283.00
29	1	Linear Foot	Temporary Pavement Markings	\$ 0.60	\$ 0.30	\$ 0.15
30	1	Linear Foot	Permanent Pavement Markings	\$ 0.23	\$ 0.20	\$ 0.18
31	1	Mile	Mobilization- Cold Central Plant Recycle	\$350.00	\$ 1,500.00	\$600.00
32	1	Mile	Mobilization- Full Depth Reclamation	\$325.00	\$ 650.00	\$600.00
33	1	Hour	Hauling of Material	\$101.59	\$ 100.00	\$ 95.00
34	1	Ton Mile	Hauling of Material			
			0-25 miles from Central Plant/Supplier	\$ 0.33	\$ 0.42	\$ 0.28
			26-50 miles from Central Plant/Supplier	\$ 0.27	\$ 0.40	\$ 0.26
			51-75 miles from Central Plant/Supplier	\$ 0.27	\$ 0.38	\$ 0.24
			76-100 miles from Central Plant/Supplier	\$ 0.27	\$ 0.36	\$ 0.23

State of New Mexico
General Services Department
Purchasing Division
Price Agreement #: 90-805-19-16765

Page-58

Item	Approx Qty	Unit	Description	Unit Price		
				(AA)	(AB)	(AC)
			101-125 miles from Central Plant/Supplier	\$ 0.27	\$ 0.34	\$ 0.23
			125-150 miles from Central Plant/Supplier	\$ 0.27	\$ 0.32	\$ 0.22
			over 150 miles from Central Plant/Supplier	\$ 0.27	\$ 0.30	\$ 0.21

** 34 Items Total **