



INDEX of STANDARD SPECIAL PROVISIONS

The 2019 Edition of the New Mexico Department of Transportation Standard Specifications for Highway and Bridge Construction (Standard Specifications) shall govern construction of this Project unless otherwise noted.

The following Special Provisions shall supplement the above Standard Specifications.

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December 10, 2025

SPECIAL PROVISIONS CLARIFYING SECTION 106.12: BUY AMERICA REQUIREMENTS

The following clarifies the 2019 Edition of the New Mexico Department of Transportation Standard Specifications for Highway and Bridge Construction, Section 106.12, "Buy America Requirements" that requires the Contractor to provide Materials that comply with 23 CFR Part 635, including the Build America, Buy America Act or as amended by waiver or otherwise. To support implementation of BABA, 2 CFR Part 184 went into effect October 23, 2023. On January 14, 2025, the FHWA published a Final Rule in the Federal Register notice that terminated its General Applicability Waiver for manufactured products and established domestic preference requirements for manufactured products with respect to Federal-aid highway Projects.

The Contractor shall ensure through certification that all manufacturing processes for construction Material occur in the United States pursuant to the "Buy America," and "Build America, Buy America" Acts (BABA). All supporting documentation will have been reviewed by the Department and must be in accordance with the Contract requirements prior to installation. If Acceptable certifications are not provided, the Department will take any remedies available under the Contract.

Iron and Steel

Following the termination of the General Applicability Waiver for manufactured products, 23 CFR 635.410 was updated to include the definition of "iron or steel products" as "articles, materials, or supplies that consist wholly or predominantly of iron or steel or a combination of both" which is further defined as "the cost of iron and steel content exceeds 50 percent of the total cost of all its components." Products containing less than 50% of iron and steel by cost would be certified as a manufactured product as outlined below.

Construction Material

BABA requirements are expanded to apply to construction Material, including articles, Material, or supplies that are or consist primarily of:

1. Non-ferrous metals;
2. Plastic and polymer-based products (including polyvinylchloride, composite building Materials, and polymers used in fiber optic cables);
3. Glass (including optic glass);
4. Fiber optic cable (including drop cable);
5. Optical fiber;
6. Lumber;
7. Engineered wood; and
8. Drywall.

Section 70917(c) Material

By definition, section 70917(c) Materials are cement and cementitious Material, aggregates including stone, sand, or gravel, or aggregate binding agents or additives. These Materials do not require domestic preference certification.

Manufactured Product

Items consisting of two (2) or more construction Materials that have been combined together through a manufacturing process and items that include at least one (1) construction Material combined with a Material that is not listed through a manufacturing process are considered a manufactured product. For a manufactured product to be BABA compliant, the final assembly must occur in the United States. If the cost of the iron and steel components is less than 50% of the total cost of all components of an item, that item would be classified as a manufactured product with two (2) exceptions:

1. Precast concrete products – all iron/steel components should be certified as an iron and steel product or counted towards the allowable minimum use for the Project; and
2. ITS systems and other electronic hardware systems – the cabinets or other enclosures that are wholly or predominantly of iron or steel (or a combination of both) should be certified as an iron and steel product or counted towards the allowable minimum use for the Project.

All products, other than the two (2) exceptions listed above, shall be classified as one (1) of the following: an iron/steel product, a construction Material, a manufactured product, or a section 70917(c) Material. All manufacturing processes shall occur prior to arrival at the Work site.

If it is unclear which category a product or Material fit into (i.e., iron and steel, construction Material, manufactured product, or section 70917(c) Material), the Contractor shall submit documentation demonstrating or justifying the Supplier or manufacturer's position on which category their specific item should be classified to the Project Office at least 14 Days in advance of installation. The Department, in conjunction with the Federal Highway Administration, will review the submitted documentation and make a determination as to how that specific product or Material will be classified. Final determinations will be provided to the Contractor within seven (7) Days.

BABA preference applies to articles, Materials, and supplies that are consumed in, incorporated into, or affixed to a Project. It does not apply to tools, Equipment, and supplies brought to the construction site by the Contractor and removed at or before the completion of the Project. BABA preference does not apply to Equipment and furnishings that are used at or within the finished infrastructure Project but are not permanently affixed to a Project.

The standard for each construction Material to be considered "produced in the United States" is as follows:

1. Non-ferrous metals;
 - 1.1 All manufacturing processes, from initial smelting or melting through final shaping, coating, and assembly;
2. Plastic and polymer-based products;
 - 2.1 All manufacturing processes, from initial combination of constituent plastic or polymer-based inputs; or
 - 2.2 Constituent composite Materials, until the item is in its final form;
3. Glass (including optic glass);
 - 3.1 All manufacturing processes, from initial batching and melting of raw Material through annealing, cooling, and cutting;
4. Fiber optic cable (including drop cable);
 - 4.1 All manufacturing processes, from the initial ribboning (if applicable), through buffering, fiber stranding and jacketing;
5. Optical fiber;
 - 5.1 All manufacturing processes from the initial preform fabrication stage through the completion of

- the draw;
- 6. Lumber;
 - 6.1 All manufacturing processes from the initial debarking through treatment and planning;
- 7. Engineered wood;
 - 7.1 All manufacturing processes from the initial combination of constituent Material until the wood product is in its final form; and
- 8. Drywall;
 - 8.1 All manufacturing processes from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels.

The above listed manufacturing processes for each construction Material must have occurred in the United States for the Material to comply with BABA.

The U.S. Department of Transportation has found that it is in the public interest to issue a de minimis waiver of BABA's domestic preferences in certain situations. For construction Material, the domestic preference may be waived if the (total value of non-compliant construction Material used in the Project) / (the total value of all steel, iron, manufactured products, and construction Material) is under \$1,000,000 or five percent (5%) of the total applicable Project cost, whichever is less. The total applicable Project cost is the cost of all steel, iron, manufactured products, and construction Material used in the Project. To be eligible for consideration of use of the de minimis waiver, the Contractor shall provide actual individual Material costs for all steel, iron, manufactured products and construction Material with each pay estimate in order for the Department to maintain an accurate "applicable Project cost" value throughout the Project. The Contractor shall request the de minimis waiver prior to installation of Materials by submitting estimated, or actual if available, individual Material costs, minus manufacturing costs outside the defined manufacturing processes outlined above, along with justification in the form of quotes, invoices, bills of lading, or other appropriate documents to the Department. If approved, the Contractor shall provide the actual individual Material costs, minus manufacturing costs outside the defined manufacturing processes outlined above, along with justification in the form of invoices, bills of lading, or other appropriate documents to the Department prior to receiving payment.

The above de minimis waiver does not apply to iron and steel and the existing minimum use threshold for iron and steel under 23 CFR 635.410(b)(4) continues to apply.

SPECIAL PROVISIONS FOR SECTION 106-A: BUILD AMERICA/BUY AMERICA PRODUCT INFORMATION SHEET

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

106-A.1 DESCRIPTION

The Contractor shall use the Build America/Buy America Product Information Sheet (BABA/BA Spreadsheet) provided by the Department to certify all construction Materials meeting the requirements as listed in the Special Provisions Clarifying Section 106.12, "Buy America Requirements". The Contractor shall download the BABA/BA Spreadsheet in Microsoft Excel format (.xlsx) from the NMDOT website at [Construction Guidelines, Office Procedures, Materials & Material Testing Information | NMDOT](#), under Construction Project Office Forms.

Use of the BABA/BA Spreadsheet will be discussed during the Pre-Construction Conference.

Preparation of the BABA/BA Spreadsheet shall be Incidental to the Project.

106-A.2 MATERIALS

In addition to the requirements of Section 106.4, "Certificates of Compliance", the Contractor shall provide a completed BABA/BA Spreadsheet to the Project Office and receive Acceptance prior to installing any applicable Materials in accordance with Section 106.12, "Buy America Requirements".

The Contractor shall populate information in the BABA/BA Spreadsheet and submit to the Project Manager for Acceptance in conjunction with the Certificates of Compliance. The Contractor shall submit the Certificates of Compliance listed on the BABA/BA Spreadsheet in chronological order beginning with products place of origin through arrival on Project, with the tracing numbers, i.e., shipping invoice, bill of lading, etc. highlighted for easy reference. The use of the BABA/BA Spreadsheet does not eliminate the requirement for the Contractor to bear the burden of proof.

106-A.3 CONSTRUCTION REQUIREMENTS - Reserved

106-A.4 METHOD OF MEASUREMENT - Reserved

106-A.5 BASIS OF PAYMENT - Reserved

February 4, 2026

SPECIAL PROVISIONS FOR SECTION 109: ELECTRONIC TICKET DELIVERY SYSTEM

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

109.1 DESCRIPTION

For quantities greater than 10,000 tons, the Contractor shall use an Electronic Ticket Delivery System (e-Ticketing system) to monitor, track and report loads for certified weights of asphalt mixtures, in accordance with Section 416, "Minor Paving", Section 423, "Hot Mix Asphalt (HMA) (Major Paving)" and Section 424, "Warm-Mix Asphalt (WMA) (Major Paving)", from the asphalt point of measurement to the point of incorporation into the Project.

The Contractor shall provide all hardware and internet access for the plant. The Contractor shall facilitate the integration of data into HaulHub for approval by the Department. The uptime reliability of the material supplier's ticketing system must be 99.5% over any 30-day rolling period. The supplier shall be required to establish a live connection to the Department.

The e-Ticketing system, equipment, and software requirement will be discussed during the Pre-Construction Conference and again during the Pre-Pave Conference.

109.2 MATERIALS

The Contractor shall provide certified weighmaster electronic tickets (e-Tickets) through the HaulHub portal for each load of asphalt mixtures that are delivered to the Project.

109.3 CONSTRUCTION REQUIREMENTS

The work shall consist of supplying electronic ticket data (e-Tickets) for Material deliveries consisting of asphalt to the Department's portal. Only the Materials delivered to the Project site for placement will require e-Tickets. The Contractor/Supplier can utilize a plant ticketing system of their choice to create the Material ticket data. The Department's e-Ticket portal vendor, HaulHub, will provide a direct connection option for the Contractor/Supplier's existing plant e-Ticketing system. If this connection method is not utilized, an Application Programming Interface (API) key specific to each contractor will be provided by HaulHub. The work shall also create an end-to-end solution to produce e-Tickets, distribute those e-Tickets, provide sorting features, and record field measurements such as test results and/or inspector remarks. Ownership of material ticket data shall be provided to the Department.

The Contractor shall place easily visible truck/trailer identification numbers on the driver's side and the passenger or rear sides of the delivery vehicles matching those listed on each e-Ticket. Delivery vehicles without identifying vehicle numbers will result in the rejection of loads.

The Contractor shall provide a reliable, stable internet connection to support e-Ticketing at the material source and delivery locations. In the event of a power loss, unstable internet connection, or inability to save electronic data, the generation of paper tickets will be required. The Contractor shall perform a test to confirm that ticketing data can be uploaded to the web-based system. As a minimum, the Contractor shall use an e-

Ticketing system that includes the following information on each e-Ticket:

1. CN;
2. Date;
3. Ticket number;
4. Ticket time;
5. Truck/trailer unit number;
6. Gross weight;
7. Tare weight;
8. Net weight;
9. Material type; and
10. Certified weighmaster's name.

Loads which do not have the required information will be rejected.

109.4 METHOD OF MEASUREMENT – Reserved

109.5 BASIS OF PAYMENT

Payment for e-Ticket system will be paid for actual costs incurred for internet access. Contractor will provide the Project Manager with receipts for actual costs incurred. For the purpose of bidding, the Department will enter into the Bid Schedule an allowance for Internet Access for Electronic Ticket Delivery System.

Pay Item

Internet Access for Electronic Ticket Delivery System

Pay Unit

Allowance

109.5.1 Work Included in Payment

The Department will consider the following Work as included in the payment for the Electronic Ticket Delivery System and no separate payment will be made:

1. Set-up and maintenance; and
2. Quality Control procedures.

February 8, 2021

SPECIAL PROVISIONS MODIFYING

SECTIONS:

511: CONCRETE STRUCTURES

532: PENETRATING WATER REPELLENT TREATMENT

533: CONCRETE STRUCTURE REPAIR

606: METAL BARRIER, CABLE BARRIER AND CONCRETE WALL BARRIER

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

Delete reference to **Class 4, Special Surface Treatment**. The Contractor shall meet **Coating of Concrete System** requirements for the following subsections:

Section 511.3.9.2 Class 1, Ordinary Surface Finish

Section 511.3.9.3 Class 2, Rubbed Surface Finish

Section 511.3.9.5 Class 4, Special Surface Finish

Section 511.3.10.2 Method 2, Curing Compound

Section 532.2 Materials

Section 532.3.2.3 Application

Section 533.3.4 Furnishing, Placing, Curing and Finishing Concrete Structure Repair Material

Section 533.4 Method of Measurement

Section 606.3.3.1 Concrete Wall Barrier and Temporary Concrete Wall Barrier Fabrication

SPECIAL PROVISIONS MODIFYING

SECTIONS:

606: METAL BARRIER, CABLE BARRIER AND CONCRETE WALL BARRIER

701: TRAFFIC SIGNS AND SIGN STRUCTURES

703: TRAFFIC MARKERS

**720: VEHICULAR IMPACT ATTENUATOR UNITS and SAND BARREL IMPACT
ATTENUATOR UNITS**

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

Delete reference to **NCHRP Report 350**. The Contractor shall meet **AASHTO Manual for Assessing Safety Hardware (MASH)** requirements for the following subsections:

606.2.1.3.2 Structural Shape Posts

606.2.2.2 Submittal

606.2.2.4 Materials

606.2.4 End Treatments

701.2.6 Sign Structures and Hardware

703.1 DESCRIPTION

720.2 MATERIALS

August 8, 2022

SPECIAL PROVISIONS MODIFYING SECTION 303: BASE COURSE

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

Delete **Section 303: BASE COURSE** in its entirety and replace with the following:

303.1 DESCRIPTION

This Work consists of providing, hauling, and placing Base Course.

303.1.1 Stockpiling

This Work consists of providing, hauling, and stockpiling Base Course at specified locations.

303.1.2 Removing, Processing, and Placing Base Course

This Work consists of removing, hauling, processing, placing existing Base Course Material.

303.2 MATERIALS

303.2.1 General

Base Course consists of one (1) or more of the following:

1. Crushed stone;
2. Crushed or screened gravel;
3. Caliche;
4. Sand;
5. Recycled Asphalt Pavement (RAP) not to exceed 50%; recycled concrete pavement (RC) not to exceed 75%; and the combined RAP and RC not to exceed 75% by weight; and
6. Processed glass aggregate.

Base Course shall not contain organic matter or other Deleterious Materials, including silt and clay balls.

The Department will allow a maximum of ten percent (10%) (by weight) processed glass aggregate, uniformly distributed, in composite Base Course. Processed glass aggregate shall meet physical properties and deleterious substance requirements in accordance with AASHTO M 318.

303.2.2 Aggregate Acceptance

The Department will accept Base Course based on random samples taken by the Department from the Roadway. Unless the Contract specifies otherwise, the Contractor shall produce Material in proportions that produce a homogeneous composite blend in accordance with Table 303.2.2:1, "Type I Base Course Gradation Band".

Table 303.2.2:1
Type I Base Course Gradation Band

Sieve size	% passing
1.0 inch	100
¾ inch	80-100
No. 4	30-60
No. 10	20-45
No. 200	3.0-10.0

Table 303.2.2:2
Type II Base Course Gradation Band

Sieve size	% passing
1.0 inch	100
¾ inch	85-95
No. 4	40-70
No. 10	30-55
No. 200	6.0-15.0

Table 303.2.2:3
Base Course Physical Properties – Type I and Type II

Property	Specification Limit
Fractured Face ^a	Minimum 50% on Untreated Material
AI ^b	Maximum 35
LL	Maximum 25
PI	Maximum 6

^aMaterials retained on or above the No. 4 sieve shall have at least two (2) Fractured Faces when evaluated in accordance with AASHTO T-335, "Determining the Percentage of Fractured Faces in Coarse Aggregate."

^bMaximum AI of 35 for untreated natural aggregate source when calculated in accordance with Section 910, "Aggregate Index".

303.3 CONSTRUCTION REQUIREMENTS

303.3.1 Subgrade

The Contractor shall place Base Course on subgrade prepared in accordance with Section 207, "Subgrade Preparation".

303.3.2 Mixing and Placing

The Contractor shall:

1. Place maximum six (6) inch (compacted) lifts, unless specified otherwise;
2. Not place Base Course Material on frozen Subgrade; and
3. Compact Base Course to at least 96% of maximum density as determined by AASHTO T 180 (Modified Proctor), Method D (TTCP Modified).

The Department will use nuclear testing methods to determine in-place densities in accordance with

AASHTO T 310 and TTCP procedures for wet density moisture correction.

303.3.3 Surface Tolerance

The surface tolerance shall not exceed ½ inch within ten (10) feet as verified by the Department. All deviations greater than ½ inch shall be corrected by the Contractor and reverified by the Department.

303.3.4 Plan Base Course and Sub-base Depths

The Department will monitor and record Base Course depth during the placement in accordance with Section 906, "Minimum Testing Requirements". If the placed thickness deviates from the requirements by more than minus ½ inch, the Contractor shall add Material and reprocess to correct the deficiency.

303.3.5 Stockpiled Base Course

The Contractor shall stockpile Base Course Material at locations shown on the Plans and prevent segregation of Materials at each stockpile. The Contractor shall maintain each stockpile in accordance with the following requirements:

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. Prevent contamination (store stockpiles away from vehicular and Equipment traffic);
5. Keep the storage site neat and orderly and keep the stockpiles accessible for sampling; and
6. Acceptance by the Department will be at the final stockpile location.

303.3.6 Removing and Processing Existing Base Course

The Contractor shall:

1. Minimize contamination of Base Course Material when removing it from the Roadway for reuse, and;
2. Meet the requirements as indicated in Section 303.3.2, "Mixing and Placing".

303.3.7 Sampling and Testing

The Contractor and Department shall sample and test the Base Course in accordance with Section 906, "Minimum Testing Requirements". Department personnel may test locations other than the random locations generated for statistical analysis. These tests will not be used for pay factor determination, but may be used to determine Acceptance or rejection of localized Material.

303.3.7.1 Contractor Quality Control

The Contractor shall develop and administer a Quality Control plan that ensures the product meets the requirements in accordance with Section 902, "Quality Control". The Contractor shall ensure that the Quality Control plan addresses the following elements:

1. Contractor management and process control personnel;
2. Testing Equipment and Laboratory facilities;
3. Aggregate production;
4. Aggregate quality;
5. Stockpile management;
6. Proportioning;
7. Mixing and processing;
8. Transporting;
9. Placing and spreading;
10. Compaction;
11. Line and grade control; and

12. Criteria for the correction or rejection of unsatisfactory Materials.

The Contractor shall:

1. Provide copies of TTCP wallet cards or certifications for personnel who are responsible for sampling and testing the Base Course;
2. Update the list as required if personnel substitutions are made; and
3. Use test results, inspections, and other Quality Control practices to assure the quality of each Material source and to control processes for crushing, mixing, proportioning, processing, transporting, placing, spreading, and compacting quality.

303.3.8 Acceptance

The Department will accept Base Course Materials based on samples taken in accordance with the Section 906, "Minimum Testing Requirements" after placement but before compaction. Acceptance will be in accordance with Section 303.2.2, "Aggregate Acceptance" and Section 303.3, "Construction Requirements". If necessary, the Contractor shall re-work the Base Course until all requirements are met at no additional expense to the Department.

303.4 METHOD OF MEASUREMENT

When calculating the square yardage the Department will use the average Base Course width and the station-to-station length along the centerline. The dimensions will show on the typical section of the Plans. When calculating the weight of the Material, the Department will deduct the weight of moisture that exceeds the optimum moisture content plus two percent (2%). No additional payment shall be made for the stockpile pad.

303.5 BASIS OF PAYMENT

The Department will pay for the Accepted quantities of Base Course as determined in Section 303.3.8, "Acceptance".

Pay Item

Base Course

Base Course _____inch Depth

Remove, Process and Place Base Course

Stockpiled Base Course

Pay Unit

Cubic Yard or Ton

Square Yard

Square Yard or Ton

Cubic Yard or Ton

303.5.1 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. Providing, hauling, placing, and compacting Base Course Material;
2. Stockpiling, if required by Contract;
3. Quality Control in accordance with Section 902, "Quality Control"; and
4. Remove, process, and place Base Course, if required by the Contract.

August 8, 2022

SPECIAL PROVISIONS MODIFYING SECTION 402: ASPHALT MATERIALS AND MINERAL ADMIXTURES

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

Delete **Section 402.2.1.6 Acceptance** in its entirety and replace with the following:

The Department will Accept asphalt cement in accordance with the Department's Standard Practice for Certifying Suppliers of Performance-Graded Binders and in accordance with Section 402.2.1.1, "Performance-Graded Asphalt Binder (PGAB)".

**Table 402.2.1.6:1
Pay Adjustment Factor¹
Based on Binder Test Results**

Binder Property	Measured Value	Pay Factor Applied
DSR on Original Binder G*/sinδ (kPa) Min. 1.00 kPa	<1.00-0.98 <0.98-0.96 <0.96-0.94 <0.94-0.90 <0.90	0.98 0.95 0.92 0.85 0.75 or Removal ²
DSR on RTFO Aged Material G*/sinδ (kPa) Min. 2.20 kPa	<2.20-2.15 <2.15-2.09 <2.09-2.02 <2.02-2.00 <2.00	0.98 0.95 0.92 0.85 0.75 or Removal ²
DSR on PAV Aged Material with δ < 42° G*sinδ (kPa) Max. 5000 kPa	>5000-5100 >5100-5250 >5250-5400 >5400-5600 >5600	0.98 0.95 0.92 0.85 0.75 or Removal ²
DSR on PAV Aged Material with δ ≥ 42° G*sinδ (kPa) Max. 6000 kPa	>6000-6100 >6100-6250 >6250-6400 >6400-6600 >6600	0.98 0.95 0.92 0.85 0.75 or Removal ²
BBR Slope value (m) of PAV Aged Binder Min 0.300	<0.300-0.298 <0.298-0.293 <0.293-0.290 <0.290-0.285 <0.285	0.98 0.95 0.92 0.85 0.75 or Removal ²

Binder Property	Measured Value	Pay Factor Applied
BBR Stiffness of PAV Aged Binder S (MPa)	>300-306 >306-315 >315-324 >324-330 >330	0.98 0.95 0.92 0.85 0.75 or Removal ²
% Elastic Recovery on RTFO Aged Material ³ Min 65%	<65-60 <60	0.95 0.75 or Removal ²
¹ Price Reduction will be applied to Contactor's invoice price of asphalt binder. ² The Assistant District Engineer - Construction will determine if the non-compliant HMA Material will be removed. Removal and replacement will be at no additional cost to the department. If the non-compliant Material is Accepted, a price reduction factor of 0.75 will apply. ³ Elastic-Recovery is only applicable to PG+ and PGR+ Binders.		

Delete **Section 402.2.3.2: Anhydrite Based Material** in its entirety and replace with the following:
The Supplier shall provide anhydrite based Material in accordance with Tables 402.2.3.2:1, "Anhydrite Based Material Chemical Composition" and Table 402.2.3.2:2, "Anhydrite Based Material Physical Properties." The Contractor shall use ASTM C 114 for the chemical analysis.

Table 402.2.3.2:1
Anhydrite Based Material Chemical Composition

Chemical Compound	Percent by Weight
SiO ₂	8.0 to 12.0
Al ₂ O ₃	1.8 to 3.8
Fe ₂ O ₃	1.2 to 1.6
MgO	1.0 to 2.0
CaO	45.0 to 55.0
SO ₃	26.0 to 36.0

Table 402.2.3.2:2
Anhydrite Based Material Physical Properties

Property	Range
LOI, %	4.0 to 6.0
Passing #200 Sieve, %	98.8 to 100.0
Passing #325 Sieve, %	95.0 to 98.2
Specific Gravity	2.970 to 3.050

July 26, 2022

SPECIAL PROVISIONS MODIFYING SECTION 405: DETOUR PAVEMENTS

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

Delete **Section 405: DETOUR PAVEMENTS** in its entirety and replace with the following:

405.1 DESCRIPTION

This Work consists of the following:

1. Providing and placing surfacing Materials, including Subgrade Preparation, Base Course, Prime Coat, Tack Coat and HMA/WMA as required in accordance with the Plans;
2. Maintaining, removing, hauling, and disposing of Detour pavements in an environmentally Acceptable manner; and
3. Hauling and stockpiling salvageable Detour pavements as directed by the Project Manager.

Embankment, drainage, and major Structures will conform to their applicable Sections.

405.2 MATERIALS

405.2.1 General

The Contractor shall obtain surfacing Material for the Detour construction from a suitable source in accordance with Section 106, "Control of Materials".

405.2.2 Alternate Pavement Section

Two (2) weeks before constructing the Detour, the Contractor may submit an alternative Detour pavement section proposal to the Project Manager for approval. The proposal shall include the surfacing thickness and the types of Materials.

The approved alternate Detour pavement section must have at least the same structural number specified in the Contract.

The Contractor shall determine the structural number in accordance with the values in Table 405.2.2:1, "Structural Coefficients".

**Table 405.2.2:1
Structural Coefficients**

Description	Structural coefficient
Base Course	0.11
Hot-mix asphalt (HMA)	0.44
Cold-mixed asphalt pavement ^a	0.15

^aThe Contractor may use cold-mixed asphalt pavement in low-traffic areas, with the District Construction Engineer's written approval.

Detour pavements that will be removed do not require an approved asphalt mix design.

405.3 CONSTRUCTION REQUIREMENTS

405.3.1 General

The Contractor shall construct the Detour pavement in accordance with the following applicable Specifications:

1. Section 207, "Subgrade Preparation";
2. Section 303, "Base Course";
3. Section 407, "Tack Coat";
4. Section 408, "Prime Coat";
5. Section 416, "Minor Paving";
6. Section 423, "Hot Mix Asphalt (HMA) (Major Paving)"; and
7. Section 424, "Warm Mix Asphalt (WMA) (Major Paving)".

405.3.2 Contractor Testing/Design Requirements

The Contractor shall provide Subgrade R-values for the top two (2) ft of the Detour Subgrade by using AASHTO T-190.

405.3.3 Maintenance of Detour Section

The Contractor shall:

1. Ensure the maintenance and repair of the Detours minimizes the impact to the traveling public; and
2. Maintain safe traffic flow during construction.

If the Project Manager determines that the Detour surfacing is damaged, the Contractor shall correct the problem immediately. If the Project Manager determines that the corrective actions failed, overlay the Detour with additional HMA at no additional cost to the Department.

If the Contractor does not immediately fix the Detour surfacing as directed by the Project Manager, the Department will assess damages in accordance with the following Table 405.3.3:1, "Schedule of Damages", for each Day that the Detour remains unacceptable to the Project Manager.

**Table 405.3.3:1
Schedule of Damages**

Total Original Contract Amount (\$)	Charge (\$) per Day
≤100,000	500
>100,000-500,000	1,000
>500,000-1,000,000	1,500
>1,000,000-2,000,000	2,000
>2,000,000-4,000,000	2,500
>4,000,000-7,000,000	3,000
>7,000,000-10,000,000	4,000
>10,000,000	5,000

405.3.4 Removal of Detours

When removing the Detour, the Contractor shall dispose of the surfacing Material in an environmentally Acceptable manner, or salvage the Material as shown in the Contract.

The salvage of the Detour pavement Material includes hauling and stockpiling.

405.4 METHOD OF MEASUREMENT

The Department will measure the Detour Pavement Construction placed and maintained on the top width and length of the Detour.

405.5 BASIS OF PAYMENT

Pay Item	Pay Unit
Detour Pavement Construction	Square Yard

405.5.1 Work Included in Payment

The following Work or items will be considered as included in the payment for Detour Pavement Construction and will not be measured or paid for separately:

1. Submittals;
2. Furnishing and placement of Subgrade Preparation, Base Course, Prime Coat, Tack Coat and HMA/WMA on Detours;
3. Testing (includes AASHTO T190);
4. Maintenance of Detours;
5. Removal of Detour Materials including surfacing, earthwork, and drainage Structures; and
6. Hauling and stockpiling of salvageable Materials.

January 2, 2025

**SPECIAL PROVISIONS
MODIFYING
SECTION 407: TACK COAT**

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

Add the following to **Section 407.2 MATERIALS**:

407.2.1 Tack Coat Additive – For Cationic Emulsion Only

A cationic organosilane additive with a minimum nonvolatile content of 38 percent is to be used in accordance with ASTM D5095.

1. Use a dosage from 0.7 to 1.0 percent by weight of emulsion, according to manufacturer's specification.

January 2, 2025

**SPECIAL PROVISIONS
MODIFYING
SECTION 408: PRIME COAT**

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

Add the following to **Section 408.2 MATERIALS**:

408.2.1 Prime Coat Additive – For Cationic Emulsion Only

A cationic organosilane additive with a minimum nonvolatile content of 38 percent is to be used in accordance with ASTM D5095.

1. Use a dosage from 0.7 to 1.0 percent by weight of emulsion, according to manufacturer's specification.

SPECIAL PROVISIONS MODIFYING SECTION 416: MINOR PAVING

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

Delete **Section 416: MINOR PAVING** in its entirety and replace with the following:

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 subgrade, aggregate base course or milled surface.

416.2 MATERIALS

The Contractor shall use Materials for Minor Paving in accordance with Section 423.2, "Materials".

Minor Paving shall be classified as one of the following:

1. Minor Paving Type I. Consists of Minor Paving that can be placed within the Roadway Prism that is of sufficient size or area to reasonably allow the Material to be placed with Equipment in accordance with Sections 423.3.4.3, "Pavers" and 423.3.4.4, "Compaction Equipment".

Minor Paving Type I includes the following:

- 1.1 Mainline paving;
- 1.2 Auxiliary lanes;
- 1.3 Holding lanes; and
- 1.4 Shoulders.

2. Minor Paving Type II. Consists of Minor Paving placed outside the Roadway Prism or in areas within the Roadway Prism that would not allow for the Material to be placed with Equipment in accordance with Sections 423.3.4.3, "Pavers" and 423.3.4.4, "Compaction Equipment".

Examples of Minor Paving Type II include the following:

- 2.1 Driveways;
- 2.2 Turnouts;
- 2.3 Official use crossings;
- 2.4 Widening less than ten (10) feet in width;
- 2.5 Utility crossings;
- 2.6 ADA Improvements; and
- 2.7 All other items not listed in Minor Paving Type I.

416.3 CONSTRUCTION REQUIREMENTS

The Contractor shall perform Minor Paving in accordance with the following 423 Sections or the correlating 424 Sections:

1. Section 423.3.1 or Section 424.3.1, "General";
2. Section 423.3.2 or Section 424.3.2, "Mix and Laydown Temperature Requirements" or "Mix Temperature Requirements", respectively;
3. Section 423.3.3 or Section 424.3.3, "Addition of Mineral Admixtures";
4. Section 423.3.4 or Section 424.3.4, "Equipment"; and
5. Section 423.3.5 or Section 424.3.5, "Placement Operations" excluding 423.3.5.7, "Test Strip & Shakedown Period".

No referee testing will be required for Minor Paving, but may be used if both parties agree in writing at the Pre-Pave Conference. If used, referee testing will be done in accordance with Section 423.3.7, "Dispute Resolution" or Section 424.3.7, "Dispute Resolution".

416.3.1 Sampling and Testing

416.3.1.1 Contractor Quality Control

The Contractor shall provide quality control measures in accordance with Section 902, "Quality Control".

The Contractor shall identify the proposed lot size in the Quality Control Plan for approval by the Project Manager.

416.3.1.2 Department Quality Assurance

The Department will provide quality assurance measures in accordance with Section 905, "Quality Assurance for Minor Paving".

416.3.1.2.1 Acceptance

The Department will Accept Materials in accordance with Section 905.1.3., "Acceptance".

416.3.1.3 Independent Assurance Testing

The Department will perform Independent Assurance sampling and testing in accordance with Section 906, "Minimum Testing Requirements (MTR's)".

416.4 METHOD OF MEASUREMENT

If the Department measures by the square yard, the Department will measure Minor Paving using the dimensions shown in the Contract or approved field measurements.

416.5 BASIS OF PAYMENT

The Department will adjust payment for Minor Paving in accordance with Section 905, "Quality Assurance for Minor Paving".

Pay Item

Minor Paving Type I, HMA SP
 Minor Paving Type II, HMA SP
 Minor Paving Type I, WMA SP
 Minor Paving Type II, WMA SP

Pay Unit

Ton or Square Yard
 Ton or Square Yard
 Ton or Square Yard
 Ton or Square Yard

416.5.1 Price Adjustments

The Department will pay for Accepted quantities of Minor Paving at the Bid Item Unit Price, adjusted in accordance with Section 905.1.4, "Pay Factor Determination".

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, anti-strip, 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 or Section 424.2.8, "Mix Design";
4. Quality Control in accordance with Section 902, "Quality Control;"
5. Providing and transporting all cores; and
6. Providing storage container for samples and cores if referee testing is used.

May 28, 2019

SPECIAL PROVISIONS

MODIFYING

SECTION 423: HOT MIX ASPHALT (HMA) (MAJOR PAVING)

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

Delete **Section 423.2.7: Reclaimed Asphalt Pavement (RAP)** in its entirety and replace with the following:

Unless otherwise specified in the Contract, 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.

In the event the Contractor elects to use up to 15% RAP (by weight) or is specified as a maximum of 15% RAP by the Contract (by weight) in the production of HMA mixtures, the Contractor shall use the PG grade asphalt binder specified in the Contract.

For quantities greater than 15% and up to 25% RAP, the Contractor shall:

1. Either lower the asphalt binder's high and low temperature grades by one (1) grade (e.g. lower a PG 76-22 to a PG 70-28); or
2. Extract, recover, and combine the RAP's asphalt binder with a virgin asphalt binder per AASHTO M 323, Appendix A, ensuring the resultant binder meets the entire AASHTO M 320 (excluding direct tension) required Project PG asphalt binder properties indicated on the approved mix design.

For quantities greater than 25% and up to 35% RAP, the Contractor shall:

1. Extract, recover, and combine the RAP's asphalt binder with a virgin asphalt binder per AASHTO M 323, Appendix A; and
2. Ensure the resultant binder meets the entire AASHTO M 320 (excluding direct tension) required Project PG asphalt binder properties indicated on the approved mix design.

The Department will not allow the Contractor to use more than 35% RAP in the production of HMA mixtures.

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; and
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; and
6. Perform process control testing in accordance with Section 902, "Quality Control" requirements 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) inches, 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.

July 13, 2020

SPECIAL PROVISIONS
MODIFYING
SECTION 452: SEALING AND RESEALING CONCRETE PAVEMENT JOINTS

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

Delete **Section 452.4: Method Of Measurement** and replace with the following:

Resealing concrete pavement joints will be measured by the linear foot.

Delete **Section 452.5: Basis of Payment** and replace with the following:

Pay Item	Pay Unit
Resealing Concrete Pavement Joints	Linear Foot

Delete **Section 452.5.1 Work Included in Payment** and replace with the following:

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. Removing joint sealant, sawing, cleaning, priming, and resealing joints; and
2. Provide sealant Material.

SPECIAL PROVISIONS MODIFYING SECTION 501: DRIVEN PILES

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

Delete **Section 501.2.3.1 Pile Driving Equipment Submittals** in its entirety and replace with the following:

The Contractor shall submit pile driving Equipment information to the Project Manager 30 Days before beginning pile driving. The Contractor shall submit the information on the Department's Pile and Driving Equipment Data Form. The Contractor shall provide information required on the form including the following:

1. Pile hammer make, model number, and serial number;
2. Driving head assembly, type, model number, and weight;
3. Hammer cushion, Material, size, and thickness;
4. Pile cushion, Material, size, and thickness;
5. Predrilling Equipment, if applicable; and
6. Blow Counting Device Energy Saximeter (E-Sax) or equivalent product Specifications and operating instructions.

The Department has fourteen (14) Days to Accept or reject the proposed pile driving Equipment after the Project Manager receives the Pile and Driving Equipment Data Form submittal. Acceptance will be in accordance with Section 501.3.1.4, "Approval of Driving System."

If the Department rejects the Equipment, the Contractor shall modify or replace the pile driving Equipment and revise and resubmit the form. The Department will have fourteen (14) Days to Accept or reject the revised Pile and Equipment Data Form.

The Contractor shall submit the manufacturer's chart showing stroke and blows per minute when proposing the use of open-end (single-acting) diesel hammers.

The Contractor shall submit a chart equating bounce chamber pressure and hose length to either equivalent energy or stroke when proposing use of closed-end (double-acting) diesel hammers. The Contractor shall specify hose lengths for closed-end hammers. The Contractor shall calibrate the chart to atmospheric pressure based on the Project site elevation to the nearest 1,500 foot elevation.

The Contractor shall submit a chart equating the plant operating pressure to the equivalent delivered energy of the hammer, including losses in the hose, when proposing the use of double acting or differential acting air/steam hammers. The Contractor shall calibrate the chart to atmospheric pressure based on the Project site elevation to the nearest 1,500 foot elevation.

The Contractor shall submit a certificate of calibration to the Project Manager for the pressure gauge required for double acting hammers or for delivered energy for hydraulic hammers. The Contractor shall provide

certificate of calibration from a National Institute of Standards and Technology traceable Laboratory performed no more than six (6) months before use.

Add the following to Section **501.3.2.2: Driving Apparatus:**

501.3.2.2.9 Blow Counting Device

The Contractor shall provide the Project construction office with an E-Sax or equivalent for each piling Project where piles will be driven and blow counts will be recorded. The E-Sax or equivalent shall document the installation process of each pile to assure that the pile driving criterion is met. The Contractor shall assist the Project Manager with operating the device and downloading all pile driving records at the end of each Day of pile driving. The records shall be downloaded to a computer for further review and permanent storage and a copy shall be transmitted to the State Geotechnical Engineer

The E-Sax or equivalent shall be a small hand held device. It shall numerically display all information gathered by a blow detection system (built-in microphone). The device shall have an easy-to-read digital screen clearly readable in daylight, and display four lines of text and 16 characters per line. The device shall display acquired data in real time, and shall store data electronically for transmission and permanent storage. The E-Sax or equivalent shall have a minimum of 8 MB of memory, equivalent to 21,500 lines of data, available for storage and download at a later time. Blow count per unit of penetration shall be obtained by the operator pressing a key for each unit penetration, or with optional depth sensor. Battery life shall be at least 16 hours.

The E-Sax shall be made available to the Project Manager prior to the Pre Pile Driving Conference and shall be maintained during the installation of all test and production piles. In the event that the device is not operational, the Contractor shall notify and work with the manufacturer to rectify the situation. The E-Sax shall remain the property of the Contractor at the conclusion of construction.

Delete **Section 501.3.4.4 Conditions to Proceed** in its entirety and replace with the following:

The Contractor shall not drive production piles until it meets the following conditions:

1. The State Geotechnical Engineer approves the driving system in accordance with Standard Specifications Section 501.3.2.4, "Approval of Driving System;"
2. The Inspector completes the Pile Driving Field Inspection Form and the form is then approved by the Project Manager;
3. The Contractor shall mark the piles in 1-foot increments beginning at the pile toe and continuing at the pile head. The cumulative distance from the pile toe shall be marked on the pile at 5-foot intervals from the pile toe. If necessary, the Contractor shall add inch marks between the 1-foot markers over a 10-foot length of pile as directed by the Project Manager.
4. All required load testing is complete as specified and in accordance with Standard Specifications Section 504, "Load Testing of Bearing Piles". The Project Manager may approve driving production piles in a foundation element upon satisfactory completion of a load test prior to completion of remaining load tests;
5. The Pile Driving Acceptance Chart is completed and stamped with New Mexico P.E. seal by the State Geotechnical Engineer and approved by the State Geotechnical Engineer and submitted to the Project Manager;
6. The hammer and leads are aligned with the pile plan in vertical or battered position;

7. An E-Sax or equivalent has been made available to the Project Manager for use during pile driving operations and all necessary training has been conducted; and
8. The Inspector is present before beginning operations.

Delete **Section 501.3.5.1 Variations Due to Dynamic Testing** in its entirety and replace with the following:

The State Geotechnical Engineer will reject the hammer if the hammer is unable to transfer sufficient energy to perform the dynamic testing in accordance with Standard Specifications Section 504, "Load Testing of Bearing Piles." Reasons for rejection include pre-ignition from overheating or malfunctioning of the injection system and poor hammer or capblock maintenance. After rejection, the Contractor shall repair or replace the hammer at no additional cost to the Department.

Add the following to **Section 501.3.6.1: Pile Measurement and Recording**:

501.3.6.1. Blow Counting Device

The Contractor shall provide an E-Sax or equivalent for each piling Project where piles will be driven and blow counts will be recorded. The E-Sax or equivalent shall be made available for use by the Project Manager for the duration of the Project. The Contractor shall provide hands-on-training and other support as needed in order to operate the device and maintain driving records. The E-Sax or equivalent shall meet the requirements of Section 501.3.2.2.9, "Blow Counting Device".

Delete **Section 501.3.6.4 Pile Groups** in its entirety and replace with the following:

If driving multiple rows of piles for pile cap foundations, the Contractor shall drive the piles to the estimated or minimum penetration elevation, before determining pile capacity for Acceptance. The driving sequence of pile groups shall be completed from the center of the group outward or from one side to the other side. After driving the piles in the group to the required tip elevation, the Contractor shall re-strike to determine the pile nominal capacity. If the piles do not develop the required nominal bearing capacity at that elevation, the Contractor shall continue to drive until the required resistance is attained.

The following has been added to **Section 501.5.1: Work Included in Payment**:

12. Blow Counting Device. E-Sax or equivalent, and all necessary training associated with operating the device and working with the manufacturer to ensure the unit remain operational.

September 29, 2021

SPECIAL PROVISIONS MODIFYING SECTION 502: DRILLED SHAFTS

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

Delete **Section 502.3.5.1.3: Slurry Displacement Construction Method** in its entirety and replace with the following:

The Contractor shall use the slurry displacement method at sites where maintaining a dry excavation is not possible. The Contractor shall use a mineral or polymer slurry, to maintain stability around the hole perimeter while advancing the shaft, placing the reinforcing cage and placing concrete. The Contractor shall displace the slurry during final cleaning of the excavation with a bailing bucket, air lift or submersible pump. The Contractor shall place concrete with a tremie or concrete pump beginning at the shaft bottom. During construction, the Contractor shall keep the slurry level in the shaft excavation high enough to prevent caving and at least five (5) feet above the highest expected piezometric pressure head along the depth of the shaft. If not using permanent casings, the Contractor shall provide temporary surface casings to aid shaft alignment and to prevent sloughing, unless otherwise approved by the State Geotechnical Engineer. If the slurry construction method does not produce the necessary results, the Contractor shall discontinue operations and make corrective modifications to the procedures and Equipment.

Delete **Section 502.3.5.2: Shaft Excavation** in its entirety and replace with the following:

The Contractor shall extend drilled shaft tip elevations when the State Geotechnical Engineer determines that the Material encountered during excavation is unsuitable. The Contractor shall dispose of Materials from the shaft excavation as directed by the Project Manager.

The Contractor shall not excavate any shaft or place any casing within four (4) shaft diameters of a previously constructed shaft, as measured center-to-center, until at least 48 hours has passed since completion of concrete placement in the previous shaft or until a concrete sample collected from the previous shaft, has been tested in accordance with **Section 510.3.4.3 Concrete Sampling and Testing**, attains a compressive strength of 2,000 psi or greater.

When using vibrating casing, the Contractor shall not place adjacent casings or excavate shafts until 48 hours after pour completion of an adjacent shaft or when concrete from the adjacent shaft pour breaks at least 2,000 psi, whichever comes first.

April 6, 2020

**SPECIAL PROVISIONS
MODIFYING
SECTION 504: LOAD TESTING OF BEARING PILES**

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

Add the following to **Section 504.3.1.1: Equipment for Dynamic Testing:**

504.3.1.1.6 Blow Counting Device

The Contractor shall provide an Energy Saximeter (E-Sax) or equivalent for review, approval and use by the Project Manager for each piling Project where piles will be driven and blow counts will be recorded. The E-Sax or equivalent shall meet the requirements of Special Provisions Section 501.3.2.2.9, Blow Counting Device. The E-Sax shall remain the property of the Contractor at the conclusion of construction.

Add the following to **Section 504.5.1: Work Included in Payment:**

2. Blow Counting Device. E-Sax or equivalent and all necessary training associated with proper operation and continued use of the device.

June 13, 2022

SPECIAL PROVISIONS
MODIFYING
SECTION 509: PORTLAND CEMENT CONCRETE MIX DESIGNS

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

Delete **Section 509.2.2.1 Portland and Blended Cements** in its entirety and replace with the following:
Portland cement shall comply with ASTM C150 Types I, II, III, and V. Portland cement shall have an alkali content less than 0.80% by mass of alkalis as $\text{Na}_2\text{O} + 0.658 \text{ K}_2\text{O}$ when determined under AASHTO T 105 unless approved otherwise by the State Concrete Engineer. Types III and V Portland cements shall only be used if specified.

Blended cements shall comply with Type IS (S) - Portland blast-furnace slag cement, Type IP (MS) (HS) - Portland-pozzolan cement, Type IL - Portland-Limestone cement or Type IT - (MS) (HS) Ternary blended cement as specified in ASTM C595 unless approved otherwise by the State Concrete Engineer. Class C fly ash shall not be used in blended cements, unless otherwise approved by the State Concrete Engineer. Type IP (MS) (HS) & Type IT (MS) (HS) blended cements shall not consist of more than 40 percent (40%) SCM. Type IL (MS) (HS) shall not consist of more than 15 percent (15%) limestone.

Delete **Section 509.2.2.2 Supplementary Cementitious Materials** in its entirety and replace with the following:

Each Supplementary Cementitious Materials (SCM) shall be in accordance with the following standards and as modified in Table 509.2.2.2:1, "Supplementary Cementitious Material Requirements" unless approved otherwise by the State Concrete Engineer.

1. Class N, C and F SCM shall comply with the requirements of ASTM C618:
 - 1.1. Class C shall not be used in concrete exposed to sulfate environments or with "potentially reactive," or "reactive" aggregate;
2. Ultrafine fly ash (UFFA) shall comply with ASTM C618, Class N;
3. Ground granulated blast furnace slag (GGBFS) shall comply with ASTM C989, Grade 100 or 120; and
4. Silica fume shall comply with ASTM C1240.

Table 509.2.2.2:1
Supplementary Cementitious Material Requirements

SCM Type	Material Standard	Properties	Limits		
Coal Fly Ash, and Raw or Calcined Natural Pozzolans	ASTM C618	Class	N	F	C
		Sum of Al ₂ O ₃ , SiO ₂ , and Fe ₂ O ₄ , min	75%	65%	50%
		Loss on ignition, max	10.0%	4.0%	4.0%
		Magnesium Oxide (MgO), max	5.0%	5.0%	5.0%
		Sulfur Trioxide (SO ₃), max	3.0%	4.0%	4.0%
		Available alkalis as Na ₂ O+0.658 K ₂ O	Report	Report	Report
		Calcium Oxide (CaO)	Report	18.0% max	18.0% min
Ultra Fine Fly Ash in addition to the requirements for Class F Fly Ash	AASHTO M 321	Accelerated Pozzolanic Activity Index, • 7 Day • 28 Day		85% 100%	
		Particle size distribution • less than 2.25 μm • less than 8.50 μm		50% 90%	
		Fineness, retained on 45 μm wet sieve, max		5.0%	
		Moisture content, max		1.0%	

Table 509.2.2.2:1
Supplementary Cementitious Material Requirements

SCM Type	Material Standard	Properties	Limits		
Metakaolin	ASTM C618	Silicon dioxide (SiO ₂) + aluminum oxide (Al ₂ O ₃), min		85%	
		Calcium oxide (CaO), max		1.0%	
		Sulfur trioxide (SO ₃) max		1.0%	
		Loss on ignition, max		1.2%	
		Available alkalis as Na ₂ O + 0.658 K ₂ O, max)		1.5%	
		Accelerated Pozzolanic Activity Index, • 7 Day • 28 Day		85% 95%	
		Fineness, retained on 45 µm wet sieve, max		5.0%	
Silica Fume	ASTM C1240	Reduction in mortar bar expansion when used with cement in the proposed mix design, min		80%	

Delete **Section 509.2.3.4 Aggregate Alkali-Silica Reactivity** in its entirety and replace with the following:
 The Supplier shall test the aggregates accordance with ASTM C1260 once every two (2) years and C1293 once every four (4) years. Aggregates with an expansion of 0.10% or greater at 14 Days, or 0.04% or greater at one (1) when tested in accordance with C1260 and C1293 will considered reactive. Aggregates with an expansion of less than 0.04% at one (1) year will be considered nonreactive regardless of C1260 testing. Reactive aggregates shall not be used unless mitigative measures are included in the mix design.

The Supplier shall test alkali-silica reactivity mitigative measures in accordance with ASTM C1567 once every

two (2) years and C1293 once every four (4) years. The Department will consider mitigative measures to be effective if the expansion at 14 Days is less than 0.10%, or less than 0.04% at two (2) years when tested in accordance with C1567 and C1293, respectively. Mitigative measures with an expansion of 0.04% or greater at two (2) years will not be considered effective regardless of C1567 testing. Each source and size of aggregates shall be tested using the cement and mitigative measures used in the mix design. The individual aggregate requiring the highest level of mitigative measures or 15 percent (15%) SCM content by total cementitious content shall be the minimum used for the mix design, whichever is greater.

Delete **Section 509.2.7.1 Concrete Classifications** in its entirety.

Delete **Section 509.2.7.2 Concrete Class Requirements** in its entirety and replace with the following:

Concrete Class	Minimum Compressive Strength at 28 Days, psi	Cementitious Material Content, lbs/CY, Minimum or Range	Air Content ¹ Range, %	Water/Cementitious Content Ratio, Maximum or Range	Slump Inches
A	3,000	525	4.0 - 8.0	0.50	1.5 - 4.5
AA	4,000	525 - 700	5.0 - 8.0	0.45	2.5 - 4.5
F	3,000	525	4.0 - 8.0	0.50	0.5 - 2.5
HPD	4,000	500 - 650	5.0 - 8.0	0.42 - 0.45	2.5 - 4.5
HPR	4,000	500 - 650	5.0 - 8.0	0.42 - 0.45	2.5 - 4.5
P	4,000	525	4.5 - 8.0	0.45	0.5 - 2.5
G	3,000	611	0.0 - 4.0	0.44	Note 2
S55	5,500	600 - 850	5.0 - 8.0	0.40	
S95	9,500	700 - 1,100	5.0 - 8.0	0.32	
Special	The Contract for the Project will address special mix requirements.				
Notes					
1. Design air content shall be 6.5 percent (6.5%), except for Class G concrete which shall be 1.5 percent (1.5%).					
2. See concrete classification description for slump and flow requirements.					

1. **Class A** is general purpose, air entrained concrete with a maximum aggregate size less than 1 ½ inches allowed to be used for cast-in-place sidewalks, curb/gutter, concrete wall barrier, and Bridge Substructures;
2. **Class AA** is a medium strength structural cast-in-place concrete required for Bridge superstructures (excluding precast girders and Bridge decks), approach slabs, and abutments. Additional requirements include the following:
 - 2.1 An approved water reducing admixture shall be used; and
 - 2.2 Shall have a maximum aggregate size less than 1 ½ inches;
3. **Class HPD** is a medium strength concrete required for new and widened concrete Bridge decks, Bridge deck concrete paving, and concrete paving repair and used for concrete Bridge deck resurfacing, concrete Bridge deck and partial depth of concrete structures/members repairs. May be substituted for Class P. Additional requirements include the following:
 - 3.1 An approved water reducing admixture shall be used;
 - 3.2 Set accelerating admixtures shall not be used;
 - 3.3 Set retarding admixtures may only be used when approved;
 - 3.4 Shall consist of a minimum of 55 percent (55%) of one (1) inch or ¾ inch coarse aggregate in accordance with Section 509.2.3.2.1, Coarse Aggregate Gradation Requirements;

- 3.5 Shall use a combined gradation protocol;
- 3.6 Maximum shrinkage when tested in accordance with ASTM C157 less than 0.03 at 28 Days or 0.05 at 56 Days;
- 3.7 Shall contain a minimum 20 percent (20%) supplementary cementitious content (SCM) content; Maximum permeability when tested in accordance with ASTM C1202 shall be 2,500 coulombs at 28 Days or 2,000 coulombs at 56 Days;
- 3.8 When examined in accordance with the ASTM C457, shall have hardened air void system with a minimum air content of five percent (5.0%), specific surface greater than 600 inches²/lb; and
- 3.9 Spacing factor less than 0.008 inch;
- 4. **Class HPR** is a medium strength concrete used for concrete Bridge deck resurfacing, concrete Bridge deck and partial depth of concrete structures/members repairs. Additional requirements include the following:
 - 4.1 An approved water reducing admixture shall be used;
 - 4.2 Set accelerating admixtures shall not be used;
 - 4.3 Shall consist of a minimum of 50 percent (50%) of ½ inch coarse aggregate in accordance with Section 509.2.3.2.1, "Coarse Aggregate Gradation Requirements";
 - 4.4 Maximum shrinkage when tested in accordance with ASTM C157 less than 0.035 at 28 Days or 0.05 at 56 Days;
 - 4.5 Shall contain a minimum 20 percent (20%) supplementary cementitious material (SCM) or the minimum SCM needed to mitigate alkali-silica-reactivity, whichever is greater;
 - 4.6 Maximum permeability when tested in accordance with ASTM C1202 shall be 2,500 coulombs at 28 Days or 2,000 coulombs at 56 Days;
 - 4.7 When examined in accordance with the ASTM C457 linear traverse method, hardened air void system characteristics shall have a minimum air content of five percent (5.0%), a specific surface greater than 600 inches²/lb; and
 - 4.8 Spacing factor less than 0.008 inch;
- 5. **Class F** is a general purpose, air entrained concrete allowed for slip formed concrete wall barriers, curb/gutter; with a maximum aggregate size less than 1 ½ inches;
- 6. **Class G** concrete is required for below grade applications, drilled shafts and caissons. Additional requirements include the following:
 - 6.1 Air content shall be less than four percent (4.0%) unless specified by the Contract;
 - 6.2 When specified, the air content shall be five to eight percent (5% to 8%);
 - 6.3 Maximum coarse aggregate shall be ½ inch in accordance with Section 509.2.3.2.1, "Coarse Aggregate Gradation Requirements" unless approved otherwise;
 - 6.4 Set retarders and water reducing admixtures are allowed to extend the concrete mixing time and extend the concrete's slump life;
 - 6.5 A viscosity modifying admixture may be used;
 - 6.6 Shall have a slump range of 7.0 inches +/- 1.0 inch except when placed under a drilling fluid;
 - 6.7 When placed under a drill fluid, shall have a slump of 8.0 inches +/- 1.0 inch; and
 - 6.8 Admixtures shall be adjusted for the job site conditions so that the concrete remains workable and plastic for the two (2) hours placement limit;
- 7. **Class P** concrete is required for concrete paving. Additional requirements include the following:
 - 7.1 When tested in accordance with ASTM C157, shall have a maximum shrinkage less than 0.035 at 28 Days; and
 - 7.2 Shall consist of a minimum of 55 percent (55%) of one (1) inch or 1 ½ inch coarse aggregate in accordance with Section 509.2.3.2.1, "Coarse Aggregate Gradation Requirements";
- 8. **S55** is a dense, high strength structural concrete allowed for precast concrete. Additional

requirements include the following:

- 8.1 An approved water reducing admixture shall be used;
- 8.2 A viscosity modifying admixture may be used;
- 8.3 Target slump shall be determined by the mix designer, but no greater than 10.0 inches +/- 1.0-inch; and
- 8.4 Shall have a slump flow of 22 to 26 inches if designed or modified to be a self-consolidating concrete (SCC);
9. **S95** is a dense, high strength structural concrete allowed for precast and prestressed concrete applications. Additional requirements include the following:
 - 9.1 An approved water reducing admixture shall be used;
 - 9.2 A viscosity modifying admixture may be used;
 - 9.3 Target slump shall be determined by the mix designer but no greater than 10.0 inches +/- 1.0 inch; and
 - 9.4 Shall have a slump flow of 22 to 26 inches if design or modified to be a SCC; and
10. **Special** is a classification for concrete mix designs which have been developed to meet Contract specific requirements.

Delete **Section 509.2.7.4 Freeze-Thaw Risk Zones** in its entirety.

Delete **Section 509.2.7.5.2 Concrete Mix Design Requirements** in its entirety.

Delete **Section 509.2.7.6 Mixture Design Submittals** in its entirety and replace with the following:

For standard concrete mix designs, the Supplier shall submit a completed electronic copy of the NMDOT Concrete Mix Design Submittal Form to the Concrete Unit of the State Materials Bureau for review and approval. The Contractor shall submit Special mix designs to the Project Manager for review and approval by the State Concrete Engineer.

The following information shall be included in the mix design submittal:

1. Supplier name;
2. Production facility physical address, telephone number and e-mail address;
3. PTL's name;
4. The New Mexico registration number of the professional Engineer who is responsible for the concrete mixture design Work;
5. Aggregates:
 - 5.1 Source name and location;
 - 5.2 ASTM C295 "Petrographic Examination of Aggregates for Concrete" and an ASTM C294, Constituents of Natural Mineral Aggregates for both the coarse and fine aggregates after completing processing and manufacturing procedures and the aggregate is ready for use shall be submitted. Include the geologic origin of the Material; perform and certify the analysis using a petrographer previously approved by the Department;
 - 5.3 AASHTO M 6 - Fineness modulus;
 - 5.4 AASHTO T 11 - Material finer than No. 200 sieve;
 - 5.5 AASHTO T 21 - Organic impurity content, including soft fragments, coal and lignite, flat or elongated pieces, and other Deleterious substances;
 - 5.6 AASHTO T 27 - Sieve analysis;
 - 5.7 AASHTO T 84 - Aggregate absorption;
 - 5.8 AASHTO T 85 - Specific gravity of coarse aggregates;

- 5.9 AASHTO T 96 - Los Angeles wear;
- 5.10 AASHTO T 104 - Soundness loss;
- 5.11 AASHTO T 112 - Clay lumps content;
- 5.12 AASHTO T 152 - Aggregate correction factor;
- 5.13 AASHTO T 176 - Sand equivalent of fine aggregate; and
- 5.14 AASHTO T 335 - Percent of Fractured Faces for aggregate greater than 3/8 inch;
- 6. Alkali-Silica-Reactivity
 - 6.1 ASTM C1260 - Potential Alkali Reactivity of Aggregates;
 - 6.2 If need, ASTM C1567 - Potential ASR of Combinations of Cementitious Materials and Aggregate; and
 - 6.3 ASTM C1293 - Length Change of Concrete Due to ASR;
- 7. Portland and Blended Cements
 - 7.1 Supplier name;
 - 7.2 Specific source name;
 - 7.3 Specific cement type;
 - 7.4 Specific SCM type; and
 - 7.5 Percent SCM;
- 8. SCM:
 - 8.1 Supplier name;
 - 8.2 Specific source name; and
 - 8.3 Specific SCM type;
- 9. Concrete mixture proportions; state clearly if submitting request under the combined gradation provisions;
- 10. Water/cementitious ratios;
- 11. Type and amount of admixtures; use admixtures on the Department's Approved Products List;
- 12. Water source and location;
- 13. Plastic Concrete Properties:
 - 13.1 Air temperature;
 - 13.2 Concrete temperature;
 - 13.3 Slump: ASTM C143, when using super-plasticizer, document the slump before and after addition of the super-plasticizer;
 - 13.4 Unit weight: ASTM C138; and
 - 13.5 ASTM C231 or C173;
- 14. Hardened Concrete Properties:
 - 14.1 Compressive strength tests (the average of three (3) cylinders tested at three (3) Days, seven (7) Days, 14 Days and 28 Days);
 - 14.2 Type of fracture of each cylinder;
 - 14.3 Flexural strength if required;
 - 14.4 Hardened air void analysis, if required;
 - 14.5 Rapid chloride permeability, if required; and
 - 14.6 Shrinkage data, if required.

**SPECIAL PROVISIONS
MODIFYING
SECTION 511: CONCRETE STRUCTURES**

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

Add the following to **Section 511.1 Description**:

Reference Section 512 for additional information related to Superstructure Concrete.

Delete the following Pay Item from **Section 511.5: Basis of Payment**:

Pay Item	Pay Unit
Substructure Concrete, Class ____	Cubic Yard

Add the following to **Section 511.5.1 Work Included in Payment**:

8. All provisions of Specification Sections 509, 510, 511, and 512. In the event of a conflict, the more stringent shall apply; and
9. Welded wire fabric.

April 15, 2019

**SPECIAL PROVISIONS
MODIFYING
SECTION 512: SUPERSTRUCTURE CONCRETE**

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

Delete the Pay Items from **Section 512.5: Basis of Payment** and replace with the following;

The Department will pay for Superstructure Concrete and High Performance Concrete (HPD) in accordance with Section 511.5: Basis of Payment:

Pay Item	Pay Unit
Structural Concrete, Class AA	Cubic Yard
Structural Concrete Class HPD	Cubic Yard

SPECIAL PROVISIONS
MODIFYING
SECTION 514: CONCRETE BARRIER RAILINGS FOR BRIDGES

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

Add the following to Section **514.5.1: Work Included in Payment:**

5. Two (2) Bridge number plates for every Bridge.

March 10, 2022

SPECIAL PROVISIONS
MODIFYING
SECTION 518: PRESTRESSED CONCRETE MEMBERS

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

Delete **Section 518: PRE-STRESSED CONCRETE MEMBERS** in its entirety and replace with the following:

518.1 DESCRIPTION

This Work consists of manufacturing and erecting pretensioned Prestressed Concrete Bridge Members and Precast Prestressed Slabs.

518.2 MATERIALS

518.2.1 Portland Cement Concrete

The Contractor shall provide an approved State Materials Bureau concrete mix in accordance with Section 509, "Portland Cement Concrete Mix Designs", requirements for Special Concrete and the compressive strength specified in the Contract.

518.2.1.1 Coarse Aggregate

The Contractor shall provide coarse aggregate that consists of Material no larger than one-third ($1/3$) the size of the smallest clear space where the Contractor shall place the concrete.

518.2.1.2 Design and Acceptability Requirements

The Contractor shall obtain the State Materials Bureau's approval of the concrete mix designs before casting. Once the State Materials Bureau approves a concrete mix design, the Contractor may only make subsequent changes in the mix proportions in accordance with Section 509.2.7.7, "Mixture Design Approval."

When the concrete mix design has been approved, the State Materials Bureau will provide the Contractor/Supplier with a field report form. The Contractor/Supplier shall enter the actual batch weights used in each batch of concrete and the measured moisture contents for each of the aggregates contained within each batch on the field report form. provided to the Contractor/Supplier at the same time the approved mix was provided. The Contractor shall ensure that all test results for compressive strength and fresh concrete properties, including slump, air content and unit weight, are also entered on the field report form.

518.2.1.3 Testing Requirements for Release Strength

The Contractor shall test using the Maturity Method in accordance with Section 510.3.5.2, "In-Place Concrete Strength Measurements", or make additional field cured cylinders for in-place strength tests (to determine application of prestressing forces). The Contractor shall make at least four (4) field cured cylinders from concrete placed on each casting bed.

The test results shall confirm the compliance with the release strength requirement shown in the Contract.

518.2.1.4 Acceptance Requirements

The Contractor shall test a minimum of two (2) cylinders per girder or pile in accordance with AASHTO T23 to ensure compliance with Section 510, "Portland Cement Concrete" and the required 28-Day compressive strength.

The Department will not Accept girders or piles with test results less than 90% of the 28-Day required strength. Girders or piles greater than 90% and less than 100% of the 28-Day required strength will be evaluated by the Project Manager for possible Acceptance. Cylinders that have achieved required strength requirements prior to 28-Day cylinder breaks will be Accepted,

The Contractor shall not ship girders or piles until the required ultimate compressive strength is confirmed by the Maturity Method or compressive strength tests, unless otherwise approved by the Project Manager.

Acceptance will be based upon measurements, tests, supporting data, and visual inspection of the Work for compliance with the Contract.

518.2.2 Steel Products

518.2.2.1 Reinforcing Steel

The Contractor shall provide steel reinforcement in accordance with Section 540, "Steel Reinforcement."

The Contractor shall use uncoated corrosion resistant reinforcing steel for reinforcing bars that project from the tops of girder and those within four (4) feet of girder ends. The Contractor may substitute the remaining reinforcing bars with the same corrosion resistant bars used in the girder ends at no additional cost to the Department.

518.2.2.2 Prestressing Reinforcement

The Contractor shall provide prestressing reinforcement consisting of high strength steel wire, high strength seven (7) wire steel strands, or uncoated high strength steel bars, in accordance with the Contract.

The Contractor shall provide prestressing reinforcement that is uncoated, clean, and free of dirt, loose rust, oil, grease, or other Deleterious Material when placed in the Prestressed Concrete Members.

518.2.2.2.1 High-Strength Wire

The Contractor shall provide high-strength steel wire in accordance with AASHTO M 204.

518.2.2.2.2 High-Strength Multiple-Wire Steel Strand

The Contractor shall provide high-strength multiple-wire steel strands in accordance with AASHTO M 203M, Supplement S1 (low-relaxation), unless otherwise specified.

518.2.2.2.3 Uncoated High-Strength Steel Bars

The Contractor shall provide uncoated high-strength steel bars in accordance with AASHTO M 275. If the Department allows bars with a greater minimum ultimate strength, the Contractor shall produce and test them in accordance with AASHTO M 275.

518.2.2.2.4 Identification of Prestressing Reinforcement

The Contractor shall assign prestressing reinforcement and anchorage assemblies with a lot number and tag

for identification purposes. The Department will reject high-strength Materials lacking identification.

518.2.2.2.5 Sampling of Prestressing Reinforcement

The Contractor shall provide samples for further testing if requested by the Project Manager.

The Contractor shall provide certification with the samples that states the samples were taken from and are representative of the lot numbers provided.

The Contractor shall provide load elongation curves and mechanical properties representative of the strands or bars to the Project Manager.

The Contractor shall sample and test in accordance with AASHTO 203/M 203. If the Department requests, the Contractor shall provide the following:

1. Enough wire to make up one (1) parallel lay strand at least eight (8) feet long, consisting of the same number of wires required for the strand in which they are to be assembled. Cut wires requiring heading for anchoring to length and headed on both ends;
2. At least eight (8) feet of wire strand of each diameter, measured between near ends of fittings. Provide the sample with fittings attached;
3. One completely fabricated prestressing tendon ten (10) feet long for each size tendon, including anchorage assemblies;
4. At least eight (8) feet of high-tensile strength bars of each diameter, measured between threads at ends of bars if furnished with threaded ends and nuts, or between anchorage devices; and
5. At least two (2) anchorage assemblies, complete with distribution plates of each size or type, unless such anchorage assemblies are attached to the samples of pre-stressing reinforcement.

The Contractor shall provide Material samples for testing six (6) weeks in advance of the anticipated time of casting.

518.2.2.2.6 Protection of Prestressing Steel

The Contractor shall protect prestressing steel against physical damage, rust, and other results of corrosion, from the time the strand is manufactured to the time of release. The Department will reject prestressing steel that is damaged in any way.

The Contractor shall package prestressing steel in containers or other shipping forms to protect the steel against physical damage and corrosion during shipping and storage. The Contractor shall place a corrosion inhibitor that prevents rust or other results of corrosion in the package and form or apply directly to the steel if the Project Manager allows. The Contractor shall ensure the corrosion inhibitor has no damaging effect on the steel or concrete or bond strength of steel to concrete.

The Contractor shall immediately replace or restore damaged packaging or forms. If using a corrosion-inhibiting carrier-type packaging Material, the Contractor shall provide the Material in accordance with Military Specification MIL-P-3420. The Contractor shall clearly mark the shipping package or form with the following:

1. A statement that the package contains high-strength pre-stressing steel;
2. The care in handling;
3. The type, kind, and amount of corrosion inhibitor used, including the date placed or applied;

4. Safety orders; and
5. Instructions for use.

If directed by the Project Manager, the Contractor shall submit the following for the corrosion inhibitor:

1. A sample, a list of chemicals and their proportions, and instruction for use;
2. Evidence that the prestressing steel will be protected from rust and other results of corrosion; and
3. A Certificate of Compliance.

After the Contractor installs the prestressing steel, the Contractor shall not weld or have ground welding Equipment on the forms or on the steel in the member.

518.2.2.3 Structural Steel

The Contractor shall provide Structural Steel in accordance with Section 541, "Steel Structures."

518.2.2.4 Debonding and Camber Control Sleeves

The Contractor shall only debond designated strands shown on the Plans. No additional debonding will be allowed unless included in the Accepted Shop Drawings.

The Contractor shall provide debonding sleeves that have such strength, durability, chemical resistance, and other properties so that the sleeves will provide complete debonding between strands and concrete as called for in the Contract. The Contractor shall submit debonding and camber control sleeves product information to the Project Manager for approval.

518.2.3 Girder Identification

The Contractor shall apply a unique girder mark to each Prestressed Concrete Member in a location that shall be visible after construction is complete. This mark shall be consistent with Quality Control Plan (QCP) documentation in accordance with Section 518.3.1.1, "Quality Control (QC)". The mark shall be applied with black paint using a stencil that is approximately one (1) inch in height. The Contractor shall apply the text, over a clear acrylic coating to seal the concrete, and apply a clear acrylic coating over the text.

Alternatively, an electronic tracking mark may be embedded into the Prestressed Concrete Member if approved by the Project Manager. The Contractor shall include the same information on the electronic tracking mark as required on the paint stencil mark.

518.2.4 Submittals

518.2.4.1 Precast/Prestressed Concrete Institute Certified Plant

The Contractor shall provide Prestressed Concrete Members manufactured in a plant certified by PCI. The manufacturer shall have a B4 certification for Prestressed Deflected-Strand Bridge Members. The Contractor shall maintain certifications throughout the production of Prestressed Concrete Members. The Contractor shall stop production if at any time the manufacturer's certification is revoked, regardless of the status of completion of contracted Work. The Contractor shall not resume production until the necessary corrections are made and certification has been re-established.

The Department will not be responsible for time, additional compensation, or other Project impacts due to lack of certification.

518.2.4.2 Annual Approval Letter to Fabricate Prestressed Concrete Members

In addition to PCI certification, the Contractor shall submit the annual plant approval letter, signed by the State Bridge Engineer confirming approval to fabricate Prestressed Concrete Member for the Department, to the Project Manager.

518.2.4.2.1 Request for Annual Approval from State Bridge Engineer

The Fabricator shall submit a written request for plant approval to the State Bridge Engineer yearly for review and Approval. The State Bridge Engineer will have 60 Days for review and Approval.

The following documents shall be included with the request submittal to the State Bridge Engineer:

1. QCP, aka Quality Systems Manual (QSM) – certified by PCI;
2. Last two (2) PCI audit documentation, including the corrective action report (CAR);
3. Minutes from the yearly quality system committee;
4. Qualifications and certifications for:
 - 4.1 Quality Control (QC) Manager;
 - 4.2 QC Inspector(s);
 - 4.3 Material testing technician(s); and
 - 4.4 Shop welder(s);
5. Product data for repair Materials (concrete rub, concrete patch Material, epoxy injection Materials, etc.).

At the discretion of the State Bridge Engineer, a site visit may be required. This will be scheduled around the fabrication required for a Department Project. During a site visit, the follow actions could be observed: batching, concrete Material testing, pre-pour inspection, placement, curing, and final product inspections.

Upon Acceptance of the submittal, a letter of approval to fabricate prestressed elements for the Department will be issued to the Fabricator by the State Bridge Engineer. The Contractor shall submit only the approval letter to the Project Manager. The Contractor shall not submit the information reviewed and approved by the State Bridge Engineer for specific Projects.

518.2.4.2.2 Quality Control Plan (QCP)

The QCP shall list all methods utilized by the manufacturer to ensure that the Work conforms to the requirements in the Contract. The QC Manager is responsible for establishing the QCP, as well as conformance to the QCP. If Work methods for a specific Project or product are not listed in the original QCP, the Contractor shall submit written revisions addressing the proposed methods that are necessary to meet Contract requirements. The Contractor shall not start fabrication until the revisions have been reviewed and Accepted in writing by the Project Manager.

The Contractor shall ensure the manufacturer's QCP includes the following:

1. A listing of qualifications of the QC Manager and personnel conducting inspection and testing;
2. Materials sampling and testing schedule, showing testing methods and frequencies;
3. QC inspection methods and procedures for all stages of fabrication operations;
4. Methods for curing products and test specimens;
5. Method and sequence for tensioning strands, including methods used for verifying equal distribution of jacking forces and elongation measurements;

6. Method and sequence of de-tensioning strands;
7. Written report format for Materials sampling, testing, and inspection for all phases of the Work;
8. Provisions for fabrication operations during cold, windy, or hot weather conditions;
9. Procedures for patching small production holes and holes left by strand hold-down devices;
10. Procedures for identifying, evaluating and reporting defects, including dimensional Non-Conformance, discovered during QC/QA inspections and testing; and
11. Procedures for notifying the Project Manager of structural defects, and submittal of written proposal for repairs.

The QCP shall contain provisions for increased frequencies of inspection and testing when operations or products do not conform to the Contract. Repeated out of tolerance Work, including dimensional Non-Conformance, shall be considered as recurring deficiencies. When the State Bridge Engineer determines that fabrication operations are producing recurring defects that do not conform to the Contract, the Contractor/Fabricator shall be required to submit a written proposal addressing corrective procedures that the Contractor/Fabricator will take to prevent recurrence of the Non-Conformance Work. Approval of the QCP may be suspended until the proposal has been reviewed and Accepted in writing by the State Bridge Engineer.

518.2.4.3 Working Drawings

The Contractor shall furnish Working Drawings to the Project Manager for review and approval by the State Bridge Engineer. The Working Drawings shall be in accordance with Section 105.2, "Plans, Working Drawings", for all Prestressed Concrete Members. The Contractor shall provide Working Drawings stamped by a professional Engineer licensed in the State of New Mexico, that has a minimum of five (5) years' experience with prestressed concrete design. The Department's review of the Working Drawings does not relieve the Contractor of the responsibility for the adequacy of the Prestressed Concrete Members. The Contractor shall submit all supporting calculations for the Working Drawings. The Contractor shall allow 30 Days for review and Acceptance of Working Drawings and calculations. Any re-submittals will require an additional 14 Days for review.

The Contractor's Working Drawings shall include the following:

1. Unit dimensions;
2. Location, size, and type of prestressing strands;
3. Initial and final jacking forces;
4. Location, description, and detail of structural reinforcing items;
5. Location of all hold-down devices;
6. Shop Drawings of all steel items, and details for steel diaphragm connections. Shop Drawings shall be in accordance with AASHTO/NSBA G1.3, Shop Drawing Presentation-Guidelines;
7. Block-out and keyway dimensions, if any, including surface preparation;
8. Location and detail of debonded strands;
9. Rebar schedule per ACI detailing manual SP-66;
10. Framing Plan with the Fabricators unique mark numbers. Girders that are identical in every detail may be set interchangeably;
11. Embeds for overhang brackets and permanent steel deck forms;
12. Stresses in the top and bottom of the Prestressed Concrete Member during de-tensioning of the strands;
13. The predicted girder shortening, camber at release, and camber at 90 Days;

14. Shop Drawings, written procedures, and calculations for the special design such as camber control using prestressing top strands; and
15. Handling, storing and transportation details.

518.2.4.4 Notification of Fabrication for Prestressed Concrete Members

The Contractor shall notify the Project Manager of the following:

1. Start of Work. Fabrication shall not begin until the Working Drawings submittal has been reviewed and Accepted by the Project Manager;
2. Production Schedule. The production schedule shall be submitted to the Project Manager a minimum of 21 Days prior to the start of fabrication. The production schedule shall include start of Work, phase of Work, and shipment dates. Should modifications to the production schedule be necessary, the Contractor shall provide written notice to the Project Manager a minimum of 72 hours in advance of Work. After start of fabrication, the Department will Work with the Fabricators to flex the schedule around unforeseen circumstances;
3. Notice of Shipment. The Contractor shall notify the Project Manager, at least 72 hours before shipment of Prestressed Concrete Members to the job site; and
4. Notification. Failure to notify the Project Manager may be cause for suspension of Work or rejection.

518.2.4.5 Post Fabrication / Pre-Delivery QA/QC Documents

The Contractor shall submit the following records and reports to the Project Manager for acceptance ten (10) Days prior to the shipment of the girders.

1. Prestressing Steel. Tensioning reports for each setup, showing the jacking force calculations; initial and final jacking force used; calculated and final net measured elongation; applicable stressing corrections for seating, slippage, shortening, rotation movement, and temperature;
2. Concrete. Concrete cylinder break reports and daily reports of each mix design used, showing the fresh concrete slump, temperature, unit weight, and air content (if specified). The daily report shall also include the following data:
 - 2.1 Date and time of casting;
 - 2.2 Casting bed and setup location;
 - 2.3 Ambient conditions;
 - 2.4 Total cubic yards placed and number of girders or pieces completed;
 - 2.5 Actual product curing temperature charts or graphs;
 - 2.6 Average release strength in psi;
 - 2.7 Date and time of release strength; and
 - 2.8 Copies of individual batch tickets when requested by the Project Manager;
3. Pre-pour inspection records shall be per the Accepted QCP plan; and
4. Post-pour inspection records shall be per the Accepted QCP plan. These records shall include all discovered variances from product dimensional tolerances, report of minor repairs made to each individual product, and all other member specific information.

518.3 CONSTRUCTION REQUIREMENTS

518.3.1 Quality Processes

518.3.1.1 Quality Control (QC)

QC of Prestressed Concrete Member fabrication is the responsibility of the Contractor. The Contractor shall designate a QC Manager who shall be responsible for product quality requirements and the Contractor's approved QCP.

518.3.1.2 Quality Assurance (QA)

QA and product Acceptance are the prerogatives of the Department. The Project Manager will be the QA Representative. QA administration will be performed to the extent necessary to assure Contract compliance.

518.3.2 Fabrication**518.3.2.1 Pre-Fabrication Conference**

A Pre-Fabrication Conference is required. The Pre-Fabrication Conference will be scheduled, by the Project Manager and will be held after Acceptance of Working Drawings, a minimum of 72 hours prior to start of fabrication. The agenda will include review of the fabrication schedule and the Department's QA involvement. Required attendees are the Project Manager, a Contractor representative, a Fabricator representative who can speak to schedule and quality, and the Bridge Engineer.

518.3.2.2 Forms

The Contractor shall use forms that are smooth, grout tight, and capable of withstanding the action of form vibrators. The Contractor shall accurately fabricate and secure the forms in position so that the cast member will present true, smooth and even surfaces.

The Contractor shall construct forms for interior cellular spaces with an approved Material that is watertight, resistant to breakage and deformation, and as lightweight as possible. The Contractor shall anchor interior forms to resist flotation or displacement during concrete placement. The design of interior and exterior forms shall not restrict the longitudinal movement of the member when the Contractor transfers the prestressing force to the casting.

518.3.2.3 Placement of Reinforcing Bars and Appurtenances

The Contractor shall place and secure reinforcing bars, forms for cored holes and cellular spaces in accordance with the Contract. The Contractor shall conform to concrete cover requirements over reinforcing bars near and at ends of girders.

518.3.2.4 Tensioning

The Contractor shall apply tension to prestressing steel with hydraulic jacks to produce forces in accordance with the approved Working Drawings.

During strand stressing, individual wire failures may be Acceptable if no more than one (1) wire in any strand is broken and the area of broken wire does not exceed two percent (2%) of the total area of the pre-stressing steel in the member. Wire failure shall be documented by the Contractor in record documents, in accordance with Section 518.2.4.2.2, "Quality Control Plan (QCP)".

The Contractor shall stress the members in a sequence that produces a minimum of eccentric forces.

518.3.2.4.1 Tensioning Equipment

The Contractor shall apply stress to tendons using hydraulic jacks that can provide and sustain the necessary

forces and have either a pressure gauge or a load cell for determining jacking stresses.

The Contractor shall use a pressure gauge with at least a six (6) inch diameter dial accompanied with a certified calibration chart. The Contractor shall calibrate each jack and its gauge as a unit with the cylinder extension in the approximate position that it will be at final jacking force.

The Contractor shall calibrate a load cell and provide it with an indicator to determine the prestressing force in the tendon. The Contractor shall use a load cell range that does not include the lower ten percent (10%) of the Fabricator's rated capacity to determine the jacking stress.

The Contractor shall use a testing Laboratory approved by the Project Manager to calibrate the Equipment. The Contractor shall ensure that the Equipment has been calibrated within a year of the Work. The Project Manager may check certified calibration charts for the hydraulic jacks, pressure gages or load cells used for tensioning pre-stressing steel before and during tensioning operations.

518.3.2.4.2 Measurement of Stress

The Contractor shall provide a record of gauge pressures and tendon elongations for each tendon, for review and approval by the Project Manager. The Contractor shall measure elongations to an accuracy of within 1/16 inch.

The Contractor shall use the gauge or load cell readings to determine the stress in the tendons during tensioning and verify with the measured elongations.

The Contractor shall use the modulus of elasticity to calculate anticipated elongations of and base calculations for the nominal area (provided by the Fabricator per lot of tensioned steel), or as determined by a bench test of strands used in the Work.

Before starting elongation readings, the Contractor shall tension the tendons to a preliminary force to eliminate take-up in the tensioning system. The Contractor shall ensure this preliminary force is between five percent (5%) and 25% of the final jacking force. The Contractor shall measure the initial force with a dynamometer or with other approved methods. The Contractor shall mark each strand before the final stressing to permit measurement of elongation and to ensure that anchor wedges are set properly.

The Contractor shall address a discrepancy in indicated stress between jack gauge pressure and elongation. If this occurs, the load used, as indicated by the gauge pressure, will produce a slight overstress rather than understress. The Contractor shall check the entire operation to determine the source of errors, if a discrepancy occurs between gauge pressure and elongation; more than five percent (5%) for tendons longer than 50 feet, or seven percent (7%) for tendons shorter than 50 feet. The Contractor shall correct errors before proceeding

518.3.2.4.3 Tensioning Pre-tensioned Members

The Contractor may cast several Prestressed Concrete Members in a continuous line on the casting bed.

Two (2) splices of pre-stressing strand are allowed within the entire spool. The Contractor shall not use strands within each Prestressed Concrete Member that have splices.

The Contractor shall accurately locate and hold strands in positions in accordance with the Contract for each

individual Prestressed Concrete Member. The Contractor may request to modify the strands by submitting an alternate strand layout, with Shop Drawings and calculations stamped by a professional Engineer licensed in the State of New Mexico, to the Project Manager for review and approval by the Bridge Engineer.

The Contractor may anchor straight prestressing strands at one end of the casting bed and stress the other end with hydraulic jacks. The Contractor shall tension each individual strand to the required stress. The Contractor shall adopt a method for stressing draped strands that prevents significant stress loss between the jacking and anchor ends of the casting bed. If required to avoid significant stress loss, the Contractor shall stress draped strands from both ends of the casting bed.

The Contractor shall stress or check prestressed strands for required stress within 24 hours before placing concrete in the Prestressed Concrete Members.

The Contractor shall not release or cut pre-tensioned strands until cylinder tests indicate that the concrete in the Prestressed Concrete Members has reached the designated compressive strength at release as shown in the Contract. The Contractor shall remove side forms before releasing the strands. Strands may be flame cut to release stress. The Contractor shall release or cut the strands in accordance with a previously approved sequence to avoid unbalanced forces in excess of that applied by one (1) strand. The Contractor shall trim strands in piles flush with the top and bottom of the piles.

518.3.2.5 Placement and Consolidation of Concrete

The Contractor shall place concrete in accordance with Section 511, "Concrete Structures," and Section 512, "Superstructure Concrete."

The Contractor shall inspect all items to be embedded in the concrete prior to concrete placement. The Project Manager may inspect embedded items at their discretion. The Department will allow the placement of concrete in the bottom flange of Prestressed Concrete Member Type Box before placement of the interior form and reinforcing bars in the upper portion of the Prestressed Concrete Member Type Box if concrete placement is continuous for longer than 30 minutes.

The Contractor shall use external vibration for Prestressed Concrete Member Type Box to eliminate internal honeycombing. The Contractor shall rigidly attach external vibrators to the forms in sufficient quantity so that the vibration extends throughout the entire length of the Prestressed Concrete Member Type Box.

The Contractor shall not use vibrating methods that cause segregation. The Department may reject Prestressed Concrete Members with voids in piles, voids in the bottoms of girders, voids in girders over-bearing points or honeycombing sufficient to expose pre-stressing tendons or reinforcement.

518.3.2.6 Finishing Concrete Surfaces

The Contractor shall provide a transversely roughened top surfaces of Prestressed Concrete Members over the entire flange width to a minimum depth of 1/4 inch and a maximum of 3/8 inch. The maximum allowable space between roughened areas on surfaces shall be 1/2 inch. The Contractor shall clean the top surface of Prestressed Concrete Members after initial set to remove laitance, dirt and debris.

The Contractor shall finish the top surface of Prestressed Concrete Member Type Box and piles by over filling the forms, vibrating, and striking off with a metal plated strike board. On the final forward movement of the strike board, the Contractor shall carry excess grout ahead to completely fill the form. After striking off the

concrete, the Contractor shall finish the surface to a true plane. The Contractor shall ensure that surface irregularities do not exceed 9/16 inch per ten (10) feet.

If the Contract requires the Contractor to embed the ends of Prestressed Concrete Members in concrete diaphragms, the ends of the Prestressed Concrete Members do not require hand finishing after removal of forms. If the Contract does not require the Contractor to extend strands for field or shop bending to provide continuity reinforcement, the Contractor shall cut the strands three (3) inches or less beyond the Prestressed Concrete Member ends.

The Contractor shall finish Prestressed Concrete Member ends that will not be embedded in concrete and other surfaces of Prestressed Concrete Members with a Class 2, Rubbed Surface Finish in accordance with Section 511.3.9, "Finishing".

518.3.2.6.1 Mockup of Finishing Concrete Surfaces

When required by the State Bridge Engineer, the Contractor shall mockup the concrete surface finish on a concrete slab with minimum dimensions of 24 inches by 48 inches. The mockup shall include simulated stirrups and stay-in-place form tabs at common spacing to demonstrate surface prep around these obstacles. Upon Acceptance by the State Bridge Engineer, this mockup shall be retained and made available upon request.

518.3.2.7 Curing

The Contractor shall steam cure or water cure Prestressed Concrete Members. The Contractor shall not use a curing temperature greater than 150 degrees F. The Contractor shall uniformly increase the temperature to the maximum temperature over a period not less than seven (7) hours. The Contractor shall additionally uniformly reduce the curing temperature such that at least seven (7) hours are required to reduce the temperature of the curing environment.

The Contractor shall perform steam curing in accordance with Section 517, "Precast Concrete Structures".

The Contractor shall perform water curing in accordance with Section 511, "Concrete Structures".

518.3.2.8 Tolerances

The maximum allowable deviations from the dimension and details shown on the Plans are listed in the Manual for Quality Control for Plants and Production of Structural Precast Concrete Products and the PCI Tolerance Manual, most current version, published by the PCI with the following exceptions:

1. The tolerance on tipping and flushness of shoe plates within 1/16 inch; and
2. The tolerance of steel diaphragms attachment holes shall be no greater than 1/16 inch.

The Contractor shall repair cracks in the end regions of Prestressed Concrete Members as follows:

1. Cracks that do not impact the structural integrity of the Prestressed Concrete Member that are equal to or greater than 0.007 inches in width and/or are located under expansion joints in the final condition of the Structure shall be epoxy injected in accordance with Section 534, "Epoxy Injection";
2. Cracks that may impact the structural integrity of the Prestressed Concrete Member shall be analyzed by the Bridge Engineer prior to Acceptance. The Contractor shall repair the Prestressed Concrete Member per the Bridge Engineer's recommendations; and

3. Excessive cracking that is outside the tolerance of Section 518.3.2.8 "Tolerances" shall not be repaired with epoxy injection and the Prestressed Concrete Member will not be Accepted.

518.3.2.9 Lifting, Handling, Storing and Transporting Prestressed Concrete Members

The Contractor shall not handle Prestressed Concrete Members until after prestressing tendons have been released and forms have been removed.

The Contractor shall always keep webs of Prestressed Concrete Members vertical and in the same position as shown in the final installation. The bottoms of Prestressed Concrete Members shall be kept level. The Contractor shall keep the points of support and direction of reactions in accordance with approved Working Drawings.

The Contractor shall limit the camber growth to a value not to exceed the predicted camber at erection dimension by two (2) inches at the time of deck slab placement for Prestressed Concrete Members greater than 54 inches in depth. The Contractor shall limit camber growth to one (1) inch for Prestressed Concrete Members 54 inches or less. If camber growth measures are necessary, the Contractor shall include the methods for camber control in the Shop Drawings submittal.

The Contractor shall include any devices that will be used for lifting, handling, transporting, and erection of the Prestressed Concrete Members in the Shop Drawings.

The Contractor shall not crack, spall, or otherwise damage Prestressed Concrete Members during lifting, handling, hauling, storing, erecting or transporting. Prestressed Concrete Members damaged by improper handling shall be brought to the attention of the Project Manager immediately and may be rejected.

The Contractor shall not transport Prestressed Concrete Members to the job site until the required ultimate compressive concrete strength is attained in accordance with Section 518.2.1.4, "Acceptance Requirements".

518.3.3 Bracing for Prestressed Concrete Members

The Contractor shall tie and brace the Prestressed Concrete Members immediately after erection to prevent overturning. The Contractor shall leave ties and bracing in place until the Prestressed Concrete Members are permanently secured for lateral stability. If steel girder diaphragms are used, the Contractor shall install diaphragms during Prestressed Concrete Member erection.

Bracing shall be in accordance with Section 512.3, "Construction Requirements".

518.3.4 Grouting Keyways in Prestressed Concrete Member Type Box and Precast Prestressed Slabs

The Contractor shall provide an exposed aggregate finish for all keyways used to connect adjacent Prestressed Concrete Members with a minimum amplitude of ¼ inch unless otherwise shown on the Plans.

The Contractor shall grout keyways between adjacent Prestressed Concrete Member Type Box or Precast Prestressed Slabs designated for grout in accordance with Section 521, "Non-Shrink Grout".

518.4 METHOD OF MEASUREMENT

Prestressed Concrete Members will be measured by the linear foot. Precast Prestressed Slabs will be measured by the Square Foot.

518.5 BASIS OF PAYMENT**Pay Item**

Prestressed Concrete Member Type _____

Precast Prestressed Slab _____ In. Depth

Pay Unit

Linear Foot

Square Foot

518.5.1 Work Included in Payment

The following items will be considered as included in the payment for the main item(s) and will not be measured or paid for separately:

1. Prestressing steel, reinforcing steel and embedded items for Prestressed Concrete Members;
2. Mockup of surface finish;
3. The Quality Control and Quality Assurance requirements;
4. Epoxy Injection of cracks in end regions; and
5. Shipping and erecting Prestressed Concrete Members.

December 20, 2019

SPECIAL PROVISIONS
MODIFYING
SECTION 537: POLYESTER/EPOXY CONCRETE OVERLAY

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

Add the following to Section **537.5.1: Work Included in Payment:**

4. Tining and/or grooving.

July 15, 2021

SPECIAL PROVISIONS MODIFYING SECTION 540: STEEL REINFORCEMENT

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

Add the following to **Section 540.2: Materials**:

540.2.13 Headed Reinforcing Bars

Headed reinforcement shall meet the requirements of ASTM A970 "Headed Steel Bars for Concrete Reinforcement", Annex A1, Class HA.

If headed reinforcement is not included in the Contract, the Contractor may propose the use of headed reinforcement at no additional cost to the Department.

540.2.14 Mechanical Couplers

Mechanical couplers shall meet the requirements for AASHTO M31, Grade 60, and ASTM A706, Grade 60 or ACI 318, Type 2. Mechanical coupler splice strength must be greater than or equal to 125% of the yield strength of the spliced reinforcing bars and must develop the specified tensile strength of the bars. The Contractor shall submit the coupler type (manufacturer and model number) and certified test results showing that the coupler meets these requirements.

Delete 4. and 5. from **Section 540.2.5 Corrosion-resistant and Coated Reinforcing Bars** and replace with the following:

4. Uncoated low-carbon, chromium steel bars in accordance with AASHTO M334 or ASTM A1035; or
5. Galvanized reinforcement in accordance with ASTM A767 or ASTM A1094.

Delete 3. from **Section 540.2.6 Coating and Patching Materials** and replace with the following:

3. Zinc-rich paint with a minimum 65% zinc content in accordance with ASTM A780 for patching damaged and uncoated areas of galvanized reinforcing bars.

Delete the first paragraph and 6. from **Section 540.2.7 Accessories** and replace with the following, respectively:

The Contractor shall provide plastic-coated reinforcing tie wire for tying epoxy-coated reinforcing bars, for deformed stainless steel bars, for stainless steel clad deformed steel bars and for uncoated low-carbon, chromium, steel deformed bars. The Contractor shall provide galvanized, annealed wire ties for galvanized bars and for hot-dip galvanized reinforcing bars.

6. Galvanized sand chairs, hot-dip galvanized wire bar supports, or other non-corrosive metal supports placed directly on the ground; or

Delete **Section 540.2.11 Hot-Dip Galvanized Reinforcing Bars** in its entirety and replace with the following:
The Contractor shall choose one (1) of the options listed below when providing galvanized bars:

1. The Contractor shall provide hot-dip galvanized reinforcing bars in accordance with ASTM A767. The Contractor shall galvanize bar after cutting and bending; or
2. The Contractor shall provide continuous hot-dipped galvanized reinforcing bars (CGR) in accordance with ASTM A1094. The Contractor shall bend and cut bar after galvanizing.

Delete **Section 540.3.1.1 Bar Lists and Bending Diagram** in its entirety and replace with the following:
When the Plans do not include detailed bar lists and bending diagrams, the Contractor shall provide Shop Drawings, bar lists, bending diagrams, and estimated reinforcement quantity to the Project Manager for Bridge Engineer review and Acceptance, prior to ordering any Materials.

When a detailed bar list and bending diagram are included on the Plans, they are included for the Contractor's information and for quantity estimation only. It is the responsibility of the Contractor to notify the Department of any errors identified in the provided bar lists and bending diagrams. Once notified, the Department will correct the identified errors as necessary and provide the Contractor with amended details. The Contractor shall provide Shop Drawings, bar bending lists, bending diagrams, and estimated reinforcement quantity to the Project Manager for Bridge Engineer review and Acceptance in advance of ordering any Materials.

The Contractor shall include the bar marks, shown on the Plans, on the bar tags and the rebar details, bar lists, and bending diagrams on the Shop Drawings. Contractor may include an alternate bar mark for fabrication purposes, but the Contractor shall also show the Plan bar marks in all locations on Shop Drawings and bar tags.

Acceptance of the Shop Drawings, bar lists, bending diagrams and estimated reinforcement quantity shall not relieve the Contractor of responsibility for correctness of the Shop Drawings, bar lists, bending diagrams, and estimated reinforcement quantity. The Contractor's detailed bar lists and bending diagrams shall meet the requirements of the current edition of the Concrete Reinforcing Steel Institute's (CRSI) publication, Manual of Standard Practice. The Contractor shall allow 30 Days for review of the submittal.

Delete **Section 540.3.1.3 Bar Bending** in its entirety and replace with the following:

The Department will allow cold bending around a pin. The Contractor shall not field bend, Grade 60 bars, epoxy-coated bars or standard class hot-dip galvanized bars after galvanizing. For continuous hot-dip, galvanized reinforcing bars (CGR), the Contractor shall fabricate, bend and cut after galvanizing.

Unless otherwise directed, the Contractor shall ensure the bend diameter is in accordance with CRSI Manual of Standard Practice current edition.

Delete **Section 540.3.1.4: Splicing** in its entirety and replace with the following:

The Contractor shall splice bars in accordance with the Plans unless otherwise approved by the State Bridge Engineer.

The Contractor shall place and tie bars in lapped splices to maintain minimum reinforcing cover.

The Contractor shall splice spiral reinforcement by lapping. The Contractor shall ensure that laps are at least 48 bar or wire diameters, but not less than one (1) foot with 90° hooks around longitudinal bars at ends unless

otherwise indicated in the Contract.

The Department will allow the use of headed reinforcing bars in accordance with Section 540.2.13, "Headed Reinforcing Bars".

The Department will allow the use of mechanical couplers in accordance with Section 540.2.14, "Mechanical Couplers".

Unless otherwise specified, the Contractor shall ensure that welded wire fabric and bar-mat reinforcement overlap is at least one (1) spacing of cross wires plus two (2) inches when measured between the outer-most cross wires of each sheet.

Delete **Section 540.3.3.3: Thickness of Galvanizing** and replace with the following:

For ASTM A1094, the Contractor shall ensure that the galvanizing after drying with air, steam or wiping is from two (2) mils to three (3) mils thick.

For ASTM A767, the Contractor shall ensure that the galvanizing after drying with air, steam or wiping is from three (3) mils to 3.9 mils thick.

The Contractor shall determine the thickness with a magnetic thickness gage. The Contractor shall submit a Certificate of Compliance.

Add the following to **Section 540.5.1: Work Included in Payment:**

4. Headed reinforcement shall be included in the reinforcing bar pay item(s). No additional weight will be added.

SPECIAL PROVISIONS MODIFYING SECTION 542: HIGH-STRENGTH BOLTS

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

Delete **Section 542: HIGH STRENGTH BOLTS** in its entirety and replace with the following:

542.1 DESCRIPTION

This Work consists of providing and installing High-Strength Bolts.

542.2 MATERIALS

The Contractor shall mark bolts, nuts, and washers in accordance with the applicable ASTM Specifications.

542.2.1 Bolts

The Contractor shall provide bolts in accordance with ASTM F3125, Grade F1852 or Grade F2280 bolts ("twist-off" style bolts). The Contractor shall ensure that bolt dimensions are in accordance with ASTM F3125 Table 2.

When specified in the Contract, or when bolts are embedded, or when a snug-tight condition is specified, it is Acceptable to use F3125 grade A325.

When the Contract requires unpainted corrosion resistant (weathering) steel, the Contractor shall supply Type 3 High-Strength Bolts in accordance with ASTM F3125. When the Contract does not require unpainted corrosion resistant (weathering) steel, the Contractor shall provide Type 1 High-Strength Bolts in accordance with ASTM F3125.

When the Contract requires galvanized fasteners, the Contractor shall mechanically galvanize in accordance with ASTM B695, Class 50.

542.2.2 Nuts

The Contractor shall provide nuts in accordance with ASTM A 563 with dimensions in accordance with ANSI 18.2.2. For both plain (ungalvanized) and heat-treated galvanized nuts, the Contractor shall ensure nuts meet the requirements of ASTM F3125 Table 2.

The Contractor shall lubricate galvanized nuts with a dyed lubricant of a color that contrasts with the galvanizing color.

542.2.3 Washers

The Contractor shall provide washers in accordance with ASTM F436.

The Contractor shall provide flat circular hardened washers and square or rectangular beveled washers with

dimensions according to ASTM F436 Table 2 and Table 3.

When the Contract requires unpainted corrosion-resistant (weather) steel, the Contractor shall supply Type 3 hardened washers.

542.2.4 Material Testing Requirements

542.2.4.1 Testing of Bolts

The Contractor shall conduct proof load tests in accordance with ASTM F606, Method 1.

The Contractor shall conduct wedge tests on full-size bolts in accordance with ASTM F606, paragraph 3.5. The Contractor shall perform tests on galvanized bolts after galvanizing.

The Contractor shall ensure that the minimum testing frequency is in accordance with ASTM F3125, paragraph 9.6.1. The Contractor shall measure zinc coating thickness on galvanized bolts on the wrench flats or bolt head tops.

The Contractor shall conduct additional testing of “twist-off” style bolts in accordance with ASTM F3125 paragraph 11.

542.2.4.2 Testing of Nuts

The Contractor shall perform proof load tests in accordance with ASTM F606, paragraph 4.2.

The Contractor shall ensure that the minimum testing frequency is in accordance with ASTM A563, paragraph 9.3. Test galvanized nuts after over tapping, galvanizing and lubricating.

542.2.4.3 Testing of Washers

The Contractor shall, test galvanized washers for hardness after galvanizing. The Contractor shall remove the coating before conducting the hardness tests.

542.2.5 Testing of Assemblies

The Contractor shall provide the manufacturers or distributors rotational capacity test results on bolt, nut, and washer assemblies. The Contractor shall use washers in the test, even if washers are not used in the assembly on the Project.

The Contractor shall test each combination of bolt production lot, nut lot, and washer lot as an assembly. Unless required by the installation procedures, the Contractor shall not include washers in the lot identification.

The Contractor shall assign a rotational capacity lot number to each lot combination tested.

The minimum testing frequency is two (2) assemblies per rotational capacity lot.

542.2.5.1 Procedure for Rotational Capacity Tests for Long Bolts

The Contractor shall test bolts long enough to test in a tension calibrator in accordance with the following procedures:

1. Mark the calibrator face plate with lines at vertical and at 1/3 (120°) and 2/3 (240°) of a turn, clockwise from vertical;
2. Use a calibrated torque wrench;
3. Use spacers with a hole size no larger than 1/16 inch larger than the bolt to be tested; and
4. Mount the bolt calibrator on a steel frame or section such as a flange or a cross frame.
 - 4.1. Put the nut on the bolt. Measure from the end of the threaded shank to the underside of the bolt head when there are three (3) to four (4) full threads of the bolt between the bearing face of the nut and the bolt head;
 - 4.2. Put the bolt in the tension calibrator and install the required number of shim plates and washers needed to produce the measurement from Step 4.1 (always install one (1) washer under the nut);
 - 4.3. Snug tighten the bolt with a hand wrench to the tension listed in Table 542.2.5.1:1, "Snug Tight Tension"; do not exceed two (2) kips more than the value;

Table 542.2.5.1:1
Snug Tight Tension

Bolt diameter (in)	Snug tight tension, minimum (kip)
1/2	1
5/8	2
3/4	3
7/8	4
1	5
1 1/8	6
1 1/4	7
1 3/8	9
1 1/2	10

- 4.4. Match mark the nut to the vertical line on the bolt calibrator faceplate;
- 4.5. Using the calibrated manual torque wrench, tighten the bolt to at least the tension listed in Table 542.2.5.1:2, "Installation Tension." Measure and record the torque and the tension generated simultaneously with that torque. Measure torque with the nut in motion;

Table 542.2.5.1:2
Installation Tension

Bolt diameter (in)	Installation tension, minimum (kip)
1/2	12
5/8	19
3/4	28
7/8	39
1	51
1 1/8	56
1 1/4	71
1 3/8	85
1 1/2	103

- 4.6. Calculate the torque in accordance with the following equation:

$$V = \frac{T \times d}{4}$$

Where,

V is the calculated torque value
 T is the measured tension in pounds
 d is the bolt diameter in feet

Record the calculated value. The measured torque values must equal or be less than the calculated torque. Assemblies with measured torque values exceeding the calculated value fail the test; and

- 4.7. For assemblies passing Step 4.6, further tighten the bolt to the rotation listed in Table 542.2.5.1:3, "Required Rotation." Measure the rotation from the vertical line to the initial match marking in Step 4.4. Record the bolt tension.

Table 542.2.5.1:3
Required Rotation

Bolt length (L) measured in step 1	Required rotation (turns)
$L \leq 4d_b$	2/3
$4d_b < L \leq 8d_b$	1
$L > 8d_b$	1 1/3

Note: d_b = bolt diameter

Assemblies that fail before completing the required rotation by stripping or fracture fail the test.

Bolt tension measured at the required rotation must equal or exceed the values in Table 542.2.5.1:4, "Minimum Tension Requirements." Assemblies that do not meet this tension fail.

Table 542.2.5.1:4
Minimum Tension Requirements

Bolt diameter (in)	Tension, minimum (kip)
1/2	14
5/8	22
3/4	32
7/8	45
1	59
1 1/8	64
1 1/4	82
1 3/8	98
1 1/2	118

- 4.8. Loosen and remove the nut and examine the threads on the nut and bolt. Assemblies showing evidence of thread shear failure, stripping, or torsion failure fail.

542.2.5.2. Procedure for Rotational Capacity Tests for Short Bolts

The Contractor shall test bolts that are too short for a tension calibrator in accordance with these procedures:

Equipment Requirements:

1. A calibrated torque wrench and a spud wrench;
2. Spacers with a hole size no larger than 1/16 inch greater than the tested bolt;
3. A steel section with a normal size hole to install bolt. Any available splice hole with plate thicknesses that will provide the number of threads under the nut required in Step 3.1 of the following procedures is Acceptable.

This procedure is as follows:

- 3.1. Mark the steel section with lines at vertical and at 1/3 (120°) and 2/3 (240°) of a turn, clockwise from vertical;
- 3.2. Put the nut on the bolt. Measure the bolt length and the distance from the end of the threaded shank to the underside of the bolt head when there are three (3) to five (5) full threads of the bolt between the bearing face of the nut and the bolt head;
- 3.3. Put the bolt in the hole and install the required number of shim plates to produce the thread stick-out measured in Step 3.1. Always install one (1) washer under the nut;
- 3.4. Snug using a hand wrench. Do not exceed 20% of the torque determined in Step 3.6 of this procedure;
- 3.5. Match mark the nut to the vertical line on the steel section; and
- 3.6. Tighten the bolt using the torque wrench by turning the nut to the rotation listed in Table 542.2.5.2:1, "Initial Required Rotation". Use a second wrench to prevent bolt head rotation during tightening. Record the torque required to reach this rotation. Measure torque with the nut in motion.

Table 542.2.5.2:1
Initial Required Rotation

Bolt length (L) measured in step 3.2	Required rotation (turns)
$L \leq 4d_b$	1/3
$4d_b < L \leq 8d_b$	1/2
$L > 8d_b$	2/3

Note: d_b = bolt diameter

Assemblies that exceed the torque values listed in Table 542.2.5.2:2, "Torque Requirements," fail.

Table 542.2.5.2:2
Torque Requirements

Bolt Diameter (in)	Torque foot-pounds, maximum
1/2	150
5/8	290
3/4	500
7/8	820
1	1230

Table 542.2.5.2:2
Torque Requirements

Bolt Diameter (in)	Torque foot-pounds, maximum
1 1/8	1500
1 1/4	2140
1 3/8	2810
1 1/2	3690

- 3.7. For assemblies that pass Step 3.5, further tighten the bolt to the rotation required in Table 542.2.5.2:3, "Final Rotation Requirements." Measure the rotation from the vertical line to the initial match marking in Step 3.4; and

Table 542.2.5.2:3
Final Rotation Requirements

Bolt length (L) measured in step 1	Required rotation (turns)
$L \leq 4d_b$	2/3
$4d_b < L \leq 8d_b$	1
$L > 8d_b$	1 1/3

Note: d_b = bolt diameter

- 3.8. Loosen and remove nut and examine the threads on the nut and the bolt. Assemblies showing evidence of thread shear failure, stripping, or torsional failure fail the test.

542.2.6 Reporting

The Contractor shall provide notarized manufacturer and distributor CTR and MTR for mill steel used to manufacture bolts, nuts and washers. The Contractor shall indicate the steel melting and manufacture location in the MTR.

The Contractor shall show test results, including zinc coating thicknesses, in the CTR. The Contractor shall show test performance locations and test dates in the CTR.

542.2.6.1 Manufacturer CTR

The Contractor shall provide CTRs from the bolt, nut, and washer manufacturers that include the following:

1. Lot numbers of each item tested;
2. Rotational capacity test results, rotational capacity lot numbers, and individual lot numbers of the items tested if performed by the manufacturer;
3. Results of all other required tests; and
4. Locations where the bolt assembly components were manufactured.

542.2.6.2 Distributor CTR

The Contractor shall provide CTR from the bolt, nut, and washer distributors that include:

1. Documentation required in Section 542.2.6.1, "Manufacturer CTR";
2. Rotational capacity test results, rotational capacity lot number, and individual lot numbers of the items tested if performed by the distributor; and
3. A statement that the manufacturer's CTR represents the same items.

542.2.7 Sampling and Testing by the Department

Before installation, the Project Manager may select two (2) bolts, nuts, and hardened washer assemblies from each rotational capacity lot and at least three (3) bolts, nuts, and hardened washers, for each diameter and grade of fastener for testing by the State Materials Bureau.

542.2.8 Shipping

The Contractor shall ship bolts, nuts, and washers from each rotational capacity lot in the same container. If there is only one (1) production lot number for each size of nut and washer, the Contractor may ship the nuts and washers in separate containers.

The Contractor shall permanently mark each container with the rotational capacity lot number.

542.3 CONSTRUCTION REQUIREMENTS

The Contractor shall fabricate the Materials, to be connected with High-Strength Bolts, in accordance with Section 541, "Steel Structures".

The Contractor shall blast clean steel faying surfaces in accordance with SSPC-SP 10.

The Contractor shall ensure that the bolted part surfaces adjacent to the bolt head and nut are parallel within the three (3) degrees for parallel surface rolled steel members. The Contractor shall use beveled washers on surfaces with more than a 1:20 slope for proper seating. The Contractor shall use bolted parts that fit solidly together when assembled. The Contractor shall not use gaskets or other flexible Material.

The Contractor shall erect joints and splices with cylindrical erection pins and bolts in accordance with Section 541, "Steel Structures." The Contractor shall use high strength bolts instead of erection bolts if necessary. These can be left in place, provided they are not loosened and retightened.

542.3.1 Installation of Bolts

The Contractor shall ensure that bolt, nut and washer combinations are from the same rotational capacity lot.

542.3.2 Lubrication

The Contractor shall ensure that black bolts are oily to the touch when delivered and installed.

Secondary lubrication, by any party other than that which certified the assembly lot, is not permitted on a "twist-off" style bolt assembly lot, unless under the direction of the manufacturer.

If relubrication is permitted, the Contractor shall clean and relubricate weathered or rusted bolts and nuts before installation. The Contractor shall retest recleaned or relubricated bolt, nut, and washer assemblies.

Before installing galvanized nuts, the Contractor shall inspect the nuts to ensure the threads are properly lubricated. If lubricant is not visible or if tensioning indicates that thread friction is too high, the Contractor shall replace the bolt and nut with an unused lubricated bolt or if allowed apply an approved lubricant to the

remaining threads before installation.

542.3.3 Method of Installation

Wherever practical, the Contractor shall place the nut where it is not visible from the Traveled Way. When one end of a bolted assembly is embedded in concrete, the Contractor shall place the assembly so the nut end is in the concrete.

When tightening connections involving several bolts, The Contractor shall draw together plies of the steel by snugging the bolts before starting the tightening operations.

The Contractor shall prevent the stationary element from turning.

For oversized or slotted holes, the Contractor shall place additional hardened washers between the bolted Material and the fastener.

The Contractor shall not reuse bolts previously tightened. Touching up or re-tightening bolts that may have been loosened by the installation of adjacent bolts shall not be considered a reuse.

542.3.3.1 “Twist-off” Style Bolt Installation

The Contractor shall snug all bolts within the connection without severing the splined ends, drawing all plies of the connection together. If a splined end is severed prior to all bolts within the connection being snugged, the Contractor shall remove and replace severed end bolts. After all bolts within the connection are snug tight, the Contractor shall pretension all bolts within the connection with a calibrated “twist-off” style tension control bolt installation wrench, progressing systematically from the most rigid part of the connection to its free edges.

542.3.3.2 Turn-of-Nut Bolt Installation

The Contractor shall snug all bolts within the connection, drawing all plies of the connection together. The Contractor shall give bolts a suitable match-mark and tightened additionally by the applicable amount of nut rotation specified in Table 542.3.3.2:1, “Nut Rotation from Snug-Tight Condition”, progressing systematically from the most rigid part of the connection to its free edges. During this operation, there shall be no rotation of the part not turned by the wrench. Nut rotation is relative to the bolt, regardless of the element being turned. For bolts installed by 1/2 turns and less, the tolerance is 0 to 30 degrees; for bolts installed by 2/3 turn or more, the tolerance is 0 to 45 degrees.

Table 542.3.3.2:1
Nut Rotation from Snug-Tight Condition

Bolt Length ²	Disposition of Outer Faces of Bolted Parts ¹		
	Both faces normal to bolt axis	One face normal to bolt axis, other sloped not more than 1:20 ³	Both faces normal to bolt axis, other sloped not more than 1:20 ³
Not more than 4d _b	1/2 turn	1/2 turn	2/3 turn

Table 542.3.3.2:1
Nut Rotation from Snug-Tight Condition

Bolt Length²	Disposition of Outer Faces of Bolted Parts¹		
	Both faces normal to bolt axis	One face normal to bolt axis, other sloped not more than 1:20³	Both faces normal to bolt axis, other sloped not more than 1:20³
More than 4d _b but not more than 8d _b	1/2 turn	2/3 turn	5/6 turn
More than 8d _b but not more than 12d _b	2/3 turn	5/6 turn	1 turn

Notes:

1. Nut rotation is relative to bolt regardless of the element (nut or bolt) being turned. For all required nut rotations, the tolerance is plus 60 degrees (1/6 turn) and minus 30 degree;
2. When the bolt length exceeds 12d_b, the required nut rotation shall be determined by actual testing in a suitable tension calibrator that simulates the conditions of solidly fitting steel;
3. Beveled washer not used; and
4. d_b = bolt diameter.

542.3.4 Quality Control Inspection

When turn-of-nut method is used, the Contractor shall use an inspection wrench to inspect the tightened bolts. If the inspection wrench is a torque wrench, the Contractor shall tighten each calibration test bolt in the calibration device to the minimum tension specified for its size listed in Table 542.3.4:1, "Bolt Tension". The Contractor shall then apply the inspection wrench to the tightening bolt, and the torque necessary to turn the nut or bolt head five (5) degrees in the tightening direction shall be determined. The average torque measured in the tests of three (3) bolts shall be taken as the job-inspection torque. The torque wrench shall be a dial torque wrench and shall have been checked for accuracy within one (1) year of its current use by the manufacturer or an approved testing agency.

Table 542.3.4:1
Bolt Tension

Bolt Diameter	Required min. Bolt Tension (kips)
	ASTM A 325 Bolts
1/2	12
5/8	19
3/4	28

Table 542.3.4:1
Bolt Tension

Bolt Diameter	Required min. Bolt Tension (kips)
	ASTM A 325 Bolts
7/8	39
1	51
1 1/8	56
1 1/4	71
1 3/8	85
1 1/2	103

The Contractor shall inspect bolts that have been tightened in the Structure by applying, in the tightening direction, the inspection wrench and its job-inspection torque to ten percent (10%) of the bolts but not fewer than two (2) bolts within a connection. If no nut or bolt head is turned by this application of the job-inspection torque, the connection will be Accepted as properly tightened. If any nut or bolts head is turned by the application of the job-inspection torque, the Contractor shall apply this torque to all bolts in the connection. The Contractor shall retighten and reinspect bolts whose nut or head is turned by the job-inspection torque or all bolts in the connection may be retightened and the connection resubmitted for inspection.

The Contractor shall submit a written record of the inspection results, indicating the location, test dates, and the results of each inspection.

542.3.5 Quality Assurance Inspection

The Department may visually inspect every bolt for gaps. For “twist-off” style bolts, the Department may visually inspect any or all bolts to verify the splined ends have been properly severed. If “twist-off” style bolts are not used, the Department may require the Quality Control inspection be performed in the presence of a representative of the Department. If the inspections indicate improper installation, the Project Manager may reject the connection.

542.4 METHOD OF MEASUREMENT – Reserved

542.5 BASIS OF PAYMENT

The Department will pay for high strength bolts as a part of Structural Steel tonnage in accordance with Section 541, “Steel Structures.”

December 20, 2019

**SPECIAL PROVISIONS
MODIFYING
SECTION 543: METAL RAILING**

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

Add the following to Section **543.5.1: Work Included in Payment:**

4. Two (2) Bridge number plates for every Bridge.

February 8, 2021

SPECIAL PROVISIONS
MODIFYING
SECTION 548: COATING OF CONCRETE

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

Delete the first paragraph of **Section 548.1 Description** and replace with the following:

This Work consists of applying Coating of Concrete-Stain, Coating of Concrete-Paint or Coating of Concrete-Textured Coating as designated in the Contract.

Delete the first paragraph of **Section 548.2 Materials** and replace with the following.

The following coating of concrete systems are included in this Specification:

1. Coating System 548-1: colored concrete stain/sealer;
2. Coating System 548-2: paint; and
3. Coating System 548-3: textured coating.

Delete the second paragraph of **Section 548.2 Materials**.

Delete the first paragraph of **Section 548.3.1 General** and replace with the following:

Prior to application of a Coating of Concrete System, , the Contractor shall apply a Class 2, Rubbed Surface Finish in accordance with Section 511.3.9.3, "Class 2, Rubbed Surface Finish".

**SPECIAL PROVISIONS
MODIFYING
SECTION 560: ELASTOMERIC BEARING PADS**

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

Delete **Section 560.5: Basis of Payment and replace** with the following:

Pay Item	Pay Unit
Elastomeric Bearing Pads	Each

December 7, 2020

**SPECIAL PROVISIONS
MODIFYING
SECTION 562: BRIDGE JOINT STRIP SEALS**

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

Delete **Section 562.1: Description** in its entirety and replace with the following:

This Work consists of providing, assembling, and installing Bridge joint strip seal assemblies and in accordance with the Standard Drawings for Bridge Joint Strip Seals.

In addition, this Work consists of replacing and installing Bridge joint elastomer on existing Bridge joints in accordance with the Standard Drawings for Bridge Joint Strip Seals.

Add the following to **Section 562.4: Method of Measurement:**

Bridge Joint Elastomer will be measured by the Linear Foot.

Add the following Pay Item to **Section 562.5: Basis of Payment:**

Pay Item	Pay Unit
Bridge Joint Elastomer	Linear Foot

Add the following to **Section 562.5.1: Work Included in Payment:**

8. Bridge Joint Elastomer.

SPECIAL PROVISION MODIFYING SECTION 570: PIPE CULVERTS

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

Delete **Table 570.2.3.1:1 Pipe Culvert Durability** in its entirety and replace with the following:

Table 570.2.3.1:1
Pipe Culvert Durability

Type of pipe	Corrosion resistance number						
	CR1	CR2	CR3	CR4	CR5	CR6	CR7
Galvanized steel	Yes	No	No	No	No	No	No
Aluminized steel, Type 2 ^a	Yes	Yes	Yes	No	No	No	No
Aluminum alloy	Yes	Yes	Yes	Yes	Yes	No	No
RCP, Type II cement ^b	Yes	Yes	Yes	Yes	Yes	Yes	No
Polymeric coated steel	Yes	Yes	Yes	Yes	Yes	Yes	No
Aramid fiber bonded steel	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Thermoplastic ^c	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Steel reinforced and non-reinforced polyethylene pipe	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RCP Type V cement ^b	Yes	Yes	Yes	Yes	Yes	Yes	Yes

^aThe table is based on a minimal structural gauge thickness. The Contractor may use a heavier gauge to increase the corrosion resistance number as approved by the Project Manager.

^bCement type based on Section 510, "Portland Cement Concrete." If pH ≤ 5.0, use a rapid chloride permeability ≤ 1,200 coulombs.

^cCell Class corresponding to highest values on Fill Height Table must be used for CR4 – 7.

Delete the Pay Items from **Section 570.5: Basis of Payment** and replace with the following:

Pay Item	Pay Unit
Culvert Pipe	Linear Foot
Culvert Pipe End Section	Each
Culvert Pipe Arch	Linear Foot
Culvert Pipe Arch End Section	Each
Storm Drain Pipe	Linear Foot
Storm Drain Pipe End Section	Each
Storm Drain Pipe Arch	Linear Foot
Storm Drain Pipe Arch End Section	Each
Siphon Culvert Pipe	Linear Foot
Reinstalling Culvert Pipe	Each

February 20, 2024

**SPECIAL PROVISIONS
MODIFYING
SECTION 571: STRUCTURAL PLATE STRUCTURES**

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

Delete **Section 571: STRUCTURAL PLATE STRUCTURES** in its entirety.

**SPECIAL PROVISIONS
MODIFYING
SECTION 601: REMOVAL OF STRUCTURES AND OBSTRUCTIONS**

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

Add the following to **Section 601.3.2 Removal of Bridges, Culverts and Other Drainage Structures**:

601.3.2.1 Partial Removal of Bridge Elements

If partial removal is specified, the partial removal shall be in accordance with Section 533.3, "Construction Requirements".

Add the following to **Section 601.5.1: Work Included in Payment**:

4. Means and methods associated with partial removal of Bridge elements.

January 23, 2024

SPECIAL PROVISIONS MODIFYING SECTION 602: SLOPE AND EROSION PROTECTION STRUCTURES

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

602.2.1 Classifications

Delete **Table 602.2.1:1** and replace with the following:

**Table 602.2.1:1
Riprap Classifications and Gabion Requirements**

Class	Description	Stone Volume (cubic feet)		Minimum Dimension ^a (inches)	Nominal D50 (feet)	Minimum Blanket Thickness (feet)
		Minimum	Maximum			
A	Wire enclosed riprap	1/6	2/3	4	0.75	--
A	Non-enclosed riprap	1/6	2/3	4	0.75	1.25
B ^b	Non-enclosed riprap	1	2	6	1.25	2.0
C ^b	Non-enclosed riprap	2	4	9	1.5	2.25
D	Derrick stone	See Table 602.2.1:2				3.0
E	Grouted riprap	1/3	1	3	1.0	1.5
F	Grouted riprap	1	2	6	1.25	2.0
G	Rock plating	--	--	4-8 ^c	--	1.0
N/A	Wrapped rockfacing	--	--	1	--	--
N/A	Gabions	--	--	4-8 ^d	--	--

^a Minimum size in the least dimension.

^b Class B and C stone – at least two (2) Fractured Faces.

^c 70% to 80% of the stone: at least four (4) inches but not more than eight (8) inches in the smallest dimension; 30% to 20% of the stone: no larger than four (4) inches in any dimension. Minimum of three (3) fractured faces.

^d 70% to 80% of the stone: at least four (4) inches but not more than eight (8) inches in the smallest dimension; 30% to 20% of the stone: no larger than four (4) inches in any dimension.

Add the following to **602.5 Basis of Payment**:

Pay Item

Riprap Class A (Non-Enclosed)

Pay Unit

Cubic Yard

June 17, 2024

SPECIAL PROVISIONS

MODIFYING

SECTION 603: TEMPORARY EROSION AND SEDIMENT CONTROL

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

Delete **Section 603: TEMPORARY EROSION AND SEDIMENT CONTROL** in its entirety and replace with the following:

603.1 DESCRIPTION

This Work consists of preparing a Storm Water Pollution Prevention Plan (SWPPP), constructing, inspecting, and maintaining erosion, sediment control, and storm water pollution prevention facilities for the discharge of storm water associated with construction activity. This Work includes construction phase activities through final stabilization.

The Contractor shall follow requirements in this section regardless of a watercourse's jurisdictional status when Projects are over one (1) acre or contain disturbed slopes with bare ground steeper than 3:1 regardless of acreage. Projects less than one (1) acre that do not have slopes steeper than 3:1 are not required to have SWPPP measures. The Contractor shall prevent erosion, sediment, and construction related pollutants from leaving the Project and protect channels, conveyances and waterbodies within or adjacent to the Project. Channels shall include any ephemeral, intermittent, and perennial watercourse including arroyos, acequias, ditches, drains and conveyances.

603.1.1 Storm Water Pollution Prevention Plan

The Contractor's SWPPP shall satisfy the requirements in accordance with Section 632.3, "Construction Requirements", the current Construction General Permit (CGP), applicable Environmental Protection Agency (EPA) Municipal Separate Storm Sewer System (MS4) Permit and shall contain the following sections, forms, and information sheet(s):

1. Identification of other site operators;
2. Storm water team, including at least two (2) EPA-certified inspectors consisting of one (1) from the Contractor and one (1) from the Department;
3. Nature of construction activities;
4. Site map with a maximum disturbed area approved by the Project Manager that the Contractor shall not exceed;
5. Table of Materials including revegetation and initial soil stabilant that the Contractor expects to use for SWPPP based on the maximum disturbed area;
6. Non-storm water discharges;
7. Sequence and estimated dates of construction activities;
8. Temporary Erosion and Sediment Control Plan (TESCP) and description of storm water control measures (construction phase and final stabilization);
9. Natural buffer documentation;
10. Perimeter controls for a "linear construction site";
11. Stabilization measures;
12. Procedures for inspection, maintenance, and corrective action;

13. Procedures for turbidity benchmark monitoring from dewatering discharges (if applicable);
14. Documentation of compliance, including documentation of inspections, emergency related measures, and applicable State, local, and federal requirements;
15. Staff training;
16. Pollution prevention procedures;
17. List of SWPPP certified personnel and documentation of their certifications; and
18. Post-authorization additions to the SWPPP.

The Contractor shall use the most current version of the forms required for the SWPPP:

1. CGP Site Inspection Report template EPA form (for meeting the requirements in Part 4.7 of the 2022 CGP);
2. CGP Dewatering Inspection Report template EPA form (preparing inspection reports related to dewatering activities required by Part 4.6.3 of the 2022 CGP);
3. CGP Corrective Action Log template EPA form (recording the required corrective action documentation that meet the requirements in Part 5.4 of the 2022 CGP);
4. Notice of Intent (NOI);
5. Contractor certification for NPDES “General Permit for Storm Water Discharges” from construction sites EPA form;
6. Notice of Termination (NOT); and
7. Other forms as authorized by the Department or EPA.

A SWPPP Information Sheet provided by the Department will include the following:

1. NOI inputs;
2. General notes;
3. Soil loss model (if applicable); and
4. MS4 retention (if applicable).

The Department will include the SWPPP information sheet on the Plans.

603.1.1.1 Temporary and Final Erosion and Sediment Control Plan

The Contractor’s construction phase TESCO, as part of the SWPPP, shall depict the location, type, and length of temporary erosion control measures, off-site flows, discharge locations, and flow paths within the Work area of the Right of Way on construction phasing Plan sheets.

The Department will prepare the final stabilization Erosion and Sediment Control Plan (ESCP) sheets depicting the location, type, and length of temporary erosion control measures, off-site flows, discharge locations, and flow paths within the Right of Way on Plan sheets at the final placement after all construction activities haven been Accepted.

603.1.1.2 Department Responsibilities

The Project Manager will assign an EPA-certified (or equivalent) Department representative (with qualification form per CGP section 9.6.1.c) experienced and trained in implementing Best Management Practices (BMPs). The Department will include a SWPPP Information and the final stabilization ESCP on the Plans. The SWPPP Information Sheet will include an NOI Inputs table that provides information needed to complete the NOI.

The Department's final stabilization ESCP Plan sheets will include the following:

1. Site map(s);
2. Existing and new Structures;
3. Drainage flow patterns and discharge locations;
4. Existing and proposed Roadway grades;
5. Approximate slopes;
6. Areas of soil disturbance;
7. Major controls locations;
8. Structural practices;
9. Surface waters (including wetlands);
10. Conditions before and after construction;
11. Right of Way lines including easements; and
12. Detours outside of the Right of Way.

603.1.1.3 Contractor Responsibilities

Before disturbing any soil, the Contractor shall prepare and submit to the Project Manager and the Department's Roadside Environment Design Manager or representative, a SWPPP based on the planned construction phasing and schedule. The Contractor shall prepare amendments to the SWPPP as Work progresses or as phasing or scheduling changes are made. The Contractor's TESCOP shall be developed by the Contractor's SWPPP certified inspector for each construction phase, complying with provisions of the NPDES CGP and shall include the following activities:

1. Develop the SWPPP using a combination of structural, non-structural, and vegetative BMPs appropriate for the identified location to control erosion and sedimentation and manage storm water during construction activities. Refer to the recommendations in the current version of the Department's National Pollutant Discharge Elimination System Manual: Storm Water Management Guidelines for Construction and Industrial Activities;
2. Include proposed methods for minimizing or eliminating pollution of streams, lakes, reservoirs, canals, and other water impoundments from storm water discharge associated with construction activities;
3. Do not start earth-disturbing activities until the Contractor developed SWPPP has been submitted and the NOI is active; and
4. Maintain the SWPPP in accordance with the NPDES CGP and this Section until final grading, erosion control and seeding operations have been completed.

603.1.2 Retention of Records

The Contractor shall retain and maintain SWPPP changes as required by the NPDES CGP and this Section. The Contractor shall include copies of the permit language and inspection and maintenance reports in the SWPPP. The Contractor shall prepare inspection and maintenance reports from commencement of earthwork activities to Project completion. The Contractor shall deliver the SWPPP to the Project Manager at Project completion. The Contractor shall ensure that these records are available to the public at all times and shall retain records for a minimum of three (3) years after the Contractor's NOT is Accepted.

603.1.3 Notice of Intent (NOI)

The Contractor shall prepare and submit an electronic NOI. The Contractor shall provide a copy of the NOI that meets the NPDES CGP requirements for discharge of storm water associated with construction activities to the Project Manager. The Contractor shall provide the NOI and attachments to the Project Manager at least three (3) weeks before the start of construction.

The Department and the Contractor shall each prepare and submit separate NOIs to the EPA, designating the status of owner/operator. The Contractor shall not begin earth-disturbing activities until both NOIs are listed on the EPA website as “active.” The EPA will post NOI approvals on their website.

603.1.4 Off-Site Storm Water Pollution Prevention Plan

The Contractor shall prepare and submit a SWPPP, NOI, and NOT, if required, to appropriate agencies for Work performed outside the Project Right of Way. The Contractor shall be responsible for all associated NPDES CGP requirements for the offsite locations. If the offsite location is on private land, the Contractor shall notify the landowner of NPDES CGP compliance requirements and requirements in accordance with Section 632.3.6, “Revegetation of Areas Outside the Project Limits”. The Contractor shall provide a copy of each off-site submittal to the Project Manager.

603.2 MATERIALS

603.2.1 General

The Contractor shall provide Materials for erosion, sediment control, and storm water pollution prevention measures that consist of siltation fences, Erosion Control Socks, rock, riprap, or other Acceptable measures approved by the Project Manager.

603.2.2 Pipe

The Contractor shall provide pipes in accordance with Section 570, “Pipe Culverts”.

603.2.3 Riprap

The Contractor shall provide riprap and rock plating in accordance with Section 602, “Slope and Erosion Protection Structures.”

603.2.4 Temporary Soil Stabilant

The Contractor shall provide a Temporary Soil Stabilant in accordance with Section 632, “Revegetation”. The Contractor shall ensure that the Temporary Soil Stabilant contains an anti-foaming agent and color additive to assist in its uniform application and that the color disappears from the surface within 36 hours after application of a product on the Approved Products List (APL).

603.2.5 Composted Mulch Socks

The Contractor shall furnish composted mulch Material in accordance with Section 632, “Revegetation”. The screened compost mulch and wood chips shall be premixed by a provider on the APL.

603.2.5.1 Containment Mesh

The Contractor shall furnish containment mesh found on the APL that is made of 100 percent (100%) biodegradable plant-based fiber Material such as cotton, jute, sisal, burlap, wood-based yarn, coir or other Acceptable Material as directed by the Roadside Environment Design Manager or representative.

The Contractor shall furnish containment mesh that does not exceed 3/8 inch in diameter and is not greater than nine (9) inches in height after being packed.

603.3 CONSTRUCTION REQUIREMENTS

603.3.1 General

The Contractor shall apply appropriate erosion, sediment, and dewatering control measures for construction activities as per the Accepted Contractor developed SWPPP.

The Contractor shall install temporary erosion and sediment control features and maintain them until final grading, erosion control, and seeding operations are completed.

The Contractor shall incorporate permanent erosion and sediment control measures, such as riprap pads or other forms of energy dissipaters at the outlets of Structures, into the Project at the earliest practical time, as directed by the Project Manager.

603.3.1.1 Non-Conformance

The Department will issue a corrective action/non-conformance when the Contractor fails to comply with the Contractor developed SWPPP; or fails to maintain CGP compliance, including, but not limited to the following:

1. Fails to maintain temporary erosion and control measures in accordance with Section 603.3.6, "SWPPP Inspection and Maintenance";
2. Fails to document inspection and maintenance activities; and
3. Fails to document in the SWPPP Corrective Action Report field changes to Erosion Control measures as directed in writing by the Project Manager.

If the Contractor fails to comply with the CGP or this Section, the Department may issue a corrective action/non-conformance in accordance with Sections 107.13, "Contractor's Responsibility for Damage to Environmental and Cultural Resources" and 107.14.3, "Clean Water Act".

603.3.2 Contractor's Operations

The Contractor shall keep construction activity to a minimum within the Project Right of Way, adjacent to the Project, to prevent damage to vegetation. The Contractor shall repair damage or disturbance to areas not necessary for construction of the Project at no additional cost to the Department, including revegetation and Temporary Soil Stabilant exceeding what was approved in documents submitted in accordance with Section 603.1.1, "Storm Water Pollution Prevention Plan."

The Contractor shall keep construction areas in an orderly condition and promptly dispose of refuse and discarded Materials.

As directed by the Project Manager, the Contractor shall provide erosion and sediment control measures necessary to correct negligent or improper installation, at no additional cost to the Department.

603.3.2.1 Sequence of Operations

Before Work begins, the Project Manager, the Contractor and the storm water team in accordance with Section 603.1.1, "Storm Water Pollution Prevention Plan", will conduct a site review for the implementation of the proposed SWPPP. The Roadside Section manager or representative shall be invited to the site review.

The Contractor shall coordinate the placement and maintenance of BMPs required for CGP compliance before earth-disturbing Work begins.

603.3.2.2 Watercourse Protection

The Contractor shall provide filtration or settling basins to treat water used to wash aggregate or water used for similar operations.

The Contractor shall locate and construct waste disposal areas and haul roads to prevent sediment from entering streams and water impoundment areas or leaving the Project.

The Contractor shall not operate mechanized Equipment in perennial streams, unless construction in a channel is unavoidable.

The Contractor shall use temporary Bridges or other crossing Structures constructed of non-erodible Material, where frequent stream crossings are necessary.

The Contractor shall clear falsework, piling, debris, and other obstructions placed during construction from streambeds, arroyos, and watercourses when no longer required. The Contractor shall not allow waste from haul truck cleaning to drain into watercourses.

The Contractor shall provide the necessary buffer protection for adjacent surface waters as required by the NPDES CGP.

603.3.3 Temporary Soil Stabilant Application

The Contractor shall apply Temporary Soil Stabilant to disturbed non-road-bed bare ground not being worked. The Contractor shall apply Temporary Soil Stabilant within one (1) Working Day after Work ceases, unless construction will resume within 14 Days after Work ceases. The Contractor shall reapply Temporary Soil Stabilant to areas of continued erosion or areas that remain bare within four (4) weeks after the initial application and at least once every 4 (four) weeks throughout the life of the Project or as directed by the Project Manager. The Contractor shall maintain stabilization of disturbed areas created by Contractor activity not necessary for the completion of the Work in accordance with Section 603.3.2, "Contractor's Operations" at no additional cost to the Department including parking areas, clearing beyond what is required for the Work, Contractor-travel on non-roadbed areas, and other areas created by the Contractor for their own convenience.

The Contractor shall follow the manufacturer's recommendations for storage and application of the Temporary Soil Stabilant. The Contractor shall maintain the rate of application recommended by the manufacturer. If the Temporary Soil Stabilant does not produce the required results, the Project Manager and the Roadside Section Manager or representative may modify the manufacturer's application rate at no additional cost to the Department.

603.3.4 Composted Mulch Socks

The Contractor shall install the Composted Mulch Socks near the downstream perimeter of the disturbed area as shown on the SWPPP to intercept sediment from sheet flow or as inlet protection as directed by the Project Manager. The Contractor shall maintain close contact between the earth and Composted Mulch Socks by removing remaining vegetation, rocks, debris, and dirt clods. The Contractor shall interlock and overlap Composted Mulch Socks at the ends.

The Contractor shall anchor the Composted Mulch Socks to prevent displacement during rain events and to prevent flow under the Composted Mulch Socks. The Contractor shall use two (2) inch by two (2) inch wooden

stakes, APL product, or as approved by the Project Manager. The Contractor shall place wooden stakes at ten (10) foot maximum spacing on all flat areas and four (4) foot maximum spacing on slopes to prevent the Composted Mulch Socks from sagging. The Contractor shall drive stakes in the ground 12 inches with three (3) inches extending above the Composted Mulch Socks.

To prevent stormwater from circumventing the edge of the perimeter control, the Contractor shall install the perimeter control on the contour of the slope and extend both ends of the control up slope (e.g., at 45 degrees) for a minimum of two (2) feet vertically, forming a crescent rather than a straight line.

603.3.5 Earthwork Operations

The Contractor shall protect slopes as earthwork operations progress.

The Contractor shall maintain and protect the earthwork in Roadway sections through all construction stages to prevent sediment from leaving the construction limits.

The Contractor shall provide temporary slope drain facilities that can collect runoff and carry it to the slope bottoms. The Contractor shall use drain Materials capable of length change as earthwork operations progress.

603.3.6 SWPPP Inspection and Maintenance

The Contractor shall inspect and maintain the Project site for NPDES CGP compliance during the Project. The Contractor shall inspect and maintain installations at the following frequencies:

1. At least once every seven (7) Days;
2. Once every 14 Days and within 24 hours of a 0.25 inch or greater rainfall event; and
3. For arid, semi-arid, or drought-stricken areas, as defined in Appendix A of the NPDES CGP, the frequency of inspections may be reduced to once per month and within 24 hours of the occurrence of a storm event of 0.25 inches or greater. This applies only during the seasonally dry period or a period in which drought is occurring. The Contractor shall document that they are using this reduced schedule and the beginning and ending dates of the seasonally dry period in the SWPPP.

The Contractor's maintenance Work shall include, but is not limited to, repair of damaged installations, removal of trapped sediment, and cleaning of any silt fence. The Contractor shall remove accumulated silt when the control installation becomes 50 percent (50%) filled. The Contractor shall inspect disturbed areas, Material storage areas, discharge locations, and structural control measures. The Contractor shall inspect vehicle entrances and exits for Material being tracked off-site. The Contractor shall document each inspection on the EPA CGP Site Inspection Report. The Contractor shall submit the Site Inspection Report form signed by EPA-certified (or equivalent) personnel to the Project Manager within 24 hours after the inspection. The Contractor shall include copies in the SWPPP. The Site Inspection Report form should be the same form listed on the EPA website.

The Contractor shall install a rain gauge at the Project site to track rainfall amounts for the inspection schedule and install the required SWPPP sign in accordance with the CGP section 1.5.

The Contractor shall designate the person responsible for the SWPPP on the qualification form provided by the Department. The Contractor shall ensure that the person is an EPA-certified SWPPP inspector and document the responsible person's experience and training on the qualification form (per CPG section 9.6.1.c). The Contractor shall include the signed qualification form with the SWPPP.

The Contractor shall install missing sediment erosion control measures and/or repair damaged erosion and sediment control installations by the close of the next Working Day following an inspection or following notification by the Project Manager that repairs are required. The Roadside Environment Design Manager or representative may conduct sight inspections for SWPPP compliance and notify the Project Manager in writing when corrective actions are needed.

If a damaged erosion control installation could result in sediment discharge into a live stream, water impoundment, or other body of water, the Contractor shall initiate repairs within 24 hours or sooner, as necessary, or as directed by the Project Manager.

The Contractor shall maintain erosion and sediment control installations specified to remain following completion of the Work until the Project is completed.

603.3.7 Removal of Control Installations

The Contractor shall remove and dispose of temporary erosion and sediment control installations and features from the Project in accordance with Section 603.1.1.3 "Contractor Responsibilities", unless otherwise specified in the Contract or directed by the Project Manager. After removing temporary erosion control installations, the Contractor shall restore ground lines, cover, and features as closely as possible to original condition.

The Contractor may deposit removed sediment at locations within the Right of Way, if approved by the Project Manager. Where removed sediment is deposited in previously undisturbed areas, the Contractor shall reseed those areas at no additional cost to the Department.

603.3.8 Notice of Termination (NOT)

The Contractor shall prepare and submit a NOT to the EPA within 30 Days after Project completion, indicating that the operator of the Project has changed to the Department. The Contractor shall provide a copy of the submittal to the Project Manager.

603.4 METHOD OF MEASUREMENT

The Department will measure Rock Check Dam along the crest of the dam.

603.5 BASIS OF PAYMENT

Pay Item

SWPPP Plan Preparation and Maintenance
Temporary Soil Stabilant
Rock Check Dam
Composted Mulch Socks

Pay Unit

Lump Sum
Acre
Linear Foot
Linear Foot

603.5.1 Work Included in Payment

The following Work and items will be considered as included in the payment for the above item(s) and will not be measured or paid for separately:

1. Cleaning and maintenance of the temporary erosion and sediment control measures;
2. Posts, hardware, and appurtenances of the temporary erosion and sediment control measures;
3. Riprap for pipe slope drains and sediment traps;
4. Excavation and disposal of sediment deposits;

5. Removal and disposal of temporary erosion and sediment control measures:
6. Subsequent applications of Temporary Soil Stabilant due to unsatisfactory results as determined by the Project Manager;
7. Removal and replacement of the BMP at the same location due to construction;
8. Relocation of BMPs during phasing and final placement; and
9. CMS stakes and overlaps.

603.5.2 Partial Payments

The Department will make monthly partial payments for SWPPP Plan Preparation and Maintenance upon receipt and Acceptance of the Contractor SWPPP. Monthly partial payments will be based on the rate of progress of the Project, less previous partial payments for this item. The Department will calculate partial payments in accordance with the following equation:

$$P = [(A \times L)/B] - C$$

Where,

- P is the partial payment during the progress of the Project;
- A is the total number of Days charged the Contractor toward completion of the Project;
- L is the Total Bid Amount for SWPPP Plan Preparation and Maintenance;
- B is the Contract Time; and
- C is the total amount of previous partial payments for this item.

SPECIAL PROVISIONS MODIFYING

SECTION 606: METAL BARRIER, CABLE BARRIER AND CONCRETE WALL BARRIER

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

Delete the first paragraph of **Section 606.2.2.2: Submittal** in its entirety and replace with the following:

A minimum of three (3) weeks prior to the Pre-Construction Conference, the Contractor shall submit three (3) sets of manufacturer's most current Shop Drawings and product manuals covering installation and maintenance of the installation to the Project Manager.

Delete **Section 606.2.7: Materials Certification** in its entirety.

Delete the first paragraph of **Section 606.3.1: Guardrail Installation** in its entirety.

Delete 9. from **Section 606.5.1: Work Included in Payment** and replace with the following:

9. Hot/Warm Mix Asphalt Material, placement and compaction;

July 17, 2023

SPECIAL PROVISIONS MODIFYING SECTION 607: FENCE

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

Add the following to **Section 607.2: MATERIALS**

607.2.7 Channel Fence

607.2.7.1 Channel Fence

The Contractor shall provide two (2) inch by four (4) inch by 50 inch high V-mesh wire fence as indicated on the Plans. Channel Fence horizontal wire shall be two (2) 12.5 gauge wires twisted to form cables on four (4) inch spacing from top to bottom. Channel Fence vertical wire shall be 14 gauge securely wrapped around horizontal cables to form a diamond pattern.

607.2.7.2 Brace Wire

The Contractor shall provide steel cables with minimum diameter of 0.3125 inch (5/16 inch) to support fence fabric at top and bottom.

607.2.7.3 Metal Posts

The Contractor shall provide four (4) inch diameter by 14 feet long Schedule 40 steel pipe. Equivalent post Materials may be substituted for Schedule 40 steel pipe with approval of the Project Manager.

Add the following to **Section 607.3: CONSTRUCTION REQUIREMENTS**

607.3.10 Channel Fence

The Contractor shall set posts plumb. The Contractor shall install posts by driving or pushing, without setting the posts in concrete.

The Contractor shall install Channel Fence lines as indicated on the Plans. In the event fence posts cannot be fully embedded to a minimum depth of eight (8) feet, the Contractor may adjust the location of the post by one (1) foot either direction along the fence line. Project Manager to consult with Drainage Design Bureau for any other installation issues.

After the posts are installed to their final depth, the Contractor shall cut holes in posts four (4) inches from the ground and 42 inches above the bottom hole. The Contractor shall string brace wire through the line posts and securely fasten to the end posts using cable clamps. The Contractor shall weave cable through V-mesh wire fence at two (2) foot intervals top and bottom and tensioned to adequately support fence fabric between posts.

The Contractor shall place the V-mesh wire fence on the upstream side of the posts and support the fence fabric with the top and bottom brace cables. The Contractor shall tie the V-mesh wire fence to the fence posts

every 12 to 18 inches. The Contractor shall bury the bottom edge of fence fabric.

Delete **Section 607.5: BASIS OF PAYMENT** in its entirety and replace with the following:

Pay Item	Pay Unit
Barbed Wire Fence ____ft	Linear Foot
Game Fence ____ft	Linear Foot
Woven Wire Fence ____ft	Linear Foot
Chain Link Fence ____ft	Linear Foot
Chain Link Security Fence ____ft	Linear Foot
Vinyl-Coated Chain Link Fence ____ft	Linear Foot
Snow Fence ____ft	Linear Foot
Channel Fence	Linear Foot
Pedestrian/Bicycle Railing ____ft	Linear Foot
Pedestrian Screening Fence Type ____ft	Linear Foot
Post and Cable Access Fence ____ft	Linear Foot
Remove and Rebuild (type) Fence	Linear Foot
Standard Gate ____ft	Each
Barbed Wire Gate, ____ft	Each
Chain Link Gate, ____ft Span	Each
Chain Link Gate, ____ft Span by ____ft Rise	Each
Pipe Gate ____ft	Each
Water Gap Gate	Linear Foot
Turnstile Gate ____ft	Each
Remove and Reset Gate	Each
Stile and Post Wire Trap	Each
Braces/Corner Posts	Each

Delete 9. from **Section 607.5.1: Work Included in Payment.**

September 10, 2021

SPECIAL PROVISIONS MODIFYING SECTION 610: CATTLE GUARDS

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

Delete **Section 610: CATTLE GUARDS** in its entirety and replace with the following:

610.1 DESCRIPTION

This Work consists of constructing precast concrete Cattle/Game Guards or steel frame Cattle/Game Guards.

610.2 MATERIALS

610.2.1 General

The Contractor shall provide Cattle/Game Guards and grids in accordance with the Contract. The Contractor shall provide individual Cattle/Game Guards with grids of identical type having the same shapes, dimensions, and weight of the steel members.

The Contractor may use steel frame Cattle/Game Guards as an alternate to precast concrete Cattle/Game Guards at turnouts or at other locations in accordance with the Contract.

The Contractor shall permanently cap all vertical metal pipes.

If the Contract specifies precast concrete Cattle/Game Guards, the Department will not allow substitutions.

610.2.2 Precast Concrete Cattle and Game Guards

The Contractor shall use Class AA concrete in accordance with Section 510, "Portland Cement Concrete."

The Department will reject Cattle/Game Guards with cracks, chips, spalls, or honeycombed or patched areas in excess of 30 in²; or those that fail to meet the minimum strength requirements.

The Contractor shall provide Shop Drawings in accordance with Section 105.2, "Plans, Working Drawings" and in accordance with the current edition of the ACI Detailing Manual.

The Contractor shall fabricate precast concrete Cattle/Game Guards steel grids and other steel appurtenances in accordance with Section 541, "Steel Structures."

610.2.3 Steel Frame Cattle and Game Guards

The Contractor shall provide steel frame Cattle/Game Guards guard, grids and appurtenances in accordance with Section 541, "Steel Structures."

610.2.4 Reinforcing Steel

The Contractor shall use Grade 60 reinforcing steel deformed bars in accordance with Section 540, "Steel Reinforcement."

The Contractor shall provide welded wire fabric in accordance with AASHTO M 55.

610.2.5 Cattle and Game Guards Guard Grids and Hardware

The Contractor shall provide traffic grill units, warning devices, bolts, tie bolts washers, hardware, and other Materials in accordance with Section 541, "Steel Structures."

The Contractor shall provide grid units in accordance with AASHTO M 183.

The Contractor shall provide aluminum members in warning devices in accordance with the ASTM Specifications listed in Table 610.2.5:1, "Aluminum Members Warning Devices Standards."

**Table 610.2.5:1
Aluminum Members Warning Devices Standards**

Description	ASTM	Alloy	Temper
Tubing	B 429	6061	T-6
Fence angle	B 221	6061	T-6
Base plate	B 209	6061	T-6

610.3 CONSTRUCTION REQUIREMENTS**610.3.1 Concrete Footings and Foundations**

The Contractor shall excavate or build with Embankment, level, and compact foundations for Cattle/Game Guards before installing the Cattle/Game Guards. The Contractor shall excavate wide enough to compact and test Material adjacent to the Cattle/Game Guards or backfill with flowable fill at no extra cost to the Department.

The Contractor shall finish uneven foundation surfaces to ensure full bearing of Cattle/Game Guards units. The Contractor shall compact Subgrade foundations in accordance with Section 207, "Subgrade Preparation."

If the Contractor finds unstable Material in footing foundations, the Contractor shall stabilize, or remove and replace with Material approved by the Project Manager.

The Contractor shall place a three (3) inches thick bedding of fine aggregate over the Subgrade and compact it to at least 95% of the maximum density in accordance with AASHTO T 180 (Modified Proctor), Method D (TTCP Modified). The Contractor shall place the Cattle/Game Guards unit on the fine aggregate bedding.

The Contractor shall finish the tops of concrete footings so that stringer-bearing surfaces receive the full bearing under each stringer.

610.3.2 Placement Requirements

The Contractor shall place the precast concrete Cattle/Game Guards in accordance with Section 511, "Concrete Structures." The Contractor may splice reinforcing bars over 30 ft long using a minimum 24-bar diameter lap.

The Contractor shall chamfer exposed edges of concrete $\frac{3}{4}$ inch.

The Contractor may use used steel members that are free of bends and in good condition, if approved by the Project Manager.

The Contractor shall fabricate grids so that the bottoms of the stringers are in a plane surface.

610.3.3 Protective Coating

The Contractor shall provide Cattle /Game Guards with a protective coating in accordance with Section 545, "Protective Coating of Miscellaneous Structural Steel."

610.3.4 Backfill

The Contractor shall perform the excavation, placement and compaction of select backfill in accordance with Section 206, "Excavation and Backfill for Culverts and Minor Structures."

610.4 METHOD OF MEASUREMENT - Reserved**610.5 BASIS OF PAYMENT**

Pay Item	Pay Unit
Cattle Guard	Linear Foot
Game Guard	Linear Foot

610.5.1 Work Included in Payment

The following Work and items, except when otherwise specified, will be considered as included in the payment for the main items, complete in place as detailed in the Contract, and will not be measured or paid for separately:

1. Shop Drawings;
2. Subgrade preparation, excavation, replacement of unstable Subgrade, placement and compaction of select backfill;
3. All steel reinforcement (Including welded wire fabric);
4. All Structural Steel, bearing pads, all connecting hardware and associated components; and
5. All warning devices, all field painting, and all appurtenances necessary to complete the Work.

September 22, 2020

SPECIAL PROVISIONS
MODIFYING
SECTION 618: TRAFFIC CONTROL MANAGEMENT

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

Delete 10. from **Section 618.2.2: Duties.**

April 8, 2022

**SPECIAL PROVISIONS
MODIFYING
SECTION 621: MOBILIZATION**

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

Delete **Section 621.5.1: Work Included in Payment** in its entirety and replace with the following:

The Department will pay the Contractor partial payments using the following procedure:

1. When one percent (1%) or more of the Total Original Contract Amount less Mobilization is earned, up to 25 percent (25%) of the amount Bid for Mobilization or three percent (3%) of the Total Original Contract Amount, whichever is less, will be paid;
2. When five percent (5%) or more of the Total Original Contract Amount less Mobilization is earned, up to 50 percent (50%), less previous amounts paid, of the amount Bid for Mobilization will be paid;
3. When 10 percent (10%) or more of the Total Original Contract Amount less Mobilization is earned, up to 75 percent (75%), less previous amounts paid, of the amount Bid for Mobilization will be paid;
4. When 25 percent (25%) or more of the Total Original Contract Amount less Mobilization is earned, up to 90 percent (90%), less previous amounts paid, of the amount Bid for Mobilization will be paid; and
5. When 50 percent (50%) or more of the Total Original Contract Amount less Mobilization is earned, up to 100 percent (100%), less previous amounts paid, of the amount Bid for Mobilization will be paid.

The total sum of all Mobilization payments shall not exceed the Total Original Contract Amount Bid for the item.

The Department will not make additional payments for demobilization and remobilization due to shutdowns, whole or partial suspensions of the Work or for other Mobilization activities required for satisfactory completion of the Contract.

SPECIAL PROVISIONS
MODIFYING
SECTION 622: FIELD LABORATORIES AND FIELD OFFICES

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

Add the following to **Section 622.1: DESCRIPTION:**

The Contractor shall provide the Equipment required for the Field Laboratories in compliance with the applicable current TTCP manuals located on the following link:

<http://dot.state.nm.us/content/nmdot/en/TTCP.html>

If Equipment becomes inoperable, the Contractor shall replace or fix the Equipment within 24 hours of notification from the Department that the Equipment is inoperable. All Equipment provided by the Contractor will remain the property of the Contractor upon conclusion of the Project.

Delete **Section 622.2.1.7: Field Laboratory Computer Facilities** in its entirety and replace with the following:

If the Contract specifies Type II Field Laboratories, the Contractor shall provide the Laboratory with a personal computer. The Contractor shall maintain this computer for the duration of the Project. The Project Manager will approve the model and location of the personal computer. The computer Equipment shall remain the property of the Contractor.

The Contractor shall provide computer hardware/software in accordance with the following requirements, or latest industry standard, or greater:

1. Microprocessor: Minimum Dual-core 3.0 GHz i-7;
2. Memory: Minimum of 32 gigabytes;
3. Hard disk: Minimum of 1 terabyte SSD;
4. Media drives: 16x DVD $\pm$ R/ $\pm$ RW Multi-burner;
5. Monitor: Dual 24-inch color graphics monitor;
6. Printer: letter-quality color laser printer, eight (8) pages per minute minimum;
7. Minimum 11-inch x 17-inch flatbed and/or ADF scanner w/600 optical dpi;
8. Operating System: Windows 10 64 bit (x64) Professional;
9. Microsoft Office 365 License; and
10. Adobe Acrobat Pro.

Add the following to **Section 622.2.1.9: Field Laboratory Utilities:**

The Contractor shall coordinate with the appropriate agencies to obtain the necessary permits for electricity, water, sewer, and communications, including internet, to the field Laboratories. Costs associated with the same shall be considered Incidental.

Delete the fifth paragraph of **Section 622.3.1: General** and replace with the following:

The Contractor shall locate the field office where telephone, cellular service and internet access, with internet speeds to adequately meet business needs or as Accepted by the Department due to available speeds by the local provider, are available.

Add the following to **Section 622.3.2.3: Field Office Utilities**:

The Contractor shall coordinate with the appropriate agencies to obtain the necessary permits for electricity, water, sewer, and communications, including internet, to the field Offices. Costs associated with the same shall be considered Incidental.

January 12, 2026

**SPECIAL PROVISIONS
MODIFYING
SECTION 632: REVEGETATION**

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

Delete **Section 632: REVEGETATION** in its entirety and replace with the following:

632.1 DESCRIPTION

This Work consists of preparing the soil, seeding, mulching, crimping and the application of Temporary Soil Stabilant to areas stripped of vegetation during construction operations and are required to be revegetated. Construction staking and digital submittals are included in the scope of the revegetation Work. The Contractor shall have at least one (1) certified seeding Inspector during seeding operations.

632.2 MATERIALS

The Contractor shall provide seeding submittals to the Project Manager in accordance with Table 632.3:1, "Construction Requirements for Classes of Seeding," for each class of seeding on the Project a minimum of ten (10) Working Days before any revegetation Work commences. The Contractor shall digitally provide for approval a to-scale printable revegetation Plan as part of the seeding submittals before the mandatory pre-Seeding meeting. The Contractor shall provide submittals that conform to the Specifications and the revegetation Plan and shall be on the Approved Products List (APL). After the Roadside Environment Design manager or representative approves submittals in accordance with Section 632.3.2, "Pre-seeding conference," the Contractor may substitute products on APL with prior approval from the Roadside's Section Manager or its representatives.

632.2.1 Materials and Sampling

The Department's certified seeding Inspector will be present when Materials are loaded into Equipment or distributed on the areas to be seeded.

The Contractor shall provide all containers and bags to the Department's certified seeding Inspector for verification upon request. The Contractor shall provide a certified weigh master ticket for all bulk Materials in accordance with Section 109.1, "Measurement of Quantity," with the exception of compost mulch. Split loads of fertilizer, seed, straw, Temporary Soil Stabilant and bonded fiber matrix may be allowed with proper weigh master ticket and a notarized Contractor statement indicating a breakdown of the shipment total as indicated on the weigh master ticket. Split loads shall not be allowed for compost mulch and rock mulch.

The Contractor shall deliver all packaged Materials wrapped or otherwise securely protected from the weather which might affect their integrity. The Department will reject Materials in weather-damaged packaging.

The Contractor shall provide rock mulch Material in accordance with Section 632.2.10, "Rock Mulch for Class C Seeding." Rock mulch Materials do not need to be on the APL. The submittal shall be a full five (5) gallon bucket sample provided to the Project Manager for sieve analysis.

The Contractor shall provide two (2) cups of seed in a sealed bag labeled with the Material identification and the CN to the Roadside's Section Manager or its representatives for examination and testing. The Department will reject Materials not in accordance with Section 632, "Revegetation".

The Contractor shall ensure all fertilizers, compost mulch, and biotic soil amendments comply with the most current EPA standards for per- and poly-fluoroalkyl substances (PFAS).

632.2.2 Material Certifications

The Contractor shall provide Certificates of Compliance, in accordance with Section 106.4, "Certificates of Compliance." The Contractor shall notify the Department's certified seeding Inspector when bulk Materials are delivered so loads may be inspected and verified.

632.2.3 Seed

The Contractor shall use the Department's Revegetation Zones and Seed Lists map (Map) to establish a seed list. The Contractor shall use the current seed list. The Contractor shall substitute unavailable seeds adding the quantity of the unavailable seed to the quantity of the next seed species listed within that subcategory of the seed list. If the last seed species is unavailable the Contractor shall replace it with the first available species listed in the subcategory. Before substitutions can be made the Contractor shall provide proof of unavailability in letter form from three (3) seed Suppliers listed on the APL that the seed is not available. The Map can be found at the following link:

<https://nmdot.maps.arcgis.com/apps/Viewer/index.html?appid=57543133e0d34c3688df5dfd37d738fe>

The Contract shall specify varieties of noxious weed-free seed in accordance with New Mexico Seed Law (NMSA 1978, § 76-10-11 et seq.).

The Contractor shall submit a seed list from a seed Supplier showing the common name, botanical name, pure live seed, total poundage, source locality (County and State), and CN in accordance with the Plans to the Project Manager.

The Contractor shall ensure seed Suppliers are on the current APL and provide documentation that their regulating state agency belongs to the Association of Official Seed Certifying Agencies (AOSCA).

The Contractor shall bag pre-mix seed mixtures certifying the mixture quantity and percentage as noted in the seeding submittal.

The Contractor shall store all seed delivered bags in a container protected from rodents and moisture and not subject to temperatures higher than 90°F.

632.2.3.1 Seed Labeling

The seed Supplier shall seal and label each bag in accordance with the Federal Seed Act (7U.S.C. § 1551 et seq.) and New Mexico Department of Agriculture (NMDA) seed labeling requirements (NMSA 1978, § 76-10-13). The Supplier shall ensure each seed tag is affixed to the bag and has the CN clearly identified. The seed Supplier shall maintain records of seed tag CN's for a period of three (3) years. The seed Suppliers shall provide one (1)-acre seed bags in original, sealed bags and the Contractor shall provide all tags and

certifications to the Project Manager. The seed Supplier shall provide seed analysis results that are not older than 15 months prior to use.

The seed Supplier shall provide the following information on each bag tag for each species:

1. Variety (specify if certified);
2. Kind of seed;
3. Lot number;
4. Purity;
5. Germination;
6. Percentage crop seed, percentage inert, percentage noxious weeds;
7. Origin;
8. Test date; and
9. Weight (in pounds) of this species or percentage of total lot.

632.2.4 Fertilizer

The Contractor shall provide organic slow-release fertilizer with an N-P-K (nitrogen, phosphorous, potassium) analysis of either 3-6-3 or 3-7-2 and blended with arbuscular endo-mycorrhiza with a minimum propagule of 1.33 propagules per gram and a minimum of 15 percent humates by weight. The Contractor shall apply 1,000 lbs. per acre. Endo-mycorrhiza shall be arbuscular with a minimum propagule of 1.33 propagules per gram. The Contractor shall provide fertilizer (specified type and formulation) and Supplier's certification in accordance with the Contract. Each bag or tote of fertilizer shall have a visible, sealed, and un-altered analysis tag from the manufacturer that shall be approved by the Department's certified seeding Inspector prior to application of the Material. The tag shall include the manufacturer's information, the N-P-K analysis of the product, and the weight of the bag or tote. The Department reserves the right to inspect any bill of lading or packing slips from the Supplier to verify quantity of Material on site.

632.2.5 Composted Mulch

The Contractor shall furnish and place composted mulch as shown on the revegetation Plan. Composted mulch Supplier shall be registered with or permitted by the New Mexico Environment Department Solid Waste Bureau and the composted mulch shall be in compliance with 20 NMAC 9.1, "Environmental Protection Solid Waste Management."

Composted mulch is defined as the product of a controlled aerobic thermophilic biological decomposition process that meets the quality requirements in Table 632.2.5:1, "Requirements of Compost Mulch." Raw Materials used in producing composted mulch may include green waste, animal manure, animal bedding, paper waste, food waste, or other non-toxic organic matter, but shall not include animal mortalities or biosolids.

Table 632.2.5:1
Requirements of Composted Mulch

Material	Measure	Method	Criterion
Composted Mulches	Moisture Content*	Evaporative loss at 105°C	Between 35% and 60% during composting process. Compost mulch shall be shipped with moisture content not to exceed 40%.
	Carbon/Nitrogen Ratio*	Nitrogen by AOAC 993.13, Carbon by ASTM D5373	Between 15:1 and 60:1
	Particle Size	Sieve	40% minimum to 100% maximum of Material may pass $\frac{3}{4}$ inch screen; 100% of pieces smaller than 4 inches in length and 2 inches in diameter
	Electrical Conductivity*	1:5 slurry (mass basis)	<10 mmho/cm
	pH*	1:5 slurry (mass basis)	pH 5.0 - pH 8.1
	Organic Matter*	Loss on ignition at 550°C	25% - 100% of dry weight
	Maturity	Germination test in 50:50 (volume basis) mixture of $\frac{3}{4}$ inch screened composted mulch and twice-rinsed nursery sand.	Minimum 50% germination to second set of leaves for marigold seeds
	Stability	By temperature and moisture content	Maximum core temperature of 110°F after 48 hours in 5-foot-tall conical pile, with moisture adjusted to between 40% and 60%.

**Table 632.2.5:1
Requirements of Composted Mulch**

Material	Measure	Method	Criterion
Composted Mulches	Debris	By volume	Less than one percent (1%) inorganic debris, including but not limited to, glass, plastic, stones and metal.
Composted Mulches	Trace Metals*	HNO ₃ digestion	Complies with Table 3 of 40CFR503.13
	Fecal Coliforms*	MPN with A-1 broth	<1000 MPN/dry gram
*Tests marked with asterisks shall be performed by a suitable analytical Laboratory; other tests may be performed by the composted mulch producer.			

632.2.5.1 Acceptance of Composted Mulch

The Contractor shall ensure composted mulch Suppliers are on the APL.

Before delivering composted mulch, the Supplier shall furnish documentation that includes the following upon request:

1. The raw Materials, by percentage of volume, used in the production of the delivered composted mulch;
2. Daily temperature records for at least 20 percent of the piles or batches used to produce the composted mulch, illustrating attainment of at least 130°F for at least seven (7) consecutive Days;
3. A Laboratory analysis for criteria shown in Table 632.2.5:1, "Requirements of Composted Mulch" performed on composted mulch no more than 180 Days prior to delivery; and
4. A notarized statement signed by a corporate officer, confirming that the composted mulch meets each requirement shown in Table 632.2.5:1, "Requirements of Composted Mulch."

When Class A Seeding is established in the revegetation Plan but composted mulch is unavailable within 300 paved road miles of the Project, in accordance with Table 632.2.5:1, "Requirements of Composted Mulch", the Contractor shall replace Class A Seeding with Class B Seeding. The Contractor shall provide documentation of compost mulch unavailability to the Project Manager.

632.2.6 Hydraulic Biotic Soil Amendment

The Contractor shall supply hydraulic biotic soil amendment (HBSA) in accordance with Table 632.2.6:1, "Hydraulic Biotic Soil Amendment Properties".

Table 632.2.6:1
Hydraulic Biotic Soil Amendment Properties

Biotic Soil Amendment Property	Test Method	Desired Results
Physical		
Color	Observation	Colored to contrast application area. Shall not stain concrete or painted surfaces.
Organic Matter	ASTM D586	85% minimum
Acute Toxicity	ASTM 7101 & EPA Method 2021.0	Non-toxic
pH	ASTM D1293	5.0-8.5
C:N Ratio	ASTM E1580	10:1 minimum 100:1 maximum
Water Holding Capacity		400% minimum
Moisture Content	ASTM 2974	10% minimum, 50% maximum
Endurance		
Functional Longevity	Observation	Grass established in 6 months
Performance		
Vegetation Establishment	ASTM 7322	400% minimum

632.2.7 Straw Mulch

The Contractor shall not use rotten or moldy straw and shall ensure that straw bales stored on the Project shall not exceed 20 percent moisture content. All straw mulch shall be barley, wheat, or grama straw and is to be free of noxious weeds as certified by an industry-recognized forage certification authority. Certification twine shall appear on all certified straw bales. The color of the certified twine for straw bales shall be listed on the certification submittal for identification purposes. The Department's certified seeding Inspector or Roadside's Section Manager or its representatives may reject bales if the twine appears to be tampered with. The date on the straw certification provided to the Department may not be older than 18 months from the date of purchase. Before Acceptance, the Contractor shall provide weight tickets signed by a certified weigh master in accordance with Section 109.1, "Measurement of Quantity."

632.2.8 Temporary Soil Stabilant

The Contractor shall provide Temporary Soil Stabilants that have a blue or green dye lasting a minimum of 36 hours to aid in application, inspection and be biodegradable. When used as part of Class A seeding operations, the Contractor shall apply Temporary Soil Stabilant at a rate of 200 pounds per acre.

The Contractor shall use Temporary Soil Stabilants that are plant-derived and bio-degradable and shall be composed of either guar, psyllium (*Plantago ovata*), or starch.

Guar. Guar is a plant-based product derived from the ground endosperm of the guar plant, related with dispersant agents for easy mixing.

Psyllium. Psyllium is composed of the finely ground muciloid coating of *Plantago ovata* seeds that is applied as a dry powder or in a wet slurry to the surface of the soil. It dries to form a firm but re-wettable membrane that binds soil particles together but permits germination and growth of seed. Psyllium requires 12 to 18 hours drying time.

Starch. Starch is non-ionic, cold-water soluble (pre-gelatinized) granular cornstarch. The Material is mixed with water. Approximate drying time is nine (9) to 12 hours.

632.2.9 Hydro-Mulch - Bonded Fiber Matrix (BFM)

The Contractor shall use BFM hydro-mulch. BFM is a hydraulically-applied blanket that controls soil erosion and accelerates seed germination. BFM is a three (3)-dimensional composite of wood or paper fibers bonded by polymer Temporary Soil Stabilant that provides high performance erosion prevention on slopes. Dye shall be included in the BFM formulation. The Contractor shall apply BFM at a rate of at least 2,000 lbs. per acre. The Contractor shall ensure all BFM products have a functional longevity of at least three (3) months on slopes that are 3:1 or steeper, are at least 50 feet, and have a C Factor of not more than 0.1 as tested using ASTM D 6459 and a minimum vegetative establishment of 200 percent (200%) as tested using ASTM D 7322.

632.2.10 Rock Mulch for Class C Seeding

The Contractor shall provide rock mulch that is a minimum of one (1) inch and no greater than 1½ inches in size. Rock shall have a minimum of two (2) Fractured Faces. Pumice rock is not Acceptable.

632.3 CONSTRUCTION REQUIREMENTS

632.3.1 General

The Contractor shall coordinate with the Project Manager prior to starting seeding operations to ensure that the Contractor's and the Department's certified seeding Inspector will be present during seeding operations. The Contractor shall not perform revegetation Work without the presence of the Department's certified seeding Inspector.

The Contractor shall not apply fertilizer, compost mulch, or HBSA within 50 feet of waterways as directed by the Project Manager and Roadside Environment Design Manager or Representative.

The Contractor shall provide seeding in accordance with Table 632.3:1, "Construction Requirements for Classes of Seeding."

Table 632.3:1
Construction Requirements for Classes of Seeding

Material	Class A	Class B	Class C	Class D
Description	Slopes up to and including 3:1	Inaccessible, narrow, or rocky areas	Slopes steeper than 3:1 up to and including 2:1, and 55' in length or less. Refer to plans for slopes greater than 55' in length.	Utility Projects under 0.25 acres
Seed Mix	According to seed zone	2x seed zone weight	2x seed zone weight	2x seed zone weight
Fertilizer	1,000 lbs./acre	500 lbs./acre	500 lbs./acre	1,000 lbs./acre
Composted Mulch	134 cu.yd./acre	NA	NA	NA
Hydraulic Biotic Soil Amendment (HBSA)	NA	2,000 lbs./acre for zones 2, 4, 6; 2,500 lbs./acre for zones 1, 3, 5	2,000 lbs./acre for zones 2, 4, 6; 2,500 lbs./acre for zones 1, 3, 5	NA
Straw	4,000 lbs./acre	NA	NA	NA
Temporary Soil Stabilant	200 lbs./acre	NA	NA	NA
Hydromulch - Bonded Fiber Matirx (BFM)	NA	2,000 lbs./acre	2,000 lbs./acre	NA
Class C Rock Mulch	NA	NA	300 tons/acre	NA

632.3.2 Pre-seeding conference

The Project Manager shall schedule an on-site mandatory pre-seeding conference before revegetation Work begins. The Project Manager, Roadside's Section Manager or its representatives, the Contractor, the Department's certified seeding Inspectors, and the revegetation Subcontractor shall attend.

The Contractor shall provide seeding submittals to the Project Manager and Roadside's Section Manager or its representatives between ten (10) and 20 Working Days prior to the pre-seeding conference. Any revegetation Work done prior to the pre-seeding conference will be rejected.

The Project Manager will have documentation of all pits, Contractor yards, etc. approved by the Roadside's Section Manager or its representatives. The Contractor shall complete construction staking, and quantities approved by the Project Manager prior to the pre-seeding conference.

All areas to be revegetated shall be measured and confirmed for each class of seeding in accordance with Section 801, "Construction Staking by the Contractor." This Work shall be Incidental to Bid Item 801000-"Construction Staking by the Contractor." The Contractor shall complete construction staking for revegetation no more than 20 Working Days prior to the start of revegetation activities. The Project Manager shall notify the Roadside's Section Manager or its representatives at least ten (10) Days prior to when construction staking takes place. The Project Manager and Roadside's Section Manager or its representatives will establish the areas for each Class of seeding before any Materials are ordered or delivered. The Contractor shall identify areas that have less than four (4) inches of soil cover prior to the seeding submittal.

There will be no change in Materials or the scope of revegetation Work after the seeding submittal is approved unless agreed upon by the Roadside's Section Manager or its representatives, and the Project Manager.

The Contractor shall ensure that revegetation Work areas are accessible, free of Equipment, and no further construction processes are occurring which would interfere with seeding operations. No Equipment access shall occur on areas which have been revegetated.

The Contractor shall maintain a minimum 15-foot-wide Equipment access to all revegetated areas until revegetation Work is complete.

632.3.3 Weather Limitations

The Contractor shall not perform revegetation Work when the ground is frozen or when temperatures are below 32°F and/or when sustained wind speed exceeds 12 mph as measured by anemometer and as determined by the Project Manager. Sustained wind speed is to be determined by averaging the high and low wind speeds that occur over a two (2)-minute period. The Contractor may perform disking with sustained winds exceeding 12 mph.

632.3.4 Equipment

The Contractor shall inspect the Equipment to confirm it is in good working order prior to commencing Work. The Department's certified seeding inspector shall witness the inspection and calibration.

The Contractor shall pressure-wash all revegetation Equipment (including but not limited to trucks, trailers, tractors, hydro-seeders, drill seeders, straw blasters, and disks) to remove all visible mud, soil, and debris prior to entering the Project limits within the Department's Right of Way (ROW) to avoid the spread of noxious weeds. If Equipment leaves the Project for any reason, the Department's certified seeding Inspector will re-inspect Equipment when it is returned to the Project site.

632.3.4.1 Drill Seeder

The Department's certified seeding Inspector will inspect the drill seeding Equipment so that drill seed drop tubes are not torn or clogged. The Department's certified seeding Inspector will verify that all seed loaded into the Equipment is for the correct application rates. The Department's certified seeding Inspector will verify that the auger in the seed bin is rotating, and that seed is dropping through drop tubes.

The Department's certified seeding Inspector will inspect the drill seeder daily to prevent loss of seed or to prevent over-seeding. Drill seeder shall be capable of calibration. Calibration is not necessary on revegetation areas that are less than one (1) acre. Seeds shall be drilled to a depth of one half (½) inch to one (1) inch. The Contractor shall perform drill seeder calibration upon request of the Department's certified seeding

Inspector in accordance with the manufacturer's recommendations. The Contractor shall calibrate the drill seeder once per Project unless it is replaced on the Project. Drill seeders shall only be modified by the manufacturer's recommendations and documentation of the modifications shall be available.

The Department's certified seeding Inspector will ensure that the Equipment has the following:

1. Double disk openers with 'A' frames;
2. Depth bands;
3. Drop tubes;
4. Packer wheels or drag chains;
5. Rate control attachments;
6. Seed boxers with covers and agitators for trashy seed; and
7. Keyway holding auger to shaft.

632.3.4.2 Hydro-Seeder

The hydro-seeder cannons, hoses and agitators shall be in good working condition.

632.3.4.3 Miscellaneous Equipment Requirements

The Contractor shall provide Equipment that meets the following:

1. Disking attachments with a minimum six (6) foot carriage with front and rear discs;
2. Crimping Equipment with a minimum eight (8) foot wide carriage;
3. Skid steer attachments may only be used on confined areas for seeding operations: and
4. Skid steers shall not be used for spreading compost unless in a confined area.

632.3.5 Class A Seeding

The Contractor shall use Class A Seeding for any Project areas with slopes 3:1 or flatter requiring revegetation that are more than eight (8) feet wide, are accessible to drill seeding Equipment, and can be disked to a four (4) inch depth.

632.3.5.1 Class A Seeding Order of Operations

The Contractor's Class A Seeding order of operations shall be as follows:

1. Disk ground to four (4) inches;
2. Apply fertilizer;
3. Apply compost mulch;
4. Disk ground to four (4) inches;
6. Drill seed;
7. Apply straw;
8. Crimp straw; and
9. Apply Temporary Soil Stabilant.

632.3.5.2 Seedbed Preparation for Class A Seeding

The Contractor shall till the seedbed across the slope and along the contour with a disk, harrow, or chiseling tools to at least four (4) inches deep. The Contractor shall uproot competitive vegetation during seedbed preparation, and provide a surface free of clods, large stones, or other Deleterious Material that would interfere with seeding Equipment. The Department's certified seeding Inspector will approve the area that was disked before compost is added to the soil. Disking may be performed with wind speeds exceeding 12 mph.

632.3.5.3 Composted Mulch Application for Class A Seeding

The Contractor shall ensure the compost mulch has a moisture content between 20 percent and 40 percent while at the Project location. At the time of delivery, the Contractor shall wet down compost mulch so that wind loss is kept to a minimum. Stockpiles shall be less than six (6) ft tall. The Project Manager may require additional wetting of composted mulch at no additional cost to the Department.

The Contractor shall add one (1) inch of composted mulch as specified by disc, harrow, or chisel to a depth of four (4) inches. The Contractor shall not spread composted mulch if sustained wind velocity exceeds 12 mph as determined by the Project Manager but may still perform disking.

The Contractor shall incorporate composted mulch into the seedbed before adding fertilizer and commencing drill seeding.

When Class A Seeding is established in the Contract but composted mulch, is unavailable, the Contractor shall replace Class A Seeding with Class B Seeding.

632.3.5.4 Fertilizer Application for Class A Seeding

The Contractor shall apply the fertilizer uniformly to the prepared seedbed. Fertilizer may be broadcast or hydro-applied. If hydro-applied, the Contractor shall mix fertilizer in the hydro-seeder for a minimum of ten (10) minutes before applying.

632.3.5.5 Drill Seeding for Class A Seeding

After seed bed preparation and before drill seeding commences, the Contractor shall remove all rocks larger than four (4) inches in diameter from the seed bed and no payment shall be made thereof.

The Contractor shall provide a test strip of Class A Seeding before commencing the seeding operation. Each test strip shall measure no less than one (1) acre in a configuration appropriate for the Equipment and the site, shall be at a location of the Contractor's choosing within the Project, with the Department's certified seeding Inspector and Roadside's Section Manager or its representatives in attendance. A test strip is not required for Projects less than one (1) acre but all seed shall be applied evenly on revegetation area. Equipment calibration will be conducted upon request of the Department's certified seeding Inspector, Roadside's Section Manager or its representatives, on revegetation areas greater than one (1) acre. The test strip is to verify Equipment functionality, proper adjustment, application rate, and the Contractor's ability to perform the Work.

Upon Acceptance of the test strip, the Contractor may proceed with seeding operations. If the test strip is not Accepted, the Contractor shall establish a new one (1) acre strip location. The Contractor shall not proceed to full seeding operation until an Acceptable test strip has been produced. Payment will only be made for Accepted test strips, which is included as part of the revegetation area established in the revegetation Plan.

The Contractor shall coordinate with the Project Manager prior to starting seeding operations to ensure that the Department's certified seeding Inspector is present at all times. No revegetation Work shall be performed without the presence of the Department's certified seeding Inspector.

The Contractor shall uniformly plant seed 1/2 inch deep. The Contractor shall ensure that the distance between the drilled furrows is no more than eight (8) inches. If the furrow openers on the drill exceed eight (8) inches, the Contractor shall re-drill the area at no additional cost to the Department.

Once drill seeding is completed on all areas with bare ground, the Contractor shall complete all remaining Class A operations within 24 hours.

If rainfall or some other factor prevents the Contractor from seeding to the specified depth on prepared surfaces, the Contractor shall prepare the seedbed and apply seed again, at no additional cost to the Department.

The Contractor shall not drive vehicles or other Equipment on seeded areas. The Contractor is responsible for protecting revegetation Work until Acceptance.

If erosion or crusting of seed bed occurs and seed or fertilizer is lost to erosion prior to completion of seeding operations, Project Manager or Roadside's Section Manager or its representatives may instruct the Contractor to perform seedbed preparation at eroded locations again at no additional cost to the Department.

632.3.5.6 Straw Mulching for Class A Seeding

When the revegetation Work is being done the Contractor shall test straw bale moisture content with a straw bale moisture meter with an eight (8) inch minimum length probe for the duration of the Project. The Department's certified seeding Inspector shall be present and record this test. The Contractor shall test each bale to confirm that the bale interior moisture content is not greater than 20 percent. Any bales with moisture above this level will be rejected and removed from the Project. Higher levels of moisture may indicate the presence of mold and the risk of spontaneous combustion.

The Contractor shall anchor straw mulch using a crimper with flat serrated discs at least one (1) inch thick with dull edges, spaced no more than nine (9) inches apart. The Contractor shall ensure that the disk diameter is large enough to prevent the frame of the Equipment from dragging in mulch.

The Contractor shall ensure that the rate of application of straw mulch is at least two (2) tons of air-dry straw per acre. The Department's certified seeding Inspector will verify the total tons per acre of straw required per acre.

The Contractor shall ensure that straw mulch has at least 50 percent of fibers exceeding ten (10) inches long on the ground after application.

The Contractor shall spread straw mulch following drill seeding with a mechanical spreader or by hand. If spreading by hand, the Contractor shall break apart the bales of mulch and fluff it before spreading.

The Contractor shall ensure that straw mulch crimping is at least two (2) inches deep and not covered with excessive amounts of soil. The Contractor shall perform straw mulch anchoring across the slope where practical, with no more than two (2) passes of the anchoring Equipment. The Contractor shall apply the straw mulch evenly over the entire bedding area with no bare areas showing or areas with straw mulch deeper than four (4) inches in depth before crimping.

632.3.5.7 Application of Dye and Temporary Soil Stabilant for Class A Seeding

The Contractor shall anchor straw following crimping with an approved Temporary Soil Stabilant with green dye at a rate of 200 lbs. per acre.

632.3.6 Class B Seeding

The Contractor shall use Class B Seeding, for any Project areas that are either less than eight (8) feet wide, and/or are inaccessible to drill seeding Equipment or Class C rock mulch application Equipment, and/or cannot be disked to a four (4) inch depth.

632.3.6.1 Order of Operations for Class B Seeding

The Contractor's Class B Seeding order of operations shall be as follows:

1. Hydro-apply fertilizer;
2. Disk ground to four (4) inches when practicable;
3. Add water, HBSA and seed to hydroseeder and agitate for ten (10) minutes to create slurry;
4. Apply slurry in two (2) coats from opposing directions within one hour after slurry is created; and
5. Apply BFM with Temporary Soil Stabilant in two coats from opposing directions.

632.3.6.2 Seed Bed Preparation for Class B Seeding

Unless soil is determined by the Project Manager and Roadside Section Manager or its representatives to be too rocky, the Contractor shall till the seedbed across the slope and along the contour with a disk, harrow or chiseling tools to at least four (4) inches deep. The Contractor shall uproot competitive vegetation during seedbed preparation, and uniformly prepare the soil to a surface free of clods, large stones, or other Deleterious Material that would interfere with seeding Equipment. The Contractor shall ensure the Department's certified seeding Inspector approves areas that were disked. The Contractor may perform disking with winds exceeding 12 mph.

632.3.6.3 Application of HBSA, Fertilizer, Humates, Mycorrhizae and Seed

The Contractor shall add water and HBSA to the hydro-seeder at a consistent rate. The ratio of water to HBSA shall be in accordance with the manufacturer's recommendations. The Contractor shall then add fertilizer, humates and mycorrhizae. The Contractor shall add the seed last and then agitate or mix to a uniform slurry for a minimum of ten (10) minutes after all water and Materials are in the tank.

The Contractor shall apply HBSA and seed to the soil surface in two (2) coats in opposing directions. Seed shall be applied at twice the normal rate. The Contractor shall apply HBSA in accordance with Table 632.3:1, "Construction Requirements for Classes of Seeding."

Once slurry is hydro-applied, the Contractor shall apply BFM within 24 hours.

632.3.6.4 Application of Bonded Fiber Matrix for Class B Seeding

The Contractor shall apply approved bonded fiber mulch with Temporary Soil Stabilant and dye in two (2) coats from opposing directions at a rate of 2,000 lbs. per acre. If traffic control issues prevent vehicle travel in both directions during the application process, the Contractor may use a sweeping motion to apply the coats.

632.3.7 Class C Seeding

The Contractor shall apply Class C Seeding in areas steeper than 3:1 up to and including 2:1 slopes.

632.3.7.1 Order of Operations for Class C Seeding

The Contractor's Class C Seeding order of operations shall be as follows:

1. Install composted mulch socks at top of slopes;
2. Track slopes;
3. Add water, HBSA, fertilizer and seed to hydroseeder and agitate for ten (10) minutes to create slurry;
4. Apply slurry in two (2) coats from opposing directions;
5. Apply BFM; and
6. Apply rock mulch to seeded area.

632.3.7.2 Composted Mulch Socks for Class C Seeding

The Contractor shall place Composted Mulch Socks at the top of the slope on contour in areas to be revegetated where water flow or sheet flow moves from undisturbed soil or Roadway pavement onto disturbed soil or bare ground.

632.3.7.3 Tracking and Scarification for Class C Seeding

The Contractor shall track-walk areas designated as Class C Seeding treatment with tracks parallel to the toe of slope to compact and score the slopes within seven (7) Working Days prior to the commencement of Class C Seeding operations. The Contractor shall hand rake or chain harrow areas with Class C Seeding that cannot be tracked to incorporate seed into the soil.

The Contractor shall re-track slopes which have eroded or otherwise degraded in the seven (7) Working Day period before seeding as determined by Roadside's Section Manager or its representatives at no additional cost to the Department.

The Contractor shall uproot competitive vegetation before hydro-seeding so that seed has good adherence to the surface and soil cover at no additional cost to the Department.

632.3.7.4 Hydro-Seeding for Class C Seeding

The Contractor shall apply Class C Seeding in a slurry with fertilizer and dye. All Materials loaded into the Equipment will be verified by the Department's certified seeding Inspector to confirm correct application rates. The Contractor shall apply Class C Seeding at twice the Class A Seeding rate. The Contractor shall mix all Materials for a minimum of ten (10) minutes before application. The Contractor shall apply slurry in two (2) coats from opposing directions. Once seed is installed on a Class C Seeding area, the Contractor shall complete all Class C Seeding operations for that area within 24 hours.

632.3.7.5 Hydro-Mulching for Class C Seeding

The Contractor shall apply BFM in two (2) sweeps from opposing directions to ensure coverage is complete. The BFM shall contain a Temporary Soil Stabilant when applied. The slurry shall include a dye capable of lasting 36 hours so that the Department's certified seeding Inspector can confirm coverage. The Contractor shall apply BFM and rock mulch to seeded areas within 24 hours after application to protect seed. The Department's certified seeding Inspector shall verify that all Materials loaded into the Equipment are for the correct application rates. The Contractor shall mix all Materials for a minimum of ten (10) minutes before application.

632.3.7.6 Rock Mulch for Class C Seeding

The Contractor shall cover the entire Class C Seeding area with rock mulch surface that is smooth and of uniform thickness while maintaining the original flow lines, slope gradients, and contours of the Work. The

Contractor shall apply rock mulch so as not to damage the hydro-mulch when being placed. The Department does not specify methods and means of rock mulch installation and they may vary as per access. The Contractor shall replace damaged hydro-mulch at no additional cost to the Department.

632.3.8 Class D Seeding

The Contractor shall apply Class D Seeding in accordance with Table 632.3:1, "Construction Requirements for Classes of Seeding."

632.3.8.1 Order of Operations for Class D Seeding

The Contractor's Class D Seeding order of operations shall be as follows:

1. Grade disturbed surfaces to match adjacent grades;
2. Apply seed and fertilizer to disturbed areas; and
3. Work seed and fertilizer into the top 1/2 inch of soil.

632.3.8.2 Grading Disturbed Areas for Class D Seeding

The Contractor shall regrade soils to match existing grades on adjacent slopes after trenches are backfilled and compacted, or other earth-disturbing activity is complete.

632.3.8.3 Applying Seed and Fertilizer for Class D Areas

The Contractor shall apply seed mix for the region evenly at twice the normal rate of Class A Seeding along with fertilizer.

632.3.8.4 Integrating Seed and Fertilizer for Class D Areas

The Contractor shall work seed and fertilizer into the top ½ inch of disturbed area so that no seed is exposed when complete.

632.3.9 Revegetation of Exposed Soil within the Project Limits

The Contractor shall vegetate areas of exposed soil within the Project Limits (as defined by the 2022 Construction General Permit, 2.2.14.c.i., Final Stabilization Criteria) that existed before construction commenced in accordance with Section 107.14.2 "Parking and Cleaning of Equipment". The Contractor shall include these areas in the revegetation Plan at no additional cost to the Department.

632.3.10 Revegetation of Areas Outside the Project Limits

The Contractor shall revegetate all areas of bare ground on off-site locations in accordance with Section 104.7, "Final Cleanup," and shall use the appropriate class of seeding for the terrain. The Contractor shall follow these Specifications for all public and private lands requiring revegetation unless other seed lists and procedures are required in a resource agency permit. The Contractor shall perform all revegetation Work done for Contractor located activities at the Contractor's expense.

In accordance with the 2022 Construction General Permit Part 1.1.1 and Part 1.1.2, a private landowner outside of the Project Limits is considered an operator in accordance with the Construction General Permit and will need to file a Notice of Intent (NOI). As part of the submittal, the Contractor shall also provide a notarized letter of intent from landowners to the Department for off-site locations in accordance with Section 104.7, "Final Cleanup." The letter of intent shall acknowledge that the private landowner is an Operator, and the landowner is obligated to have revegetation performed in accordance with Department Specifications. If the landowner waives the revegetation obligation contrary to the Environmental Protection Act, 2022

Construction General Permit regulations Part 2.2.14, the landowner shall acknowledge that neither the Contractor nor the Department are responsible for any claims related to the owner's decision to forgo revegetation including but not limited to fugitive dust, noxious weeds, siltation of waterways, or Non-Conformance with the Construction General Permit. The Contractor shall provide a right of access permit for inspection of the revegetation Work when revegetation Work is being performed on private land and shall be considered Incidental to the Work.

632.4 METHOD OF MEASUREMENT

The Contractor's revegetation Plan shall identify each area by station, numerical order, Project left, Project right, and is to indicate the class of seeding. Quantities shall match those produced by construction staking and shall include all off-site areas with bare ground.

The Contractor shall submit an accompanying table to the Plan showing the amount of each Material apportioned for each area on the Project and the acreage of that sub-area. The Contractor shall include all off-Project areas requiring revegetation as enumerated in Section 632.5, "Basis of Payment."

632.5 BASIS OF PAYMENT

Pay Item	Pay Unit
Class A Seeding	Acre
Class B Seeding	Acre
Class C Seeding	Acre
Class D Seeding	Acre

632.5.1 Work Included in Payment

The following Work items will be considered as included in payment for the main items and will not be measured or paid for separately:

1. Revegetation plan;
2. Moisture probe for straw bales;
3. Moisture probe for compost mulch; and
4. Scale for drill seeder calibration.

SPECIAL PROVISIONS FOR SECTION 635: BAT BOX

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

635.1 DESCRIPTION

This Work shall consist of providing and installing Bat Box(es). A Bat Box consists of modular bat unit panels, mounting racks and associated hardware.

635.2 MATERIALS

635.2.1 Modular Bat Unit Panels

The Contractor shall furnish and install Bat Boxes consisting of various types of modular bat unit panels. Modular bat unit panels shall be provided by ModernBat LLC or equivalent.

Bat Box manufacturer contact information:

ModernBat LLC

Justin Stevenson

505-818-7396

justin@rdwildlife.com

The number and type of panels required for each Bat Box will be indicated on the Plans. The Contractor shall provide modular bat unit panels that are made of a Material that has beneficial thermal properties for native bat species. The Contractor shall seal modular bat unit panels in accordance with Section 532, "Penetrating Water Repellent Treatment" which shall not contain volatile organic compounds.

The modular bat unit end panel shall be 0.625 inches thick and weighs 50 lbs. It contains grooves on one side of the panel that run parallel to the 4-foot-long edge.

The modular bat unit 1 panel is 2.25 inches thick and weighs 115 lbs. It contains grooves on both sides of the panel that run parallel to the 4-foot-long edge. The bottom opening varies between 0.75 inches and 1.25 inches, because the panel thickness varies along the 4-foot-long edge.

The modular bat unit 2 panel is 2.50 inches thick and weighs 115 lbs. It contains grooves on both sides of the panel that run parallel to the 4-foot-long edge. The bottom opening varies between 1.00 inches and 1.5 inches, because the panel thickness varies along the 4-foot-long edge.

The modular bat unit 3 panel is 9.0 inches thick and weighs 250 lbs. It contains a natural rock texture with varying dimensions. These panels can be used together or with the other panel types to provide a variety of bat roosting habitat. The bottom opening generally varies from 5.00 inches to 7.00 inches wide.

Alternative groove dimensions may be considered if proven effective through the submittal process. Other panel dimensions shall remain unchanged.

635.2.2 Mounting Racks

Dimensions of the mounting rack will vary depending on the number and type of modular bat unit panels furnished and if mounted under a CBC, under a slab Bridge, or between Bridge girders. Mounting racks will hold a maximum of 36 inches of combined panels.

The Contractor shall powder coat the mounting rack angles, tubes and other structural steel in accordance with Section 545, "Protective Coating of Miscellaneous Structural Steel". The Contractor shall ensure that the threaded rods, bolts, washers, nuts and other hardware are galvanized. Mounting racks shall be designed to rest on the bottom flanges of adjacent girders for girder Bridges or to anchor into the underside of the slab for CBCs or slab Bridges. Mounting racks and attachments to the supporting structure, as shown on the Plans, shall use the modular bat unit panel weights and thicknesses in accordance with Section 635.2.1, "Modular Bat Unit Panels". If the modular bat unit panel weights and/or thicknesses are exceeded, the Supplier shall submit Shop Drawings detailing the modular bat unit panel dimensions and weights, along with a modified mounting rack design prepared and stamped by a professional Engineer licensed in the State of New Mexico. Shop Drawings shall be submitted to the Project Manager for review by the Bridge Engineer prior to fabrication. The Contractor shall install mounting racks at the locations shown on the Plans.

635.2.3 Mounting Hardware

The Contractor shall utilize hardware in accordance with Section 542, "High Strength Bolts."

The Contractor shall mount bat box frames under CBCs and slab Bridges using coil loop inserts that meet the requirements of ASTM A510. Coil loop hardware shall be electroplate galvanized in accordance with ASTM B633.

For post-installed applications, the Contractor shall mount the bat box frames in accordance with Section 522, "Chemical Adhesive Anchors".

635.3 CONSTRUCTION REQUIREMENTS

635.3.1 Construction

The Contractor shall install the modular bat unit panels together creating a sealed surface on the upper edge and sides of the modular bat unit panels that results in a protected environment for roosting bats.

635.3.2 Shop Drawings and Submittals

The Contractor shall submit complete Shop Drawings for the modular bat unit panels and mounting racks to the Project Manager for review by the Bridge Engineer and Environmental Bureau.

The Contractor shall include the following information:

1. Detailed dimensions and sizes of modular bat unit panels;
2. Photographic or video evidence of product use by bat species in Arizona, New Mexico, Texas or Oklahoma;
3. Installation position of modular bat unit panels within mounting racks;

4. Total and unit weight of modular bat unit panels;
5. Detailed dimensions and sizes of mounting racks and components (including welds, bolt holes and fasteners);
6. Detailed list of mounting rack components; and
7. Total weight of mounting racks.

The Contractor shall not make any changes to Accepted Shop Drawings. If changes are made, the Contractor shall re-submit the Shop Drawings for Acceptance.

635.3.3 Installation

The Contractor shall furnish and install the Bat Box mounting rack and modular bat unit panels as indicated on the Plans. The Contractor shall not drive machinery such as lifts and bucket trucks into or across live streams containing water or within temporary protective fence areas.

635.4 METHOD OF MEASUREMENT - Reserved

635.5 BASIS OF PAYMENT

Pay Item	Pay Unit
Bat Box	Each

635.5.1 Work Included in Payment

The Department will consider the following Work as included in the payment and no separate payment will be made:

1. The Shop Drawings and submittals.

February 29, 2024

**SPECIAL PROVISIONS
MODIFYING
SECTION 664: LANDSCAPE PLANTING**

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

Delete **Section 664: LANDSCAPE PLANTING** in its entirety and replace with the following:

664.1 DESCRIPTION

This Work consists of providing trees, shrubs, and other Materials necessary to complete the landscape. This Work includes labor, Equipment, and the performance of operations including planting, fertilizing, watering, cleanup of planting areas, and replacement of unsatisfactory, damaged, and unacceptable planting Materials.

664.2 MATERIALS

664.2.1 Plant Materials

The Contractor shall provide healthy, vigorous plants of the type (species and variety), size. The Contractor shall provide plants with normal, well-developed branch and root systems. The Contractor shall ensure plants are free of the following:

1. Damage from machines;
2. Sun or frost damage;
3. Insects and insect eggs; and
4. Disfiguring knots or other objectionable defects.

The Contractor shall provide plants that equal or exceed the minimum specified measurements. The Contractor shall select plant Materials for shape and branching habit that will produce the strong, full foliage of a typical, mature specimen.

664.2.2 Inspection of Plant Materials

The Contractor shall provide plant Materials in accordance with State and federal laws, including the New Mexico Plant Protection Act (NMSA 1978, § 76-5-11 et seq.), for disease infestation inspection.

The Contractor shall ensure inspection certificates required by law accompany each shipment, invoice, or order of stock. On delivery, the Contractor shall provide the certificate to the Project Manager. The Contractor shall provide for Department inspection at the place of origin or in a local nursery, and upon delivery to the planting location at the Project.

664.2.2.1 Notification and Inspection

The Contractor shall submit an itemized list of the plants to the Project Manager, along with a time and location for the inspection, at least seven (7) Days in advance.

The Roadside Design section manager or representative and the Project Manager will make plant inspections jointly. The Project Manager will tag the Accepted plants before plants are removed from the nursery for delivery to the Project.

The Project Manager and the Roadside Design section manager or representative will inspect for size, vigor, representation of the species and variety, damage, condition of ball and roots, and latent defects.

664.2.3 Container Plants

The Contractor shall provide plants specified on the plant list as “container grown” at a reasonable stage of development for the specified container size. The Contractor shall provide plants that are grown in their containers long enough to develop good, round, root systems capable of holding the soil intact after removal from the container, but not enough to become root bound.

664.2.4 Pole and Whip Plantings

The Contractor shall provide poles and whips that are members of the salicaceae family unless otherwise specified by the Roadside Design section manager or representative. The diameter of cottonwood poles shall not exceed three (3) inches. The Contractor shall not prune the leading stem (also known as the terminal bud). The Contractor shall tie the poles and whips in secure bundles that weigh between 50 and 60 lbs.

664.2.5 Substitutions

The Department will permit substitutions of equivalent varieties of plant Materials or other Materials only after the Contractor makes every reasonable effort to secure Materials of the species, varieties, and kinds listed on the Bid Forms or in the Contract. The Contractor shall submit requests for substitutions in writing to the Project Manager for approval by the Roadside Design section manager or representative. The Contractor shall obtain written approval from the Project Manager before substituting the Materials.

664.2.6 Delivery of Shipments to Site

The Contractor shall protect plant Materials before shipment to prevent damage (over- drying or wind). The Contractor shall ensure the safe digging, wrapping, binding, loading, shipment, and handling of heavy balled plants.

The Contractor shall notify the Project Manager of the time and manner of delivery at least seven (7) Days in advance. The Contractor shall provide two (2) copies of an itemized list of the quantities of plant Materials in each delivery with the notice.

The Project Manager will inspect the plants upon delivery. The Department will reject cracked or mushroomed balls and damaged plants that are unacceptable for planting. The Contractor shall immediately remove rejected plants from the Project.

664.2.7 Tagging and Labeling of Plant Materials

The Contractor shall securely tag plants with legible, durable labels using weather-resistant ink and identifying the following for each plant:

1. Origin;
2. Species;
3. Variety;

4. Name; and
5. Size.

The Contractor shall keep tags on through final inspection.

664.2.8 Fertilizer

The Contractor shall supply fertilizer in accordance with the Contract.

664.2.9 Water

The Contractor shall use clean water that is free from pollutants harmful to plant growth or that could contaminate the environment.

664.3 CONSTRUCTION REQUIREMENTS

664.3.1 Planting

The Contractor shall use the planting backfill mixture and provide watering basins in accordance with the contract. The Contractor shall not plant deeper than the original ground line.

664.3.2 Care and Replacement

During any period of suspension of Work, the Contractor shall properly and continuously maintain in a growing condition all plant Material in newly installed plantings furnished under the Contract. The Contractor shall water the plants upon installation and at appropriate intervals as specified by the contract until Acceptance by Roadside Design section manager or representative, or until any required irrigation system is in place and operational.

The Contractor shall take adequate precautions to protect new plant growth against any injury.

664.3.3 Harvesting and Care of Cottonwoods or Gooding's Willow Poles (poles) and Willow Whips

The Contractor shall harvest and plant all cuttings between October 1st and April 15th in revegetation zones one (1), two (2) and four (4), and between Oct 15th and April 1st in zones three (3), five (5) and six (6). The Contractor shall harvest poles and whips to lengths necessary to be placed in the groundwater at the planting site. The Contractor shall harvest plants within 120 miles of the Project site. The Contractor shall prune poles so that fewer than ten (10) branches are attached to the main stem and shall not prune the leading stem (also known as the terminal bud). The Contractor shall place poles and whips within 12 hours of harvesting in soaking tubs for a minimum of seven (7) days prior to planting.

664.3.4 Planting of Pole and Willow Whips

Following the required soaking period, the Contractor shall transport the poles and whips to the Project. The Contractor shall dig, trench, or auger the soil (or access the water table by other means) to at least one foot (1') beyond the depth of ground water. The Contractor shall place the plantings at least ten feet (10') apart ensuring that the bottom of the poles and whips are submerged at least six inches (6")-eight inches (8") below the water table. The Contractor shall trim the willow whips and poles to ensure that 50-80 percent of the cuttings are below ground. The Contractor shall ensure that each pole is planted at least 20 feet from another pole. The Contractor shall plant a bundle of willow whips with a ten foot (10') radius of poles. A bundle of willow whips may be planted in the same hole as poles or may be planted in a separate hole within a ten foot (10') radius of the poles. After planting, the Contractor shall backfill and compact the soil around the cuttings to ensure good soil to stem contact.

664.3.5 Final Inspection and Acceptance

After the completion of the landscape planting Work, the Project Manager and Roadside Design section manager or representative will make final inspection and Acceptance.

664.4 METHOD OF MEASUREMENT

Payment shall be made on a Lump Sum basis in accordance with the itemized list of unit prices submitted for Bid Item 664000-Landscape, Complete.

664.5 BASIS OF PAYMENT**Pay Item**

Landscape, Complete

Pay Unit

Lump Sum

664.5.1 Work Included in Payment

The following Work items will be considered as included in payment for the main items and will not be measured or paid for separately:

1. Furnishing, transporting, and planting of plants; and
2. Excavation, furnishing prepared backfill mixture, wrapping, staking, watering, care, weeding and maintenance of plants.

February 8, 2024

SPECIAL PROVISIONS

MODIFYING

SECTION 701: TRAFFIC SIGNS AND SIGN STRUCTURES

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

Delete the first paragraph of **Section 701.2.4.6: Inspection** and replace with the following:

Prior to fabrication, the Contractor shall provide the Project Manager all signing information, including text, for review and approval. The Department will inspect Material and finished signs before and after installation at the Project site.

Delete **Section 701.3.5 Removing and Resetting Traffic Signs** and replace with the following:

701.3.5 Removing and Resetting Panel Signs

The Contractor shall remove existing panel signs, posts, and associated appurtenances from specified locations and reset on new posts with new hardware as shown in the Contract.

Before removing existing panel signs, the Contractor shall submit a sign removal and resetting schedule to the Project Manager for approval.

Add the following to **Section 701.3.5 Removing and Resetting Panel Signs**:

701.3.5.2 Removing and Resetting Overhead Sign Structures

The Contractor shall remove existing overhead sign structures, I-beam posts and footings. The Contractor shall stockpile removed overhead sign structures and I-beam posts at locations specified in the Contract. The Contractor shall reset removed overhead sign structures on new I-beam posts with new hardware and drilled shaft foundations. The Contractor shall design new hardware for existing conditions in accordance with the manufacturer's recommendations and as specified in the Contract. The Contractor shall dispose of footing Material in an environmentally Acceptable manner.

The Contractor shall backfill holes left by the removal of overhead sign structure foundations and compact in accordance with Section 203, "Excavation, Borrow and Embankment".

Polyurethane Material shall be injected into the soils beneath the roadway structure through drilled holes at locations and depths as directed by the Project Manager.

Add the following Pay Item to **Section 701.5 Basis of Payment**:

Pay Item	Pay Unit
Remove and Reset Overhead Sign Structure	Each

Delete the following Pay Item to **Section 701.5 Basis of Payment:**

Pay Item	Pay Unit
Remove and Reset Traffic Sign	Each

Add the following to **Section 701.5.1 Work Included in Payment:**

8. Polyurethane Material as displayed by the certified flow meters and dynamic cone penetration (DCP) testing.

May 14, 2024

SPECIAL PROVISIONS MODIFYING SECTION 702: CONSTRUCTION TRAFFIC CONTROL DEVICES

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

Add the following to **Section 702.2: MATERIALS**:

702.2.1.3 Multi-Directional Slip Base Posts for Construction Signing

The Contractor shall provide multi-directional slip base post Material in accordance with Section 701.2.6: "Sign Structures and Hardware."

Delete the first paragraph of **Section 702.2.1.2: Portable Sign Supports** in its entirety and replace with the following:

The Contractor shall provide portable sign supports in accordance with the MUTCD, current edition.

Delete the first and second paragraphs of **Section 702.2.2: Barricades and Channelization Devices** in their entirety.

Delete the third paragraph of **Section 702.2.2: Barricades and Channelization Devices** in its entirety and replace with the following:

Unless stated otherwise, the Contractor shall submit to the Project Manager, certification from the manufacturer stating that the traffic control devices proposed for use are in accordance with NCHRP Report 350 and/or MASH.

702.2.6 Temporary Portable Rumble Strips

Temporary Portable Rumble Strips (TPRS) shall be composed of three (3) segments that when interlocked provide an 11-foot width. The Contractor shall provide TPRS that meet the following:

1. The entire TPRS shall be black, white, or orange in color, but shall not be used in combination within an array. An array consists of three (3) TPRS;
2. Constructed from a polymer or other similar, durable Material;
3. Requires no adhesives or anchors for installation;
4. Each TPRS shall weigh at least 100 lbs;
5. The height of each TPRS will be no greater than $\frac{3}{4}$ inch;
6. The TPRS shall be a minimum of ten (10) inches wide;
7. No assembly shall be required prior to or during deployment;
8. Performance will be rated to withstand surface temperatures of 0 – 180°F and shall maintain integrity while being deployed, used and removed;
9. Integrated, ergonomic handles on both ends of the TPRS;
10. Grooved designs on the bottom to prevent hydroplaning;

11. Raised designs on the top, with leading and trailing beveled edges to facilitate the safe traversing of motorcycles;
12. Durable orientation indicators to prevent improper deployment;
13. Flexible along the length of the TPRS to conform to the road surface;
14. Hinged at the midpoint of the TPRS for ease of installation;
15. Withstand vehicles with a maximum weight of 80,000 pounds and retain original placement with minimal movement such that performance is not compromised;
16. Function on roads with posted speed limits up to 80 mph; and resist movement such that performance is not compromised; and
17. Manufacturer's warranty of at least three (3) years.

Add the following to **Section 702.3.1: General**

702.3.1.3 Temporary Portable Rumble Strips

The Contractor shall install TPRS in accordance with the manufacturer's recommendations.

The Contractor shall clean the roadway to ensure that there is no dust, sand or any other materials that may cause slippage prior to placement of the TPRS.

The Contractor shall install the TPRS arranged in an array, as indicated on the Plans or as directed by the Project Manager. The TPRS array shall consist of three (3) TPRS placed perpendicular to the centerline and parallel to one another. The spacing of TPRS in each array shall be in accordance with Table 702.3.1.3:1, "TPRS Array Spacing". The Contractor shall regularly monitor and maintain TPRS to ensure proper placement under traffic.

**Table 702.3.1.3:1
TPRS Array Spacing**

Posted Speed	Spacing
Up to 40 mph	10 feet
41-55 mph	15 feet
56-64 mph	20 feet
65+ mph	35 feet+

The Contractor shall install the TPRS array using the manufacturer designed TPRS Deployment and Transport Device (DTD) or TPRS Rapid Deployment and Transport Device (RDTD).

702.3.1.3.1 Deployment Transport Device and Rapid Deployment and Transport Device

The Contractor shall use a TPRS DTD that meets the following requirements:

1. Carry and support at least six (6) folded TPRS or 600 lbs;
2. Weigh no more than 150 lbs. when empty;
3. Designed with roller bearings to facilitate ease of deployment and retrieval;
4. Designed with capability of being attached/detached from the vehicle using a forklift; and
5. Designed with collapsible guide markers for visual conspicuity.

The Contractor shall use a TPRS RDTD that meets the following requirements:

1. Allow deployment, realignment, and retrieval of strips without workers leaving the vehicle.

The TPRS DTD and RDTD shall be designed to transport TPRS in alignment with deployment orientation and to facilitate deployment of TPRS directly onto the road surface.

The Contractor shall install the TPRS using methods that maximize the efficiency of installation, relocation, or removal without impacting the safety of the traveling public or the workers.

The Contractor shall install the TPRS at the beginning of operations in accordance with the following guidelines:

1. The TPRS shall be installed perpendicular to the longitudinal pavement markings;
2. The TPRS shall be positioned across the entire travel lane but not intrude into the opposing travel lane. It may be necessary to extend the TPRS onto the shoulder;
3. TPRS shall be installed in accordance with the permanent orientation indicators on the TPRS, to ensure proper deployment;
4. Unless otherwise indicated on the plans, TPRS shall remain for Work duration; and
5. Removal of TPRS shall coincide with the removal of the Rumble Strips advanced warning sign(s) using the TPRS DTD or RDTD.

The Contractor shall install TPRS as follows:

1. On intermediate and long-term stationary operations when crews are present; and
2. In advance of horizontal curves.

The Contractor may use TPRS in accordance with the following conditions:

1. Short-term stationary, intermediate-term stationary, and long-term stationary Work consisting of the following:
 - 1.1 Lane closures, lane shifts, shoulder Work;
 - 1.2 Shoulder Work with minor encroachments, flagging operations, or one-lane two-way applications;
2. Work duration occupies a location for one (1) or more hours; and
3. Posted speed limit is 25 mph or greater.

Temporary Portable Rumble Strips will be measured by each 11-foot width.

Add the following to **Section 702.5: BASIS OF PAYMENT**

Pay Item	Pay Unit
Multi-Directional Slip Base Posts for Construction Signing	Each
Temporary Portable Rumble Strips	Each

**SPECIAL PROVISIONS
MODIFYING
SECTION 704: PAVEMENT MARKINGS**

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

Delete the first paragraph of **Section 704.3.5: Rates and Tolerances for Painted Markings** and replace with the following:

The Contractor shall apply paint at a rate of 22 to 25 wet mills, (25.15 gal per mile of paint for a solid four (4) inch line and 6.31 gal per mile for a broken four (4) inch line) for permanent markings. The Contractor shall apply other permanent striping widths at appropriate multiples of these gal per mile rates, achieving 22 to 25 wet mills for solid and broken stripes.

Delete the fourth paragraph of **Section 704.3.5: Rates and Tolerances for Painted Markings** and replace with the following:

The Contractor shall use Roadway striping Equipment that contains a Material usage monitoring system that performs the following functions and the described capabilities:

1. Measures the quantity of glass beads and paint used during operation. This system shall track this usage based on specific colors and striping patterns;
2. The monitoring Equipment shall be capable of manually inputting environmental conditions such as start time, end time, air temperature, road temperature, humidity, dew point and other environmental conditions which may impact the quality of the painted marking;
3. The Equipment shall be capable of recording and reporting the operating speed of the vehicle throughout the Roadway marking process;
4. The Equipment shall allow the operator to input project information such as route, line widths, and Project name or number;
5. The Contractor shall provide printouts of the Material usage after the completion of each continuous run of Roadway striping. These quantities will be used to determine that the quality of the Roadway striping complies with Material specifications. The printouts shall also contain any information manually input or recorded that may impact the quality of the painting markings; and
6. The Contractor shall provide a Department login with direct access to stored data on a secure password protected website so the Department can access this information at any time.

Add the following to **Section 704.3.6: Dimension Tolerances**:

The Contractor shall contrast striping and symbols on concrete pavement with a black outline a minimum of two (2) inches in all directions.

Delete the second paragraph of **Section 704.4: Method of Measurement** and replace with the following:

The Department will measure permanent and temporary Retroreflectorized Painted Markings for four (4) inch, six (6) inch, eight (8) inch, 12 inch, and 24 inch widths using inch width to calculate a total length. Legends,

symbols and specialty markings will be paid by each.

Delete the Pay Items from **Section 704.5: Basis of Payment** and replace with the following:

Pay Item	Unit
Retroreflectorized Painted Markings ____inch	Foot
Temporary Retroreflectorized Painted Markings ____inch	Foot
Retroreflectorized Painted Arrow, Type ____	Each
Retroreflectorized Painted Word (____)	Each
Retroreflectorized Painted Symbol, Type ____	Each
Retroreflectorized Painted Railroad Crossing	Each

Add the following to **Section 704.5.2: Work Included in Payment**:

8. Implementation operation of Material usage monitoring system including production of reports summarizing Material quantities.

**SPECIAL PROVISIONS
MODIFYING
SECTION 704-A: TEMPORARY MARKING TAPE**

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

Delete **Section 704-A.4 Method of Measurement** and replace with the following:

The Department will measure temporary Removable and Non-Removable Marking Tape by four (4) inch, six (6) inch, eight (8) inch, 12 inch, and 24 inch widths using inch widths to calculate a total length. Temporary words or symbols will be paid by each.

Delete **Section 704-A.5: Basis of Payment** in its entirety and replace with the following;

Pay Item	Unit
Removable Marking Tape _____ inch	Linear Foot
Temporary Word or Symbol	Each

Section 704-A.5.1 Work Included in Payment

The following Work and items will be considered as included in the payment for the main items and will not be measured or paid for separately:

1. Repair or replacement of damaged striping due to Contractor's negligence or operations;
2. Furnishing, mixing, and applying adhesive or primers;
3. Standard surface preparation;
4. Mobile traffic control operations for traffic marking operations;
5. Removal of Removable Marking Tape and/or Temporary Word(s) or Symbol (s);
6. Repair or replacement of damaged Removable Marking Tape and Temporary Word(s) or Symbols(s).

December 23, 2019

**SPECIAL PROVISIONS
MODIFYING****SECTION 704-B: RETROREFLECTIVE PREFORMED PLASTIC MARKINGS (TAPE)**

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

Add the following to **Section 704-B.3.1: Placing Retroreflective Preformed Plastic Markings (Tape)**:

The Contractor shall contrast striping and symbols on concrete pavement with a black outline a minimum of two (2) inches in all directions.

December 23, 2019

SPECIAL PROVISIONS
MODIFYING
SECTION 704-C: HOT THERMOPLASTIC MARKINGS

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

Add the following to **Section 704-C.3: Construction Requirements**:

The Contractor shall contrast striping and symbols on concrete pavement with a black outline a minimum of two (2) inches in all directions.

December 23, 2019

SPECIAL PROVISIONS
MODIFYING
SECTION 704-D: PREFORMED THERMOPLASTIC PAVEMENT MARKINGS

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

Add the following to **Section 704-D.3.1: Application**:

The Contractor shall contrast striping and symbols on concrete pavement with a black outline a minimum of two (2) inches in all directions.

March 7, 2019

SPECIAL PROVISIONS
MODIFYING
SECTION 706: SIGNAL AND LIGHTING SERVICE SYSTEMS

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

The following is added to the paragraph below the Pay Items from **Section 706.5: Basis of Payment**:

For the purpose of bidding, the Department will enter into the Bid Schedule a fixed amount for Power Service Installation.

May 24, 2019

SPECIAL PROVISIONS MODIFYING SECTION 713: DETECTORS

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

Delete **Sections 713.2.2: Radar Presence Detector (RPD) and 713.2.2.1 thru 713.2.2.11** and replace with the following, respectively:

713.2.2 Radar Presence Detector (RPD)

The Contractor shall provide a Radar Presence Detector (RPD) sensor devices which utilizes Frequency Modulated Continuous Wave (FMCW) radar to provide accurate vehicle detection at the stop bar. The RPD shall have the following features:

1. Detect the real-time presence of both moving and stopped vehicles within a 90° field of view extending from 6 feet to 140 feet from the sensor unit;
2. Automatic or manually configurable to provide detection in 16 zones and ten (10) lanes including curved lanes and lanes separated by islands or medians;
3. Provide detector outputs on 16 channels user-mappable to zones with both AND/OR logic and extend and delay functionality;
4. Capable of mitigating detections from wrong way or cross traffic;
5. Requires no cleaning or adjustment necessary to maintain performance; and
6. Housed in a watertight, corrosion-resistant enclosure compliant with the NEMA 250 Type 4X standard.

The RPD shall have the following operational requirements:

1. Radar Operating Frequency of 24.00 – 24.25 GHz (K-Band);
2. Low voltage operation at 10 - 28 VDC;
3. Low power consumption at less than 10 W;
4. Maintain accurate performance in all weather conditions including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light, including direct light on sensor at dawn and dusk.
5. Ambient operating temperature range of -40°F to 165°F; and
6. Operational in humidity up to 95% (non-condensing).

713.2.2.1 Radar Advance Detector

The Contractor shall provide Radar Advance Detector (RAD) sensor devices which utilize FMCW radar to provide accurate continuous tracking of vehicles approaching the intersection. The RAD shall have the following:

1. Detect and simultaneously track range and speed of 25 independent vehicles in an area extending from 50 feet to 600 feet from the sensor unit;
2. Dynamically tracks ETA-to-stop-bar as each vehicle changes speed;

3. Automatic or manually configurable to provide detection zones in 5-foot increments;
4. Provide eight (8) channel outputs with four alerts per channel (32 alerts) and four zones per alert (128 zones);
5. Support logic filters for zone output, combinational logic on zone outputs for alert output, and channel output from multiple alerts;
6. Support latched channel output controlled by alerts and timer;
7. Support delay and extend settings used for channel outputs;
8. Support user-configurable high-speed and low-speed detection filters in 1-MPH increments for each zone;
9. Support user-configurable ETA-to-stop-bar filters in 0.1-second increments for each zone;
10. Requires no cleaning or adjustment necessary to maintain performance; and
11. Housed in a watertight, corrosion-resistant enclosure compliant with the NEMA 250 Type 4X standard.

The RPD shall have the following operational requirements:

1. Radar Operating Frequency of 10.50–10.55 GHz (X-band);
2. Low voltage operation at 10 - 28 VDC;
3. Low power consumption at less than 10 W;
4. Maintain accurate performance in all weather conditions including rain, freezing rain, snow, wind, dust, fog, and changes in temperature and light, including direct light on sensor at dawn and dusk.
5. Ambient operating temperature range of -40°F to 165°F; and
6. Operational in humidity up to 95% (non-condensing).

713.2.2.2 Radar Detection Cabinet Interface Unit

The Contractor shall provide a Radar Detection Cabinet Interface Unit (RDCIU) which provides power, connectivity, and surge protection to the sensors (RPD's and RAD's); communicates the detector outputs to the traffic signal controller; and shall have the following features:

1. Compliant with applicable NEMA TS2-2003 standards;
2. Shelf-mounted or 19 inch rack-mounted as directed by the Department's Signal Lab;
3. Six (6) terminal block connectors for connecting to the sensors;
4. One (1) SDLC port for connecting to the traffic signal controller;
5. Communication ports (RJ-11, DB-9, mini-USB, and T-bus) for connecting to a computer to configure the sensors;
6. An Ethernet communication port to connect to the Cabinet Interface Unit via an IP network; and
7. Separate power switches to turn on/off each sensor.

The RDCIU shall have the following operational requirements:

1. Operate on power supply voltage of 100 - 240 VDC;
2. Output voltage to sensors of 24 VDC;
3. Power consumption at 120 W maximum;
4. Transient surge suppression conforming to IEC/EN 61000-4-5 level 3 on the AC power input; and
5. Transient surge suppression conforming to IEC/EN 61000-4-5 level 4 on the sensor ports.

713.2.2.3 Radar Detector Cable

The Contractor shall provide Radar Detector Cable as recommended by the manufacturer consisting of multi-conductor cable in a single jacket to provide the necessary conductors for power and communication between the sensor units and the cabinet interface unit. Conductor size shall be selected per the manufacturer's recommendation, taking into account the length of cable and the operational voltage of the sensor unit.

713.2.2.4 Mounting Hardware

The Contractor shall provide mounting brackets to securely attach the sensors to the traffic signal poles or mast arms with 3/4 inch steel banding. Brackets shall have two (2) hinged joints allowing two (2) axes of rotation for horizontal and vertical positioning. Mounting plate shall be directly compatible with the sensor mounting. Brackets shall be powder-coated aluminum with stainless steel hardware.

713.2.2.5 Warranty, Maintenance and Support

1. The Contractor shall obtain and assign to the Department all manufacturers guarantees or warranties which are normally provided as customary trade practice for items and Materials incorporated into the Work. In the absence of a manufacturer's guarantee, the Contractor shall warrant that mechanical and electrical Equipment and Material incorporated into the Work are free from any defects or imperfections in workmanship and Material for a period of one (1) year after partial Acceptance of the Project. The Contractor shall be responsible for repairing any malfunction or defect in any such Equipment or Material, which develops during the one (1) year period.
2. The Contractor shall supply two (2) sets of installation guides and user manuals for the Equipment incorporated in the Project, one (1) of which shall be submitted to the Project Manager with submittal of manufacturers shop drawings.
3. During the warranty period, technical support by toll-free telephone shall be provided by the manufacturer 24 hours per Day, 365 Days per year, and request for support by telephone shall be answered by manufacturer personnel within one hour.

Add the following to **Section 713.3: Construction Requirements**:

713.3.8 Radar Presence Detector

The Contractor shall install the Radar Presence Detector per the manufacturer's recommendations.

713.3.8.1 Mounting and Positioning

The Contractor shall mount each RPD and RAD sensor at the locations as shown on the Contract and as directed by the manufacturer's representative such that the sensor has an unobstructed view of the approach lanes.

The Contractor shall mount each RPD sensor at a height of 20 feet $\pm$ 5 feet.

The Contractor shall mount each RAD sensor at a typical height of 25 feet or within the range of 17 feet to 40 feet.

The Contractor shall aim, tilt, and align each sensor per the manufacturer's recommendations and as directed by the manufacturer's representative.

713.3.8.2 Cabling and Connections

The Contractor shall route cabling from the RPD and RAD sensors into the signal pole or mast arm to the pole base and then via conduit to the controller cabinet. Radar Detector Cable shall be continuous from the sensor to the Cabinet Interface Unit with no splices.

The Contractor shall leave sufficient slack in the Radar Detector Cable at the sensor to allow aligning the sensor without causing cable strain and to provide a drip loop that drains rain water away from the connector.

The Contractor shall apply silicone dielectric compound to the sensor unit connector before attaching the Radar Detector Cable.

The Contractor shall provide an SDLC cable as recommended by the manufacturer to connect the RDCIU to the Controller. In the case of multiple RDCIU's, provide SDLC wye cables or a SDLC Hub unit to connect the multiple SDLC devices to the controller.

Add the following Pay Items to **Section 713.5: Basis of Payment**:

Pay Item	Unit
Radar Advance Detector	Each
Radar Detector Cable	Foot
Radar Detection Cabinet Interface Unit	Each

Delete **Section 713.5.1 Work Included in Payment** and replace with the following:

The following Work and items shall be considered as included in the payment for Radar Presence Detector or Radar Advance Detector and will not be measured or paid for separately:

1. RPD or RAD sensor unit;
2. Mounting bracket, steel banding and hardware; and
3. Silicone dielectric compound.

The following Work and items shall be considered as included in the payment for Radar Detection Cabinet Interface Unit and will not be measured or paid for separately:

1. AC power cord;
2. Rack or shelf mounting hardware;
3. SDLC Cable(s), SDLC wye cable(s); and
4. Multiport SDLC hub unit.

SPECIAL PROVISIONS MODIFYING SECTION 716: LUMINAIRES

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

Delete the second and fourth paragraph of **Section 716.2.1.5.3: Photometric Requirements** and replace with the following, respectively:

The Contractor shall provide a nominal corrected color temperature (CCT) range of 2,700K to 4,500K in accordance with NEMA C78.377. The color rendering index (CRI) shall be 70 or greater.

The Contractor shall provide Luminaire with a minimum efficacy of 100 lumens per watt. The Luminaire shall provide a rated life of 70,000 hours when operated at 77°F (25°C) for 12 hours per Day. The Luminaire shall deliver a minimum of 70% of initial delivered lumens after 70,000 hours of operation. The Contractor shall provide a TM-21 calculation and lumen depreciation factor calculated at 25°C at 70,000 hours upon request.

Delete the fourth to the last paragraph and the third to the last paragraph of **Section 716.2.3: LED High Mast Luminaire** and replace with the following, respectively:

The Contractor shall provide High Mast Luminaire with a minimum efficacy of 100 lumens per watt.

The Contractor shall provide a nominal corrected color temperature (CCT) range of 2,700K to 4,500K in accordance with NEMA C78.377. The color rendering index (CRI) shall be 70 or greater.

Delete the fourth to the paragraph and the third to the last paragraph of **Section 716.2.4: Area Luminaire and Ornamental Luminaires** and replace with the following, respectively:

The Contractor shall provide Area and Ornamental Luminaire with a minimum efficacy of 100 lumens per watt.

The Contractor shall provide a nominal corrected color temperature (CCT) range of 2,700K to 4,500K in accordance with NEMA C78.377. The color rendering index (CRI) shall be 70 or greater.

Delete the second to the last paragraph of **Requirements Section 716.2.5: Underpass Luminaire** and replace with the following:

The Contractor shall provide a nominal corrected color temperature (CCT) range of 2,700K to 4,500K in accordance with NEMA C78.377. The color rendering index (CRI) shall be 70 or greater.

February 11, 2019

**SPECIAL PROVISIONS
MODIFYING
SECTION 902: QUALITY CONTROL**

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

Delete **Section 902.10: Basis of Payment** in its entirety.

January 1, 2019

SPECIAL PROVISIONS
MODIFYING
SECTION 904: QUALITY LEVEL ANALYSIS (QLA)

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

904.1 Description Quality Level Analysis

Delete reference to Table 901.7:1, "Quality Level Analysis by the Standard Deviation Method Upper Quality Index QU or Lower Quality Index QL" from Equation(s) 6 and 7 and replace with the following:

Table 904.1:3 "Quality Level Analysis by the Standard Deviation Method Upper Quality Index QU or Lower Quality Index QL".

SPECIAL PROVISIONS
MODIFYING
SECTION 905: QUALITY ASSURANCE FOR MINOR PAVING

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

Delete **Section 905: QUALITY ASSURANCE FOR MINOR PAVING** in its entirety and replace with the following:

905.1 DESCRIPTION

The Department will sample and test Materials for Acceptance unless otherwise specified in the Contract. Department testing is not for Quality Control.

905.1.1 Department Sampling and Testing for Acceptance

Acceptance sampling and testing will be performed by Department representatives, certified by the Department through TTCP in the applicable test procedures. The testing procedures utilized will be in accordance with test methods and modifications as found in the current TTCP Manual(s), AASHTO or Department methods.

The Department will sample and test in accordance with Section 906, "Minimum Testing Requirements (MTR'S)" or at a lesser subplot size for Assurance purposes as determined by the Project Manager before production of Material begins. If Material appears defective, or if the Project Manager determines that a change in the process or product has occurred, additional sampling and testing may occur.

If the Department performs additional informational sampling and testing, the results will be used only to determine if corrective action needs to be taken by the Contractor and will not be used for Pay Factor Determination.

The Department will provide test results to the Contractor within two (2) Working Days after sampling. Any additional testing by the Department will be provided to the Contractor upon written request.

905.1.2 Independent Assurance Testing

TTCP certified independent personnel will perform Independent Assurance testing on split samples from Quality Control and Assurance programs to ensure that the Contractor and Department field personnel are using correct and accurate procedures and the proper Equipment. These personnel will not have direct responsibility for Quality Control or Assurance testing. Independent Assurance Test results will not be used for Acceptance.

905.1.3 Acceptance

The Department will Accept the constructed product based on inspection and Laboratory testing.

The Department will test samples of Minor Paving Type I HMA/WMA before compaction and on cut pavement samples (cores).

The Department will Accept Minor Paving Type I, the constructed product based on the following criteria:

Minor Paving Type I:

1. Laboratory air voids as determined in accordance with AASHTO T312, AASHTO T166 and AASHTO T209;
2. Asphalt content as determined by the tank strap method or plant asphalt metering system defined in the Contractor's Quality Control Plan (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, or other method as approved by the Project Manager; and
4. Density of the compacted HMA/WMA as determined in accordance with AASHTO T355 Standard Method of Test for In-Place Density of Asphalt Mixtures by Nuclear Methods. Percent compaction will be calculated using the current average Gmm representing that Day.

The Department will test samples of Minor Paving Type II HMA/WMA before compaction and on cut pavement samples (cores).

The Department will Accept Minor Paving Type II, the constructed product based on the following criteria:

Minor Paving Type II:

1. Final thickness of the compacted Material as measured from cores in accordance with ASTM D 3549, or other method as approved by the Project Manager; and
2. Density of the compacted HMA/WMA as determined in accordance with AASHTO T355 Standard Method of Test for In-Place Density of Asphalt Mixtures by Nuclear Methods. Percent compaction will be calculated using the current average Gmm representing that Day.

For Minor Paving Type I and Type II, in order to establish a densometer correlation factor, the Contractor shall provide cores from three (3) locations designated by the Project Manager. A new correlation factor can be requested if a change in Materials, conditions, or densometer has occurred or if the accuracy of the established correlation factor is in question.

For Minor Paving Type I and Type II, the Project Manager may reject Material that appears to be defective based on visual inspection.

905.1.4 Pay Factor Determination

The Department will determine component pay factors in accordance with:

1. Table 905.1.4:1, "Single Test Pay Factor for Correlated In-Place Density";
2. Table 905.1.4:2, "Single Test Pay Factor for Laboratory Air Voids";
3. Table 905.1.4:3, "Single Test Pay Factor for Asphalt Content";
4. Table 905.1.4:4 "Single Test Pay Factor for Thickness"; and
5. Table 905.1.4:5 "HMA/WMA Lift Thickness Requirements."

Table 905.1.4:1
Single Test Pay Factor for Correlated In-Place Density ^a

Percent Compaction	Pay factor (%)
> 97.99	Reject
97.0 – 97.99	90
96.01 – 96.99	95
92.00 – 96.00	105
91.50 – 91.99	95
90.50 – 91.49	90
90.00 – 90.49	80
< 90.00	Reject

^a Minimum of ten (10) density tests per lot is required

For Projects consisting of single lift overlays or mill and inlay with a single lift of two and a half inches or less, the Project Manager may grant an exception to the mean density target requirement of at least 94.5% of the theoretical maximum density if the Contractor can demonstrate that a minimum of 92.0% cannot be reasonably obtained because of the existing conditions of the Pavement Structure or Subgrade Materials. The Contractor shall demonstrate this by providing non-destructive density results obtained during paving operations witnessed by a State Inspector at the location in question. If the Project Manager grants this exemption, the Contractor shall construct a Roadway test strip and develop an HMA/WMA compaction process to get the highest possible density based on an approved roller's density gain per pass, in accordance with Section 423.3.4.4, "Compaction Equipment". The Project Manager will approve the process, establish a new target value for density and establish a new Acceptance lot only for the portion of the Project addressed herein before paving begins or continues. Regardless of the number of lifts, a minimum density of 91.0% shall be achieved on all NHS routes.

Table 905.1.4:2
Single Test Pay Factor for Laboratory Air Voids ^{a, b}

Deviation from TV shown on approved JMF	Pay factor (%)
< ± 1.4	105
± 1.5 to ± 1.6	95
± 1.7 to ± 1.8	85
± 1.9 to ± 2.0	75
$\geq \pm 2.0$	Reject

^a Minimum of three (3) laboratory air void tests per lot is required

^b Laboratory air voids obtained on Minor Paving Type II shall not be used for pay determination.

Table 905.1.4:3
Single Test Pay Factor for Asphalt Content ^a

Deviation from TV shown on approved JMF	Pay factor (%)
< ± 0.35	100
± 0.36 to ± 0.55	90

Table 905.1.4:3
Single Test Pay Factor for Asphalt Content ^a

Deviation from TV shown on approved JMF	Pay factor (%)
$\geq \pm 0.56$	Reject

^a Minimum of three (3) asphalt contents per lot is required

Table 905.1.4:4
Single Test Pay Factor for Thickness

Negative Deviation from Minimum Plan Thickness	Pay factor (%)
Plan Minimum Thickness or Thicker	100
$\leq 1/4$ inch	100
> 1/4 inch to 1/2 inch	90
> 1/2 inch to 3/4 inch	75
> 3/4 inch to 1.0 inch	50
> 1.0 inch	Corrective Action ¹

¹ Corrective action includes removal and replacement, overlay, or other corrective actions approved by the Project Manager. Thin or feathered edge surface patching is not Acceptable. If the Contractor elects to overlay the deficient area(s) the overlay lift thicknesses shall meet the requirements of Table 905.1.4:5, "HMA/WMA Lift Thickness Requirements".

Table 905.1.4:5
HMA/WMA Lift Thickness Requirements

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

The Contractor shall remove and replace rejected Material identified as per Table 905.1.4:1, "Single Test Pay Factor for Correlated In-Place Density", Table 905.1.4:2, "Single Test Pay Factor for Laboratory Air Voids" and Table 905.1.4:3, "Single Test Pay Factor for Asphalt Content".

In lieu of removing and replacing rejected Material, if in the best interest of the Department, the Project Manager may allow the Material to remain in place at 50% of the Bid Item Unit Price.

905.1.5 Price Adjustments

The Department will pay for Accepted quantities of Minor Paving by multiplying the Bid Item Unit Price by the composite pay factor determined on a lot by lot basis by:

Determining each component single test pay factor average as determined by:

1. Table 905.1.4:1, "Single Test Pay Factor for Correlated In-Place Density";
2. Table 905.1.4:2, "Single Test Pay Factor for Laboratory Air Voids";
3. Table 905.1.4:3, "Single Test Pay Factor for Asphalt Content";
4. Table 905.1.4:4 "Single Test Pay Factor for Thickness"; and.
5. Table 905.1.4:5 "HMA/WMA Lift Thickness Requirements.

The composite pay factor for each lot will be determined by multiplying the average of each component single test property pay factor and the weighting factors in Table 905.1.5:1, "Weighting Factors Minor Paving Type I" or Table 905.1.5:2, "Weighting Factors Minor Paving Type II".

The maximum pay factor per lot is one (1.0). 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 905.1.5:1
Weighting Factors
Minor Paving Type I**

Characteristic	"f" Factor (%)
Correlated In-place Density	35
Laboratory Air Voids	35
Asphalt Content	20
Thickness	10

**Table 905.1.5:2
Weighting Factors
Minor Paving Type II**

Characteristic	"f" Factor (%)
Correlated In-place Density	50
Thickness	50

November 5, 2019

SPECIAL PROVISIONS MODIFYING SECTION 906: MINIMUM TESTING REQUIREMENTS (MTR'S)

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

Delete **Section 906: Minimum Testing Requirements (MTR'S)** in its entirety and replace with the following:

906.1 DESCRIPTION

906.1.1 General

This Work consists of Minimum Testing Requirement's (MTR's) for the Department and Contractor which includes construction sampling, tests, and testing frequencies of Materials incorporated into the Work for Acceptance and Quality Control.

906.1.2 Minimum Testing Requirements

**Table 906.1.2:1
Earthwork**

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Embankment, Unclassified Excavation (Section 203)	In-Place Density and Moisture	Roadway	1 per 2,000 cy	N/A	1 per 20,000 cy, minimum one per project	1 every 3 months with each sampling/ testing technician	N/A
	Moisture / Density Tests (Proctor), Soils Classification	Stockpile / Roadway	1 per material type per 15,000 cy				
Borrow (Section 203.2.1.3)	AASHTO T-190 R-Value, Soils Classification	Borrow Pit	N/A	1 per 10,000 cy and 1 per material type	N/A	3 samples randomly selected per year to be tested by the State Materials Bureau	
Road Bed Embankment (Section 203.3.5.1)	In-Place Density and Moisture	Roadway	1 per 2,500 sq yd	N/A	1 per 25,000 sq yd ¹	1 every 3 months with each sampling/ testing technician	N/A
	Moisture/ Density Tests (Proctor), Soils Classification		1 per material type		1 per project ²		
Foundations / Backfill for	In-Place Density and Moisture	Structure	See Table 906.1.2:2	N/A	1 per project		N/A

Table 906.1.2:1
Earthwork

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Culverts and Minor Structures (Section 206)	Moisture/ Density Tests (Proctor), Soils Classification	Stockpile	1 per material type	1 per material type			Upon Request
	Electrochemical, when specified.		N/A		N/A	N/A	
Subgrade Preparation (Section 207)	In-Place Density and Moisture	Roadway	1 per 2,000 sq yd	N/A	1 per 20,000 sq yd ¹	1 every 3 months with each sampling/ testing technician	N/A
	Moisture/ Density Tests (Proctor), Soils Classification		1 per material type		1 per project ²		
Linear Grading and Blading and Re- shaping (Sections 208, 209)	In-Place Density and Moisture	Roadway	One per half mile	N/A	1 per 5 miles		N/A
	Moisture/ Density Tests (Proctor), Soils Classification		1 per material type		1 per project ²		
Backfill for Major Structures (Section 210)	In-Place Density and Moisture	Structure	See Table 906.1.2:2	N/A	1 per 5,000 cy ¹		N/A
	Gradation, PI	Stockpile	1 per 300 cy		1 per project ²		
	Moisture/ Density Tests (Proctor), Soils Classification		1 per material type				
Treated Subgrade (Section 306)	In-Place Density and Moisture	Roadway	1 per 3,000 sq yd	N/A	1 per 30,000 sq yd, minimum 1 per project		N/A
	Moisture/ Density Tests (Proctor), Soils Classification		1 per material type		1 per project		
	AASHTO T 290 Sulfate Testing	Borrow Pit	N/A	1 per 10,000 cy	N/A	N/A	Upon Request
Backfill for Mechanical Stabilized Earth (MSE) Retaining Structures (Section 506)	In-Place Density and Moisture	Structure	See Table 906.1.2:2	N/A	1 per 3,000 cy, minimum 1 per project	1 every 3 months with each sampling/ testing technician	N/A
	Moisture/ Density Tests (Proctor) Soils Classification	Stockpile	1 per material type	1 per material type	1 per project		

**Table 906.1.2:1
Earthwork**

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
	Gradation, PI		1 per 300 cy		1 per 3,000 cy, minimum 1 per project		
Direct Shear, Electro Chemical	N/A	N/A	N/A	Upon Request			
Foundations for Slope and Erosion Protection Structures (Section 602)	In-Place Density and Moisture	Structure	1 per structure	N/A	1 per project, not required for projects with 4 or less structures ¹	1 every 3 months with each sampling/ testing technician 1 every 3 months with each sampling/ testing technician	N/A
	Moisture / Density Tests (Proctor), Soils Classification	Foundation material location	1 per material type				
Backfill for Soil and Drainage Geotextiles (Section 604)	In-Place Density and Moisture	Roadway	1 per lift	N/A	1 per project		N/A
	Moisture/ Density Tests (Proctor), Soils Classification	Stockpile	1 per material type				
Backfill for Drains (section 605.3.4)	In-Place Density and Moisture	Roadway	1 per 1,000 lf	N/A	1 per 5,000 lf, minimum 1 per project		N/A
	Moisture/ Density Tests (Proctor), Soils Classification	Stockpile	1 per material type		1 per project ²		
Foundations for Sidewalks, Drive Pads and Concrete Median Paving (Section 608)	In-Place Density and Moisture	Roadway	1 per 150 sq yd	N/A	1 per 1,500 sq yd ¹		N/A
	Moisture/ Density Tests (Proctor), Soils Classification	Foundation material location	1 per material type		1 per project ²		
Bed Course Material for Sidewalks, Drive Pads and Concrete Median Paving (Section 608)	In-Place Density and Moisture	Roadway	1 per 150 sq yd	N/A	1 per 1,500 sq yd ¹		N/A
	Moisture/ Density Tests (Proctor), Soils Classification	Stockpile	1 per material type		1 per project ²		
Foundations for Curb and Gutter (Section 609)	In-Place Density and Moisture	Roadway	1 per 500 lf or as site locations require	N/A	1 per 5,000 lf ¹		N/A

**Table 906.1.2:1
Earthwork**

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
	Moisture/ Density Tests (Proctor), Soils Classification	Foundation material location	1 per material type		1 per project ²		
Bed Course Material for Curb and Gutter (Section 609)	In-Place Density and Moisture	Roadway	1 per 500 If or as site locations require	N/A	1 per 5,000 If ¹	1 every 3 months with each sampling/ testing technician 1 every 3 months with each sampling/ testing technician	N/A
	Moisture/ Density Tests (Proctor), Soils Classification	Stockpile	1 per material type		1 per project ²		
Foundations / Backfill for Cattle Guards (Section 610)	In-Place Density and Moisture	Structure	See Table 906.1.2:2	N/A	1 per project, not required for projects with 4 or less structures ¹		N/A
	Moisture/ Density Tests (Proctor), Soils Classification	Stockpile	1 per material type				
Bedding Material for Cattle Guards (Section 610)	In-Place Density and Moisture	Structure	1 per structure	N/A			N/A
	Moisture/ Density Tests (Proctor), Soils Classification	Stockpile	1 per material type				
Foundations / Backfill for Drop Inlets and Junction Boxes (Section 623)	In-Place Density and Moisture	Structure	See Table A	N/A	1 per project		N/A
	Moisture/ Density Tests (Proctor), Soils Classification	Foundation material location	1 per material type				
Foundations / Backfill for Utilities (Section 660)	In-Place Density and Moisture	Structure	See Table 906.1.2:2	N/A			N/A
	Moisture/ Density Tests (Proctor), Soils Classification	Foundation material location	1 per material type				

Notes:

1. IA testing is not required when the Project estimated quantity is half or less than the Acceptance frequency quantity. When an Agency testing frequency is not provided this table will indicate the IA requirement.
2. Required if in-place moisture / density IA testing is required.
3. In instances where an IA test is not required the PM may request IA test at their discretion.

Table 906.1.2:2
Structure Definitions, Foundation and Backfill Requirements

1)	Transverse or skewed culvert or concrete box culvert (CBC), not connected to an underground drainage network, including end sections, wing walls if backfilled simultaneously, structural plate pipe, storm drains and sewer lines (Note 1):
	Foundation: One density per 100 linear feet. For pipe in a battery, up to 4 pipe may be considered as a unit for purposes of foundation density.
	Backfill Density: 1 per 2 foot of fill per side* and to top of trench per 100 linear feet (Note 2).
	* For a battery of pipes, the number of backfill densities required will be as follows: One-Half (1/2) of the required densities for up to 4 pipes. One-Third (1/3) of the required densities for more than 4 pipes.
2)	End section or CBC wing wall if backfilled separately from culvert pipe or CBC (Note 2):
	Backfill Density: 1 per 2 foot of fill per side.
3)	Drop inlet (D.I.), junction box, cattle guard, light and signal base, manhole, etc.:
	Foundation: 1 per structure.
	Backfill Density: 1 per 2 foot of fill.
4)	Underground drainage network including interruptions such as D.I., manhole, junction box, plug service connection, slotted drain, etc., if backfilled simultaneously:
	Foundation: One per 100 linear feet.
	Backfill Density: 1 per 2 foot of fill per side and to top of trench per 100 linear feet (Note 2).
5)	Retaining wall / MSE wall:
	Foundation: One foundations density per 100 linear feet.
	Backfill Density: 1 per 2 foot of fill per 100 linear feet.
6)	Bridge abutment back wall, wing wall or approach slab:
	Backfill Density: 1 per 6 inches of fill.
7)	Pier footing:
	Foundation: 1 per footing.
	Backfill Density: 1 per 6 inches of fill.
8)	Waterlines, electrical conduit, telephone cable or gas line, etc., within roadway prism (traveled area and shoulder) <u>if trench width sufficient for density testing:</u>
	Foundation: One per 100 linear feet.
	Backfill Density: 1 per 2 foot of fill per 100 linear feet.
9)	Waterline, electrical conduit, telephone cable or gas line, etc., outside the roadway prism (traveled area and shoulders) <u>if trench width sufficient for density testing:</u>
	Foundation: 1 per 300 linear feet.
	Backfill Density: 1 per 2 foot of fill per 300 linear foot.

Table 906.1.2:2
Structure Definitions, Foundation and Backfill Requirements (Continued)

Notes:

1. All extensions will be considered increments and as such structure units.
2. Determination of Backfill Depths Governing Minimum Testing Criteria Requirements:
 - A. When backfill construction is performed in trench conditions, the depth of compacted backfill to be tested shall be measured from the foundation to the top of the trench.
 - B. When backfill construction is performed in non-trench conditions, the depth of compacted backfill to be tested shall be determined through the use of the appropriate NMDOT Standard Drawings.

Table 906.1.2:3
Base Course

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Base Course (Section 303)	In-Place Density and Moisture	Roadway after compaction	1 per 1,000 tons	N/A	1 per 20,000 tons ¹	1 every 3 months with each project sampling / testing technician	N/A
	Moisture/ Density Tests (Proctor)	Stockpile	1 per material type		1 per project ¹		
	Gradations	Processed material	1 per 2,000 tons		1 per 20,000 tons ¹		
	FF, LL, PI		1 per 4,000 tons				
	Thickness	Roadway after compaction	1 per 1,000 tons		NA	NA	

Note:

1. IA testing is not required on Projects with estimated quantity of 500 tons or less.
2. In instances where an IA test is not required the PM may request IA test at their discretion.

**Table 906.1.2:4
Aggregates**

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Processing, Placing and Compacting Existing Pavement (Section 302)	In-Place Density	Roadway	1 per 1,000 sq yd	N/A	1 per 50,000 sq yd	1 every 3 months with each project sampling/ testing technician	N/A
	Gradation (Dry field sieve verification per TTCP)	Stockpile	1 per 5,000 sq yd		1 per project		
Rip Rap Material (Section 602)	LA Wear (AASHTO T 96) & Soundness (AASHTO T 104)	Source	N/A	1 per year per source	N/A	N/A	N/A

Table 906.1.2:5
Minor Paving - Hot Mix Asphalt (HMA) Warm Mix Asphalt (WMA)

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
HMA/WMA Minor Paving (Section 416)	Asphalt Content (Strap Method or Meter)	Asphalt Plant	N/A	1 per day	N/A	1 every 3 months with each project sampling/ testing technician	N/A
	Air Voids	Roadway	3 per lot	N/A	1 per project ¹		
	Roadway Compaction Nuclear Densometer		10 per lot	Contractor to provide three (3) cores for Correlation of Densometer	1 per lot ¹		
	Thickness		3 per lot	Obtain Cores	N/A		
Open Graded Friction Course (Section 403)	Gradation, FF	Cold Feed	1 per 3,000 tons with a minimum of 1 per day	1 per 250 tons 1st 2,000 tons then 1 per 500 tons after 2,000 tons	1 per 15,000 tons ¹	1 every 3 months with each project sampling/ testing technician	N/A
		Crushing	N/A	1 per 1,000 tons	N/A		
	Performance Graded Asphalt Binder	From storage tank or Delivery Truck	1 sample consisting of three separate 1-quart increments per Project	Samples will be obtained by contractor personnel and observed by Department personnel	N/A	N/A	Material will be accepted in accordance with contract documents. A min. of one sample per project will be tested.

Note:

1. IA testing is not required on Projects with estimated quantity 1,000 tons or less.
2. In instances where an IA test is not required the PM may request IA test at their discretion.

**Table 906.1.2:6
Asphalt Recycling**

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Hot In-Place Recycling (Remixing Method) (Section 412)	Roadway Density (Nuclear Densometer)	Roadway	1 per 3,000 sq yd	N/A	1 per 30,000 sq yd	1 every 3 months with each project sampling/ testing technician	N/A
Single-Machine Hot In-Place Surface Repaving (Section 413)	Roadway Density (Nuclear Densometer)	Roadway	1 per 3,000 sq yd		1 per 30,000 sq yd		N/A
	HMA/WMA	Windrow / Hopper	See Section 416 Minor Paving		N/A		
Pavement Surface Restoration (In-Situ) (Section 415)	Roadway Density	Roadway	1 per 3,000 sq yd	N/A	1 per 30,000 sq yd		N/A
	Bulk Specific Gravity		2 sets/day				
Performance Graded Asphalt Binder (Section 402)	As required in the Contract Documents	From storage tank or delivery truck	Minimum 2 samples consisting of three separate 1 quart increments per Project. One from the Test Strip and one randomly selected from the project	Samples will be obtained by contractor personnel and observed by Department personnel. One sample will be obtained from the Test Strip, and one sample will be obtained for each 5000 tons asphalt mix	Random samples will be selected by District Laboratory Personnel and submitted to the SMB.		

Table 906.1.2:7
Asphalt Mineral Admixtures Materials

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Asphalt Emulsion (Section 402)	Manufactures certificate of compliance will suffice for testing credits	N/A	N/A	N/A	N/A	N/A	Material shall be provided by approved suppliers, in accordance with SMB procedures for Certification of Asphalt Suppliers.
Mineral Admixtures (Section 402)	Manufactures certificate of compliance will suffice for testing credits	N/A	N/A	N/A	N/A	N/A	N/A

Table 906.1.2:8
Major Paving (Sections 423/424/900s) - Hot Mix Asphalt (HMA), Warm Mix Asphalt (WMA)

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
HMA/WMA Superpave (Section 423/424)	Asphalt Content, Gradation, Gmm, Gmb, Air Voids, VMA, VFA, DP	Roadway	1 per 3000 tons Gmm will be determined at least once per day.	1 per 1000 tons. Gmm will be determined at least twice per day.	1 per 15,000 tons	1 every 3 months with each project sampling/ testing technician	Referee Testing
	Roadway Compaction (Cores)						
	Roadway Compaction (nuclear/non- destructive)						
	FF, SE, F&E, FAA, Moisture	Cold Feed before addition of Mineral Admixtures	N/A	As needed	N/A		
Performance Graded Asphalt Binder (Section 402)	As required in the Contract Documents	From storage tank or delivery truck	Minimum 2 samples each consisting of three separate one quart increments per Project. One from the Test Strip and one randomly selected from the project	Samples will be obtained by contractor personnel and observed by Department personnel. One sample will be obtained from the Test Strip, and one sample will be obtained for each 5000 tons asphalt mix	Random samples will be selected by District Laboratory Personnel and submitted to the SMB.	NA	Material will be accepted in accordance with contract requirements A minimum of two samples per project will be tested.
Asphalt Emulsion (Section 402)	Manufactures certificate of compliance will suffice for testing credits	N/A	N/A	N/A	N/A	Na	N/A
Mineral Admixtures (Section 402)	Manufactures certificate of compliance will suffice for testing credits	N/A	N/A	N/A	N/A	N/A	N/A

Table 906.1.2:9
Portland Cement Concrete
Minor Structures, Curb & Gutter, Side Walks, etc. (Sections 509, 510, 511, 521)

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Fine Aggregates	Gradation	Stockpile	1 per 2 weeks during concrete production	1 per week during concrete production	One IA test per 10 Agency Tests ¹	1 every 3 months with each project sampling/ testing technician	N/A
Course Aggregates	F.F., F&E, Specific Gravity						
Non-Shrink Grout Aggregate	Manufacture certificate of compliance will suffice for testing credits	N/A	N/A	NA	N/A	N/A	N/A
Project Acceptance Test	Compressive Strength Cylinders, and Plastic Properties	See Table 906.1.2:14	Each mix design per day of placement. Test the first three loads, with one randomly sampled for one set of cylinders. Sample for testing and cylinders, one random load from each subsequent 6 load subplot	Each mix design per day of placement. Test the first three loads and one load from each 6 load subplot for plastic properties	1 per project ¹	1 every 3 months with each project sampling/ testing technician	N/A

Note:

1. IA testing is not required on Projects with estimated quantities of all concrete classes combined less than 100 CY.
2. In instances where an IA test is not required the PM may request IA test at their discretion.

Table 906.1.2:10
Portland Cement Concrete
Major Structures, Substructures, Drilled Shafts (Sections 502, 509, 510, 511, 521)

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Fine Aggregates	Gradation	Stockpile	1 per 2 weeks during concrete production	1 per week during concrete production	One IA test per 10 Agency Tests ¹	1 every 3 months with each project sampling/ testing technician	N/A
Course Aggregates	F.F., F&E, Specific Gravity						
Non-Shrink Grout Aggregate	Manufacture certificate of compliance will suffice for testing credits	N/A	N/A	NA	N/A	N/A	N/A
Project Acceptance Test	Compressive Strength Cylinders, and Plastic Properties	See Table 906.1.2:14	Each mix design per day of placement. Test the first three loads, with one randomly sampled for one set of cylinders. Sample for testing and cylinders, one random load from each subsequent 6 load subplot	Each mix design per day of placement. Test the first three loads and one load from each 6 load subplot for plastic properties	1 per project ¹	1 every 3 months with each project sampling/ testing technician	N/A

Note:

1. IA testing is not required on Projects with estimated quantities of all concrete classes combined less than 100 CY.
2. In instances where an IA test is not required the PM may request IA test at their discretion.

Table 906.1.2:11
Portland Cement Concrete Pavement (Sections 509, 451)

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Fine Aggregates	Gradation	Stockpile	1 per 2 weeks during concrete production	1 per week during concrete production	One IA test per 10 Agency Tests ¹	N/A	N/A
Coarse Aggregates	F.F, F&E, Specific Gravity						
Project Acceptance Test	Compressive Strength Cylinders, and Plastic Properties	See Table B	Per day of placement. Test the first three loads, with one randomly sampled for one set of cylinders. Sample one random load from each subsequent 6 load subplot	Per day of placement. Test the first three loads and one load from each subsequent 6 load subplot for plastic properties	1 per 10,000 sy ¹	N/A	N/A
	Thickness	Roadway	1 per 300 cy	N/A	N/A		
Environmental Conditions	Evaporation Rate	Placement Site	N/A	Evaporation Potential determined at intervals not greater than 5 minutes until final curing system in place	N/A	N/A	N/A

Note:

1. IA testing is not required on Projects with estimated quantities of all concrete classes combined less than 100 CY.
2. In instances where an IA test is not required the PM may request IA test at their discretion.

Table 906.1.2:12
Portland Cement Concrete Superstructures (509, 510, 512)

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Fine Aggregates	Gradation	Stockpile	1 per 2 weeks during concrete production	1 per week during concrete production	One IA test per 10 Agency Tests ¹	N/A	N/A
Coarse Aggregates	F.F, F&E, Specific Gravity						
Project Acceptance Test	Compressive Strength Cylinders, and Plastic Properties	See Table B	Each mix design per day of placement. Test the first three loads, with one randomly sampled for one set of cylinders. Sample one random load from each subsequent 6 load subplot	Each mix design per day of placement. Test the first three loads and one load from each subsequent 6 load subplot for plastic properties	1 per 300 cy ¹	N/A	N/A
Environmental Conditions	Evaporation Rate	Placement Site	N/A	Evaporation Potential determined at intervals not greater than 5 minutes until final curing system in place	N/A	N/A	N/A

Note:

1. IA testing is not required on projects with estimated quantities of all concrete classes combined less than 100 CY.
2. In instances where an IA test is not required the PM may request IA test at their discretion.

Table 906.1.2:13
QLA Portland Cement Concrete Pavement (Sections 450, 509)

Item	Test Required	Sampling/ Testing Location	Agency Testing	Contractor Testing	Independent Assurance		State Materials Bureau
					Project Approach	System Approach	
Fine Aggregates	Gradation	Stockpile	1 per week during concrete production	1 per day per day of production	Minimum 2		NA
Coarse Aggregates							
Project Acceptance Test	Compressive Strength Cylinders, and Plastic Properties	See Table B	1 per 500 cy	One set of cylinders from one of the first three trucks. 1 set per 125 cy thereafter For each of the first three trucks. 1 set per 125 cy from the trucks selected for compressive strength testing thereafter.	1 per 2,000 cy	1 every 3 months with each project sampling/ testing technician	Referee Testing
	Thickness	Roadway	1 per 5,000 sq yd	1 per 2,500 sq yd	N/A	N/A	
Environmental Conditions	Evaporation Rate	Placement Site	N/A	Evaporation Potential determined at intervals not greater than 5 minutes until final curing system in place	N/A	N/A	N/A

Table 906.1.2:14

<u>Method of Placement</u>	<u>Sample Location</u>
Pumped	Point of discharge from pump into structure
Direct Discharge from Truck	At end of discharge chute of truck
Crane and Bucket	From discharge chute of bucket
Conveyor Belt	From Material on roadway after being discharged from conveyor
Slip Form (Curb and Gutter/Barrier Walls)	Point of discharge into extrusion machine
Sip Form (PCCP)	From grade in front of paving machine

Table 906.1.2:15

Tolerances for Comparison of Independent Assurance Sample Tests to Acceptance and Process Control Tests

<u>CHARACTERISTICS</u>	<u>TOLERANCES</u>
Moisture/Density Test (Proctor)	± 3.0 PCF*, ± 2 Units for Moisture
In Place Moisture/Density (Roadway)	± 3.0 PCF, ± 2 Units for Moisture
Plasticity Index (P.I.)	± 3 Units
*Only if proctors are run by both District and Project. If proctors are not run by both District and Project ± 5.0 PCF	
<u>GRADATION</u>	
1 1/2" to 3/4"	± 6 Units
1/2" to No. 4	± 5 Units
No. 8 through No. 100	± 4 Units
No. 200	± 2 Units**
Fractured Faces	± 5 Units
Flat & Elongated	± 5 Units
Fine Aggregate Angularity	± 3 Units
Sand Equivalent	± 4 Units
Aggregate Specific Gravity	± 0.020
<u>CONCRETE</u>	
Slump	± 0.5 Inch
Unit Weight	± 2.0 PCF
Compressive Strength	Within-test coefficient of variation less than 5 %
	23
<u>HOT MIX ASPHALT (HMA)</u>	
Roadway Density (Cores from Project, retained by Agency and Contractor Personnel)	± 0.025 Units
Density (Nuclear)	± 4 Units
VMA	± 1.0 Units
DP	± 0.3 Units
Asphalt Content (Ignition Burn Oven)	± 0.30 Units (Mixes with Virgin Material and RAP less than equal to 15%), ± 0.40 (With greater than 15% RAP)
Bulk Specific Gravity at Ndes	± 0.025 Units
Maximum Specific Gravity	± 0.020 Units

**For high volume change soil (Section 207) the allowable tolerance shall be ± 5 units