FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
SPECIAL CONTRACT REQUIREMENTS

Project **PA ERFO FW TCM 2020-1(1)**
JOHN HEINZ WILDLIFE REFUGE AT TINICUM

The following Special Contract Requirements amend and supplement the *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-14)*, U. S. Department of Transportation, Federal Highway Administration.

Section 101. — TERMS, FORMAT, AND DEFINITIONS

101.04. Delete the definitions for "Contract Time", "Drawings", "Notice to Proceed", "Substantial Completion", and "Work", and substitute the following:

Contract Time — The specified time allowed for the completion of the contract work. It may be a set date or a number of days from the Notice to Proceed.

Drawings — Documentation prepared by or for the Contractor consisting of drawings, diagrams, illustrations, schedules, and other data which show the scope, extent, and character of the work.

Notice to Proceed — Written notice to the Contractor that establishes the starting date for performance of the contract. See FAR Clause 52.211-10 Commencement, Prosecution, and Completion of Work.

Substantial Completion — The point at which the project is complete such that it can be safely and effectively used by the public without further delays, disruption, or other impediments. For conventional bridge and highway work, the point at which bridge deck, parapet, pavement structure, shoulder, drainage, sidewalk, major demolition, roadway obliteration, permanent signing and markings, traffic barrier, safety appurtenance, utility, and lighting work is complete. The point at which liquidated damages, if any, stop being charged.

Work — The entire completed construction or various separately identifiable parts required to be performed or furnished under the contract. Work includes and is the result of performing or furnishing design professional services and construction required by the contract.

101.04. Add the following:

Completion Date — The date set at the Notice to Proceed by which all contract work is to be complete.

Final Acceptance — The point at which the Government formally accepts the work and relieves the Contractor of further responsibility for the maintenance of the project. This does not include warranties, which remain in effect until they expire. See FAR Clause 52.246-21 Warranty of Construction.

Final Completion — The point at which all work and tests are complete and all test results have been received. For typical projects, the point at which all punch-list items are acceptably completed and all turf is established. A request for final acceptance of the work cannot be made by the Contractor until this point is reached.

Partial Acceptance — The point on a project where a segment of the work is completed and, at the Government's option, it takes possession for its use. The CO may relieve the Contractor of further responsibility for maintaining partially accepted work.

Period of Performance — The time from award of the contract to final acceptance of all contract work by the Government.

Quality Control (QC) — A planned system with specific actions by a Contractor to monitor, assess, and adjust processes to minimize variability to ensure that the final product meets the specified level of quality and designed service life. Also called process control.

Validation — The mathematical comparison of two independently obtained sets of data.

Verification — Acceptance testing performed by the Government. Used to determine if the Contractor's quality control test results can be used by the Government for acceptance decisions.

Section 104. — CONTROL OF WORK

104.03(c). Delete the first sentence of the first paragraph and substitute the following:

> Furnish one full-size (22-inch by 34-inch) paper copy of the plans from the Government-provided electronic plans, and use this set of plans exclusively for as-built drawings.

104.05. Add the following:

Where the ground is saturated with water or during periods of freezing and thawing, the CO may impose further load restrictions or suspend hauling.

Operate loaded vehicles hauling material at speeds not exceeding 40 miles per hour or the posted speed limit, whichever is lower, and spaced at 500-foot minimum intervals. When hauling on bridges, do not exceed 25 miles per hour or the posted speed limit, whichever is lower, or operate more than 1 loaded hauling vehicle at a time.

Hauling will only be permitted from eastbound Route 291 (Governor Printz Boulevard) at the location shown in the plans. Furnish lock and keys for existing gate and lock gate when not in use. Minimize hauling over completed pavement.

Section 105. — CONTROL OF MATERIAL

105.04. Add the following:

The Contractor may use closed portions of the roads and the area under the I-95 bridges as a staging area. Obtain approval before using this location for staging.

Line the perimeter of staging areas with fiber roll according to Section 157.

Document the preconstruction condition of proposed staging areas using a combination of photographs and survey measurements as directed. Take a sufficient number of high-resolution

color digital photographs to adequately record the preconstruction condition. Clearly label the photographs with notes, GPS, or other referencing necessary to adequately establish each photograph's location. Provide electronic copies of the photographs to the CO. These photographs will be used to establish the extent of restoration required when the staging area is no longer needed. Do not begin staging area work until the documentation of the preconstruction conditions has been approved.

Restore staging areas to their preconstruction condition as directed and at no additional cost to the Government.

Section 106. — ACCEPTANCE OF WORK

106.01. Delete the ninth and tenth paragraphs, and substitute the following:

The Government may inspect, sample, or test any work, including verification sampling and testing, at any time before final acceptance. If the Government tests work, copies of test reports will be furnished to the Contractor upon request. Government tests may or may not be performed at the work site.

If Contractor testing and inspection is verified by the Government, including statistical verification, the Government may elect to use the Contractor's results to evaluate work for acceptance.

Section 107. — LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

107.01. Add the following:

Obtain a Highway Occupancy Permit (HOP) for work within the Pennsylvania Department of Transportation (PennDOT) right of way. The work within the right of way includes placing temporary traffic control signs along Route 291 (Governor Printz Boulevard). The Government has provided a partially completed HOP application in the PennDOT ePermitting System under application number 3600000. Complete the permit application at https://www.epermitting.penndot.gov/EPS/home/home.jsp. The permit application fee has been waived. Clear vegetation along Route 291 according to Section 202 before submitting the completed permit application.

Obtain necessary dust control permits from the City of Philadelphia Air Management Services.

Add the following after Subsection 107.11:

107.12 Protection of Threatened, Endangered, and Sensitive Wildlife Species. The project may provide habitat for coastal plain leopard frogs. Protect coastal plain leopard frogs and their habitat as follows:

(a) Obtain the services of a qualified coastal plain leopard frog surveyor (biological monitor) who possesses a Scientific Collector's Permit issued by the Pennsylvania Department of

Environmental Protection (PADEP) to provide frog monitoring services. The biological monitor will perform the following:

(1) Before the start of construction operations, brief all workers on required conservation measures and ensure that all sensitive areas are identified and avoided.

(2) Before the installation of erosion and sediment controls and wildlife barriers, search all areas of expected disturbance of the frogs.

(3) Oversee and monitor the installation of all erosion and sediment controls.

(b) Install silt fence according to Section 157 to exclude frogs from the project area as approved by the CO. Ensure there are no gaps along the bottom of the fence.

(c) Inspect silt fence daily and notify the CO if repairs are needed. Report any breaches of the silt fence to the biological monitor. The biological monitor will conduct a clearance search for frogs.

(d) If frogs are identified either inside or within 25 feet outside the work area, immediately stop work activities and notify the biological monitor and the CO. Do not resume work without approval from the CO. Activities may continue at other work sites where no frogs have been found.

(e) Report all sightings of coastal plain leopard frogs to the CO and the Pennsylvania (PA) Fish and Boat Commission.

Section 108. — PROSECUTION AND PROGRESS

108.01. Add the following:

Construction operations are limited as follows:

(a) No work will be permitted on Saturdays, Sundays, or National legal holidays.

(b) No work will be permitted between April 15 through August 31.

If the Contractor finds it necessary to work on one of these restricted days, request approval from the CO at least 7 days before the planned work.

The Contractor may work simultaneously on multiple sites, as approved by the CO.

Coincident with this contract, other contracts for construction projects may be underway or may commence during the construction of this project. Coordinate with the CO and other contractors to minimize disruption to this project and to other construction projects in the area.

108.03(c). Add the following:

Under FAR Clause 52.249-10, Default (Fixed-Price Construction), the Contractor can request a time extension for a delay due to unusually severe weather as defined under Section 155. If a time extension is requested for unusually severe weather, submit a time impact analysis according to Subsection 108.03(b) and include supporting historical weather data according to Subsections 155.04A and 155.04B. The following criteria will be used for determining a time extension for unusually severe weather:

(1) Time adjustment for rain delays. If the net number of actual workdays lost to rain is less than the total lost days for the month in question, then no time adjustment will be made. If the net number of actual workdays lost to rain is more than the total lost days for the month in question, then a time extension may be granted.

(2) Time adjustment for other weather delays. If a time extension is requested for other unusually severe weather conditions such as snow, extreme cold or heat, high winds, etc., follow the same calculation, submittal, and criteria procedures as outlined for rain delays.

108.04. Delete the fourth paragraph.

Section 109. — MEASUREMENT AND PAYMENT

109.08(b). Add the following:

Submit invoices by the 7th day after the closing date. Invoices received after 3:00 p.m. Eastern Time will be marked as received the next business day. Invoices received after the 16th day following the closing date will not be accepted for payment processing that month. Include late, unprocessed invoice submittals in the following month's invoice.

109.08(c). Add the following:

Submit invoices electronically to EFLConstructionInvoices@dot.gov with email copy to the CO.

Section 152. — CONSTRUCTION SURVEY AND STAKING

152.04(b). Add the following:

When GPS and RTS are used, submit a quality control plan which includes how control will be established and maintained.

152.04. Delete the last sentence of the eighth paragraph and substitute the following:

Reestablish any missing initial reference lines, control points, and stakes set by the Government.

152.05(a). Add the following:

Set benchmarks a maximum spacing of 1,000 feet along the length of the roadway.

152.05. Delete the text of Subsections **(h)**, **(i)**, **(j)**, and **(k)**; they are not required.

Section 154. — CONTRACTOR SAMPLING AND TESTING

154.02. Add the following:

Submit proposals for using alternate AASHTO or state department of transportation approved test methods in writing for approval. Alternate methods may be allowed based on documented equivalence to the method specified and if approved by the CO.

154.03. Add the following:

Provide the Government's portion of the sample or split sample in an acceptable container suitable for shipment with clear identification of the sample on the container to the CO. The CO will insert a completed FHWA Form 1600E, Government Lab Test Request inside the container. The CO will seal the container with specialty chain-of-custody security tape and will sign the security tape.

The CO will furnish a copy of the completed FHWA Form 1600E. Attach the FHWA Form 1600E copy to the outside of the container so the sample identification is clearly and completely visible.

Ship the security-sealed sample by overnight or next day shipping to the EFLHD Central Laboratory at the following address within 24 hours of receiving the sample from the CO:

Federal Highway Administration
Eastern Federal Lands Highway Division
1827 Jack Delozier Drive
Sevierville, Tennessee 37876
ATTN: MATERIALS LABORATORY

Provide the sample's shipping information, including tracking number, sample identification, and expected date of delivery, within 24 hours.

For the split sample of asphalt concrete pavement material, provide boxes that are coated with silicone-coated paper throughout the interior.

Section 155. — SCHEDULES FOR CONSTRUCTION CONTRACTS

155.02. Add the following:

(g) Reasonably predictable weather. The number of workdays that can expect to be lost in any month due to rainfall based on 10-year historical weather data.

(h) Rain day. A potentially lost workday on which rainfall is equal to or greater than 0.10 inches.

(i) Drying day. A workday immediately following a rainfall equal to or greater than 1.00 inch which is potentially lost because of wet ground conditions.

(j) Workday. A day not excluded from work by Section 108.

(k) Unusually severe weather. When the number of actual workdays lost is greater than the reasonably predictable weather for a specific month.

155.04(f). Add the following:

If a subcontract has not yet been awarded for a certain portion of the work, include the schedule for that work.

155.04. Add the following:

(j) A completed Table 155-1 prepared according to Subsection 155.04A.

Add the following after Subsection 155.04:

155.04A Reasonably Predictable Weather. Determine reasonably predictable weather for this contract by completing Table 155-1. Calculate data for Table 155-1 by computing the average number of workdays lost (rain days plus drying days) for each month and the standard deviation from the average, using the last 10 years of historical weather data from the nearest National Oceanic and Atmospheric Administration (NOAA) weather data collection station. Add the average number of workdays lost to the standard deviation. The total number of lost days (average workdays lost plus 1 standard deviation, rounded to whole days) will be considered normal for each month.

At the option of the Contractor, provide the necessary instrumentation to support weather-related impacts to the project if using the nearest weather station is impractical. If onsite weather instrumentation is not provided, use the nearest weather station.

Provide a weekly summary of the weather data gathered to the CO.

155.04B Unusually Severe Weather. If requesting a time extension due to unusually severe weather, calculate the number of actual workdays lost by totaling the actual rain days plus the

actual drying days occurring in the month in question. From this total, deduct any workdays meeting any one of the following conditions:

(a) The rain day or drying day occurred on a non-work weekday such as a holiday.

(b) The rainfall occurred at a time when no weather dependent work was in progress or occurred during planned or unplanned shutdowns due to other circumstances such as equipment failure, strikes, material supplies, delays, etc.

(c) The Contractor was still working or able to work on weather dependent activities to the extent that less than 50 percent of the workday was lost due to weather.

If the net number of actual workdays lost is greater than the total lost days, then unusually severe weather occurred during the month in question.

Table 155-1
Reasonably Predictable Weather

Project Number:			
Project Location:			
NOAA Station Location:			
Data Years (10-year history):			
Month	**Average Workdays Lost**	**Standard Deviation**	**Total Lost Days**
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			

155.05. Delete the first sentence and substitute the following:

Prepare and submit a Bar Chart Method (BCM) initial construction schedule.

155.05(a)(1)*(c)*. Add the following:

> Include unreflected items, or components of work within a pay item, as separate activities as directed by the CO.

155.06. Delete the first sentence of the second paragraph and substitute the following:

Unless previously approved by the CO, changes to the construction schedule for work that is still to be completed can only be changed with a time impact analysis according to Subsection 108.03, and a Baseline Construction Schedule revision according to Subsection 155.07.

155.07. Delete the third sentence and substitute the following:

Continue to submit monthly schedule updates according to Subsection 155.06 until a baseline construction schedule revision is approved.

Section 156. — PUBLIC TRAFFIC

156.03. Add the following:

Close Haul Road and Trolley Bed Road to traffic during construction as shown in the plans and approved. Open roads within 24 hours after completion of work or as directed.

156.04(f). Add the following:

> Ensure that drains and inlets within the project limits are fully functional throughout the duration of the project.

156.07. Delete the second and third paragraphs, and substitute the following:

Nighttime operations are not permitted.

156.08. Delete the second paragraph and substitute the following:

The superintendent may serve as the TCS provided the requirements of Subsection 156.02 are met.

Section 157. — SOIL EROSION AND SEDIMENT CONTROL

157.04. Add the following:

For the 404 Permit and two weeks prior to the construction pre-construction meeting, sign the Notification of Commencement provided by the CO.

Section 202. — ADDITONAL CLEARING AND GRUBBING

202.02. Add the following:

(e) Roadside cleanup. Removing vegetation along shoulders. This work includes trimming tree branches.

Add the following after Subsection 202.07:

202.07A Roadside Cleanup. On Route 291, cutback all vegetation within a distance of 10 feet, measured horizontally, from the right edge line on the eastbound side of the road at the location shown in the plans or as directed by the CO. Mow grass and cut all trees and shrubs no higher than 12 inches from ground level. Mulch or lop down slash in a manner that does not result in material falling or rolling back into the roadway. Where sight distance is a concern, cut trees or limbs overhanging the roadway to a vertical distance of 14 feet above the roadway surface as approved by the CO.

202.08. Add the following:

Roadside cleanup will be evaluated under Subsections 106.02 and 106.04.

Section 203. — REMOVAL OF STRUCTURES AND OBSTRUCTIONS

203.05(b). Delete the Subsection and substitute the following:

(b) Burn. Burning is prohibited.

203.05(c). Delete the Subsection and substitute the following:

(c) Burn. Burning is prohibited.

Section 207. — EARTHWORK GEOSYNTHETICS

207.09. Add the following:

Do not measure geotextile required for riprap for payment.

Section 301. — UNTREATED AGGREGATE COURSES

301.03. Add the following to the second paragraph:

Submit the representative 300-pound sample to the EFLHD Central Laboratory in Sevierville, Tennessee at the address shown in Subsection 154.03.

301.03. Add the following:

An alternate state department of transportation aggregate gradation that is produced according to Subsection 703.05 may be submitted for approval. Provide target values within the allowable target value range of the state department of transportation aggregate gradation. When target values are not provided, the preproduction target values will be the midpoint of the allowable target value range of the state department of transportation aggregate gradation. The allowable deviation (±) from the target values will be according to Table 703-2A. The maximum allowable pay factor under Subsection 301.10 for a state department of transportation aggregate gradation will be 1.00.

Furnish aggregate for aggregate surface course that matches the color of the existing aggregate surface on Trolley Bed Road. Submit a sample of the aggregate surface course for approval at least 10 days prior to use.

Delete Section 403 and substitute the following:

Section 403. — ASPHALT CONCRETE

Description

403.01 This work consists of constructing asphalt concrete facilities using a hot or warm mix asphalt (HMA or WMA).

Construction Requirements

403.02 Composition of Mix (Job-Mix Formula). Conform to current state department of transportation material specification for asphalt concrete.

Submit a state department of transportation JMF approved within the past 12 months for approval at least 30 days before production that meets the current state department of transportation requirements for the location and type of facility being constructed.

For each proposed JMF, submit a production certification conforming to state department of transportation specifications. Submit the strength, quality, and gradation specifications for the asphalt concrete mix. Include copies of laboratory test reports that demonstrate aggregate, asphalt binder, additive, and mix properties meet state department of transportation specifications. Submit the maximum specific gravity (density) of the mix as determined by AASHTO T 209.

If requested, submit a representative 100-pound loose mix sample 21 days before placement.

403.03 Production Start-Up Procedures. Conform to Subsection 153.04(b).

403.04 Equipment. Conform to Subsection 401.05.

403.05 Surface Preparation. Conform to Subsection 401.06.

403.06 Weather Limitations. Conform to Subsection 401.07.

403.07 Hauling. Conform to Subsection 401.11.

403.08 Placing and Finishing. Do not use mixes produced from different plants unless the mixes are produced according to the same JMF, use material from the same sources, and are approved.

Place HMA at temperatures shown in Table 401-2. Place WMA at temperatures according to Subsection 401.03(c)(5). Measure temperature of the asphalt concrete mix in the hauling vehicle immediately before dumping into the spreader or measure it in the windrow immediately before pickup.

Place the mix with a paver conforming to Subsection 401.05. Control horizontal alignment using a reference line. Automatically control the grade and slope from reference lines, a ski and slope control device, or dual skis. Use skis having a minimum length of 20 feet.

In areas where mechanical spreading and finishing are impractical, place and finish the asphalt concrete mix by other approved methods to produce a uniform finished surface.

Offset the longitudinal joint according to Subsection 401.13.

403.09 Compacting. Thoroughly and uniformly compact the asphalt surface by rolling. In places inaccessible to rollers, use approved alternate equipment. Do not cause cracking, shoving, or undue displacement.

Monitor the compaction process with nuclear density gauges calibrated according to ASTM D2950 within 6 months before use. Check the standard and reference on each day of use according to the ASTM D2950 standardization and reference check sections. Compact to at least 91.0 percent of the maximum specific gravity (density) determined in Subsection 403.02.

Do not pass rollers over an unsupported edge of freshly laid asphalt concrete mix. Continue rolling until roller marks are eliminated, cracks are sealed, and the required density is obtained. For HMA, do not roll the mix after the surface cools below 175 °F.

403.10 Joints, Trimming Edges, and Cleanup. Conform to Subsection 401.15.

403.11 Pavement Straightedge Measurement. Measure the pavement surface using a 10-foot metal straightedge at right angles and parallel to the centerline. Defective areas are deviations between the surface and the bottom of the straightedge more than ¼ inch measured between two contacts of the straightedge or deviations more than ¼ inch measured at the end of the straightedge.

Correct defective areas according to Subsection 401.16(g). Obtain approval for the method of correction.

403.12 Acceptance. See Table 403-1 for sampling, testing, and acceptance requirements. If no asphalt concrete type is designated, evaluate according to Type I in Table 403-1.

Asphalt binder will be evaluated under Subsection 106.03.

Asphalt concrete mix properties will be evaluated under Subsections 106.03 and 106.04.

Construction of asphalt concrete facilities will be evaluated under Subsections 106.02 and 106.04.

Pavement straightedge measurement will be evaluated under Subsection 106.04.

Measurement

403.13 Measure the Section 403 pay items listed in the bid schedule according to Subsection 109.02.

Payment

403.14 The accepted quantities will be paid at the contract price per unit of measurement for the Section 403 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Table 403-1
Sampling, Testing, and Acceptance Requirements

Material or Product (Subsection)	Type of Acceptance (Subsection)	Characteristic	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time	Remarks
Mix Design								
Asphalt concrete, Type I	Measured & tested for conformance (106.04)	Job-mix formula	Subsection 403.02	If requested	Flowing mix stream (bin or belt discharge) or behind the paver before compaction	Yes	Before approval of job-mix formula	Tested by the Government
Production								
Asphalt concrete, Type I	Measured & tested for conformance (106.04)	Job-mix formula	Subsection 403.02	1 per 700 tons	Behind the paver before compaction	Yes	24 hours	–
		Density(1)	AASHTO T 166	"	In-place after compacting	"	"	Deliver cores to CO after testing is completed
		Maximum specific gravity(2),(3)	AASHTO T 209	"	Behind the paver before compaction	"	"	–
		Surface tolerance	Straightedge measurement, Subsection 403.11	Continuously, after compaction	Finished pavement surface	No	"	–
		Placement temperature	–	First load and as directed thereafter	Hauling vehicle before dumping, or windrow before pickup	"	Upon completion of measurement	–
	Process control (153.03)	Gradation at the plant	AASHTO T 27 & T 11	Contractor determined	Cold feed or hot bins as applicable	No	24 hours	–
		Moisture content of aggregates	AASHTO T 255	"	Stockpile	"	"	–
		Density	ASTM D2950	1 per 500 ft	In-place after compacting	"	"	–

Table 403-1 (continued)
Sampling, Testing, and Acceptance Requirements

Material or Product (Subsection)	Type of Acceptance (Subsection)	Characteristic	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time	Remarks
Asphalt concrete, Type II	Measured & tested for conformance (106.04)	Density	ASTM D2950	1 per 500 ft	In-place after compacting	No	24 hours	–
		Surface tolerance	Straightedge measurement, Subsection 403.11	Continuously, after compaction	Finished pavement surface	"	"	–
		Placement temperature	–	First load and as directed thereafter	Hauling vehicle before dumping, or windrow before pickup	"	Upon completion of measurement	–

(1) For asphalt concrete Type I, cut two 6-inch diameter side by side cores. Obtain cores as soon as the pavement has cooled sufficiently to allow coring, but not later than 12 hours after final rolling. Remove them with a core retriever and fill and compact the core holes with asphalt concrete mixture. Label the cores and protect them from damage due to handling and temperature. Submit one core for verification testing. Dry the other core to constant mass at 125±5 °F or vacuum dry it according to ASTM D7227 before performing the core density and measuring the thickness. Use 62.245 pounds per cubic foot to convert specific gravity to density.
(2) After production paving has begun, use the average maximum specific gravity value (AASHTO T 209) for each day to adjust the percent compaction for the cores that represent that day's paving.
(3) Do not use the supplemental procedure for mixtures containing porous aggregate (dry back method of AASHTO T 209).

Section 412. — ASPHALT TACK COAT

412.06. Delete the second paragraph and substitute the following:

Apply the asphalt tack coat according to Subsection 407.09 and at a rate indicated in Table 412-1.

Provide the CO with the target residual and bar application rates within the range specified in Table 412-1. Control the rate of application within plus or minus 0.01 gallons per square yard of the target application rate and within the allowable range. Provide the CO with the specific gravity of the bituminous material corrected for spray temperature.

Set spray bar height to ensure uniform coverage and at least a double overlap, but not to exceed triple overlap coverage. Set nozzle angle settings between 15 to 30 degrees from the center of the spray bar axis. Use the same size nozzles, all set at the same angle, open, and functioning properly.

Table 412-1
Asphalt Tack Coat Application Rate(1)

Pavement Type	Residual Rate(2)	Bar Rate PG Binder(3)	Bar Rate Undiluted Emulsion(4)	Bar Rate Diluted Emulsion(5) (1:1 Ratio)
New Asphalt Concrete Pavement	0.020 - 0.045	0.025 - 0.045	0.030 - 0.065	0.060 - 0.130
Existing Asphalt Concrete Pavement	0.040 - 0.070	0.040 - 0.060	0.060 - 0.105	0.120 - 0.210
Milled Asphalt Concrete Pavement	0.040 - 0.080	0.040 - 0.080	0.060 - 0.120	0.120 - 0.240
Portland Cement Concrete Pavement	0.030 - 0.050	0.030 - 0.050	0.045 - 0.075	0.090 - 0.150

(1) Application rates are in gallons/yd^2.
(2) Residual asphalt: the remaining asphalt after an emulsion has completely cured or set.
(3) Maintain a PG binder application rate of 1.0 times the target residual tack coat rate.
(4) Maintain an undiluted application rate of 1.5 times the target residual tack coat rate.
(5) Maintain a diluted application rate of 3.0 times the target residual tack coat rate.

412.08. Delete the second paragraph and substitute the following:

Do not measure asphalt tack coat for payment.

Section 619. — FENCES, GATES, CATTLE GUARDS AND BOLLARD POSTS

619.03. Add the following:

(d) Wood fence. Furnish fence rail and posts that match the dimensions and appearance of the existing fence. Submit fence drawings according to Subsection 104.03.

Excavate holes for posts. Space posts at approximately 6-foot intervals or as approved by the CO. Measure the post spacing interval parallel to the existing ground slope. Set posts in a vertical position. Set posts in concrete.

619.03(b)(1). Delete the Subsection and substitute the following:

(1) Posts. Furnish temporary chain link fence posts. Install temporary posts on surface-mounted concrete footings. Submit chain link fence and gate drawings according to Subsection 104.03.

619.03(b)(5). Delete the third paragraph.

619.10. Add the following:

Do not measure chain link fence and gates installed for temporary traffic control for payment.

Section 620. — STONE MASONRY

620.03. Add the following:

For stone masonry headwalls, construct Class B masonry with a 1.5 RF finish.

Carefully remove and salvage stones from existing stone masonry headwalls according to Subsection 203.03. Use the salvaged stone for constructing new headwalls.

Provide stone that is similar in size, shape, origin, and composition to the native stone on the project for new headwalls. Do not use any stones larger in greatest dimension than the largest existing stone, nor smaller in least dimension than the smallest existing stone.

Provide mortar that matches the color of the existing mortar. Submit the mortar to the CO for approval.

620.05. Add the following after the fourth paragraph:

Place stones to match the existing stone pattern and appearance as the original structure.

Section 625. — TURF ESTABLISHMENT

625.03. Add the following:

Apply turf establishment on all disturbed areas except paved or rock surfaces.

625.06. Add the following:

Apply fertilizer by the dry method.

625.07. Add the following:

Apply seed by the dry method according to the rates shown in Tables 625-1 and 625-2.

Apply the Cover Crop Seed Mix followed by the Wetland Seed Mix. Apply only Cover Crop Seed Mix between June through September and return to apply the Wetland Seed Mix during the specified seeding season.

Table 625-1
Composition of Wetland Seed Mix

Common Name	Scientific Name	Pounds per Acre
October 1 through May 31		
Lurid Sedge	*Carex lurida, PA ecotype*	4.44
Fox Sedge	*Carex vulpinoidea, PA ecotype*	4.00
Virginia Wildrye	*Elymus virginicus, PA ecotype*	4.00
Deertongue, Tioga	*Panicum clandestinum, Tioga*	2.76
Blunt Broom Sedge	*Carex scoparia, PA ecotype*	2.72
Soft Rush	*Juncus effusus*	0.60
Rice Cutgrass	*Leersia oryzoides, PA ecotype*	0.40
Fringed Sedge	*Carex crinita, PA ecotype*	0.20
Star Sedge	*Carex intumescens, PA ecotype*	0.20
Awl Sedge	*Carex stipata, PA ecotype*	0.20
Fowl Mannagrass	*Glyceria striata, PA ecotype*	0.20
Path Rush	*Juncus tenuis, PA ecotype*	0.10
Tussock Sedge	*Carex stricta, PA ecotype*	0.06
Green Bulrush	*Scirpus atrovirens, PA ecotype*	0.06
Woolgrass	*Scirpus cyperinus, PA ecotype*	0.06
	Total Seed	**20.00**

Table 625-2
Composition of Cover Crop Seed Mix

Common Name	Scientific Name	Pounds per Acre
May 1 through August 31		
Japanese Millet	*Echinochloa esculenta*	10
	Total Seed	**10**
September 1 through April 30		
Grain Rye	*Secale cereale*	30
	Total Seed	**30**

625.08. Add the following:

Apply mulch by the dry method.

625.08(a). Delete the second and third sentences and substitute the following:

Mulch with wheat or rye straw at a rate of 8,000 pounds per acre, air-dry weight, to obtain a 1- to 2-inch mat so that no bare soil shows. Do not over mulch. Anchor mulch immediately after placement using a crimper, applying an approved liquid mulch binder, or covering with an organic, 100 percent biodegradable, natural fiber netting or erosion control blanket. Loose, unanchored straw is not acceptable. Do not use hay or wood chips.

Section 635. — TEMPORARY TRAFFIC CONTROL

635.04. Add the following:

Install chain link fence and gates according to Section 619.

635.04(d). Add the following:

Remove or completely cover unnecessary signs in accordance with Subsection 635.07.

635.04(g). Add the following:

If "marginal" or "unacceptable" devices are not corrected in a timely manner, the CO will provide written notification of those traffic control items not in compliance with the contract. If the Contractor fails to bring the specified items into compliance within a 24-hour period, the CO may assess a daily reduction in payment to the Contractor of $500 per day. The CO may continue to assess the daily reduction in payment for each additional 24-hour period until the items are corrected. This reduction in payment will be subtracted from the Contractor's progress payments and will be unrecoverable. Use of this reduction in payment does not waive the CO's right to suspend the work in whole or in part according to Subsection 108.05.

635.04(i). Add the following:

Submit a certification indicating that the devices are crashworthy as defined in Subsection 101.04.

635.04. Add the following:

(j) As a minimum, furnish and install the following temporary traffic control devices:

(1) Construction signing;

(2) Type 3 barricades;

(3) Flaggers;

(4) Chain link fence and gates;

(5) Other miscellaneous temporary traffic control devices that may be required by the CO.

635.07. Delete the third paragraph and substitute the following:

Remove or completely cover unnecessary signs, or signs that conflict with the construction signing or the approved traffic control plan. Cover signs that are not removed so that no part of the covered sign is visible to traffic. Use sign covers meeting the following requirements:

(a) Large enough to completely cover the sign;

(b) Easy to attach to and remove from the sign without damaging the sign face. Do not use adhesives, glues, tapes, or mechanical fasteners that mar face of the sign;

(c) Black, non-reflective, and opaque;

(d) Made of plywood (minimum of 3/8-inches thick), aluminum (minimum of 0.040 inches thick), or other acceptable materials that will not be lifted, bent, or damaged by wind as approved by the CO; and

(e) Durable enough to resist deterioration due to weathering and atmospheric conditions for the duration of the project.

635.23. Add the following:

Chain link fence and gates will be evaluated under Section 619.

Section 637. — FACILITIES AND SERVICES

637.02. Delete the first sentence of the first paragraph and substitute the following:

Provide the facilities and services beginning 14 days before project work begins and ending 21 days after final acceptance of all contract and Government option work.

637.02. Add the following:

Locate the Government field office within 5 miles of the project site and where high-speed Internet service, as described in Subsection 637.04(b)(3), is available. Obtain approval from the CO before delivery of a mobile field office or any rental agreements are signed.

Clean the Government field office weekly to the approval of the CO.

637.03(a). Add the following:

Provide a storage area to accommodate the necessary samples of materials for testing. Provide enough space for each sample. Samples may be stacked three units high using the sample containers required in Subsection 154.03. Provide one of the following:

- A fifth divided and separate area within the Government field office.

- A separate storage structure with minimum dimensions of 7-foot wide by 8-foot long by 6-foot high stationed within 50 feet of the Government field office. If an exterior structure is used, protect items being stored from contamination and weather elements, and maintain a temperature ranging from 40 ºF to 80 ºF.

637.03. Delete Tables 637-1 and 637-2 and substitute the following:

Table 637-1
Minimum Requirements for Field Office and Associated Services

Property	Size of Quantity
Floor space, square feet	400
Locking outside door, deadbolt with keys	1
Steps with slip-proof tread and handrails	(1)
Windows with locks	2
Total window area, square feet	30
Ceiling height, 7 feet	✓
Rooms including toilet room	4
Room size, except toilet room, square feet	100
Closet, 45-cubic foot	✓
Shelves, 12-inch depth, square feet	12
Electrical lighting	✓
Heat and air conditioning(2), maintain temperature of 72±7 °F	✓
Adequate electrical outlets	✓
Surge protectors	✓
Adequate electricity (120 and 240 V, 60 cycle as applicable)	✓
Adequate potable water supply	✓
Drinking water cooler with water supply	✓
Functioning sink with faucets for both hot and cold water with paper towels supply	✓
Functioning indoor toilet with toilet paper supply	✓
Parking for three vehicles on gravel surface	✓
6-foot high chain link fence with gate around building and parking area	✓

(1) As required by local code.
(2) If window air conditioning is provided, provide a separate unit for each room.

Table 637-2
Minimum Field Office Furnishings

Property	Size of Quantity
Table, 30-inch wide × 8-foot long × 30-inch high	1
File cabinet, 2-drawer, fire resistant, metal, with lock and keys	1
File cabinet, 4-drawer, metal	1
Desk, 12-square foot(1)	2
Desk lamp(1)	2
Office chair(1)	5
Storage cabinet, 6-foot wide × 36-inch high × 18-inch deep	1
Fire extinguisher	1
Compact refrigerator, 2.4 cubic feet minimum	1
Microwave oven, 1 cubic feet and 700 watts of cooking power minimum	1

(1) Meet accepted industry standards for ergonomics.

637.03(b). Delete the Subsection and substitute the following:

(b) Equipment. Furnish the following office equipment in the Government field office:

(1) Laser copy machine. One self-feeding plain paper photocopying machine with the following minimum capabilities:

(a) Reproducing black and white, and color copies for each size paper;

(b) Equipped with 3 separate paper trays so that copying can be performed with 8½- by 11-inch (letter size), 8½- by 14-inch (legal size), and 11- by 17-inch paper without switching paper or paper trays;

(c) Automatic document feeder capable of making at least 20 copies per minute for each size paper;

(d) Reducing or enlarging originals, including duplex (double-sided) copying, for each size paper;

(e) Copying to Universal Serial Bus (USB) flash drive in Adobe Acrobat (*.pdf) file format; and

(f) Built-in wireless technology (Wi-Fi capable).

Furnish all necessary supplies for the laser copy machine, including paper.

(2) Laser printer. One plain paper printing machine with the following minimum capabilities:

(a) Producing black and white, and color prints for each size paper;

(b) Equipped with 3 separate paper trays so that printing can be performed with 8½- by 11-inch (letter size), 8½- by 14-inch (legal size), and 11- by 17-inch paper without switching paper or paper trays;

(c) Automatic paper feeder capable of making at least 20 prints per minute for each size paper;

(d) Producing duplex (double-sided) prints for each size paper;

(e) Printing from direct personal computer (PC) and local area network (LAN) connections;

(f) Scanning to Adobe Acrobat (*.pdf) file format; and

(g) Built-in wireless technology (Wi-Fi capable).

The laser printer may be one machine in combination with the laser copy machine. Furnish all necessary supplies for the laser printer, including paper.

(3) Laser facsimile (FAX) machine. One FAX machine with the following minimum capabilities:

(a) Automatic document feeder with a minimum capacity of 20 pages;

(b) Sending standard size documents up to and including 11- by 17-inch paper;

(c) Printing on plain paper; and

(d) Automatic dial/redial.

The laser FAX machine may be one machine in combination with the laser copy machine. Furnish all necessary supplies for the laser FAX machine, including paper.

(4) High definition computer monitor. One high definition LCD or LED computer monitor with the following minimum capabilities:

(a) 27-inch flat viewing screen;

(b) Video Graphics Array (VGA) and High Definition Multimedia Interface (HDMI) ports; and

(c) Supports an optimal resolution of 1920 x 1080 at 60Hz.

(5) Computer keyboard. One computer keyboard with the following minimum capabilities:

(a) Standard 104-key Windows U.S. English QWERTY with keys for alphabet, functions, arrows, and numeric keypad; and

(b) Connects to a windows-based computer by either a USB cord or wirelessly.

(6) Computer mouse. One ergonomic computer mouse with the following minimum capabilities:

(a) Standard 2-button with a wheel for scrolling; and

(b) Connects to a windows-based computer by either a USB cord or wirelessly.

637.03. Add the following:

(c) Lighting. Provide ample exterior lighting to illuminate the area surrounding the Government field office at night. Equip the lights with photocell sensor devices and motion detectors to activate the lights.

637.04(b). Delete the last sentence.

637.04(b). Add the following:

Furnish the following communication equipment and services in the Government field office:

(1) Telephone. One cordless telephone with the following minimum capabilities:

(a) Touch tone, hold button, intercom, and conference calling features;

(b) Two separate lines;

(c) Local and long distance telephone services; and

(d) One digital, telephone answering machine or voicemail service capable of answering, recording, storing, and playing back telephone messages with a storage capacity of at least 30 minutes in length.

(2) High-speed Internet access. One high-speed Internet service system with the following minimum capabilities:

(a) Download speed of 25,000 kilobits per second;

(b) Upload speed of 10,000 kilobits per second;

(c) Digital Subscriber Line (DSL), Fiber Optic Service (FIOS), a dedicated Transmission System 1 (T1), cable Internet service, or mobile hotspot (mifi);

(d) Equipped with a modem and a router with a firewall or a router and a firewall appliance;

(e) Router with Internet Protocol Version 6 (IPv6) capable, Wi-Fi Protected Access II (WPA2) or higher encryption, Simple Network Management Protocol (SNMP) Monitoring, Dynamic Host Configuration Protocol (DHCP), and at least Category 6 Registered Jack 45 (RJ45) LAN office drop cables; and

(f) Supports simultaneous Internet access of at least 3 workstations connected by Category 6 Registered Jack 45 (RJ45) LAN office drop cables.

Alternate Internet access service options may be submitted to the CO for approval.

Submit firewall configuration to the CO for approval. Do not change the firewall configuration after it is approved, unless a change request is submitted and approved in advance. Do not connect any equipment to the system other than U.S. DOT equipment.

(3) Wireless air card. One high speed, wireless air card for use with a Government laptop computer capable of providing access to the FHWA's virtual private network (VPN).

Add the following after Section 637:

Section 645. — LOCATING UTILIITES

Description

645.01 This work consists of locating and marking existing utilities.

Material

645.02 Replace excavated materials with equivalent materials that meet the applicable requirements of this specification.

Construction Requirements

645.03 General. Contact Pennsylvania One Call at 1-800-242-1776 or 811, or online at https://www.pa1call.org, at least 48 hours before any excavation to have the utilities marked in the field. If Pennsylvania One Call does not perform this service at the project site, contact and ensure that a commercial utility location service marks underground utilities in the field before any excavation begins. Notify the CO 48 hours before any excavation.

Exercise special care and extreme caution in order to protect and avoid damage to any utility company facilities. Existing utilities have been generally located and shown on the plans as they are believed to exist. The Government assumes no responsibility for the accuracy of locations shown in the plans. Locate and ensure the safety of all existing utilities. Coordinate the repair of damage caused by construction with the utility owners. Pay costs associated with these repairs. See Subsection 107.02 for additional requirements.

Locate by test pit any utility that may be in conflict with the proposed work. If a conflict appears to exist, then notify the CO in writing immediately and provide information on the location and elevation of the utility so that the CO can adjust the proposed work.

Restore the test pit area to its original condition.

645.04 Locating Utility. Use geophysical prospective techniques, including electromagnetic, sonic, or other energy field devices to establish alignment of utilities where applicable. When necessary, thread a metal rod through non-metallic utility pipes to locate them. Where neither method is feasible, locate the utility by perpendicular trench or test pits.

645.05 Excavation. Excavate carefully to the assume depth using hand tools as needed to avoid disturbing utilities. When excavating within roadway pavements where traffic is being maintained, excavate by air-vacuum methods or equivalent, keeping the area of disturbance to a minimum. Uncover the utility sufficiently to make accurate measurements.

645.06 Record. Describe the utility found (size, material, function), determine the elevation of the top of utility, and prepare a field sketch of the pit. Indicate the date and the station and offset of the utility, noting whether the baseline or the centerline of proposed facility is being referenced. Submit one copy to the CO within 24 hours.

645.07 Marking. Mark the utility location by flags or paint. Maintain the markings, including repainting faded or damaged markings, for the duration of the project, or until the CO determines that the markings are no longer needed.

645.08 Restoration. Backfill using the excavated material or an approved equal. Thoroughly compact backfill material using appropriate compaction methods, approved by the CO. Restore aggregate courses and asphalt concrete pavement using approved materials and thicknesses, and appropriate compaction methods. For Portland cement concrete pavements, use a fast setting concrete.

645.09 Acceptance. Locating utilities will be evaluated under Subsection 106.02.

Measurement and Payment

645.10 Do not measure locating utilities for payment. See Subsection 109.05.

Section 702. — ASPHALT MATERIAL

702.01. Add the following:

Do not use asphalt binders with recycled engine oil bottoms (REOB), oil recovered at the bottom of a vacuum tower, or vacuum tower asphalt extenders (VTAE).

Section 703. — AGGREGATE

703.05(a). Delete the text of Subsections **(3)** and **(4)**; they are not required.

703.05(a). Add the following:

(7) California bearing ratio as determined by AASHTO T 193 at 95 percent of maximum dry density in accordance with AASHTO T 180 (Method D).	80 percent min.

703.05(b)(1). Add the following:

The gradation only of the aggregate base may conform to the requirements of the current edition of the Commonwealth of Pennsylvania Department of Transportation, Specifications, PennDOT Publication 408, Section 312, Table A, found at https://www.pa.gov/agencies/penndot/programs-and-doing-business/construction/construction-specifications.html subject to the approval of the CO. Conform to the requirements of Subsections 703.05(a) and 703.05(b) for all other properties. Submit the request according to Subsection 301.03.

703.05(b). Add the following:

(3) Plasticity index, AASHTO T 90	3 max.

703.05(c). Add the following:

The gradation of the aggregate surface course may conform to the requirements of the current edition of the Commonwealth of Pennsylvania Department of Transportation, Specifications, PennDOT Publication 408, Section 312, Crushed Aggregate Base Course, Table A, found at https://www.pa.gov/agencies/penndot/programs-and-doing-business/construction/construction-specifications.html subject to the approval of the CO.

Aggregate quality may conform to the requirements of the current edition of the Commonwealth of Pennsylvania Department of Transportation, Specifications, PennDOT Publication 408, Section 703, Aggregate, Table B, Type A or Type B coarse aggregate, found at https://www.pa.gov/agencies/penndot/programs-and-doing-business/construction/construction-specifications.html subject to the approval of the CO.

Section 718. — TRAFFIC SIGNING AND MARKING MATERIAL

718.01. Add the following:

For a list of acceptable manufacturers and products, refer to the Sheeting Guide found at http://safety.fhwa.dot.gov/roadway_dept/night_visib/sign_visib/sheetguide/.