



Janet T. Mills
GOVERNOR

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

Bruce A. Van Note
COMMISSIONER

May 6, 2019
Subject: Bridge Work, Pavement Milling,
HMA Overlay with Drainage & Safety
Improvements
State WINs: 023226.00 & 023897.00
Location: **Brunswick, West Bath,
Woolwich & Bath**
Amendment No. 1

Dear Sir/Ms.:

Please make the following changes to the Bid Documents:

In the Bid Book:

CHANGE on page 14, NOTICE TO CONTRACTORS, the bid opening date in the first paragraph from "May 8, 2019" to read "**May 15, 2019**". Make this change in pen and ink.

REMOVE pages 17 - 25, Proposal Schedule of Items, 9 pages, dated 4/5/2019, and **REPLACE** with the attached, revised Proposal Schedule of Items, 9 pages, dated 4/29/2019.

REMOVE pages 26 - 33, CONTRACT AGREEMENT, OFFER & AWARD, 2 copies, 4 pages each, and **REPLACE** with the attached, revised CONTRACT AGREEMENT, OFFER & AWARD, 2 copies, 4 pages each

REMOVE page 89, SPECIAL PROVISION - SECTION 105 - GENERAL SCOPE OF WORK - (LIMITATIONS OF OPERATIONS), 1 page, dated March 26, 2019, and **REPLACE** with the attached, revised SPECIAL PROVISION - SECTION 105 - GENERAL SCOPE OF WORK - (LIMITATIONS OF OPERATIONS), 1 page, dated April 29, 2019.

REMOVE page 97, SPECIAL PROVISION - SECTION 107 - PROSECUTION AND PROGRESS - (Contract Time), 1 page, dated April 5, 2019, and **REPLACE** with the attached, revised SPECIAL PROVISION - SECTION 107 - PROSECUTION AND PROGRESS - (Contract Time), 1 page, dated April 29, 2019.

REMOVE page 98, SPECIAL PROVISION - SECTION 107 - (Contract Time), 1 page, dated April 5, 2019, and **REPLACE** with the attached, revised SPECIAL PROVISION - SECTION 107 - (Contract Time), 1 page, dated April 29, 2019.

REMOVE pages 189 – 194, SPECIAL PROVISION - SECTION 639 - ENGINEERING FACILITIES - (Instrumentation - Geotechnical), 6 pages, dated February 2019, and **REPLACE** with the attached, revised SPECIAL PROVISION - SECTION 639 - ENGINEERING FACILITIES - (Instrumentation - Geotechnical), 6 pages, dated April 25, 2019

The following questions have been received:

Question: Is there a typical section or scope of work for the Sagadahoc Bridge? There seems to be no information as to the scope of work in the bid book.

Response: The scope of the work for the bridge is a curb to curb 1 ½ inch mill and fill. Quantities for the work are included in the bid items.

Question: Would the Department consider allowing the Contractor to retain all of the millings? Or at least a greater portion?

Response: The milling quantity will not be adjusted due to Department need.

Question: Will the Contractor be able to stockpile the millings in Durham at night without having to worry about noise restrictions?

Response: Millings can be stockpiled at night. Excessive noise (banging tailgates, equipment parked with back-up alarms on, etc.) will not be allowed. Drivers that cannot adhere to this will be removed from the project.

Question: Will shoulder closures that do not impede traffic be allowed during the day? Special provision 105 note 4 states that they may be allowed until 1:00 pm, but note 6 states that daytime travel lane shoulder closures will be allowed. Can you please clarify?

Response: Daytime shoulder closures will be allowed on a case by case basis approved by the Resident until 1 pm. See revised SPECIAL PROVISION - SECTION 105 - GENERAL SCOPE OF WORK - (LIMITATIONS OF OPERATIONS).

Question: I see that item 526.501 Precast Concrete Barrier is being paid as 1 LS. Would the Department be willing to break this out into a linear foot item?

Response: The quantity of the barrier is noted on the plan set and will be paid as a LS unit.

Question: Will traffic be allowed to travel on the rubber chip seal?

Response: Yes, at the Contractor's option, please see the revised SPECIAL PROVISION - SECTION 105 - GENERAL SCOPE OF WORK - (LIMITATIONS OF OPERATIONS) for restrictions.

Question: Since all of the other traffic control devices are being paid for separately, will the Department be willing to add an item for an attenuator truck.

Response: Attenuator truck will not be paid for separately.

Question: Will the Department extend the completion date to make this a completion date in the fall of 2020. With a late bid date and start of construction, compounded with the complexity of the project, tight restrictions, and cold nights late in the year, as well as in the spring, we do not feel the deadline is attainable.

Response: The Department will extend the Contract Completion to August 1, 2020, with additional restrictions. Please see the revised 107 special provisions.

Question: The details on the plans for the median barrier show an embedment in the pavement of 3". The pavement on that shoulder calls for a 2.5" lift of 403.2131 and a 1.5" lift of 403.2081, totaling 4". Will the embedment in the pavement for the median barrier be 4", or 1.5"?

Response: The barrier will be embedded 4 inches.

Question: Will the Department consider extending the time period that traffic can travel on a milled surface to two weeks? The 120hr spec that is listed does not allow enough work to be ready ahead of the paving crew to be efficient. Extending the time limit would allow the Contractor to be more efficient in covering up the milled surface.

Response: An updated 105 has been provided that clarified the milling expectations. The time limit was intended to limit the time traffic was allowed to travel on the SAMI layer, not the milled surfaces. This has been clarified in the amendment.

Question: Is it the intent that if a portion of roadway is not milled that temporary rumble strips will have to be milled into the base pavement? If so, will these be paid for, or will they be considered incidental?

Response: The contract does not require temporary rumble strips to be installed should the project winter over before completion. The contract requires rumble strips to be installed after the final wearing course has been installed, and prior to project completion and acceptance.

Question: Is the intent for this project to be paperless and all paperwork go through docexpress? If so, what is the intent for truck slips from the plant?

Response: There is no requirement for truck slips to be "paperless", however the plant reports and field reports will be made through Docexpress. The Contractor may request to submit delivery slips in a paperless manner, but that could be proposed after acceptance and award of the project. Details would have to be worked out at that time.

Question: Where will item 645.292 be installed? Will all 150 be in one location, or will it be multiple locations?

Response: Item No. 645.292, Regulatory, Warning, Confirmation and Route Marker Assembly Signs Type II calls for 12.0 Square Feet. Refer to the construction notes page 13 of 13. "Additional "STOP"

signs (30-inch X 30-inch) shall be installed on existing posts at New Meadows Exit off ramps on northbound and southbound ramps.”

Question: Without answers to previous questions, and we are now a week from the bid date, will the department consider extending the bid due date? There are specialty items that need to have questions answered before pricing can be done (example, membrane, how much and where?). We do not feel there is adequate time to address the answers to all of the questions, as well as get pricing returned within a week.

Response: The bid opening date has been delayed one week to May 15, 2019. See above changes to the Notice to Contractors. Membrane is included in this contract in case there are areas on the bridge decks where the membrane has worn through and needs to be patched before paving.

Question: Dual coated bar is no longer available as an option for the median barrier. Would the Department accept stainless bar as an option for the rebar in the median barrier?

Response: Yes.

Question: What is the scope of work on the Sagadahoc Bridge, WIN 23226.00? Is there any deck repair anticipated?

Response: The scope of the work for the bridge is a curb to curb 1 ½ inch mill and fill. Quantities for the work are included in the bid items. No Deck repair is anticipated.

Question: Where is item 508.14 High-Performance Waterproof Membrane to be applied? Is this item for both bridges?

Response: Membrane is included in this contract in case there are areas on the bridge decks where the membrane has worn through and needs to be patched before paving.

Question: Does the 410.25 Asphalt-Rubber Surface Treatment with Aggregate Cover get applied directly over the milled surface?

Response: Yes.

Question: Is traffic allowed to travel on the 410.25 Asphalt-Rubber Surface Treatment with Aggregate Cover?

Response: See previous responses, along with revised SPECIAL PROVISION - SECTION 105 - GENERAL SCOPE OF WORK - (LIMITATIONS OF OPERATIONS).

Question: Special Provision Section 105 Note 7 states that “Traffic will be allowed to travel on milled surfaces for up to 120 hours.” Is it the intent that within the 120-hour time frame that the roadway have the 424.22 Asphalt Rubber Crack Sealer Type 2 applied, the 410.25 Asphalt-Rubber Surface Treatment with Aggregate Cover, and the 403.211 Hot Mix Asphalt (Shimming) applied?

Response: See previous RFI answers with revised SPECIAL PROVISION - SECTION 105 - GENERAL SCOPE OF WORK - (LIMITATIONS OF OPERATIONS).

Question: Where is item 202.203 Pavement Butt Joints to be used? Are these all 18" – 3' joints or will any of them need to be cut with a large mill?

Response: Item 202.203 will be used on drives and side roads that may be overlaid and in curb work areas. Exact limits and locations will be determined in the field. These should be able to be made with a skid steer grinder.

Question: With the number of drainage items, the concrete barrier wall installation and other work to be completed prior to paving, would the Department consider pushing the completion date back in 2020 to allow for more time in the surface paving window of the season?

Response: See previous responses.

Question: In reference to Item 526.501 Precast Concrete Barrier:

- a. Could clarification be provided on Detail 'A' on sheet 3 of 6. Does the barrier wall sit on the 2" leveling sand, or is base pavement required under the barrier?
- b. How is the 1 ½" HMA Grading 12.5mm (Base) and 1 ½" grading 12.5mm (Surface) pavement that will be hand placed along the barrier wall be paid?

Response: a: The barrier sits on 2 inches of leveling sand.
b: The pavement will be paid under the appropriate machine place pavement items.

Question: Item 410.25 Asphalt-Rubber Surface Treatment with Aggregate Cover:

- a. Does this item qualify for price adjustment under the AC Escalator clause?
- b. Where does this item stop in relation to the bridge joints, knowing that a ramp will have to be milled in, or a temp ramp placed to transition from the 5" mill to the bridge joint?

Response: a: No.
b: The limits of this will be determined in the field by the Resident.

Question: The Construction Notes for item 304.15 Aggregate Base Course – Type B states "Item to replace any unacceptable gravel in southbound travel lane and shoulder 1031+15 – 1028+95 +/- Left. Estimated depth is 24 inches"

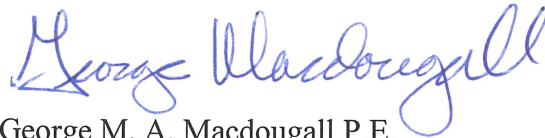
- a. When will the determination be made on whether this material needs to be removed and replaced?
- b. Are borings available for the existing roadway showing the depth of existing mix?
- c. What depth of mix will be placed in these areas after gravel is placed, and what item will this mix be paid under?
- d. How does this work impact the 120-hour window in which traffic is allowed to run on the millings as set forth in Special Provision Section 105 Note 7?

Response: a: The determination will be made at the time of pavement removal.
b: No, but the Department will recommend test pits being performed prior to pavement removal. Test pits will be paid for under the appropriate rental items.

- c: The mix depth will match the passing lane pavement depth at approximately 8 inches, exact depth will be determined in the field.
- d: See revised SPECIAL PROVISION - SECTION 105 - GENERAL SCOPE OF WORK - (LIMITATIONS OF OPERATIONS).

Consider these changes and information prior to submitting your bid on **May 15, 2019**.

Sincerely,



George M. A. Macdougall P.E.
Contracts & Specifications Engineer

4/29/2019

Maine Department of Transportation

Proposal Schedule of Items

Page 1 of 9

Proposal ID: 023226.00

Project(s): 023226.00, 023897.00

SECTION: 1 HIGHWAY ITEMS

Alt Set ID:

Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0010	201.11 CLEARING	31.000 AC	_____	_____	_____	_____
0020	201.23 REMOVING SINGLE TREE TOP ONLY	90.000 EA	_____	_____	_____	_____
0030	202.202 REMOVING PAVEMENT SURFACE	303,650.000 SY	_____	_____	_____	_____
0040	202.203 PAVEMENT BUTT JOINTS	1,200.000 SY	_____	_____	_____	_____
0050	202.205 RUMBLE STRIPS - SHOULDER	95,000.000 LF	_____	_____	_____	_____
0060	202.206 RUMBLE STRIP - EDGELINE AND CENTERLINE	3,205.000 LF	_____	_____	_____	_____
0070	203.35 CRUSHED STONE FILL	100.000 CY	_____	_____	_____	_____
0080	205.512 WIDENING OF EXISTING SHOULDER	300.000 SY	_____	_____	_____	_____
0090	304.15 AGGREGATE BASE COURSE - TYPE B	400.000 CY	_____	_____	_____	_____
0100	401.10 HOT MIX ASPHALT CONTINUOUS THERMAL PROFILING	LUMP SUM	LUMP SUM		_____	_____
0110	403.208 HOT MIX ASPHALT 12.5 MM HMA SURFACE	5,200.000 T	_____	_____	_____	_____
0120	403.2081 12.5 MM POLYMER MODIFIED HOT MIX ASPHALT	18,500.000 T	_____	_____	_____	_____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0130	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	150.000 T	_____	 _____	_____	 _____
0140	403.211 HOT MIX ASPHALT (SHIMMING)	5,000.000 T	_____	 _____	_____	 _____
0150	403.213 HOT MIX ASPHALT 12.5 MM BASE	6,500.000 T	_____	 _____	_____	 _____
0160	403.2131 12.5 MM POLYMER MODIFIED HMA BASE	19,000.000 T	_____	 _____	_____	 _____
0170	409.15 BITUMINOUS TACK COAT - APPLIED	23,200.000 G	_____	 _____	_____	 _____
0180	410.151 EMULSIFIED ASPHALT SEALCOAT, APPLIED	15,000.000 SY	_____	 _____	_____	 _____
0190	410.25 ASPHALT-RUBBER SURFACE TREATMENT WITH AGGREGATE COVER	155,000.000 SY	_____	 _____	_____	 _____
0200	424.22 ASPHALT RUBBER CRACK SEALER TYPE 2, APPLIED	55,000.000 LB	_____	 _____	_____	 _____
0210	424.3333 LOW MODULUS JOINT SEALER, APPLIED	60,000.000 LF	_____	 _____	_____	 _____
0220	508.14 HIGH PERFORMANCE WATERPROOFING MEMBRANE	LUMP SUM	LUMP SUM		_____	 _____
0230	515.202 PROTECTIVE COATING FOR CONCRETE SURFACES - SILANE SEALER	2,900.000 SY	_____	 _____	_____	 _____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0240	526.301 TEMPORARY CONCRETE BARRIER TYPE I	LUMP SUM	LUMP	SUM	_____	_____
0250	526.501 PRECAST CONCRETE BARRIER	LUMP SUM	LUMP	SUM	_____	_____
0260	527.301 ENERGY ABSORBING SYSTEM (C-A- T)	1.000 EA	_____	_____	_____	_____
0270	527.34 WORK ZONE CRASH CUSHIONS	2.000 UN	_____	_____	_____	_____
0280	603.165 15 INCH REINFORCED CONCRETE PIPE CLASS III	80.000 LF	_____	_____	_____	_____
0290	603.175 18 INCH REINFORCED CONCRETE PIPE CLASS III	208.000 LF	_____	_____	_____	_____
0300	603.195 24 INCH REINFORCED CONCRETE PIPE CLASS III	480.000 LF	_____	_____	_____	_____
0310	603.55 CONCRETE PIPE TIES	80.000 GP	_____	_____	_____	_____
0320	603.7415 REMOVE & RELAY 15 INCH CONCRETE PIPE	24.000 LF	_____	_____	_____	_____
0330	603.7418 REMOVE & RELAY 18 INCH CONCRETE PIPE	8.000 LF	_____	_____	_____	_____
0340	603.7421 REMOVE & RELAY 21 INCH CONCRETE PIPE	16.000 LF	_____	_____	_____	_____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0350	603.743 REMOVE & RELAY 30 INCH CONCRETE PIPE	8.000 LF	_____	_____	_____	_____
0360	603.7436 REMOVE & RELAY 36 INCH CONCRETE PIPE	8.000 LF	_____	_____	_____	_____
0370	603.7442 REMOVE & RELAY 42 INCH CONCRETE PIPE	16.000 LF	_____	_____	_____	_____
0380	604.161 ALTERING CATCH BASIN	10.000 EA	_____	_____	_____	_____
0390	604.164 REBUILDING CATCH BASIN	5.000 EA	_____	_____	_____	_____
0400	604.182 CLEAN EXISTING CATCH BASIN AND MANHOLE	15.000 EA	_____	_____	_____	_____
0410	605.10 6 INCH UNDERDRAIN OUTLET	40.000 LF	_____	_____	_____	_____
0420	606.1301 31" W-BM GR, MID-WAY SPLICE-SGL FACED	200.000 LF	_____	_____	_____	_____
0430	606.1302 31" W-BM GR, MID-WAY SPLICE-DBL FACED	50.000 LF	_____	_____	_____	_____
0440	606.1305 31" W-BM GR, MID-WAY SPLICE FLARED TERMINAL	45.000 EA	_____	_____	_____	_____
0450	606.1307 BRIDGE TRANSITION (ASYMMETRICAL) - TYPE 1	12.000 EA	_____	_____	_____	_____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0460	606.265 TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	15.000 EA	_____	_____	_____	_____
0470	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	140.000 EA	_____	_____	_____	_____
0480	606.356 UNDERDRAIN DELINEATOR POST	80.000 EA	_____	_____	_____	_____
0490	606.362 GUARDRAIL ADJUSTED	2,000.000 LF	_____	_____	_____	_____
0500	606.363 GUARDRAIL REMOVE AND DISPOSE	3,540.000 LF	_____	_____	_____	_____
0510	606.367 REPLACE UNUSABLE EXISTING GUARDRAIL POSTS	15.000 EA	_____	_____	_____	_____
0520	609.11 VERTICAL CURB TYPE 1	225.000 LF	_____	_____	_____	_____
0530	609.237 TERMINAL CURB TYPE 1 - 7 FOOT	30.000 EA	_____	_____	_____	_____
0540	609.38 RESET CURB TYPE 1	75.000 LF	_____	_____	_____	_____
0550	610.08 PLAIN RIPRAP	250.000 CY	_____	_____	_____	_____
0560	613.319 EROSION CONTROL BLANKET	5,000.000 SY	_____	_____	_____	_____
0570	618.14 SEEDING METHOD NUMBER 2	450.000 UN	_____	_____	_____	_____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0580	619.12 MULCH	450.000 UN	_____	 _____	_____	 _____
0590	619.14 EROSION CONTROL MIX	50.000 CY	_____	 _____	_____	 _____
0600	620.58 EROSION CONTROL GEOTEXTILE	250.000 SY	_____	 _____	_____	 _____
0610	627.18 12 " SOLID WHITE PAVEMENT MARKING	6,200.000 LF	_____	 _____	_____	 _____
0620	627.30 GROOVING FOR PAVEMENT MARKING	93,000.000 SF	_____	 _____	_____	 _____
0630	627.744 6" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	22,000.000 LF	_____	 _____	_____	 _____
0640	627.745 6" WHITE OR YELLOW POLYUREA PAVEMENT MARKING LINE (RECESSED)	158,000.000 LF	_____	 _____	_____	 _____
0650	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	1,250.000 SF	_____	 _____	_____	 _____
0660	627.751 WHITE OR YELLOW POLYUREA PAVEMENT MARKINGS (RECESSED)	500.000 SF	_____	 _____	_____	 _____
0670	627.78 TEMPORARY 4 INCH PAINTED PAVEMENT MARKING LINE, WHITE OR YELLOW	165,000.000 LF	_____	 _____	_____	 _____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0680	627.781 TEMPORARY 6 INCH PAINTED PAVEMENT MARKING LINE, WHITE OR YELLOW	550,000.000 LF	_____	_____	_____	_____
0690	629.05 HAND LABOR, STRAIGHT TIME	200.000 HR	_____	_____	_____	_____
0700	631.111 TRACTOR MOUNTED HYDRAULIC HAMMER	100.000 HR	_____	_____	_____	_____
0710	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	330.000 HR	_____	_____	_____	_____
0720	631.122 MINI ALL-PURPOSE EXCAVATOR (INCLUDING OPERATOR)	15.000 HR	_____	_____	_____	_____
0730	631.13 BULLDOZER (INCLUDING OPERATOR)	150.000 HR	_____	_____	_____	_____
0740	631.133 SKID STEER (INCLUDING OPERATOR)	30.000 HR	_____	_____	_____	_____
0750	631.14 GRADER (INCLUDING OPERATOR)	140.000 HR	_____	_____	_____	_____
0760	631.15 ROLLER, EARTH AND BASE COURSE (INCLUDING OPERATOR)	50.000 HR	_____	_____	_____	_____
0770	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	650.000 HR	_____	_____	_____	_____
0780	631.18 CHAIN SAW RENTAL (INCLUDING OPERATOR)	15.000 HR	_____	_____	_____	_____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0790	631.22 FRONT END LOADER (INCLUDING OPERATOR)	120.000 HR	_____	 _____	_____	 _____
0800	631.29 ROTOTILLER (INCLUDING OPERATOR)	80.000 HR	_____	 _____	_____	 _____
0810	631.32 CULVERT CLEANER (INCLUDING OPERATOR)	50.000 HR	_____	 _____	_____	 _____
0820	639.18 FIELD OFFICE TYPE A	1.000 EA	_____	 _____	_____	 _____
0830	639.26 INSTRUMENTATION - GEOTECHNICAL	LUMP SUM	LUMP SUM		_____	 _____
0840	645.292 REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGNS TYPE II	12.000 SF	_____	 _____	_____	 _____
0850	645.306 FLEXIBLE REFLECTORIZED DELINEATOR	150.000 EA	_____	 _____	_____	 _____
0860	652.30 FLASHING ARROW BOARD	4.000 EA	_____	 _____	_____	 _____
0870	652.33 DRUM	400.000 EA	_____	 _____	_____	 _____
0880	652.34 CONE	600.000 EA	_____	 _____	_____	 _____
0890	652.35 CONSTRUCTION SIGNS	3,200.000 SF	_____	 _____	_____	 _____

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Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0900	652.36 MAINTENANCE OF TRAFFIC CONTROL DEVICES	303.000 CD	_____	 _____	_____	 _____
0910	652.38 FLAGGER	300.000 HR	_____	 _____	_____	 _____
0920	652.381 TRAFFIC OFFICER	200.000 HR	_____	 _____	_____	 _____
0930	652.41 PORTABLE CHANGEABLE MESSAGE SIGN	8.000 EA	_____	 _____	_____	 _____
0940	652.45 AUTOMATED TRAILER MOUNTED SPEED LIMIT SIGN	4.000 EA	_____	 _____	_____	 _____
0950	652.46 SEQUENTIAL FLASHING WARNING LIGHTS	40.000 EA	_____	 _____	_____	 _____
0960	652.47 TEMPORARY PORTABLE RUMBLE STRIP	6.000 GP	_____	 _____	_____	 _____
0970	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP SUM	LUMP SUM		_____	 _____
0980	659.10 MOBILIZATION	LUMP SUM	LUMP SUM		_____	 _____
Section: 1			Total:		_____	 _____
			Total Bid:		_____	 _____

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

_____ a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, **2322600 & 2389700 for the Bridge Work, Pavement Milling, Hot Mix Asphalt Overlay, with Drainage and Safety Improvements in the Towns of Brunswick, West Bath, and Woolwich and the City of Bath, Counties of Cumberland and Sagadahoc, Maine.** The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **August 1, 2020.** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, November 2014 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is _____

\$_____ Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, November 2014 Edition, Standard Details November 2014 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Federal Contract Provisions Supplement, and the Contract are still complete and accurate as of the date of this Agreement.
2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications November 2014 Edition*, *Standard Details November 2014 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of: **2322600 & 2389700 for the Bridge Work, Pavement Milling, Hot Mix Asphalt Overlay, with Drainage and Safety Improvements in the Towns of Brunswick, West Bath, and Woolwich and the City of Bath, Counties of Cumberland and Sagadahoc**, State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items."

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items," which may be ordered by the Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the *Standard Specifications, November 2014 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications November 2014 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

Date

(Signature of Legally Authorized Representative
of the Contractor)

Witness

(Name and Title Printed)

G. Award.

Your offer is hereby accepted.
documents referenced herein.

This award consummates the Contract, and the

MAINE DEPARTMENT OF TRANSPORTATION

Date

By: Bruce A. Van Note, Commissioner

Witness

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

_____ a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, **2322600 & 2389700 for the Bridge Work, Pavement Milling, Hot Mix Asphalt Overlay, with Drainage and Safety Improvements in the Towns of Brunswick, West Bath, and Woolwich and the City of Bath, Counties of Cumberland and Sagadahoc, Maine.** The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **August 1, 2020.** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, November 2014 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is _____

\$_____ Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, November 2014 Edition, Standard Details November 2014 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Federal Contract Provisions Supplement, and the Contract are still complete and accurate as of the date of this Agreement.
2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.
3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications November 2014 Edition*, *Standard Details November 2014 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of: **2322600 & 2389700 for the Bridge Work, Pavement Milling, Hot Mix Asphalt Overlay, with Drainage and Safety Improvements in the Towns of Brunswick, West Bath, and Woolwich and the City of Bath, Counties of Cumberland and Sagadahoc**, State of Maine, on which bids will be received until the time specified in the “Notice to Contractors” do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached “Schedule of Items.”

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached “Schedule of Items” in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached “Schedule of Items,” which may be ordered by the Resident, and to accept as full compensation the amount determined upon a “Force Account” basis as provided in the *Standard Specifications, November 2014 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier’s check, certificate of deposit or U. S. Postal Money Order in the amount given in the “Notice to Contractors”, payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications November 2014 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor’s Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

Date

(Signature of Legally Authorized Representative
of the Contractor)

Witness

(Name and Title Printed)

G. Award.

Your offer is hereby accepted.
documents referenced herein.

This award consummates the Contract, and the

MAINE DEPARTMENT OF TRANSPORTATION

Date

By: Bruce A. Van Note, Commissioner

Witness

SPECIAL PROVISION
SECTION 105
GENERAL SCOPE OF WORK
(LIMITATIONS OF OPERATIONS)

1. Crossovers shall not be allowed to be utilized to change direction, unless both passing lanes are closed simultaneously. Existing Crossovers shall be closed, throughout the entire length of the project, utilizing drums during construction activities. Crossovers may not be used for storage areas. The contractor will not be allowed to park vehicles in crossovers at any time. These crossovers will be opened at the end of activities for the shift.
2. The maximum length of lane closure is 3.0 miles in length.
3. The Contractor may utilize multiple paving/milling crews as long as applicable sections of Special Provision 652 are met; provided the Resident is given 72 hours notice.
4. Daytime shoulder closures may be allowed on a case by case basis until 1:00 pm and shall require a written request to the Resident 72 hours prior to the work. The Resident will approve or reject the Contractor's request, in no circumstances however, will any daytime work occur without the Resident's approval.
5. All clearing, pipe, and rental items shall be completed in an area prior to the contractor commencing placement of HMA surface.
6. The Contractor may decide to allow traffic to travel on the Asphalt-Rubber Surface Treatment with Aggregate Cover surface for one daytime shift not to exceed a maximum of 13 hours. If the Contractor chooses allow traffic to travel on the Asphalt-Rubber Surface Treatment with Aggregate Cover, the speed limit will be reduced to a maximum of 45 MPH, appropriate signage indicating the surface condition, and will be discussed in detail in the Traffic Control Plan. Asphalt-Rubber Surface Treatment with Aggregate Cover shall be paved in its entirety during the next shift. Failure to pave in these areas will result in a violation of Special Provision 652 and no further work will be allowed to continue until the Asphalt-Rubber Surface Treatment with Aggregate Cover is paved and matched up. The Contractor shall conduct their work accordingly.
7. All reduced work zone speeds shall be covered or removed when lane closures are removed or no work is present unless approved by the Resident.

SPECIAL PROVISION
SECTION 107
PROSECUTION AND PROGRESS
(Contract Time)

The Contractor may begin work **Anytime** in accordance with Standard Specification 104.4.2 and upon approval of all required submittals. The Contract Completion Date will be no later than **August 1, 2020.**

At least 21 calendar days prior to the desired Begin Construction Date the Contractor shall submit an **electronic copy of their signed request to begin work and the Begin Construction Date.** This signed request shall be sent read receipt through **email** with their **Schedule of Work**, in accordance with Standard Specification 107.4.2, to **Shawn.Smith@Maine.gov**, **Emory.Lovely@Maine.gov**, and **Scott.Bickford@Maine.gov**. The Contractor shall notify all utility contacts listed in the 104 Special Provision and provide the utility contacts the submitted schedule of work within 2 calendar days of the schedule of work submittal. **A penalty in the amount of \$500/day will be assessed for each calendar day or partial calendar day beyond June 15th that the schedule of work is not received.** Upon receipt of the schedule of work, a pre-construction meeting will be scheduled. A Contract Modification will be executed to document the new Contract Completion Date based upon the Begin Construction Date. The modified Contract Completion Date shall not exceed the Contract Completion Date specified in this special provision.

The Contractor may request to adjust the submitted schedule of work and Begin Construction Date once after the initial submittal. The Department will allow adjustments in the Begin Construction Date of up to **seven calendar days** if the request is made at least **21 calendar days** prior to the updated Begin Construction Date. This signed request shall be sent read receipt through **email** with their **Schedule of Work**, in accordance with Standard Specification 107.4.2, to **Shawn.Smith@Maine.gov**, **Emory.Lovely@Maine.gov**, and **Scott.Bickford@Maine.gov**. The Contractor shall notify all utility contacts listed in the 104 Special Provision and provide the utility contacts the updated schedule of work within 2 calendar days of the request to adjust the Begin Construction Date.

SPECIAL PROVISION
SECTION 107
(Contract Time)

1. Ramps may be closed Sunday night through Friday morning between the hours of 9 pm to 6 am with 72 hours' notice. The Contractor shall notify local emergency personnel resources of closure dates and times. Under no circumstances will two adjacent on or off ramps be closed simultaneously. Message Boards will be in-place 72 hours prior to ramp closure with an message approved by the Department. Work on ramps may continue after these hours with shoulder closures only.
2. The Contractor shall abide by all hours indicated within this Special Provision.
3. All work conducted shall be restricted to Sunday starting at 9pm through Saturday at 6am, unless otherwise authorized by the Department.

Except no work will be allowed on:

May 24, 2019 beginning at 6am to May 28, 2019 at 8pm.

June 29, 2019 beginning at 6am to July 8, 2019 at 7pm.

August 30, 2019 beginning at 6am to September 3, 2019 at 8pm.

July 1, 2020 beginning 6 am to July 6, 2020 at 7pm.

4. The contractor shall be allowed to enter the roadway during the following hours; Lane closure set and removal shall be considered to be part of this time:
 - a. Sunday beginning 9pm ending Monday 6am.
 - b. Monday beginning 7pm ending Tuesday 6am.
 - c. Tuesday beginning 7pm ending Wednesday 6am.
 - d. Wednesday beginning 7pm ending Thursday 6am.
 - e. Thursday beginning 7pm ending Friday 6am.
 - a. Friday beginning 9 pm ending Saturday 6am.

SPECIAL PROVISION
SECTION 639 - ENGINEERING FACILITIES
(Instrumentation - Geotechnical)

Supplement Standard Specification SECTION 639 – ENGINEERING FACILITIES with the following:

639.01 Description The work shall consist of all necessary supervision, labor, materials, equipment (including drill rig and drilling activities), and related services necessary to furnish and install instrumentation to monitor soil behavior as specified in this Special Provision. Instruments for monitoring soil behavior includes three (3) slope inclinometer casings installed at locations and depths specified by the MaineDOT geotechnical engineer. Slope inclinometer casings shall be provided by and installed by the Contractor, their drilling Subcontractor, and their qualified geotechnical engineering firm. All work performed under this Special Provision shall be coordinated with geotechnical personnel from the Department. The Contractor's construction schedule shall consider the timing of the instrumentation installation as described in this Special Provision. The work also includes protecting the instrumentation from damage and repairing or replacing damaged and/or inoperative instruments. All instruments are to be the property of the Department and will not be decommissioned without the authorization of the Department.

This item includes the furnishing of boring logs, as-built drawings of actual locations where instrumentation is installed, survey data recorded (i.e. the elevations of the slope inclinometer casings obtained during casing installation), and slope inclinometer installation field reports.

The Contractor shall provide continuous access to the slope inclinometer casings by the Department to obtain readings in accordance with the Department's needs for the entire duration of the project. The Contractor shall provide access to the slope inclinometer casings for reading the instrumentation after project completion as required by the Department. Readings will be the responsibility of the Department or their representative.

Geotechnical information obtained by the Department including existing geotechnical boring logs and historic plans are available upon request.

639.02 Materials The slope inclinometer casing shall be made of ABS plastic (acrylonitrile butadiene styrene) and shall have an outside diameter (OD) of 2.75 inches. The casing shall have four (4) internal grooves located 90° apart. Each groove shall provide a regular, flat surface for the wheels of the probe. The grooves shall be slightly wider than the probe wheels, to permit some side to side movement as the probe passes through curves. The connections between individual pieces of slope inclinometer casing shall be waterproof and shall have self-aligning couplings and top and bottom end caps.

The proposed slope inclinometer casings shall be submitted for review and acceptance by the geotechnical engineer prior to installation. Acceptable products include the following or approved equal:

QC Casing as manufactured by Slope Indicator
RST Inclinometer Casing as manufactured RST Instruments

The slope inclinometer casing installations will require the following additional materials, which shall be supplied and paid for by the Contractor or their drilling Subcontractor:

- Pea stone (3/8" Gravel)
- Cement grout (as specified in Section 639.041)
- Bentonite pellets
- Above ground protective casing (steel) with lock

The Contractor shall employ a qualified geotechnical engineering firm for installation of the slope inclinometer casings. The firm shall have at least 4 years' experience in installation of slope inclinometer casings. The qualified geotechnical engineering firm shall prepare detailed step-by-step installation based on the general installation procedure provided in this Special Provision. These procedures shall be submitted to the Resident for review five (5) days prior to installation. The qualified geotechnical engineering firm shall be present during the installation of all slope inclinometer casings.

693.03 Submittals Slope Inclinometer Casing Installation Plan: At least five (5) calendar days before installing the slope inclinometer casing, the Contractor shall submit for review the personnel qualification and installation plan. Include in the installation plan as a minimum the following information:

- The manufacturer's specification sheet for the proposed slope inclinometer casings. The Contractor shall coordinate with the Department so that slope inclinometer casings and the slope inclinometer instrument owned by the Department will work together.
- Proposed installation method.
- Proposed method to protect the slope inclinometer casings during and after construction from construction equipment, vandalism, and weather.
- Identify the licensed surveyor who will be responsible for providing survey services during the installation of the slope inclinometer casings to include staking out the proposed slope inclinometer casing locations and providing as-built locations and elevations of all slope inclinometer casing locations.
- Identify the selected geotechnical engineering firm to install the slope inclinometer casings. Document the firm's experience in installing slope inclinometer casings in accordance with the plans and Contract Documents. The documentation shall include a project summary, of at least three (3) projects, that includes for each project the project name, role in providing instrumentation services, type of slope inclinometer casing, equipment used, duration of the project (i.e. dates), magnitude of displacements (lateral and vertical), client name and address, name and phone number of representative of the consultant and owner for whom the work was performed and who can attest to the successful completion of the work, and any other information relevant to demonstrating the geotechnical engineer's qualifications.

- The selected geotechnical engineering firm shall provide a soil test boring log indicating the soils encountered during the installation of the slope inclinometer casings no later than five (5) calendar days after completion of the slope inclinometer casing installation. Soil sampling and soil test boring log format shall comply with the requirements of MaineDOT.

The manufacturer/supplier shall be available during the initial installation of the slope inclinometer casing to answer any questions during installation. The manufacturer/supplier shall also be available for questions from either the geotechnical engineering firm responsible for maintaining the slope inclinometer casings or from the Department concerning the data being collected.

Acceptance of the personnel qualification and the installation plan by the Department shall not relieve the Contractor of its responsibility to successfully install the slope inclinometer casings in accordance with the Plans and Specifications. Approval by the Department of the Slope Inclinometer Casing Installation Plan shall be contingent upon satisfactory demonstration that the slope inclinometer casings meet the objectives of the Department. If the Department and/or the Resident considers that the slope inclinometer casings do not produce satisfactory results, the Contractor shall alter the method and/or equipment as necessary to comply with this Special Provision. The Resident and the geotechnical engineer will be the sole judge in determining the adequacy of the Contractor's slope inclinometer casings.

Within one (1) week following installation, the Contractor shall submit an installation record for each slope inclinometer casing, which includes: the slope inclinometer designation (SI-1, SI-2 and SI-3), station, offset, and elevation of the top of each slope inclinometer casing. Installation records shall be provided to both the Resident and the geotechnical engineer. The slope inclinometer casings shall be located to an accuracy of 0.01 feet (both vertically and horizontally). The benchmark shall be located on stable ground that is not subject to settlement and is located away from any earthwork/construction activities.

The slope inclinometer casings shall be installed at the locations specified by the geotechnical engineer during construction. Locations cannot be changed without the approval of the geotechnical engineer.

639.04 Delivery Storage and Handling Check all materials and equipment upon delivery to ensure that the proper items are received and are not damaged. Store and maintain all materials in a clean, uncontaminated condition throughout the course of the project. Upon receipt of the slope inclinometer casings, submit copies of the manufacturer's installation and instruction manual for review and acceptance by the geotechnical engineer.

639.05 Construction Requirements Three (3) slope inclinometer casings shall be installed in the shoulder of US Route 1 as specified by the geotechnical engineer. The final location of the slope inclinometer casings shall be behind the guardrail away from traffic. The slope inclinometer casing locations shall be clearly marked on the working surface with stakes or paint, as approved by the Resident.

The Contractor shall notify the Resident at least 14 calendar days prior to the installation of slope inclinometer casings. The slope inclinometer casings shall be furnished and installed by the Contractor in accordance with this Special Provision.

The Contractor shall work in conjunction with the Department to locate the slope inclinometers in the field and ensure that no conflicts exist between slope inclinometers and foundations, structures, utilities or other construction proposed or present at the site. Slope inclinometer casing locations may be adjusted, with the prior approval of the geotechnical engineer, to avoid utilities, foundations, and all other underground construction.

The Contractor shall install slope inclinometer casings in accordance with the manufacturer's recommendations as presented in their instruction and installation manual. The Contractor shall maintain the top of the slope inclinometer casing above the exposed shoulder surface. The top of the casing shall not be more than 4 feet above the exposed shoulder surface.

The Contractor shall protect slope inclinometer casing locations from damage and vandalism for the duration of the Contract and repair or replace damaged or inoperative slope inclinometer casings at no cost to the Department that is not caused by slope movement.

639.041 Slope Inclinometer Casing Installation Drilling for slope inclinometer casings installation shall be performed by a Department approved drilling contractor. The Contractor shall submit to the Department for review and approval the drilling contractor. The Contractor's submittal will include all pertinent information meeting the qualifications in this special provision.

Slope inclinometer casings shall be installed in 4.5-inch diameter borehole using schedule HW, flush joint casing. Casing shall be advanced by driving with a 300-lb hammer falling 16 inches, with sampling as designated by the geotechnical engineer, to 2 feet below the desired bottom elevation. Sampling shall be with 1-3/8-inch ID split-spoon sampler, driven with a 140-lb hammer falling a distance of 30 inches.

The slope inclinometer casings shall be installed a minimum of 2 feet into a firm soil layer located beneath the elevation of the toe of the existing embankment. Based on borings conducted by the Department in May 2018 it appears that the slope inclinometer casings will be approximately 90 feet long (minimum). The length of the slope inclinometers casings will be dependent on the actual soil conditions found during drilling activities.

The slope inclinometer casings shall be installed in accordance with the manufacturer's requirements and recommendations. Pipe clamps shall be used to hold the casing at the borehole collar.

The borehole shall be flushed with clean water prior to installation of the slope inclinometer casing.

Place pea-stone fill above the bottom of the boring to the bottom of the slope inclinometer casing.

Assemble the slope inclinometer casing with the end cap and the grout hose attached at the bottom per the manufacturer's procedure.

Align the slope inclinometer casings so that 1 pair of grooves (i.e. grooves that are 180° apart) is perpendicular to the slope.

The annular space between the slope inclinometer casing and the bore hole wall shall be filled with cement grout having the following composition:

Material	Quantity
Portland Cement	94 lbs. (1 bag)
Water	75 gallons
Bentonite	39 lbs. (as required)

Mix cement with water first, then add bentonite. Adjust the amount of bentonite to produce a grout with the consistence of heavy cream. A watery mix is not acceptable.

Slope inclinometer casings will float in water-filled boreholes. Slope inclinometer casings shall be filled with water to counter this buoyancy. Slope inclinometer casings may become buoyant again when grout is pumped into the annular space. Care should be taken not to apply downward forces on the casing that will compress the casing and effect the straightness of the casing. Rods can be paced in the casing to counteract the buoyancy forces. Care shall be taken not to displace the casing end cap if rods are placed in the casing. Care should be taken to ensure that 1 pair of grooves (i.e. grooves that are 180° apart) is perpendicular to the slope if the casing is moved by buoyant forces. Slope inclinometer casings that do not have 1 pair of grooves perpendicular to the slope will not be accepted.

Place a 2-foot layer of bentonite pellets above the cement grout at the top of the borehole.

Fill the remainder of borehole with pea stone backfill.

The borehole casing is withdrawn during installation. More grout may be required after the casing removal.

Install protective weather tight cap at top of the slope inclinometer casing.

Install a steel protective casing with a lock above ground to protect the slope inclinometer casing from traffic, vandalism and debris.

The slope inclinometer casing shall extend a minimum of 2 inches above the steel protective casing to attach the pulley for readings.

The location of each slope inclinometer casing shall be determined using conventional survey methods. The elevation, station and offset are required. The slope inclinometer casing locations shall become part of the record for each instrument.

The Department or their Representative shall read the slope inclinometers at the end of installation and then 1 reading per week for a period of 4 weeks after installation.

639.10 Method of Measurement The slope inclinometer casings will be paid for at the contract unit price bid of Lump Sum which shall include all labor, equipment (including drilling equipment), materials, mobilization; surveys and incidentals required by this Special Provision. Payment will not be made for slope inclinometer casings that are installed incorrectly or are rejected for their inability to perform, or do not meet the requirements of this Special Provision.

693.11 Basis of Payment Instrumentation - Geotechnical will be paid for at the contract Lump Sum price, which shall be full compensation for all labor, materials, equipment, and incidentals required to install the instrumentation described in this Special Provision as directed by the geotechnical engineer. Removal and replacement of instrumentation damaged by the Contractor shall be incidental to the work.

Payment will be made under:

Pay Item	Pay Unit
639.26 Instrumentation - Geotechnical	Lump Sum