



**COMMONWEALTH OF KENTUCKY  
TRANSPORTATION CABINET**  
Frankfort, Kentucky 40622  
[www.transportation.ky.gov/](http://www.transportation.ky.gov/)

**Matthew G. Bevin**  
Governor

**Greg Thomas**  
Secretary

July 21, 2017

CALL NO. 300  
CONTRACT ID NO. 171025  
ADDENDUM # 1

Subject: Bell County, FD04 SPP 007 0119 000-004  
Letting July 28, 2017

- (1) Revised - Plans - S1 & S2
- (2) Revised - Special Note - Pages 14-17 of 127
- (3) Revised - Bid Items - Pages 123-127 of 127
- (4) Added - Special Note - Pages 1-2 of 2

Proposal revisions are available at <http://transportation.ky.gov/Construction-Procurement/>.

Plan revisions are available at <http://www.lynnimaging.com/kytransportation/>.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

A handwritten signature in cursive script that reads "Rachel Mills".

Rachel Mills, P.E.  
Director  
Division of Construction Procurement

RM:ks  
Enclosures



An Equal Opportunity Employer M/F/D

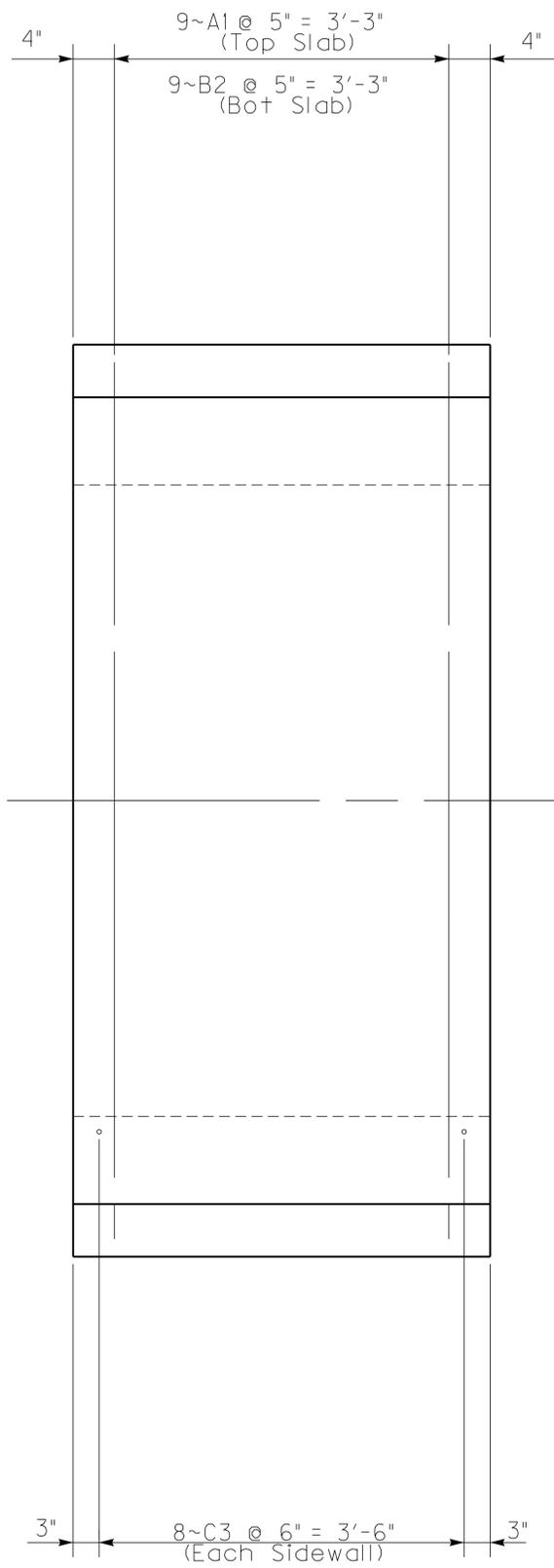




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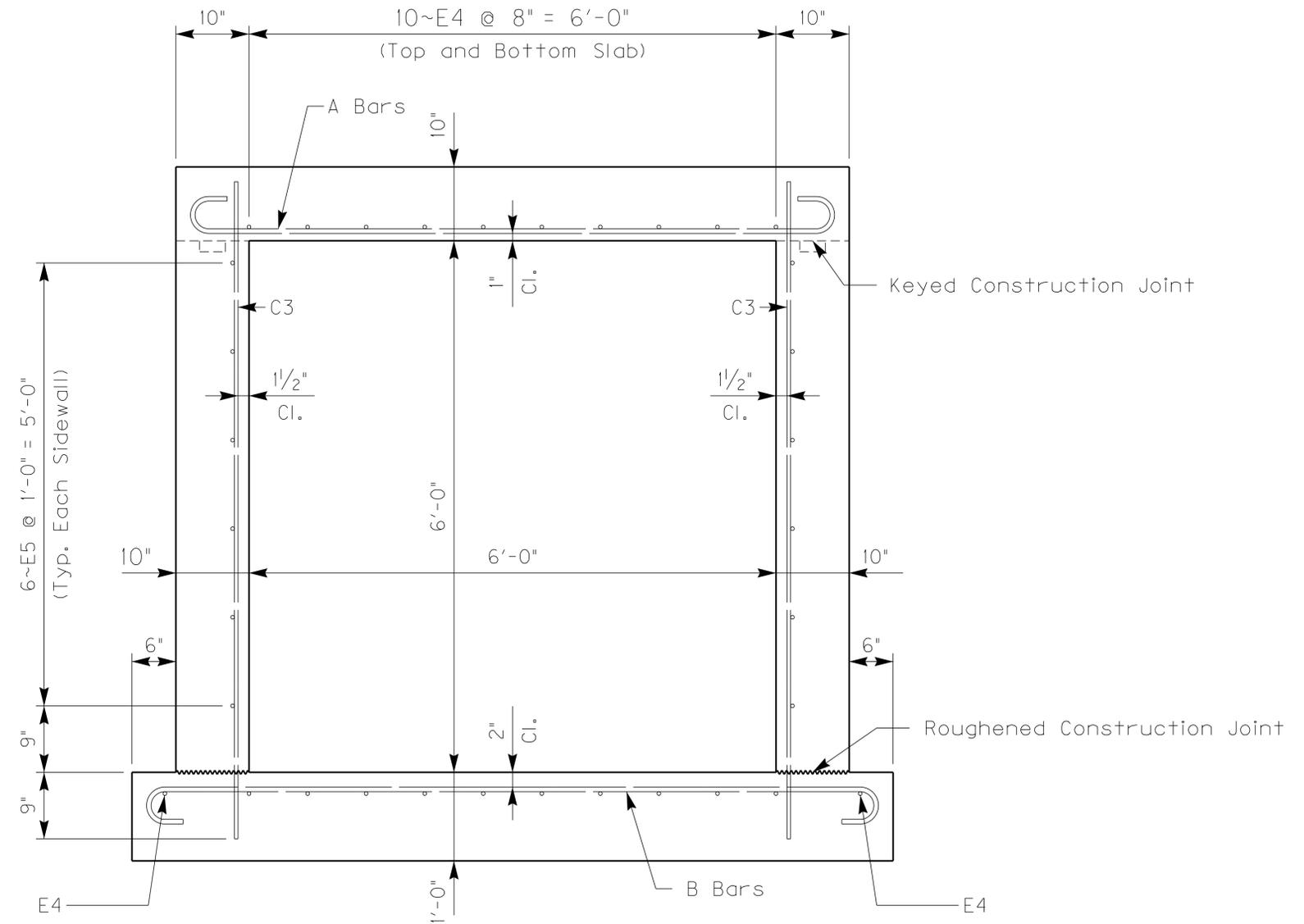
DATE: 20-JUL-2017

E-SHEET NAME:



PLAN

Note: Take care when removing existing concrete masonry to not damage or cut existing longitudinal reinforcement. Reinforcement shall be cleaned and lapped 2'-2" minimum with new reinforcement in the extension. All costs to be incidental to "Remove Concrete Masonry".



TYPICAL BARREL SECTION

Note: E bars to extend into proposed Type C Manhole to tie the structures together. Field Bend E bars as necessary to maintain proper clearance.

BILL OF REINFORCEMENT									
MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A/E	B/F	C/G	D/H
A1	I	9	5	8- 7	Top Slab	6-11	0-10	0- 5	7- 4
B2	I	9	5	9- 7	Bottom Slab	7-11	0-10	0- 5	8- 4
C3	Str.	16	4	7- 5	Sidewalls				
E4	Str.	22	4	4- 8	Top & Bottom Slabs				
E5	Str.	12	4	4- 8	Sidewalls				

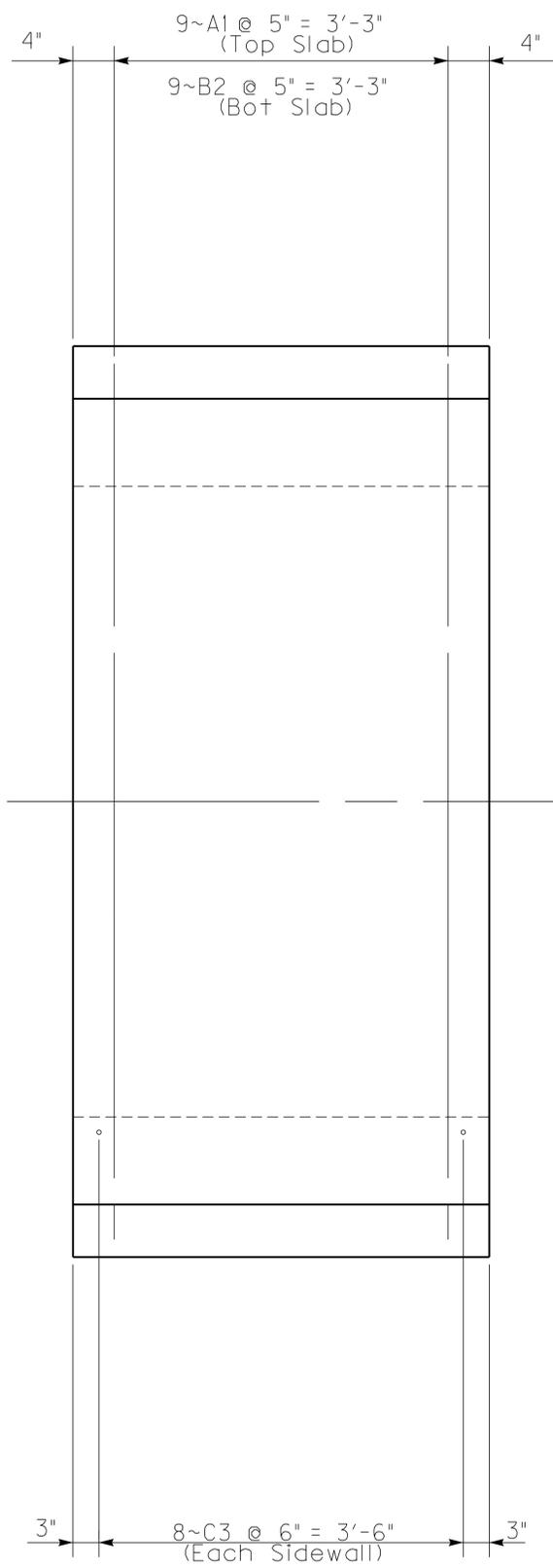
ITEM NUMBER
11-189.00

REVISION		DATE
DATE: July 2017	CHECKED BY	
DESIGNED BY: A. Knuckles		
DETAILED BY:		
<b>Commonwealth of Kentucky</b> <b>DEPARTMENT OF HIGHWAYS</b>		
COUNTY <b>BELL</b>		
ROUTE <b>US 119</b>	CROSSING <b>A CREEK</b>	
<b>BARREL &amp; BILL OF REINFORCEMENT</b>		
PREPARED BY <b>Division of Structural Design</b>		SHEET NO. <b>S2</b>
		DRAWING NO.

USERNAME: earl.w.downey FILE NAME: C:\Users\earl.w.downey\Desktop\Sta 60+25.002.dgn

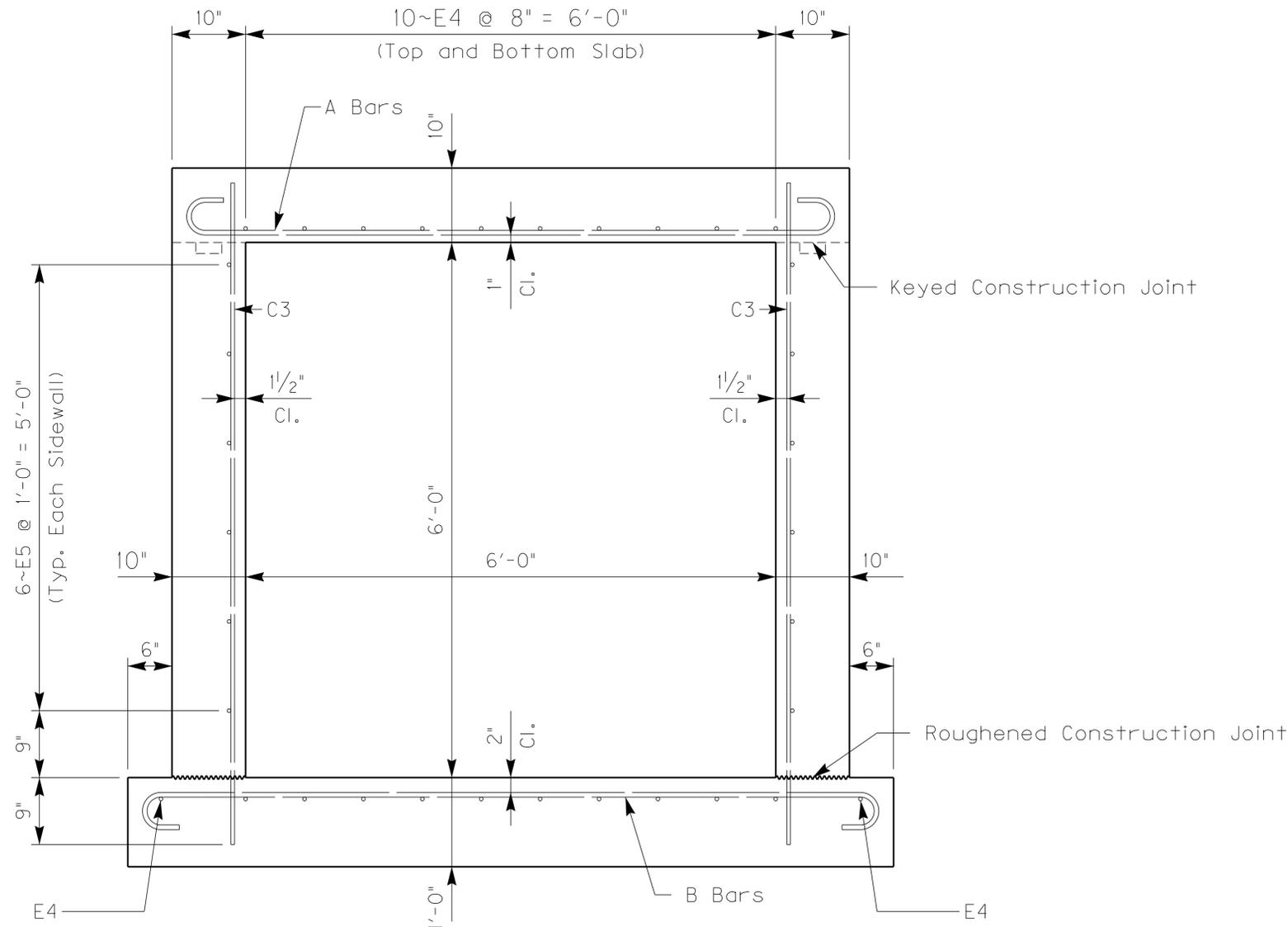
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PREPARED BY		SHEET NO.
<b>Division of</b> <b>Structural Design</b>		<b>S2</b>
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## **SPECIAL NOTE FOR INTELLIGENT COMPACTION OF AGGREGATE BASES AND SOILS**

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's current edition of the Standard Specifications for Road and Bridge Construction.

**1.0 DESCRIPTION.** Provide and use Intelligent Compaction (IC) Rollers for compaction of Aggregate bases, soil, and soil rock mixtures.

**2.0 MATERIALS AND EQUIPMENT.** The Contractor shall supply sufficient numbers of rollers and other associated equipment necessary to complete the compaction requirements for the specific materials. The Contractor will determine the number of IC rollers to use depending on the scope of the project. The IC roller(s) may be utilized during production with other standard compaction equipment and shall be used for the evaluation of the compaction operations. Provide at least one (1) roller to be used on the project with the following minimum characteristics:

- 1) Are self propelled vibratory rollers equipped with machine drive power and/or accelerometers mounted in or about the drum to measure the interactions between the rollers and compacted materials in order to evaluate the applied Compactive effort. [www.IntelligentCompaction.com](http://www.IntelligentCompaction.com) contains a list of acceptable rollers equipped with IC technology.
- 2) IC rollers can be either smooth drums or pad footed drums based on the type needed for the aggregate base or soil types to compact.
- 3) The output from the roller is designated as the IC-MV which represents the stiffness of the materials based on the vibration of the roller drums and the resulting response from the underlying materials, or the machine drive power value.
- 4) Are equipped with integrated on-board documentation systems that are capable of displaying real-time color-coded maps of IC measurement values including the stiffness response values, location of the roller, number of roller passes, machine settings, together with the speed, the frequency and amplitude of roller drums. Ensure the display unit is capable of transferring the data by means of a USB port.
- 5) Are equipped with a mounted Global Positioning System GPS radio and receiver either a Real Time Kinematic (RTK-GPS) or Global Navigational Satellite System (GNSS) units that monitor the location and track the number of passes of the rollers. Accuracy of the positioning system must be within 12 inches.

**3.0 WORK PLAN.** Submit to the Engineer an IC Work Plan at the Preconstruction Conference and/or at least 2 weeks prior to beginning the corresponding construction activities. Describe in the work plan the following:

1. Compaction equipment to be used including:
  - Vendor(s)

- Roller model(s),
- Roller dimensions and weights,
- Description of IC measurement system,
- GPS capabilities,
- Documentation system,
- Software.

2. Roller data collection methods including sampling rates and intervals and data file types.

3. Transfer of data to the Engineer including method, timing, and personnel responsible. Data transfer shall occur at minimum twice per day or as directed by the Engineer. Data transfer is to be by electrical or digital means. If the contractor elects to use a proprietary real time cloud data collecting and distribution system (ex. Visionlink) the Cabinet requests the ability to access the data through this service, cost of this access is incidental to the IC bid item.

4. Provide the Section Engineer the following new GPS survey equipment; this is a sole source item to ensure compatibility with the Cabinet’s existing equipment, **the Cabinet retains possession of the equipment upon completion of the project:**

Item	Part No.	Description	Quantity
1	85985-96	Kit - GNSS, SPS855 & SPS985, 900 MHz USA/CAN	1
2	IS51951-80	Option - Combo GLN/GAL/BeiDou/L5, SPS985/SPS855/SPS555H, Construction	1
3	IS50990-11	Upgrade - Precise Base, SPS985 / SPS985L / SPS855 / SPS585, Construction	1
4	56500-90	Kit - External Radio Antenna, 900MHz, Reverse Polarity	1
5	IS50990-13	Option – Premium Precise Rover, SPS985, Construction	1
6	TAB81-1	Trimble Site Tablet 10 w/SCS900, 2.4GHz radio, US WWAN, Gry/Yel, ext battery, extra radio antenna	1
7	104977-01-HH	Site Tablet 10 Pole Mount Kit	1
8	107727-01-HH	Site Tablet 10 Carry Case	1
9	SCS900-22	SCS900 Roding	1
10	SCS900-23	SCS900 Advanced Measurement	1
11	51658-10	Kit - Radio, SNB900, US/Canada	1
12	55201-00	GPS Kit - 2m Range Pole, Quick Release Bipod, Topo Shoe, Bag	1
13	28959-00-HH	Tripod - Adjustable Height, 2m for GPS	1
14	90553-TR-HH	Tripod - Dual Clamp Tri-Max with Trimble Logos	1

5. Training plan and schedule for roller operators, project foreman, project surveyors, and Cabinet personnel; including both classroom and field training from the equipment manufacturer. Training should be conducted at least 1 week before beginning IC construction. The training is to be performed by a qualified representative(s) from the IC Roller manufacture(s) to be used on the project.

**4.0 CONSTRUCTION.** Prior to the start of production, ensure the proper setup of the GPS, IC roller(s) and the rover(s) by conducting joint GPS correlation and verification testing between the Contractor, GPS representative and IC roller manufacturer using the

same datum. Use the project datum system (Northing, Easting and Elevation) when applicable.

1. Ensure GPS correlation and verification testing includes the following minimum processes:
  - a. Establish the GPS system to be used either one with a base station or one with mobile receivers only. Ensure all components in the system are set to the correct coordinate system; then,
  - b. Verify that the roller and rover are working properly and that there is a connection with the base station; then,
  - c. Record the coordinates of the two edges where the front drum of the roller is in contact with the ground from the on-board, color-coded display; then,
  - d. Mark the locations of the roller drum edges and move the roller, and place the mobile receiver at each mark and record the readings; then,
2. Compare coordinates between the roller and rover receivers. If the coordinates are within 12.0 in. of each other, the comparison is acceptable. If the coordinates are not within 12.0 in., diagnose and perform necessary corrections and repeat the above steps until verification is acceptable.
3. Do not begin work until acceptable GPS correlation and verification has been obtained. The Contractor and the Department should conduct random GPS verification testing during production to ensure data locations are accurate. The recommended rate is once per day with a requirement of at least once per week.
4. A test strip is to be used for all materials (DGA, CSB, and soil) as outlined and sized in section 302.03.04 to determine optimum rolling pattern, for all materials, and the target density for aggregate bases. A new test strip will be required anytime the material changes, equipment changes, or proper compaction has not been obtained for two (2) consecutive test locations.
5. All acceptance testing shall be as outlined in Standard Specifications sections 200 and 300.
6. Any areas a minimum of 50 square feet in area not achieving the 80% of the stiffness value determined by the latest control strip shall be tested by other means approved by the Engineer. If the material doesn't pass the testing is shall be repaired based on current standards to the satisfaction of the Engineer.

**5.0 MEASUREMENT.** The Department will measure the total tons of aggregate base (DGA and/or CSB) and total cubic yards of soil compacted using the IC roller(s). The use of non-IC rollers is allowed on this project, but an IC roller must be used as well.

**6.0 PAYMENT.** The Department will make payment for the completed and accepted quantities under the following:

1. All areas with a minimum of 80% pass coverage and 75% required stiffness readings.
2. Payment is full compensation for all work associated with providing IC equipped rollers, transmission of electronic data files, all required survey equipment and computer, two copies of IC roller manufacturer software, and training.
3. Delays due to GPS satellite reception of signals to operate the IC equipment or IC roller breakdowns will not be considered justification for contract modifications or contract extensions.

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24779EC	Intelligent Compaction for Soil	CY
24780EC	Intelligent Compaction for Aggregate	TON

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March 2, 2015

### PROPOSAL BID ITEMS

171025

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Report Date 7/21/17

#### Section: 0001 - PAVING

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0010	00003		CRUSHED STONE BASE	10,591.70	TON		\$	
0020	00100		ASPHALT SEAL AGGREGATE	30.90	TON		\$	
0030	00103		ASPHALT SEAL COAT	3.70	TON		\$	
0040	00190		LEVELING & WEDGING PG64-22	2,195.00	TON		\$	
0050	00214		CL3 ASPH BASE 1.00D PG64-22	8,763.80	TON		\$	
0060	00301		CL2 ASPH SURF 0.38D PG64-22	2,385.80	TON		\$	
0070	00388		CL3 ASPH SURF 0.38B PG64-22	10,068.90	TON		\$	
0080	02084		JPC PAVEMENT-8 IN	28.00	SQYD		\$	
0090	02676		MOBILIZATION FOR MILL & TEXT	1.00	LS		\$	
0100	02677		ASPHALT PAVE MILLING & TEXTURING	320.00	TON		\$	

#### Section: 0002 - ROADWAY

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0110	00078		CRUSHED AGGREGATE SIZE NO 2	2,500.00	TON		\$	
0120	01310		REMOVE PIPE	622.00	LF		\$	
0130	01810		STANDARD CURB AND GUTTER	4,290.00	LF		\$	
0140	01875		STANDARD HEADER CURB	1,450.00	LF		\$	
0150	01890		ISLAND HEADER CURB TYPE 1	24.00	LF		\$	
0160	01904		REMOVE CURB	66.00	LF		\$	
0170	01987		DELINEATOR FOR GUARDRAIL BI DIRECTIONAL WHITE	55.00	EACH		\$	
0180	02014		BARRICADE-TYPE III	8.00	EACH		\$	
0190	02091		REMOVE PAVEMENT	202.00	SQYD		\$	
0200	02159		TEMP DITCH	5,930.00	LF		\$	
0210	02200		ROADWAY EXCAVATION	19,463.00	CUYD		\$	
0220	02242		WATER	540.00	MGAL		\$	
0230	02351		GUARDRAIL-STEEL W BEAM-S FACE	2,770.50	LF		\$	
0240	02360		GUARDRAIL TERMINAL SECTION NO 1	10.00	EACH		\$	
0250	02367		GUARDRAIL END TREATMENT TYPE 1	1.00	EACH		\$	
0260	02381		REMOVE GUARDRAIL	3,075.00	LF		\$	
0270	02429		RIGHT-OF-WAY MONUMENT TYPE 1	27.00	EACH		\$	
0280	02432		WITNESS POST	6.00	EACH		\$	
0290	02483		CHANNEL LINING CLASS II	214.00	TON		\$	
0300	02484		CHANNEL LINING CLASS III	1,262.00	TON		\$	
0310	02545		CLEARING AND GRUBBING 20 ACRES	1.00	LS		\$	
0320	02562		TEMPORARY SIGNS	676.00	SQFT		\$	
0330	02585		EDGE KEY	101.80	LF		\$	
0340	02598		FABRIC-GEOTEXTILE TYPE III	7,500.00	SQYD		\$	
0350	02600		FABRIC GEOTEXTILE TY IV FOR PIPE	10,710.00	SQYD	\$2.00	\$	\$21,420.00
0360	02625		REMOVE HEADWALL	4.00	EACH		\$	
0370	02650		MAINTAIN & CONTROL TRAFFIC	1.00	LS		\$	
0380	02671		PORTABLE CHANGEABLE MESSAGE SIGN	6.00	EACH		\$	
0390	02690		SAFELoading	39.00	CUYD		\$	
0400	02696		SHOULDER RUMBLE STRIPS	76,244.00	LF		\$	
0410	02701		TEMP SILT FENCE	5,930.00	LF		\$	

**PROPOSAL BID ITEMS**

REVISED ADDENDUM #1: 7-21-17

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0420	02703		SILT TRAP TYPE A	43.00	EACH		\$	
0430	02704		SILT TRAP TYPE B	43.00	EACH		\$	
0440	02705		SILT TRAP TYPE C	43.00	EACH		\$	
0450	02706		CLEAN SILT TRAP TYPE A	129.00	EACH		\$	
0460	02707		CLEAN SILT TRAP TYPE B	129.00	EACH		\$	
0470	02708		CLEAN SILT TRAP TYPE C	129.00	EACH		\$	
0480	02726		STAKING	1.00	LS		\$	
0490	02775		ARROW PANEL	1.00	EACH		\$	
0500	03262		CLEAN PIPE STRUCTURE	2.00	EACH		\$	
0510	05950		EROSION CONTROL BLANKET	60,469.00	SQYD		\$	
0520	05952		TEMP MULCH	2,880.00	SQYD		\$	
0530	05953		TEMP SEEDING AND PROTECTION	2,880.00	SQYD		\$	
0540	05963		INITIAL FERTILIZER	3.00	TON		\$	
0550	05964		20-10-10 FERTILIZER	4.00	TON		\$	
0560	05990		SODDING	1,807.00	SQYD		\$	
0570	05992		AGRICULTURAL LIMESTONE	36.00	TON		\$	
0580	06510		PAVE STRIPING-TEMP PAINT-4 IN	110,930.00	LF		\$	
0590	06514		PAVE STRIPING-PERM PAINT-4 IN	173,560.00	LF		\$	
0600	06546		PAVE STRIPING-THERMO-12 IN W	64.00	LF		\$	
0610	06568		PAVE MARKING-THERMO STOP BAR-24IN	37.00	LF		\$	
0620	06569		PAVE MARKING-THERMO CROSS-HATCH	16,593.00	SQFT		\$	
0630	06573		PAVE MARKING-THERMO STR ARROW	6.00	EACH		\$	
0640	06574		PAVE MARKING-THERMO CURV ARROW	33.00	EACH		\$	
0650	06578		PAVE MARKING-THERMO MERGE ARROW	2.00	EACH		\$	
0660	06591		PAVEMENT MARKER TYPE V-BY	1,246.00	EACH		\$	
0670	06600		REMOVE PAVEMENT MARKER TYPE V	421.00	EACH		\$	
0680	10020NS		FUEL ADJUSTMENT	46,057.00	DOLL	\$1.00	\$	\$46,057.00
0690	10030NS		ASPHALT ADJUSTMENT	91,478.00	DOLL	\$1.00	\$	\$91,478.00
0700	20430ED		SAW CUT	11,252.00	LF		\$	
0710	20458ES403		CENTERLINE RUMBLE STRIPS	40,108.00	LF		\$	
0720	21417ES717		PAVE MARK THERMO CONE CAP-SOLID YELLOW	44.00	SQFT		\$	
0730	21802EN		G/R STEEL W BEAM-S FACE (7 FT POST)	431.00	LF		\$	
0740	22664EN		WATER BLASTING EXISTING STRIPE	16,869.00	LF		\$	
0750	23274EN11F		TURF REINFORCEMENT MAT 1	273.00	SQYD		\$	
0760	24779EC		INTELLIGENT COMPACTION FOR SOIL	14,296.00	CUYD		\$	
0770	24780EC		INTELLIGENT COMPACTION FOR AGGREGATE	10,560.90	TON		\$	
0780	24781EC		INTELLIGENT COMPACTION FOR ASPHALT	23,397.90	TON		\$	
0790	24814EC		PIPELINE INSPECTION	2,286.00	LF		\$	
0800	24891EC		PAVE MOUNT INFRARED TEMP EQUIPMENT	581,502.10	SF		\$	
0801	02403		REMOVE CONCRETE MASONRY CULVERT-STA. 60+25.10 (ADDED: 7-21-17)	4.70	CUYD		\$	
0802	02625		REMOVE HEADWALL CULVERT-STA. 60+25.10 (ADDED: 7-21-17)	1.00	EACH		\$	
0803	08003		FOUNDATION PREPARATION CULVERT-STA. 60+25.10 (ADDED: 7-21-17)	1.00	LS		\$	
0804	08100		CONCRETE-CLASS A CULVERT-STA. 60+25.10 (ADDED: 7-21-17)	3.80	CUYD		\$	

**PROPOSAL BID ITEMS**

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0805	08150		STEEL REINFORCEMENT CULVERT-STA. 60+25.10 (ADDED: 7-21-17)	356.00	LB		\$	

**Section: 0003 - DRAINAGE**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
0810	00440		ENTRANCE PIPE-15 IN	322.00	LF		\$	
0820	00441		ENTRANCE PIPE-18 IN	46.00	LF		\$	
0830	00443		ENTRANCE PIPE-24 IN	87.00	LF		\$	
0840	00462		CULVERT PIPE-18 IN	87.00	LF		\$	
0850	00464		CULVERT PIPE-24 IN	104.00	LF		\$	
0860	00469		CULVERT PIPE-42 IN	90.00	LF		\$	
0870	00521		STORM SEWER PIPE-15 IN	94.00	LF		\$	
0880	00522		STORM SEWER PIPE-18 IN	1,602.00	LF		\$	
0890	00524		STORM SEWER PIPE-24 IN	4.00	LF		\$	
0900	00528		STORM SEWER PIPE-36 IN	27.00	LF		\$	
0910	00534		STORM SEWER PIPE-72 IN	93.00	LF		\$	
0920	01204		PIPE CULVERT HEADWALL-18 IN	3.00	EACH		\$	
0930	01208		PIPE CULVERT HEADWALL-24 IN	2.00	EACH		\$	
0940	01212		PIPE CULVERT HEADWALL-36 IN	1.00	EACH		\$	
0950	01214		PIPE CULVERT HEADWALL-42 IN	2.00	EACH		\$	
0960	01433		SLOPED BOX OUTLET TYPE 1-18 IN	2.00	EACH		\$	
0970	01450		S & F BOX INLET-OUTLET-18 IN	1.00	EACH		\$	
0980	01451		S & F BOX INLET-OUTLET-24 IN	1.00	EACH		\$	
0990	01456		CURB BOX INLET TYPE A	14.00	EACH		\$	
1000	01493		DROP BOX INLET TYPE 2	1.00	EACH		\$	
1010	01496		DROP BOX INLET TYPE 3	2.00	EACH		\$	
1020	01544		DROP BOX INLET TYPE 11	2.00	EACH		\$	
1030	01641		JUNCTION BOX-15 IN	1.00	EACH		\$	
1040	01642		JUNCTION BOX-18 IN	1.00	EACH		\$	
1050	01645		JUNCTION BOX-36 IN	2.00	EACH		\$	
1060	01767		MANHOLE TYPE C	1.00	EACH		\$	
1070	24025EC		PIPE CULVERT HEADWALL-72 IN	1.00	EACH		\$	

**Section: 0004 - BRIDGE-CULVERT-27096**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1080	02625		REMOVE HEADWALL	1.00	EACH		\$	
1090	08002		STRUCTURE EXCAV-SOLID ROCK	16.00	CUYD		\$	
1100	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1110	08100		CONCRETE-CLASS A	38.40	CUYD		\$	
1120	08150		STEEL REINFORCEMENT	3,628.00	LB		\$	

**Section: 0005 - BRIDGE-CULVERT-27257**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
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**PROPOSAL BID ITEMS**

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1130	02625		REMOVE HEADWALL	1.00	EACH		\$	
1140	08002		STRUCTURE EXCAV-SOLID ROCK	20.00	CUYD		\$	
1150	08003		FOUNDATION PREPARATION	1.00	LS		\$	
1160	08100		CONCRETE-CLASS A	45.40	CUYD		\$	
1170	08150		STEEL REINFORCEMENT	6,144.00	LB		\$	

**Section: 0006 - WATERLINE - SECTION B1**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1180	14003		W CAP EXISTING MAIN	2.00	EACH		\$	
1190	14005		W ENCASEMENT CONCRETE	55.00	LF		\$	
1200	14012		W ENCASEMENT STEEL OPEN CUT RANGE 1	170.00	LF		\$	
1210	14013		W ENCASEMENT STEEL OPEN CUT RANGE 2	110.00	LF		\$	
1220	14019		W FIRE HYDRANT ASSEMBLY	1.00	EACH		\$	
1230	14021		W FIRE HYDRANT REMOVE	1.00	EACH		\$	
1240	14022		W FLUSH HYDRANT ASSEMBLY	3.00	EACH		\$	
1250	14028		W METER 3/4 INCH	23.00	EACH		\$	
1260	14067		W PIPE POLYETHYLENE/PLASTIC 03 INCH	119.00	LF		\$	
1270	14070		W PIPE POLYETHYLENE/PLASTIC 08 INCH	3,967.00	LF		\$	
1280	14073		W PIPE POLYETHYLENE/PLASTIC SPECIAL	690.00	LF		\$	
1290	14089		W TAPPING SLEEVE AND VALVE SIZE 1	1.00	EACH		\$	
1300	14095		W TIE-IN 08 INCH	2.00	EACH		\$	
1310	14101		W TIE-IN SPECIAL	49.00	EACH		\$	
1320	14102		W VALVE 02 INCH	2.00	EACH		\$	
1330	14103		W VALVE 03 INCH	1.00	EACH		\$	
1340	14106		W VALVE 08 INCH	2.00	EACH		\$	
1350	14148		W SERV COPPER LONG SIDE 3/4 IN	1.00	EACH		\$	
1360	14152		W SERV COPPER SHORT SIDE 3/4 IN	48.00	EACH		\$	

**Section: 0007 - WATERLINE - SECTION B2**

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1370	14003		W CAP EXISTING MAIN (3-IN)	1.00	EACH		\$	
1380	14003		W CAP EXISTING MAIN (6-IN)	1.00	EACH		\$	
1390	14003		W CAP EXISTING MAIN (8-IN)	1.00	EACH		\$	
1400	14005		W ENCASEMENT CONCRETE	140.00	LF		\$	
1410	14014		W ENCASEMENT STEEL OPEN CUT RANGE 3	40.00	LF		\$	
1420	14015		W ENCASEMENT STEEL OPEN CUT RANGE 4	100.00	LF		\$	
1430	14025		W METER 1 INCH	2.00	EACH		\$	
1440	14028		W METER 3/4 INCH	9.00	EACH		\$	
1450	14069		W PIPE POLYETHYLENE/PLASTIC 06 INCH	52.00	LF		\$	
1460	14070		W PIPE POLYETHYLENE/PLASTIC 08 INCH	2,163.00	LF		\$	
1470	14089		W TAPPING SLEEVE AND VALVE SIZE 1	1.00	EACH		\$	
1480	14092		W TIE-IN 03 INCH	1.00	EACH		\$	
1490	14095		W TIE-IN 08 INCH	2.00	EACH		\$	

### PROPOSAL BID ITEMS

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LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1500	14101		W TIE-IN SPECIAL (RECONNECT 1-IN WATER SERVICE)	2.00	EACH		\$	
1510	14101		W TIE-IN SPECIAL (RECONNECT 3/4-IN WATER SERVICE)	9.00	EACH		\$	
1520	14105		W VALVE 06 INCH	1.00	EACH		\$	
1530	14106		W VALVE 08 INCH	2.00	EACH		\$	
1540	14148		W SERV COPPER LONG SIDE 3/4 IN	1.00	EACH		\$	
1550	14149		W SERV COPPER SHORT SIDE 1 IN	2.00	EACH		\$	
1560	14152		W SERV COPPER SHORT SIDE 3/4 IN	8.00	EACH		\$	

### Section: 0008 - DEMOBILIZATION &/OR MOBILIZATION

LINE	BID CODE	ALT	DESCRIPTION	QUANTITY	UNIT	UNIT PRIC	FP	AMOUNT
1570	02568		MOBILIZATION	1.00	LS		\$	
1580	02569		DEMOBILIZATION	1.00	LS		\$	

## SPECIAL NOTE FOR PAVER MOUNTED TEMPERATURE PROFILES

This Special Note will apply when indicated on the plans or in the proposal. Section references herein are to the Department's Standard Specifications for Road and Bridge Construction current edition.

**1.0 DESCRIPTION.** Provide a paver mounted infrared temperature equipment to continually monitor the temperature of the asphalt mat immediately behind all paver(s) during the placement operations for all driving lanes within the project limits. Provide thermal profiles that include material temperature and measurement locations.

**2.0 MATERIALS AND EQUIPMENT.** In addition to the equipment specified in Subsection 403.02 Utilize a thermal equipment supplier that can provide a qualified representative for on-site technical assistance during the initial setup, pre-construction verification, and data management and processing as needed during the Project to maintain equipment within specifications and requirements.

Provide operator settings, user manuals, required viewing/export software for analysis. Ensure the temperature equipment will meet the following:

(A) A device with one or more infrared sensors that is capable of measuring in at least 1 foot intervals across the paving width, with a minimum width of 12 feet, or extending to the recording limits of the equipment, whichever is greater. A **Maximum of two (2)** brackets are allowed in the influence area under the sensors. A temperature profile must be made on at least 1 foot intervals longitudinally down the road:

(B) Infrared sensor(s):

(1) Measuring from 32°F to 400°F with an accuracy of  $\pm 2.0\%$  of the sensor reading.

(C) Ability to measure the following:

(1) The placement distance using a Global Positioning System (GPS) or a Distance Measuring Instrument (DMI) and a Global Positioning System (GPS).

(2) Stationing

(D) GPS: Accuracy  $\pm 4$  feet in the X and Y Direction

(E) Latest version of software to collect, display, retain and analyze the mat temperature readings during placement. The software must have the ability to create and analyze:

(1) Full collected width of the thermal profiles,

(2) Paver speed and

(3) Paver stops and duration for the entire Project.

(F) Ability to export data automatically to a remote data server ("the cloud").

At the preconstruction meeting, provide the Department with rights to allow for web access to the data file location.

This web-based software must also provide the Department with the ability to download the raw files and software and to convert them into the correct format.

(G) The thermal profile data files must provide the following data in a neat easy to read table format.

(1) Project information including Road Name and Number, PCN, Beginning and Ending MPs.

(2) IR Bar Manufacturer and Model number

(3) Number of Temperature Sensors (N)

(4) Spacing between sensors and height of sensors above the asphalt mat

(5) Total number of individual records taken each day (DATA BLOCK)

(a) Date and Time reading taken

(b) Latitude and Longitude

(c) Distance paver has moved from last test location

(d) Direction and speed of the paver

(e) Surface temperature of each of the sensors

**3.0 CONSTRUCTION.** Provide the Engineer with all required documentation at the pre-construction conference.

(A) Install and operate equipment in accordance with the manufacturer’s specifications.

(B) Verify that the temperature sensors are within ± 2.0% using an independent temperature device on a material of known temperature. Collect and compare the GPS coordinates from the equipment with an independent measuring device.

(1) Ensure the independent survey grade GPS measurement device is calibrated to the correct coordinate system (using a control point), prior to using these coordinates to validate the equipment GPS.

(2) The comparison is considered acceptable if the coordinates are within 4 feet of each other in the X and Y direction.

(C) Collect thermal profiles on all Driving Lanes during the paving operation and transfer the data to the “cloud” network or if automatic data transmission is not available, transfer the data to the Engineer at the end of daily paving.

(D) Contact the Department immediately when System Failure occurs. Daily Percent Coverage will be considered zero when the repairs are not completed within two (2) working days of System Failure. The start of this two (2) working day period begins the next working day after System Failure.

(E) Evaluate thermal profile segments, every 150 feet, and summarize the segregation of temperature results. Results are to be labeled as Minimal 0°-25°F, Moderate 25.1°-50°F and Severe >50°. Severe readings over 3 consecutive segments or over 4 or more segments in a day warrant investigation on the cause of the differential temperature distribution.

**4.0 MEASUREMENT.** The Department will measure the total area of the driving lanes mapped by the infrared scanners. Full payment will be provided for all driving lanes with greater than 85% coverage. Partial payment will be made for all areas covered from 50% coverage to 85% coverage at the following rate Coverage area percentage X Total bid amount. And area with less than 50% coverage will not be measured for payment.

**5.0 PAYMENT.** The Department will make payment for the completed and accepted quantities under the following:

1. Payment is full compensation for all work associated with providing all required equipment, training, and documentation.
2. Delays due to GPS satellite reception of signals or equipment breakdowns will not be considered justification for contract modifications or contract extensions.

<u>Code</u>	<u>Pay Item</u>	<u>Pay Unit</u>
24891EC	PAVE MOUNT INFRARED TEMP EQUIPMENT	SQFT