AMENDMENT OF SOLICITATION / MODIFICATION OF CONTRACT

1. Contract Number	Page of Pages	
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2. Amendment/Modification Number	3. Effective Date	4. Requisition/Purchase Request No.	5. Solicitation Caption
Amd 5	See 16C		**Kennedy Street Revitalization**

6. Issued by: Code	7. Administered by (If other than line 6)
District Department of Transportation OCP 55 M Street, SE Suite 700 Washington, DC 20003	District Department of Transportation IPMA 55 M Street, SE 4th floor Washington, DC

8. Name and Address of Contractor (No. street, city, county, state and zip code)		
	X	9A. Amendment of Solicitation No. DCKA-2014-B-0070
		9B. Dated (See Item 11) 8/13/2015
		10A. Modification of Contractor/Order No.
Code Facility		10B. Dated (See Item 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☒ The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offers ☐ is extended. ☐ is not extended. Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning 2 copies of the amendment: (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) BY separate letter or fax which includes a reference to the solicitation and amendment number. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such may be made by letter or fax, provided each letter or telegram makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. Accounting and Appropriation Data (If Required):

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTORS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14

	A. This change order is issued pursuant to (Specify Authority): The changes set forth in Item 14 are made in the contract/order no. in item 10A.
	B. The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation data etc.) set forth in item 14, pursuant to the authority of 27 DCMR, Chapter 36, Section 3601.2.
	C. This supplemental agreement is entered into pursuant to authority of:
	D. Other (Specify type of modification and authority) Adding additional scope and increasing the amount of the original contract

E. IMPORTANT: Contractor ☐ is not ☒ is required to sign this document and return 1 copies to the issuing office.

14. Description of Amendment/Modification (Organized by UCF Section headings, including solicitation/contract subject matter where feasible.)

Solicitation No.: DCKA-2014-B-0070:

1) **Attached is the replacement pay item schedule (pages 1R thru 26R).**
2) **Attached are the additional specifications for the WASA portion (Spec 102- page 1-5)**
3) **Attached are the additional specifications for the WASA portion (Spec 103- page 1-2)**
4) **Attached are the additional specifications for the WASA portion (Spec 104- 1 page)**

All specifications and plans can be uploaded from DTAP:
http://dashboard.ddot.dc.gov/ddotdashboard/#/Views/Solicitations.xaml

Except as provided herein, all terms and conditions of the document referenced in item (9A or 10A) remain unchanged and in full force and effect.

15A. Name and Title of Signer (Type or print)		16A. Courtney B. Lattimore Contracting Officer	
15B. Name of Contractor (Signature)	15C. Date Signed	16B. District of Columbia (Signature of Contracting Officer)	16C. Date Signed 10/13/15

CONTRACT ID: KA2015B0070 PROJECT(S): STP-8888 (480)

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
SECTION 0001 Participating DDOT Work(100%) - TCSP-Federal Funding						
0010	000003 Employee Training	3000.000 HR	.		.	
0020	000506 Unassigned Special Item -EACH - 000 519 - F&I FRAME AND GRATE FOR LEACHING CHAMBERS	4.000 EACH	.		.	
0030	000506 Unassigned Special Item -EACH - 000 521 - CHECK VALVE	2.000 EACH	.		.	
0040	000506 Unassigned Special Item -EACH - 000 525 - PARTNERING	25000.000 EACH	1.00000		25000.00	
0050	000506 Unassigned Special Item -EACH - 000527 8-FOOT DIAMETER DRYWALL/ LEACHING CHAMBER	4.000 EACH	.		.	
0060	000506 Unassigned Special Item -EACH - 613 343 - FURNISH AND INSTALL CCTV CAMERA COMPLETE	2.000 EACH	.		.	
0070	000506 Unassigned Special Item -EACH - 613 345 - FURNISH AND INSTALL VIDEO DETECTION CAMERA COMPLETE	3.000 EACH	.		.	

CONTRACT ID: KA2015B0070 PROJECT(S): STP-8888 (480)

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0080	000506 Unassigned Special Item -EACH - 613 347 - TREE, SHRUB, VINE, & GRD COVER SPE ITEM-EVERGREEN SHRUB, 3 GALLON	230.000 EACH		.		.
0090	000506 Unassigned Special Item -EACH - 613 349 -TREE, SHRUB, VINE, & GRD COVER SPE ITEM-DECIDUOU SHRUB, 3 GALLON	76.000 EACH		.		.
0100	000506 Unassigned Special Item -EACH - TREE, SHRUB, VINE, & GR COVER SPE ITEM-DECIDUOU SHRUB, 1 QUART GR.COVER	9800.000 EACH		.		.
0110	000509 Unassigned Special Item -LF - 000 527 - PRECAST CONCRETE VALLEY GUTTER (2" DEEP X 2' WIDE)	710.000 LF		.		.
0120	000509 Unassigned Special Item -LF - 4" STEEL RAIL FENCE	551.000 LF		.		.
0130	000511 Unassigned Special Item -LS - 605 003 BUILDING ENTRANCE TREATMENT FOR ADA PURPOSE	LUMP	LUMP			.
0140	000511 Unassigned Special Item -LS - PUBLIC ART	LUMP	LUMP			.

CONTRACT ID: KA2015B0070 PROJECT(S): STP-8888 (480)

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0150	000514 Unassigned Special Item -SF - 000 523 - THERMOPLASTIC LOGO ON ASPHALT PAVEMENT	320.000 SF		.		.
0160	000514 Unassigned Special Item -SF - 000 525 - THERMOPLASTIC LOGO SIGNS HUNG ON POLES	65.000 SF		.		.
0170	000514 Unassigned Special Item -SF - DURATHERM PAVEMENT MARKING FOR CROSS WALKS	5300.000 SF		.		.
0180	000515 Unassigned Special Item -SY - 000 529 - STEEL GRATING FOR RECESSED LANDSCAPE PLANTERS AND BOARDWALKERS	300.000 SY		.		.
0190	000515 Unassigned Special Item -SY - STEEL PLATE CHECK DAM	5.000 SY		.		.
0200	108002 Mobilization	LUMP	LUMP			.
0210	108004 Progress Photographs	LUMP	LUMP			.
0220	108012 Engineer's Field Facilities	LUMP	LUMP			.
0230	108016 Field Layout	LUMP	LUMP			.

District Department of Transportation

SCHEDULE OF ITEMS

CONTRACT ID: KA2015B0070 PROJECT(S): STP-8888 (480)

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0240	202002 Common Excavation	9090.000	CY	.		.	
0250	202004 Hard Surface Pavement Excavation	1395.000	CY	.		.	
0260	205002 Structure Excavation	325.000	CY	.		.	
0270	206002 Structure Backfill	250.000	CY	.		.	
0280	207002 Trench Excavation and Backfill	3577.000	CY	.		.	
0290	209002 Aggregate Base Course	2280.000	CY	.		.	
0300	209004 Aggregate Base Course for LID #57 stone	120.000	CY	.		.	
0310	209006 Aggregate Base Course for LID #8 stone	55.000	CY	.		.	
0320	209008 Aggregate Base Course for #2 stone	275.000	CY	.		.	
0330	209012 Sandy Gravel Filter Layer for LID	50.000	CY	.		.	
0340	212002 Test Pit	40.000	EACH	.		.	

CONTRACT ID: KA2015B0070 PROJECT(S): STP-8888 (480)

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	CTS	BID AMOUNT DOLLARS	CTS
0350	302002 Valve Casing	4.000	EACH	.		.	
0360	303002 Abandon Valve Casing	4.000	EACH	.		.	
0370	303004 Remove Fire Hydrant	4.000	EACH	.		.	
0380	305004 Ductile Iron Pipe, 6 Inch	80.000	LF	.		.	
0390	306004 Gate Butterfly Valve, 6 Inch	4.000	EACH	.		.	
0400	307002 Set Fire Hydrant	4.000	EACH	.		.	
0410	307006 Adjust Fire Hydrant	1.000	EACH	.		.	
0420	308012 Replace Water Service Pipe	710.000	LF	.		.	
0430	308016 Furnish&Install Water Meter Housing, Frame& Cover	13.000	EACH	.		.	
0440	308022 Adjust Water Meter Unit ADJUST TO FINISH GRADE	9.000	EACH	.		.	
0450	308026 Reset Water Meter Unit RELOCATE AND RESET	6.000	EACH	.		.	

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0460	309002 Sewer Manhole on Sewer 48 Inch and Less Dia.	74.000 VLF	.		.	
0470	309991 Sewer Manhole Special Item - EACH - 309 995 - 6' INSIDE DIAMETER MANHOLE	2.000 EACH	.		.	
0480	309991 Sewer Manhole Special Item - EACH - STANDARD 4' INSIDE DIAMETER	3.000 EACH	.		.	
0490	310002 F&I Standard Basin	3.000 EACH	.		.	
0500	310004 F&I Standard Double Basin	25.000 EACH	.		.	
0510	310006 F&I Standard Triple Basin	4.000 EACH	.		.	
0520	310008 Basin Connect PCC Pipe, Class III, 15 Inch	1174.000 LF	.		.	
0530	310022 LID Underdrain connection to catch basin	2.000 EACH	.		.	
0540	310024 LID Underdrain connection to sewer	5.000 EACH	.		.	
0550	310028 Domed overflow grate and riser	6.000 EACH	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0560	311002 Adjust Sewer-Water-Utility Manhole Frame	33.000 EACH	.		.	
0570	311010 Adjust Standard Basin Top	12.000 EACH	.		.	
0580	311020 Manhole Adapter Ring FOR LEACHING CHAMBER RISERS	4.000 EACH	.		.	
0590	311026 Replace Existing Basin with Double Basin	6.000 EACH	.		.	
0600	311028 Replace Existing Basin with Triple Basin	2.000 EACH	.		.	
0610	311991 Adjust, Rebuild&Replace Manhole&Catchbasin- Special Item -EA- 310 005 - FURNISH AND INSTALL MODIFIED STANDARD DOUBLE BASIN	8.000 EACH	.		.	
0620	311991 Adjust, Rebuild&Replace Manhole&Catchbasin- Special Item -EA- 310 007 - FURNISH AND INSTALL MODIFIED STANDARD TRIPLE BASIN	7.000 EACH	.		.	
0630	311991 Adjust, Rebuild&Replace Manhole&Catchbasin- Special Item -EA- 311 003 - MODIFY SEWER-WATER-UTILITY MANHOLE TOP	9.000 EACH	.		.	

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0640	312006 Replace Standard Basin Top	6.000 EACH	.		.	
0650	313002 Abandon Basin Connecting Pipe	18.000 EACH	.		.	
0660	313004 Abandon Sewer Manhole	2.000 EACH	.		.	
0670	313006 Abandon Basin	34.000 EACH	.		.	
0680	314090 PVC Pipe, SDR 35, Gasket, 15 Inch	75.000 LF	.		.	
0690	315002 Pipe Sewer TV Inspection - LS -	LUMP	LUMP			.
0700	316993 Sewer Connection and Cleanout Special Item - EACH - 316 001 - OBSERVATION WELL	13.000 EACH	.		.	
0710	324002 PCC In-Line Thrust Block	4.000 EACH	.		.	
0720	327016 Solid Trench Drain Cover, 25-30 Inches	70.000 LF	.		.	
0730	327991 Sdwlk Intercept. Drain, Connection, Grating&Trap Special Item TRENCH DRAIN	220.000 LF	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0740	328002 Clean Storm Sewer Structure	46.000 EACH	.		.	
0750	402002 HMA Base Course, 19 mm	200.000 TON	.		.	
0760	402008 HMA Surface Course, 9.5 mm	3500.000 TON	.		.	
0770	403002 Tack Coat	37000.000 SY	.		.	
0780	405016 Temporary AC, HMA Surface Course, 12.5 mm	420.000 TON	.		.	
0790	410002 Pavement Profiling (Milling)	32834.000 SY	.		.	
0800	501034 Additional Standard Portland Cement	76.000 BAGS	.		.	
0810	501991 Portland Cement Concrete Pavement Special Item -CY - CAST-IN-PLACE AT LANDSCAPE INFILTRATION GAPS(LIG)	5.000 CY	.		.	
0820	502004 PCC Base for Utility Cuts	840.000 CY	.		.	
0830	502010 PCC Base, 10 Inch	480.000 CY	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	CTS	BID AMOUNT DOLLARS	CTS
0840	504006 PCC Driveway-Alley Entrance, 7 Inch	901.000	CY	.		.	
0850	505030 Anchor Bolts - Paving	970.000	EACH	.		.	
0860	505034 Repair PCC Base	80.000	CY	.		.	
0870	506002 PCC Bus Stop Pad	300.000	CY	.		.	
0880	507004 PCC Property Wall	80.000	CY	.		.	
0890	507006 Stone Masonry Wall	120.000	CY	.		.	
0900	507008 PCC Steps	40.000	CY	.		.	
0910	507010 Standard PCC Coping	80.000	CY	.		.	
0920	507016 PCC Edge restraint for permeable paving	262.000	CY	.		.	
0930	600007 Incidental Construction Special Item - CY - BRICK CLAD CURVED WALL	30.000	CY	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0940	600027 Incidental Construction Special Item - SY - 600 031 - PERMEABLE CLAY BRICK UNIT PAVERS	410.000 SY	.		.	
0950	600027 Incidental Construction Special Item - SY - DEEP SOIL CONDITIONING	1250.000 SY	.		.	
0960	600027 Incidental Construction Special Item - SY - FLEXIBLE POROUS PAVEMENT FOR SIDEWALKS	25.000 SY	.		.	
0970	601002 Underdrain Pipe, 4 Inch	1175.000 LF	.		.	
0980	601004 Underdrain Pipe, 6 Inch	815.000 LF	.		.	
0990	601010 Underdrain Connect Pipe, 6 Inch	210.000 LF	.		.	
1000	601016 Underdrain cleanout cover paved area IN LANDSCAPE	20.000 EACH	.		.	
1010	601018 Underdrain Pipe Risers	50.000 VLF	.		.	
1020	602010 LID Splash Stone, RipRap	2.000 CY	.		.	
1030	602012 LID Splash Stone, River Rock	17.000 CY	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1040	604004 Chain Link Fence, 6 Ft. Ht.	100.000 LF	.		.	
1050	604040 Reset Chain Link Fence	80.000 LF	.		.	
1060	604060 Ornamental Safety Fence	300.000 LF	.		.	
1070	604991 Miscellaneous Fencing Special Item - LF - 604995- RELOCATE ORNAMENTAL FENCE	60.000 LF	.		.	
1080	604991 Miscellaneous Fencing Special Item - LF - DDOT STANDARD 18-INCH ORNAMENTAL IRON TREE FENCE, 4-SIDED	205.000 LF	.		.	
1090	605006 PCC Sidewalk, 4 Inch	4800.000 SY	.		.	
1100	605008 PCC Sidewalk, 6 Inch	140.000 SY	.		.	
1110	605026 Brick Sidewalk on PCC Base	9350.000 SY	.		.	
1120	605044 Permeable Interlocking Concrete Pavers	500.000 SY	.		.	
1130	605993 Sidewalks & Driveway Special Item - SY - 605 009 - FLEXIBLE POROUS SIDEWALK	180.000 SY	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1140	606036 PCC Mountable Curb, 10 to 13 Inch Depth	525.000 LF	.		.	
1150	606048 PCC Gutter, 7 to 10 Inch Depth x 12-24 Inch Width	170.000 SY	.		.	
1160	606064 Furnish and Set 8"x12" Granite Straight Curb	9689.000 LF	.		.	
1170	606066 Furnish&Set 8"x12" Granite Circular Curb Radius Under 10Ft	706.000 LF	.		.	
1180	606068 Furnish&Set8"x12"Granite Circular Curb Radius10-100Ft	1700.000 LF	.		.	
1190	606098 PCC Wheelchair/Bicycle Ramp - New Construction	30.000 EACH	.		.	
1200	606100 PCC Wheelchair/Bicycle Ramp - Existing Construction	74.000 EACH	.		.	
1210	606108 Brick Gutter	9889.000 SF	.		.	
1220	606112 PCC LID Curb Inlet/Outlet	1.000 CY	.		.	
1230	607002 Seed	30.000 SY	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1240	607016 Sod	1660.000 SY	.		.	
1250	607030 Planting Soil Mix	680.000 CY	.		.	
1260	607032 Mulch	2460.000 SY	.		.	
1270	607042 Bioretention Soil	543.000 CY	.		.	
1280	607044 Sand Based Structural Soil	2865.000 CY	.		.	
1290	607052 Sand	35.000 CY	.		.	
1300	608002 Remove Tree and Stump up to 6 Inch Dia.	23.000 EACH	.		.	
1310	608004 Remove Tree and Stump 6 to 12 Inch Dia.	3.000 EACH	.		.	
1320	608006 Remove Tree and Stump 12 to 18 Inch Dia.	1.000 EACH	.		.	
1330	608008 Remove Tree and Stump 18 to 24 Inch Dia.	8.000 EACH	.		.	
1340	608066 Prune Tree 36 inch to 42 Inch Dia.	2.000 EACH	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1350	608068 Prune Tree over 42 inch Dia.	2.000 EACH	.		.	
1360	608072 Tree Protection and Replacement	118.000 EACH	.		.	
1370	608078 Steel Edging	225.000 LF	.		.	
1380	608088 Bollard	69.000 EACH	.		.	
1390	608096 Park Benches	20.000 EACH	.		.	
1400	608102 Bicycle Lockers	68.000 EACH	.		.	
1410	608106 Litter Baskets	10.000 EACH	.		.	
1420	608114 Tree Trimming	360.000 HR	.		.	
1430	608122 Perennial, Quart	1355.000 EACH	.		.	
1440	608124 Perennial, 1 gallon	5077.000 EACH	.		.	
1450	608126 Perennial, 2.5 gallon	372.000 EACH	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1460	608130 Evergreen Shrub, 5 gallon	94.000 EACH		.		.
1470	608138 Deciduous Shrub, 5 gallon	240.000 EACH		.		.
1480	608140 Deciduous Shrub, 10 gallon	8.000 EACH		.		.
1490	608158 Deciduous Tree 2-3" Cal, B &B	36.000 EACH		.		.
1500	608160 Deciduous Tree 3-4" Cal, B &B	54.000 EACH		.		.
1510	608162 Deciduous Tree 4-5" Cal, B &B	11.000 EACH		.		.
1520	612006 Construction Lane Closing	LUMP	LUMP			.
1530	612010 Temporary Construction Sign Supports	80.000 EACH		.		.
1540	612014 Construction Warning and Detour Signs	430.000 SF		.		.
1550	612016 Reflectorized Traffic Cones	590.000 EACH		.		.
1560	612018 Flashing Amber Warning Lights, Type "B"	310.000 EACH		.		.

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	CTS	BID AMOUNT DOLLARS	CTS
1570	612026 Construction Sign Warning Flags	220.000	EACH	.		.	
1580	612028 Type III PVC Barricade	27.000	EACH	.		.	
1590	612034 Traffic Drums	460.000	EACH	.		.	
1600	612054 Thermoplastic Pavement Marking, 4 Inch	12992.000	LF	.		.	
1610	612056 Thermoplastic Pavement Marking, 4 Inch Dash	480.000	LF	.		.	
1620	612058 Thermoplastic Pavement Marking, 6 Inch	9731.000	LF	.		.	
1630	612064 Thermoplastic Pavement Marking, 12 Inch	13727.000	LF	.		.	
1640	612068 Thermoplastic Pavement Letter	4.000	EACH	.		.	
1650	612070 Thermoplastic Pavement Arrow	2.000	EACH	.		.	
1660	612074 Thermoplastic Pavement Bicycle Marking, 4 Foot	45.000	EACH	.		.	
1670	612104 Steel Protection Plate	30.000	EACH	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1680	612110 Preformed Pavement Markings, Lines	380.000 LF	.		.	
1690	612112 Preformed Pavement Markings, Symbols and Letters	4.000 LF	.		.	
1700	613006 Remove Abandoned Traffic Signal/Street Light Pole Foundation	20.000 EACH	.		.	
1710	613008 F&I PCC Foundation For Traffic Sig /Pendant Post St Lt Pole	9.000 EACH	.		.	
1720	613030 F&I Galvanized Steel Transformer Base	29.000 EACH	.		.	
1730	613036 Furnish&Install One 2 In&Two 4 In PVC Encased Elec Conduits	40.000 LF	.		.	
1740	613038 Furnish&Install One 2 In&One 4 In PVC Encased Elec Conduits	400.000 LF	.		.	
1750	613040 Furnish&Install Four 4 In PVC Encased Electrical Conduits	400.000 LF	.		.	
1760	613050 F&I Pcc Foundation For Controller Cabinet	2.000 EACH	.		.	
1770	613052 Fur Temp Port Concrete Base M.336-S&M. 336-Ss Traf Sig Cab	2.000 EACH	.		.	

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1780	613054 Fur Temp Port Conc Base 20 Ft Steel Traf Pole on Trans Base	18.000 EACH		.		.
1790	613056 Relocate Any Temporary, Portable, Concrete Base	31.000 EACH		.		.
1800	613058 F&I 20 Foot Tall Steel Traffic Signal Pole	29.000 EACH		.		.
1810	613078 Furnish&Install 8 Ft Mast Arm w/Clamp & Removable End Clamp	10.000 EACH		.		.
1820	613098 F&I 7 Conductor 14 Awg Stranded Electrical Traffic Sig Cable	10000.000 LF		.		.
1830	613100 F&I 4 Conduct 18 Awg Shielded Stranded Elec. Traf Sig Cable	4000.000 LF		.		.
1840	613106 Furnish&Inst 25 Pair 19 Awg Underground Communications Cable	800.000 LF		.		.
1850	613108 Furnish&Inst 25 Pair 19 Awg Overhead Communications Cable	4200.000 LF		.		.
1860	613150 Furnish Red Ball Led Module (12 inch)	49.000 EACH		.		.
1870	613156 Furnish Yellow Ball Led Module (12 inch)	49.000 EACH		.		.

CONTRACT ID: KA2015B0070 PROJECT(S): STP-8888 (480)

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1880	613162 Furnish Green Ball Led Module (12 inch)	49.000 EACH	.		.	
1890	613166 Furnish Yellow Arrow Led Module	1.000 EACH	.		.	
1900	613168 Furnish Green Arrow Led Module	1.000 EACH	.		.	
1910	613192 12 In Overlay White Wlkng Person & Portlnd Orange Led Mod	38.000 EACH	.		.	
1920	613194 Furnish 12 Inch Portland Orange Countdown Led Module	38.000 EACH	.		.	
1930	613202 F&I 3 Section Conventional Traf Sig Head On Pole(Lenses 12")	35.000 EACH	.		.	
1940	613206 F&I 5 Section Conventional Traf Sig Head On Pole(Lenses 12")	1.000 EACH	.		.	
1950	613208 F&I 3 Section Conv Traf Sig Head On Mast Arm(Lenses 12")	9.000 EACH	.		.	
1960	613214 F&I 3 Sec Optically Program Traf Head On Pole(Lenses 12")	3.000 EACH	.		.	
1970	613220 F&I 3 Sec Optically Program Traf Head Mast Arm(Lenses 12")	1.000 EACH	.		.	

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
1980	613226 F&I 2 Sect Conventional Pedestrian Signal Head on Pole(12")	38.000 EACH	.		.	
1990	613240 F&I Accessible Pedestrian Signal Control Unit	18.000 EACH	.		.	
2000	613322 F&I Traffic Signal Controller And Cabinet	2.000 EACH	.		.	
2010	613334 Remove Abandoned Traff Signal Controller Cabinet Foundation	2.000 EACH	.		.	
2020	613338 Remove Traffic Signal Pole And Traffic Signal Equipment	2.000 EACH	.		.	
2030	613340 Remove Traffic Signal Controller And Cabinet	2.000 EACH	.		.	
2040	614056 Root Pruning	50.000 EACH	.		.	
2050	614078 F&I 36" x 36" x 36" Manhole	4.000 EACH	.		.	
2060	614082 Remove Manhole over 24" x 24"	3.000 EACH	.		.	
2070	614084 F&I 48" x 48" x 48" Manhole	21.000 EACH	.		.	
2080	614122 F&I 1-2" Schedule 40 Rigid PVC Conduit	500.000 LF	.		.	

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS		UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2090	614198 F&I 6-4" Schedule 40 Rigid PVC Conduits (duct bank)	1620.000	LF	.		.	
2100	614200 F&I 6-4" and 1-2" Schedule 40 Rigid PVC Conduits (duct bank)	994.000	LF	.		.	
2110	614202 F&I 6-4" and 2-2" Schedule 40 Rigid PVC Conduits (duct bank)	23.000	LF	.		.	
2120	614210 F&I 2-4" Schedule 40 Rigid PVC Conduit (duct bank)	52.000	LF	.		.	
2130	614230 F&I #10 Stranded Wire	3300.000	LF	.		.	
2140	614242 F&I #6 Stranded Wire	1747.000	LF	.		.	
2150	614290 F&I #0000 Stranded Wire	6600.000	LF	.		.	
2160	614332 F&I #8 Stranded Ground Wire	2400.000	LF	.		.	
2170	614350 F&I #2 Stranded Ground Wire	2100.000	LF	.		.	
2180	614394 Remove Overhead Conductors [Defined in Pay Item Description]	3700.000	LF	.		.	
2190	614424 F&I 15" B.C. Street Light Foundation	26.000	EACH	.		.	

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2200	614430 Remove Street Light Pole Foundation	1.000 EACH	.		.	
2210	614452 F&I 15" B.C Steel Transformer Base	30.000 EACH	.		.	
2220	614544 F&I 28.5' Steel Pendant Pole with up to 8' Arm	30.000 EACH	.		.	
2230	614568 Remove Pendant Pole 30 ft. Height or Less	8.000 EACH	.		.	
2240	614670 F&I 8 ft. Arm on Wood Pole	25.000 EACH	.		.	
2250	614682 Remove arm from wood pole over 8 ft. in Length	30.000 EACH	.		.	
2260	614698 Remove Luminaire from Wood Pole	30.000 EACH	.		.	
2270	614864 F&I 4" PVC Rigid U-Guard on Wood Pole	80.000 LF	.		.	
2280	614872 F&I 1" PVC Rigid U-Guard on Wood Pole	80.000 LF	.		.	
2290	614926 Banner Arm on Streetlight Pole	70.000 EACH	.		.	

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2300	614993 Electrical Work Special Item -EACH- 613 055 - RELOCATE EX. TRAFFIC SIGNAL CONTROLLER TOTEMP PORTABLE CONC. BASE	2.000 EACH		.		.
2310	614993 Electrical Work Special Item -EACH- 613 099 FURNISH & INSTALL BOLT-ON UPS SYSTEM	2.000 EACH		.		.
2320	614993 Electrical Work Special Item -EACH- 614 083 - REMOVE EXISTING DDOT ELECTRICAL MANHOLE TOP, FRAM AND COVER	4.000 EACH		.		.
2330	614993 Electrical Work Special Item -EACH- 614 425 - FURNISH AND INST SP SPRD FOOTE R FOUNDN FOR STRLIGH OR TRAFFSIGNAL POLE	3.000 EACH		.		.
2340	614993 Electrical Work Special Item -EACH- 614 805 - F&I 150WATT TEARDROP LED FIXTURE COMPLETE WITH PHOTOCELL	79.000 EACH		.		.
2350	614995 Electrical Work Special Item -LF- 614 213 - F&I 2-4" AND 2-2" SCHEDULE 40 RIGID PVC CONDUITS	33.000 LF		.		.
2360	614999 Payment to PEPCO for Connection, Disconnection, Inspection	LUMP	LUMP		35000.00	

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CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2370	616016 Metal Sign Posts, 3.00 Pounds per Foot	4170.000 LF		.		.
2380	616022 Traffic Sign Panels	926.000 SF		.		.
2390	616036 Remove Existing Ground Mounted Sign	860.000 SF		.		.
2400	616042 Federal Aid Project Sign	1.000 EACH		.		.
2410	616999 Miscellaneous Electrical Work - Special Item DETERMINE LOCATION OF EX. ELECTRIC CONDUIT AND RELOCATE	LUMP	LUMP			.
2420	618002 Erosion and Sediment Control	LUMP	LUMP			.
2430	618016 Geotextile for stormwater management	1265.000 SY		.		.
2440	703991 Concrete for Structures Special Item - CY -	63.000 CY		.		.
2450	703991 Concrete for Structures Special Item - CY - 703 007 - CONCRETE FOR STRUCTURES	70.000 CY		.		.
2460	704004 Epoxy Coated Reinforcement Bars	3105.000 LBS		.		.

CONTRACT ID: KA2015B0070 PROJECT(S): STP-8888 (480)

CONTRACTOR : _____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
2470	706010 Structural Steel - AASHTO M270, Grade 50	11800.000 LBS	.		.	
2480	707004 Paint Existing Metalwork	LUMP	LUMP		.	
2490	709006 Pipe Handrail	400.000 LF	.		.	
	SECTION 0001 TOTAL				.	
	TOTAL BID				.	

102 – INLAID THERMOPLASTIC ASPHALT PAVEMENT MARKING SYSTEM

ITEM : 000514

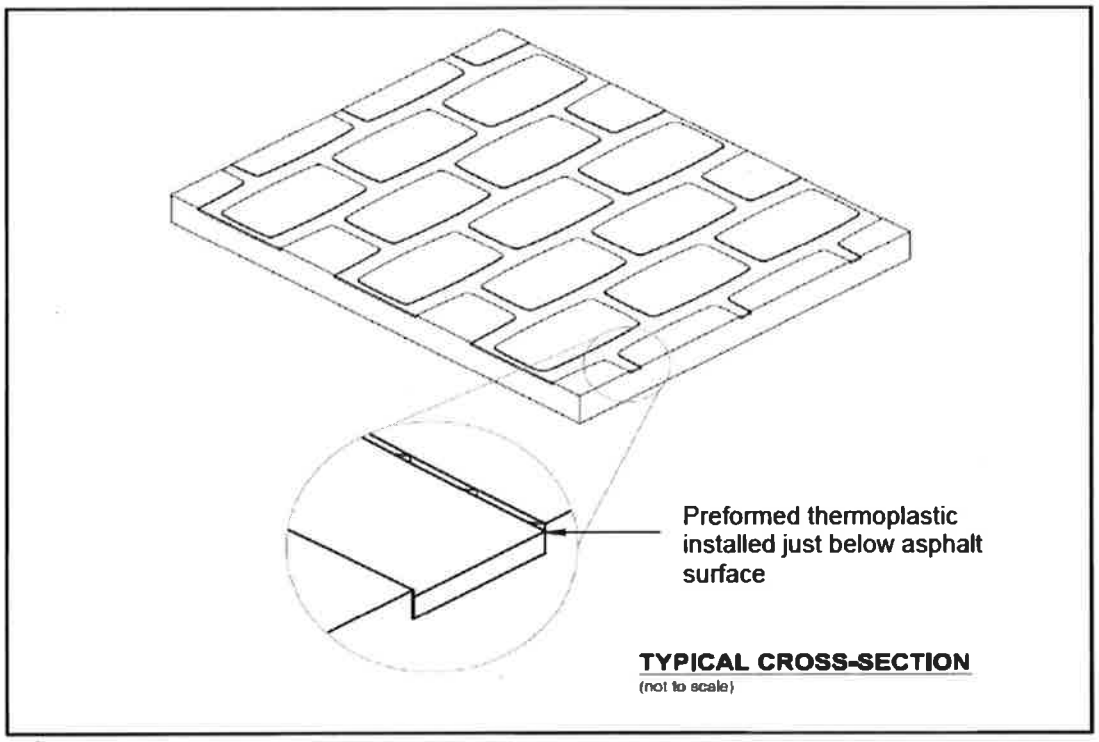
PART 1: GENERAL

1.1 DESCRIPTION

A. A highly suitable asphalt pavement marking system that creates colorized patterns within the asphalt for high traffic areas such as pedestrian crosswalks, bus stops, fire lanes, parking lot entryways, intersections, malls and airports.

B. The inlaid preformed thermoplastic is embedded into asphalt pavement by using proprietary infrared heating equipment designed specifically to elevate the temperature of the pavement without it being adversely affected, and then imprinting into the heated asphalt pavement a specialized plastic template to create depressions to match the desired pattern. The inlaid preformed thermoplastic, pre-cut to match the pattern, is then installed within the depressions and melted in place.

C. As shown below in the typical Cross-section shown, the top of the inlaid preformed thermoplastic lies slightly below the surface level of the surrounding asphalt pavement thereby allowing the pavement to absorb the effects of the traffic:



D. When installed in accordance with recommended guidelines by an **Accredited Applicator**, the inlaid preformed thermoplastic will wear at a similar rate as the surrounding asphalt pavement. Therefore the life of the inlaid preformed thermoplastic is dependent upon using a long lasting, durable and stable asphalt pavement to prevent premature wear.

E. The inlaid preformed thermoplastic is available in a variety of standard patterns and colors.

F. The inlaid preformed thermoplastic is manufactured without glass beads on the surface. The surface of the material shall contain factory applied anti-skid/anti-slip elements.

1.2 REFERENCES

A. **ASTM D570** Standard Test Method for water absorption of plastics.

B. **ASTM D36** Standard Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus).

C. **AASHTO T250** Binder Content

D. **ASTM D792** Standard Test method for density and specific gravity (relative density) and density of solid plastics.

E. **AASHTO T250** Low Temperature Stress resistance

F. **ASTM D 2240** Standard Test Method for Rubber property – Durometer hardness.

G. **ASTM D256, Method A** Standard Test Method for determining the IZOD pendulum impact resistance of plastics.

H. **ASTM D92** Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester.

I. **California Skid test method 342** completed by Skidtest Enterprises, Inc. report date September 19, 2005.

1.3 DEFINITIONS

A. **"Asphalt Pavement"** is Hot or Warm Mix Asphalt pavement.

B. **"Accredited Applicator"** is an applicator that is accredited and licensed for the current calendar year by the Manufacturer to install inlaid preformed thermoplastic.

C. **"Imprinting Asphalt pavement"** is defined as pressing a flexible plastic template into reheated, fully compacted asphalt pavement to produce a depression for the installation of the inlaid preformed thermoplastic.

D. **"Owner"** means the Owner and refers to the representative person who has decision making authority for the implementation of the inlaid preformed thermoplastic system.

E. **"The Work"** is as outlined in the Scope of Work and includes the execution of the inlaid preformed thermoplastic process.

F. **"ASTM"** ASTM International.

G. **"AASHTO"** American Association of State Highway and Transportation Officials.

1.4 REQUIRED BID SUBMITTAL DOCUMENTS

The documents required as part of bid submission are as follows:

A. Manufacturer's Product Brochure.

B. Manufacturer's Product Specification.

C. A copy of the current year certificate of accreditation as provided by the Manufacturer to the Accredited Applicator or written verification from the Manufacturer that the bid applicator is qualified to perform this Work.

PART 2: PRODUCTS

2.1 MATERIALS

A. The inlaid preformed thermoplastic shall be provided as pre-cut panels in sizes to conform to the specified pattern, widths and shapes. It shall be packaged in accordance with accepted commercial standards and if stored, placed indoors in a cool, dry area.

B. Transverse lines for crosswalk applications. These are supplied as preformed, white, retroreflective, thermoplastic line stripe material 90 mils (2.3 mm) or 125 mils (3.2 mm) thick, and are available in 6 in. (.15m), 8 in. (.20m) or 12 in. (.30m) widths. This material should be provided by the Accredited Applicator and is available from the preformed thermoplastic Manufacturer.

2.1.1 Characteristics of inlaid preformed thermoplastic.

A. The inlaid preformed thermoplastic consists of homogeneously mixed non-hazardous polymer resins, glass beads, pigments, fillers consisting of TiO_2 and $CaCO_3$. No solvents or volatiles are used in the formulation.

B. The inlaid preformed thermoplastic shall be supplied preformed or precut at a standard thickness of 90 mils (2.3 mm).

C. The inlaid preformed thermoplastic is provided as non-reflective with factory applied anti-skid/anti-slip elements on the surface.

D. Upon heating to application temperature, the inlaid preformed thermoplastic will flow and preserve the integrity of its properties, including its color.

E. Environmental and Chemical Resistance: inlaid preformed thermoplastic is resistant to deterioration when exposed to sunlight, gasoline, oil, salt, water or adverse weather conditions.

F. Professional independent testing using California Skid Test Method 342 concluded that there is no reduction in the skid factor where the preformed thermoplastic is inlaid into the asphalt pavement. Refer to References Section. This report is available from the Manufacturer upon request.

G. Storage Life: preformed thermoplastic can be stored for 12 months if stored indoors and protected from the elements.

H. The inlaid preformed thermoplastic is suitable for application on high quality, stable asphalt pavement both new and old. Under normal conditions, bond strength on asphalt pavement surfaces shall be sufficient for the material to remain in place for a number of years.

2.1.2 Product Data

Characteristic	Test Method	Typical Results of the inlaid thermoplastic
Water Absorption	ASTM D570	<0.5%
Binder Content	AASHTO T250	>18%
Softening point	ASTM D36	>220°F
Low Temp. Resistance	AASHTO T250	No visual cracks
Specific Gravity	ASTM D792	<2.15
Indentation resistance (Shore A)	ASTM D 2240	43
Impact Resistance	ASTM D256, Mtd A	>30 in.-lb.
Flash Point	ASTM D92	>475°F

A copy of the product data sheet is available from the Manufacturer upon request.

2.2 EQUIPMENT

The following equipment is required for the execution of this Work:

A. Plastic Stamping Templates are used for imprinting the specified pattern into the asphalt pavement. Templates are thicker than the preformed thermoplastic to enable the applicator to ensure the top of the inlaid thermoplastic is slightly lower than the surrounding asphalt pavement surface. Templates are to be designed and constructed in the same shape and size as the precut preformed thermoplastic sheets and must be created in a machine shop using CNC or equal equipment to ensure quality and consistency.

B. **Reheating Equipment.** The preformed thermoplastic Manufacturer offers three mobile pieces of equipment designed specifically to elevate the temperature of the asphalt pavement without adversely affecting it. The primary asphalt reheating units must each employ a bank of propane-fired heaters mounted on a track device that allows them to reciprocate back and forth over a designated area thereby allowing the operator to monitor the temperature of the asphalt pavement and the thermoplastic at all times during the pavement reheating process.

C. The third mobile reheat device is designed specifically to heat areas such as borders and narrow areas that are inaccessible to the primary heaters. This heater also allows the operator to monitor the temperature of the asphalt pavement and the preformed thermoplastic at all times during the heating process.

D. The **recommended propane heat torch** is a hand-held portable heating device to be used to heat isolated areas of the asphalt pavement or inlaid preformed thermoplastic.

E. The **Hand Held Finishing Tool** enables the applicator to complete the imprinting of the asphalt pavement in areas around permanent structures such as curbs and manholes covers which may be inaccessible to the template.

F. Vibratory Plate Compactors shall be used for pressing the plastic templates into the heated asphalt to create the specified pattern. The preformed thermoplastic manufacturer does not supply Vibratory Plate Compactors.

PART 3: EXECUTION

3.1 GENERAL

The inlaid preformed thermoplastic shall be supplied and installed only by an Accredited Applicator or an applicator authorized by the Manufacturer in accordance with the plans and specifications, or as directed by the Owner. In any circumstance, do not begin installation without confirmation of Applicator accreditation or authorization.

3.2 PRECONDITIONS – ASPHALT PAVEMENT

Inlaid preformed thermoplastic is a pavement marking system designed so that the asphalt pavement surrounding the marking absorbs the physical effects of the traffic. When installed in accordance with recommended installation guidelines by an Accredited Applicator, the inlaid preformed thermoplastic will wear at a similar rate as the surrounding asphalt pavement. Therefore, the life of the inlaid preformed thermoplastic pavement marking system is dependent upon using a long lasting, durable and stable asphalt pavement that will not wear prematurely.

This Section 3.2 is to be used as a guide towards achieving a high quality asphalt pavement. It does not supersede other specifications pertaining to this Work, nor does it replace recommendations made by the engineer of record for this Work.

3.2.1 Prerequisites for new asphalt pavement:

- Stable sub-grade or base over which the asphalt pavement is laid.
- Proper mix design for the traffic loads.
- Proper placement and compaction practices.

3.2.1.1 Sub-grade: The sub-grade must be stable and should be inspected to identify any areas of soft or yielding soil that are too weak to properly support the paving equipment. These soft spots must be over-excavated and re-compacted to meet the engineer's requirements. Prior to paving, the sub-grade and base courses must be thoroughly and uniformly compacted, properly graded and constructed in accordance with the engineer's specifications. Please refer to the related sections for more exact requirements of this work.

3.2.1.2 Guidelines for asphalt pavement mix design.

A durable, stable mix design is a prerequisite for all long-lasting asphalt pavement surfaces, especially those that will experience vehicle traffic. The application of inlaid preformed thermoplastic does not change this requirement.

Generally, the asphalt pavement mix design for roadways as prescribed by the local jurisdiction will be sufficient for the application of inlaid preformed thermoplastic. Failure to use a stable mix design may lead to premature failure of the asphalt pavement such as raveling, rutting or segregation. The appropriate pavement structure is not within the scope of this specification; however, this specification can offer some general guidelines as follows:

A. Stability is a good general guide: generally, if the surface course design has a minimum Marshall Stability of 10 KN (about 2250 lbs), and design densities are achieved during compaction, the pavement should perform adequately.

B. The nominal aggregate size for the asphalt pavement should not be less than 3/8 in. (9.5mm) or greater than 5/8 in.(1.6cm).

C. If a more stable mix design than is offered by the locally prescribed surface course is required, contact the asphalt producer or the Engineer of Record for suggestions as to how to increase stability.

3.2.1.3 Placement of New Asphalt Pavement

A. Successful placement of asphalt pavement includes compaction of the mix when it is hot and to the minimum densities required for the specified air voids. Generally, the first pass of the rollers is to be done when the asphalt mixture is at minimum 230°F (110°C); the compaction process must be completed before the in-place temperature of the mixture cools to 185°F (85°C) or higher depending on the type of asphalt and/or modifiers used. For applications that will experience vehicle traffic and wherever possible, compaction is to be completed using a paving machine and a self-propelled roller.

B. Handwork, which includes placing and spreading by hand and the use of hand operated compaction equipment, should be restricted to areas that cannot be accessed by the paving machine or the self propelled rollers. Compaction must be completed when the pavement is hot as described above. Handwork is to be done carefully and the material distributed uniformly so there will be no segregation.

C. The pavement must be smooth, without seams and graded to achieve proper drainage.

3.2.2 Prerequisites for existing pavement

Depending upon the condition and age, existing asphalt pavement may or may not be suitable for the successful application of inlaid preformed thermoplastic. The Accredited Applicator can advise whether the asphalt pavement is suitable or not.

3.2.3 Recommended guidelines for Mill & Fill applications.

A tack coat must be applied to ensure proper adhesion of the new asphalt material to the old pavement substrate. A durable, stable mix design is a prerequisite for all Mill & Fill applications - especially those that will experience vehicle traffic. The application of the inlaid preformed thermoplastic process does not change this requirement. A minimum lift thickness of two inches is recommended. Due to the thin lift thickness, it is especially critical to ensure that the asphalt pavement is compacted when it is hot. It is not generally recommended to proceed with a Mill & Fill pavement application when the outside air temperature is less than 50°F (10°C).

3.2.4 Pavement Marking Removal.

Because the aesthetics of the final product depends largely upon the condition of the asphalt pavement, use of pavement **marking removal methods is likely to produce a pavement surface that is unsatisfactory for the installation of inlaid preformed thermoplastic**. A test area may be used to check if adequate or not. The Owner shall determine if the removal of the markings is satisfactory for the application of the preformed thermoplastic. Work shall not proceed until this approval is granted.

3.2.5 Surface Preparation.

The asphalt pavement surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, de-icing materials, and chemical residue.

3.3 LAYOUT

Layout of the pattern for imprinting into the surface of the asphalt pavement shall be as per the drawings and specifications, and in accordance to the methods prescribed by the Accredited Applicator in conjunction with the Owner.

3.4 HEATING THE ASPHALT PAVEMENT

The Applicator shall follow the latest Recommended Application Procedure Guidelines as provided by the Manufacturer. Heating of the pavement surface is accomplished with the primary reciprocating infrared heaters.

A. **Pavement temperature.** The optimal pavement temperature for imprinting the template is dependent upon mix design, modifiers used in the mix, and the age of the pavement. Typically, the surface temperature of the pavement should not exceed 325°F (163°C) as determined by an infrared thermometer.

B. In order to achieve the proper depth of imprint, it is important to elevate the asphalt pavement temperature to a minimum depth of 1/2 in. (12.5mm) without burning the pavement surface.

3.5 SURFACE IMPRINTING

Once the asphalt pavement has reached imprinting temperature, the templates shall be placed and held in position, then pressed into the surface using vibratory plate compactors. Once the top of the template is level with the surrounding asphalt pavement, the template can be removed. Areas that have an imprint depth less than the depth of the template shall be reheated and stamped again prior to installing the inlaid preformed thermoplastic. In areas difficult to reach with the template, or areas that have light print, the hand held finishing tool may be used to complete the imprint process.

3.6 INSTALLING INLAID PERFORMED THERMOPLASTIC

A. The asphalt pavement surface shall be dry and free from all foreign matter, including but not limited to dirt, dust, de- icing materials, and chemical residue.

B. The preformed thermoplastic panels shall be installed within the imprinted depressions, ensuring the appropriate overlap at the

thermoplastic joints.

C. Heat shall be reapplied to the asphalt pavement surface using the approved primary heaters, slowly raising the surface temperature until the thermoplastic panels start to liquefy and flow. The approved mobile heater and/or the recommended hand-held propane torch may also be used to raise the surface temperature, typically in areas that are difficult to reach and heat. The temperature shall be monitored to ensure the preformed thermoplastic is not over-heated. The preformed thermoplastic panel must be heated to its full depth in order for the material to melt and create a bond with the underlying asphalt pavement.

D. The joints between the preformed thermoplastic pieces are to be melted together creating a seamless installation.

E. Once the preformed thermoplastic panel has been liquefied to its full depth, the heat source shall be removed and the surface is allowed to cool.

F. For applications when the outside air temperature is low, take care to ensure the thermoplastic is thoroughly heated to assure a bond between it and the underlying asphalt pavement. It is generally recommended to not proceed with the inlaid preformed thermoplastic process when the outside air temperature is below 40°F (5° C).

G. Do not install during periods of precipitation.

H. Do not install when there is frost in the designated area.

3.7 PROTECTION AND OPENING TO TRAFFIC

A. The molten inlaid preformed thermoplastic is to be protected until it cools and hardens. Do not permit any debris such as dust, water, pollen, etc to come in contact with the molten thermoplastic.

B. The road may be opened to traffic once the inlaid preformed thermoplastic has cooled to 140°F (60° C).

PART 4 – MEASUREMENT AND PAYMENT

4.1 Measurement

The measured area is the actual area of asphalt pavement that has received the inlaid preformed thermoplastic measured in place. No deduction will be made for the area(s) occupied by manholes, inlets, drainage structures, bollards or by any public utility apparatus within the area.

4.2 Payment

Payment will be full compensation for all work completed as per conditions set out in the contract. For unit price contracts, the payment shall be calculated using the measured area as determined above.

103 - NON-REFLECTIVE, INTERCONNECTED PREFORMED THERMOPLASTIC PAVEMENT MARKING

ITEM : 000 523 (000 514)

1. **USE:** A durable, high skid resistant, non-reflective pavement marking material suitable for custom logos and horizontal surface signage where branding identification, directional, guidance, instructional or informational markings are desired for motorist, bicyclist or pedestrian use. Locations for use include but are not limited to: roadways, sidewalks, trails, parking areas, access routes, commercial properties, and shopping malls. The material shall be equally suitable for concrete and asphalt surfaces.

   1.1. The material must be a resilient preformed thermoplastic product which contains a minimum of thirty percent (30%) intermixed anti-skid/anti-slip elements and where the top surface contains anti-skid/anti-slip elements. These anti-skid/anti-slip elements must have a minimum hardness of 8 (Mohs scale).

   1.2. The markings must be resistant to the detrimental effects of motor fuels, lubricants, hydraulic fluids etc.

   1.3. The material shall be capable of being affixed to bituminous and/or Portland cement concrete pavements by the use of the normal heat of a propane torch, an infrared heater, or a blue-flame radiant heater. The use of a compactor or similar equipment shall not be necessary.

   1.4. The material must be capable of conforming to pavement contours, breaks and faults through the action of traffic at normal pavement temperatures. It shall not be necessary to use a grid template or to make pattern grooves or other indentations in the asphalt or concrete surface prior to installing the material. It shall not be necessary to inlay the material in grooves or indentations.

   1.5. The material must be able to be applied in temperatures down to 45°F (7°C) without any special storage, preheating or treatment of the material before application.

   1.6. If multicolored, the individual pieces in each material segment, typically 24 in. (.6 m) by 36 in. (.91 m), must be factory assembled with a compatible material and interconnected so that in the field it is unnecessary to assemble the individual pieces within a material segment.

   1.7. The material must be able to be applied to asphalt and concrete surfaces without preheating the application surface to a specific temperature. The material must be capable of being affixed to green concrete (concrete that has set but not appreciably hardened). The material shall not require the portland cement concrete application areas to be cured or dried out. The material must be capable of being affixed to bituminous and/or portland cement concrete pavements by the use of the heat of a propane torch, infrared heater, or blue-flame heater.

   1.8. The material must be able to be applied to asphalt and concrete surfaces without using a grid template and without forming a pattern in the application surface. The material must cover the entire application area. Once applied, no part of the pavement surface must be visible in the application area.

   1.9. Heating indicators must be evenly distributed on the surface of the material to act as a visual cue during application and post-application.

2. **MANUFACTURING CONTROL AND ISO CERTIFICATION:** The manufacturer must be ISO 9001:2008 certified for design, development and manufacturing and provide proof of current certification. The scope of the certification shall include the design, development and manufacture of preformed thermoplastic marking material.

3. **MATERIAL:** Must be composed of an ester modified rosin resistant to degradation by motor fuels, lubricants etc. in conjunction with aggregates, pigments, binders, and anti-skid/anti-slip elements. Pigments and anti-skid/anti-slip elements must be uniformly distributed throughout the material. The thermoplastic material conforms to AASHTO designation M249, with the exception of the relevant differences due to the material being supplied in a preformed state, being non-reflective, and potentially being of a color different from white or yellow.

   3.1. Anti-Skid/Anti-Slip Elements:

      3.1.1. The material must be a resilient preformed thermoplastic product which contains a minimum of thirty percent (30%) intermixed anti-skid/anti-slip elements and where the top surface contains anti-skid/anti-slip elements. These anti-skid/anti-slip elements must have a minimum hardness of 8 (Mohs scale).

3.2. Pigments:

3.2.1. White: The material shall be manufactured with sufficient titanium dioxide pigment to meet FHWA Docket No. FHWA-99-6190 Table 5 and Table 6 as revised and corrected.

3.2.2. Red, Blue, and Yellow: The material shall be manufactured with sufficient pigment to meet FHWA Docket No. FHWA-99-6190 Table 5 and Table 6 as revised and corrected. The pigment system must not contain heavy metals nor any carcinogen, as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant Federal Regulations.

3.2.3. Other Colors: The pigment system must not contain heavy metals nor any carcinogen, as defined in 29 CFR 1910.1200 in amounts exceeding permissible limits as specified in relevant Federal Regulations.

3.3. Heating Indicators: The top surface of the material shall have regularly spaced indents. The closing of these indents during application, shall act as a visual cue that the material has reached a molten state allowing for satisfactory adhesion and proper embedment of the slip/skid resistant elements, and a post-application visual cue that proper application procedures have been followed.

3.4. Skid Resistance: The surface of the preformed thermoplastic material shall contain factory applied non-skid material with a minimum hardness of 8 (Mohs scale). Upon application the material shall provide a minimum skid resistance value of 60 BPN when tested according to ASTM E 303.

3.5. Slip Resistance: The surface of the preformed thermoplastic material shall contain factory applied non-skid material with a minimum hardness of 8 (Mohs scale). Upon application the material shall provide a minimum static friction of coefficient of 0.6 when tested according to ASTM C 1028 (wet and dry), and a minimum static coefficient of friction of 0.6 when tested according to ASTM D 2047.

3.6. Thickness: The material must be supplied at a minimum thickness of 90 mil (2.29 mm) or 125 mil (3.18 mm)

3.7. Environmental Resistance: The material must be resistant to deterioration due to exposure to sunlight, water, salt or adverse weather conditions and impervious to oil and gasoline.

3.8. Interconnected: If multicolored, the material must consist of interconnected individual pieces of preformed thermoplastic material, which through a variety of colors and patterns make up the desired design. The individual pieces in each material segment, typically 24 in. (.6 m) by 36 in. (.91 m), must be factory assembled with a compatible material and interconnected so that in the field it is not necessary to assemble the individual pieces within a material segment.

4. **APPLICATION:**

4.1. Asphalt: The material shall be applied using the heating method recommended by the manufacturer. The material must be able to be applied at ambient and road temperatures down to 45°F (7°C) without any preheating of the pavement to a specific temperature. A sealer specified by the manufacturer must be applied to the substrate prior to material application to assure proper adhesion. A thermometer shall not be required during the application process. The pavement shall be clean, dry and free of debris. Supplier must enclose application instructions with each box/package.

4.2. Portland Cement Concrete: The same application procedure shall be used as described under Section 4.1.

5. **PACKAGING:** The preformed thermoplastic material shall be packaged in cardboard cartons with a plastic sheet between each layer of preformed thermoplastic. The cartons in which packed shall be non-returnable and shall not exceed 40 in. (1.02 m) in length and 25 in. (.64 m) in width. The cartons shall be labeled for ease of identification. The weight of the individual carton must not exceed seventy (70) pounds (32 kg). A protective film around the carton must be applied in order to protect the material from rain or premature aging.

6. **TECHNICAL SERVICES:** The successful bidder shall provide technical services as required.

7. **PERFORMANCE:** The preformed thermoplastic markings shall meet state specifications and be approved for use by the appropriate state agency.

104 – <u>SPECIAL – COMMUNITY LOGO SIGN PANELS</u>

ITEM : 000 525 (000 514)

This S.P. supplements Section 616.03:

A. DESCRIPTION - Work consists of furnishing, fabricating and erecting Community Logo Sign Panels of sheet aluminum, including all letters, numerals, symbols, and characters, borders, Panetone ® colors, and mounting hardware. All features of the sign shall meet the requirements of the District of Columbia Signs & Pavement Markings Manual, latest edition. The locations and sign messages, and/or symbols will be as indicated in the Contract Documents. Sign supports shall be as specified in the Contract Documents.

B. MATERIALS – Materials shall meet the following requirements:
• 824.04, ASTM B 209: Sheet Aluminum

C. CONSTRUCTION REQUIREMENTS - The size of letters and messages shall be as specified in the Contract Documents. Guide sign borders shall be of the width and color specified.

Community Logo Sign Panels shall be cut from a single aluminum sheet of 0.080 inch thickness, or as shown on the Contract Plans, and fabricated to the size and shape shown on the Contract Plans.

All panel fabrication, including cutting and punching, or drilling of holes, shall be complete prior to metal degreasing and
application of Panetone ® colors. Metal panels shall be cut to size and shape, and shall be free of buckles, warp, dents, cockles,
burrs, and defects resulting from fabrication. The front and back surfaces of all sign panels shall be flat.

D. MEASURE AND PAYMENT - The unit of measure will be the square foot of sign panel or traffic sign mounted in place. Payment for Community Logo Sign Panels will be made at the Contract unit price per square foot, which payment will include
furnishing, fabrication, erection, mounting brackets and hardware, final sign adjustments, and all labor, tools, materials, equipment, and incidentals necessary to complete the Work.