

ITEM 630 - SIGNING MISC.: OVERHEAD MOUNTED SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON

1. RRFB INDICATIONS
 - A. EACH RRFB INDICATION LENS SHALL BE A MINIMUM SIZE OF APPROXIMATELY 5" WIDE X 2" HIGH.
 - B. THE RRFB INDICATIONS SHALL BE ALIGNED HORIZONTALLY, WITH THE LONGER DIMENSION OF THE INDICATION HORIZONTAL. THERE SHALL BE ONE LED LIGHT INDICATOR FACING THE TRAVEL DIRECTION FOR THE POLE MOUNTED RRFB, AND THERE SHALL BE TWO LED LIGHT INDICATORS, ONE FACING EACH DIRECTION, FOR THE MAST ARM LED LIGHT INDICATOR.
 - C. EACH RRFB SHALL BE SUPPLIED WITH ALL REQUIRED HARDWARE TO INSTALL ASSEMBLY. ALL EXPOSED HARDWARE SHALL BE ANTI-VANDAL.
 - D. EACH POLE MOUNTED RRFB LED LIGHT INDICATOR SHALL BE LOCATED BETWEEN THE BOTTOM OF THE CROSSING WARNING SIGN AND THE TOP OF THE SUPPLEMENTAL DOWNWARD DIAGONAL ARROW PLAQUE, AS SHOWN ON THE DETAIL.
 - E. EACH OVERHEAD MOUNTED RRFB LED LIGHT INDICATOR SHALL BE LOCATED BELOW THE BOTTOM OF THE CROSSING WARNING SIGN, AS SHOWN ON THE DETAIL.
 - F. THE LIGHT INTENSITY OF THE YELLOW INDICATIONS SHALL MEET THE MINIMUM CLASS 1 SPECIFICATIONS OF SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) STANDARD J595 (DIRECTIONAL FLASHING OPTICAL WARNING DEVICES FOR AUTHORIZED EMERGENCY, MAINTENANCE, AND SERVICE VEHICLES) DATED JANUARY, 2005.
 - G. TO MINIMIZE EXCESSIVE GLARE DURING NIGHTTIME CONDITIONS, AN AUTOMATIC SIGNAL DIMMING DEVICE SHALL BE USED TO REDUCE THE BRILLIANCE OF THE RRFB INDICATIONS.
 - H. THE PUSHBUTTON INTERGRAL TO THE RRFB SHALL BE INTERNALLY ILLUMINATED.
2. SIGNS
 - A. ALL SIGN ASSEMBLIES SHALL USE ANTI-VANDAL FASTENERS TO MOUNT COMPONENTS TO SIGN AND SIGN TO FIXTURE.
 - B. PEDESTRIAN PUSHBUTTONS SIGNS SHALL BE PROVIDED AND INCLUDE THE LEGEND "PUSH BUTTON TO TURN ON WARNING LIGHTS", SIGNS SHOULD BE MOUNTED ABOVE EACH PEDESTRIAN PUSHBUTTON.
 - C. TWO SETS OF R1-9 SIGNS SHALL BE REQUIRED PER UNIT FOR VIEW FROM EACH APPROACH.
 - D. ASSURE SIGN MEETS THE REQUIREMENTS OF C&MS 630.
3. CONTROL CIRCUIT
 - A. THE CONTROL CIRCUIT SHALL HAVE THE CAPABILITY OF INDEPENDENTLY FLASHING UP TO TWO INDEPENDENT OUTPUTS. THE LED LIGHT OUTPUTS AND FLASH PATTERN SHALL BE COMPLETELY PROGRAMMABLE.
 - B. THE CONTROL CIRCUIT SHALL BE SEALED WATERTIGHT TO ELIMINATE DIRT CONTAMINATION AND ALLOW FOR SAFE HANDLING IN ALL WEATHER CONDITIONS.
 - C. THE LEDS SHALL BE SEALED AGAINST DUST AND MOISTURE INTRUSION AS PER THE REQUIREMENTS OF NEMA STANDARD 250-1991 FOR TYPE 4 ENCLOSURE AND TO PROTECT ALL INTERNAL LED AND ELECTRICAL COMPONENTS.

ITEM 630 - SIGNING MISC.: OVERHEAD MOUNTED SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON SIGN ASSEMBLY. CONTINUED

4. BATTERY AND SOLAR PANELS
 - A. BATTERY UNIT SHALL BE A 12VDC, 35 AHR MINIMUM, SEALED GEL OR AGM LEAD ACID BATTERY. BATTERIES SHALL HAVE A WRITTEN TWO YEAR FULL REPLACEMENT WARRANTY.
 - B. THE SOLAR PANEL SHALL PROVIDE A MINIMUM OF 40 WATTS PEAK TOTAL OUTPUT.
 - C. THE SOLAR PANEL SHALL BE MOUNTED TO AN ALUMINUM PLATE AND BRACKET AT AN ANGLE OF 45 DEGREES- 60 DEGREES TO PROVIDE MAXIMUM OUTPUT.
 - D. ALL FASTENERS USED SHALL BE ANTI-VANDAL.
5. WIRELESS RADIO
 - A. RADIO CONTROL SHALL OPERATE ON A 900 MHZ FREQUENCY HOPPING SPREAD SPECTRUM NETWORK, WI-FI OR APPROVED EQUAL.
 - B. RADIO SHALL INTEGRATE COMMUNICATION OF RRFB CONTROL CIRCUIT TO ACTIVATE SIGN FROM PUSHBUTTON INPUT.
 - C. THE RADIO SHALL BE SYNCHRONIZED SO ALL OF THE REMOTE RRFB LIGHT INDICATIONS WILL TURN ON WITHIN 120 MSEC OF EACH OTHER AND REMAIN SYNCHRONIZED THROUGH-OUT THE DURATION OF THE FLASHING CYCLE.
6. PUSHBUTTON
 - A. THE PUSHBUTTON SHALL BE CAPABLE OF CONTINUOUS OPERATION OVER A TEMPERATURE RANGE OF -30 DEGREES F TO +165 DEGREES F.
 - B. PUSHBUTTON SHALL BE ADA COMPLIANT
7. OVERHEAD SUPPORT
 - A. MOUNT ON A STANDARD TC-16.21 DESIGN 5 SINGLE ARM OVERHEAD SUPPORT WITH A 21 FOOT ARM. FOUNDATION SHALL BE A STANDARD TC-21.20 FOR A STANDARD TC-16.21 DESIGN 5 SUPPORT.

CONSTRUCTION

THE RRFB SHALL BE ASSEMBLED AND CONSTRUCTED BY THE CONTRACTOR AS SHOWN AND SPECIFIED ON THE PLANS.

WARRANTY

WARRANTY SHALL BE TWO YEARS FROM THE DATE OF FINAL ACCEPTANCE.

MEASUREMENT

THE DEPARTMENT WILL MEASURE THE ITEM COMPLETE IN PLACE, INCLUDING ALL MATERIALS, TESTING, LABOR AND SOFTWARE FOR A FULLY FUNCTIONAL UNIT.

PAYMENT

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE PER **LUMP SUM** FOR ITEM 630 - SIGNING MISC.: OVERHEAD MOUNTED SOLAR POWERED RECTANGULAR RAPID FLASHING BEACON SIGN ASSEMBLY FOR ALL OF THE ITEMS LISTED IN THIS NOTE. THE R1-9 SIGNS AND THE 2 RIGID OVERHEAD SIGN SUPPORT FOUNDATIONS ARE PAID SEPARATELY FROM THIS PAY ITEM.

ITEM 632 - REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM: PEDESTRIAN HEADS, PUSHBUTTONS AND WIRING

THE REMOVAL AND DISPOSAL OF THESE ITEMS SHALL INCLUDE THE REMOVAL FROM THE EXISTING SIGNAL POLE ALONG THE NORTHWEST CORNER OF COLERAIN AVENUE AND EARL AVENUE 2 PEDESTRIAN HEADS AND ONE PUSH BUTTON. THE REMOVAL FROM THE EXISTING SIGNAL POLE ALONG THE SOUTHWEST CORNER OF COLERAIN AVENUE AND EARL AVENUE, ONE PEDESTRIAN HEAD AND ONE PUSH BUTTON. THE REMOVAL FROM THE EXISTING SIGNAL POLE ALONG TH NORTHEASTERN CORNER OF COLERAIN AVENUE AND BYRNESIDE DRIVE, ONE PEDESTRIAN HEAD AND ONE PUSHBUTTON. THIS ITEM ALSO INCLUDES THE REMOVAL OF THE RUNS OF SIGNAL CABLE FROM THE 4 PEDESTRIAN HEADS TO THE CONTROLLER CABINET. ANY HOLES LEFT IN THE EXISTING SIGNAL POLES SHALL BE PLUGGED.

PAYMENT

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE PER EACH FOR ITEM 632 - REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM: PEDESTRIAN HEADS, PUSHBUTTONS AND WIRING.

- 4 PEDESTRIAN HEADS
- 3 PUSH BUTTONS
- 1 WIRING
- 8 ITEMS

ITEM 632 - MESSENGER WIRE MISC.: UNLASH AND RELASH

THE EXISTING MESSENGER WIRE AND ASSOCIATED WIRING ON THE NORTHEAST AND NORTHWEST CORNERS OF COLERAIN AVENUE AND BYRNESIDE/ EARL INTERSECTION SHALL BE UNLASHED AND RELASED FOR THE INSTALLATION OF THE NEW CONDUCTOR.

PAYMENT

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE PER FOOT FOR ITEM 632 - MESSENGER WIRE MISC.: UNLASH AND RELASH

ITEM 659 - SEEDING AND MULCHING

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

- 659, SOIL ANALYSIS TEST 2 EACH
- 659, TOPSOIL 246 CU. YD.
- 659, SEEDING AND MULCHING 2230 SQ. YD.
- 659, REPAIR SEEDING AND MULCHING 111 SQ. YD.
- 659, INTER-SEEDING 111 SQ. YD.
- 659, COMMERCIAL FERTILIZER 0.3 TON
- 659, LIME 0.5 ACRES
- 659, WATER 12 M. GAL.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

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SHEET NUM.											PART.		ITEM	ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.	
4	5	6	10	11	12	13	14	15	38	67	01/SAF/OT	02/SAF/OT							EXT
										2		2	SPECIAL	638E20760	2	EACH	WATER WORK		
										63		63	SPECIAL	638E20766	63	FT	SPECIAL-FIRE HYDRANT REMOVED AND DISPOSED OF (CIN. 1114)		
										1		1	SPECIAL	638E98000	1	EACH	SPECIAL-3/4" COPPER WATER SERVICE LINE (CIN. 1126)	67	
										3		3	SPECIAL	638E20762	3	EACH	WATER WORK, MISC.:FURNISHING AND INSTALLING CURB AND ROADWAY BOX (RENEW) (CIN. 1131)	67	
																	SPECIAL-FIRE HYDRANT SERVICE LINE EXTENDED AND ADJUSTED TO GRADE) (CIN. 1115)	67	
										2		2	SPECIAL	638E20498	2	EACH		67	
										2		2	SPECIAL	638E20748	2	EACH	SPECIAL-VALVE BOX (CIN. 1116)	67	
										1		1	SPECIAL	638E98000	1	EACH	SPECIAL-4" FIRE HYDRANT (CIN. 1112)	67	
										57		57	SPECIAL	638E20040	57	FT	WATER WORK, MISC.:RELOCATING EXISTING 5/8" FROST-PROOF METER SETTING (CIN. 1134)	67	
																	SPECIAL - 6" WATER MAIN DIP CLASS 52 MECHANICAL JOINTS AND FITTINGS (CIN. 1101)	67	
																	OTHER UTILITIES		
	4										4		SPECIAL	61199700	4	EACH	GAS VALVE BOX ADJUSTED TO GRADE	5	
																	TRAFFIC CONTROL		
									70		70		630	03100	70	FT	GROUND MOUNTED SUPPORT, NO. 3 POST		
									2		2		630	79500	2	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED		
									107		107		630	80100	107	SF	SIGN, FLAT SHEET		
									2		2		630	84510	2	EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION		
									1		1		630	84900	1	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL		
									1		1		630	86002	1	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL		
LS											LS		630	95000	LS		SIGNING, MISC.: OVERHEAD MOUNTED SOLAR POWERED RRFB ASSEMBLY	5	
1											1		630	97700	1	EACH	SIGNING, MISC.: POLE MOUNTED SOLAR POWERED RRFB ASSEMBLY	5	
										840		840		642	30000	840	FT	REMOVAL OF PAVEMENT MARKING	
										2		2		642	30020	2	EACH	REMOVAL OF PAVEMENT MARKING	
									0.02		0.02		644	00300	0.02	MILE	CENTER LINE		
									57		57		644	00404	57	FT	CHANNELIZING LINE, 12"		
									56		56		644	00500	56	FT	STOP LINE		
									1,083		1,083		644	00600	1,083	FT	CROSSWALK LINE		
									281		281		644	00700	281	FT	TRANSVERSE/DIAGONAL LINE		
									1		1		644	01300	1	EACH	LANE ARROW		
									96		96		644	20800	96	FT	YIELD LINE		
																	TRAFFIC SIGNALS		
										30		30		625	25400	30	FT	CONDUIT, 2", 725.04	
										30		30		625	29000	30	FT	TRENCH	
										2		2		625	32000	2	EACH	GROUND ROD	
										30		30		625	36000	30	FT	PLASTIC CAUTION TAPE	
										3		3		632	20720	3	EACH	PEDESTRIAN SIGNAL HEAD (LED), TYPE D2	
										2		2		632	20750	2	EACH	ACCESSIBLE PEDESTRIAN PUSHBUTTON	
										3		3		632	25010	3	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD	
										166		166		632	30500	166	FT	MESSANGER WIRE, MISC.: UNLASH AND RELASH	6
										256		256		632	40300	256	FT	SIGNAL CABLE, 3 CONDUCTOR, NO. 14 AWG	
										256		256		632	40500	256	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	
										6		6		632	64020	6	EACH	PEDESTAL FOUNDATION	
										2		2		632	89900	2	EACH	PEDESTAL, 8', TRANSFORMER BASE	
										8		8		632	90020	8	EACH	REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM: PEDESTRIAN HEAD, PUSHBUTTON, AND WIRING	6
																	MISCELLANEOUS STRUCTURE		
LS											LS		202	11201	LS		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN	4	
1											1		608	98200	1	EACH	WALKWAY, MISC.: 4" CONCRETE WALK	4	
																	INCIDENTALS		
											LS	LS	614	11000	LS	LS	MAINTAINING TRAFFIC		
											LS	LS	623	10000	LS	LS	CONSTRUCTION LAYOUT STAKES AND SURVEYING		
											LS	LS	624	10000	LS	LS	MOBILIZATION		

GENERAL SUMMARY

HAM-27-10.39