Beavercreek

SUBJECT : ADDENDUM NO. 1
PROJECT: KEMP ROAD SIDEWALKS PROJECT; PID 110374
DATE: JANUARY 16, 2024

The following changes, deletions, and/or additions shall apply to the above referenced project:

1. **PROPOSAL FORMS**
   - **A.** Changes have been made to bid reference numbers. Bid reference 104A has been added to the project. Please remove and replace the old proposal forms with the enclosed revised proposal forms.

2. **SPECIAL PROVISIONS**
   - **A.** No Changes.

3. **PLANS**
   - **A.** Changes have been made to page 10. An item and quantities have been added for Item 625 - Ground Rod to the project.
   - **B.** Changes have been made to page 33. Plan notes have been added for Item 632 – Pedestrian Pushbuttons, As Per Plan.
   - **C.** Changes have been made to page 34. Proposed Ground Rod locations have been added to the plan.

4. **SPECIFICATIONS**
   - **A.** No Changes.

5. **CLARIFICATIONS**
   - **A.** A question was asked about Ground Rods missing from the plans and proposal sheets. These items have been determined to be needed for the project. Plans and proposal items have been updated to include Ground Rods.
   - **B.** No As Per Plan notes were included in the plans for Item 632 – Pedestrian Pushbuttons, As Per Plan. Plan notes have been included in the plans for this item.

1368 Research Park Drive Beavercreek, Ohio 45432 (937) 427-5500 www.beavercreekohio.gov

Beavercreek

Respectfully,

Nicholas W. Smith, P.E.
Assistant City Engineer

ACKNOWLEDGMENT OF RECEIPT AND AGREEMENT TO COMPLY:

_____

By:_____

Date:_____

1368 Research Park Drive Beavercreek, Ohio 45432 (937) 427-5500 www.beavercreekohio.gov

REF. NO.	ITEM	DESCRIPTION	EST QUANTITY (A)	UNIT (B)	ENGINEER ESTIMATE	
					UNIT COST (C)	TOTAL COST (D=AxC)
		ROADWAY				
1	201	CLEARING AND GRUBBING, AS PER PLAN	1	LUMP		
2	202	PAVEMENT REMOVED (CONCRETE)	309	SQ YD		
3	202	WALK REMOVED	218	SQ FT		
4	202	CURB REMOVED	115	FT		
5	202	CURB AND GUTTER REMOVED	186	FT		
6	202	PIPE REMOVED, 24" AND UNDER	417	FT		
7	202	SPECIAL - PARKING BLOCK REMOVED	1	EACH		
8	202	CATCH BASIN REMOVED	20	EACH		
9	202	UNDERGROUND STORAGE TANK REMOVED	1	EACH		
10	202	REMOVAL MISC.: FOUNDATION REMOVED	2	EACH		
11	203	EXCAVATION, AS PER PLAN	890	CU YD		
12	203	EMBANKMENT	1379	CU YD		
13	204	SUBGRADE COMPACTION	2255	SQ YD		
14	608	4" CONCRETE WALK	12450	SQ FT		
15	608	CURB RAMP	921	SQ FT		
16	623	MONUMENT ASSEMBLY, TYPE C	3	EACH		
17	623	MONUMENT BOX ADJUSTED TO GRADE	1	EACH		
18	623	RIGHT-OF-WAY MONUMENT, TYPE B	2	EACH		
SHEET TOTAL						

REF. NO.	ITEM	DESCRIPTION	EST QUANTITY (A)	UNIT (B)	UNIT COST (C)	TOTAL COST (D=AxC)
ROADWAY (CONT.)						
19	653	TOPSOIL FURNISHED AND PLACED, AS PER PLAN	481	CU YD		
20	661	EVERGREEN SHRUB, 6' HEIGHT	13	EACH		
21	690	SPECIAL - MAILBOX SUPPORT SYSTEM, SINGLE	12	EACH		
22	690	SPECIAL - WORK INVOLVING PETROLEUM CONTAMINATED SOIL	68	TON		
23	878	INSPECTION AND COMPACTION TESTING OF UNBOUND MATERIALS	1	LUMP		
EROSION CONTROL						
24	659	SEEDING AND MULCHING, AS PER PLAN	4330	SQ YD		
25	659	REPAIR SEEDING AND MULCHING	217	SQ YD		
26	659	INTER-SEEDING	217	SQ YD		
27	659	COMMERCIAL FERTILIZER	0.6	TON		
28	659	LIME	0.89	ACRE		
29	659	WATER	24	M GAL		
30	832	STORM WATER POLLUTION PREVENTION PLAN	1	LUMP		
31	832	STORM WATER POLLUTION PREVENTION INSPECTIONS	1	LUMP		
32	832	STORM WATER POLLUTION PREVENTION INSPECTION SOFTWARE	1	LUMP		
33	832	EROSION CONTROL	25000	EACH	$1.00	
34	836	SEEDING AND EROSION CONTROL WITH TURF REINFORCING MAT, TYPE 1	25	SQ YD		
SHEET TOTAL						

REF. NO.	ITEM	DESCRIPTION	EST QUANTITY (A)	UNIT (B)	UNIT COST (C)	TOTAL COST (D=AxC)
		DRAINAGE				
35	605	6" BASE PIPE UNDERDRAINS	1861	FT		
36	611	4" CONDUIT, TYPE E	60	FT		
37	611	6" CONDUIT, TYPE B	5	FT		
38	611	6" CONDUIT, TYPE B, FOR DRAINAGE CONNECTION	100	FT		
39	611	6" CONDUIT, TYPE C, FOR DRAINAGE CONNECTION	100	FT		
40	611	6" CONDUIT, TYPE F, FOR DRAINAGE CONNECTION	100	FT		
41	611	6" CONDUIT, TYPE F, FOR UNDERDRAIN OUTLETS	123	FT		
42	611	CATCH BASIN, NO. 6, AS PER PLAN	2	EACH		
43	611	CATCH BASIN, NO. 2-2B	16	EACH		
44	611	CATCH BASIN, NO. 2-2C	1	EACH		
45	611	CATCH BASIN RECONSTRUCTED TO GRADE, AS PER PLAN	2	EACH		
46	611	CATCH BASIN, MISC.: CB-1	5	EACH		
47	611	CATCH BASIN, MISC.: CB-1, MODIFIED	2	EACH		
48	611	CATCH BASIN, MISC.: CB-2, AS PER PLAN	1	EACH		
49	611	MANHOLE, NO. 3	7	EACH		
50	611	MANHOLE, NO. 3, AS PER PLAN	1	EACH		
51	895	MANUFACTURED WATER QUALITY STRUCTURE, TYPE 1, AS PER PLAN	1	EACH		
		SHEET TOTAL				

REF. NO.	ITEM	DESCRIPTION	EST QUANTITY (A)	UNIT (B)	UNIT COST (C)	TOTAL COST (D=AxC)
PAVEMENT						
52	254	PAVEMENT PLANING, ASPHALT CONCRETE	5381	SQ YD		
53	304	AGGREGATE BASE	442	CU YD		
54	305	CONCRETE BASE, MISC.: 6.5" CONCRETE BASE, CLASS QC 1P	703	SQ YD		
55	407	NON-TRACKING TACK COAT	503	GALLON		
56	441	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (449), (DRIVEWAYS)	15	CU YD		
57	441	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (449), (DRIVEWAYS)	3	CU YD		
58	442	ASPHALT CONCRETE SURFACE COURSE, 12 MM, TYPE A (449)	227	CU YD		
59	442	ASPHALT CONCRETE INTERMEDIATE COURSE, 12.5 MM, TYPE A (449)	35	CU YD		
60	452	6" NON-REINFORCED CONTRETE PAVEMENT, CLASS QC MS	527	SQ YD		
61	452	8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC MS	57	SQ YD		
62	609	COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN	2344	FT		
63	609	CURB, TYPE 6	30	FT		
WATER WORK						
64	638	1" COPPER SERVICE BRANCH	69	FT		
65	638	FIRE HYDRANT REMOVED AND RESET, AS PER PLAN	1	EACH		
66	638	VALVE BOX ADJUSTED TO GRADE	6	EACH		
67	638	METER AND CHAMBER REMOVED AND RESET	10	EACH		
68	638	SERVICE VALVE BOX	10	EACH		
SHEET TOTAL						

REF. NO.	ITEM	DESCRIPTION	EST QUANTITY (A)	UNIT (B)	UNIT COST (C)	TOTAL COST (D=AxC)
SANITARY SEWER						
69	611	6" CONDUIT, TYPE B, FOR SANITARY CONNECTION	100	FT		
70	611	6" CONDUIT, TYPE C, FOR SANITARY CONNECTION	100	FT		
71	611	MANHOLE ADJUSTED TO GRADE	6	EACH		
LIGHTING						
72	625	LIGHTING, MISC.: LAMP POST REMOVED AND DISPOSED	2	EACH		
TRAFFIC CONTROL						
73	621	RPM	60	EACH		
74	621	RAISED PAVEMENT MARKER REMOVED	25	EACH		
75	630	GROUND MOUNTED SIGN SUPPORT, NO. 3 POST	40.5	FT		
76	630	STREET NAME SIGN SUPPORT, NO. 3 POST	28	FT		
77	630	SIGN POST REFLECTOR	2	EACH		
78	630	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	2	EACH		
79	630	SIGN, FLAT SHEET	27	SQ FT		
80	630	SIGN, DOUBLE FACED, STREET NAME	2	EACH		
81	630	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	6	EACH		
82	630	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	2	EACH		
SHEET TOTAL						

REF. NO.	ITEM	DESCRIPTION	EST QUANTITY (A)	UNIT (B)	UNIT COST (C)	TOTAL COST (D=AxC)
TRAFFIC CONTROL (CONT.)						
83	630	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	6	EACH		
84	644	EDGE LINE, 4"	0.09	MILE		
85	644	CENTER LINE	0.35	MILE		
86	644	CHANNELIZING LINE, 8"	242	FT		
87	644	STOP LINE	53	FT		
88	644	CROSSWALK LINE, 24", AS PER PLAN	289	FT		
89	644	TRANSVERSE/DIAGONAL LINE	57	FT		
90	644	LANE ARROW	11	EACH		
91	644	REMOVAL OF PAVEMENT MARKING	69	FT		
TRAFFIC SIGNALS						
92	630	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	2	EACH		
93	630	SIGN, FLAT SHEET	4.5	SQ FT		
94	632	PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN	6	EACH		
95	632	CONDUIT, 2", 725.04	60	FT		
96	632	PEDESTRIAN PUSHBUTTON, AS PER PLAN	6	EACH		
97	632	TRENCH	60	FT		
98	632	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	1080	FT		
99	632	PEDESTAL FOUNDATION	3	EACH		
SHEET TOTAL						

REF. NO.	ITEM	DESCRIPTION	EST QUANTITY (A)	UNIT (B)	UNIT COST (C)	TOTAL COST (D=AxC)
TRAFFIC SIGNALS (CONT.)						
100	632	LOOP DETECTOR LEAD-IN CABLE, 2 CONDUCTOR, NO. 14 AWG	1080	FT		
101	632	PEDESTAL, 5', TRANSFORMER BASE, AS PER PLAN	2	EACH		
102	632	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN	1	EACH		
103	632	REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM: REMOVAL OF EXISTING PEDESTRIAN SIGNAL HEADS, PEDESTRIAN PUSH BUTTONS, AND STORAGE, AS PER PLAN	1	EACH		
104	633	CONTROLLER ITEM, MISC.: ADD PEDESTRIAN PHASES	1	EACH		
104A	**625**	**GROUND ROD**	**3**	**EACH**		
MAINTENANCE OF TRAFFIC						
105	614	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	60	HOUR		
106	616	WATER	10	M GAL		
INCIDENTALS						
107	614	MAINTENANCE OF TRAFFIC	1	LUMP		
108	623	CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN	1	LUMP		
109	624	MOBILIZATION	1	LUMP		
SHEET TOTAL						

SHEET 1 TOTAL	
SHEET 2 TOTAL	
SHEET 3 TOTAL	
SHEET 4 TOTAL	
SHEET 5 TOTAL	
SHEET 6 TOTAL	
SHEET 7 TOTAL	
BASE PROJECT TOTAL	

REF. NO.	ITEM	DESCRIPTION	EST QUANTITY (A)	UNIT (B)	UNIT COST (C)	TOTAL COST (D=AxC)
		ADD ALTERNATE A				
	611	12" CONDUIT, TYPE B	600	FT		
	611	15" CONDUIT, TYPE B	39	FT		
	611	18" CONDUIT, TYPE B	30	FT		
	611	24" CONDUIT, TYPE B	15	FT		
SHEET TOTAL						

REF. NO.	ITEM	DESCRIPTION	EST QUANTITY (A)	UNIT (B)	UNIT COST (C)	TOTAL COST (D=AxC)
ADD ALTERNATE B						
	611	12" CONDUIT, TYPE B, 706.02	600	FT		
	611	15" CONDUIT, TYPE B, 706.02	39	FT		
	611	18" CONDUIT, TYPE B, 706.02	30	FT		
	611	24" CONDUIT, TYPE B, 706.02	15	FT		
SHEET TOTAL						

ITEM	GRAND TOTAL	UNIT	DESCRIPTIONS
			TRAFFIC SIGNALS
625	3	EACH	GROUND ROD
630	2	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
630	4.5	SQ FT	SIGN, FLAT SHEET
632	6	EACH	PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN
632	60	FT	CONDUIT, 2", 725.04
632	6	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	60	FT	TRENCH
632	1080	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG
632	3	EACH	PEDESTAL FOUNDATION
632	1080	FT	LOOP DETECTOR LEAD-IN-CABLE, 2 CONDUCTOR, NO. 14 AWG
632	2	EACH	PEDESTAL 5', TRANSFORMER BASE, AS PER PLAN
632	1	EACH	PEDESTAL 8', TRANSFORMER BASE, AS PER PLAN
632	1	EACH	REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM: REMOVAL OF EXISTING PEDESTRIAN SIGNAL HEADS, PEDESTRIAN PUSHBUTTONS, AND STORAGE, AS PER PLAN
633	1	EACH	CONTROLLER ITEM, MISC.: ADD PEDESTRIAN PHASES
			MAINTENANCE OF TRAFFIC
614	60	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE
616	10	M GAL	WATER
			INCIDENTALS
614	LUMP		MAINTAINING TRAFFIC
623	LUMP		CONSTRUCTION LAYOUT STAKES AND SURVEYING, AS PER PLAN
624	LUMP		MOBILIZATION

1

01/15/2024

CALCULATED TAJ
CHECKED ELV

GENERAL SUMMARY

GRE-CR 40-1.04
KEMP ROAD SIDEWALKS

CALCULATED MSW | CHECKED KMR

SIGNAL GENERAL NOTES

GENERAL REQUIREMENTS

THE PURPOSE OF THIS SPECIFICATION AND THE ASSOCIATED PLANS IS TO RESULT IN THE MODIFICATION OF THE EXISTING TRAFFIC SIGNAL INSTALLATION AT GRANGE HALL ROAD (NORTH) AND KEMP ROAD IN THE CITY OF BEAVERCREEK, GREENE COUNTY, OHIO. THESE PLANS AND SPECIFICATIONS ARE TO RESULT IN FULLY FUNCTIONAL TRAFFIC SIGNAL SYSTEM THAT SHALL OPERATE ACCORDING TO THE REQUIREMENTS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD).

DETECTION MAINTENANCE

IF VEHICLE DETECTION BECOMES UNEXPECTEDLY DISABLED, REQUIRES MODIFICATION, OR IS SCHEDULED TO BE TEMPORARILY REMOVED DURING THE CONSTRUCTION PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER AND CITY ENGINEER.

IF THE LOSS OF VEHICLE DETECTION IS KNOWN PRIOR TO THE START OF CONSTRUCTION, IT SHALL BE DISCUSSED AT THE PRECONSTRUCTION MEETING. AT SUCH TIME, THE CITY ENGINEER SHALL ADVISE THE PROJECT ENGINEER AND CONTRACTOR ON THE APPROPRIATE ACTION TO RECTIFY ANY LOSS OF VEHICLE DETECTION. THIS MAY INCLUDE PLACING THE TRAFFIC SIGNAL ON MINIMUM OR MAXIMUM RECALL, MODIFYING THE MINIMUM GREEN TIMES, AND REMOVING THE MALFUNCTIONING DETECTION FROM SERVICE. WHERE NONINTRUSIVE DETECTION (I.E. VIDEO, RADAR) ALREADY EXISTS, THE CONTRACTOR SHALL INSURE THAT DETECTION IS OPERATING AND MAINTAINED BY RECONFIGURING THE DETECTION UNITS ACCORDINGLY DURING ALL CONSTRUCTION PHASES. THIS IS TO AVOID THE SIGNAL FROM MAXING OUT THE EFFECTED SIGNAL PHASE AND CREATING UNNECESSARY DELAYS.

LOCATIONS WHERE NON-INTRUSIVE DETECTION IS PROPOSED AND THE EXISTING VEHICLE DETECTION IS TO BE ABANDONED, THE NON-INTRUSIVE VEHICLE DETECTION SHALL BE INSTALLED, CONFIGURED AND MADE FULLY FUNCTIONAL PRIOR TO THE EXISTING DETECTION BEING DISABLED. THE CONTRACTOR SHALL CONTINUE TO MAINTAIN AND MODIFY THE DETECTION UNTIL FINAL ACCEPTANCE OF THE TRAFFIC SIGNAL. THIS IS TO ENSURE VEHICLE DETECTION REMAINS FULLY FUNCTIONAL THROUGHOUT CONSTRUCTION.

WORK INSPECTION

THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AND CITY ENGINEER WITH 72 HOUR NOTICE OF ANY SIGNAL WORK TO BE PERFORMED AT THE INTERSECTION SITE(S) SO THAT INSPECTION SERVICES CAN BE SUPPLIED.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL EQUIPMENT INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS AFTER THE FINAL ACCEPTANCE OF THE TRAFFIC SIGNAL AND COMPLETION OF ALL PUNCH LIST ITEMS. IN THE EVENT OF UNSATISFACTORY OPERATION, THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC –GRANGE HALL ROAD (NORTH) AND KEMP ROAD THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL EQUIPMENT SIGNALS INSTALLATION SUPPLIED BY THE CONTRACTOR: LED LAMP UNITS, PUSHBUTTONS, AND PEDESTRIAN SIGNAL HEADS.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE OR THE MAINTAINING AGENCY FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.

A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.

B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.

C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.

D. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

E. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.

F. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.

2. CONDUITS.

A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.

B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

C. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3. WIRE FOR GROUNDING AND BONDING.

A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:

I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.

II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

IV. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.

B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

4. GROUND ROD.

A. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.

B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL #1	DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL #2	DW/FDW
6	BLUE	GREEN ARROW #2	WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED
8	RED/BLACK STRIPE	GREEN ARROW #2	NOT USED
9	GREEN/BLACK STRIPE	YELLOW ARROW #2	NOT USED
10	ORANGE/BLACK STRIPE		
11	BLUE/BLACK STRIPE		
12	BLACK/WHITE STRIPE		
13	RED/WHITE STRIPE		
14	GREEN/WHITE STRIPE		
15	BLUE/WHITE STRIPE		
16	BLACK/RED STRIPE		
17	WHITE/RED STRIPE		
18	ORANGE/RED STRIPE		
19	BLUE/RED STRIPE		
20	RED/GREEN STRIPE		
21	ORANGE/GREEN STRIPE		
22	BLACK		
23	WHITE		
24	RED		
25	GREEN		

6. POWER SERVICE AND DISCONNECT SWITCH.

A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND FROM THE DISCONNECT SWITCH NEUTRAL (AC–) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.

B. THE SERVICE NEUTRAL (AC–) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.

I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC–) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.

II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC–) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.

7. PAYMENT – ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

632 PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 632 AND 732 THE FOLLOWING SHALL APPLY:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.

2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.

3. PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.

4. THE PEDESTRIAN SIGNAL HEAD SHALL BE OF THE LED COUNTDOWN TYPE.

5. NEW ATTACHMENT HARDWARE AND FITTINGS SHALL BE USED.

6. THE LIGHT EMITTING DIODE (LED) MODULES SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. THE CONTRACTOR SHALL PROVIDE ODOT, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.

PAYMENT FOR ITEM 632 PEDESTRIAN SIGNAL HEAD (LED), (COUNTDOWN), TYPE D2, AS PER PLAN SHALL BE MADE FOR THE NUMBER OF COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS AND NEW ATTACHMENT HARDWARE.

632, PEDESTAL, 5', TRANSFORMER BASE, AS PER PLAN

THE EXTERIOR OF PEDESTALS SHALL BE POWDER COATED DARK BROWN TO MATCH THE EXISTING SIGNAL SUPPORTS IN ACCORDANCE WITH ODOT SUPPLEMENTAL SPECIFICATION 916.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 PEDESTAL, 5', TRANSFORMER BASE, AS PER PLAN", COMPLETE.

632, PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN

THE EXTERIOR OF PEDESTALS SHALL BE POWDER COATED DARK BROWN TO MATCH THE EXISTING SIGNAL SUPPORTS IN ACCORDANCE WITH ODOT SUPPLEMENTAL SPECIFICATION 916.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN", COMPLETE.

632, PEDESTRIAN PUSHBUTTONS, AS PER PLAN

FURNISH PUSHBUTTONS OF STURDY CONSTRUCTION THAT CONSIST OF A BASE HOUSING AND A REMOVABLE COVER. FURNISH COMPONENTS THAT PROVIDE A PUSHBUTTON WITH NORMALLY OPEN CONTACTS AND THAT INCLUDE ALL ELECTRICAL AND MECHANICAL PARTS REQUIRED FOR OPERATION.

ENSURE THAT THE DESIGN OF THE PUSHBUTTON AND ITS ASSOCIATED CONTACTS AND HOUSING ARE STURDY AND RESISTANT TO MECHANICAL SHOCKS AND ABUSE. ENSURE THAT A CONCENTRATED FORCE OF 50 POUNDS (225 N) APPLIED TO THE BUTTON OR ANY EXPOSED PORTION DOES NOT DAMAGE THE UNIT OR MISADJUSTS THE CONTACTS. FURNISH A HOUSING WITH A CURVED BACK SURFACE FOR MOUNTING ON POLES OF VARIOUS DIAMETERS. INTEGRATE THE CURVED SURFACE WITH THE HOUSING OR SUPPLY AN ADAPTER WITH A FLAT BACK TYPE HOUSING. ATTACH THE COVER ASSEMBLY TO THE HOUSING BY STAINLESS STEEL MACHINE SCREWS, RESULTING IN A WEATHERPROOF AND SHOCKPROOF ASSEMBLY. FURNISH A HOLE THREADED FOR A 1/2-INCH (13 MM) PIPE IN THE HOUSING FOR CONDUIT ATTACHMENT PURPOSES. FURNISH HOUSING WITH MANUFACTURERS APPLIED EXTERNAL SURFACES BLACK COLOR 17038 OR YELLOW COLOR 13655, FEDERAL STANDARD 595, UNLESS SPECIFIED OTHERWISE IN THE PLANS.

THE PUSHBUTTON SHALL BE A MINIMUM OF 2 INCHES ACROSS IN AT LEAST ONE DIMENSION. THE FORCE REQUIRED TO ACTIVATE THE PUSHBUTTON SHALL BE NO GREATER THAN 3.5 POUNDS (15.5N) AND OPERATE WITH A CLOSED FIST. THERE SHALL BE A VISIBLE AND AUDIBLE INDICATOR THAT THE BUTTON PRESS HAS OCCURRED.

1

632, REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM: REMOVAL OF EXISTING PEDESTRIAN SIGNAL HEADS, PEDESTRIAN PUSHBUTTONS, AND STORAGE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE ODOT C&MS, CAREFULLY REMOVE THE EXISTING TWO (2) PEDESTRIAN SIGNAL HEADS, FOUR (4) PEDESTRIAN PUSHBUTTONS, AND ALL ASSOCIATED WIRING AND MAKE READY FOR THE DELIVERY TO THE CITY OF BEAVERCREEK. CONTACT ERIC MUTERSPAW FOR COORDINATION.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM: REMOVAL OF EXISTING SIGNAL HEADS, PEDESTRIAN PUSHBUTTONS, AND STORAGE, AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

633, CONTROLLER ITEM, MISC.: ADD PEDESTRIAN PHASES

IN ADDITION TO THE REQUIREMENTS OF CMS 632.27:

THE CONTRACTOR SHALL REUSE AND REVISE THE EXISTING CONTROLLER, CABINET, AND MISCELLANEOUS TRAFFIC CONTROL ITEMS WITHIN THE CABINET, LOADING REVISED SIGNAL TIMINGS, PROVIDING LOAD SWITCHES, REPROGRAMMING OF THE MALFUNCTION MANAGEMENT UNIT, WIRING HARNESS MODIFICATIONS AND OTHER CABINET ALTERATIONS.

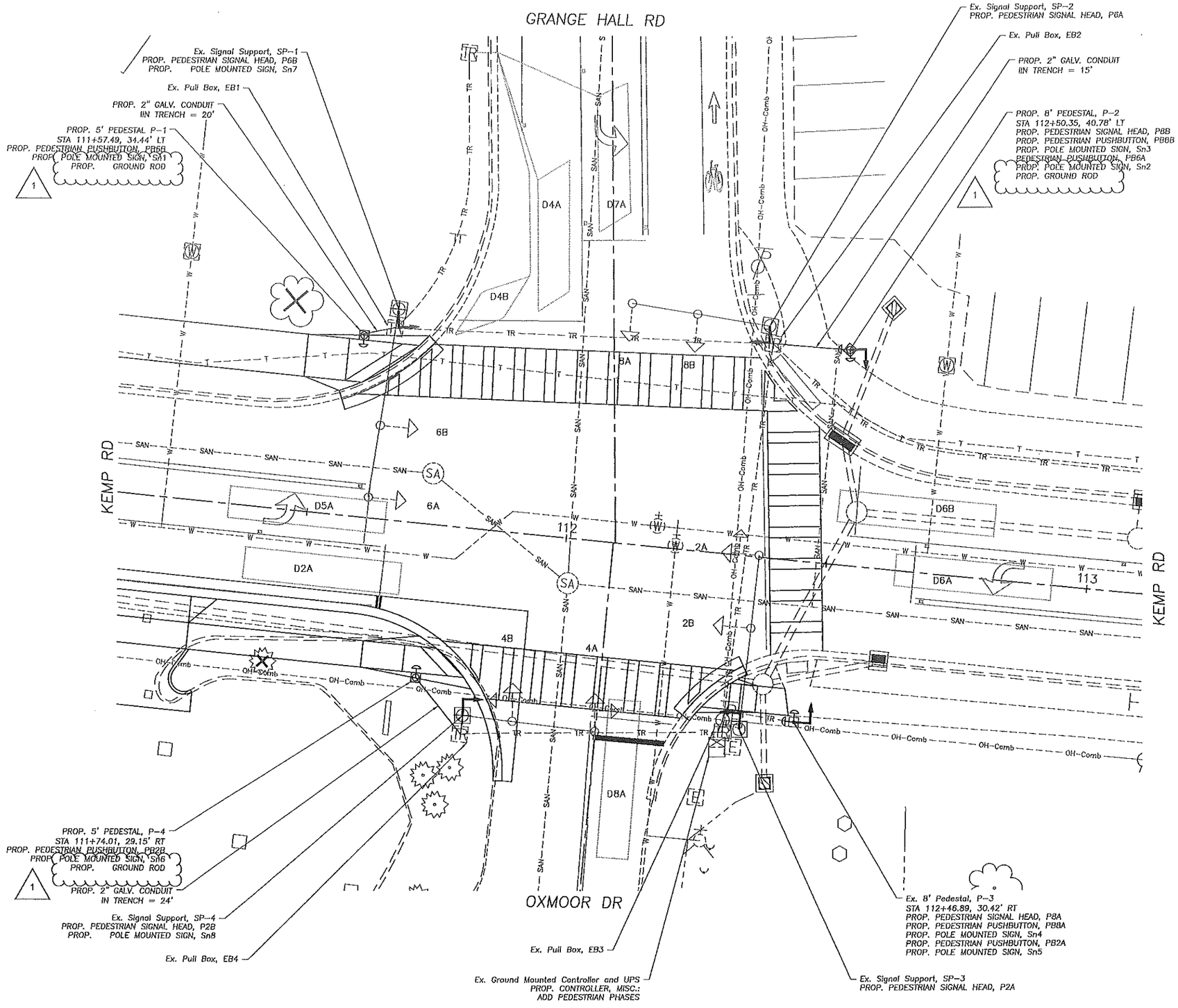
PROVIDE CABINET DRAWINGS AND PLACE THEM IN THE TRAFFIC SIGNAL CABINET. PROVIDE A PDF FORMAT OF THE CABINET DRAWINGS TO THE CITY ENGINEER.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND CITY ENGINEER 72 HOURS BEFORE ACTIVATING THE REVISED SIGNAL TIMINGS.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH OF "ITEM 633, CONTROLLER ITEM, MISC.: ADD PEDESTRIAN PHASES" IN PLACE INCLUDING ALL CONNECTIONS, TESTED AND ACCEPTED.

01/15/2024

GRE-CR 40-1.04
KEMP ROAD SIDEWALKS



PROPOSED PEDESTRIAN SIGNAL HEAD	EXISTING POLYCARBONATE SIGNAL HEAD	EXISTING POLYCARBONATE SIGNAL HEAD	EXISTING POLYCARBONATE SIGNAL HEAD
P2A, P2B P6A, P6B P8A, P8B	2B 6A, 6B 8A, 8B	2A, 4A	4B

R10-3e (L)
Sn2, Sn4, & Sn6

R10-3e (R)
Sn1, Sn3, & Sn5

R9-3
Sn7, Sn8,

REMOVAL ITEMS FOR DISPOSAL OR SALVAGE BY THE CITY
PEDESTRIAN SIGNAL HEADS.....2
PEDESTRIAN PUSHBUTTONS.....4

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)	NOTE
EB1	—	—	—	18	EX.
EB2	—	—	—	18	EX.
EB3	—	—	—	24	EX.
EB4	—	—	—	18	EX.
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—

TRAFFIC SIGNAL LEGEND

SIGNAL HEADS: EX. VEHICULAR HEAD; PROP. PEDESTRIAN HEAD
SIGNAL POLES: EX. ANCHOR/STRAIN POLE; GUY ANCHOR; EX. EMBEDDED POLE; EX. WOOD POLE; PROP. PEDESTAL; PUSHBUTTON
CONTROLLERS & CABINETS: EX. CABINET (NO PAD)
PULL BOXES: EX. PULL BOX
DETECTION: EX. STOP LINE RADAR DETECTION

CALCULATED MSW
CHECKED KMR

TRAFFIC SIGNAL INSTALLATION PLAN
GRANGE HALL RD AND KEMP RD

GRE-CR 40-1.04
KEMP ROAD SIDEWALKS

01/15/2024