

TRAFFIC SIGNAL NOTES

MAINTENANCE OF TRAFFIC

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR 614, MAINTAINING TRAFFIC.

THE FOLLOWING QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 614 - MAINTAINING TRAFFIC 1 LS

PAVEMENT FOR MAINTAINING TRAFFIC, AS PER PLAN

CONSTRUCT AND MAINTAIN PAVEMENT FOR MAINTAINING TRAFFIC IN ACCORDANCE WITH ITEM 615 EXCEPT AS FOLLOWS:

1. PAVEMENT SHALL BE COMPRISED OF ITEM 301, 4 INCHES THICK. EACH LANE SHALL BE TEN FOOT (10') WIDE, MINIMUM, UNLESS THE ENGINEER DETERMINES AT THE TIME OF CONSTRUCTION THAT A WIDER LANE IS NECESSARY.
2. PAVEMENT FOR MAINTAINING TRAFFIC SHALL BE INSTALLED IN CLOSE PROXIMITY TO THE EXISTING CENTERLINE GRADE EXCEPT AT THE INTERSECTION WHERE IT WILL BE INSTALLED TO PROPOSED GRADE. THE DRAWINGS SHOWN TRANSITION SECTIONS OF PAVEMENT FOR MAINTAINING TRAFFIC FROM EXISTING GRADE TO PROPOSED GRADE.
3. REMOVAL OF PAVEMENT FOR MAINTAINING TRAFFIC SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 202 - STRUCTURES REMOVED..
4. THE NUMBER OF SQUARE YARDS OF ITEM 615 PROVIDED IN THE BID SCHEDULE AND GENERAL SUMMARY INCLUDES AN ADDITIONAL QUANTITY FROM THAT PROVIDED FOR THE SANITARY SEWER IMPROVEMENTS FOR USE BY THE ENGINEER TO CONSTRUCT ADDITIONAL PAVEMENT FOR MAINTAINING TRAFFIC, IF NECESSARY, OR TO REPLACE PAVEMENT FOR MAINTAINING TRAFFIC IF IT FAILS.
5. PAYMENT WILL BE MADE BASED ON ITEM 615, PAVEMENT FOR MAINTAINING TRAFFIC, AS PER PLAN.

UNIFORMED OFF-DUTY POLICE OFFICER WITH CRUISER

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR DIRECTING TRAFFIC BY A UNIFORMED OFF-DUTY POLICE OFFICER DURING INSTALLATION OF THE PROPOSED IMPROVEMENTS. DISPATCHING OF THE OFFICER TO THE SITE BY THE CONTRACTOR MUST RECEIVE PRIOR APPROVAL BY THE CITY ENGINEER.

ITEM SPECIAL - UNIFORMED OFF-DUTY OFFICER WITH CRUISER 50 HR

MAINTENANCE OF TRAFFIC SIGNAL INSTALLATION

FOR NEW SIGNAL INSTALLATIONS OR DEVICES INSTALLED BY THE CONTRACTOR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. AT THE PRE-CONSTRUCTION MEETING, THE CONTRACTOR SHALL PROVIDE THE MAINTAINING AGENCY AND THE PROJECT ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. THE CONTRACTOR SHALL HAVE THE MALFUNCTION CORRECTED AND/OR REPAIRED TO THE SATISFACTION OF THE ENGINEER WITHIN FOUR HOURS OF THE NOTIFICATION OR LIQUIDATED DAMAGES OF \$500 PER HOUR SHALL BE ASSESSED THE CONTRACTOR.

ALL LAMP OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE PROJECT ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN EIGHT HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGES. IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE PROJECT ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR IS NOTIFIED OF THE OUTAGE.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED FOUR HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS. WHERE MORE THAN ONE OUTAGE OCCURS, THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY DAMAGES FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGES AS PER 107.15.

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION AT THE LOCATION WITHIN HIS RESPONSIBILITY WITHIN THE PERIOD AS SPECIFIED ABOVE, THE PROJECT ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE CITY OF GREEN FOR POLICE SERVICES AND MAINTENANCE SERVICES SHALL BE DEDUCTED FROM THE MONEYS DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15. IN ADDITION TO THESE BILLINGS, THE CONTRACTOR SHALL BE ASSESSED LIQUIDATED DAMAGES OF \$500/HOUR FOR EACH HOUR BEYOND THE ALLOWED FOUR HOUR PERIOD THAT THE SIGNAL IS INOPERATIVE.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICES ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A MUTUALLY ACCEPTABLE AGREEMENT WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE PROJECT ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

WHEN A NEW TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED FOUR HOURS AND SHALL NOT INCLUDE THE HOURS OF 6:00 AM TO 8:00 AM AND 4:00 PM TO 6:00 PM. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED BY OFF-DUTY POLICE HIRED BY THE CONTRACTOR.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED, AS DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

1. TIME OF NOTIFICATION OF MALFUNCTION; 2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION; 3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED; 4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE; AND 5. TIME OF COMPLETION OF REPAIR AND SYSTEM RESTORED TO FULL SERVICE. A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR ITEM 614 - MAINTAINING TRAFFIC.

REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN

THE CONTRACTOR SHALL NOTIFY THE CITY OF GREEN AT (330) 896-5510, 48 HOURS BEFORE REMOVAL OF ANY EXISTING TRAFFIC SIGNAL EQUIPMENT. THE CITY SHALL RECEIVE ALL EXISTING TRAFFIC SIGNAL EQUIPMENT, EXCEPT SIGNAL WIRE. ALL REMOVALS SHALL BE PERFORMED IN THE PRESENCE OF A DESIGNATED REPRESENTATIVE OF THE CITY OF GREEN. ITEMS SHALL BE SUITABLY PROTECTED UNTIL DELIVERED TO THE CITY OF GREEN AT A DESIGNATED LOCATION. IN ACCORDANCE WITH 614.03, ITEMS SHALL NOT BE REMOVED UNTIL A NEW OR TEMPORARY SIGNAL INSTALLATION IS IN OPERATION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN.

POWER SERVICE, AS PER PLAN

NEW ELECTRIC SERVICE ENCLOSURES ARE TO BE INSPECTED BY A LICENSED INSPECTOR PRIOR TO CONNECTION TO A UTILITY DISTRIBUTION LINE. THE CONTRACTOR SHALL APPLY FOR ALL INSPECTION(S); PAY THE APPROPRIATE FEE(S) AND ADVISE THE PROJECT ENGINEER OF THE TIME OF THE INSPECTION(S), SO THAT THEY MAY HAVE A REPRESENTATIVE IN ATTENDANCE. INSPECTION IS NOT A SUBSTITUTE FOR THE CITY'S FINAL INSPECTION, NOR DOES IT SUPERSEDE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS.

ELECTRIC POWER SHALL BE OBTAINED FROM OHIO EDISON/FIRST ENERGY AT THE LOCATION SHOWN ON THE PLANS. POWER SHALL BE 120 VOLTS.

THE COST OF ALL NECESSARY INSPECTIONS AND HOOK-UP FEES SHALL BE CONSIDERED INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE FOR ITEM 632 - POWER SERVICE, AS PER PLAN.

UNDERDRAINS FOR PULLBOXES

REFERENCE IS MADE TO STANDARD DRAWING HL-30.11 FOR DETAILS OF DRAINING PULLBOXES. UNDERDRAINS FOR PULLBOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY 20 FEET. PAYMENT FOR UNDERDRAINS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PULL BOX.

SIGNAL SUPPORT FOUNDATION

THE FOUNDATION FOR THE SIGNAL SUPPORT SHALL BE INSTALLED COMPLETE AS PER ODOT STANDARD DRAWING TC-21.20.

VEHICULAR SIGNAL HEAD WITH LED LAMP UNITS 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN

THIS ITEM SHALL CONSIST OF THE FURNISHING AND PLACING OF A SIGNAL HEAD. THIS ITEM SHALL CONFORM TO 632.06, 732.01 AND 732.04 EXCEPT THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE LOCKING. BALANCE ADJUSTERS SHALL NOT BE USED ON ONE-WAY HEADS.

LED SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 872. ALL LAMP UNITS SHALL BE THE 12-INCH SIZE. LED SIGNAL LAMP UNITS SHALL BE PROVIDED FOR ALL SIGNAL LENS TYPES.

SIGNAL HEADS AND VISORS SHALL BE YELLOW AND CONSTRUCTED OF INJECTION MOLDED, UV STABILIZED, POLYCARBONATE PLASTIC AND MEET I.T.E. SPECIFICATIONS. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING. PLASTIC LENSES SHALL BE USED. PIPE, SPACER, AND FITTINGS SHALL BE CONSTRUCTED OF GALVANIZED STEEL OR ALUMINUM MATERIAL. SIGNALS ATTACHED TO MAST ARMS SHALL USE RIGID MOUNTING FIXTURES AS SHOWN ON TC-85.20 AND SHALL INCLUDE SAFETY CHAINS.

ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED WORK SHALL BE INCLUDED IN THE CONTRACT BID PRICE PER EACH ITEM 632 - VEHICULAR SIGNAL HEAD WITH LED LAMP UNITS, BY SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN.

PEDESTRIAN SIGNAL HEAD WITH LED LAMP UNITS, AS PER PLAN

THIS ITEM SHALL CONFORM TO 632 AND 732.05 EXCEPT AS FOLLOWS:

ENCLOSURE SHALL BE 12" X 12" SINGLE COMPARTMENT WITH A FULL HAND/FULL MAN OVERLAY. LED LAMP UNITS SHALL BE USED THAT MEET THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 872. LAMP UNITS SHALL BE THE 12-INCH SIZE.

PEDESTRIAN PUSH BUTTON

IN ADDITION TO THE REQUIREMENTS OF 632 AND 732.06, PEDESTRIAN PUSH-BUTTONS SHALL HAVE THE FOLLOWING FEATURES:

1. INCORPORATE A "PALM" TYPE PUSH BUTTON
2. THE PUSH-BUTTON SHALL BE RAISED OR FLUSH AND SHALL BE A MINIMUM OF 2 INCHES (51mm) AT THE SMALLEST DIMENSION.
3. THE MAXIMUM FORCE TO ACTUATE THE PUSH-BUTTON SHALL BE 5 POUNDS PER FOOT (22.2N).
4. THE PUSH-BUTTON SHALL BE RATED AS WEATHERPROOF AND SHALL INCORPORATE A SOLID NEOPRENE RUBBER GASKET TO PREVENT MOISTURE INTRUSION.
5. THE PUSH-BUTTON SHALL HAVE THE HOUSING SEALED TO THE SIGNAL SUPPORT, PEDESTAL OR POLE WITH A SILICONE SEALANT.

LOOP DETECTOR UNIT, DELAY & EXTENSION, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632 AND 732.07 OR 732.08, LOOP DETECTOR UNITS SHALL HAVE THE FOLLOWING REQUIREMENTS OR FEATURES:

1. THE OUTPUT DEVICE SHALL BE A RELAY, AND ALL CONTACTS SHALL BE INCLUDED IN THE WIRING HARNESS.
2. THE UNIT SHALL BE SELF TUNING.
3. THE UNITS ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY PLACEMENT WITH A SINGLE CHANNEL AMPLIFIER AS DESCRIBED IN THE FINAL PARAGRAPH OF 732.07.
4. EACH UNIT SHALL BE LABELED TO CORRESPOND TO ITS PHASE AND DIRECTION.
5. DELAY INHIBIT SHALL BE CONNECTED ON ALL DETECTOR HARNESSES FOR THEIR RESPECTIVE PHASE GREENS.

DETECTOR LOOP

THIS ITEM SHALL CONFORM TO ODOT SPECIFICATION 632.11 WITH THE FOLLOWING ADDITIONAL PROVISIONS:

1. THE LOCATION OF THE LOOP DETECTOR SHALL BE PREMARKED BY THE CONTRACTOR AND APPROVED BY THE CITY OF GREEN ENGINEER PRIOR TO SAW CUTTING.
2. THE PAVEMENT SAW CUTTING AND WIRE INSTALLATION SHALL BE ACCOMPLISHED AFTER ITEM 448 SURFACE COURSE HAS BEEN INSTALLED.

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TRAFFIC SIGNAL NOTES

MASSILLON RD/GREENSBURG RD INTERSECTION IMPROVEMENTS
PART A - ROADWAY

EDG
ENVIRONMENTAL
DESIGN GROUP
ENGINEERS • LANDSCAPE ARCHITECTS • SURVEYORS
460 GRANT STREET
AKRON, OHIO 44317-1883
TEL. (330) 376-1580
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SHEET:

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TRAFFIC SIGNAL NOTES (cont.)

CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET TYPE TS1, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING AN ACTUATED, 8-PHASE, SOLID STATE DIGITAL MICROPROCESSOR TYPE CONTROLLER WITH MENU DRIVEN PROMPTS, A PIGTAIL FOR EMERGENCY POWER, AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE CONTROLLER COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS. THE CONTROLLER SHALL MEET NEMA TS-2 TYPE II SPECIFICATIONS. THE CABINET SHALL BE A NEMA TS-1 CABINET. THE CONTROLLER AND CABINET SHALL CONFORM TO O.D.O.T. SPECIFICATION 633 AND 733 AND SHALL HAVE THE FOLLOWING FEATURES:

1. THE CONTROLLER SHALL BE SHELF MOUNTED. ALL ASSOCIATED EQUIPMENT IN THE CABINET SHALL BE SHELF MOUNTED.
2. THE LOAD SWITCHES SHALL PROVIDE INPUT AND OUTPUT INDICATIONS.
3. THE CONFLICT MONITOR SHALL BE CAPABLE OF 6 OR 12 CHANNEL OPERATION, EXTENDED MONITORING, LCD DISPLAY AND FAULT/EVENT STORAGE.
4. THE FOLLOWING SHALL BE ACCESSIBLE VIA THE POLICE PANEL DOOR:
 - A. SIGNAL SHUTDOWN SWITCH
 - B. FLASH CONTROL SWITCH
 - C. POLICE PUSHBUTTON CONTROL
5. THE FOLLOWING SWITCHES SHALL BE MOUNTED ON THE SWITCH PANEL IN THE CABINET:
 - A. RUN/STOP TIMING
 - B. CONTROLLER TIMER POWER
 - C. DETECTOR TEST
6. A SERVICE LAMP WITH DOOR ACTIVATED ON/OFF SWITCH.
7. THE CABINET EXTERIOR SHALL BE NATURAL ALUMINUM FINISH.
8. FLASHER CONTROL AND OUTPUT RELAY THAT WILL PERMIT A MINIMUM OF THREE TIMES PER DAY AND FOR SELECTED DAYS OF THE WEEK
9. THE CONTRACTOR SHALL FURNISH FOR APPROVAL, A CABINET PLAN SHOWING COMPONENT PLACEMENT.
10. A RISER SHALL BE INSTALLED TO EXTEND THE CONTROLLER FOUNDATION AN ADDITIONAL EIGHT INCHES ABOVE WHAT IS SPECIFIED IN TC-83.20.

PAYMENT FOR ITEM 633 - CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET TYPE TS1, AS PER PLAN WILL BE MADE AT THE CONTRACT UNIT PRICE FOR THE CONTROLLER IN PLACE AND FULLY OPERATIONAL.

CONTROLLER ITEM, MISC.: PREEMPTION PRIORITY CONTROL

THE PREEMPTION SHALL CONFORM TO O.D.O.T. SPECIFICATION 633 AND SHALL UTILIZE COMMUNICATIONS TO IDENTIFY THE PRESENCE OF AN EMERGENCY PRIORITY VEHICLE. IT SHALL CAUSE THE TRAFFIC SIGNAL CONTROLLER TO SELECT A PRE-PROGRAMMED, PREEMPTION PLAN THAT WILL DISPLAY AND HOLD THE DESIRED SIGNAL PHASE FOR THE DIRECTION OF THE EMERGENCY VEHICLE.

THE COMMUNICATIONS MEDIUM SHALL EMPLOY STROBE ACTIVATED OPTICAL DETECTION TECHNIQUES TO DETERMINE AND LOG THE PRESENCE OF THE EMERGENCY VEHICLE. THE SYSTEM SHALL DETECT THE PRESENCE OF THE VEHICLE THROUGH AN EMITTING DEVICE LOCATED ON THE EMERGENCY VEHICLE. THE SYSTEM SHALL ACTIVATE THE PREEMPTION SEQUENCE BY APPLYING A SIGNAL TO ONE OF THE CONTROLLER'S PREEMPT DISCRETE INPUTS. THE SYSTEM SHALL BE COMPLETELY COMPATIBLE WITH THE NEMA CONTROLLER.

THE EQUIPMENT SHALL BE RACK-MOUNTED AND EASILY REMOVABLE AND REPLACEABLE WITHIN THE CABINET. THE EQUIPMENT SHALL BE SUPPLIED COMPLETELY WIRED IN THE CONTROLLER CABINET AND TESTED.

THE SYSTEM SHALL BE CAPABLE OF PREEMPTING AND RECEIVING PRIORITY FOR EACH APPROACH TO THE INTERSECTION. IT SHALL BE POSSIBLE TO DETECT THE EMERGENCY VEHICLE UP TO 1200 FEET FROM THE INTERSECTION.

THE INTERSECTION SHOWN IN THE PLANS SHALL BE SUPPLIED WITH THE FOLLOWING COMPONENTS:

1. PREEMPT DETECTORS
2. PREEMPTION DETECTOR CABLE
3. PREEMPT PHASE SELECTOR ASSEMBLY AND INTERFACE WIRING PANEL
4. CONFIRMATION LIGHT AND CABLE
5. PREEMPT POWER CABLES

THE PREEMPTION DETECTORS SHALL CONSIST OF FURNISHING AND INSTALLING A LIGHTWEIGHT, WEATHERPROOF, SINGLE CHANNEL DIRECTIONAL PREEMPTION DETECTOR ASSEMBLY AS SHOWN IN THE PLANS. THE DETECTOR SHALL BE CAPABLE OF SENDING THE PROPER ELECTRICAL SIGNAL TO THE TRAFFIC SIGNAL CONTROLLER VIA THE PREEMPTION DETECTOR HOME RUN CABLE. DETECTORS SHALL BE SUPPLIED WITH MAST ARM MOUNTING HARDWARE. THE DETECTORS WILL FACE OUTBOUND (TO MINIMIZE FALSE CALLS FROM TURNING EMERGENCY VEHICLES) MOUNTED AS TO POINT DOWN THE CENTER OF ROADWAY.

THE PREEMPTION DETECTOR CABLE SHALL CONSIST OF FURNISHING AND INSTALLING A HOME RUN CABLE FROM EACH DETECTOR TO THE PHASE SELECTORS IN THE CONTROLLER CABINET. THE PREEMPTION DETECTOR CABLE SHALL CONFORM TO O.D.O.T. SPECIFICATION 632. THE CABLE SHALL BE APPROVED FOR BOTH OVERHEAD AND UNDERGROUND USE. THE JACKET SHALL WITHSTAND EXPOSURE TO SUNLIGHT AND ATMOSPHERIC TEMPERATURES AND STRESSES REASONABLY EXPECTED IN NORMAL INSTALLATIONS.

PREEMPT PHASE SELECTORS SHALL BE INSTALLED AND FURNISHED IN THE CONTROLLER CABINET INCLUDING WIRING INTERFACE PANELS AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE PREEMPT PHASE SELECTORS COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS. THIS ITEM SHALL INCLUDE THE EXTRA CABINET SPACE NECESSARY TO BE LOCATED IN THE CONTROLLER CABINET. THE PHASE SELECTORS SHALL CONSIST OF A MODULE OR MODULES THAT WILL PROVIDE THE NECESSARY INPUTS TO THE CONTROLLER. PHASE SELECTORS SHALL BE SUPPLIED WITH SUFFICIENT QUANTITIES OF CHANNELS TO PROVIDE PREEMPTION FOR ALL APPROACHES TO THE INTERSECTION SEPARATELY. POWER SHALL BE OBTAINED FROM THE PHASE SELECTOR OR PHASE SELECTOR POWER SUPPLY AND NOT FROM THE LOCAL CONTROLLER TIMER. THE PHASE SELECTORS SHALL HAVE FRONT PANEL INDICATORS FOR ACTIVE PREEMPT CHANNEL STATUS. IT SHALL HAVE TEST SWITCHES TO ACTIVATE ALL PREEMPT CHANNELS.

PREEMPT CONFIRMATION LIGHTS SHALL BE FURNISHED AND INSTALLED INCLUDING MOUNTING HARDWARE, WIRE AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE PREEMPT CONFIRMATION LIGHT COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS.

A CONFIRMATION LIGHT SHALL BE SUPPLIED FOR EACH APPROACH TO INDICATE THAT THE EMERGENCY VEHICLE HAS ACHIEVED CONTROL OF THE TRAFFIC SIGNAL. THE CONFIRMATION LIGHT SHALL BE A VAPOR TIGHT ALUMINUM LIGHTING FIXTURE. IT SHALL BE SUPPLIED WITH A CLEAR GLOBE, A 100 WATT PENDANT CONFIRMATION LAMP AND MOUNTING HARDWARE TO ATTACH TO THE TRAFFIC SIGNAL MAST ARM. A LOAD SWITCH IN THE TRAFFIC SIGNAL CONTROLLER SHALL POWER THE CONFIRMATION LIGHT.

THE CONTRACTOR SHALL THOROUGHLY CHECK OUT THE INSTALLED SYSTEM. AS A MINIMUM, THE CONTRACTOR SHALL VERIFY THAT ALL CONNECTIONS ARE PROPERLY MADE TO THE CONTROLLER CABINETS. THE CONTRACTOR SHALL CHECK THAT THE RANGE SETTING IS PROPER. THE CONTRACTOR SHALL DETERMINE THAT ALL PHASE SELECTORS ARE SELECTING THE PROPER PHASE AND TIMING ACCURATELY. THE CONTRACTOR SHALL VERIFY THAT ALL VEHICLE EMITTERS ARE BEING PROPERLY DETECTED.

ALL CABLES, CONNECTORS, TERMINALS, AND INTERFACE RACKS TO PROVIDE A COMPLETE PRIORITY CONTROL SYSTEM SHALL BE INCIDENTAL TO THIS ITEM. PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR ITEM 633 - CONTROLLER ITEM, MISC.: PREEMPTION PRIORITY CONTROL IN PLACE AND FULLY OPERATIONAL.

CONTROLLER ITEM, MISC.: BATTERY BACKUP SYSTEM WITHOUT ENCLOSURE

THIS ITEM OF WORK SHALL INCLUDE THE FURNISHING AND INSTALLATION OF A BATTERY BACKUP SYSTEM TO POWER THE TRAFFIC SIGNAL SYSTEM DURING POWER OUTAGES. THE SYSTEM SHALL BE A 1100W OR GREATER UPS AND CAPABLE OF OPERATING THE TRAFFIC SIGNAL A MINIMUM OF 2 HOURS ON BATTERY POWER.

THE SYSTEM SHALL INCLUDE THE UPS, BATTERIES, TRANSFER SWITCH, AND BATTERY HEATER MATS. THE SYSTEM SHALL FIT INSIDE THE PROPOSED GROUND MOUNTED CONTROLLER CABINET AND CABINET EXTENSION.

PAYMENT FOR ITEM 633 - CONTROLLER ITEM, MISC.: BATTERY BACKUP SYSTEM WITHOUT ENCLOSURE WILL BE MADE AT THE CONTRACT UNIT PRICE FOR SYSTEM IN PLACE AND FULLY OPERATIONAL.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90-DAYS FOLLOWING THE SUCCESSFUL COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATIONS, 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 CONTROL SYSTEM: CONTROLLERS AND ASSOCIATED EQUIPMENT, DETECTOR UNITS, TRAFFIC SIGNALS, PEDESTRIAN SIGNALS, WIRE AND CABLE, AND TIME-BASED ITEMS. CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE ENGINEER 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.

REMOVAL OF EXISTING STRIPING

REMOVAL OF EXISTING STRIPING IS REQUIRED IN CERTAIN AREAS WHERE ASPHALT PAVEMENT PLANING AND RESURFACING IS NOT REQUIRED. FOR THESE AREAS, REMOVE STRIPING BY USING GRINDING EQUIPMENT. INCLUDE COSTS IN THE PRICE BID FOR THE PROPOSED STRIPING ITEMS.

THERMOPLASTIC PAVEMENT MARKING

GLASS BEADS SHALL BE TYPE C IN ACCORDANCE WITH ITEM 740.10.

ALTERNATE BID - CONTROLLER ITEM, MISC.: PREEMPTION PRIORITY CONTROL

THE PREEMPTION EQUIPMENT SHALL MEET THE SAME SPECIFICATIONS AS ITEM 633 - CONTROLLER ITEM, MISC.: PREEMPTION PRIORITY CONTROL, AS PER PLAN EXCEPT THAT THE EQUIPMENT SHALL BE AN OPTICOM PRIORITY CONTROL EQUIPMENT, AS MANUFACTURED BY

3M TRAFFIC SAFETY SYSTEMS
3M CENTER, BUILDING 0225-05-S-08
ST. PAUL, MINNESOTA 55144-1000
(800) 553-1380

ALTERNATE BID - CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET TYPE TS1, AS PER PLAN

THE CONTROLLER SHALL MEET THE SAME SPECIFICATIONS AS ITEM 633 - CONTROLLER, ACTUATED, 8-PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN EXCEPT THE CONTROLLER SHALL BE AN ASC/2-2000 AS MANUFACTURED BY:

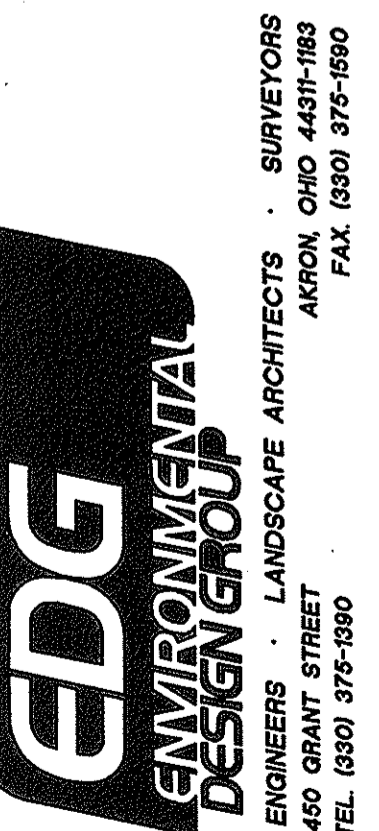
THE ECONOLITE COMPANY
3360 E. LA PALMA
ANAHEIM, CALIFORNIA 92806-2856
(714) 630-3700

TRENCH, AS PER PLAN

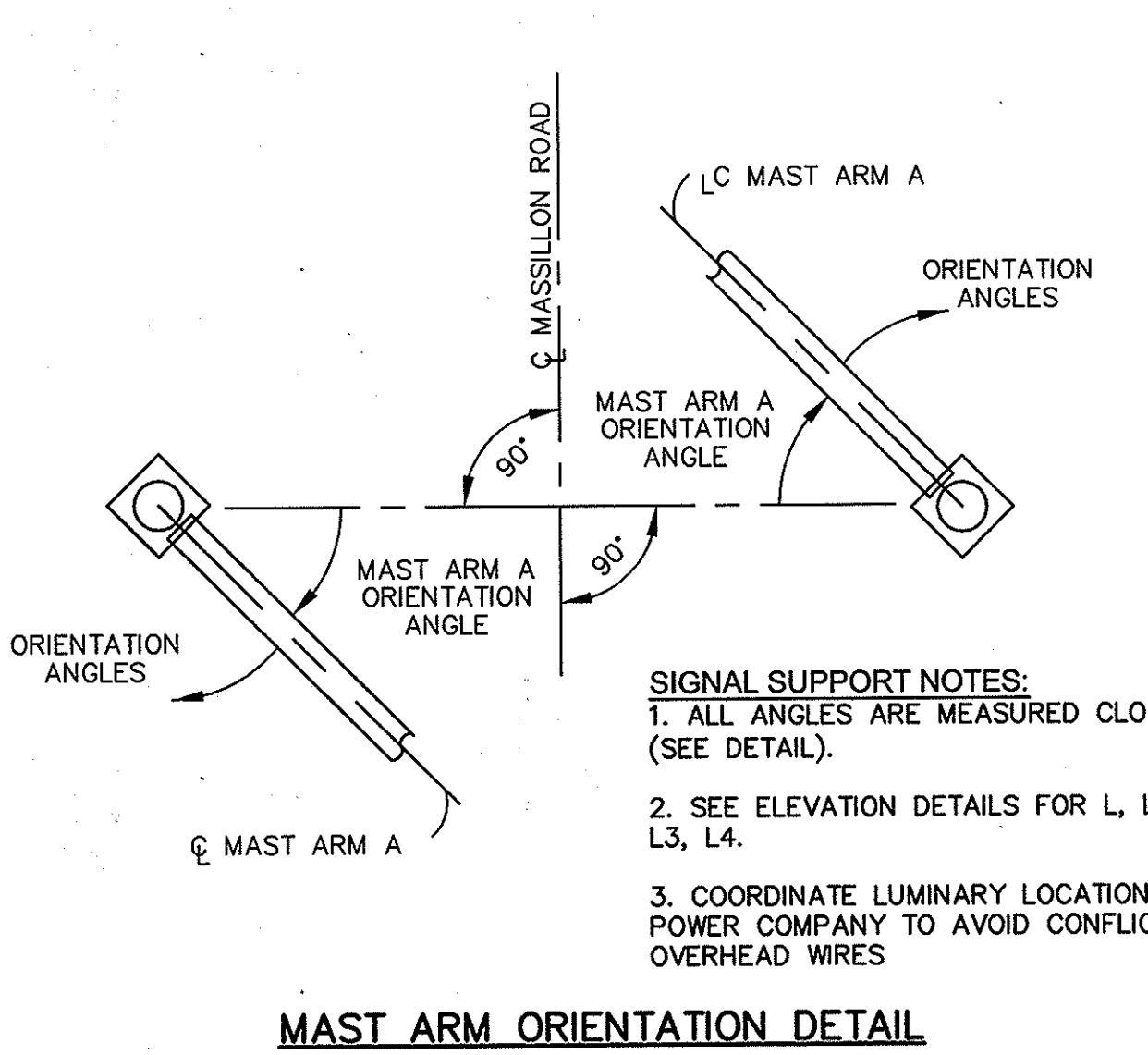
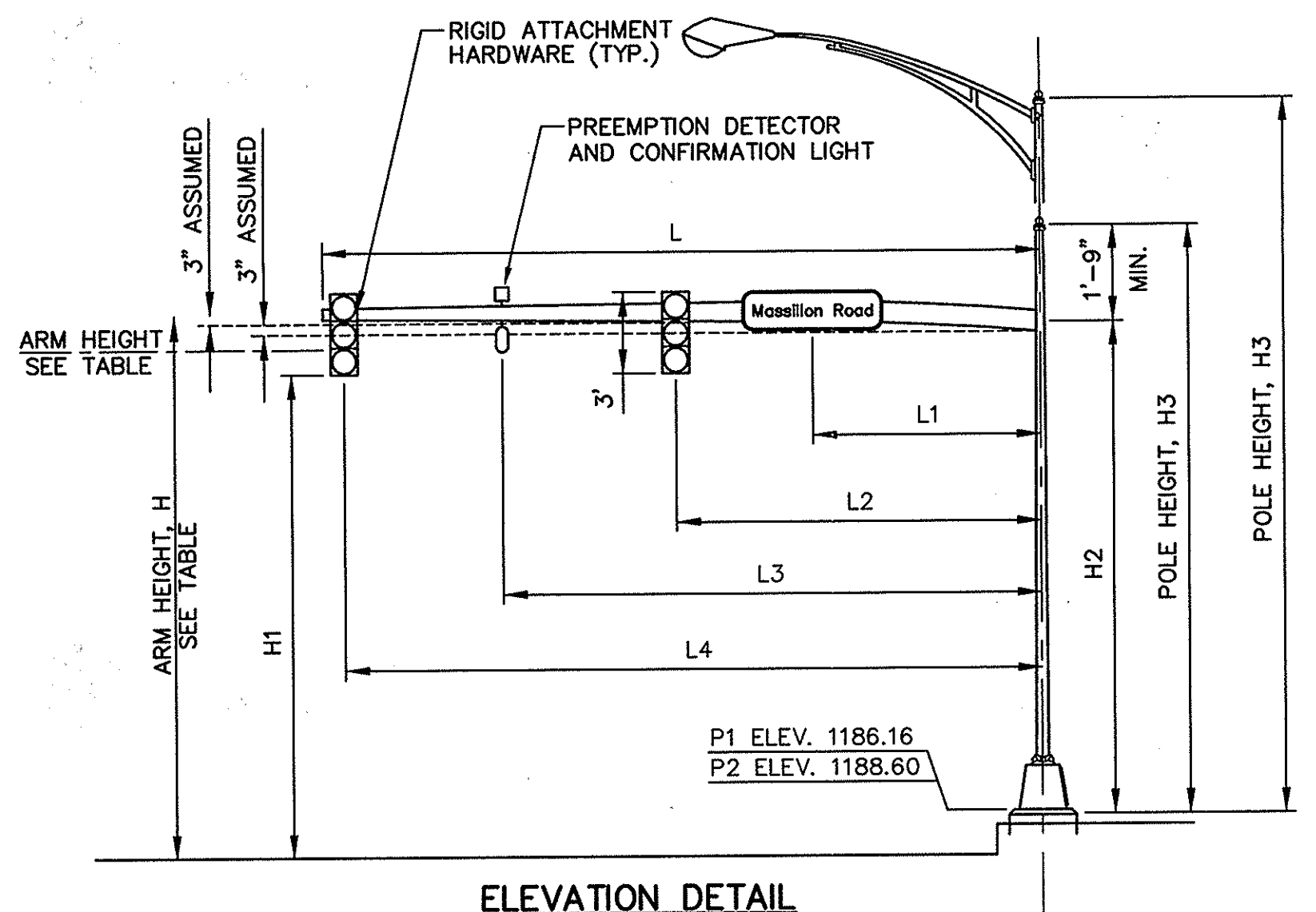
THIS ITEM SHALL INCLUDE ANY TRENCH NECESSARY FOR THE INSTALLATION OF CONDUIT AND WIRE FOR THE TRAFFIC SIGNAL AND LOOP DETECTORS. THE TRENCH, AS PER PLAN SHALL INCLUDE ALL EXCAVATION, PAVEMENT SAWING, AND REMOVAL OF PAVEMENT IF NECESSARY, GRANULAR AND OTHER BACKFILL MATERIAL, COMPACTION, DISPOSAL OF SURPLUS MATERIAL, AND RESTORATION OF DISTURBED FACILITIES AND SURFACES INCLUDING TURF, PAVEMENT, BERMS, AND DRIVES OF ANY THICKNESS.

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SCALE:	
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DRAWN BY:	DBN
CHKD. BY:	BJB
DATE ISSUED:	12/07/05
REVISED:	

TRAFFIC SIGNAL NOTES
MASSILLON RD/GREENSBURG RD INTERSECTION IMPROVEMENTS
PART A - ROADWAY



SHEET:



NOTES
 ALL PULL BOXES SHALL BE SQUARE CONCRETE PULL BOX PER ODOT ITEM 725.08. PULL BOX PB2 & PB7 SHALL BE 24" x 24". ALL OTHER PULL BOXES SHALL BE 18" x 18".
 THE POWER SOURCE FOR THE SIGNAL SHALL BE FROM THE POWER POLE ON THE RIGHT SIDE OF MASSILLON ROAD AT APPROX. STA. 88+24.25, 39' RT.
 THE PRICE BID FOR THE SIGNAL SUPPORT SHALL INCLUDE THE COST OF EXCAVATION FOR THE FOUNDATION REGARDLESS OF THE TYPE OF SOIL OR ROCK ENCOUNTERED.

SIGNAL SEQUENCE CHART

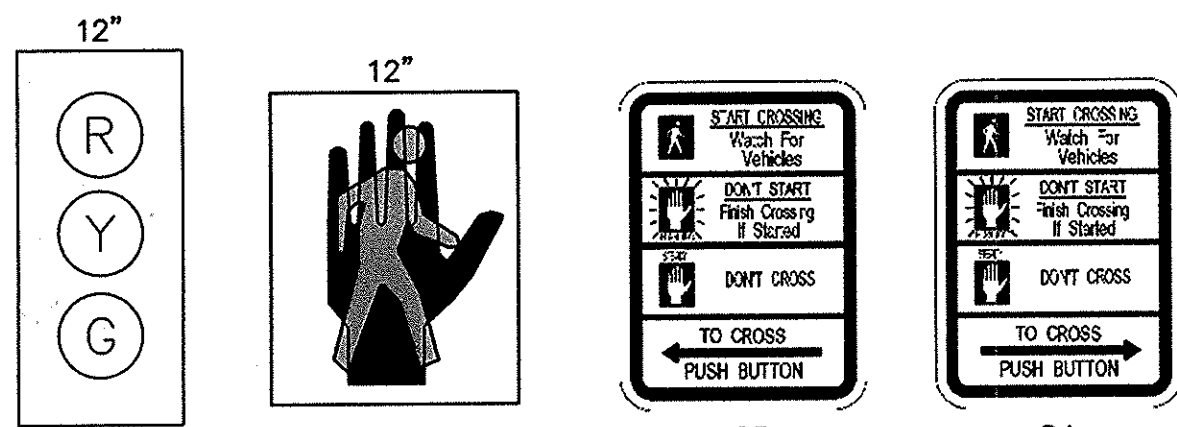
SIGNAL	Q1		Q2		FLASH	DWELL
	R/W	VEH CLEAR	R/W	VEH CLEAR		
A	G	Y	R	R	R	G
B	G	Y	R	R	R	G
C	G	Y	R	R	R	G
D	G	Y	R	R	R	G
E	R	R	G	Y	R	R
F	R	R	G	Y	R	R
G	R	R	G	Y	R	R
H	R	R	G	Y	R	R
W-W	W/FDW	DW	DW	DW	OUT	DW
X-X	DW	DW	DW	DW	OUT	DW
Y-Y	W/FDW	DW	DW	DW	OUT	DW
Z-Z	DW	DW	DW	DW	OUT	DW

SIGNAL SUPPORT NOTES:
 1. ALL ANGLES ARE MEASURED CLOCKWISE (SEE DETAIL).
 2. SEE ELEVATION DETAILS FOR L, L1, L2, L3, L4.
 3. COORDINATE LUMINARY LOCATION WITH POWER COMPANY TO AVOID CONFLICT WITH OVERHEAD WIRES

SIGNAL TIMING CHART

INTERSECTION MOVEMENT	Ø1	Ø2
INITIAL GREEN (SEC.)	-	13.0
MINIMUM GREEN (SEC.)	30.0	-
VEHICLE EXTENSION (SEC.)	-	2.5
MAXIMUM GREEN (SEC.)	-	24.5
YELLOW VEHICLE CLEARANCE (SEC.)	4.0	3.5
ALL RED VEHICLE CLEARANCE (SEC.)	2.0	2.0
MINIMUM WALK (SEC.)	14.0	13.0
PEDESTRIAN CLEARANCE (SEC.)	10.0	10.0
RECALL (NONE/MAX/MIN/PED/COORD)	NONE	NONE
MEMORY (ON/OFF)	OFF	OFF

TYPE TC-12.30 COMBINATION SIGNAL SUPPORT



S3 R-10-3b 9" x 12" SIGNAL
 POLE/PEDESTAL MOUNTED ABOVE PUSH BUTTON

S4 R-10-3b 9" x 12" SIGNAL
 POLE/PEDESTAL MOUNTED ABOVE PUSH BUTTON

S1 D3-H2 62.2" x 8.5" (UPPER CASE-6", LOWER CASE-4.5")

S2 D3-H2 71.4" x 8.5"

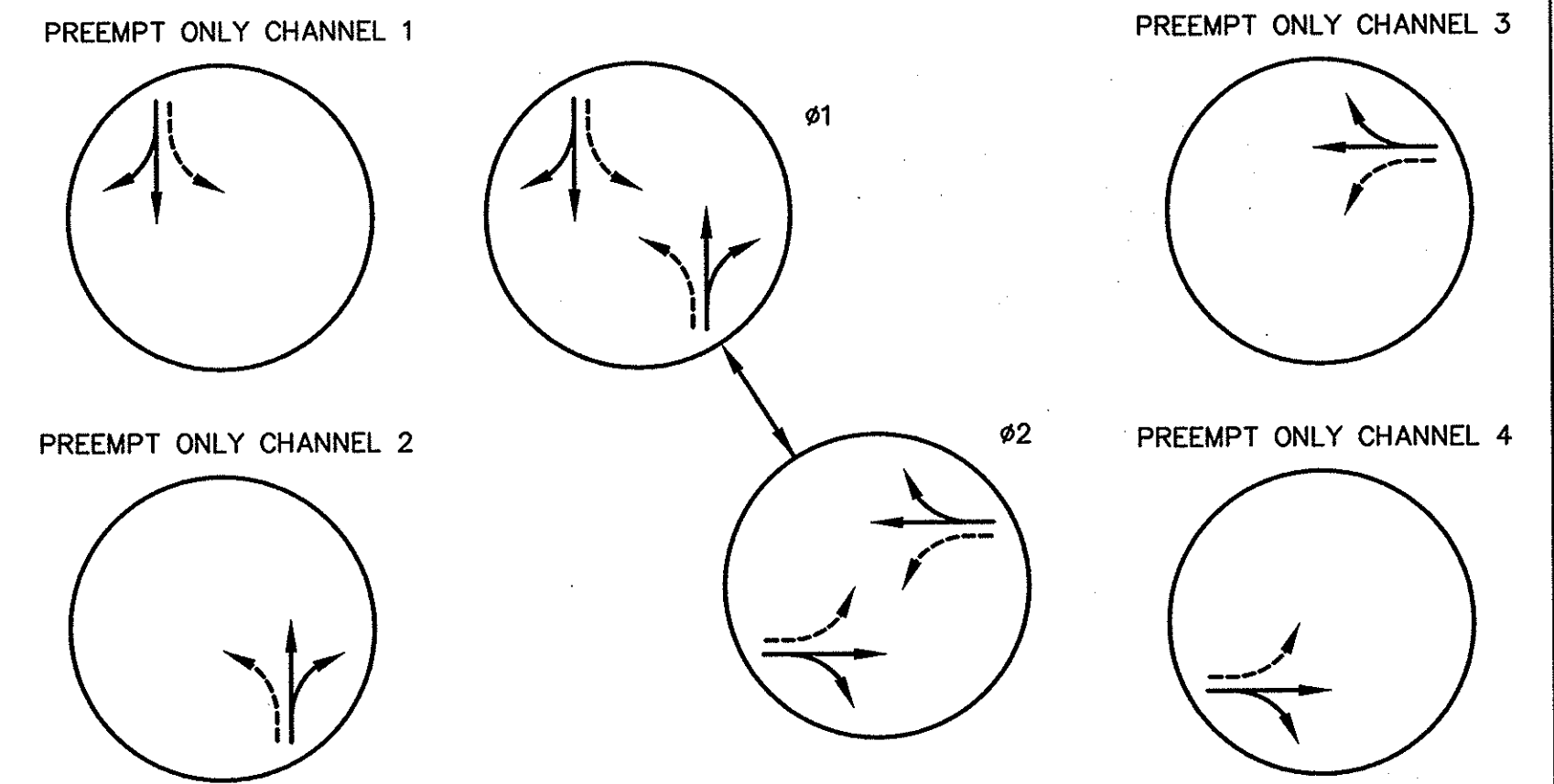
SIGNAL SUPPORT TYPE TC-12.30

SUPPORT NO.	DESIGN NO.	POLE HEIGHT, H3 (FT.)	ORIENTATION ANGLES (DEG.) FROM MAST ARM A					PEDESTRIAN SIGNAL	PEDESTRIAN PUSHBUTTON	POWER SERVICE	CONTROLLER	LUMINAIRE BRACKET	HANDHOLE	CABLE ENTRANCE (12" FROM TOP)		
			L (FT.)	L1 (FT.)	L2 (FT.)	L3 (FT.)	L4 (FT.)									
P1	7	28	48	27	35	41	47	12	270°	0/90	180/270	80	115	315	180	0
P2	7	23	48	27	35	41	47	12	270°	0/90	180/270				180	0

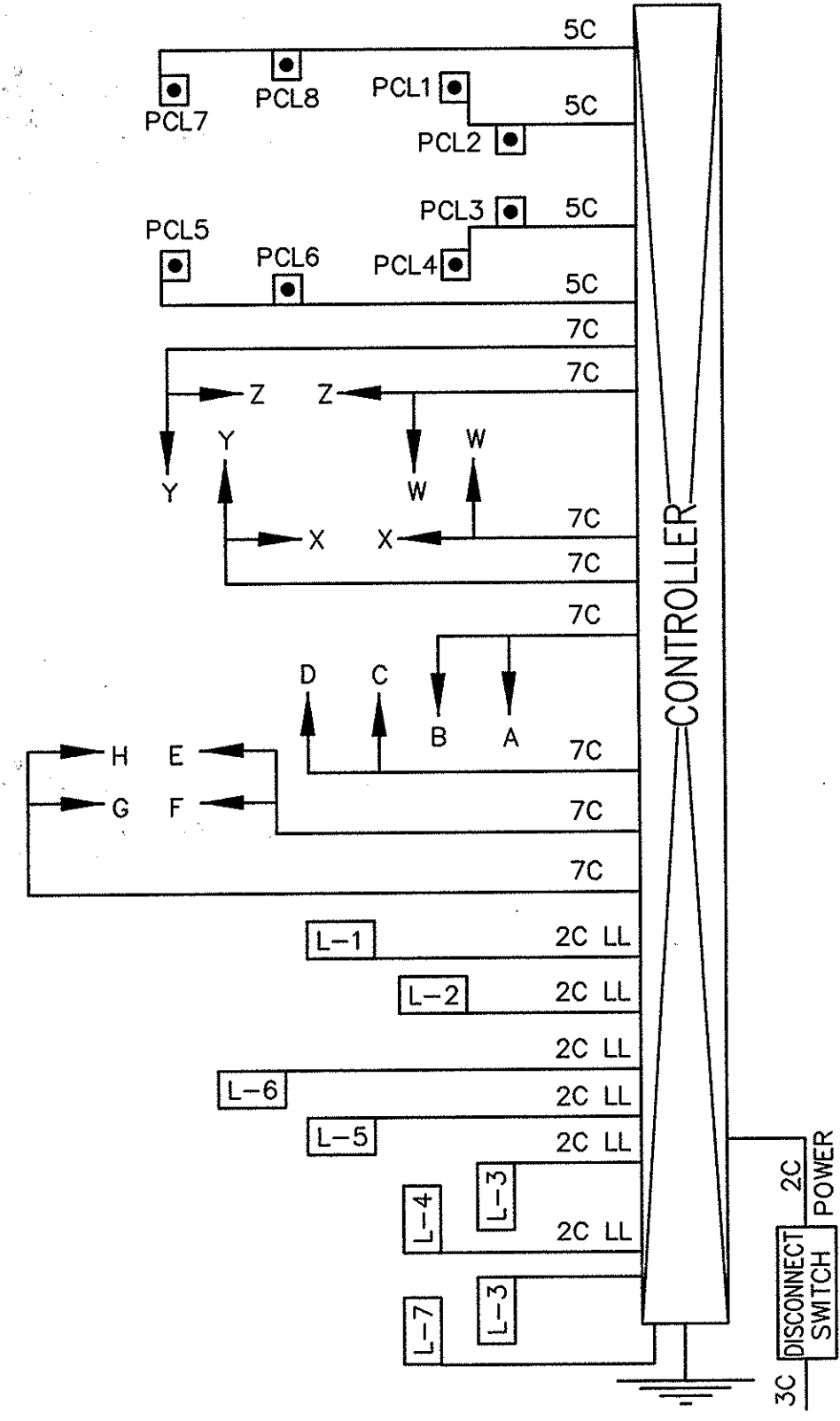
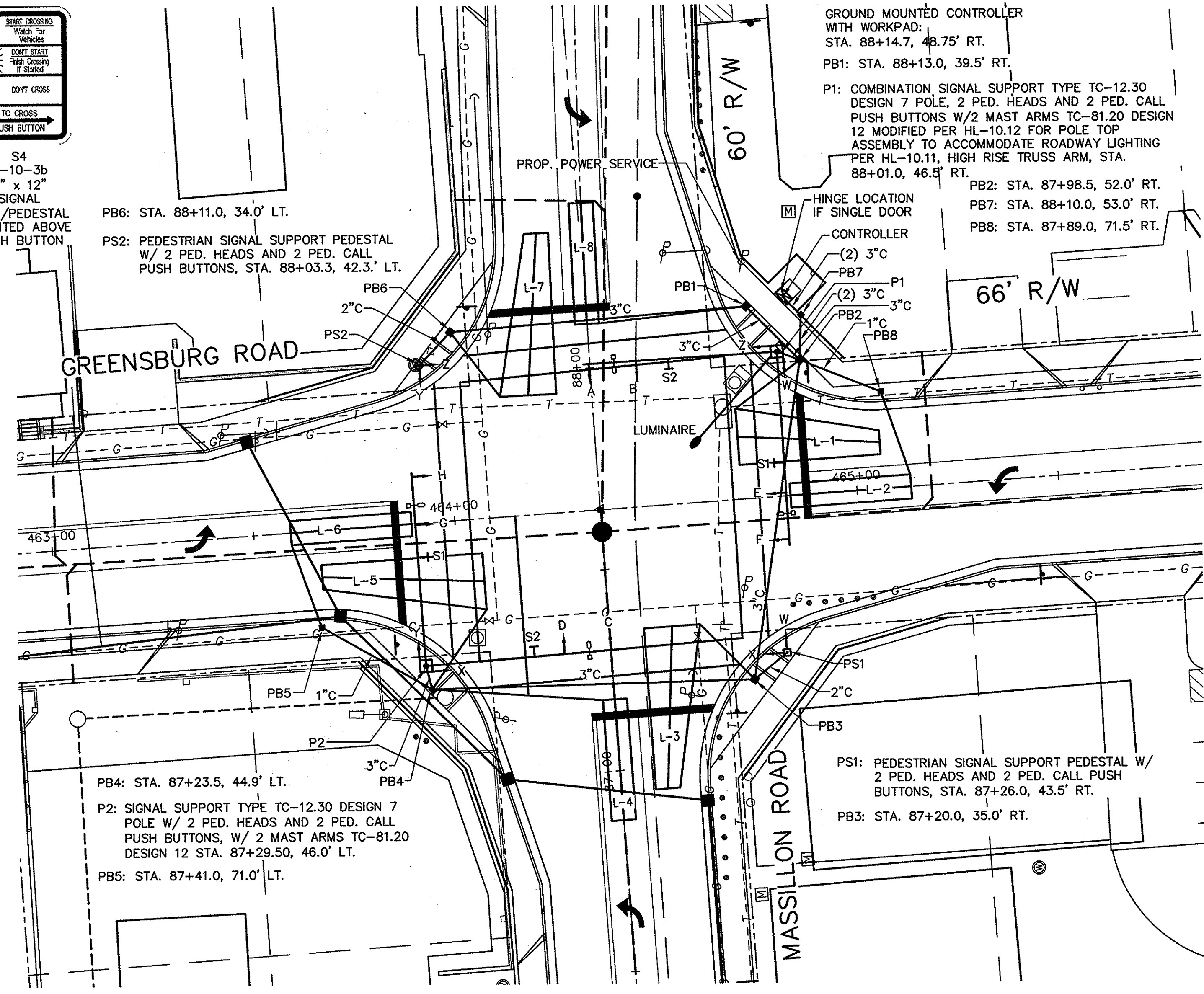
POLE	ARM	ELEV AT 0' PVM'T	DISTANCE FROM 0' ARM TO BOTTOM OF SIGNAL	H	0' ARM ELEV.	H1	H2
P1	A	1187.61	1.5'	18.81'	1206.41	17.31'	20.00'
P2	A	1186.92	2.0'	19.44'	1206.35	17.44'	17.50'
	B	1189.09	1.5'	19.01'	1207.85	17.51'	19.00'

LOOP DETECTOR CHART

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	LOOP LOCATION
L-1	6x35x14	2-4-2	PRESENCE	10.0	Ø2	QUADRUPOLE	STA. 87+87.32, 35.29' RT.
L-2	6x30	2-4-2	PRESENCE	0.0	Ø2	QUADRUPOLE	STA. 87+67.69, 77.27' LT.
L-3	6x40x14	2-4-2	PRESENCE	10.0	Ø1	QUADRUPOLE	STA. 87+34.69, 22.51' RT.
L-4	6x30	2-4-2	PRESENCE	0.0	Ø1	QUADRUPOLE	STA. 87+17.73, 2.96' LT.
L-5	6x40x14	2-4-2	PRESENCE	10.0	Ø2	QUADRUPOLE	STA. 87+42.41, 29.97' LT.
L-6	6x30	2-4-2	PRESENCE	0.0	Ø2	QUADRUPOLE	STA. 87+61.92, 76.93' LT.
L-7	6x40x14	2-4-2	PRESENCE	10.0	Ø1	QUADRUPOLE	STA. 87+94.40, 22.73' LT.
L-8	6x30	2-4-2	PRESENCE	0.0	Ø1	QUADRUPOLE	STA. 88+10.95, 2.96' RT.



PREEMPT NOTES
 1. ACTIVE WALK INDICATIONS SHALL IMMEDIATELY GO TO "DON'T WALK" UPON RECEIVING PREEMPTION SIGNAL.
 2. IF PHASE ACTIVE CONFLICTS WITH PREEMPT PHASE CALLED, IT SHALL IMMEDIATELY TIME ITS YELLOW AND ALL RED CLEARANCES.
 3. IF ACTIVE PHASE = THE PREEMPT PHASE, THEN THE PHASE SHALL HOLD FOR THE DURATION OF THE PREEMPT SIGNAL.
 4. AFTER RELEASE FROM PREEMPT, YELLOW AND ALL RED CLEARANCES SHALL BE DISPLAYED AND RETURN PHASE SHALL BE Ø1.
 5. IF PREEMPT PHASE = RETURN PHASE Ø1, THEN YELLOW AND ALL RED CLEARANCE AFTER PREEMPT SHALL NOT BE DISPLAYED.



PROJ. NO: 454723
 SCALE: 1"=20'
 FILE NO: SP05
 DRAWN BY: DBN
 CHKD. BY: BJB

DATE ISSUED: 12/07/05
 REVISED:
 ADDENDA #1 3/6/06

SIGNALIZATION PLAN

MASSILLON RD/GREENSBURG RD INTERSECTION IMPROVEMENTS PART A - ROADWAY

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SHEET:
 102 of 124

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