

TRAFFIC SIGNAL IMPROVEMENTS KROGER AT BARKS ROAD MARION, OHIO

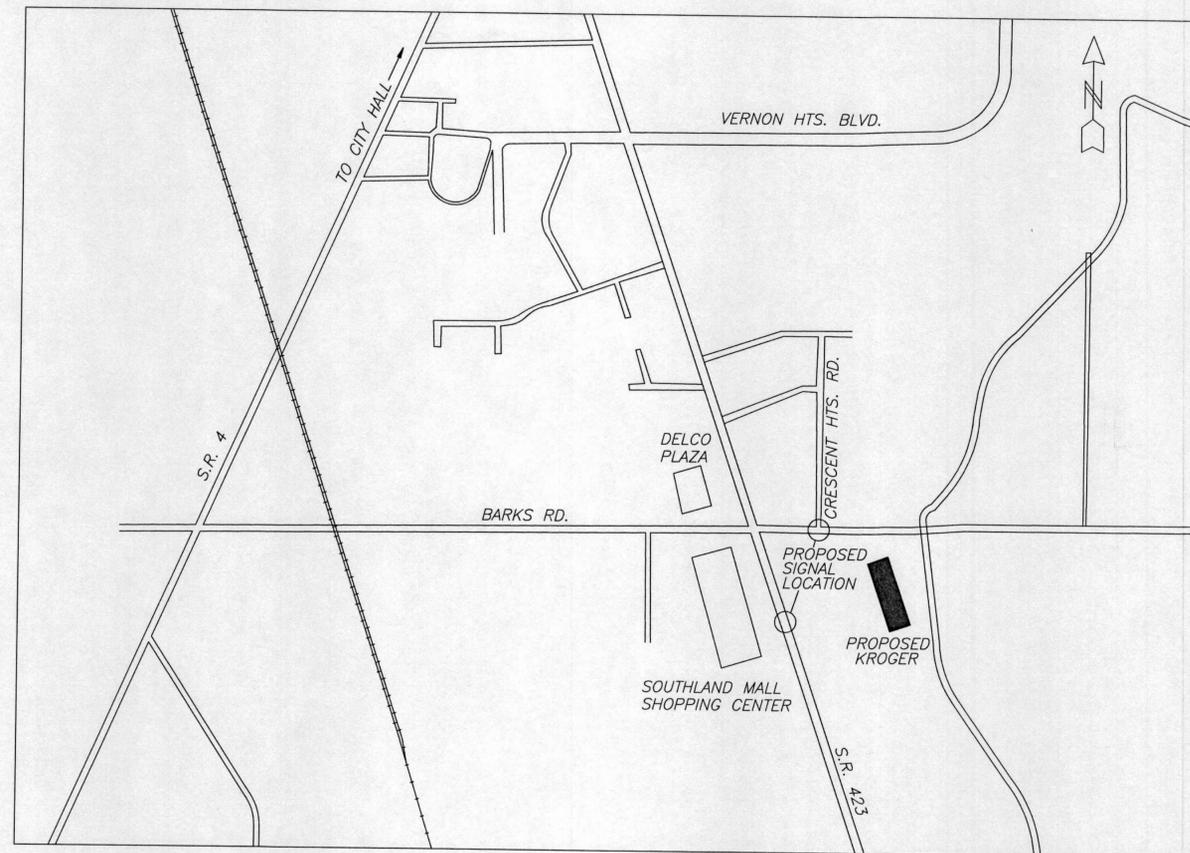
LEGEND:

- | | | | |
|-------|----------------|--------|-----------------------|
| —G— | GAS LINE | ☒ | EX. CONTROLLER |
| —T— | TELEPHONE LINE | ■ | PULL BOX |
| —STM— | STORM SEWER | ● | STRAIN POLE |
| —SAN— | SANITARY SEWER | ⊙ | CONTROLLER |
| —W— | WATER LINE | ⊞ | PEDESTRIAN SIGNAL |
| —E— | ELECTRIC LINE | ⊞ | 3 SECTION SIGNAL HEAD |
| ⊞ | POWER POLE | ⊞ | 5 SECTION SIGNAL HEAD |
| ⊞ | LIGHT POLE | —2" C— | CONDUIT |
| M.H. | MANHOLE | | |
| C.B. | CATCH BASIN | | |

INDEX OF SHEETS

TITLE PAGE	1
GENERAL SUMMARY	2
GENERAL NOTES	3
PAVEMENT MARKING PLANS	4
SIGNAL PLANS	5,6

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LOCATION MAP

1993 SPECIFICATIONS

The Standard Specifications of the State of Ohio Department of Transportation, including changes and supplemental specifications listed on the proposal shall govern this improvement.

Approved: *Jack P. Tozzer*
 Date: 8/12/94 Marion Co. Engineer

Approved: *M. Paul Vancland*
 Date: 8/16/94 Marion Co. Commissioner

Approved: *Ruth D. Kelley*
 Date: 8-16-94 Marion Co. Commissioner

Approved: *John W. Watkins*
 Date: 8/16/94 Marion Co. Commissioner

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

HL 30.11	5-1-87	TC-85.10	1-20-84	MT-105.10	7-1-92		
HL-30.22	5-1-87	TC-85.20	1-20-84	MT-105.11	7-1-92		
TC-21.20	9-1-92	LA-1	6-1-79	TC-41.10	8-29-84		
TC-22.10	9-1-92			TC-41.20	3-26-79		
TC-81.10	1-20-84			TC-52.10	4-3-79		
TC-81.20	1-20-84			TC-52.20	4-3-79		
TC-82.10	8-29-84			MT-95.31	10-10-88		
TC-83.10	3-18-92			MT-95.32	8-25-89		
TC-83.20	1-20-84			MT-97.10	4-29-88		
TC-84.20	1-20-84						

PREPARED BY:
 TRAFFIC ENGINEERING SERVICES INC.

Gerald L. Wilcox
 REGISTERED ENGINEER NO. 34357

8/11/94
 DATE

GENERAL

THE CONTRACTOR SHALL FURNISH AND INSTALL TRAFFIC SIGNAL EQUIPMENT, IN CONFORMANCE TO THESE PLANS AND SPECIFICATIONS, AND THE 1993 STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS AND ALL SUPPLEMENTAL SPECIFICATIONS. HE SHALL INSTALL ALL TRAFFIC SIGNAL EQUIPMENT IN CONFORMANCE TO THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS LATEST REVISION, AND IN CONFORMANCE TO THE OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF DESIGN SERVICE STANDARD CONSTRUCTION DRAWINGS.

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

THE STANDARD CONSTRUCTION DRAWINGS SHOWN ON THE COVER SHEET, SHALL APPLY. REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 861, 957, 958, AND 961 ON THE TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 633, 730, 731, AND 733.

ITEM 633, CONCRETE FOR ANCHOR BASE FOUNDATION, AS PER PLAN

THE 12" FOUNDATION HEIGHT AS SHOWN ON TC-83.20, CONTROLLER FOUNDATION, SHALL BE 4", AS SHOWN ON THE PLANS.

632 VEHICULAR SIGNAL HEAD, BY TYPE, AS PER PLAN

BALANCE ADJUSTERS, SHOWN ON TC-85.20 OF THE STANDARD CONSTRUCTION DRAWINGS SHALL NOT BE USED.

ALL WIRE ENTRANCES AND TWO WAY MOUNTING BRACKETS SHALL UTILIZE TRI-STUD TYPE HARDWARE TO MOUNT THE SIGNAL HEAD TO THE WIRE ENTRANCE OR TWO WAY MOUNTING BRACKET.

ADJUSTABLE SIGNAL HANGERS SHALL BE USED IN PLACE OF DROP PIPE TO MAINTAIN UNIFORM SIGNAL HEAD CLEARANCES WHEN REQUIRED. THE ADJUSTABLE SIGNAL HANGER SHALL UTILIZE TRI-STUD TYPE MOUNTING HARDWARE TO ATTACH THE SIGNAL HEAD TO THE HANGER.

THIS ITEM SHALL CONFORM TO ITEM 632 EXCEPT THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.

ALL SIGNAL HEADS SHALL UTILIZE TUNNEL VISORS WITH AN OPENING AT THE BOTTOM.

UNDERDRAINS FOR PULLBOXES

REFERENCE IS MADE TO STANDARD CONSTRUCTION DRAWINGS 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. AN ESTIMATED QUANTITY OF 500 LIN. FT. OF ITEM 603 4" CONDUIT TYPE E IS INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THE CONTRACT SHALL OPERATE SATISFACTORY FOR A PERIOD OF NINETY (90) DAYS FOLLOWING COMPLETION OF THE TEN DAY PERFORMANCE TEST. 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. MATERIAL AND LABOR COSTS INCURRED IN CORRECTING UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR. THE GUARANTEE SHALL COVER THE UNITS, MONITORS AND ASSOCIATED 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.

632 LOOP DETECTOR UNIT, BY TYPE, 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: THE OUTPUT DEVICE SHALL BE AN ELECTRO-MECHANICAL RELAY, AND ALL CONTACTS SHALL BE INCLUDED IN THE WIRING HARNESS. THE UNITS SHALL BE SELF-TUNING. ALL UNITS SHALL BE SINGLE CHANNEL DELAY AND EXTENSION TYPE.

POWER SERVICE, AS PER PLAN

ELECTRICAL POWER SHALL BE OBTAINED FROM OHIO EDISON POWER CO. AT THE LOCATION SHOWN ON THE PLANS. THE VOLTAGE SUPPLIED SHALL BE 120 VOLT AC. ALL NECESSARY WORK TO INSTALL AND COMPLETE AN OPERATING SYSTEM WILL BE INCLUDED IN THE VARIOUS ELECTRICAL BID ITEMS IN THIS CONTRACT.

CONTROLLER, ACTUATED, EIGHT PHASE, SOLID STATE DIGITAL MICROPROCESSOR, WITH INTERNAL TIME BASE COORDINATION, WITH BASE MOUNTED "P" CABINET, AS PER PLAN

THE OVERLAP PROGRAMMING SHALL BE BY USE OF AN INTERCHANGEABLE PLUG-IN CIRCUIT BOARD ASSEMBLY AS DESCRIBED IN PART 14 OF TR-1-1983. IN ADDITION TO NEMA REQUIREMENTS, THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING (IN ACCORDANCE WITH 733.04 PART 38 B).

TO ACCOMMODATE FUTURE OPERATIONAL UPGRADES, UP TO AND INCLUDING AN EIGHT (8) PHASE OPERATION, PROVIDE ALL WIRING AND COMPONENTS FOR THE CONFLICT MONITOR, FLASH TRANSFER RELAYS, AND LOAD SWITCHES SUCH THAT WHEN EXPANSION IS IMPLEMENTED, THE ONLY WORK REQUIRED WILL BE TO REPROGRAM THE CONFLICT MONITOR, HOOK UP THE SIGNAL HEADS AND DETECTORS, AND TO ACTIVATE THE ADDED PHASES ON THE CONTROLLER. A NEMA PLUS 12 CHANNEL MONITOR IS REQUIRED AS IS AN UNPAINTED TYPE "P" CABINET. THE NEW CABINET AND FOUNDATION SHALL BE ORIENTED WITH RESPECT TO THE INTERSECTION IN A MANNER THAT WILL PROVIDE MAINTENANCE PERSONNEL WITH A VIEW OF THE INTERSECTION WHILE WORKING ON THE CONTROLLER.

THE DESIGN OF THE MONITOR SHALL USE MICRO-PROCESSOR ARCHITECTURE AND LIQUID CRYSTAL DISPLAYS. THE MONITOR SHALL INDICATE THE EXACT LOAD SWITCH CHANNEL IN WHICH THE FAILURE OCCURRED. THE CONFLICT MONITOR SHALL HAVE AN EVENT LOGGING MEMORY. A MINIMUM OF NINE (9) EVENTS SHALL BE LOGGED. EXAMPLES OF EVENTS INCLUDE: POWER OUTAGES, CONFLICTS, CONTROLLER VOLTAGE MONITOR, ETC. EVENTS SHALL BE DISPLAYED ON THE CONFLICT MONITOR'S LIQUID CRYSTAL DISPLAY WHEN INTERROGATED.

PRINTED CIRCUIT BOARD TYPE BACK PANELS OF THE CONTROLLER CABINET WILL NOT BE ACCEPTED. SOLDERED CONNECTIONS WILL BE PERMITTED FOR WIRING ON THE BACK SIDE OF THE BACK PANEL. ALL CONTROLLER MEMORIES SHALL BE INVOLATILE AND SHALL NOT REQUIRE BATTERIES OR OTHER SOURCES OF ENERGY TO RETAIN DATA WHILE POWER IS REMOVED FROM THE CONTROLLER.

THE HOUSING SHALL HAVE AN ADD-ON GENERATOR POWER PANEL, WITH ENCLOSURE. THIS ITEM SHALL ALLOW SIGNAL ELECTRICIANS TO OPERATE THE TRAFFIC SIGNAL DURING POWER OUTAGES, WITHOUT OPENING THE CABINET DOOR OR CONNECTING OR DISCONNECTING PERMANENT POWER CABLES. THE ENCLOSURE SHALL BE INSTALLED ON THE SIDE OF THE CONTROLLER CABINET CLOSEST TO THE POWER INPUT PANEL. DESIGN AND LAYOUT OF THE CONTROLLER CABINET WILL DETERMINE EXACT PLACEMENT OF THE ENCLOSURE BUT IT SHOULD BE PLACED NEAR THE TOP OF GROUND MOUNTED CABINETS AND ABOUT 5 FEET FROM THE GROUND ON POLE MOUNTED CABINETS. DETAILS SHOWING THE ENCLOSURE, FRONT VIEW OF THE GENERATOR PANEL AND THE ELECTRICAL HOOK-UP ARE INCLUDED ON PAGE 11 OF THIS PLAN. THE ENCLOSURE SHALL BE SEALED WITH A HIGH QUALITY SILICON CAULK AND ALL HOLES DRILLED INTO THE SIDE OF THE CONTROLLER CABINET SHALL BE CAULKED AND SEALED AFTER THE ELECTRICAL EQUIPMENT IS INSTALLED. ALL ELECTRICAL CONNECTIONS, SOLDERED OR SCREW TYPE TERMINALS, INVOLVED IN THIS PAY ITEM SHALL BE COVERED WITH A CLEAR SILICON CAULK, AFTER ENSURING A GOOD CONNECTION EXCEPT THE FIELD CONNECTIONS AND GROUND TERMINALS. THIS IS TO REDUCE THE RISK OF ELECTRICAL SHOCK.

THE GENERATOR POWER PANEL ENCLOSURE CAN BE FABRICATED TO MEET THE ATTACHED SPECIFICATIONS OR IT CAN BE PURCHASED THROUGH GAMMATRONIX AT 6279 SHIER RINGS ROAD, DUBLIN, OHIO 43017. PHONE NUMBER 614-889-2511.

THE GENERATOR RECEPTACLE SHALL BE 30 AMP, LOCKING, FOUR WIRE GROUNDING AND MEET THE NEMA L14-30R 30A 125/250V SPECIFICATIONS.

THE LINE VOLTAGE GENERATOR SWITCH SHALL BE 17 AMP 125/250V AC, 1,2,3 PHASE, 1 HP AT 125V AC AND 2 HP AT 250V AC THREE POSITION. (McGILL OR EQUIVALENT).

THE LINE VOLTAGE INDICATOR LIGHT SHALL BE 125V AS WITH A RED LENS. (McGILL 0891-1413/RED) OR EQUIVALENT.

THE LINE VOLTAGE CIRCUIT BREAKER SHALL BE SINGLE POLE SINGLE THROW AND A MINIMUM OF 30 AMPS. THE AMPERAGE SHALL BE INCREASED TO ACCOMMODATE GREATER LOADS, IF NECESSARY. THE GAUGE OF THE POWER CABLE SHALL BE OF PROPER SIZE PER THE N.E.C.

PAYMENT FOR THE ITEM 633, CONTROLLER, ACTUATED, EIGHT PHASE, SOLID STATE DIGITAL, MICROPROCESSOR, WITH INTERNAL TIME BASE COORDINATION, WITH BASE MOUNTED CABINET, AS PER PLAN, WILL BE AT THE CONTRACT BID PRICE COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED ON ACCEPTED.

ITEM 614 STOP AND GO SIGNAL ACTUATION

THE NEW SIGNAL, INSTALLED BY THE CONTRACTOR, SHALL OPERATE IN A "FLASH" MODE FOR SEVEN CONSECUTIVE DAYS BEFORE BEING PLACED IN A "STOP-AND-GO" MODE FOR THE TEN DAY BURN TEST.

THE SIGNAL SHALL NOT BE PLACED IN "STOP-AND-GO" OPERATION EITHER THE DAY PRECEDING OR DURING:

- A) A NATIONAL HOLIDAY
- B) A HOLIDAY WEEKEND
- C) A WEEKEND

A DAY BETWEEN A NATIONAL HOLIDAY AND A SATURDAY OR SUNDAY IS CONSIDERED A PART OF THE WEEKEND (EX: THE FRIDAY AFTER THANKSGIVING IS CONSIDERED PART OF THE WEEKEND).

WITH THE EXCEPTION OF PERMANENT SUPPORTS AND SIGNAL AHEAD SIGNS INCLUDED AS BID ITEMS IN THE PLAN, THE COST OF ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS ITEM ARE INCLUDED IN ITEM 614 MAINTAINING TRAFFIC.

ITEM 614 MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

- A) 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, INCLUDING THE 10 DAY PERFORMANCE TEST.
- B) TESTING PROCEDURES SHALL FOLLOW 632.27.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE COUNTY 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, SEVEN DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

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 ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION 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 8 HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION, 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 COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE OWNER FOR POLICE SERVICES AND MAINTENANCE SERVICES BY COUNTY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 7 HOURS AND SHALL NOT INCLUDE THE HOURS OF 7:00 AM TO 9:00 AM TO 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 A SPECIAL DUTY UNIFORMED LAW ENFORCEMENT OFFICER, HIRED BY THE CONTRACTOR.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.24.

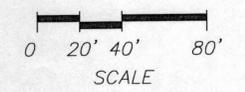
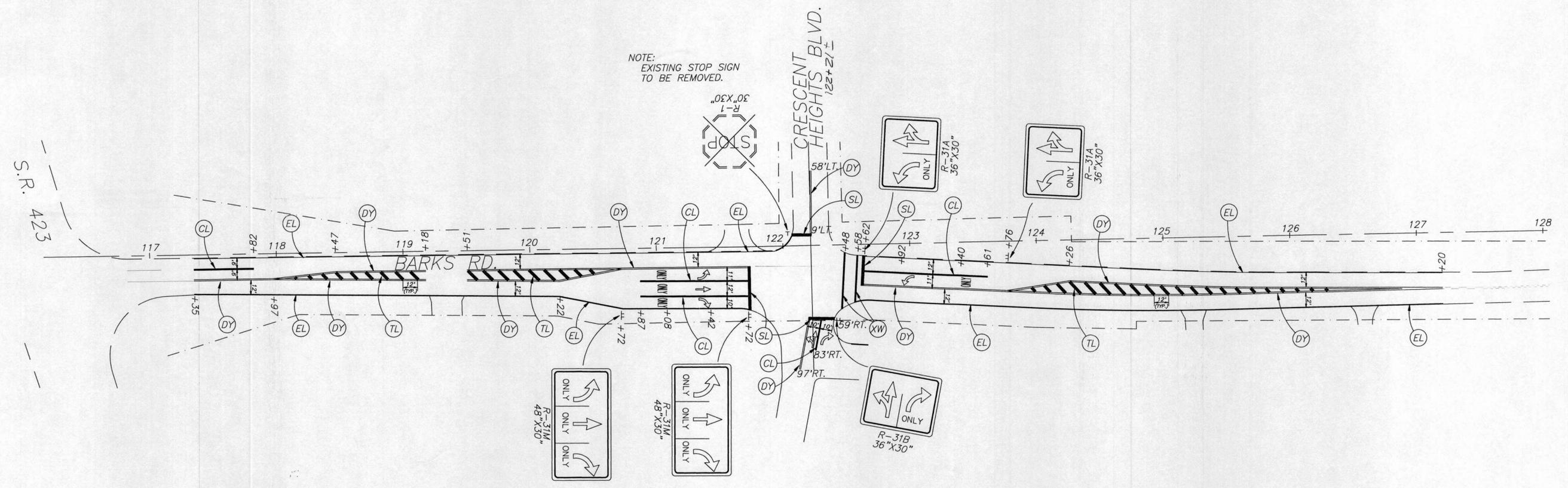
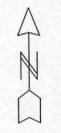
ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614. MAINTAINING TRAFFIC.

LEGEND

- EL - 4" EDGE LINE
- DY - 4" CENTER LINE
- CL - 8" CHANNELIZING LINE
- SL - 24" STOP LINE
- XW - 8" CROSSWALK LINE
- TL - 24" TRANSVERSE LINE

QUANTITIES

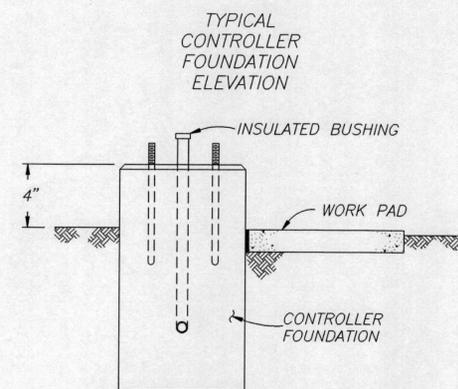
QUAN	ITEM	UNIT	DESCRIPTION
130	630	LIN. FT.	GROUND MOUNTED SUPPORTS, #3 POST
42.5	630	SQ. FT.	SIGN, FLAT SHEET, TYPE G
1	630	EACH	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE
0.38	644	MILE	EDGE LINE
0.31	644	MILE	CENTER LINE
294	644	LIN. FT.	CHANNELIZING LINE
97	644	LIN. FT.	STOP LINE
81	644	LIN. FT.	CROSSWALK LINE
294	644	LIN. FT.	TRANSVERSE LINE
6	644	EACH	LANE ARROW
4	644	EACH	WORD ON PAVEMENT, 72" INCH



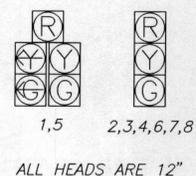
BARKS RD. PAVEMENT MARKING PLAN

LEGEND:

- W — WATER LINE
- G — GAS LINE
- SAN — SANITARY SEWER
- UGT — UNDERGROUND TELEPHONE CABLE
- OE — OVERHEAD ELECTRIC LINE
- L/A — LIMITED ACCESS FENCE
- C.B. — CATCH BASIN
- F.H. — FIRE HYDRANT
- POWER POLE
- CONTROLLER
- PULL BOX
- STRAIN POLE
- 2" C — CONDUIT
- 3 SECTION SIGNAL HEAD
- 5 SECTION SIGNAL HEAD
- PEDESTRIAN SIGNAL



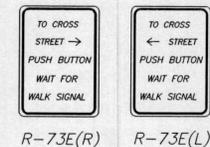
SIGNAL HEADS



PEDESTRIAN SIGNAL (TYPE D-2)

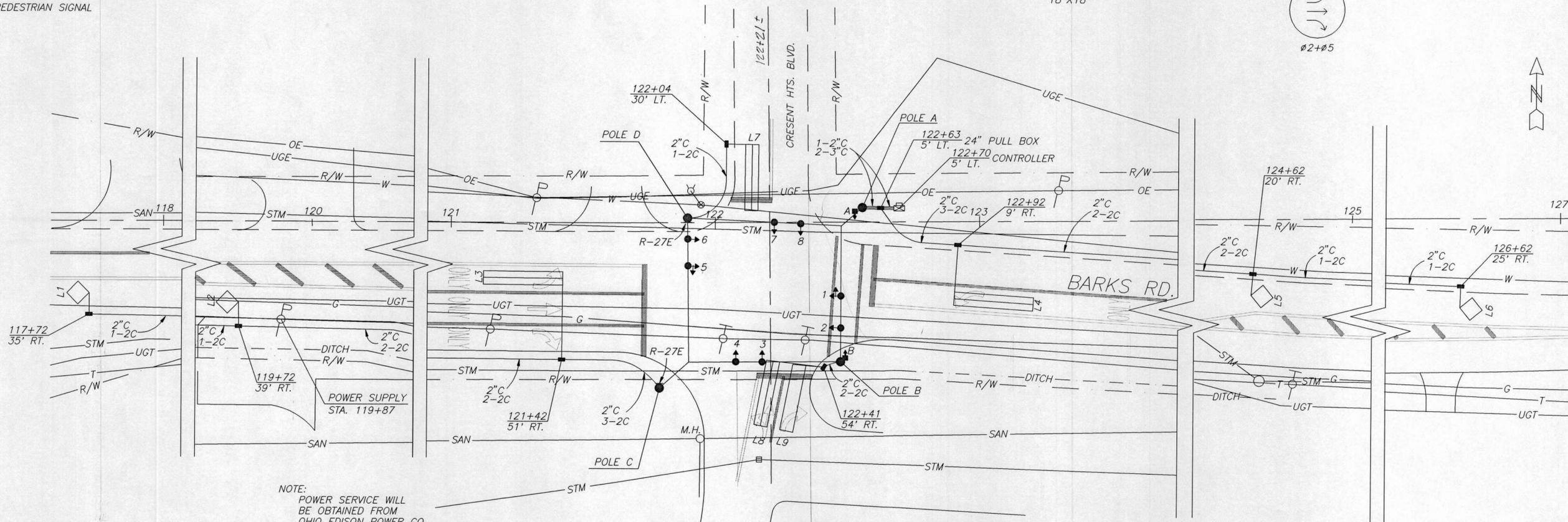
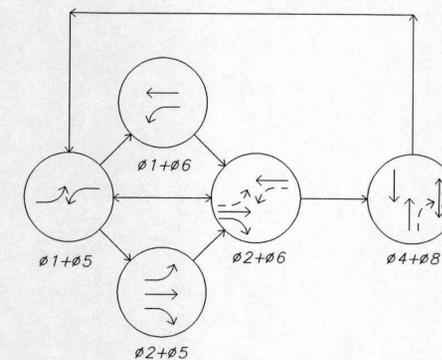


SIGN LEGEND



R-72E 18" X 18"

PHASING DIAGRAM



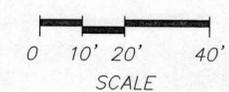
NOTE: POWER SERVICE WILL BE OBTAINED FROM OHIO EDISON POWER CO. AT THE LOCATION SHOWN ABOVE.

NOTE: THE CONTRACTOR SHALL INSTALL A METER BASE AT POLE C AND RUN THE POWER CABLE AERIALLY TO POLE B THEN POLE A AND TO THE CONTROLLER.

NOTE: PAVEMENT MARKINGS ARE SHOWN FOR CLARITY ONLY. FOR DETAILS SEE PAVEMENT MARKING PLAN.

SIGNAL TIMING CHART

PHASE (Φ)	1	2	4	5	6
MOVEMENT	WBLT	EB	N-S	EBLT	WB
MIN. GREEN	7	25	10	7	25
PASSAGE	3.7	3.0	3.7	3.7	3.0
MAX. 1	15	60	25	15	60
MAX. 2	15	60	25	15	60
YELLOW	3.0	4.7	3.0	3.0	4.7
ALL RED	2.0	1.1	2.0	1.8	1.1
WALK	-	-	7	-	-
PED. CLEAR	-	-	16	-	-
RECALL	MIN	MIN	OFF	OFF	MIN
MEMORY	ON	ON	OFF	OFF	ON



POLE ORIENTATION

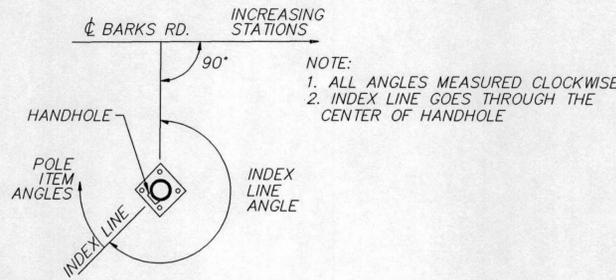
DETECTOR SCHEDULE

DETECTOR NUMBER	SIZE	TURNS	MODE	MEMORY	DELAY (SEC.)	UNIT	CHANNEL	PHASE
L1	6'X6'	3	PULSE	ON	-	1	1	2
L2	6'X6'	3	PULSE	ON	-	2	1	2
L3	2.5'X2.5'X30'	2-4-2	PRESENCE	OFF	-	3	1	5
L4	2.5'X2.5'X30'	2-4-2	PRESENCE	OFF	-	4	1	7
L5	6'X6'	3	PULSE	ON	-	5	1	6
L6	6'X6'	3	PULSE	ON	-	6	1	6
L7	2.5'X2.5'X30'	2-4-2	PRESENCE	OFF	-	7	1	4
L8	2.5'X2.5'X30'	2-4-2	PRESENCE	OFF	-	8	1	8
L9	5'X25'	2	PRESENCE	OFF	10	9	1	8

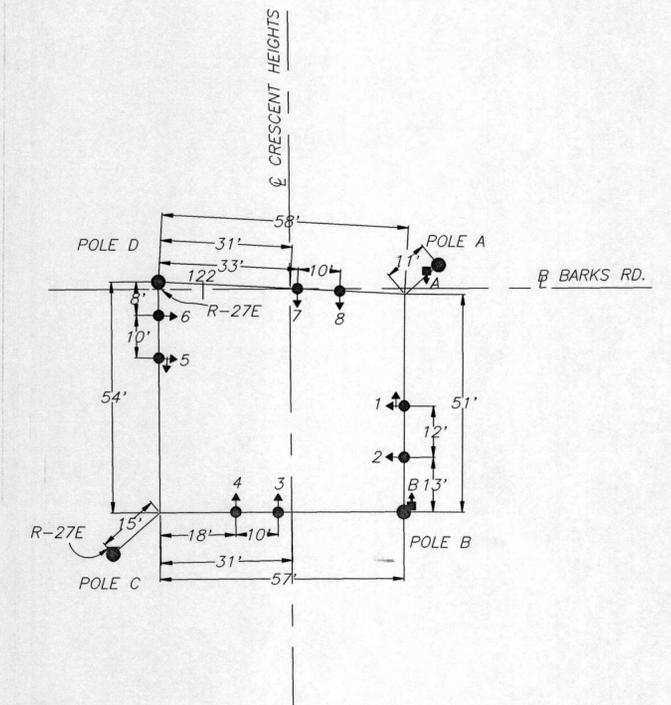
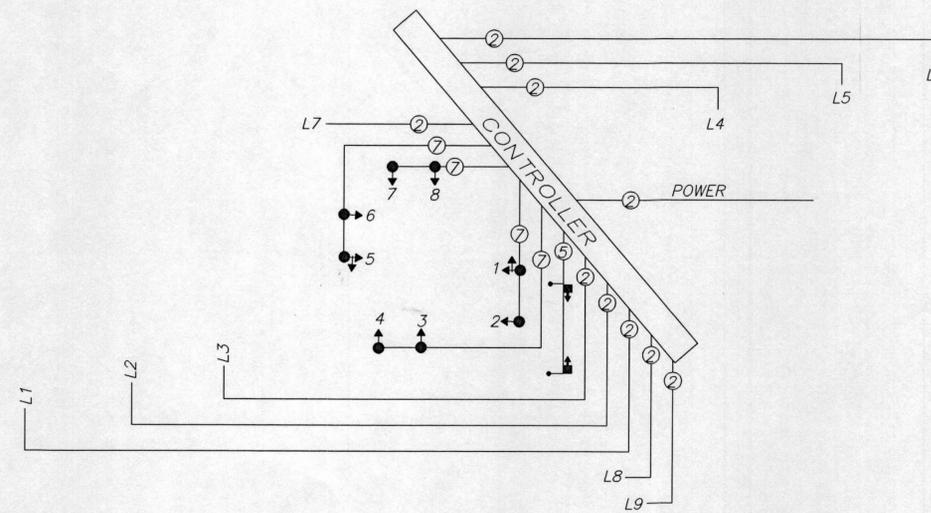
POLE	DESIGN NO.	STATION & OFFSET	POLE HEIGHT	INDEX ANGLE	PED SIGNALS	PED BUTTONS	POWER SERVICE	CABLE ENTRANCE	2" CAPPED CONDUIT ELL (FUTURE USE)	CONTROLLER
A	TC-81.10 DESIGN 5	122 +56, 5' LT.	28'	228°	222'	132'	-	180°	-	-
B	TC-81.10 DESIGN 5	122 +47, 52' RT.	28'	133°	317'	227'	-	180°	270°	-
C	TC-81.10 DESIGN 5	121 +79, 62' RT.	28'	228°	-	-	-	180°	270°	-
D	TC-81.10 DESIGN 5	121 +89, 2' LT.	28'	133°	-	-	-	180°	270°	-

SIGNAL DISPLAY

PHASE	MOVEMENT	INTERVAL	SIGNAL NO.								PED. SIGNAL		
			1	2	3	4	5	6	7	8	A	B	
1	↘	RW	R	R	R	R	R	R	R	R	R	DW	DW
+		C1	R	R	R	R	R	R	R	R	R	DW	DW
5	↘	C2	R	R	R	R	R	R	R	R	R	DW	DW
2		RW	G	G	R	R	R	R	R	R	R	DW	DW
+	↘	C1	G	G	R	R	R	R	R	R	R	DW	DW
5		C2	G	G	R	R	R	R	R	R	R	DW	DW
1	↙	RW	R	R	R	R	R	G	G	R	R	DW	DW
+		C1	R	R	R	R	R	G	G	R	R	DW	DW
6	↙	C2	R	R	R	R	G	G	R	R	R	DW	DW
2		RW	G	G	R	R	G	G	R	R	R	DW	DW
+	↙	C1	Y	Y	R	R	Y	Y	R	R	R	DW	DW
6		C2	R	R	R	R	R	R	R	R	R	DW	DW
4	↙	RW	R	R	G	G	R	R	G	G	W	W	W
+		C1	R	R	G	G	R	R	G	G	W	W	W
8	↙	C2	R	R	Y	Y	R	R	Y	Y	DW	DW	DW
		C3	R	R	R	R	R	R	R	R	R	DW	DW
	FLASH		Y	Y	R	R	Y	Y	R	R	OFF	OFF	OFF



WIRING DIAGRAM



QUAN.	ITEM	UNIT	DESCRIPTION
872	625	LIN. FT.	CONDUIT, 2", 713.04
28	625	LIN. FT.	CONDUIT, 3", 713.04
872	625	LIN. FT.	TRENCH
8	625	EACH	PULL BOX, 713.08, 18"
1	625	EACH	PULL BOX, 713.08, 24"
5	625	EACH	GROUND ROD
6	632	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 12" LENS, 1 WAY, AS PER PLAN
2	632	EACH	VEHICULAR SIGNAL HEAD, 5 SECTION, 12" LENS, 1 WAY, AS PER PLAN
2	632	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D-2
8	632	EACH	COVERING OF VEHICULAR SIGNAL HEAD
2	632	EACH	PEDESTRIAN PUSHBUTTON
9	632	EACH	LOOP DETECTOR UNIT, AS PER PLAN
613	632	LIN. FT.	LOOP DETECTOR PAVEMENT CUTTING
246	632	LIN. FT.	MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH ACCESSORIES
180	632	LIN. FT.	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG
569	632	LIN. FT.	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
1674	632	LIN. FT.	LOOP DETECTOR WIRE, TYPE E
2671	632	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE
231	632	LIN. FT.	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG
233	632	LIN. FT.	SERVICE CABLE, 2 CONDUCTOR, NO. 8 AWG
1	632	EACH	POWER SERVICE
4	632	EACH	CABLE SUPPORT ASSEMBLY
9.6	632	CU YD	CONCRETE FOR ANCHOR BASE FOUNDATION
4	632	EACH	STRAIN POLE, TYPE TC-81.10 DESIGN 5
1	633	EACH	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICRO PROCESSOR WITH INTERNAL TIME BASE COORDINATION, WITH BASE MOUNTED "P" CABINET, AS PER PLAN
1.54	633	CU. YD.	CONCRETE FOR CABINET FOUNDATION, AS PER PLAN
10.42	633	SQ. FT.	CONTROLLER WORK PAD
4.5	630	SQ. FT.	SIGN, FLAT SHEET, TYPE G
2	630	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED