FHWA REGION NO	STATE	FED. AID PROJ. NO	SHEET NO.	TOTAL SHEETS
3	MD.	STPG-218-1(7)E	50	66

PHASING DIAGRAM

	1	2	3	4	5	6	7	8	9	10
PHASE 2+6	G	G	G	G	R	R	W	W	DW	DW
2+6 PED CLEAR	G	G	G	G	R	R	FL DW	FL DW	DW	DW
2+6 CHANGE	Y	Y	Y	Y	R	R	DW	DW	DW	DW
PHASE 4	R	R	R	R	G	G	DW	DW	W	W
4 PED CLEAR	R	R	R	R	G	G	DW	DW	FL DW	FL DW
4 CHANGE	R	R	R	R	Y	Y	DW	DW	DW	DW
PRE-EMPTION A	R	R	R	R	G	G	DW	DW	DW	DW
A CHANGE	R	R	R	R	Y	Y	DW	DW	DW	DW
FLASHING OPERATION	FL Y	FL Y	FL Y	FL Y	FL R	FL R	DARK	DARK	DARK	DARK

WEST NORTH AVENUE IS ASSUMED TO RUN IN AN EAST-WEST DIRECTION.

SIGNALS

1,2,3, 4,5,6 — R Y G — 12"

7,8, 9,10 — 12"

→ – OPTICAL PRE-EMPTION DETECTOR EYE

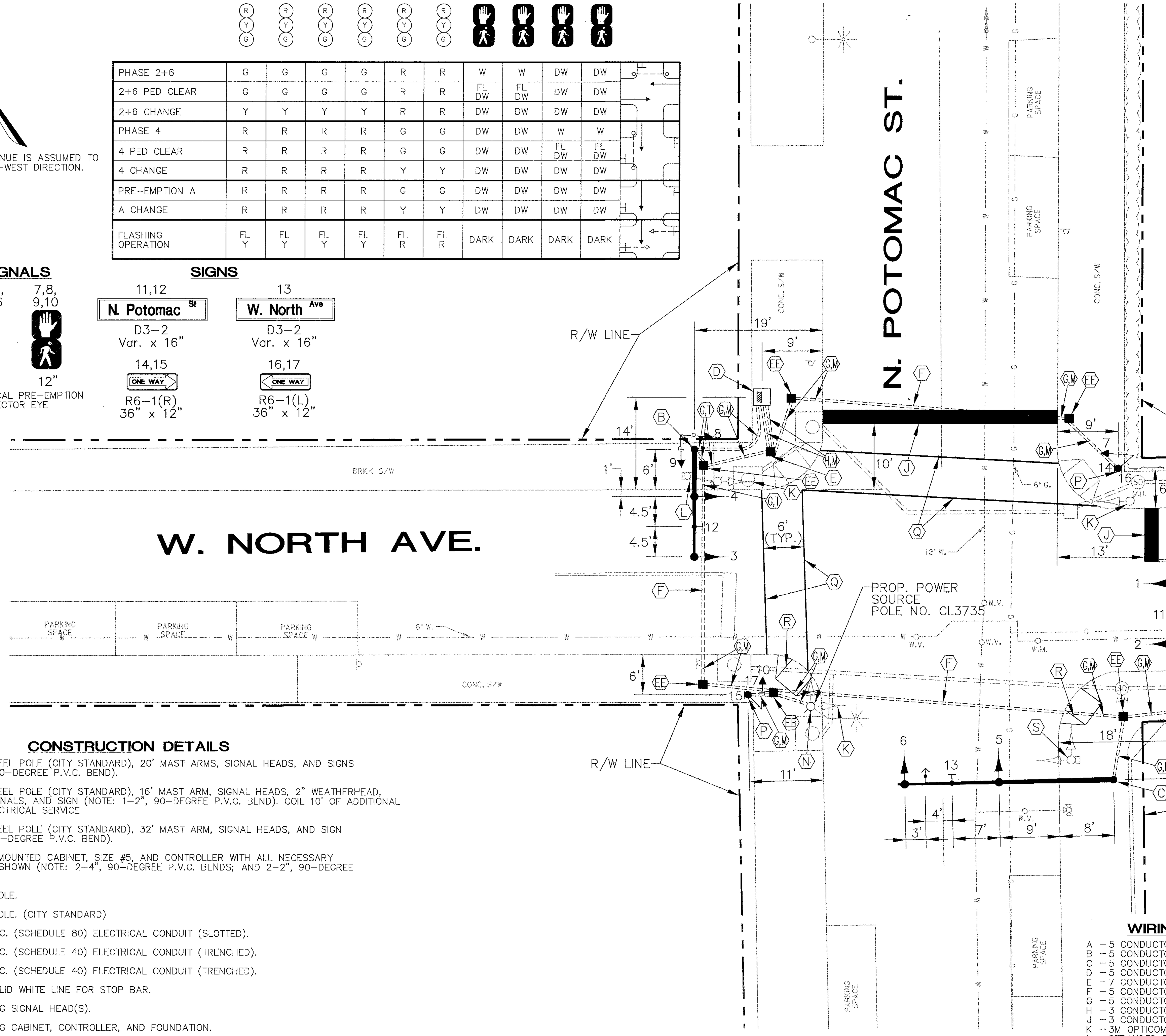
SIGNS

11,12 — N. Potomac St — D3-2 Var. x 16"

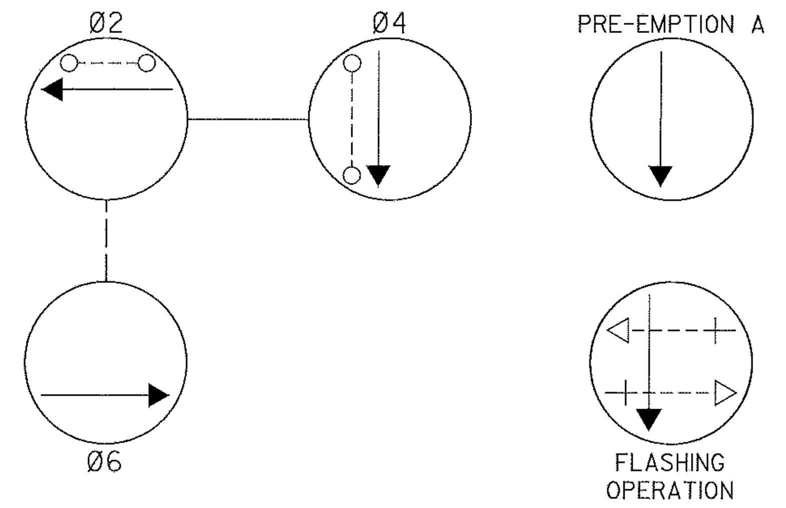
13 — W. North Ave — D3-2 Var. x 16"

14,15 — ONE WAY — R6-1(R) 36" x 12"

16,17 — ONE WAY — R6-1(L) 36" x 12"



NEMA PHASING



PHASING NOTES:

1. PHASES ASSOCIATED BY A SOLID LINE WILL NOT OPERATE CONCURRENTLY
2. PHASES ASSOCIATED BY A DASHED LINE WILL OPERATE CONCURRENTLY

EQUIPMENT LISTS

A. EQUIPMENT TO BE SUPPLIED BY THE SHA.

ITEM NO.	QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
9003	1	EA	SP	BASE MOUNTED LOCAL CABINET (SIZE 5) LESS DETECTION EQUIPMENT WITH 8 PHASE ASC II CONTROLLER WITH TELEMETRY AND OPTICOM PRE-EMPTION MODULE
9006/9007	44	SF	813	FLAT SHEET ALUMINUM SIGNS CONSISTING OF: – 2 EACH R6-1L (36" X 12")-POLE MOUNT – 2 EACH R6-1R (36" X 12")-POLE MOUNT – 2 EACH D3-2 (N. Potomac St) (VAR." X 16")-MAST ARM MOUNT – 1 EACH D3-2 (W. North Ave) (VAR." X 16")-MAST ARM MOUNT

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR.

QUANTITY	UNIT	SPECIFICATION SECTION	DESCRIPTION
5	CY	205	TEST PIT EXCAVATION
12	CY	206	REMOVAL OF EXISTING SIDEWALK
150	LF	SP 555	12 INCH WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE
50	LF	SP 555	24 INCH WHITE PERMANENT PREFORMED PAVEMENT MARKING TAPE
900	SF	610	4 INCH CONCRETE SIDEWALK
50	SF	SP	REMOVE AND REPLACE EXISTING BRICK SIDEWALK
1	EA	816	INSTALL CONTROLLER AND CABINET-BASE MOUNT
44	SF	813	INSTALL OVERHEAD SIGN
6	EA	SP	FURNISH AND INSTALL 12 INCH 1 WAY 3 SECTION (R, Y, G) SIGNAL HEAD HAVING PROPER ADJUSTABLE MAST ARM BRACKET, AND TUNNEL VISORS-PAINTED BLACK
2	EA	SP	FURNISH AND INSTALL 12 INCH 1 WAY 2 SECTION PEDESTRIAN SIGNAL HEAD-PEDESTAL TOP MOUNT-PAINTED BLACK
1	EA	SP	FURNISH AND INSTALL 12 INCH 2 WAY 2 SECTION PEDESTRIAN SIGNAL HEAD-SIDE POLE MOUNT-PAINTED BLACK
1	EA	SP	FURNISH AND INSTALL OPTICOM DETECTOR EYE-MODEL 521
1	EA	811	FURNISH AND INSTALL ELECTRICAL HANDHOLE
6	EA	SP	FURNISH AND INSTALL ELECTRICAL HANDHOLE (CITY STANDARD)
11	CY	801	FURNISH AND INSTALL CONCRETE FOR SIGNAL FOUNDATION
1	EA	805	FURNISH AND INSTALL 2" WEATHERHEAD
30	LF	805	FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT-RISER
125	LF	805	FURNISH AND INSTALL 2" SCHEDULE 40 RIGID PVC CONDUIT-TRENCHED
25	LF	805	FURNISH AND INSTALL 4" SCHEDULE 40 RIGID PVC CONDUIT-TRENCHED
110	LF	805	FURNISH AND INSTALL 2" SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED
1	EA	807	FURNISH AND INSTALL CONTROL AND DISTRIBUTION EQUIPMENT
3	EA	SP	FURNISH AND INSTALL 23-FOOT STEEL POLE WITH A SINGLE 36-FOOT MAST ARM (CITY STANDARD)-PAINTED GREEEN
3	EA	SP	CUT, CLEAN AND CAP TRAFFIC SIGNAL STRUCTURE
1	EA	SP	AS-BUILT FOR TRAFFIC SIGNAL
5	EA	804	FURNISH AND INSTALL GROUND ROD-3/4 INCH DIAMETER X 10-FOOT LENGTH
275	LF	810	FURNISH AND INSTALL NO. 6 AWG STRANDED BARE COPPER GROUND WIRE
200	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-1 CONDUCTOR (NO. 4 AWG – THHN/THWN)
200	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-3 CONDUCTOR (NO 14 AWG)
500	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-5 CONDUCTOR (NO 14 AWG)
100	LF	810	FURNISH AND INSTALL ELECTRICAL CABLE-7 CONDUCTOR (NO 14 AWG)
2	EA	SP	FURNISH AND INSTALL 10-FOOT BREAKAWAY PEDESTAL POLE-PAINTED GREEN
200	LF	810	FURNISH AND INSTALL OPTICOM M-138 DETECTOR CABLE
1	EA	SP	REMOVE AND DISPOSE OF EXISTING FOUNDATION 12" BELOW GRADE
1	LS	SP	DELIVERY OF SALVAGED EQUIPMENT
1	LS	SP	REMOVE AND DISPOSE OF EXISTING EQUIPMENT
1	LS	SP	REMOVAL OF EXISTING SIGNAL EQUIPMENT TO BE SALVAGED

NOTE: ALL EQUIPMENT AND/OR MATERIALS TO BE REMOVED BY THE CONTRACTOR, BUT NOT LISTED BELOW, SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

QUANTITY	UNIT	DESCRIPTION
1	EA	CONTROLLER AND CABINET
1	EA	PEDESTAL POLE AND BASE

CONSTRUCTION DETAILS

- (A) INSTALL 23' STEEL POLE (CITY STANDARD), 20' MAST ARMS, SIGNAL HEADS, AND SIGNS (NOTE: 1-2", 90-DEGREE P.V.C. BEND).
- (B) INSTALL 23' STEEL POLE (CITY STANDARD), 16' MAST ARM, SIGNAL HEADS, 2" WEATHERHEAD, PEDESTRIAN SIGNALS, AND SIGN (NOTE: 1-2", 90-DEGREE P.V.C. BEND). COIL 10' OF ADDITIONAL CABLE FOR ELECTRICAL SERVICE
- (C) INSTALL 23' STEEL POLE (CITY STANDARD), 32' MAST ARM, SIGNAL HEADS, AND SIGN (NOTE 1-2", 90-DEGREE P.V.C. BEND).
- (D) INSTALL BASE-MOUNTED CABINET, SIZE #5, AND CONTROLLER WITH ALL NECESSARY EQUIPMENT AS SHOWN (NOTE: 2-4", 90-DEGREE P.V.C. BENDS; AND 2-2", 90-DEGREE P.V.C. BENDS).
- (E) INSTALL HANDHOLE.
- (EE) INSTALL HANDHOLE. (CITY STANDARD)
- (F) INSTALL 2" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT (SLOTTED).
- (G) INSTALL 2" P.V.C. (SCHEDULE 40) ELECTRICAL CONDUIT (TRENCHED).
- (H) INSTALL 4" P.V.C. (SCHEDULE 40) ELECTRICAL CONDUIT (TRENCHED).
- (J) INSTALL 24" SOLID WHITE LINE FOR STOP BAR.
- (K) REMOVE EXISTING SIGNAL HEAD(S).
- (L) REMOVE EXISTING CABINET, CONTROLLER, AND FOUNDATION.
- (M) REMOVE AND REPLACE EXISTING CONCRETE SIDEWALK.
- (N) INSTALL 2" P.V.C. (SCHEDULE 80) ELECTRICAL CONDUIT – RISER AND 2" WEATHERHEAD.
- (P) INSTALL 10' PEDESTAL POLE, PEDESTRIAN SIGNAL, AND SIGNS (NOTE: 1-2", 90-DEGREE P.V.C. BEND).
- (Q) INSTALL 12" SOLID WHITE LINE FOR CROSSWALK.
- (R) CONSTRUCT SIDEWALK RAMP.
- (S) REMOVE EXISTING POLE AND SIGNAL HEADS.
- (T) REMOVE AND REPLACE EXISTING BRICK SIDEWALK.

UTILITY LEGEND

—— G —— G ——	GAS MAIN
—— W —— W ——	WATER MAIN
—— S —— S ——	SEWER MAIN
==========	STORM DRAIN
—— TV —— TV ——	CABLE TELEVISION
—— E —— E ——	ELECTRIC CABLES
—— T —— T ——	TELEPHONE CABLES
—— A —— A ——	AERIAL CABLES

INTERSECTION DESCRIPTION

I. GENERAL

THIS INTERSECTION IS NORTH POTOMAC STREET AND WEST NORTH AVENUE. CONSTRUCTION OF THIS INTERSECTION INVOLVES THE RECONSTRUCTION OF THE EXISTING TRAFFIC SIGNAL AND INTERCONNECTION WITH THE OTHER SIGNALIZED INTERSECTION IN THE NEW CITY-WIDE SYSTEM. IT IS ASSUMED THAT WEST NORTH AVENUE RUNS IN AS EAST-WEST DIRECTION.

II. INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA THREE (3) PHAASE PRE-TIMED MODE. EASTBOUND AND WESTBOUND WEST NORTH AVENUE WILL OPERATE CONCURRENTLY. NORTH SOUTHBOUND POTOMAC STREET WILL OPERATE SEPERATLY.

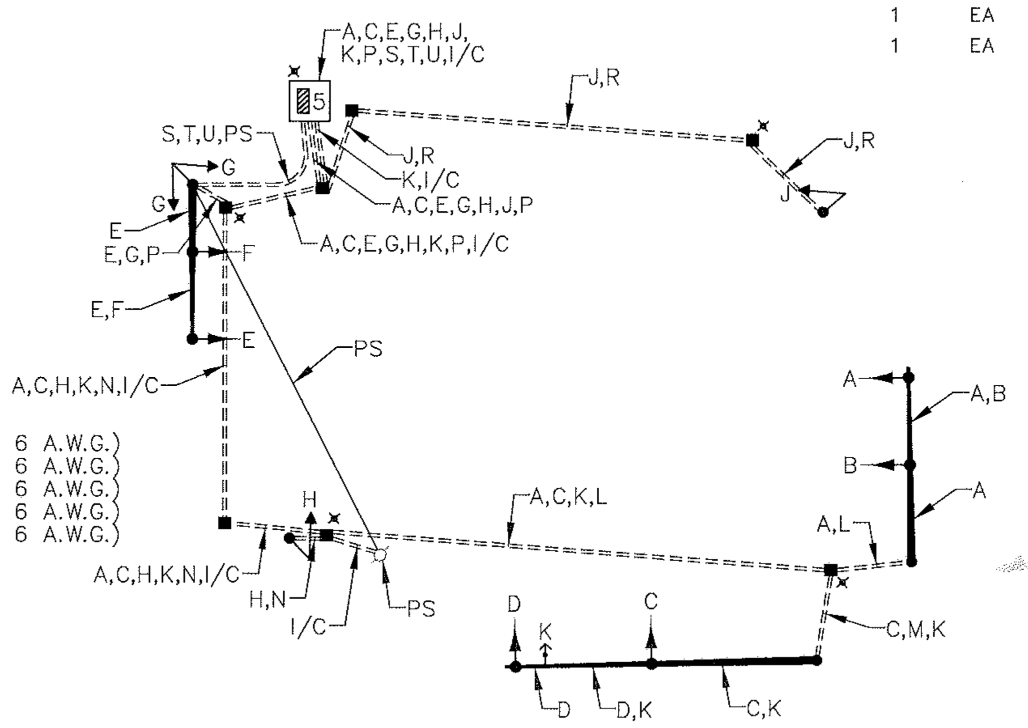
PRE-EMPTION ON SOUTHBOUND NORTH POTOMAC STREET WILL CALL PRE-EMPTION A.

A NEW EIGHT PHASE FULLY ACTUATED CONTROLLER WITH TELEMETRY MODULE AND PRE-EMPTION HOUSED IN A GROUND MOUNTED CABINET WILL BE INSTALLED.

WIRING LEGEND

- A – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
- B – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
- C – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
- D – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
- E – 7 CONDUCTOR CABLE (NO. 14 A.W.G.)
- F – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
- G – 5 CONDUCTOR CABLE (NO. 14 A.W.G.)
- H – 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
- J – 3 CONDUCTOR CABLE (NO. 14 A.W.G.)
- K – 3M OPTICOM DETECTOR CABLE, MODEL 138
- L – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- M – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- N – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- P – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- R – STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- S – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
- T – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
- U – 1 CONDUCTOR CABLE (NO. 4 A.W.G.)
- × – 3/4"x10' GROUND ROD
- PS – PROPOSED ELECTRICAL SERVICE
- I/C – INTERCONNECT CABLE

WIRING DIAGRAM



CITY OF HAGERSTOWN, MARYLAND ENGINEERING DEPARTMENT			
LOCATION: West North Ave. at North Potomac St.			
TITLE: TRAFFIC SIGNAL UPGRADE			
DRAWN BY	A.W. (BASE PLAN)	DATE	8-96
SURVEY BY	A.J.B.	DATE	7-96
SCALES	HORIZONTAL: 1" = 10'	VERTICAL: –	
APPROVED		FILE NUMBER	
DATE ____ BY ____ CITY ENGINEER		67-054-15	

REVISIONS	APPROVALS
	CHIEF, SIGNAL DESIGN SECTION
	ASST. DISTRICT ENGINEER, TRAFFIC
	CHIEF, TRAFFIC ENGINEERING DESIGN DIVISION
	DIRECTOR, OFFICE OF TRAFFIC & SAFETY

A/E GROUP, INC.
ENGINEERS • PLANNERS
181 E. Main Street
Westminster, Maryland 21158
A/E Job No. 96-317

MDOT – STATE HIGHWAY ADMINISTRATION
Office of Traffic & Safety
TRAFFIC ENGINEERING DESIGN DIVISION LOG MI. 21POT00.35

DRAWN BY: M. GESELL
DES. BY: J. LAWRENCE
CHK. BY:

North Potomac St. at West North Ave.

COUNTY: WASHINGTON

DATE: 05/30/97
SCALE: 1" = 10'

F.A.P. NO. STPG-218-1(7)E
S.H.A. NO. WA9535185
CITY NO. 07-243-332

TS NO. 3704

SHEET NO. 50 OF 66