

REQUIRED CONSTRUCTION

1. Install new signal head # 1, #3, #7
2. Re-activate the detector loop labelled as "FOR FUTURE USE".
3. ~~Construct new bituminous curb and paving~~
4. Provide necessary re-wiring for the Left turn phases
5. Install sign R1-2c
6. ~~Install new pavement markings~~
7. Remove and salvage existing signal heads

GEOMETRIC IMPROVEMENT

1. New bituminous curb are to be installed in accordance to standard detail R3.03 of Volume IV design manual.
2. New paving section are to be section P-5 of Vol IV design Manual

GENERAL NOTES

1. All highway marking and signing shall be the responsibility of the Division of Traffic Engineering of the Bureau of Engineering, Department of Public Works, Howard County, Maryland, and is not to be considered a part of this contract.
2. The utilities shown on the construction plan are schematic only and are not to be considered complete. The contractor shall be responsible for notifying all utility companies prior to construction so that all utilities can be located in the field. The contractor shall locate existing utilities a minimum of two (2) weeks in advance of the construction operations in the vicinity of the utilities. Any damage incurred by the contractor shall be repaired immediately at the contractor's expense. See Section 4.09 of the General Specifications. Contractor shall notify the following utilities or agencies at least five (5) days before starting work shown on these plans:
 - Miss Utility (Collect) 1-559-0100
 - Baltimore Gas & Electric Company - Underground Electric Distribution Engineering "Damage Control" 234-5691
 - Baltimore Gas & Electric Company - Underground Gas Distribution Engineering "Damage Control" 234-5533
 - Chesapeake and Potomac Telephone Company - 752-9976
 - Traffic Division - 992-2072
 - Howard County Cable T.V. - 461-1156
3. Construction shall be completed in accordance with Howard County Standard Specifications and Details for Construction Design Manual, Volume IV.
4. All disturbed areas shall be properly restored in accordance with Section 4.20 of the "GENERAL SPECIFICATIONS FOR INSTALLATION OF EQUIPMENT FOR TRAFFIC SIGNALS FOR HOWARD COUNTY - DEPARTMENT OF PUBLIC WORKS" dated October 7, 1974; revised February 18, 1976.
4. All new signal heads shall be securely wrapped and/or bagged in burlap, prior to signal being placed in service.

CONTROLLER AND ACCESSORIES (EXISTING)

1. NEMA eight phase modular controller with solid state circuitry and digital timing, similar to the (Econolite RMC 8000 Series Digital Controller unit), and one 2017L flasher module.
 - a. Equipped with time base coordination unit. - KMC 803
 - b. Equipped with two (2) vehicular actuated modules.
 - c. Equipped with one (1) vehicular actuated module with volume density controls.
 - d. Vehicular actuated phase modules shall be capable of the following functions: Minimum Green, Passage Time, Yellow, All Red Clearance, Dual Maximum, Pedestrian Timing, Recall and Memory.
 - e. Vehicular actuated phase module with volume density controls shall be capable of the following functions: Minimum Green, Passage Time, Yellow, All Red Clearance, Dual Maximum, Pedestrian Timing, Seconds per Actuation, Time to Reduce, Time Before Reduction, Minimum Gap, Recall and Memory.
 - f. Four phase signal overlap capability.
2. Conflict Monitor for all phases and Solid State load switches fully wired in cabinet. Econolite NSM12L and 4 Tsc Model 300 Load Switches
3. Ground mounted traffic controller cabinet large enough to accommodate the above control equipment and detectors. The cabinet is furnished with a thermostatically controlled cabinet vent fan.
4. Finish of the cabinet is all weather bronze paint.
5. The controller equipped wired with eight loop detector amplifiers (delay output type) and harnesses. 235-T Detector amplifiers
6. Meter box is installed in vandal proof enclosure, provided by the contractor.
7. All phases shall be skippable.

UNDERGROUND WIRING

1. Underground wiring shall be placed in new galvanized conduits pushed under the road surface. P.V.C. electrical conduit in grass median shall be trenched as specified and shown on the Contract Drawings.
2. The Contractor shall furnish an "as-built" drawing, as per "General Specifications 4.02b".

LOOPS AND DETECTORS

1. The following new loops had been installed:

Phase	Dimensions	No. of Loops Required
A	6' x 30'	1
B	6' x 18' & 6' x 6'	2
C	6' x 30'	4
(Future)	6' x 30'	1

2. All wiring shall be in accordance with manufacturer's recommendations for correct operation.
3. Phase A and C loop detectors shall operate in presence mode. Phase B loops shall operate by (extension) point detection.
4. Detector for "future" phase had been installed as shown on plans; however, this detector will not be in operation until a later date.
5. Detector amplifiers shall be Sarasota 235-T or equivalent manufactured by Econolite Control Products, Inc., Crouse-Hinds, or approved equal.

SIGNAL HEADS

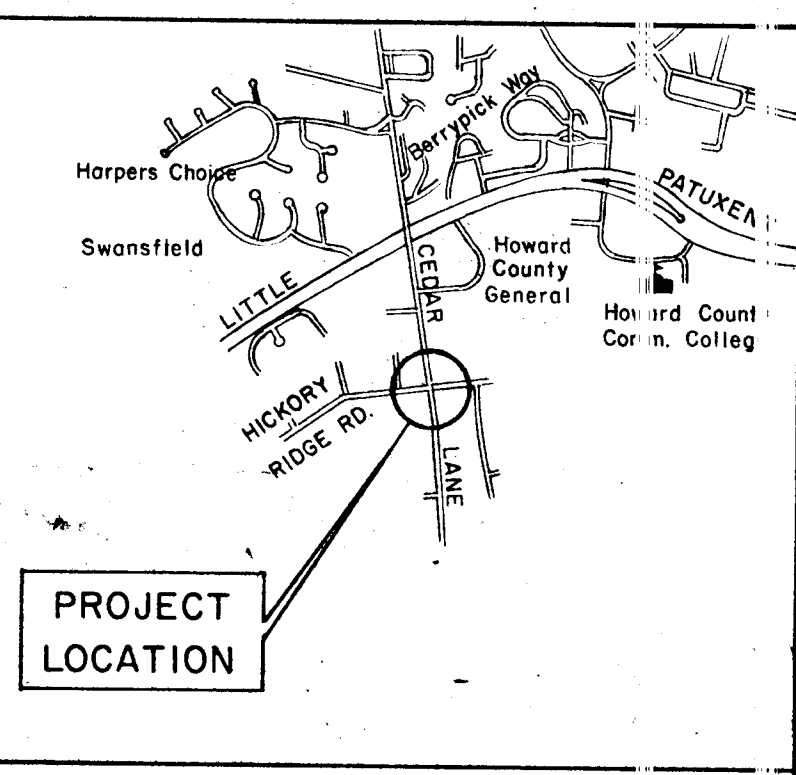
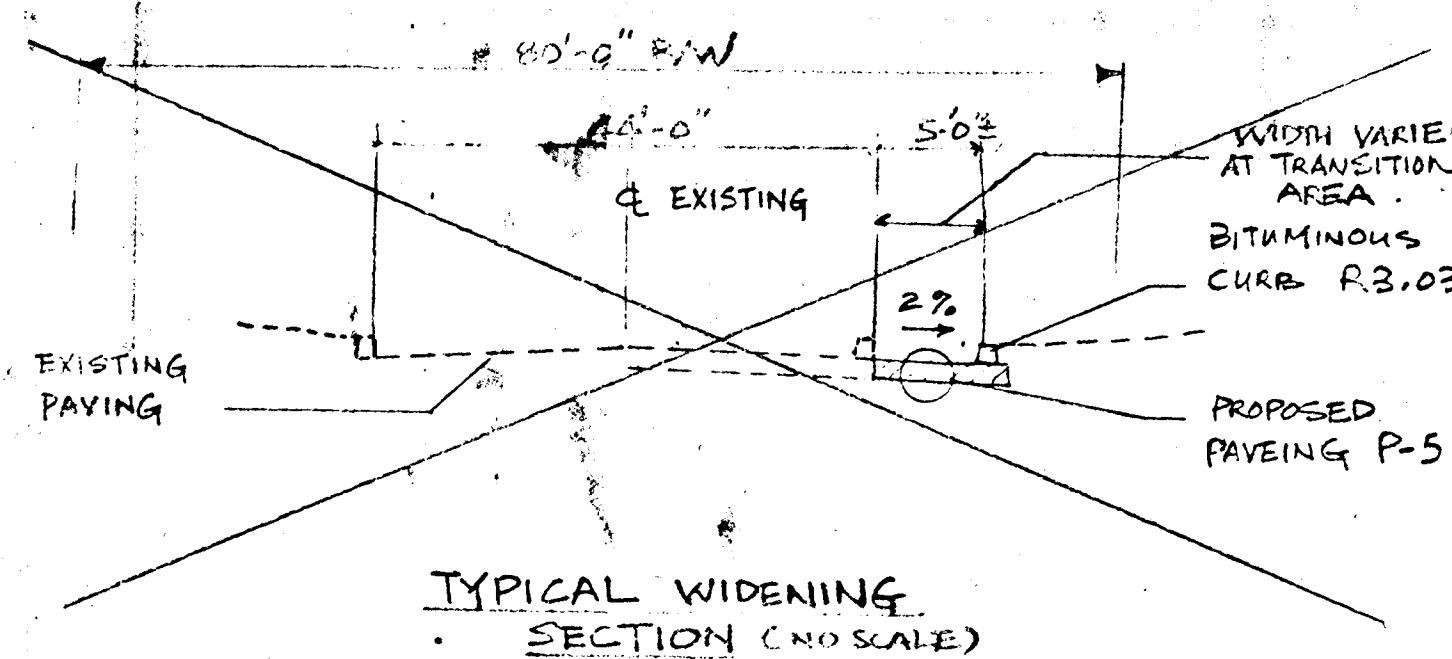
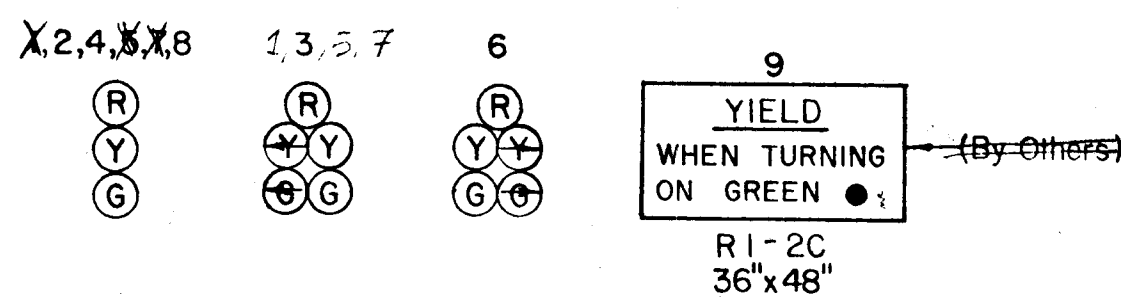
1. The Contractor shall provide the following signal heads:

Signal Number	Description
#1, 2, 4, 5, 7, 8	1-way, 3 section 12" signal, having red, yellow and green indications with tunnel visors and proper adjustable mounting brackets for mast arm installation.
#1, 5, 7	1 way, 5 section 12" signal, having red, yellow, green, yellow arrow and green arrow indications with tunnel visors and proper adjustable rigid mounting brackets for mast arm installation.

POLES (EXISTING)

1. Four (4) single arm support poles, pole height 21', "T" dimension 18.5'.
2. Style and appearance shall be equivalent to Union Metal Design No. 50700. Finish shall be bronze paint.
3. Pole Number Description
 - 1 36' arm will support two (2) signal heads and one (1) sign.
 - 2 38' arm will support two (2) signal heads.
 - 3 40' arm will support two (2) signal heads.
 - 4 40' arm will support two (2) signal heads.
5. Signals shall be mounted on the mast arms so that the bottom of the signal head housing is not less than 15 feet nor more than 19 feet clearance above the roadway when using a rigid mounting, "ASTRO-BRAC" type adjustable signal bracket.

12" SIGNALS

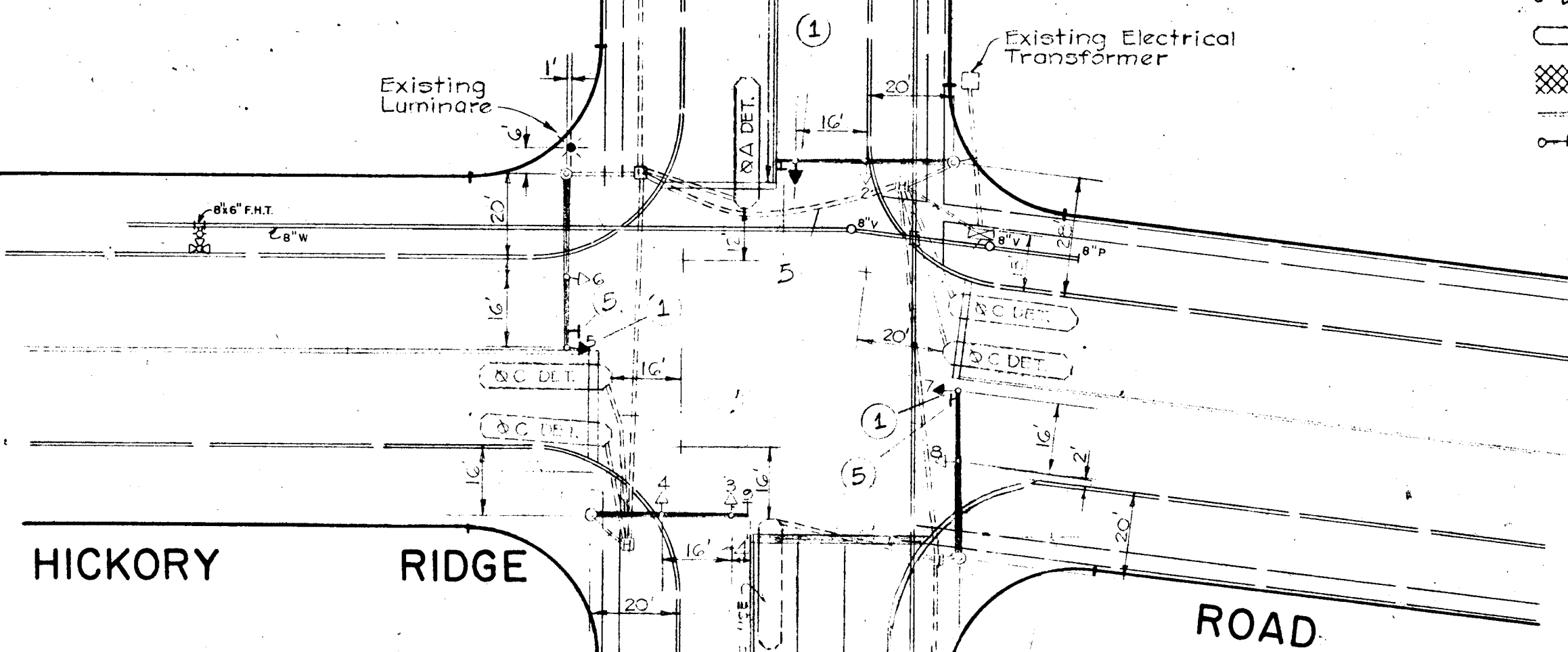


VICINITY MAP

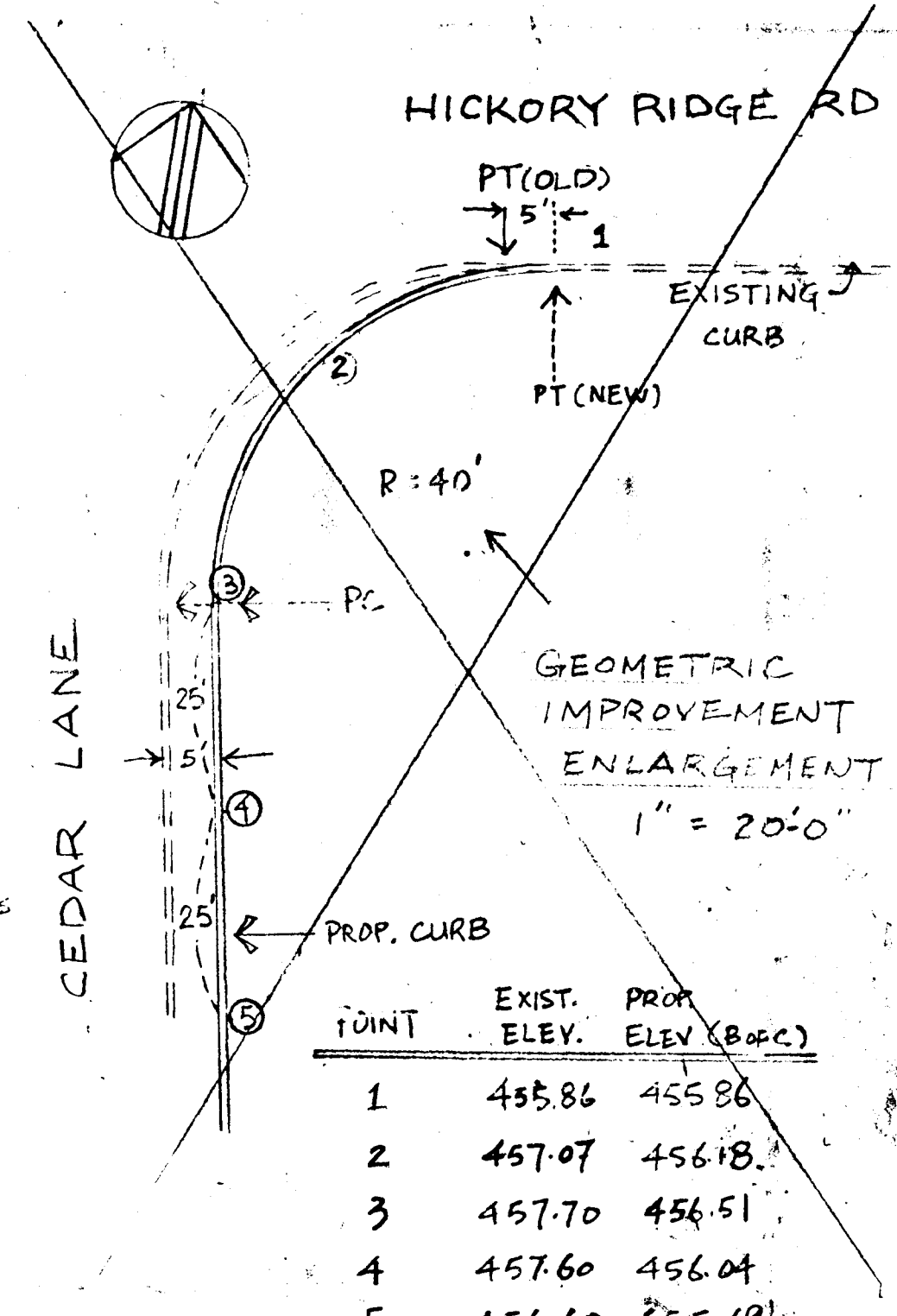
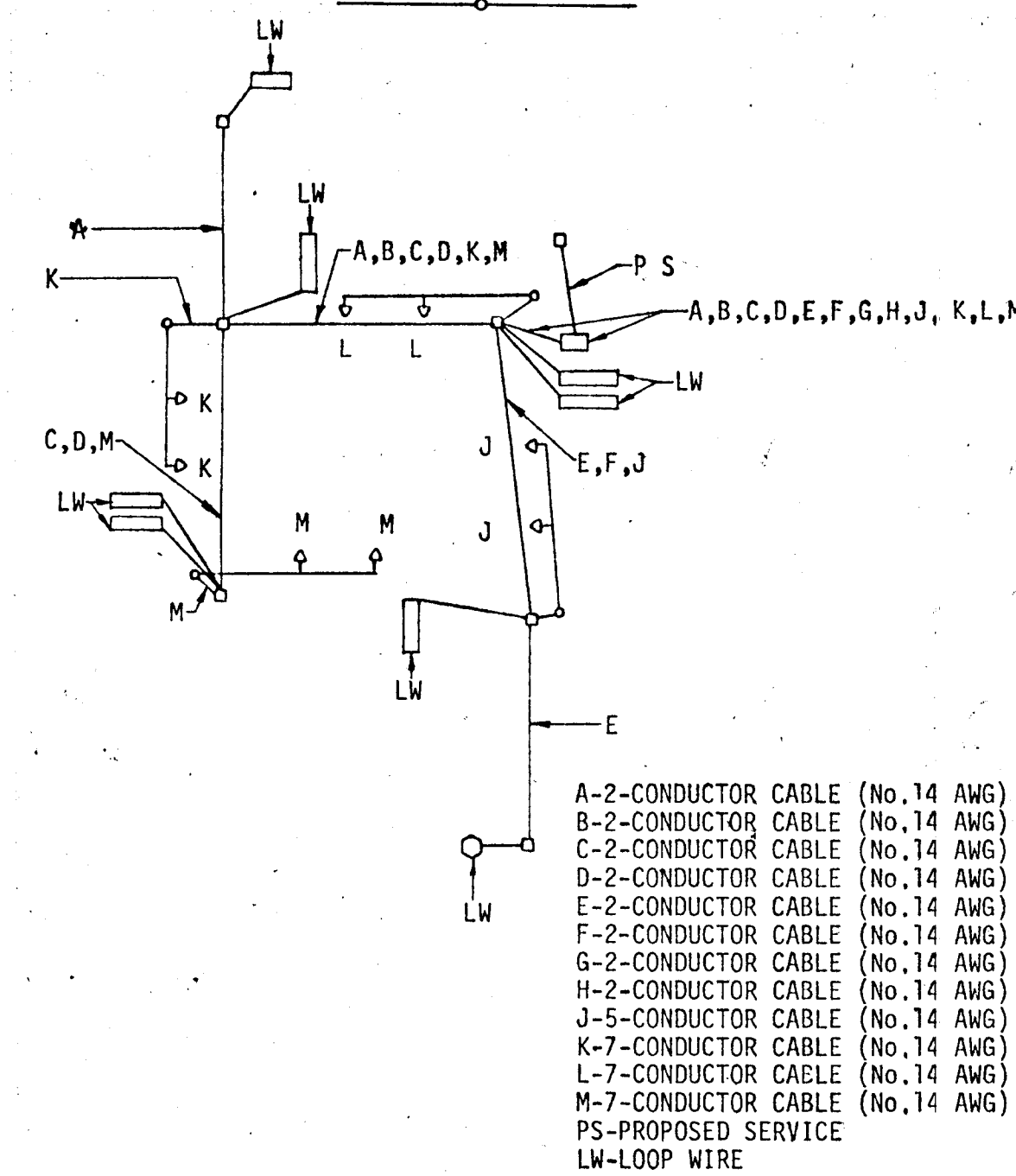
Scale: 1" = 2000'

LEGEND

- | | | |
|-------------------|----------------------|-----------------|
| EXISTING LUMINARE | EXISTING CONDUIT | NEW SIGNAL HEAD |
| 8" WATER MAIN | STEEL POLE | |
| 8" V WATER VALVE | EXISTING SIGNAL HEAD | |
| | LOOP DETECTOR | |
| | NEW PAVING | |
| | NEW CURB | |
| | NEW SIGNAL HEAD | |



WIRING DIAGRAM



PHASE	RED	YELLOW	GREEN	YELLOW ARROW	GREEN ARROW	MIN. GREEN	PASSAGE TIME	ALL RED	RECALL	MEMORY	OFF	NON LOCK
PHASE A CLEAR	R	Y	G			4	15	10				
PHASE B CLEAR	R	Y	G			4	15	10				
PHASE C CLEAR	R	Y	G			4	15	10				
PHASE D CLEAR	R	Y	G			4	15	10				
PHASE E CLEAR	R	Y	G			4	15	10				
PHASE F CLEAR	R	Y	G			4	15	10				
PHASE G CLEAR	R	Y	G			4	15	10				
PHASE H CLEAR	R	Y	G			4	15	10				
PHASE I CLEAR	R	Y	G			4	15	10				
PHASE J CLEAR	R	Y	G			4	15	10				
PHASE K CLEAR	R	Y	G			4	15	10				
PHASE L CLEAR	R	Y	G			4	15	10				
PHASE M CLEAR	R	Y	G			4	15	10				
FLASH. OPER.	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY	FLY

POINT	EXIST. ELEV.	PROP. ELEV. (B.P.C.)
1	455.86	455.86
2	457.07	456.18
3	457.70	456.51
4	457.60	456.04
5	456.60	455.69

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE: CHIEF, BUREAU OF ENGINEERING DATE:

DIV. OF ROADS, BRIDGES AND STORM DRAINAGE

BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND.

TRAFFIC SIGNAL PLAN

HICKORY RIDGE ROAD & CEDAR LANE

CAPITAL PROJECT J-4086

HOWARD COUNTY, MARYLAND

C1475B01

Rev. No.	Date	Revision	Description	By

SCALE: 1" = 30'

DATE: J. CHEUNG DESIGNED BY: J. CHEUNG DRAFTED BY: E. CALIA CHECKED BY:

TF. 246