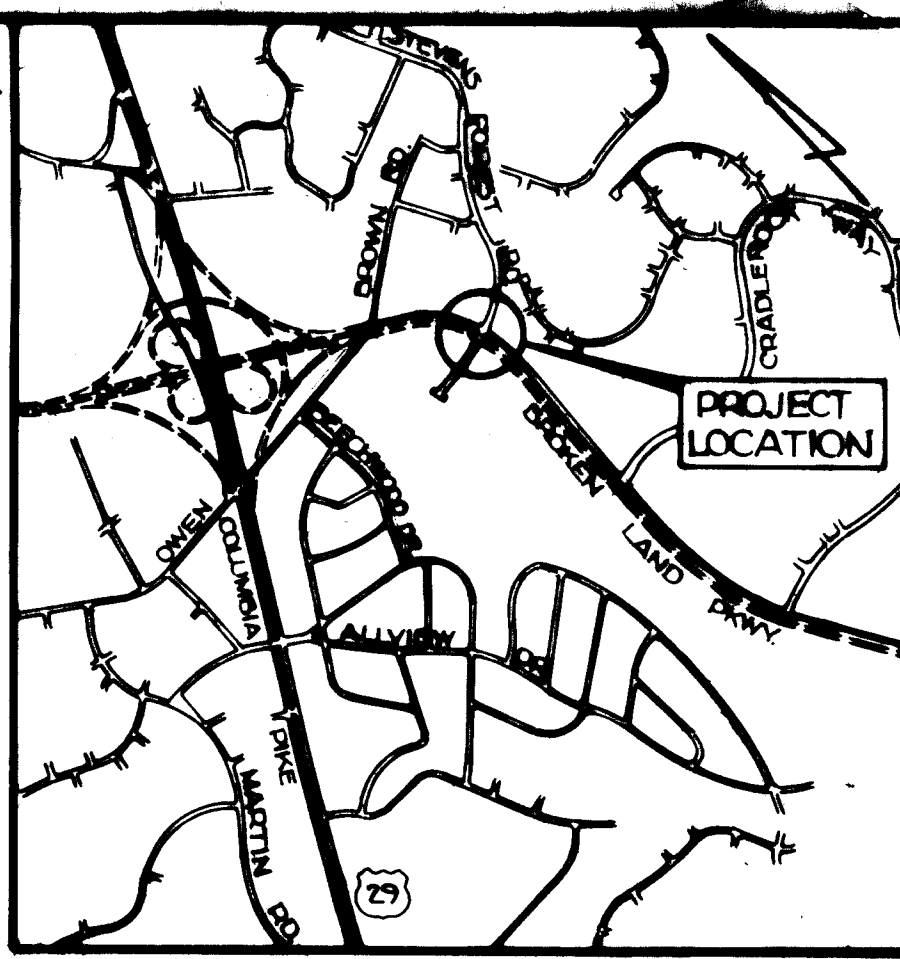
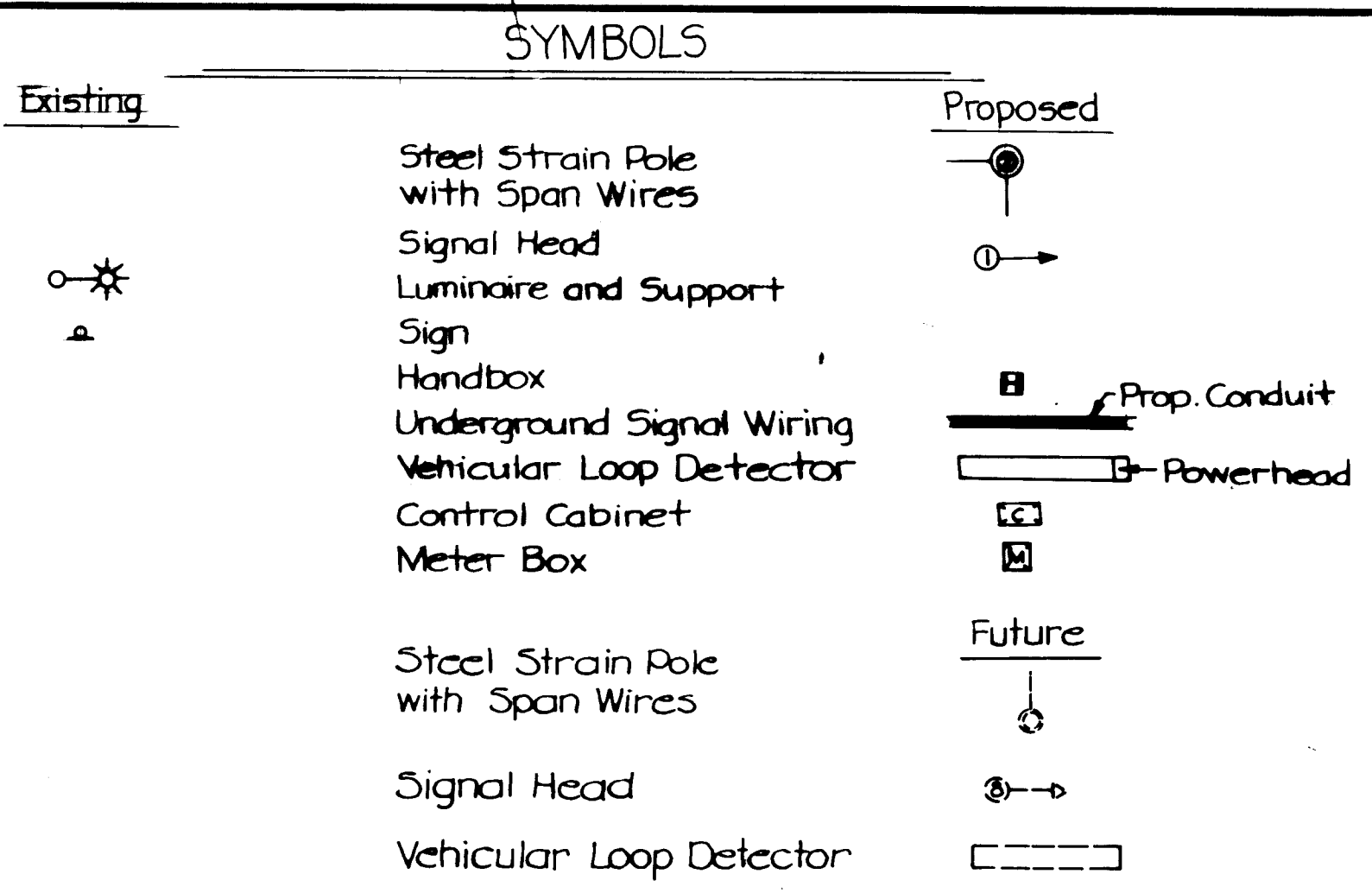


PHASE AND SEQUENCE DIAGRAM	TRAFFIC SIGNAL HEADS									Passage	Yellow	Red Clear	Max. I.	Seconds per Actuation	Time to Reduce	Time Before Reduction	Minimum Gap	Recall	Memory		
	2,3	4,5	6,7,8,9	10	11	12	13	14	15												
Phase A	G	G	R	R	10	1	40														
Phase A Clear	Y,R	G	R	R	4	1															
Phase B	R	G	G	R	10	5	45	1	10	10	35	OFF									
Phase B Clear	R	Y,R	Y,R	R	4	1															
Phase C	R	R	R	G	10	4	20														
Phase C Clear	R	R	R	Y,R	4	1															
FLASH	R	Y	Y	R																	



VICINITY MAP
SCALE: 1" = 2000'

GENERAL NOTES

- All highway marking shall be the responsibility of the Division of Traffic Engineering of the Bureau of Engineering, Department of Public Works, of Howard County, Maryland, and is not to be considered a part of this contract.
- 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.
- All materials and workmanship employed under this contract shall conform with the "GENERAL SPECIFICATIONS FOR INSTALLATION OF AND EQUIPMENT FOR TRAFFIC SIGNALS FOR HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS" dated October 7, 1974; revised February 18, 1976.
- All disturbed areas shall be properly restored in accordance with Section 4.20 of the General Specifications.

CONTROLLER AND ACCESSORIES

- NSM three phase modular thumbwheel programmable controller with solid state circuitry and digital timing, equivalent to the Cress Hinds 80-900 Series Digital Controller unit or approved equal. The controller shall be capable of expansion to four phase operation.
 - Equipped with two (2) vehicular actuated modules.
 - Equipped with one (1) vehicular actuated module with volume density controls.
 - 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.
 - 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.
 - Four phase signal overlap capability.
- Conflict Monitor and Solid State load switches.
- Solid State flasher and switch accessible through police door panel.
- Ground mounted traffic controller cabinet large enough to accommodate the above control equipment and detectors. The cabinet shall be furnished with a thermostatically controlled cabinet vent fan.
- Finish of the cabinet shall be all-weather bronze paint.
- Meter Box shall be installed in vandal proof enclosure supplied by the contractor.

LOOPS AND DETECTORS

- The following new loops shall be installed:

Number	Dimensions	Phase
1	6'x90'	A
2	6'x10'	B
3	6'x18'	B
4,5,6,7	6'x90'	C

* Loops to be installed with 6'x3' powerhead for detection of small vehicles.

- Loop 1 shall be wired to a standard detector.
- Loops 2 and 3 shall be wired in parallel to a standard detector.
- Loop 4 shall be wired to a delayed timer vehicle loop detector. Delayed timer shall be set at 10 seconds.
- Loops 5, 6 and 7 shall be wired in parallel to a standard detector.
- All wiring shall be in accordance with manufacturer's recommendations for correct operation.
- Loops 2,3,4,5,6 and 7 shall operate in pulse mode. Loop 1 shall operate in presence mode.
- Delayed timer vehicle loop detectors shall be Sarasota 235T/MS or approved equal. Standard detectors shall be Sarasota 215B/MS or approved equal.

SIGNAL HEADS

- The contractor shall provide the following new signal heads:

Signal Number	Description
1	12" diameter red and amber indications with 12" green left turn arrow
2,3,4,5,6,7,8,9	12" diameter indications
- All signals shall have brown baked enamel finish and shall be mounted on span wires with span wire hanger assemblies.

POLES

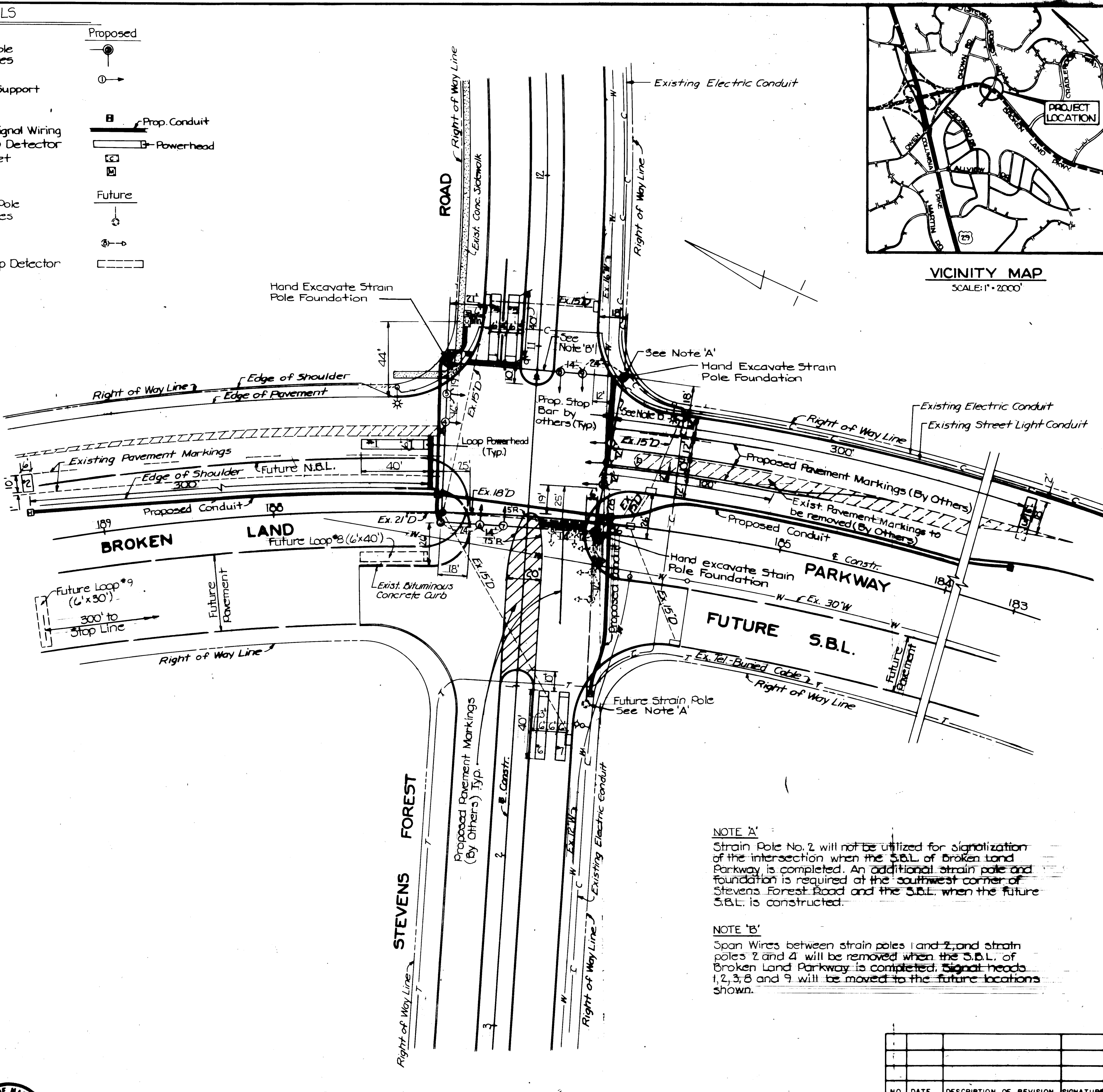
- 4 Steel Strain Poles (Union Metal No. 50054-Y1360 or approved equal) 28' overall length - #3 gauge - 11" base diameter, 7.08" top diameter.
- Finish shall be all weather bronze paint.

UNDERGROUND WIRING

- Underground wiring shall be placed in new PVC Conduits under the road surface and in grass areas, as shown on the Contract Drawings.
- The conduit shall be sized to accommodate future wiring for pedestrian (WALK/DON'T WALK) signal heads.
- The contractor shall furnish an "as-built" drawing as per "General Specifications - 4.02b".

FUTURE LOOP AND DETECTOR MODIFICATIONS

- The following modifications (not a part of this contract) to the traffic signal detection system will be required when the S.B.L. of Broken Land Parkway is constructed:
- Loops 4 and 7 shall be wired in parallel to the delayed timer loop detector. Delayed timer shall be set at 10 seconds.
 - Loops 5 and 6 shall be wired in parallel to a standard detector.
 - "Passage Time" for Phase C shall be set to one (1) second, and "Memory" shall be in "OFF" position.
 - Loops 1 and 2 shall be abandoned and replaced by Loops 8 and 9 respectively.
 - Loop 9 shall be installed as shown and wired in parallel to the same standard detector as Loop 3.
 - Loop 8 shall be installed at the future stop line and wired to the same standard detector that Loop 1 was wired to.
 - Loop 3 shall be extended to provide sufficient detection of N.B.L. vehicles.



NOTE 'A'
Strain Pole No. 2 will not be utilized for signalization of the intersection when the S.B.L. of Broken Land Parkway is completed. An additional strain pole and foundation is required at the southwest corner of Stevens Forest Road and the S.B.L. when the future S.B.L. is constructed.

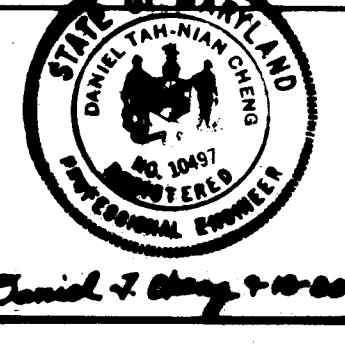
NOTE 'B'
Span Wires between strain poles 1 and 2, and strain poles 2 and 4 will be removed when the S.B.L. of Broken Land Parkway is completed. Signal heads 1, 2, 3, 8 and 9 will be moved to the future locations shown.

NO.	DATE	DESCRIPTION OF REVISION	SIGNATURE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 11/19/80
 Chief - Bureau of Engineering: *[Signature]*
 Chief - Division of Roads: *[Signature]*
 Chief - Traffic Division: *[Signature]*

PREPARED BY:
THE WILSON T. BALLARD CO.
CONSULTING ENGINEERS
OWINGS MILLS, MARYLAND
TEL. NO. 363-0150



PLAN
CONSTRUCTION OF TRAFFIC
SIGNAL AND EQUIPMENT LIST

BROKEN LAND PARKWAY / STEVENS FOREST ROAD
CAPITAL PROJECT NO. T-9-7011
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

DRAWING NO.	SCALE	D.T.C. DESIGNED BY
NO. 1 OF 1	1" = 30'	R.A.M.