

HOWARD COUNTY MARYLAND

DEPARTMENT OF PUBLIC WORKS

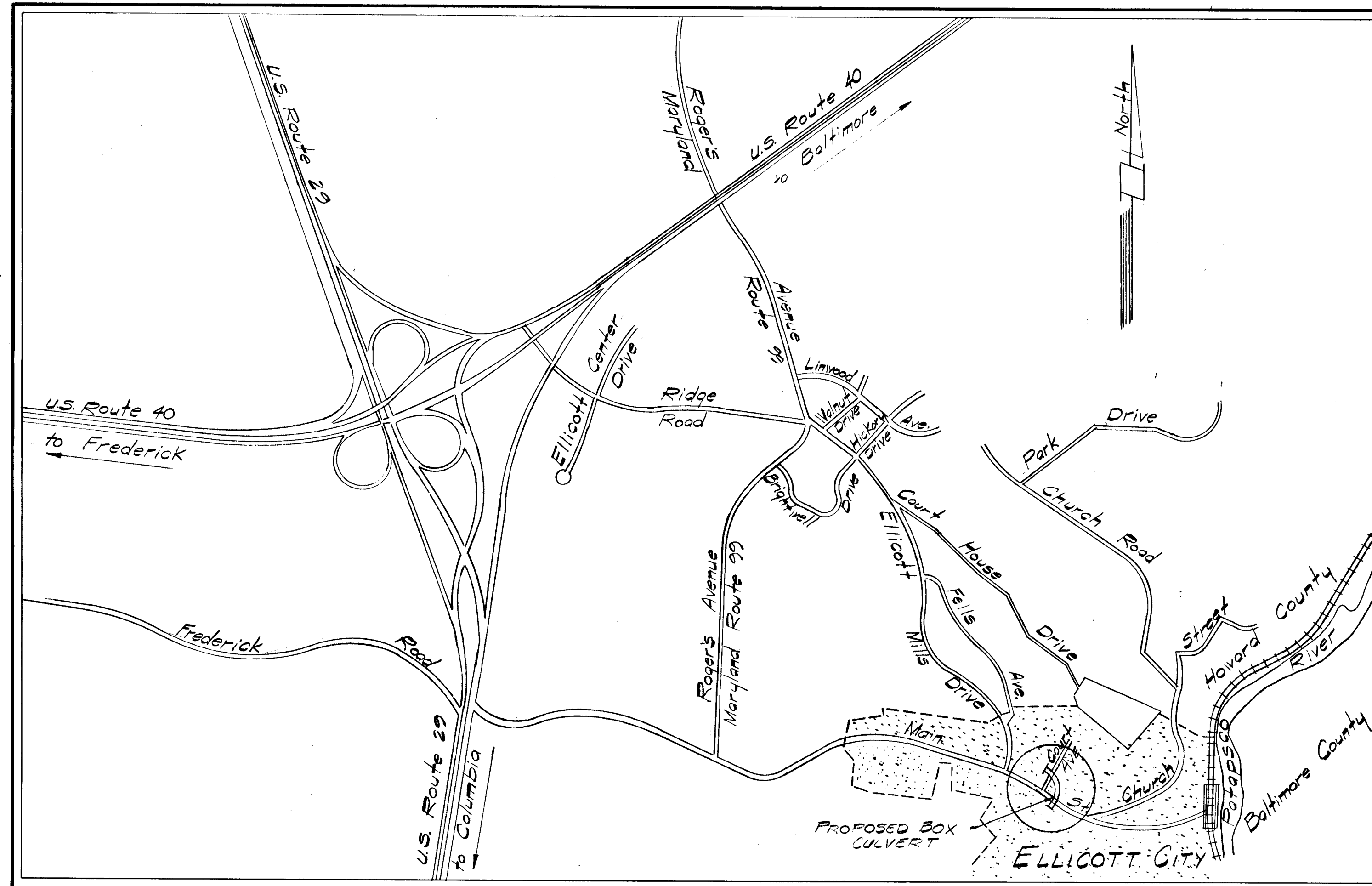
STRUCTURAL NOTES

1. NO. 50A SPECIFICATION AND ERRATA TO SPECIFICATIONS DATED MARCH 1968 AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION AS SHOWN STANDARDS SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1973 FOR DESIGN INCLUDING ALL INTERIM SPECIFICATIONS FOR SIMPLIFIED CONCRETE DESIGN.
2. REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A 615, GRADE 60 LAP A MIN. OF 24 DIAMETERS AT ALL JOINTS. ALLOWABLE F_y = 60,000 P.S.I. REINFORCING STEEL TO HAVE 2" MIN. CLEAR COVER UNLESS OTHERWISE SHOWN. HELIX STEEL WIRE FABRIC SHALL CONFORM TO A.S.T.M. A 185. SHEETS OF MESH SHALL BE LAPPED NOT LESS THAN ONE MESH IN WIDTH.
3. CONCRETE SHALL BE CLASS A-1, AIR-ENTRAINED F_c = 3000 P.S.I. @ 28 DAYS.
4. ALL EXPOSED EDGES OF CONCRETE TO BE CHAMFERED 3/4" x 3/4" USE MILLED CHAMFER STRIPS.
5. APPLY (2) TWO PLY MEMBRANE WATERPROOFING 18" WIDE TO THE EARTH SIDE AND ABOVE THE NORMAL WATER SURFACE OF ALL CONSTRUCTION JOINTS WITH AIR ON ONE SIDE AND EARTH ON THE OTHER. DO NOT USE IN CONTRACTION AND EXPANSION JOINTS.
6. WATERPROOFING SHALL BE APPLIED TO THOSE PORTIONS OF THE OUTSIDE SURFACE OF SIDEWALLS 12" OF TOP SLAB, REAR FACES OF HEADWALLS AND WINGWALLS THAT ARE IN CONTACT WITH EARTH AND FULL FACE OF ALL CONTRACTION JOINTS.
7. METAL REINFORCEMENT AT THE TIME CONCRETE IS PLACED SHALL BE FREE FROM MUD, OIL, OR OTHER NON-METALLIC COATINGS THAT ADVERSELY AFFECT BONDING CAPACITY.

LEGEND

EXISTING CULVERT WALLS	---
PROPOSED CULVERT WALLS	====
PROPOSED STORM DRAINS	----

NOTE: FOR MARKING LOCATIONS OF EXISTING UTILITIES PLEASE NOTIFY "MISS UTILITY" AT (301) 529-0100 48 HR. PRIOR TO START OF ANY EXCAVATION OR CONSTRUCTION.



LOCATION MAP
SCALE: 1" = 800'

GENERAL NOTES

1. PERFORMANCE OF WORK SHALL BE DONE IN ACCORDANCE WITH THE HOWARD COUNTY ROAD CONSTRUCTION CODE AND STANDARD SPECIFICATIONS. MATERIALS AND CONSTRUCTION PROCEDURES WHERE SPECIFIED ON PLANS OR STIPULATED IN THE SPECIFICATIONS SHALL CONFORM TO THE STATE HIGHWAY ADMINISTRATION'S BOOK TITLED "SPECIFICATIONS FOR MATERIALS, HIGHWAYS, BRIDGES, AND INCIDENTAL STRUCTURES".
2. REFERENCE MADE TO STANDARDS ARE TAKEN FROM THE "HOWARD COUNTY ROAD CONSTRUCTION CODE AND STANDARD SPECIFICATIONS" UNLESS OTHERWISE SPECIFIED. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY THAT THE STANDARD DRAWINGS IN HIS POSSESSION ARE THE LATEST REVISED STANDARDS UP TO AND INCLUDING THE DATE OF THE ADVERTISEMENT OF THIS CONTRACT.
3. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION OF THE MAINS BY DIGGING TEST PITS BY HAND AT ALL UTILITY CROSSING, WELL IN ADVANCE OF TRENCHING. IF CLEARANCES ARE LESS THAN SHOWN, OR SIX (6) INCHES, WHICHEVER IS LESS CONTACT THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING, DIVISION OF INSPECTION AND SURVEY (297-3445) BEFORE PROCEEDING WITH CONSTRUCTION.
4. COORDINATES AND BEARINGS ARE REFERRED TO THE MARYLAND STATE PLANE COORDINATE SYSTEM.
5. ONLY THOSE BENCH MARKS SHOWN THE PLANS ARE TO BE USED FOR CONSTRUCTION.

INDEX OF DRAWINGS	
SHEET N ^o	DESCRIPTION
1	COVER SHEET, STRUCTURAL & GENERAL NOTES
2	PLAN, SCHEDULES
3	PROFILE, WATER MAIN RELOCATIONS
4	CULVERT DETAILS
5	SUNDECK RECONSTRUCTION DETAILS
6	MAINTENANCE OF TRAFFIC, SOIL EROSION AND SEDIMENT CONTROL
7	DRAINAGE AREA MAP

TIBER HUDSON BRANCH BOX CULVERT

CAPITAL DRAINAGE PROJECT NO. D-4-1011

DEVELOPER'S CERTIFICATION

"I CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE IN ACCORDANCE WITH THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL, AND I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY. DEVIATION FROM THIS PLAN WILL NOT BE MADE UNLESS AUTHORIZED BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER _____ DATE _____

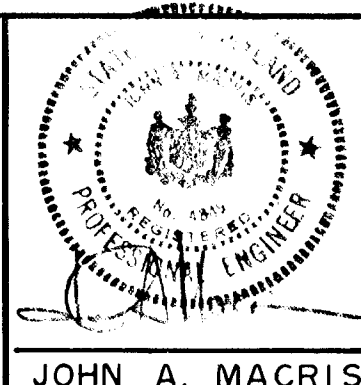
ENGINEER'S CERTIFICATION

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

C1077I01
 SIGNATURE OF ENGINEER _____ DATE 2-2-77

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS	
DATE _____	U.S. SOIL CONSERVATION SERVICE
THIS ROADWAY IMPROVEMENT IS APPROVED FOR SOIL EROSION SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.	
DATE _____	DISTRICT COORDINATOR _____
HOWARD SOIL CONSERVATION DISTRICT	

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND	
DIRECTOR OF PUBLIC WORKS _____	DATE _____
CHIEF BUREAU OF ENGINEERING _____	DATE _____



MACRIS, HENDRICKS AND WITMER P.A.	
CIVIL-STRUCTURAL ENGINEERS, SURVEYORS, PLANNERS	
15209 FREDERICK ROAD (301) 340-8705	ROCKVILLE, MD. 20850 (301) 774-0664

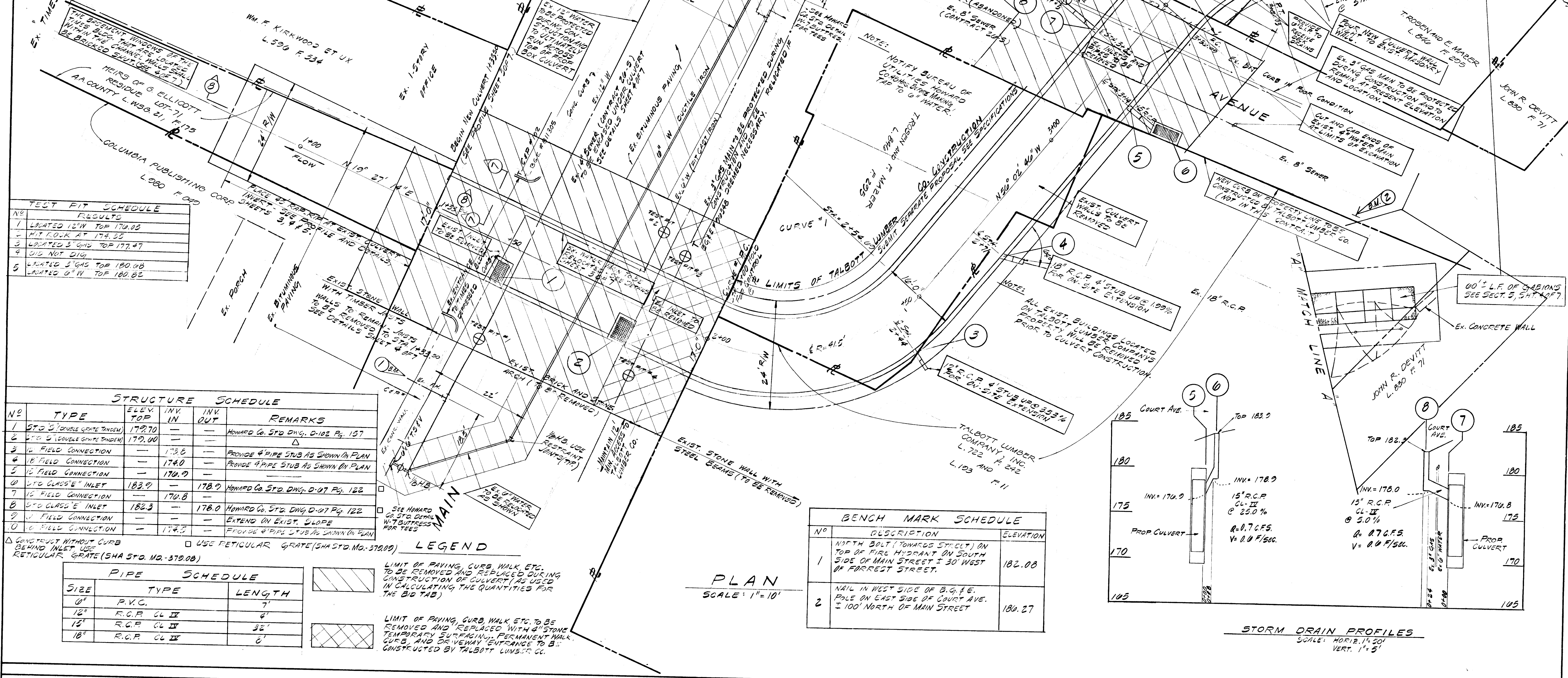
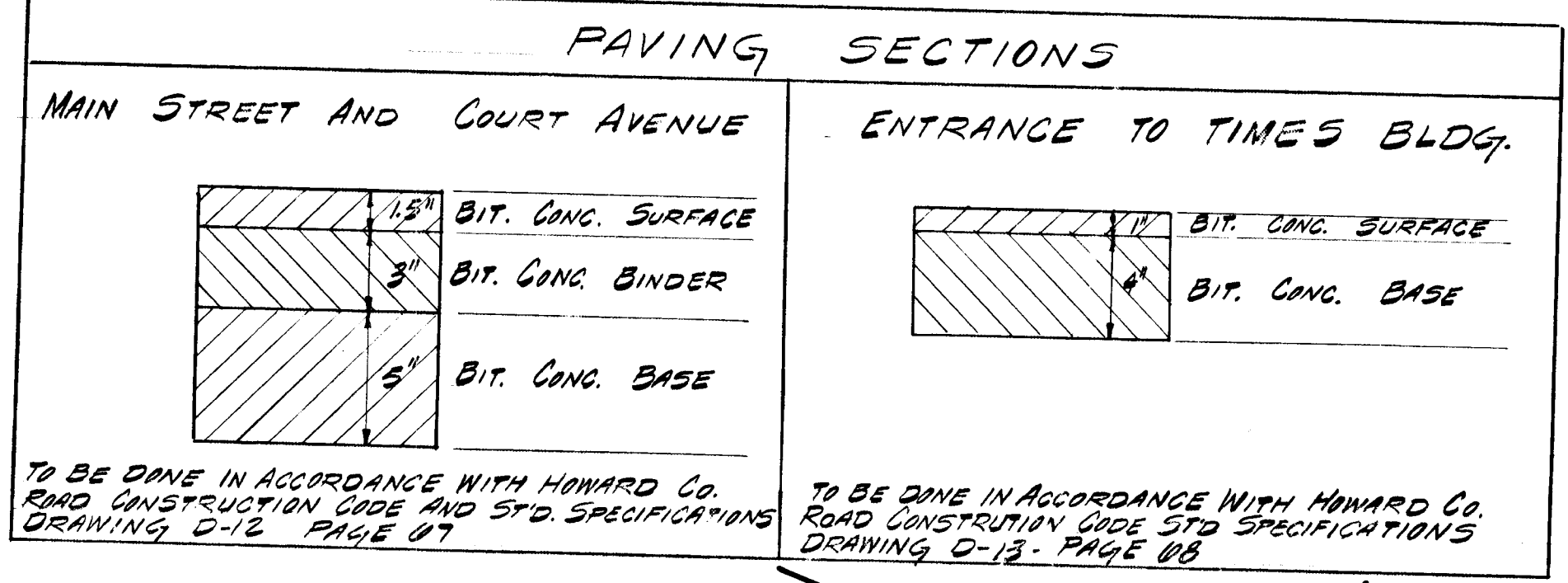
CONTRACT NO. <u>D-4-1011</u>	
CAPITAL PROJECT NO. <u>D-4-1011</u>	

TITLE SHEET	
TIBER HUDSON BRANCH BOX CULVERT	
SECOND ELECTION DISTRICT	
HOWARD COUNTY, MARYLAND	

SCALE AS SHOWN	DRAWN D.A.C.
DESIGN J.W.H.	DATE 8/22/77
JOB N ^o MF # 76-532	
DRAWING N ^o 1 OF 7	

SCALE: 1"=10'

CURVE DATA							
CURVE	RAD.	ARC.	Δ	TAN.	CHORD BRG.	CHORD FC. COOR.	PT. COOR.
1	41.5	54.09	75° 30'	32.13'	N 18° 17' 47" W	50.81 N 5021.083 E 4948.382	N 5029.328 E 4952.43
2	45.0	24.34	31° 00'	12.48'	N 40° 32' 50" W	24.05 N 2115.127 E 4884.412	N 2123.403 E 4848.771



TEST PIT SCHEDULE

Nº	RESULTS
1	LOCATED 12" W TOP 174.03
2	HIT ROCK AT 174.35
3	LOCATED 3" GAS TOP 177.47
4	OLD NOT OIL
5	LOCATED 3" GAS TOP 180.08
6	LOCATED 6" W TOP 180.02

STRUCTURE SCHEDULE

Nº	TYPE	ELEV. TOP	INV. IN	INV. OUT	REMARKS
1	STO 5" DOUBLE GRADE TRENCH	179.70	—	—	HOWARD CO. STD. DNG. D-102 Pg. 157
2	STO 5" DOUBLE GRADE TRENCH	179.00	—	—	—
3	16" FIELD CONNECTION	—	173.6	—	PROVIDE 4" PIPE STUB AS SHOWN IN PLAN
4	18" FIELD CONNECTION	—	174.0	—	PROVIDE 4" PIPE STUB AS SHOWN IN PLAN
5	16" FIELD CONNECTION	—	170.9	—	—
6	STO CLASS 'E' INLET	183.9	—	178.9	HOWARD CO. STD. DNG. D-07 Pg. 122
7	16" FIELD CONNECTION	—	170.8	—	—
8	STO CLASS 'E' INLET	182.3	—	178.0	HOWARD CO. STD. DNG. D-07 Pg. 122
9	16" FIELD CONNECTION	—	—	—	EXTEND ON EXIST. SLOPE
10	16" FIELD CONNECTION	—	174.5	—	PROVIDE 4" PIPE STUB AS SHOWN IN PLAN

PIPE SCHEDULE

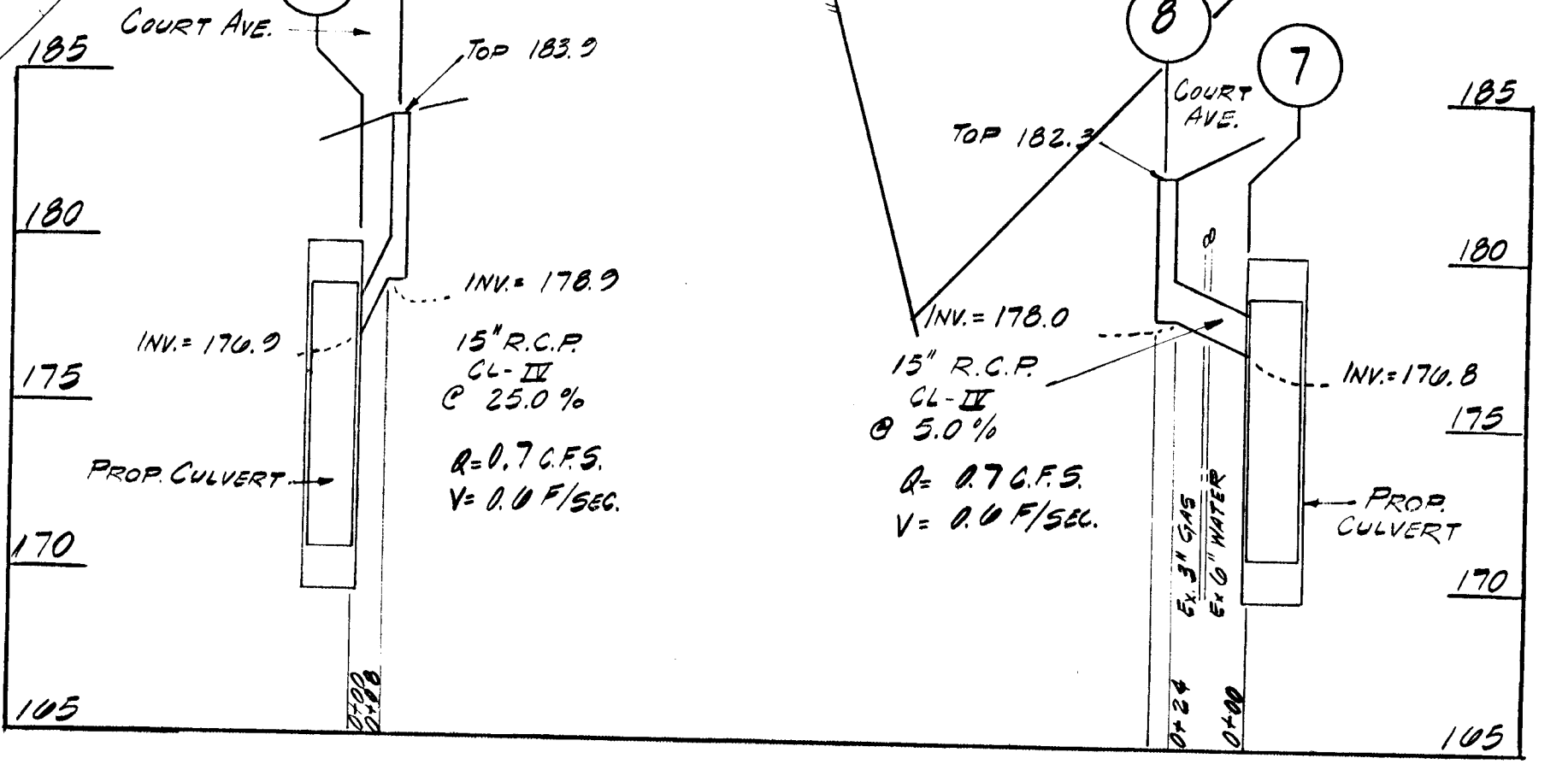
SIZE	TYPE	LENGTH
6"	P.V.C.	7'
12"	R.C.P. CL II	4'
15"	R.C.P. CL II	32'
18"	R.C.P. CL II	6'

LEGEND

- LIMIT OF PAVING, CURB WALK, ETC. TO BE REMOVED AND REPLACED DURING CONSTRUCTION OF CULVERT (AS USED IN CALCULATING THE QUANTITIES FOR THE BID TAB)
- LIMIT OF PAVING, CURB WALK, ETC. TO BE REMOVED AND REPLACED WITH 4" STONE TEMPORARY SURFACING, PERMANENT WALK, CURB, AND DRIVEWAY ENTRANCE TO B. CONSTRUCTED BY TALBOTT LUMBER CO.

BENCH MARK SCHEDULE

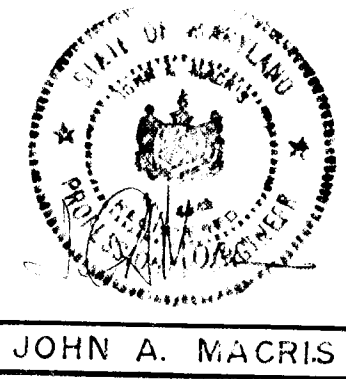
Nº	DESCRIPTION	ELEVATION
1	NORTH BOLT (TOWARDS STREET) ON TOP OF FIRE HYDRANT ON SOUTH SIDE OF MAIN STREET 2' 30" WEST OF FARREST STREET.	182.08
2	NAIL IN WEST SIDE OF B.G. & E. POLE ON EAST SIDE OF COURT AVE. 1' 100" NORTH OF MAIN STREET	180.27



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS _____ DATE _____

CHIEF BUREAU OF ENGINEERING _____ DATE _____



MACRIS, HENDRICKS AND WITMER P.A.

CIVIL-STRUCTURAL ENGINEERS, SURVEYORS, PLANNERS

15209 FREDERICK ROAD ROCKVILLE, MD. 20850

(301) 340-8705 (301) 774-0664

CONTRACT NO. **D-4-1011**

CAPITAL PROJECT NO. **D-4-1011**

PLAN AND SCHEDULES

TIBER HUDSON BRANCH BOX CULVERT

SECOND ELECTION DISTRICT

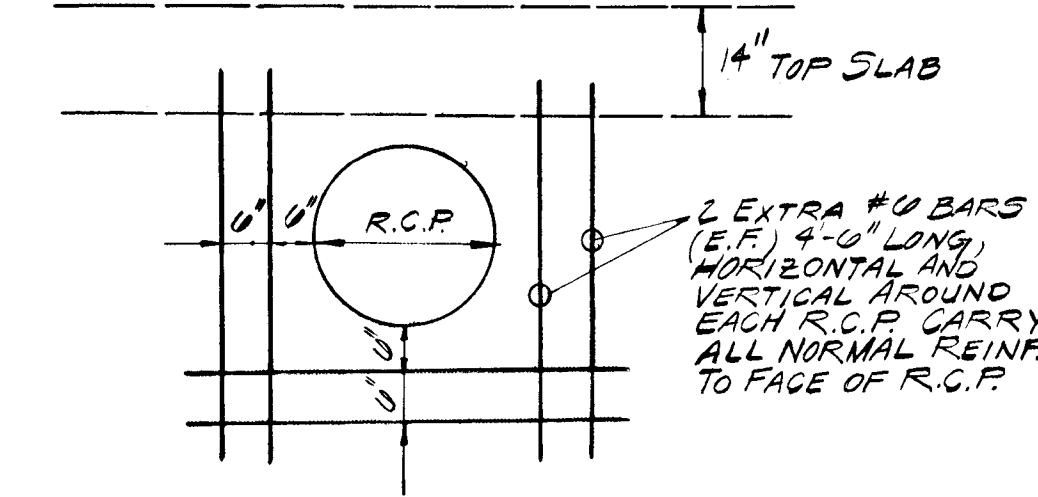
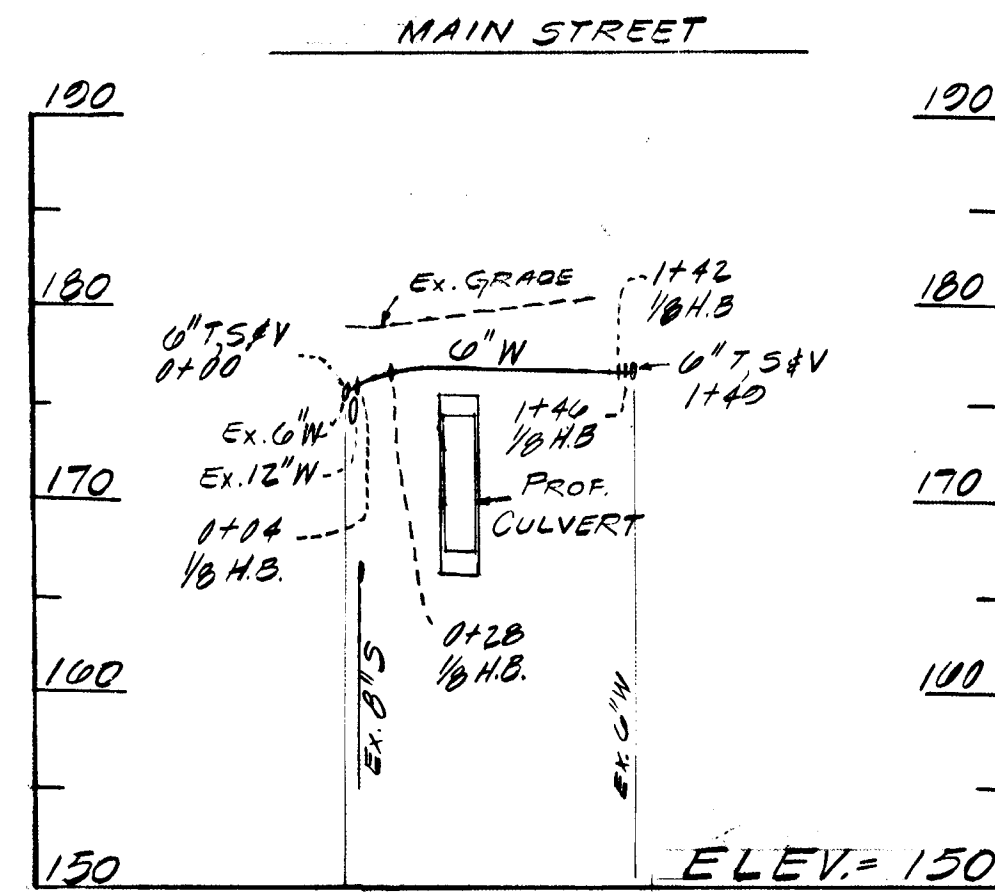
HOWARD COUNTY, MARYLAND

SCALE 1"=10'	DRAWN D.A.C.
DESIGN J.W.H.	DATE 8/22/77
JOB Nº MF #76-532	
DRAWING Nº 2 OF 7	

SEQUENCE OF CONSTRUCTION FOR 6" WATER MAIN LOCATION IN MAIN STREET

1. EXCAVATE BY HAND TO LOCATE AND EXPOSE EXIST. 6" WATER AT BOTH LOCATIONS ON MAIN STREET WHERE TAPS TO BE MADE. (SEE PLAN).
2. CONTACT HOWARD CO. BUREAU OF UTILITIES (301) 202-2346, 24 HRS BEFORE THEY ARE TO INSTALL THE TWO (2) TAP SLEEVES AND VALVES WITH VALVES CLOSED.
3. CONSTRUCT 6" WATER MAIN BETWEEN THE TWO TAPS AS SHOWN ON THE PLAN (SHT. 2 OF 6) AND THE WATER PROFILE (SHT. 3 OF 6). SERVICE IS TO BE MAINTAINED THRU THE EXIST. 6" WATER MAIN DURING THIS CONSTRUCTION.
4. CONTACT THE HOWARD CO. BUREAU OF UTILITIES TO SHUT DOWN SERVICE. EXIST. 6" MAIN IS TO BE CUT AND CAPPED JUST BEYOND EACH TAP SLEEVE AND THE TWO 6" VALVES SHALL BE OPENED TO RESUME SERVICE.

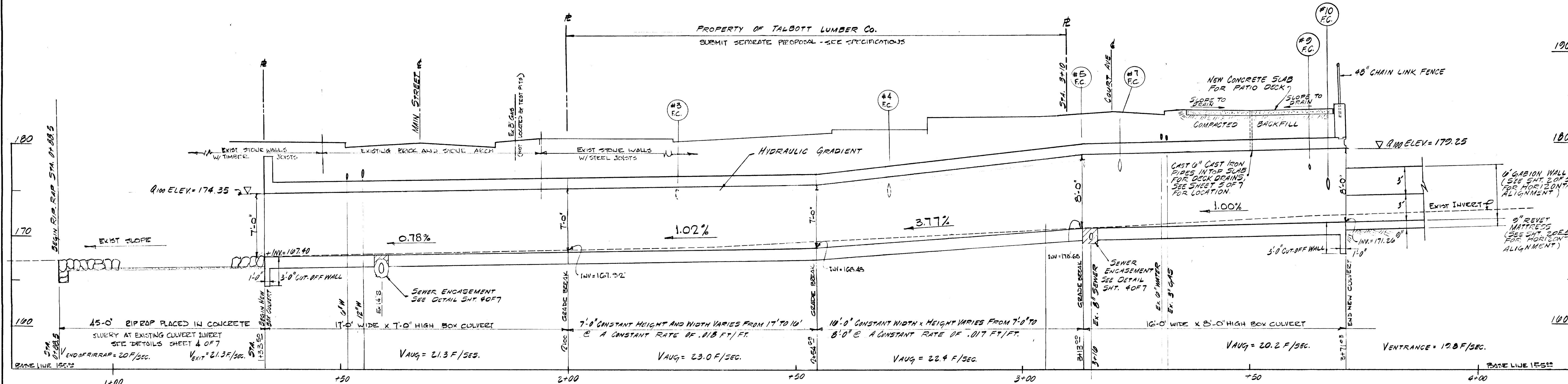
NOTE: BOTH 1/4 HB'S ARE TO BE BLOCKED AS PER DETAIL THIS SHEET, BOTH 6"x6" TEE'S ARE TO BE BLOCKED WITH THE HOWARD CO. STD. BUTTRESS FOR 4" TEE'S (W-7) AND THE 6" CAPS ARE TO BE BLOCKED WITH THE HOWARD CO. STD. BUTTRESS FOR CAPS (W-8).



EXTRA REINFORCING @ FIELD CONNECTIONS IN CULVERT
(TYPICAL FOR 12", 15" & 18" R.C.P.)

6" WATER RELOCATION IN MAIN STREET

1" = 10' VERT.
1" = 100' HORIZ.



$Q_{100} = 2532 \text{ C.F.S.}$
 $n = .015$

* 2 CRUSHED STONE SHALL BE PLACED UNDER THE SLAB TO REPLACE UNSUITABLE MATERIALS, ONLY WHEN SPECIFIED BY THE ENGINEER (SEE SPECIFICATIONS)

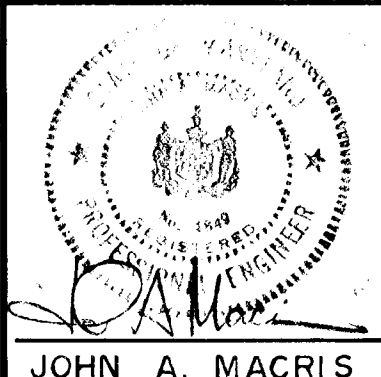
CULVERT PROFILE

SCALE: 1" = 5' VERT.
1" = 10' HORIZ.

DEPARTMENT OF PUBLIC WORKS
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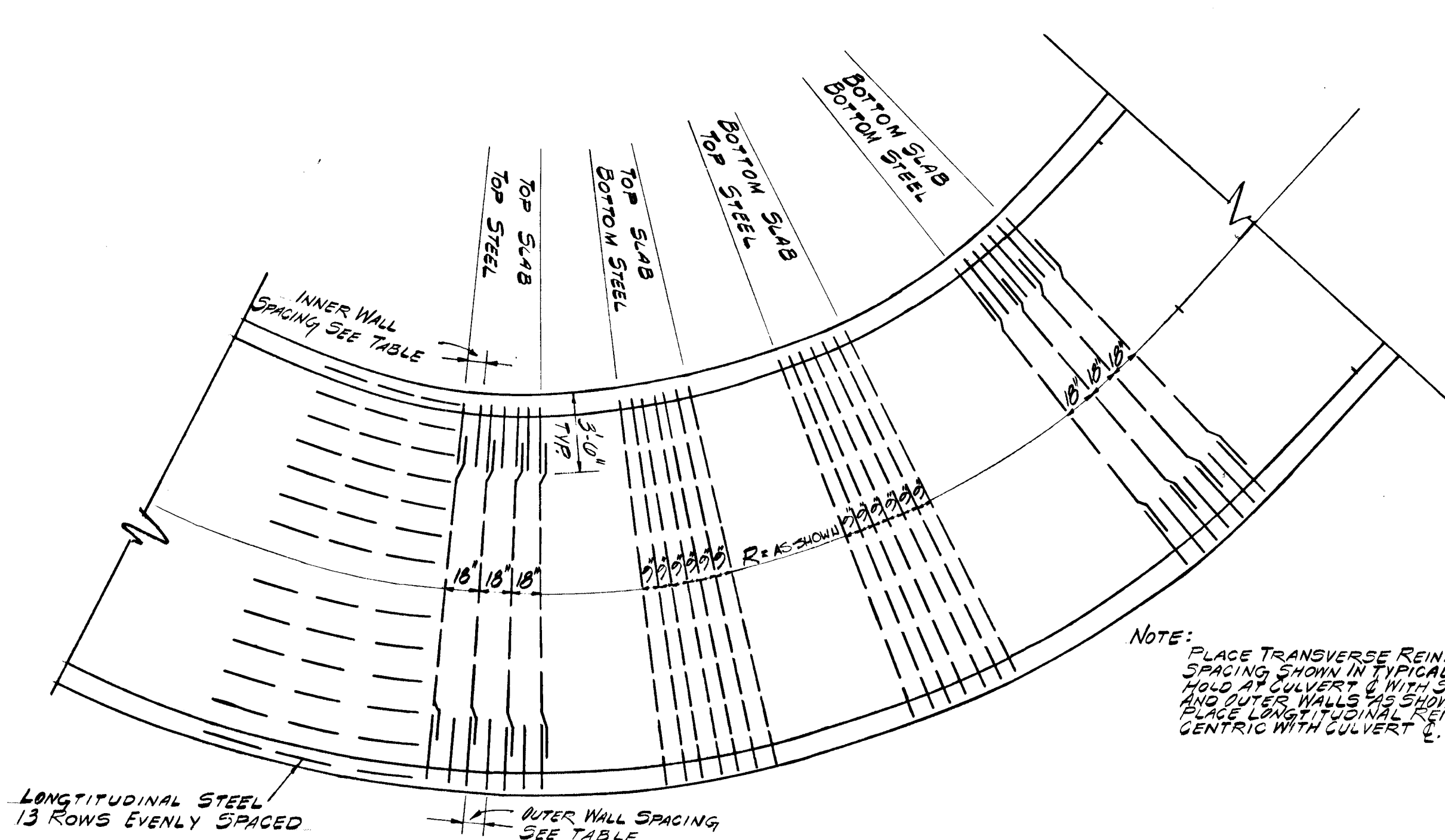
CAPITAL PROJECT NO. D-4-1011

PROFILE, WATER MAIN RELOCATIONS
TIBER HUDSON BRANCH BOX CULVERT

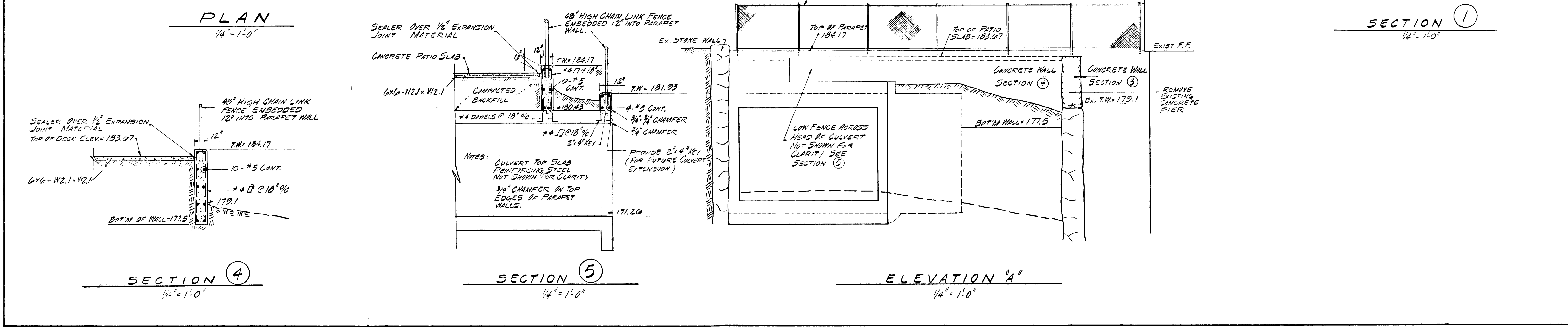
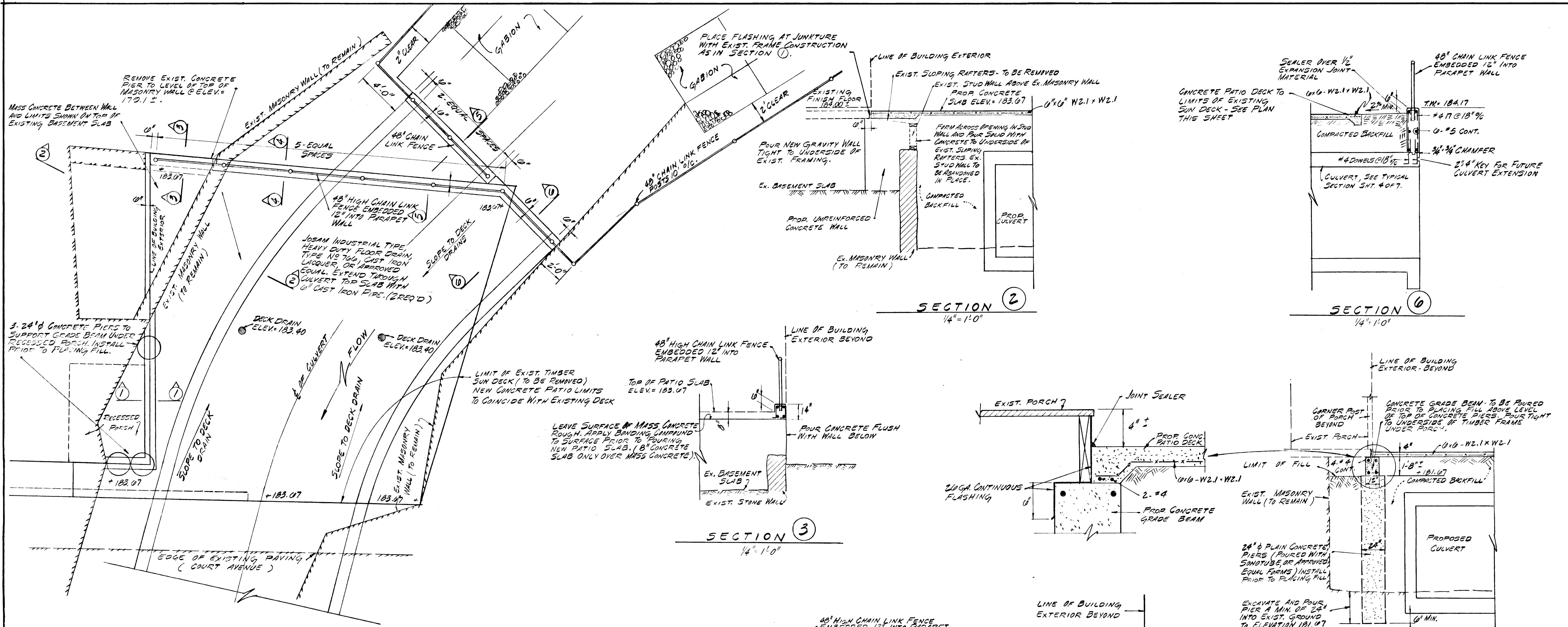
SECOND ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

SCALE AS SHOWN	DRAWN D.A.C.
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JOB NO. MF* 76-532	
DRAWING NO. 3 OF 7	

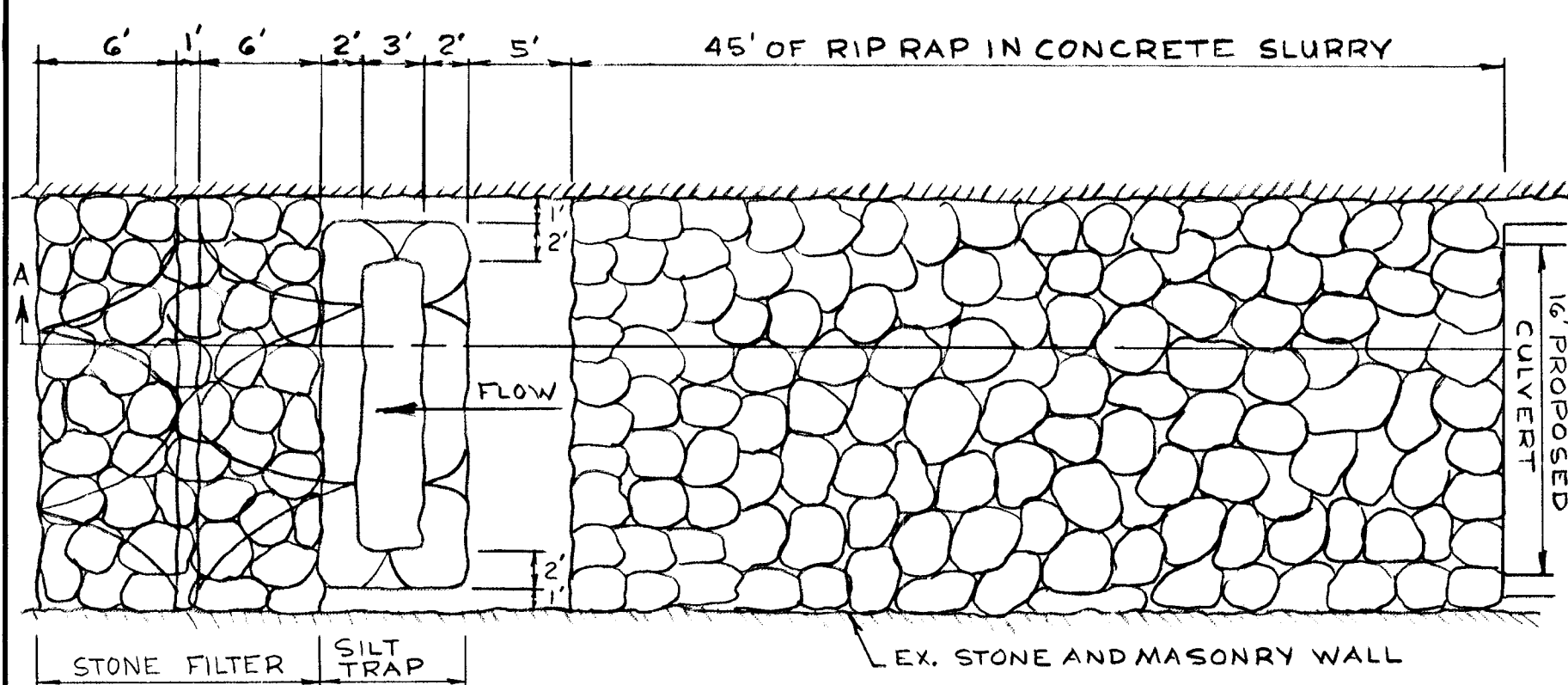


CURVE NO	@ 9" & SPACING		@ 18" & SPACING	
	INNER CURVE WALL	OUTER CURVE WALL	INNER CURVE WALL	OUTER CURVE WALL
1	7.16'	10.84'	14.32'	21.08'
2	7.30'	10.70'	14.60'	21.40'

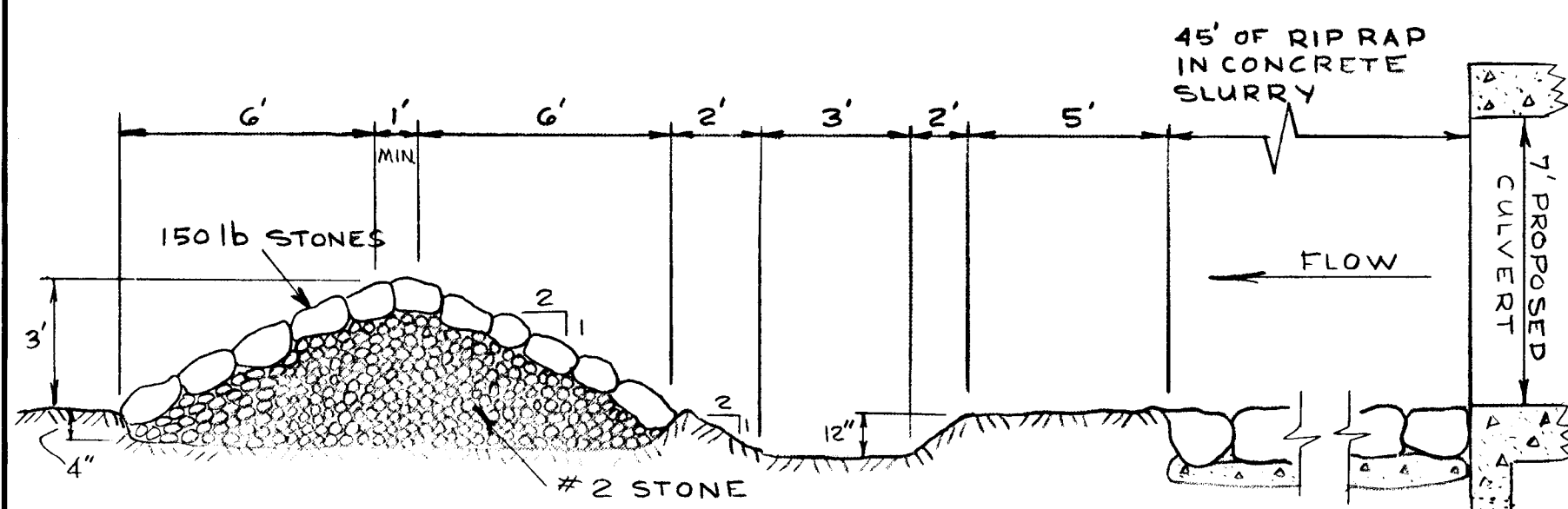


DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DIRECTOR OF PUBLIC WORKS _____ DATE _____ CHIEF BUREAU OF ENGINEERING _____ DATE _____	 JOHN A. MACRIS	MACRIS, HENDRICKS AND WITMER P.A. CIVIL-STRUCTURAL ENGINEERS, SURVEYORS, PLANNERS 15209 FREDERICK ROAD ROCKVILLE, MD. 20850 (301) 340-8705 (301) 774-0664	CONTRACT NO. <u>D-4-1011</u>	SUNDECK RECONSTRUCTION DETAILS TIBER HUDSON BRANCH BOX CULVERT SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE AS SHOWN	DRAWN D.A.C.
			CAPITAL PROJECT NO. <u>D-4-1011</u>		DESIGN J.W.H.	DATE 8/22/77
					JOB NO. MF 76-532	DRAWING NO. 5 OF 7

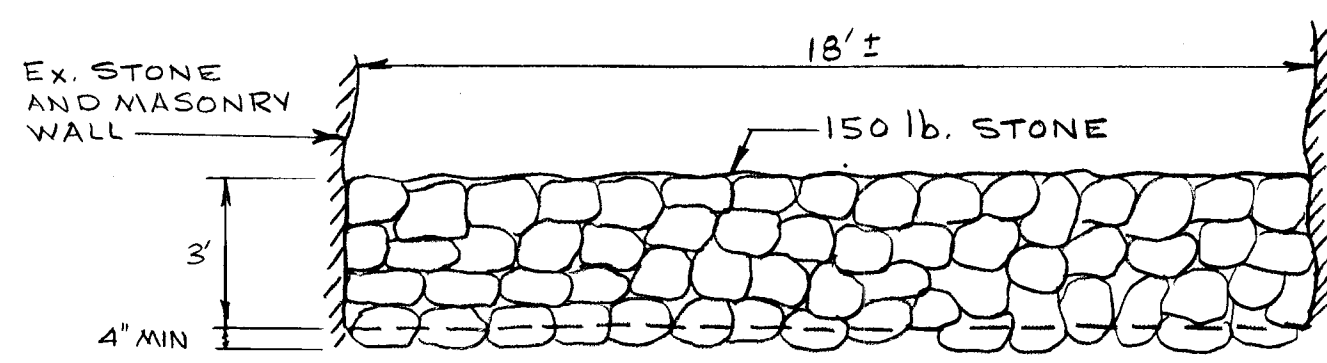
SOIL EROSION AND SEDIMENT CONTROL DETAILS



SILT TRAP AND STONE FILTER
PLAN VIEW
SCALE 1/8" = 1'0"



SILT TRAP AND STONE FILTER
SECTION A-A
SCALE 1/4" = 1'0"



STONE FILTER
FRONT VIEW
SCALE 1/4" = 1'0"

SOIL EROSION AND SEDIMENT CONTROL NOTES

- 1) SILT TRAP AND STONE FILTER WILL BE INSTALLED ACCORDING TO THIS PLAN PRIOR TO ANY OTHER GRADING, CLEARING OR DISTURBANCE OF THE EXISTING SURFACE OF THE SITE.
- 2) ALL STRUCTURAL SEDIMENT CONTROL MEASURES ARE TO REMAIN IN PLACE UNTIL PERMISSION HAS BEEN OBTAINED FROM THE HOWARD SOIL CONSERVATION DISTRICT, PHONE 465-5000, EXT. 328
- 3) NOTIFY THE HOWARD SOIL CONSERVATION DISTRICT AT LEAST 24 HOURS BEFORE STARTING ANY WORK, PHONE 465-3180
- 4) CONTINUED INSPECTION AND MAINTENANCE WILL BE THE RESPONSIBILITY OF THE DEVELOPER.

ENGINEER'S CERTIFICATION

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER

9-2-77
DATE

LEGEND

- ROADWAY TRAFFIC DURING CONSTRUCTION
- CULVERT CONSTRUCTION DURING PARTICULAR PHASE
- CULVERT CONSTRUCTED UNDER PRIOR PHASE

MAINTENANCE OF TRAFFIC AND SCHEDULE OF CONSTRUCTION

PHASE I

1. CONSTRUCT SOIL EROSION & SEDIMENT CONTROL DEVICE BELOW OUTFALL
2. CONSTRUCT 45'± RIP-RAP CHANNEL INVERT BELOW NEW CULVERT
3. RELOCATE 6" WATER (SHT. OF G.)
4. PROVIDE TEMPORARY PAVING, TO ALLOW 20' TEMPORARY ROADWAY CLEAR OF EX. UTILITY POLE AS SHOWN.
5. REMOVE EXIST. CULVERT AS NECESSARY TO CONSTRUCT THE FIRST 30' SECTION OF NEW CULVERT PROVIDE TIGHT SHEETING, AS NECESSARY (SEE SPECIFICATIONS)
6. BACKFILL OVER NEWLY CONSTRUCTED 30' SECTION OF CULVERT

PHASE II

1. MAINTAIN TEMPORARY ROADWAY FOR WESTBOUND TRAFFIC CONSTRUCTED UNDER PHASE I PROVIDE TEMPORARY 10' ROADWAY FOR EASTBOUND TRAFFIC OVER NEW CULVERT SECTION, CLEAR OF EXISTING UTILITY POLE AS SHOWN
2. REMOVE EXIST. CULVERT AS NECESSARY TO CONSTRUCT ADDITIONAL 10' SECTION OF NEW CULVERT. PROVIDE TIGHT SHEETING AS NECESSARY (SEE SPECIFICATIONS)
3. BACKFILL OVER NEWLY CONSTRUCTED 10' SECTION OF CULVERT

PHASE III

1. MAINTAIN TEMPORARY ROADWAY FOR EASTBOUND TRAFFIC CONSTRUCTED UNDER PHASE II PROVIDE TEMPORARY 10' ROADWAY FOR WESTBOUND TRAFFIC OVER NEW CULVERT
2. REMOVE EXIST. CULVERT AS NECESSARY TO CONSTRUCT ADDITIONAL 20.5'± OF NEW CULVERT TO LIMITS OF THE MAIN STREET DEDICATION. PROVIDE TIGHT SHEETING (SEE SPECIFICATIONS)
3. BACKFILL OVER NEWLY CONSTRUCTED CULVERT
4. RECONSTRUCT CURBS, PAVING AND RESTORE ROADWAY AND TRAFFIC TO ORIGINAL CONFIGURATION (SIDEWALK, DEPRESSED CURB AND NEW DRIVEWAY APRON INTO TALBOTT LUMBER CO. SHALL BE DONE BY OTHERS - SEE SPECIFICATIONS)

PHASE IV

1. REMOVE EXIST. CULVERT AS NECESSARY TO CONSTRUCT NEW CULVERT WITHIN PROPERTY OF TALBOTT LUMBER CO. (SEE SPECIFICATIONS)
2. HOLD CONSTRUCTION SHORT OF COURT AVE, AS NECESSARY TO AVOID CONFLICT WITH MAINTENANCE OF TRAFFIC ON COURT AVE.
3. BACKFILL OVER NEWLY CONSTRUCTED CULVERT.

PHASE V

1. CLOSE TRAFFIC ON COURT AVE, BY INSTALLING BARRICADES CLEAR OF CONSTRUCTION, AS NECESSARY. (SEE SPECIFICATIONS FOR TYPES OF BARRICADES, INFORMATIONAL SIGNS, AND DATES OF CLOSING OF COURT AVE.)
2. REMOVE EXIST. CULVERT, MASONRY WALLS AND SUN DECK, AS NECESSARY TO CONSTRUCT NEW CULVERT AND SUN DECK.
3. MAINTAIN PEDESTRIAN TRAFFIC TO EXIST BUILDING'S AT THE UPSTREAM SIDE OF THE COURT AVE. CULVERT THROUGHOUT THE FULL LIFE OF THIS CONSTRUCTION.
4. BACKFILL OVER NEWLY CONSTRUCTED CULVERT
5. RESTORE ROADWAY AND TRAFFIC TO ORIGINAL CONFIGURATION. (CURB ALONG TALBOTT LUMBER CO. SHALL BE DONE BY OTHERS - SEE SPECIFICATIONS)

GENERAL NOTES FOR MAINTENANCE OF TRAFFIC

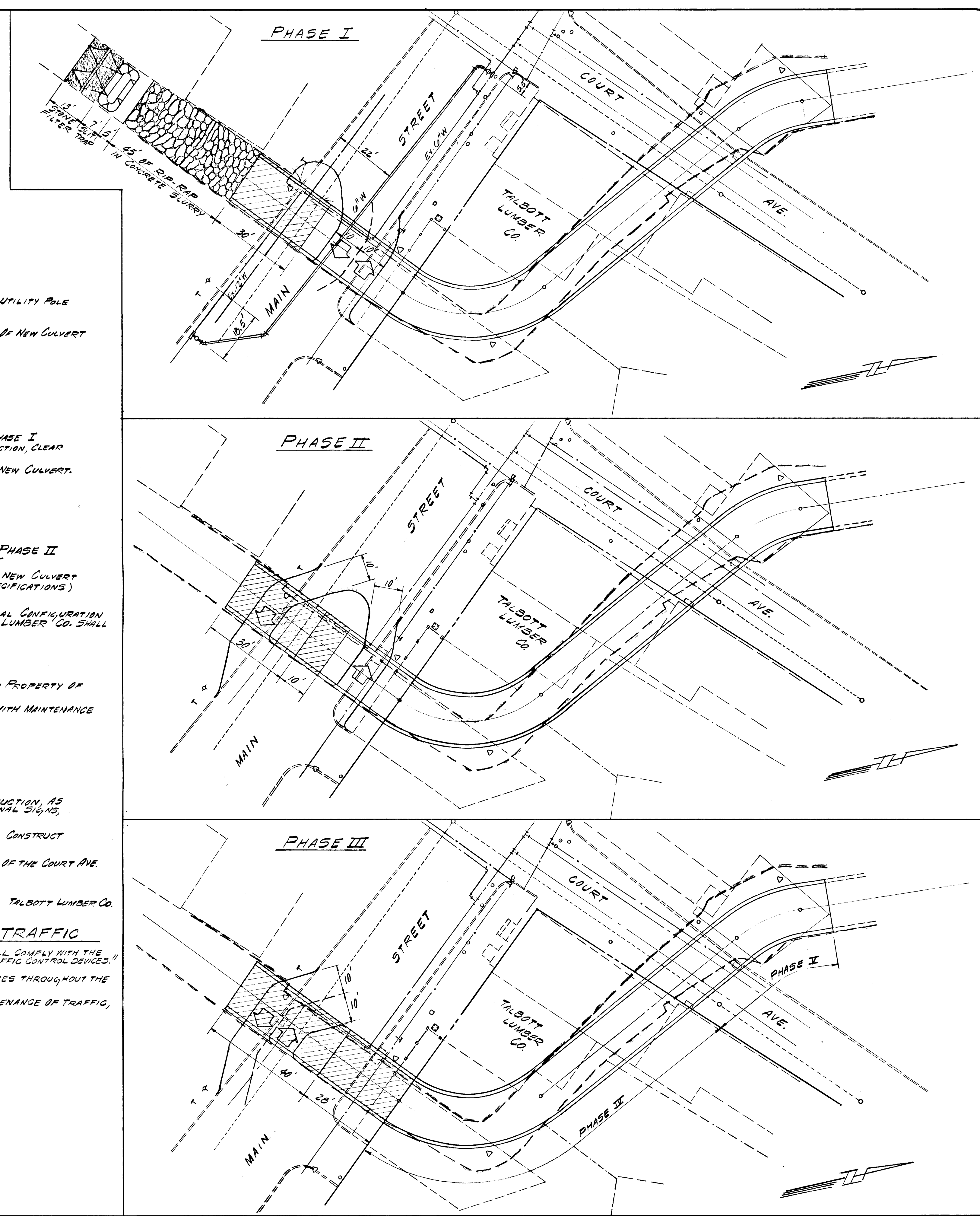
1. THE CONTRACTOR, IN ARRANGING FOR THE MAINTENANCE OF TRAFFIC, SHALL COMPLY WITH THE REQUIREMENTS AND TECHNIQUES DEFINED BY THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
2. VEHICULAR AND PEDESTRIAN ACCESS SHALL BE MAINTAINED TO ALL PROPERTIES THROUGHOUT THE FULL LIFE OF THIS CONTRACT.
3. ANY LANDSCAPING MATERIAL WHICH MUST BE REMOVED DURING THE MAINTENANCE OF TRAFFIC, SHOULD BE REPLACED IN KIND.

DEVELOPER'S CERTIFICATION

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SIGNATURE OF DEVELOPER

DATE



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SIGNATURE OF ENGINEER

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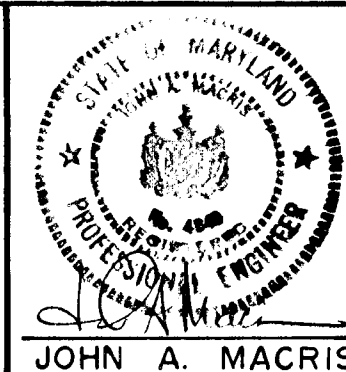
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SIGNATURE OF DEVELOPER

DATE

REVIEWED FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND



MACRIS, HENDRICKS AND WITMER P.A.

CIVIL-STRUCTURAL ENGINEERS, SURVEYORS, PLANNERS

15209 FREDERICK ROAD ROCKVILLE, MD. 20850
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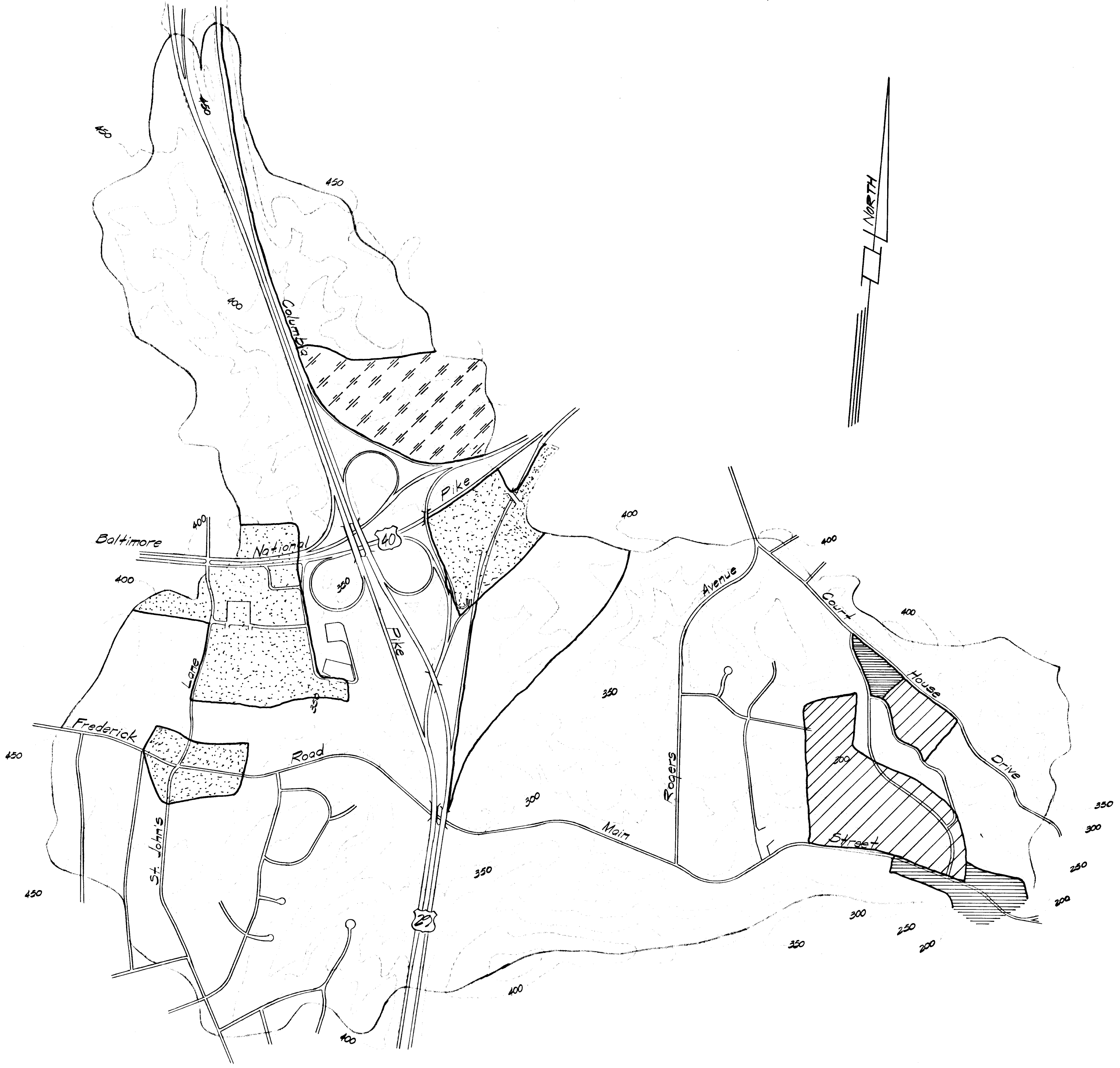
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MAINTENANCE OF TRAFFIC
SOIL EROSION & SEDIMENT CONTROL
TIBER HUDSON BRANCH BOX CULVERT

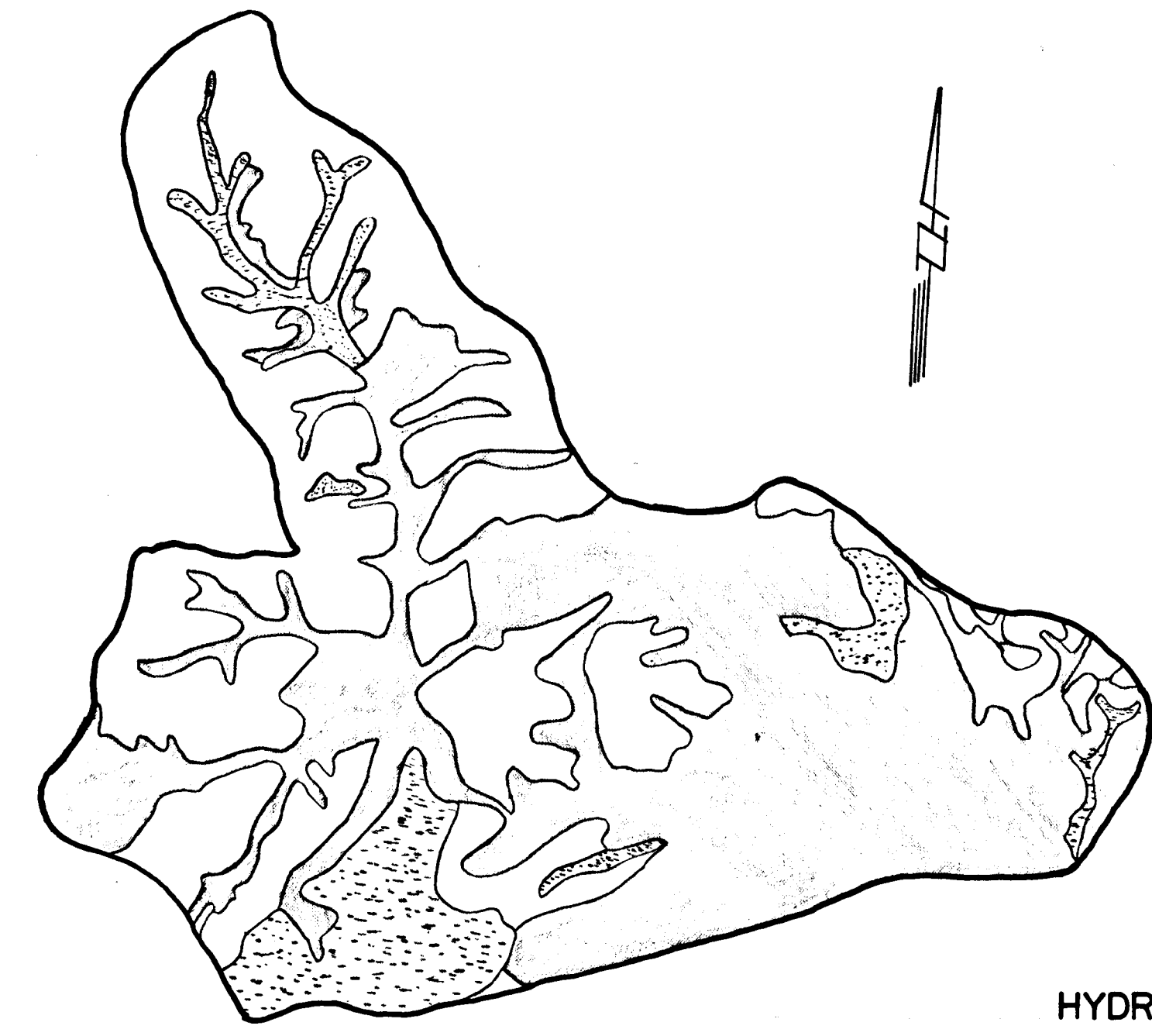
SECOND ELECTION DISTRICT

HOWARD COUNTY, MARYLAND


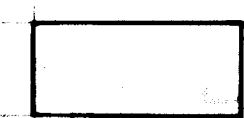
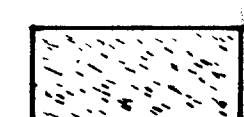
SCALE AS SHOWN
DRAWN D.A.C.
DESIGN J.W.H. DATE 8/22/77
JOB NO. MF 76-532
DRAWING NO. OF 7

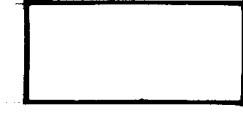
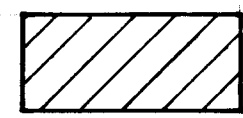
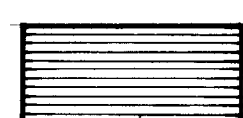
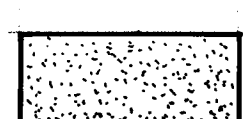
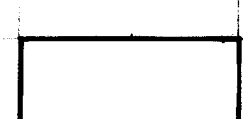
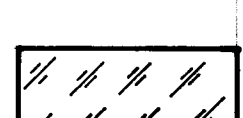


**ZONING CLASSIFICATION
DRAINAGE AREA MAP**
SCALE: 1" = 600'



**HYDROLOGIC SOIL GROUPS
DRAINAGE AREA MAP**
SCALE: 1" = 1320'

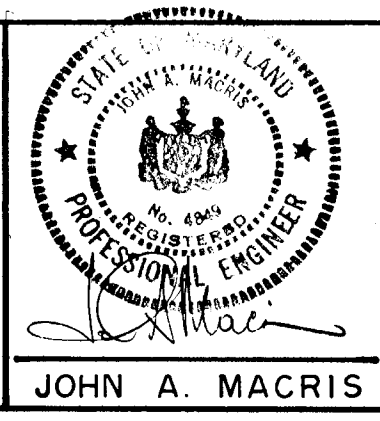
-  TYPE - "B"
-  TYPE - "C"
-  TYPE - "D"

-  R-20 RESIDENTIAL, ONE FAMILY DETACHED
-  RA-1 RESIDENTIAL, GARDEN TYPE APARTMENTS
-  B-1 BUSINESS - LOCAL
-  B-2 BUSINESS - GENERAL
-  M-R MANUFACTURING - RESTRICTED
-  M-1 MANUFACTURING - LIGHT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS _____ DATE _____

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MACRIS, HENDRICKS AND WITMER PA.

CIVIL - STRUCTURAL ENGINEERS; SURVEYORS; PLANNERS

15209 FREDERICK ROAD ROCKVILLE, MD. 20850

(301) 340-8705 (301) 774-0664

CONTRACT NO. _____

CAPITAL PROJECT NO. D-4-1011

DRAINAGE AREA MAP

TIBER HUDSON BRANCH BOX CULVERT

SECOND ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

SCALE As Shown	DRAWN D.A.C.
CHECKED J.A.M.	DATE 1/4/77
JOB N° 70-532	
DRAWING N° 7 OF 7	

PROFILE LEGEND

- LEFT SIDE (LOOKING UPSTREAM)
- RIGHT SIDE
- △ RIGHT SIDE
- CALCULATED SLOPE
- - - TOP OF EX. WALL (RIGHT SIDE) BEYOND TIMES BLDG.
- - - TOP OF EX. WALL (LEFT SIDE) BEYOND TIMES BLDG.
- MEAN HYDRAULIC GRADIENT

NOTE: ALL ELEVATIONS SHOWN ARE EXISTING

RUNOFF NORMALLY FLOWING OVER THE CULVERT WALLS SHALL BE DIRECTED TO INLETS ON EACH SIDE OF THE CULVERT.

CURVE DATA

R = 21'
 Δ = 58°
 L = 212.0'

PLAN

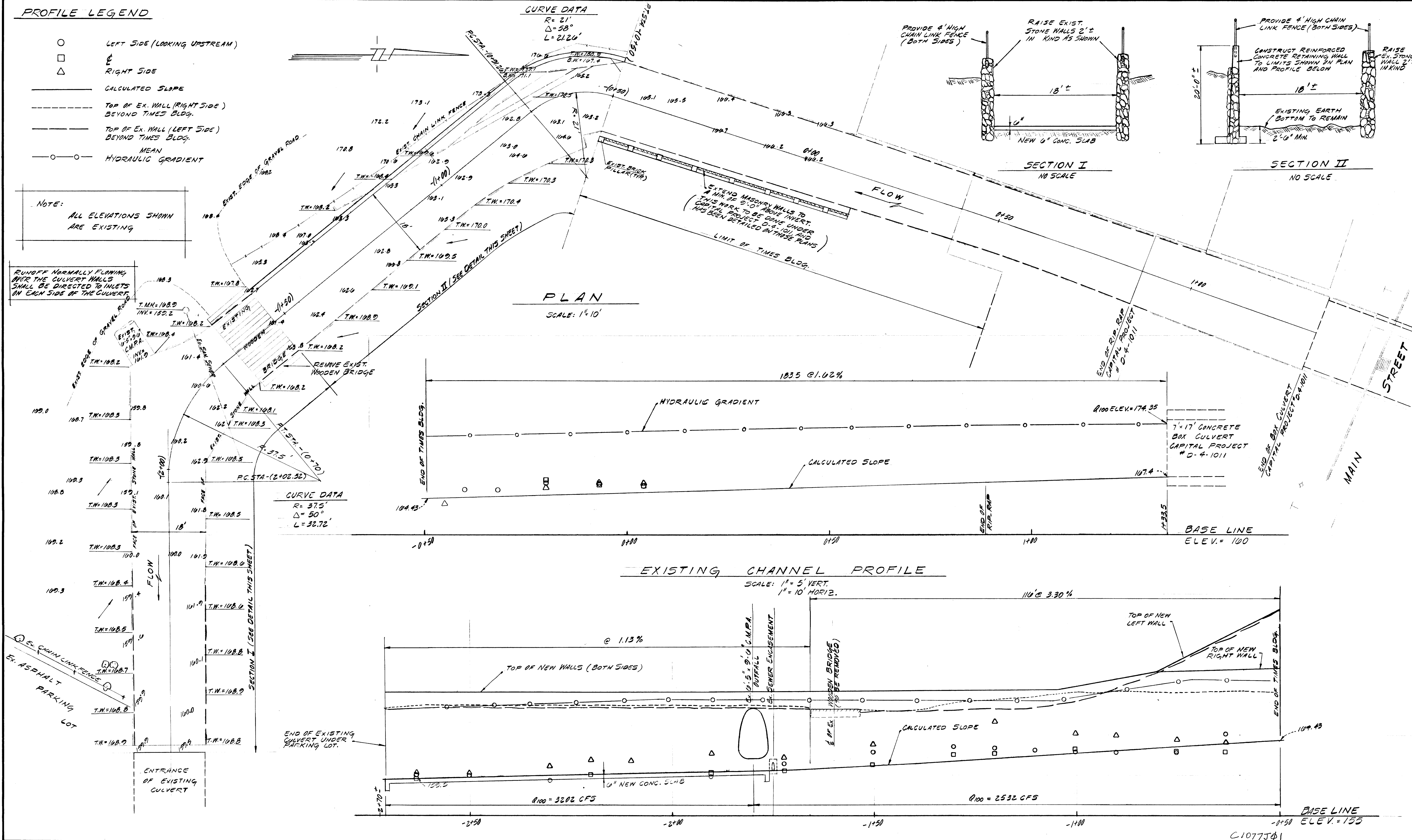
SCALE: 1" = 10'

CURVE DATA

R = 37.5'
 Δ = 50°
 L = 32.72'

EXISTING CHANNEL PROFILE

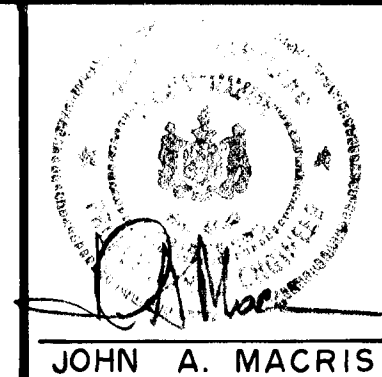
SCALE: 1" = 5' VERT.
 1" = 10' HORIZ.



DEPARTMENT OF PUBLIC WORKS
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CIVIL-STRUCTURAL ENGINEERS, SURVEYORS, PLANNERS

15209 FREDERICK ROAD ROCKVILLE, MD. 20850

(301) 340-8705 (301) 774-0664

CONTRACT NO. _____

CAPITAL PROJECT NO. _____

HYDRAULIC ANALYSIS
 DOWNSTREAM FROM MAIN STREET
TIBER HUDSON BRANCH BOX CULVERT

SECOND ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

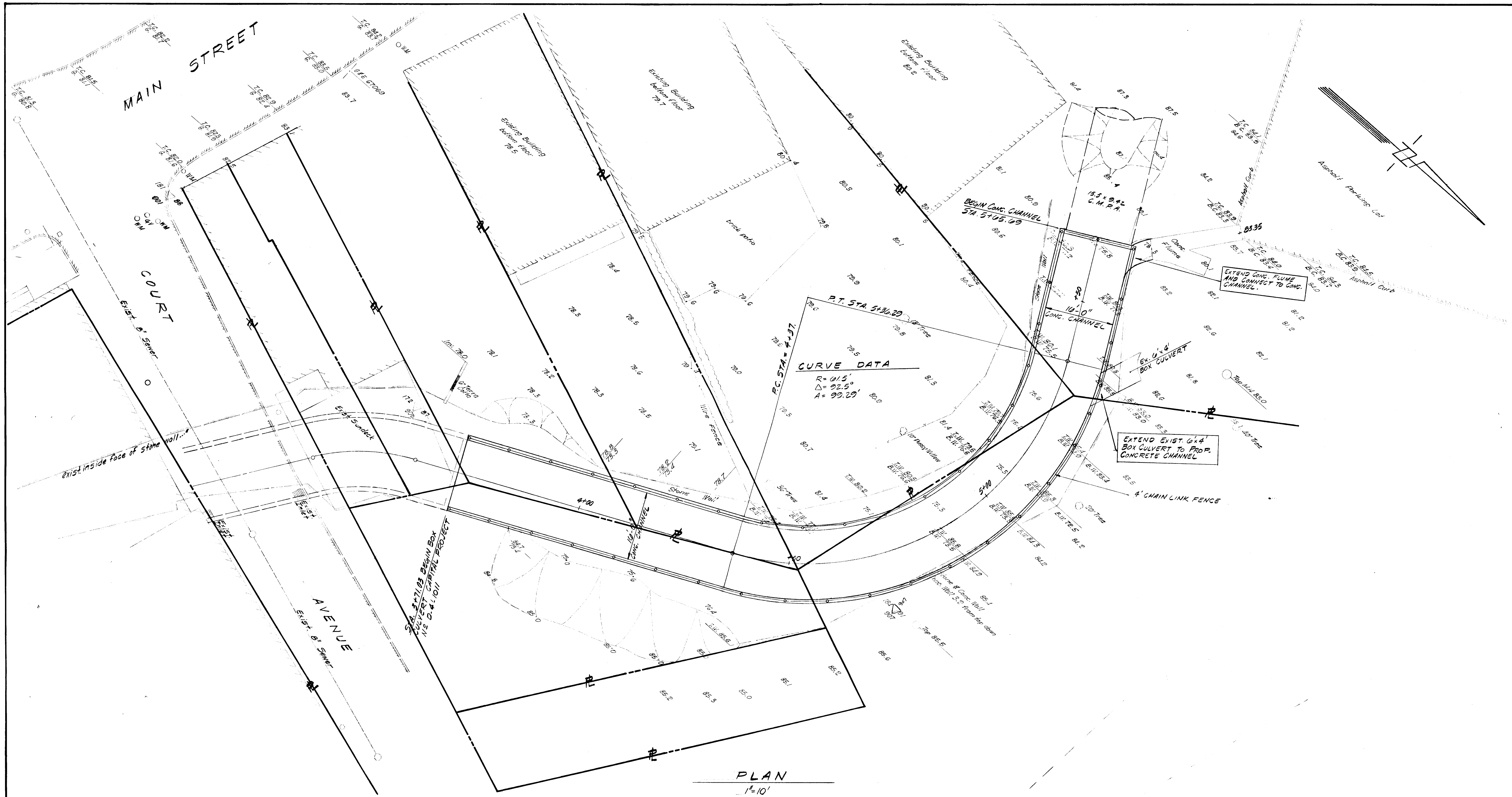
CHECKED J.A.M.

DESIGNED J.W.H.

DATE 1-19-78

JOB NO. MF # 70-352-A


DRAWING NO. 10F3



CURVE DATA
 R = 41.5'
 Δ = 22.5°
 A = 99.22'

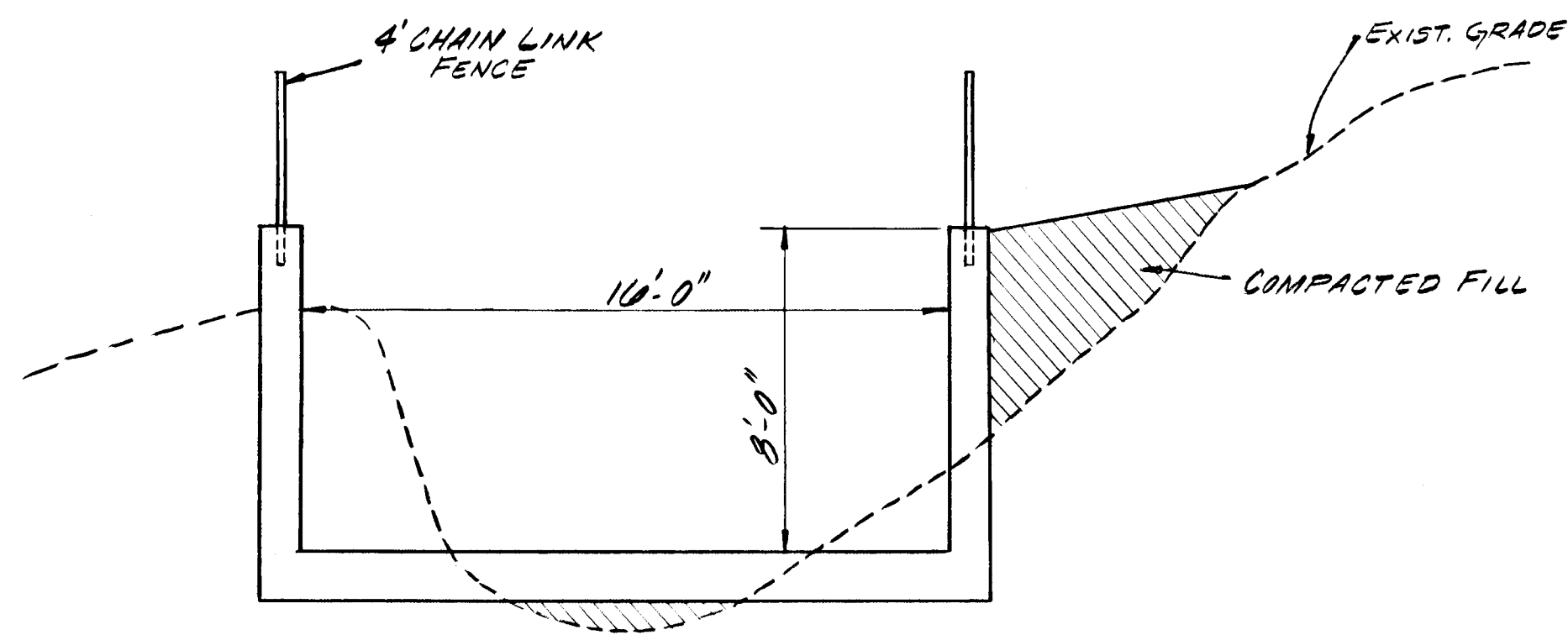
PLAN
 1" = 10'

ALL ELEVATIONS SHOWN
 ARE EXISTING

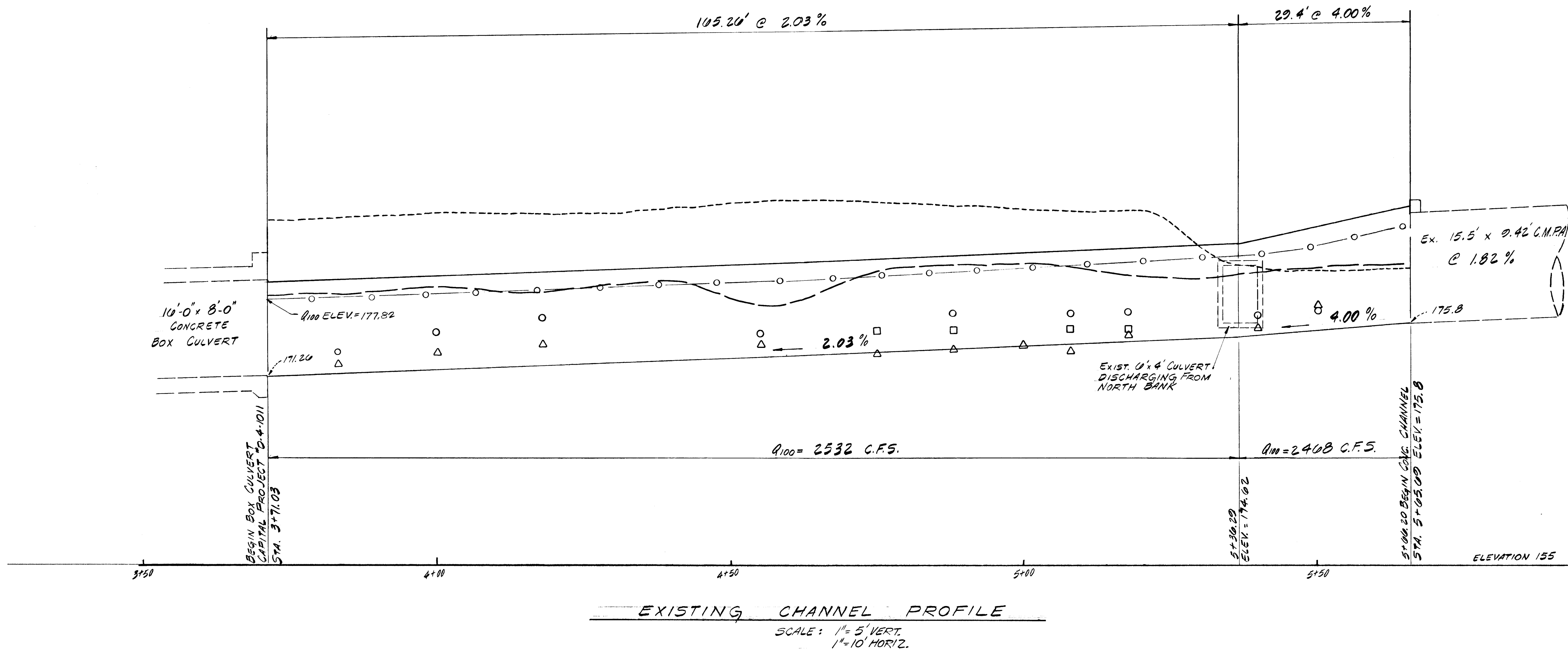
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND _____ DIRECTOR OF PUBLIC WORKS DATE _____ CHIEF BUREAU OF ENGINEERING DATE	 JOHN A. MACRIS	MACRIS, HENDRICKS AND WITMER P.A. CIVIL-STRUCTURAL ENGINEERS, SURVEYORS; PLANNERS 15209 FREDERICK ROAD ROCKVILLE, MD. 20850 (301) 340-8705 (301) 774-0664	CONTRACT NO. _____ CAPITAL PROJECT NO. _____	HYDRAULIC ANALYSIS UPSTREAM FROM MAIN STREET TIBER HUDSON BRANCH BOX CULVERT		SCALE 1" = 10'	DRAWN S C B
				SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND		DESIGN J W H	DATE 10/26/77

LEGEND

- LEFT SIDE (LOOKING UPSTREAM)
- RIGHT SIDE
- △ RIGHT SIDE
- PROPOSED CONCRETE CHANNEL
- - - TOP OF EXISTING BANK (RIGHT SIDE)
- TOP OF EXISTING BANK (LEFT SIDE)
- HYDRAULIC GRADIENT



TYPICAL SECTION CONCRETE CHANNEL
SCALE: 1/4" = 1'-0"



EXISTING CHANNEL PROFILE
SCALE: 1" = 5' VERT.
1" = 10' HORIZ.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS _____ DATE _____

CHIEF BUREAU OF ENGINEERING _____ DATE _____



JOHN A. MACRIS

MACRIS, HENDRICKS AND WITMER P.A.

CIVIL-STRUCTURAL ENGINEERS, SURVEYORS, PLANNERS
15209 FREDERICK ROAD ROCKVILLE, MD. 20850
(301) 340-8705 (301) 770-0664

CONTRACT NO. _____

CAPITAL PROJECT NO. _____

HYDRAULIC ANALYSIS
UPSTREAM FROM MAIN STREET
TIBER HUDSON BRANCH BOX CULVERT

SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN	DRAWN D.A.C.
DESIGN J.W.H.	DATE 1-19-78
JOB NO. MF # 70-532-A	
DRAWING NO. 3 OF 3	