

PROJECT NO. S-4-6041

ROUTE 108 FORCE MAIN

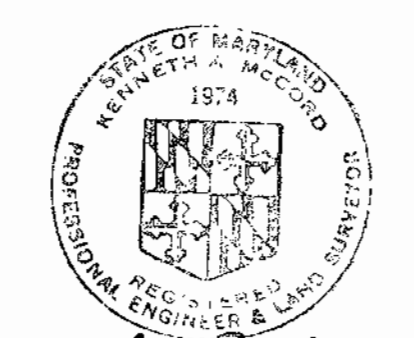
HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

QUANTITIES			
ITEM	BID	AS-BUILT	MATERIAL/SUPPLIER
20" F.M.	11,350 LF	11,273.52	Griffin Pipe Products Co.-D.I.P.
24" S	225 LF	228.00	Concrete Pipe & Products Co.-RCF
21" S	1,900 LF	1,898.79	Concrete Pipe & Products Co.-RCF
18" S	200 LF	198.40	CAPCO Pipe Co. Inc. - A.C.P.
M4	10	10	Precast Atlantic Precast Concrete Inc.

Stake out F.B. G658
Diary F.B.'s 6663, 6714, 6750

AS-BUILT 20" F.M.
Horizontal bends were installed as shown to make design curatures.



Kenneth M. Wood

Route 108 Force Main
Project No. S-4-6041
Contract No. 682-5

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
2315 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Wm. F. Nemy 4-3-80
DIRECTOR OF PUBLIC WORKS - DATE
William L. Ellis 4/3/80
CHIEF-BUREAU OF ENGINEERING - DATE
CHIEF-BUREAU OF UTILITIES - DATE

CONTRACT NO. 682- S
PROJECT NO. S-4-6041

LOCATION MAP

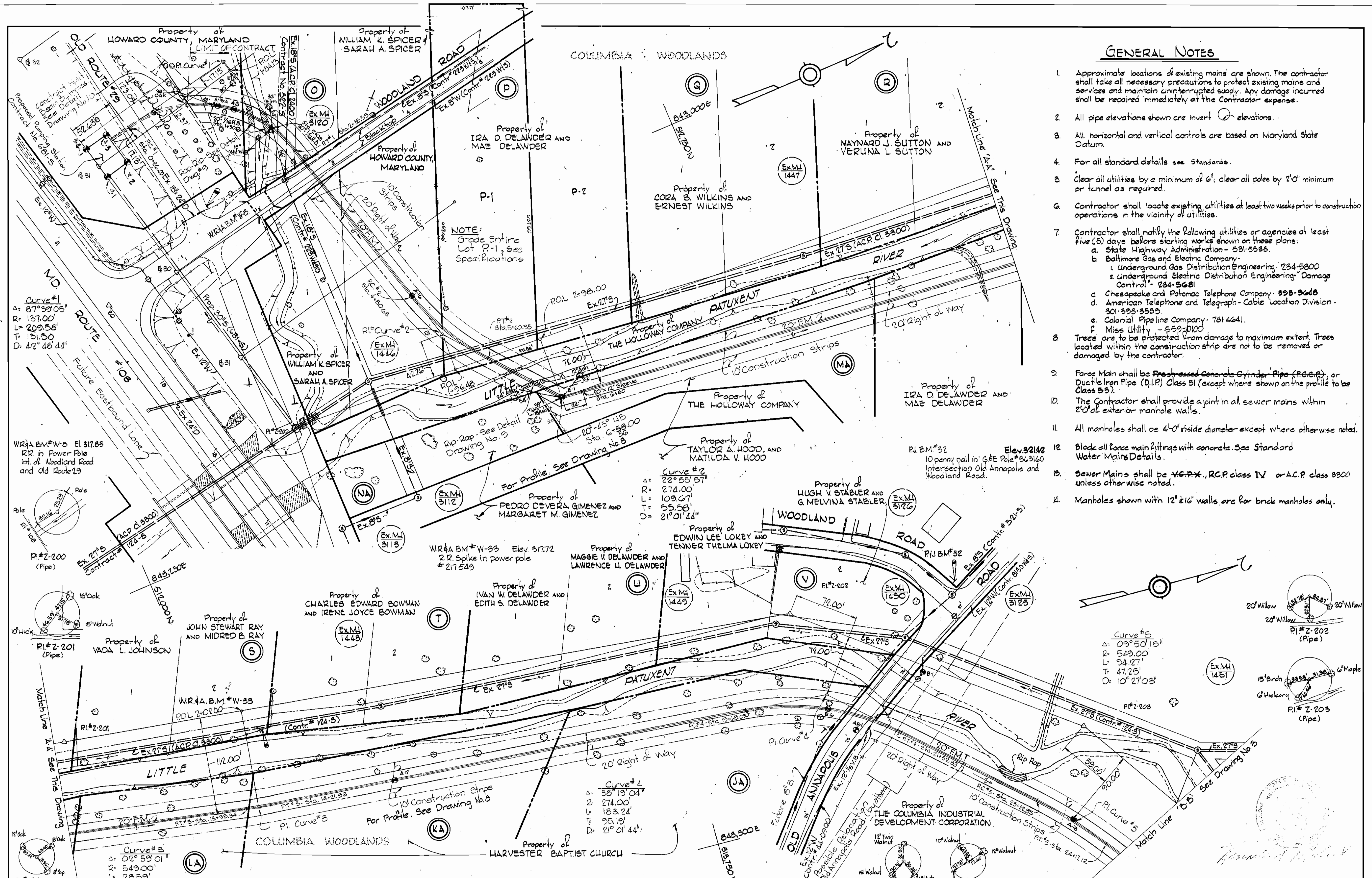
ELECTION DISTRICT
ELLCOTT CITY NO.2

DRAWING NO. 1 OF 10	SCALE AS SHOWN
---------------------	----------------

WS 682 S/1

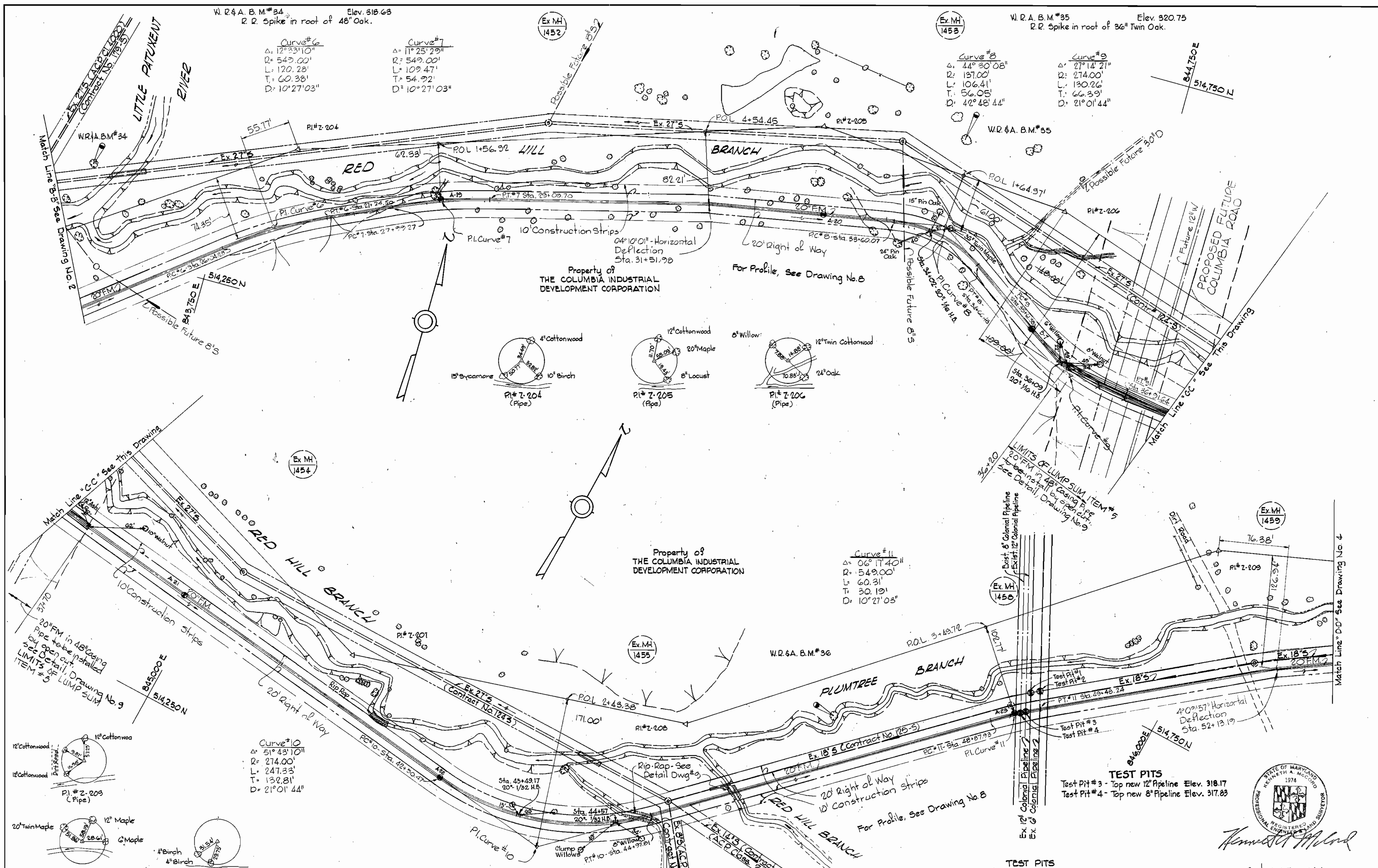
GENERAL NOTES

1. Approximate locations of existing mains are shown. The contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately at the Contractor expense.
2. All pipe elevations shown are invert \odot elevations.
3. All horizontal and vertical controls are based on Maryland State Datum.
4. For all standard details see standards.
5. Clear all utilities by a minimum of 6'; clear all poles by 2'-0" minimum or tunnel as required.
6. Contractor shall locate existing utilities at least two weeks prior to construction operations in the vicinity of utilities.
7. Contractor shall notify the following utilities or agencies at least five (5) days before starting works shown on these plans:
 - a. State Highway Administration - 531-5535
 - b. Baltimore Gas and Electric Company:
 - i. Underground Gas Distribution Engineering - 734-5800
 - ii. Underground Electric Distribution Engineering - Damage Control - 734-5621
 - c. Chesapeake and Potomac Telephone Company - 393-3648
 - d. American Telephone and Telegraph - Cable Location Division - 301-393-3555
 - e. Colonial Pipeline Company - 781-4641
 - f. Miss Utility - 559-0100
8. Trees are to be protected from damage to maximum extent. Trees located within the construction strip are not to be removed or damaged by the contractor.
9. Force Main shall be Freshressed Concrete Cylinder Pipe (F.C.C.P.) or Ductile Iron Pipe (D.I.P.) Class 51 (except where shown on the profile to be Class 53).
10. The Contractor shall provide a joint in all sewer mains within 2'-0" of exterior manhole walls.
11. All manholes shall be 4'-0" inside diameter except where otherwise noted.
12. Block all force main fittings with concrete. See Standard Water Mains Details.
13. Sewer Mains shall be V.G.P., R.C.P. class IV or A.C.P. class 3300 unless otherwise noted.
14. Manholes shown with 12" x 16" walls are for brick manholes only.



<p>WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 2315 ST. PAUL ST. BALTIMORE, MARYLAND</p>	<p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Wm. F. Neuman, Jr. 4-3-80 DIRECTOR OF PUBLIC WORKS - DATE</p>	<p>CONTRACT NO. 682-S PROJECT NO. S-4-6041</p>	<p>PLAN OF FORCE MAIN</p>	<p>ELECTION DISTRICT ELLCOTT CITY NO. 2</p>	<p>DRAWING NO. 2 OF 10</p>	<p>SCALE 1"=50'</p>	<p>Project No. S-4-6041 Contract No. 682-S</p>
--	--	--	----------------------------------	---	-----------------------------------	----------------------------	--

WS 682 S/2



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works: *James F. Nemmy* 4-3-80
 Chief - Bureau of Engineering: *James E. Pugh* 4-2-80
 Chief - Bureau of Utilities: *James A. Gleig* 4/13/80

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 2315 ST. PAUL ST.
 BALTIMORE, MARYLAND

CONTRACT NO. 682-S
 PROJECT NO. S-4-6041

PLAN OF
 FORCE MAIN

ELECTION DISTRICT
 ELLICOTT CITY NO. 2

TEST PITS
 Test Pit #1 - Top 12" Pipeline Elev. 318.55
 Test Pit #2 - Top of Pipeline Elev. 320.17
 Test Pit #3 - Top new 12" Pipeline Elev. 318.17
 Test Pit #4 - Top new 8" Pipeline Elev. 317.83

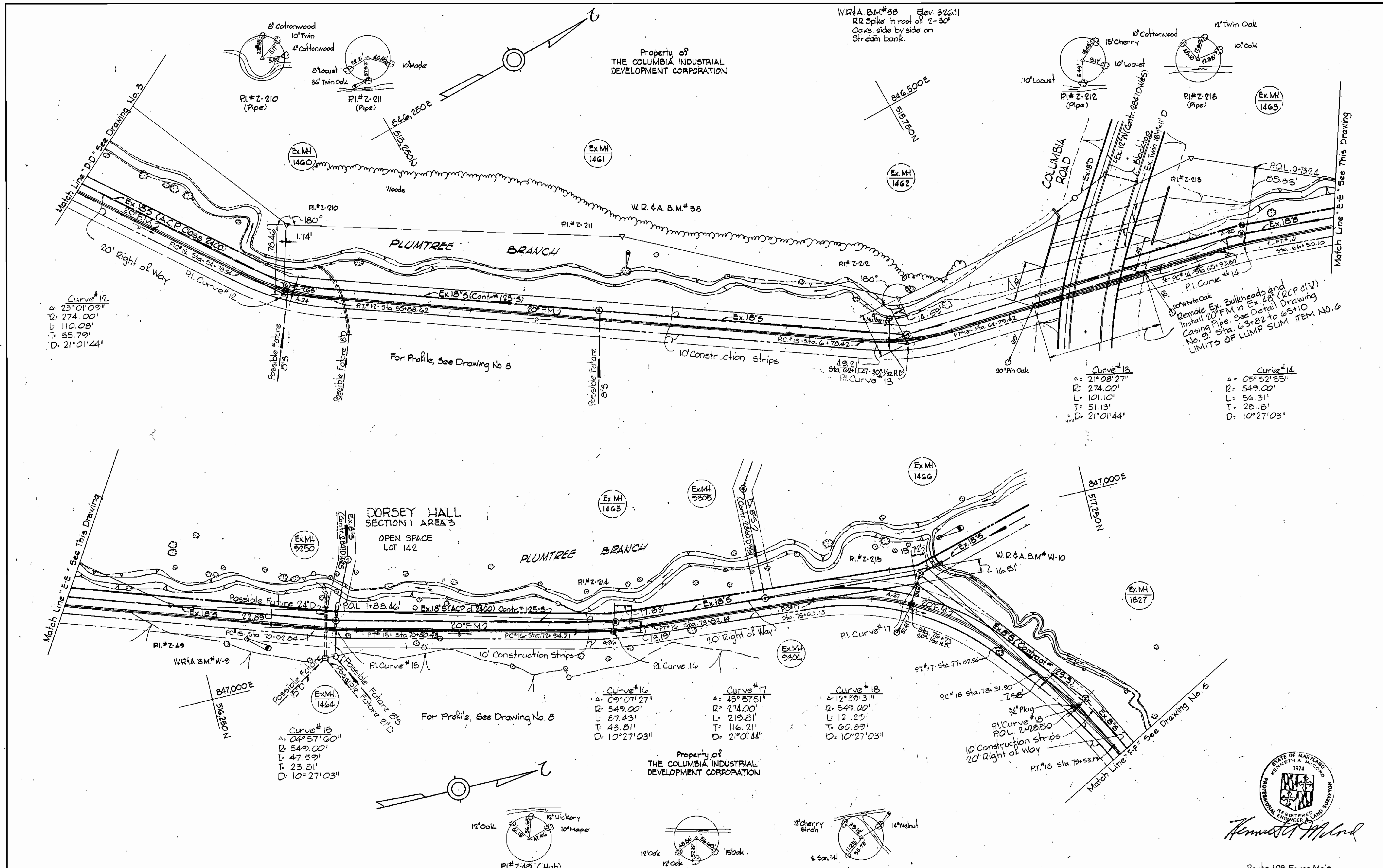
Route 108 Force Main
 Project No. S-4-6041
 Contract No. 682-S

DRAWING NO. 3 OF 10
 SCALE 1"=50'
 514-(2)
 514-(3)
 514-(2)

WS 682 S/3

WS 682 S

REVISION 44.510 14382



W.R.A. B.M. # W-9 Elev. 330.44
R.R. Spike in side of 14' Oak

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
2315 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Henry F. Neuman 4-3-80
DIRECTOR OF PUBLIC WORKS - DATE

James J. Givis 4/3/80
CHIEF - BUREAU OF UTILITIES - DATE

CONTRACT NO. 682-S
PROJECT NO. S-4-6041

PLAN OF FORCE MAIN

W.R.A. B.M. # W-10 Elev. 330.84
R.R. Spike in side of 14' Walnut

ELECTION DISTRICT
ELLICOTT CITY NO. 2

DRAWING NO. 4 OF 10

SCALE 1" = 50'

5/4-(2)
5/5-(2)
5/6-(2)
5/7-(1)
5/7-(1)

W. O. 6918-2

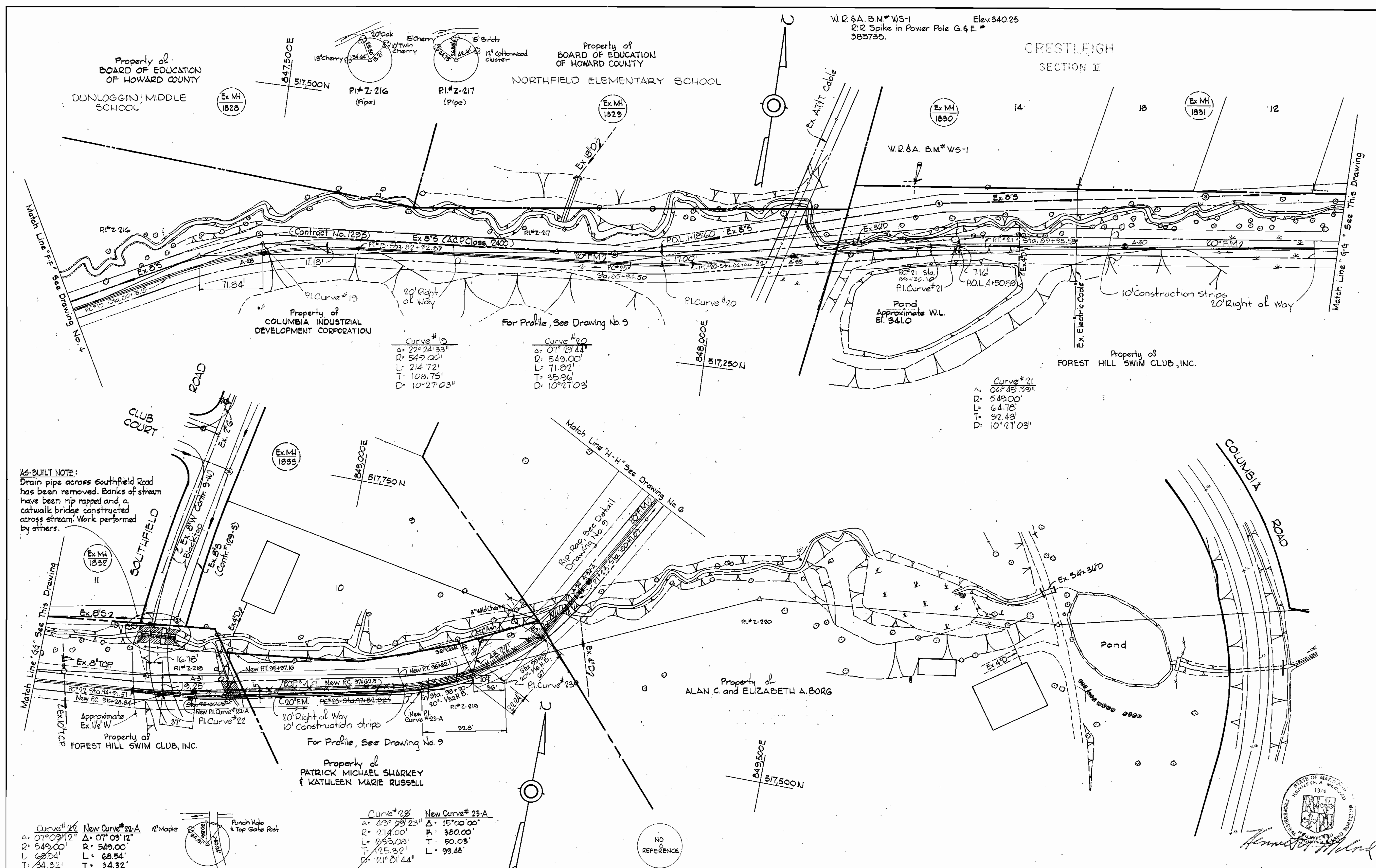
AS-BUILT JUN 15 1983

FB# 5305, 5472, 5780, 5784, 4228 June 3, 1983



Kenneth A. McCord
REGISTERED PROFESSIONAL ENGINEER - LAND SURVEYOR

WS 682 5/5



AS-BUILT NOTE:
 Drain pipe across Southfield Road has been removed. Banks of stream have been rip rapped and a catwalk bridge constructed across stream. Work performed by others.

Curve #21	New Curve #21-A	12" Maple	Punch Hole & Top Gate Post
Δ: 07°09'12"	Δ: 07°09'12"		
R: 549.00'	R: 549.00'		
L: 68.54'	L: 68.54'		
T: 34.32'	T: 34.32'		
D: 10°27'03"			

Curve #23	New Curve #23-A
Δ: 49°09'23"	Δ: 15°00'00"
R: 274.00'	R: 380.00'
L: 935.08'	L: 50.03'
T: 25.32'	L: 99.46'
D: 21°01'44"	

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 2315 ST. PAUL ST.
 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
Way F. Nunn 4-3-80
 DIRECTOR OF PUBLIC WORKS - DATE
William J. Riley 4-2-80
 CHIEF - BUREAU OF ENGINEERING - DATE
James J. Givig 4/3/80
 CHIEF - BUREAU OF UTILITIES - DATE

CONTRACT NO. 682-S
PROJECT NO. S-4-6041

PLAN OF FORCE MAIN

ELECTION DISTRICT ELLICOTT CITY NO. 2

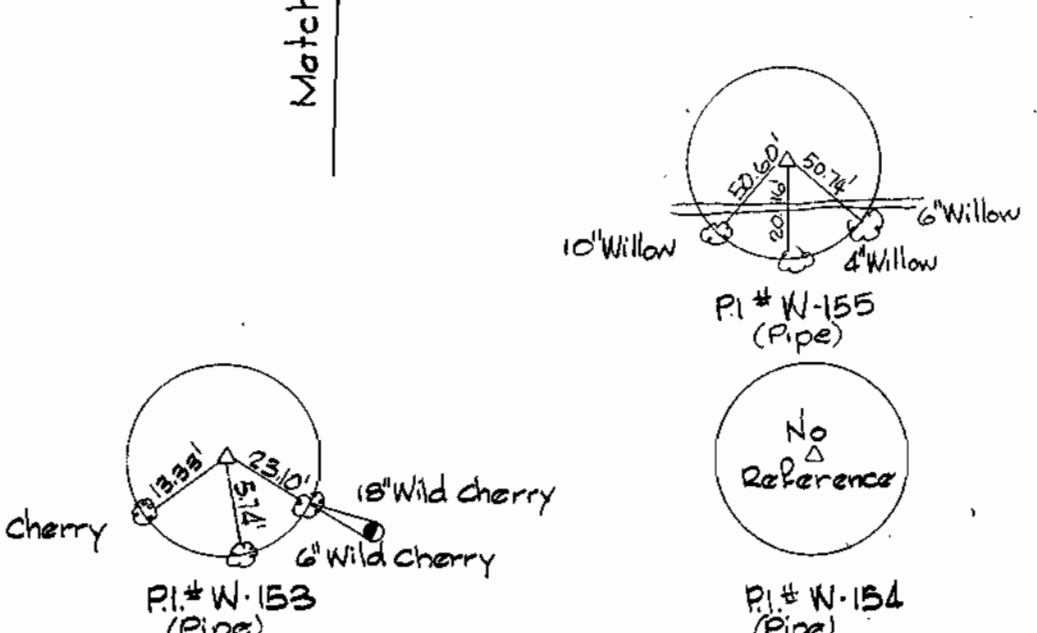
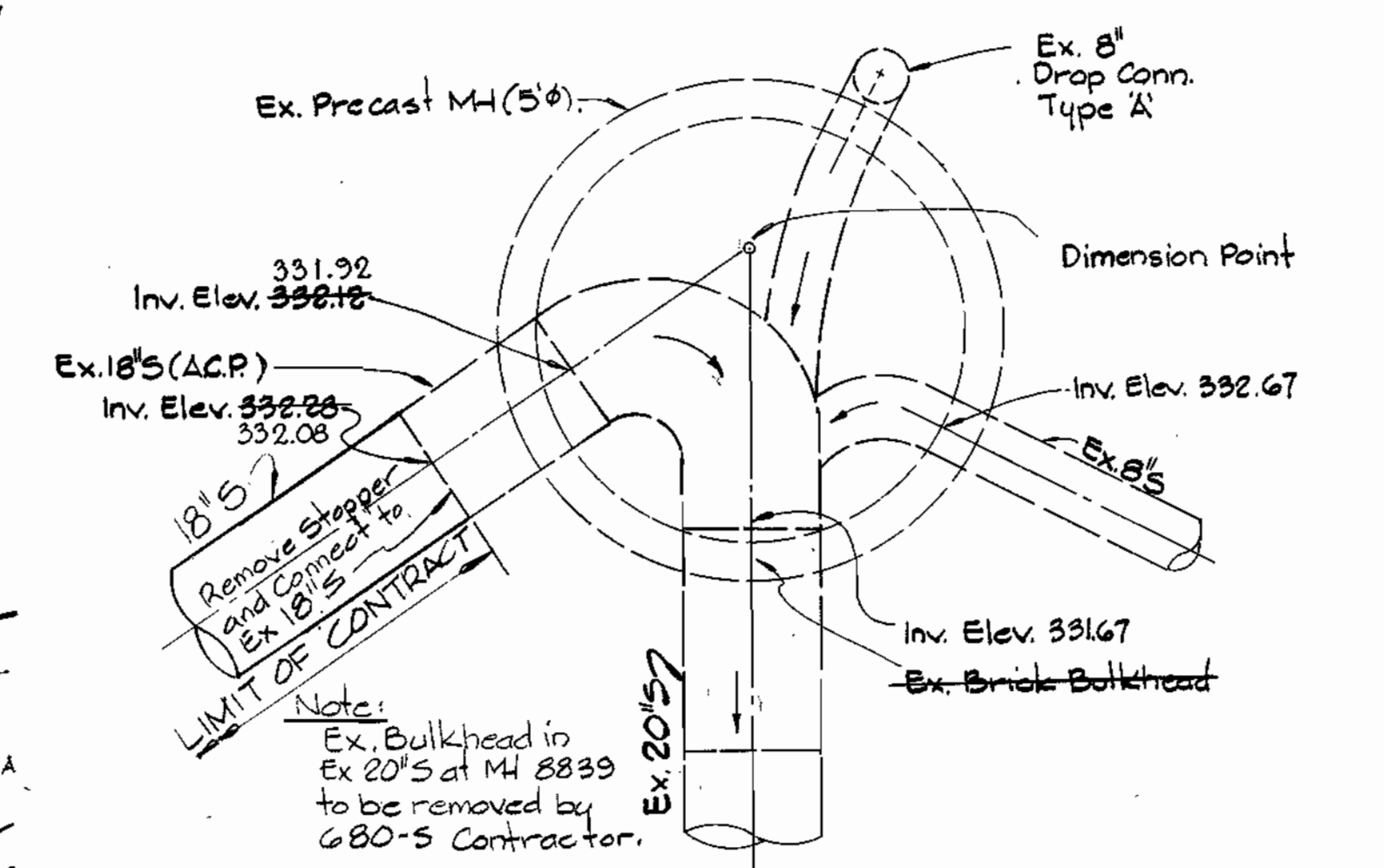
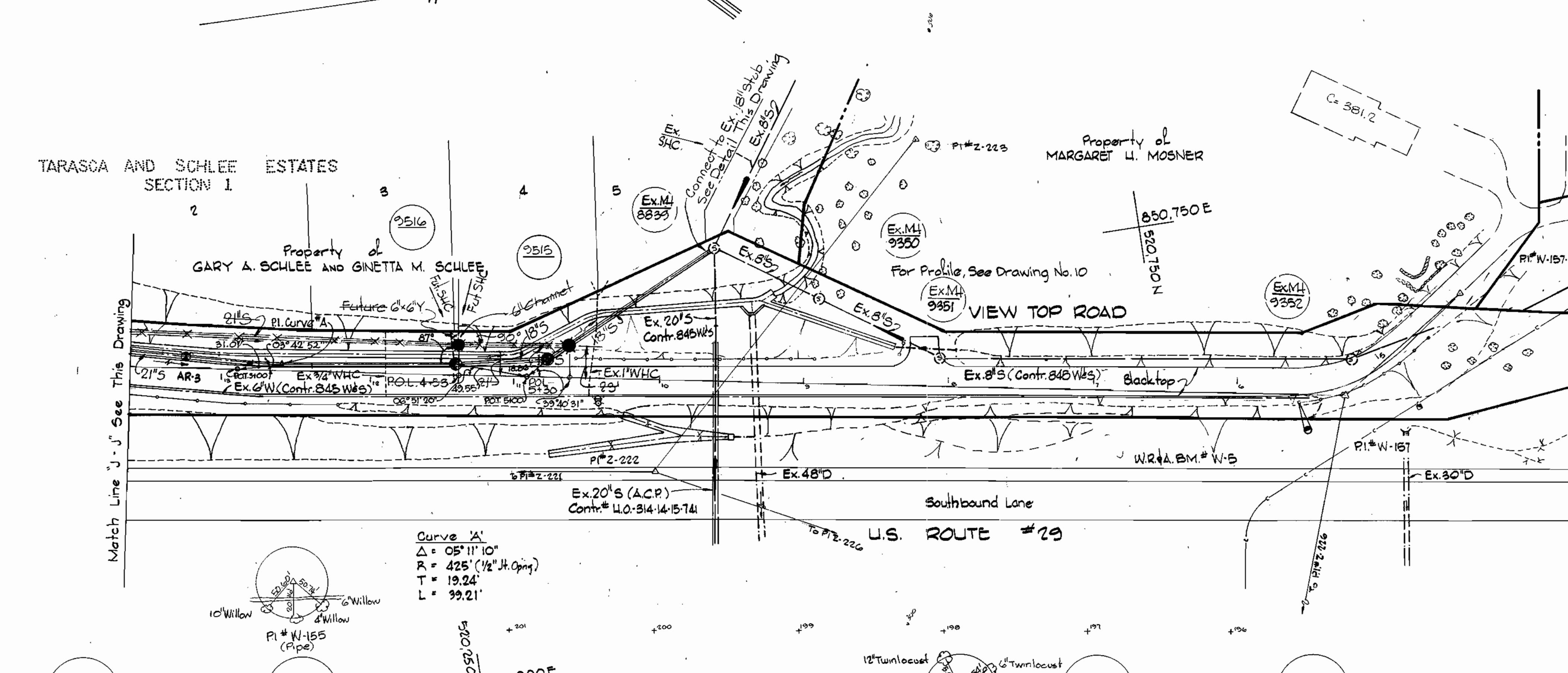
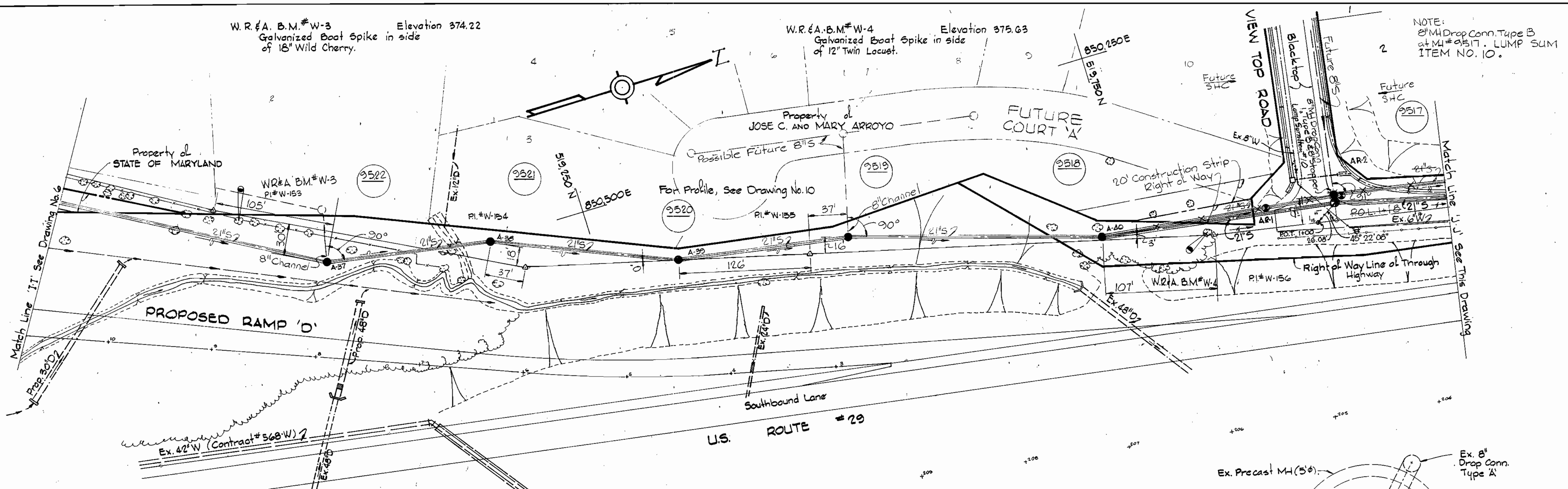
DRAWING NO. 5 OF 10	SCALE 1"=50'	517-1 517-2
----------------------------	---------------------	----------------

W.O. 6918-2

AS-BUILT JUN 15 1983

FB* 5474, 5780, 5784
June 9, 1981

NOTE:
 8" MH Drop Conn. Type B
 at M# 8517. LUMP SUM
 ITEM NO. 10.



Curve 'A'
 $\Delta = 05^{\circ} 11' 10''$
 $R = 425'$ (1/2" H. Oping)
 $T = 19.24'$
 $L = 99.21'$

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 2315 ST. PAUL ST.
 BALTIMORE, MARYLAND

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

CONTRACT NO. 682 - S
 PROJECT NO. S-4-6041

PLAN OF OUTFALL
 AND COLLECTING SEWER

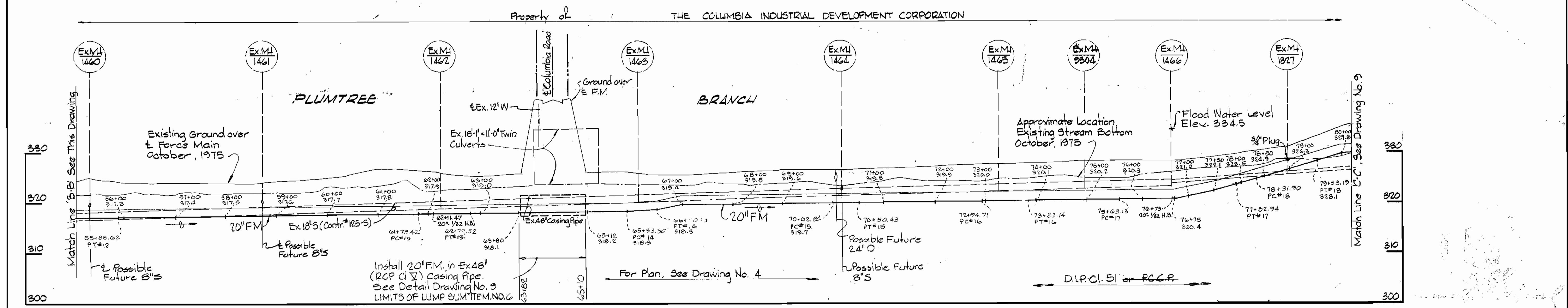
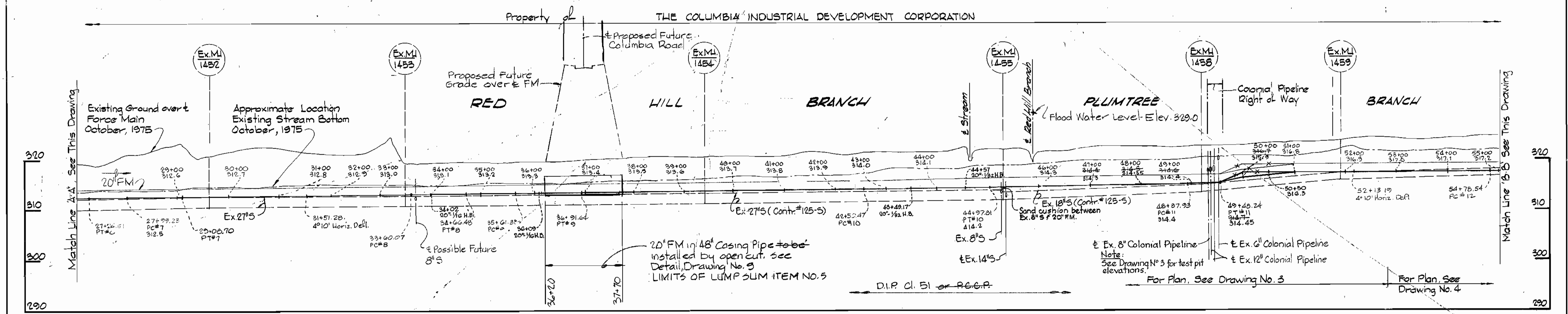
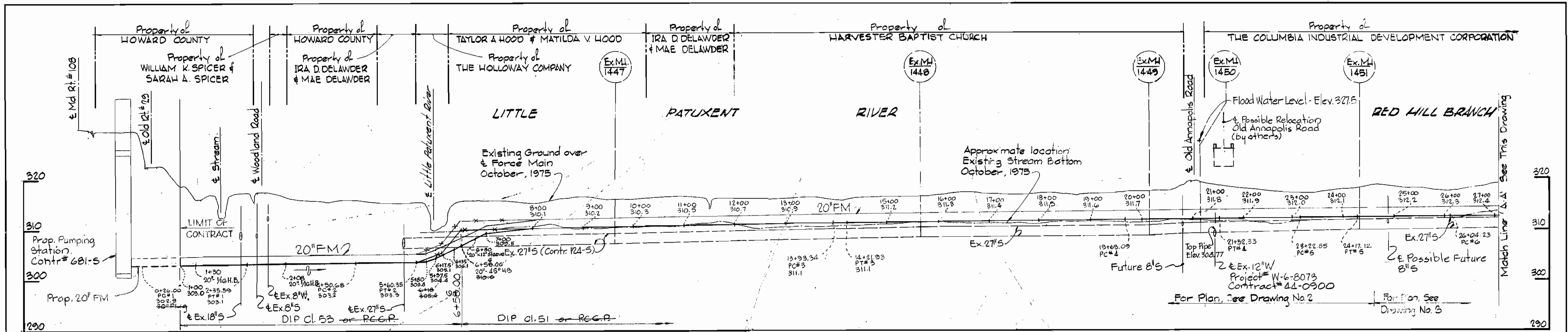
ELECTION DISTRICT
 ELLICOTT CITY NO. 2

DRAWING NO. 7 OF 10	SCALE 1" = 50'	520-2 519-2 518-2
---------------------	----------------	-------------------------



Project No. S-4-G041
 Contract No. G82-5

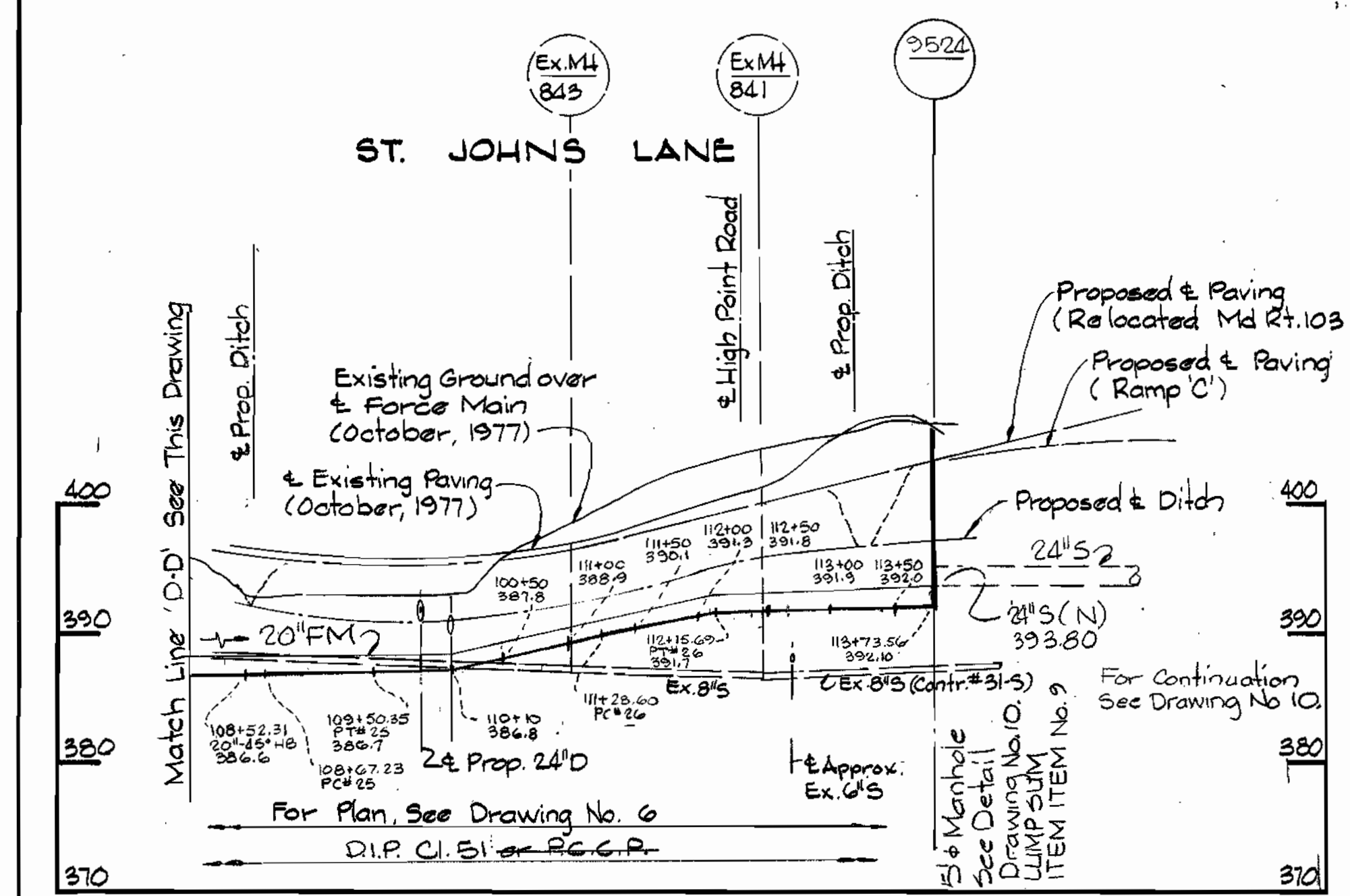
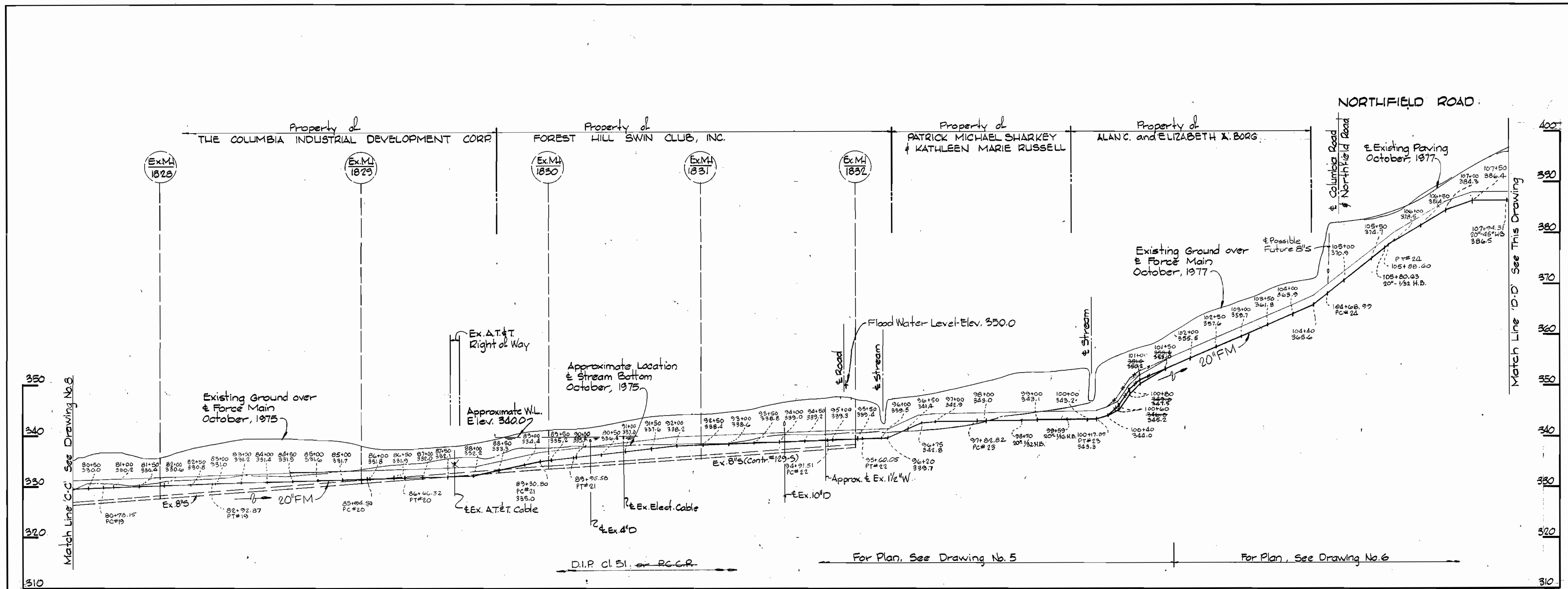
WS 682 5/8



WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 2315 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DIRECTOR OF PUBLIC WORKS - DATE		CONTRACT NO. <u>682-S</u> PROJECT NO. <u>S-4-6041</u>	PROFILE OF FORCE MAIN	ELECTION DISTRICT ELLICOTT CITY NO. 2	DRAWING NO. <u>8</u> OF <u>10</u>	SCALE H: 1" = 100' V: 1" = 10'
	CHIEF-BUREAU OF ENGINEERING - DATE		CHIEF-BUREAU OF UTILITIES - DATE		Route 108 Force Main Project No. S-4-6041 Contract No. 682-S		

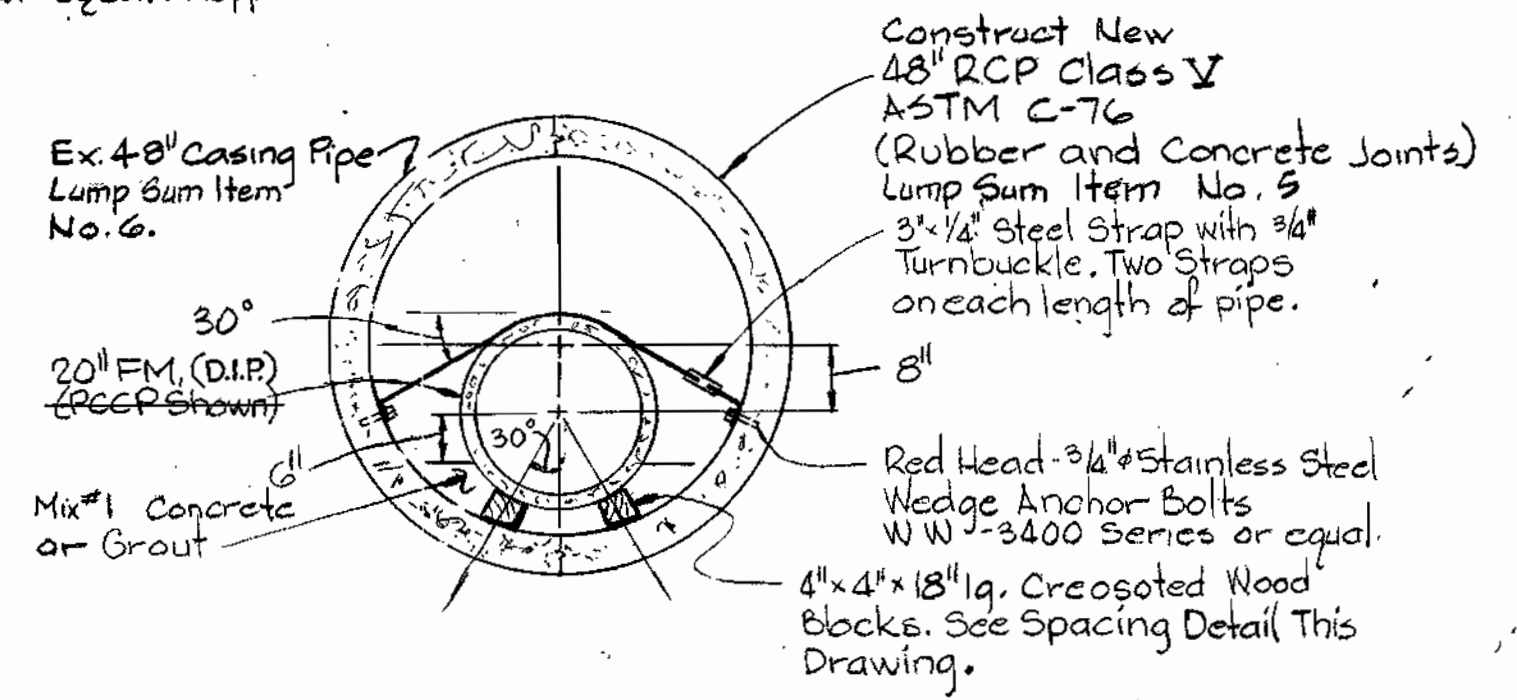
W. O. 6918-2

JUN 15 1983



NOTES

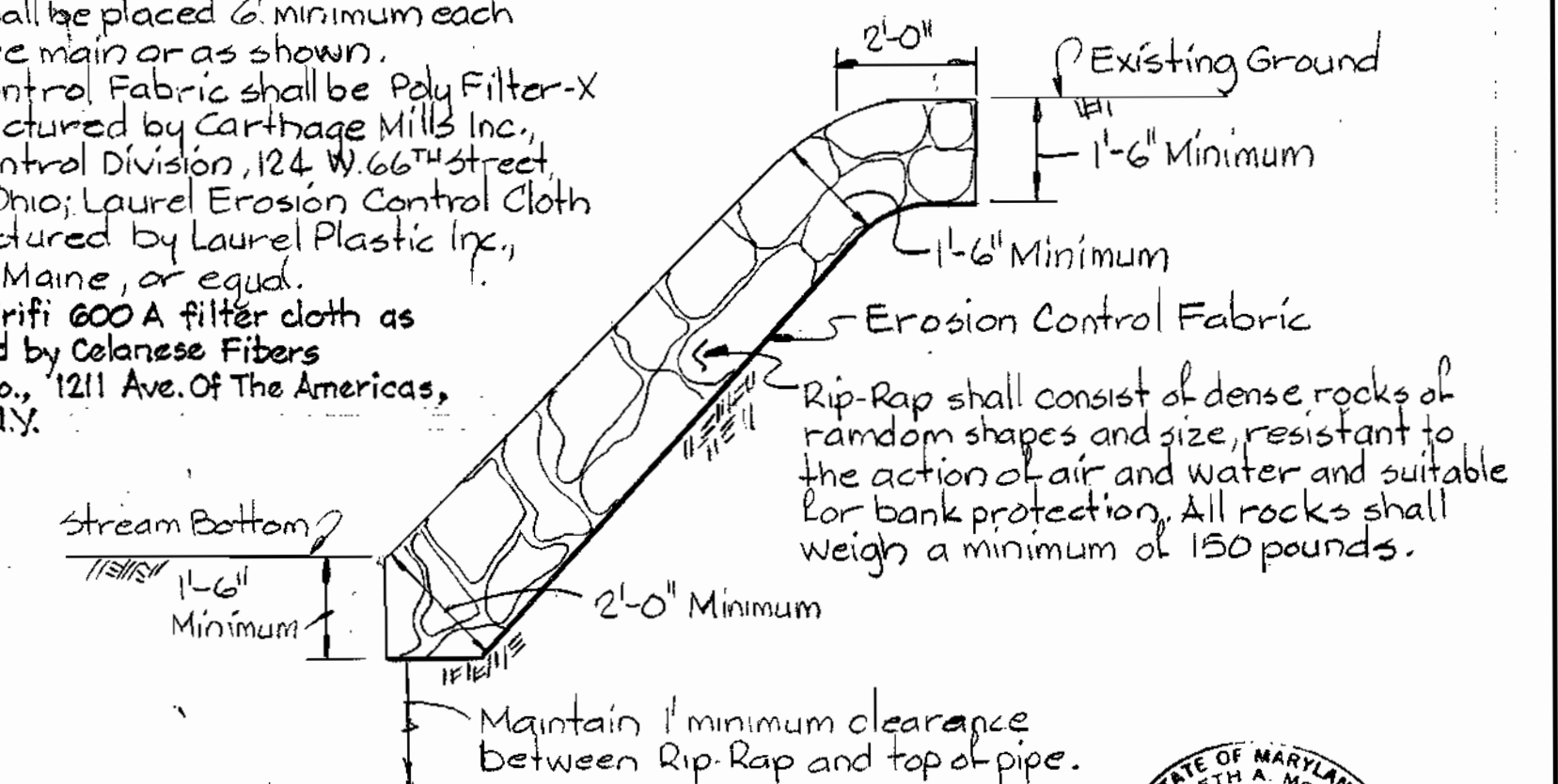
1. Provide 8-inch brick bulk head at each end of casing pipe.
2. Provide 2-2" galv. Drain Pipes through bulkhead on each side of force main at low end of casing pipe.
3. A joint shall be provided in force main outside of casing pipe within 2-feet of each end of casing pipe.
4. Paint all straps with 2 coats of Mobile Asphalt 35-J-11 or equal. Koppers Colcoat #50.



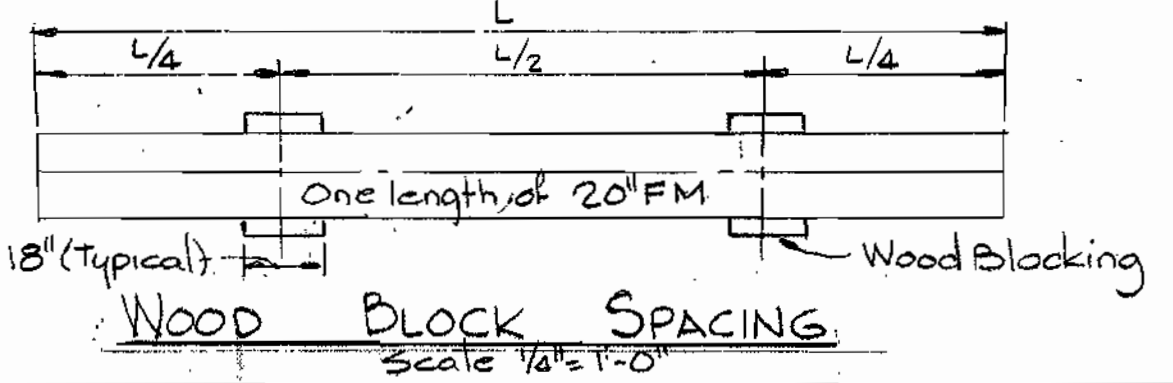
CASING DETAIL
Scale 1/2"=1'-0"

Notes:

1. Rip-Rap shall be placed 6' minimum each side & force main as shown.
2. Erosion control Fabric shall be Poly Filter-X as manufactured by Carthage Mills Inc., Erosion Control Division, 124 W. 66th Street, Cincinnati, Ohio; Laurel Erosion Control Cloth as manufactured by Laurel Plastic Inc., Madison, Maine, or equal. As-Built - Mirifi 600 A filter cloth as manufactured by Colanese Fibers Marketing Co., 1211 Ave. of The Americas, New York, N.Y.



RIP-RAP DETAIL
Scale 3/8"=1'-0"



WOOD BLOCK SPACING
Scale 1/4"=1'-0"



Kenneth M. Melrod

Route 108 Force Main
Project No. S-4-6041
Contract No. 682-S

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
2315 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Stacy F. Newman 4-3-80
DIRECTOR OF PUBLIC WORKS - DATE
James J. Klein 4/3/80
CHIEF - BUREAU OF ENGINEERING - DATE
CHIEF - BUREAU OF UTILITIES - DATE

CONTRACT NO. 682-S
PROJECT NO. S-4-6041

PROFILES AND DETAILS
FORCE MAIN

ELECTION DISTRICT
ELLCOTT CITY NO. 2

DRAWING NO. 9
OF 10

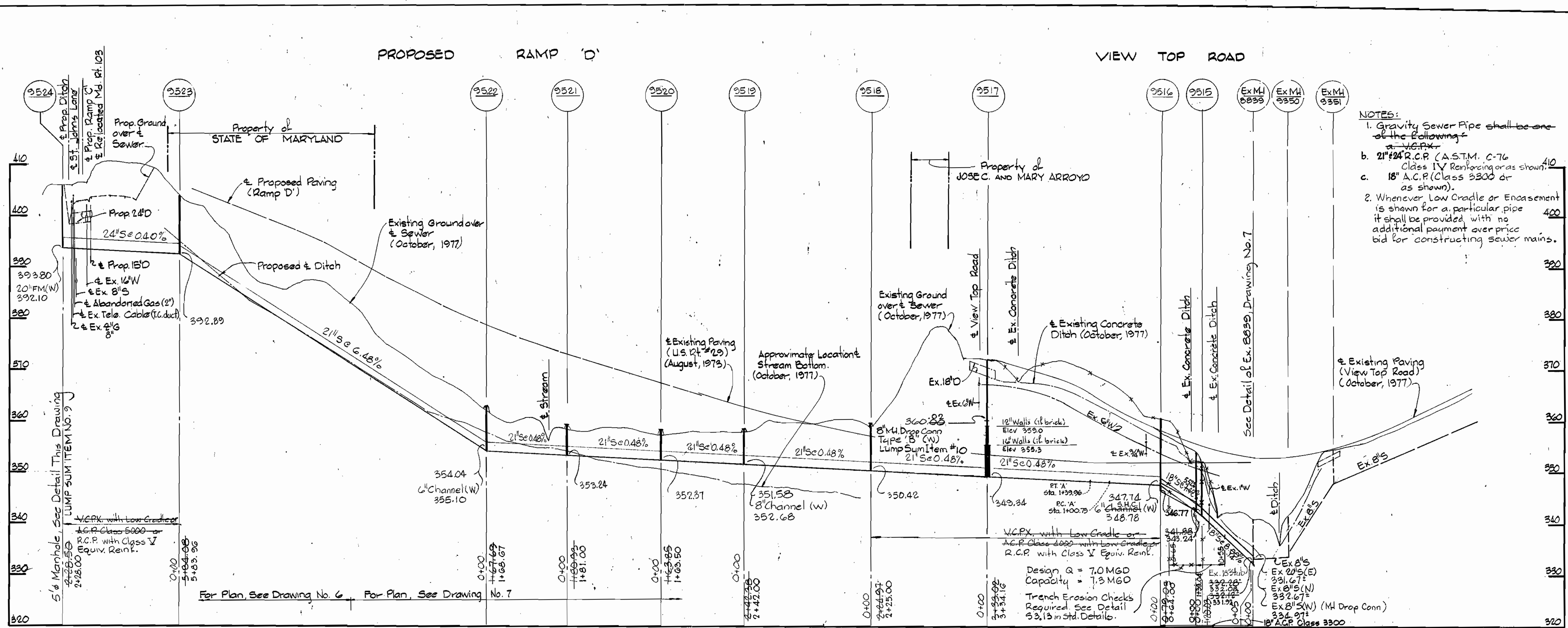
SCALE
H: 1"=100'
V: 1"=10'

AS-BUILT JUN 15 1983

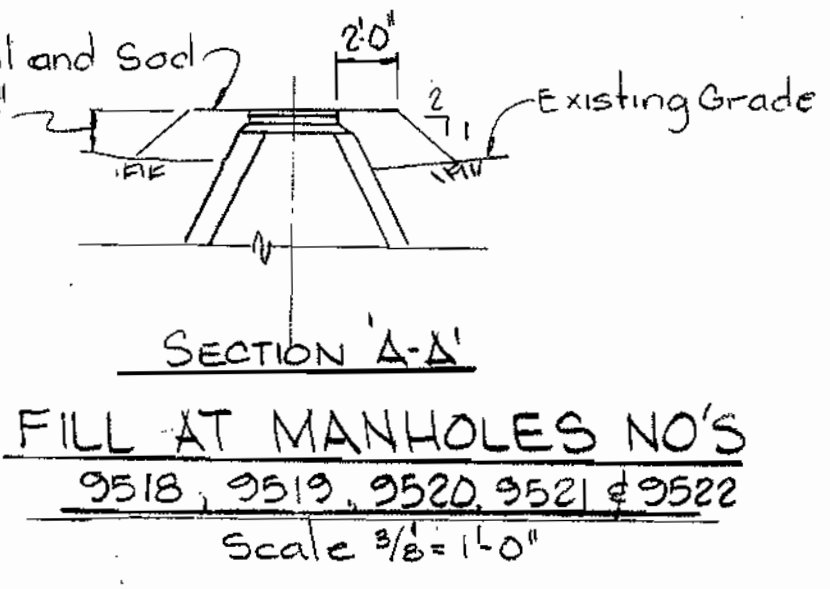
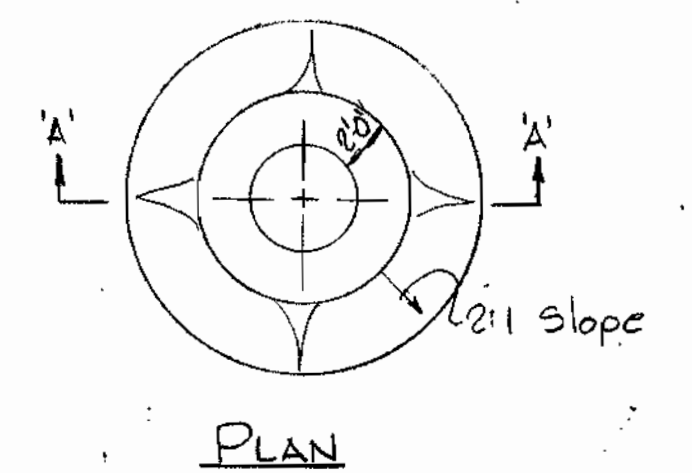
4/13/83

WS 682 S/9

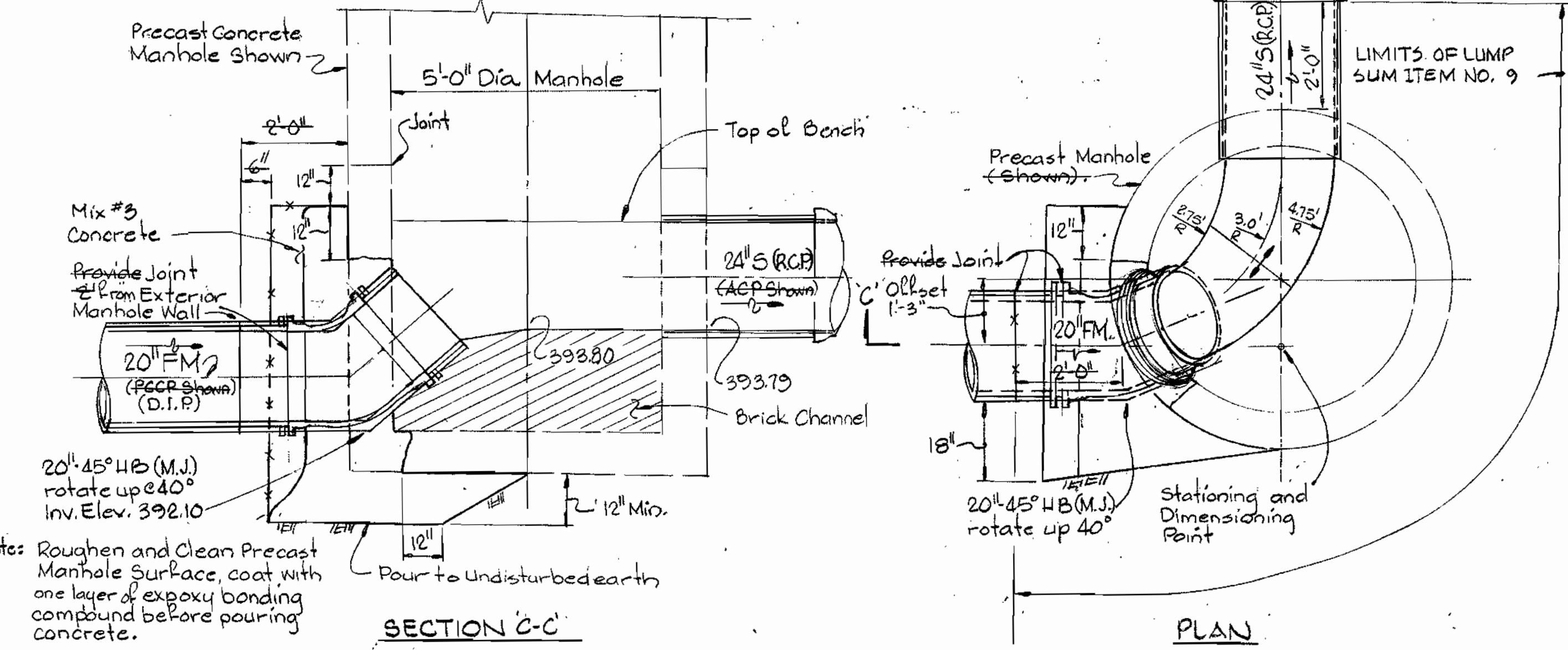
W. O. 6918-2



- NOTES:**
- Gravity Sewer Pipe shall be one of the following:
 - 24" R.C.P. (A.S.T.M. C-76 Class IV Reinforcing or as shown)
 - 18" A.C.P. (Class 3300 or as shown)
 - Whenever Low Cradle or Encasement is shown for a particular pipe it shall be provided with no additional payment over price bid for constructing sewer mains.

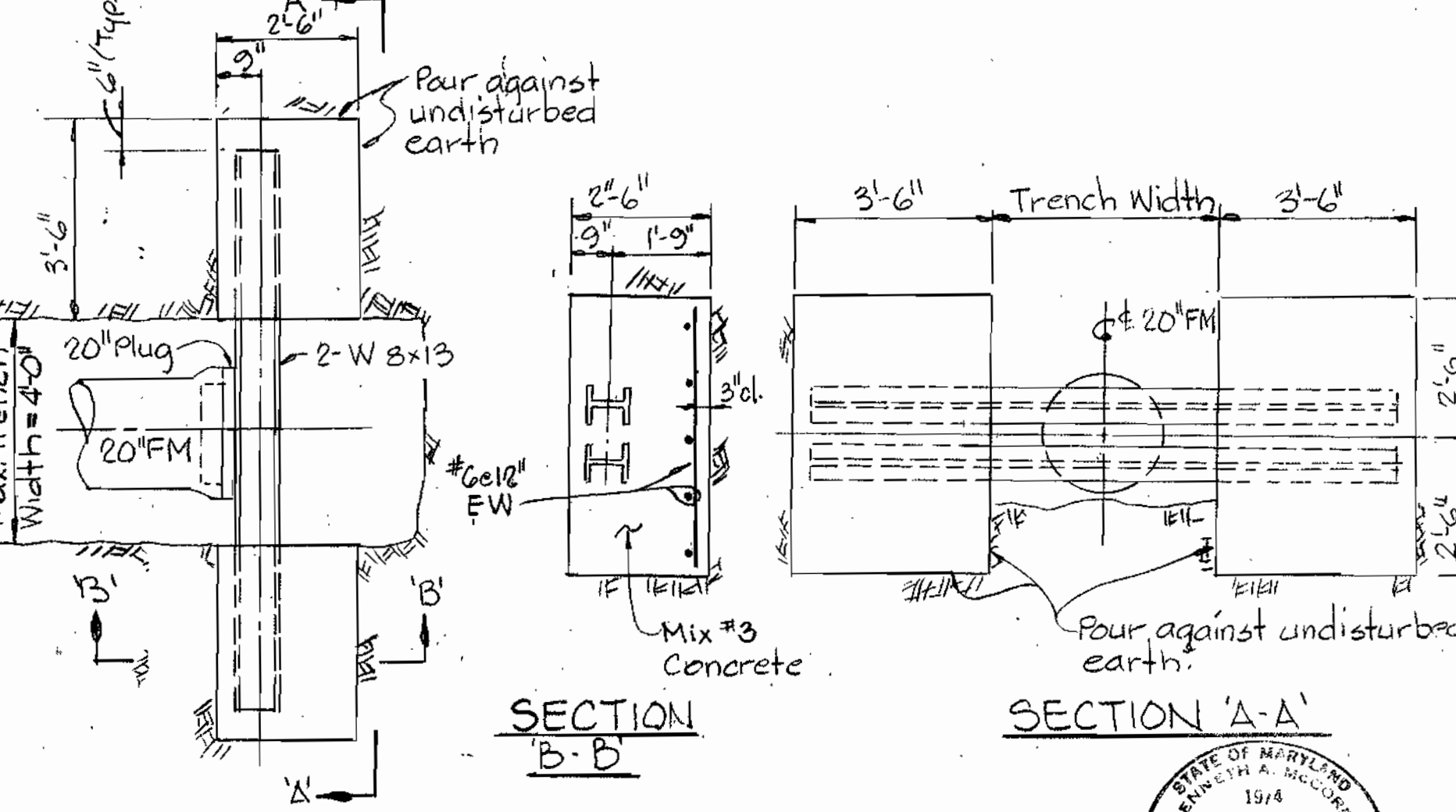


FILL AT MANHOLES NO'S
 9518, 9519, 9520, 9521 & 9522
 Scale 3/8" = 1'-0"

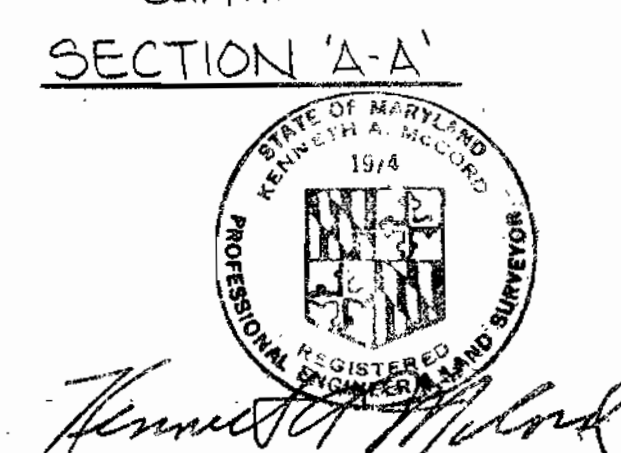


Notes: Roughen and Clean Precast Manhole Surface, coat with one layer of epoxy bonding compound before pouring concrete.

DETAIL OF MANHOLE 9524
 Scale 1/2" = 1'-0"



BEAM BUTTRESS FOR 20" PLUG
 Scale 3/8" = 1'-0"
 (REMOVED UNDER CONTRACT NO. 681-5)



Route 108 Force Main
 Project No. 682-5
 Contract No. S-4-6041

WHITMAN, REQUARDT & ASSOCIATES ENGINEERS 2315 ST. PAUL ST. BALTIMORE, MARYLAND	DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND DIRECTOR OF PUBLIC WORKS - DATE	CONTRACT NO. 682-S PROJECT NO. S-4-6041	PROFILE AND DETAILS OF OUTFALL SEWER	ELECTION DISTRICT ELLICOTT CITY NO. 2	DRAWING NO. 10 OF 10	SCALE H:1"=100' V:1"=10'
		W. O. 6918-2	AS-BUILT	JUN 15 1983	June 3, 1981	

WS 682 S/10