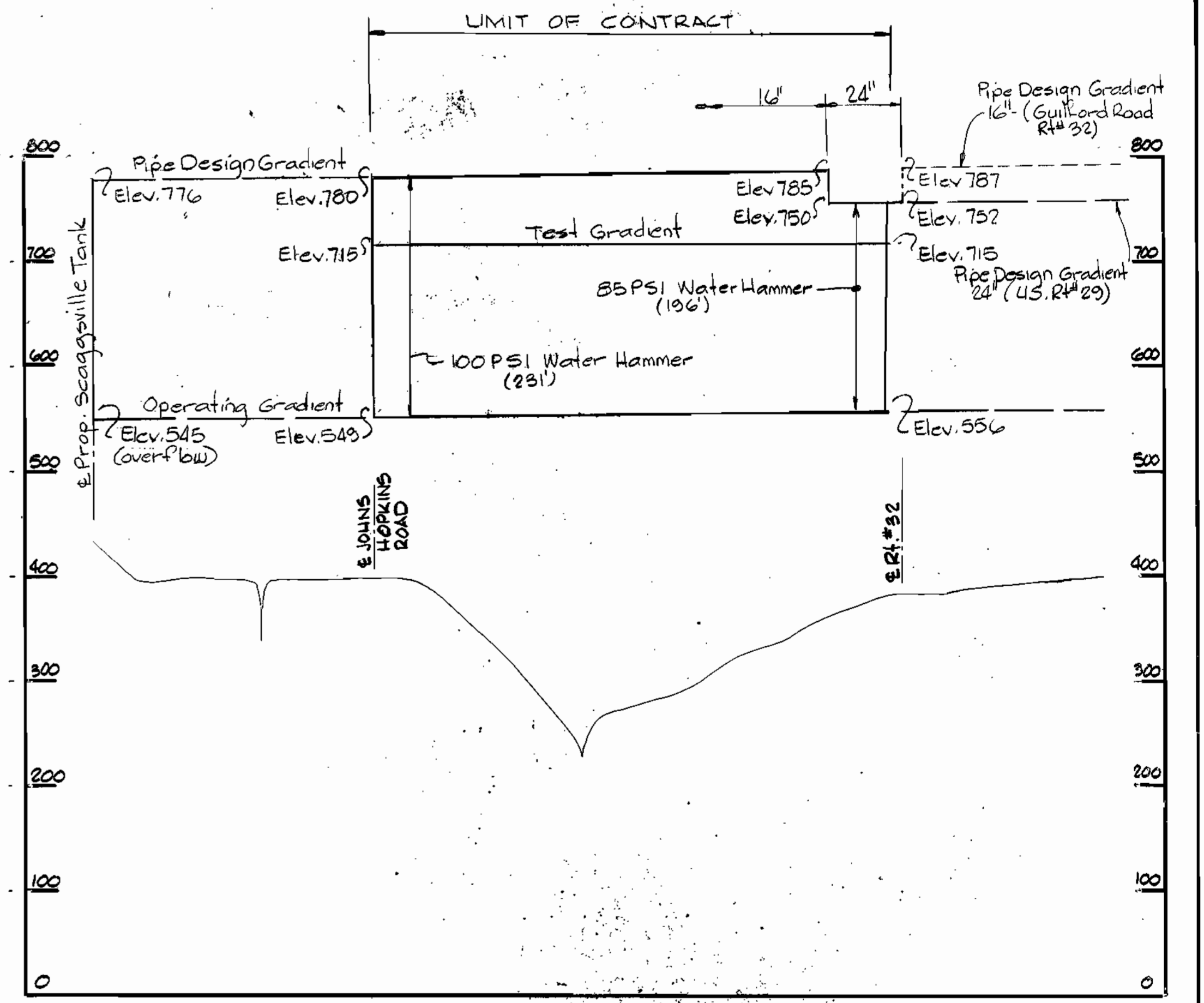


LOCATION PLAN
Scale: 1" = 2000'



HYDRAULIC GRADIENT PROFILE
Scale: Horizontal 1" = 2000', Vertical 1" = 100'

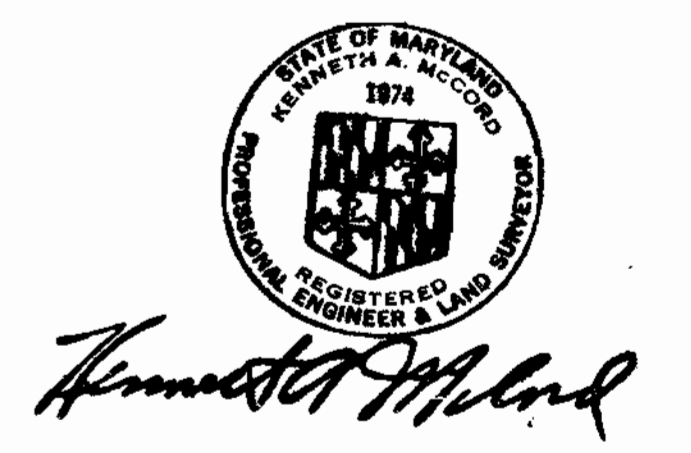
PROJECT NO. W-4-8070

U.S. ROUTE 29 WATER MAINS

HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

ITEM	QUANTITIES		MATERIAL / SUPPLIER
	BID	AS-BUILT	
24" Water	1300 LF	1301.0	U.S. Pipe
16" Water	8660 LF	8650.0	U.S. Pipe
8" Water	75 LF	74.0	U.S. Pipe
Fire Hydrants	4	4.0	M & H
Air Release MH	2	2.0	
16" Valves	1	1.0	Balto. Std. How. Co.
16" Valves	4	3.0	U.S. Pipe
12" Valves	2	4.0	U.S. Pipe
8" Valves	1	1.0	U.S. Pipe
Lower Mains	24" L.S.	100%	Deleted From Contract



U.S. Route #29 - Water Main
Project No. W-4-8070
Contract No. 647-W

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

CHIEF - BUREAU OF ENGINEERING - DATE _____
CHIEF - BUREAU OF UTILITIES - DATE _____

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS _____ DATE _____

CONTRACT NO. 647-W
PROJECT NO. W-4-8070

LOCATION PLAN AND
HYDRAULIC GRADIENT

U.S. ROUTE 29 WATER MAIN
MARYLAND ROUTE 32 TO
JOHNS HOPKINS ROAD

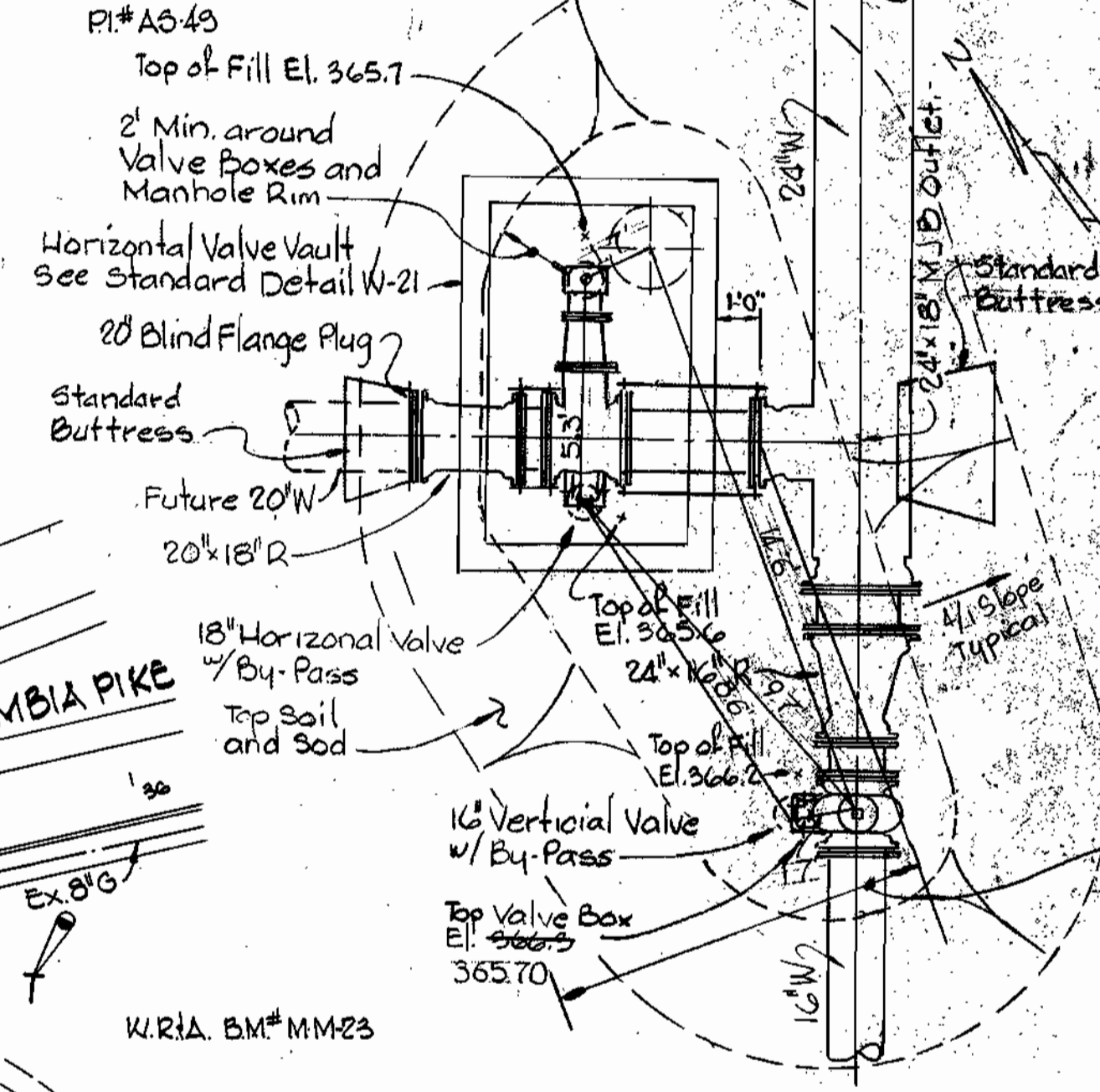
DRAWING NO. <u>1</u>	SCALE AS SHOWN
OF <u>7</u>	

WS 647 W/1

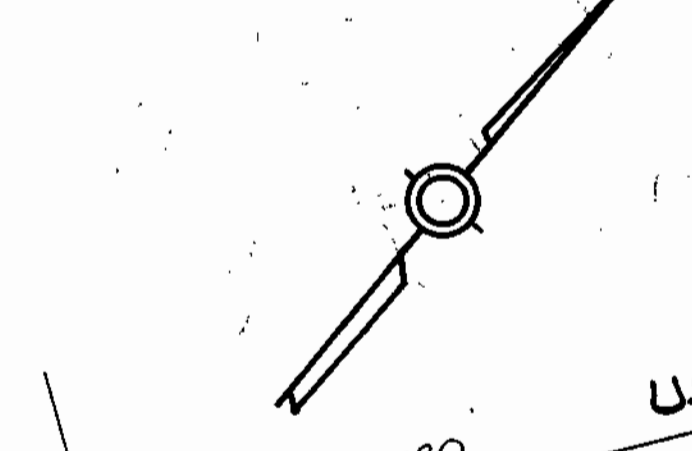
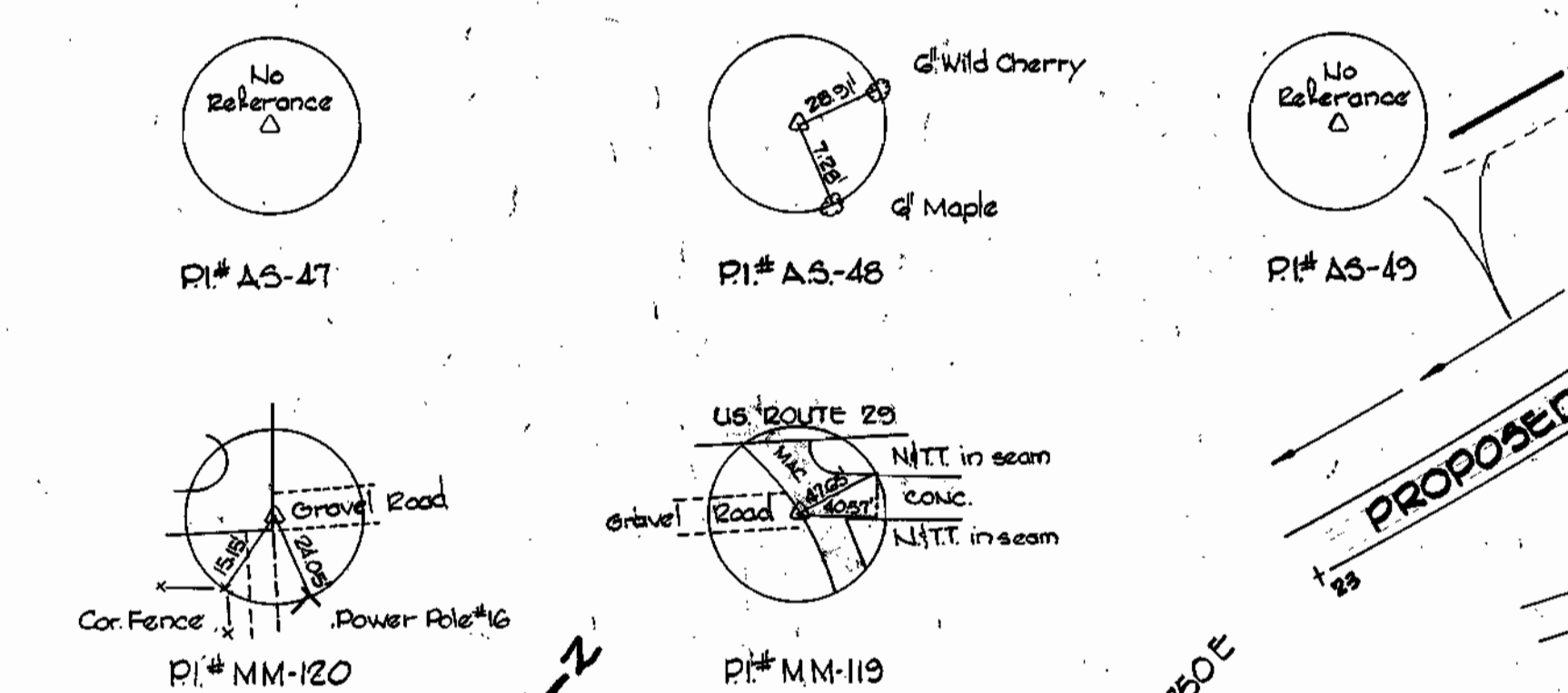
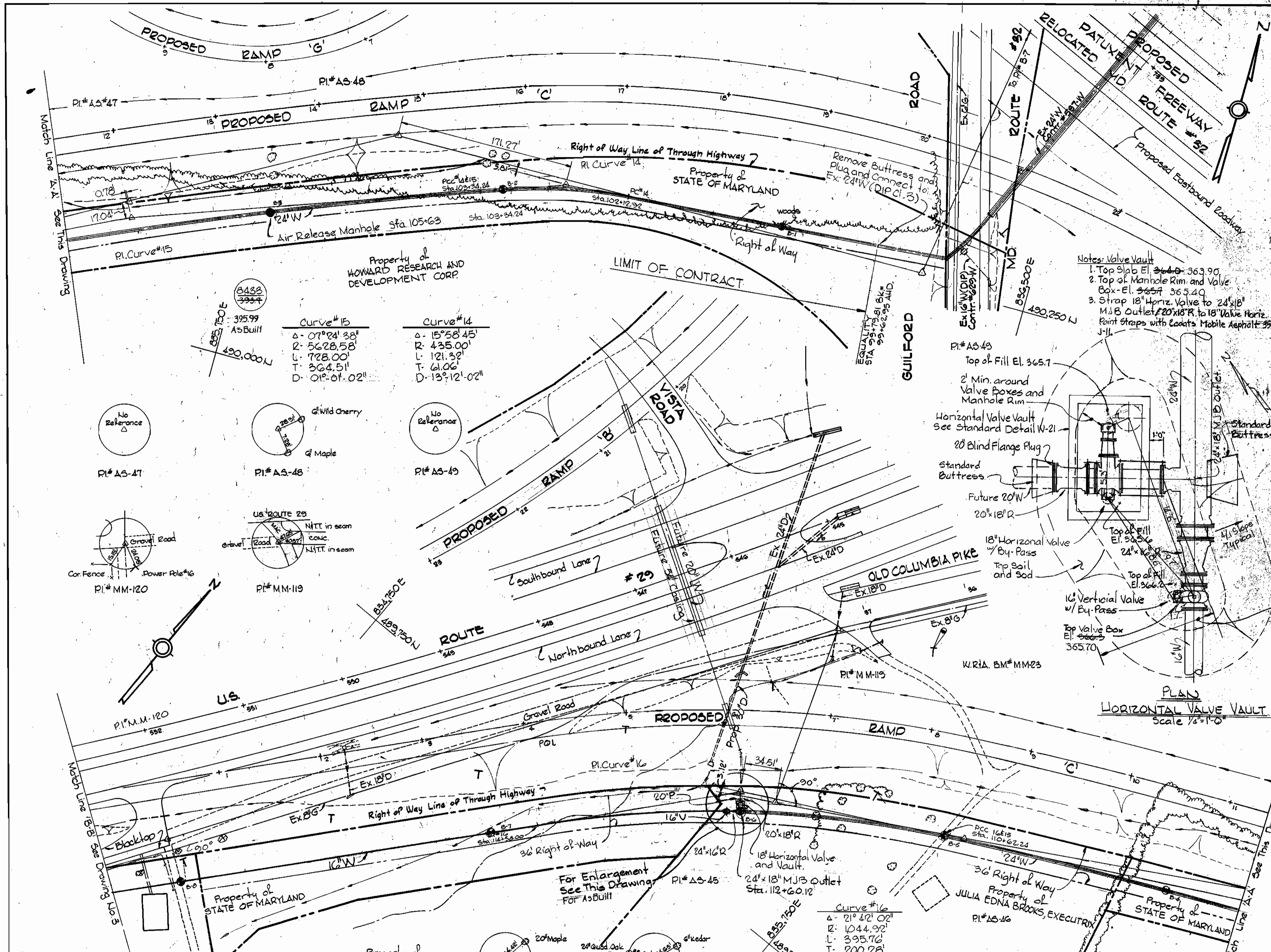
GENERAL NOTES

- APPROXIMATE LOCATION 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 DUE TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- THE CONTRACTOR SHALL LOCATE EXISTING UTILITIES A MINIMUM OF TWO WEEKS IN ADVANCE OF CONSTRUCTION OPERATIONS IN VICINITY OF UTILITIES.
- THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS.
BALTIMORE GAS AND ELECTRIC COMPANY - UNDERGROUND ELECTRIC DISTRIBUTION ENGINEERING DAMAGE CONTROL 234-5681
UNDERGROUND GAS DISTRIBUTION ENGINEERING 234-5806
CHESAPEAKE AND POTOMAC TELEPHONE COMPANY 393-8648.
MIBS UTILITY - 1 - 559-0100
AMERICAN TELEPHONE AND TELEGRAPH-CABLE LOCATION DIVISION 301-393-3553
STATE HIGHWAY ADMINISTRATION - 581-5583
- FOR ALL STANDARD DETAILS SEE STANDARDS BOUND IN SPECIFICATIONS.
- ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE DATUM AND ALL VERTICAL CONTROLS ARE BASED ON U.S.G.S. DATUM.
- CLEAR ALL UTILITIES BY A MINIMUM OF 6". CLEAR ALL POLES BY 2'-0" MINIMUM OR TUNNEL AS REQUIRED. ANY COSTS INCURRED TO THE CONTRACTOR FOR TUNNELING OR BRACING AT POLES SHALL BE INCLUDED IN UNIT PRICE BID FOR EXCAVATING AND BACKFILL.
- BLOCK ALL FITTINGS WITH CONCRETE. SEE STANDARDS BOUND IN SPECIFICATIONS.
- ALL WATER MAINS SHALL HAVE A MINIMUM OF 3' COVER.
- ALL WATER MAINS SHALL BE P.C.C.P. OR D.I.P. UNLESS OTHERWISE NOTED.
- ALL VALVES SHALL BE STRAPPED TO TEES WHERE APPLICABLE IN ACCORDANCE WITH THE STANDARD DETAILS.
- ALL FIRE HYDRANTS SHALL BE STRAPPED AND BUTTRESSED IN ACCORDANCE WITH THE STANDARD DETAILS.
- SOIL AROUND THE HYDRANTS SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 5-15 OF THE STANDARD SPECIFICATIONS.
- BURY LINE ELEVATIONS ON FIRE HYDRANTS SHALL BE SET TO THE SAME AS EDGE OF PAVING, CURB, OR AS DIRECTED BY THE ENGINEER IN THE FIELD.
- PAYMENT FOR RIP-RAP WILL BE INCLUDED IN THE UNIT PRICE BID FOR EXCAVATION AND BACKFILL.
- PROFILE STATIONS MAY HAVE TO BE ADJUSTED AS REQUIRED TO CONFORM TO PLAN DIMENSIONS.
- 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.

Notes: Valve Vault
 1. Top Slab El. 363.90
 2. Top of Manhole Rim and Valve Box - El. 365.20
 3. Strap 18" Horiz. Valve to 24" 18" MJB Outlet 20" 18" R. to 18" Valve Horiz. Paint Straps with Coats Mobile Asphalt 35-J-11



PLAN HORIZONTAL VALVE VAULT
Scale 1/8" = 1'-0"



DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 William E. Ray, Jr. 12.30
 CHIEF - BUREAU OF ENGINEERING - DATE
 James A. Glis, 12/16/80
 CHIEF - BUREAU OF UTILITIES - DATE

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 1304 ST. PAUL ST.
 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Director of Public Works
 12-13-80
 DATE

CONTRACT NO. 647-W
 PROJECT NO. W-4-8070

PLAN OF
 WATER MAINS

U.S. ROUTE 29 WATER MAIN
 MARYLAND ROUTE 32 TO
 JOHNS HOPKINS ROAD

DRAWING NO. 2 OF 7
 SCALE 1" = 50'
 490-A, 490-C, 490-D, 490-E, 490-F

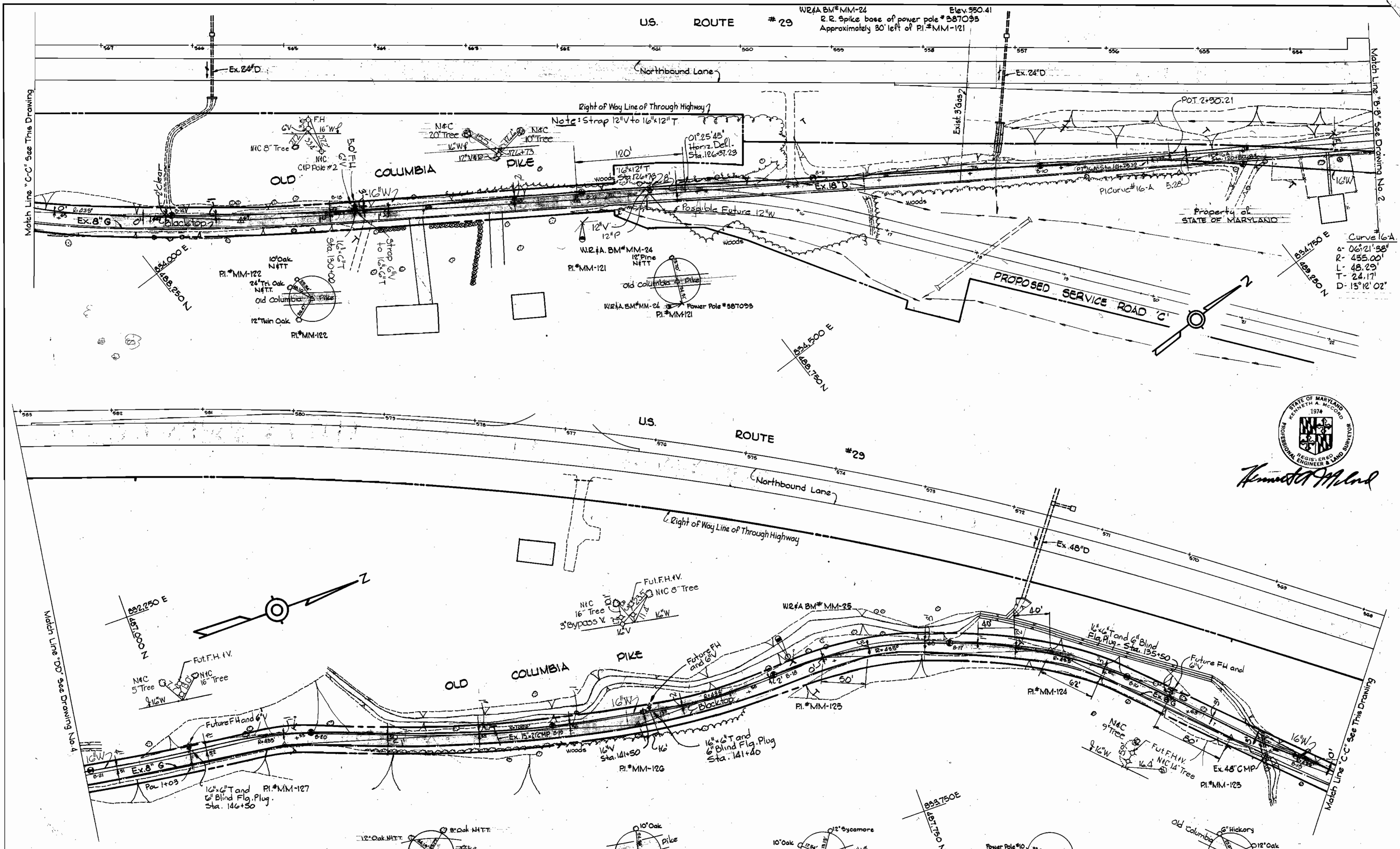


U.S. Route #29 Water Main
 Project No. W-4-8070
 Contract No. 647-W

As Built - July, 1981
 The Wilson T. Ballard Co. Dec 17 1980

WS 647 W/2

PRINTING 44510 1832



Kenneth A. McLeod

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
William S. Ray 12-12-80
 CHIEF - BUREAU OF ENGINEERING - DATE
James A. Olin
 CHIEF - BUREAU OF UTILITIES - DATE
WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 1304 ST. PAUL ST.
 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
Joseph F. Neuman
 DIRECTOR OF PUBLIC WORKS
 12-13-80
 DATE

CONTRACT NO. 647-W
 PROJECT NO. W-4-8070

PLAN OF
 WATER MAINS

U.S. ROUTE 29 WATER MAIN
 MARYLAND ROUTE 32 TO
 JOHNS HOPKINS ROAD

DRAWING NO. 3
 OF 7
 SCALE 1" = 50'
 489-F
 489-G
 489-H
 489-I
 489-J

W. O. 6800-2

As Built - July, 1981
 The Wilson T. Ballard Co.
 Dec. 17, 1980

WS 647 W/3

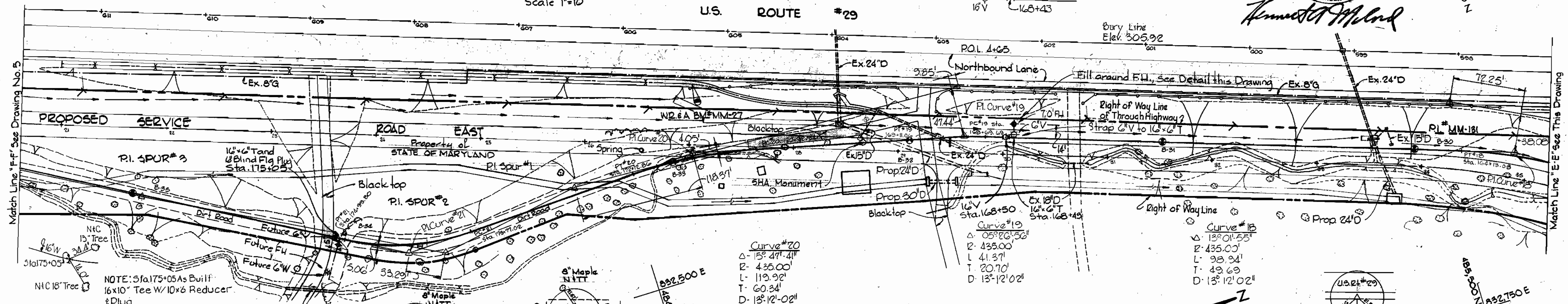
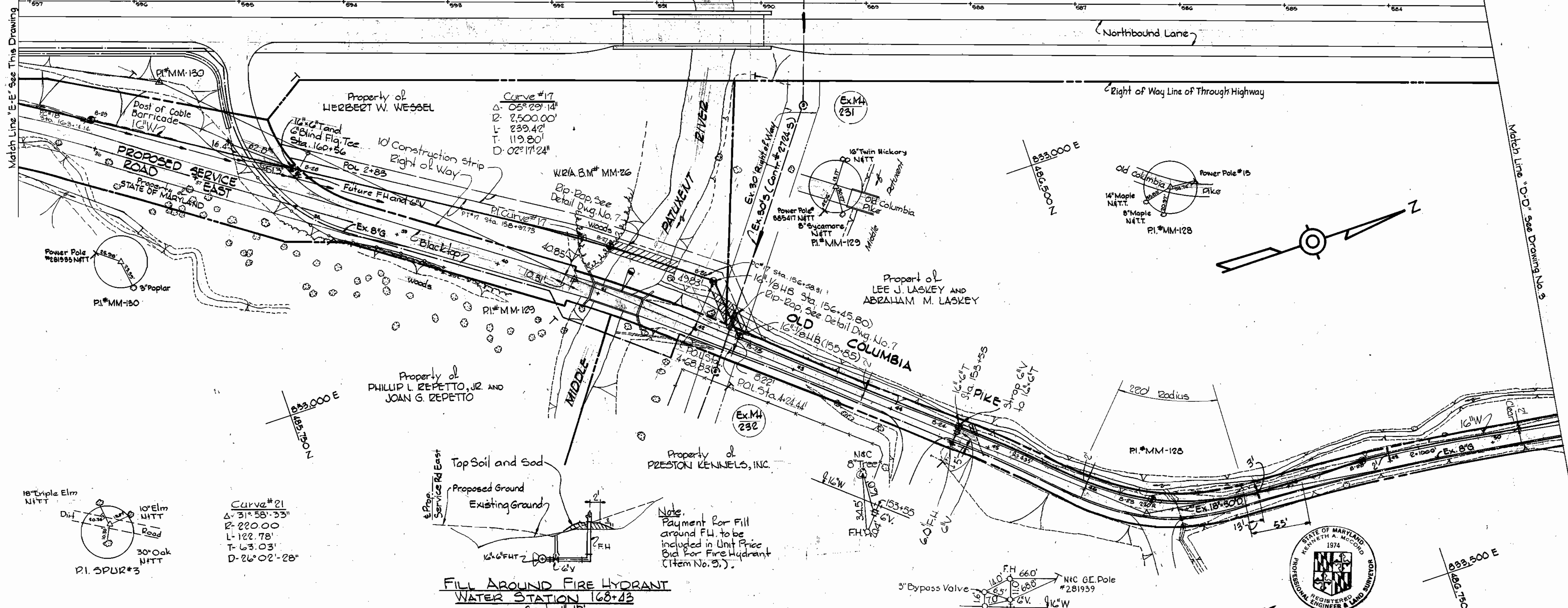
BRITING 44510 18332

W.R.#A.B.M.#MM-26 Elev. 254.88
 1/4" Cut in E of West wall of bridge on old
 Columbia Pike approximately 40' from
 P.I.#MM-129

U.S. ROUTE #29

Northbound Lane

Right of Way Line of Through Highway



Kenneth A. Accord

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 12-13-80
 CHIEF - BUREAU OF ENGINEERING - DATE
 CHIEF - BUREAU OF UTILITIES - DATE

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 1304 ST. PAUL ST.
 BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 12-13-80
 DIRECTOR OF PUBLIC WORKS - DATE

CONTRACT NO. 647-W
 PROJECT NO. W-4-8070

PLAN OF
 WATER MAINS

U.S. ROUTE 29 WATER MAIN
 MARYLAND ROUTE 32 TO
 JOHNS HOPKINS ROAD

DRAWING NO. 4
 OF 7
 SCALE 1" = 50'

As Built, July, 1981
 The Wilson T. Giffard Co.
 Dec. 17, 1980

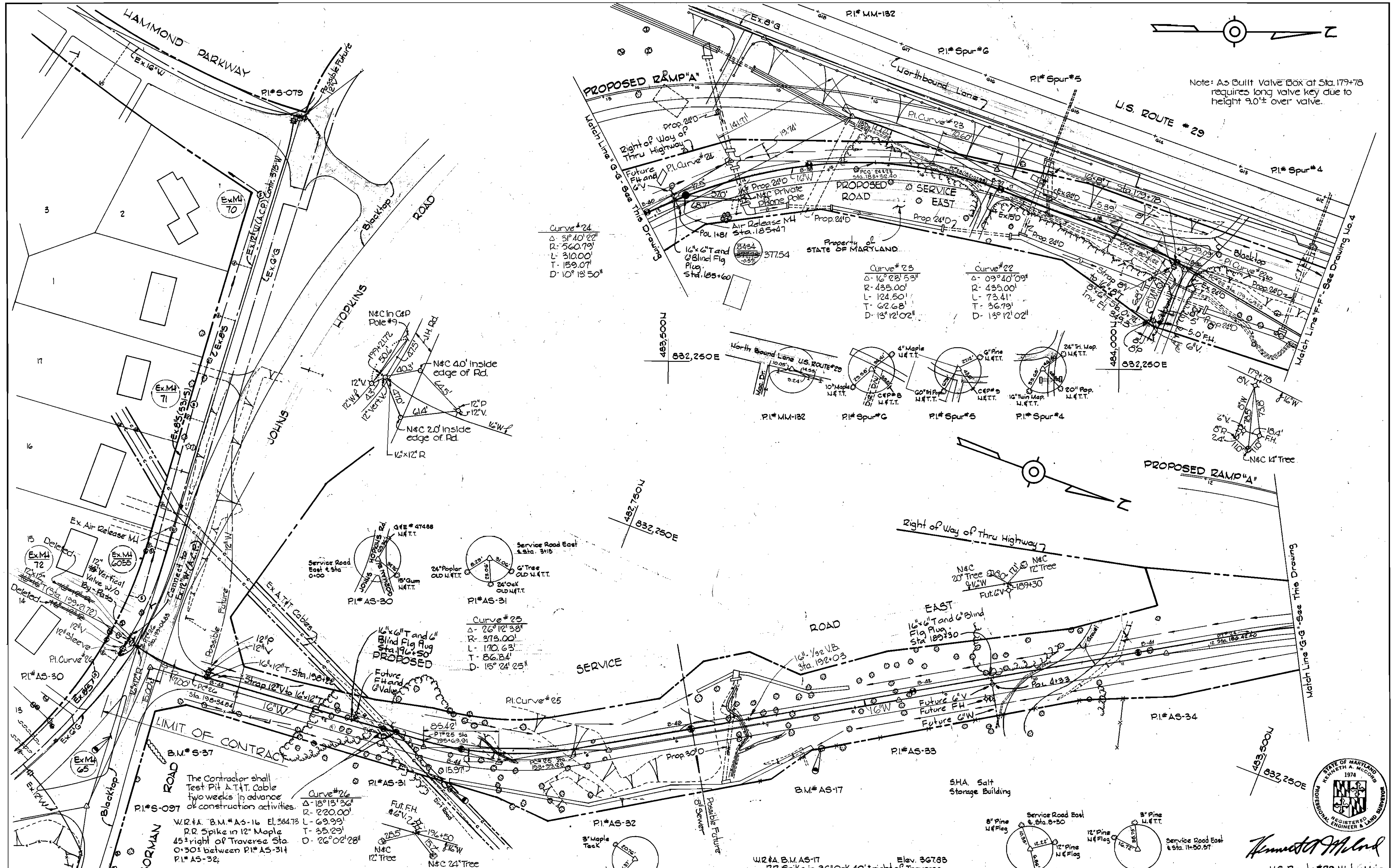
WS 647 W/H

SPINNING 44-710 1893Z

W. O. 6800-2

WS 647 W/5

BRUNING 44710 1033X



Note: As Built Valve Box at Sta. 179+78 requires long valve key due to height 9.0'± over valve.

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 1304 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. 647-W
 PROJECT NO. W-4-8070

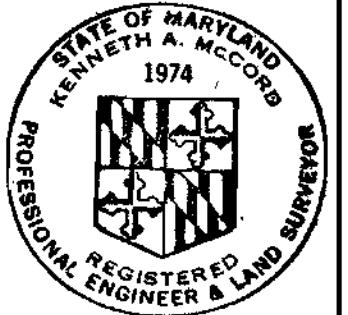
PLAN OF
 WATER MAINS

U.S. ROUTE 29 WATER MAIN
 MARYLAND ROUTE 32 TO
 JOHNS HOPKINS ROAD

DRAWING NO. <u>5</u> OF <u>7</u>	SCALE <u>1"=50'</u>	482-476 483-M 483-N 484-L
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W. O. 6800-2

As Built - July, 1981
 The Wilson T. Ballard Co.
 FB# 461,5435,5450,5561
 Dec. 17, 1980



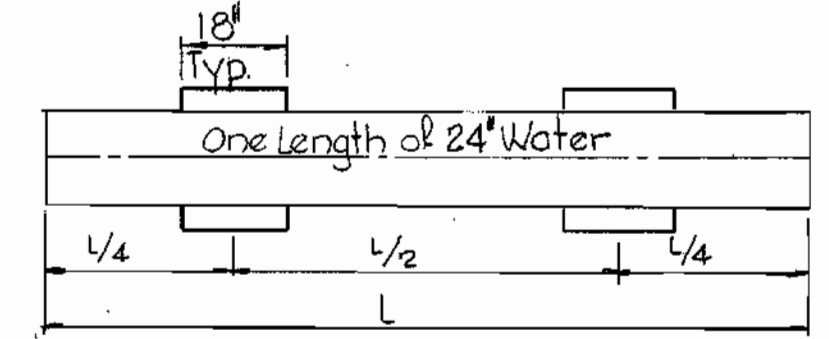
Kenneth A. Milrod
 U.S. Route #29 Water Main
 Project No. W-4-8070
 Contract No. 647-W

Note:
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 Plastics Inc., Madison, Maine, or approved equal.

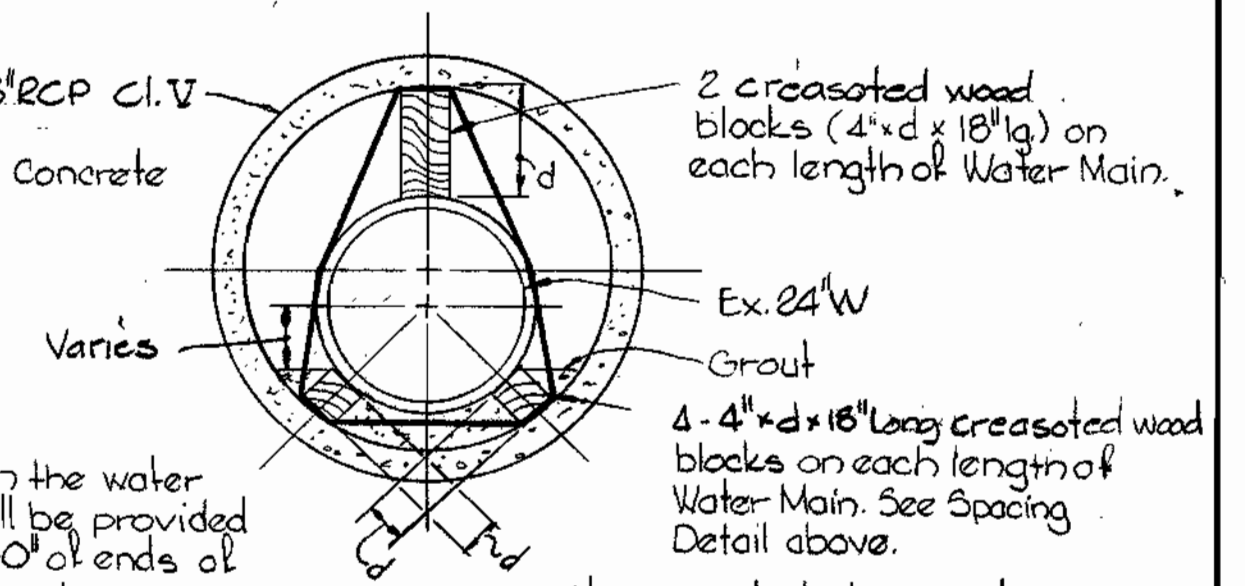
Rip-Rap shall consist of dense rock of random shapes and sizes, resistant to the action of air and water, and suitable for bank protection. All rocks shall weigh a minimum of 150 pounds.

Note:
Rip-Rap shall be placed 6" minimum each side of Water Main. Additional width of Rip-Rap shall be placed as required to protect all disturbed banks of Contractors expense.

Maintain 1'-0" minimum clearance between Rip-Rap and top of pipe.



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



Existing 48" RCP C.I.V. ASTM C77 (Rubber and Concrete Joints)

2 creosoted wood blocks (4" x d x 18" l) on each length of Water Main.

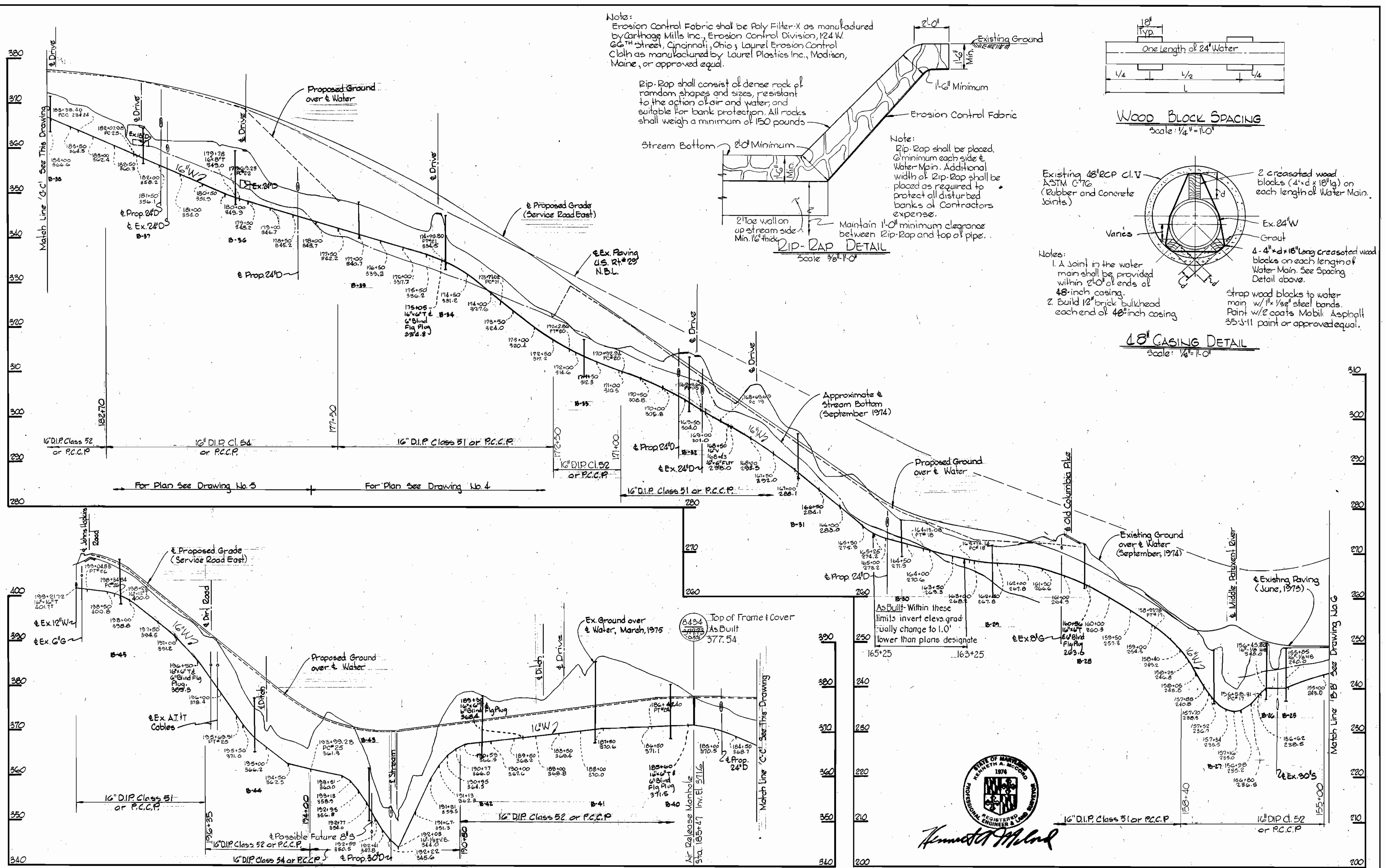
Ex. 24" W Grout

4 - 4" x d x 18" long creosoted wood blocks on each length of Water Main. See Spacing Detail above.

Notes:
1. A joint in the water main shall be provided within 2'-0" of ends of 48" casing.
2. Build 12" brick bulkhead each end of 48" casing.

Strap wood blocks to water main w/ 1/2" steel bands. Paint w/ 2 coats Mobil Asphalt 35-5-11 paint or approved equal.

48" CASING DETAIL
Scale: 1/8" = 1'-0"



PROFILES Scale: Horizontal: 1" = 100' Vertical: 1" = 10'

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
1304 ST. PAUL ST.
BALTIMORE, MARYLAND

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
17-13-80
12-12-30

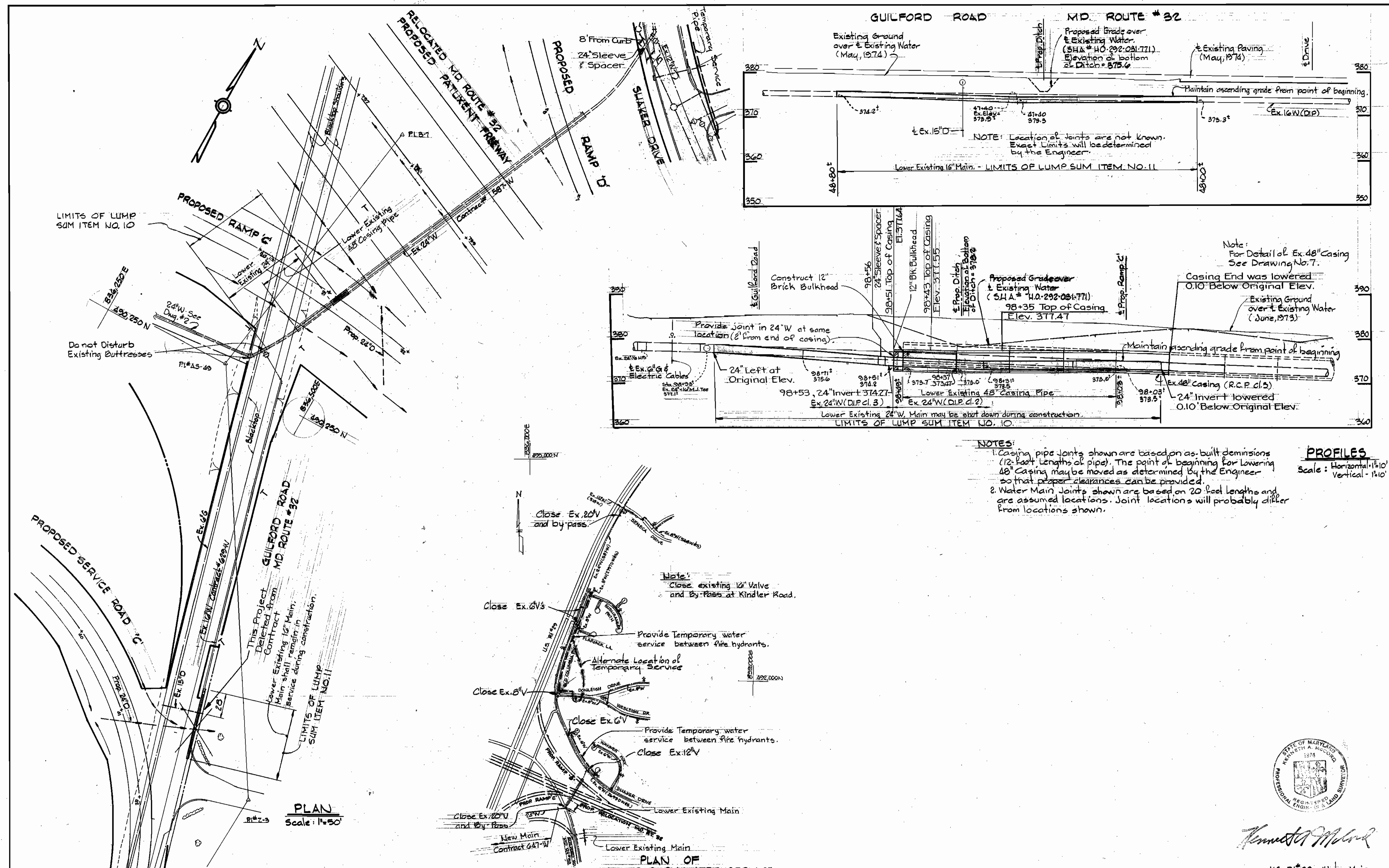
CONTRACT NO. 647-W
PROJECT NO. W-4-8070

PROFILES AND DETAILS OF
WATER MAINS

U.S. ROUTE 29 WATER MAIN
MARYLAND ROUTE 32 TO
JOHNS HOPKINS ROAD

DRAWING NO. 7 OF 7
SCALE AS SHOWN

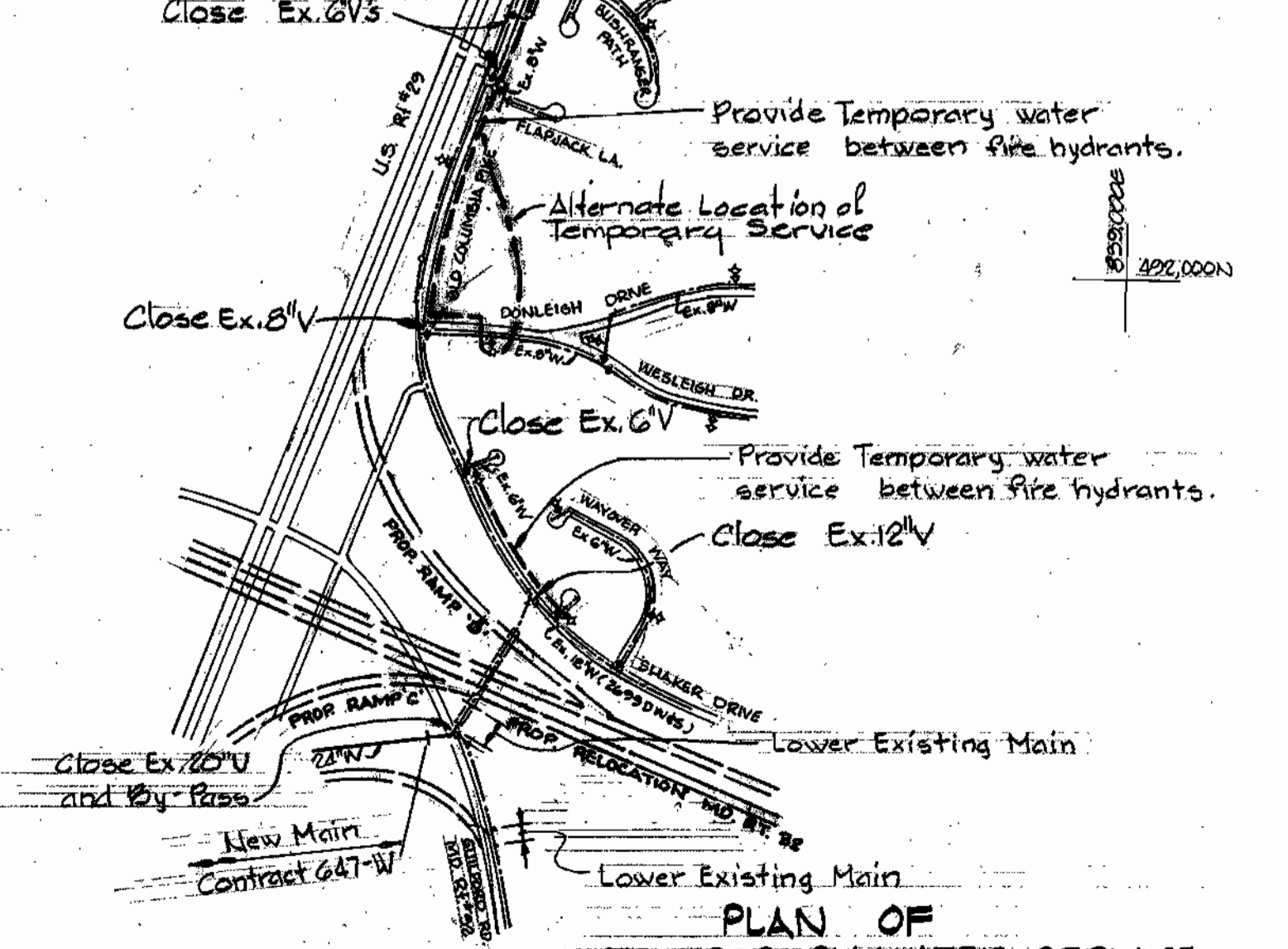
As Built - July, 1981
The Wilson T. Ballard Co. Dec. 17, 1980



NOTES:
 1. Casing pipe joints shown are based on as-built dimensions (12-foot lengths of pipe). The point of beginning for lowering 48" casing may be moved as determined by the Engineer so that proper clearances can be provided.
 2. Water Main Joints shown are based on 20-foot lengths and are assumed locations. Joint locations will probably differ from locations shown.

PROFILES
 Scale: Horizontal = 1"=10'
 Vertical = 1"=10'

Note:
 Close existing 16" Valve and By-Pass at Kinder Road.



PLAN
 Scale: 1"=50'

PLAN OF TEMPORARY WATER SERVICE
 Scale: 1"=500'

WHITMAN, REQUARDT & ASSOCIATES
 ENGINEERS
 1304 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. 647-W
PROJECT NO. W-4-8070

PLAN & PROFILES
OF WATER MAINS

U.S. ROUTE 29 WATER MAIN
MARYLAND ROUTE 32 TO
JOHNS HOPKINS ROAD

DRAWING NO. 7-A
OF 7
SCALE AS SHOWN

WS 647 W/7A