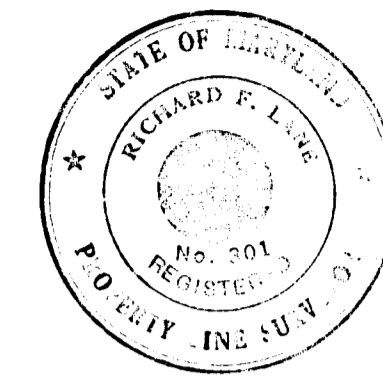


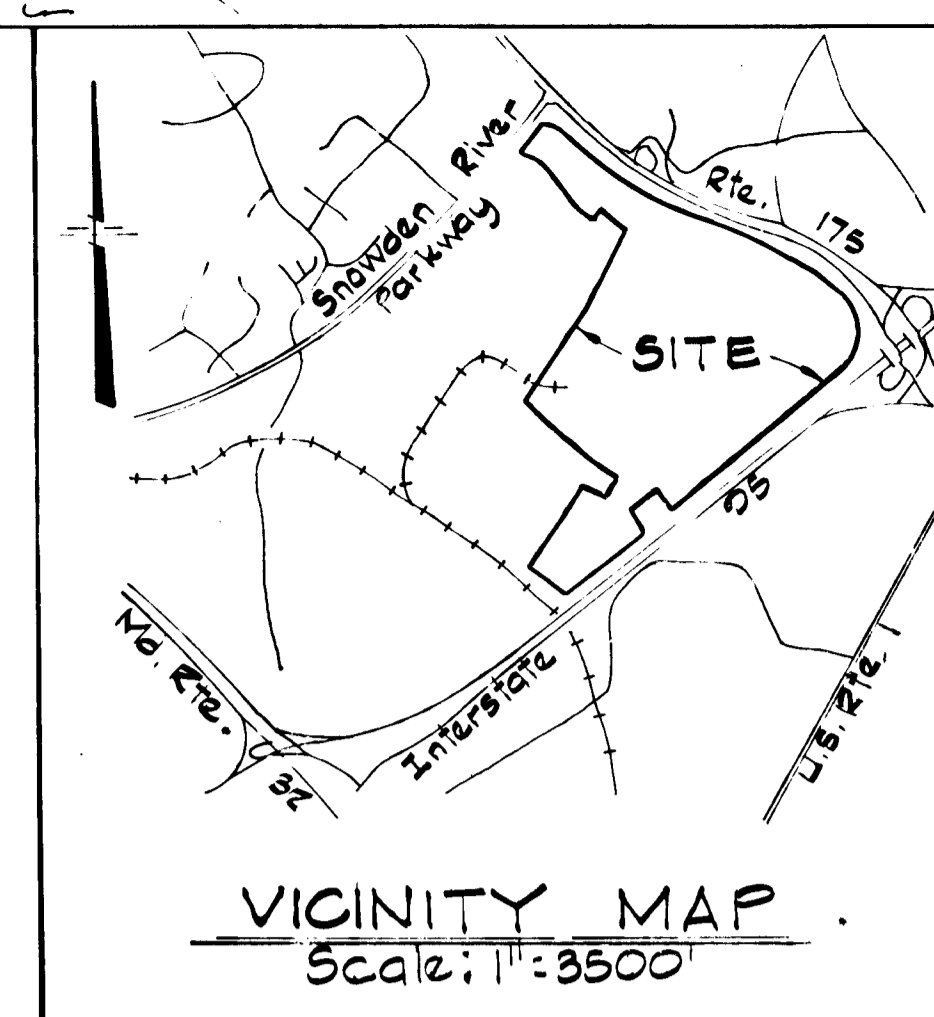
SHEET INDEX	
No.	DESCRIPTION
1.	TITLE SHEET
2.	DRAINAGE AREA MAP - SEDIMENT CONTROL
3.	PLAN AND PROFILE - COLUMBIA GATEWAY DRIVE STATION 82+50.84 TO STATION 87+90.42
4.	PLAN AND PROFILE - SAMUEL MORSE DRIVE STATION 0+00 TO STATION 10+02.82
5.	ROADWAY DETAILS
6.	DRAINAGE AREA MAP
7.	STORM DRAIN PROFILES
8.	120 INCH CULVERT PROFILE AND DETAILS
9.	120 INCH CULVERT DETAILS
10.	120 INCH CULVERT DETAILS
11.	NEW POND SPILLWAY AND DETAILS
12.	NEW SPILLWAY CONSTRUCTION - EXISTING SPILLWAY REMOVAL
13.	SPECIFICATIONS - POND SPILLWAY
14.	SEDIMENT CONTROL PLAN PHASE ONE
15.	SEDIMENT CONTROL PLAN, DETAILS AND SPECIFICATIONS PHASE ONE AND TWO
16.	PLAN - SWALE AND STORM DRAIN AT EXISTING M-24
17.	PLAN - FINISHED GRADE, POND CONVERSION, STORM DRAIN EXTENSION AND SEDIMENT CONTROL

Street Trees:
 The location, type and number of trees shown on this plan are tentative and are used for bond purposes only. The final location and variety of trees may vary to accommodate field conditions and builders landscape program. Bond release is contingent upon Section 16.131 of the Howard County Subdivision Regulations, as approved by the Office of Planning and Zoning

ROAD AS-BUILT
Richard F. Lane 2/12/86
 RICHARD F. LANE, V.P.
 PROPERTY LINE SURVEYOR #301



SHANBERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 107
 ELLICOTT CITY, MARYLAND 21043

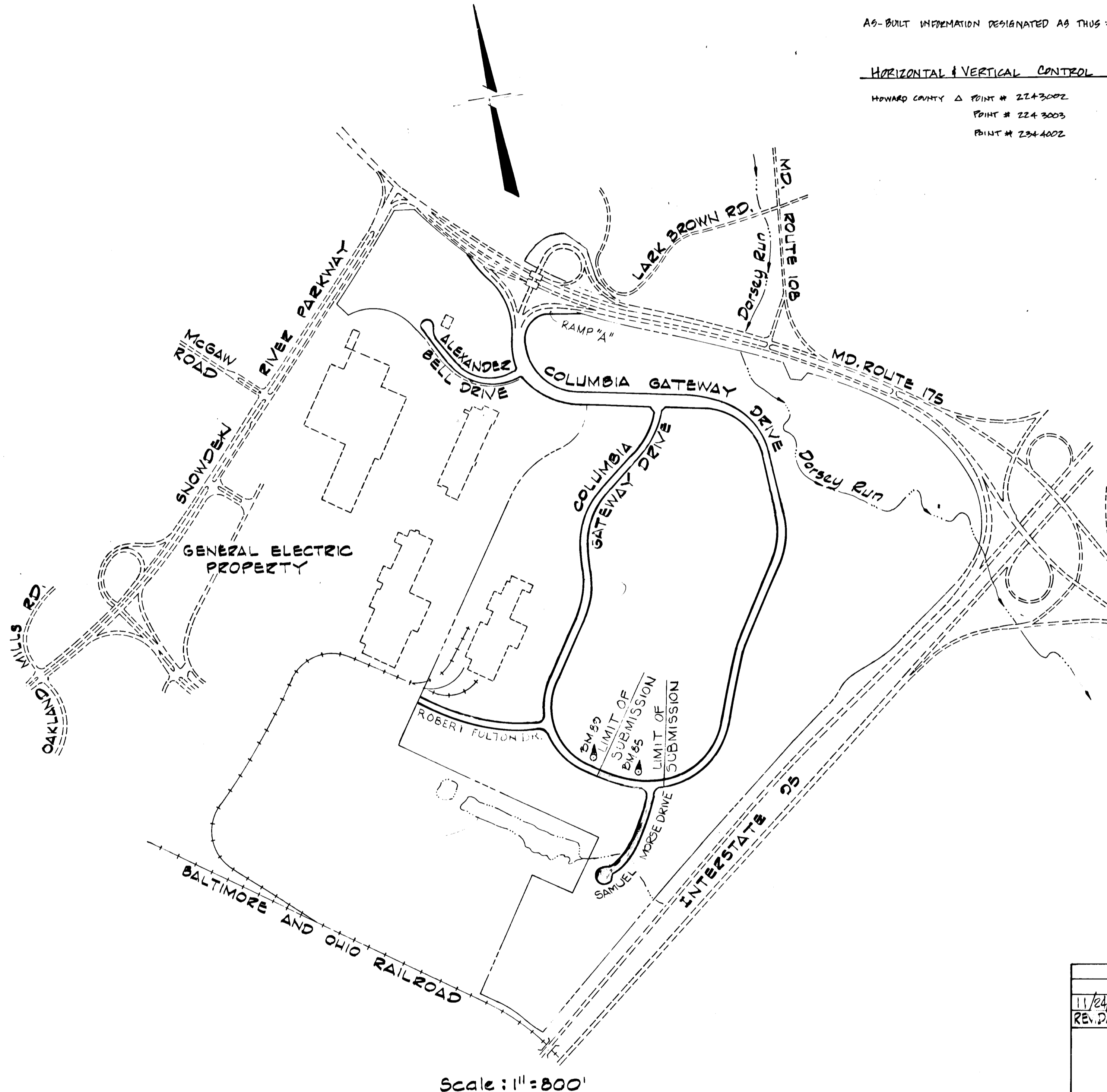


AS-BUILT INFORMATION DESIGNATED AS THIS: 419.26

HORIZONTAL & VERTICAL CONTROL
 HOWARD COUNTY Δ POINT # 2243002
 POINT # 2243003
 POINT # 2244002

GENERAL NOTES

- All work shall be performed in accordance with Howard County Standards, Specifications and Details for Construction.
- All utility companies shall be notified 24 hours in advance of construction.
- All inlets shall be Howard County Standard unless otherwise shown.
- All street curb returns shall have a 30.0' radii unless otherwise noted.
- Storm Drain Trenches within road rights-of-way shall be backfilled and compacted in accordance with Howard County Road Code.
- Approximate location of existing utilities are shown. The contractor shall take all necessary precautions to protect the existing utilities and to maintain uninterrupted service. Any damage incurred due to Contractor's operations shall be repaired immediately at the Contractor's expense.
- The Contractor shall test pit existing utilities where directed by the Engineer a minimum of two weeks in advance of any construction.
- Temporary compacted 18" high earth fill diversion dikes shall be constructed above the lips of fill slopes on the R.O.W. concurrently with the initial grading and directed to undisturbed sod areas at the end of each day.
- Contractor to notify the Howard County Department of Inspections and Permits at least 3 days before starting work shown on these drawings. Telephone No. 992-2436
- All disturbed slope areas to be stabilized as soon as grading is completed.
- All reinforced concrete for storm drain structures shall have a minimum of 28 days strength of 3500 P.S.I.
- All swales and slopes shall be permanently seeded. See the seed specifications on Sheet 15.
- Traffic control devices and their installation shall be in accordance with the manual on uniform traffic control devices, 1971 revised edition.
- Stabilenka (Filter Cloth T-100) or equal shall be placed under all stone rip-rap (full width and length of stone)
- Stone for rip-rap shall be as specified on the drawings. All rip-rap shall be unpeaved.
- Stubs for 6" P.V.C. underdrain pipe to be installed at center of each wall of every inlet.
- Lamp post - 250 watt mercury vapor lamp pendant mounted fixtures on a 30 foot bronze aluminum pole unless shown from pavement edge.



BENCH MARKS

- WR&A BM - Tack in hub 124' right of P&E Sta. #85
85+78.61 Columbia Gateway Drive.
Elev. 320.11
- WR&A BM - Tack in hub 143' right of P&E Sta. #89
80+67.21 Columbia Gateway Drive.
Elev. 324.73

REV. DATE	REV. NO.	REVISION DESCRIPTION
11/24/85	1	As per SCS, Planning and DPW Comments

**COLUMBIA GATEWAY
 PARCELS P THRU R
 A RESUBDIVISION OF PARCEL O**

ROAD CONSTRUCTION PLANS
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
 COLUMBIA, MARYLAND
 6th ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND
 DATE: SCALE: AS SHOWN

Note: All corrugated metal pipe shall be aluminum pipe thickness (uncoated) and corrugations are as follows:
 24" x 1/2" corrugations
 15 thru 42" - 0 0592 (143332)
 36" x 1/2" or 5/8" corrugations
 54" and 60" - 0 0747 (143332)

WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND
Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 NO. 1074



DEPARTMENT OF PUBLIC WORKS
Richard F. Lane 2-3-87
 CHIEF, BUREAU OF ENGINEERING DATE
 OFFICE OF PLANNING AND ZONING
John W. Munchman 2-2-87
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 AND ZONING ADMINISTRATION

OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
 COLUMBIA, MARYLAND

GENERAL ELECTRIC APPLIANCE PARK

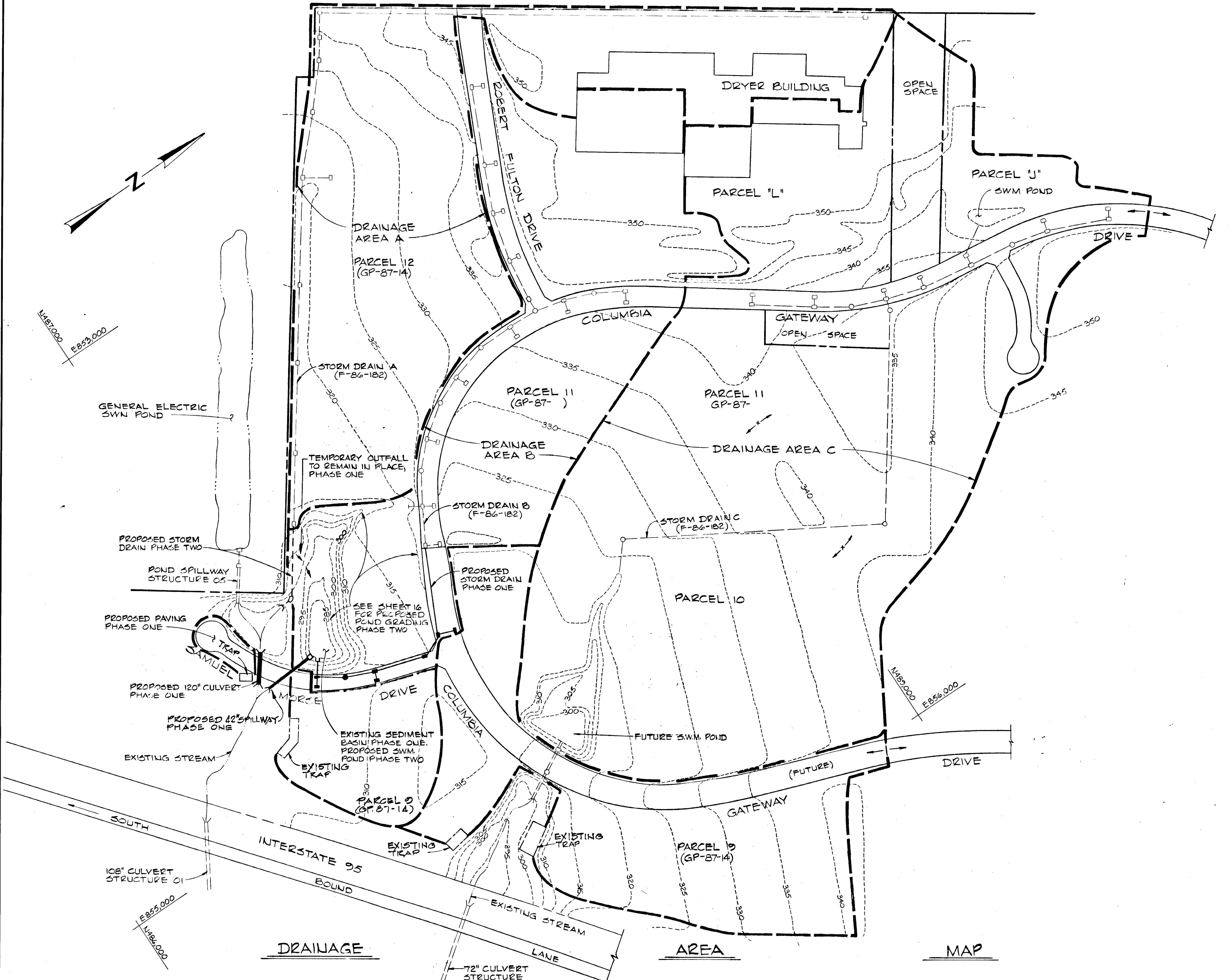
APPROVED DEPARTMENT OF PUBLIC WORKS
 2-5-87
 CHIEF BUREAU OF ENGINEERING DATE
 OFFICE OF PLANNING AND ZONING
 John W. MacMahon 2-2-87
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE AND ZONING ADMINISTRATION

PROPOSED WORK

PHASE ONE:
 GRADING - SAMUEL MORSE DRIVE, STORM DRAIN B EXTENSION AND UTILITIES IN COLUMBIA GATEWAY AND SAMUEL MORSE DRIVES, 120" CULVERT, 42" SPILLWAY, EXISTING SPILLWAY REMOVAL, PAVING - SAMUEL MORSE AND COLUMBIA GATEWAY DRIVES, SEDIMENT CONTROL, SEE MAP.
 PHASE TWO:
 CHANGE EXISTING SEDIMENT BASIN TO SWM. POND, STORM DRAIN A EXTENSION AND GRADING SEDIMENT BASIN TO FINAL POND DIMENSION, SEDIMENT CONTROL, SEE MAP.

CONSTRUCTION SEQUENCE

- PHASE ONE:
- OBTAIN GRADING PERMIT.
 - INSTALL TWIN 48" CMP ACCESS CULVERT. SEE SHEET 15 (ONE DAY).
 - CLEAR LIMITS OF CONSTRUCTION AND INSTALL SEDIMENT TRAP, EARTH DIKES AND SILT FENCE. SEE SHEET 15 (TWO DAYS).
 - CONSTRUCT ROADWAY EMBANKMENT WEST SIDE OF PROPOSED 120" CULVERT TO END OF CUL-DE-SAC. SEE SHEET 15 (TWO DAYS).
 - DIVERT EXISTING STREAM AND CONSTRUCT 120" CULVERT, 5-32 TO 5-33. PLACE RIP-RAP AT 5-32. SEE SHEETS 8, 9, 10 AND 15. DIVERT STREAM FLOW THRU CULVERT. (TEN DAYS)
 - DE-WATER EXISTING SEDIMENT BASIN. (TWO DAYS)
 - INSTALL NEW 42" SPILLWAY. REMOVE EXISTING SPILLWAY. SEE SHEET 12 FOR DETAILS AND SPECIFICATIONS FOR DE-WATERING AND SPILLWAY CONSTRUCTION AND REMOVAL. (TEN DAYS). INSTALL DE-WATERING STONE IN CONCRETE RISER.
 - CONSTRUCT UPSTREAM CULVERT CHANNEL. SEE SHEET 8. REMOVE TEMPORARY 48" CULVERT CROSSING, STABILIZE STREAM BOTTOM, FILL BEHIND GABION WALL AND BRING REMAINDER OF ROADWAY TO GRADE. (EIGHT DAYS)
 - CONSTRUCT STORM DRAIN (STORM DRAIN B EXTENSION) AND REMAINING UTILITIES. (TWO WEEKS) TEMPORARY OUTFALL (STORM DRAIN A) TO REMAIN IN PLACE.
 - FINE GRADE ROADS, CONSTRUCT CURB AND GUTTER AND PAVE. (TWO WEEKS)
 - AFTER PHASE ONE CONSTRUCTION AREA IS STABILIZED, THE SMALL TRAP, ADJACENT TO 120" CULVERT, MAY BE REMOVED. (TWO DAYS)
 - THE EXISTING SEDIMENT BASIN SHALL REMAIN AS IS.
- PHASE TWO:
- DRAINAGE AREA A (PARCEL 12, GP-87-14) SHALL BE STABILIZED.
 - CONSTRUCT BERM, SWALE AND STORM DRAIN AT M-34 AND STABILIZE. (THREE DAYS) SEE SHEET 10.
 - CONSTRUCT STORM DRAIN 5-37 TO M-59 SEE SHEETS 7 AND 17. REMOVE TEMPORARY OUTFALL. (SEVEN DAYS)
 - DRAINAGE AREA C (PARCEL 11, GP-87-36) SHALL BE STABILIZED, EXCEPT FOR IMMEDIATE BASIN AREA, SEE MAP.
 - DE-WATER SEDIMENT BASIN. STONE IN CONCRETE RISER TO REMAIN FOR SEDIMENT CONTROL. (TWO DAYS)
 - GRADE SEDIMENT BASIN TO PERMANENT POND DIMENSION. SEE SHEET 17. SEE SHEETS 15 AND 17 FOR DETAILS AND SPECIFICATIONS FOR DE-WATERING AND GRADING. (TWO WEEKS)
 - STABILIZE GRADED AREA. (ONE DAY)
 - REMOVE STONE FROM CONCRETE RISER STRUCTURE.



1/20/87	2	As per SCS comments 1/7/87
11/24/86	1	Added this sheet to set
REV. DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA GATEWAY
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY
 PROJECT AREA
 PARCELS P THRU R
 A RESUBDIVISION OF PARCEL O
 PROJECT TITLE
 DRAINAGE AREA MAP
 SEDIMENT CONTROL
 SCALE: 1" = 200' DATE

WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218
 Kenneth A. McCord
 Registered Engineer
 No. 1974

1758
 These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
 Approved: James M. Helm 2-2-87
 U.S. Soil Conservation Service Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Approved: Rolando Ziehm 2/2/87
 Howard S.C.D. Date
 Plan Number

RESPONSIBLE PERSONNEL CERTIFICATION
 I hereby certify that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project.
Walter Woodford 11-24-86
 WALTER WOODFORD Date

CERTIFICATION BY THE DEVELOPER
 I certify that all development and/or construction will be done according to these plans of development, pond construction and erosion and sediment control. I also authorize periodic on-site inspection by the 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. I will provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.
Walter Woodford 11-24-86
 WALTER WOODFORD Date

CERTIFICATION BY THE ENGINEER
 I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.
Kenneth A. McCord 11-24-86
 KENNETH A. MCCORD PE No. 1974 Date

E CURVE DATA
 E INT. 84+10.41 TO PT. 83+78.61 83+59.84 TO E INT. 84+10.41
 $\Delta = 11^\circ 20' 15''$ $Tan. = 84.37'$ $\Delta = 0^\circ 24' 32''$ $Tan. = 25.20'$
 $R = 850.00'$ $Chd. = 167.92'$ $R = 850.00'$ $Chd. = 50.56'$
 $Area = 168.20'$ $Chd. Dir. = N69^\circ 06' 28'' W$ $Area = 50.57'$ $Chd. Dir. = N76^\circ 28' 50'' W$

NO	KAD	Δ	ARC TAN	CH'D	CH'D DEG
1	924.00	09°18'39"	50.28	15.14	30.28
2	500.00	09°18'39"	28.89	14.45	28.89
3	500.00	09°18'39"	28.89	14.45	28.89
4	924.00	09°18'39"	30.28	15.14	30.28
5	500.00	09°18'39"	28.89	14.45	28.89
6	500.00	09°18'39"	28.89	14.45	28.89

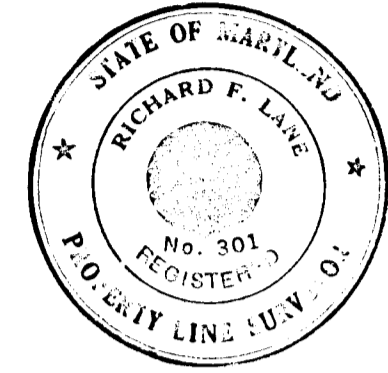
APPROVED: DEPARTMENT OF PUBLIC WORKS
 2-5-87
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING AND ZONING
 John M. ... 2-2-87
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

FOR EXISTING COLUMBIA GATEWAY DRIVE, SEE ROAD CONSTRUCTION DRAWINGS F86-182.

REV. DATE	REV. NO.	REVISION DESCRIPTION
11/24/80	2	Added New Curb & Gutter Details
	1	As per 5C5, Planning & DPW Comments

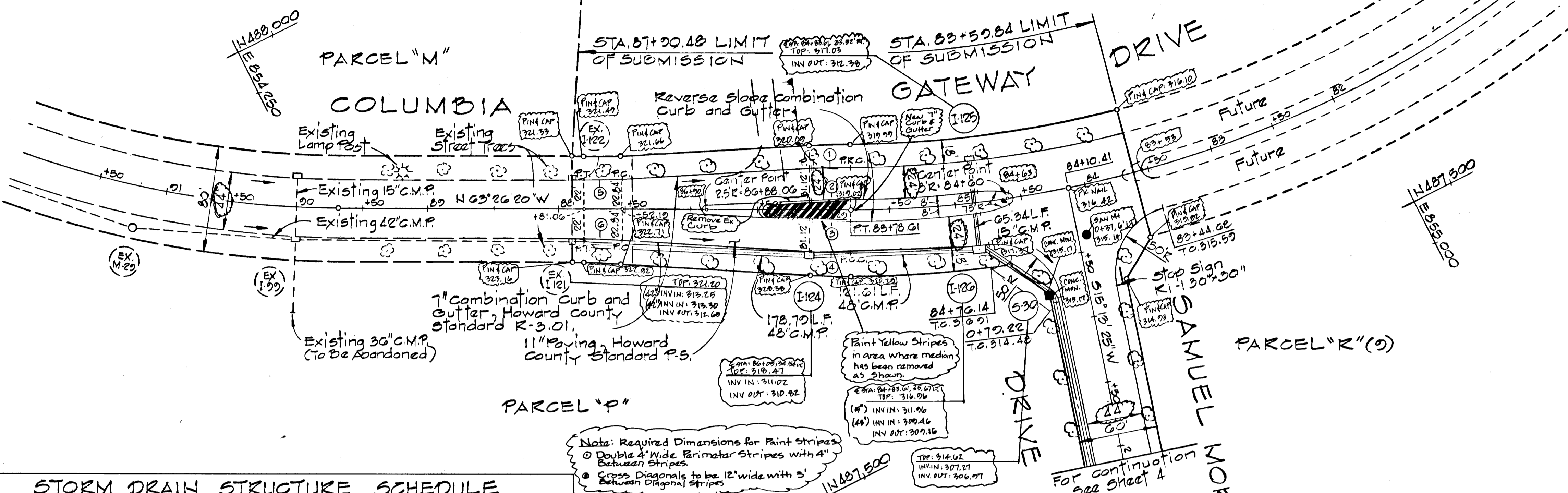
COLUMBIA GATEWAY
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY
 PROJECT AREA
 PARCELS P THRU R
 A RESUBDIVISION OF PARCEL O
 PROJECT TITLE
 PLAN AND PROFILE
 COLUMBIA GATEWAY DRIVE
 STATION 83+59.84 TO STATION 87+90.48
 SCALE: AS SHOWN DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974



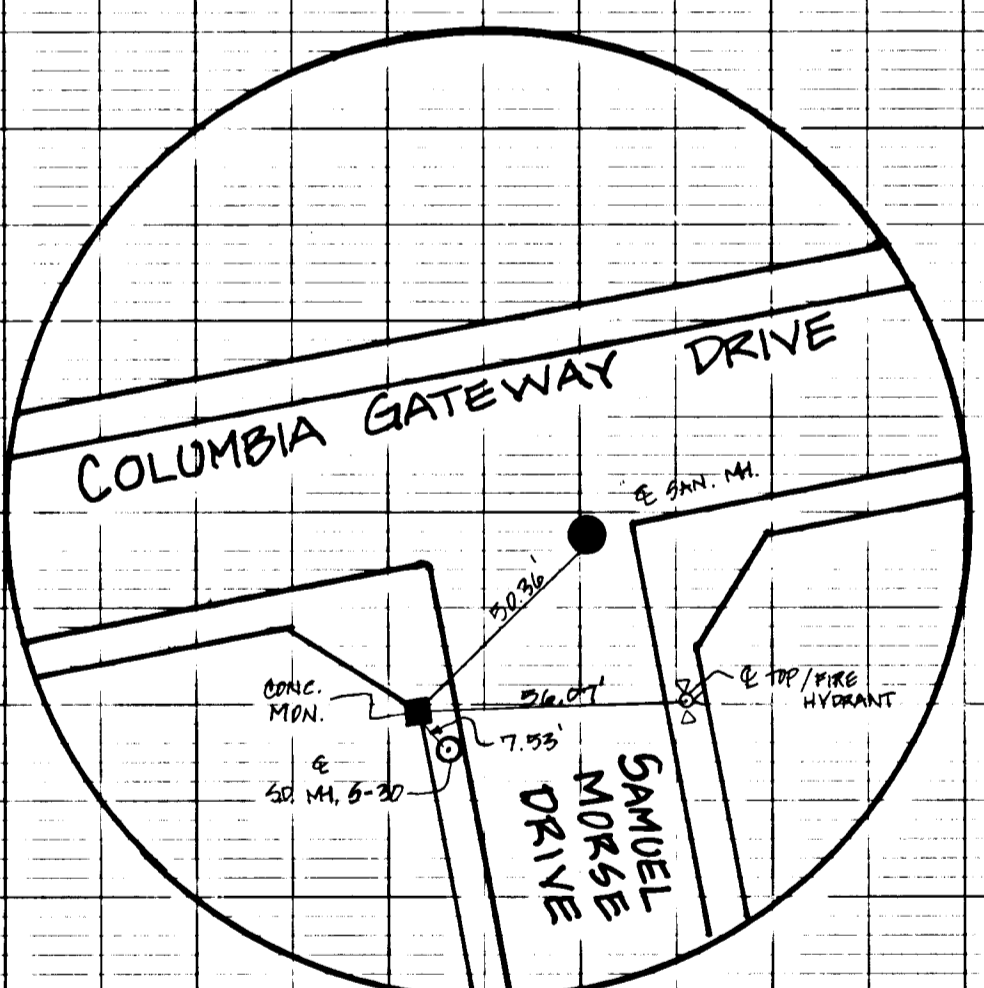
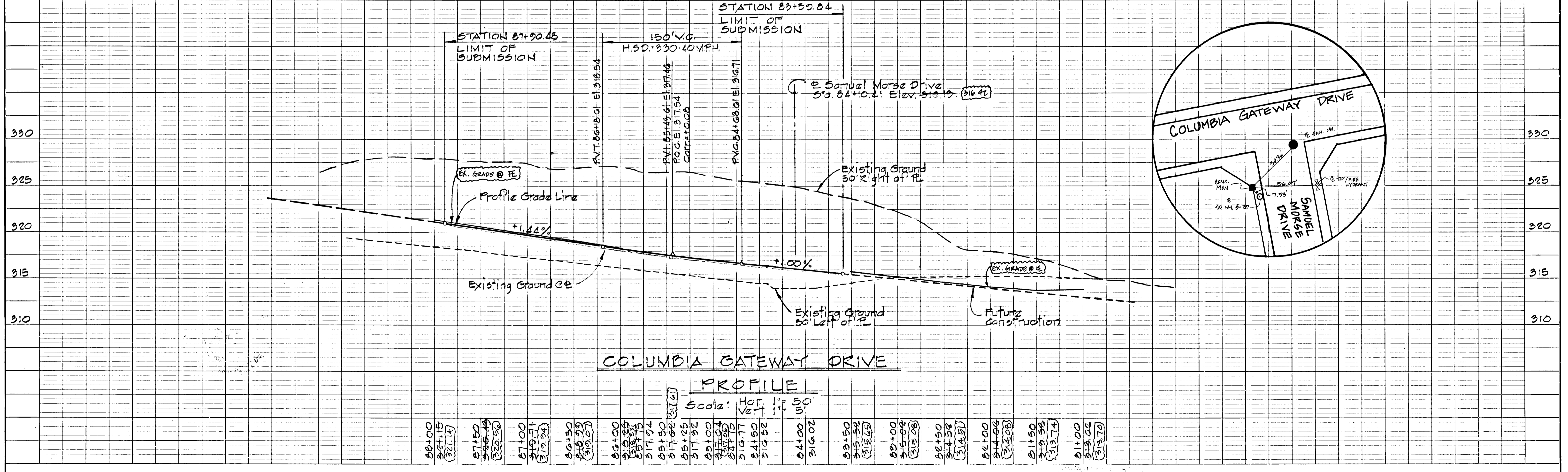
ROAD AS-BUILT
Richard F. Lane 2/2/80
 RICHARD F. LANE, V.P.
 PROPERTY LINE SURVEYOR # 301
 AS-BUILT INFORMATION DESIGNATED AS
 THUS: 2/2/80

SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 107
 ELLICOTT CITY, MARYLAND 21043



NO.	TYPE	TOP EL.	INV. IN.	INV. OUT.	LOCATION
I-124	5' dia A-5 Width 5.5' (SD 4.01)	313.52	311.16	310.96	at Int of 84+54.17 & Sta. 84+20.87
I-125	5' dia A-5 Width 2.5' (SD 4.01)	316.78	312.68	312.68	at Int of 83+92.82 & Sta. 84+83.61
I-126	5' dia A-10 Width 8.0' (SD 4.02)	316.78	309.79	309.79	at Int of 83+61.12 & Sta. 84+83.61

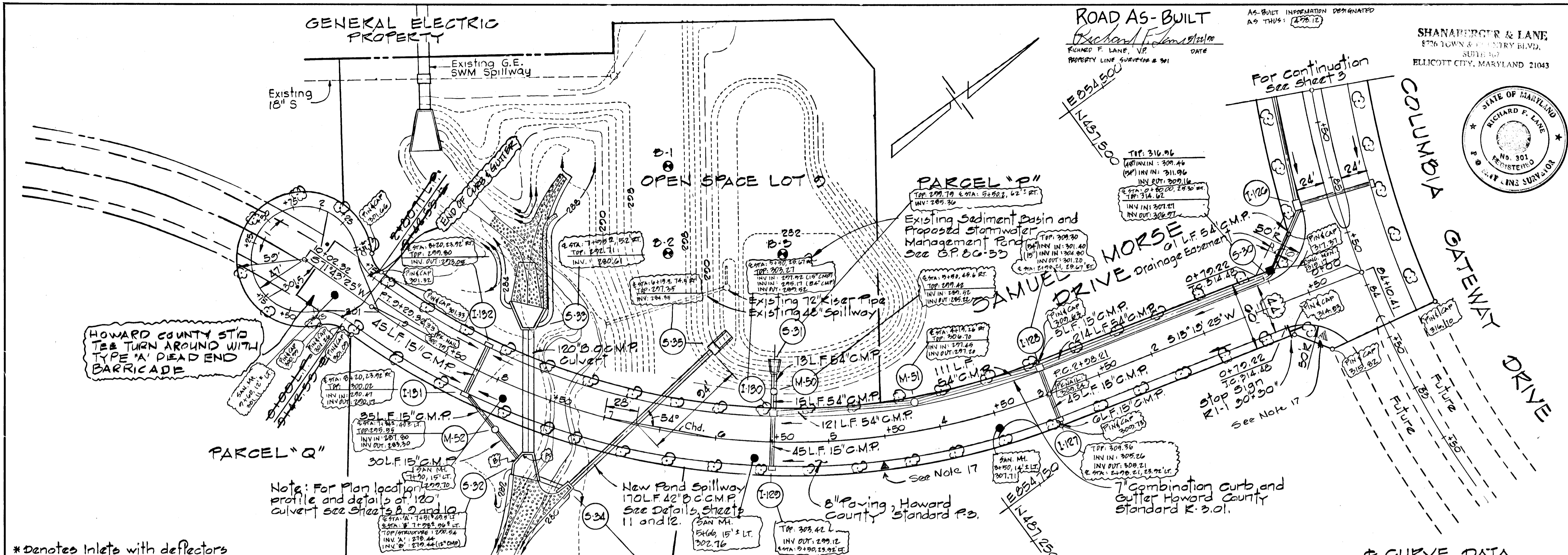
Notes: Required Dimensions for Paint Stripes
 - Double 4" Wide Parimeter Stripes with 4" Between Stripes
 - Cross Diagonals to be 12" wide with 5" between Diagonal Stripes



1/58

DATE	
BY	
NO.	
PLAN	
NOTE BOOK	
NO.	

DATE	
BY	
NO.	
PROFILE	
NOTE BOOK	
NO.	



APPROVED: DEPARTMENT OF PUBLIC WORKS
 2-5-87
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING AND ZONING
 2-287
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



REV. DATE	REV. NO.	REVISION DESCRIPTION
9/20/86	2	Revised Curve Data
11/24/86	1	As per S&S, Planning & OPW Comments

COLUMBIA GATEWAY GIBLECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
 PROJECT AREA
 PARCELS P THRU R
 A RESUBDIVISION OF PARCEL O
 PROJECT TITLE
 PLAN AND PROFILE
 SAMUEL MORSE DRIVE
 STATION 0+00 TO STATION 10+22.32
 SCALE: AS SHOWN DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

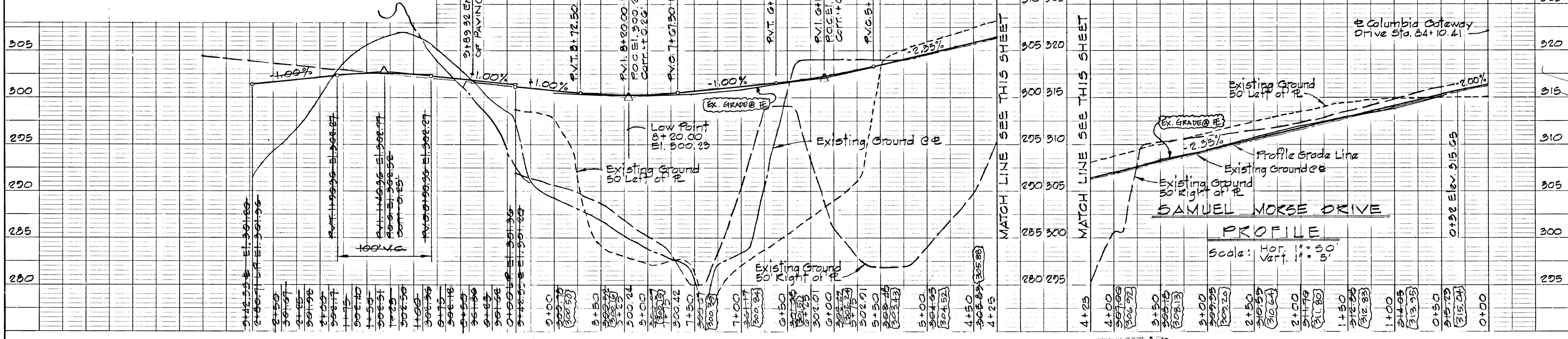


* denotes inlets with deflectors

NO.	TYPE	TOP EL.	INV. IN	INV. OUT	LOCATION
I-127	A-5 Inlet, width 25 (S.D. 4.0)	309.99	309.00	309.99	Inlet 23.92' LT. @ Sta. 2+03.21
I-128	A-5 Inlet, width 60 (S.D. 4.0)	309.92	307.75	309.92	Inlet 25.67' RT. @ Sta. 2+08.21
I-129	A-5 Inlet, width 25 (S.D. 4.0)	309.42	309.57	309.42	Inlet 23.92' LT. @ Sta. 3+50.00
I-130	A-5 Inlet, width 60 (S.D. 4.0)	309.42	309.55	309.42	Inlet 25.67' RT. @ Sta. 3+50.00
I-131	A-5 Inlet, width 25 (S.D. 4.0)	300.17	301.51	300.17	Inlet 23.92' LT. @ Sta. 5+20.00
I-132	A-5 Inlet, width 25 (S.D. 4.0)	300.17	302.70	300.17	Inlet 23.92' RT. @ Sta. 5+20.00
M-50	Standard Manhole (S.D. 0.3)	305.60	305.00	305.60	See Plan and Profile
M-51	Standard Manhole (S.D. 0.3)	306.65	307.65	306.65	Manhole (26.00' RT. @ Sta. 4+19.22)
M-52	Standard Manhole (S.D. 0.1)	297.25	298.00	297.25	See Plan and Profile
S-30	Standard Bend (S.D. 1.0)	314.67	307.27	307.07	Bend 25.00' RT. @ Sta. 0+70.92
S-31	Type 'O' Headwall (S.D. 3.4)	291.29	295.20	295.20	See Plan and Profile
S-32	Special Headwall See SHT. 2	292.50	297.30	297.30	See Plan and Profile
S-33	Special Headwall See SHT. 3	291.59	290.80	290.80	See Plan and Profile
S-34	Type 'O' Headwall (S.D. 3.4)	293.20	278.20	278.20	See Plan and Profile
S-35	Special Structure See SHT. 11	297.00	285.10	285.00	See Plan and Profile

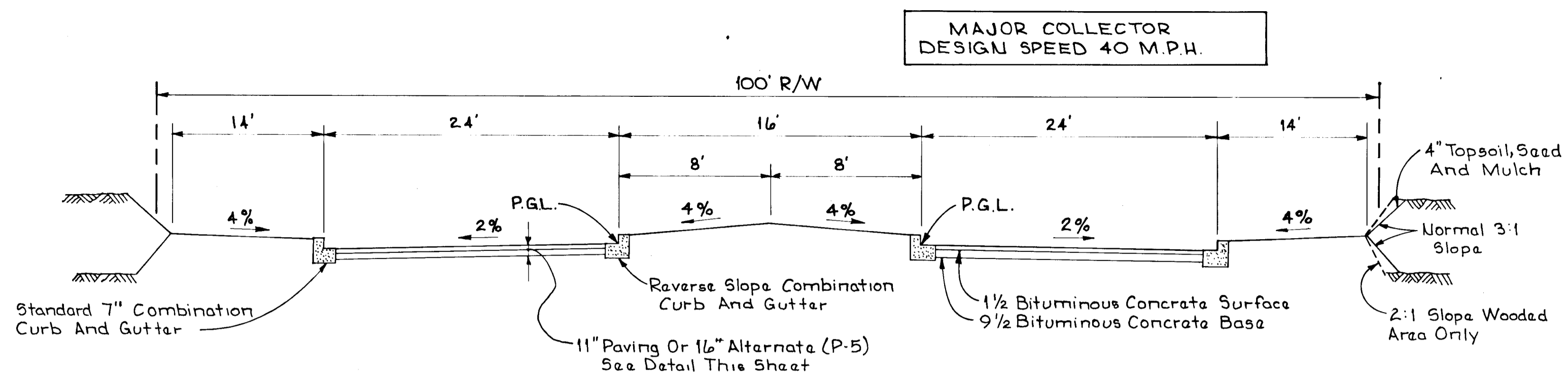
PLAN
 Scale: 1" = 50'
 Street Trees, See Note on Sheet 1.

CURVE DATA
 P.C. 2+03.21 TO P.T. 2+09.32
 Δ = 59° 30' 00" Tan = 249.88'
 R = 610.00' Chd. = 605.85'
 Arc = 631.11' Chd. Brg. = 543° 28' 25" W

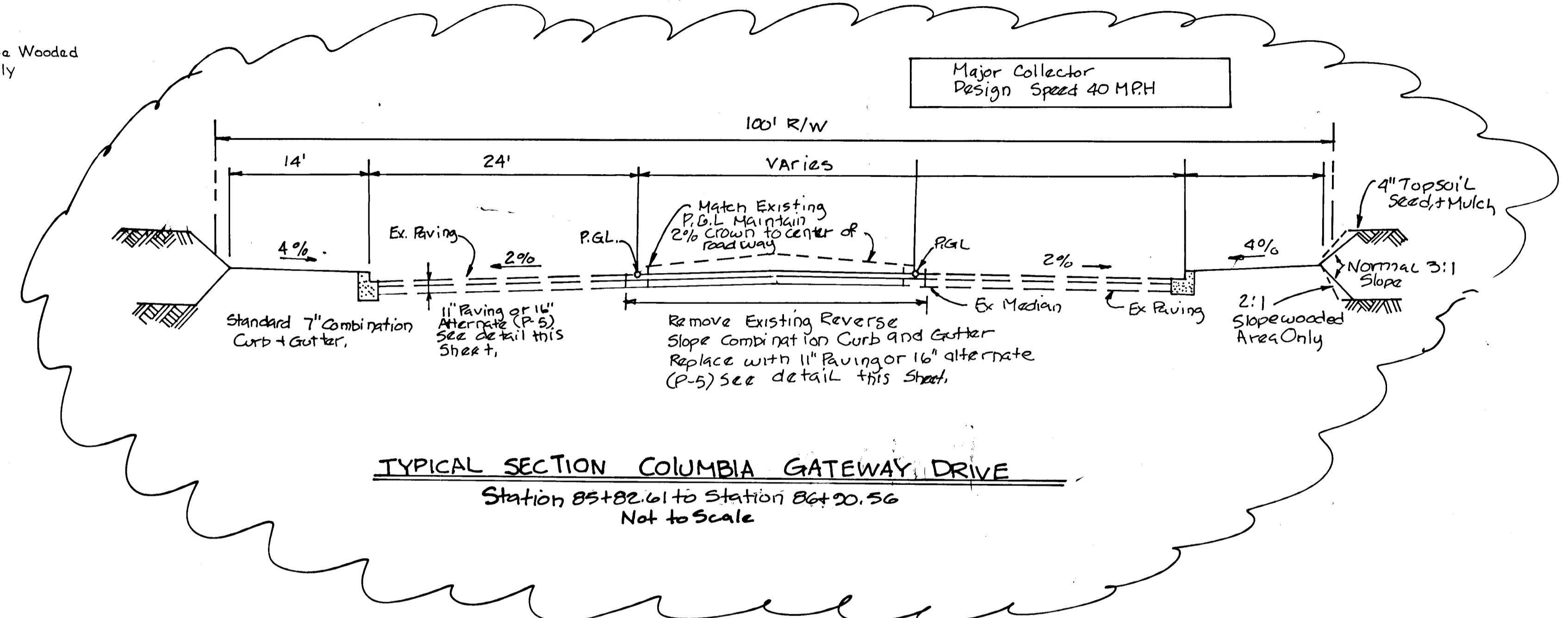


PROFILE
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 Vert. 1" = 5'

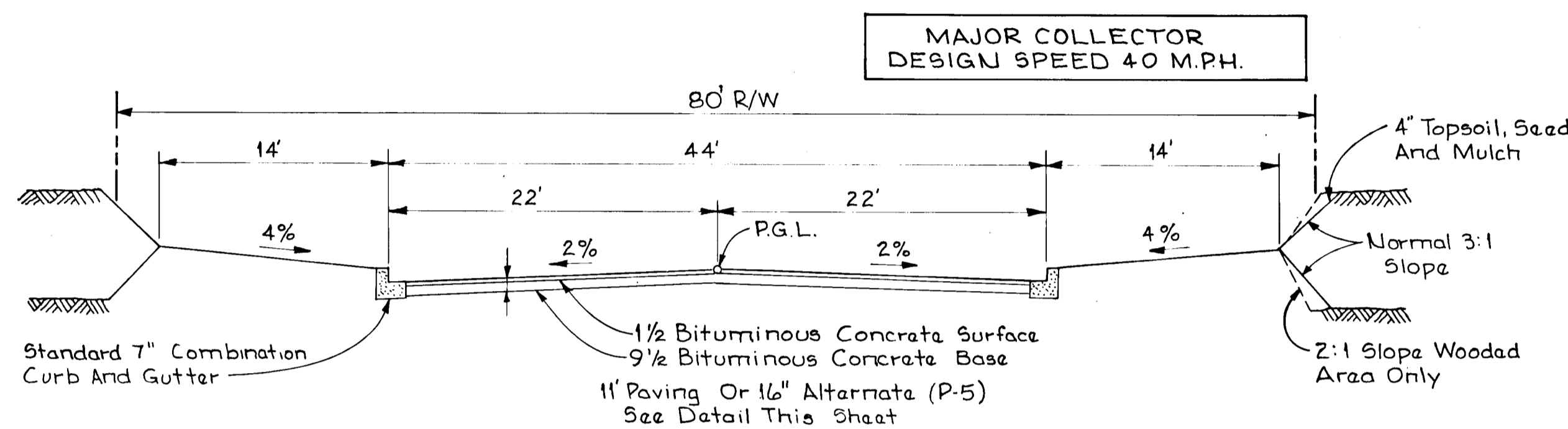
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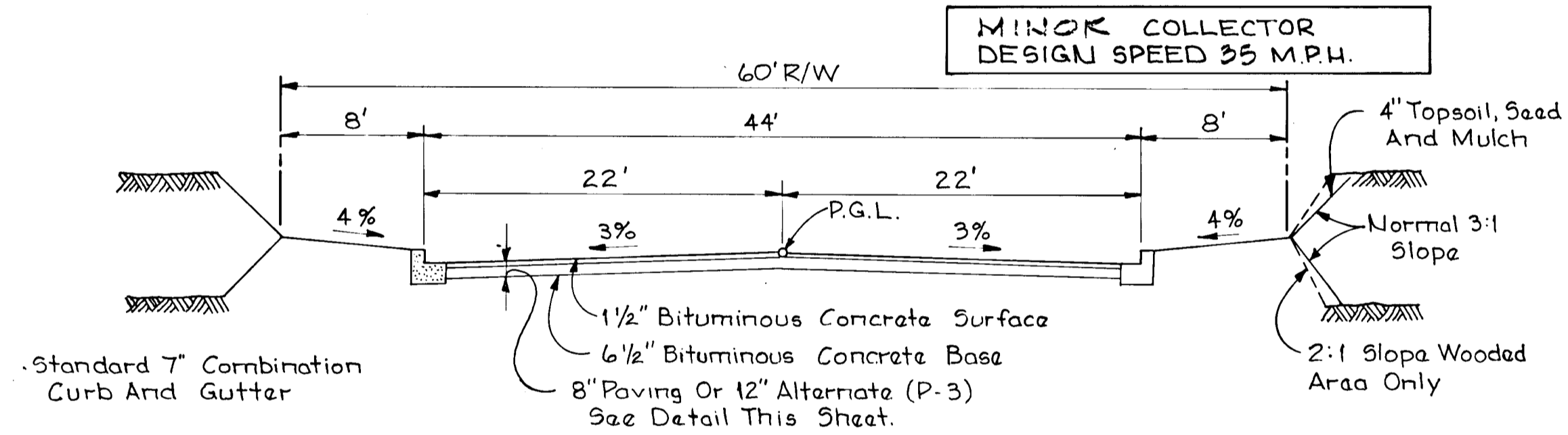
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 Not to Scale



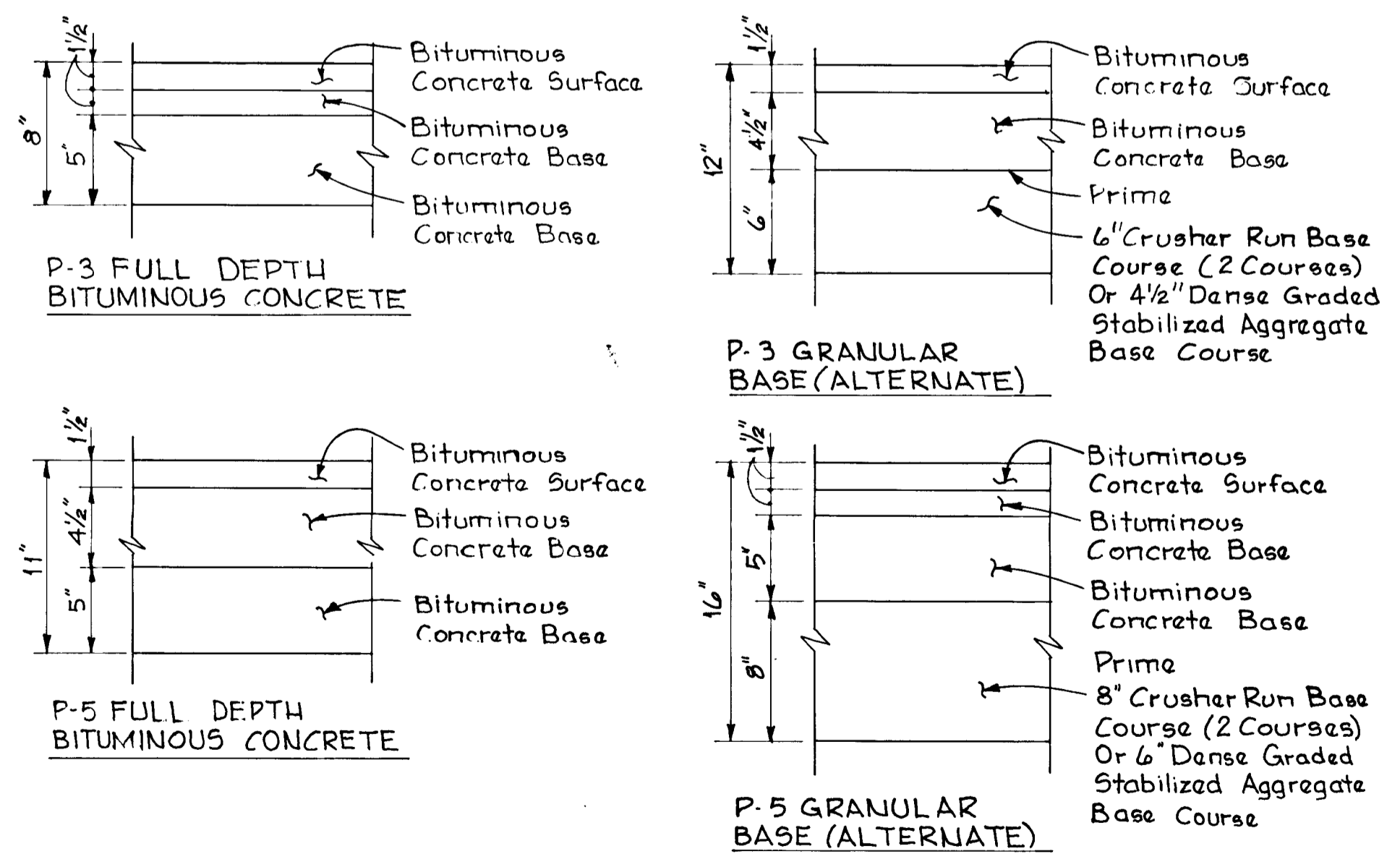
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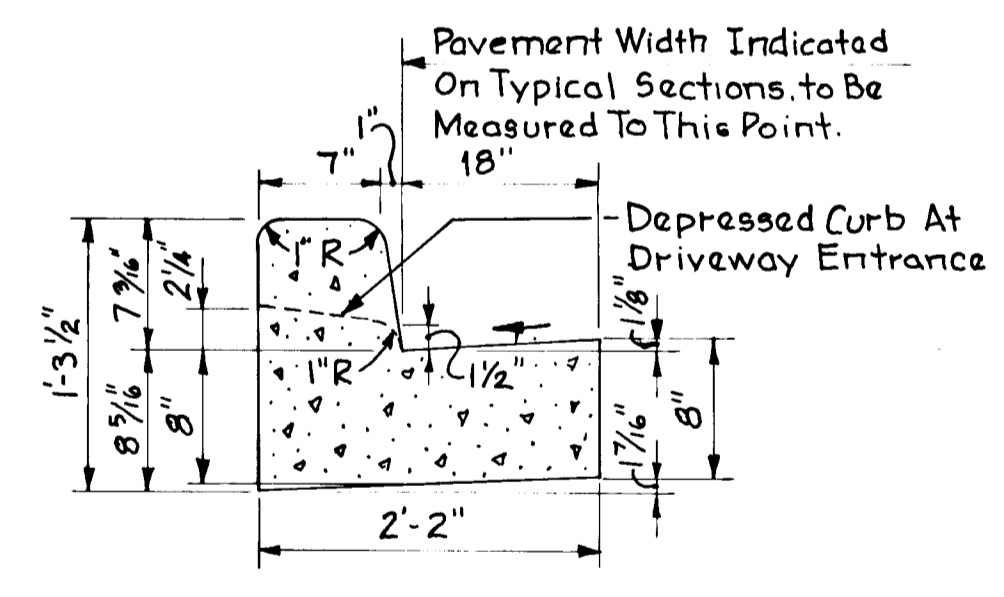
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 Not to Scale



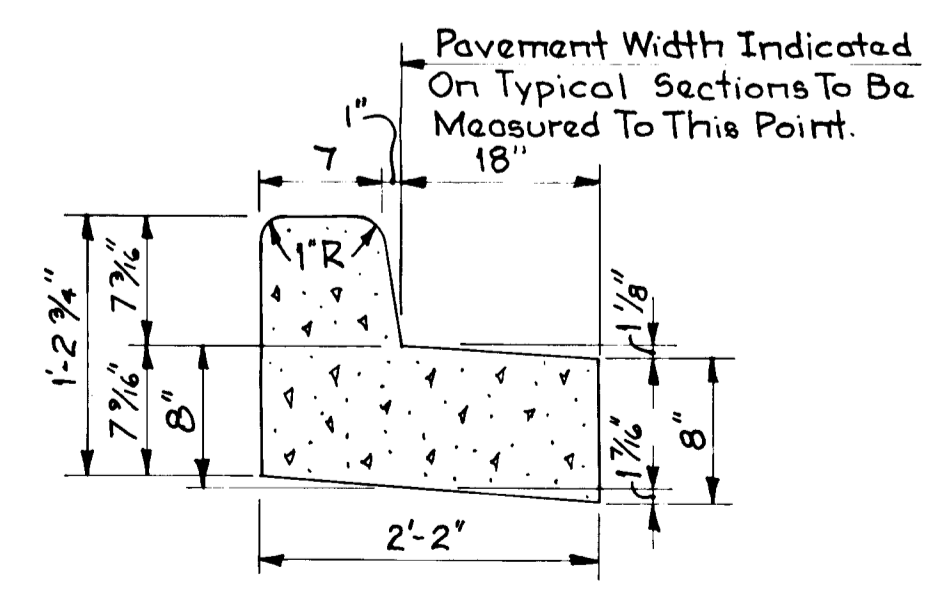
TYPICAL SECTION - SAMUAL MORSE DRIVE
 STATION 0+79.22 TO STATION 2+42.53
 Not to Scale



TYPICAL PAVING SECTIONS
 Not To Scale



STANDARD 7" COMBINATION CURB AND GUTTER
 Not To Scale



REVERSE 7" COMBINATION CURB AND GUTTER
 Not To Scale

REV. DATE	REV. NO.	REVISION DESCRIPTION
5/1/87	2	Added Detail for New Curb
11/24/86	1	As per SCG Planning & ED&W Comments

COLUMBIA GATEWAY 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

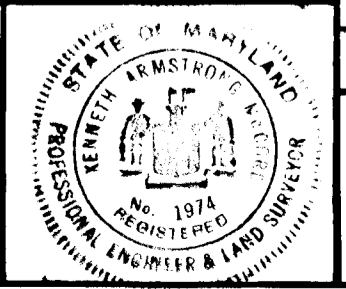
OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY

PROJECT AREA
 PARCELS P THRU R
 A RESUBDIVISION OF PARCEL O

PROJECT TITLE
 ROADWAY DETAILS

SCALE: 1" = 50' DATE:
 WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS
 BALTIMORE, MARYLAND 21218

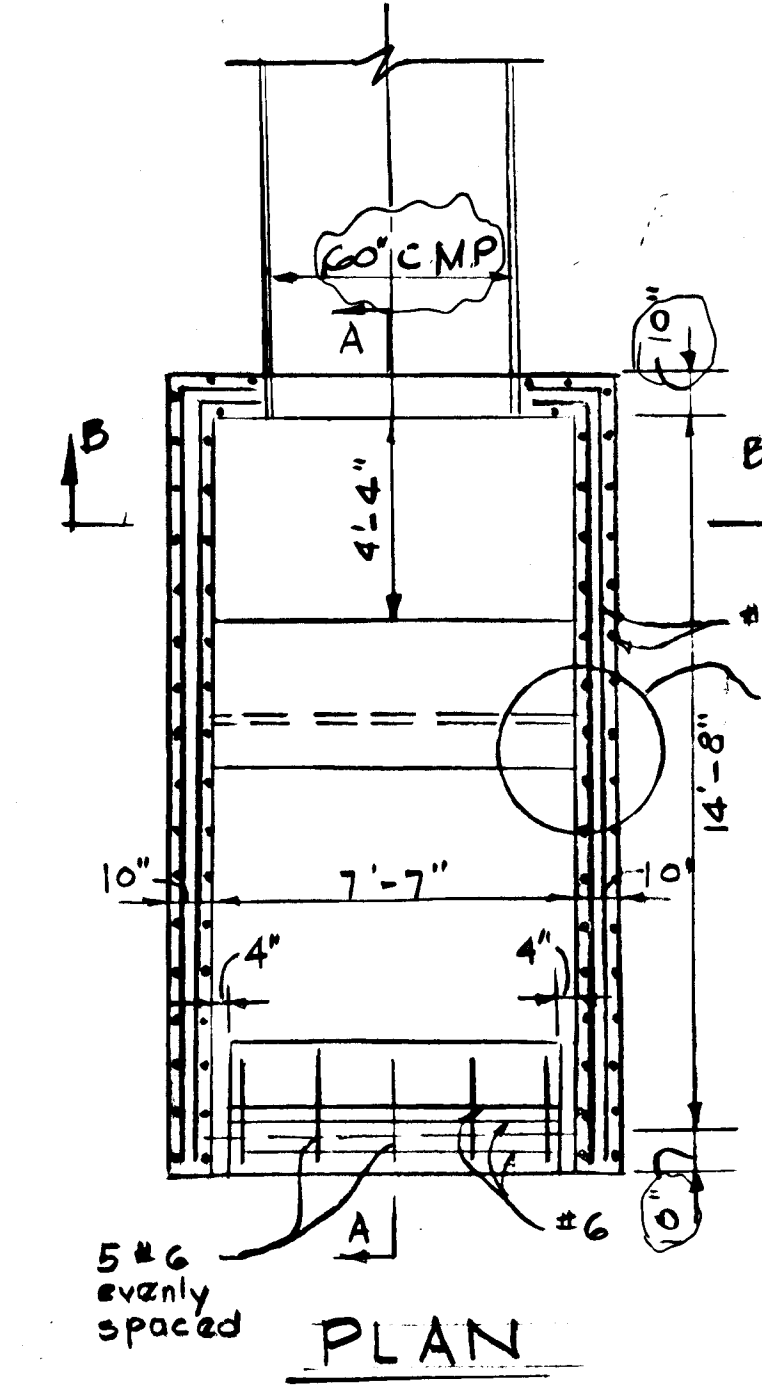
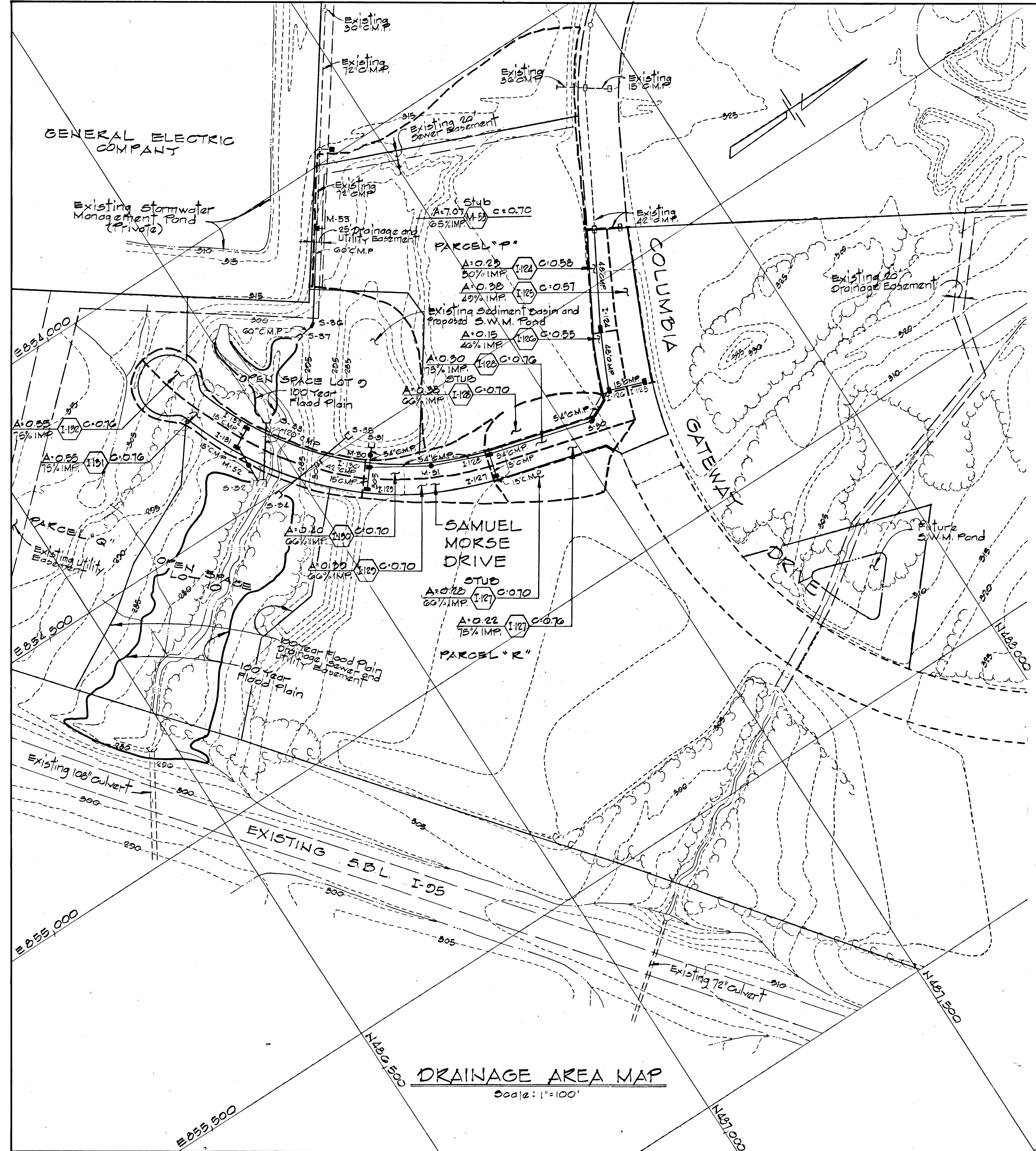
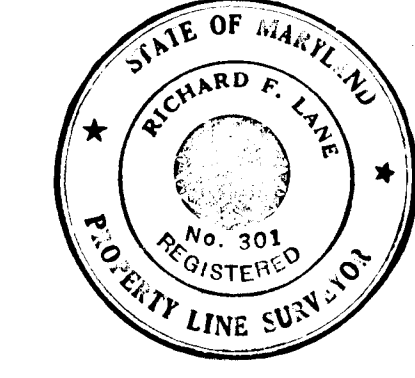
Kenneth A. McCord
 Registered Engineer
 NO. 1974



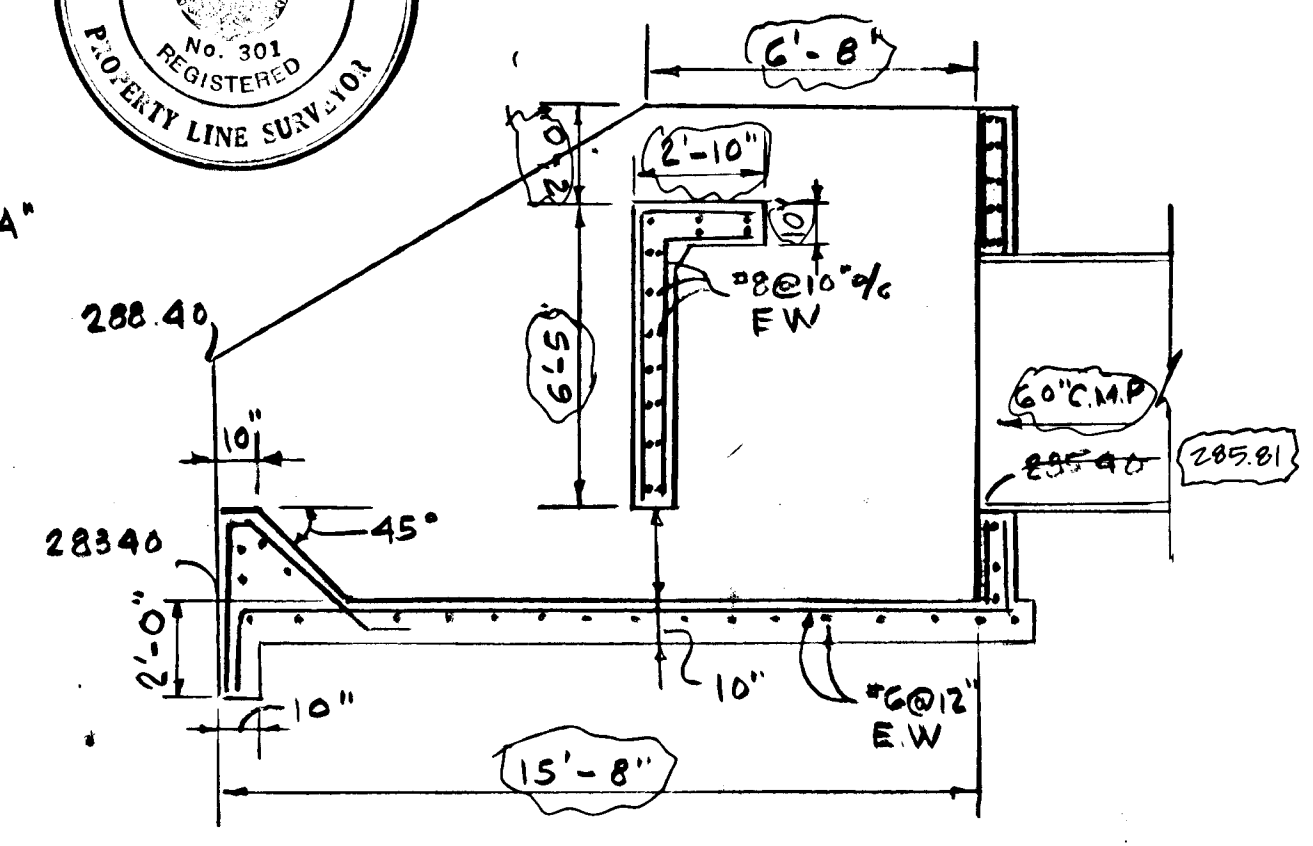
ROAD AS-BUILT
 RICHARD F. LANE, P.E.
 PROPERTY LINE SURVEYOR # 301

APPROVED: DEPARTMENT OF PUBLIC WORKS
 2-5-87
 CHIEF BUREAU OF ENGINEERING
 OFFICE OF PLANNING AND ZONING
 JOHN W. MURPHY
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION
 2-2-87

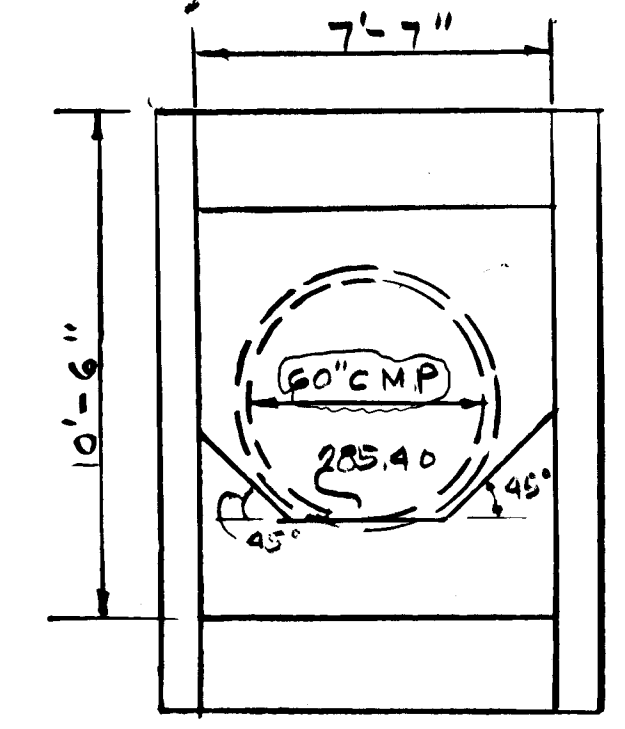
SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 107
 ELLICOTT CITY, MARYLAND 21043



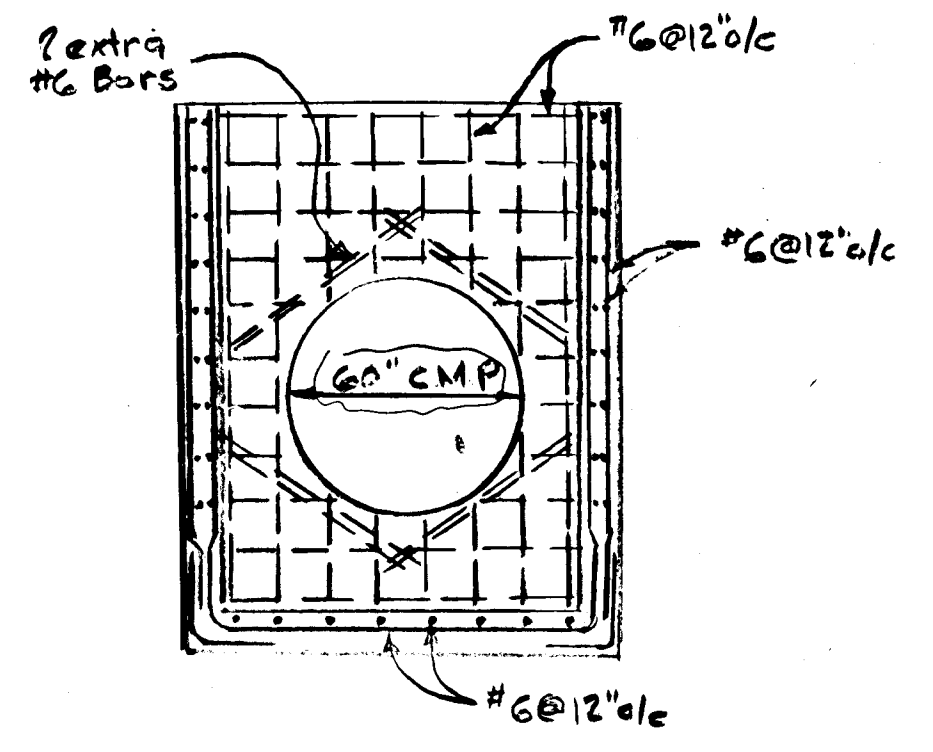
PLAN



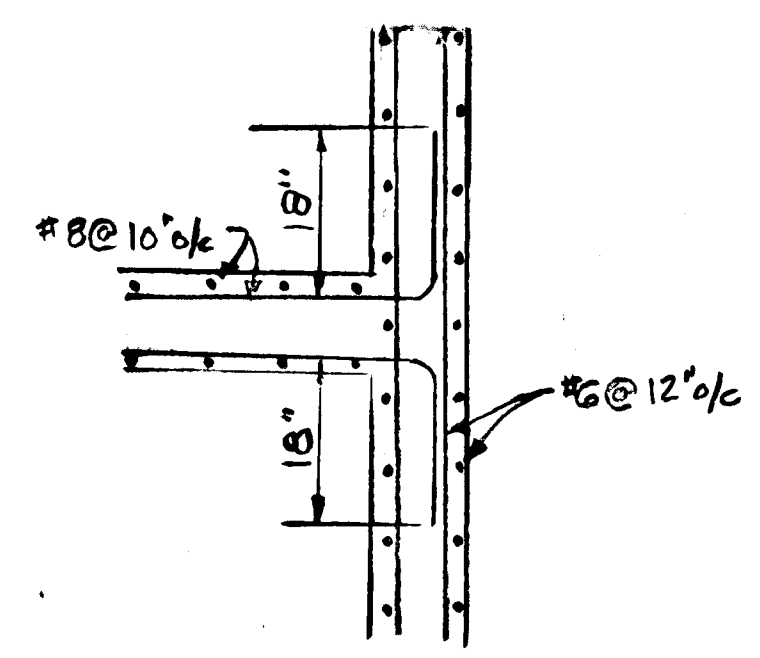
SECTION A-A



ELEVATION



SECTION B-B



DETAIL A

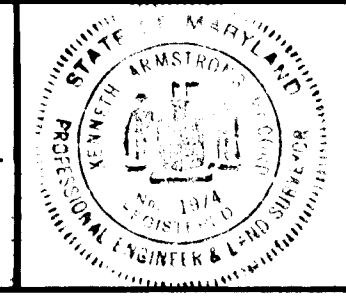
DETAIL S-37
 Scale 1/4" = 1'-0"

DRAINAGE AREA MAP
 Scale: 1" = 100'

REV. DATE	REV. NO.	REVISION DESCRIPTION
5/18/87	2	Added Detail S-37
11/24/86	1	As per SC3 Planning & PDW Comments

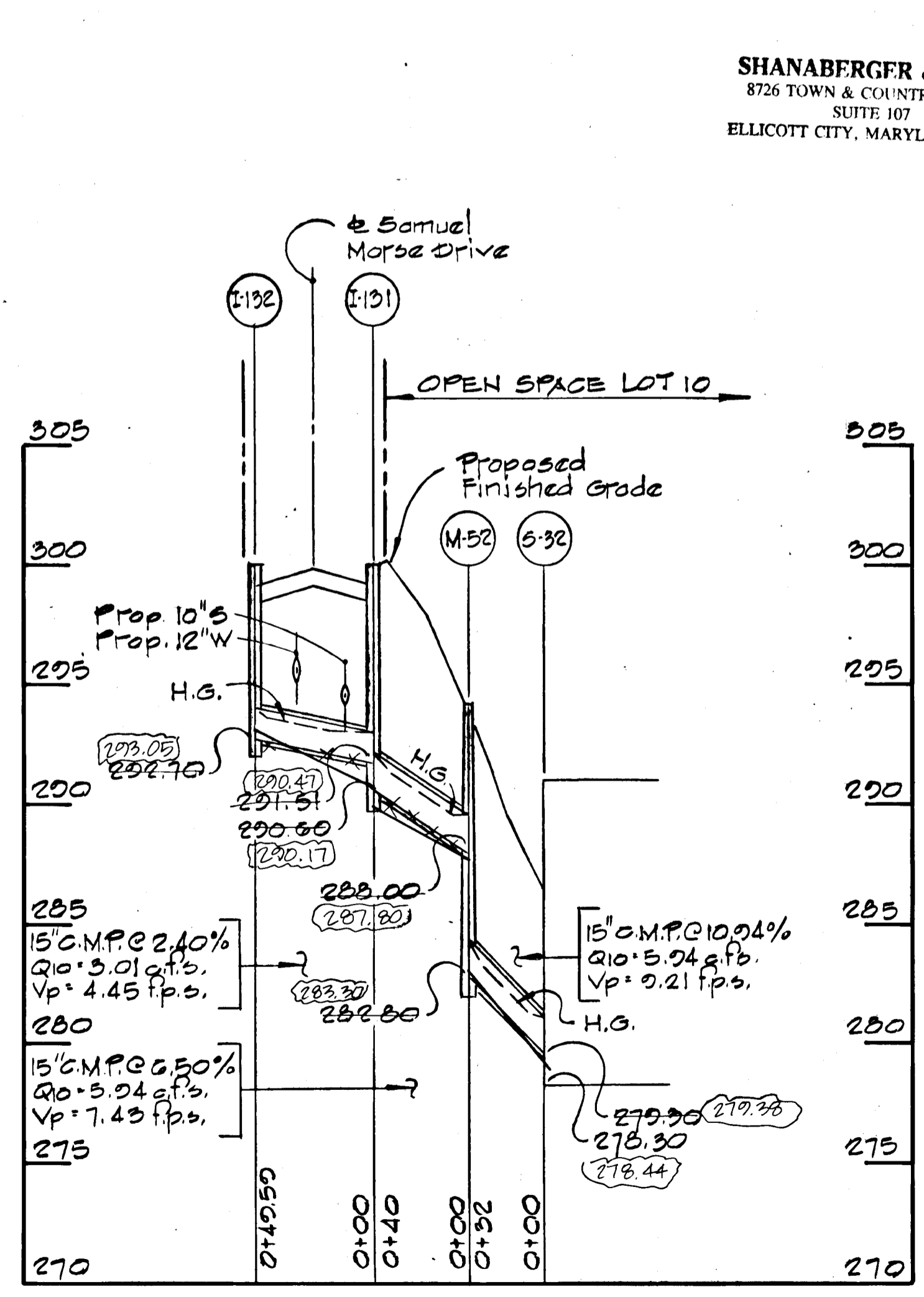
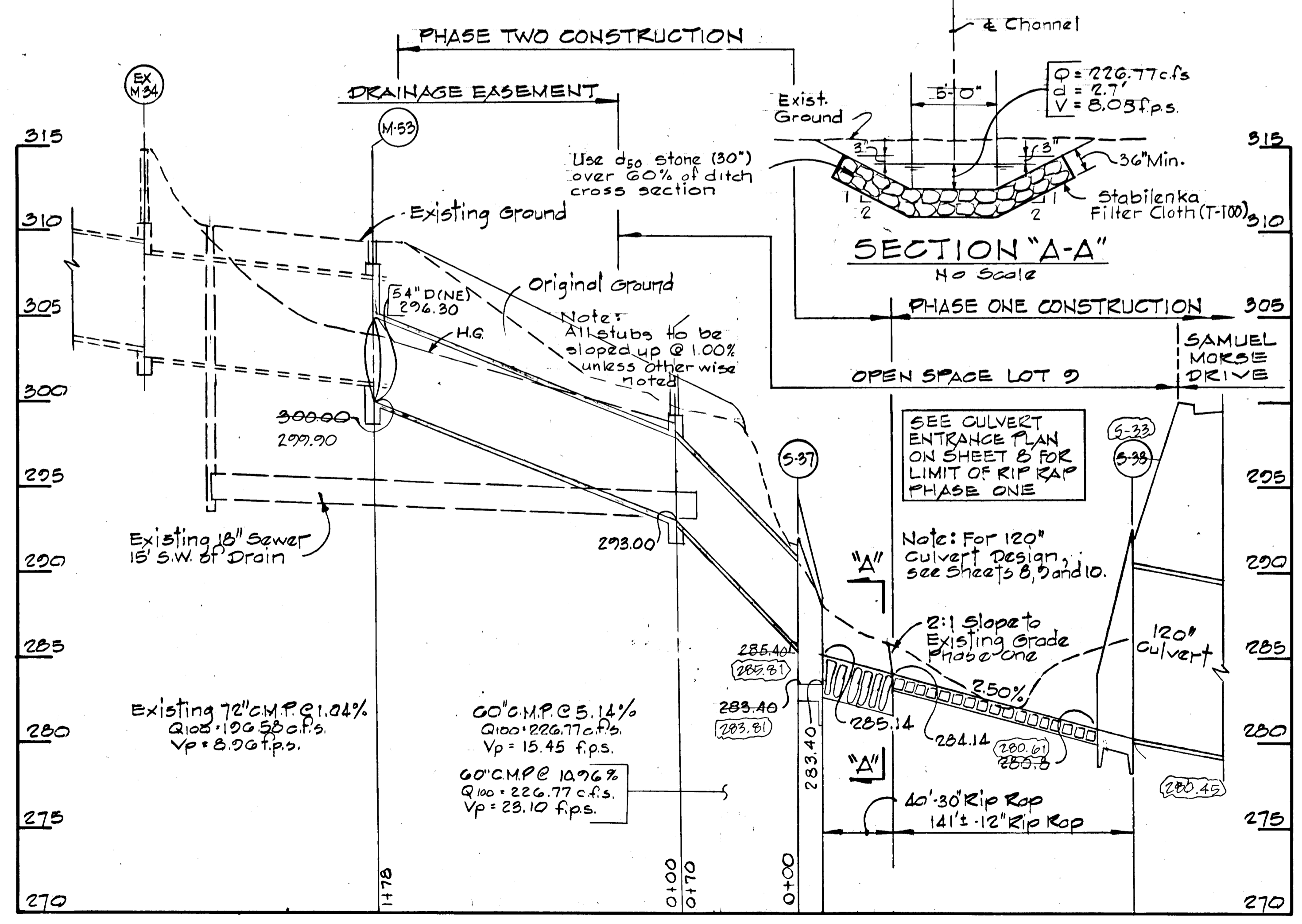
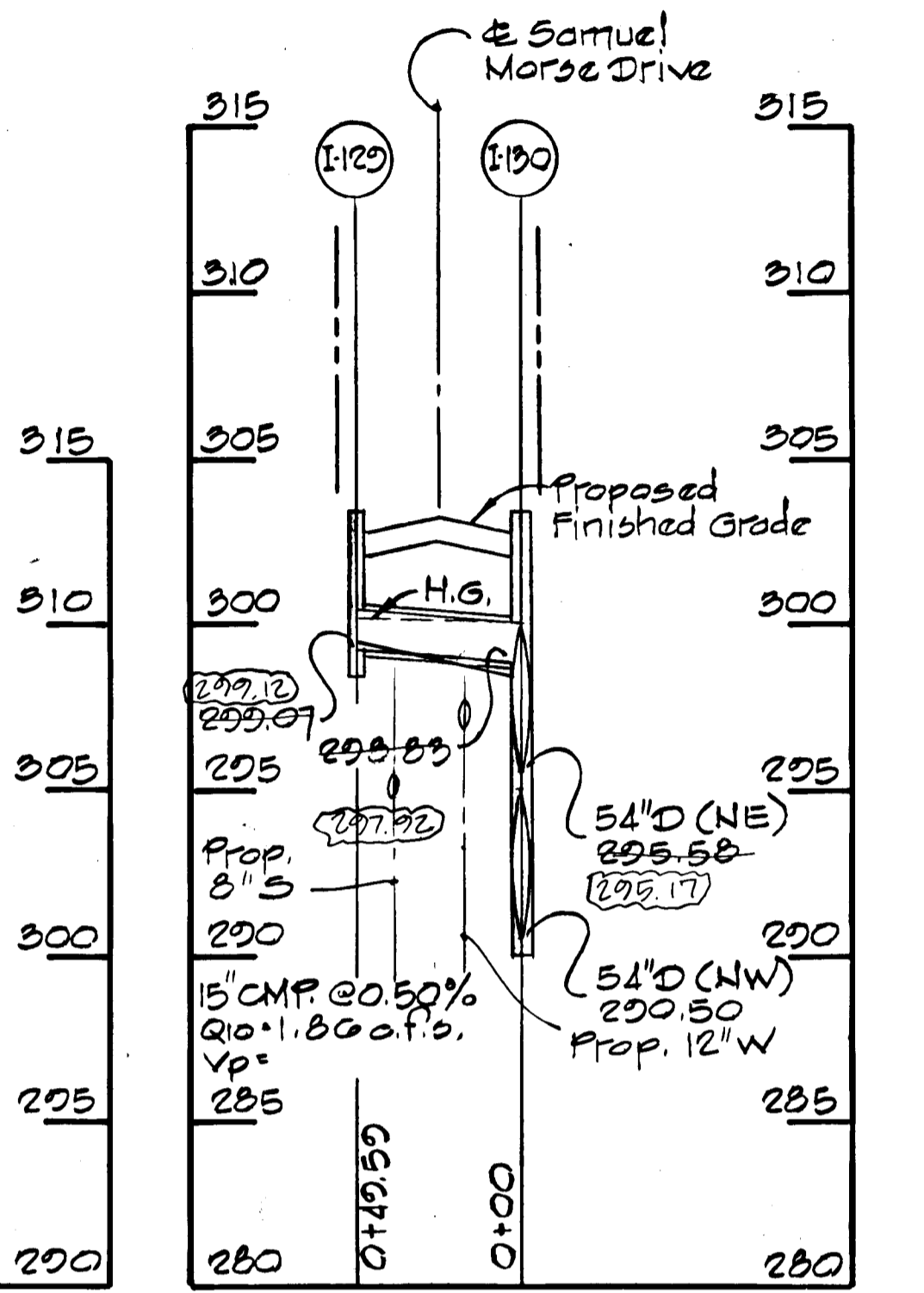
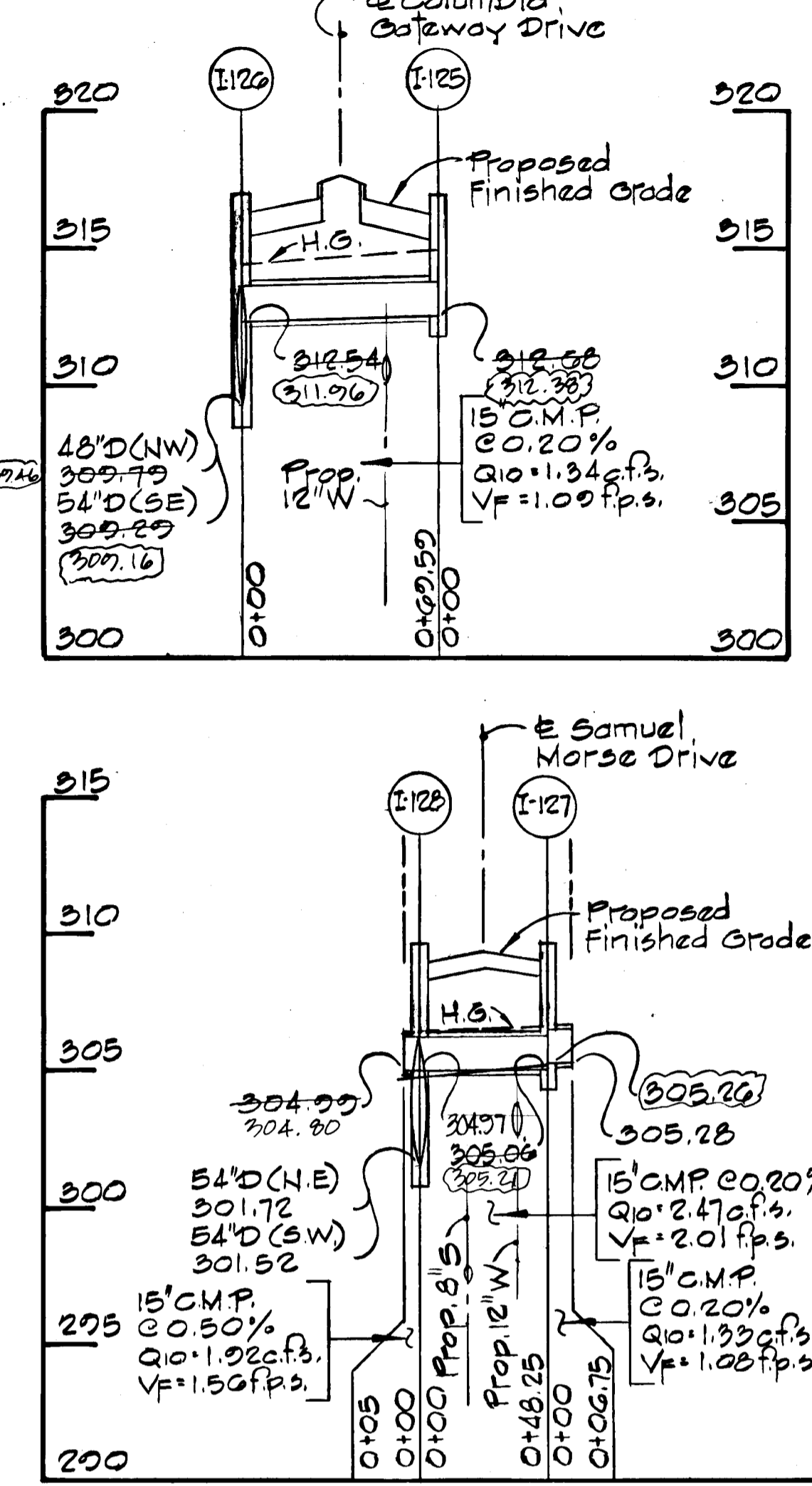
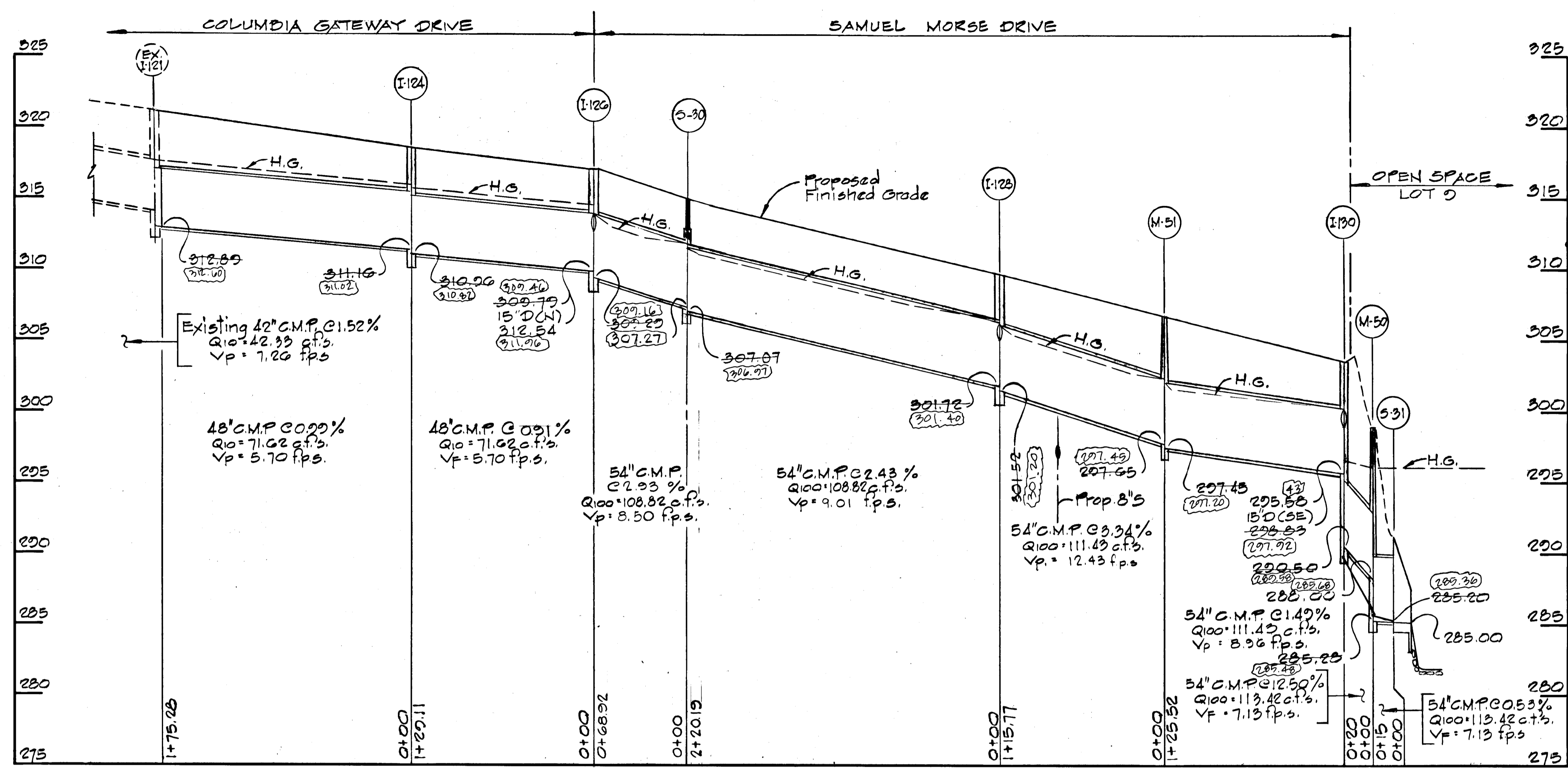
COLUMBIA GATEWAY
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY
 PROJECT AREA
 PARCELS P THRU K
 A RESUBDIVISION OF PARCEL O
 PROJECT TITLE
 DRAINAGE AREA MAP
 SCALE: AS SHOWN DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

Kenneth A. McCord
 Registered Engineer
 No. 1974



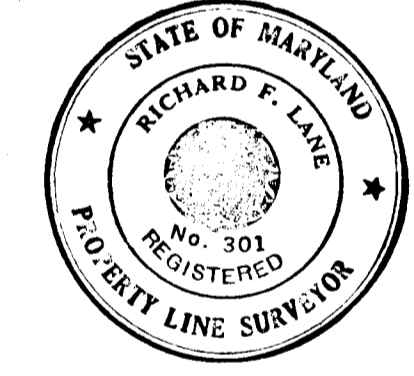
1158

APPROVED: DEPARTMENT OF PUBLIC WORKS
 2-5-87
 CHIEF, BUREAU OF ENGINEERING / DATE
 OFFICE OF PLANNING AND ZONING
 2-2-87
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION / DATE



SHANBERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 107
 ELLICOTT CITY, MARYLAND 21043

ROAD AS-BUILT
 Richard F. Lane
 RICHARD F. LANE, P.E.
 PROPERTY LINE SURVEYOR # 301



Note:
 Type of bedding used for storm drain pipes shall be Class 'C' shaped subgrade. If rock is encountered the trench invert should be overexcavated 6 inches and the overexcavation of trenches refilled with granular material.

REV. DATE	REV. NO.	REVISION DESCRIPTION
5/18/87	2	Revised Drain S-37 to MH-53
11/24/86	1	As per SCS Planning & DPW Comments

COLUMBIA GATEWAY
 G1ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY
 PROJECT AREA
 PARCELS P THRU K
 A RESUBDIVISION OF PARCEL O
 PROJECT TITLE
 STORM DRAIN PROFILES
 SCALE: AS SHOWN DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

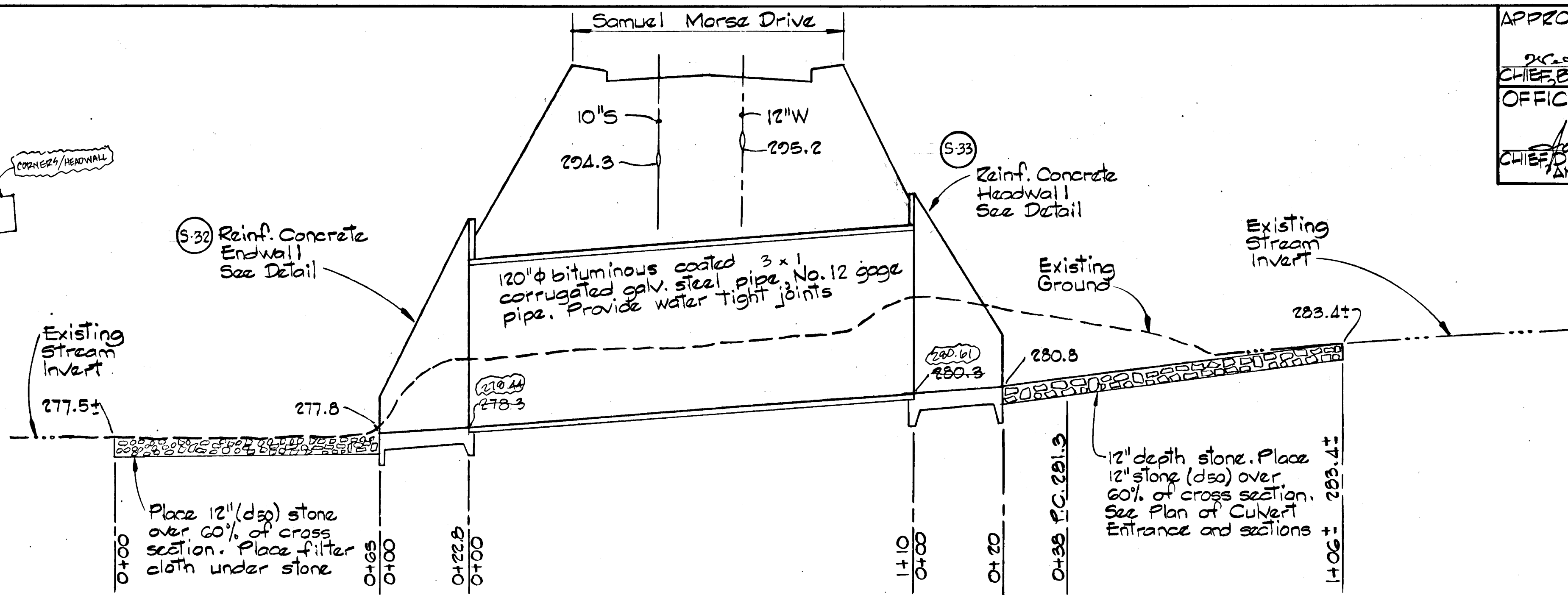
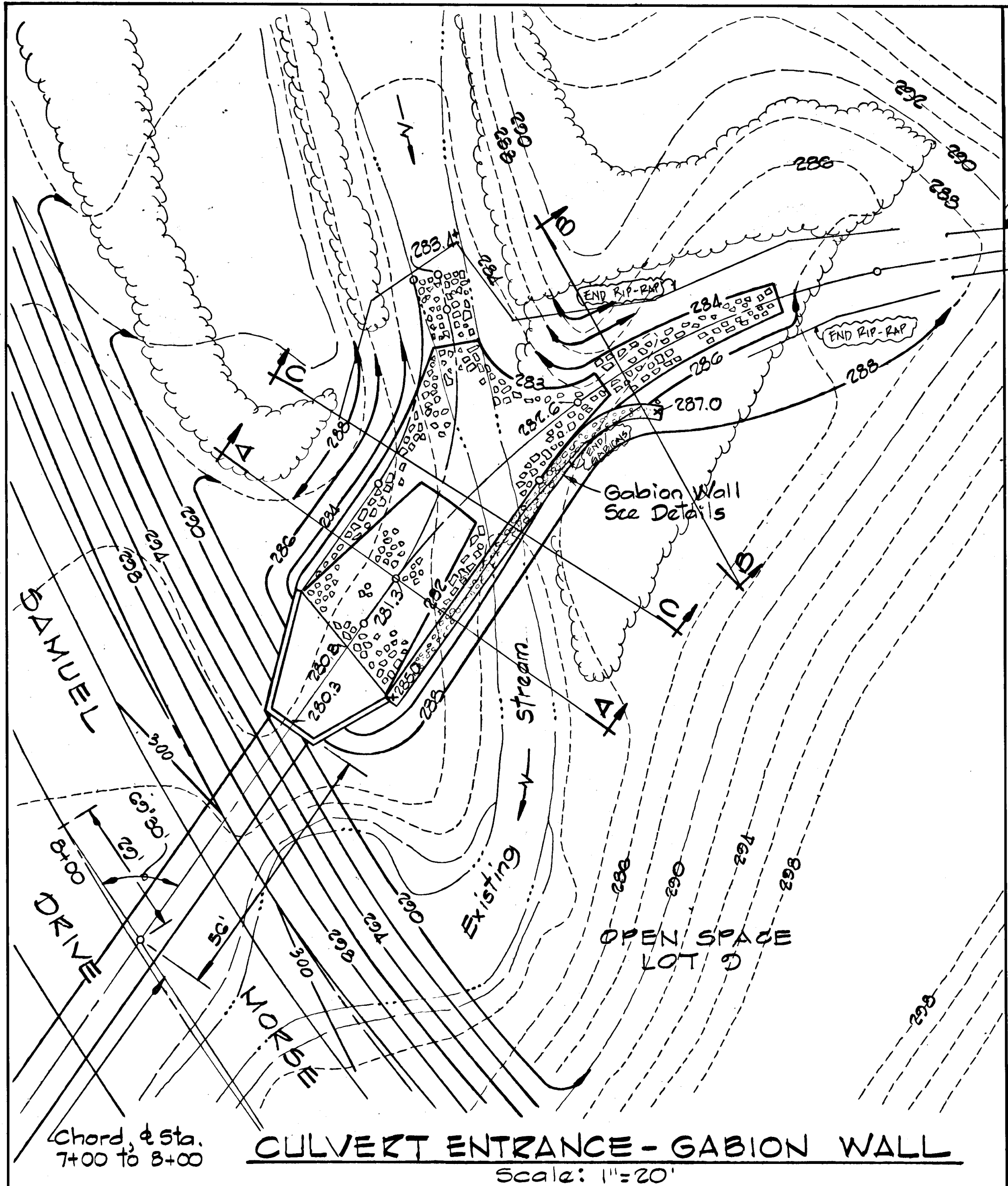
STORM DRAIN PROFILES
 SCALE: HOR. 1" = 50'
 VERT. 1" = 5'

Kenneth A. McCord
 Registered Engineer
 No. 1974

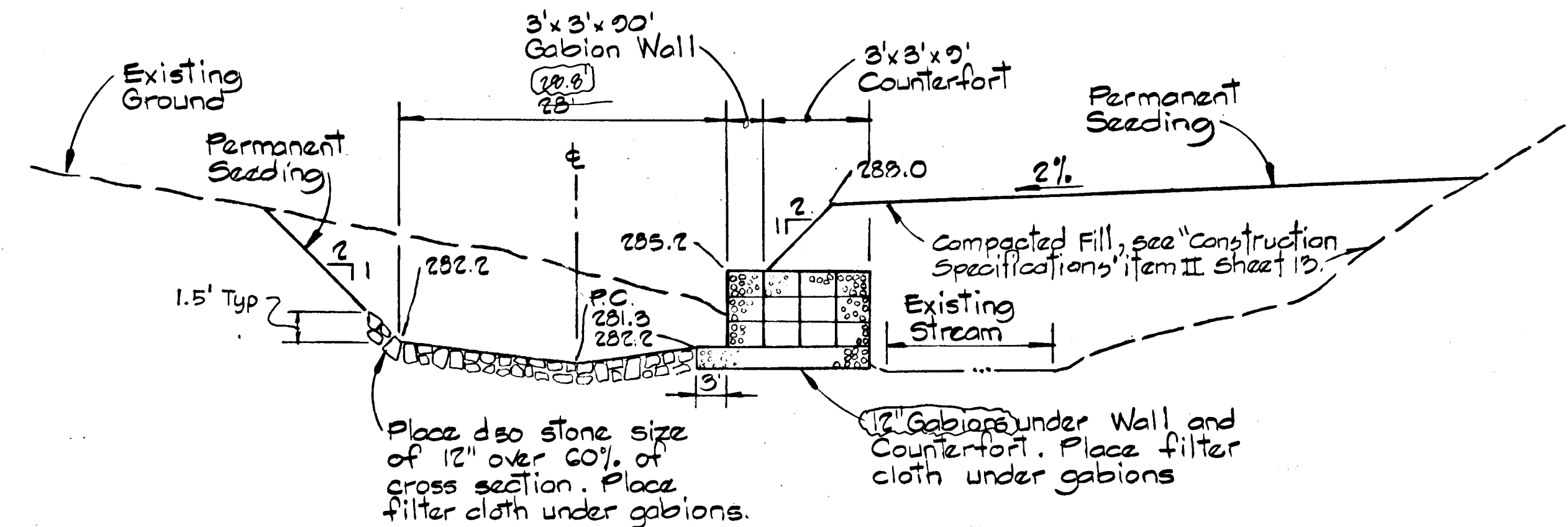


1158

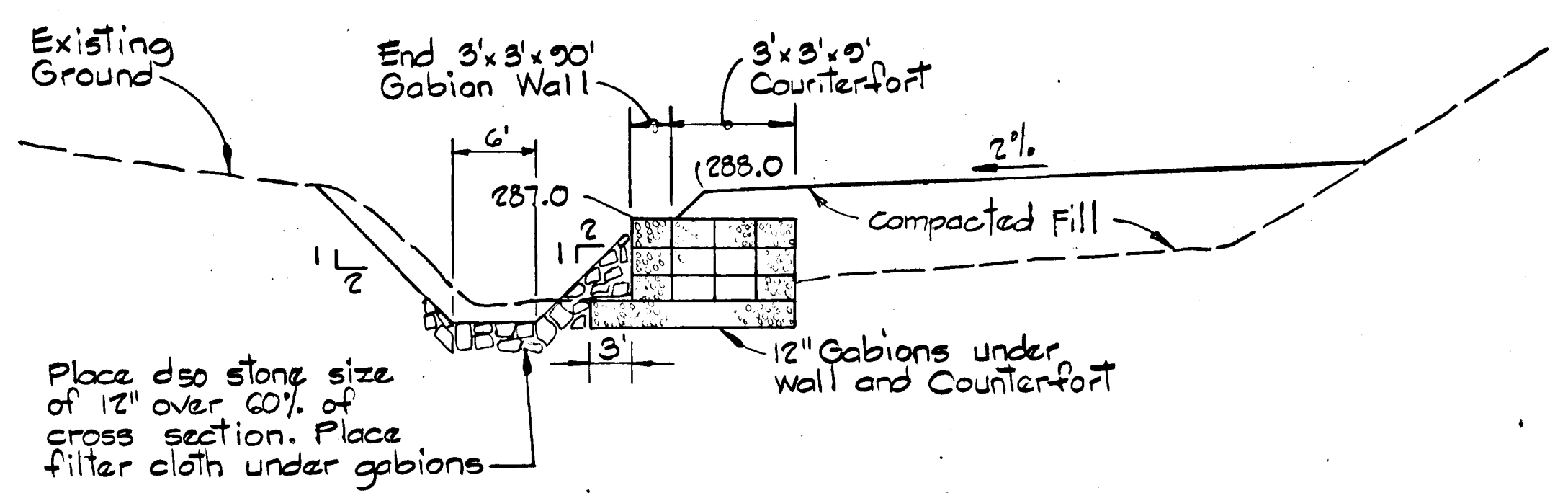
APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF BUREAU OF ENGINEERING DATE 2-5-87
 OFFICE OF PLANNING & ZONING
 JOHN W. MURPHY DATE 2-2-87
 CHIEF DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



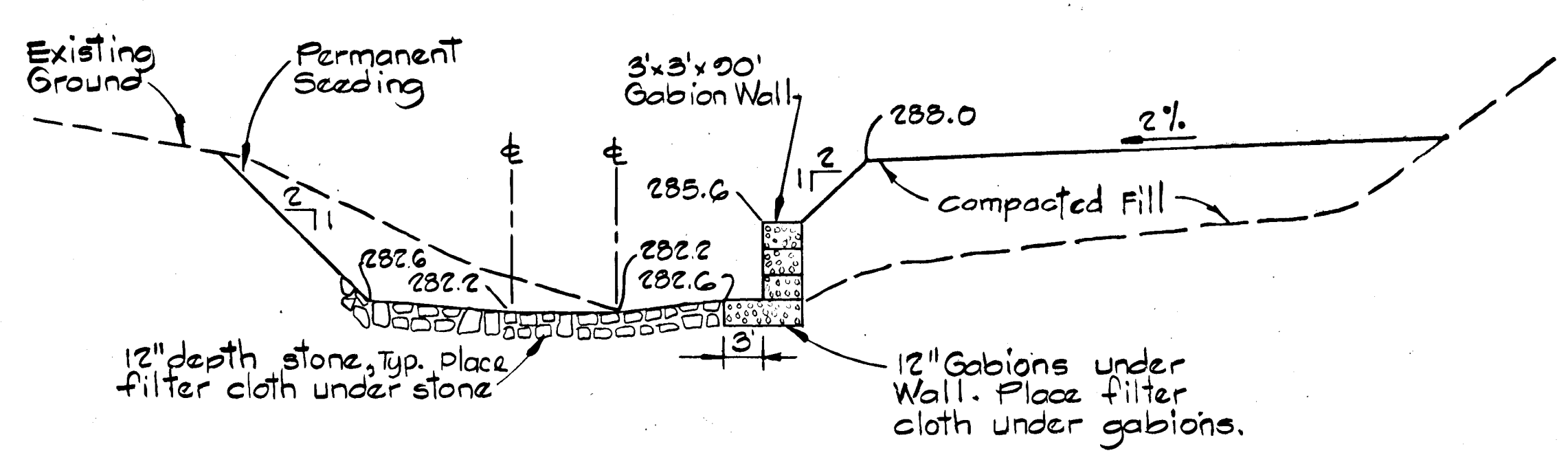
PROFILE - 120" BCCMP CULVERT
 Scale: Hor. 1" = 20'
 Vert. 1" = 5'



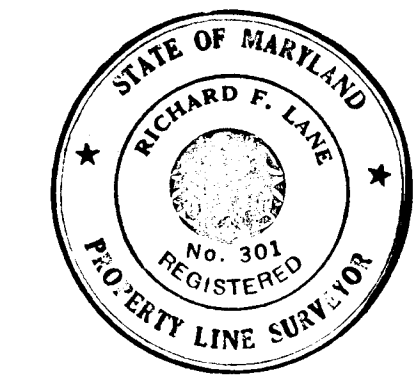
SECTION "A-A"
 Scale: Hor. 1" = 10'
 Vert. 1" = 5'



SECTION "B-B"
 Scale: Hor. 1" = 10'
 Vert. 1" = 5'

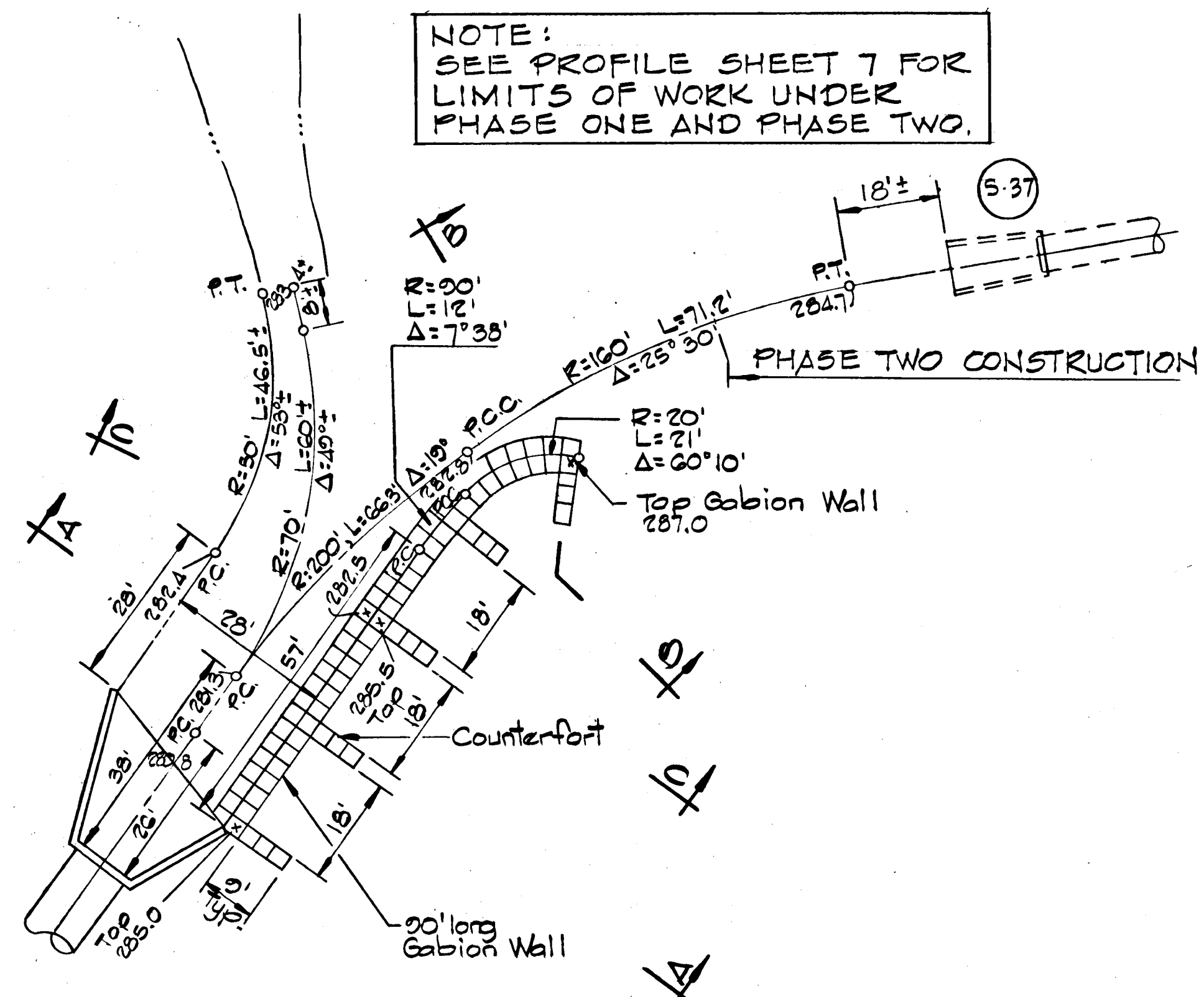


SECTION "C-C"
 Scale: Hor. 1" = 10'
 Vert. 1" = 5'



ROAD AS-BUILT
 RICHARD F. LANE, INC.
 PROPERTY LINE SURVEYORS
 ROAD AS-BUILT INFORMATION
 DESIGNATED AS THIS: 498.11
 SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 107
 ELLICOTT CITY, MARYLAND 21043

NOTE:
 SEE PROFILE SHEET 7 FOR
 LIMITS OF WORK UNDER
 PHASE ONE AND PHASE TWO.



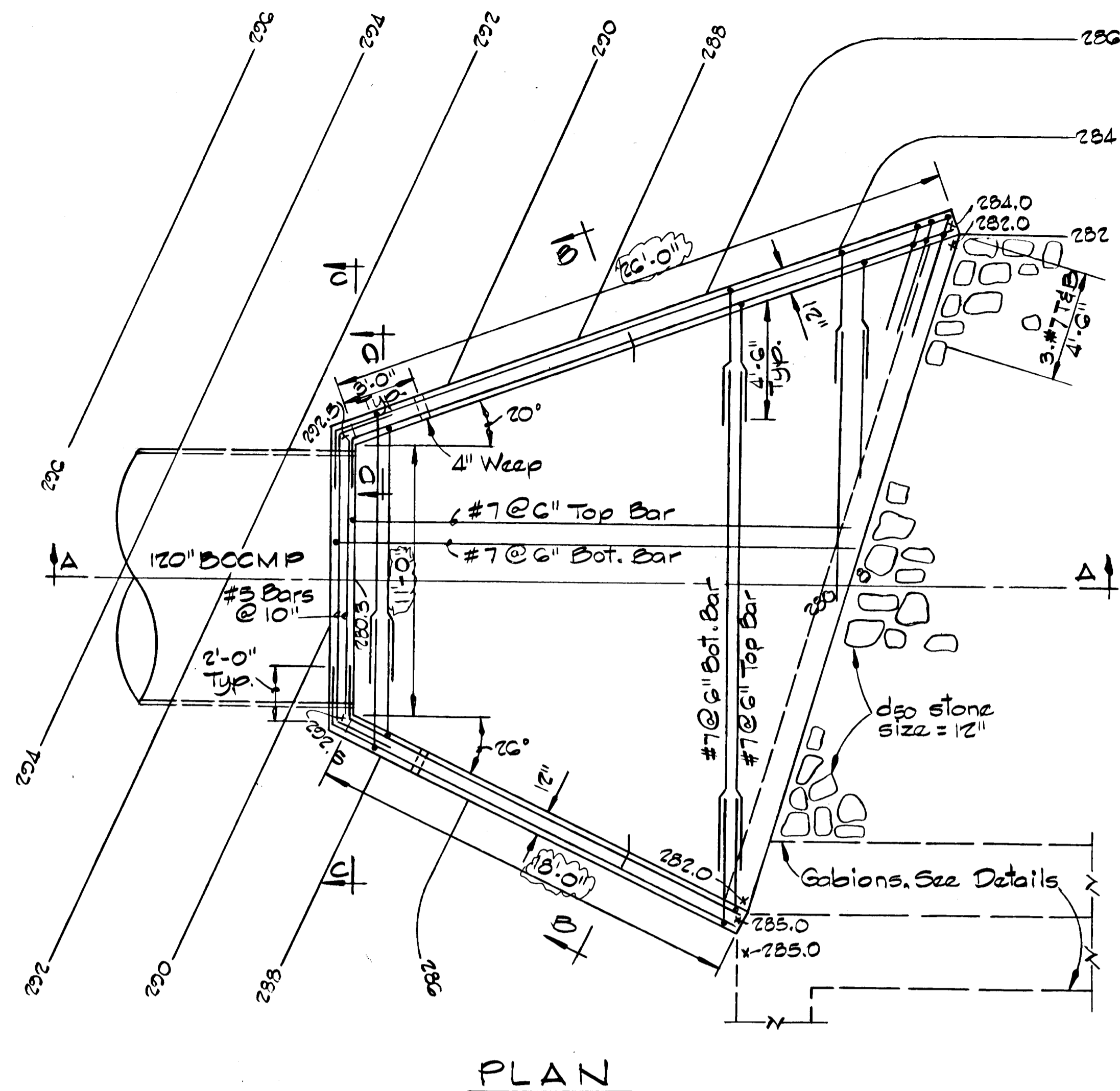
CULVERT ENTRANCE GEOMETRY
 GABION WALL
 Scale: 1" = 20'

DATE	NO.	REVISION DESCRIPTION
11/24/86	1	As per 503 Planning & Zoning Comments

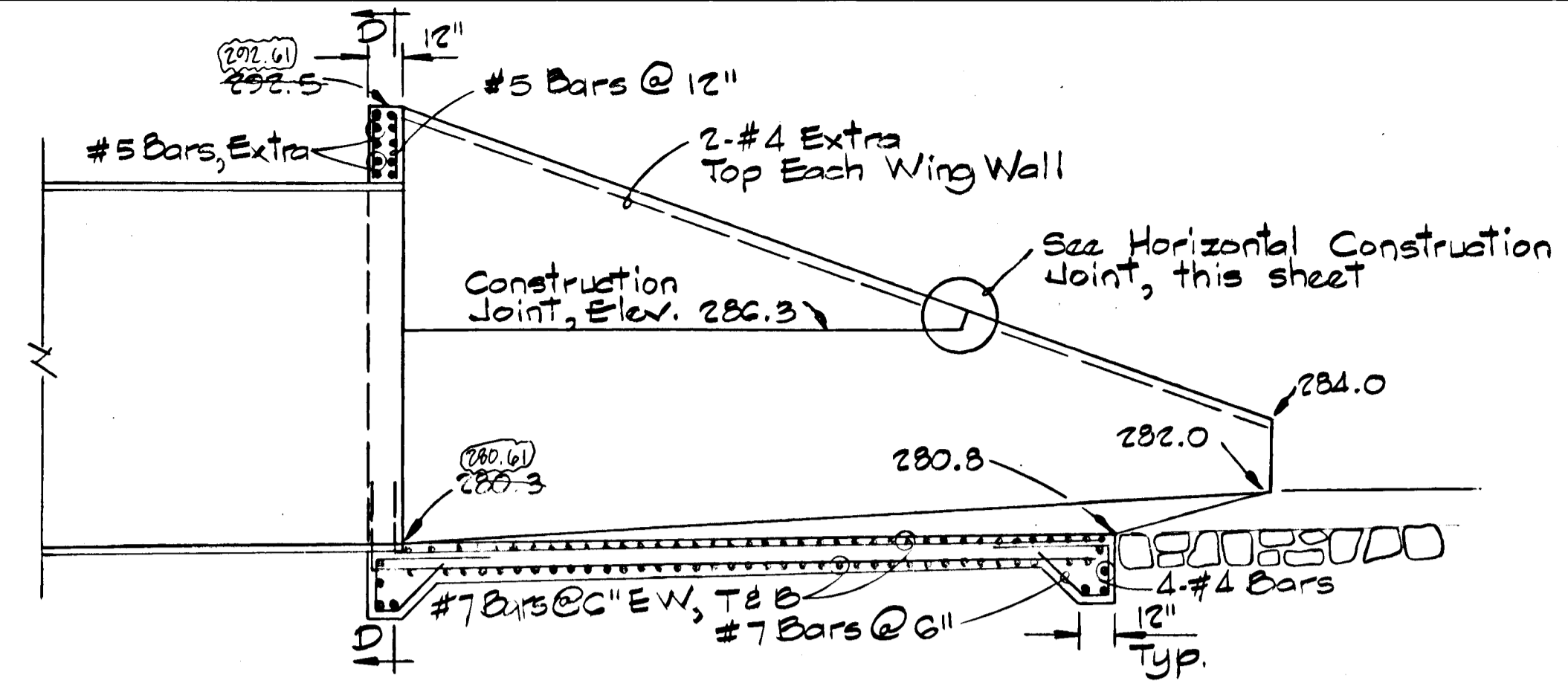
COLUMBIA GATEWAY
 C³ ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY
 PROJECT AREA
 PARCELS P THRU R
 A RESUBDIVISION OF PARCEL O
 PROJECT TITLE
 120 INCH CULVERT PROFILE
 AND DETAILS
 SCALE: AS SHOWN DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEER'S
 BALTIMORE, MARYLAND 21218

Kenneth A. McCord
 Registered Engineer
 No. 1074

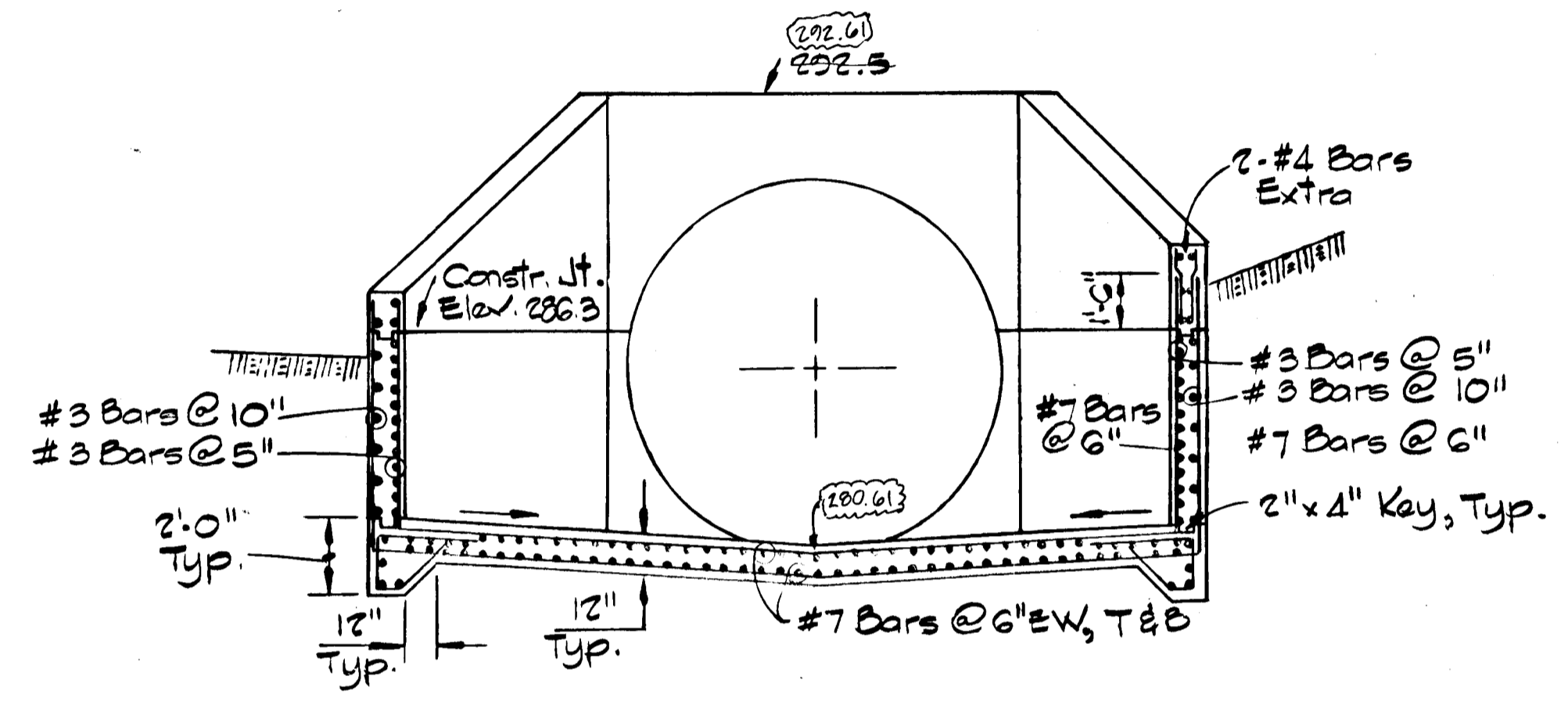
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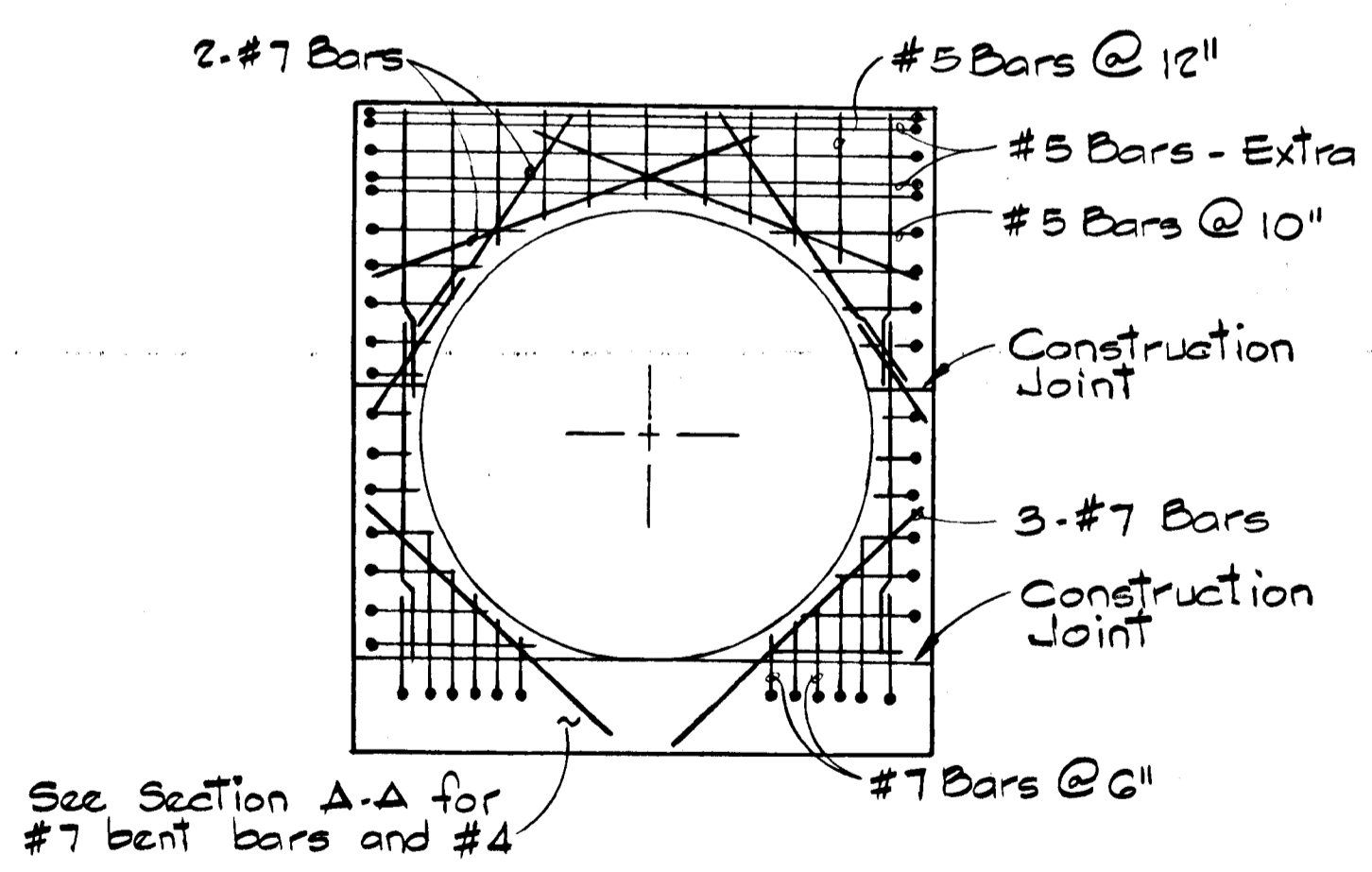
PLAN



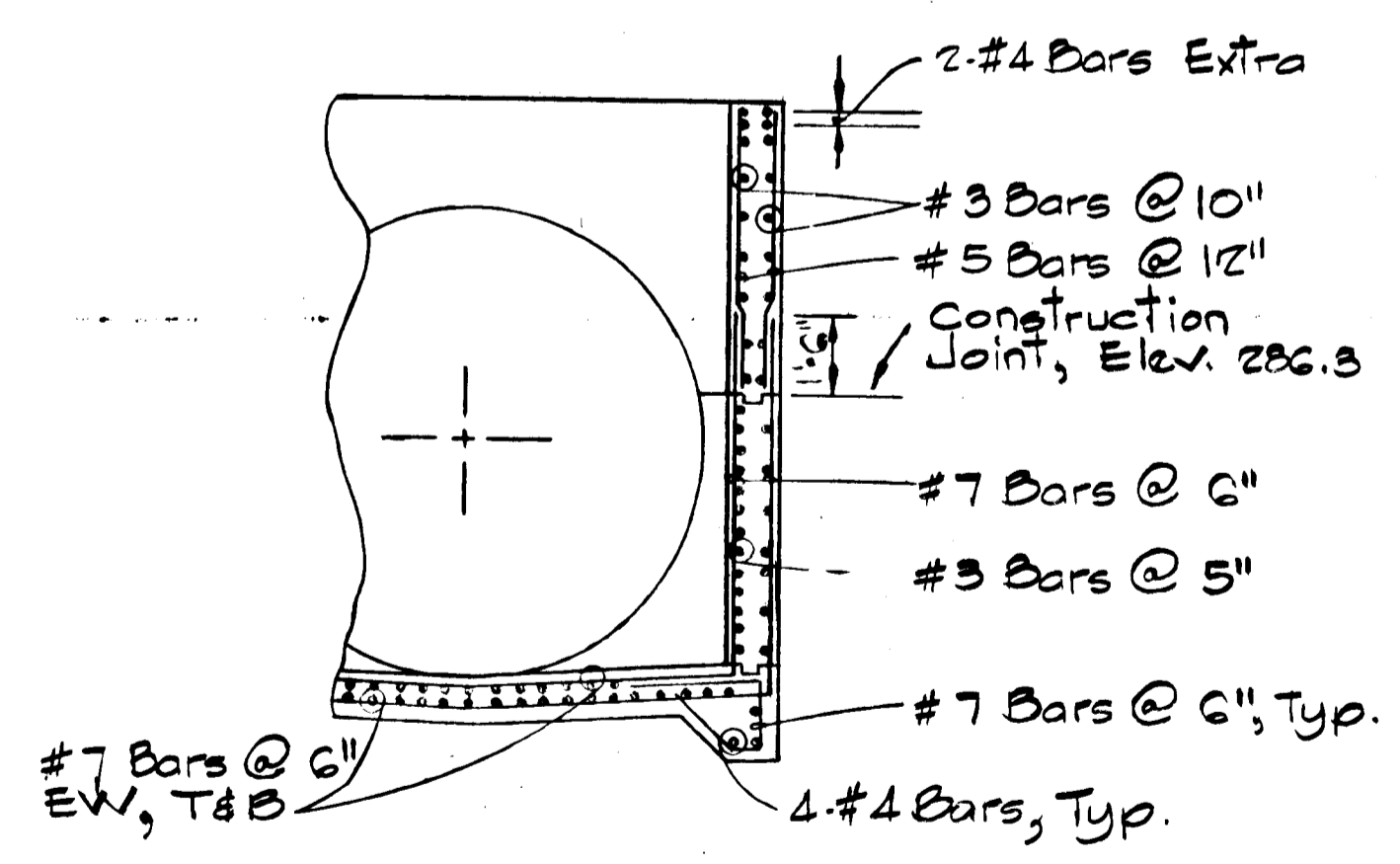
SECTION A-A



SECTION B-B



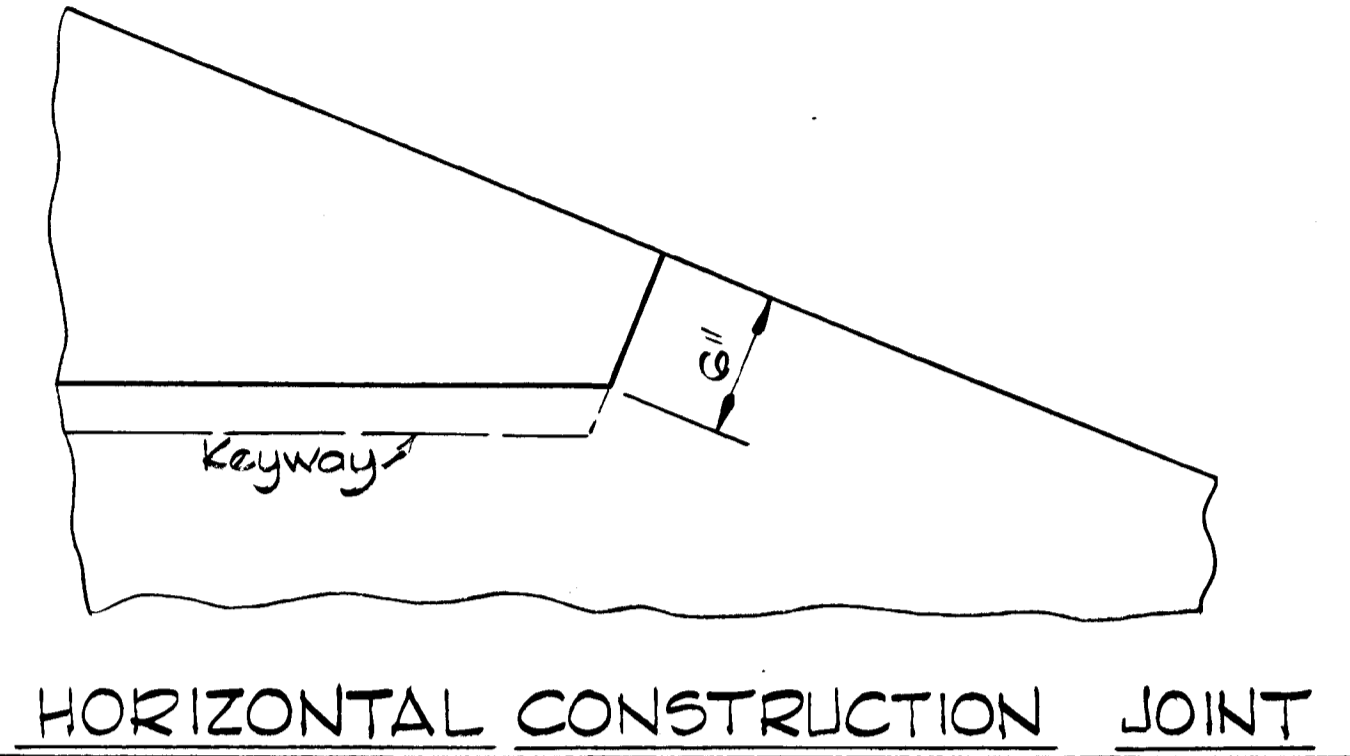
SECTION C-C



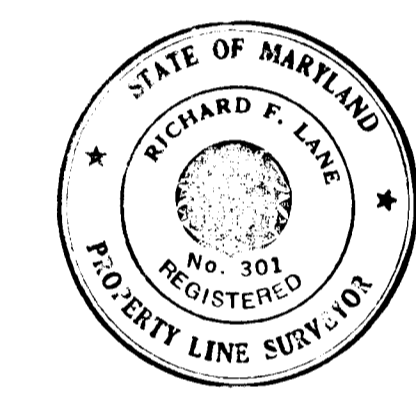
SECTION D-D

5-33 HEADWALL-120" ϕ CULVERT
Scale: 1/4" = 1'-0"

APPROVED: DEPARTMENT OF PUBLIC WORKS
2-5-87
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING & ZONING
John W. Muschman 2287
CHIEF DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



HORIZONTAL CONSTRUCTION JOINT



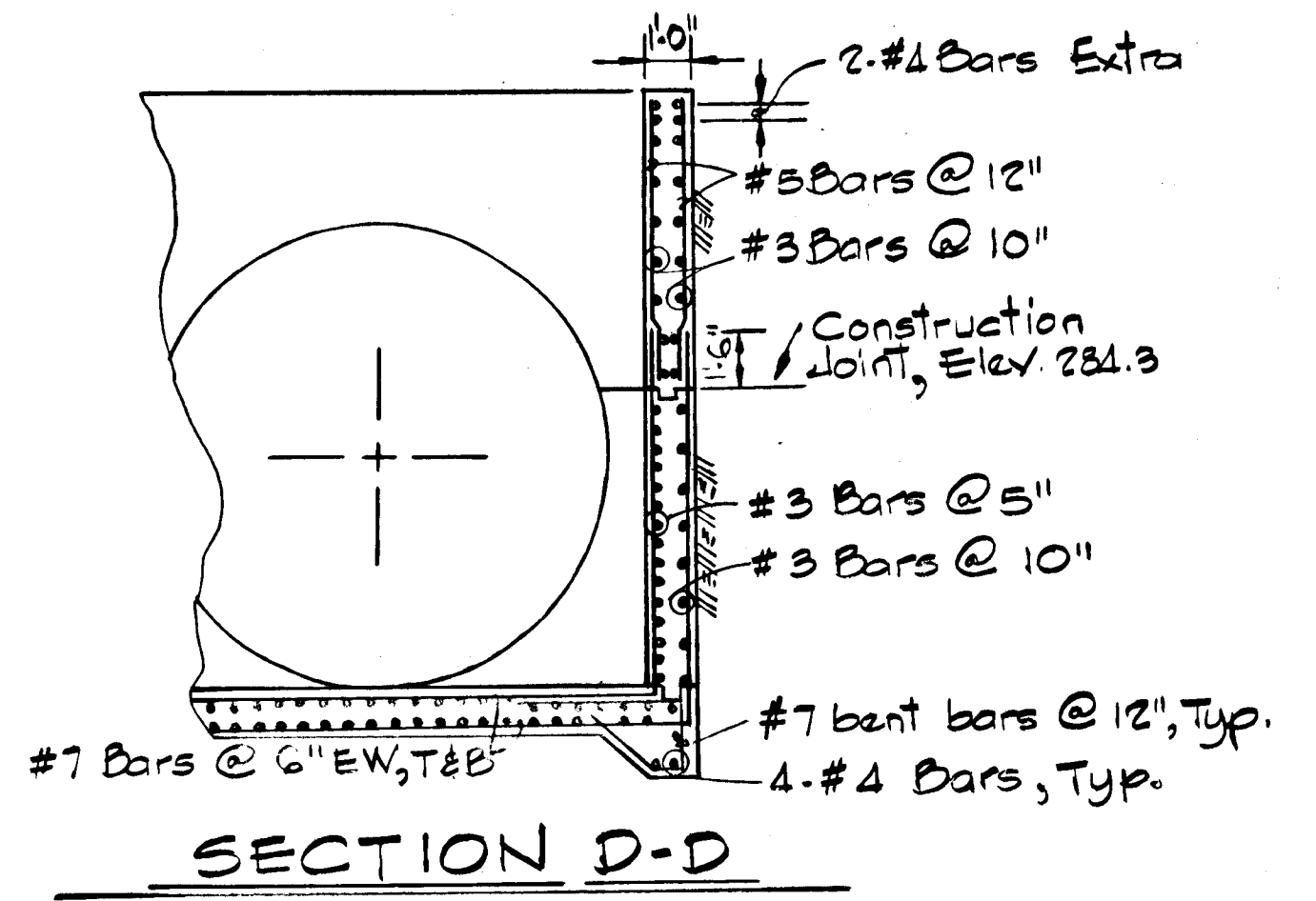
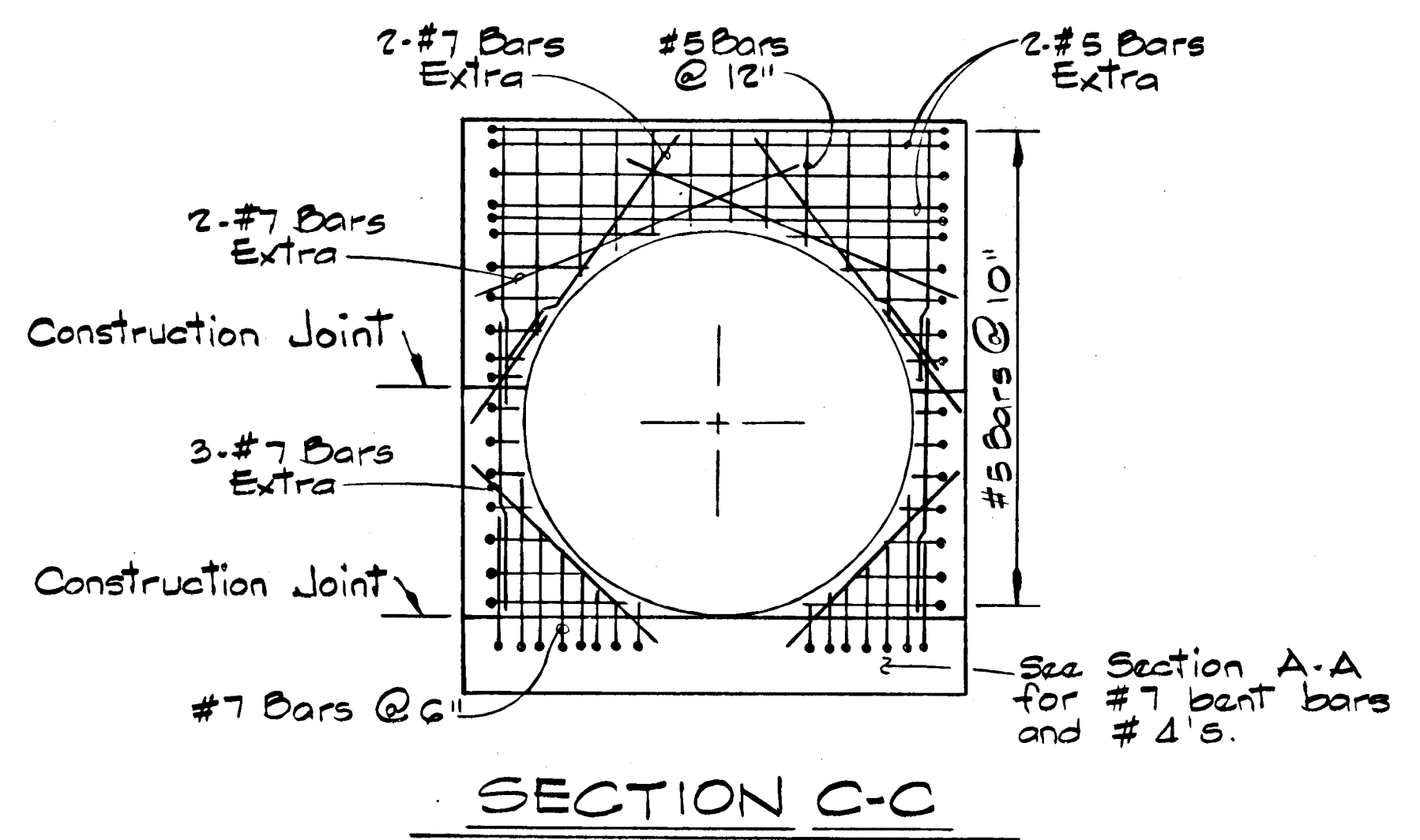
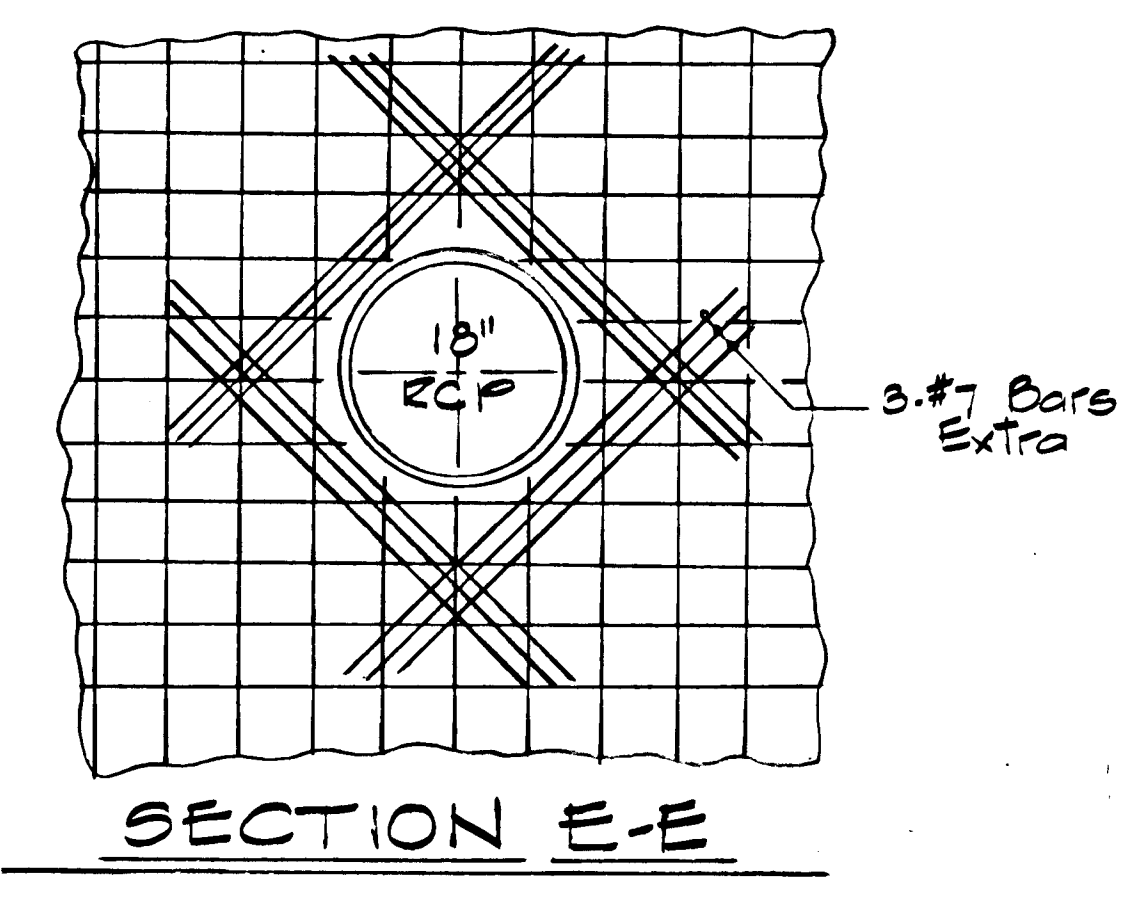
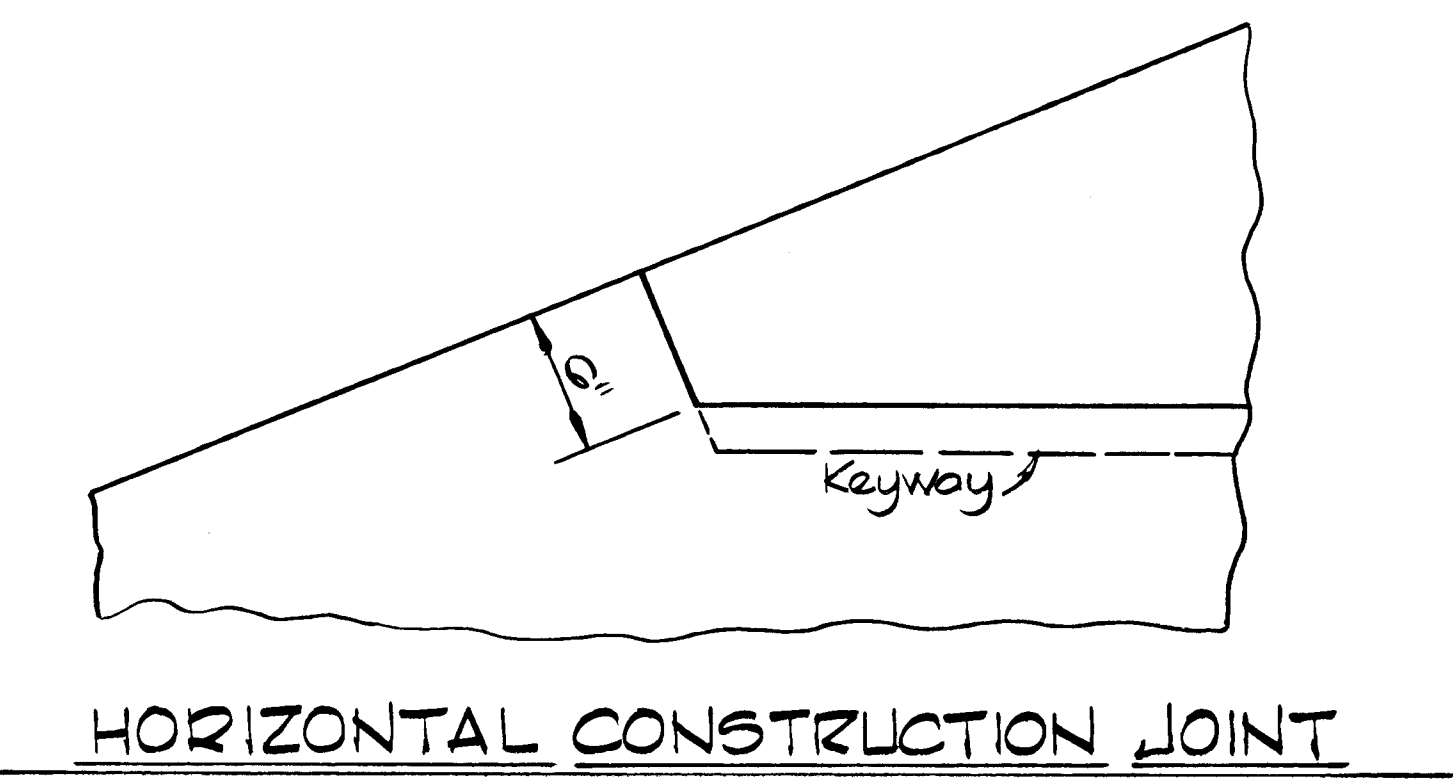
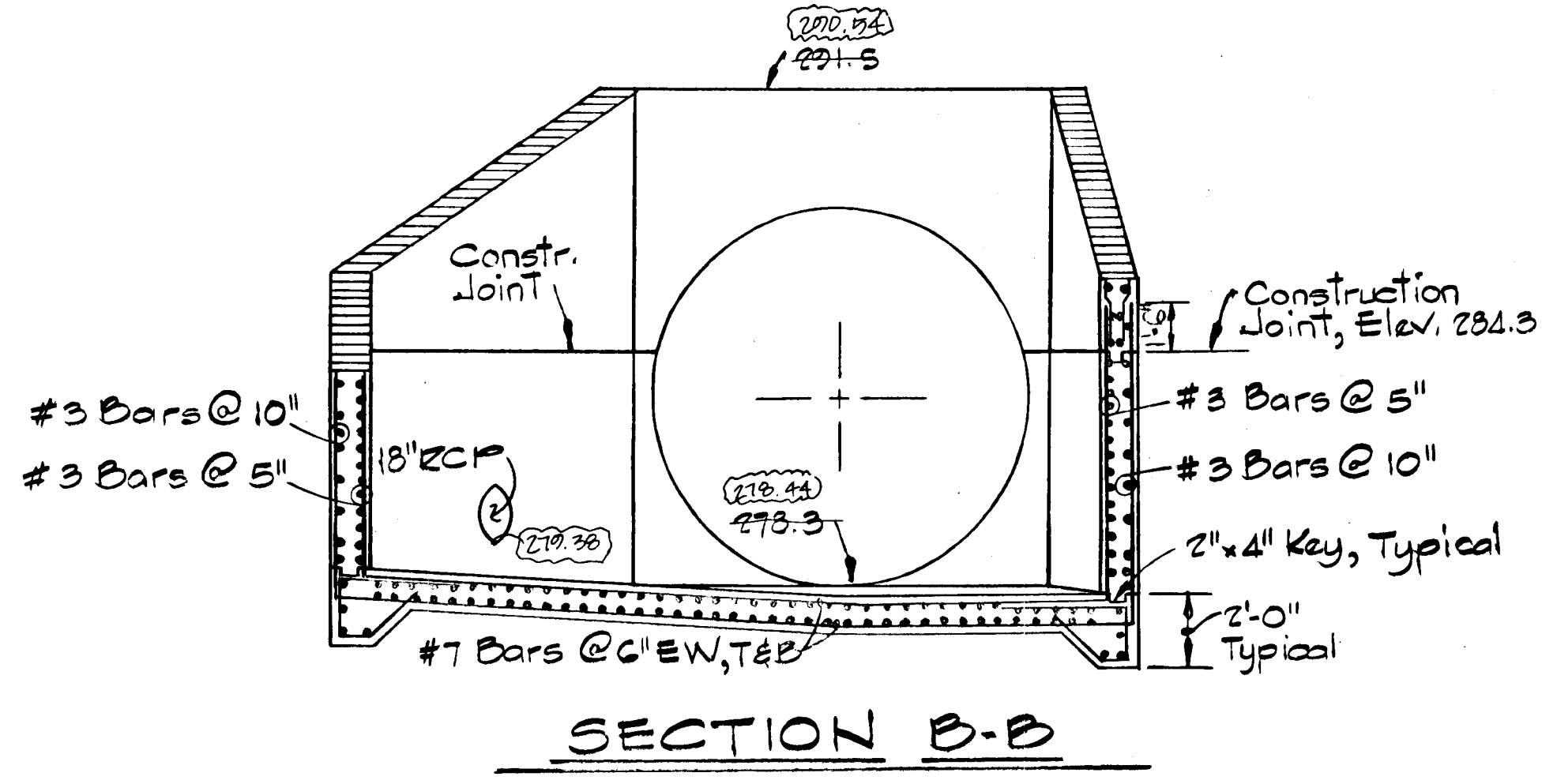
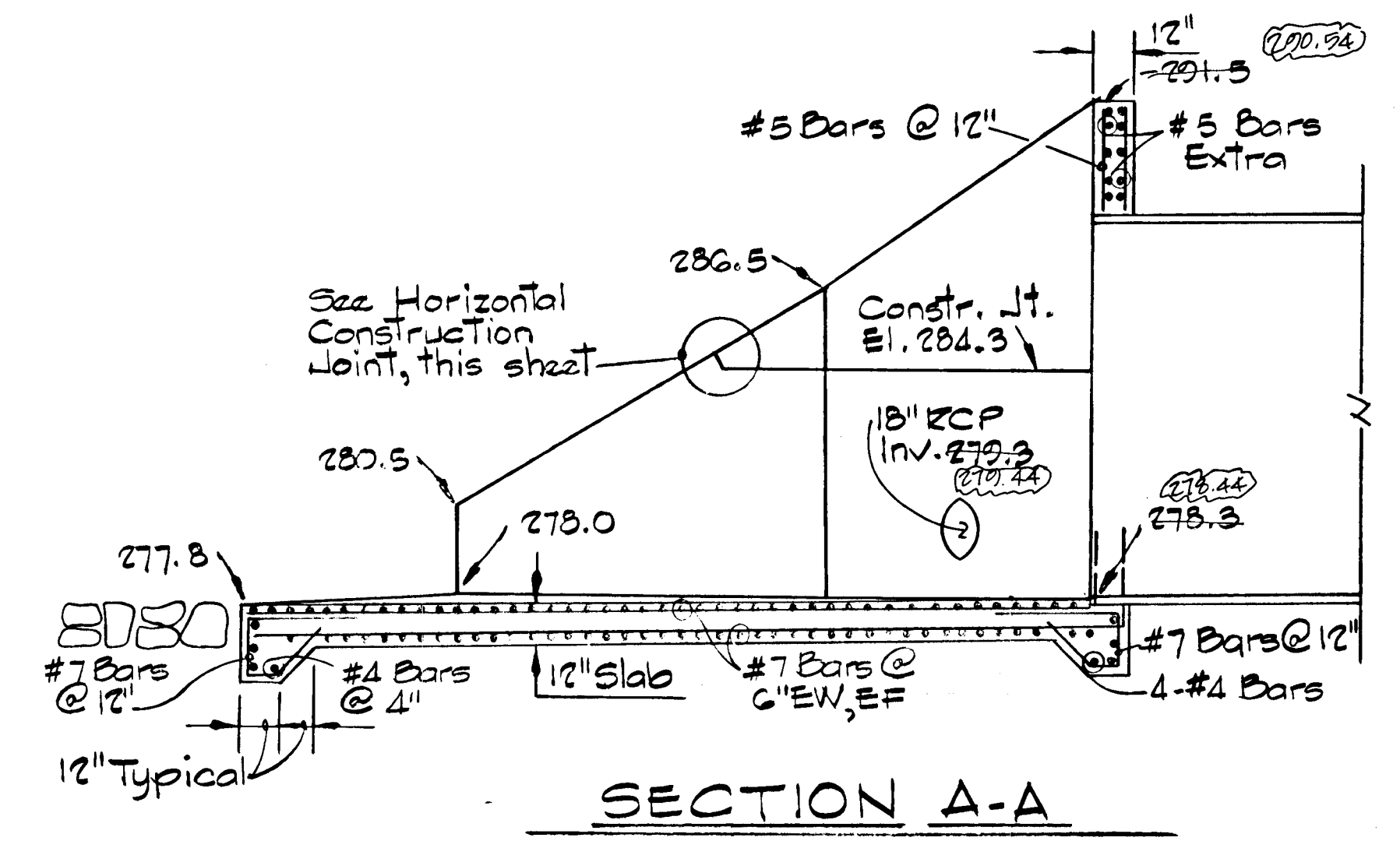
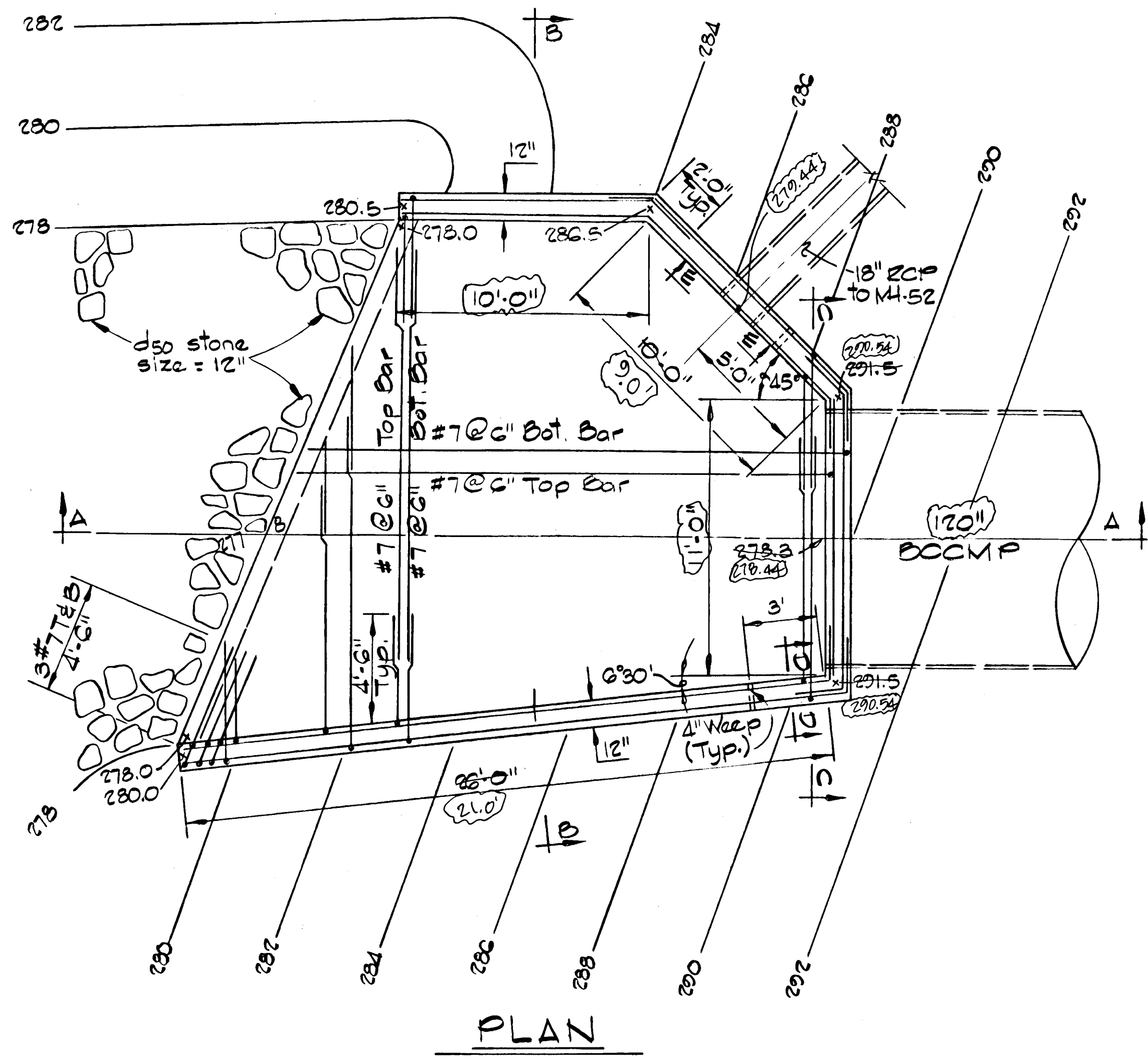
ROAD AS-BUILT
Richard F. Lane, Jr.
REGISTERED PROFESSIONAL ENGINEER
NO. 301
PROPERTY LINE SURVEYOR # 301
AS-BUILT INFORMATION DESIGNATED AS THIS: (298.11)

SHANBERGER & LANE
8726 TOWN & COUNTRY BLVD.
SUITE 107
ELLCOTT CITY, MARYLAND 21043

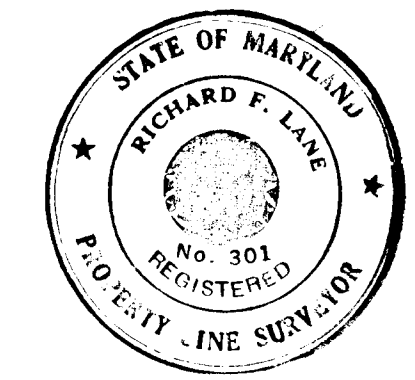
DATE	REVISION NO.	REVISION DESCRIPTION
11/24/86	1	As per O.C.G. Planning & PDW Comments
COLUMBIA GATEWAY 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY PROJECT AREA PARCELS P THRU R A RESUBDIVISION OF PARCEL O PROJECT TITLE 120 INCH CULVERT DETAILS SCALE: AS SHOWN DATE: WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218 Kenneth A. McCord Registered Engineer No. 1074		

1/58

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF ENGINEERING / DATE 3-5-87
 OFFICE OF PLANNING & ZONING
 JOHN W. MURPHY / DATE 2-2-87
 CHIEF DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



5-32 ENDWALL - 120" ϕ CULVERT
 Scale: 1/4" = 1'-0"



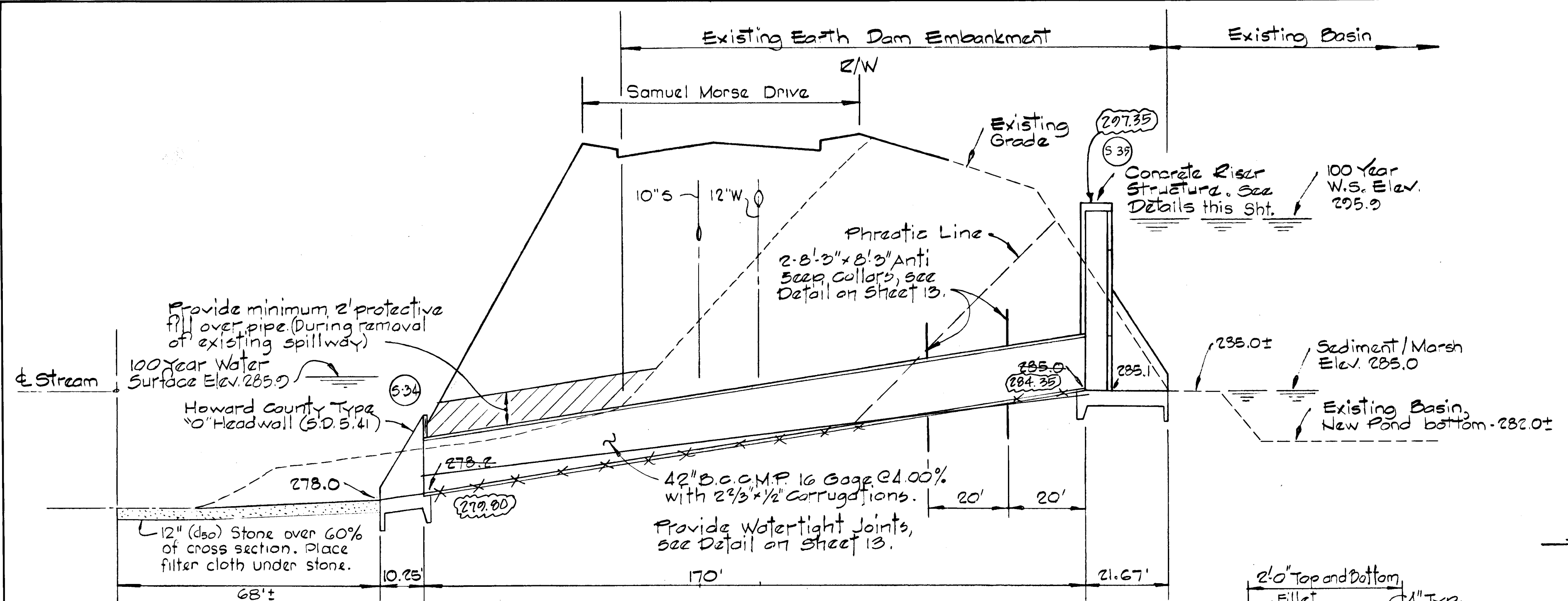
SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 107
 ELLICOTT CITY, MARYLAND 21043

ROAD AS-BUILT
 RICHARD F. LANE, V.P.
 PROPERTY LINE SURVEYOR #301

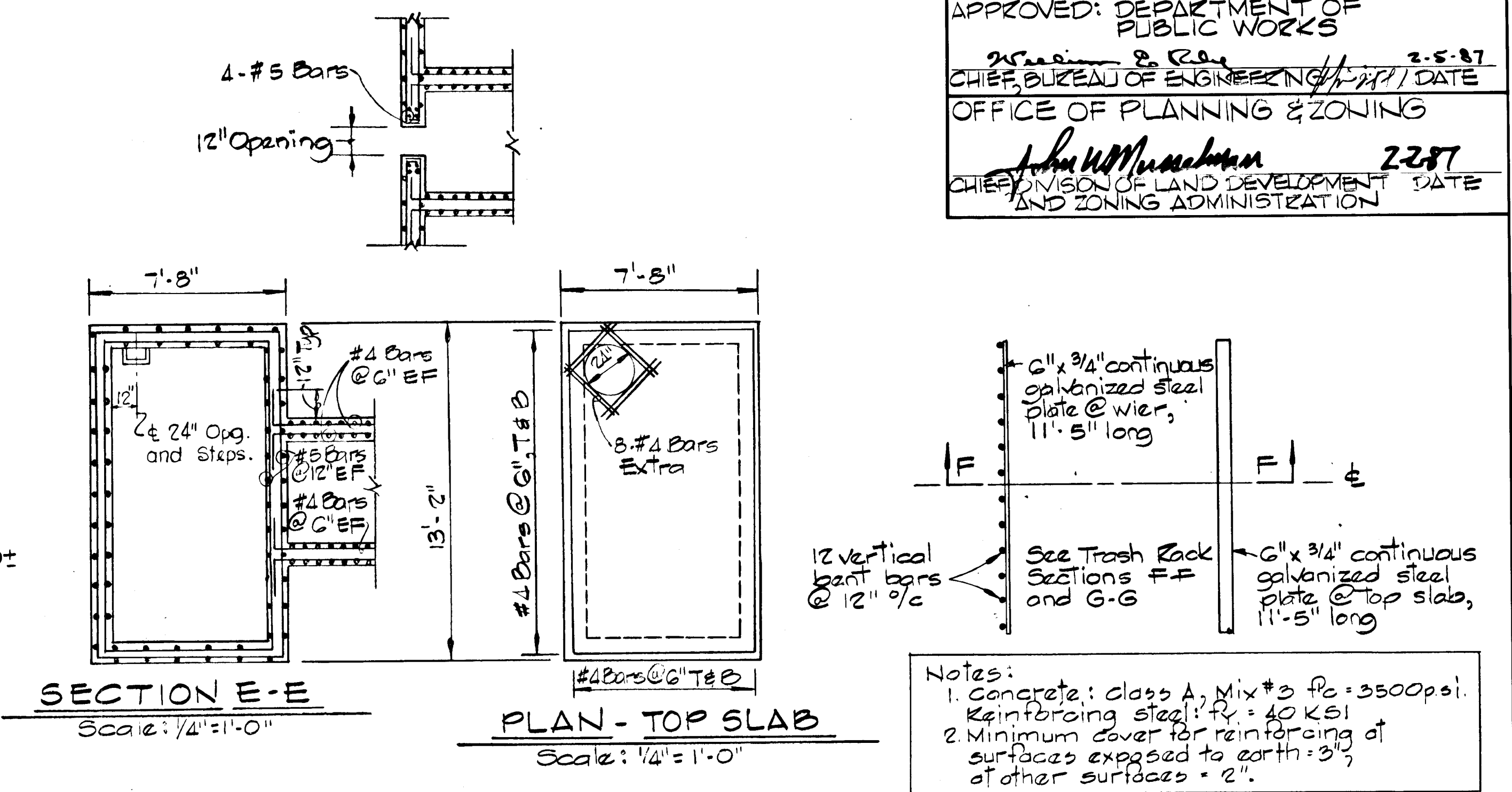
11/24/86	1	As per SCS, Planning & DPW Comments
REVISION/NO. REVISION DESCRIPTION		
COLUMBIA GATEWAY 6 th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY PROJECT AREA		
PARCELS P THRU R A RESUBDIVISION OF PARCEL O		
PROJECT TITLE 120 INCH CULVERT DETAILS		
SCALE: AS SHOWN		DATE:
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
KENNETH A. MCCOY Registered Engineer No. 1974		

1158

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF ENGINEERING DATE 2-5-87
 OFFICE OF PLANNING & ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 2-28-87
 AND ZONING ADMINISTRATION

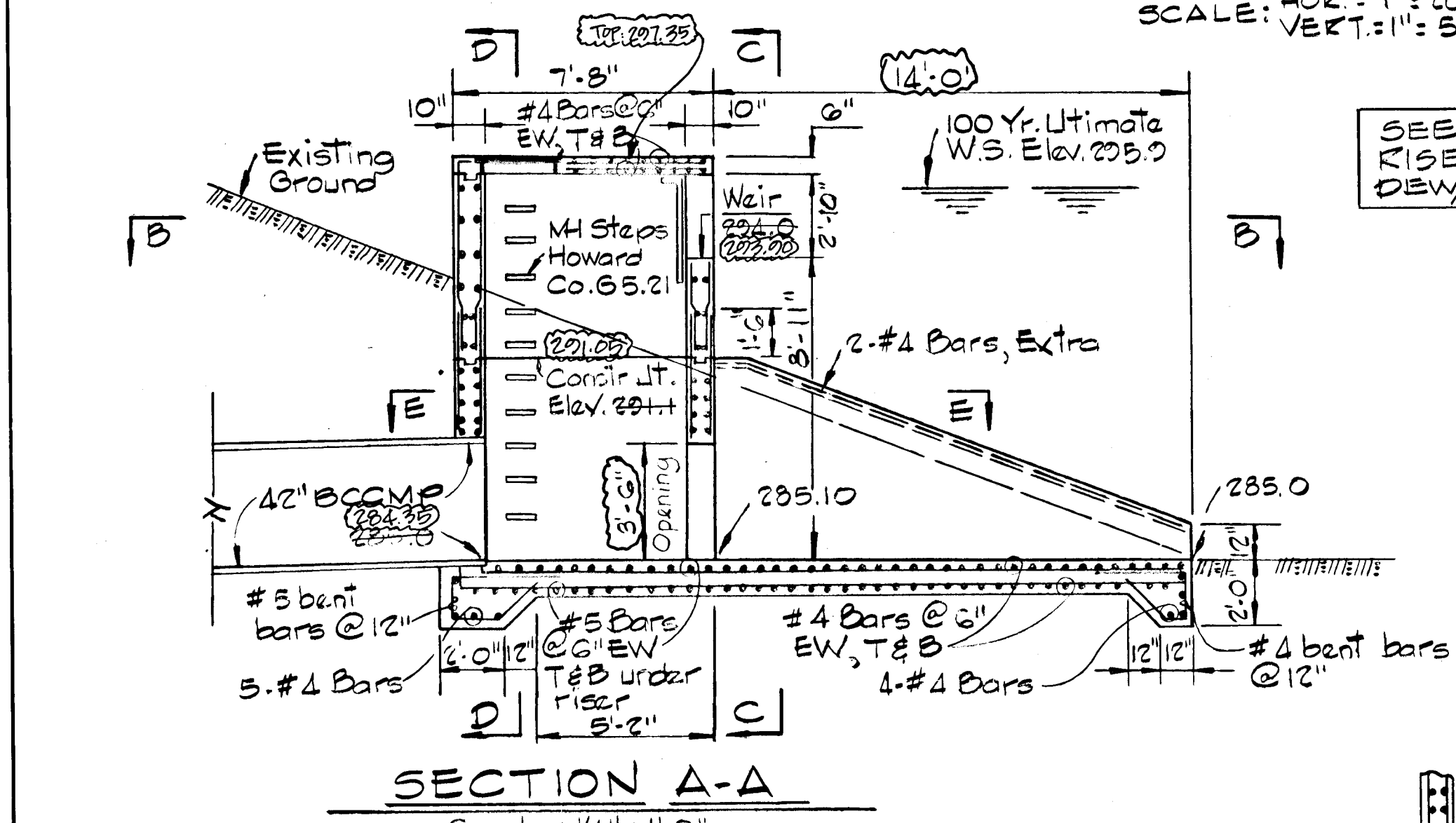


PROFILE-POND SPILLWAY
 SCALE: HOR: 1" = 20'
 VERT: 1" = 5'



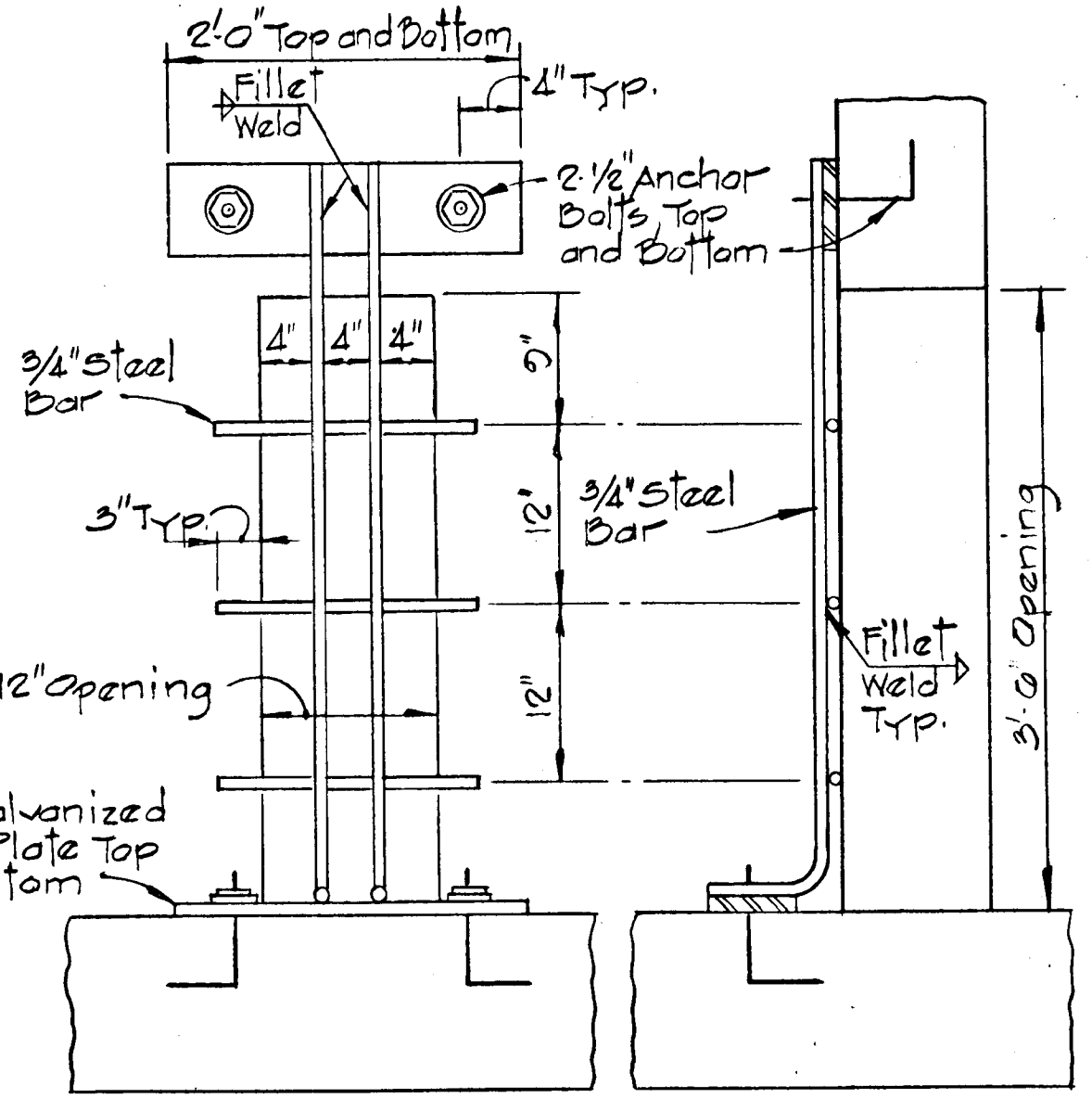
SECTION E-E Scale: 1/4" = 1'-0"
 PLAN - TOP SLAB Scale: 1/4" = 1'-0"

Notes:
 1. Concrete: class A, Mix #3 f_c = 3500 psi.
 Reinforcing steel: f_y = 40 KSI
 2. Minimum cover for reinforcing at surfaces exposed to earth = 3", of other surfaces = 2".

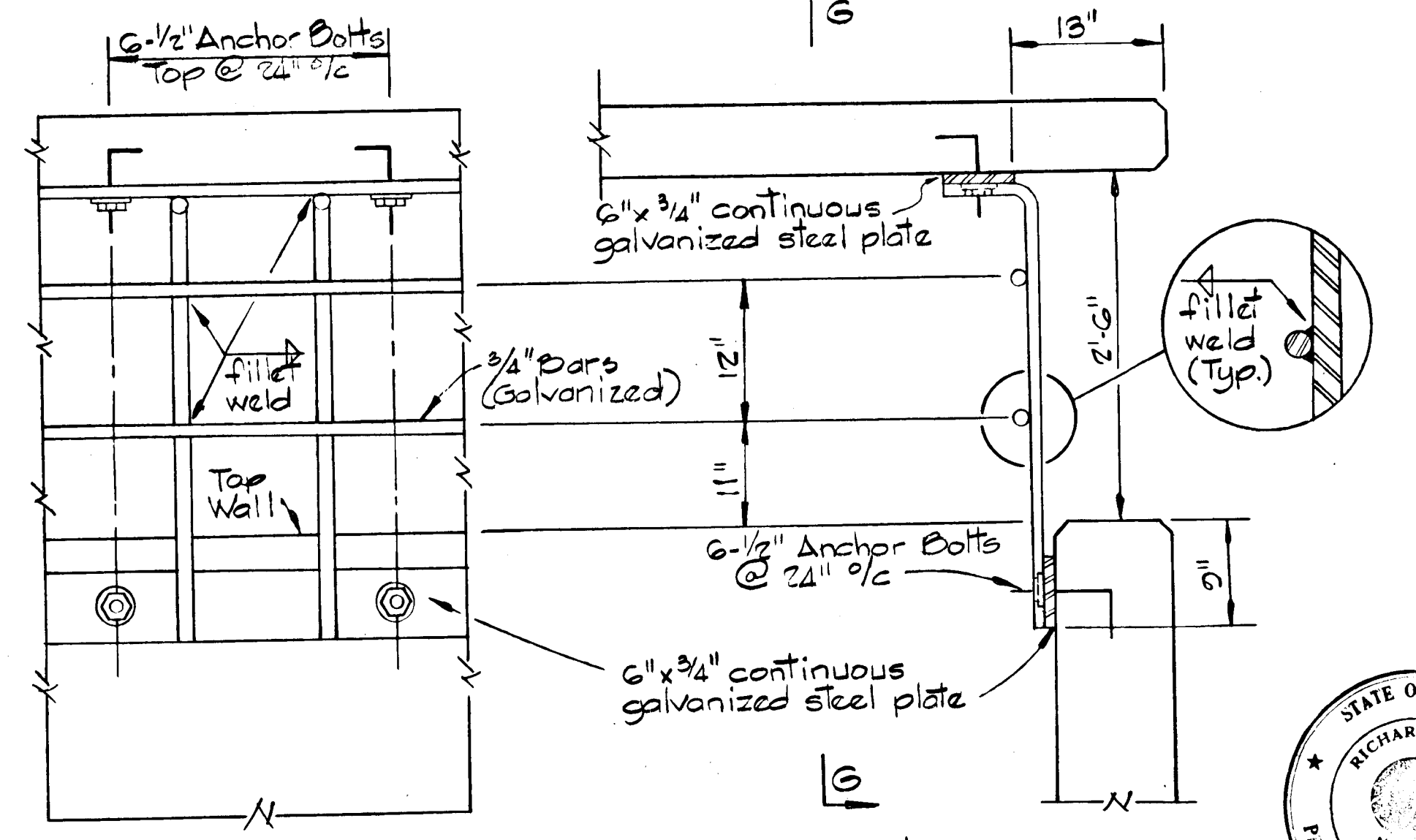


SECTION A-A
 Scale: 1/4" = 1'-0"

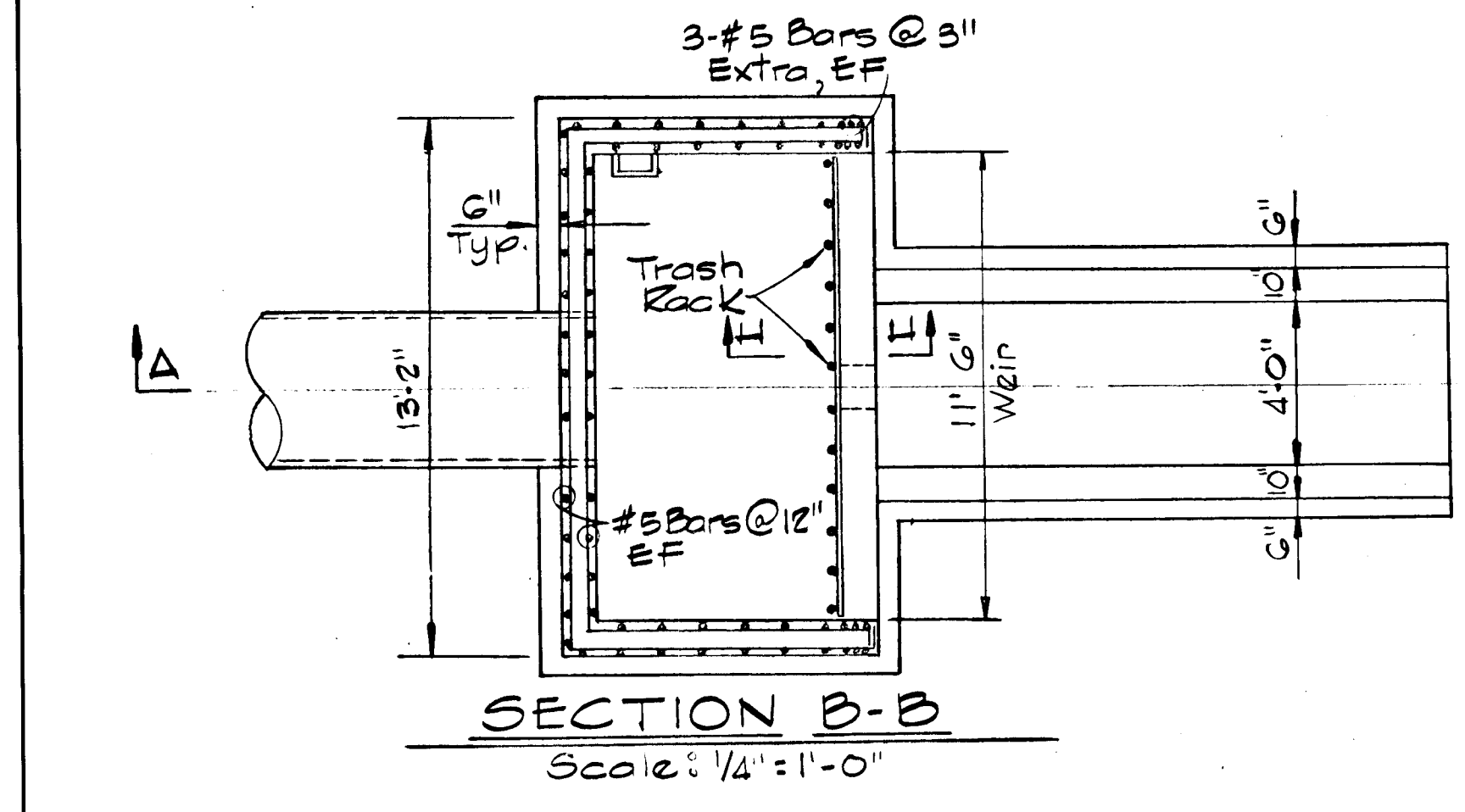
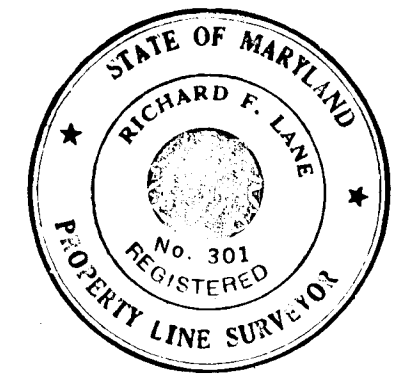
SEE SHEET 15 FOR RISER STRUCTURE DEWATERING DETAIL.



TRASH RACK
 Scale: 1" = 1'-0"

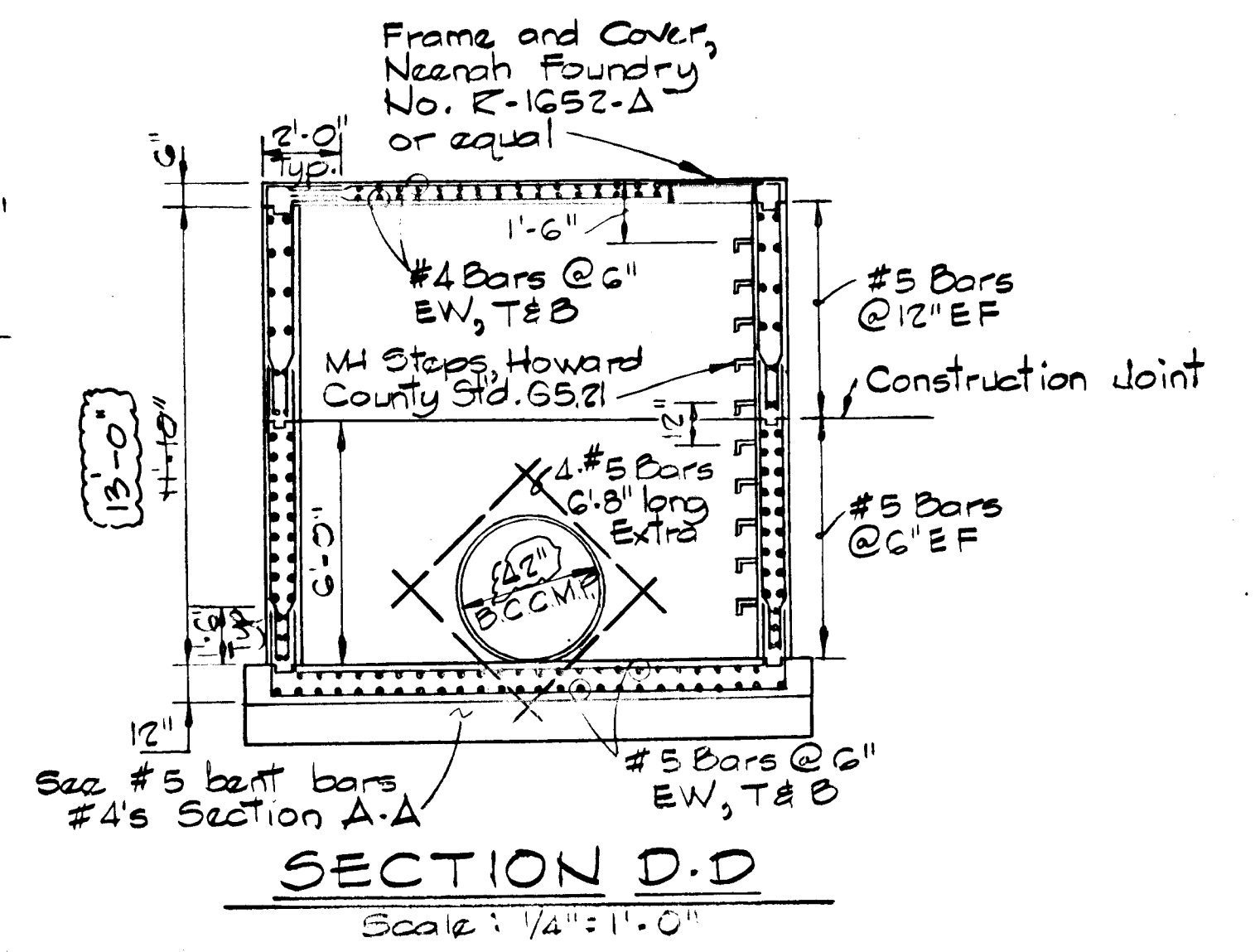


SECTION G-G
 SECTION F-F
 TRASH RACK (WEIR)
 Scale: 1" = 1'-0"

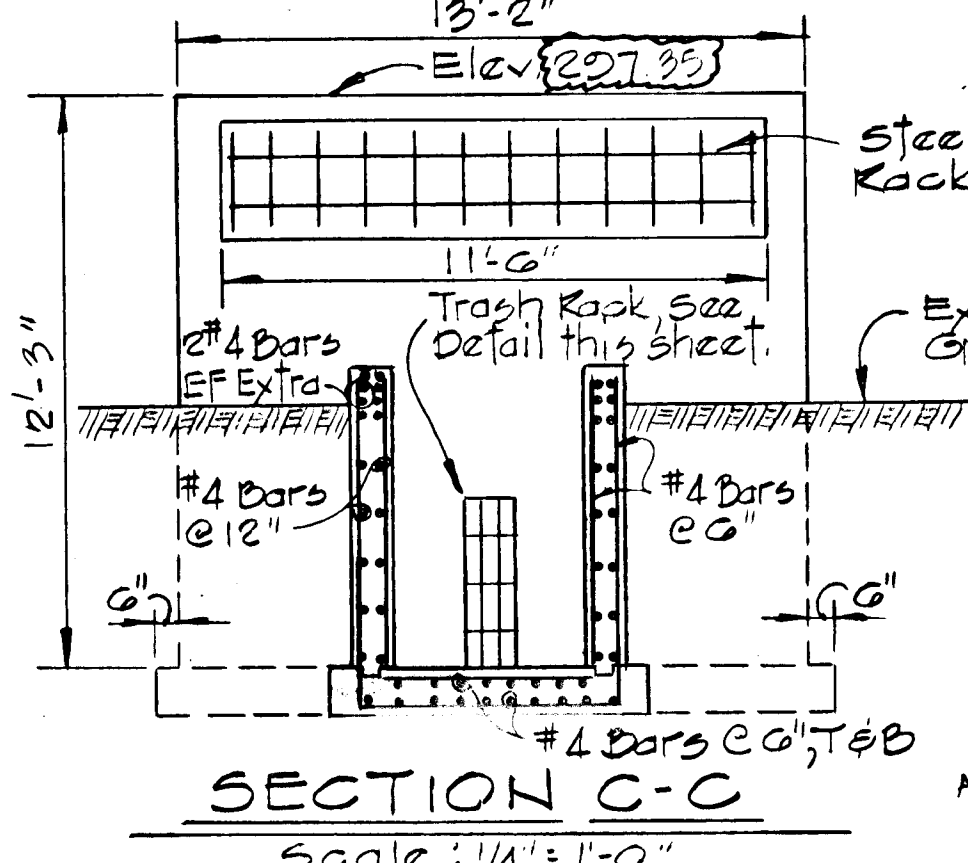


SECTION B-B
 Scale: 1/4" = 1'-0"

SECTION H-H



SECTION D-D
 Scale: 1/4" = 1'-0"



SECTION C-C
 Scale: 1/4" = 1'-0"

SHANABERGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 107
 ELlicOTT CITY, MARYLAND 21043

ROAD AS-BUILT
 RICHARD F. LANE, R.P.
 PROPERTY LINE SURVEYOR # 301

11/24/86	1	As per DCs, Planning & DPW comments
REVISED	REVISION	DESCRIPTION
COLUMBIA GATEWAY 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY PROJECT AREA PARCELS P THRU K A RESUBDIVISION OF PARCEL O PROJECT TITLE NEW POND SPILLWAY PROFILE AND DETAILS SCALE: AS SHOWN DATE:		

CERTIFICATION BY THE ENGINEER
 I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.
 Kenneth A. McGord
 KENNETH A. MCGORD PE No. 1974
 11-24-86 Date

CERTIFICATION BY THE DEVELOPER
 I certify that all development and/or construction will be done according to these plans of development, pond construction and erosion and sediment control. I also authorize periodic on-site inspection by the 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. I will provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.
 Walter Woodford
 WALTER WOODFORD
 11-24-86 Date

RESPONSIBLE PERSONNEL CERTIFICATION
 I hereby certify that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project.
 Walter Woodford
 WALTER WOODFORD
 11-24-86 Date

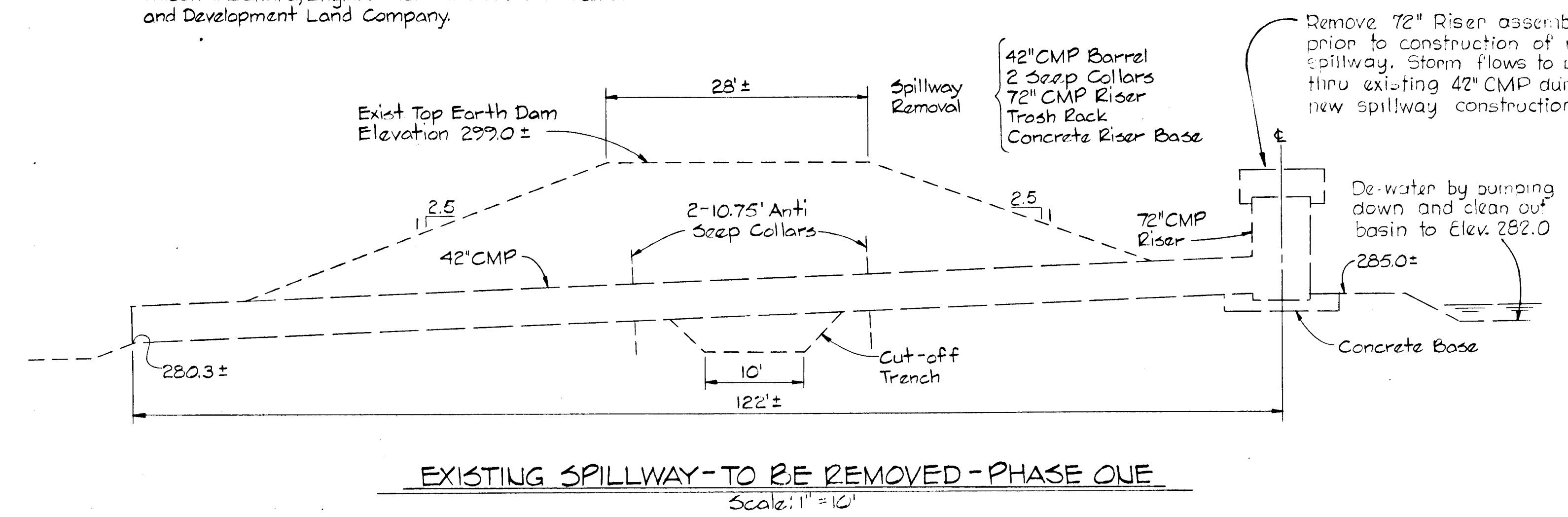
These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
 Susan M. Nelson
 U.S. Soil Conservation Service
 2-2-87 Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Approved: Robert J. Zehm
 Howard S.C.D.
 2/2/87 Date
 Plan Number

WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS
 BALTIMORE, MARYLAND 21218
 Kenneth A. McGord
 KENNETH A. MCGORD
 Registered Engineer
 No. 1974

1158

Note:
 The Placement and Compaction of the Earth Dam Embankment was inspected by the Howard County Bureau of Engineering Division of Inspections and Wilson T. Ballard, Engineer for the Howard Research and Development Land Company.



BORING B-1

Blows/Ft.	Depth	Soil Description
287.05	0	280t Very loose brown-orange fine to medium SAND and silty clay, little leaves and roots (ML)
18"	5	289t Very soft gray-green clayey SILT, trace fine sand (ML)
16"	10	280t Medium dense gray-green clayey SILT, some fine-medium sand, trace fine gravel (ML)
20"	15	279t Dense brown,ropy fine to coarse SAND and GRAVEL, little clayey silt (SP)

Water @ 1.0' depth after 4 hours caved @ 3.5' depth

BORING B-2

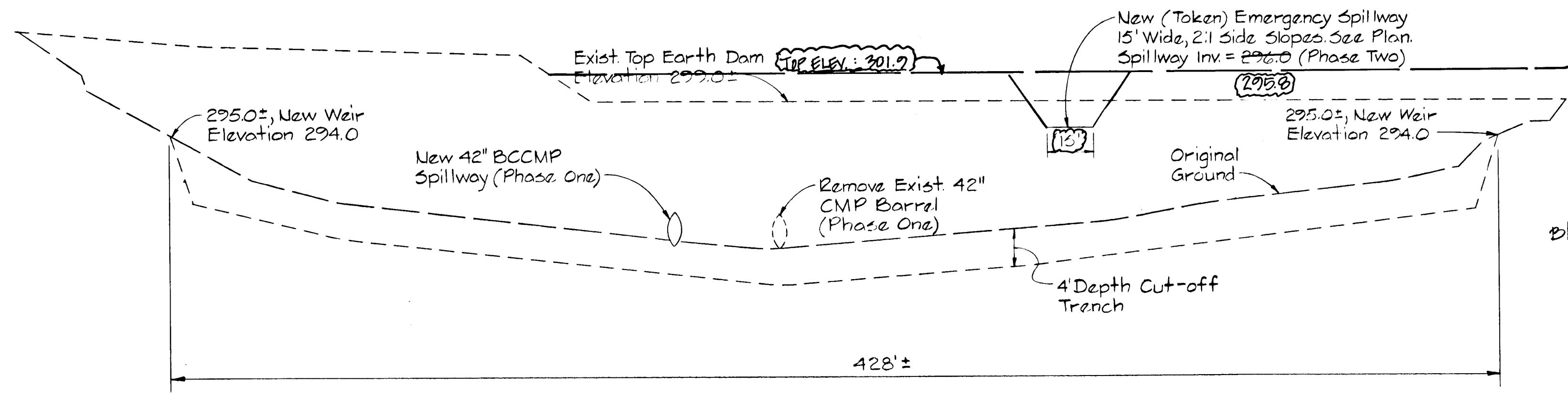
Blows/Ft.	Depth	Soil Description
284.80	0	289t Very soft brown silty CLAY, little leaves and roots (OL)
12"	5	280t Medium dense dark brown and gray fine to medium SAND, little fine gravel, little clayey silt (ML)
17"	10	277t Medium dense dark brown fine to coarse SAND and fine to medium GRAVEL, little clayey silt (SP)
12"	15	272t Medium stiff brown silty CLAY, trace fine to coarse sand (CL)
15"	20	288t Medium dense gray-green clayey SILT (ML) Residual

Water @ 1.0' depth after 1 day caved @ 16' depth

BORING B-3

Blows/Ft.	Depth	Soil Description
280.57	0	288t Loose brown fine to coarse SAND and fine GRAVEL, some clayey silt, trace roots (GV, ML)
12"	5	285t Medium dense light brown fine to coarse SAND, and fine to medium GRAVEL, little silt (ML)
10"	10	280t Medium dense orange-brown fine SAND, little silt, trace fine gravel, fine to coarse sand @ 2' (ML)
19"	15	272t Dense gray-white clayey SILT Residual (ML)

Water @ 1.0' depth after 3.5 hours caved @ 11' depth



**PHASE ONE
 NEW SPILLWAY CONSTRUCTION
 EXISTING SPILLWAY REMOVAL**

1. De-water Sediment Basin by pumping down. Clean Basin to Elev. 282.0
2. Remove existing 72" Riser assembly prior to construction of new spillway. Storm flows to pass thru existing 42" CMP during new spillway construction. No flows are allowed thru new spillway during construction.
3. Install New 42" CMP Spillway and Concrete Riser Structure. The Trench Excavation can be used for Backfill. For Placement and Compaction of Backfill Material, See "Construction Specification" Item II and Item III on Sheet 13. Provide Minimum Two Feet of Protective Fill over Downstream end of 42" Spillway, (During Existing Spillway Removal). See Spillway Profile Sheet 11. Place De-Watering Stone Between Riser Wingwalls. See Detail on Sheet 15 for W.S. Elevations and Storage for Interim SWM and Sediment Control for Parcel 12 Grading, Parcel 11 Grading and Pond Conversion.
4. After Completion of New Spillway, Remove Existing Spillway. See Note 2 above for Trench Excavation, Placement and Compaction of Backfill Material. Stabilize Disturbed Embankment Areas.

PROFILE - EXISTING EARTH DAM

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved: *Richard E. Lane* 11/24/86
 Howard 5.0.1. 12.16

CERTIFICATION BY THE ENGINEER

I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.

Kenneth A. McCord 11/24/86
 KENNETH A. MCCORD PE No. 1074 Date

CERTIFICATION BY THE DEVELOPER

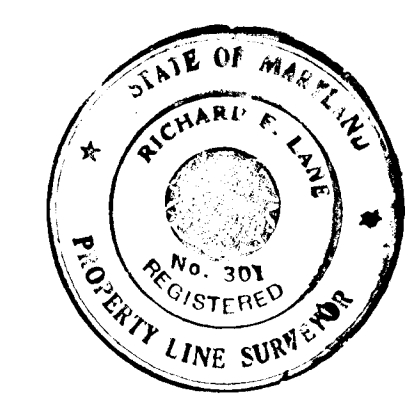
I certify that all development and/or construction will be done according to these plans of development, pond construction and erosion and sediment control. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary. Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District. I will provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.

Walter Woodford 11/24/86
 WALTER WOODFORD Date

RESPONSIBLE PERSONNEL CERTIFICATION

I hereby certify that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project.

Walter Woodford 11/24/86
 WALTER WOODFORD Date



SHANBERGER & LANE
 876 TOWN & COUNTRY BLVD.
 SUITE 107
 ELLICOTT CITY, MARYLAND 21043

ROAD AS-BUILT
Richard E. Lane 11/24/86
 RICHARD E. LANE, P.E.
 PROPERTY LINE SURVEYOR #301

REV. DATE	REV. NO.	REVISION DESCRIPTION
1/20/87	2	REVISIONS AS PER DC5 COMMENTS 1/7/87
11/24/86	1	Added this sheet to set

COLUMBIA GATEWAY
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY

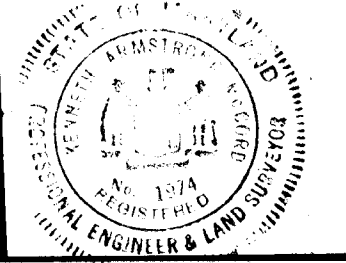
PROJECT AREA
 PARCELS P THRU R
 A RESUBDIVISION OF PARCELO

PROJECT TITLE
 NEW SPILLWAY CONSTRUCTION
 EXISTING SPILLWAY REMOVAL

SCALE: AS SHOWN DATE:

WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974



1158

CONSTRUCTION SPECIFICATIONS

I. SITE PREPARATION

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the pond or reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

II. EARTH FILL

Material

The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, oversize stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.

Placement

Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of the embankment.

Compaction

The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction can be obtained with the equipment used.

Where a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that density and is to be certified by the Engineer.

Cutoff Trench

Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be as shown on the drawings, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

III. STRUCTURAL BACKFILL

Backfill material shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe unless there is a compacted fill of twenty-four inches or greater over the structure or pipe.

IV. PIPE CONDUITS

All pipes shall be circular in cross section.

A. Corrugated Metal Pipe

1. **Materials - (Steel Pipe)** - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Nexon, Plasti-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

2. **Connections** - All connections with pipes must be completely watertight. Watertight coupling bands are not considered to be watertight.

3. **Bedding** - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. **Laying pipe** - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.

5. **Backfilling** shall conform to structural backfill as shown above.

6. **Other details** (anti-seep collars, valves, etc.) shall be as shown on the drawings.

V. CONCRETE

1. Materials

a. **Cement** - Normal Portland cement shall conform to the latest ASTM Specification C-150.

b. **Water** - The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.

c. **Sand** - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a one-quarter inch sieve. Limestone sand shall not be used.

d. **Coarse Aggregate** - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches.

e. **Reinforcing Steel** - The reinforcing steel shall be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specification A-615.

2. **Design Mix** - The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. Gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.

3. **Mixing** - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the speed of rotation of the mixer and of the introduction of the materials, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

4. **Forms** - The forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tamping, and vibration without deflection from the prescribed lines. They shall be mortar-tight and constructed so that they can be removed without hammering or prying against the concrete.

V. CONCRETE (continued)

The inside of forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.

Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed from the surface of the concrete.

5. **Reinforcing Steel** - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.

6. **Consolidating** - Concrete shall be consolidated with internal type mechanical vibrators. Vibration shall be supplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.

7. **Finishing** - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be reamed and completely filled with dry-patching mortar.

8. **Protection and Curing** - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compounds may also be used.

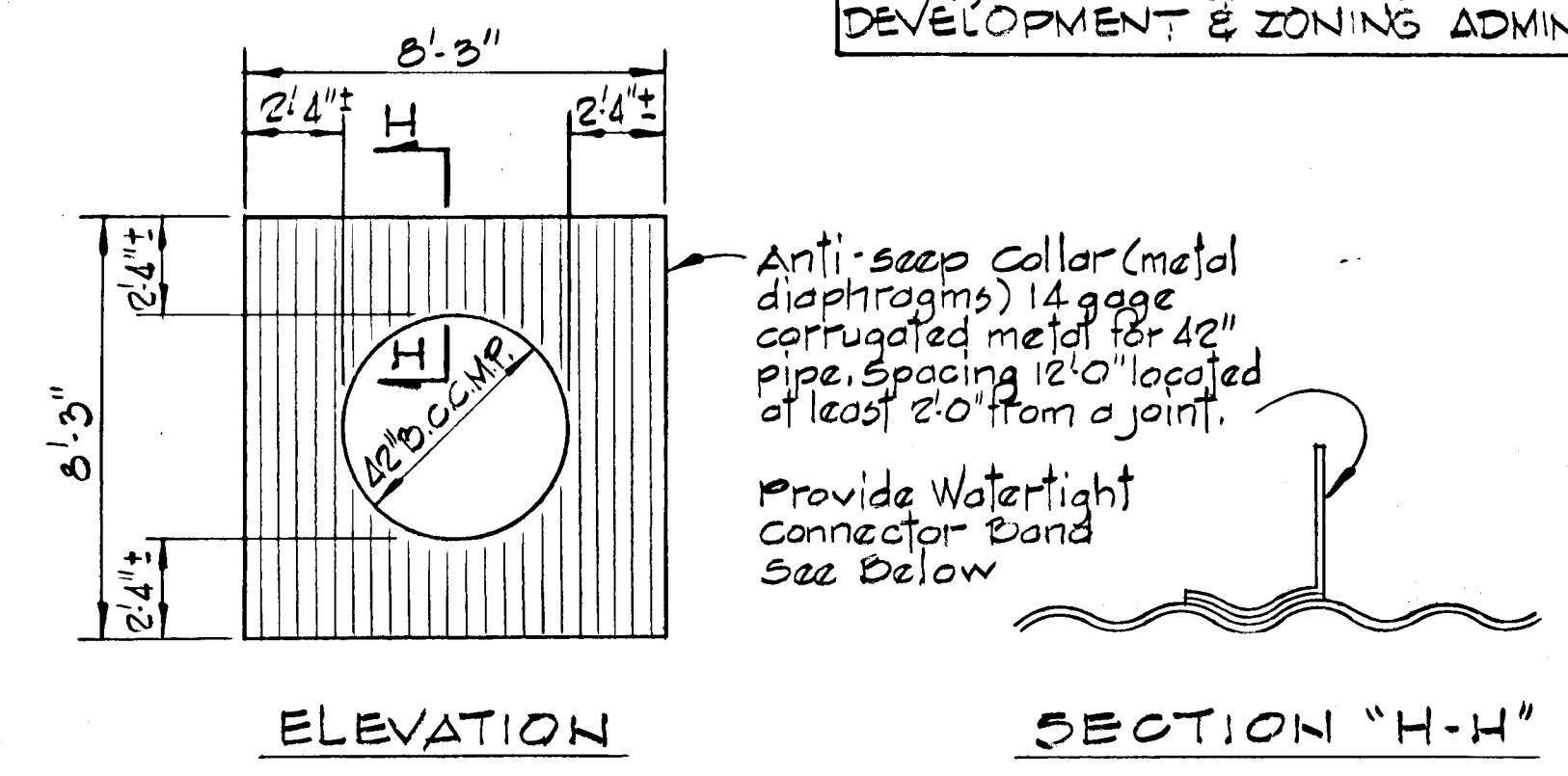
9. **Placing Temperature** - Concrete may not be placed at temperatures below 37° F with the temperature falling, or 34° with the temperature rising.

VI. STABILIZATION

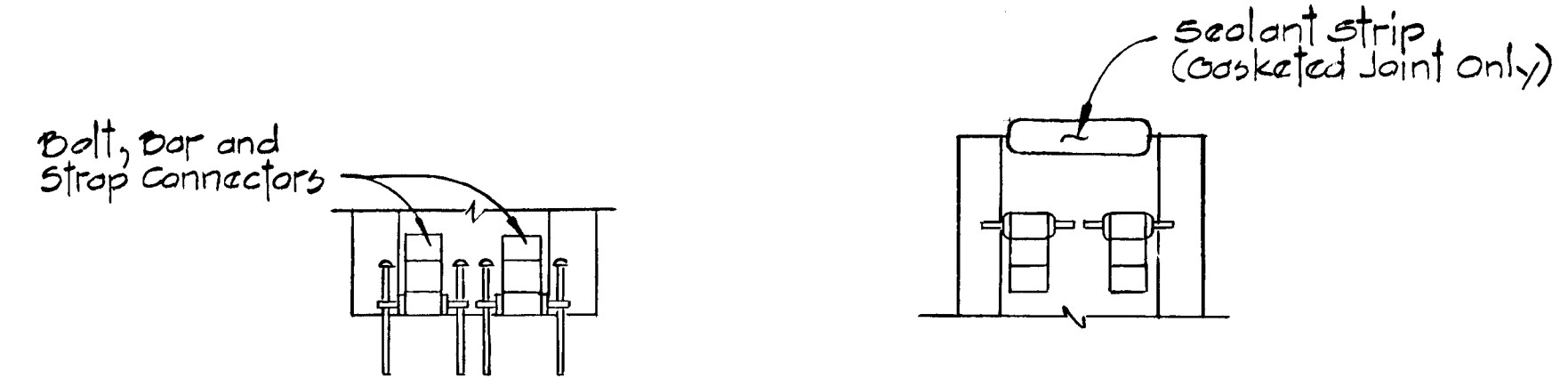
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications or as shown on the accompanying drawings.

VII. EROSION AND SEDIMENT CONTROL

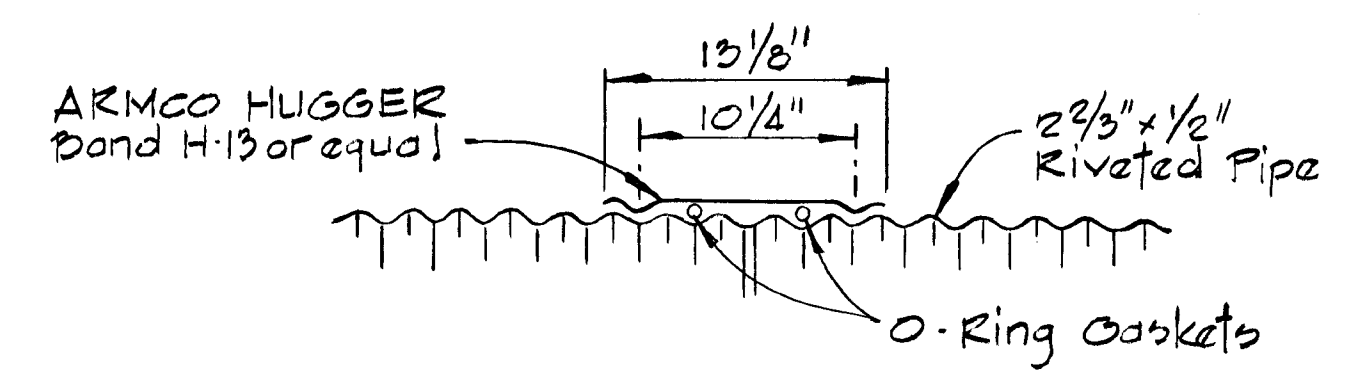
Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.



ELEVATION
SECTION "H-H"
ANTI-SEEP COLLAR DETAIL
 No Scale



CONNECTION DETAIL-DOUBLE HARNESS
 No Scale



SECTION
DETAIL-WATERTIGHT JOINT
 No Scale

CERTIFICATION BY THE ENGINEER
 I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.
 Kenneth A. McCord
 KENNETH A. MCCORD PE No. 1974
 10-3-86
 Date

RESPONSIBLE PERSONNEL CERTIFICATION
 I hereby certify that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project.
 Walter Woodford
 WALTER WOODFORD
 10-3-86
 Date

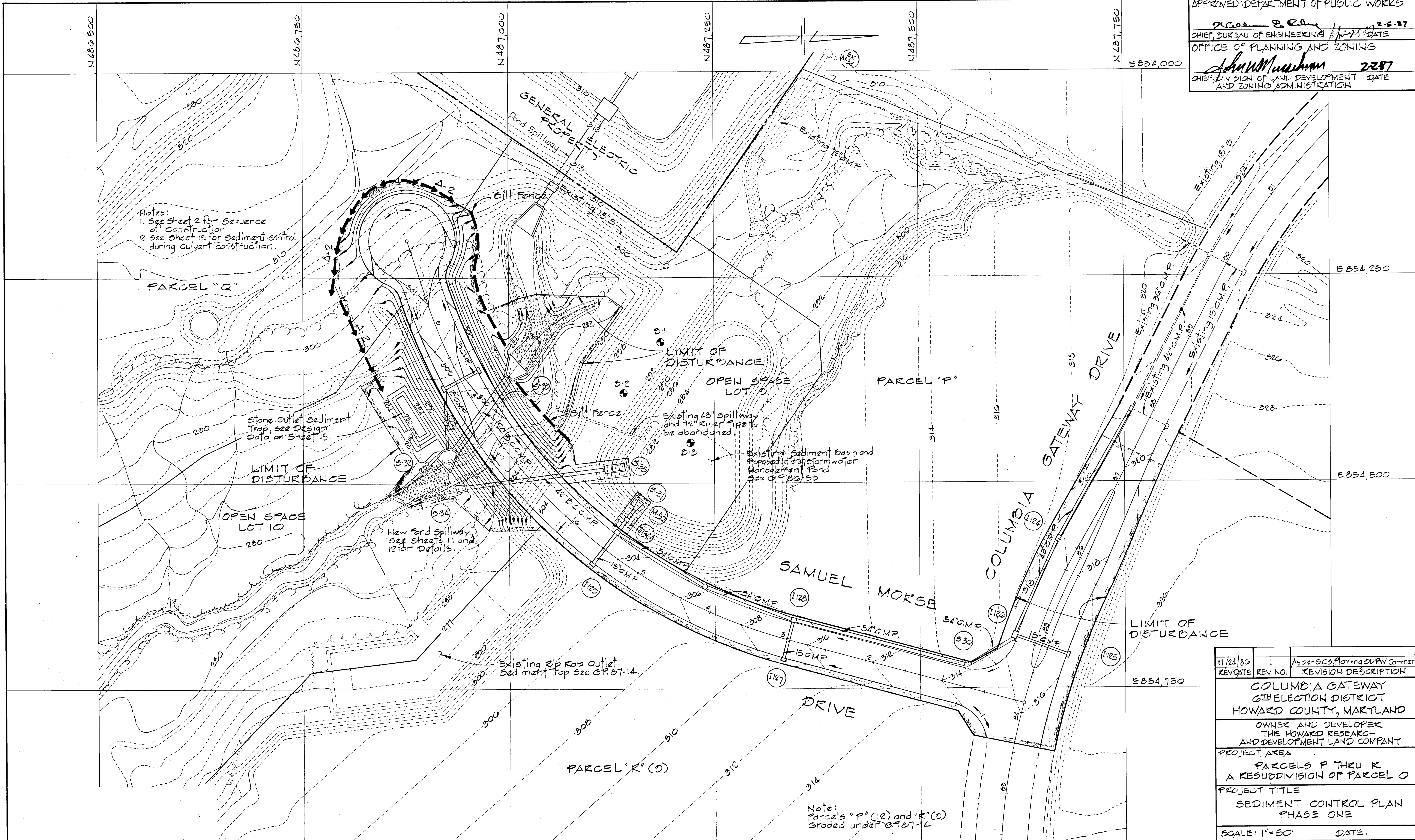
These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
 Susan M. Vella
 Susan M. Vella
 8-2-87
 Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Approved: Susan M. Vella
 Susan M. Vella
 8-2-87
 Date
 Plan Number

CERTIFICATION BY THE DEVELOPER
 I certify that all development and/or construction will be done according to these plans of development, pond construction and erosion and sediment control. I also authorize periodic on-site inspection by the 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. I will provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.
 Walter Woodford
 WALTER WOODFORD
 10-3-86
 Date

11/24/86	1	As per DC's, Planning & EORW Comments
REVISED	REVNO	REVISION DESCRIPTION
COLUMBIA GATEWAY 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY PROJECT AREA PARCEL P THRU R A RESUBDIVISION OF PARCEL O		
PROJECT TITLE SPECIFICATIONS POND SPILLWAY		
SCALE: AS SHOWN DATE:		
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
Kenneth A. McCord KENNETH A. MCCORD Registered Engineer NO. 1974		OFFICE OF PLANNING & ZONING DEPARTMENT OF PUBLIC WORKS

APPROVED: DEPARTMENT OF PUBLIC WORKS
 2-5-87
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING AND ZONING
 JOHN W. MURPHY 2287
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



Notes:
 1. See Sheet 2 for Sequence of Construction
 2. See Sheet 15 for Sediment control during Culvert construction.

Note:
 Parcels "P" (12) and "R" (9)
 Graded under GP 87-14

11/24/86	1	As per SCS, Planning & DPW Comments
REV DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA GATEWAY 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA PARCELS P THRU R A RESUBDIVISION OF PARCEL O		
PROJECT TITLE SEDIMENT CONTROL PLAN PHASE ONE		
SCALE: 1" = 50'		DATE:

CERTIFICATION BY THE ENGINEER
 I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.
 Kenneth A. McCord
 11-24-86
 KENNETH A. MCCORD PE No. 1974 Date

CERTIFICATION BY THE DEVELOPER
 I certify that all development and/or construction will be done according to these plans of development, pond construction and erosion and sediment control. I also authorize periodic on-site inspection by the 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. I will provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.
 Walter Woodford
 11-24-86
 WALTER WOODFORD Date

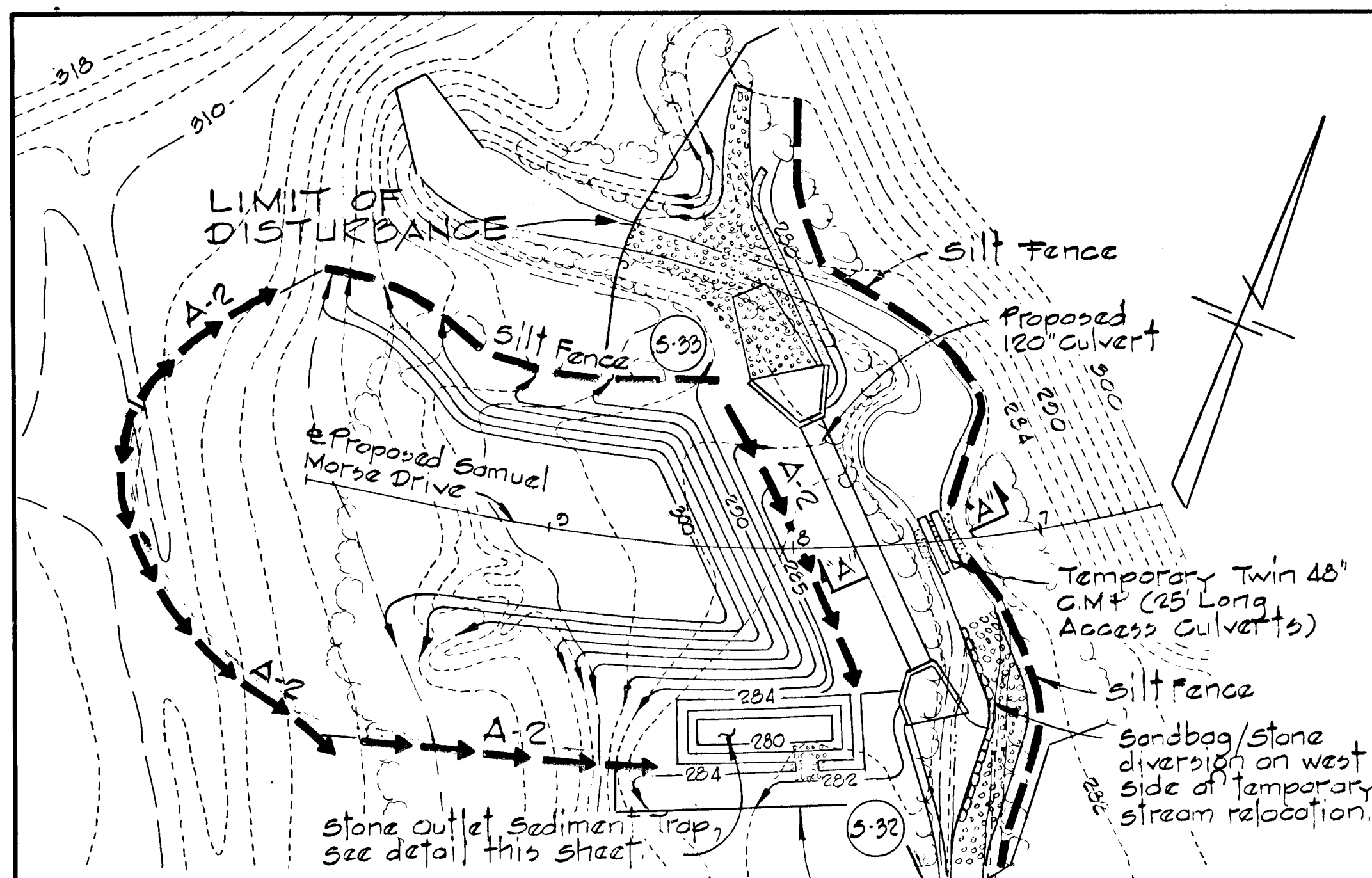
RESPONSIBLE PERSONNEL CERTIFICATION
 I hereby certify that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project.
 Walter Woodford
 11-24-86
 WALTER WOODFORD Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
 Kenneth A. McCord
 11-24-86
 U.S. Soil Conservation Service Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Approved: Kenneth A. McCord 11-24-86
 Kenneth A. McCord
 Registered Engineer
 No. 1974
 Plan Number

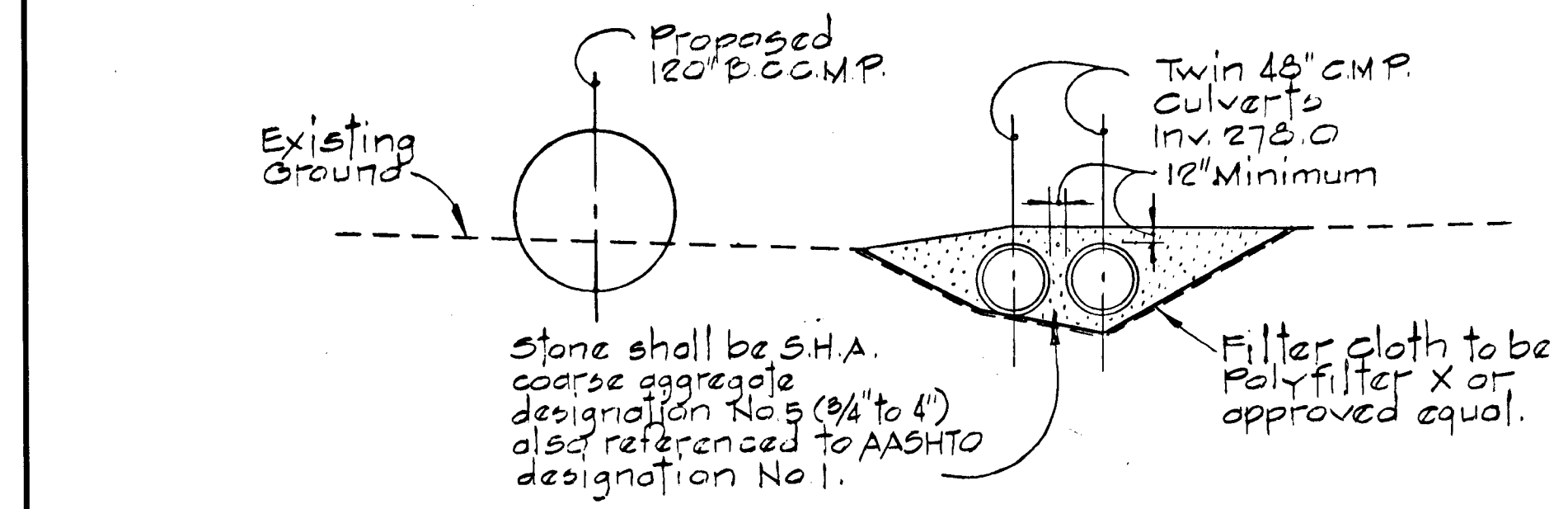
WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218
 Kenneth A. McCord
 Registered Engineer
 No. 1974

1158



DESIGN DATA FOR SEDIMENT TRAP
 DRAINAGE AREA: 0.0 ACRES
 DISTURBED AREA: 0.0 ACRES
 VOLUME REQUIRED: 0.9 x 67' x 60' x 30"
 VOLUME AVAILABLE: 01.0 C.Y.
 TOP BERM ELEV. 284.0
 WEIR CREST ELEV. 289.0
 STORAGE ELEV. 282.0
 BOTTOM ELEV. 280.0
 SIZE OF TRAP AT ELEV. 280.0: 10' x 55'

SEDIMENT CONTROL FOR CULVERT CONSTRUCTION
 Scale: 1" = 50'



SECTION "A-A"
 Scale: 1" = 10' H.E.V.

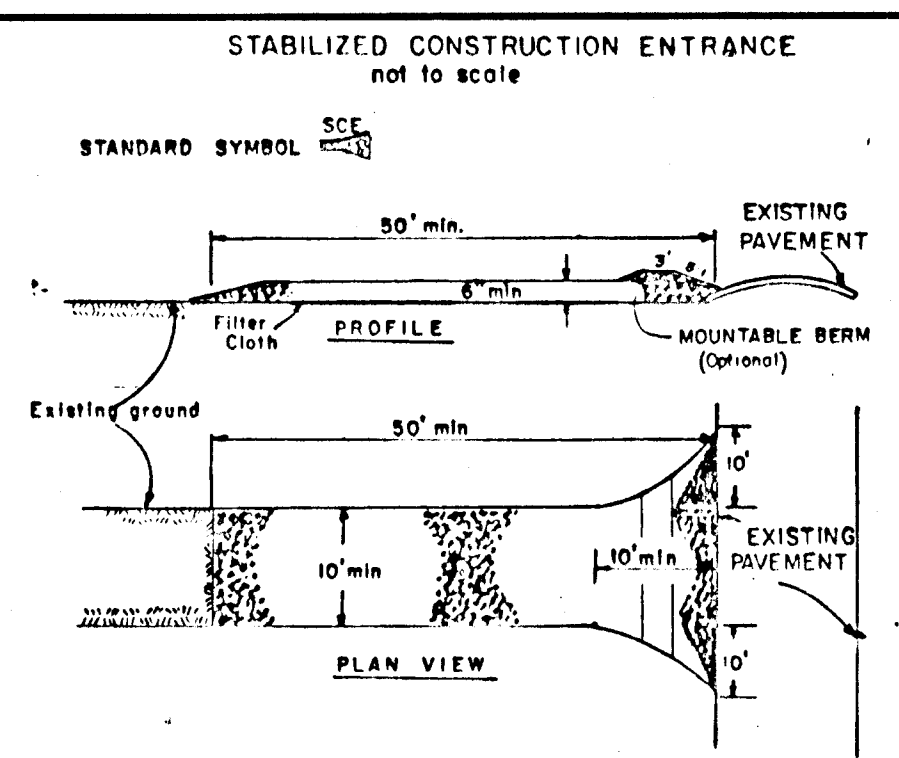
These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
 Approved: *Thomas M. Vehn* 2-2-87
 U.S. Soil Conservation Service Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Approved: *Walter Woodford* 2/2/87
 Howard Co. E.I. Date

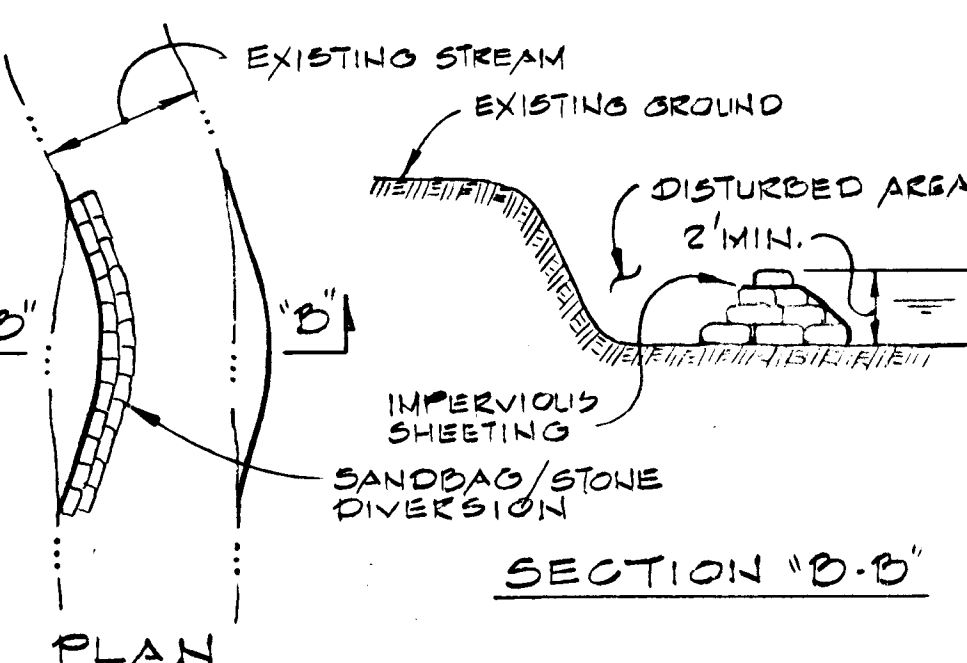
CERTIFICATION BY THE ENGINEER
 I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.
 Approved: *Kenneth A. McCord* 11-24-86
 KENNETH A. MCCORD PE No. 1074 Date

CERTIFICATION BY THE DEVELOPER
 I certify that all development and/or construction will be done according to these plans of development, pond construction and erosion and sediment control. I also authorize periodic on-site inspection by the 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. I will provide the Howard Soil Conservation District with a red-lined "as-built" of the pond within 30 days of completion.
 Approved: *Walter Woodford* 11-24-86
 WALTER WOODFORD Date

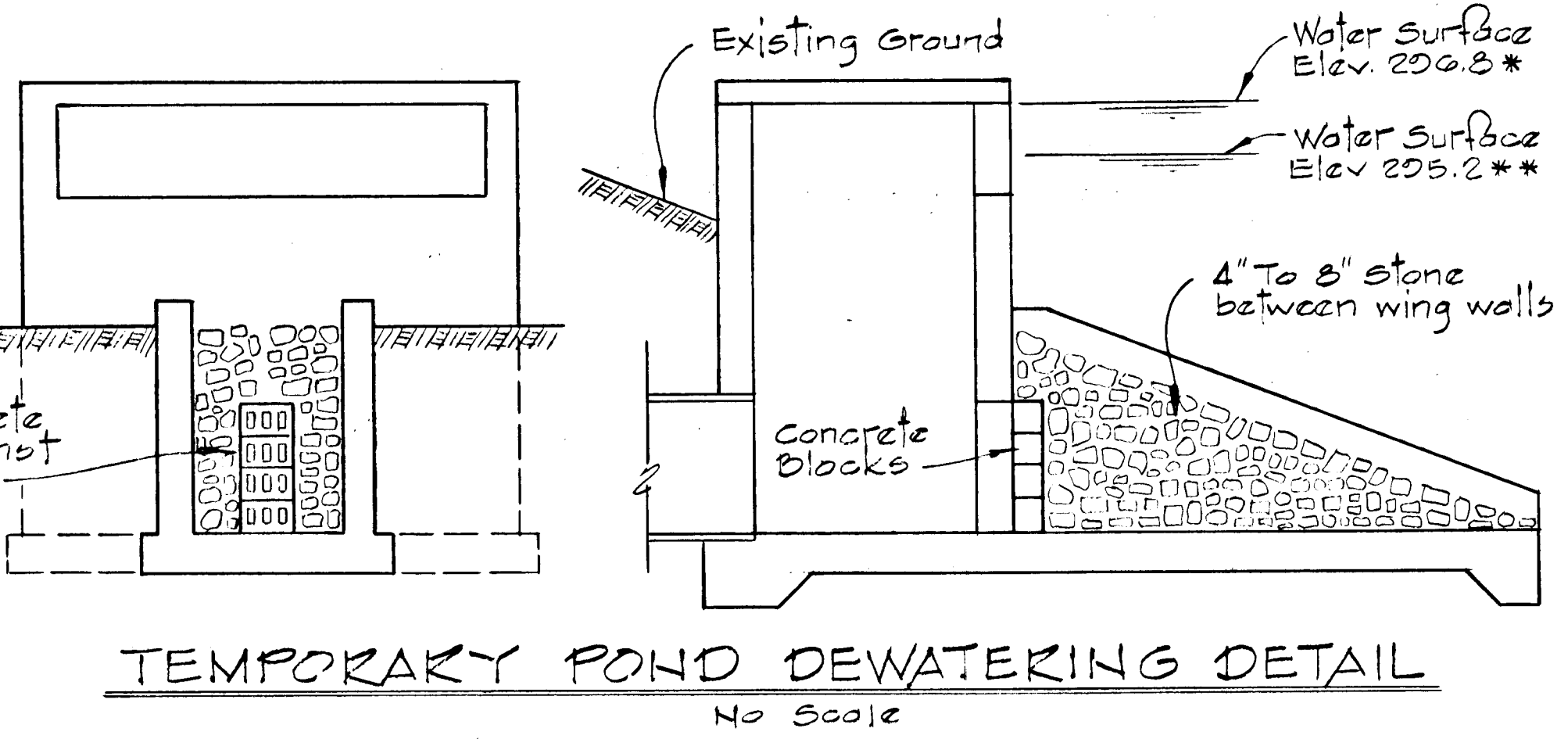
RESPONSIBLE PERSONNEL CERTIFICATION
 I hereby certify that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project.
 Approved: *Walter Woodford* 11-24-86
 WALTER WOODFORD Date



- CONSTRUCTION SPECIFICATIONS**
- Stone Size - Use 2" stone, or recycled or recycled concrete equivalent.
 - Length - As required, but not less than 30 feet (except on a single real-estate lot where a 30 foot minimum length would apply).
 - Thickness - Not less than six (6) inches.
 - Width - Ten (10) foot minimum, but not less than the full width at points where an ingress or egress occurs.
 - Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
 - Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mounded berm with 3:1 slope will be permitted.
 - Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanup of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
 - Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
 - Periodic inspection and needed maintenance shall be provided after each rain.

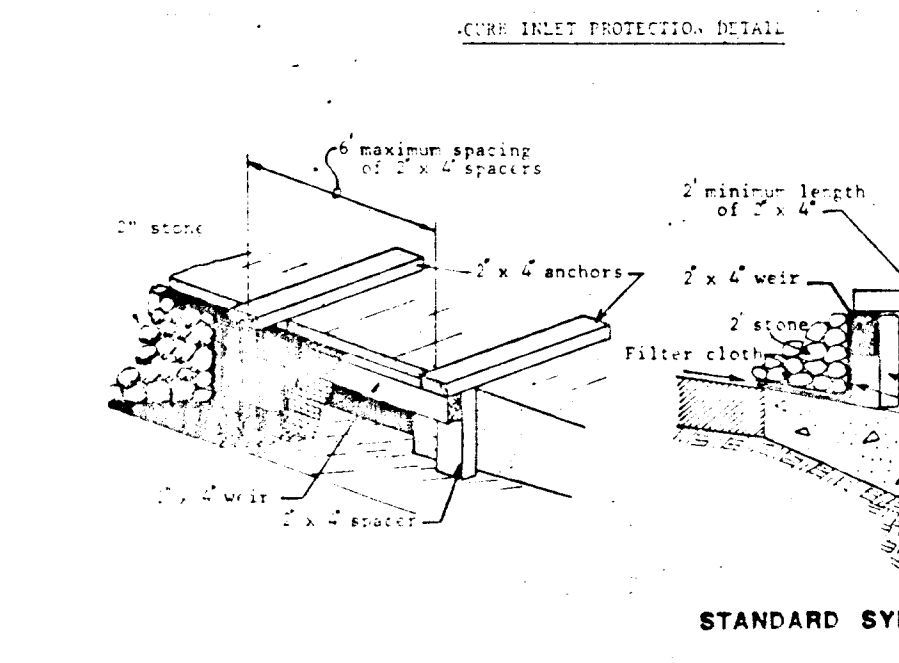


- CONSTRUCTION SPECIFICATIONS**
- ALL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED AS THE FIRST ORDER OF WORK.
 - THE DIVERSION STRUCTURE SHALL BE INSTALLED FROM UPSTREAM TO DOWNSTREAM.
 - THE HEIGHT OF THE DIVERSION STRUCTURE SHALL BE ONE HALF THE DISTANCE FROM STREAM BED TO STREAM BANK PLUS ONE FOOT.
 - ALL EXCAVATED MATERIALS SHALL BE DISPOSED OF IN A S.C.D. APPROVED DISPOSAL AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE APPROVED ON THE PLANS FOR THE WORK.
 - SHEETPILES SHALL BE OVERLAPPED SUCH THAT THE UPSTREAM PORTION COVERS THE DOWNSTREAM PORTION WITH AT LEAST AN 18-INCH OVERLAP.



TEMPORARY POND DEWATERING DETAIL
 No Scale

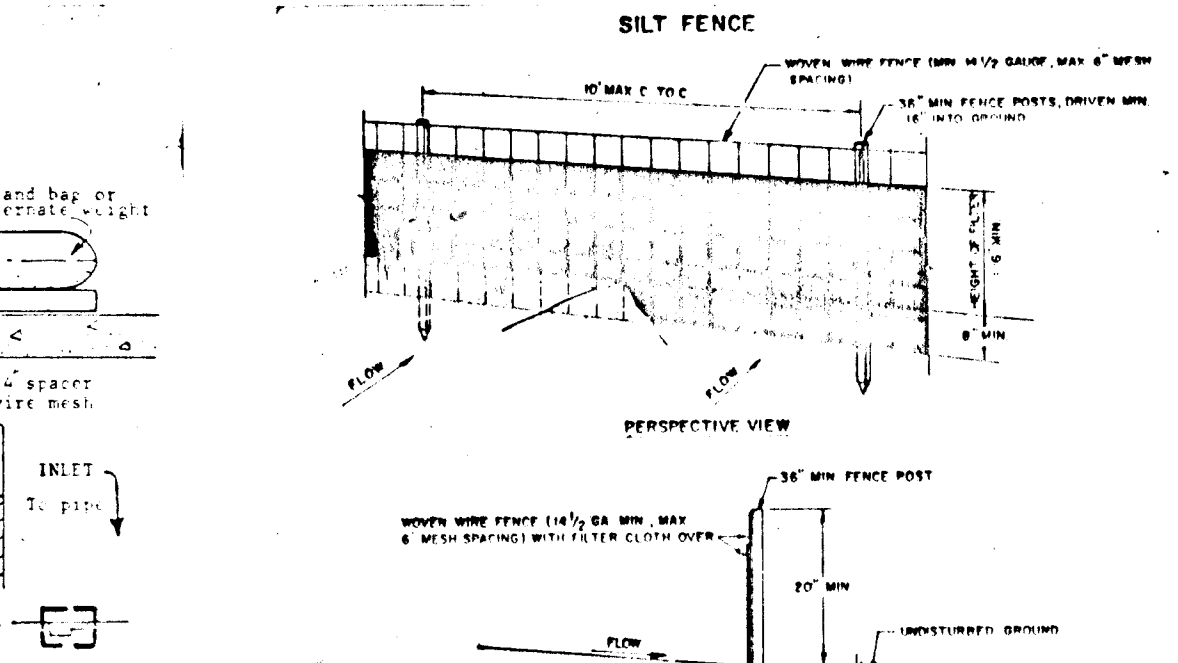
- SEDIMENT CONTROL NOTES**
- A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction (1983-1987).
 - All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
 - Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days for all other disturbed or graded areas on the project site.
 - All sediment traps/basins shall be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
 - All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent structures (Sec. 51) sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
 - All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
 - Site Analysis:
 - Total Area of Site: 2.4 Acres
 - Area Disturbed: 2.4 Acres
 - Area to be roofed or paved: 2.4 Acres
 - Area to be vegetatively stabilized: 2.4 Acres
 - Total Cut: 100 cu. yds
 - Total Fill: 100 cu. yds
 - Off-site waste/borrow area location: SOCKLE ADJACENT TO SITE
 - Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
 - Additional sediment controls must be provided, if deemed necessary by the Howard County DWS sediment control Inspector.
 - On all sites with disturbed areas in excess of 2 acres, approval of the Inspection Agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other construction. This approval may be requested by the Inspection Agency and may not be authorized until this initial approval by the Inspection Agency is made.



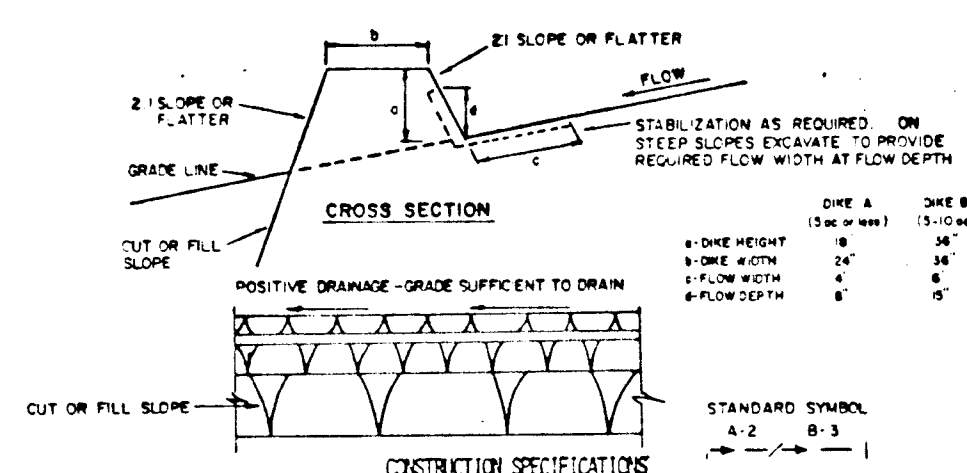
- CONSTRUCTION SPECIFICATIONS**
- ATTACH A CONTINUOUS PIECE OF WIRE MESH (30" MIN. WIDTH BY THROAT LENGTH PLUS 4") TO THE 2" x 4" WEIR (MEASURING LENGTH PLUS 2").
 - PLACE A PIECE OF APPROVED FILTER CLOTH (40-85 WIRE) OF THE SAME DIMENSIONS AS THE WIRE MESH OVER THE WIRE MESH AND SECURELY ATTACH TO THE 2" x 4" WEIR.
 - SECURELY NAIL THE 2" x 4" WEIR TO 2" LONG VERTICAL SPACERS TO BE LOCATED BETWEEN THE WEIR AND INLET FACE (MAX. 6" APART).
 - PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL (MINIMUM 2" LENGTH OF 2" x 4" TO THE TOP OF THE WEIR AT SPACES). THESE 2" x 4" ANGLES SHALL EXTEND ACROSS THE INLET TOP AND BE HELD IN PLACE BY SANDBAGS OR ALTERNATE WEIGHT.
 - THE ASSEMBLY SHALL BE PLACED SO THAT THE END SPACERS ARE A MINIMUM 1" BEYOND BOTH ENDS OF THE THROAT OPENING.
 - FORM THE WIRE MESH AND FILTER CLOTH TO THE CONCRETE OUTLET AND AGAINST THE FACE OF CURB ON BOTH SIDES OF INLET. PLACE CLEAN 2" STONE OVER THE WIRE MESH AND FILTER FABRIC IN SUCH A MANNER AS TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE FILTER CLOTH.
 - THIS TYPE OF PROTECTION MUST BE INSPECTED FREQUENTLY AND THE FILTER CLOTH AND STONE REPLACED WHEN CLOGGED WITH SEDIMENT. ASSURE THAT STONE FLOW DOES NOT BYPASS INLET BY INSTALLING TEMPORARY EARTH OR ASPHALT DIKES DIRECTING FLOW INTO INLET.

- PERMANENT SEEDING NOTES**
- Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.
- Seeded Preparation:** Loosen upper three inches of soil by raking, disking or other acceptable means before seeding.
- Soil Amendments:** In lieu of soil test recommendations, use one of the following schedules:
- Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 10-0-0 urea-form fertilizer (9 lbs/1000 sq ft).
 - Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.
- Seeding -** For the periods March 1 thru April 30, and August 1 thru October 15, seed with 20 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.75 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.
- Mulching -** Apply 14 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (15 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (9 gal/1000 sq ft) for anchoring.
- Maintenance -** Inspect all seeded areas and make needed repairs, replacements and reseedings.

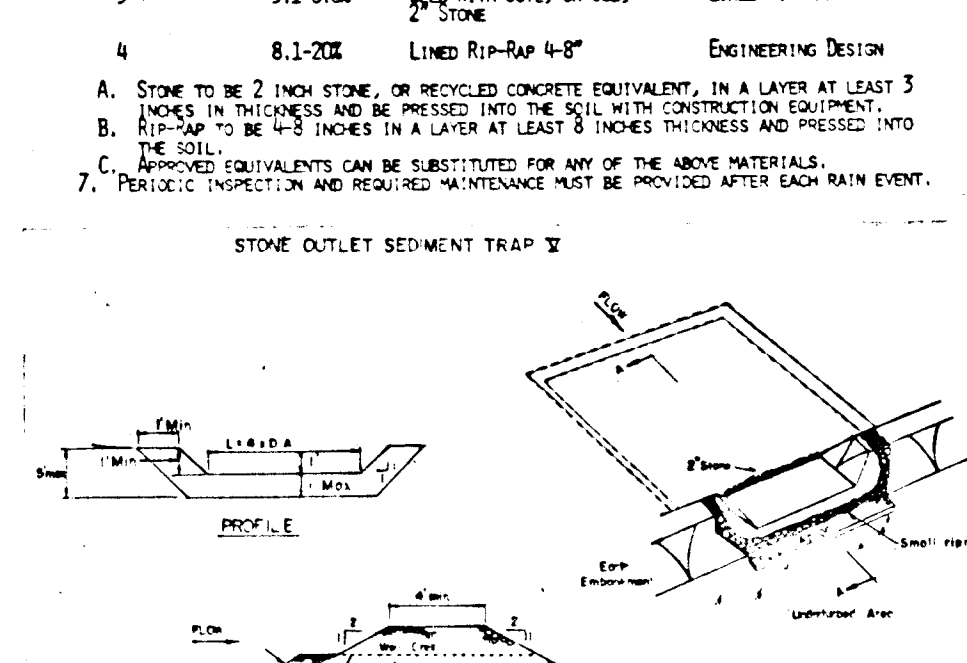
- TEMPORARY SEEDING NOTES**
- Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.
- Seeded Preparation:** Loosen upper three inches of soil by raking, disking or other acceptable means before seeding.
- Soil Amendments:** Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft).
- Seeding:** For the period March 1 thru April 30 and from August 15 thru November 15, seed with 25 bushel per acre of annual ryegrass (12.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.
- Mulching:** Apply 14 to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (15 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 ft or higher, use 348 gal per acre (9 gal/1000 sq ft) for anchoring.
- Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.



- CONSTRUCTION NOTES FOR IMPROVED SILT FENCE**
- MINIMUM FENCE TO BE INSTALLED PERMANENTLY TO FENCE POSTS WITH 10' SPACING.
 - FENCE CLOTH SHALL BE FASTENED PERMANENTLY TO POSTS WITH 10' SPACING.
 - MINIMUM 2" SECTION OF FILTER CLOTH BEYOND EACH END OF THE WEIR.
 - MAINTENANCE SHALL BE PERFORMED AS NEEDED BY MATERIAL MAINTENANCE.
- CONSTRUCTION SPECIFICATIONS FOR SILT FENCE**
- Area under embankment shall be cleared, graded and stripped of any vegetation and root mass. The area shall be cleared.
 - The fill material for the embankment shall be free of roots and other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be completed by constructing with equipment with a 3:1 slope.
 - All cut and fill slopes shall be 3:1 or flatter.
 - The stone used in the outlet shall be small riprap 4" to 6" in diameter with a 1" thickness of 2" aggregate placed on the upstream side on the small riprap 22' embankment filter cloth in the trap.
 - Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the depth of the trap.
 - The structure shall be inspected after each rain and repairs made as needed.
 - Construction operations shall be carried out in such a manner that erosion and water pollution is minimized.
 - The structure shall be removed and the area stabilized when the drainage area has been properly established.



- CONSTRUCTION SPECIFICATIONS**
- ALL SITES SHALL BE CONTACTED BY EARTHMOVING EQUIPMENT.
 - SOILS SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
 - TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE PROGRESS BY CONSTRUCTION EQUIPMENT.
 - FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
 - SAFETY - SITES SHALL HAVE AN OUTLET THAT FUNCTIONS WITHIN A MINIMUM OF EROSION. SAFETY SHALL BE MAINTAINED AT ALL TIMES. TRAPPING DEVICES SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE ESTABLISHED.
 - STABILIZATION SHALL BE (a) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IF NOT IN SEEDING SEASON, (b) FLOW CHANNEL, AS PER THE DRAWING BELOW.

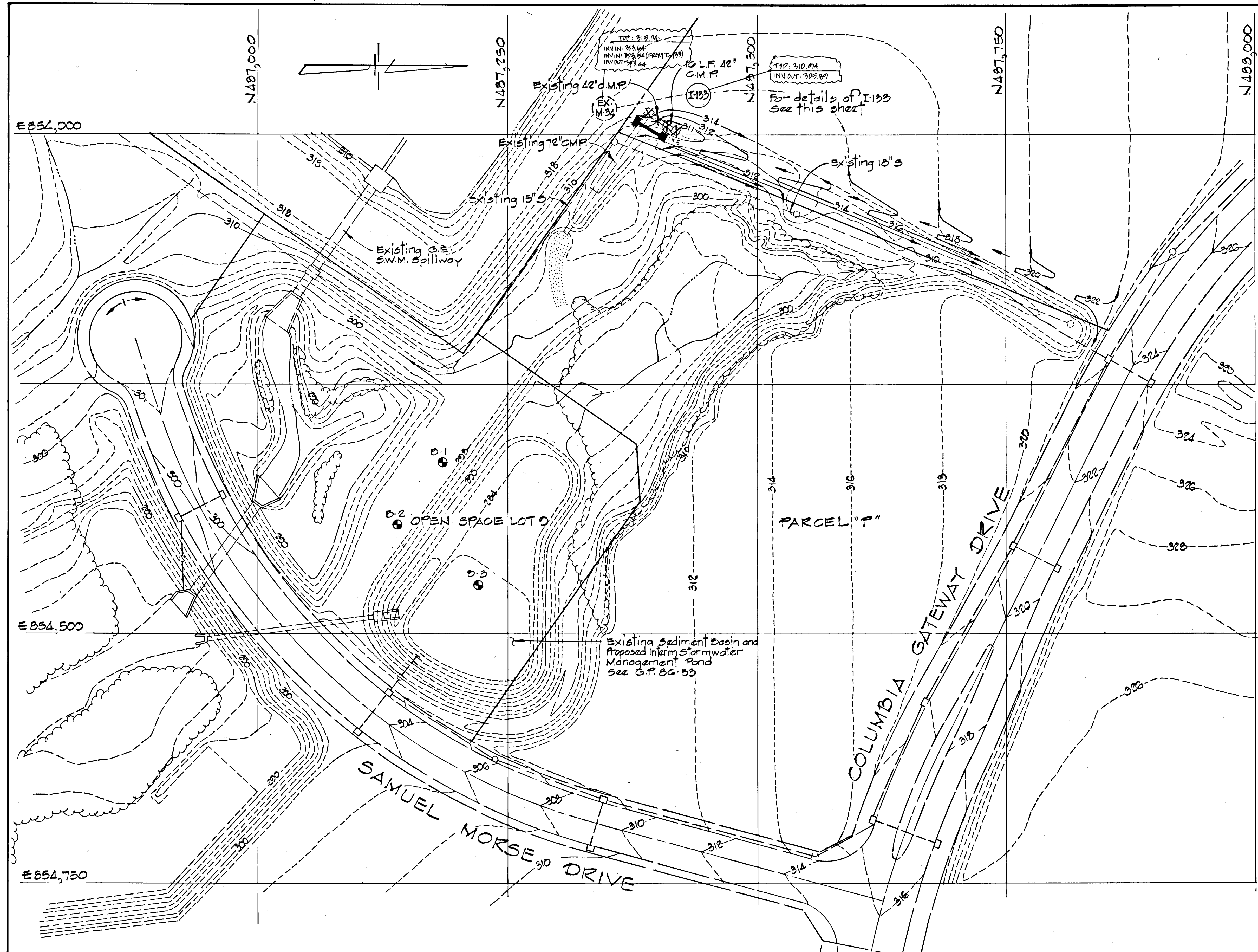


- CONSTRUCTION SPECIFICATIONS FOR SILT FENCE**
- Area under embankment shall be cleared, graded and stripped of any vegetation and root mass. The area shall be cleared.
 - The fill material for the embankment shall be free of roots and other woody vegetation as well as oversized stones, rocks, organic material or other objectionable material. The embankment shall be completed by constructing with equipment with a 3:1 slope.
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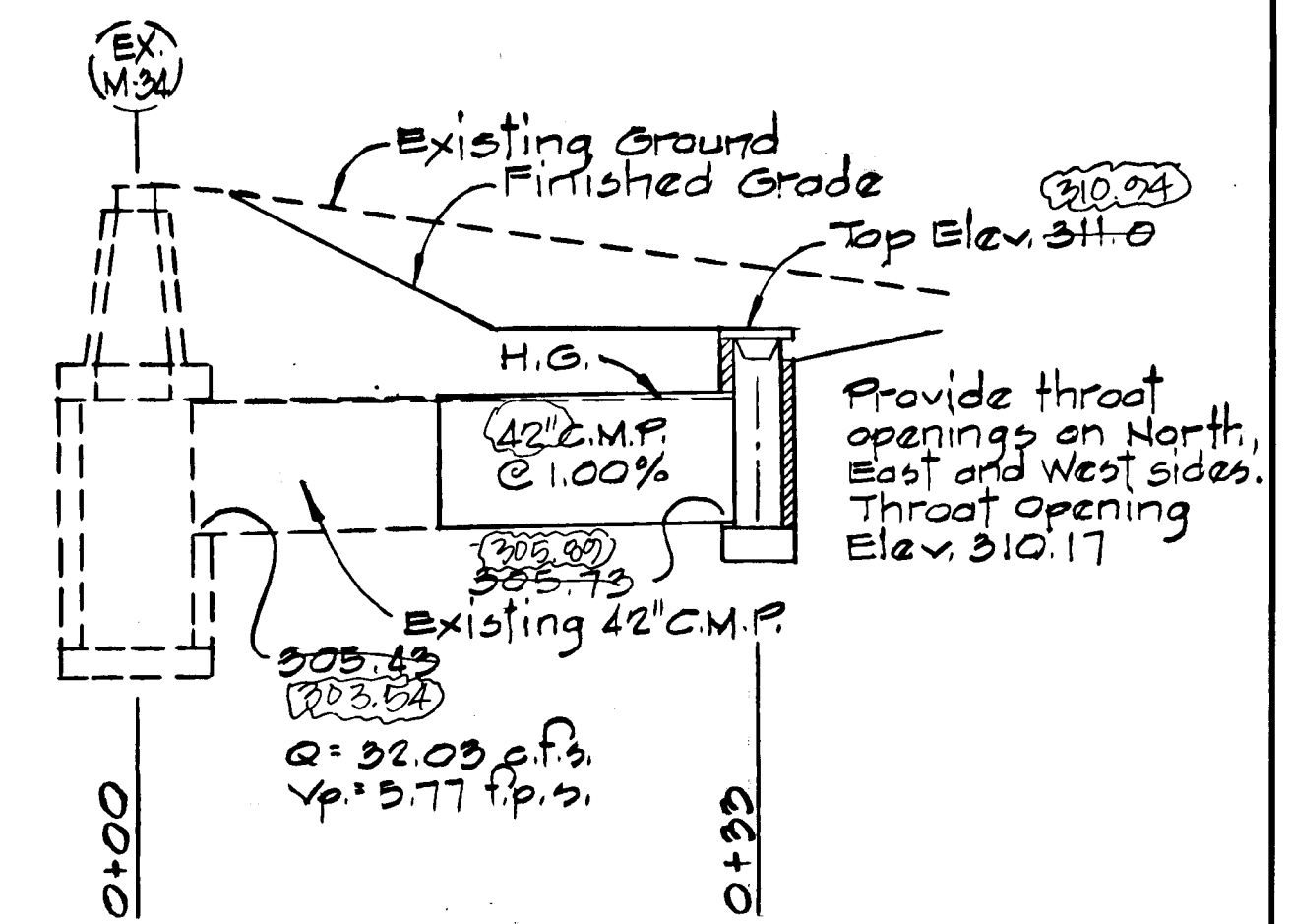
1/20/87	2	As per SCS comments 1/7/87
11/24/86	1	As per SCS Planning & DPW comments
REV. DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA GATEWAY GTH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
 PROJECT AREA
 PARCELS F THRU K
 A RESUBDIVISION OF PARCEL O
 PROJECT TITLE
 SEDIMENT CONTROL PLAN
 DETAILS AND SPECIFICATIONS
 PHASE ONE AND TWO
 SCALE: AS SHOWN DATE:
 WHITMAN, REQUART AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218
 Approved: *Kenneth A. McCord*
 KENNETH A. MCCORD
 Registered Engineer
 No. 1074

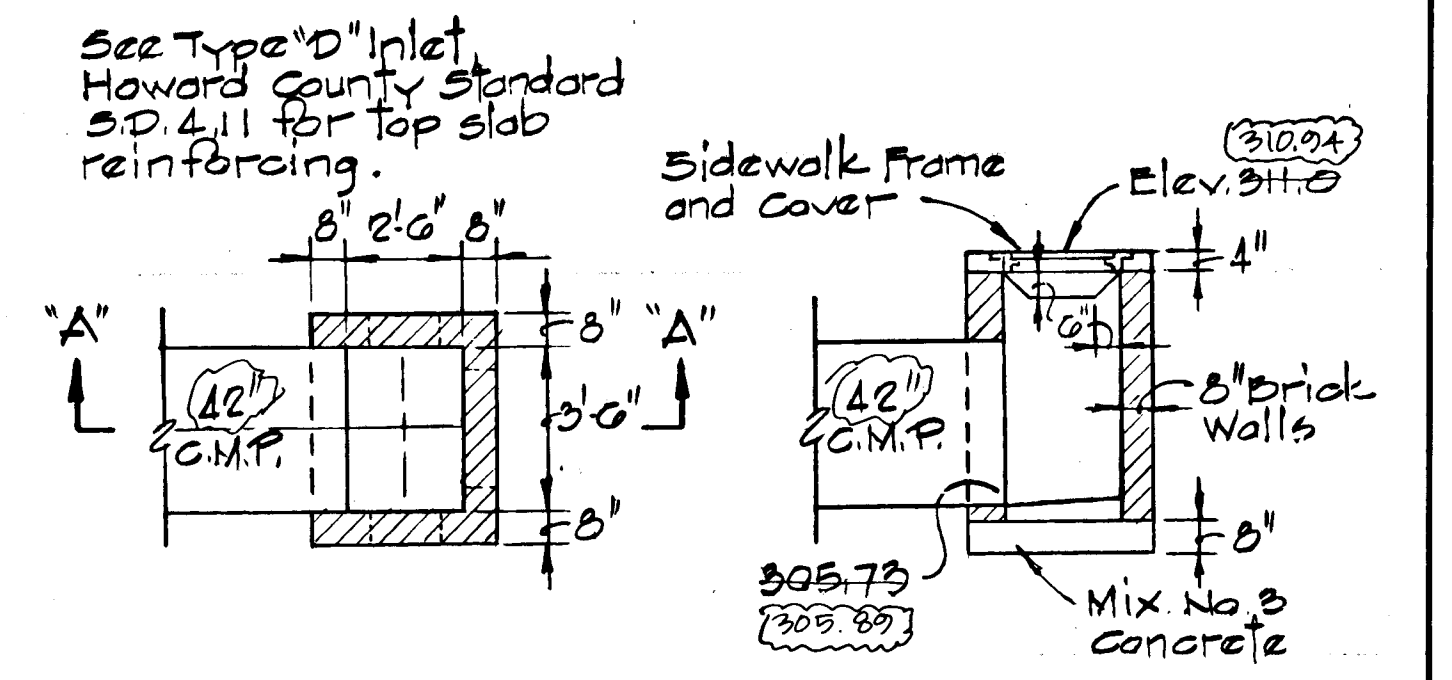
APPROVED: DEPARTMENT OF PUBLIC WORKS
 2/28/86
 CHIEF BUREAU OF ENGINEERING 3/5/87
 OFFICE OF PLANNING AND ZONING
 DATE
 2-7-87
 CHIEF DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



PLAN - SWALE AND STORM DRAIN AT EXISTING M-34
 Scale: 1" = 50'



PROFILE - NEW 42" C.M.P. AT EXISTING M-34
 Scale: Hor. 1" = 10' Vert. 1" = 5'

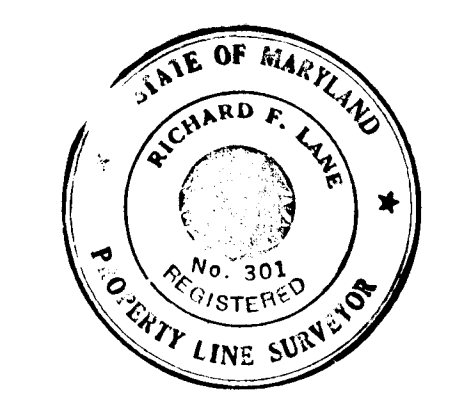


PLAN SECTION 'A-A' DETAIL - NEW INLET 193
 Scale: 1/4" = 1'-0"

REV. NO.	REVISION DESCRIPTION
1	Added this sheet to set
2	
3	

COLUMBIA GATEWAY COLLECTION DISTRICT HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
 PROJECT AREA
 PARCELS P THEU R
 A RESUBDIVISION OF PARCELO
 PROJECT TITLE
 PLAN - SWALE AND STORM DRAIN AT EXISTING M-34
 SCALE: 1" = 50' DATE
 WHITMAN, REQUAERT AND ASSOCIATES ENGINEERS
 BALTIMORE, MARYLAND 21218

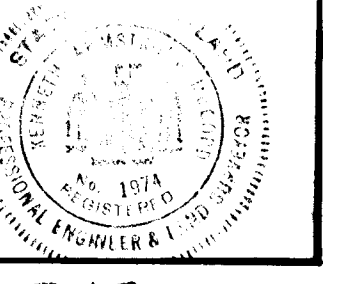
SHANABFARGER & LANE
 8726 TOWN & COUNTRY BLVD.
 SUITE 107
 ELLICOTT CITY, MARYLAND 21043



ROAD AS-BUILT
 Richard F. Lane 5/22/80
 RICHARD F. LANE, V.P. DATE
 PROPERTY LINE SURVEYOR #301

AS-BUILT INFORMATION DESIGNATED AS THUS: 498.11

Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1274

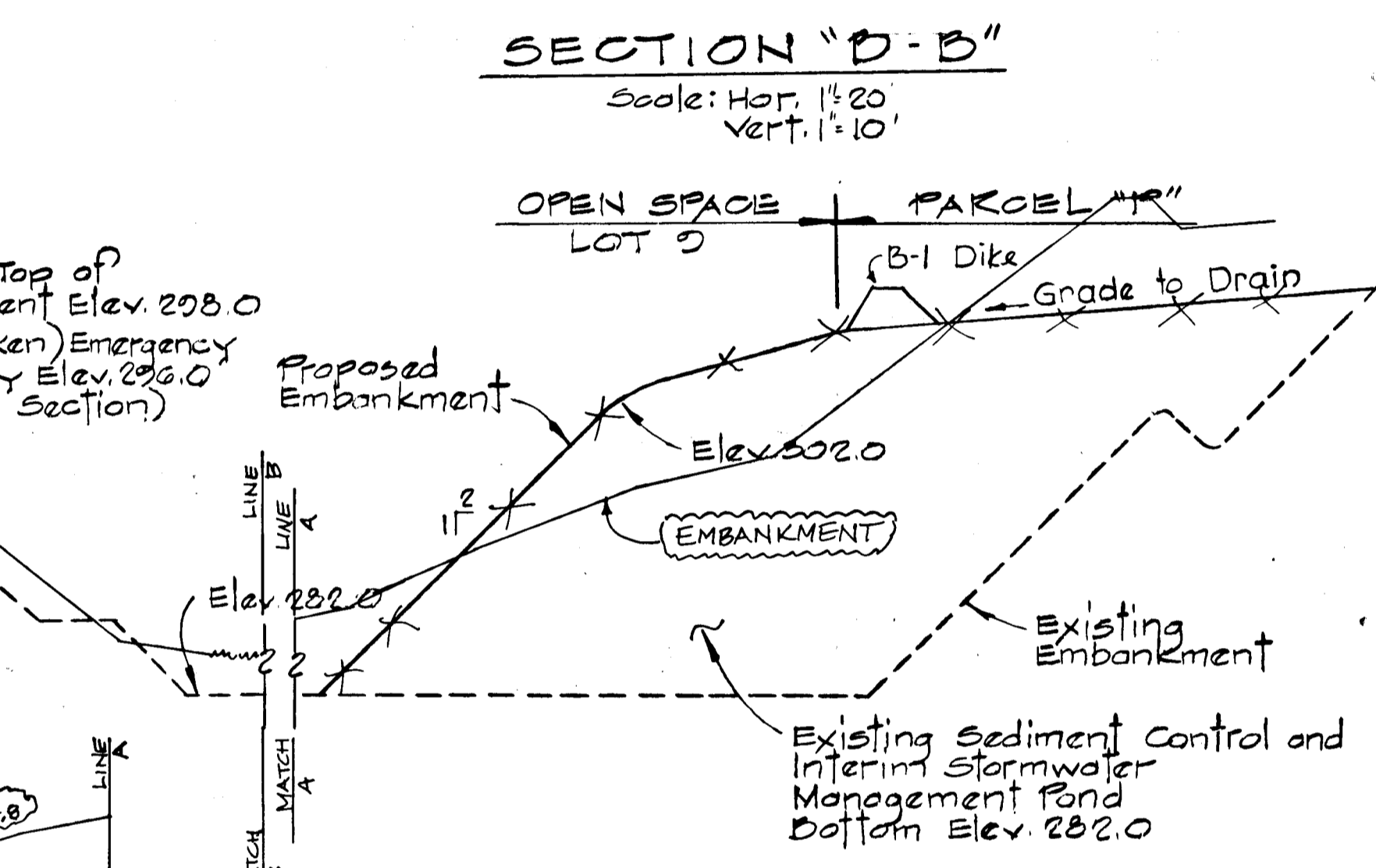
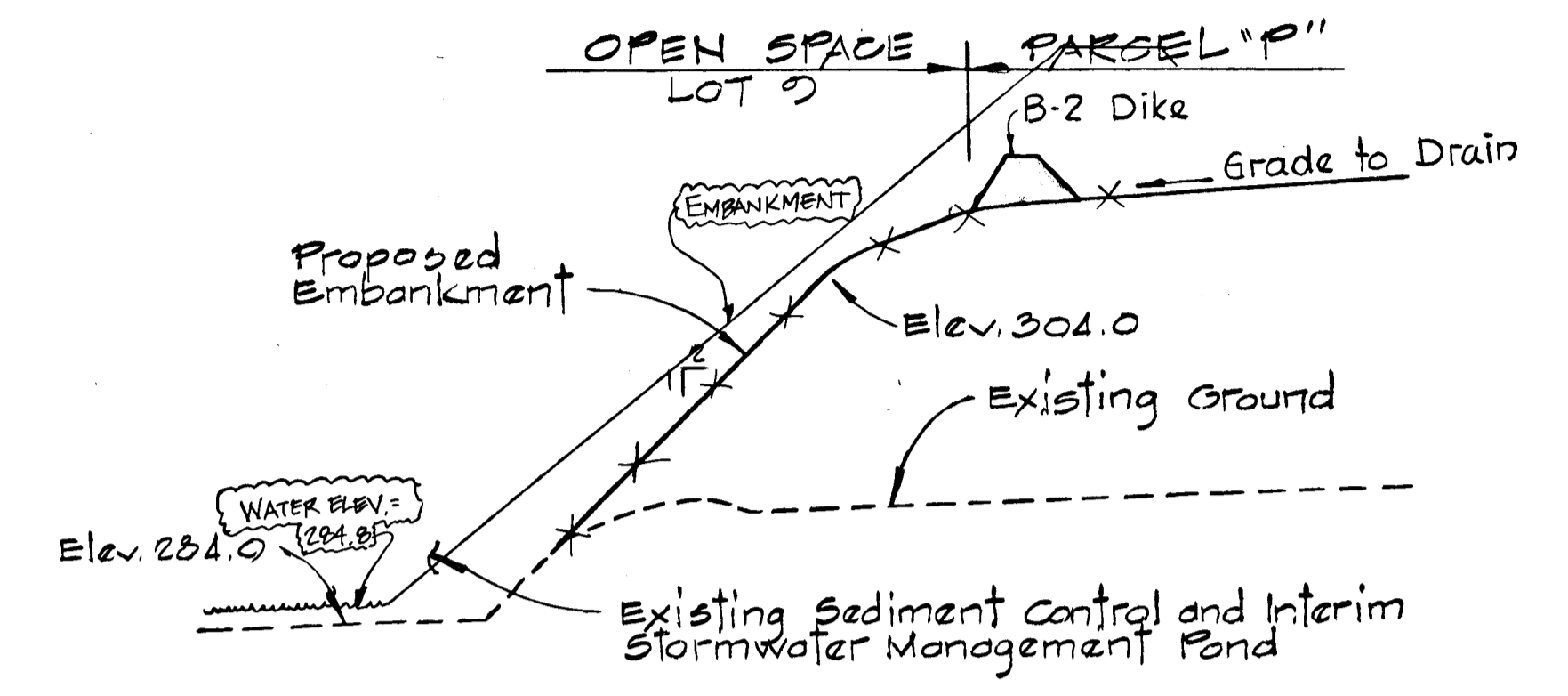
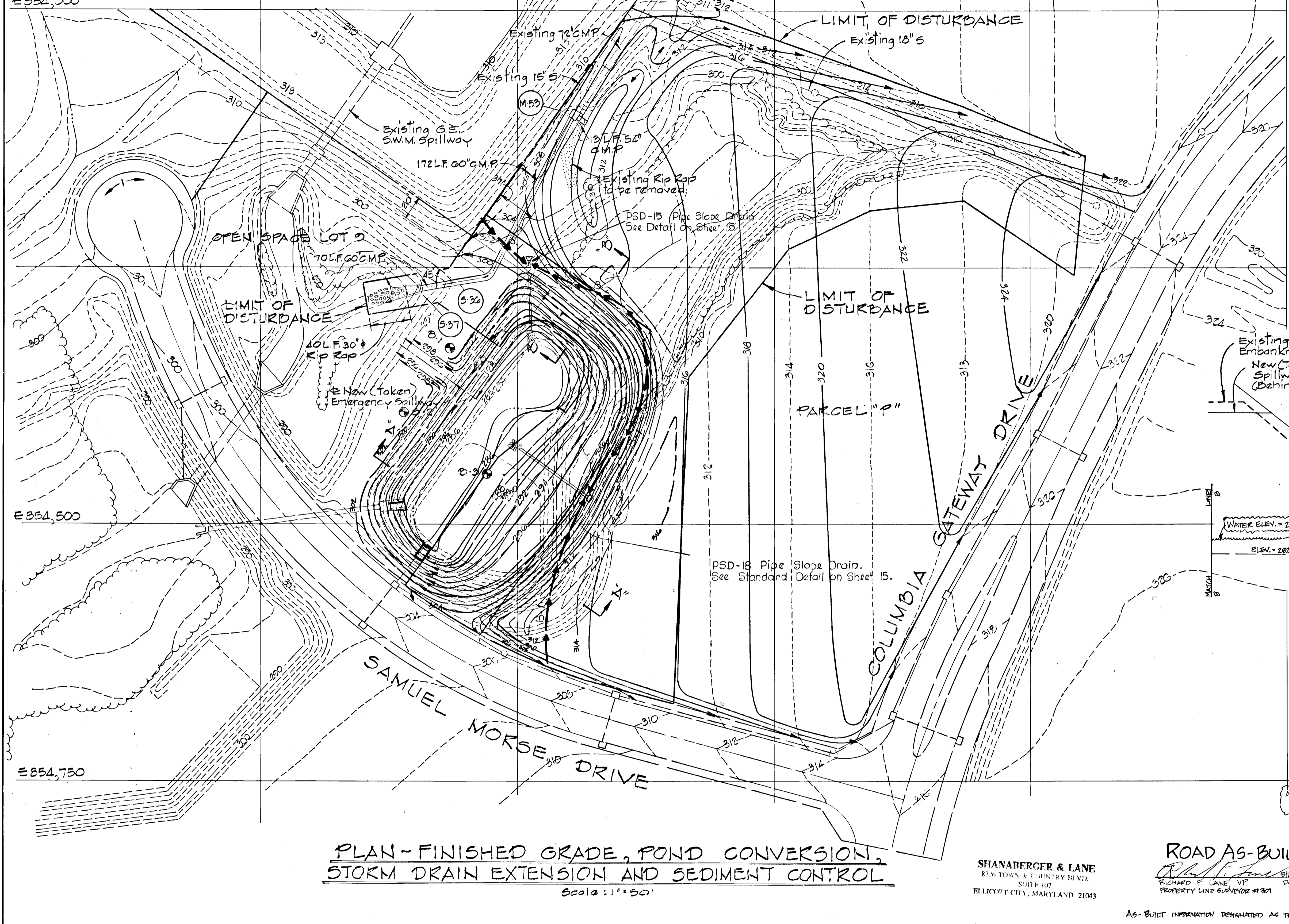


1158

STORM DRAIN STRUCTURE SCHEDULE				
NO.	TYPE	TOPEL	INV. IN	INV. OUT
M-53	Standard Manhole (6 ft. dia.)	309.67	291.00	292.70
S-30	Standard Bend (S.D. 1.01)	301.60	293.00	293.00
S-37	Special Headwall	293.52	285.40	285.40

LOCATION: 11P INV IN 316.10 INV OUT 299.90
 See Plan and Profile
 LOCATION: 11P INV IN 316.10 INV OUT 299.90
 See Plan and Profile
 LOCATION: 11P INV IN 316.10 INV OUT 299.90
 See Plan and Profile

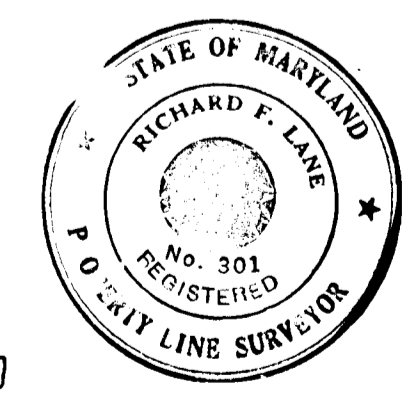
APPROVED: DEPARTMENT OF PUBLIC WORKS
 X-RAIN & RAIN 2-5-87
 CHIEF, BUREAU OF ENGINEERING DATE
 OFFICE OF PLANNING AND ZONING
 John M. Muschman 7-287
 CHIEF, BUREAU OF LAW DEVELOPMENT AND ZONING ADMINISTRATION DATE



PLAN - FINISHED GRADE, POND CONVERSION, STORM DRAIN EXTENSION AND SEDIMENT CONTROL
 Scale: 1" = 50'

SHANABERGER & LANE
 879 TOWN & COUNTRY BLVD.
 SUITE 107
 BELLCOTT CITY, MARYLAND 21043

ROAD AS-BUILT
 Richard F. Lane, P.E.
 PROPERTY LINE SURVEYOR # 301



REV. DATE	NO.	REVISION DESCRIPTION
9/17/90	4	Revised Grading SWM Pond
5/18/87	3	Revised Drain S-37 to MH-53
1/20/87	2	As per SCS Comments 1/7/87
1/24/86	1	Added this sheet to set

COLUMBIA GATEWAY
 CITELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY
 PROJECT AREA
 PARCELS P THEU R
 A RESUBDIVISION OF PARCEL O
 PROJECT TITLE
 PLAN - FINISHED GRADE,
 POND CONVERSION, STORM DRAIN
 EXTENSION AND SEDIMENT CONTROL.
 SCALE: 1" = 50' DATE

CERTIFICATION BY THE ENGINEER
 I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion.
 Kenneth A. McCord 11-24-86
 KENNETH A. MCCORD PE NO 1974 Date

CERTIFICATION BY THE DEVELOPER
 I certify that all development and/or construction will be done according to these plans of development, pond construction and erosion and sediment control. I also authorize periodic on-site inspection by the 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. I will provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion.
 Walter Woodford 11-24-86
 WALTER WOODFORD Date

RESPONSIBLE PERSONNEL CERTIFICATION
 I hereby certify that any responsible personnel involved in the construction project will have a certificate of attendance of a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project.
 Walter Woodford 11-24-86
 WALTER WOODFORD Date

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.
 James M. Helms 2-2-87
 U.S. Soil Conservation Service Date

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Approved: Richard F. Lane 2/5/87
 Howard S.C.D. Date
 Plan Number

WHITMAN, LEQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218
 Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974

1158