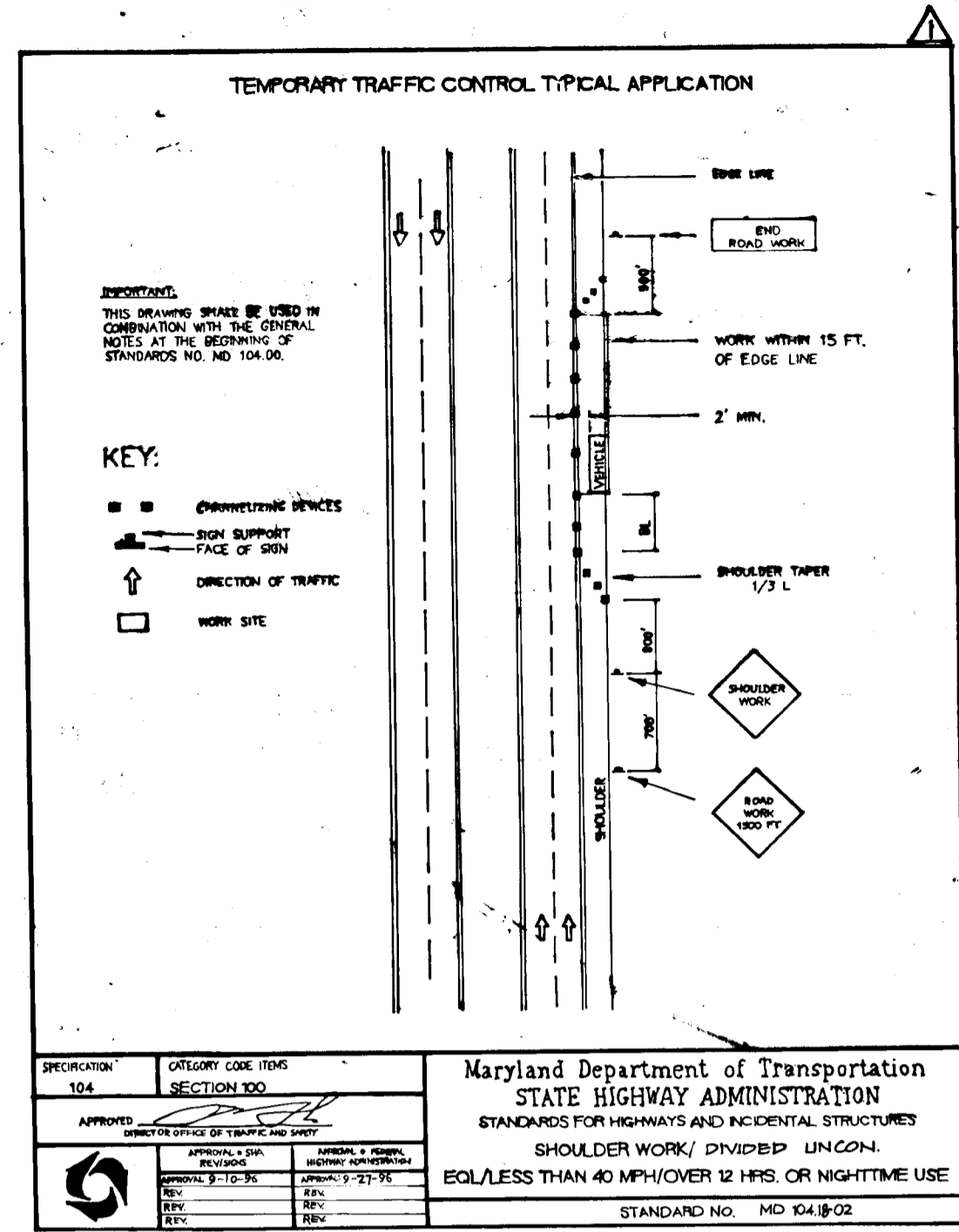
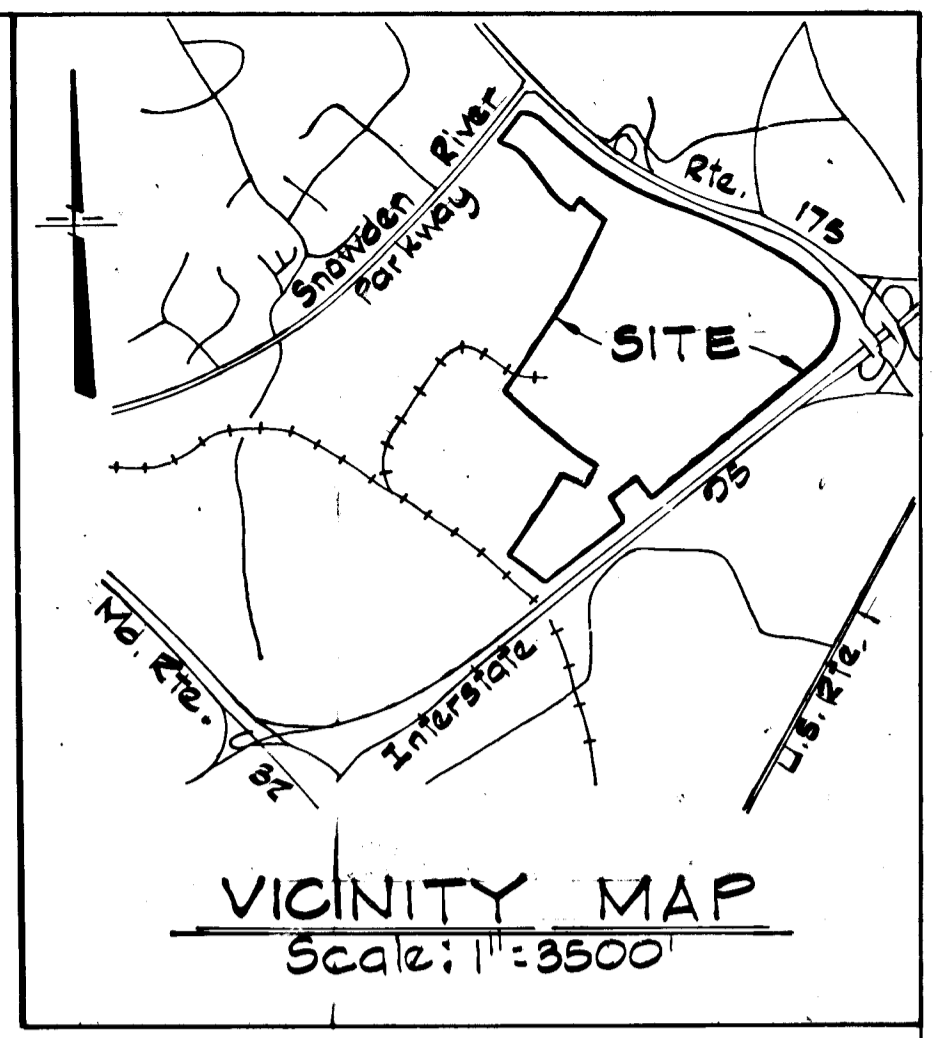


SHEET INDEX	
No.	DESCRIPTION
1.	TITLE SHEET
2.	DRAINAGE AREA MAP - SEDIMENT CONTROL
3.	PLAN AND PROFILE - COLUMBIA GATEWAY DRIVE STATION 46+47.45 TO STATION 58+50
4.	PLAN AND PROFILE - COLUMBIA GATEWAY DRIVE STATION 58+50 TO STATION 71+50
5.	PLAN AND PROFILE - COLUMBIA GATEWAY DRIVE STATION 71+50 TO STATION 83+59.84
6.	STORM DRAIN PLAN - FINAL GRADING
7.	ROADWAY DETAILS - STORM DRAIN PROFILE
8.	DRAINAGE AREA MAP
9.	" " " "
10.	STORM DRAIN PROFILES
11.	" " " "
12.	" " " " DETAILS
13.	" " " " " "
13a.	" " " " " "
14.	SEDIMENT CONTROL PLAN
15.	" " " " - STORM DRAIN DETAILS
16.	" " " " " "
17.	" " " " " "
18.	" " " " " "
19.	" " " " DETAILS

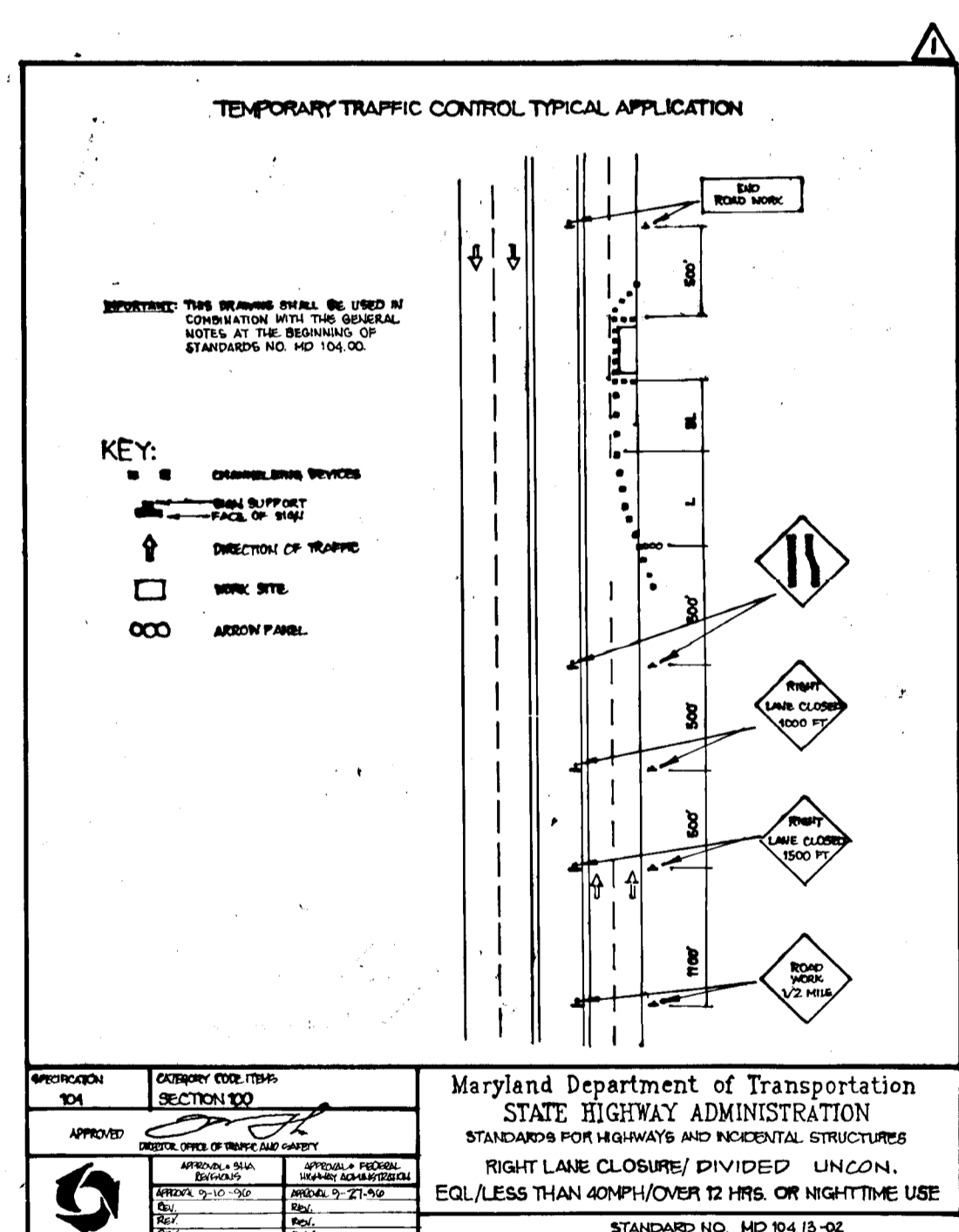
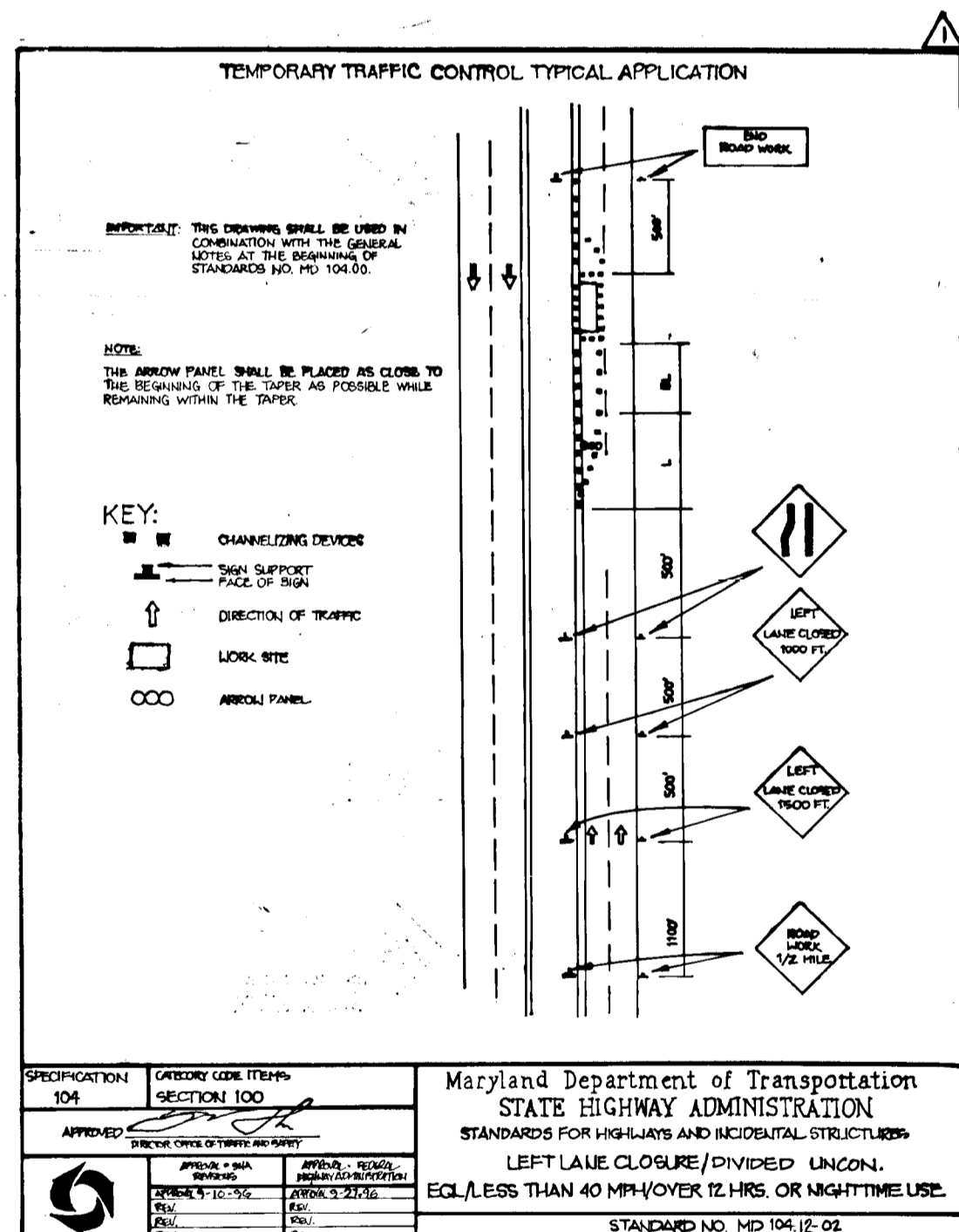
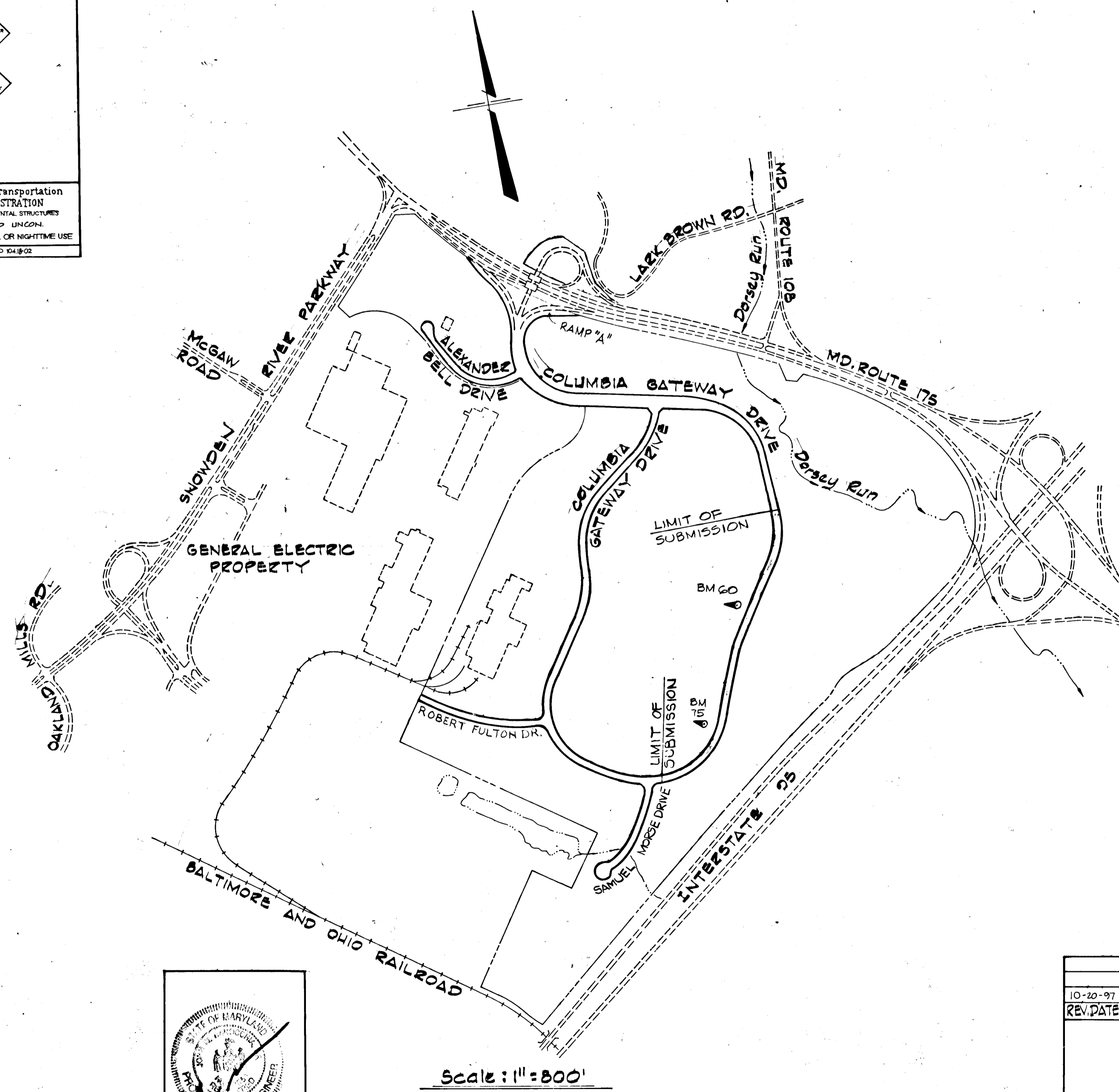


Street Trees:
 The location, type and number of trees shown on this plan are tentative and are used for bond purposes only. The final location and variety of trees may vary to accommodate field conditions and builders landscape program. Bond release is contingent upon Section 16.1B1 of the Howard County Subdivision Regulations, as approved by the Office of Planning and Zoning.

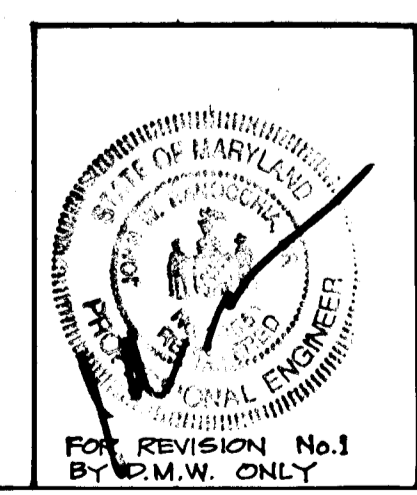


GENERAL NOTES

- 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. 292-2436
- 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 3300 P.S.I.
- All swales and slopes shall be permanently seeded. See the seed specifications on Sheet 19.
- Traffic control devices and their installation shall be in accordance with the manual on uniform traffic control devices, 1978 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 unpaved.
- Stubs for 6" P.V.C. underdrain pipe to be installed at center of each wall of every inlet.
- Street Light - 250-watt mercury vapor street light pendant mounted fixtures on a 30 galv. steel pole no less than 6' from edge of pavement.



BENCH MARKS
 WR & A BM - Tack in hub 150' right of P Sta. #60
 59+82.05 Columbia Gateway Drive.
 Elev. 343.19
 WR & A BM - Tack in hub 150' right of P Sta. #75
 75+13.53 Columbia Gateway Drive.
 Elev. 320.81



Note: All corrugated metal pipe shall be aluminum pipe thickness (uncoated) and corrugations are as follows:

- 24" x 1/2" corrugations 15 thru 48" - 0.0545" (16.3 ga)
- 3" x 1" or 5" x 1" corrugations 54" and 90" - 0.0747" (14.3 ga)

REV. DATE	REV. NO.	REVISION DESCRIPTION
10-20-97	1	ADDED TRAFFIC CONTROL DETAILS. REVISION BY DMW

COLUMBIA GATEWAY
 PARCELS S THRU T
 A RESUBDIVISION OF PARCEL R
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

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



DEPARTMENT OF PUBLIC WORKS
 5-15-87
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING AND ZONING
 5-12-87
 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

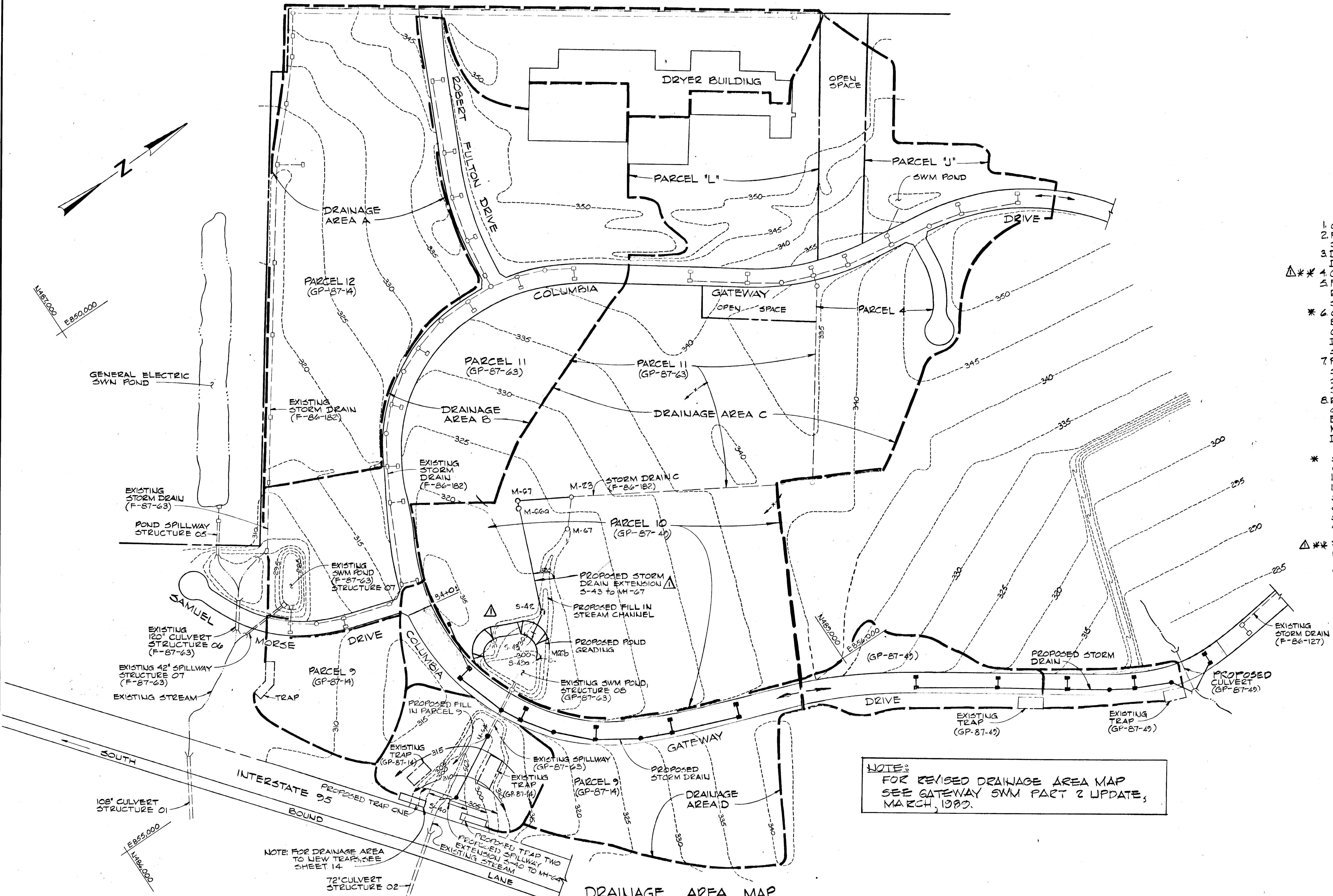
APPROVED DEPARTMENT OF PUBLIC WORKS
 5-15-87
 CHIEF BUREAU OF ENGINEERING
 OFFICE OF PLANNING AND ZONING
 5-12-87
 CHIEF DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

PROPOSED WORK

Storm Drain C Extension; Grading - Existing Stream Channel, Storm Water Management Pond (Parcel 10); Storm Drains, Utilities, Curb and Gutter; Paving - Columbia Gateway Drive, Sta. 46+48 to Sta. 84+0; Pond Spillway Outfall Extension; Grading - Parcel 9; Sediment Control. See Map.

CONSTRUCTION SEQUENCE

1. Obtain Grading Permit.
2. Parcels L, J, I and 11 in Drainage Area C shall be stabilized.
3. De-water SWM Pond (Structure 08) by Pumping Down to Elevation 298.0 (2 Days).
4. Construct storm drain S-43 to M-67 (14 Days).
5. Fill Stream Channel, Grade SWM Pond, stabilize Parcel 10. Remove Stone From Pond Riser Structure Wing Walls. Stabilize Graded Pond Slope Areas. (14 Days)
6. Construct storm drains in Columbia Gateway Drive; Block All Inlets, Construct All Utilities and Final Grade. Construct Curb and Gutter and Pave Columbia Gateway Drive. Drainage Area C and Columbia Gateway Drive shall be stabilized. (30 Days)
7. Parcel 9 shall be stabilized to the limits shown on Sheet 14. Install Silt Fence and Partial Fill. See Detail on Sheet 15. Construct New Traps One and Two. See Sheet 14. Construct Storm Drains S-40 to M-64 (10 Days).
8. Remove Existing Traps (GP-87-14). Grade remainder of Parcel 9. Stabilize All Disturbed Areas in Parcel 9. Existing Traps (GP-87-49) and Traps One and Two may be removed when grass is established in All Drainage Areas.
- * Storm drain construction includes the 48" culvert at station 48+20. See Sheets B and 18. Provide temporary bulkhead in M-70 and 15" pipe diversion to sediment trap No. 2; see Sheet 18. Provide temporary bulkhead in M-72 and 12" pipe diversion to sediment trap No. 1; see Sheet 17. Construct permanent 27" stub at M-72 when temporary pipe is removed.
- Δ** Existing storm drain between M-67 and M-23 to be removed or abandoned. Construct storm drain S43a to M-66b and stub.



NOTE:
 FOR REVISED DRAINAGE AREA MAP
 SEE GATEWAY SWM PART 2 UPDATE,
 MARCH, 1987.

March 1987	Δ	Enlarged pond, revised storm drain, added map note
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 S AND T A RESUBDIVISION OF PARCEL R		
PROJECT TITLE DRAINAGE AREA MAP SEDIMENT CONTROL		
SCALE: 1" = 200'		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 5-11-87
 U.S. Soil Conservation Service Date

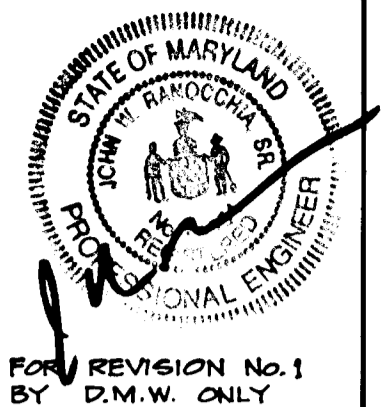
These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.
 Stephen L. Halperin 5/11/87
 Howard Soil Conservation District Date

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 2-2-87
 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 2-2-87
 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 2-2-87
 Registered Engineer PE No. 1974 Date

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



Curve Data
 P.C. 46+47.45 TO P.T. 51+59.08
 $\Delta = 41^\circ 52' 39''$ T = 267.85'
 $R = 700.00'$ ch'd. = 500.92'
 Arc = 511.63' ch'd. Brg. = $S13^\circ 48' 50'' W$

NOTE: SEE SHEET 1 FOR TEMPORARY TRAFFIC CONTROL DETAILS.

APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING & ZONING
 JOHN W. MURPHY 5-12-87
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

Note: FOR EXISTING COLUMBIA GATEWAY DRIVE SEE ROAD CONSTRUCTION DRAWING P86-127.

02-03-98 ADDED DECELERATION LANES & ADJUSTED PAVING 41-148 REVISIONS BY D.M.W.

REV. DATE REV. NO. REVISION DESCRIPTION

COLUMBIA GATEWAY
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY

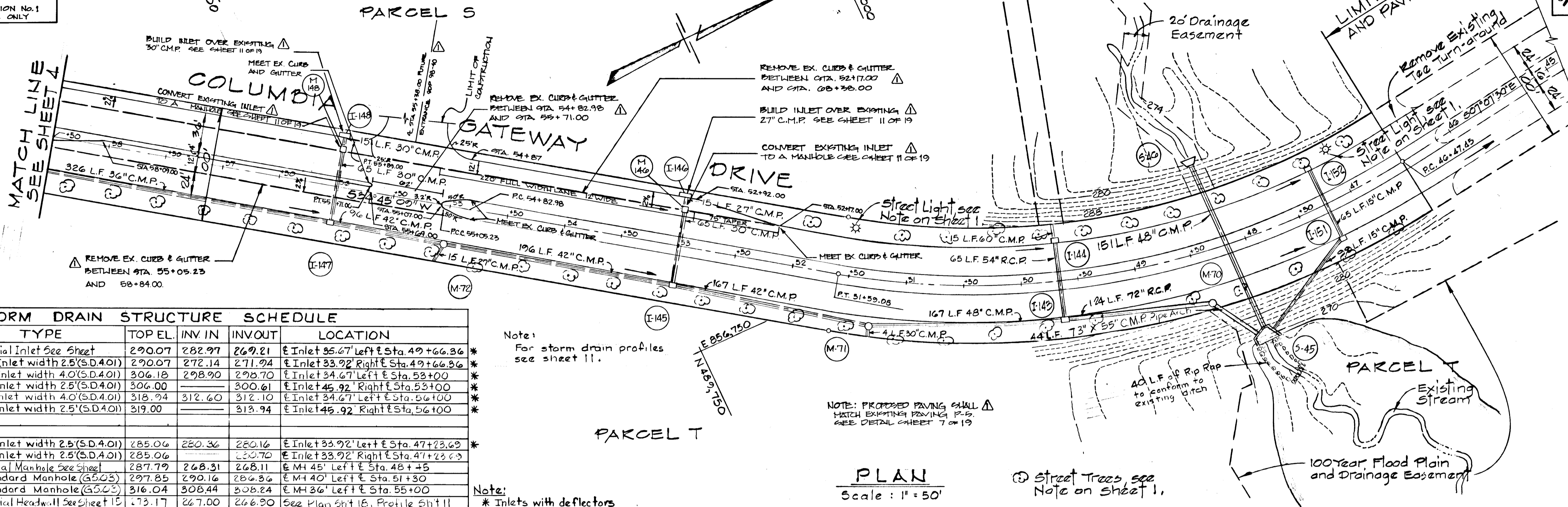
PROJECT AREA
 PARCELS S AND T
 A RESUBDIVISION OF PARCEL R

PROJECT TITLE
 PLAN AND PROFILE
 COLUMBIA GATEWAY DRIVE
 STA. 46+47.45 TO STA. 58+50

SCALE: AS SHOWN DATE:

WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

Kenneth A. McCord
 Registered Engineer
 NO. 1974



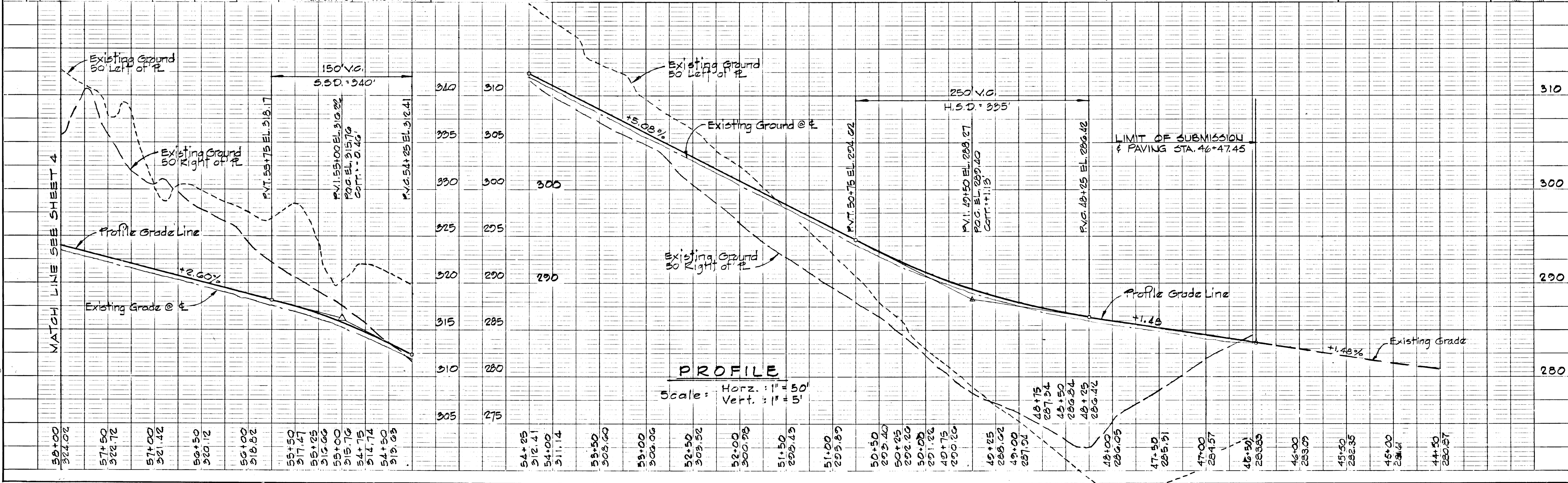
PLAN
 Scale: 1" = 50'

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP EL.	INV. IN	INV. OUT	LOCATION
I-143	Special Inlet See Sheet	290.07	282.97	269.21	€ Inlet 35.67' Left of Sta. 49+66.36 *
I-144	A-5 Inlet width 2.5'(S.D.4.0)	290.07	272.14	271.94	€ Inlet 33.92' Right of Sta. 49+66.36 *
I-145	A-5 Inlet width 4.0'(S.D.4.0)	306.18	298.90	298.70	€ Inlet 34.67' Left of Sta. 53+00 *
I-146	A-5 Inlet width 2.5'(S.D.4.0)	306.00		300.61	€ Inlet 45.92' Right of Sta. 53+00 *
I-147	A-5 Inlet width 4.0'(S.D.4.0)	318.94		312.10	€ Inlet 34.67' Left of Sta. 56+00 *
I-148	A-5 Inlet width 2.5'(S.D.4.0)	319.00		313.94	€ Inlet 45.92' Right of Sta. 56+00 *
I-151	A-5 Inlet width 2.5'(S.D.4.0)	285.06	280.36	280.16	€ Inlet 33.92' Left of Sta. 47+23.69 *
I-152	A-5 Inlet width 2.5'(S.D.4.0)	285.06		280.70	€ Inlet 33.92' Right of Sta. 47+23.69 *
M-70	Special Manhole See Sheet	287.79	268.31	268.11	€ M4 45' Left of Sta. 48+45
M-71	Standard Manhole (36" x 36")	297.85	290.16	286.36	€ M4 40' Left of Sta. 51+30
M-72	Standard Manhole (36" x 36")	316.04	308.44	308.24	€ M4 36' Left of Sta. 55+00
S-45	Special Headwall See Sheet 15	273.17	267.00	266.90	See Plan Sht 15, Profile Sht 11

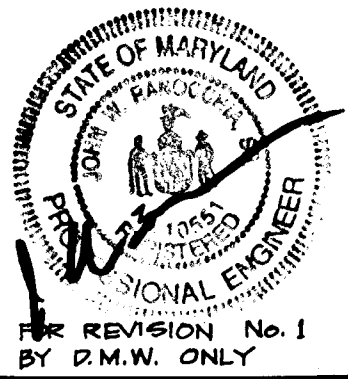
Note: For storm drain profiles see sheet 11.

Note: * Inlets with deflectors



PROFILE
 Scale: Horz. : 1" = 50'
 Vert. : 1" = 5'

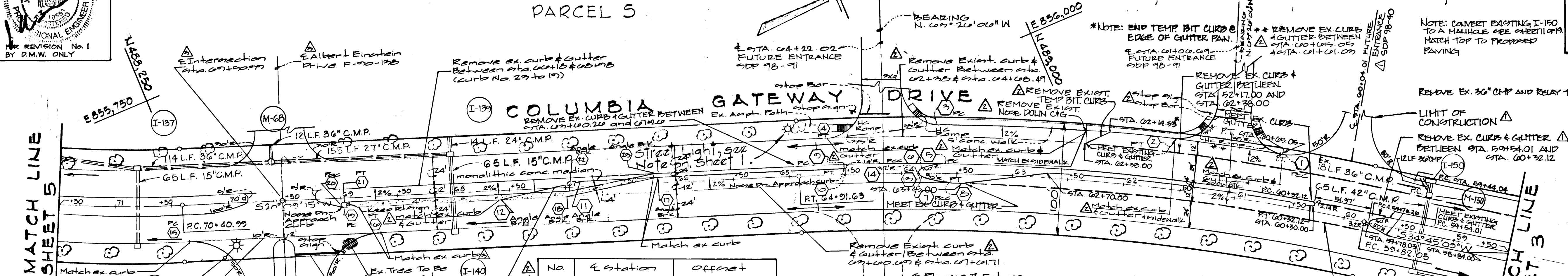
1158



5-12-87
CHIEF, BUREAU OF ENGINEERING
OFFICE OF PLANNING & ZONING
John W. Muehman
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

± CURVE DATA

PC. 70+40.99 TO P.C. 75+13.53	PC. 59+82.05 TO P.T. 64+91.63
Δ = 24°36'48"	Δ = 14°35'54"
R = 1,100.00'	R = 2,000.00'
Arc = 472.54'	Arc = 509.58'
Tan. = 239.97'	Tan. = 256.18'
Chd. = 468.92'	Chd. = 508.20'
Chd. Brq. = 532°27'39"W	Chd. Brq. = 527°27'12"W



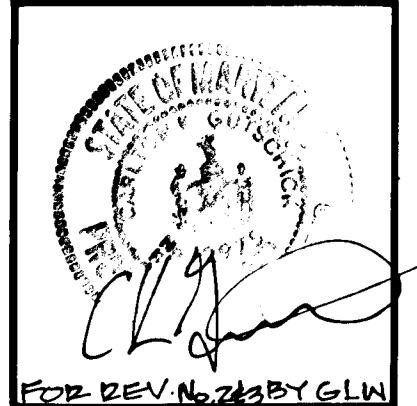
No.	± Station	Offset
1	00+05.05	Right 44.00'
2	01+01.03	Right 44.00'
3	03+05.07	Right 44.00'
4	04+03.40	Right 32.00'
5	03+00.20	Right 8.00'
6	03+82.52	Right 2.80'
7	03+82.52	Left 2.80'
8	03+00.00	Left 8.00'
9	04+48.32	Left 8.00'
10	04+48.32	Right 4.00'
11	00+80.71	Right 4.00'
12	07+01.71	Left 8.00'

No.	± Station	Offset
13	03+04.32	0'
14	04+40.32	Right 0.00'

STORM DRAIN STRUCTURE SCHEDULE

NO	TYPE	TOP EL.	INV. IN	INV. OUT	LOCATION
I-137	A-5 Inlet width 3.5'(S.D.4.0)	328.33	321.80	321.60	± Inlet 34.42' Right ± Sta. 70+80
I-138	A-5 Inlet width 2.5'(S.D.4.0)	328.33	323.89	323.89	± Inlet 33.92' Left ± Sta. 70+80
I-139	A-5 Inlet width 3.0'(S.D.4.0)	333.22	327.41	327.41	± Inlet 34.11' Right ± Sta. 68+00
I-140	A-5 Inlet width 2.5'(S.D.4.0)	333.22	328.87	328.87	± Inlet 33.92' Left ± Sta. 68+00
M-68	Standard Manhole (65.02)	331.40	324.56	323.82	± MH 36' Right ± Sta. 69+50
I-143	A-10 Inlet width 3.8'(S.D.4.02)	327.92	320.10	319.36	± Inlet 34.42' Left ± Sta. 59+50
I-150	A-10 Inlet width 2.5'(S.D.4.02)	327.70	321.07	321.07	± Inlet 45.92' Right ± Sta. 59+50

PLAN Scale: 1" = 50'



NOTE: REVISIONS MADE 3.22.80 & 3.4.80 INDICATED ON THESE PLANS ARE BY: GUTCHICK, LITTLE & WEBER, P.A. 3909 NATIONAL DRIVE SUITE 250 BURTONTOWN, MD. 20806

REV. DATE REV. NO. REVISION DESCRIPTION

02-03-88	1	Add Left Turn Pocket & Entrance
02-03-88	2	ADD DECLARATION LINES & ADJUSTED I-150
02-03-88	3	REVISIONS BY P.M.W.
02-03-88	4	ADD WIDENING & L.T. PACKET
02-03-88	5	REVISIONS BY G.L.H.

COLUMBIA GATEWAY 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY

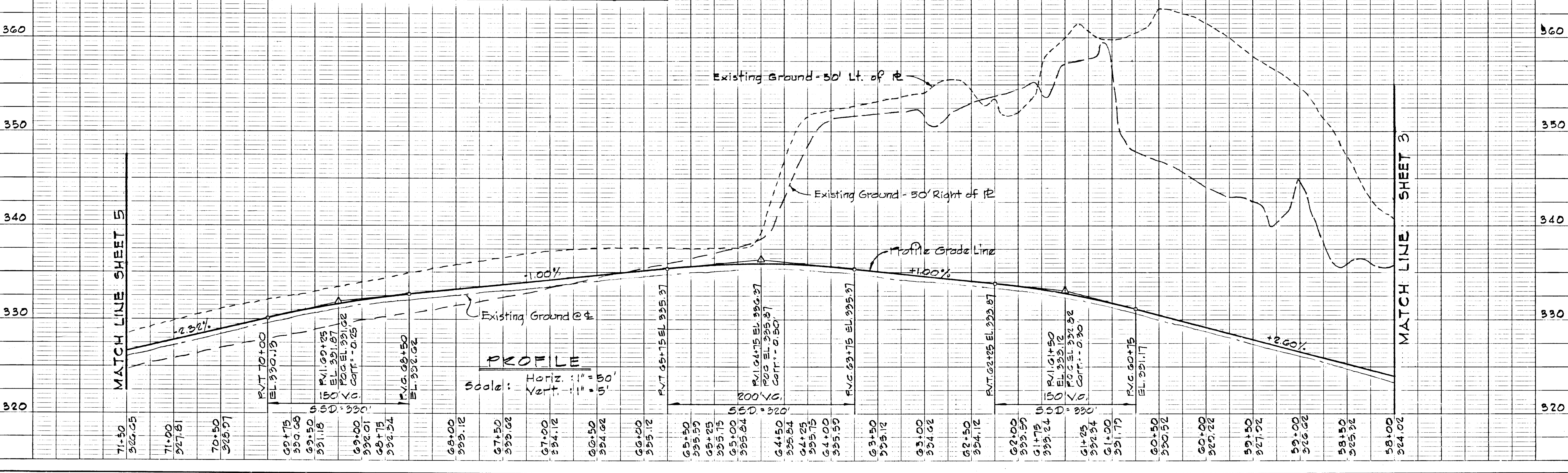
PROJECT AREA
PARCELS S AND T
A RESUBDIVISION OF PARCEL R

PROJECT TITLE
PLAN AND PROFILE
COLUMBIA GATEWAY DRIVE
STA. 58+50 TO STA. 71+50

SCALE: AS SHOWN DATE:

WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS
BALTIMORE, MARYLAND 21218

Kenneth A. McCord
Registered Engineer
NO. 1974

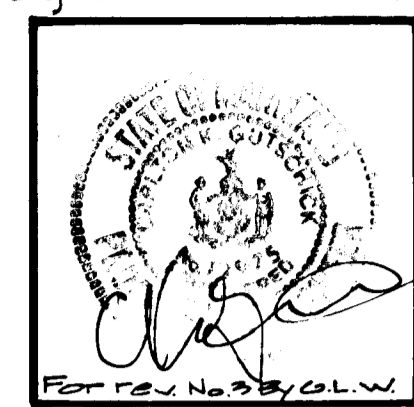


1158

5-15-87
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING & ZONING
 JOHN M. MURPHY
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

STORM DRAIN STRUCTURE SCHEDULE					
NO.	TYPE	TOP EL.	INV. IN	INV. OUT	LOCATION
I-131	A-10 Inlet width 40'(S.D.4.02)	313.75	304.29	304.09	± Inlet 34.67' Left of Sta 81+25
I-132	A-5 Inlet width 40'(S.D.4.01)	313.75	305.32	304.53	± Inlet 34.67' Right of Sta 81+25
I-133	A-5 Inlet width 40'(S.D.4.01)	317.92	308.11	307.91	± Inlet 34.92' Left of Sta 74+70
I-134	A-5 Inlet width 40'(S.D.4.01)	317.92	310.66	308.66	± Inlet 34.92' Right of Sta 74+70
I-135	A-5 Inlet width 40'(S.D.4.01)	321.06	314.74	314.24	± Inlet 34.92' Right of Sta 74+00
I-136	A-5 Inlet width 40'(S.D.4.01)	321.06	314.74	316.84	± Inlet 33.92' Left of Sta 83+46
I-141	Type "D" Inlet 2.5'x3.0'(S.D.4.11)	311.83		306.37	± Inlet 75.0' Right of Sta 83+46
M-61	Standard Manhole (6.5.03)	315.68	303.54	303.84	± Manhole 46.0' Left of Sta 79+50

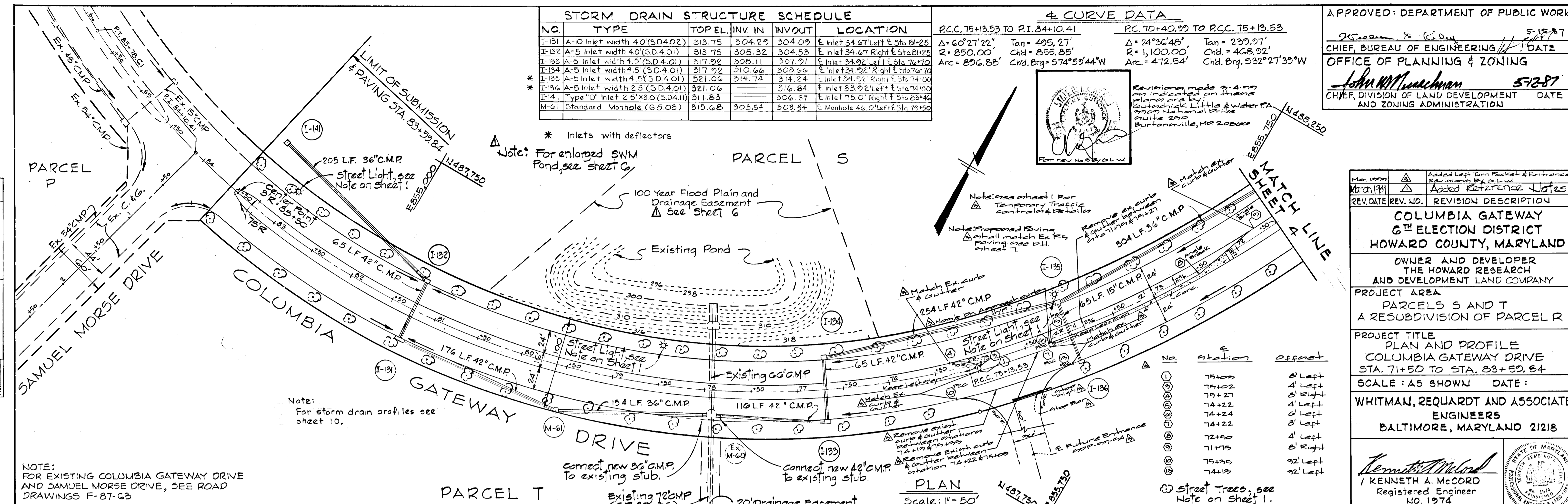
± CURVE DATA	
P.C.C. 75+13.53 TO P.T. 84+10.41	P.C. 70+40.99 TO P.C.C. 75+13.53
Δ = 60°27'22"	Δ = 24°36'48"
R = 850.00'	R = 1,100.00'
Tan = 495.27'	Tan = 239.97'
Chd = 855.85'	Chd = 468.92'
Arc = 896.88'	Arc = 472.54'
Cwd. Brq = 574°59'44"W	Cwd. Brq = 532°27'39"W



Revisions made 5-4-87 as indicated on these plans are by Little & Water PA 2000 National Drive Suite 2100 Burtonsville, MD 20886

* Inlets with deflectors

Note: For enlarged SWM Pond, see sheet G



PLAN Scale: 1" = 50'

REV. DATE	REV. NO.	REVISION DESCRIPTION
Mar. 1979	1	Added Left Turn Pocket & Entrance
Mar. 1981	2	Added Reference Notes

**COLUMBIA GATEWAY
 6TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND**

OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY

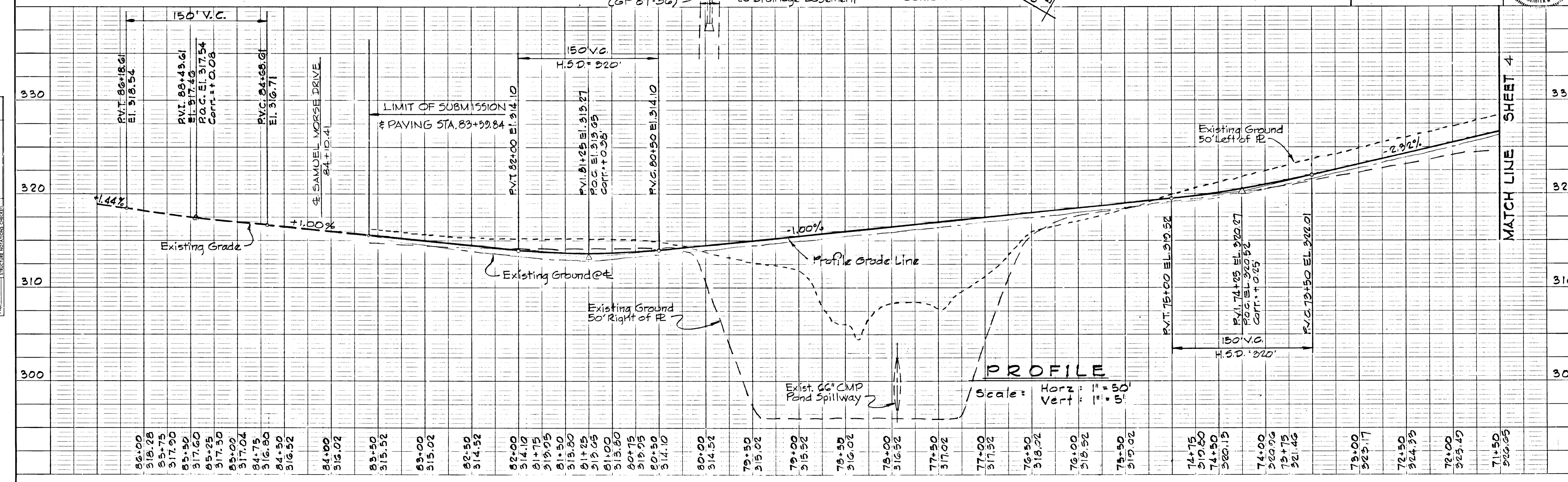
PROJECT AREA
 PARCELS S AND T
 A RESUBDIVISION OF PARCEL R

PROJECT TITLE
 PLAN AND PROFILE
 COLUMBIA GATEWAY DRIVE
 STA. 71+50 TO STA. 83+52.84

SCALE: AS SHOWN DATE:

**WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218**

Kenneth A. McCord
 Registered Engineer
 NO. 1974



PROFILE Scale: Horz: 1" = 50' Vert: 1" = 5'

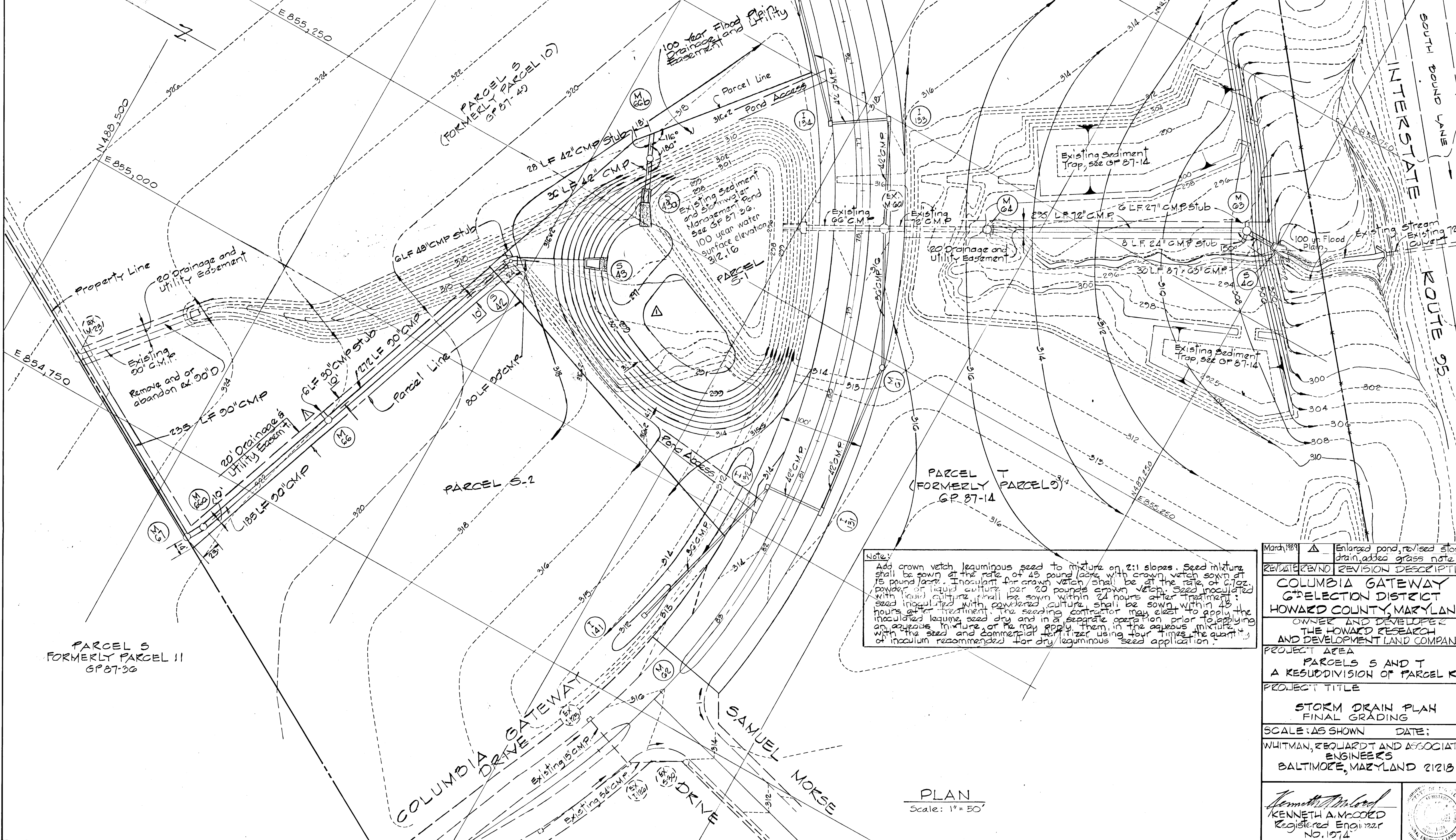
1158

STORM DRAIN STRUCTURE SCHEDULE

W. C. & Co. S-15-87
 CHIEF, BUREAU OF ENGINEERING DATE
 OFFICE OF PLANNING AND ZONING
 John W. Muehman 5-12-87
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

NO.	TYPE	TOPEL.	INV. IN	INV. OUT	LOCATION
M-02	Bend Structure See Sht. 13	306.50	227.37	227.18	See Plan and Profile
M-04	Standard Manhole 65.00	315.40	229.04	229.84	See Plan and Profile
M-06	Special Manhole Sheet 13	222.00	309.40	309.20	See Plan and Profile
M-07	Special Manhole Sheet 13	222.80	311.10	311.00	See Plan and Profile
S-40	Special Structure See Sht. 13	225.75	227.00	227.00	See Plan and Profile
S-41	Bend Structure See Sht. 12	313.20	229.88	229.68	See Plan and Profile
S-43	Special Structure See Sht. 12	308.20	229.20	229.10	See Plan and Profile
M-08	Special Manhole Sheet 13	222.50	310.76	310.56	See Plan and Profile
M-09	Standard Manhole 65.00	316.40	309.33	229.33	See Plan and Profile
S-44	Standard Headwall 50.54	304.70	229.20	229.10	See Plan and Profile

* On standard Detail G 503 use dimension for 42" circular pipe
 Note: For storm drain profiles, see sheets 7 & 10.



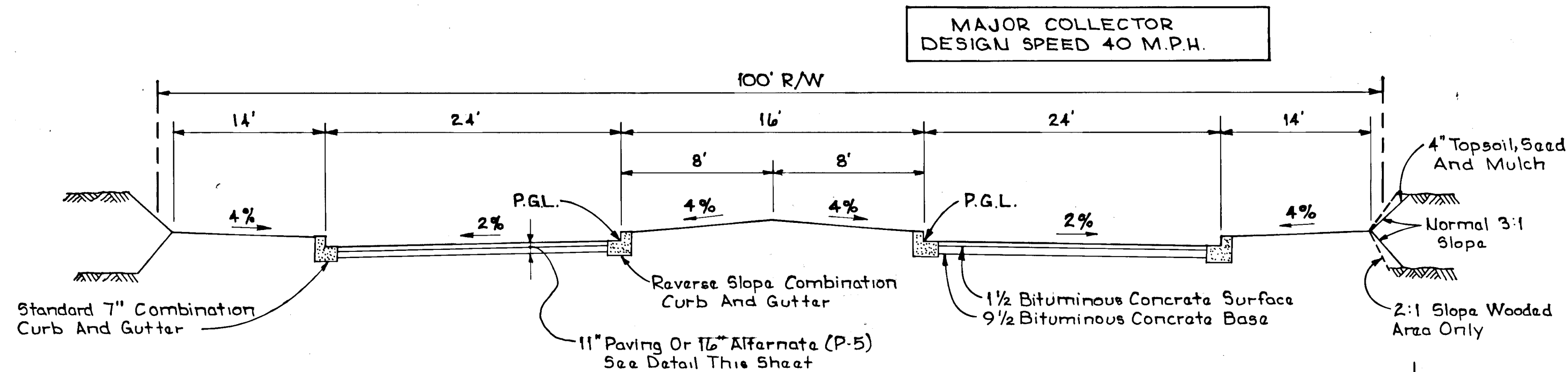
Note:
 Add crown vetch leguminous seed to mixture on 2:1 slopes. Seed mixture shall be sown at the rate of 45 pound acre, with crown vetch sown at 15 pound acre. Inoculant for crown vetch shall be at the rate of 2.0oz. powder or liquid culture per 20 pounds crown vetch. Seed inoculated with liquid culture shall be sown within 24 hours after treatment; seed inoculated with powdered culture shall be sown within 48 hours after treatment. The seeding contractor may elect to apply the inoculated legume seed dry and in a separate operation prior to applying an aqueous mixture, or he may apply them in the aqueous mixture with the seed and commercial fertilizer using four times the quantity of inoculum recommended for dry leguminous seed application.

March, 1989	△	Enlarged pond, revised storm drain, added grass note.
REVISION NO.	REVISION DESCRIPTION	
COLUMBIA GATEWAY 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA PARCELS S AND T A RESUBDIVISION OF PARCEL K		
PROJECT TITLE STORM DRAIN PLAN FINAL GRADING		
SCALE: AS SHOWN DATE:		
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
Kenneth A. McLeod Registered Engineer No. 1974		

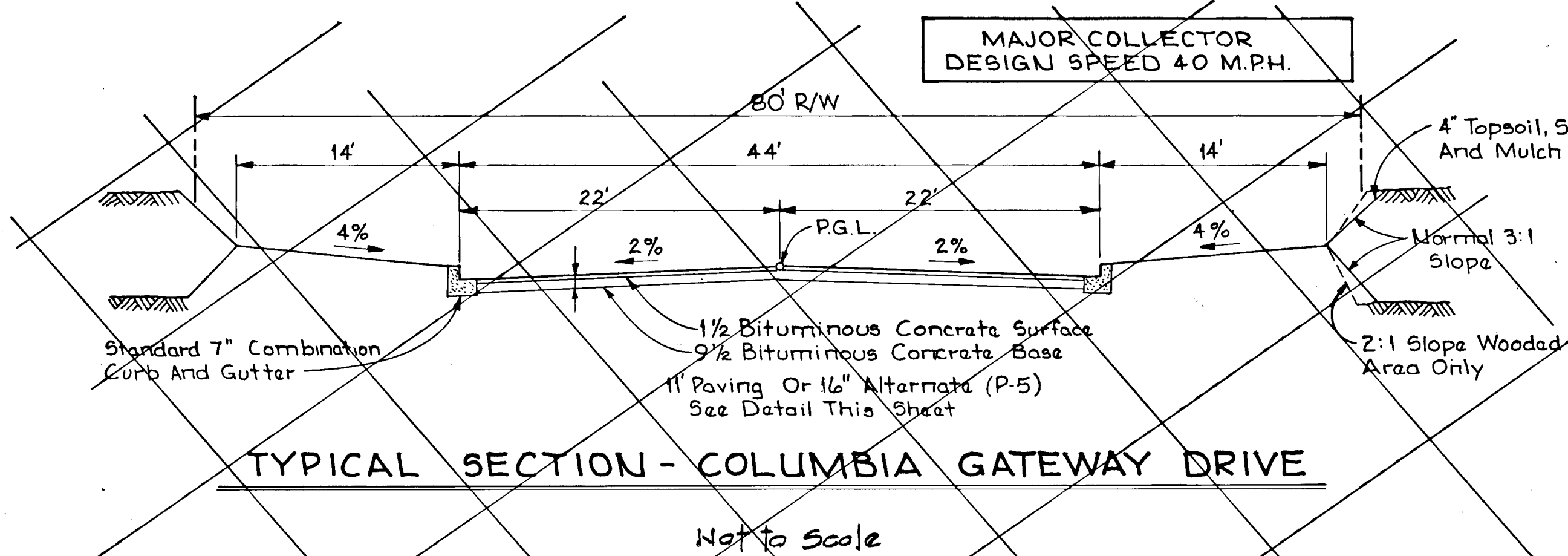
PLAN
 Scale: 1" = 50'

1158

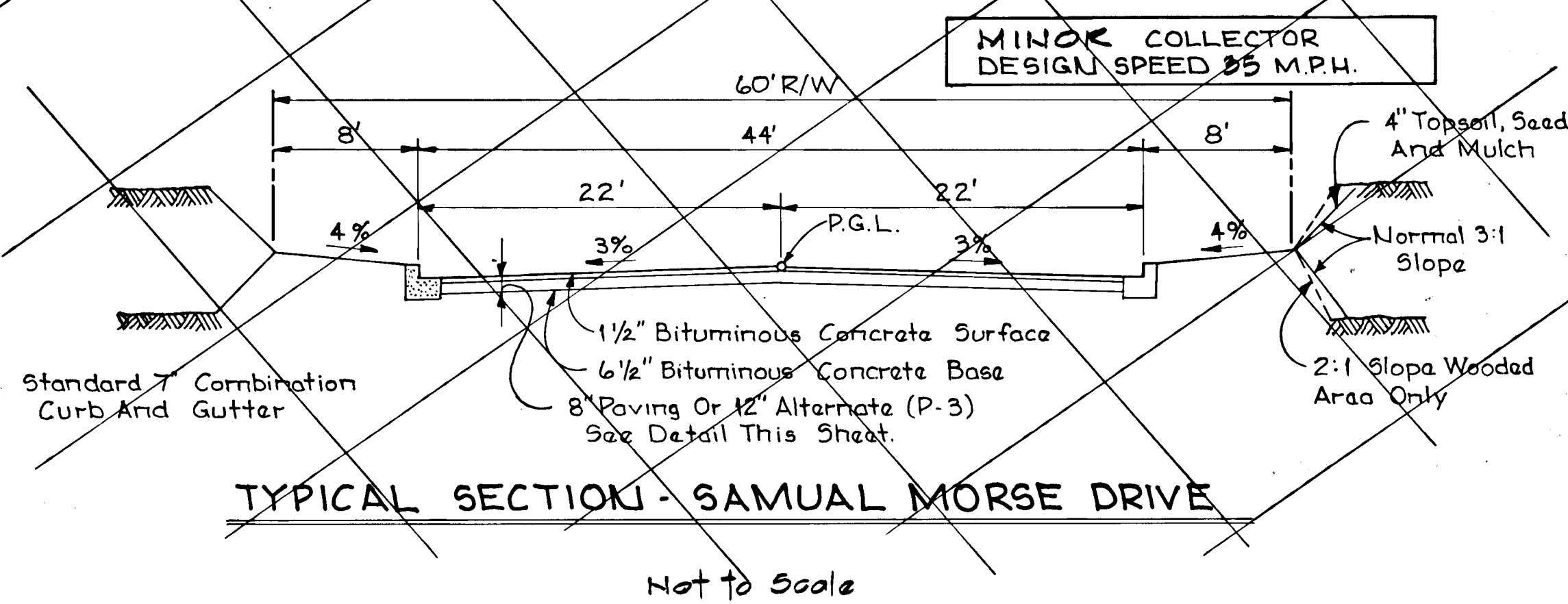
APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF ENGINEERING 5-15-87
 OFFICE OF PLANNING & ZONING
 JOHN M. MARCHIANI 5-12-87
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



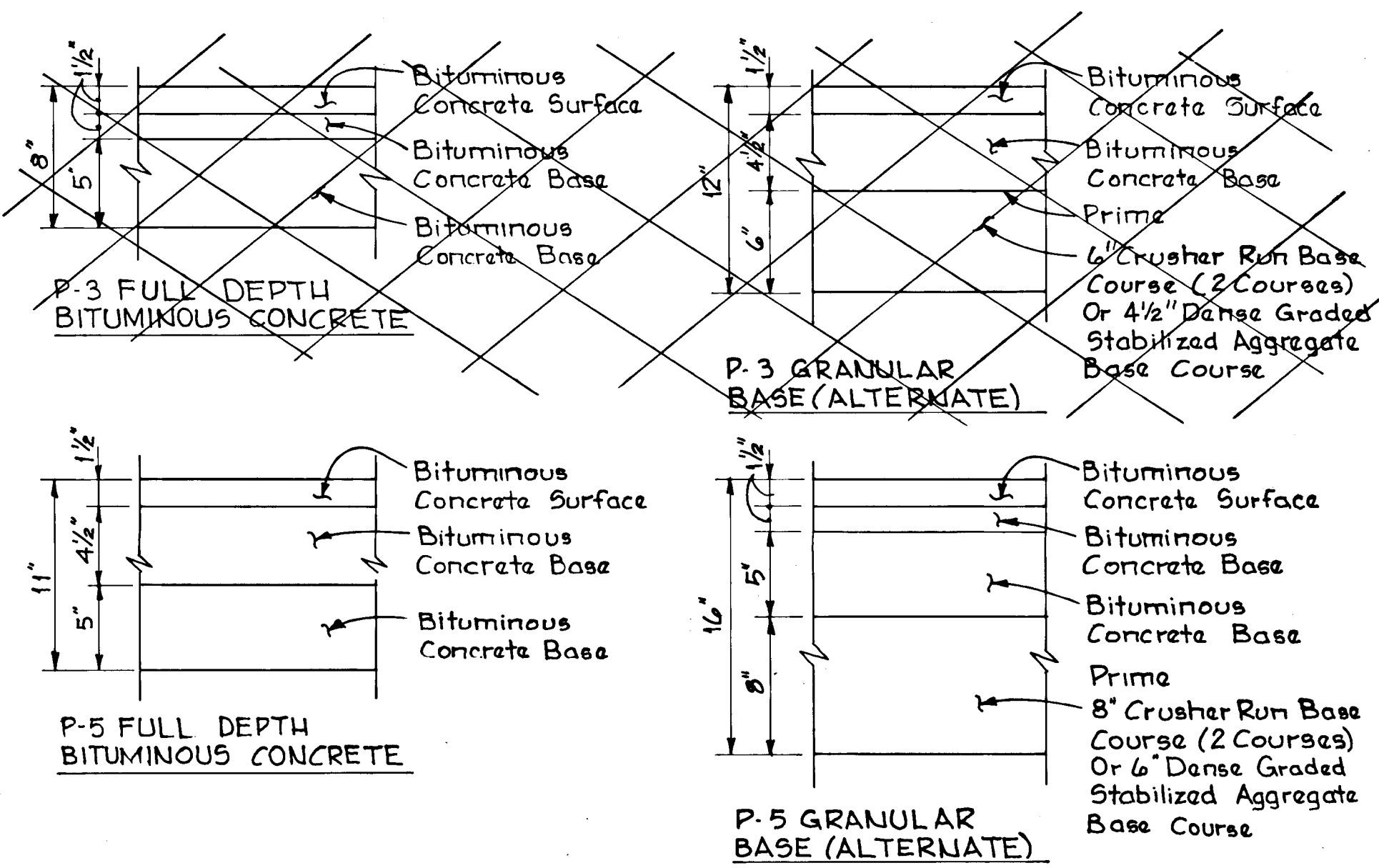
TYPICAL SECTION - COLUMBIA GATEWAY DRIVE
 STATION 46+47.45 TO STATION 83+59.84
 Not to Scale



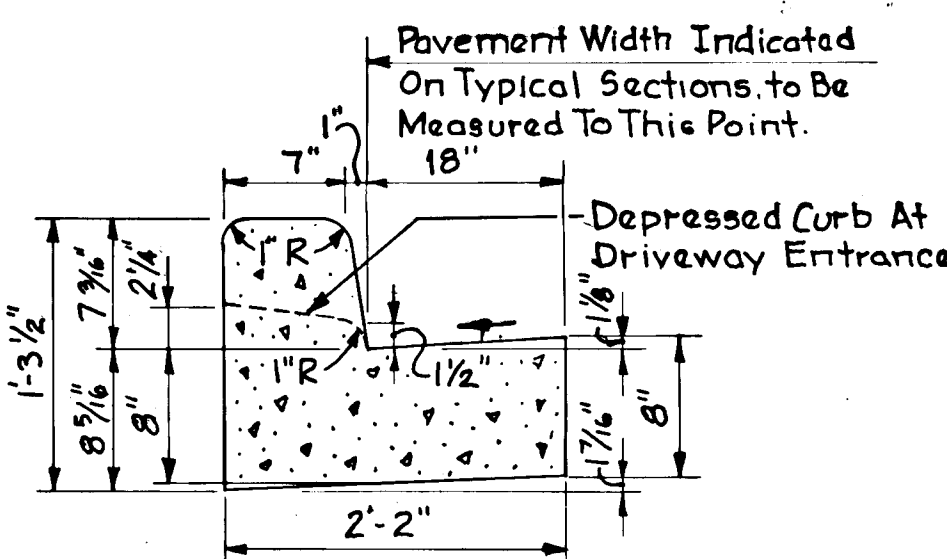
TYPICAL SECTION - COLUMBIA GATEWAY DRIVE
 Not to Scale



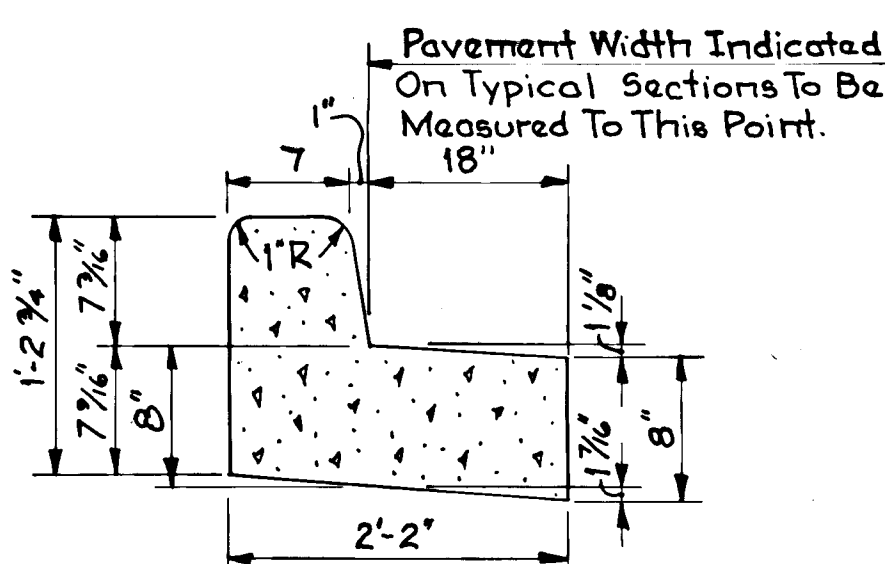
TYPICAL SECTION - SAMUAL MORSE DRIVE
 Not to Scale



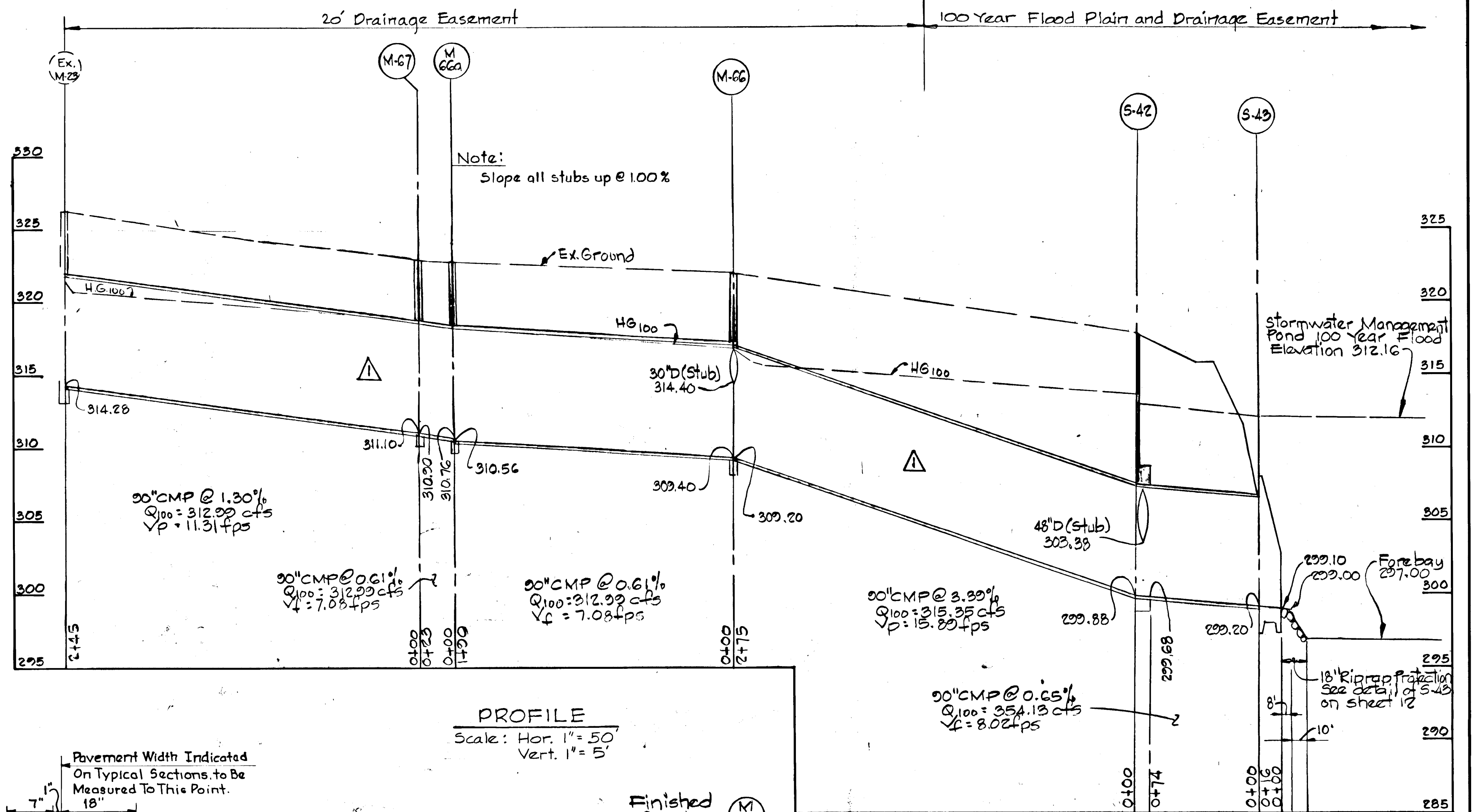
TYPICAL PAVING SECTIONS
 Not to Scale



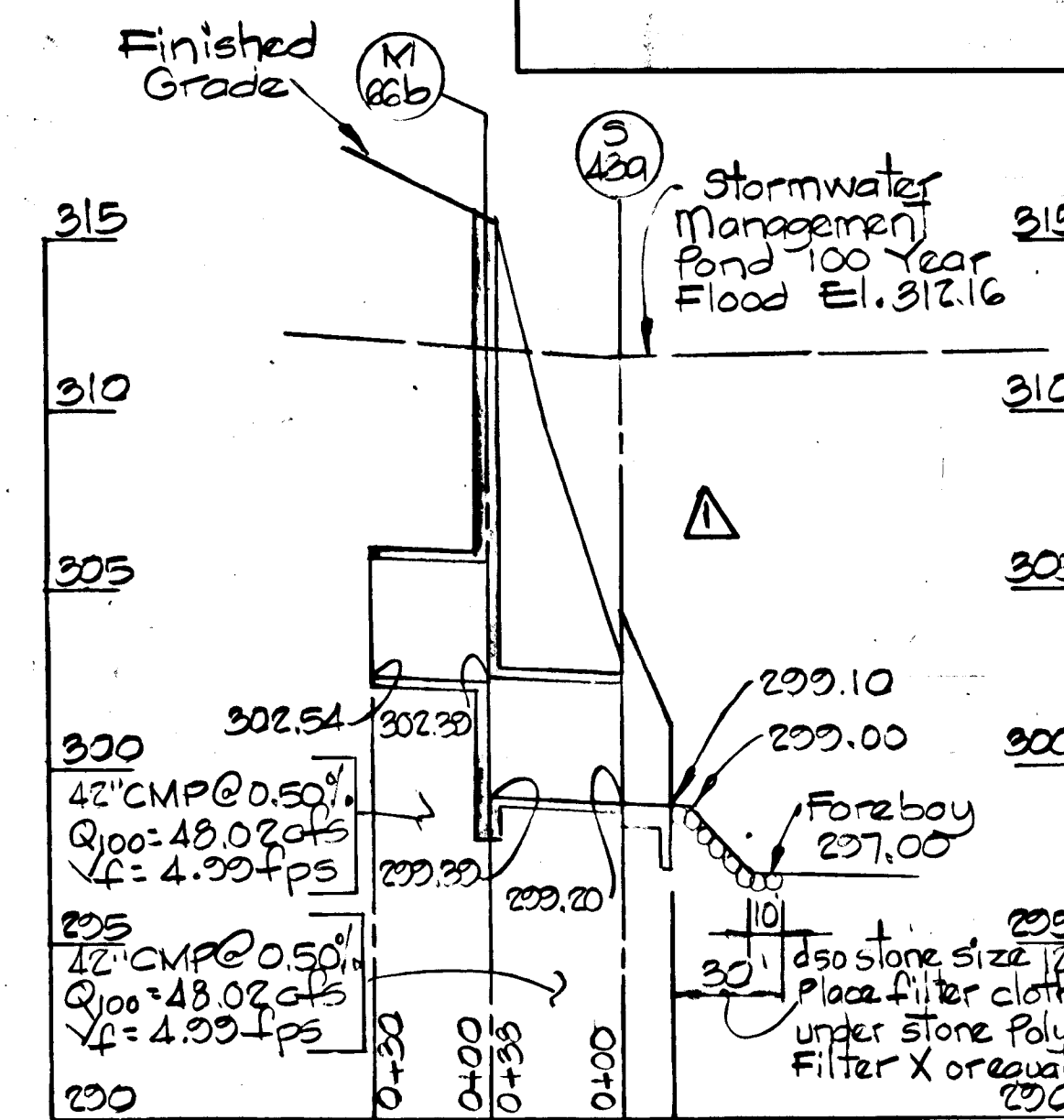
STANDARD 7" COMBINATION CURB AND GUTTER
 Not to Scale



REVERSE 7" COMBINATION CURB AND GUTTER
 Not to Scale



PROFILE
 Scale: Hor. 1" = 50'
 Vert. 1" = 5'



REV. DATE	REV. NO.	REVISION DESCRIPTION
March 2000	1	Revised Storm Drain Profiles

COLUMBIA GATEWAY 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

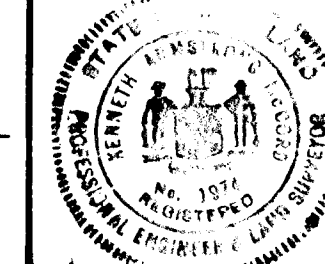
OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY

PROJECT AREA
 PARCELS S AND T
 A RESUBDIVISION OF PARCEL R

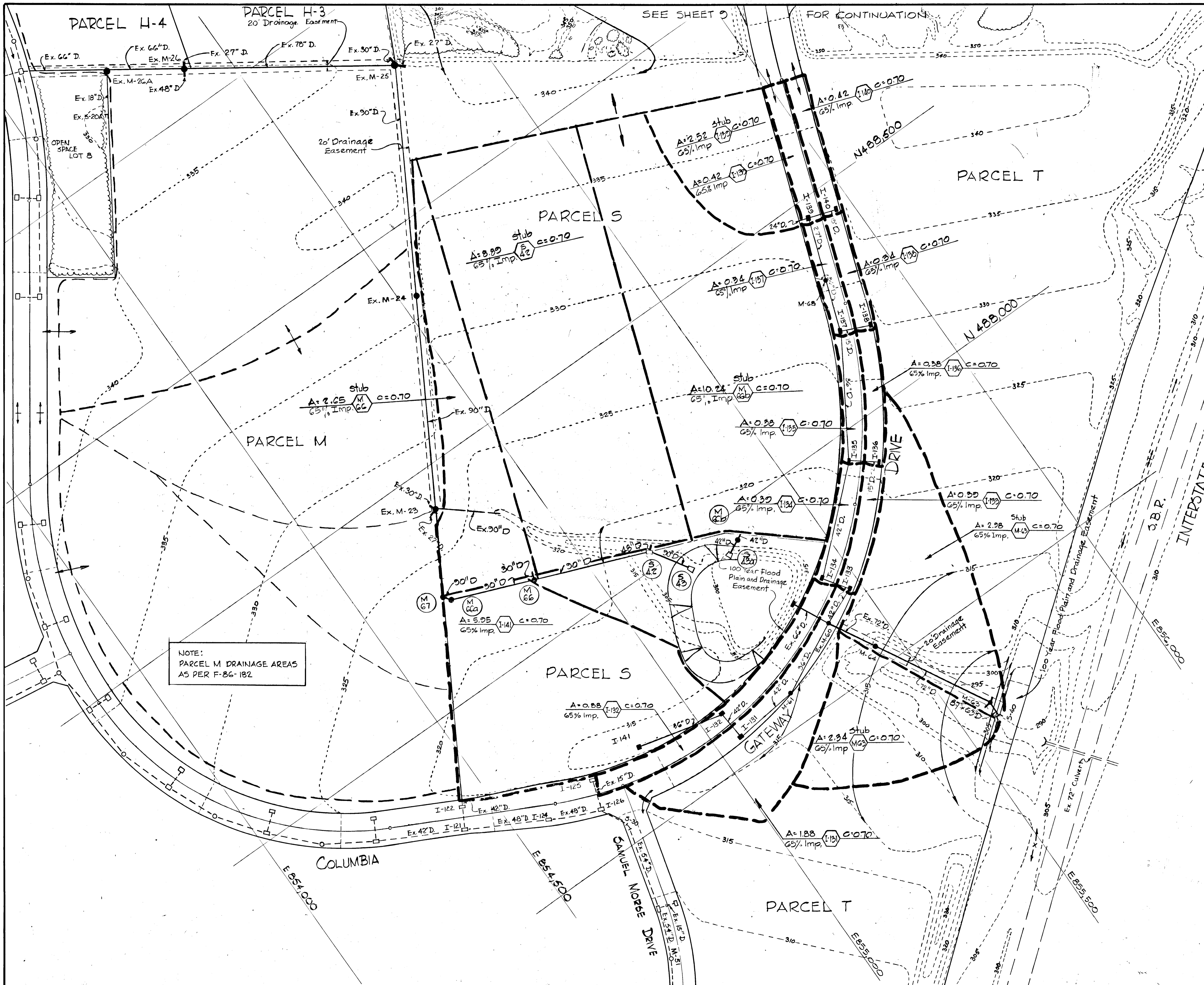
PROJECT TITLE
 ROADWAY DETAILS
 STORM DRAIN PROFILE

SCALE: As Shown DATE:
 WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS
 BALTIMORE, MARYLAND 21218

Kenneth A. McCord
 Registered Engineer
 NO. 1974



APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF ENGINEERING 5-15-87
 OFFICE OF PLANNING & ZONING
 John W. Muehlen DATE 5-12-87
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



NOTE:
 PARCEL M DRAINAGE AREAS
 AS PER F-86-182

REV. DATE	REV. NO.	REVISION DESCRIPTION
March 1987	Δ	Revised Drainage Area Map
COLUMBIA GATEWAY 6 th ELECTION DISTRICT HOWARD COUNTY, MARYLAND OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA PARCELS S AND T A RESUBDIVISION OF PARCEL R		
PROJECT TITLE DRAINAGE AREA MAP		
SCALE: 1" = 100'		DATE:
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
Kenneth A. McCord Registered Engineer No. 1974		

1158

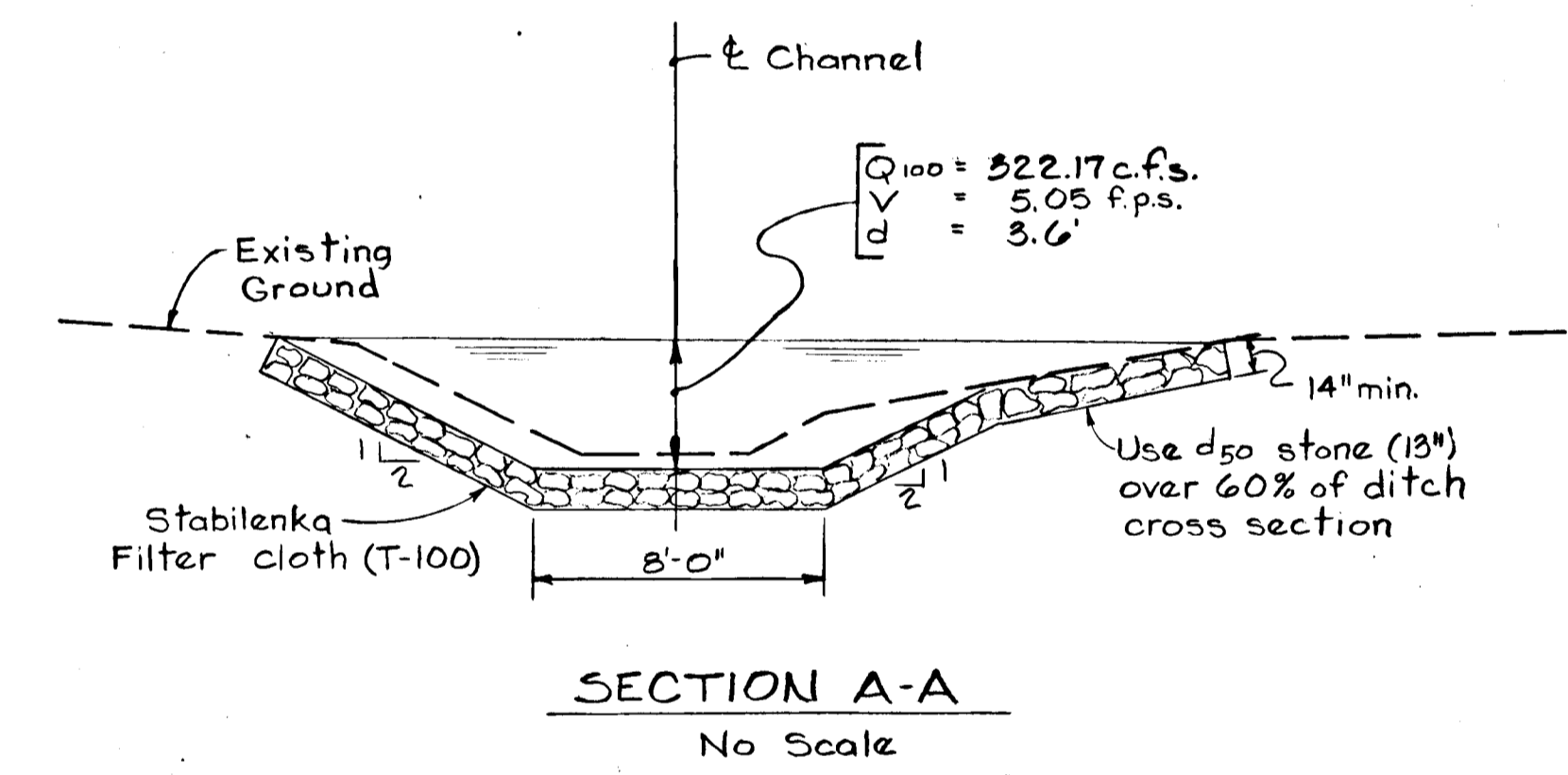
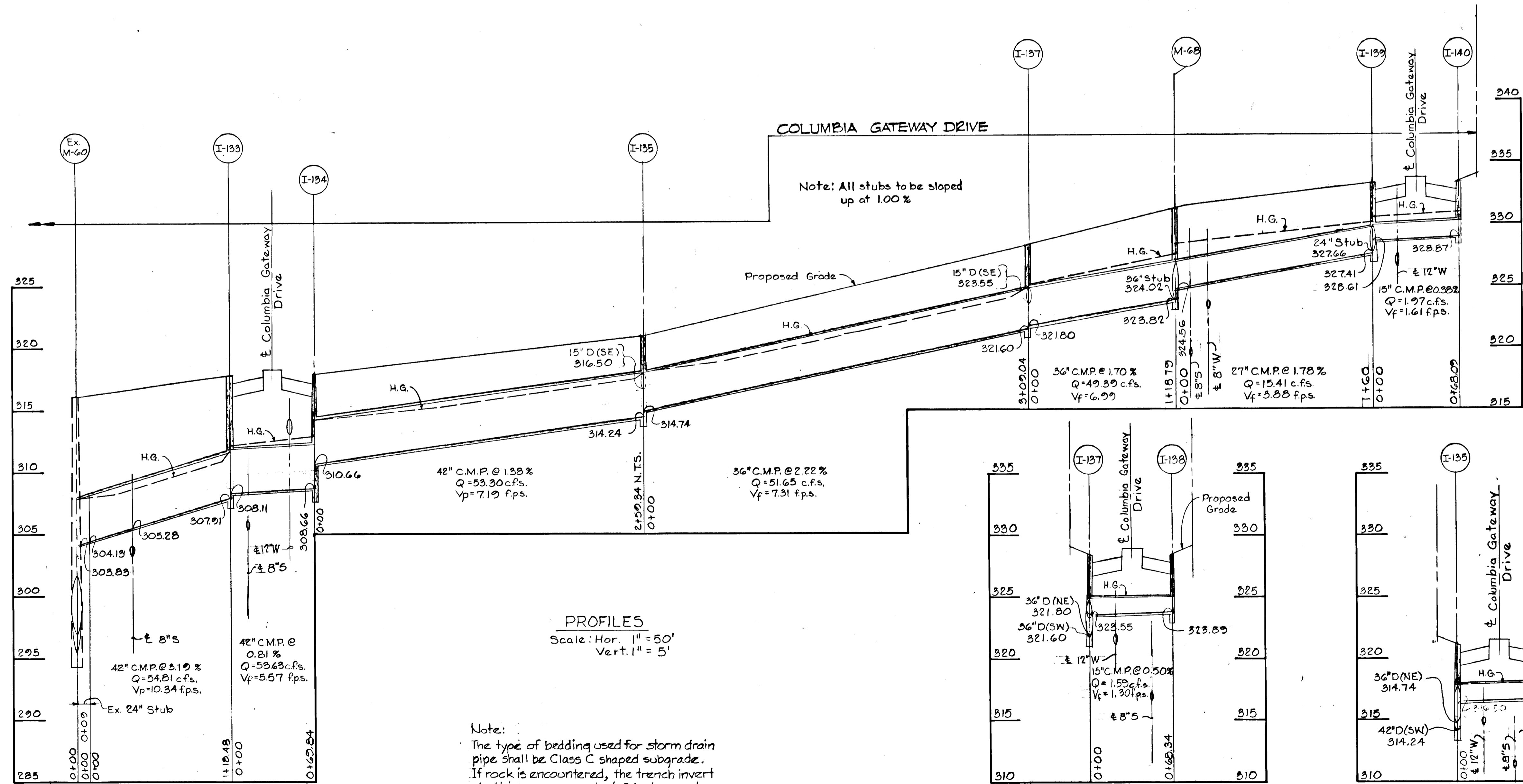
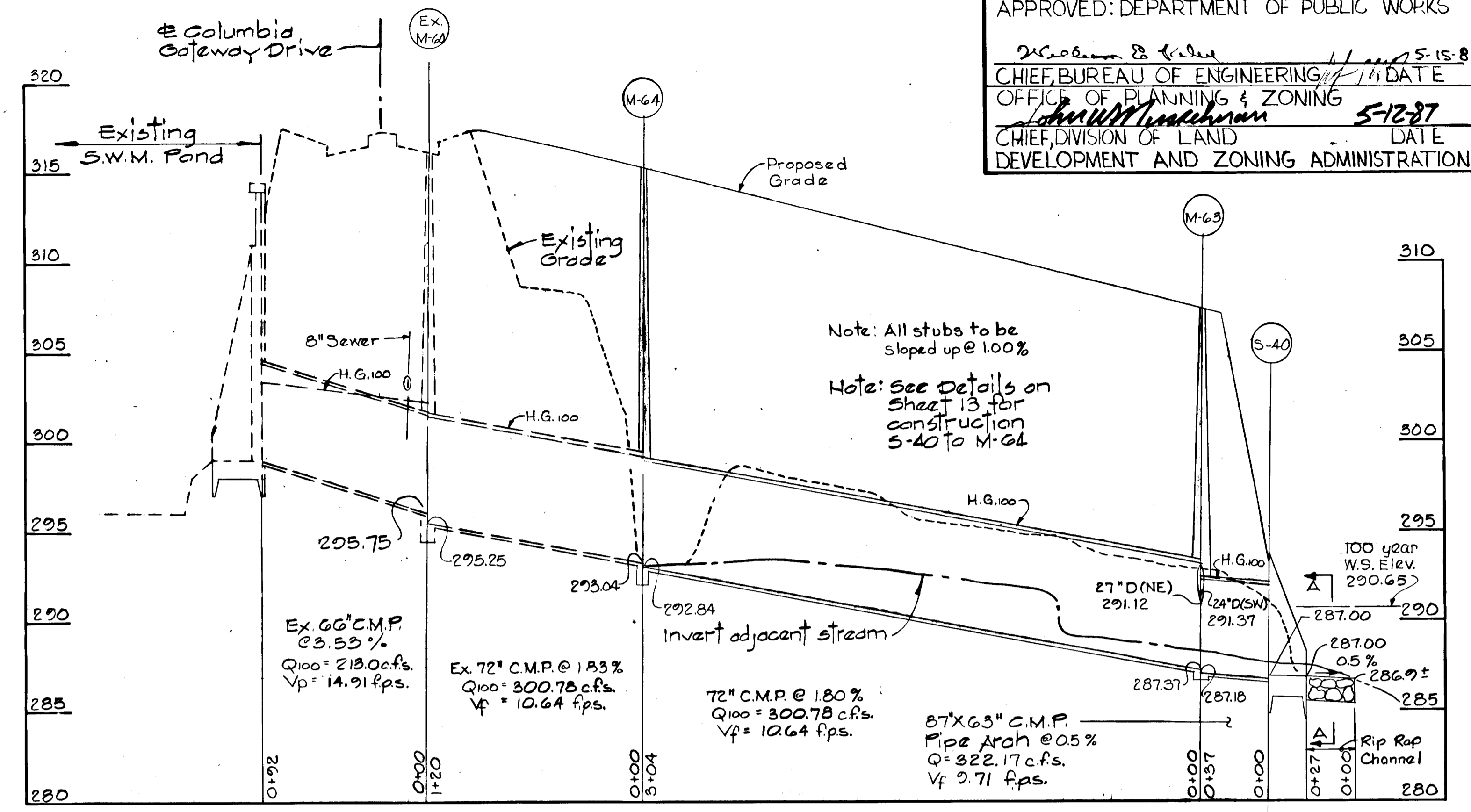
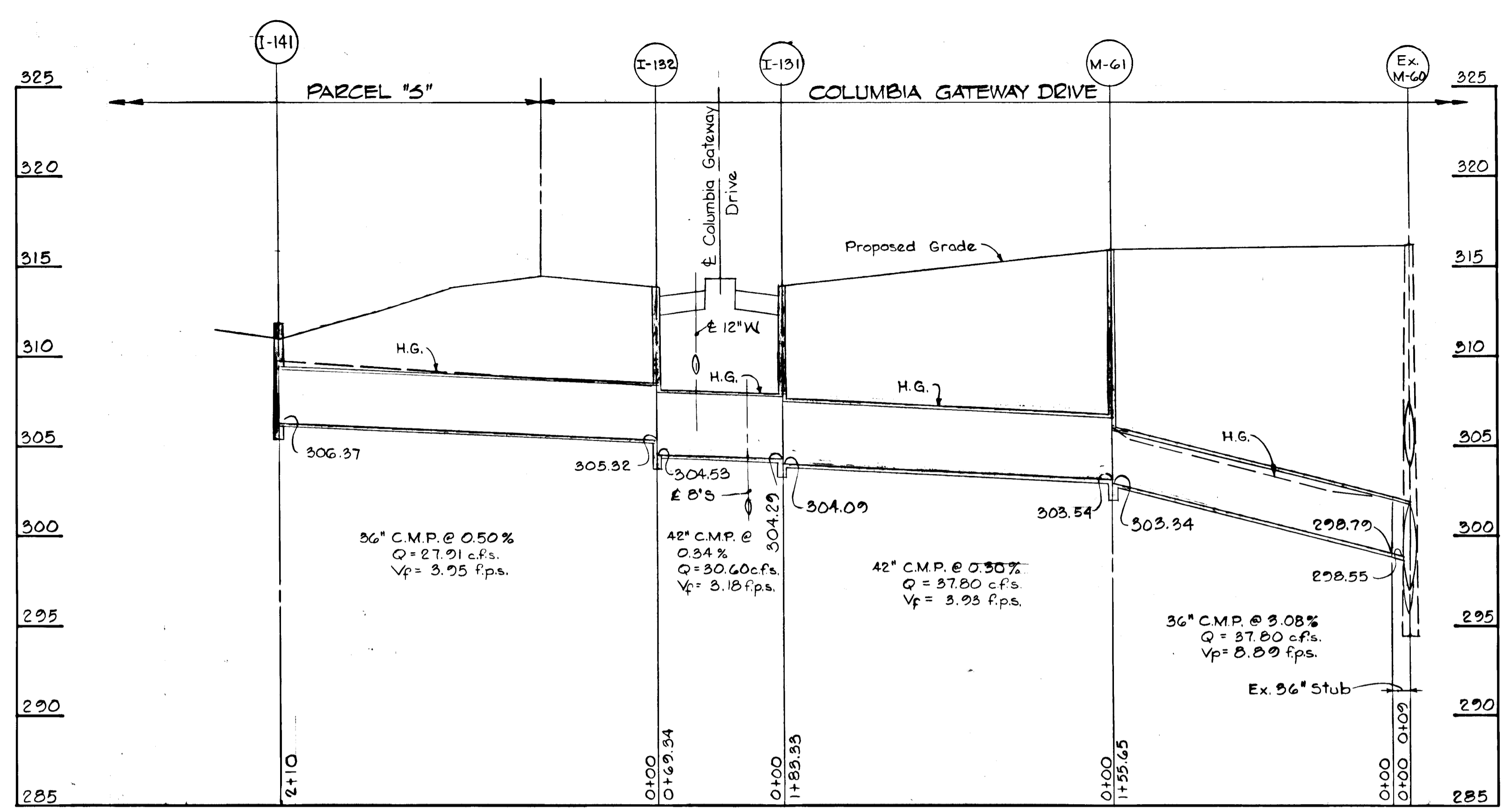


REV	DATE	REV NO	REVISION	DESCRIPTION
				COLUMBIA GATEWAY 6 th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
				OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
				PROJECT AREA PARCELS S AND T A RESUBDIVISION OF PARCEL R
				PROJECT TITLE DRAINAGE AREA MAP
				SCALE: 1"=100' DATE:
				WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS
				BALTIMORE, MARYLAND 21218
				Kenneth A. McCord Registered Engineer No. 1974

1158

SEE SHEET 8

FOR CONTINUATION



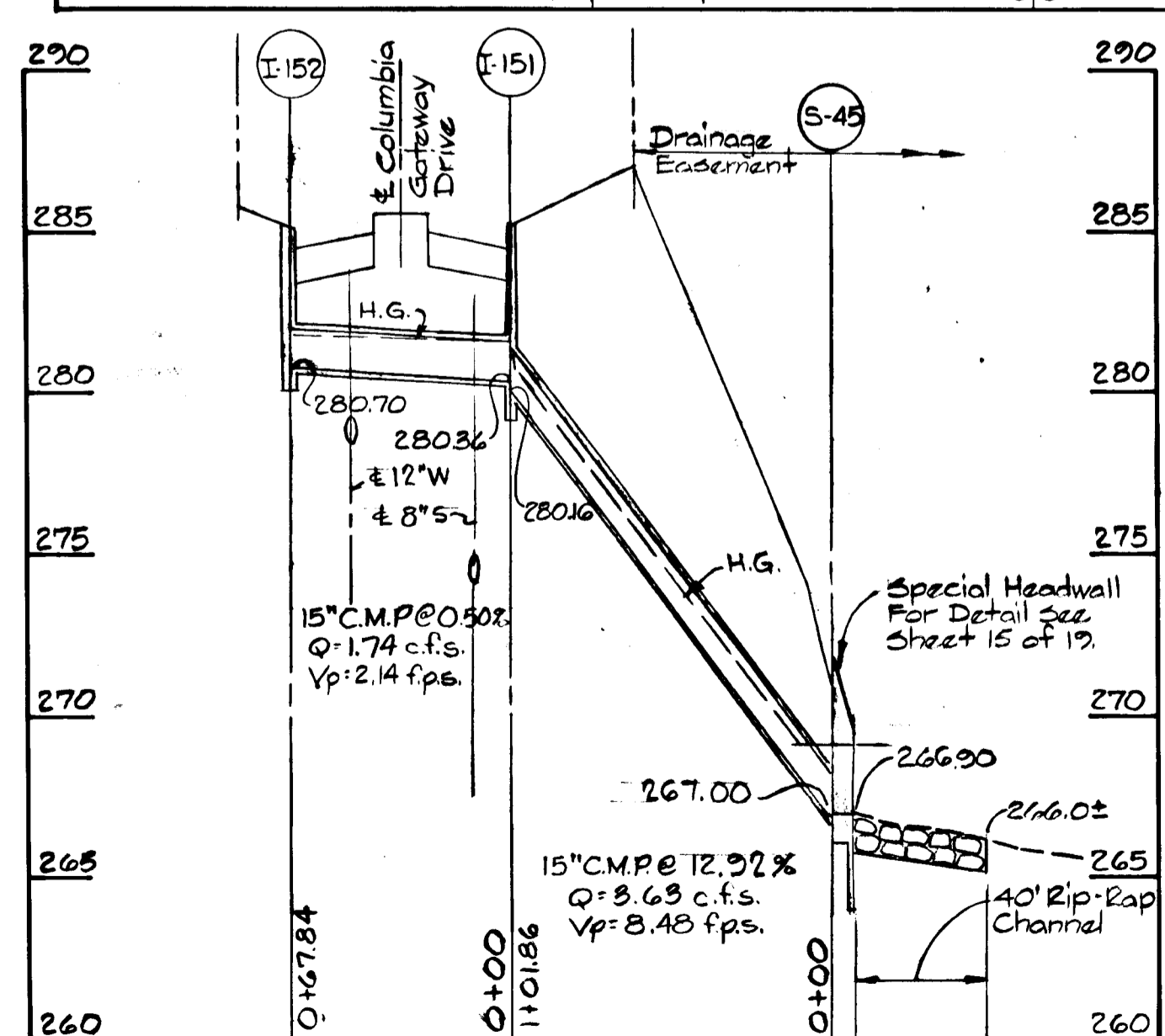
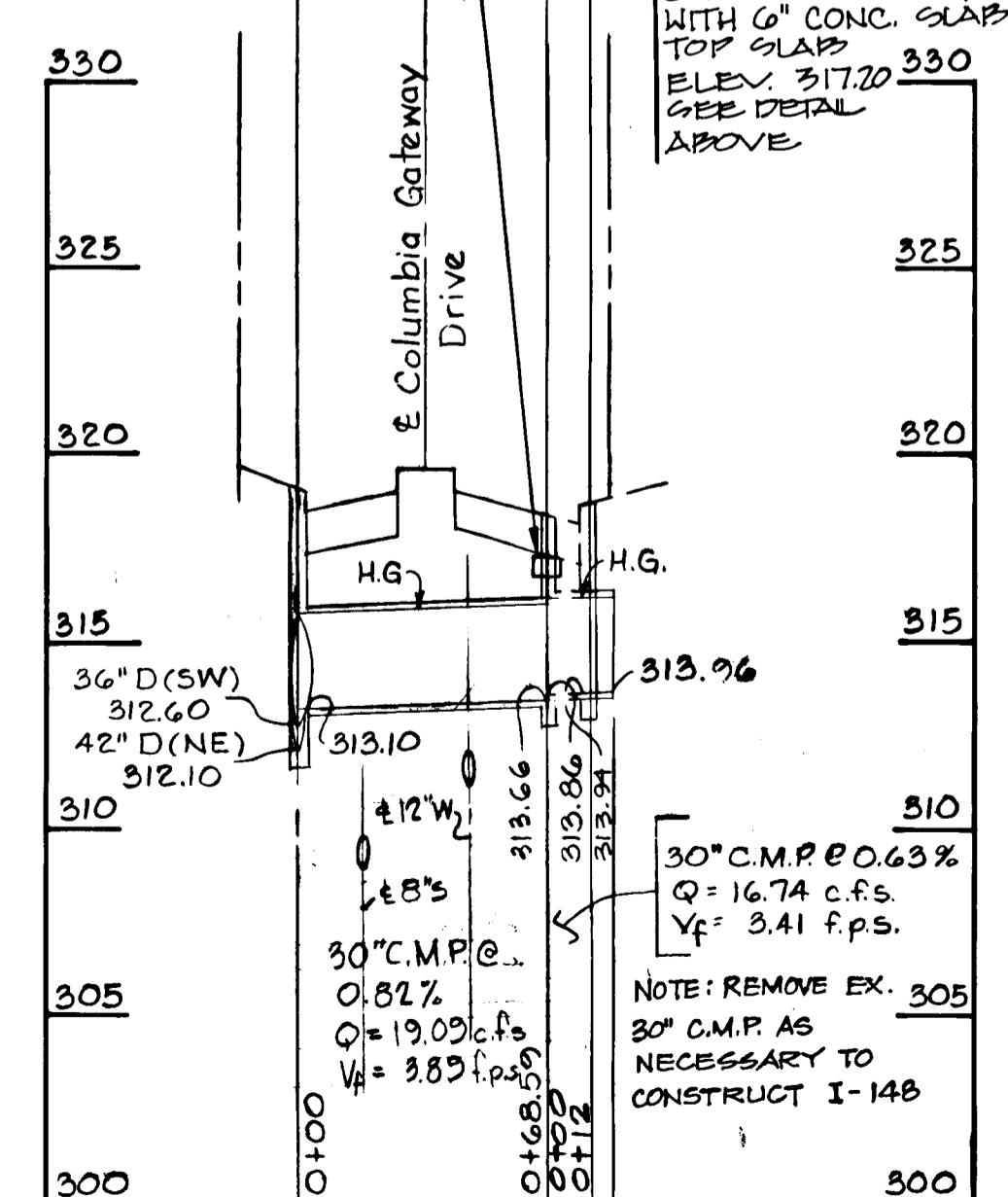
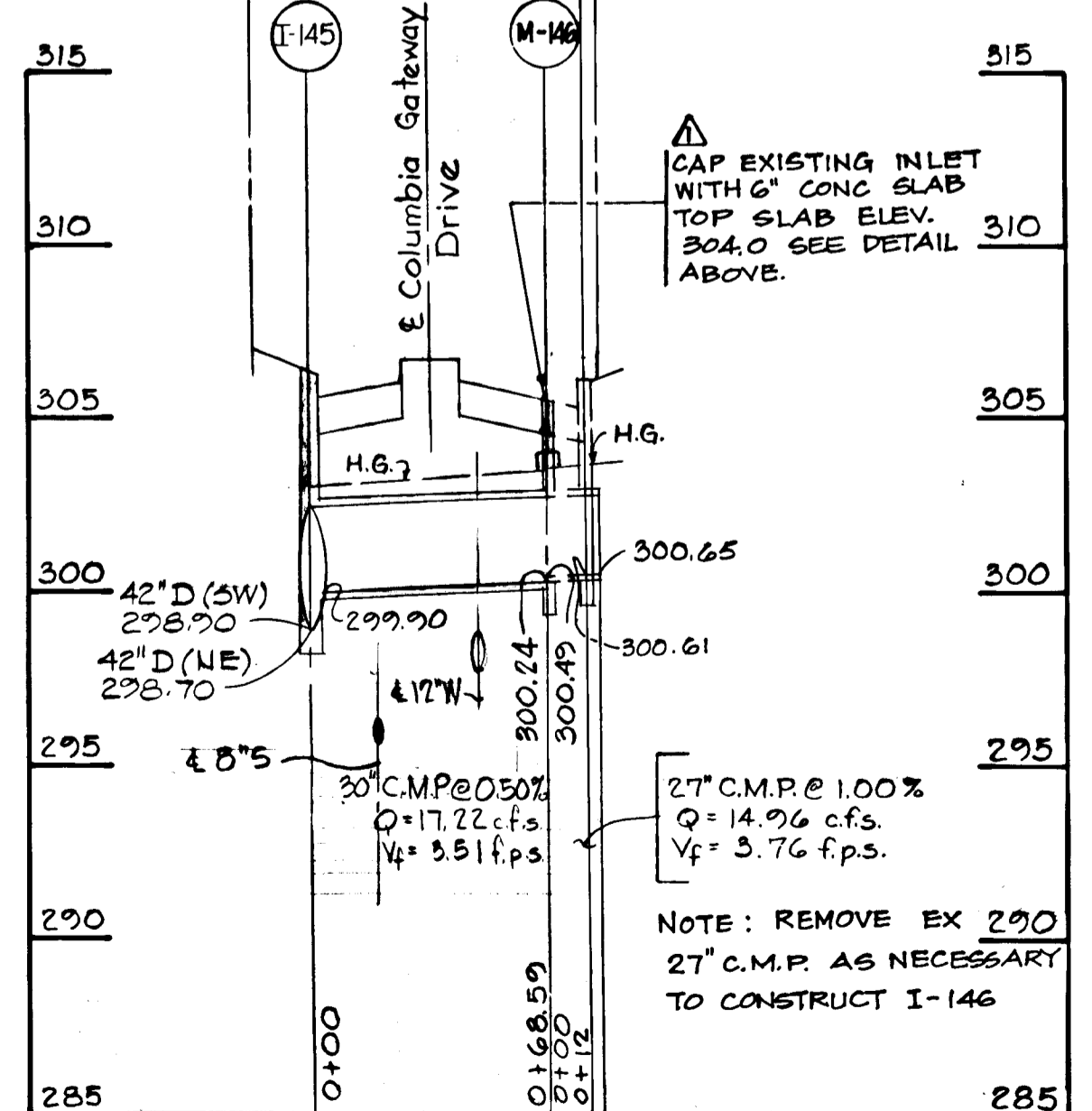
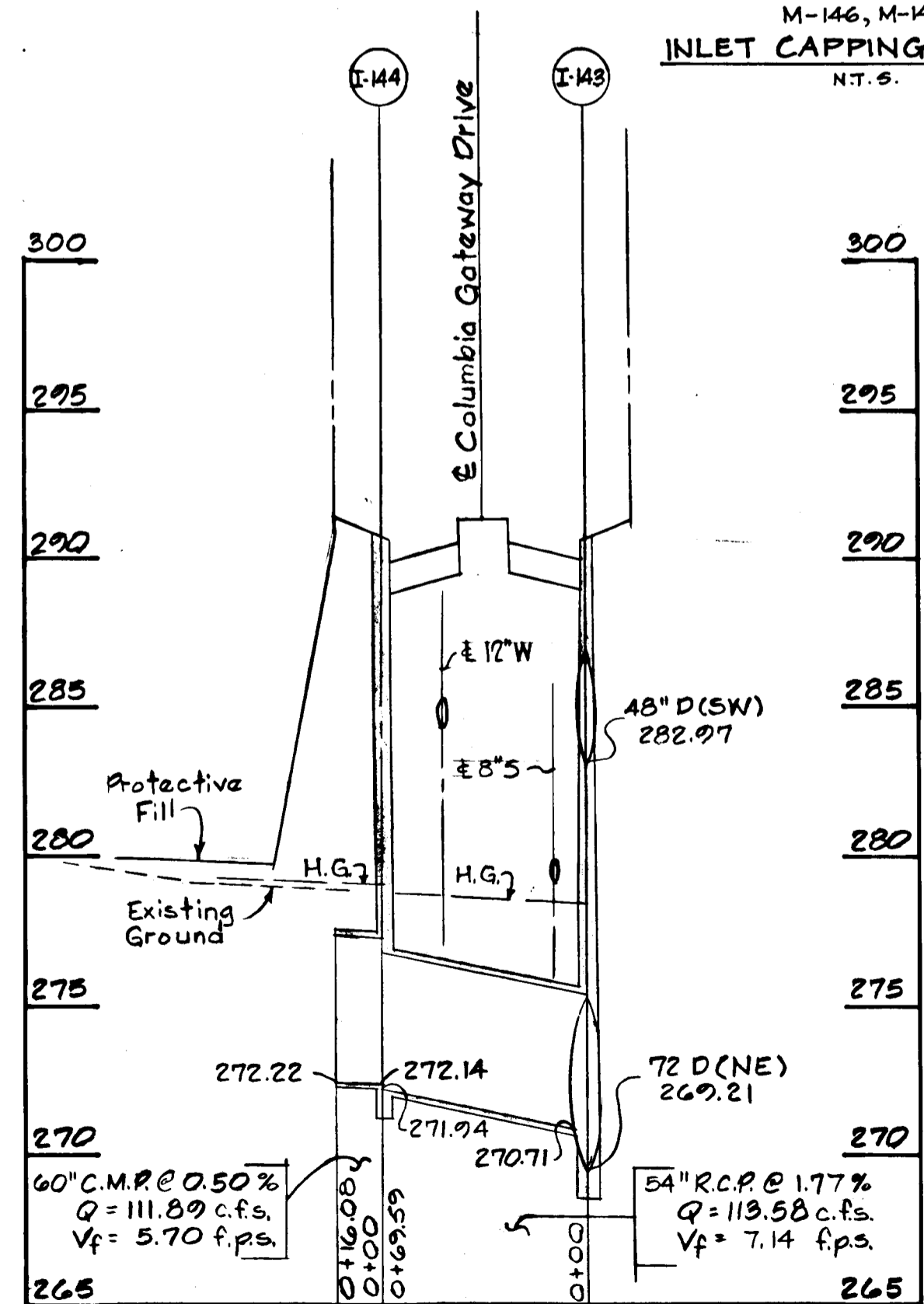
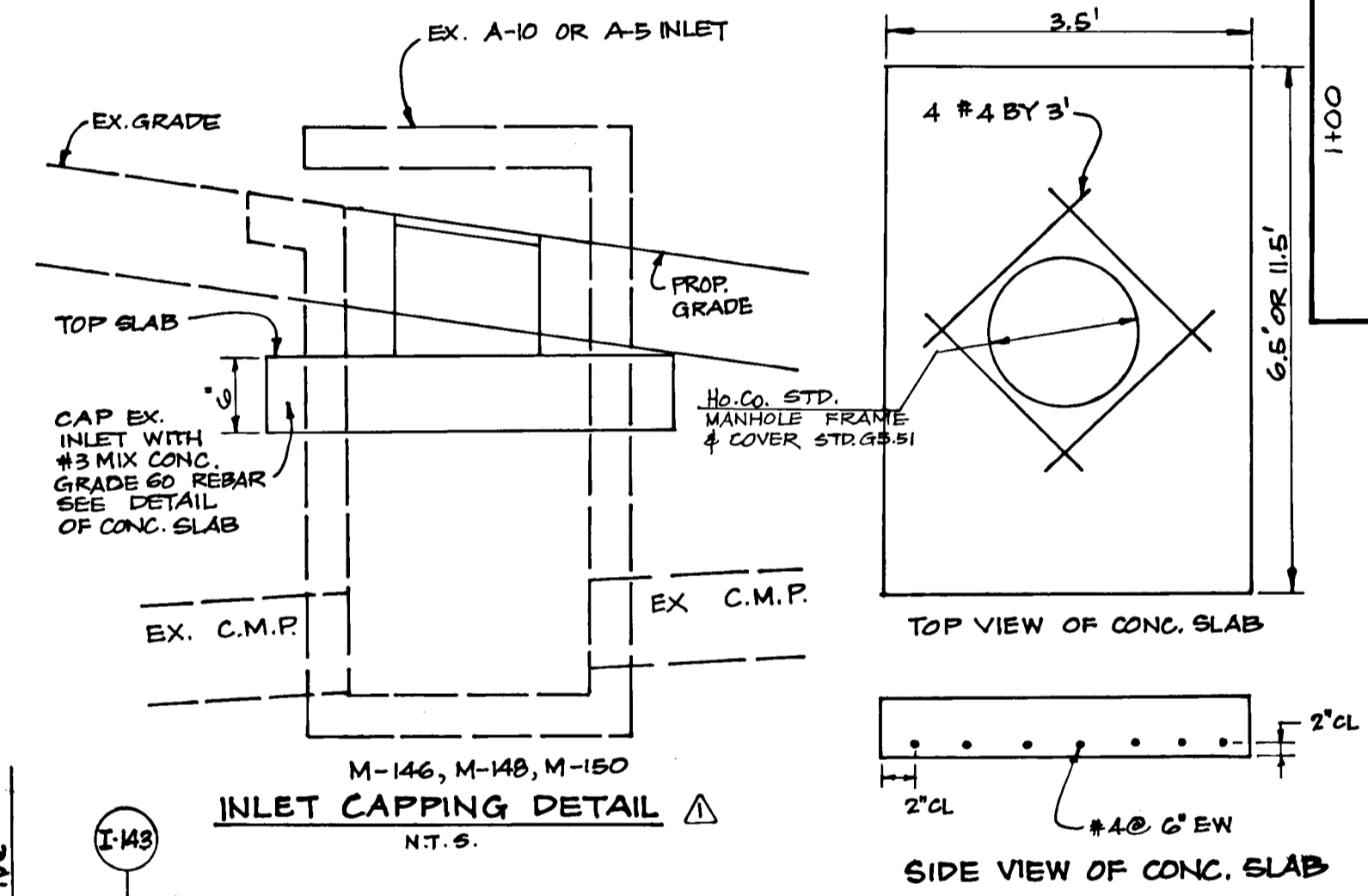
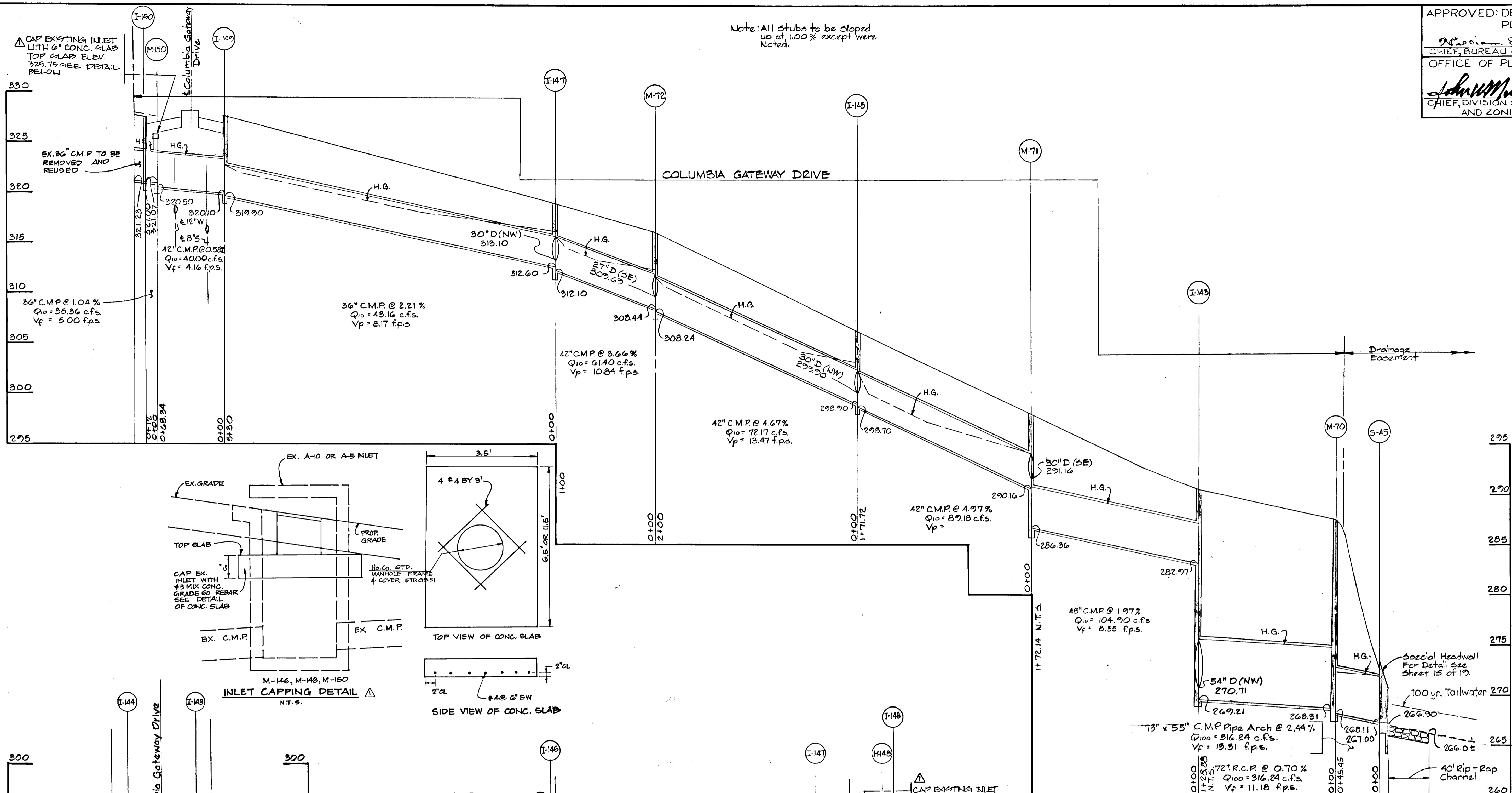
PROFILES
 Scale: Hor. 1" = 50'
 Vert. 1" = 5'

Note:
 The type of bedding used for storm drain pipe shall be Class C shaped subgrade. If rock is encountered, the trench invert shall be overexcavated 6 inches and the overexcavation of 6 inches refilled with granular material.

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 S AND T A RESUBDIVISION OF PARCEL R
		PROJECT TITLE STORM DRAIN PROFILES
		SCALE: AS SHOWN DATE:
		WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218
		Kenneth A. McCord Registered Engineer NO. 1974

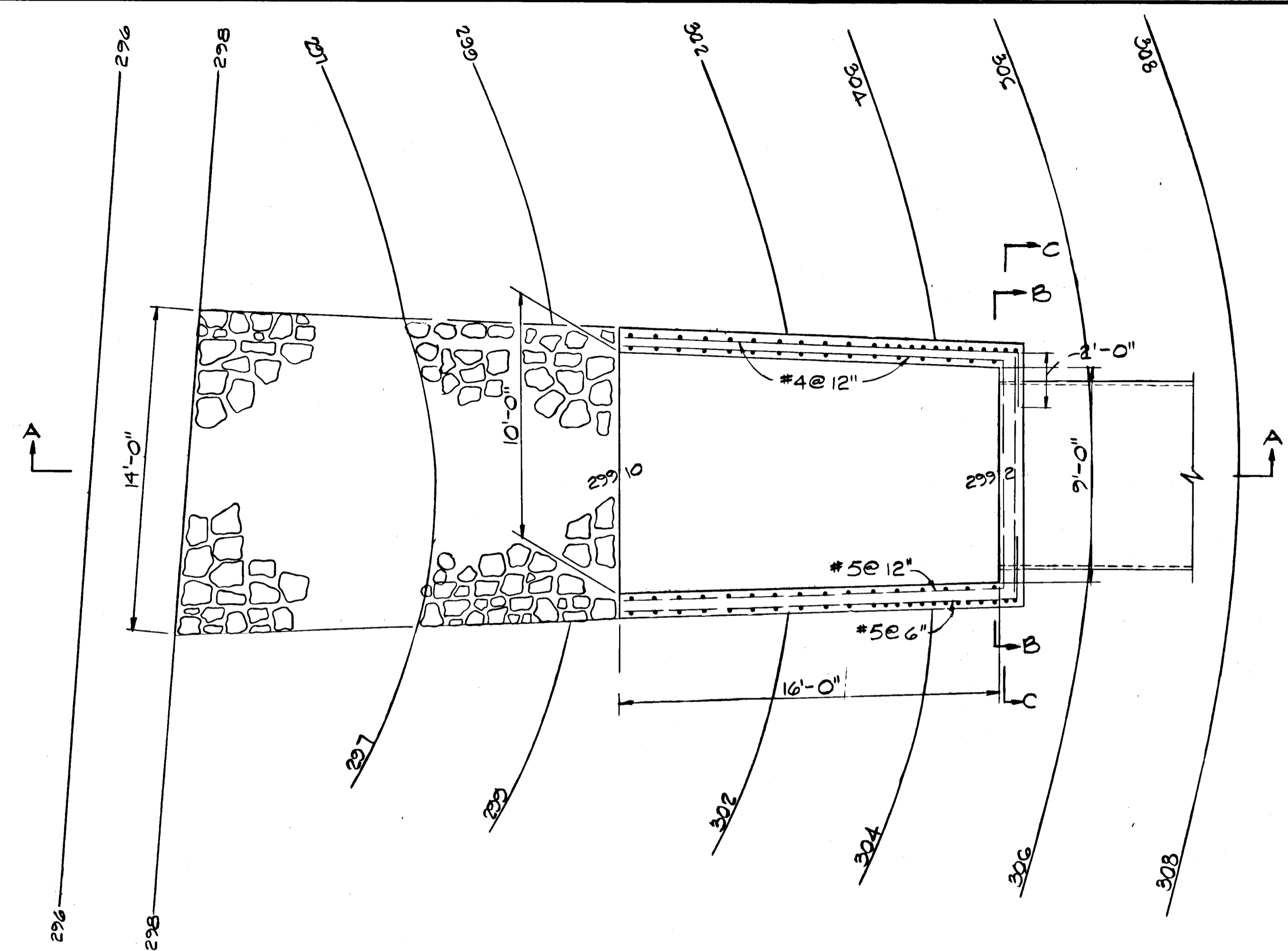
1158

Note: All stubs to be sloped up at 1.00% except where noted.

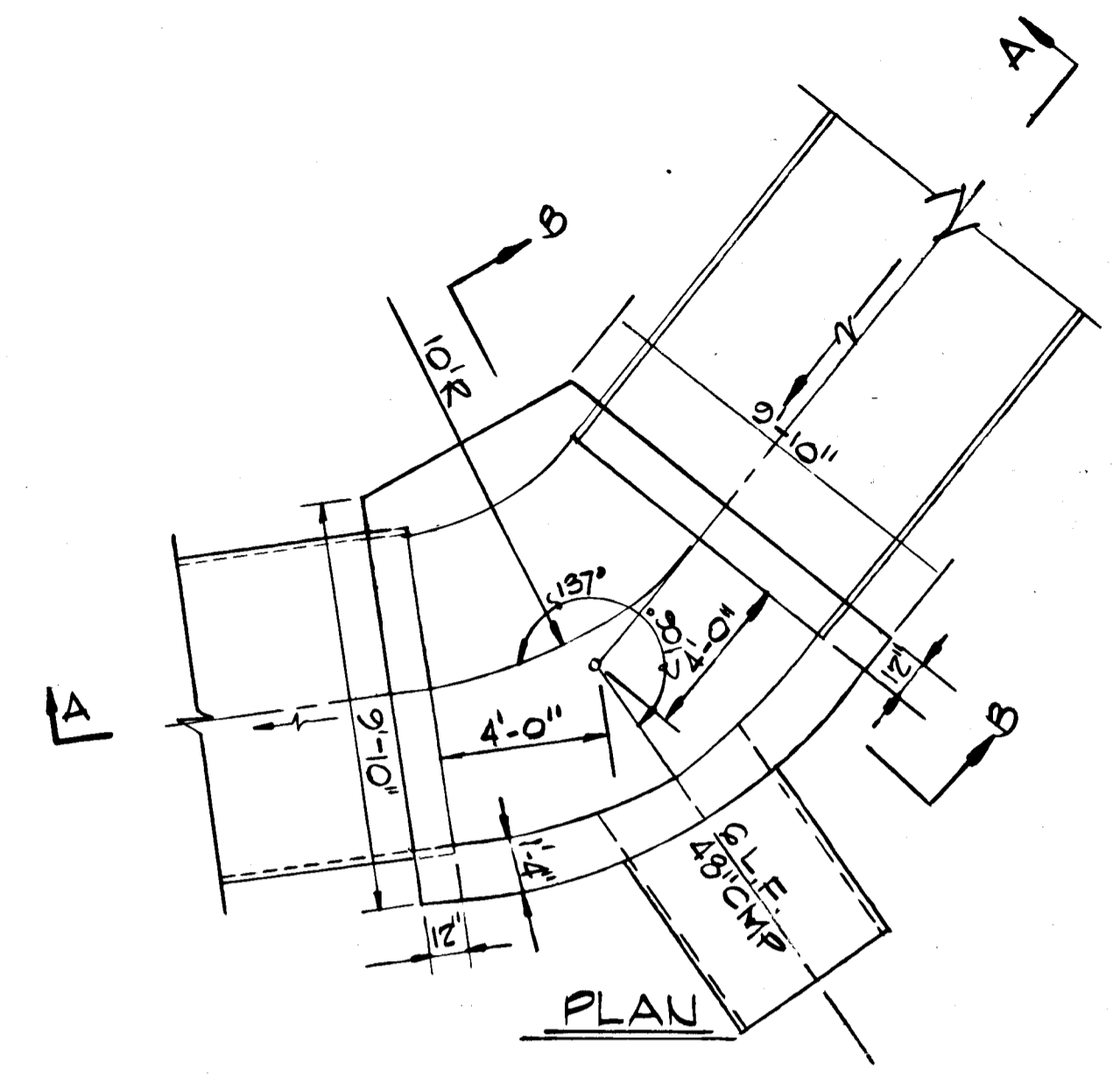


REV DATE	REV NO.	REVISION DESCRIPTION
02-03-88	1	ADDED DECLARATION LINES & ADJUSTED CHAS. REVISION I-148 & I-150 REVISIONS TO PLAN WERE MADE BY GARY MCGUNE WALKER INC.
COLUMBIA GATEWAY 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA PARCELS S AND T A RESUBDIVISION OF PARCEL R		
PROJECT TITLE STORM DRAIN PROFILES		
SCALE: As Shown		DATE:
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
Kenneth A. McCord Registered Engineer NO. 1974		

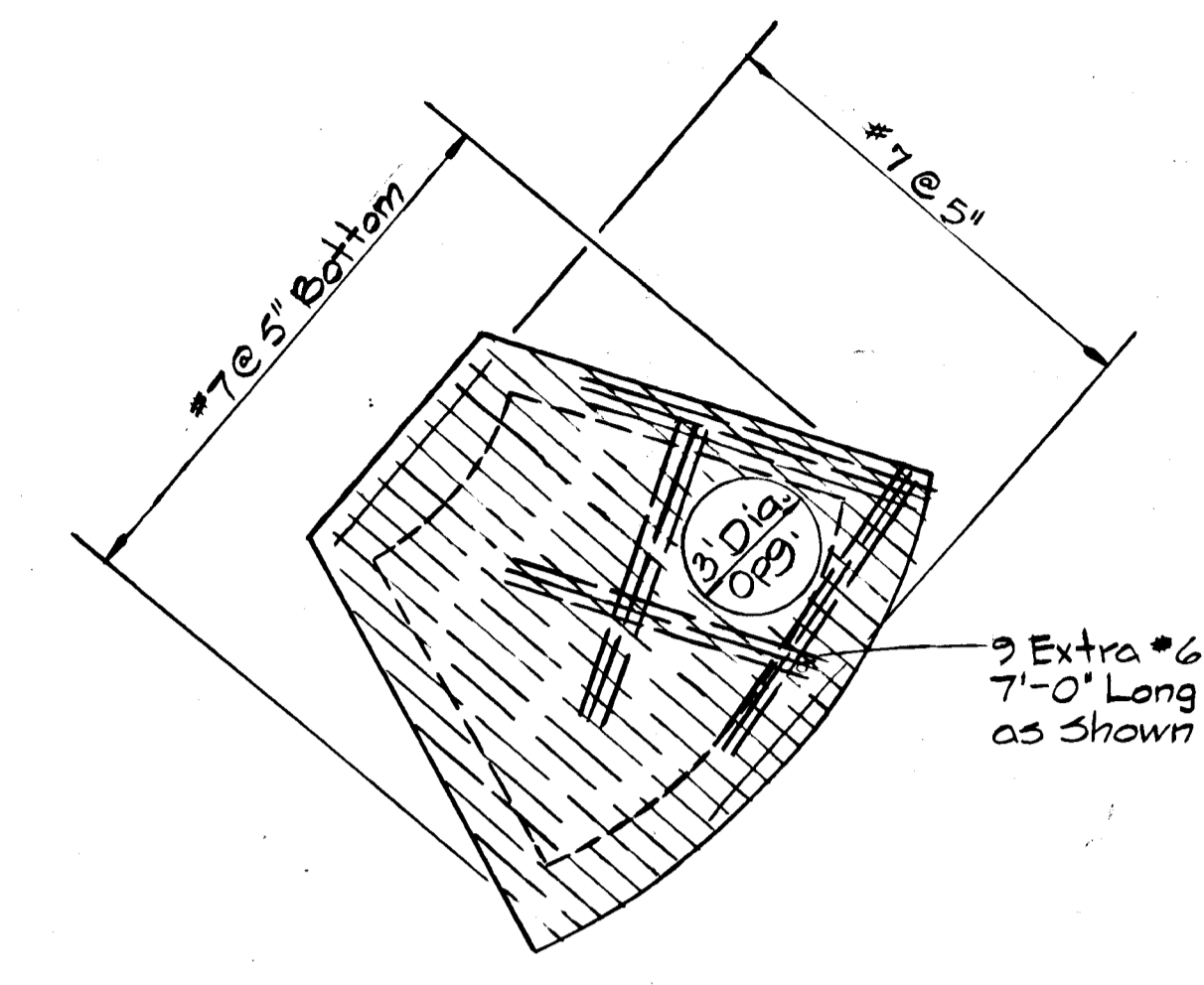
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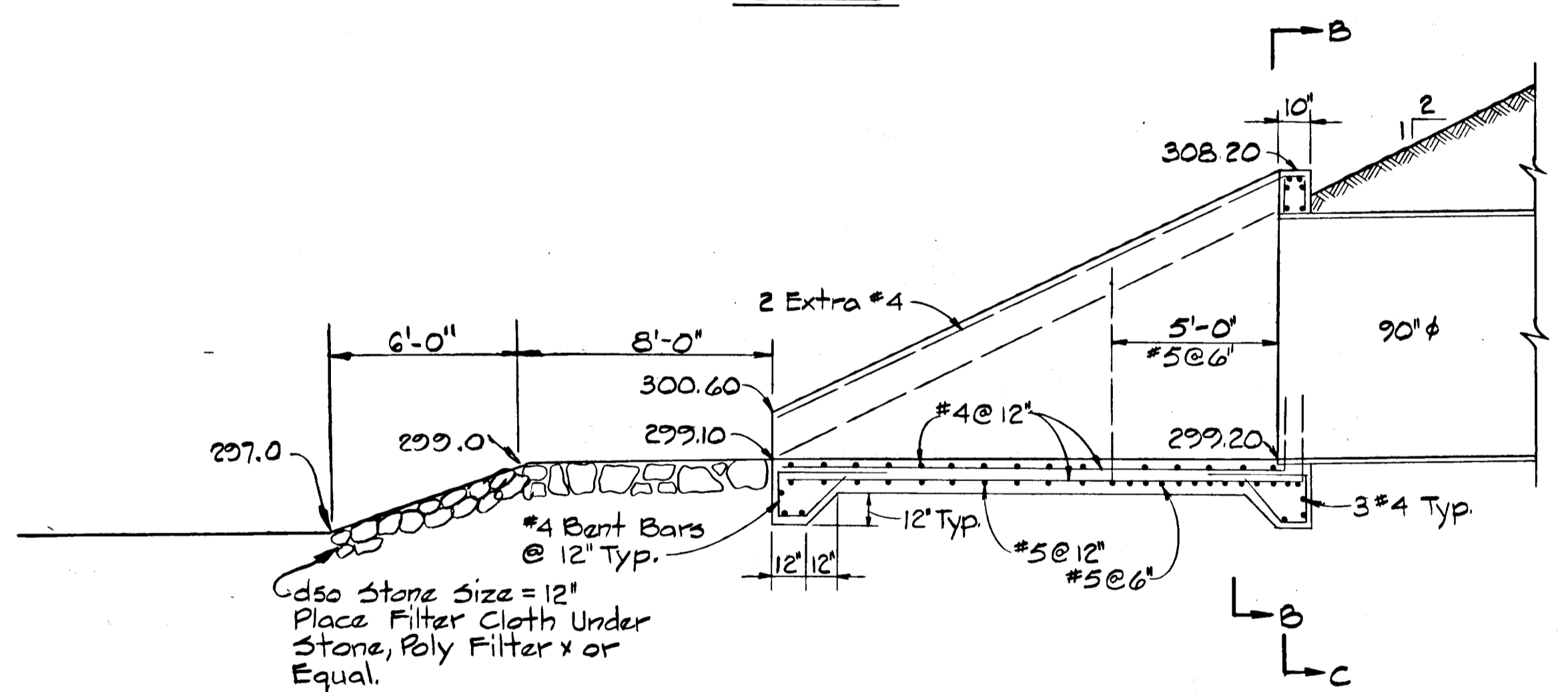
PLAN



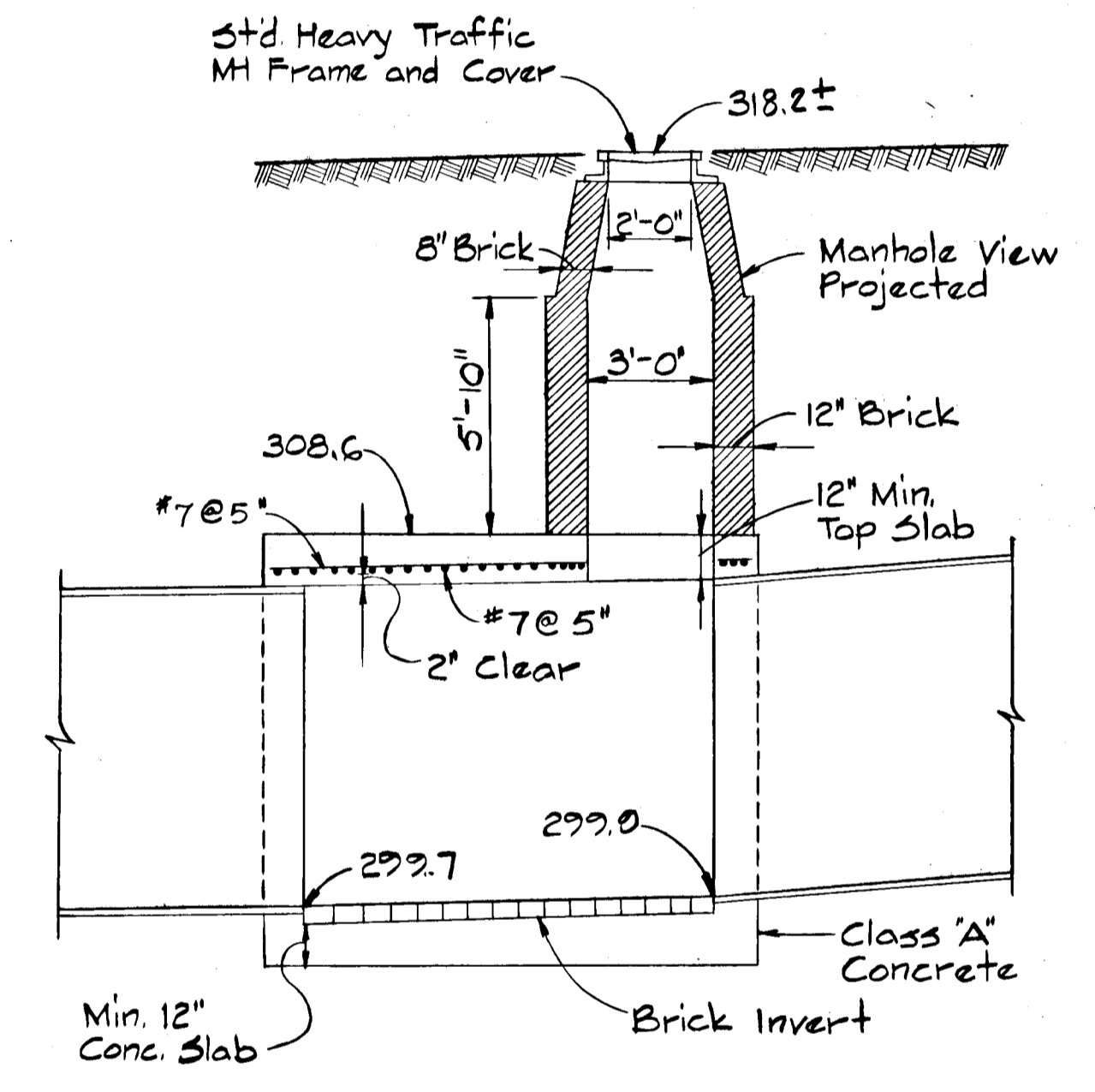
PLAN



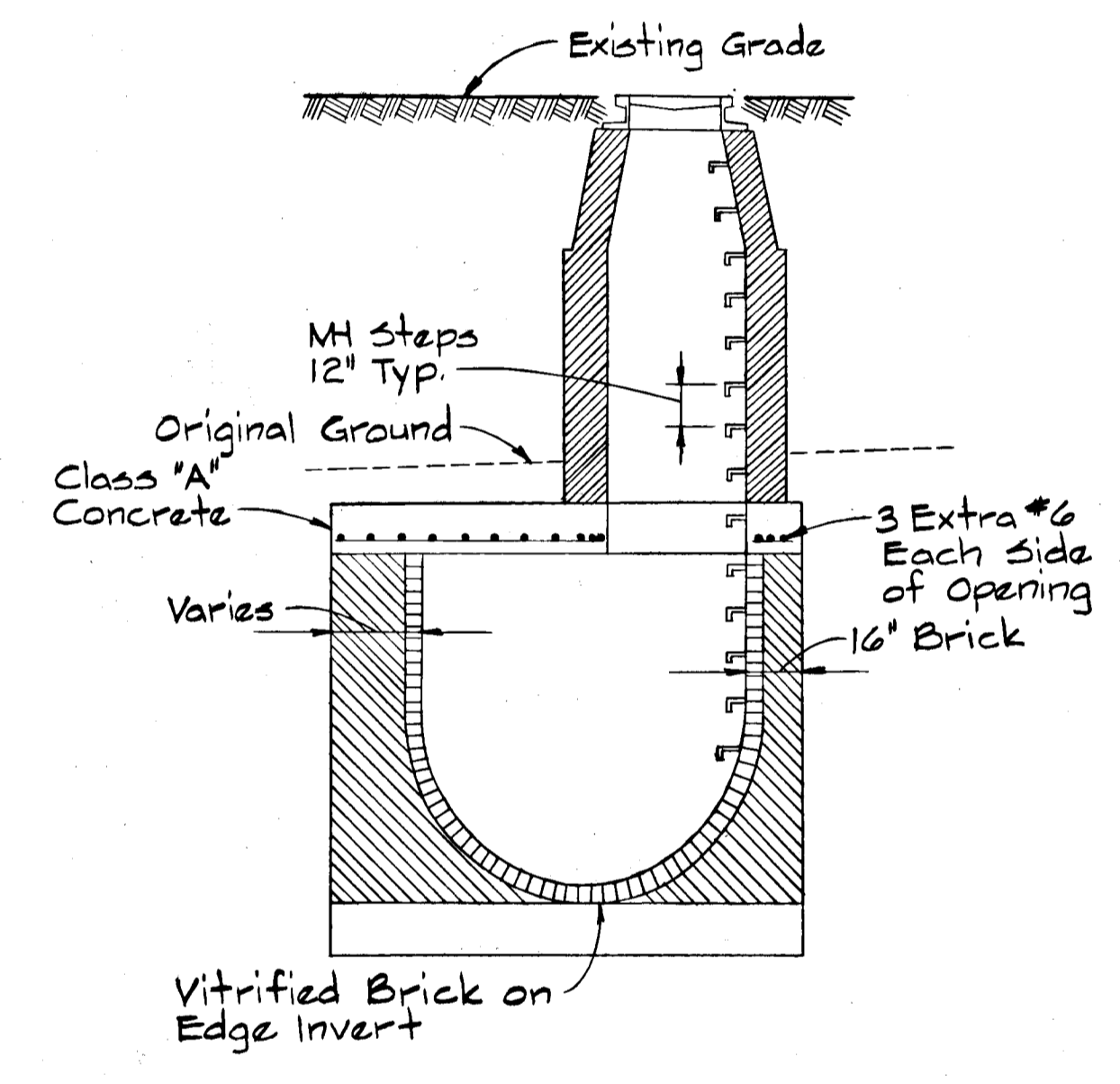
PLAN - TOP SLAB



SECTION A-A

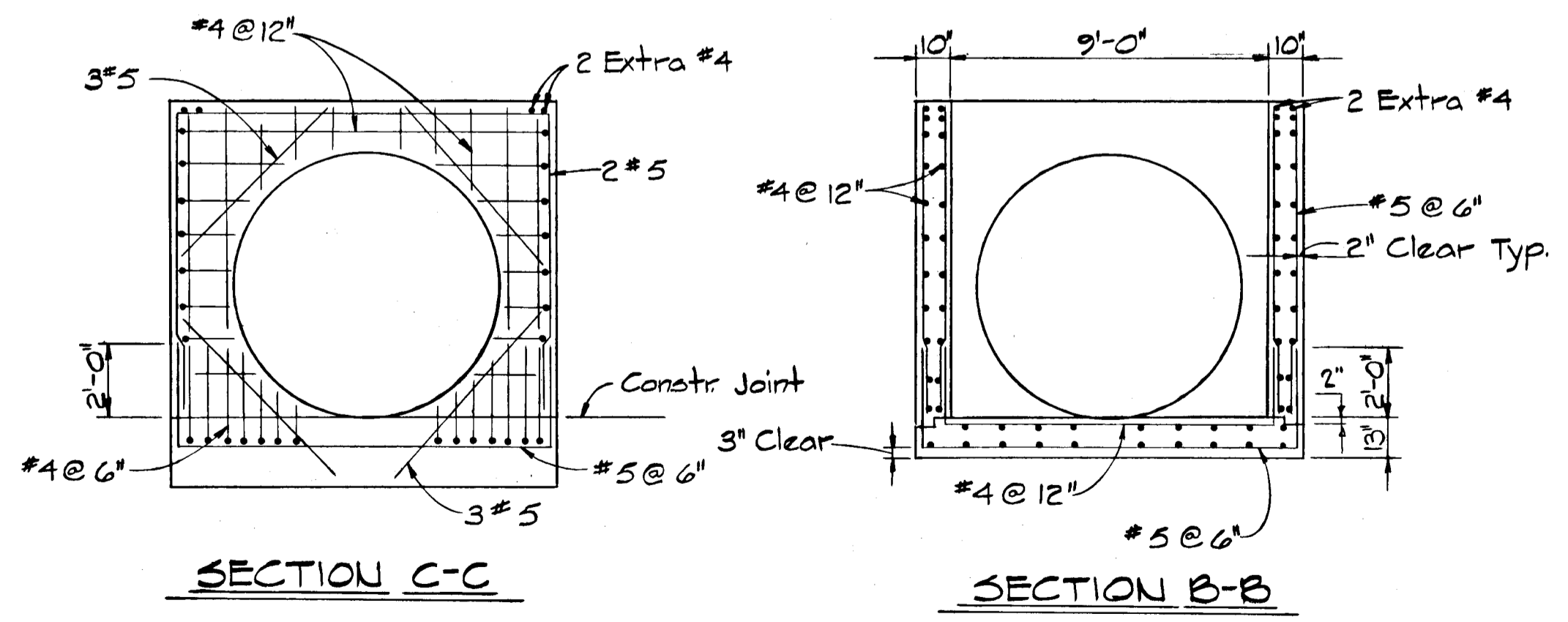


SECTION A-A



SECTION B-B

STRUCTURE S-42
 Scale: 1/4" = 1'-0"



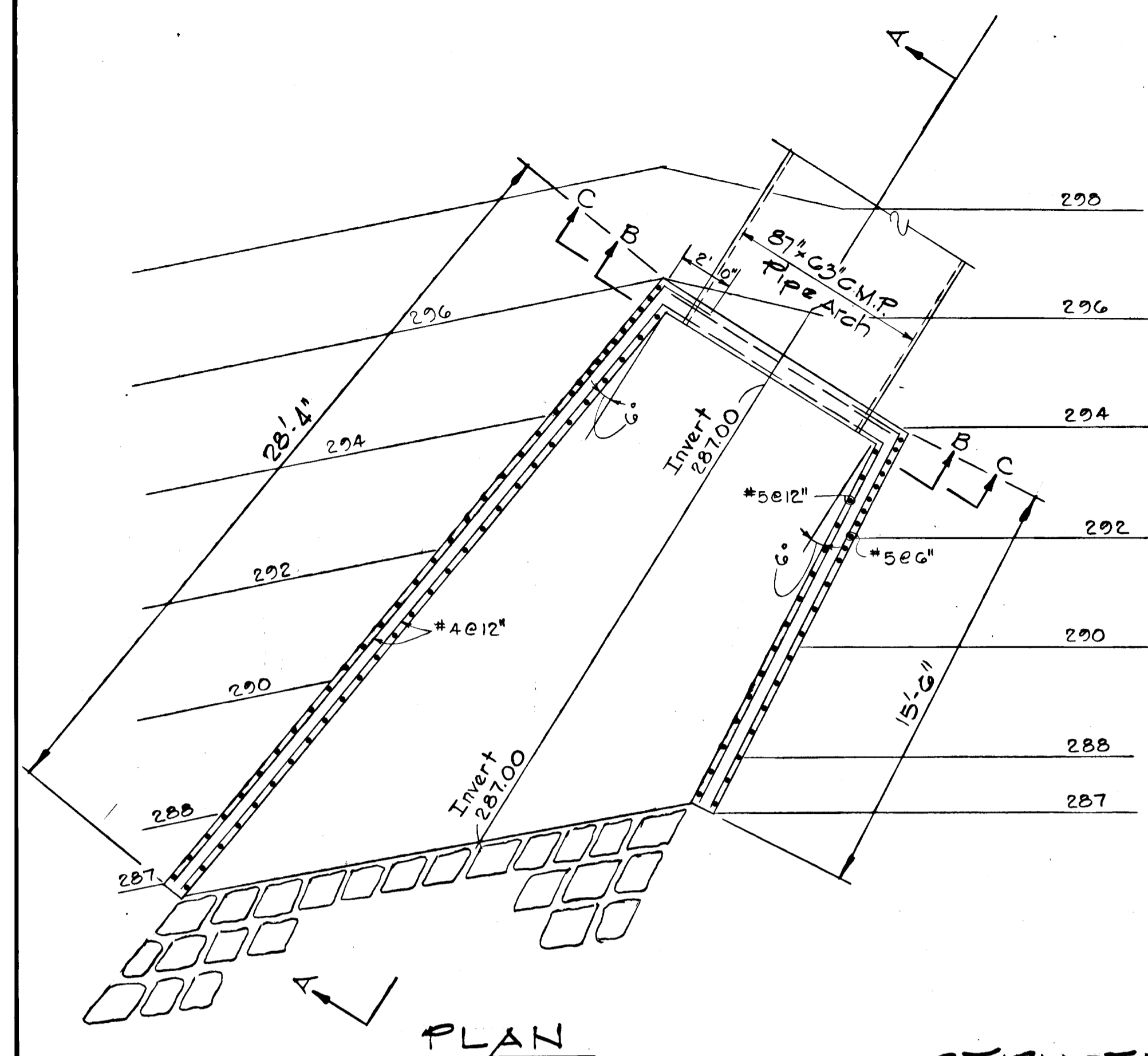
SECTION C-C

SECTION B-B

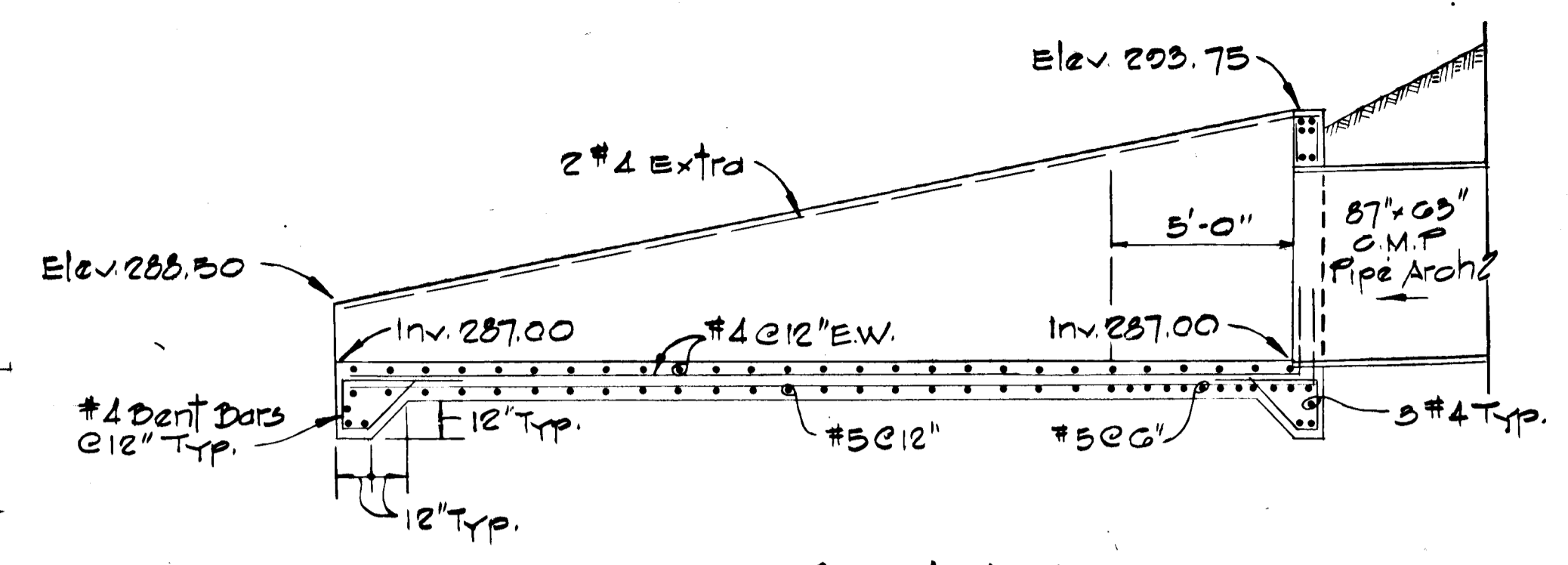
STRUCTURE S-43
 Scale: 1/4" = 1'-0"

March, 1987	Δ	Revised Detail S-42
REV. DATE	REV. 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 S AND T A RESUBDIVISION OF PARCEL R		
PROJECT TITLE STORM DRAIN DETAILS		
SCALE: 1/4" = 1'-0"	DATE:	
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
 KENNETH A. McCORD Registered Engineer No. 1974		

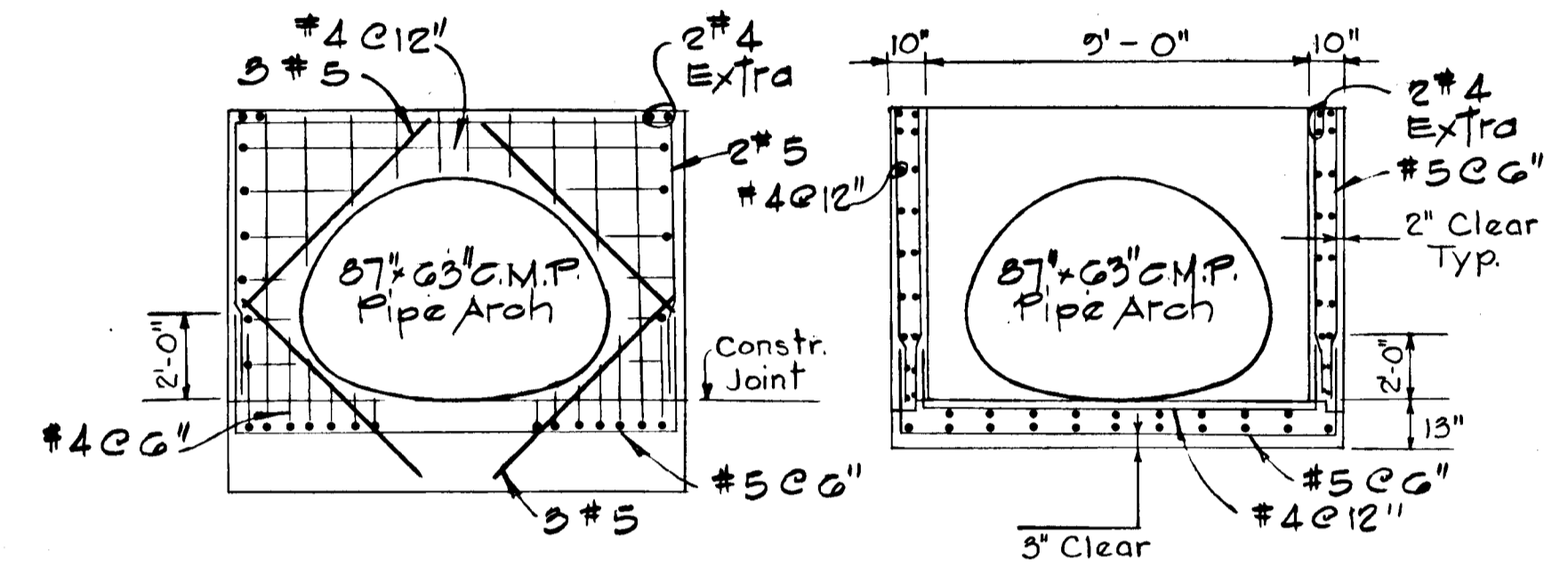
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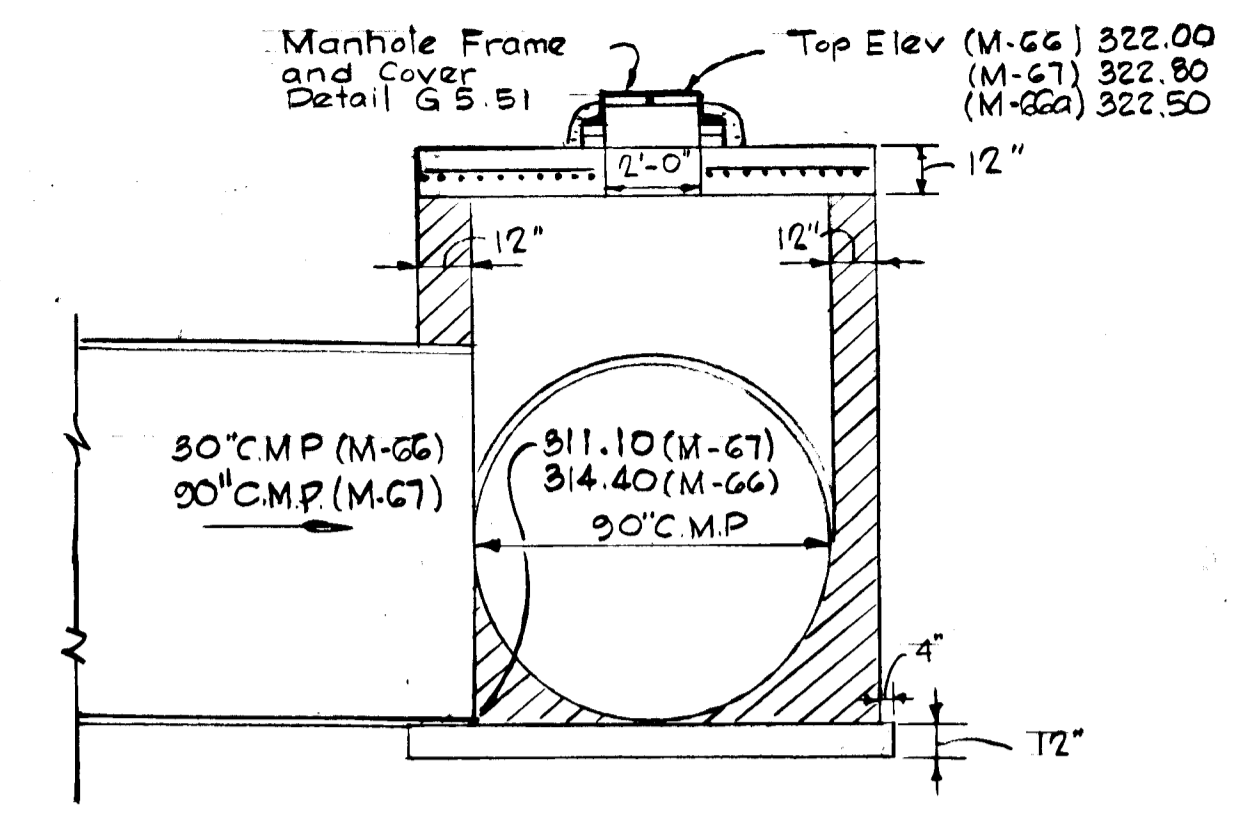
STRUCTURE 5-40
 SCALE: 1/4" = 1'-0"



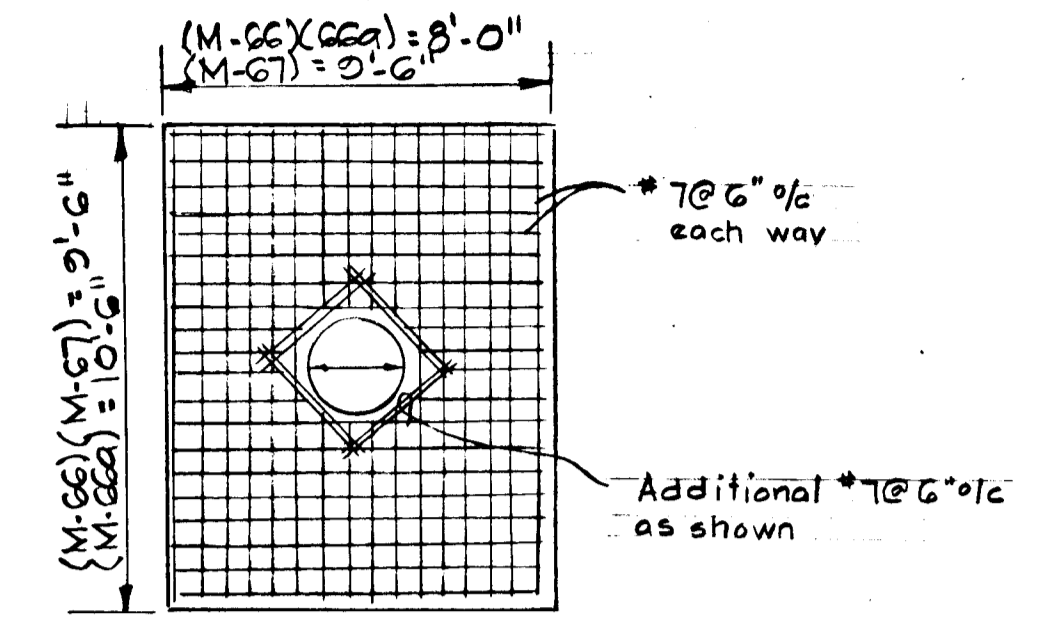
SECTION A-A



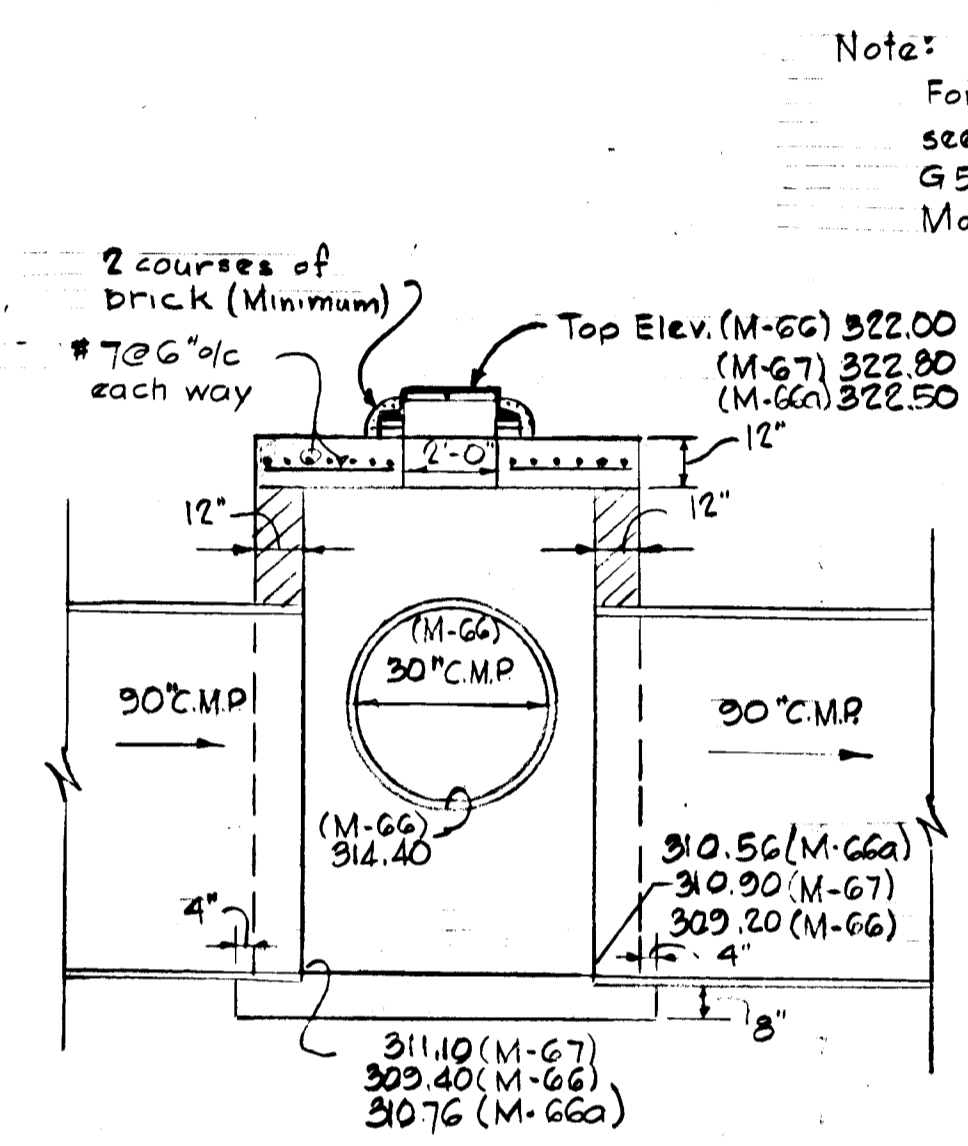
SECTION C-C SECTION B-B



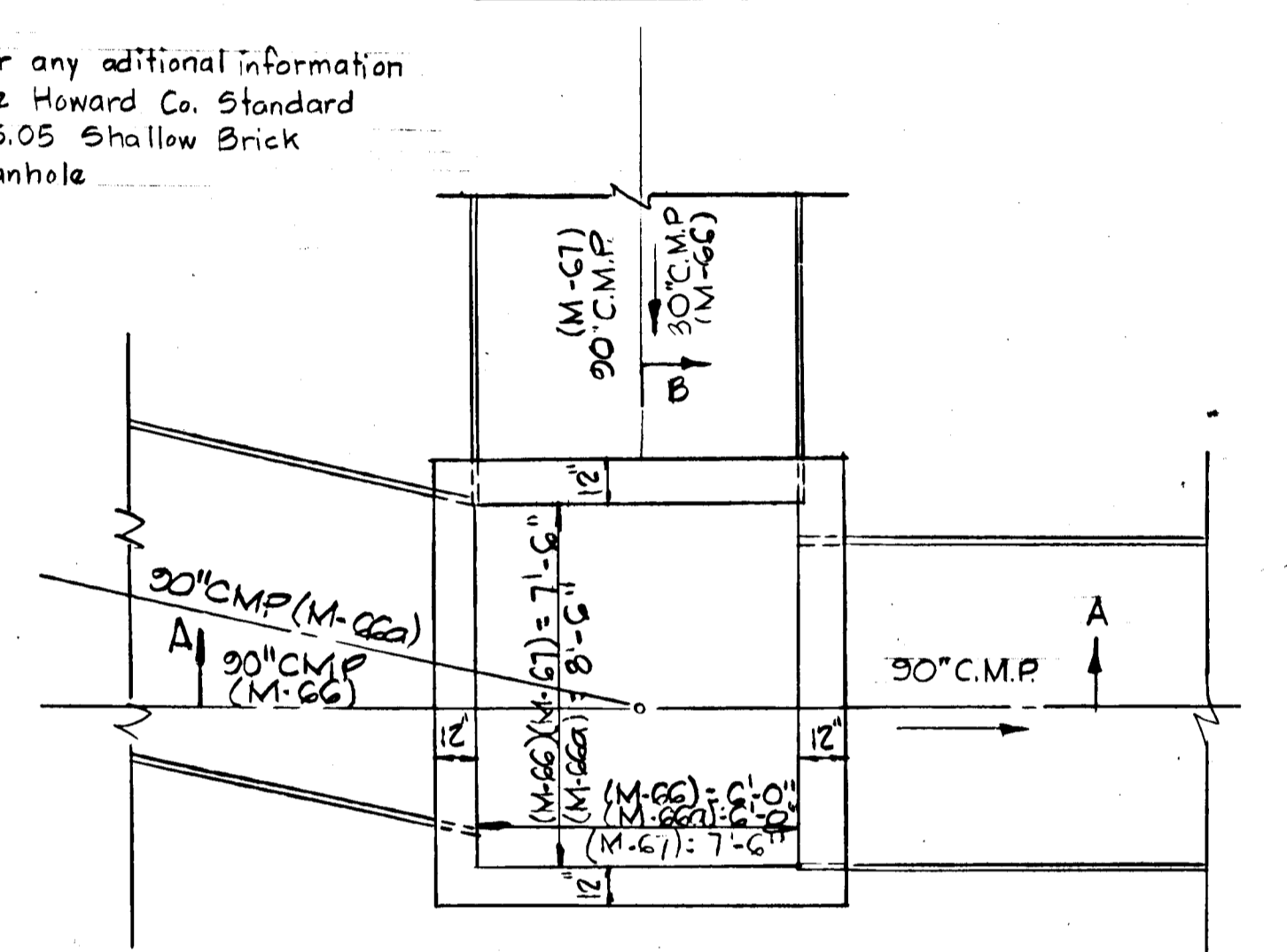
SECTION B-B



TOP SLAB

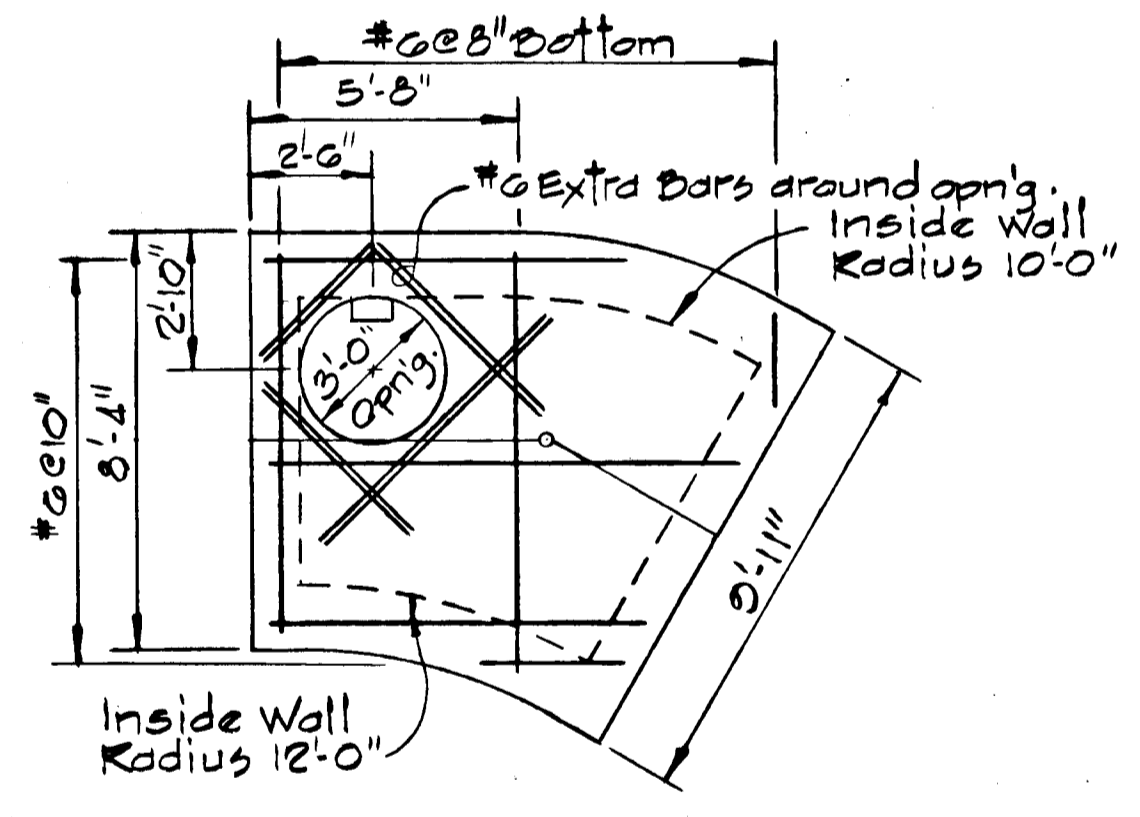


SECTION A-A

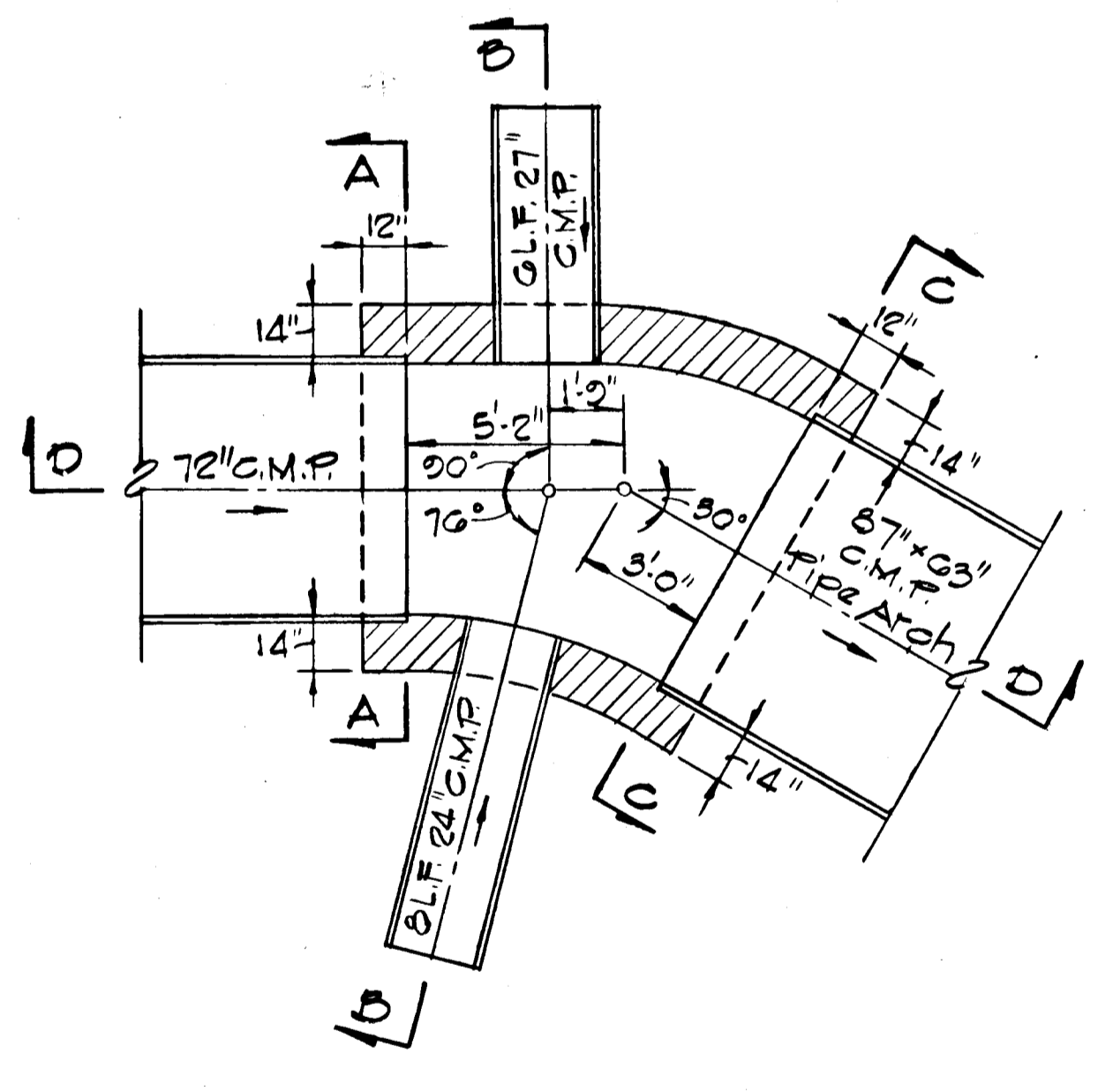


PLAN BELOW SLAB

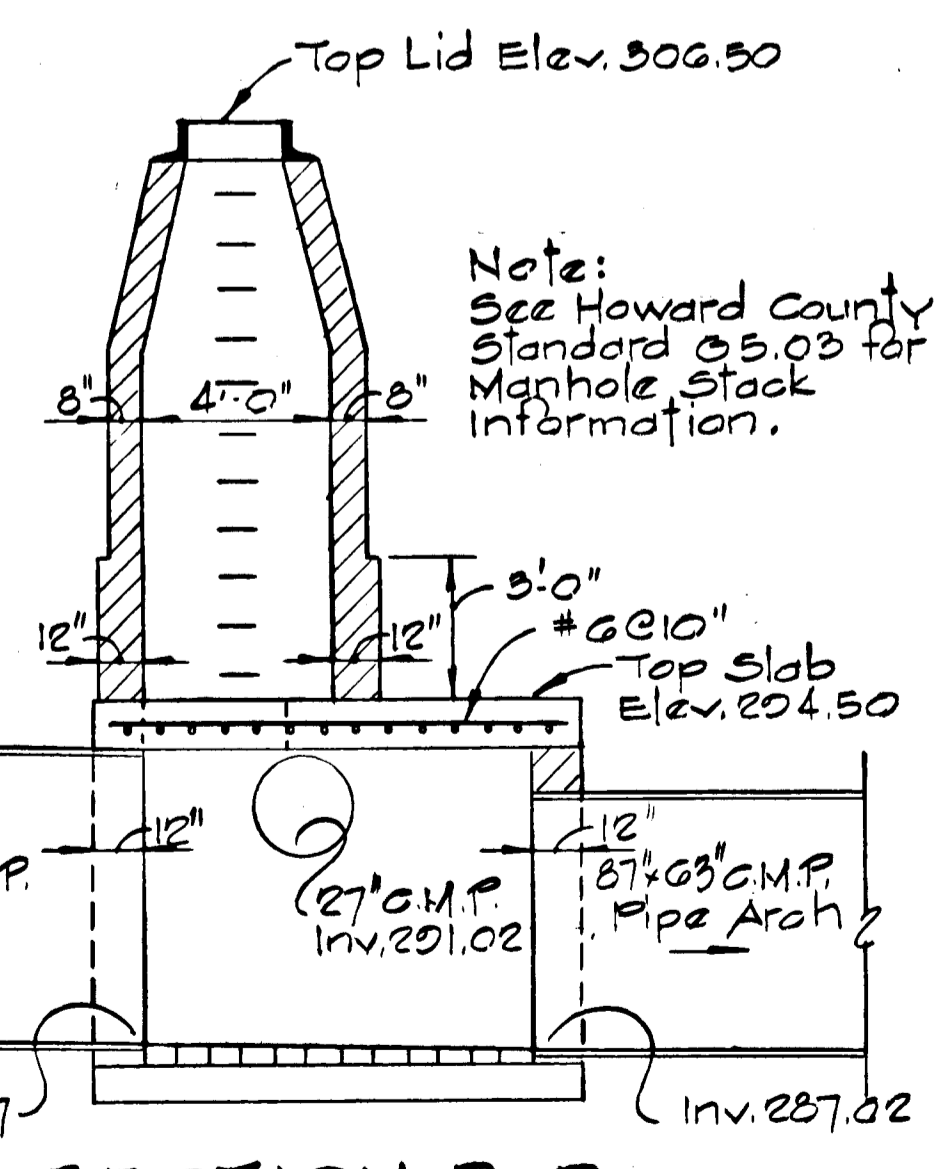
DETAIL MANHOLE M-66 & M-67 & M-66a
 No Scale



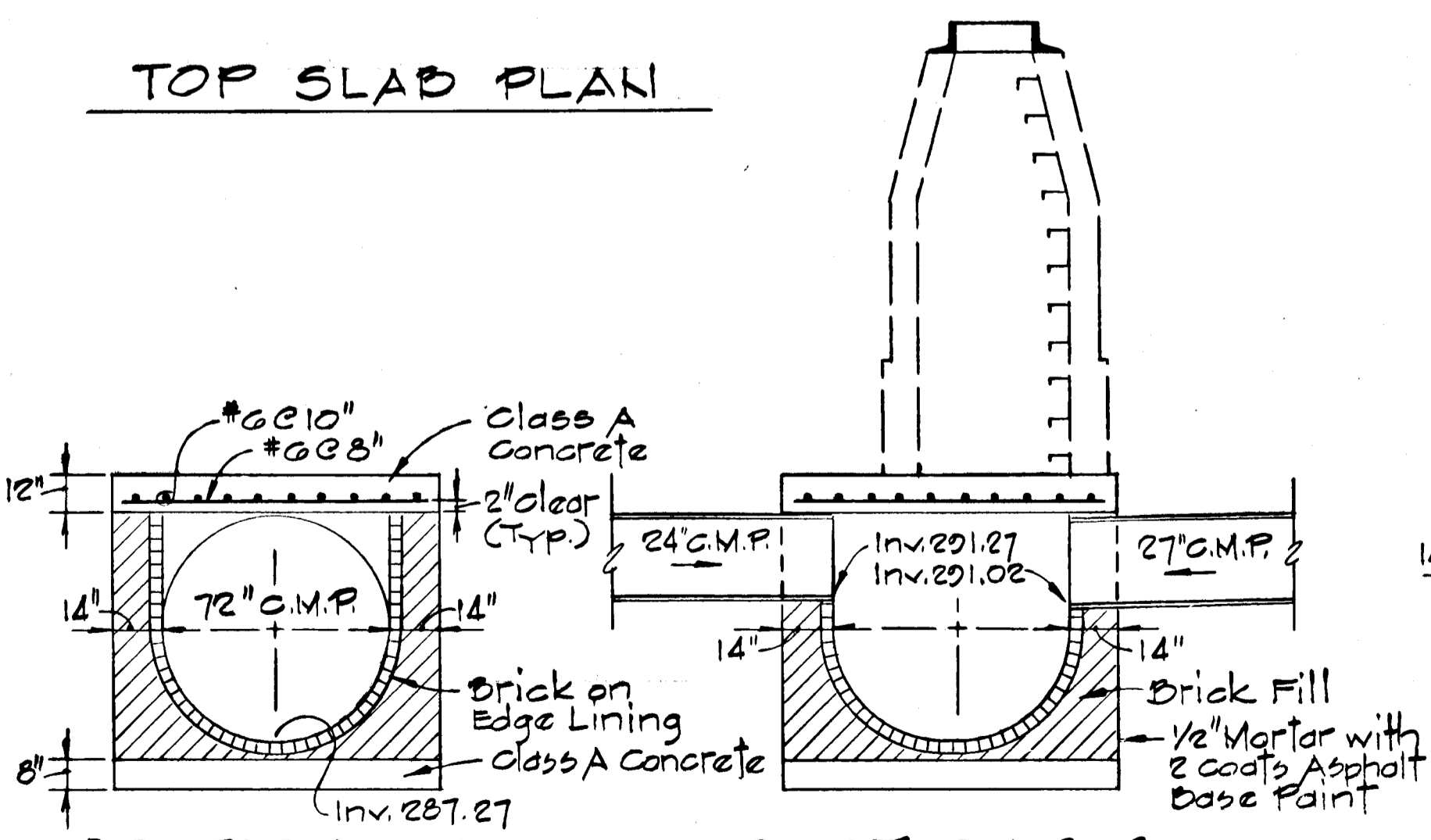
TOP SLAB PLAN



PLAN

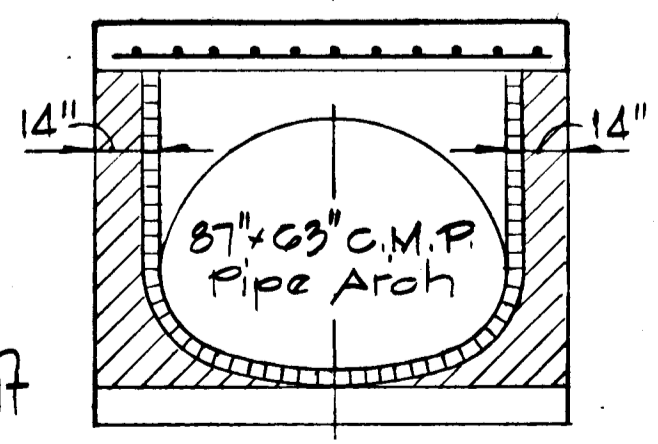


SECTION D-D



SECTION A-A

SECTION B-B



SECTION C-C

BEND STRUCTURE M-63
 SCALE: 1/4" = 1'-0"

Note:
 See Howard County Standard G 5.03 for Manhole Stack Information.

REV. DATE	REV. NO.	DESCRIPTION
March 1987	1	Revised MH Detail M-66, M-67 & M-66a

COLUMBIA GATEWAY
 6th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 THE HOWARD RESEARCH
 AND DEVELOPMENT LAND COMPANY

PROJECT AREA
 PARCELS S AND T
 A RESUBDIVISION OF PARCEL R

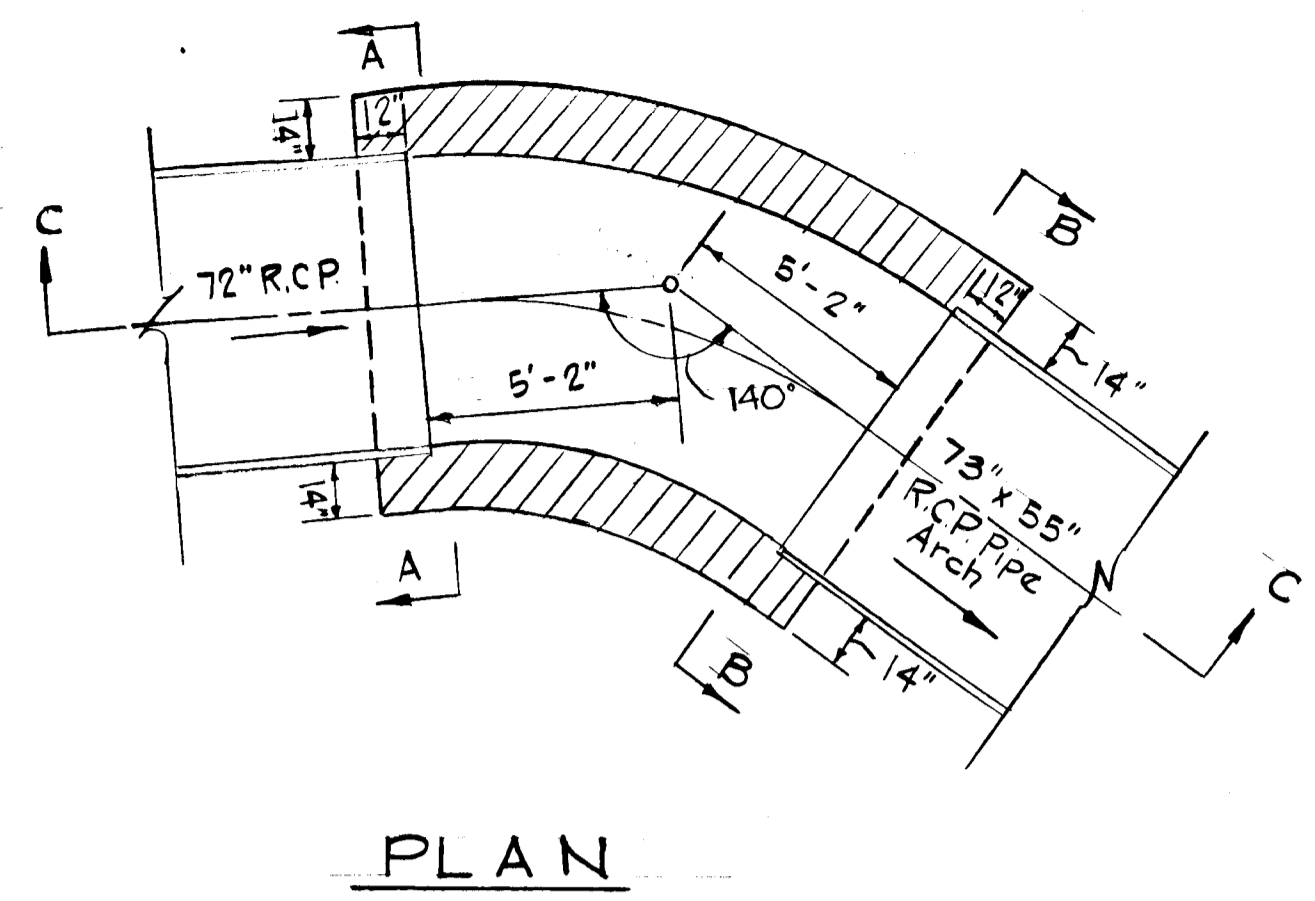
PROJECT TITLE
 STORM DRAIN DETAILS

SCALE: 1/4" = 1'-0" DATE:

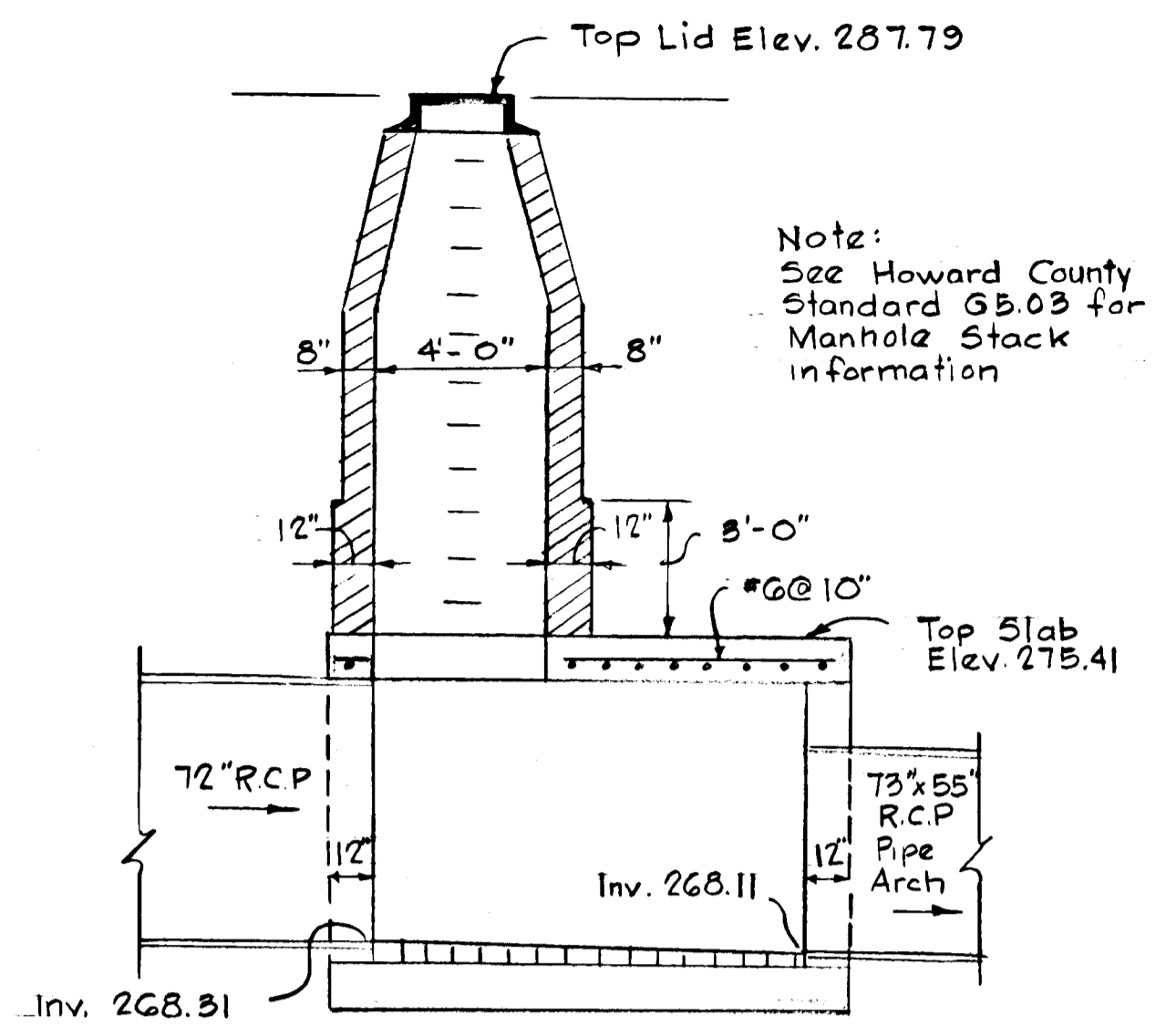
WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

Kenneth A. McCord
 Registered Engineer
 No. 1974

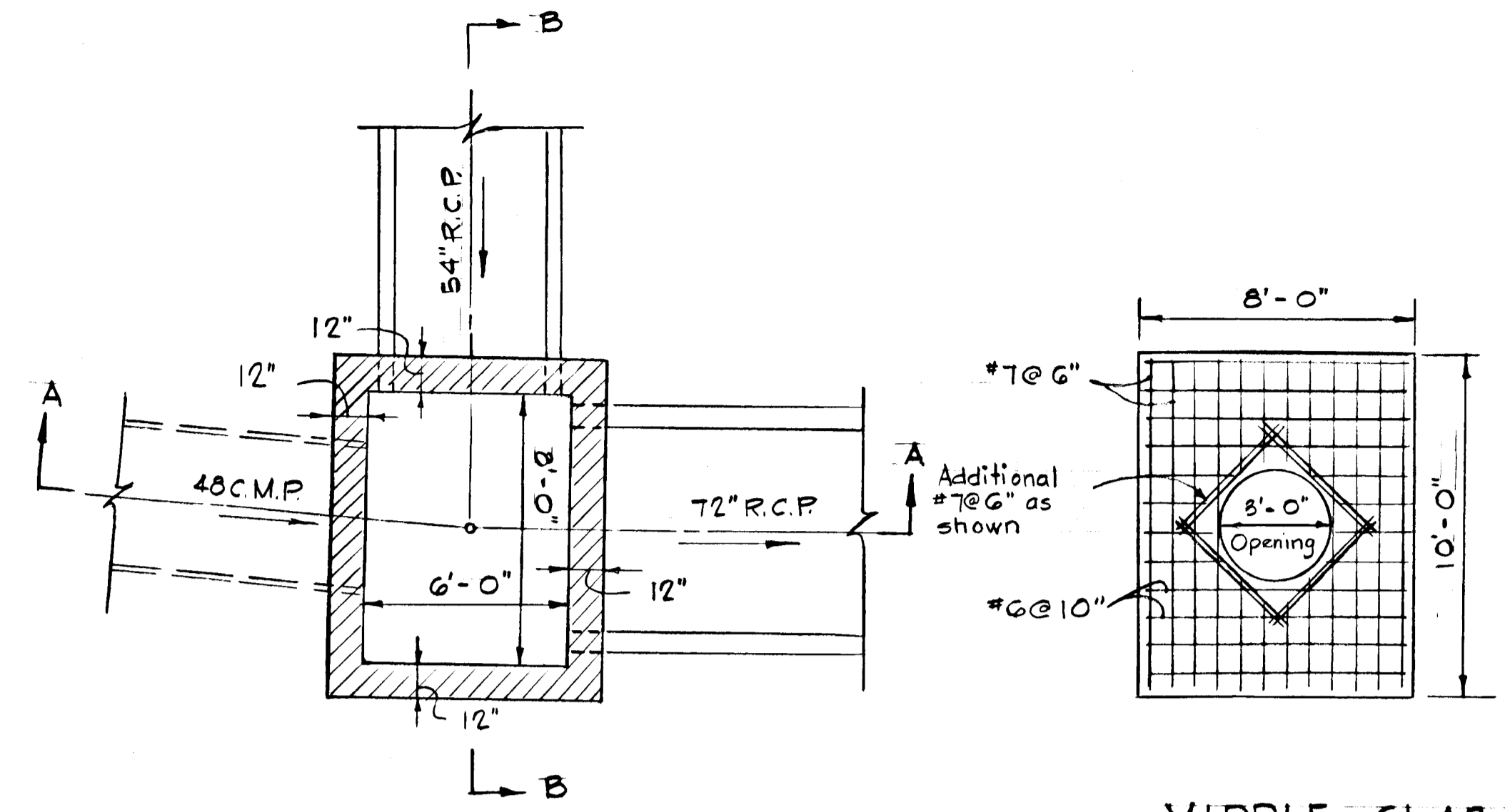
1158



PLAN

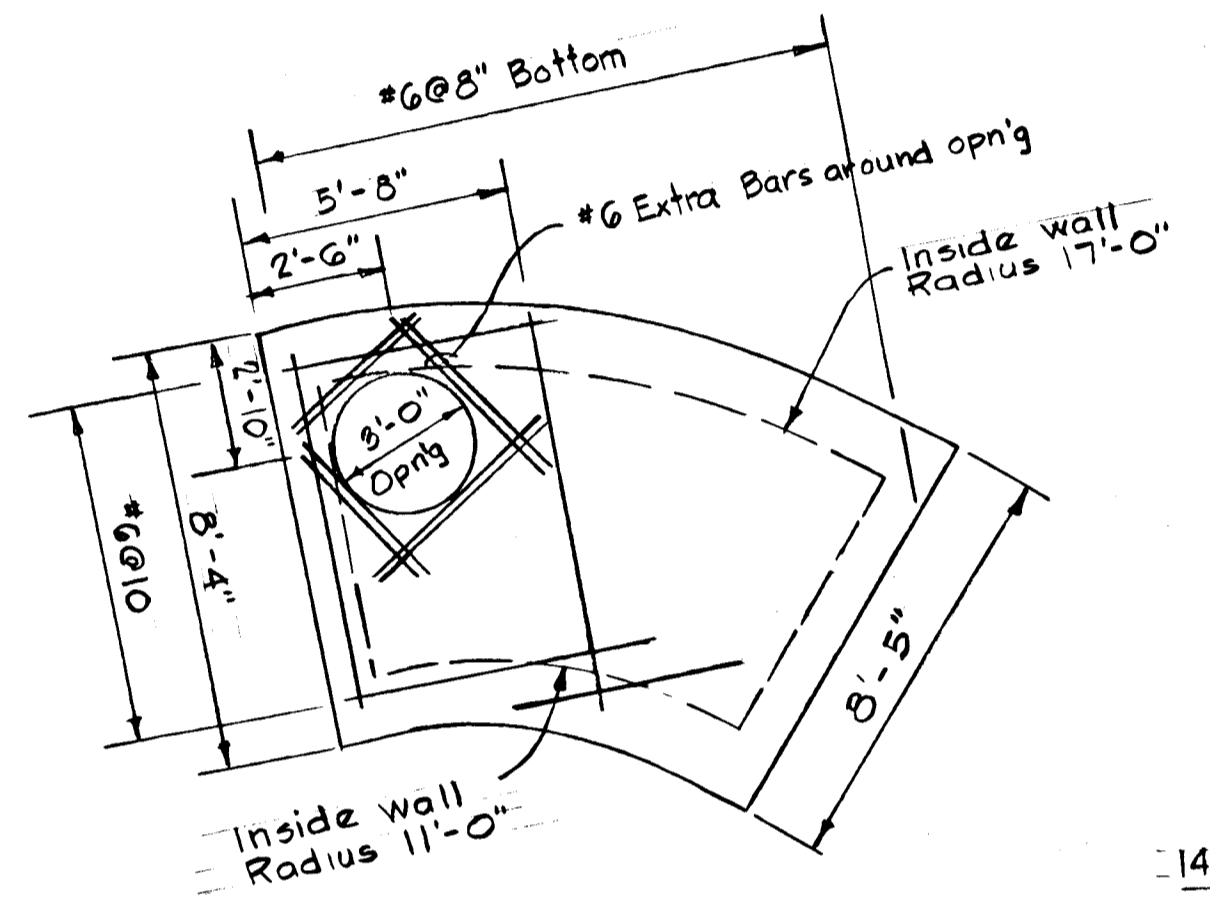


SECTION C-C

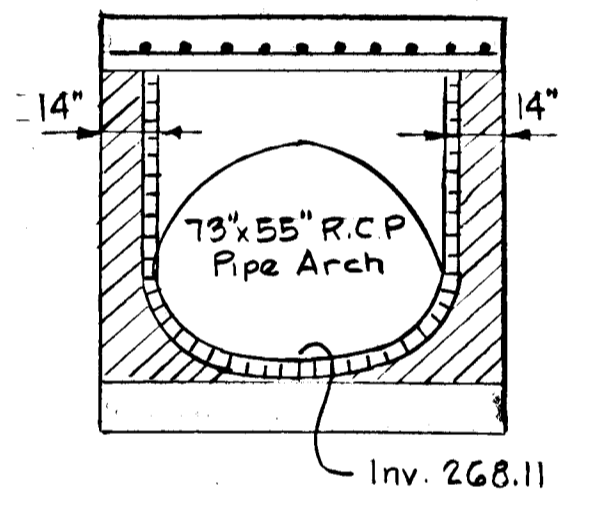


PLAN BELOW MIDDLE SLAB

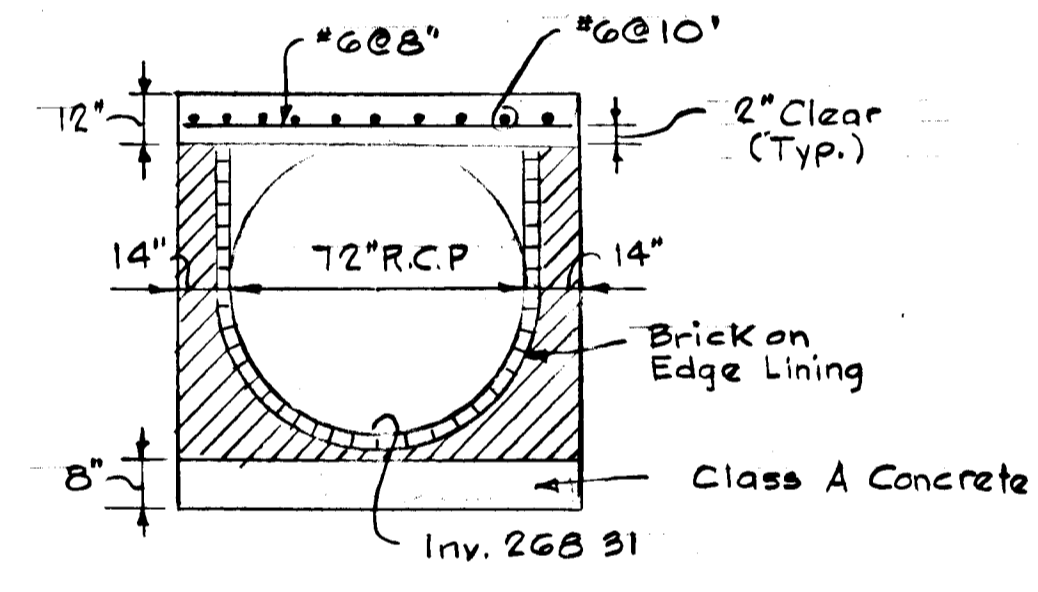
MIDDLE SLAB



TOP SLAB PLAN

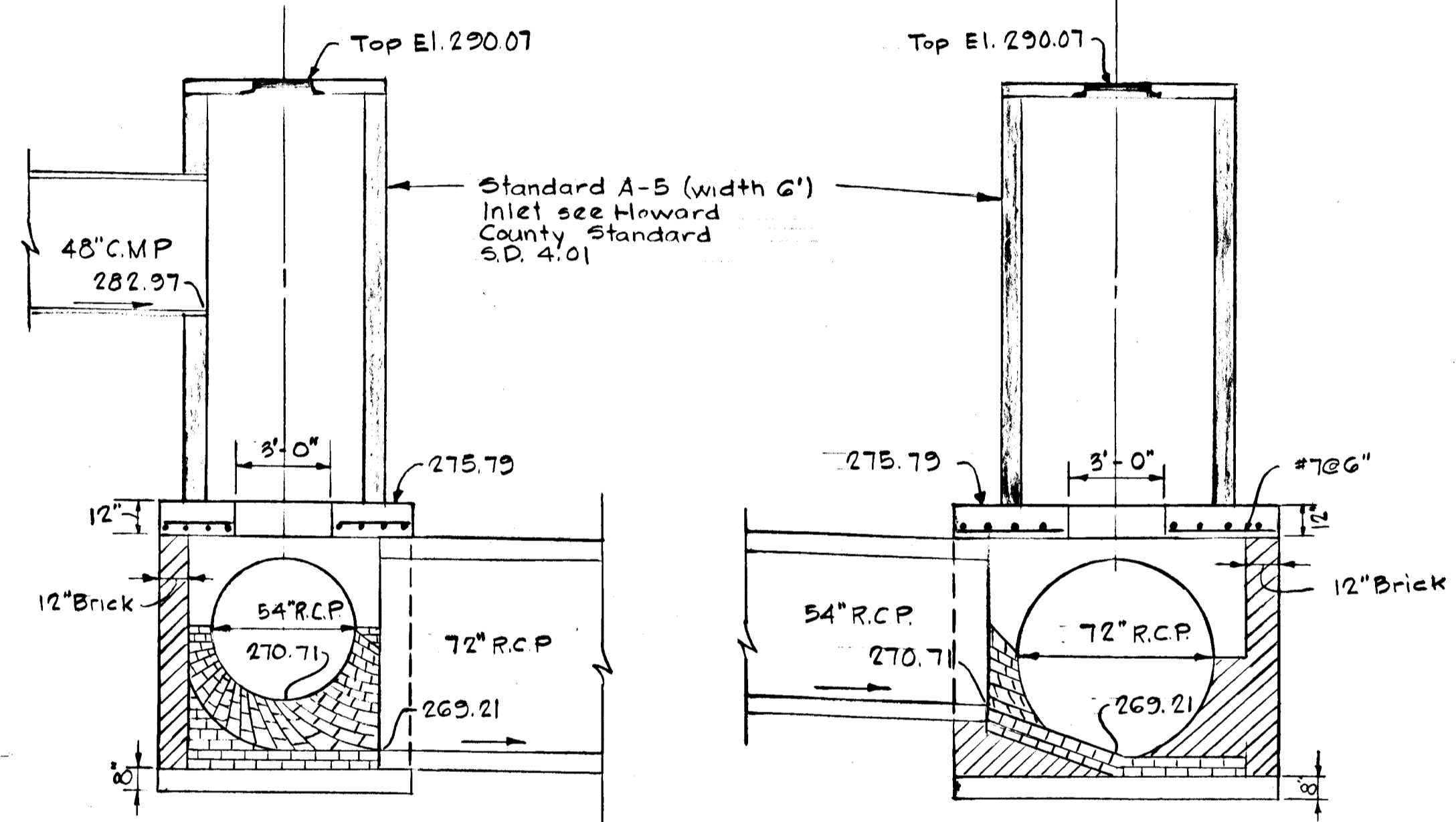


SECTION B-B



SECTION A-A

BEND STRUCTURE M-70
 Scale 1/4" = 1'-0"



SECTION A-A

SECTION B-B

DETAIL INLET I-143
 Scale 1/4" = 1'-0"

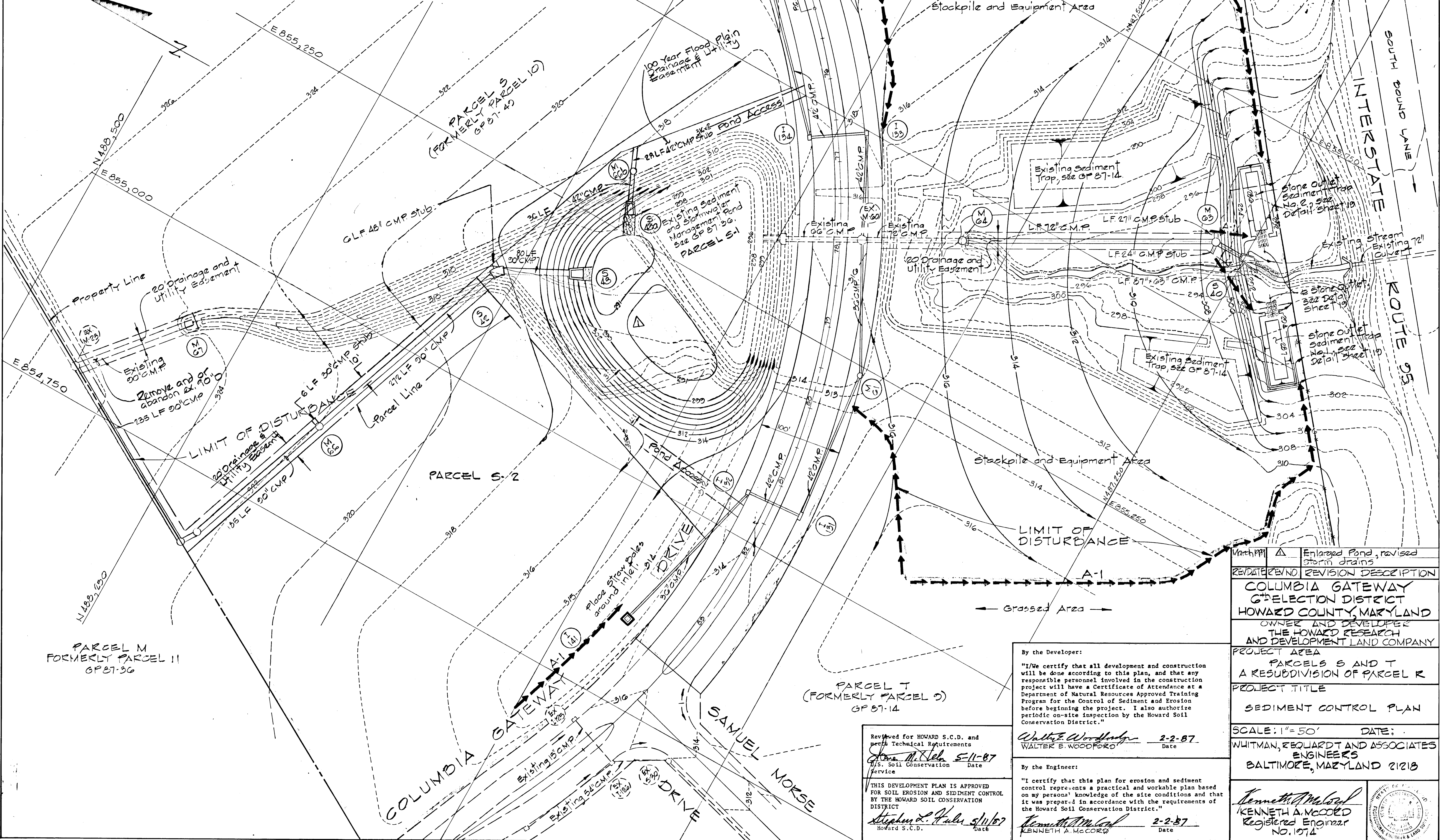
REV. DATE	REV. NO.	REVISION DESCRIPTION
		COLUMBIA GATEWAY 6 th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA PARCELS S AND T A RESUBDIVISION OF PARCEL R
		PROJECT TITLE STORM DRAIN DETAILS
		SCALE: 1/4" = 1'-0" DATE:
		WHITMAN REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218
		Kenneth A. McCord Registered Engineer No. 1974

1158

APPROVED: DEPARTMENT OF PUBLIC WORKS
 5-15-87
 CHIEF, BUREAU OF ENGINEERING & PLANNING
 OFFICE OF PLANNING AND ZONING
 John W. M... 512-87
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

DESIGN DATA FOR SEDIMENT TRAP NO. 1
 DRAINAGE AREA - 4.2 ACRES
 DISTURBED AREA - 4.2 ACRES
 VOLUME REQUIRED - 4.3 x 67 = 288.1 CY
 VOLUME AVAILABLE - 295 CY
 TOP BERM ELEVATION - 294.0
 STORAGE ELEVATION - 292.0
 WEIR CREST ELEVATION - 293.0
 LENGTH OF WEIR - 17'
 BOTTOM ELEVATION - 287.0
 SIZE AT BOTTOM - 16' x 71'

DESIGN DATA FOR SEDIMENT TRAP NO. 2
 DRAINAGE AREA - 3.0 ACRES
 DISTURBED AREA - 3.0 ACRES
 VOLUME REQUIRED - 3.0 x 67 = 201 CY
 VOLUME AVAILABLE - 250 CY
 TOP BERM ELEVATION - 292.0
 STORAGE ELEVATION - 290.0
 WEIR CREST ELEVATION - 291.0
 LENGTH OF WEIR - 14'
 BOTTOM ELEVATION - 286.0
 SIZE AT BOTTOM - 18' x 73'



REV	DATE	NO.	REVISION DESCRIPTION
1	March 1987		Enlarged Pond, revised storm drains

COLUMBIA GATEWAY 6th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
 PROJECT AREA
PARCELS S AND T
A RESUBDIVISION OF PARCEL R
 PROJECT TITLE
SEDIMENT CONTROL PLAN

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

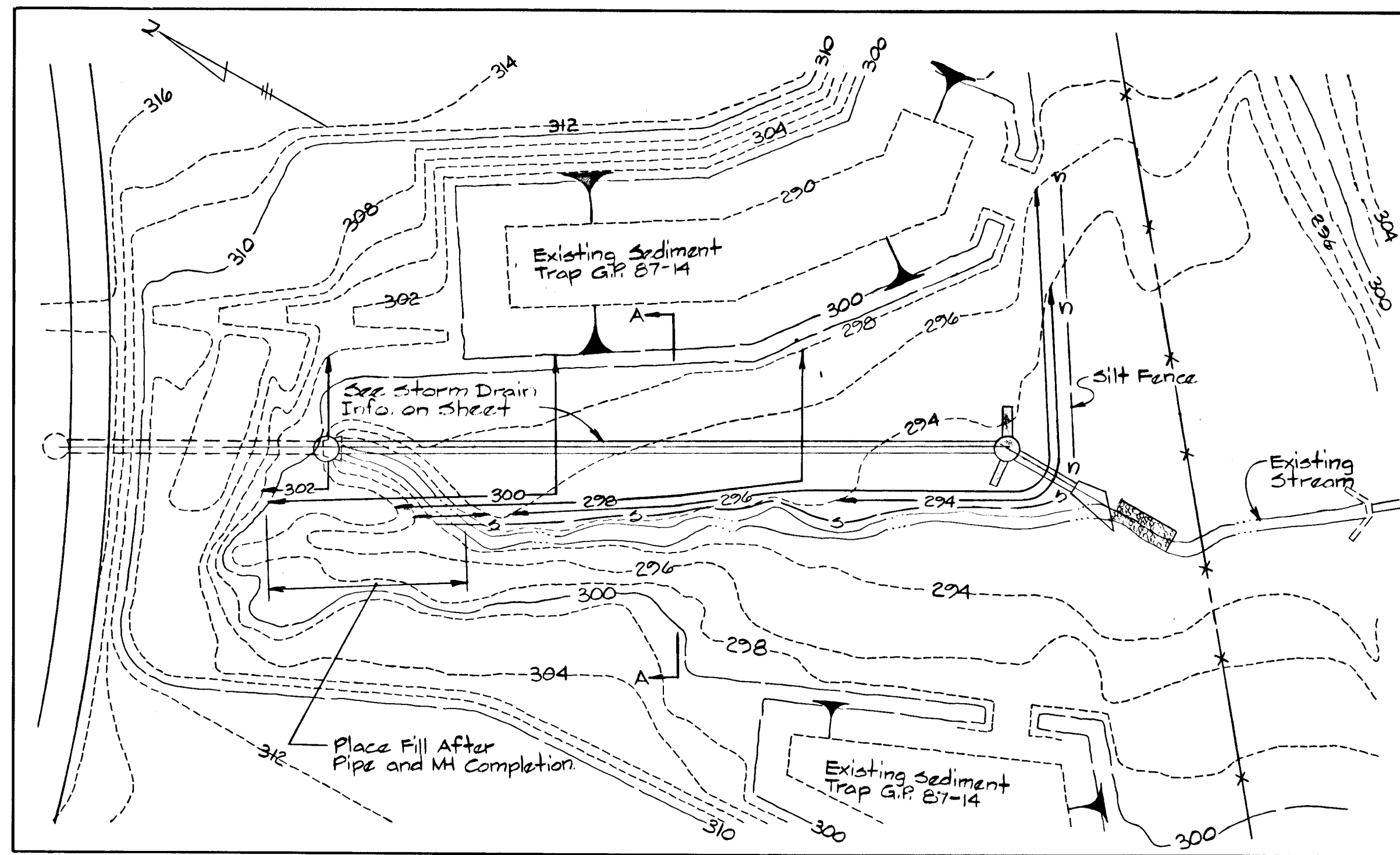
Kenneth A. McCord
KENNETH A. MCCORD
 Registered Engineer
 No. 10714

By the Developer:
 "I/We certify that all development and construction will be done according to this plan, and 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. I also authorize periodic on-site inspection by the Howard Soil Conservation District."
Walter E. Woodford 2-2-87
 WALTER E. WOODFORD Date

By the Engineer:
 "I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Kenneth A. McCord 2-2-87
 KENNETH A. MCCORD Date

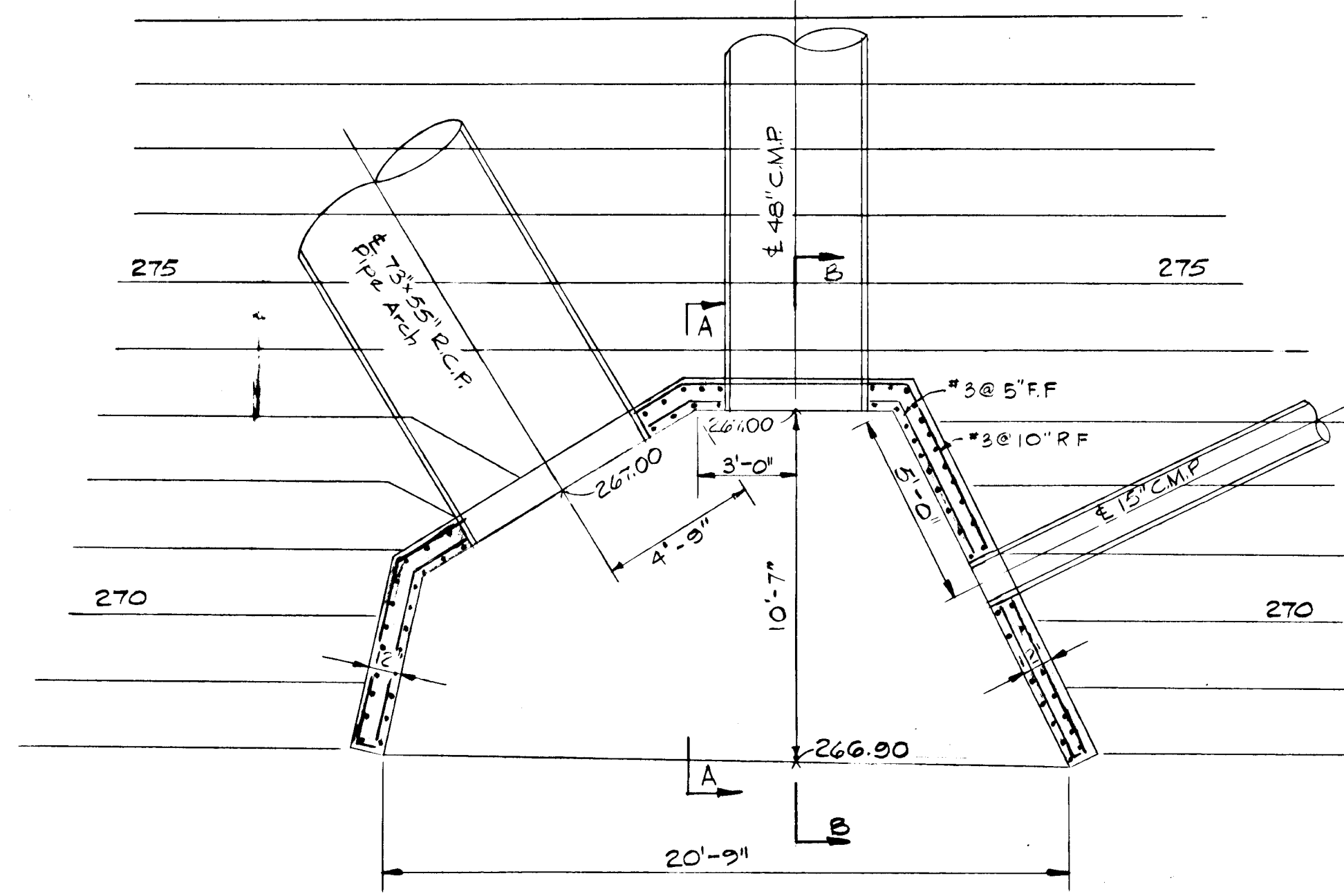
Reviewed for HOWARD S.C.D. and meets Technical Requirements
John M. K... 5-11-87
 J/S. Soil Conservation Date
 service
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Stephen A. Fulu 5/10/87
 HOWARD S.C.D. Date

APPROVED: DEPARTMENT OF PUBLIC WORKS
 5-15-87
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING AND ZONING
John M. ... 5-12-87
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE AND ZONING ADMINISTRATION

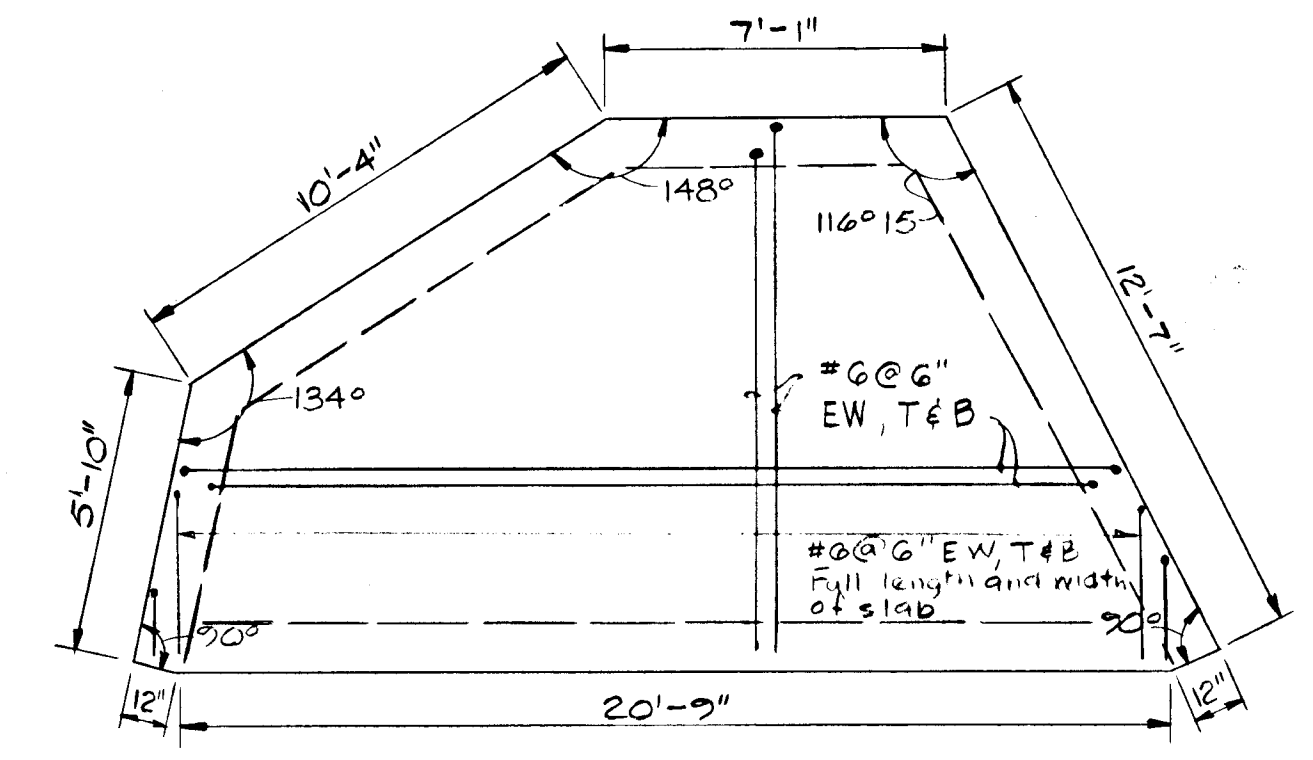


PLAN - POND SPILLWAY EXTENSION

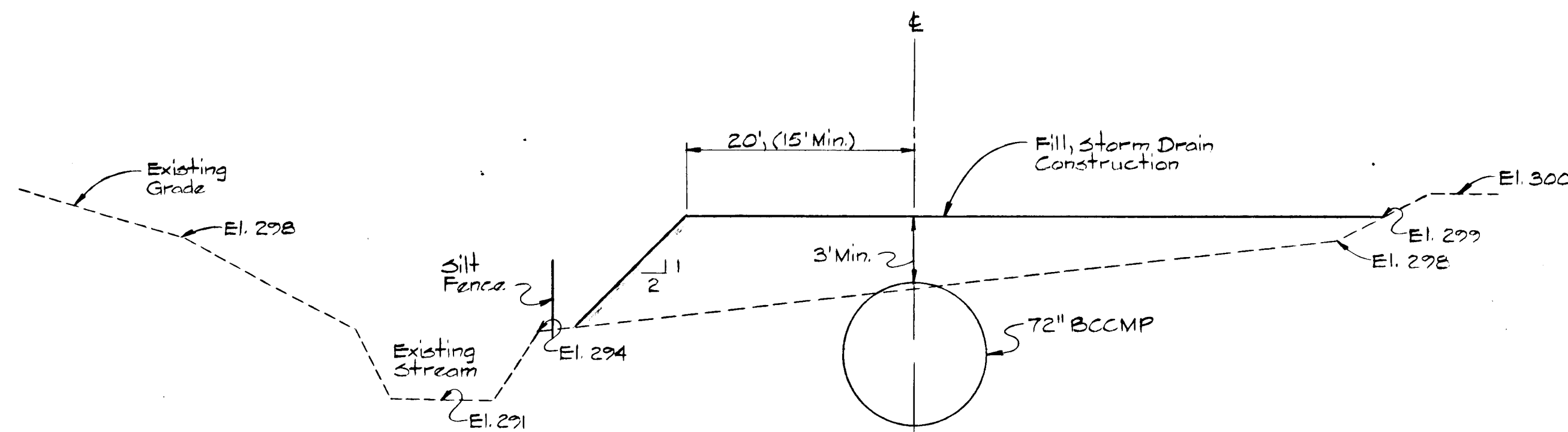
Scale: 1" = 50'



PLAN



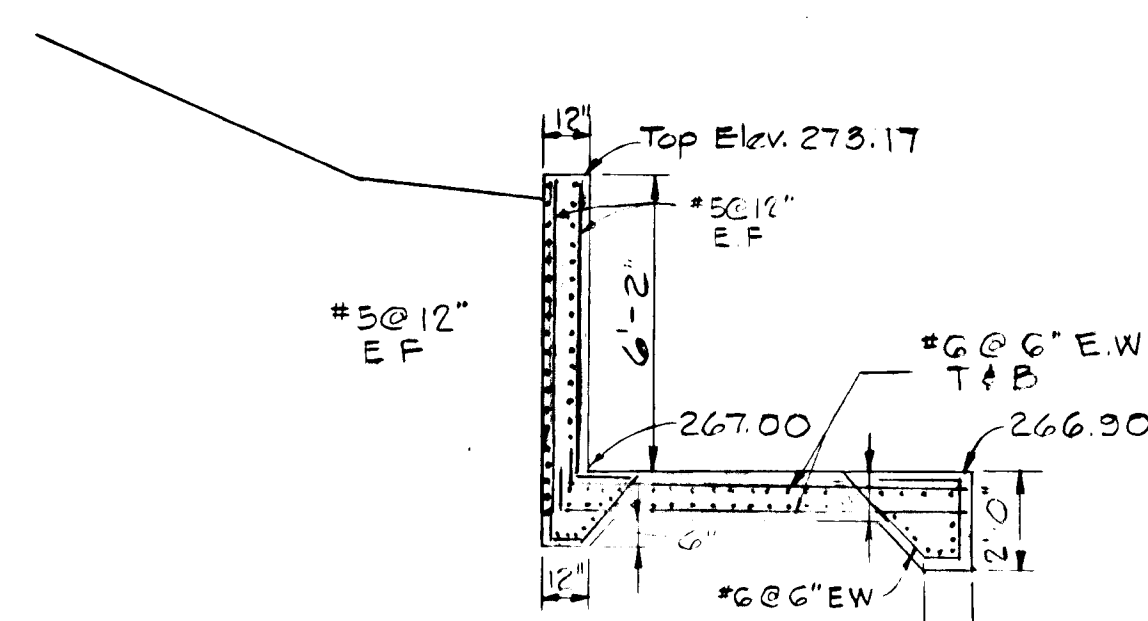
PLAN (BOTTOM SLAB)



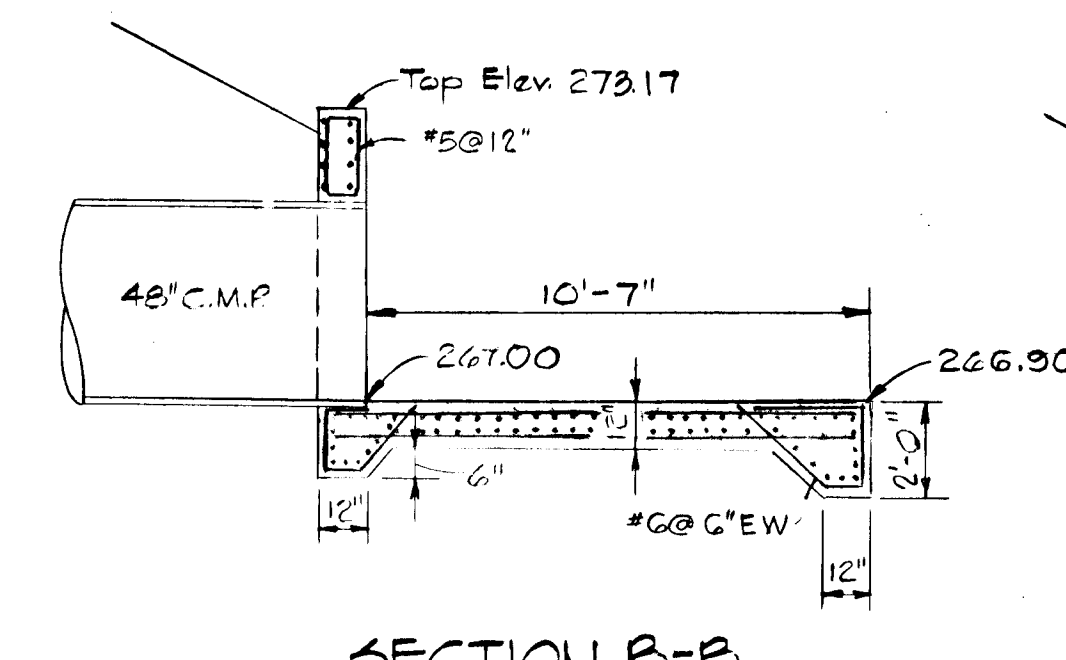
SECTION A-A

(See Plan Above)

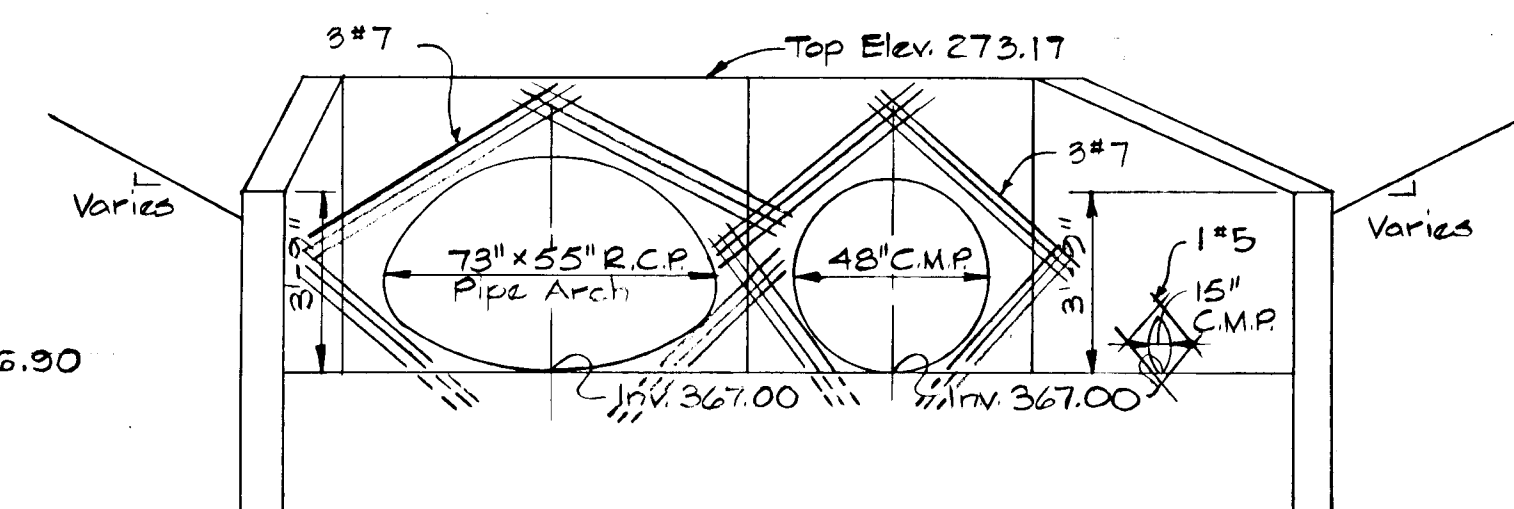
Scale: Hor. 1" = 10' Ver. 1" = 5'



SECTION A-A



SECTION B-B

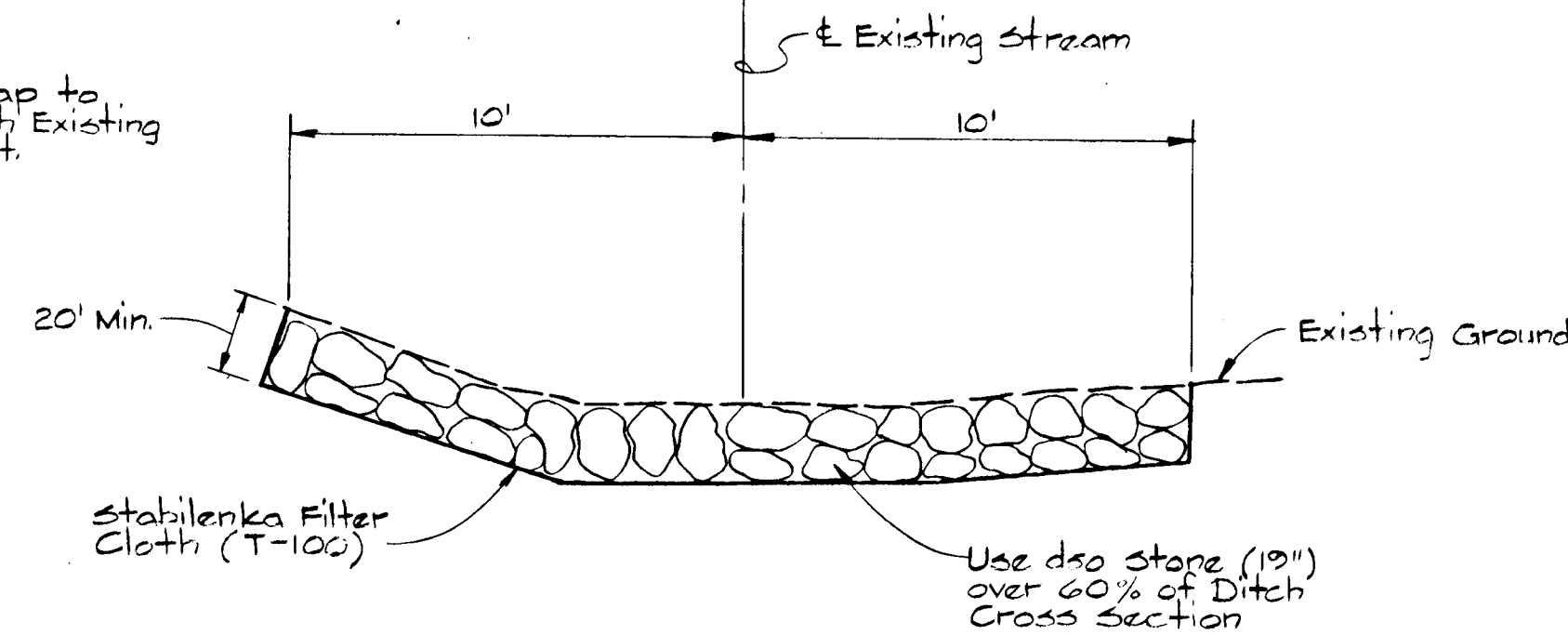


FRONT ELEVATION

DETAIL STRUCTURE 3-45

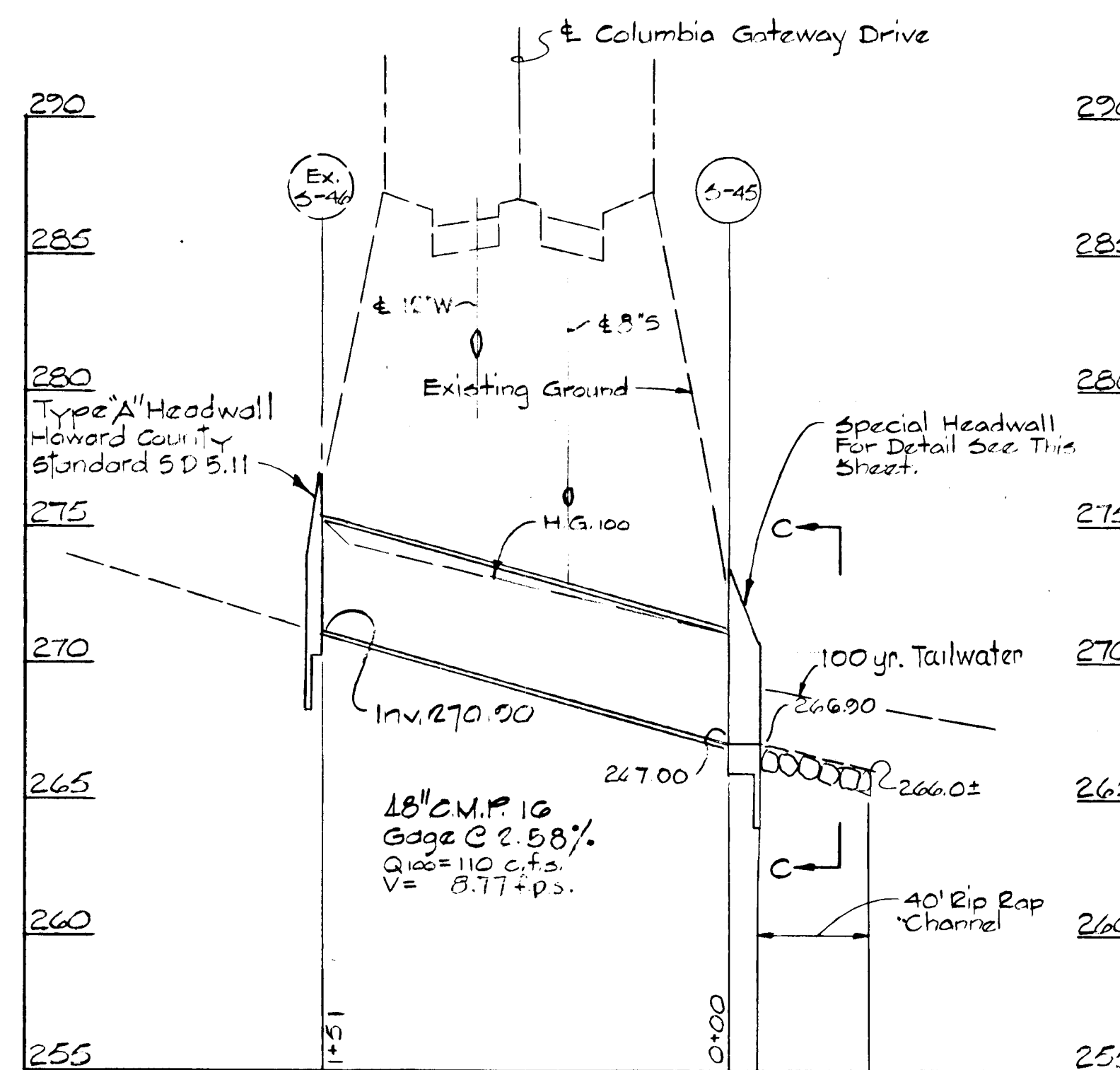
Scale: 1/4" = 1' 0"

Note: Place Rip-Rap to Conform with Existing Stream Invert.



SECTION C-C

No Scale



Scale: Hor. 1" = 50' Ver. 1" = 5'

Reviewed for HOWARD S.C.D. and needs Technical Requirements
Kenneth A. McCard 5-11-87
 U.S. Soil Conservation Service Date
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Stephen R. Puler 5/1/87
 Howard S.C.D. Date

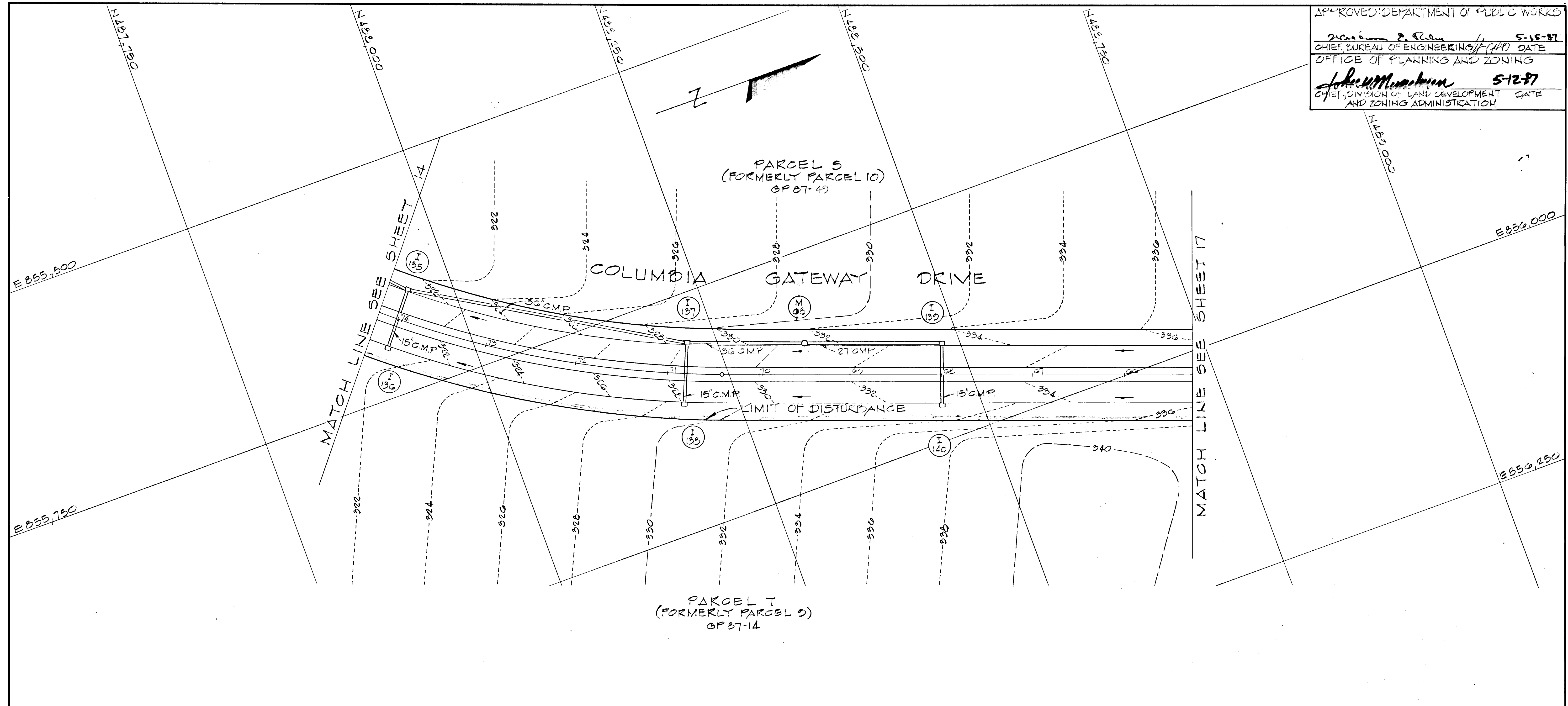
By the Developer:
 "I/We certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."
Walter E. Woodford 2-2-87
 WALTER E. WOODFORD Date

By the Engineer:
 "I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Kenneth A. McCard 2-2-87
 KENNETH A. MCCARD Date

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 S AND T A RESUBDIVISION OF PARCEL R
		PROJECT TITLE SEDIMENT CONTROL PLAN STORM DRAIN DETAIL
		SCALE: AS SHOWN DATE:
		WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218
		<i>Kenneth A. McCard</i> KENNETH A. MCCARD Registered Engineer No. 1974

1158

APPROVED: DEPARTMENT OF PUBLIC WORKS
William S. Ryan 5-15-87
 CHIEF, BUREAU OF ENGINEERING/FPD DATE
 OFFICE OF PLANNING AND ZONING
John M. Murchison 5-12-87
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 AND ZONING ADMINISTRATION



REV. DATE	REV. NO.	REVISION DESCRIPTION
		COLUMBIA GATEWAY 8TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA PARCELS S AND T A RESUBDIVISION OF PARCEL K
		PROJECT TITLE SEDIMENT CONTROL PLAN
		SCALE: 1" = 50' DATE:
		WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218
		<i>Kenneth A. McCork</i> KENNETH A. MCCORK Registered Engineer No. 1974

By the Developer:
 "I/We certify that all development and construction will be done according to this plan, and 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. I also authorize periodic on-site inspection by the Howard Soil Conservation District."
Walter E. Woodford 2-2-87
 WALTER E. WOODFORD Date

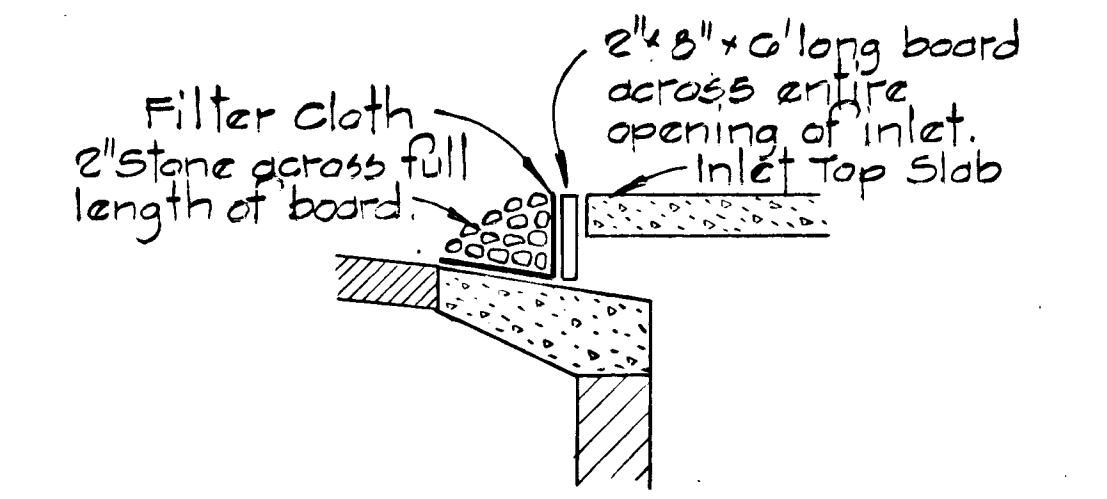
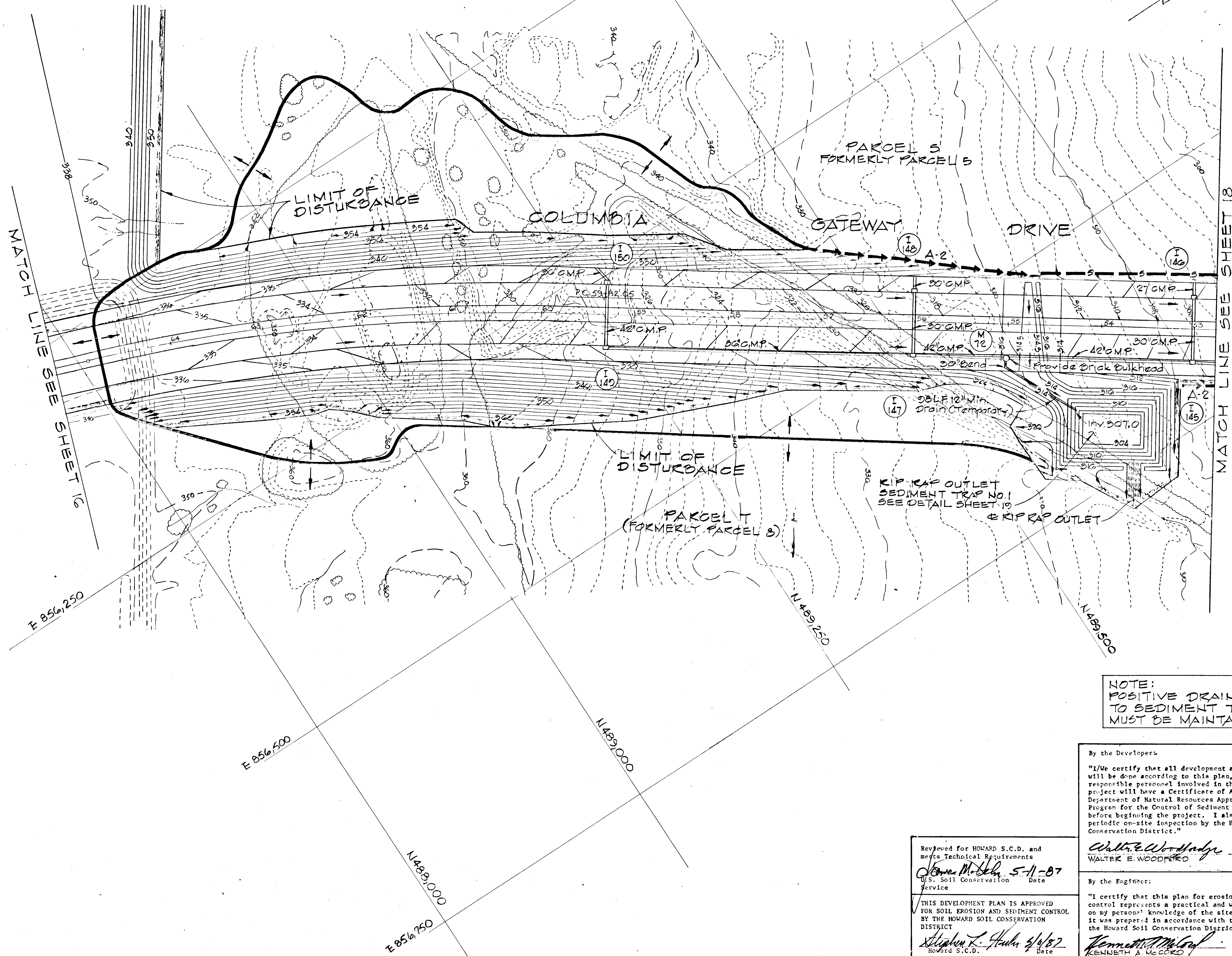
By the Engineer:
 "I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Kenneth A. McCork 2-2-87
 KENNETH A. MCCORK Date

Reviewed for HOWARD S.C.D. and meets Technical Requirements
John M. Murchison 5-11-87
 U.S. Soil Conservation Service Date

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
William S. Ryan 5/11/87
 HOWARD S.C.D. Date

1158

APPROVED: DEPARTMENT OF PUBLIC WORKS
 5-15-87
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING & ZONING
 John M. M... 51287
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



BLOCKED INLET DETAIL
 No Scale

DESIGN DATA
SEDIMENT TRAP NO. 1
 DRAINAGE AREA (STRIPPING) - 0.8 ACRES
 DRAINAGE AREA (GRADING) - 0.8 ACRES
 VOLUME REQUIRED - 1307 CT.*
 VOLUME AVAILABLE - 1333 CT.
 TOP BERM ELEVATION - 316.0
 STORAGE ELEVATION - 313.0
 WEIR CREST ELEVATION - 314.0
 LENGTH OF WEIR - 15'
 BOTTOM ELEVATION - 304.0
 SIZE AT BOTTOM - 32" x 62"

* STORMWATER MANAGEMENT DESIGN GOVERNS.

NOTE:
 POSITIVE DRAINAGE TO SEDIMENT TRAP MUST BE MAINTAINED.

REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA GATEWAY 6 th FLECTION DISTRICT HOWARD COUNTY, MARYLAND		
OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY		
PROJECT AREA		
PARCELS S AND T A RESUBDIVISION OF PARCEL R		
PROJECT TITLE		
SEDIMENT CONTROL PLAN		
SCALE: 1" = 50'		
DATE:		
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
 KENNETH A. McCORD Registered Professional Engineer No. 1974		

By the Developers:
 "I/We certify that all development and construction will be done according to this plan, and 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. I also authorize periodic on-site inspection by the Howard Soil Conservation District."
 Walter E. Woodford 1-14-87
 WALTER E. WOODFORD Date

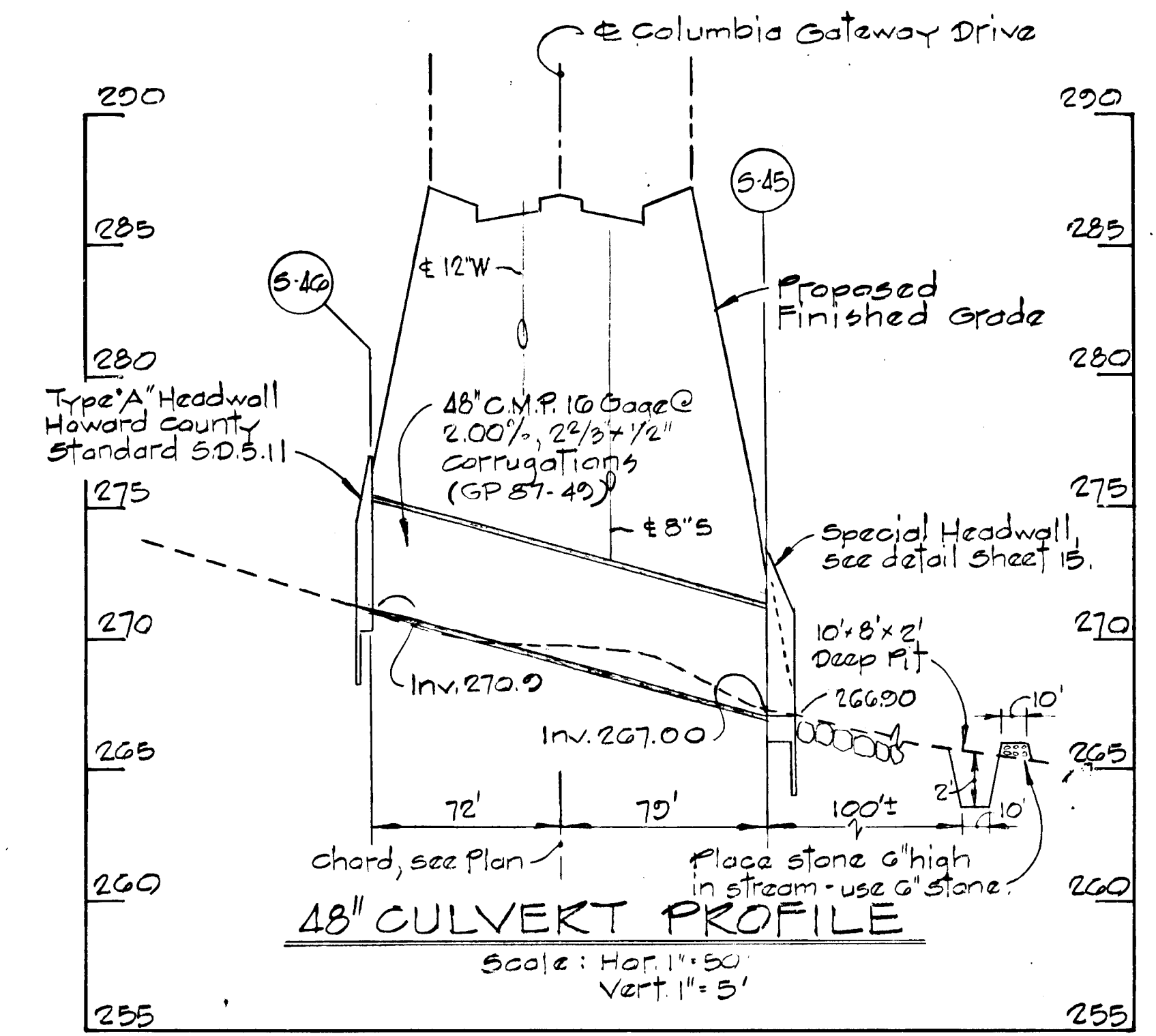
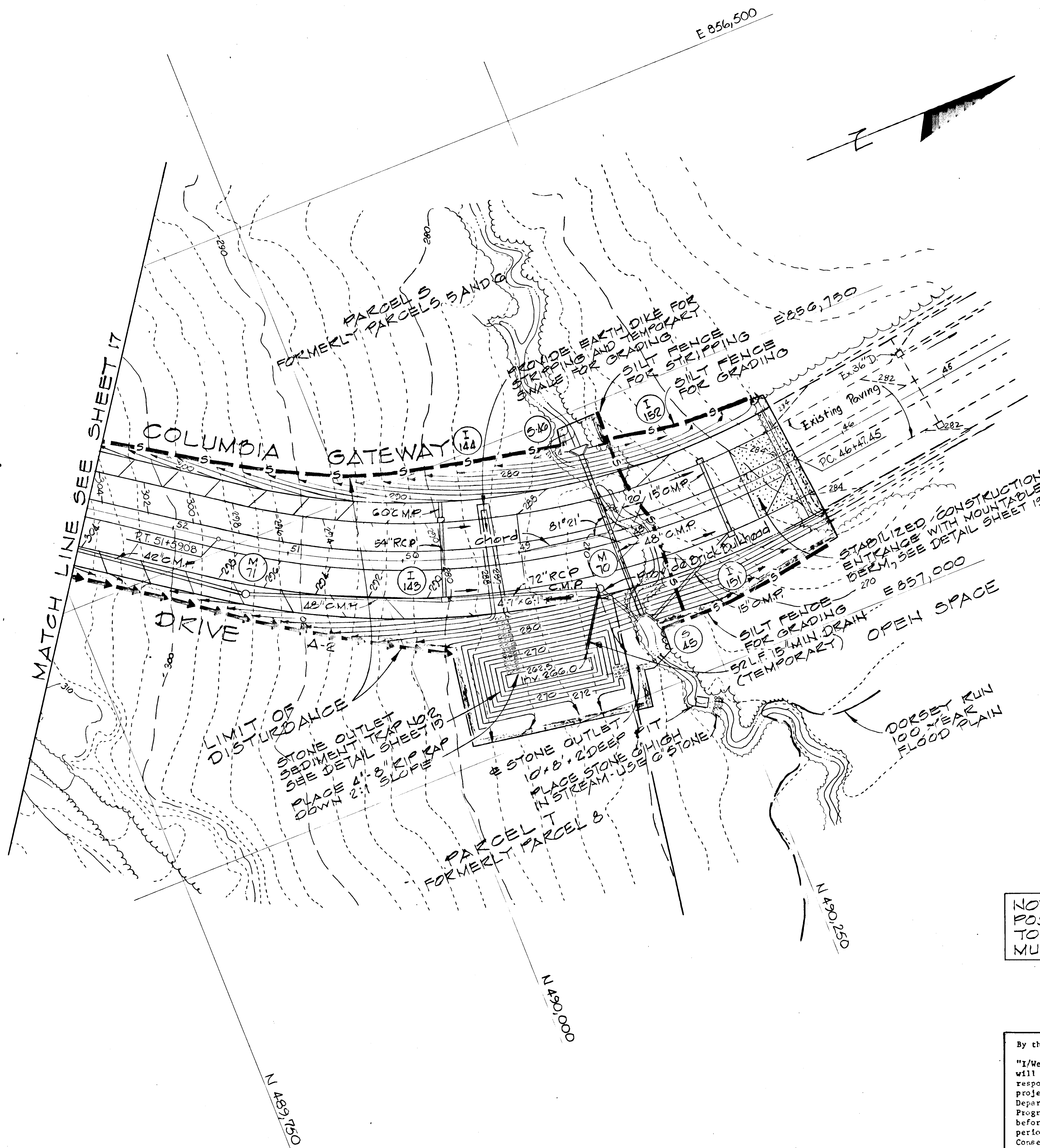
By the Engineer:
 "I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
 Kenneth A. McCord 1-14-87
 KENNETH A. McCORD Date

Reviewed for HOWARD S.C.D. and meets Technical Requirements
 James M. M... 5-11-87
 U.S. Soil Conservation Service Date

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
 Stephen L. H... 4/4/87
 HOWARD S.C.D. Date

1153

APPROVED: DEPARTMENT OF PUBLIC WORKS
John W. Muschman 5-15-87
 CHIEF, BUREAU OF ENGINEERING & PLANNING
 OFFICE OF PLANNING & ZONING
John W. Muschman 5-12-87
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION



DESIGN DATA FOR SEDIMENT TRAP NO. 2
 DRAINAGE AREA (STRIPPING) - 2.0 ACRES
 DRAINAGE AREA (GRADING) - 2.0 ACRES
 VOLUME REQUIRED - 597 CY *
 VOLUME AVAILABLE - 625 CY
 TOP BERM ELEVATION - 272.0
 STORAGE ELEVATION - 270.0
 WEIR CREST ELEVATION - 271.0
 LENGTH OF WEIR - 8'
 BOTTOM ELEVATION - 262.5
 SIZE AT BOTTOM - 10' x 75'

* STORMWATER MANAGEMENT DESIGN GOVERNS.

NOTE:
 POSITIVE DRAINAGE TO SEDIMENT TRAP MUST BE MAINTAINED.

Reviewed for HOWARD S.C.D. and meets Technical Requirements
 U.S. Soil Conservation Service
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Richard A. Hale 5/15/87
 Richard A. Hale
 Howard S.C.D.

By the Developer:
 "I/We certify that all development and construction will be done according to this plan, and 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. I also authorize periodic on-site inspection by the Howard Soil Conservation District."
Walter E. Woodford 1-14-87
 WALTER E. WOODFORD Date

By the Engineer:
 "I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Kenneth A. McCord 1-14-87
 KENNETH A. MCCORD Date

6/19/87	1	AS PER S.C.S. COMMENTS
REV. DATE	REV. 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 S AND T A RESUBDIVISION OF PARCEL R		
PROJECT TITLE SEDIMENT CONTROL PLAN		
SCALE: 1" = 50'	DATE:	
WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218		
<i>Kenneth A. McCord</i> KENNETH A. MCCORD Registered Engineer No. 1974		

1/58

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding.

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules:

- 1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 600 lbs per acre 10-10-10 fertilizer (16 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).
- 2) 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 period March 1 thru April 30, and August 1 thru October 15, seed with 80 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 of Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 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 as much as possible of the peat moss. Option (2) use seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching - Apply 1/4 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 2/8 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

Maintenance - Inspect all seeded areas and make needed repairs, replacements and reseedings.

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE RESTABILIZED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

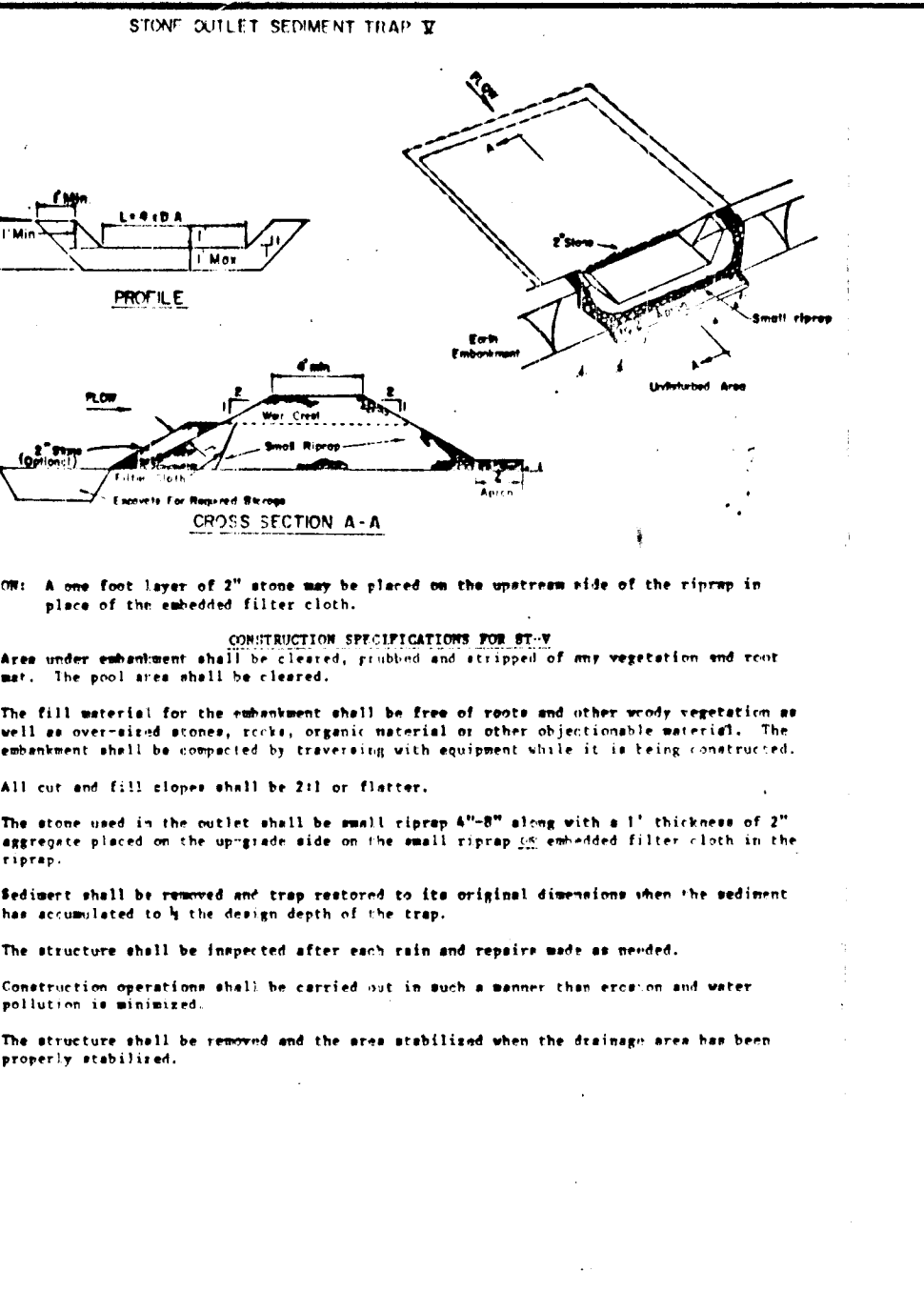
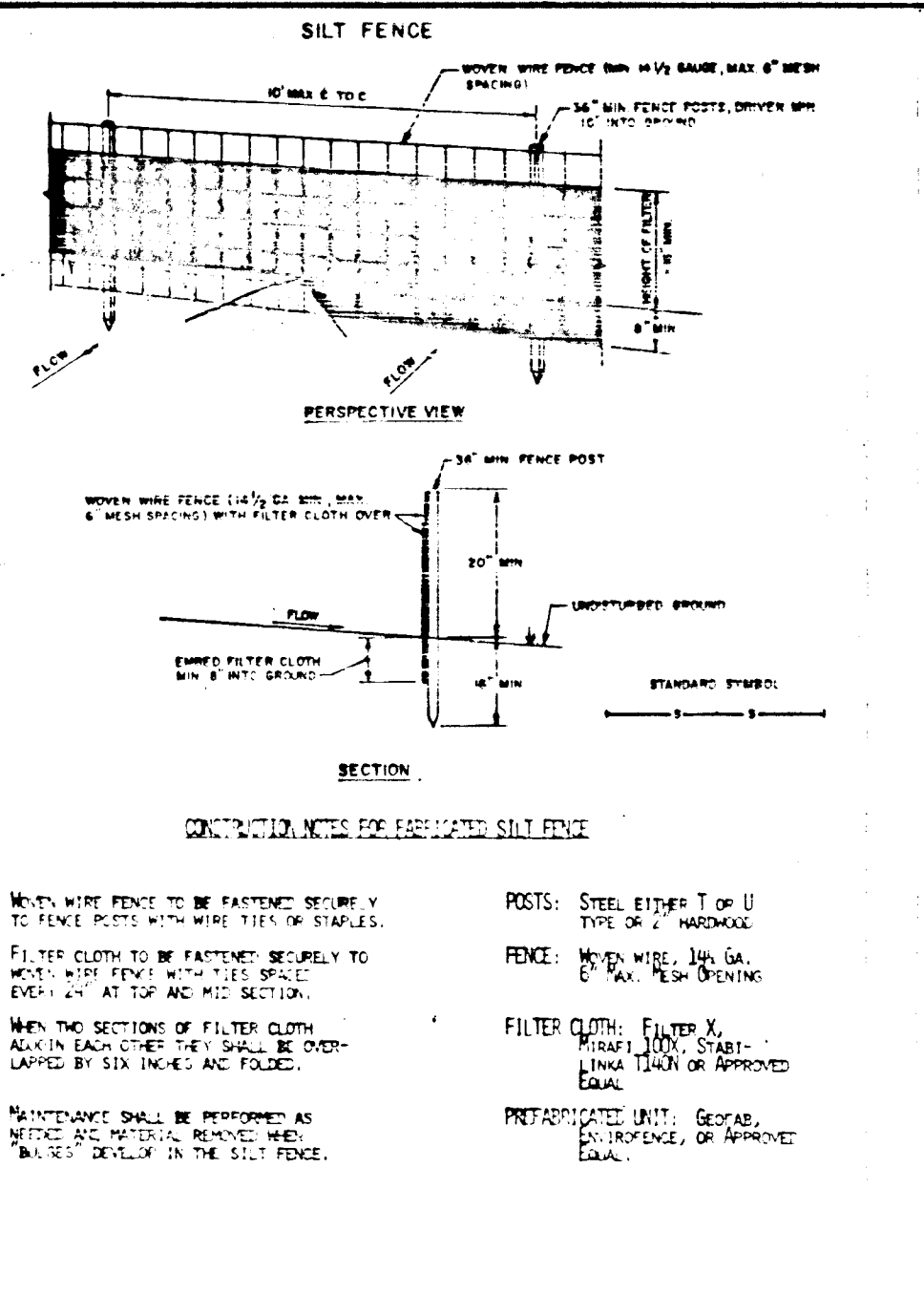
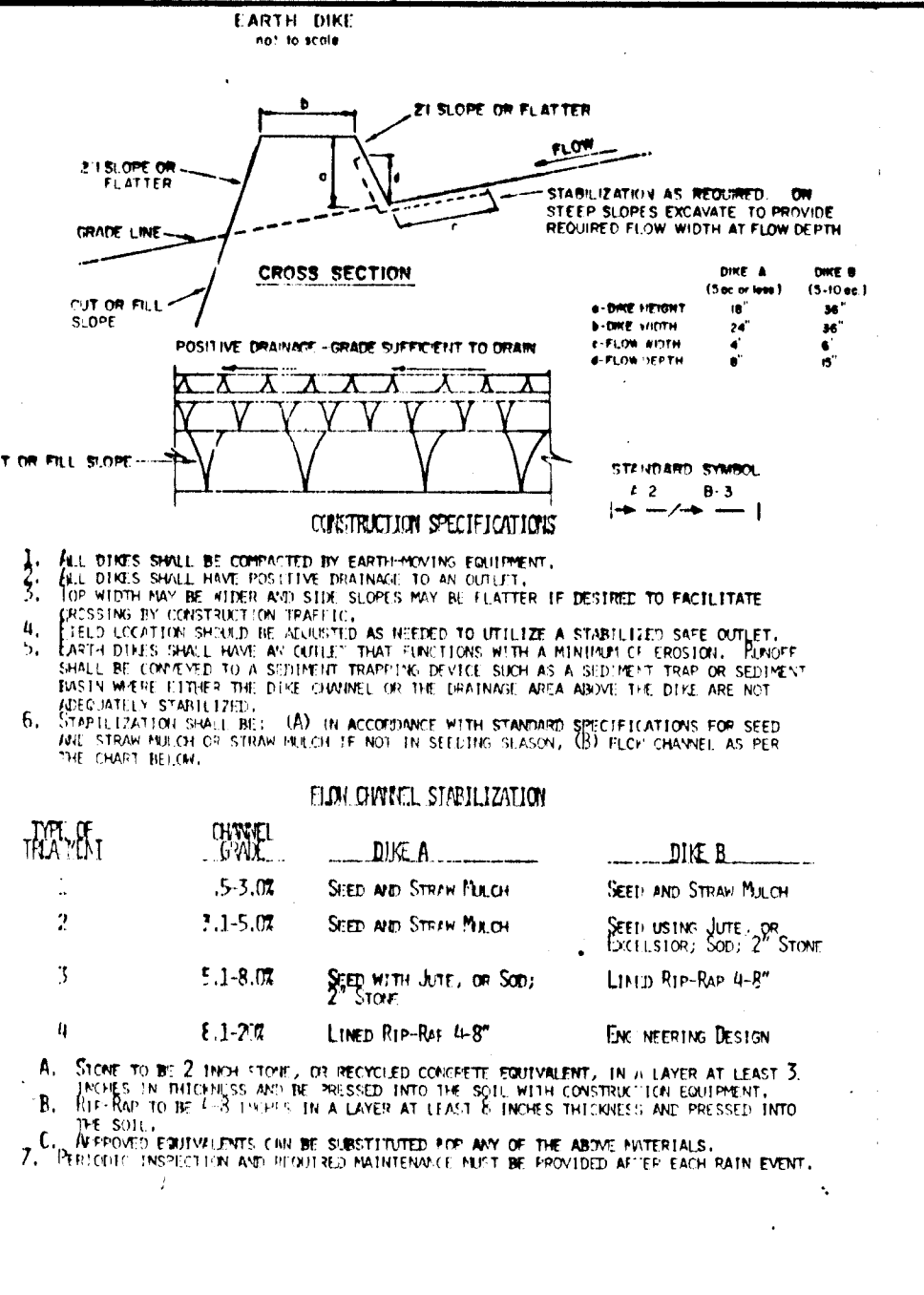
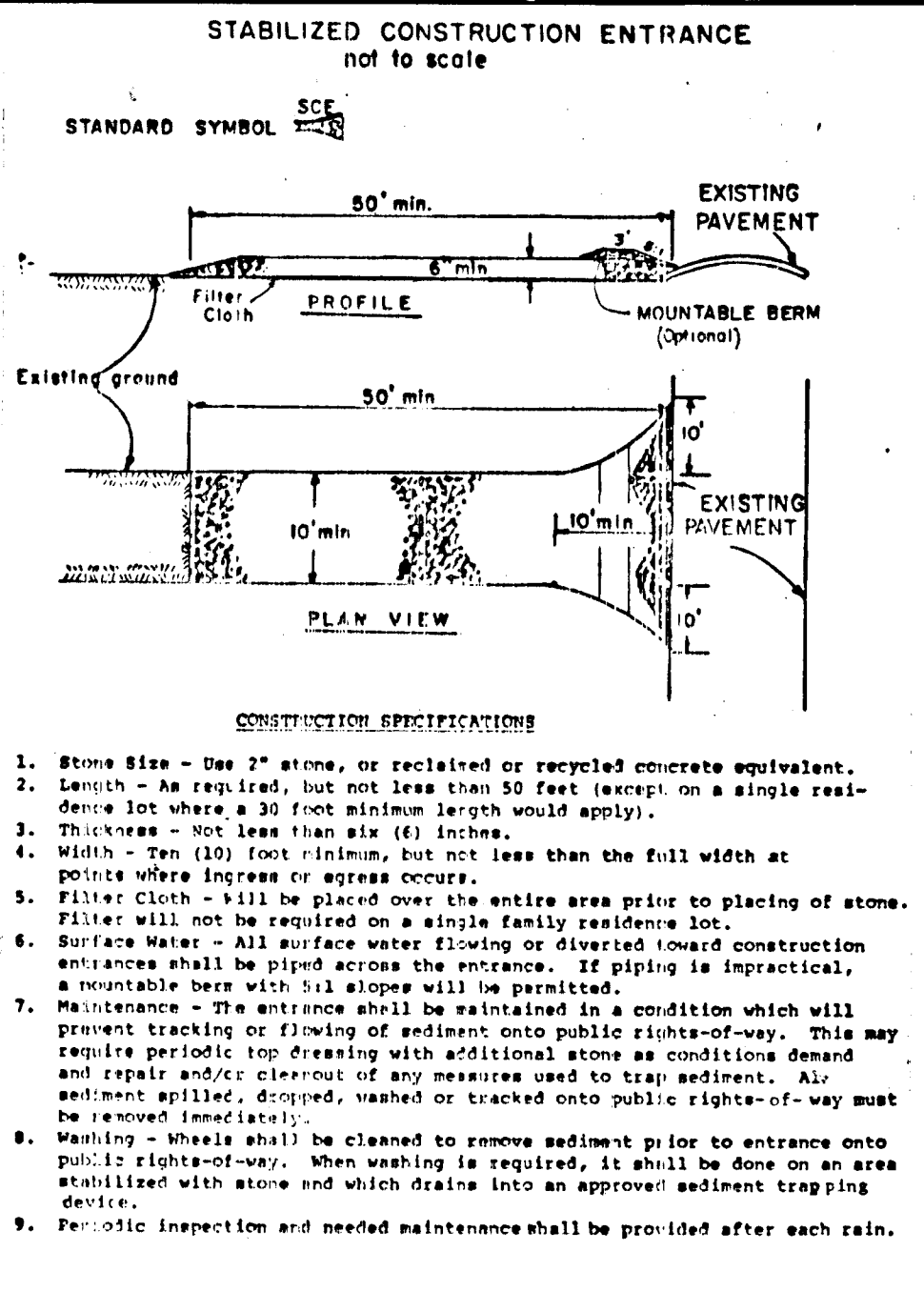
Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding.

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 13 thru November 15, seed with 25 bushel per acre of annual ryegrass (3.2 lbs/1000 sq ft). For the period May 1 thru August 15, 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 as much as possible of the peat moss, or use sod.

Mulching - Apply 1/4 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 2/8 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gal per acre (8 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.



APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF ENGINEERING

OFFICE OF PLANNING & ZONING

DATE: 5-15-87

5-12-87

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

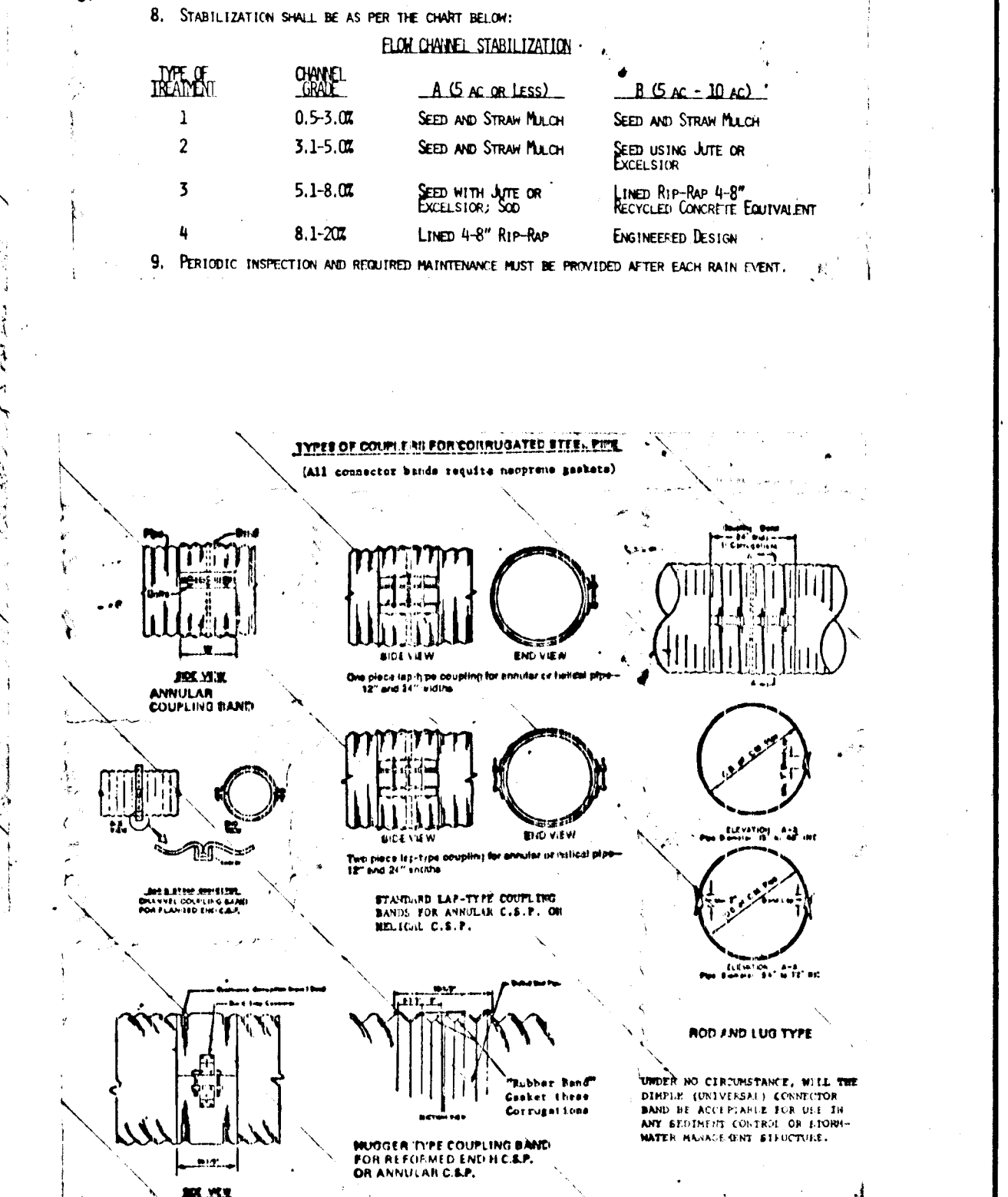
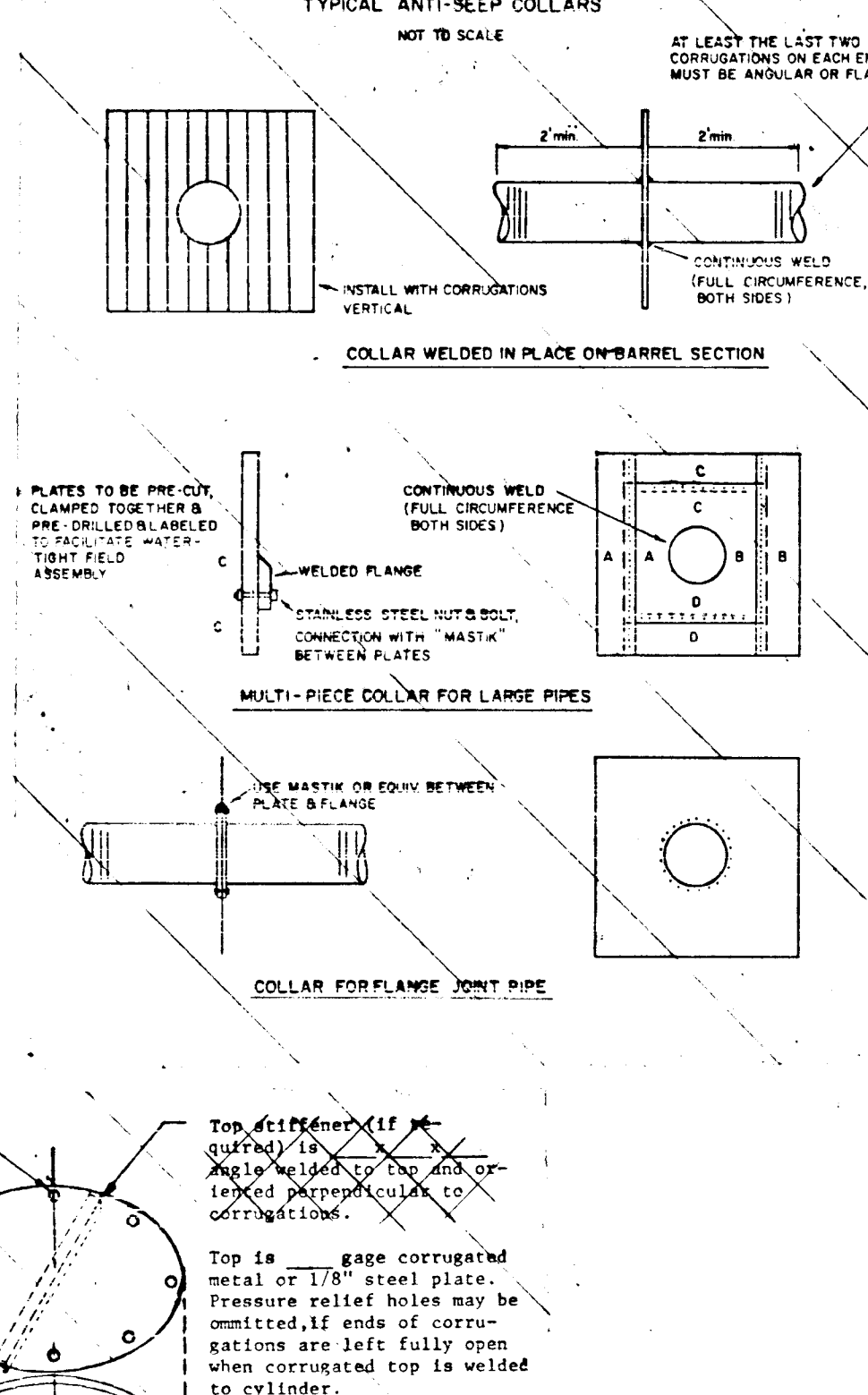
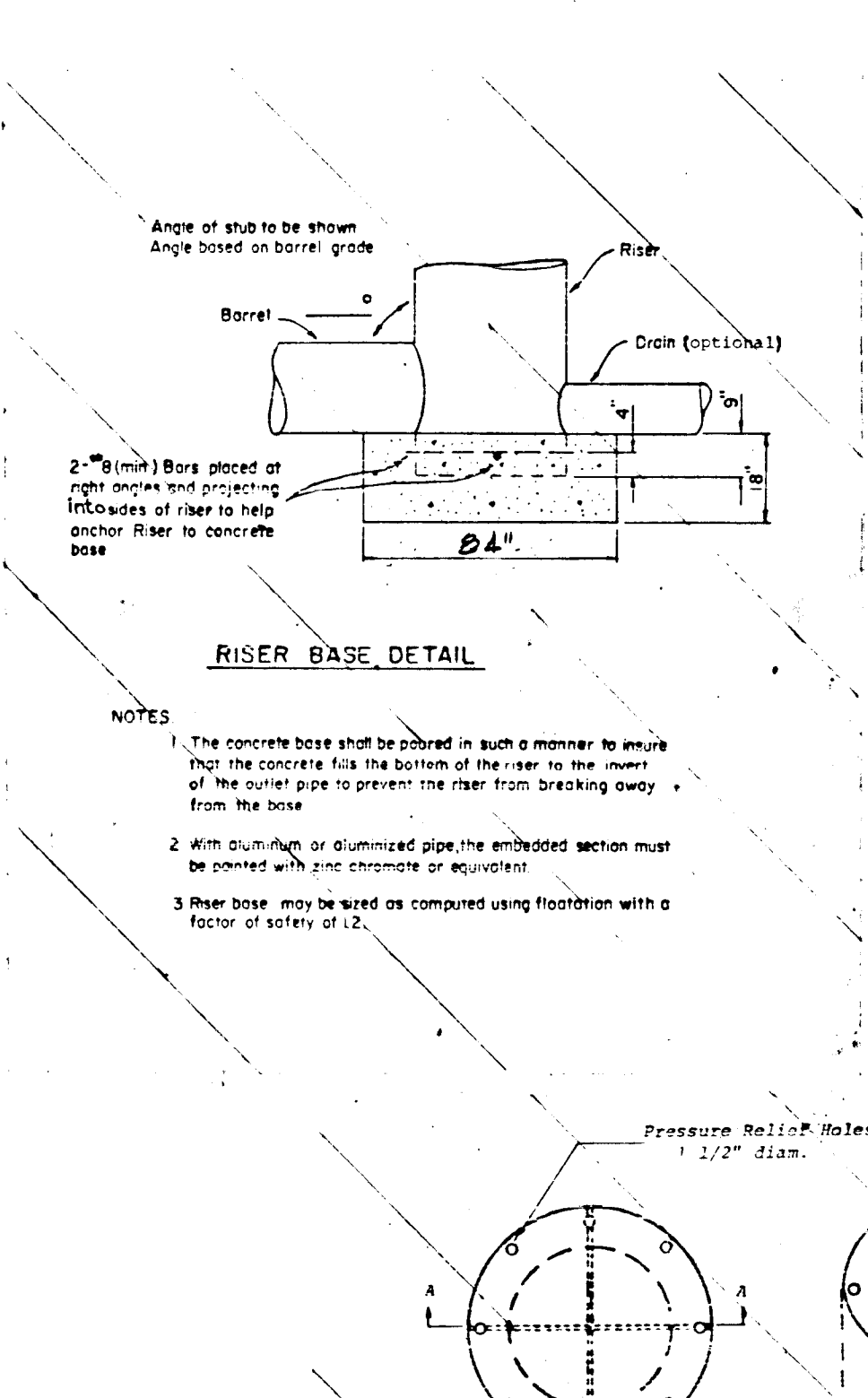
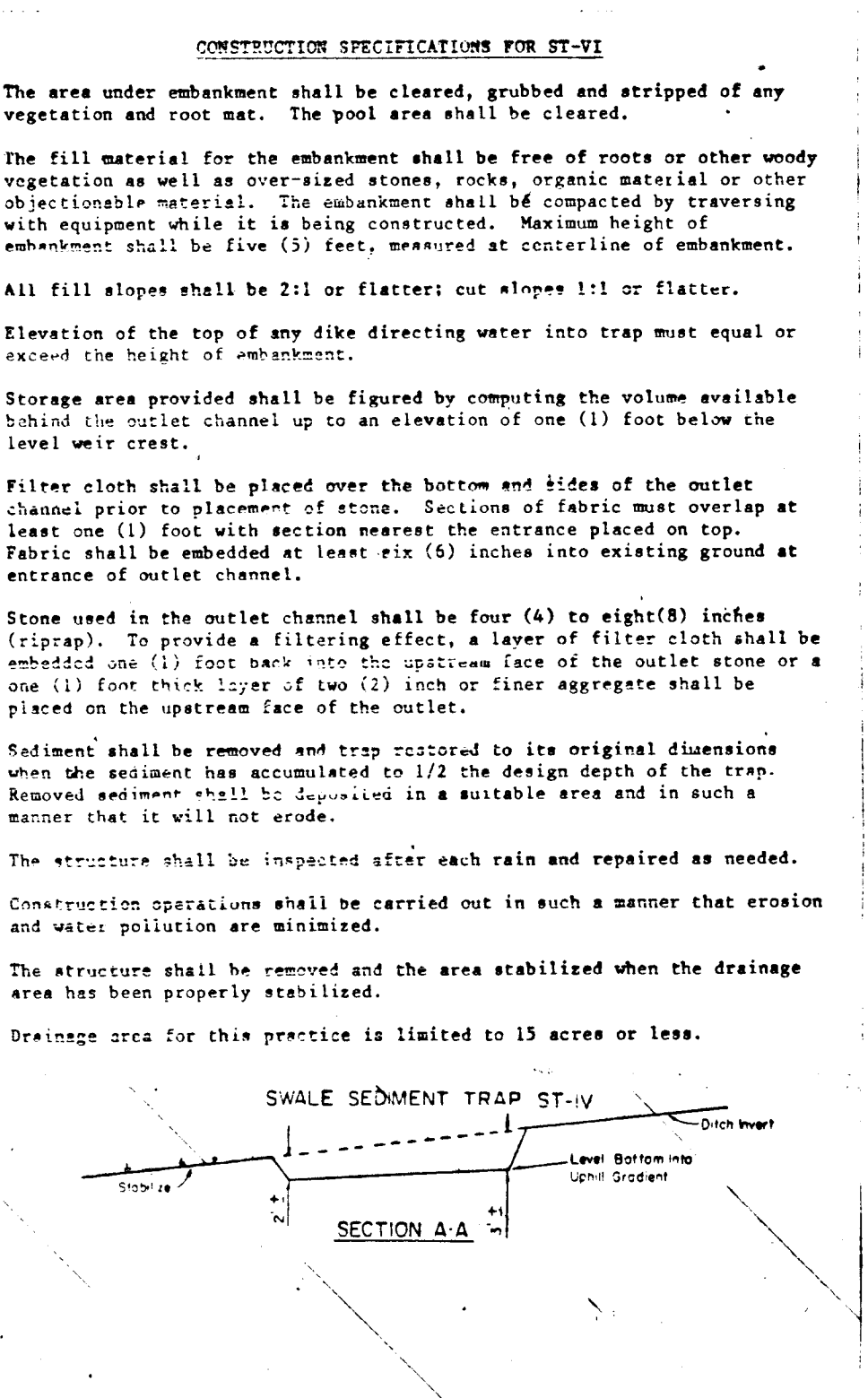
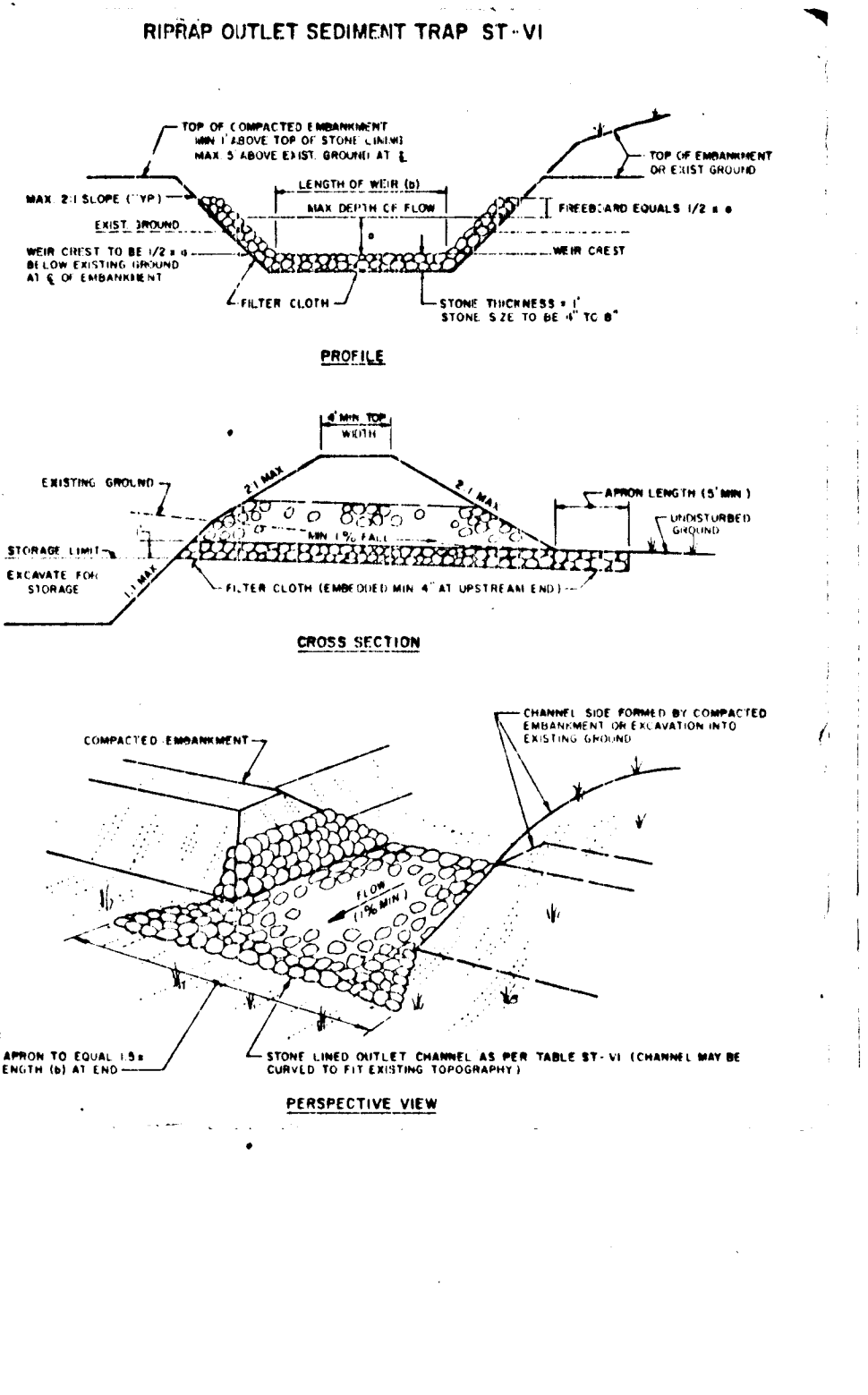
TEMPORARY SWALE

CONSTRUCTION SPECIFICATIONS

1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. 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 compacted by traversing with equipment while it is being constructed.
3. All cut and fill slopes shall be 2:1 or flatter.
4. The stone used in the outlet shall be small riprap 4"-8" along with a 1" thickness of 2" aggregate placed on the upstream side of the small riprap 2" aggregate filter cloth in the riprap.
5. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap.
6. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
7. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.

SEDIMENT CONTROL NOTES

- 1) 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. (992-2437)
- 2) 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.
- 3) Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures; b) 14 days for all other disturbed or graded areas on the project site.
- 4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
- 5) 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 seedings (Sec. 51) and (Sec. 54), temporary seedings (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding rates do not allow for proper germination and establishment of grasses.
- 6) 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.
- 7) Site Analysis:
Total Area of Site: 41.7 Acres
Area Disturbed: 41.7 Acres
Area to be roofed or paved: 0 Acres
Area to be vegetatively stabilized: 41.7 Acres
Total Cut: 275,000 cu. yds.
Total Fill: 240,000 cu. yds.
Off-site waste/borrow area location
- 8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- 9) Additional sediment controls must be provided, if deemed necessary by the Howard County sediment control inspector.
- 10) 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 control, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.



CONSTRUCTION SPECIFICATIONS

Site Preparation

Areas under the embankment shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots or other objectionable material. In order to facilitate clean-out and restoration, the pool area (measured at the top of the pipe spillway) will be cleared of all brush, trees, and other objectionable materials.

Out-of-French

A cut-off trench shall be excavated along the centerline of earth fill embankments. The minimum depth shall be two feet. The cut-off trench shall extend up both abutments to the riser crest elevation. The minimum bottom width shall be four feet, but wide enough to permit operation of excavation and connection equipment. The side slopes shall be no steeper than 1:1. Compaction requirements shall be the same as those for embankment. The trench shall be backfilled during the backfilling/compaction operations.

Embankment

The fill material shall be taken from approved areas shown on the plans. It shall be clean mineral soil free of roots, woody vegetation, oversized stones, rocks, or other objectionable material. The fill material shall be placed in the embankment. Areas on which fill is to be placed shall be scarified prior to placement of fill. The fill material shall contain sufficient moisture so that it can be formed by hand into a ball without crumbling. If water can be squeezed out of the ball, it is too wet for proper compaction. Fill material shall be placed six-inch to eight-inch thick continuous layers over the entire length of the fill. Compaction shall be obtained by routing and hauling the construction equipment over the fill so that the entire surface of each layer of the fill is traversed by at least one wheel or tread track of the equipment or the use of a roller compactor. The embankment shall be constructed to an elevation 10 percent higher than the design height to allow for settlement.

Pipe Spillways

The riser shall be securely attached to the barrel or barrel stub by welding the full circumference making a watertight structural connection. The barrel stub may be attached to the riser at the same percent (angle) of grade as the barrel consists. The connection between the riser and the barrel stub shall be watertight. All connections between barrel sections must be achieved by approved watertight metal assemblies. (See page 18-22 for details.) The barrel and riser shall be placed on a firm, smooth foundation of impervious soil. Pervious materials such as sand, gravel, or crushed stone shall not be used as backfill around the pipe or anti-sheep collars. The fill material around the pipe spillway shall be placed in four inch layers and compacted under and around the pipe to at least the same density as the adjacent embankment.

A minimum depth of two feet of hand compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment. Steel base plates on risers shall have at least 2-1/2 feet of compacted earth, stone or gravel placed over it to prevent flotation.

Emergency Spillway

The emergency spillway shall be installed in undisturbed ground. The achievement of planned elevations, grades, design width, entrance and exit channel slopes are critical to the successful operation of the emergency spillway and must be constructed within a tolerance of ±0.2 feet.

Vegetative Treatment

Stabilize the embankment and emergency spillway in accordance with the appropriate vegetative Standard and Specifications immediately following construction. In no case shall the embankment remain unstabilized for more than seven (7) days.

Erosion and Pollution Control

Construction operations shall be carried out in such a manner that erosion and water pollution will be minimized. State and local laws shall be complied with concerning pollution abatement.

Safety

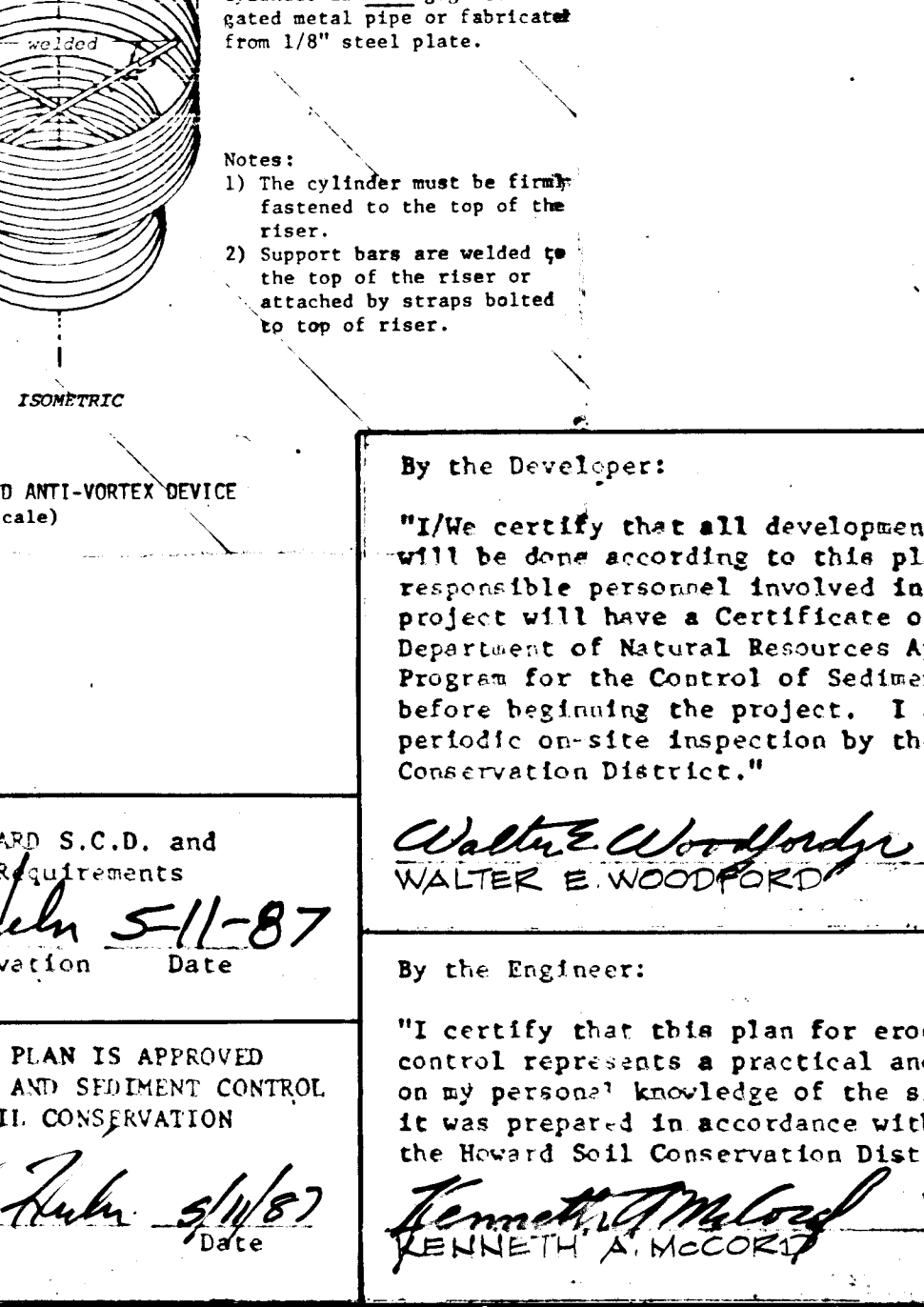
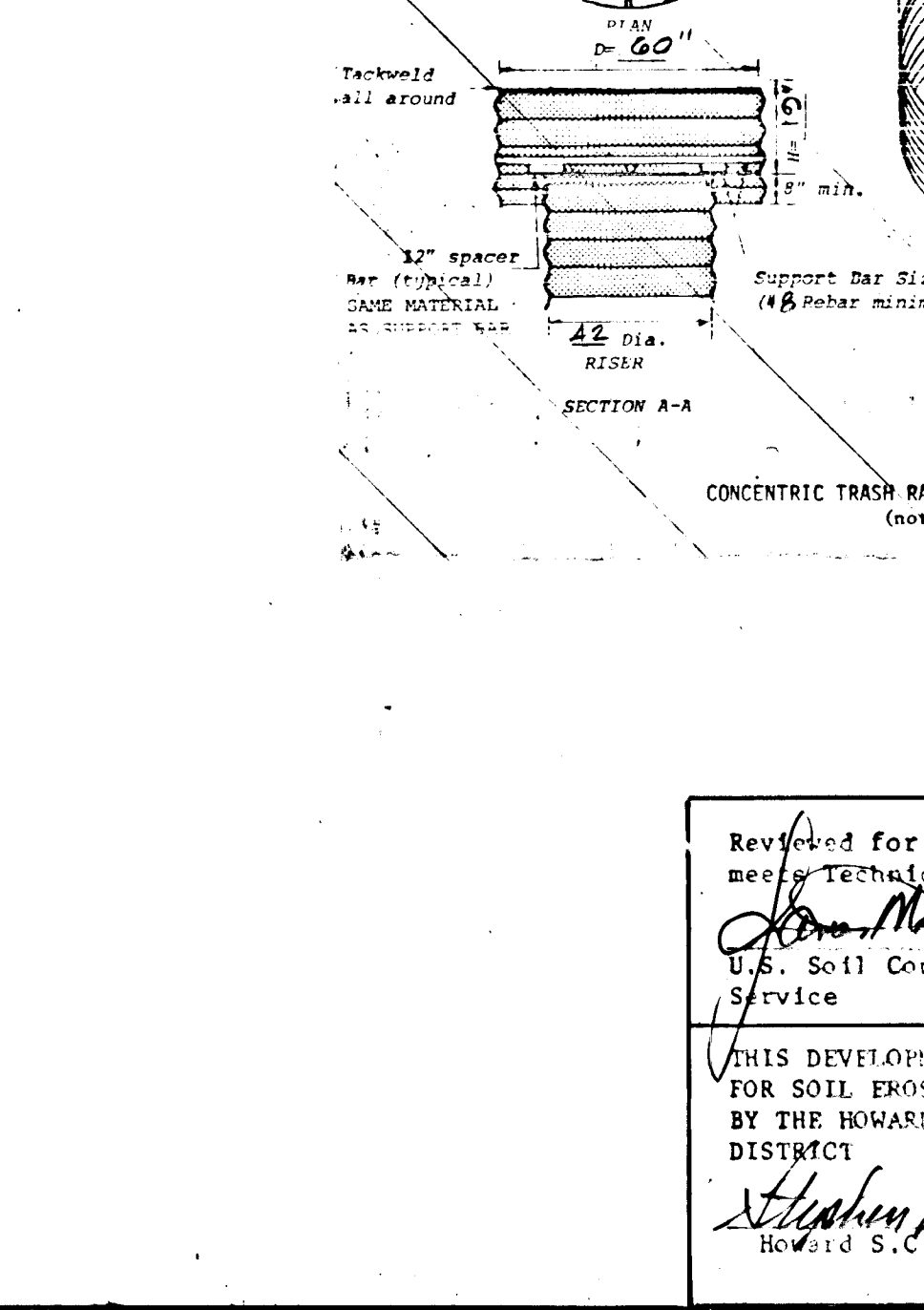
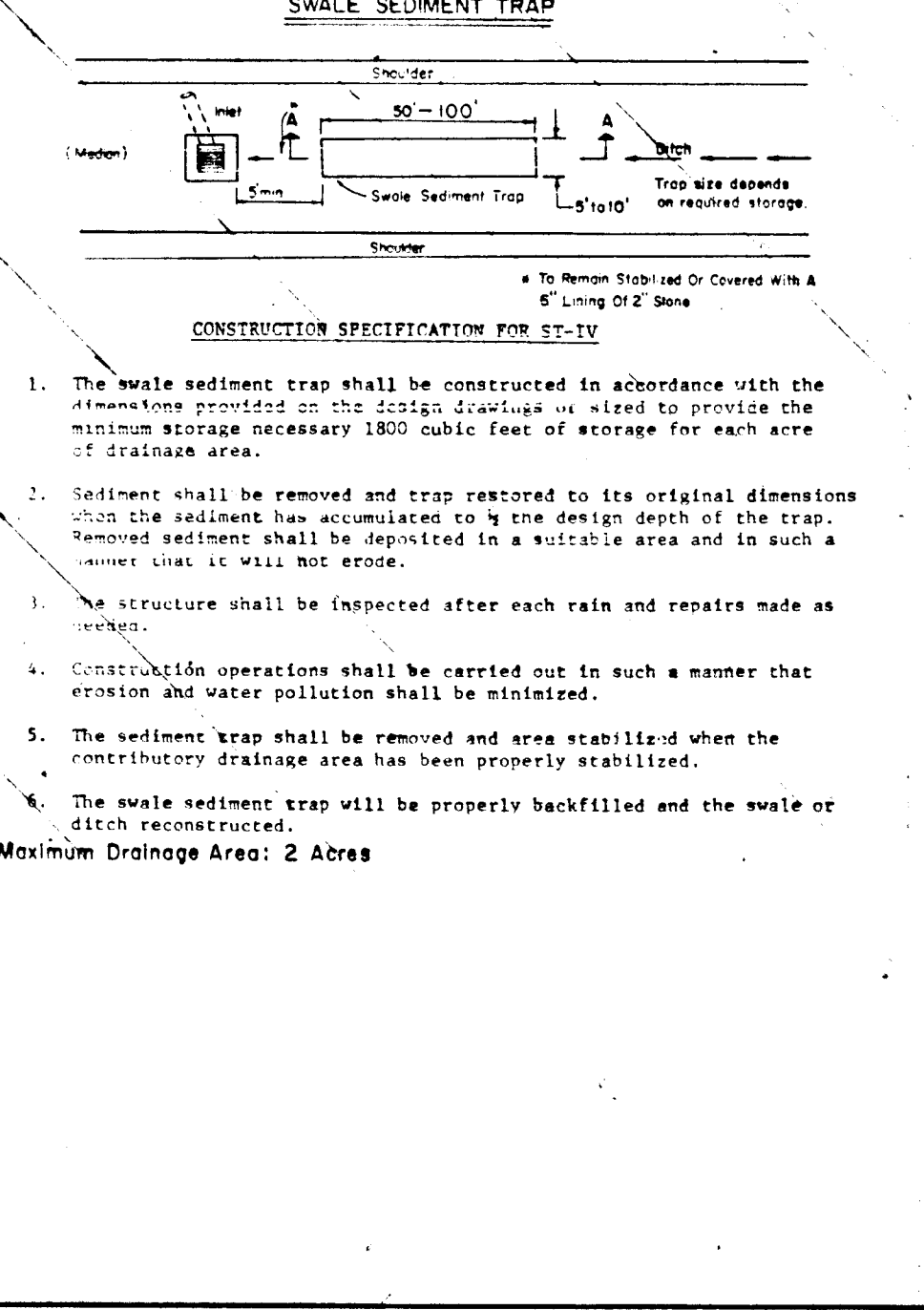
State and local requirements shall be met concerning fencing and signs, warning the public of hazards of soft sediment and flow-ender.

Maintenance

1. Repair all damages caused by soil erosion and construction equipment at or before the end of each working day.
2. Sediment shall be removed from the basin when it reaches the specified distance below the top of the clear. This sediment shall be placed in such a manner that it will not erode from the site. The sediment shall not be deposited downstream from the embankment, adjacent to a stream or flood plain.

Final Disposal

When temporary structures have served their intended purpose and the contributing drainage area has been properly stabilized, the embankment and resulting sediment deposits are to be leveled or otherwise disposed of in accordance with the approved sediment control plan. The proposed use of a sediment basin site will dictate final disposition of the basin and any sediment contained therein. If the site is scheduled for future construction, then the basin material and trapped sediments must be removed, safely disposed of, and backfilled with a structure fill. When the basin area is to remain open space the pond may be pumped dry, graded, and back filled.



NO.	DATE	REVISION DESCRIPTION
		COLUMBIA GATEWAY 6TH ELECTION DISTRICT HOWARD COUNTY MARYLAND
		OWNER AND DEVELOPER THE HOWARD RESEARCH AND DEVELOPMENT LAND COMPANY
		PROJECT AREA PARCELS S AND T A RESUBDIVISION OF PARCEL R
		PROJECT TITLE SEDIMENT CONTROL DETAILS
		SCALE: AS SHOWN DATE:
		WHITMAN, REQUARD AND ASSOCIATES ENGINEERS BALTIMORE, MARYLAND 21218
		By the Developer: Walter E. Woodford 1-14-87 WALTER E. WOODFORD Date
		By the Engineer: Kenneth A. McCord 1-14-87 KENNETH A. MCCORD Date

Revised for HOWARD S.C.D. and meet Technical Requirements
John McCall 5-11-87
U.S. Soil Conservation Service Date

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Stephen S. Rubin 5/11/87
Howard S.C.D. Date

"I/We certify that all development and construction will be done according to this plan, and 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. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

Kenneth A. McCord
KENNETH A. MCCORD
Registered Engineer
NO. 1074

158