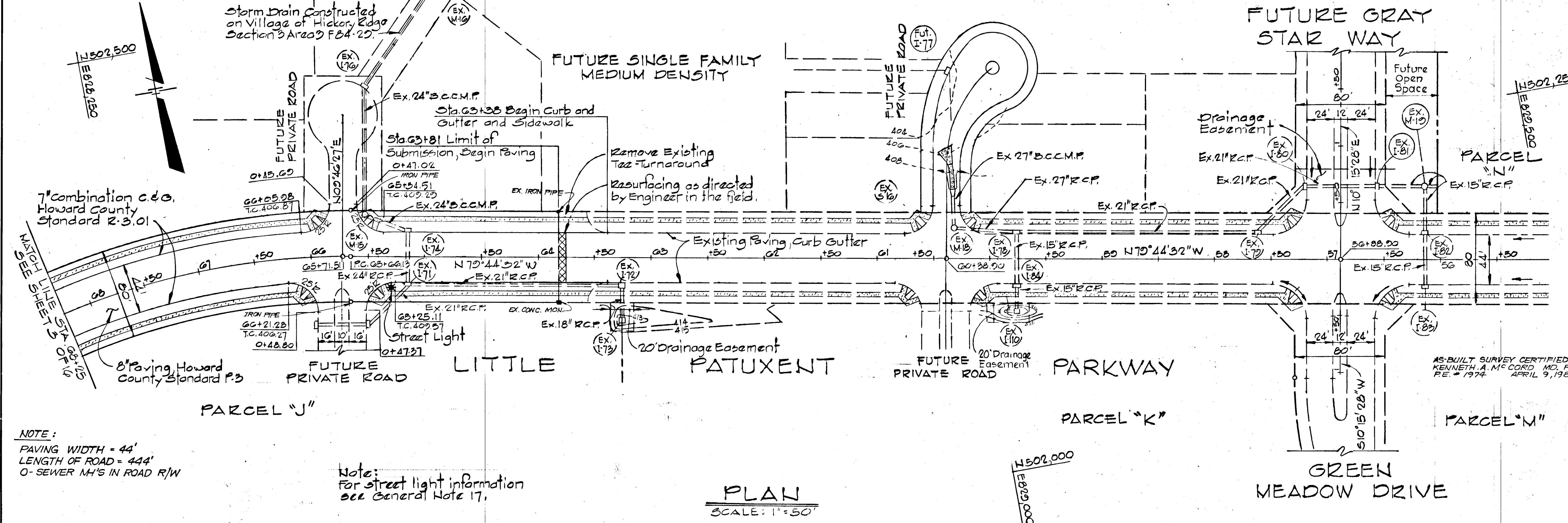


CURVE DATA
 INT. 65+71.51 to P.C.C. 65+85.13
 $\Delta = 28^{\circ}12'35''$ Tan = 100.00'
 $R = 637.00'$ Ch. = 310.46'
 Arc = 315.62' Ch. Brg. = S85°40'11"W

CURVE DATA
 P.C. 65+66.13 to INT. 65+71.51
 $\Delta = 00^{\circ}29'01''$ Tan = 2.60'
 $R = 637.00'$ Ch. = 5.38'
 Arc = 5.33' Ch. Brg. = N79°59'03"W

DEPARTMENT OF PUBLIC WORKS
Kenneth A. McCord 12-2-83
 CHIEF, BUREAU OF ENGINEERING & ZONING
 OFFICE OF PLANNING & ZONING
John M. Muehman 12-23-83
 CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION

DATE	
BY	
REVISION	
NO.	



NOTE: FOR EXISTING LITTLE PATUXENT PARKWAY PLAN AND PROFILE SEE CONSTRUCTION DRAWINGS FOR VILLAGE OF HICKORY RIDGE SECTION 3 AREA 3 (FB4-25).

REVDATE	REV. NO.	REVISION DESCRIPTION
6/29/84	3	Added Street Light
11/3/83	2	As per DPW Comments
6/12/82	1	As per D.T.W. and S.C.S. Comments

COLUMBIA
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 3

PROJECT TITLE
 PLAN AND PROFILE
 LITTLE PATUXENT PARKWAY
 STA. 65+00 TO STA. 67+00

SCALE: AS SHOWN DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

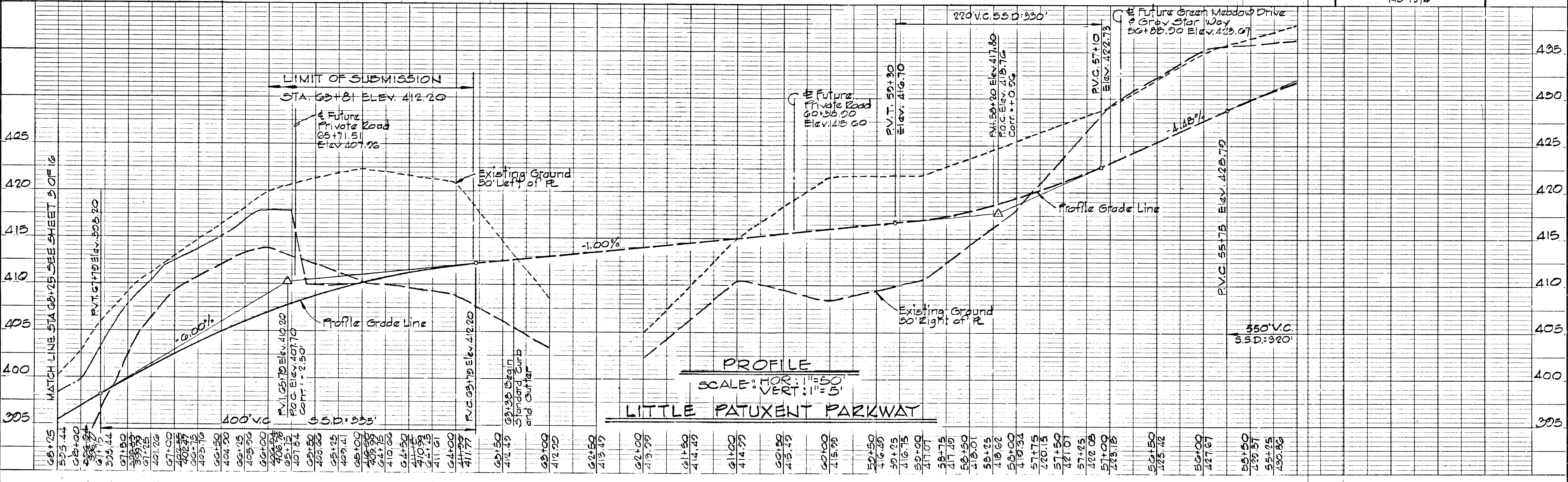
Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974

NOTE:
 PAVING WIDTH = 44'
 LENGTH OF ROAD = 444'
 0-SEWER MH'S IN ROAD R/W

Note:
 for street light information
 see General Note 17.

PLAN
 SCALE: 1"=50'

DATE	
BY	
REVISION	
NO.	



PROFILE
 SCALE: HOR. 1"=50'
 VERT. 1"=5'

#42

STORM DRAIN STRUCTURE SCHEDULE					
NO.	TYPE	TOP EL.	INV. IN	INV. OUT	LOCATION
I-53	Std. A-5 Inlet, Width=3.0'	368.36	362.86	362.61	Inlet 24.17' Left of Sta. 81+00
I-54	Std. A-5 Inlet, Width=2.5'	368.36	362.85	362.85	Inlet 23.92' Right of Sta. 81+00
I-55	Std. A-5 Inlet, Width=3.0'	371.29	366.51	366.26	Inlet 24.17' Left of Sta. 78+57
I-56	Std. A-5 Inlet, Width=2.5'	371.29	367.25	367.25	Inlet 23.92' Right of Sta. 78+57
I-57	Std. Type D Inlet	387.83	379.38	379.38	Inlet 77.17' Left of Sta. 78+57
I-58	Std. A-5 Inlet, Width=2.5'	377.50	372.64	372.13	Inlet 23.92' Left of Sta. 76+00
I-59	Std. A-5 Inlet, Width=2.5'	377.50	372.83	372.83	Inlet 23.92' Right of Sta. 76+00
I-60	Std. A-5 Inlet, Width=2.5'	379.70	374.97	374.35	Inlet 23.92' Left of Sta. 75+00
I-61	Std. A-5 Inlet, Width=2.5'	380.41	375.64	375.64	Inlet 23.92' Left of Sta. 74+25
I-62	Std. A-5 Inlet, Width=2.5'	380.41	376.08	376.08	Inlet 23.92' Right of Sta. 74+25
M-10	Std. Manhole, G.S.01	380.75	360.50	359.61	Manhole 44.17' Left of Sta. 81+00
S-10	Std. Type A Headwall	362.50	359.00	359.00	End Pipe 55.0' Left of Sta. 81+13.50
M-11	Std. Manhole, G.S.01	388.00	381.75	378.96	MH 53.92' Left of Sta. 74+25
M-12	Std. Manhole, G.S.01	383.88	373.88	371.50	MH 57.17' Left of Sta. 75+57

STORM DRAIN STRUCTURE SCHEDULE					
NO.	TYPE	TOP EL.	INV. IN	INV. OUT	LOCATION
S-6	Std. Type 'O' Headwall	356.00	352.00	351.92	End Pipe 70.25' Right of Sta. 82+43.80
S-7	Special; See Detail Sheet 12	367.00	356.20	356.85	End Pipe 48.71' Left of Sta. 82+88.21
S-15	Std. Type A Headwall	337.50	334.50	334.40	End Pipe 115.0' Right of Sta. 80+57
I-75	Std. Type D Inlet	351.83	340.80	340.80	Inlet 75.0' Right of Sta. 80+76
M-111	Std. Manhole, G.S.05	353.75	332.10	332.10	MH 54.07' Left of Sta. 65+22

NOTE: LITTLE PATUXENT PARKWAY ENCROACHES UPON AN OLD DUMP SITE BETWEEN STATIONS 71+25' AND 79+50'±.

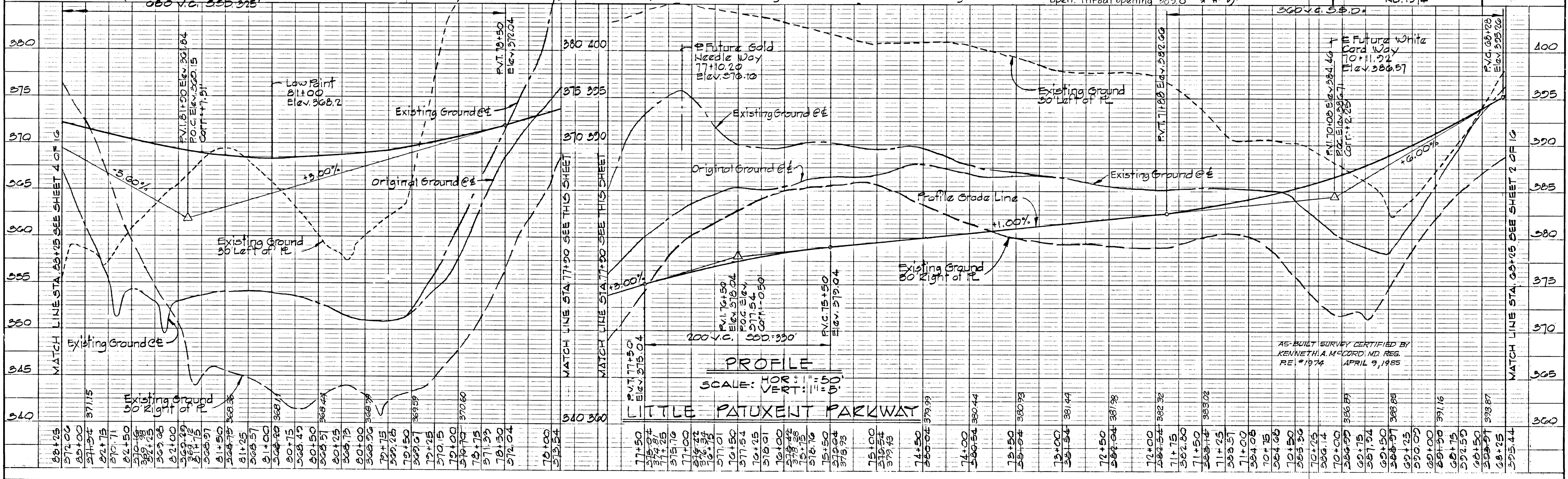
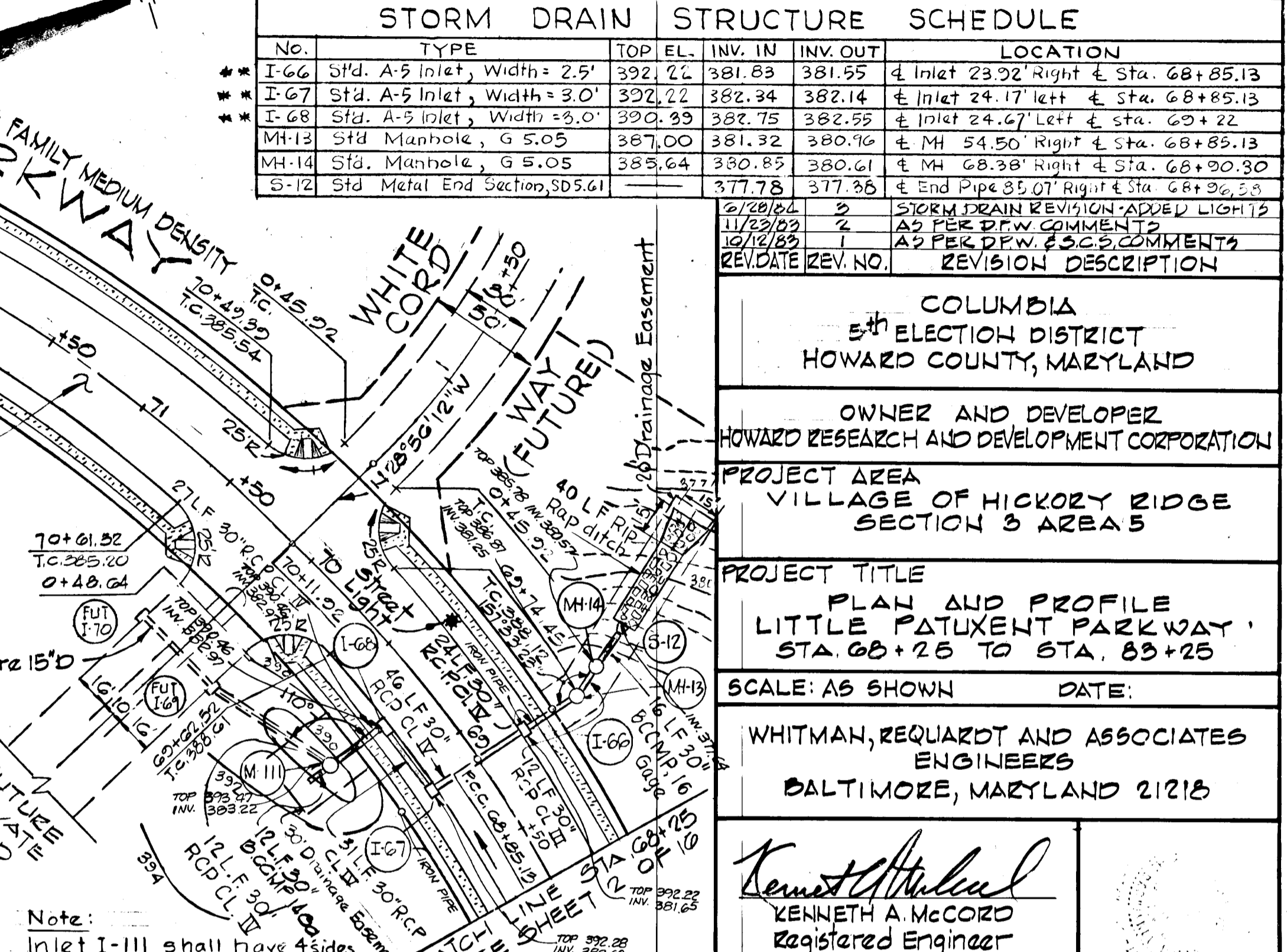
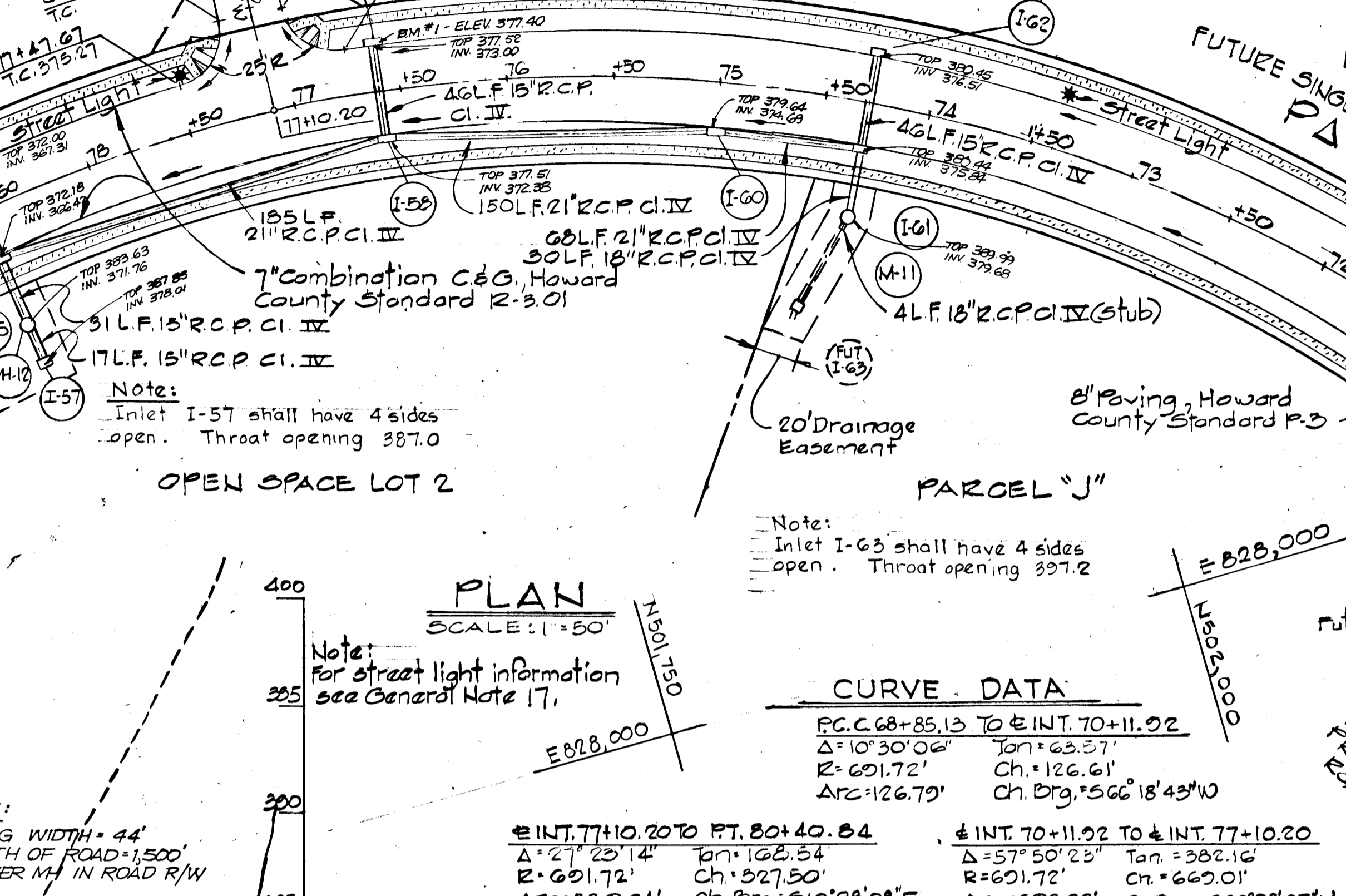
DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF ENGINEERING
 OFFICE OF PLANNING & ZONING
 JOHN W. MURPHY
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE AND ZONING ADMINISTRATION

STORM DRAIN STRUCTURE SCHEDULE					
NO.	TYPE	TOP EL.	INV. IN	INV. OUT	LOCATION
I-66	Std. A-5 Inlet, Width=2.5'	392.22	381.83	381.55	Inlet 23.92' Right of Sta. 68+85.13
I-67	Std. A-5 Inlet, Width=3.0'	392.22	382.34	382.14	Inlet 24.17' Left of Sta. 68+85.13
I-68	Std. A-5 Inlet, Width=3.0'	392.39	382.75	382.55	Inlet 24.47' Left of Sta. 69+22
MH-13	Std. Manhole, G.S.05	387.00	380.10	380.10	MH 54.50' Right of Sta. 68+85.13
MH-14	Std. Manhole, G.S.05	383.64	380.85	380.61	MH 68.38' Right of Sta. 68+90.30
S-12	Std. Metal End Section, S.D.5.1	377.78	377.88	377.88	End Pipe 35.07' Right of Sta. 68+92.50

NOTES:
 1. A-5 Inlet, Howard County Std. S.D. 4.01
 2. Type D Inlet, Howard County Std. S.D. 4.11
 3. Type A Headwall, Howard Co. Std. S.D. 5.11
 4. Type O Headwall, Howard Co. S.D. 5.41
 5. Provide 8" brick stubhead at the end of all pipe stubs.
 6. All stubs shall sloped up at 1.00%

** Inlet with deflectors Howard Co. Std. S.D. 4.88
 For Outfall Protection See Sht 11
 For Grading See Sht 11
 For details of Outfall S-10; see sheet 11 of 12.

100 YEAR FLOOD PLAIN AND DRAINAGE EASEMENT



#42

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP ELEV.	INV. IN	INV. OUT	LOCATION
I-41	Standard A-5 Inlet (width 25)	374.75	368.52	364.84	4 Inlet 24.17' Left of Sta. 83+98
I-42	Standard A-5 Inlet (width 25)	374.06	369.14	365.14	4 Inlet 23.92' Right of Sta. 83+80
I-43	Standard A-5 Inlet (width 25)	372.44	377.10	374.85	4 Inlet 24.17' Left of Sta. 85+44.73
I-47	Standard A-5 Inlet (width 25)	390.36	385.22	385.02	4 Inlet 23.92' Left of Sta. 87+00
I-48	Standard A-5 Inlet (width 25)	390.56	385.71	385.71	4 Inlet 23.92' Right of Sta. 87+00
I-50	Standard A-5 Inlet (width 25)	401.65	396.56	396.31	4 Inlet 23.92' Left of Sta. 88+98
I-50	Standard A-5 Inlet (width 25)	401.65	397.04	397.04	4 Inlet 23.92' Right of Sta. 88+98
I-51	Standard A-5 Inlet (width 25)	410.90	406.21	406.01	4 Inlet 23.92' Left of Sta. 90+71
I-52	Standard A-5 Inlet (width 25)	410.24	414.14	414.14	4 Inlet 23.92' Left of Sta. 93+20
MH-8	Howard Co. Std. MH 45.02	371.60	361.64	360.63	4 MH 40.17' Left of Sta. 83+98
MH-9	Howard Co. Std. MH 45.02	417.07	411.57	411.37	4 MH 13.00' Left of Sta. 92+47
S-8	Standard Type "A" Hdwl.	362.45		358.70	4 End Pipe 60.41' Left of Sta. 83+98
	Howard Co. Std. S.D. 5.11				

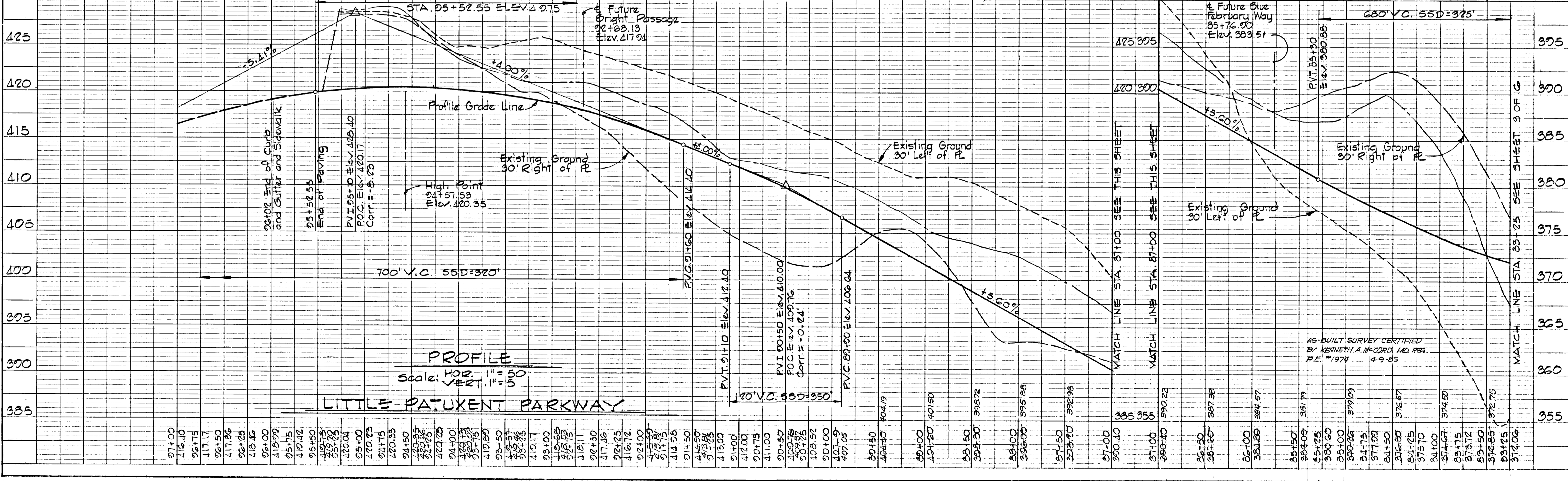
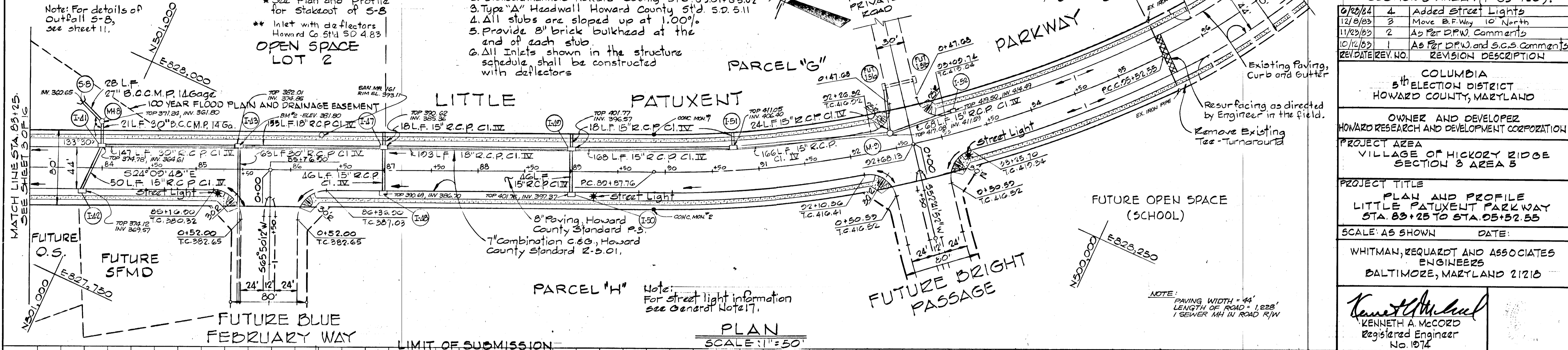
CURVE DATA

Stationing	Delta	Radius	Tangent	Arc Length	Chord Bearing
P.C. 89+87.76 to P.T. 92+68.13	$\Delta = 13^\circ 08' 20''$	$R = 1222.64'$	$T = 140.80'$	$Arc = 280.37'$	$Ch. Brg. = S 30^\circ 43' 58'' E$
P.C. 92+68.13 to P.C. 95+52.55	$\Delta = 13^\circ 19' 42''$	$R = 1222.64'$	$T = 142.85'$	$Arc = 284.42'$	$Ch. Brg. = S 43^\circ 57' 50'' E$

- NOTES:**
- A-5 Inlet Howard County Std. S.D. 4.01
 - Standard Manhole Howard County Std. G.5.01 & G.5.02
 - Type "A" Headwall Howard County Std. S.D. 5.11
 - All stubs are sloped up at 1.00%
 - Provide 8" brick bulkhead at the end of each stub.
 - All inlets shown in the structure schedule shall be constructed with deflectors

DATE	
BY	
REVISION	
NO.	

DATE	
BY	
REVISION	
NO.	



DEPARTMENT OF PUBLIC WORKS
 AS-BUILT SURVEY CERTIFIED
 CHIEF, BUREAU OF ENGINEERING DATE 12-28-85
 OFFICE OF PLANNING & ZONING
 J. William M... 12-28-85
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE AND ZONING ADMINISTRATION

NOTE: FOR EXISTING LITTLE PATUXENT PARKWAY PLAN AND PROFILE, SEE CONSTRUCTION DRAWINGS FOR VILLAGE OF HICKORY RIDGE SECTION 3 AREA 1 (F-83-120).

REV. DATE	REV. NO.	REVISION DESCRIPTION
6/25/84	4	Added Street Lights
12/8/83	3	Move B.F. Way 10' North
11/23/83	2	As Per D.P.W. Comments
10/16/83	1	As Per D.P.W. and S.C.S. Comments

COLUMBIA
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION

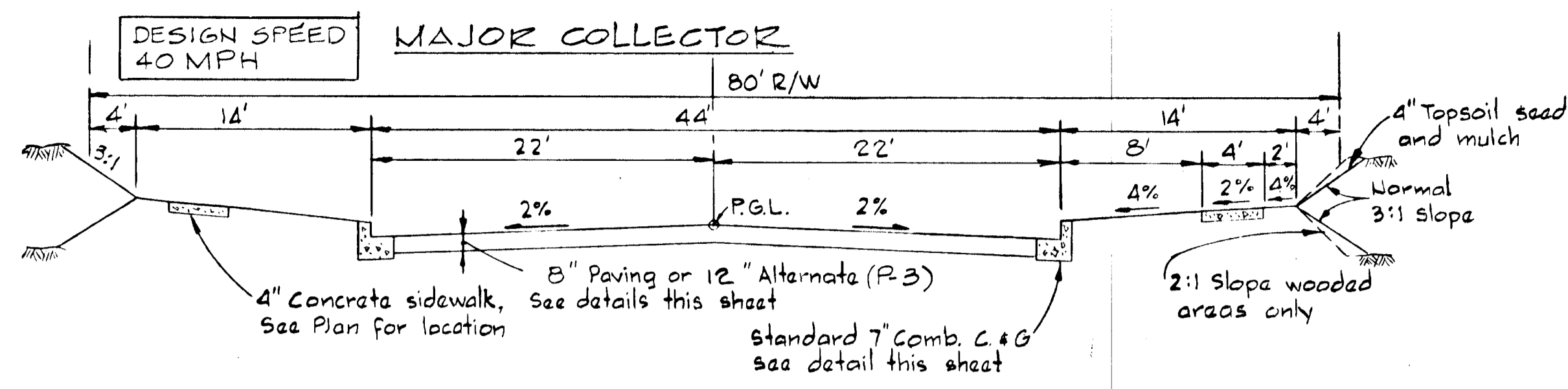
PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5

PROJECT TITLE
 PLAN AND PROFILE
 LITTLE PATUXENT PARKWAY
 STA. 83+25 TO STA. 95+52.55

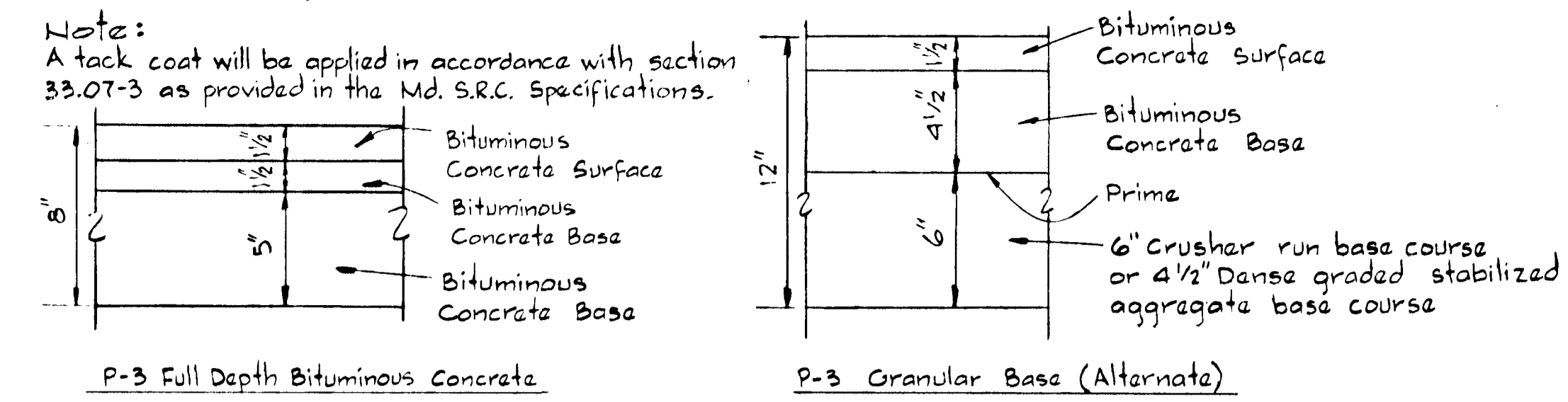
SCALE: AS SHOWN DATE:

WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 BALTIMORE, MARYLAND 21218

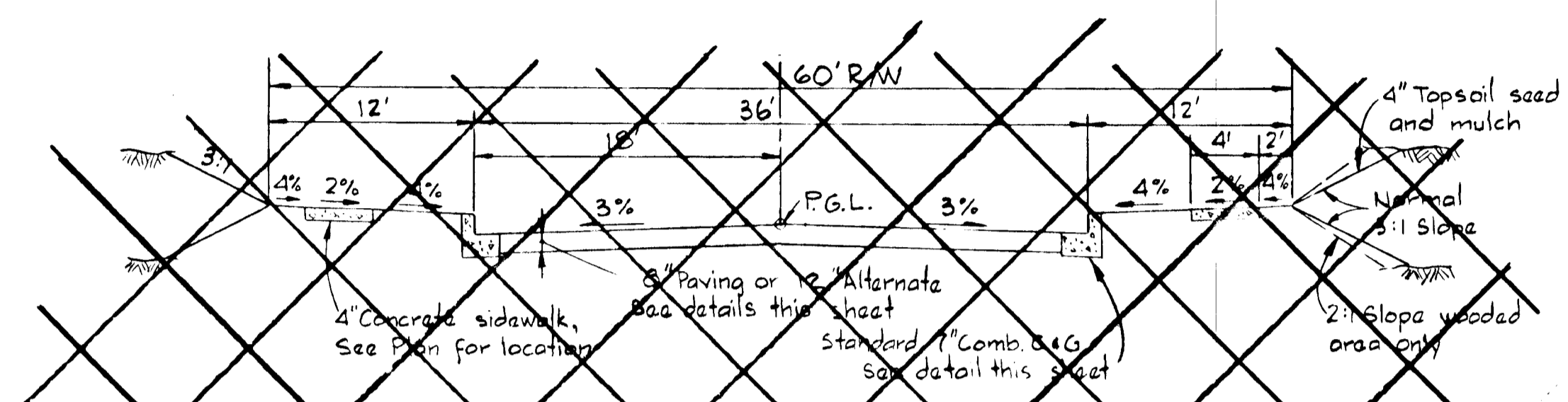
Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1074



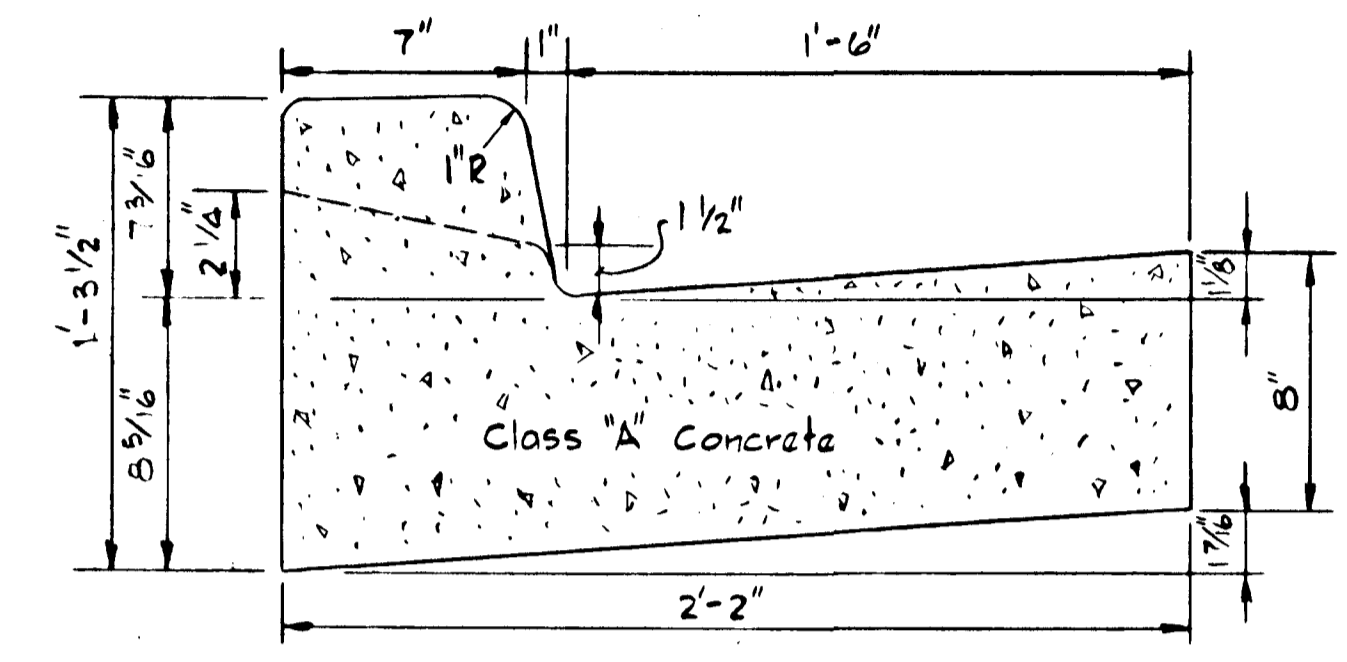
STA. 03+81.00 TO STA. 25+52.55
TYPICAL SECTION - LITTLE PATUXENT PARKWAY
 No Scale



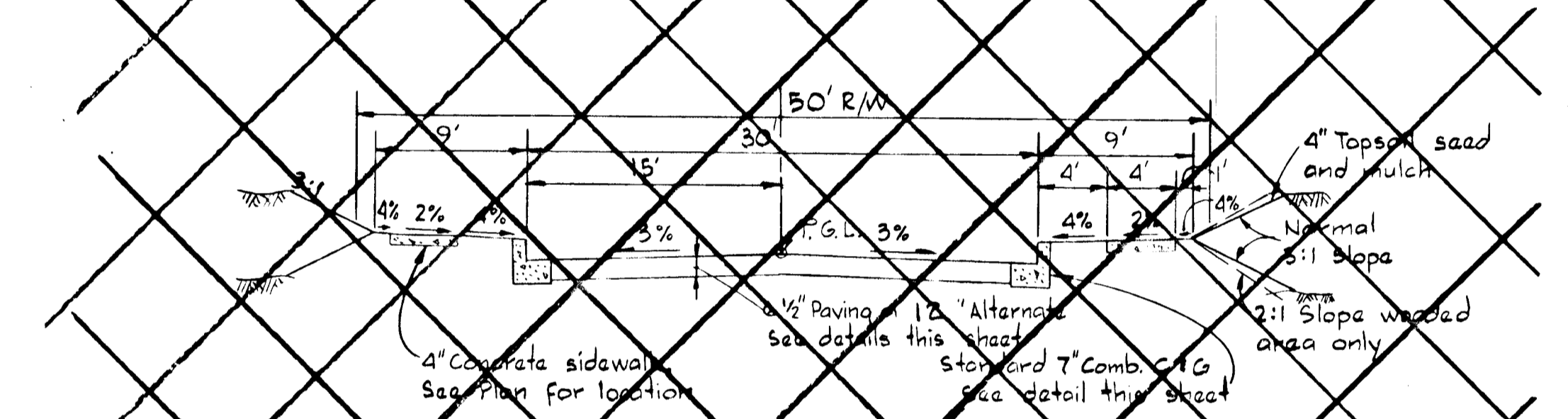
TYPICAL PAVING SECTION
 No Scale



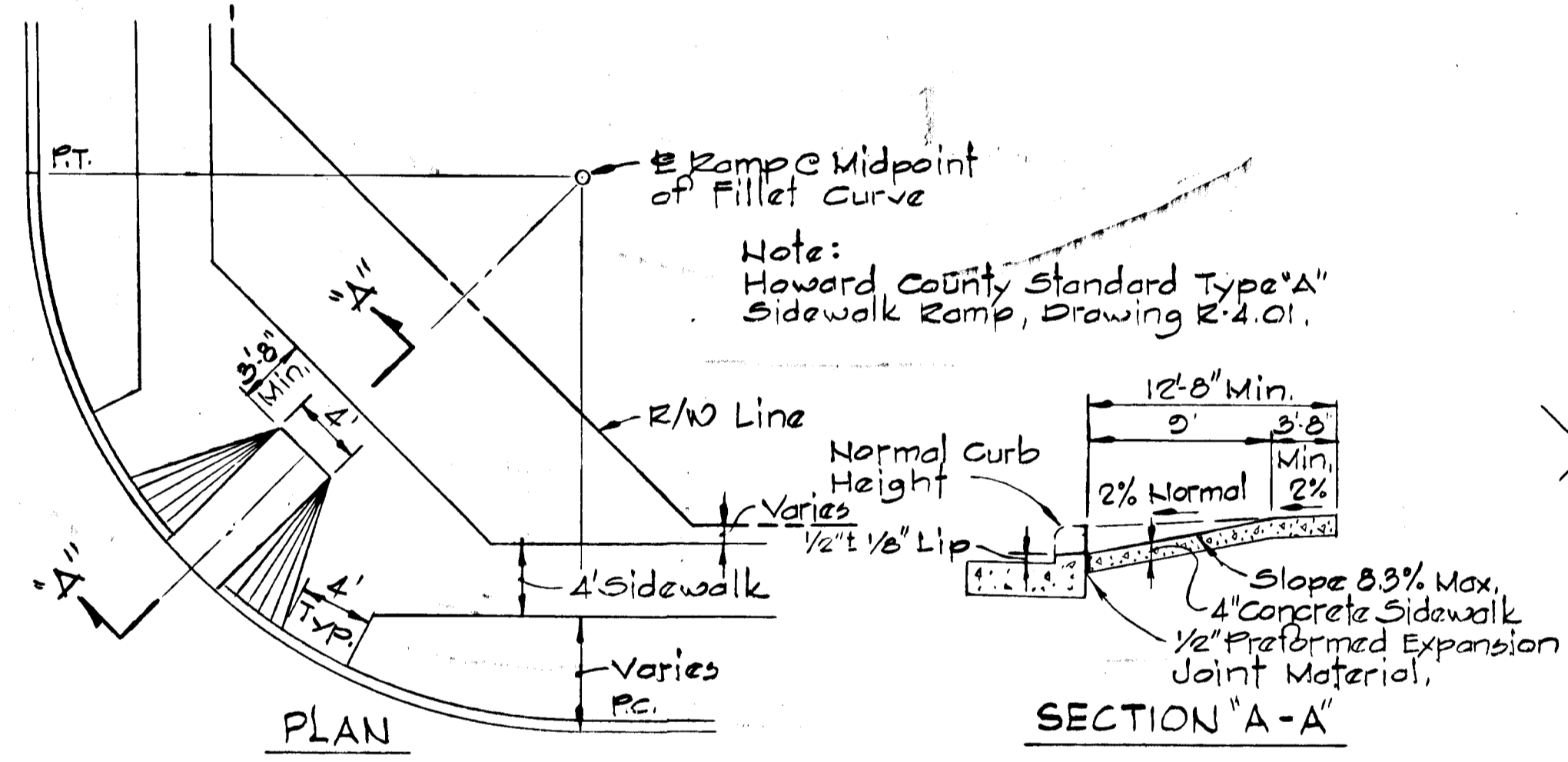
TYPICAL SECTION 36 ROADWAY / 60' R/W
 No Scale



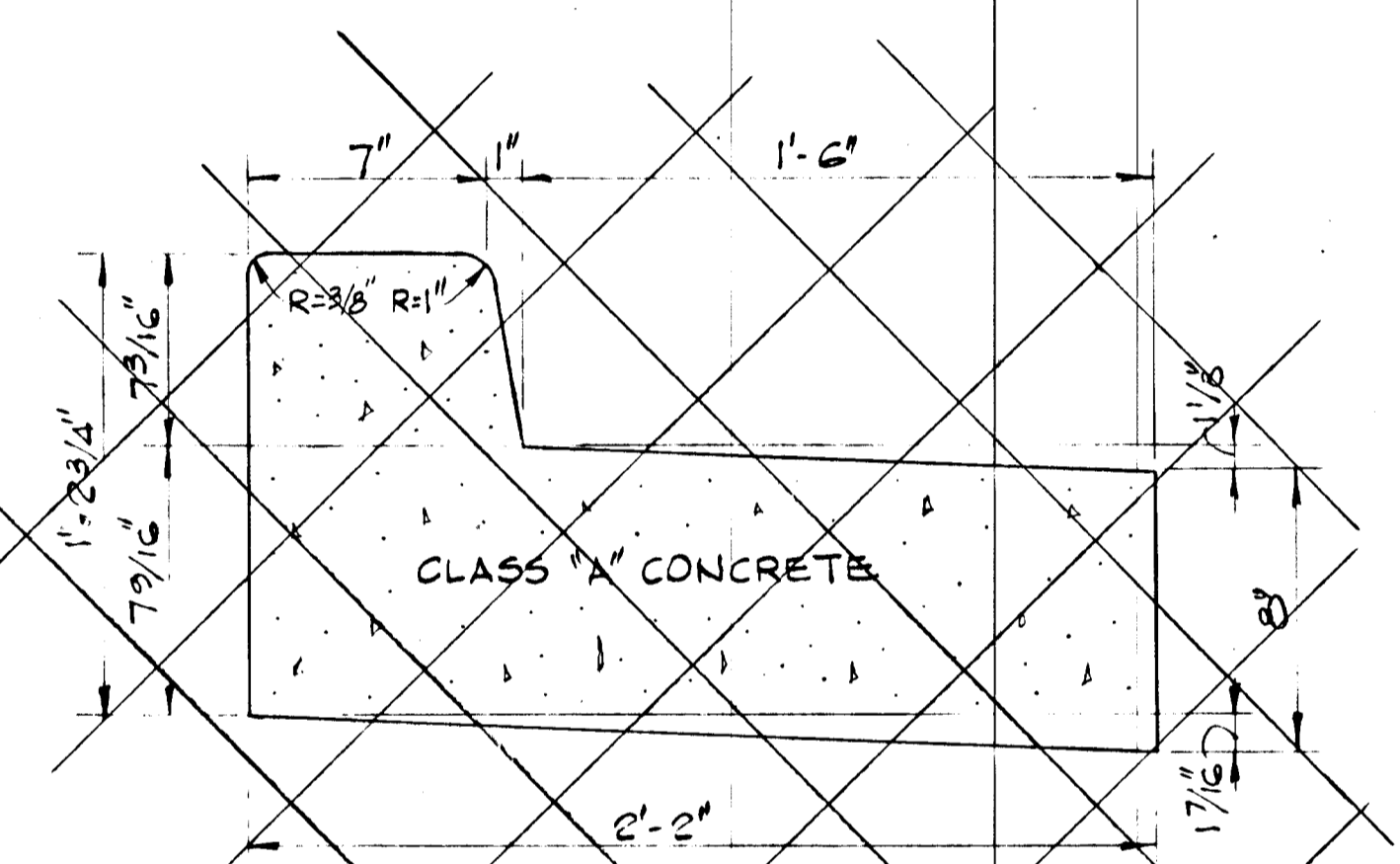
STANDARD 7" COMBINATION CURB & GUTTER
 No Scale



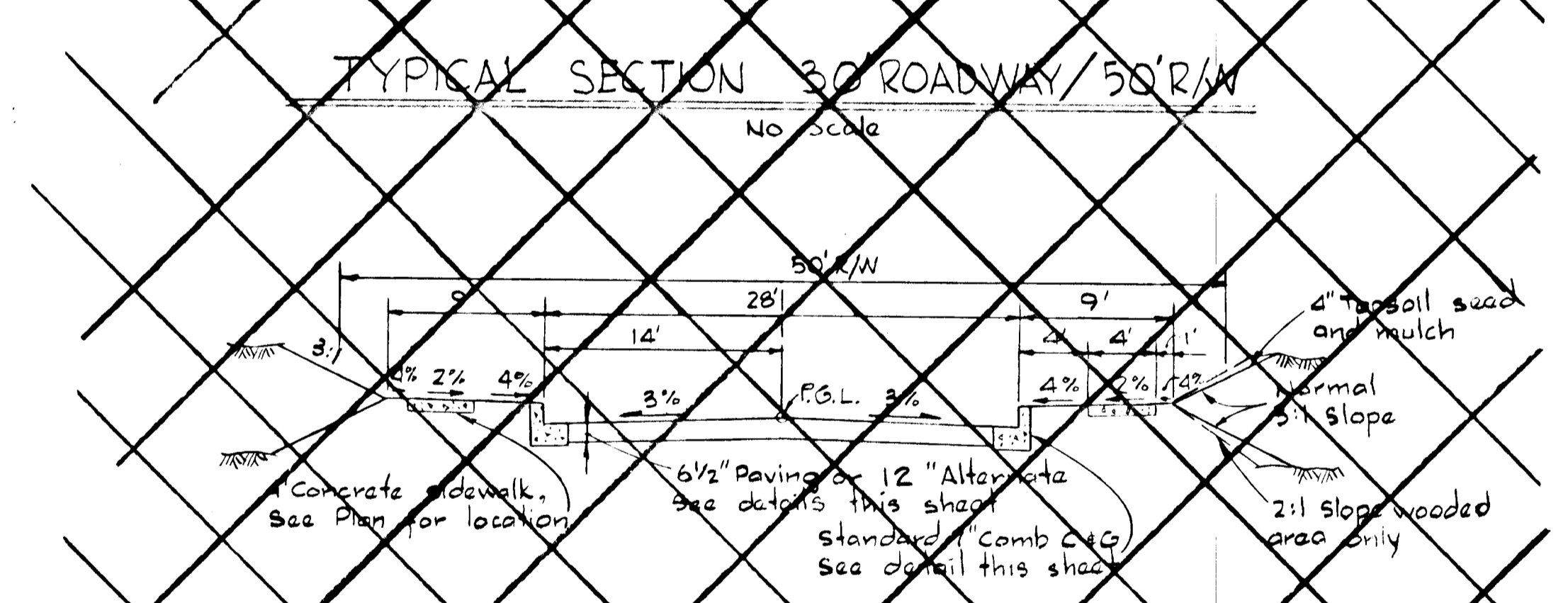
TYPICAL SECTION 30 ROADWAY / 50' R/W
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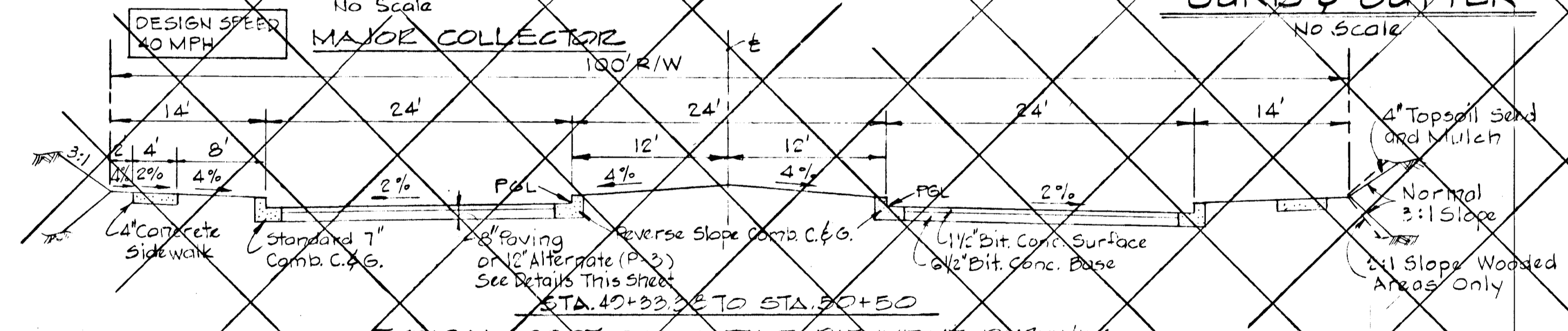
WHEEL CHAIR RAMP DETAIL
 No Scale



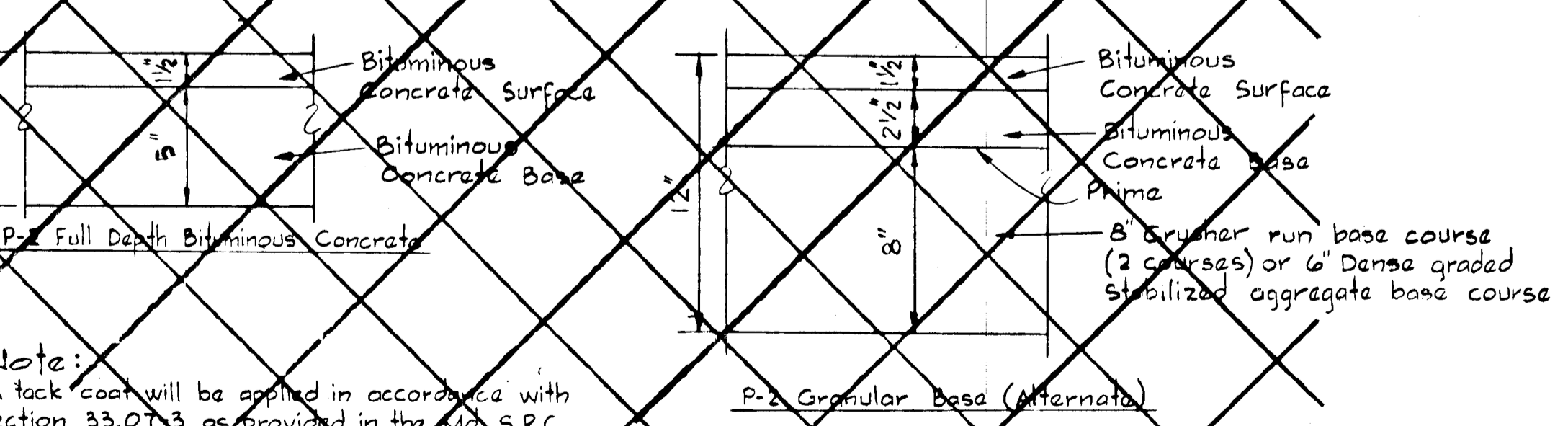
REVERSE 7" COMBINATION CURB & GUTTER
 No Scale



TYPICAL SECTION 28 ROADWAY / 50' R/W
 No Scale



STA. 40+33.25 TO STA. 50+50
TYPICAL SECTION - LITTLE PATUXENT PARKWAY
 No Scale



TYPICAL PAVING SECTION
 No Scale

Note:
 A tack coat will be applied in accordance with section 33.07-3 as provided in the Md. S.R.C. Specifications.

11/23/83	2	As Per D.P.W. Comments
10/12/83	1	As Per D.P.W. and S.C.E. Comment
REV. DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 COLUMBIA, MARYLAND 21044

PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5

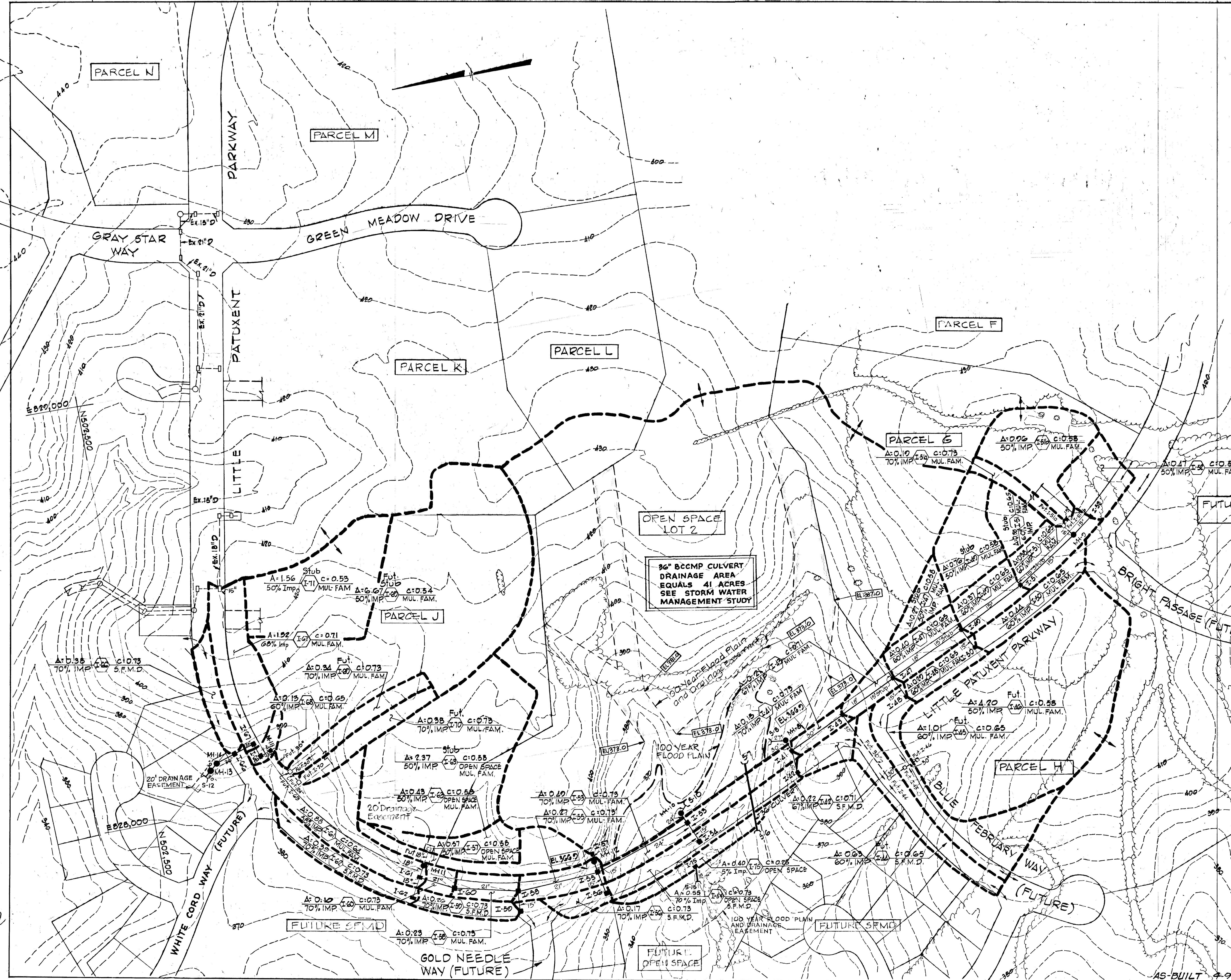
PROJECT TITLE
ROADWAY DETAILS

SCALE: AS SHOWN DATE

WHITMAN, REGARDT AND ASSOCIATES
 ENGINEERS
 2315 ST. PAUL STREET
 BALTIMORE, MARYLAND 21218

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

12-8-83
 DATE
 12-23-88
 DATE



OPEN SPACE LOT 2

36" RCCMP CULVERT DRAINAGE AREA EQUALS 41 ACRES SEE STORM WATER MANAGEMENT STUDY

FUTURE OPEN SPACE (SCHOOL)

Rev. Date	Rev. No.	Revision Description
9/28/84	4	Storm Drain Revisions
12/8/83	3	Flood Plan Elevations
11/29/83	2	As Per DPW Comments
10/12/83	1	As Per DPW and S.C.S Comments

COLUMBIA
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5

PROJECT TITLE
DRAINAGE AREA MAP

SCALE: 1"=100' DATE:
 WHITMAN, REQUART AND ASSOCIATES
 ENGINEERS
 2315 ST. PAUL STREET
 BALTIMORE, MARYLAND 21218

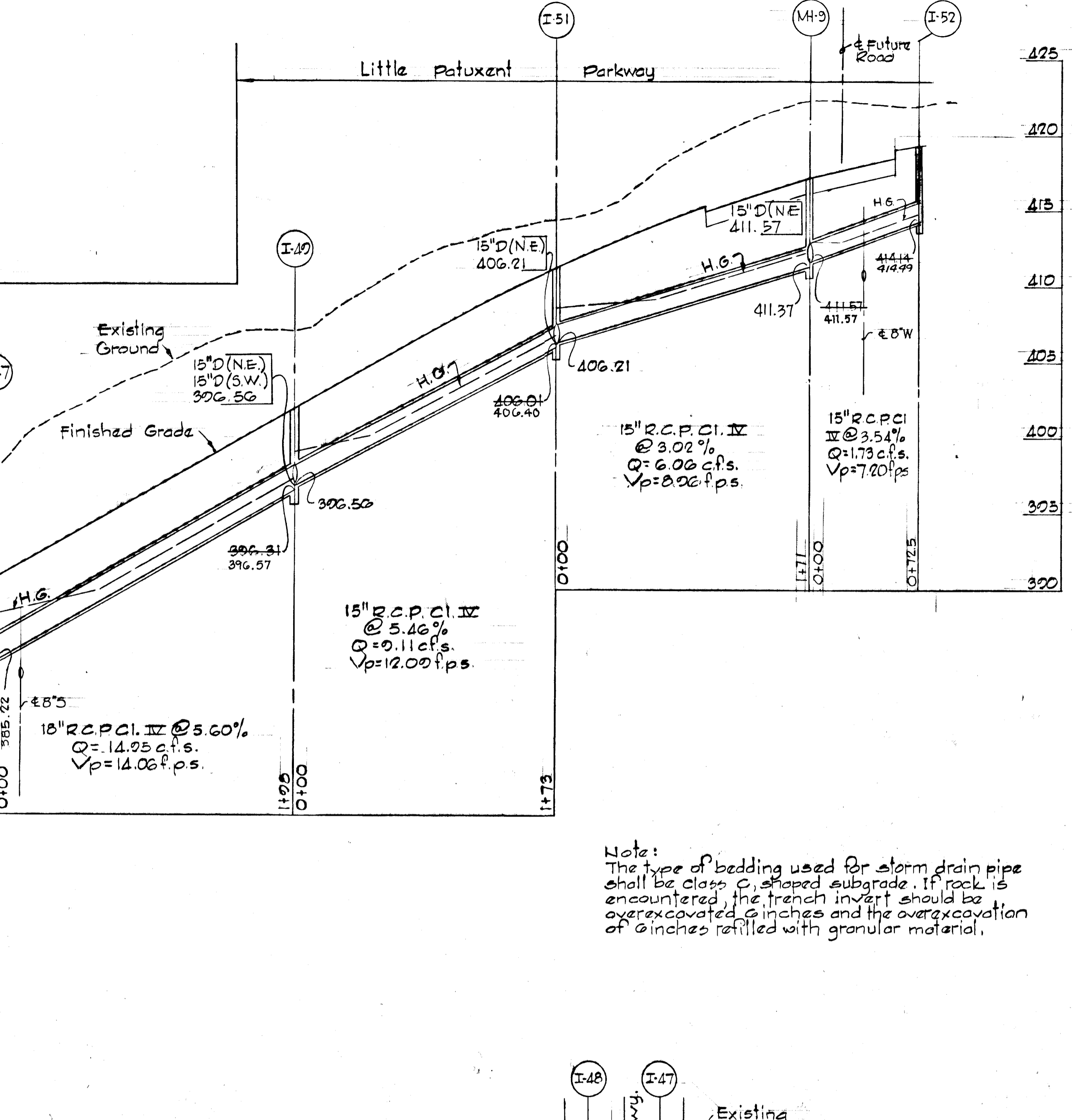
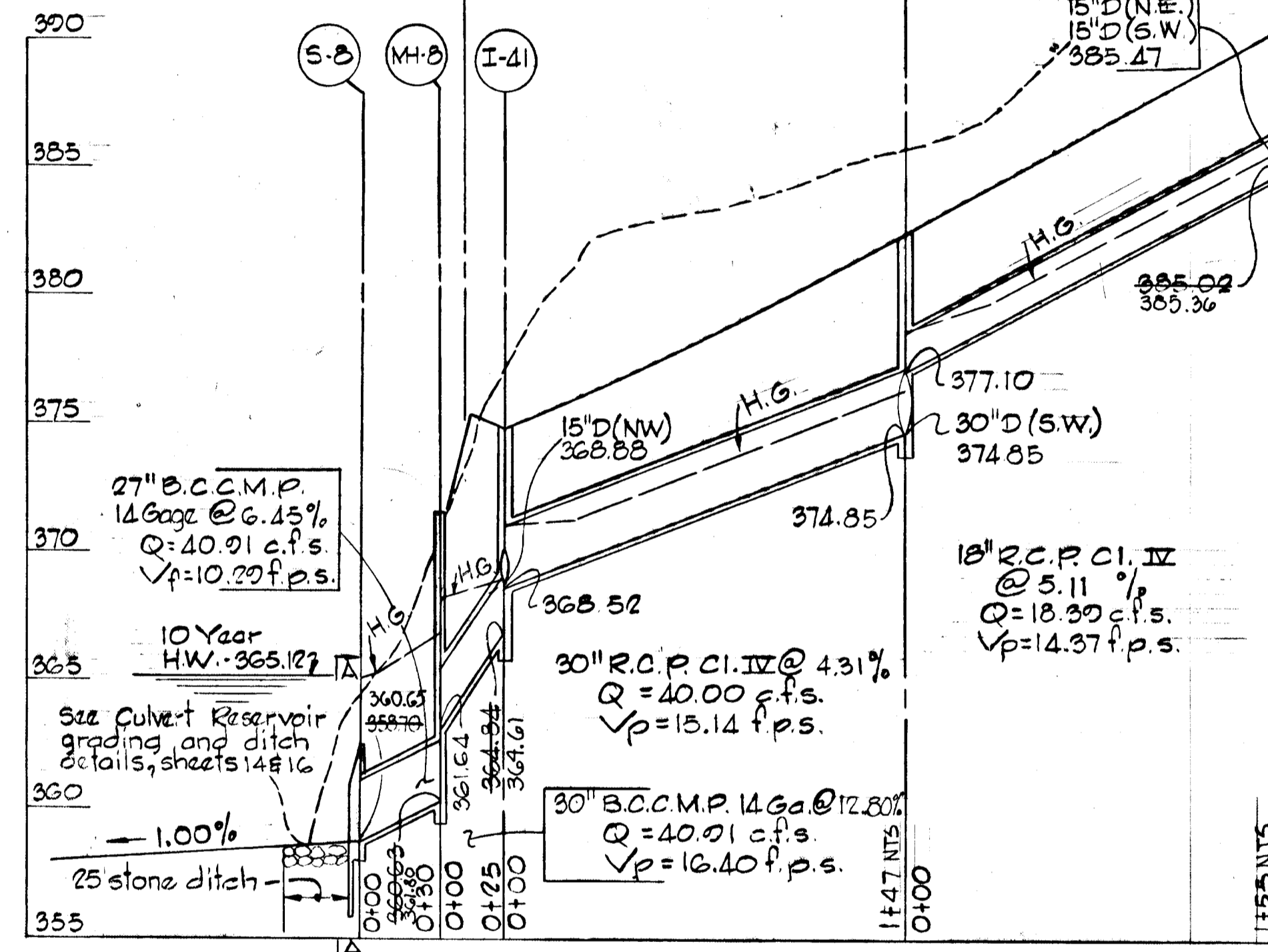
Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1074

Open Space-Lot 2

Note:
 See computations for Q and V in ditch prior to 36" culvert backwater

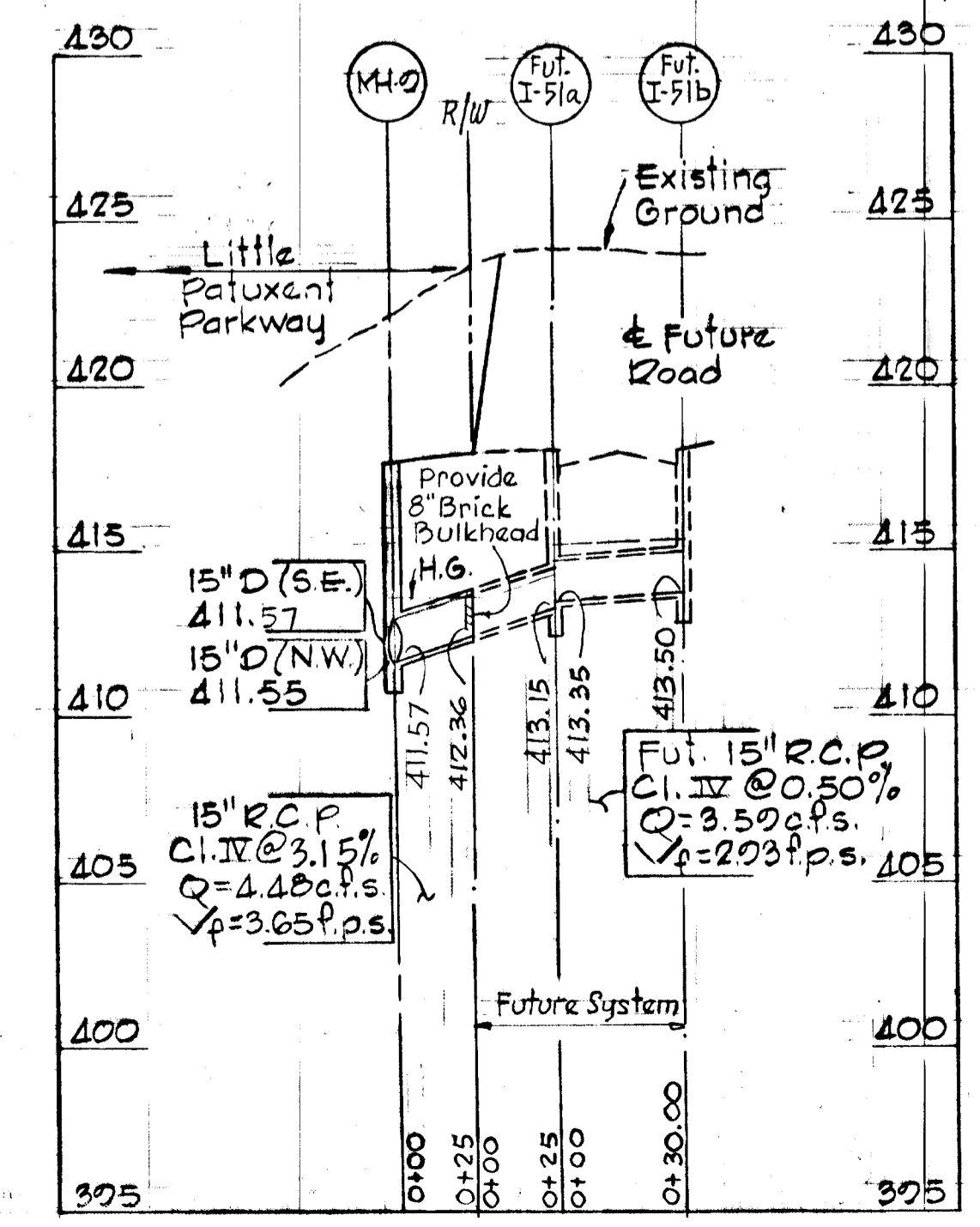
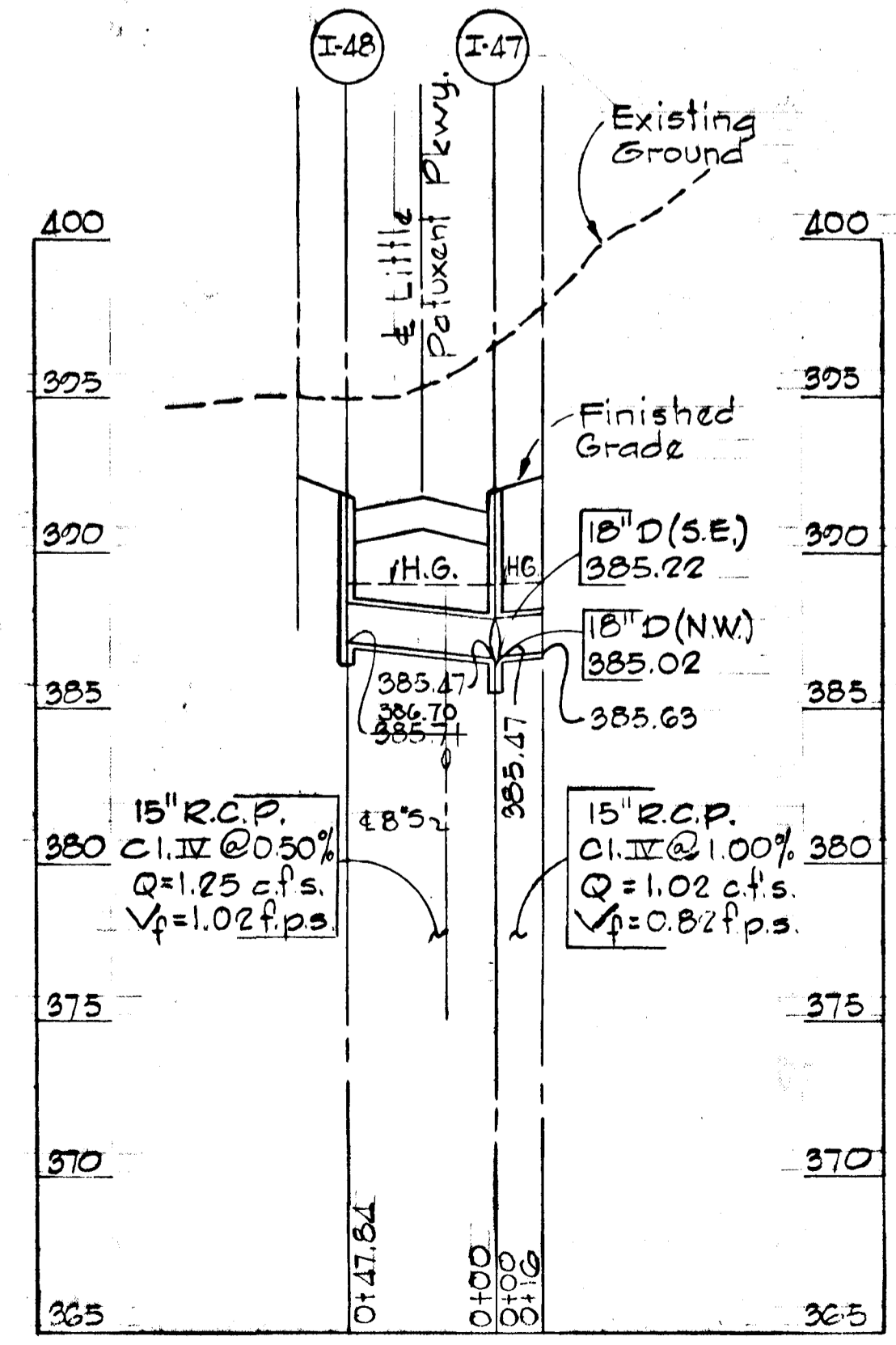
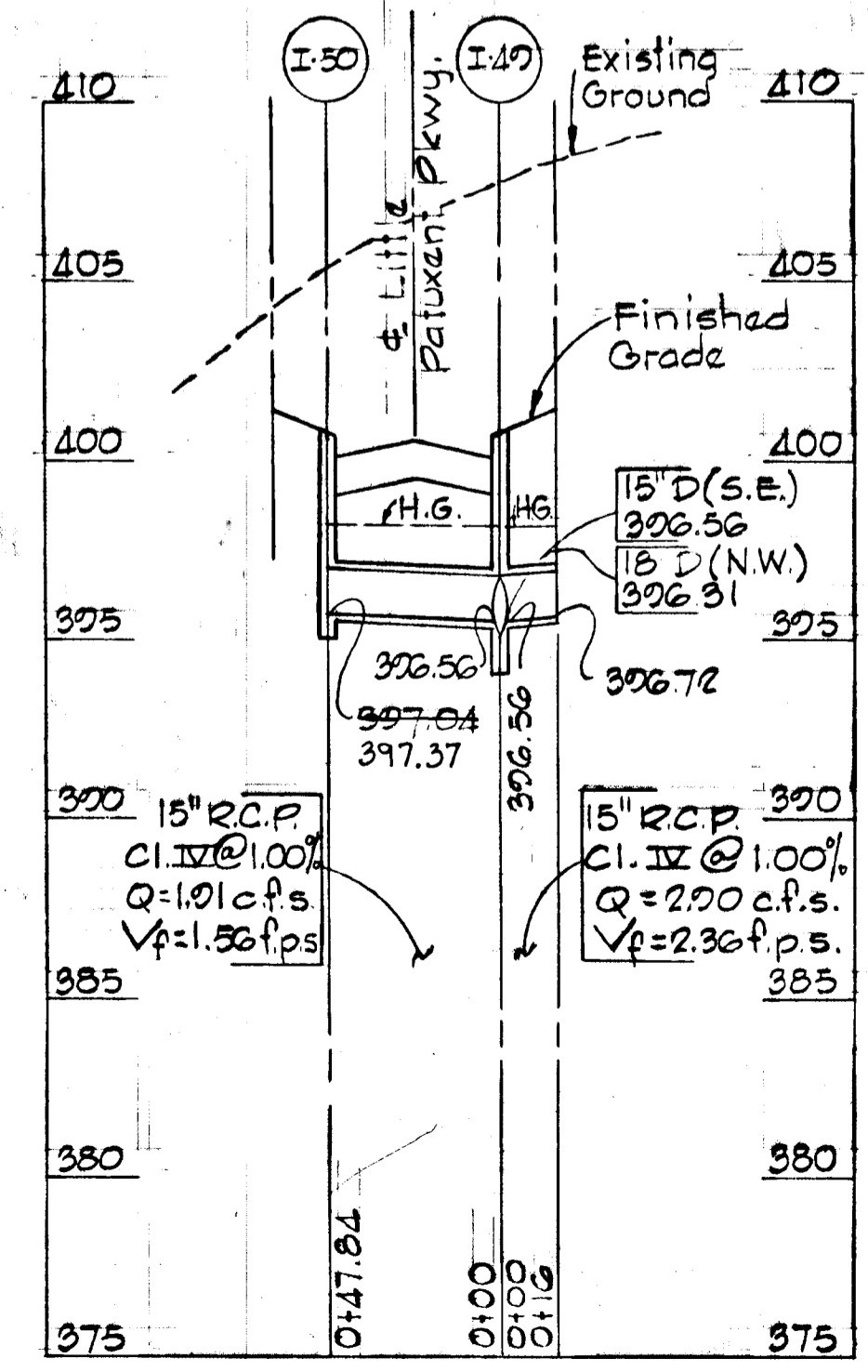
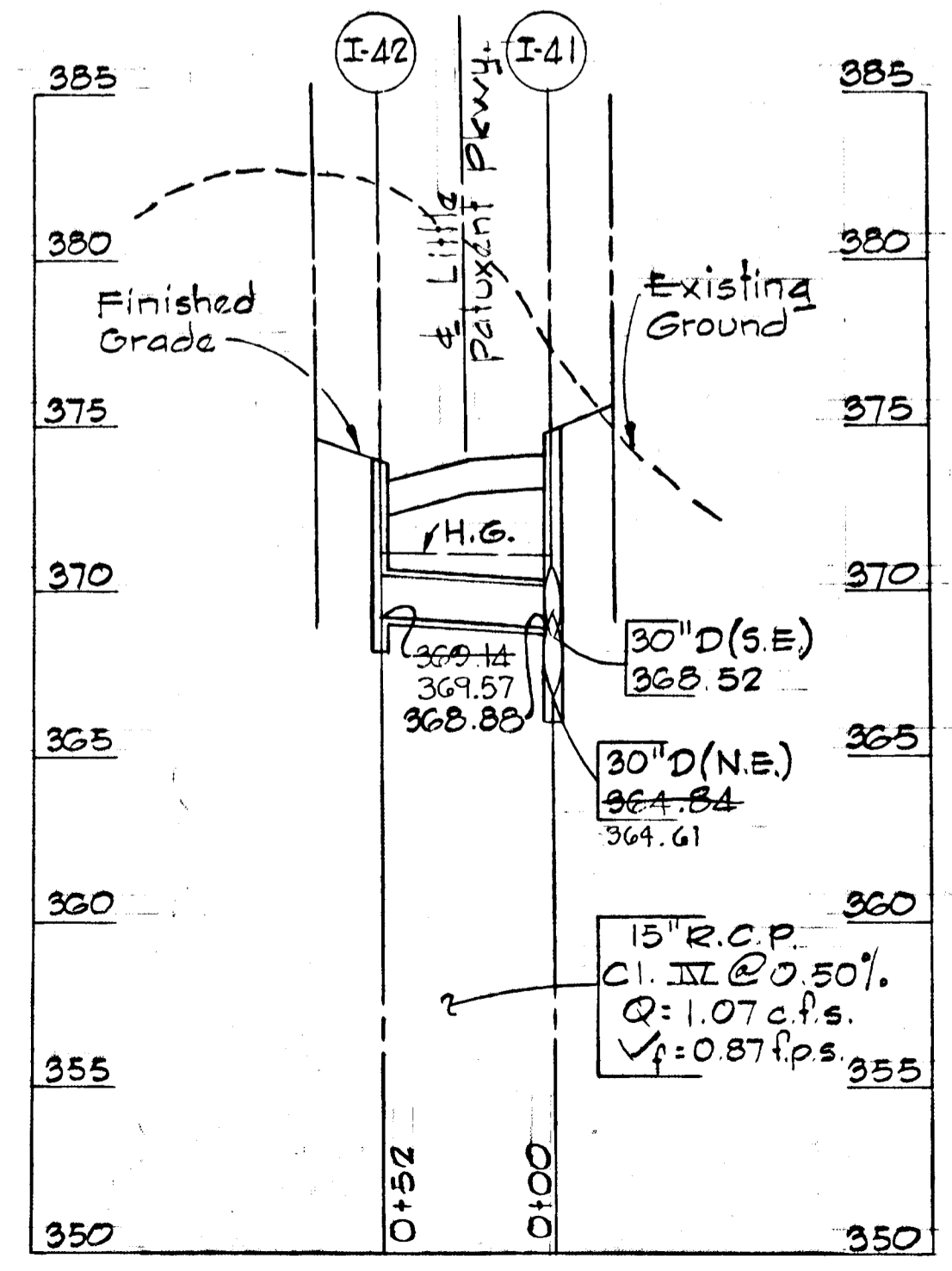
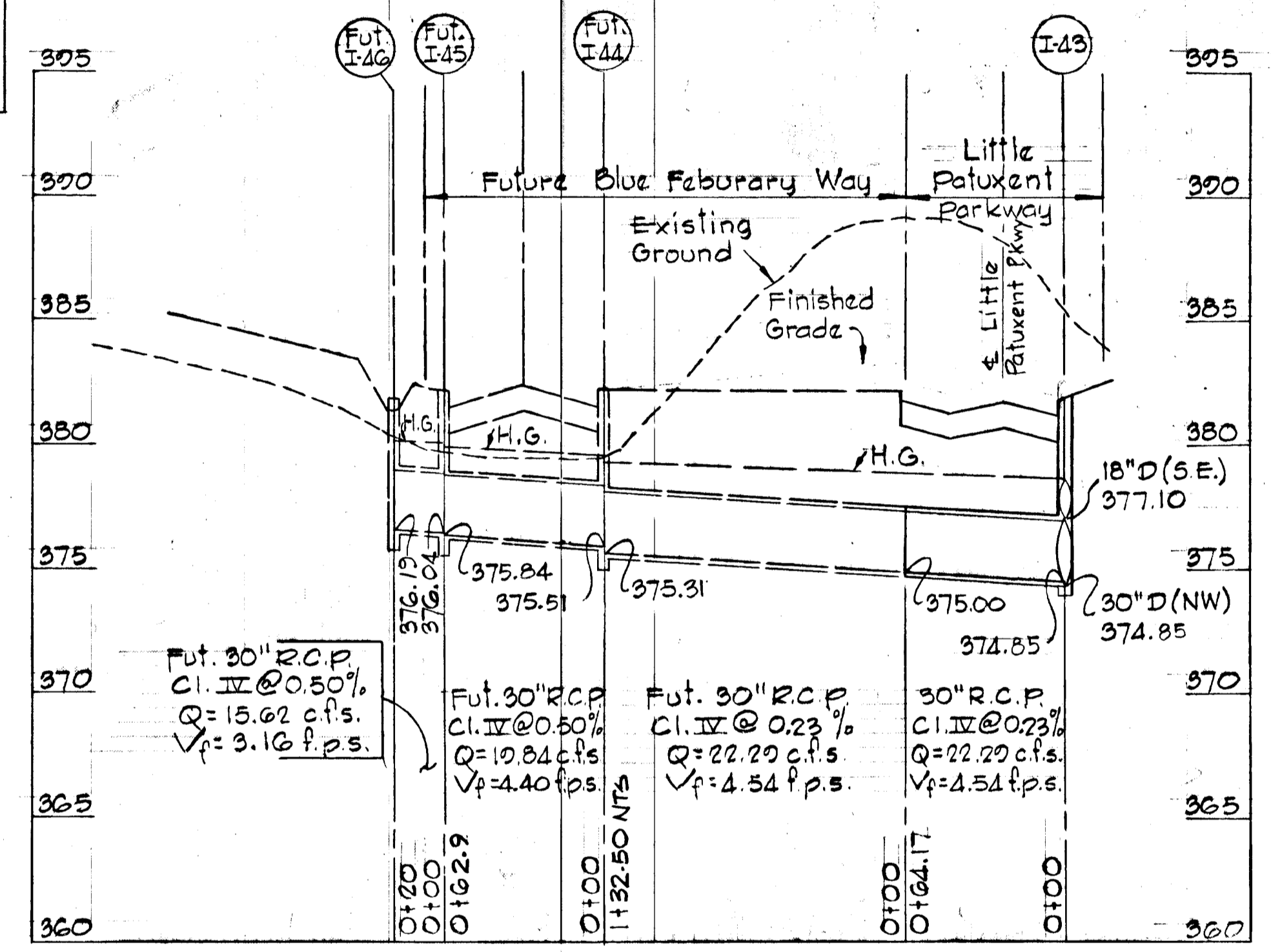
Place 12" stone over 60% of cross-section
 d50 stone size = 15 inches

SECTION A-A



Note:
 As Built survey certified by Kenneth A. McCord, Md. Reg. engineer No. #1974 - April 9, 1985

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



Rev.	Date	Rev. No.	Revision Description
12/8/83	2	1	Pipe Lengths & Slopes into I-43
11/23/83	2	2	As Per D.P.W. Comments
10/16/83	1	1	As Per D.P.W. and S.C.S. Comments

COLUMBIA
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION

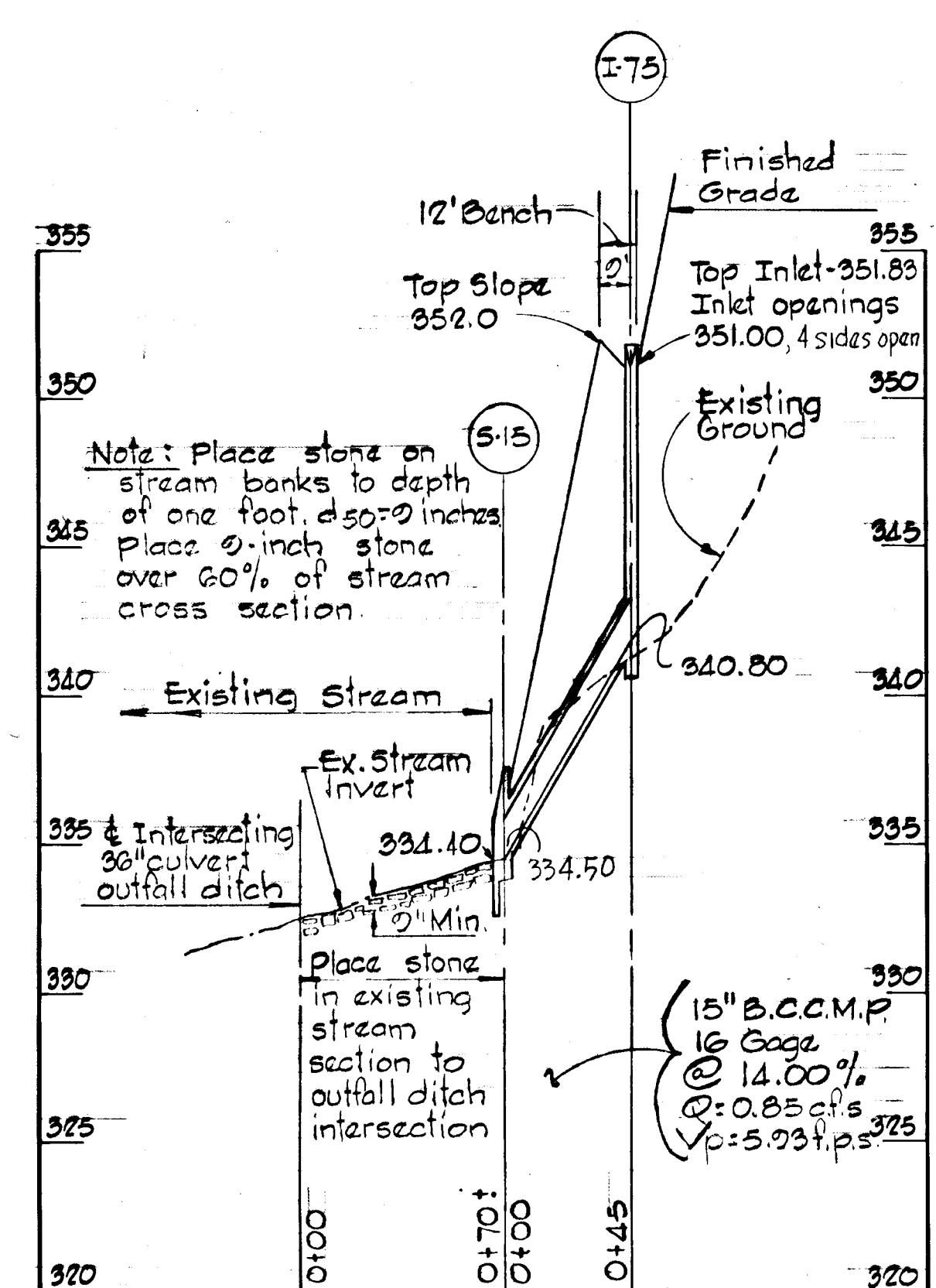
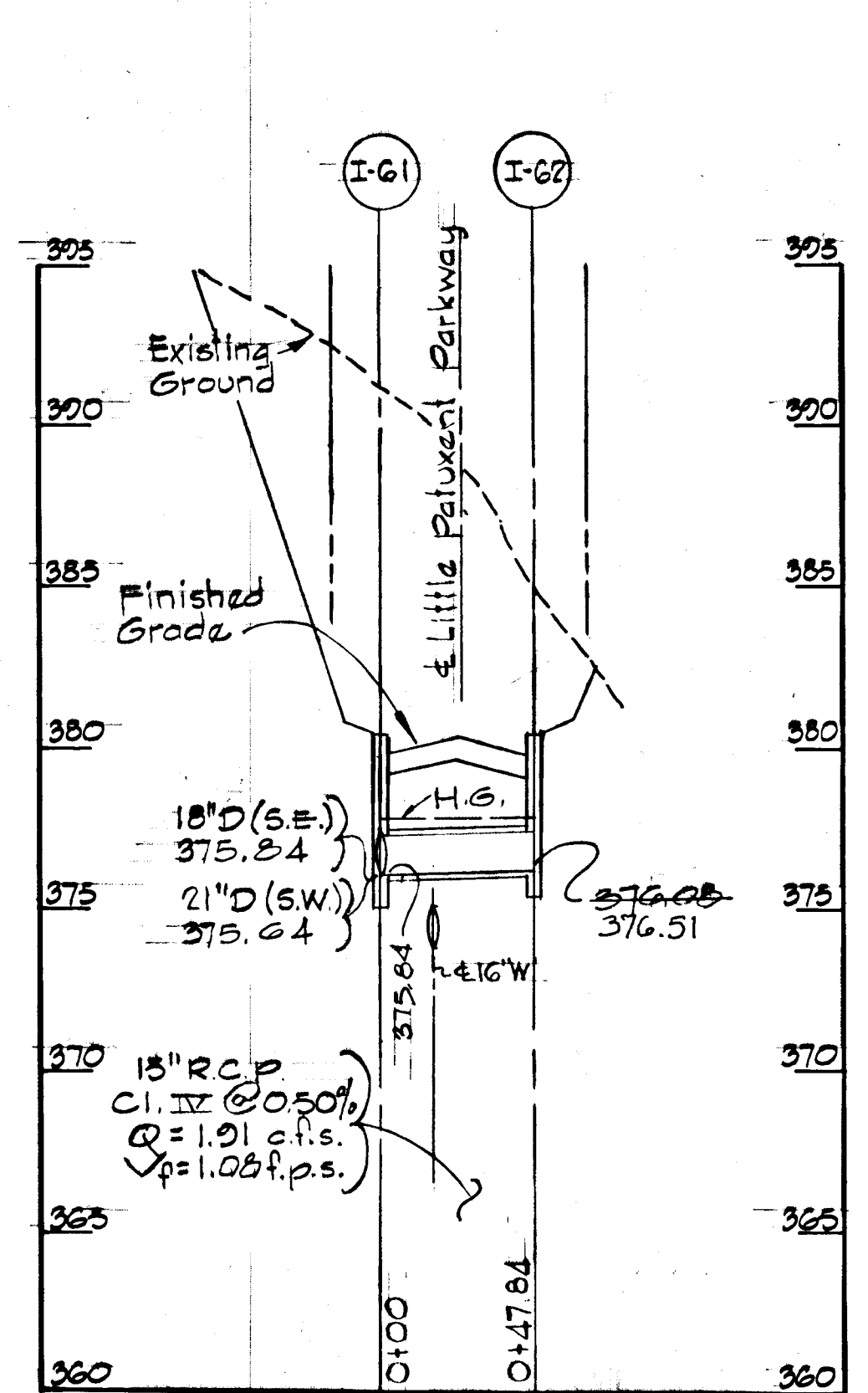
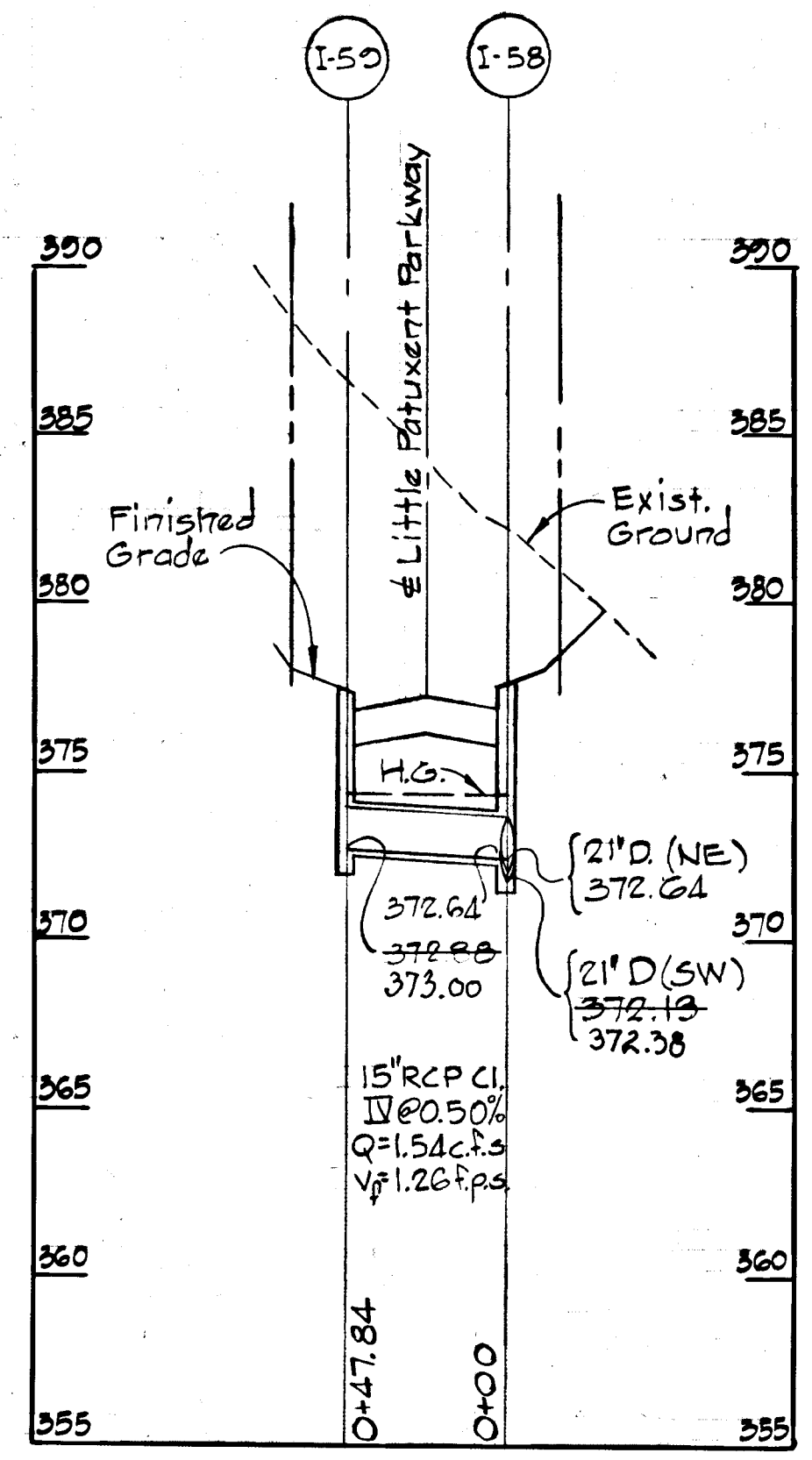
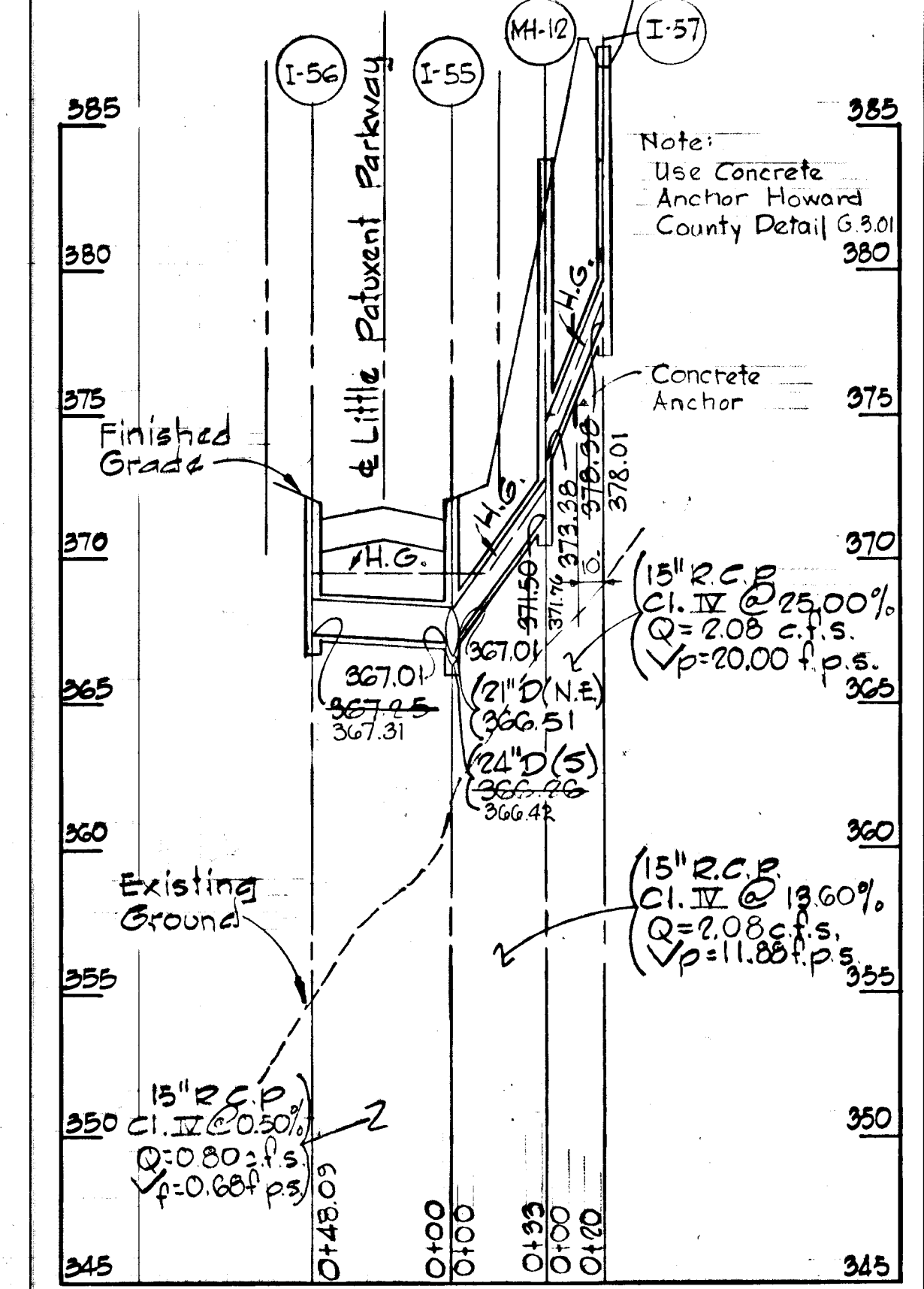
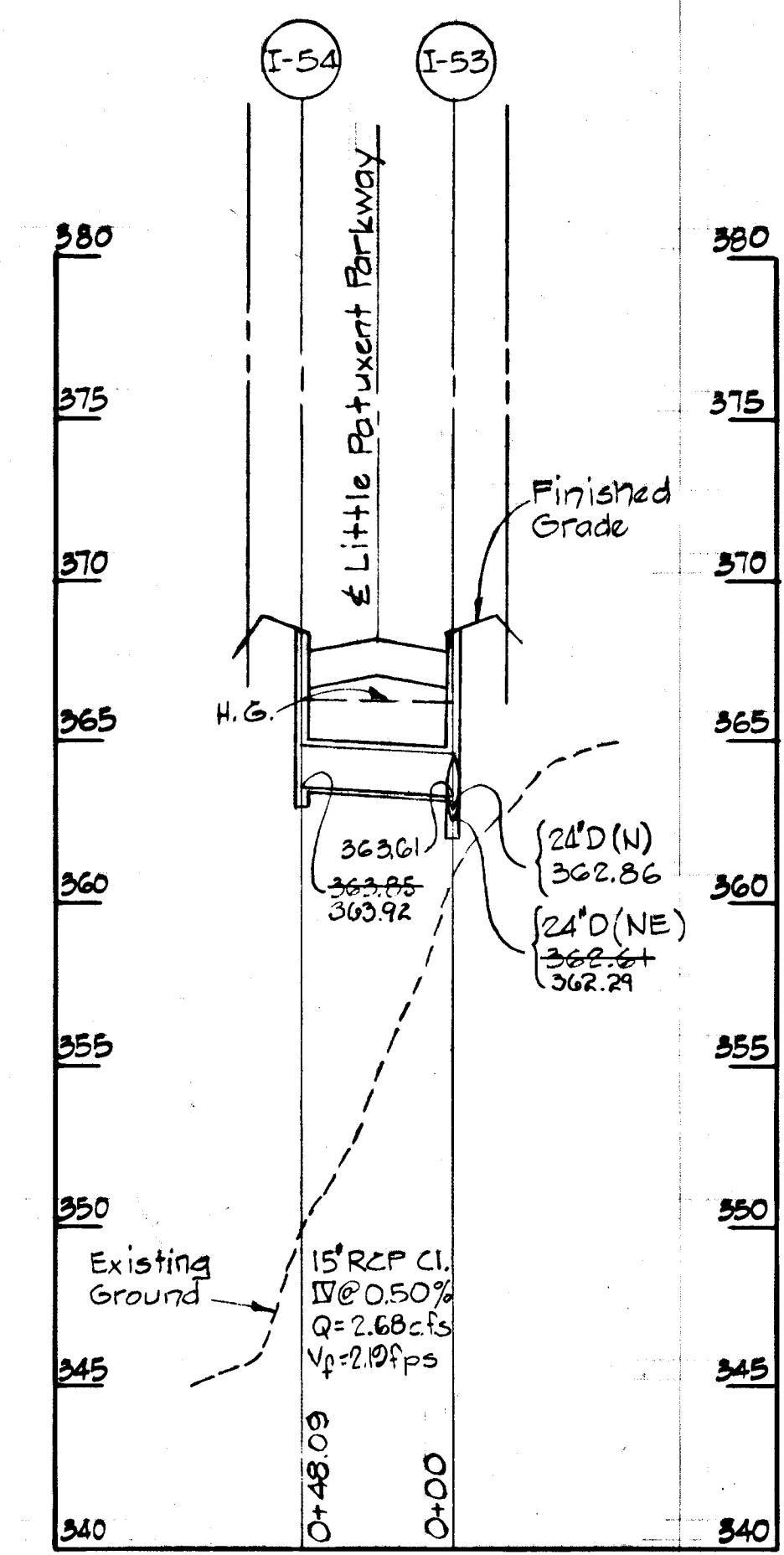
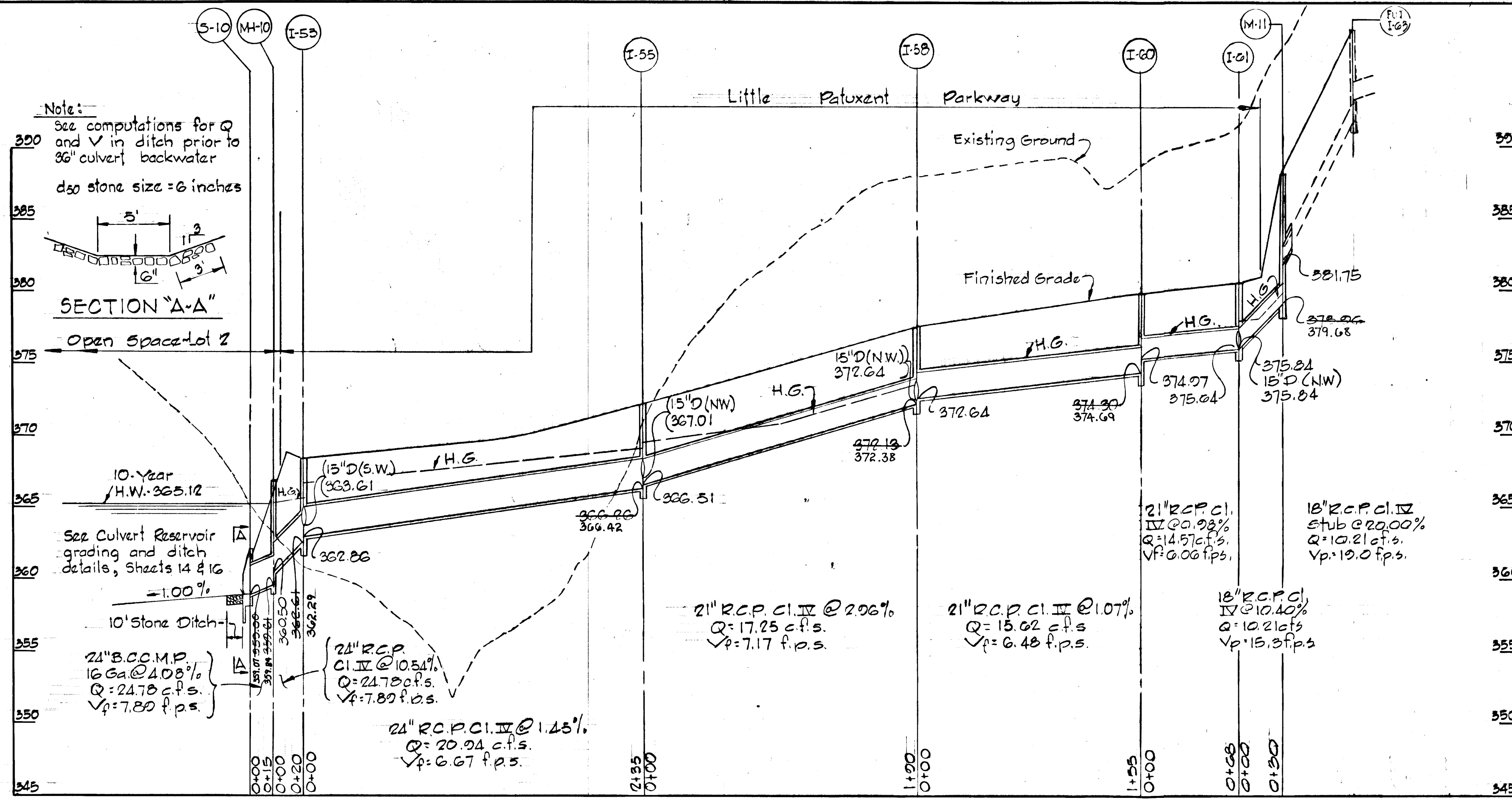
PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5

PROJECT TITLE
 STORM DRAIN PROFILES

SCALE: (Hor. 1"=50', Vert. 1"=5') **DATE:**

WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 2315 ST. PAUL STREET
 BALTIMORE, MARYLAND 21218

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

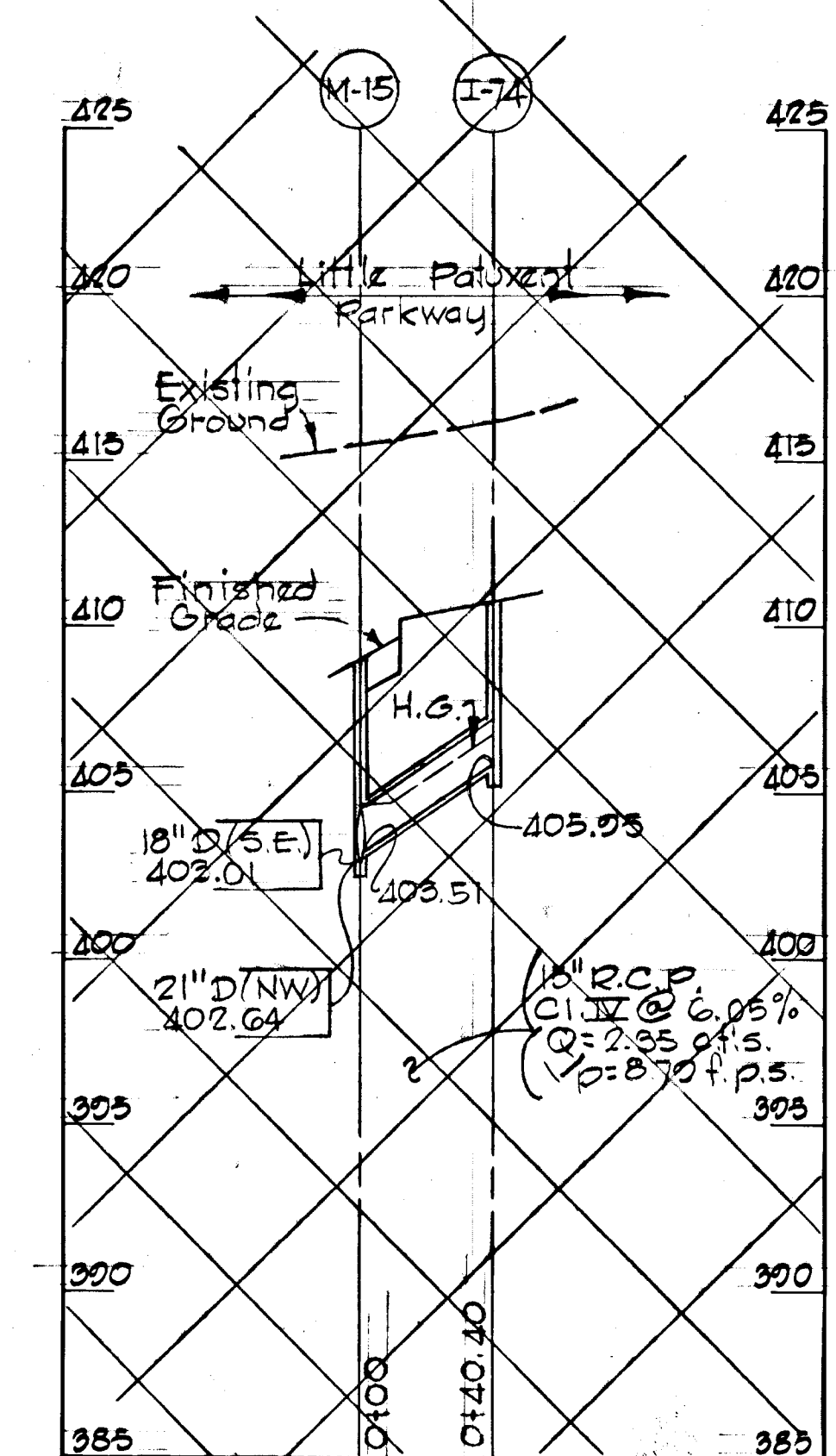
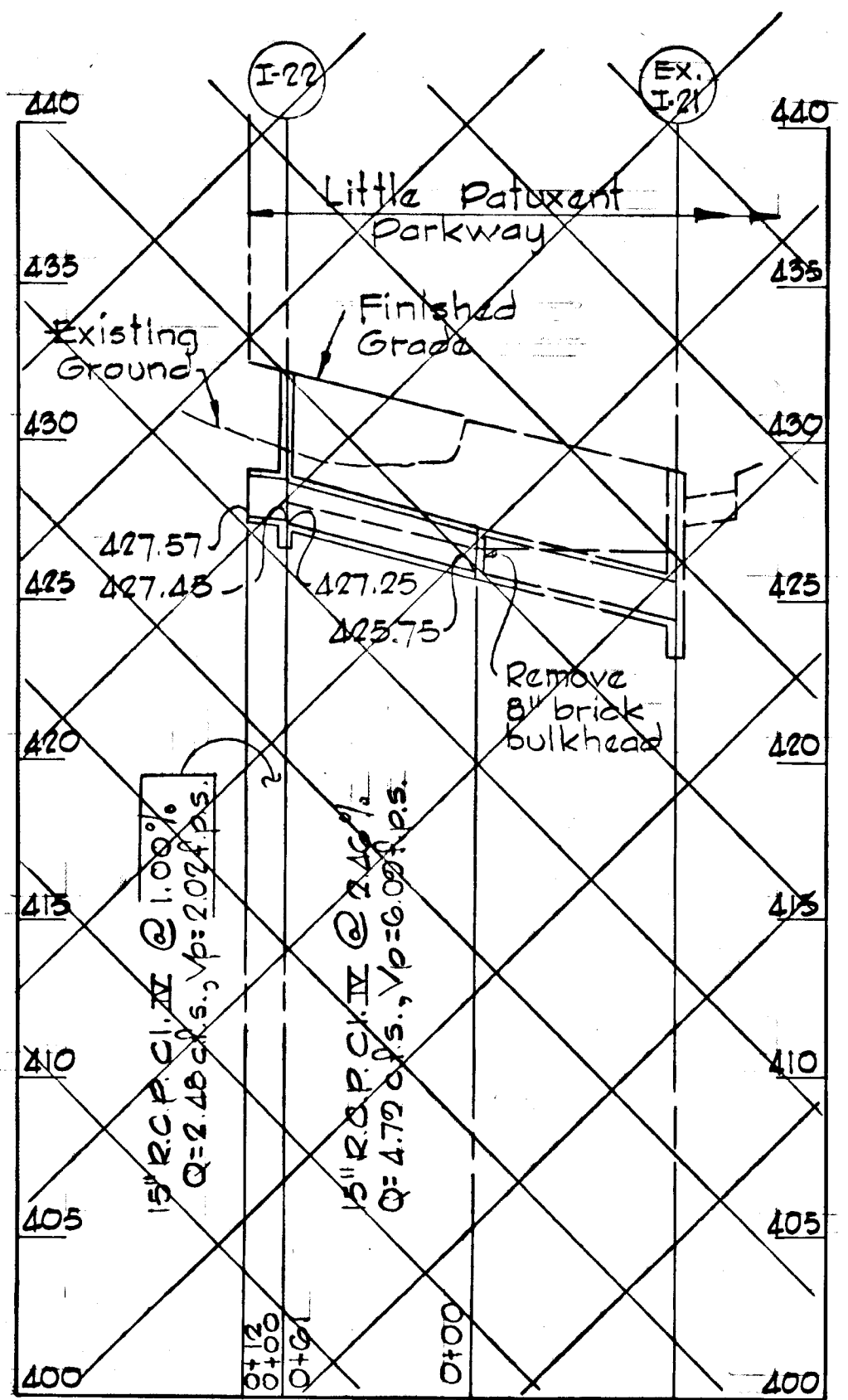
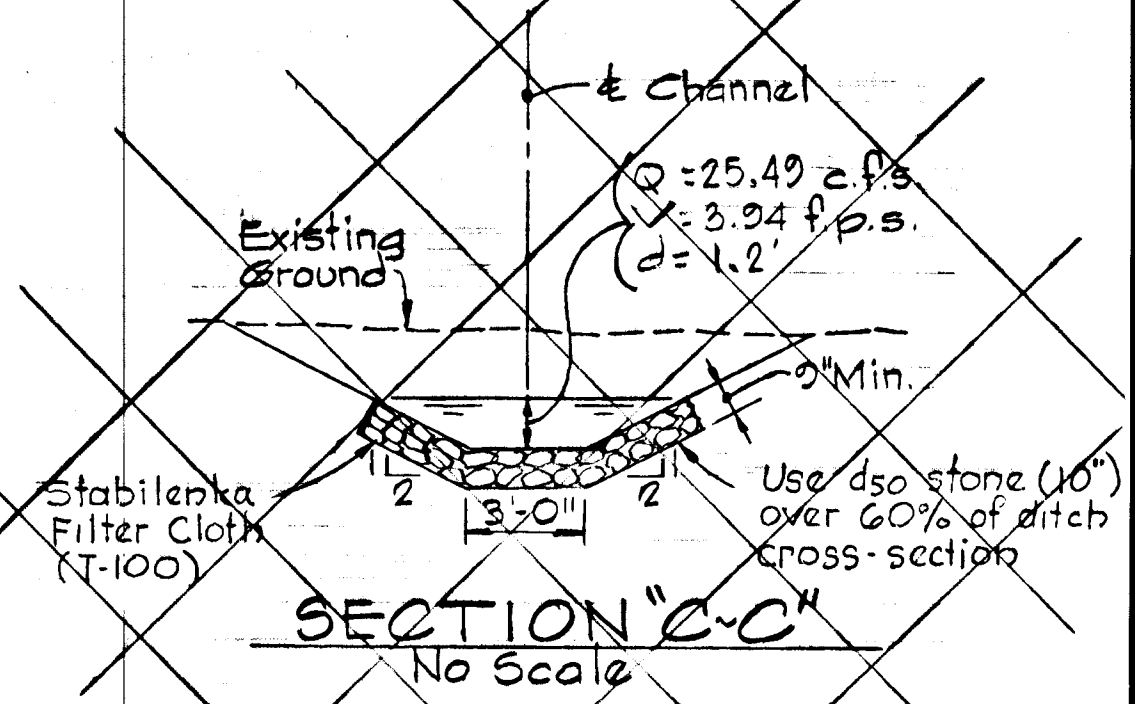
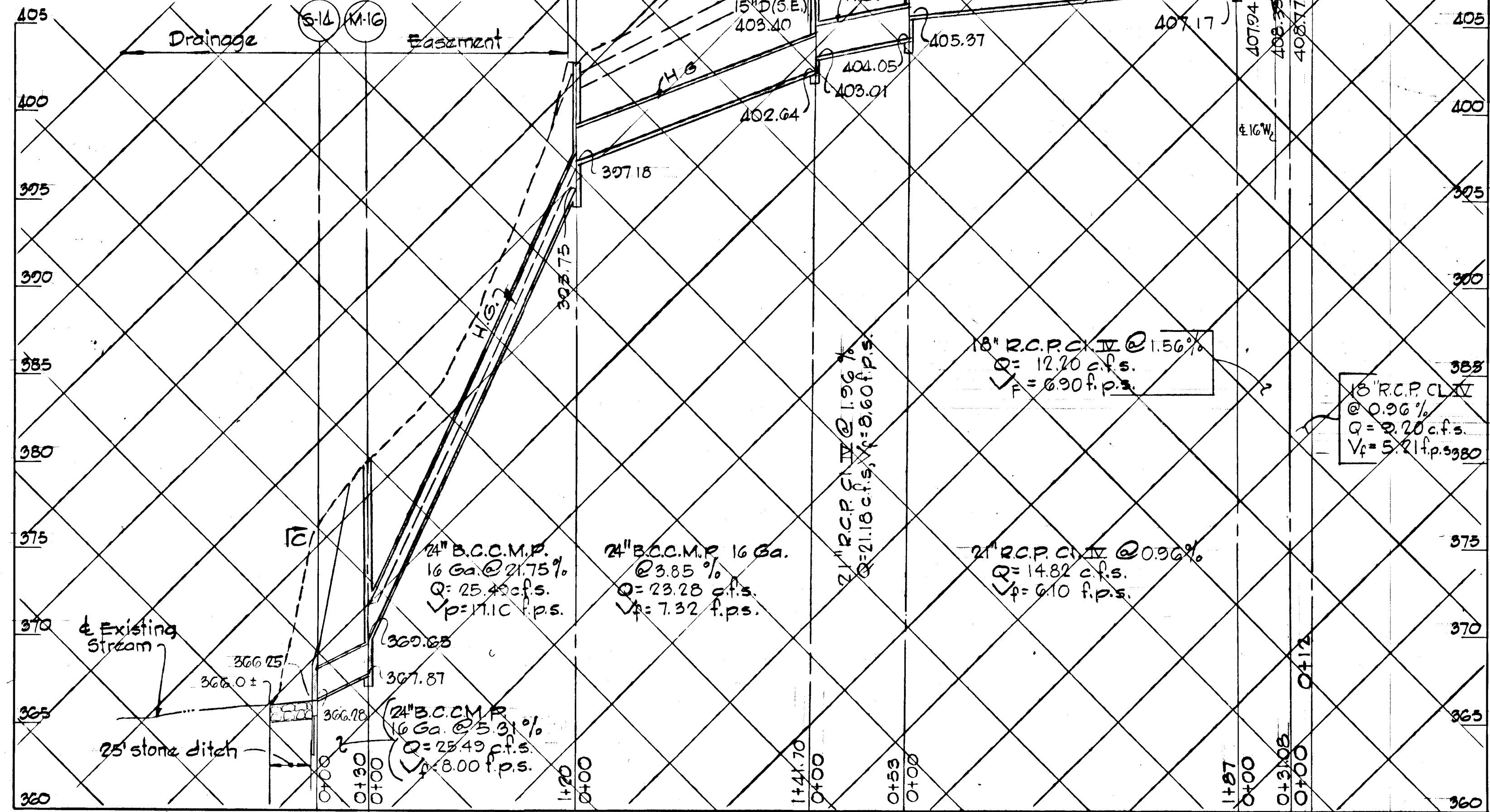
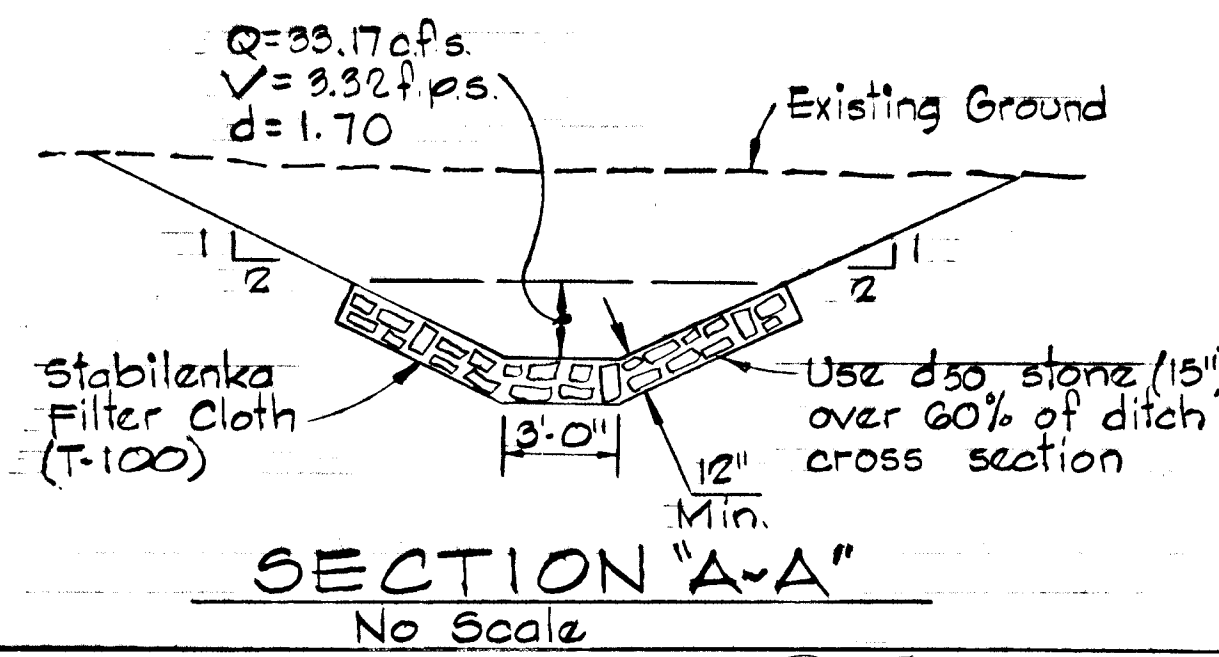
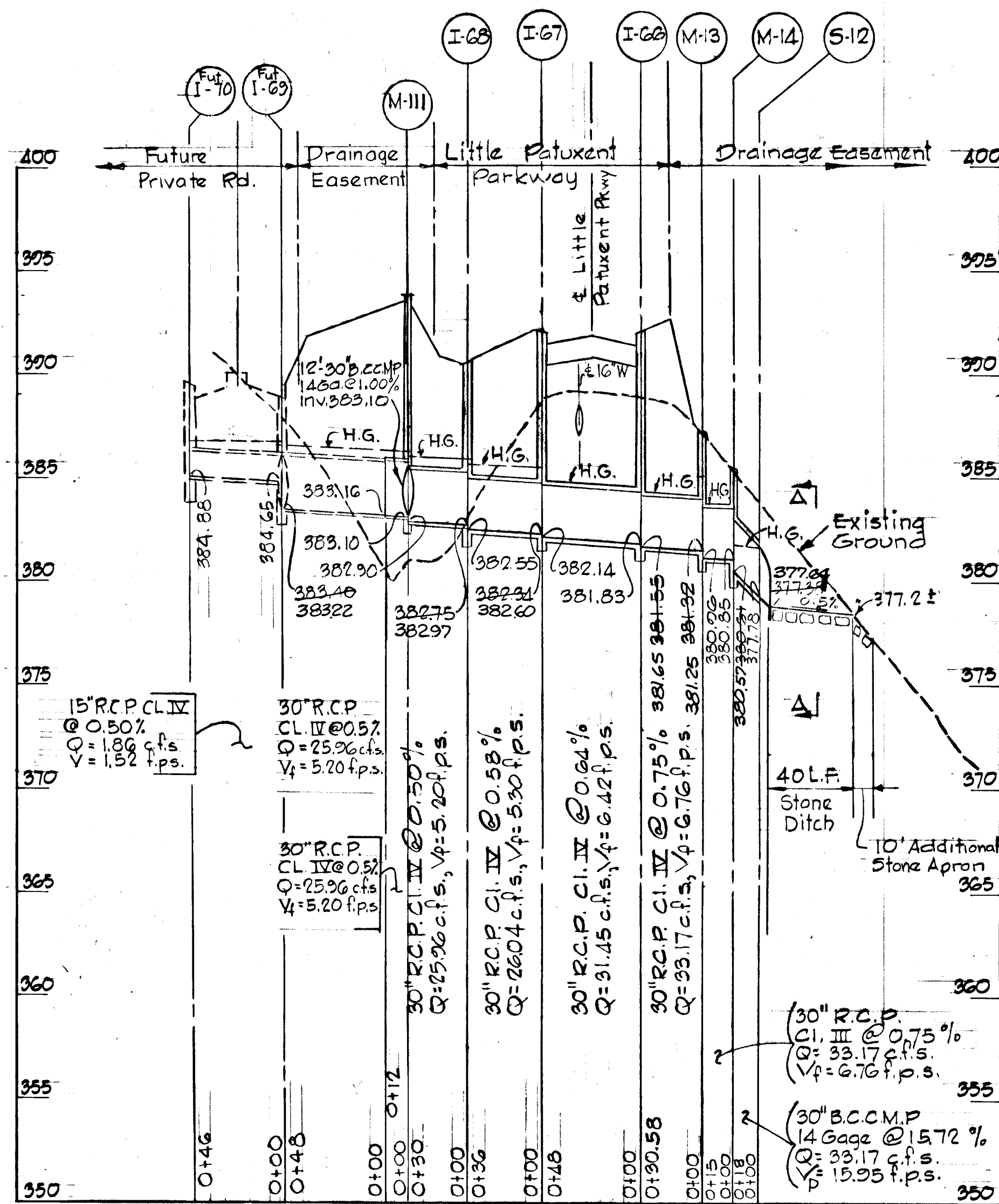


Note:
 As Built survey certified by Kenneth A. McCord, Md. Reg. engineer No. 1974 - April 9, 1985

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

Rev. Date	Rev. No.	Revision Description
02/28/84	3	Storm Drain Revision
11/23/83	2	As Per D.F.W. Comments
10/12/83	1	As Per D.F.W. and S.C.S. Comments

COLUMBIA
 5TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5
 PROJECT TITLE
STORM DRAIN PROFILES
 SCALE: Hor. 1"=50', Vert. 1"=5' DATE:
 WHITMAN, REQUART AND ASSOCIATES
 ENGINEERS
 2315 ST. PAUL STREET
 BALTIMORE, MARYLAND 21218
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974



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

Rev. Date	Rev. No.	Revision Description
6/23/84	3	Storm Drain Revisions
11/23/83	2	After D.P.W. Comments
10/12/83	1	After D.P.W. and S.C.S. Comments

COLUMBIA
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION

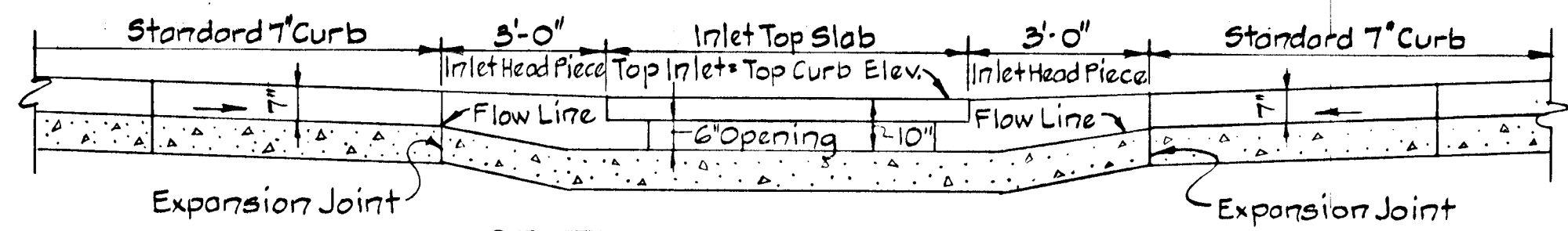
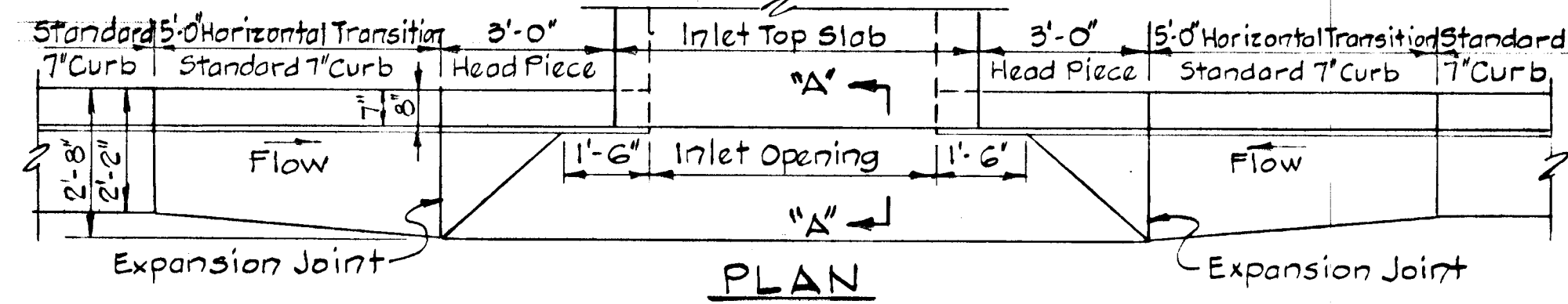
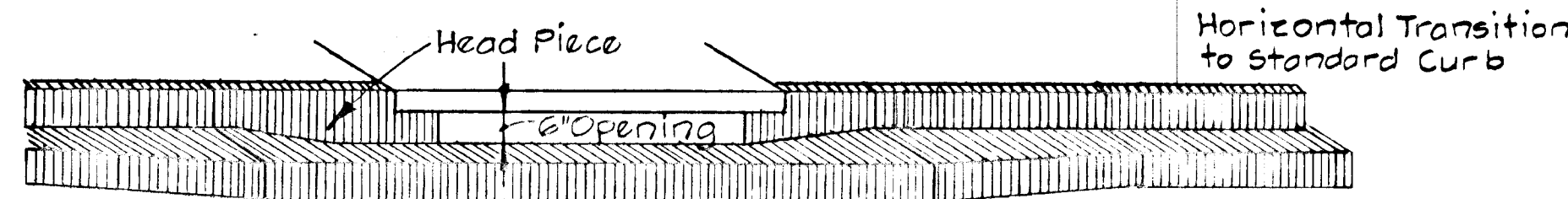
PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5

PROJECT TITLE
STORM DRAIN PROFILES

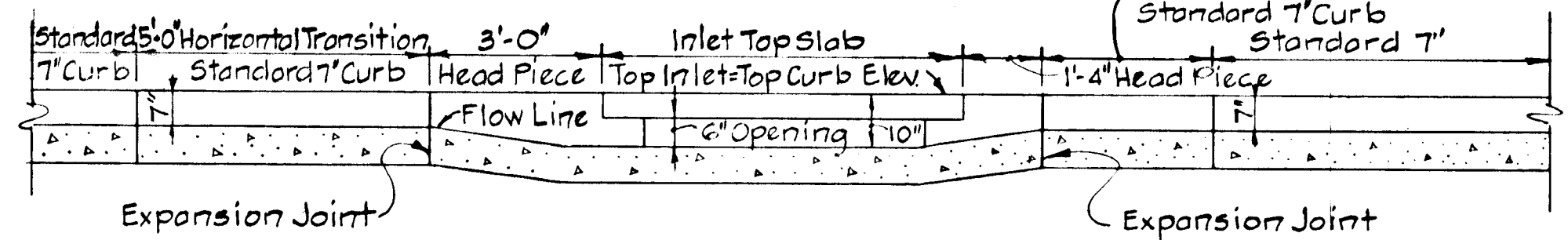
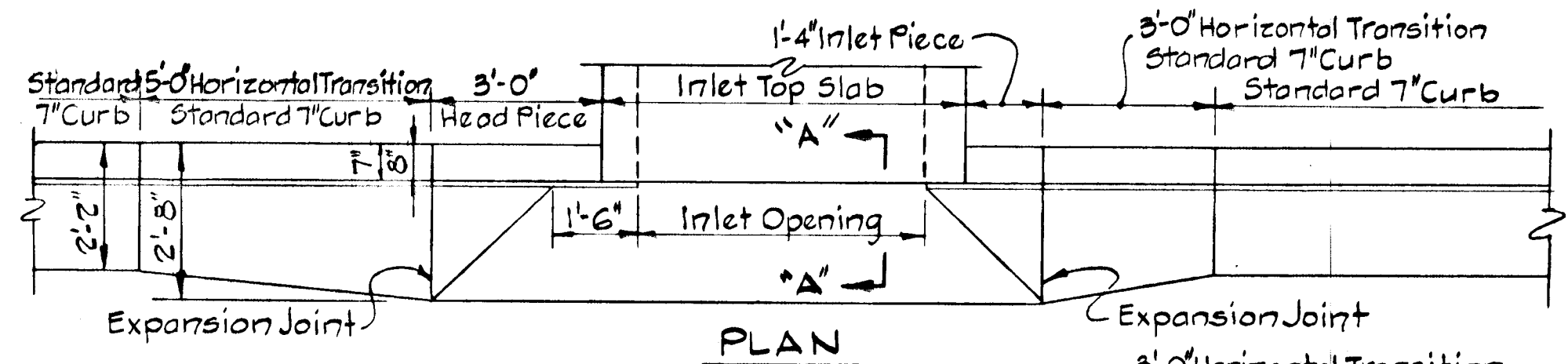
SCALE: Hor: 1"=50' Vert: 1"=5'
 DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 2315 ST. PAUL STREET
 BALTIMORE, MARYLAND 21218

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

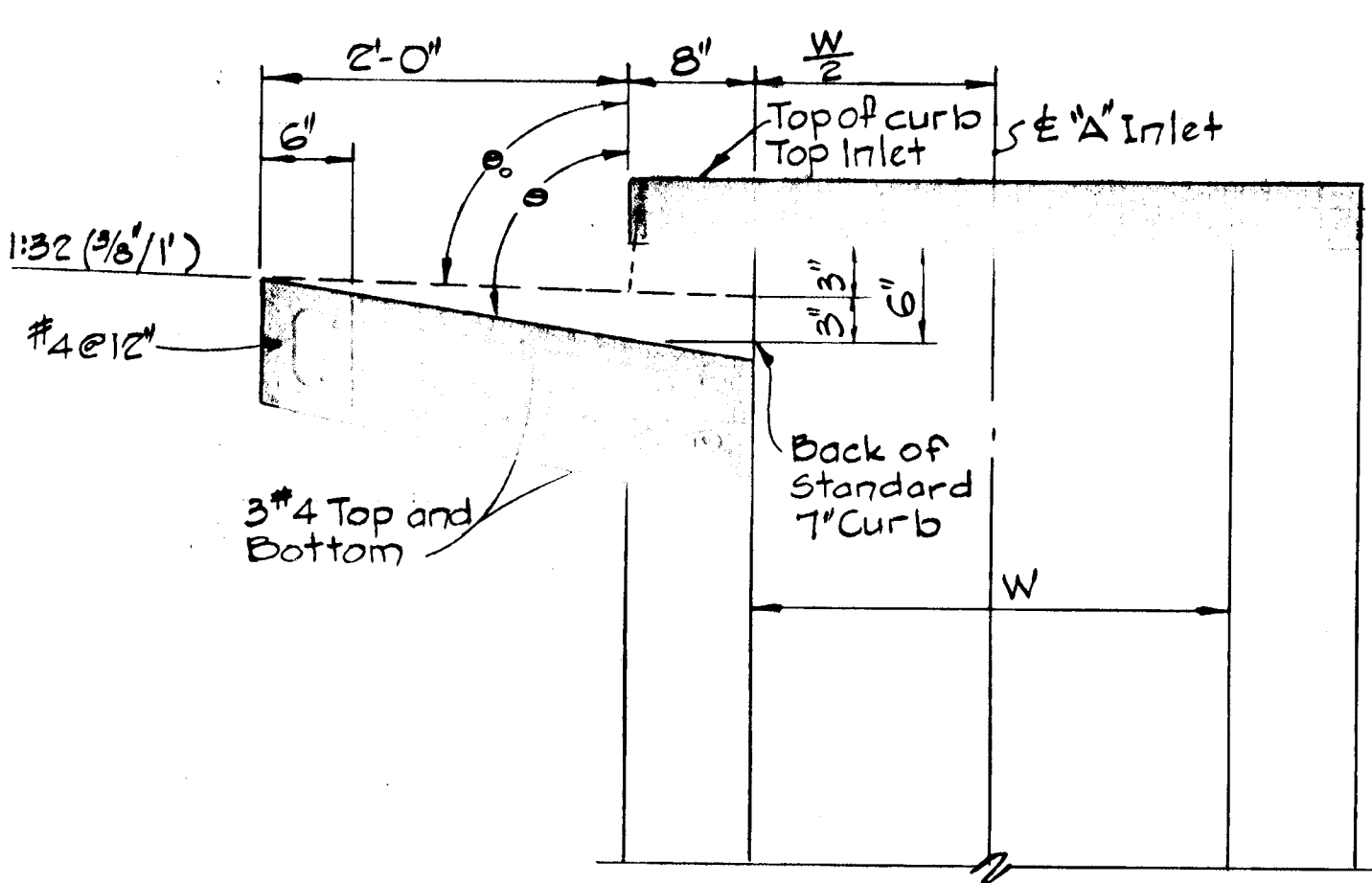
AS-BUILT SURVEY CERTIFIED BY
 KENNETH A. MCCORD, MD. REG.
 P.E. # 1974 - APRIL 9, 1985



SUMPED "A" INLETS - STANDARD CURB



"A" INLETS - STANDARD CURB



"A" INLET - STANDARD CURB

Note: For "A" Inlet dimensions and structural details, see standard Howard County Standards S.D. 4.01 & S.D. 4.02.

11/23/83	2	As Per D.P.W. Comments
10/12/83	1	As Per D.P.W. and S.C.S. Comments
Revision	Rev. No.	Revision Description

COLUMBIA
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION

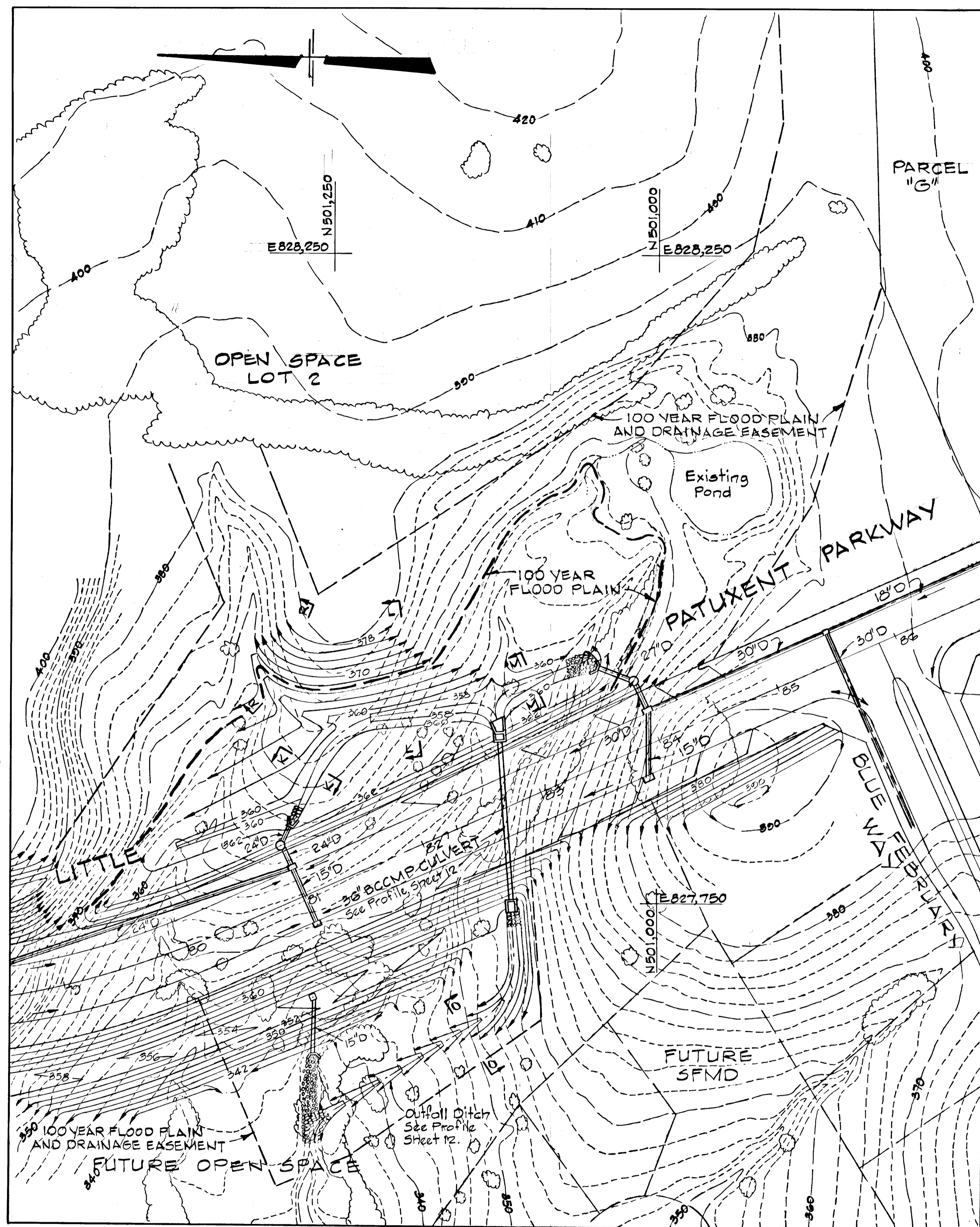
PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5

PROJECT TITLE
 STORM DRAIN DETAILS

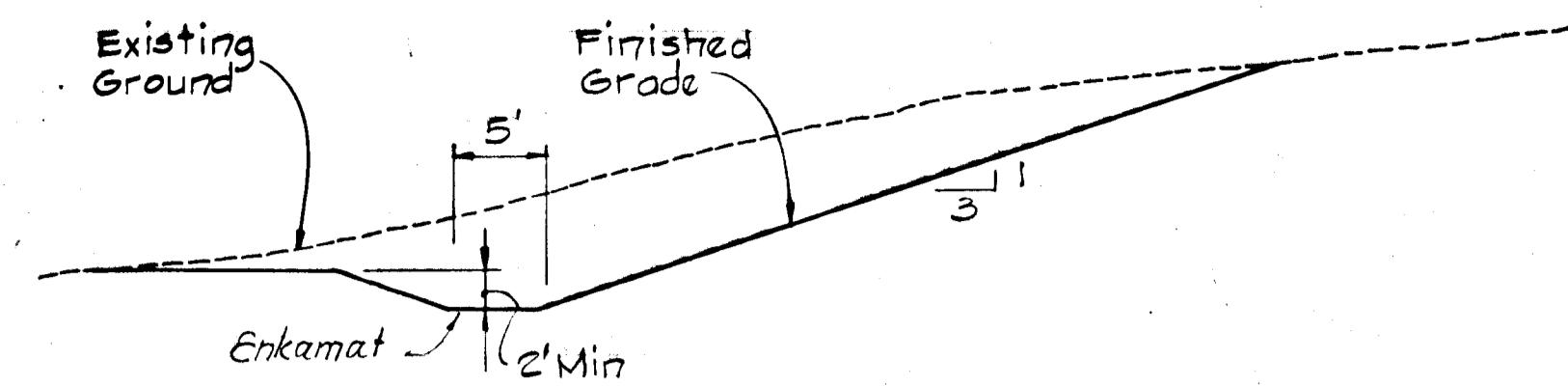
SCALE: AS SHOWN DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 2315 ST. PAUL STREET
 BALTIMORE, MARYLAND 21218

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

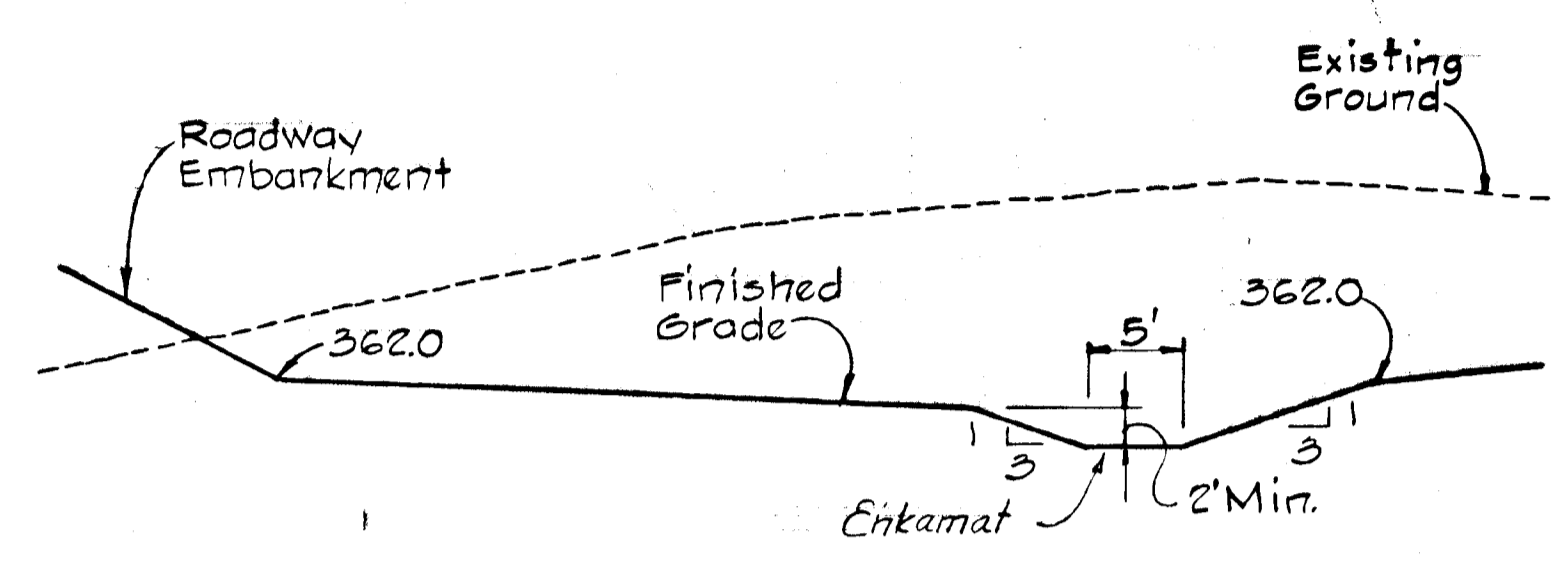
#42



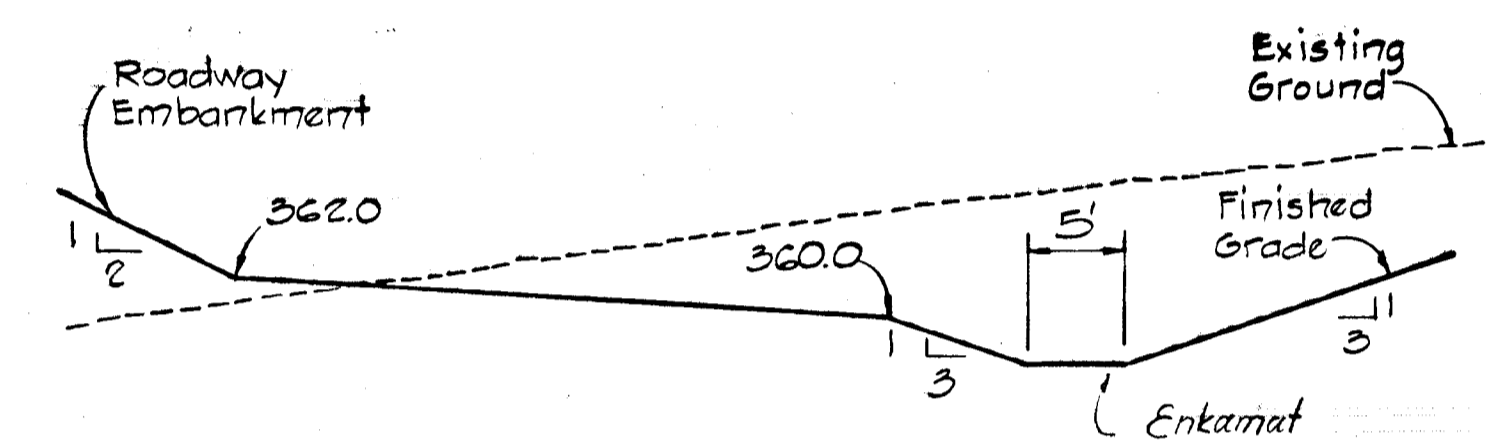
PLAN
36' CULVERT RESERVOIR AND OUTFALL DITCH



SECTION R-R
 Scale: 1"=10'

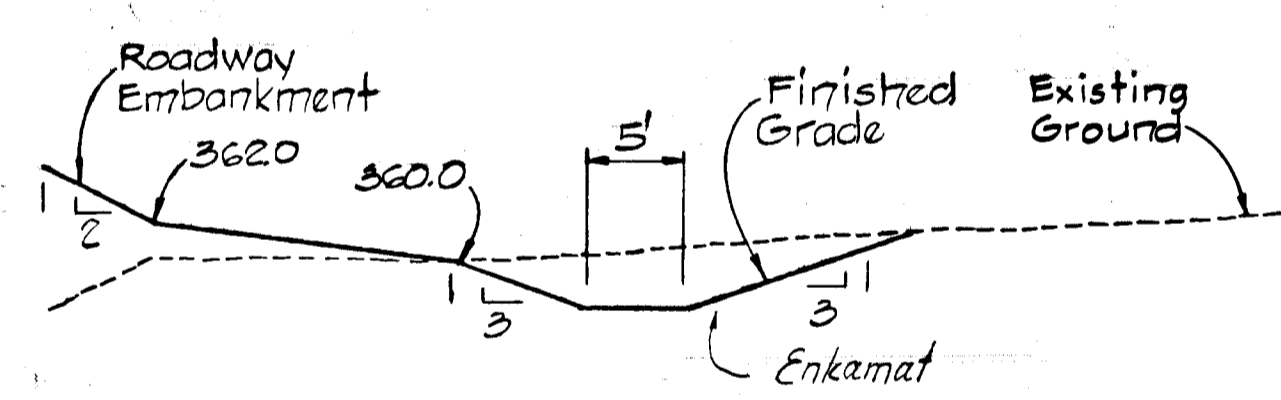


SECTION K-K
 Scale: 1"=10'

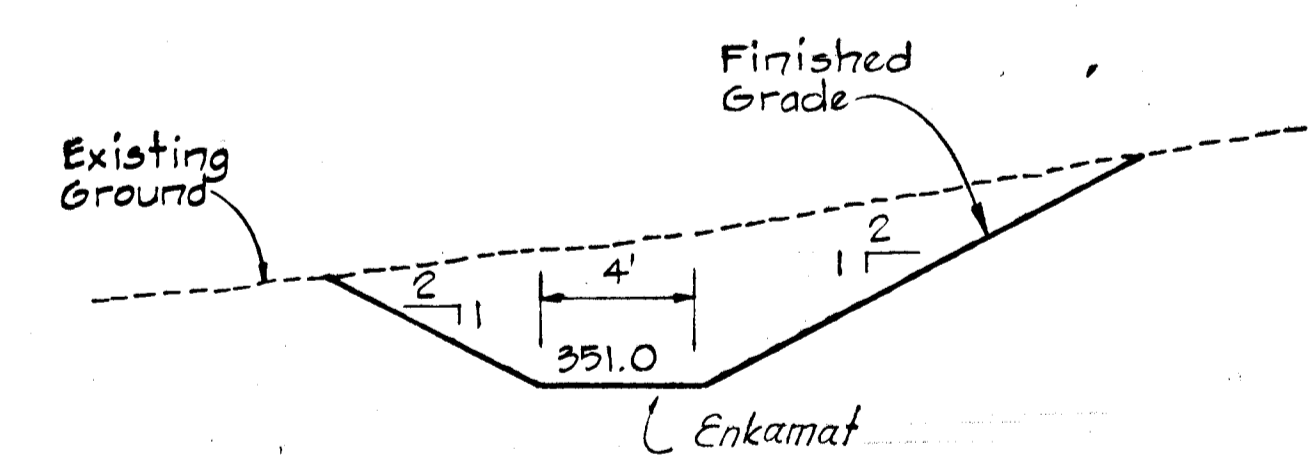


SECTION L-L
 Scale: 1"=10'

Place Enkamat in proposed ditches, full length, except where stone is specified. See Enkamat Details and Specifications Sheet 13.



SECTION M-M
 Scale: 1"=10'



SECTION O-O
 Scale: 1"=5'

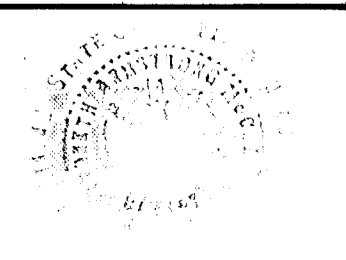
Rev/Date	Rev No.	Revision Description
11/23/83	2	As Per DPW Comments
10/12/83	1	As Per DPW and S.C.S. Comments

COLUMBIA
 5TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5

PROJECT TITLE
 STORM WATER MANAGEMENT
 36" CULVERT

SCALE: As Shown DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 2315 ST. PAUL STREET
 BALTIMORE, MARYLAND 21218

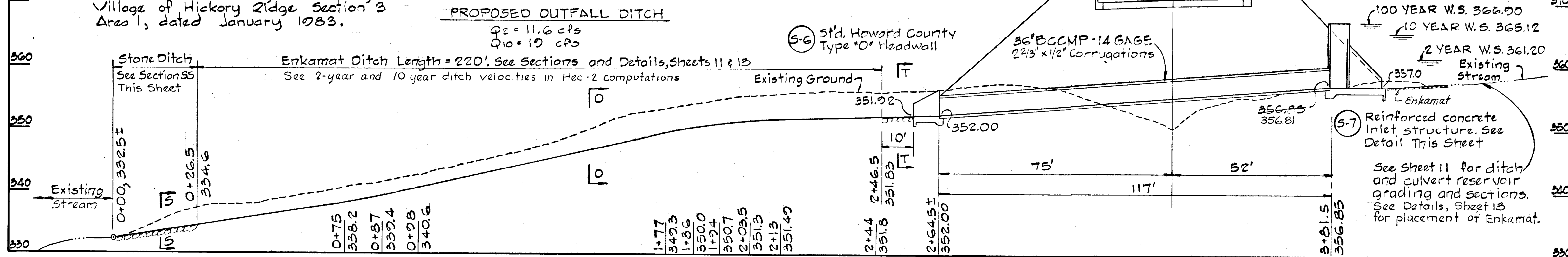
Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 1974



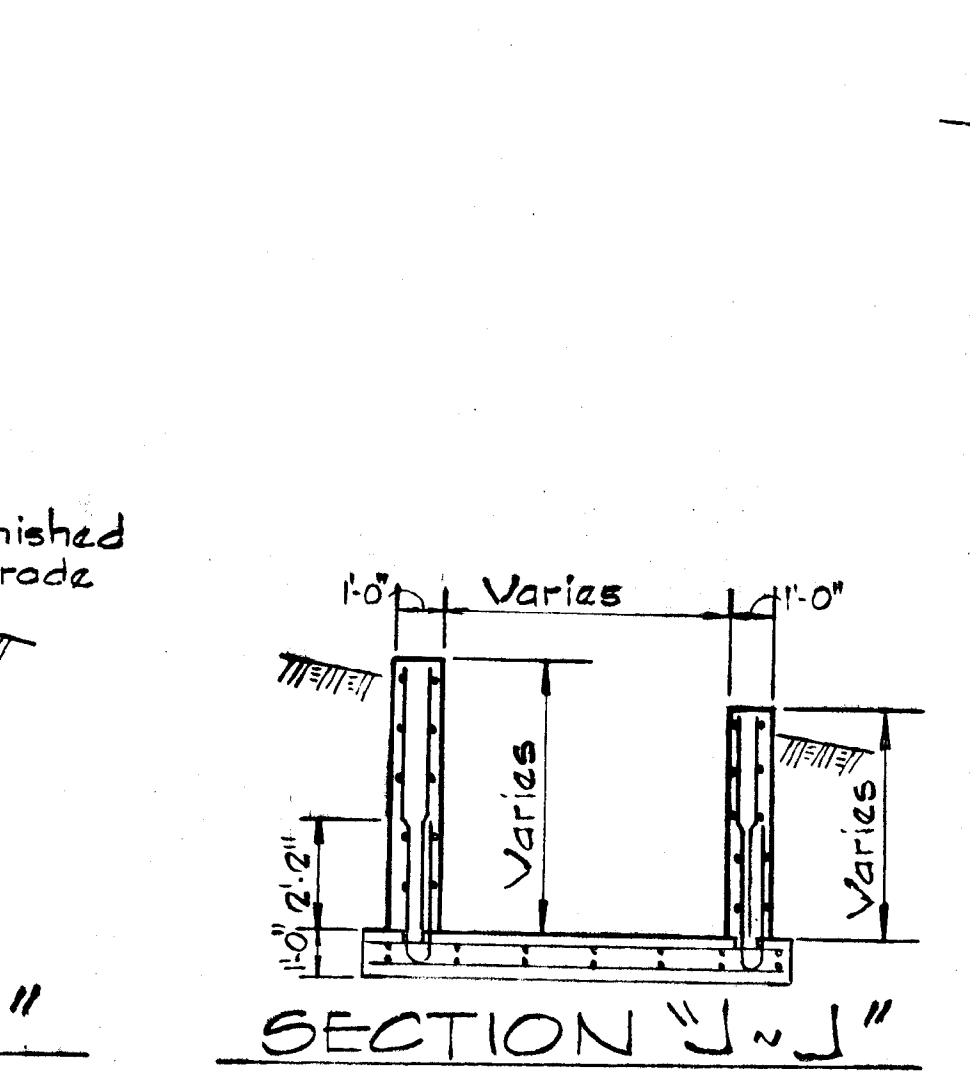
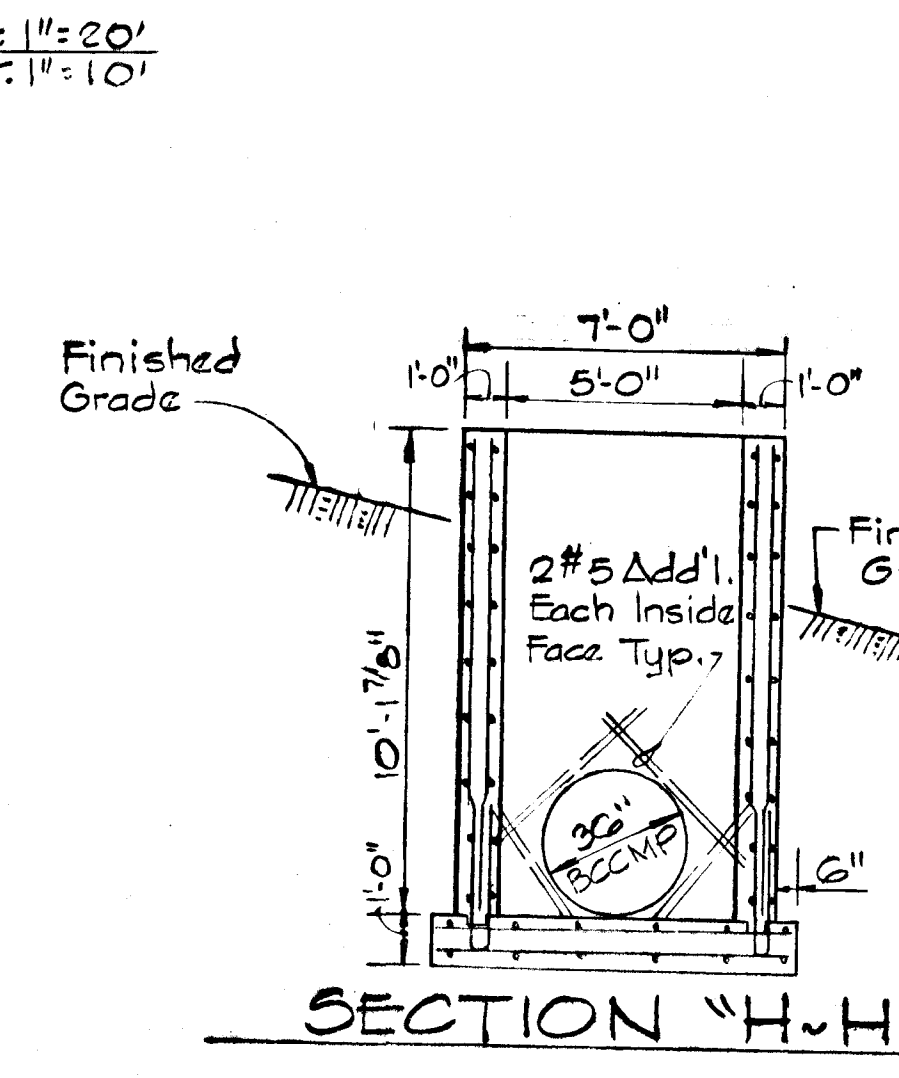
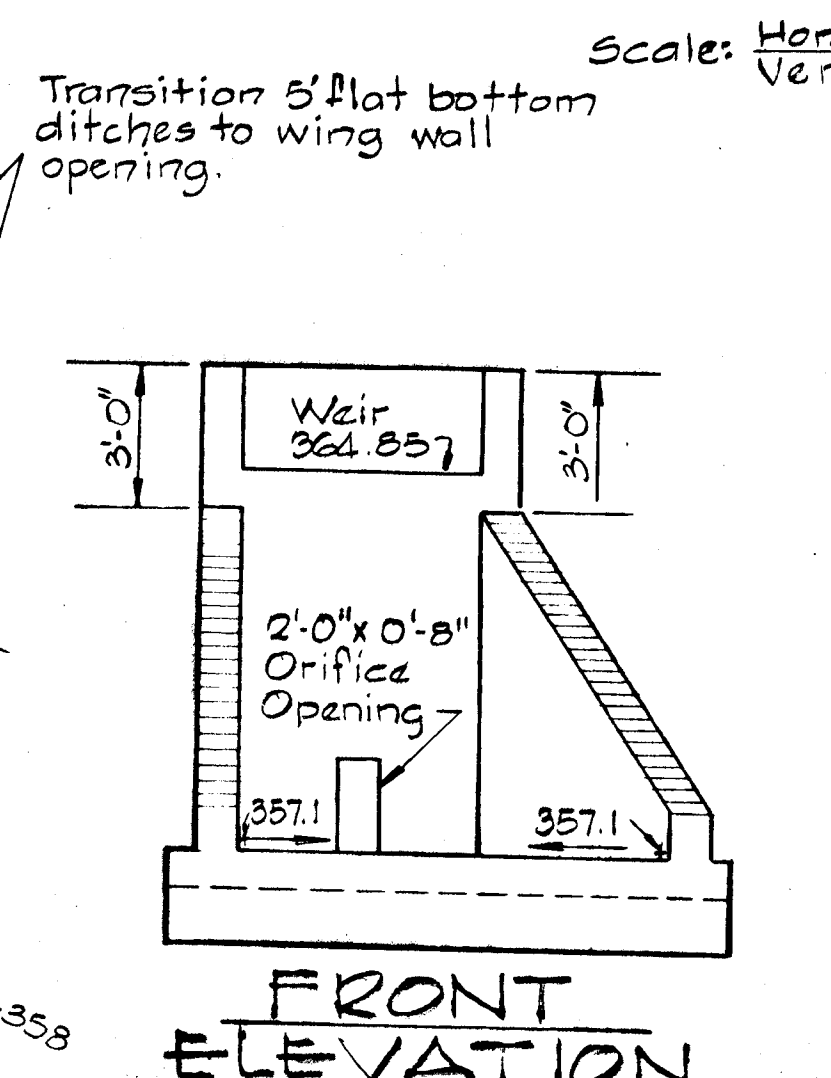
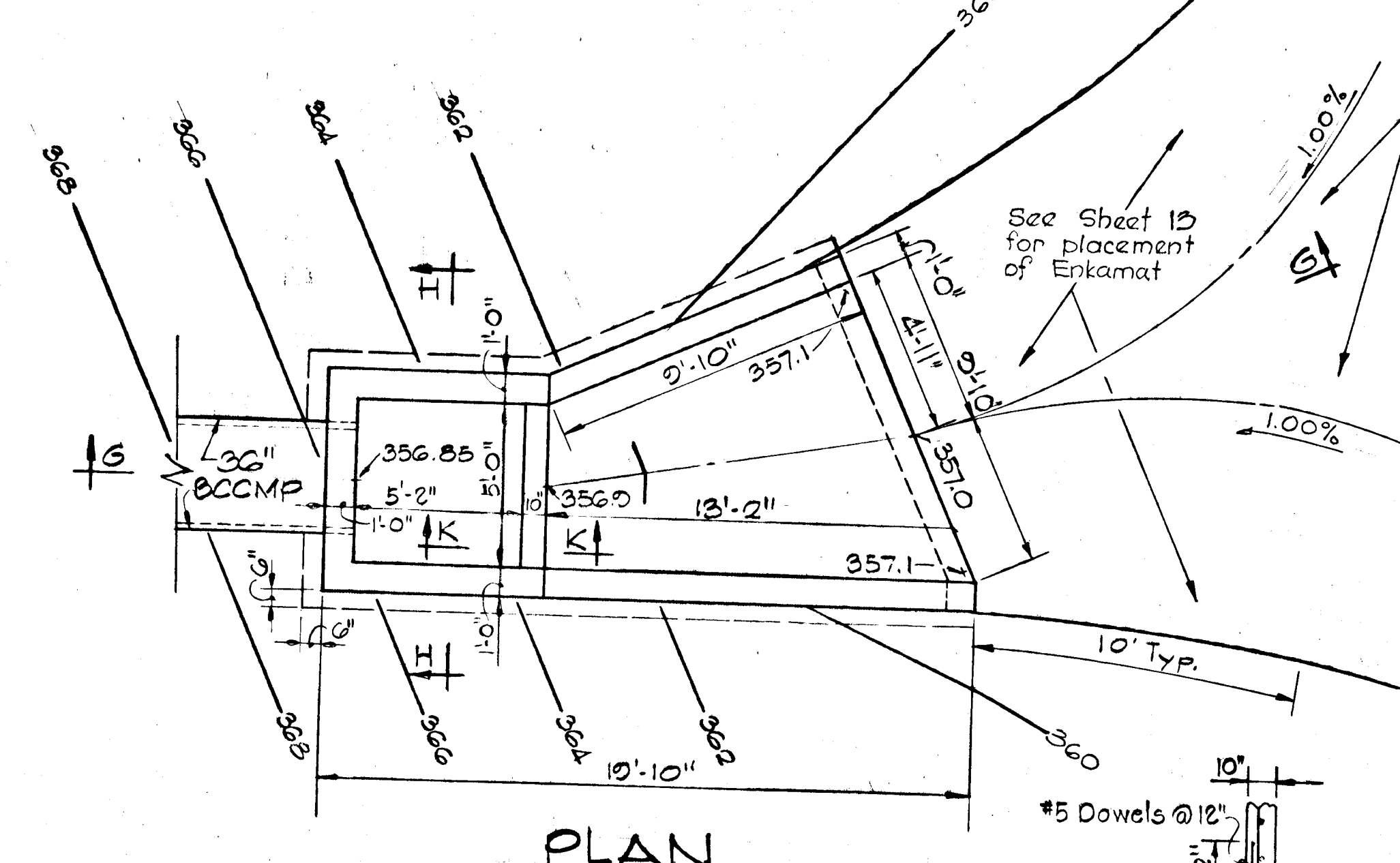
HYDRAULICS - 36" CULVERT (Ultimate Land Use)

FREQUENCY FLOOD EVENT	PEAK INFLOW CFS	PEAK OUTFLOW CFS	STORAGE AC. FT.
2 YEAR	31	11.6	0.7
10 YEAR	79	19	2.8
100 YEAR	141	61	4.5

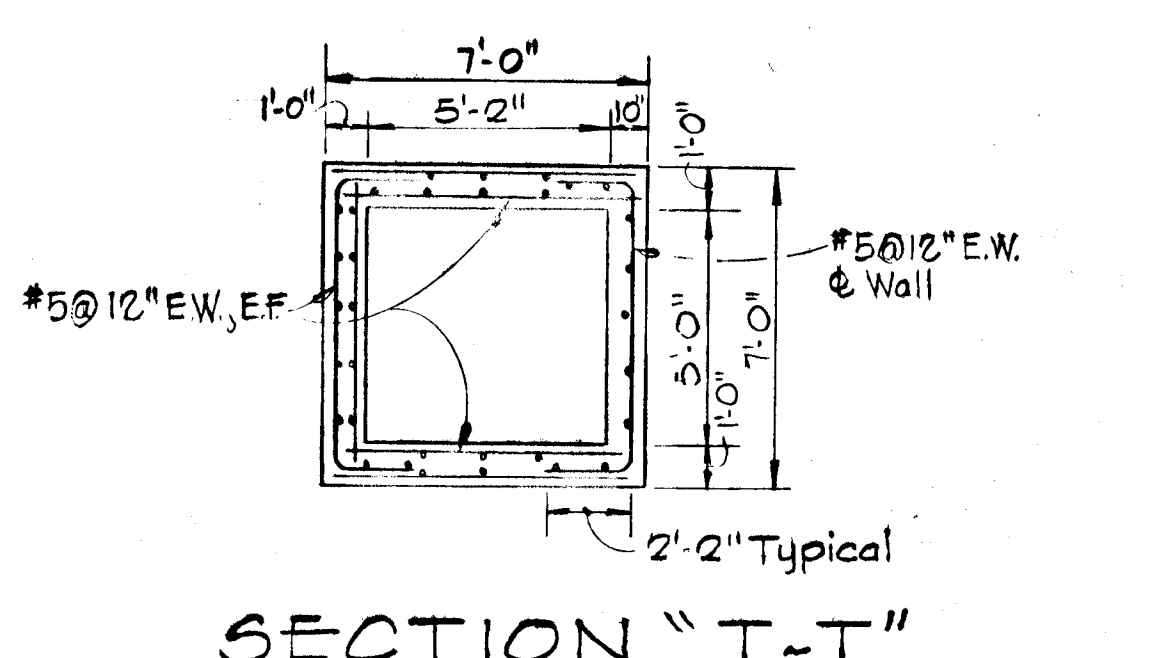
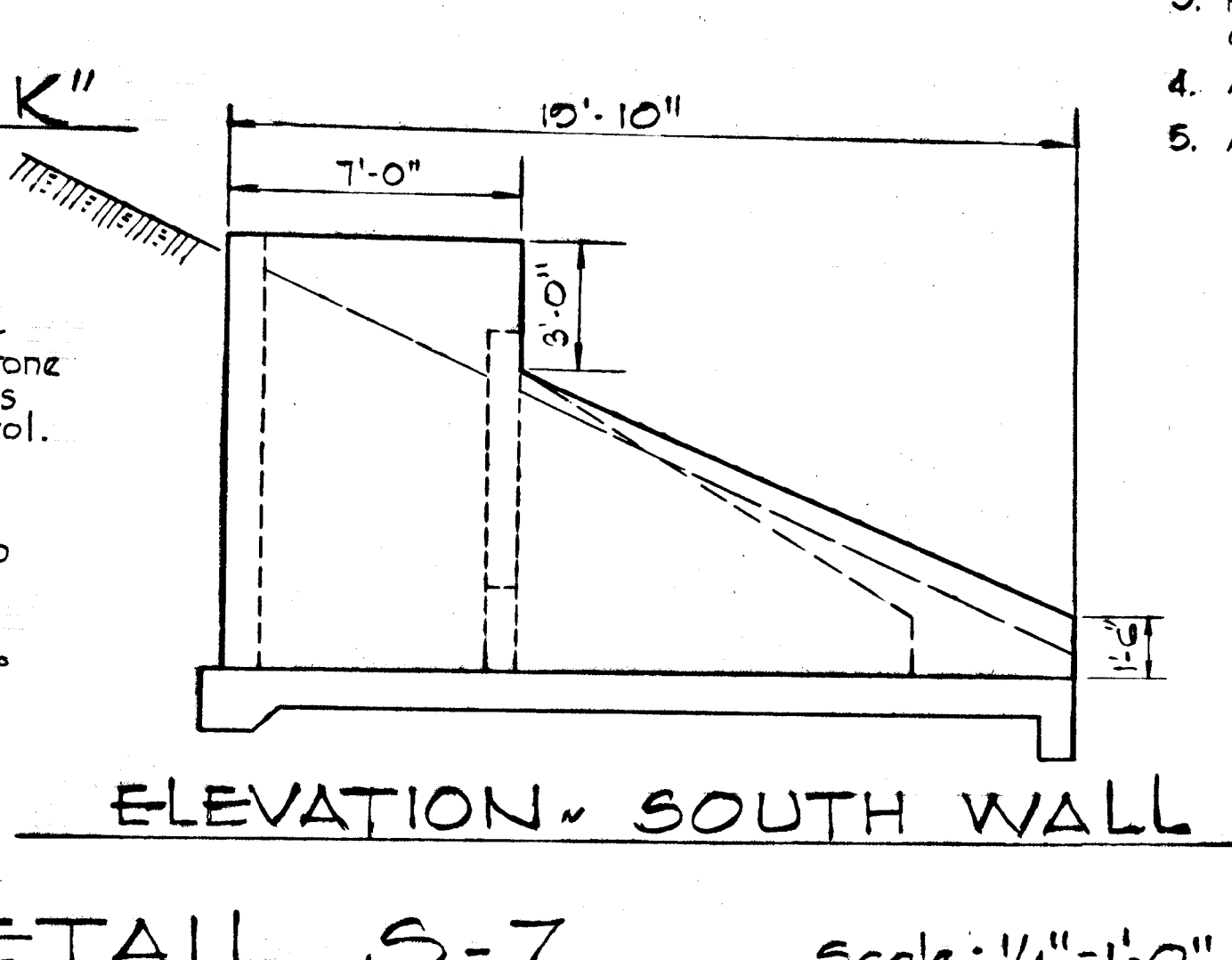
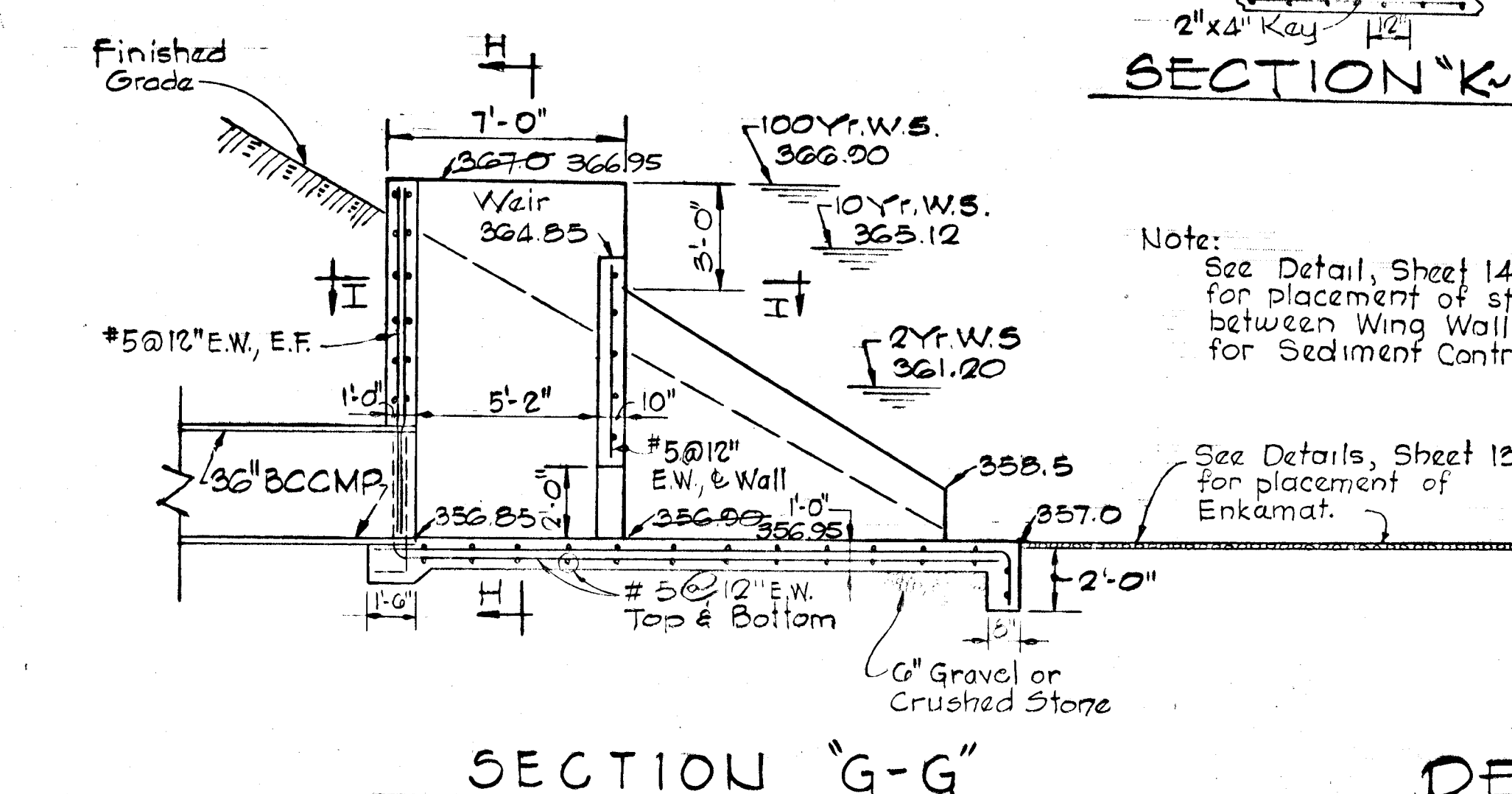
Note: For hydraulic computations of 36" culvert, see Storm Water Management Study for Village of Hickory Ridge Section 3 Area 1, dated January 1983.



PROFILE 36" CULVERT AND OUTFALL DITCH

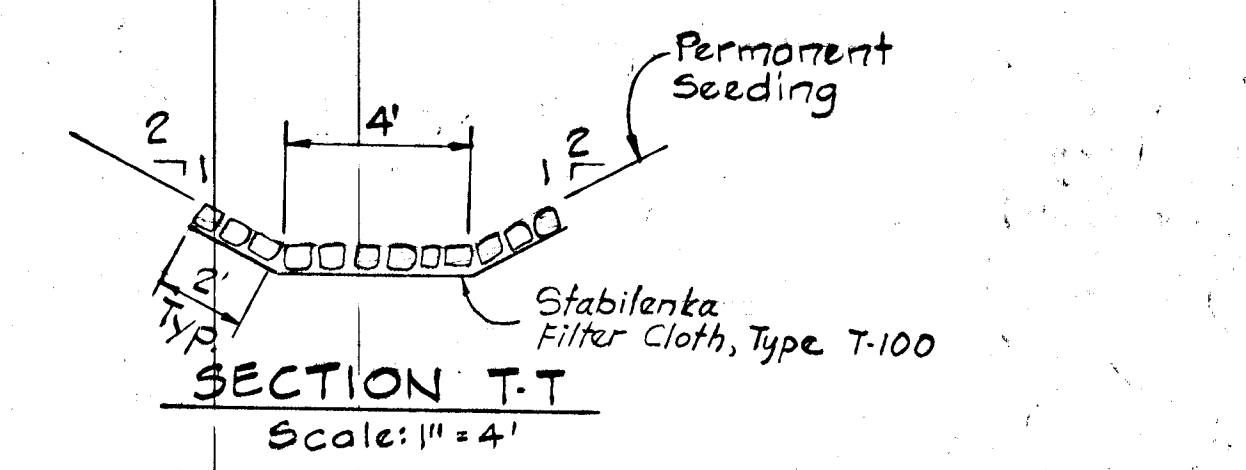


- NOTES:
- All concrete shall have a minimum compression strength of 4,000 psi at 28 days.
 - Reinforced concrete shall be constructed in accordance with current "A.C.I. 301-72 (revised 81) STANDARD BUILDING CODE" requirement.
 - Reinforcing steel shall be detailed in accordance with A.C.I. 315-80, A.C.I. 315R-80 and A.C.I. DETAILING MANUAL - 1980
 - All reinforcement shall conform to A.S.T.M. specification A-G15-81 Grade 60.
 - All exposed concrete edges shall be chamfered 3/4".



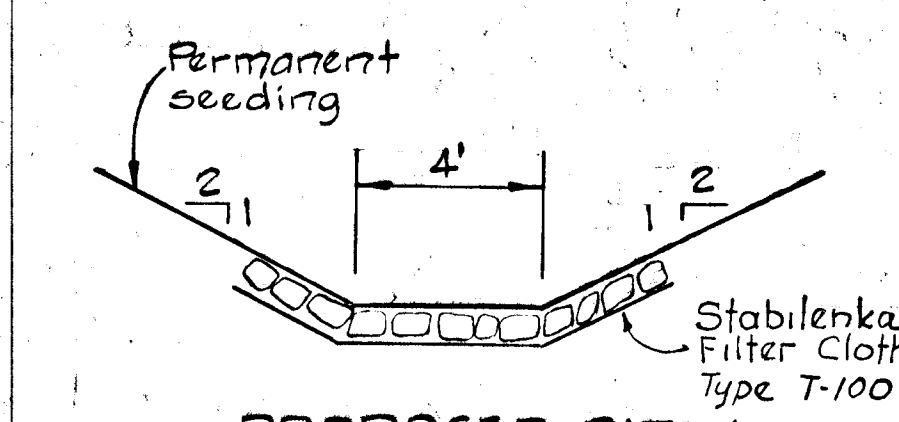
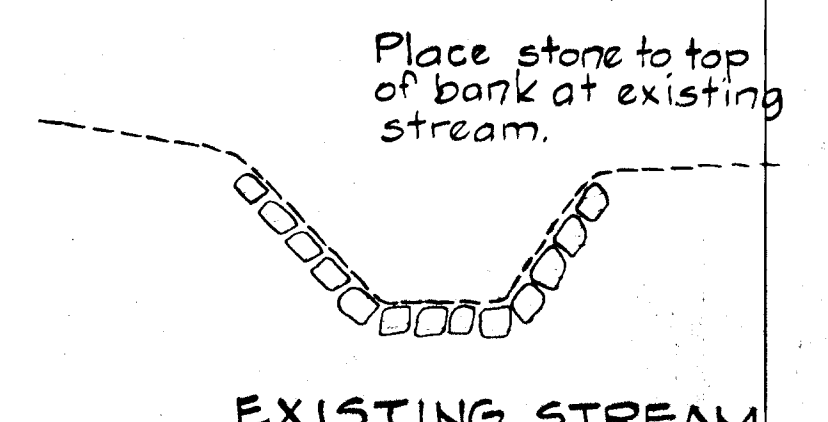
AS-BUILT SURVEY CERTIFIED BY
 KENNETH A. MCCORD, MD. REG.
 P.E. #1974 - APRIL 9, 1986

DEPARTMENT OF PUBLIC WORKS	
Chief, Bureau of Engineering	12-8-83
OFFICE OF PLANNING & ZONING	
Chief, Division of Land Development and Zoning Administration	DATE



Note: For Q_2 and Q_{10} Flows velocities and depths in sections S and T, see Hec-2 computations.

Note: Place d50 stone size (3-inches) over 60% of cross section, sections S and T.



TRANSITION SECTION S-S

Scale: 1" = 4'

Rev. Date	Rev. No.	Revision Description
11/23/82	2	As Per D.P.W. Comment
10/12/82	1	As Per D.P.W. and S.C.S. Comments

COLUMBIA
 5TH ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

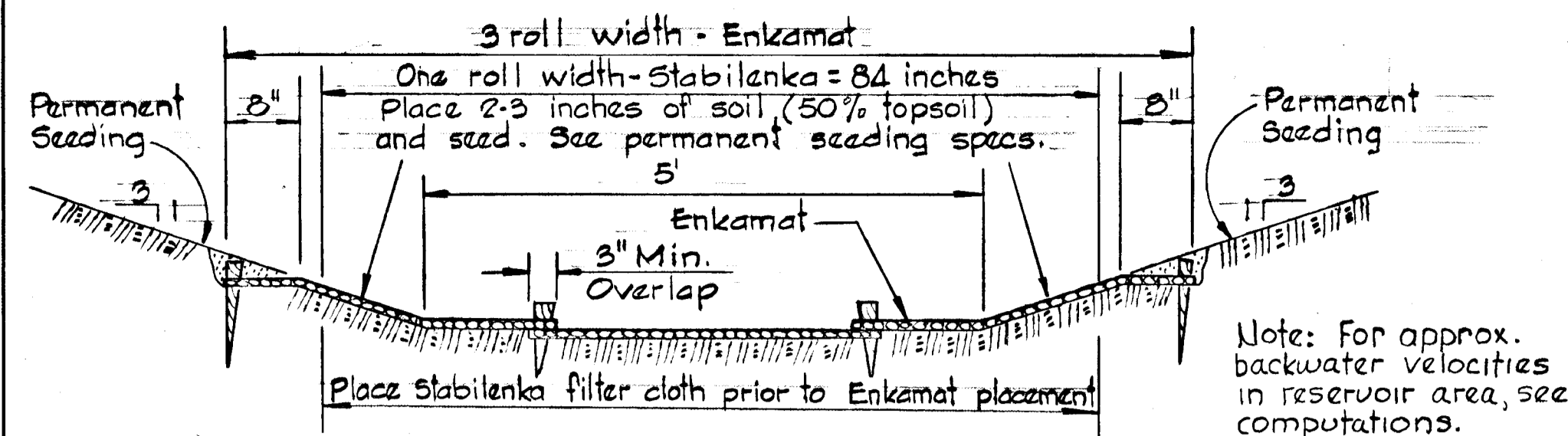
OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION

PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5

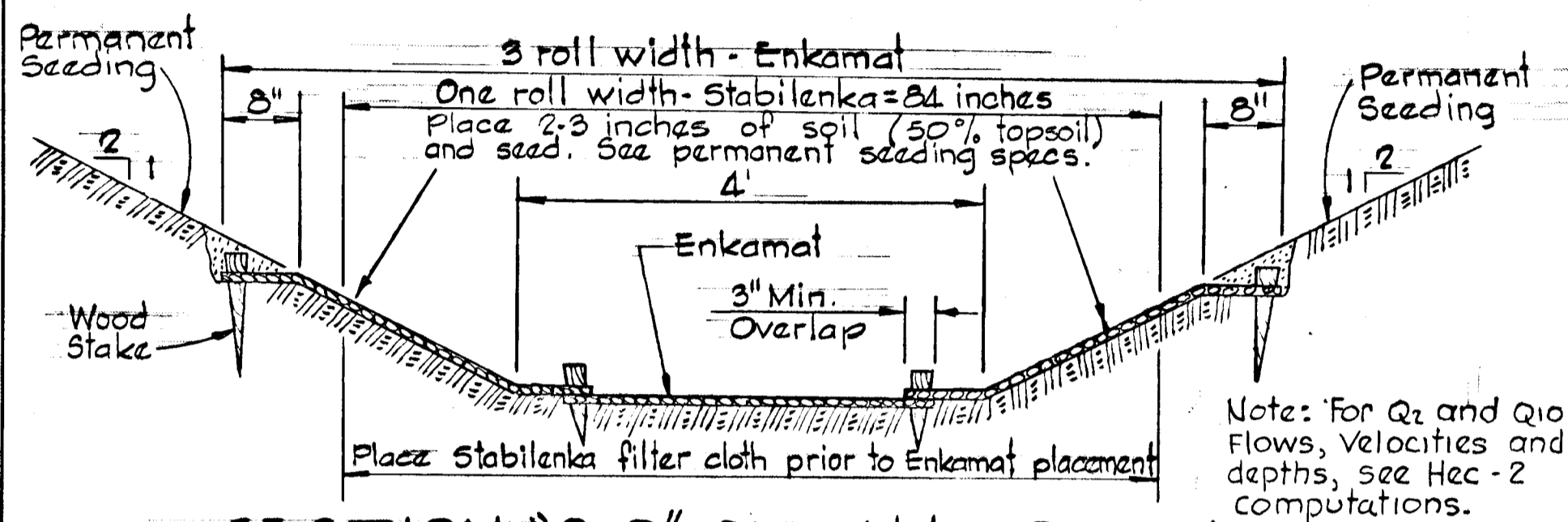
PROJECT TITLE
 36" CULVERT AND OUTFALL DITCH
 PROFILE AND DETAILS

SCALE: As Shown DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 2315 ST. PAUL STREET
 BALTIMORE, MARYLAND 21218

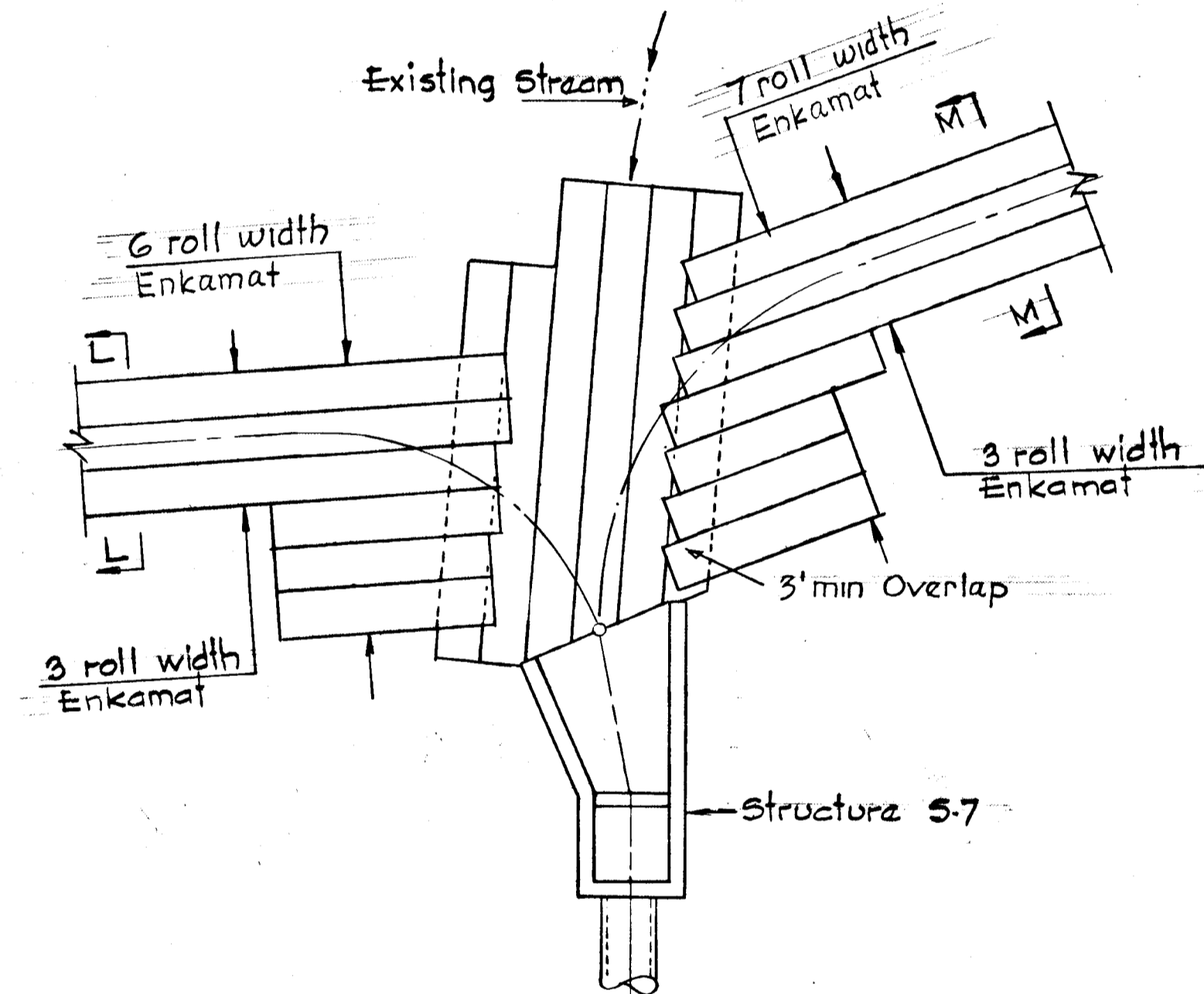
Kenneth A. McCord
 Registered Engineer
 No. 1974



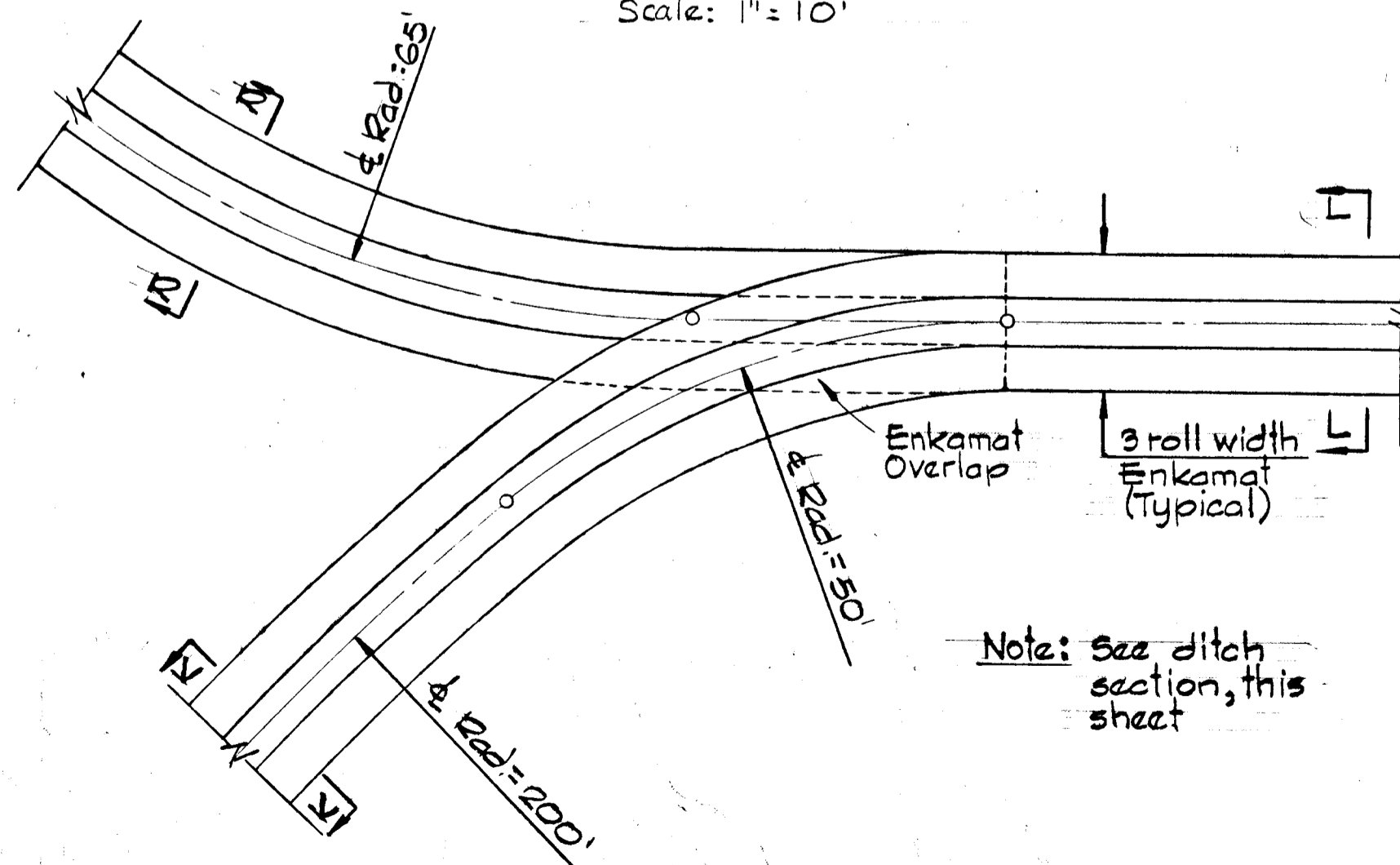
SECTIONS "K, L, M" & "R" - CULVERT RESERVOIR
 Scale: 3/4" = 1'-0"



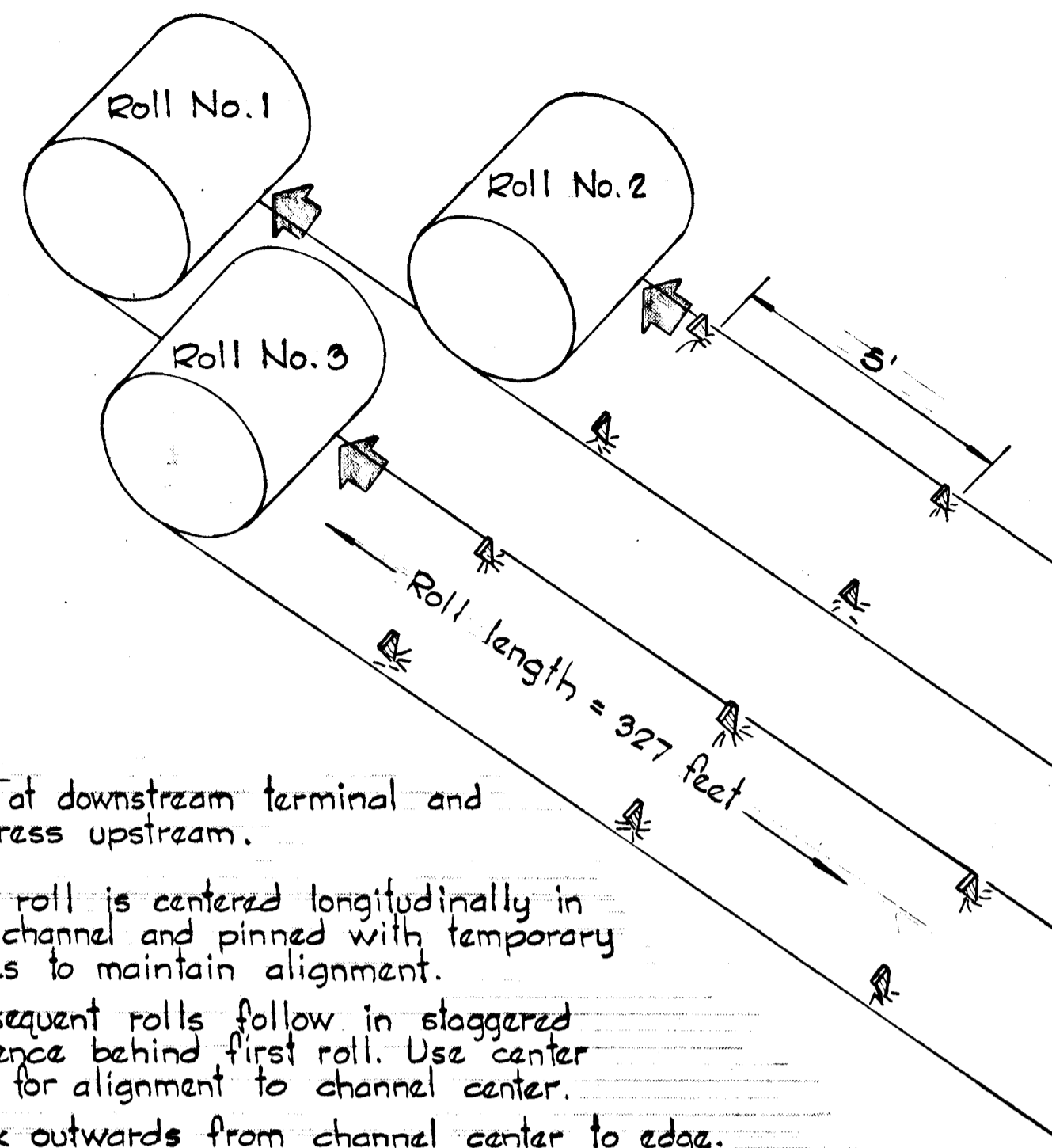
SECTION "O-O" OUTFALL DITCH
 Scale: 3/4" = 1'-0"



DITCH APPROACH - 36" CULVERT
 Scale: 1" = 10'



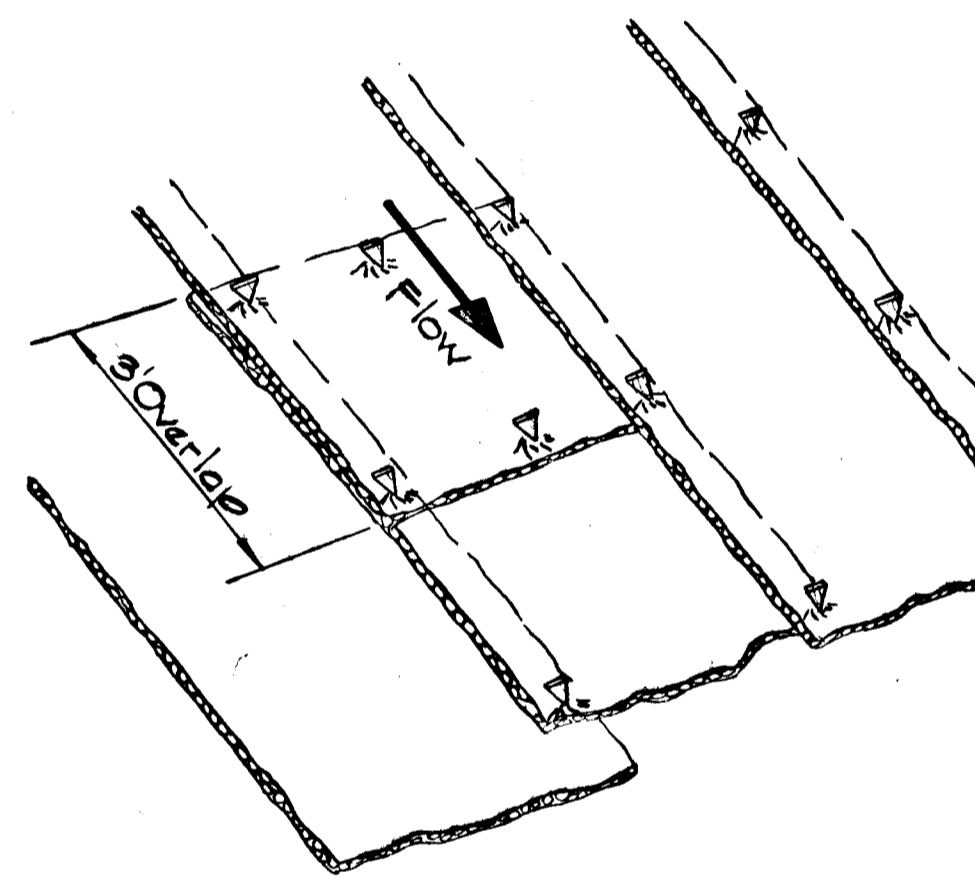
DETAIL - DITCH JUNCTION
 No Scale



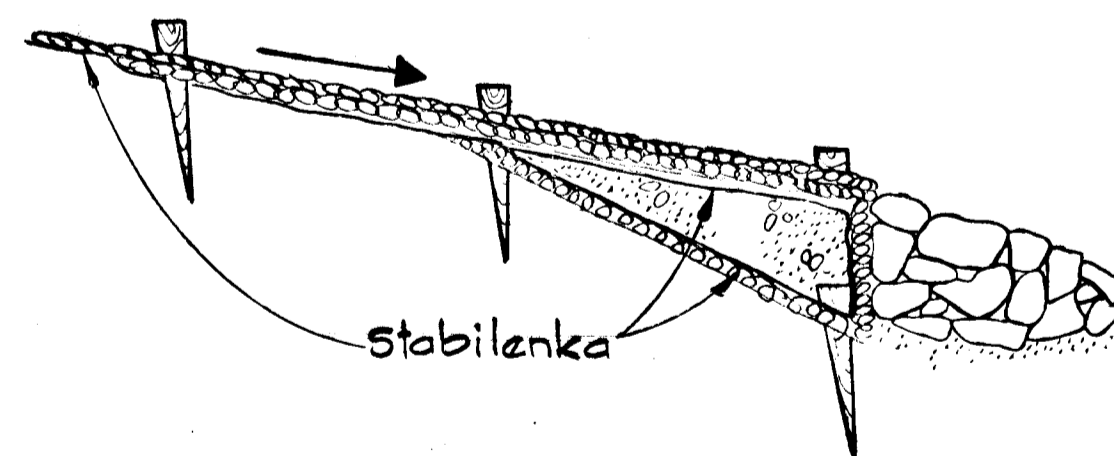
DETAIL "A"

Notes:

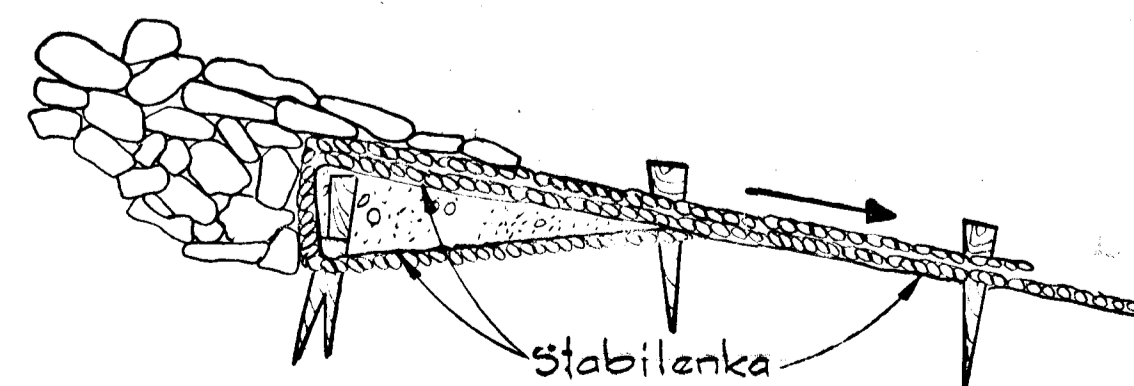
1. Start at downstream terminal and progress upstream.
2. First roll is centered longitudinally in mid channel and pinned with temporary stakes to maintain alignment.
3. Subsequent rolls follow in staggered sequence behind first roll. Use center roll for alignment to channel center.
4. Work outwards from channel center to edge.
5. Use 3" overlap and stake at 5' intervals along seams.
6. Use 3" overlaps and shingle downstream to connect lining at roll ends. See Detail "B".



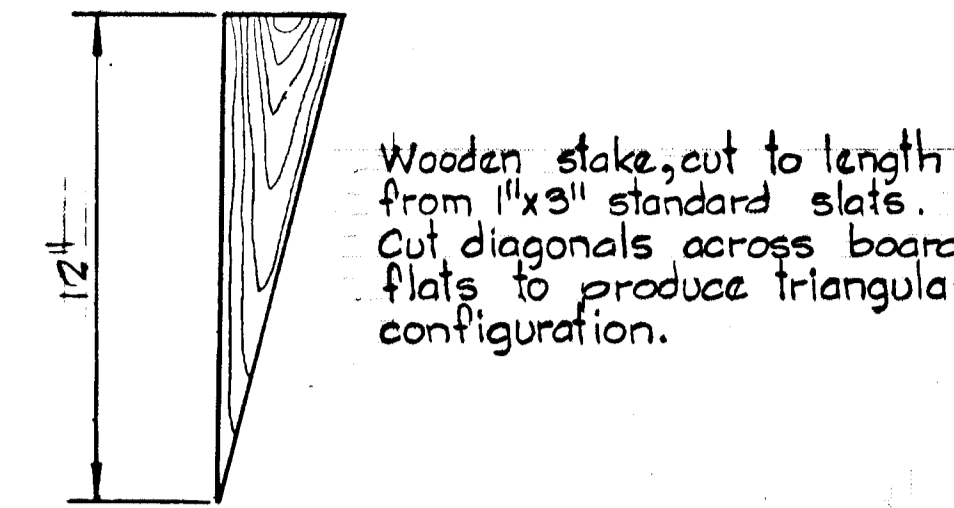
DETAIL "B"



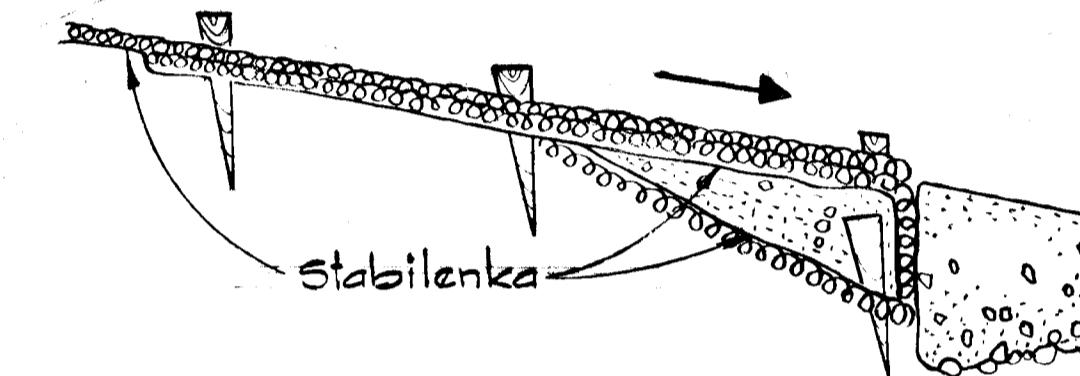
RIP-RAP TERMINAL
 DETAIL "C"



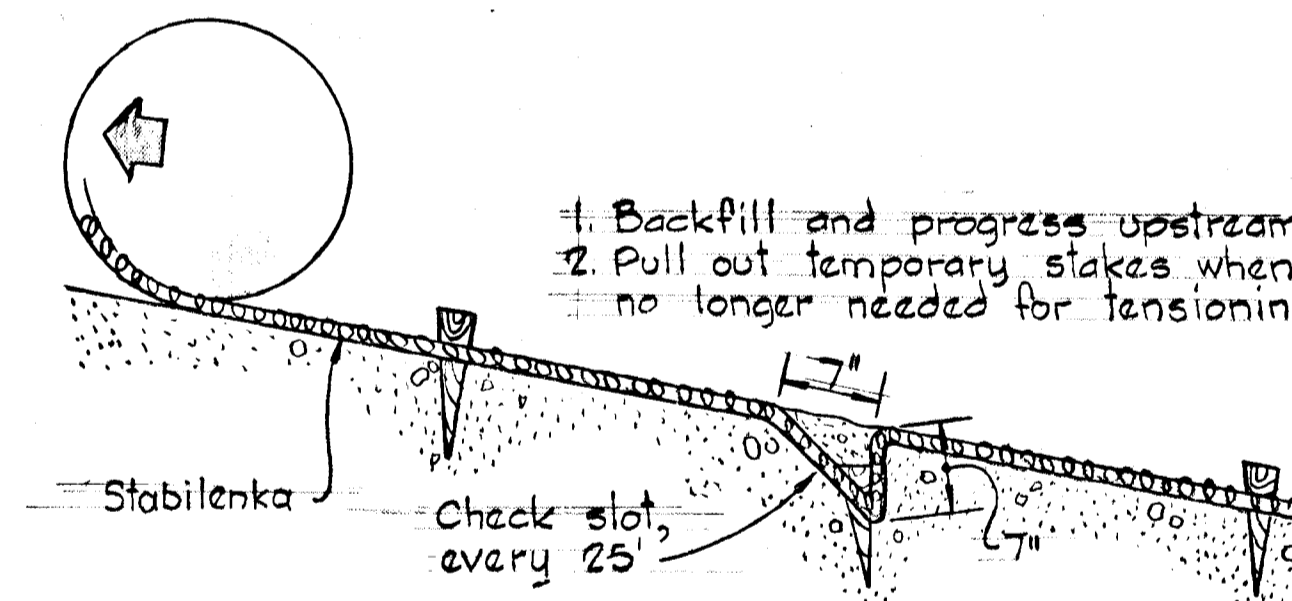
RIP-RAP TERMINAL
 DETAIL "D"



DETAIL "E"



CONCRETE TERMINAL
 DETAIL "F"



DETAIL "G"

1. Backfill and progress upstream.
2. Pull out temporary stakes when no longer needed for tensioning.

CONSTRUCTION REQUIREMENTS

- A. GENERAL - All surfaces to be protected with nylon erosion control mat shall be graded, shaped and finished so that the surfaces are stable, firm, and free of rocks or obstructions which prevent the mat from lying in direct contact with the soil surface.
- Surfaces to receive permanent seeding shall be prepared in accordance with the applicable requirements. See permanent seeding notes. Wood stakes used for anchoring shall be driven to within 3 inches of being flush with the soil surface.
- Lap joints shall be used where more than one width is required. The lap joint shall not be less than 3 inches with the upslope width on top. The joints shall be staked at intervals of 3 feet or less until the mat is anchored in place.
- B. INSTALLATION OF MAT - The terminal ends of the mat shall be buried at least 12 inches vertically in an anchor slot dug into the soil. The mat shall be secured in the anchor slot by stakes at intervals of 3 feet or less prior to backfill of the slot. The backfilled soil shall be firmly compacted in the anchor slot. The ends of each mat shall be overlapped 36" with the upslope mat on top. The lapped joint shall be staked at intervals of 3 feet or less. Six inch deep check slots shall be installed every 25 feet and extend up the side slopes of the ditch a minimum of 6 inches. The outer edges of the mat shall be buried in 4 inch slots, staked at 3 foot intervals and backfilled to prevent water from undercutting at the edges. The 4 inch slot on the downslope side to the ditch is to be eliminated when the adjacent finish grade slopes directly away from the top of the slope wall. The mat shall be firmly anchored by stakes along the entire mat surface on a minimum 3' X 3' spacing.
- C. SEEDING - After mat has been placed and approved, the entire area shall be seeded at rates specified in Permanent Seeding Notes.
- D. MAINTENANCE - The contractor shall be responsible for the proper maintenance of the treated area until the entire project has been completed. This may include refilling of washed out areas, reseeding, liming, fertilizing, replacing mat and refilling mat with filler material.

MATERIALS

- A. ENKAMAT - Type 7020, thickness = 0.71 inches, width = 38.2 inches.
 B. STABILENKA - Type T-80, thickness = 0.02 inches, width = 84 inches.
 C. WOOD STAKES - Minimum length = 12 inches.

INSTALLATION

- A. The manufacturer will have a representative at the construction site to certify all materials and direct the placement of Enkamat, Stabilenka and Wood Stake materials.

11/23/83	2	As Per DPW Comments
10/12/83	1	As Per DPW and S.C.S. Comments
Rev. Date	Rev. No.	Revision Description

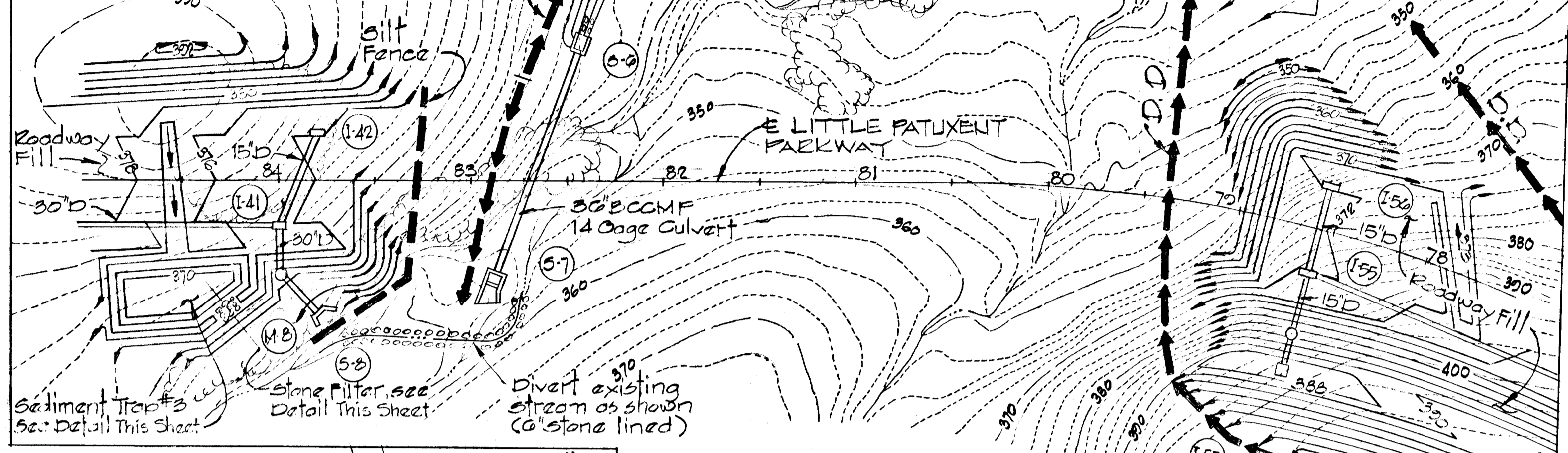
COLUMBIA
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5

PROJECT TITLE
 ENKAMAT
 DITCHES & DETAILS

SCALE: As Shown DATE:
 WHITMAN, REQUARDT AND ASSOCIATES
 ENGINEERS
 2315 ST. PAUL STREET
 BALTIMORE MARYLAND 21218

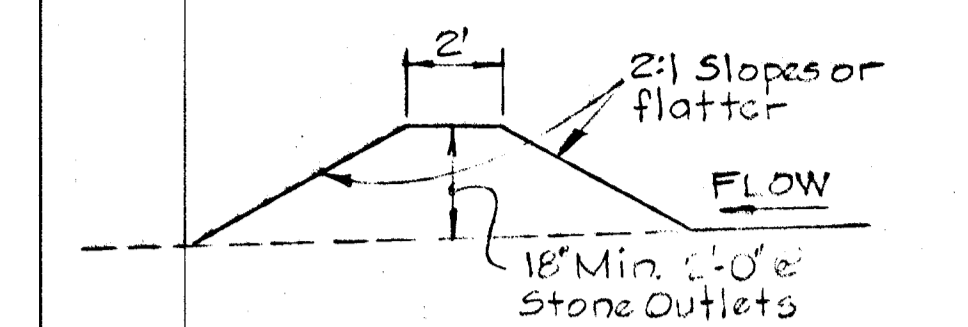
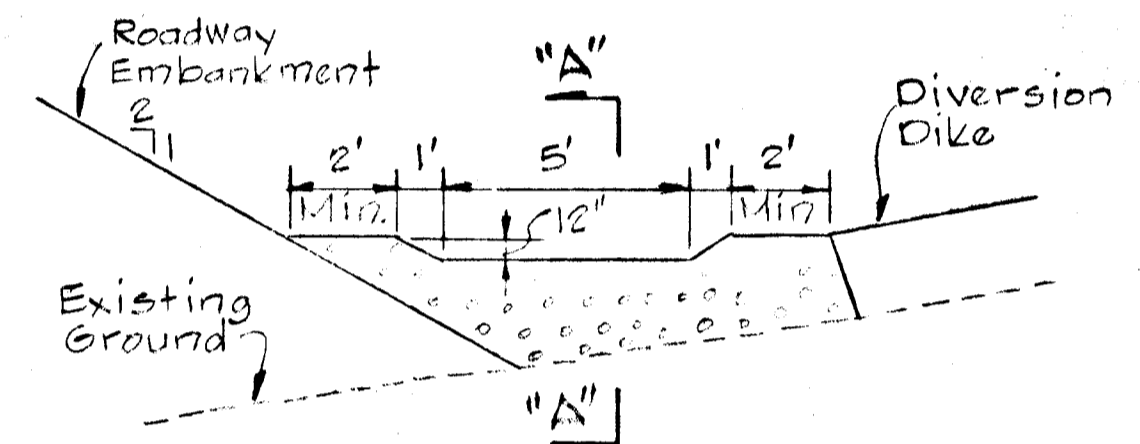
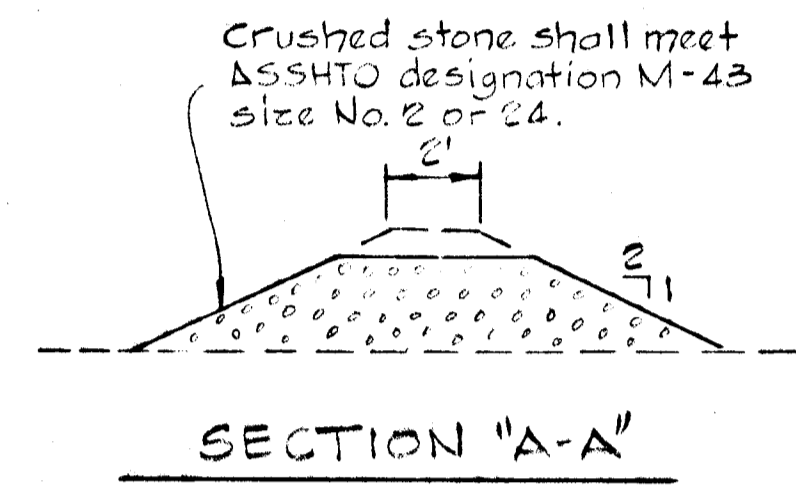
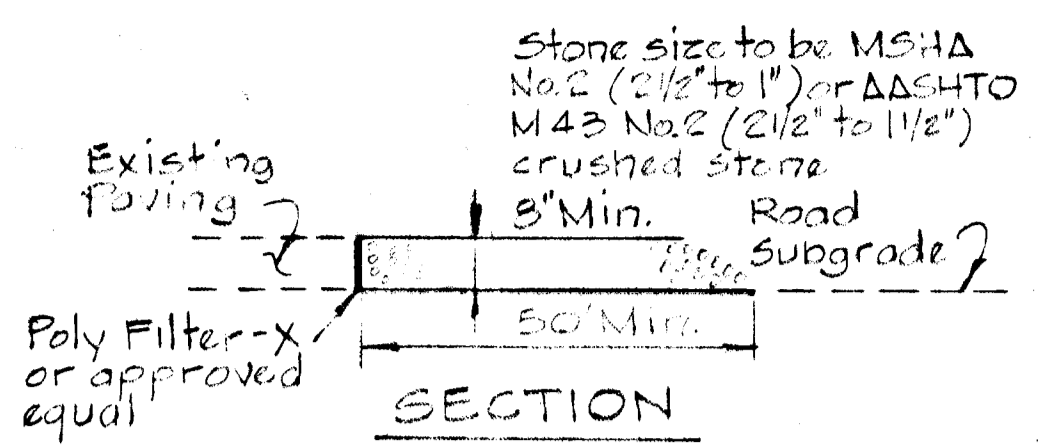
Kenneth A. McCord
 KENNETH A. MCCORD
 Registered Engineer
 No. 10714

SEDIMENT TRAP #3
 DESIGN DATA
 DRAINAGE AREA = 2.4 AC.
 VOLUME REQUIRED = 67 X 2.4 = 160 CY.
 VOLUME AVAILABLE = 162 CY.
 TOP BERM EL. = 374.0
 DESIGN CAPACITY EL. = 370.0
 BOTTOM TRAP EL. = 370.0
 STONE FILTER WIDTH 6' X 2.4 = 14.4'

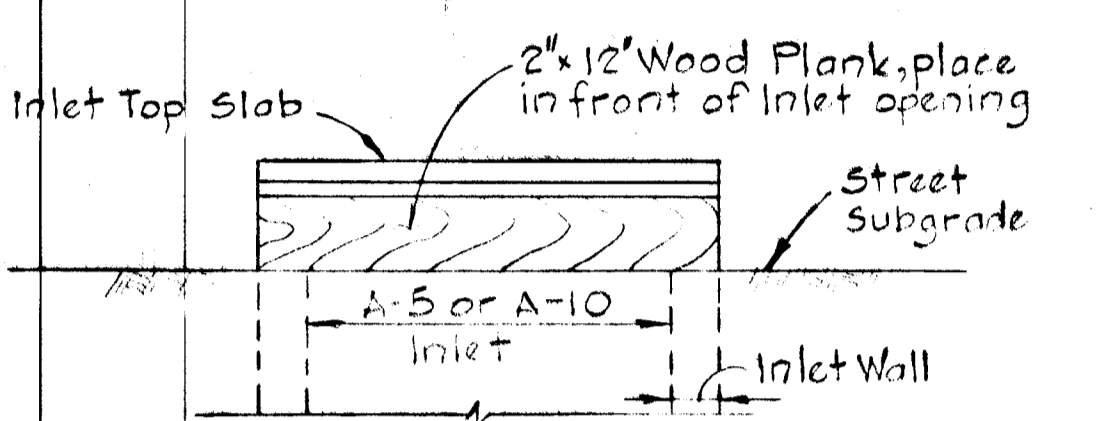


SEDIMENT CONTROL CULVERT CONSTRUCTION
 Scale: 1" = 50'

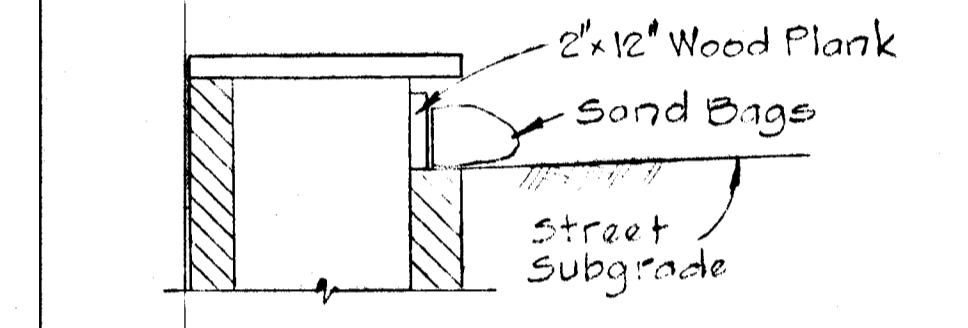
SEDIMENT TRAP #2
 DESIGN DATA
 DRAINAGE AREA = 4.0 AC.
 VOLUME REQUIRED = 67 X 4.0 = 268 CY.
 VOLUME AVAILABLE = 260 CY.
 TOP BERM EL. = 342.0
 DESIGN CAPACITY EL. = 341.0
 BOTTOM TRAP EL. = 335.0
 STONE FILTER WIDTH 6' X 4.0 = 24.0'



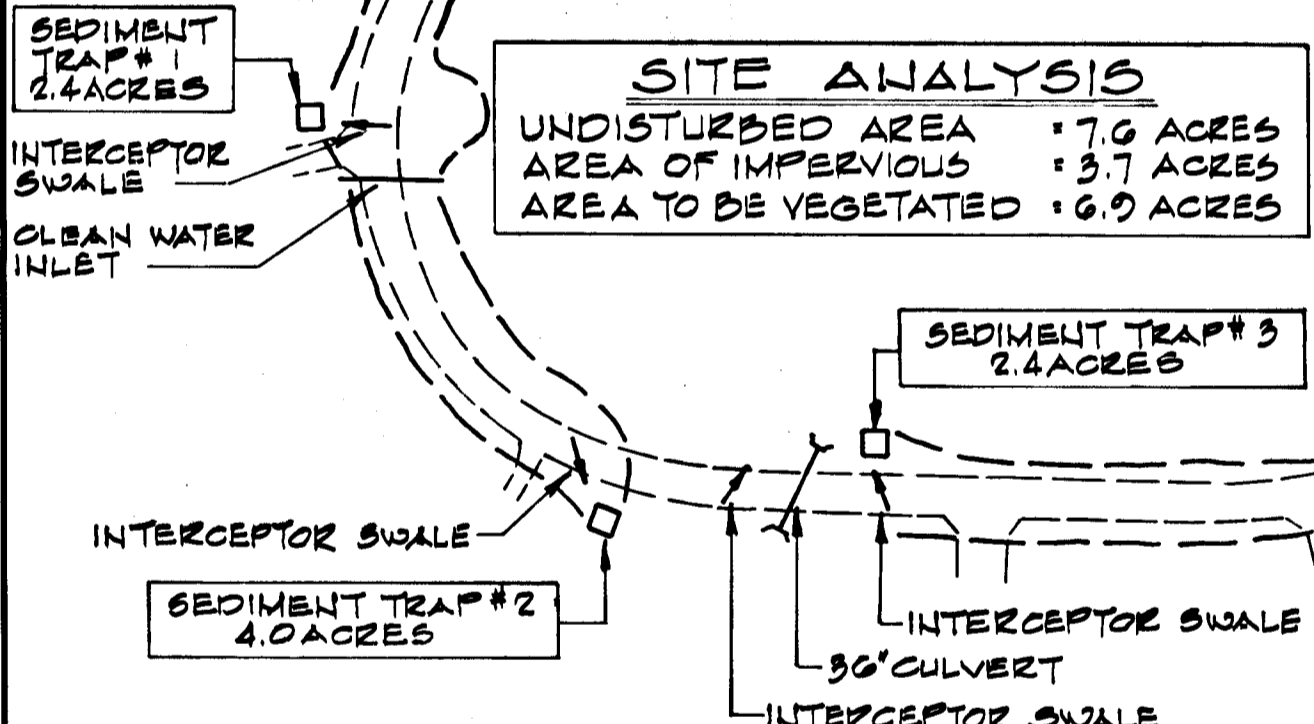
FRONT ELEVATION
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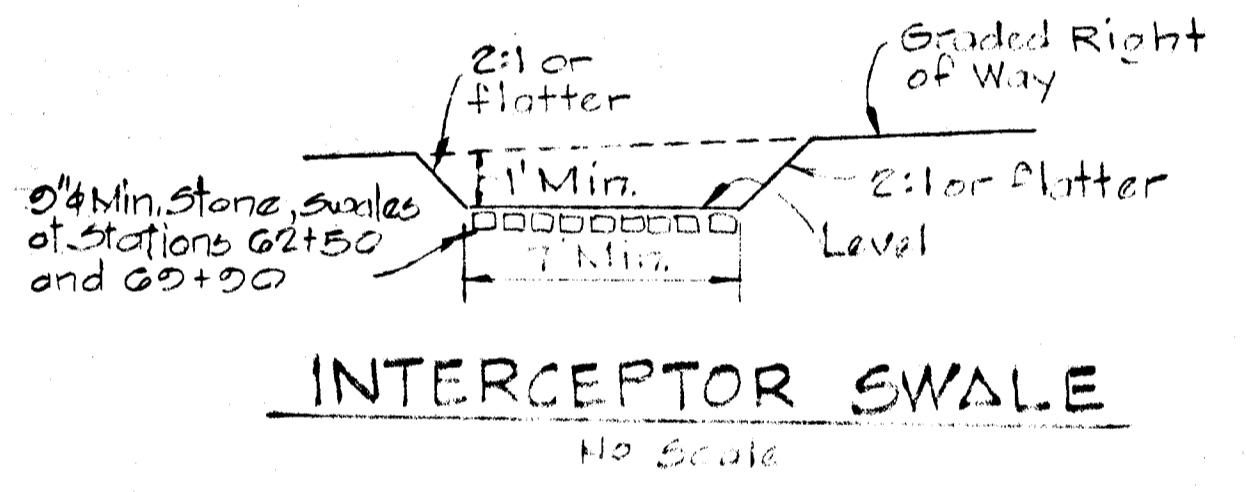
SECTION
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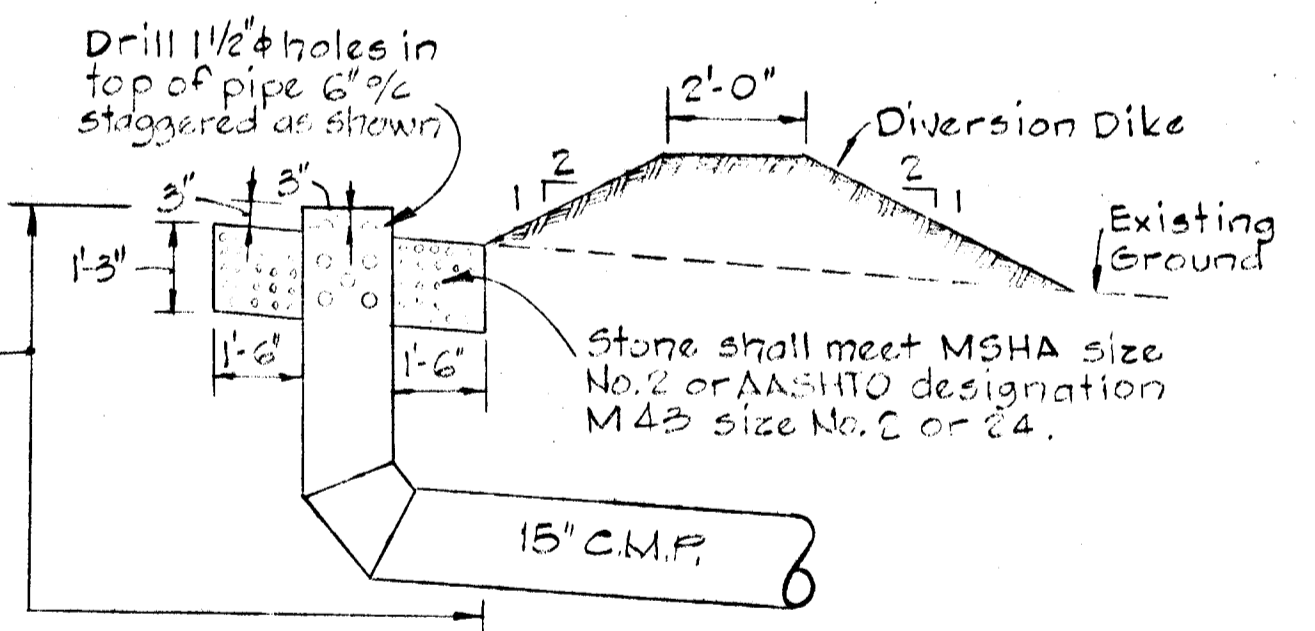
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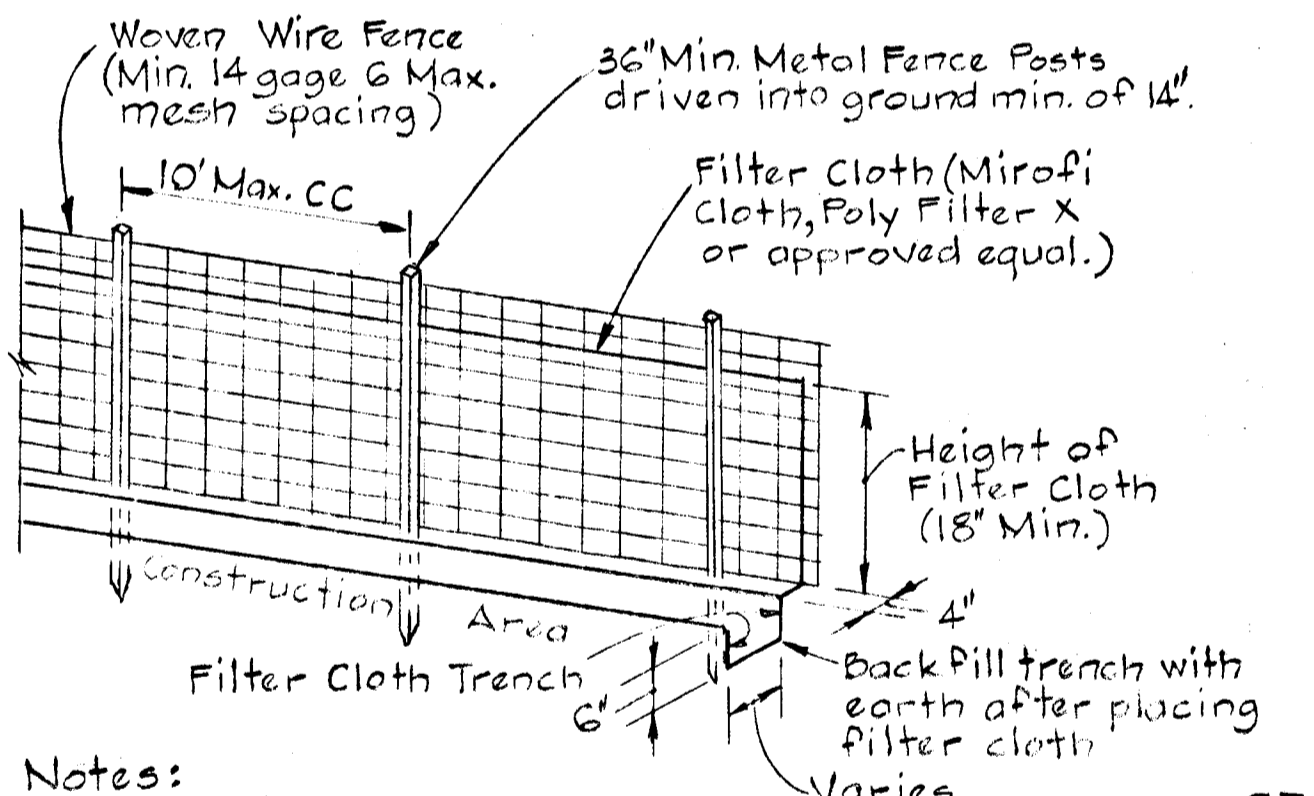
DRAINAGE AREA MAP
 Scale: 1" = 400'



INTERCEPTOR SWALE
 No Scale

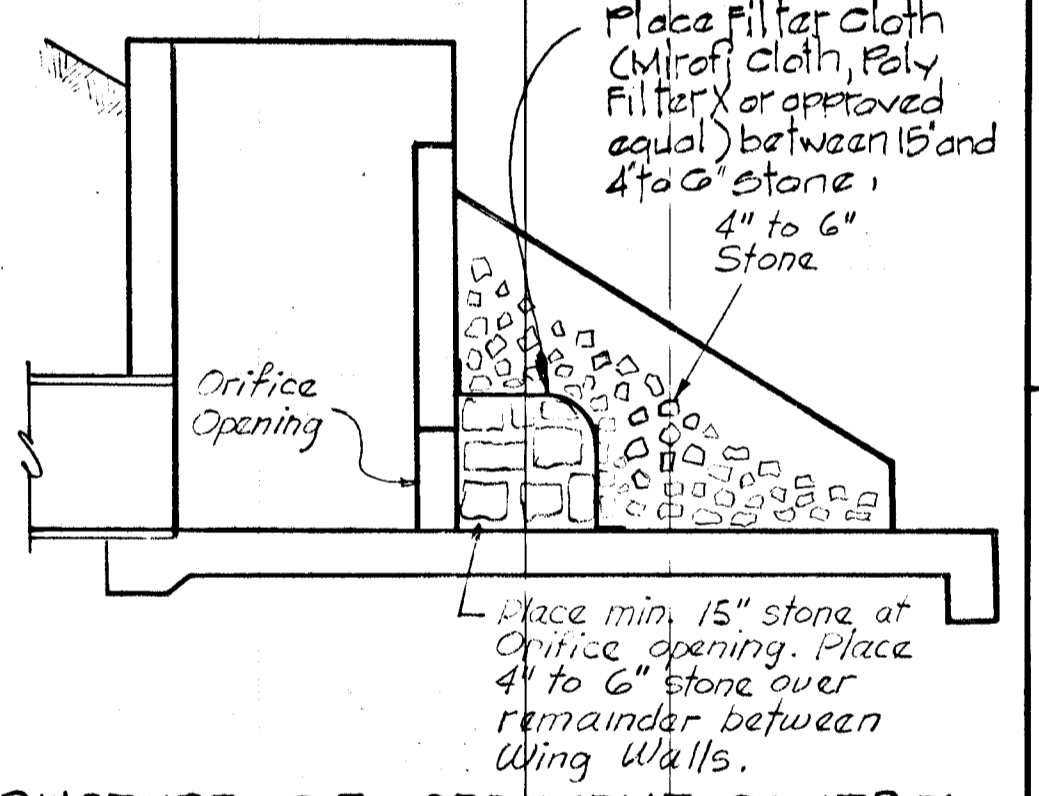


CLEAN WATER INLET
 Scale: 3/8" = 1'-0"



Notes:
 1. Woven wire fence to be fastened securely to fence posts by use of wire ties.
 2. Filter cloth to be fastened securely to woven wire fence by use of wire ties spaced every 24" x 24".

SILT FENCE DETAIL
 No Scale

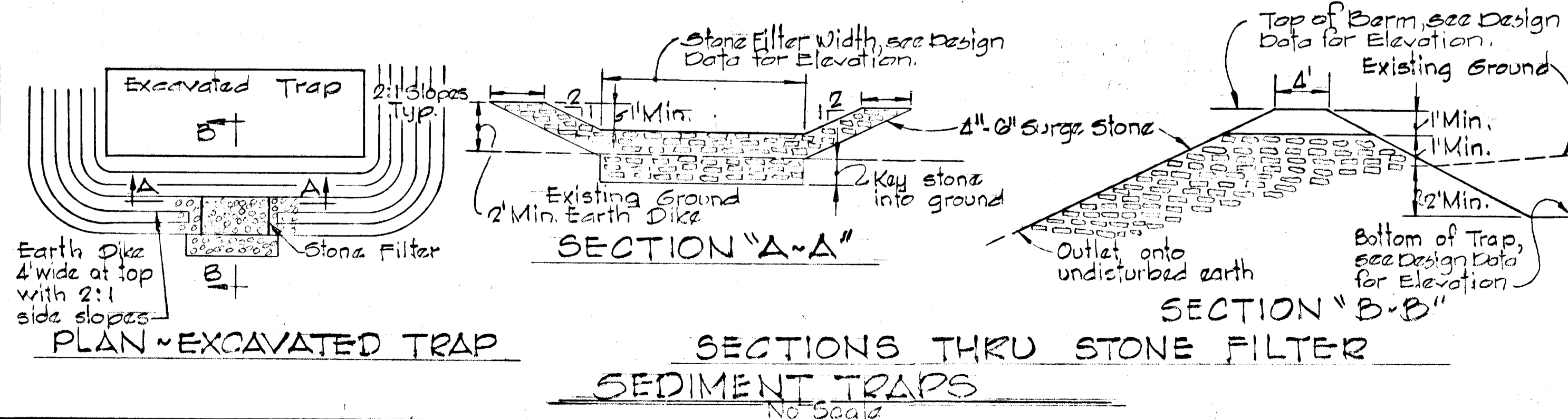


STRUCTURE S-7, SEDIMENT CONTROL
 Scale: 1/4" = 1'-0"

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS
 APPROVED FOR SOIL CONSERVATION SERVICE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 APPROVED
 HOWARD S.C.D. DATE

CERTIFICATION 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
 KENNETH A. MCCORD PE No. 1974
 Date: 5-4-83

CERTIFICATION BY THE DEVELOPER
 "I certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a certificate of attendance at a Dept. 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 or their authorized agents, as are deemed necessary."
 Walter Woodford
 WALTER WOODFORD
 Date: 5-10-83



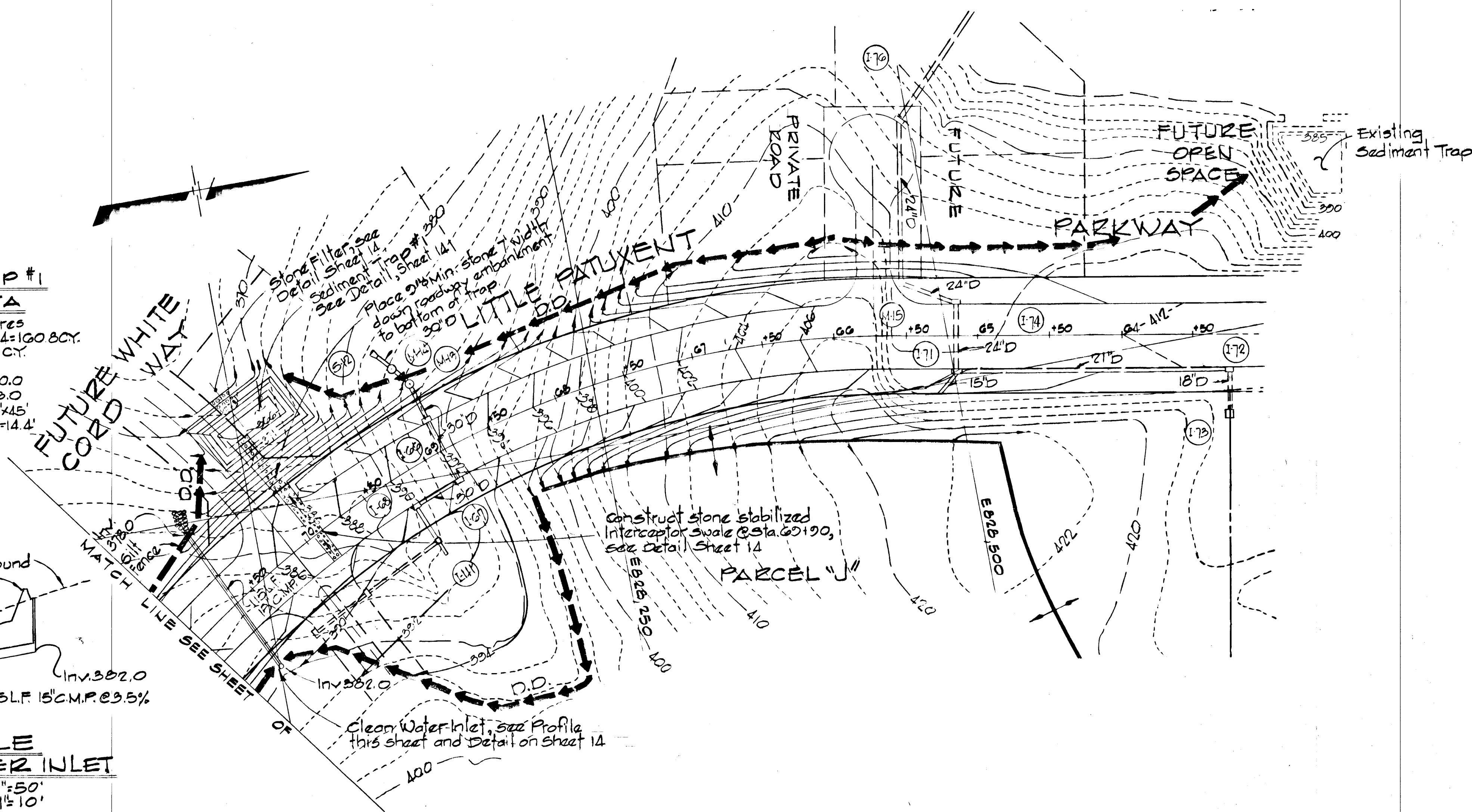
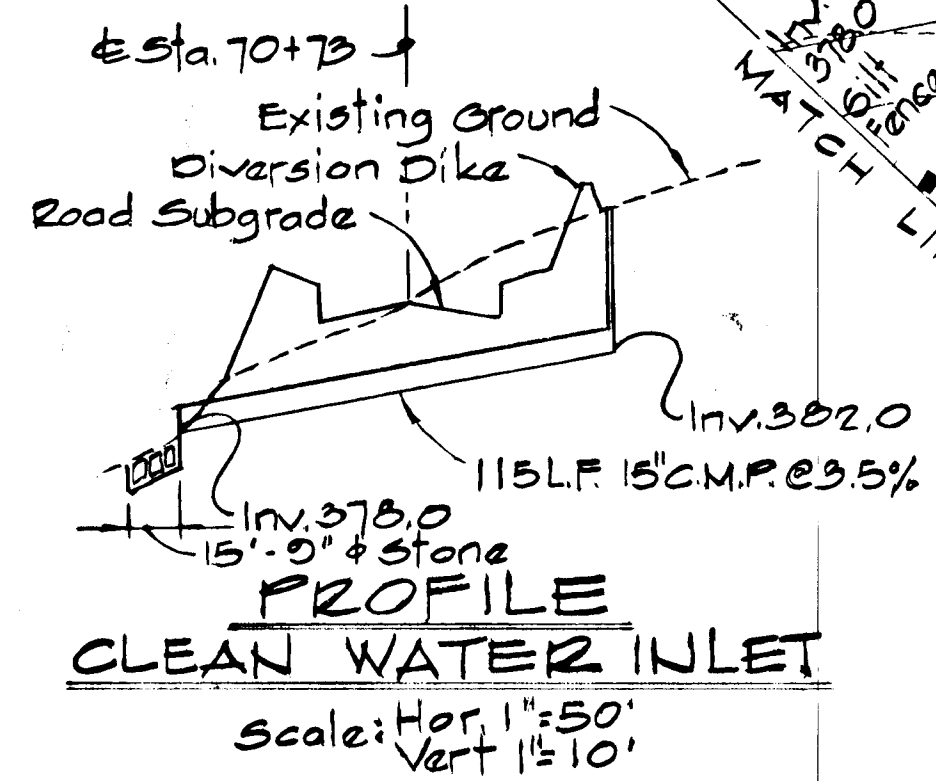
SECTIONS THRU STONE FILTER
 No Scale

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."
 Kenneth A. McCord
 Registered Engineer
 No. 1974
 Date: 5-10-83

REV. DATE	REV. NO.	REVISION DESCRIPTION
10/2/87	1	As Per E.D. and S.C.D. Comments
10/2/87	2	As Per S.C.D. Comments

COLUMBIA
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 THE HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 THE ROUSE BUILDING
 COLUMBIA, MARYLAND 21144
 PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5
 PROJECT TITLE
 SEDIMENT CONTROL
 DRAINAGE AREA MAP AND DETAILS
 SCALE: AS SHOWN
 DATE

**SEDIMENT TRAP #1
 DESIGN DATA**
 Drainage Area = 2.4 Acres
 Volume Required = 67 x 2.4 = 160 BCY
 Volume Available = 180 CY
 Top Berm Elev. 371.0
 Design Capacity Elev. 370.0
 Bottom of Trap Elev. 360.0
 Size of Trap @ Bottom = 18' x 15'
 Stone Filter Width = 2.4' x 1.4'



THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Approved: [Signature] Date: 12-6-83
 Howard S.C.D.

Reviewed for HOWARD S.C.D. and meets technical requirements
 Signature: [Signature] Date: 12-6-83
 U.S. Soil Conservation District

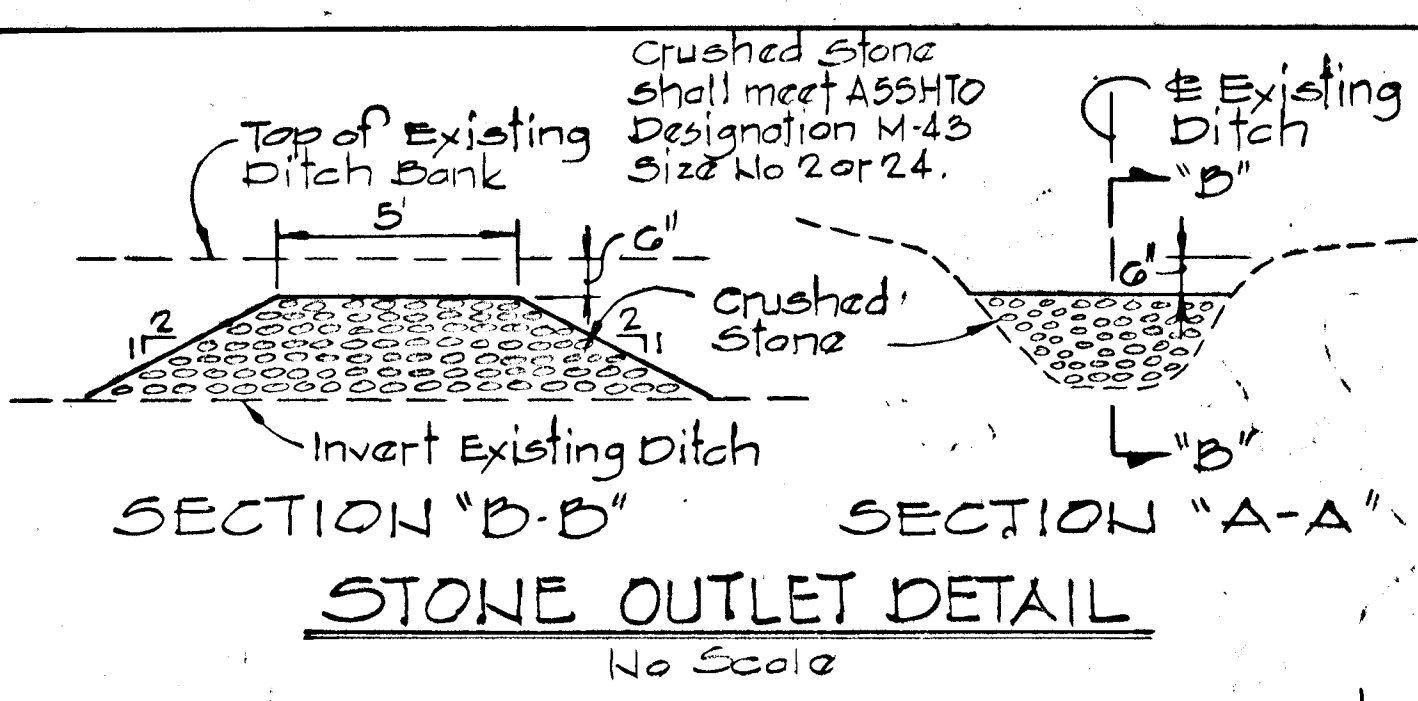
CERTIFICATION BY THE DEVELOPER
 "I certify that all development and or construction will be done according to this plan of development and plan for erosion and sediment control, and I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents as are deemed necessary."
 Signature: [Signature] DATE: 8-2-83
 WALTER E. WOODFORD

CERTIFICATION 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."
 Signature: [Signature] DATE: 8-2-83
 KENNETH A. MCCORD PE 1074

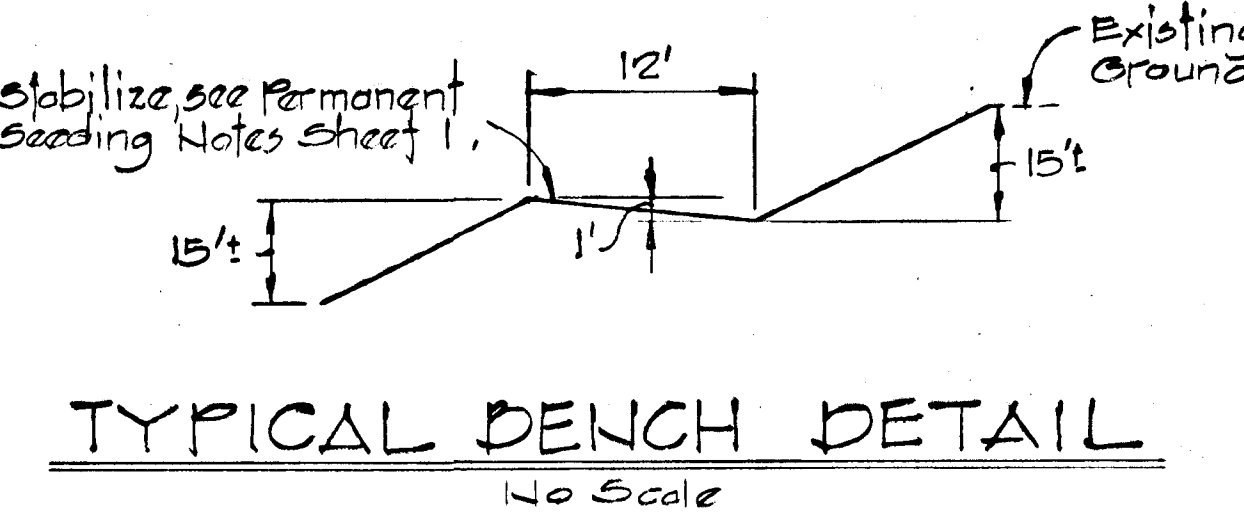
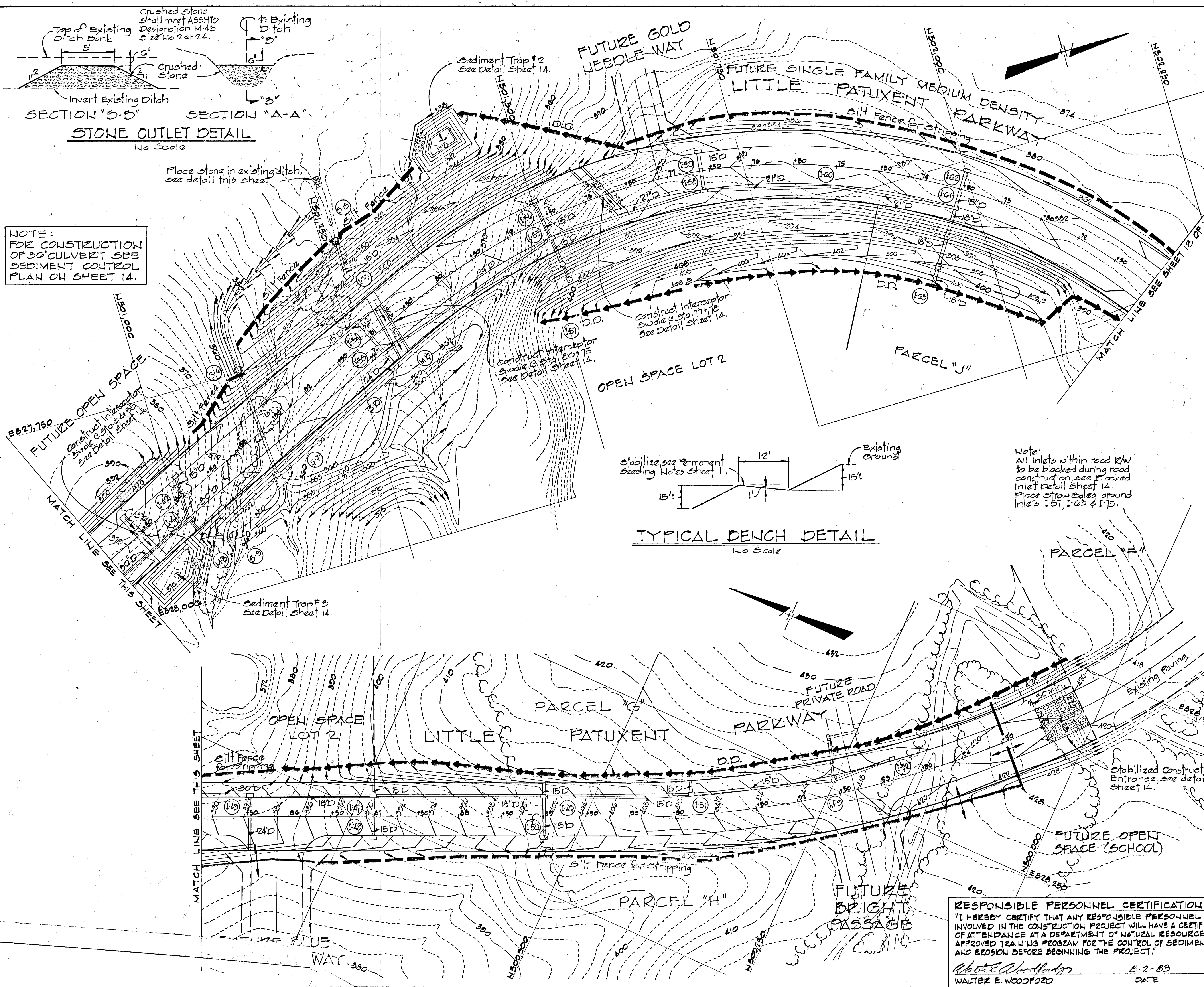
RESPONSIBLE PERSONNEL CERTIFICATION
 "I hereby certify that any responsible personnel involved in the construction project will have a certificate of attendance at a Department of Natural Resources approved training program for the control of sediment and erosion before beginning the project."
 Signature: [Signature] DATE: 8-2-83
 WALTER E. WOODFORD

WHITMAN, REQUARDT AND ASSOCIATES ENGINEERS
 BALTIMORE, MARYLAND 21218
 Signature: [Signature]
 KENNETH A. MCCORD
 Registered Engineer
 No. 1074

REV. DATE	REV. NO.	REVISION DESCRIPTION
COLUMBIA 5 th ELECTION DISTRICT HOWARD COUNTY, MARYLAND OWNER AND DEVELOPER HOWARD RESEARCH AND DEVELOPMENT CORPORATION PROJECT AREA VILLAGE OF HICKORY RIDGE SECTION 3 AREA 5 PROJECT TITLE SEDIMENT CONTROL PLAN SCALE: 1" = 50' DATE:		



NOTE:
 FOR CONSTRUCTION OF 30" CULVERT SEE SEDIMENT CONTROL PLAN ON SHEET 14.



REVIEWED FOR HOWARD SCD
 AND MEETS TECHNICAL REQUIREMENTS
Joseph W. Williams 12-6-83
 DATE
 U.S. SOIL CONSERVATION SERVICE
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 APPROVED *Walter E. Woodford* 12-1-83
 HOWARD SCD DATE

CERTIFICATION BY THE DEVELOPER
 "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPT. 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 OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

Walter E. Woodford 8-2-83
 WALTER E. WOODFORD DATE
 CERTIFICATION 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 8-2-83
 KENNETH A. MCCORD DATE

10/12/83	2	AS PER DPW and SCS Comments
9/1/83	1	As Per SCS Comments
REV DATE	REV. NO.	REVISION DESCRIPTION

COLUMBIA
 5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 OWNER AND DEVELOPER
 HOWARD RESEARCH AND DEVELOPMENT CORPORATION
 PROJECT AREA
 VILLAGE OF HICKORY RIDGE
 SECTION 3 AREA 5
 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. 1074

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 E. Woodford 8-2-83
 WALTER E. WOODFORD DATE