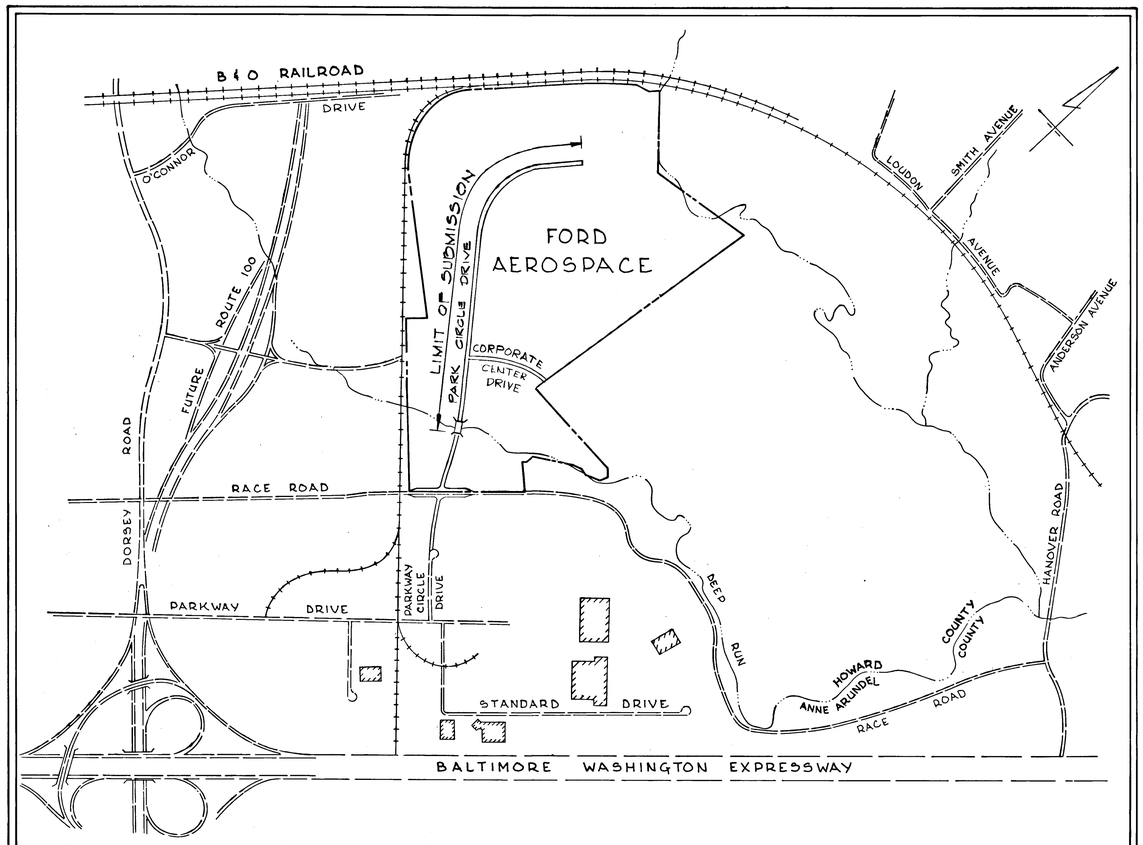
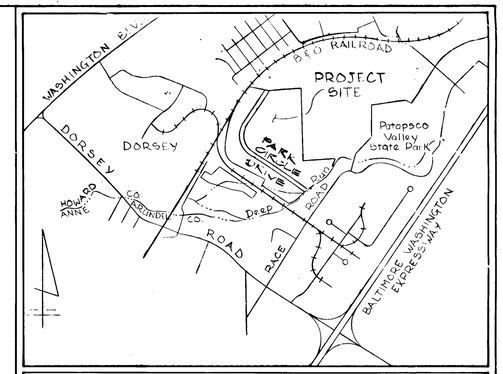
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	DATE 12-22-87
CHIEF, BUREAU OF HIGHWAYS	DATE 12/28/87
CHIEF, BUREAU OF ENGINEERING	DATE 12/29/87
OFFICE OF PLANNING AND ZONING	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION	12/29/87

SHEET INDEX



LOCATION MAP
Scale: 1" = 600'



VICINITY MAP
SCALE: 1" = 2,000'

GENERAL NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS, SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
2. ALL UTILITY COMPANIES SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF CONSTRUCTION.
3. ALL INLETS SHALL BE HOWARD COUNTY STANDARD UNLESS OTHERWISE NOTED.
4. ALL STREET CURB RETURNS SHALL HAVE 30' RADII UNLESS OTHERWISE NOTED.
5. STORM DRAIN TRENCHES WITHIN ROAD RIGHTS-OF-WAY SHALL BE BACK-FILLED AND COMPACTED IN ACCORDANCE WITH HOWARD COUNTY ROAD CODE.
6. 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 CONTRACTOR'S EXPENSE.
7. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES WHERE DIRECTED BY THE ENGINEER A MINIMUM OF TWO WEEKS IN ADVANCE OF ANY CONSTRUCTION.
8. 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.
9. CONTRACTOR TO NOTIFY THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS AT LEAST THREE DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS. TELEPHONE NO. 992-2436.
10. ALL DISTURBED SLOPE AREAS TO BE STABILIZED AS SOON AS GRADING IS COMPLETED.
11. ALL REINFORCED CONCRETE FOR STORM DRAIN STRUCTURES SHALL HAVE A MINIMUM OF 28 DAYS STRENGTH OF 3500 PSI.
12. ALL SWALES AND SLOPES SHALL BE PERMANENTLY SEEDED. SEE THE SEED SPECIFICATIONS ON SHEET 6.
13. TRAFFIC CONTROL DEVICES AND THEIR INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, 1978 REVISED EDITION.
14. STABILENKA (FILTER CLOTH T-100) OR EQUAL SHALL BE PLACED UNDER ALL STONE RIP-RAP (FULL WIDTH AND LENGTH OF STONE).
15. STONE FOR RIP-RAP SHALL BE AS SPECIFIED ON THE DRAWINGS. ALL RIP-RAP SHALL BE UNPAVED.
16. STUBS FOR 6" P.V.C. UNDERDRAIN PIPE TO BE INSTALLED AT CENTER OF EACH WALL OF EVERY INLET.
17. NO BUILDING PERMITS WILL BE ISSUED FOR BUILDING CONSTRUCTION WITHIN THIS SUBDIVISION UNTIL SUCH TIME AS ANNE ARUNDEL COUNTY, MARYLAND HAS EXECUTED AN AGREEMENT WITH THE DEVELOPER TO CONSTRUCT THE ROADWAY LEADING TO THIS DEVELOPMENT.
18. PROVIDE 250-WATT MERCURY VAPOR LAMP PENDANT MOUNTED FIXTURES ON A 30-FOOT GALVANIZED STEEL POLE LOCATED NO LESS THAN 6-FEET FROM EDGE OF THE PAVEMENT AT THE FOLLOWING LOCATIONS ALONG PARK CIRCLE DRIVE: WEST SIDE AT STATION 16+00, WEST SIDE AT 17+40, WEST SIDE AT 21+50, WEST SIDE AT 25+50, EAST SIDE AT 29+50, WEST SIDE AT 33+50, EAST SIDE AT 37+50, AND WEST SIDE AT 41+00.

(3) 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 ACCOMADATE FIELD CONDITIONS AND BUILDERS LANDSCAPE PROGRAM. BOND RELEASE IS CONTINGENT UPON SECTION 16.131 OF THE HOWARD COUNTY SUBDIVISION REGULATIONS, AS APPROVED BY THE OFFICE OF PLANNING AND ZONING.
THE TYPE OF HARDWOOD TREES TO BE USED ARE ACER RUBRAL (RED MAPLE), PLATANUS ACERIFOLIA (LONDON PLANE TREE) OR TILIA CORDATA (LITTLE LEAF LINDEN).

REV. DATE	REV. NO.	REVISION DESCRIPTION
11-2-87	1	As per Planning and Zoning, DPW and S.C.S. Comments

PARKWAY CORPORATE CENTER
SECTION 1
Parcels "A" Thru "G" And "K", "L", "M"
ROAD CONSTRUCTION PLANS
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
HI-TECH VENTURE LIMITED PARTNERSHIP
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

DATE: 12/18/87 SCALE: AS SHOWN

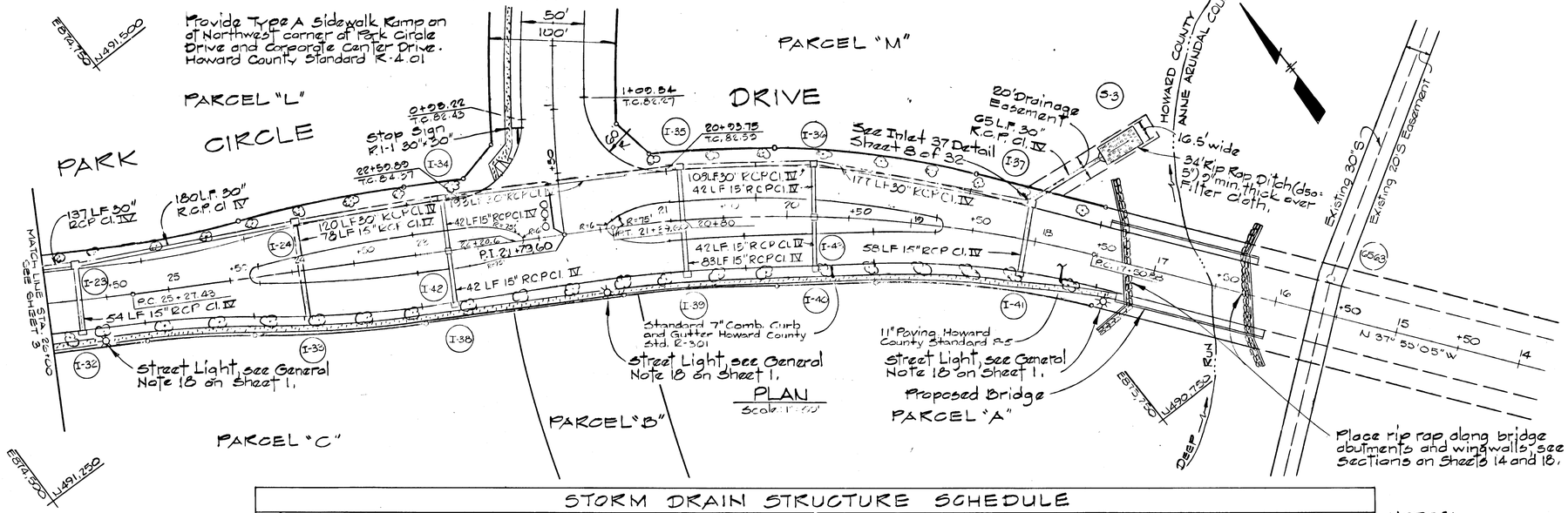
WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

KENNETH A. McCORD
REGISTERED ENGINEER No. 1974

SHEET 1 OF 43

314

CORPORATE CENTER DRIVE



CURVE DATA

P.C. 17+50.88 TO P.T. 21+39.60

Δ = 22°15' 18" TAN = 196.84
R = 1000.00' CH'D. = 386.27
ARC = 388.72' CH'D. BRG. = N 49° 03' 15" W

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE	TOP EL	INV. IN	INV. OUT	LOCATION
I-29	A-5 Inlet 42" Wide	91.03	84.23	84.03	Sta. 25+72-Rt. 27.42
I-24	A-5 Inlet 42" Wide	87.08	80.89	80.09	Sta. 23+23-Rt. 38.78
I-32	A-5 Inlet 30" Wide	91.09	———	86.57	Sta. 25+72-Lt. 26.82
I-33	A-5 Inlet 30 Wide	87.08	———	82.56	Sta. 23+23-Lt. 38.22
I-34	A-5 Inlet 42" Wide	84.61	77.51	77.31	Sta. 22+75-Rt. 49.42
I-35	A-5 Inlet 42" Wide	82.45	74.81	74.61	Sta. 20+80-Rt. 49.42
I-36	A-5 Inlet 42" Wide	81.46	71.11	70.92	Sta. 19+78-Rt. 48.24
I-37	A-5 Inlet 42" Wide	80.10	65.95	65.75	Sta. 18+10-Rt. 29.21
I-38	A-5 Inlet 30" Wide	84.61	———	80.00	Sta. 22+75-Lt. 46.92
I-39	A-5 Inlet 30 Wide	82.45	———	78.00	Sta. 20+80 Lt. 46.92
I-40	A-5 Inlet 30 Wide	81.46	———	74.69	Sta. 19+78 Lt. 41.36
I-41	A-5 Inlet 30 Wide	80.10	———	75.68	Sta. 18+10-Lt. 28.67
I-42	D Inlet	84.55	79.57	79.57	Sta. 22+75 ℄
I-43	D Inlet	80.16	74.69	74.49	Sta. 19+18-℄
S-3	30 Concrete End Section	———	64.11	64.11	Sta. 17+66.33-Rt. 74.48'

NOTES:
1. A-5 Inlet, Howard County Detail SD 4.01
2. Type 'D' Inlet, Howard County Detail SD. 4.11.
3. 30" Concrete End Section, Howard County Detail S.D. 5.51.
4. For Storm Drain Profiles see Sheet 8.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

	DATE:
CHIEF, LAND DEVELOPMENT DIVISION — Granville M. Welkland	12/28/87
CHIEF, BUREAU OF HIGHWAYS — [illegible]	12-28-87
CHIEF, BUREAU OF ENGINEERING	DATE:
OFFICE OF PLANNING AND ZONING: CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — Joseph Kuth	12/29/87

REV. NO.	REV. DATE	REVISIONS
1	11-21-87	As per Planning and Zoning, D.P.W. and S.C.S. Comments

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS A THRU G AND K, L, M

PROJECT TITLE
PLAN AND PROFILE
Sta. 13+25 to Sta. 26+00

SCALE: AS SHOWN DATE: 12/18/87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

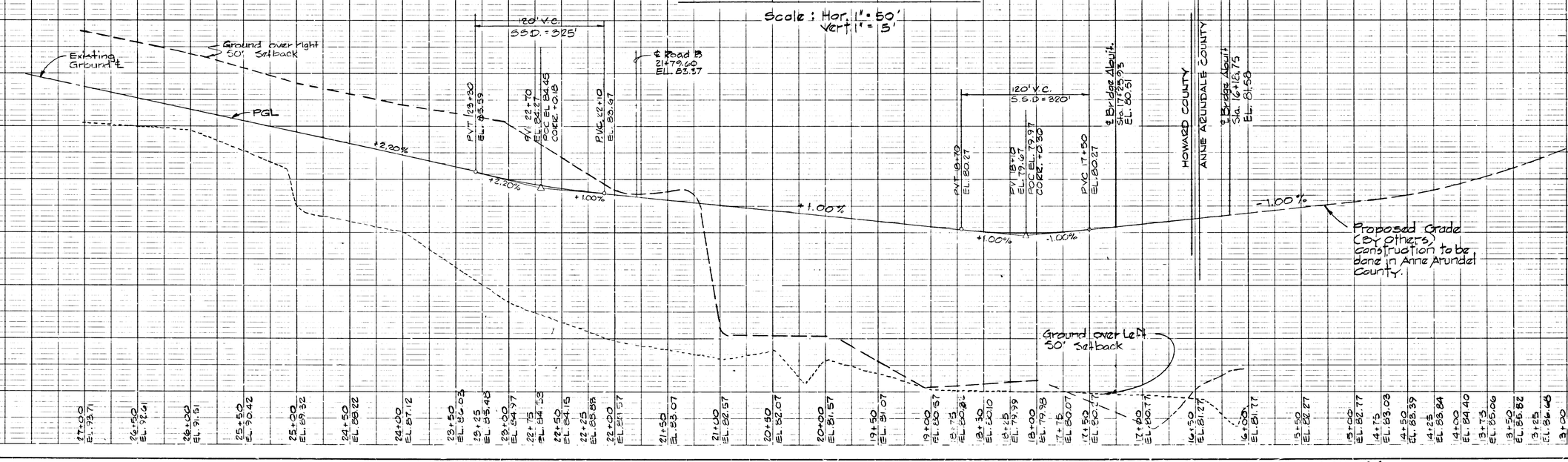
Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 1974

PLAN: SURVEYED ____ PLOTTED ____ NOTE BOOK ____ No. ____ CHECKED ____ AS-BUILT ____ REVISIONS CHECKED ____ BY ____ DATE ____

PROFILE: SURVEYED ____ PLOTTED ____ NOTE BOOK ____ No. ____ CHECKED ____ AS-BUILT ____ REVISIONS CHECKED ____ BY ____ DATE ____

PROFILE
PARK CIRCLE DRIVE

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

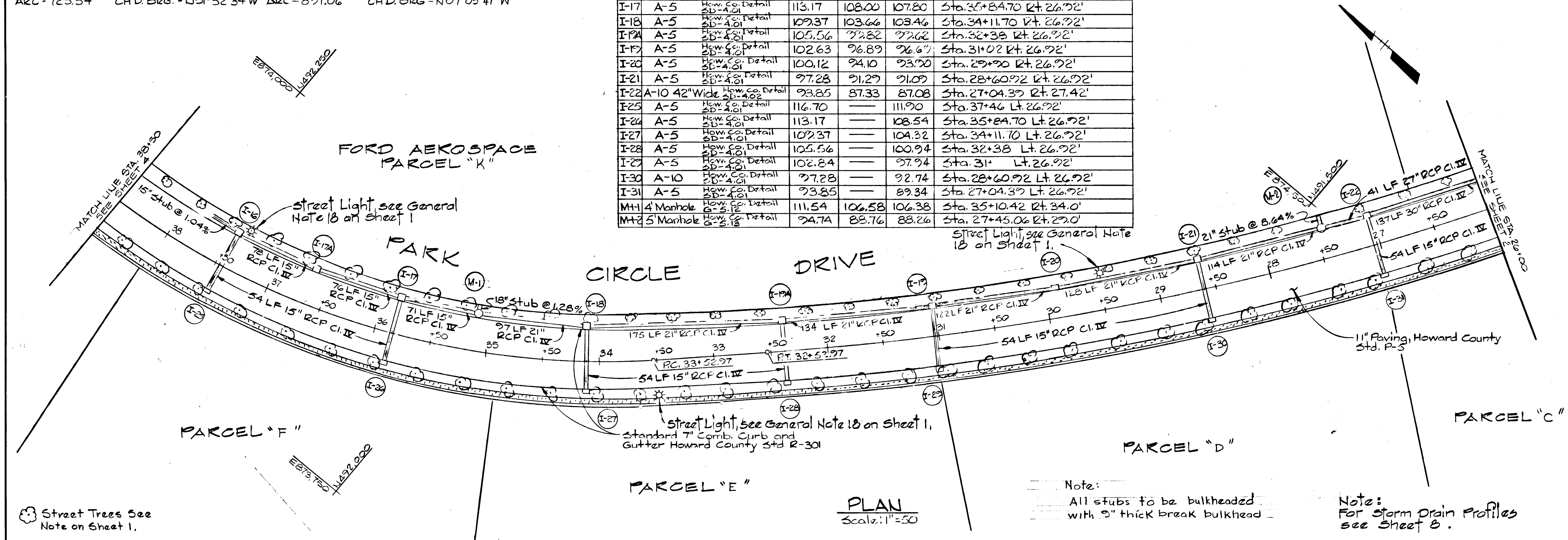


℄ CURVE DATA

P.C. 25+27.43 TO P.T. 32+52.97		P.C. 33+52.97 TO P.T. 42+44.03	
Δ = 16°37'41"	TAN = 365.34'	Δ = 72°56'05"	TAN = 517.36'
R = 2500.00'	CH'D. = 723.00'	R = 700.00'	CH'D = 832.11'
ARC = 725.54'	CH'D. BRG. = N51°52'34"W	ARC = 891.06'	CH'D. BRG = N07°05'41"W

STORM DRAIN STRUCTURE SCHEDULE

NO.	TYPE		TOP EL.	INV. IN	INV. OUT	LOCATION
I-16	A-10	How. Co. Detail SD-4.02	116.70	111.36	111.16	Sta 37+46 Rt. 26.92'
I-17A	A-5	How. Co. Detail SD-4.01	114.94	109.66	109.46	Sta. 36+63.35 Rt. 26.92'
I-17	A-5	How. Co. Detail SD-4.01	113.17	108.00	107.80	Sta. 35+84.70 Rt. 26.92'
I-18	A-5	How. Co. Detail SD-4.01	109.37	103.66	103.46	Sta. 34+11.70 Rt. 26.92'
I-19A	A-5	How. Co. Detail SD-4.01	105.56	99.82	99.62	Sta. 32+38 Rt. 26.92'
I-19	A-5	How. Co. Detail SD-4.01	102.63	96.89	96.69	Sta. 31+02 Rt. 26.92'
I-20	A-5	How. Co. Detail SD-4.01	100.12	94.10	93.90	Sta. 29+90 Rt. 26.92'
I-21	A-5	How. Co. Detail SD-4.01	97.28	91.29	91.09	Sta. 28+60.92 Rt. 26.92'
I-22	A-10 42" Wide	How. Co. Detail SD-4.02	93.85	87.33	87.08	Sta. 27+04.39 Rt. 27.42'
I-25	A-5	How. Co. Detail SD-4.01	116.70	—	111.90	Sta. 37+46 Lt. 26.92'
I-26	A-5	How. Co. Detail SD-4.01	113.17	—	108.54	Sta. 35+84.70 Lt. 26.92'
I-27	A-5	How. Co. Detail SD-4.01	109.37	—	104.32	Sta. 34+11.70 Lt. 26.92'
I-28	A-5	How. Co. Detail SD-4.01	105.56	—	100.94	Sta. 32+38 Lt. 26.92'
I-29	A-5	How. Co. Detail SD-4.01	102.84	—	97.94	Sta. 31+ Lt. 26.92'
I-30	A-10	How. Co. Detail SD-4.01	97.28	—	92.74	Sta. 28+60.92 Lt. 26.92'
I-31	A-5	How. Co. Detail SD-4.01	93.85	—	89.34	Sta. 27+04.39 Lt. 26.92'
MH-1	4' Manhole	How. Co. Detail G-5.12	111.54	106.58	106.38	Sta. 35+10.42 Rt. 34.0'
MH-2	5' Manhole	How. Co. Detail G-5.13	94.74	88.76	88.26	Sta. 27+45.06 Rt. 29.0'



Street Trees See Note on Sheet 1.

PLAN
Scale: 1" = 50'

Note: All stubs to be bulkheaded with 8" thick break bulkhead

Note: For Storm Drain Profiles see Sheet 8.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC			12-22-87
CHIEF, LAND DEVELOPMENT DIVISION		DATE:	12/28/87
CHIEF, BUREAU OF HIGHWAYS		DATE:	12-29-87
CHIEF, BUREAU OF ENGINEERING		DATE:	
OFFICE OF PLANNING AND ZONING			12/29/87
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION		DATE:	

REV. NO.	REV. DATE	REVISIONS
1	11-21-87	As per Planning and Zoning, D.P.W. and S.C.S. Comments

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

PROJECT TITLE
PLAN AND PROFILE
Sta. 26+00 to Sta. 38+50

SCALE: AS SHOWN — DATE: 12/18/87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

KENNETH A. McCORD
Registered Engineer
No. 1974

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

STORM DRAIN STRUCTURE SCHEDULE

NO	TYPE	TOP EL.	INV. IN	INV. OUT	LOCATION
I-6	A-5 Inlet (width 2.5) S.D.4.01	114.55	110.03	109.51	Sta. 42+20 Rt. 26.92'
I-7	A-5 Inlet (width 2.5) S.D.4.01	114.55	—	110.30	Sta. 42+20 Lt. 26.92'
M-3	St'd MH G5.05	111.40	107.70	107.50	Sta. 43+48 Rt. 28.00'
S-1	Type A Headwall S.D.5.11	110.27	107.27	107.25	Sta. 43+90 Rt. 28.00'

PLAN
Scale: 1" = 50'

℄ CURVE DATA
P.C. 33+52.97 TO P.T. 42+44.03
Δ = 72°56'05" TAN. = 517.36
R = 700.00' CH'D. = 832.11
ARC = 891.06 CH'D. BRG. = N07°05'41"W

Street Trees, see Note on Sheet 1.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

12-22-87
CHIEF, LAND DEVELOPMENT DIVISION DATE:

Granville W. Wehland 12/28/87
CHIEF, BUREAU OF HIGHWAYS DATE:

12-29-87
CHIEF, BUREAU OF ENGINEERING DATE

OFFICE OF PLANNING AND ZONING
Joseph Rutter 12/29/87
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE:

REV. NO.	REV. DATE	REVISIONS
1	11-21-87	As per Planning and Zoning D.P.W. and S.C.S. Comments

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS A THRU G AND K, L, M

PROJECT TITLE
PLAN AND PROFILE
Sta. 38+50 to Sta. 43+40

SCALE: AS SHOWN DATE: 12/18/87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

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

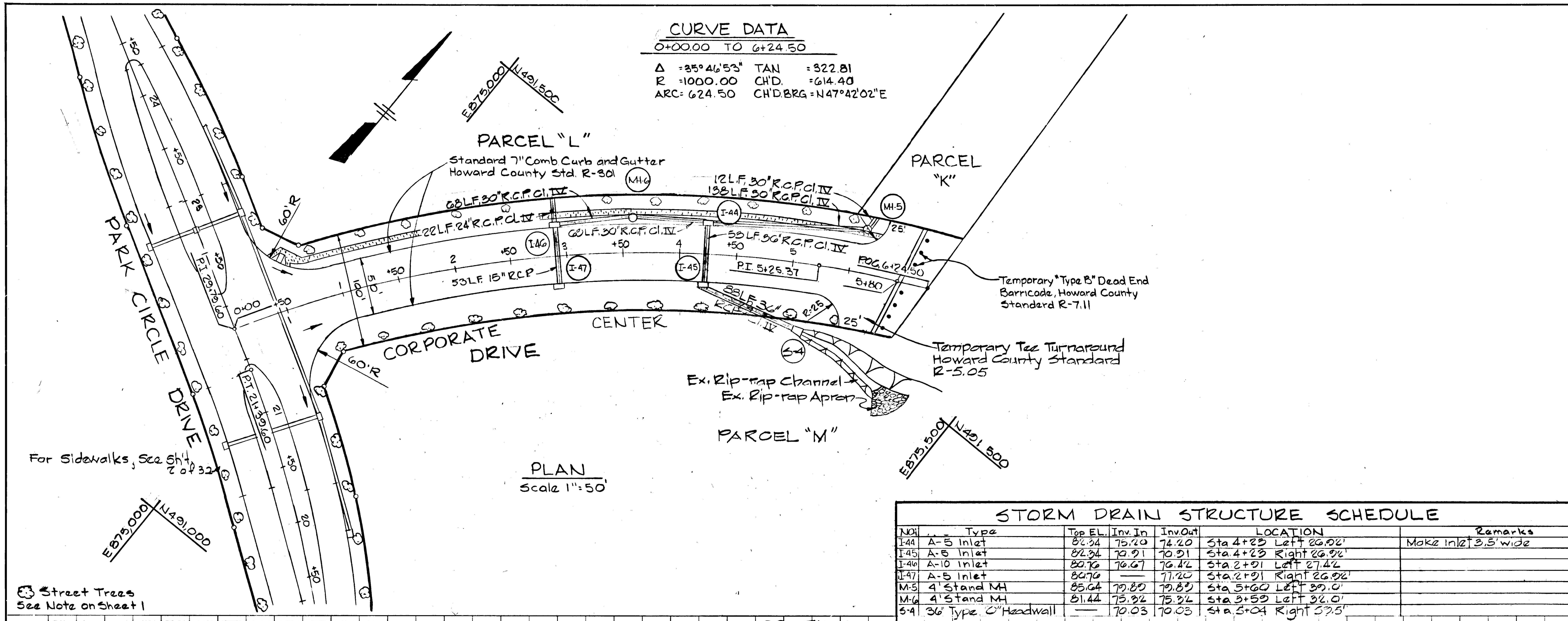
SECTION F-F

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

PLAN
NOTE BOOK
No.
SURVEYED
PLOTTED
ALIGNMENT CHECKED
RT. OF WAY CHECKED
BY
DATE

PROFILE
NOTE BOOK
No.
SURVEYED
PLOTTED
GRADES CHECKED
B. M.'s NOTED
STRUCTURE NOTATIONS CHECKED
BY
DATE

1314



NO.	Type	Top EL.	Inv. In	Inv. Out	LOCATION	Remarks
I-44	A-5 Inlet	82.34	75.20	74.20	Sta 4+23 Left 26.92'	Make Inlet 3.5' wide
I-45	A-5 Inlet	82.34	70.91	70.91	Sta 4+23 Right 26.92'	
I-46	A-10 Inlet	80.76	76.67	76.42	Sta 2+91 Left 27.42	
I-47	A-5 Inlet	80.76	—	77.20	Sta 2+91 Right 26.92'	
M-5	4' Stand MH	85.64	79.89	79.89	Sta 5+60 Left 39.0'	
M-6	4' Stand MH	81.44	75.32	75.32	Sta 3+59 Left 32.0'	
S-4	36" Type "O" Headwall	—	70.03	70.03	Sta 5+04 Right 59.5'	

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — 12-28-87

CHIEF, BUREAU OF HIGHWAYS — DATE: 12/28/87

CHIEF, BUREAU OF ENGINEERING — DATE: 12.29.87

OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE: 12/29/87

REV. NO.	REV. DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION I
PARCELS A THRU G AND K, L, M

PROJECT TITLE
PLAN AND PROFILE
Sta. 0+00 to Sta. 6+24.50

SCALE: AS SHOWN — DATE: 12/18/87

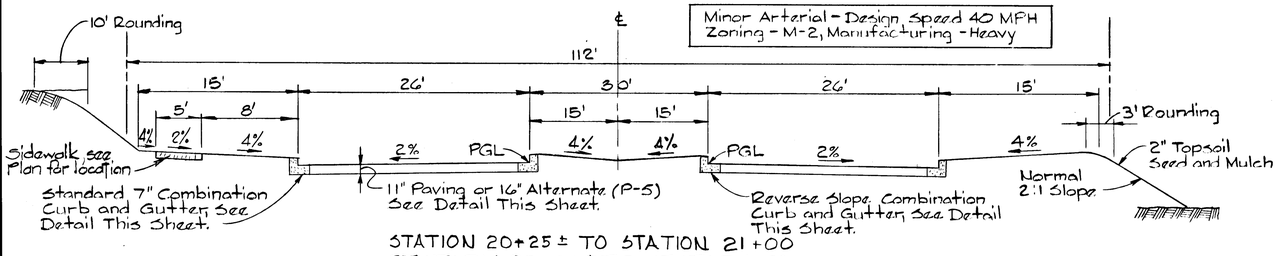
WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

KENNETH A. McCORD
Registered Engineer
No. 1974

PLATE 3, PLAN-PROFILE KEUFFEL & ESSER CO. 48 7024 Made in U.S.A.

F-88-55

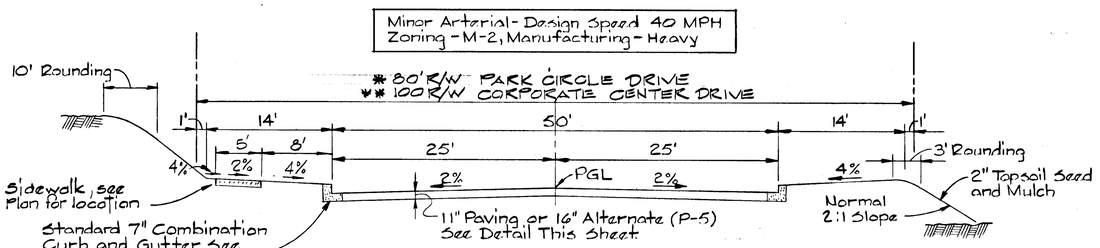
1514



STATION 20+25 ± TO STATION 21+00
STATION 22+50 ± TO STATION 23+45

TYPICAL SECTION 26' PAVING - 112' R/W

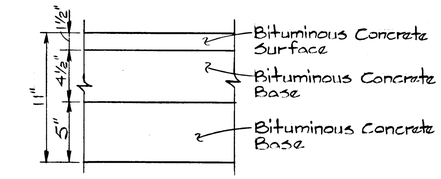
No Scale



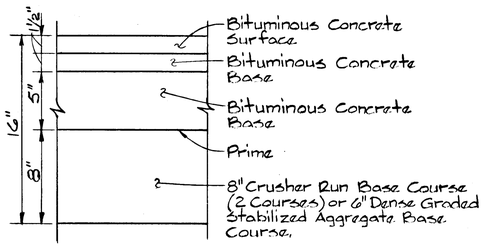
** STATION 0+00 TO STATION 5+50 ±
* STATION 25+27 ± TO STATION 47+50 ±

TYPICAL SECTION 50' PAVING - 80' R/W

No Scale



P-5 FULL DEPTH BITUMINOUS CONCRETE



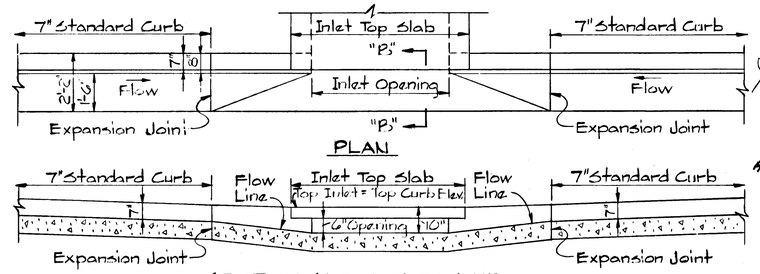
P-5 GRANULAR BASE (ALTERNATE)

Notes:

1. Base will be Primed in Accordance with Article 33.03 As Provided in the Md. S.R.C. Specifications.
2. A Tack Coat will be Applied in Accordance with Section 33.07-3 As Provided in the Md. S.R.C. Specifications.

PAVING SECTION

No Scale

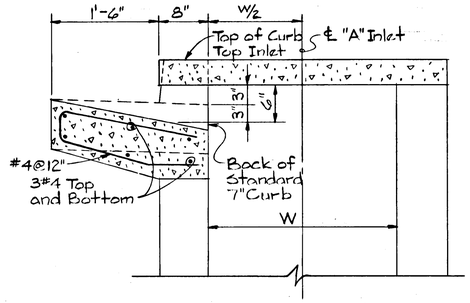


PLAN

SECTION ALONG FLOW LINE

SUMPED "A" INLETS - STANDARD CURB

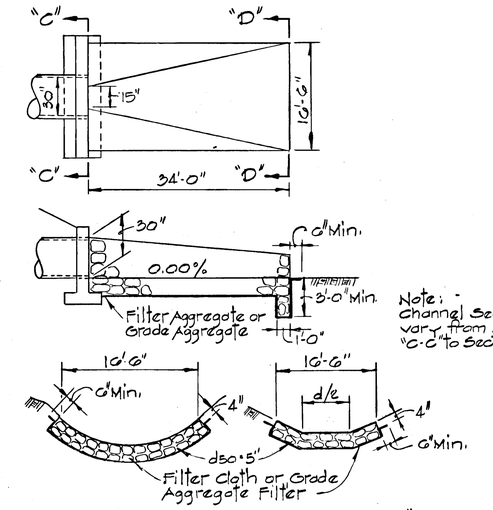
No Scale.



SECTION "B-B"

"A" INLET - STANDARD CURB

No Scale.

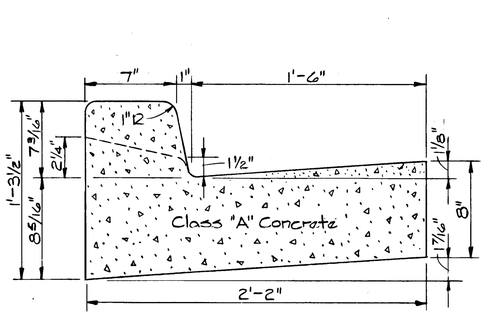


Note: - Channel Section to vary from Section "C-C" to Section "D-D"

SECTION "D-D" SECTION "C-C"

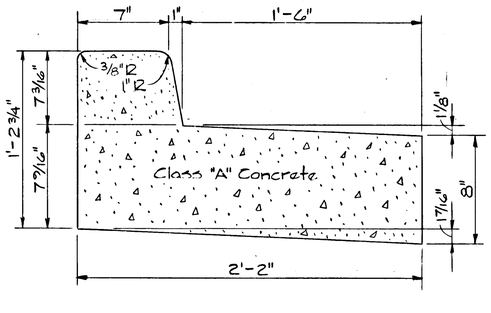
RIP RAP OUTLET PROTECTION

No Scale



STANDARD 7" COMBINATION CURB & GUTTER

No Scale



REVERSE 7" COMBINATION CURB & GUTTER

No Scale.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE: 12-22-87

CHIEF, BUREAU OF HIGHWAYS — DATE: 12/28/87

CHIEF, BUREAU OF ENGINEERING — DATE: 12.29.87

OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE: 12/29/87

REV. NO.	REV DATE	REVISIONS
1	11-21-87	As per Planning and Zoning, D.P.W. and S.C.D. Comments

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

PROJECT TITLE
STORM DRAIN AND ROAD DETAILS

SCALE: AS SHOWN — DATE 12/18/87

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

KENNETH A. McCORD
Registered Engineer
No. 1974

314

F-88-55

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE: 12-22-87

CHIEF, BUREAU OF HIGHWAYS — DATE: 12/28/87

CHIEF, BUREAU OF ENGINEERING — DATE: 12-29-87

OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE: 12/29/87

EXISTING SEDIMENT CONTROL BASIN FOR 12.5 ACRES

EXISTING 20' WIDE SEWER EASEMENT

EXISTING COLONIAL PIPELINE COMPANY EASEMENT

EXISTING SEDIMENT CONTROL BASIN FOR 40.3 ACRES

FORD AEROSPACE PARCEL "K"

PARCEL "L"

PARCEL "M"

PARCEL "A"

PARCEL "B"

PARCEL "C"

PARCEL "D"

PARCEL "E"

PARCEL "F"

PARCEL "G"

CORPORATE CENTER DRIVE

PARK CIRCLE

DRIVE

S-1

S-2

S-3

DRAINAGE AREA MAP

SCALE: 1"=100'

REV. NO.	REV DATE	REVISIONS
1	11-21-87	As per Planning and Zoning, D.P.W. and S.C.S. Comments

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

PROJECT TITLE
DRAINAGE AREA MAP

SCALE: 1"=100' DATE 12/18/87

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

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

-1314

F-88-55

SHEET 7 OF 43

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	DATE: 12-2-87
CHIEF, BUREAU OF HIGHWAYS	DATE: 12/2/87
CHIEF, BUREAU OF ENGINEERING	DATE: 12-29-87
OFFICE OF PLANNING AND ZONING — CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION	DATE: 12/29/87

REV. NO.	REV. DATE	REVISIONS
1	11-21-87	As per Planning and Zoning, D.P.W. and S.C.S. Comments

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION I
PARCELS "A" THRU "G" AND "K", "L", "M"

PROJECT TITLE
STORM DRAIN PROFILES

SCALE: H: 1"=50' V: 1"=5' DATE: 12/18/87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

KENNETH A. McCORD
Registered Engineer
No. 1974

F-88-55

1314

NOTE:
ALL EXISTING SEDIMENT CONTROL FACILITIES SHOWN WERE CONSTRUCTED UNDER GP 88-03.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE: 12-22-87

CHIEF, BUREAU OF HIGHWAYS — DATE: 12/28/87

CHIEF, BUREAU OF ENGINEERING — DATE: 12.29.87

OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE: 12/29/87

FORD AEROSPACE PARCEL "K"

PARCEL "L"

PARCEL "M"

Existing Sediment Basin for 40.3 Acres.

EXISTING STONE OUTLET TRAP #4 FOR 2.8 ACRES

EXISTING STONE OUTLET TRAP #5 FOR 4.8 ACRES

CORPORATE DRIVE CENTER

PARCEL "A"

PARCEL "B"

PARCEL "C"

PARCEL "D"

PARCEL "E"

PARCEL "F"

PARCEL "G"

EXISTING EARTH DIKE

NEW EARTH DIKE

EXISTING STONE OUTLET SEDIMENT TRAP NO. 1

PARK CIRCLE DRIVE

LEGEND

- EXISTING SWALE
- EXISTING EARTH DIKE
- EXISTING RIP RAP DITCH
- DRAINAGE AREA LINE

( ) Reviewed for HOWARD S.C.D. and meets Technical Requirements

U.S. Soil Conservation Service — Date 12-21-87

( ) THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

Howard S.C.D. — Date 12/21/87

( ) 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."

Date 9/3/87

( ) 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."

Date 9/4/87

REV. NO.	REV DATE	REVISIONS
1	11-21-87	As per Planning and Zoning, D.P.W. and S.C.S. Comments

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

PROJECT TITLE
SEDIMENT CONTROL
DRAINAGE AREA MAP

SCALE: 1"=100' — DATE: 12/18/87

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

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

F-88-55

SHEET 9 OF 43

1314

NOTE:
EXISTING EARTH DIKES WERE CONSTRUCTED UNDER GP88-03.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE: 12-22-87

CHIEF, BUREAU OF HIGHWAYS — DATE: 12/28/87

CHIEF, BUREAU OF ENGINEERING — DATE: 12:22:87

OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE: 12/29/87

Existing Colonial Pipeline Easement

Existing Earth Dike

Existing Stone Outlet Sediment Trap No. 1

N493,000
E874,250

N492,000
E874,250

FORD AEROSPACE
PARCEL "K"

PARK CIRCLE DRIVE

HI-TECH VENTURE
LIMITED PARTNERSHIP

PARCEL "G"

PARCEL "F"

PARCEL "E"

LIMIT OF DISTURBANCE

MATCH LINE SEE SHEET 11

N492,000
E873,500

REV. NO.	REV. DATE	REVISIONS
1	11-21-87	As per Planning and Zoning D.P.W. and S.C.S. Comments

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7225 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS A THRU G AND K, L, M

PROJECT TITLE
SEDIMENT CONTROL PLAN

SCALE: 1"=50' DATE: 12/18/87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

KENNETH A. McCORD
Registered Engineer
No. 19742

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."

Anne E. Trumbore 9/3/87
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 9/4/87
Date

Reviewed for HOWARD S.C.D. and meets Technical Requirements

U.S. Soil Conservation Service — Date: 12-21-87

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

Howard S.C.D. — Date: 12/21/87

1314

F-88-55

SHEET 10 OF 43

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	DATE: 12/28/87
CHIEF, BUREAU OF HIGHWAYS	DATE: 12-29-87
CHIEF, BUREAU OF ENGINEERING	DATE:
OFFICE OF PLANNING AND ZONING	12/29/87
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION	DATE:

NOTE:
EXISTING SEDIMENT BASIN, STONE OUTLET TRAPS, EARTH DIKES, SWALES AND SILT FENCES WERE CONSTRUCTED UNDER GP 88-08.

NOTE:
INLETS 44, 45, 46 AND 47 TO BE BLOCKED, SEE DETAIL SHEET 12.

Existing Sediment Basin
Existing 30" CMP
Existing Earth Dike
Existing Stone Outlet Sediment Trap #4
Existing Stone Outlet Sediment Trap #5
Place Interceptor Swale at Station 3+25
100 Year Flood Plain
Place 4'-8" Rip Rap at end of Storm Drain to bottom of Trap.
Existing Swale
30 LF 15" Drain (Temporary)
Inv. 70.8
Provide Brick Bulkhead
Inv. 72.67
Proposed Bridge
Silt Fence for Bridge Abutment construction
Existing Silt Fence
Existing Swale
Existing Silt Fence
LIMIT OF DISTURBANCE
MATCH LINE SEE SHEET 10
CORPORATE CENTER DRIVE
PARK CIRCLE DRIVE
FORD AEROSPACE PARCEL "K"
PARCEL "L"
PARCEL "M"
PARCEL "A"
PARCEL "B"
PARCEL "C"
PARCEL "D"
HOWARD COUNTY
ANNE ARUNDEL COUNTY
E875,500 N491,700
E875,500 N491,000
E874,950 N491,750

REV. NO.	REV. DATE	REVISIONS
1	11-21-87	As per Planning and Zoning, D.P.W and S.C.S. Comments

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

PROJECT TITLE
SEDIMENT CONTROL PLAN

SCALE: 1" = 50' DATE: 12/18/87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

KENNETH A. McCORD
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."
9/3/87 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."
9/4/87 Date

Reviewed for HOWARD S.C.D. and meets Technical Requirements
12-21-87
U.S. Soil Conservation Service Date

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
12/21/87
Howard S.C.D. Date

F-88-55

SHEET 11 OF 45

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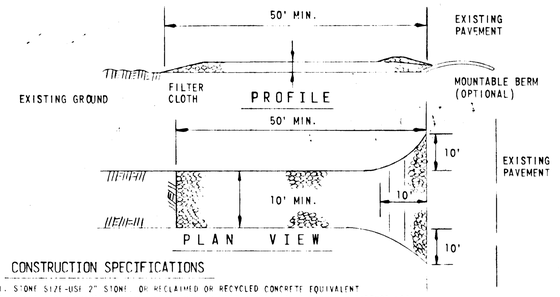
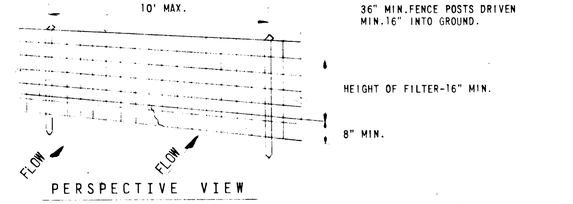


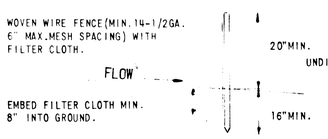
CONSTRUCTION SPECIFICATIONS

1. STONE SIZE-USE 2" STONE OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH-AS REQUIRED, BUT NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30-FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS-NOT LESS THAN SIX (6) INCHES.
4. WIDTH-TEN (10) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER CLOTH-WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER-ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE-THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING-WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

STABILIZED CONSTRUCTION ENTRANCE

NO SCALE





CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

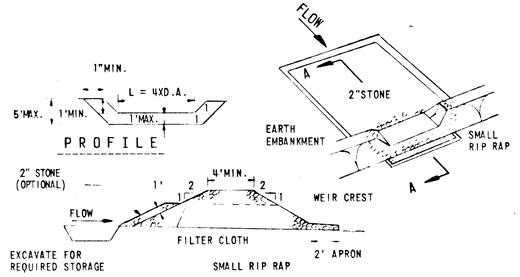
POSTS: - STEEL EITHER T OR U TYPE OR 2" HARDWOOD.
FENCE: - WOVEN WIRE, 14 GA. 6" MAX. MESH OPENING.
FENCE CLOTH: - FILTER X, MIRAFI 100X, STABILINKA T14 ON OR APPROVED EQUAL.
PREFABRICATED UNIT: - GEOFAB, ENVIROFENCE OR APPROVED EQUAL.

SILT FENCE

NO SCALE

PERMANENT SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG LIVED VEGETATIVE COVER IS NEEDED.
SEEDED PREPARATION: LOOSEN UPPER THREE INCHES BY RAKING, DISCING OR OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.
SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULES:
PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ.FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.
SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LABS. PER ACRE (0.05 LBS./1000 SQ.FT.)OF WEEPING LOVEGRASS, DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28. PROJECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE WELL ANCHORED STRAW.
MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS./1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL./1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS ON SLOPES 8 FT. OR HIGHER USE 348 GALLONS PER ACRE (8 GAL./1000 SQ.FT.) FOR ANCHORING.



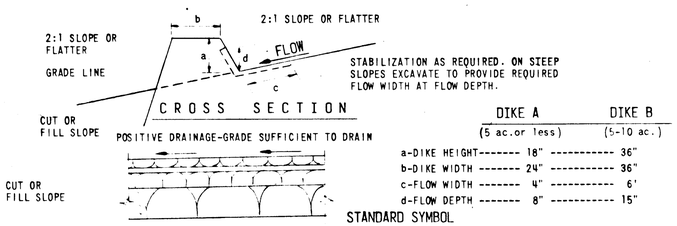
CROSS SECTION A-A

OPTION: A ONE FOOT LAYER OF 2" STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP IN PLACE OF THE EMBEDDED FILTER CLOTH.

CONSTRUCTION SPECIFICATIONS FOR ST-V

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 OVER-SIZED 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 UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED 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. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAN EROSION AND WATER POLLUTION IS MINIMIZED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

STONE OUTLET SEDIMENT TRAP



	DIKE A (5 ac.or less)	DIKE B (5-10 ac.)
a-DIKE HEIGHT	18"	36"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4"	6'
d-FLOW DEPTH	8"	15"

STANDARD SYMBOL
A-2 B-3

CONSTRUCTION SPECIFICATIONS

1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE:(A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON.(B) FLOW CHANNEL AS PER THE CHART BELOW.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE "A"	DIKE "B"
1	.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH USING JUTE, OR EXCELSIOR: SOD: 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD: 2" STONE	LINED RIP-RAP 4-8"
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4-8" INCHES IN A LAYER AT LEAST 8" INCHES THICKNESS AND PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.

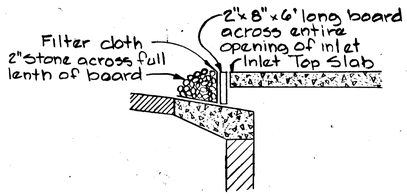
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

EARTH DIKE

NO SCALE

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.
SEEDED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, 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 PERIOD MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ.FT.) FOR PERIOD FROM MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (0.07 LBS/000 SQ.FT.) FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28. PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING OR USE SOD.
MULCHING: APPLY 1-1 /2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL./1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FT. OR HIGHER. USE 348 GALLONS PER ACRE (8 GALLONS/1000 SQ.FT.) FOR ANCHORING.



BLOCKED INLET DETAIL

No Scale

SEQUENCE OF CONSTRUCTION

1. Contact sediment control inspector for instructions on upgrading permit and preconstruction meeting prior to any construction.
2. * Cleanout and repair traps, dikes and silt fence as required and maintain all sediment measures.
3. Construct all utilities. Provide temporary storm drain diversion into trap at I-36 and direct runoff into berms (earth or asphalt). Block inlets 1 thru 15,
4. Fine grade road, construct curb and gutter and seed disturbed areas.
5. Pave Road
6. With permission of sediment control inspector remove all sediment control facilities after grass is established in the contributing drainage area. Stabilize "Sediment Trap Removal Area", see Permanent Seeding Notes.

* Contractor to maintain existing earth dike between Colonial Pipeline and Tee Turn Around to insure positive drainage to existing Stone Outlet Trap.

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 ON 442-244
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE LATEST MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: (a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1(b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND MAINTENANCE POSTPONED DURING THEIR PERIMETER IN ACCORDANCE WITH VOLUME II CHAPTER 50 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), SOD (SEC 54), TEMPORARY SEEDING (SEC.50) AND MULCHING (SEC.52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES CAN NOT BE MET 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 UTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	60	ACRES.
AREA DISTURBED	57	ACRES.
AREA TO BE ROOFED OR PAVED	3	ACRES.
AREA TO BE VEGETATIVELY STABILIZED	54	ACRES.
TOTAL CUT	430,000	CU.YDS.
TOTAL FILL	210,000	CU.YDS.
OFFSITE 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 DPW SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUIRED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS 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.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	DATE: 12/28/87
CHIEF, BUREAU OF HIGHWAYS	DATE: 12-29-87
CHIEF, BUREAU OF ENGINEERING	DATE
OFFICE OF PLANNING AND ZONING	12/29/87
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION	DATE

( ) Reviewed for HOWARD S.C.D. and meets Technical Requirements
U.S. Soil Conservation Service — Date 12-21-87

( ) THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Howard S.C.D. — Date 12/21/87

( ) 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."
Date 9/3/87

( ) 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."
Date 9/4/87

REV. NO.	REV. DATE	REVISIONS
1	11-21-87	As per Planning and Zoning, D.P.W. and S.C.S. Comments

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

PROJECT TITLE
SEDIMENT CONTROL DETAILS

SCALE: AS SHOWN — DATE: 12/18/87

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

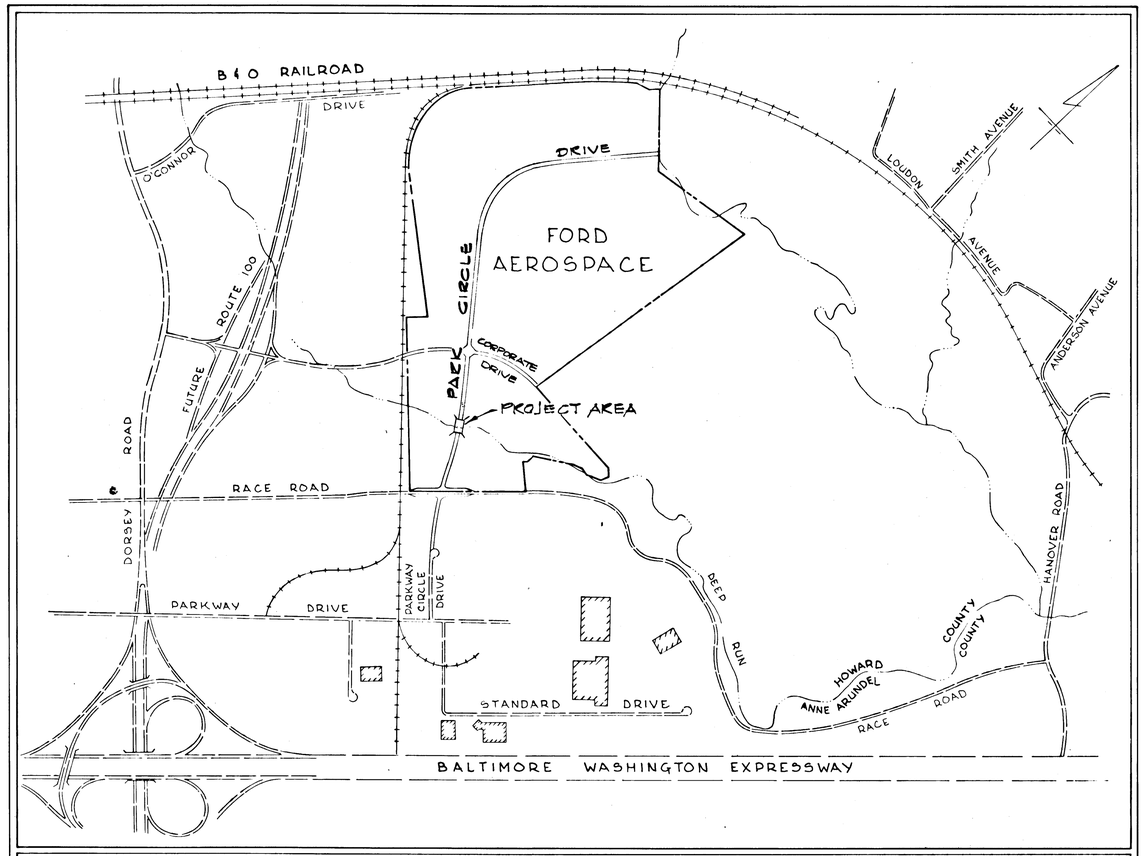
KENNETH A. McCORD
Registered Engineer
No 10174

F-88-55 SHEET 12 OF 43

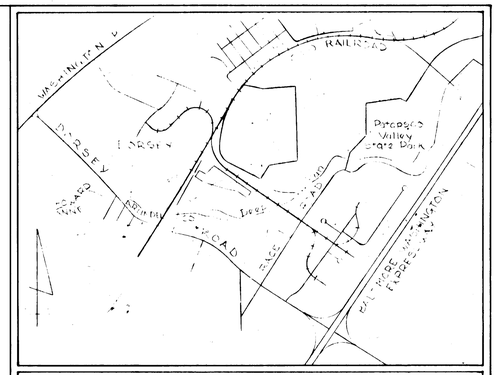
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	DATE 12-22-87
CHIEF, BUREAU OF HIGHWAYS	DATE 12/28/87
CHIEF, BUREAU OF ENGINEERING	DATE 12/28/87
OFFICE OF PLANNING AND ZONING	DATE
DIRECTOR, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION	12/29/87

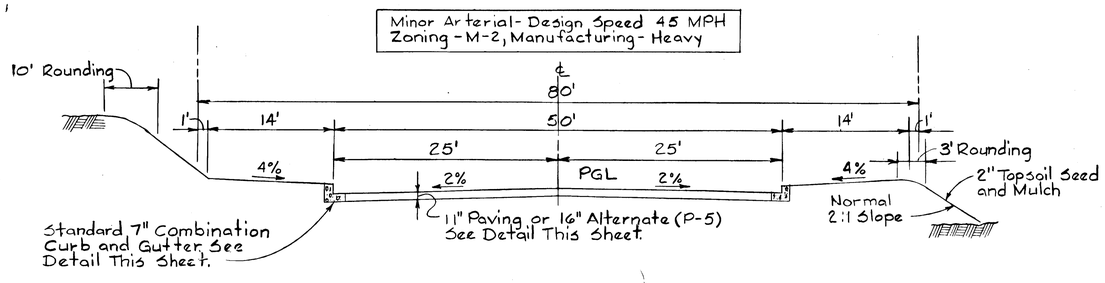
SHEET INDEX	
NO.	DESCRIPTION
C-1	Cover
S-1	General Plan & Elevation
S-2	Foundation Plan
S-3	Abutment 'A'
S-4	Abutment 'B'
S-5	Abutment Details Typical Abutment Section
S-6	Abutment Details
S-7	Typical Section
S-8	Framing Plan
S-9	Girder Cambers
S-10	Finished Grade Elevations
S-11	Boring Logs
S-12	Standards
S-13	Standards
S-14	Standards
S-15	Standards
S-16	Standards
S-17	Standards
S-18	Standards
S-19	Standards



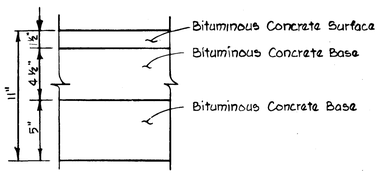
LOCATION MAP
Scale: 1" = 600'



VICINITY MAP
SCALE: 1" = 2,000'



TYPICAL SECTION 50' PAVING - 80' R/W
No Scale



P-5 FULL DEPTH BITUMINOUS CONCRETE

Notes:
1. Base will be Primed in Accordance with Article 33.03 as Provided in the MD S.R.C. Specifications.
2. A Tack Coat will be Applied in Accordance with Section 33.07-3 as Provided in the MD S.R.C. Specifications.

PAVING SECTION
No Scale

HO 140

REV. DATE	REV. NO.	REVISION DESCRIPTION

PARKWAY CORPORATE CENTER
SECTION 1

PARK CIRCLE DRIVE BRIDGE OVER DEEP RUN
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OWNER AND DEVELOPER
HI-TECH VENTURE LIMITED PARTNERSHIP
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

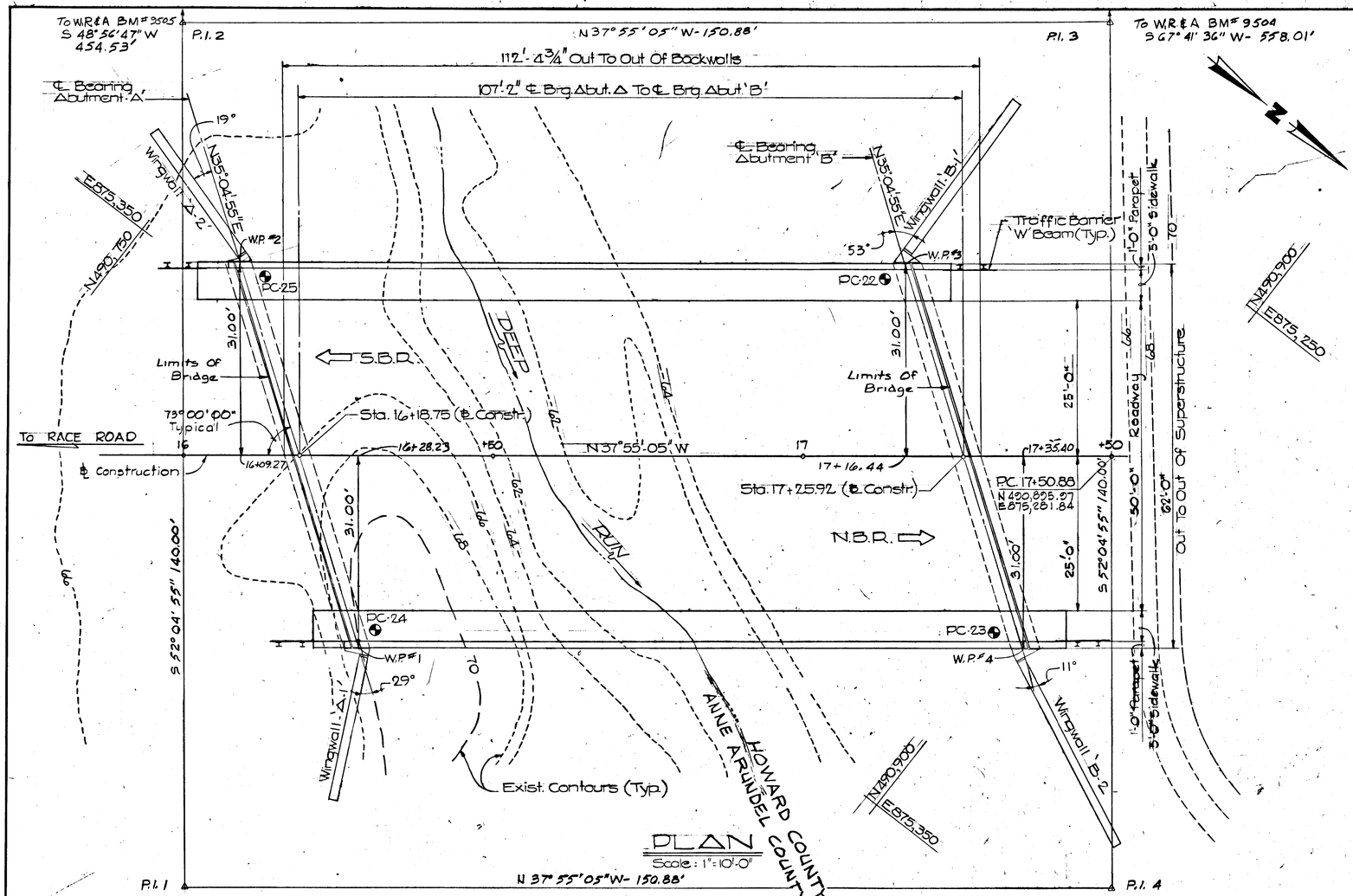
DATE: 12-18-87

C1
SCALE: AS SHOWN

Kenneth J. McCord

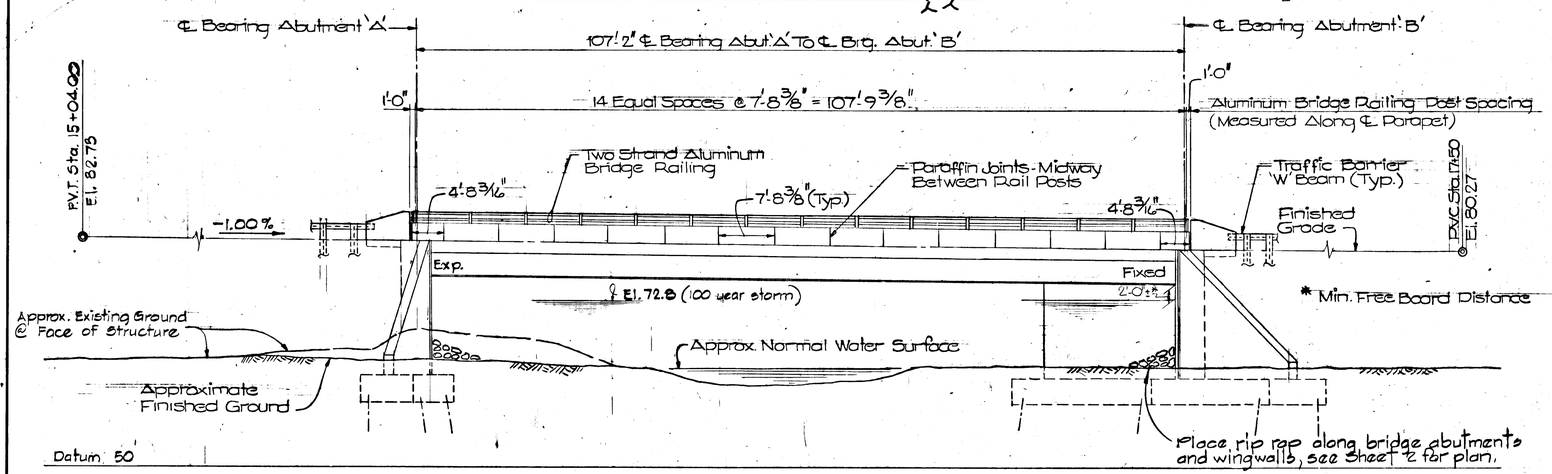
1314

F-88-55



PLAN

Scale: 1"=10'-0"



ELEVATION

Scale: 1"=10'-0"

BENCH MARKS
W.R.&A.- BM # 9504 - Elev. 87.43
N 490,641.149 E 874,710.368
Iron pipe west of Parkway Industrial Center along railroad spur line. 579' left of road sta. 21+16
W.R&A.- BM # 9505 - Elev. 97.15
N 490,435.395 E 874,976.585
Iron pipe west of Parkway Industrial Center along railroad spur line. 525' left of road sta. 15+77.50.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, LAND DEVELOPMENT DIVISION DATE: 12-28-87
CHIEF, BUREAU OF HIGHWAYS: DATE: 12-28-87
CHIEF, BUREAU OF ENGINEERING DATE:
OFFICE OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE: 12/24/87

GENERAL NOTES

SPECIFICATIONS: HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, INCLUDING LATEST AMENDMENTS.

SHA SPECIFICATIONS DATED JANUARY 1982, REVISIONS THEREOF AND ADDITIONS THERETO, AND SPECIAL PROVISIONS FOR MATERIALS AND CONSTRUCTION.

A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DATED 1983 FOR DESIGN INCLUDING 1984, 1985 AND 1986 INTERIM SPECIFICATIONS.

REINFORCED CONCRETE DESIGN: SERVICE LOAD DESIGN METHOD, fc = 1200 PSI EXCEPT THAT IN BRIDGE DECK SLABS SUPPORTED BY STRINGERS IT SHALL BE 1350 PSI.

REINFORCING STEEL DESIGN: fs = 24,000 PSI.

STRUCTURAL STEEL DESIGN: ELASTIC DESIGN METHOD, fs = 27,000 psi.

LOADING: HS 20-44 WITH PROVISIONS FOR FUTURE 2" WEARING SURFACE AND 15 POUNDS PER SQUARE FOOT FOR USE OF BRIDGE DECK FORMS.

CONCRETE: ALL CONCRETE FOR ABUTMENT BACKWALLS, PARAPETS AT ABUTMENTS AND ENTIRE SUPERSTRUCTURES SHALL BE MIX. No. 6 (4500 PSI). ALL OTHER STRUCTURE CONCRETE SHALL BE MIX No. 3 (3500 PSI). SEE SPECIAL PROVISIONS.

CHAMFER: ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH 3/4"x3/4" MILLED CHAMFER STRIPS, EXCEPT ON UNEXPOSED FOOTINGS OR WHERE INDICATED BY THE FOLLOWING NOTATION ON THE PLANS "DO NOT CHAMFER".

REINFORCING STEEL: REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A-615 GRADE 60. ALL SPLICES, NOT SHOWN, SHALL BE LAPPED AS PER BAR LAP CHARTS. MINIMUM COVER FOR ANY BAR SHALL BE 2" UNLESS OTHERWISE NOTED.

ONLY GRADE 60 BARS CAN BE USED ON THIS PROJECT.

ALL REINFORCING STEEL FOR SUPERSTRUCTURE, INCLUDING PARAPETS, ABUTMENT BACKWALLS, BEARING SEAT PADS, PARAPET PORTION OF WINGWALLS SHALL BE EPOXY COATED. SEE SPECIAL PROVISIONS.

STRUCTURAL STEEL: STRUCTURAL STEEL SHALL CONFORM TO ASTM A588, INCLUDING THE ADDITIONAL REQUIREMENTS FOR CHARPY V-NOTCH TESTING OF AASHTO M-222 FOR PRIMARY LOAD CARRYING MEMBERS. SEE SPECIAL PROVISIONS.

KEYS: ALL KEYS ARE NOMINAL SIZE.

EPOXY BONDING COMPOUND: ALL EXISTING CONCRETE THAT WILL BE IN CONTACT WITH NEW CONCRETE AND THE ENTIRE FACE OF BRIDGE DECK SLAB CONSTRUCTION JOINTS SHALL BE COATED WITH AN EPOXY BONDING COMPOUND. SEE SPECIAL PROVISIONS.

PILES: THE MINIMUM SAFE BEARING VALUE AND MINIMUM PENETRATION SHOWN ON THESE PLANS MUST BE ACHIEVED FOR EACH PILE. IF THE "ESTIMATED TIP ELEVATION" IS NOT REACHED OR IS EXCEEDED WHILE ACHIEVING THE MINIMUM SAFE BEARING VALUE AND THE MINIMUM PENETRATION, THE PILE WILL BE CONSIDERED SATISFACTORY.

HYDRAULIC DATA: D.A. = 8.1 MI²
Q_{100} = 5650 CFS
E.L.$_{100}$ = 72.8 FT.

TRAFFIC DATA: PROJECTED ADT = 6550

HO 140

REFERENCES:

1) For Finished Roadway Elevations, See Dwg. No. S-10
2) For Typical Section, See Dwg. No. S-7

REV. NO.	REV. DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA: SECTION 1

PROJECT TITLE:
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
GENERAL PLAN & ELEVATION

SCALE: AS SHOWN DATE: 12-18-87

WHITMAN, REQUARDT & ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-1

STATE OF MARYLAND — CHRISTOPHER T. KENNY — NO. 6717 — REGISTERED PROFESSIONAL ENGINEER

F-88-55

SHEET 14 OF 43

314

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

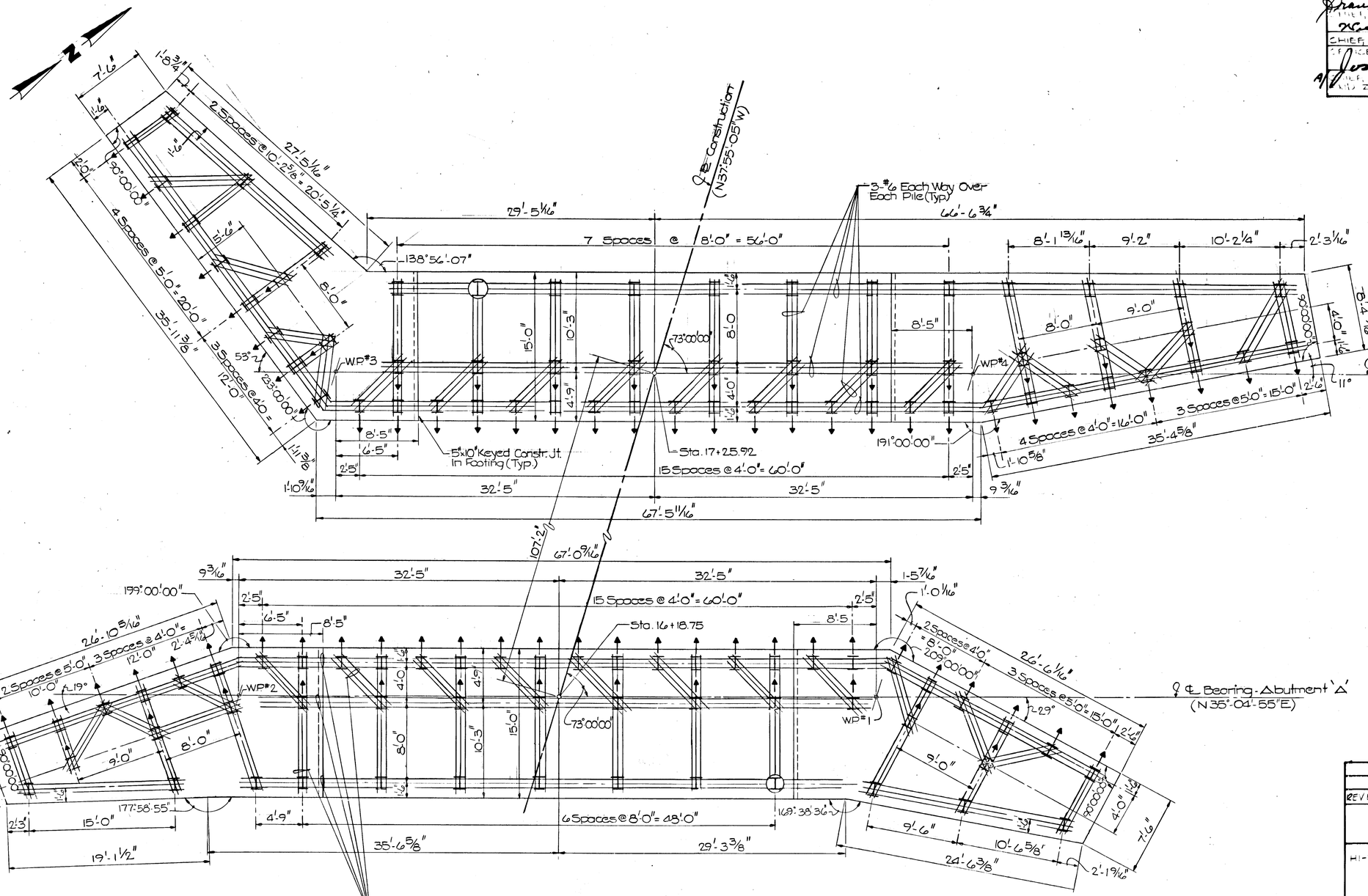
CHIEF, LAND DEVELOPMENT DIVISION — DATE: 12/28/87

CHIEF, BUREAU OF HIGHWAYS — DATE: 12/28/87

CHIEF, BUREAU OF ENGINEERING — DATE: 12/28/87

OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE: 12/27/87



FOUNDATION PLAN

Scale: 3/16" = 1'-0"

NOTES:

1) All Piles To Be HP 14×73 Driven To A Min. Safe Bearing Capacity Of 78 Tons. The Design Bearing Capacity For HP 14×73 Is 65 Tons.
2) ⊢ Indicates Plumb Pile
3) ⊖ Indicates Test Pile
4) ⊢→ Indicates Pile With 4:1 Batter And Direction Of Batter
5) Estimated Pile Tip Elev. For Abutments 'A' & 'B' Is 20.0 ± The Min. Pile Tip Elev. Shall Be Elev. 25.0 ±
6) Shop Plans Shall Show How Rebars Are To Be Tied As Well As How They Will Be Held In Place Above Piling While Pour Is Being Made
7) Unit Wt. Of Soil = 120#/C ft.
   Angle Of Internal Friction, ϕ = 30°
   C = 0

REFERENCES:

1) For General Plan And Elevation, See Dwg. No. S-1
2) For Abutment 'A' Plan And Elevation, See Dwg. No. S-3
3) For Abutment 'B' Plan And Elevation, See Dwg. No. S-4

HO 140

REV NO	REV DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
FOUNDATION PLAN

SCALE: — DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-2

STATE OF MARYLAND — DONALD JAMES ALVI — NO. 8771 — REGISTERED PROFESSIONAL ENGINEER

F-88-55

SHEET 15 OF 43

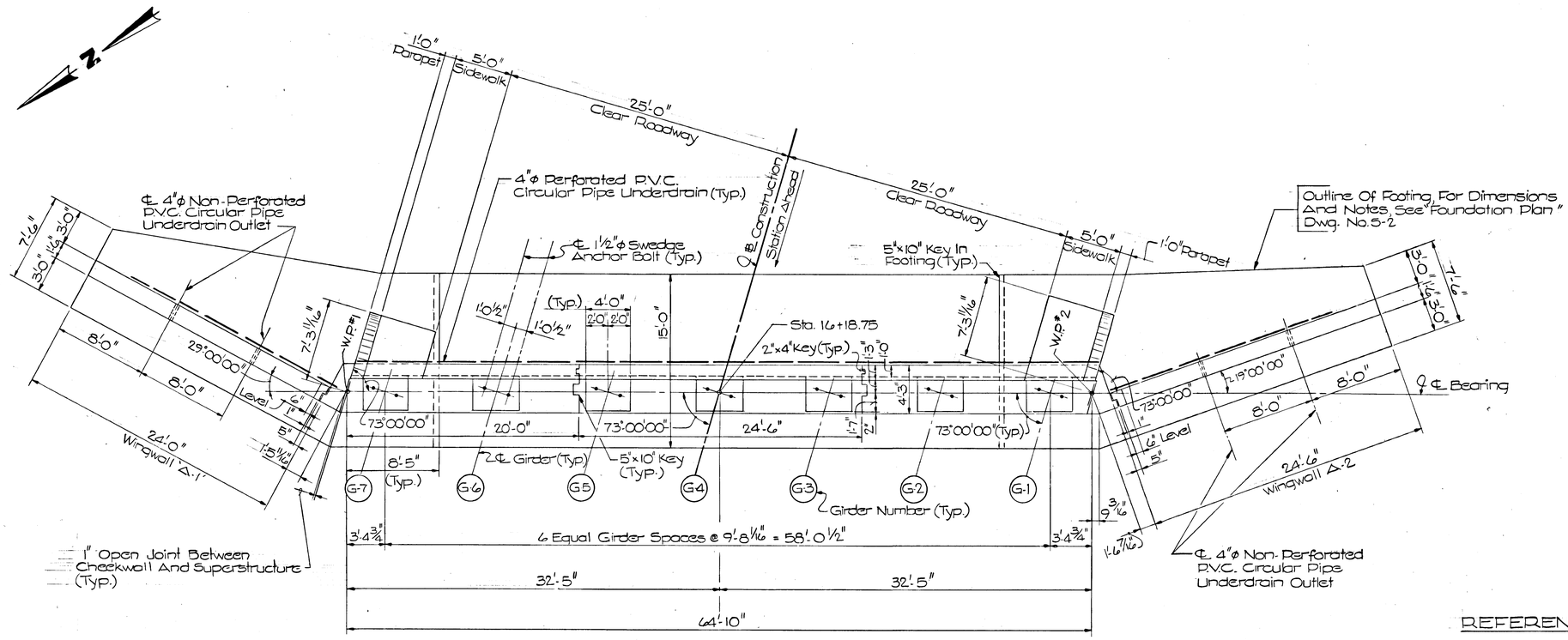
1314

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS — DATE 12-23-87

CHIEF, LAND DEVELOPMENT DIVISION — DATE 12/28/87

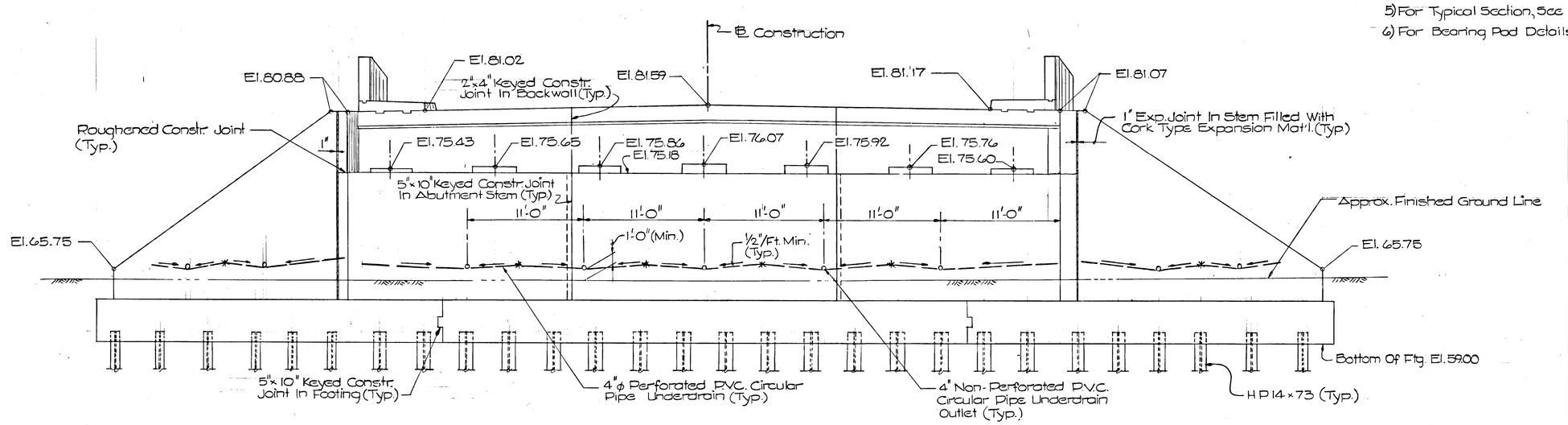
CHIEF, BUREAU OF ENGINEERING — DATE 12/28/87

DIRECTOR, DEPARTMENT OF PLANNING AND ZONING — DATE 12/29/87



PLAN - ABUTMENT 'A'

Scale: 3/16" = 1'-0"



ELEVATION - ABUTMENT 'A'

Scale 3/16" = 1'-0"

REFERENCES:

1) For General Plan & Elevation, See Dwg. No. 5-1
2) For Section Thru Abutment And Section Thru Wingwall See Dwg. No. 5-5
3) For Parapet Elevations, See Dwg. No. 5-6
4) For Typical Corner Detail, See Dwg. No. 5-6
5) For Typical Section, See Dwg. No. 5-7
6) For Bearing Pad Details, See Dwg. No. 5-12

HO 140

REVISIONS	REV. DATE	REV. NO.

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA: SECTION 1

PROJECT TITLE:
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
ABUTMENT 'A'

SCALE: — DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. 5-3

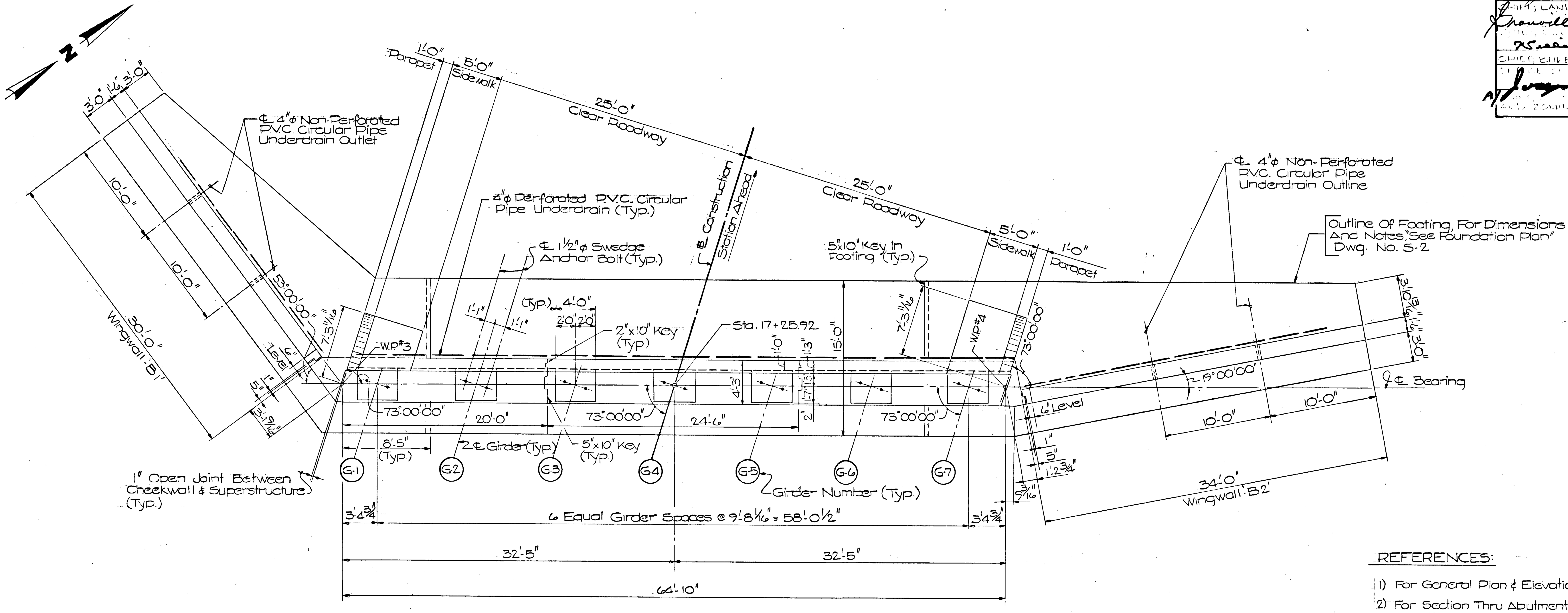
STATE OF MARYLAND — REGISTERED SURVEYOR — NO. 9777 — REGISTERED PROFESSIONAL ENGINEER

F-88-55

SHEET 16 OF 43

13114

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 12-23-87
CHIEF, LAND DEVELOPMENT DIVISION DATE
Granville W. Wehland 12/28/87
[signature] 12/28/87
CHIEF, BUREAU OF ENGINEERING DATE
Joseph Rutter 12/28/87
CHIEF, LAND DEVELOPMENT AND ZONING ADMINISTRATION

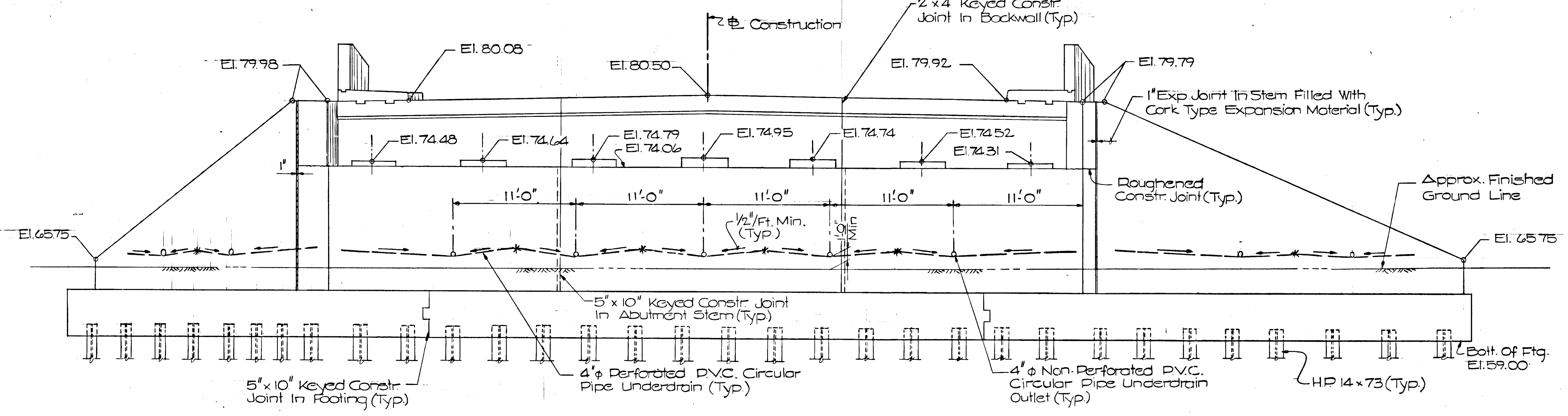


PLAN - ABUTMENT 'B'

Scale: 3/16" = 1'-0"

REFERENCES:

1) For General Plan & Elevation, See Dwg. No. S-1
2) For Section Thru Abutment And Section Thru Wingwall See Dwg. No. S-5
3) For Typical Section, See Dwg. No. S-7
4) For Bearing Pad Details, See Dwg. No. S-12
5) For Parapet Elevations, See Dwg. No. S-6
6) For Typical Corner Detail, See Dwg. No. S-6



ELEVATION - ABUTMENT 'B'

Scale: 3/16" = 1'-0"

HO 140

REV NO.	REV DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
ABUTMENT 'B'

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

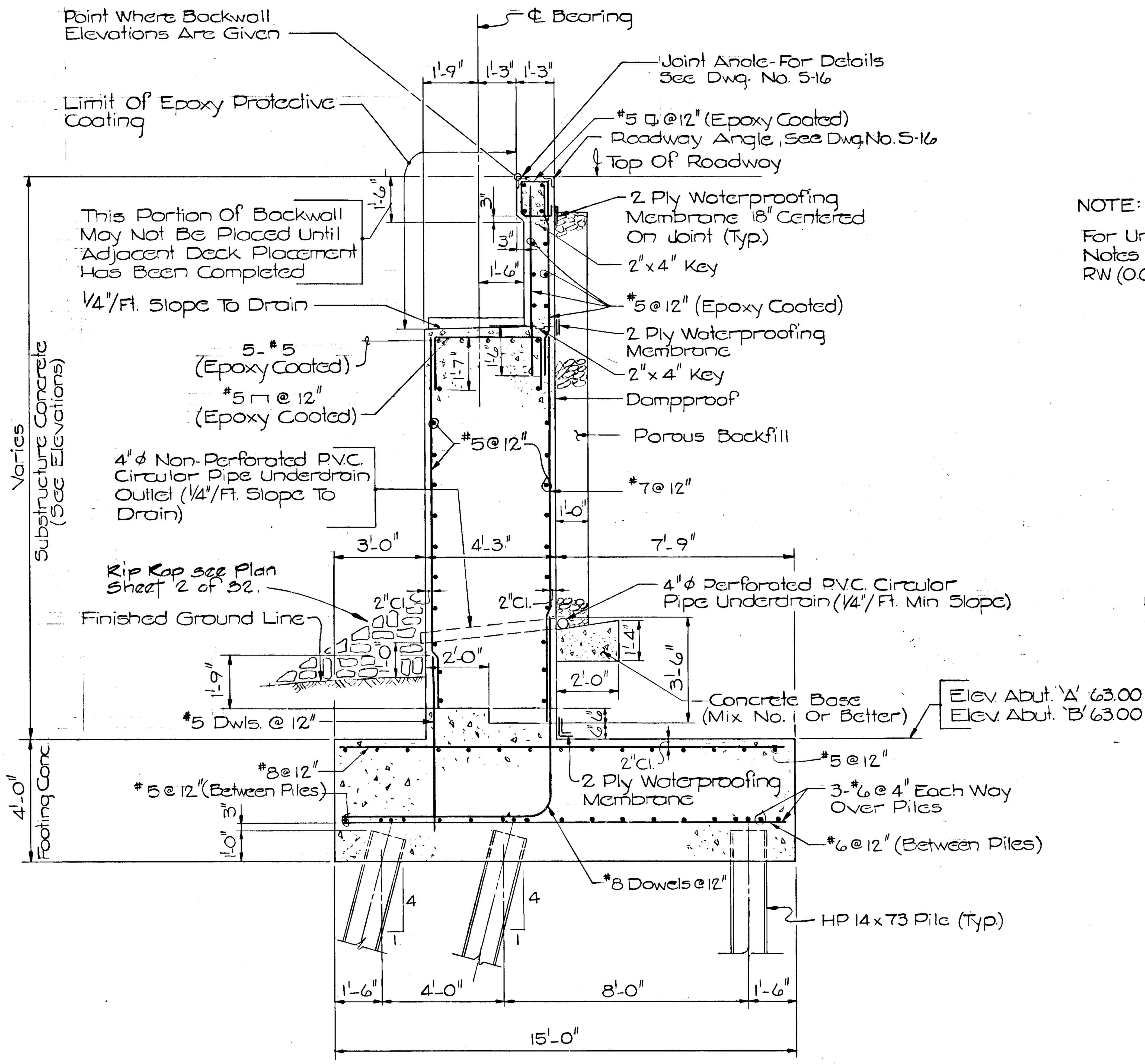
ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-4

F-88-55

SHEET 17 OF 43

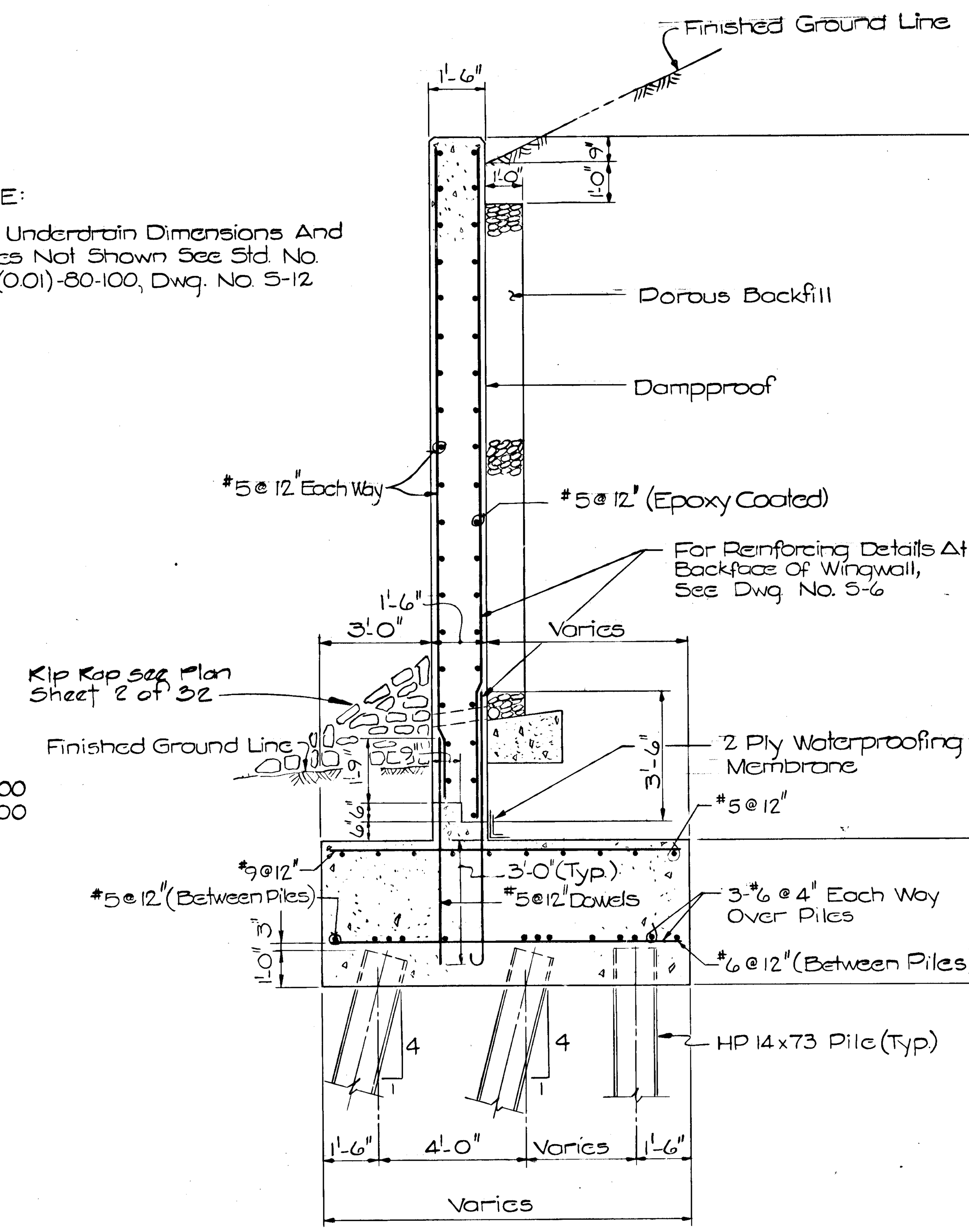
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, LAND DEVELOPMENT DIVISION — DATE 12-23-87
CHIEF, BUREAU OF HIGHWAYS — DATE 12/28/87
CHIEF, BUREAU OF ENGINEERING — DATE 12/28/87
CHIEF, DEVELOPMENT ENGINEERING DIVISION / OFFICE OF PLANNING AND ZONING — DATE 12/29/87
OFFICE OF PLANNING AND ZONING — LAND DEVELOPMENT AND ZONING ADMINISTRATION



TYPICAL SECTION THRU ABUTMENTS

Scale: 3/8" = 1'-0"

NOTE:
For Underdrain Dimensions And Notes Not Shown See Std. No. RW (0.01)-80-100, Dwg. No. S-12



TYPICAL SECTION THRU WINGWALL

Scale: 3/8" = 1'-0"

REFERENCES:

1) For Plan & Elevation Abutment 'A', See Dwg. No. S-3
2) For Plan & Elevation Abutment 'B', See Dwg. No S-4

HO 140

REV NO.	REV DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
TYPICAL ABUTMENT SECTION

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER

DWG. NO. S-5

F-88-55

SHEET 18 OF 43

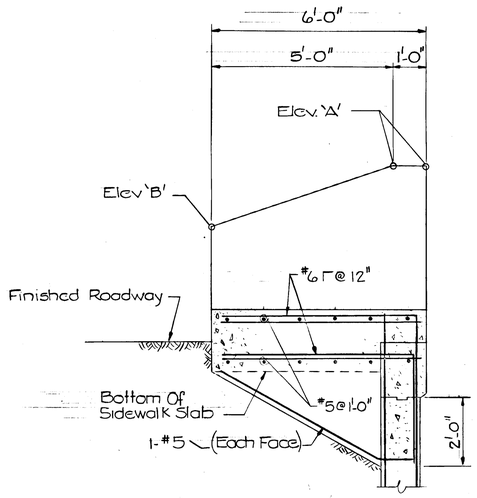
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE: 12/28/87

CHIEF, BUREAU OF ENGINEERING — DATE: 12/28/87

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 12/28/87

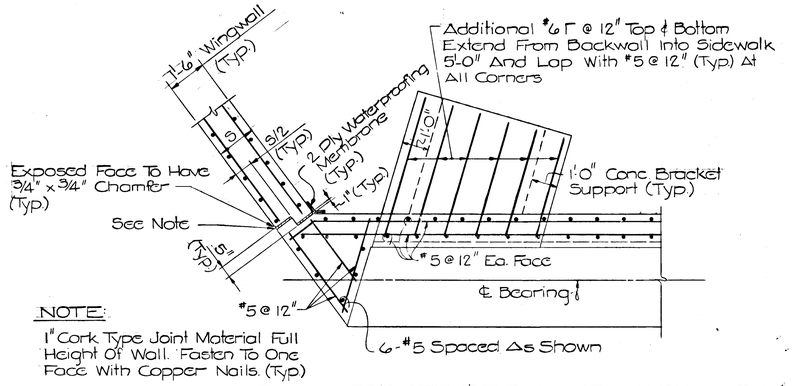
AT DEPT. OF PLANNING AND ZONING: CHIEF, LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE:



TYP. SIDEWALK CONN. DETAIL

Scale: 3/8" = 1'-0"

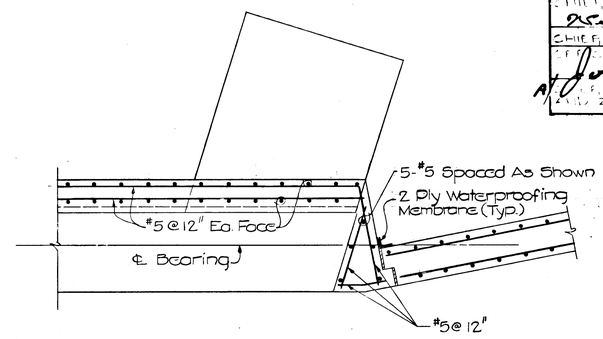
PARAPET ELEVATIONS		
LOCATION	ELEV. 'A'	ELEV. 'B'
Wingwall A-1	85.96	84.35
Wingwall A-2	86.18	84.50
Wingwall B-1	85.02	83.29
Wingwall B-2	84.86	83.13



NOTE:
1" Cork Type Joint Material Full Height Of Wall. Fasten To One Face With Copper Nails. (Typ)

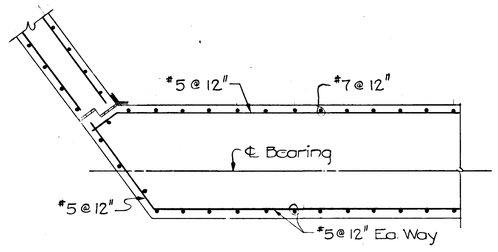
PLAN-CORNER DETAIL AT WINGALL B-1 AT BACKWALL

Scale: 3/8" = 1'-0"



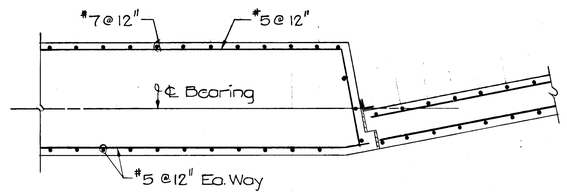
PLAN-CORNER DETAIL AT WINGWALLS A2 & B2 AT BACKWALL

Scale: 3/8" = 1'-0"



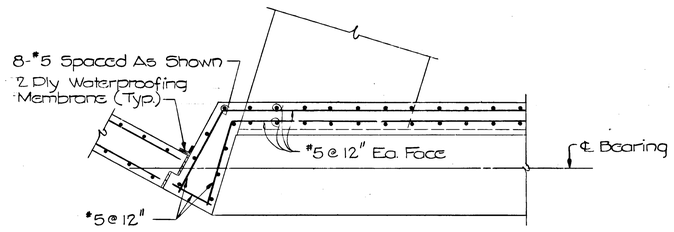
PLAN-CORNER DETAIL AT WINGWALL A1 BELOW BACKWALL

Scale: 3/8" = 1'-0"



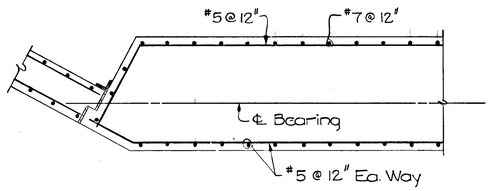
PLAN-CORNER DETAIL AT WINGWALL A-2 & B2 BELOW BACKWALL

Scale: 3/8" = 1'-0"



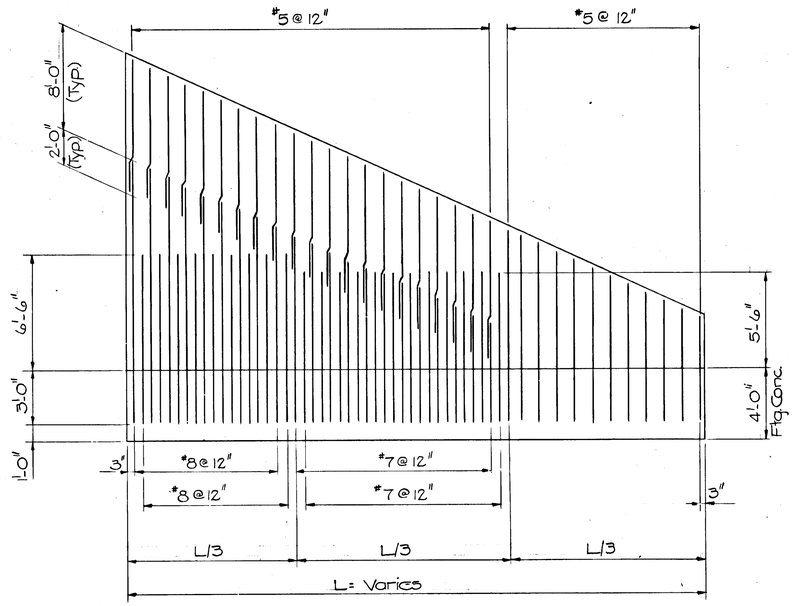
PLAN - CORNER DETAIL AT WINGWALL A-1 AT BACKWALL

Scale: 3/8" = 1'-0"



PLAN-CORNER DETAIL AT WINGWALL A-1 BELOW BACKWALL

Scale: 3/8" = 1'-0"



TYP VERTICAL REINFORCING AT BACKFACE OF WINGWALLS

Not To Scale

REFERENCES:

1. For Plan & Elevation Abutment 'A', See Dwg. No. S-3
2. For Plan & Elevation Abutment 'B', See Dwg. No. S-4
3. For Additional Sidewalk And Parapet Reinforcing, See Dwg. No. S-12

HO 140

REV NO	REV DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
ABUTMENT DETAILS

SCALE: — DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

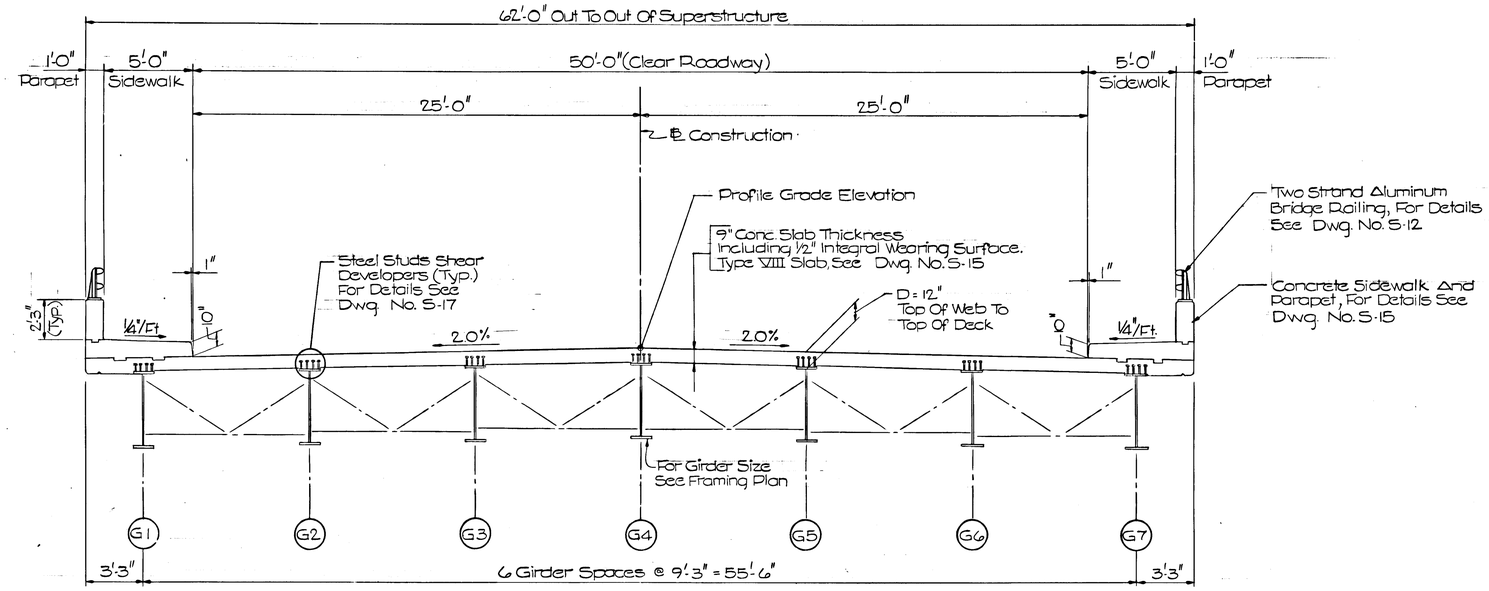
DWG. NO. S-6

STATE OF MARYLAND — BENJAMIN ALVI — NO. 8771 — REGISTERED PROFESSIONAL ENGINEER

F-88-55

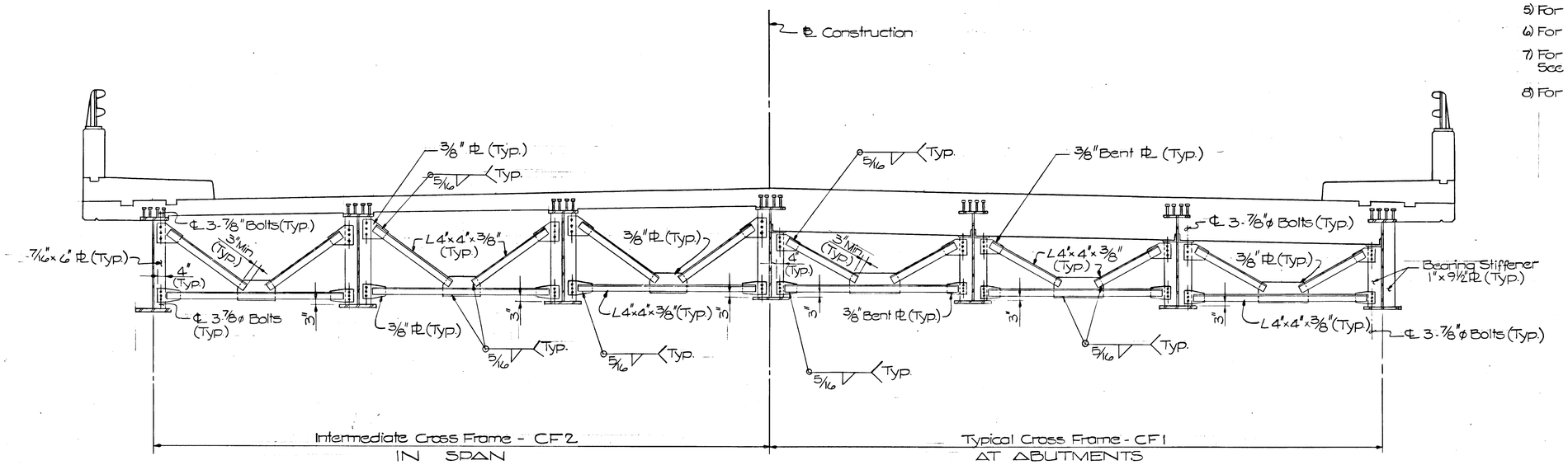
SHEET 19 OF 43

1214



TYPICAL SECTION

Scale: ¼" = 1'-0"



TYPICAL CROSS FRAME DETAILS

Scale: ⅜" = 1'-0"

NOTE: All Bolts To Be ⅞"ϕ High Strength Bolts (15/16" Open Holes) AASHTO M164, ASTM A325

REFERENCES:

1) For General Plan & Elevation, See Dwg. No. S-1
2) For Framing Plan, See Dwg. No. S-8
3) For Deck Elevations, See Dwg. No. S-10
4) For Reinforcing In End Diaphragm, See Dwg. No. S-15
5) For Clip Angle Details, See Dwg. No. S-17
6) For Roadway Joint Angle Assembly, See Dwg. No. S-16
7) For Details Of Roadway Joint Compression Seal At Sidewalk, See Dwg. No. S-16
8) For Stiffener Attachment Details, See Dwg. No. S-11

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, LAND DEVELOPMENT DIVISION — DATE 12/28/87
CHIEF, BUREAU OF ENGINEERING — DATE 12/28/87
DIRECTOR OF LAND DEVELOPMENT AND TRAFFIC ADMINISTRATION — DATE 12/30/87

HO 140

REV NO.	REV DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
TYPICAL SECTION

SCALE: — DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-7

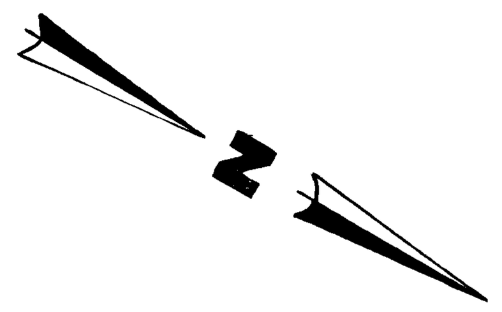
STATE OF MARYLAND — DONALD K. ALVI — No. 8711 — REGISTERED PROFESSIONAL ENGINEER

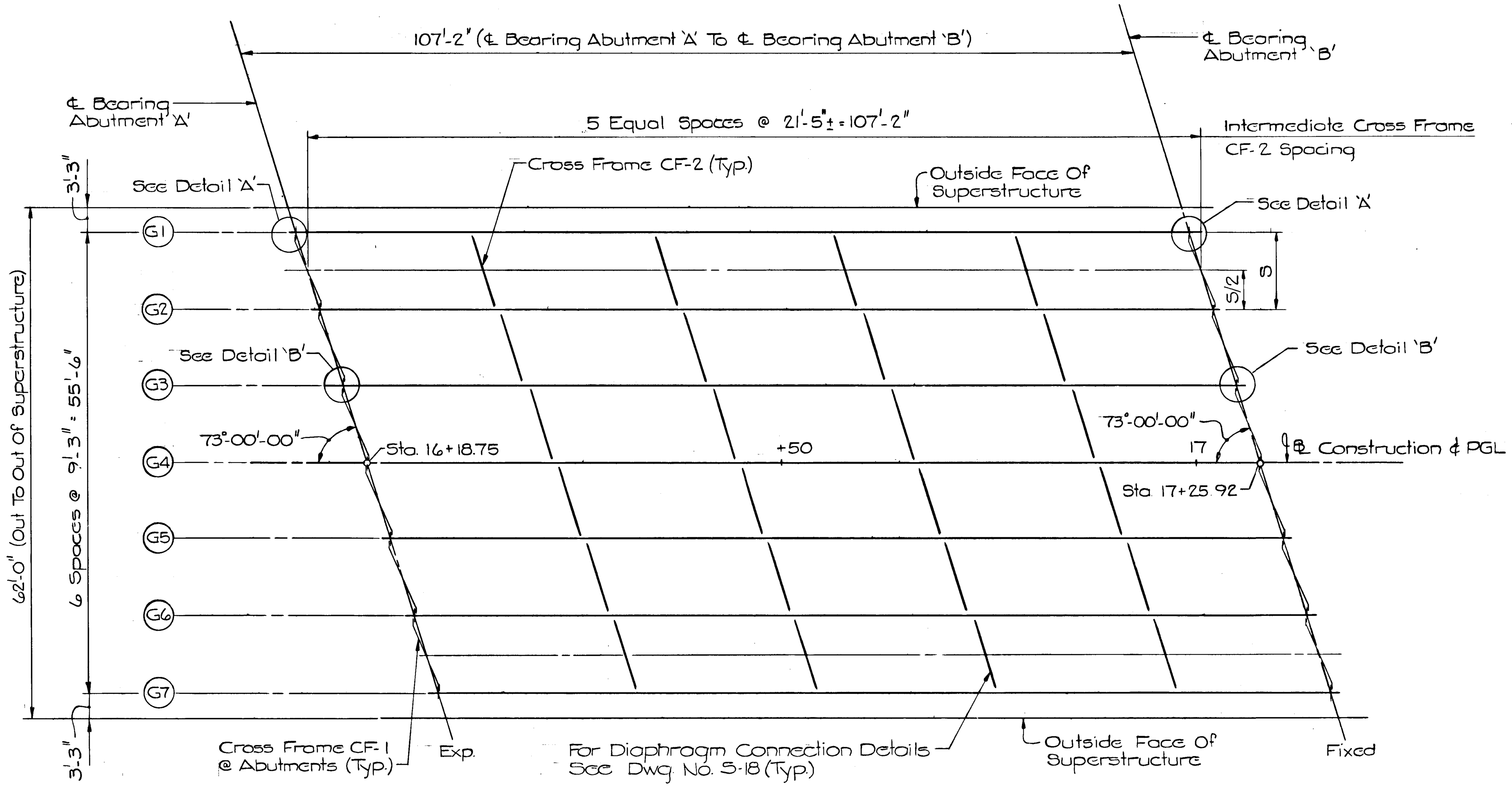
F-88-55

SHEET 20 OF 43

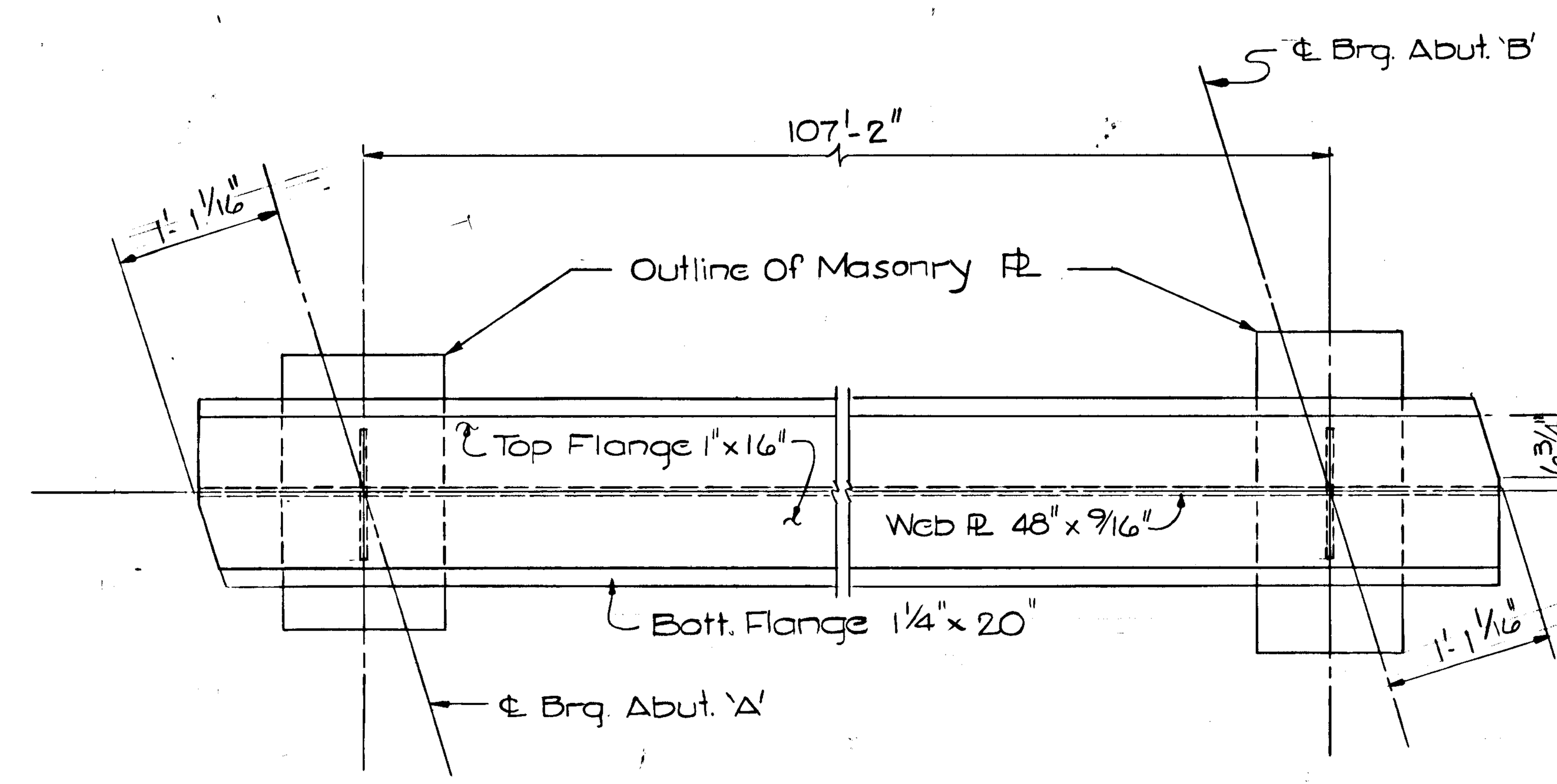
1314

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[signature] 12-23-87
CHIEF, LAND DEVELOPMENT DIVISION DATE
Granville W. Wehland 12/28/87
[signature] 12/28/87
CHIEF, BUREAU OF ENGINEERING DATE
Joseph Rutter 12/29/87
DIRECTOR, OFFICE OF PLANNING AND ZONING / LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE



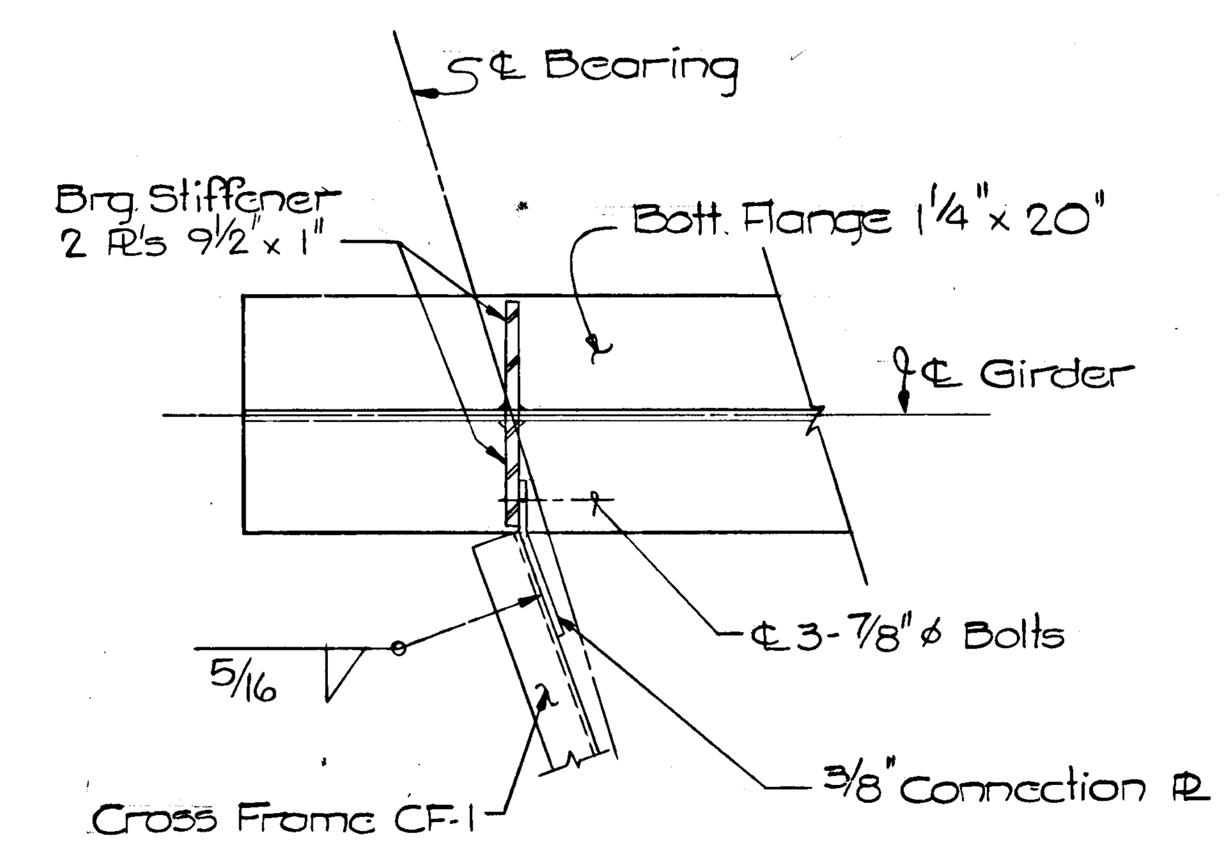


FRAMING PLAN
Scale: 1" = 10'-0"

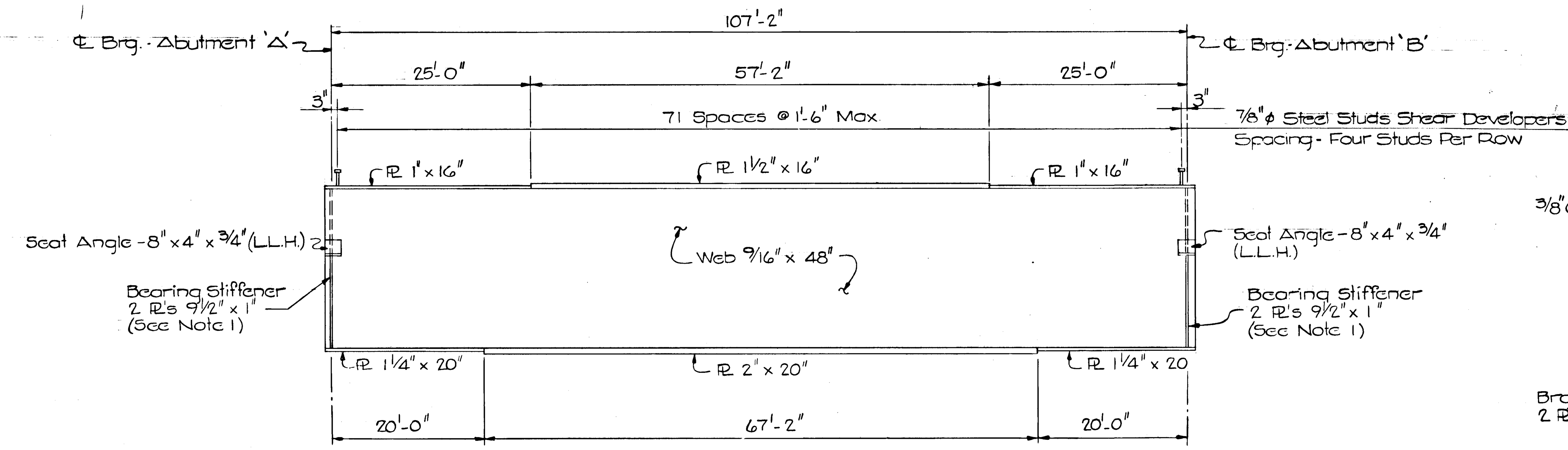


PLAN-TYP GIRDER CLIP DETAIL
Scale: 3/4" = 1'-0"

REFERENCES:
1) For General Plan & Elevations, See Dwg. No. S-1
2) For Typical Section, See Dwg. No. S-7
3) For Bearing Stiffener Details, See Dwg. No. S-9
4) For Bearing Shoe Details, See Dwg. No. S-18



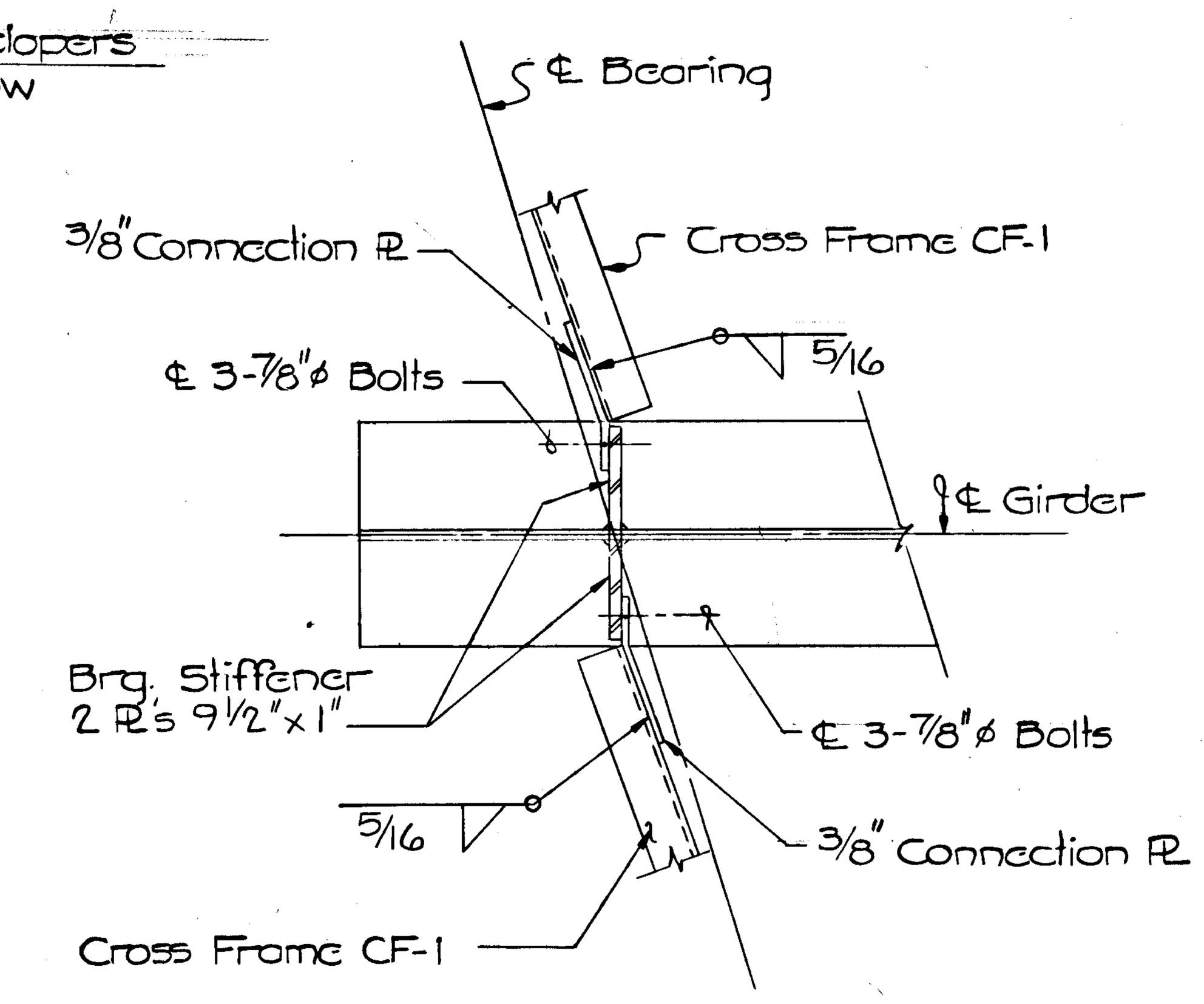
DETAIL 'A'
Scale: 3/4" = 1'-0"



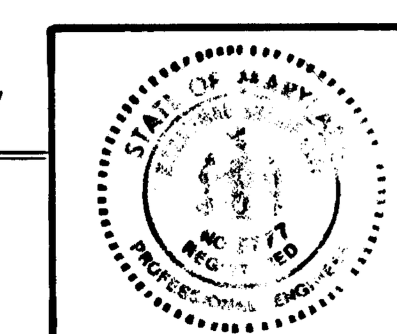
GIRDER ELEVATION
Not To Scale

NOTE
On Expansion Bearing, Use ME-V
On Fixed Bearing, Use MF-V

NOTES:
1) Extend Exterior Stiffener Of Fascia Girder To Top Of Flange And Weld.
2) The Estimated Number Of Steel Stud Shear Developers Required For This Bridge Is 497.
3) All Dimensions Shown Are Either On A True Horizontal Plane Or On A True Vertical Plane



DETAIL 'B'
Scale: 3/4" = 1'-0"



HO 140

REV NO.	REV DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
FRAMING PLAN

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-8

F-88-55

SHEET 21 OF 43

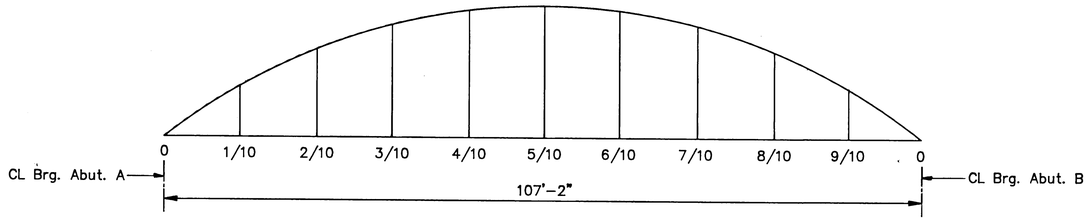
1314

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE: 12/28/87

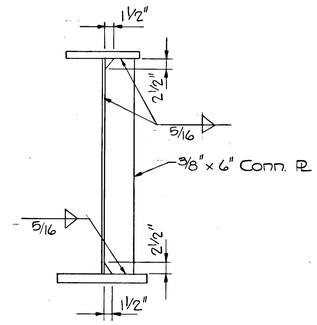
CHIEF, BUREAU OF ENGINEERING — DATE: 12/28/87

DIRECTOR OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE: 12/29/87

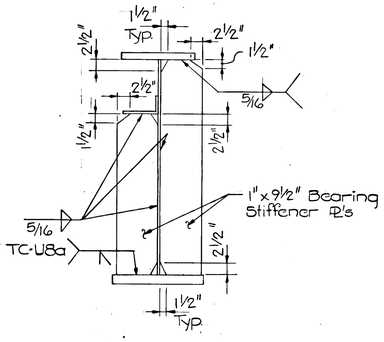


CAMBER DIAGRAM

		CAMBER SCHEDULE										
		GIRDER SPAN										
		0	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	0
GIRDERS 1 & 7	△ STEEL	0	1/4	7/16	9/16	11/16	3/4	11/16	9/16	7/16	1/4	0
	△ CONCRETE	0	3/4	1 7/16	1 15/16	2 5/16	2 7/16	2 5/16	1 15/16	1 7/16	3/4	0
	△ SDL	0	1/4	1/2	11/16	13/16	7/8	13/16	11/16	1/2	1/4	0
	TOTAL	0	1 1/4	2 1/2	3 3/16	3 13/16	4 1/16	3 13/16	3 3/16	2 1/2	1 1/4	0
GIRDERS 2,3,4,5 & 6	△ STEEL	0	1/4	7/16	9/16	11/16	3/4	11/16	9/16	7/16	1/4	0
	△ CONCRETE	0	7/8	1 11/16	2 1/4	2 11/16	2 13/16	2 11/16	2 1/4	1 11/16	7/8	0
	△ SDL	0	1/4	1/2	11/16	13/16	13/16	13/16	11/16	1/2	1/4	0
	△ TOTAL	0	1 3/8	2 5/8	3 1/2	4 3/16	4 3/8	4 3/16	3 1/2	2 5/8	1 3/8	0



AT CONNECTION PL's



AT END BEARING

STIFFENER ATTACHMENT DETAILS

Scale: 3/4" = 1'-0"

CAMBER NOTES

1) All Cambers Are Given In Inches. A Positive Number Denotes Camber In The Upward Direction And A Negative Number Denotes Camber In The Downward Direction.

2) △ STEEL: Denotes Camber Due To Weight Of Steel Only.

3) △ CONC.: Denotes Camber Due To Concrete Deck Slab Only.

4) △ SDL.: Denotes Camber Due To The Superimposed Dead Loads (Including The Integral Wearing Surfaces, Parapets And Bridge Fencing, Etc.)

5) △ TOTAL: Denotes The Summation Of △ Steel, △ Conc., and △ SDL

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REV. NO.	REV. DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
GIRDER CAMBERS

SCALE: — DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-9

STATE OF MARYLAND — MILDRED ANN ALVI — NO. 8771 — REGISTERED PROFESSIONAL ENGINEER

F-88-55

SHEET 22 OF 43

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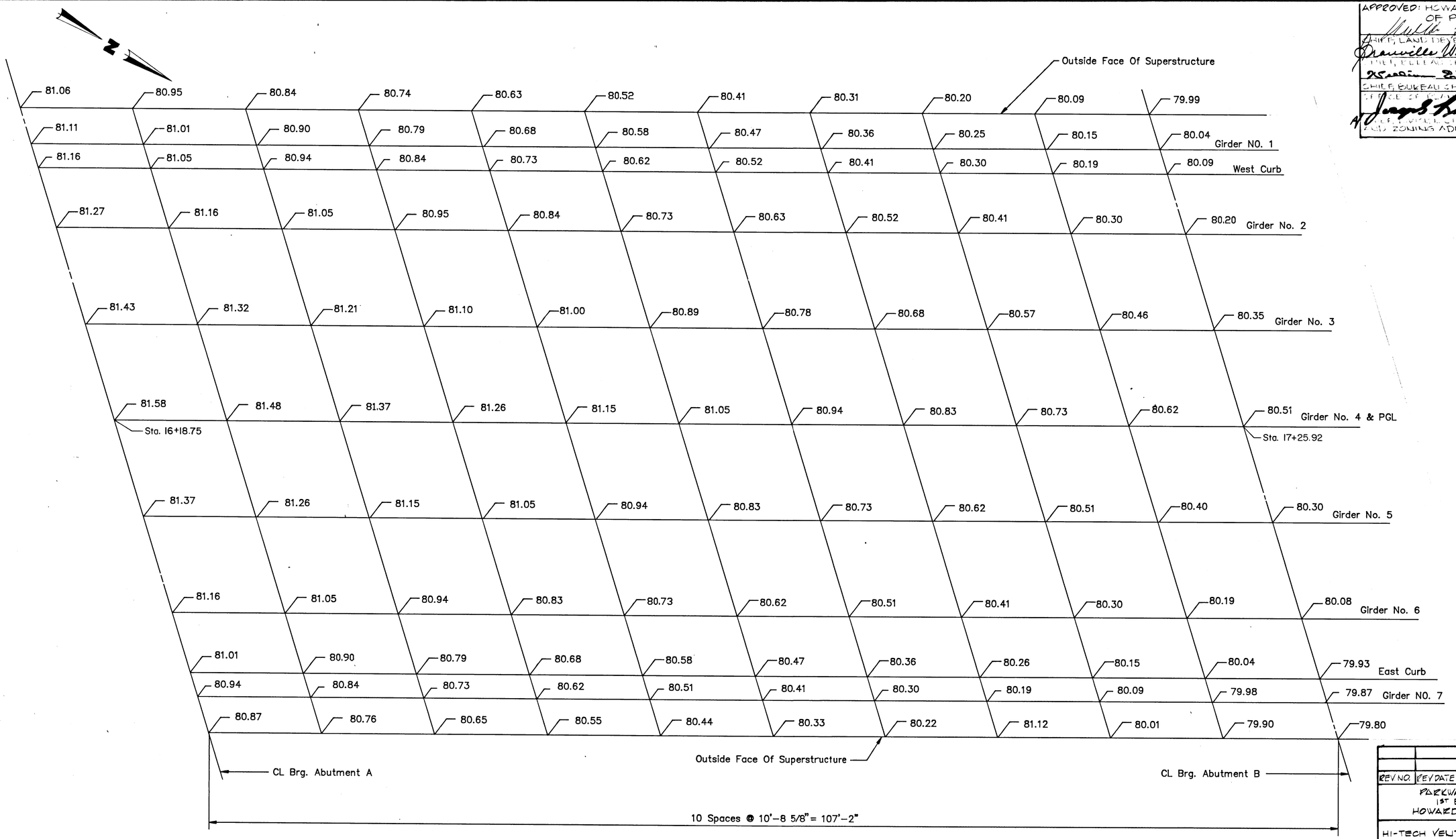


FINISHED GRADE ELEVATIONS

Not To Scale

REFERENCES:

1) For Beam Spacing And Other Transverse Dimensions, See "Typ. Section" Dwg. No. 5-7 And "Framing Plan" Dwg. No. 5-8

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE: 12/28/87

CHIEF, BUREAU OF ENGINEERING — DATE: 12/28/87

DIRECTOR OF PLANNING AND ZONING — DATE: 12/28/87

CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION — DATE:

HO 140

REV NO.	REV DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
FINISHED GRADE ELEVATIONS

SCALE: — DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. 5-10

STATE OF MARYLAND — DONALD R. ALVI — NO. 8777 — REGISTERED PROFESSIONAL ENGINEER

F-88-55

SHEET 23 OF 43

13/14

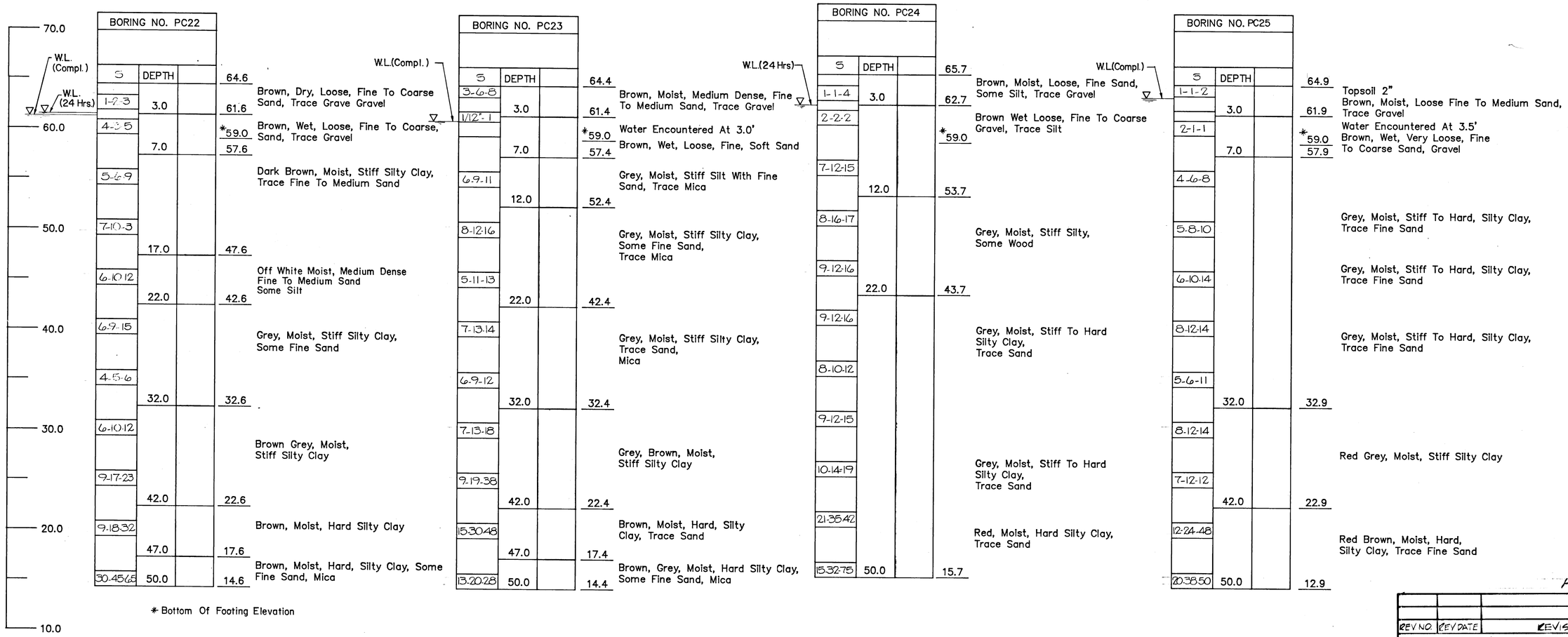
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — DATE: 12/28/87

CHIEF, BUREAU OF ENGINEERING — DATE: 12/28/87

DIRECTOR OF PLANNING AND ZONING — DATE: 12/28/87

APPROVED: DEPARTMENT OF PLANNING AND ZONING ADMINISTRATION — DATE:



BORING LOGS

Scale: 1" = 5'-0"

HO 140

NOTES:

1) Borings PC22, PC23, PC24 And PC25 Were Taken In August, 1987 By Pittsburgh Testing Laboratory.

2) S= Blows Per Ft. On Standard 2" O.D. Sampling Spoon By 140 lb. Weight Freely Falling 30"

   WL(H)= Water Table Level. (Figure In Parenthesis indicates Reading In Hours After Completion Of Boring.)

3) For Boring Location Plan, See General Plan & Elevation Dwg No.S-1

REV NO.	REV DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE:
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
BORING LOGS

SCALE: — DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

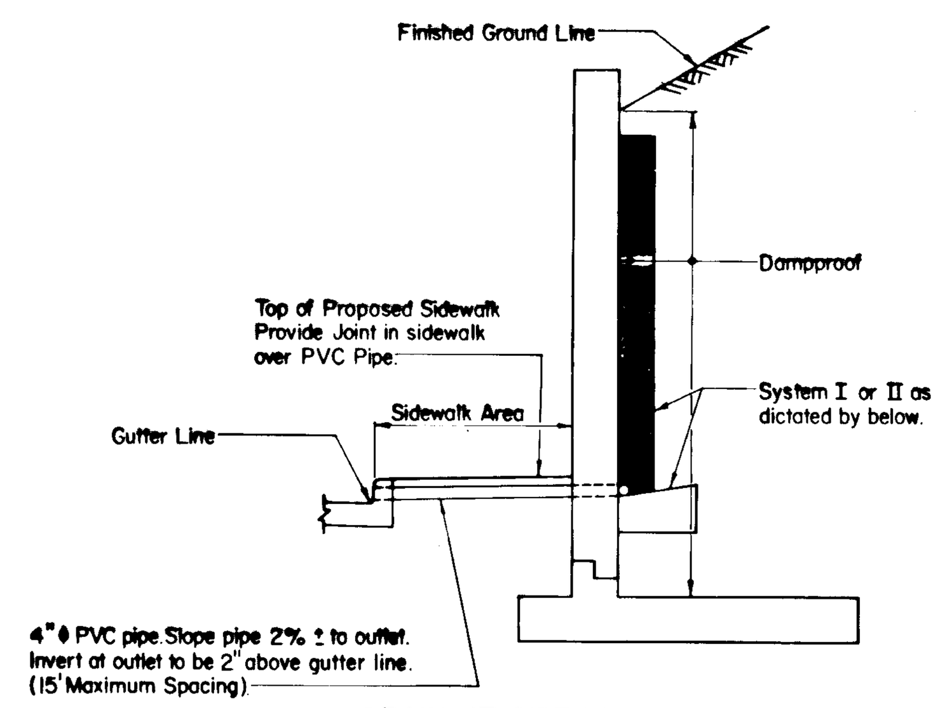
DWG. NO. S-11

STATE OF MARYLAND — MOHAMMAD SARWAT ALVI — NO. 8777 — REGISTERED PROFESSIONAL ENGINEER

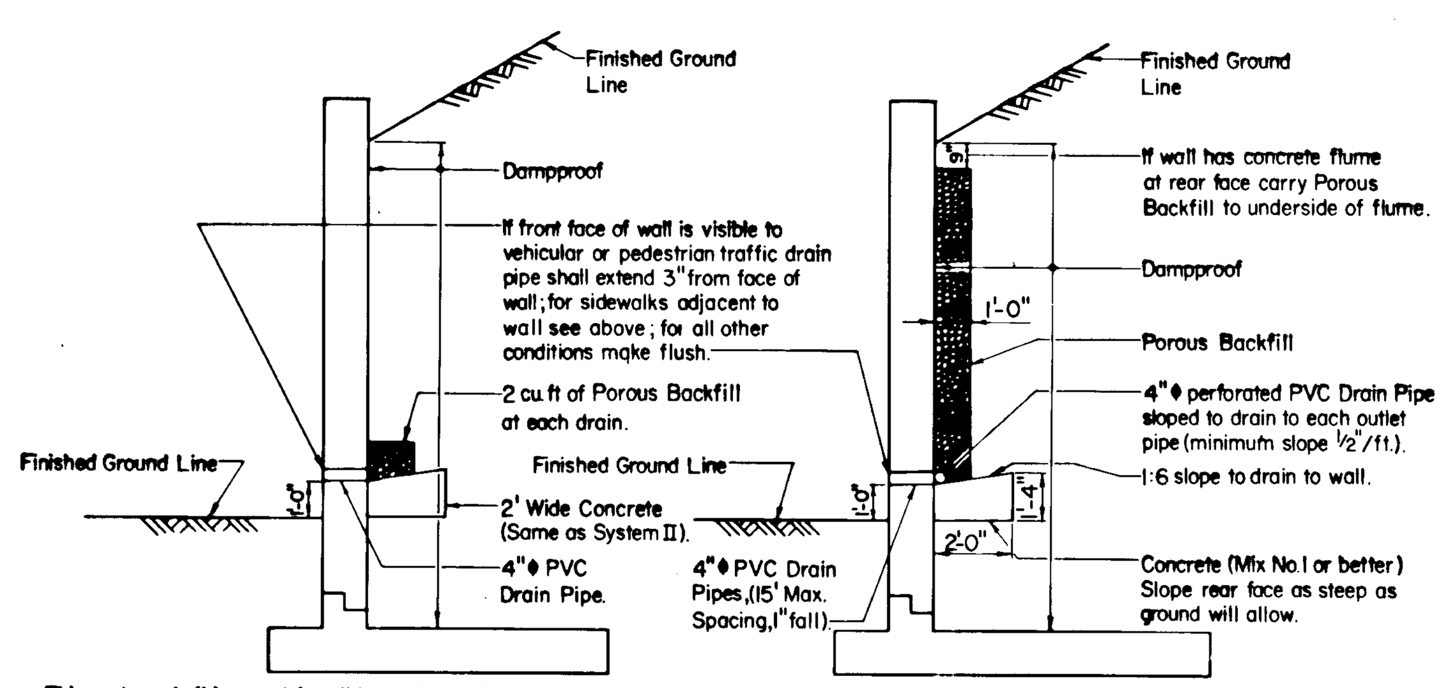
F-88-55 SHEET 24 OF 43

1314

APPROVED ... 12-23-87
Granville W. Wehland 12/28/87
... 12/28/87
... 12/23/87



DRAIN AT SIDEWALK
Scale: None



This system shall be used for all box culvert wing walls and other wing walls that are both less than 30' long and less than 16' high (height of wall from bottom of footing to top of highest section). One drain shall be placed at ℄ of wall for all walls less than 15' long. For walls between 15' and 30' long, two drains shall be placed, one at each third point.

SYSTEM I
Scale: None

This system shall be used for all retaining walls, all wing walls (not in System I), and all cantilever abutments.

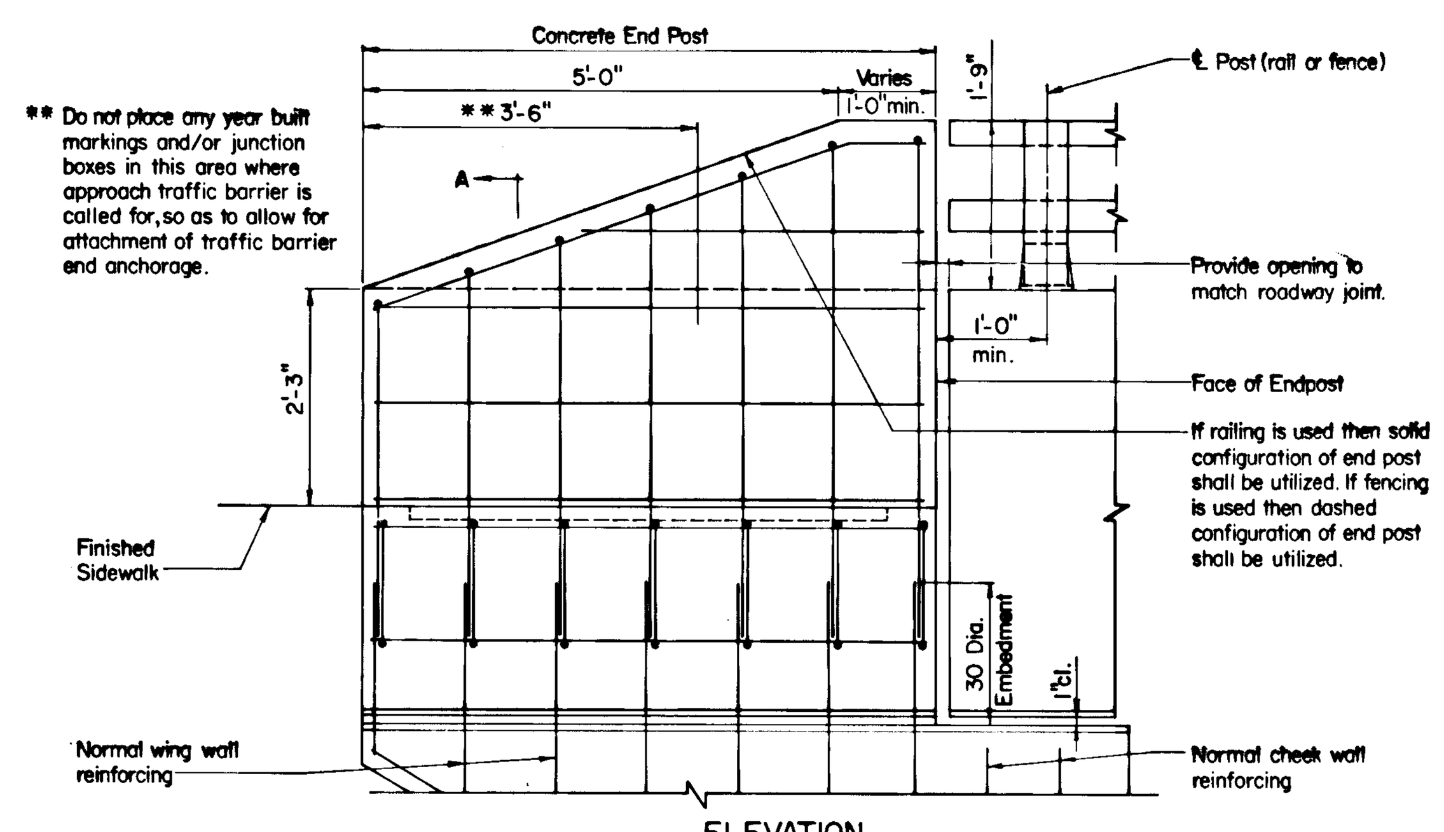
SYSTEM II
Scale: None

Note:
1. Exact elevation of drain to be determined by Engineer in the field.
2. Porous Backfill shall be stone conforming to AASHTO M 43, Size No. 57.

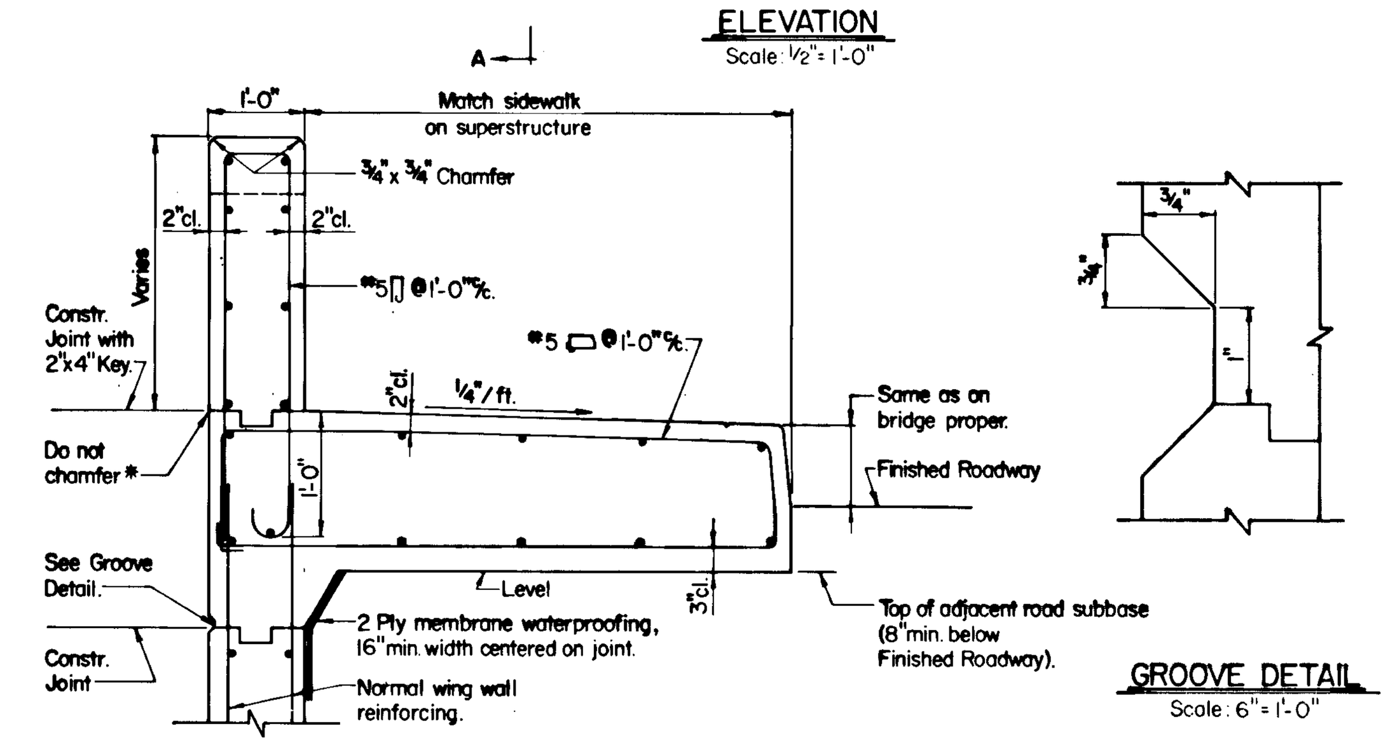
APPROVAL	
(signature) ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 2/25/80	
REVISIONS	
SHA	FHWA
9-1-82	
FHWA APPROVAL DATE: 6-20-80	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
RETAINING WALL, WING WALL, AND CANTILEVER ABUTMENT DRAINAGE SYSTEMS
NO. RW(0.01)-80-100 SHEET 1

** Do not place any year built markings and/or junction boxes in this area where approach traffic barrier is called for, so as to allow for attachment of traffic barrier end anchorage.



ELEVATION
Scale: 1/2" = 1'-0"



SECTION A-A
Scale: 1/2" = 1'-0"

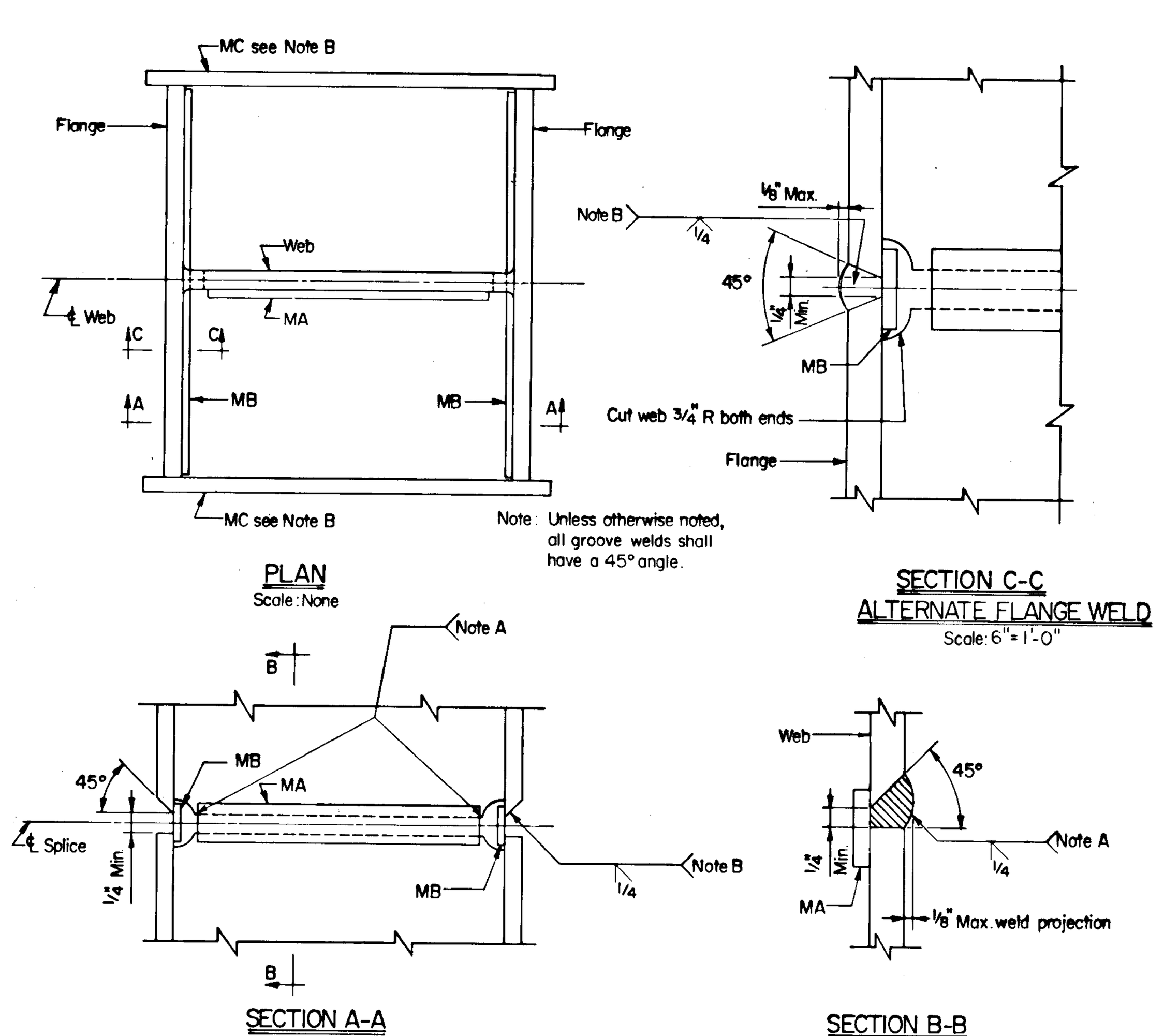
GROOVE DETAIL
Scale: 6" = 1'-0"

*In order to insure a smooth and acceptable surface, Section 608.03.05 (Construction Joints) will be strictly adhered to.

Notes:
1. All longitudinal bars are #5 spaced as shown, maximum spacing 1'-3".
2. All keys are nominal size.

APPROVAL	
(signature) DEPUTY CHIEF ENGR. BRIDGE DEVEL. DATE 8/13/84	
REVISIONS	
SHA	FHWA
8-1-85	
11-10-86	
FHWA APPROVAL DATE: 11-8-84	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
BRIDGE END POST (WITH SIDEWALK) FOR BRIDGE WITH FENCE OR RAILING
NO. BR-SB(6.05)-84-162 SHEET 1 OF 1



PLAN
Scale: None

SECTION C-C
ALTERNATE FLANGE WELD
Scale: 6" = 1'-0"

SECTION A-A
Scale: None

SECTION B-B
Scale: 6" = 1'-0"

All material to be ASTM A-36.

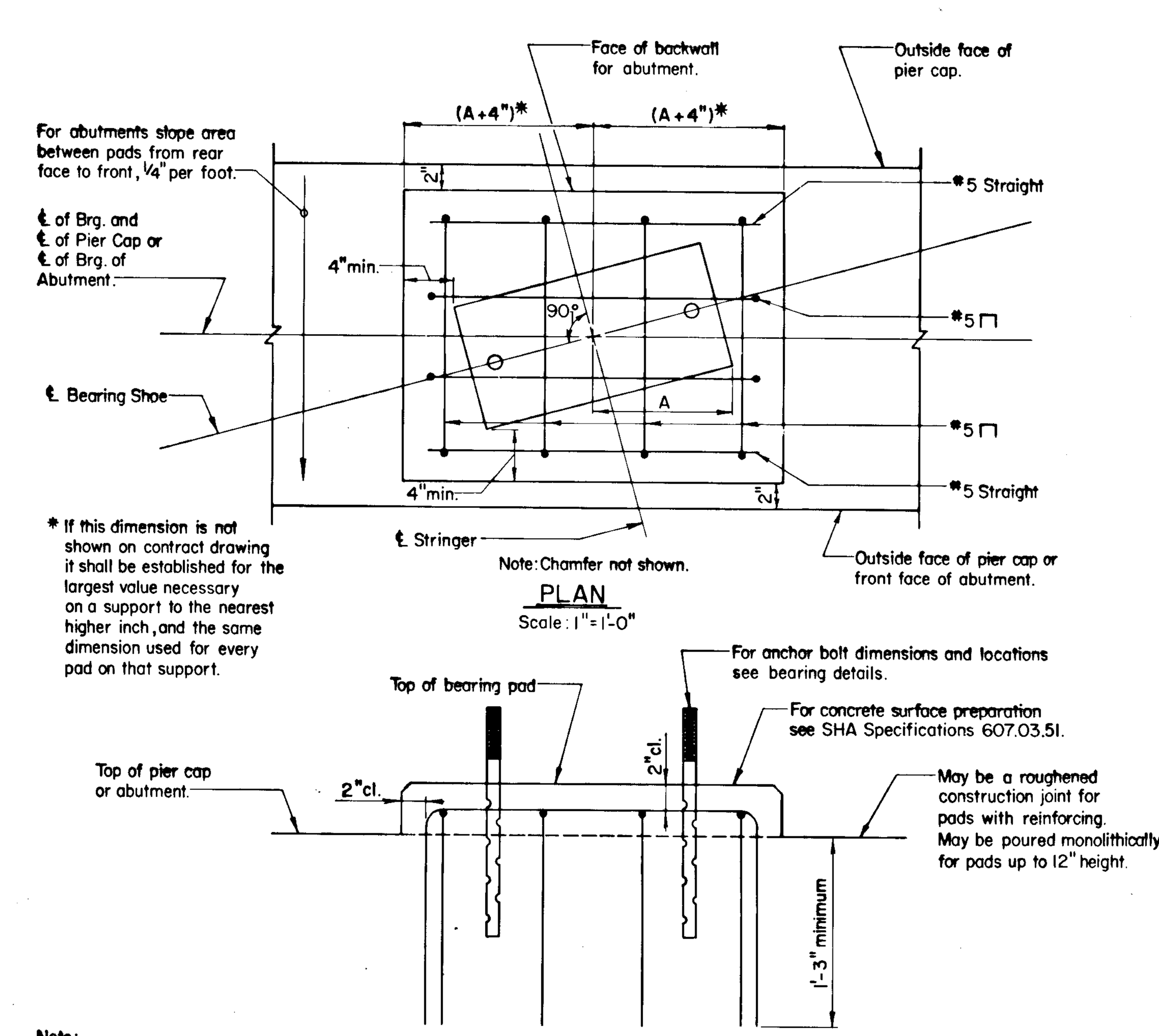
Material Required:

For HP 10 x 42	1 Bar MA	1" x 3/16" x 7 1/4"
	2 Bars MB	1" x 3/16" x 10"
	2 Bars MC	3" x 3/8" x 11"
For HP 12 x 53	1 Bar MA	1" x 3/16" x 9 3/8"
	2 Bars MB	1" x 3/16" x 1'-0"
	2 Bars MC	3" x 3/8" x 1'-1"
For HP 14 x 73	1 Bar MA	1" x 3/16" x 1'-0"
	2 Bars MB	1" x 3/16" x 1'-2 1/2"
	2 Bars MC	3" x 3/8" x 1'-3"

Note A:
End of weld to be smooth and flush with web cut, 1/4" min. effective throat.
Note B:
Bar MC to be tack welded to flange at splice to back up end of flange weld, remove MC after weld is completed. End of weld must be smooth and flush with edge of flange. Grind weld smooth with edge of flange if pile is unsupported in weld area such as: in air, water, or soft mud, 1/4" min. effective throat.
Note C:
Let welds cool to air temperature before driving pile.
Note D:
No pile splicing to be allowed on any portion of pile that is to remain exposed or be above finished ground line in completed structure.

APPROVAL	
(signature) CHIEF, BUREAU OF BRIDGE DESIGN DATE 6/20/75	
REVISIONS	
S.H.A.	F.H.W.A.
9-26-83	
4-10-86	
F.H.W.A. APPROVAL DATE: 8-24-76	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
STEEL H PILE SPLICE DETAILS
NO. BR-FD(0.01)-75-15 SHEET 1 OF 1



PLAN
Scale: 1" = 1'-0"

ELEVATION
Scale: 1" = 1'-0"

Note:
1. If pad height is less than 4" (at ℄ of Bearing), all dimensions, etc. shown on this sheet will prevail except no reinforcing steel will be required and pad must be poured monolithically with support.
2. Anchor bolts shall be set in round holes drilled or cored into the masonry.
3. The drilled or cored holes shall have a diameter of at least 1" larger than the diameter of the bolts.
4. Holes shall be filled with non-shrink grout. Non-shrink grout shall have a min. comp. strength of 5000 p.s.i. in 7 days when tested in accordance with AASHTO T 106, except that the cube molds shall remain intact with a top firmly attached throughout the curing period. The non-shrink grout shall have a min. expansion of 0.0% after 7 days when tested in accordance with AASHTO T-160.
5. For size of pad see pertinent substructure sheets.
6. Space reinforcing steel to clear anchor bolts.

APPROVAL	
(signature) ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 10/15/80	
REVISIONS	
SHA	FHWA
3-30-83	
5-5-83	
9-25-87	
FHWA APPROVAL DATE: 2-27-81	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
BEARING PAD WHERE ONLY A SINGLE SHOE IS REQUIRED ON A SUPPORT
NO. BR-SB(6.02)-80-121 SHEET 1 OF 1

HO 140

REV. NO	REV. DATE	REVISIONS

PARKWAY CORPORATE CENTER
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

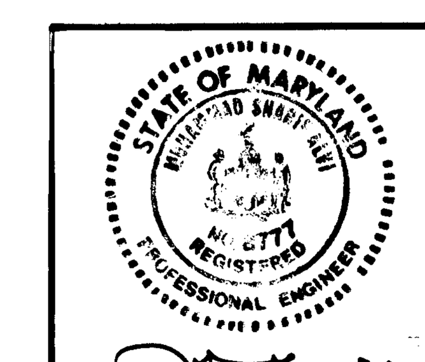
HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE:
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
STANDARDS

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218



HLVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-12

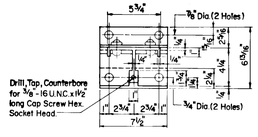
F-88-55

1314

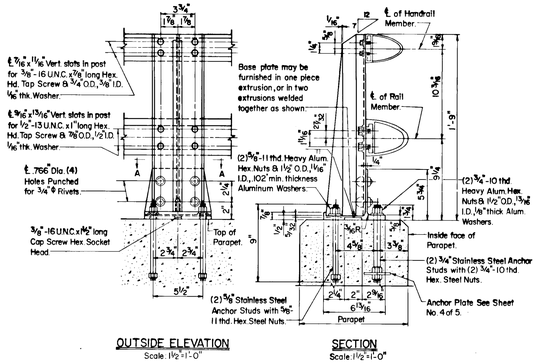
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
DATE 12-23-87
CHIEF, LAND DEVELOPMENT DIVISION
Granville W. Welland 12/28/87
CHIEF, BUREAU OF HIGHWAYS DATE
12/28/87
CHIEF, BUREAU OF ENGINEERING DATE
CHIEF, OFFICE OF PLANNING AND ZONING
DATE
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE

GENERAL NOTES

1. All railings shall be fabricated and erected as indicated on the Plans.
2. Posts shall be set perpendicular to top of parapet. For post spacing see Plans. (Maximum 8'-0" Spacing).
3. Rails shall be parallel to the grade of the roadway. Rail section shall be attached to as many posts as possible, but not less than three (except where indicated otherwise on Plans).
4. The centerline of any splice and/or expansion joint shall be located at least 2'-0" away from centerline of a post except where indicated otherwise on Plans. Expansion and/or splice joints for each strand of two strand railing shall be placed in the same location and in the same panel.
5. Material for rails, posts (including bases), splices and clamp bars shall meet the requirements of ASTM B 221, Alloy 6061 T6. Rails shall have a mill finish. Posts shall have a mill finish except that any sawed surfaces shall have a finish comparable to 250 Microinch. Rails and splices may meet the requirements of ASTM B 221, Alloy 6351 T5 for chemical composition only.
6. Material for rail end plates shall meet the requirements of ASTM B 209, Alloy 6061 T6. Material for cast rail end caps shall meet the requirements of ASTM B 108, Alloy SC 70A, 55A; and 57A for chemical composition only.
7. Material for anchor studs shall meet the requirements of ASTM A276, Type 304 Stainless Steel, annealed, hot finished, ultimate strength 70 000 psi, 20 percent minimum elongation. Threads may be rolled or cut.
8. Material for heavy hex nuts shall meet the requirements of ASTM B 211, Alloy 6061 T6 or 6262 T9.
9. Material for steel nuts shall meet the requirements of ASTM A 307.
10. Material for aluminum washers shall be Alcad meeting the requirements of ASTM B 209, Alloy 6061 T6 or 7075 T6.
11. Material for rivets shall meet the requirements of ASTM B 316, Alloy 6061 T6 and 6053 T61 for chemical composition only and MIL-R-150 in all other respects. The rivets shall be button head and cone point and shall be cold driven.
12. Bolts may be used in lieu of rivets for connecting post to post base plate. Material for bolts shall be of stainless steel meeting the requirements of ASTM A 193 identification Symbol B-8. Nuts shall meet the requirements of ASTM A 194 Type 8 or 8 NA. Material for washers shall meet the requirements of ASTM A 276, Type 304. Specified torque level for bolts connecting base plate to post shall be 150 to 175 ft-lb. Burr threads by centerpunching at top of nut. Punch marks shall be spaced at 120 degrees.
13. Material for clamp bar tap screws and cap screws shall be stainless steel meeting the requirements of ASTM A 193, Identification Symbol B8.
14. Material for anchor plates shall be steel meeting the requirements of ASTM A 36.
15. Material for pins shall be Alloy 6061 T6 and pins shall be press fit.
16. Bottom of post bases shall be thoroughly coated with a bituminous paint meeting the requirements of MIL-P-6863.
17. Weld metal for the welded base plate shall be 5356 A-1.

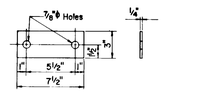


SECTION A-A
Scale: 1½" = 1'-0"

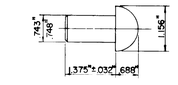


OUTSIDE ELEVATION
Scale: 1½" = 1'-0"

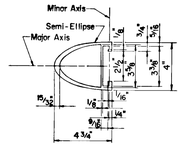
SECTION
Scale: 1½" = 1'-0"



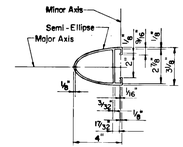
ANCHOR PLATE
Scale: 1½" = 1'-0"



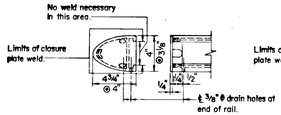
RIVET
Scale: 6" = 1'-0"



RAIL MEMBER
Scale: None

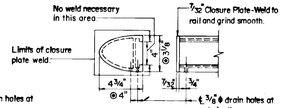


HANDRAIL MEMBER
Scale: None

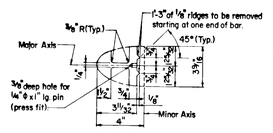


CAST RAIL END CAP
Scale: 1½" = 1'-0"

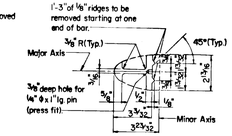
Note:
At Contractors option, cast rail end caps may be substituted for rail end plates.
Open ends of all Handrails and Rails shall be closed.
Dimensions indicated thus ⊛ apply to Handrail. Other dimensions apply to Rail.



RAIL END PLATE
Scale: 1½" = 1'-0"



SECTION THRU SPLICE AND/OR EXPANSION BAR FOR RAIL MEMBER
Scale: None



SECTION THRU SPLICE AND/OR EXPANSION BAR FOR HANDRAIL MEMBER
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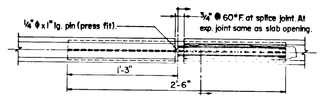
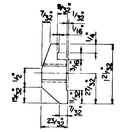
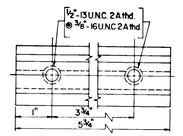


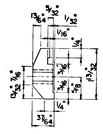
ELEVATION JOINT DETAIL
Scale: None



RAIL MEMBER SECTION



ELEVATION CLAMP BAR DETAILS
Scale: 6" = 1'-0"
(⊛ Applies To Handrail Only).



HANDRAIL MEMBER SECTION

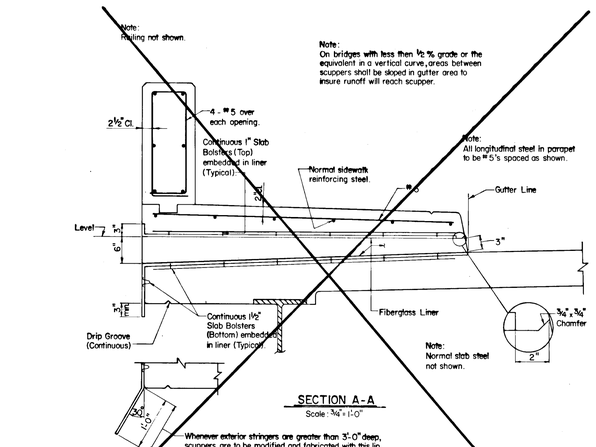
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF BRIDGE DEVELOPMENT GENERAL NOTES ALUMINUM BRIDGE RAILING
CHIEF, DIV. BRIDGE DEVEL. DATE 8/28/77	
REVISIONS: SHA 7-3-79, 6-4-80; FHWA 7-3-79, 6-18-80	
FHWA APPROVAL DATE: 8-27-87	NO. BR-SS(5.01)76-35 SHEET 1 OF 5

Note:
For all exposed and/or sawed edges - break all edges - (no radius involved).

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT TWO STRAND ALUMINUM BRIDGE RAILING
CHIEF, BUREAU OF BRIDGE DESIGN DATE 8/28/77	
REVISIONS: SHA, FHWA	
FHWA APPROVAL DATE 2-25-77	STANDARD NO. BR-SS(5.01)-76-35 SHEET 2 OF 5

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT MISCELLANEOUS DETAILS ALUMINUM BRIDGE RAILING
CHIEF, BUREAU OF BRIDGE DESIGN DATE 8/28/77	
REVISIONS: SHA, FHWA	
FHWA APPROVAL DATE 2-25-77	STANDARD NO. BR-SS(5.01)76-35 SHEET 4 OF 5

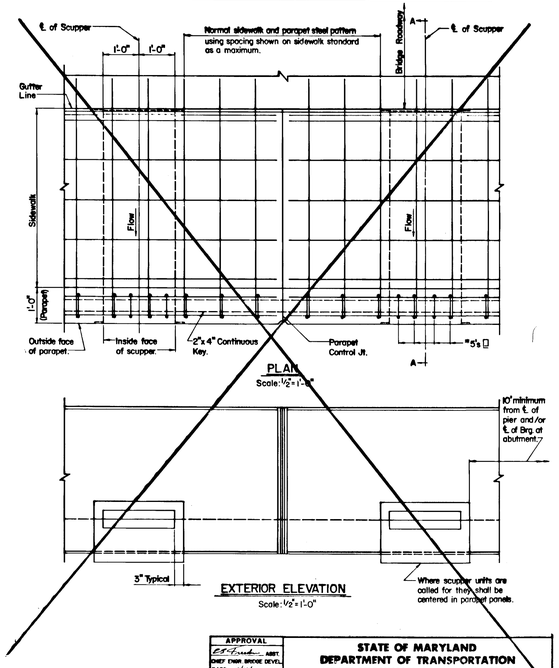
APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT MISCELLANEOUS DETAILS ALUMINUM BRIDGE RAILING
CHIEF, BUREAU OF BRIDGE DESIGN DATE 8/28/77	
REVISIONS: SHA, FHWA	
FHWA APPROVAL DATE 2-25-77	STANDARD NO. BR-SS(5.01)76-35 SHEET 5 OF 5



SECTION A-A
Scale: ¾" = 1'-0"

Notes:
1. Fiberglass lining shall extend 3" beyond sides and top of opening on exterior face of parapet and 3" min. below bottom of slab on exterior face of parapet. Slab bolsters shall have upturned feet embedded in the fiberglass.
2. Grill openings in panels 10' each side of piers and abutments and in those sections which carry light post support brackets.
   Normal parapet and sidewalk reinforcing shall be provided in all sections without openings.
3. Fiberglass shall conform to the following requirements:
   The material shall have a density of 125 g/cm³ min. as determined by A.S.T.M. D792. It shall not have an absorption of more than 10 percent as measured by A.S.T.M. D570.
   The tensile strength of the material shall be measured in the longitudinal and transverse directions on specimens cut to an approximate size of ½" x 6". When tested in accordance with A.S.T.M. D638, the average of 5 specimens in each direction shall yield a 10,000 p.s.i. minimum strength.
   The thickness shall be ⅜₆ (+⅛ -0") unless otherwise noted. The surfaces of the fiberglass designed to bond with other materials shall be free of bond inhibiting agents. The color shall match Federal Standard 595-26622 gray.

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT TYPE III BRIDGE SCUPPER
ASST. CHIEF, DIV. BRIDGE DEVEL. DATE 4/19/83	
REVISIONS: SHA 6-2-83, 4-10-86; FHWA	
FHWA APPROVAL DATE	NO. BR-SS(0.06)-83-144 SHEET 1 OF 2



PLAN
Scale: ½" = 1'-0"

EXTERIOR ELEVATION
Scale: ½" = 1'-0"

APPROVAL	STATE OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT TYPE III BRIDGE SCUPPER
ASST. CHIEF, DIV. BRIDGE DEVEL. DATE 4/19/83	
REVISIONS: SHA, FHWA	
FHWA APPROVAL DATE 11-29-85	STANDARD NO. BR-SS(0.06)-83-144 SHEET 2 OF 2

H0 140

REV. NO	REV. DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
STANDARDS

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-13

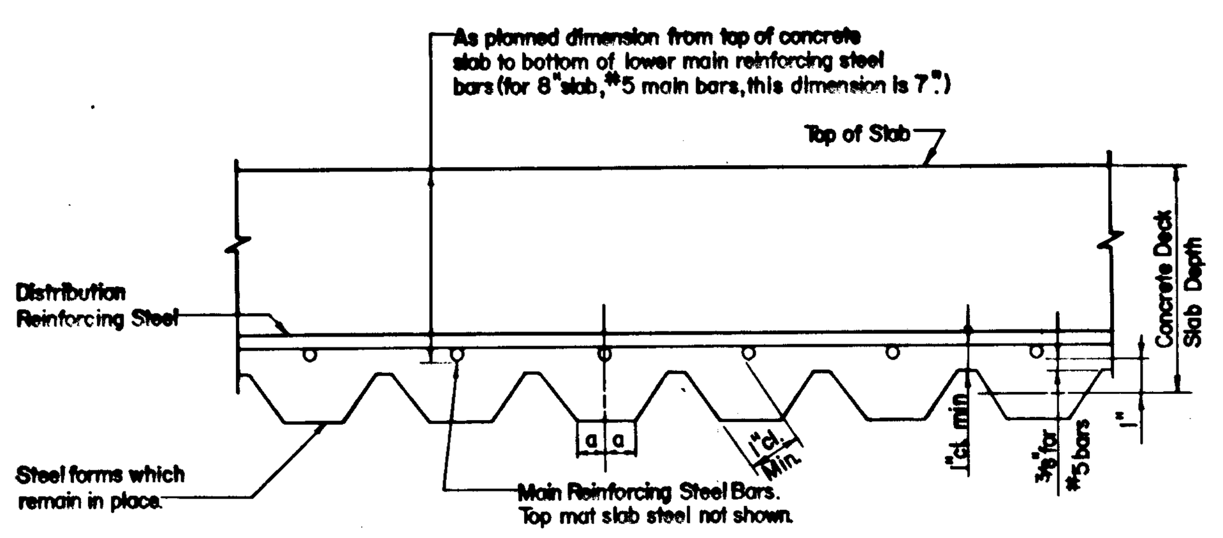
STATE OF MARYLAND — 6777 — PROFESSIONAL ENGINEER

12/14

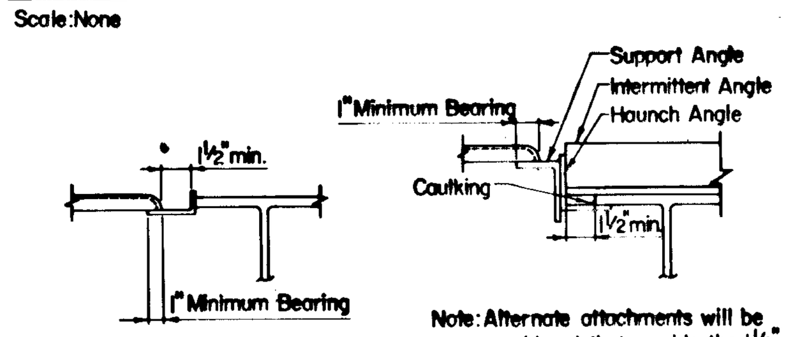
F-88-55 SHEET 26 OF 43

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, LAND DEVELOPMENT DIVISION	12-23-87 DATE
CHIEF, BUREAU OF HIGHWAYS	12/28/87 DATE
CHIEF, BUREAU OF ENGINEERING	12/28/87 DATE
OFFICE OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION	12/29/87 DATE

Note:
1. The Contractor has the option of substituting the Ancel Frame Scaffolding System for steel forms which remain in place with the following exceptions:
a) Bridges over existing highways.
b) Bridges over high speed or electrified railroads.
2. Ancel Frames may never be used on any fracture critical member.
3. The Contractor has the option of substituting the Ancel Frame Scaffolding System for conventional overhang brackets on fascia stringers with the following exceptions:
a) Bridges over new or existing highways.
b) Bridges over navigable waterways with underclearance less than 30 feet.
4. In any instance where studs are allowed they shall remain in place.



SECTION
Scale: None



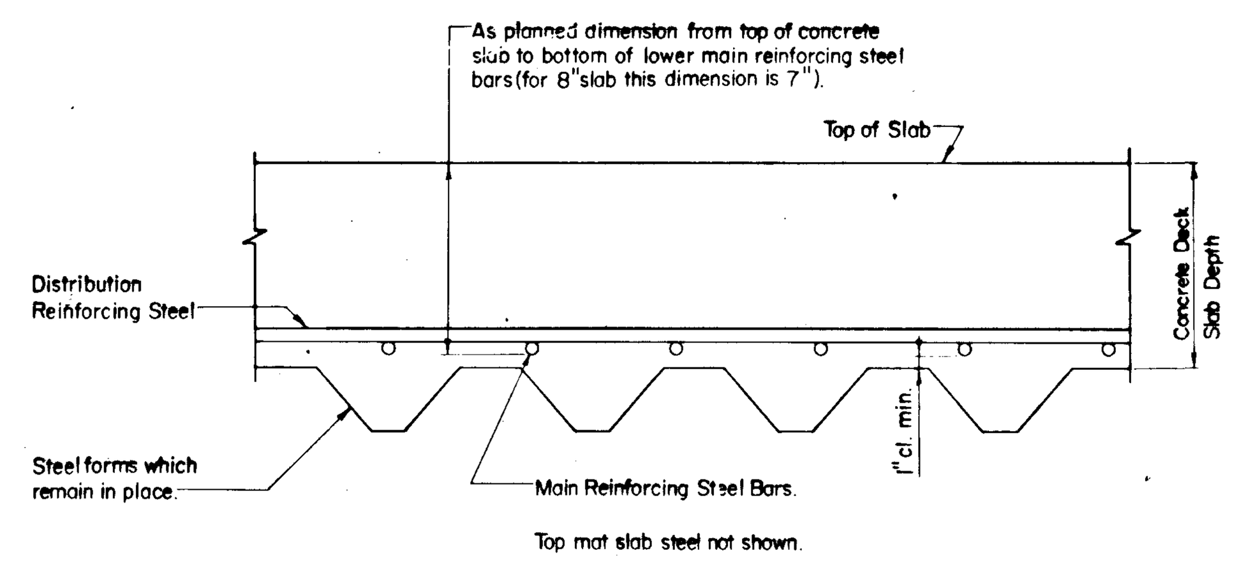
Note: Alternate attachments will be considered, that provide the 1½" concrete encasement of top flange.

WHERE FORM IS BELOW BOTTOM OF FLANGE AND THERE ARE NO SHEAR CONNECTORS

WHERE FORM IS ABOVE BOTTOM OF FLANGE AND THERE ARE NO SHEAR CONNECTORS

Note:
1. Permanent steel bridge deck forms and supports shall meet the requirements of Section 914.21 of the Specifications. Design Span shall be the clear distance between beam and/or girder flanges less two (2) inches.
2. No welding of these forms to parts carrying tension will be permitted. These forms shall be vertically adjusted to attain line and grade as required.
3. Any permanently exposed form metal where the galvanized coating has been damaged shall be thoroughly cleaned, wire brushed and painted with two coats of zinc oxide-zinc dust primer, Federal Specification TT-P-641d, Type II, no color added, to the satisfaction of the engineer. Minor heat discoloration in areas of welds need not be touched up.
4. Contractor has option of using this detail or that shown on 2 of 2, except for bridge decks with curved stringers or bridge with a flared re-bar pattern. For bridge with curved stringers or bridge with a flared re-bar pattern only the detail shown on sheet 2 of 2 can be used.
5. Where shear connections are utilized, normal manufacturers detailing may be utilized at stringer flange.

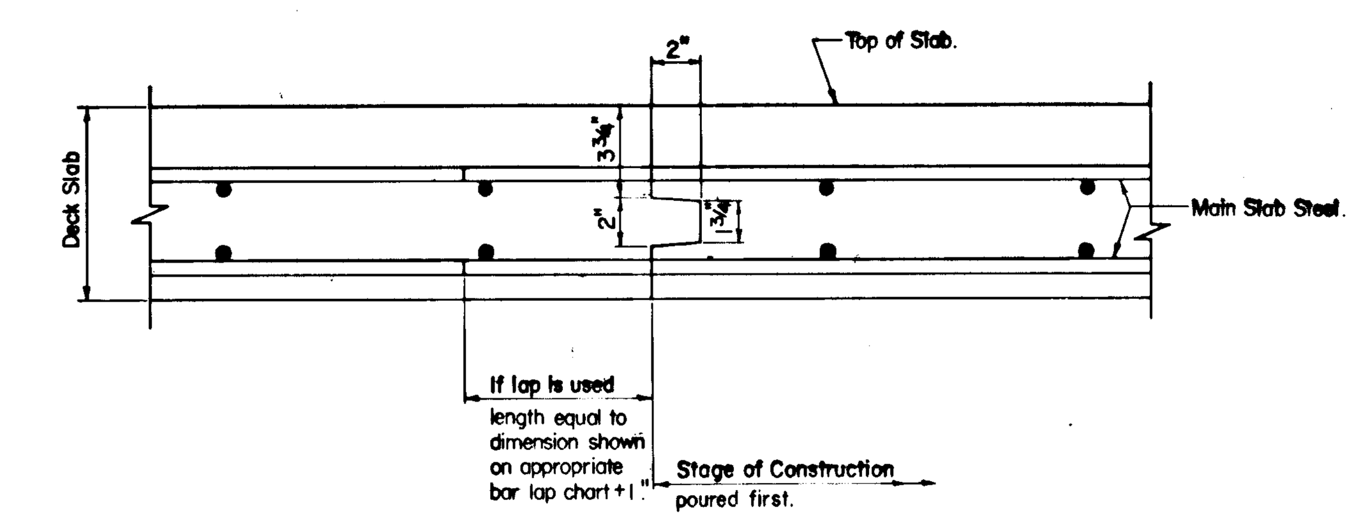
APPROVAL		STATE OF MARYLAND
CHIEF, BUREAU OF BRIDGE DESIGN DATE 9/8/76		DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT
REVISIONS		STEEL FORMS WHICH REMAIN IN PLACE FOR CONCRETE SLABS ON STEEL STRINGERS RE-BARS ALIGNED WITH TROUGHS
SHA	FHWA	
12-28-79	6-20-80	
6-1-83	2-28-85	
9-18-84	2-28-85	
3-22-85	11-29-85	FHWA APPROVAL
5-21-85	11-29-85	DATE: 11-9-76
		STANDARD NO. BR-SS(6.06)-75-29 SHEET 1 OF 2



SECTION
Scale: None

Note:
1. For notes see sheet 1 of 2.
2. This detail is acceptable only on structures where the General Notes under "Loading" states "and 15 pounds per square foot for use of bridge deck forms".

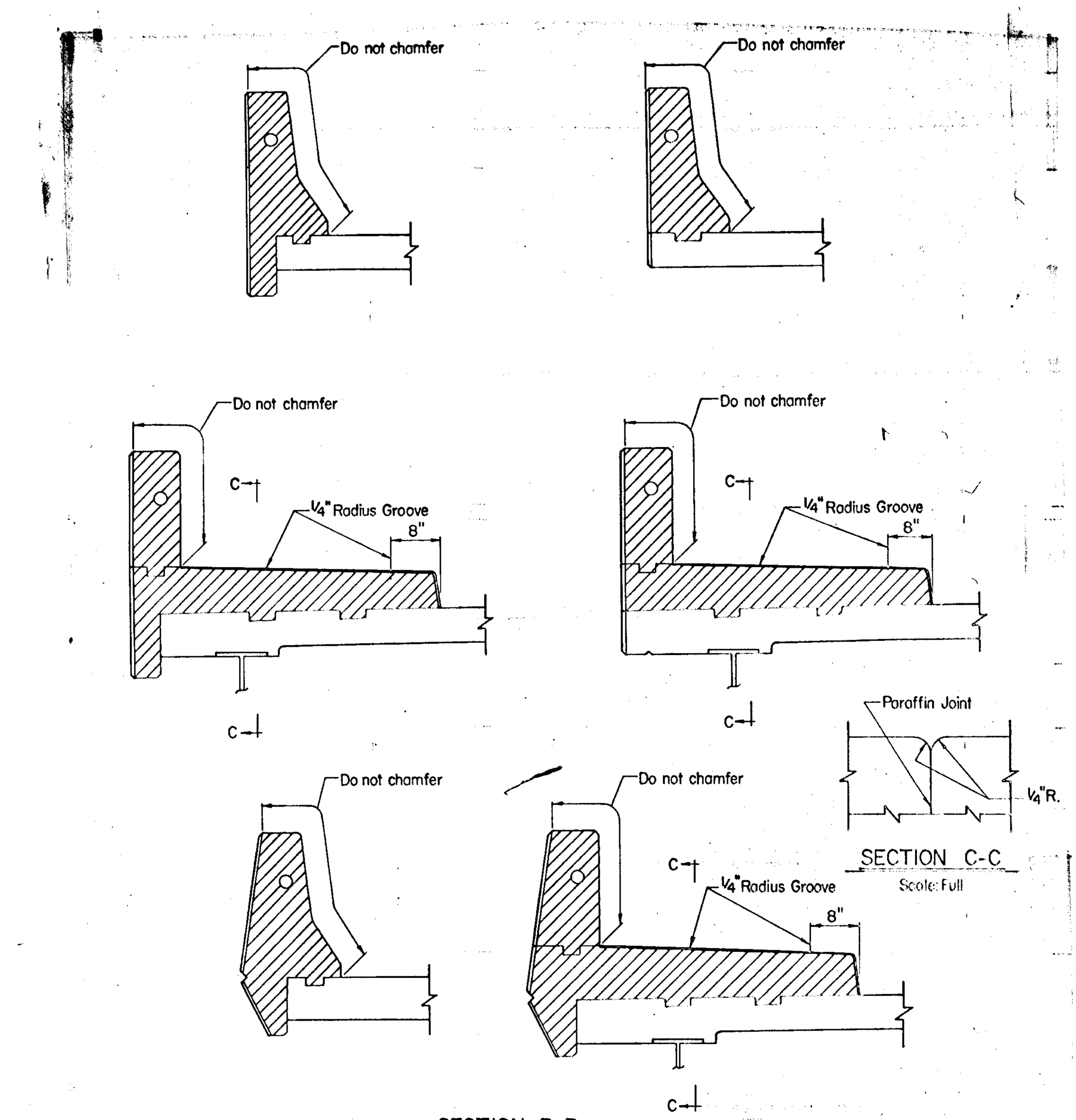
APPROVAL		STATE OF MARYLAND
ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 1/29/80		DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT
REVISIONS		STEEL FORMS WHICH REMAIN IN PLACE FOR CONCRETE SLABS ON STEEL STRINGERS RE-BARS INDEPENDENT OF TROUGHS
SHA	FHWA	
FHWA APPROVAL	DATE 6-20-80	STANDARD NO. BR-SS(6.06)-75-29 SHEET 2 OF 2



SECTION
Scale: 1½"=1'-0"

Note:
1. Reinforcing steel to be continuous thru joint. Longitudinal joint shown, transverse joint similar.
2. Entire face of construction joint shall be coated with an approved epoxy bonding compound.

APPROVAL		STATE OF MARYLAND
CHIEF, BUREAU OF BRIDGE DESIGN DATE 1/6/78		DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT
REVISIONS		BRIDGE DECK SLAB CONSTRUCTION JOINT
SHA	FHWA	
9-21-79	12-12-79	
10-5-82	2-23-84	
12-12-83	2-23-84	
7-5-84	11-8-84	FHWA APPROVAL DATE: 1-31-78
		STANDARD NO. BR-SS(6.07)-77-68 SHEET 1 OF 1

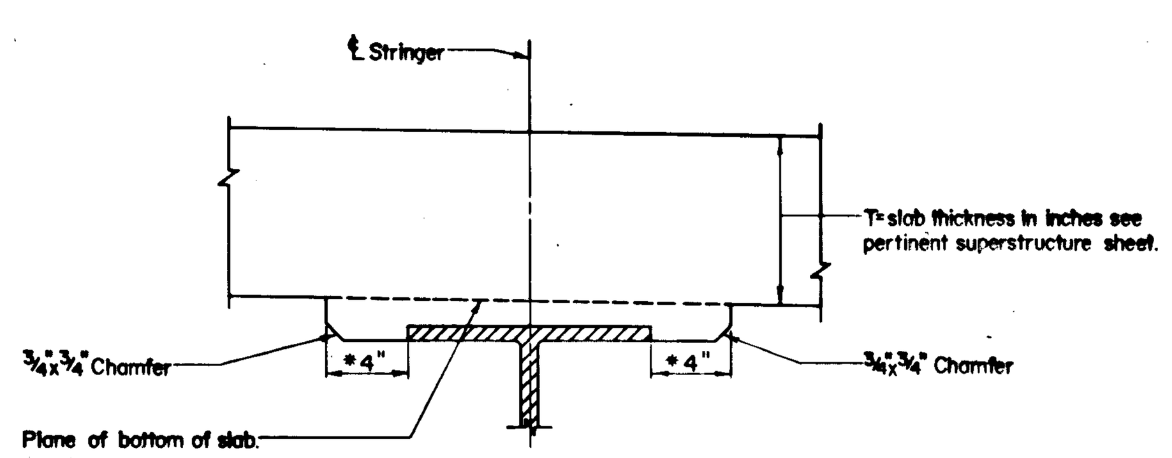


SECTION C-C
Scale: Full

SECTION B-B
Scale: 3/8"=1'-0"

Notes:
1. Paraffin joint shown hatched.
2. Railing and/or fencing not shown.

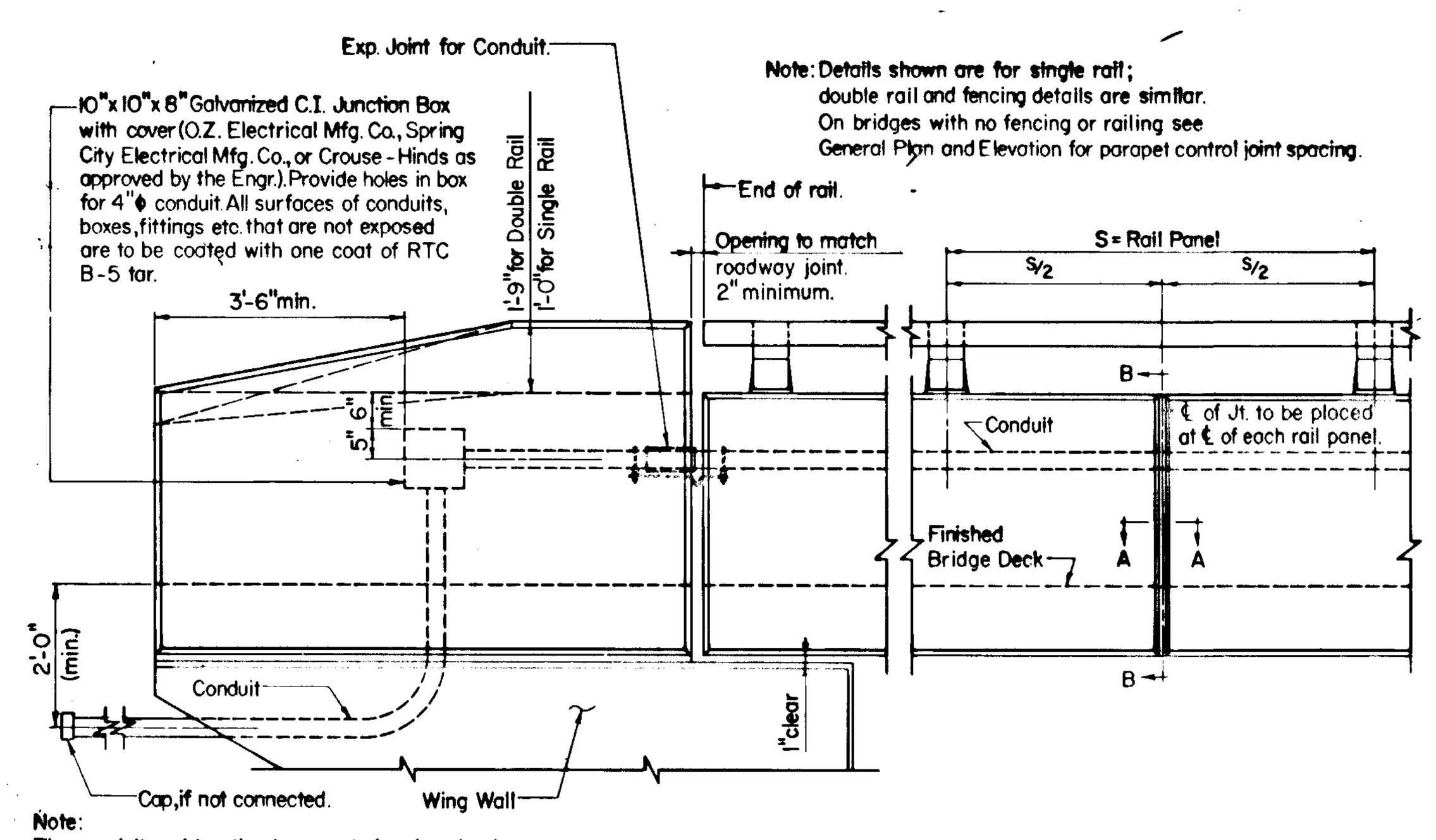
APPROVAL		STATE OF MARYLAND
DEPUTY CHIEF ENGR. BRIDGE DEVEL. DATE 2/9/81		DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT
REVISIONS		PARAPET CONTROL JOINTS AND CONDUIT PLACEMENT
SHA	FHWA	
7-5-84	11-8-84	
FHWA APPROVAL	DATE: 3-17-81	STANDARD NO. BR-SS(6.09)-84(78)-70 SHEET 2 OF 2



SECTION
Scale: None

Note:
1. *Omit concrete haunch by dropping bottom of concrete slab to bottom of top flange on spans of 30'-0" or less c/c of bearings.

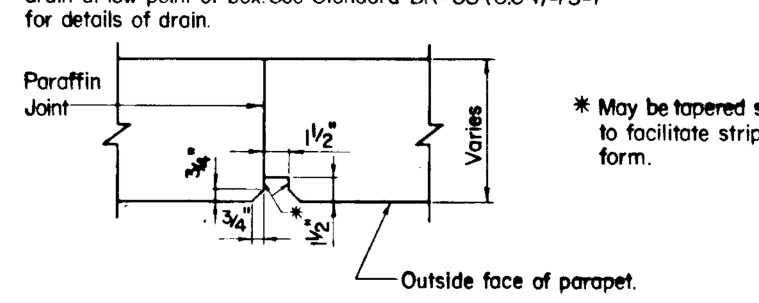
APPROVAL		STATE OF MARYLAND
ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 11/15/79		DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT
REVISIONS		CONCRETE HAUNCH DETAIL FOR BRIDGE DECKS FORMED WITH TIMBER
SHA	FHWA	
FHWA APPROVAL	DATE: 12-12-79	STANDARD NO. BR-SS(6.17)-79-98 SHEET 1 OF 1



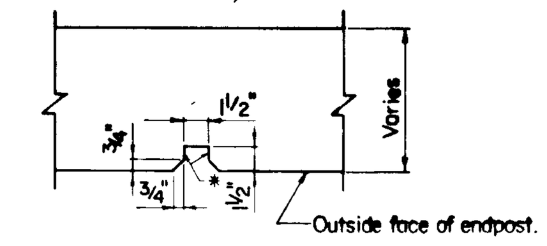
Note: Details shown are for single rail; double rail and fencing details are similar. On bridges with no fencing or railing see General Plan and Elevation for parapet control joint spacing.

Note:
The conduit and junction box are to be placed only when indicated in the Superstructure "Typical Section." If ℄ to ℄ of end junction boxes exceeds 175', then additional junction boxes shall be placed in parapet, between control joints, so that the maximum distance between boxes is 175'. Junction boxes for light standards, may be utilized. All intermediate junction boxes to have ½"ϕ drain at low point of box. See Standard BR-SS(6.04)-75-7 for details of drain.

ELEVATION
Scale: 3/8"=1'-0"



* May be tapered slightly to facilitate stripping form.



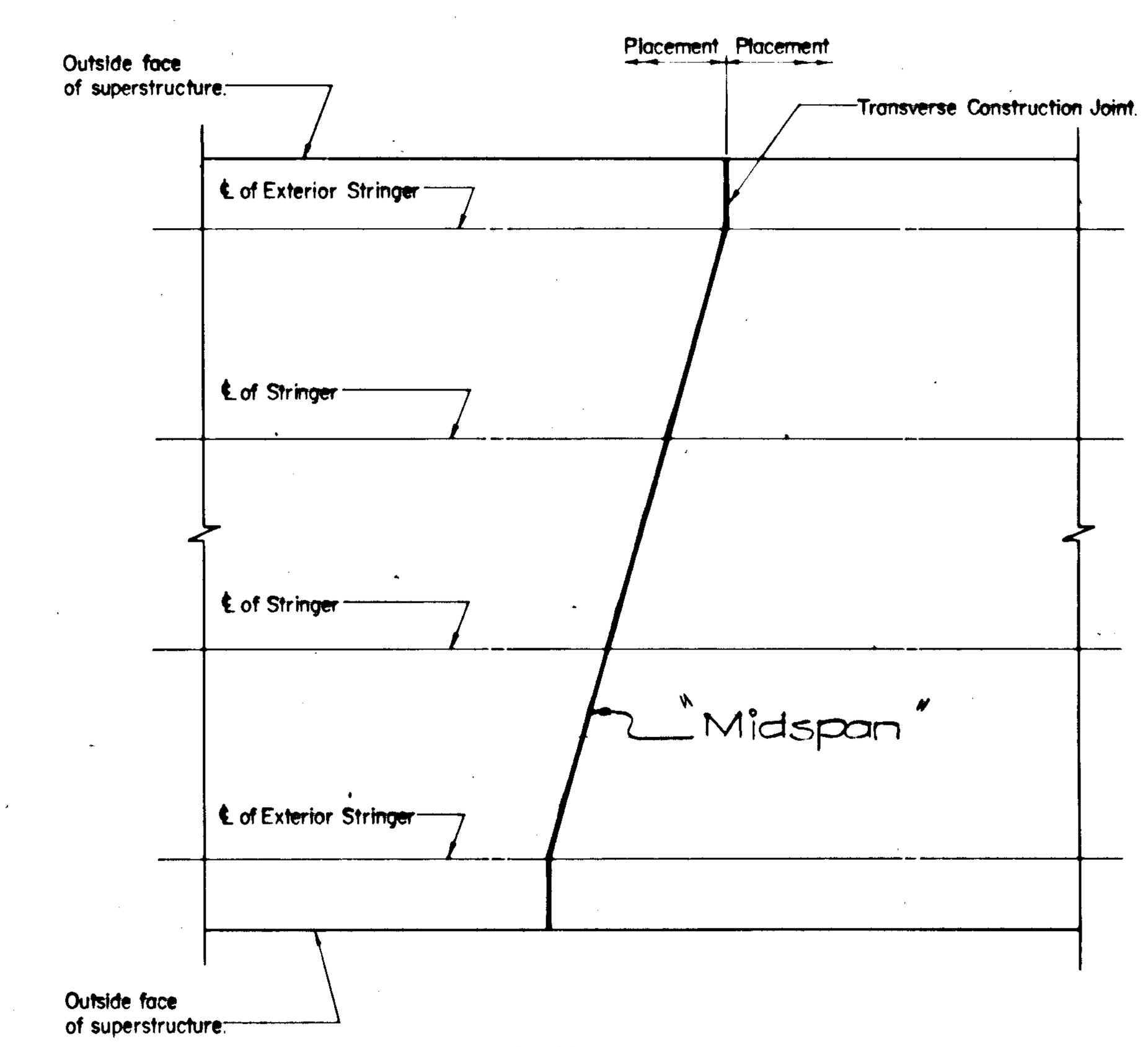
Use this detail only when grooves are shown on General Plan and Elevation.

SECTION A-A
Scale: None

DETAIL OF VERTICAL ARCHITECTURAL GROOVE FOR END POSTS
Scale: None

Note:
1. Place vertical paraffin joint at center of every rail panel. Joints shall be formed by placing alternate sections.
2. The placements of adjacent sections shall have a 40 hour delay between placements.
3. A paraffin coating shall be applied at every joint.
4. No reinforcing steel shall pass through joint.
5. Conduit may be either PVC or Galvanized Pipe.

APPROVAL		STATE OF MARYLAND
CHIEF, BUREAU OF BRIDGE DESIGN DATE 4/13/78		DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT
REVISIONS		PARAPET CONTROL JOINTS AND CONDUIT PLACEMENT
SHA	FHWA	
4-5-84	11-8-84	
6-20-84	11-8-84	
7-20-84	11-8-84	FHWA APPROVAL
6-11-86		DATE: 10-17-78
		NO. BR-SS(6.09)-78-70 SHEET 1 OF 2



PLAN
Scale: None

Note:
For detail of construction joint see Standard No. BR-SS(6.07)-77-68.

APPROVAL		STATE OF MARYLAND
CHIEF, BUREAU OF BRIDGE DESIGN DATE 4/12/78		DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION DIVISION OF BRIDGE DEVELOPMENT
REVISIONS		LAYOUT OF TRANSVERSE JOINT FOR SKEWED BRIDGE DECK
SHA	FHWA	
12-15-80	12-15-80	
FHWA APPROVAL	DATE: 10-17-78	STANDARD NO. BR-SS(6.08)-78-69 SHEET 1 OF 1

HO 140

REV. NO.	REV. DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

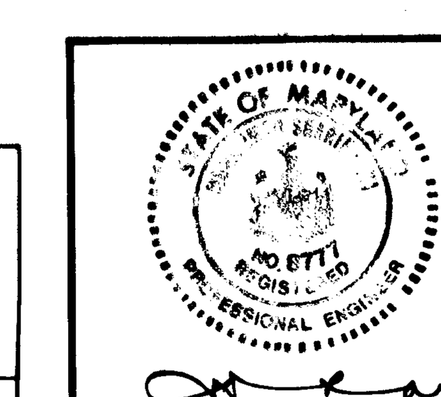
HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
STANDARDS

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218



ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-14.

F-88-55

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	DATE 12-23-87
CHIEF, BUREAU OF HIGHWAYS	DATE 12/28/87
CHIEF, BUREAU OF ENGINEERING	DATE 12/22/87
OFFICE OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION	DATE 12/30/87

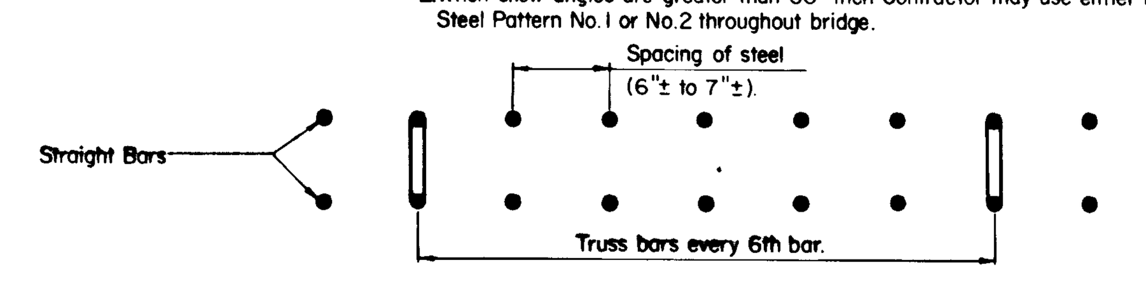
NOTES

Design:

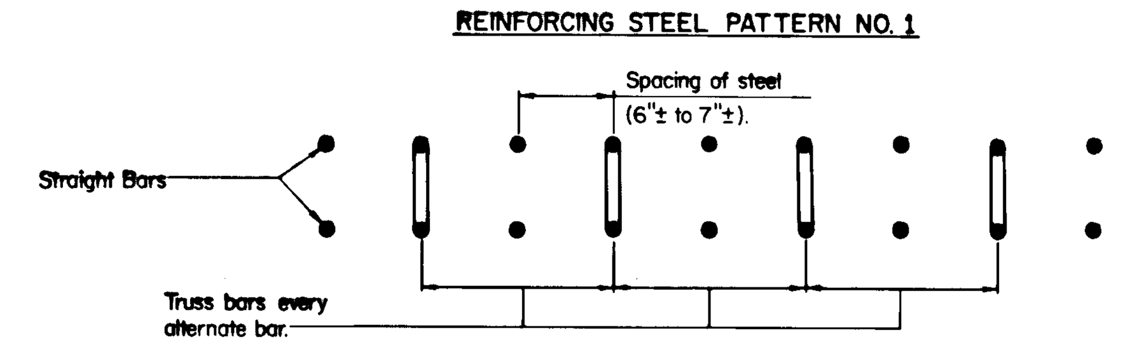
1. Latest A.A.S.H.T.O. Standard Specifications for Highway Bridges.
2. $f'_c = 4500$ p.s.i., $f_c = 0.3 f'_c = 1350$ p.s.i., $f_s = 24,000$ p.s.i.
3. Design includes provision for 2" future wearing surface.

General:

1. Transverse bars shall be placed normal to ℄ stringers, except in case of curved stringers. When stringers are curved transverse bars shall be placed radially.
2. When skew angles are greater than 60° then Contractor may use either Reinforcing Steel Pattern No. 1 or No. 2 throughout bridge.

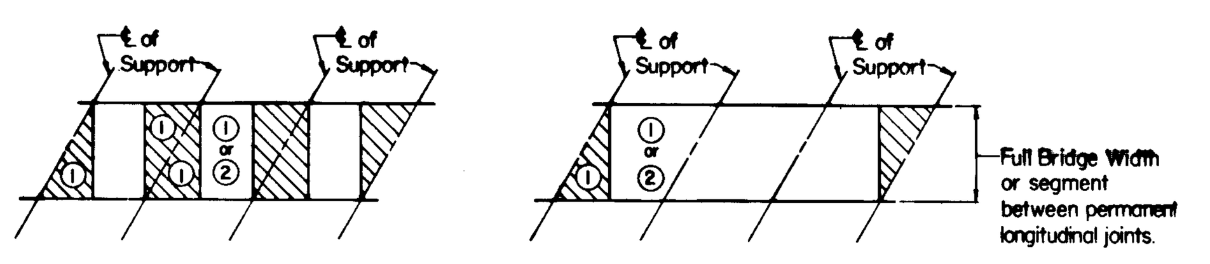


REINFORCING STEEL PATTERN NO. 1



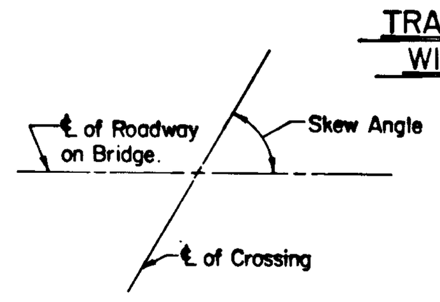
REINFORCING STEEL PATTERN NO. 2

1. The Contractor has the option of using Reinforcing Steel Pattern No. 1 or No. 2 in the unhatched portions of the decks shown below.
2. The Contractor shall use only Reinforcing Steel Pattern No. 1 in the hatched portions of the decks shown below.



TRANSVERSE BAR SPACING FOR SPANS WITH SKEW ANGLES LESS THAN 60°

Scale: 1" = 1'-0"



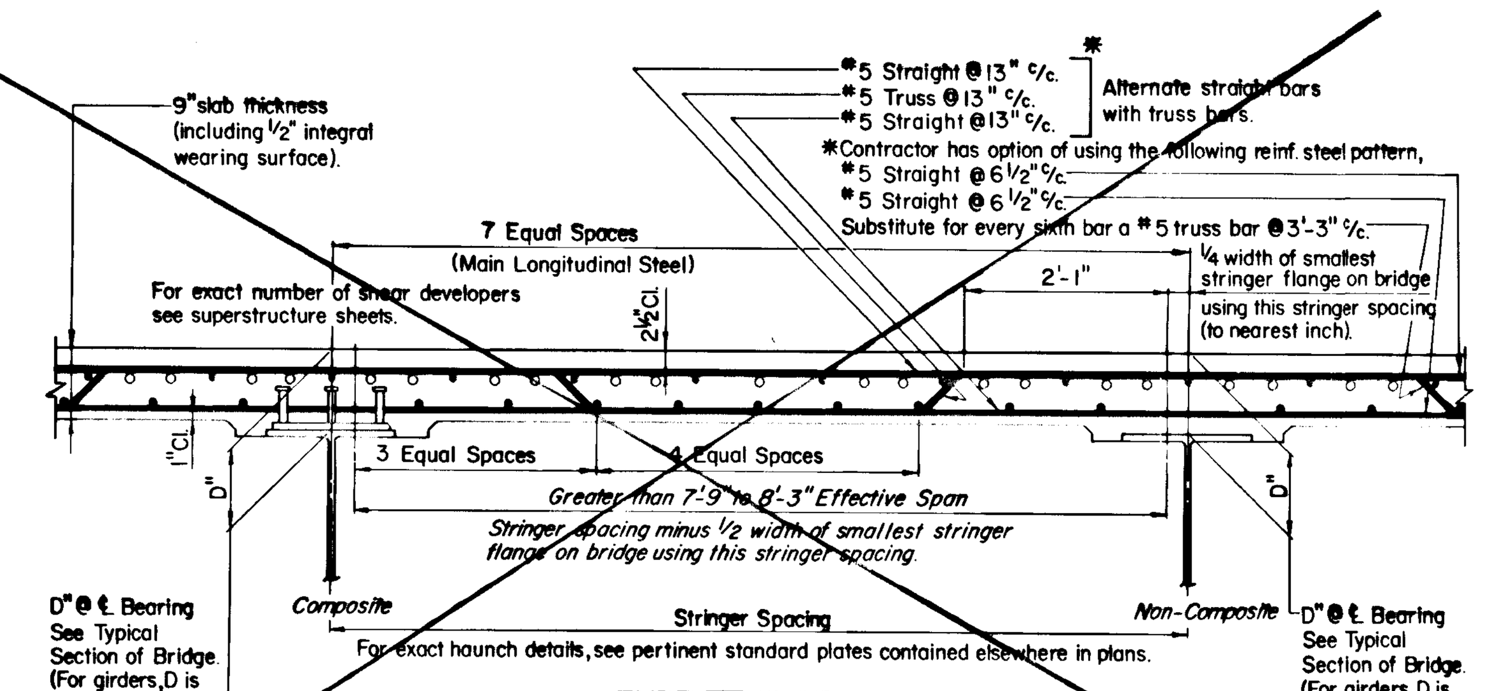
SKEW ANGLE

Scale: None

APPROVAL	
E.S. Freedman ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 12/4/79	
REVISIONS	
SHA	FHWA
11-10-81	
10-4-82	
3-1-84	
FHWA APPROVAL	
DATE:	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
BRIDGE DECK SLAB
GENERAL NOTES AND BAR SPACING

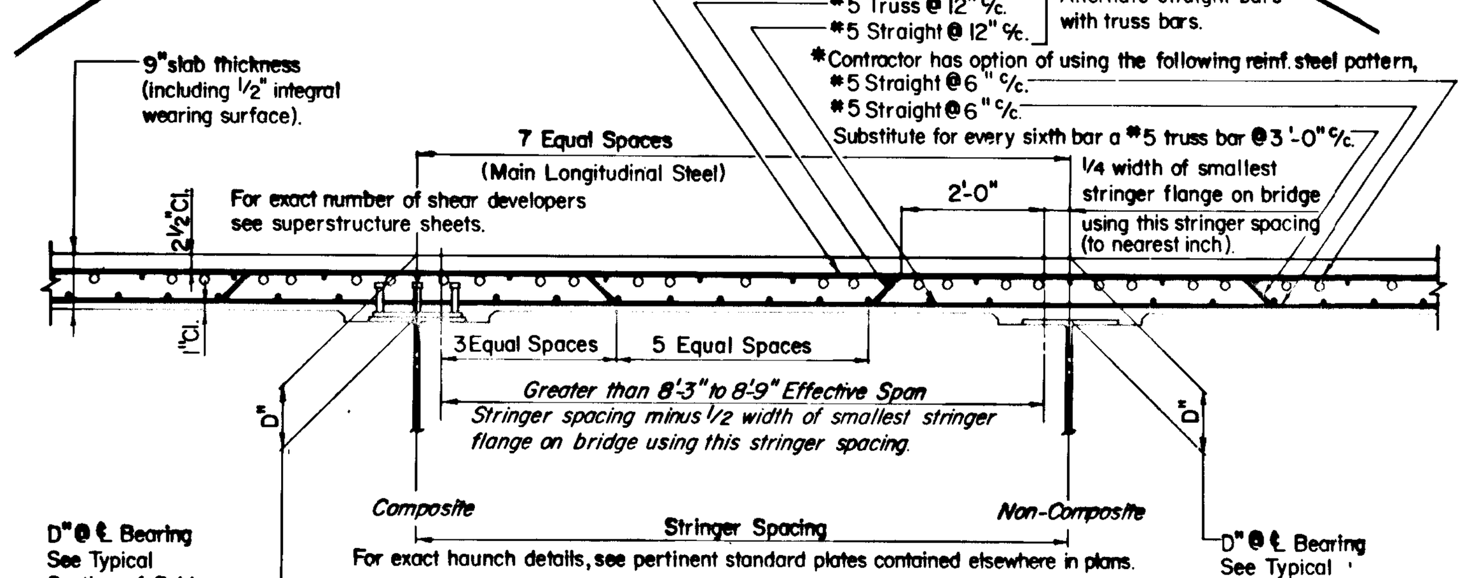
NO. BR-SS(6.11)-79-90 SHEET 1 OF 1



TYPE VII SLAB

GREATER THAN 7'-9" TO 8'-3" EFFECTIVE SPAN

Scale: 1/2" = 1'-0"



TYPE VIII SLAB

GREATER THAN 8'-3" TO 8'-9" EFFECTIVE SPAN

Scale: 3/8" = 1'-0"

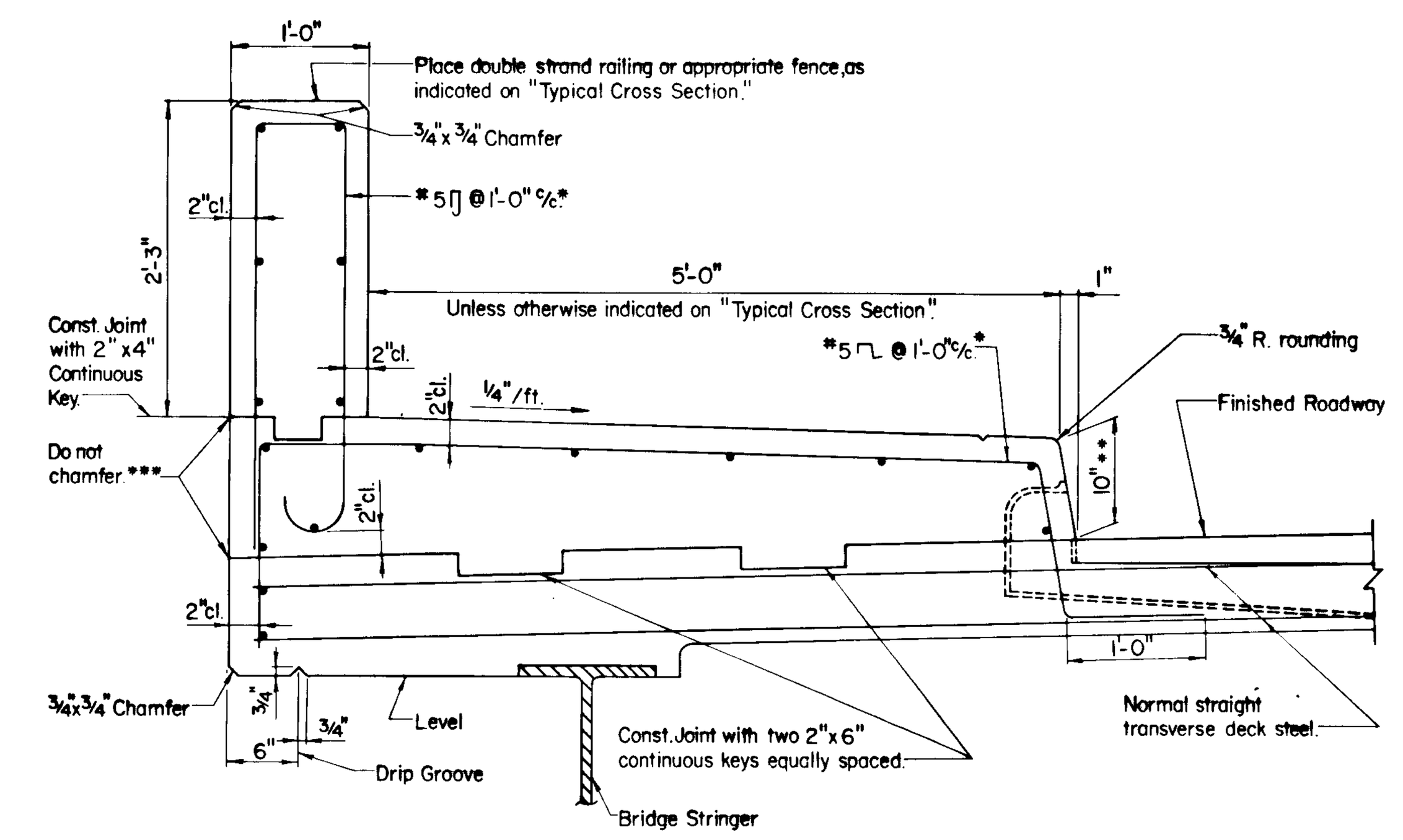
Note:

1. *Slanted lettering indicates notes "For Office Use Only".*
2. All steel sizes and spacing based on ASTM Designation A-615, Grade 60 (fs = 24,000 p.s.i.).
3. Transverse bars to be placed normal to centerline of stringers. (For curved girder see BR-SS(6.11)-79-90).
4. All longitudinal bars to be #5's placed as shown except if Note 5 requires and indicates larger bars.
5. On continuous bridges, over piers, additional longitudinal steel is to be added to the top of the slab between normal bars and is indicated thus o. See pertinent Superstructure Sheets for the lengths and size of these additional bars.

APPROVAL	
E.S. Freedman ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 12/4/79	
REVISIONS	
SHA	FHWA
8-13-80	
4-21-81	
FHWA APPROVAL	
DATE:	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
TYPE VII AND VIII
BRIDGE DECK SLABS

NO. BR-SS(6.15)-79-94 SHEET 1 OF 1



SECTION

Scale: 3/4" = 1'-0"

*Spacing to match that of normal deck steel, provided bar spacing can be kept between 12" and 14". For all other cases, spacing shall be as indicated above.

**If approach curbing has other than this height, then bridge curb height shall be made to match approach curb height.

***In order to insure a smooth and acceptable surface, 608.03.05 (Construction joints) of the Specifications shall be strictly adhered to.

Note:

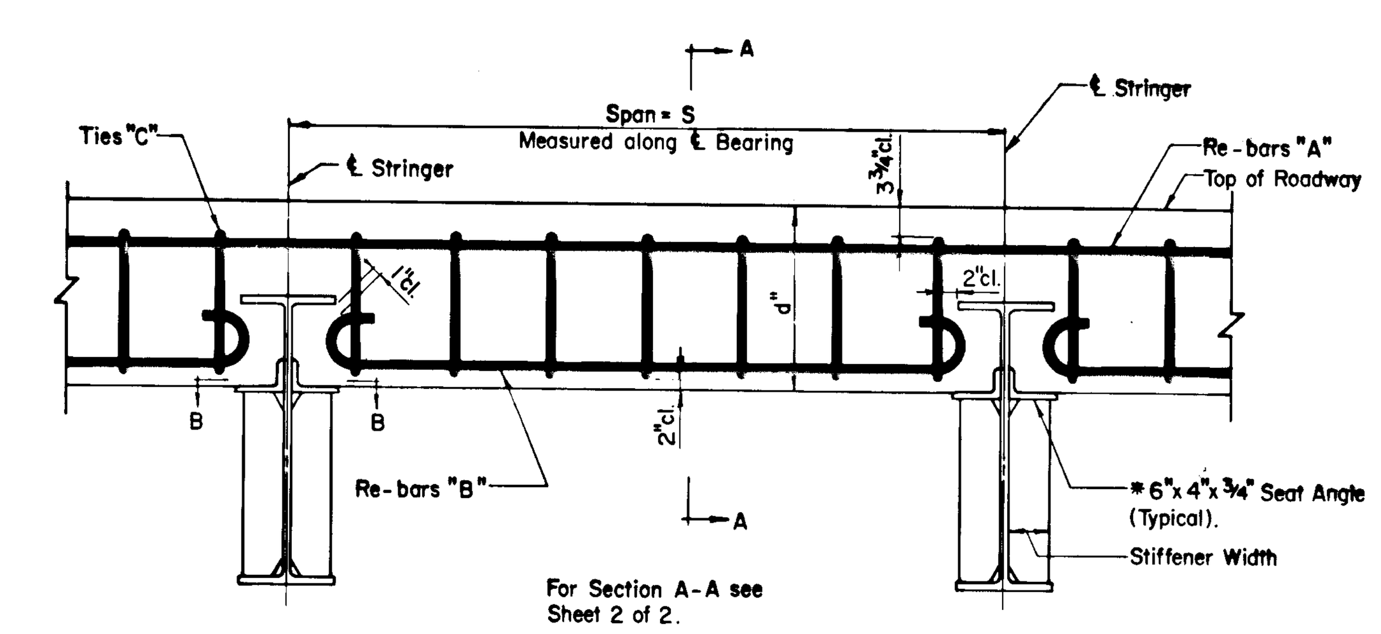
1. All longitudinal bars are #5 spaced as shown, maximum spacing 1'-3".
2. All keys are nominal size.
3. Portions of normal longitudinal deck steel and truss bars not shown.

APPROVAL	
E.S. Freedman ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 5/15/80	
REVISIONS	
SHA	FHWA
7-12-82	
10-4-82	
1-11-83	
FHWA APPROVAL	
DATE: 7-29-80	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
SIDEWALK WITH PARAPET
FOR BRIDGES OVER WATER AND/OR RAILROADS

NO. BR-SS(6.21)-80-106 SHEET 1 OF 1

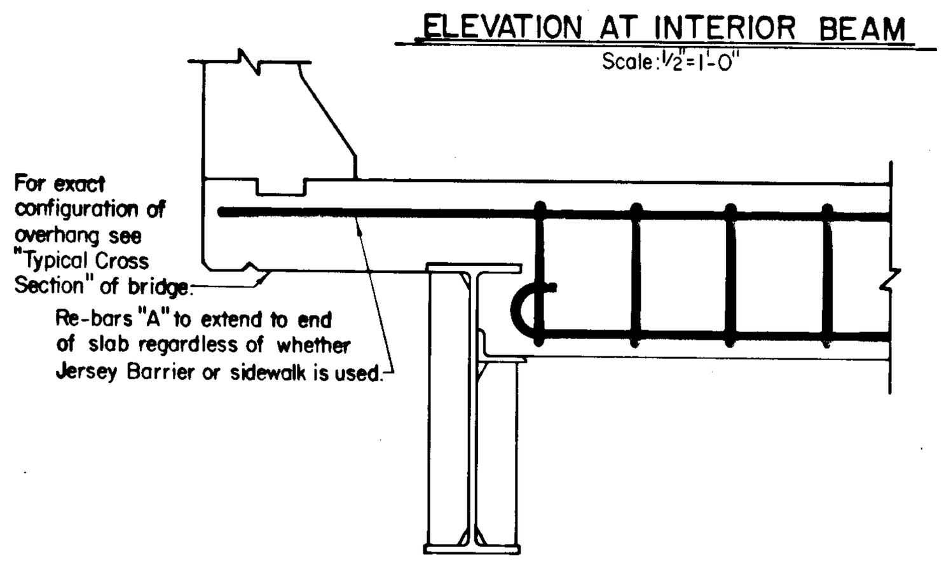
Note:
1. For Section B-B, see Standard No. BR-SS(8.12)-85-170.



ELEVATION AT INTERIOR BEAM

Scale: 1/2" = 1'-0"

*Longest leg of angle shall be increased as necessary so that angle exceeds stiffener width by at least 1/2".



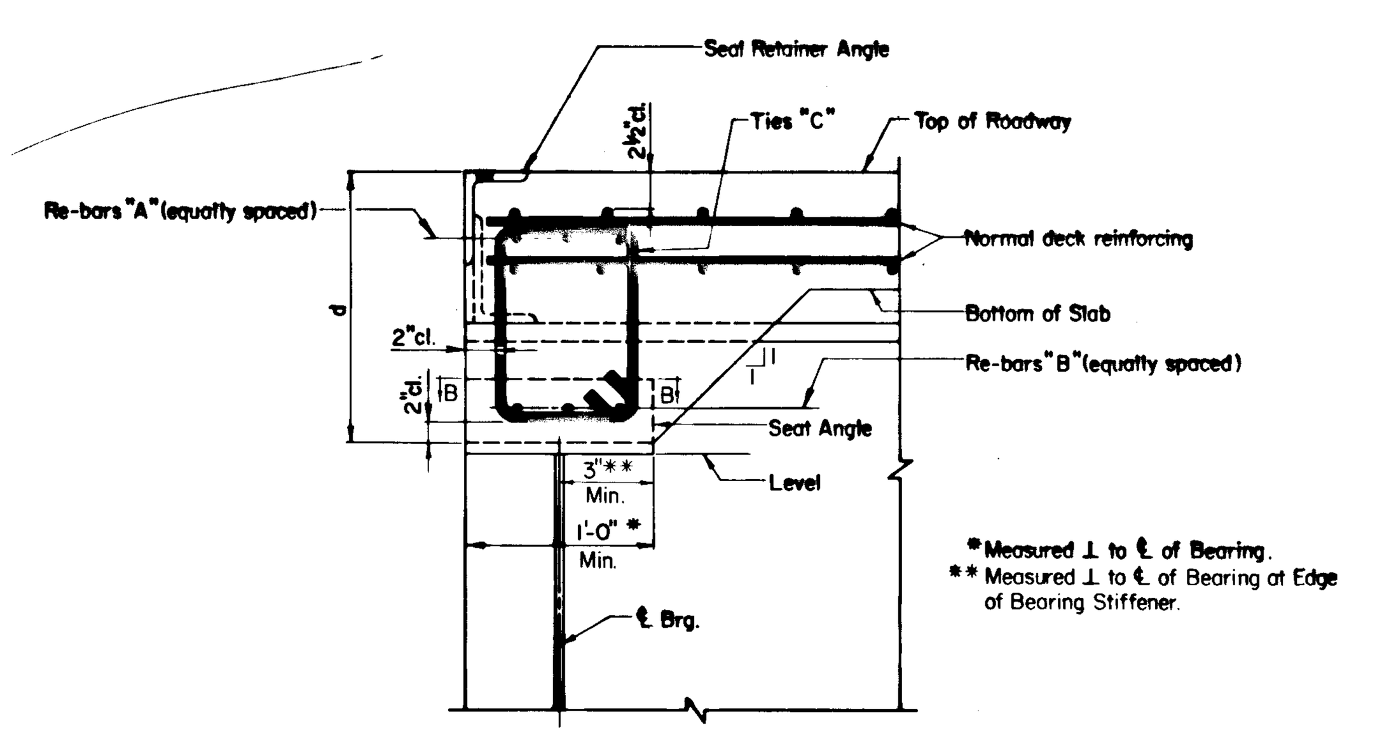
ELEVATION AT EXTERIOR BEAM

Scale: 1/2" = 1'-0"

APPROVAL	
E.S. Freedman ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 10/15/80	
REVISIONS	
SHA	FHWA
1-11-83	
6-28-84	
8-26-85	
6-30-86	
6-18-87	
FHWA APPROVAL	
DATE	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
CONCRETE DIAPHRAGMS AT PIERS (WITH EXPANSION JOINTS) AND AT ALL ABUTMENTS

NO. BR-SS(6.22)-80-120 SHEET 1 OF 2



SECTION A-A

Scale: None

Span = S	Depth of Diaphragm = d	Re-bars "A"	Re-bars "B"	Ties "C"
Up to 8'	1'-11"	3-#7's	3-#7's	#5 @ 9" Maximum Spacing
over 8' to 11'	1'-11"	3-#8's	3-#8's	
over 11' to 14'	2'-0"	3-#8's	3-#8's	
over 14' to 16'	2'-1"	3-#9's	3-#9's	

Note:

1. Studs and anchors for seal retainer angle, not shown.
2. All reinforcing steel sizes and spacings based on ASTM Designation A-615, Grade 60 (fs = 24,000 p.s.i.).
3. For Section B-B, see Standard No. BR-SS(8.12)-85-170.

APPROVAL	
E.S. Freedman ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 10/15/80	
REVISIONS	
SHA	FHWA
4-27-81	
12-29-83	
6-28-84	
11-13-85	
6-17-87	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
CONCRETE DIAPHRAGMS AT PIERS (WITH EXPANSION JOINTS) AND AT ALL ABUTMENTS

NO. BR-SS(6.22)-80-120 SHEET 2 OF 2

HO 140

REV. NO.	REV. DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

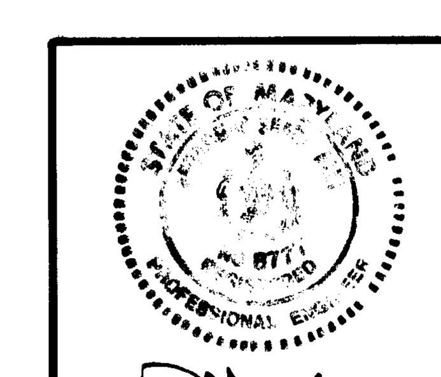
HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
STANDARDS

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

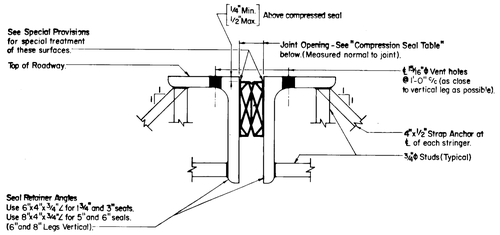


ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-15

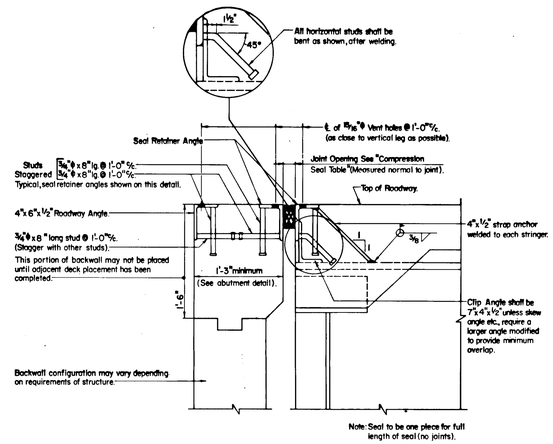
314

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
12-23-87
CHIEF, LAND DEVELOPMENT DIVISION DATE:
Granville W. Wellwood 12/28/87
CHIEF, BUREAU OF HIGHWAYS DATE:
12/28/87
CHIEF, BUREAU OF ENGINEERING DATE:
OFFICE OF PLANNING AND ZONING
12/30/87
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION DATE:

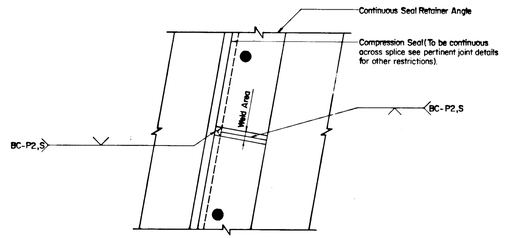


SECTION
Scale: None

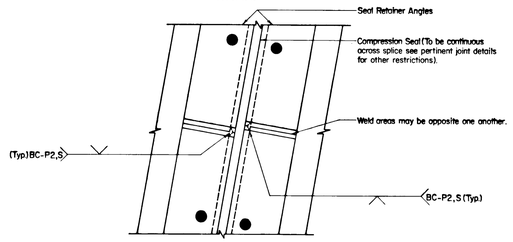
COMPRESSION SEAL TABLE							
Location	Uncompressed Seal Width	Joint Opening @					
		40°F	50°F	60°F	70°F	80°F	90°F
	1 3/4"			1 1/8"			
@ ABUTMENT 'A'	3"	2 1/16"	2"	1 15/16"	1 7/8"	1 13/16"	1 3/4"
@ ABUTMENT 'B'	3"	1 15/16"	1 9/16"	1 1/16"	1 5/16"	1 1/16"	1"
	6"			3 5/16"			



SECTION
Scale: 1"=1'-0"



PLAN
JOINT AT ABUTMENTS - WHERE ONE SIDE OF JOINT IS ARMORED
Scale: None



PLAN
JOINT AT PIERS AND ABUTMENTS WHERE BOTH SIDES OF JOINTS ARE ARMORED
Scale: None

Note:
1. The 1 3/4" and 3" seals to be one piece for full length of seal (no joints).
2. The 5" and 6" seals may have one shop splice per joint, if the length of joint exceeds 50'. Splice shall be at least 15' from gutter line.

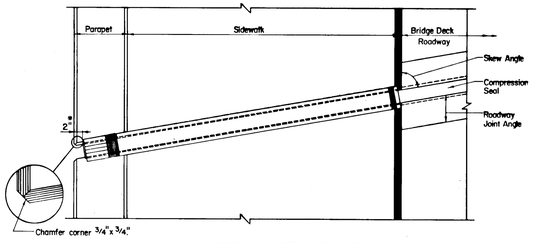
APPROVAL	STATE OF MARYLAND
E.F. Kaufman, CHIEF, BUREAU OF BRIDGE DESIGN DATE 1/6/78	DEPARTMENT OF TRANSPORTATION
REVISIONS: SHA / FHWA	STATE HIGHWAY ADMINISTRATION
10-31-79 / 12-12-79	DIVISION OF BRIDGE DEVELOPMENT
1-4-80 / 1-23-80	COMPRESSION SEAL JOINT AND RETAINING ANGLE DETAIL
1-27-82 / 6-23-83	
FHWA APPROVAL DATE 1-31-78: 9-9-82 / 6-23-83	STANDARD NO. BR-SS(7.01)-77-63 SHEET 1 OF 1

Note:
1. New bridge details shown.
2. When used for deck rehabilitation see Standard No. BR-SS(8.06)-78-72 showing special attachment of new clip angle.
3. Compression seal to be placed after joint angles are set, and deck and entire backwall are in place.
4. See Standard No. BR-SS(7.01)-77-63 for additional details.

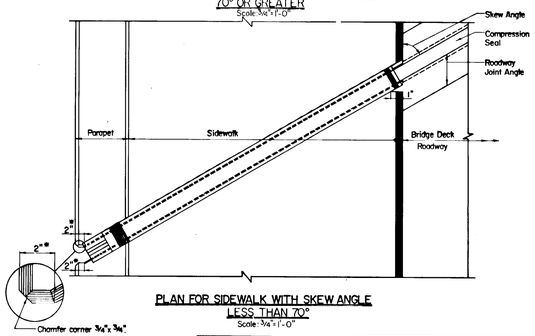
APPROVAL	STATE OF MARYLAND
E.F. Kaufman, ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 12/1/78	DEPARTMENT OF TRANSPORTATION
REVISIONS: SHA / FHWA	STATE HIGHWAY ADMINISTRATION
1-27-82 / 6-23-83	DIVISION OF BRIDGE DEVELOPMENT
12-29-83 / 3-22-84	COMPRESSION SEAL ROADWAY JOINTS AT ABUTMENTS
7-20-84 / 11-29-85	
FHWA APPROVAL DATE 4-4-80: 11-5-84 / 11-29-85	STANDARD NO. BR-SS(7.02)-79-64 SHEET 1 OF 1

Note:
Whenever possible the need for this splice should be limited. Preferably, the minimum spacing between joints shall be 40'. If there are breaks in the crown or if the joint is skewed; splices may be made at all breaks in slope and may follow the direction of centerline of bridge instead of being perpendicular to centerline of bearing.

APPROVAL	STATE OF MARYLAND
E.F. Kaufman, DEPUTY CHIEF ENGR. BRIDGE DEVEL. DATE 1/1/87	DEPARTMENT OF TRANSPORTATION
REVISIONS: SHA / FHWA	STATE HIGHWAY ADMINISTRATION
	DIVISION OF BRIDGE DEVELOPMENT
	ROADWAY JOINT ANGLE SHOP SPLICES FOR NON-SEQUENTIAL CONSTRUCTION
FHWA APPROVAL DATE:	NO. BR-SS(7.15)-86-184 SHEET 1 OF 1



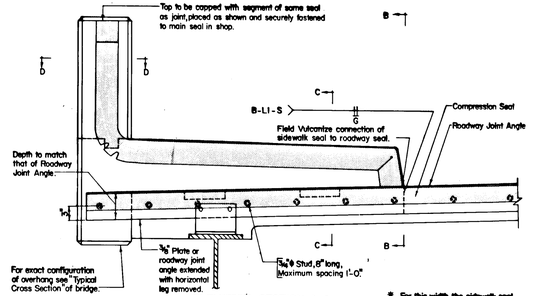
PLAN FOR SIDEWALK WITH SKEW ANGLE 70° OR GREATER
Scale: 3/4"=1'-0"



PLAN FOR SIDEWALK WITH SKEW ANGLE LESS THAN 70°
Scale: 3/4"=1'-0"

* Dimension measured at top of parapet when special parapet is utilized.

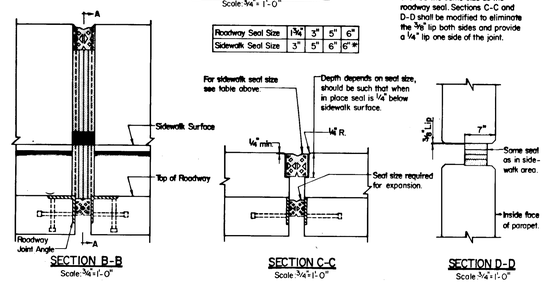
APPROVAL	STATE OF MARYLAND
E.F. Kaufman, ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 11/15/79	DEPARTMENT OF TRANSPORTATION
REVISIONS: SHA / FHWA	STATE HIGHWAY ADMINISTRATION
6-20-84 / 11-8-84	DIVISION OF BRIDGE DEVELOPMENT
FHWA APPROVAL DATE 4-4-80:	FULL HEIGHT COMPRESSION SEAL ROADWAY JOINT AT SIDEWALKS
	STANDARD NO. BR-SS(7.07)-79-96 SHEET 1 OF 2



ELEVATION - SECTION A-A
Scale: 3/4" = 1'-0"

Roadway Seal Size	1 3/4"	3"	5"	6"
Sidewalk Seal Size	3"	5"	6"	6"*

* For this width, the sidewalk seat shall be the same size as the roadway seal. Sections C-C and D-D shall be modified to eliminate the 3/8" lip both sides and provide a 1/4" lip one side of the joint.



SECTION B-B
Scale: 3/4"=1'-0"

SECTION C-C
Scale: 3/4"=1'-0"

SECTION D-D
Scale: 3/4"=1'-0"

Note:
1. All sections shown for 90° skew.
2. All steel to be A.S.T.M. A-36, for painting specifications see Special Provision .
3. Joint area shall be thoroughly cleaned just prior to placing of seal.

APPROVAL	STATE OF MARYLAND
E.F. Kaufman, ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 11/15/79	DEPARTMENT OF TRANSPORTATION
REVISIONS: SHA / FHWA	STATE HIGHWAY ADMINISTRATION
5-5-83 / 11-8-84	DIVISION OF BRIDGE DEVELOPMENT
6-21-84 / 11-8-84	FULL HEIGHT COMPRESSION SEAL ROADWAY JOINT AT SIDEWALKS
2-11-86	
FHWA APPROVAL DATE 4-4-80:	NO. BR-SS(7.07)-79-96 SHEET 2 OF 2

HO 140

REV. NO.	REV. DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE & BRIDGE OVER DEEP RUN
STANDARDS

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. 5-16

F-88-55 SHEET 29 OF 43

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 12-23-87

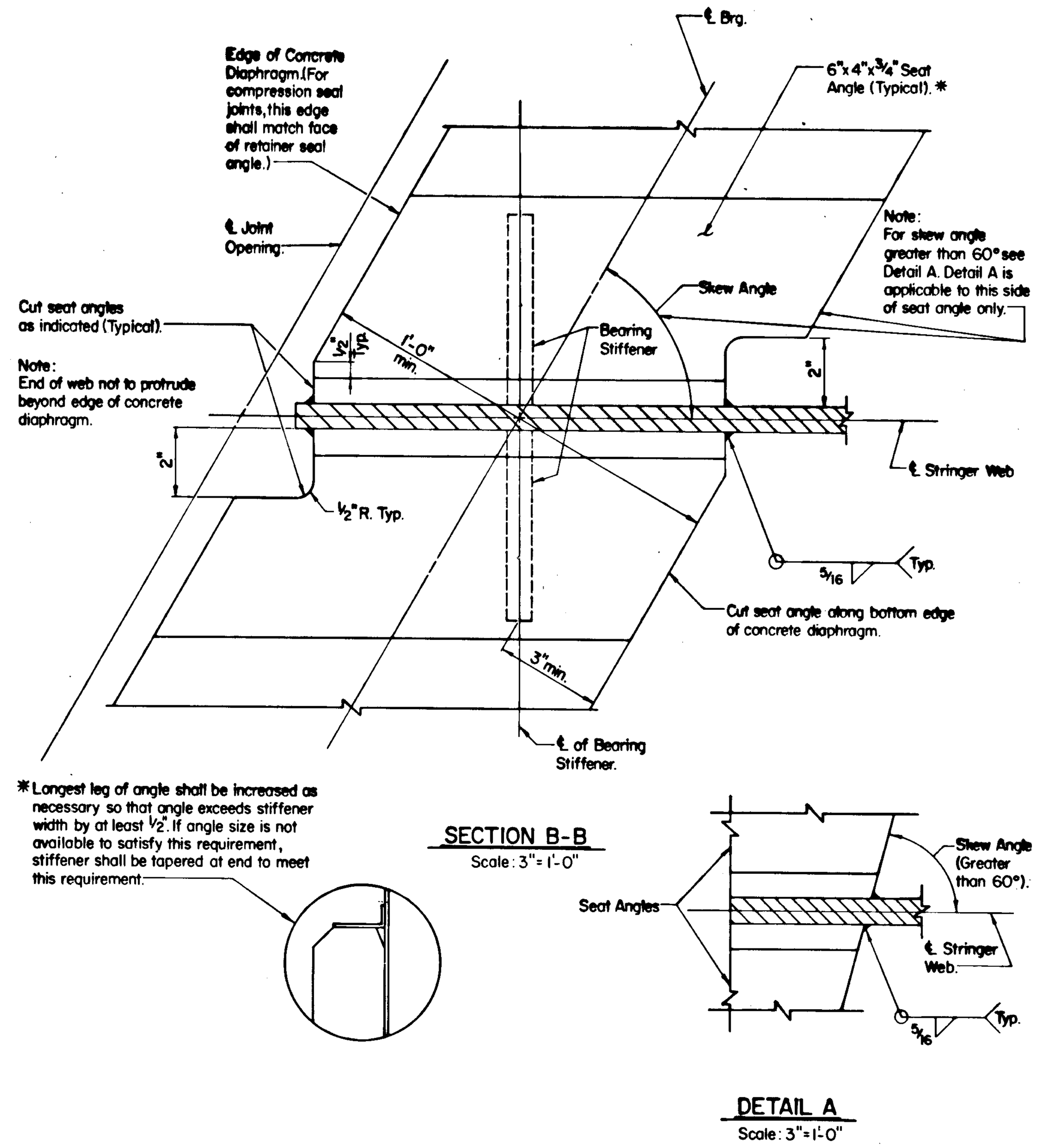
CHIEF, LAND DEVELOPMENT ... Granville W. Wehland 12/28/87

12/28/87

CHIEF, BUREAU OF ENGINEERING

Joseph Rutter 12/29/87

... LAND DEVELOPMENT ... ADMINISTRATION



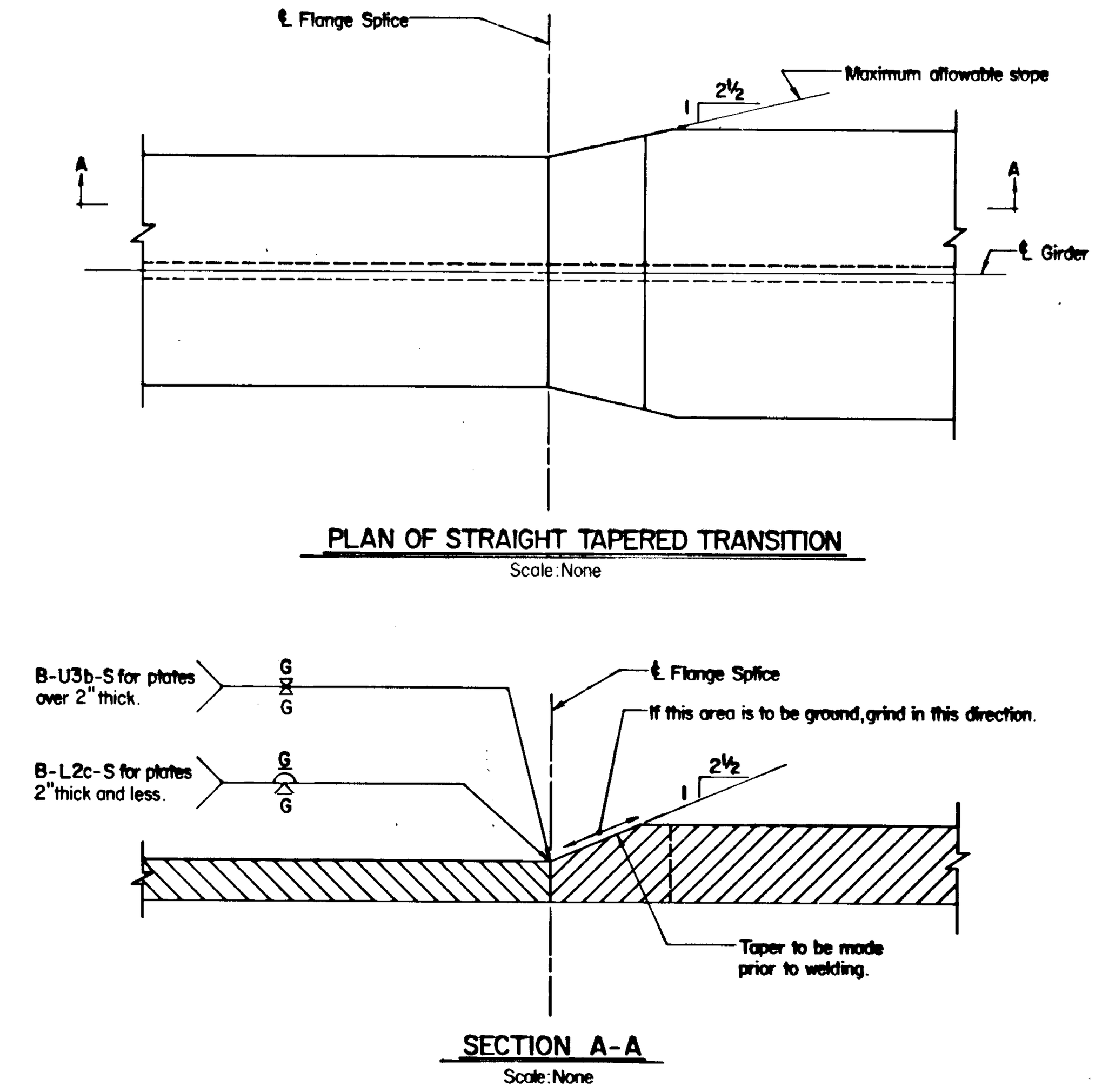
Note:
See Standard No. BR-SS(6.22)-80-120 for location of where Section B-B is taken.

APPROVAL	
DEPUTY CHIEF ENGR. BRIDGE DEVEL.	
DATE 11/5/85	
REVISIONS	
SHA	FHWA

FHWA APPROVAL
DATE:

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
STEEL SEAT ANGLES FOR SKEWED CONCRETE DIAPHRAGMS

NO. BR-SS(8.12)-85-170 SHEET 1 OF 1



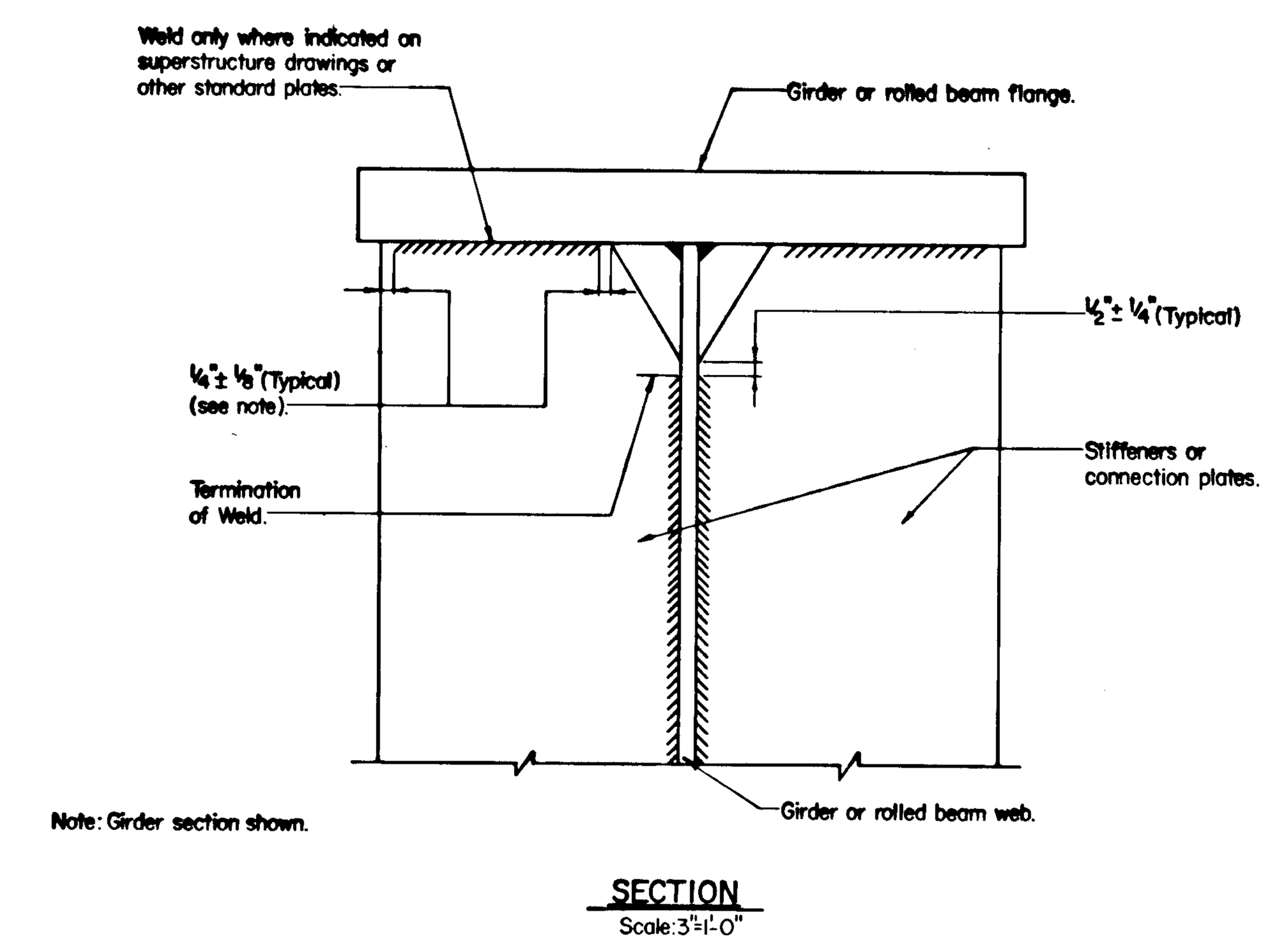
Notes:
1. Butt welds of flange splice plates to be ground flush prior to attaching web plates.
2. Splice shown is for different width and different thickness flanges; if only one variation is present use pertinent portion of standard.

APPROVAL	
DEPUTY CHIEF ENGR. BRIDGE DEVEL.	
DATE 4/25/85	
REVISIONS	
SHA	FHWA
11-14-85	
1-2-86	

FHWA APPROVAL
DATE:

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
SHOP SPLICE DETAILS FOR GIRDER FLANGE PLATES

NO. BR-SS(8.11)-85-173 SHEET 1 OF 1



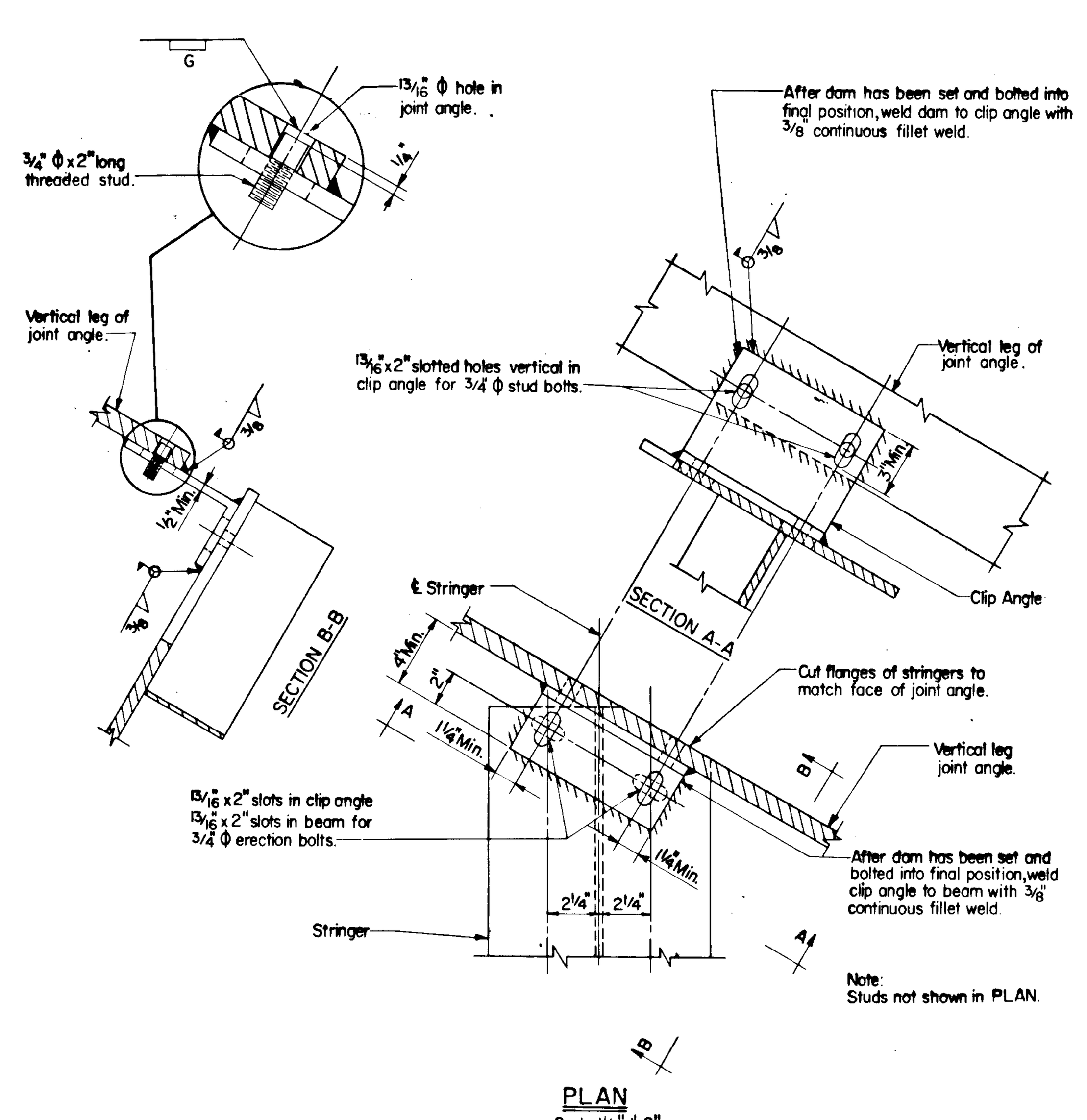
Notes:
1. For all stiffeners (intermediate or bearing) top and bottom, including connection plates for channel diaphragms for all girders and rolled beams.
2. Welding to flange as per this detail will only be required where plans or other standard sheets indicate stiffener is extended and welded to flange.

APPROVAL	
DEPUTY CHIEF ENGR. BRIDGE DEVEL.	
DATE 11/8/85	
REVISIONS	
SHA	FHWA
1-22-86	

FHWA APPROVAL
DATE 12-9-83

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
STIFFENER AND STRINGER CONNECTION PLATE WELD TERMINATION DETAIL

NO. BR-SS(8.10)83-154 SHEET 1 OF 1

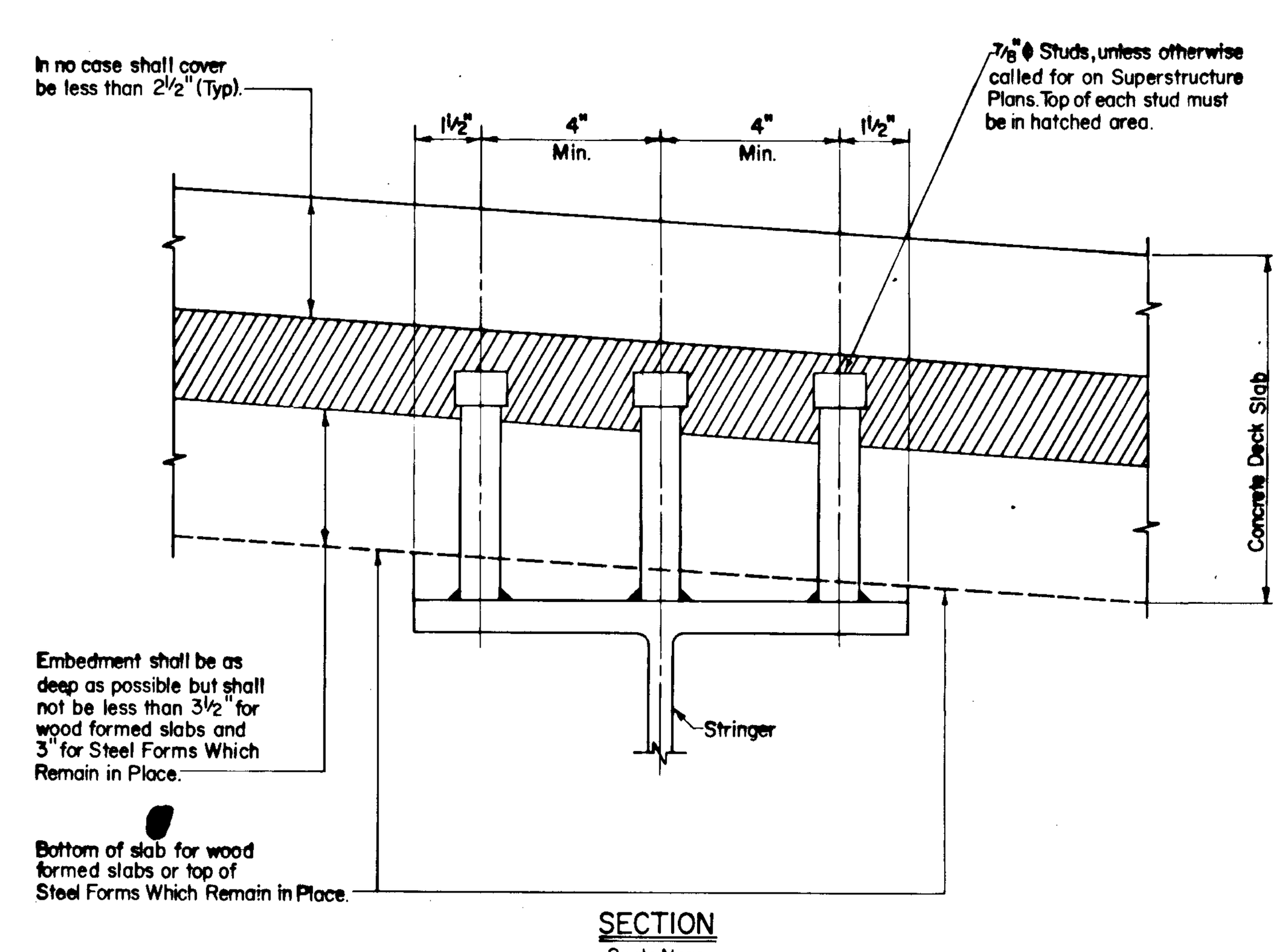


APPROVAL	
CHIEF BUREAU OF BRIDGE DESIGN	
DATE 6/30/75	
REVISIONS	
SHA	FHWA
1-12-76	10-3-80
12-15-82	
5-20-83	

FHWA APPROVAL
DATE 10-3-80

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
CLIP ANGLE DETAIL

NO. BR-SS-(8.02)75-4 SHEET 1 OF 1



Note:
1. For number of studs per row, and longitudinal spacing of rows see pertinent Superstructure sheets.
2. For flange widths less than 11", only two rows of studs are to be used.
3. Steel Forms Which Remain In Place not shown.

APPROVAL	
CHIEF	
DATE 9/8/76	
REVISIONS	
SHA	FHWA

FHWA APPROVAL
DATE 11-9-76

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
STEEL STUD SHEAR DEVELOPER EMBEDMENT DETAIL

STANDARD NO. BR-SS(8.05)75-30 SHEET 1 OF 1

HO 140

REV. NO.	REV. DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

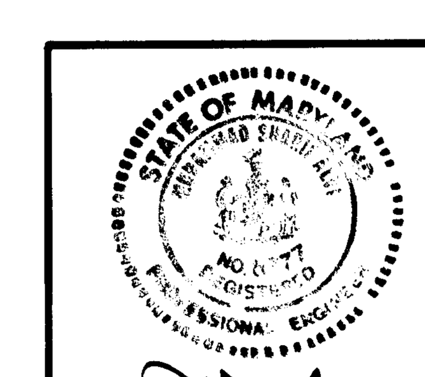
HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
STANDARDS

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218



ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-17

F-88-55

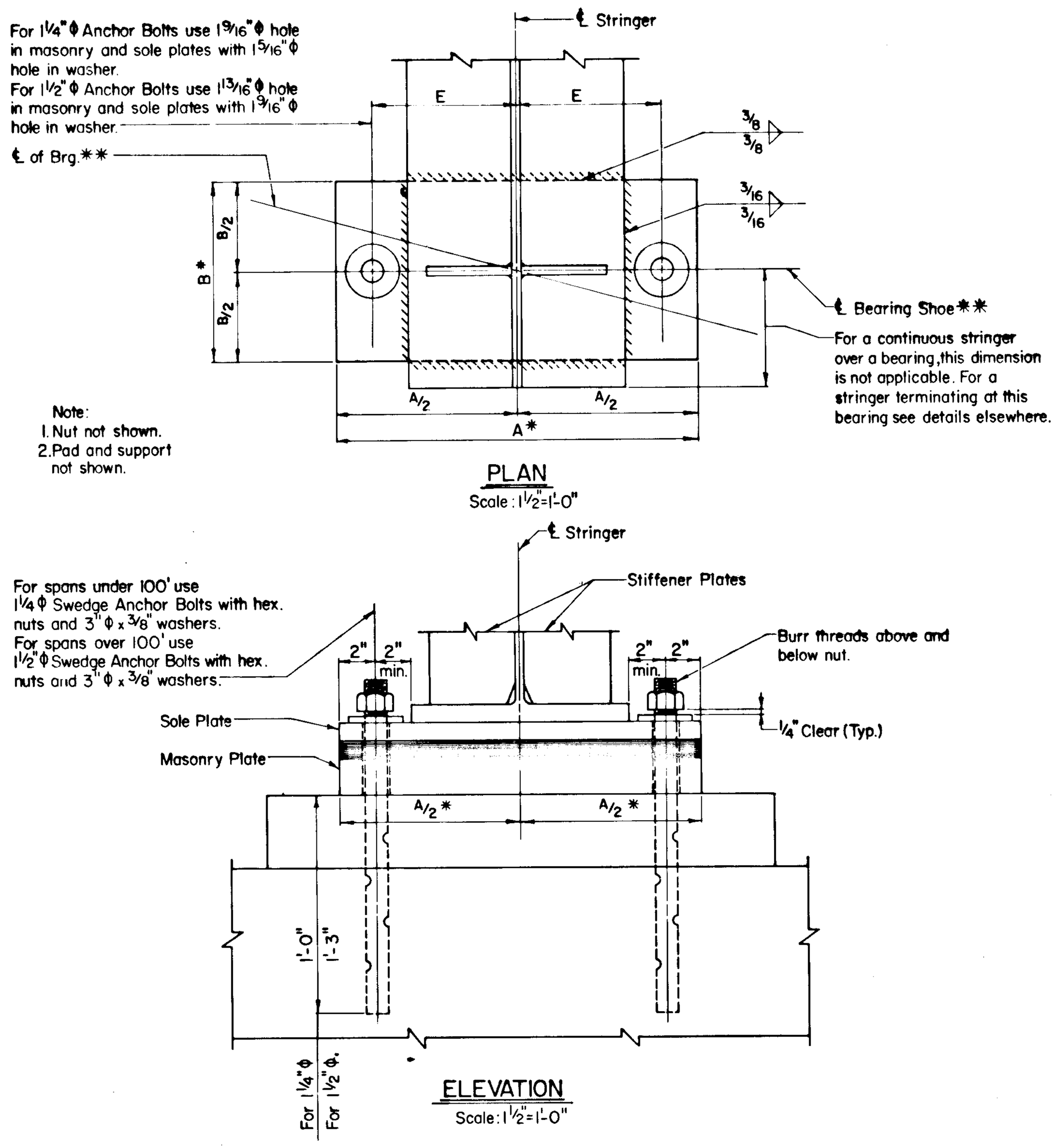
1314

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

12/28/87

12/28/87

12/29/87



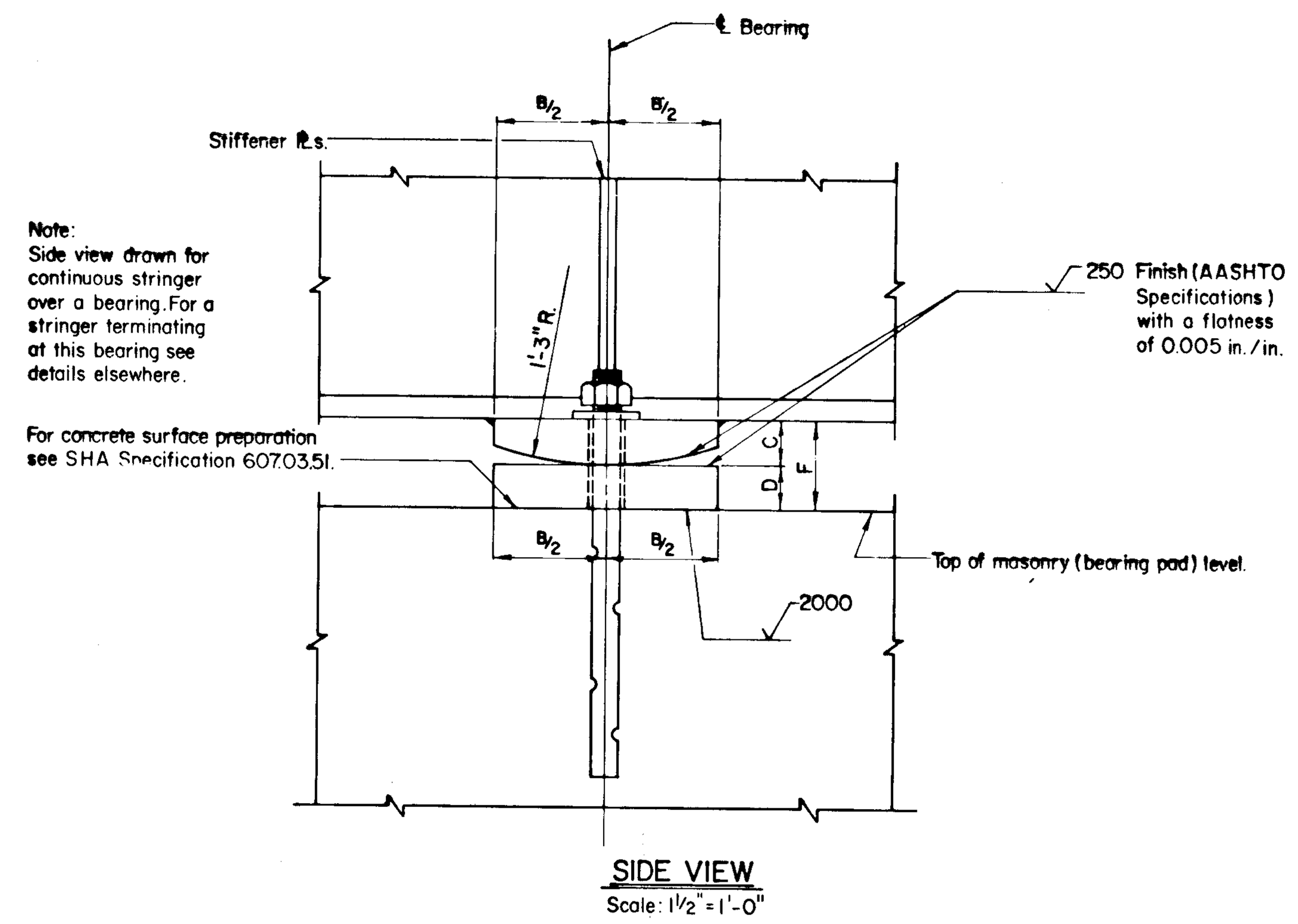
* Edges may be left as cut or cast.

** Where bridge is not skewed, ℄ Brg. and ℄ Shoe are coincident.

APPROVAL	
E.S. Friedman ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 11/14/80	
REVISIONS	
SHA	FHWA
7-2-81	
9-7-83	
3-13-85	
4-10-86	
FHWA APPROVAL	
DATE	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
FIXED BEARING
MEDIUM LENGTH SPANS

NO. BR-SS(9.02)-80-115 SHEET 1 OF 2



DATA SCHEDULE										
Type	Sole Plate			Masonry ℙ			Hole Loc.	HGT	Loads (Kips)	
	A	B	C	A	B	D	E	F	Vert.	Dead
MF-I	20	9	1¾	20	9	1¾	8	3½	150	75
MF-II	22	11	2	22	11	2	9	4	200	100
MF-III	24	12	2¼	24	12	2¼	10	4½	250	125
MF-IV	26	13	2½	26	13	2½	11	5	300	150
MF-V	30	15	2¾	30	15	2¾	13	5½	350	175
MF-VI	32	16	3	32	16	3	14	6	400	200

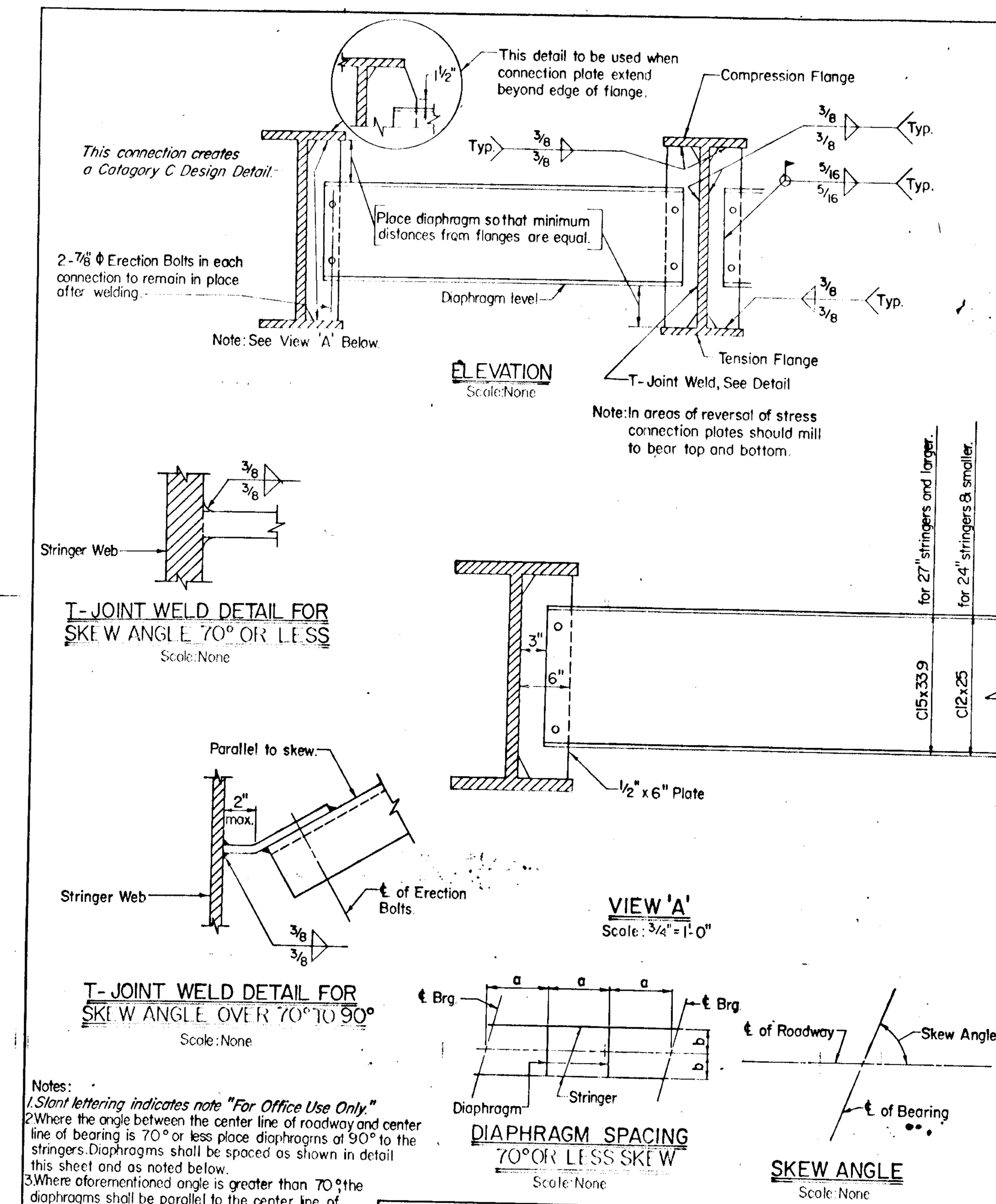
Note: All dimensions are in inches.

Note:
1. Sole and masonry plates to be ASTM A-36 steel, painted to match finished bridge color.
2. Fill slots and holes around anchor bolts with non-hardening caulking compound or elastic joint sealer.
3. 1000 RMS (Finished all over) except where otherwise noted.
4. Rotation ½° ± Maximum.
5. Design Bearing Load 1.0 K.S.I.
6. Top of sole plate must be beveled to fit grade of bottom flange.
7. Unless otherwise noted, bearings shall be placed normal to ℄ of stringer.
8. Plates are to be shipped as units.
9. If more than one size bearing is called for, Contractor may furnish all bearings of the larger size provided the bearing pads are altered to accomodate same. No increase in any prices bid will be allowed if this option is selected.
10. All anchor bolts, nuts and washers shall be unpainted ASTM A-36 galvanized steel.
11. Medium span range is considered 50' to 150' span lengths.

APPROVAL	
E.S. Friedman ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 11/14/80	
REVISIONS	
SHA	FHWA
9-7-83	
12-4-85	
9-25-87	
FHWA APPROVAL	
DATE	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
FIXED BEARING
MEDIUM LENGTH SPANS

NO. BR-SS(9.02)-80-115 SHEET 2 OF 2



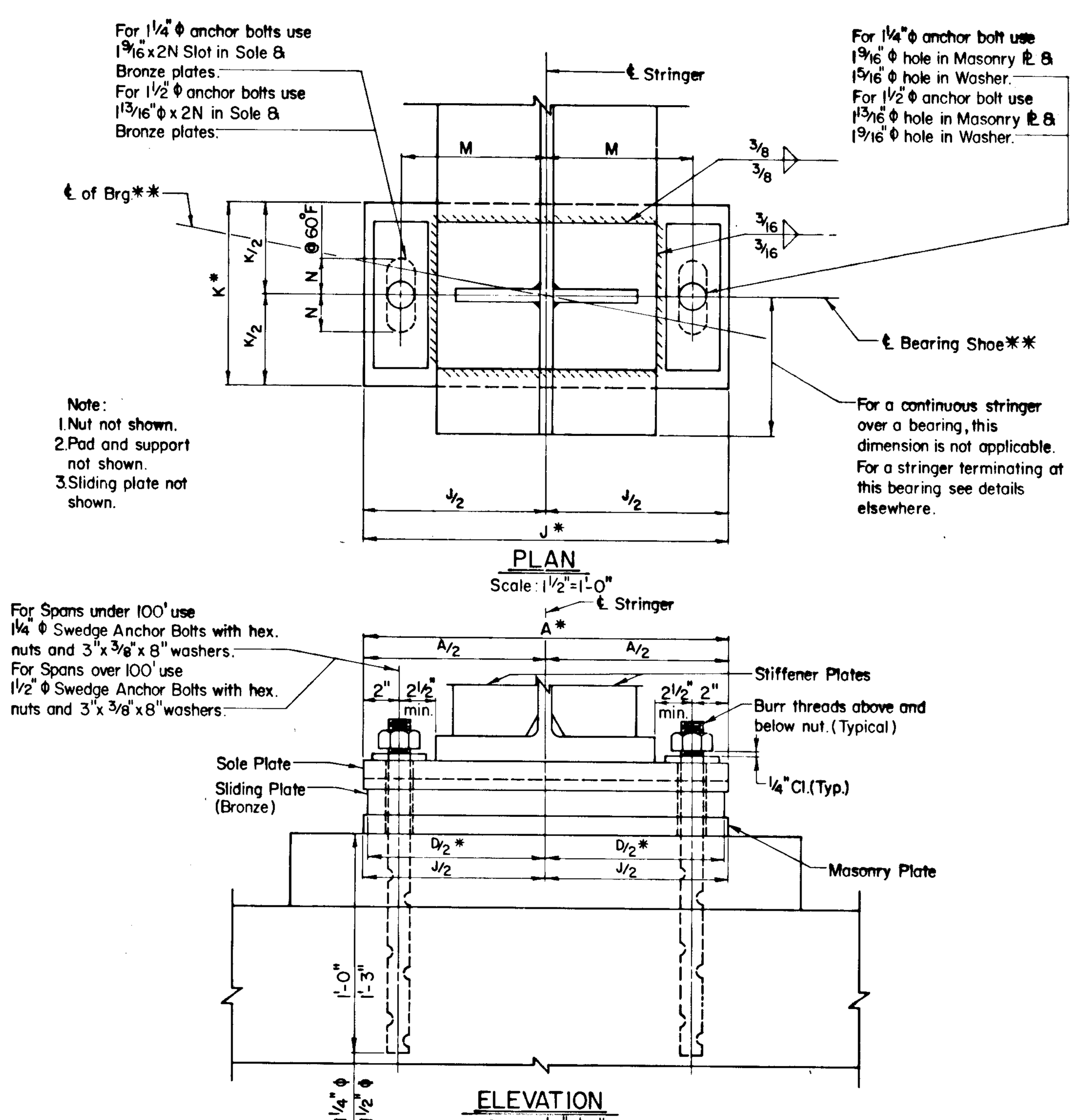
Notes:
1. *Slant lettering indicates note "For Office Use Only."*
2. Where the angle between the center line of roadway and center line of bearing is 70° or less place diaphragms at 90° to the stringers. Diaphragms shall be spaced as shown in detail this sheet and as noted below.
3. Where aforementioned angle is greater than 70°, the diaphragms shall be parallel to the center line of bearing of the stringers.
4. Space intermediate diaphragms at 20'± to 25'± ℅; i.e. for spans. (Non-curved bridges only)
Up to 25' ℅ bearings - No Intermediate Diaphragm.
From 25' to 50' ℅ bearings - One Intermediate Diaphragm.
From 50' to 75' ℅ bearings - Two Intermediate Diaphragms, etc.
(See Framing Plan.)
5. All diaphragms are to be completely connected to stringers before deck slab is poured.

APPROVAL	
E.S. Friedman CHIEF, BUREAU OF BRIDGE DESIGN DATE 6/20/75	
REVISIONS	
S.H.A.	F.H.W.A.
1-12-87	
10-20-87	
FHWA APPROVAL DATE: 11-9-76	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
ROLLED STEEL BEAMS
INTERMEDIATE DIAPHRAGM DETAILS
WELDED CONNECTION

STANDARD NO. BR-SS(8.03)-75-11 SHEET 1 OF 2

SUPERSTRUCTURE-STEEL



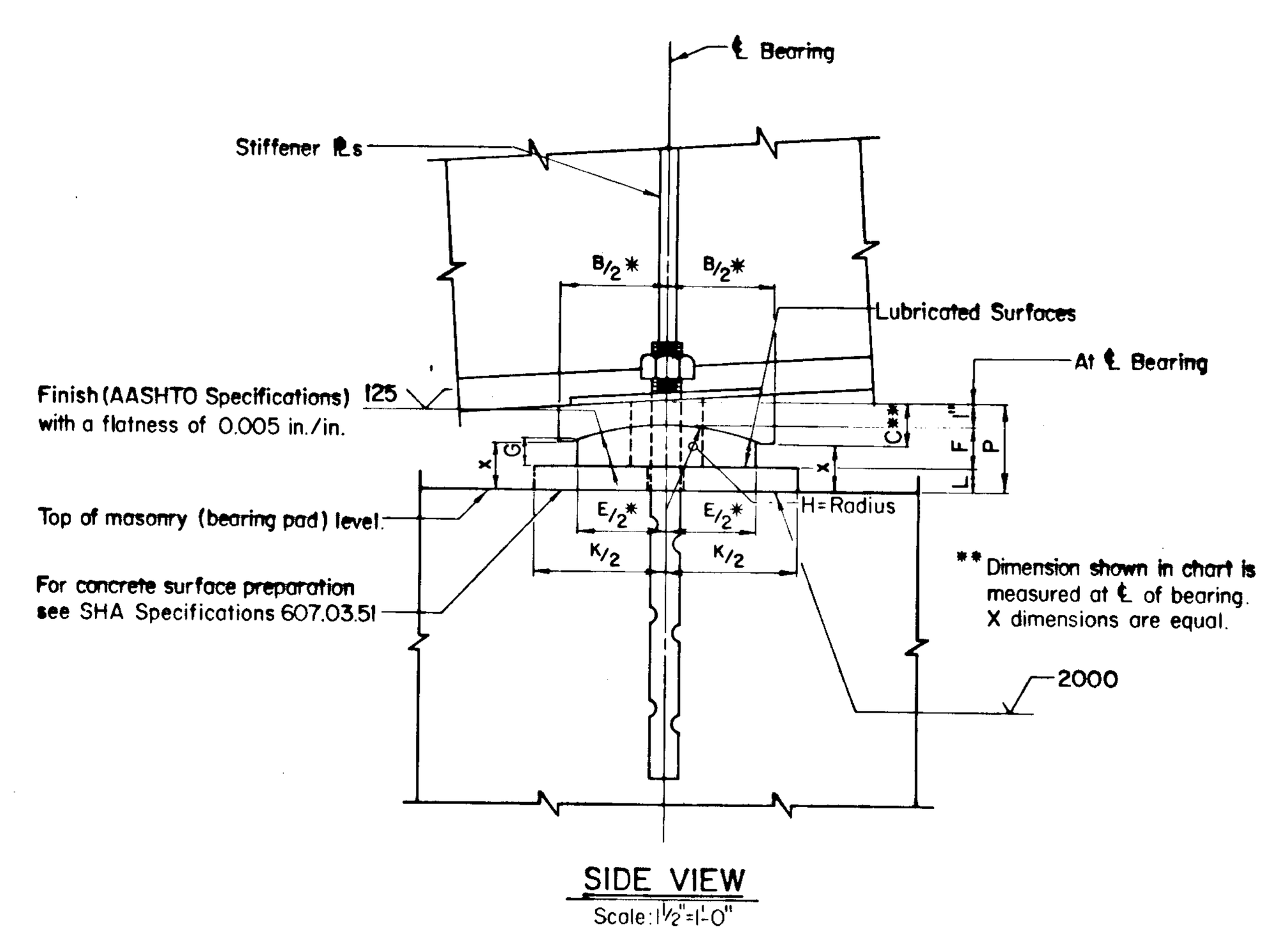
* Edges may be left as cut or cast.

** Where bridge is not skewed, ℄ Brg. and ℄ Shoe are coincident.

APPROVAL	
E.S. Friedman ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 11/14/80	
REVISIONS	
SHA	FHWA
7-2-81	
1-29-82	
8-6-82	
3-13-85	
4-10-86	
FHWA APPROVAL	
DATE	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
BRONZE EXPANSION BEARING
MEDIUM LENGTH SPANS

NO. BR-SS(9.01)-80-114 SHEET 1 OF 2



DATA SCHEDULE																		
Type	Sole Plate			Sliding Plate				Radius	Masonry ℙ			Hole Loc.		HGT	Loads (Kips)			Total Expansion ± (0°F-120°F)
	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Vert.	Horiz.	Dead	
ME-I	21	9½	1⅞	20	7½	1¾	1±	11	21	11	1	8½	1½	3¾	150	15	75	1
ME-II	23	10½	2	22	8½	1¾	1±	12	23	12	1	9½	1½	3¾	200	20	100	1
ME-III	25	11½	2	24	9½	1¾	1±	15	25	13	1	10½	1½	3¾	250	25	125	1
ME-IV	26	13½	2⅜	25	11½	2⅛	1±	15	26	16	1	11	2	4⅛	300	30	150	1½
ME-V	29	15½	2½	28	13½	2⅜	1±	18	29	17	1½	12½	2	4⅞	350	35	175	1¾
ME-VI	30	16½	2¾	29	14½	2⅝	1±	18	30	20	1½	13	2¼	5⅛	400	40	200	2¼

Note: All dimensions are in inches.

Note:
1. Sole and masonry plates to be ASTM A-36 steel, painted to match finished bridge color, convex plate shall be a self lubricating bronze bearing plate conforming to Subsection 914.03 of the Specifications.
2. Fill slots and holes around anchor bolts with non-hardening caulking compound or elastic joint sealer.
3. 1000 RMS (Finish all over) except where otherwise noted.
4. Rotation ½° ± Maximum.
5. Design Masonry Bearing Load 1.0 KSI.
6. Top of sole plate must be beveled to fit grade of bottom flange.
7. Unless otherwise noted, bearings shall be placed normal to ℄ of stringer.
8. Plates are to be shipped as units.
9. If more than one size bearing is called for, Contractor may furnish all bearings of the larger size provided the bearing pads are altered to accomodate same. No increase in any prices bid will be allowed if this option is selected.
10. All anchor bolts, nuts and washers shall be unpainted ASTM A-36 galvanized steel.
11. Medium span range is considered 50' to 150' simple span lengths and comparable span continuous units.

APPROVAL	
E.S. Friedman ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 11/14/80	
REVISIONS	
SHA	FHWA
9-7-83	
5-31-84	
9-25-87	
FHWA APPROVAL	
DATE	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
BRONZE EXPANSION BEARING
MEDIUM LENGTH SPANS

NO. BR-SS(9.01)-80-114 SHEET 2 OF 2

HO 140

REV NO.	REV DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

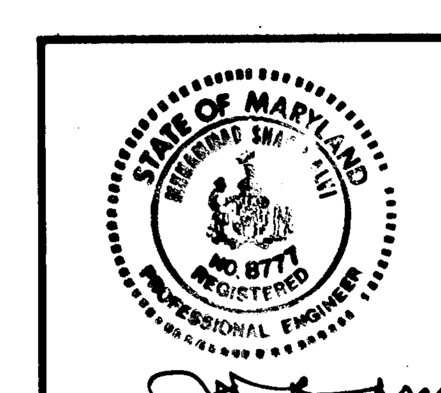
H-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
STANDARDS

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 2218



ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

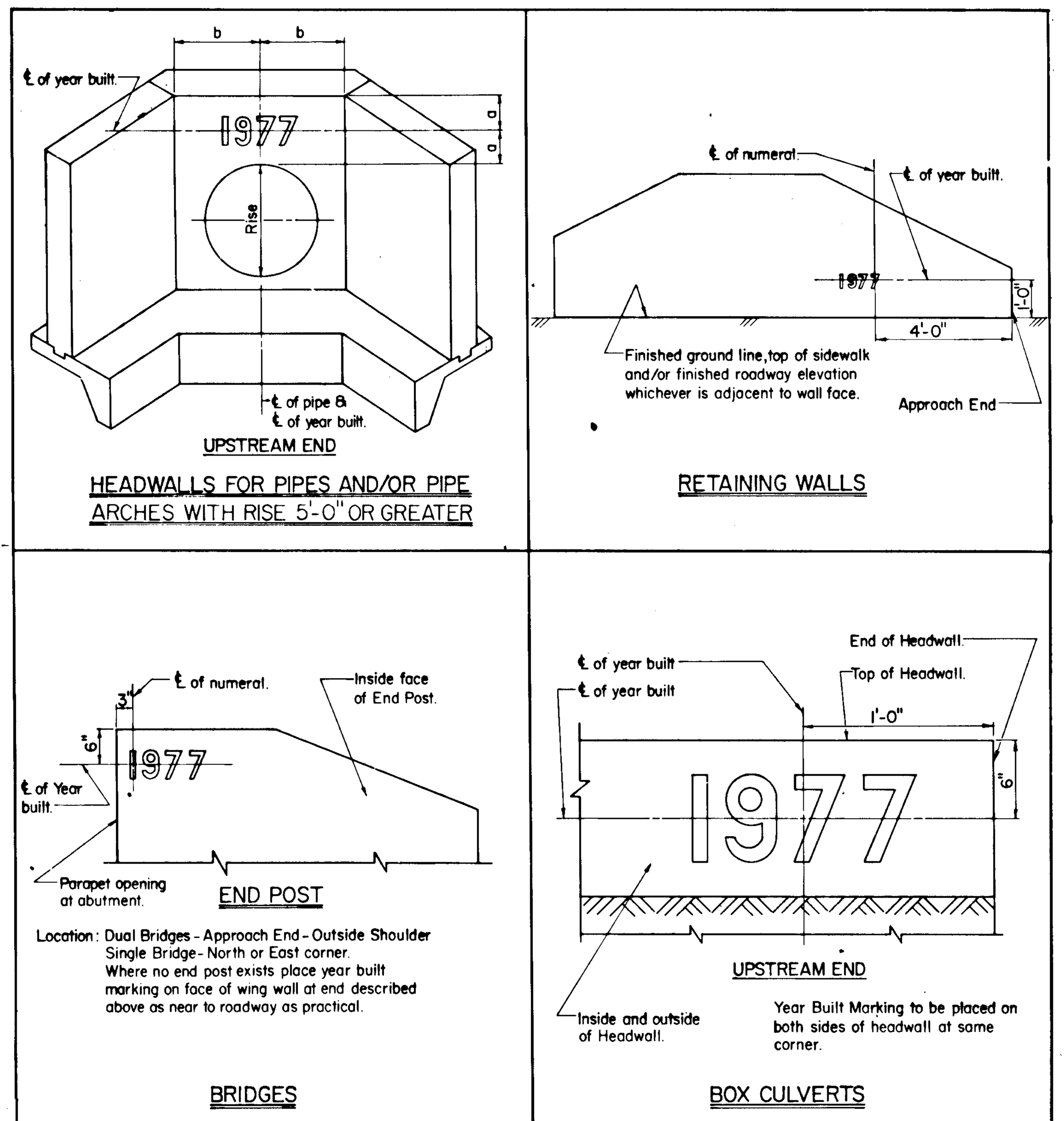
DWG. NO. S-18

F-88-55 SHEET 31 OF 43

1314

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	DATE 12-28-87
CHIEF, BUREAU OF HIGHWAYS	DATE 12/28/87
CHIEF, BUREAU OF ENGINEERING	DATE 12/28/87
OFFICE OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING ADMINISTRATION	DATE 12/29/87



Note:
For details of Standard Numbers see Standards Numbers MD.400.01 thru MD.400.04.
For existing structures, where a year built is shown on the structure and structure is to be rehabilitated, the marking should read 1942-77 (old year first - new year).
For existing structures with no year built marking contact Div. of Bridge Development for old year.

APPROVAL	
CHIEF, BUREAU OF BRIDGE DESIGN	DATE 4/12/78
REVISIONS	
SHA	FHWA
11-14-78	12-14-78
1-4-80	1-23-80
8-25-80	10-3-80
FHWA APPROVAL DATE: 10-17-78	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
LOCATION OF YEAR BUILT MARKING
STANDARD NO. M(0.02)-78-74 SHEET 1 OF 1

Bar Size	* LOCATION CATEGORY		
	A	B	C
#4	2'-5"	1'-9"	1'-5"
#5	3'-0"	2'-2"	1'-9"
#6	3'-7"	2'-7"	2'-1"
#7	4'-10"	3'-6"	2'-9"
#8	6'-5"	4'-7"	3'-8"
#9	8'-1"	5'-9"	4'-8"
#10	10'-3"	7'-4"	5'-10"
#11	12'-7"	9'-0"	7'-2"

*LOCATION CATEGORY

A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as; in footings, pier caps, etc.
B - All bars not in Category A spaced less than 6 inches apart.
C - All bars not in Category A spaced 6 inches or more apart.

Note:
1. When bar lap is not specified on the plans, the above dimensions shall be used.
2. These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
3. These bar laps only apply where the General Notes indicate "Reinforcing Steel Design: f_s=24000 p.s.i."

APPROVAL: ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 4/10/81 — REVISIONS: SHA, FHWA — FHWA APPROVAL DATE

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
BAR LAP DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3 (3500 P.S.I.) CONCRETE
NO. M(6.07)-81-127 SHEET 1 OF 1

Bar Size	* LOCATION CATEGORY		
	A	B	C
#4	2'-5"	1'-9"	1'-5"
#5	3'-0"	2'-2"	1'-9"
#6	3'-7"	2'-7"	2'-1"
#7	4'-4"	3'-1"	2'-6"
#8	5'-8"	4'-0"	3'-3"
#9	7'-2"	5'-1"	4'-1"
#10	9'-0"	6'-6"	5'-2"
#11	11'-1"	7'-11"	6'-4"

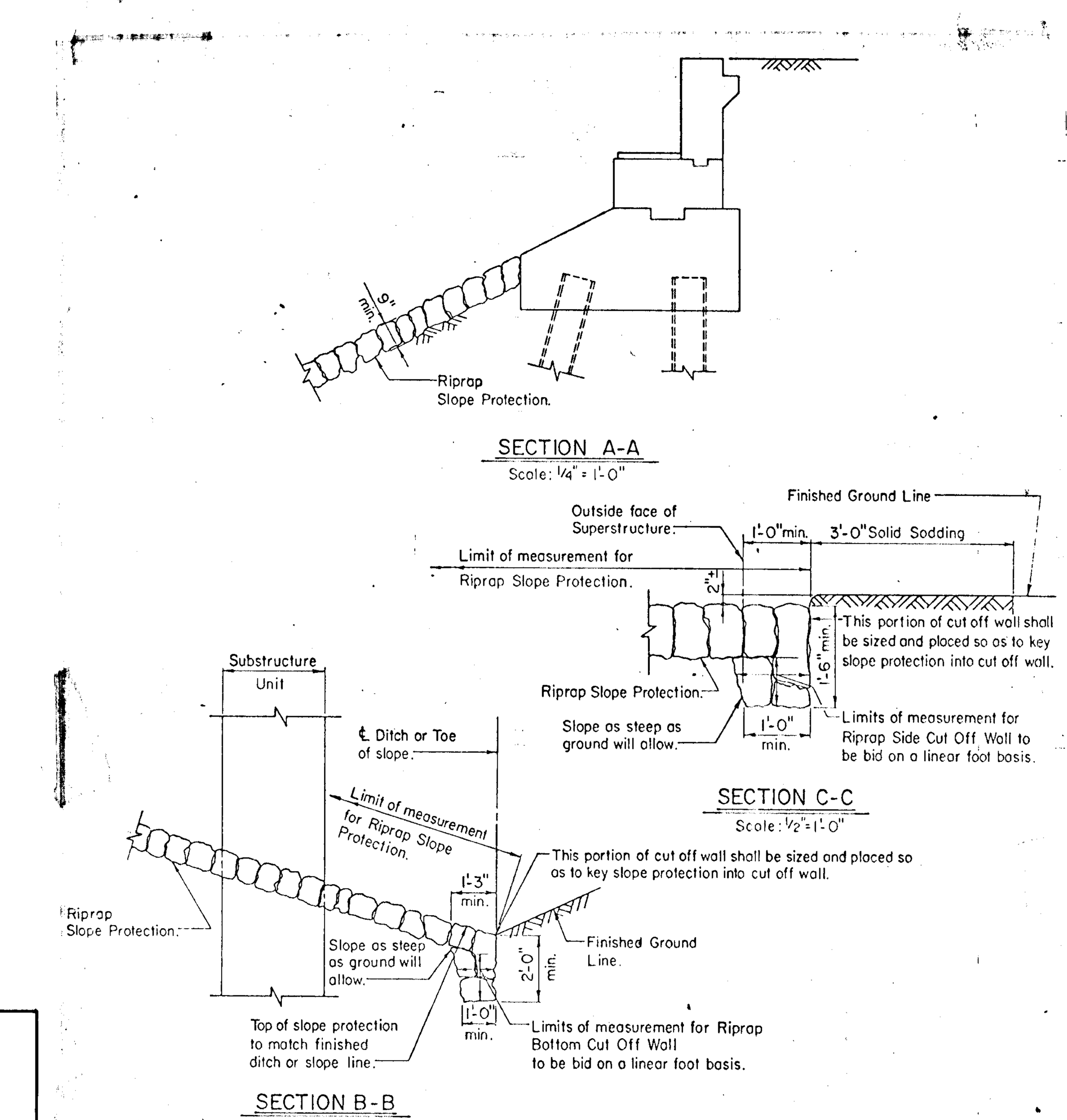
* LOCATION CATEGORY

A - Bars in horizontal layers in top of pour with 12" or more of concrete below them such as; in footings, pier caps, etc.
B - All bars not in Category A spaced less than 6 inches apart.
C - All bars not in Category A spaced 6 inches or more apart.

Note:
1. When bar lap is not specified on the plans, the above dimensions shall be used.
2. These bar laps do not apply when bar is in lightweight concrete. Greater lengths are required for this material.
3. These bar laps only apply where the General Notes indicate "Reinforcing Steel Design: f_s=24,000 p.s.i."

APPROVAL: ASST. CHIEF ENGR. BRIDGE DEVEL. DATE 4/10/81 — REVISIONS: SHA, FHWA — FHWA APPROVAL DATE

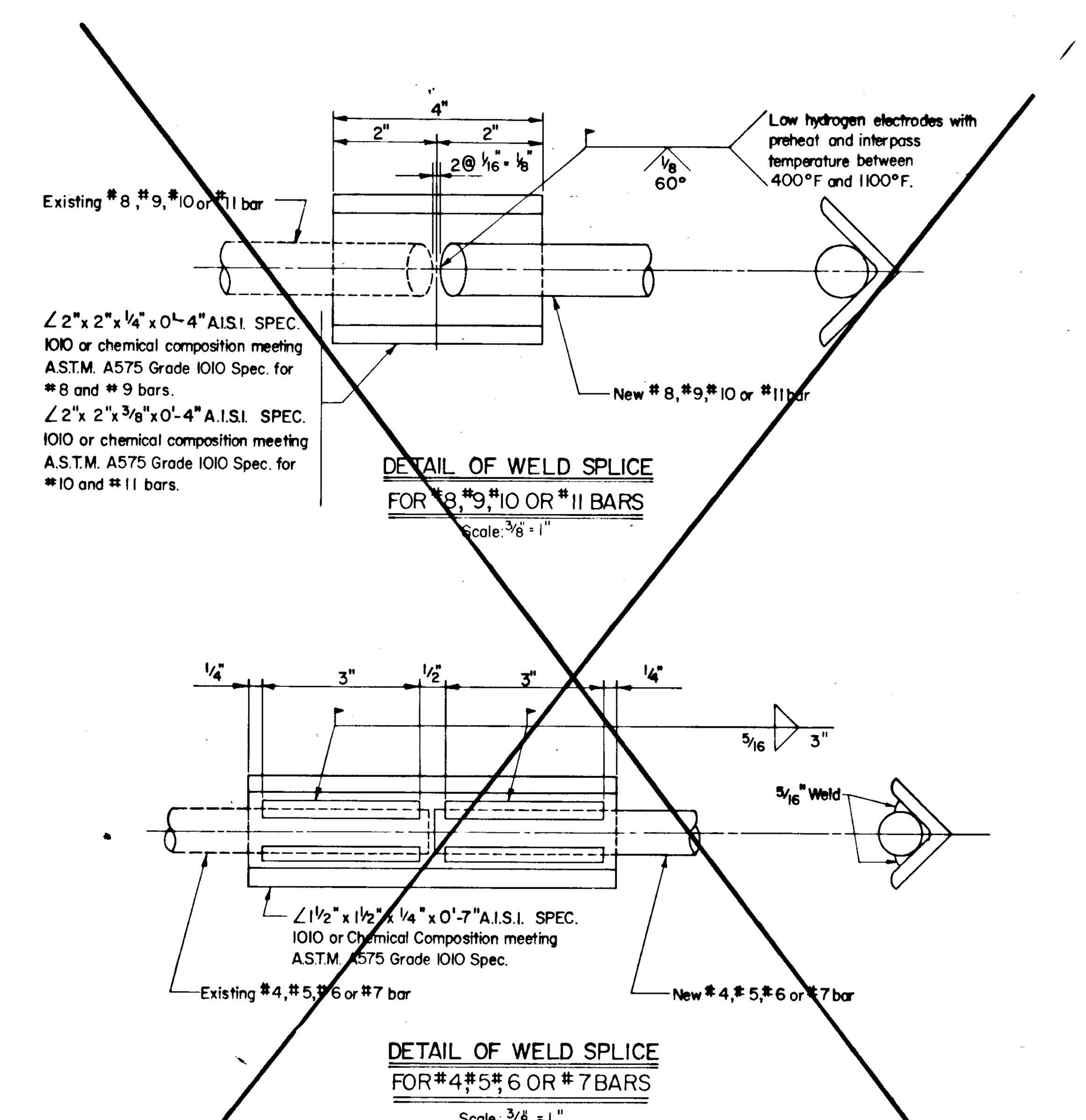
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
BAR LAP DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 6 (4500 P.S.I.) CONCRETE
NO. M(6.05)-80-122 SHEET 1 OF 1



Note:
1. Bottom Cut Off Wall may be eliminated if slope protection can be founded in rock.
2. All material for riprap slope protection shall be Class I conforming to Subsection 905.01 of the Specifications.
3. In areas where scupper downspouts will be discharging onto this type of slope protection a 6" blanket of selected backfill shall be placed under the slope protection for an area 5'x5' centered under outlet. Cost of Selected Backfill to be included in Slope Protection items.
4. Refer to Section 818 of the Specifications.

APPROVAL	
ASST. CHIEF ENGR. BRIDGE DEVEL.	DATE 12/2/81
REVISIONS	
SHA	FHWA
7-29-82	11-29-85
9-1-82	11-29-85
2-15-83	11-29-85
5-5-83	11-29-85
2-17-87	
FHWA APPROVAL DATE 11-29-85	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
RIPRAP SLOPE PROTECTION FOR BRIDGES CARRYING ROAD OVER ROAD OR RAILROAD
STANDARD NO. M(6.02)-78-75 SHEET 3 OF 3

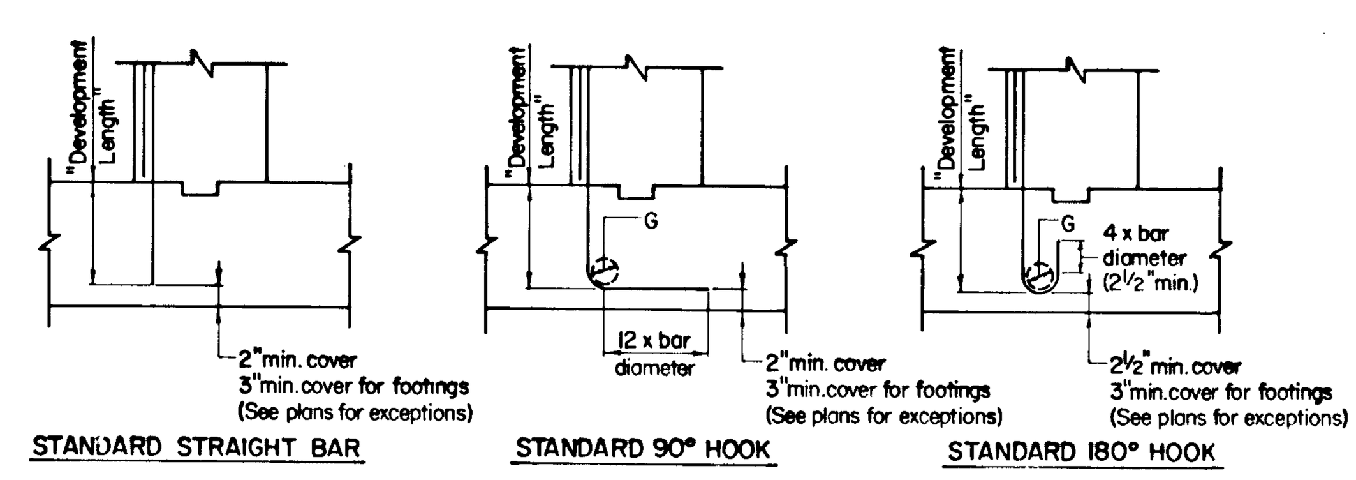


Note:
If sufficient bar lap is not available when existing reinforcing steel is exposed, this detail to extend bars shall be used. Cost of these connections shall be included in contract prices bid on pertinent concrete items.

APPROVAL	
CHIEF, BUREAU OF BRIDGE DESIGN	DATE 9/18/76
REVISIONS	
SHA	FHWA
FHWA APPROVAL DATE: 11-9-76	

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
DETAIL FOR SPLICE WELDING REINFORCING BARS
STANDARD NO. M(6.01)-75-12 SHEET 1 OF 1

Bar Size	Min. G
Nos. 4-8	6 x bar diameter
Nos. 9-11	8 x bar diameter



Bar Size	* LOCATION CATEGORY: "Development Length" of straight bars.			"Development Length" for hooked bars.		
	A	B	C	D	E	F
#4	1'-5"	1'-0"	1'-0"	8"	11"	7"
#5	1'-9"	1'-3"	1'-0"	9"	1'-1"	8"
#6	2'-2"	1'-6"	1'-3"	11"	1'-4"	9"
#7	2'-11"	2'-1"	1'-8"	1'-1"	1'-6"	11"
#8	3'-11"	2'-9"	2'-3"	1'-3"	1'-9"	1'-0"
#9	4'-10"	3'-5"	2'-9"	1'-5"	1'-11"	1'-2"
#10	6'-1"	4'-4"	3'-6"	1'-7"	2'-2"	1'-4"
#11	7'-6"	5'-4"	4'-4"	1'-9"	2'-5"	1'-5"

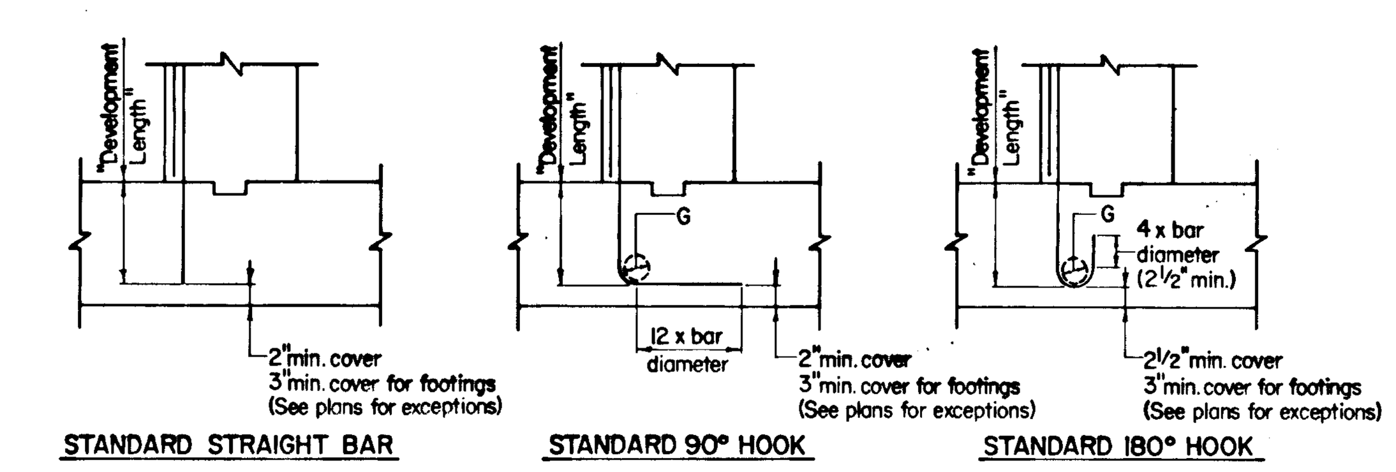
* Location Category:
A- Bars in horizontal layers in top of pour with 12" or more of concrete below them such as; in footings, pier caps, etc.
B- All bars not in Category A spaced less than 6" inches apart.
C- All bars not in Category A spaced 6" inches or more apart with at least 3" clear cover measured in the direction of the spacing.
D- All bars terminating with a standard 180° hook with side cover (normal to plane of hook) not less than 2 1/2" in., and for 90° deg. hook, cover on bar extension beyond hook not less than 2" in.
E- All bars not in Category D with hook enclosed vertically or horizontally within ties or stirrup-ties spaced along the full development length not greater than 3d where d is the diameter of the hooked bar
F- All bars in Category D with hook enclosed vertically or horizontally within ties or stirrup-ties spaced along the full development length not greater than 3d where d is the diameter of the hooked bar.

Note:
1. When development length is not specified on the plans, the above dimensions shall be used.
2. These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
3. These development lengths only apply where the general notes indicate "Reinforcing Steel Design: f_s=24,000 P.S.I."
4. If depth of member does not allow bar development length indicated in Categories A, B and C; then hook shall be added to all bars not conforming, as per D, E & F.

APPROVAL: DEPUTY CHIEF ENGR. BRIDGE DEVEL. DATE 4/4/86 — REVISIONS: SHA, FHWA: 12-22-86 — FHWA APPROVAL DATE

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
DEVELOPMENT LENGTH DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 3 (3500 P.S.I.) CONCRETE
NO. M(6.08)-86-178 SHEET 1 OF 1

Bar Size	Min. G
Nos. 4-8	6 x bar diameter
Nos. 9-11	8 x bar diameter



Bar Size	* LOCATION CATEGORY: "Development Length" of straight bars.			"Development Length" for hooked bars.		
	A	B	C	D	E	F
#4	1'-5"	1'-0"	1'-0"	7"	9"	6"
#5	1'-9"	1'-3"	1'-0"	8"	1'-0"	7"
#6	2'-2"	1'-6"	1'-3"	10"	1'-2"	8"
#7	2'-7"	1'-10"	1'-6"	11"	1'-4"	9"
#8	3'-5"	2'-5"	2'-0"	1'-1"	1'-6"	11"
#9	4'-3"	3'-0"	2'-5"	1'-3"	1'-9"	1'-0"
#10	5'-3"	3'-9"	3'-0"	1'-4"	1'-11"	1'-1"
#11	6'-7"	4'-8"	3'-9"	1'-6"	2'-2"	1'-3"

* Location Category:
A- Bars in horizontal layers in top of pour with 12" or more of concrete below them such as; in footings, pier caps, etc.
B- All bars not in Category A spaced less than 6" inches apart.
C- All bars not in Category A spaced 6" inches or more apart with at least 3" clear cover measured in the direction of the spacing.
D- All bars terminating with a standard 180° hook with side cover (normal to plane of hook) not less than 2 1/2" in., and for 90° deg. hook, cover on bar extension beyond hook not less than 2" in.
E- All bars not in Category D with hook enclosed vertically or horizontally within ties or stirrup-ties spaced along the full development length not greater than 3d where d is the diameter of the hooked bar
F- All bars in Category D with hook enclosed vertically or horizontally within ties or stirrup-ties spaced along the full development length not greater than 3d where d is the diameter of the hooked bar.

Note:
1. When development length is not specified on the plans, the above dimensions shall be used.
2. These development lengths do not apply when bar is in lightweight concrete or any other strength of concrete.
3. These development lengths only apply where the general notes indicate "Reinforcing Steel Design: f_s=24,000 P.S.I."
4. If depth of member does not allow bar development length indicated in Categories A, B and C; then hook shall be added to all bars not conforming, as per D, E & F.

APPROVAL: DEPUTY CHIEF ENGR. BRIDGE DEVEL. DATE 4/4/86 — REVISIONS: SHA, FHWA: 12-22-86 — FHWA APPROVAL DATE

STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION
DIVISION OF BRIDGE DEVELOPMENT
DEVELOPMENT LENGTH DIMENSIONS FOR GRADE 60 REINFORCING STEEL IN MIX NO. 6 (4500 P.S.I.) CONCRETE
NO. M(6.10)-86-180 SHEET 1 OF 1

HO 140

REV. NO.	REV. DATE	REVISIONS

PARKWAY CORPORATE CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY CENTER
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1

PROJECT TITLE
PARK CIRCLE DRIVE
BRIDGE OVER DEEP RUN
STANDARDS

SCALE: DATE: 12-18-87

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER

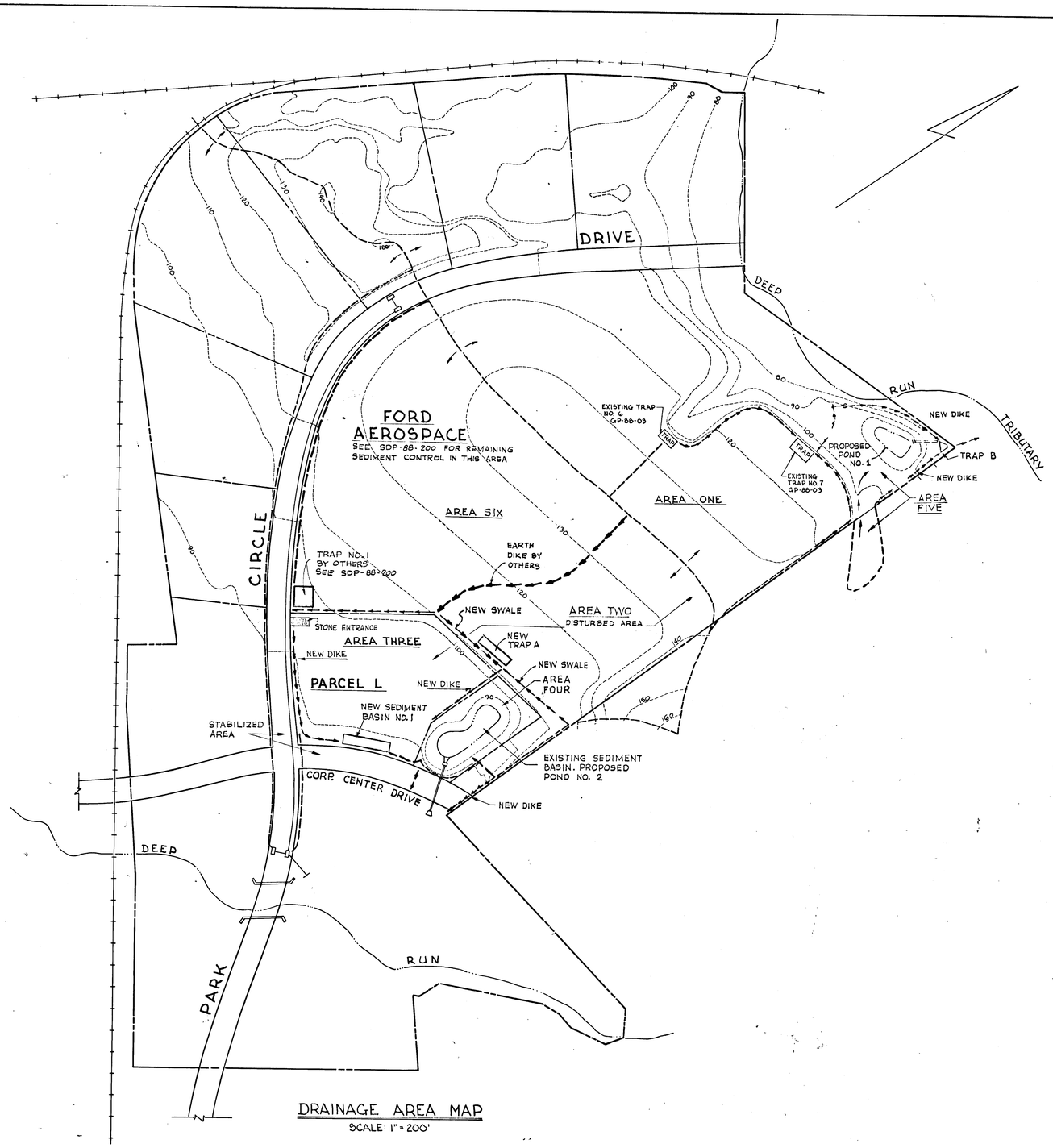
ALVI ASSOCIATES, INC.
CONSULTING ENGINEERS
TOWSON, MARYLAND

DWG. NO. S-19

F-88-55

SHEET 32 OF 43

314



DRAINAGE AREA MAP

SCALE: 1" = 200'

Approved: Howard County Department of Public Works

Chief, Land Development Division	3/17/89 Date
Chief, Bureau of Highways	3/21/89 Date
Chief, Bureau of Engineering	3-28-89 Date

OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development	3-27-89 Date

CONSTRUCTION SEQUENCE --- (SEE MAP. THIS SHEET. SEE SEDIMENT CONTROL SITE PLANS ON SHEET 34)

POND NO. 1

1. OBTAIN GRADING PERMIT.
2. **AREA ONE.** EXISTING TRAPS 6 AND 7 AND EARTH DIKE SHALL REMAIN IN PLACE.
3. CONSTRUCT B-4 DIKE BELOW TRAP 7. PLACE 30' WIDTH STONE (8" DEPTH) FOR CONSTRUCTION ACCESS ACROSS COLONIAL PIPELINE R/W. USE 2" STONE OR EQUIVALENT. (ONE DAY).
4. CLEAR AND GRUB AREAS FOR SEDIMENT CONTROL FACILITIES ONLY. (ONE DAY)
5. **AREA FIVE.** CONSTRUCT SILT FENCE, EARTH DIKES AND TRAP "B". (ONE DAY).
6. CLEAR, GRUB AND CONSTRUCT POND SPILLWAY, CONCRETE RISER, ENDWALL, POND EXCAVATION, EARTH DAM EMBANKMENT, GABION MATTRESSES AND STABILIZE. SEE DETAILS AND SPECIFICATIONS, SHEETS 35-43. (TWO WEEKS).
7. FOR STORM DRAIN OUTFALL BY OTHERS - SEE CONSTRUCTION DRAWINGS SDP-88-200.
8. AFTER AREA ONE AND POND AREA FIVE ARE STABILIZED, AND UPON APPROVAL OF INSPECTOR REMOVE TRAP B AND CONSTRUCT GABION OUTFALL CHANNEL, RIP RAP AND STABILIZE. (ONE WEEK).
9. UPON APPROVAL OF INSPECTOR, REMOVE SILT FENCES AND EARTH DIKES.
10. TIME PERIOD - SIX WEEKS.

POND NO. 2

1. AREA SIX-FORD AEROSPACE. SEDIMENT CONTROL FACILITIES UNDER SDP-88-200 SHALL BE IN PLACE. SEE TRAP NO. 1 AND DIKE BY OTHERS THIS SHEET AND SHEET 34.
2. CONSTRUCT STONE ENTRANCE, **AREA THREE.** CONSTRUCT SWALE, DIKE AND TRAP "A" IN **AREA TWO.** CONSTRUCT EARTH DIKES, SWALE, SEDIMENT BASIN NO. 1, AND REMOVE EARTH DIKE IN **AREAS THREE AND FOUR.** (ONE WEEK). PARK CIRCLE DRIVE SHALL BE STABILIZED. CORPORATE CENTER DRIVE TO END OF PAVING SHALL BE STABILIZED.
3. CONSTRUCT IN STREAM STONE DIKE IN EXISTING OUTFALL DITCH.
4. EXCAVATE NEW OUTFALL DITCH. CARRY DITCH TO ENDS OF 36" RCP, 30" SPILLWAY AND UNDER DRAIN. PLACE CLEAN GRAVEL OR STONE (NO. 2) AND MAINTAIN UNDER DRAIN FLOW THRU THIS DITCH. MOUND STONE ACROSS DITCH TO DIRECT OVERLAND DRAINAGE TO IN STREAM STONE DIKE. (ONE DAY).
5. CONSTRUCT NEW STORM DRAIN, S-1 TO NEW MANHOLE MH-5. CONSTRUCT NEW UNDER DRAIN FROM MH-5, SEE PLAN. LENGTH AND DEPTH OF UNDER DRAIN SHALL BE DETERMINED IN THE FIELD. ALL SUBGRADE DRAINAGE SHALL BE DIRECTED THROUGH NEW UNDER DRAIN AND STORM DRAIN TO S-1. EXISTING 30" DRAIN FROM I-44 TO MH-5 SHALL BE REMOVED. (ONE WEEK).
6. CONSTRUCT 20 L.F. OF 48" SPILLWAY PIPE TO END OF EXISTING 30" SPILLWAY. CONSTRUCT NEW 36" STORM DRAIN FROM S-1 TO NEW MANHOLE MH-5b. CONSTRUCT ENDWALL S-1. (ONE WEEK).
7. DEWATER POND BY PUMPING. EXCAVATE AND REMOVE EXISTING 30" SPILLWAY, UNDER DRAIN, RISER AND DEWATERING ASSEMBLY. PLACE NEW 48" SPILLWAY. CONSTRUCT CONCRETE RISER. SEE DETAILS AND SPECIFICATIONS, SHEETS 36 - 43. (TWO WEEKS).
8. EXCAVATE POND, BACKFILL NEW SPILLWAY. (ONE WEEK).
9. REMOVE LENGTHS OF UNDER DRAIN WHICH INTERCEPT SUBGRADE DRAINAGE. LENGTH OF UNDER DRAIN TO BE REMOVED SHALL BE DETERMINED IN THE FIELD. (ONE WEEK).
10. GRADE AND SHAPE POND AND EARTH DAM EMBANKMENT TO THE LINES AND GRADES SHOWN AND STABILIZE, EXCEPT BASIN NO. 1 EMERGENCY SPILLWAY AREA. SEE GRADING PLAN AND SPECIFICATIONS. (TWO DAYS). GRADE OUTFALL AREA-ROADWAY STATION, S-1 AND OLD OUTFALL DITCH AND STABILIZE. (TWO DAYS).
11. STABILIZE **AREA TWO.** FOR STORM DRAIN OUTFALL INTO POND AND STORM DRAIN EXTENSION TO SUMPED INLET IN **AREA TWO** BY OTHERS, SEE CONSTRUCTION DRAWINGS F-88-55. THE SWALE TO TRAP "A" SHALL REMAIN IN PLACE. UPON PERMISSION OF INSPECTOR, TRAP "A" MAY BE REMOVED PRIOR TO CONSTRUCTION OF SUMPED "A" INLET BY OTHERS.
12. UPON PERMISSION OF INSPECTOR SEDIMENT CONTROL FACILITIES MAY BE REMOVED WHEN **AREAS TWO, THREE, FOUR AND CORPORATE CENTER DRIVE** ARE STABILIZED. RECONSTRUCT DAM EMBANKMENT AT BASIN NO. 1 EMERGENCY SPILLWAY AND STABILIZE. (THREE DAYS).
13. TIME PERIOD - SEVEN WEEKS.

STABILIZATION

1. FOR TEMPORARY SEEDING NOTES, SEE SHEET 40.
2. FOR PERMANENT SEEDING NOTES, SEE SHEET 42.

BY THE DEVELOPER:

"I WE CERTIFY THAT ALL DEVELOPMENT AND OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT"

Ann E. Merchant 8/10/88
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.

SOIL CONSERVATION SERVICE 3-8-89
DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Robert W. Zahn 3-7-89
HOWARD SOIL CONSERVATION DISTRICT DATE

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 AN "AS BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION."

Kenneth A. McCord 8/5/88
KENNETH A. McCORD DATE

REV. NO.	REV. DATE	REVISIONS

PARKWAY CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA:
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

PROJECT TITLE:
STORMWATER MANAGEMENT - PONDS 1 & 2
CONSTRUCTION SEQUENCE

SCALE: AS SHOWN DATE:

WHITMAN, REQUARDT AND ASSOCIATES
Engineers
2315 Saint Paul Street
Baltimore, Maryland - 21218

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

1314

Approved: Howard County Department of Public Works

Chief, Land Development Division — Date 3/17/89

Chief, Bureau of Highways — Date 3/21/89

Chief, Bureau of Engineering — Date 3/28/89

OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development — Date 4-3-89

FORD AEROSPACE

AREA SIX

AREA TWO

TRAP A (Area Two)

Place 4" to 8" stone on slope, full length

Proposed swale to Trap A

Proposed Earth Dike by others See SDP-88-200

Carry stone 50' length to Elev. 100

Limit of Disturbance

N491,750

E874,600

AREA THREE
Sediment Basin No.1, 15.7 Acres

Cut 20' wide swale from Sediment Basin No. 1 to Trap A

Proposed Trap No.1 by others See SDP-88-200

PARCEL L

Note: Existing contours shown are grades as shown on GP-88-08

New Stone Entrance See Detail Sheet 41.

Remove existing Earth Dike

SEDIMENT BASIN NO. 1
See Details on Sheets 42 and 43.

Std. Sediment Basin II

Proposed Storm Drain by others. See Road Construction Dwgs. F-88-55

Place 12" stone 30' wide, Elev. 78.0 to 90.0

Remove Ex. 24" RCP and Place 24" RCP Storm Drain

Exist. Storm Drain

Stabilized area

Limit of Disturbance

Existing Storm drain

PARK CIRCLE DRIVE

CORPORATE CENTER DRIVE

100 Year Flood Plain

E874,600
N491,200

E875,250
N441,200

AREA FOUR
Basin Area
2.3 Ac.

Storm Drain by others See F-88-55

Remove existing underdrain

Reconstruct Dike at end of each working day

Construct new underdrain from MH-5. Length and depth of underdrain to be determined in the field.

30" RCP drain relocation S-1 to MH-5. See Profile, Sheet 40

Remove existing 30" Spillway and underdrain and place new 48" Spillway.

In Stream Stone Dike See Detail this Sheet

Storm Drain Extension See Profile, Sheet 40

Ex. 30" D

Ex. 18" W

End Ex. Paving

Ex. 36" D

MH 5, MH 5A, MH 5B, S-1, I-44

Limit of Disturbance

TRAP 'A' DESIGN DATA, AREA TWO

Drainage Area	= 10.1 Acres
Disturbed Area	= 10.1 Acres
Storage Required	= 18,271 Ft³
Storage Provided	25,000 Ft³
Top Berm Elevation	= 110.00
Weir Crest Elevation	= 109.00
Weir Length	= 40.5'
Storage Elevation	= 108.00
Bottom Elevation	= 104.00
Size of Bottom	= 120' x 30'

BASIN AREA FOUR

Drainage Area	= 2.3 Acres
Disturbed Area	= 2.3 Acres
Storage Required	= 4161 Ft³
Storage Provided to Elevation 77.00	= 5695 Ft³

SEDIMENT BASIN NO. 1 - AREA THREE (Includes Area Two)

Drainage Area	= 15.7 Acres
Disturbed Area	= 15.7± Acres
Storage Reqd.	= 28401 Ft³
Storage Available	= 33890 Ft³
Top Dam Elev.	= 88.00
Top Riser Elev.	= 84.50
Em. Spwy Elev	= 85.50
Storage Elev	= 84.50
Bottom Elev.	= 78.00
Bottom Size	= 140' x 80'

SEDIMENT CONTROL & POND CONVERSION PLAN - POND NO. 2
Scale: 1" = 50'

TRAP 'B' DESIGN DATA

Drainage Area	= 3.0 Acres
Disturbed Area	= 1.3 Acres
Storage Required	= 5427 Ft³
Storage Provided	= 5688 Ft³
Top Berm El.	= 72.00
Weir Crest El.	= 71.00
Weir Length	= 12.0'
Storage El.	= 70.00
Bottom El.	= 63.5
Size of Bottom	= 35' x 20' x 12'

N493,700 E875,250

Limit of Disturbance

TRAP 'B'

Silt Fence

(Woods)

Limit of Disturbance

Limit of Disturbance

Stone Construction Access

Colonial Pipeline Right-of-Way

Clearing Line

(Woods)

Limit of Disturbance

Reconstruct Dike at end of each working day

Existing Dike

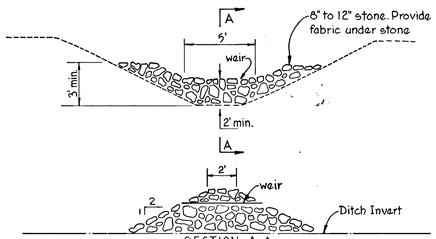
Existing Trap No.7

Note: Existing Trap 7 and Dike shall remain in place.

N493,100 E875,550

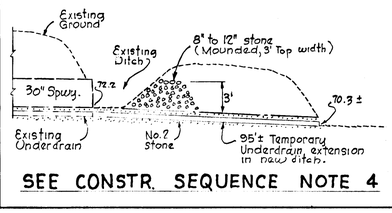
SEDIMENT CONTROL PLAN
POND NO. 1 Scale: 1"=50'

Note: See Maryland's Guidelines to Waterway Construction Detail WPD 1.2



SECTION A-A

IN STREAM STONE DIKE
No Scale



SEE CONSTR. SEQUENCE NOTE 4

BY THE DEVELOPER:

"I WE CERTIFY THAT ALL DEVELOPMENT AND OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT"

DATE 8/10/88

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

SOIL CONSERVATION SERVICE — DATE 3-8-89

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 3-7-89

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 AN "AS-BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION."

KENNETH A. McCORD — DATE 8/5/88

REV. NO.	REV. DATE	REVISIONS

PARKWAY CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA:
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

PROJECT TITLE:
SEDIMENT CONTROL - POND NO. 1 & 2
POND CONVERSION - POND NO. 2

SCALE: AS SHOWN — DATE: 8/5/88

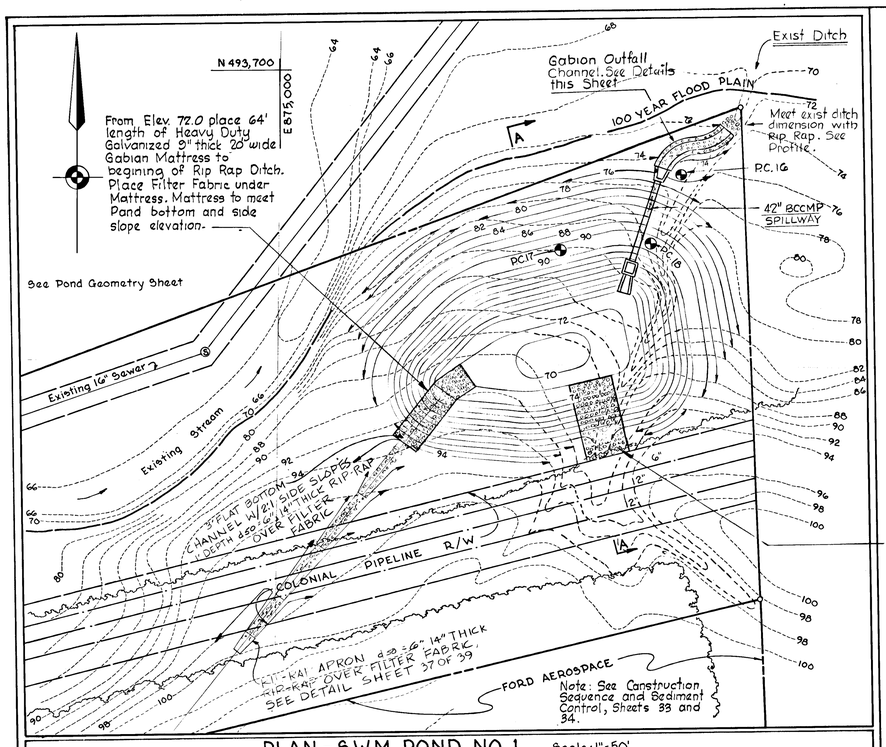
WHITMAN, REQUARDT AND ASSOCIATES
Engineers
2315 Saint Paul Street
Baltimore, Maryland - 21218

STATE OF MARYLAND — KENNETH A. McCORD — REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR

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

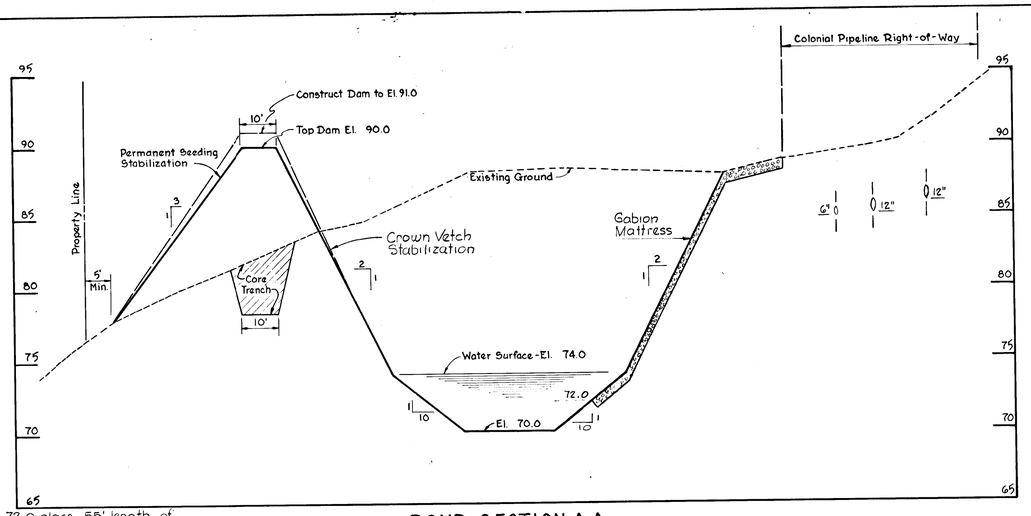
1314

F-88-55



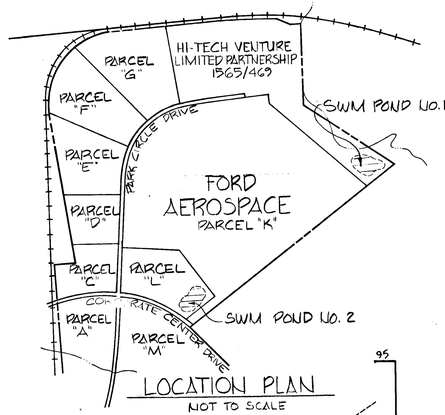
PLAN - SWM POND NO. 1 Scale: 1" = 50'

From Elev. 72.0 place 55' length of Heavy Duty Galvanized 9" thick 30' wide Gabion Mattress to swale of Colonial Pipeline R/W. Place filter fabric under mattress. Mattress to meet pond bottom, side slope and swale dimension.



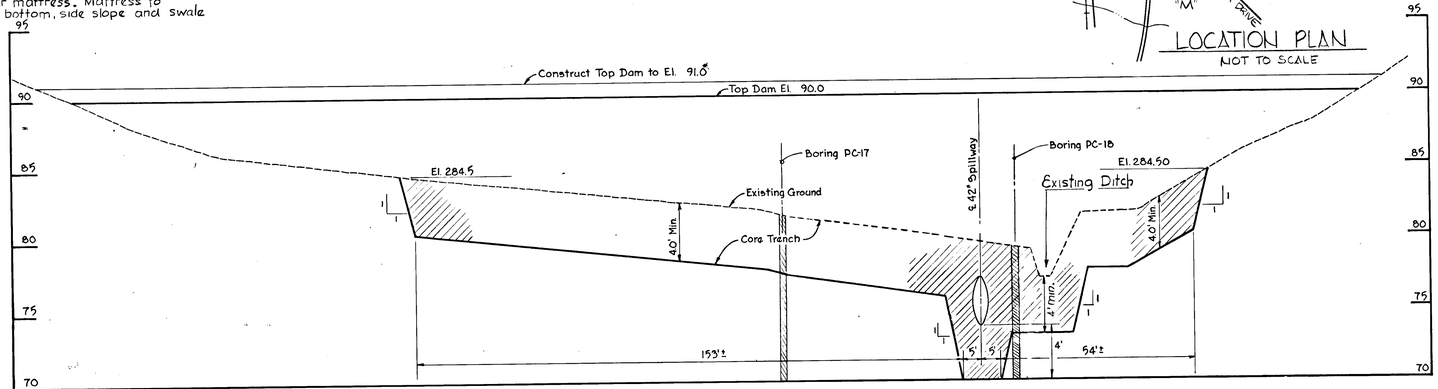
POND SECTION A-A

Scale: Horz: 1" = 20'
Vert: 1" = 5'



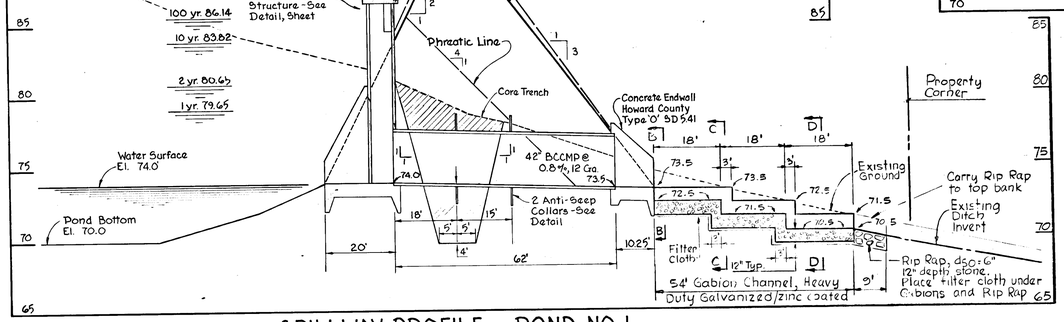
LOCATION PLAN

NOT TO SCALE



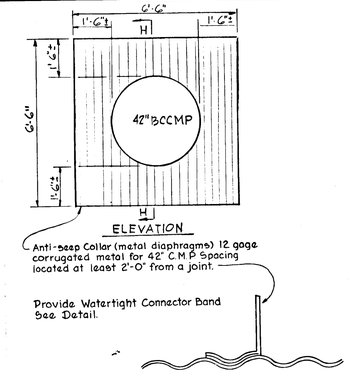
DAM PROFILE POND NO. 1

Scale: Horz: 1" = 20'
Vert: 1" = 5'



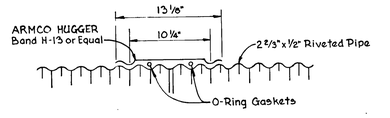
SPILLWAY PROFILE POND NO. 1

Scale: Horz: 1" = 20'
Vert: 1" = 5'



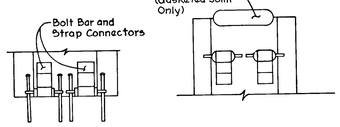
ANTI SEEP COLLAR DETAIL

No Scale



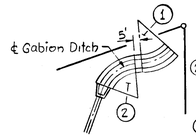
DETAIL - WATERTIGHT JOINT

No Scale



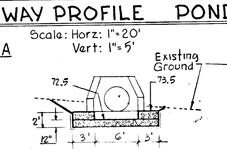
CONNECTION DETAIL - DOUBLE HARNESS

No Scale



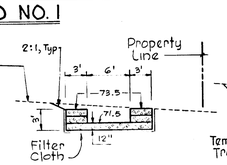
GABION DITCH GEOMETRY

Scale: 1" = 50'



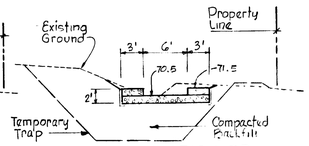
GABION SECTION BB

Scale: 1" = 10'



GABION SECTION CC

Scale: 1" = 10'



GABION SECTION DD

Scale 1" = 10'

BY THE DEVELOPER:

"I HEREBY CERTIFY THAT ALL DEVELOPMENT AND OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Owen R. Whitman 8/10/88
DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL

James M. Helm 3-8-89
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.

Robert W. Ziehm 3-7-89
HOWARD SOIL CONSERVATION DISTRICT DATE

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 AN "AS BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION."

Kenneth A. McCord 8/5/88
KENNETH A. McCORD DATE
Registration No. 1974

Approved: Howard County Department of Public Works

Chief, Land Development Division — 3/17/89 Date
Chief, Bureau of Highways — 3/21/89 Date
Chief, Bureau of Engineering — 3/28/89 Date

OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development — 4-2-89 Date

REV. NO.	REV. DATE	REVISIONS

PARKWAY CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", M

PROJECT TITLE
PLAN, SPILLWAY PROFILE, DETAILS
POND NO. 1

SCALE: AS SHOWN DATE: 8/5/88

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

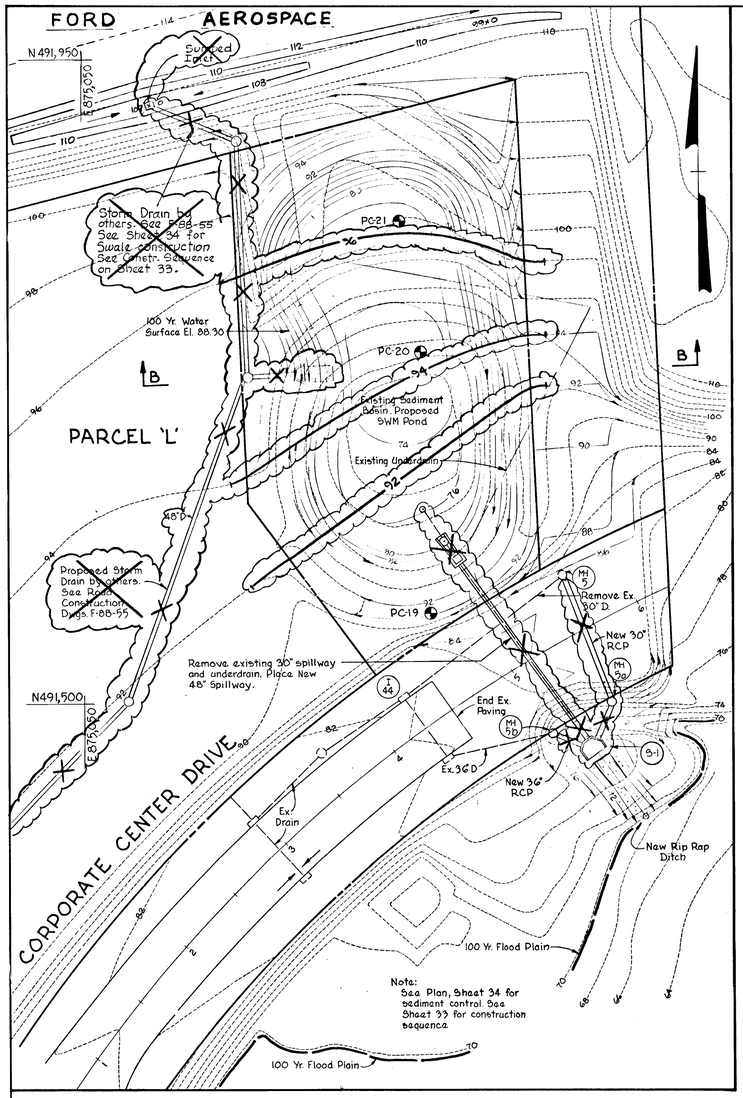
STATE OF MARYLAND — KENNETH A. McCORD — No. 1974 — REGISTERED ENGINEER AND LAND SURVEYOR

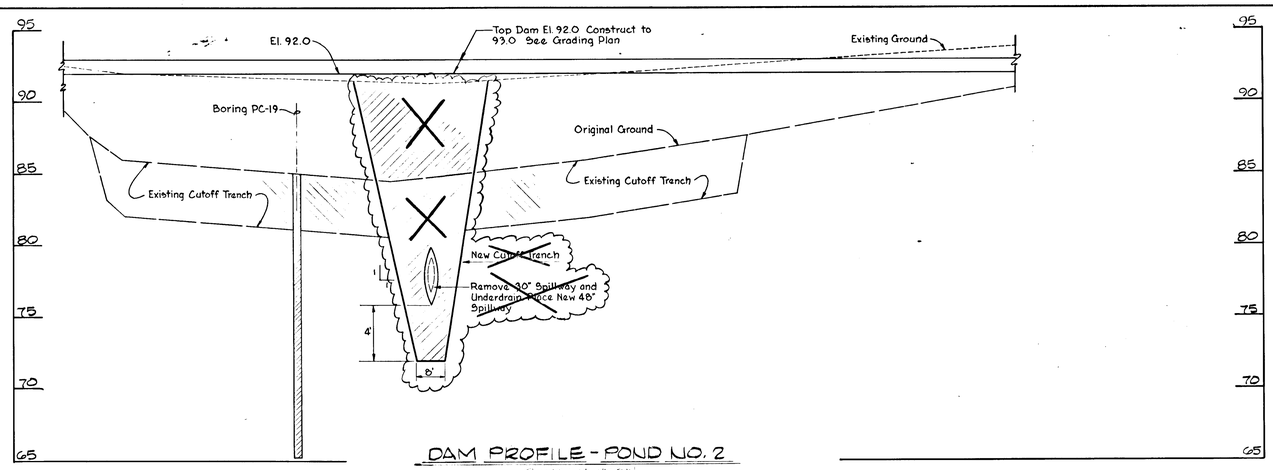
Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer No. 1974

1314

F-88-55

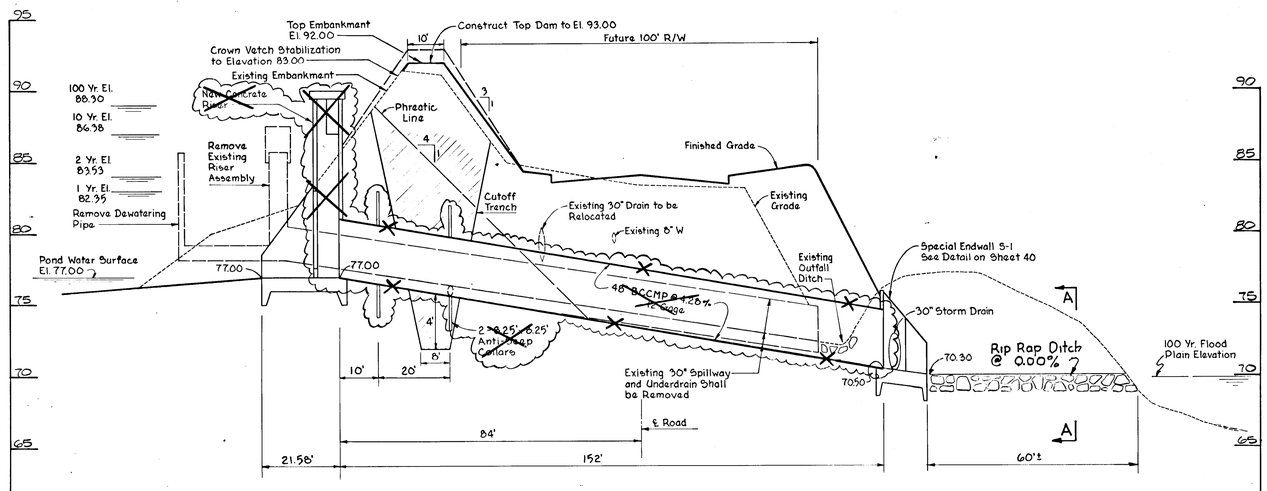
SHEET 35 OF 43 F-88-55





DAM PROFILE - POND NO. 2

Scale: H 1"=20'
V 1"=5'

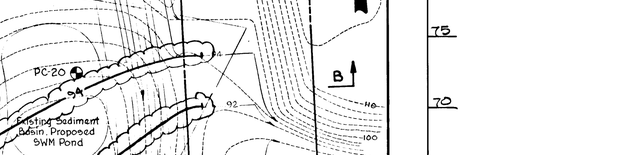


SPILLWAY PROFILE POND NO. 2

Scale: H 1"=20'
V 1"=5'

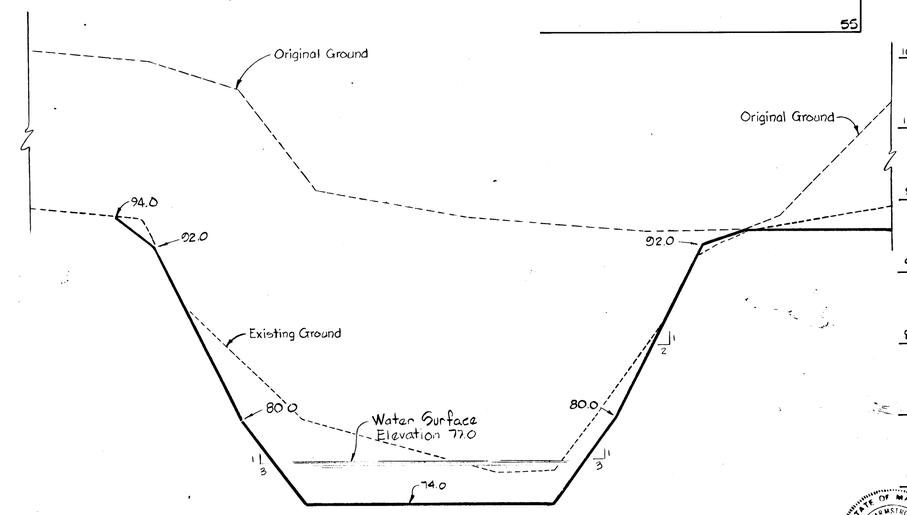
Connection Detail - Double Harness

NO SCALE



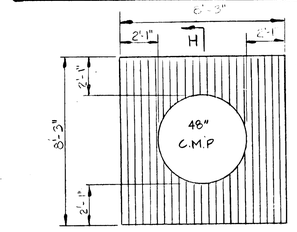
Detail - Watertight Joint

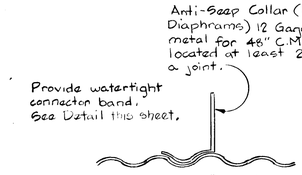
NO SCALE



POND SECTION "B-B"

SCALE HOR 1"=20'
VERT 1"=5'

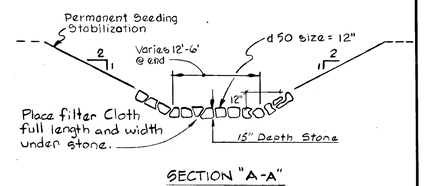




SECTION "H-H"

Anti-Seep Collar Detail

No Scale



SECTION "A-A"

No Scale

Approved: Howard County Department of Public Works

Chief, Land Development Division — 3/17/89 Date

Chief Bureau of Highways. — 3/21/89 Date

Chief, Bureau of Engineering — 3/28/89 Date

OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development. — 4-7-89 Date

By the Developer:

"I/We certify that all development and/or construction will be done according to these plans, 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 will provide the Howard Soil Conservation District with an "as-built" plan of the ponds within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

8/10/88 DATE

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

Howard Soil Conservation District — 3-8-89 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.

U.S. Soil Conservation Service — 3-7-89 Date

By the Engineer:

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8/5/88

REV. NO	REV. DATE	REVISIONS
1	5-20-91	Remove SWM Conversion

PARKWAY CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

PROJECT TITLE
PLAN, SPILLWAY PROFILE, DETAILS
POND NO. 2

SCALE: AS SHOWN — DATE: 8/5/88

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

STATE OF MARYLAND — KENNETH A. McCORD — REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR

Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 19741

1314

Approved: Howard County Department of Public Works

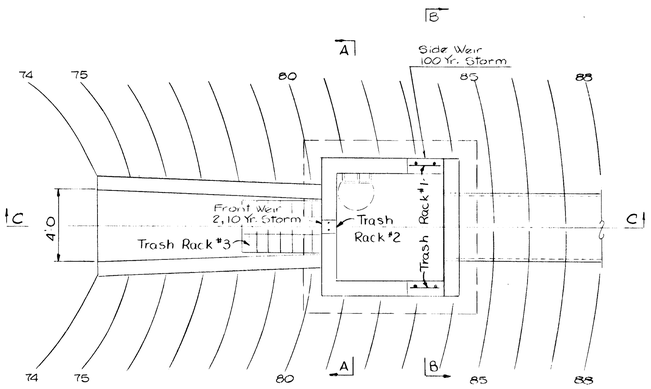
Chief, Land Development Division — 3/17/89 Date

Chief, Bureau of Highways — 3/21/89 Date

Chief, Bureau of Engineering — 3/28/89 Date

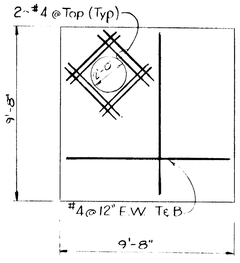
OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development — 4-3-89 Date



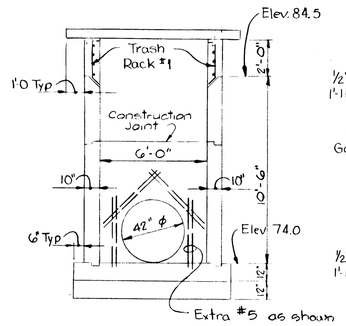
PLAN

Scale: 1/4" = 1'-0



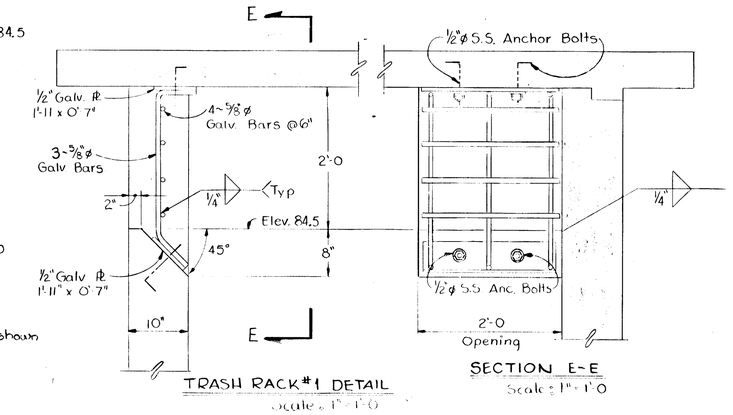
PLAN - TOP SLAB

Scale: 1/4" = 1'-0



SECTION BB

Scale: 1/4" = 1'-0

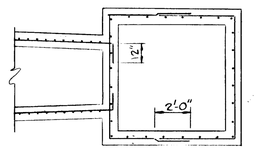


TRASH RACK #1 DETAIL

Scale: 1" = 1'-0

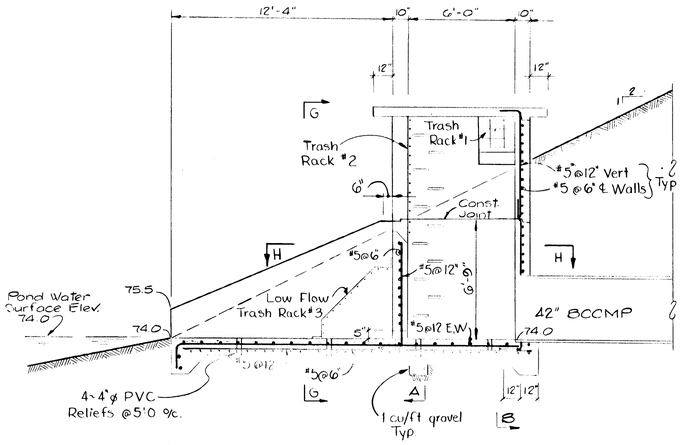
SECTION E-E

Scale: 1" = 1'-0



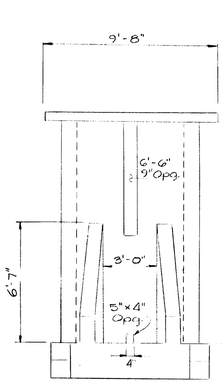
SECTION H-H

Scale 1/4" = 1'-0"



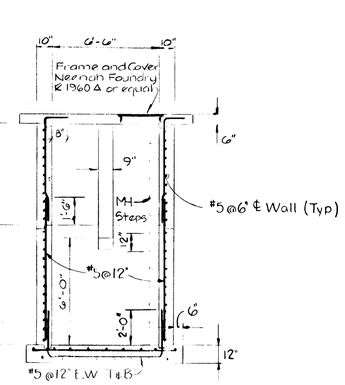
SECTION CC

Scale: 1/4" = 1'-0



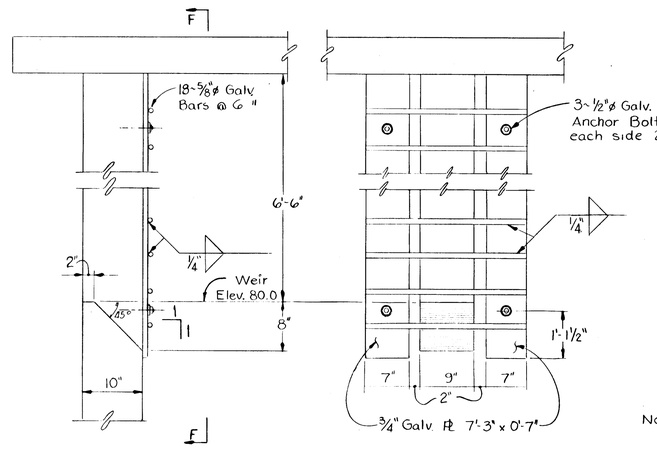
ELEVATION

Scale: 1/4" = 1'-0



SECTION AA

Scale: 1/4" = 1'-0

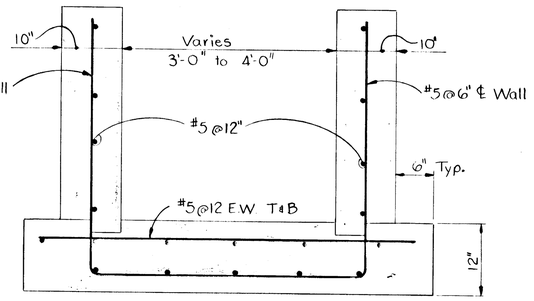


SECTION FF

Note:
Trash Racks shall be hot dipped galvanized after fabrication

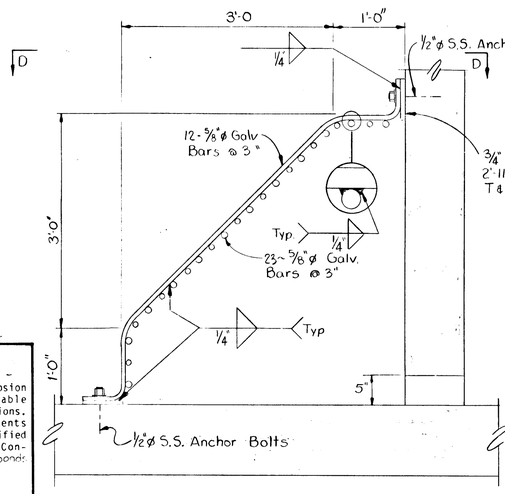
General Notes

1. Concrete
   a. 4000 p.s.i at 28 days
   b. Air entrained
2. Reinforcing Steel
   a. Fy = 60,000
3. Cover
   a. Bottom Slab,
      top 2"
      bottom 3"
   b. Walls, 2"
   c. Top Slab, 1" T&B



SECTION GG

Scale: 1" = 1'-0

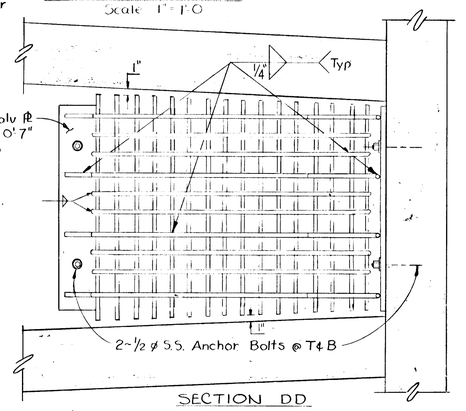


LOW FLOW TRASH RACK #3

Scale 1" = 1'-0

TRASH RACK #2

Scale 1" = 1'-0



SECTION DD

By the Developer:

"I/We certify that all development and/or construction will be done according to these plans, 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 will provide the Howard Soil Conservation District with an "as-built" plan of the ponds within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

3/10/89 DATE

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

Howard Soil Conservation District — 3-8-89 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.

U.S. Soil Conservation District — 3-8-89 Date

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 an "as-built" plan of the ponds within 30 days of completion."

8/5/88

REV. NO	REV. DATE	REVISIONS

PARKWAY CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

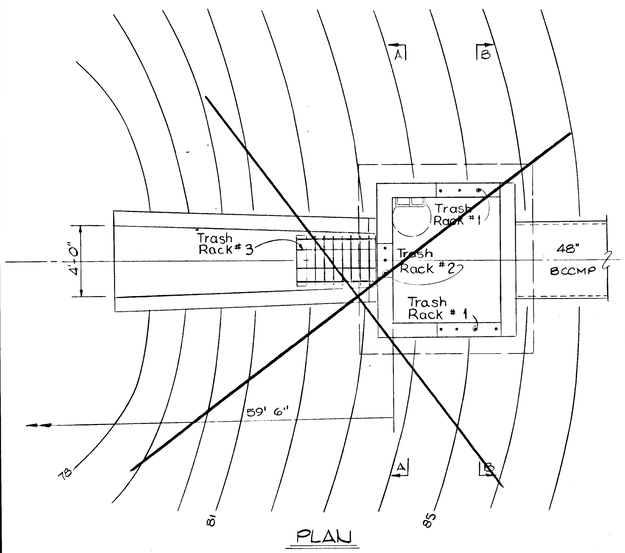
PROJECT TITLE
CONCRETE RISER DETAILS
POND NO. 1

SCALE: AS SHOWN — DATE: 8/5/88

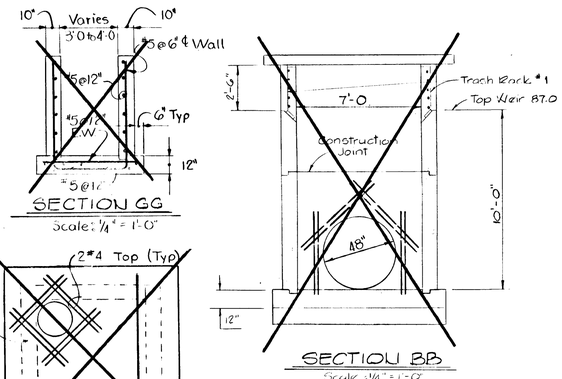
WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

Kenneth J. McCord
KENNETH J. McCORD
Registered Engineer
No. 19741

13/14



PLAN

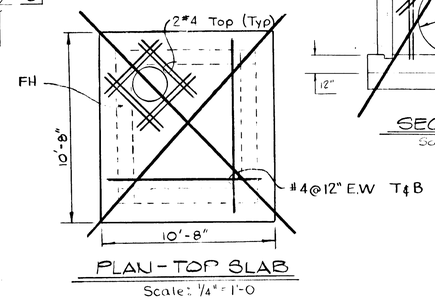


SECTION GG

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

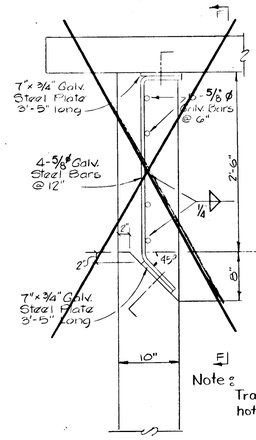
SECTION BB

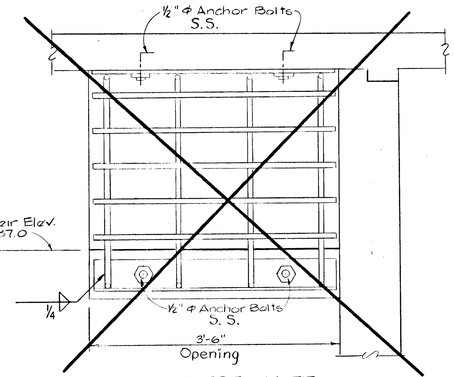
Scale: 1/4" = 1'-0"



PLAN - TOP SLAB

Scale: 1/4" = 1'-0



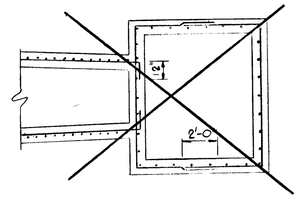


Note: Trash Rack shall be hot dipped galvanized

SECTION FF

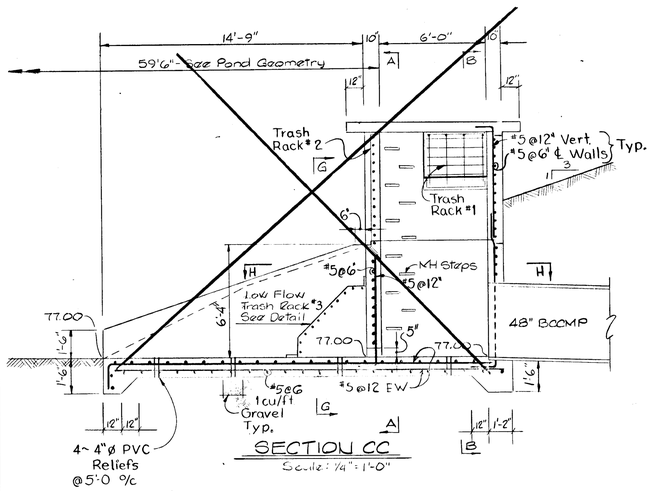
TRASH RACK #1 DETAIL (2 REQ.)

Scale: 1" = 1'-0"



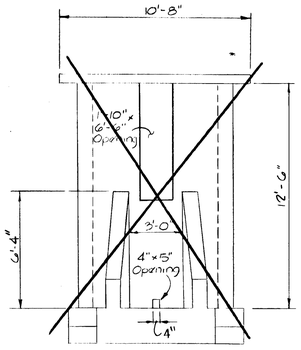
SECTION H-H

SCALE 1/4" = 1'-0"



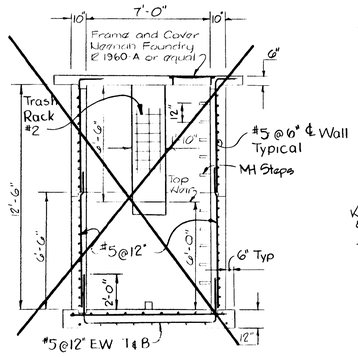
SECTION CC

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



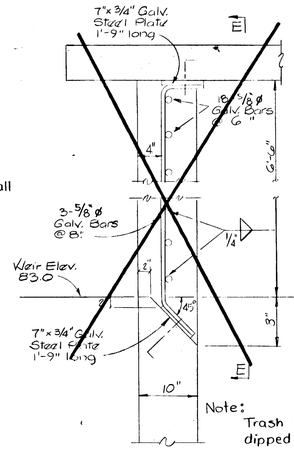
ELEVATION

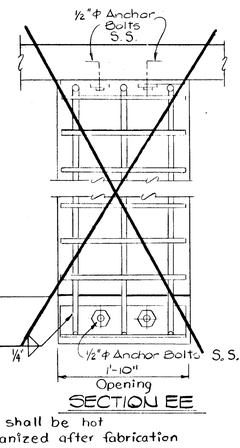
Scale: 1/4" = 1'-0"



SECTION AA

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





Note: Trash Rack shall be hot dipped galvanized after fabrication

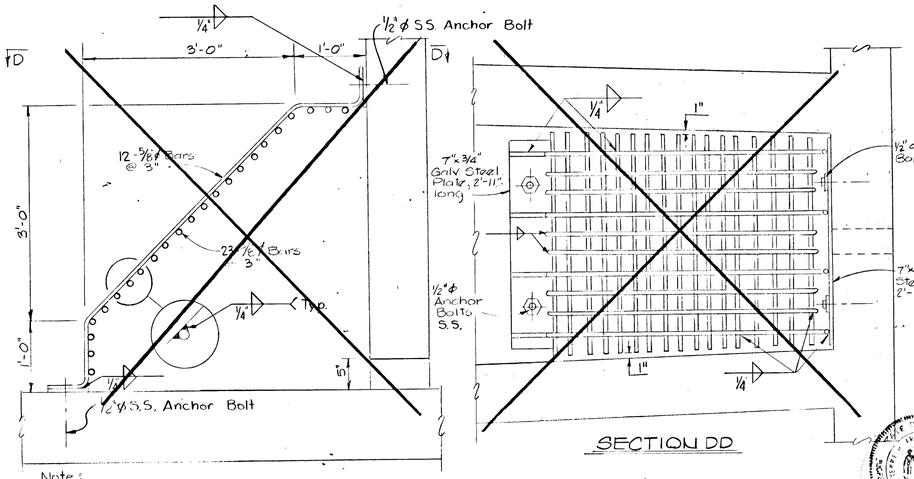
SECTION EE

TRASH RACK DETAIL #2

Scale: 1" = 1'-0"

General Notes

1. Concrete
   a. 4000 p.s.i. at 28 days
   b. Air entrained
2. Reinforcing Steel
   a. Fy = 60,000
3. Cover
   a. Bottom slab
      Top - 2"
      Bottom - 3"
   b. Walls - 2"
   c. Top slab - 1" T&B



Note: Trash Rack shall be hot dipped galvanized after fabrication

LOW FLOW TRASH RACK #3

Scale: 1" = 1'-0"

SECTION DD

Approved: Howard County Department of Public Works

Chief, Land Development Division — 3/17/89 Date

Chief, Bureau of Highways — 3/21/89 Date

Chief, Bureau of Engineering — 3/28/89 Date

OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development — 4-7-89 Date

REV. NO.	REV. DATE	REVISIONS
1	5-20-91	Remove SWM Conversion

PARKWAY CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS A THRU "G" AND "K" "L" "M"

PROJECT TITLE
CONCRETE RISER DETAILS
POND NO. 2

SCALE: As Shown — DATE: 8/5/88

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

Kenneth A. McCord
KENNETH A. McCORD
Registered Engineer
No. 19741

By the Developer:

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8/10/88 DATE

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U.S. Soil Conservation District — 3-7-89 Date

By the Engineer:

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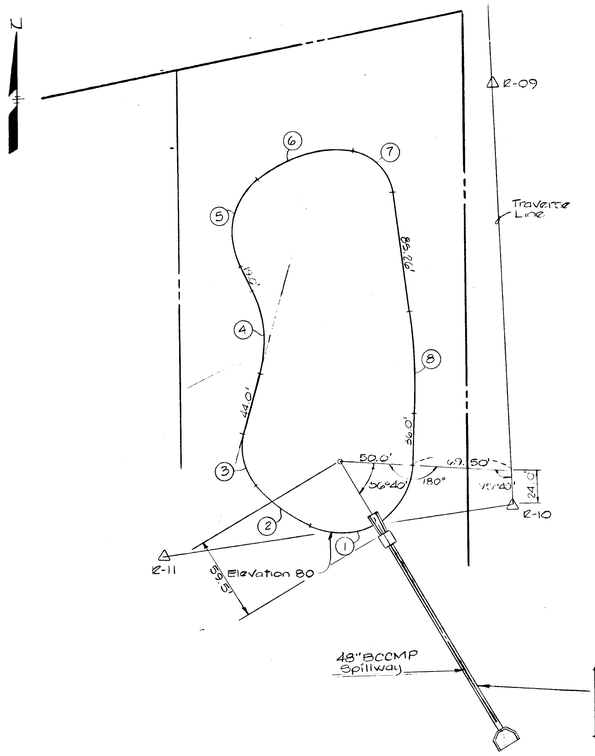
8/5/88

SHEET 38 OF 43 F-88-55

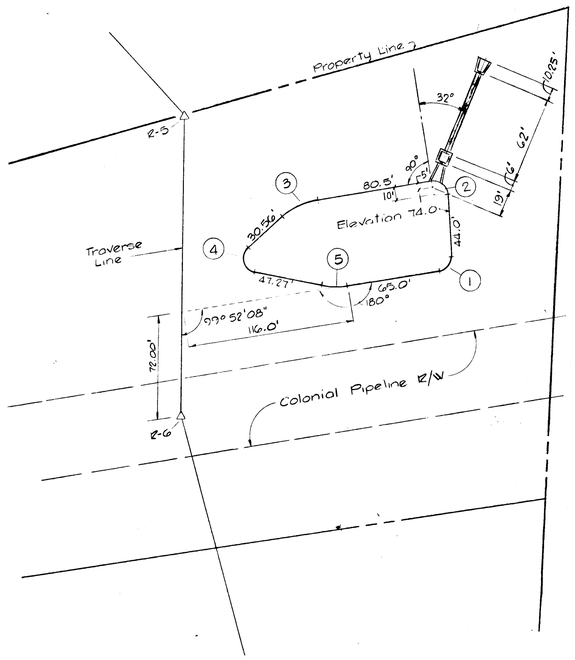


New 48" Spillway alignment equals existing spillway alignment. See Plan and Profile on Sheet 36.

CURVE DATA

①	DEL = 112°50'00"	RAD =	50.000
	LEN = 98.406	TAN =	75.304
	CH = 83.308	CH BE =	S 57°41'57" E
②	DEL = 22°25'00"	RAD =	123.000
	LEN = 48.123	TAN =	24.373
	CH = 47.817	CH BE =	N 55°08'22" W
③	DEL = 58°00'00"	RAD =	38.000
	LEN = 38.461	TAN =	21.064
	CH = 36.846	CH BE =	N 14°55'57" W
④	DEL = 42°25'00"	RAD =	80.000
	LEN = 59.225	TAN =	31.043
	CH = 57.882	CH BE =	N 07°08'22" W
⑤	DEL = 77°00'00"	RAD =	50.000
	LEN = 67.195	TAN =	39.772
	CH = 62.251	CH BE =	N 10°59'08" E
⑥	DEL = 45°20'00"	RAD =	90.000
	LEN = 71.209	TAN =	37.586
	CH = 69.366	CH BE =	N 71°19'08" E
⑦	DEL = 76°25'02"	RAD =	30.944
	LEN = 41.271	TAN =	24.358
	CH = 38.279	CH BE =	S 47°48'22" E
⑧	DEL = 10°25'00"	RAD =	100.00
	LEN = 72.722	TAN =	36.462
	CH = 72.622	CH BE =	S 04°23'22" E

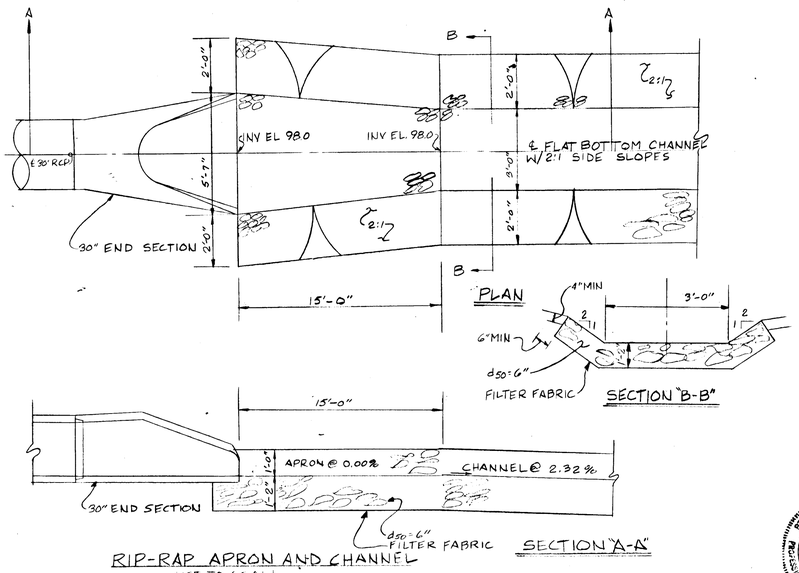
PLAN - POND NO. 2 GEOMETRY



CURVE DATA

①	DEL = 84°00'00"	RAD =	10.00
	LEN = 14.66	TAN =	9.00
	CH = 13.38	CH BE =	N 33° 56' 60" E
②	DEL = 96°00'00"	RAD =	10.00
	LEN = 16.76	TAN =	11.11
	CH = 14.86	CH BE =	N 56° 03'00" W
③	DEL = 33°10'00"	RAD =	50.00
	LEN = 28.94	TAN =	14.89
	CH = 28.54	CH BE =	S 59° 21'60" W
④	DEL = 126°39'57"	RAD =	10.00
	LEN = 22.11	TAN =	19.91
	CH = 17.87	CH BE =	S 20° 32'60" E
⑤	DEL = 20° 10'00"	RAD =	50.00
	LEN = 17.60	TAN =	8.90
	CH = 17.51	CH BE =	S 86° 01'60" W

PLAN - POND NO. 1 GEOMETRY



RIP-RAP APRON AND CHANNEL
NOT TO SCALE

Approved: Howard County Department of Public Works

Chief, Land Development Division — 3/17/89 Date

Chief, Bureau of Highways — 3/21/89 Date

Chief, Bureau of Engineering — 3/28/89 Date

OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development — 4-2-89 Date

By the Developer:

"I/We certify that all development and/or construction will be done according to these plans, 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 will provide the Howard Soil Conservation District with an "as-built" plan of the ponds within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

DATE 8/10/88

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

Howard Soil Conservation District — 3-8-89 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.

U.S. Soil Conservation District — 3-8-89 Date

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 an "as-built" plan of the ponds within 30 days of completion."

8/5/88 Date

REV. NO.	REV. DATE	REVISIONS

PARKWAY CENTER
1ST ELECTIOU DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K", "L", "M"

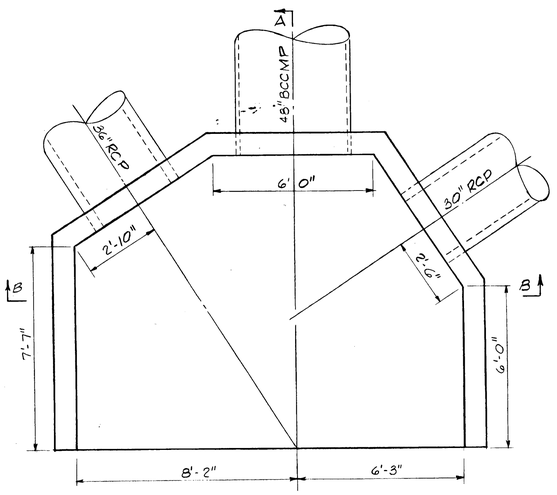
PROJECT TITLE
POND GEOMETRY

SCALE: — DATE: 8/5/88

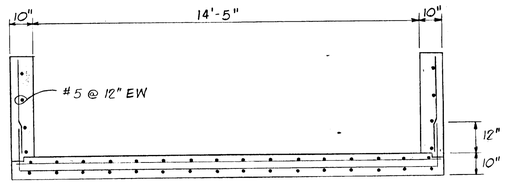
WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

KENNETH A. McCORD
Registered Engineer
No. 1974

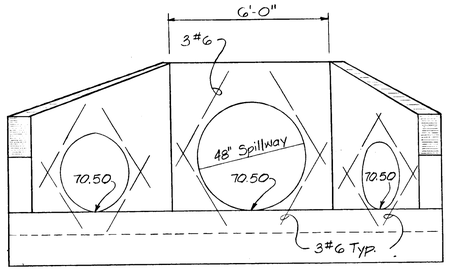
F-88-55



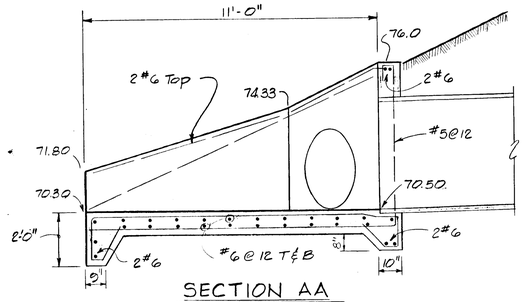
PLAN



SECTION BB



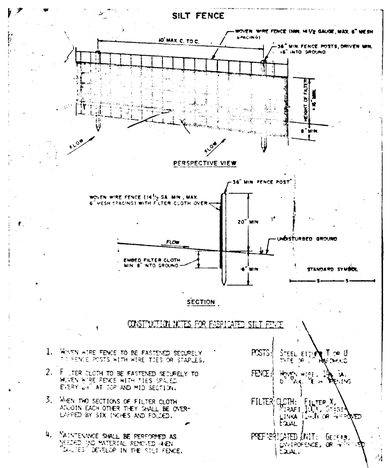
FRONT ELEVATION



SECTION AA

ENDWALL DETAIL S-1

3/8" = 1'-0"



CONSTRUCTION NOTES FOR REFABRICATED SILT FENCE

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 10' AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. "MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT DEVELOP IN THE SILT FENCE.

POSTS: STEEL EITHER T OR U TYPE OR HARDWOOD
FENCE: WOVEN WIRE (14½ GA. MIN.) 6' MAX. MESH SPACING
FILTER CLOTH: FILTER X, MIRAFI 100, STABILINKA T140N OR APPROVED EQUAL
PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

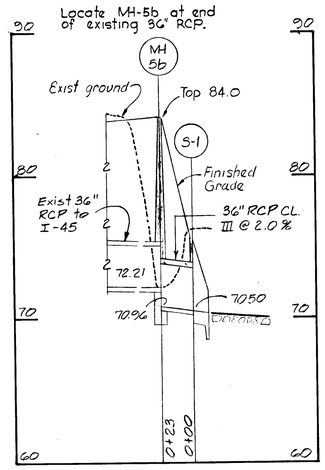
Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer. (14 lbs/1000 sq ft)

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2½ bushel per acre of annual rye (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1½ to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 345 gal per acre (8 gal/1000 sq ft) for anchoring.

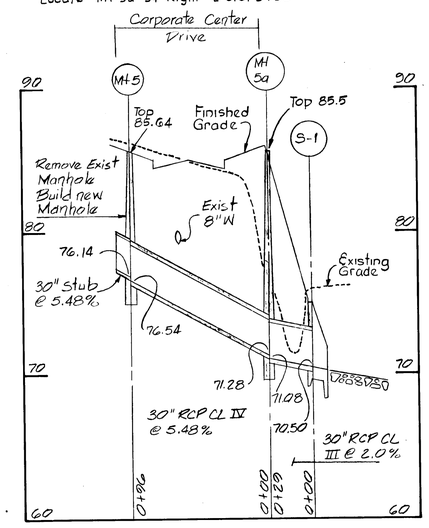
Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.



PROFILE-STORM DRAIN EXTENSION

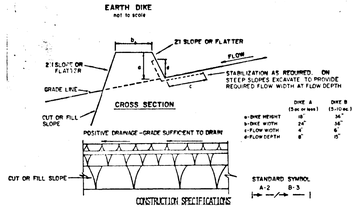
Scale: 1"=50' 1"=5'

Locate MH-5 33' Left & sta. 5+60
Locate MH-5a 54' Right & sta. 5+50



PROFILE- STORM DRAIN RELOCATION

Scale: 1"=50' 1"=5'



CONSTRUCTION SPECIFICATIONS

1. ALL DIKES SHALL BE COMPACTED BY EARTH-MOVING EQUIPMENT.
2. ALL DIKES SHALL HAVE POSITIVE DRAINAGE TO AN OUTLET.
3. TOP WIDTH MAY BE WIDER AND SIDE SLOPES MAY BE FLATTER IF DESIRED TO FACILITATE CROSSING BY CONSTRUCTION TRAFFIC.
4. FIELD LOCATION SHOULD BE ADJUSTED AS NEEDED TO UTILIZE A STABILIZED SAFE OUTLET.
5. EARTH DIKES SHALL HAVE AN OUTLET THAT FUNCTIONS WITH A MINIMUM OF EROSION. RUNOFF SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN WHERE EITHER THE DIKE CHANNEL OR THE DRAINAGE AREA ABOVE THE DIKE ARE NOT ADEQUATELY STABILIZED.
6. STABILIZATION SHALL BE: (A) IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR SEED AND STRAW MULCH OR STRAW MULCH IF NOT IN SEEDING SEASON, (B) FLOW CHANNEL AS PER THE CHART BELOW.

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSIOR, SOD, 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD, 2" STONE	LINED RIP-RAP 6-8"
4	8.1-20%	LINED RIP-RAP 6-8"	ENGINEERING DESIGN

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN 1 LAYER AT LEAST 3 INCHES IN THICKNESS ACC BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 6-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS ACC PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

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 redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to 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, Chaper 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) sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52.) Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
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 19.2 Acres
   Area Disturbed 19.2 Acres
   Area to be roofed or paved None Acres
   Area to be vegetatively stabilized 19.2 Acres
   Total Cut 20000 Cu. yds
   Total Fill 7,000 Cu. yds
   Offsite waste/borrow area location 13,000 cuyds *
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 DPW 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 controls, 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.

* Excess material shall be placed in parcel L.

BY THE DEVELOPER:

"I WE CERTIFY THAT ALL DEVELOPMENT AND OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Ben Ekenhaer 8/10/88
DATE 8/10/88

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

James M. Hatem 3-8-89
SOIL CONSERVATION SERVICE DATE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Robert W. Ziehm 3-7-89
HOWARD SOIL CONSERVATION DISTRICT DATE

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 AN "AS-BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION."

Kenneth A. McCord 8/5/88
Registration No 1974

Approved: Howard County Department of Public Works

Chief, Land Development Division — Date 3/17/89
Chief, Bureau of Highways — Date 3/21/89
Chief, Bureau of Engineering — Date 3-28-89

OFFICE OF PLANNING AND ZONING
Chief, Division of Community Planning and Land Development. — Date 3-29-89

REV.NO.	REV.DATE	REVISIONS

PARKWAY CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K","L","M"

PROJECT TITLE
DETAIL S-1, SEDIMENT CONTROL DETAILS, STORM DRAIN PROFILES

SCALE: As Shown DATE: 8/5/88

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

STATE OF MARYLAND — KENNETH A. McCORD — No. 1974 — REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR

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

1314

Approved: Howard County Department of Public Works.

Chief, Land Development Division — 3/17/89 Date

Chief, Bureau of Highways. — 3/21/89 Date

Chief, Bureau of Engineering — 3/28/89 Date

OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development. — 3-23-89 Date

BORING PC-16

ELEV 75.0

BLOWS PER FOOT (TYPICAL)

0			
	21	3.0	TOPSOIL 6" BROWN, MOIST, STIFF SILT AND SOME FINE SAND (ML)
5	23		BROWN, MOIST, FINE SAND, TRACE TO SOME SILT (SM)
10	20	12.0	
			WATER ENCOUNTERED AT 13.5' BROWN, WET, MEDIUM STIFF SILTY CLAY, TRACE SAND, SAND SEAMS (CL)
15	10	17.0	
			GRAY, WET, MEDIUM DENSE FINE TO MEDIUM SAND, SOME SILT (SM)
20	12	20.0	

WATER LEVEL @ 13.7' AFTER 24 HOURS

BORING PC-17

ELEV 82.0'

0			
	24		TOPSOIL 3"
5	21		BROWN, MOIST, STIFF SILT, SOME FINE SAND (ML)
		7.0'	
10	20		BROWN, MOIST, MEDIUM DENSE, FINE TO COARSE SAND, SOME SILT, TRACE GRAVEL (SM)
		12.0	
15	7		BROWN, VERY MOIST LOOSE FINE TO MEDIUM SAND, WATER ENCOUNTERED AT 14.0' (SM)
		17.0	
20	7	20.0'	GREY BROWN, MOIST MEDIUM STIFF, SILTY CLAY, SOME FINE TO MEDIUM SAND (CL)

WATER LEVEL @ 13.8 AFTER 24 HOURS

BORING PC-18

ELEV. 78.5

0			
	22		TOPSOIL 4"
		3.0	BROWN, MOIST, STIFF SILT SOME CLAY TRACE FINE SAND (ML)
5	16		BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM SAND SOME SILT, TRACE FINE SAND (SM)
		7.0'	
10	6		GREY, MOIST MEDIUM STIFF, SILTY CLAY, TRACE FINE SAND (CL)
		12.0'	
15	13		RED GREY, MOIST, STIFF SILTY CLAY, TRACE FINE SAND (CL)
		17.0'	
20	28	20.0'	OLIVE GREEN, MOIST, STIFF SILTY CLAY, TRACE FINE SAND (CL)

WATER LEVEL @ 7.2' AFTER 24 HOURS

BORING PC-19

ELEV. 85.0'

0			
	6		TOPSOIL 3", BROWN, MOIST, MEDIUM STIFF SILT, SOME
		3.0'	FINE SAND TO MEDIUM SAND (ML)
5	6		GREY BROWN, MOIST, MEDIUM STIFF SILT WITH FINE TO MEDIUM SAND (ML)
		7.0	
10	9		GREY, MOIST, MEDIUM STIFF SILT, SOME FINE TO MEDIUM SAND, TRACE CLAY (ML)
		12.0	
15	9		BROWN, VERY MOIST, MEDIUM STIFF SILT, SOME FINE SAND. (ML)
		17.0'	
20	51	20.0'	BROWN, WET, DENSE FINE TO MEDIUM SAND (SM)

BORING PC-20

ELEV 94.5'

0			
	6		TOPSOIL 5"
		3.0'	BROWN, MOIST, MEDIUM STIFF SILT, SOME FINE SAND (ML)
5	8		BROWN, GREY, MOIST, MEDIUM STIFF SILTY CLAY, SOME FINE SAND (CL)
10			
		12.0'	
15	21		BROWN, VERY MOIST, MEDIUM DENSE, FINE TO MEDIUM SAND, SOME SILT, TRACE GRAVEL (SM)
		17.0'	
20	106		WATER ENCOUNTERED AT 18.5' BROWN, WET, VERY DENSE FINE SAND, SOME SILT (SM)
		22.0'	
25	58	25.0'	BROWN, WET, VERY DENSE, FINE TO COARSE SAND AND GRAVEL, TRACE SILT (GM)

WATER LEVEL @ 17.3' AFTER 24 HOURS

BORING PC-21

ELEV. 100.0'

BLOWS PER FOOT (TYPICAL)

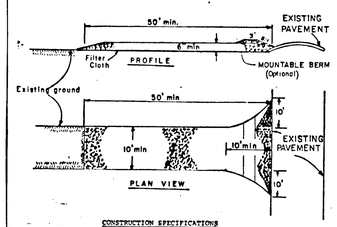
0			
	18		TOPSOIL 4" BROWN, MOIST, STIFF SILT, SOME FINE SAND (ML)
5	17		BROWN, MOIST, MEDIUM DENSE, FINE TO MEDIUM SAND, SOME SILT (SM)
10	18		BROWN, MOIST, STIFF SILT, SOME FINE SAND TRACE CLAY (ML)
15	102		BROWN, MOIST, VERY DENSE, FINE SAND (SM)
20	73		BROWN, VERY MOIST, VERY DENSE, FINE TO MEDIUM SAND, SOME SILT (SM)
25	50		BROWN, DARK BROWN, MOIST, VERY DENSE, FINE TO MEDIUM SAND, TRACE GRAVEL, TRACE SILT SEAMS (SW)

WATER LEVEL @ 16.8' AFTER 24 HOURS

STABILIZED CONSTRUCTION ENTRANCE

not to scale

STANDARD SYMBOL SCE



CONSTRUCTION SPECIFICATIONS

1. Stone Size - Use 2" stone, or reclaimed or recycled concrete equivalent.
2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
3. Thickness - Not less than six (6) inches.
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
5. Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Periodic inspection and needed maintenance shall be provided after each rain.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Gus E. Brinkac — DATE 8/10/88

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

James M. Foster — 3-8-89
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.

Robert W. Ziehm — 3-7-89
HOWARD SOIL CONSERVATION DISTRICT — DATE

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 AN "AS-BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION."

Kenneth A. McCord — 8/5/88
KENNETH A. McCORD — DATE
Registration No. 1974

REV.NO.	REV.DATE	REVISIONS

PARKWAY CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND

PROJECT AREA

SECTION 1
PARCELS "A" THRU "G" AND "K" "L" "M"

PROJECT TITLE

BORING LOGS STONE ENTRANCE

SCALE: ——— DATE: 3/7/89

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

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

F-88-55

1.3/14

CONSTRUCTION SPECIFICATIONS

1 SITE PREPARATION

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

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

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

* 2. EARTH FILL *

MATERIAL

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

PLACEMENT

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

COMPACTION

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

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

CUTOFF TRENCH

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

3 STRUCTURAL BACKFILL

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

4. PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

A. CORRUGATED METAL PIPE

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

   steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Nexon, Plasti-Cote, Blac Klad, and Bethi-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M 245 AND M 246.
2. CONNECTIONS - All connections with pipes must be completely watertight. Watertight coupling bands are not considered to be watertight.
3. BEDDING - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.
4. LAYING PIPE - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.
5. BACKFILLING - Backfilling shall conform to structural backfill as shown above.
6. Other details (anti seep collars, valves, etc.) shall be as shown on the drawings.

5. CONCRETE

1 MATERIALS

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

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

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

5. CONCRETE - Continued

1. MATERIALS

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

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

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

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

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

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

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

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

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

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

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

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

6. STABILIZATION

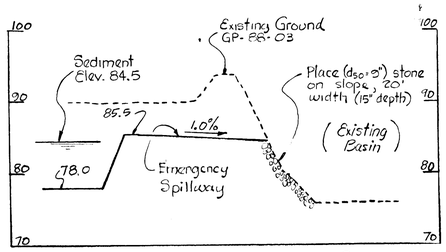
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications.

7. EROSION AND SEDIMENT CONTROL

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans show detail erosion and sediment control measures to be employed during the construction process. See Sheet 34.

* 8. EARTH FILL *

* See Sheet 41 Soils classified as CL, SC and GC shall be used in the earth dam embankments. More pervious soils will not be permitted.



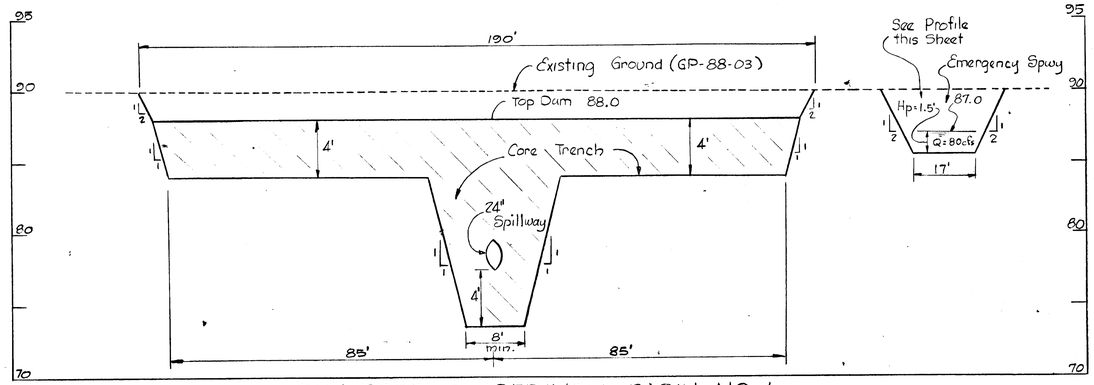
EMERGENCY SPILLWAY PROFILE, SED. BASIN NO. 1
Scale 1"=50', 1"=10'

PERMANENT SEEDING

ALL DISTURBED AREAS SHALL BE STABILIZED AS FOLLOWS:

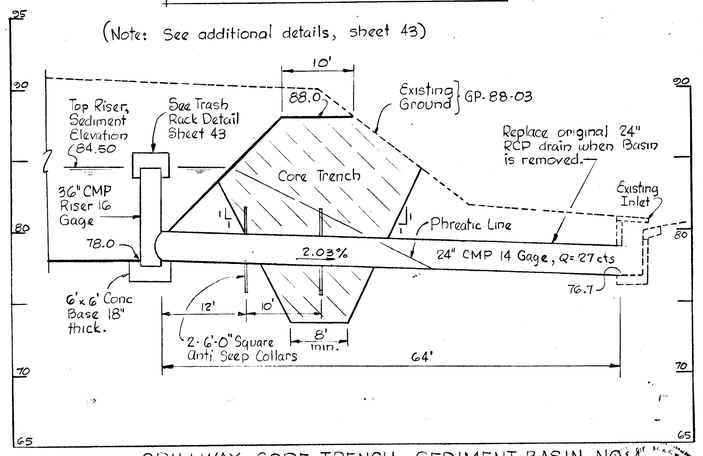
1. SEEDED PREPARATION: Loosen upper 3 inches of soil by raking, discing or other acceptable means before seeding.
2. SOIL AMENDMENTS: Apply 2 ton per acre Dolomitic Limestone (92 lbs. /1,000 sq.ft.) and 600 lbs. per acre 0-20 fertilizer (14 lbs /1,000 sq.ft.) Harrow or disc lime and fertilizer into upper three inches of soil. At time of seeding, apply 400 lbs. per acre (9.2 lbs. 1,000 sq.ft.) of 38-0-0 Ureaform fertilizer and 500 lbs. per acre (11.5 lbs. /1,000 sq.ft.) of 10-20-20 fertilizer.
3. SEEDING: For the periods March 1 thru April 30, and August 1 thru October 15, seed with 45 lbs. per acre (1.4 lbs. /1,000 sq ft.) of Kentucky 31 Tall Fescue.

   For the period May 1 thru July 31, seed with 45 lbs. Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (.05 lbs /1,000 sq.ft.) of Weeping Lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2)-use sod. Option (3)-seed with 60 lbs. /acre Kentucky 31 Tall Fescue and mulch with 2 tons acre well anchored straw.
4. EROSION CONTROL FABRIC: "HOLD GRO", Gulf State Paper Corporation, P.O.B. NO.3199 Tuscaloosa, Alabama, 34504 or an approved equal. Install as recommended by the manufacturer.
5. MAINTENANCE: Inspect all seeded areas and make needed repairs, replacements and reseedings.
6. Add Crown Vetch Liquminous Seed to mixture on 2:1 slopes. Seed mixture shall be sown at the rate of 45 pounds/acre with Crown Vetch sown at 15 pound acre. Inoculant for Crown Vetch shall be at the rate of 6.7 oz. 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 recommeded for dry leguminous seed application.



DAM PROFILE - SEDIMENT BASIN NO. 1
Scale: 1" = 20', 1" = 5'

Runoff Q_{10} = 0.245 sm x 4.40 in. x 990 CSM = 107 cfs



SPILLWAY, CORE TRENCH - SEDIMENT BASIN NO. 1
Scale: 1" = 10', 1" = 5'

Approved: Howard County Department of Public Works

Chief, Land Development Division — Date 3/17/89

Chief, Bureau of Highways — Date 3/21/89

Chief, Bureau of Engineering — Date 3/28/89

OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development — Date 3-7-89

BY THE DEVELOPER:

"I WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

Owner — 8/10/88 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

James M. Helm — SOIL CONSERVATION SERVICE — 3-8-89 DATE

THESE PLANS FOR SMALL POND CONSTRUCTION AND SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Robert W. Ziehm — HOWARD SOIL CONSERVATION DISTRICT — 3-7-89 DATE

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 AN "AS BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION."

Kenneth A. McCord — Registration No. 1974 — 8/5/88

REV. NO.	REV. DATE	REVISIONS

PARKWAY CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA
SECTION 1
PARCELS "A" THRU "G" AND "K" "L" "M"

PROJECT TITLE
CONSTRUCTION SPECIFICATIONS SEDIMENT BASIN NO. 1 DETAILS

SCALE: AS SHOWN — DATE: 8/5/88

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
BALTIMORE, MARYLAND 21218

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

F-88-55

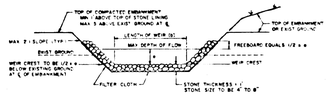
SHEET 42 OF 43

13.44

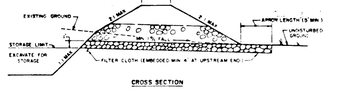
CONSTRUCTION SPECIFICATIONS FOR ST-VI

1. The 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 or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be five (5) feet, measured at centerline of embankment.
3. All fill slopes shall be 2:1 or flatter; cut slopes 1:1 or flatter.
4. Elevation of the top of any dike directing water into trap must equal or exceed the height of embankment.
5. Storage area provided shall be figured by computing the volume available behind the outlet channel up to an elevation of one (1) foot below the level weir crest.
6. Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of fabric must overlap at least one (1) foot with section nearest the entrance placed on top. Fabric shall be embedded at least six (6) inches into existing ground at entrance of outlet channel.
7. Stone used in the outlet channel shall be four (4) to eight(8) inches (riprap). To provide a filtering effect, a layer of filter cloth shall be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of two (2) inch or finer aggregate shall be placed on the upstream face of the outlet.
8. 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. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
9. The structure shall be inspected after each rain and repaired as needed.
10. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
11. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.
12. Drainage area for this practice is limited to 1% acres or less.

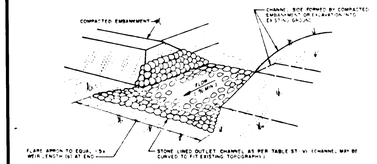
RIPRAP OUTLET SEDIMENT TRAP ST-VI



PROFILE

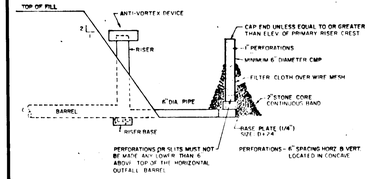


CROSS SECTION

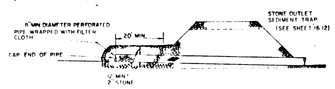


PERSPECTIVE VIEW

OPTIONAL SEDIMENT TRAP DEWATERING DEVICE-I WITH 6" PERFORATED RISER



OPTIONAL SEDIMENT TRAP DEWATERING DEVICE-II



STANDARD AND SPECIFICATIONS FOR STORM DRAIN INLET PROTECTION

Definition

Filter cloth installed around inlets in the form of a fence or across an opening, thereby reducing sediment content of sediment laden water.

Purpose

To prevent sediment laden water from entering a storm drain system through inlets.

Conditions Where Practice Applies

This practice shall be used where the drainage area to an inlet is disturbed, it is not possible to temporarily divert the storm drain outfall into a sediment trapping device and watertight blocking of inlets is not advisable. It is not to be used in place of sediment trapping devices. This practice may be used in conjunction with storm drain diversion to help prevent siltation of pipes installed with a low slope angle.

Construction Specifications

I. Materials

A. Wooden frame is to be constructed of 2" x 4" construction grade lumber.

B. Wire mesh must be of sufficient strength to support filter fabric, and stone for curb inlets, with water fully impounded against it.

C. Filter cloth must be of a type approved for this purpose; resistant to sunlight with sieve size, EOS, 40-85, to allow sufficient passage of water and removal of sediment.

4. Stone is to be 2" in size and clean, since fines would clog the cloth.

II. Procedure

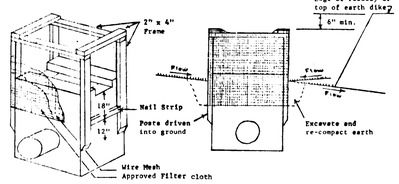
A. A swale, ditchline or yard inlet protection.

1. Excavate completely around inlet to a depth of 18" below notch elevation.
2. Drive 2 x 4 post 1' into ground at four corners of inlet. Place nail strips between posts on ends of inlet. Assemble top portion of 2 x 4 frame using overlap joint shown. Top of frame (weir) must be 6" below edge of roadway adjacent to inlet.
3. Stretch wire mesh tightly around frame and fasten securely. Ends must meet at post.
4. Stretch filter cloth tightly over wire mesh, the cloth must extend from top of frame to 18" below inlet notch elev. Fasten securely to frame. Ends must meet at post, be overlapped and folded, then fastened down.
5. Backfill around inlet in compacted 6" layers until layer of earth is even with notch elevation on ends and top elevation on sides.
6. If the inlet is not in a low point, construct a compacted earth dike in the ditchline below it. The top of this dike is to be at least 6" higher than the top of frame (weir).
7. This structure must be inspected frequently and the filter fabric replaced when clogged.

B. Curb Inlet Protection.

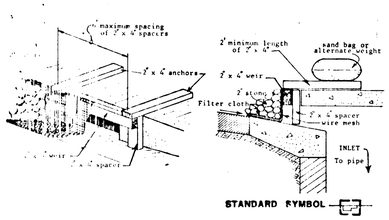
1. Attach a continuous piece of wire mesh (30" min. width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
2. Place a piece of approved filter cloth (40-85 sieve) of the same dimensions as the wire mesh over the wire mesh and securely attach to the 2" x 4" weir.
3. Securely nail the 2" x 4" weir to 9" long vertical spacers to be located between the weir and inlet face (max. 6' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations. These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

SWALE INLET PROTECTION DETAIL



STANDARD SYMBOL

CURB INLET PROTECTION DETAIL



STANDARD SYMBOL

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.

Cut-off-Trench

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 on both abutments to the riser crest elevation. The minimum bottom width shall be four feet, but wide enough to permit operation of excavation and compaction 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 dewatered during the backfilling/compaction operations.

Fill Material

The fill material shall be taken from approved areas shown on the plans. It shall be free of any material soil free of roots, woody vegetation, oversized stones, rocks, or other objectionable material. Relatively pervious materials such as sand or gravel (Unified Soil Classes GW, GP, SW & SP) shall not 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 by the use of a 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 must be attached to the riser at the same percent (angle) of grade as the barrel conduit. The connection between the riser and the riser base shall be watertight. All connections between barrel sections must be achieved by approved watertight band assemblies. (See page 18.22 for details.) The barrel and riser shall be placed on a firm, smooth foundation of undisturbed soil. Pervious materials such as sand, gravel, or crushed stone shall not be used as backfill around the pipe or anti-seep 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 adjustment 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 floodwater.

Maintenance

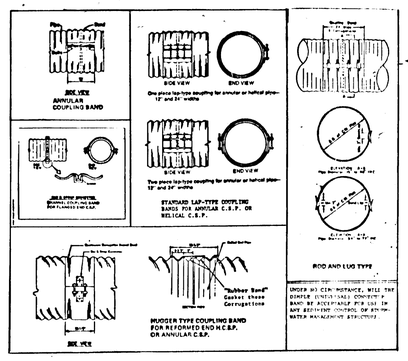
1. Repair all damages caused by soil erosion and construction equipment at or before the end of each working day.
2. Sediment shall be removed from the basin when it reaches the specified distance below the top of the riser. This sediment shall be placed in such a manner that it will not erode from the 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 often 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 structural fill. When the basin area is to remain open space the pond may be pumped dry, graded and back filled.

TYPES OF COUPLERS FOR CORRUGATED STEEL PIPE

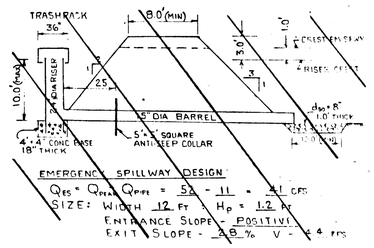
(All connector bands require neoprene gaskets)



STANDARD SEDIMENT BASIN I

CONDITIONS WHERE PRACTICE APPLIES

1. Drainage area to the basin is 10 acres or less.
2. An emergency spillway is required.
3. One anti-seep collar shall be used and placed 25 feet from the riser.
4. Watertight bands shall be used.
5. All pipe material shall be of good quality with no holes.
6. Volume of storage computed as 1,800 C.F./acre of drainage area.



EMERGENCY SPILLWAY DESIGN

$Q_{ES} = Q_{peak} - Q_{PIPE} = 52 - 11 = 41$ CFS

SIZE: WIDTH 12 FT : H_p = 1.2 FT

ENTRANCE SLOPE - POSITIVE

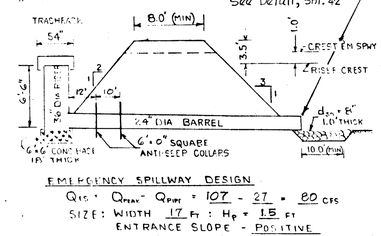
EXIT SLOPE - 2.8 % V - 4.4 FPS

STANDARD SEDIMENT BASIN II

CONDITIONS WHERE PRACTICE APPLIES

1. Drainage area to the basin is 20 acres or less.
2. An emergency spillway is required.
3. Two anti-seep collar shall be used, and placed as shown.
4. Watertight bands shall be used.
5. All pipe material shall be of good quality with no holes.
6. Volume of storage computed as 1,800 C.F./acre of drainage area.

Note: Connect to Storm Drain Inlet. See Plan on Sheet B4 See Detail, Sht. 42



EMERGENCY SPILLWAY DESIGN

$Q_{ES} = Q_{peak} - Q_{PIPE} = 107 - 27 = 80$ CFS

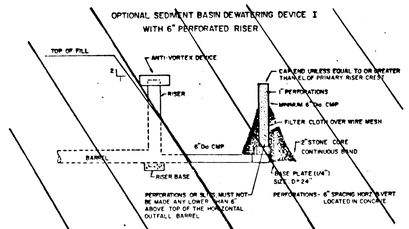
SIZE: WIDTH 17 FT : H_p = 1.5 FT

ENTRANCE SLOPE - POSITIVE

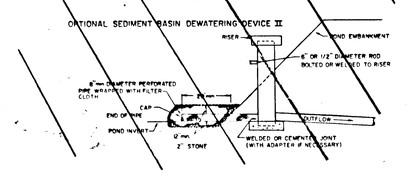
EXIT SLOPE - 1.0% V= 5.0 FPS

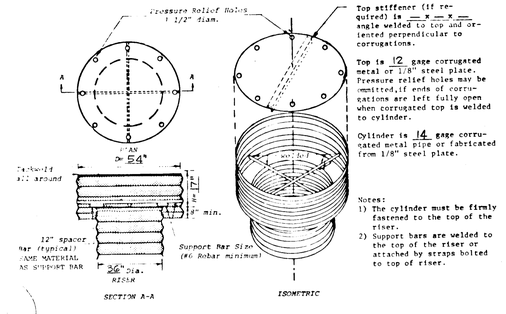
SEDIMENT BASIN NO. 1

OPTIONAL SEDIMENT BASIN DEWATERING DEVICE I WITH 6" PERFORATED RISER



OPTIONAL SEDIMENT BASIN DEWATERING DEVICE II





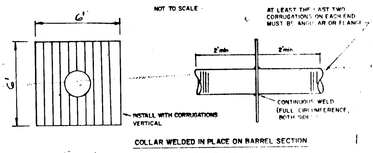
Notes:
1) The cylinder must be firmly fastened to the top of the riser.
2) Support bars are welded to the top of the riser or attached by straps bolted to top of riser.

CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE (not to scale)

SEDIMENT BASIN NO. 1

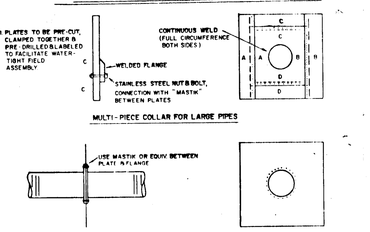
TYPICAL ANTI-SEEP COLLARS

NOT TO SCALE



COLLAR WELDED IN PLACE ON BARREL SECTION

SEDIMENT BASIN NO. 1



MULTI-PIECE COLLAR FOR LARGE PIPES

Approved: Howard County Department of Public Works

Chief, Land Development Division — Date 3/17/89

Chief, Bureau of Highways — Date 3/29/89

Chief, Bureau of Engineering — Date 3/28/89

OFFICE OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development — Date 4-7-89

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 WILL PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT".

DATE 8/10/88

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.

U.S. SOIL CONSERVATION SERVICE — DATE 3-8-89

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 3-29

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 AN "AS-BUILT" PLAN OF THE PONDS WITHIN 30 DAYS OF COMPLETION".

KENNETH A. McCORD
Registration No 1974 — DATE 8/5/88

REV. NO.	REV. DATE	REVISIONS

PARKWAY CENTER
1ST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

HI-TECH VENTURE LIMITED PARTNERSHIP
OWNER AND DEVELOPER
7223 PARKWAY DRIVE
HANOVER, MARYLAND 21076

PROJECT AREA:
SECTION 1
PARCELS 'A' THRU 'G' AND 'K' 'L' 'M'

PROJECT TITLE:
SEDIMENT CONTROL DETAILS

SCALE: None — DATE: 8/5/88

WHITMAN, REQUARDT AND ASSOCIATES
ENGINEERS
2315 Saint Paul Street
Baltimore, Maryland - 21218

STATE OF MARYLAND — KENNETH A. McCORD — REGISTERED ENGINEER & LAND SURVEYOR

Kenneth A. McCord
Registered Engineer No 1974

SHEET 43 OF 43

F-88-55

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