ROADWAYS AND STORM DRAINS

CHAPEL WOODS II

5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

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2.	PLAN AND PROFILE OF LINDEN CHAPEL ROAD
3.	PLAN AND PROFILE OF SHEPARDS CROSSING AND CHAPEL BELLS WAY
4.	PLAN AND PROFILE OF CHAPEL ESTATES DRIVE
5.	PLAN AND PROFILE OF CHAPEL ESTATES DRIVE
6.	PLAN AND PROFILE OF CHAPEL ESTATES DRIVE
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15	BRIDGE SECTIONS AND DETAILS

GENERAL NOTES

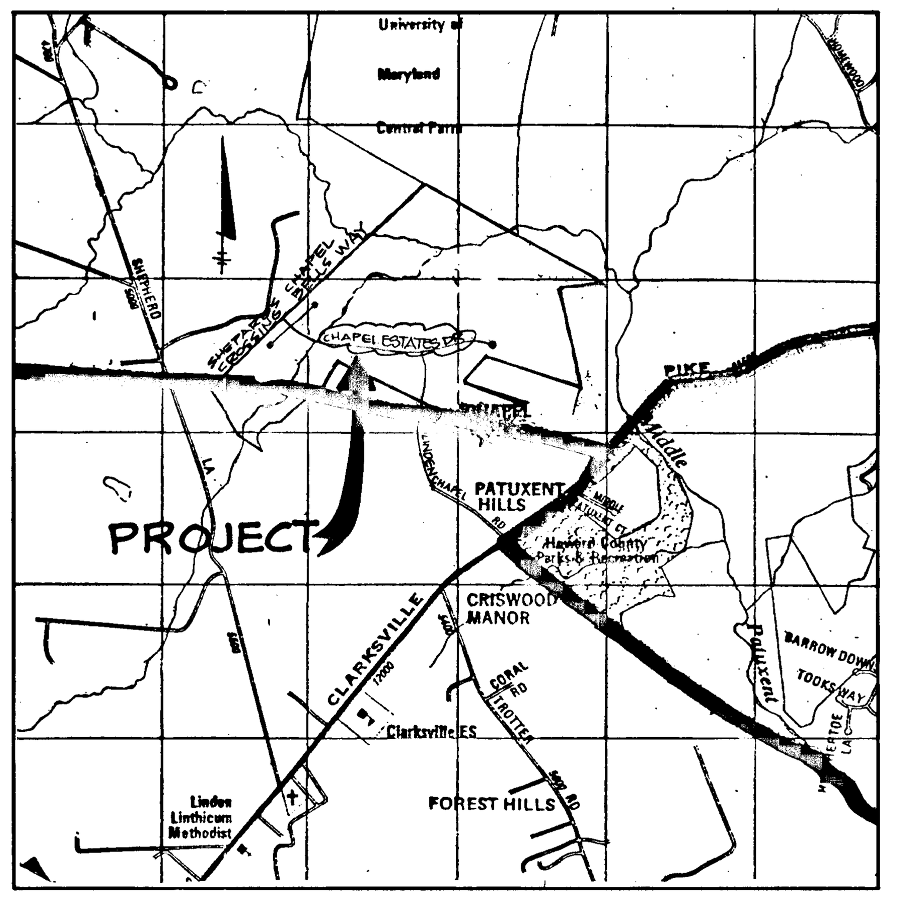
1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOL. IV, i.e., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
2. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS TO VERIFY THEIR LOCATION AND ELEVATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF LOCATION OF UTILITIES IS OTHER THAN SHOWN.
4. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES AT LEAST FIVE (5) DAYS BEFORE STARTING WORK ON THESE DRAWINGS:

MISS UTILITY	1-800-257-7777
C&P TELEPHONE COMPANY	725-9976
AT&T CABLE LOCATION DIVISION	393-3553
BALTIMORE GAS AND ELECTRIC COMPANY	685-0123
STATE HIGHWAY ADMINISTRATION	531-5533
HOWARD COUNTY CONSTRUCTION/INSPECTION SURVEY DIVISION (24 HOURS NOTICE PRIOR TO COMMENCEMENT OF WORK)	792-7272

5. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL, VOL. IV, i.e., STANDARD SPECIFICATIONS AND DETAILS.
6. STORM DRAIN BACKFILL WITHIN ROADWAYS, UNDER STRUCTURES AND FOR STORM DRAIN TRENCHES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM 1557.
7. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
8. ALL STORM DRAIN PIPE BEDDING SHALL BE AS SHOWN IN DETAIL G2.01 (TRENCH IN ROCK OR TRENCH IN EARTH AS DETERMINED BY FIELD CONDITIONS) IN VOL. IV OF HOWARD COUNTY DESIGN MANUAL UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR AS SHOWN ON THE DRAWINGS.
9. ALL STREET CURB RETURNS SHALL HAVE 35.0' RADII UNLESS OTHERWISE NOTED.
10. ALL ELEVATIONS SHOWN ARE BASED ON U.S.G.S. MEAN SEA LEVEL DATUM, 1929.
11. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
12. TOPO TAKEN FROM FIELD RUN SURVEY DATED MARCH, 1988. BY THE RIEMER GROUP INC.
13. SUBJECT PROPERTY ZONED 'R' PER 8.2.85 COMPREHENSIVE ZONING PLAN.
14. INSTALLATION OF TRAFFIC CONTROL DEVICES, MARKING, AND SIGNING SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES 1984 EDITION.
15. DESIGNED TRAFFIC SPEED IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIAL STANDARDS:

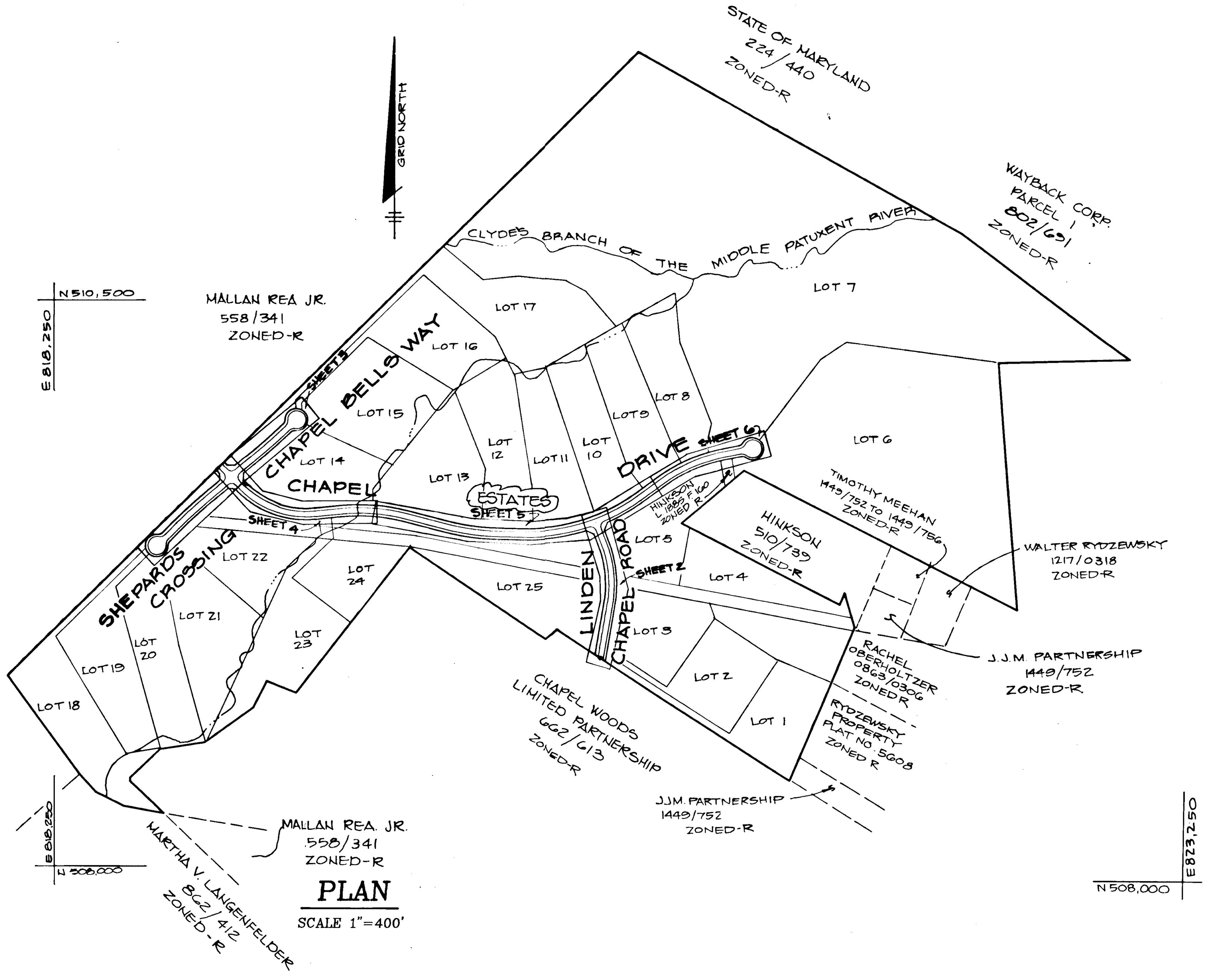
    ALL 50' RIGHT-OF-WAYS 30 M.P.H.

16. LOT 2 AT PLOT PLAN STAGE WILL REQUIRE AN 18" CMP 16 Ga. CULVERT UNDER DRIVEWAY.
17. LOT 23 AND 24 AT PLOT PLAN STAGE WILL REQUIRE A 36" CMP 16 Ga. CULVERT UNDER DRIVEWAY.
18. BEFORE EXCAVATING AND GRADING IS PERFORMED FOR THE PROPOSED LINDEN CHAPEL ROAD AT ANY LOCATION IN THE BG&E RIGHT OF WAY, TEST HOLES SHOULD BE HAND DUG OVER THE PIPE-LINE TO DETERMINE ITS DEPTH AND LOCATION.
19. 100 YR. FLOODPLAIN CROSS SECTIONS LOCATION AND ELEVATION OBTAINED FROM CLYDES BRANCH DRAINAGE STUDY, (CAPITAL PROJECT D-1028) PREPARED BY KIDDE CONSULTANTS, INC. FOR HOWARD COUNTY, MARYLAND.
20. LOTS 5, 11, 23 & 24 HAVE LIMITED HOUSE SITES — ADDITIONAL PERCOLATION ADJUSTMENT NOT AVAILABLE.
21. WELLS TO BE DRILLED ON LOTS 23 & 24 PRIOR TO FINAL PLAT SIGNATURE APPROVAL.
22. HOUSE ON LOT 5 WILL HAVE A MINIMUM SERVICEABLE ELEVATION OF 388.0 BASED ON TOPOGRAPHY SHOWN ON PLAN.



VICINITY MAP

SCALE: 1"=2000'



PLAN

SCALE 1"=400'

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING.	
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	4/3/89 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
Chief, Land Development Division	3/21/89 Date
Chief, Bureau of Highways	3/21/89 Date
Acting Chief, Bureau of Engineering	3/22/89 Date

DATE	NO.	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE

OWNER: J.J.M. PARTNERSHIP
5570-201 STERRETT PLACE
COLUMBIA, MARYLAND 21044 PH. (301) 740-4466

DEVELOPER: J.J.M., INC.
5570-201 STERRETT PLACE
COLUMBIA, MARYLAND 21044 PH. (301) 740-4466

PROJECT: **CHAPEL WOODS II**

AREA: TAX MAP No. 29 PARCELS 26, 86, 282
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **TITLE SHEET**

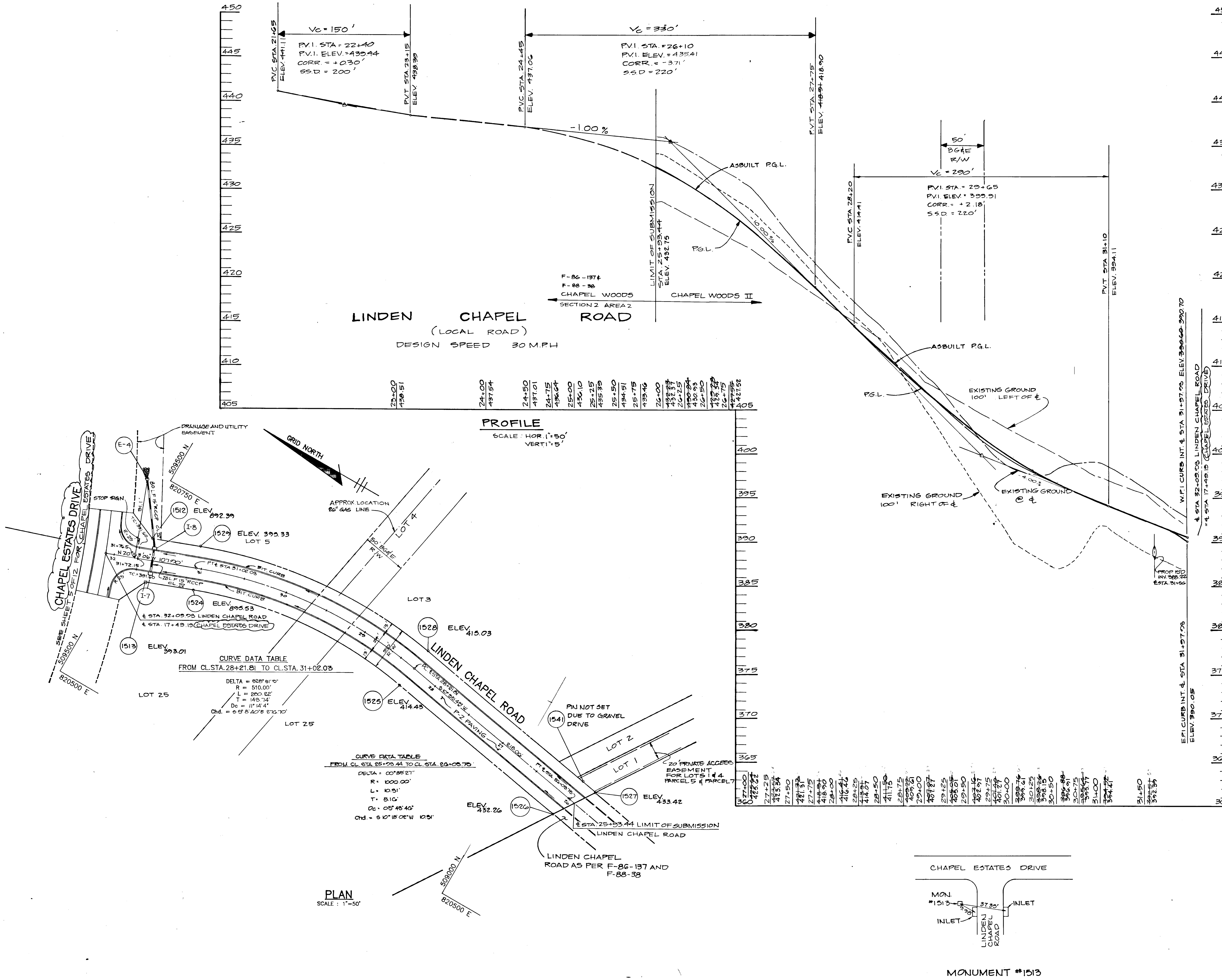
THE RIEMER GROUP, INC.

The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11-11-88 DATE	S-86-87, S-87-23, WP-88-57 P-88-07, WP-88-121
	DESIGNED BY: J.D.P.
	DRAWN BY: D.V.P.
	PROJECT NO: 28800
	DATE: NOVEMBER 7, 1988
	SCALE: AS SHOWN
ARTHUR E. MUEGGE #8707	DRAWING NO. 1 OF 15

F-88-231

717



ASBUILT CERTIFICATION

ARTHUR E. MUEGGE #8707 — DATE 10.8.91

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 4-7-89

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — Date 3/21/89

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

Acting Chief, Bureau of Engineering — Date 3/22/89

DATE	NO	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE

OWNER: J.J.M PARTNERSHIP
5570 STERRETT PLACE SUITE 201
COLUMBIA MD. 21044 (301) 740-4466

DEVELOPER: J.J.M., INC.
5570 STERRETT PLACE SUITE 201
COLUMBIA MD. 21044 (301) 740-4466

PROJECT: CHAPEL WOODS II

AREA: TAX MAP NO. 29 PARCELS 26, 86, 282
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: PLAN AND PROFILE FOR LINDEN CHAPEL ROAD

THE RIEMER GROUP, INC.

The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

DATE 11-11-88

ARTHUR E. MUEGGE # 8707

S-86-87, S-87-23, WP-88-57
P-88-07 WP-88-121

DESIGNED BY: C.J.R

DRAWN BY: J.L.B.

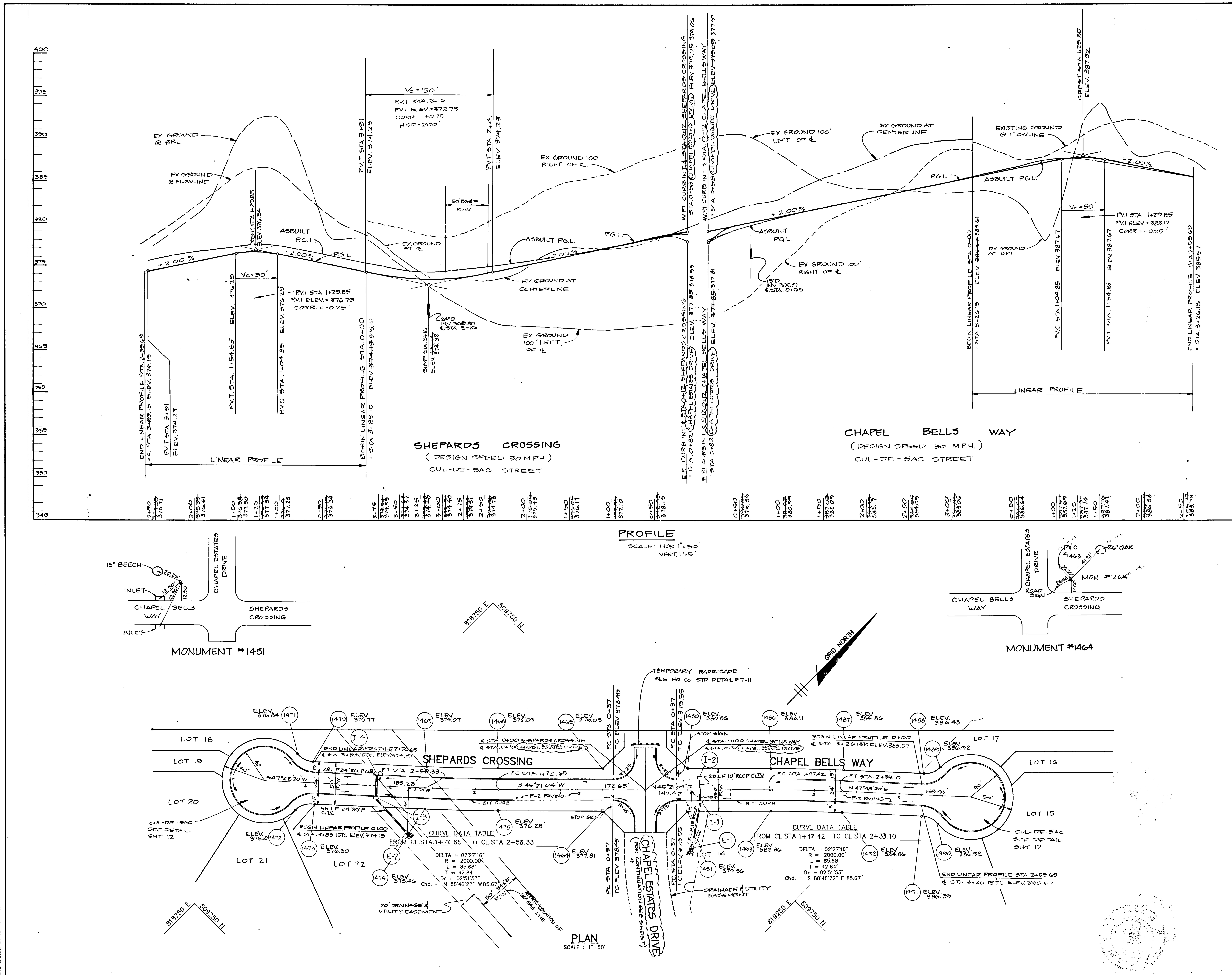
PROJECT NO: 28800

DATE: NOVEMBER 7, 1988

SCALE: AS SHOWN

DRAWING NO. 2 OF 15

AS BUILT F-88-231 ASBUILT - OCT. 8, 1991



ASBUILT CERTIFICATION

ARTHUR E. MUEGGE #8707 10-8-91 DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT 4-7-89 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division 3/21/89 Date

Chief, Bureau of Highways 3/21/89 Date

Chief, Bureau of Engineering 3/22/89 Date

DATE	NO	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE

OWNER: J.J.M. PARTNERSHIP, 5570 STERRETT PLACE SUITE 201, COLUMBIA, MARYLAND 21044 (301) 740-4466

DEVELOPER: J.J.M. INC, 5570 STERRETT PLACE SUITE 201, COLUMBIA MARYLAND 21044 (301) 740-4466

PROJECT: CHAPEL WOODS II

AREA: TAX MAP Nº 25, PARCELS 26, 86, 282, 5TH ELECTION DISTRICT, HOWARD COUNTY MARYLAND

TITLE: PLAN AND PROFILE OF SHEPARDS CROSSING AND CHAPEL BELLS WAY

THE RIEMER GROUP, INC.

The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11-11-88 DATE

ARTHUR E. MUEGGE #8707

S-86-87, S-87-23, WP-88-57, F-88-07, WP-88-121

DESIGNED BY: C.J.R.

DRAWN BY: J.L.B.

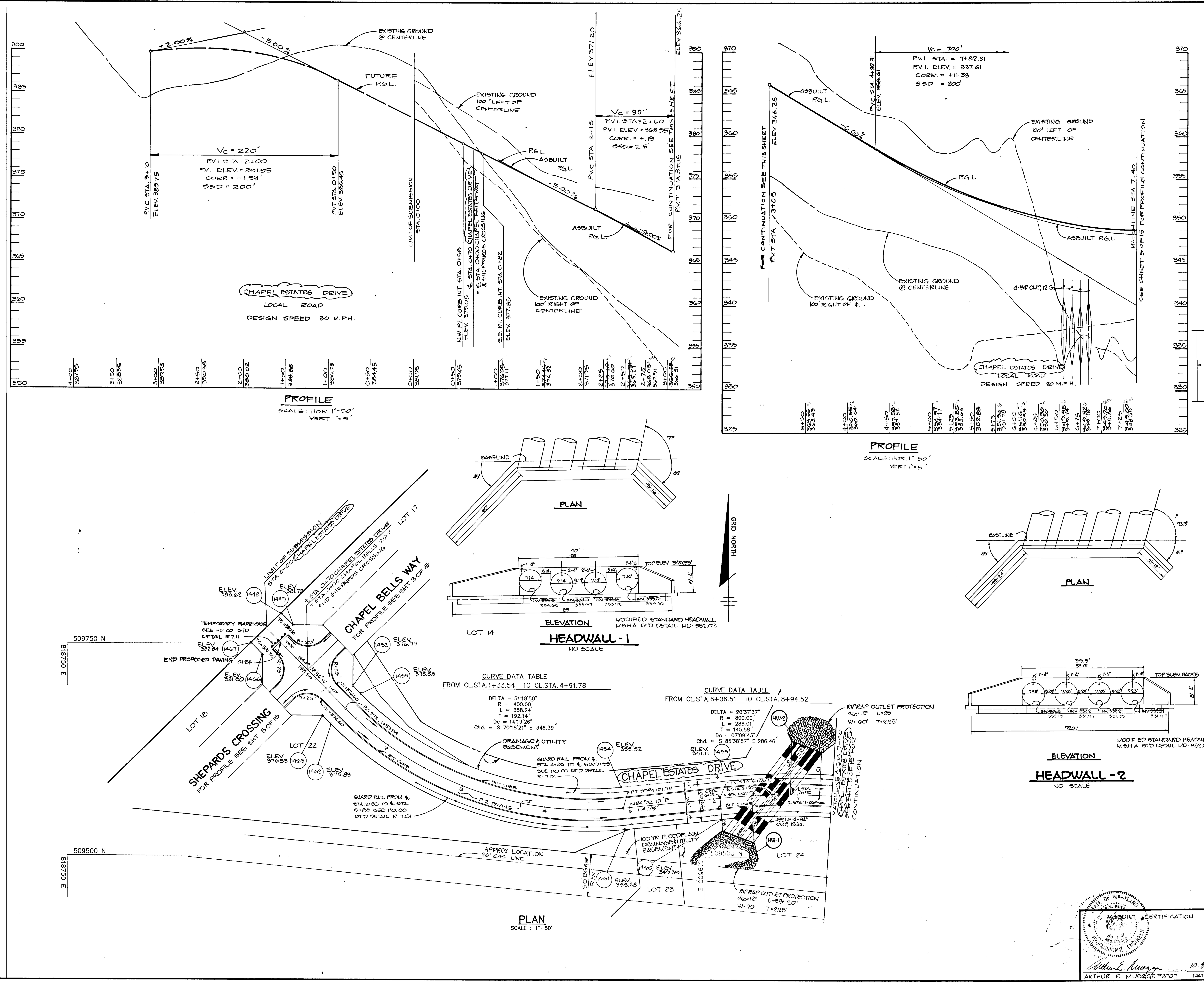
PROJECT NO: 28800

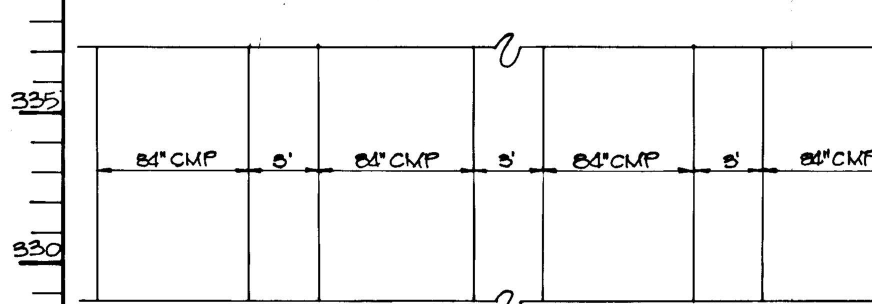
DATE: NOVEMBER 7, 1988

SCALE: AS SHOWN

DRAWING NO. 3 OF 15

F-88-231 ASBUILT OCT. 8, 1991





TYPICAL CULVERT SECTION
NO SCALE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 4-7-89

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — Date 3/21/89

Chief, Bureau of Highways — Date

Chief, Bureau of Engineering — Date 3/22/89

DATE	NO.	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE
12-20-89	1	REPLACED ARCH BRIDGE WITH CULVERTS

OWNER: J.J.M. PARTNERSHIP
5570 STERRETT PLACE SUITE 201
COLUMBIA, MARYLAND 21044 (301) 740-4466

DEVELOPER: J.J.M INC.
5570 STERRETT PLACE SUITE 201
COLUMBIA MARYLAND 21044 (301) 740-4466

PROJECT: CHAPEL WOODS II

AREA: TAX MAP Nº 29 PARCELS 26, 86, 282
5TH ELECTION DISTRICT
HOWARD COUNTY MARYLAND

TITLE: PLAN AND PROFILE OF CHAPEL ESTATES DRIVE

THE RIEMER GROUP, INC.
The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11.11.88
DATE
ARTHUR E. MUEGGE #8707

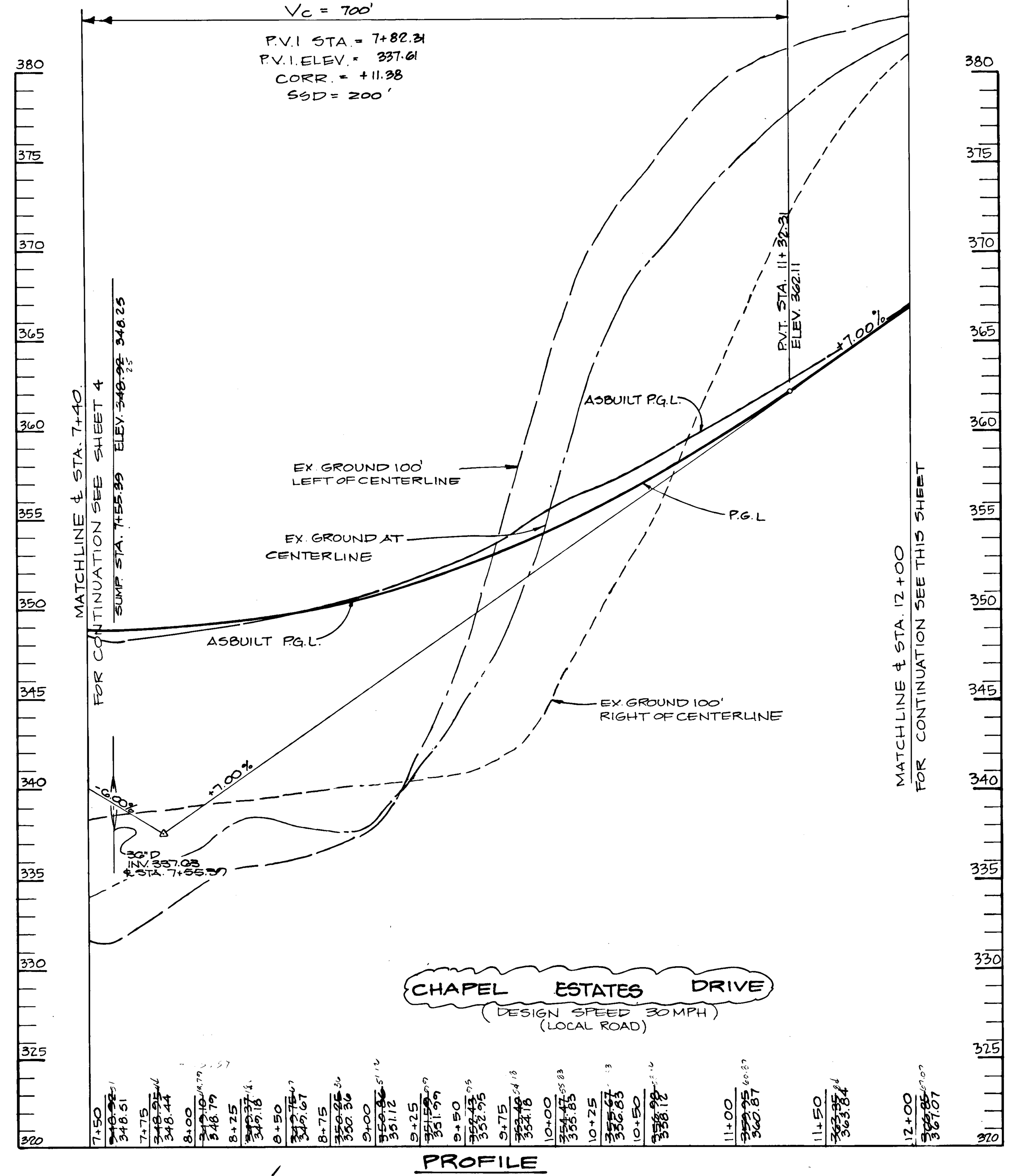
ASBUILT CERTIFICATION
ARTHUR E. MUEGGE #8707 — DATE 10.8.91

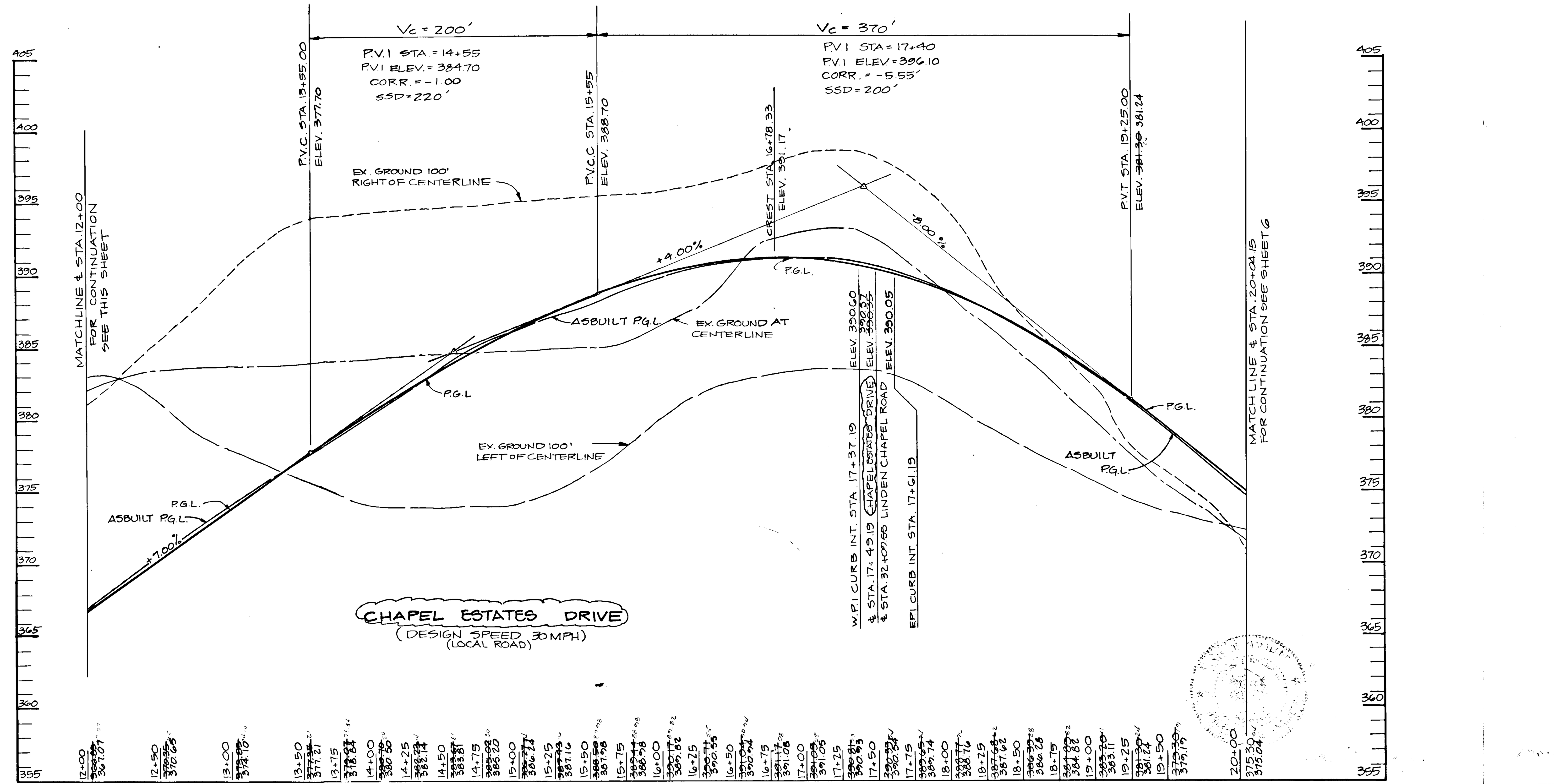
S-86-87, S-87-23, WP-88-57
P-88-07 WP-88-121

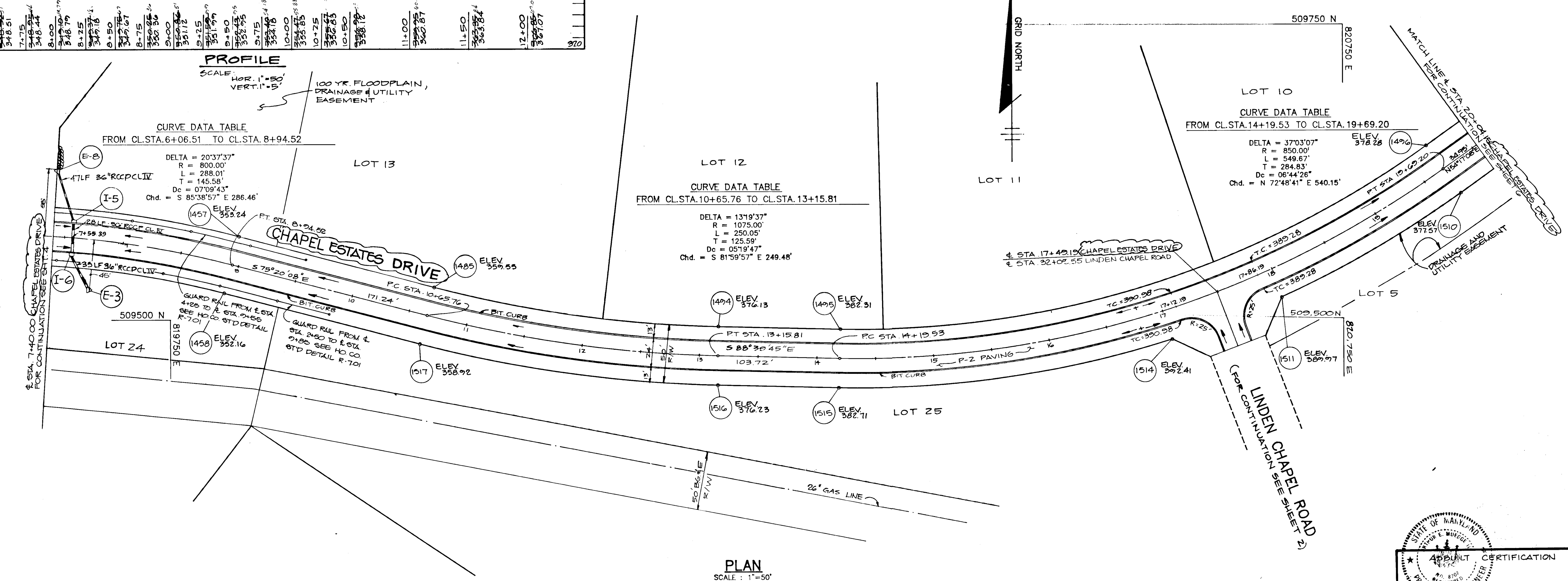
DESIGNED BY: C.J.R.
DRAWN BY: J.L.B.
PROJECT NO: 28800
DATE: NOVEMBER 7, 1988
SCALE: AS SHOWN
DRAWING NO. 4 OF 15

F-88-231 ASBUILT OCT. 8, 1991

717







AS-BUILT CERTIFICATION

ARTHUR E. MUEGGE # 8707 — 10.8.91 DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 4-7-89 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — 3/21/89 Date

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

Chief, Bureau of Engineering (Acting) — 3/22/89 Date

DATE	NO.	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE

OWNER J.J.M. PARTNERSHIP
5570 STERRETT PLACE SUITE 201
COLUMBIA, MARYLAND 21044 (301) 740-4466

DEVELOPER: J.J.M. INC.
5570 STERRETT PLACE SUITE 201
COLUMBIA MARYLAND 21044 (301) 740-4466

PROJECT: CHAPEL WOODS II

AREA: TAX MAP No 29 PARCELS 26, 86, 282
5TH ELECTION DISTRICT
HOWARD COUNTY MARYLAND

TITLE: PLAN AND PROFILE OF CHAPEL ESTATES DRIVE

THE RIEMER GROUP, INC.

The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11-11-88 DATE

ARTHUR E. MUEGGE # 8707

S-86-87, S-87-23, WP-88-57
P-88-07, WP 88-121

DESIGNED BY: C.J.R.

DRAWN BY: J.L.B.

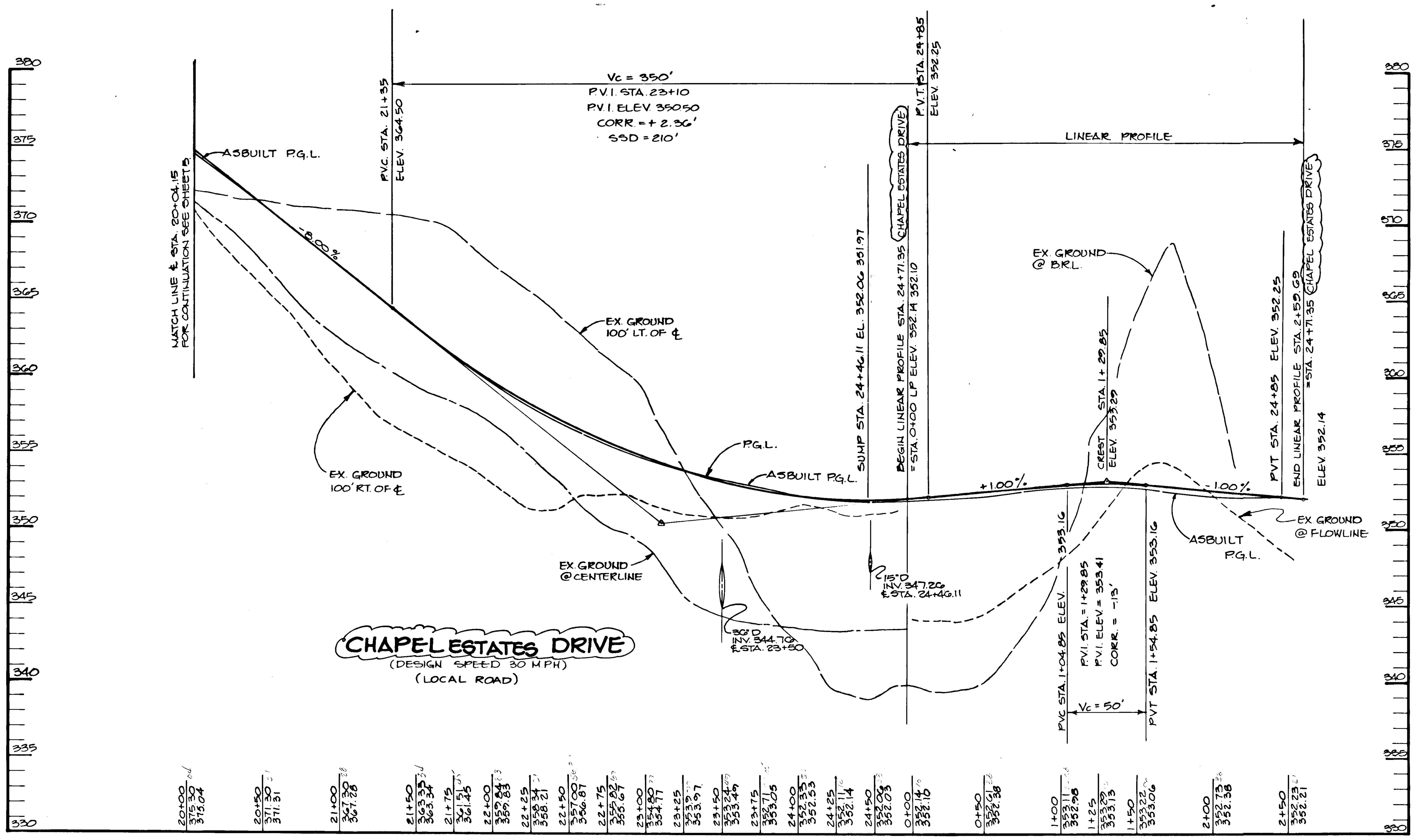
PROJECT NO: 28800

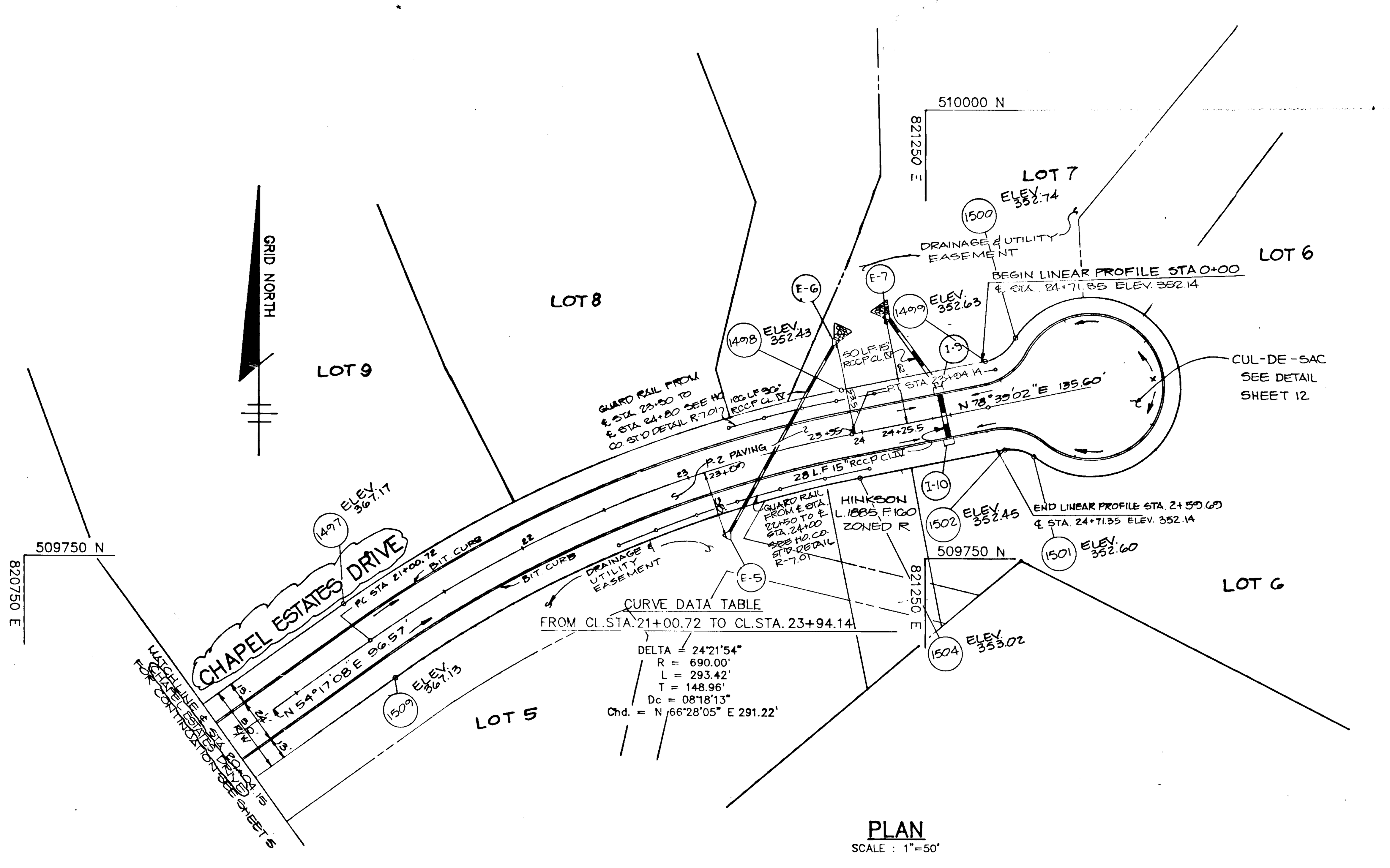
DATE: NOVEMBER 7, 1988

SCALE: AS SHOWN

DRAWING NO. 5 OF 15

F-88-231 ASBUILT OCT. 8, 1991





PLAN
SCALE: 1"=50'

ASBUILT CERTIFICATION

ARTHUR E. MUEGGE #8707 — DATE 10.8.91

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 4-2-93

LKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — Date 3/21/89

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

Chief, Bureau of Engineering — Date 3/22/89

Acting

DATE	NO	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE

OWNER: J.J.M PARTNERSHIP
5570 STERRETT PLACE SUITE 201
COLUMBIA MD. 21044 (301) 740-4466

DEVELOPER: J.J.M INC.
5570 STERRETT PLACE SUITE 201
COLUMBIA MD. 21044 (301) 740-4466

PROJECT: CHAPEL WOODS II

AREA: TAX MAP NO. 29 PARCELS 26, 86, 282
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: PLAN AND PROFILE CHAPEL ESTATES DRIVE

THE RIEMER GROUP, INC.

The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11-11-88
DATE

ARTHUR E MUEGGE # 8707

S-86-87, S-87-23, WP 88-57
P-88-07, WP 88-121

DESIGNED BY: CJR

DRAWN BY: KJB

PROJECT NO: 28800

DATE: NOVEMBER 7, 1988

SCALE: AS SHOWN

DRAWING NO. 6 OF 15

ASBUILT

F-88-231

ASBUILT OCT. 8, 1991

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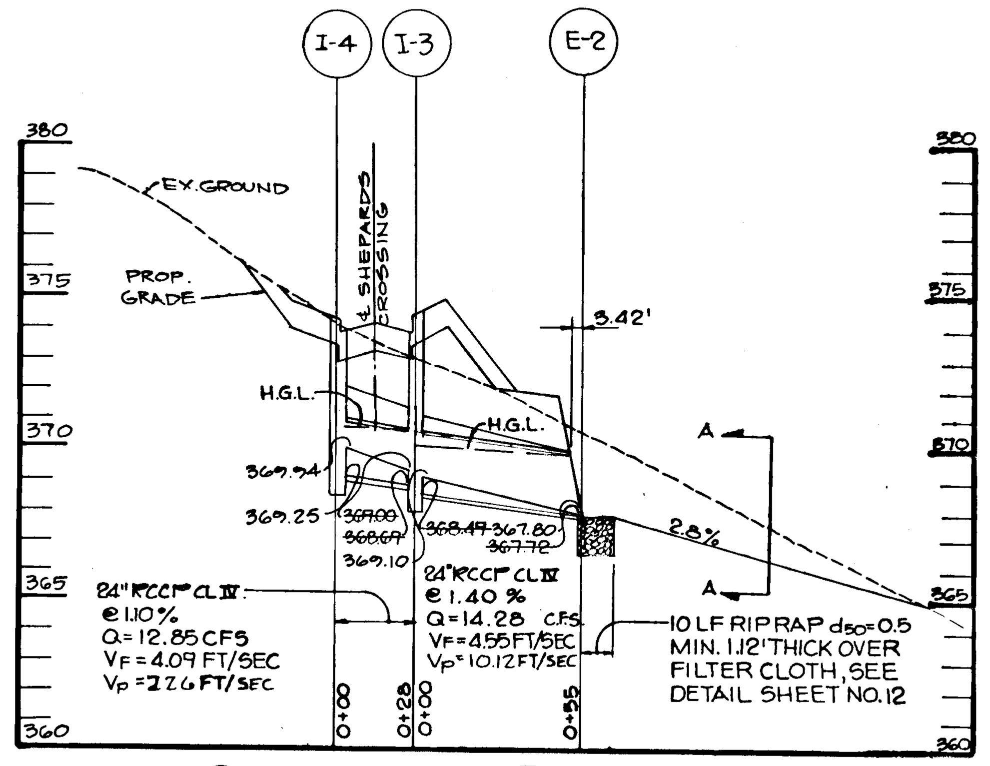
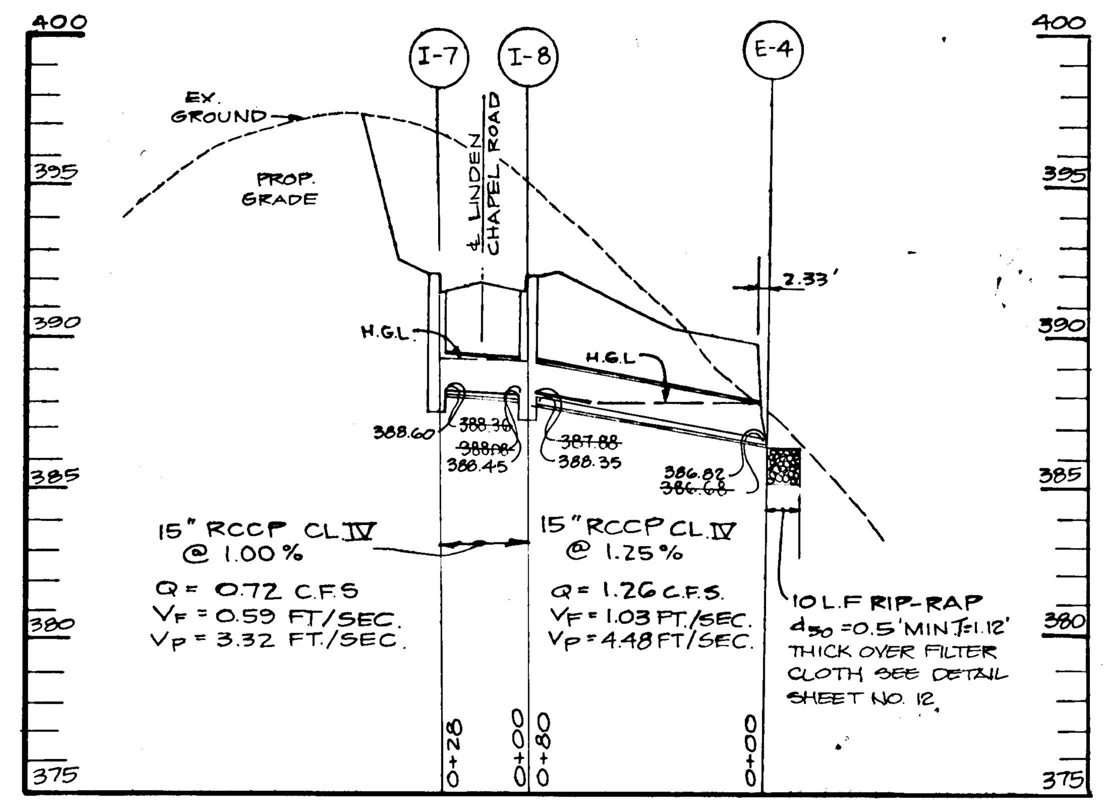
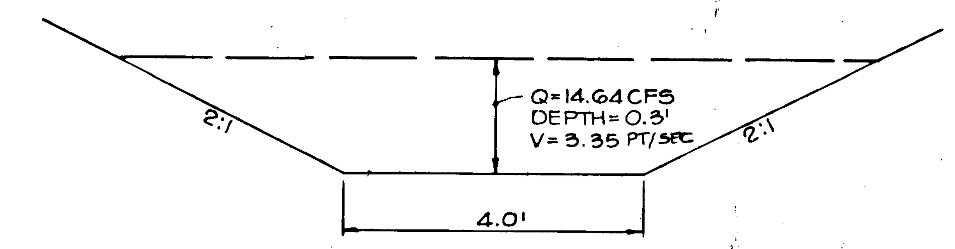


STORM DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'



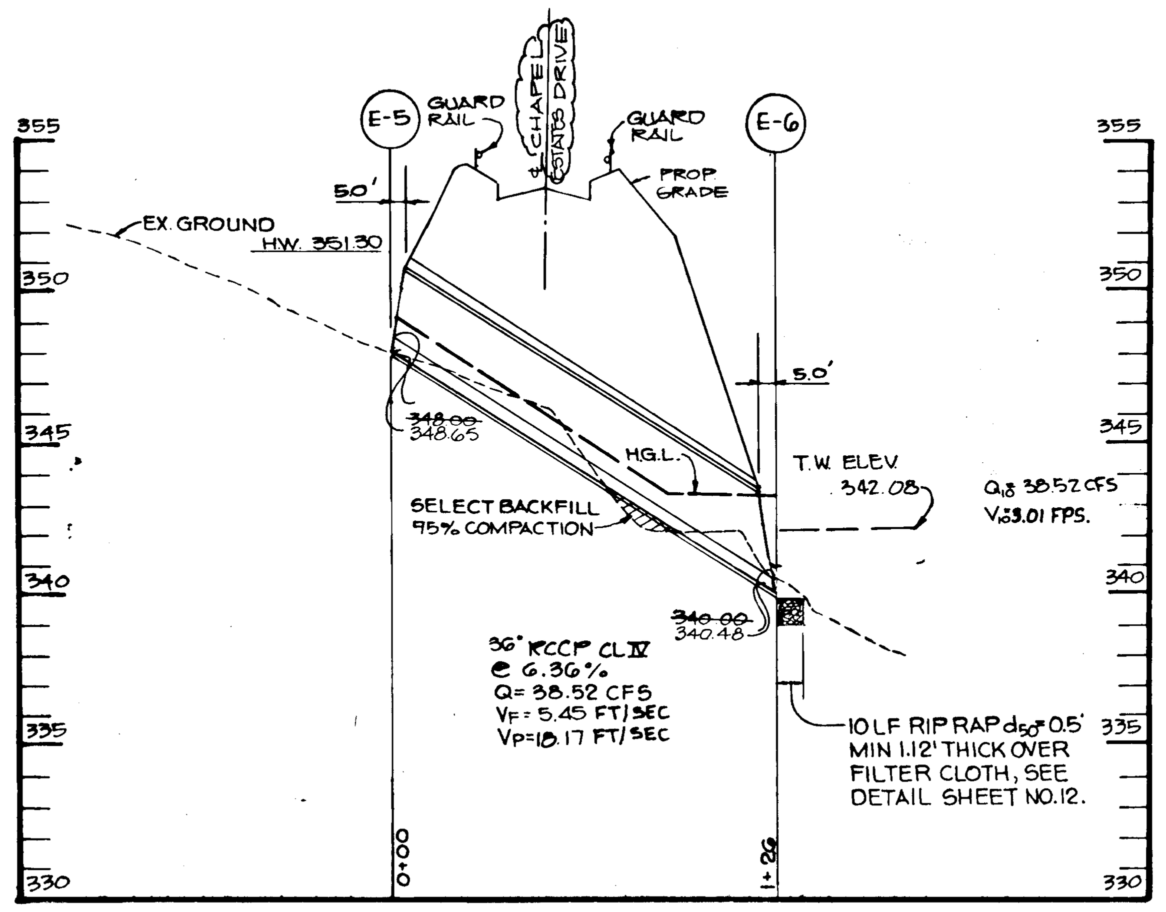
STORM DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'



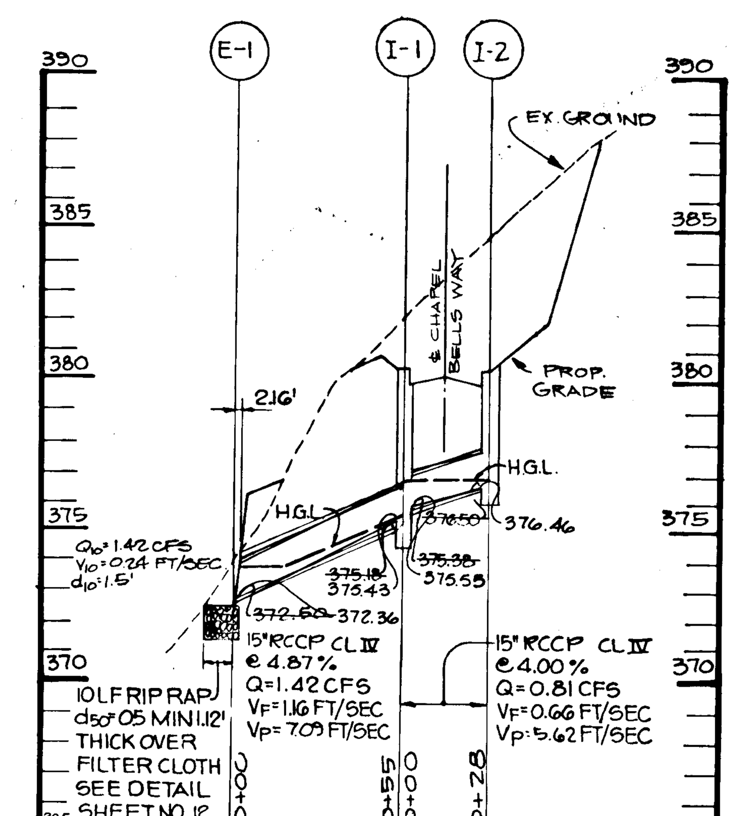
SECTION 'A-A' @ E-2
NO SCALE

STRUCTURE SCHEDULE

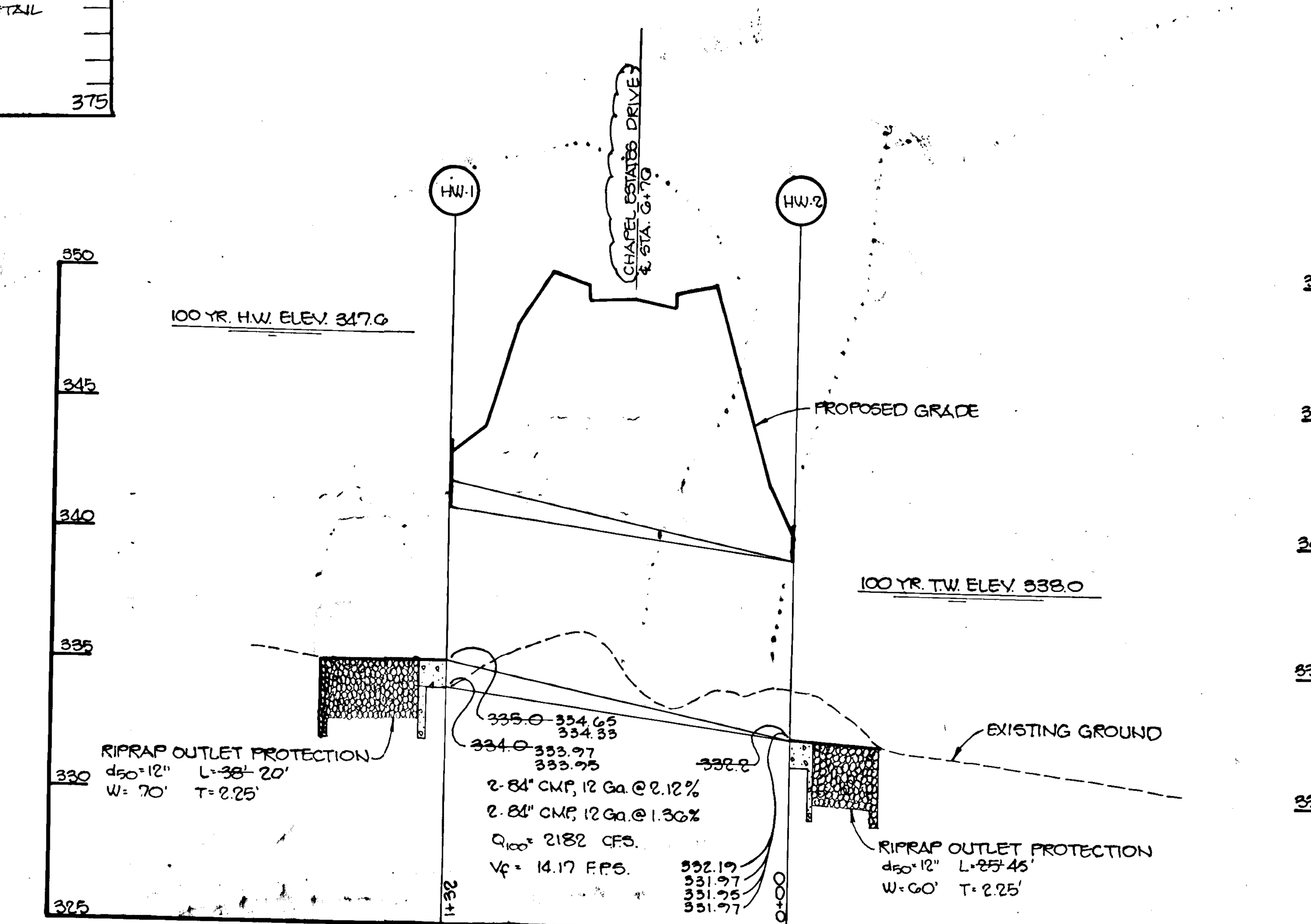
No.	Type	Location	Top Elev.	Inv. In.	Inv. Out	Remarks
I-1	A-5 INLET	12' RIGHT C/L STA 0+65 CHAPEL BELLS WAY	~~380.35~~ 380.05	~~375.38~~ 375.55	~~375.18~~ 375.43	HO. CO. STD. DTL. SD 4.01
I-2	A-5 INLET	12' LEFT C/L STA 0+65 CHAPEL BELLS WAY	~~380.35~~ 379.91	—	~~376.50~~ 376.46	HO. CO. STD. DTL. SD 4.01
I-3	A-5 INLET	12' LEFT C/L STA 3+16 SHEPARDS CROSSING	~~373.48~~ 374.25	~~368.69~~ 369.25	~~368.49~~ 369.10	HO. CO. STD. DTL. SD 4.01
I-4	A-10 DEPRESSED	12' RIGHT C/L STA 3+16 SHEPARDS CROSSING	~~373.48~~ 374.29	—	~~369.00~~ 369.94	HO. CO. STD. DTL. SD 4.81 & SD 4.02
I-5	A-5 INLET	12' LEFT C/L STA 7+55.99 CHAPEL ESTATES DRIVE	~~348.92~~ 348.16	~~337.21~~ 336.67	~~337.01~~ 336.56	HO. CO. STD. DTL. SD 4.01
I-6	A-5 INLET	12' RIGHT C/L STA 7+55.99 CHAPEL ESTATES DRIVE	~~348.92~~ 348.42	~~338.05~~ 337.52	~~337.85~~ 337.32	HO. CO. STD. DTL. SD 4.01
I-7	A-5 w/ DEFLECTORS	12' LEFT C/L STA 31+56 LINDEN CHAPEL ROAD	~~392.27~~ 392.19	—	~~388.36~~ 388.60	HO. CO. STD. DTL. SD 4.83 & SD 4.01
I-8	A-5 w/ DEFLECTORS	12' RIGHT C/L STA 31+56 LINDEN CHAPEL ROAD	~~392.27~~ 392.25	~~388.08~~ 388.45	~~387.88~~ 388.35	HO. CO. STD. DTL. SD 4.83 & SD 4.01
I-9	A-5 INLET	12' LEFT C/L STA 24+46.11 CHAPEL ESTATES DRIVE	~~352.06~~ 352.01	~~346.94~~ 346.33	~~343.50~~ 342.54	HO. CO. STD. DTL. SD 4.01
I-10	A-5 INLET	12' RIGHT C/L STA 24+46.11 CHAPEL ESTATES DRIVE	~~352.06~~ 352.00	—	~~347.50~~ 347.40	HO. CO. STD. DTL. SD 4.01
E-1	15" CONC. END SECTION	SEE PLAN	—	~~372.50~~ 372.36		HO. CO. STD. DTL. 5.51
E-2	24" CONC. END SECTION	SEE PLAN	—	~~367.72~~ 367.80	—	HO. CO. STD. DTL. 5.51
E-4	15" CONCRETE END SECTION	SEE PLAN	—	~~386.68~~ 386.82	—	HO. CO. STD. DTL. 5.51
E-5	36" CONC. END SECTION	SEE PLAN	—	—	~~348.00~~ 348.65	HO. CO. STD. DTL. 5.51
E-6	36" CONC. END SECTION	SEE PLAN	—	~~340.00~~ 340.48	—	HO. CO. STD. DTL. 5.51
E-7	15" CONC. END SECTION	SEE PLAN	—	~~340.50~~ 340.08	—	HO. CO. STD. DTL. 5.51
E-3	36" CONC. END SECTION	SEE PLAN	—	—	~~337.00~~ 337.71	HO. CO. STD. DTL. 5.51
HW-1	HEADWALL	SEE PLAN	—	—	—	
HW-2	HEADWALL	SEE PLAN	—	—		
E-8	36" CONC. END SECTION	SEE PLAN	—	—	~~334.87~~ 334.21	HO. CO. STD. DTL. 5.51



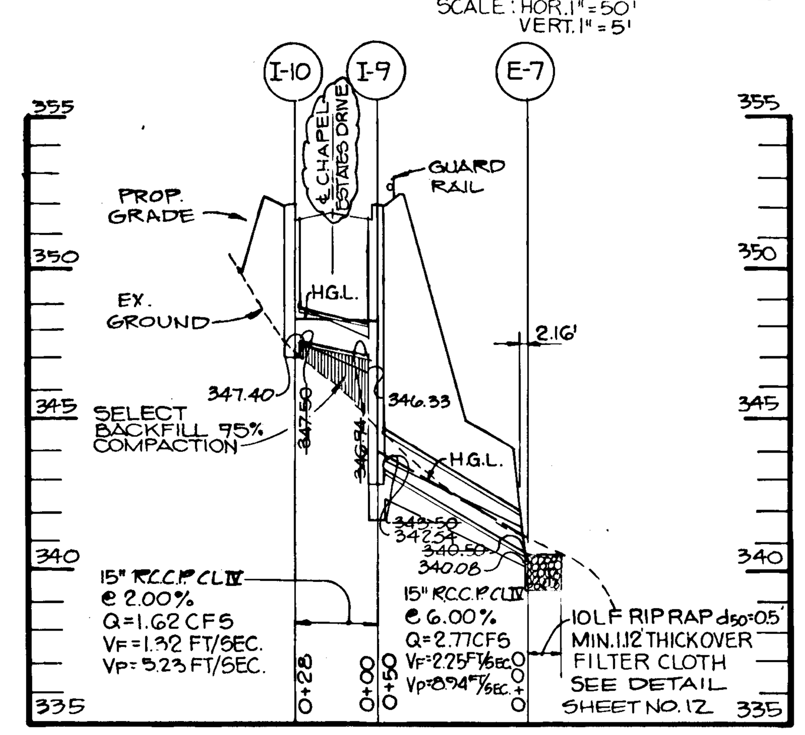
STORM DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'



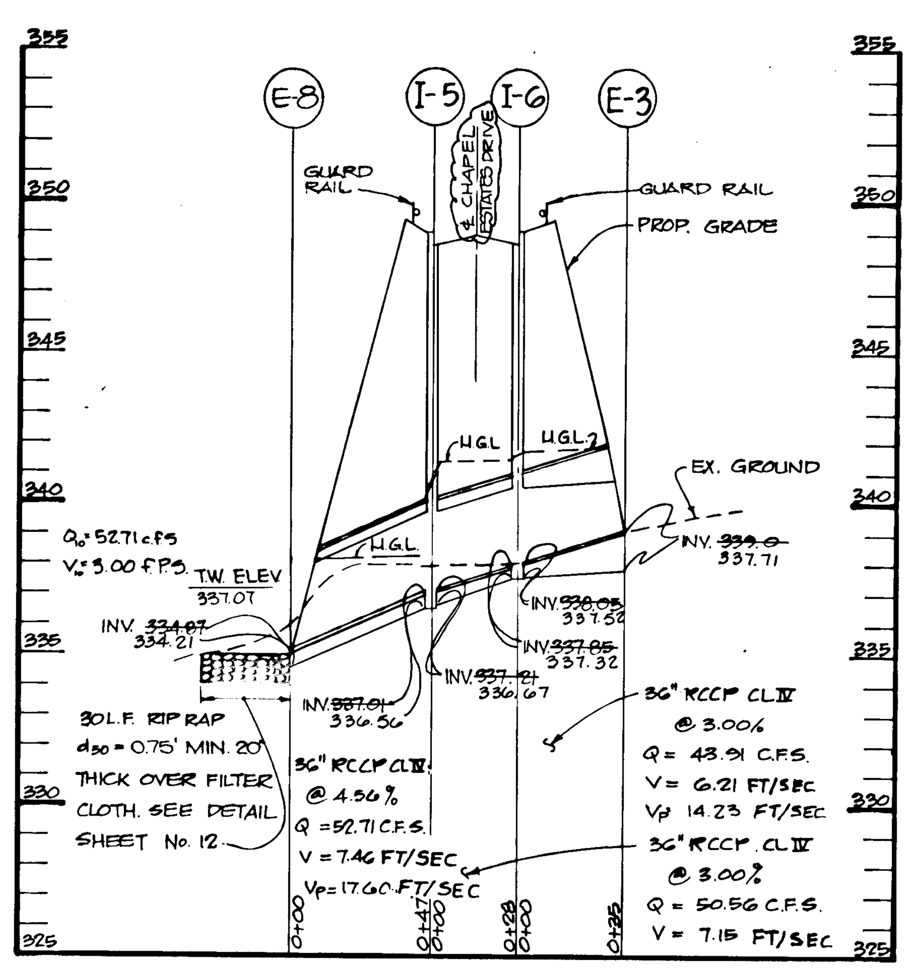
STORM DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'



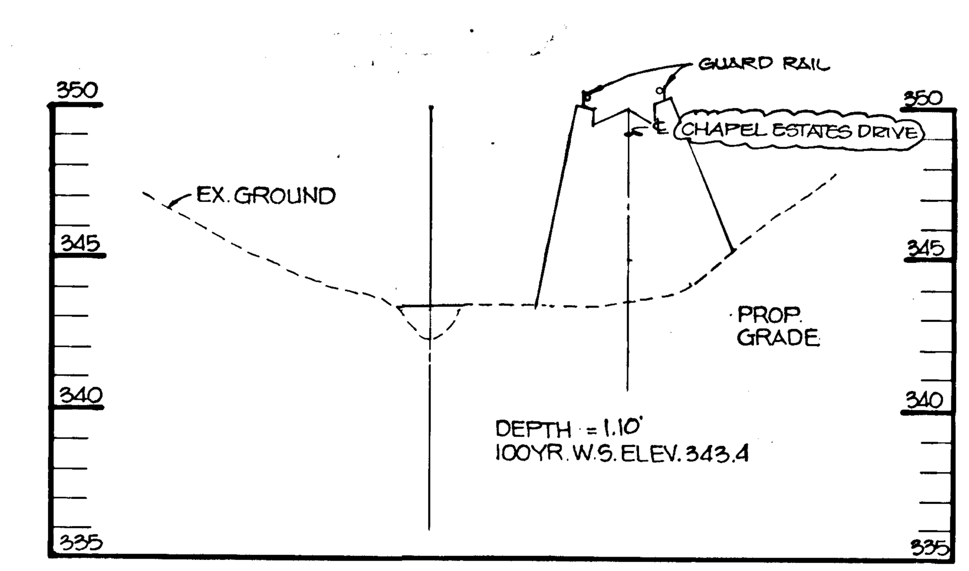
STORM DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'



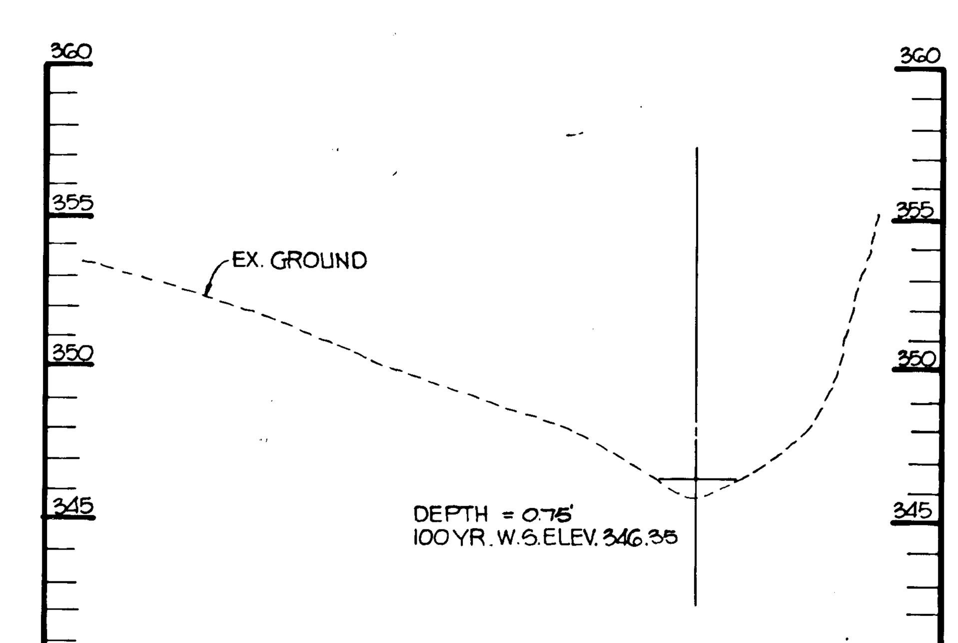
STORM DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'



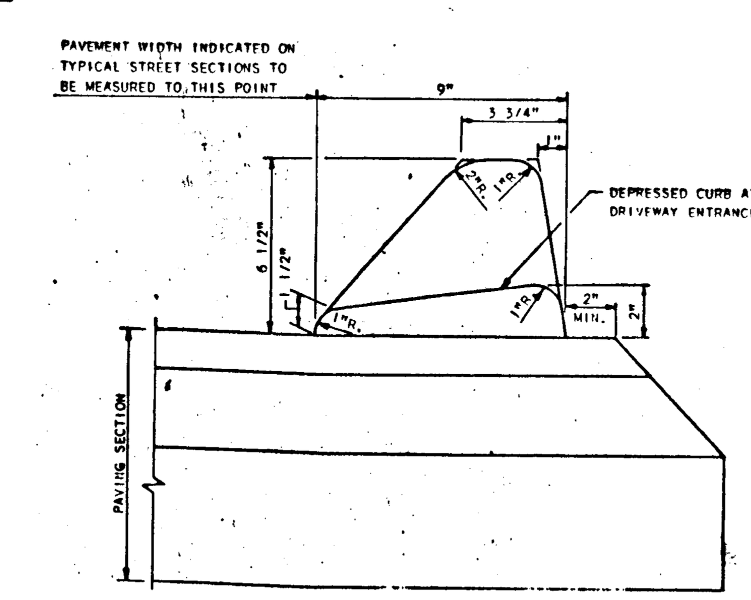
STORM DRAIN PROFILE
SCALE: HOR. 1"=50'
VERT. 1"=5'



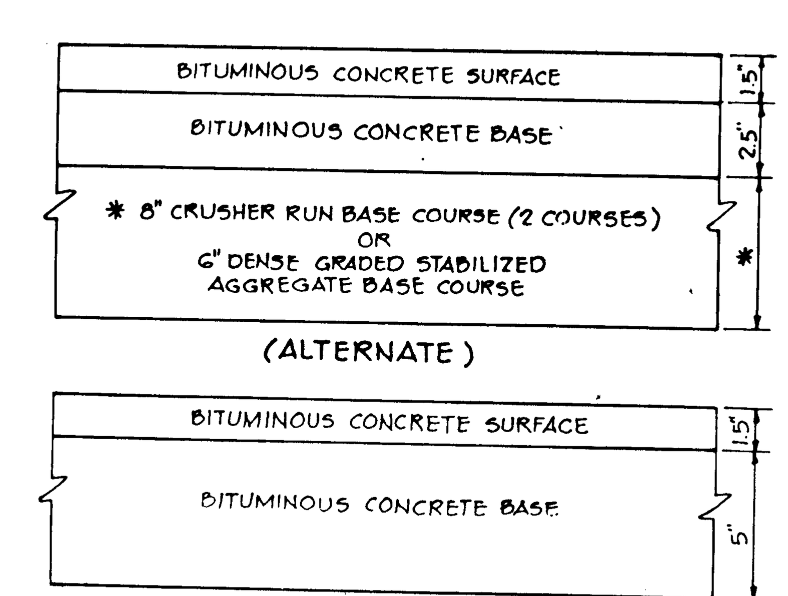
FLOODPLAIN CROSS - SECTION - 2
SCALE: HOR. 1"=50'
VERT. 1"=5'



FLOODPLAIN CROSS - SECTION - 1
SCALE: HOR. 1"=50'
VERT. 1"=5'



BITUMINOUS CURB DETAIL
NO SCALE



HOWARD COUNTY DESIGN MANUAL VOLUME IV -
STANDARD SPECIFICATIONS AND DETAILS FOR
CONSTRUCTION (DRAWING R-2.01)

P-2 PAVING
NO SCALE

ASBUILT CERTIFICATION

ARTHUR E. MUEGGE #8707 — 10.8.91 DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 4-7-89 DATE

LKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — 3/21/89 Date

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

Chief, Bureau of Engineering — 3/22/89 Date

Acting

DATE	NO.	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE
12-29-89	1	REMOVED BRIDGE PROFILE & GABION DETAIL ADDED STORM DRAIN PROFILE

OWNER J.J.M. PARTNERSHIP
5570 STERRETT PLACE SUITE 201
COLUMBIA, MARYLAND 21044 (301) 740-4466

DEVELOPER: J.J.M INC.
5570 STERRETT PLACE SUITE 201
COLUMBIA MARYLAND 21044 (301) 740-4466

PROJECT: CHAPEL WOODS II

AREA TAX MAP № 29 PARCELS 26, 86, 282
5^{TH} ELECTION DISTRICT
HOWARD COUNTY MARYLAND

TITLE: STORM DRAIN PROFILES AND DETAILS

THE RIEMER GROUP, INC.
The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11-11-88
DATE

ARTHUR E. MUEGGE #8707

S-86-87, S-87-23, WP-88-57
P-88-07, WP 88-121

DESIGNED BY: C.J.R.

DRAWN BY: J.C.R.

PROJECT NO: 28800

DATE: NOVEMBER 7, 1988

SCALE: AS SHOWN

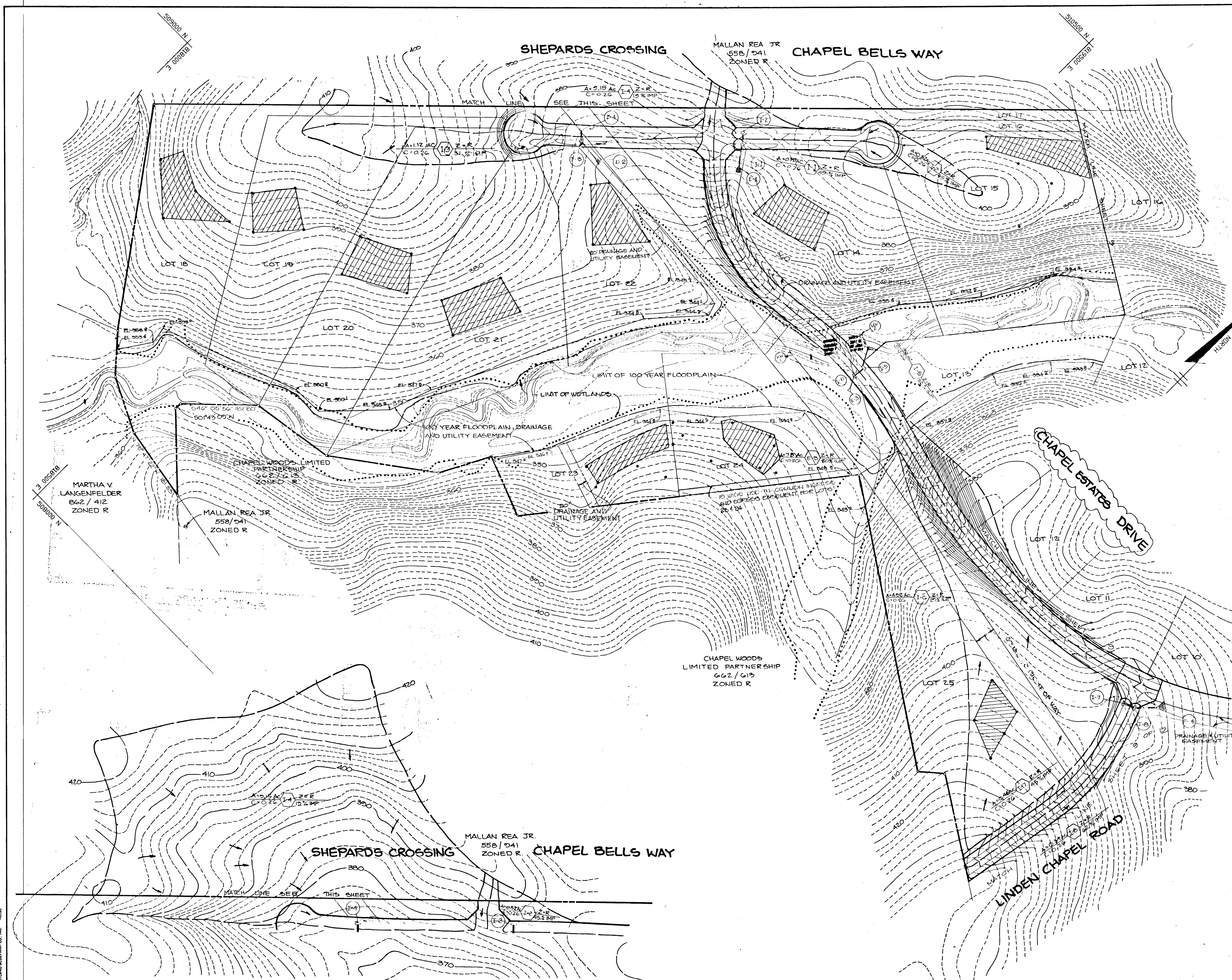
DRAWING NO. 7 OF 15

F-88-231

ASBUILT OCT. 9, 1991

717

MARYLAND BLUEPRINT CO. INC.



APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — Date

Chief, Bureau of Highways — Date

Chief, Bureau of Engineering — Date 3/.../'9

DATE	NO.	REVISION
11-30-00	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE.
12-29-89	1	REPLACED ARCH BRIDGE WITH CULVERTS

OWNER/DEVELOPER
(OWN.) JJM PARTNERSHIP
5570-201 STERRETT PLACE
COLUMBIA, MARYLAND 21044 PH.(301) 740-4466
(DEV.) JJM INC.
5570-201 STERRETT PLACE
COLUMBIA, MARYLAND 21044 PH(301) 740-4466

PROJECT:
CHAPEL WOODS II

AREA TAX MAP № 29 PARCELS 26, 86, 282
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE:
DRAINAGE AREA MAP

THE RIEMER GROUP, INC.
The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

DATE

ARTHUR E. MUEGGE #8107

586-87, S-87-23, WP-88-57
P-88-07 WP88-121

DESIGNED BY: C.J.R.
DRAWN BY: DDB.
PROJECT NO: 28800
DATE: NOVEMBER 7, 1988
SCALE: 1" = 100'
DRAWING NO. 8 OF 15

F-88-231

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 4-7-89

LKS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — Date 3/21/89

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

Chief, Bureau of Engineering — Date 3/22/89

Acting

DATE	NO.	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE.
1-9-90	1	ADDED LIMIT OF DISTURBANCE FOR STOCKPILE AREA.

OWNER/DEVELOPER

(OWN.) JJM PARTNERSHIP
5570-201 STERRETT PLACE
COLUMBIA, MARYLAND 21044 PH(301) 740-4466

(DEV.) JJM., INC.
5570-201 STERRETT PLACE
COLUMBIA, MARYLAND 21044 PH(301) 740-4466

PROJECT: **CHAPEL WOODS II**

AREA TAX MAP № 29 PARCELS 26, 86, 282
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **DRAINAGE AREA MAP**

THE RIEMER GROUP, INC.

The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11-11-88
DATE

ARTHUR E. MUEGGE #8107

S-86-07, S87-28, WP-88-07
F-88-07, WP88-121

DESIGNED BY: C.J.R.

DRAWN BY: DDB

PROJECT NO: 28800

DATE: NOVEMBER 7, 1988

SCALE: 1" = 100'

DRAWING NO. 9 OF 15

F-88-231

7/7

LEGEND

LIMIT OF DISTURBANCE
EARTH DIKE — EARTH DIKE A-1
STABILIZED CONSTRUCTION ENTRANCE — SCE, 50' MIN.
SILT FENCE — S — S —
STONE FILTER INLET PROTECTION — S.F.I.P.

NOTES:

1. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE ON ALL EARTH DIKES.
2. ALL CONTOURS AROUND SEDIMENT TRAPS ARE TEMPORARY.

EXISTING TEE TURNAROUND TO BE REMOVED AND CONNECT INTO EXISTING PAVING.

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

[signature] 4-7-89
CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE
LB

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 3/21/89
Chief, Land Development Division — Date

[signature] 3/2/89
Chief, Bureau of Highways — Date

[signature] 3/22/89
Chief, Bureau of Engineering — Date
Acting

DATE	NO.	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE

BY THE DEVELOPER:

"I 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 POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 11-14-88
DEVELOPER — 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 POND WITHIN 30 DAYS OF COMPLETION."

[signature] 11-11-88
ENGINEER — 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.

[signature] 11/17/88
U.S. SOIL CONSERVATION SERVICE — DATE

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

APPROVED [signature] 11/17/88
HOWARD S.C.D. — DATE

OWNER: J.J.M. PARTNERSHIP
5570-201 STERRETT PLACE
COLUMBIA, MARYLAND 21044 (301) 740-4466

DEVELOPER: J.J.M., INC.
5570-201 STERRETT PLACE
COLUMBIA, MARYLAND 21044 (301) 740-4466

PROJECT: CHAPEL WOODS II

AREA: TAX MAP No 29 PARCELS 26, 86, 282
5TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING AND SEDIMENT CONTROL PLAN

THE RIEMER GROUP, INC.

The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11-11-88
DATE

[signature]
ARTHUR E. MUEGGE #8707

S-86-87, S-87-23, WP-88-57
P-88-07 WP 88-121

DESIGNED BY: C.J.R.
DRAWN BY: J.L.B.
PROJECT NO: 28800
DATE: NOVEMBER 7, 1988
SCALE: 1" = 50'
DRAWING NO. 10 OF 15

F-88-231

MARYLAND BLUEPRINT CO., INC. NB5062

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 4-7-89

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — Date 3/21/89

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

Chief, Bureau of Engineering — Date 3/22/89

DATE	NO.	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE
12-20-89	1	REPLACED ARCH BRIDGE WITH CULVERTS

OWNER: J.J.M. PARTNERSHIP
5570-201 STERRETT PLACE
COLUMBIA, MARYLAND 21044 PH. (301) 740-4466

DEVELOPER: J.J.M., INC.
5570-201 STERRETT PLACE
COLUMBIA, MARYLAND 21044 PH. (301) 740-4466

PROJECT
CHAPEL WOODS II

AREA TAX MAP Nº 29 PARCELS 26, 86, 282
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
GRADING AND SEDIMENT CONTROL PLAN

BY THE DEVLOPER:

"I 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 POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — DATE 11-14-88

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL PRESENTS 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 POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER — DATE 11-11-88

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 11/17/88

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

APPROVED HOWARD S.C.D. — DATE 11/17/88

THE RIEMER GROUP, INC.
The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11-11-88
DATE

ARTHUR E. MUEGGE #8707

S-86-87, S-87-28, WP 88-57
F-88-07 WP 88-121

DESIGNED BY: C.J.R.

DRAWN BY: J.L.B

PROJECT NO: 28800

DATE: NOVEMBER 7, 1988

SCALE: 1" = 50'

DRAWING NO. 11 OF 15

F-88-231

PERMANENT SEEDING NOTES

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

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

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

1) Preferred -- Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc lime upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).

2) Acceptable -- Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

Seeding -- For the 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 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

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

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

TEMPORARY SEEDING NOTES

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

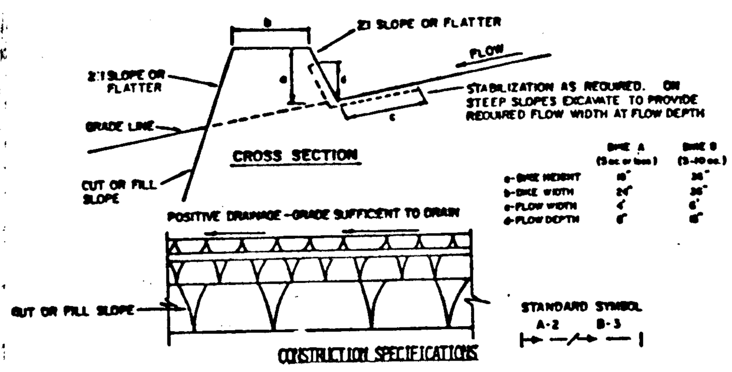
Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

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 348 gal per acre (8 gal/1000 sq ft) for anchoring.

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



CROSS SECTION

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

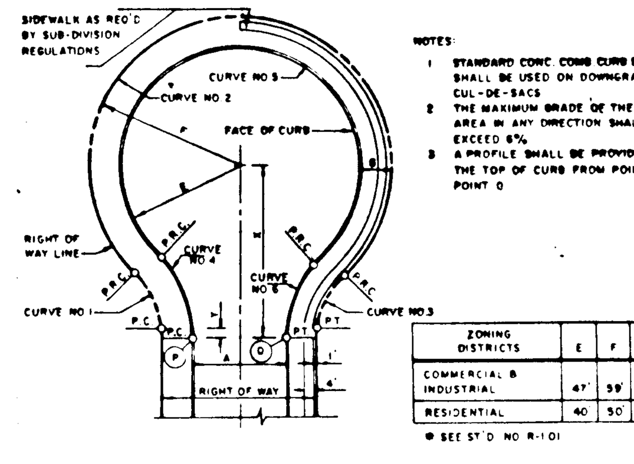
TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1	.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE, OR EXCELSIOR; SOD; 2" STONE
3	5.1-8.0%	SEED WITH JUTE, OR SOD; 2" STONE	LINED RIP-RAP 4-8"
4	8.1-20%	LINED RIP-RAP 4-8"	ENGINEERING DESIGN

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



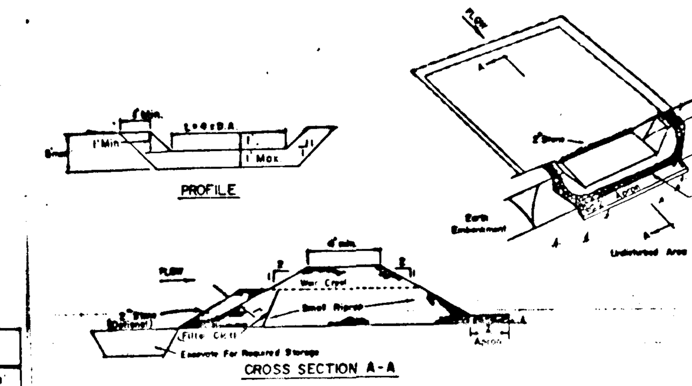
CURVE DATA TABLE

X=58.45' Y=2.55' LP=259.69'

	CURVE 1&3	CURVE 2	CURVE 4&6	CURVE 5
Δ	48°11'23"	276°22'46"	51°11'43"	282°23'26"
R	25.00'	50.00'	35.00'	40.00'
L	21.03'	241.19'	31.27'	197.15'
T	11.18'	—	16.77'	—
LC	20.41'	—	30.24'	—

CUL-DE-SAC DETAIL

NO SCALE



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 ½ 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

NO SCALE

2. Temporary Access Culvert - (STANDARD DRAWING TAC-1)

A temporary access culvert is a structure consisting of a section(s) of circular pipe, pipe arches, or oval pipes of reinforced concrete, corrugated metal, or structural plate, which is used to convey flowing water through the crossing.

Considerations

a. Temporary culverts are used where (1) the channel is too wide for normal bridge construction, (2) anticipated loading may prove unsafe for single span bridges, or (3) access is not needed from bank to bank.

b. This temporary waterway crossing method is normally preferred over a ford type of crossing, since disturbance to the waterway is only during construction and removal of the culvert.

c. Temporary culverts can be salvaged and reused.

Construction Specifications

a. Restrictions - No Construction or removal of a temporary access culvert will be permitted between October 1 through April 30 for all Class III and Class IV Trout Waters or between March 15 through June 15 for non-trout waterways.

b. Culvert Strength - All culverts shall be strong enough to support their cross sectional area under maximum expected loads.

c. Culvert Size - The size of the culvert pipe shall be the largest pipe diameter that will fit into the existing channel without major excavation of the waterway channel or without major approach fills. If a channel width exceeds 3 feet, additional pipes may be used until the cross sectional area of the pipes is greater than 60 percent of the cross sectional area of the existing channel. The minimum size culvert that may be used is a 12" diameter pipe.

d. Culvert Length - The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe of the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.

e. Filter Cloth - Filter cloth shall be placed on the streambed and streambanks prior to placement of the pipe culvert(s) and aggregate. The filter cloth shall cover the streambed and extend a minimum six inches and a maximum one foot beyond the end of the culvert and bedding material. Filter cloth reduces settlement and improves crossing stability.

f. Culvert Placement - The invert elevation of the culvert shall be installed on the natural streambed grade to minimize interference with fish migration (free passage of fish).

g. Culvert Protection - The culvert(s) shall be covered with a minimum of one foot of aggregate. If multiple culverts are used they shall be separated by at least 12" of compacted aggregate fill. At a minimum, the bedding and fill material used in the construction of the temporary access culvert crossings shall conform with the aggregate requirements cited in Section I.B. 1. above.

h. Stabilization - All areas disturbed during culvert installation shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization With Permanent Seeding."

Culvert Maintenance Requirements

a. Inspection - Periodic inspection shall be performed to ensure that the culverts, streambed, and streambanks are not damaged, and that sediment is not entering the stream or blocking fish passage or migration.

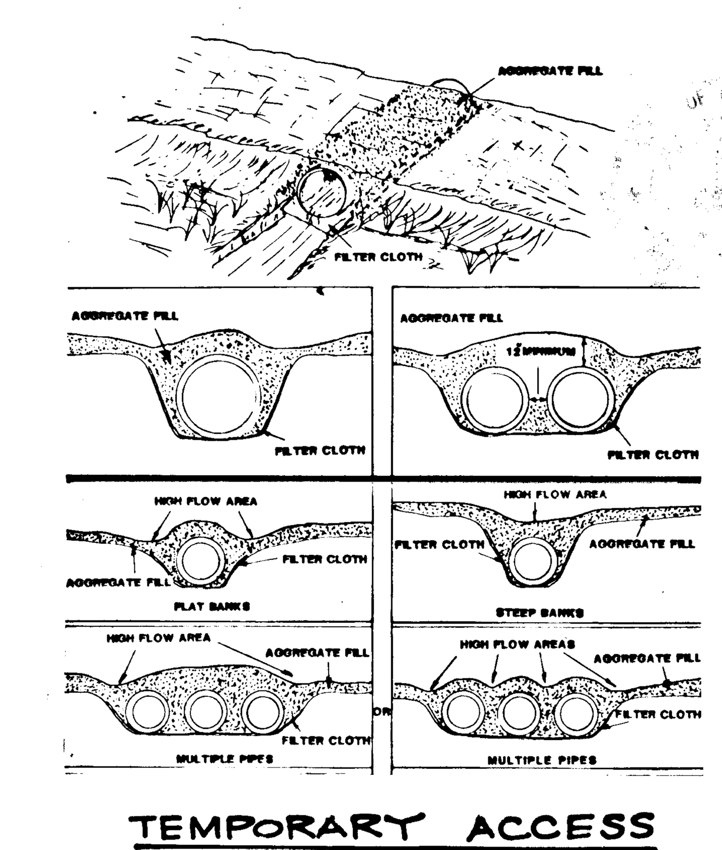
b. Maintenance - Maintenance shall be performed, as needed in a timely manner to ensure that structures are in compliance with this standard and specification. This shall include removal and disposal of any trapped sediment or debris. Sediment shall be disposed of and stabilized outside the waterway flood plain.

Culvert Removal and Clean-Up Requirements

a. Removal - When the crossing has served its purpose, all structures including culverts, bedding and filter cloth materials shall be removed within 14 calendar days. In all cases, the culvert materials shall be removed within one year of installation. No structure shall be removed during the spawning season (March 15 through June 15).

b. Final Cleanup - Final clean-up shall consist of removal of the temporary structure from the waterway, removal of all construction materials, restoration of original stream channel cross section, and protection of the stream banks from erosion. Removed material shall be stored outside of the waterway flood plain.

c. Method - Removal of the structure and clean up of the area shall be accomplished without construction equipment working in the waterway channel.



TEMPORARY ACCESS CULVERT

NO SCALE

BY THE DEVELOPER:

"I 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 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 POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — 11-14-88 — 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 POND WITHIN 30 DAYS OF COMPLETION."

Arthur E. Muegge — ENGINEER — 11-11-88 — 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. Nelson — U.S. SOIL CONSERVATION SERVICE — 11/17/88 — DATE

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

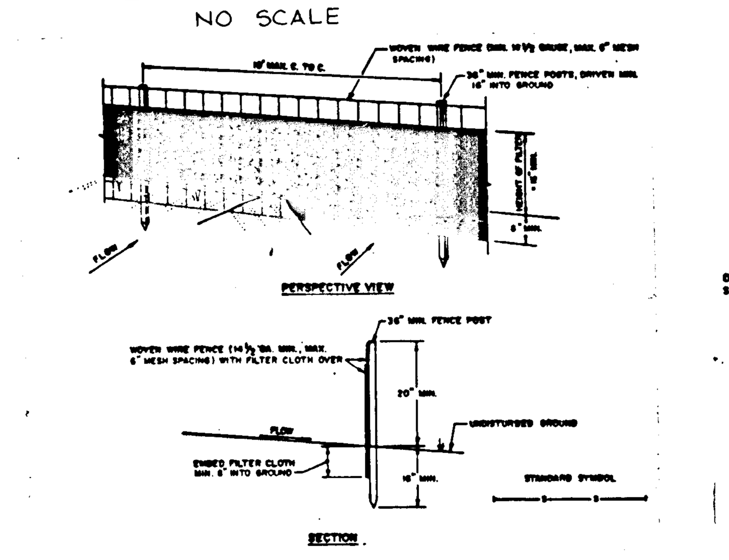
APPROVED Robert W. Zichar — HOWARD S.C.D. — 11/17/88 — DATE

SEDIMENT CONTROL NOTES

1. A minimum of 24 hours notice must be given to the Howard County Office of Inspections 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, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) 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	168.532 acres
Area Disturbed	13.78 acres
Area to be roofed or paved	7.55 acres
Area to be vegetatively stabilized	6.24 acres
Total Cut	cu. yds.
Total Fill	cu. yds.
TOPSOIL	cu yds.

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. Site grading will begin only after all perimeter sediment control measures have been installed and are in a functioning condition.
11. Sediment will be removed from traps when its depth reaches the clean out elevation shown on the plans.



SECTION

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

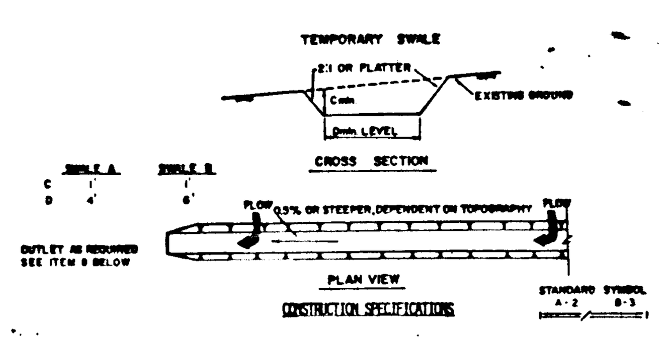
FENCE: WOVEN WIRE, 14½ GA. 6" MAX. MESH OPENING

FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

SILT FENCE

NO SCALE



CROSS SECTION

PLAN VIEW

CONSTRUCTION SPECIFICATIONS

1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE SWALE.
5. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
6. FILLS SHALL BE COMPACTED BY EARTH MOVING EQUIPMENT.
7. ALL EARTH REMOVED AND NOT NEEDED ON CONSTRUCTION SHALL BE PLACED SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE SWALE.
8. STABILIZATION SHALL BE AS PER THE CHART BELOW:

FLOW CHANNEL STABILIZATION

TYPE OF TREATMENT	CHANNEL GRADE	A (5 AC OR LESS)	B (5 AC - 10 AC)
1	0.5-3.0%	SEED AND STRAW MULCH	SEED AND STRAW MULCH
2	3.1-5.0%	SEED AND STRAW MULCH	SEED USING JUTE OR EXCELSIOR
3	5.1-8.0%	SEED WITH JUTE OR EXCELSIOR; SOD	LINED RIP-RAP 4-8" RECYCLED CONCRETE EQUIVALENT
4	8.1-20%	LINED 4-8" RIP-RAP	ENGINEERED DESIGN

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

TEMPORARY SWALE

NO SCALE

SEQUENCE OF CONSTRUCTION

1. Obtain a grading permit.
2. Remove existing temporary tee turnaround, barricade and any existing paving as necessary at existing Linden Chapel Road------------(1 day)
3. Install stabilized construction entrance---------------------(1 day)
4. Install temporary culverts under Shepards Crossing and Chapel Estates Drive including temporary trench for stream diversion, silt fence, earth dikes, stone outlet sediment traps #1 through #8 and temporary swales--(1week)
5. Perform grading maintaining positive drainage on all earth dikes. (2weeks)
6. Install storm drains and stone filter inlet protection as per plan. UPON INSTALLATION OF CULVERT FROM HW-1 TO HW-2, REMOVE TEMPORARY ACCESS CULVERT. (1 WEEK)
7. COMPLETE GRADING BRINGING ROAD TO SUBGRADE ELEVATION.
8. Complete all construction, including curb and paving.
9. Stabilize all disturbed areas in accordance with permanent seeding notes.
10. Upon approval of the Howard County Department of Public Works Sediment Control Inspector, remove all remaining sediment control devices and stabilize all areas disturbed in their removal according to the permanent seeding notes.

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — 4-7-89 — DATE

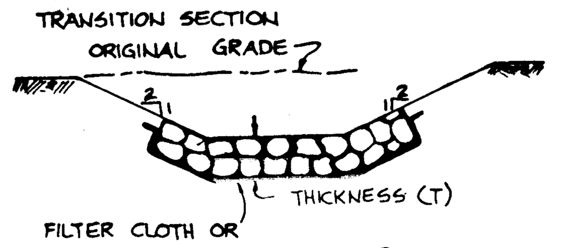
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division — 3/21/89 — Date

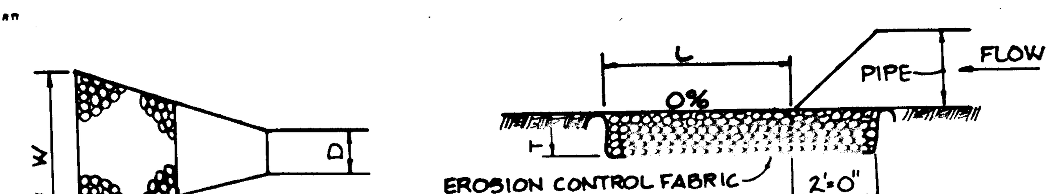
Chief, Bureau of Highways — 3/21/89 — Date

Chief, Bureau of Engineering — 3/22/89 — Date

RIPRAP TO BE EMBEDDED IN PROPOSED TRANSITION SECTION



SECTION A-A



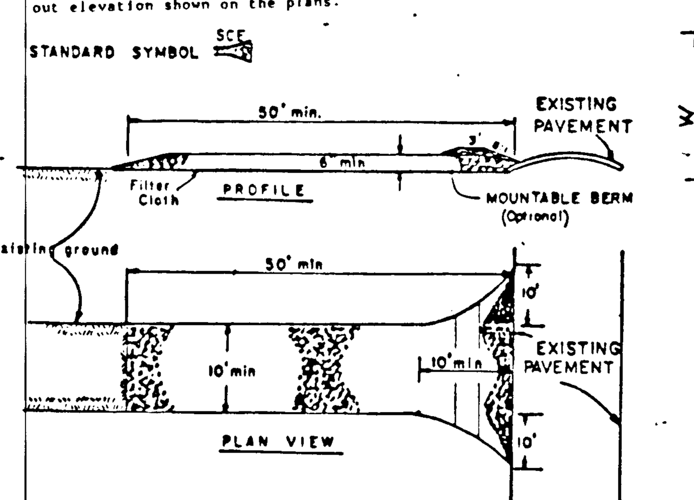
PLAN

SECTION

STRUCTURE	MEDIUM STONE DIA.	LENGTH (L)	WIDTH (W)	THICKNESS (T)
E1	0.5'	10'	11.25'	1.12'
E2	0.5'	10'	12'	1.12'
E-8	0.75'	30'	20'	20"
E4	0.5'	10'	11.25'	1.12'
E6	0.5'	10'	13'	1.12'
E7	0.5'	18'	11.25'	1.12'

OUTLET PROTECTION DETAIL

NO SCALE



PROFILE

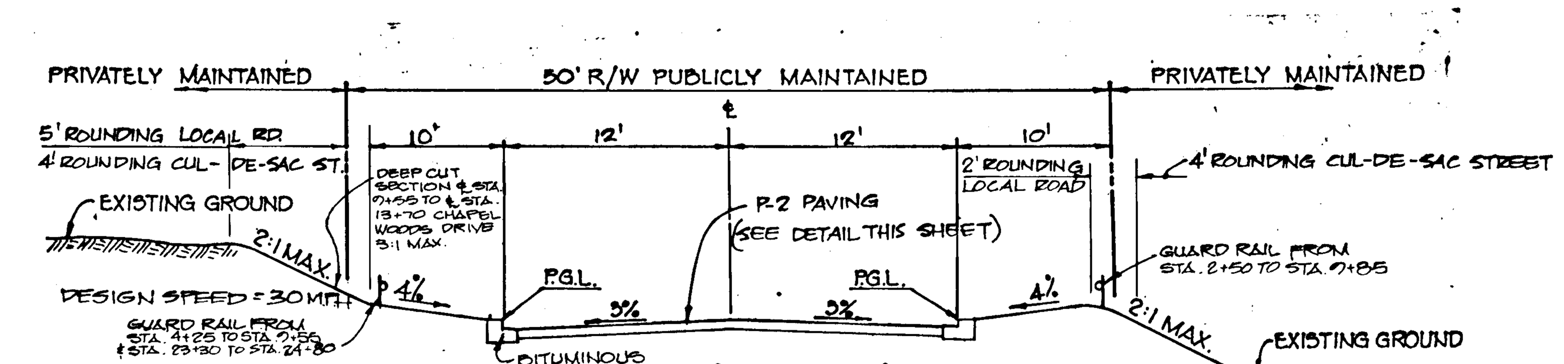
PLAN VIEW

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

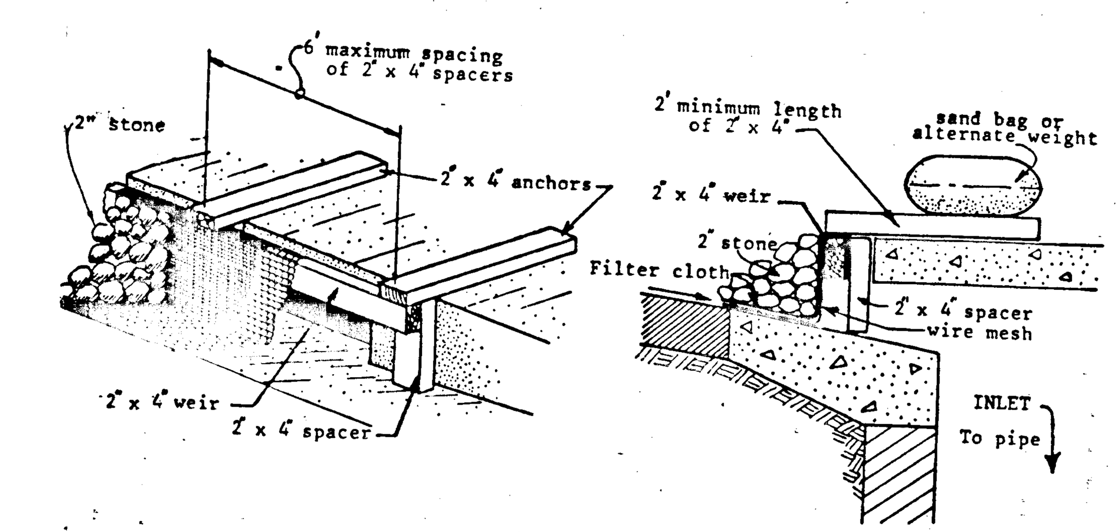


TYPICAL SECTION FOR 50' R/W

NO SCALE

CUL-DE-SAC STREETS
CHAPEL BELLS WAY - ℄ STA. 0+00 TO ℄ STA. 3+26.13
SHEPARDS CROSSING - ℄ STA. 0+00 TO ℄ STA. 3+89.15

LOCAL ROADS
LINDEN CHAPEL ROAD - ℄ STA. 25+93.44 TO ℄ STA. 32+09.55
CHAPEL ESTATES DRIVE - ℄ STA. 0+00 TO ℄ STA. 24+71.35



STANDARD SYMBOL

STONE FILTER INLET PROTECTION

NO SCALE

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

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.
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
6. Form the wire mesh and filter cloth to the concrete gutter and against the face of curb on both sides of the inlet. Place clean 2" stone over the wire mesh and filter fabric in such a manner as to prevent water from entering the inlet under or around the filter cloth.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass inlet by installing temporary earth or asphalt dikes directing flow into inlet.

11-30-90	2	REVISE POND NAME FOR CHAPEL ESTATES DRIVE
12-20-90	1	REVISED SEQUENCE OF CONSTRUCTION
DATE	NO	REVISION

OWNER: J.J.M. PARTNERSHIP
5570 STERRETT PLACE SUITE 201
COLUMBIA, MARYLAND 21044 (301) 740-4466

DEVELOPER: J.J.M. INC.
5570 STERRETT PLACE SUITE 201
COLUMBIA MARYLAND 21044

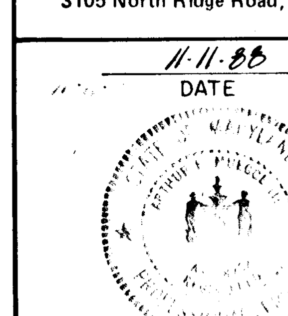
PROJECT: CHAPEL WOODS II

AREA: TAX MAP NO. 29 — PARCELS 26, 86, 282
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: DETAIL SHEET

THE RIEMER GROUP, INC.
The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11-11-88 DATE



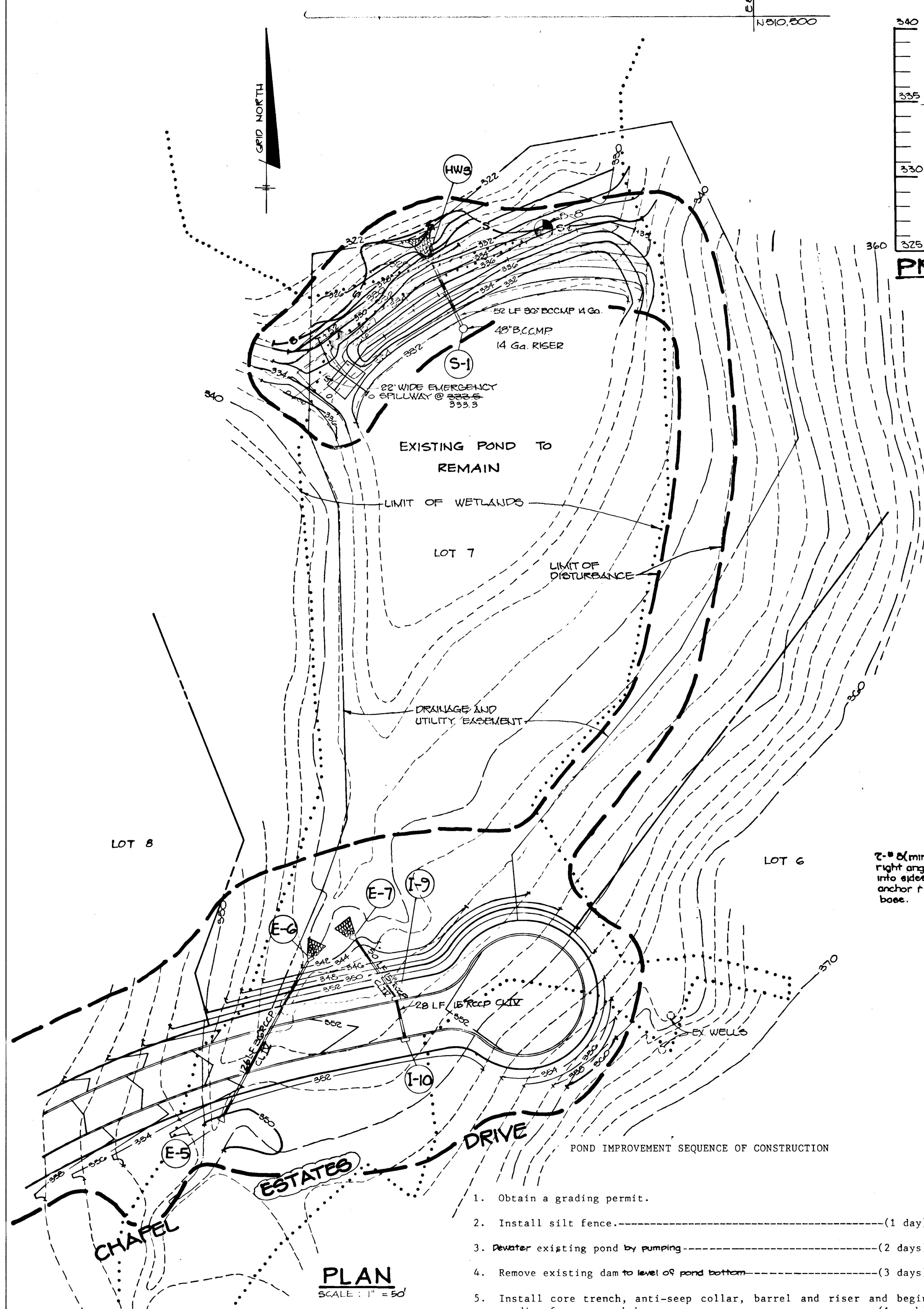
ARTHUR E. MUEGGE #8707

	S-86-87, S-87-23, WP-88-57, P-88-07, WP-88-121
	DESIGNED BY: C.J.R.
	DRAWN BY: J.E.P.
	PROJECT NO: 28800
	DATE: NOVEMBER 7, 1988
	SCALE: AS SHOWN
	DRAWING NO. 12 OF 15

F-88-231

717

MARYLAND BLUEPRINT CO., INC. N85062

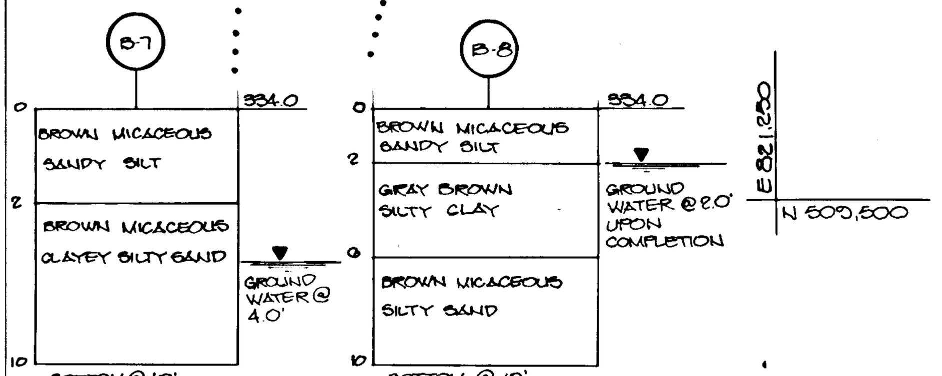


PLAN

SCALE : 1" = 50'

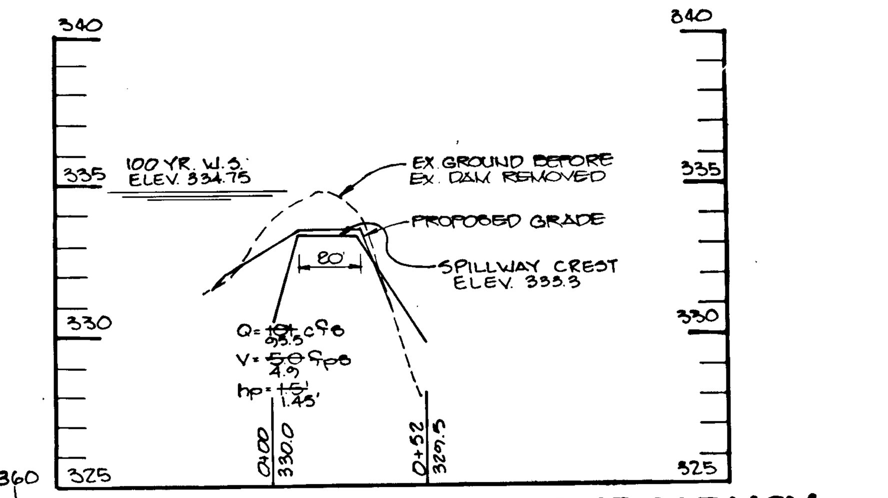
POND IMPROVEMENT SEQUENCE OF CONSTRUCTION

1. Obtain a grading permit.
2. Install silt fence.--(1 day)
3. Dewater existing pond by pumping.-----------------------------(2 days)
4. Remove existing dam to level of pond bottom.------------------(3 days)
5. Install core trench, anti-seep collar, barrel and riser and begin grading for proposed dam.----------------------------------(1 week)
6. Perform pond grading including emergency spillway.-----------(1 week)
7. Stabilize disturbed areas in accordance with the permanent seeding notes.---(2 days)
8. Upon permission of the Howard County Department of Public Works Sediment Control Inspector remove sediment controls and stabilize disturbed areas in accordance with permanent seeding notes.--(1 day)



POND SOIL BORINGS

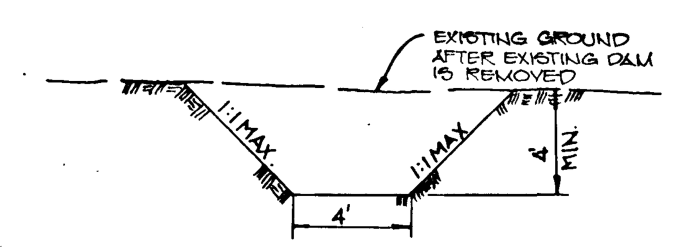
NO SCALE



PROFILE THROUGH EMERGENCY SPILLWAY

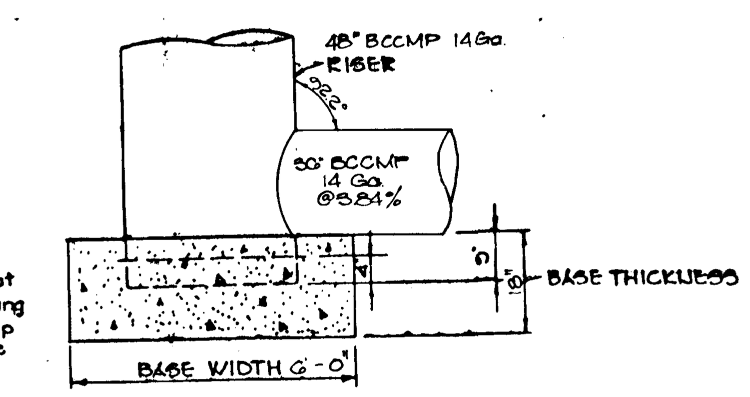
SCALE HOR. 1"=50'
VERT. 1"=5'

FILL MATERIAL SHALL BE MOST IMPERVIOUS MATERIAL AVAILABLE



CORE TRENCH TYP. SECTION

NO SCALE



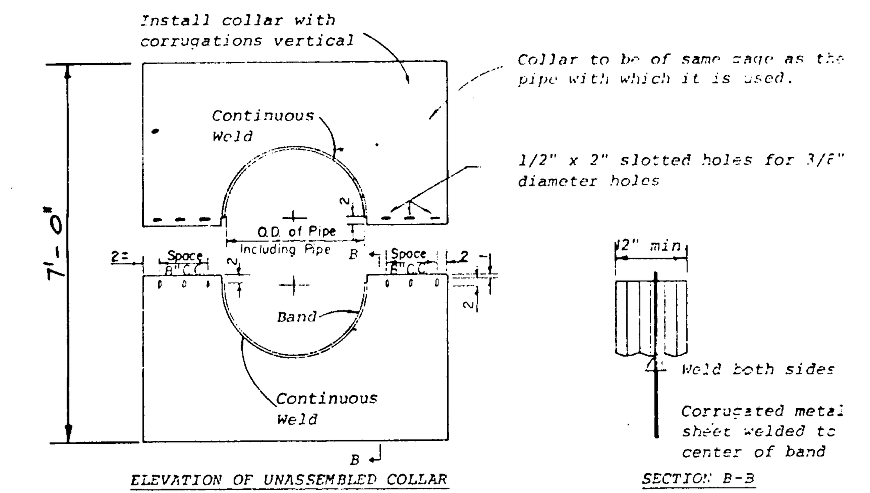
2-#6 (min.) Bars placed at right angles and projecting into sides of riser to help anchor riser to concrete base.

RISER BASE DETAIL

NO SCALE

NOTE:

The concrete base shall be poured in such a manner to insure that the concrete fills the bottom of the riser to the invert of the outlet pipe to prevent the riser from breaking away from the base.

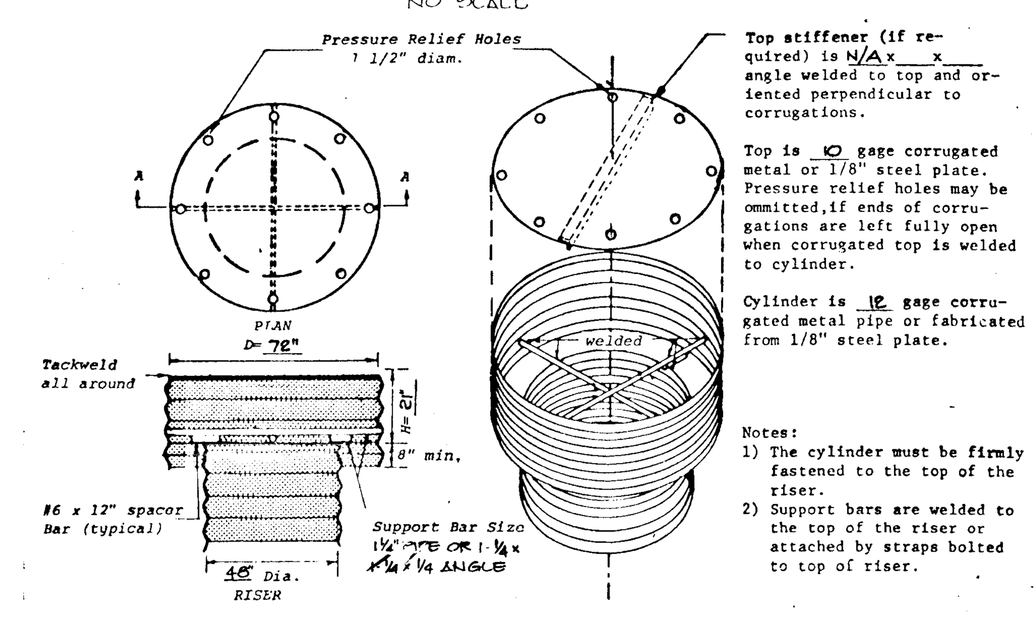


NOTES FOR COLLARS:

1. All materials to be in accordance with construction and construction material specifications.
2. When specified on the plans, coating of collars shall be in accordance with construction and construction material specifications.
3. Unassembled collars shall be marked by painting or tagging to identify matching pairs.
4. The lap between the two half sections and between the pipe and connecting band shall be caulked with asphalt mastic at time of installation.
5. Each collar shall be furnished with two 1/2" diameter rods with standard tank lugs for connecting collars to pipe.

ANTI-SEEP COLLAR

NO SCALE



Top stiffener (if required) is N/A x x angle welded to top and oriented perpendicular to corrugations.

Top is 10 gage corrugated metal or 1/8" steel plate. Pressure relief holes may be ommitted, if ends of corrugations are left fully open when corrugated top is welded to cylinder.

Cylinder is 16 gage corrugated metal pipe or fabricated from 1/8" steel plate.

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

NO SCALE

POND CONSTRUCTION SPECIFICATIONS

I. **SITE PREPARATION**

Areas under the borrow areas, embankment, and structural works shall be cleared, grubbed and the topsoil stripped to remove all trees, vegetation, roots or other objectionable material. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas 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 the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

II. **EARTH FILL**

Material:

The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, oversize stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipatd 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.

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 governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

III. **STRUCTURAL BACKFILL**

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

IV. **CORRUGATED METAL PIPE**

Material:

(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.

Connections:

All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Watertight coupling bands shall be used at all joints. Antiseep collars shall be connected to the pipe in such a manner as to be completely watertight.

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.

V. **CONCRETE**

Material:

1. Cement - Normal Portland cement shall conform to the latest ASTM Specification C-150.
2. Water - The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.
3. 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.
4. Course 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 (1-½) inches.
5. Renforcing Steel - The reinforcing steel shall be be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specification A-615.

Design Mix:

The concrete shall be mixed in the following proportions, measured by weight. The water-cement ration shall be 5-½ to 6 U.S. gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-½. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.

Mixing:

The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the speed of rotation of the mixer and of the introduction of the material, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the additions of water to perserve 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.

Forms:

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

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.

Reinforcing Steel:

All reinforcing material shall be free of dirt, rust, scale, oil, paint or 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.

Consolidating:

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

Finishing:

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

Protection and Curing:

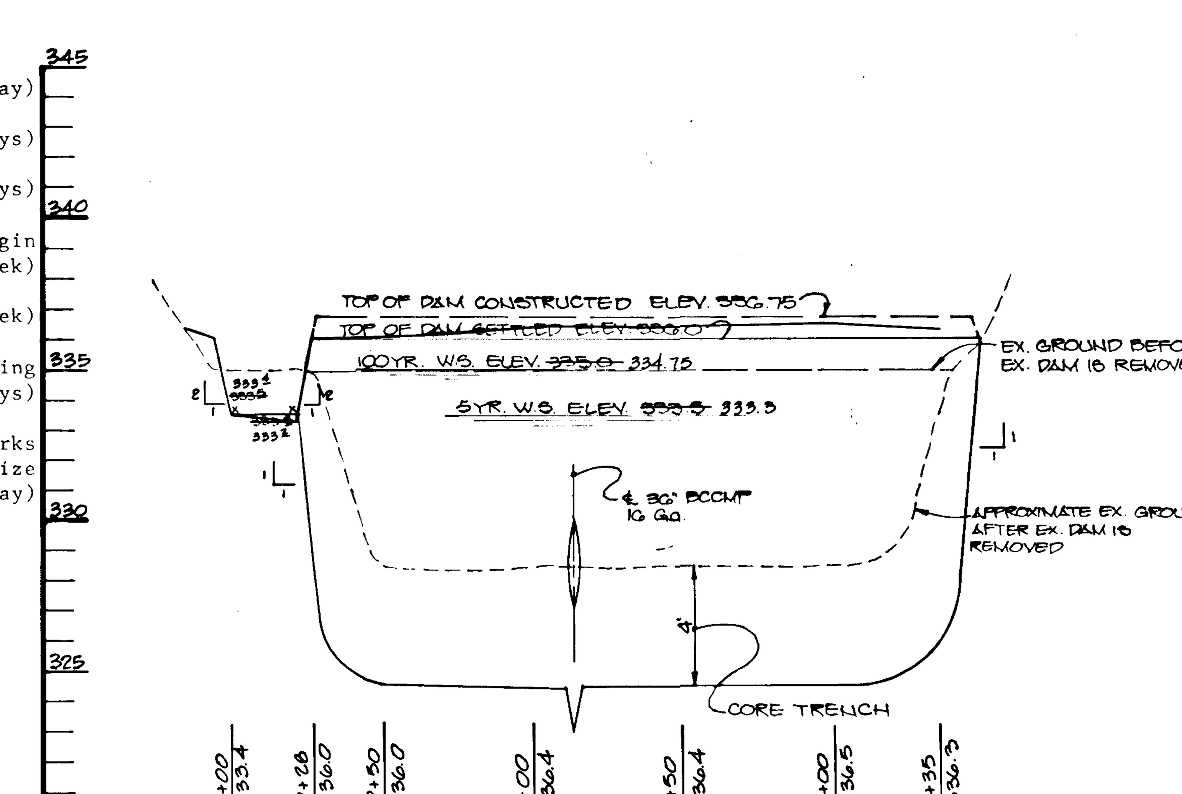
Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from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

Placing Temperature:

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

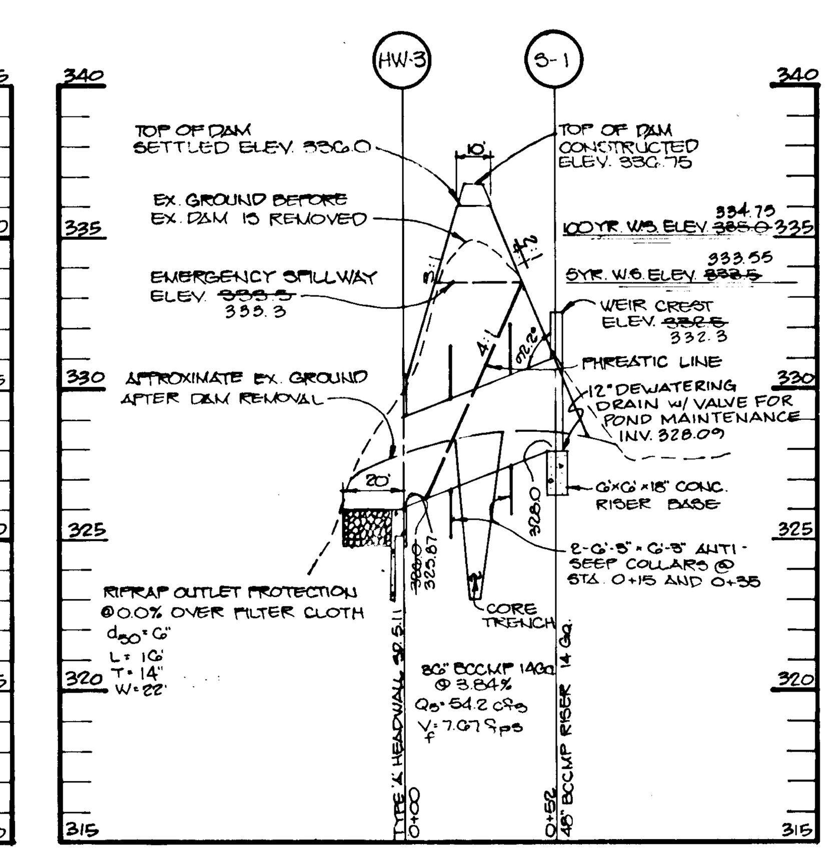
VI **STABILIZATION**

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



PROFILE ALONG ℄ OF EMBANKMENT

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



PROFILE THROUGH PRINCIPAL SPILLWAY

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

AS-BUILT CERTIFICATION

STATE OF MARYLAND
ARTHUR E. MUEGGE
NO. 8707
REGISTERED PROFESSIONAL ENGINEER

Arthur E. Muegge
ARTHUR E. MUEGGE #8707
10.8.91
DATE

BY THE DEVELOPER:

"I 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 POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER
11.14.88
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 POND WITHIN 30 DAYS OF COMPLETION."

Arthur E. Muegge
ENGINEER
11-11-88
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. Helman
U.S. SOIL CONSERVATION SERVICE
11/7/88
DATE

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

APPROVED Robert W. Ziehm
HOWARD S.C.D.
11/07/88
DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division
3/21/89
Date

Chief, Bureau of Highways
3/21/89
Date

Chief, Bureau of Engineering
3/22/89
Date

DATE	NO	REVISION
11-30-90	2	REVISE ROAD NAME FOR CHAPEL ESTATES DRIVE

OWNER: J.J.M. PARTNERSHIP, 5570-201 STERRETT PLACE, COLUMBIA, MARYLAND 21044, PH: (301) 740-4400

DEVELOPER: J.J.M. INC., 5570-201 STERRETT PLACE, COLUMBIA, MARYLAND 21044, PH: (301) 740-4400

PROJECT: CHAPEL WOODS II

AREA: TAX MAP NO. 25, PARCELS 25, 86, 282, 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: PLAN AND PROFILE FOR POND IMPROVEMENTS

THE RIEMER GROUP, INC.

The Riemer Group, Inc. A Land Planning, Design & Civil Engineering Firm
3105 North Ridge Road, Ellicott City, Maryland 21043 (301) 461-2690

11-11-88
DATE

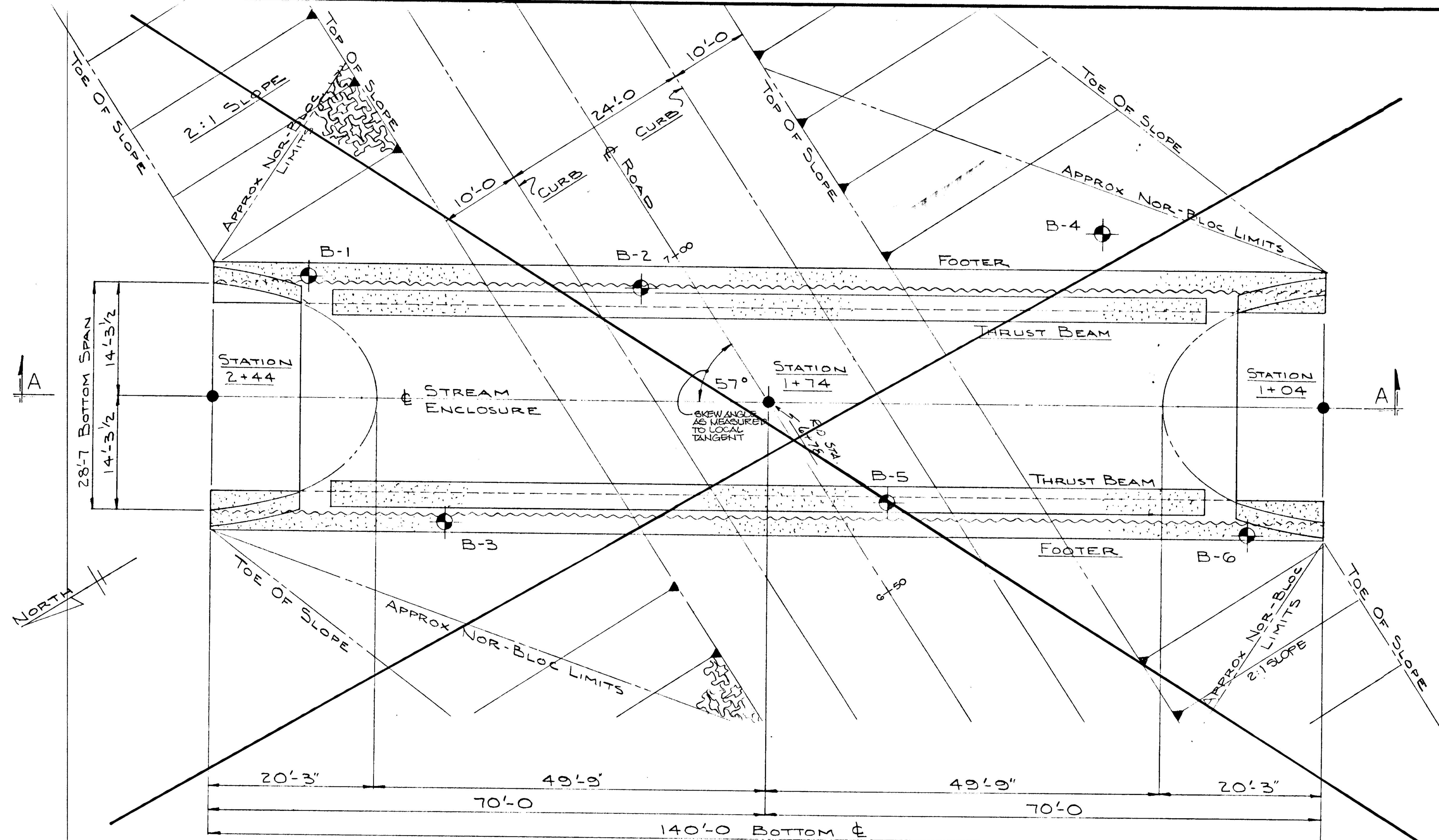
Arthur E. Muegge
ARTHUR E. MUEGGE #8707

DESIGNED BY:	C.J.R.
DRAWN BY:	D.S.
PROJECT NO:	28800
DATE:	NOVEMBER 7, 1988
SCALE:	AS SHOWN
DRAWING NO.	13 OF 15

AS-BUILT   F-88-231   ASBUILT OCT. 9, 1991

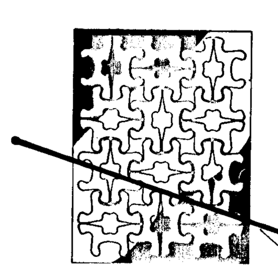
MARYLAND BLUEPRINT CO. INC.

717

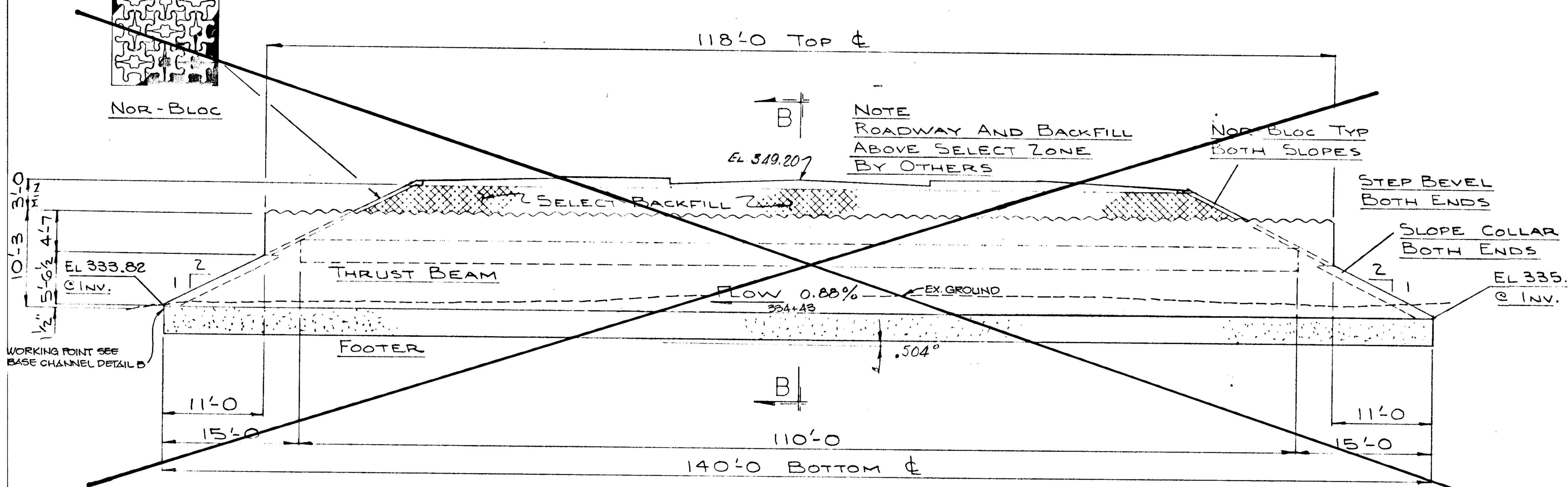


PLAN VIEW
SCALE 1"=10'

~~NOTE: SEE DWG. 15 FOR SLOPE COLLAR, THRUST BEAM AND FOOTER DETAILS.~~



NOR-BLOC



SECTION A-A
SCALE 1"=10'

SOIL BORING LOG

B-1	B-2	B-3	B-4	B-5	B-6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

~~STRUCTURAL PLATE SUPER-SPAN ARCH~~

~~The structural plate steel arch shall be manufactured in accordance with the current AASHTO Specification M-167. The plates, base channel and connectors will be galvanized only. The design shall be in accordance the current AASHTO Standard Specifications for Highway Bridges, Sections 12 and 23. The size and gage shall be as shown on the contract drawings.~~

~~The unbalanced base channel will be the manufacturer's standard shown on the drawings and will be cast with the footing when the footing is poured. The concrete thrust beam will be as shown on the drawings and included in the price for the arch. The bent and threaded rods shall be black steel per ASTM A-36.~~

~~The supplier shall submit design calculations and assembly/plate layout drawings. Fabrication of the structure will not proceed until the design and layout have been approved by the Engineer.~~

~~The structure shall be installed in accordance with the manufacturer's requirements and instructions including specific requirements as to the backfill material and compaction. The sieve analysis, Proctor curve and moisture content of proposed backfill will be submitted for approval before backfilling.~~

~~Backfill material shall be A-1 material conforming to the soil classification of AASHTO M-145, placed in horizontal, uniform layers not exceeding 8" in thickness, before compaction, and shall be brought up uniformly on both sides of the structure. Optimum moisture and maximum density shall be determined by AASHTO Test Method No. T-180. Each layer of backfill shall be compacted and tested to not less than 90% maximum density per AASHTO T-180. Complete and regular monitoring of the arch shape shall be performed during the backfilling. Compaction equipment or methods that produce horizontal or vertical earth pressures which cause excessive distortion in the shape in excess of 1%, or which cause damage to the structure shall not be used.~~

~~The manufacturer of the structural plate arch shall provide inspection of all the structural backfilling to 3' above the structure. This inspector shall approve all backfill materials and the placement and compaction thereof. The inspector shall have full authority to stop such work. The Engineer shall have field density tests made of the compacted backfill at the request and direction of the manufacturer's inspector. A pre-construction meeting between the manufacturer's representative and the Engineer and the Contractor to review the assembly and backfilling sequence and requirements is recommended.~~

NOR-BLOC SPECIFICATIONS

~~**GENERAL:** NOR-BLOC is an engineered erosion control system that uses one "tapered" block. It articulates and interlocks four ways without the use of cables or straps. It can go around curves in any direction without using special blocks or concrete wedges. When the system is complete, the blocks interlock to form a complete revetment by using concrete only.~~

~~**NOR-BLOC SPECIFICATIONS:** The block shall be machine produced using high vibrating compaction equipment. The cement used in making the block shall be Air-Entrained (ASTM-C260), producing a block with a Compressive Strength of 4000 psi. (ASTM-C140). The mix design is (ASTM-C33). Oven-Dry Weight is 125 lbs./cf. The height of the block is 4.25 in., Weight 35.2 lbs./sf. and has approximately 20% open area. Compressive testing shall be performed on random samples of NOR-BLOC components.~~

~~**FILTER FABRIC:** The underlay and mat support geotextile for the NOR-BLOC shall be Nicolon 70/06 as manufactured by the Nicolon Corp. The material is a woven polypropylene fabric and shall meet the following specifications.~~

Grab Tensile Str. (ASTM 1682)	(lbs)	410/285	Elongation & Break (ASTM D-1682)	%	28
Burst Strength (ASTM D-751)	(psi)	520	Trapezoid Tear Str. (ASTM D-2263)	(lbs)	90/55
Puncture Str. (ASTM D-751)	(lbs)	150	E. O. S. (US Standard Sieve)		70/100

~~**INSTALLATION:** The ground surface that is to receive the NOR-BLOC shall be graded and raked to the subgrade of the NOR-BLOC. All soft spots are to be removed and all depressions filled and compacted. The NOR-BLOC can be installed on the filter fabric by hand (starting in one area and proceeding from there.) On special projects such as underwater installations NOR-BLOC may be supplied on pre-assembled mats, utilizing special installation techniques. The NOR-BLOC at the ends of the revetment shall be turned into the ground or saw cut to provide a smooth edge.~~

~~The open areas of the NOR-BLOC shall be filled with an inch of small crushed stone to insure that the filter fabric is protected from UV. This shall be accomplished by sprinkling a small amount of stone on the NOR-BLOC and brushing.~~

~~**RE-VEGETATION:** The open areas may be filled with top soil and seeded to restore a natural state if so desired. In this option stone should be omitted.~~

~~**PERFORMANCE:** NOR-BLOC has been used successfully with water velocities in excess of 23 f.p.s.~~

~~SUPER-SPAN DESIGN USING A.I.S.I. CRITERIA~~

~~Project Reference: CHAPEL WOODS, Howard County~~
~~Structure Reference No. 99A24~~
~~Span = 28'9" Rise = 10'3"~~
~~Top Radius = Rt = 18'10" (226")~~
~~Side Radius = Rs = 6'4" (76")~~
~~Minimum Cover = 3'0"~~
~~Maximum Cover = 4.64'~~
~~Live Load = H-20~~
~~Gage of Structure = 8 (.168")~~

~~1. COMPUTE RING COMPRESSION~~
~~Pressure on Crown = PT = PD + PL~~
~~PD for max. cover = PD = 4.64 × 130 pcf = 600 psf~~
~~PL for min. cover = Use 3'-0" min. earth fill for distribution of wheel load.~~
~~Ref. AASHTO Section 1.3.3~~
~~A = (1.75)(Cover)^2~~
~~A = (1.75)(3.0)^2~~
~~A = 15.75 sq.ft.~~
~~PL = 16000/15.75 = 1000 USE 500 psf~~
~~PT for design = PT = 600 + 500 = 1100 psf~~
~~Ring Compression = C = PT × S/2 = 1100 × 28.75/2 = 15,813 #/LF~~

~~2. COMPUTE WALL STRESS~~
~~Stress = fc = CA where: C = 15,813 #/LF, A = 2.449 sq.in./LF~~
~~fc = 15813/2.449 = 6457 psi~~

~~3. CHECK WALL STRESS~~
~~USING A.I.S.I. criteria for full round pipe where, K = 1.0 (85% standard density, conservative)~~
~~Check for D/r for r = .686~~
~~D/r = 452 / .686 = 658 > 500~~
~~$fc = \frac{4.93 \times 10^9}{(658)^2} = 5,694$ psi~~

~~SUPER-SPAN design isolates top arc to a partial arc of 80 degrees. For a partial arc less than 180 degrees (created by thrust beams) , buckling strength is proportional to the inverse of the central angle squared. Ratio for adjustment using 180 degrees as a base. Reference Timoshenko and Gere, (Theory of Elastic Stability) pg. 301, Table 7-2.~~

~~fc' = (180/80)^2 x fc = 5 x 5694 = 28,740 psi~~

~~fc' > fc 28,740 > 7,357 psi~~

~~However, maximum allowable wall stress normally considered fy/2 where fy = 33,000 psi~~

~~fy/2 = 16,500 psi > 6,457 psi OK !~~

~~CHAPEL WOODS, 99A24 page 2~~

~~4. CHECK SEAM STRENGTH~~
~~Seam Strength/Ring Compression > 2~~
~~Seam Strength for 8 gage = 81,000 #/LF~~
~~81,000/15,813 = 5.12 > 2 OK !~~

~~5. CHECK FLEXIBILITY FACTOR OF 8 GAGE~~
~~For full round pipe of diameter = 2 Rt~~
~~FF = D^2/EI , D=452", I = 1.164 in^4/in, E= 30x10^6~~
~~FF = (452)^2 / (30x10^6 x 1.164) = 0.0059~~
~~Adjustment for partial top arc = 1/5 for SUPER-SPAN with thrust beams.~~
~~Effective FF = 0.0059/5 = 0.0012 < 0.020 OK !~~

~~6 LOADING REACTIONS~~
~~DEAD LOAD = (28.75x(4.64-.234) x 120 = 15,221 #/ft~~
~~LIVE LOAD = 64,000/(8 + 2x14.65) = 1,694 #/ft~~
~~Plate weight and thrust beam = 3,481 #/ft~~
~~= 20,400 #/ft~~
~~Entry angle 8.92 degrees~~
~~R = 20,400 #/ft/ 2 = 10,200 #/ft~~
~~Rh = R x sin 8.92 = 2,052 #/ft~~
~~Rv = R x cos 8.92 = 10,079 #/ft~~

~~The calculations are based upon values provided by contractor and variables such as heights of cover, live loads, structural backfill grade and density, foundation, embankment and insitu soil quality.~~

STATE OF MARYLAND · REGISTERED PROFESSIONAL ENGINEER

12-29-89	1	REMOVED ARCH BRIDGE DETAILS

DRAWING 14 OF 15

APPROVED: HOWARD COUNTY OFFICE OF PLANNING AND ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	4-7-89 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Chief, Land Development Division	3/21/89 Date
Chief, Bureau of Highways	3/21/89 Date
Chief, Bureau of Engineering	3/22/89 Date

CHAPEL WOODS II
HOWARD COUNTY, MD.

SCALE: 1"=10'	APPROVED BY	DRAWN BY BURGIN
DATE: 10-26-88		

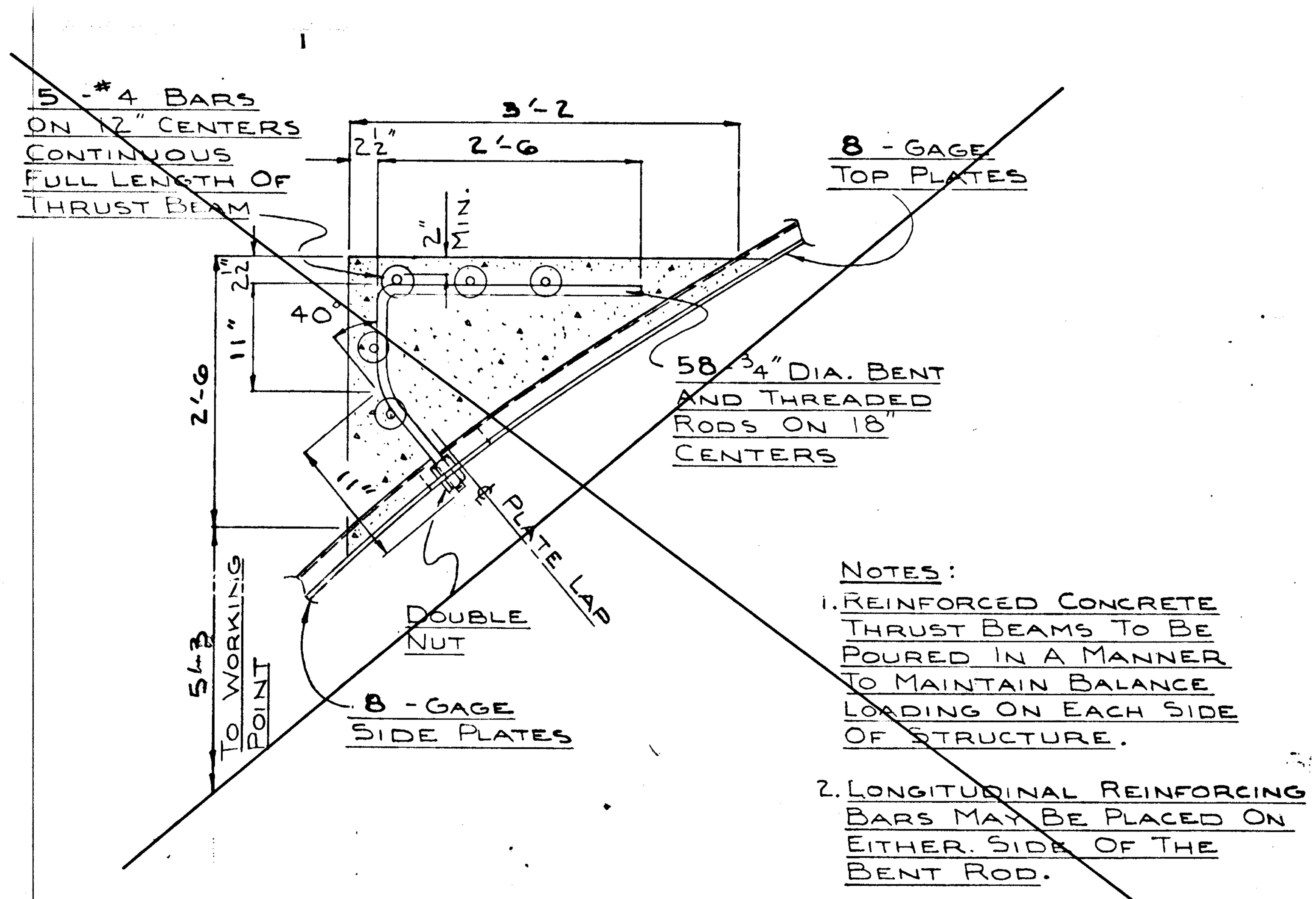
SUPER SPAN STREAM ENCLOSURE

NORWOOD OF MARYLAND — DRAWING NUMBER 88-157-1

~~CONTECH 28'-9 SPAN x 10'-3 RISE, LOW PROFILE, 8-GAGE CORRUGATED MULTI-PLATE STEEL SUPER SPAN STREAM ENCLOSURE~~

F-88-231

NO. 1000-24136



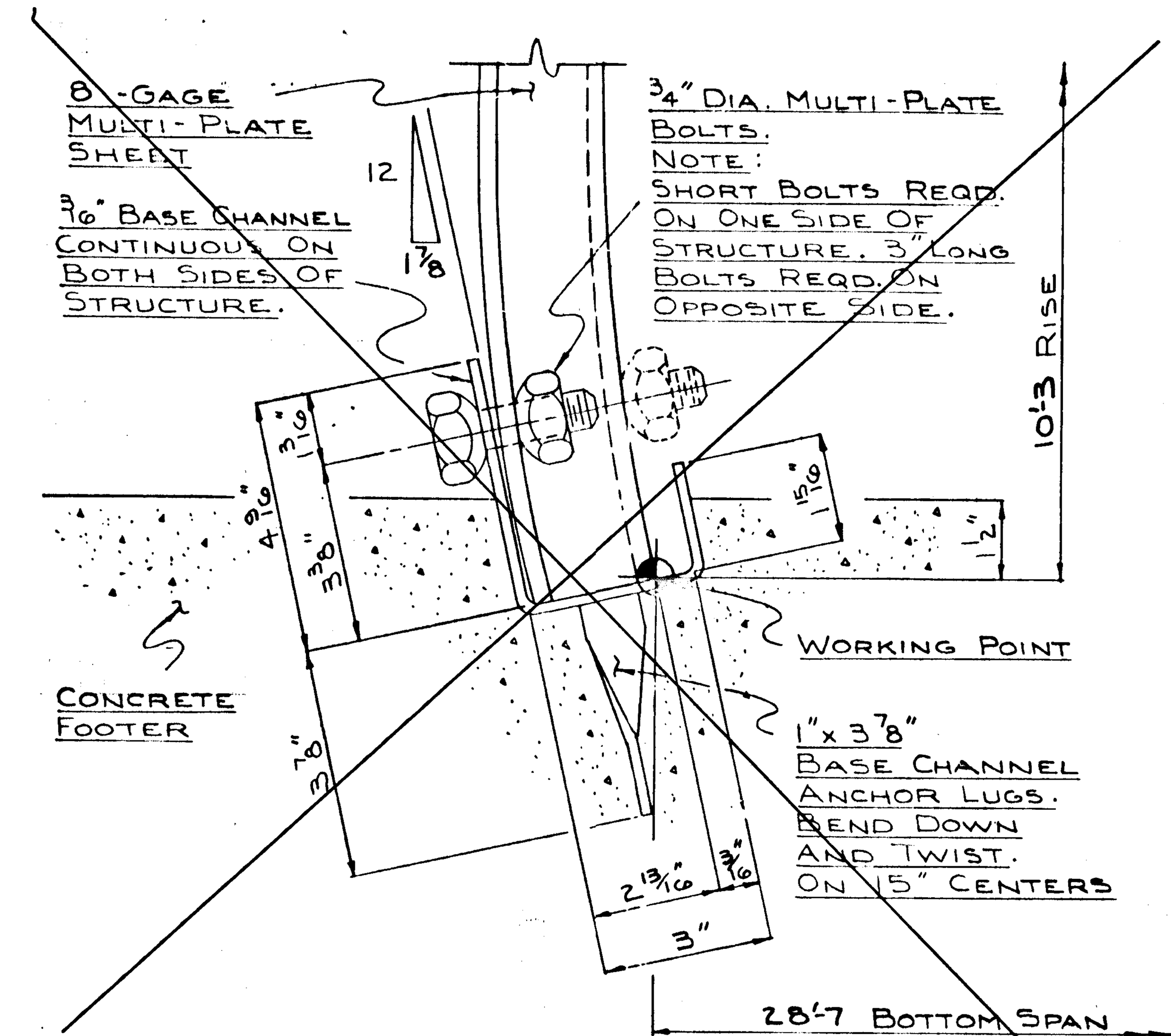
Notes:

1. Reinforced Concrete Thrust Beams To Be Poured In A Manner To Maintain Balance Loading On Each Side Of Structure.
2. Longitudinal Reinforcing Bars May Be Placed On Either Side Of The Bent Rod.

Concrete Thrust Beam

Detail - A

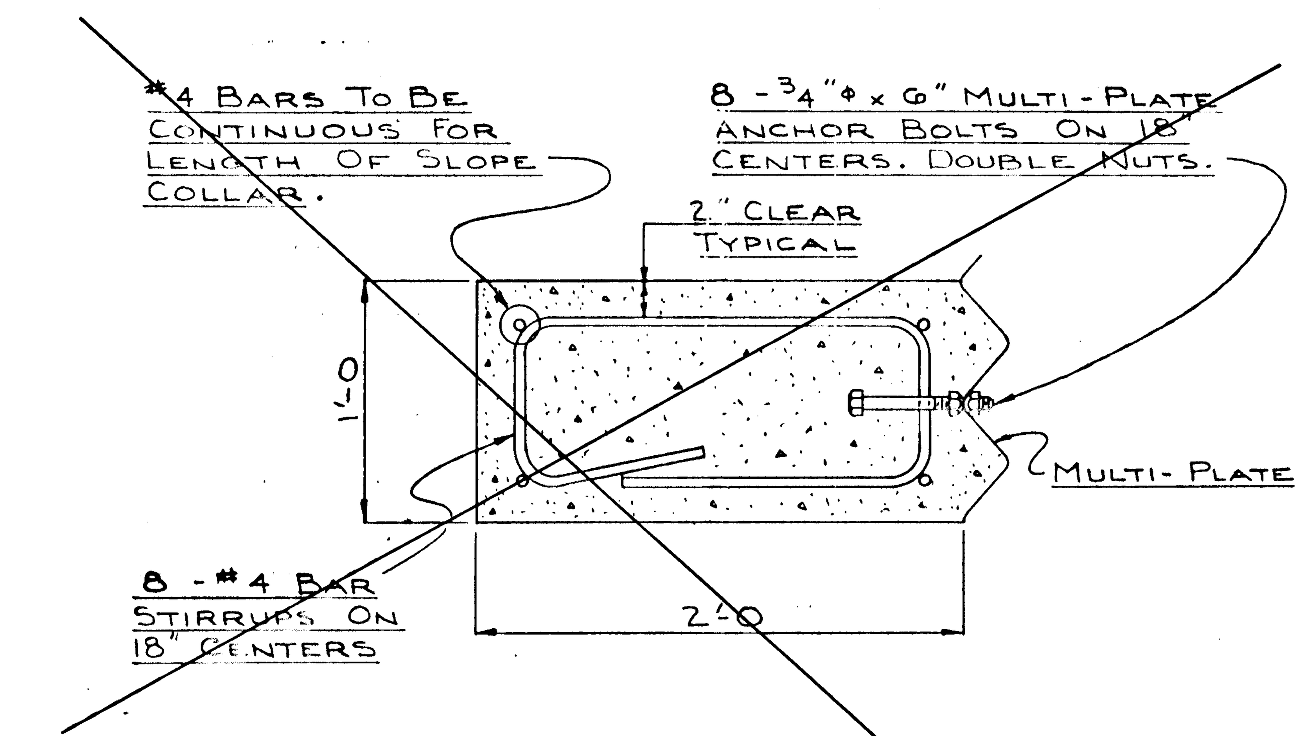
Not To Scale



Base Channel

Detail - B

Scale 3/8" = 1"



Section Through

Concrete Slope Collar

Scale 1 1/2" = 1'-0

Footing Calculations

1. Design Criteria
   - Concrete $f_c' = 3000$ psi
   - $f'_c = 1350$ psi
   - Reinforcing $f_y = 60{,}000$ psi
   - $f_s = 24{,}000$ psi
   - Depth of footing = 5'-0"
   - Allowable soil bearing pressure, $q_a = 5000$ psf
   - Allowable passive earth resistance $P_p = 2000$ psf
   - (Provided by geotechnical engineer, per conversation between Charles Bradley of Mott & Mike Marquis of Norwood Construction).
   - Use concrete working stress design method.

2. Reactions
   - $R_V = 13073$ lb./ft.
   - $R_H = 2052$ lb./ft.

3. Minimum Soil Bearing Requirement
   - D = Depth = 5.0 ft.
   - g = Wt. of concrete = 5.0 ft. × 150 pcf = 750 psf
   - $B = (R_V + g)/q_a = (13073+750)/500 = 2.76$ ft.
   - Use 3'-0" wide footing.

4. Shear

   (d = 60" - 3" - 3/4" - 1/2" = 55.75")

   $$V_a = \frac{(q_a)(B/2)}{d\ (1)} = \frac{5000\,(3/2)}{(55.75)(12)} = 11.21\ \text{lb/in}^2 < 1.1\sqrt{f_c'} = 60\ \text{lb/in}^2$$

5. Bending Moment

   $$M = \frac{(q_a)(L)^2}{2} = \frac{(5000)(1.5)^2}{2} = 5625\ \text{ft.-lb}$$

6. Area of Steel

   $$A_s = \frac{M}{f_s j d} = \frac{5625\ \text{ft-lb}\,(12)}{(24{,}000)(.888)(55.75)} = .057\ \text{in}^2$$

   Where: $n = E_s/E_c = 9$
   - $k = f_c/(f_s/n + f_c) = 1350/(24000/9 + 1350) = .336$
   - $J = 1 - k/3$
   - $J = 1 - (.336/3)$
   - $J = .888$

   Ref. AASHTO Sect. 1-5-7 (B)
   - A_s min. = 1.33 × .057 = 0.08 in.²/ft.
   - Use #4 @ 12" o/c transverse horizontal bars

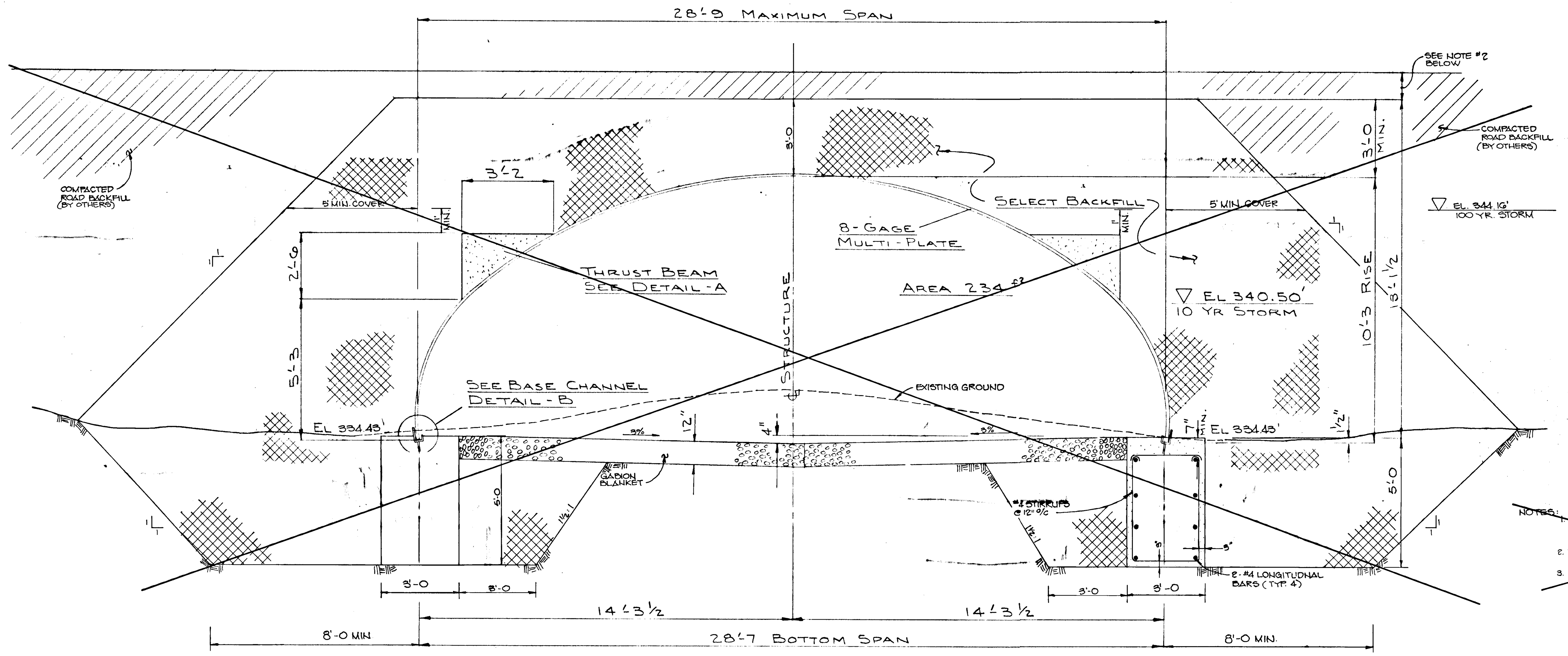
7. Horizontal Pressure

   $$\text{Driving force} = \frac{R_H}{A} = \frac{2052\ \text{lb./ft.}}{5.0\ \text{ft.}} = 410\ \text{psf} > 2000\ \text{psf OK}$$

   $$A = 5.0,\quad M = \frac{(410)(5)^2}{2} = 5125\ \text{ft-lb.}$$

   $$A_s = \frac{5125\,(12)}{(2400)(.888)(36-3-3/4)} = 0.089\ \text{in.}^2/\text{ft.}$$

   Use #4 @ 12" o/c vertical bars



Section B-B

Scale 3/8" = 1'-0

Notes:

1. ~~Select backfill will be required on the side of the arch concrete footings. A geotechnical engineer shall monitor the placement of backfill.~~
2. The paving section from ℄ Sta. 6+25 to ℄ Sta. 7+25 will be full depth asphalt (6 1/2" thick).
3. ~~Filter cloth to be placed between structural select backfill and compacted road backfill.~~

~~Continuous Footing~~

1. ~~Footing design is based on an allowable soil bearing pressure of 5000 psf and allowable passive earth resistance of 2000 psf. Geotechnical engineer will verify on-site soils and notify engineer if different soil capacities are encountered.~~

State of Maryland — Charles W. Bradley — Professional Engineer

Revised Footing Calculations 3-2-89

Date	No.	Revision
12-27-89	1	Removed Arch Bridge Details

Drawing 15 of 15

Approved: Howard County Office of Planning and Zoning

Marsha S. McLaughlin	4-7-89
Chief, Division of Community Planning and Land Development	Date

Approved: Howard County Department of Public Works

Chief, Land Development Division	3/21/89
Chief, Bureau of Highways	3/21/89
Chief, Bureau of Engineering (Acting)	3/22/89

Chapel Woods II

Howard County, MD.

Scale:	Approved by	Drawn by
Noted		
Date:		

Section B-B & Details

Norwood Of Maryland

Drawing Number P-88-157-2

F 88-231

PROJECT DATA

1. All information contained on this map is current as of September 1, 1990.

2. Wetland areas were identified and delineated using a multi-parameter approach. This approach requires positive identification of WETLAND PLANTS, HYDRIC SOILS, and WETLAND HYDROLOGY for a determination that the area is a wetland.

   A) WETLAND PLANTS: Dominant hydrophytic vegetation was identified within the wetland limits and adjacent land areas.

   B) HYDRIC SOILS: Color and mottle characteristics of the undisturbed "B" horizon were used to determine the limits of the hydric soils.

   C) WETLAND HYDROLOGY: The topography of the area is characteristic of a floodplain valley with a distinct stream channel.

3. WETLAND CLASSIFICATIONS

   A) EXISTING CONDITIONS:

   System..............................Palustrine
   Class...............................Forested
   Subclass............................Broadleaf/deciduous
   Modifiers............................ - - -
   Water regime.........................Temporarily flooded
   Salinity.............................Fresh

   B) PROPOSED CONDITIONS

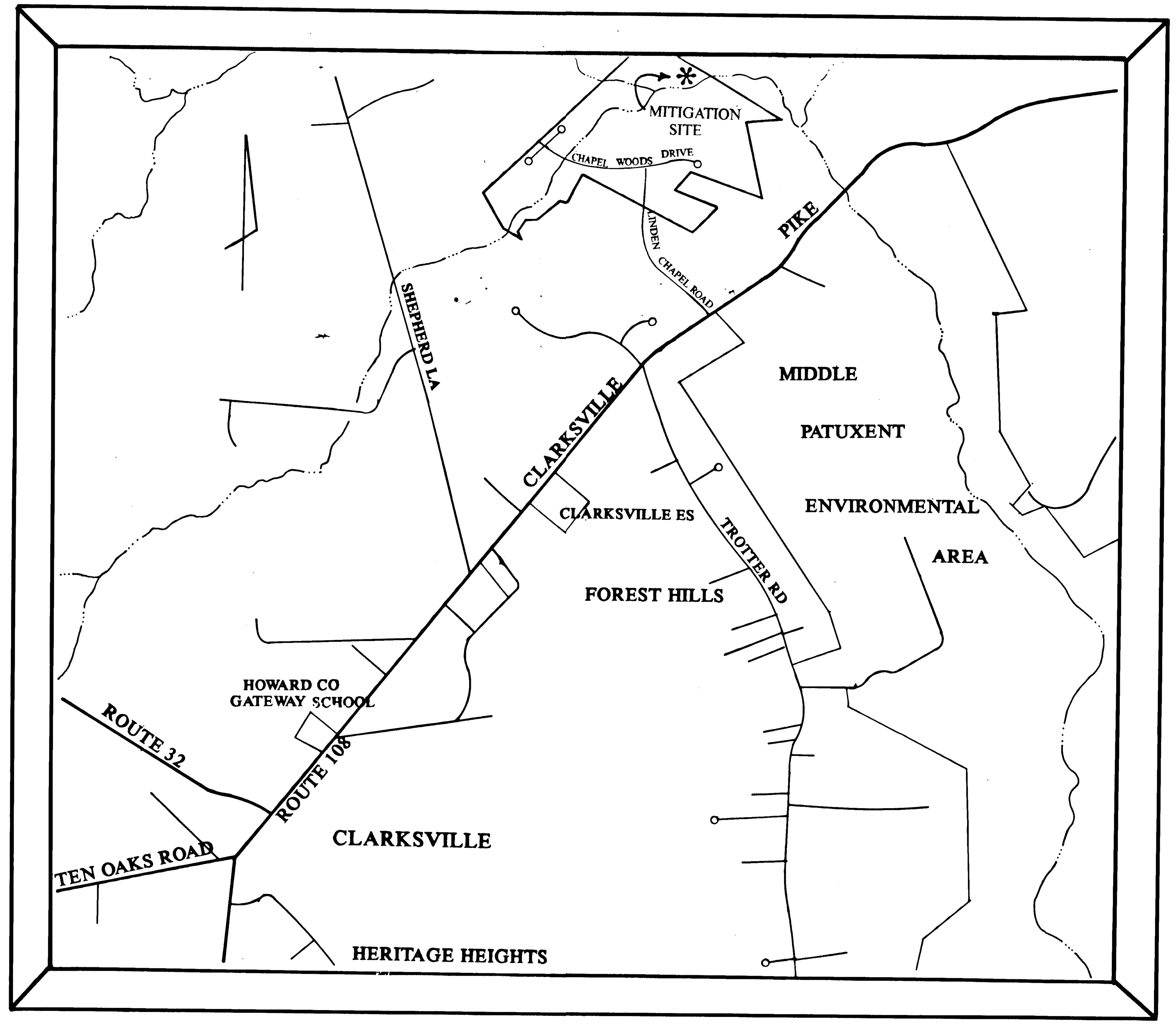
   System..............................Palustrine
   Class...............................Forested
   Subclass............................Broadleaf/deciduous
   Modifiers............................ - - -
   Water regime.........................Temporarily flooded
   Salinity.............................Fresh

4. WATERBODY: Middle Patuxent drainage basin/Class I stream

5. ANTICIPATED CONSTRUCTION DATE: Spring 1991

6. ANTICIPATED RESTORATION CONSTRUCTION DATE: Spring 1991

7. OWNER: J.J.M Partnership
   5770-201 Sterrett Place
   Columbia, Maryland 21044



VICINITY MAP
NOT TO SCALE

BALTIMORE DISTRICT CORPS OF ENGINEERS MITIGATION REQUIREMENTS

The mitigation plan is acceptable provided the following condition(s) are met:

1. The permittee shall successfully create a minimum of 0.76 acre of palustrine forested wetlands in accordance with the mitigation conditions required by the Maryland Department of the Environment (MDE), Water Quality Certification (WQC) 89-WQ-0532.

2. The permit shall be automatically suspended if any one of the following is not met:

   a) A final mitigation plan shall be submitted to MDE and the Corps of Engineers and shall be approved by both agencies prior to starting work.

   b) The mitigation shall be implemented in accordance with the approved plan by April 30, 1991.

   c) Woody species vegetation proposed in the mitigation area shall have an 85% survival rate three (3) years after planting. If this rate is not achieved, additional planting(s) shall be required until this rate is achieved.

3. The permittee shall obtain Corps approval for any changes of plant species or planting schedule from that specified in the mitigation plan. The permittee shall keep this office informed of the status of each stage of the project and the mitigation work.

4. The permittee shall employ an environmental consultant who is knowledgeable and experienced in establishing wetlands. The consultant will supervise and monitor the work performed in the mitigation areas including establishment of elevations.

Any required State and local authorizations must be secured prior to initiating the work.

INDEX

SHEET 1- COVER SHEET
SHEET 2- GRADING PLAN
SHEET 3- PLANTING PLAN
SHEET 4- PROFILES
SHEET 5- SOIL PROFILES
SHEET 6- NOTES

CHAPEL WOODS

WQC# 89-WQ-0532
CENAB-OP-RW
(CHAPEL WOODS)
88-3856-3

EXPLORATION RESEARCH, INC.
ENVIRONMENTAL CONSULTANTS
8318 FORREST AVENUE
SUITE 101
HISTORIC ELLICOTT CITY,
MARYLAND, 21043
(301) 750-1150
FAX#: (301) 750-7350

717

APPROVED: HOWARD CO. DEPARTMENT OF PLANNING & ZONING
[signature] 8/13/92
CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT — DATE

MARYLAND DEPARTMENT OF THE ENVIRONMENT STANDARDS & CERTIFICATION DIVISION APPROVAL OF PLANS AND SPECIFICATIONS FOR COMPLIANCE WITH PERMIT WQC# 89-WQ-0532
[signature] 12/10/90
SIGNATURE OF STANDARDS & CERTIFICATION DIVISION — DATE

U.S. ARMY CORPS OF ENGINEERS APPROVAL OF PLANS AND SPECIFICATIONS FOR COMPLIANCE WITH PERMIT NUMBER CENAB-OP-RW 88-3856-3
Linda A. Middleton March 27, 1991
SIGNATURE OF U.S. ARMY CORPS OF ENGINEERS BALTIMORE, MD. — DATE

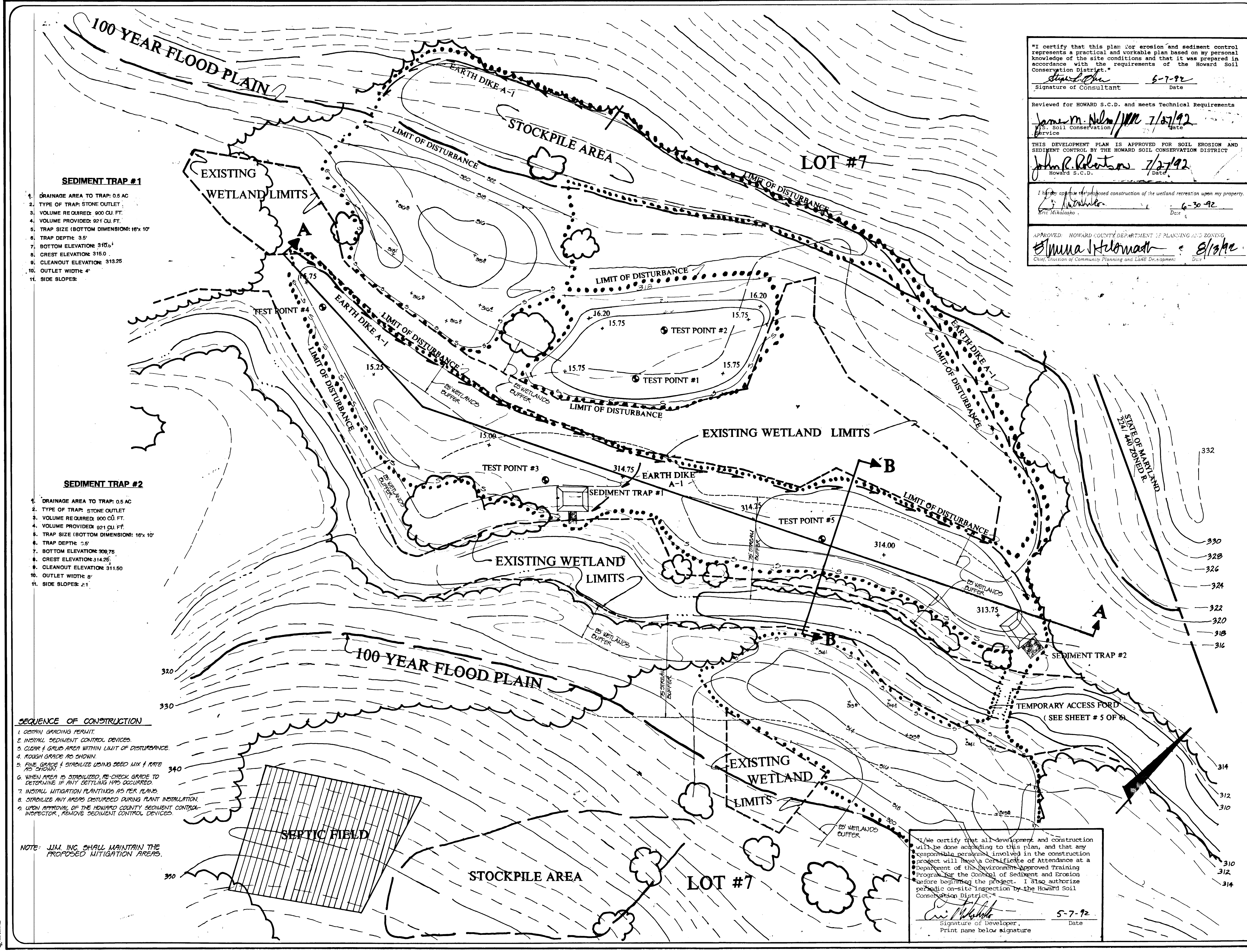
F-88-231 SUPPLEMENTAL INFORMATION

CHAPEL WOODS

HOWARD COUNTY, MARYLAND

WQC# 89–WQ–0532
& WQ# 80-WQ-0101 (THE FOREST, F-89-20)
CENAP–OP–RW
(CHAPEL WOODS)
88–3856–3

GRADING PLAN



SEDIMENT TRAP #1

1. DRAINAGE AREA TO TRAP: 0.5 AC
2. TYPE OF TRAP: STONE OUTLET
3. VOLUME REQUIRED: 900 CU. FT.
4. VOLUME PROVIDED: 921 CU. FT.
5. TRAP SIZE (BOTTOM DIMENSION: 16'x 10'
6. TRAP DEPTH: 3.5'
7. BOTTOM ELEVATION: 310.5'
8. CREST ELEVATION: 315.0
9. CLEANOUT ELEVATION: 313.25
10. OUTLET WIDTH: 4'
11. SIDE SLOPES:

SEDIMENT TRAP #2

1. DRAINAGE AREA TO TRAP: 0.5 AC
2. TYPE OF TRAP: STONE OUTLET
3. VOLUME REQUIRED: 900 CU. FT.
4. VOLUME PROVIDED: 921 CU. FT.
5. TRAP SIZE (BOTTOM DIMENSION: 16'x 10'
6. TRAP DEPTH: 3.5'
7. BOTTOM ELEVATION: 309.75
8. CREST ELEVATION: 314.25
9. CLEANOUT ELEVATION: 311.50
10. OUTLET WIDTH: 8'
11. SIDE SLOPES: 2:1

SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.
2. INSTALL SEDIMENT CONTROL DEVICES.
3. CLEAR & GRUB AREA WITHIN LIMIT OF DISTURBANCE.
4. ROUGH GRADE AS SHOWN.
5. FINE GRADE & STABILIZE USING SEED MIX & RATE AS SHOWN.
6. WHEN AREA IS STABILIZED, RE-CHECK GRADE TO DETERMINE IF ANY SETTLING HAS OCCURRED.
7. INSTALL MITIGATION PLANTINGS AS PER PLANS.
8. STABILIZE ANY AREAS DISTURBED DURING PLANT INSTALLATION.
9. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES.

NOTE: JJM, INC. SHALL MAINTAIN THE PROPOSED MITIGATION AREAS.

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Consultant — Date: 5-7-92

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

U.S. Soil Conservation Service — Date: 7/27/92

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

Howard S.C.D. — Date: 7/27/92

I hereby approve the proposed construction of the wetland recreation upon my property.

Eric Mikalasko — *Date*: 6-30-92

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Community Planning and Land Development — *Date*: 8/13/92

"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 the Environment 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."

Signature of Developer. Print name below signature — Date: 5-7-92

EXPLORATION RESEARCH, INC.
Environmental Consultants
8318 Forrest Avenue, Suite 101
Historic Ellicott City, Maryland 21043
Tel: (301) 750-1150, FAX # (301) 750-7350

OWNER/DEVELOPER

JJM PARTNERSHIP	JJM PARTNERSHIP
5570–201 STERRETT PLACE	5570–201 STERRETT PLACE
COLUMBIA, MARYLAND 21044	COLUMBIA, MARYLAND 21044
PH (301) 740–4466	PH (301) 740–4466

U.S. Army Corps Of Engineers
Approval Of Plans And Specifications
For Compliance With Permit Number
CENAB-OP-RW (CHAPEL WOODS) 88-3856-3

Signature Of U.S. Army Corps Of Engineers, Baltimore, MD — Date: March 27, 1991

Maryland Department Of The Environment
Standards & Certification Division
Approval Of Plans And Specifications
For Compliance With Permit Number WQC# 89-WQ-0532

Signature Of Standards/Certification Division — Date: 12/10/90

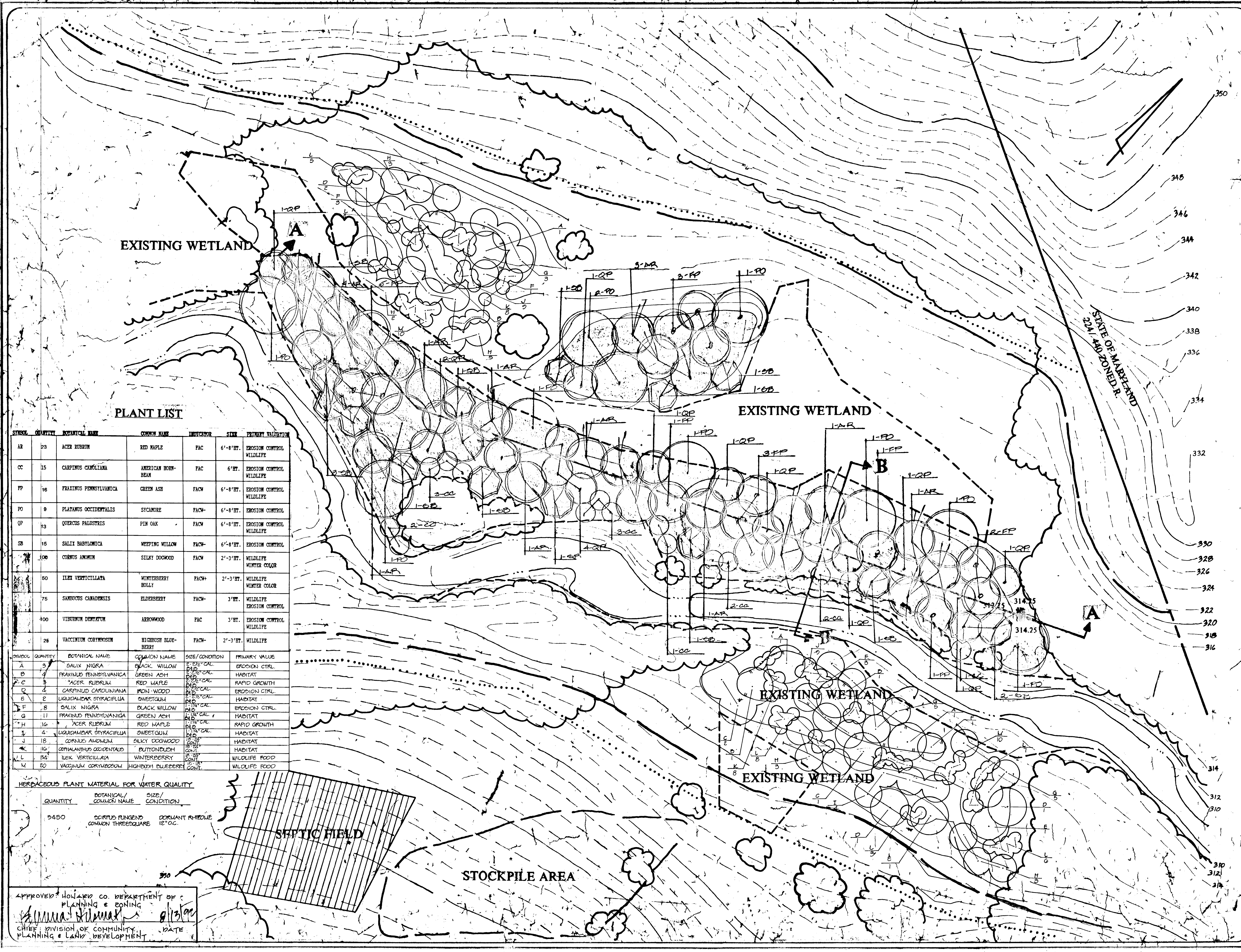
REQUIRED MITIGATION 0.76 AC

WETLANDS MITIGATION FOR THE FOREST (F-89-20)

Drawn By: JLB	Scale: 1"=30'
Designed By: MAM	Date: 9-21-90
Checked By: DER	Sheet: 2 of 6

717

F-88-231 SUPPLEMENTAL INFORMATION -017



PLANT LIST

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	INDICATOR	SIZE	PRIMARY VALUATION
AR	23	ACER RUBRUM	RED MAPLE	FAC	6'-8'HT.	EROSION CONTROL WILDLIFE
CC	15	CARPINUS CAROLIANA	AMERICAN HORN-BEAM	FAC	6'HT.	EROSION CONTROL WILDLIFE
FP	16	FRAXINUS PENNSYLVANICA	GREEN ASH	FACW	6'-8'HT.	EROSION CONTROL WILDLIFE
PO	9	PLATANUS OCCIDENTALIS	SYCAMORE	FACW-	6'-8'HT.	EROSION CONTROL
QP	13	QUERCUS PALUSTRIS	PIN OAK	FACW	6'-8'HT.	EROSION CONTROL WILDLIFE
SB	15	SALIX BABYLONICA	WEEPING WILLOW	FACW-	6'-8'HT.	EROSION CONTROL
	100	CORNUS AMOMUM	SILKY DOGWOOD	FACW	2'-3'HT.	WILDLIFE WINTER COLOR
	50	ILEX VERTICILLATA	WINTERBERRY HOLLY	FACW+	2'-3'HT.	WILDLIFE WINTER COLOR
	75	SAMBUCUS CANADENSIS	ELDERBERRY	FACW-	3'HT.	WILDLIFE EROSION CONTROL
	100	VIBURNUM DENTATUM	ARROWWOOD	FAC	3'HT.	EROSION CONTROL WILDLIFE
	25	VACCINIUM CORYMBOSUM	HIGHBUSH BLUE-BERRY	FACW-	2'-3'HT.	WILDLIFE

SYMBOL	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE/CONDITION	PRIMARY VALUE
A	3	SALIX NIGRA	BLACK WILLOW	2-2½" CAL. B&B	EROSION CTRL.
B	4	FRAXINUS PENNSYLVANICA	GREEN ASH	2-2½" CAL. B&B	HABITAT
C	3	ACER RUBRUM	RED MAPLE	2-2½" CAL. B&B	RAPID GROWTH
D	4	CARPINUS CAROLINIANA	IRON WOOD	2-2½" CAL. B&B	EROSION CTRL.
E	2	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	2-2½" CAL. B&B	HABITAT
F	8	SALIX NIGRA	BLACK WILLOW	1-1¼" CAL. B&B	EROSION CTRL.
G	11	FRAXINUS PENNSYLVANICA	GREEN ASH	1-1¼" CAL. B&B	HABITAT
H	16	ACER RUBRUM	RED MAPLE	1-1¼" CAL. B&B	RAPID GROWTH
I	4	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	1-1¼" CAL. B&B	HABITAT
J	18	CORNUS AMOMUM	SILKY DOGWOOD	18-24" CONT.	HABITAT
K	16	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	18-24" CONT.	HABITAT
L	34	ILEX VERTICILLATA	WINTERBERRY	18-24" CONT.	WILDLIFE FOOD
M	20	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	15-18" CONT.	WILDLIFE FOOD

HERBACEOUS PLANT MATERIAL FOR WATER QUALITY

QUANTITY	BOTANICAL/ COMMON NAME	SIZE/ CONDITION
5450	SCIRPUS PUNGENS COMMON THREESQUARE	DORMANT RHIZOME 12" O.C.

APPROVED: HOWARD CO. DEPARTMENT OF PLANNING & ZONING
8/13/92
CHIEF: DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT DATE

EXPLORATION RESEARCH, INC.
Environmental Consultants
8318 Forrest Avenue, Suite 101
Historic Ellicott City, Maryland 21043
Tel: (301) 750-1150, FAX # (301) 750-7350

OWNER/DEVELOPER

JIM PARTNERSHIP
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PH (301) 740-4466

JIM PARTNERSHIP
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PH (301) 740-4466

CHAPEL WOODS
HOWARD COUNTY, MARYLAND
WQC# 89-WQ-0532
& WQ# 89-WQ-0101 (THE FOREST F-89-20)
CENAB-OP-RW
(CHAPEL WOODS)
88-3856-3
PLANTING PLAN

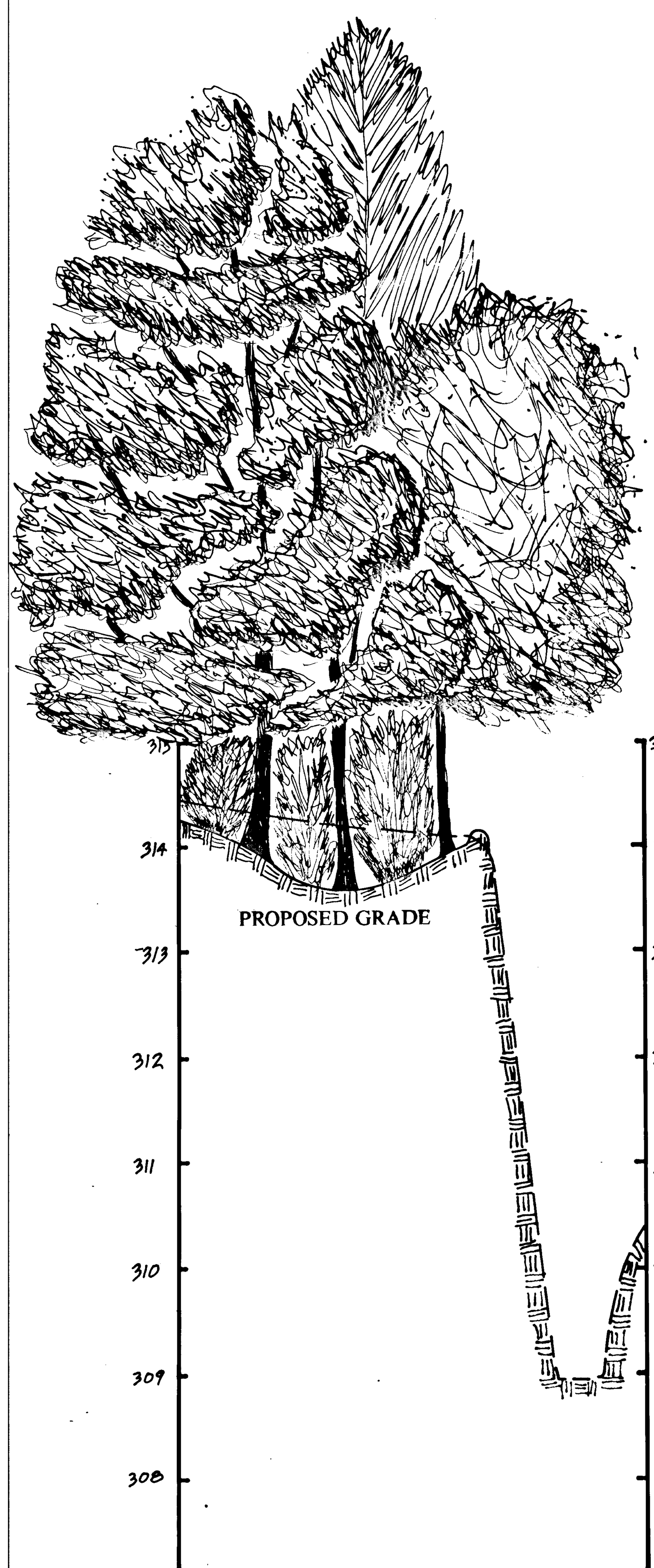
U.S. Army Corps Of Engineers
Approval Of Plans And Specifications
For Compliance With Permit Number
CENAB-OP-RW (CHAPEL WOODS) 88-3856-3
March 27, 1991
Signature Of U.S. Army Corps Of Engineers, Baltimore, MD Date

Maryland Department Of The Environment
Standards & Certification Division
Approval Of Plans And Specifications
For Compliance With Permit Number WQC# 89-WQ-0532
12/10/90
Signature Of Standards/ Certification Division Date

REQUIRED MITIGATION 0.76 AC
WETLANDS MITIGATION FOR THE FOREST
(F-89-20)

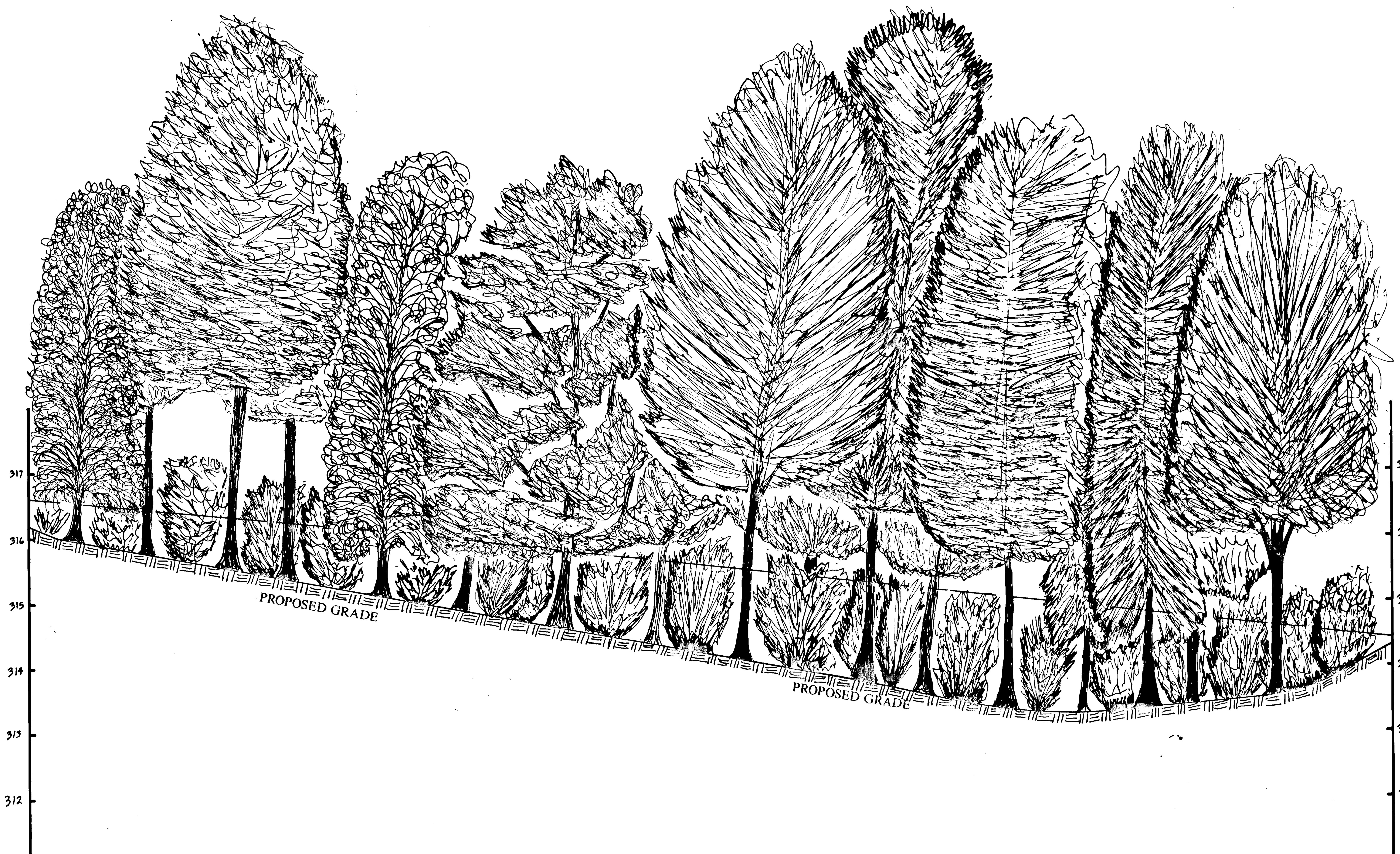
Drawn By: JLB
Designed By: MAM
Checked By: PER
Scale: 1"=30'
Date: 9-21-90
Sheet: 3 OF 6

F-88-231 SUPPLEMENTAL INFORMATION



SECTION B–B

SCALE: HORIZ: 1″= 30′
VERT: 1″= 1″



SECTION A–A

SCALE: HORIZ: 1″= 30′
VERT: 1″= 1′

APPROVED: HOWARD CO. DEPARTMENT OF PLANNING & ZONING
Elmina J Hilsenrath 8/13/92
CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT DATE

RECEIVED

EXPLORATION RESEARCH, INC.
Environmental Consultants
8318 Forrest Avenue, Suite 101
Historic Ellicott City, Maryland 21043
Tel: (301) 750-1150, FAX # (301) 750-7350

OWNER/ DEVELOPER

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CHAPEL WOODS
HOWARD COUNTY, MARYLAND
WQC# 89-WQ-0532
CENAB-OP-RW
(CHAPEL WOODS)
88-3856-3
PROFILES

U.S. Army Corps Of Engineers
Approval Of Plans And Specifications
For Compliance With Permit Number
CENAB-OP-RW (CHAPEL WOODS) 88-3856-3
Linda A. Blehling March 27 1991
Signature Of U.S. Army Corps Of Engineers, Baltimore, MD Date

Maryland Department Of The Environment
Standards & Certification Division
Approval Of Plans And Specifications
For Compliance With Permit Number WQC# 89-WQ-0532
John A. Slattery 12/10/90
Signature Of Standards/ Certification Division Date

Drawn By: JLB	Scale: AS NOTED
Designed By: MLM	Date: 9-21-90
Checked By: DEA	Sheet: 4 of 6

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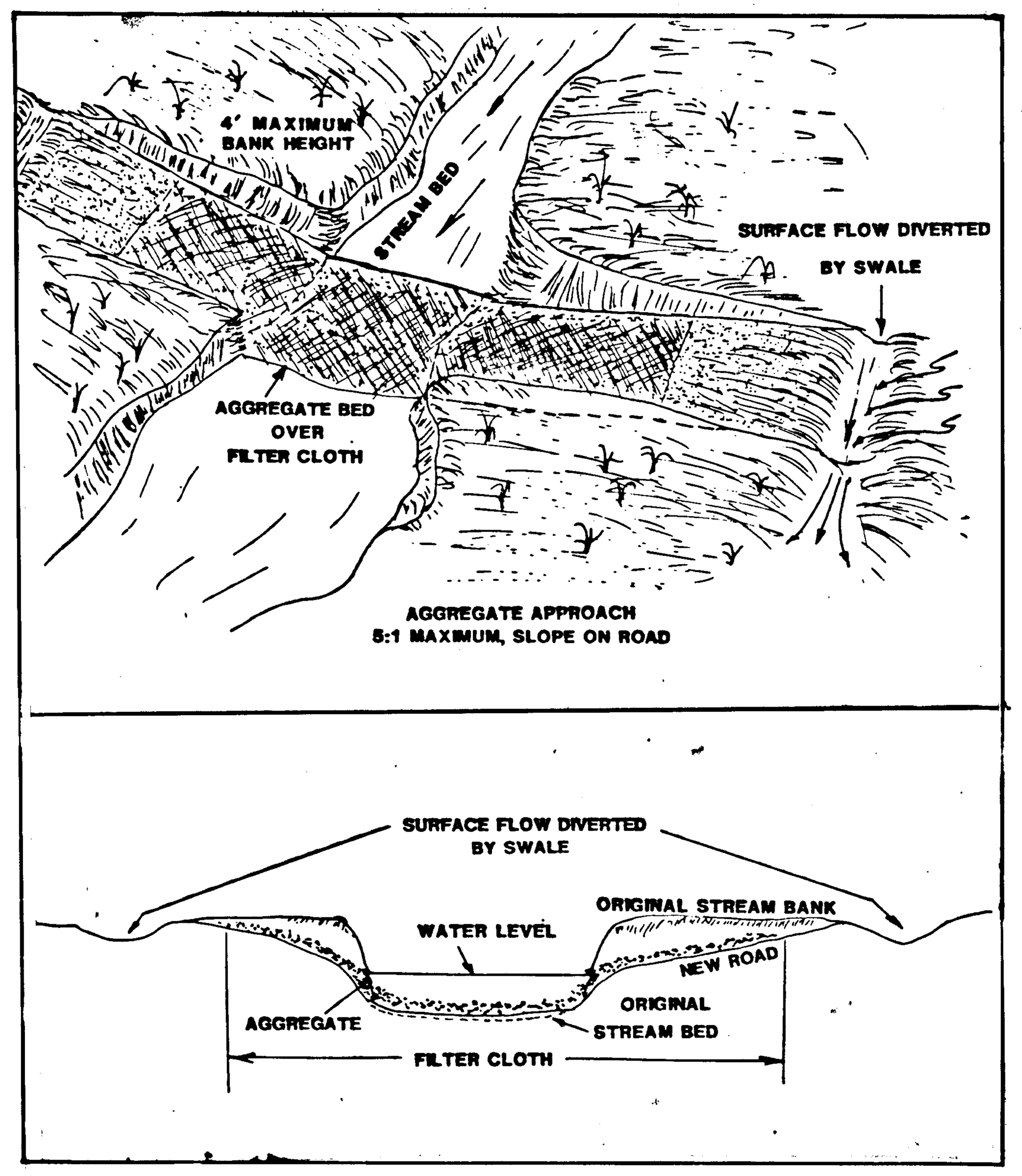
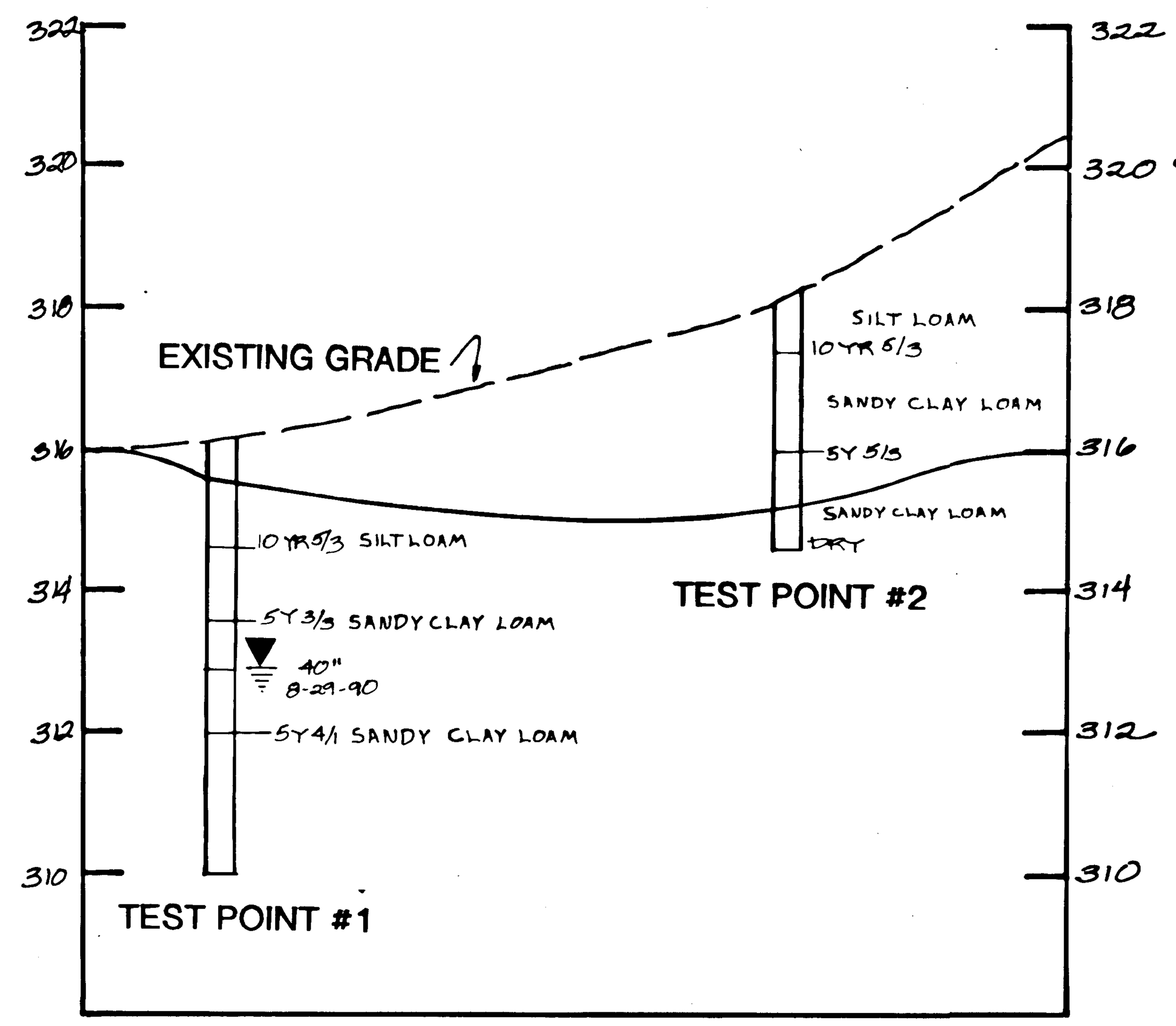
F-88-231 SUPPLEMENTAL INFORMATION -019

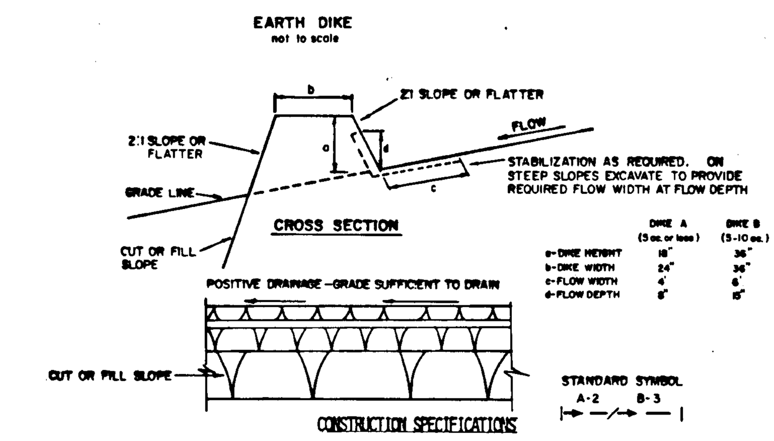


TEMPORARY ACCESS FORD
NOT TO SCALE



SOIL PROFILES
SCALE: HORIZ: 1"=10'
VERT: 1"= 1'
NOT TO SCALE

EARTH DIKE
NOT TO SCALE



	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"

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.

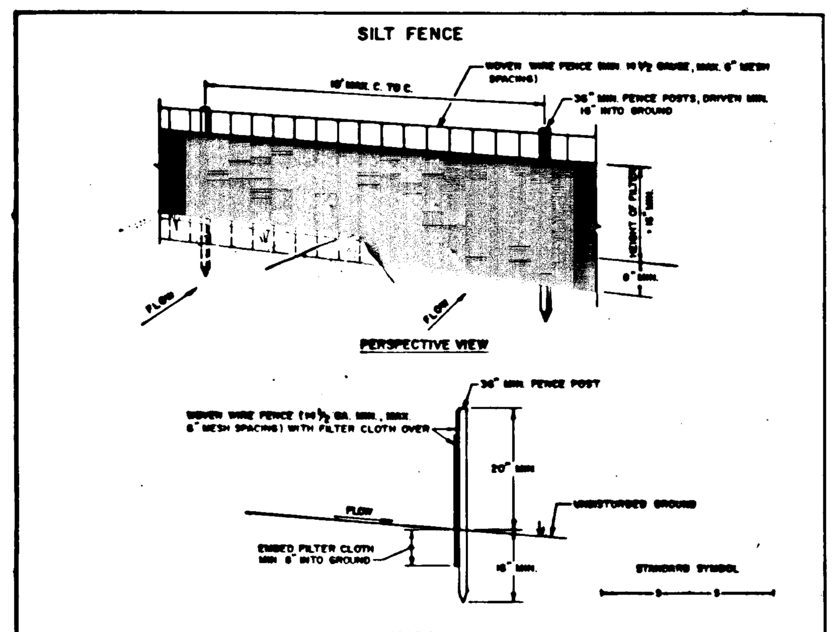
FLOW CHANNEL STABILIZATION

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 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 DETAIL NOT TO SCALE

SILT FENCE



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 OVER-LAPPED 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

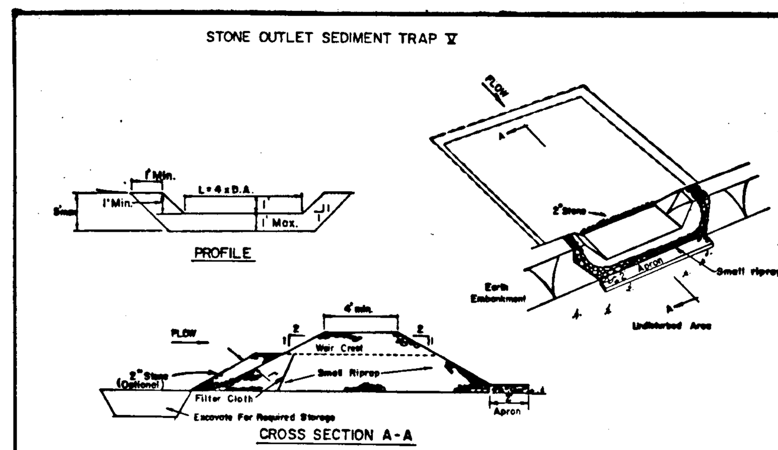
FENCE: WOVEN WIRE, 14 GA. 6" MAX. MESH OPENING

FILTER CLOTH: FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUAL

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

SILT FENCE DETAIL
NOT TO SCALE

STONE OUTLET SEDIMENT TRAP V



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

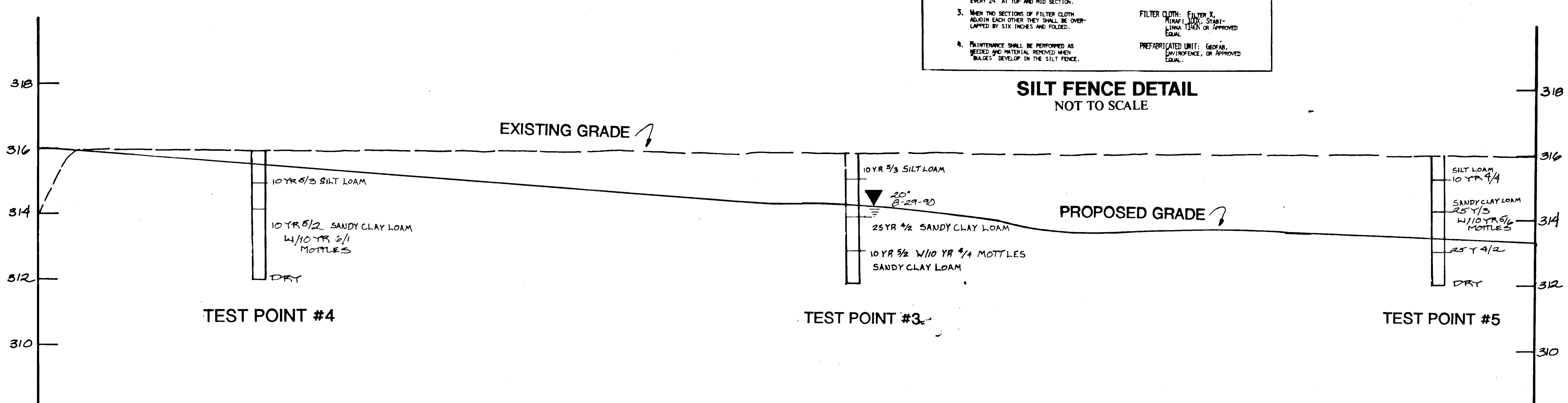
1. Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. 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 ½ 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.

Maximum Drainage Area: 5 Acres

SEDIMENT TRAP DETAIL
NOT TO SCALE

SEDIMENT CONTROL

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, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5) All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) 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 0.80 Acres
   - Area Disturbed 0.80 Acres
   - Area to be roofed or paved — Acres
   - Area to be vegetatively stabilized 0.80 Acres
   - Total Cut 645 Cu. yds.
   - Total Fill ______ Cu. yds.
   - Offsite waste/borrow area location AS NOTED
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.



SOIL PROFILES
SCALE: HORIZ: 1"=10'
VERT: 1"= 1'

I hereby approve the proposed construction of the wetland recreation upon my property.
Eric Mikalasko — 6-30-92 — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Community Planning and Land Development — 8/13/92 — Date

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Signature of Consultant — 5-7-92 — Date

Reviewed for HOWARD S.C.D. and meets Technical Requirements
U.S. Soil Conservation Service — 7/27/92 — Date

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
Howard S.C.D. — 7/27/92 — Date

EXPLORATION RESEARCH, INC.
Environmental Consultants
8318 Forrest Avenue, Suite 101
Historic Ellicott City, Maryland 21043
Tel: (301) 750-1150, FAX # (301) 750-7350

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CHAPEL WOODS
HOWARD COUNTY, MARYLAND
WQC# 89-WQ-0532
CENAP-OP-RW
(CHAPEL WOODS)
88-3856-3
SOIL PROFILES

U.S. Army Corps Of Engineers
Approval Of Plans And Specifications
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CENAB-OP-RW (CHAPEL WOODS) 88-3856-3
Linda A. Mihelling — March 27 1991
Signature Of U.S. Army Corps Of Engineers, Baltimore, MD — Date

Maryland Department Of The Environment
Standards & Certification Division
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Signature Of Standards/Certification Division — 12/10/90 — Date

Drawn By: JLB	Scale: AS NOTED
Designed By: MAM	Date: 9-21-90
Checked By: DER	Sheet: 5 of 6

717

-020 F-88-231 SUPPLEMENTAL INFORMATION

CONSTRUCTION RESTRICTIONS

All work in flood plain must be done in strict accordance with applicable State permit requirements.

Work in streams is prohibited during certain times of the year as follows:

Class I Streams	March 1 thru June 15
Class II Streams	June 1 thru September 30 or December 16 thru March 14
Class III Streams	October 1 thru April 30
Class IV Streams	March 1 thru May 31

CLEARING AND GRUBBING

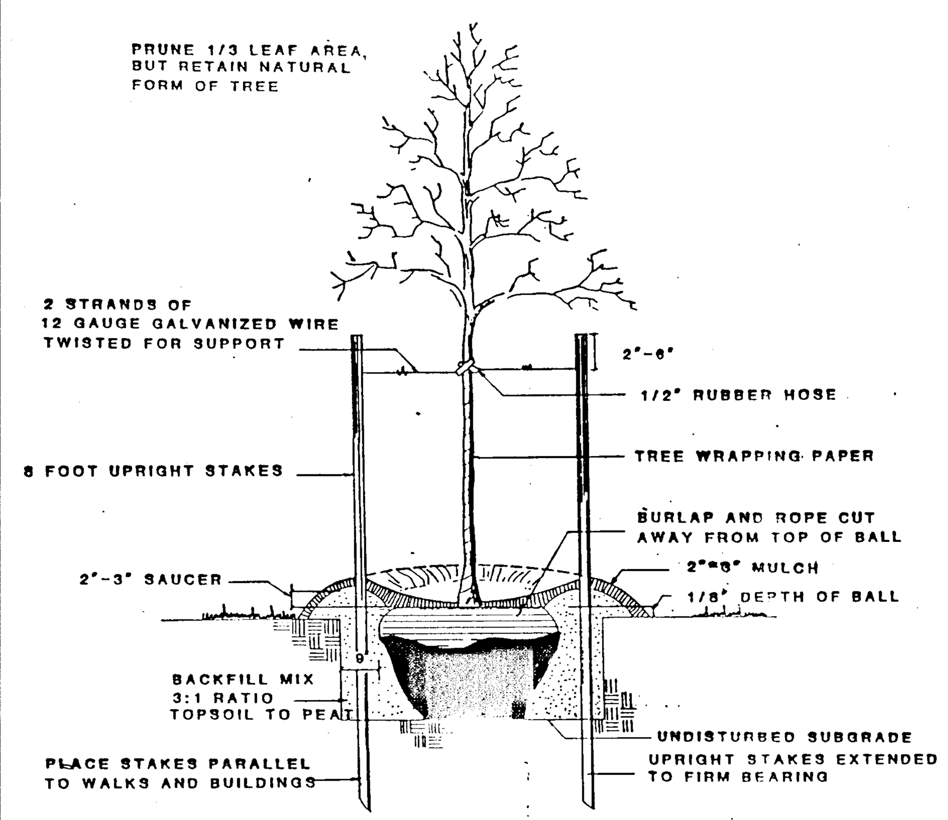
1. All vegetation, trash, and debris not marked in the field or on the plans, within the limits of disturbance, are to be disposed of off site in an approved landfill site.

GRADING

1. All topsoil and excess cut is to be removed and disposed of off site.
2. Grade tolerance shall be within 0.15 feet.
3. Specific field elevations may be adjusted slightly during construction to allow for unanticipated field conditions.
4. All final elevations shall be field checked by Exploration Research, Inc. prior to the contractor removing equipment from the site.

CONSTRUCTION SEQUENCE

1. All grading to be done under approved grading permit for Chapel Woods.
2. Install temporary access ford, silt fence, earth dikes, and sediment traps.
3. Remove topsoil and stockpile on designated area.
4. Excavate mitigation area to grades shown.
5. Haul excess material to approved on site location.
6. After grading is completed, all disturbed shall be stabilized with ryegrass.
7. Remove modified earth dike/swale.
8. Plant mitigation area in accordance with planting plan.
9. Remove silt fence, earthdikes, and stabilize.



TREE PLANTING DETAIL

NOT TO SCALE

CONSTRUCTION REQUIREMENTS

The site to be restored as emergent Wetland shall be graded, planted, and fertilized as shown on the plans and in accordance with these special provisions:

A. Planting schedule shall conform to the following conditions:

Planting shall commence after final grading, adjacent construction has been completed, and all sediment control measures have been removed. In order to coordinate the planting work with the entire construction schedule, plant material will not be shipped from the supplier until directed to do so by Exploration Research, Inc. All emergent Wetland plantings (peat plants and bare root-stock) shall be installed between March 1 and May 15 or as directed by Exploration Research, Inc.

B. Plant Materials:

1) Root-stock of the plant material shall be kept moist during transport from the source to the job site and until planted.

2) Plant material shall be planted in existing soil with each planting pit excavated to size sufficient to contain the entire root-stock or the entire root-mass without cramping.

C. Planting bed preparation:

The contractor shall prepare the area to be planted in Wetland plant materials by spreading a uniform layer of 6 inches of topsoil over the existing soil without disturbing the grade. Planting areas shall be approved by Exploration Research, Inc. prior to the installation of the plant material.

D. Clean-up:

Final clean up shall be the responsibility of the contractor and consist of removing all trash and materials incidental to the project, and disposing of them off-site. In addition, the construction procedure shall not damage any areas of existing plants which are to remain.

E. The planting grids are approximate and may be varied upon the approval of Exploration Research, Inc., provided the relative ratios and areas are maintained.

F. Plant material selections are based upon availability at time of design. If specific plants are unavailable at time of planting, substitute plants conforming to above specifications will be made. All substitute plant materials are subject to the approval of Exploration Research, Inc. and the Army Corps of Engineers.

WETLAND PLANT MATERIAL

DESCRIPTION:

This work shall consist of furnishing and planting emergent wetland plants and shrubs as shown on the plans and/or as directed by Exploration Research, Inc. and all planting operations and care and replacement as necessary to complete the work specified.

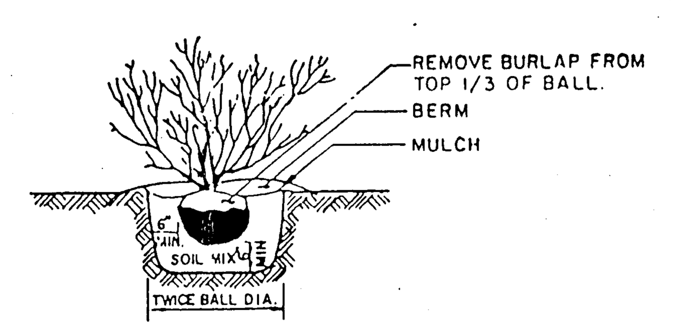
Prior to the start of the work on this project, Exploration Research, Inc. shall submit to the Army Corps of Engineers for review, the proposed planting schedule for the wetland vegetation.

MATERIALS:

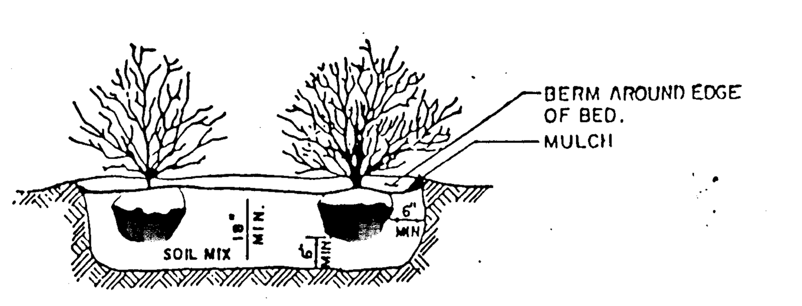
A. Plant material - As shown on the plans, shall conform to the following specifications: The plant species required shall be obtained from landscape nursery sources. The Contractor will make arrangements to insure a supply of the required plant material. This shall be done five (5) months prior to planting time to allow for plant collection, storage, and preparation.

B. Fertilizer - As required.

C. Substitute plants - Shall conform to the above specifications and approval of Exploration Research, Inc. and the Army Corps of Engineers.



SINGLE SHRUB PLANTING



SHRUB BED PLANTING

PLANTING DETAIL

NO SCALE

TEMPORARY SEEDING NOTES:

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTRUBED 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 2 1/2 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 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 GAL PER ACRE (5 GAL/1000 SQ. FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8FT. OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

REFER TO THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

PERMANENT SEEDING NOTES:

APPLY TO GRADED OR CLEARED AREA NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE-INCHES OF SOIL BY RAKING. DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING. IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULE.

1) PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQUARE FT) AND 500 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE-INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9LBS/1000 SQ. FT.).

2) ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ. FT.) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ. FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE-INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ. FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELL ANCHORED STRAW.

MULCHING: APPLY 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 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ. FT.) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

VI 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 OR AS SHOWN ON THE ACCOMPANYING DRAWINGS

VII EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES TO BE EMPLOYED DURING THE CONSTRUCTION PROCESS.

WETLAND MANAGEMENT NOTES

In order to establish a productive, functioning wetland ecosystem, an effective wetland management plan has been developed. The objectives of the management plan include:

1. Re-establish a healthy, self-sustaining vegetative cover.
2. Re-establish self-sustaining hydrological conditions.
3. Enhance and promote maximum wildlife habitat.

In order to establish an effective, workable, and practical wetland management plan, the following strategy is recommended:

1. During and immediately proceeding construction of the wetland areas, potential or existing problems will be identified and corrective management techniques will be implemented.

NATURAL CYCLE

Natural cycles must be maintained to prevent "succession" from wetland to solid ground. Although this is a long term goal exceeding the limits of this management program, several techniques can be implemented over the two year period enhance stability.

IMMEDIATE MANAGEMENT TECHNIQUES

No management strategies planned.

LONG TERM MANAGEMENT TECHNIQUES

Overall ecology and stability of the restored wetland areas will be assessed in comparison to similar adjacent areas. Recommendations and strategies will be planned to enhance and protect the overall ecology of the site.

SHORT TERM MANAGEMENT TECHNIQUES

Wetland area will be periodically monitored for altered hydrologic conditions, invasive plant species, transition of wetland species to upland plants, and cultural impacts such as human disturbance, filling, non-point, and point source pollution. Management techniques will be recommended to stabilize unnatural ecological successions including:

1) Altering the hydrological regime.
2) Removing undesirable plant species.
3) Restricting or discouraging destructive human interaction.

HYDROLOGIC REGIME

The duration, timing, and source of surface inundation determines and regulates wetland functions and their characteristics.

IMMEDIATE MANAGEMENT TECHNIQUES

Vegetation demonstrating immediate stress or dieback will be replaced. In addition, soil and climatic factors will be analyzed in relation to plant growth. The following management techniques will be utilized:

1.) Replace plant species with similar vegetation.
2.) Add soil amendments to enhance survivability.
3.) Replace plant species with specified alternative.
4.) Prune plant species to establish desired growth characteristics and enhance survivability.

LONG TERM MANAGEMENT TECHNIQUES

Re-assess vegetation for its functional value in relation to wetland cycles and habitat enhancement. Recommend and implement corrective and preventive action.

SHORT TERM MANAGEMENT TECHNIQUES

Survey vegetation after major storm events or droughts to determine appropriate management techniques as specified in Immediate Management Techniques.

VEGETATION

Vegetation sustains wildlife species, filters and reduces flood velocity. A goal of 85% vegetative cover will be established in two (2) years.

IMMEDIATE MANAGEMENT TECHNIQUES

Vegetation demonstrating immediate stress or dieback will be replaced. In addition, soil and climatic factors will be analyzed in relation to plant growth. The following management techniques will be utilized:

1.) Replace plant species with similar vegetation.
2.) Add soil amendments to enhance survivability.
3.) Replace plant species with specified alternative.
4.) Prune plant species to establish desired growth characteristics and enhance survivability.

LONG TERM MANAGEMENT TECHNIQUES

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SHORT TERM MANAGEMENT TECHNIQUES

Survey vegetation after major storm events or droughts to determine appropriate management techniques as specified in Immediate Management Techniques.

APPROVED: HOWARD CO. DEPARTMENT OF PLANNING & ZONING
[signature] 6/3/92
CHIEF: DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT — DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT
[signature] Howard S.C.D. — 7/27/92 Date

"I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
[signature] Signature of Consultant — 5-7-92 Date

Reviewed for HOWARD S.C.D. and meets Technical Requirements
[signature] U.S. Soil Conservation Service — 7/27/92 Date

EXPLORATION RESEARCH, INC.
Environmental Consultants
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Historic Ellicott City, Maryland 21043
Tel: (301) 750-1150, FAX # (301) 750-7350

OWNER/DEVELOPER

JJM PARTNERSHIP	JJM PARTNERSHIP
5570-201 STERRETT PLACE	5570-201 STERRETT PLACE
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CHAPEL WOODS
HOWARD COUNTY, MARYLAND
WQC# 89-WQ-0532
CENAB-OP-RW
(CHAPEL WOODS)
88-3856-3
NOTES

U.S. Army Corps Of Engineers
Approval Of Plans And Specifications
For Compliance With Permit Number
CENAB-OP-RW (CHAPEL WOODS) 88-3856-3
[signature] March 27, 1991
Signature Of U.S. Army Corps Of Engineers, Baltimore, MD — Date

Maryland Department Of The Environment
Standards & Certification Division
Approval Of Plans And Specifications
For Compliance With Permit Number WQC# 89-WQ-0532
[signature] 12/10/90
Signature Of Standards/Certification Division — Date

Drawn By: JLB — Scale: N/A
Designed By: MAM — Date: 9-21-90
Checked By: DER — Sheet: 6 of 6

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