ROADWAYS, STORM DRAINAGE AND STORMWATER MANAGEMENT

VILLAGE OF CEDAR RIDGE

5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

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BENCH MARKS NAD 83

HO. CO. #41BA NAD 83

STAMPED CONC. MONUMENT LOCATED AT THE NORTHWEST CORNER OF PINDELL SCHOOL ROAD AND SANNER LANE.

N 551789.4787 E 1340518.127

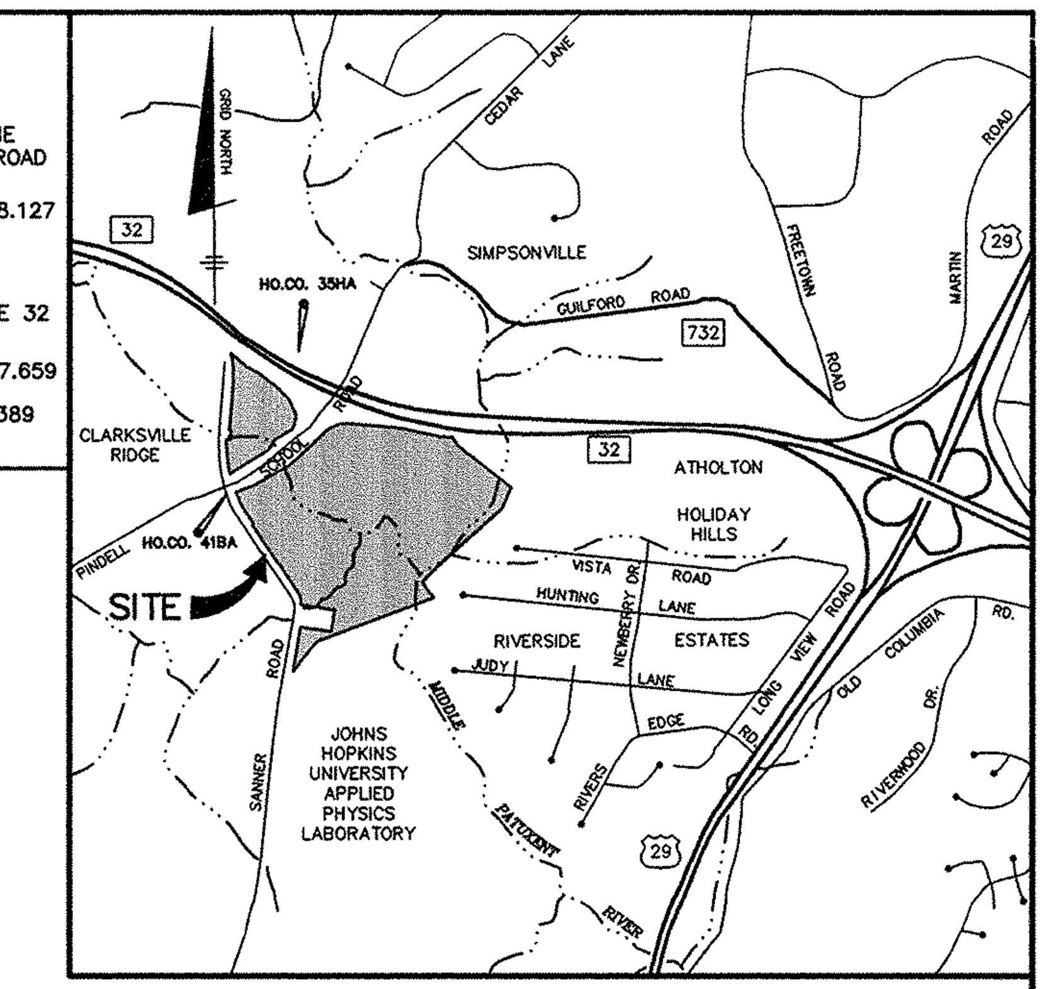
HO. CO. #35HA NAD 83

STAMPED CONC. MONUMENT LOCATED 3.5'± BEHIND THE GUARD RAIL SOUTH OF MD RTE 32 500'± WEST OF PINDELL SCHOOL ROAD

N 553353.579 E 1340567.659

HO. CO. BM#R-109 ELEV. 405.389

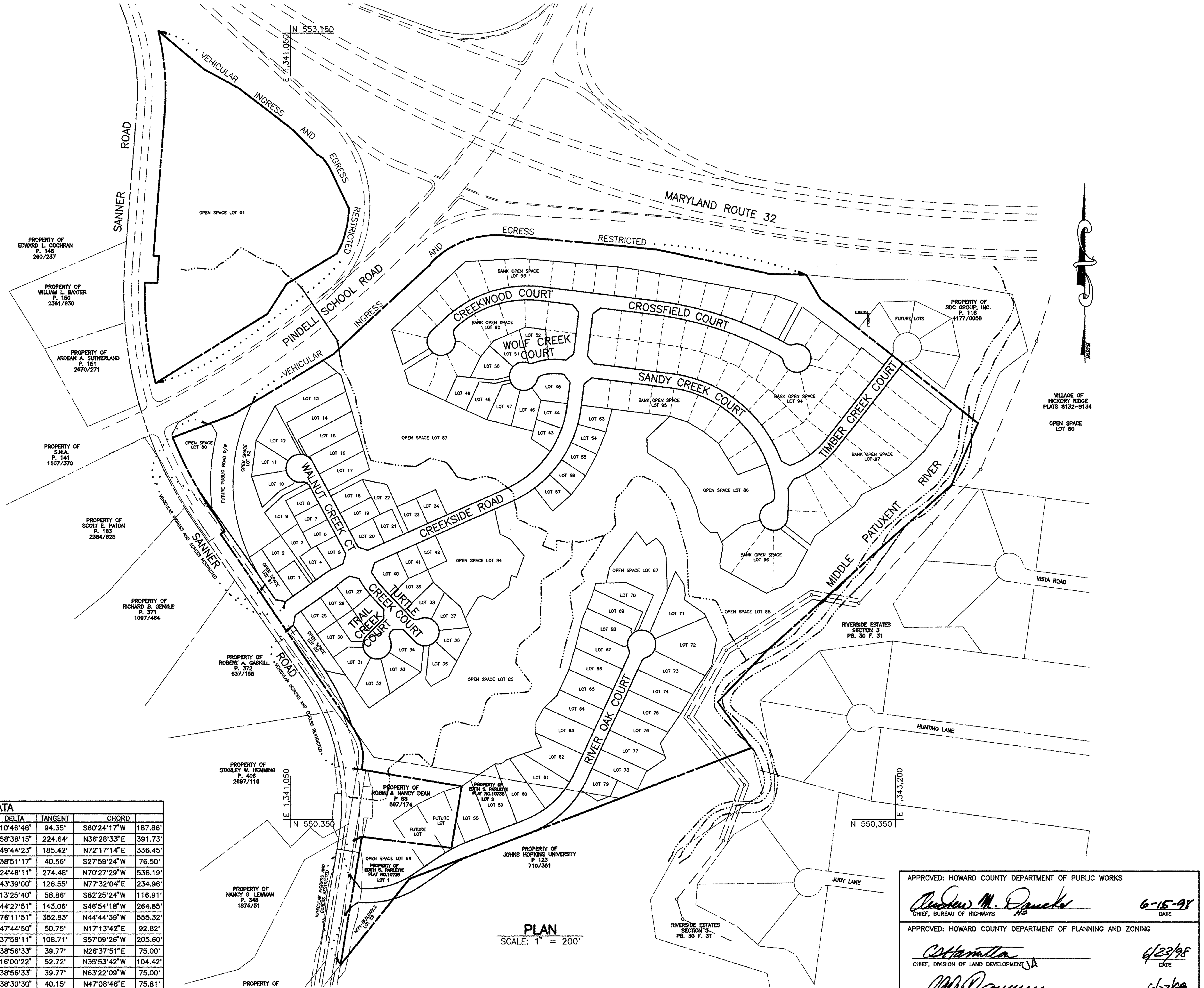
USED FOR VERTICLE CONTROL.



VICINITY MAP
SCALE: 1" = 2000'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT HOWARD COUNTY DESIGN MANUAL VOL. IV, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST 24 HOURS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
4. PROJECT BACKGROUND :
   LOCATION : TAX MAP 41 – PARCELS 43 & 44, AND P/O PARCEL 123
   ZONING : RED
   TOTAL TRACT AREA : 100.58 AC.
   NUMBER OF PROPOSED LOTS : 79 BUILDABLE, 9 OPEN SPACE, PLUS 6 BANK OPEN SPACE LOT TO BE RESUBDIVIDED IN PHASE II. (94 TOTAL)
   DATE PRELIMINARY PLAN APPROVED :
   DPZ REFERENCE # : SP-97-02, WP-97-78, PB 312, F-93-70, WP-98-82
5. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
6. TOPOGRAPHY TAKEN FROM FIELD RUN SURVEY BY TSA GROUP, INC., 5/95. CONTOUR INTERVAL IS 2 FEET.
7. HOWARD COUNTY MONUMENTS 41BA AND 35HA USED FOR HORIZONTAL DATUM. HO. CO. BENCH MARK R-109 WAS USED FOR VERTICAL DATUM.
8. STREET LIGHT PLACEMENT, TYPE OF FIXTURE AND POLE SELECTION SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III.
9. ALL ROAD FILLS SHALL BE COMPACTED TO 95% AS DETERMINED BY AASHTO T-180.
10. ALL SIDEWALKS AND SIDEWALK RAMPS SHALL BE IN CONFORMANCE WITH CURRENT ADA CRITERIA.
11. WATER AND SEWER FOR THIS SUBDIVISION IS PUBLIC. DRAINAGE AREA IS PATUXENT, CONTRACT NUMBERS 34-3652-D AND 34-3662-D.
12. WETLANDS DELINEATION COMPILED BY M.A. DIRKS AND ASSOC. DATED JANUARY 1995.
13. TRAFFIC STUDY COMPILED BY LEE CUNNINGHAM & ASSOC. DATED JANUARY 1995. REVISED AUGUST 20, 1997 TO ACCOMODATE PHASING OF THE PROJECT. APPROVED FEBRUARY 14, 1997.
14. NOISE STUDY PREPARED BY POLYSONICS CORPORATION. APPROVED JUNE 16, 1997.
15. GEOTECHNICAL REPORT COMPILED BY HILLIS-CARNES ASSOC., INC.
16. EXISTING UTILITIES WERE LOCATED BY RECORD DRAWINGS AND/OR FIELD RUN SURVEY BY TSA GROUP, INC., 5/95. CONTRACTOR IS RESPONSIBLE FOR VARIFYING THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.
17. UNLESS NOTED AS "PRIVATE" ALL EASEMENTS ARE PUBLIC.
18. STORMWATER MANAGEMENT AND WATER QUALITY SHALL BE PROVIDED BY EXTENDED DETENTION STORMWATER MANAGEMENT FACILITIES. VEGETATED BUFFERS SHALL PROVIDE WATER QUALITY TREATMENT FOR ANY UNMANAGED AREAS. THESE FACILITIES ARE PRIVATELY OWNED AND MAINTAINED.
19. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, WETLANDS BUFFERS, STREAM BUFFERS OR FOREST CONSERVATION AREAS EXCEPT FOR THE WORK ASSOCIATED WITH THE ROAD CROSSING OF CREEKSIDE ROAD AS REPRESENTED ON THESE PLANS.
20. THE FLOODPLAIN STUDY WAS PERFORMED BY THE TSA GROUP, INC. DATED 4/97.
21. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN TREES AND STREET LIGHTS.



PLAN
SCALE: 1" = 200'

CENTERLINE CONTROL DATA			
STREET NAME	STATION	NORTH	EAST
CREEKSIDE ROAD	0+00	551064.2012	1340995.6189
	PC=2+32.20	551197.3378	1341185.8639
	PT=4+20.34	551290.1165	1341349.2158
	PC=9+41.71	551503.8814	1341824.7433
	PT=13+51.07	551818.8778	1342057.6228
	17+35.24	552200.0538	1342105.4865
CREEKWOOD COURT	0+00	552200.0538	1342105.4865
	PC=1+65.22	552220.6391	1341941.5496
	PCC=5+12.47	552118.2767	1341621.0523
	PT=5+90.46	552050.7243	1341585.1492
CROSSFIELD COURT	0+00	552200.0538	1342105.4865
	PC=2+41.05	552170.0216	1342344.6561
	PT=7+81.44	551990.6676	1342849.9611
RIVER OAK COURT	0+00	550089.1501	1341229.3031
	PC=0+40.00	550082.6450	1341268.7706
	PT=2+80.74	550133.3618	1341498.1918
	PC=3+90.51	550195.2064	1341588.8848
	PT=5+07.69	550249.3286	1341692.5136
	PC=7+17.97	550324.2150	1341889.0042
	PT=9+89.58	550505.1637	1342082.4048
	15+05.48	550973.9641	1342297.7616
SANDY CREEK COURT	0+00	551952.0017	1342074.3390
	PC=3+32.33	551910.5968	1342404.0780
	PCC=9+30.78	551516.1790	1342794.9890
	PT=10+26.34	551427.5247	1342767.4980
TIMBER CREEK COURT	0+00	551571.8844	1342784.9142
	PC=0+14.44	551575.3439	1342798.9378
	PT=2+23.86	551686.8482	1342971.6759
	6+04.85	551986.3698	1343207.1435
TRAIL CREEK COURT	0+00	551079.7658	1341433.6226
	PC=0+59.53	551038.4864	1341390.7239
	PT=1+36.00	550971.4429	1341357.1059
TURTLE CREEK COURT	0+00	551261.8666	1341291.4197
	PC=0+33.58	551232.1896	1341307.1275
	PT=1+38.34	551147.6008	1341368.3482
	PC=2+71.25	551051.8261	1341460.5076
	PT=3+47.71	551018.2081	1341527.5511
WALNUT CREEK COURT	0+00	551261.8666	1341291.4197
	PC=3+25.00	551549.1118	1341139.3828
	PT=4+02.26	551600.6743	1341083.8051
WOLF CREEK COURT	0+00	551952.0017	1342074.3390
	PC=0+63.25	551959.8817	1342011.5851
	PT=2+04.21	551926.7531	1341877.8215

CENTER LINE CURVE DATA							
STREET NAME	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD	
CREEKSIDE ROAD	PC=2+32.20 PT=4+20.34	1000.00'	188.14'	10°46'46"	94.35'	S60°24'17"W	187.86'
	PC=9+41.71 PT=13+51.07	400.00'	409.37'	58°38'15"	224.64'	N36°28'33"E	391.73'
CREEKWOOD COURT	PC=1+65.22 PCC=5+12.47	400.00'	347.25'	49°44'23"	185.42'	N72°17'14"E	336.45'
	PCC=5+12.47 PT=5+90.46	115.00'	77.99'	38°51'17"	40.56'	S27°59'24"W	76.50'
CROSSFIELD COURT	PC=2+41.05 PT=7+81.44	1250.00'	540.39'	24°46'11"	274.48'	N70°27'29"W	536.19'
RIVER OAK COURT	PC=0+40.00 PT=2+80.74	316.00'	240.74'	43°39'00"	126.55'	N77°32'04"E	234.96'
	PC=3+90.51 PT=5+07.69	500.00'	117.18'	13°25'40"	58.86'	S62°25'24"W	116.91'
	PC=7+17.97 PT=9+89.58	350.00'	271.62'	44°27'51"	143.06'	S46°54'18"W	264.85'
SANDY CREEK COURT	PC=3+32.33 PCC=9+30.78	450.00'	598.45'	76°11'51"	352.83'	N44°44'39"W	555.32'
	PCC=9+30.78 PT=10+26.34	114.67'	95.56'	47°44'50"	50.75'	N17°13'42"E	92.82'
TIMBER CREEK COURT	PC=0+14.44 PT=2+23.86	316.00'	209.41'	37°58'11"	108.71'	S57°09'26"W	205.60'
TRAIL CREEK COURT	PC=0+59.53 PT=1+36.00	112.50'	76.46'	38°56'33"	39.77'	N26°37'51"E	75.00'
TURTLE CREEK COURT	PC=0+33.58 PT=1+38.34	375.00'	104.76'	16°00'22"	52.72'	N35°53'42"W	104.42'
	PC=2+71.25 PT=3+47.71	112.50'	76.46'	38°56'33"	39.77'	N63°22'09"W	75.00'
WALNUT CREEK COURT	PC=3+85.48 PT=4+62.74	114.95'	77.26'	38°30'30"	40.15'	N47°08'46"E	75.81'
WOLF CREEK COURT	PC=0+63.25 PT=2+04.21	191.68'	140.96'	42°08'05"	73.84'	N76°05'23"E	137.81'

Acad Dwg: 7009S01 Plotted: May 26, 1998

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER

OWNERS:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: TITLE SHEET
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM DRAFT: DBT CHECK: DAM — SCALE: AS SHOWN — SHEET 1 OF 31

F-98-52

NOTE: ALL ROADS ARE TO BE PUBLIC ROADS

STREET LIGHT SCHEDULE

SYMBOL	LOCATION		DESCRIPTION
(pendant light symbol)	CREEKSIDE ROAD	CL STA. 0+38 OFFS. 26' RIGHT	150 WATT HPS VAPOR PENDANT FIXTURE (CUTOFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
(post top light symbol)	CREEKSIDE ROAD	CL STA. 3+84 OFFS. 18' LEFT	100 WATT HPS VAPOR TRADITIONAIRE POST TOP MOUNTED ON 14' BLACK FIBERGLASS POLE
		CL STA. 8+43 OFFS. 18' RIGHT	
		CL STA. 11+60 OFFS. 18' LEFT	
		CL STA. 17+07 OFFS. 18' LEFT	
	WALNUT CREEK COURT	LP STA. 3+45 OFFS. 3' LEFT	
	TURTLE CREEK COURT	CL STA. 2+61 OFFS. 18' RIGHT	
	CREEKWOOD COURT	CL STA. 3+45.72 OFFS. 18' RIGHT	
		LP STA. 6+78.83 OFFS. 3'	
	SANDY CREEK COURT	CL STA. 0+28 OFFS. 18' LEFT	

NO.	DATE	REVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

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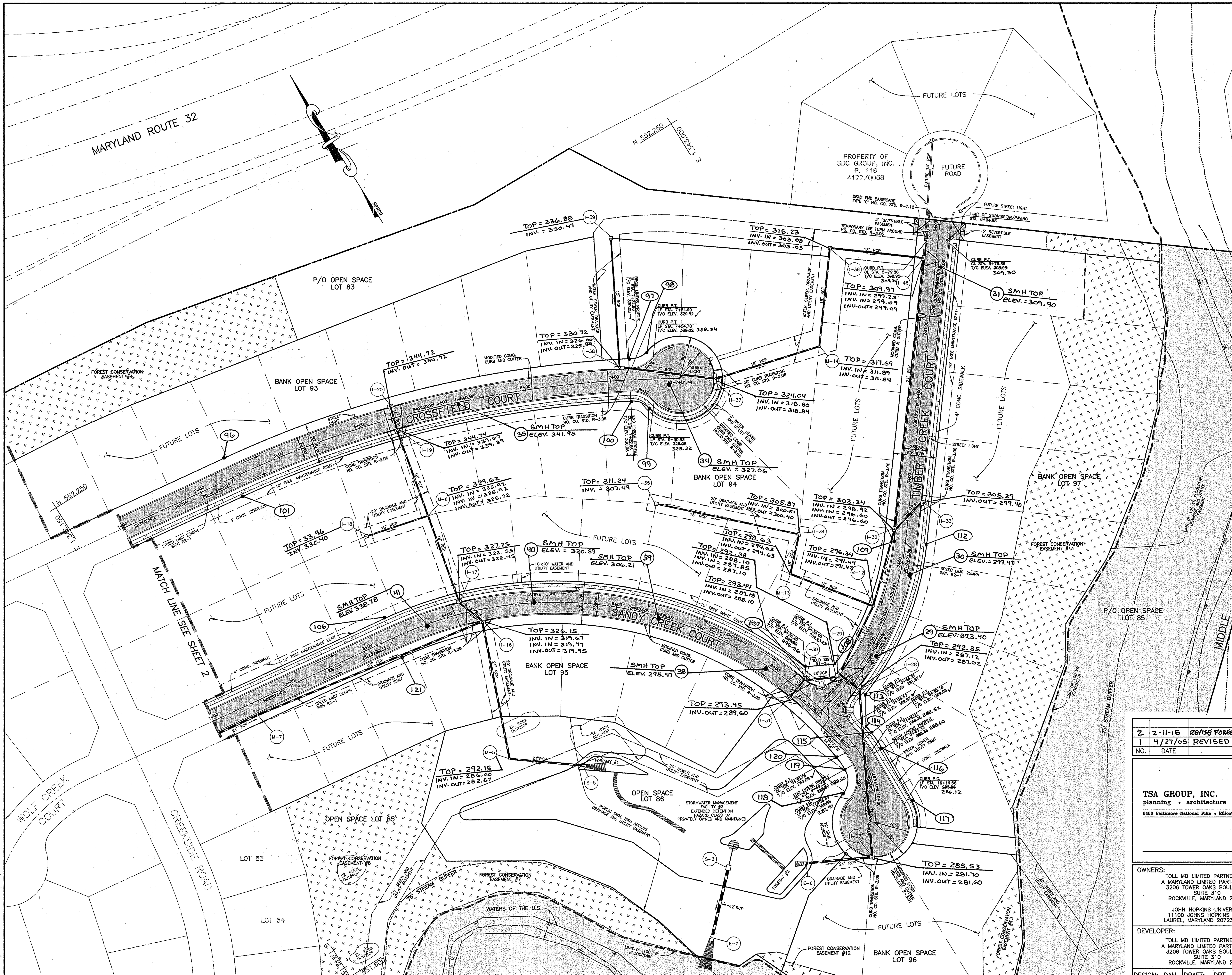
LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE:
ROAD PLAN
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM DRAFT: DBT CHECK: DAM — SCALE: 1" = 50' — SHEET 2 OF 31

F-98-52



STREET LIGHT SCHEDULE			
SYMBOL	LOCATION		DESCRIPTION
☼	CROSSFIELD COURT	CL. STA. 3+98 OFFS. 16' LEFT	100 WATT HPS VAPOR TRADITIONAIRE POST TOP MOUNTED ON 14' BLACK FIBERGLASS POLE
		LP STA. 8+30.94 OFFS. 3'	
	SANDY CREEK COURT	CL. STA. 5+54 OFFS. 16' LEFT	
		CL. STA. 9+00 OFFS. 18' LEFT	
	TIMBER CREEK COURT	CL. STA. 3+50 OFFS. 16' RIGHT	

NOTE: ALL ROADS ARE TO BE PUBLIC ROADS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION
2	2-11-15	REVISE FOREST CON. ESMT ON LOT 156
1	4/27/05	REVISED PER AS-BUILT CONDITIONS

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SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM | DRAFT: DBT | CHECK: DAM | SCALE: 1" = 50' | SHEET 3 OF 31

F-98-52

Acad Dwg: 7070S03 Plotted: May 26, 1998

SANNER ROAD NOTES:

1. ROADWAY RECONSTRUCTION WITHIN THIS AREA SHALL BE ACCOMPLISHED AS PART OF THE CAPITAL IMPROVEMENT PROJECT.

2. EXISTING BRIDGE IS RESTRICTED TO A MAXIMUM WEIGHT OF 20,000 LBS.

3. SANNER ROAD WILL BE POSTED WITH A 35 MPH SPEED.

4. A STREET LIGHT SHALL BE PLACED ON SANNER ROAD AT THE BRIDGE. PLACEMENT OF THIS LIGHT SHALL BE COORDINATED WITH THE CAPITAL PROJECT ALONG SANNER ROAD TO ELIMINATE THE NEED FOR IMMEDIATE RELOCATION.

NOTE: ALL ROADS ARE TO BE PUBLIC ROADS

STREET LIGHT SCHEDULE

SYMBOL	LOCATION		DESCRIPTION
(pendant)	RIVER OAK COURT	CL STA. 0+31 OFFS. 28' RIGHT	150 WATT HPS VAPOR PENDANT FIXTURE (CUTOFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
(post top)	RIVER OAK COURT	CL STA. 2+50 OFFS. 16' RIGHT	100 WATT HPS VAPOR TRADITIONAIRE POST TOP MOUNTED ON 14' BLACK FIBERGLASS POLE
		CL STA. 5+91 OFFS. 16' RIGHT	
		CL STA. 9+46 OFFS. 16' RIGHT	
		LP STA. 15+83.39 OFFS. 3'	

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION
3	10-5-12	REMOVE 1500± OF FCE#10 FROM LOT 78 (SHANABERGER & LANE) PER REVISION PLAT F-13-020.
1	1-18-07	REMOVE FCE FROM LOT 58
1	4/27/05	REVIED PER AS-BUILT CONDITIONS

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PROJECT: **VILLAGE OF CEDAR RIDGE**
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LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

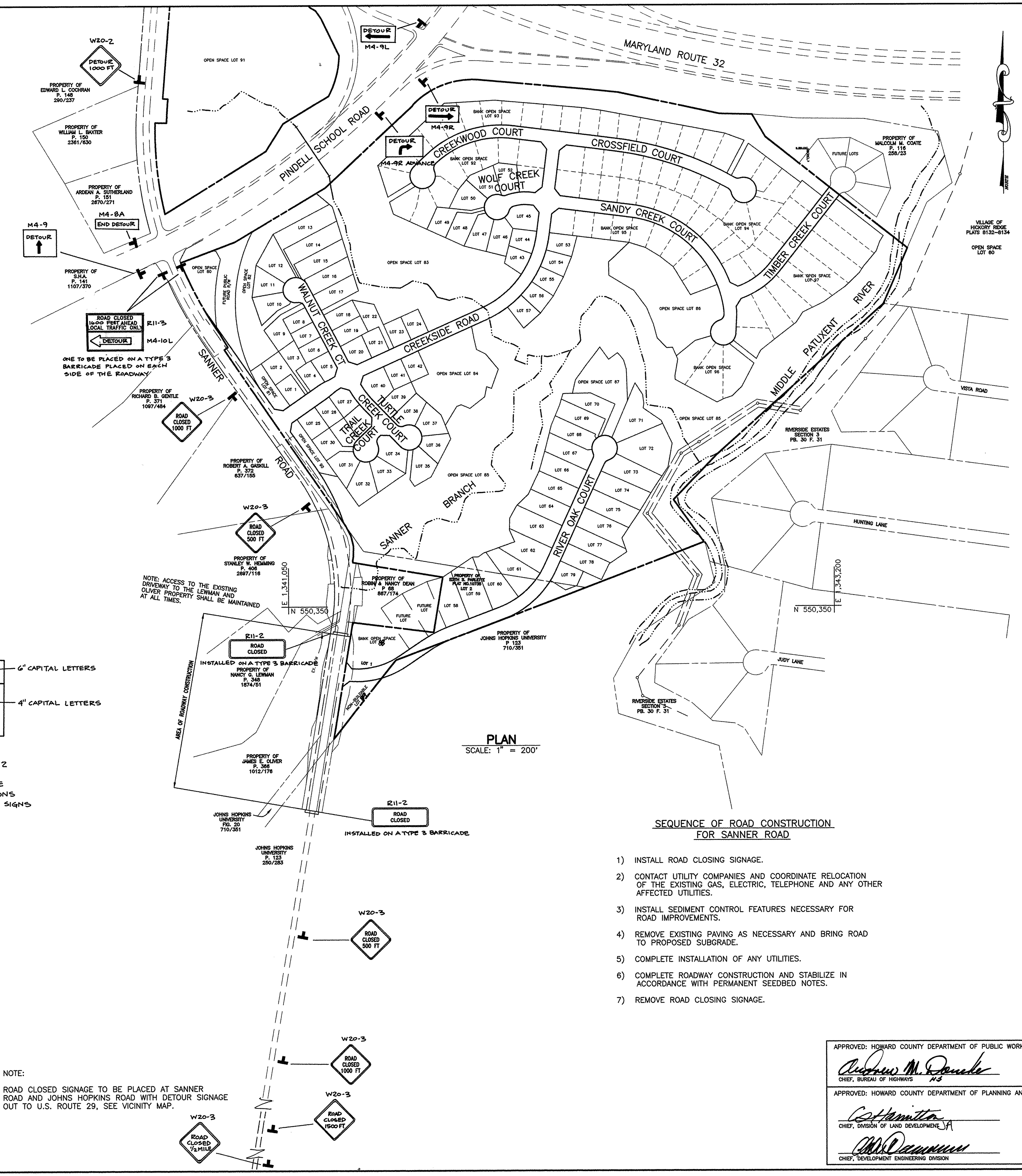
TITLE: ROAD PLAN
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM | DRAFT: DBT | CHECK: DAM | SCALE: 1" = 50' | SHEET 4 OF 31

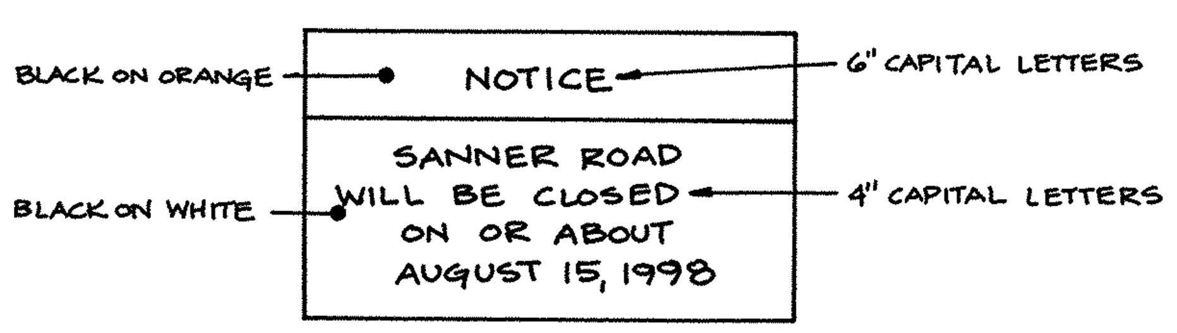
F-98-52

Acad Dwg: 7070504 Plotted: May 26, 1998



PLAN

SCALE: 1" = 200'



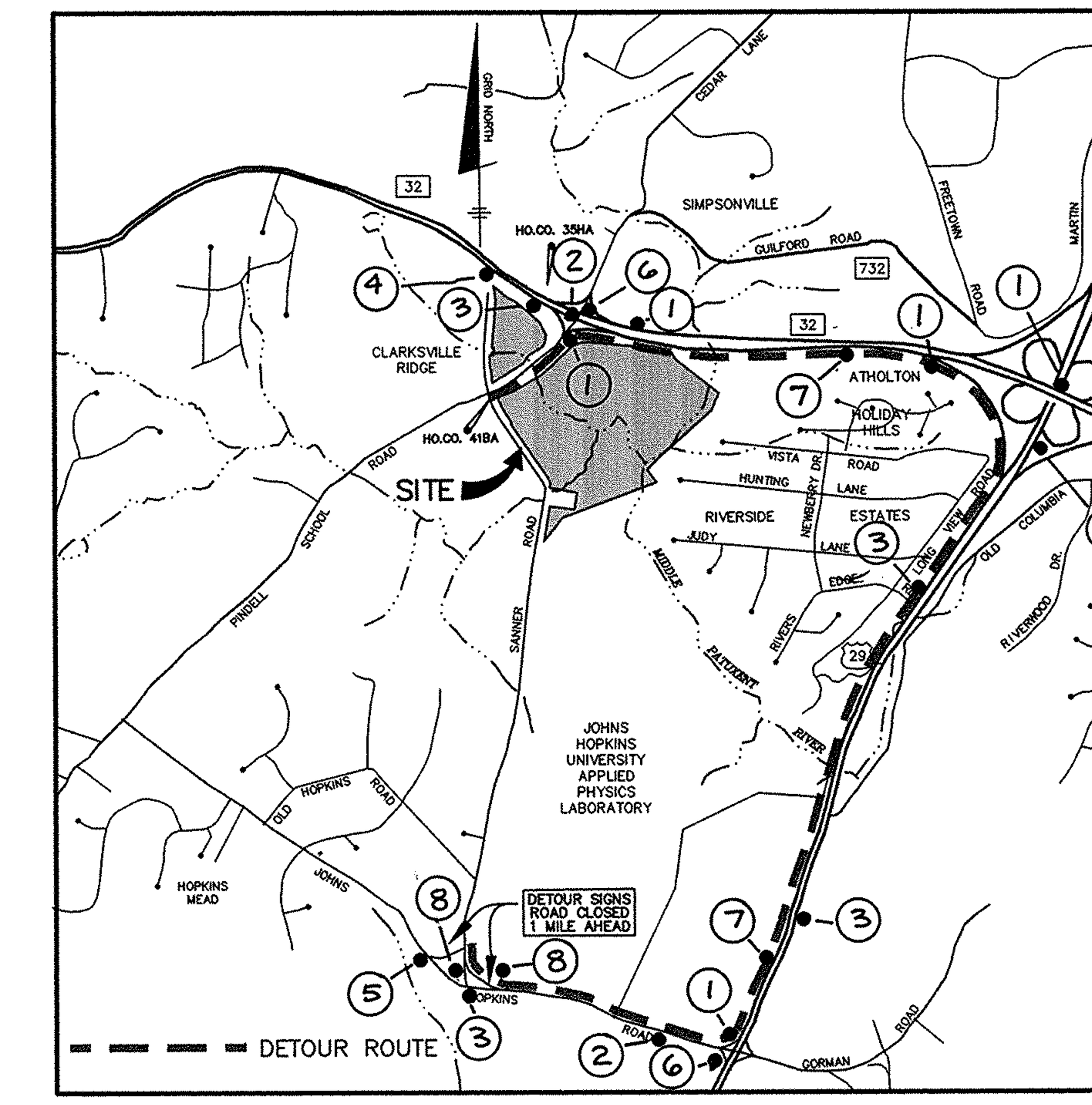
* THIS SIGN SHALL BE POSTED 2 WEEKS PRIOR TO CLOSING OF SANNER ROAD AND SHALL BE PLACED AT THE SAME LOCATIONS AS THE ROAD CLOSED R11-2 SIGNS ARE TO BE PLACED.

NOTE:

ROAD CLOSED SIGNAGE TO BE PLACED AT SANNER ROAD AND JOHNS HOPKINS ROAD WITH DETOUR SIGNAGE OUT TO U.S. ROUTE 29, SEE VICINITY MAP.

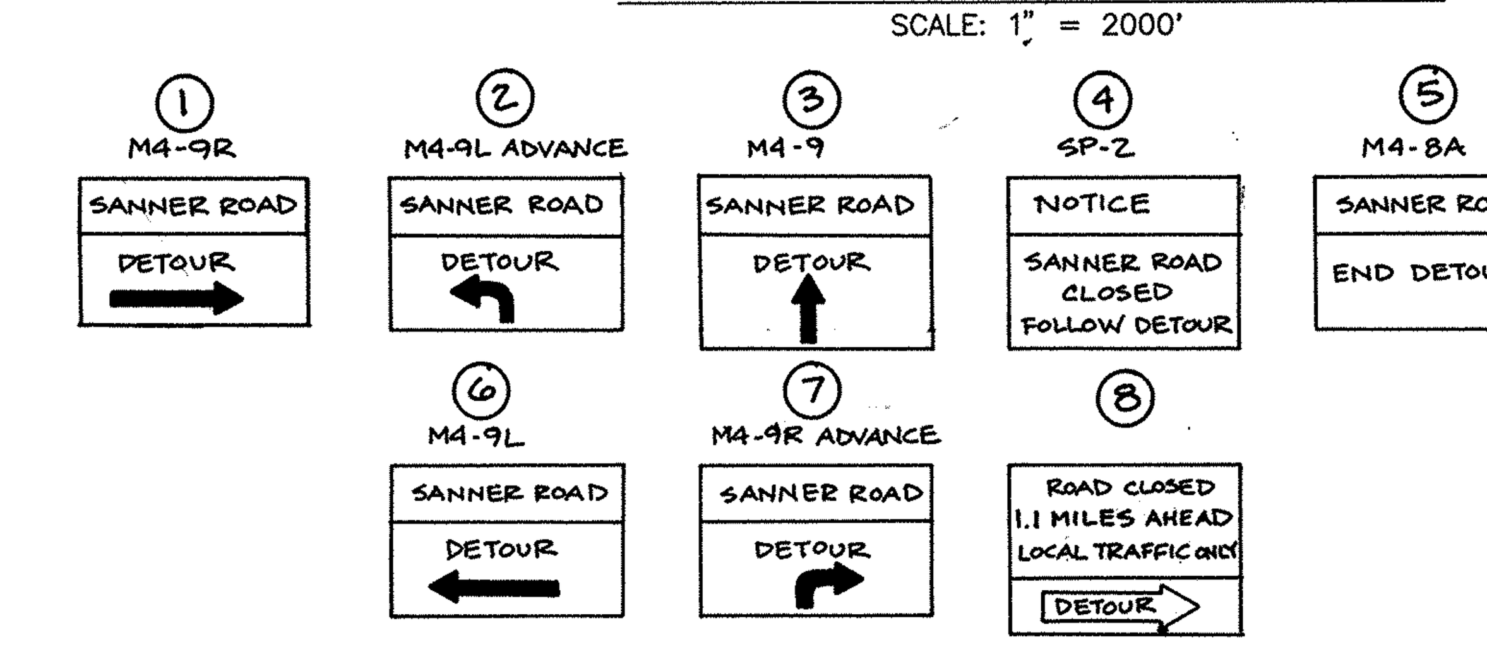
SEQUENCE OF ROAD CONSTRUCTION FOR SANNER ROAD

1) INSTALL ROAD CLOSING SIGNAGE.
2) CONTACT UTILITY COMPANIES AND COORDINATE RELOCATION OF THE EXISTING GAS, ELECTRIC, TELEPHONE AND ANY OTHER AFFECTED UTILITIES.
3) INSTALL SEDIMENT CONTROL FEATURES NECESSARY FOR ROAD IMPROVEMENTS.
4) REMOVE EXISTING PAVING AS NECESSARY AND BRING ROAD TO PROPOSED SUBGRADE.
5) COMPLETE INSTALLATION OF ANY UTILITIES.
6) COMPLETE ROADWAY CONSTRUCTION AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDBED NOTES.
7) REMOVE ROAD CLOSING SIGNAGE.



VICINITY MAP FOR DETOUR ROUTE

SCALE: 1" = 2000'



NOTES:

1. ALL DETOUR SIGNAGE SHALL HAVE SANNER ROAD NAME SIGN PLACED ABOVE.
2. ALL SIGNAGE ON THE STATE ROADWAY SHALL BE APPROVED BY THE STATE HIGHWAY ADMINISTRATION.

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8450 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	
CHIEF, BUREAU OF HIGHWAYS	DATE 6-15-98
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 6/23/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 6/22/98

OWNERS:
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

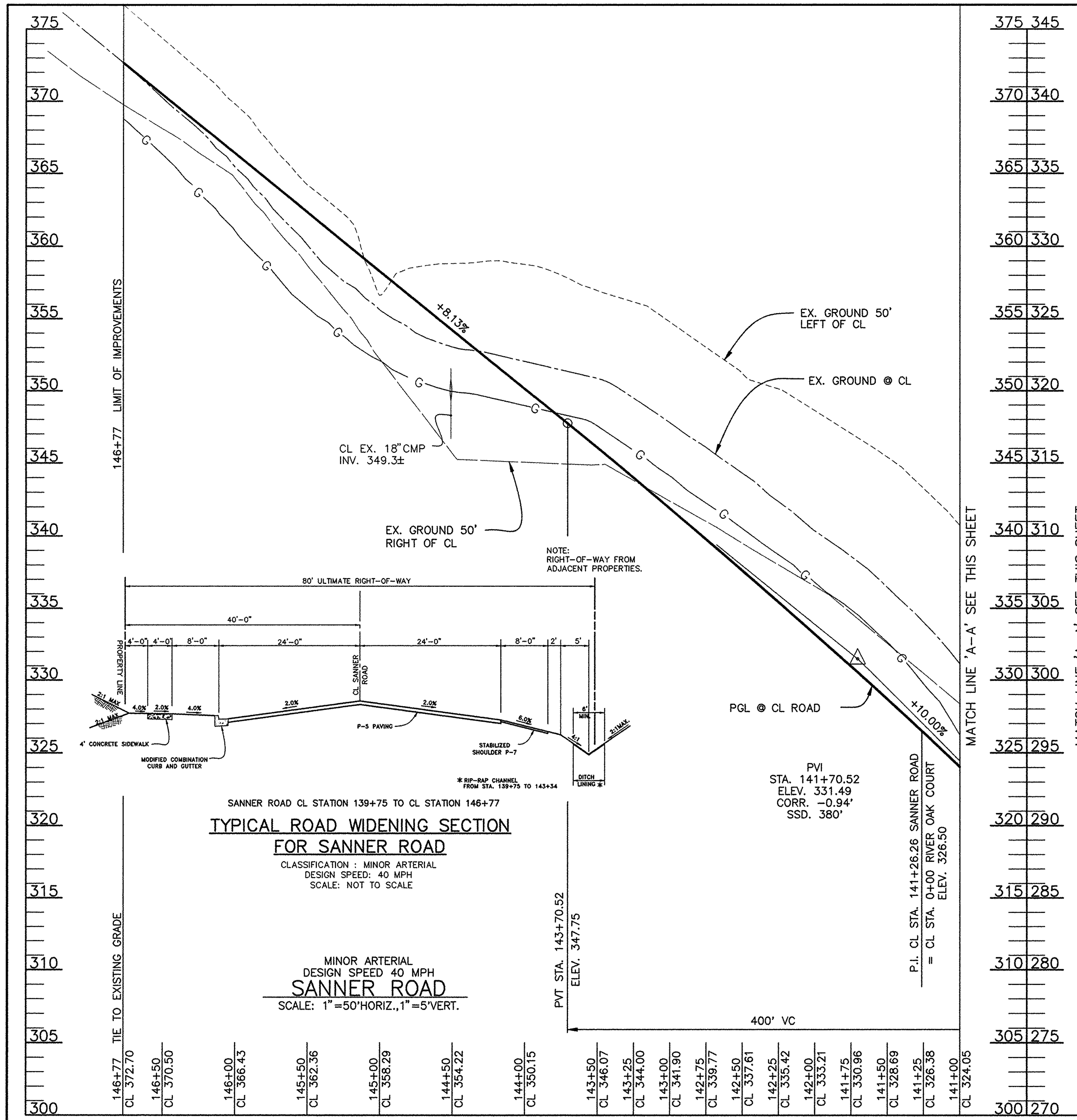
LOCATION: TAX MAP 41 - PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

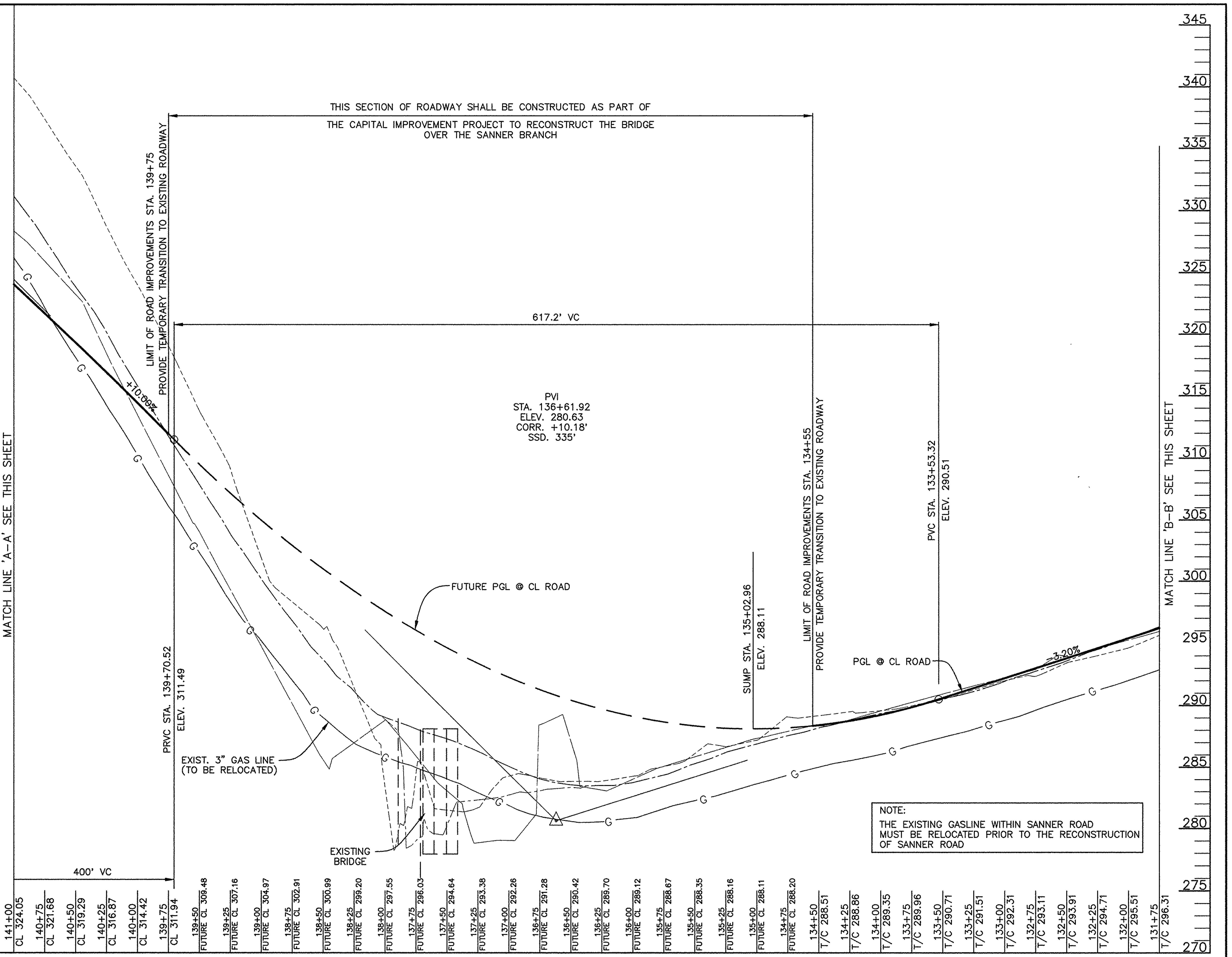
TITLE:
SANNER ROAD TRAFFIC CONTROL PLAN
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

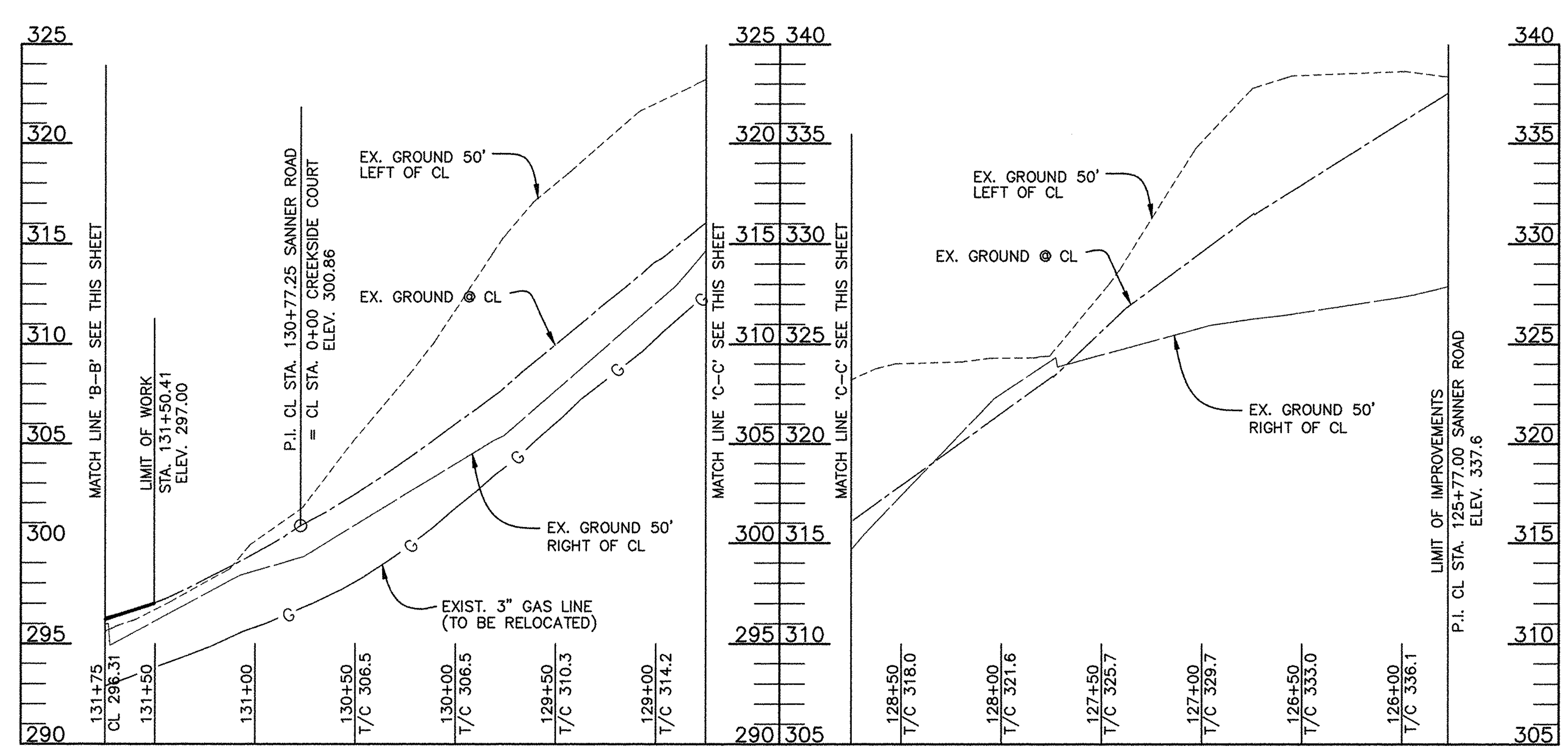
DATE:	OCTOBER, 1997 / MAY, 1998	PROJECT NO.	0518
DESIGN: DAM	DRAFT: DBT	CHECK: DAM	
SCALE:	AS SHOWN	SHEET	5 OF 31

F-98-52

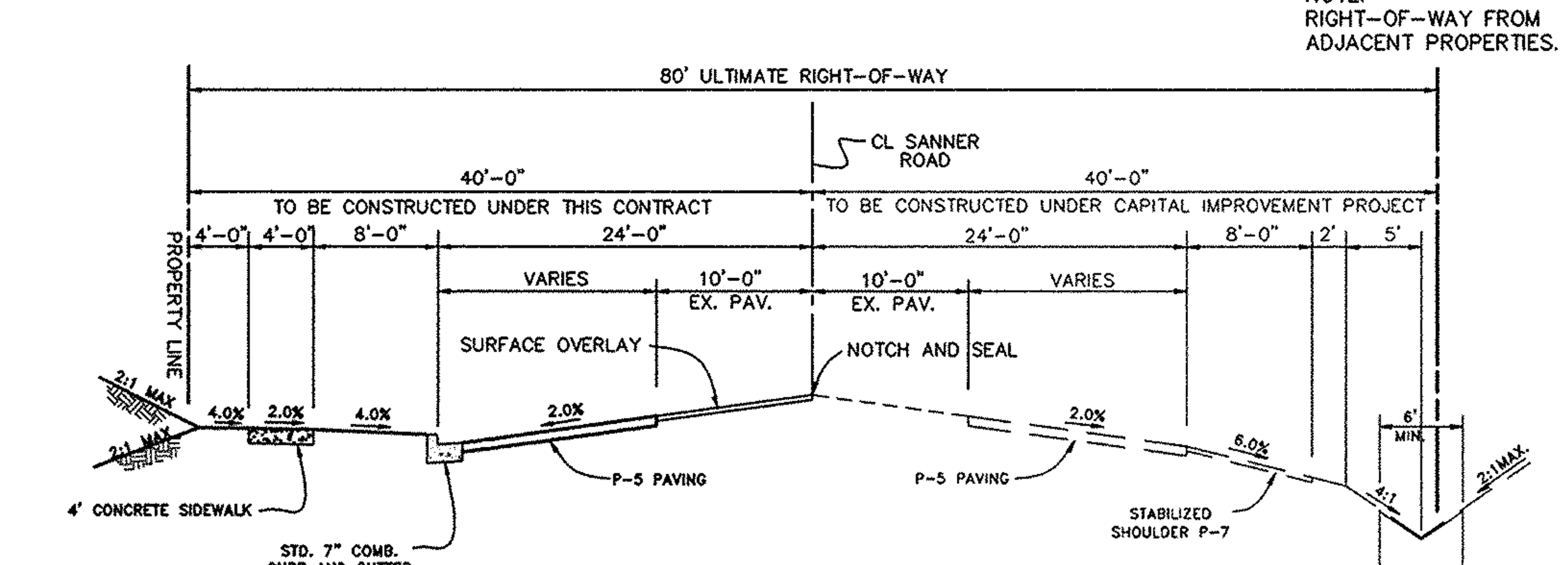
Acad Dwg: 7064S05 Plotted: May 26, 1998







NOTE: RIGHT-OF-WAY FROM ADJACENT PROPERTIES.



TYPICAL ROAD WIDENING SHALL BE IN ACCORDANCE WITH HOWARD COUNTY TYPICAL DETAIL R-10.01

SANNER ROAD CL STATION 125+77 TO CL STATION 134+55

TYPICAL ROAD WIDENING SECTION FOR SANNER ROAD

CLASSIFICATION : MINOR ARTERIAL
DESIGN SPEED: 40 MPH
SCALE: NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

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OWNERS:
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JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

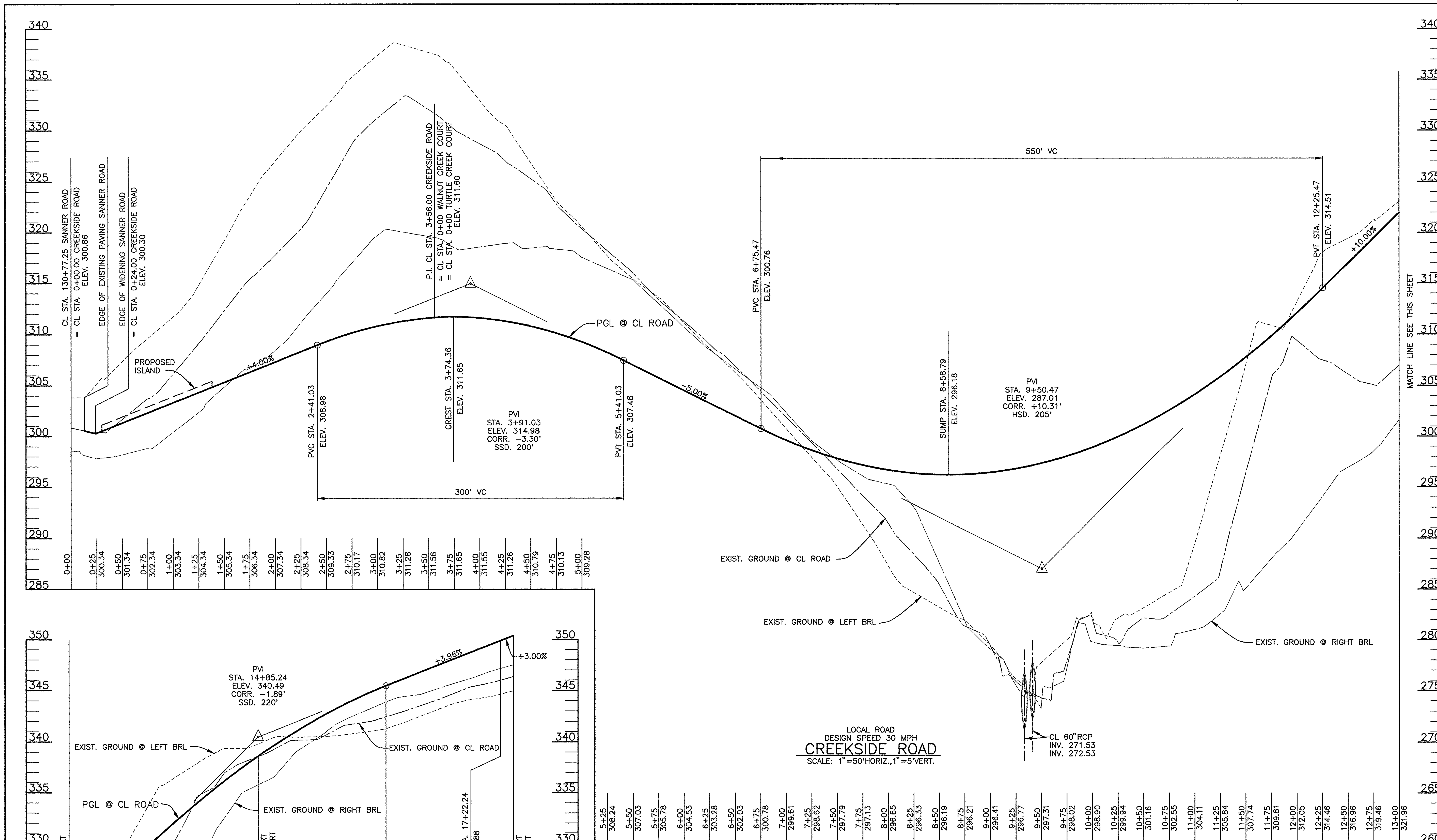
TITLE: ROAD PROFILES
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

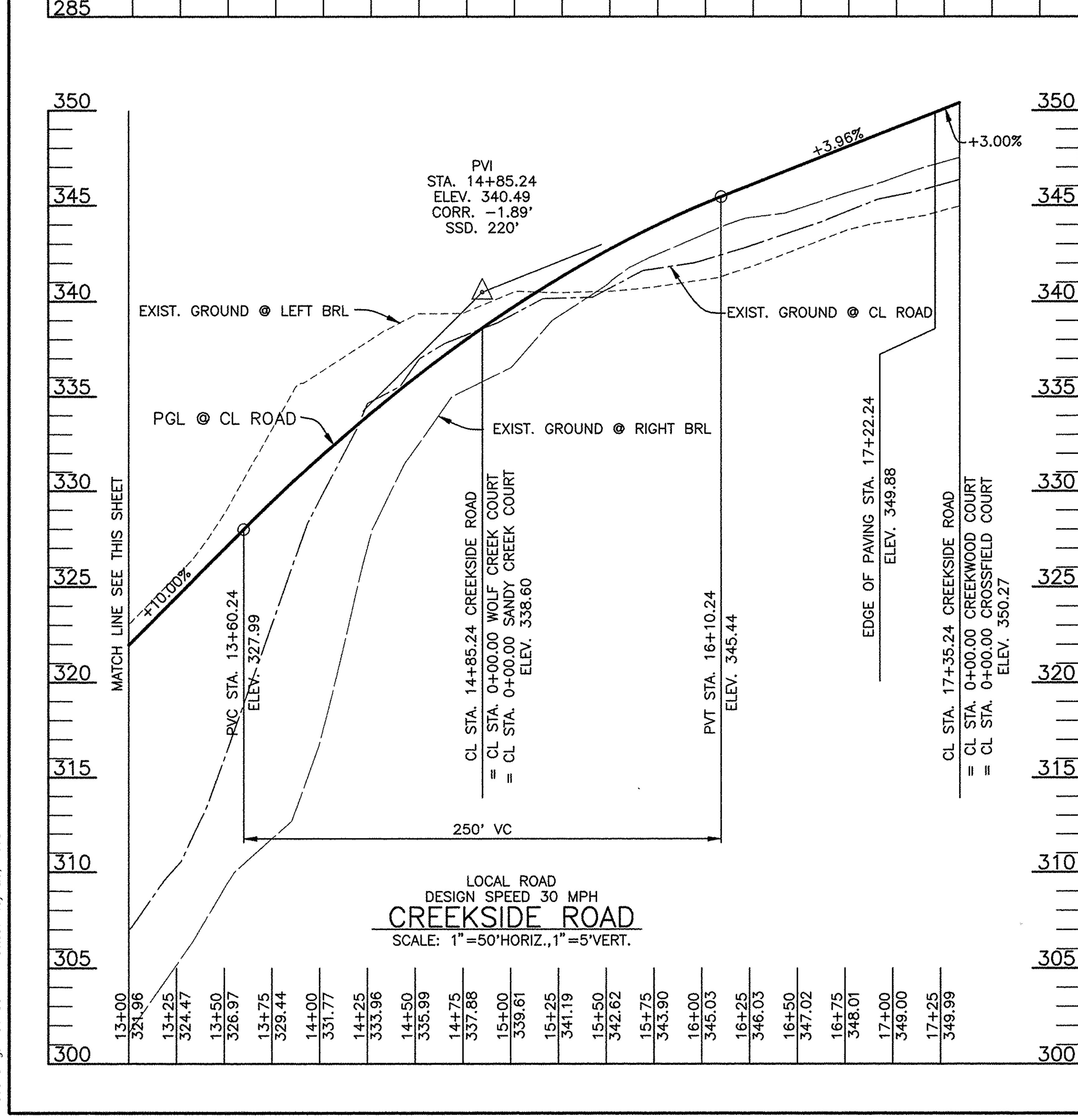
DATE: ~~OCTOBER, 1997~~ MAY, 1998 — PROJECT NO. 0518

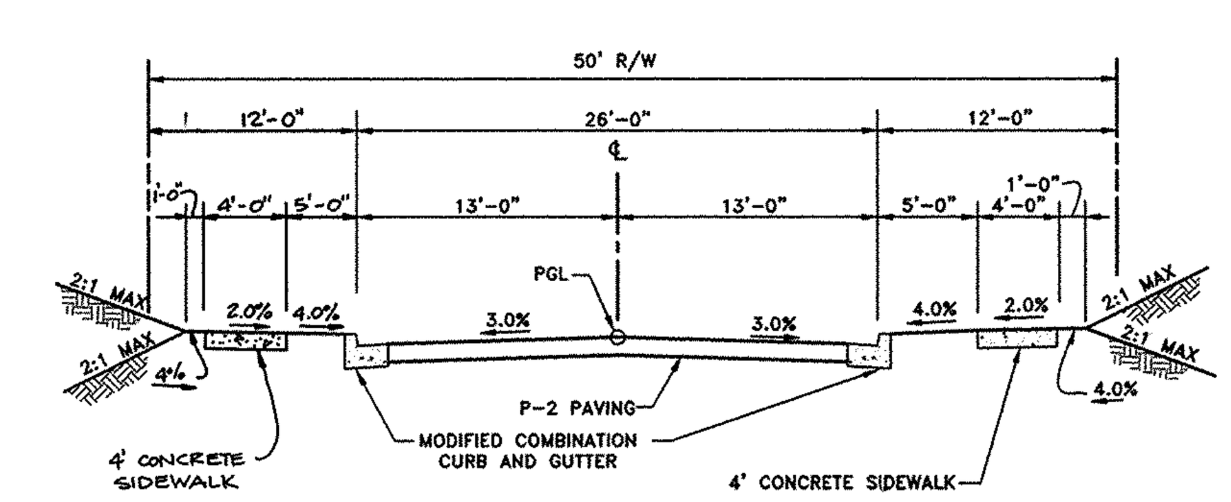
DESIGN: DAM DRAFT: DBT CHECK: DAM — SCALE: AS SHOWN — SHEET 6 OF 31

Acad Dwg: 7017S06 Plotted: May 26, 1998

F-98-52



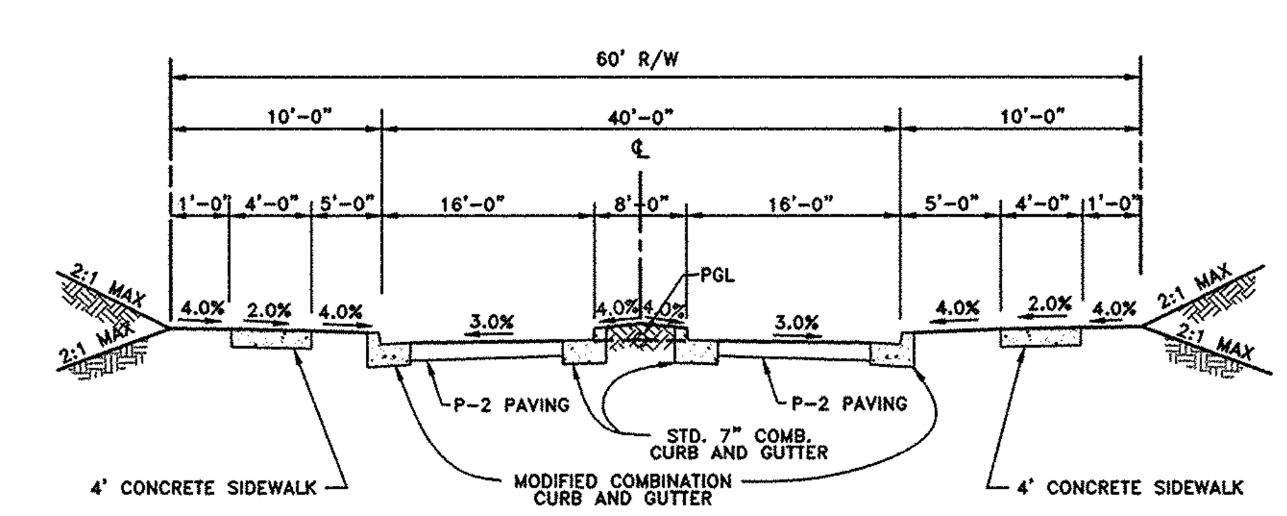




CREEKSIDE ROAD CL STATION 3+09.54 TO CL STATION 16+97.24

TYPICAL ROAD SECTION

CLASSIFICATION : LOCAL ROAD
DESIGN SPEED 30 MPH
SCALE: NOT TO SCALE



CREEKSIDE ROAD CL STATION 0+34 TO CL STATION 1+34

TYPICAL ROAD SECTION

CLASSIFICATION : LOCAL ROAD
DESIGN SPEED 30 MPH
SCALE: NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/22/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

TSA GROUP, INC.
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OWNERS:
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JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6005

DEVELOPER:
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A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

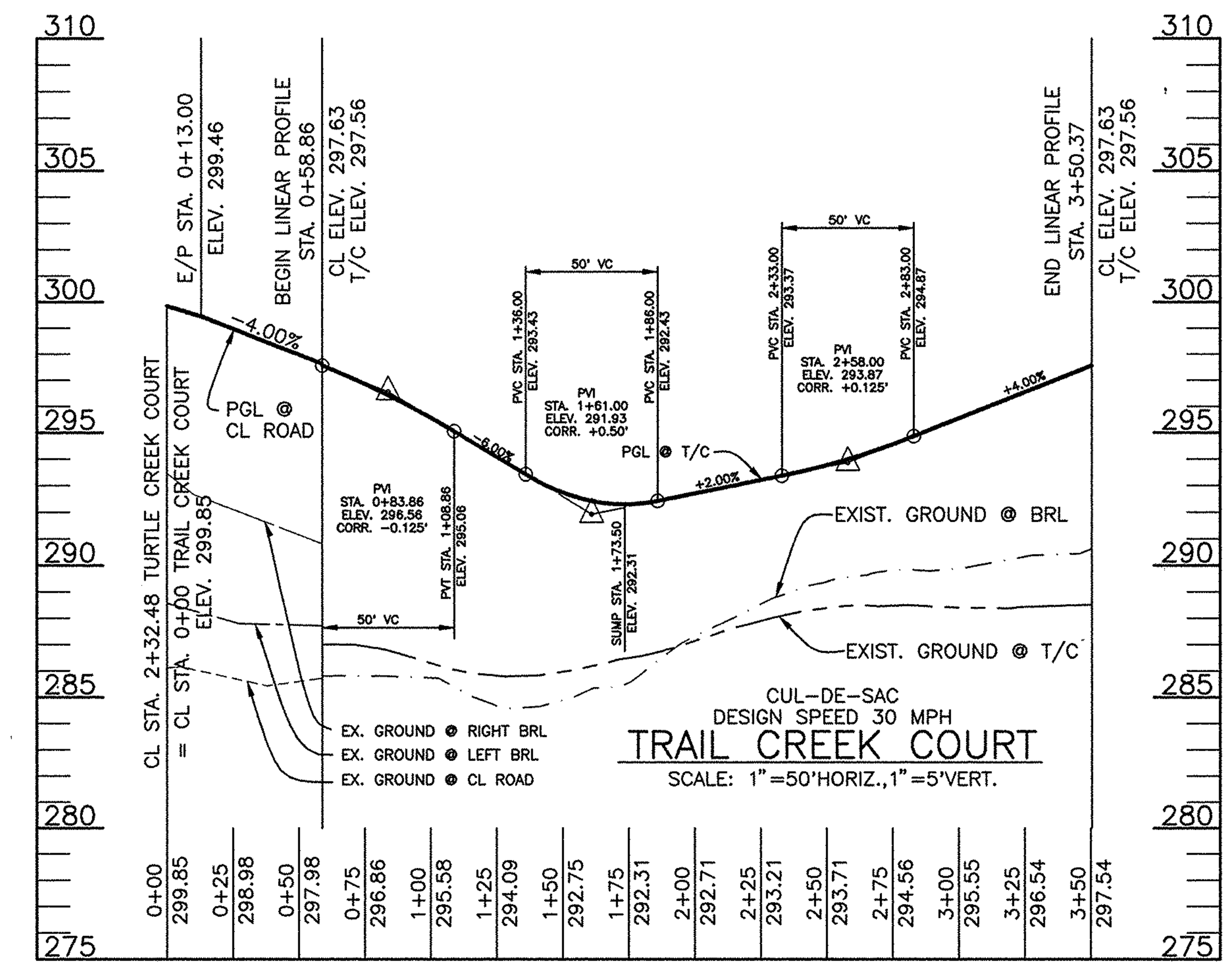
TITLE: ROAD PROFILES
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

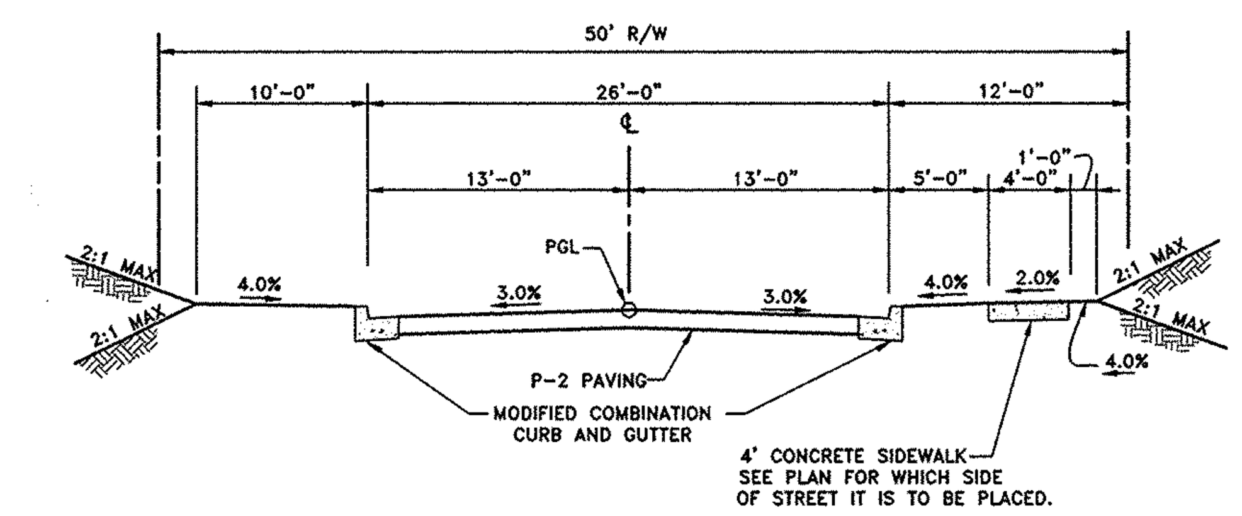
DATE: ~~OCTOBER, 1997~~ MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM | DRAFT: DBT | CHECK: DAM | SCALE: AS SHOWN | SHEET 7 OF 31

F-98-52

Acad Dwg: 7017S07 Plotted: May 26, 1998

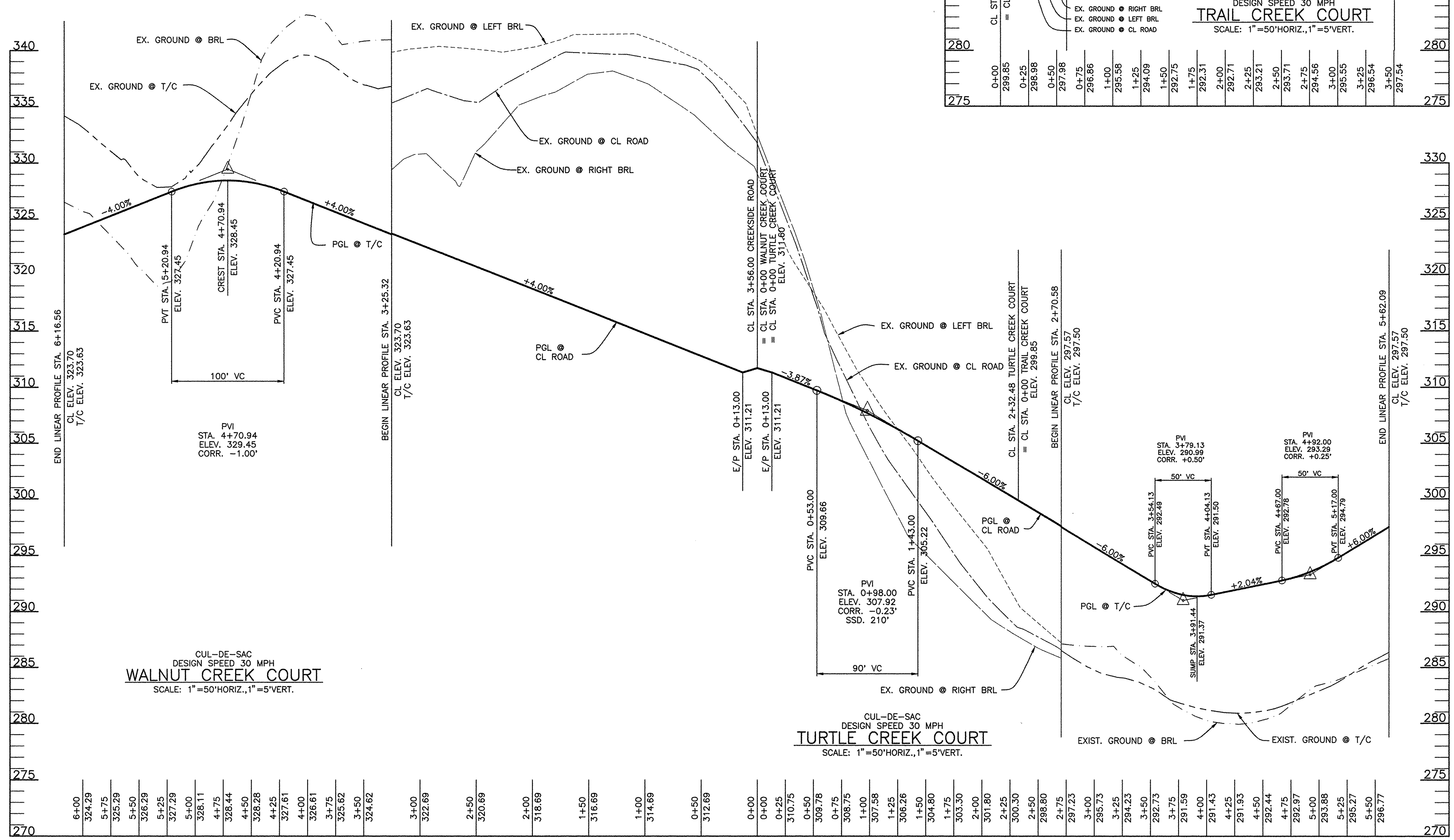




TYPICAL ROAD SECTION

CLASSIFICATION : LOCAL ROAD
DESIGN SPEED 30 MPH
SCALE: NOT TO SCALE

WALNUT CREEK COURT CL STATION 0+37.30 TO CL STATION 3+85.80
TURTLE CREEK COURT CL STATION 0+39.34 TO CL STATION 2+70.58
TRAIL CREEK COURT CL STATION 0+38.00 TO CL STATION 0+58.86
WOLF CREEK COURT CL STATION 0+38.00 TO CL STATION 1+37.31
CREEKWOOD COURT CL STATION 0+38.00 TO CL STATION 5+13.53
CROSSFIELD COURT CL STATION 0+38.00 TO CL STATION 7+22.66
SANDY CREEK COURT CL STATION 0+38.00 TO CL STATION 9+49.33
TIMBER CREEK COURT CL STATION 0+39.48 TO CL STATION 5+79.86
RIVER OAK COURT CL STATION 0+50.23 TO CL STATION 14+47.86



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

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PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 - PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

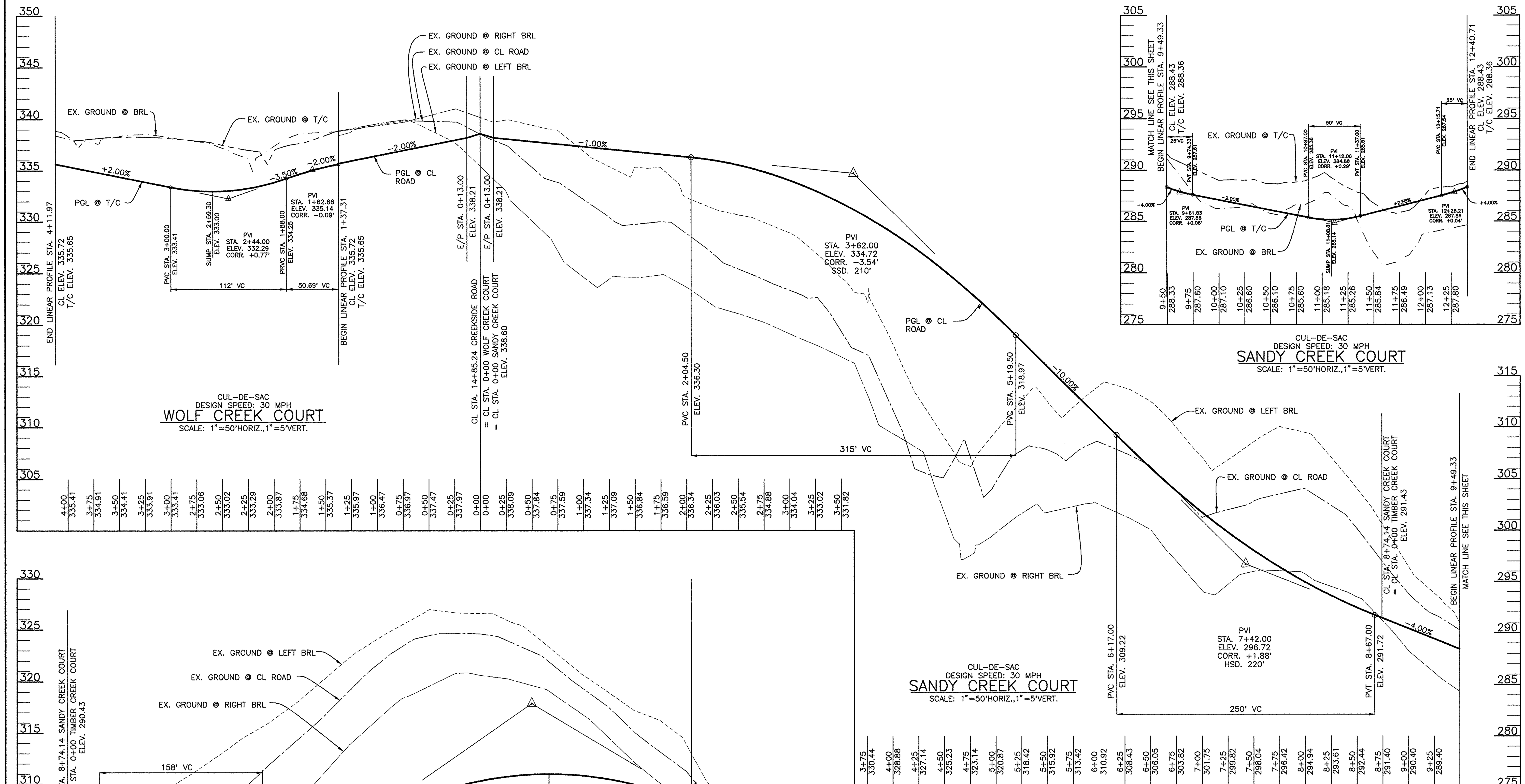
TITLE: ROAD PROFILES
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

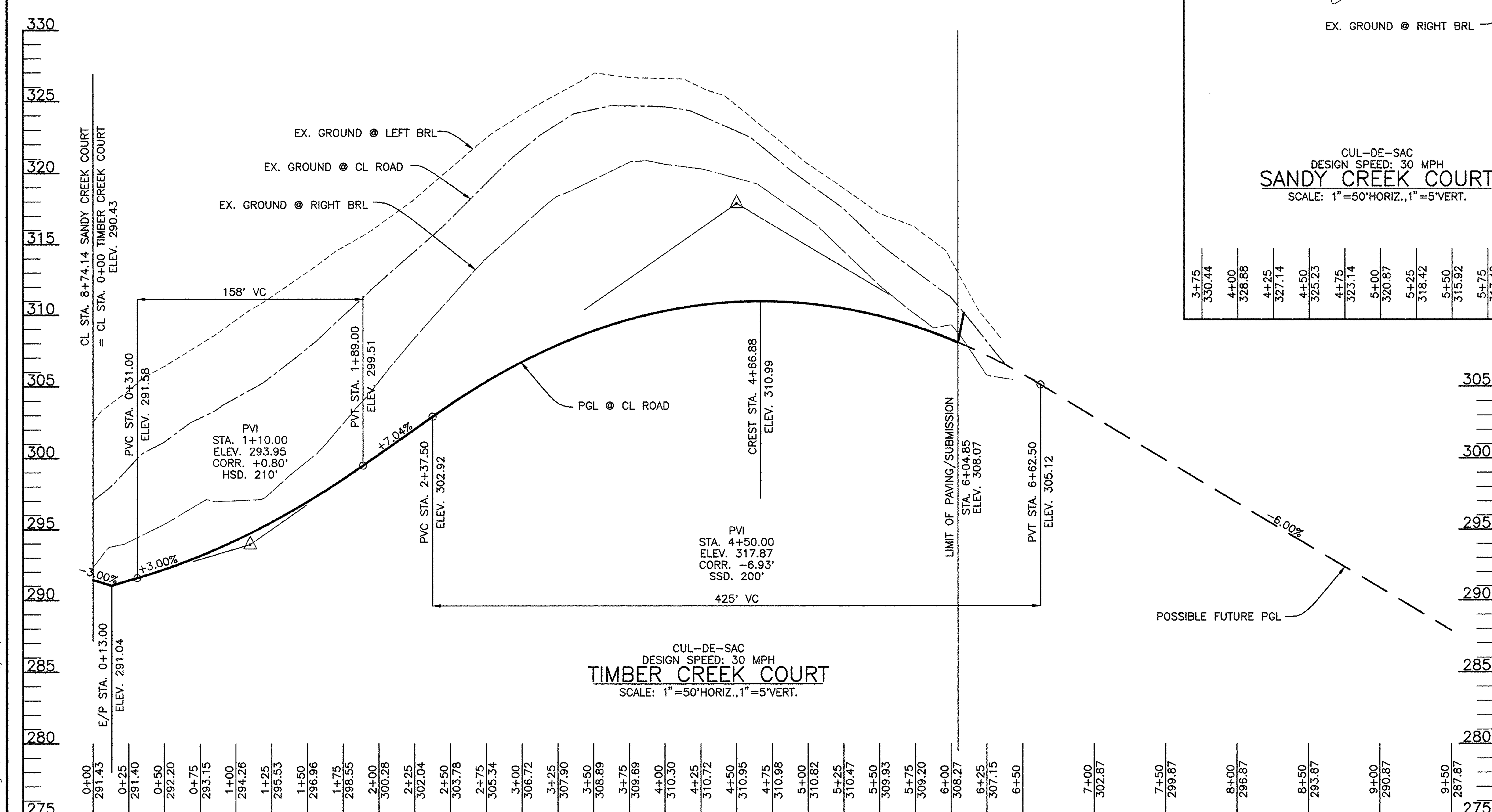
DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM | DRAFT: DBT | CHECK: DAM | SCALE: AS SHOWN | SHEET 8 OF 31

F-98-52

Acad Dwg: 7017508 Plotted: May 26, 1998





NO.	DATE	REVISION

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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

OWNERS:
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A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

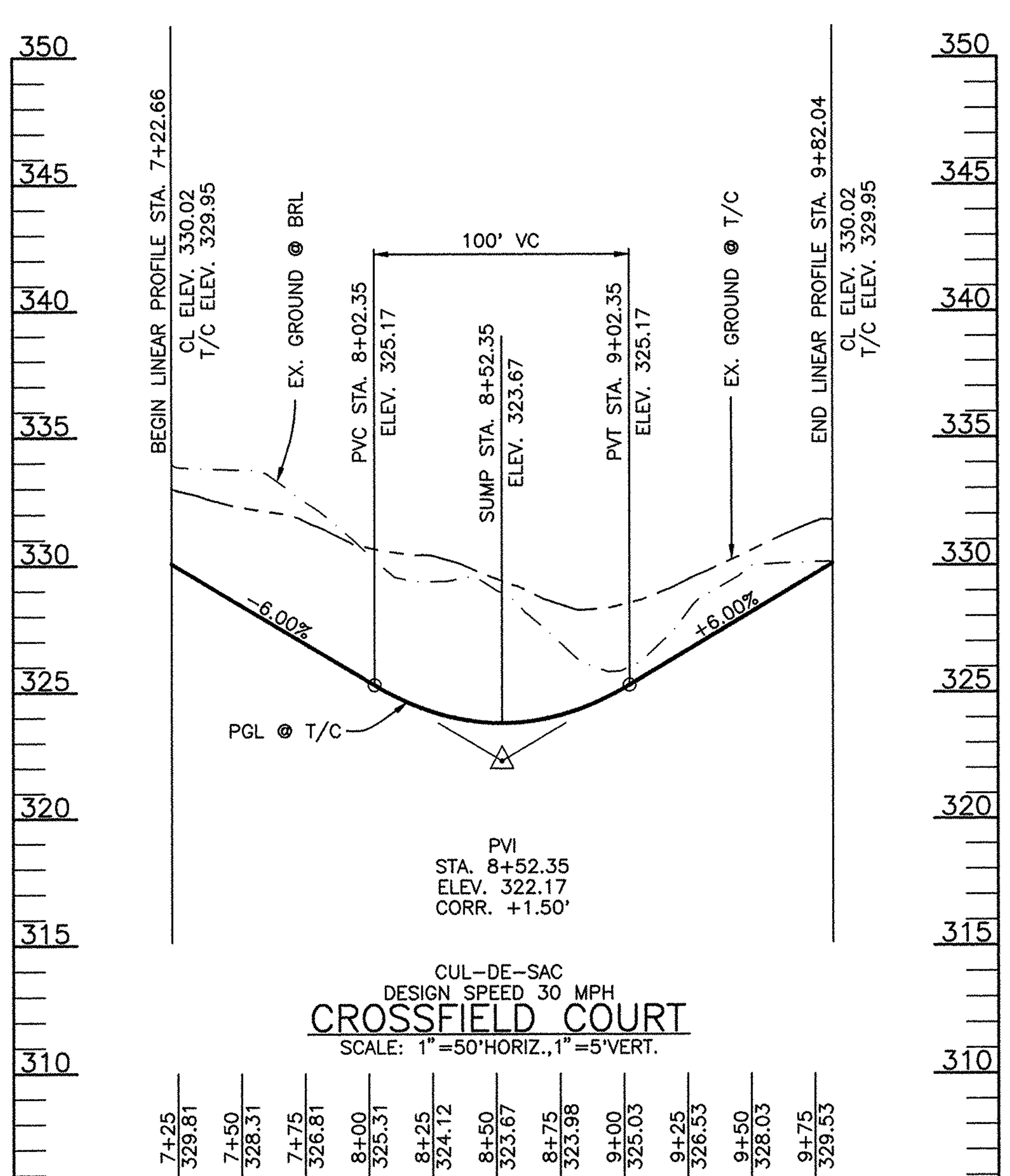
TITLE:
ROAD PROFILES
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM — DRAFT: DBT — CHECK: DAM — SCALE: AS SHOWN — SHEET 9 OF 31

F-98-52

Acad Dwg: 7017509 Plotted: May 26, 1998



NO.	DATE	REVISION

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CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

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DEVELOPER:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 - PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

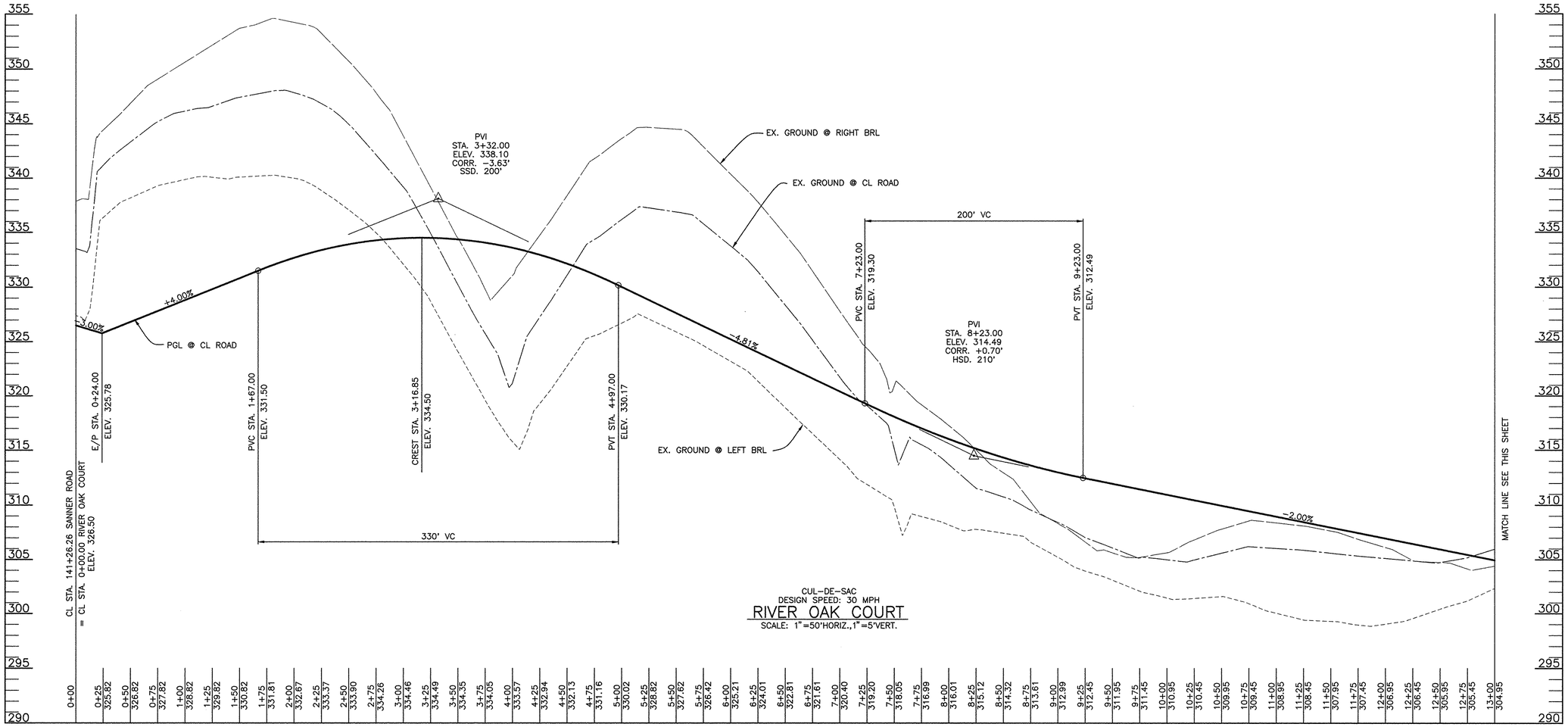
TITLE: ROAD PROFILES
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DESIGN: DAM	DRAFT: DBT	CHECK: DAM

DATE: OCTOBER, 1997 / MAY, 1998	PROJECT NO. 0518
SCALE: AS SHOWN	SHEET 10 OF 31

F-98-52

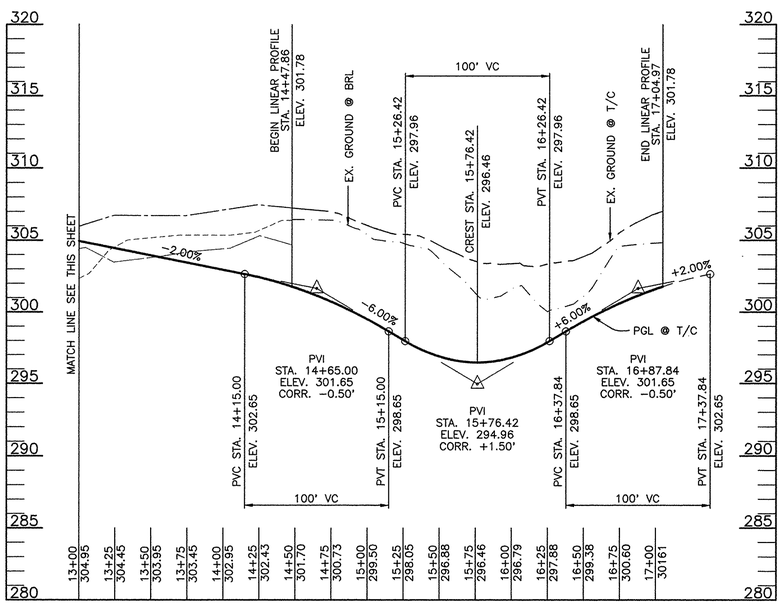
Acad Dwg: 7017S10 Plotted: May 26, 1998



CUL-DE-SAC
DESIGN SPEED: 30 MPH

RIVER OAK COURT

SCALE: 1"=50'HORIZ.,1"=5'VERT.



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

TSA GROUP, INC.
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8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

STATE OF MARYLAND — DONALD T. MASON — No. 21678 — REGISTERED PROFESSIONAL ENGINEER

OWNERS:
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LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: ROAD PROFILES
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

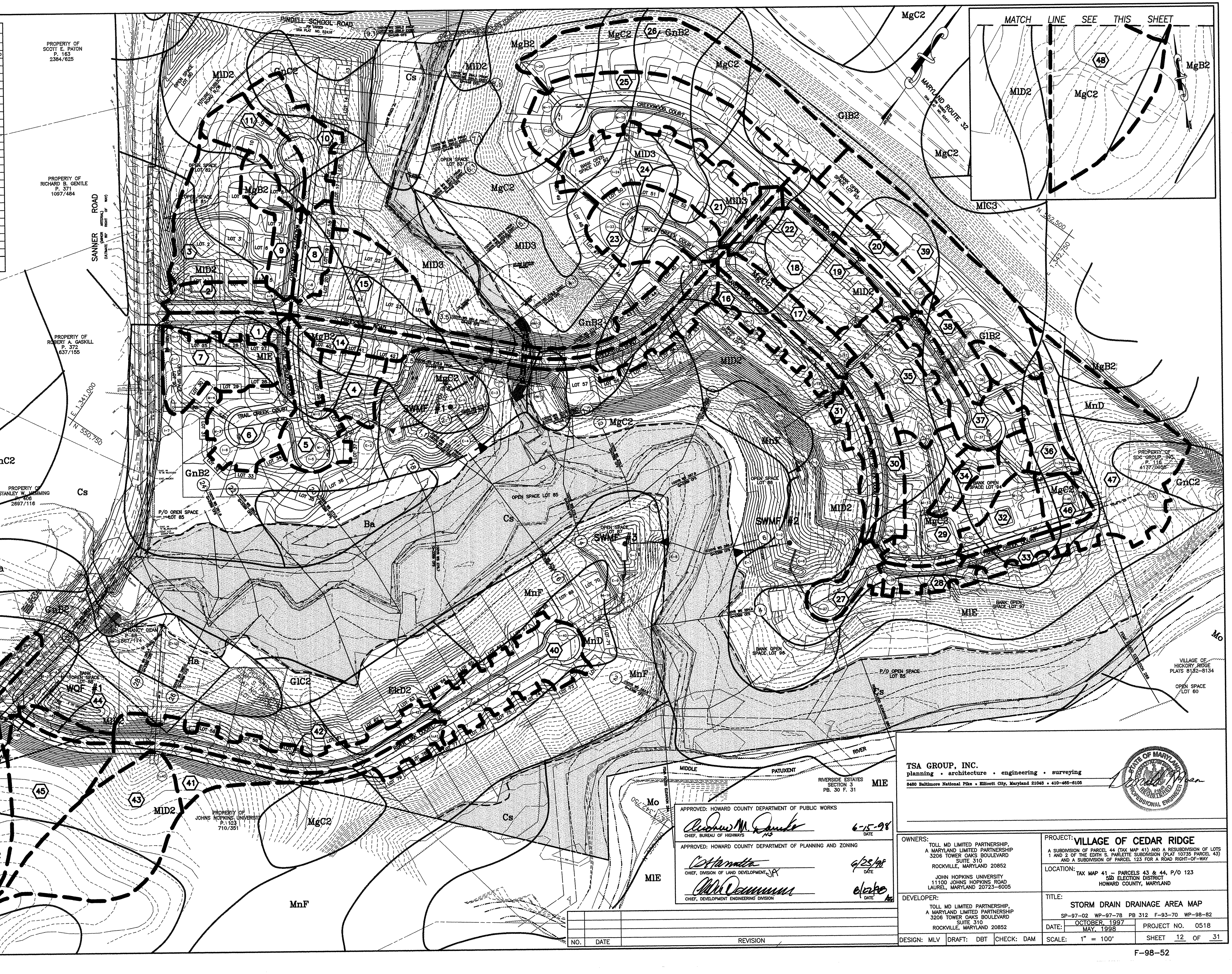
DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM | DRAFT: DBT | CHECK: DAM

SCALE: AS SHOWN — SHEET 11 OF 31

F-98-52

Acad Dwg: 7017S11 Plotted: May 26, 1998



SOILS LEGEND

MAP SYMBOL	SOIL TYPE	MAPPING UNIT
• Ba	D	BAILE SILT LOAM
CgC2	B	CHESTER GRAVELLY SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
ChB2	B	CHESTER SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
ChD2	B	CHESTER SILT LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
Cs	B	COMUS SILT LOAM
EkA	B	ELIOAK SILT LOAM, 0 TO 3 PERCENT SLOPES
EkB2	B	ELIOAK SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
EkD2	B	ELIOAK SILT LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
GlA	B	GLENELG LOAM, 0 TO 3 PERCENT SLOPES
GlB2	B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
GlC2	B	GLENELG LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
GlD2	B	GLENELG LOAM, 15 TO 25, PERCENT SLOPES, MODERATELY ERODED
• GnB2	C	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
• GnC2	C	GLENVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
• Ha	D	HATBORO SILT LOAM
MgB2	B	MANOR GRAVELLY LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MgC2	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
MgC3	B	MANOR GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED
MlA	B	MANOR LOAM, 0 TO 3 PERCENT SLOPES
MlB2	B	MANOR LOAM, 3 TO 8 PERCENT SLOPES, MODERATELY ERODED
MlC2	B	MANOR LOAM, 8 TO 15 PERCENT SLOPES, MODERATELY ERODED
MlC3	B	MANOR LOAM, 8 TO 15 PERCENT SLOPES, SEVERELY ERODED
MlD2	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES, MODERATELY ERODED
MlD3	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES, SEVERELY ERODED
MlE	B	MANOR LOAM, 25 TO 45 PERCENT SLOPES
MnD	B	MANOR VERY STONY LOAM, 3 TO 25 PERCENT SLOPES
MnF	B	MANOR VERY STONY LOAM, 25 TO 60 PERCENT SLOPES
• Mo	B	MIXED ALLUVIAL LAND

• INDICATES HYDRIC SOILS
SOILS MAP NO. 29

STORM DRAINAGE DATA

INLET NO.	DRAINAGE AREA (AC)	% IMPERVIOUS	SOIL CLASS	ZONING	C FACTOR
1	0.55	54	B,C	R-ED	0.44
2	0.64	49	B	R-ED	0.38
3	1.46	28	B	R-ED	0.26
4	0.53	35	B	R-ED	0.28
5	0.82	56	B,C	R-ED	0.46
6	0.87	56	B,C	R-ED	0.46
7	0.88	40	B,C	R-ED	0.31
8	0.36	50	B	R-ED	0.39
9	0.55	49	B	R-ED	0.38
10	0.69	50	B,C	R-ED	0.40
11	0.68	51	B	R-ED	0.40
14	1.19	57	B	R-ED	0.45
15	1.93	51	B	R-ED	0.40
16	0.54	54	B	R-ED	0.43
17	0.61	54	B	R-ED	0.42
18	1.18	40	B	R-ED	0.30
19	0.32	65	B	R-ED	0.53
20	0.71	51	B	R-ED	0.40
21	0.13	69	B	R-ED	0.57
22	0.13	69	B	R-ED	0.57
23	1.11	51	B,C	R-ED	0.40
24	2.46	40	B,C	R-ED	0.30
25	2.15	53	B,C	R-ED	0.42
26	2.31	20	B,C	R-ED	0.24
27	0.44	93	B	R-ED	0.80
28	0.32	52	B	R-ED	0.41
29	1.33	43	B	R-ED	0.32
30	0.72	51	B	R-ED	0.40
31	0.33	63	B	R-ED	0.52
32	0.54	47	B	R-ED	0.36
33	0.26	54	B	R-ED	0.43
34	0.26	40	B	R-ED	0.30
35	0.94	40	B	R-ED	0.30
36	0.63	35	B	R-ED	0.28
37	0.76	59	B	R-ED	0.47
38	0.38	52	B	R-ED	0.41
39	1.98	19	B	R-ED	0.23
40	1.13	57	B	R-ED	0.45
41	1.00	40	B	R-ED	0.37
42	1.23	54	B	R-ED	0.43
43	2.11	0	B	R-ED	0.11
44	0.22	33	B	R-ED	0.39
45	1.23	6	B	R-ED	0.17
46	0.28	55	B	R-ED	0.44
FUTURE 47	2.29	33	B	R-ED	0.34
48	2.29	9	B	R-ED	0.22
49	0.99	0	B	R-ED	0.11
50	1.64	9	B	R-ED	0.19
51	0.44	52	B	R-ED	0.55

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER

OWNERS:
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A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

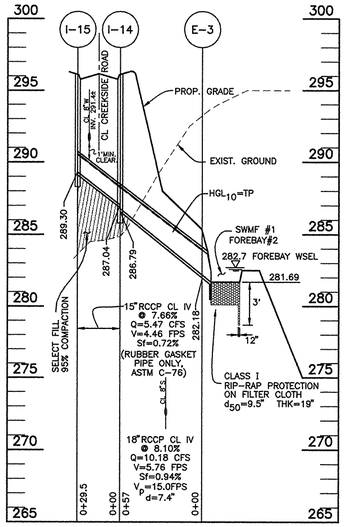
TITLE: **STORM DRAIN DRAINAGE AREA MAP**
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

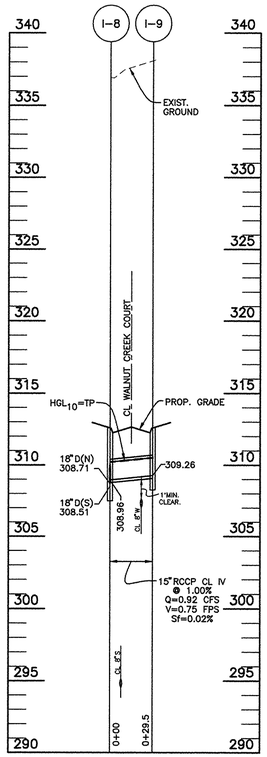
DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

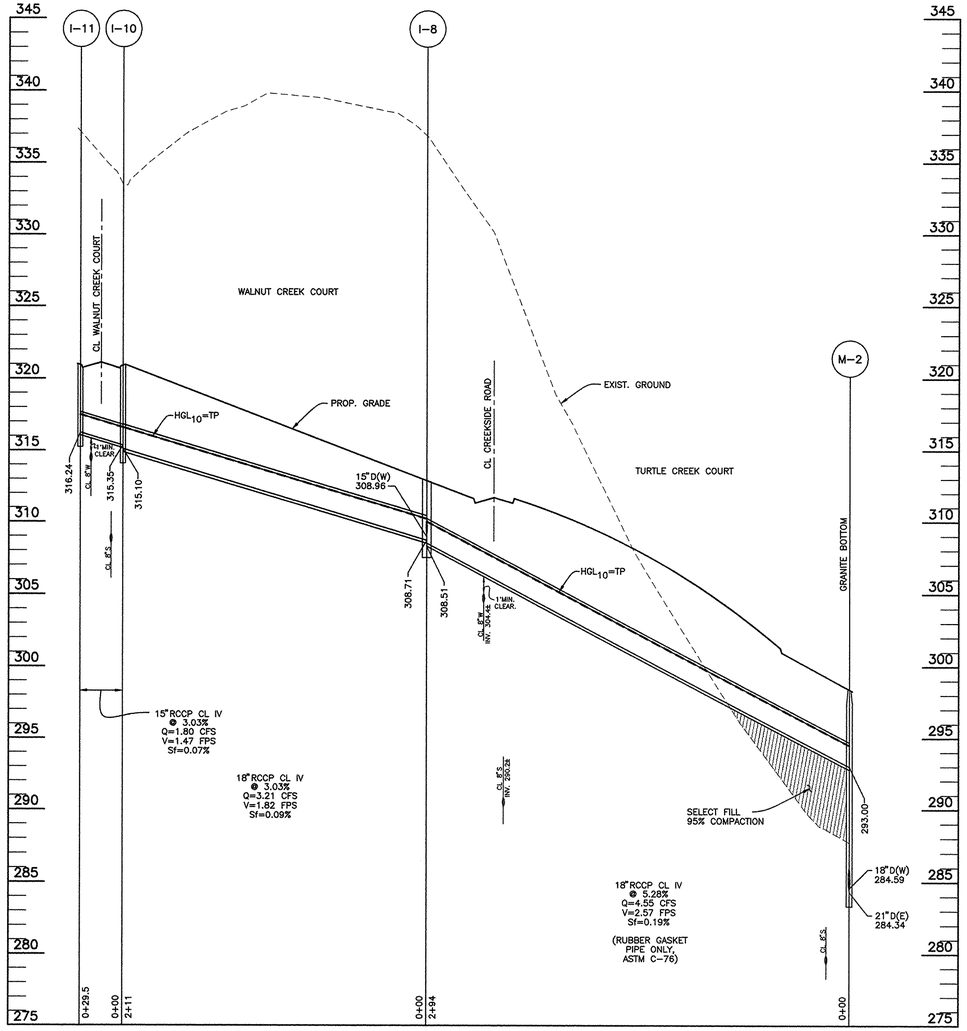
DESIGN: MLV | DRAFT: DBT | CHECK: DAM | SCALE: 1" = 100' | SHEET 12 OF 31

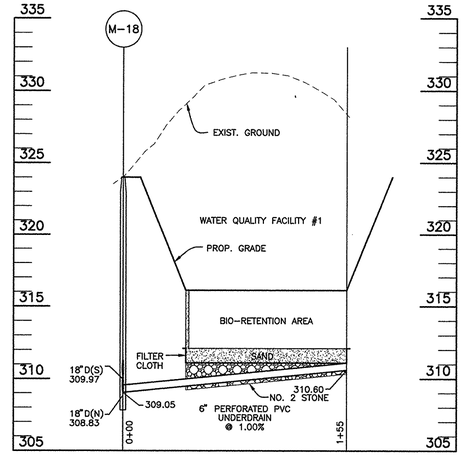
F-98-52

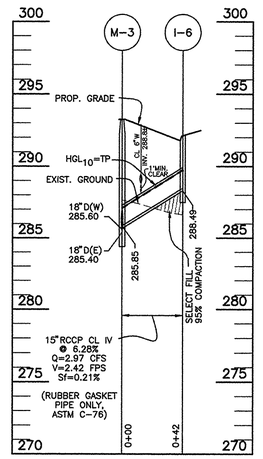
Acad Dwg: 70DAS12 Plotted: May 26, 1998

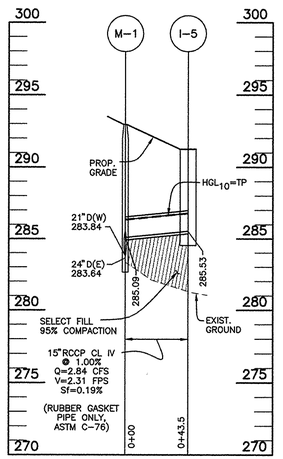




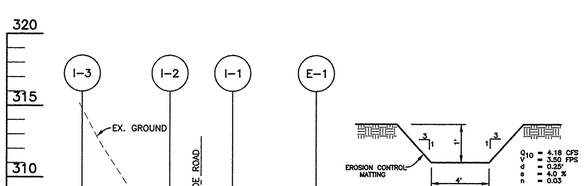








NOTE:
SEE SHEET 22 FOR OUTLET PROTECTION DETAIL



SWALE (E-1 TO I-7)
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

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STATE OF MARYLAND — MICHAEL L. VARNER — REGISTERED PROFESSIONAL ENGINEER

OWNERS:
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DEVELOPER:
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A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: VILLAGE OF CEDAR RIDGE
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN PROFILES

SP-97-02 WP-97-78 PB-312 F-93-70 WP-98-82

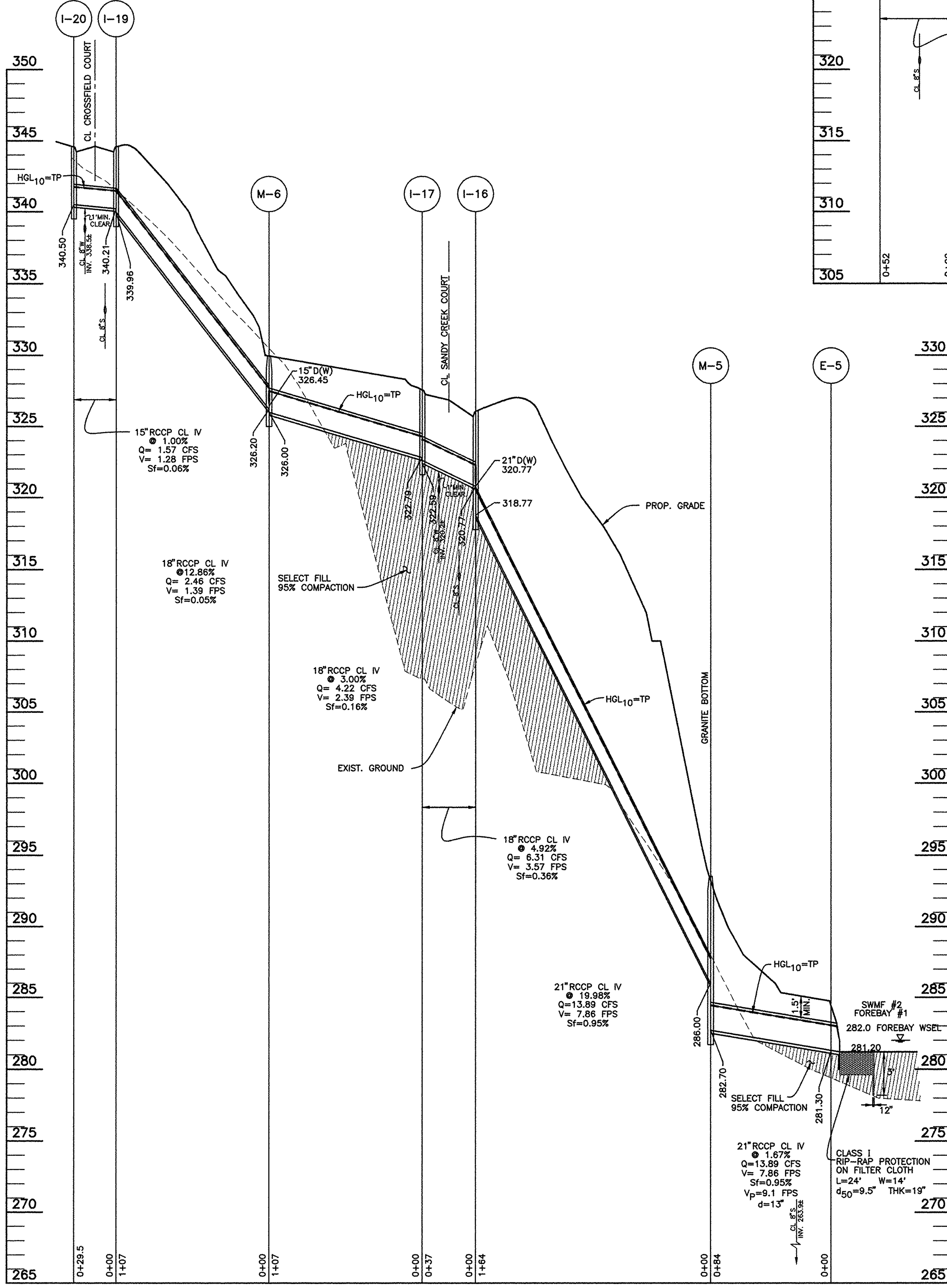
DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

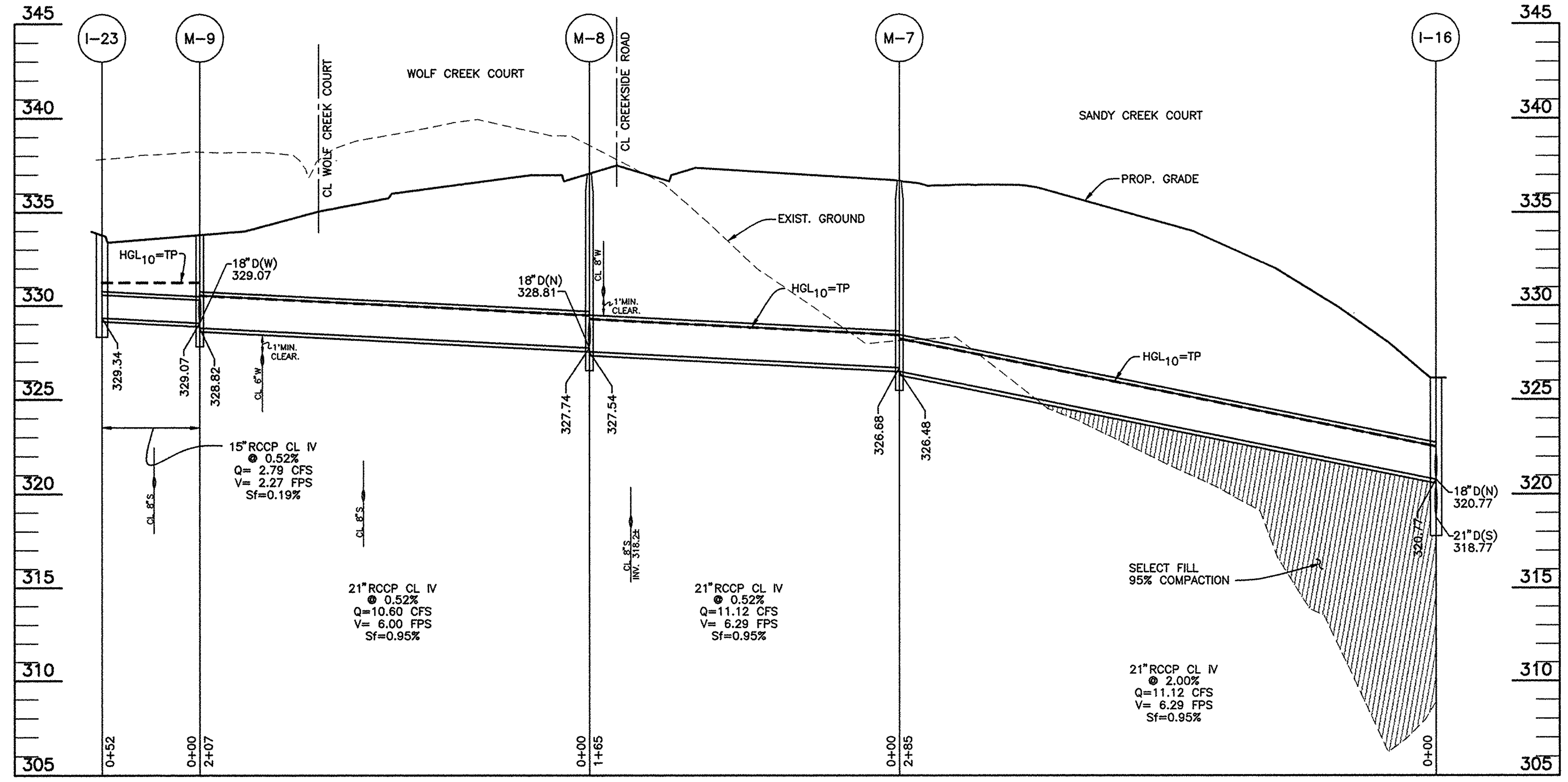
DES: MLV/DAM | DRAFT: DBT | CHECK: DAM

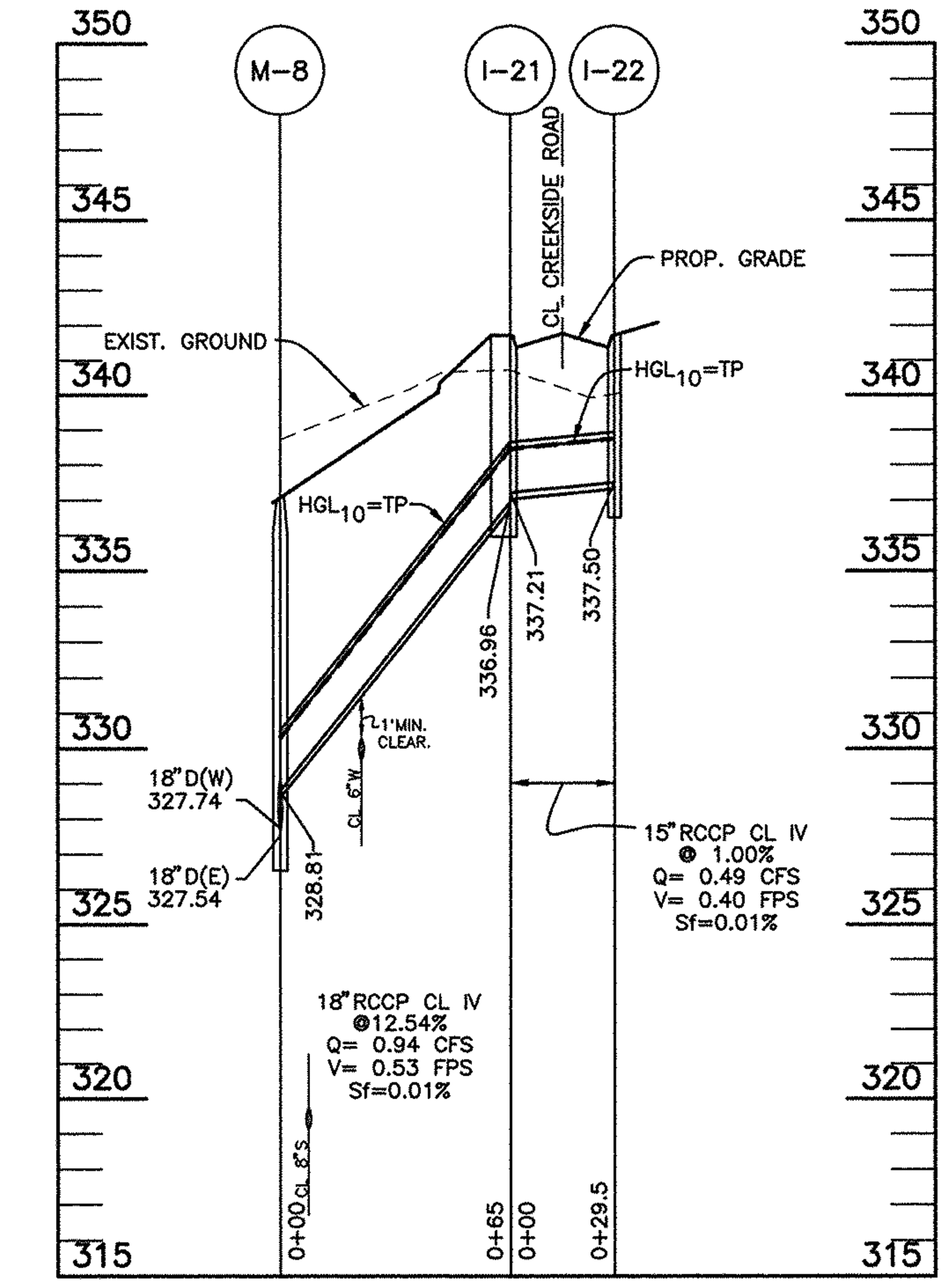
SCALE: 1"=50' HORIZ. 1"=5' VERT. — SHEET 13 OF 31

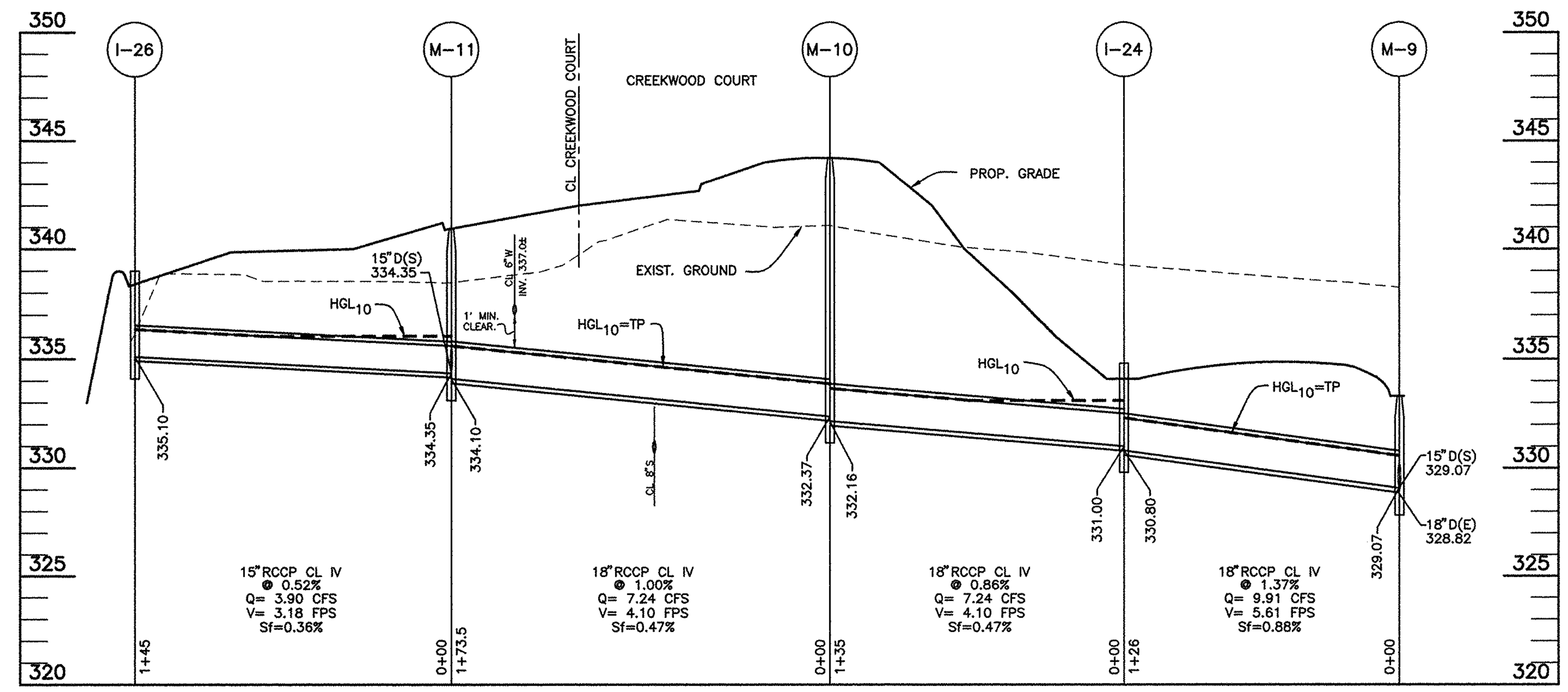
F-98-52

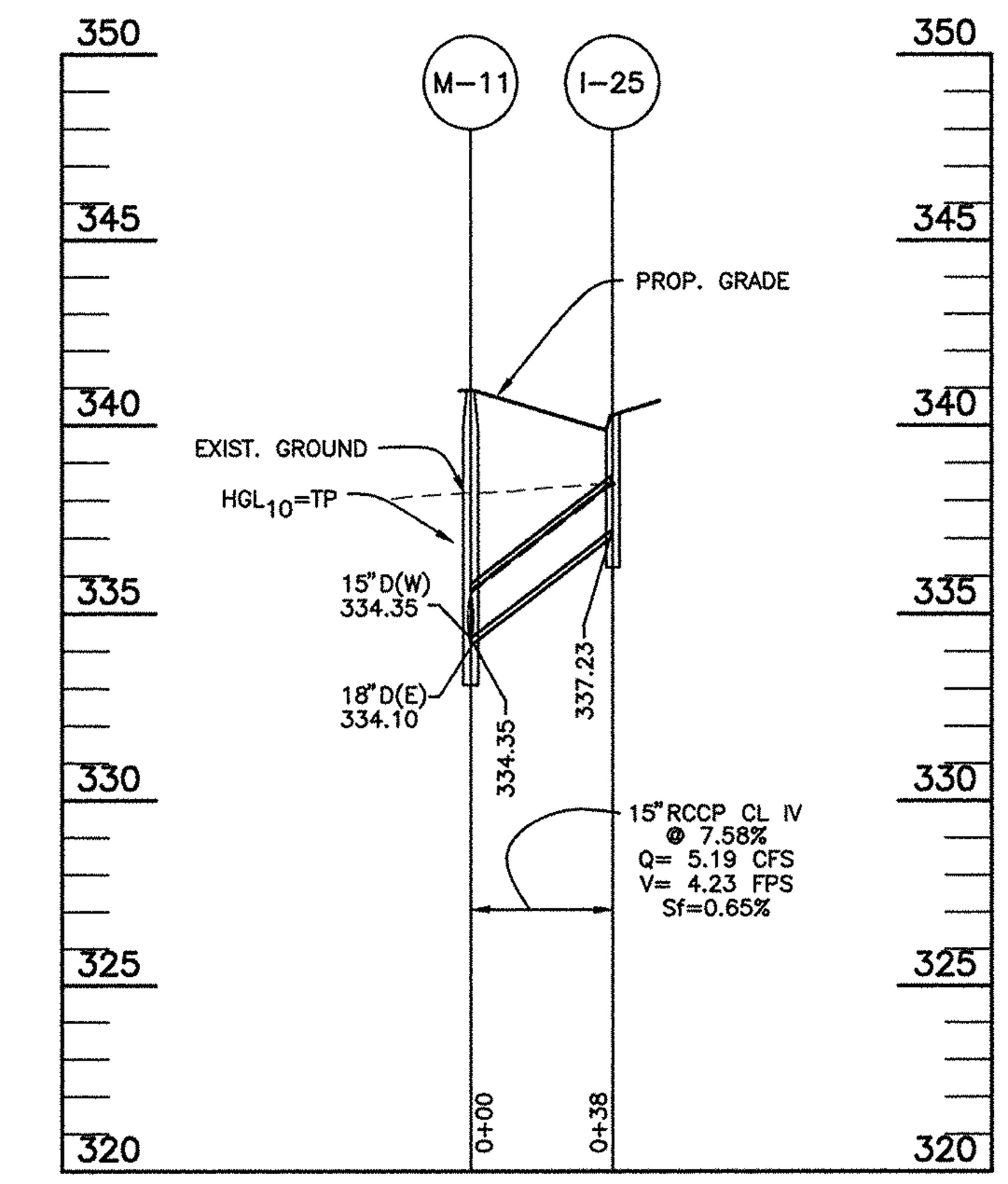
Acad Dwg: 7044513 Plotted: May 26, 1998

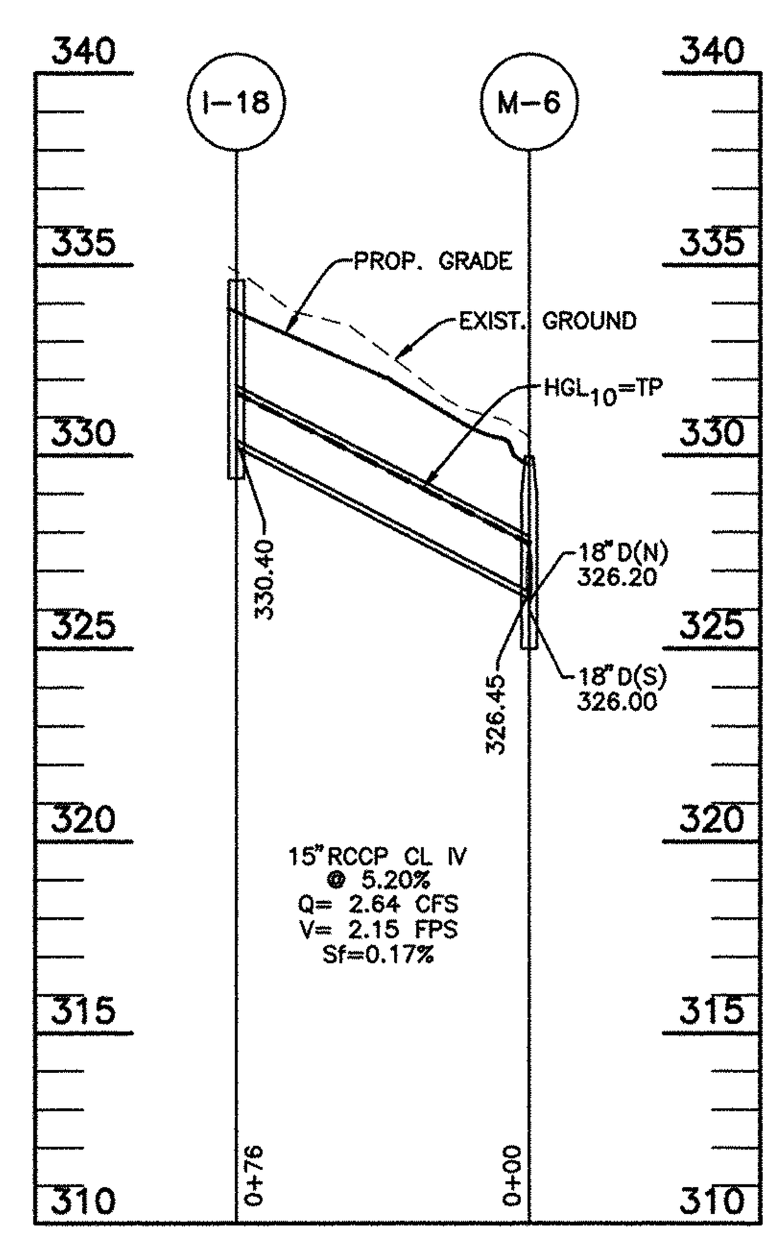












NOTE:
SEE SHEET 22 FOR OUTLET PROTECTION DETAIL

NO.	DATE	REVISION

TSA GROUP, INC.
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APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

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PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

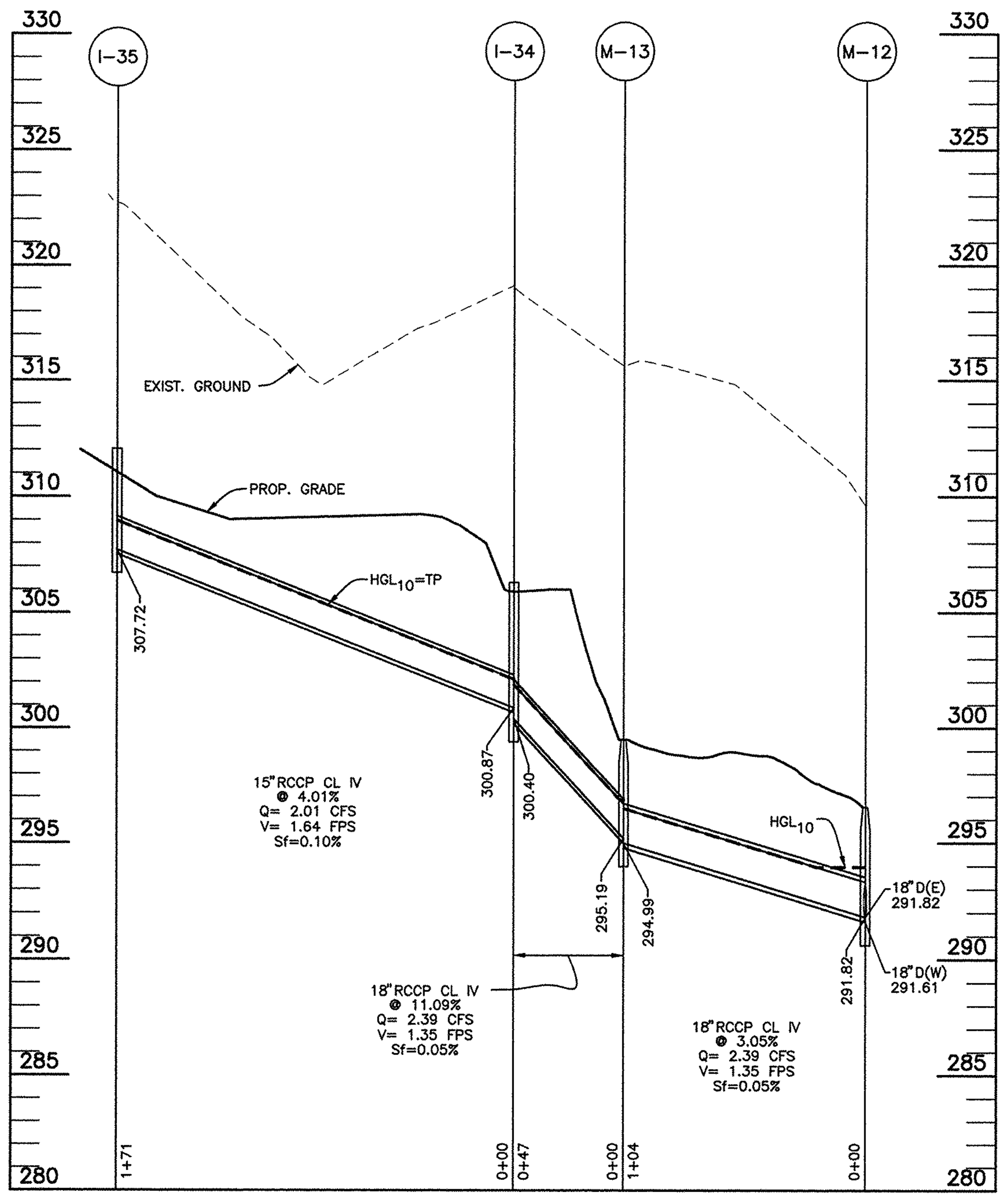
LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

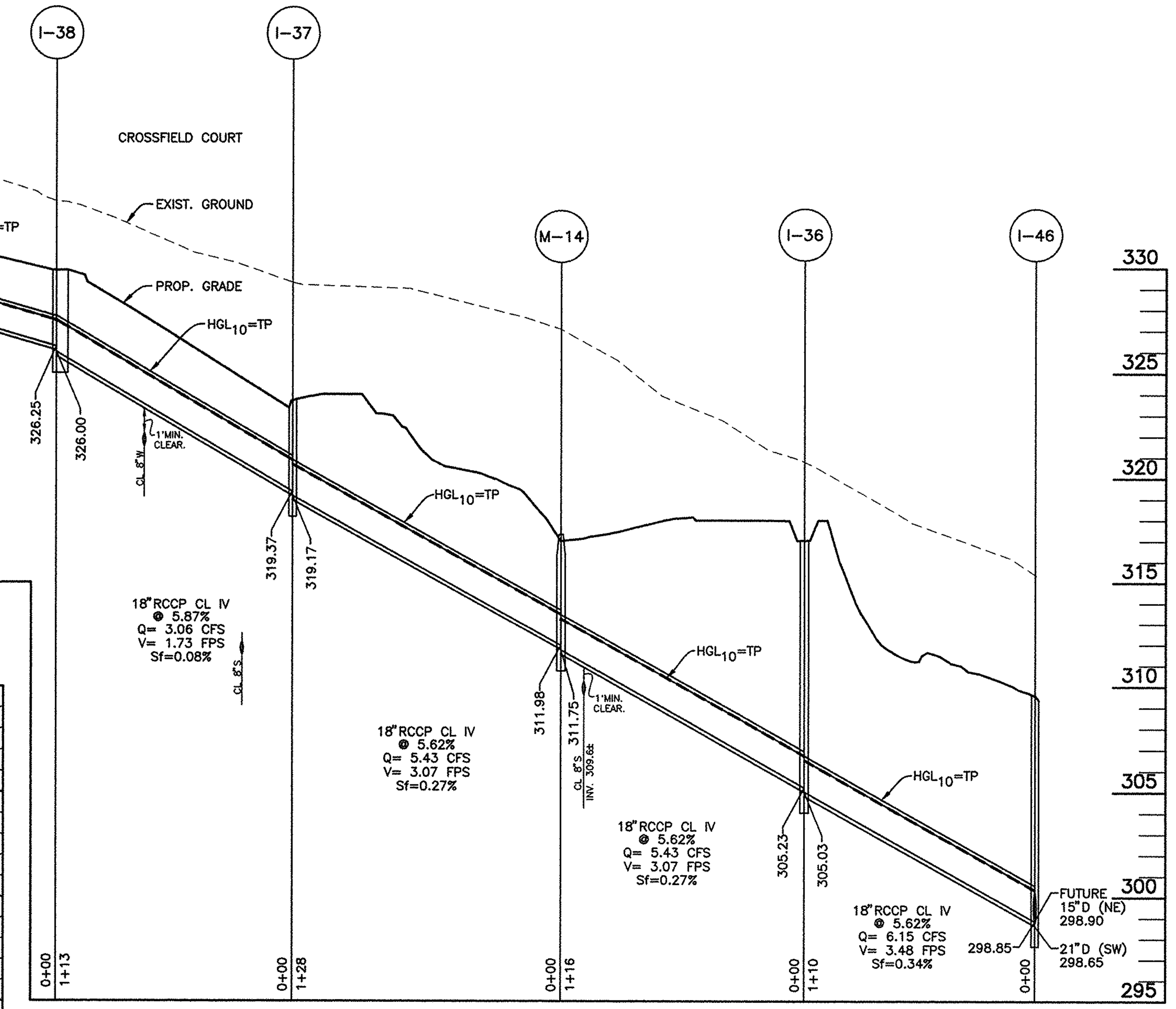
TITLE:
STORM DRAIN PROFILES
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

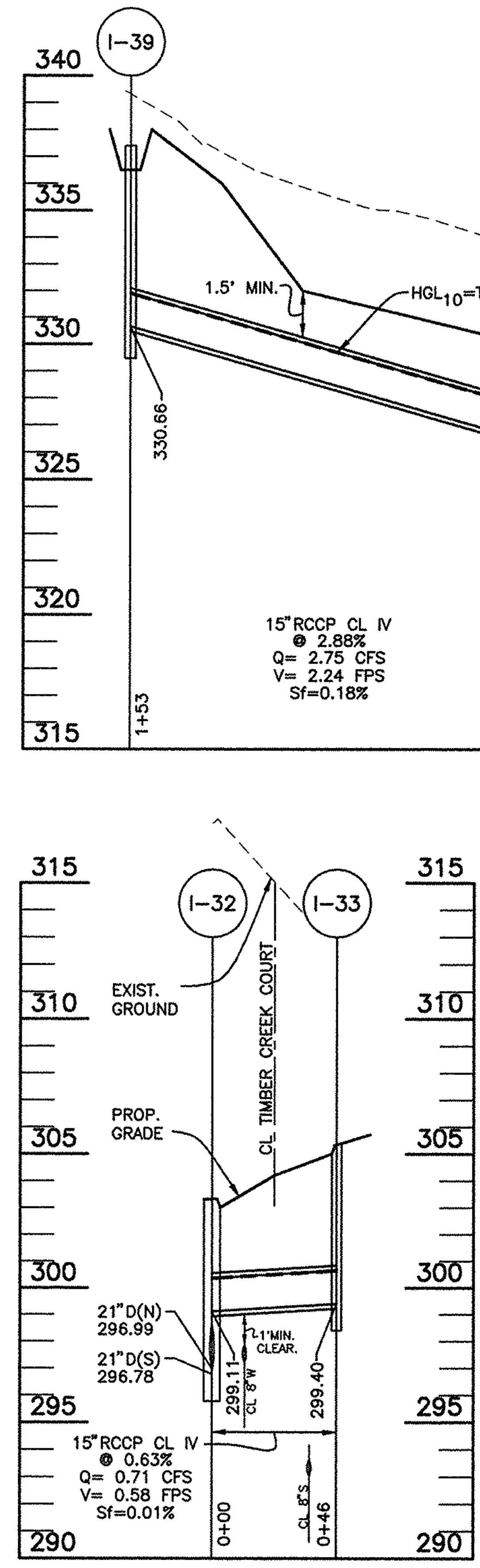
DES: MLV/DAM	DRAFT: DBT	CHECK: DAM

DATE:	OCTOBER, 1997 / MAY, 1998	PROJECT NO. 0518
SCALE:	1"=50' HORIZ. 1"=5' VERT.	SHEET 14 OF 31

F-98-52

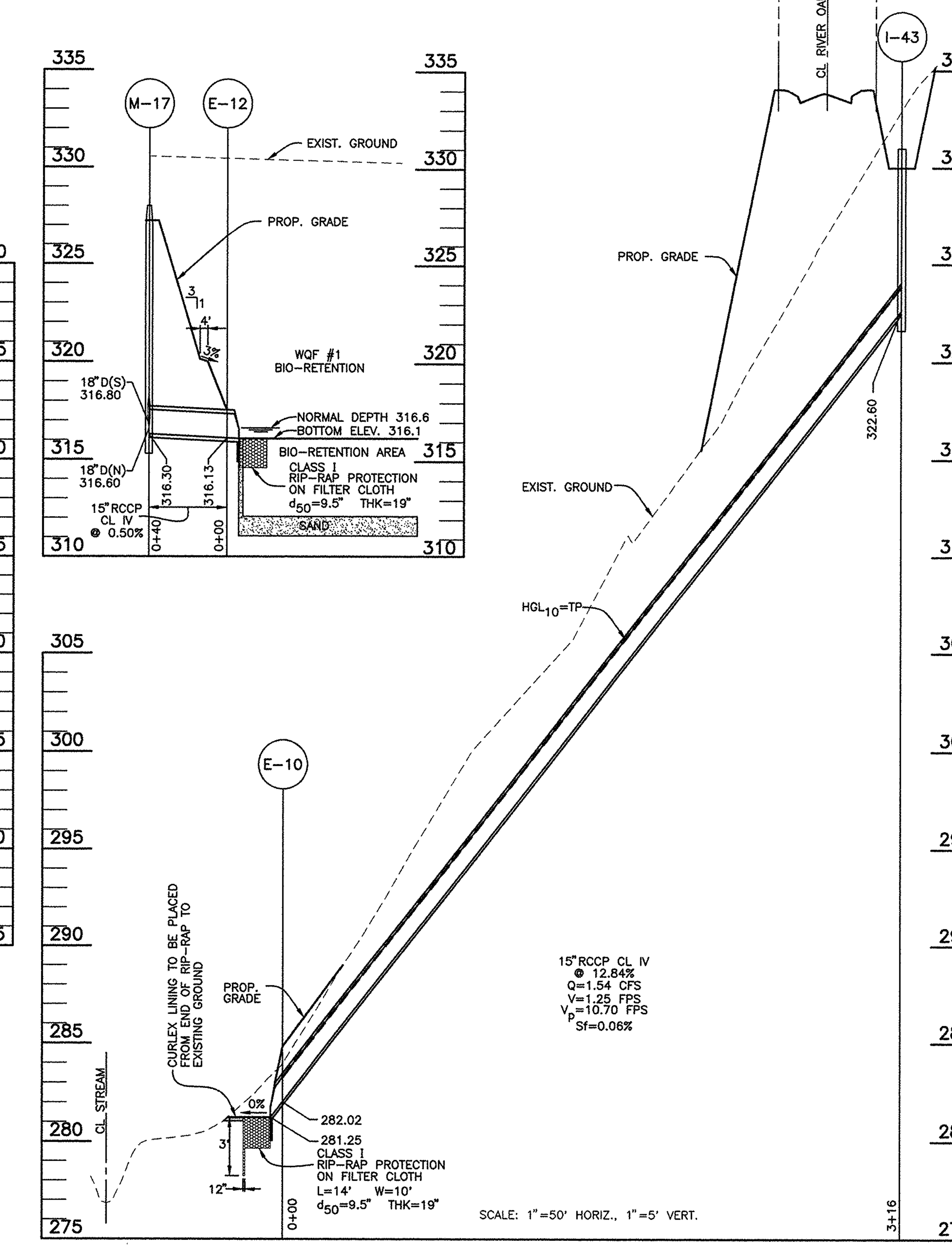


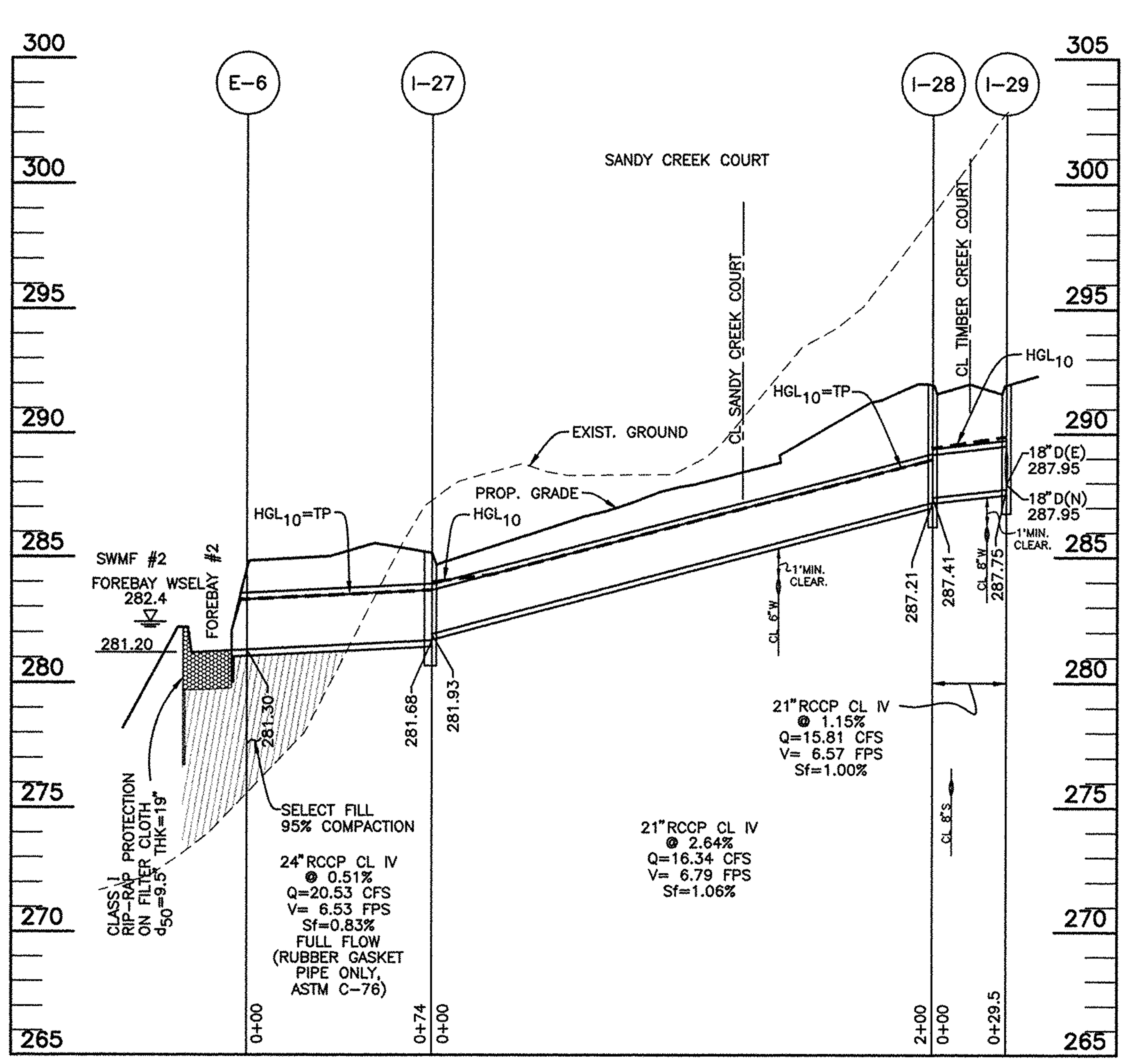


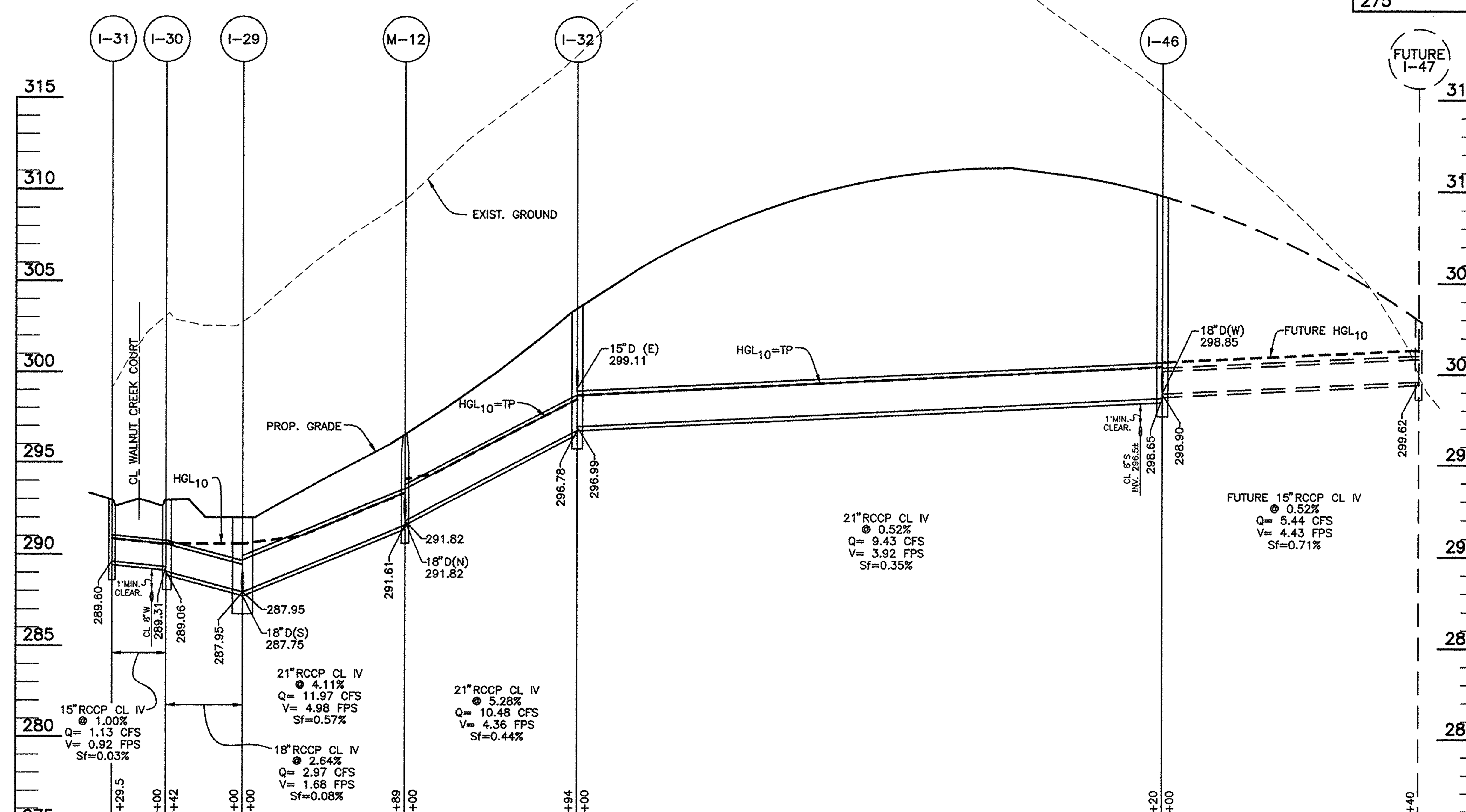


NOTES:

1. SEE SHEET 22 FOR OUTLET PROTECTION DETAIL.
2. SEE SHEET 26 FOR I-44 INLET MODIFICATION DETAILS.







APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 6-15-98

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 6/23/98

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 6/22/98

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JOHN HOPKINS UNIVERSITY, 11100 JOHNS HOPKINS ROAD, LAUREL, MARYLAND 20723-6005

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PROJECT: **VILLAGE OF CEDAR RIDGE**
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LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123, 5th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: **STORM DRAIN PROFILES**
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DES: MLV/DAM — DRAFT: DBT — CHECK: DAM — SCALE: 1"=50' HORIZ. 1"=5' VERT. — SHEET 15 OF 31

F-98-52

SEQUENCE OF CONSTRUCTION FOR CULVERT INSTALLATION

(DAY 1) 1. INSTALL SEDIMENT CONTROL DEVICES AS SHOWN ON PLAN.

(DAY 2–4) 2. CONSTRUCT A DIVERSION PIPE IN CONJUNCTION WITH WPD2.2.

(DAY 4) 3. INSTALL FILTER BAG.

(DAY 5) 4. CONSTRUCT A TEMPORARY SANDBAG DIVERSION UPSTREAM TO DIVERT WATER INTO THE PIPE. (EPD2.3).

(DAY 5) 5. PLACE A SANDBAG DIKE DOWNSTREAM TO PREVENT THE STREAM FROM BACKWASHING INTO CONSTRUCTION AREA.

(DAY 6–13) 6. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, INSTALL NEW CULVERTS, DEPRESSING ONE OF THEM 1 FOOT BENEATH THE NATURAL STREAM INVERT TO ALLOW SILTATION FOR IMPROVED FISH PASSAGE. (WPD5.3)

(DAY 14–16) 7. BACKFILL TO SUBGRADE AND CONSTRUCT THE NEW ROADWAY.

(DAY 17) 8. STABILIZE THE STREAM BED WITH RIP-RAP PROTECTION. (WPD3.1)

(DAY 18) 9. DEWATER THE AREA BY INSTALLING SUMP PIT AND PUMP THROUGH FILETR BAG. THEN, REMOVE THE TEMPORARY STREAM DIVERSION FROM DOWNSTREAM TO UPSTREAM.

(DAY 19) 10. SEED AND MULCH ANY REMAINING DISTURBANCES.

(DAY 19) 11. CLEAN UP THE CONSTRUCTION SITE.

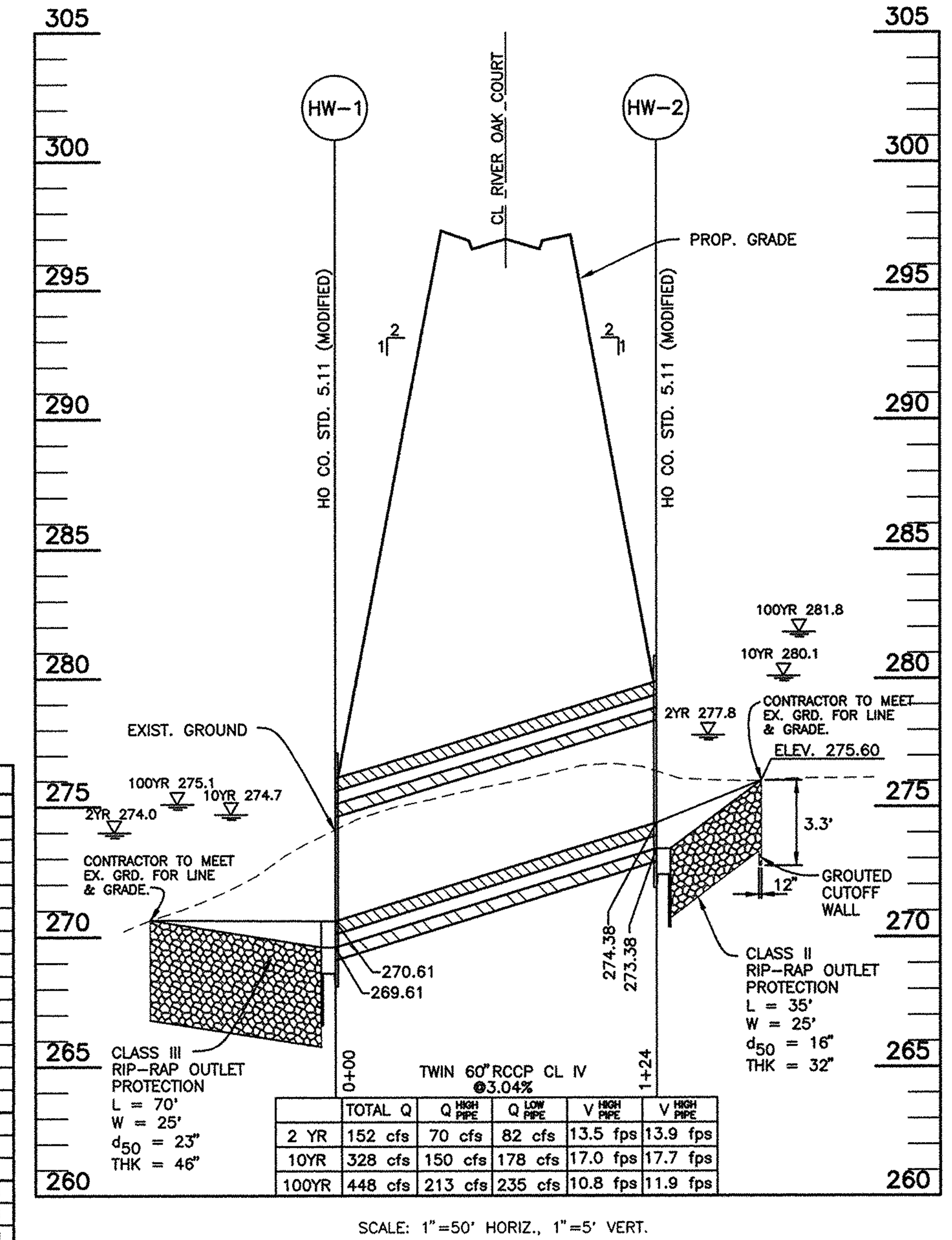
(DAY 19) 13. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ANY SILT FENCES INSTALLED BEFORE CONSTRUCTION.

NOTES:
1. A 5 DAY CLEAR WEATHER FORECAST SHALL BE PREDICTED PRIOR TO THE TEMPORARY DIVERSION PIPE INSTALLATION AND BEFORE THE REMOVAL OF THE TEMPORARY DIVERSION PIPE.
2. THIS CULVERT IS BEING PLACED WITHIN A CLASS I TROUT STREAM. NO WORK SHALL BE PERFORMED WITHIN THIS STREAM FROM MARCH 1st THRU JUNE 15th.
3. ANY CULVERT WORK-AREA DEWATERING MUST BE PUMPED THROUGH THE FILTER BAG.

STRUCTURE SCHEDULE

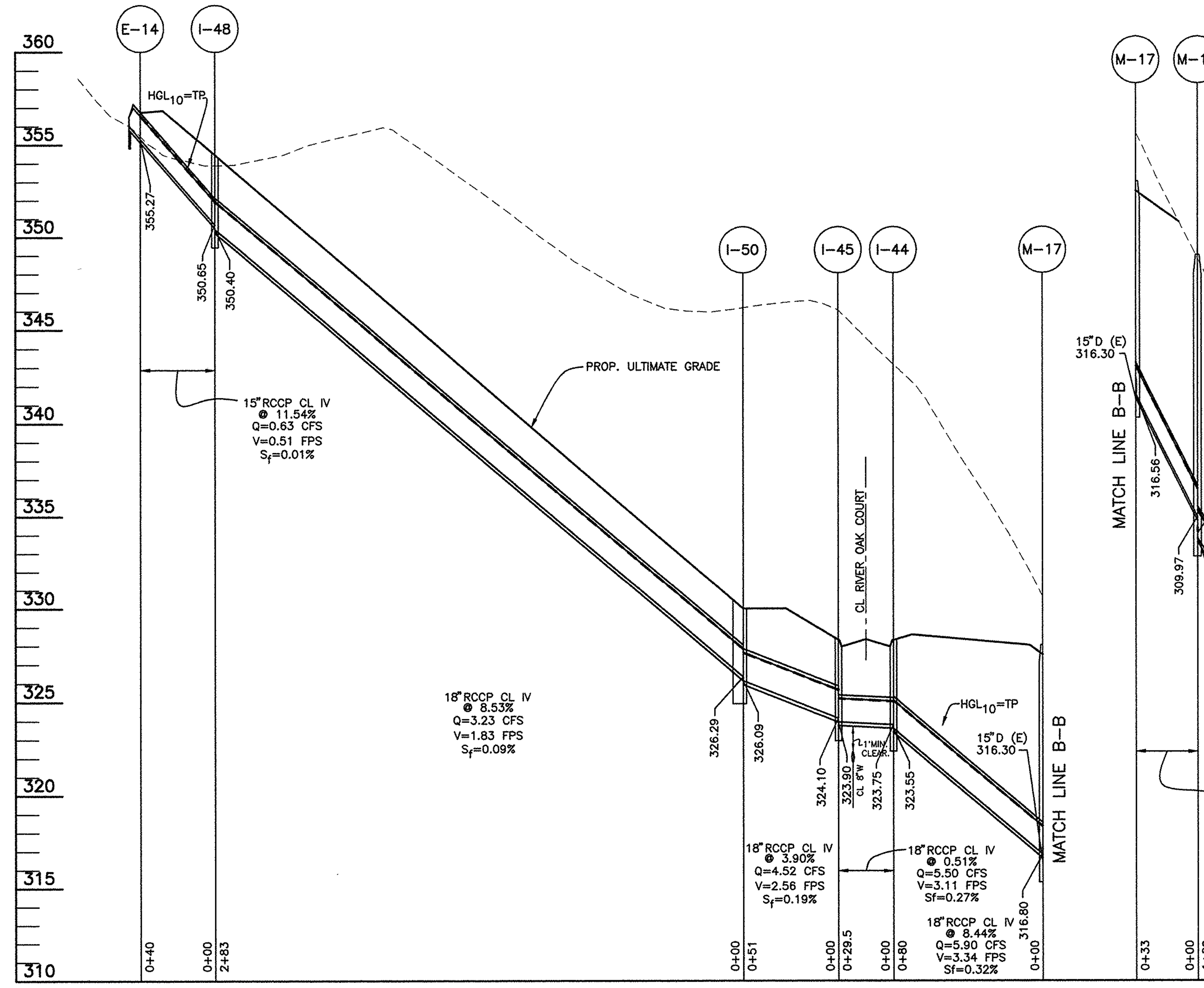
NO.	TYPE	LOCATION	INV. IN	INV. OUT	TOP ELEV.	HO. CO. STD.
E-1	18" CONC. END SECTION	CL STA. 0+55.00 OFFS. 79.75' RT CREEKSIDE ROAD	294.97	294.81	–	SD – 5.52
E-2	24" CONC. END SECTION	N 551168.59 E 1341644.60	281.79	281.69	–	SD – 5.52
E-3	18" CONC. END SECTION	N 551398.55 E 1341747.02	282.18	281.69	–	SD – 5.52
E-4	36" CONC. END SECTION	N 551266.61 E 1341841.80	273.50	273.45	–	SD – 5.52
E-5	21" CONC. END SECTION	N 551666.90 E 1342510.95	281.30	281.20	–	SD – 5.52
E-6	24" CONC. END SECTION	N 551435.25 E 1342662.29	281.23	281.20	–	SD – 5.52
E-7	42" CONC. END SECTION	N 551416.51 E 1342536.66	266.08	266.00	–	SD – 5.52
E-8	24" CONC. END SECTION	N 551311.56 E 1342346.74	264.53	264.00	–	SD – 5.52
E-9	18" CONC. END SECTION	N 551185.51 E 1342331.29	276.49	276.41	–	SD – 5.52
E-10	15" CONC. END SECTION	N 550446.92 E 1341470.33	282.02	281.25	–	SD – 5.52
E-12	15" CONC. END SECTION	N 550164.92 E 1341349.55	316.13	316.10	–	SD – 5.52
E-14	15" CONC. END SECTION	CL STA 144+87.79 OFFS. 43.99' LT SANNER ROAD	355.96	355.27	–	SD – 5.52
HW-1	TYPE 'A' HEADWALL	CL STA 9+44.35 OFFS. 61.36' RT CREEKSIDE ROAD	–	269.61 270.61	–	SD – 5.11
HW-2	TYPE 'A' HEADWALL	CL STA 9+30.13 OFFS. 57.75' LT CREEKSIDE ROAD	273.38 274.38	–	–	SD – 5.11
HW-3	TYPE 'A' HEADWALL	N 550390.46 E 1341353.92	–	277.80	–	SD – 5.11
I-1	A-10	CL STA. 0+55.00 OFFS. 20.43' RT CREEKSIDE ROAD	296.70	296.50	301.52	SD – 4.02 OR 4.41
I-2	A-10	CL STA. 0+55.00 OFFS. 20.43' LT CREEKSIDE ROAD	297.81	297.57	301.52	SD – 4.02 OR 4.41
I-3	TYPE 'D' INLET	N 551173.90 E 1341022.99	–	302.00	306.00	SD – 4.11 OR 4.39
I-4	TYPE 'D' INLET	LP STA. 3+51.23 OFFS. 115.55' TURTLE CREEK COURT	282.74	282.54	289.30	SD – 4.11 OR 4.39
I-5	A-10	LP STA. 3+91.63 OFFS. 0' TURTLE CREEK COURT	–	285.53	291.63	SD – 4.02 OR 4.41
I-6	A-5	LP STA. 1+73.57 OFFS. 0' TRAIL CREEK COURT	–	288.49	292.57	SD – 4.01 OR 4.40
I-7	TYPE 'D' INLET	N 550907.30 E 1341172.55	–	286.81	290.30	SD – 4.11 OR 4.39
I-8	A-5	CL STA. 0+46.00 OFFS. 13.43' RT WALNUT CREEK COURT	308.96 (15") 308.71 (18")	308.51	312.72	SD – 4.01 OR 4.40
I-9	A-10	CL STA. 0+46.00 OFFS. 13.43' LT WALNUT CREEK COURT	–	309.26	312.72	SD – 4.02 OR 4.41
I-10	A-5	CL STA. 2+57.30 OFFS. 13.43' RT WALNUT CREEK COURT	315.35	310.10	321.17	SD – 4.01 OR 4.40
I-11	A-10	CL STA. 2+57.30 OFFS. 13.43' LT WALNUT CREEK COURT	–	316.24	321.17	SD – 4.02 OR 4.41
I-14	A-5	CL STA. 8+58.79 OFFS. 13.43' RT CREEKSIDE ROAD	287.04	286.79	296.37	SD – 4.01 OR 4.40
I-15	A-10	CL STA. 8+58.79 OFFS. 13.43' LT CREEKSIDE ROAD	–	289.30	296.37	SD – 4.02 OR 4.41
I-16	A-5	CL STA. 4+39.06 OFFS. 13.43' RT SANDY CREEK COURT	320.77 (21") 320.77 (18")	318.77	326.28	SD – 4.01 OR 4.40
I-17	A-5	CL STA. 4+17.49 OFFS. 13.43' LT SANDY CREEK COURT	322.79	322.59	327.88	SD – 4.01 OR 4.40
I-18	TYPE 'D' INLET	N 552028.55 E 1342440.28	–	330.40	334.60	SD – 4.11 OR 4.39
I-19	A-5	CL STA. 4+41.86 OFFS. 13.43' RT CROSSFIELD COURT	340.21	339.96	344.77	SD – 4.01 OR 4.40
I-20	A-5	CL STA. 4+41.86 OFFS. 13.43' LT CROSSFIELD COURT	–	340.50	344.77	SD – 4.01 OR 4.40
I-21	A-10	CL STA. 15+35.00 OFFS. 13.43' LT CREEKSIDE ROAD	337.21	336.96	341.97	SD – 4.02 OR 4.41
I-22	A-5	CL STA. 15+35.00 OFFS. 13.43' RT CREEKSIDE ROAD	–	337.50	341.97	SD – 4.01 OR 4.40
I-23	A-5	LP STA. 2+57.50 OFFS. 0' WOLF CREEK COURT	–	329.34	333.28	SD – 4.01 OR 4.40
I-24	TYPE 'D' INLET	LP STA. 3+19.53 OFFS. 122.01' WOLF CREEK COURT	331.00	330.80	334.83	SD – 4.11 OR 4.39
I-25	A-5	LP STA. 6+70.00 OFFS. 0' CREEKWOOD COURT	–	337.23	340.26	SD – 4.01 OR 4.40
I-26	TYPE 'D' INLET	LP STA. 7+09.74 OFFS. 141.06' CREEKWOOD COURT	–	335.10	339.00	SD – 4.11 OR 4.39
I-27	A-5	LP STA. 11+07.37 OFFS. 0.00' SANDY CREEK COURT	281.93	281.68	285.40	SD – 4.01 OR 4.40
I-28	A-10	CL STA. 0+45.98 OFFS. 13.43' RT TIMBER CREEK COURT	287.41	287.21	292.25	SD – 4.02 OR 4.41
I-29	A-10	CL STA. 0+45.98 OFFS. 13.43' LT TIMBER CREEK COURT	287.95 (21") 287.95 (18")	287.75	292.25	SD – 4.02 OR 4.41
I-30	A-5	CL STA. 8+35.25 OFFS. 13.43' LT SANDY CREEK COURT	289.31	289.06	293.30	SD – 4.01 OR 4.40
I-31	A-5	CL STA. 8+35.25 OFFS. 13.43' RT SANDY CREEK COURT	–	289.60	293.30	SD – 4.01 OR 4.40
I-32	A-5	CL STA. 2+38.84 OFFS. 13.43' LT TIMBER CREEK COURT	296.99 (21") 299.11 (15")	296.78	303.20	SD – 4.01 OR 4.40
I-33	A-5	CL STA. 2+72.85 OFFS. 13.43' RT TIMBER CREEK COURT	–	299.40	305.41	SD – 4.01 OR 4.40
I-34	TYPE 'D' INLET	N 551761.40 E 1342871.28	300.87	300.40	306.30	SD – 4.11 OR 4.39
I-35	TYPE 'D' INLET	N 551880.71 E 1342748.59	–	307.72	311.80	SD – 4.11 OR 4.39
I-36	TYPE 'D' INLET	N 552027.46 E 1343080.44	305.23	305.03	317.50	SD – 4.11 OR 4.39
I-37	A-10	LP STA. 8+53.58 OFFS. 0.00' CROSSFIELD COURT	319.37	319.17	323.93	SD – 4.02 OR 4.41
I-38	A-10	CL STA. 7+11.71 OFFS. 13.43' LT CROSSFIELD COURT	326.25	326.00	330.87	SD – 4.02 OR 4.41
I-39	TYPE 'D' INLET	N 552173.47 E 1342868.98	–	330.66	337.50	SD – 4.11 OR 4.39
I-40	A-5	LP STA. 15+75.33 OFFS. 0.00' RIVER OAK COURT	292.59	292.39	296.72	SD – 4.01 OR 4.40
I-41	A-10	CL STA. 11+54.66 OFFS. 13.43' RT RIVER OAK COURT	303.71	303.43	308.05	SD – 4.02 OR 4.41
I-42	A-5	CL STA. 11+54.66 OFFS. 13.43' LT RIVER OAK COURT	–	304.00	308.05	SD – 4.01 OR 4.40
I-43	TYPE 'D' INLET	CL STA 4+18.79 OFFS. 40.00' RT. RIVER OAK COURT	–	322.60	330.83	SD – 4.11 OR 4.39
I-44	A-10	CL STA. 0+65.00 OFFS. 13.43' LT RIVER OAK COURT	323.75	323.55	327.61	SD – 4.02 OR 4.41
I-45	A-10	CL STA. 0+65.00 OFFS. 13.43' RT RIVER OAK COURT	324.10	323.90	327.61	SD – 4.02 OR 4.41
I-46	A-5	CL STA. 5+58.85 OFFS. 13.43' LT TIMBER CREEK COURT	298.85 (18") 298.90 (FUT. 15")	298.65	309.88	SD – 4.01 OR 4.40
I-48	A-5	CL STA. 144+52.60 OFFS. 24.00' LT SANNER ROAD	350.65	350.40	354.53	SD – 4.01 OR 4.40
I-50	A-10	CL STA. 141+69.65 OFFS. 24.00' LT SANNER ROAD	326.29	326.09	330.36	SD – 4.02 OR 4.41
M-1	4'-0" MANHOLE	LP STA. 3+51.23 OFFS. 5.55' LT TURTLE CREEK COURT	285.09 (15") 283.84 (21")	284.64	293.08	G – 5.12
M-2	4'-0" MANHOLE	CL STA. 2+52.82 OFFS. 6.50' LT TURTLE CREEK COURT	293.00 (18") 284.59 (18")	284.34	298.44	G – 5.12
M-3	4'-0" MANHOLE	LP STA. 2+25.93 OFFS. 20.81' RT TRAIL CREEK COURT	285.85 (15") 285.60 (18")	285.40	293.27	G – 5.12
M-4	4'-0" MANHOLE	N 550964.23 E 1341253.91	286.30	286.05	296.20	G – 5.12
M-5	4'-0" MANHOLE	CL STA. 4+39.06 OFFS. 178.76' RT SANDY CREEK COURT	286.00	282.70	292.50	G – 5.12
M-6	4'-0" MANHOLE	N 552010.58 E 1342514.29	326.20 (18") 326.45 (15")	326.00	330.00	G – 5.12
M-7	4'-0" MANHOLE	CL STA. 1+50.00 OFFS. 15.50' RT SANDY CREEK COURT	326.68	326.48	336.85	G – 5.12
M-8	4'-0" MANHOLE	CL STA. 14+69.74 OFFS. 14.75' LT CREEKSIDE ROAD	328.81 (18") 327.74 (21")	327.54	337.05	G – 5.12
M-9	4'-0" MANHOLE	LP STA. 3+19.53 OFFS. 4.00' RT WOLF CREEK COURT	329.07 (15") 329.07 (18")	328.82	333.31	G – 5.12
M-10	4'-0" MANHOLE	CL STA. 4+29.97 OFFS. 15.50' LT CREEKWOOD COURT	332.37	332.16	344.48	G – 5.12
M-11	4'-0" MANHOLE	LP STA. 7+09.74 OFFS. 4.00' CREEKWOOD COURT	334.35 (15") 334.35 (15")	334.10	340.62	G – 5.12
M-12	4'-0" MANHOLE	CL STA. 1+39.95 OFFS. 19.00' LT TIMBER CREEK COURT	291.82 (21") 291.82 (18")	291.61	296.52	G – 5.12
M-13	4'-0" MANHOLE	CL STA. 1+39.95 OFFS. 123.22' LT TIMBER CREEK COURT	295.19	294.99	299.50	G – 5.12
M-14	4'-0" MANHOLE	N 551935.91 E 1343008.47	311.98	311.75	317.50	G – 5.12
M-16	4'-0" MANHOLE	N 551140.87 E 1342358.16	277.47	277.27	284.00	G – 5.12
M-17	4'-0" MANHOLE *	N 550172.78 E 1341310.33	316.80	316.56 (18") 316.30 (15")	328.00	G – 5.12
M-18	4'-0" MANHOLE	N 550205.13 E 1341316.81	309.05 (6") 309.97 (18")	308.83	324.00	G – 5.12
S-1	SEE DETAIL	N 551291.47 E 1341763.67	274.00	273.95	284.77	–
S-2	SEE DETAIL	N 551473.32 E 1342593.69	273.00	266.86	282.67	–
S-3	SEE DETAIL	N 551270.75 E 1342292.35	271.50	271.45	278.67	–

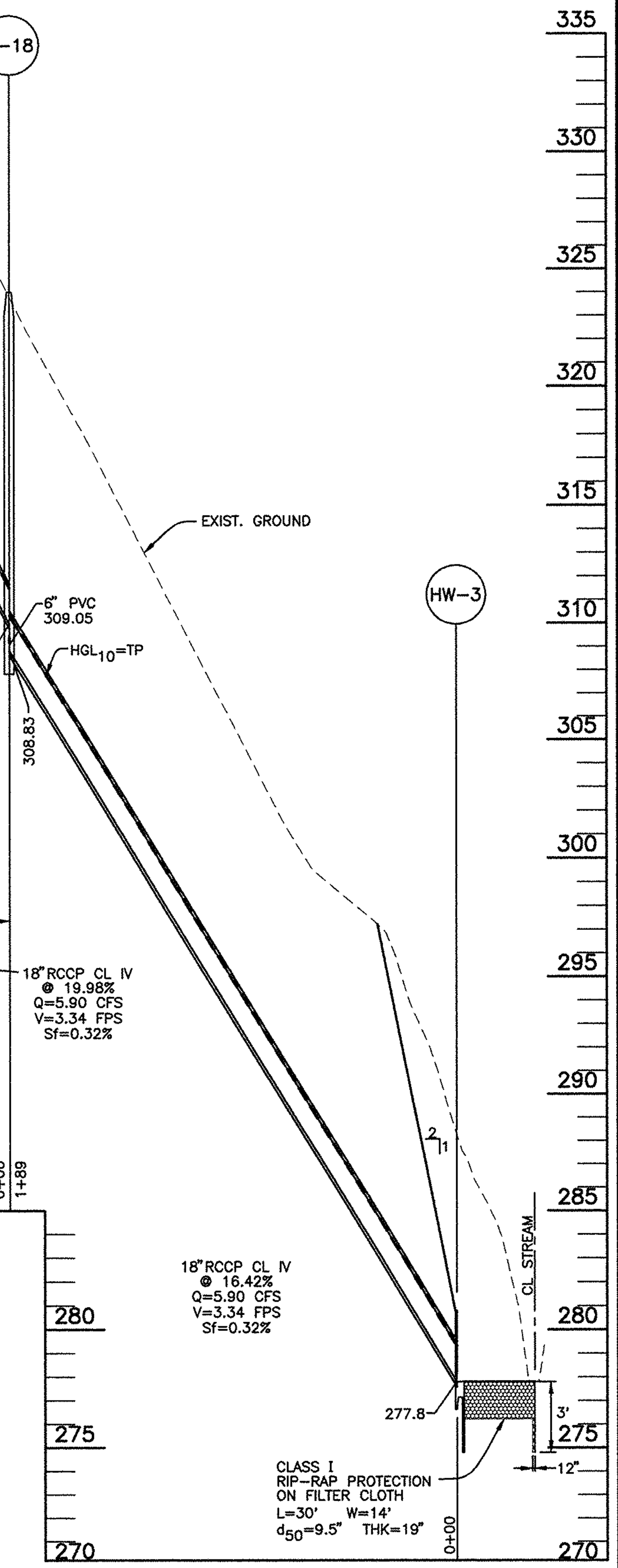
NOTE: 1) PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.
2) ALL STORM DRAINS SHALL BE CLASS IV REINFORCED CONCRETE PIPE UNLESS OTHERWISE NOTED.
3) TOP OF SLAB ELEVATION SHOWN FOR 'D' TYPE INLETS.
* INDICATES MODIFIED DESIGN, SEE SHEET 26



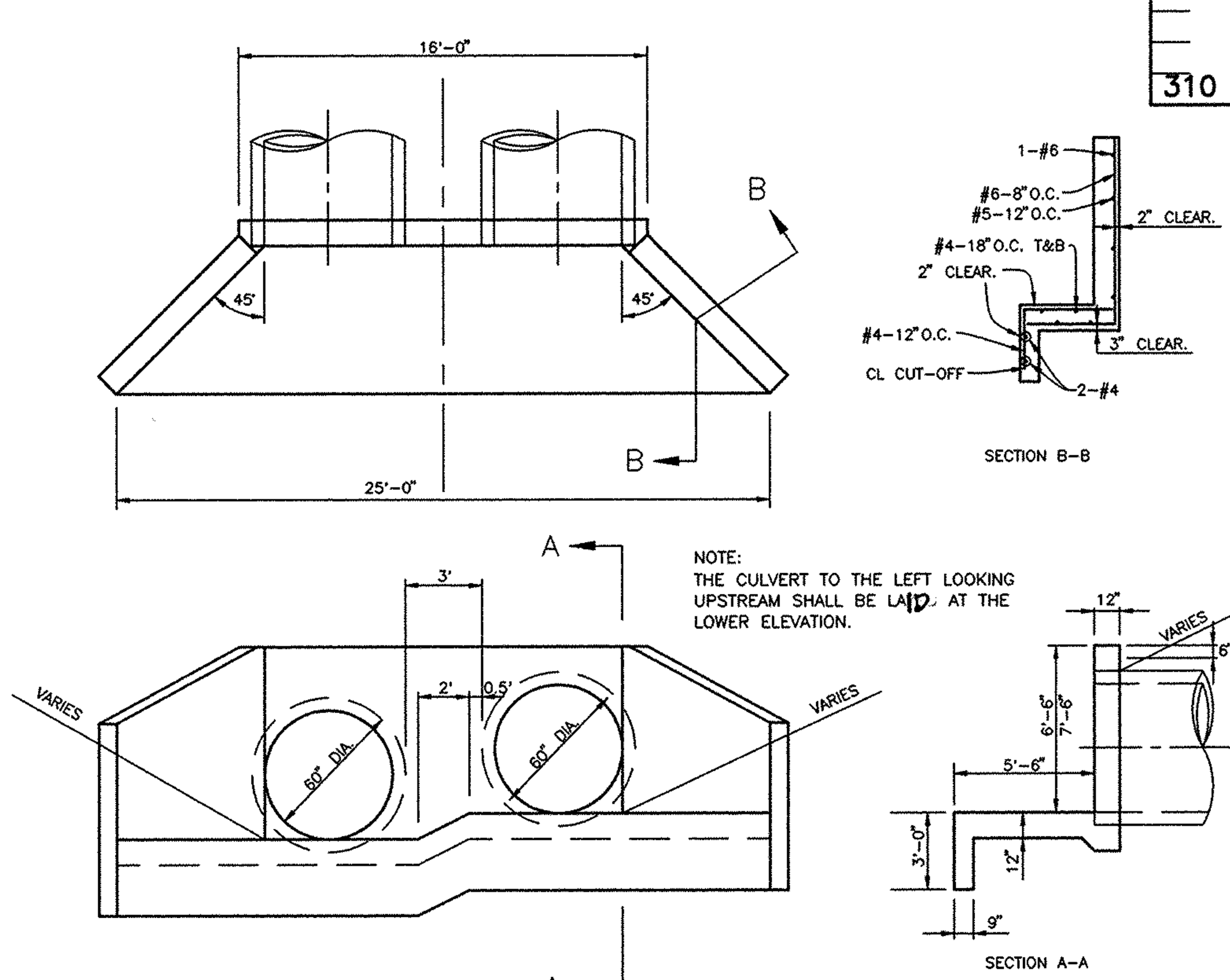
	TOTAL Q	Q HIGH PIPE	Q LOW PIPE	V HIGH PIPE	V LOW PIPE
2 YR	152 cfs	70 cfs	82 cfs	13.5 fps	13.9 fps
10YR	328 cfs	150 cfs	178 cfs	17.0 fps	17.7 fps
100YR	448 cfs	213 cfs	235 cfs	10.8 fps	11.9 fps

SCALE: 1"=50' HORIZ., 1"=5' VERT.





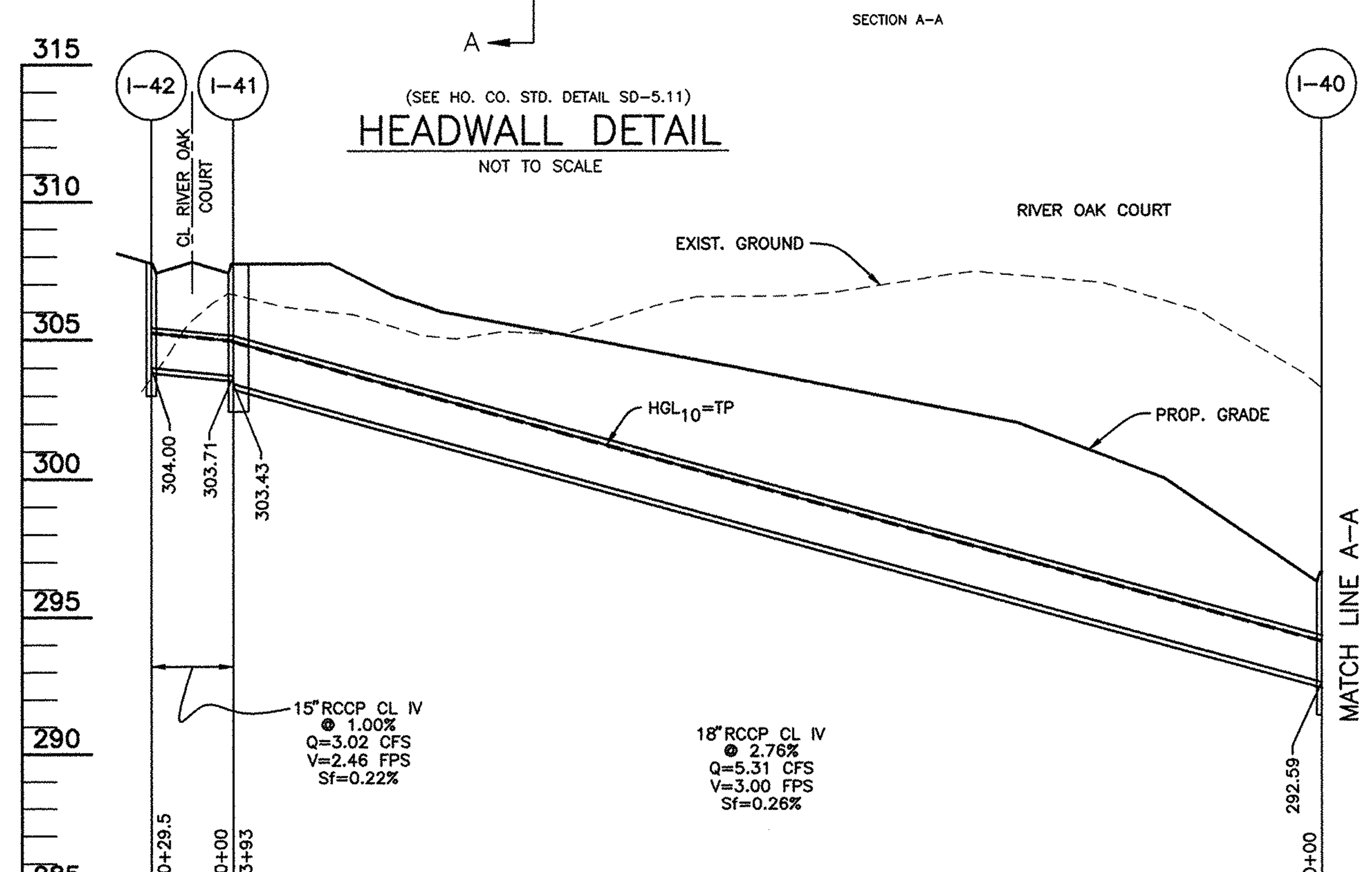
NOTE:
SEE SHEET 22 FOR OUTLET PROTECTION DETAIL.

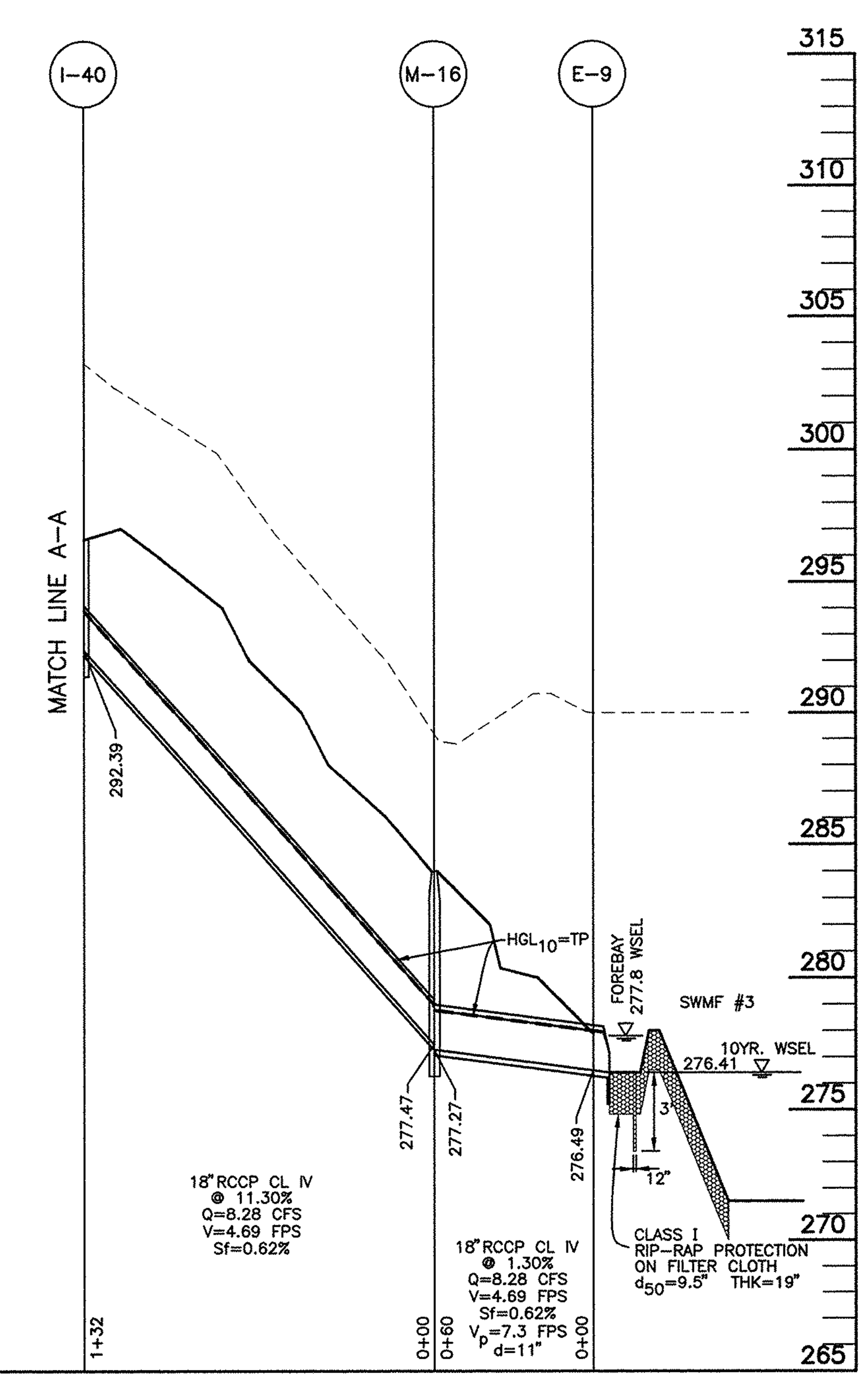


HEADWALL DETAIL

(SEE HO. CO. STD. DETAIL SD-5.11)

NOT TO SCALE





APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8450 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

OWNERS:
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852
JOHN HOPKINS UNIVERSITY, 11100 JOHNS HOPKINS ROAD, LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123, 5th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: **STORM DRAIN PROFILES AND DETAILS**
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: ~~OCTOBER, 1997~~ MAY, 1998 — PROJECT NO. 0518

DES: DAM | DRAFT: DBT | CHECK: DAM | SCALE: AS SHOWN | SHEET 16 OF 31

F-98-52

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTANANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. _____

DONALD A. MASON

DATE _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER – TOLL MD LIMITED PARTNERSHIP — DATE 6-1-98

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE 5/27/98

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.

NATURAL RESOURCES CONSERVATION SERVICE — DATE 6/9/98

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 6/9/98

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/24/98

STONE OUTLET SEDIMENT TRAP #2 (ST-II)

EXIST. DRAINAGE AREA	1.89 AC±
DEVELOPED DRAINAGE AREA	0.97 AC±
STORAGE REQUIRED	6804 CF
STORAGE PROVIDED	9348 CF
WEIR LENGTH	10'
STORAGE DEPTH BELOW OUTLET	3'
CLEANOUT ELEVATION	292.55
EMBANKMENT ELEVATION	296.00
BOTTOM ELEVATION	292.00
WEIR CREST ELEVATION	293.00
WET STORAGE ELEVATION	293.09
EXIST. CPID. ELEV. @ OUTLET	295.00
BOTTOM DIMENSION	70' x 35'

TMP. SWM/PIPE OUTLET SEDIMENT TRAP #1 (ST-1)

EXIST. DRAINAGE AREA	3.64 AC±
DEVELOPED DRAINAGE AREA	1.50 AC.±
STORAGE REQUIRED (TOTAL)	13104 CF
WET STORAGE	6552 CF
DRY STORAGE	6552 CF
STORAGE PROVIDED	13104 CF
WET STORAGE	6552 CF
DRY STORAGE	6552 CF
BOTTOM DIMENSION	90' X 55'
BOTTOM ELEVATION	298.00
WET STORAGE LIMIT	FROM 298.00 TO 299.18
DRY STORAGE LIMIT	FROM 299.18 TO 300.30
CLEANOUT ELEVATION	298.60
RISER CREST ELEVATION	301.3 (27" CMP)
BARREL SIZE	21" CMP (24LF)
EMBANKMENT ELEVATION	303.00
EXISTING GROUND @ EMBANKMENT	300.46
2YR RELEASE RATE	1.6 CFS (EXISTING)
	1.9 CFS (DURING CONST.)

NOTE:

DELAY CONSTRUCTION ON LOT 24 UNTIL CONTRIBUTING DRAINAGE AREAS TO SEDIMENT TRAP #2 HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR.

SEDIMENT BASIN #1 DATA

EXIST. DRAINAGE AREA	7.73 AC±
DEVELOPED DRAINAGE AREA	11.82 AC. ±
STORAGE REQUIRED (TOTAL)	42552 CF
WET STORAGE	21276 CF
DRY STORAGE	21276 CF
STORAGE PROVIDED	42552 CF
WET STORAGE	21276 CF
DRY STORAGE	21276 CF
BOTTOM ELEVATION	274.00
WET STORAGE LIMIT	FROM 274.00 TO 277.52
DRY STORAGE LIMIT	FROM 277.52 TO 279.64
CLEANOUT ELEVATION	278.11
RISER CREST ELEVATION	279.64 (7" ORIFICE)
EMBANKMENT ELEVATION	286.1
2YR RELEASE RATE	2.1 CFS (EXISTING)
	2.1 CFS (DURING CONST.)

NOTE: HOUSES CONSTRUCTED ON LOTS ADJACENT TO THE FLOODPLAIN SHALL HAVE A BASEMENT FLOOR SET A MINIMUM OF 2 FEET ABOVE THE FLOODPLAIN ELEV.

NOTE: CONTRACTOR TO MAINTAIN A MINIMUM 0.5% SLOPE ALONG EARTH DIKES AT ALL TIMES

FOR SEQUENCE OF CONSTRUCTION SEE SHEET 22.

NOTE: THESE GRADES REPRESENT ULTIMATE GRADED CONDITION AND ARE NOT PART OF THE PROPOSED CONSTRUCTION.

NOTE: RIGHT-OF-WAY ALONG THE WEST SIDE OF SANNER ROAD MUST BE ACQUIRED PRIOR TO CONSTRUCTION OF THE ROAD WIDENING.

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- ULTIMATE PROP. CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- SF SF SILT FENCE
- SSF SSF SUPER SILT FENCE
- TF TF TREE PROTECTION FENCE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING

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8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

NO.	DATE	REVISION

OWNERS:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

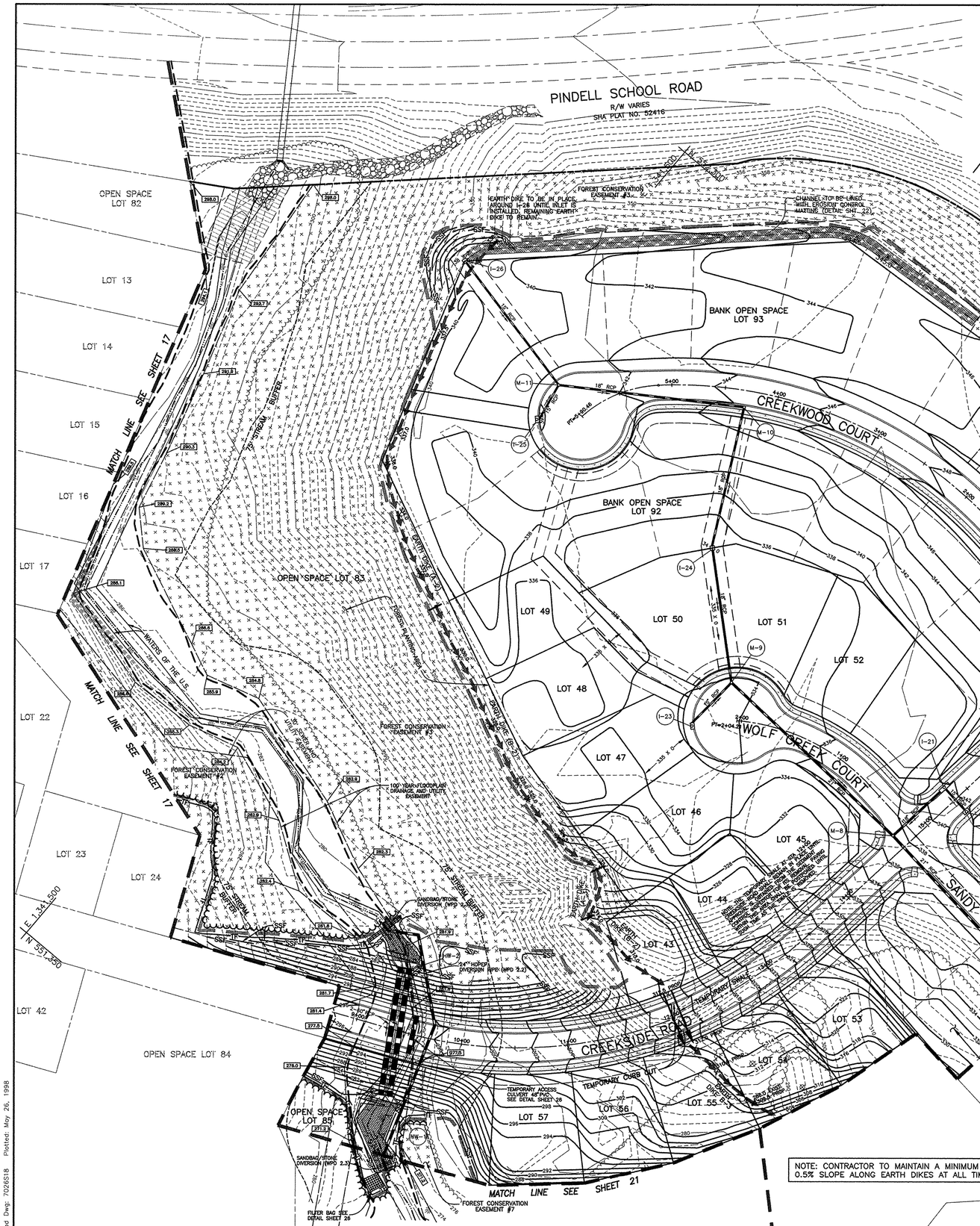
TITLE: **GRADING, SEDIMENT AND EROSION CONTROL PLAN**
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

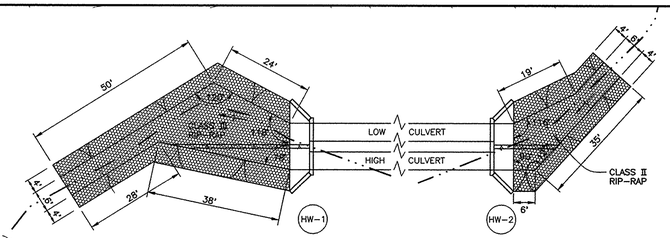
DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DES: DAM/MLV | DRAFT: DBT | CHECK: DAM — SCALE: 1" = 50' — SHEET 17 OF 31

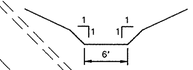
F-98-52

Acad Dwg: 7026S17 Plotted: May 26, 1998

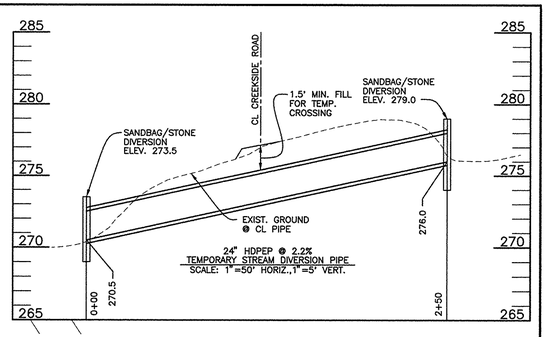




RIP-RAP PROTECTION @ HEADWALL 1 AND 2
SCALE: 1"=20'



APPROXIMATE EXISTING CHANNEL CONFIGURATION
SCALE: 1"=10'



24" HDPEP @ 2.2% TEMPORARY STREAM DIVERSION PIPE
SCALE: 1"=50' HORIZ.,1"=5' VERT.

NOTES:

1. FOR SEQUENCE OF CONSTRUCTION SEE SHEET 22.
2. EROSION AND SEDIMENT CONTROL FOR WATER LINE CONSTRUCTION NORTHEAST OF CREEKWOOD COURT SHALL BE IN ACCORDANCE WITH SECTION 219 OF THE HO. CO. STANDARDS AND SPECIFICATIONS VOL. IV.
3. FOR 60" RCP CULVERT SEQUENCE OF CONSTRUCTION, SEE SHEET 16.
4. CONSTRUCTION OF CULVERT CROSSING ON CREEKSIDE RD SHALL BE IN ACCORDANCE WITH NONTIDAL WETLANDS AND WATERWAYS PERMIT NO. 97-NT-0794.

NOTE: CONTRACTOR TO MAINTAIN A MINIMUM 0.5% SLOPE ALONG EARTH DIKES AT ALL TIMES

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- SF SF — SILT FENCE
- SSF SSF — SUPER SILT FENCE
- TF TF — TREE PROTECTION FENCE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

V.P. 6-1-98
DEVELOPER – TOLL MD LIMITED PARTNERSHIP — DATE

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason 5/21/98
ENGINEER – DONALD A. MASON, P.E. # 21443 — 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.

NATURAL RESOURCES CONSERVATION SERVICE — DATE 6/9/98

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

Robert W. Zirkle 6/9/98
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Daneker 6-15-98
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

6/23/98
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

6/22/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO.	DATE	REVISION

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8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

STATE OF MARYLAND — DONALD ALLEN MASON — 21443 — REGISTERED PROFESSIONAL ENGINEER

OWNERS:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
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ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P.O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT & EROSION CONTROL PLAN
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997
MAY, 1998

PROJECT NO. 0518

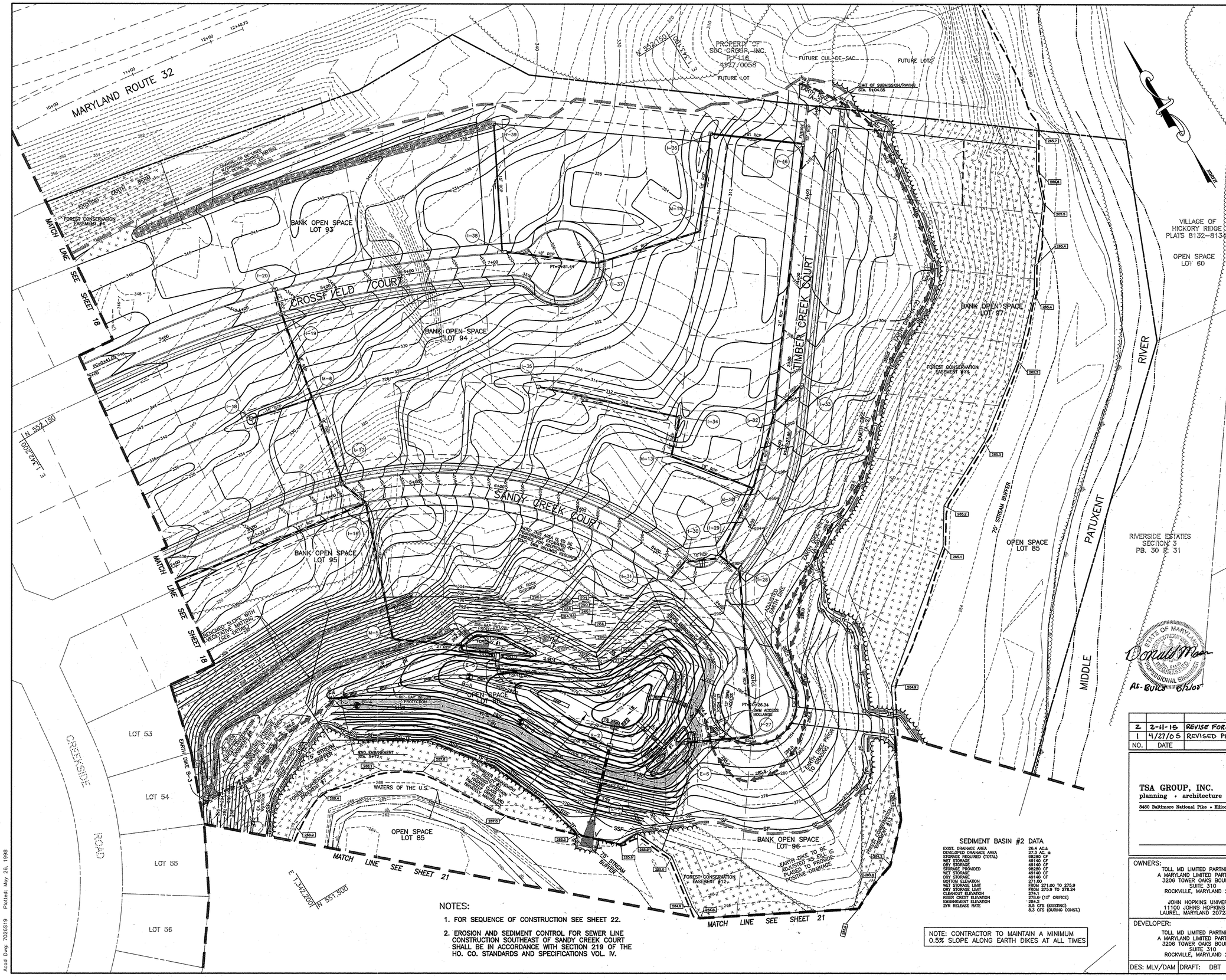
DES: MLV/DAM | DRAFT: DBT | CHECK: DAM

SCALE: 1" = 50'

SHEET 18 OF 31

F-98-52

Acad Dwg: 7026518 Plotted: May 26, 1998



LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- 284 TEMPORARY PROP. CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- SF SILT FENCE
- SSF SUPER SILT FENCE
- TF TREE PROTECTION FENCE
- EARTH DIKE
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR POND CODE 378". THE POND OWNER(S) AND ANY PERSONS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

Donald Mason — PE NO. 21443
DONALD A. MASON — DATE 5/27/98

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

V.P. — 6-1-98
DEVELOPER – TOLL MD LIMITED PARTNERSHIP — DATE

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason — 5/27/98
ENGINEER – DONALD A. MASON, P.E. # 21443 — 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.

NATURAL RESOURCES CONSERVATION SERVICE — DATE 6/9/98

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 6/9/98

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

STATE OF MARYLAND — DONALD ALEXANDER MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER

Donald Mason
AS-BUILT 6/1/05

SEDIMENT BASIN #2 DATA

EXIST. DRAINAGE AREA	26.4 AC±
DEVELOPED DRAINAGE AREA	27.3 AC. ±
STORAGE REQUIRED (TOTAL)	68280 CF
WET STORAGE	49140 CF
DRY STORAGE	49140 CF
STORAGE PROVIDED	98280 CF
WET STORAGE	49140 CF
DRY STORAGE	49140 CF
BOTTOM ELEVATION	271.00
WET STORAGE LIMIT	FROM 271.00 TO 275.9
DRY STORAGE LIMIT	FROM 275.9 TO 278.24
CLEANOUT ELEVATION	274.1
RISER CREST ELEVATION	278.6± (15" ORIFICE)
EMBANKMENT ELEVATION	284.2
2YR RELEASE RATE	8.5 CFS (EXISTING) 8.3 CFS (DURING CONST.)

NOTE: CONTRACTOR TO MAINTAIN A MINIMUM 0.5% SLOPE ALONG EARTH DIKES AT ALL TIMES

NOTES:

1. FOR SEQUENCE OF CONSTRUCTION SEE SHEET 22.
2. EROSION AND SEDIMENT CONTROL FOR SEWER LINE CONSTRUCTION SOUTHEAST OF SANDY CREEK COURT SHALL BE IN ACCORDANCE WITH SECTION 219 OF THE HO. CO. STANDARDS AND SPECIFICATIONS VOL. IV.

NO.	DATE	REVISION
2	2-11-15	REVISE FOREST CON. ESMT ON LOT 150
1	4/27/05	REVISED PER AS-BUILT CONDITIONS

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STATE OF MARYLAND — DONALD ALEXANDER MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER

Donald Mason

OWNERS:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: GRADING, SEDIMENT AND EROSION CONTROL PLAN
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

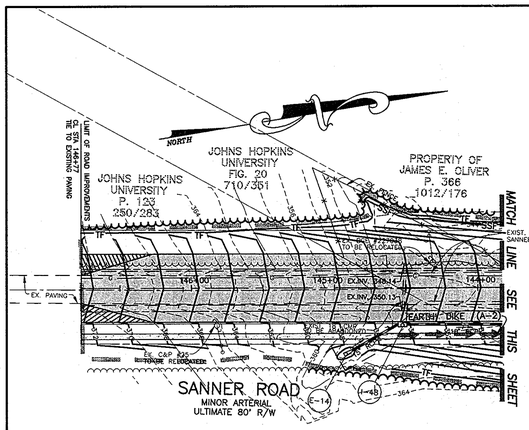
DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

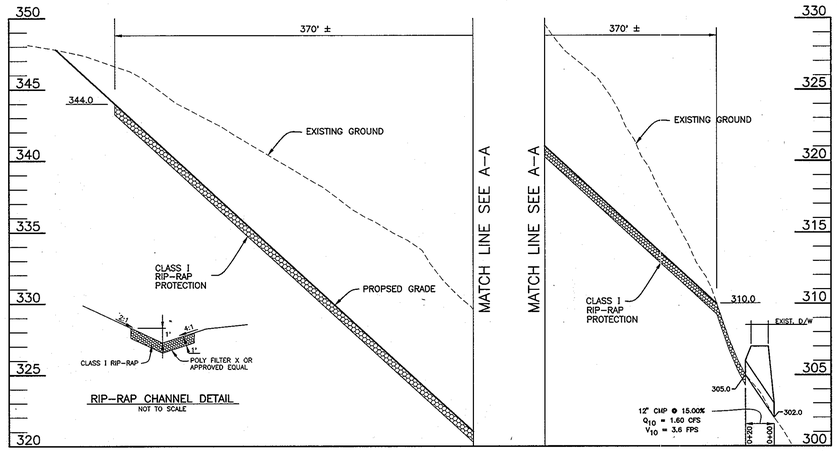
DES: MLV/DAM | DRAFT: DBT | CHECK: DAM

SCALE: 1" = 50' — SHEET 19 OF 31

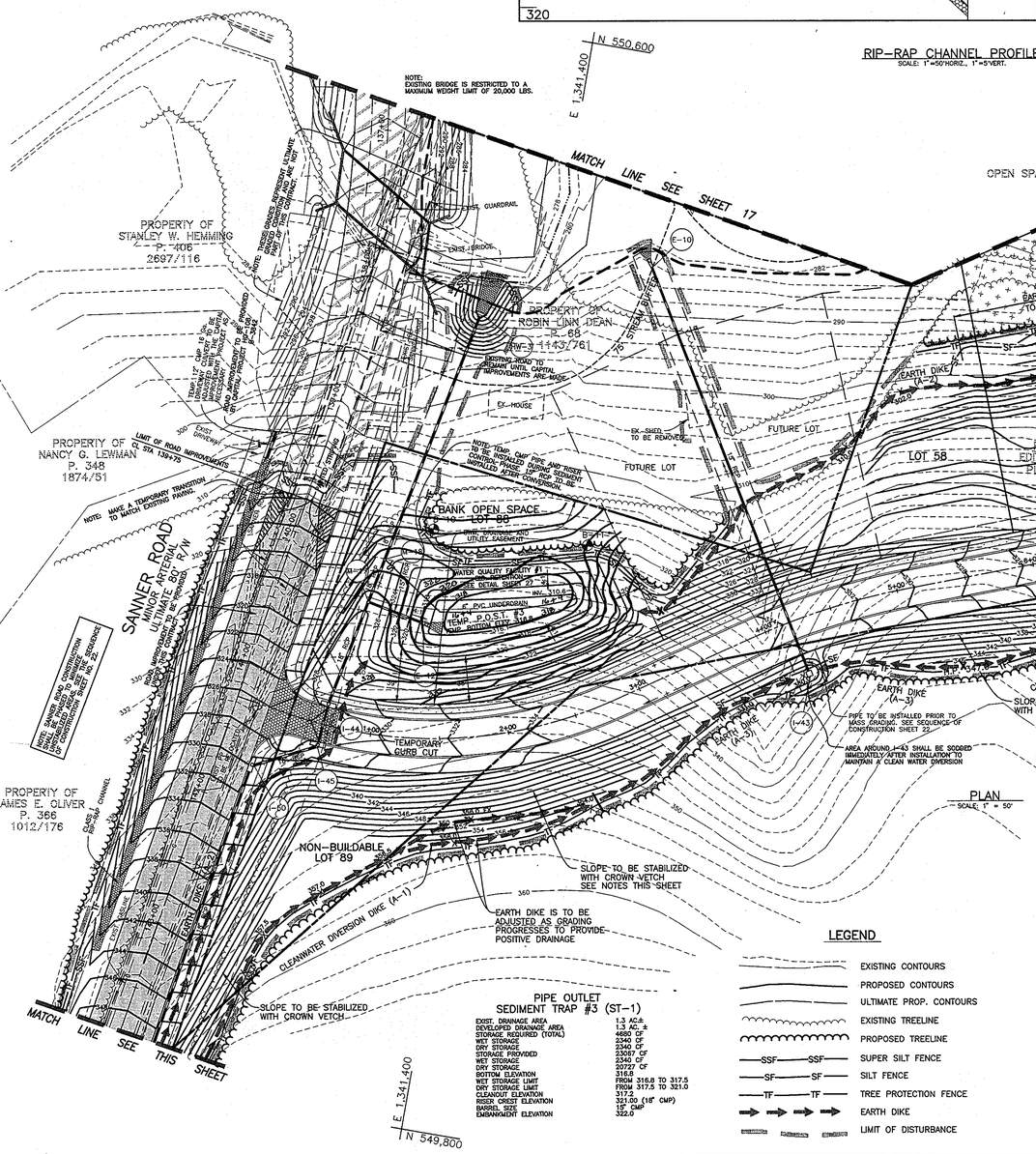
F-98-52

Acad Dwg: 7026S19 Plotted: May. 26, 1998

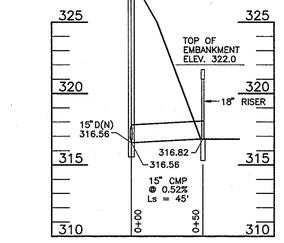




RIP-RAP CHANNEL PROFILE
SCALE: 1"=50'HORIZ., 1"=5'VERT.



PLAN
SCALE: 1" = 50'



TEMP. PIPE OUTLET SEDIMENT TRAP NO.3
SCALE: 1"=50'HORIZ., 1"=5'VERT.

CROWNVETCH

CRITICAL AREA ESTABLISHMENT: CORRECT ACIDITY TO A pH OF 5.5 OR HIGHER, WHERE POSSIBLE SCARIFY THE SOIL 2 TO 4 INCHES DEEP. APPLY FERTILIZER ACCORDING TO SOIL TEST, OR USE AT LEAST 500 POUNDS OF 5-10-10 FERTILIZER PER ACRE.

APPLY SEED UNIFORMLY, COVER SEED UP TO 1/2 INCH DEEP, MULCH WITH 1 AND 1/2 TONS OF STRAW AND HOLD IN PLACE. ALL SEED MUST BE INOCULATED AND SCARIFIED.

SEED MIXTURE OF 15 TO 20 POUNDS OF CROWNVETCH MIXED WITH EITHER TALL FESCUE OR RYEGRASS AT 30 POUNDS PER ACRE. GRASS PROVIDES QUICK GROWTH AND PROTECTS THE SITE WHILE THE SLOWER GROWING LEGUME IS GETTING ESTABLISHED. SEEDING DATE IN THE SPRING IS BEST. DO NOT SEED AFTER MID-SUMMER. SITES READY FOR SEEDING IN LATE SUMMER OR FALL CAN BE SEEDED TO GRASS AND MULCHED, AND THE CROWNVETCH OVER-SEEDED THE FOLLOWING SPRING. SITES TOO STEEP OR STONEY TO USE MECHANICAL EQUIPMENT USUALLY CAN BE SEEDED WITHOUT SITE PREPARATION IF "FROST SEEDED". SOIL CONDITIONS MUST HAVE A FAVORABLE SOIL REACTION OF pH 5.5 AND BE OF MODERATE FERTILITY. BROADCAST SEED IN LATE WINTER (FEB-MAR) WHILE THERE STILL IS FROST ACTION IN THE SOIL. FROST HEAVING WILL WORK SEED INTO THE SOIL. SEEDING RATE OF 15 TO 20 POUNDS OF CROWNVETCH WITH A GRAS USUALLY IS ADEQUATE.

PIPE OUTLET SEDIMENT TRAP #3 (ST-1)

EXST. DRAINAGE AREA	1.3 AC±
DEVELOPED DRAINAGE AREA	1.3 AC. ±
STORAGE REQUIRED (TOTAL)	4680 CF
WET STORAGE	2340 CF
DRY STORAGE	2340 CF
STORAGE PROVIDED	23067 CF
WET STORAGE	2340 CF
DRY STORAGE	20727 CF
BOTTOM ELEVATION	316.8
WET STORAGE LIMIT	FROM 316.8 TO 317.5
DRY STORAGE LIMIT	FROM 317.5 TO 321.0
CLEANOUT ELEVATION	317.2
RISER CREST ELEVATION	321.00 (18" CMP)
BARREL SIZE	15" CMP
EMBANKMENT ELEVATION	322.0

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- ULTIMATE PROP. CONTOURS
- EXISTING TREELINE
- PROPOSED TREELINE
- SSF — SSF — SUPER SILT FENCE
- SF — SF — SILT FENCE
- TF — TF — TREE PROTECTION FENCE
- EARTH DIKE
- LIMIT OF DISTURBANCE

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER — KOLL MD LIMITED PARTNERSHIP — 6-1-98 DATE

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER — DONALD A. MASON, P.E. # 21443 — 5/20/98 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.

NATURAL RESOURCES CONSERVATION SERVICE — 6/9/98 DATE

NOTE:
FOR SEQUENCE OF CONSTRUCTION SEE SHEET 22.

NOTE: CONTRACTOR TO MAINTAIN A MINIMUM 0.5% SLOPE ALONG EARTH DIKES AT ALL TIMES

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

HOWARD SOIL CONSERVATION DISTRICT — 6/5/98 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 6-15-98 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 6/8/98 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6/22/98 DATE

NO.	DATE	REVISION
3	10-5-12	REMOVE 1500 SF FCE TO FROM LOT 78 (SHANABERGER & LANE) PER REVISION PLAT F-13-100.
2	1-18-07	REMOVE FCE FROM LOT 58
1	4/27/05	REVISED PER AS-BUILT CONDITIONS

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8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

STATE OF MARYLAND — DONALD A. MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER

OWNERS:	TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852 JOHN HOPKINS UNIVERSITY 11100 JOHNS HOPKINS ROAD LAUREL, MARYLAND 20723-6005
DEVELOPER:	TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852
PROJECT:	VILLAGE OF CEDAR RIDGE A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY
LOCATION:	TAX MAP 41 – PARCELS 43 & 44, P/O 123 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	GRADING, SEDIMENT AND EROSION CONTROL PLAN SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82
DATE:	OCTOBER, 1997 MAY, 1998
PROJECT NO.	0518
DES: MLV/DAM	DRAFT: DBT CHECK: DAM
SCALE:	AS SHOWN
SHEET	20 OF 31

F-98-52

Acad Dwg: 7026520 Plotted: Nov 26, 1998

STORMWATER MANAGEMENT SUMMARY TABLE

STORM FREQUENCY	COMBINED AT THE DESIGN POINT PRE-DEVELOPMENT RUNOFF (CFS)	COMBINED AT THE DESIGN POINT POST-DEVELOPMENT RUNOFF (CFS) W/ SWM
2	24.27	22.57
10	131.19	130.01
100	293.55	N/A

	POND #1			POND #2			POND #3		
YEARS	2	10	100	2	10	100	2	10	100
INFLOW Q (cfs)	22.52	48.61	79.07	39.58	87.69	144.44	8.35	18.27	29.89
DISCHARGE Q (cfs)	1.91	12.50	34.15	4.15	33.51	117.90	0.59	5.76	12.77
ELEVATION	279.33	281.69	283.67	278.72	280.85	282.01	274.94	276.46	277.82
STORAGE VOLUME PROVIDED (AC FT)	0.90	1.62	2.43	1.39	2.45	3.15	0.26	0.47	0.72

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTAINANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. _____

DONALD A. MASON

DATE _____

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

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U.P. 6-1-98

DEVELOPER - TOLL MD LIMITED PARTNERSHIP — DATE

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason 5/27/98

ENGINEER - DONALD A. MASON, P.E. # 21443 — 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.

NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

Robert W. Zirkin /as. 6/9/98

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Daniels /as. 6-15-98

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

6/23/98

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

6/22/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO.	DATE	REVISION

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STATE OF MARYLAND — DONALD ALEXANDER MASON — No. 21443 — PROFESSIONAL ENGINEER

NOTES:

1. FOR SEQUENCE OF CONSTRUCTION SEE SHEET 22.
2. EROSION AND SEDIMENT CONTROL FOR THE SEWER LINE CONSTRUCTION NORTHEAST OF RIVER OAK COURT SHALL BE IN ACCORDANCE WITH SECTION 219 OF THE HO. CO. STANDARDS AND SPECIFICATIONS VOL. IV.

NOTE: CONTRACTOR TO MAINTAIN A MINIMUM 0.5% SLOPE ALONG EARTH DIKES AT ALL TIMES

NOTE: DELAY CONSTRUCTION ON LOT 70 UNTIL CONTRIBUTING DRAINAGE AREAS TO BASIN #3 HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR.

NOTE: THIS AREA IS TO BE TEMPORARILY EXCAVATED TO PROVIDE FOR ADDITIONAL TEMP. SWM VOLUMES REQUIRED.

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- TEMPORARY PROP. CONTOURS (290)
- EXISTING TREELINE
- PROPOSED TREELINE
- SSF SUPER SILT FENCE
- SF SILT FENCE
- TF TREE PROTECTION FENCE
- EARTH DIKE
- LIMIT OF DISTURBANCE

SEDIMENT BASIN #3 DATA

EXIST. DRAINAGE AREA	7.86 AC.±
DEVELOPED DRAINAGE AREA	7.49 AC.±
STORAGE REQUIRED (TOTAL)	28296 CF
WET STORAGE	14148 CF
DRY STORAGE	14148 CF
STORAGE PROVIDED	28295 CF
WET STORAGE	14148 CF
DRY STORAGE	14148 CF
BOTTOM ELEVATION	271.5
WET STORAGE LIMIT	FROM 271.50 TO 273.49
DRY STORAGE LIMIT	FROM 273.49 TO 274.98
CLEANOUT ELEVATION	272.56
RISER CREST ELEVATION	274.98 (5 1/2" ORIFICE)
EMBANKMENT ELEVATION	303.0
2YR RELEASE RATE	1.1 CFS (EXISTING) 1.0 CFS (DURING CONST.)

OWNERS:	TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852 JOHN HOPKINS UNIVERSITY 11100 JOHNS HOPKINS ROAD LAUREL, MARYLAND 20723-6005
DEVELOPER:	TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP 3206 TOWER OAKS BOULEVARD SUITE 310 ROCKVILLE, MARYLAND 20852
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LOCATION:	TAX MAP 41 - PARCELS 43 & 44, P/O 123 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	GRADING, SEDIMENT AND EROSION CONTROL PLAN SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82
DATE:	OCTOBER, 1997 MAY, 1998
PROJECT NO.	0518
DES: MLV/DAM	DRAFT: DBT CHECK: DAM
SCALE:	1" = 50'
SHEET	21 OF 31

F-98-52

Acad Dwg: 7026521 Plotted: May 27, 1998

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1850).
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 MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL", REVISIONS THERETO.
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 1994 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	100.58	ACRES
AREA DISTURBED	55.55	ACRES
AREA TO BE ROOFED OR PAVED	6.28	ACRES
AREA TO BE VEGETATIVELY STABILIZED	49.27	ACRES
TOTAL CUT	308,000	CY
TOTAL FILL	308,000	CY
OFFSITE WASTE/BORROW AREA LOCATION	N/A	

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 CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT 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.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

TEMPORARY SEEDBED PREPARATIONS

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 PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH 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 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

PERMANENT SEEDBED PREPARATIONS

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 ON OF THE FOLLOWING SCHEDULES:

1. PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (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 (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 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH 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 PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF 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.

TOPSOIL SPECIFICATIONS

I. Topsoil salvaged from the existing site may be used provided that it meets that standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting texture subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1-1/2" in diameter.

ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:

i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.

b. Organic content or topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, earth dikes, slope silt fence and sediment traps and basins.

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" - 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

i. Composted Sludge Material for use as a soil conditioner for sites having distributed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

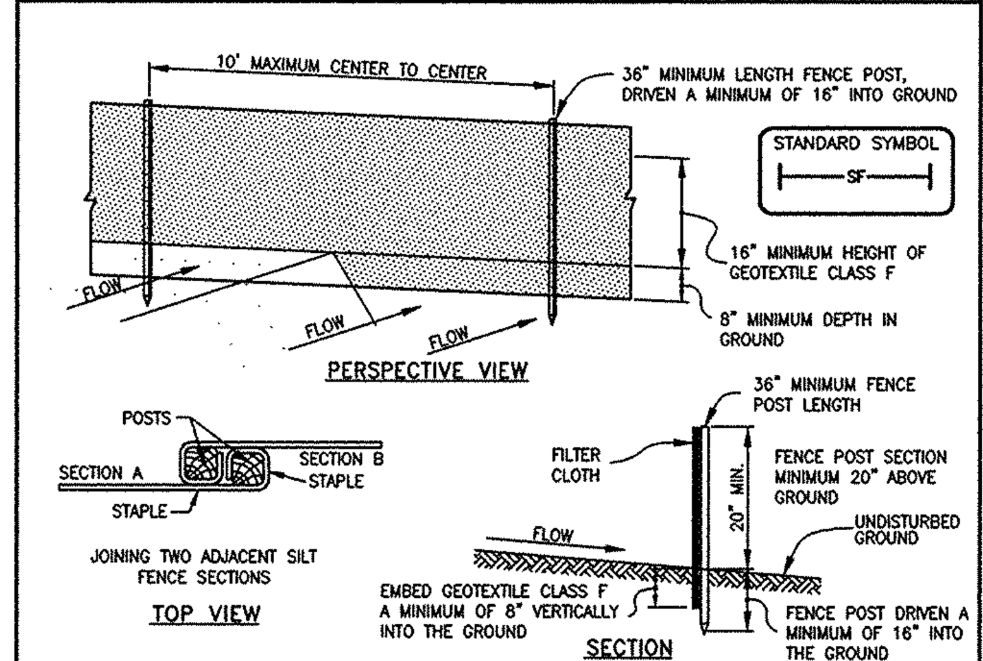
References: Guidelines Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes, Revised 1973.

SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION

1. OBTAIN GRADING PERMIT.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCES, TREE PROTECTION FENCES, SILT FENCES, AND SUPER SILT FENCES. INSTALL TEMPORARY STREAM CROSSING. (DAY 1-7).
3. INSTALL TEMPORARY TSWM/POST#1, SED. TRAP#2 AND SEDIMENT BASINS. INSTALL EARTH DIKES. AND INSTALL STORM DRAIN FROM I-43 TO E-10, HW-3 TO M-17 AND POST #3. (DAY 8-52).
4. UPON APPROVAL OF THE HO. CO. SEDIMENT CONTROL INSPECTOR, COMMENCE ROAD AND SITE GRADING, STOCKPILE TOPSOIL ON SITE. SUBGRADE SHALL BE STABILIZED IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES. (DAY 53-83).
   NOTE: GRADING, INSTALLATION OF THE STONE BASE AND PLACEMENT OF SEED AND MULCH FOR THE SANNER ROAD IMPROVEMENTS FROM STA 139+75 TO 146+77 SHALL BE COMPLETED PRIOR TO COMMENCING GRADING ALONG RIVER OAK COURT. THE SANNER ROAD IMPROVEMENT SHALL BE EXCAVATED AND STABILIZED IN 200' INTERVALS. EACH INTERVAL SHALL HAVE A STONE BASE AND SEED AND MULCH IN PLACE AND APPROVAL FROM THE HO. CO. SEDIMENT CONTROL INSPECTOR SHALL BE OBTAINED PRIOR TO CONTINUING TO THE NEXT INTERVAL OF DISTURBANCE.
5. UPON APPROVAL OF THE HO. CO. SEDIMENT CONTROL INSPECTOR, COMMENCE WITH CULVERT AND UTILITY CONSTRUCTION. (SEE CULVERT SEQUENCE OF CONSTRUCTION ON SHEET 16). (DAY 84-144).
6. INSTALL CONCRETE CURB AND GUTTER. (DAY 145-152).
7. INSTALL PAVING. (153-160).
8. COMPLETE FINAL GRADING OF SITE (TO EXTENT POSSIBLE), REDISTRIBUTE TOPSOIL OVER SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDBED NOTES. SEE SEDIMENT CONTROL STD. AND SPEC. G-21-1 FOR TOPSOIL SPECIFICATIONS. INSTALL EROSION CONTROL MATTING IN SWALES AS DESIGNATED ON PLANS. (DAY 160-170).
9. UPON THE APPROVAL OF THE HO. CO. SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT TRAPS 1-3. COMPLETE FILL WITHIN THE TRAP AREAS. CONVERT TRAP NO.3 TO A BIORETENTION FACILITY, INSTALL THE STORM DRAIN FROM M-17 TO E-12, AND STABILIZE IN ACCORDANCE WITH THE PERMANENT SEEDBED NOTES. (DAY 171-175).
10. UPON APPROVAL OF THE HO.CO. SEDIMENT CONTROL INSPECTOR, CONVERT SEDIMENT BASINS 1,2, AND 3 TO STORMWATER MANAGEMENT FACILITIES. SHAPE FACILITIES PER CONSTRUCTION PLANS AND EXCAVATE TO FINAL GRADE. CONTRACTOR MUST SECURE PERMISSION OF SEDIMENT CONTROL INSPECTOR BEFORE PROCEEDING. (DAY 176-190).
11. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, COMPLETE FINAL GRADING AND STABILIZE. REMOVE ALL SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE AS NEEDED. (DAY 191-200).

DETAIL 22 - SILT FENCE



CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pond per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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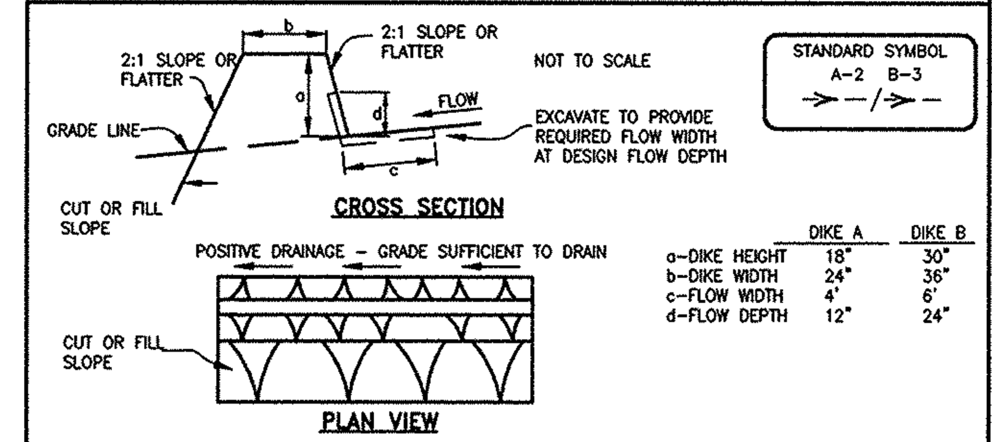
DETAIL 1 - EARTH DIKE



	DIKE A	DIKE B
a-DIKE HEIGHT	18"	30"
b-DIKE WIDTH	24"	36"
c-FLOW WIDTH	4'	6'
d-FLOW DEPTH	12"	24"

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

CONSTRUCTION SPECIFICATIONS

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
5. The dike 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. Fill shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
8. Inspection and maintenance must be provided periodically and after each rain event.

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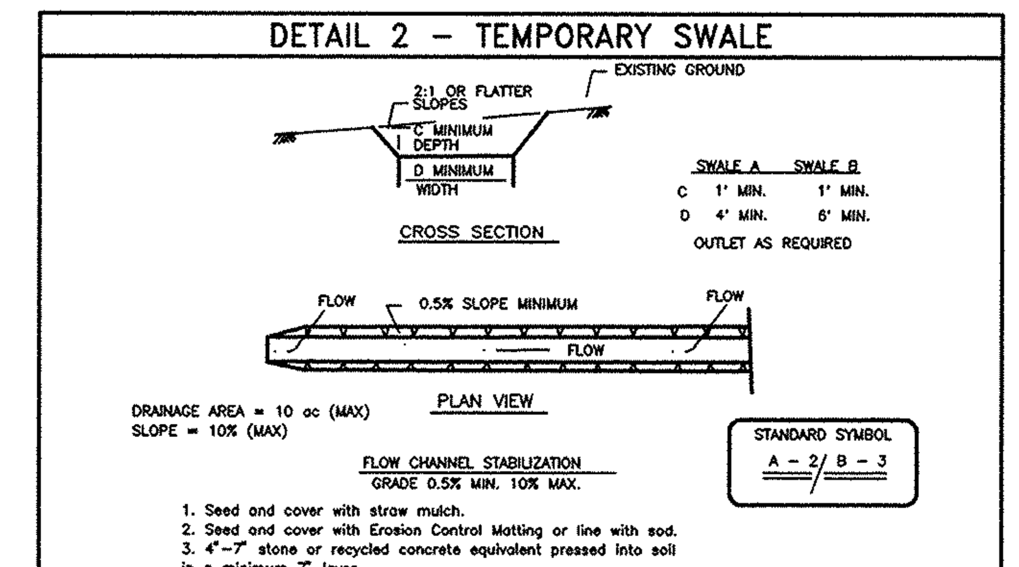
DETAIL 2 - TEMPORARY SWALE



FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4"-7" stone or recycled concrete equivalent pressed into soil in a minimum 7" layer.

Construction Specifications

1. All temporary swales shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.
4. All trees, brush, stumps, obstructions, and other objectional 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. Fill, if necessary, shall be compacted by earth moving equipment.
7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the swale.
8. Inspection and maintenance must be provided periodically and after each rain event.

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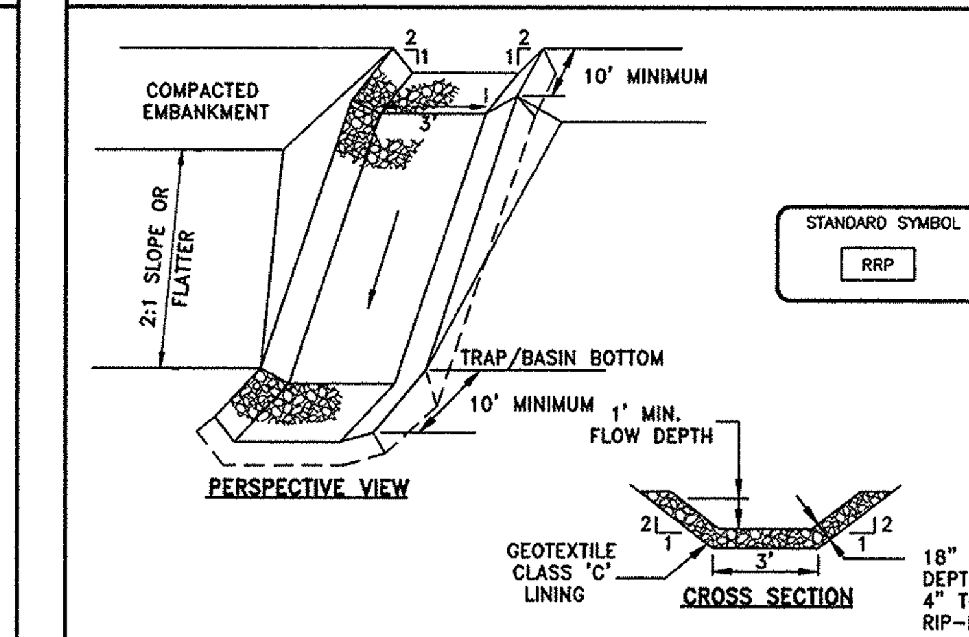
DETAIL 5 - RIP-RAP INFLOW PROTECTION



CONSTRUCTION SPECIFICATIONS

1. All lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip-rap to a depth of 18".
2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
3. Entrance and exit sections shall be installed as shown on the detail section.
4. Rip-Rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
5. Gabion Inflow Protection may be used in lieu of Rip-Rap Inflow Protection.
6. Rip-Rap should blend into existing ground.
7. Rip-Rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

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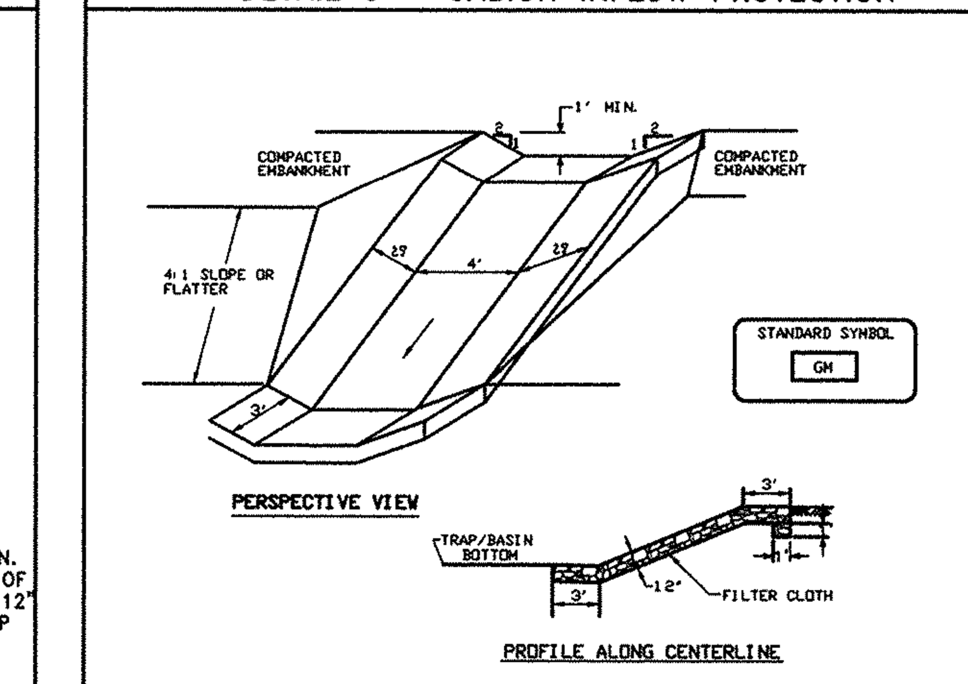
DETAIL 6 - GABION INFLOW PROTECTION



CONSTRUCTION SPECIFICATIONS

1. Gabion inflow protection shall be constructed of 9' x 3' x 9" gabion baskets forming a trapezoidal cross section 1' deep, with 2:1 side slopes, and a 3' bottom width.
2. Geotextile Class C shall be installed under all gabion baskets.
3. The stone used to fill the gabion baskets shall be 4" - 7".
4. Gabions shall be installed in accordance with manufacturers recommendations.
5. Gabion Inflow Protection shall be used where concentrated flow is present on slopes steeper than 4:1.

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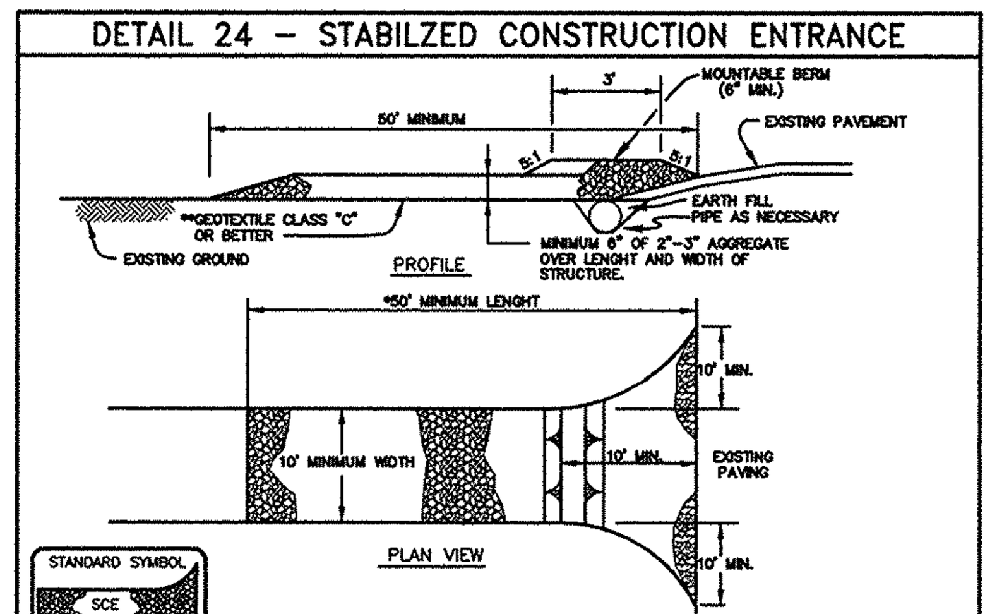
DETAIL 24 - STABILZED CONSTRUCTION ENTRANCE



Construction Specifications

1. Lenght - minimum of 50' (*30' for single residence lot).
2. Width- 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residence to use geotextile.
4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed atleast 6" deep over the lenght and width of the entrance.
5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounted berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire lenght of the stabilized construction entrance.

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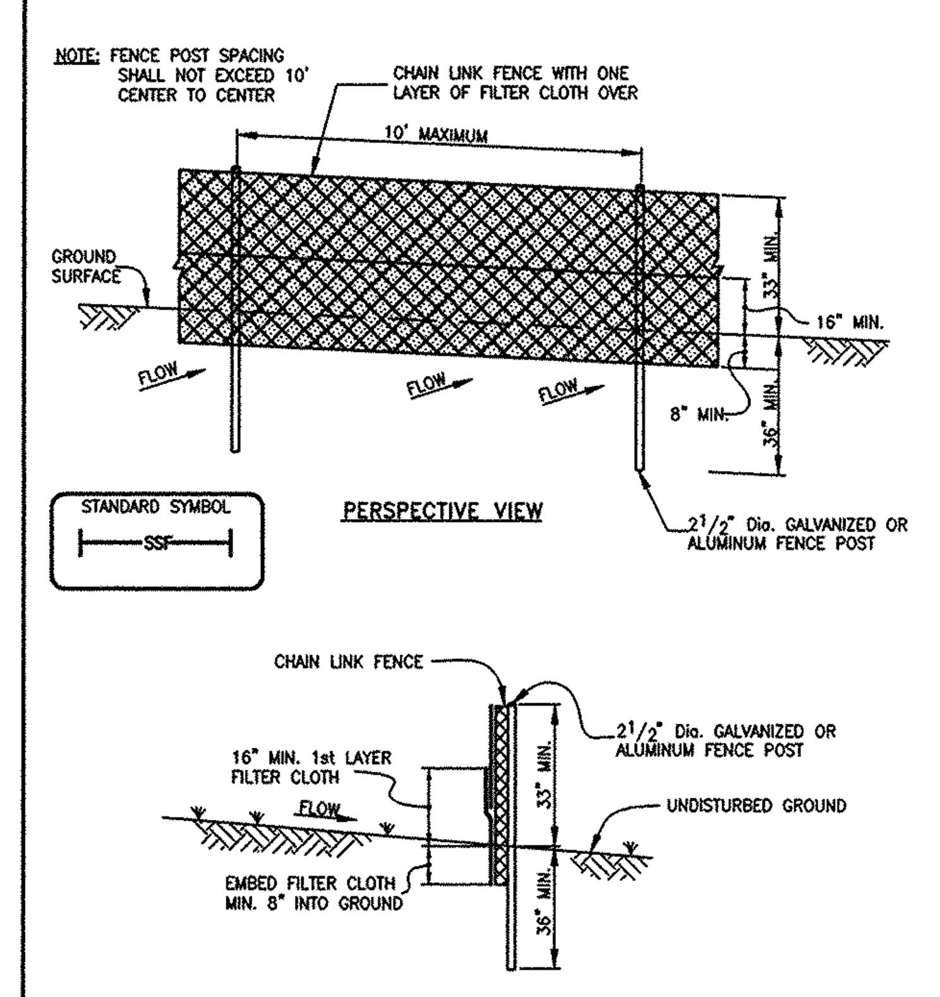
DETAIL 33 - SUPER SILT FENCE



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SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

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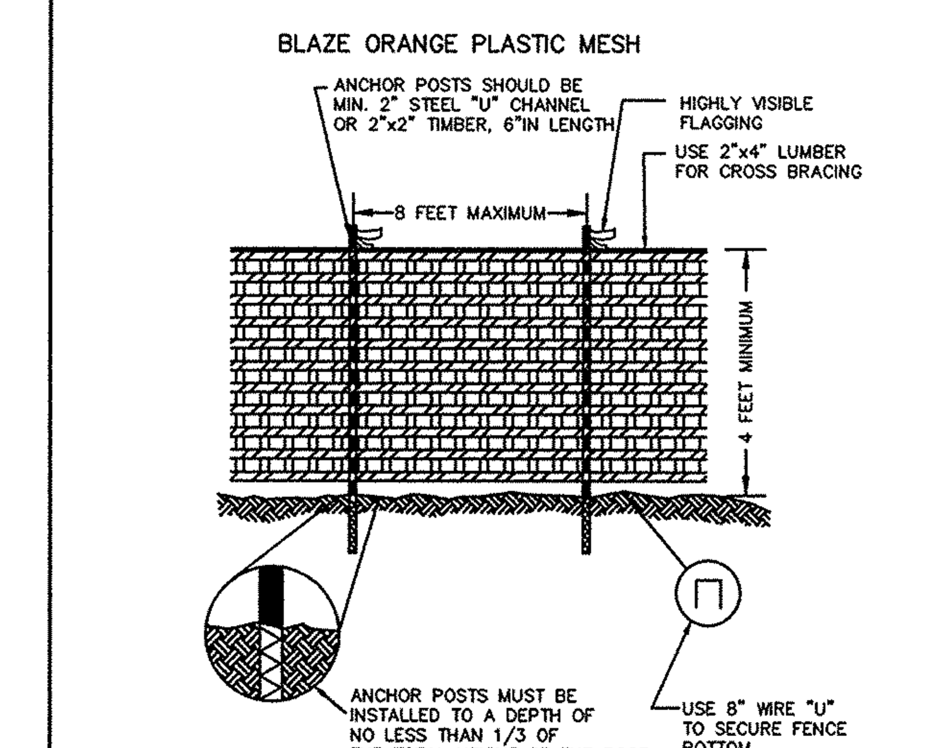
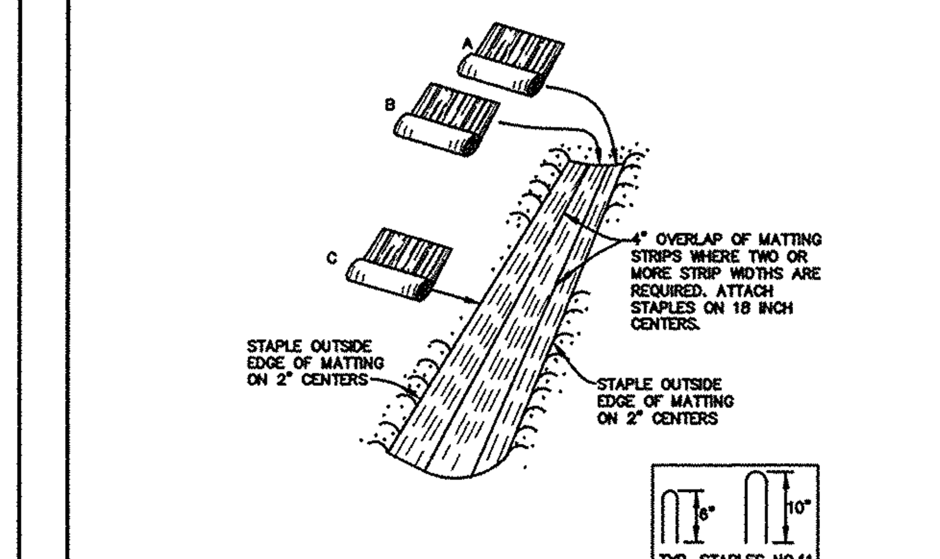
TREE PROTECTION FENCE



NOTES:

1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
4. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
5. DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION
6. PROTECTIVE SIGNAGE IS ALSO REQUIRED.

DETAIL 30 - EROSION CONTROL MATTING



CONSTRUCTION SPECIFICATIONS

1. KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH. 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
2. STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
3. BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
4. STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
5. WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4", SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
6. THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH WITH 2 DOUBLE ROWS OF STAPLES.

NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

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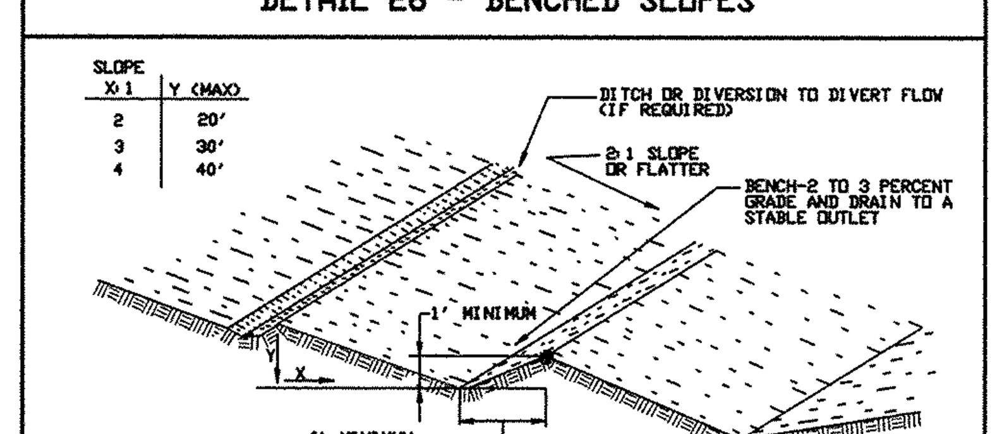
DETAIL 28 - BENCHED SLOPES



Construction Specifications

1. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc., shall be compacted in accordance with local requirements or codes.
2. All fill shall be placed and compacted in layers not to exceed 8' in thickness.
3. Except for approved landfills or nonstructural fills, fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris and other objectionable materials that would interfere with or prevent construction of satisfactory fills.
4. Frozen material or soft, mucky or highly compressible materials shall not be incorporated into fill slopes or structural fills. Fill shall not be placed on a frozen foundation.
5. All benches shall be kept free of sediment during all phases of development.
6. Seeps or springs encountered during construction shall be handled in accordance with the Standard and Specification for Subsurface Drain or other approved methods.
7. All graded areas shall be permanently stabilized immediately following finished grading.

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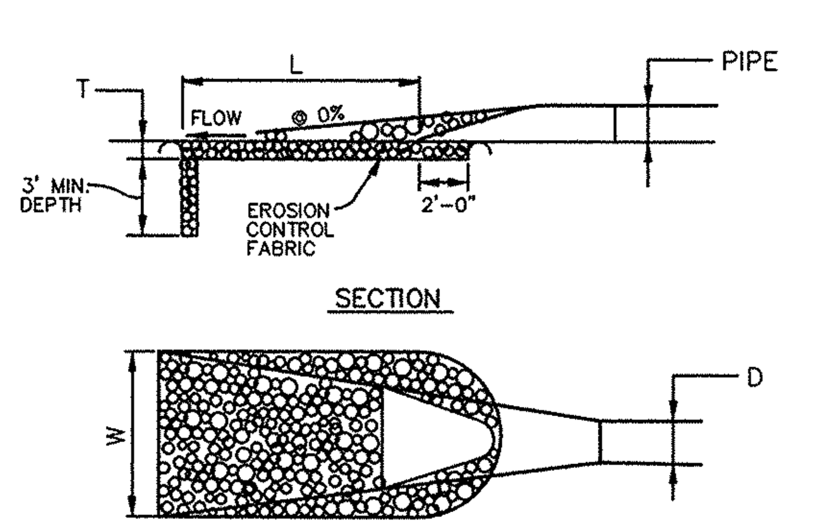
STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
HW-1	23"	70'	25'	46"	III
HW-2	16"	35'	25'	32"	II
E-1	9.5"	10'	12'	19"	I
E-2	9.5"	22'	10'	19"	I
E-3	9.5"	*	10'	19"	I
E-4	9.5"	20'	23'	19"	I
E-5	9.5"	24'	14'	19"	I
E-6	9.5"	*	6'	19"	I
E-7	9.5"	33'	16'	19"	I
E-8	9.5"	20'	22'	19"	I
E-9	9.5"	*	12'	19"	I
E-10	9.5"	14'	10'	19"	I
HW-3	9.5"	30'	14'	19"	I
E-12	9.5"	10'	12'	19"	I
E-13	9.5"	20'	10'	19"	I

* CARRY RIP-RAP THRU FOREBAY UP TO STONE BERM



OUTLET PROTECTION DETAIL

NOT TO SCALE

NOTE: FOR A STOCKPILE OR SPOIL AREA CONDITION SEE SHEET 30.

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] /CS 6/9/98
NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

Robert W. Zieh[?] /CS 6/9/98
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Daneker 6-15-98
CHIEF, BUREAU OF HIGHWAYS HS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

C Hamilton 6/23/98
CHIEF, DIVISION OF LAND DEVELOPMENT JA — DATE

[signature] 6/22/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] V.P. 6-1-98
DEVELOPER - TOLL MD LIMITED PARTNERSHIP — DATE

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason 5/27/98
ENGINEER - DONALD A. MASON, P.E. # 21443 — DATE

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

OWNERS:
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852
JOHN HOPKINS UNIVERSITY, 11100 JOHNS HOPKINS ROAD, LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 - PARCELS 43 & 44, P/O 123, 5th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

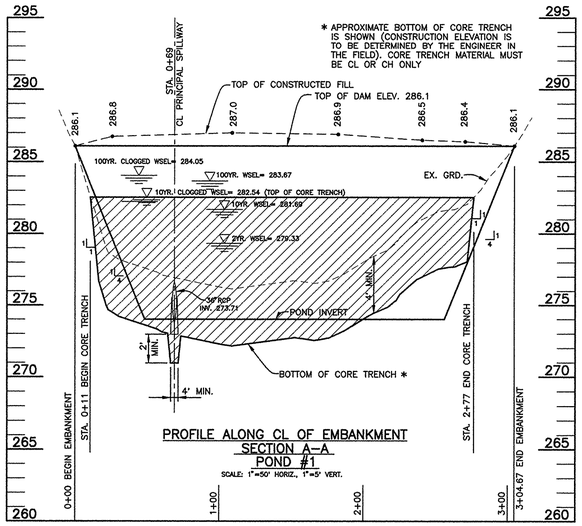
TITLE: SEDIMENT CONTROL NOTES AND DETAILS
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: MLV | DRAFT: DBT | CHECK: DAM | SCALE: NOT TO SCALE | SHEET 22 OF 31

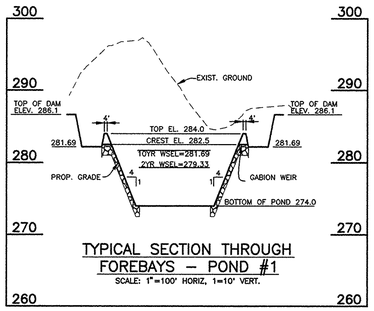
F-98-52

Acad Dwg: 7023S22 Plotted: May 27, 1998



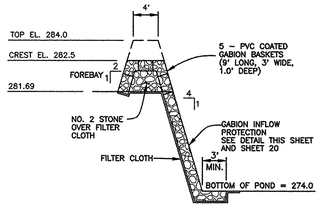
PROFILE ALONG CL OF EMBANKMENT SECTION A–A POND #1

SCALE: 1"=50' HORIZ., 1"=5' VERT.



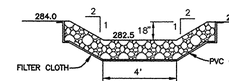
TYPICAL SECTION THROUGH FOREBAYS – POND #1

SCALE: 1"=100' HORIZ, 1"=10' VERT.



TYPICAL SECTION OF GABION WEIR AT FOREBAY

NOT TO SCALE

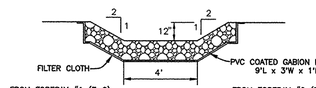


FOREBAY #1 (E–2)
Q=13.14 cfs
H=1.2'
L=4'
C=2.5

FOREBAY #2 (E–3)
Q=8.03 cfs
H=0.9'
L=4'
C=2.5

PROFILE THROUGH FOREBAY WEIR

NOT TO SCALE

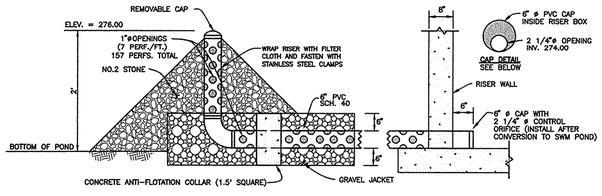


FROM FOREBAY #1 (E–2)
Q=13.14 cfs
n=0.03
s=0.25
b=4'
z=2:1
H=0.29'

FROM FOREBAY #2 (E–3)
Q=8.03 cfs
n=0.03
s=0.25
b=4'
z=2:1
H=0.22'

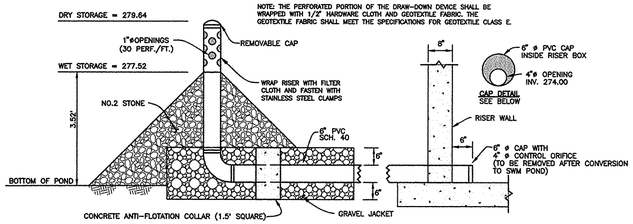
GABION INFLOW PROTECTION CHANNEL

NOT TO SCALE



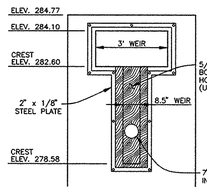
POND #1 6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE

NOT TO SCALE



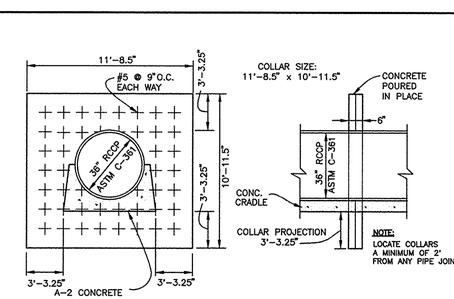
POND #1 6" TEMPORARY SWM VERTICAL DRAW–DOWN DEVICE

NOT TO SCALE



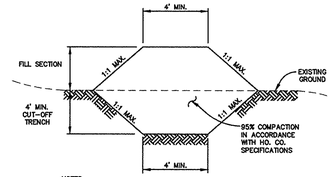
BLOCKING DETAIL FOR POND #1 TEMPORARY SWM DURING CONSTRUCTION

SCALE: 1" = 3'



ANTI–SEEP COLLAR – POND #1

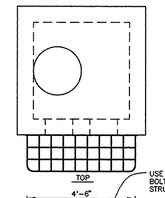
NOT TO SCALE



NOTES:
1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (CL,CH) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

CORE TRENCH SECTION

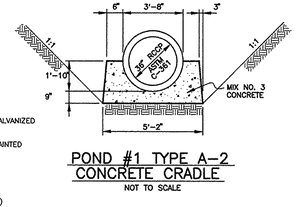
NOT TO SCALE



NOTES:
1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION.
2. TRASH RACK SAHLL BE PAINTED BATTLESHIP GRAY.

TRASH RACK – POND #1

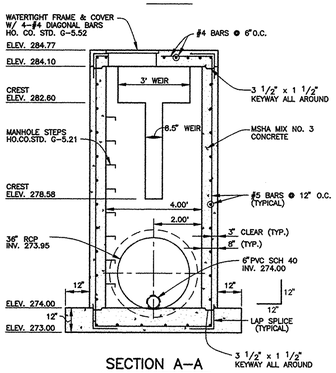
SCALE: 1" = 3'



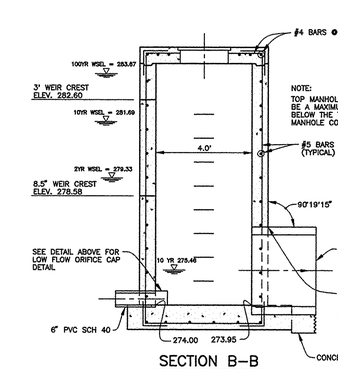
POND #1 TYPE A–2 CONCRETE CRADLE

NOT TO SCALE

PLAN



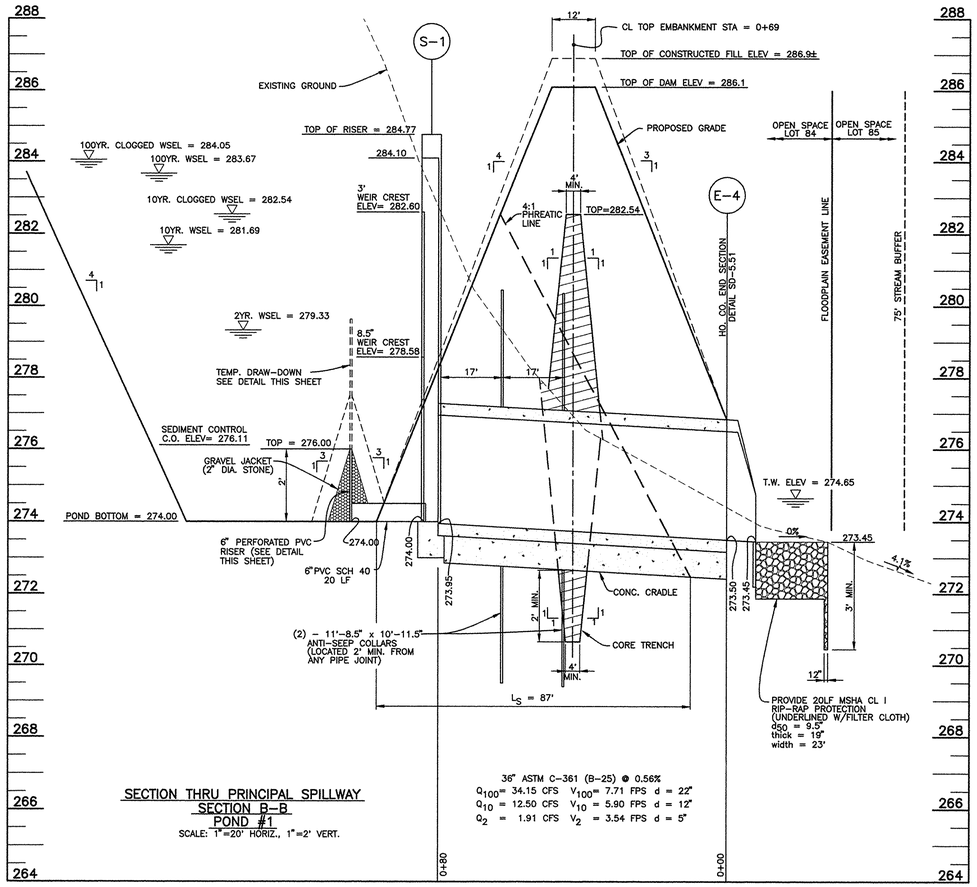
SECTION A–A FRONT VIEW



SECTION B–B SIDE VIEW

CONTROL STRUCTURE – POND #1

SCALE: 1" = 3'



SECTION THRU PRINCIPAL SPILLWAY SECTION B–B POND #1

SCALE: 1"=20' HORIZ., 1"=2' VERT.

36" ASTM C–361 (B–25) @ 0.56%

Q_{100}= 34.15 CFS V_{100}= 7.71 FPS d = 22"
Q_{10} = 12.50 CFS V_{10} = 5.90 FPS d = 12"
Q_2 = 1.91 CFS V_2 = 3.54 FPS d = 5"

OPERATION AND MAINTENANCE SCHEDULE OF PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITY

ROUTINE MAINTENANCE

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON–ROUTINE MAINTENANCE

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHOULD BE REMOVED FROM THE POND NO LATER THAN WHEN THE CAPACITY OF THE POND IS HALF FULL OF SEDIMENT, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY HOWARD COUNTY'S DEPARTMENT OF PUBLIC WORKS.

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS STANDARDS AND SPECIFICATIONS FOR PONDS (MD–378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS–BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS–BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

V.P. 6-1-98

DEVELOPER – TOLL MD LIMITED PARTNERSHIP — DATE

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS–BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason 5/18/98

ENGINEER – DONALD A. MASON, P.E. # 21443 — 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.

NATURAL RESOURCES CONSERVATION SERVICE — DATE 6/9/98

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 6/9/98

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
5480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410–465–6105

STATE OF MARYLAND — DONALD ALLEN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER

OWNERS:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723–6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT–OF–WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **STORMWATER MANAGEMENT DETAILS POND #1**
SP–97–02 WP–97–78 PB 312 F–93–70 WP–98–82

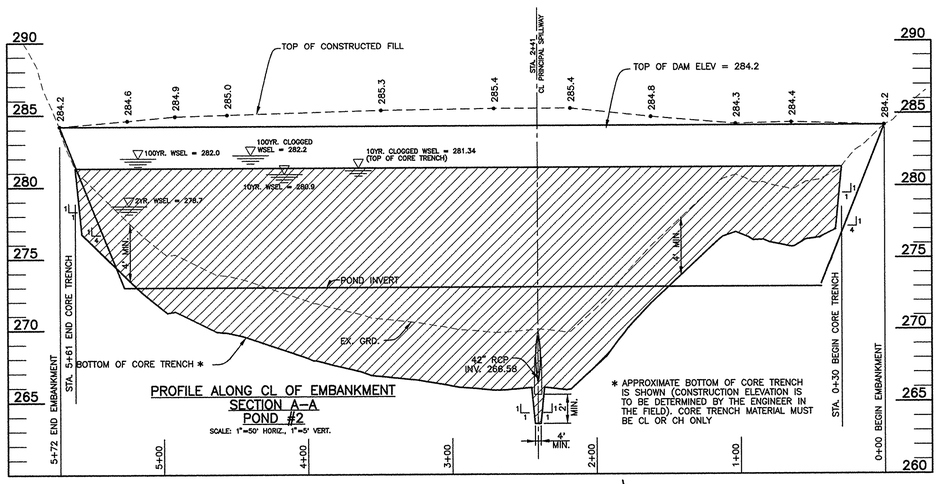
DESIGN: MLV | DRAFT: DBT | CHECK: DAM

DATE: OCTOBER, 1997 / MAY, 1998 | PROJECT NO. 0518

SCALE: AS SHOWN | SHEET 23 OF 31

F–98–52

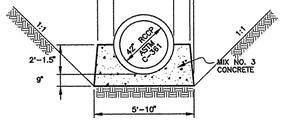
Acad Dwg: 7024523 Plotted: May 27, 1998



PROFILE ALONG CL OF EMBANKMENT
SECTION A–A
POND #2

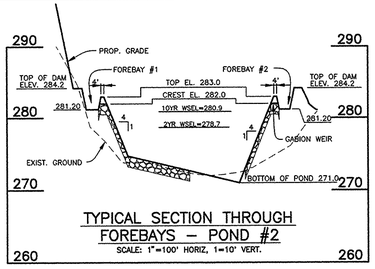
SCALE: 1"=50' HORIZ., 1"=5' VERT.

* APPROXIMATE BOTTOM OF CORE TRENCH IS SHOWN (CONSTRUCTION ELEVATION IS TO BE DETERMINED BY THE ENGINEER IN THE FIELD). CORE TRENCH MATERIAL MUST BE CL OR CH ONLY



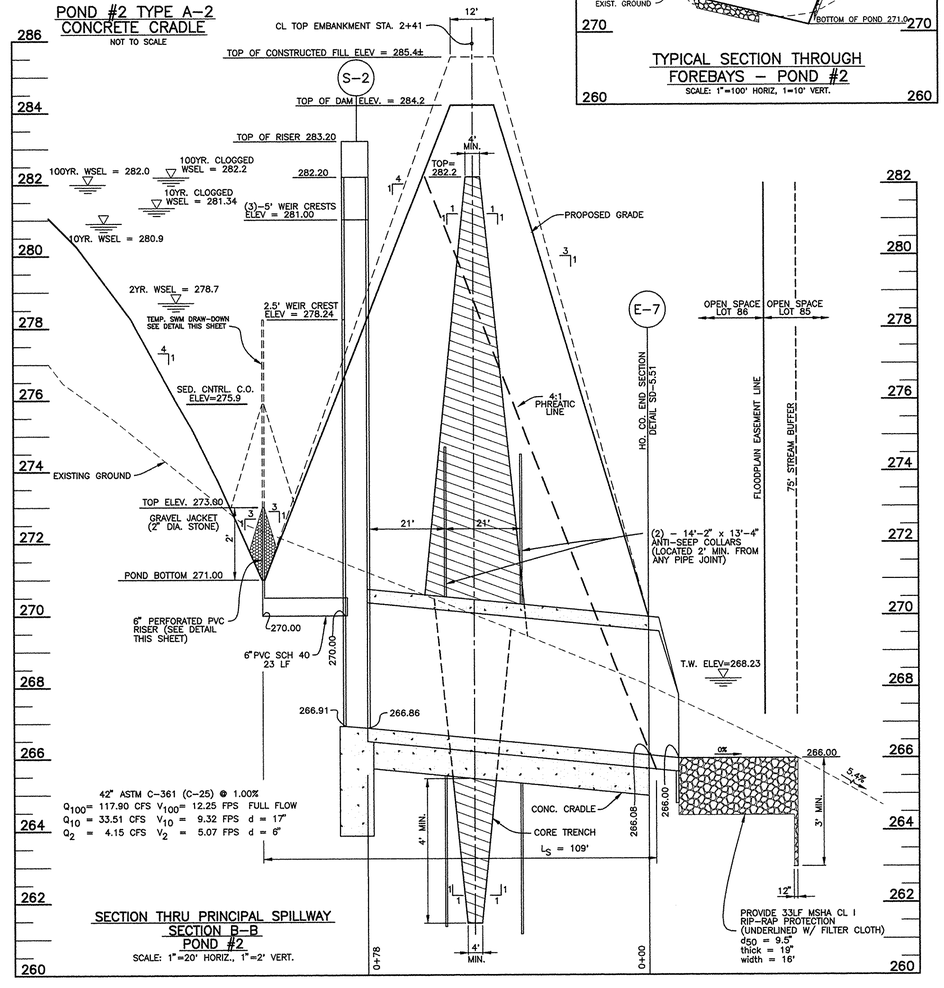
POND #2 TYPE A–2
CONCRETE CRADLE

NOT TO SCALE



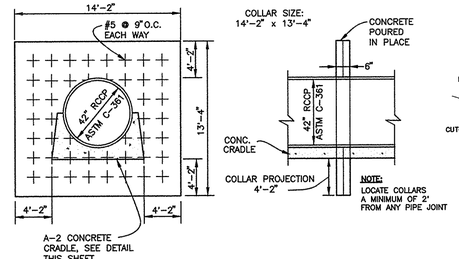
TYPICAL SECTION THROUGH
FOREBAYS – POND #2

SCALE: 1"=100' HORIZ, 1"=10' VERT.



SECTION THRU PRINCIPAL SPILLWAY
SECTION B–B
POND #2

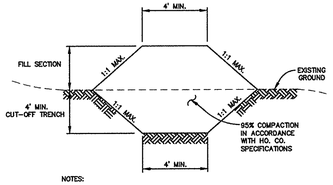
SCALE: 1"=20' HORIZ., 1"=2' VERT.



NOTE: LOCATE COLLARS A MINIMUM OF 2' FROM ANY PIPE JOINT

ANTI–SEEP COLLAR – POND #2

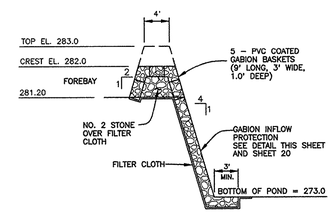
NOT TO SCALE



NOTES:
1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (CL,CH) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE. AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

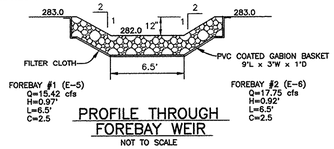
CORE TRENCH SECTION

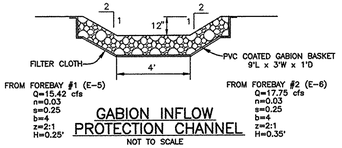
NOT TO SCALE

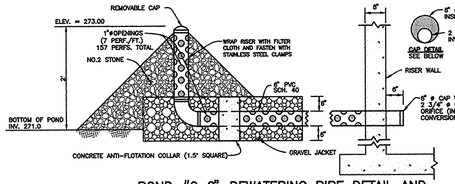


TYPICAL SECTION OF
GABION WEIR AT FOREBAY

NOT TO SCALE

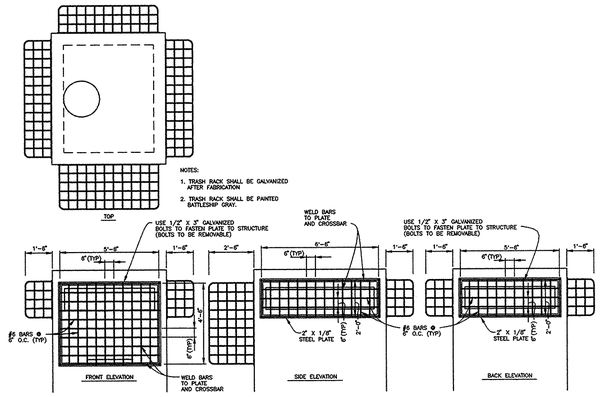






POND #2 6" DEWATERING PIPE DETAIL AND
PERMANENT EXTENDED DETENTION CONTROL ORIFICE

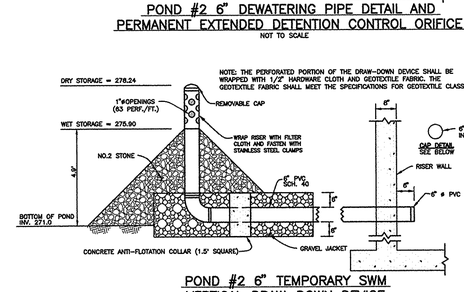
NOT TO SCALE



TRASH RACK – POND #2

SCALE: 1" = 4'

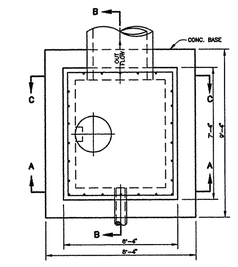
NOTES:
1. TRASH RACK SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACK SHALL BE PAINTED BATTLESHIP GRAY.



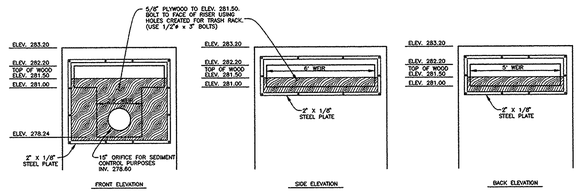
NOTE: THE PERFORATED PORTION OF THE DRAW–DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.

POND #2 6" TEMPORARY SWM
VERTICAL DRAW–DOWN DEVICE

NOT TO SCALE

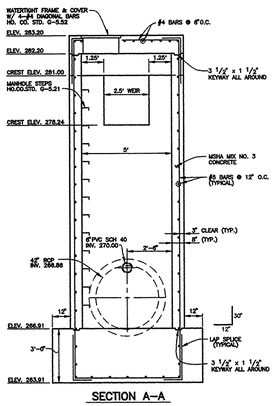


PLAN

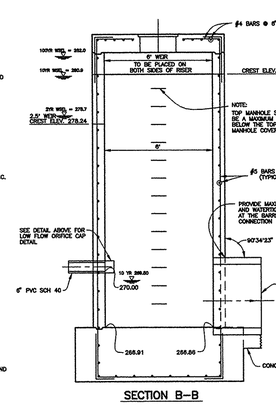


BLOCKING DETAIL FOR
POND #2 TEMPORARY SWM
DURING CONSTRUCTION

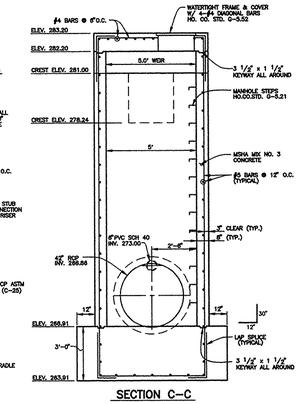
SCALE: 1" = 4'



SECTION A–A
FRONT VIEW



SECTION B–B
SIDE VIEW



SECTION C–C
BACK VIEW

CONTROL STRUCTURE – POND #2

SCALE: 1" = 4'

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD–378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTAINANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS–BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS–BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

V.P. 6-1-98

DEVELOPER – TOLL MD LIMITED PARTNERSHIP — DATE

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS–BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason 5/18/98

ENGINEER – DONALD A. MASON, P.E. # 21443 — 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.

NATURAL RESOURCES CONSERVATION SERVICE — DATE 6/9/98

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

Robert W. Zicha 6/9/98

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Daneker 6-15-98

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

6/23/98

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

6/22/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

STATE OF MARYLAND — DONALD ALLEN MASON — No. 21443 — PROFESSIONAL ENGINEER

OWNERS:
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723–6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: VILLAGE OF CEDAR RIDGE
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT–OF–WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORMWATER MANAGEMENT DETAILS POND #2

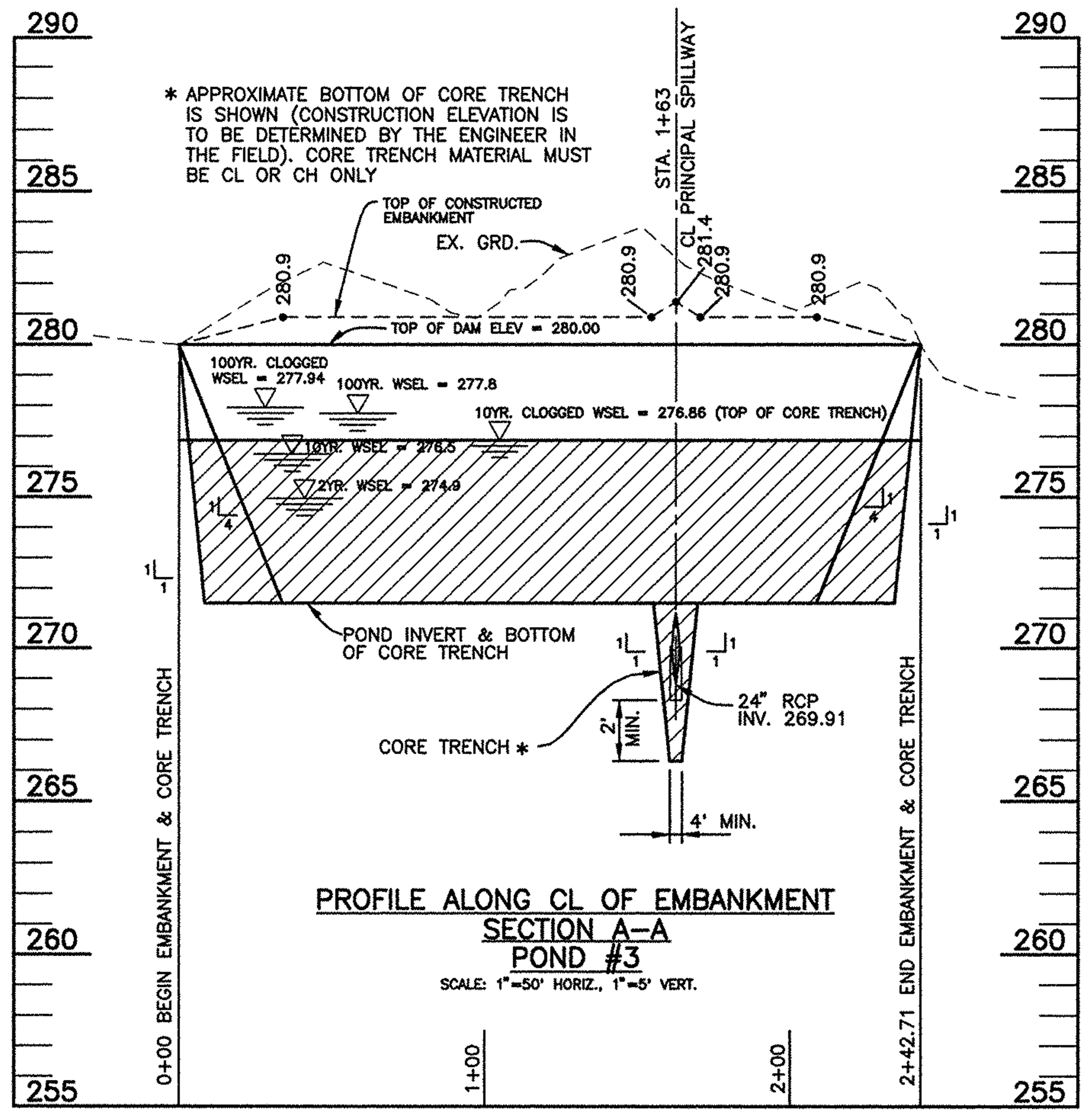
SP–97–02 WP–97–78 PB 312 F–93–70 WP–98–82

DATE: OCTOBER 1997 / MAY, 1998 — PROJECT NO. 0518

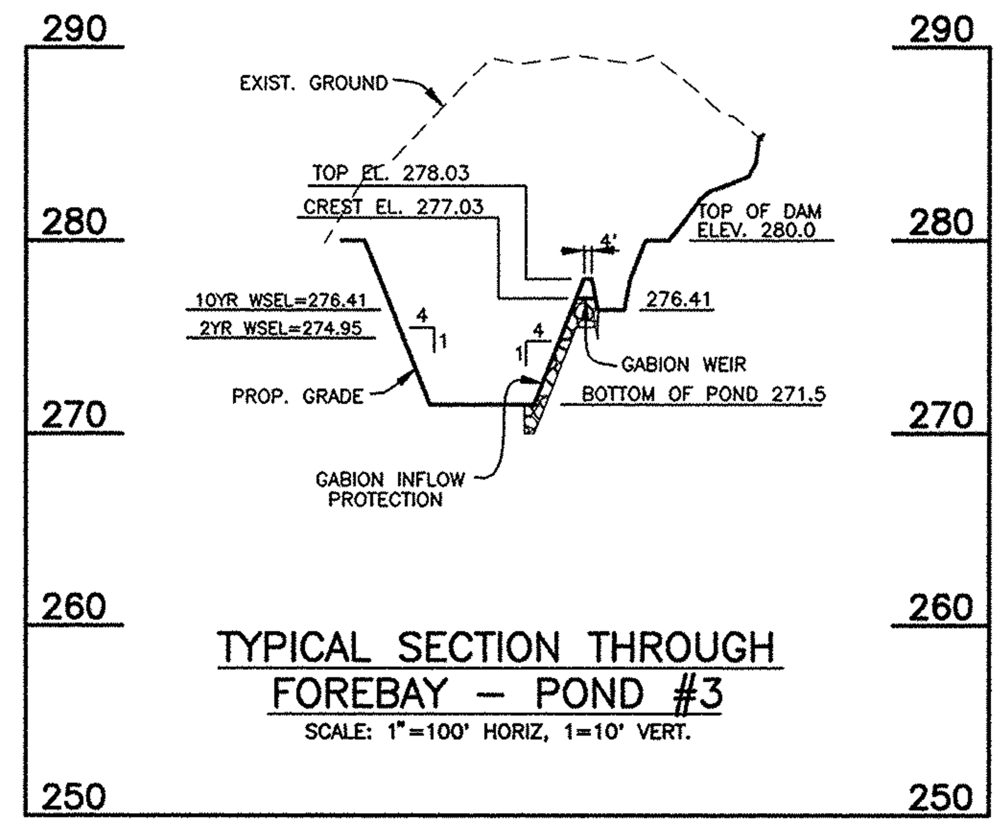
DESIGN: MLV | DRAFT: DBT | CHECK: DAM | SCALE: AS SHOWN | SHEET 24 OF 31

F–98–52

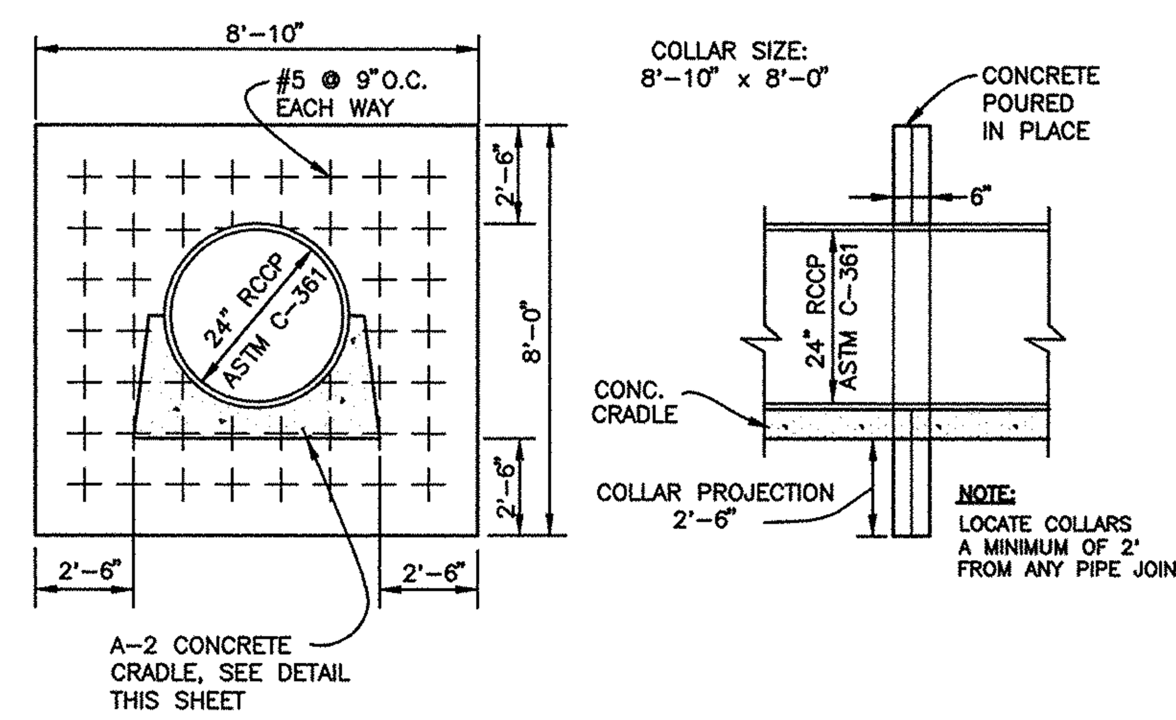
Acad Dwg: 7024S24 Plotted: May 27, 1998



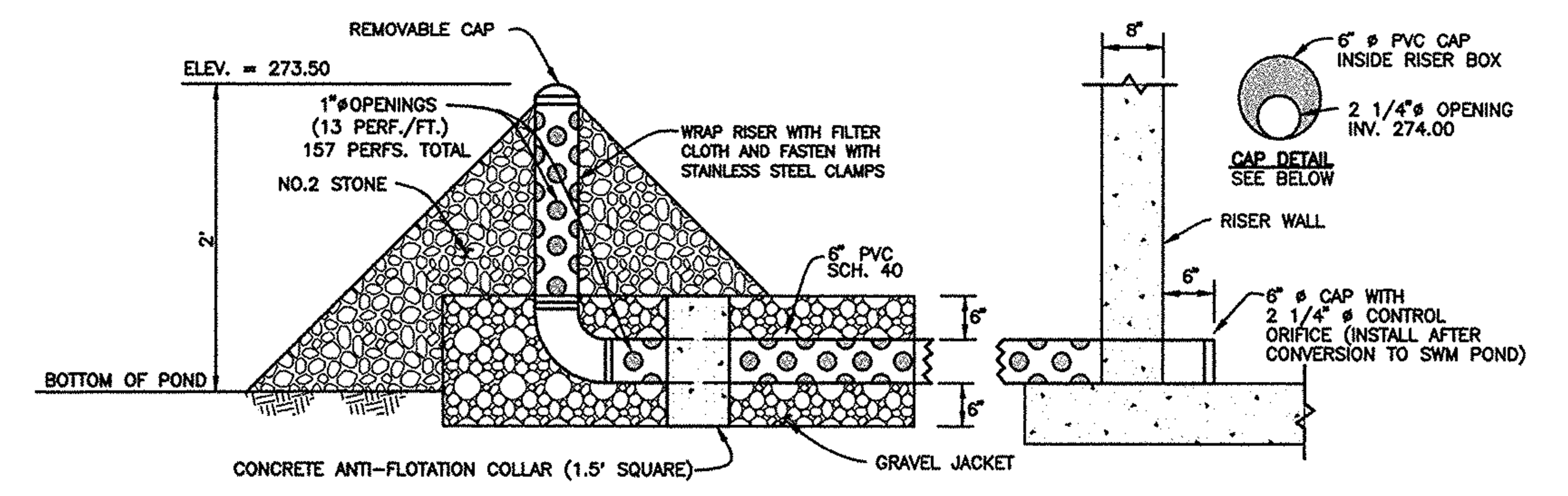
PROFILE ALONG CL OF EMBANKMENT
SECTION A–A
POND #3
SCALE: 1"=50' HORIZ., 1"=5' VERT.



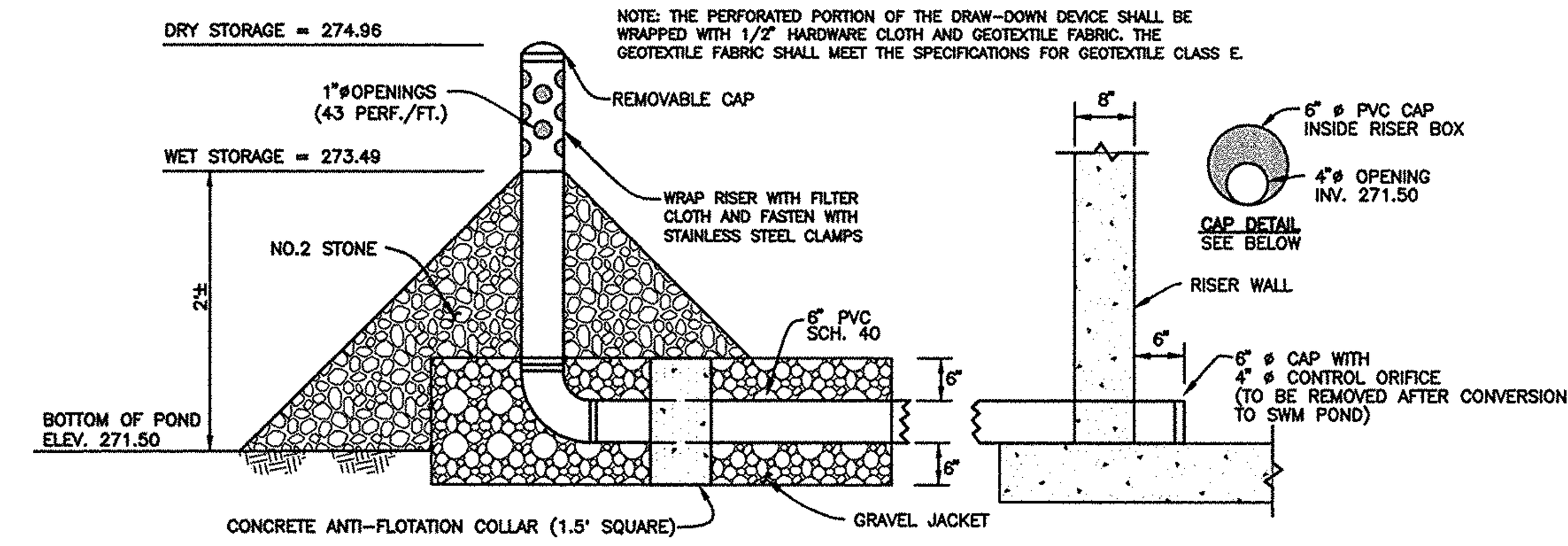
TYPICAL SECTION THROUGH FOREBAY – POND #3
SCALE: 1"=100' HORIZ., 1=10' VERT.



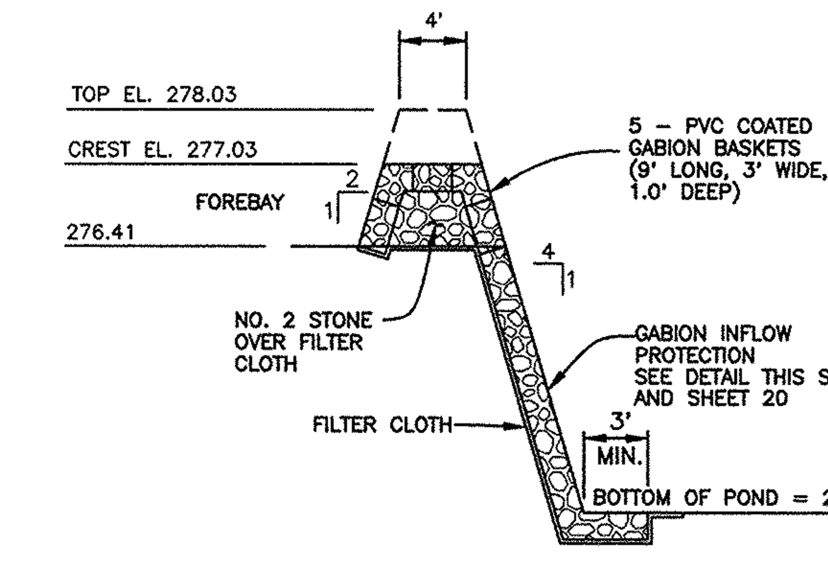
ANTI–SEEP COLLAR – POND #3
NOT TO SCALE



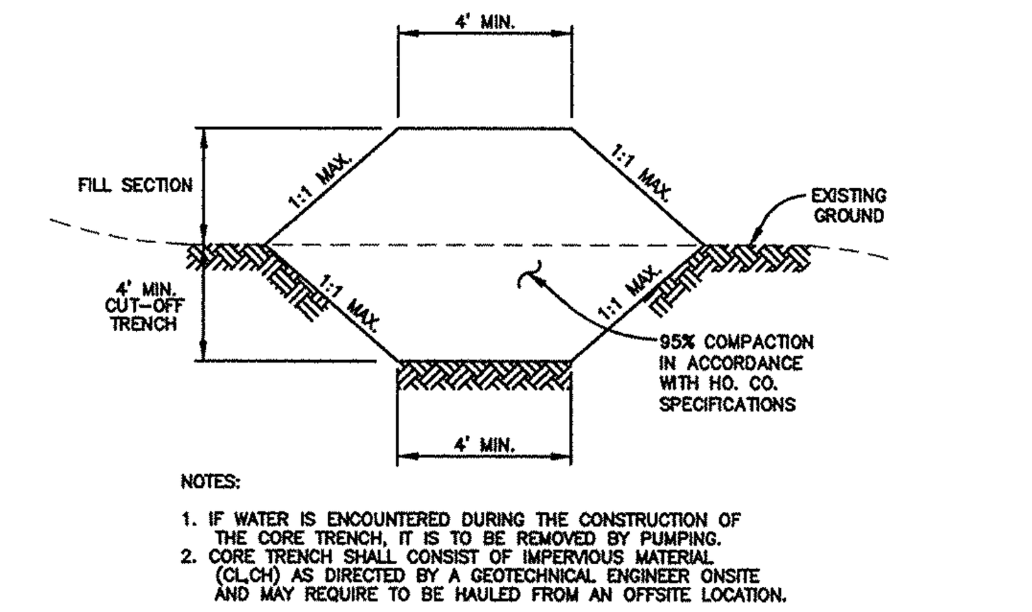
POND #3 6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE
NOT TO SCALE



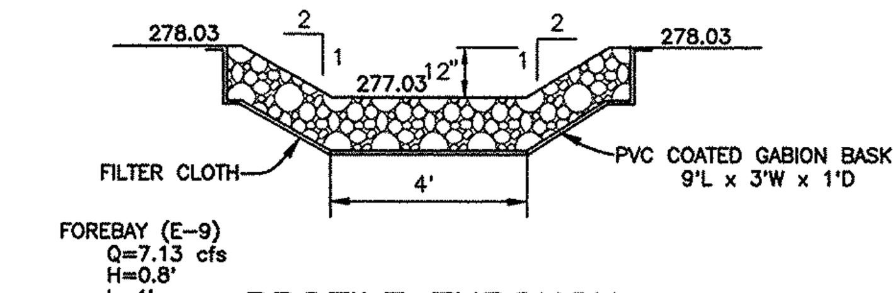
POND #3 6" TEMPORARY SWM VERTICAL DRAW DOWN DEVICE
NOT TO SCALE



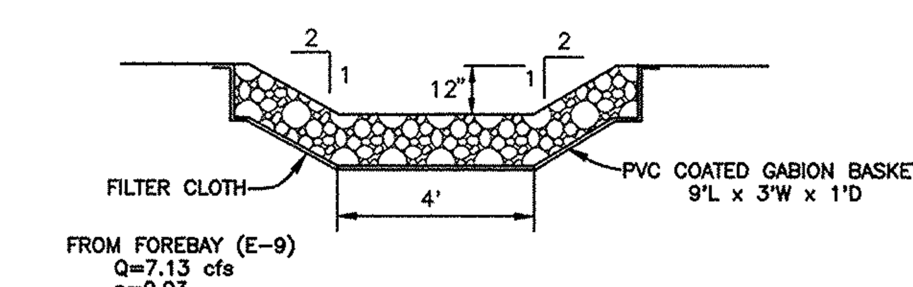
TYPICAL SECTION OF GABION WEIR AT FOREBAY
NOT TO SCALE



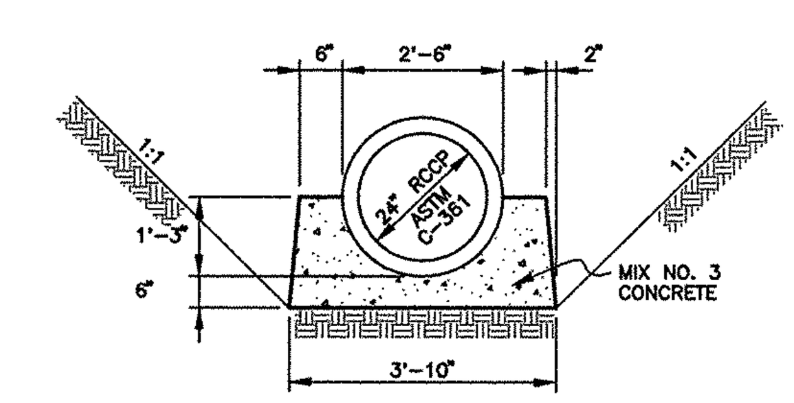
CORE TRENCH SECTION
NOT TO SCALE



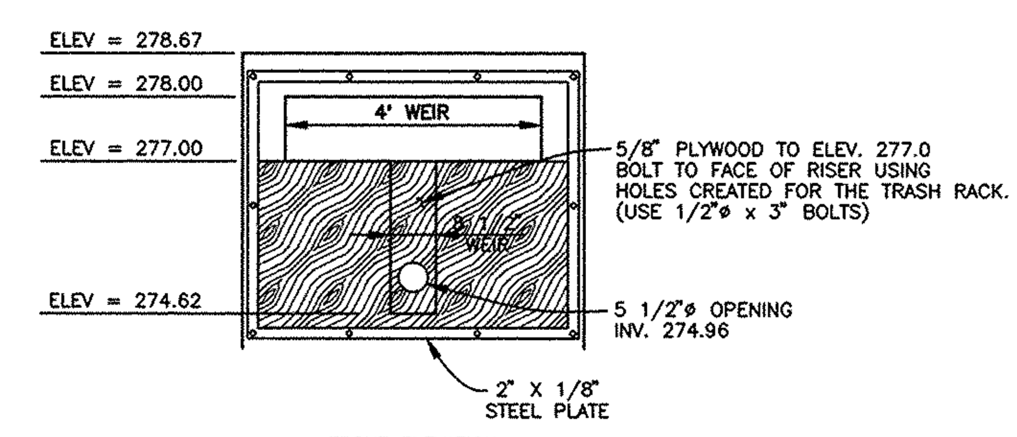
PROFILE THROUGH FOREBAY WEIR
NOT TO SCALE



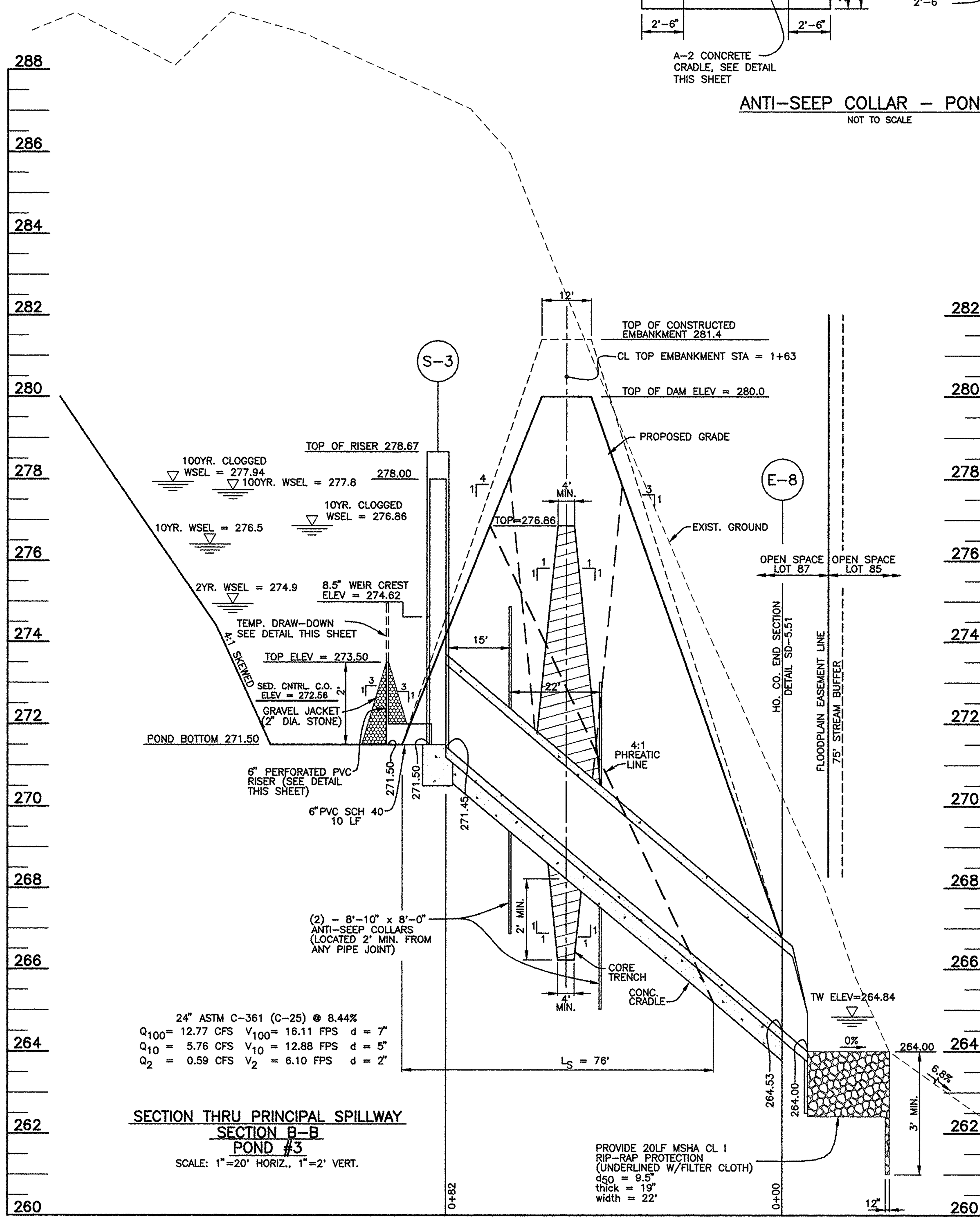
GABION INFLOW PROTECTION CHANNEL
NOT TO SCALE



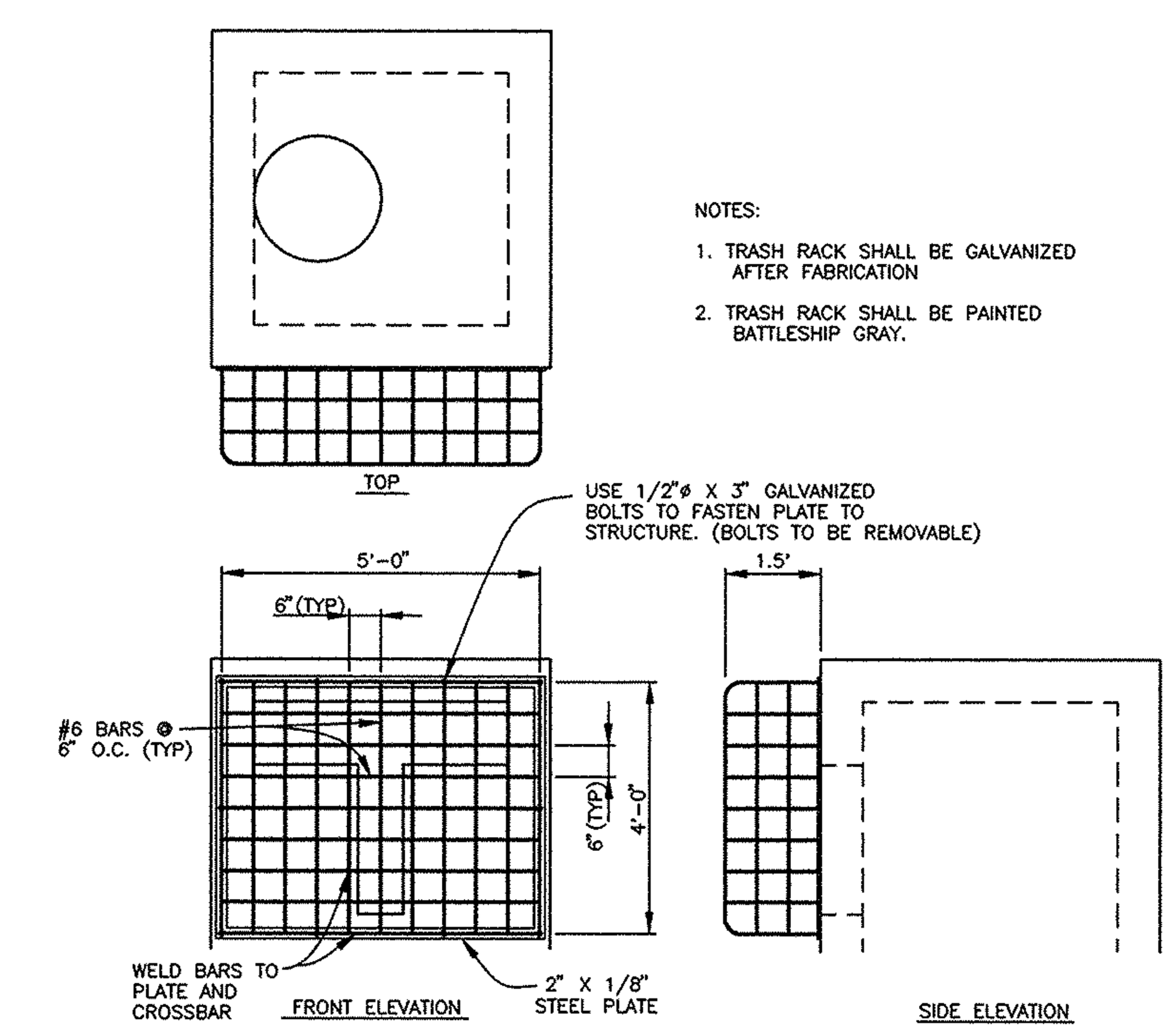
POND #3 TYPE A–2 CONCRETE CRADLE
NOT TO SCALE



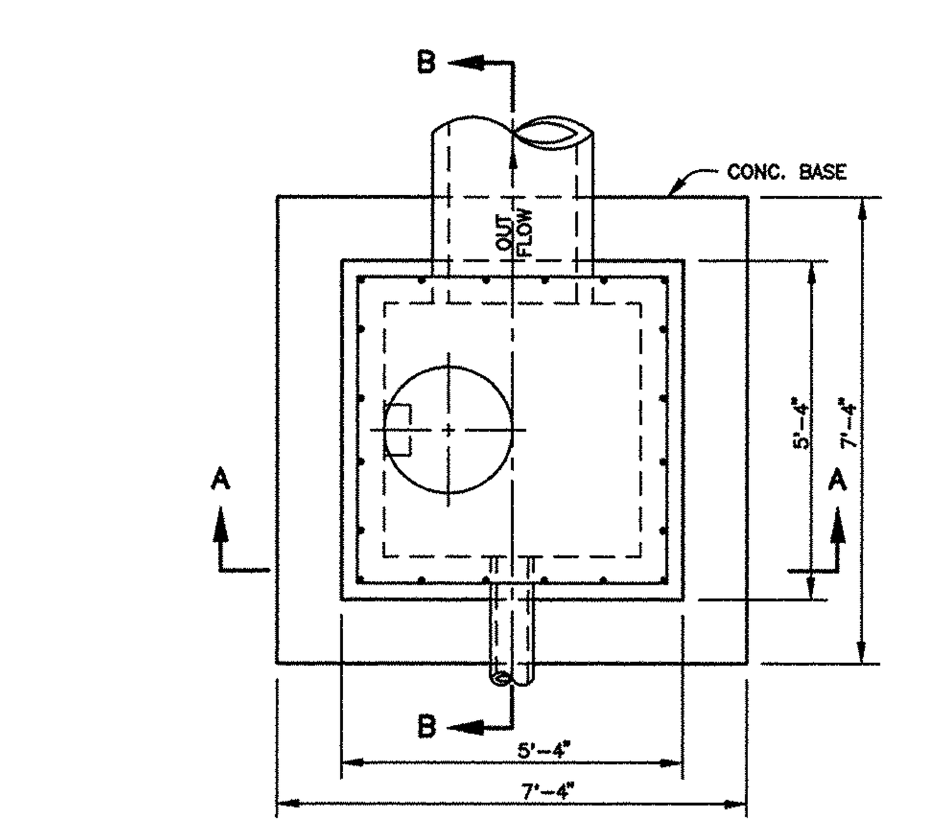
BLOCKING DETAIL FOR POND #3 TEMPORARY SWM DURING CONSTRUCTION
SCALE: 1" = 3'

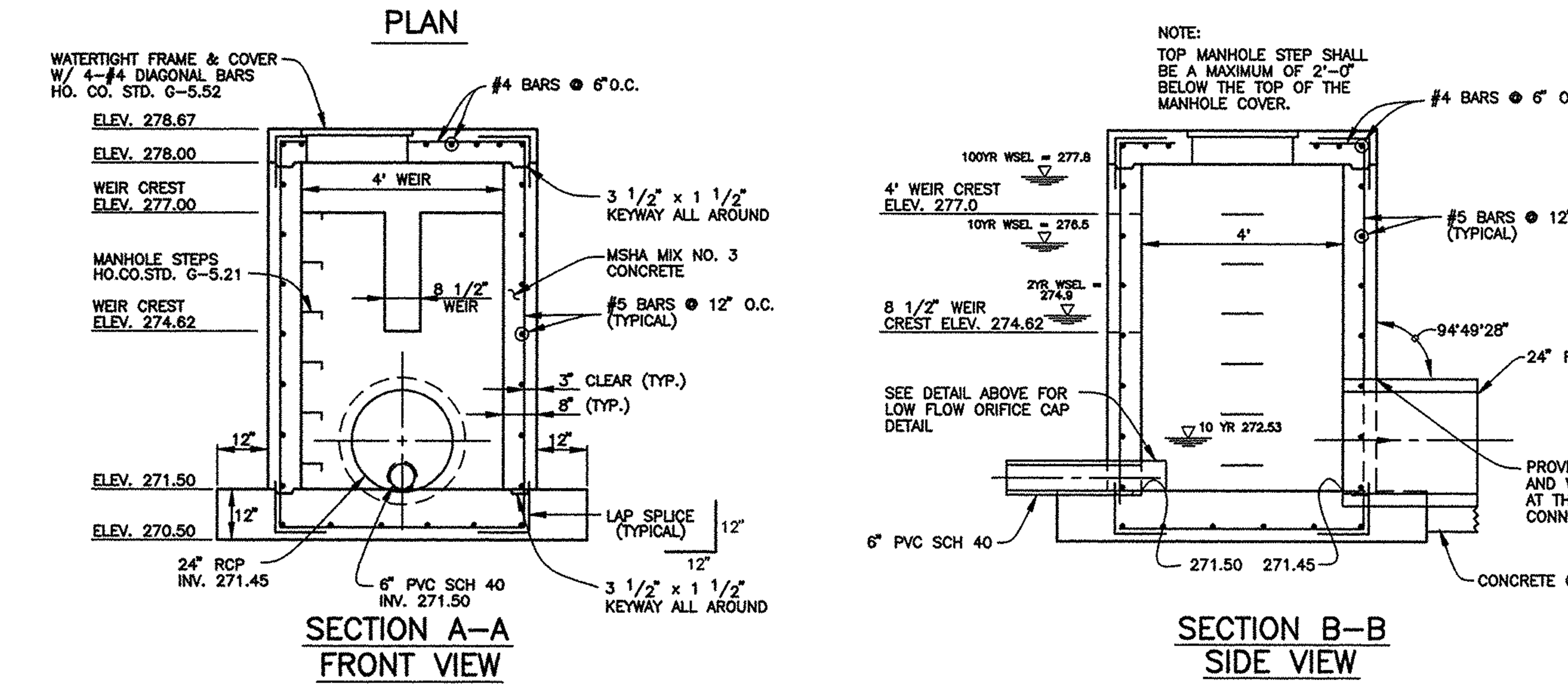


SECTION THRU PRINCIPAL SPILLWAY
SECTION B–B
POND #3
SCALE: 1"=20' HORIZ., 1"=2' VERT.



TRASH RACK – POND #3
SCALE: 1" = 3'





CONTROL STRUCTURE – POND #3
SCALE: 1" = 3'

OPERATION, MAINTENANCE AND INSPECTION NOTE

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTAINANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

AS–BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS–BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

PE NO. 21443

DONALD A. MASON

DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

V.P. 6-1-98

DEVELOPER – TOLL MD LIMITED PARTNERSHIP — DATE

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS–BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

5/18/98

ENGINEER – DONALD A. MASON, P.E. # 21443 — 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.

6/9/98

NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

6/9/98

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

6-15-98

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

6/23/98

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

6/22/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8460 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

OWNERS:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723–6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT–OF–WAY

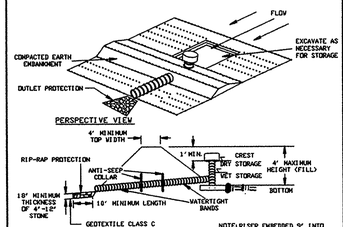
LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **STORMWATER MANAGEMENT DETAILS POND #3**
SP–97–02 WP–97–78 PB 312 F–93–70 WP–98–82

DATE:	OCTOBER, 1997 / MAY, 1998	PROJECT NO.	0518
SCALE:	AS SHOWN	SHEET 25 OF 31	
DESIGN: MLV	DRAFT: DBT	CHECK: DAM	

Acad Dwg: 7024S25 Plotted: May 27, 1998

DETAIL 8 - PIPE OUTLET SEDIMENT TRAP - ST I



EMBANKMENT SECTION THROUGH RISER

NOTE: RISER EMBEDDED 9' INTO CONCRETE OR 1/4" STEEL PLATE ATTACHED TO RISER WITH A CONTINUOUS WELD ON BOTTOM AND 2" OF STONE PLACED ON STEEL PLATE TWICE THE RISER DIAMETER (MIN.)

Construction Specifications

1. The area under the embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material, or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. The total trap volume as measured from the bottom to riser crest elevation shall be 3600 cubic feet per acre of drainage area (see Table 9). The top of embankment must be 2½' above the riser crest elevation.
4. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap (600cf/ac). The sediment shall be deposited in a suitable area and in such a manner that it will not erode.
5. The structure shall be inspected periodically and after each rain and repairs made as necessary.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 9 - 7	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

PIPE OUTLET SEDIMENT TRAP - ST I

6. Construction operations shall be carried out in such a manner that erosion and water pollution are abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and maintained and maintained erosion free during the life of the trap.

7. The structure shall be removed and area stabilized when the drainage area has been properly stabilized.

8. All cut and fill slopes shall be 2:1 or flatter.

9. All pipe connections shall be watertight.

10. Above the wet storage elevation, the riser shall be perforated with 1/2" wide by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally. No perforations will be allowed within 6" of the horizontal barrel.

11. The riser shall be wrapped with 1/2" hardware cloth (min) then wrapped with Geotextile Class E. The filter cloth shall extend 6" above the highest slit and 6" below the lowest slit. Where ends of filter cloth come together, they shall be overlapped, folded and fastened to prevent bypass. Filter cloth shall be replaced as necessary to prevent clogging.

12. Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.

13. Fill material around the pipe spillway shall be hand compacted in 4" layers. A minimum of 2' of hand-compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.

14. The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. Concrete bases shall be at least twice the riser diameter and 12" deep with the riser embedded 9". Steel plate bases shall be at least twice the riser diameter, 1/4" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2" of stone, gravel or tamped earth on the plate.

15. Anti seep collars shall be constructed in accordance with plate (ref. table 16 and Details 13 and 14).

16. Concentric trash rack and anti-vortex device design details are on Detail 16.

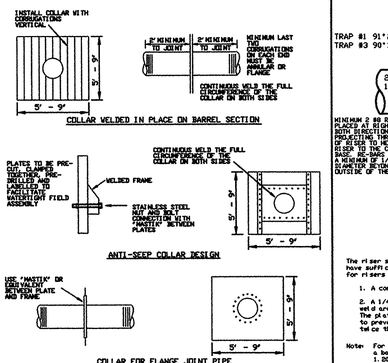
17. Refer to Section D for dewatering requirements of sediment traps.

18. Outlet - An outlet shall be provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel.

19. Where discharge occurs at the property line, local ordinances and drainage easement requirements shall be met.

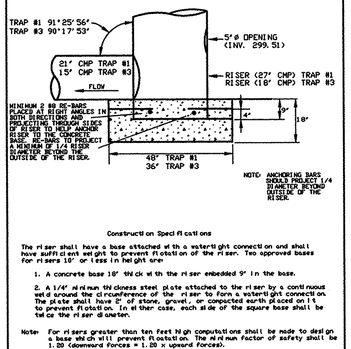
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - 9 - 7A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 14 - TYPICAL ANTI-SEEP COLLARS



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C - M - 24	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 15 - RISER BASE DETAIL



Construction Specifications

The riser shall have a base attached with a watertight connection and shall have sufficient weight to prevent flotation of the riser. Two approved bases for riser diameters less than eight are:

1. A concrete base 18" thick with the riser embedded 9" in the base.
2. A 1/4" minimum thickness steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2" of stone, gravel, or compacted earth placed on it to prevent flotation. In either case, each side of the square base shall be twice the riser diameter.

Note: For risers greater than ten feet high computations shall be made to design a base which will prevent flotation. The minimum factor of safety shall be 1.20 (downward forces = 1.20 x upward forces).

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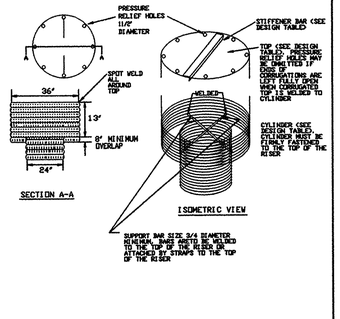
DETAIL 16 - CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE



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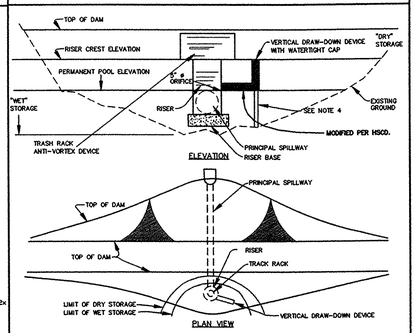
DETAIL 16 CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE (continued)

Riser Diam. in.	Trash Rack Cylinder Diam. in.	Trash Rack Cylinder Thickness gage	Ht. in.	Minimum Size Support Bar	Minimum Top Thickness Stiffener
12	18	16	6	#6 Rebar	16 ga. --
15	21	16	7	"	" --
18	27	16	8	TRAP #1	" --
21	30	16	11	"	" --
24	36	16	13	"	14 ga. --
27	42	16	15	TRAP #3	14 ga. --
36	54	14	17	#8 Rebar	12 ga. --
42	60	14	19	"	" --
48	72	12	21	1-1/4" dia pipe or 1-1/4 x 1-1/4 x1/4 angle	10 ga. --
54	78	12	25	"	" --
60	90	12	29	1-1/2" pipe or 1-1/2 x 1-1/2 x1/4 angle	8 ga. --
66	96	10	33	2" pipe or 2x2x3/16 angle	8 ga., 2x2x1/4 angle w/stiffener
72	102	10	36	"	" 2-1/2x2-1/2x1/4 angle w
78	114	10	39	2-1/2" pipe or 2x2x1/4 angle	" "
84	120	10	42	2-1/2" pipe or 2-1/2x2-1/2x1/4 angle	" 2-1/2 x2-1/2x 5/16 angle

Note: The above trash rack and anti-vortex device information is only for corrugated metal pipe. Concrete risers must meet the requirements of MD 378.

BASIN DRAWDOWN SCHEMATIC VERTICAL DRAW-DOWN DEVICE



Construction Specifications

1. Perforations in the draw-down device may not extend into the wet storage.
2. The total area of the perforations must be greater than 2 times the area of the internal orifice.
3. The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
4. Provide support of draw-down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

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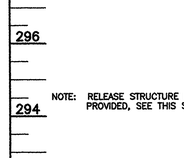
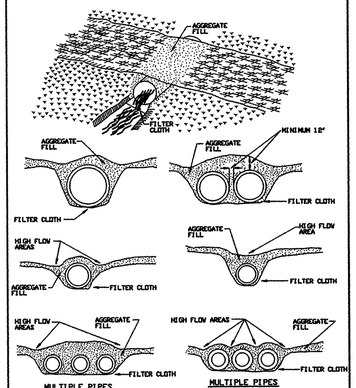


1. Description
   The work shall consist of installing a flow diversion structure when construction activities take place within the stream channel such as culvert construction or culvert replacement.
2. Material Specifications
   1. Sandbags: Sandbags shall consist of materials which are resistant to ultra-violet radiation, tearing and puncture and woven tightly enough to prevent leakage of fill material (i.e., sand, fine gravel, etc.).
   2. Stone: Stone shall be washed and have minimum diameter of 6 inches.
   3. Sheeting: Sheeting shall consist of polyethylene or other material which is impervious and resistant to puncture and tearing.
3. Construction Requirements
   1. All erosion and sediment control devices shall be installed as the first order of work.
   2. The height of the sandbag/stone diversion structure shall be one half the distance from the stream bed to stream bank plus one foot, as indicated in section a:a. The sandbags shall be placed on a smooth prepared surface.
   3. All excavated materials shall be disposed of in a SCD approved disposal area outside the 100 year Floodplain unless otherwise approved on the plans by the WRA.
   4. All dewatering of the construction area shall be pumped to a dewatering basin (Plate WP01.1) or otherwise approved on the plans by the WRA.
   5. Sheeting shall be overlapped a minimum of 18 inches.
   6. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

WATER RESOURCES ADMINISTRATION	DIVERSION PIPE	Approved on 1/24/86 Chief, Waterway Permits	WPD 2.2

DETAIL 36 - TEMPORARY ACCESS CULVERT



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TEMPORARY ACCESS CULVERT

CONSTRUCTION SPECIFICATIONS

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

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

3. 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. In all cases, the pipe(s) shall be large enough to convey normal stream flows.

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

5. 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.

6. 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).

7. 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.

8. 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"

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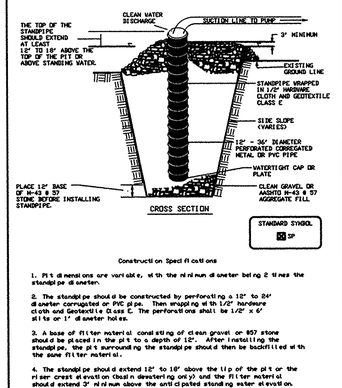
DETAIL 20B - SUMP PIT



Construction Specifications

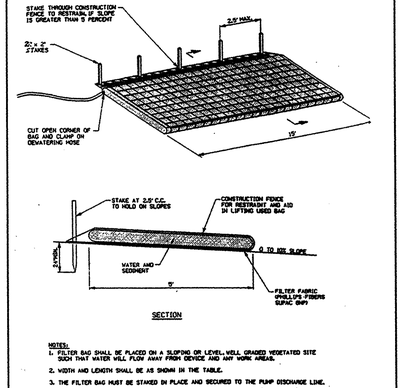
1. Pit dimensions are variable, with the minimum diameter being 2 times the standpipe diameter.

2. The standpipe should be constructed by perforating a 12" to 24" diameter corrugated or PVC pipe. Then wrapping with 1/2" hardware cloth and Geotextile Class C. The perforations shall be 1/2" x 6" slits or 1" diameter holes.

3. A base of filter material consisting of clean gravel or #57 stone should be placed in the pit to a depth of 12". After installing the standpipe, the pit surrounding the standpipe should then be backfilled with the stone filter material.

4. The standpipe should extend 12" to 18" above the lip of the pit or the riser crest elevation (basin dewatering only) and the filter material should extend 3" minimum above the anticipated standing water elevation.

FILTER BAG FILTER



NOTES:
1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
2. WIDTH AND LENGTH SHALL BE AS SHOWN IN THE TABLE.
3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.
4. FILTER BAG SHALL NOT BE USED FOR DISCHARGE FLOWS GREATER THAN 300 GPM.
5. DEVICE SHALL BE REMOVED AND DISPOSED OF AFTER BAG IS FILLED WITH SEDIMENT. SEDIMENT FROM BAG SHALL BE SPREAD IN AN UPLAND AREA.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

DEVELOPER - TOLL MD LIMITED PARTNERSHIP — DATE 6-19-98

BY THE ENGINEER:

"I/WE 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 ADVISED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

ENGINEER - DONALD A. MASON, P.E. # 21443 — DATE 5/18/98

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.

NATURAL RESOURCES CONSERVATION SERVICE — DATE 6/9/98

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 6/9/98

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

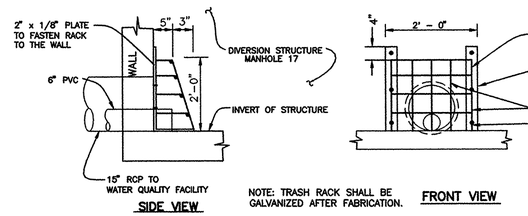
CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

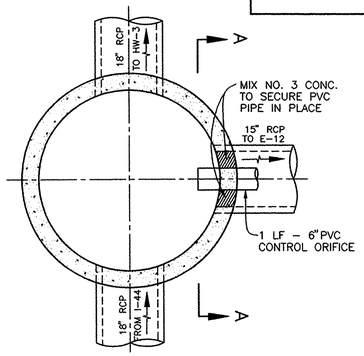
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

TEMPORARY SWM/PIPE OUTLET SEDIMENT TRAP #1
EMBANKMENT SECTION THRU RISER
SCALE: 1"=20' HORIZ., 1"=2' VERT.



TRASH RACK DETAIL
FOR M-17 STRUCTURE
NOT TO SCALE



M-17 DIVERSION STRUCTURE
NOT TO SCALE

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

STATE OF MARYLAND — DONALD A. MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER

OWNERS: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852
JOHN HOPKINS UNIVERSITY, 11100 JOHNS HOPKINS ROAD, LAUREL, MARYLAND 20723-6005

DEVELOPER: TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP, 3206 TOWER OAKS BOULEVARD, SUITE 310, ROCKVILLE, MARYLAND 20852

PROJECT: VILLAGE OF CEDAR RIDGE
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 - PARCELS 43 & 44, P/O 123, 5th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: WATER QUALITY FACILITY AND TEMPORARY SWM NOTES AND DETAILS
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997, MAY, 1998 — PROJECT NO. 0518

DESIGN: MLV | DRAFT: DBT | CHECK: DAM — SCALE: AS SHOWN — SHEET 26 OF 31

F-98-52

Acad Dwg: 7024526 Plotted: May 18, 1998

POND CONSTRUCTION SPECIFICATIONS

Site Preparation

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

Areas to be covered by the 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. For dry stormwater management ponds, a minimum of a 50 foot radius around the inlet structure shall be cleared.

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

Earth Fill

Material – The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut–off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into 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 will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within +/–2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T–99.

Cut Off Trench – The cutoff trench shall be excavated into impervious material 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 below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Structure Backfill

Backfill adjacent to pipes or structures 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 manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe – All of the following criteria shall apply for corrugated metal pipe:

1. Materials – (Steel Pipe) – This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M–190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings or an approved equal may be used: Nexon, Plasti–Cote, Blac–Klad, and Bath–Cu–Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M–245 and M–246.

   Materials – (Aluminum Coated Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M–274 with watertight coupling bands or flanges. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

   Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M–196 or M–211 with watertight coupling bands or flanges. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling bands, anti–seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. 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. Anti–seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

   All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re–rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less than 48" in diameter: flanges on both ends of the pipe, a 12" wide standard lap type band with 12" wide by 3/8" thick closed cell circular neoprene gasket; and a 12" wide hugger type band with O–ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 48" in diameter and larger shall be connected by a 24" long annular corrugated band using rods and lugs. A 12" wide by 3/8" thick closed cell circular neoprene gasket will be installed on the end of each pipe for a total of 24". Helically corrugated pipe shall have either continuously welded seams or have lock seams.

4. 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.

5. Backfilling shall conform to "Structure Backfill."

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

Reinforced Concrete Pipe – All of the following criteria shall apply for reinforced concrete pipe:

1. Materials – Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C–361. An approved equivalent is AWWA Specification C–302.

2. Bedding – All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.

3. Laying pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti–seep collars, valves, etc.) shall be as shown on the drawings.

Polyvinyl Chloride (PVC) Pipe – All of the following criteria shall apply for polyvinyl chloride (PVC) pipe:

1. Materials – PVC pipe shall be PVC–1120 or PVC–1220 conforming to ASTM D–1785 or ASTM D–2241.

2. Joints and connections to anti–seep collars shall be completely watertight.

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

4. Backfilling shall conform to "Structure Backfill."

5. Other details (anti–seep collars, valves, etc.) shall be as shown on the drawings.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 608, Mix No. 3.

Rock Riprap

All rock shall be dense, sound, and free from cracks, seams, and other defects conducive to accelerated weathering. The rock fragments shall be angular to subrounded in shape. The least dimension of an individual rock fragment shall be not less than one third the greatest dimension of the fragment.

The rock shall have the following properties:

1. Bulk specific gravity (saturated surface–dry basis) not less than 2.5.

2. Absorption not more than three percent.

3. Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 127. The test for soundness shall be performed according to ASTM C 88.

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water shall be pumped.

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 in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD–342) or as shown on the accompanying drawings.

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.

Embankment and Cut–off Trench Construction

The site should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dumptruck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re–established by backfilling with suitable soil.

A representative of the geotechnical Engineer should be present to monitor placement and compaction of fill for each embankment and cut–off trench. In accordance with Maryland Soil Conservation Specification 378, soils considered suitable for the center of embankment and cut–off trench shall conform to Unified Soil Classification GC, SC, CH, or CL. A review of the site borings did not indicate the presence of suitable core or cut–off trench materials at the tested locations. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications.

Record of Soil Exploration Boring No. 1

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					5" Topsoil
Tan moist micaceous silty sand (SM)							No groundwater encountered while excavating
	5.0	5					No infiltration test performed
Tan very moist micaceous silty sand and quartz rock (very dense) (SM)	7.5						Backfilled at completion.
Refusal at 7.5'		10					
		15					
		20					

Record of Soil Exploration Boring No. 2

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					2" Topsoil
Brown moist silty fine sand, some mica (SM)							No groundwater encountered while excavating
	6.0	5					No infiltration test performed
Brown and tan very moist silty fine to coarse sand and quartz gravel some iron stone and mica (dense) (SM–GM)	8.0						Backfilled at completion.
Brown, tan saturated micaceous silty medium to coarse sand and quartz gravel and rock fragments (very dense) (SM–GM)	10.0	10					
Bottom of hole at 10.0'		15					
		20					

Record of Soil Exploration Boring No. 3

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					2–4" Topsoil
Brown moist silty fine sand, some mica (SM)	3.0						Groundwater encountered at 8.0' while excavating
Gray and tan moist fine sandy silt, some mica (ML)	5.0	5					No infiltration test performed
Tan very moist micaceous silty fine sand and quartz rock fragments, some mica (SM)	9.0						Backfilled at completion.
Bottom of hole at 9.0'		10					
		15					
		20					

Record of Soil Exploration Boring No. 4

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					
Graung too soft, did not test		5					
		10					
		15					
		20					

Record of Soil Exploration Boring No. 5

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					5" Topsoil
Tan, gray very moist fine sandy silt, some mica (ML)	3.0						Groundwater encountered at 5.0' while excavating
Brown very moist to wet micaceous silty sand, with quartz and decomposed rock fragments (SM)	6.0	5					No in–situ infiltration test performed
Bottom of Hole at 6.0'		10					Backfilled at completion.
		15					
		20					

Record of Soil Exploration Boring No. 6

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					4" Topsoil
Brown very moist micaceous silty sand (SM)	2.5						12" Rootmat
Tan, brown, very moist micaceous fine sandy silt/silty sand (ML–SM) trace rock fragments	6.5	5					Groundwater encountered at 5.5' while excavating
Bottom of hole at 6.5'		10					No in–situ infiltration test performed
		15					Backfilled at completion.
		20					

Record of Soil Exploration Boring No. 7

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					6" Topsoil
Orange brown moist fine sandy silt (ML)	1.5						No groundwater encountered while excavating
Orange brown moist fine sandy silt/silty fine sand, rock fragments, and boulders (SM–GM)		5					No infiltration test performed
denser with depth	9.0						Backfilled at completion.
Rock		10					
Refusal at 9.0'		15					
		20					

Record of Soil Exploration Boring No. 8

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					4" Topsoil
Orange brown moist fine sandy silt (ML)	2.0						4" Rootmat
Brown, tan moist silty sand with cobble–sized rock fragments, some mica and decomposing rock fragments (SM–GM)	8.0	5					No groundwater encountered while excavating
		10					No in–situ infiltration test performed
Brown, tan, gray moist sandy silt/silty sand with rock fragments, decomposing rock fragments, some mica (SM–ML)	14.0						Backfilled at completion.
Bottom of Hole at 14.0'		15					
		20					

Record of Soil Exploration Boring No. 9

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					6–8" Topsoil
Orange brown, brown moist silty fine sand, some mica, little rock fragments (SM)	2.0						up to 12" Rootmat
		5					No groundwater encountered while excavating
Brown, tan, moist micaceous silty sand, decomposing rock fragments little cobble–sized rock (SM)							No in–situ infiltration test performed
		10					Backfilled at completion.
	15.0						
Bottom of hole at 15.0'		15					
		20					

Record of Soil Exploration Boring No. 10

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					4–6" Topsoil
Orange, tan moist silty sand, some mica (SM)	5.0						No groundwater encountered while excavating
Orange, tan, moist, silty sand and cobble–sized decomposing rock fragments (SM–GM)	7.0	5					Bag sample from 0.0' – 5.0'
Orange, tan, moist, silty sand, some mica, little decomposing rock fragments (SM)	10.0	10					In–situ infiltration test not performed
Bottom of Hole at 10.0'		15					Backfilled at completion.
		20					

Record of Soil Exploration Boring No. 11

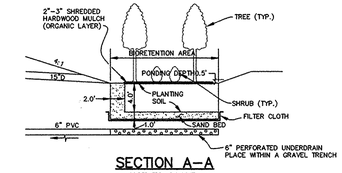
SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					4" Topsoil
Orange, tan moist silty fine sand some mica (SM)	4.0						6" Rootmat
Orange tan moist silty sand and cobble–sized rock fragments (SM–GM) becomes denser with depth	7.0	5					No groundwater encountered while excavating
Rock		10					No infiltration test performed
Refusal at 7.0'		15					Backfilled at completion.
		20					

Record of Soil Exploration Boring No. 12

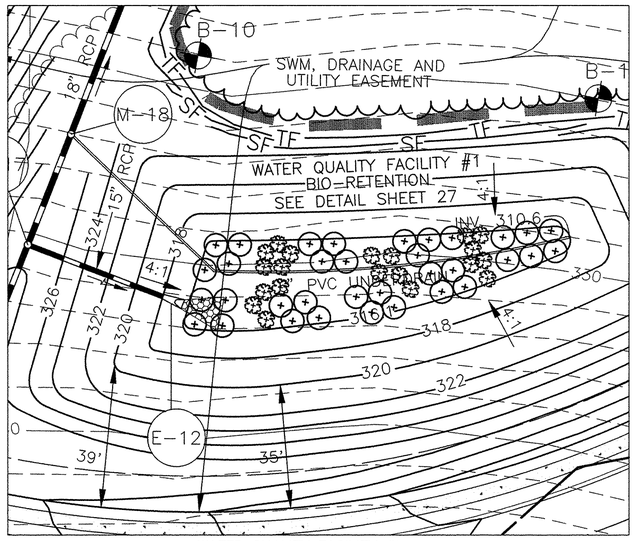
SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					6–8" Topsoil
Tan moist fine sandy silt (ML)	3.0						Groundwater encountered at 3.5' while excavating
Tan moist sand and gravel, some silt and cobbles (SM–GM)	6.0	5					In–situ infiltration test not performed
Bottom of hole at 6.0'		10					Bag sample 3–6'
		15					Backfilled at completion.
		20					

Record of Soil Exploration Boring No. 13

SOIL DESCRIPTION Color, Moisture, Density, Size, Proportion	STRA. DEPTH	DEPTH (FT.)	Sample CON	BLOWS 6"	NO	REC	BORING & SAMPLING NOTES
SURFACE		0.0					4–6" Topsoil
Tan moist fine sandy silt (ML)	1.0						No groundwater encountered while excavating
Tan moist sand and gravel, some silt and cobbles, trace mica (SM–GM)	6.0	5					In–situ infiltration test not performed
Orange/tan moist silty sand, trace mica (SM)	8.0						Backfilled at completion.
Bottom of Hole at 8.0'		10					
		15					
		20					



SECTION A–A
NOT TO SCALE



WATER QUALITY FACILITY #1
BIO–RETENTION PLANTING PLAN
SCALE: 1" = 10'

OPERATION AND MAINTENANCE SCHEDULE OF PRIVATELY OWNED AND MAINTAINED BIORETENTION AREA

Description	Method	Frequency	Time of the Year
SOIL			
Inspect and Repair Erosion	Visual	Monthly	Monthly
ORGANIC LAYER			
Remulch any void areas	By hand	Whenever needed	Whenever needed
Remove previous mulch layer before applying new layer (optinal)	By hand	Once a year	Spring
Any additional mulch added (optional)	By hand	Once a year	Spring
PLANTS			
Removal and replacement of all dead and diseased vegetation considered beyond treatment	See planting Details	Twice a year	3/15 to 4/30 and 10/1 to 11/30
Treat all diseased trees and shrubs	Mechanical or by hand	N/A	Varies, depends on insect or disease infestation
Watering of plant material shall take place at the end of each day for fourteen consecutive days after planting has been completed	By hand	Immediately after completion of project	N/A
Replace stakes after one year	By hand	Once a year	Only remove stakes in the spring
Replace any deficient stakes or wires	By hand	N/A	Whenever needed

MATERIAL SPECIFICATIONS FOR BIORETENTION AREA

PLANTING SOIL

The bioretention areas shall consist of a planting soil having a composition of at least 10 to 25 percent clay and shall be of a sandy loam or loamy sand texture. Loamy soils may be utilized for the planting soil but must consist of 25% sand. In addition, the furnished planting soil shall be of uniform composition, free of stones, stumps, roots or similar objects larger than one inch, brush, or any other material or substance which may be harmful to plant growth, or a hinderance to planting or maintenance operations.

The planting soil shall be free of plants or plant parts of Bermuda grass, Quack grass, Johnson grass, Mugwort, Nutsedge, Poison Ivy, Canadian Thistle or others as specified.

It shall not contain toxic substances harmful to plant growth.

The planting soil shall be tested and meet the following criteria:

pH range	5.5 – 6.5
Organic matter	1.5 – 3.0%
Magnesium – Mg	35 lbs./acre
Phosphorus – P_2O_5	100lbs./acre
Potassium – K_2O	85 lbs./acre
Soluble salts	not to exceed 500ppm

The following testing frequencies shall apply to the above soil constituents:
PH, Organic Matter: 1 test per 90 cubic yards, but no more than 1 test per Bioretention area.
Magnesium, Phosphorus, Potassium, Soluble Salts:
1 test per 500 cubic yards, but not less than 1 test per borrow source

One grain size analysis shall per performed per 90 cubic yards of planting soil, but no less than 1 test per Bioretention Area.

MULCH LAYER SPECIFICATIONS

A mulch layer approximately 2"–3" in depth shall be provided on top of the planting soil. An acceptable mulch layer shall include shredded hardwood or shredded wood chips.

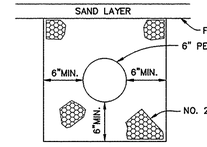
Of the approved mulch products all must be well aged, uniform in color, and free of foreign material including plant material. Well aged mulch is defined as mulch that has been stockpiled or stored for at least twelve (12) months.

SAND SPECIFICATIONS

The sand shall be free of deleterious material and rocks greater than 1 inch in diameter.

COMPACTION

Soil shall be placed in lifts less than 18 inches and lightly compacted (minimal compactive effort) by tamping with a bucket from a dozer or a backhoe.



GRAVEL TRENCH DETAIL
NOT TO SCALE

PLANTING LIST FOR THE BIORETENTION AREA

SYMBOL	QUANTITY	NAME	REMARKS
+	34	ACER RUBRUM (RED MAPLE)	2 1/2"MIN. CAL B&B FULL HEAD
✿	20	JUNIPERUS HORTZONTALIS (CREEPING JUNIPER)	18" TO 24" SPREAD

* PLANTING TABULATION:
TREES : (450–650/AC.) USE 550/AC (AVER.)x0.061 AC.=34 TREES
TREES PROVIDED: 34
SHRUBS : (200–450/AC.) USE 325/AC (AVER.)x0.061 AC.=20 SHRUBS
SHRUBS PROVIDED: 20
* – TABULATIONS BASED ON INFORMATION PROVIDED BY BIOHABITATS, INC.

BIORETENTION AREA PLANTING LAYOUT
SCALE 1"=10'

NOTE:
CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING APPROPRIATE CORE TRENCH MATERIAL FROM OFF–SITE IF ON–SITE MATERIAL CANNOT BE FOUND.

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

U.P. 6-1-98
DEVELOPER – TOLL MD LIMITED PARTNERSHIP — DATE

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS–BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason 5/27/98
ENGINEER – DONALD A. MASON, P.E. # 21443 — 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.

NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410–465–6105

STATE OF MARYLAND — DONALD ALLEN MASON — No. 21443 — REGISTERED PROFESSIONAL ENGINEER

OWNERS:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723–6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: VILLAGE OF CEDAR RIDGE
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT–OF–WAY

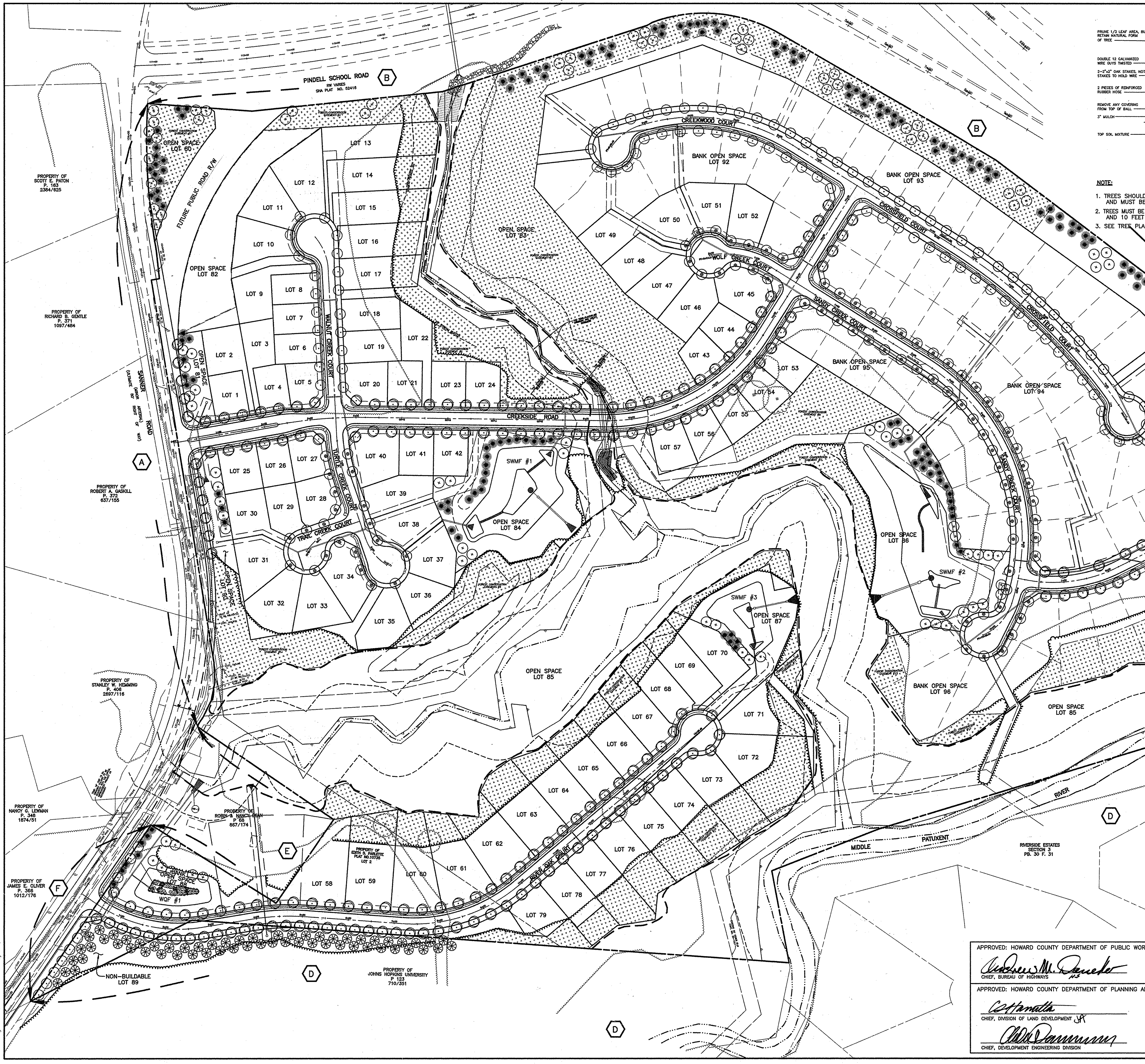
LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

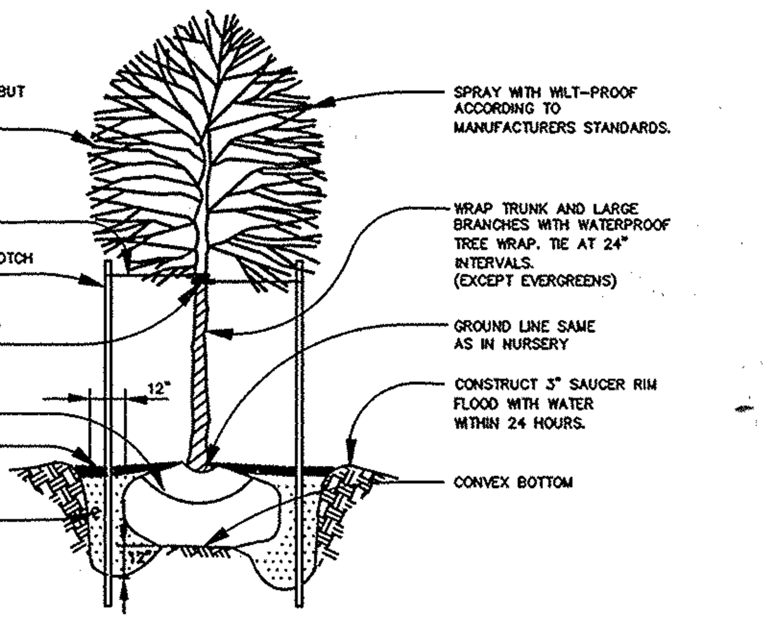
TITLE: STORMWATER MANAGEMENT NOTES AND DETAILS
SP–97–02 WP–97–78 PB 312 F–93–70 WP–98–82

DATE: OCTOBER, 1997 / MAY, 1998
PROJECT NO. 0518
DESIGN: MLV DRAFT: DBT CHECK: DAM
SCALE: NONE
SHEET 27 OF 31

F–98–52

Acad Dwg: 7024527 Plotted: May 27, 1998





TREE PLANTING DETAIL

NOT TO SCALE

NOTE:

1. TREES SHOULD BE PLANTED A MINIMUM OF 6 FEET FROM THE EDGE OF PAVING AND MUST BE A MINIMUM OF 5 FEET FROM ANY STORM DRAIN.
2. TREES MUST BE PLANTED A MINIMUM OF 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.
3. SEE TREE PLANTING DETAIL – THIS SHEET.

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS			ADJACENT TO PERIMETER PROP.		
LANDSCAPE TYPE	(A) B	(B) B	(F) B	(C) A	(D) A	(E) A
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	1,371'	2,480'	466'	810'	3481'	902'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	(2) YES, 400'	(2) YES, 180'	(2) YES, 250'	YES, 360'	(2) YES, 2611'	(2) YES, 500'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED	971 L.F.	2300 L.F.	216 L.F.	450 L.F.	870 L.F.	402 L.F.
SHADE TREES	20	46	4	8	15	7
EVERGREEN TREES	24	57	6	–	–	–
OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–	–	–
SHRUBS	–	–	–	–	–	–
NUMBER OF PLANTS PROVIDED						
SHADE TREES	20	34	0	8	0	7
EVERGREEN TREES	24	81	16	–	49	–
OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–	–	–
SHRUBS (10:1 SUBSTITUTE)	–	–	–	–	–	–
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)						

(2) EXISTING WOODS WITH WIDTH 20' OR GREATER.

STREET TREE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
⊕	85	TILIA CORDATA 'GREENSPIRE' (Greenspire Littleleaf Linden)	2 1/2" MIN. CAL. B&B FULL HEAD
⊙	104	ACER RUBRA (Red Maple)	2 1/2" MIN. CAL. B&B FULL HEAD
◎	193	ACER SACCHARUM (Sugar Maple)	2 1/2" MIN. CAL. B&B FULL HEAD

LANDSCAPE PLANTING LIST

SYMBOL	QUANTITY	NAME	REMARKS
(+)	106	PLANTANUS ACERFOLIA 'BLOODGOOD' (Bloodgood London Plane)	2 1/2" MIN. CAL. B&B FULL HEAD
✷	168	PINUS STROBUS (Eastern White Pine)	5'–6' ht. UNSHEARED
⊛	59	CUPRESSOCYPARIS LEYLANDII (Leyland Cypress)	5'–6' HEIGHT

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING

	FACILITY 1	FACILITY 2	FACILITY 3	WQF
LINEAR FEET OF PERIMETER	980	1400	710	BIO-RETENTION SEE PLANTING DETAIL SHEET NO. 27 NO ADDITIONAL LANDSCAPING REQUIRED
LINEAR FEET OF EXISTING WOODS LINE	440	470	500	
LINEAR FEET OF BUFFER LENGTH	540	930	210	
BUFFER TYPE	"B"	"B"	"B"	
NUMBER OF TREES REQUIRED				
SHADE TREES	11	19	4	
EVERGREEN TREES	13	23	5	
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	NO	NO	NO	
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO	NO	NO	
NUMBER OF TREES PROVIDED				
SHADE TREES	7	19	5	
EVERGREEN TREES	21	23	5	
OTHER TREES (2:1 SUBSTITUTE)				

LANDSCAPE LEGEND

SYMBOL	DESCRIPTION
⊕ ⊙ ◎	STREET TREES TO BE PROVIDED BY THE DEVELOPER TO BE INCORPORATED ON FINAL PLANS.
(+)	SHADE TREES ALONG PERIMETER AND STORMWATER MANAGEMENT TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.
⊛ ✷	EVERGREEN TREES ALONG PERIMETER AND STORMWATER MANAGEMENT AREA TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.

LANDSCAPING NOTES

1. PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS.
2. THE DEVELOPER SHALL BE RESPONSIBLE FOR THE STREET TREES, STORMWATER MANAGEMENT POND PLANTING, THE PRESERVATION OF THE PERIMETER VEGETATION AS SHOWN ON THESE PLANS, AND FOR PERIMETER PLANTING ON PERIMETERS A,B,C,D & E. BONDING FOR PERIMETER PLANTING IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPERS AGREEMENT.
3. A MINIMUM OF 20' SHALL BE MAINTAINED BETWEEN TREES AND STREET LIGHTS.

NOTE:
THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPING MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPE TREES IN THE AMOUNT OF $26,600.00 MUST BE POSTED AS PART OF THE DEVELOPERS AGREEMENT.

NO.	DATE	REVISION
3	2-11-15	REVISE FOREST CON. ESMT. ON LOT 156
2	10-5-12	REMOVE 1500# OF FCE #10 FROM LOT 78 (SHANABERGER & LANE) PER REVISION PLAT F-13-020
1	1-18-07	REMOVE FCE FROM LOT 58

TSA GROUP, INC.
planning • architecture • engineering • surveying
8480 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 6-15-98 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 6/23/98 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 6/22/98 DATE

OWNERS:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP,
A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE PLAN, NOTES AND DETAILS
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM DRAFT: DBT CHECK: DAM — SCALE: 1" = 100' — SHEET 28 OF 31

F-98-52

Acad Dwg: 7022528 Plotted: May 27, 1998

M.A. DIRCKS & CO., INC.
Environmental Consulting Services
15228 Old Hanover Road
Upperco, Maryland 21155
Phone/Fax: 410-526-7388

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8460 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION
3	2-11-15	REVISE FOREST CON. ESMT. ON LOT 156
2	10-5-12	REMOVE 1500 ft² OF FCE #10. FROM LOT 78 (SHANABERGER & LANE) PER REVISION PLAT F-13-020.
1	1-18-07	REMOVE FCE FROM LOT 58

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SUITE 310
ROCKVILLE, MARYLAND 20852

JOHN HOPKINS UNIVERSITY
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LAUREL, MARYLAND 20723-6005

DEVELOPER:
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A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: **VILLAGE OF CEDAR RIDGE**
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

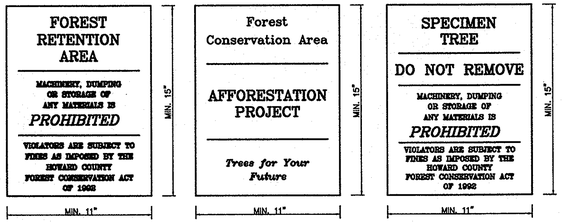
TITLE:
FOREST CONSERVATION PLAN
SP-97-02 WP-97-78 PB 312 F-93-70 WP-98-82

DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM | DRAFT: DBT | CHECK: DAM | SCALE: 1" = 100' | SHEET 29 OF 31

F-98-52

Acad Dwg: 7014S29 Plotted: April 1, 1998



SIGNAGE
NOT TO SCALE

LEGEND

FOREST CONSERVATION EASEMENT RETENTION

FOREST CONSERVATION EASEMENT REFORESTATION

PLAN
SCALE: 1"=100'

APPENDIX G
FOREST CONSERVATION WORKSHEET

I. BASIC SITE DATA	ACRES (1/10 acre)
GROSS SITE AREA	100.6
AREA WITHIN 100 YEAR FLOODPLAIN	18.9
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	N/A
NET TRACT AREA	81.7
LAND USE CATEGORY (R-RLD, R-RMD, R-S, C/I/O, I)	R-ED

II. INFORMATION FOR CALCULATIONS	
A. NET TRACT AREA	81.7
B. REFORESTATION THRESHOLD (20% x A)	16.3
C. AFFORESTATION MINIMUM (15% x A)	12.3
D. EXISTING FOREST ON NET TRACT AREA	36.1
E. FOREST AREAS TO BE CLEARED	24.1
F. FOREST AREAS TO BE RETAINED	12.0

III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

1. Reforestation

If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C), and clearing of forest areas is proposed, reforestation requirements may apply.

GO TO SECTION IV

If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C), and no clearing of existing forest resources is proposed, no reforestation is required. No further calculations are needed.

2. Afforestation

If existing forest areas are less than the afforestation minimum (if D is less than C), afforestation requirements apply.

GO TO SECTION V

IV. REFORESTATION CALCULATIONS	ACRES (1/10 acre)
A. NET TRACT AREA	81.7
B. REFORESTATION THRESHOLD (20% x A)	16.3
D. EXISTING FOREST ON NET TRACT AREA	36.1
E. FOREST AREAS TO BE CLEARED	24.1
F. FOREST AREAS TO BE RETAINED	12.0
G. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD (D-F, If F equals or is greater than B, Alternate 1) (D-B, If F is less than B, Alternate 2)	19.8
H. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD (B-F, if applicable)	4.2
I. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F-B, Retention Credit, if applicable)	N/A

SELECT THE ALTERNATE THAT APPLIES:

1. Clearing above the threshold only

If forest areas to be retained equal or are greater than the reforestation threshold (if F equals or is greater than B), the following calculations apply:

REFORESTATION FOR CLEARING ABOVE THRESHOLD G x 1/4	____
CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD I = Retention Credit	____
TOTAL REFORESTATION REQUIRED (G x 1/4) - I	____

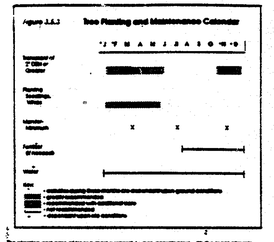
If the total reforestation requirement is equal to or less than 0, no reforestation is required.

2. Clearing below the threshold

If forest areas to be retained are less than the reforestation threshold (if F is less than B), the following calculations apply:

REFORESTATION FOR CLEARING ABOVE THRESHOLD G x 1/4	5.0
REFORESTATION FOR CLEARING BELOW THRESHOLD H x 2	8.4
TOTAL REFORESTATION REQUIRED (G x 1/4) + (H x 2)	13.4

Since clearing occurs below the threshold, no forest retention credit is possible



PLANTING NOTES:

1.) Planting stock should be 3' to 4' whips and 1 1/2 to 2 gallon container stock at a minimum, with 5' – 6' trees for the oaks, maple and white pine.

2.) Only composted mulch may be used.

3.) Whips should be planted an average of 11ft. on center with 5 ft. trees an average of 15 ft. (see random planting detail). Pines should be concentrated on the outside perimeter of Planting Area #2 (adjacent to the lots).

4.) White oak, white pine and flowering dogwood should be planted outside of wetland limits and wetland buffer in Planting Area #1. Larger trees should be planted along the outside perimeter with a random planting scheme inside. Pines should be concentrated on the outside perimeter.

SITE DATA	
	ACREAGE
GROSS AREA	100.6
EX. LOTS/UNFORESTED PRESERVATION	18.9
EASEMENT/FLOODPLAIN	0.0
NET TRACT AREA	81.7
EXISTING FOREST ON NTA	36.1
REFORESTATION THRESHOLD	16.3
FOREST TO BE CLEARED	24.1
FOREST TO BE RETAINED (NTA)	12.0
REFORESTATION REQUIRED	13.4
REFORESTATION PROPOSED	13.4

Mary A. Dircks
M.A. DIRCKS & CO., INC.
Environmental Consulting Services
15228 Old Hanover Road
Upperco, Maryland 21155
Phone/Fax: 410-526-7388

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

V.P. 6-1-98
DEVELOPER – TOLL MD LIMITED PARTNERSHIP DATE

BY THE ENGINEER:

"I/WE 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/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason 5/18/98
ENGINEER – DONALD A. MASON, P.E. # 21443 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.

NATURAL RESOURCES CONSERVATION SERVICE DATE

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

HOWARD SOIL CONSERVATION DISTRICT DATE

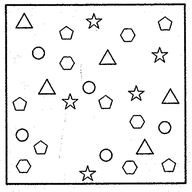
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS 6-15-98 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

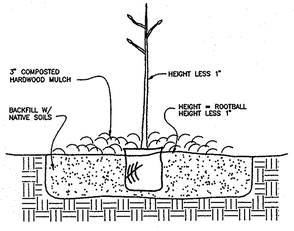
CHIEF, DIVISION OF LAND DEVELOPMENT 6/23/98 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 6/22/98 DATE



SYCAMORE/OAK
TULIP POPLAR
RED MAPLE
DOGWOOD
GREEN ASH
TO BE PLANTED IN RANDOM DISTRIBUTION PATTERN

RANDOM PLANTING DETAIL
NOT TO SCALE

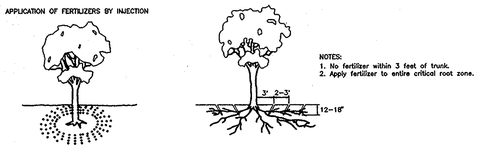


WIDTH = AUGERED HOLE 18" MINIMUM

PLANTING FIELD DETAIL
NOT TO SCALE

PROTECTION OF THE CRITICAL ROOT ZONE

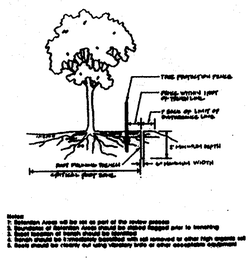
Upon determining the CRZ, blaze orange plastic protective fencing (see figure "Protective Fencing") shall be erected one foot from the limits of the CRZ so as to completely surround the tree or trees to be protected. No disturbance, storage, parking, or alteration of drainage of any kind shall be permitted within the CRZ Protective Area except prior allowable root pruning. Signs designating a specimen tree protective area shall be placed atop the protective fencing at a minimum interval of 25 feet (see figure "Signage").



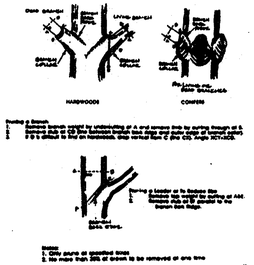
NOTES:
1. No fertilizer within 3 feet of trunk.
2. Apply fertilizer to entire critical root zone.

CRITICAL ROOT ZONE DETAIL
NOT TO SCALE

Root Pruning



Crown Reduction



NOTE: SEE SHEET 22 FOR PROTECTIVE FENCING DETAIL.

NO.	DATE	REVISION
2	1-18-07	REVISE FOREST CONSERVATION TABULATIONS
1	7-2-04	REVISE GRADES PER AS-BUILT CONDITIONS, REMOVE "TEMPORARY STOCKPILE" LABEL, LOD, AND ACCESS ROAD.

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planning • architecture • engineering • surveying
5460 Baltimore National Pike • Ellicott City, Maryland 21043 • 410-465-6105

STATE OF MARYLAND – DONALD ALLEN MASON – No. 21443 – REGISTERED PROFESSIONAL ENGINEER

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LAUREL, MARYLAND 20723-6005

DEVELOPER:
TOLL MD LIMITED PARTNERSHIP, A MARYLAND LIMITED PARTNERSHIP
3200 TOWER OAKS BOULEVARD SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: VILLAGE OF CEDAR RIDGE
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT-OF-WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FOREST CONSERVATION PLAN, NOTES, AND DETAILS
SP-97-02 WP-97-78 PB 312 F-98-70 WP-98-82

DATE: OCTOBER, 1997 / MAY, 1998 PROJECT NO. 0518

DESIGN: DAM DRAFT: DBT CHECK: DAM SCALE: AS SHOWN SHEET 30 OF 31

F-98-52

Acad Dwg: 7014530 Plotted: Jan. 22, 1998

FOREST PROTECTION PROCEDURES – Preconstruction Phase

1) The edge of the woods to be protected will be marked (staked or flagged) in the field per the limits of forest conservation easement shown in the approved site development plan prior to the start of construction activity. All areas within protective easement are to be considered "off limits" to any construction activities. The optional protective fencing shall be installed at the outside edge of forested areas and should be combined with sediment control devices when possible. The limit of the critical root zone and therefore the location of the protective devices is to be determined as follows:

   Edge of Forested Area – 1 foot of protective radius/inch of DBH or an eight foot protective radius, whichever is greater.

   Critical Root Zone for the forest on this site is an average of 12 feet from the trunk of the tree. Critical root zones for Specimen Tree #1 and #2 are 34' and 30'.

2) Construction activities expressly prohibited within the preservation areas are:

   Placing or stockpiling backfill or top soil in protected areas
   Felling trees into protected areas
   Driving construction equipment into or through protected areas
   Burning in or in close proximity to protected areas
   Stacking or storing supplies of nay kind
   Concrete wash–off areas.
   Conducting trenching operations
   Grading beyond the limits of disturbance
   Parking vehicles or construction equipment
   Removal of root mat or topsoil
   Siting and construction of: Utility lines
   Access roads
   Impervious surfaces
   Stormwater management devices
   Staging areas

3) Protective fencing (see Figure "Protective Fencing") shall be the responsibility of the general contractor. The general contractor shall affix signs to the fencing at 25' minimum intervals indicating that these areas are "Forest Retention Area" (see Figure "Signage"). The general contractor shall take great care to assure the restricted areas are not violated and theat root systems are protected from smothering, flooding, excessive wetting from dewatering operations, off–site runoff, spillage, and drainage or solutions containing materials hazardous to tree roots.

4) The general contractor shall be responsible for any tree damaged or destroyed within the preservation areas whether caused by the contractor, his agents, employees, subcontractors, or licensees.

5) Foot traffic shall be kept to a minimum in the protective areas.

6) All trees which are not to be preserved within fifty feet of any tree preservation areas are to be removed in a manner that will not damage those trees that are designated for preservation. It is highly recommended that tree stumps within this fifty foot area be ground out with a stump grinding machine to minimize damage.

7) The general contractor shall designate a "wash out" area onsite for concrete trucks which will not drain toward a protected area.

8) A pre–construction meeting shall be held with local authorities before any disturbance has taken place on site.

FOREST PROTECTION PROCEDURES – Construction Phase

Forest and tree conditions should be monitored during construction and corrective measures taken when appropriate.

The following shall be monitored:

a) Soil compaction
b) Root injury – prune and monitor; consider crown reduction
c) Limb injury – prune and monitor
d) Flooded conditions – drain and monitor; correct problem
e) Drought conditions – water and monitor; correct problem
f) Other stress signs – determine reason, correct, and monitor

FOREST PROTECTION PROCEDURES – Post Construction Phase

The following measures shall be taken:

1) Corrective measures if damages were incurred due to negligence:

   a) Stress reduction

   b) Removal of dead or dying trees. This may be done only if trees pose an immediate safety hazard.

2) Removal of temporary structures:

   a) No burial of discarded materials will occur onsite within the conservation area.

   b) No open burning within 100 feet of a wooded area.

   c) All temporary forest protection structures will be removed after construction.

   d) Remove temporary roods by removing stone or broadcasting mulch; pre–construction elevation should be maintained.

   e) Aerate compacted soil.

   f) Replant disturbed sites with trees, shrubs and/or herbaceous plants.

   g) Retain signs for retention areas or specimen trees.

   h) A County official shall inspect the entire site.

3) Future protection measures:

   a) Howard County and the developer shall arrange for the dedication of an appropriate forest conservation easement at a later date.

FOREST PROTECTION PROCEDURES – Preconstruction Phase

Stress Reduction and Protection of Specimen Trees
Isolated from Forest Retention Areas and
General Forest Retention Areas
(as they may apply)

Isolated specimen trees that are to be preserved will be examined to determine if stress reduction techniques are needed. Protective measures and their evaluation criteria are provided on this plan only if they are employed herein.

Root Pruning

Evaluation Criteria

Will the critical root zone be affected by construction activities such as grade changes, digging for foundations and roads or utility installation?

Design Considerations

a) Prune prior to construction as shown on the plan (see Figure "Root Pruning Detail.")
b) Prune root with a clean cut using proper pruning equipment such as a vibratory knife.
c) Exact location of pruning trench should be identified, and immediately backfilled to cover exposed roots after pruning with soil removed other topsoil, peat moss, or other suitable material or with other high organic soil.
d) For trees over 15" in diameter, root pruning may be done up to one year in advance of construction.
e) Tree(s) will be monitored for signs of stress.

Crown Reduction or Pruning

Evaluation Criteria

Has the root system been significantly reduced (>30%) or are there dead, damaged, or diseased limbs?

Design Considerations

a) Reduce only at specified times of the year:
   Flowering trees – only after flowering and before bud set
   Non–Flowering trees – in late winter, early spring or mid summer
b) No more than 1/3 of the crown should be removed at one time using acceptable pruning methods (see Figure "Crown Reduction Detail")
c) Monitor for signs of stress

Watering

Evaluation Criteria

Will construction activities alter the hydrology of the site? Has or will root pruning occur?

Design Considerations

a) Water only as necessary
b) Monitor for signs of stress (see Figure "Tree Planting and Maintenance Calendar")

Fertilizing

Evaluation Criteria

Is or will be tree(s) be under stressful conditions? Has or will root pruning occur?

Design Considerations

a) Use low nitrogen and slow release fertilizers.
b) Apply in late fall or early spring (see Figure "Tree Planting and Maintenance and Calendar")
c) For small trees (<3" in diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
d) For larger trees (>3" diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
e) Do not apply fertilizer any closer than 3' from tree trunk for pressurized injection method.
f) Monitor for signs of stress.

PLANT SPECIFICATIONS AND NOTES

I. Site Preparation and Soils

   1) Disturbance of soils should be limited to the Planting Field for each plant. Planting hole will be a minimum 18" auger hole, dug to the depth of the root ball. As shown on the detail view, a Planting Field of 18" diameter for whips or 2.5 times the width of the root ball is recommended.

   2) In areas of steep slopes or erodible soils, soil disturbance will be limited to the Planting Field which is equal to the 18" diameter auger hole.

   3) Soil mix for all plants shall be native soil with no soil amendment, unless a soils analysis determines that soil amendments are required (disturbed sites). Natural amendments, such as organic mulch or leaf mold compost, are preferred.

II. Plant Storage and Inspection

   1) For container grown nursery stock, planting should occur within two weeks after delivery to site.

   2) Planting stock should be inspected prior to planting. Plants not conforming to standard nurseryman specifications for size, form, and vigor, roots, trunk wounds, insects and disease should be replaced.

III. Soil Amendments

   1) Amendments are not recommend in the planting field as studies have shown that roots will be encouraged to stay within the amended soils.

IV. Plant Installation

   1) Container grown stock should be removed from the container and roots gently loosened from the soil. If the roots encircle the root ball, substitution is required. J–shaped or kinked root systems should also be rejected. ROOTS MAY NOT BE TRIMMED ON SITE.

   2) The Planting Field should be prepared as specified (see detail). Stock must be planted in random pattern (see detail). Native dug soils should be used to backfill Planting Field. Set plant material no more than 1" above existing round and no lower than existing ground. Gently pack native soil around plant to eliminate all air pockets. After whip and container installation, rake soils evenly over the Planting Field and cover hole with three inches of composted hardwood mulch. Water to settle soil and provide moisture, as needed.

   3) Prune whips to encourage branching. Container stock will be pruned to eliminate broken and dead branches.

   4) Newly planted trees may need watering depending on weather conditions. During the next two years watering may be required during summer and dry months. Any watering should consider for recent rainfall patterns.

   5) Staking of stock is not required, if preferred stock type used.

   6) Side dressing fertilization 1 year after planting may be warranted. Fertilizer may be added to each tree or shrub at the end of the first growing season and will contain the following by weight: 5% nitrogen, 10% phosphoric acid, and 5% potash. Nitrogen shall be derived from natural organic sources or ureaform; 40–50% of nitrogen shall be water soluble. Organic fertilizers are preferred to synthetic fertilizers. See Tree Planting and Maintenance Calendar for planting and maintenance dates.

   7) Integrated Pest Management (IPM) is one of the most effective and safest approaches for maintaining a healthy forest. A full IPM program can include:

      a) Elimination of low vegetation before planting to help control rodents.

      b) Use of tree shelters to protect the trunks of seedlings or whips from animal damage. (These trees need more water than those without tree shelters.)

      c) Mulching around the trees to minimize trunk damage from mowers.

      d) Pruning dead or diseased branches with a clean cut.

      e) To prevent sunscald, allow small non–competitive branches, commonly pruned during or before planting, to grow on the sunny side of the trunk.

V. Maintenance Schedule

   1) Landscaper should conduct an inspection at the following intervals: 6 months after planting, 1 year after planting and 2 years after planting. The purpose of inspection is to evaluate survival rate with reference to the survival required at the end of the two year period (75% minimum).

      Regular visits during the first growing season (year 1) are to assess the success of the plantings and determine if supplemental watering or other actions are necessary. Early spring visits will determine winter kill and autumn visits will determine summer kill.

   2) Assess tree mortality of planting stock, remove and replace any dead or diseased plantings for the first 2 growing seasons.

   3) Volunteer seeding of native, local and endemic vegetation is to be expected. Do not discourage this effort unless it is negatively effecting the planted stock.

   4) Landscaper shall remove or control aggressive, noxious, invasive species (i.e. Multiflora Rose, Japanese Honeysuckle, and all herbaceous vegetation) within a 3–foot radius surrounding the planted woody nursery stock for 2 years after planting.

   5) The landscaper shall be responsible to remove down and dead material that is smothering planting stock. Naturally occurring material that is not affecting planted stock shall not be removed.

   6) Mowing is one of the most effective means to control exotic and/or invasive species. No mowing shall occur during the wildlife nesting period of early April through mid–July. The landscaper is responsible for mowing and/or weed wacking and/or applying herbicide around planting stock, if needed for 2 growing seasons after planting.

PLANTING AREA # 1 = 0.5 AC.

QUANTITY	SPECIES	SIZE
20	Acer Rubrum Red Maple	5'–6' 1" caliper
20	Liriodendron Tulipifera Poplar	5'–6'
20	Quercus Alba White Oak or Pin Oak	5'–6'
35	Cornus florida Flowering Dogwood	3'–4' whip
35	Lindera benzoin Spicebush	3'–4' whip

PLANTING AREA # 2 = 0.3 AC.

QUANTITY	SPECIES	SIZE
12	Acer Rubrum Red Maple	5'–6' 1" caliper
12	Liriodendron Tulipifera Poplar	5'–6'
12	Quercus Alba White Oak or Pin Oak	5'–6'
21	Cornus florida Flowering Dogwood	3'–4' whip
21	Lindera benzoin Spicebush	3'–4' whip

PLANTING AREA # 3 = 0.1 AC.

QUANTITY	SPECIES	SIZE
4	Acer Rubrum Red Maple	5'–6' 1" caliper
4	Liriodendron Tulipifera Poplar	5'–6'
4	Quercus Alba White Oak or Pin Oak	5'–6'
7	Cornus florida Flowering Dogwood	3'–4' whip
7	Lindera benzoin Spicebush	3'–4' whip

PLANTING AREA # 4 = 4.0 AC.

QUANTITY	SPECIES	SIZE
160	Acer Rubrum Red Maple	5'–6' 1" caliper
160	Liriodendron Tulipifera Poplar	5'–6'
160	Quercus Alba White Oak or Pin Oak	5'–6'
280	Cornus florida Flowering Dogwood	3'–4' whip
280	Lindera benzoin Spicebush	3'–4' whip

PLANTING AREA # 5 = 1.1 AC.

QUANTITY	SPECIES	SIZE
44	Acer Rubrum Red Maple	5'–6' 1" caliper
44	Liriodendron Tulipifera Poplar	5'–6'
44	Quercus Alba White Oak or Pin Oak	5'–6'
77	Cornus florida Flowering Dogwood	3'–4' whip
77	Lindera benzoin Spicebush	3'–4' whip

PLANTING AREA # 6 = 0.7 AC.

QUANTITY	SPECIES	SIZE
28	Acer Rubrum Red Maple	5'–6' 1" caliper
28	Liriodendron Tulipifera Poplar	5'–6'
28	Quercus Alba White Oak or Pin Oak	5'–6'
49	Cornus florida Flowering Dogwood	3'–4' whip
49	Lindera benzoin Spicebush	3'–4' whip

PLANTING AREA # 7 = 0.2 AC.

QUANTITY	SPECIES	SIZE
8	Acer Rubrum Red Maple	5'–6' 1" caliper
8	Liriodendron Tulipifera Poplar	5'–6'
8	Quercus Alba White Oak or Pin Oak	5'–6'
14	Cornus florida Flowering Dogwood	3'–4' whip
14	Lindera benzoin Spicebush	3'–4' whip

PLANTING AREA # 8 = 6.5 AC.

QUANTITY	SPECIES	SIZE
260	Acer Rubrum Red Maple	5'–6' 1" caliper
260	Liriodendron Tulipifera Poplar	5'–6'
260	Quercus Alba White Oak or Pin Oak	5'–6'
455	Cornus florida Flowering Dogwood	3'–4' whip
455	Lindera benzoin Spicebush	3'–4' whip

NOTE: PRIORITY FOREST HAS BEEN PLACED IN FOREST CONSERVATION EASEMENT. SPECIMEN TREES WILL BE PRESERVED AS FEASIBLE. ADDITIONAL PLANTINGS WILL BE DONE OFF–SITE AS SHOWN.

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M.A. DIRCKS & CO., INC.
Environmental Consulting Services
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Upperco, Maryland 21155
Phone/Fax: 410-526-7388

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 6-15-98

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 6/23/98
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 6/22/98

NO.	DATE	REVISION

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DEVELOPER:
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A MARYLAND LIMITED PARTNERSHIP
3206 TOWER OAKS BOULEVARD
SUITE 310
ROCKVILLE, MARYLAND 20852

PROJECT: VILLAGE OF CEDAR RIDGE
A SUBDIVISION OF PARCEL 44 (TAX MAP 41) AND A RESUBDIVISION OF LOTS 1 AND 2 OF THE EDITH S. PARLETTE SUBDIVISION (PLAT 10735 PARCEL 43) AND A SUBDIVISION OF PARCEL 123 FOR A ROAD RIGHT–OF–WAY

LOCATION: TAX MAP 41 – PARCELS 43 & 44, P/O 123
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FOREST CONSERVATION NOTES AND DETAILS
SP–97–02 WP–97–78 PB 312 F–93–70 WP–98–82

DATE: OCTOBER, 1997 / MAY, 1998 — PROJECT NO. 0518

DESIGN: DAM | DRAFT: DBT | CHECK: DAM | SCALE: NONE | DRAWING 31 OF 31