ROAD CONSTRUCTION, STORM DRAINAGE AND GRADING PLANS FOR

PATAPSCO VALLEY BUSINESS CENTER

APPROVED:
DEPARTMENT OF PUBLIC WORKS
3-17-00
CHIEF, BUREAU OF HIGHWAYS HS — DATE

APPROVED:
DEPARTMENT OF PLANNING AND ZONING
4/3/00
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

APPROVED:
DEPARTMENT OF PLANNING AND ZONING
3/24/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE

INDEX OF SHEETS

BENCHMARKS:

BM 203
REBAR AND CAP SET
48.51' LEFT OF ℄ STA. 3+10.60 HI TECH ROAD — ELEV. = 61.61

BM 108
REBAR AND CAP SET
88.84' LEFT OF ℄ STA. 34+22.03 COCA COLA DRIVE — ELEV. = 53.13

GUIDELINES FOR THIRD PARTY ACTIVITY ON COLONIAL RIGHT-OF-WAY

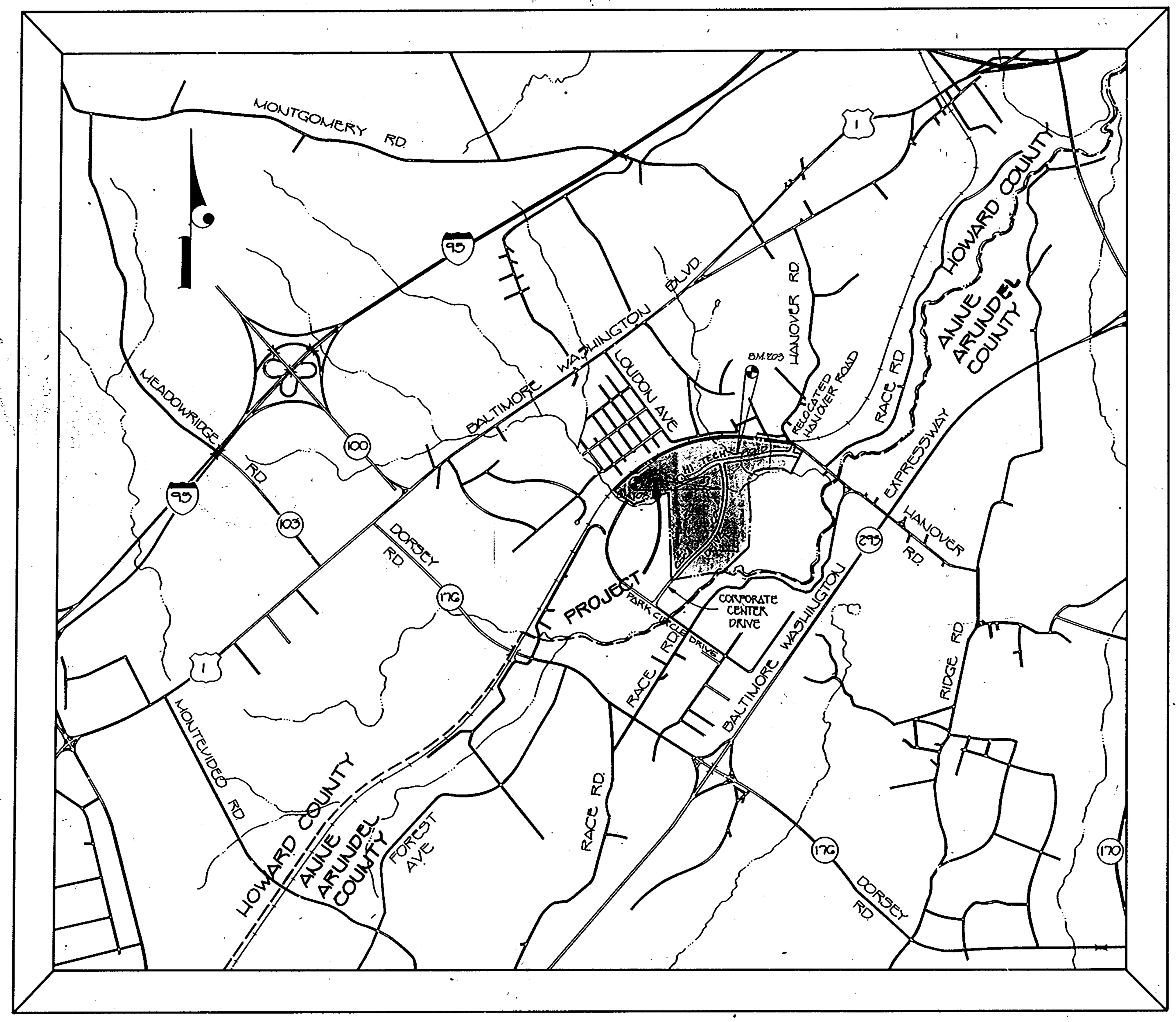
1. Colonial desires sufficient prior notice of planned activity involving excavation, blasting, or any type of construction on Colonial right-of-way to determine and resolve any location, grade, or encroachment problems, and provide protection of our facilities before the actual work is to take place. The following are the known contacts: 1) Mr. William F. Berry, Area Manager (410)549-4105, 2) Mr. Rod Seeley, Area Engineer (410)549-4108, 3) Mr. Harold Miller, Field Coordinator (410) 355-8155 and 4) Mr. Tommie Tiller, Chief Operator (410)355-5754.
2. Foreign utilities shall be required to cross Colonial pipelines and right-of-way at as near a 90° angle of intersection as possible.
3. Foreign utilities shall not be installed longitudinally within the Colonial right-of-way.
4. Foreign utilities crossing Colonial right-of-way should be installed a minimum of 2'0" below the bottom of Colonial pipeline where practical, and this elevation maintained for the entire width across the Colonial right-of-way.
5. A Colonial representative shall meet with the excavator on the site and explain marking, depth of pipeline, width of right-of-way, and Colonial requirements for protecting the pipeline during the progress of the work. Telephone numbers and verification of the date and approximate hour the work is expected to take place should be exchanged.
6. The use of probes to locate the pipeline(s) shall be held to a minimum to prevent unnecessary damage to the pipeline coating.
7. Burning of trash, brush, debris, etc., should not be permitted within the Colonial Pipeline right-of-way.
8. Heavy equipment should not be permitted to operate over the pipeline(s) unless measures such as matting of earth padding have been provided to protect the pipeline from vibrating, overloading, or physical damage.
9. Blasting within the immediate vicinity of a Colonial pipeline should be permitted only with the prior knowledge of the Region Engineering Manager. The blaster shall be responsible for any damage and blasts at his own risk.
10. Preliminary pipe markers over the pipeline should be rechecked at the time excavation is scheduled to reach the Colonial right-of-way.
11. Excavation on Colonial right-of-way should not be permitted without a Colonial representative present on the site. The Colonial representative should be equipped with a means of rapidly communicating with the nearest manned Colonial facility.
12. The Colonial representative who is to witness an excavation should notify the nearest manned Colonial facility of the location, time, and type of work that is to take place before the work is started.
13. Only hand excavation shall be permitted within 5'0" of either side of the extremity of a Colonial pipeline, valve, or fitting.
14. Excavating that might cause sloughing, sliding, or otherwise undermine the soil supporting a Colonial pipeline shall not be permitted unless the party performing such excavation provides any necessary protection for Colonial's facility.
15. Excavating or grading which might result in erosion or which could render the Colonial right-of-way inaccessible should not be permitted unless contractor agrees to restore the area and provide protection to Colonial's facility.
16. The Colonial pipeline should not be left unattended while the pipe is exposed without approval of the Area Manager.
17. Machines and equipment with booms, buckets, etc., should not be permitted to operate over an exposed Colonial pipeline.
18. Scratches, gouges, dents, etc., in the pipe shall be reported to the Area Manager. Any necessary repairs to the pipe will be made and inspected before the coating is repaired and backfill permitted.
19. Representatives who are responsible for the planning, coordinating, and inspecting of blasting, excavating, and constructing for Colonial Pipeline Company are expected and required to follow these same protective procedures when performing work in the vicinity of or on the right-of-way of other utilities.

COORDINATE TABLE

PT.	NORTH	EAST
7	493850.000	875307.000
13	462375.725	877305.172
41	494975.000	876395.000
47	493357.738	874474.101
66	493853.089	877298.819
77	493132.778	877358.392
154	491740.085	876657.736
155	491716.369	876646.696
156	491557.223	875410.207
157	493677.110	875316.684
164	493735.893	873900.412
216	493781.315	873938.503
217	493863.320	874006.062
218	493936.300	874077.736
219	493999.931	874146.531
220	494067.463	874218.910
221	494130.630	874289.019
222	494197.854	874366.991
223	494261.719	874439.134
224	494319.599	874506.861
225	494388.728	874591.420
226	494453.216	874657.580
227	494510.439	874741.570
228	494564.083	874829.052
229	494614.990	874910.466
230	494663.081	874986.635
231	494708.647	875075.998
232	494752.044	875168.991
233	494792.069	875260.969
234	494823.784	875343.517
236	494851.548	875434.390
237	494879.712	875525.151
238	494912.547	875619.235
239	494948.276	875716.139
240	494981.932	875809.933
243	495011.754	875899.119
244	495023.680	876000.047
245	495037.866	876098.015
248	495038.010	876132.547
334	495059.299	876380.725
336	495060.349	876392.177
337	495079.225	876489.361
338	495081.785	876587.667
339	495086.797	876683.566
340	495090.215	876781.847
342	495095.382	876880.712
343	495106.230	876978.452
345	495097.632	877078.403
346	495084.086	877177.138
347	495074.737	877277.684
348	495069.304	877371.577
349	495057.457	877467.206
350	495023.903	877560.346
351	495014.246	877610.912
352	495013.180	877657.430
353	495017.111	877760.315
355	494995.437	877857.252
356	494979.086	877953.888
357	494989.234	878061.320
358	494981.183	878161.316
359	494980.151	878184.003
360	494922.226	878329.195
362	494860.658	878429.402
363	494735.819	878583.306
364	494713.339	878564.343
366	494170.040	878306.943
367	494170.837	878292.705
368	494285.841	878036.865
370	494243.204	877576.836
371	494174.288	877414.292
373	494137.126	877385.735

WETLAND DATA CHART

WETLAND NO.	WOODED WETLAND ACREAGE	NON-WOODED WETLAND ACREAGE	TOTAL DISTURBED AREA	JURISDICTIONAL	NON-JURISDICTIONAL
1	2759 S.F.	N/A	0.00 S.F.	-	X
2	N/A	425 S.F.	425 S.F.	-	X
3	N/A	253 S.F.	253 S.F.	-	X
4	2000 S.F.	000 S.F.	2000 S.F.	X	-
5	8,046 S.F.	N/A	11046 S.F.	-	X
6	4040 S.F.	4313 S.F.	4353 S.F.	-	X
7	N/A	3108 S.F.	3108 S.F.	-	X
8	N/A	193 S.F.	193 S.F.	-	X
9	N/A	5923 S.F.	5923 S.F.	-	X
10	N/A	2352 S.F.	2352 S.F	-	X
11	N/A	3771 S.F.	3771 S.F.	-	X
12	N/A	439 S.F.	0.00 S.F.	-	X
13	197 S.F.	N/A	0.00 S.F.	-	X
14	2000 S.F.	N/A	0.00 S.F.	-	X
15	51 S.F.	N/A	0.00 S.F.	-	X
16	200 S.F.	N/A	0.00 S.F.	-	X
17	N/A	127 S.F.	127 S.F.	-	X
18	N/A	1302 S.F.	1302 S.F.	-	X
19	N/A	559 S.F.	000 S.F.	-	X
20	N/A	75 S.F.	75 S.F	-	X
21	N/A	223 S.F.	220 S.F.	-	X
22	N/A	311 S.F.	311 S.F.	-	X
23	N/A	77 S.F.	77 S.F.	-	X
24	N/A	679 S.F.	679 S.F.	-	X
25	N/A	313 S.F.	313 S.F.	-	X
26	N/A	518 S.F.	518 S.F.	-	X
27	1184 S.F.	N/A	0.00 S.F.	-	X
28	3917 S.F.	N/A	0.00 S.F.	-	X
29	N/A	1657 S.F.	1657 S.F.	-	X
30	N/A	2387 S.F.	2387 S.F.	-	X
31	N/A	17178 S.F.	17178 S.F.	-	X
32	12965 S.F.	N/A	0.00 S.F.	-	X
33	12730 S.F.	N/A	0.00 S.F.	-	X
34	84,400 S.F. DIST. 2,500 S.F.	200,700 S.F. 15,300 S.F.	14,810 S.F.	X	-
35	N/A	125 S.F.	125 S.F.	-	X
36	N/A	668 S.F.	660 S.F.	-	X
37	OFF-SITE	OFF-SITE	0.00 S.F.	-	X
38	OFF-SITE	OFF-SITE	0.00 S.F.	-	X
39	N/A	203 S.F.	203 S.F.	-	X
40	745 S.F.	N/A	745 S.F.	-	X
41	N/A	380 S.F.	380 S.F.	-	X
42	54 S.F.	N/A	54 S.F.	-	X
43	186 S.F.	N/A	186 S.F.	-	X
44	884 S.F.	N/A	884 S.F.	-	X
45	6387 S.F.	N/A	6387 S.F.	-	X
46	19,000 S.F.	23590 S.F.	49,000 S.F.	-	X
47	21644 S.F.	1395 S.F.	0.00 S.F.	X	-
48	4028 S.F.	583 S.F.	0.00 S.F.	X	-
49	46,000 S.F.	36,299 S.F.	0.00 S.F.	X	-
50	293 S.F.	N/A	293 S.F.	-	X
51	22171 S.F.	1435 S.F.	0.00 S.F.	-	X
52	14,500 S.F.	3,100 S.F.	19,000 S.F.	-	X
53	33107 S.F.	N/A	21,700 S.F.	X	-
54	1180 S.F.	N/A	0.00 S.F.	X	-
55	966 S.F.	N/A	966 S.F.	-	X
57	1544 S.F.	N/A	1544 S.F.	-	X
58	N/A	3392 S.F.	3392 S.F.	-	X



VICINITY MAP
SCALE: 1" = 2000'

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CURRENT HOWARD COUNTY DESIGN MANUAL, VOL. IV.
3. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF CONSTRUCTION INSPECTION DIVISION AT (410)-313-1870. AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
4. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
5. PROJECT BACKGROUND (UNLESS INCLUDED IN TITLE BLOCK):
   LOCATION TAX MAP: 38, PARCELS: 284 AND 285
   ZONING: M-2 ELECTION DISTRICT: FIRST
   TOTAL TRACT AREA: 193.762 AC.+
   TOTAL AREA OF PARCELS TO BE RECORDED: 180.347 AC.+
   TOTAL AREA OF ROAD RIGHT-OF-WAY: 11.235 AC.+
   NUMBER OF PROPOSED PARCELS: 7
   DATE PRELIMINARY PLAN APPROVED AND DPZ REFERENCE NO.: OCTOBER 1, 1992; P 91-14.
6. THIS PLAN IS SUBJECT TO WAIVER WP 91-98 DATED MARCH 15, 1991 WHICH APPROVED THE FOLLOWING:
   1) SECTION 16.116.c.6 - TO PERMIT REMOVAL OF VEGETATIVE COVER AND/OR GRADING ON STEEP SLOPES ADJACENT TO A FLOOD PLAIN OR WETLAND, AND WITHIN WETLANDS.
   2) SECTION 16.116.c.4 - TO PERMIT THE ELIMINATION OF THE REQUIRED 25 FOOT WETLAND BUFFERS FOR ROAD CROSSINGS, STORMWATER MANAGEMENT AND FUTURE DEVELOPMENT AREAS.
7. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST 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.
8. BOUNDARY AND TOPOGRAPHIC SURVEY WAS PREPARED BY PHOTO SCIENCE, INC. ON OR ABOUT APRIL, 1990.
9. HORIZONTAL AND VERTICAL CONTROL DATUM IS BASED ON HOWARD COUNTY GEODETIC CONTROL STATIONS 22446002 AND 22446003.
10. LIGHT POLES AND FIXTURES FOR STREET LIGHTS SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III, ROADS AND BRIDGES.
11. PUBLIC WATER AND SEWER IS TO BE UTILIZED WITHIN THIS SUBDIVISION. THIS SUBDIVISION IS LOCATED IN THE PATAPSCO DRAINAGE AREA.
12. STORM WATER MANAGEMENT FOR THE ENTIRE SUBDIVISION IS PROVIDED UNDER F 94-24. DETENTION FACILITIES WERE SIZED TO MANAGE ULTIMATE SITE CONDITIONS.
13. THE HYDRAULIC GRADIENT SHOWN ON THE STORM DRAIN PROFILES IS BASED ON A 10 YEAR DESIGN FREQUENCY.
14. FLOOD PLAIN STUDY AND WETLANDS DELINEATION WAS COMPLETED, REVIEWED AND APPROVED UNDER P 91-14 ON OCTOBER 1, 1992.
15. THE TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP AND WAS APPROVED UNDER P 91-14 ON OCTOBER 1, 1992.
16. NOISE STUDY IS NOT REQUIRED FOR THIS INDUSTRIAL ZONED PROPERTY.
17. GEOTECHNICAL REPORT WAS DONE BY ITE ASSOCIATES AND WAS REVIEWED AND APPROVED UNDER P 91-14 ON OCTOBER 1, 1992.
18. ALL EXISTING UTILITIES SHOWN WERE LOCATED FROM EXISTING ROAD CONSTRUCTION DRAWINGS AND EXISTING WATER AND SEWER CONTRACTS.
19. FOR RIP-RAP SPECIFICATIONS AND DESIGN DATA, SEE DETAIL SHEET 7.
20. IMPACT TO NONTIDAL WETLANDS & WATERWAYS WAS APPROVED ON JANUARY 15, 1994 BY MARYLAND DEPARTMENT OF NATURAL RESOURCES WATER RESOURCES ADMINISTRATION TRACKING No. 199101119G, DIVISION No. 93-NT-0858.
21. THIS PLAN IS SUBJECT TO APPROVED WAIVER No. 91-98 DATED MARCH 15, 1991 TO WAVE SECTIONS 16.116.c.4 & 16.116.c.6.
    1) TO PERMIT REMOVAL OF VEGETATIVE COVER AND/OR GRADING ON STEEP SLOPES ADJACENT TO A FLOODPLAIN OR WETLAND, WITHIN WETLANDS.
    2) TO WAIVE THE REQUIRED 25-FOOT WETLAND BUFFERS FOR ROAD CROSSINGS, STORMWATER MANAGEMENT & FUTURE DEVELOPMENT AREAS.
22. A) TOTAL EXISTING FOREST AREAS ON SITE = 123.56 Ac.±
    B) EXISTING FOREST TO BE CLEARED AS SHOWN ON P-91-14 = 98.19 Ac.±
    C) EXISTING FOREST TO BE CLEARED AS SHOWN ON THIS SUBMISSION = 81.42 Ac.±
23. STREET TREES SHALL BE A MINIMUM OF FOUR (4) FEET OF THE SIDEWALKS.
24. ALL CMP PIPES SHALL BE ALUMINIZED AND MINIMUM 14 GAUGE.
25. 95% COMPACTION SHALL BE DETERMINED BY AASHTO T-180.
26. HANDICAPP RAMPS, SIDEWALKS, AND SIDEWALK RAMPS SHALL COMPLY WITH CURRENT ADA REQUIREMENTS.
27. Parcels D-1 & E-1 recorded on F-04-067, PN 16979-16977.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

For REV. 3 ONLY
STATE OF MARYLAND — CHRISTOPHER J. RIDD — REGISTERED PROFESSIONAL ENGINEER
9/8/04

No.	Revision	Date
2	Revise sheet numbers	7.15.04
3	REVISED SHEET NUMBERS	9.2.04
4	Revised sheets 2, 3, 4, 13, 14, 15 & 16 to reflect D-1, E-1 & SWM Esm't on Parcel E-1; added Gen Note No. 27	3-29-05

STATE OF MARYLAND — CHARLES J. CROVO, SR. — PROFESSIONAL ENGINEER

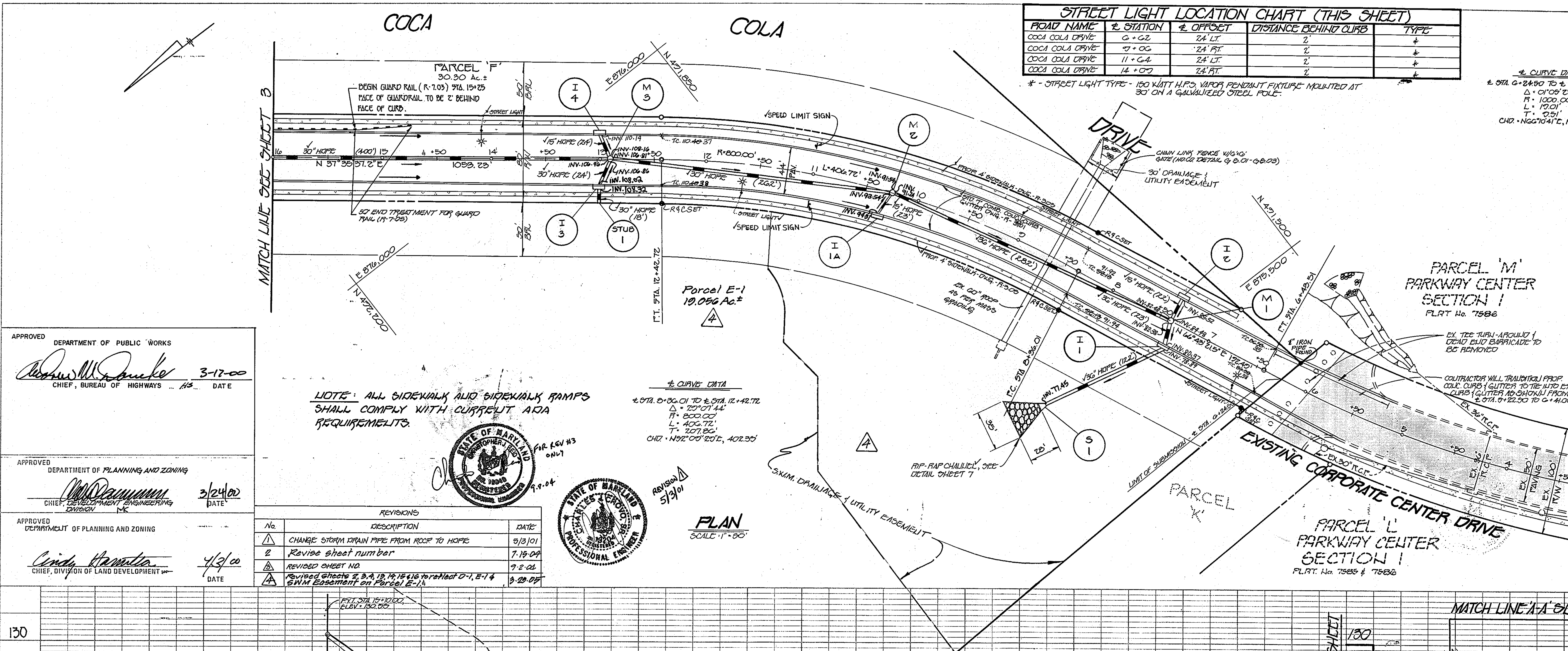
AS BUILT 2/1/06

PATAPSCO VALLEY BUSINESS CENTER
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
JULY 15, 1995
SHEET 1 OF 35

AS-BUILT 2-1-06
F 94-24

174

COCA COLA DRIVE — PLAN & PROFILE



STREET LIGHT LOCATION CHART (THIS SHEET)

ROAD NAME	℄ STATION	℄ OFFSET	DISTANCE BEHIND CURB	TYPE
COCA COLA DRIVE	6+62	24' LT.	2'	*
COCA COLA DRIVE	7+06	24' RT.	2'	*
COCA COLA DRIVE	11+64	24' LT.	2'	*
COCA COLA DRIVE	14+07	24' RT.	2'	*

* - STREET LIGHT TYPE - 150 WATT H.P.S. VAPOR PENDANT FIXTURE MOUNTED AT 30' ON A GALVANIZED STEEL POLE.

℄ CURVE DATA
℄ STA. 6+24.50 TO ℄ STA. 6+48.51
Δ = 01°05'22"
R = 1000.00'
L = 19.01'
T = 9.51'
CHD. = N66°10'41"E, 19.01'

℄ CURVE DATA
℄ STA. 8+36.01 TO ℄ STA. 12+42.72
Δ = 29°07'44"
R = 800.00'
L = 406.72'
T = 207.86'
CHD. = N52°05'29"E, 402.35'

NOTE: ALL SIDEWALK AND SIDEWALK RAMPS SHALL COMPLY WITH CURRENT ADA REQUIREMENTS.

APPROVED
DEPARTMENT OF PUBLIC WORKS
3-17-00
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
3/24/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
4/3/00
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

FOR REV #3 ONLY 9.9.04

REVISION 1 5/3/01

REVISIONS

No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPE FROM RCCP TO HDPE	5/3/01
2	Revise sheet number	7.15.04
3	REVISED SHEET NO.	9.2.04
4	Revised sheets 2, 3, 4, 13, 14, 15 & 16 to reflect D-1, E-1 & SWM Easement on Parcel E-1	3.29.05

CHARLES J. CROVO, SR. 7/14/95 DATE

PATAPSCO VALLEY BUSINESS CENTER
TAX MAP 38 — PARCEL 284 & 285
FIRST ELECT. DIST. — HOWARD CO., MD.

COCA COLA DRIVE
PLAN & PROFILE

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MD.
20904

SCALE AS SHOWN	DATE JULY 15, 1995	DWG. NO. 2 OF 35
DES. M. TAYLOR	DRN. J.C.L., J.M.M.	CHK. C. CROVO

FISHER, COLLINS AND CARTER, INC.
CIVIL ENGINEERS AND LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042

F94-24

ASBUILT 2-1-06

174

FOR REV. #3 ONLY

CHRISTOPHER J. REID No. 19949 9/9/04

℄ CURVE DATA

℄ STA. 22+95.95 TO ℄ STA. 29+08.56
Δ = 39°00'00"
R = 900.00'
L = 612.61'
T = 318.71'
CHD = N18°05'37"E, 600.85'

REVISION 1 5/3/01

PLAN
SCALE: 1"=50'

STREET LIGHT LOCATION CHART (THIS SHEET)				
ROAD NAME	℄ STATION	℄ OFFSET	DISTANCE BEHIND CURB	TYPE
COCA COLA DRIVE	28+75	24' LT.	2'	*
COCA COLA DRIVE	26+25	24' RT.	2'	*
COCA COLA DRIVE	23+60	24' LT.	2'	*
COCA COLA DRIVE	21+30	24' RT.	2'	*
COCA COLA DRIVE	18+85	24' RT.	2'	*
COCA COLA DRIVE	16+50	24' LT.	2'	*

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

APPROVED
DEPARTMENT OF PUBLIC WORKS
Andrew M. Donke 3-17-00
CHIEF, BUREAU OF HIGHWAYS HS DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
3/24/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton 4/3/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

REVISIONS		
No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM RCCP TO HDPE	5/3/01
2	Revise sheet number	7.15.04
3	REVISED SHEET NO.	9.2.04
4	Revised sheets 2,3,4,13,14,15 & 16 to reflect D-1, E-1 & SWM Easement on Parcel E-1	3.29.05

CHARLES J. CROVO No. 13204

ASBUILT 2/1/06

CHARLES J. CROVO, SR. 7/14/95
DATE

PATAPSCO VALLEY BUSINESS CENTER
TAX MAP 38 PARCEL 284 & 285
FIRST ELECT. DIST. HOWARD CO., MD.

COCA COLA DRIVE
PLAN & PROFILE

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MD.
20904

2

SCALE AS SHOWN | DATE JULY 15, 1995 | DWG. NO. 3 OF 35 3
DES. M. TAYLOR | DRN. J.C.L., J.M.M. | CHK. C. CROVO

FISHER, COLLINS AND CARTER, INC.
CIVIL ENGINEERS AND LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042

PROFILE
NOTE BOOK
NO.
SURVEYED
PLOTTED
GRADES CHECKED
B.M.s NOTED
STRUCTURE NOTATNS CHKD
BY
DATE

VERTICAL CURVE DATA
P.V.I. STA. 25+30
ELEV. = 145.55
LENGTH = 504'
CORR. = -3.45'
S.S.D. = 351

VERTICAL CURVE DATA
P.V.I. STA. = 20+72
ELEV. = 155.21
LENGTH = 412.00'
CORR. = -2.74
S.S.D. = 321

VERTICAL CURVE DATA
P.V.I. STA. = 18+00
ELEV. = 147.65
LENGTH = 132.00'
CORR. = -0.39
S.S.D. = 346

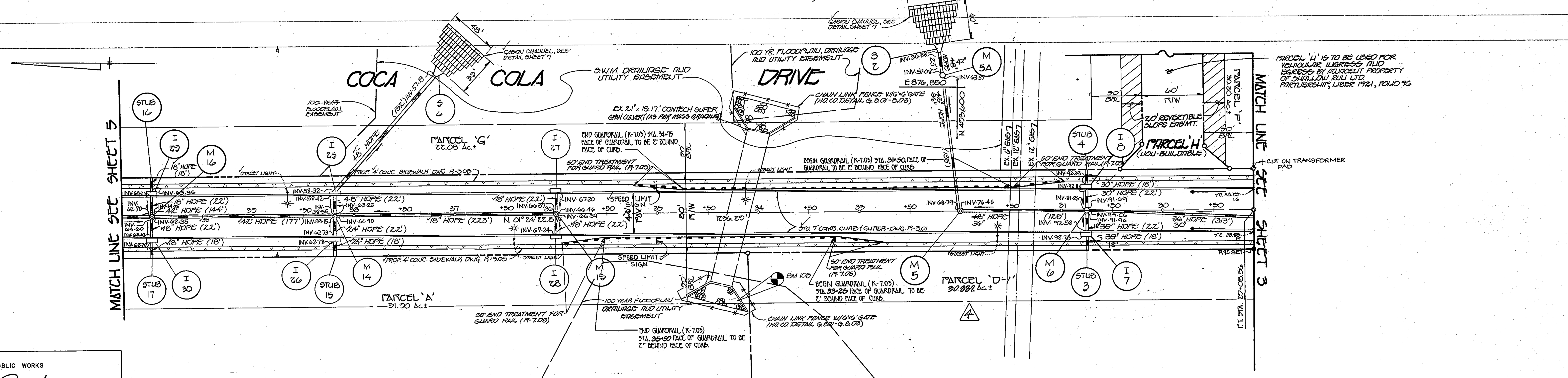
VERTICAL CURVE DATA
P.V.I. STA. = 16+50
ELEV. = 139.53
LENGTH = 120.00'
CORR. = -0.23
S.S.D. = 480

COCA COLA DRIVE
PROFILE SCALE: HORIZ: 1"=50' VERT: 1"=5'

374

F 94-24

ASBUILT 2-1-06



APPROVED DEPARTMENT OF PUBLIC WORKS

3-17-00

CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED DEPARTMENT OF PLANNING AND ZONING

3/24/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED DEPARTMENT OF PLANNING AND ZONING

4/3/00

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

FOR REV #3 ONLY 9.8.04

Revision 5/3/01

STREET LIGHT LOCATION CHART (THIS SHEET)				
ROAD NAME	℄ STATION	℄ OFFSET	DISTANCE BEHIND CURB	TYPE
COCA COLA DRIVE	31+63	24' LT.	2'	*
COCA COLA DRIVE	34+12	24' RT.	3'	*
COCA COLA DRIVE	36+41	24' LT.	2'	*
COCA COLA DRIVE	38+66	24' RT.	2'	*

* - STREET LIGHT TYPE - 150 WATT H.P.S. VAPOR PENDANT FIXTURE MOUNTED AT 30' ON A GALVANIZED STEEL POLE.

REVISIONS		
No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM RCCP TO HDPE	5/3/01
2	Revise sheet number	7.15.04
3	REVISED SHEET NO.	9.2.04
4	Revised sheets 2, 3, 4, 13, 14, 15 & 16 to reflect D-1, E-1 & SWM Easement on Parcel E-1.	

PLAN
SCALE: 1" = 50'

AS BUILT 2/1/06

CHARLES J. CROVO, SR. — DATE 7/14/95

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECT. DIST. — HOWARD CO., MD.

COCA COLA DRIVE

PLAN & PROFILE

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MD.
20904

SCALE AS SHOWN	DATE JULY 15, 1995	DWG. NO. 4 OF 35
DES. M. TAYLOR	DRN. J.C.L., J.M.M.	CHK. C. CROVO

FISHER, COLLINS AND CARTER, INC.
CIVIL ENGINEERS AND LAND SURVEYORS
10272 BALTO. NATIONAL PIKE — ELLICOTT CITY, MARYLAND 21042

PLAN — SURVEYED / PLOTTED / ALIGNMENT CHECKED / RT. OF WAY CHECKED — NOTE BOOK — BY — DATE

PROFILE — SURVEYED / PLOTTED / GRADES CHECKED / B.M. NOTED / STRUCTURE NOTAT'NS CHK'D — NOTE BOOK — BY — DATE

174

F 94-24

ASBUILT 2-1-06

APPROVED
DEPARTMENT OF PUBLIC WORKS
3-17-00
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
3/24/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

APPROVED
DEPARTMENT OF PLANNING AND ZONING
4/3/00
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

STREET LIGHT LOCATION (THIS SHEET)

ROAD NAME	℄ STATION	℄ OFFSET	DISTANCE BEHIND CURB	TYPE
COCA-COLA DRIVE	41+02	29' LT. ±	2'	*
HI TECH ROAD	1+23	24' RT.	2'	*
~~HI TECH ROAD~~	~~-1+10~~	~~24' LT.~~	~~2'~~	~~*~~
HI TECH ROAD	-3+55	24' RT.	2'	*
HI TECH ROAD	-5+92	24' LT.	2'	*
HI TECH ROAD	-7+95	24' RT.	2'	*
HI TECH ROAD	-10+35	24' RT.	2'	*
HI TECH ROAD	L.P. STA.	49' FROM RAD. PT.	2'	*

* STREET LIGHT TYPE - 150 WATT H.P.S. VAPOR PENDANT FIXTURE MOUNTED AT 30' ON A GALVANIZED POLE.

REVISIONS

No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM RCCP TO HDPE	5/3/01
2	Revise sheet number	7-15-04
3	REVISED SHEET NO.	9-2-04

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DISTRICT — HOWARD CO., MD.

COCA COLA DRIVE - PLAN
HI TECH ROAD - PLAN & PROFILE

OWNER AND DEVELOPER
PERCONTEE, INC.
11900 TECH ROAD
SILVER SPRING, MD. 20904

SCALE AS SHOWN	DATE JULY 15, 1995	DWG. NO. 5 OF 35
DES. R. ISAACS	DRN. J. LAMKE	CHK. C. CROVO

FISHER, COLLINS AND CARTER, INC.
CIVIL ENGINEERS AND LAND SURVEYORS
10272 BALTO. NAT. PIKE — ELLICOTT CITY, MARYLAND 21042

AS BUILT 2/1/06

F94.24

ASBUILT 2-1-06

APPROVED DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS 3-17-00 DATE

APPROVED DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION 3/24/00 DATE

APPROVED DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT 4/3/00 DATE

CHARLES J. CROVO, SR. 7/14/95 DATE

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 PARCEL 284 & 285
FIRST ELECT. DIST. HOWARD CO., MD.

HI TECH ROAD - PLAN & PROFILE
TEMP. ACCESS ROAD - PLAN & PROFILE

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MD.
20904

SCALE AS SHOWN	DATE JULY 15, 1995	DWG. NO. 6 OF 35
DES. M. TAYLOR	DRN. J.C.L., J.M.M.	CHK. C. CROVO

FISHER, COLLINS AND CARTER, INC.
CIVIL ENGINEERS AND LAND SURVEYORS
10272 BALTO. NATIONAL PIKE ELLICOTT CITY, MARYLAND 21042

REVISIONS

No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM RCCP TO HDPE	5/3/01
2	Revise sheet number & road grade	7.15.04
3	REVISED SHEET NO.	9.2.04

STREET LIGHT LOCATION CHART (THIS SHEET)

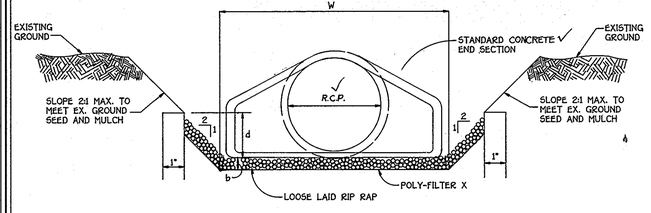
ROAD NAME	& STATION	& OFFSET	DISTANCE BEHIND CURB	TYPE
HI - TECH ROAD	3+60	24' LT.	2'	*
HI - TECH ROAD	5+63	24' LT.	2'	*
HI - TECH ROAD	8+03	24' RT.	2'	*
HI - TECH ROAD	10+45	24' LT.	2'	*
HI - TECH ROAD	12+60	24' RT.	2'	*
HI - TECH ROAD	15+00	24' LT.	2'	*
HI - TECH ROAD	17+09	24' RT.	2'	*
TEMPORARY TIE INTO HANOVER ROAD	0+55	26' LT.	4'	*
HANOVER ROAD	0+56	15' RT.	4'	**

* - STREET LIGHT TYPE - 150 WATT HIGH PRESSURE SODIUM VAPOR PENDANT FIXTURE MOUNTED AT 30' ON A GALVANIZED STEEL POLE.
** - STREET LIGHT TYPE - 250' WATT H.P.S. VAPOR FIXTURE WITH CUT-OFF OPTICS MOUNTED AT 30' ON A GALVANIZED STEEL POLE. TO BE INSTALLED BY B.G.&E.

F 94-24

ASBUILT 2-1-06

174



RIP RAP CHANNEL DETAIL

NO SCALE

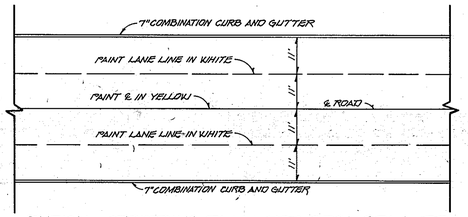
CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

1. The subgrade for the filter, riprap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA sq.ft.	WETTED PERIMETER	R	R 2/3	S	S 1/2	W	d	N	V f.p.s.	Q c.f.s.	RIP-RAP SIZE D_{50}	RIP-RAP SIZE D_{MAX}	BLANKET THICKNESS
S-1	22.50	16.19'	1.39	1.25	0.005	0.071	7.25'	2'	0.035	3.77	84.83	18"	27"	32"
S-2	43.50	21.92'	1.98	1.58	0.005	0.071	6.5'	3'	0.035	4.76	207.06	18" Thick Gabions (See Plans)		
S-3	19.53	15.30'	1.28	1.18	0.005	0.071	7.25'	1.8'	0.035	3.56	69.53	18"	27"	32"
S-4	4.46	7.58'	0.59	0.70	0.005	0.071	4'	0.8'	0.035	2.11	9.45	6"	9"	14"
S-5	15.98	13.60'	1.18	1.12	0.005	0.071	6'	1.7'	0.035	3.38	54.01	18"	27"	32"
S-6	45.00	22.42'	2.01	1.59	0.005	0.071	9'	3'	0.035	4.79	215.6	18" Thick Gabions (See Plans)		
2 S-8	16.22'	14.62'	1.0995	1.0624	0.005	0.071	8'	1.90'	0.035	2.82	45.4	23"	37"	46"

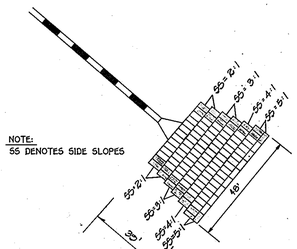
Pond 7A



TYPICAL STRIPPING PLAN FOR COCA COLA DR. AND HIGH TECH ROAD

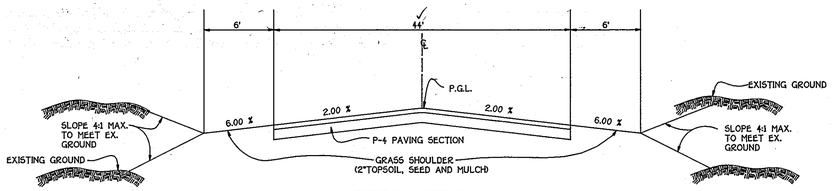
(MAJOR COLLECTOR)

NOT TO SCALE



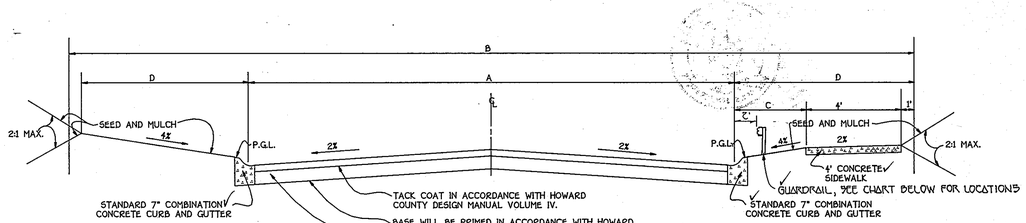
GABION CHANNEL DETAIL

NOT TO SCALE



TYPICAL SECTION TEMPORARY ACCESS ROAD

NO SCALE



TYPICAL ROADWAY SECTION

NO SCALE

HOWARD COUNTY DRAWINGS R-1.03 AND R-1.04

GUARDRAIL LOCATION CHART

ROAD NAME	OFFSET	FROM STA.	TO STA.
COCA COLA DRIVE	24' RT.	15+25	TO 19+10
COCA COLA DRIVE	24' RT.	31+25	TO 34+75
COCA COLA DRIVE	24' LT.	33+25	TO 35+50

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-17-00

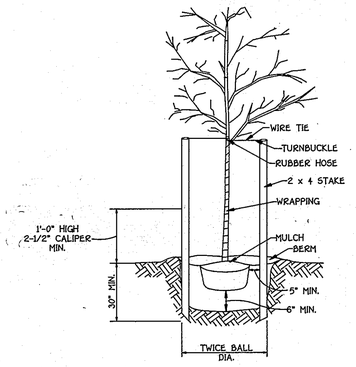
APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/24/00

ROADWAY INFORMATION CHART

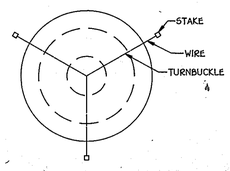
ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	A	B	C	D	℄ STATION LIMITS	PAVING SECTION
COCA COLA DRIVE	MAJOR COLLECTOR	40 M.P.H.	M-2	44' ✓	80'	9'	14'	6+24.50 TO 41+44.85 ✓	P-5
HI TECH ROAD	MAJOR COLLECTOR	40 M.P.H.	M-2	44' ✓	80'	9'	14'	0+00.00 TO 18+32.92 ✓	P-5
HI TECH ROAD	MAJOR COLLECTOR	40 M.P.H.	M-2	44' ✓	60'	3'	8'	0+00.00 TO ~ 1+01 ✓	P-5



NOTE: REMOVE BURLAP FROM TOP 1/3 OF BALL

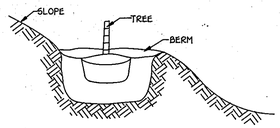
TREE PLANTING

NOT TO SCALE



STAKING DETAIL

NOT TO SCALE



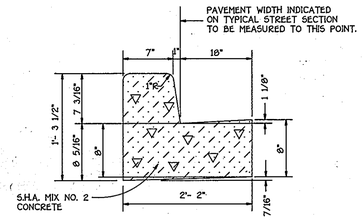
GRADING FOR PLANTING ON SLOPES

NOT TO SCALE

NOTE:
STREET TREE QUANTITY = 318

STREET TREE SCHEDULE

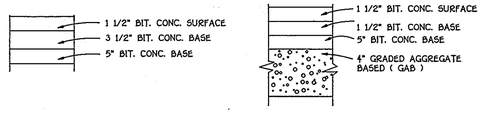
SYMBOL	BOTANICAL AND COMMON NAME	SIZE AND ROOT	COMMENTS
⊙	QUERCUS OCUTISSIMA SAWTOOTH OAK	MIN. 2 1/2" B AND B	40' APART



STANDARD 7" COMB. CONC. CURB AND GUTTER

NO SCALE

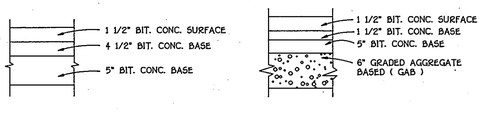
HOWARD COUNTY DRAWINGS R-3.01



PAVING SECTION P-4

NO SCALE

HOWARD COUNTY DRAWINGS R-2.01



PAVING SECTION P-5

NO SCALE

HOWARD COUNTY DRAWINGS R-2.02

Asbuilt 2/1/06

STATE OF MARYLAND CHARLES J. CROVO, SR. No. 13204 REGISTERED PROFESSIONAL ENGINEER

CHARLES J. CROVO, SR. — DATE 7/14/95

For Rev #3 only

STATE OF MARYLAND CHRISTOPHER J. REESE No. 19949 REGISTERED PROFESSIONAL ENGINEER

9.8.04

No.	Revision	Date
2	Revise sheet number & add rip-rap design data	7.15.04
	for pond outfall	
3	REVISED SHEET NO.	9.2.04

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

TYPICAL ROAD SECTION, NOTES AND DETAILS

PATAPSCO VALLEY BUSINESS CENTER

FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
JULY 14, 1995
SHEET 7 OF 35

ASBUILT 2-1-06 F 94-24

40185DET.DWG

174

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
I-1	88.97 ~~89.02~~ *	~~82.13~~ 80.37	~~79.53~~ 78.89	COCA COLA DRIVE	℄ STA. 7+35 4	22' LT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-1A	98.52 *33	-----	94.45 31	COCA COLA DRIVE	℄ STA. 10+32.50	22' LT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-2	89.33 *12	-----	85.48 52	COCA COLA DRIVE	℄ STA. 7+40 1	22' RT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-3	114.62 *57	108.09 32	~~107.84~~ 108.02	COCA COLA DRIVE	℄ STA. 13+00✓	22' LT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-4	114.628*	-----	110.00 14	COCA COLA DRIVE	℄ STA. 13+00✓	22' RT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-5	142.53 *42	134.82 80	134.57 1	COCA COLA DRIVE	℄ STA. 17+00✓	22' LT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-6	142.53 *60	-----	137.98 6	COCA COLA DRIVE	℄ STA. 17+00✓	22' RT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-7	99.93 *88	92.58 73	92.33 58	COCA COLA DRIVE	℄ STA. 30+75✓	22' LT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-8	99.93 *83	92.58 23	92.33 11	COCA COLA DRIVE	℄ STA. 30+75✓	22' RT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-9	125.88*✓	119.18 69	118.93 72	COCA COLA DRIVE	℄ STA. 27+502	22' LT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-10	125.88*78	119.18 23	~~118.93~~ 119.18	COCA COLA DRIVE	℄ STA. 27+502	22' RT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-11	142.83*2	136.23 60	~~135.98~~ 136.10	COCA COLA DRIVE	℄ STA. 24+786	22' LT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-12	142.83*1	136.60 57	136.35 48	COCA COLA DRIVE	℄ STA. 24+756	22' RT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-13	62.08 *18	56.03 9	55.78 90	HI TECH ROAD	℄ STA. 7+00✓	22' RT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-14	62.08 *11	57.22 11	56.97 9	HI TECH ROAD	℄ STA. 7+00✓	22' LT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-15	66.28 *2	-----	~~61.96~~ 62.00	HI TECH ROAD	℄ STA. 4+50✓	22' RT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-16	66.28 *7	61.28 11	61.03 5	HI TECH ROAD	℄ STA. 4+50✓	22' LT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-17	△3 ~~58.77~~ *86	52.60 06	50.16 51	HI TECH ROAD	℄ STA. 9+94.69 50	22' RT.✓	A-5✓	S.D. 4.01
I-18	△3 ~~58.77~~ *91	-----	53.04 16	HI TECH ROAD	℄ STA. 9+94.69 50	22' LT.✓	A-5✓	S.D. 4.01
I-19	△3 ~~61.28~~ *9	50.76 91	50.54 4	HI TECH ROAD	℄ STA. 12+264	22' RT.✓	A-5✓	S.D. 4.01
I-20	△3 ~~61.28~~ *9	53.82 67	53.57 48	HI TECH ROAD	℄ STA. 12+284	22' LT.✓	A-5✓	S.D. 4.01
I-21	△3 ~~63.27~~ *6	-----	57.17 36	HI TECH ROAD	℄ STA. 14+25✓	22' RT.✓	A-5✓	S.D. 4.01
I-22	△3 ~~63.27~~ *1	55.98 80	55.73 6	HI TECH ROAD	℄ STA. 14+25✓	22' LT.✓	A-5✓	S.D. 4.01
I-23	△3 ~~63.44~~ *39	58.25 08	~~58.00~~ 57.94	HI TECH ROAD	℄ STA. 16+25✓	22' RT.✓	A-5✓	S.D. 4.01
I-24	△3 ~~63.44~~ *27	~~58.25~~ 57.94	~~58.00~~ 57.86	HI TECH ROAD	℄ STA. 16+25✓	22' LT.✓	A-5✓	S.D. 4.01
I-25	69.46 *52	58.97 42	58.78 32	COCA COLA DRIVE	℄ STA. 38+~~19.05~~ 20	22' RT.✓	A-10✓	S.D. 4.02
I-26	69.46 *8	62.91 78	62.66 73	COCA COLA DRIVE	℄ STA. 38+~~19.05~~ 20	22' LT.✓	A-5✓	S.D. 4.01
I-27	71.80✓*	-----	~~66.98~~ 67.20	COCA COLA DRIVE	℄ STA. 36+00✓	22' RT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-28	71.806*	-----	~~66.98~~ 67.24	COCA COLA DRIVE	℄ STA. 36+00✓	22' LT.✓	A-5 W/DEFLECTORS✓	S.D. 4.01 S.D. 4.83
I-29	71.40 *1	65.43 36	65.18 21	COCA COLA DRIVE	℄ STA. 40+00✓	22' RT.✓	A-5✓	S.D. 4.01
I-30	71.40 *33	65.43 70	65.18 63	COCA COLA DRIVE	℄ STA. 40+00✓	22' LT.✓	A-5✓	S.D. 4.01
I-31	69.64 *75	-----	~~65.37~~ 66.32	HI TECH ROAD	℄ STA. 2+00✓	22' RT.✓	A-5✓	S.D. 4.01
I-32	69.64 *95	-----	~~65.37~~ 66.34	HI TECH ROAD	℄ STA. 2+00✓	22' LT.✓	A-5✓	S.D. 4.01
I-33	73.83 *90	~~68.97~~ 69.25	~~68.72~~ 69.20	HI TECH ROAD	℄ STA. -0+65 69	22' LT.✓	A-5✓	S.D. 4.01
I-34	73.83 *5	-----	69.23 45	HI TECH ROAD	℄ STA. -0+65 69	22' RT.✓	A-5✓	S.D. 4.01
~~I-35~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~22' LT.~~	~~A-5~~	~~S.D. 4.01~~
~~I-36~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~22' RT.~~	~~A-5~~	~~S.D. 4.01~~
~~I-37~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~22' LT.~~	~~A-5~~	~~S.D. 4.01~~
~~I-38~~	~~[illegible]~~	~~-----~~	~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~22' RT.~~	~~A-5~~	~~S.D. 4.01~~
~~I-39~~	~~[illegible]~~	~~-----~~	~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~22' LT.~~	~~A-5~~	~~S.D. 4.01~~
M-1	~~89.17~~ 88.88	84.48 ~~83.07~~ 82.48	82.82 38	COCA COLA DRIVE	℄ STA. 7+~~40~~ 38	2' ● ℄	STD. M.H.✓	G 5.13
M-2	~~98.07~~ 97.84	93.54 ~~92.03~~ 91.54	91.53 24	COCA COLA DRIVE	℄ STA. 10+254	2' ● ℄	STD. M.H.✓	G 5.13
M-3	113.706	106.86 ~~107.48~~ 106.96 108.16	106.81 ~~107.23~~	COCA COLA DRIVE	℄ STA. 12+90✓	2' ● ℄	STD. M.H.✓	G 5.13
M-4	141.83 77	134.11 134.33 22	132.77 ~~134.08~~	COCA COLA DRIVE	℄ STA. 16+90 1	2.5' ● ℄	STD. M.H.✓	G 5.13
M-5	89.97 6	~~77.00~~ 76.46	68.79 ~~69.00~~	COCA COLA DRIVE	℄ STA. 32+00 1	0.5' ● ℄ 3.49	BRICK M.H.✓	G 5.03
M-5A	70.50 37	63.60 57	57.08 ~~56.43~~	COCA COLA DRIVE	N/A	N 493,631.00 E 876,877.00	BRICK M.H.✓	G 5.03
M-6	99.77 31	94.06 91.96 ~~93.00~~ 91.69	81.86 ~~82.00~~	COCA COLA DRIVE	℄ STA. 30+75 9	2' ● ℄ 5.12	BRICK M.H.✓	G 5.03
M-7	124.94 84	118.04 118.57 34 117.94	109.45 04	COCA COLA DRIVE	℄ STA. 27+60 2	2' ● ℄	STD. M.H.✓	G 5.13
M-8	142.21 2	134.93 135.62 17	134.64 ~~135.37~~	COCA COLA DRIVE	℄ STA. 24+85✓	2' ● ℄	STD. M.H.✓	G 5.13
M-9	~~61.92~~ 62.11	57.31 56.75 56	56.25 49	HI TECH ROAD	℄ STA. 7+00 2 50	2.5' ● ℄	STD. M.H.✓	G 5.13
M-10	66.12 27	61.22 60.77 82	60.52 76	HI TECH ROAD	℄ STA. 4+50 1	3' ● ℄	STD. M.H.✓	G 5.12
M-11	△3 61.123	52.03 51.57 43	51.20 8	HI TECH ROAD	℄ STA. 12+283	2' ● ℄	STD. M.H.✓	G 5.13
M-12	△3 ~~63.02~~ 62.96	54.91 54.81 55.11 54.61	54.61 5	HI TECH ROAD	℄ STA. 14+134	1' ● ℄	STD. M.H.✓	G 5.13
M-13	△3 63.304	57.63 57.76 52	57.51 38	HI TECH ROAD	℄ STA. 16+134	2' ● ℄	STD. M.H.✓	G 5.12
M-14	69.32 55	~~62.44~~, ~~64.88~~ 63.25 61.90 ~~59.94~~ 15	58.69 55	COCA COLA DRIVE	℄ STA. 38+~~17.05~~ 18	1' ● ℄	BRICK M.H.✓	G 5.03
M-15	71.06 7	66.46 66.76 59	66.51 37	COCA COLA DRIVE	℄ STA. 36+00✓	3' ● ℄	STD. M.H.✓	G 5.12
M-16	71.20 35	64.60 ~~62.96~~ 62.70 64.25	62.71 35	COCA COLA DRIVE	℄ STA. 40+00✓	2' ● ℄	BRICK M.H.✓	G 5.03
M-17	72.370	64.19 64.48 10	~~64.15~~ 63.99	HI TECH ROAD	℄ STA. ~~0+00~~ 0+12 50	● ℄ 4'	BRICK M.H.✓	G 5.03
M-18	69.48 59	65.56 65.15 49	~~64.90~~ 65.31	HI TECH ROAD	℄ STA. 2+00 1	0.5' ● ℄	STD. M.H.✓	G 5.12
M-19	73.69 91	68.31 ~~66.50~~ 68.01	66.25 56	HI TECH ROAD	℄ STA. -0+65 65	2' ● ℄	BRICK M.H.✓	G 5.03
~~M-20~~	~~[illegible]~~	~~73.83 75.08 74.88~~	~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~● ℄~~	~~BRICK M.H.~~	~~G 5.03~~
~~M-21~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~● ℄~~	~~BRICK M.H.~~	~~G 5.03~~
~~M-22~~	~~[illegible]~~	~~84.30 - 2 PIPES 81.55~~	~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~● ℄~~	~~BRICK M.H.~~	~~G 5.03~~
~~M-23~~	~~83.64~~	~~76.95~~	~~76.20~~	~~HI TECH ROAD~~	~~℄ STA. 9+00~~	~~● ℄~~	~~STD. M.H.~~	~~G 5.13~~
~~M-24~~	~~87.21~~	~~80.90~~	~~80.65~~	~~HI TECH ROAD~~	~~℄ STA. 11+00~~	~~● ℄~~	~~STD. M.H.~~	~~G 5.13~~
M-11A	59.00 83	50.39 3	50.14 29	~~HI TECH ROAD~~	℄ STA. 12+25✓	47' RT.✓	STD. M.H.✓	G 5.13
STUB 1	-----	-----	108.36	COCA COLA DRIVE	℄ STA. 13+00	40' LT.	BRICK CLOSE OPENING	
STUB 2	-----	-----	135.00	COCA COLA DRIVE	℄ STA. 17+00	40' LT.	BRICK CLOSE OPENING	
STUB 3	-----	-----	92.85	COCA COLA DRIVE	℄ STA. 30+75	40' LT.	BRICK CLOSE OPENING	
STUB 4	-----	-----	92.85	COCA COLA DRIVE	℄ STA. 30+75	40' RT.	BRICK CLOSE OPENING	
STUB 5	-----	-----	119.45	COCA COLA DRIVE	℄ STA. 27+50 4	40' LT.	BRICK CLOSE OPENING	
STUB 6	-----	-----	119.45	COCA COLA DRIVE	℄ STA. 27+50	40' RT.	BRICK CLOSE OPENING	
STUB 7	-----	-----	136.50	COCA COLA DRIVE	℄ STA. 24+75	40' LT.	BRICK CLOSE OPENING	
STUB 8	-----	-----	136.96	COCA COLA DRIVE	℄ STA. 24+75	40' RT.	BRICK CLOSE OPENING	
STUB 9	-----	-----	57.40	HI TECH ROAD	℄ STA. 7+00	40' LT.	BRICK CLOSE OPENING	
STUB 10	-----	-----	61.50	HI TECH ROAD	℄ STA. 4+50	40' LT.	BRICK CLOSE OPENING	
STUB 11	-----	-----	54.00	HI TECH ROAD	℄ STA. 12+25	40' LT.	BRICK CLOSE OPENING	
STUB 12	-----	-----	56.16	HI TECH ROAD	℄ STA. 14+25	40' LT.	BRICK CLOSE OPENING	
STUB 13	-----	-----	58.43	HI TECH ROAD	℄ STA. 16+25	40' LT.	BRICK CLOSE OPENING	
STUB 14	-----	-----	58.43	HI TECH ROAD	℄ STA. 16+25	40' RT.	BRICK CLOSE OPENING	
STUB 15	-----	-----	63.09	COCA COLA DRIVE	℄ STA. 38+19.05	40' LT.	BRICK CLOSE OPENING	
STUB 16	-----	-----	65.61	COCA COLA DRIVE	℄ STA. 40+00	40' RT.	BRICK CLOSE OPENING	
STUB 17	-----	-----	65.61	COCA COLA DRIVE	℄ STA. 40+00	40' LT.	BRICK CLOSE OPENING	

NOTE:
* - DENOTES TOP OF CURB ELEVATION

STRUCTURE SCHEDULE

STRUCTURE NO.	TOP ELEVATION	INV.IN	INV.OUT	ROAD NAME	ROAD STA.	OFFSET	TYPE	REMARKS
STUB 18	-----	-----	69.15	HI TECH ROAD	℄ STA. -0+65	20' LT.	BRICK CLOSE OPENING	
~~STUB 19~~	~~-----~~	~~-----~~	~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~30' LT.~~	~~BRICK CLOSE OPENING~~	
~~STUB 20~~	~~-----~~	~~-----~~	~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~30' RT.~~	~~BRICK CLOSE OPENING~~	
~~STUB 21~~			~~[illegible]~~	~~HI TECH ROAD~~	~~[illegible]~~	~~30' LT.~~	~~BRICK CLOSE OPENING~~	
S-1	~~81.07~~ 45	~~78.07~~ 77.45	~~78.00~~ 77.38	COCA COLA DRIVE	N/A	N491,76~~8.00~~ 6.45 E875,516.00	HDPE ~~CONC.~~ END SECT.	S.D. 5.51
S-2	59.61 88	56.11 38	56.00 27	COCA COLA DRIVE	N/A 7.22 .65	N493,635.50 E876,898.00	HDPE ~~CONC.~~ END SECT.	S.D. 5.51
S-3	57.72 65	55.22 15	55.16 09	HI TECH ROAD	℄ STA. 6+87✓	75' RT.✓ .46	HDPE ~~CONC.~~ END SECT.	S.D. 5.51
S-4	51.36 25	49.86 75	49.80 69	HI TECH ROAD	N/A 3.25	N494,528.00 E877,709.50	HDPE ~~CONC.~~ END SECT.	S.D. 5.51
S-5	51.89✓	49.39✓	49.36 43	HI TECH ROAD	N/A 878085.65	N494,516.57 ~~E878,0.92~~	HDPE ~~CONC.~~ END SECT.	S.D. 5.51
S-6	61.20 63	~~56.70~~ 57.13	~~56.62~~ 57.05	HI TECH ROAD	N/A 4.78	N494,135.00 E876,868.00 8	HDPE ~~CONC.~~ END SECT.	S.D. 5.51
△2 S-8	75.00 7	72.30 7	72.00 7	N/A	N/A 73.54	7.25 N493,670.00 E874,860.00	HDPE ~~Conc.~~ End Sect.	SD. 5.51

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS HS — DATE 3-17-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

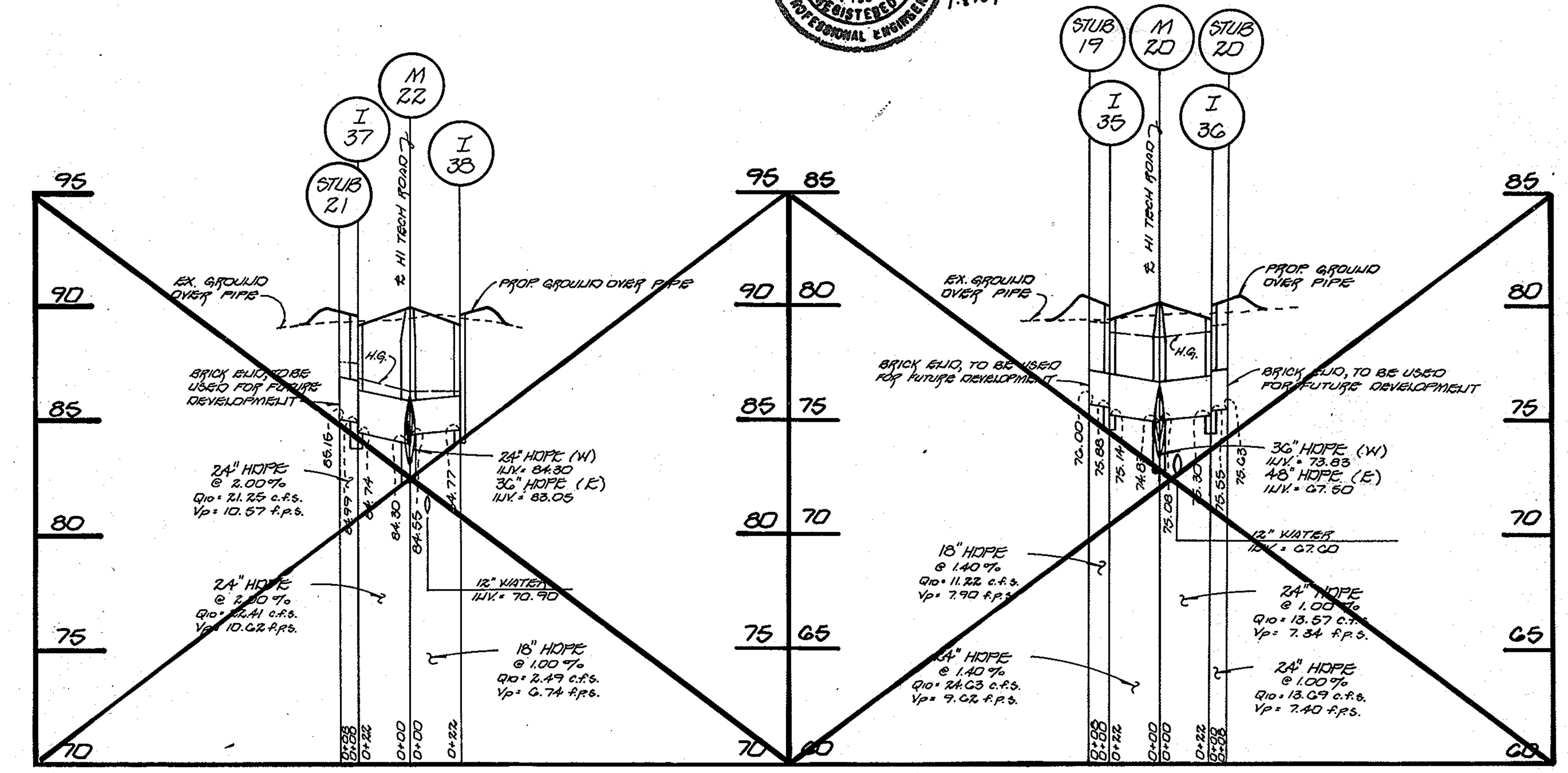
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/00

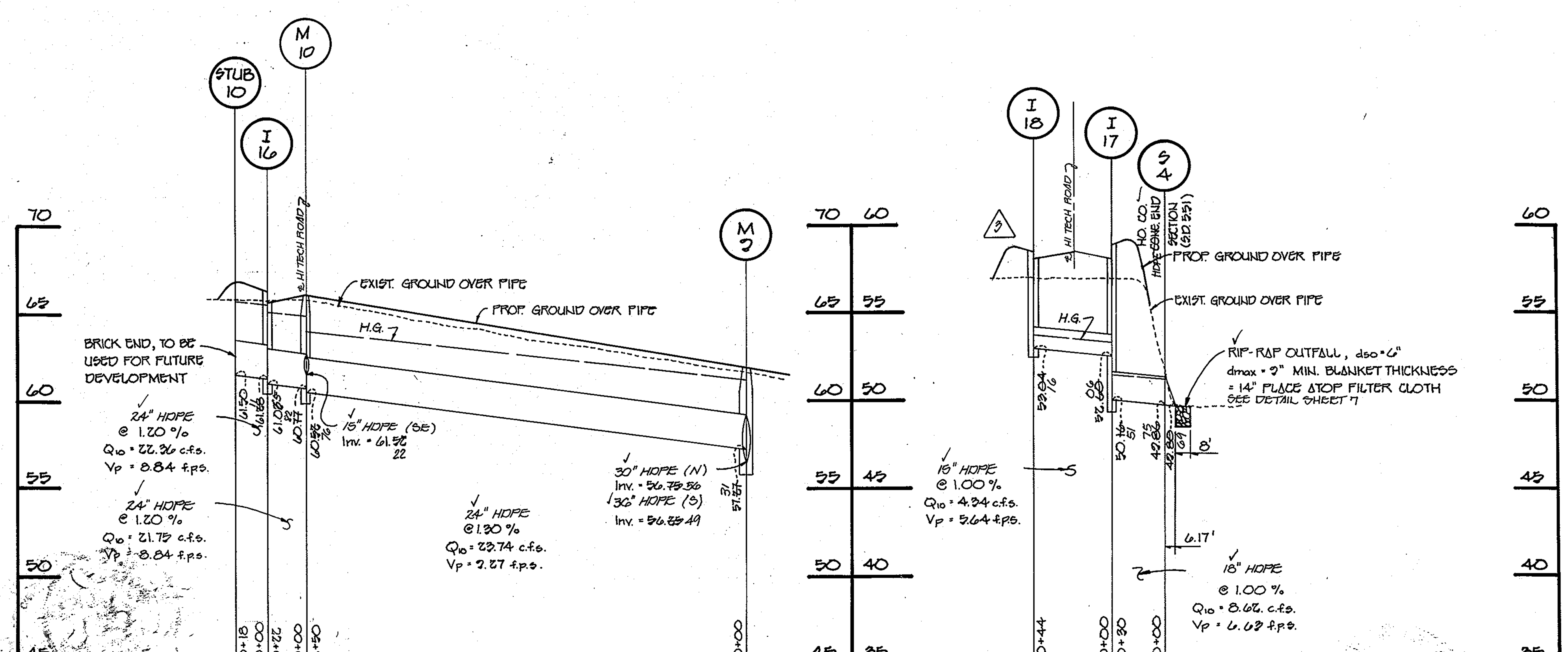
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/24/00

Revision △1 5/3/01

REVISIONS		
No.	DESCRIPTION	DATE
△1	CHANGE STORM DRAIN PIPES FROM RCCP TO HDPE	5/3/01
2	Revise sheet number & add S-8 to Structure Sch.	7-15-04
3	Revise prop. grade over pipe between I-17 & I-18; also revise Structure Sch. to show new top Elev's for I-17 thru I-24 & MH-11 thru MH-13	7-15-04
△4	REVISED SHEET NO.	9-2-04

FOR REV 4 ONLY — 9.8.04





NOTES:
1.) H.G. - DENOTES 10 YEAR HYDRAULIC GRADIENT.
2.) V_P - DENOTES PARTIAL FLOW VELOCITY.
3.) V_F - DENOTES FULL FLOW VELOCITY.
4.) STORM DRAIN BEDDING TYPE CLASS 'C' TO BE USED.

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

CHARLES J. CROVO, SR. — DATE 7/14/95

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

AS BUILT 2/1/06

STRUCTURE SCHEDULE AND STORM DRAIN PROFILES
PATAPSCO VALLEY BUSINESS CENTER
TAX MAP 38 PARCEL 284 & 285
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
JULY 14, 1995
SCALE: AS SHOWN
SHEET 8 OF 35 △2 △4

ASBUILT 2-1-06 F 94-24

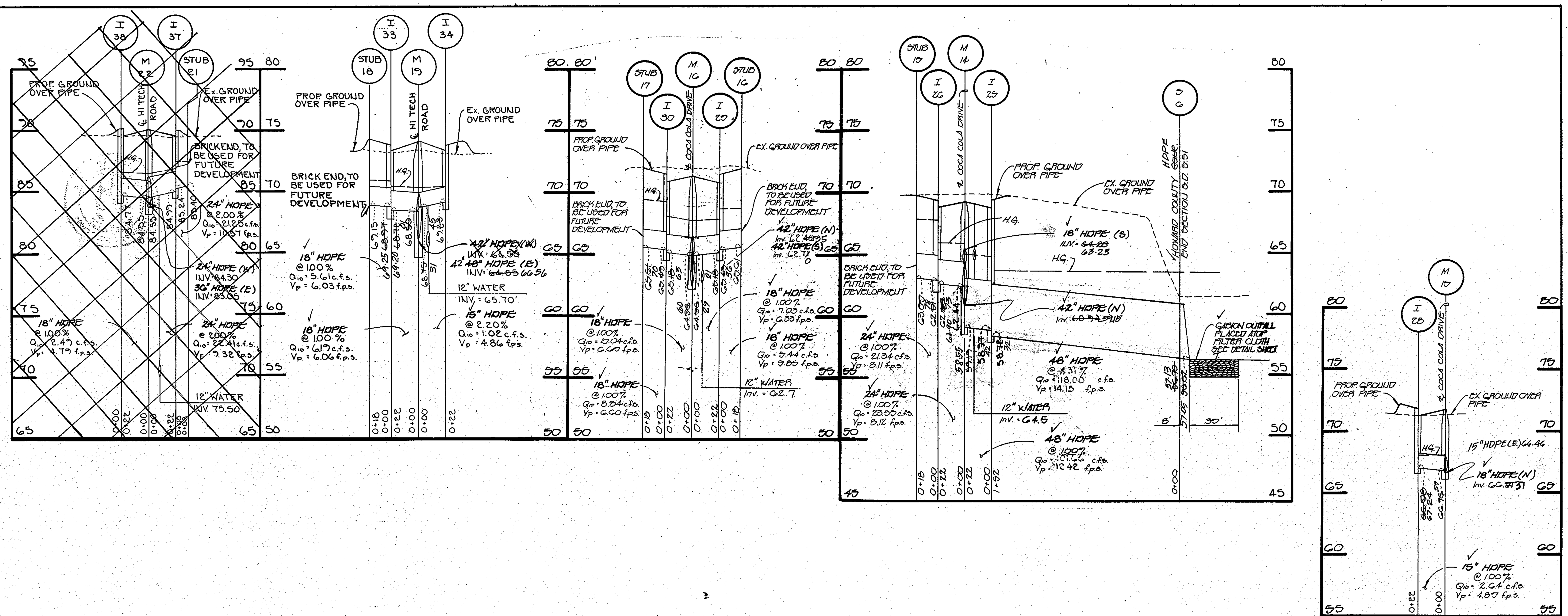
APPROVED: DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date 3-7-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Division of Land Development — Date 4/3/00

Chief, Development Engineering Division — Date 3/24/00



PROFILES

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

REVISION 3

FOR REV 3 ONLY 9.8.04

No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPE FROM RCCP TO HDPE	6/3/01
2	Revise sheet number	7-15-04
3	REVISED SHEET NO.	9-2-04

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MD.
20904

NOTES:
1.) H.G. - DENOTES 10 YEAR HYDRAULIC GRADIENT.
2.) Vp - DENOTES PARTIAL FLOW VELOCITY.
3.) Vf - DENOTES FULL FLOW VELOCITY.
4.) STORM DRAIN BEDDING TYPE CLASS 'C' TO BE USED.

AS BUILT 2/1/06

STORM DRAIN PROFILES

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285

FIRST ELECTION DIST. — HOWARD COUNTY, MD.

SCALE: AS SHOWN — DATE: JULY 15, 1995

SHEET 9 OF 35

ASBUILT 2-1-06

F 94-24

124

REVISIONS		
No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM RCP TO HDPE	5/3/01
2	Revise sheet number	7-15-04
3	Revise prop. grade over pipe on profiles between I-10 & I-24, I-21 & I-22, MH 11 & Stub 11 & MH-19 & I-20	7-15-04
	Revised sheet no.	9-2-04

REVISION 1 5/3/01

FOR REV 4 ONLY

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-17-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING.
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/24/00

PROFILE

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

PROFILES

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

NOTES:
1) H.G. - DENOTED 10 YEAR HYDRAULIC GRADIENT.
2) V_p - DENOTES PARTIAL FLOW VELOCITY.
3) V_f - DENOTES FULL FLOW VELOCITY.
4) STORM DRAIN BEDDING TYPE CLASS 'C' TO BE USED.

OWNER AND REVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

STORM DRAIN PROFILES

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DIST. — HOWARD COUNTY, MD.
SCALE: AS SHOWN — DATE: JULY 14, 1995
SHEET 10 OF 30 2 4

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

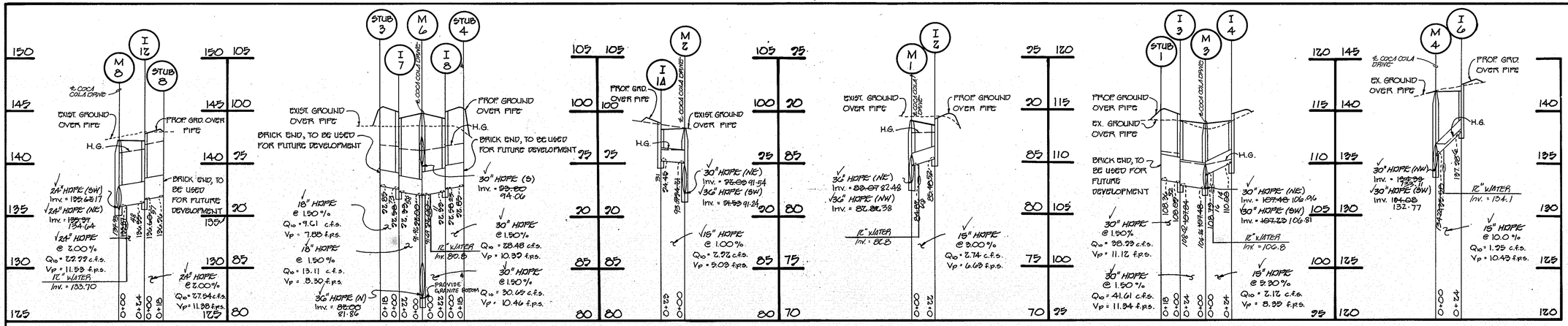
ASBUILT 2-1-06

F 94-24

124

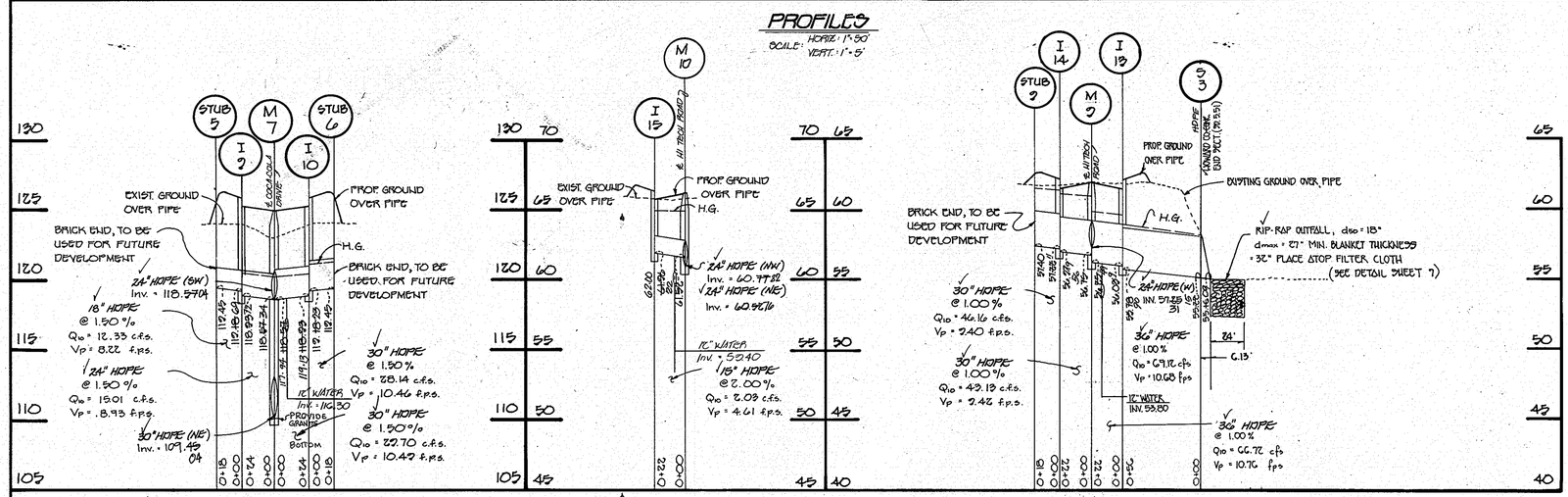
APPROVED: DEPARTMENT OF PUBLIC WORKS
Chief, Bureau of Highways — Date 3/17/00

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Division of Land Development — Date 4/3/00
Chief, Development Engineering Division MK — Date 3/24/00



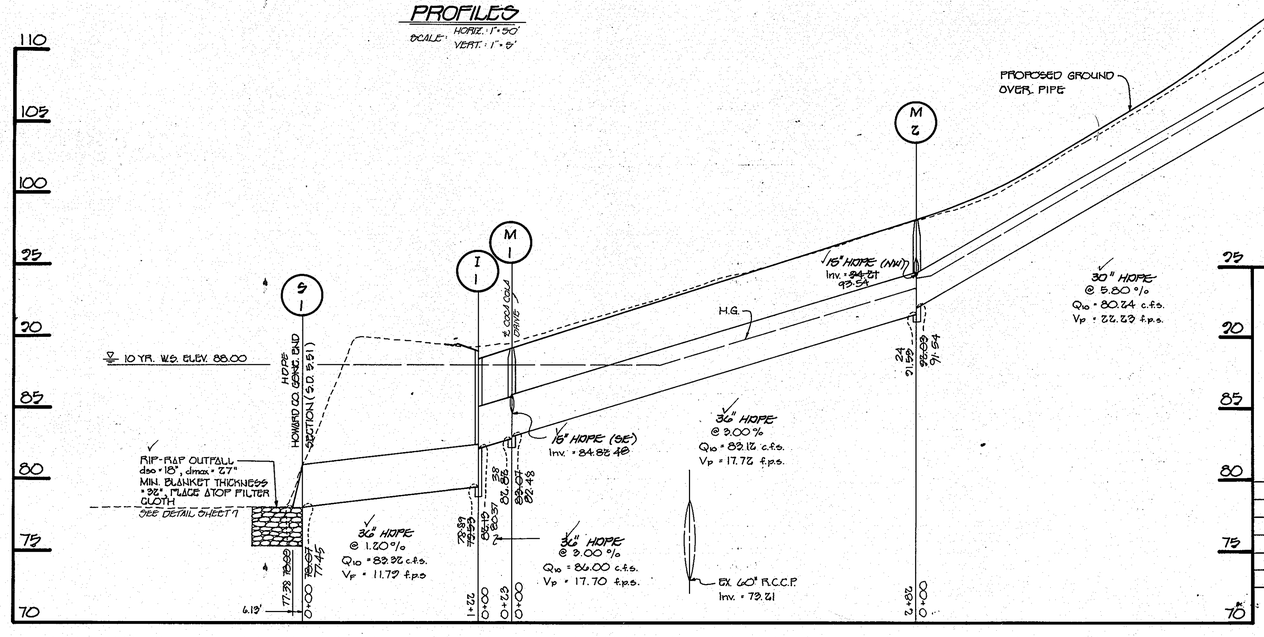
PROFILES

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



PROFILES

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



PROFILE

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

NOTES:
1) H.G. - DENOTES 10 YEAR HYDRAULIC GRADIENT.
2) V_p - DENOTES PARTIAL FLOW VELOCITY.
3) V_f - DENOTES FULL FLOW VELOCITY.
4) STORM DRAIN BEDDING TYPE CLASS 'C' TO BE USED.

Revision 1 5/3/01 — For REV 3 only — As Built 8/1/06

REVISIONS		
No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM ROOF TO HDPE	6/8/01
2	Revise sheet number	7-15-04
3	REVISED SHEET NO.	7-2-04

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MD.
20904

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

STORM DRAIN PROFILES

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 784 & 785
FIRST ELECTION DIST. — HOWARD COUNTY, MD.
SCALE: AS SHOWN — DATE: JULY 14, 1995
SHEET 11 OF 35 (2) (3)

144

AS BUILT 2-1-06 F. 94-24

174

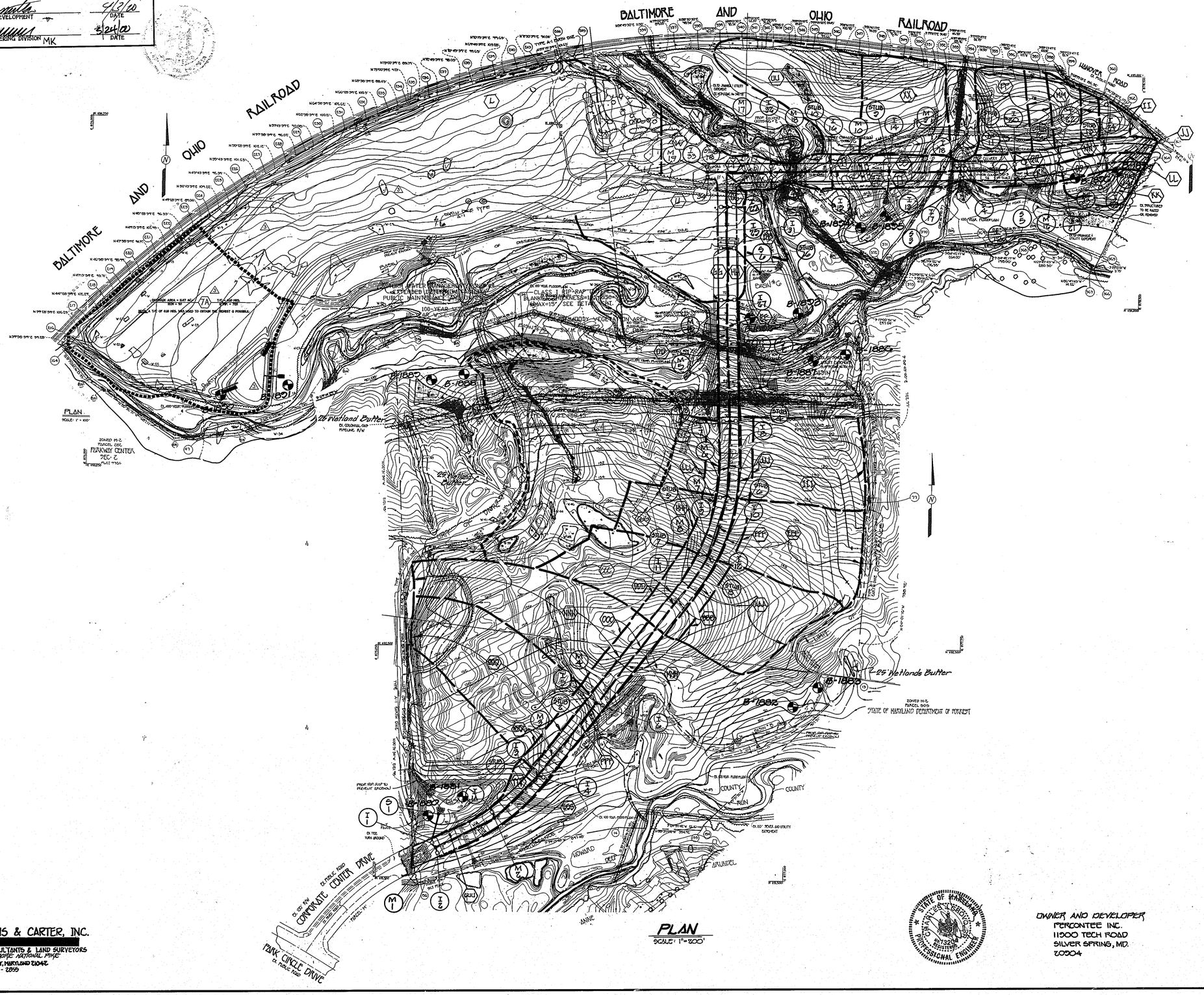
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

Andrew M. Donecker 3-17-00
CHIEF, BUREAU OF HIGHWAYS HS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

Cindy Hamilton 4/3/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

3/24/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE



PLAN
SCALE: 1"=100'

PLAN
SCALE: 1"=200'

DRAINAGE AREAS

INLET	D.A. #	AREA Ac. ±	'C'	ZONED	% IMP
I-1	UUU	0.31	0.70	M-2	75%
I-1A	TTT	0.53			
I-2	SSS	0.53			
I-3	RRR	1.03			
I-4	PPP	0.39			
I-5	OOO	0.87			
I-6	MMM	0.35			
I-7	LLL	0.75			
I-8	JJJ	0.75			
I-9	HHH	0.64			
I-10	FFF	0.64			
I-11	DDD	0.91			
I-12	BBB	0.91			
I-13	ZZ	0.45			
I-14	YY	0.45			
I-15	WW	0.39			
I-16	VV	0.39			
I-17	TT	0.80			
I-18	SS	0.80			
I-19	RR	0.35			
I-20	QQ	0.35	↓	↓	↓
I-21	OO	0.35	0.70	M-2	75%
I-22	NN	0.35			
I-23	LL	0.35			
I-24	JJ	0.35			
I-25	HH	0.70			
I-26	GG	0.70			
I-27	EE	0.50			
I-28	DD	0.50			
I-29	CC	0.35			
I-30	AA	0.35			
I-31	X	0.39			
I-32	Y	0.39			
I-33	W	0.19			
I-34	U	0.19	↓	↓	↓
~~I-35~~	~~T~~	~~0.39~~			
~~I-36~~	~~R~~	~~0.26~~			
~~I-37~~	~~P~~	~~0.70~~			
~~I-38~~	~~N~~	~~0.50~~			
~~I-39~~	~~L~~	~~0.80~~			
			0.70	M-2	75%
STUB 1	QQQ	6.54			
STUB 2	NNN	5.22			
STUB 3	KKK	1.61			
STUB 4	III	4.78			
STUB 5	GGG	2.07			
STUB 6	EEE	4.73			
STUB 7	CCC	2.89			
STUB 8	AAA	4.63			
STUB 9	XX	7.75			
STUB 10	UU	3.75			
STUB 11	PP	2.75			
STUB 12	MM	2.02			
STUB 13	II	1.05	↓	↓	↓
STUB 14	KK	1.19	0.70	M-2	75%
STUB 15	FF	3.58			
STUB 16	BB	0.91			
STUB 17	Z	1.48			
STUB 18	V	0.94	↓	↓	↓
~~STUB 19~~	~~S~~	~~4.50~~			
~~STUB 20~~	~~Q~~	~~4.61~~			
~~STUB 21~~	~~O~~	~~5.57~~			

REVISIONS

No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM RCCP TO HDPE	5/3/02
2	REVISE CONTOURS	12/12/02
3	Revise sheet number & grading; show Pond 7A	7-20-04
4	REVISED SHEET NO.	9-2-04
5	Revise pond 4 to reflect approved layout; revise elev's to final design	11-11-04

CHRISTOPHER J. REID NO. 19949

For Rev 4 only Christopher J Reid 9.8.04

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 481-2855

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MD.
20904

SOIL BORING LOCATIONS AND
DRAINAGE AREA MAP

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 PARCEL 284 & 285
FIRST ELECTION DIST. HOWARD COUNTY, MD
SCALE: AS SHOWN DATE: JULY 14, 1995

SHEET 12 OF 35 4

ASBUILT 2-1-06

F 94-24

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 7-14-95

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 7/14/95

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/24/95, 3/29/00

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. 3/29/00
HOWARD SOIL CONSERVATION DISTRICT — DATE 7/24/95

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/00

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/24/00

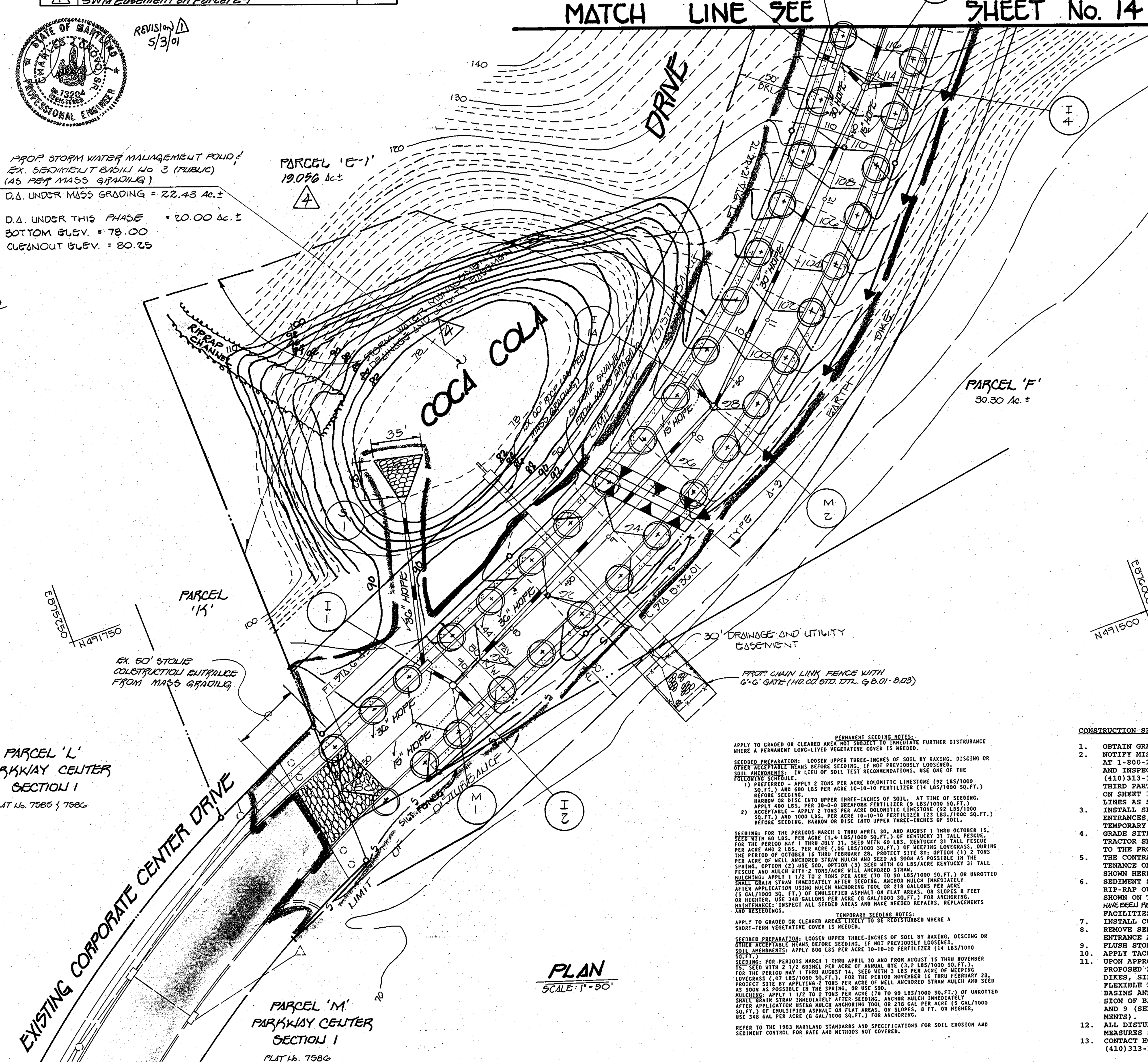
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS HS — DATE 3-17-00

REVISIONS

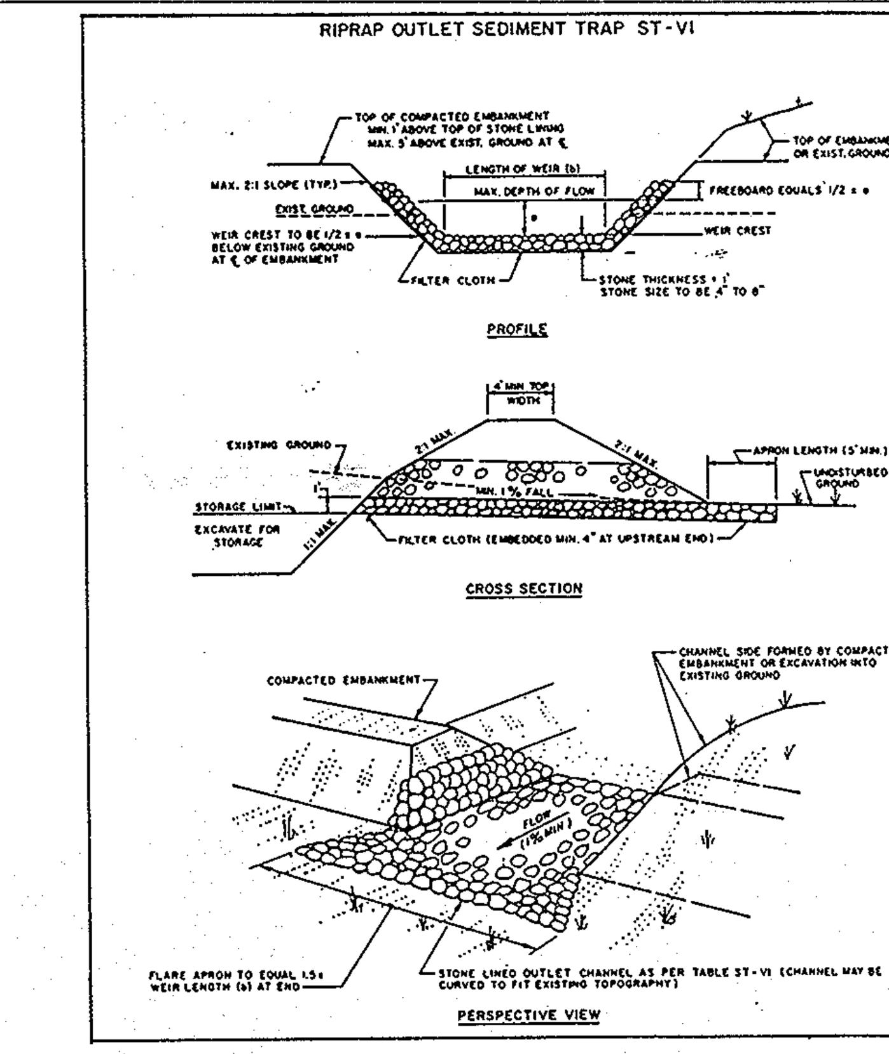
No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM RCCP TO HDPE	5/3/01
2	Revise sheet number	7.15.04
3	REVISED SEQUENCE & SHEET NO.	9.2.04
4	Revise sheets 2,3,4,13,14,15 & 16 to reflect D-1, E-1 & SWM Easement on Parcel E-1	3.29.05

REVISION 1 5/3/01

FOR REV 3 ONLY



RIPRAP OUTLET SEDIMENT TRAP ST-VI



CONSTRUCTION SPECIFICATIONS FOR ST-VI

1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be five (5) feet, measured at centerline of embankment.
3. All fill slopes shall be 2:1 or flatter; cut slopes 1:1 or flatter.
4. Elevation of the top of any dike directing water into trap must equal or exceed the height of embankment.
5. Storage area provided shall be figured by computing the volume available behind the outlet channel up to an elevation of one (1) foot below the level weir crest.
6. Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of fabric must overlap at least one (1) foot with section nearest the entrance placed on top. Fabric shall be embedded at least six (6) inches into existing ground at entrance of outlet channel.
7. Stone used in the outlet channel shall be four (4) to eight(8) inches (riprap). To provide a filtering effect, a layer of filter cloth shall be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of two (2) inch or finer aggregate shall be placed on the upstream face of the outlet.
8. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
9. The structure shall be inspected after each rain and repaired as needed.
10. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
11. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.
12. Drainage area for this practice is limited to 15 acres or less.

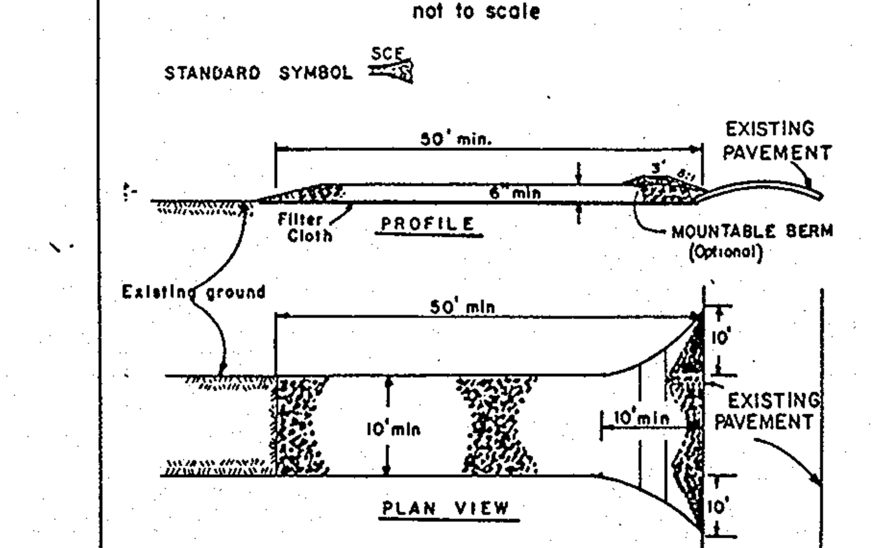
SEDIMENT CONTROL NOTES:

1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION (992-2437).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN; a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1; b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	123.2	ACRES
AREA DISTURBED	17.2	ACRES
AREA TO BE ROOFED OR PAVED	8.0	ACRES
AREA TO BE VEGETATIVELY STABILIZED	9.2	ACRES
TOTAL CUT	15,000	CU.YDS.
TOTAL FILL	15,000	CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A	CU.YDS.

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY DPW SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQURSTED 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.

STABILIZED CONSTRUCTION ENTRANCE
not to scale



CONSTRUCTION SPECIFICATIONS

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

PERMANENT SEEDING NOTES:

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

SEEDBED PREPARATION: LOOSEN UPPER THREE-INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ONE OF THE FOLLOWING SCHEDULE.
1) PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 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 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ.FT.)
2) ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE-INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (1.4 LBS/1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (.05 LBS/1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WILL ANCHORED STRAW.
MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ.FT.) OR 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 HIGHTER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.
MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES:

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

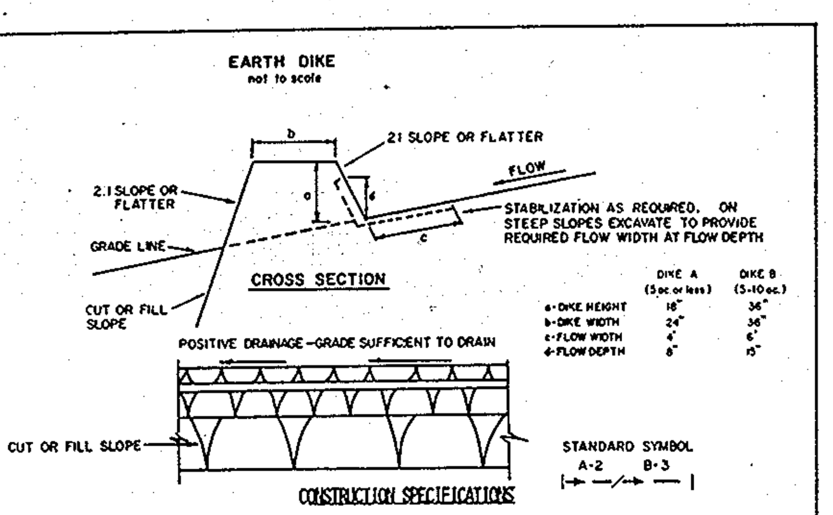
SEEDBED PREPARATION: LOOSEN UPPER THREE-INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.
SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.)
SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ.FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.
MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

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

CONSTRUCTION SEQUENCE

1. OBTAIN GRADING PERMIT.
2. NOTIFY MISS UTILITY 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777, NOTIFY HOWARD COUNTY OFFICE OF PERMITS AND INSPECTION 24 HOURS BEFORE BEGINNING ANY WORK AT (410)313-1870. REVIEW AND FOLLOW ALL GUIDELINES FOR THIRD PARTY ACTIVITY ON COLONIAL RIGHT-OF-WAY (AS SHOWN ON SHEET 1) WHICH PERTAINS TO THE THREE (3) EXISTING GAS LINES AS SHOWN ON PLAN SHEETS 4 AND 16.
3. INSTALL SEDIMENT CONTROL MEASURES, STONE CONSTRUCTION ENTRANCES, RIP-RAP OUTLET SEDIMENT TRAP, EARTH DIKES TEMPORARY SWALE AND SILT FENCE AND SUPER SILT FENCE. (3)
4. GRADE SITE TO SUBGRADE AND INSTALL STORM DRAINS. CONTRACTOR SHALL INSTALL TEMPORARY 18" FLEXIBLE PIPE FROM S-4 TO THE PROPOSED RIP-RAP OUTLET SEDIMENT TRAP NUMBER 1.
5. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS.
6. SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT BASINS AND RIP-RAP OUTLET SEDIMENT TRAP WHEN THE CLEANOUT ELEVATIONS, SHOWN ON THE GRADING AND SEDIMENT CONTROL PLAN SHEETS (SDP 94-009) HAVE BEEN REACHED. SEDIMENT MUST BE PLACED UP HILL FROM THESE FACILITIES.
7. INSTALL CURB AND GUTTER AND BASE COURSE.
8. REMOVE SEDIMENT FROM ROADWAYS AND DRESS STONE CONSTRUCTION ENTRANCE AS REQUIRED.
9. FLUSH STORM DRAIN SYSTEM TO REMOVE ANY TRAPPED SEDIMENT.
10. APPLY TACK COAT TO SUB-BASE AND LAY SURFACE COURSE. (3)
11. UPON APPROVAL OF THE SEDIMENT CONTROL INSPECTOR REMOVE PROPOSED RIP-RAP OUTLET SEDIMENT TRAP NO. 1, SUPER SILT FENCE, ALL EARTH DIKES, SILT FENCE, TEMPORARY SWALES, AND 18" TEMPORARY FLEXIBLE PIPE. REMOVE ALL SEDIMENT FROM ALL SEDIMENT BASINS AND DO ALL MODIFICATIONS NECESSARY FOR THE CONVERSION OF BASINS 1, 3, 5, 6 AND 9 TO S.W.M. PONDS 1, 3, 5, 6 AND 9 (SEE S.D.P. 94-009 DWGS FOR ALL CONVERSION REQUIREMENTS).
12. ALL DISTURBANCE DUE TO THE REMOVAL OF THE SEDIMENT CONTROL MEASURES SHALL STABILIZED WITH PERMANENT SEEDING.
13. CONTACT HOWARD COUNTY OFFICE OF PERMITS AND INSPECTIONS AT (410)313-1870 AT COMPLETION.

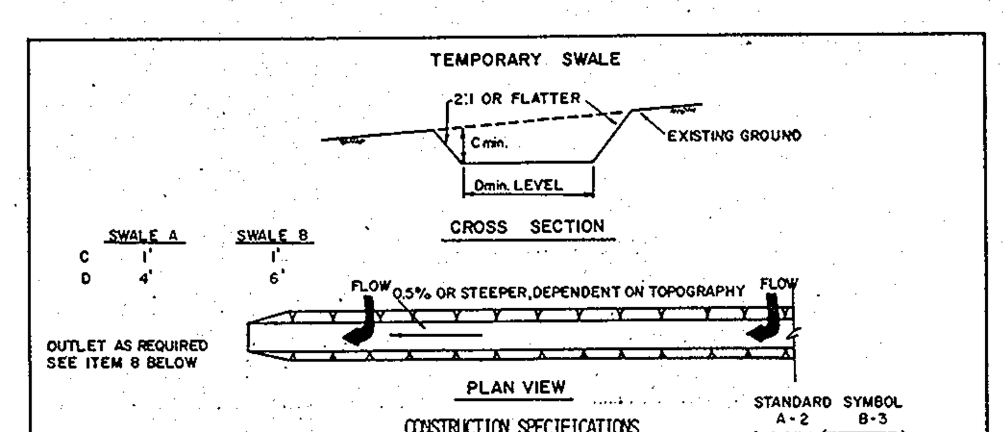
EARTH DIKE



FLOW CHANNEL STABILIZATION

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

TEMPORARY SWALE



	SWALE A	SWALE B
C	1'	1'
D	4'	6'

OUTLET AS REQUIRED SEE ITEM 8 BELOW

STANDARD SYMBOL A-2 B-3

CONSTRUCTION SPECIFICATIONS

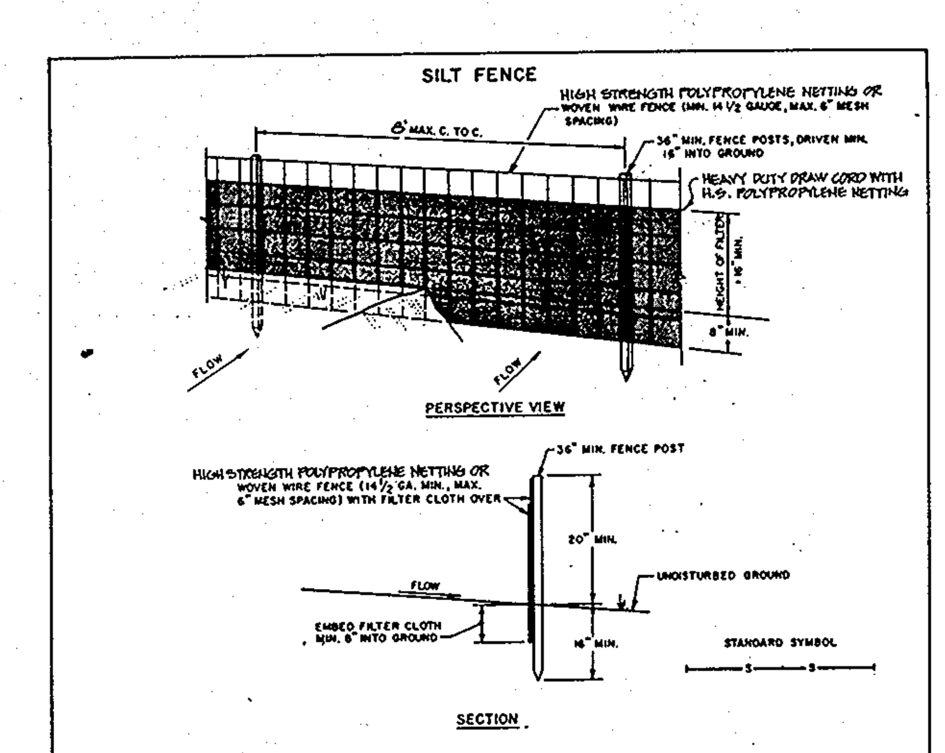
1. ALL TEMPORARY SWALES SHALL HAVE UNINTERRUPTED POSITIVE GRADE TO AN OUTLET.
2. DIVERTED RUNOFF FROM A DISTURBED AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE.
3. DIVERTED RUNOFF FROM AN UNDISTURBED AREA SHALL OUTLET DIRECTLY INTO AN UNDISTURBED STABILIZED AREA AT NON-EROSIVE VELOCITY.
4. ALL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

FLOW CHANNEL STABILIZATION

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

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

SILT FENCE



OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MD. 20904

ASBUILT 2/1/06

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042

STREET TREE, GRADING & SEDIMENT CONTROL PLAN

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DIST. — HOWARD COUNTY, MARYLAND
SCALE: 1" = 50' — DATE: JULY 15, 1995

ASBUILT 2-1-06 F94-24

REVISIONS		
No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM RCCP TO HDPE	6/3/01
2	CHANGE SHEET NUMBER & ADD CURRENT MD-378 SPECS.	7/20/04
3	REVISED SHEET NO.	9.2.04
4	Revised Sheets 2,3,4,13,14,15&16 TO reflect D-1&E-1 & SWM Easement on Parcel E-1	3-29-05

REVISED 5/3/01

STATE OF MARYLAND CHARLES T. COLLINS, JR. No. 13204 PROFESSIONAL ENGINEER

STATE OF MARYLAND CHRISTOPHER J. FISHER NO. 19249 REGISTERED PROFESSIONAL ENGINEER

Folder 3 of 4

9.9.04

⚠4 STORM WATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

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. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

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 25-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, and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the stability to support vegetation of the quality required to prevent erosion of the embankment.

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.

When required by the reviewing agency the minimum required density 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 (Standard Proctor).

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.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 psi, 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" embedment perpendicular to the outside of the pipe) of flowable fill shall be under bedding, over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill all metal pipe shall be bituminous coated. Any adjoining soil 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 shall completely fill all voids adjacent to the flowable fill zone. 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 structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill zone shall be of the type and quality conforming to the specified for the core of the embankment or other embankment materials.

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 - (Polymer Coated steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt.

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 Pipe, when used with flowable fill or when soil and/or water conditions warrant the increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. 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, end sections, etc., must be composed of the same material and coatings 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 pre-ribbed an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24-inches in diameter: flanges on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, prepunched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket; and a 12-inch wide hugger type band with o-ring gaskets having a minimum diameter of 1/2-inch greater than the corrugation depth. Pipes 24-inches in diameter and larger shall be connected by a 24-inch long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket will be installed with 12-inches on the end of each pipe. Flanged joints with 3/8-inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking or a neoprene band.

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 C-361.

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/cradle for their entire length. This bedding/cradle shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete cradle is not needed for structural reasons, flowable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

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 4 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.

Plastic Pipe

The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following 4" - 10" inch pipe shall meet the requirement of AASHTO M252 Type S, and 12" through 24" inch shall meet the requirement of AASHTO M294 Type S.

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.

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile 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 921.09, Class C.

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 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 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 sumps from which the water shall be pumped.

Stabilization

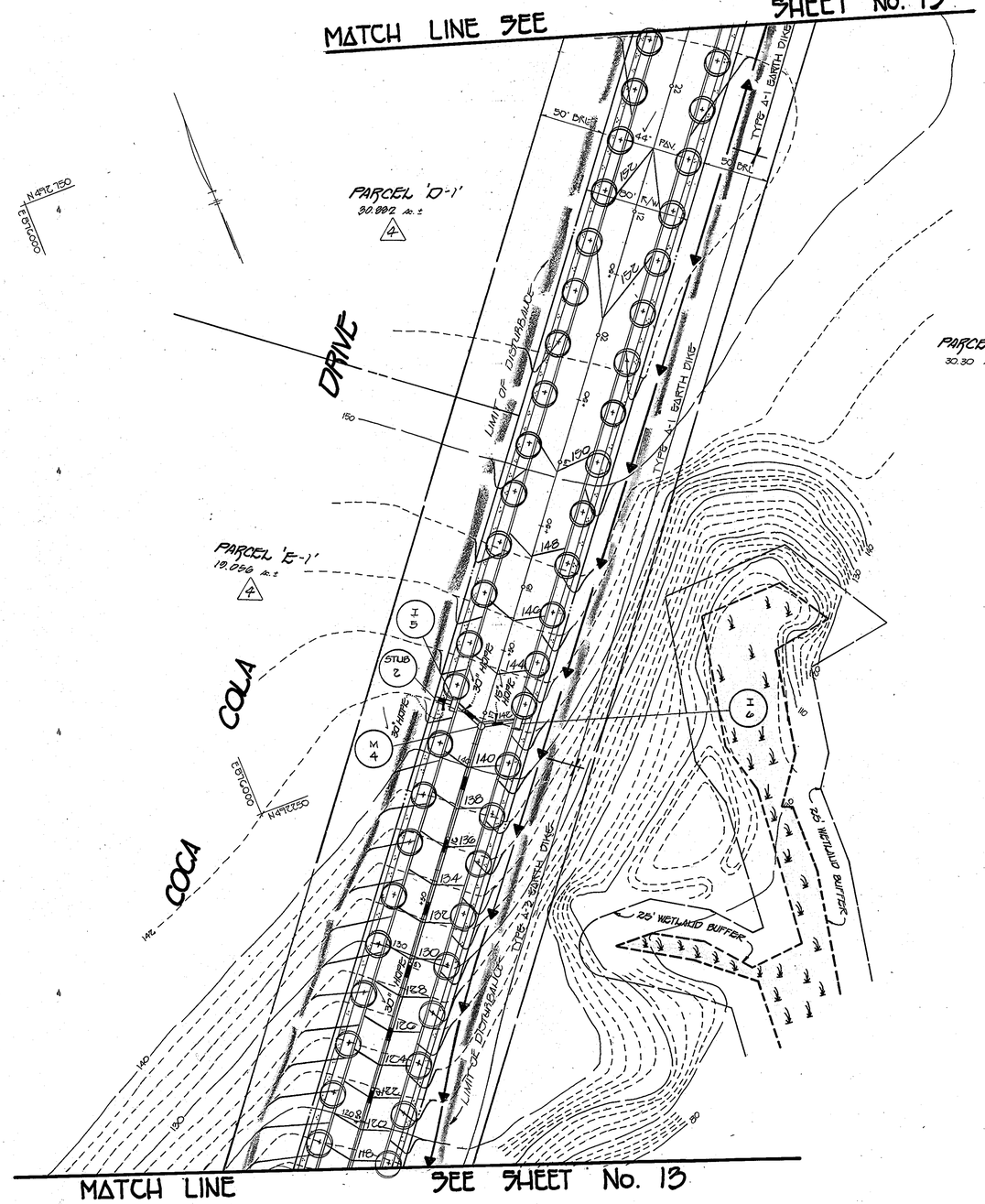
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service 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.

OPERATION AND MAINTENANCE

An operation and maintenance plan in accordance with Local or State Regulations will be prepared for all ponds. As a minimum, the dam inspection checklist located in Appendix A shall be included as part of the operation and maintenance plan and performed at least annually. Written records of maintenance and major repairs needs to be retained in a file. The issuance of a Maintenance and Repair Permit for any repairs or maintenance that involves the modification of the dam or spillway from its original design and specifications is required. A permit is also required for any repairs or reconstruction that involve a substantial portion of the structure. All indicated repairs are to be made as soon as practical.



PLAN
SCALE: 1"=50'

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 7-14-95

ENGINEER'S CERTIFICATE

" I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 7/14/95

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

"U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE" — DATE 7/24/95

DISTRICT — DATE 3/29/00

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/24/95 3/29/00

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-17-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION MW — DATE 3/24/00

⚠3 - 12 Pond
SPECIFICATIONS
These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

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 engineers.

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 portion 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 a minimum of four 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.

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.

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-1220 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. Otherdetails (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

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 905.

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 reasonably homogeneous with the larger rocks evenly 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 excavations 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 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.

STREET TREE, GRADING & SEDIMENT CONTROL PLAN

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 PARCEL 284 & 285
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN JULY 14, 1995
SHEET 14 OF 36
⚠3 ⚠4

STATE OF MARYLAND CHARLES T. COLLINS, JR. No. 13204 PROFESSIONAL ENGINEER

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

STATE OF MARYLAND CHRISTOPHER J. FISHER No. 19249 REGISTERED PROFESSIONAL ENGINEER

ASBUILT 2/1/06

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

F 94-24 ASBUILT 2-1-06

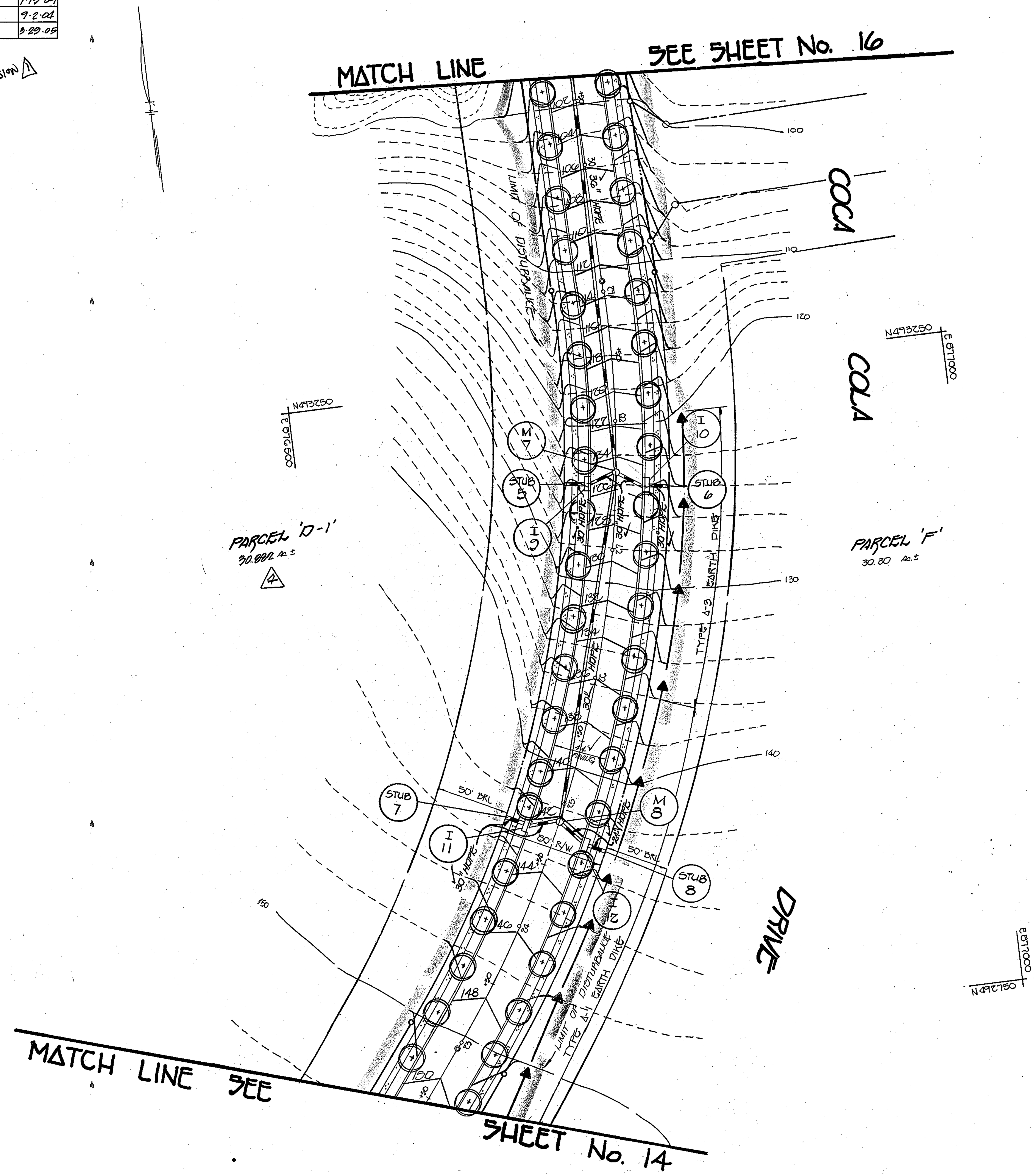
REVISIONS		
No.	DESCRIPTION	DATE
1 (triangle)	CHANGE STORM DRAIN PIPES FROM RCCP TO HDPE	5/3/01
2	Revise sheet number	7.15.04
3 (triangle)	REVISED SHEET NO.	9.2.04
4 (triangle)	Revised sheets 2,3,4,13,14,15 & 16 to reflect D-1, E-1 & SWM Easement on Parcel E-1.	3.29.05

REVISION 1

For REV 3 ONLY

STATE OF MARYLAND CHRISTOPHER J. REED REGISTERED NO. 19949 PROFESSIONAL ENGINEER 9.8.04

STATE OF MARYLAND CHARLES J. CROVO REGISTERED NO. 13204 PROFESSIONAL ENGINEER



PLAN
SCALE: 1" = 50'

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — 7-14-95 DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 7/14/95 DATE

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — 7/24/95 DATE — 3/29/00

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

HOWARD SOIL CONSERVATION DISTRICT — 7/24/95 DATE — 3/29/00

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 3-17-00 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — 4/3/00 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 3/24/00 DATE

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

STATE OF MARYLAND CHARLES J. CROVO NO. 13204 REGISTERED PROFESSIONAL ENGINEER

ASBUILT 2/1/06

STREET TREE, GRADING & SEDIMENT CONTROL PLAN

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DIST. — HOWARD COUNTY, MARYLAND
SCALE: 1" = 50' — DATE: JULY 14, 1995

SHEET 15 OF 35 (2) (3)

F 94-24 ASBUILT 2-1-06

REVISIONS

No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM RCCP TO HDPE	5/3/01
2	CHANGE SHEET NUMBER & ADD BAFFLE DETAIL	7/20/04
	AND DESIGN DATA	
3	REVISED SHEET NO.	9·2·04
4	Revised sheets 2,3,4,13,14,15 & 16 to reflect D-1, E-1 & SWM Easement on Parcel E-1.	3·29·05

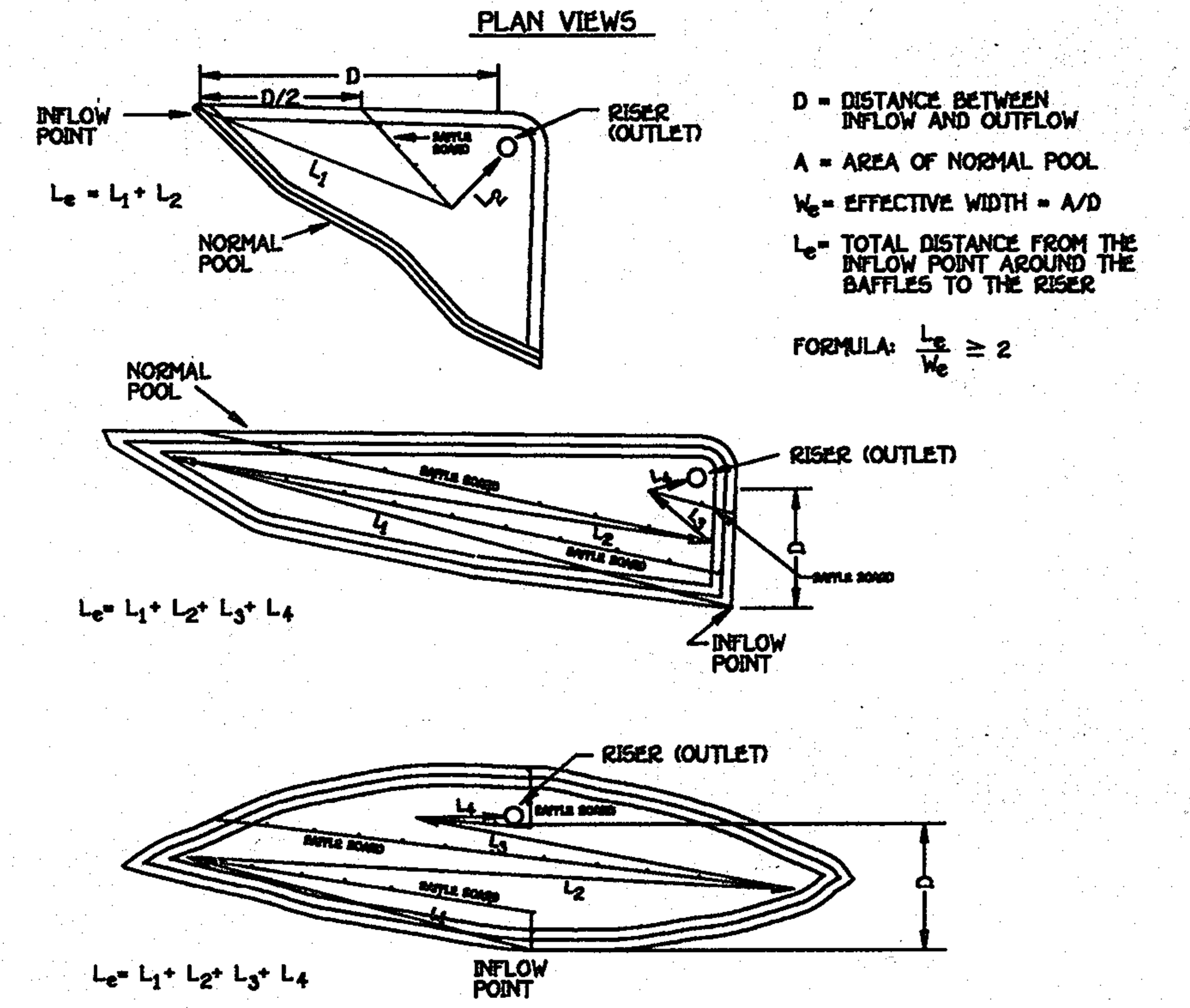
REVISION 1 5/3/01

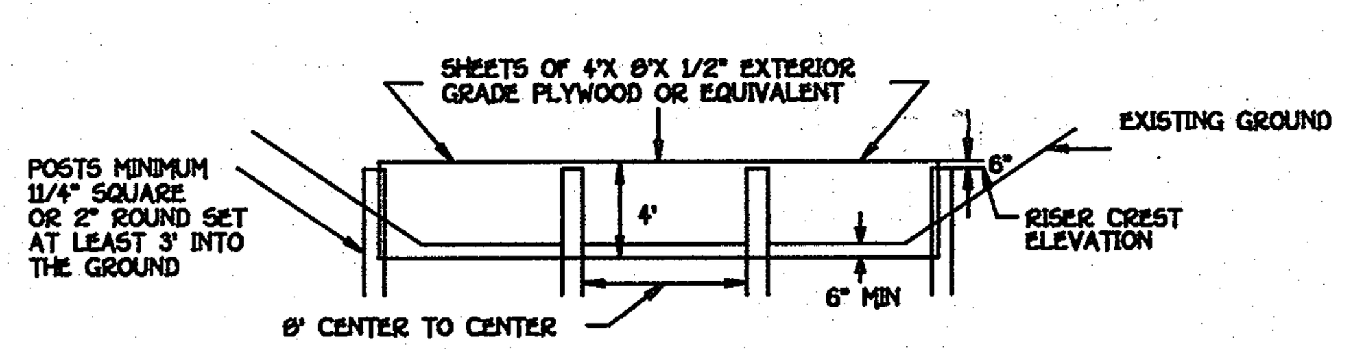
For REV 3 ONLY

9.8.04

SEDIMENT BASIN BAFFLES

PLAN VIEWS

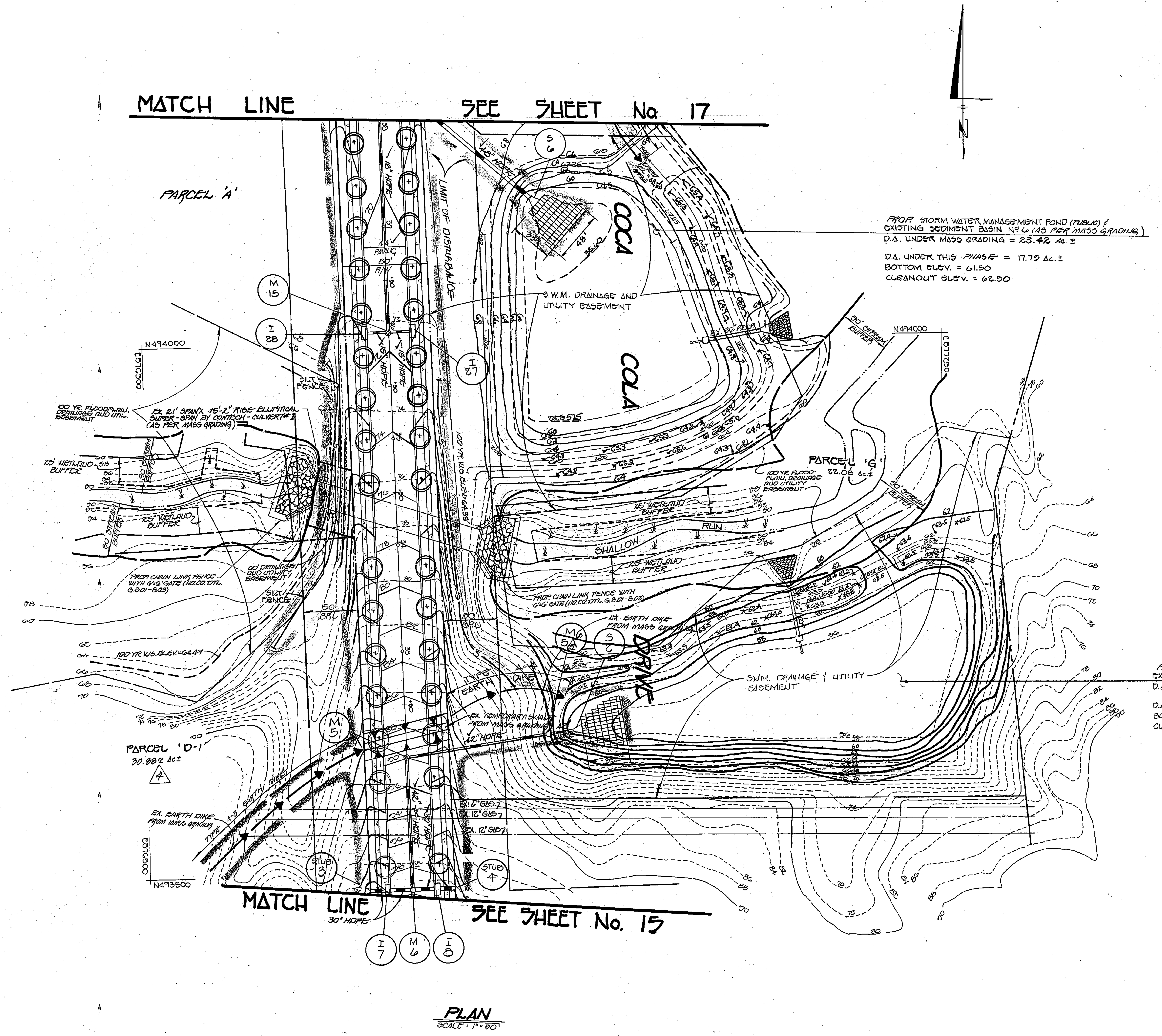




BAFFLE DETAIL

SEDIMENT BASIN BAFFLE DESIGN FOR POND 7A

D = 135'
A = 0.61 AC. OR 26,572.00 SQ.FT.
We = A/D = 26,572.00/135 = 196.83'
Le = L1 + L2 + L3 = 190+130+130 = 450'
Le/We = 450 / 196.83 = 2.28' > 2, therefore OK!!!!!



PLAN
SCALE: 1"=50'

DEVELOPER'S CERTIFICATE

"I /.. CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 7-14-95

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 7/14/95

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/24/95 — 3/29/00

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/24/95 — 3/29/00

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-17-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/24/00

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042

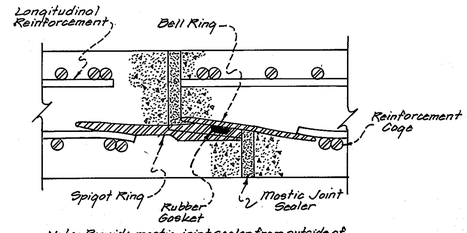
OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

AS BUILT 2/1/06

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN — JULY 14, 1995
SHEET 16 OF 35

ASBUILT 2-1-06 F 94-24



Note: Provide mastic joint sealer from outside of pipe joints prior to installing barrel underground.

ASTM designation C361 diameters 12 thru 168 inch pressures to 125 feet of head.

CONCRETE PIPE JOINT DETAIL

No Scale

(To be used on Pond 7A for concrete barrel construction)

3

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 7-14-95

ENGINEER'S CERTIFICATE

" I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 7/14/95

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/24/95

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/24/95 3/29/00

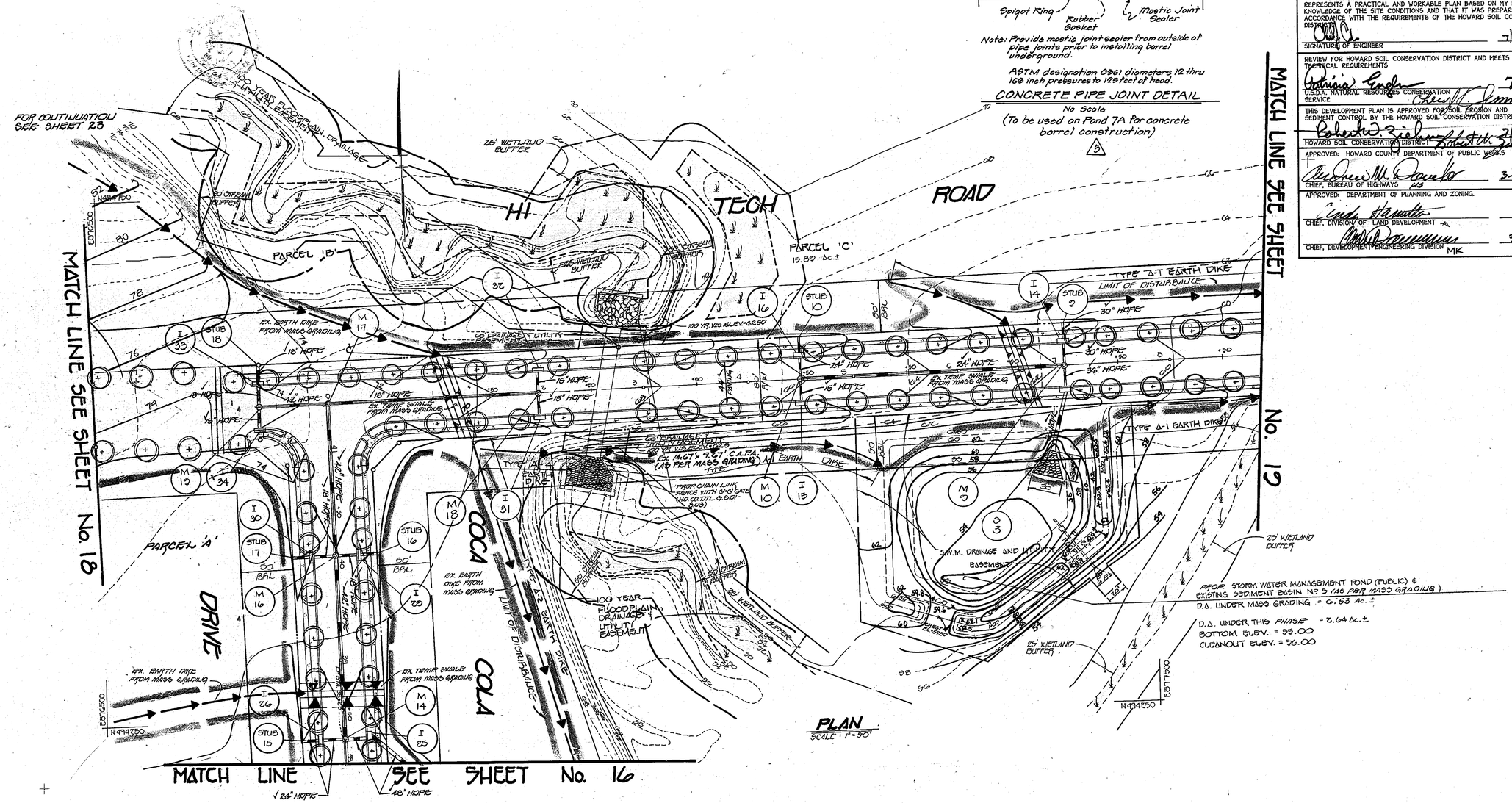
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-17-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/5/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/24/00



PLAN

SCALE: 1"=50'

REVISIONS		
No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM ROOF TO HDPE	5/3/01
2	REVISE CONTOURS	12/12/02
3	Revise sheet number & add mastic joint detail	7-19-04
4	REVISED SHEET NO.	9-8-04

Revision 1 5/3/01

For Rev. 4 only

9/8/04

ASBUILT 8/1/06

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

STREET TREE, GRADING & SEDIMENT CONTROL PLAN

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 PARCEL 284 & 285
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN JULY 14, 1995
SHEET 17 OF 35

3 4

ASBUILT 2-1-06 F 94-24

REVISIONS		
NO.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM RCP TO HDPE	5/3/01
2	CHANGE SHEET NUMBER & ADD REVISED GRADING CONTOURS.	07/20/04
3	REVISED SHEET NO.	7-2-04

REVISION 3 5/3/01

FOR REV 3 ONLY

7/9/04

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 7-14-95

ENGINEER'S CERTIFICATE

" I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 7/14/95

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/24/95 5/29/00

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/24/95 5/29/00

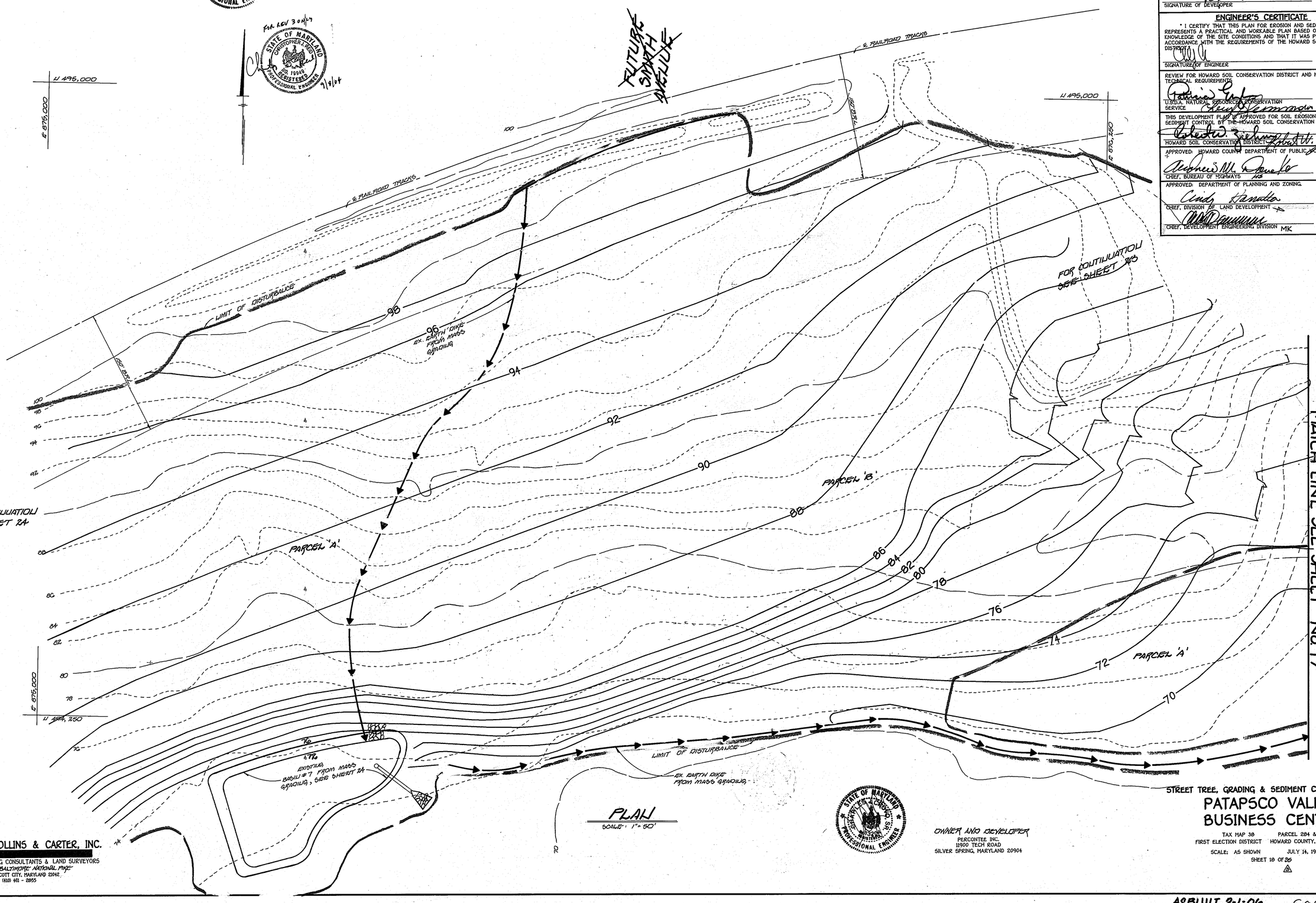
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-17-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7/3/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 5/24/00



PLAN
SCALE: 1" = 50'

STREET TREE, GRADING & SEDIMENT CONTROL PLAN

PATAPSCO VALLEY BUSINESS CENTER

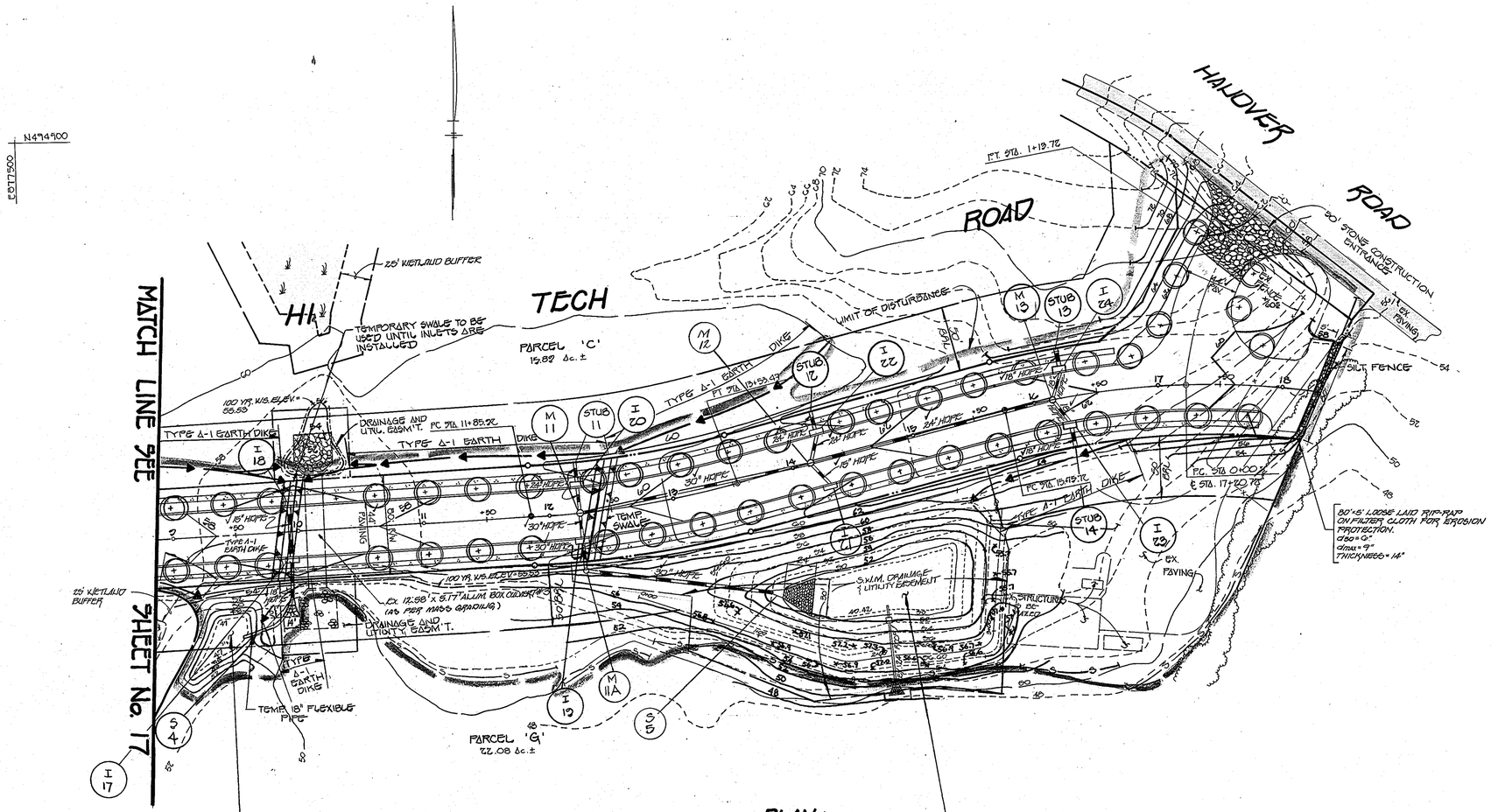
TAX MAP 38 PARCEL 284 & 285
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN JULY 14, 1995
SHEET 18 OF 25

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

174

ASBUILT 2-1-06 Fq4.24



PLAN
SCALE: 1" = 50'

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — DATE 7-14-95

ENGINEER'S CERTIFICATE

" I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 7/14/95

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/24/95

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/24/95

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-17-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT-A — DATE 4/3/00

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/24/00

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

REVISIONS		
No.	DESCRIPTION	DATE
1	CHANGE STORM DRAIN PIPES FROM 400° TO HDPE	5/3/01
2	Revise Sheet number	7-15-04
3	REVISED SHEET NO	9-2-04

For REV 3 ONLY

REVISION 1 5/3/01

9/8/04

ASBUILT 2/1/06

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

STREET TREE, GRADING & SEDIMENT CONTROL PLAN
PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN — JULY 14, 1995
SHEET 19 OF 28

2 3

ASBUILT 2-1-06

F 94-24

APPROVED: DEPARTMENT OF PUBLIC WORKS

[signature] 3-17-00
Chief, Bureau of Highways HS — Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 4/3/00
Chief, Division of Land Development — Date

[signature] 3/24/00
Chief, Development Engineering Division MK — Date

RECORD OF SOIL EXPLORATION — Boring # B-1881

Contracted With: Land Design & Development — Boring #: B-1881
Projects Name: Patapsco Valley Business Center — Job #: 20-1001G
Location: Elkridge, Howard County, Maryland
Sampler: Hammer Wt. 140 lbs.; Hammer Drop 30 in.; Pipe Size 2.0 in.; Hole Diameter 8.0 Inch; Boring Method HSA; Foreman Ken Kradz; Date Started 2/5/91; Date Completed 2/5/91

Soil Description	Strata Depth	Cond	Blows/6"	No.	Type	Rec.
Dark brown slightly moist very dense Silty SAND with iron cemented SAND, rock fragments. USC: (SM-SP) USDA: Loamy Sand	6.0	D	7 - 30 - 92	1	DS	18"
Brown slightly moist hard silty CLAY with iron cemented sand. USC: (CL) USDA: Clay Loam. Lenses of fine sand below 10.0'	13.0	I	8 - 18 - 20	2	DS	16"
			10 - 14 - 16	3	DS	16"
Boring terminated at 13.0 ft.						

Boring & Sampling Notes: Top Soil: 4". Groundwater Observations: Water on rod: None. Water on Completion: Dry. Water at 24 hrs.: Dry. Cave in depth: 11.0 ft.

Ground Water Depth: At completion Dry ft; After ___ hrs ___ ft; After 24 hrs Dry ft

SAMPLER TYPE: DS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core. SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost. BORING METHOD: HSA - Hollow Stem Augers; CFA - Continuous Flight Augers; DC - Driving Casing; MD - Mud Drilling.

STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

RECORD OF SOIL EXPLORATION — Boring # B-1882

Contracted With: Land Design & Development — Boring #: B-1882
Projects Name: Patapsco Valley Business Center — Job #: 20-1001G
Location: Elkridge, Howard County, Maryland
Sampler: Hammer Wt. 140 lbs.; Hammer Drop 30 in.; Pipe Size 2.0 in.; Hole Diameter 8.0 Inch; Boring Method HSA; Foreman Ken Kradz; Date Started 2/5/91; Date Completed 2/5/91

Soil Description	Strata Depth	Cond	Blows/6"	No.	Type	Rec.
Dark gray moist very stiff silty CLAY. USC: (CL) USDA: Clay Loam	6.0	I	5 - 7 - 9	1	DS	18"
Light olive green with yellow lenses slightly moist dense fine silty SAND with lenses of iron cemented Sand, rock fragments. USC: (SM-SP) USDA: Loamy Sand	10.0	I/D	10 - 17 - 18	2	DS	18"
Dark gray moist hard silty CLAY with clayey SILT with fine sand. USC: (CL-ML) USDA: Clay Loam	13.0	I	13 - 15 - 17	3	DS	16"
Boring terminated at 13.0 ft.						

Boring & Sampling Notes: Top Soil: 5.0 inch. Groundwater Observations: Water on rod: None. Water on Completion: Dry. Water at 24 hrs.: Dry. Cave in depth: 11.0 ft.

Ground Water Depth: At completion Dry ft; After ___ hrs ___ ft; After 24 hrs Dry ft

SAMPLER TYPE: DS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core. SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost. BORING METHOD: HSA - Hollow Stem Augers; CFA - Continuous Flight Augers; DC - Driving Casing; MD - Mud Drilling.
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

RECORD OF SOIL EXPLORATION — Boring # B-1886

Contracted With: Land Design & Development — Boring #: B-1886
Projects Name: Patapsco Valley Business Center — Job #: 20-1001G
Location: Elkridge, Howard County, Maryland
Sampler: Hammer Wt. 140 lbs.; Hammer Drop 30 in.; Pipe Size 2.0 in.; Hole Diameter 8.0 Inch; Boring Method HSA; Foreman Ken Kradz; Date Started 2/5/91; Date Completed 2/5/91

Soil Description	Strata Depth	Cond	Blows/6"	No.	Type	Rec.
Brown moist medium dense fine fine Silty SAND with quartz gravel, iron cemented sand. USC: (SW-SM) USDA: Loamy Sand	6.0	I	11 - 14 - 14	1	DS	18"
Olive green to white slightly moist medium dense to very dense fine Silty SAND. USC: (SP-SM) USDA: Loamy Sand	12'11"	I	3 - 11 - 16	2	DS	16"
			24 - 75 - 100/5"	3	DS	16"
Boring terminated at 12'11"						

Boring & Sampling Notes: Top Soil: 4.0 inch. Groundwater Observations: Water on rod: Dry. Water on Completion: Dry. Water at 24 hrs.: Dry. Cave in depth: 10.5 Ft. Auger refusal at 12'11"

Ground Water Depth: At completion Dry ft; After ___ hrs ___ ft; After 24 hrs Dry ft

SAMPLER TYPE: DS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core. SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost. BORING METHOD: HSA - Hollow Stem Augers; CFA - Continuous Flight Augers; DC - Driving Casing; MD - Mud Drilling.
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

RECORD OF SOIL EXPLORATION — Boring # B-1889

Contracted With: Land Design & Development — Boring #: B-1889
Projects Name: Patapsco Valley Business Center — Job #: 20-1001G
Location: Elkridge, Howard County, Maryland
Sampler: Hammer Wt. 140 lbs.; Hammer Drop 30 in.; Pipe Size 2.0 in.; Hole Diameter 8.0 Inch; Boring Method HSA; Foreman Ken Kradz; Date Started 2/5/91; Date Completed 2/5/91

Soil Description	Strata Depth	Cond	Blows/6"	No.	Type	Rec.
Yellow moist medium dense Silty and clayey SAND. USC: (SM-SC) USDA: Sandy Clay Loam	6.0	I	3 - 4 - 7	1	DS	16"
Light yellow very moist medium stiff Silty clay to clayey Silt with fine Sand. USC: (CL-ML) USDA: Clay Loam	10.0	I	4 - 3 - 4	2	DS	16"
Yellow wet dense fine and silty SAND. USC: (SM-SP) USDA: Loamy Sand	13.0	D	12 - 15 - 18	3	DS	12"
Boring terminated at 13.0 ft.						

Boring & Sampling Notes: Top Soil: 5.0". Groundwater Observations: Water on rod: 8.0 ft. Water on Completion: 7.5 ft. Water at 24 hrs.: 6.0 ft. Cave in depth: 7.0 ft.

Ground Water Depth: At completion 7.5 ft; After ___ hrs ___ ft; After 24 hrs 6.0 ft

SAMPLER TYPE: DS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core. SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost. BORING METHOD: HSA - Hollow Stem Augers; CFA - Continuous Flight Augers; DC - Driving Casing; MD - Mud Drilling.
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

RECORD OF SOIL EXPLORATION — Boring # B-1890

Contracted With: Land Design & Development — Boring #: B-1890
Projects Name: Patapsco Valley Business Center — Job #: 20-1001G
Location: Elkridge, Howard County, Maryland
Sampler: Hammer Wt. 140 lbs.; Hammer Drop 30 in.; Pipe Size 2.0 in.; Hole Diameter 8.0 Inch; Boring Method HSA; Foreman Ken Kradz; Date Started 2/4/91; Date Completed 2/4/91

Soil Description	Strata Depth	Cond	Blows/6"	No.	Type	Rec.
Olive green with black lenses moist very stiff Sandy CLAY with organics. (Possible Fill)	5.0	I	4 - 8 - 8	1	DS	7"
Yellow moist medium dense fine and clayey SAND with gravel. USC: (SM-SC) USDA: Sandy Clay Loam	10.0	I	4 - 4 - 7	2	DS	12"
Light olive green dry very dense fine Silty SAND. USC: (SP-SM) USDA: Loamy Sand	12'11"	I	21 - 39 - 100/5"	3	DS	17"
Boring terminated at 12'11"						

Boring & Sampling Notes: Top Soil: 4.0". Groundwater Observations: Water on rod: None. Water on Completion: Dry. Water at 24 hrs.: 9.0 ft. Cave in depth: 10'8". Auger refusal at 12'11"

Ground Water Depth: At completion Dry ft; After ___ hrs ___ ft; After 24 hrs 9.0 ft

SAMPLER TYPE: DS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core. SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost. BORING METHOD: HSA - Hollow Stem Augers; CFA - Continuous Flight Augers; DC - Driving Casing; MD - Mud Drilling.
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

RECORD OF SOIL EXPLORATION — Boring # B-1891

Contracted With: Land Design & Development — Boring #: B-1891
Projects Name: Patapsco Valley Business Center — Job #: 20-1001G
Location: Elkridge, Howard County, Maryland
Sampler: Hammer Wt. 140 lbs.; Hammer Drop 30 in.; Pipe Size 2.0 in.; Hole Diameter 8.0 Inch; Boring Method HSA; Foreman Ken Kradz; Date Started 2/4/91; Date Completed 2/4/91

Soil Description	Strata Depth	Cond	Blows/6"	No.	Type	Rec.
Brown very moist stiff Sandy Clay with quartz gravel (Possible fill)	5.0	I	6 - 6 - 9	1	DS	7"
Light olive green and white dry medium dense to very dense fine Silty SAND with quartz fragments. USC: (SM-SP) USDA: Loamy Sand	13.0	I	7 - 10 - 11	2	DS	12"
		I	16 - 19 - 35	3	DS	14"
Boring terminated at 13.0'						

Boring & Sampling Notes: Top Soil: 4.0". Groundwater Observations: Water on rod: None. Water on Completion: Dry. Water at 24 hrs.: Dry. Cave in depth: 9.5'

Ground Water Depth: At completion Dry ft; After ___ hrs ___ ft; After 24 hrs Dry ft

SAMPLER TYPE: DS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core. SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost. BORING METHOD: HSA - Hollow Stem Augers; CFA - Continuous Flight Augers; DC - Driving Casing; MD - Mud Drilling.
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

RECORD OF SOIL EXPLORATION — Boring # B-1892

Contracted With: Land Design & Development — Boring #: B-1892
Projects Name: Patapsco Valley Business Center — Job #: 20-1001G
Location: Elkridge, Howard County, Maryland
Sampler: Hammer Wt. 140 lbs.; Hammer Drop 30 in.; Pipe Size 2.0 in.; Hole Diameter 8.0 Inch; Boring Method HSA; Foreman Ken Kradz; Date Started 2/4/91; Date Completed 2/4/91

Soil Description	Strata Depth	Cond	Blows/6"	No.	Type	Rec.
Dark gray moist medium stiff Silty Clay with black lenses (Possible Fill)	5.0	I	2 - 3 - 3	1	DS	6"
Yellow to yellowish brown wet soft Silty CLAY to clayey SILT. USC: (CL-ML) USDA: Clay Loam	13.0	D	1 - 2 - [illegible]	2	DS	10"
		D	2 - 2 - 2	3	DS	12"
Boring terminated at 13.0'						

Boring & Sampling Notes: Top Soil: 4.0". Groundwater Observations: Water on rod: 8.0'. Water on Completion: Dry. Water at 24 hrs.: 4.0 ft. Cave in depth: 5'5"

Ground Water Depth: At completion Dry ft; After ___ hrs ___ ft; After 24 hrs 4.0 ft

SAMPLER TYPE: DS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core. SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost. BORING METHOD: HSA - Hollow Stem Augers; CFA - Continuous Flight Augers; DC - Driving Casing; MD - Mud Drilling.
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

RECORD OF SOIL EXPLORATION — Boring # B-1894

Contracted With: Land Design & Development — Boring #: B-1894
Projects Name: Patapsco Valley Business Center — Job #: 20-1001G
Location: Elkridge, Howard County, Maryland
Sampler: Hammer Wt. 140 lbs.; Hammer Drop 30 in.; Pipe Size 2.0 in.; Hole Diameter 8.0 Inch; Boring Method HSA; Foreman Ken Kradz; Date Started 2/4/91; Date Completed 2/4/91

Soil Description	Strata Depth	Cond	Blows/6"	No.	Type	Rec.
Yellow brown moist soft Sandy CLAY to clayey SAND with lenses of fine SAND. USC: (CL-SC) USDA: Sandy Clay Loam	5.0	I	3 - 3 - 2	1	DS	[illegible]"
Brown wet very soft Silty CLAY to Clayey SILT. USC: (CL-ML) USDA: Clay Loam	10.0	D	2 - 1 - 2	2	DS	12"
Olive green moist dense fine SAND with clay and silt. USC: (SP-SM) USDA: Loamy Sand	13.0	I	12 - 16 - 21	3	DS	14"
Boring terminated at 13.0'						

Boring & Sampling Notes: Top Soil: 5.0". Groundwater Observations: Water on rod: 8.0'. Water on Completion: Dry. Water at 24 hrs.: 3.0'. Cave in depth: 8'5"

Ground Water Depth: At completion Dry ft; After ___ hrs ___ ft; After 24 hrs 3.0 ft

SAMPLER TYPE: DS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core. SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost. BORING METHOD: HSA - Hollow Stem Augers; CFA - Continuous Flight Augers; DC - Driving Casing; MD - Mud Drilling.
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

RECORD OF SOIL EXPLORATION — Boring # B-1897

Contracted With: Land Design & Development — Boring #: B-1897
Projects Name: Patapsco Valley Business Center — Job #: 20-1001G
Location: Elkridge, Howard County, Maryland
Sampler: Hammer Wt. 140 lbs.; Hammer Drop 30 in.; Pipe Size 2.0 in.; Hole Diameter 8.0 Inch; Boring Method HSA; Foreman Ken Kradz

Soil Description	Strata Depth	Cond	Blows/6"	No.	Type	Rec.
Grayish brown moist stiff Silty Clay to Clayey SILT. USC: (CL-ML) USDA: Clay Loam	5.0	I	5 - 6 - 7	1	DS	18"
White with red lenses wet medium dense Silty SAND with quartz gravel. USC: (SM-SP) USDA: Loamy Sand	13.0	D	7 - 9 - 6	2	DS	12"
		D	5 - 8 - 10	3	DS	15"
Boring terminated at 13.0 ft.						

Boring & Sampling Notes: Top Soil: 4.0". Groundwater Observations: Water on rod: 8.0'. Water on Completion: 9'5". Water at 24 hrs.: 5'5". Cave in depth: 10'5"

Ground Water Depth: At completion 9'5" ft; After ___ hrs ___ ft; After 24 hrs 5'5" ft

SAMPLER TYPE: DS - Driven Split Spoon; PT - Pressed Shelby Tube; CA - Continuous Flight Auger; RC - Rock Core. SAMPLE CONDITIONS: D - Disintegrated; I - Intact; U - Undisturbed; L - Lost. BORING METHOD: HSA - Hollow Stem Augers; CFA - Continuous Flight Augers; DC - Driving Casing; MD - Mud Drilling.
STANDARD PENETRATION TEST-DRIVING 2" OD SAMPLER 1' WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(301) 461-2855

No.	Revision	Date
2	Revise sheet number	7-15-04
3	REVISED SHEET NO.	9-2-04

For Rev 3 only

STATE OF MARYLAND — CHRISTOPHER J. HOOD? — No. 19849 — REGISTERED PROFESSIONAL ENGINEER — 9/1/04

STATE OF MARYLAND — PROFESSIONAL ENGINEER

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

SOIL BORING PROFILES
PATAPSCO VALLEY BUSINESS CENTER
TAX MAP 38 PARCEL 284 & 285
FIRST ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
JULY 15, 1995
SCALE: AS SHOWN
SHEET 20 OF 35 (2)(3)

ASBUILT 2-1-06   F 94-24

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — 7-14-95 DATE

ENGINEER'S CERTIFICATE

" I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 7/14/95 DATE

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — 7/24/95 DATE — 3/29/00

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

HOWARD SOIL CONSERVATION DISTRICT — 7/24/95 DATE — 3/29/00

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 3-17-00 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

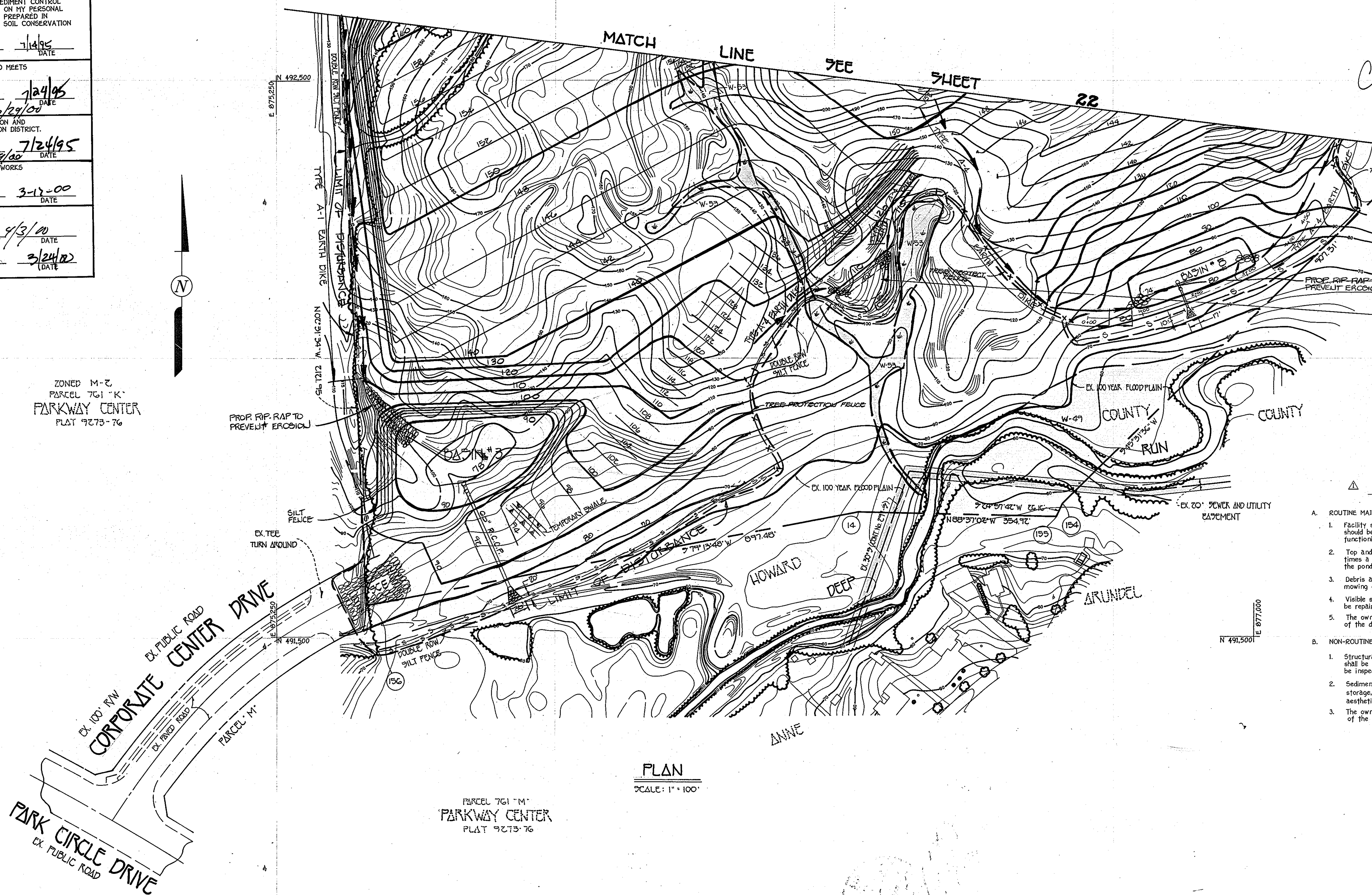
CHIEF, DIVISION OF LAND DEVELOPMENT — 4/3/00 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 3/24/00 DATE

NUMBER	REVISIONS	DATE
1	REVISE SHEET NUMBER AND ADD O & M NOTES AND SPECIFICATIONS.	02/05/04
2	REVISED SHEET NO.	9.2.04

FOR REV 2 ONLY

STATE OF MARYLAND CHRISTOPHER J. REID REGISTERED PROFESSIONAL ENGINEER — 9/8/04



RIPRAP OUTLET SEDIMENT TRAP No. 1

DRAINAGE AREA (EX.) = 488 AC.±
STORAGE REQ'D = 8,784 C.F.
STORAGE PROV'D = 10,000 C.F.
TOP EMBANKMENT ELEV. = 108.00
WEIR CREST ELEV. = 107.00
WEIR LENGTH = 12.0'
BOTTOM ELEV. = 101.00'
DEPTH = 5.0'
CLEANOUT ELEV. = 103.50'
SIDE SLOPES = 2:1

PLAN

SCALE: 1" = 100'

PARCEL 761 "M"
PARKWAY CENTER
PLAT 9273-76

1 STORMWATER MANAGEMENT POND MAINTENANCE SCHEDULE

A. 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, the bottom of the pond, and maintenance access should be mowed as needed.
3. Debris and litter next to the outlet structure shall be removed during regular mowing operations and as needed.
4. Visible signs of erosion in the pond as well as rip-rap putlet area shall be repaired as soon as it is noticed.
5. The owner for pond maintenance will be private and will be the responsibility of the developer that builds on the parcel that has the pond located on it.

B. NON-ROUTINE MAINTENANCE

1. Structural components of the pond such as the dam, riser structure and the pipes shall be repaired upon the detectionof any damage. The components should be inspected during maintenance operations.
2. Sediment should be removed when its accumalation significantly reduces the design storage, interferes with the function of the riser, when deemed necessary for aesthetic reasons, or when deemed necessary by the Howard County's Department of Public Works.
3. The owner for pond maintenance will be private and will be the responsibility of the developer that builds on the parcel that has the pond located on it.

1 OPERATION MAINTENANCE AND INSPECTION

INSPECTION OF 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.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21043
(301) 461 - 2855

174

STATE OF MARYLAND REGISTERED PROFESSIONAL ENGINEER

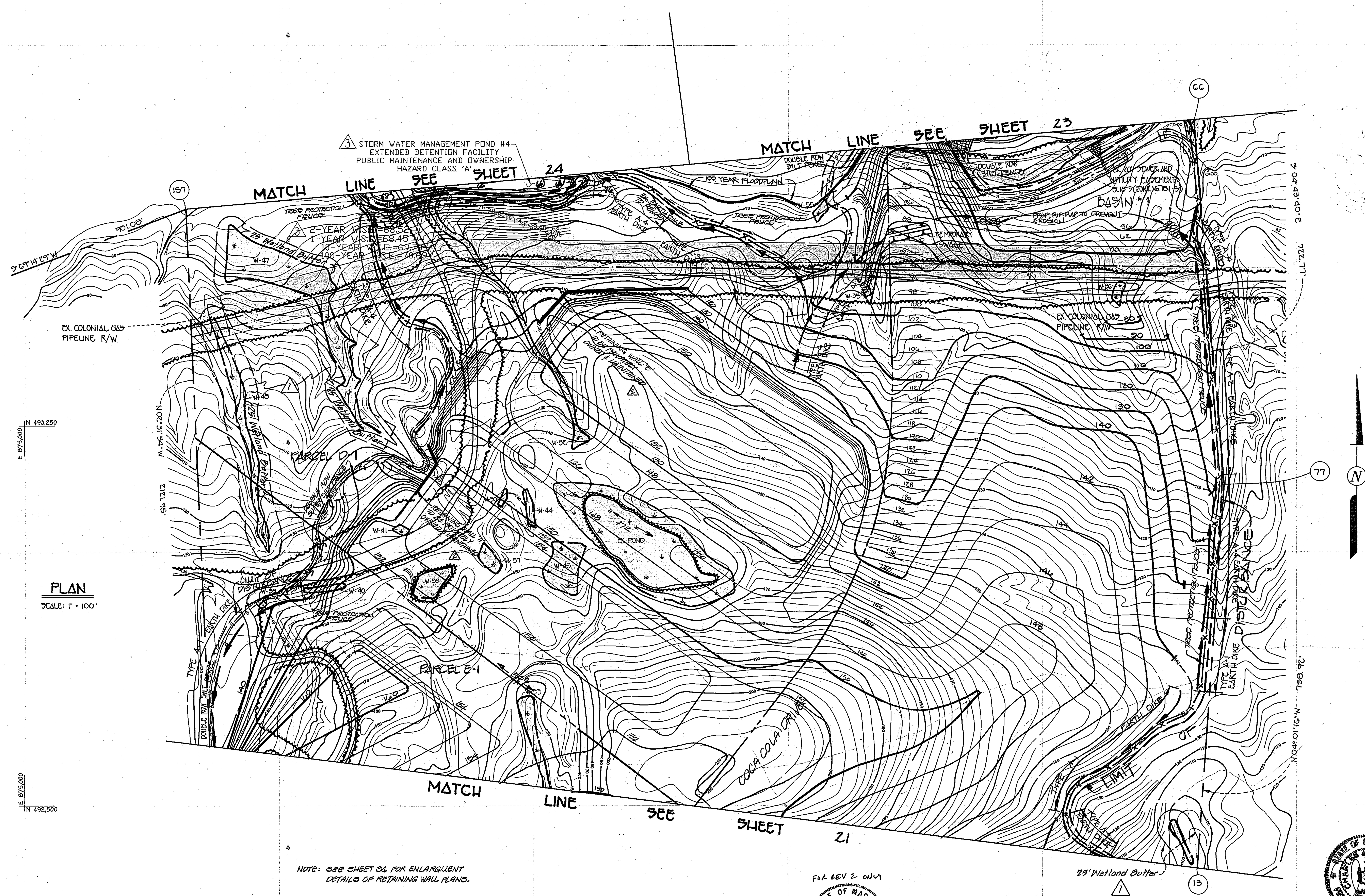
OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

MASS GRADING PLAN

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN — JULY 14, 1995
SHEET 21 OF 35 1 2

ASBUILT 2-1-06 F-94-24



PLAN

SCALE: 1" = 100'

NOTE: SEE SHEET 34 FOR ENLARGMENT DETAILS OF RETAINING WALL PLANS.

No.	Revision	Date
1	Revise sheet number & add wetland buffer	7-15-04
2	REVISED GRADING, ADDED RETAINING WALLS, REV. SHEET NO.	9-2-04
3	Show Pond 4 in original location as approved by Ho. Co.; add water surface elevation for Pond 4.	11-11-04

FOR REV 2 ONLY

STATE OF MARYLAND CHRISTOPHER J. REID NO. 19949 REGISTERED PROFESSIONAL ENGINEER 9/3/04

AS BUILT 2/1/06

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21043
(301) 461 - 2855

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — DATE 7/14/95

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

SIGNATURE OF DEVELOPER — DATE 7-14-95

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

U.S.D.A. NATURAL RESOURCES CONSERVATION DISTRICT — DATE 7/24/95 — 03/29/00

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
APPROVED: 3/29/00
DISTRICT — DATE 7/21/95
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/00

APPROVED DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/24/00

APPROVED: DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS HS — DATE 3-17-00

MASS GRADING PLAN
PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN — JULY 14, 1995
SHEET 22 OF 35

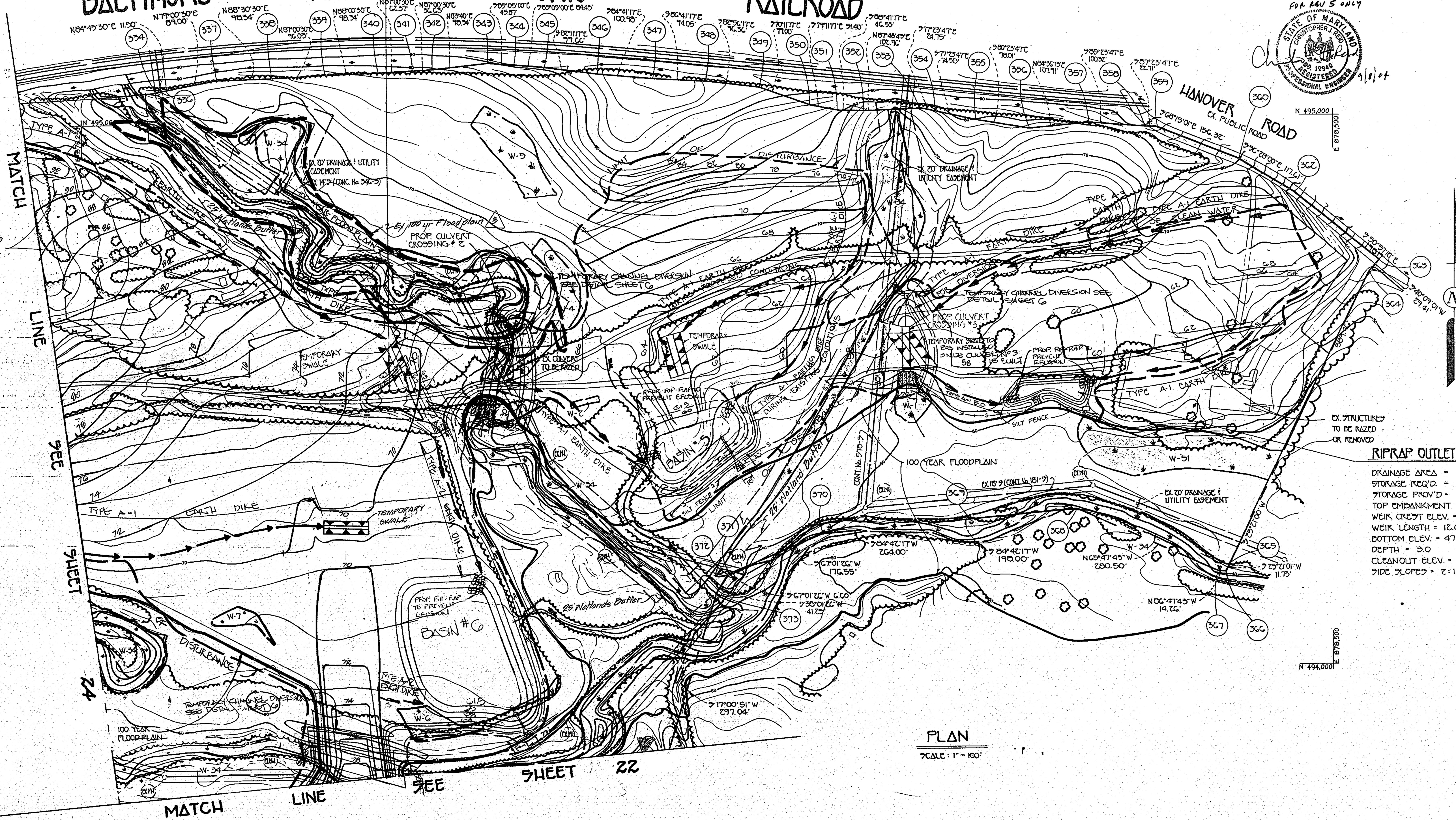
ASBUILT 2-1-06 F 94-24

No.	Revisions	Date
1	Revise mass grading	10-21-02
3	Add wetland & stream buffers along with 100 yr floodplain limits as shown on recorded plat; adjust LOD's & earth dikes as necessary.	7-12-04
4	Revise sheet number	7-12-04
5	REVISED SHEET NO.	9-2-04

FOR REV 5 ONLY

RIPRAP OUTLET SEDIMENT TRAP No. 2

DRAINAGE AREA (EX.) = 4.95 AC.±
STORAGE REQ'D = 8910 C.F.
STORAGE PROV'D = 13500 C.F.
TOP EMBANKMENT ELEV. = 67.00
WEIR CREST ELEV. = 66.00
WEIR LENGTH = 12.0'
BOTTOM ELEV. = 62.00
DEPTH = 3.0'
CLEANOUT ELEV. = 63.50
SIDE SLOPES = 2:1



RIPRAP OUTLET SEDIMENT TRAP No. 3

DRAINAGE AREA = 4.82 AC.±
STORAGE REQ'D. = 8,676 CF
STORAGE PROV'D = 11,000 CF
TOP EMBANKMENT ELEV. = 52.0
WEIR CREST ELEV. = 51.0
WEIR LENGTH = 12.0'
BOTTOM ELEV. = 47.0
DEPTH = 3.0
CLEANOUT ELEV. = 48.5
SIDE SLOPES = 2:1

PLAN

SCALE: 1" = 100'

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND
20904

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE,
ELLICOTT CITY, MARYLAND 21043
(301) 461 - 2855

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER 7/14/95 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

SIGNATURE OF DEVELOPER 7/14/95 DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

7/24/95
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE 03/28/00

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

APPROVED 3/27/00
DISTRICT HOWARD SOIL CONSERVATION DISTRICT DATE 3/24/95

APPROVED: DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT 4/3/00 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK 3/24/00 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS.

CHIEF, BUREAU OF HIGHWAYS 3-17-00 DATE

MASS GRADING PLAN

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 PARCEL 284 & 285
FIRST ELECTION DIST. HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 14, 1995

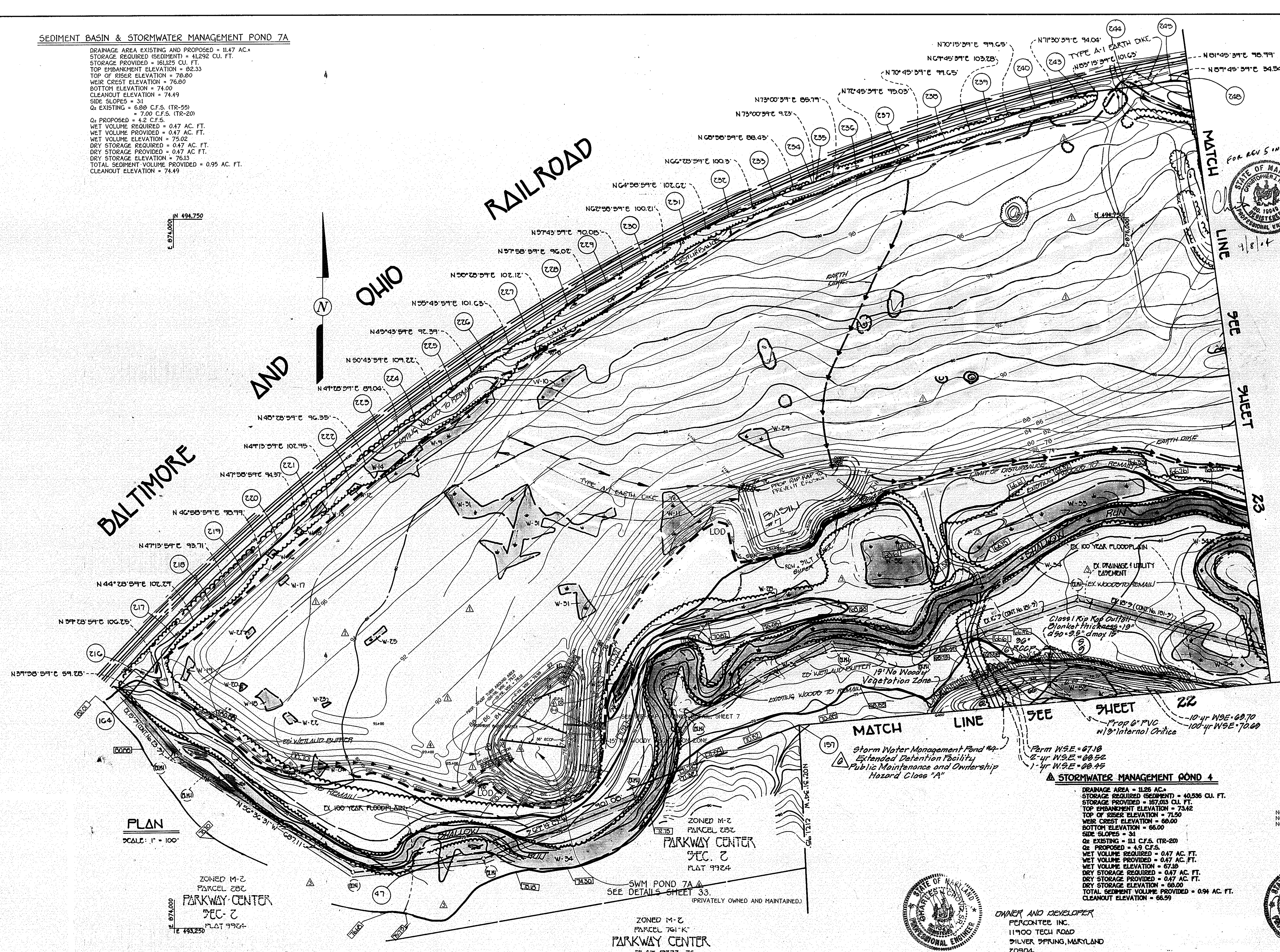
SHEET 23 OF 35 4 5

ASBUILT 2-1-06 F94-24

174

SEDIMENT BASIN & STORMWATER MANAGEMENT POND 7A

DRAINAGE AREA EXISTING AND PROPOSED = 11.47 AC.±
STORAGE REQUIRED (SEDIMENT) = 41,292 CU. FT.
STORAGE PROVIDED = 161,125 CU. FT.
TOP EMBANKMENT ELEVATION = 82.33
TOP OF RISER ELEVATION = 78.80
WEIR CREST ELEVATION = 76.80
BOTTOM ELEVATION = 74.00
CLEANOUT ELEVATION = 74.49
SIDE SLOPES = 3:1
Q_2 EXISTING = 6.88 C.F.S. (TR-55)
= 7.00 C.F.S. (TR-20)
Q_2 PROPOSED = 4.2 C.F.S.
WET VOLUME REQUIRED = 0.47 AC. FT.
WET VOLUME PROVIDED = 0.47 AC. FT.
WET VOLUME ELEVATION = 75.02
DRY STORAGE REQUIRED = 0.47 AC. FT.
DRY STORAGE PROVIDED = 0.47 AC FT.
DRY STORAGE ELEVATION = 76.13
TOTAL SEDIMENT VOLUME PROVIDED = 0.95 AC. FT.
CLEANOUT ELEVATION = 74.49



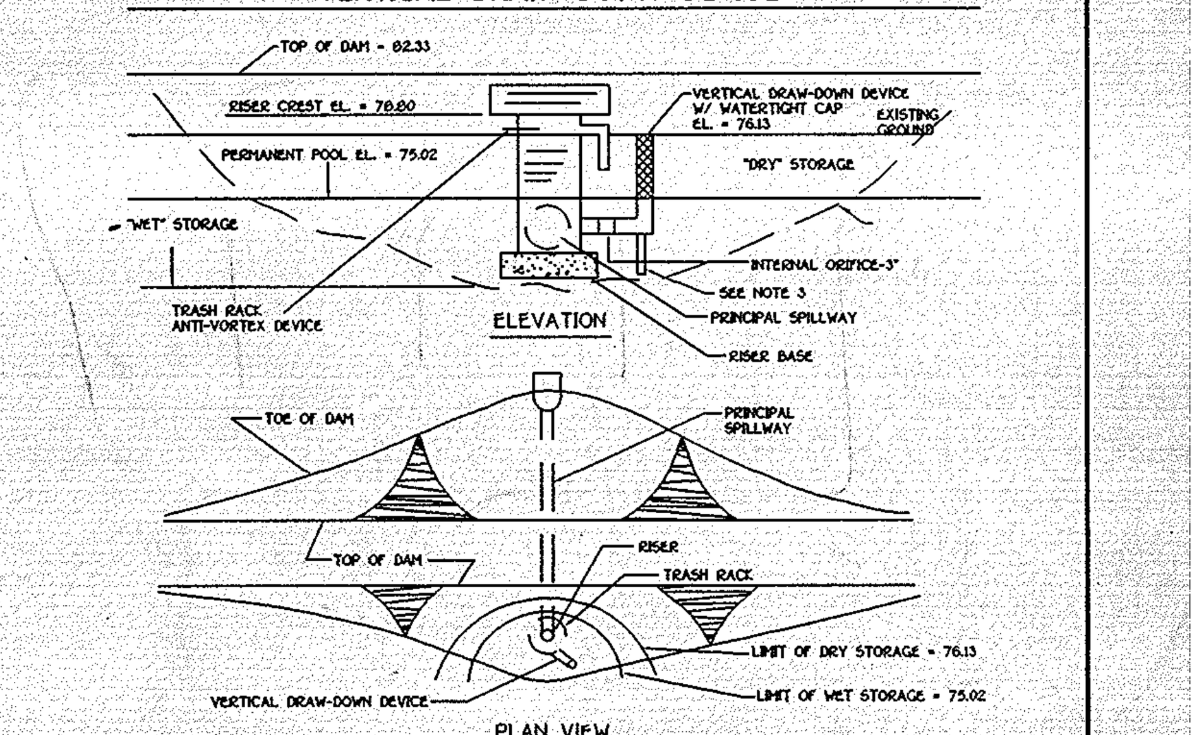
STORMWATER MANAGEMENT POND 4

DRAINAGE AREA = 11.26 AC.±
STORAGE REQUIRED (SEDIMENT) = 40,536 CU. FT.
STORAGE PROVIDED = 167,013 CU. FT.
TOP EMBANKMENT ELEVATION = 73.42
TOP OF RISER ELEVATION = 71.50
WEIR CREST ELEVATION = 68.00
BOTTOM ELEVATION = 66.00
SIDE SLOPES = 3:1
Q_2 EXISTING = 11.1 C.F.S. (TR-20)
Q_2 PROPOSED = 4.9 C.F.S.
WET VOLUME REQUIRED = 0.47 AC. FT.
WET VOLUME PROVIDED = 0.47 AC. FT.
WET VOLUME ELEVATION = 67.18
DRY STORAGE REQUIRED = 0.47 AC. FT.
DRY STORAGE PROVIDED = 0.47 AC. FT.
DRY STORAGE ELEVATION = 68.00
TOTAL SEDIMENT VOLUME PROVIDED = 0.94 AC. FT.
CLEANOUT ELEVATION = 66.59

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND
20904

NUMBER	REVISIONS	DATE
1	REVISED MASS GRADING	7·20·04
3	ADDED WETLAND AND STREAM BUFFERS ALONG WITH	7·20·04
	100-YEAR FLOODPLAIN LIMITS AS SHOWN ON THE	
	RECORDED PLAT. ADJUSTED LOD'S & EARTH DIKES	
	AS NECESSARY.	
4	CHANGE SHEET NUMBER, ADD POND 7A, SHOW RPS	7·20·04
	AND FILTER BAG.	
5	REVISED SHEET NO.	9·2·04
6	Show Pond 4 in original location as appr.	11·11·04
	by Ho. Co.; added water surface elevation	
	For Pond #4.	

VERTICAL DRAW-DOWN DEVICE



PLAN VIEW

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.

Draw-down Device Computation:
$A_o = \pi r^2$
3" dia. orifice opening
$A_o = \pi(1.5/12)^2$
$A_o = 0.491\ ft^2$
Perforated Section=
76.13 − 75.02 = 1.11'
$4A_o = 0.1963\ ft^2$

Use 1.5" Diameter Holes in Perf. Pipe
$A_{1.5"} = 0.0123\ ft^2$
$A_t = (15\ Perf./ft.)(0.0123\ ft^2)(1.11)$
$A_t = 0.2048\ ft^2$

NOTE: SEE RIP-RAP CHANNEL DETAIL SHEET 7.
NOTE: SEE SHEET 26 FOR REMOVABLE PUMPING STATION AND FILTER BAG DETAILS.
NOTE: TOP WIDTH OF DAM IS 12' FOR POND 7A.

ASBUILT 2/1/06

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21043
(301) 461-2855

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — DATE 7/14/95

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

SIGNATURE OF DEVELOPER — DATE 7/14/95

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS — 7/24/95; 03/29/00

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

APPROVED: Robert W. Ziehm 3/29/00

DISTRICT — DATE
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/6/00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/24/00

APPROVED: DEPARTMENT OF PUBLIC WORKS.

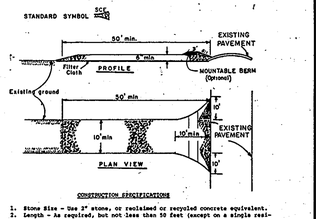
CHIEF, BUREAU OF HIGHWAYS — DATE 3-17-00

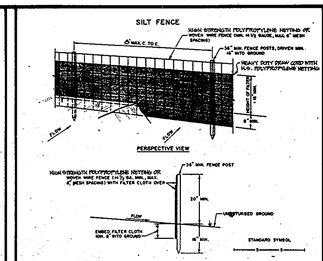
MASS GRADING PLAN

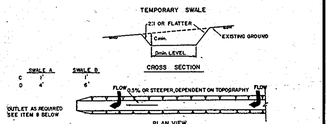
PATAPSCO VALLEY BUSINESS CENTER

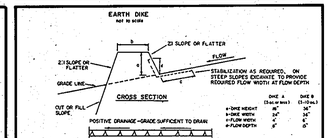
TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DIST. — HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN — DATE: JULY 14, 1995

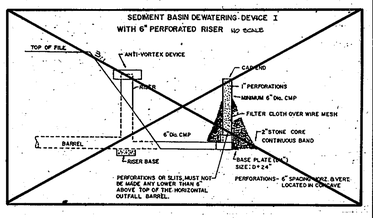
ASBUILT 2-1-06 F94.24

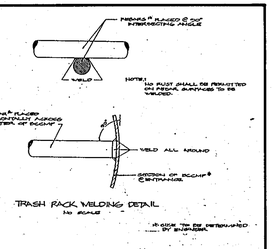












SPECIFICATIONS

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

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-Kad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

   Materials - (Aluminum Coated Steel 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, end 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 24" 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 0-ring gaskets having a minimum diameter of 1/2" greater than the corrugation depth. Pipes 24" 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 with internal caulking or a neoprene bead.

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.
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

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 905.

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.

OPERATION AND MAINTENANCE SPECIFICATIONS

I HEREBY CERTIFY THAT I WILL OPERATE AND MAINTAIN THE COMPLETED POND IN ACCORDANCE WITH THE FOLLOWING:

1. PERIODIC INSPECTIONS OF THE FACILITY WILL BE MADE TO IDENTIFY POTENTIAL PROBLEMS THAT MAY AFFECT ITS SAFETY. THESE INSPECTIONS WILL BE MADE AFTER PERIODS OF HEAVY RAINFALL AND AT LEAST TWICE ANNUALLY. INSPECTION REPORTS SHALL BE KEPT UNTIL THE NEXT SUBSEQUENT INSPECTION. INSPECTIONS ITEMS TO BE LOOKED AT INCLUDE
   - a) SPILLWAY AND OUTLET WORKS;
   - b) RIP-RAP;
   - c) VEGETATIVE COVER;
   - d) CRACKS IN THE FILL;
   - e) SLOPE FAILURES; AND
   - f) SEEPAGE AND OTHER SIGNS OF DISTRESS.
2. PROBLEMS IDENTIFIED DURING INSPECTIONS WILL BE PROMPTLY CORRECTED. MAJOR PROBLEMS WILL BE BROUGHT TO THE ATTENTION OF THE SOIL CONSERVATION DISTRICT AND THE DAM SAFETY DIVISION OF THE MARYLAND WATER RESOURCES ADMINISTRATION. AS A VERY MINIMUM, GRASSY VEGETATION WILL BE MAINTAINED IN A DENSE AND HEALTHY STATE, AND WOODY VEGETATION WILL NOT BE PERMITTED TO GROW ON THE EMBANKMENT.

SEDIMENT CONTROL NOTES

1) A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION (992-2437).
2) ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3) FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL GREATER THAN 3:1. b) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4) ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5) ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6) ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7) SITE ANALYSIS:

TOTAL AREA OF SITE	191.9	ACRES
AREA DISTURBED	111.04	ACRES ±
AREA TO BE ROOFED OR PAVED	0	ACRES ±
AREA TO BE VEGETATIVELY STABILIZED	111.04	ACRES
TOTAL CUT	1,112,872	CU.YDS.
TOTAL FILL	541,852	CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	—	CU.YDS.

8) ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9) ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY DPW SEDIMENT CONTROL INSPECTOR.
10) 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.

PERMANENT SEEDING NOTES:

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

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

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

1) PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 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 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ.FT.)
2) ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS./1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE-INCHES OF SOIL.

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

MULCHING: APPLY 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.

TEMPORARY SEEDING NOTES:

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

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

SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ.FT.)

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2 1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ.FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL PER ACRE (5 GAL/1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ.FT.) FOR ANCHORING.

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

CONSTRUCTION SEQUENCE

1. OBTAIN GRADING PERMIT.
2. NOTIFY MISS UTILITY 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY HOWARD COUNTY OFFICE OF PERMITS AND INSPECTION 24 HOURS BEFORE BEGINNING ANY WORK AT (410) 313-1870. REVIEW AND FOLLOW ALL GUIDELINES FOR THIRD PARTY ACTIVITY ON COLONIAL RIGHT-OF-WAY, AS SHOWN ON SHEET 1, WHICH PERTAINS TO THE THRREE (3) EXISTING GAS LINES, OWNED BY COLONIAL, SHOWN ON PLAN SHEET 3 BEFORE BEGINNING ANY WORK.
3. INSTALL TEMPORARY STREAM CHANNEL DIVERSIONS, SEE DETAIL SHEET 6.
4. INSTALL CULVERTS.
5. BACKFILL AS NECESSARY TO STABILIZE CULVERTS, SEE STRUCTURAL BACKFILL REQUIREMENTS SHEET 6.
6. REMOVE SANDBAG DIVERSIONS FROM DOWNSTREAM TO UPSTREAM TO ALLOW STREAM TO PASS THROUGH CULVERTS.
7. PROVIDE SILT FENCE AT LOW AREAS OF DIVERSIONS CHANNELS THEN REMOVE DIVERSION CHANNEL FROM DOWNSTREAM TO UPSTREAM.
8. INSTALL TREE PROTECTION FENCE AND SEDIMENT CONTROL MEASURES; SEDIMENT CONTROL BASINS, RIP-RAP OUTLET SEDIMENT TRAPS, SILT FENCE, EARTH DIKES, TEMPORARY SWALES, STONE CONSTRUCTION ENTRANCE AND RIP-RAP AT THE END OF EARTH DIKES ENTERING SEDIMENT BASINS AS SHOWN ON PLANS. DO NOT CONSTRUCT THE EARTH DIKE LOCATED NORTH OF TEMPORARY SEDIMENT CONTROL BASIN NO. 5 (LABELED FOR PROPOSED CONDITIONS), AND THE EARTH DIKE WEST OF BASIN NO. 3, SILT FENCE IN THIS AREA WILL PROVIDE SEDIMENT CONTROL UNTIL BASIN NO. 3 IS BUILT AND EARTH DIKE IS INSTALLED. THE AREA AT BASIN NO. 3 WILL HAVE TO BUILT UP IN ORDER TO GRADE BASIN. AFTER BASIN NO. 3 IS INSTALLED THE CONTRACTOR CAN INSTALL EARTH DIKE WEST OF BASIN NO. 3, REMOVING SILT FENCE IN THIS AREA.
9. CLEAR AND GRUB SITE.
10. THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL MEASURES AT THE END OF EACH WORKING DAY AND AFTER EACH RAINFALL. ALL EARTH DIKES SHALL HAVE POSITIVE DRAINAGE TO SEDIMENT BASINS OR TRAPS.
11. SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT CONTROL BASINS AND SEDIMENT TRAPS WHEN THE CLEANOUT ELEVATIONS HAVE BEEN REACHED. SEE PROFILES FOR CLEANOUT ELEVATIONS OF SEDIMENT BASINS AND PLAN FOR CLEANOUT ELEVATION OF RIP-RAP OUTLET SEDIMENT TRAPS. SEDIMENT MUST BE PLACED UP HILL FROM THESE STRUCTURES, WHEN REMOVED.
12. GRADE SITE TO SUB-GRADE (SEE ROADWAY GRADING NOTE 13) INSTALLING THE EARTH DIKE LOCATED NORTH OF S.C. BASIN NO. 5 (LABELED FOR PROPOSED CONDITIONS). AT THE END OF EACH DAY OR PRIOR TO HEAVY RAINFALL THE CONTRACTOR SHALL INSPECT ALL EARTH DIKES PROVIDING THE NECESSARY MAINTENANCE AND REBUILD EARTH DIKES REMOVED DUE TO GRADING.
13. ALL ROADWAY GRADING SHALL MEET THE FOLLOWING:
    - a) IN AN AREA WHERE EXCAVATION IS NEEDED WITHIN THE ROAD RIGHT-OF-WAY, EXCAVATION MUST BE MADE WITHIN ONE (1) FOOT OF THE FINAL SUBGRADE.
    - b) WHERE FILL IS PROPOSED WITHIN THE ROAD RIGHT-OF-WAY, THE FILL SHALL BE A MINIMUM OF TWO (2) FEET BELOW THE FINAL ROAD SUBGRADE.
14. ONCE PROPOSED GRADES ARE ACHIEVED AND ALL AREAS HAVE BEEN STABILIZED WITH PERMANENT SEEDING, WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR REMOVE ALL SEDIMENT CONTROL MEASURES. EXCEPT SEDIMENT BASINS NO. 1,3,5,6 & 9 WHICH WILL REMAIN ONSTIE FOR USE AS FUTURE S.W.M. PONDS: ALL AREAS DISTURBED DUE TO THE REMOVAL OF SEDIMENT CONTROL MEASURES SHALL BE STABILIZED WITH PERMANENT SEEDING.
15. CONTACT HOWARD COUNTY OFFICE OF PERMITS AND INSPECTIONS AT (410)313-1870 AT COMPLETION.

STABILIZED CONSTRUCTION ENTRANCE

not to scale

CONSTRUCTION SPECIFICATIONS

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

TEMPORARY SWALE

	SWALE A	SWALE B
C	1'	1'
D	4'	6'

CONSTRUCTION SPECIFICATIONS

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

FLOW CHANNEL STABILIZATION

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

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

TYPICAL ANTI-SEEP COLLARS FOR BCCMP BARRELS

NOT TO SCALE

NOTE: TO BE USED ON BASINS NO. 4,6,7, & 8

SEDIMENT BASIN DEWATERING DEVICE I

WITH 6" PERFORATED RISER NO SCALE

SILT FENCE

CONSTRUCTION NOTES FOR FABRICATED SILT FENCE

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

POSTS: STEEL EITHER T OR U TYPE OR 1 1/4 X 1 1/4 Min. (Actual) HARDWOOD

FENCE: WOVEN WIRE, 14 GA. 6" MAX. MESH OPENING OR HIGH STRENGTH POLYPROPYLENE NETTING

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

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

EARTH DIKE

not to scale

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

CONSTRUCTION SPECIFICATIONS

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

FLOW CHANNEL STABILIZATION

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

A. STONE TO BE 2 INCH STONE, OR RECYCLED CONCRETE EQUIVALENT, IN A LAYER AT LEAST 3 INCHES IN THICKNESS AND BE PRESSED INTO THE SOIL WITH CONSTRUCTION EQUIPMENT.
B. RIP-RAP TO BE 4-8 INCHES IN A LAYER AT LEAST 8 INCHES THICKNESS AND PRESSED INTO THE SOIL.
C. APPROVED EQUIVALENTS CAN BE SUBSTITUTED FOR ANY OF THE ABOVE MATERIALS.
7. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

	θ	Y	Φ	X
BASIN Nº 4	50° 17'11"	1.5'	85° 42' 40"	8.0'
BASIN Nº 7	50°30'32"	1.5'	80° 42' 40"	6.5'
BASIN Nº 8	53° 54'06"	1.5'	85° 42' 40"	5.5'

BCCMP RISER BASE DETAIL

NOTES:

1. The concrete base shall be poured in such a manner to insure that the concrete fills the bottom of the riser to the invert of the outlet pipe to prevent the riser from breaking away from the base.
2. With aluminum or aluminized pipe, the embedded section must be painted with zinc chromate or equivalent.
3. Riser base may be sized as computed using flootation with a factor of safety of 1.2.

BCCMP RISER BASE DETAIL

NO SCALE

TRASH RACK WELDING DETAIL

NO SCALE

* SIZE TO BE DETERMINED BY ENGINEER.

RIPRAP OUTLET SEDIMENT TRAP ST-VI

CONSTRUCTION SPECIFICATIONS FOR ST-VI

1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be five (5) feet, measured at centerline of embankment.
3. All fill slopes shall be 2:1 or flatter; cut slopes 1:1 or flatter.
4. Elevation of the top of any dike directing water into trap must equal or exceed the height of embankment.
5. Storage area provided shall be figured by computing the volume available behind the outlet channel up to an elevation of one (1) foot below the level weir crest.
6. Filter cloth shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Sections of fabric must overlap at least one (1) foot with section nearest the entrance placed on top. Fabric shall be embedded at least six (6) inches into existing ground at entrance of outlet channel.
7. Stone used in the outlet channel shall be four (4) to eight(8) inches (riprap). To provide a filtering effect, a layer of filter cloth shall be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of two (2) inch or finer aggregate shall be placed on the upstream face of the outlet.
8. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to 1/2 the design depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
9. The structure shall be inspected after each rain and repaired as needed.
10. Construction operations shall be carried out in such a manner that erosion and water pollution are minimized.
11. The structure shall be removed and the area stabilized when the drainage area has been properly stabilized.
12. Drainage area for this practice is limited to 15 acres or less.

TRASH RACK CHART

	RISER DIA.	D	H	TOP STIFFENER	TOP THICKNESS	CYLINDER GAGE	SUPPORT BAR
BASIN No. 1		SEE	CONC.	RISER DETAIL	SHEET 28		
BASIN No. 4	27"	42"	15"	N/A	14 GA.	16 GA.	#6 REBAR
BASIN No. 3		SEE	CONC.	RISER DETAIL	SHEET 28		
BASIN No. 9		SEE	CONC.	RISER DETAIL	SHEET 28		
BASIN No. 5		SEE	CONC.	RISER DETAIL	SHEET 28		
BASIN No. 6		SEE	CONC.	RISER DETAIL	SHEET 28		
BASIN No. 7	24"	36"	13"	N/A	14 GA.	16 GA.	#6 REBAR
BASIN No. 8	30"	48"	16"	N/A	12 GA.	14 GA.	#8 REBAR

Top stiffener (if required) is (SEE CHART) angle welded to top and oriented perpendicular to corrugations.

Top is (SEE CHART) gage corrugated metal or 1/8" steel plate. Pressure relief holes may be omitted if ends of corrugations are left fully open when corrugated top is welded to cylinder.

Cylinder is (SEE CHART) gage corrugated metal pipe or fabricated from 1/8" steel pipe.

NOTES:

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

CONCENTRIC TRASH RACK AND ANTI-VORTEX DEVICE

(not to scale)

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND
20904

Waterway Construction: Open Channel Stream Diversions
Sequence of Construction

A. Channel Excavation

1. All erosion and sediment control devices shall be installed as the first order of business.
2. All disturbance resulting from construction of the channel shall be contained by appropriate sediment control measures.
3. Excavation of the channel shall begin at the downstream end and proceed upstream. All excavated materials shall be stockpiled outside of the floodplain and temporarily stabilized to prevent re-entry into the stream channel.
4. The process of excavation and stabilization with fabric shall be a continuous (uninterrupted) operation. All materials shall be on-site prior to channel consruction.
5. The downstream and upstream connection to the natural channel shall be constructed under dry conditions. The stream shall be contained by sandbags along the opposing bank during the process of cutting the diversion channel into the natural stream channel. Excavation and stabilization shall be a continuous (uninterrupted) operation.
6. All debris (rocks, sticks, etc.) shall be removed and the channel surfaces made smooth so that the fabric will rest flush with the channel sides and bottom.

B. Stabilization with Geotextile Fabric

1. The fabric shall have a minimum width such that it is keyed in and anchored at the top of stream bank.
2. Fabric shall be placed so that it rests flush with the channel at all points of contact.
3. Fabric shall be placed such that one piece will line the entire channel. If this is not possible, fabric shall be placed so that transverse overlapping occurs in accordance with the detail. Longitudinal overlaps shall not be allowed. Upstream sections shall overlap downstream sections. Overlap width shall equal 2 feet minimum.
4. The fabric shall be keyed into 2 x 2 feet trenches located at the upstream edge and at 50 feet intervals (the overlap nearest to each 50 feet increment). The key-in shall be from top of channel to top of channel. Class I riprap (MPO3.1) shall be carefully placed into the trench (zero drop height).
5. The fabric sections shall be secured with holddown pins (L = 18 inch minimum) and washer (diameter = 1.0 inch minimum). Overlaps shall be pinned along transverse and longitudinal axes with spacing equal to 3 feet maximum.
6. Sediment from surrounding areas of disturbance shall not be allowed to enter the diversion chanel.

C. Removal of Diversion

1. Water shall not be allowed through the natural stream until all construction is completed.
2. After diversion of the stream through the natural stream bed, the temporary diversion channel shall be backfilled and stabilized. Points of tie-in to the natural channel shall be stabilized with riprap in accordance with MPO3.1.

D. Alternate Designs

1. The above design may be modified to allow sewing of the geotextile fabric. Sewing of the geotextile fabric, rather than overlapping, would eliminate the requirement for transverse placement of the fabric. Either transverse or longitudinal placement should work equally well.
2. The spacing of the pins could be either larger or smaller depending on the anticipated veolocities and thickness and type of geotextile fabric.
3. The entire bottom of the channel could be riprapped if high velocities were anticipated. When the area is riprapped, it is not required that the geotextile fabric underneath the riprap be pinned.

CHANNEL DIVERSION

NO SCALE

CHANNEL DIVERSION X-SECTION

NO SCALE

NOTE: DIVERSION CHANNELS SIZED TO PASS THE 2 YEAR STORM.

CHANNEL LOCATION	2YR. Q(c.f.s.)	A	B	C	AREA	W.P.	n	SLOPE %	V(f.p.s.)	Q(c.f.s.)
@ CULVERT Nº 1	903.52 cfs	20'	10'	5'	150#	42.4	0.04	0.67%	7.06	1059.00
@ CULVERT Nº 2	382.43 cfs	15'	7.4'	3.7'	82.9#	31.5'	0.04	0.50%	5.01	415.33
@ CULVERT Nº 3	159.58 cfs	10'	3.0'	1.5'	19.5#	16.71'	0.04	5.3%	9.48	184.87

METAL RISER
LOW FLOW ELBOW DETAIL

NO SCALE

(TO BE USED ON TEMPORARY SEDIMENT BASIN No.'s 4, 7 & 8)

BACKFILL WITH MOST IMPERVIOUS MATERIAL AVAILABLE ON SITE COMPACT TO ASSURE MAX. DENSITY & MIN. PERMEABILITY.

FOR REV 2 ONLY

CORE TRENCH DETAIL

NO SCALE

CHRISTOPHER J. REID No. 19949 9/8/04

No.	Revision	Date
1	Revise sheet number	7-19-04
2	REVISED SHEET NO.	9-2-04
3	Change reference for Pond 2 to read Pond 4	11-11-04

CHARLES J. CROVO No. 13204

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21043
(301)461-2855

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/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."

SIGNATURE OF ENGINEER 7/14/95 DATE

DEVELOPER'S CERTIFICATE

"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 OF DEVELOPER 7-14-95 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.

Patricia 7/24/95
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE DATE

Cheryl K. Simmons 03/29/00

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

Robert W. Ziehm 3/29/00
~~Robert W. Ziehm 7/24/95~~
DISTRICT DATE
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPT. OF PLANNING AND ZONING

Cindy Hamilton 4/3/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

3/24/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS.

3-17-00
CHIEF, BUREAU OF HIGHWAYS HS DATE

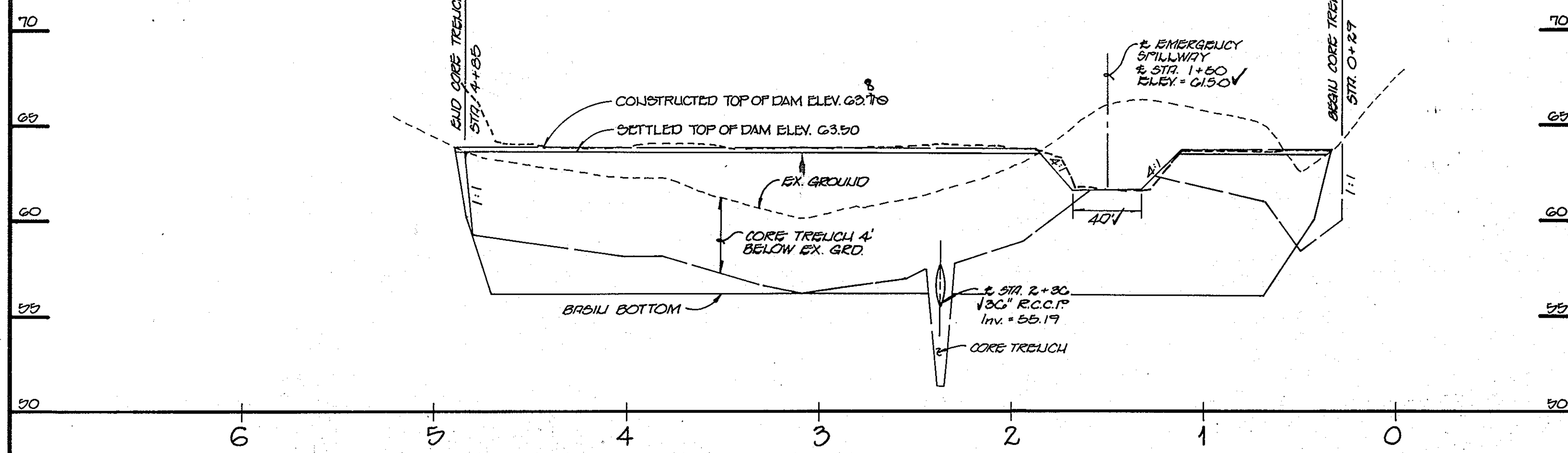
MASS GRADING PLAN

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 PARCEL 284 & 285
FIRST ELECTION DIST. HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 14, 1995
SHEET 25 OF 35 1 2

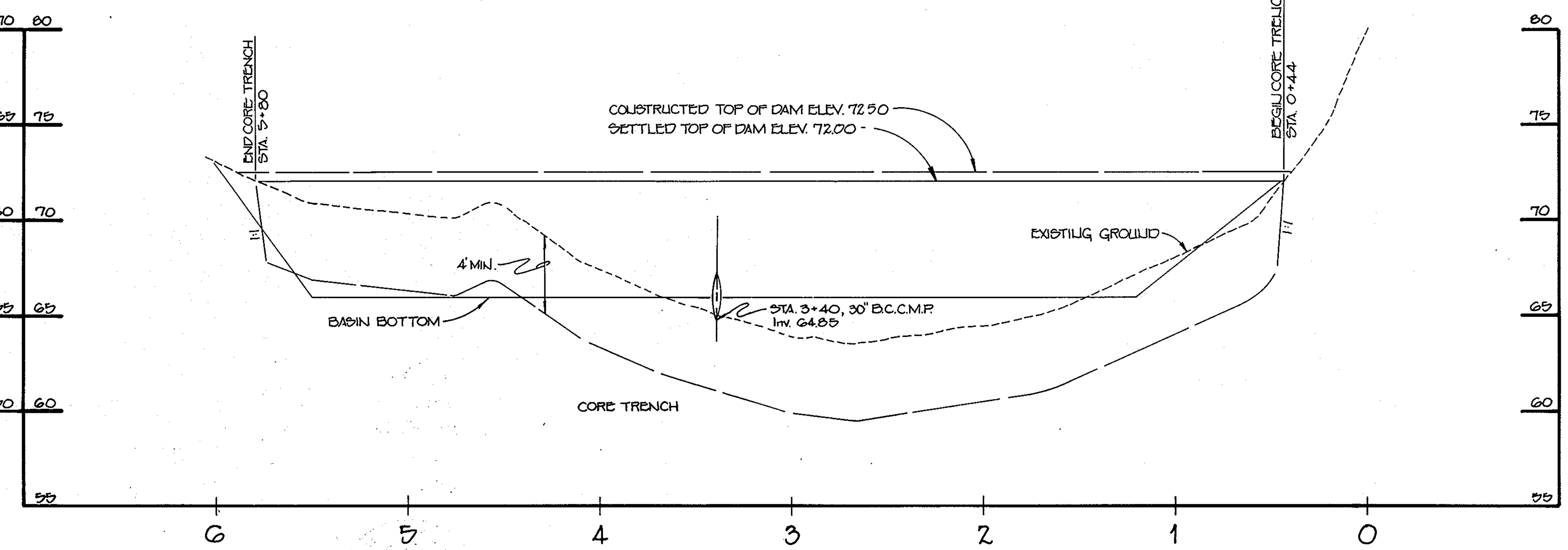
174

ASBUILT 2-1-06 F 94-24



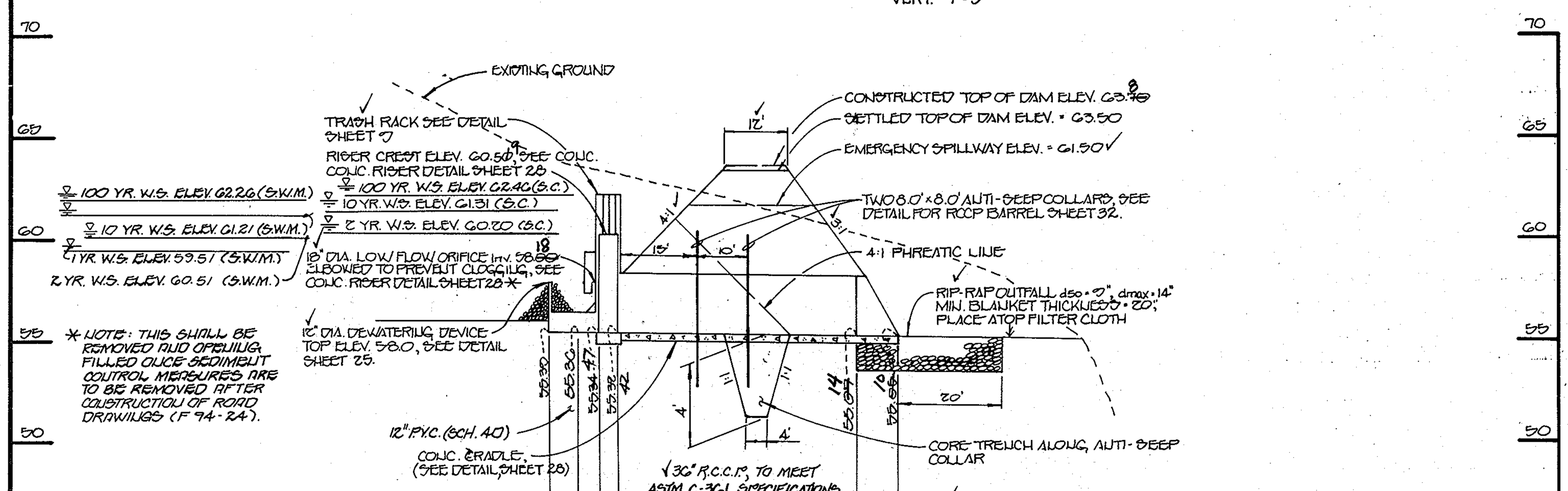
℄ TOP OF DAM PROFILE SEDIMENT BASIN No. 1 AND FUTURE S.W.M. POND No. 1

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



℄ TOP OF DAM PROFILE TEMPORARY SEDIMENT BASIN No. 4

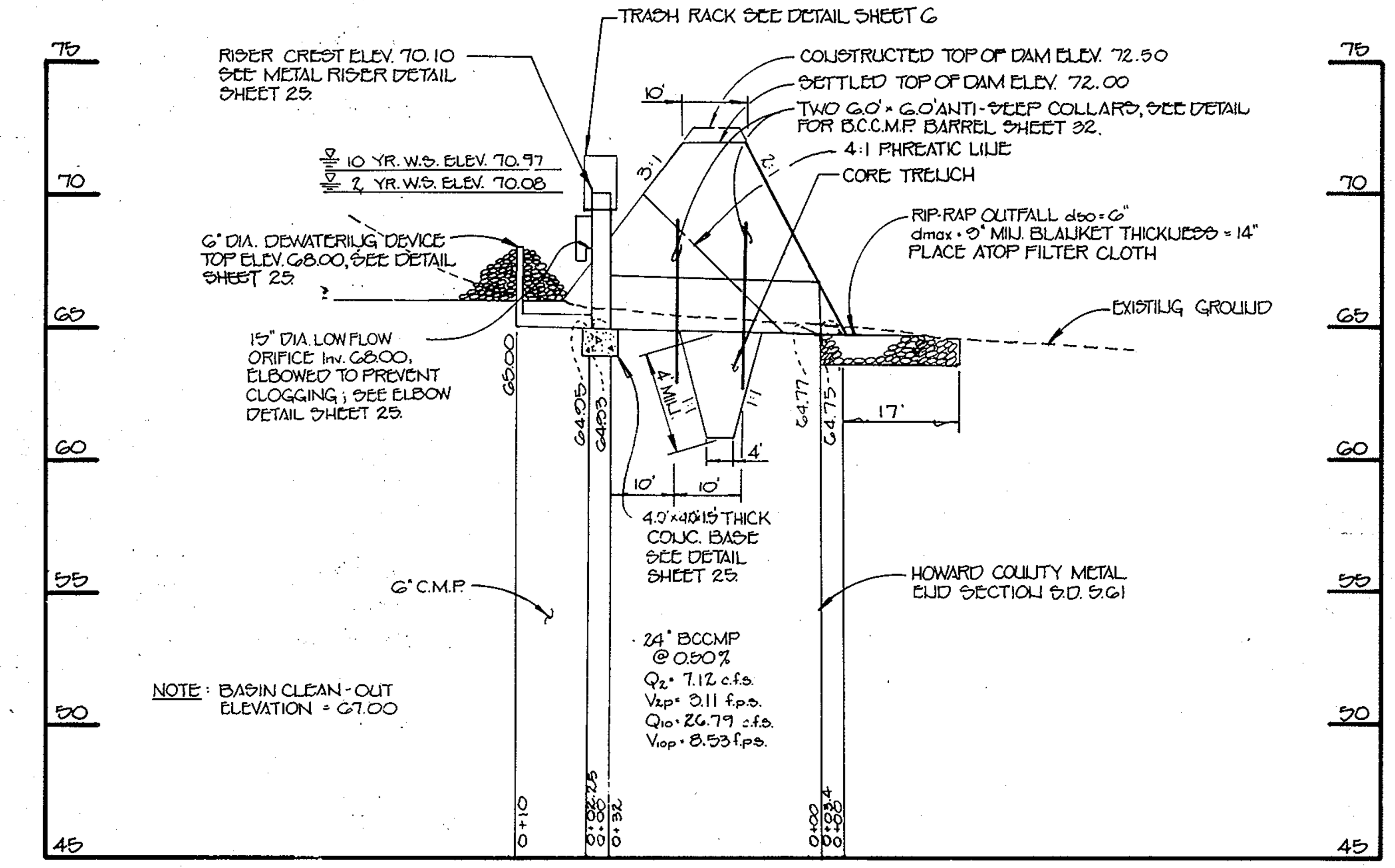
SCALE: HORIZ.: 1"=50' VERT.: 1"=5'



	SEDIMENT CONTROL		STORM WATER MANAGEMENT	
	Q (c.f.s.)	V (f.p.s.)	Q (c.f.s.)	V (f.p.s.)
1 YEAR	N/A	N/A	0.45	2.96 PART.
2 YEAR	10.21	5.24 PART.	1.03	3.16 PART.
10 YEAR	57.22	8.09 FULL	31.22	7.00 PART.
100 YEAR	110.57	15.64 FULL	81.11	11.50 FULL

PRINCIPAL SPILLWAY PROFILE SEDIMENT BASIN No. 1 AND FUTURE S.W.M. POND No. 1

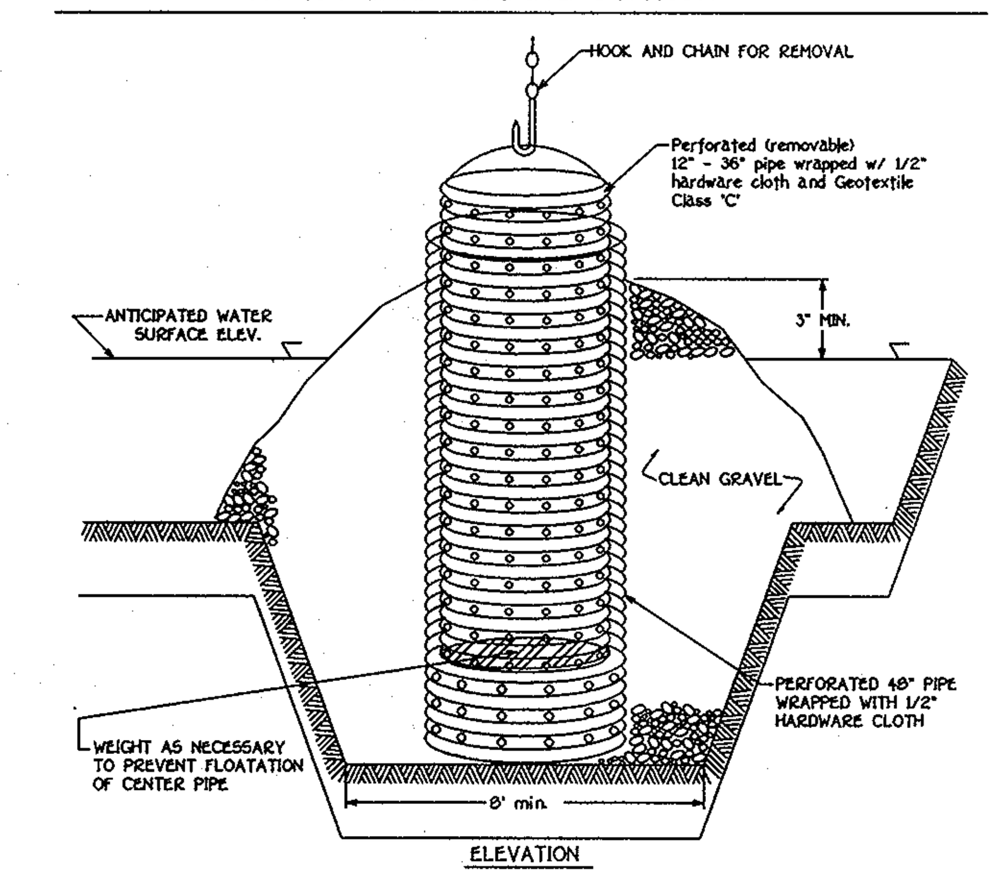
SCALE: HORIZ.: 1"=20' VERT.: 1"=5'



PRINCIPAL SPILLWAY PROFILE TEMPORARY SEDIMENT BASIN No. 4

SCALE: HORIZ.: 1"=20' VERT.: 1"=5'

REMOVABLE PUMPING STATION

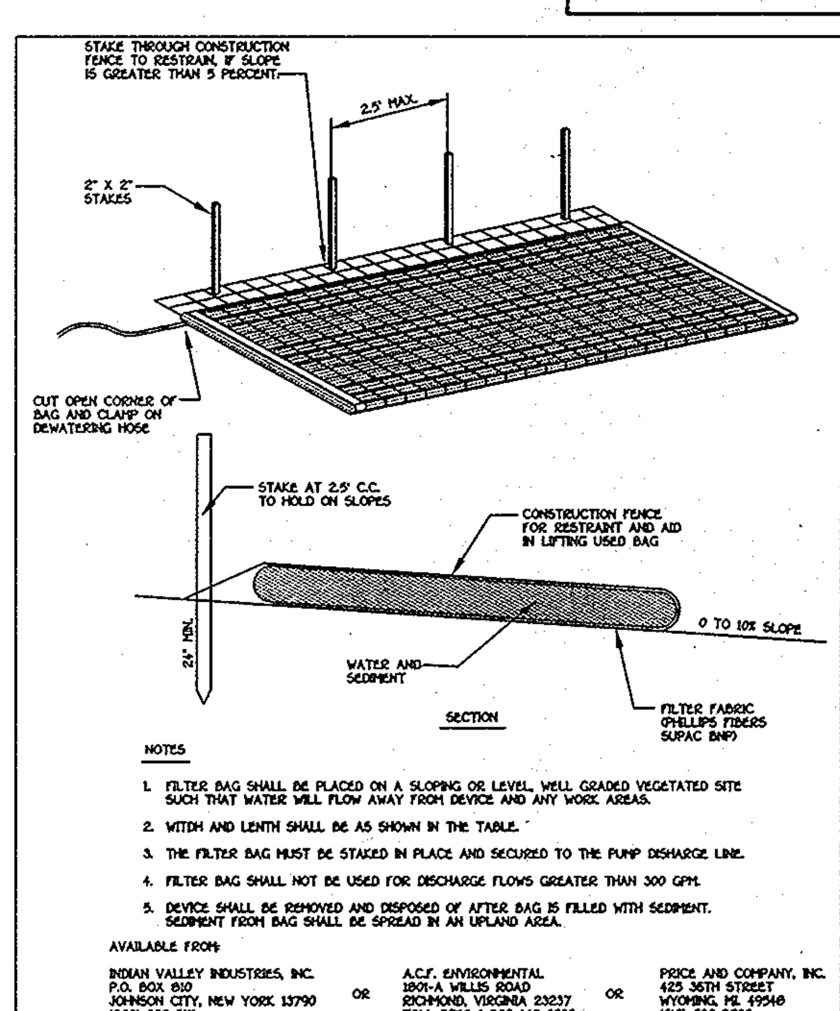


ELEVATION

Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

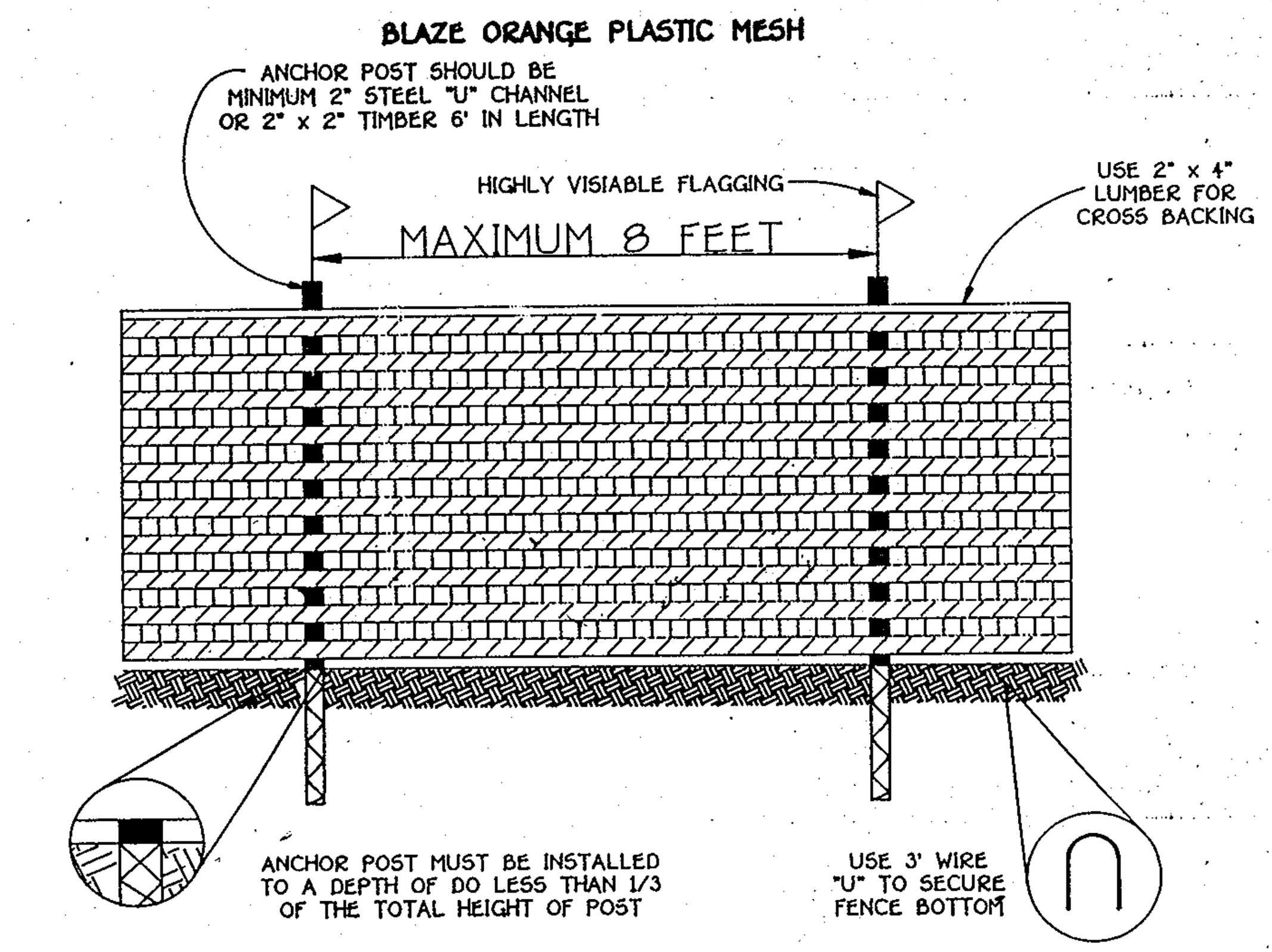
NOTE: SEE SHEET 14 FOR MD-378 POND SPECIFICATIONS



FILTER BAG DETAIL

NOT TO SCALE

BLAZE ORANGE PLASTIC MESH



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 DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DETAIL

NOT TO SCALE

ASBUILT 2/1/06

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND
20904

FOR REV 2 ONLY

9/8/04

NUMBER	REVISIONS	DATE
1	REVISE SHEET NUMBER, ADD RPS AND FILTER BAG DETAILS.	07/22/04
2	REVISED SHEET NO.	9-2-04
3	Revise label of Pond 2 to reflect Pond 4	11-11-04

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21043
(301) 461-2855

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — DATE 7/14/95

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SIGNATURE OF DEVELOPER — DATE 7-14-95

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/24/95, 03/29/00

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

APPROVED: 3/29/00

DISTRICT — DATE

HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/00

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 3-17-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/24/00

MASS GRADING PLAN

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 287

FIRST ELECTION DIST. — HOWARD COUNTY, MARYLAND

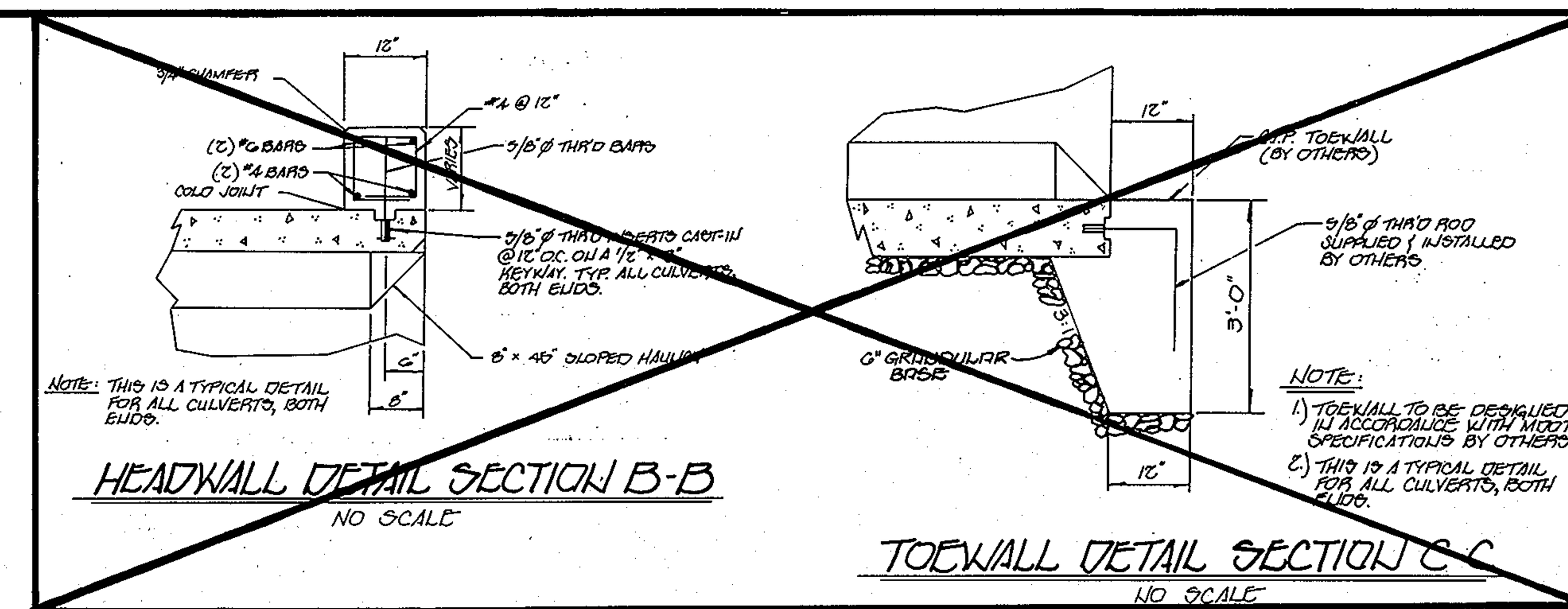
SCALE: AS SHOWN — DATE: JULY 14, 1995

SHEET 26 OF 35

ASBUILT 2-1-06 F 94-24

174

NOTE:
SEE SHEET 14 FOR MD-378 POND SPECIFICATIONS.



REVISIONS		
No.	DESCRIPTION	DATE
1	REVISE CULVERTS	5/3/01
2	Revise sheet numbers	7.15.04
3	REVISED SHEET NUMBERS	9.2.04

REVISION 1 5/3/01

For Rev 3 only

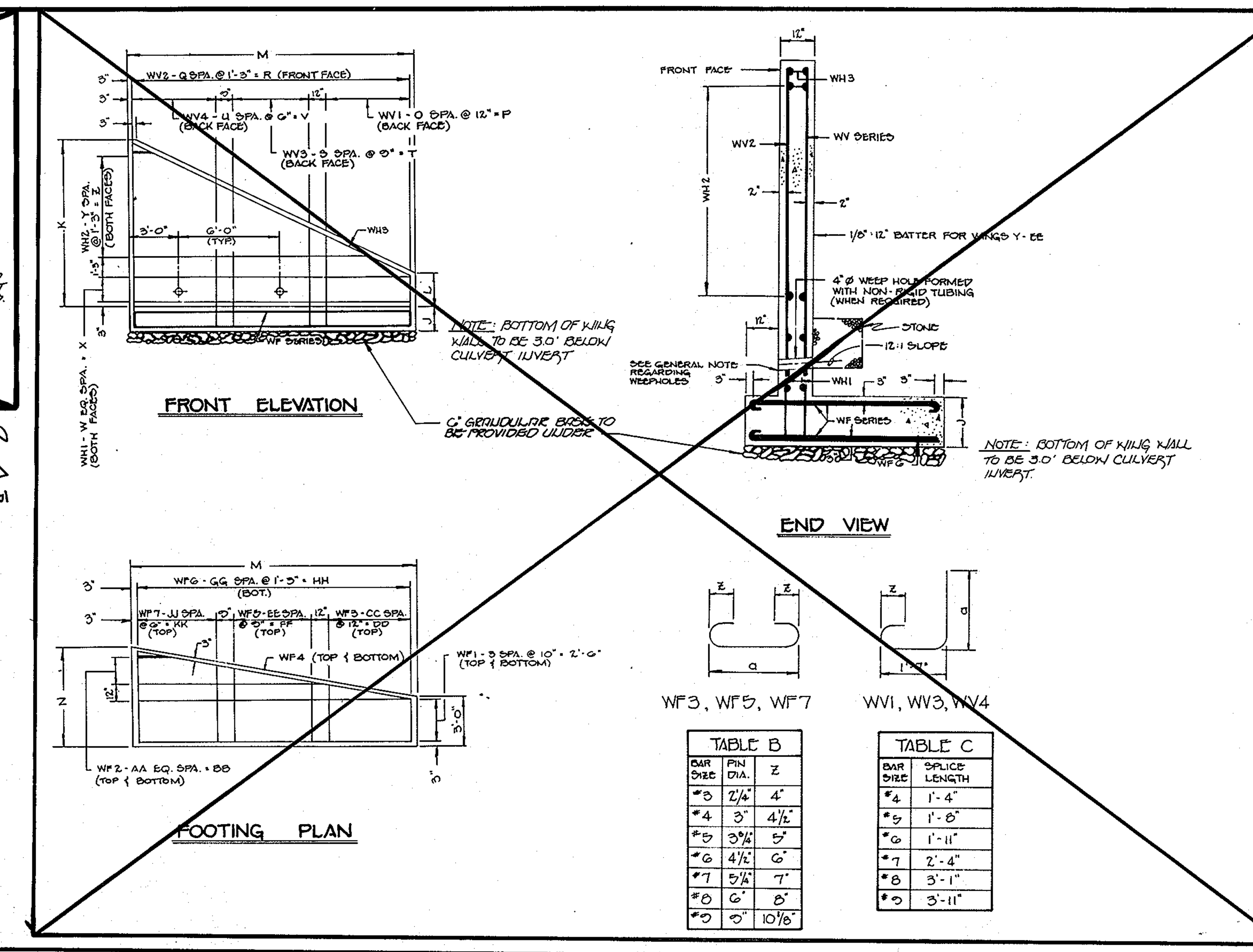
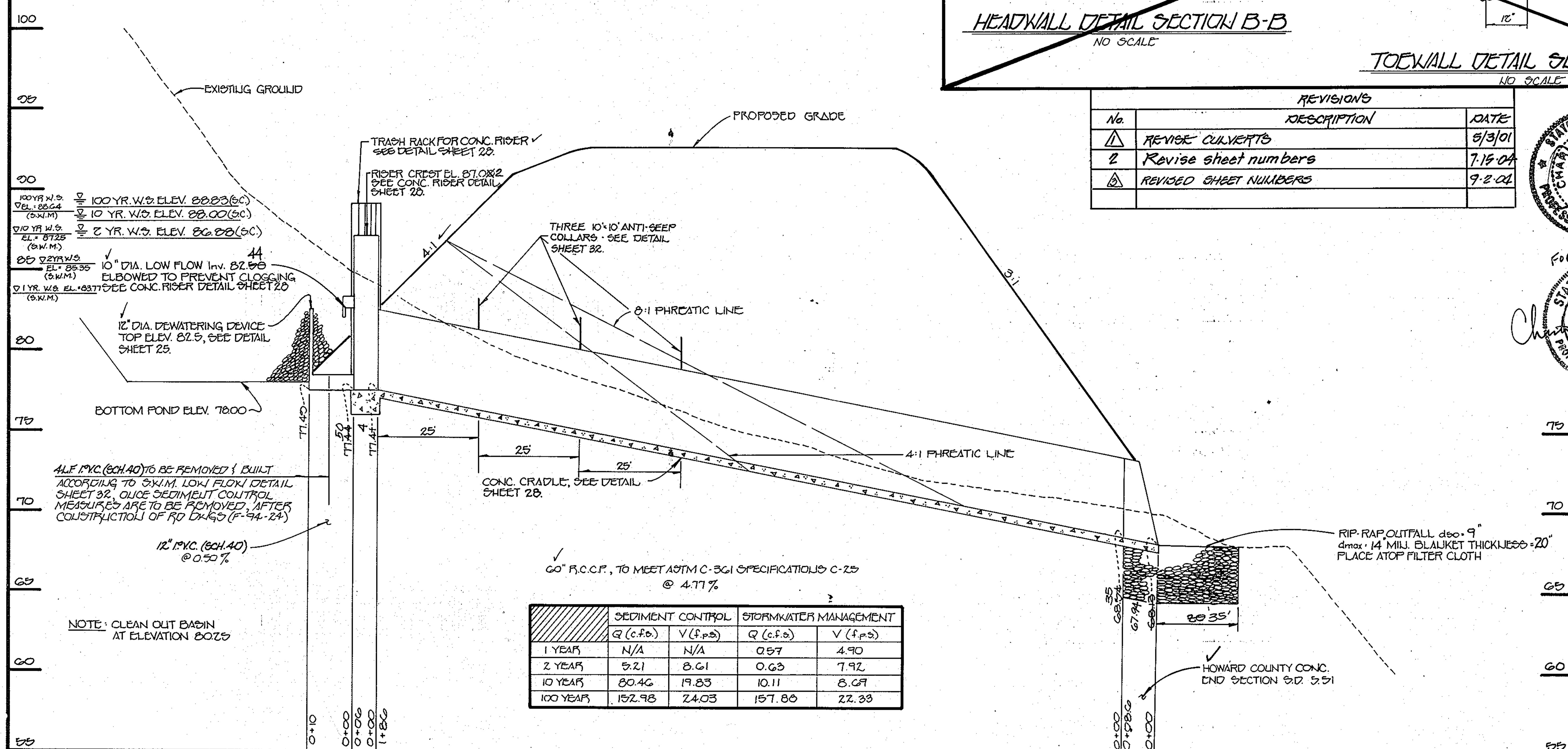


TABLE B		
BAR SIZE	PIN DIA.	Z
#3	2¼"	4"
#4	3"	4½"
#5	3¾"	5"
#6	4½"	6"
#7	5¼"	7"
#8	6"	8"
#9	9"	10⅛"

TABLE C	
BAR SIZE	SPLICE LENGTH
#4	1'-4"
#5	1'-8"
#6	1'-11"
#7	2'-4"
#8	3'-1"
#9	3'-11"



	SEDIMENT CONTROL		STORMWATER MANAGEMENT	
	Q (c.f.s.)	V (f.p.s.)	Q (c.f.s.)	V (f.p.s.)
1 YEAR	N/A	N/A	0.57	4.90
2 YEAR	5.21	8.61	0.63	7.92
10 YEAR	80.46	19.83	10.11	8.69
100 YEAR	152.98	24.03	157.88	22.33

PRINCIPLE SPILLWAY PROFILE SEDIMENT BASIN No. 3 & FUTURE S.W.M. POND No. 3

SCALE: HORIZ.: 1" = 20'
VERT.: 1" = 5'

WING WALL DETAIL

NO SCALE

H = LEFT & RIGHT WING CULVERT No. 3
S = LEFT & RIGHT WING CULVERT No. 2
U = RIGHT WING CULVERT No. 1 (LEFT & RIGHT BASED ON DOWNSTREAM LOOKING UPSTREAM)
W = LEFT WING CULVERT No. 1 (LEFT & RIGHT BASED ON DOWNSTREAM LOOKING UPSTREAM)

	Quantity (One Wing)	
WING	Concrete Cu.Yd.	Reinforcing Steel - Lbs.
H	6.153	378.667
S	16.063	1193.231
U	18.343	1566.661
W	21.169	1838.465

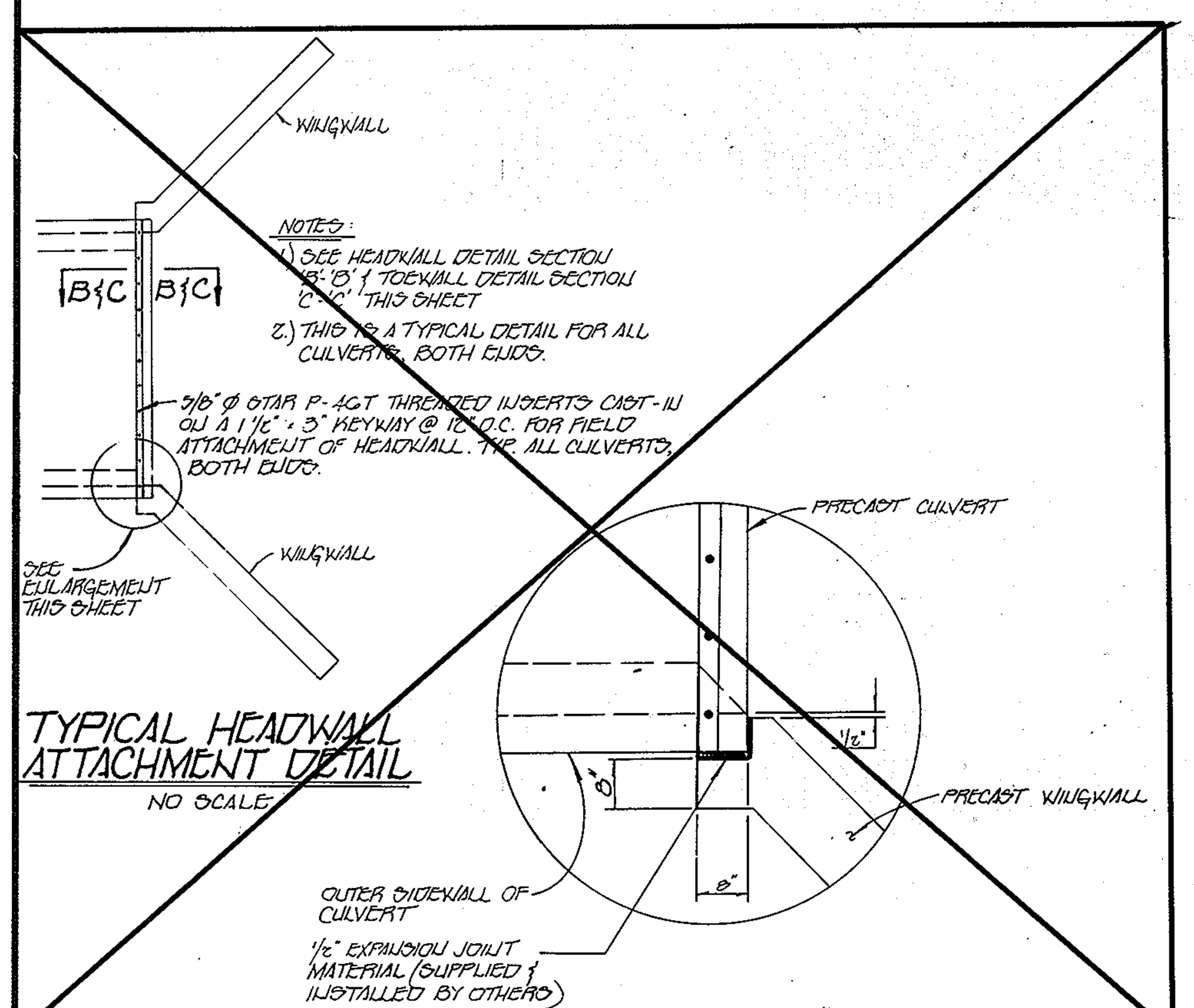
	Dimensions					Bar Spacings																								
						WV1		WV2		WV3		WV4		WH1		WH2		WF2		WF3		WF5		WF6		WF7		
WING	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH	JJ	KK	NO. WEEP HOLES
H	1'-6"	7'-6"	2'-3"	14'-0"	5'-0"	13	13'-0"	10	12'-6"	—	—	—	—	1	1'-0"	3	3'-9"	—	—	13	13'-0"	—	—	10	12'-6"	—	—	—
S	1'-6"	13'-0"	4'-0"	24'-0"	8'-6"	11	11'-0"	18	22'-6"	9	6'-9"	8	4'-0"	3	2'-9"	6	7'-6"	4	3'-9"	12	12'-0"	5	3'-9"	18	22'-6"	12	6'-0"	1
U	1'-6"	14'-0"	4'-3"	26'-0"	9'-0"	12	12'-0"	20	25'-0"	9	6'-9"	10	5'-0"	3	3'-9"	6	7'-6"	5	4'-3"	11	11'-0"	11	8'-3"	20	25'-0"	9	4'-6"	2
W	1'-6"	15'-0"	4'-6"	28'-0"	10'-0"	11	11'-0"	22	27'-6"	13	9'-9"	10	5'-0"	3	3'-6"	7	8'-9"	6	5'-3"	11	11'-0"	11	8'-3"	22	27'-6"	13	6'-6"	2

	WF1		WF2					WF3							WF4	
				LENGTH					a			LENGTH				
WING	SIZE	LENGTH	SIZE	From	To	Vary By	# Ea	SIZE	From	To	Vary By	From	To	Vary By	SIZE	LENGTH
H	4	13'-6"	4	6'-9"	—	—	2	4	4'-6"	2'-7¼"	0'-1¾"	5'-6"	3'-7¼"	0'-1¾"	4	13'-8"
S	4	23'-6"	4	19'-4"	3'-0"	4'-1"	2	4	5'-4"	2'-7"	0'-[illegible]¾"	6'-4"	3'-7"	0'-2¾"	4	24'-1"
U	4	25'-6"	4	21'-5"	2'-11¾"	3'-8¼"	2	4	5'-1"	2'-6¾"	0'-2¾"	6'-1"	3'-6¾"	0'-2¾"	4	26'-2"
W	4	27'-6"	4	23'-9"	2'-8¼"	3'-6⅛"	2	4	5'-4"	2'-7"	0'-3"	6'-4"	3'-7"	0'-3"	4	28'-4"

	WF5							WF6				WF7							WH1		WH3	
		a			LENGTH				LENGTH				a			LENGTH						
WING	SIZE	From	To	Vary By	From	To	Vary By	SIZE	From	To	Vary By	SIZE	From	To	Vary By	From	To	Vary By	SIZE	LENGTH	SIZE	LENGTH
H	—	—	—	—	—	—	—	4	4'-6"	2'-7½"	0'-2¼"	—	—	—	—	—	—	—	4	13'-6"	4	14'-5"
S	4	6'-5"	5'-6⅜"	0'-2⅛"	7'-5"	6'-6⅜"	0'-2⅛"	4	7'-11"	2'-10¼"	0'-3⅜"	4	7'-11"	6'-6½"	0'-1⅞"	8'-11"	7'-6½"	0'-1⅜"	4	23'-6"	4	25'-2"
U	5	7'-2¼"	5'-4¼"	0'-2"	8'-4"	6'-6"	0'-2"	4	8'-5"	2'-7"	0'-3½"	5	8'-5¼"	7'-4⅞"	0'-1⅜"	9'-7"	8'-6⅜"	0'-1⅜"	4	25'-6"	4	27'-3"
W	5	7'-7¼"	5'-6½"	0'-2¼"	8'-9"	6'-8¼"	0'-2¼"	4	9'-5"	2'-6½"	0'-3¾"	5	9'-5¼"	7'-9¾"	0'-1½"	10'-7"	8'-11½"	0'-1½"	4	27'-6"	4	29'-5"

	WH2					WV1							WV2			
		LENGTH					a			LENGTH				LENGTH		
WING	SIZE	From	To	Vary By	# Ea.	SIZE	From	To	Vary By	From	To	Vary By	SIZE	From	To	Vary
H	4	12'-5"	2'-6⅞"	3'-3⅜"	2	4	8'-6¼"	3'-6⅛"	0'-4⅞"	10'-6"	5'-5⅞"	0'-4⅝"	4	8'-6"	3'-8½"	0'-5¾"
S	4	22'-5"	2'-7¼"	3'-3⅝"	2	4	9'-3¼"	5'-⅜"	0'-4⅝"	11'-3"	7'-⅛"	0'-4⅝"	4	14'-0"	5'-4½"	0'-5¾"
U	4	22'-5"	2'-7¼"	3'-3⅝"	2	4	9'-10¼"	5'-[illegible]¼"	0'-4½"	11'-10"	7'-4"	0'-4½"	4	15'-0"	5'-5"	0'-5¾"
W	4	25'-9"	2'-6¾"	3'-3¾"	2	4	9'-9¼"	5'-6⅝"	0'-4⅝"	11'-9"	7'-6½"	0'-4⅝"	4	16'-0"	5'-5½"	0'-5¾"

	WV3							WV4						
		a			LENGTH				a			LENGTH		
WING	SIZE	From	To	Vary By	From	To	Vary By	SIZE	From	To	Vary By	From	To	Vary By
H	—	—	—	—	—	—	—	—	—	—	—	—	—	—
S	5	12'-1¾"	9'-7⅜"	0'-3⅜"	14'-2"	11'-7⅞"	0'-3⅜"	5	13'-11¾"	12'-5¾"	0'-2¼"	16'-0"	14'-6"	0'-2¼"
U	5	12'-9¾"	10'-3⅜"	0'-3⅜"	14'-10"	12'-3⅝"	0'-3⅜"	5	14'-11¾"	13'-1¼"	0'-2¼"	17'-0"	15'-1½"	0'-2¼"
W	6	13'-9⅝"	10'-1¾"	0'-3⅜"	15'-11"	12'-3⅛"	0'-3⅜"	6	15'-11⅝"	14'-1⅛"	0'-2¼"	18'-1"	16'-2½"	0'-2¼"



TYPICAL HEADWALL ATTACHMENT DETAIL
NO SCALE

GENERAL NOTE

SPECIFICATIONS:
DESIGN - AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES", USING LOAD FACTOR DESIGN.

ALL CONCRETE SHALL BE CLASS A4.

DEFORMED REINFORCING BARS SHALL CONFORM TO ASTM A615. GRADE 60. ALL REINFORCING BAR DIMENSIONS ON THE DETAILED DRAWING ARE TO CENTERS OF BARS EXCEPT WHERE OTHERWISE NOTED AND ARE SUBJECT TO FABRICATION AND CONSTRUCTION TOLERANCES.

DIMENSIONS ON BAR DIAGRAMS ARE OUT-TO-OUT OF BARS. BARS ARE STRAIGHT UNLESS OTHERWISE SHOWN.

THE CENTERS OF MAIN REINFORCING BARS SHALL BE 2" FROM THE FACE OF THE CONCRETE UNLESS OTHERWISE SHOWN.

AT THE CONTRACTOR'S OPTION. WV SERIES BARS MAY BE SPLICED AT THE TOP OF FOOTING IN ORDER TO FACILITATE CONSTRUCTION. SPLICE LENGTHS SHALL BE IN ACCORDANCE WITH TABLE C. NO ADDITIONAL COMPENSATION SHALL BE PROVIDED FOR THE INCREASE IN REINFORCING STEEL QUANTITY DUE TO THE SPLICES.

WHEN CONCRETE PROTECTIVE COATING IS REQUIRED, ALL STEEL SHALL BE EPOXY-COATED.

BEARING CAPABILITY OF FOUNDATIONS SHALL BE 1.5 TONS/SQ. FT. MINIMUM FOR WINGS A-X AND 2 TONS/SQ.FT. MINIMUM FOR WINGS Y - EE.

WEEPHOLES SHALL BE PLACED AT LOWEST POINT FEASIBLE FOR FREE DRAINAGE AWAY FROM WING.

FOUR TYPE I WINGS ARE TO BE USED FOR STRAIGHT CROSSINGS AND SKEWS UP TO 20°. TWO TYPE I AND TWO TYPE II WINGS ARE TO BE USED FOR SKEWS FROM 25° TO 45°. FOR SKEWS ABOVE 45° SPECIAL DESIGN WINGS ARE REQUIRED. THE WINGWALL TO BE USED FOR EACH CULVERT IS SHOWN ON THE BC SERIES SHEETS.

THE DESIGNS SHOWN ARE APPLICABLE FOR A 45° SKEW WITH THE ROADWAY AND OTHER CONDITIONS INDICATED. ANY CHANGE IN THESE CONDITIONS INVALIDATES THESE DESIGNS.

QUANTITIES SHOWN ARE FOR ONE WING.

SPECIFICATIONS

PRECAST BOX CULVERT: AS MANUFACTURED BY ROTONDO/PENN-CAST. PENN CAST PRODUCTS, INC.; 514 TOWNSHIP LINE ROAD, P.O. BOX B, TELFORD, PENNSYLVANIA 18969 - 800-523-2273.
SHAPE: THE SECTION IS A FOUR SIDED BOX SECTION WITH OPEN ENDS TO BE MONOLITHICALLY CAST OF REINFORCED CONCRETE. THE INSIDE SURFACES SHALL BE SMOOTH SO AS NOT TO RESTRICT FLOW THROUGH THE COMPLETED INSTALLATION. CHAMFERED 45°X8" FILLETS SHALL BE MONOLITHICALLY CAST IN ALL FOUR INSIDE CORNERS.
SIZE: VARIES SEE PLAN AND PROFILES. ROOF, FLOOR AND WALL THICKNESS TO BE DETERMINED AT A LATER DATE ONCE STRUCTURAL DESIGN IS PREPARED. STRUCTURAL DESIGN, TO BE PREPARED BY PIPE MANUFACTURER SHALL MEET MARYLAND DEPARTMENT OF TRANSPORTATION SPECIFICATIONS AND BE CERTIFIED BY MARYLAND PROFESSIONAL ENGINEER.
JOINTS: EACH SECTION SHALL HAVE A MALE AND FEMALE END WITH NOT LESS THAN 1½" CONCRETE OVERLAP. EACH SECTION SHALL HAVE A PREPLACED NEOPRENE GASKET CEMENTED TO JOINT SURFACE.
ASSEMBLY HARDWARE: ASSEMBLY HARDWARE MUST BE SUPPLIED TO LIFT AND DRAW SECTIONS TOGETHER (SUPPLIED BY MANUFACTURER).
SUBMITTAL: SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL SHOWING REINFORCEMENT SIZE AND LOCATION. DRAWINGS SHALL BE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND ACCOMPANIED BY DESIGN CALCULATIONS.
INSPECTION: THE QUALITY OF MATERIALS, THE PROCESS OF MANUFACTURE, AND THE FINISHED BOX SECTIONS SHALL BE SUBJECT TO INSPECTION BY ACI APPROVED LAB PERSONNEL.
PERMISSIBLE VARIATIONS: IN ACCORDANCE WITH ASTM C 789-83.

DESIGN CRITERIA
DESIGN SPECIFICATION: ACI 318, THE LATEST EDITION OF THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" IN AASHTO INCLUDING ALL INTERIMS & HOWARD COUNTY DESIGN MANUAL, VOLUME III, CHAPTER 3. DESIGN INCLUDING ALL INTERIMS.
MATERIAL PROPERTIES: STEEL REINFORCEMENT - ASTM A-615-75, GRADE 60 - CONCRETE MINIMUM COMPRESSIVE STRENGTH - 5000 PSI @ 28 DAYS*
SOIL DATA: UNIT WEIGHT - 120 LB/FT*
RATIO OF LATERAL TO VERTICAL PRESSURE - 0.33
EXTERNAL WATER TABLE - BELOW BOX SECTION INVERT*
EFFECTIVE WEIGHT COEFFICIENT - 1.0*
CAPACITY REDUCTION FACTORS: (FROM ACI 318 CHAPTER 9)
SHEAR - 0.85*, BENDING - 0.90*
LOADING DATA: AS REQUIRED IN LATEST EDITION OF AASHTO INCLUDING ALL INTERIMS & HOWARD COUNTY DESIGN MANUAL, VOLUME III, CHAPTER 3, TRUCK AXLE LOAD HS 27 EARTH COVER - 2' MIN.
IMPACT (VARIABLE WITH DEPTH) SEE AASHTO BRIDGE SPECIFICATIONS - 0 TO 30% UNIFORM INTERNAL PRESSURE - 0.0*
DEPTH OF WATER IN BOX SECTION - EQUAL TO INSIDE HEIGHT*
EXTERNAL GROUND WATER PRESSURE - 0.0*
STRUCTURAL ARRANGEMENT: CONCRETE COVER - 2"

AS BUILT 2/1/06

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND
20904

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21043
(301) 461-2855

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SIGNATURE OF DEVELOPER — DATE 7-14-95

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS
7/24/95
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 03/29/00
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
APPROVED: 3/29/00 7/24/95
DISTRICT — DATE
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPT. OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — 4/3/00 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 3/24/00 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS.
CHIEF, BUREAU OF HIGHWAYS — 3-17-00 DATE

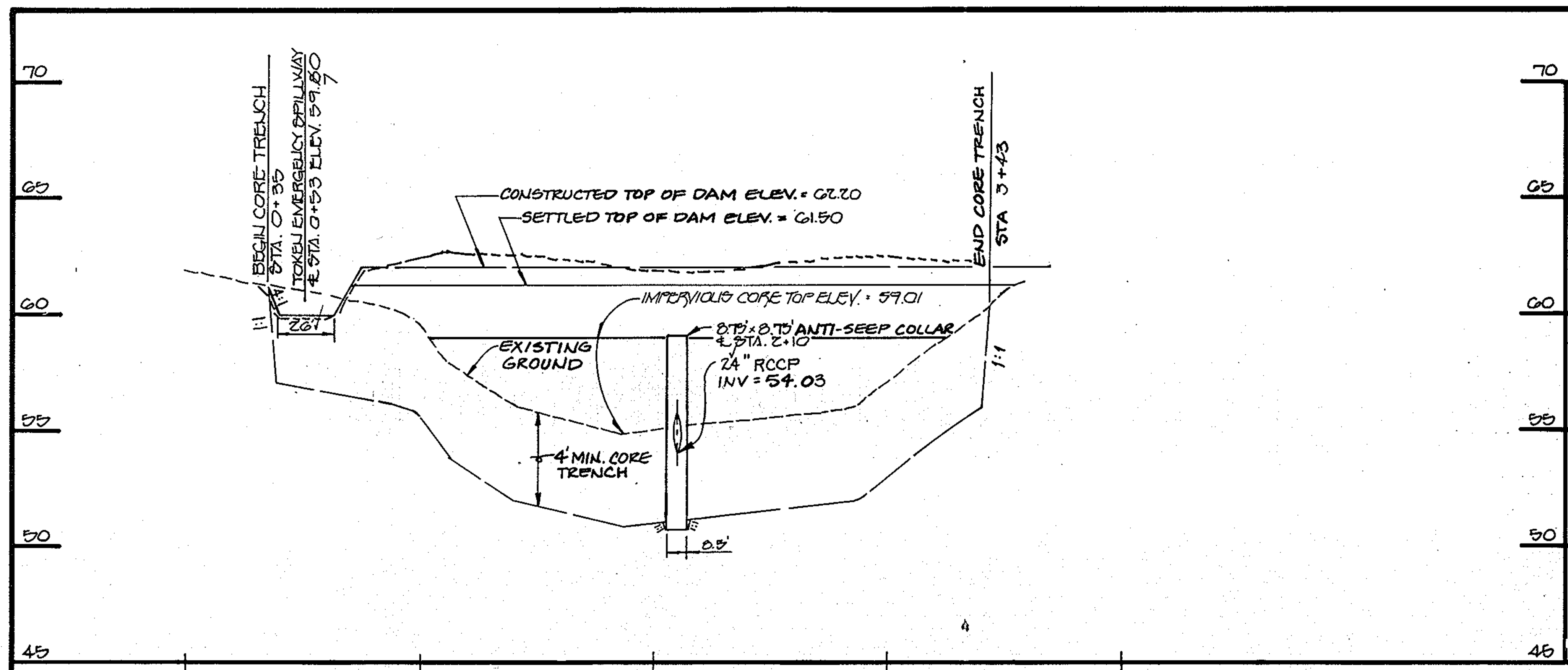
MASS GRADING PLAN

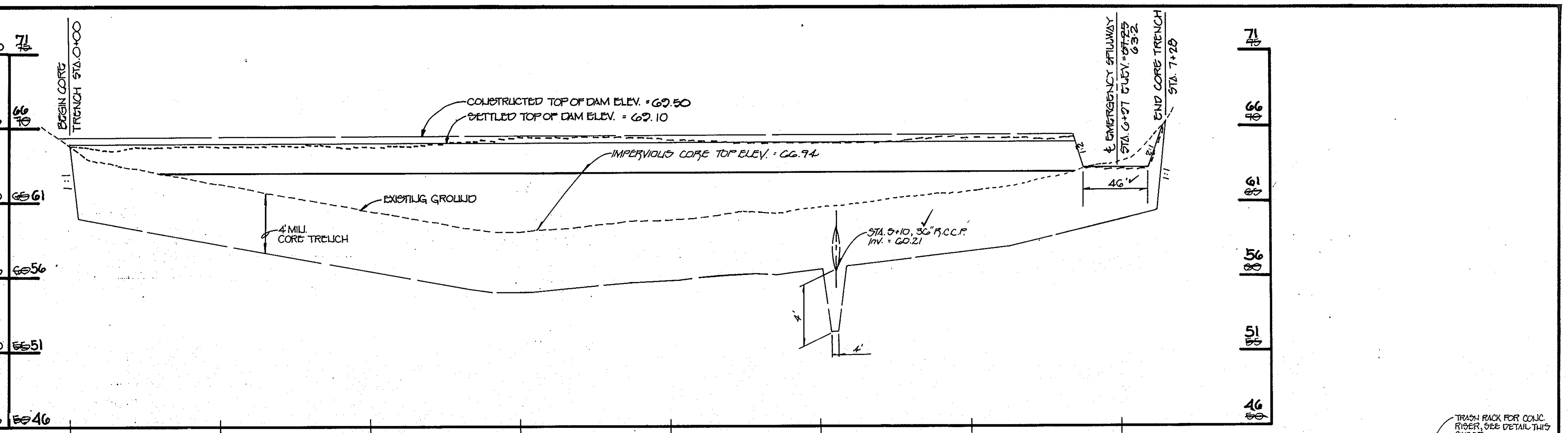
PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DIST. — HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN — DATE: JULY 14, 1995

ASBUILT 2-1-06 F 94-24

174



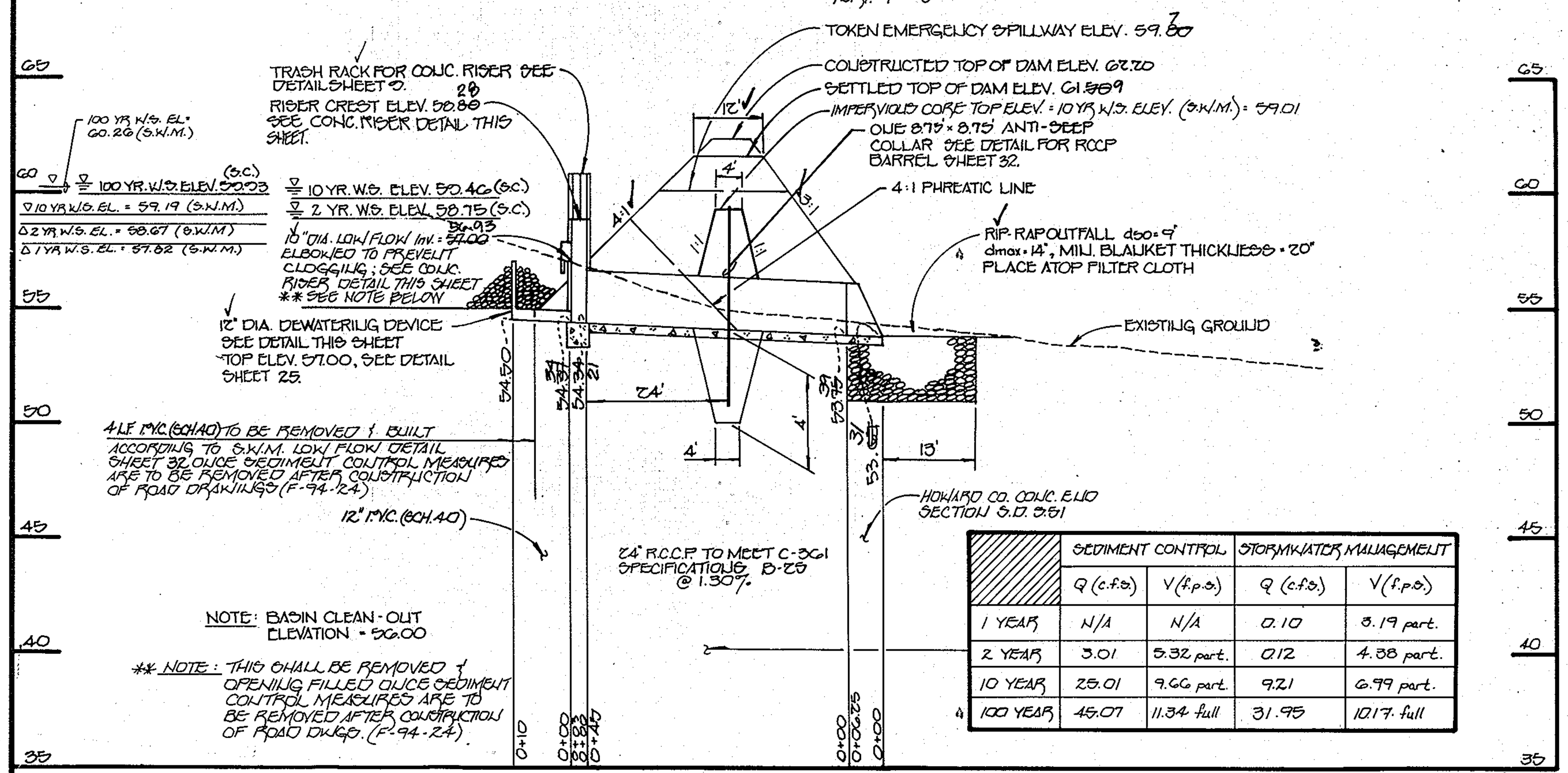


℄ TOP OF DAM PROFILE SEDIMENT BASIN No. 5 & FUTURE S.W.M. POND No. 5

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

℄ TOP OF DAM PROFILE SEDIMENT BASIN No. 6 & FUTURE S.W.M. POND No. 6

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



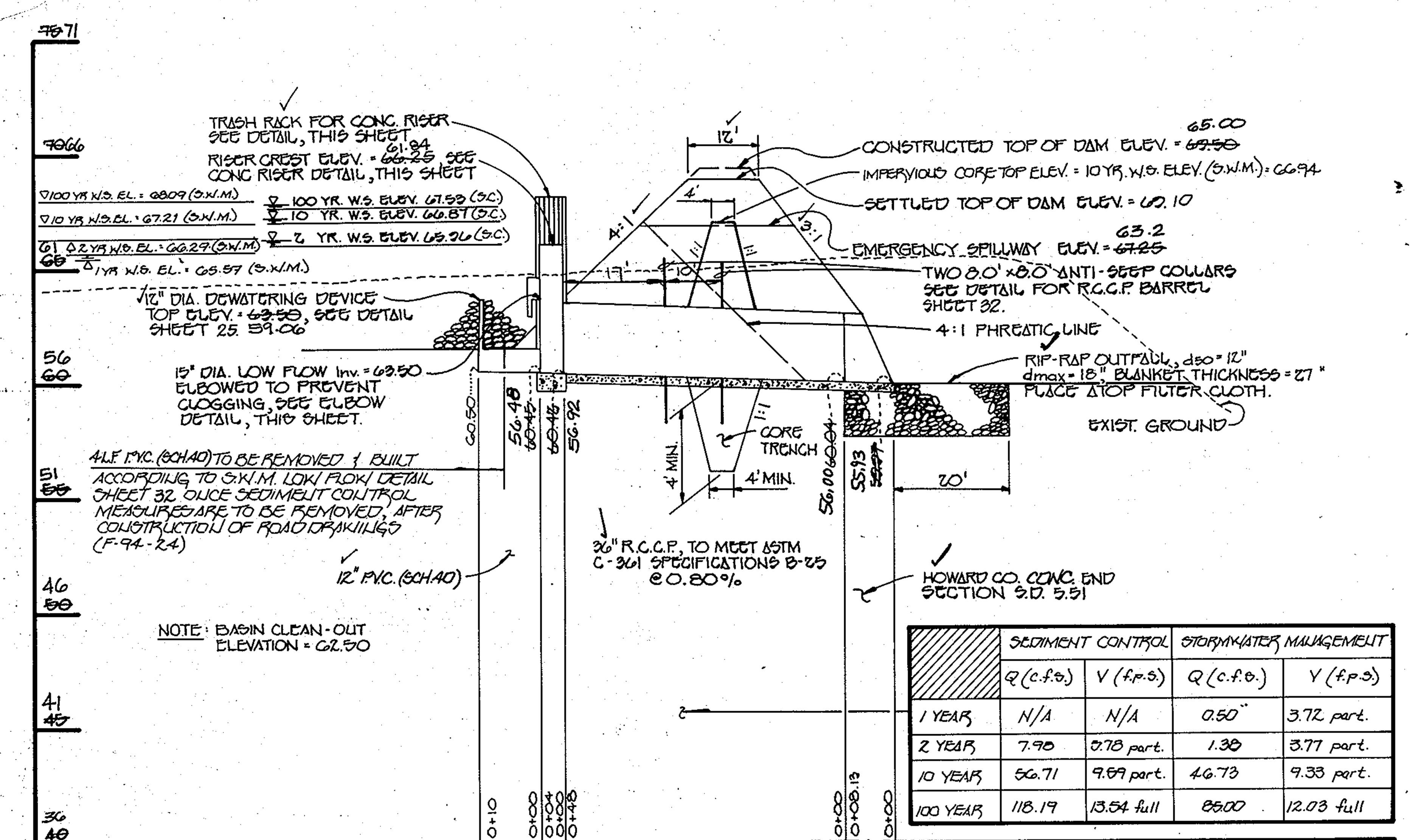
	SEDIMENT CONTROL		STORMWATER MANAGEMENT	
	Q (c.f.s.)	V (f.p.s.)	Q (c.f.s.)	V (f.p.s.)
1 YEAR	N/A	N/A	0.10	3.19 part.
2 YEAR	3.01	5.32 part.	0.12	4.38 part.
10 YEAR	25.01	9.66 part.	9.21	6.99 part.
100 YEAR	45.07	11.34 full	31.95	10.17 full

NOTE: BASIN CLEAN-OUT ELEVATION = 56.00

** NOTE: THIS SHALL BE REMOVED & OPENING FILLED ONCE SEDIMENT CONTROL MEASURES ARE TO BE REMOVED AFTER CONSTRUCTION OF ROAD DWGS. (F-94-24)

PRINCIPLE SPILLWAY PROFILE SEDIMENT BASIN No. 5 & FUTURE S.W.M. POND No. 5

SCALE: HORIZ.: 1" = 20' VERT.: 1" = 5'



NOTE: BASIN CLEAN-OUT ELEVATION = 62.50

	SEDIMENT CONTROL		STORMWATER MANAGEMENT	
	Q (c.f.s.)	V (f.p.s.)	Q (c.f.s.)	V (f.p.s.)
1 YEAR	N/A	N/A	0.50"	3.72 part.
2 YEAR	7.98	3.78 part.	1.38	3.77 part.
10 YEAR	56.71	9.89 part.	46.73	9.33 part.
100 YEAR	118.19	13.54 full	85.00	12.03 full

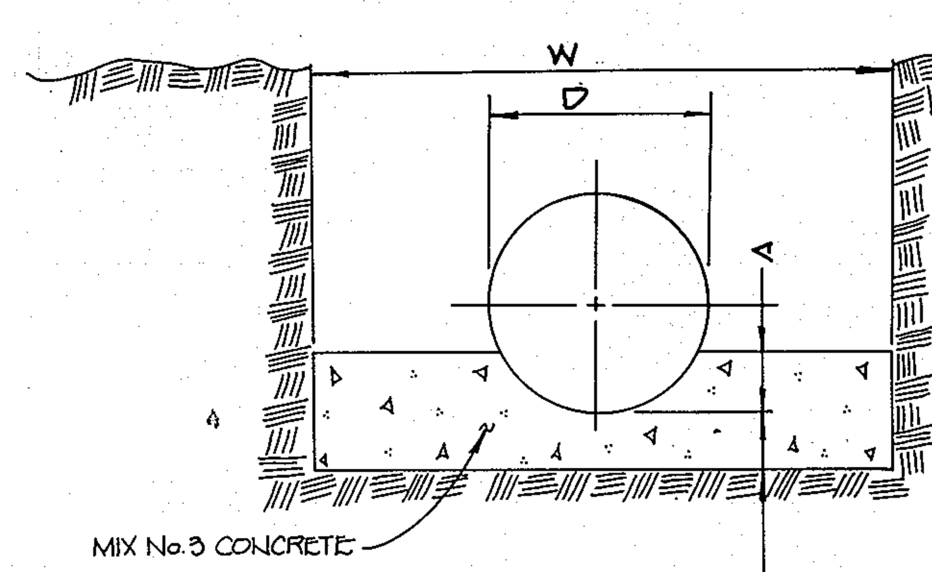
PRINCIPLE SPILLWAY PROFILE SEDIMENT BASIN No. 6 & FUTURE S.W.M. POND No. 6

SCALE: HORIZ.: 1" = 20' VERT.: 1" = 5'

ASBUILT 2/1/06

NOTE: SEE SHEET 14 FOR MD-378 POND SPECIFICATIONS

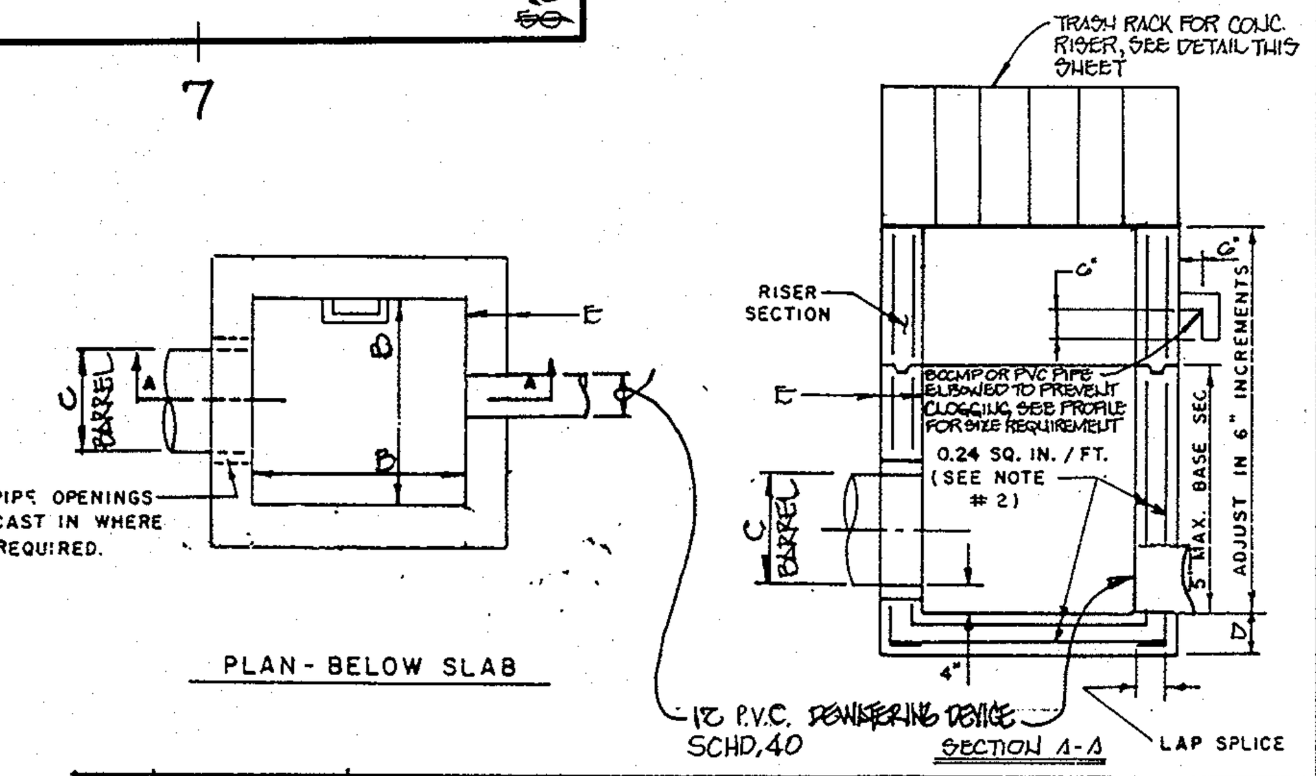
FOR REV 2 ONLY



	A	D	W
BASIN No. 1	4"	36"	66"
BASIN No. 3	7"	60"	102"
BASIN No. 5	3"	27"	60"
BASIN No. 6	4"	36"	66"
BASIN No. 9	3"	24"	48"

CONCRETE CRADLE DETAIL

NO SCALE



	BASIN No. 1	BASIN No. 3	BASIN No. 5	BASIN No. 6	BASIN No. 9	Basin No. 7A
B	4.0'	6.0'	3.0'	4.0'	3.0'	4.66'
C	42"	60"	24"	36"	24"	42"
D	0.75'	1.8'	1.1'	0.75'	1.0'	2.00'
E	0.75'	1.0'	0.5	0.75'	0.5'	0.67'

NOTES

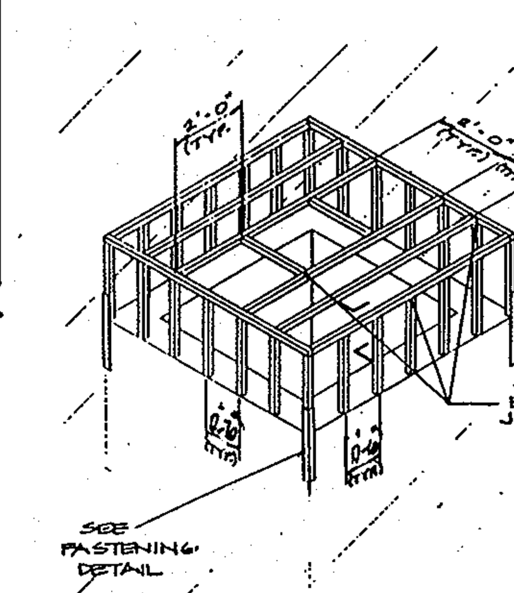
1. CONCRETE SHALL CONFORM TO THE MARYLAND D.O.T. S.H.A. STANDARD SPEC'S. FOR CONSTRUCTION AND MATERIALS, 1982 MIX. NO. 6, EXCEPT THAT TY. III CEMENT & A.S.T.M. C33 NO. 8 COARSE AGG. SHALL BE USED.
2. WELDED WIRE FABRIC SHALL CONFORM TO A.S.T.M. A-185, LAP SPLICES SHALL BE A MIN. OF 1 1/2 TRANSVERSE WIRE SPACES. WIRE CAGES SHALL BE TACK WELDED TO PRODUCE A RIGID UNIT.
3. OVERALL HEIGHT OF PRECAST IS ADJUSTABLE IN 6" INCREMENTS. FINAL GRADE ADJUSTMENTS SHALL BE MADE BY THE CONTRACTOR WITH BRICK AND MORTAR.

POND 7A CONCRETE RISER DETAIL

(TO BE USED ON BASINS No. 1, 3, 5, 6, & 9)

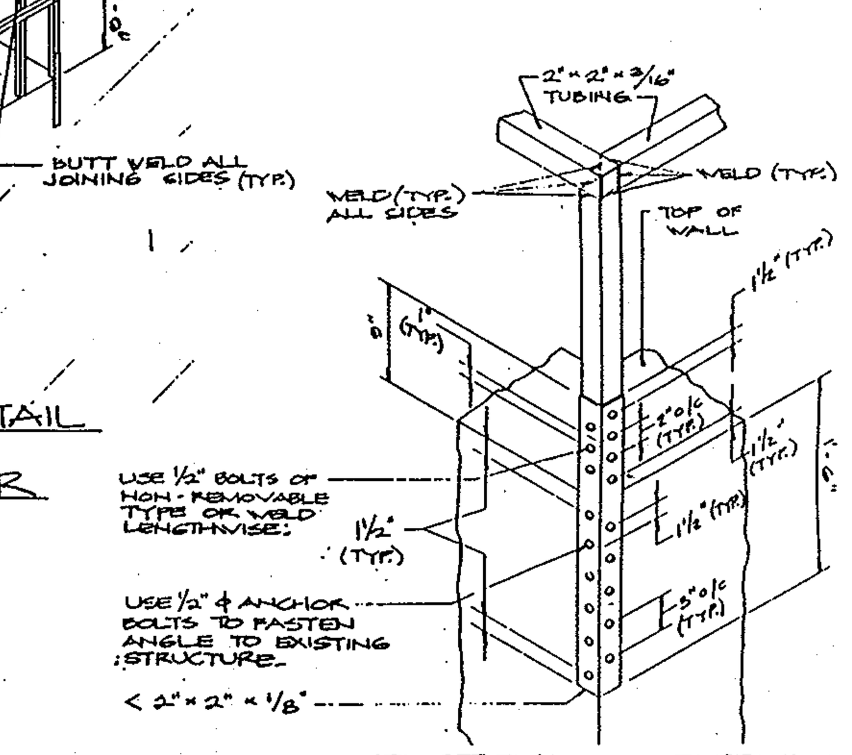
NO SCALE

NOTE, CONTRACTOR SHALL:
1. FIELD MEASURE THE STRUCTURE DIMENSIONS FOR EXACT FITTING OF TRASH RACK.
2. GALVANIZE ENTIRE RACK AFTER FABRICATION.
3. PROVIDE STANDARD MANHOLE STEPS (B.C.B.E. STD. PLATE 6-4) ON INSIDE FACE OF WALL.
4. ℄ OF STEPS TO BE CENTERED WITH-IN 2' OPENING.



TRASH RACK DETAIL FOR RECTANGULAR CONCRETE RISER

NO SCALE



FASTENING DETAIL

NO SCALE

No.	Revision	Date
1	Revise sheet number & add riser data for Pond 7A	7.15.04
2	REVISED SHEET NO.	9.2.04

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND
20904

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21043
(301) 461-2855

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER 7/14/95 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SIGNATURE OF DEVELOPER 7-14-95 DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE 7/24/95 03/29/00 DATE

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

APPROVED: Robert W. Ziehm 3/29/00 7/24/95

DISTRICT HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT 4/3/00 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS 3-17-00 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION MK 3/24/00 DATE

MASS GRADING PLAN

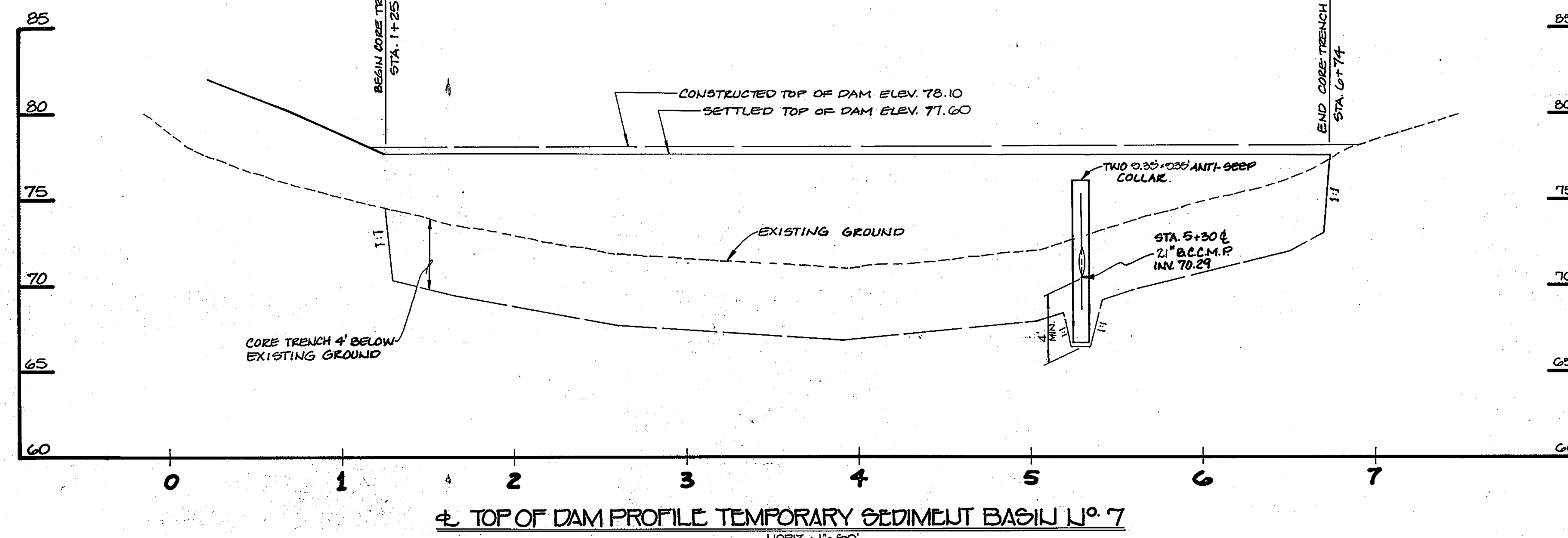
PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 PARCEL 284 & 285
FIRST ELECTION DIST. HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: JULY 14, 1995

SHEET 28 OF 35

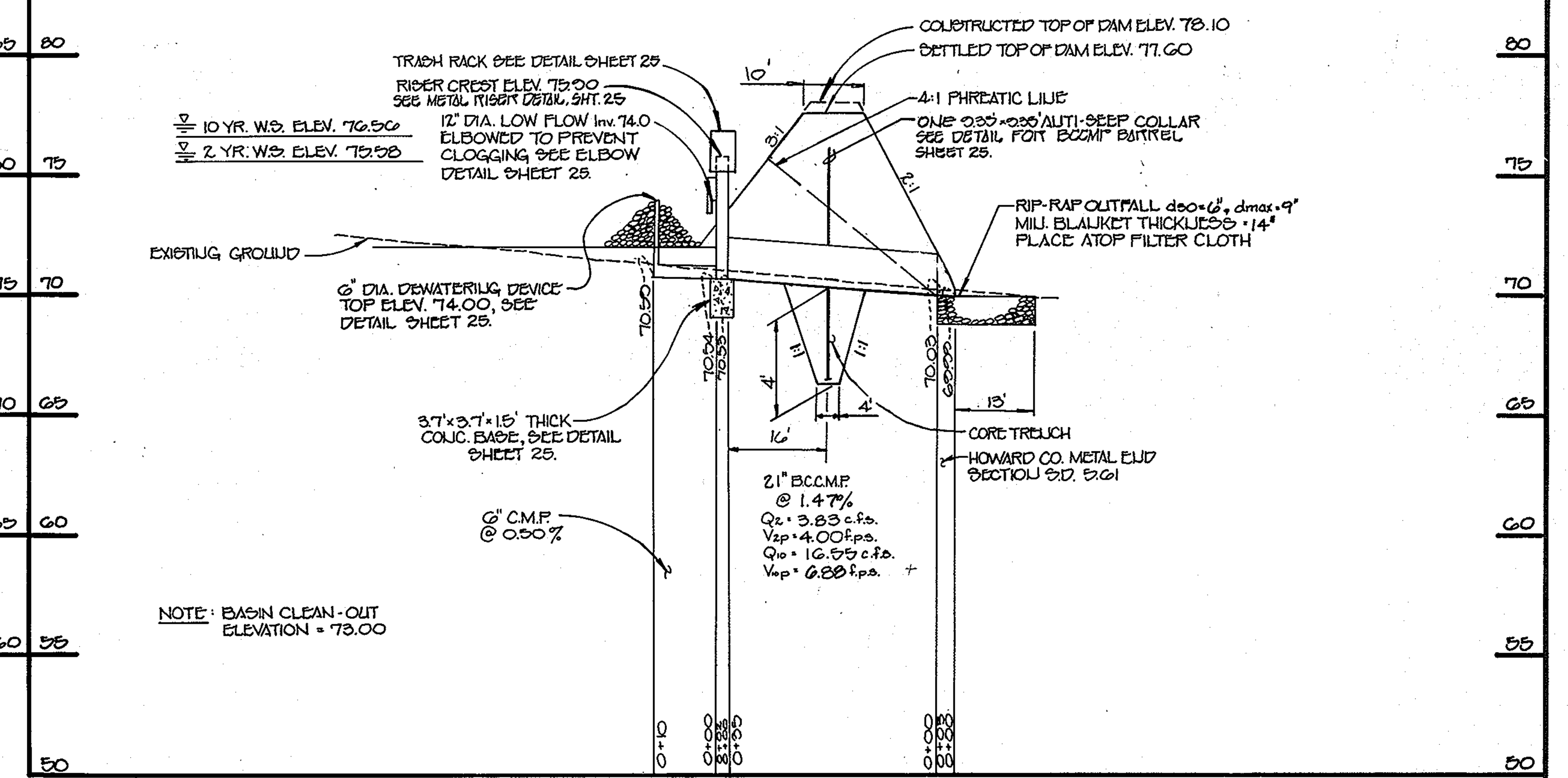
ASBUILT 2-1-06 F 94-24

124



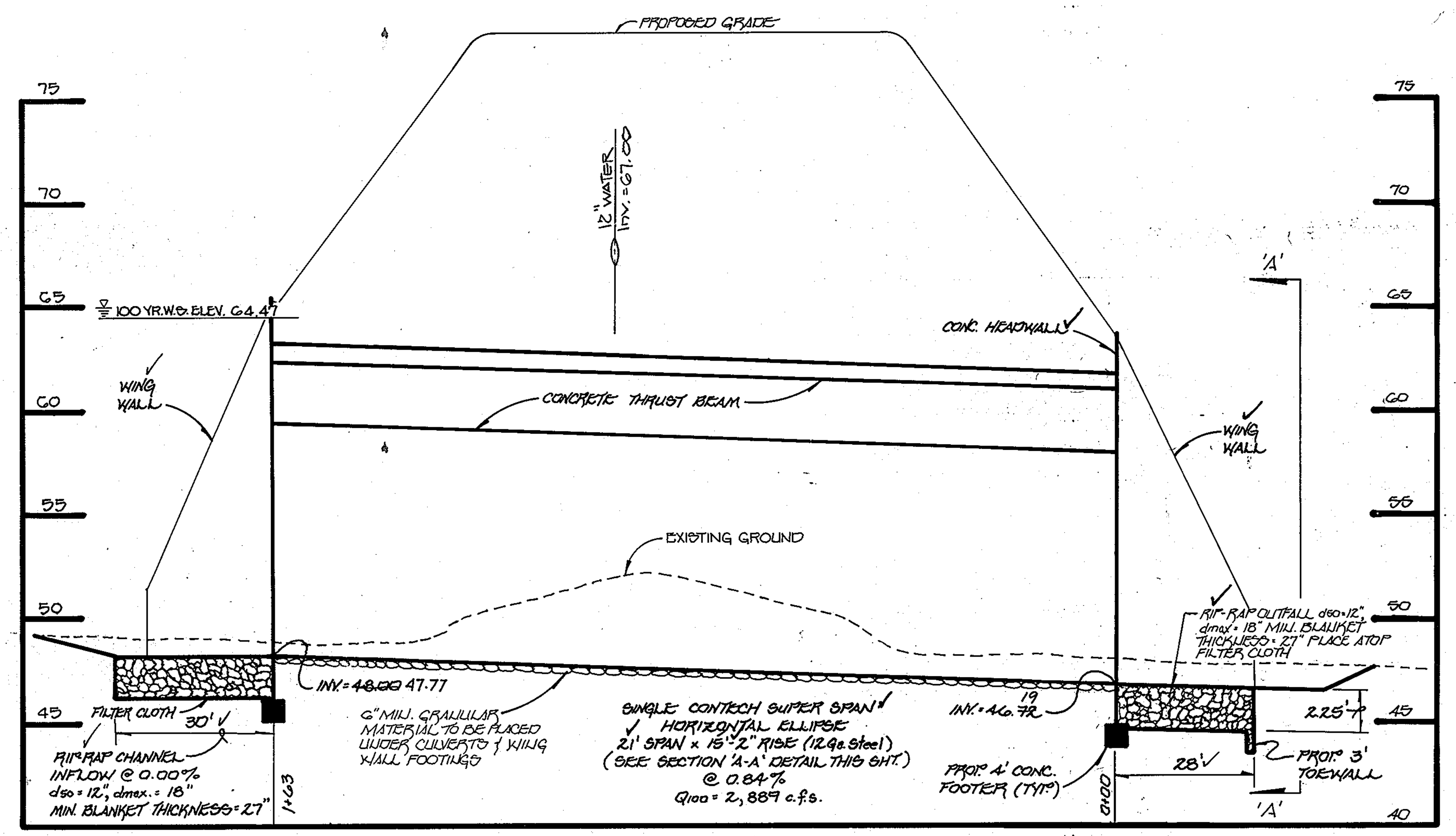
℄ TOP OF DAM PROFILE TEMPORARY SEDIMENT BASIN No. 7

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



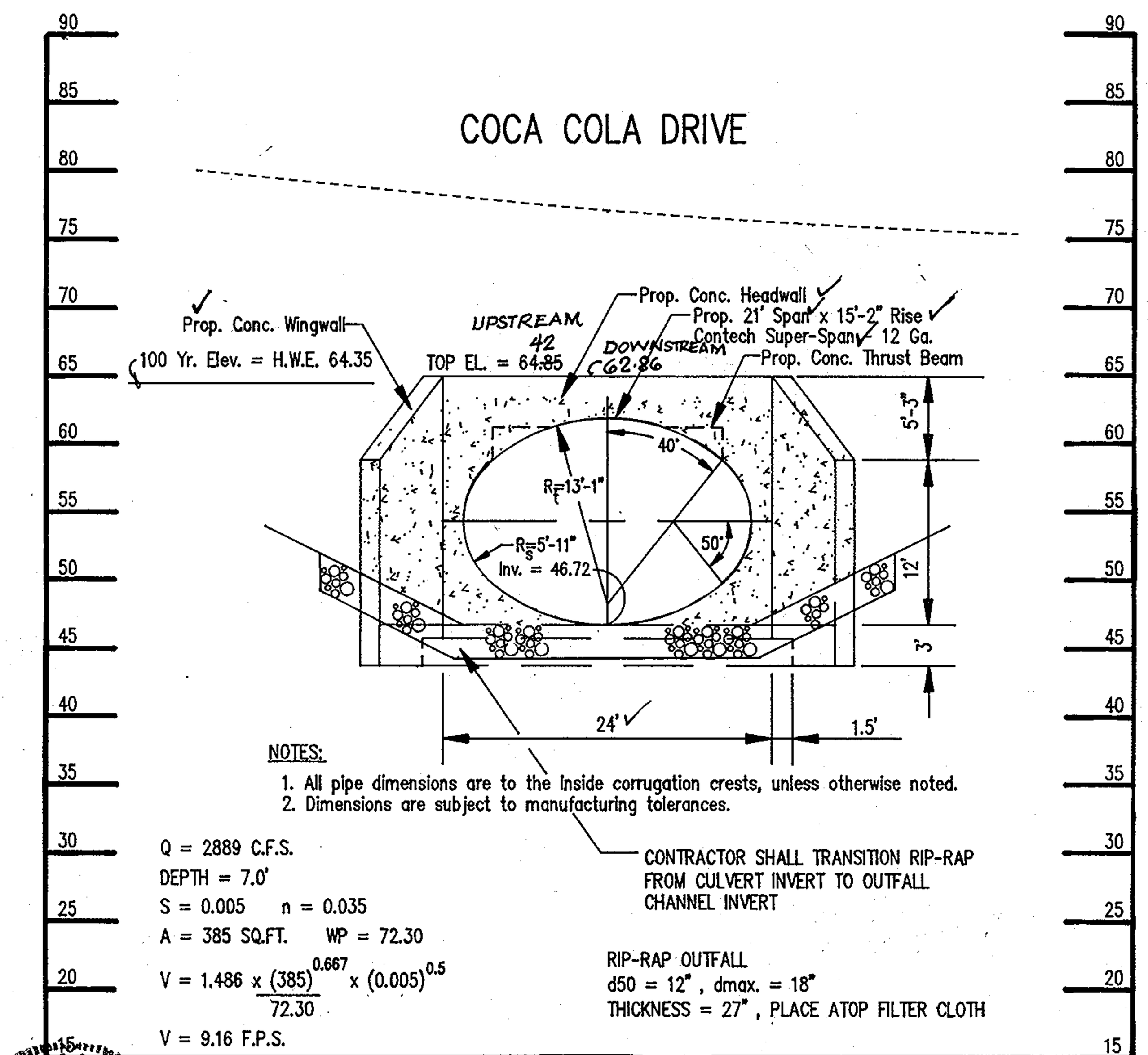
PRINCIPAL SPILLWAY PROFILE TEMPORARY SEDIMENT BASIN No. 7

SCALE: HORIZ.: 1" = 20' VERT.: 1" = 5'



CULVERT CROSSING No. 1

SCALE: HORIZ.: 1" = 20' VERT.: 1" = 5'



SECTION A-A

RIP-RAP DESIGN DATA
PATAPSCO VALLEY BUSINESS CENTER
CULVERT # 1 SECTION A-A
SCALE: 1"=10' HOR. 1"=10' VERT.

FOR REV 3 ONLY

REVISION 5/3/01

REVISIONS		
No.	DESCRIPTION	DATE
1	REVISE CULVERTS	5/3/01
2	Revise sheet number	7-15-04
3	REVISED SHEET NO.	9-2-04

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21043
(301) 461-2855

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER 7/14/95 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SIGNATURE OF DEVELOPER 2-14-95 DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS
7/24/95
U.S. SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
APPROVED:
3/29/00
DISTRICT DATE
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPT. OF PLANNING AND ZONING
4/3/00
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

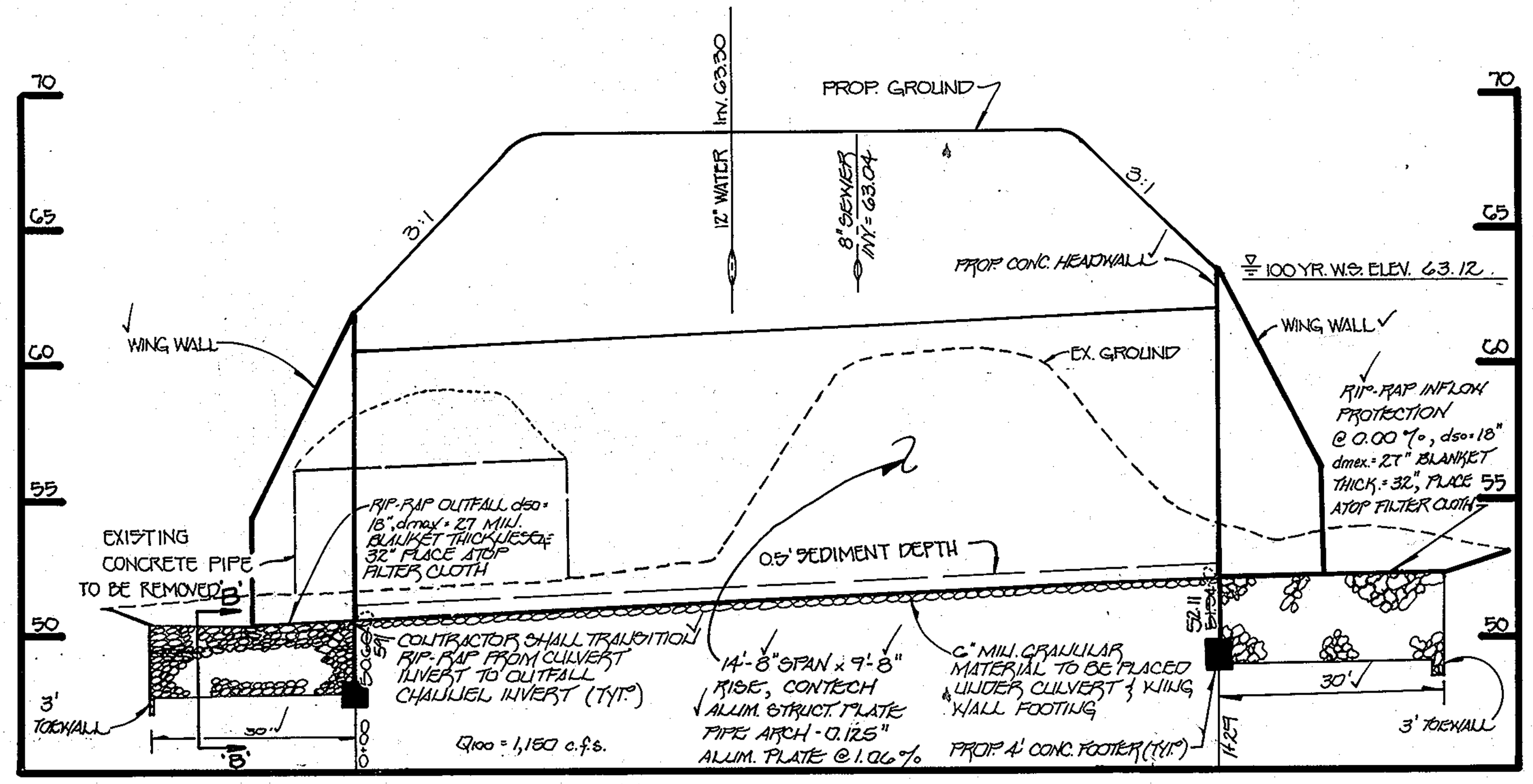
APPROVED: DEPARTMENT OF PUBLIC WORKS
3-17-00
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
3/24/00
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

MASS GRADING PLAN
PATAPSCO VALLEY BUSINESS CENTER
TAX MAP 38 PARCEL 284 & 285
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN JULY 14, 1995
SHEET 29 OF 35

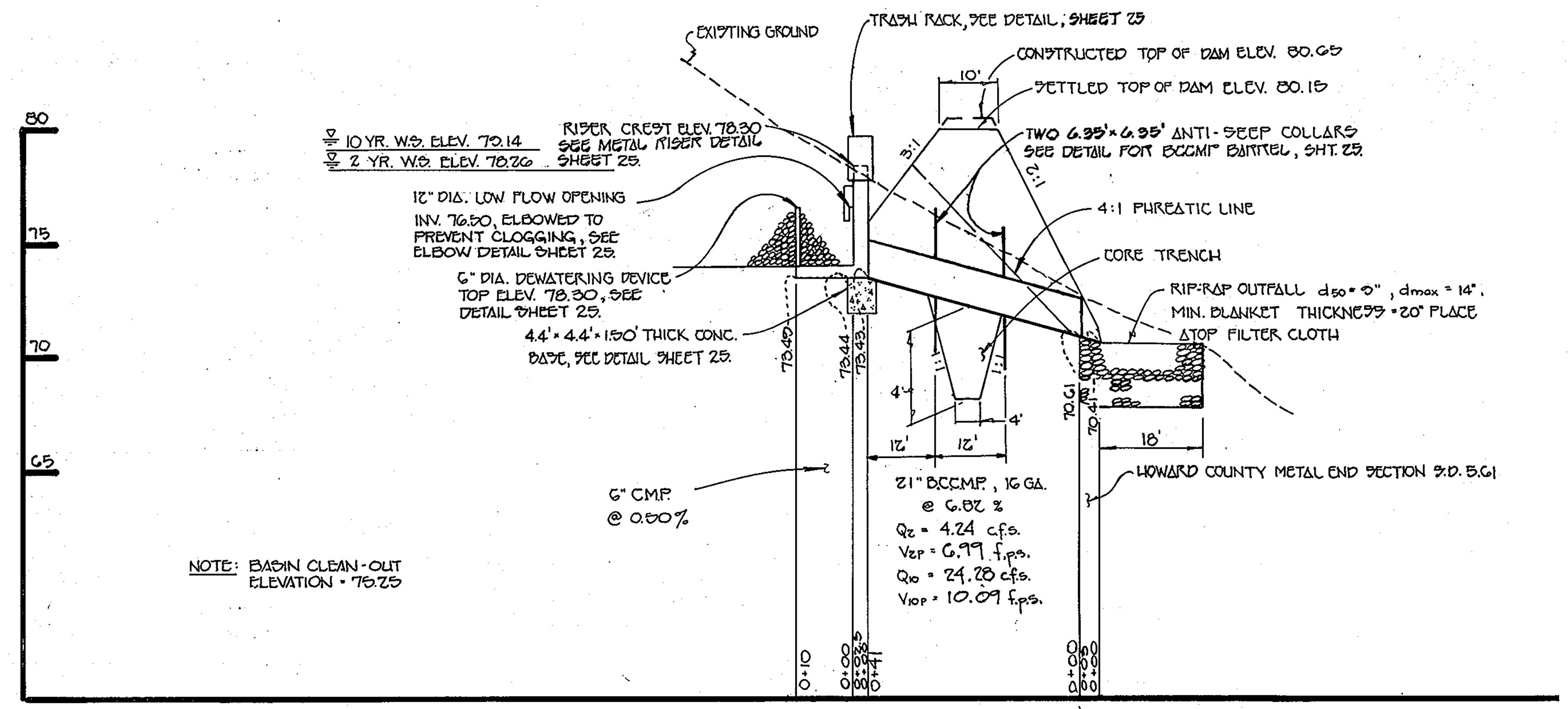
ASBUILT 2-1-06

F-94-24



CULVERT CROSSING No. 2

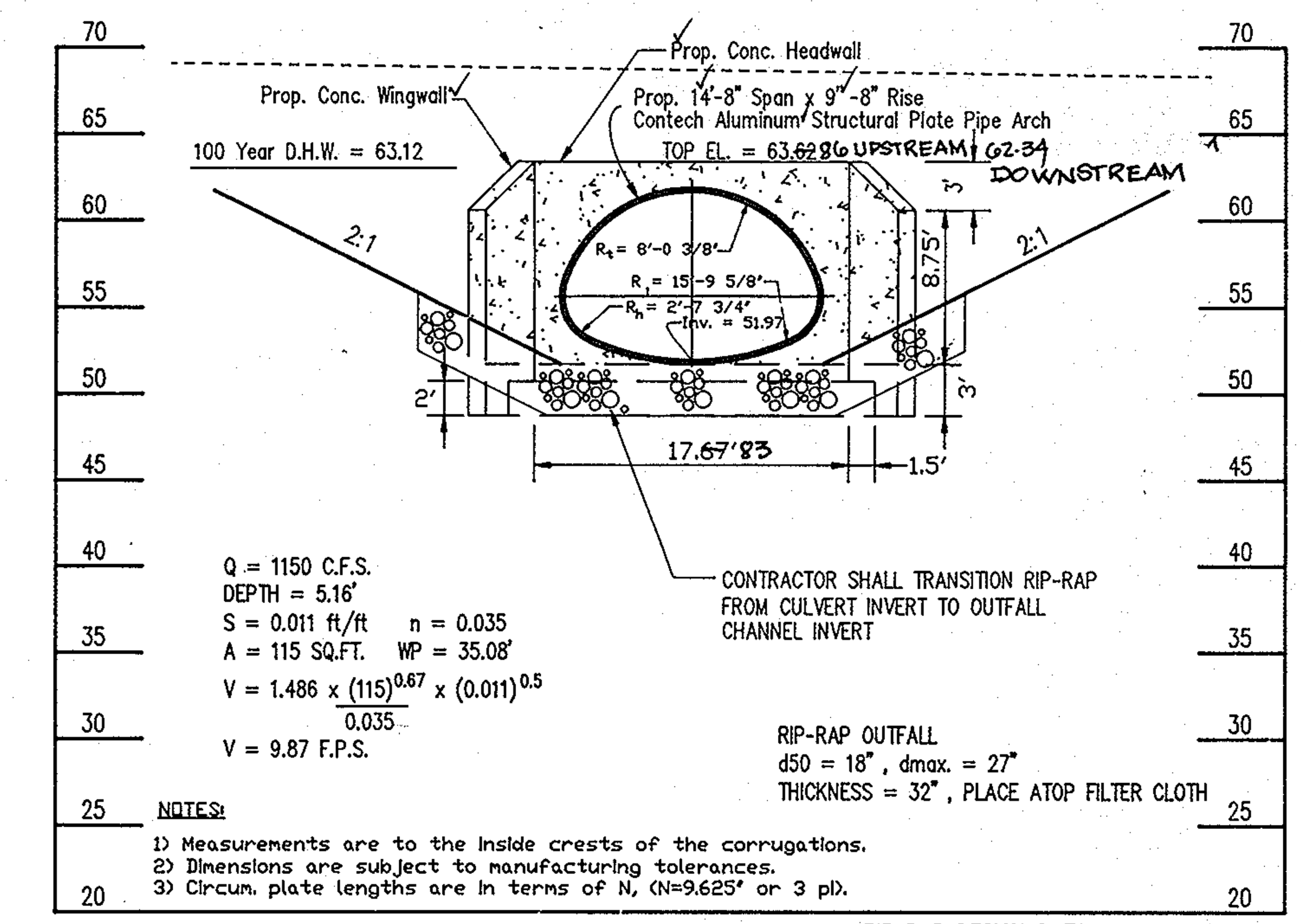
SCALE: HORIZ. 1" = 20'
VERT. 1" = 5'



PRINCIPAL SPILLWAY PROFILE TEMPORARY SEDIMENT BASIN # 8

SCALE: HORIZ. = 1" = 20'
VERT. = 1" = 5'

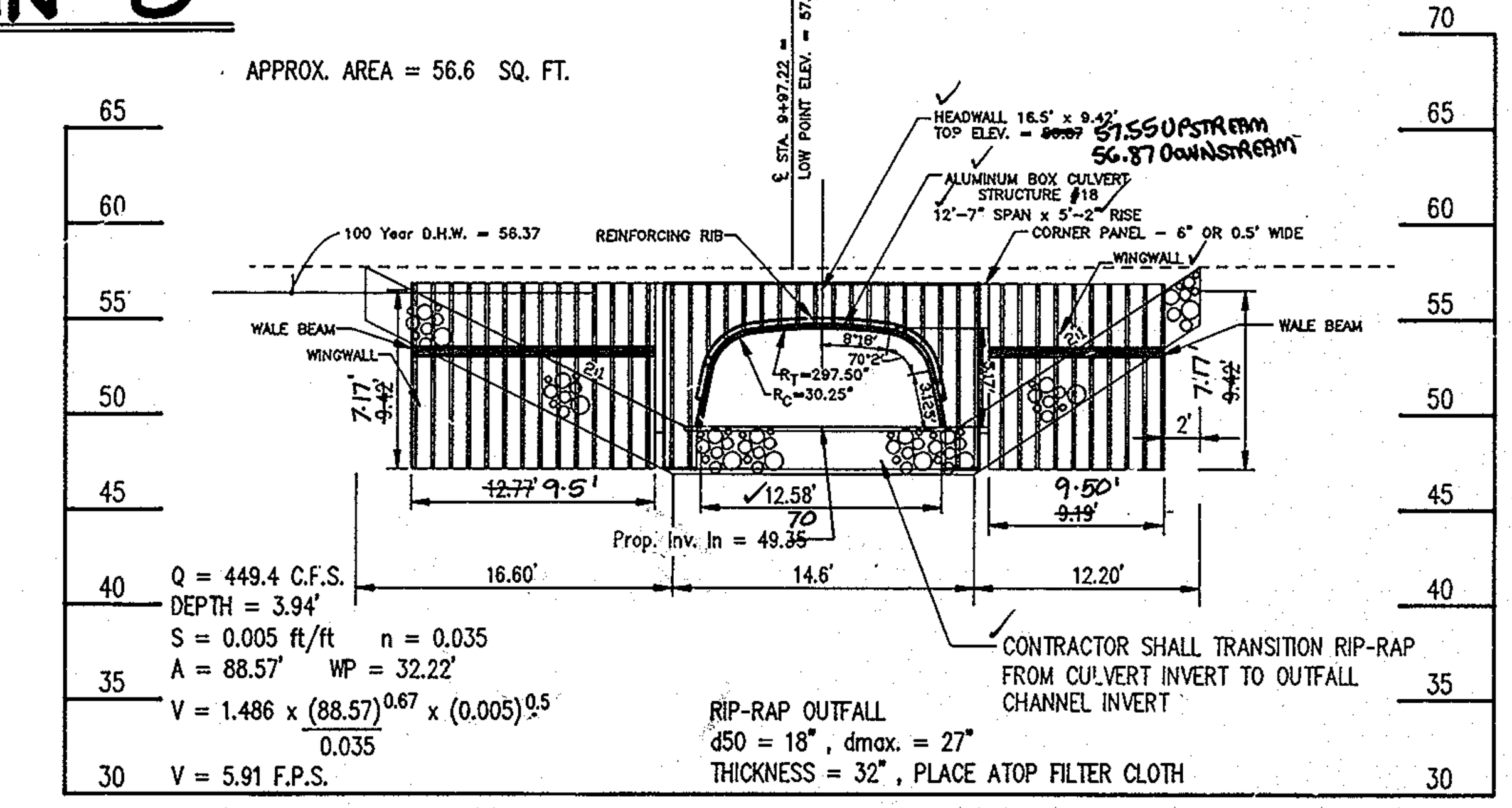
HI TECH ROAD



SECTION B-B

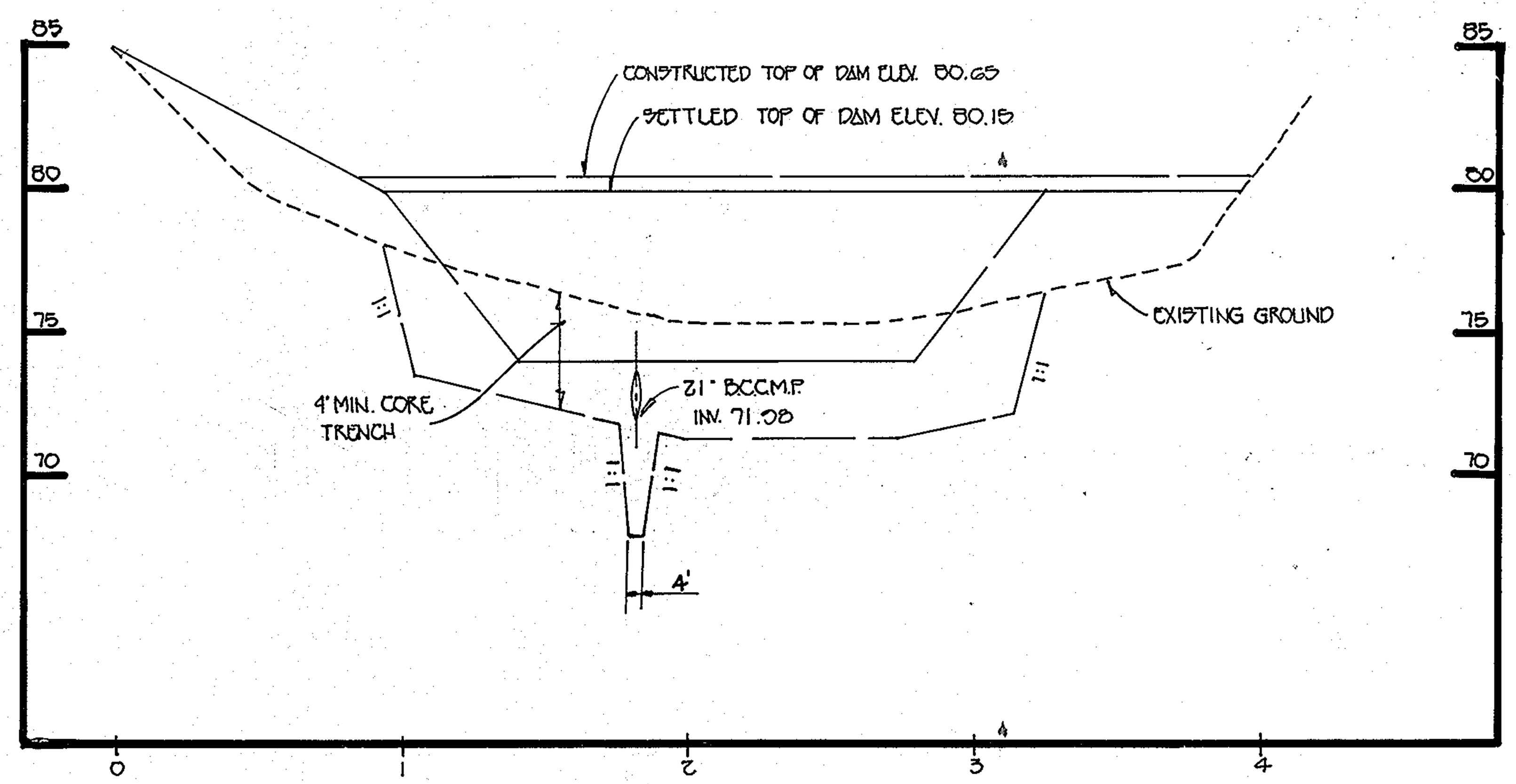
RIP-RAP DESIGN DATA
PATAPSCO VALLEY BUSINESS CENTER
CULVERT # 2 SECTION B-B
SCALE: 1"=10' HOR. 1"=10' VERT.

HI TECH ROAD



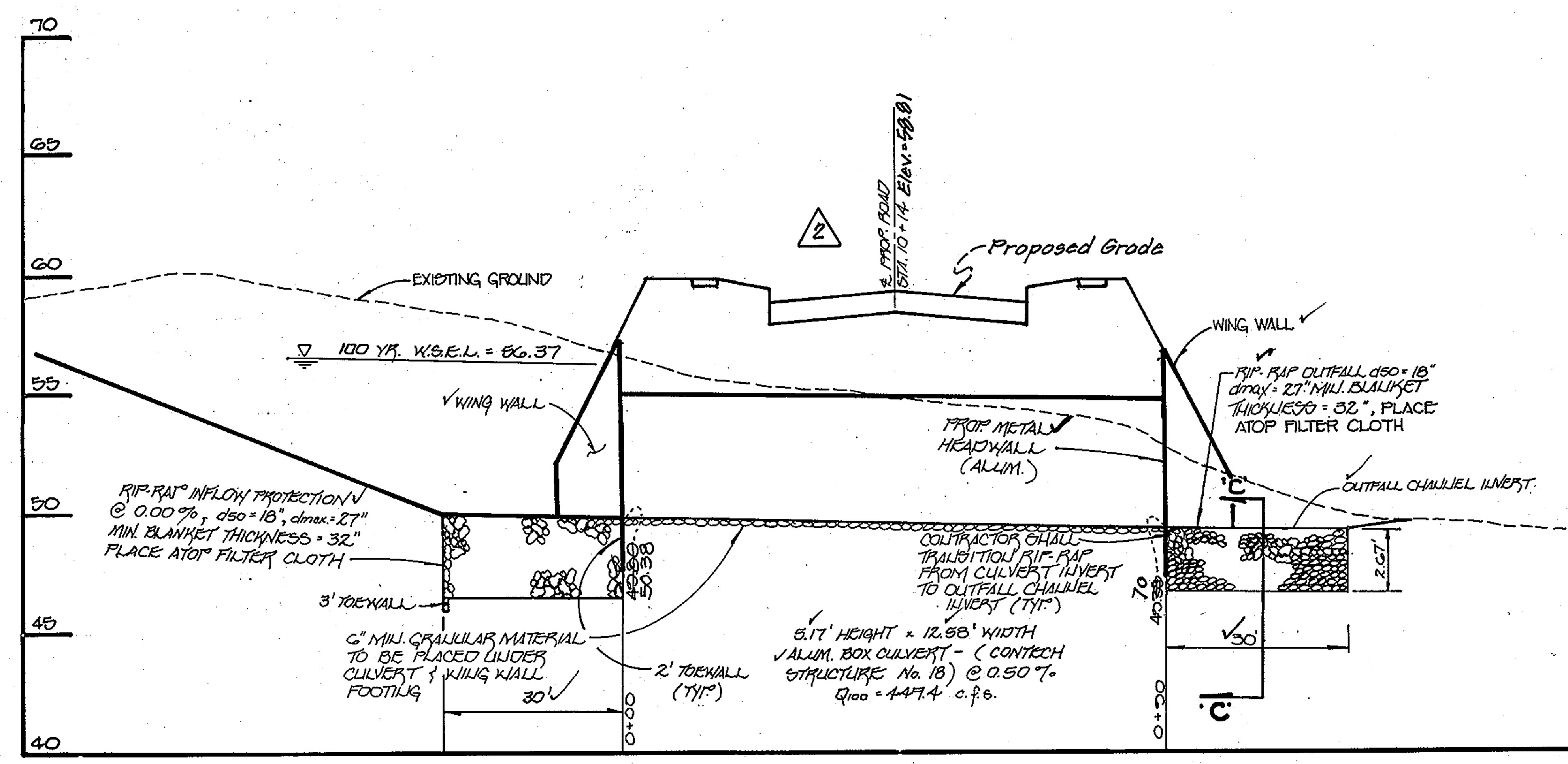
SECTION C-C

RIP-RAP DESIGN DATA
PATAPSCO VALLEY BUSINESS CENTER
CULVERT # 3 SECTION C-C
SCALE: 1"=10' HOR. 1"=10' VERT.



℄ TOP OF DAM PROFILE TEMPORARY SEDIMENT BASIN No. 8

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



CULVERT CROSSING No. 3

SCALE: HORIZ. 1" = 20'
VERT.

CULVERT NO. 3
NOTES - FULL INVERT & FOOTING PADS

1. N = 9.625 INCHES.
2. MINIMUM ALLOWABLE SOIL-BEARING PRESSURE IS 4,000 LB./SQ. FT. THIS APPLIES SPECIFICALLY FOR WIDTH 'G' BELOW THE RECEIVING CHANNEL. OTHER CONDITIONS MAY BE ACCOMMODATED. CONTACT A CONTECH REGIONAL OFFICE FOR MORE INFORMATION.
3. STRUCTURES WITH FULL INVERTS AND FOOTING PADS ARE LIMITED TO 4 FT. OR LESS MAXIMUM COVER. SPECIAL FULL INVERT AND FOOTING PAD DESIGNS OR SLOTTED CONCRETE FOOTINGS CAN ACCOMMODATE MAXIMUM COVERS SHOWN IN TABLE 1.
4. WEIGHT PER METER OF FULL INVERT INCLUDES RECEIVING CHANNELS, SCALLOP PLATES, NUTS AND BOLTS, AND ALL PLATES FOR HS-20 LOADS.
5. FULL INVERT PLATES ARE 0.100 INCHES THICK. WHEN REACTIONS TO THE INVERT REQUIRE ADDITIONAL THICKNESS, SUPPLEMENTAL PLATES OF THE THICKNESS AND WIDTH LISTED IN TABLE 2 ARE FURNISHED TO BOLT BETWEEN THE FULL INVERT AND THE RECEIVING CHANNEL.
6. INVERT WIDTHS, 20N AND GREATER, ARE TWO-PIECES.
7. WEIGHT PER METER OF FOOTING PADS INCLUDES RECEIVING CHANNELS, NUTS AND BOLTS, AND PLATES FOR HS-20 LOADS.
8. WHEN THE THICKNESS LISTED IS GREATER THAN 0.250 INCHES, THE FOOTING PADS WILL BE TWO OR MORE PIECES EQUALING THE COMPOSITE THICKNESSS REQUIRED. SEE TABLE 3.
9. FLAT SHEET TOEWALLS ARE PROVIDED FOR BOTH END OF STRUCTURES USING A FULL CORRUGATED ALUMINUM INVERT TO HELP PREVENT WATER FROM UNDERMINING THE STRUCTURE.
10. AN ALUMINUM SCALLOP PLATE DOES NOT MAKE A JOINT TIGHT ENOUGH TO PREVENT INFILTRATION OF FINE SILTS AND SANDS. IF THE BACKFILL INCLUDES SUCH MATERIAL, SOME ADDITIONAL STEPS SHOULD BE TAKEN AFTER ASSEMBLY, BUT PRIOR TO BACKFILLING. GEOTEXTILE IS PROVIDED FOR THIS PURPOSE.
11. GROUT SHOULD BE NON-METALLIC, NON-SHRINK MATERIAL AND SHOULD CONTAIN NO CORROSION-PROMOTING AGENTS.
12. THE TOTAL FLOW AREA OF ALL BOX CULVERTS INCLUDES THE AREA FROM THE CROWN TO THE INVERT OR FOOTING PADS IF THE PADS ARE BURIED, A REDUCTION IN THE TOTAL AREA SHOULD BE TAKEN INTO CONSIDERATION.
13. INVERT PLATES OR FOOTING PADS MUST NOT BE OVERLAPPED ON ADJACENT STRUCTURES.
14. STRUCTURES WITH .5 N TO 1.5 N LEG LENGTH REQUIRE FOOTING SPACING OR SLOT WIDTH TO ALLOW CLEARANCE FOR REINFORCING RIB EXTENDING INTO FOOTING SLOT

ASBUILT 2/1/06

FOR REV 3 ONLY
STATE OF MARYLAND — CHRISTOPHER J. REID — NO. 19949 — REGISTERED PROFESSIONAL ENGINEER
9/8/04

REVISION 1 5/3/01

STATE OF MARYLAND — CHARLES E. CROVO, SR. — No. 13204 — REGISTERED PROFESSIONAL ENGINEER

REVISIONS

No.	DESCRIPTION	DATE
1	REVISE CULVERT PROFILES & SECTIONS	5/3/01
2	Revise sheet number & grade over culvert No. 3	7.15.04
3	REVISED SHEET NO.	9-2-04

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21043
(301) 461-2855

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — DATE 7/14/95

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SIGNATURE OF DEVELOPER — DATE 7-14-95

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS
U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — DATE 7/21/95, 03/29/00
THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
APPROVED:
Robert W. Ziehm 3/29/00
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: DEPT. OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/3/00

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE 3-17-00

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — DATE 3/24/00

MASS GRADING PLAN
PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN — JULY 14, 1995
SHEET 30 OF 35

ASBUILT 2-1-06
F-94-24.

174

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF DEVELOPER — 7-19-95 DATE

ENGINEER'S CERTIFICATE

" I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — 7/14/95 DATE

REVIEW FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

Patricia — 7/24/95 DATE

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICE — 3/29/01

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. 3/29/00

~~7/24/95~~

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 3-17-00 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING.

CHIEF, DIVISION OF LAND DEVELOPMENT — 4/3/00 DATE

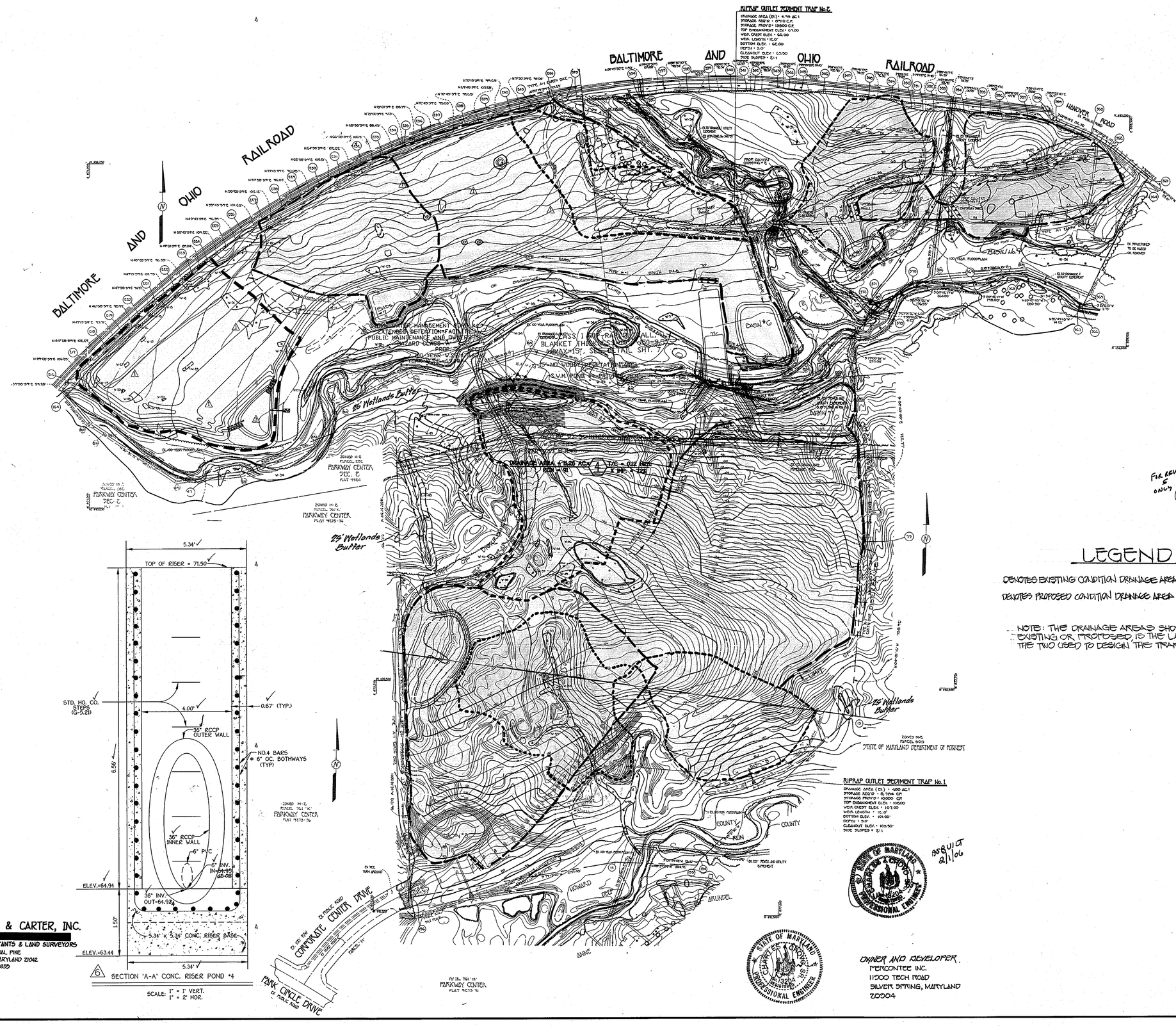
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 5/24/00 DATE

NUMBER	REVISIONS	DATE
1	REVISED MASS GRADING, ADD SWM POND 7A.	07/20/04
3	ADDED WETLAND AND STREAM BUFFERS ALONG WITH	07/20/04
	100-YEAR FLOODPLAIN LIMITS AS SHOWN ON THE	
	RECORDED PLAT. ADJUSTED LOD'S & EARTH DIKES	
	AS NECESSARY.	
4	CHANGE SHEET NUMBER, ADJUST DRAINAGE AREA	07/20/04
	TO POND 7A.	
5	REVISED SHEET NO.	9.2.04
6	Revise SWM Pond 4 back to appr. conditions	11.11.04
	as built in the field. Add riser detail for Pond 4.	

FOR REV 5 ONLY

CHRISTOPHER J. REID NO. 19949

9/8/04



SECTION 'A-A' CONC. RISER POND #4

SCALE: 1" = 1' VERT. 1" = 2' HOR.

RIPRAP OUTLET SEDIMENT TRAP No.2

DRAINAGE AREA (EX.) = 4.95 AC ±
STORAGE REQ'D. = 8910 C.F.
STORAGE PROV'D = 13500 C.F.
TOP EMBANKMENT ELEV. = 67.00
WEIR CREST ELEV. = 66.00
WEIR LENGTH = 12.0'
BOTTOM ELEV. = 62.00
DEPTH = 5.0'
CLEANOUT ELEV. = 65.50
SIDE SLOPES = 2:1

RIPRAP OUTLET SEDIMENT TRAP No.1

DRAINAGE AREA (EX.) = 400 AC ±
STORAGE REQ'D = 8,784 C.F.
STORAGE PROV'D = 10,000 C.F.
TOP EMBANKMENT ELEV. = 108.00
WEIR CREST ELEV. = 107.00
WEIR LENGTH = 12.0'
BOTTOM ELEV. = 101.00'
DEPTH = 5.0'
CLEANOUT ELEV. = 103.50'
SIDE SLOPES = 2:1

LEGEND

DENOTES EXISTING CONDITION DRAINAGE AREA	- - - - - - -
DENOTES PROPOSED CONDITION DRAINAGE AREA	— — —

NOTE: THE DRAINAGE AREAS SHOWN, EITHER EXISTING OR PROPOSED, IS THE LARGEST OF THE TWO USED TO DESIGN THE TRAP,

ASBUILT 2/1/06

CHARLES J. CROVO, SR. NO. 13204

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

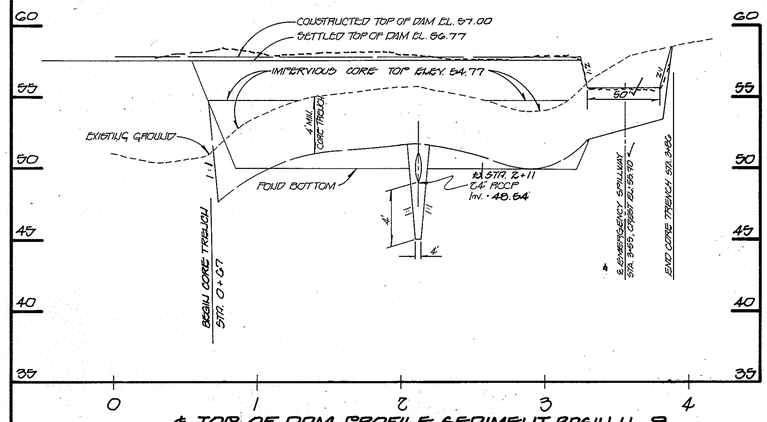
OWNER AND DEVELOPER.
PERCONTEE INC.
11500 TECH ROAD
SILVER SPRING, MARYLAND
20904

SEDIMENT CONTROL DRAINAGE AREA MAP

PATAPSCO VALLEY BUSINESS CENTER

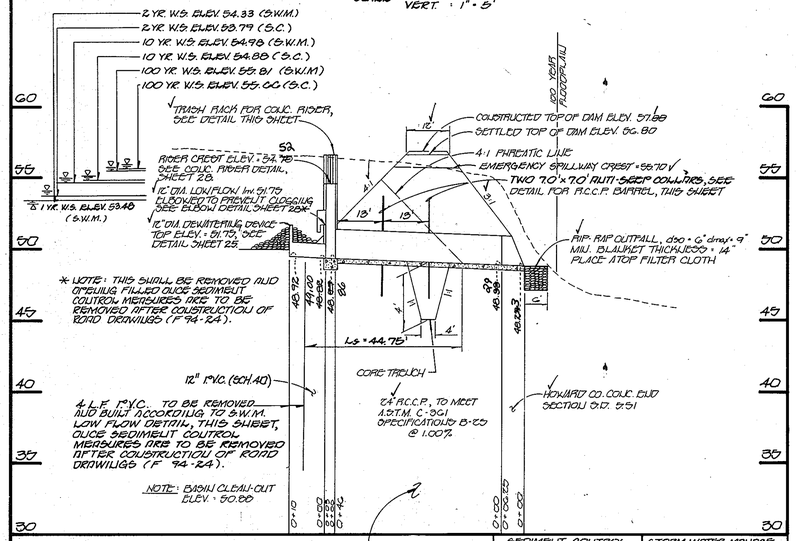
TAX MAP 38 — PARCEL 284 & 285
FIRST ELECTION DIST. — HOWARD COUNTY, MARYLAND
SCALE: 1" = 200' — DATE: JULY 14, 1995
SHEET 31 OF 35 4 5

ASBUILT 2-1-06 F-94-24



℄ TOP OF DAM PROFILE SEDIMENT BASIN No. 9 AND FUTURE S.W.M. POND No. 9

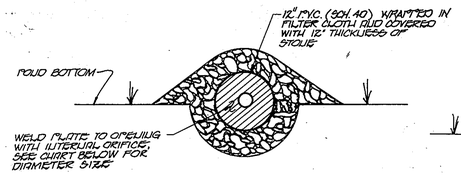
SCALE: HORIZ. : 1" = 50'
VERT. : 1" = 5'



	SEDIMENT CONTROL		STORM WATER MANAGE.	
	Q (c.f.s.)	V (f.p.s.)	Q (c.f.s.)	V (f.p.s.)
1 YEAR	N/A	N/A	0.12	2.57 PART.
2 YEAR	4.64	5.59 PART.	0.13	2.55 PART.
10 YEAR	13.10	7.40 PART.	5.78	6.18 PART.
100 YEAR	34.14	10.87 FULL	37.10	11.78 FULL

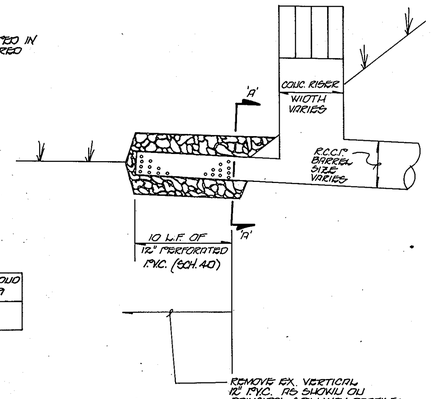
PRINCIPAL SPILLWAY PROFILE SEDIMENT BASIN No. 9 AND FUTURE S.W.M. POND No. 9

SCALE: HORIZ. : 1" = 20'
VERT. : 1" = 5'



SECTION 'A-A'

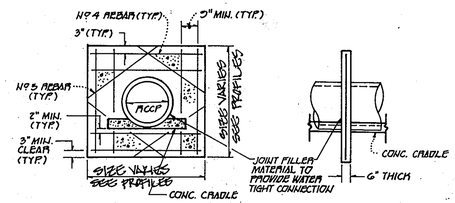
	S.W.M. POND No. 1	S.W.M. POND No. 3	S.W.M. POND No. 5	S.W.M. POND No. 6	S.W.M. POND No. 9
INTERNAL ORIFICE DIA.	3"	3"	1.5"	3"	1.5"



S.W.M. LOW FLOW DETAIL

NO SCALE

NOTE:
SEE SHEET 1A FOR MD-378 POND SPECIFICATIONS



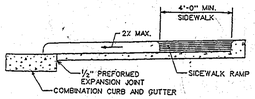
POND No.	COLLAR SIZE 'A'
1	TWO - 8.0'x8.0' COLLARS
5	ONE - 8.75'x8.75' COLLAR
6	TWO - 8.0'x8.0' COLLARS
9	TWO - 7.0'x7.0' COLLARS
3	THREE - 10.0'x10.0' COLLARS

NOTES:
1) ANTI-SEEP COLLARS SHALL BE LOCATED 2' MIN. FROM ANY PIPE JOINT.

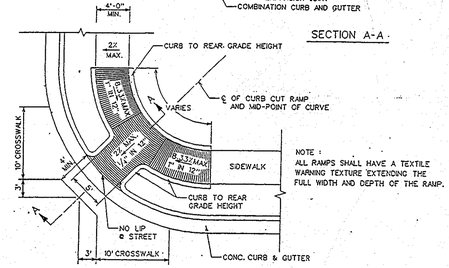
CONC. ANTI-SEEP COLLAR DETAIL (FOR S.W.M. PONDS 1, 5, 6 & 9)

(NO SCALE)

STANDARD 7" COMB. CURB AND GUTTER IS SHOWN. DETAILS TO BE SIMILAR FOR MOD. CURB AND GUTTER AND BIT. CURB.

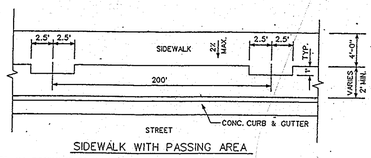


SECTION A-A



NOTE:
ALL RAMPS SHALL HAVE A TEXTILE WARNING TEXTURE EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.

PLAN



SIDEWALK WITH PASSING AREA

NOTE: ALL SIDEWALKS TO HAVE PASSING AREA AT 200' SPACING.

HANDICAPPED RAMP DETAIL

NOT TO SCALE

No.	Revision	Date
1	Revise sheet number	7-15-04
2	REVISED SHEET NO.	9-2-04

OWNER AND DEVELOPER
PERCONTEE INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND
20904

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERS & LAND SURVEYORS
10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21043
(301) 461-2855

174

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER — 7/19/95 DATE

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND PLAN FOR EROSION AND SEDIMENT CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ONSITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY."

SIGNATURE OF DEVELOPER — 7-19-95 DATE

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

U.S.D.A. NATURAL RESOURCES CONSERVATION SERVICES — 7/24/95 DATE

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

APPROVED: Robert W. Zichm 3/29/00
Robert W. Zichm 7/24/95
DISTRICT — DATE
HOWARD SOIL CONSERVATION DISTRICT

APPROVED: DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 4/2/00 DATE

APPROVED

CHIEF, BUREAU OF HIGHWAYS HS — 3-17-00 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

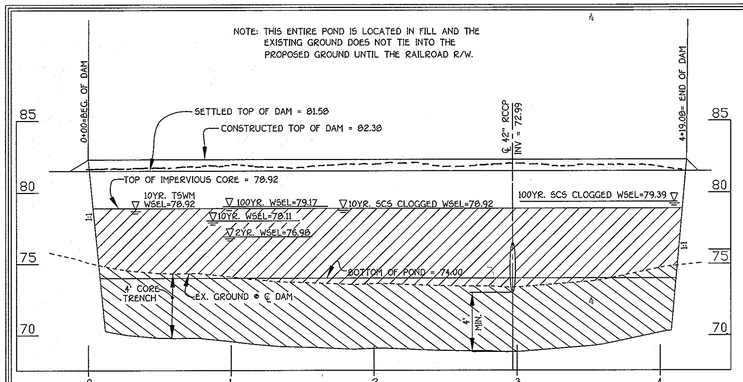
CHIEF, DEVELOPMENT ENGINEERING DIVISION MK — 3/24/00 DATE

PATAPSCO VALLEY BUSINESS CENTER

TAX MAP 38 — PARCEL 284 & 290
FIRST ELECTION DIST. — HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN — DATE: JULY 14, 1995
SHEET 3 OF 38

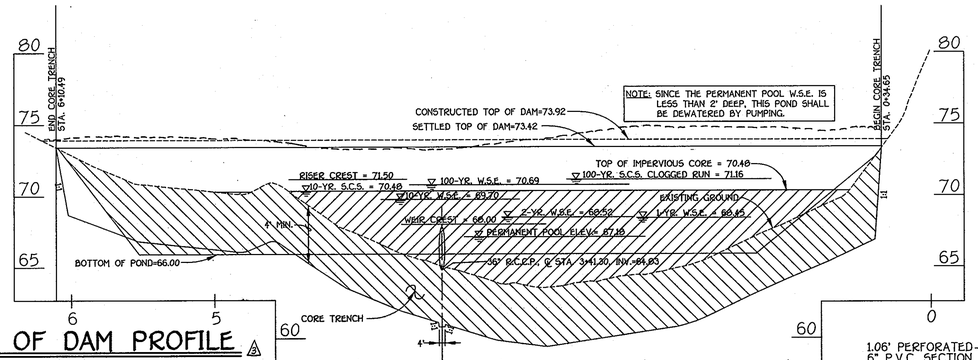
ASBUILT 2-1-06 F-94-24

NOTE: THIS ENTIRE POND IS LOCATED IN FILL AND THE EXISTING GROUND DOES NOT TIE INTO THE PROPOSED GROUND UNTIL THE RAILROAD R/W.



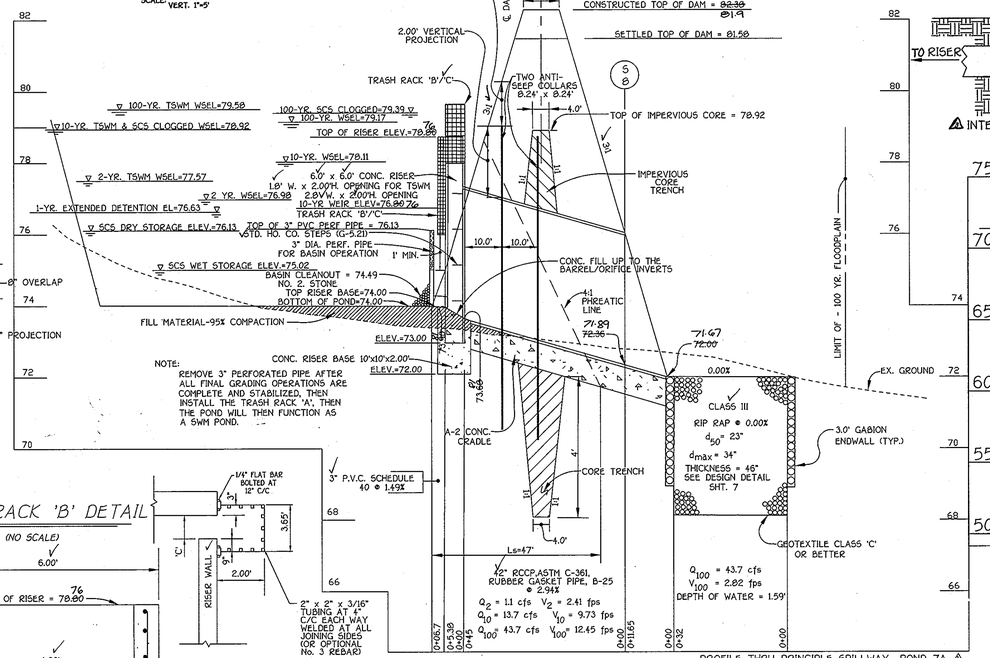
PROFILE ALONG ℄ DAM POND #7A ⚠1

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



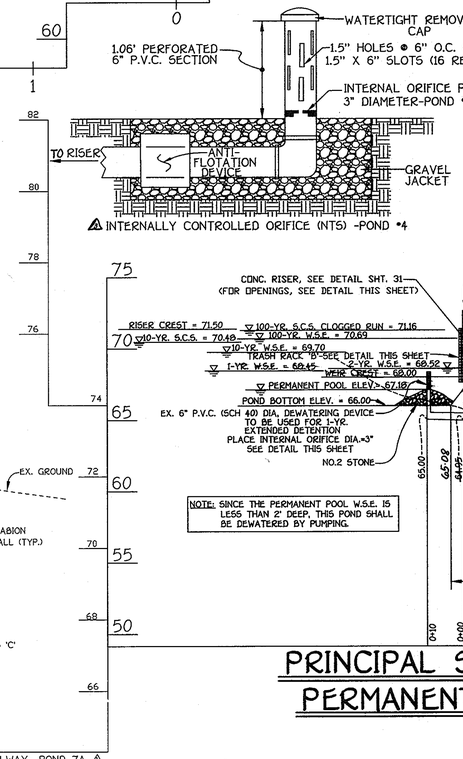
℄ TOP OF DAM PROFILE ⚠2
PERMANENT SWM POND #4

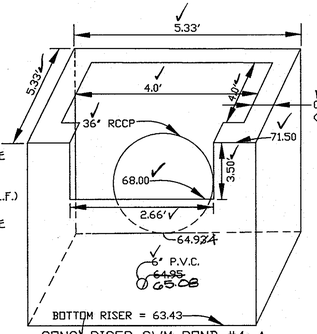
SCALE: HORIZ. 1"=50'
VERT. 1"=5'



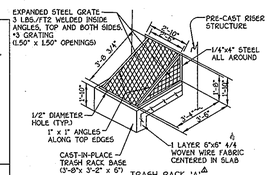
PROFILE THRU PRINCIPLE SPILLWAY- POND 7A ⚠1

SCALE: 1"= 20' HOR.
1" = 2' VERT.

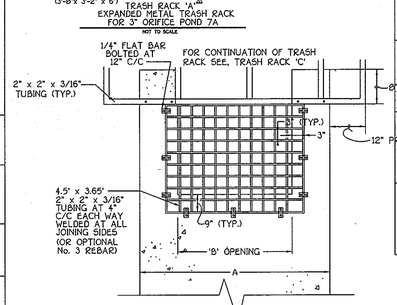




CONC. RISER SWM POND #4 ⚠4
OPENING DETAIL
NOT TO SCALE



EXPANDED METAL TRASH RACK FOR 3' ORIFICE POND 7A
NOT TO SCALE



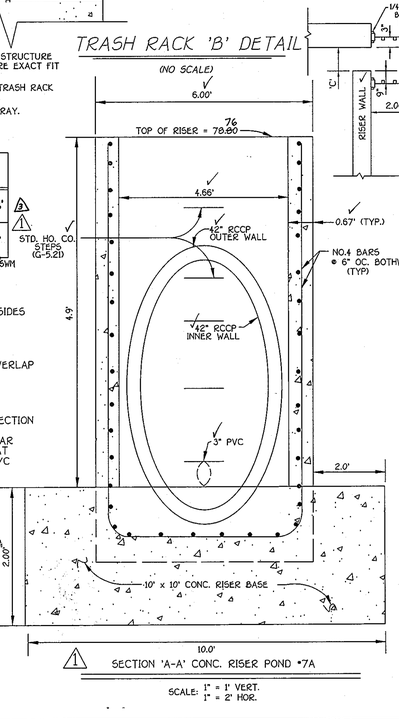
NOTES:
1. FIELD MEASURE THE STRUCTURE DIMENSIONS TO INSURE EXACT FIT OF TRASH RACK.
2. GALVANIZE ENTIRE TRASH RACK AFTER FABRICATION.
3. PAINT BATTLESHIP GRAY.

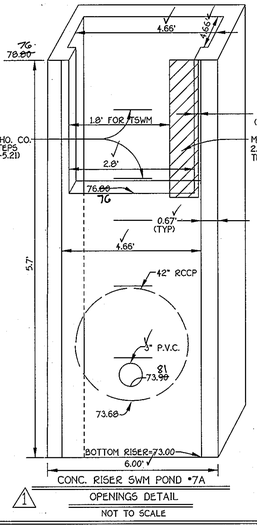
TRASH RACK 'B' DIMENSION CHART

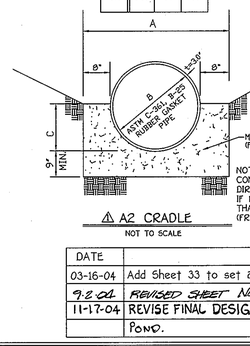
POND NO.	A	B	C
4	5.33'	2.66'	2.33' ⚠3
7A	6.00'	*2.8'	1.33'

*1.8' FOR TSWM

TRASH RACK 'B' DETAIL
(NO SCALE)





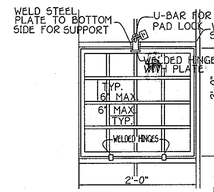


A2 CRADLE DIMENSION CHART

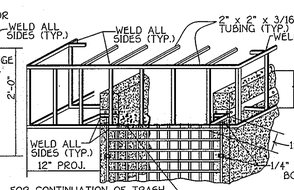
POND NO.	A	B	C
4	4.33	36"	2.25' ⚠3
7A	5.57'	42"	1.75'

NOTE: CONC. CRADLE TO BE POURED DIRECTLY AGAINST EARTH BANKS. IF BOTTOM OF TRENCH IS WIDER THAN THE CRADLE, SLOPING SIDES (FRAMED) SHALL BE USED.

⚠ A2 CRADLE
NOT TO SCALE

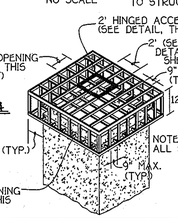


OPENING DETAIL
NO SCALE

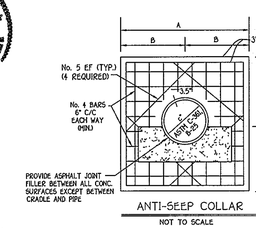


FASTENING DETAIL
NO SCALE

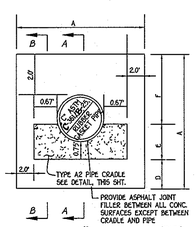
NOTE: CONTRACTOR SHALL
1. FIELD MEASURE THE STRUCTURE DIMENSIONS FOR EXACT FITTING OF TRASH RACK.
2. GALVANIZE ENTIRE TRASH RACK.
3. ALL NUTS AND BOLTS SHALL BE GALVANIZED.



⚠ TRASH RACK 'C' FOR SWM POND 7A & POND 4
NO SCALE

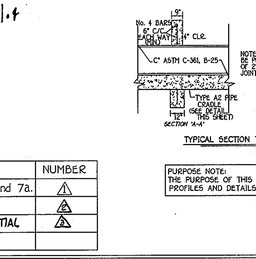


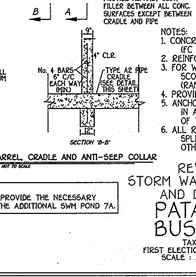
ANTI-SEEP COLLAR
NOT TO SCALE



ANTI-SEEP COLLAR DIMENSION CHART

POND NO.	A	B	C	D	E	F
4	7.75	3.875	36"	2.0'	2.25	3.50 ⚠3
7A	8.50'	4.25'	42"	2.75'	2.50'	3.25'



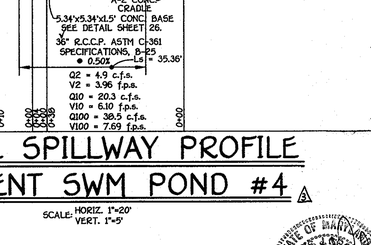


TYPICAL SECTION THROUGH BARREL, CRADLE AND ANTI-SEEP COLLAR
NOT TO SCALE

NOTES:
1. CONCRETE SHALL BE MSHA MIX No. 3 (f'c) 3,500 P.S.I.)
2. REINFORCING STEEL SHALL GRADE 60
3. FOR WALLS OF STRUCTURE SCOFIELD CO. T-9095 FORM LINERS (RANDOM SPLIT-FACE ROCK) OPTIONAL.
4. PROVIDE ROUGH BROOM FINISH.
5. ANCHOR BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 6.07.03.59 OF THE MSHA STANDARDS AND SPECS.
6. ALL REINFORCING SPLICES SHALL BE LAP SPLICES OF 30 BAR DIA. UNLESS OTHERWISE SHOWNS.

PRINCIPAL SPILLWAY PROFILE
PERMANENT SWM POND #4 ⚠3

SCALE: HORIZ. 1"=20'
VERT. 1"=5'



NOTE: SINCE THE PERMANENT POOL W.S.E. IS LESS THAN 2' DEEP, THIS POND SHALL BE DEWATERED BY PUMPING.

PURPOSE NOTE:
THE PURPOSE OF THIS PLAN IS TO PROVIDE THE NECESSARY PROFILES AND DETAILS TO BUILD THE ADDITIONAL SWM POND 7A.

DATE	REVISIONS	NUMBER
03-16-04	Add Sheet 33 to set and revise sheet no's. Add SWM Pond 7a.	⚠1
9-2-04	REVISED SHEET NO.	⚠2
11-17-04	REVISE FINAL DESIGN FOR POND #4 TO REFLECT INITIAL POND.	⚠3

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 Of Developer — Date 6/15/04
MIKE DIFFENDAL
Printed Name Of Developer

By The Engineer:

"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Workable Plan Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/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."

Signature Of Engineer — Date 6/15/04
CHARLES J. GRONTOS
Printed Name Of Engineer

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.

USDA-Natural Resources Conservation Service — Date 6/22/04

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 6/22/04

Approved Department Of Public Works

Chief Bureau Of Highways — Date 7-15-04

Approved Department Of Planning And Zoning

Chief, Division Of Land Development — Date 7/27/04

Chief, Development Engineering Division — Date 7/22/04

AS-BUILT CERTIFICATION

I Hereby Certify That The Facility Shown On This Plan Was Constructed As Shown On This "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature — P.E. No. 13204 — Date 2/1/06

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 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.

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELLICOTT CITY, MARYLAND 21042
(410) 461 - 2855

REVISED FINAL PLAN
STORM WATER MANGEMENT PROFILES AND DETAILS FOR PONDS 7A & 4
PATAPSCO VALLEY BUSINESS CENTER

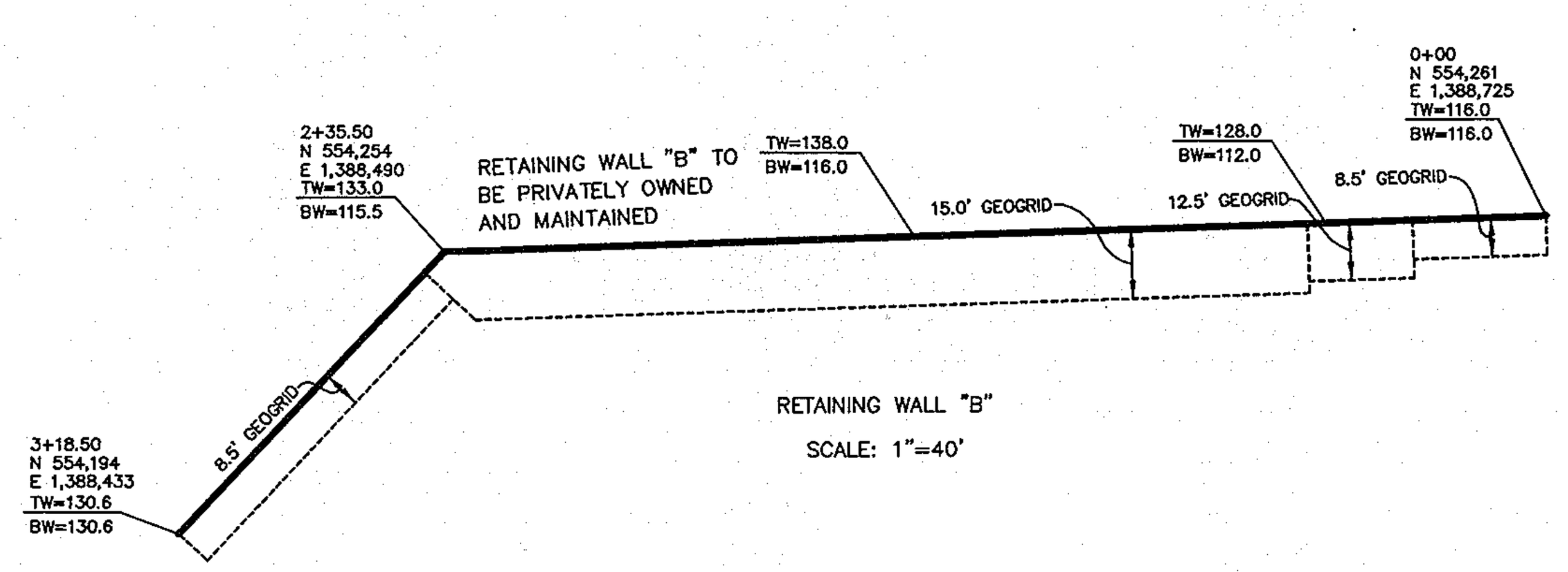
TAX MAP: 30 PARCEL: 284 & 285
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: 1 AS SHOWN DATE: MAY 10, 2001
SHEET 33 OF 36 ⚠3 F-94-24

ASBUILT 2-1-06
F94-24
174

RETAINING WALL "B"
SCALE
VERTICAL SCALE 1"=5'
HORIZONTAL SCALE 1"=10'

LEGEND

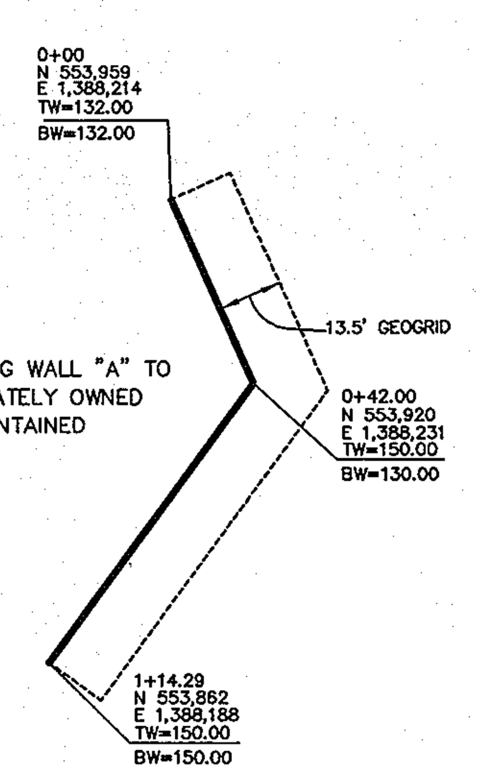
TENSAR UX1500SB TYPE GEOGRID



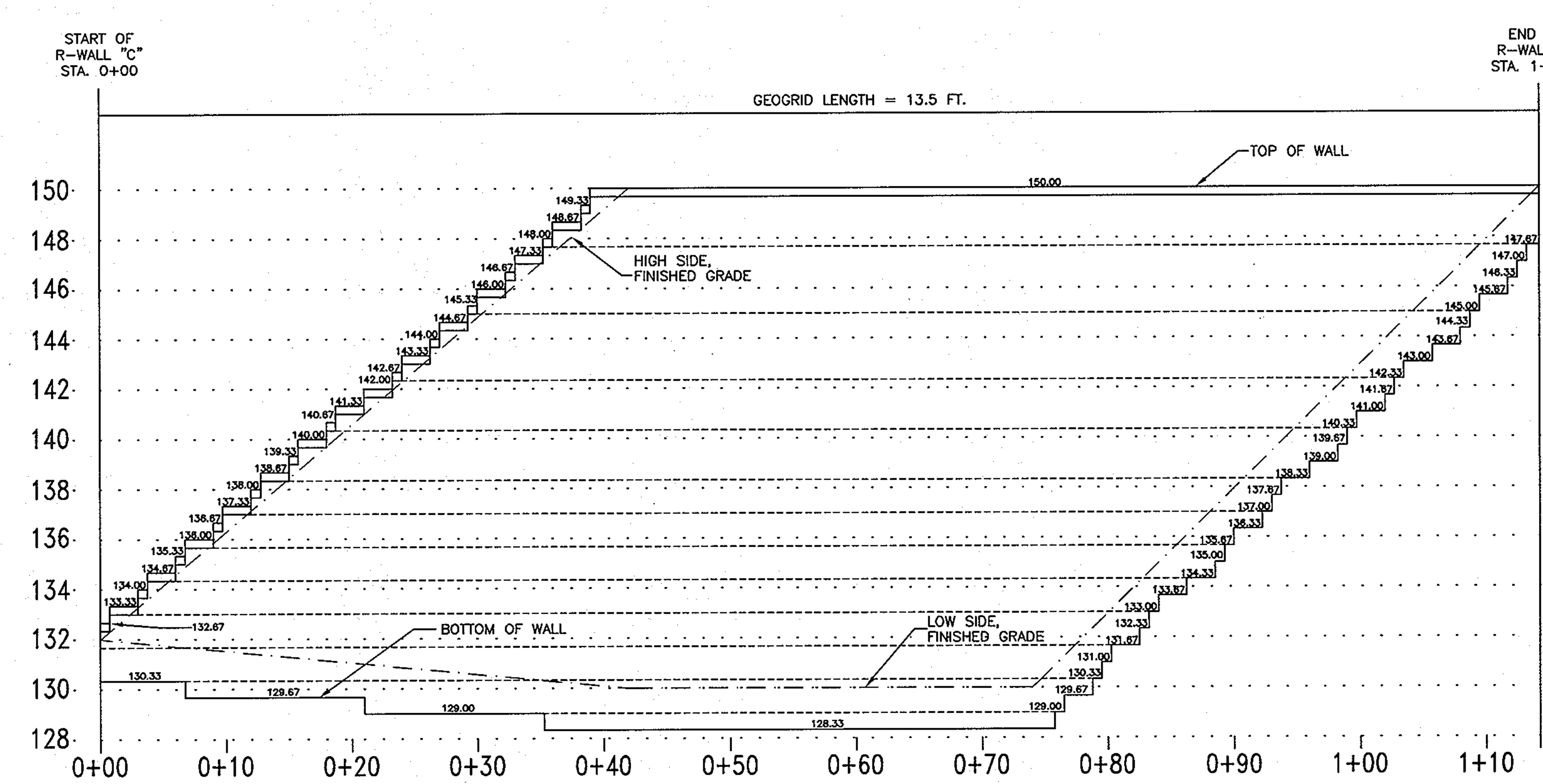
RETAINING WALL "B"
SCALE: 1"=40'

LEGEND

TENSAR UX1400SB TYPE GEOGRID



RETAINING WALL "A"
SCALE: 1"=40'



RETAINING WALL "A"
SCALE
VERTICAL SCALE 1"=5'
HORIZONTAL SCALE 1"=10'

NOTES

1. CONSTRUCTION OF THE RETAINING WALLS SHALL BE PERFORMED UNDER THE OBSERVATION OF A MARYLAND REGISTERED PROFESSIONAL ENGINEER.
2. FOUNDATION SOILS MUST BE EXAMINED BY THE SOILS ENGINEER PRIOR TO CONSTRUCTION TO ASSURE THAT THE ACTUAL FOUNDATION SOIL STRENGTH MEETS OR EXCEEDS ASSUMED DESIGN STRENGTH.

~~APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS~~

~~CHIEF, BUREAU OF HIGHWAYS~~ ~~DATE~~

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Harold Bernadzikowski 9/14/04
Acting CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] 9/10/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

DATE	NO.	REVISION

OWNER/DEVELOPER

PERCONTEE, INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

PROJECT
PATAPSCO VALLEY BUSINESS CENTER

AREA TAX MAP 38 PARCEL 284 & 285 ZONED M-2
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
RETAINING WALL DETAILS
SUPPLEMENTAL SHEET

ECS LTD
1340 CHARWOOD ROAD, SUITE F
HANOVER, MARYLAND 21076
410-850-4500
ENGINEERING CONSULTING SERVICES, LTD

09/02/04
DATE

STATE OF MARYLAND · MICHAEL E. LEFFLER · REGISTERED · PROFESSIONAL ENGINEER

DESIGNED BY : KRM
DRAWN BY: KRM
PROJECT NO :
DATE : SEPTEMBER 2, 2004
SCALE : AS SHOWN
DRAWING NO. 34 OF 35

AS-BUILT 2-1-06

F-94-24

174

P:\project\12845\1-0\Plans\REDLINE_WALL1.dwg, 09/01/2004 03:42:30 PM, HP750C(36).pc3, 1:10

174

RETAINING WALL SPECIFICATION GUIDELINES

PART 1: GENERAL

1.01 Description

A. Retaining walls must be constructed under the supervision of a Maryland Registered Professional Engineer.

B. Work includes furnishing and installing concrete modular block retaining wall units to the lines and grades shown on the construction drawings and as specified herein.

C. Work includes preparing foundation soil, furnishing and installing leveling pad, unit fill and reinforced backfill to the lines and grades shown on the construction drawings.

D. Work includes furnishing and installing all related materials required for construction of the retaining wall as shown on the construction drawings.

1.02 Reference Standards

A.	ASTM C 90	Load Bearing Concrete Masonry Units.
B.	ASTM C 140	Sampling and Testing Concrete Masonry Units.
C.	ASTM D 448	Sizes of Aggregate for Road and Bridge Construction.
D.	ASTM D 698	Laboratory Compaction Characteristics using Standard Effort.

1.03 Delivery, Storage and Handling

A. Contractor shall check the materials upon delivery to assure that proper materials have been received.

B. Contractor shall prevent excessive mud, wet cement, epoxy, and similar materials (which may affix themselves) from coming in contact with the materials.

C. Contractor shall protect the materials from damage and exposure to sunlight. Damaged materials shall not be incorporated into the retaining wall structure and backfill.

1.04 Quality Assurance

A. Owner will be responsible for soil testing and construction observations for quality control during earthwork and retaining wall construction operations.

PART 2: MATERIALS

2.01 Definitions

A. Modular Wall Units – KEYSTONE or equivalent modular concrete facing units, machine made from portland cement, water, and mineral aggregates.

B. Structural Geogrid – a structural geogrid formed by a regular network of integrity connected tensile elements with apertures of sufficient size to allow interlocking with surrounding soil, rock, or earth and function primarily as reinforcement.

C. Unit Fill/Drainage Aggregate – drainage aggegrate, such as No. 57 Stone, which is placed within the cells of the modular concrete units and immediately behind the units to a width of at least 12 inches.

D. Reinforced Backfill – Compacted soil which is within the reinforced soil volume as shown on the plans.

E. Excavation Face – The interface between the reinforced backfill and the retained fill. During construction, measures shall be taken to avoid developing a shear plane at this interface.

F. Retained Backfill – On-site material located behind the reinforced zone of soil.

2.02 Concrete Units

A. Concrete segemental units shall conform to the requirements of NCMA TEK 2-4 and have a minimum 28-day compression strength of 4,000 psi. The units shall also pass 150 freeze thaw cycles in water with less than 1% weight loss for samples tested in accordance with ASTM C-1262.

B. KEYSTONE or equivalent units for general wall construction shall be Standard Units. Sculptured face or straight (flat) face may be used.

C. KEYSTONE or equivalent Cap Units for general wall construction may be either angular- or straight-sided units.

2.03 Fiberglass Connecting Pins

A. Connecting pins shall be 1/2" diameter thermoset isopathalic polyester resin-pultruded fiberglass reinforcement rods supplied by the unit manufacturer.

2.04 Construction Adhesive

A. Construction adhesive for Capstones and corner blocks shall be KEYSTONE KapSealTM or equivalent construction adhesive, or an approved equivalent. Material shall conform to ASTM 2339 and shall be supplied by the KEYSTONE or equivalent unit supplier.

2.05 Base Leveling and Pad Material

A. Material shall consist of crushed stone (GA S/B) as shown on the construction drawing. The leveling pad shall be, at a minimum, 6-inches thick. MSHA No. 57 Stone or pea gravel is not permitted.

2.06 Unit Fill

A. Fill for units shall be free draining crushed stone or gravel, 1/2" to 3/4", with no more than 5% passing the No. 50 sieve and conforming to ASTM D 448. Gradation of the unit fill shall be approved by the Geotechnical Engineer, "Pea Gravel" shall not be used. MSHA No. 57 stone may be used.

2.07 Reinforced Backfill

A. Material shall consist of silty sand (SM) or more granular soils per USCS. The material shall contain no particles greater than 2.5 inches in diameter. The material shall constain no more than 35 percent by weight passing the US Standard No. 200 sieve. Other materials may be approved by the Geotechnical Engineer. The contractor shall submit samples and material specifications of the proposed backfill soils (unit fill, pad material, reinforced backfill) to the Geotechnical Engineer for approval.

B. Soil must meet or exceed the friction angle specified in design parameters.

C. Direct shear testing is required for all soil samples used for Reinforced Backfill.

2.08 Structural Geogrid

A. The geogrid identified for the retaining walls consist of the following:
Tensar UX1400 SB
Tensar UX1500 SB

B. Other geogrid may be utilized provided the materials meet or exceed the minimum strength with similar or better strain characteristics of the Tensar geogrid and are approved by the Geotechnical Engineer for use with soil backfill. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.

2.09 Geotextile

A. A non-woven geotextile shall be utilized as shown on the plans to provide a filter between the unit fill/drainage aggregate and the reinforced backfill. The geotextile shall conform to the criteria for a Geotextile Class A or Class B (depending on the reinforced backfill material used) according to the Maryland Department of Transportation Standards and Specifications for Construction and Materials, Section 921.09. Where geogrids are located, the geotextile shall be placed as illustrated on the plans. At junctions and ends, the geotextile shall be overlapped at least 12 inches. The geotextile shall be placed so that intimate contact is made between the geotextile and the backfill material. Ripped or otherwise damaged material shall not be used. The material shall be protected from sunlight and weather while stored on site in accordance with the manufacturer's recommendation.

DESIGN PARAMETERS

Characteristics

Configuration:	Battered face wall (4.4%)
Maximum Exposed Height:	Wall "A": 2 feet, 11 inches
	Wall "B": 24 feet, 4 inches
	Wall "C": 21 feet, 8 inches
Backslope Angle:	(2H:1V maximum)
Bearing Capacity:	Minimum 2,000 psf
Wall Embedment:	Varies (16 inches minimum)
Surcharge:	None

Soil Parameters:

Soil Type	Friction Angle	Cohesion	Unit Weight (pcf)
Reinforced fill	32	0	125
Retained soils	30	0	120
Foundation soils	30	0	120

PART 3: CONSTRUCTION

3.01 Excavation

A. Contractor shall excavate to the lines and grades shown on the construction drawings. Contractor shall be careful not to disturb emabankment and foundation materials beyone lines shown.

B. All existing topsoil, rootmat, and other soft or unsuitable materials shall, at a minimum, be removed from the footprint of the retained soil mass.

C. If groundwater is encountered during the excavation of the backslope, a backslope drainage system shall be utilized. The system shall tie into the internal well drainage system to provide adequate release of any water which accumulates behind the reinforced zone.

3.02 Foundation Preparation

A. Foundation shall be excavated as required for leveling pad dimensions shown on the construction drawings, or as directed by the Geotechnical Engineer.

B. The required bearing pressure beneath the footing of the wall must be verified in the field by a qualified representative of the Geotechnical Engineer.

C. Unsuitable soils shall be removed and replaced with approved material.

D. Over-excavated areas shall be backfilled with approved, compacted backfill material or as approved by the Geotechnical Engineer.

3.03 Base Leveling Pad

A. Leveling pad materials shall be placed upon an approved foundation as shown on the construction drawings to a minimum thickness of 6 inches.

B. Aggregate material shall be compacted to provide a dense, level surface on which to place the first course of modular units. Compaction shall be to at least 95% of the maximum dry density as determined by the Standard Proctor Compaction Test (ASTM D 698). Leveling pad shall be prepared and leveled to ensure complete contact of retaining wall unit with base.

3.04 Unit Installation

A. The first course of concrete modular wall units shall be carefully placed on the base leveling pad. Each unit shall be checked for level (in both directions) and alignment.

B. Install fiberglass connecting pins and fill all voids in and around the modular units with unit fill material. Tamp or rod unit fill to ensure that all voids are completely filled.

C. Sweep excess material from top of units and install the next course. Ensure that the units of each course are completely filled, backfilled and compacted prior to proceeding to next course.

D. Place each subsequent course, ensuring that pins protrude into adjoining courses a minimum of 1 inch. Two pins are required per unit. Pull each unit forward to obtain the desired offset (as noted on the plans), away from the fill zone, locking against the pins in the previous course and backfill as the course is completed.

E. Repeat procedure to the extent of wall height. Wall construction shall not exceed 2 courses in height before reinforced backfill is placed.

F. Follow wall erection and unit fill placement closely with any other backfilling required. Compaction of all soils shall be to 95% of the maximum dry density as determined in accordance with ASTM D 698. The top 8 to 12 inches of the reinforced backfill shall be a low permeability soil (impervious soils as described above) to reduce surface water runoff from directly entering the drainage aggregate/unit fill or reinforced soil zones.

G. As appropriate where the wall changes elevation, units can be stepped with the grade or turned into the embankment with a convex return end. Provide appropriate buried units on compacted leveling pad in area of convex return end.

3.05 Geogrid Installation

A. The geogrid type and length (direction perpendicular to the wall face) shall conform to those indicated on the construction drawings. Geogrid shall be laid continuously at the proper elevations and orientation as shown on the construction drawings or as directed by the Geotechnical Engineer. A minimum of 4 inches of soil cover is required between layers of geogrid.

B. Correct orientation (roll direction) of the geogrid shall be verified by the Contractor.

C. The geogrid shall be connected to the modular wall units by placing the geogrid over fiberglass pins and laying the grid back to the fill side.

D. A filtering, non-woven geotextile shall be located between the drainage aggregate/unit fill and the reinforced backfill. The geotextile shall be folded back parallel, above and below the geogrid as necessary to ensure continuous grid placement.

E. The geogrid shall be pulled taut to set the geogrid against the fiberglass pins and to eliminate loose folds in the material. The fill surface shall be level. To tension the geogrid, backfill shall be placed over the geogrid from immediately behind the wall to the back end of the geogrid.

F. No geogrid overlaps will be allowed in any length of geogrid perpendicular to the wall face except at corners or angled locations. The geogrid shall overlap rather than provide no coverage.

3.06 Fill Placement

A. Backfill material shall be placed in 8 inch lifts and compacted to at least 95% of the maximum dry density as determined by the Standard Proctor Compaction Test (ASTM D 698). The in-place moisture content shall be within +/-3% of the optimum moisture content, as determined in accordance with ASTM D 698.

B. Backfill shall be placed, spread and compacted in such a manner that minimizes the development of slack or loss of pretension of the geogrid. Backfill shall be placed in horizontal layers. The excavation face shall be stepped or notched to provide compaction of backfill on a level surface and to increase the interlock between the retained soils and the reinforced backfill.

C. Only hand-operated compaction equipment shall be allowed within 5 feet of the back surface of the KEYSTONE or equivalent units.

D. Backfill shall be placed from immediately behind the wall towards the excavation face/retained soils and compacted to the specifications presented herein with appropriate compaction equipment.

E. Tracked construction equipment shall not be operated directly on the geogrid. A minimum backfill thickness of 6 inches (compacted) is required prior to operation of tracked vehicles over the geogrid. Turning of tracked vehicles shall not be permitted overtop the geogrid.

F. Rubber-tired equipment may pass over the geogrid reinforcement at slow speeds (less than 10 mph). Avoid sudden braking and sharp turning.

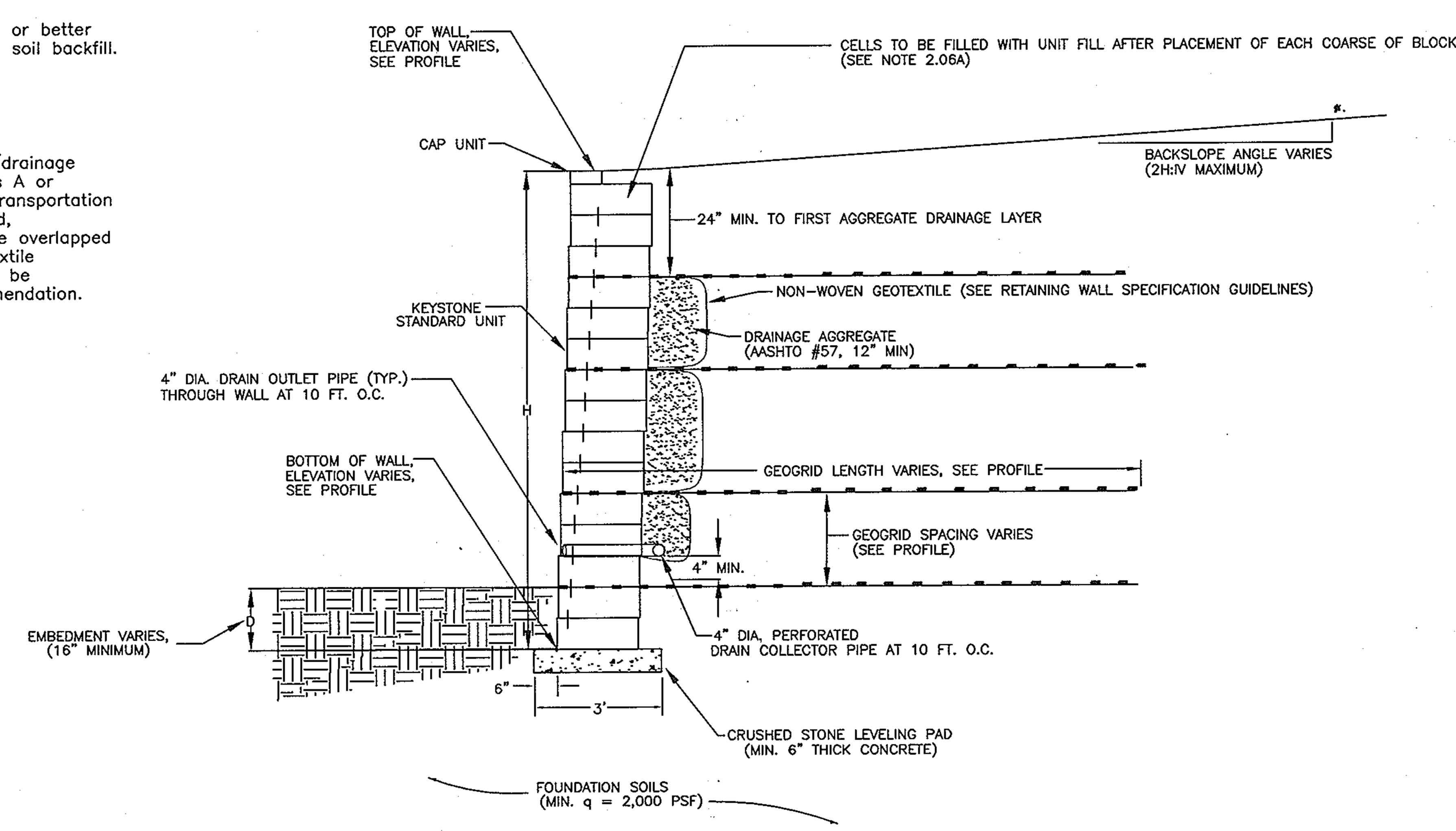
G. The suitability of the fill material must be confirmed by a Geotechnical Engineer.

3.07 Cap Installation

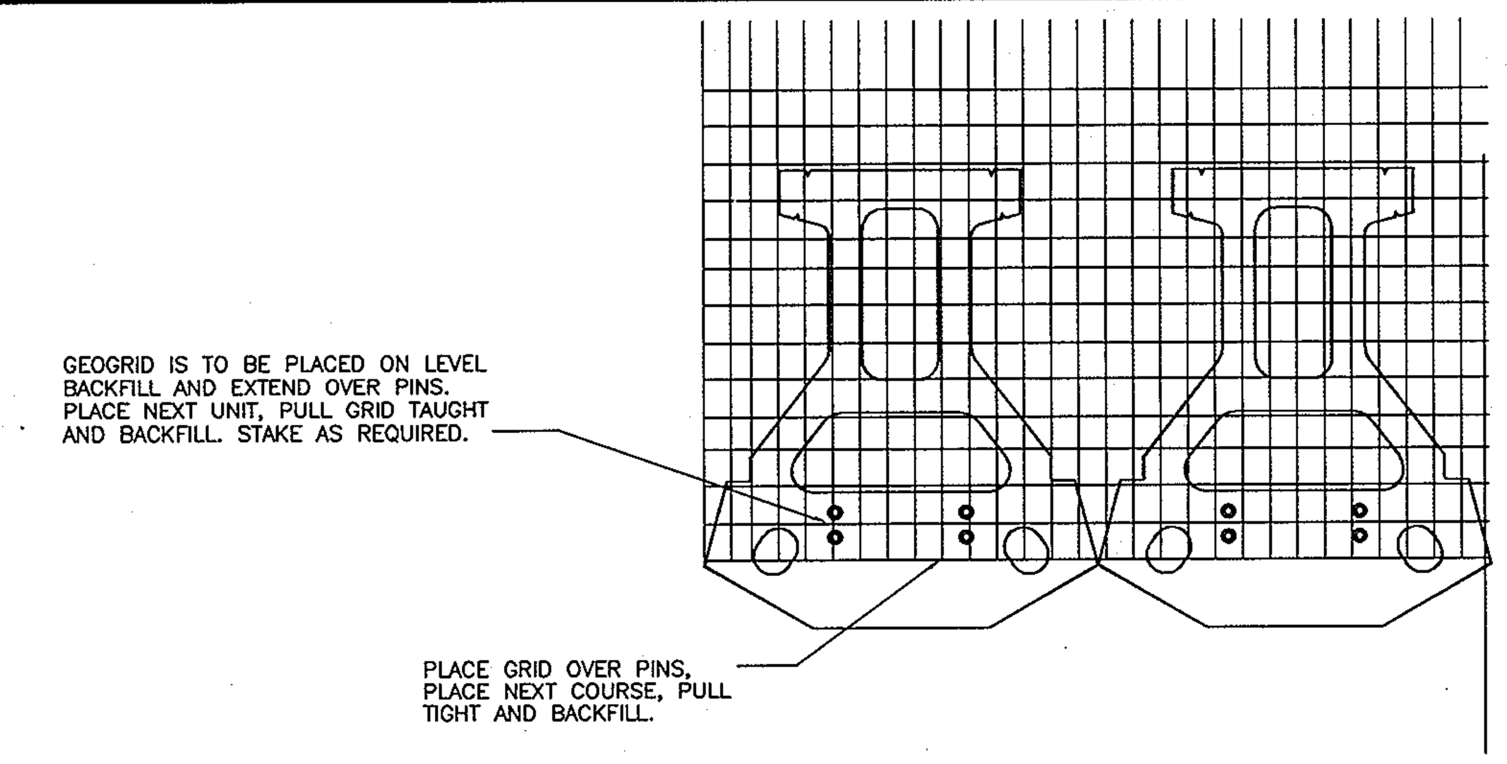
A. Provide permanent mechanical connection wall units with KEYSTONE KapSealTM or equivalent construction adhesive. Apply adhesive to top surface of lower unit and place cap unit atop adhesive.

B. Place KEYSTONE or equivalent cap units over projecting pins from the units below. Pull forward to setback position.

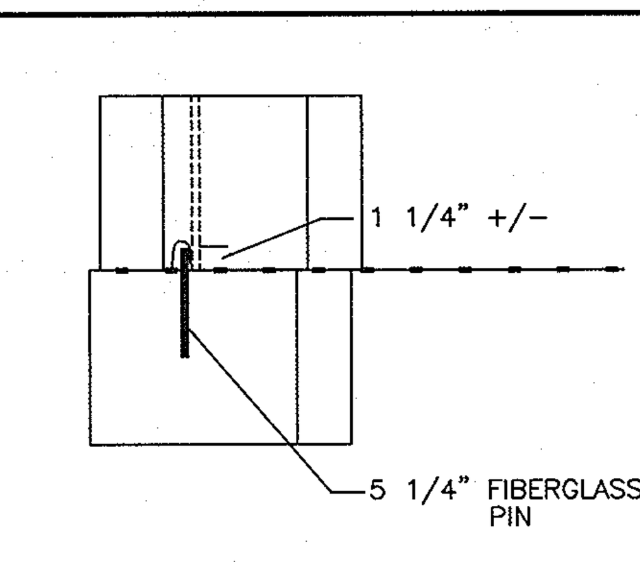
C. Backfill and compact to finished grade with Reinforced Backfill.



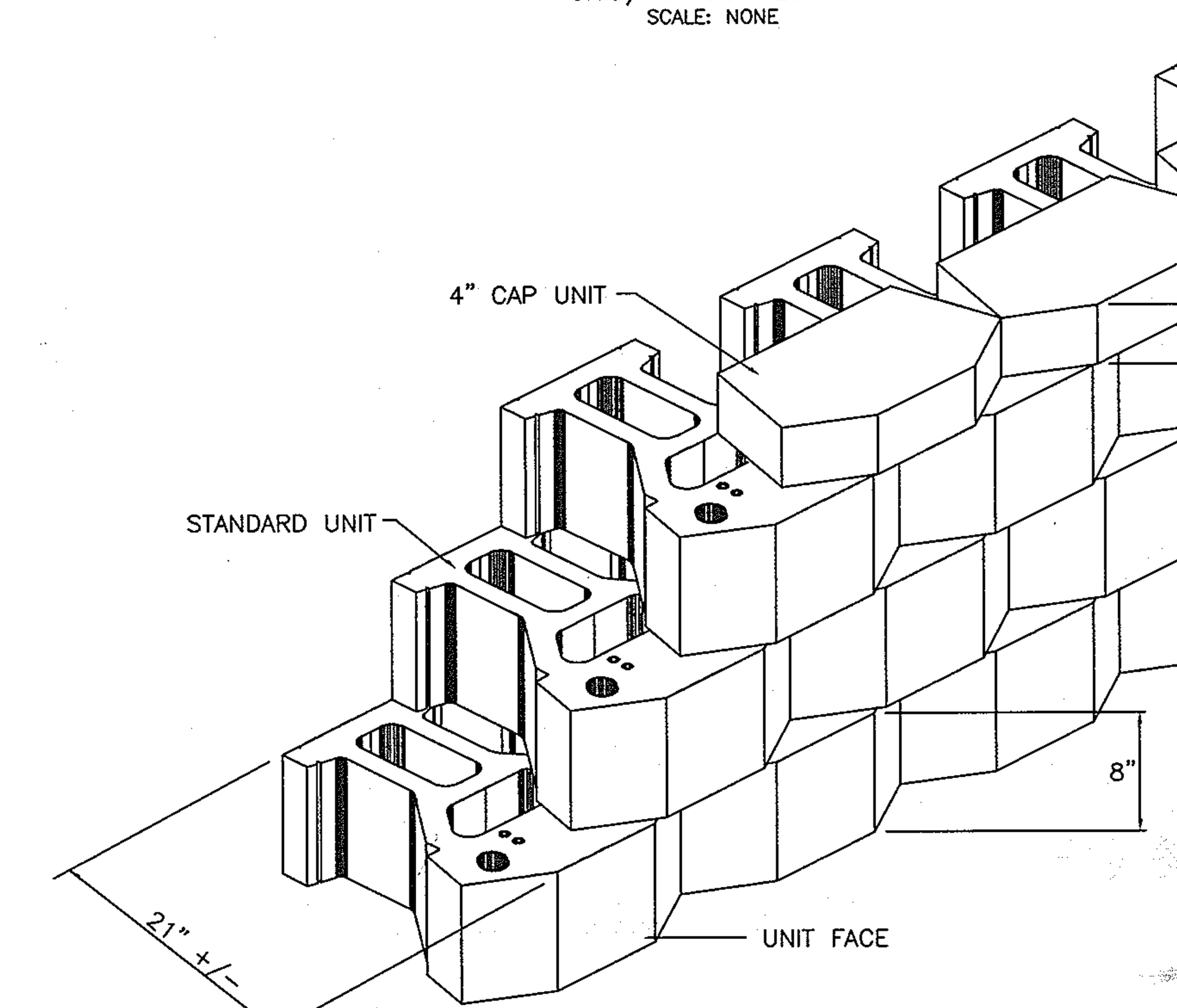
TYPICAL RETAINING WALL DETAIL
4.4% BATTERED FACE
SCALE: NTS



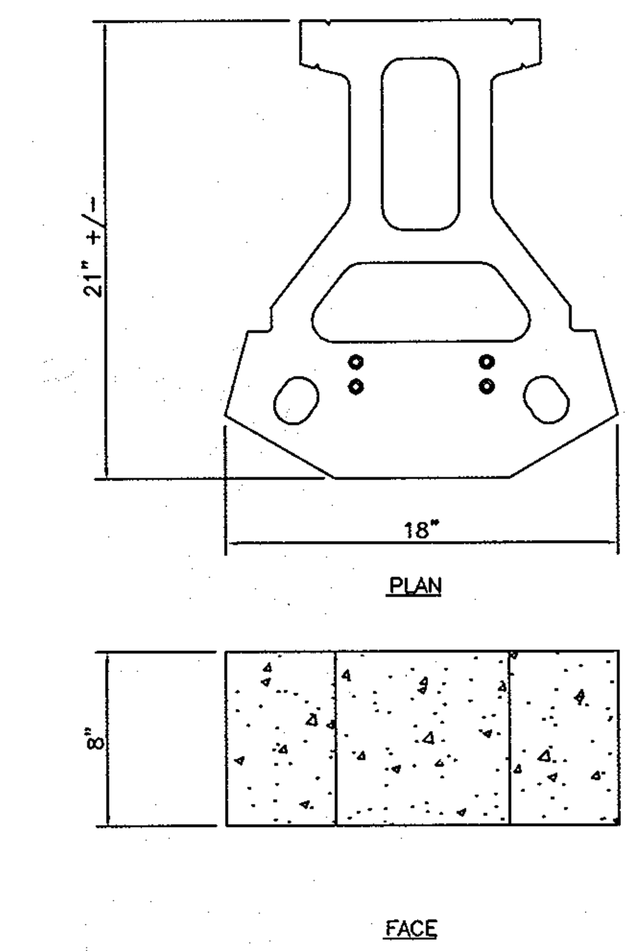
KEYSTONE STANDARD UNIT
GRID/PIN CONNECTION
SCALE: NONE



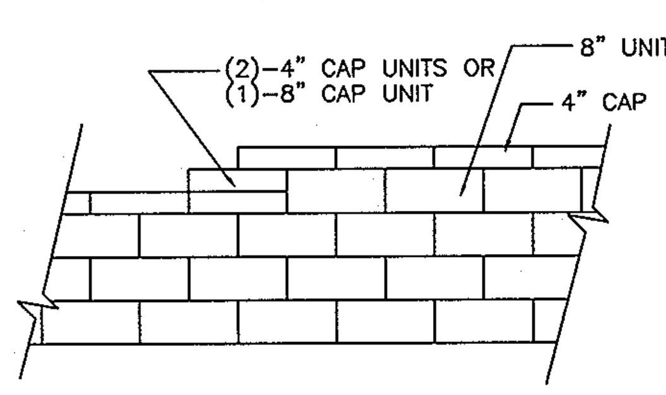
KEYSTONE STANDARD UNIT
GRID CONNECTION
SCALE: NONE



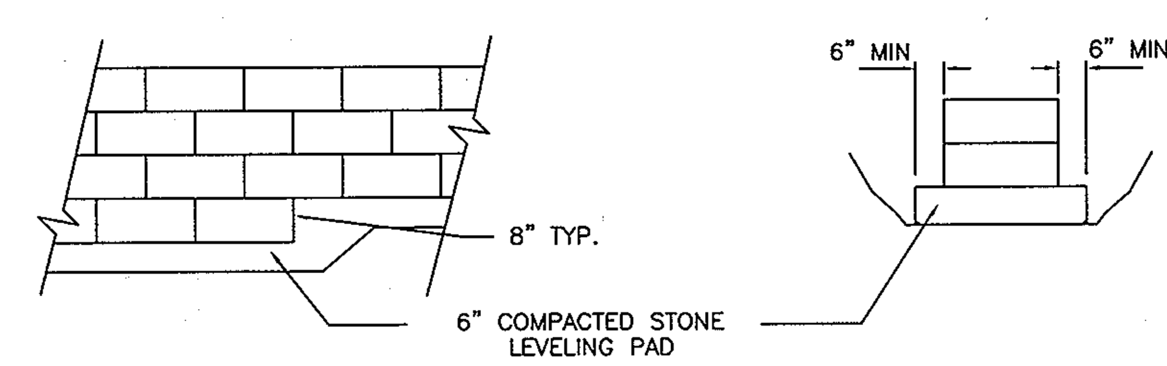
KEYSTONE STANDARD UNIT
ISOMETRIC
SCALE: NONE



KEYSTONE STANDARD UNIT
SCALE: NONE



TOP OF WALL STEPS
SCALE: NONE



LEVELING PAD AND STEP DETAILS
SCALE: NONE

~~APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.~~

~~CHIEF, BUREAU OF HIGHWAYS DATE~~

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Harold Bernadzikowski — 9/14/04
Acting CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] — 9/10/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

DATE	NO.	REVISION

OWNER/DEVELOPER

PERCONTEE, INC.
11900 TECH ROAD
SILVER SPRING, MARYLAND 20904

PROJECT
PATAPSCO VALLEY BUSINESS CENTER

AREA TAX MAP 38 PARCEL 284 & 285 ZONED M-2
1st ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE
RETAINING WALL DETAILS
SUPPLEMENTAL SHEET

ECS LTD
1340 CHARWOOD ROAD, SUITE F
HANOVER, MARYLAND 21076
410-859-4300
ENGINEERING CONSULTING SERVICES, LTD

09/02/04
DATE

STATE OF MARYLAND — MICHAEL E. LEFFLER — No. 13725 — REGISTERED PROFESSIONAL ENGINEER

DESIGNED BY :	KRM
DRAWN BY:	KRM
PROJECT NO :	
DATE :	SEPTEMBER 2, 2004
SCALE :	AS SHOWN
DRAWING NO.	35 OF 35

ASBUILT 2-1-06

F-94-24

P:\project\12845\1-0\Plans\REDLINE_WALL2.dwg, 09/01/2004 03:24:33 PM, HP750C(36).pc3, 1:10