SITE DEVELOPMENT PLAN

CHERRY TREE FARM

SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION

HOWARD COUNTY, MARYLAND

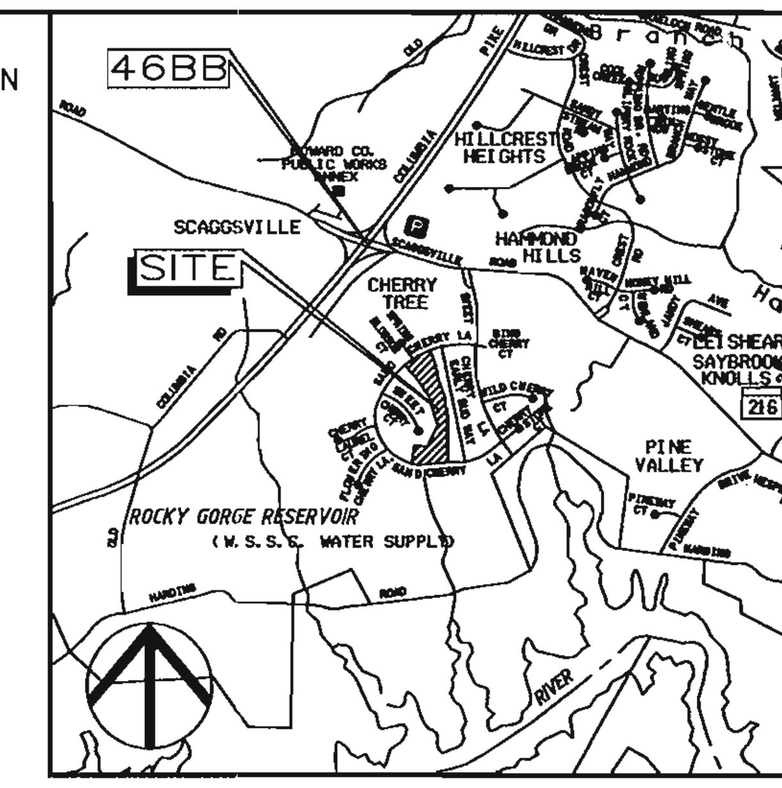
DEPARTMENT OF PUBLIC WORKS

CAPITAL PROJECT D-1128 (STREAM WORK)
CAPITAL PROJECT D-1132 (POND WORK)

THE HORIZONTAL AND VERTICAL DATUM SHOWN HEREON ARE BASED ON GPS OBSERVATIONS FROM THE FOLLOWING N.G.S. TRAVERSE POINTS
HORIZONTAL NAD 1983/91
VERTICAL NAVD 1988

HOWARD COUNTY CONTROL POINTS

	NORTH	EAST	ELEV
46BB	538306.515	1341329.146	422.543
46EB	534750.230	1337742.796	412.568



VICINITY MAP
Scale : 1" = 2000'

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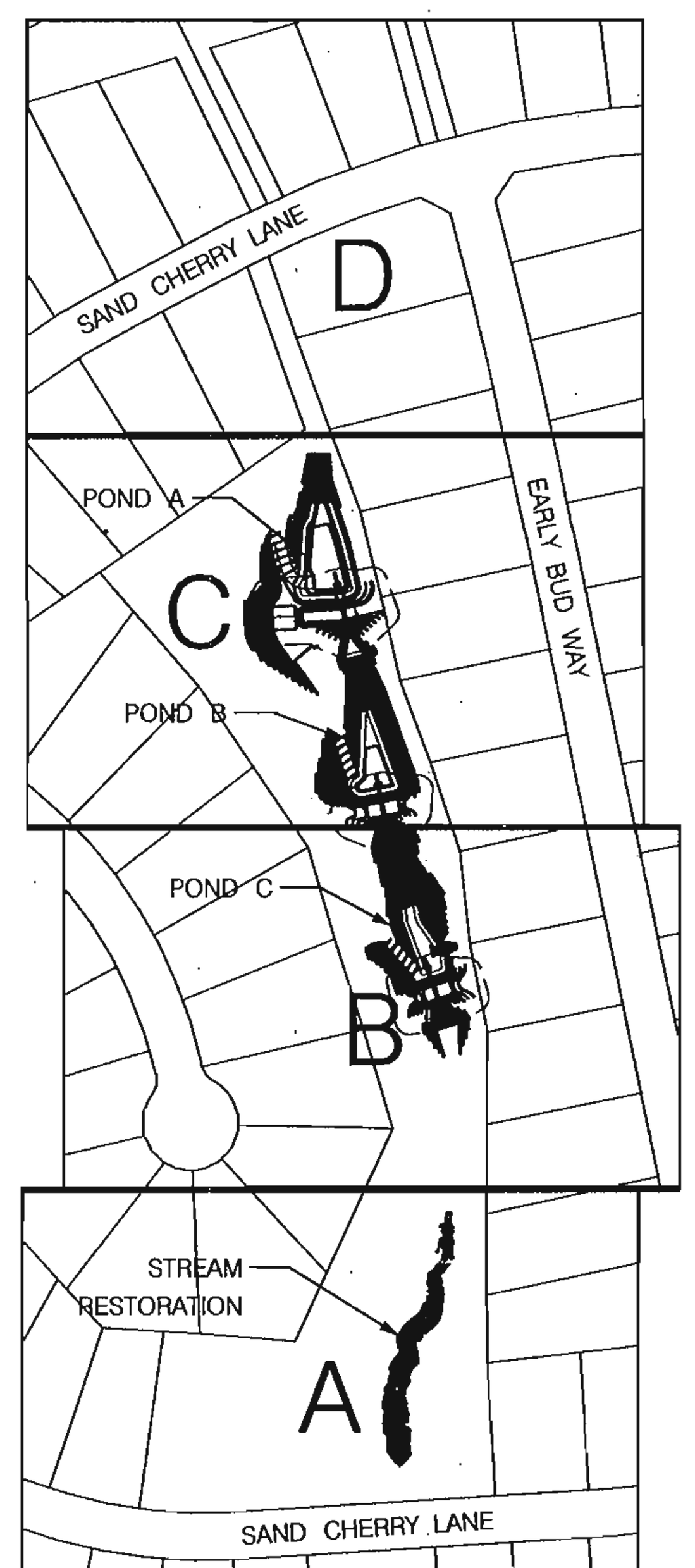
36	LS6	LANDSCAPE DETAILS

LEGEND

- EX. TREES
- EX. SPECIMEN TREES
- EXIST. TREE LINE
- PROP. TREE LINE
- 180 — EXIST. MAJOR CONTOUR
- 183 — EXIST. MINOR CONTOUR
- 345 — PROP. MAJOR CONTOUR
- 346 — PROP. MINOR CONTOUR
- EXIST. PROPERTY LINE
- WUS — WATERS OF THE U.S.
- W — WETLANDS
- OSF — ORANGE SAFETY FENCE
- LOD — LIMIT OF DISTURBANCE
- SF — SILT FENCE
- TEMPORARY PIPE
- RPS — REMOVABLE PUMPING STATION
- MID2 / Ba — SOILS BOUNDARY
- 0%-14.99% SLOPES
- 15.0%-24.99% SLOPE
- >25.0% SLOPES
- EXISTING FLOODPLAIN
- PROPOSED FLOODPLAIN
- EX. WATER LINE
- EX. SEWER LINE
- EX. STORM DRAIN
- OHE — EX. OVERHEAD ELECTRIC
- COMCAST — EX. UNDERGROUND CABLE TV
- VERIZON — EX. UNDERGROUND TELEPHONE
- BGE — EX. GAS LINE
- GAS — EX. GAS LINE
- 845 — HEC-RAS CROSS SECTION
- STONE TOE PROTECTION
- TREE LINE TO REMAIN

ADDRESS CHART

LOT #	STREET ADDRESS
OPEN SPACE, LOT 170	8427 SAND CHERRY LANE



KEY TO PLAN SHEETS
SCALE: 1" = 200'

SPECIAL CONTRACTOR NOTES

1. 100-YEAR FLOODPLAIN ELEVATION IS SHOWN ON THE PLANS.
2. NO STOCKPILE OF ANY MATERIAL IS ALLOWED IN THE 100-YEAR FLOODPLAIN.
3. IN-STREAM WORK IS PROHIBITED FROM MARCH 1ST TO JUNE 15TH, INCLUSIVE. STREAM CLASSIFICATION: USE I-P.
4. CONTRACTOR SHALL CONTINUALLY MONITOR WEATHER FORECASTS DURING WORK ACTIVITIES AND SCHEDULE WORK DURING FAVORABLE CONDITIONS.
5. THE CONTRACTOR SHALL EXERCISE CARE IN ACTIVITIES INVOLVING EITHER CUT AND FILL OR GRADING IN THE VICINITY OF TREES THAT ARE TO REMAIN AT THE CONSTRUCTION SITE. ALL EARTH CUTS AND ACTIVITIES IN THE VICINITY OF TREES TO REMAIN SHALL BE MADE IN A MANNER THAT DOES NOT DISTURB THE CRITICAL ROOT ZONE WITHIN THE DRIPLINE OF THE TREE. PROTECTIVE ORANGE FENCING SHALL BE INSTALLED AROUND THE PERIMETER OF THE CRITICAL ROOT ZONE PRIOR TO CONSTRUCTION. THE LOCATION OF THE PROTECTIVE ORANGE FENCING SHALL BE APPROVED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS PRIOR TO CONSTRUCTION.
6. CONTRACTOR SHALL NOT STORE EQUIPMENT, MATERIALS AND/OR SUPPLIES BEYOND THE ORANGE FENCING SHOWN ON THE PLANS.
7. UPON COMPLETION OF THE WORK, BUT PRIOR TO DE-MOBILIZATION, THE CONTRACTOR SHALL REMOVE ALL REMNANTS OF CONSTRUCTION MATERIALS FROM THE SITE. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITIONS.
8. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, A VIDEOTAPE AND PHOTOGRAPHS OF THE PROPOSED WORK AREA FROM THE UPPER SAND CHERRY LANE TO THE LOWER SAND CHERRY LANE SHALL BE TAKEN.
9. ALL TREES TO BE REMOVED SHALL BE CUT AT THE BASE WITH A SAW AND NOT PUSHED OVER. TREE STUMPS MAY BE LEFT IN PLACE.

GENERAL NOTES

1. THE SUBJECT PROPERTY IS ZONED R20 PER THE 2/02/04 COMPREHENSIVE ZONING PLAN.
2. THE DEPARTMENT OF PLANNING AND ZONING AND THE HOWARD SOIL CONSERVATION DISTRICT HAVE DETERMINED THAT THE DISTURBANCES WITHIN THE 100-YEAR FLOODPLAIN, WETLANDS, STREAM AND REQUIRED BUFFERS FOR THE PROPOSED STREAM RESTORATION PROJECT ARE CONSIDERED ESSENTIAL OR NECESSARY IN ACCORDANCE WITH SECTIONS 16.115(C) AND 16.116(C) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
3. THIS PLAN IS NOT REQUIRED TO MEET THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
4. THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE PROJECT SITE.
5. REFERENCE NUMBERS OF OTHER APPROVED PLANS: F 85-92, CHERRY TREE FARM, SECTION 1, AREA 2.
6. THIS PROJECT IS EXEMPT FROM FOREST CONSERVATION REQUIREMENTS AS PER APPENDIX 'O' OF THE FOREST CONSERVATION MANUAL BECAUSE THE PLAN IS A COUNTY CAPITAL PROJECT LOCATED ON A SINGLE LOT CUTTING AND CLEARING APPROXIMATELY 35,000 SF OF FOREST, WHICH IS LESS THAN THE 40,000 SF CLEARING LIMIT.
7. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
8. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY EXCAVATION WORK BEING DONE.
9. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
10. TRAFFIC CONTROL SHALL BE PROVIDED DURING CONSTRUCTION. HOWARD COUNTY STANDARD DETAIL TE-11 SHALL APPLY.
11. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
12. THE COORDINATES SHOWN HEREON ARE BASED ON HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS NUMBER 46BB AND 46EB WERE USED FOR THIS SITE.
13. WATER IS PUBLIC.
14. SEWER IS PUBLIC.
15. STORMWATER MANAGEMENT IS NOT REQUIRED FOR THIS PROJECT SINCE THE PROJECT WILL NOT ADD IMPERVIOUS AREA NOR WILL IT CHANGE THE EXISTING HYDROLOGY OF THE SITE. THREE (3) PUBLIC DRY EXTENDED DETENTION PONDS ARE PROPOSED AS PART OF THE OVERALL STREAM RESTORATION DESIGN. POND A QUALIFIES FOR REVIEW AS AN MD-378 POND. PONDS B AND C ARE EXEMPT FROM REVIEW AS AN MD-378 POND (POND STORAGE IS LESS THAN 40,000 CUBIC FEET AND EMBANKMENT HEIGHT IS LESS THAN 6 FEET). HOWARD COUNTY SHALL CONTROL, OWN, AND MAINTAIN THE PONDS ON THIS PROJECT.
16. EXISTING UTILITIES ARE BASED ON FIELD SURVEYS AND AVAILABLE RECORD DRAWINGS.
17. THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY KCI TECHNOLOGIES, INC., DATED AUGUST 2003 AND WAS APPROVED APRIL 2004.
18. THE WETLANDS DELINEATION FOR THIS PROJECT WAS PERFORMED BY CHESAPEAKE ENVIRONMENTAL MANAGEMENT, INC. IN JANUARY 2003.
19. TOPOGRAPHIC SURVEY OF THE SITE WAS PERFORMED BY KCI TECHNOLOGIES, INC IN FEBRUARY 2003.
20. A JOINT PERMIT APPLICATION HAS BEEN SUBMITTED TO THE MARYLAND DEPARTMENT OF THE ENVIRONMENT FOR THIS PROJECT (TRACKING # 200463320).
21. NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
22. OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND KCI TECHNOLOGIES, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY SUCH INFORMATION TO HIS OWN SATISFACTION.
23. SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT NOTIFYING THE ENGINEER, THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.
24. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY.

SITE ANALYSIS DATA CHART

1. TOTAL PROJECT AREA: 4.90 ACRES (213,444 SF).
2. DISTURBED AREA: 2.00 ACRES (87,169 SF).
3. PRESENT ZONING DESIGNATION: R20
4. PROPOSED USE FOR THE SITE: STABILIZE EXISTING BANK/CHANNEL EROSION AND CONSTRUCT FLOW ATTENUATION PONDS.
5. OPEN SPACE ON SITE: 4.90 ACRES AND 100% OF GROSS AREA.
6. APPLICABLE DPZ FILE REFERENCES: F 85-92, CHERRY TREE FARM, SECTION 1, AREA 2.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

PERMIT INFORMATION CHART

SUBDIVISION NAME			SECTION/AREA		LOT/PARCEL #
CHERRY TREE FARM			SECT. 1, AREA 2		OPEN SPACE, LOT 170
PLAT # or L/F	GRID #	ZONING	TAX MAP NO.	ELECT. DISTR.	CENSUS TRACT
7839	10	R20	46	6	6068.02
WATER CODE			SEWER CODE		
-			-		

OWNER:
HOWARD COUNTY
DEPARTMENT OF RECREATION AND PARKS
7120 OAKLAND MILLS ROAD
COLUMBIA, MD 21046
410-313-4640

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE 12/6/04

CHIEF, BUREAU OF ENVIRONMENTAL SERVICES — DATE 11/29/04

CHIEF, STORMWATER MANAGEMENT DIVISION — DATE 11/24/04

DEPARTMENT OF RECREATION AND PARKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF RECREATION AND PARKS — DATE 12-7-04

KCI TECHNOLOGIES
10 NORTH PARK DRIVE
HUNT VALLEY, MD 21030
PHONE: (410) 316-7800
FAX: (410) 316-7817
www.kci.com

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 0101128.c \ ti01cherry.dgn

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
KCI TECHNOLOGIES www.kci.com

CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE, LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

TITLE SHEET

SCALE:	AS SHOWN
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

T1

SHEET NO.: 1 OF 36

SDP-04-123

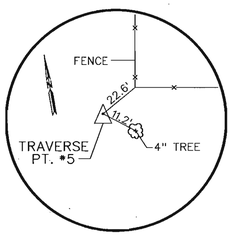
PLOTTED: "01:50 PM on Monday, November 08, 2004"
BY: Matt Snyder Division: Water Resources
FILE: m:\2001\0101128.c\drawings\ti01cherry.dgn

CURVE DATA					
CURVE NO.	RADIUS	LENGTH	DELTA	TANGENT	CHORD BEARING
C1	10.00'	4.10'	23° 27'55"	2.08'	S 16° 47'14" W 4.07'
C2	15.00'	6.58'	25° 07'38"	3.34'	S 15° 57'22" W 6.53'
C3	10.00'	7.71'	44° 08'48"	4.06'	S 25° 27'57" W 7.52'
C4	20.00'	19.47'	55° 45'49"	10.58'	S 19° 39'26" W 18.71'
C5	15.00'	10.00'	38° 12'08"	5.19'	S 10° 52'36" W 9.82'

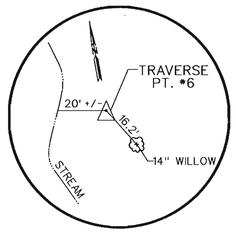
TANGENT DATA		
TANGENT NO.	BEARING	DISTANCE
T1	S 06° 18'34" E	32.67'
T2	S 05° 03'16" W	107.13'
T3	S 28° 31'11" W	19.22'
T4	S 03° 23'33" W	30.91'
T5	S 47° 32'21" W	21.07'
T6	S 08° 13'28" E	3.75'
T7	S 29° 58'40" W	7.84'
T8	S 16° 44'59" W	31.59'

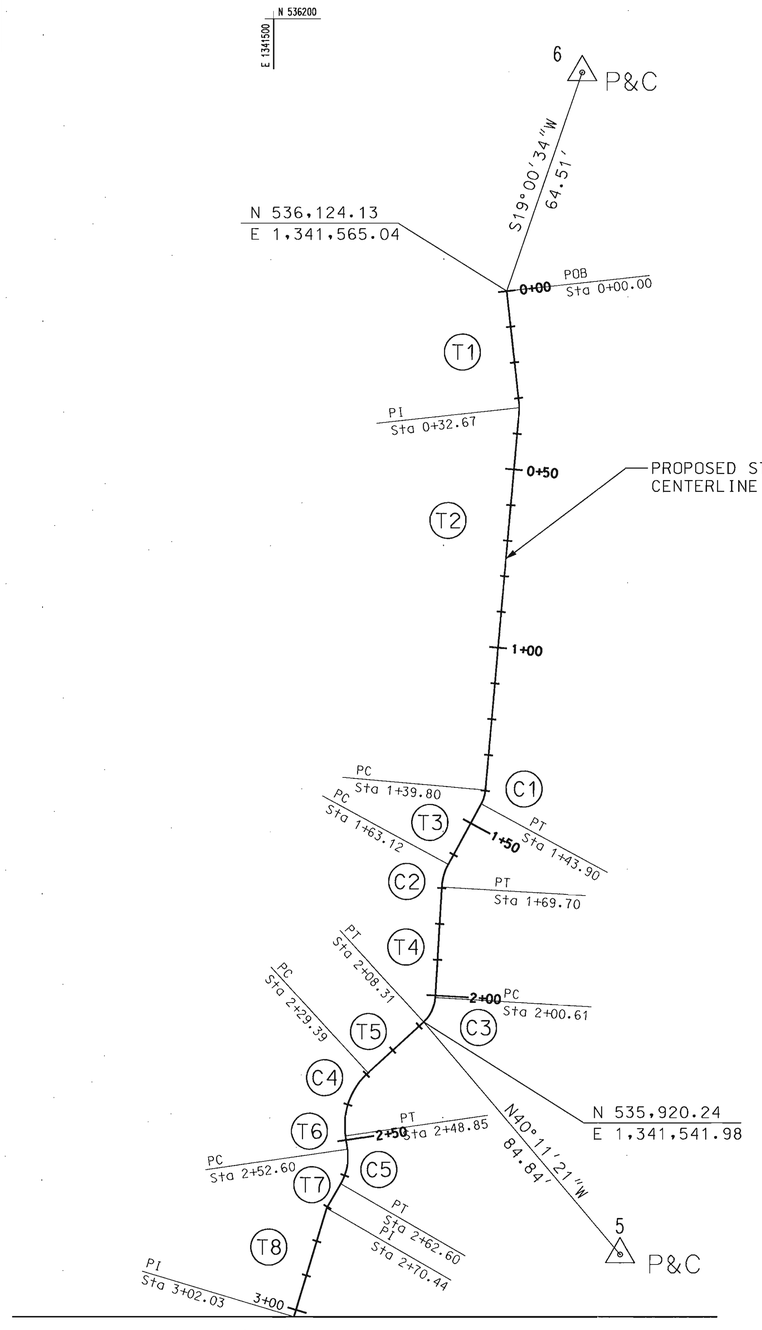
TRAVERSE COORDINATE LIST			
PT #	NORTHING	EASTING	ELEVATION
5	535855.432	1341596.730	348.11
6	536185.114	1341586.050	354.83

TRAVERSE POINT #5



TRAVERSE POINT #6





MATCHLINE - SEE SHEET GS2

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/15/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR — DATE 12/27/04

THE HORIZONTAL AND VERTICAL DATUM SHOWN HEREON ARE BASED ON GPS OBSERVATIONS FROM THE FOLLOWING N.G.S. TRAVERSE POINTS:
HORIZONTAL NAD 1983/91
VERTICAL NGVD 1929

	NORTH	EAST	ELEV
AE2449	583158.762	1370739.978	125.53

HOWARD COUNTY CONTROL POINT

17EB	59381 3.873	1355731.855	454.20

NO.	REVISIONS	DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 0101128.C \ Drawings \ gs01cherry.dgn

ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
KCI TECHNOLOGIES www.kci.com

CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

GEOMETRY SHEET

SCALE:	1" = 20'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

GS1

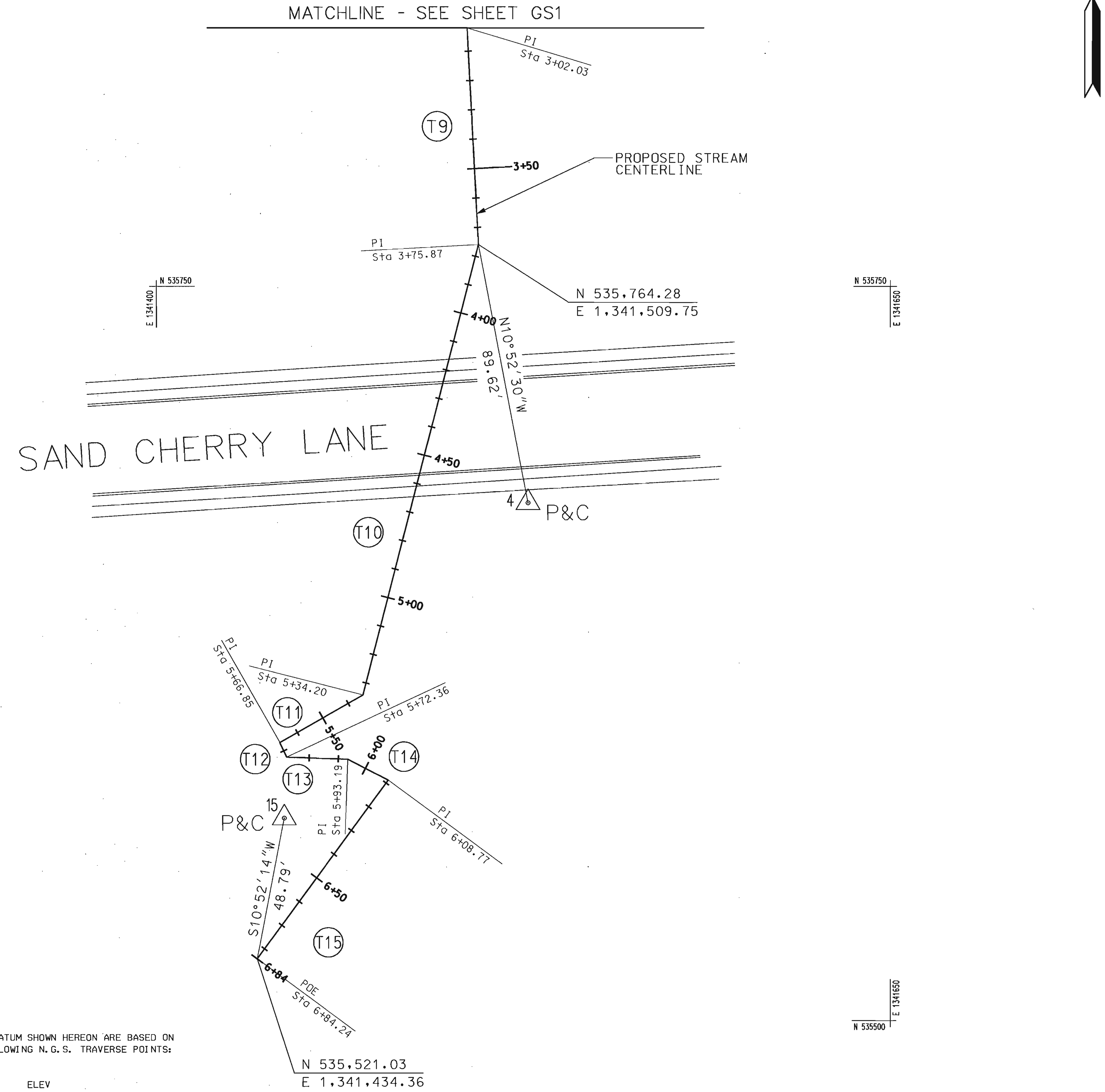
SHEET NO.: 2 OF 36

SDP-04-123

PLOTTED: "01:48 PM on Monday, November 08, 2004"
By Matt Snyder, Division: Water Resources
File: M:\2001\0101128.c\Drawings\gs01cherry.dgn

TANGENT DATA		
TANGENT NO.	BEARING	DISTANCE
T9	S 03° 03'56" E	73.83'
T10	S 14° 22'32" W	158.33'
T11	S 60° 17'39" W	32.65'
T12	S 25° 04'32" E	5.51'
T13	S 88° 01'35" E	20.83'
T14	S 62° 33'50" E	15.57'
T15	S 36° 18'54" W	75.47'

TRAVERSE COORDINATE LIST			
PT #	NORTHING	EASTING	ELEVATION
4	535676.266	1341526.660	347.92
15	535568.941	1341443.563	335.25



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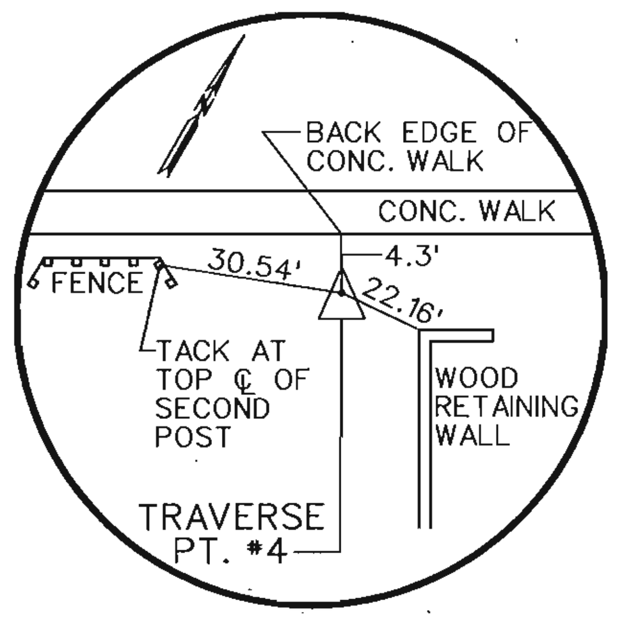
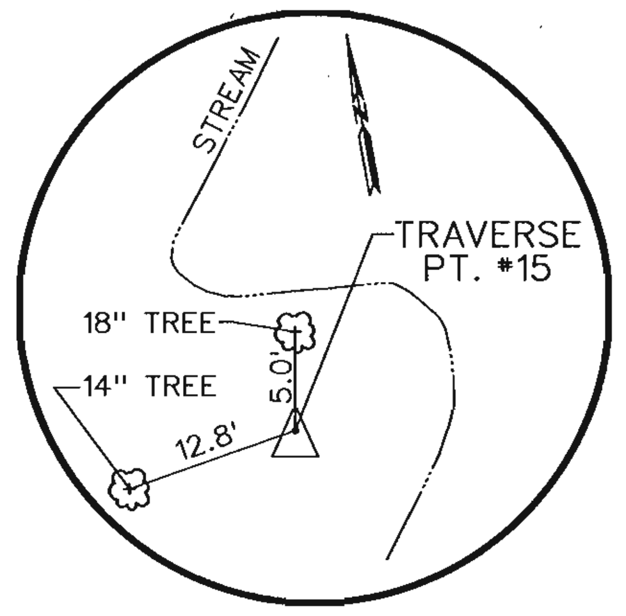


TRAVERSE POINT #15



APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

THE HORIZONTAL AND VERTICAL DATUM SHOWN HEREON ARE BASED ON GPS OBSERVATIONS FROM THE FOLLOWING N.G.S. TRAVERSE POINTS:
HORIZONTAL NAD 1983/91
VERTICAL NGVD 1929

	NORTH	EAST	ELEV
AE2449	583158.762	1370739.978	125.53

HOWARD COUNTY CONTROL POINT

17EB	593813.873	1355731.855	454.20

PLOTTED: 01:48 PM on Monday, November 08, 2004
FILE: m:\2001\0101128.c\drawings\gs02cherry.dgn

NO.	REVISIONS DESCRIPTION	DATE

KCIFILE: M:\ 2001 \ 0101128.c \ gs02cherry.dgn

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE LOT 170

STREAM RESTORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

GEOMETRY SHEET

SCALE: 1" = 20'
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

GS2

SDP-04-123

MATCHLINE - SEE SHEET PS2

D
C
B
A

WAKEFIELD DONALD T
WAKEFIELD ALON A
LOT 188 .377 A PARCEL 190
8328 CHERRYBROOK CT SS
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 1986/348
TAX ACCOUNT 08-517897
ZONED R20

VAN WINTER JERROLD A
VAN WINTER NANCY ELWOOD
LOT 190 .352 A PARCEL 190
8333 CHERRYBROOK COURT
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 3773/605
TAX ACCOUNT 08-517919
ZONED R20

VANCLEAVE JEFF
VANCLEAVE JENNIFER
LOT 189 .411 A PARCEL 190
8332 CHERRYBROOK CT
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 6221/257
TAX ACCOUNT 08-517900
ZONED R20

HOWARD COUNTY MARYLAND
DEPT OF RECREATION AND PARKS
LOT 170 4.904A OP SP PARCEL 190
SAND CHERRY LANE
CHERRYTREE FARM
LAUREL 20723
LIBER/FOLIO 1922/359
TAX ACCOUNT 08-517692
ZONED R20

PETRILLO GUY M
PETRILLO PAULA M T/E
LOT 165 .353 A PARCEL 190
8440 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 5136/166
TAX ACCOUNT 08-517633
ZONED R20

GLASS STEPHEN N
GLASS JULIE D
LOT 168 .577 A PARCEL 190
8444 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 2027/174
TAX ACCOUNT 08-517641
ZONED R20

SULLIVAN JOHN R
SULLIVAN KATHRYN H T/E
LOT 167 .384 A PARCEL 190
8448 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 4007/249
TAX ACCOUNT 08-517698
ZONED R20

HASSETT MICHAEL K
SIMONS JEANNETTE
LOT 169 .331 A PARCEL 190
8435 SAND CHERRY LANE
CHERRYTREE FARM
LAUREL MD 20723-1093
LIBER/FOLIO 2001/237
TAX ACCOUNT 08-517684
ZONED R20

BROWN GREGORY S SR
BROWN CATHERINE R
LOT 171 .347 A PARCEL 190
8411 SAND CHERRY LANE
CHERRYTREE FARM
LAUREL MD 20723-1093
LIBER/FOLIO 4002/341
TAX ACCOUNT 08-517706
ZONED R20

STONE TOE PROTECTION (TYP.) (SEE SHEET C7 FOR DETAIL AND THIS SHEET FOR SCHEDULE OF LOCATIONS)

STONE TOE PROTECTION	
FROM STA.	TO STA.
2+90	3+05
2+20	2+50
2+03	2+20
1+45	1+58

100-YEAR FLOODPLAIN ELEVATIONS			
HEC-RAS CROSS-SECTION	PROPOSED 100-YEAR WSEL (FT)	HEC-RAS CROSS-SECTION	PROPOSED 100-YEAR WSEL (FT)
510	332.60	845	345.07
550	335.34	848	345.51
685	341.41	852	345.48
701	341.74	856	345.10
703	341.75	859	345.54
709	341.74	861	346.23
712	341.73	866	346.23
716	341.73	870	345.77
718	341.74	873	346.56
722	341.73	875	347.12
726	341.68	880	347.14
730	341.69	884	347.29
731	341.73	894	348.23
736	341.74	913	348.26
749	341.33	916	348.82
770	341.96	921	348.83
771	342.45	925	349.14
777	342.50	928	349.43
780	342.31	930	349.72
783	342.65	935	349.73
786	343.00	939	349.82
790	342.82	948	350.30
794	343.75		

SAND CHERRY LANE
(PUBLIC ROAD)

PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT NO 7839)

100-YR EXISTING FLOODPLAIN ELEVATION

100 YR PROPOSED FLOODPLAIN ELEVATION

EXISTING STORMWATER MANAGEMENT POND (SEE F-85-92)

EXISTING CONTROL STRUCTURE

EX. OUTFALL PROTECTION

POND OUTFALL

EX. PUBLIC 100-YEAR FLOODPLAIN, DRAINAGE AND UTILITY EASEMENT (PLAT NO. 7839)

EX. SIDEWALK

EX. CURB LINE

EX. STREET TREE (TYP.)

COMCAST

GAS

BGE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/4/04

DIRECTOR — DATE 12/27/04

NO.	REVISIONS	DESCRIPTION	DATE

KCI FILE: M:\ 2001\ 010128.C \ Drawings \ ps01cherry.dgn

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CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

SITE PLAN - AREA A

SCALE: 1" = 20'
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

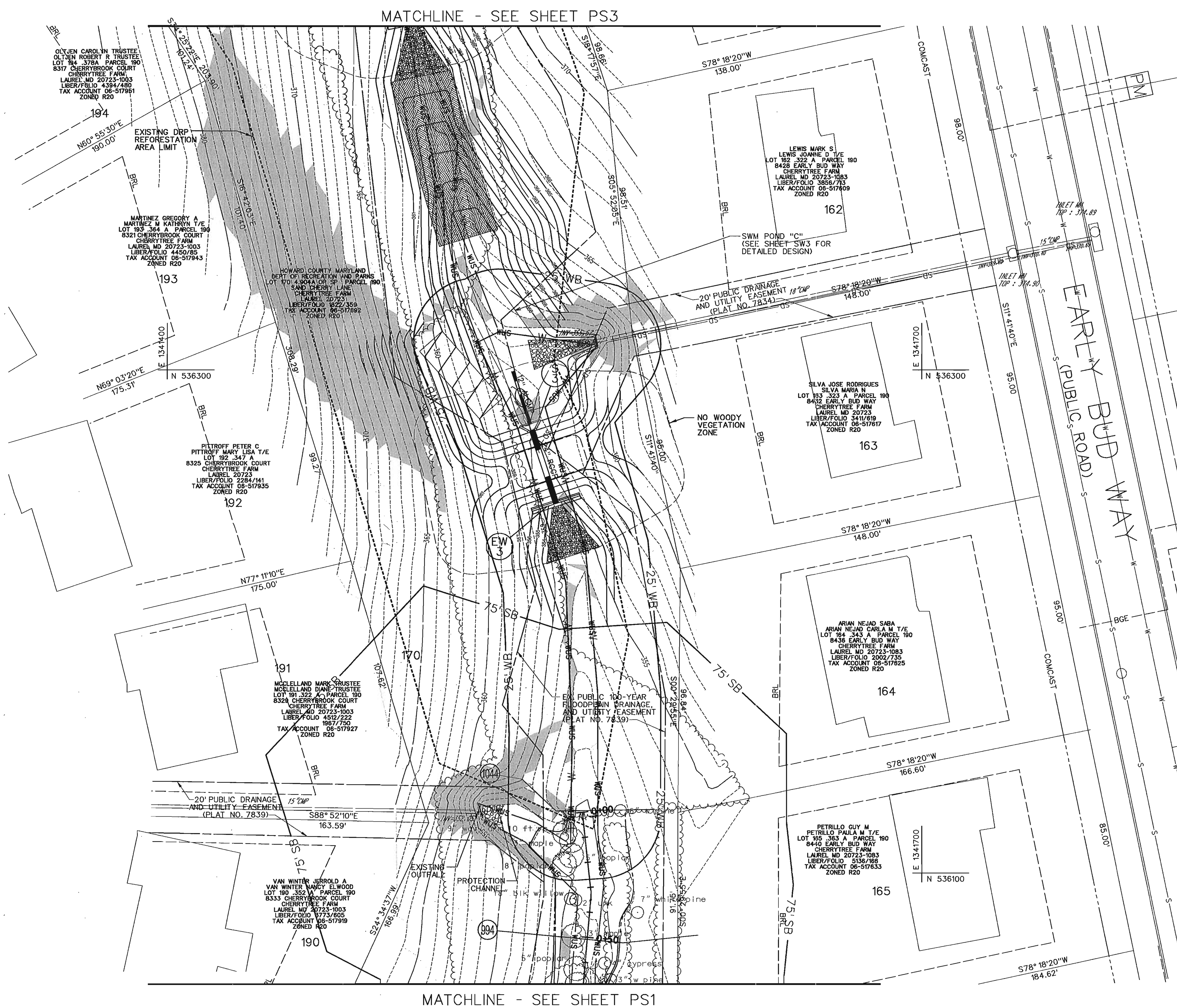
PS1

SHEET NO.: 4 OF 36

SDP-04-123

PLOTTED: "01:48 PM on Monday, November 08, 2004"
By: Matt Snyder, Division: Water Resources
File: m:\2001\010128.c\drawings\ps01cherry.dgn

100-YEAR FLOODPLAIN ELEVATIONS	
HEC-RAS CROSS-SECTION	PROPOSED 100-YEAR WSEL (FT)
994	350.56
1044	351.81



APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 12/17/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 12/21/04
DIRECTOR (ACTING)	DATE 12/27/04

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

SITE PLAN - AREA B

SCALE:	1" = 20'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

PS2

SDP-04-123

MATCHLINE - SEE SHEET PS4
MATCHLINE - SEE SHEET PS2
EARLY BUD WAY
(PUBLIC ROAD)
SWM POND "A"
(SEE SHEET SW1 FOR
DETAILED DESIGN)
SWM POND "B"
(SEE SHEET SW2 FOR
DETAILED DESIGN)
NO WOODY
VEGETATION
ZONE
EXIST. DRP
REFORESTATION
AREA LIMIT
EX. PUBLIC 100-YEAR
FLOODPLAIN, DRAINAGE,
AND UTILITY EASEMENT
(PLAT NO. 7839)
50' R/W
30' PAVEMENT
COMCAST
GAS
BGE
BRL
N 536700
E 1341300
E 1341600
N 536500
S78° 18'20"W
162.55
160.00
138.00
S77° 34'30"W
164.79
S55° 22'53"W
S40° 24'10"E
194.84
S32° 30'00"E
197.18
S48° 18'20"E
182.13
157
PARK DO KYU
PARK SOON HEE
LOT 157 .365 A PARCEL 190
8408 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 4429/101
TAX ACCOUNT 06-517552
ZONED R20
158
ONEILL EILEEN P
STODDARD KAREN M J/T
LOT 158 .353 A PARCEL 190
8412 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 5959/83
TAX ACCOUNT 06-517560
ZONED R20
159
DOOLEY MICHAEL F
DOOLEY ELIZABETH C
LOT 159 .333 A PARCEL 190
8416 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 4514/1
TAX ACCOUNT 06-517579
ZONED R20
160
FARB HELEN J TRUSTEE
LOT 160 .327 A PARCEL 190
8420 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 5365/267
TAX ACCOUNT 06-517587
ZONED R20
161
OBRIEN KEVIN J
LOT 161 .323 A PARCEL 190
8424 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 4135/711
TAX ACCOUNT 06-517595
ZONED R20
170
HOWARD COUNTY MARYLAND
DEPT OF RECREATION AND PARKS
LOT 170 4.104A OF SP PARCEL 190
SAND CHERRY LANE
CHERRYTREE FARM
LAUREL 20723
LIBER/FOLIO 1822/359
TAX ACCOUNT 06-517692
ZONED R20
203
EICHERT JAMES J
EICHERT RACHELLE A D T/E
LOT 203 .372 A PARCEL 190
8335 SAND CHERRY LANE
CHERRYTREE FARM
LAUREL MD 20723
LIBER/FOLIO 2988/435
TAX ACCOUNT 06-518080
ZONED R20
202
JAEGER WILLIAM J
JAEGER GERTRUDE V
LOT 202 .408 A PARCEL 190
8339 SAND CHERRY LN
CHERRYTREE FARM
LAUREL MD 20723-1091
LIBER/FOLIO 1857/154
TAX ACCOUNT 06-518052
ZONED R20
201
SMITH RICHARD M
SMITH LOUISE H T/E
LOT 201 .391 A PARCEL 190
8343 SAND CHERRY LANE
CHERRYTREE FARM
LAUREL MD 20723-1091
LIBER/FOLIO 4330/156
TAX ACCOUNT 06-518044
ZONED R20
200
BRAUN WILLIAM J
BRAUN BONNIE S T/E
LOT 200 .378 A PARCEL 190
8347 SAND CHERRY LANE
CHERRYTREE FARM
LAUREL MD 20723-1091
LIBER/FOLIO 4688/480
TAX ACCOUNT 06-518036
ZONED R20
197
GLEN THOMAS R
GLEN DOROTHY K
LOT 197 .423 A PARCEL 190
8305 CHERRYBROOK COURT
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 1955/2
TAX ACCOUNT 06-517994
ZONED R20
196
ADKINS BEN H JR TRUSTEE
ADKINS PATRICIA H TRUSTEE
LOT 196 .422 A PARCEL 190
8309 CHERRYBROOK COURT
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 5049/675
TAX ACCOUNT 06-517986
ZONED R20
195
BRAND DOUGLAS E
BRAND MEGAN H
LOT 195 .390 A
8313 CHERRYBROOK COURT
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 4394/480
TAX ACCOUNT 06-517951
ZONED R20
194
OLTJEN CAROLYN TRUSTEE
OLTJEN ROBERT R TRUSTEE
LOT 194 .378A PARCEL 190
8317 CHERRYBROOK COURT
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 4394/480
TAX ACCOUNT 06-517951
ZONED R20
S1
S2
EW 1
EW 2
D
C
B
A

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/7/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

PLOTTED: 01:48 PM on Monday, November 08, 2004
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NO.	REVISIONS DESCRIPTION	DATE

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

SITE PLAN - AREA C

SCALE:	1" = 20'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

PS3

SHEET NO.: 6 OF 36

SDP-04-123

D
C
B
A
SAND CHERRY LANE
(PUBLIC ROAD)
EARLY BUD WAY
(PUBLIC ROAD)
PM
20' PUBLIC SEWER AND UTILITY EASEMENT (PLAT NO. 7839)
E 1341300
N 537100
SSMH: TOP : 394.21
GAS
COMCAST
EX. CURBLINE
INLET MH TOP : 389.09
SSMH: TOP : 388.77
50' R/W
30' PAVEMENT
20' PUBLIC DRAINAGE AND UTILITY EASEMENT
EX. OUTFALL PROTECTION CHANNEL
170
155
LAMPE ERIC A
LAMPE R DIANE
LOT 155 .213 A PARCEL A
8400 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 1949/282
TAX ACCOUNT 06-517536
ZONED R20
189.59
N75° 31'12.67"E
156
WHANG KWANG CHUL
WHANG DONG OK T/E
LOT 156 .426 A PARCEL 190
8404 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 1976/116
TAX ACCOUNT 06-517544
ZONED R20
203
EICHERT JAMES J
EICHERT RACHELLE A D T/E
LOT 203 .372 A PARCEL 190
8335 SAND CHERRY LANE
CHERRYTREE FARM
LAUREL MD 20723
LIBER/FOLIO 2988/435
TAX ACCOUNT 06-518060
ZONED R20
BRL
BGE
E 1341300
N 536900
E 1341600
N 536900
50' R/W
30' PAVEMENT
177.72
N76° 07'7.75"E
157
PARK DO KYU
PARK SOON HEE
LOT 157 .365 A PARCEL 190
8408 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 4429/101
TAX ACCOUNT 06-517552
ZONED R20
EXISTING DRP REFORESTATION AREA LIMIT

MATCHLINE - SEE SHEET PS3

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

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BY: Matt Snyder Division: Water Resources
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NO.	REVISIONS DESCRIPTION	DATE

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION

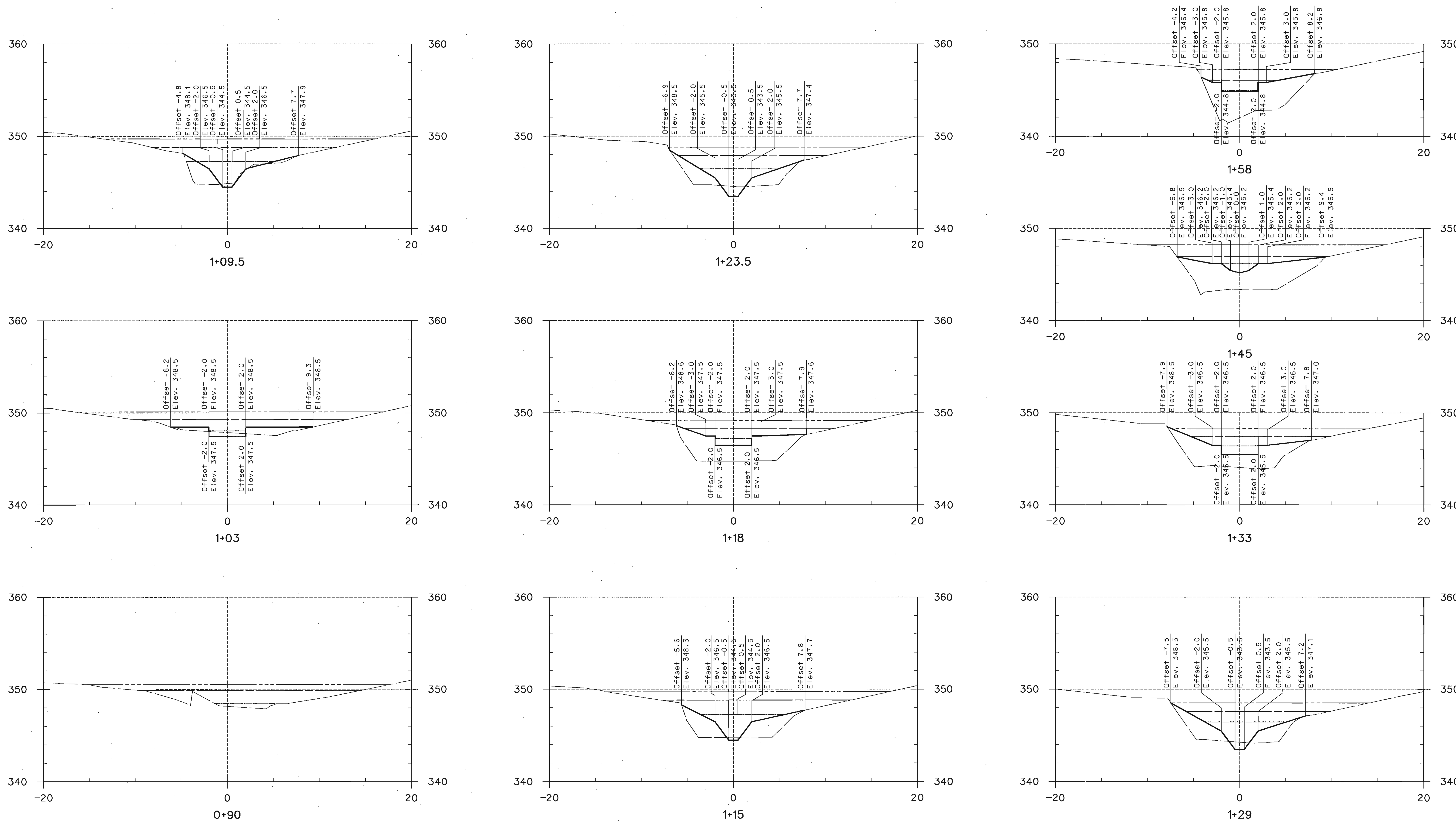
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

SITE PLAN - AREA D

SCALE:	1" = 20'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

PS4

SDP-04-123



ALL CROSS SECTIONS ARE SHOWN LEFT TO RIGHT LOOKING DOWNSTREAM

PROPOSED 100-YR WATER SURFACE ELEVATION
PROPOSED 10-YR WATER SURFACE ELEVATION
PROPOSED 2-YR WATER SURFACE ELEVATION
EXISTING GRADE (FEBRUARY, 2003)
PROPOSED GRADE

HOR. SCALE 0 5' 10'

VERT. SCALE 0 5' 10'

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR — DATE 12/27/04

NO.	REVISIONS DESCRIPTION	DATE

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION

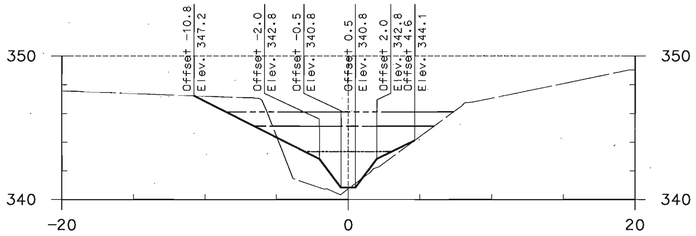
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

CROSS-SECTIONS

SCALE: 1" = 5'
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

C1

SDP-04-123



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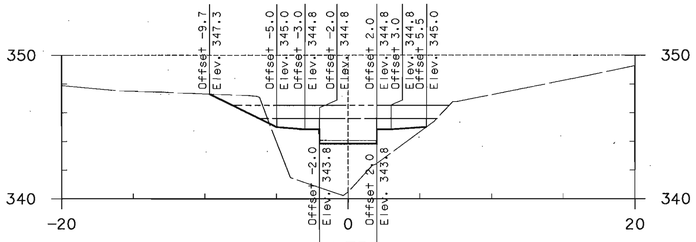

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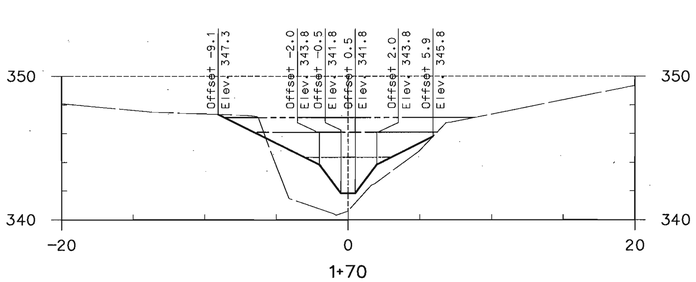

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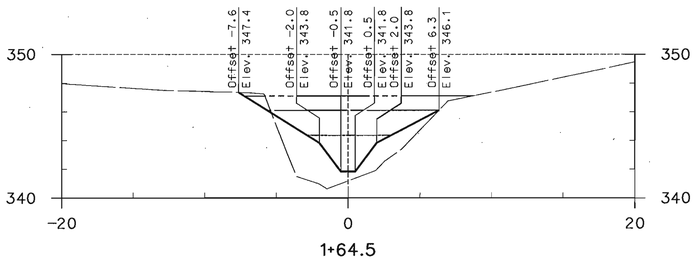

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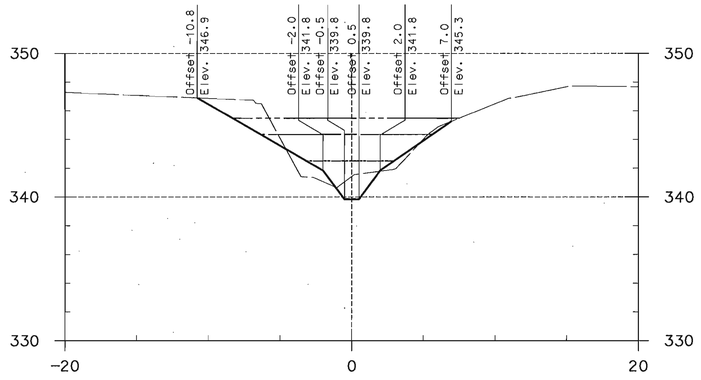

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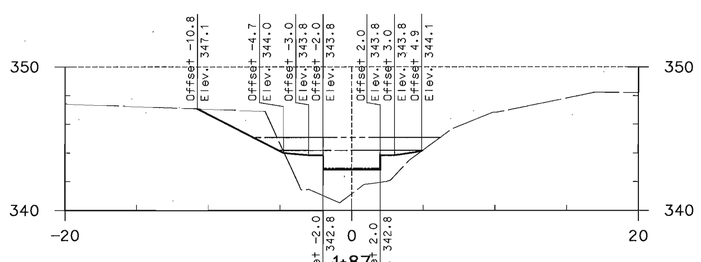

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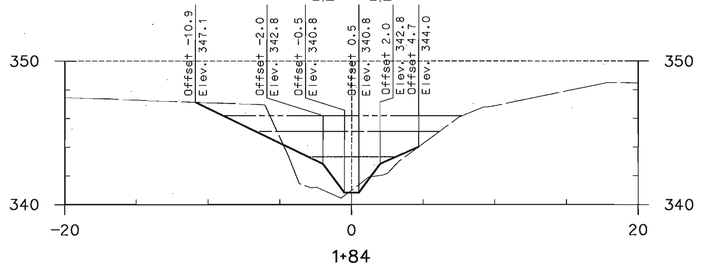

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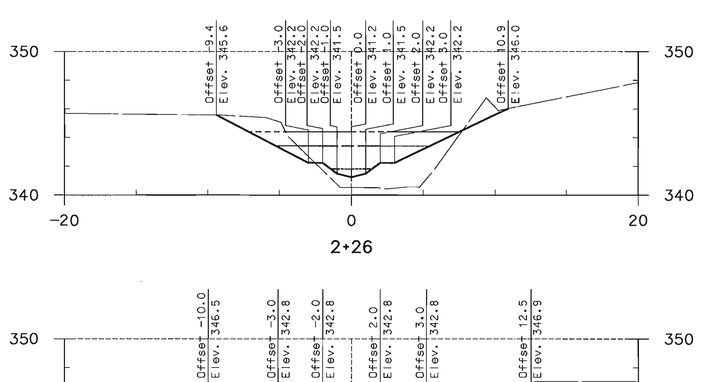

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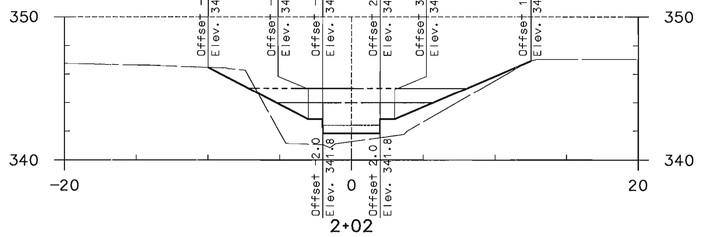

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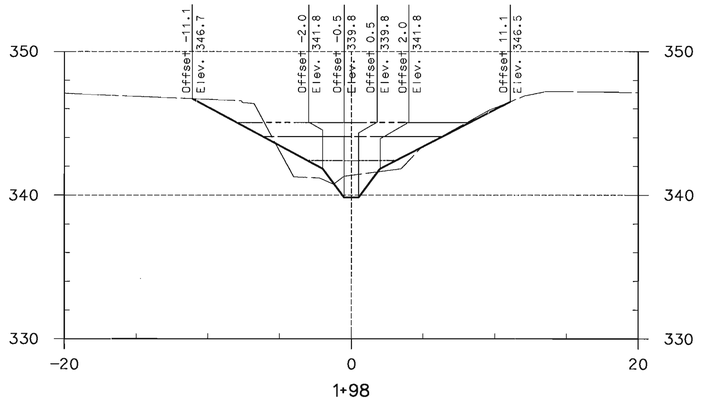

1+98

PROPOSED 100-YR WATER SURFACE ELEVATION

PROPOSED 10-YR WATER SURFACE ELEVATION

PROPOSED 2-YR WATER SURFACE ELEVATION

EXISTING GRADE (FEBRUARY, 2003)

PROPOSED GRADE

ALL CROSS SECTIONS ARE SHOWN LEFT TO RIGHT LOOKING DOWNSTREAM

HOR. SCALE 0 5' 10'

VERT. SCALE 0 5' 10'

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR — DATE 12/27/04

NO.	REVISIONS	DESCRIPTION	DATE

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HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

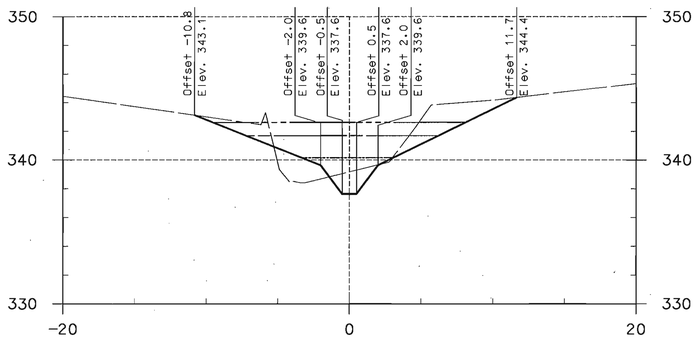
CROSS-SECTIONS

SCALE: 1" = 5'
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

C2

SHEET NO.: 9 OF 36

PLOTTED: "0149 PM on Monday, November 08, 2004"
BY: Matt Snyder, Division of Water Resources
FILE: m:\2001\0101128.c\dwg\cs02cherry.dgn



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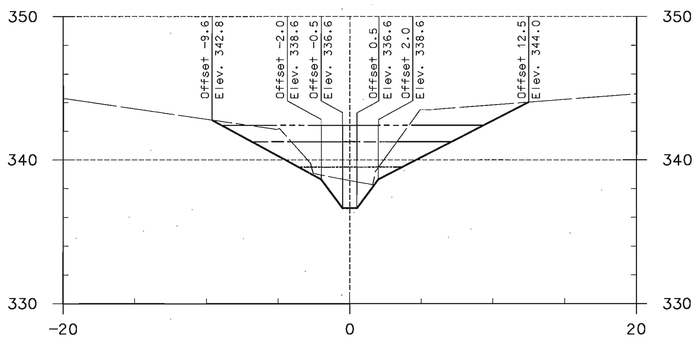

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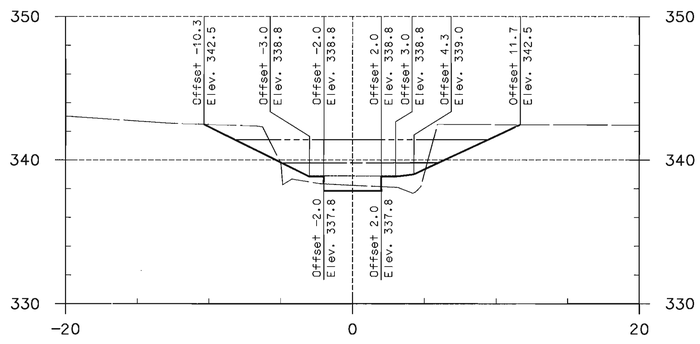

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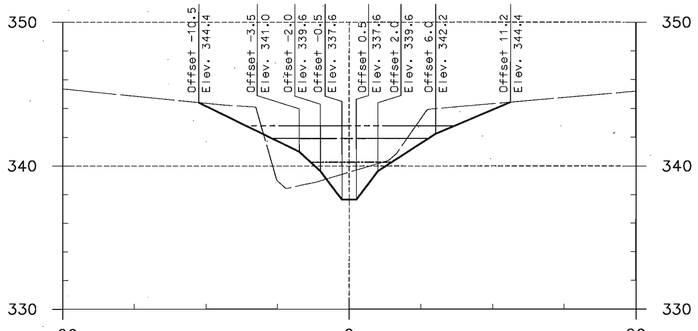

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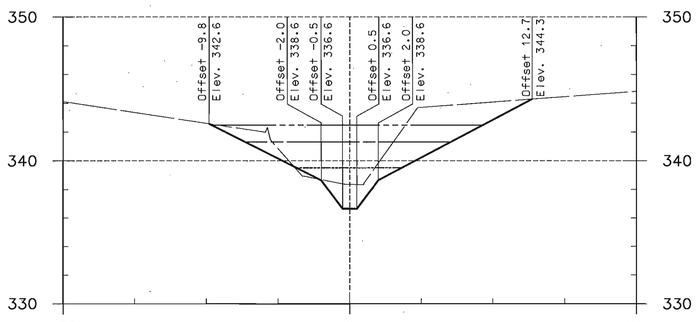

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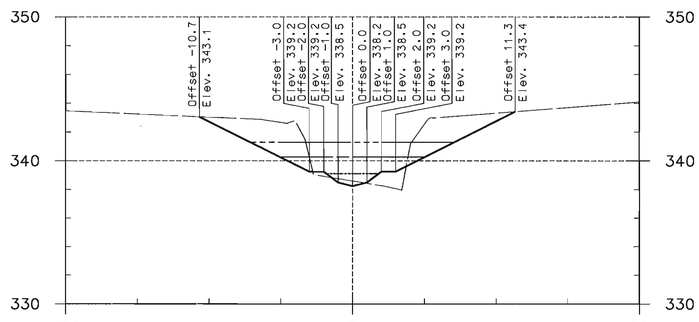

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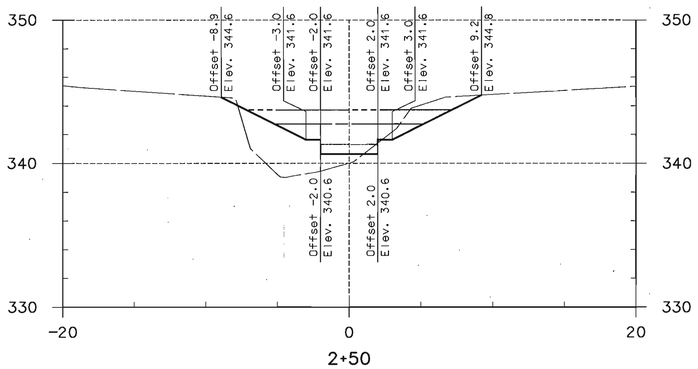

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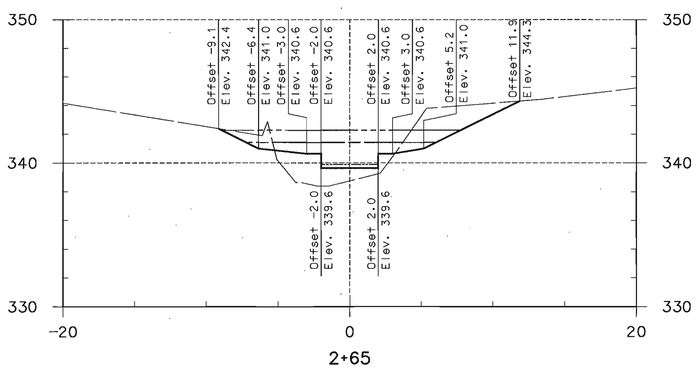

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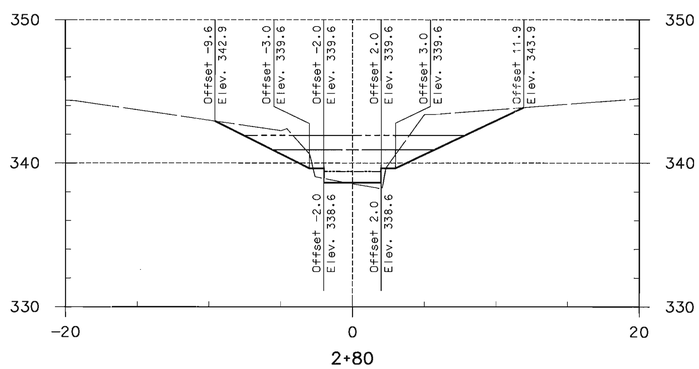


2+80

PROPOSED 100-YR WATER SURFACE ELEVATION

PROPOSED 10-YR WATER SURFACE ELEVATION

PROPOSED 2-YR WATER SURFACE ELEVATION

EXISTING GRADE (FEBRUARY, 2003)

PROPOSED GRADE

ALL CROSS SECTIONS ARE SHOWN LEFT TO RIGHT LOOKING DOWNSTREAM

HOR. SCALE
0 5' 10'

VERT. SCALE
0 5' 10'

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (DECEASED) — DATE 12/27/04

NO.	REVISIONS	DESCRIPTION	DATE

KCI FILE: M:\ 2001\ 0101128.c \ ce03cherry.dgn

ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
KCI TECHNOLOGIES www.kci.com

CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE LOT 170

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

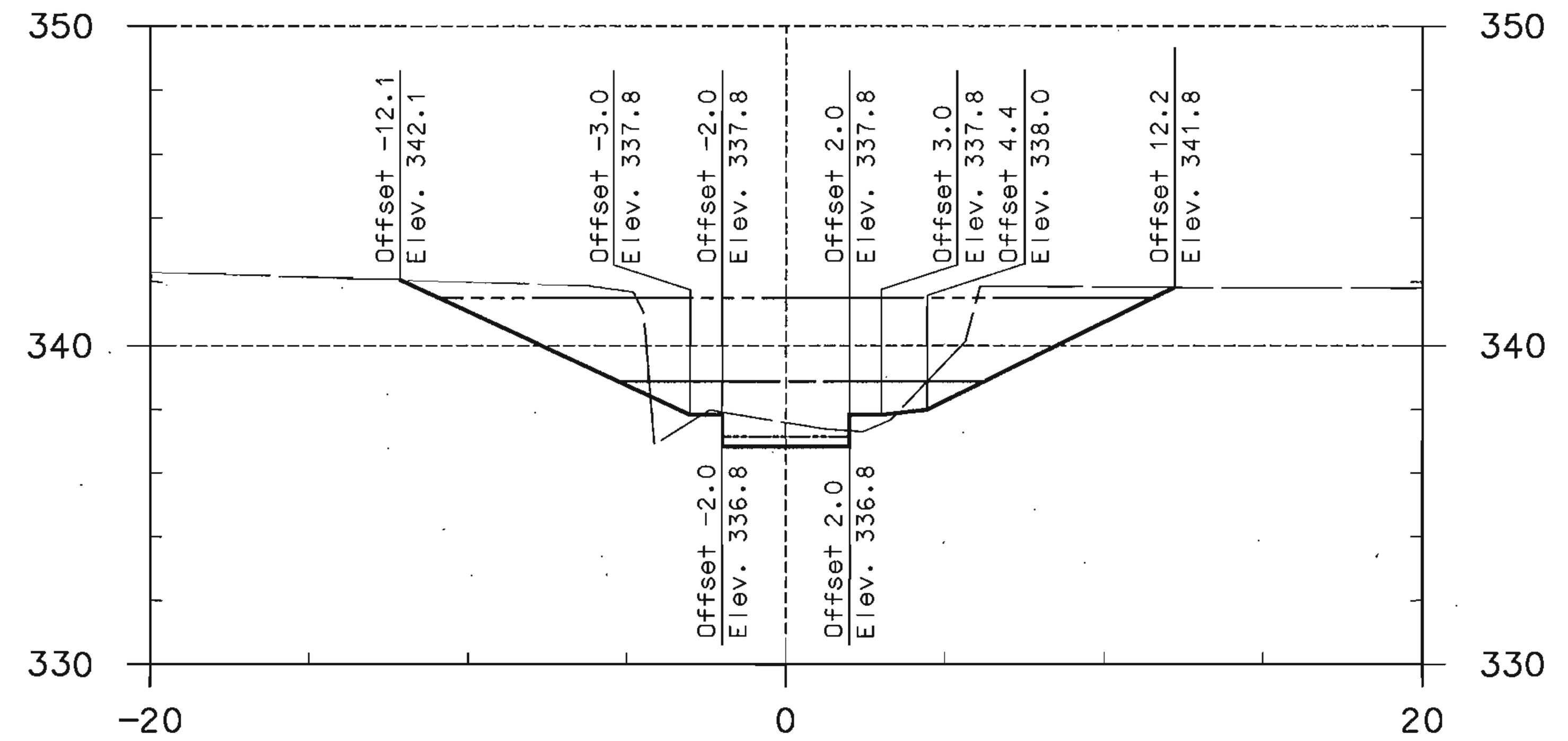
CROSS-SECTIONS

SCALE:	1" = 5'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

C3

SHEET NO.: 10 OF 36

PLOTTED: "01:49 PM on Monday, November 08, 2004"
BY: Matt Snyder Division: Water Resources
FILE: m:\2001\0101128.c\openspace\ce03cherry.dgn



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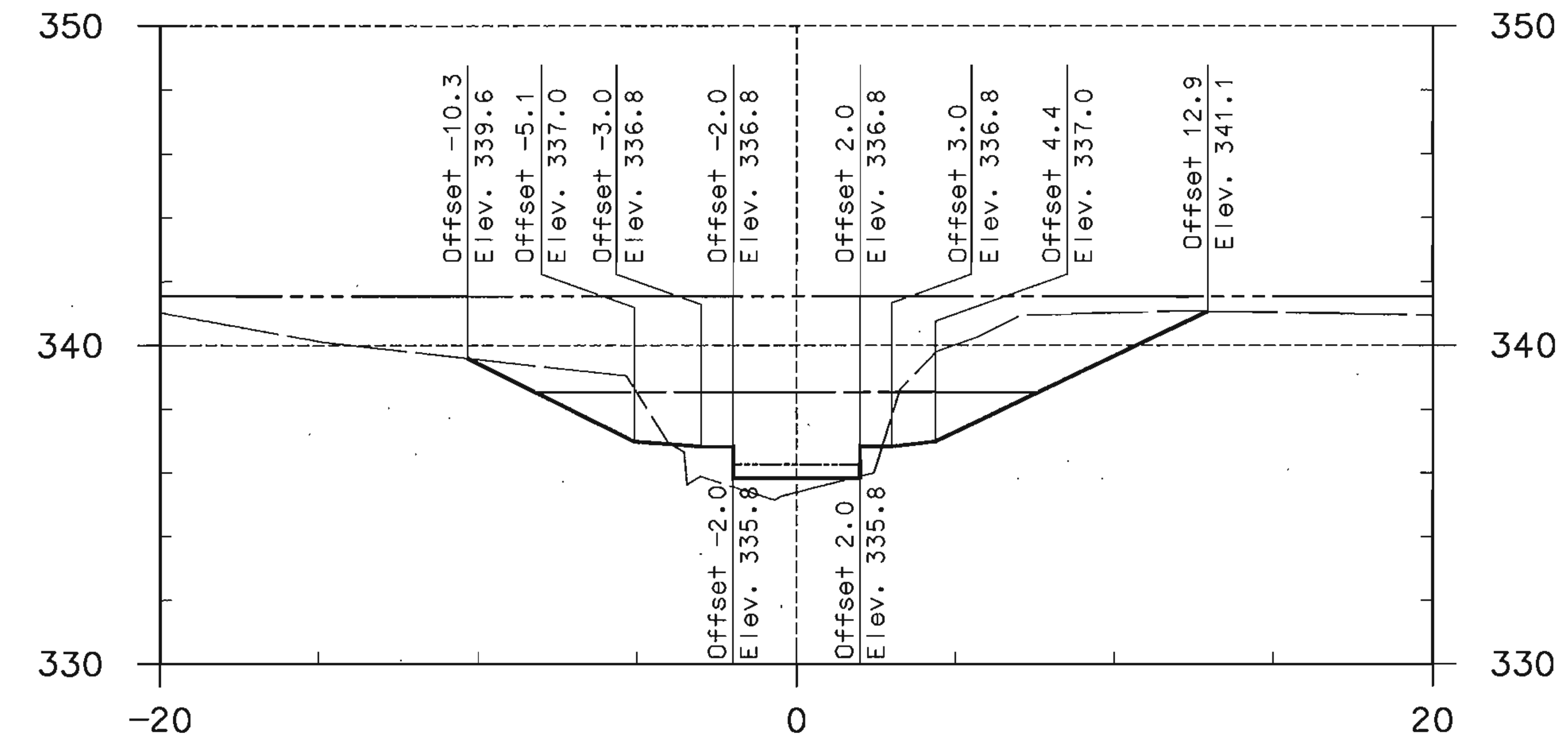

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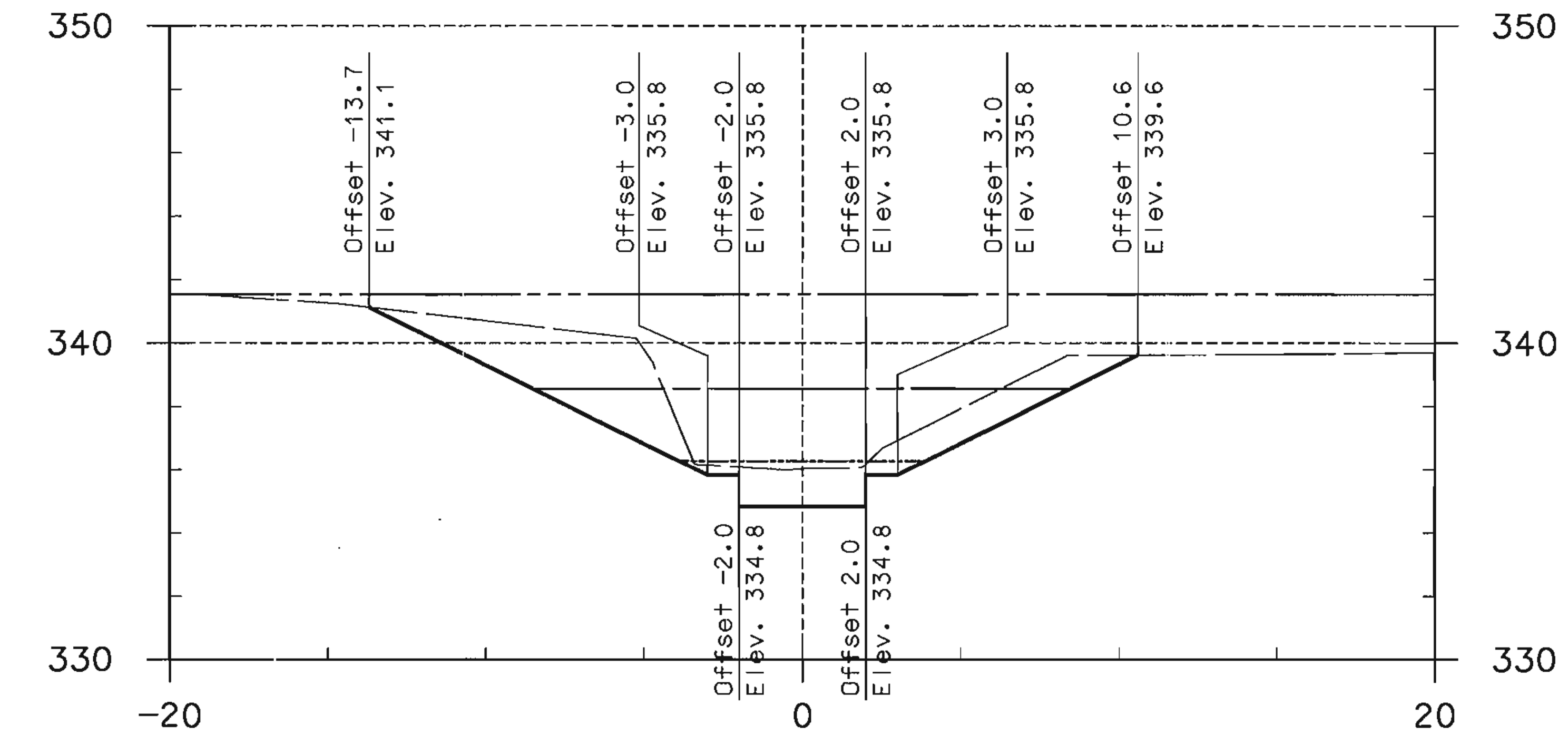

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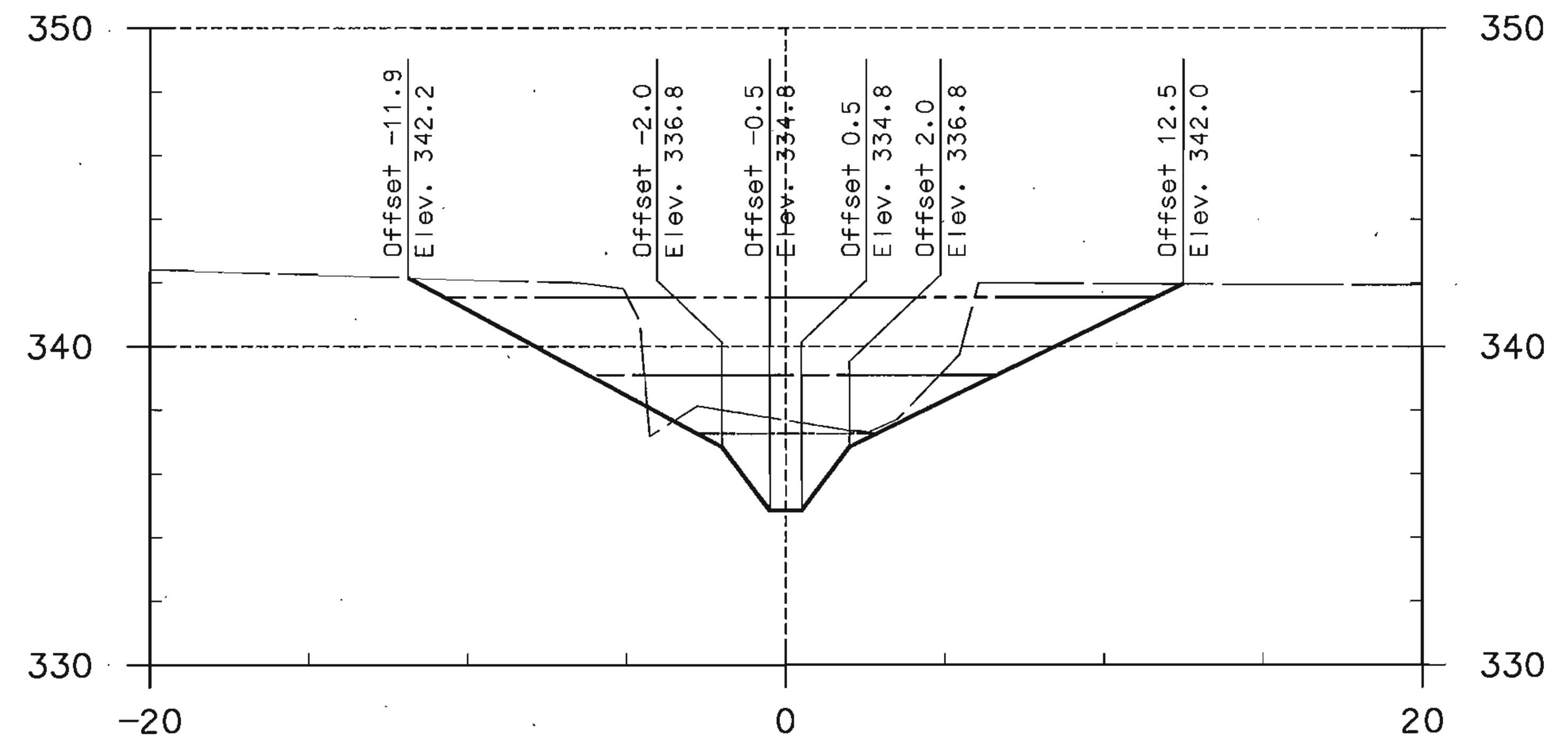
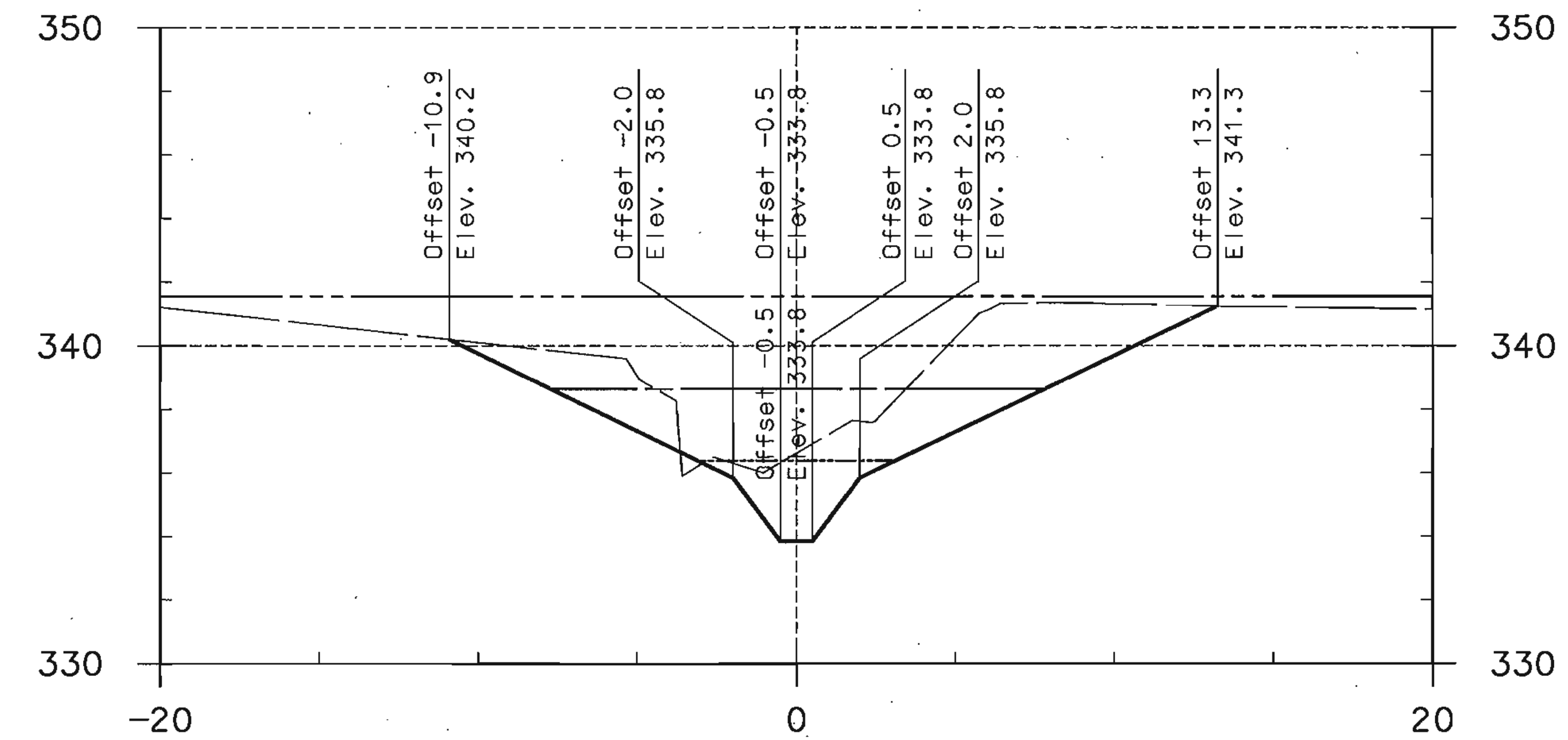
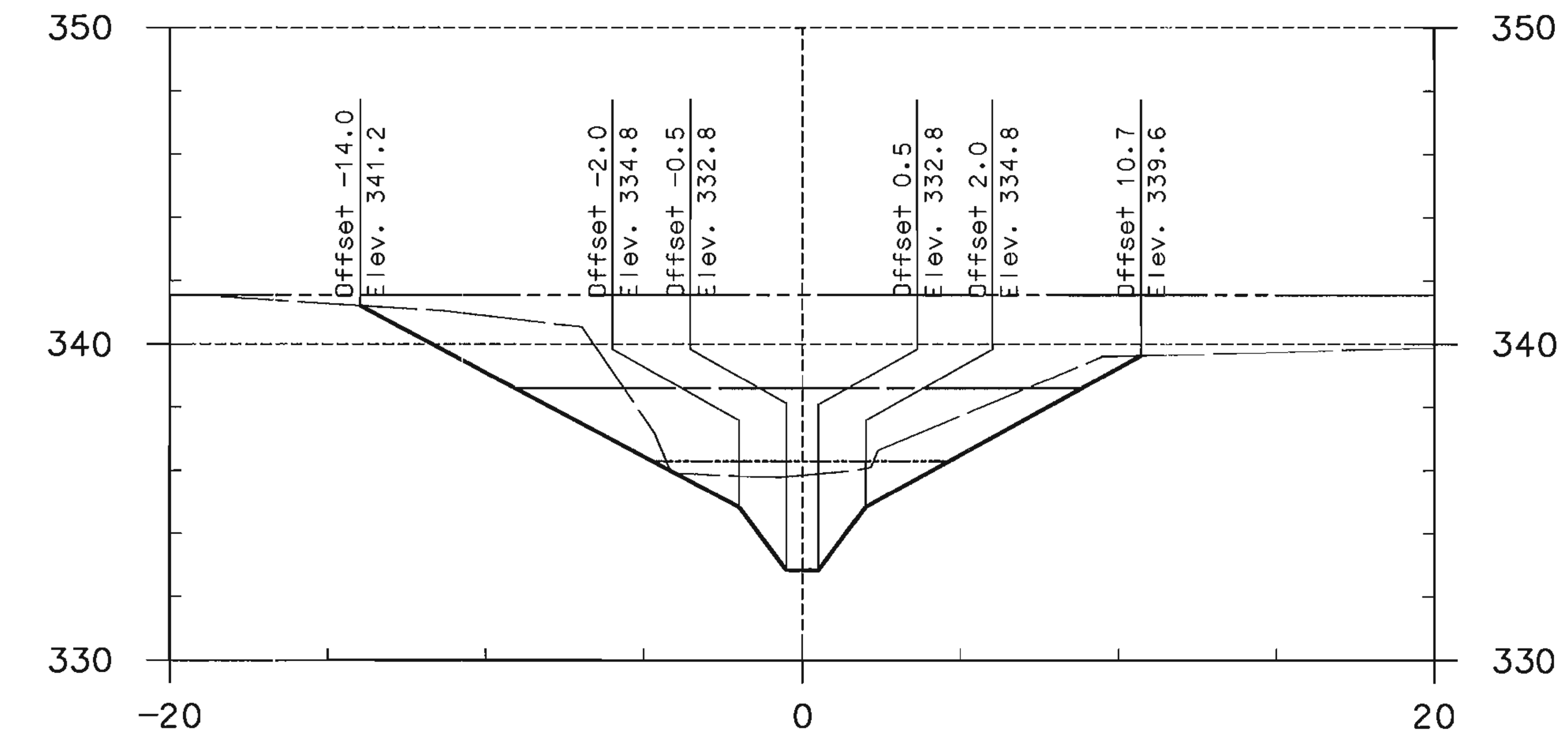


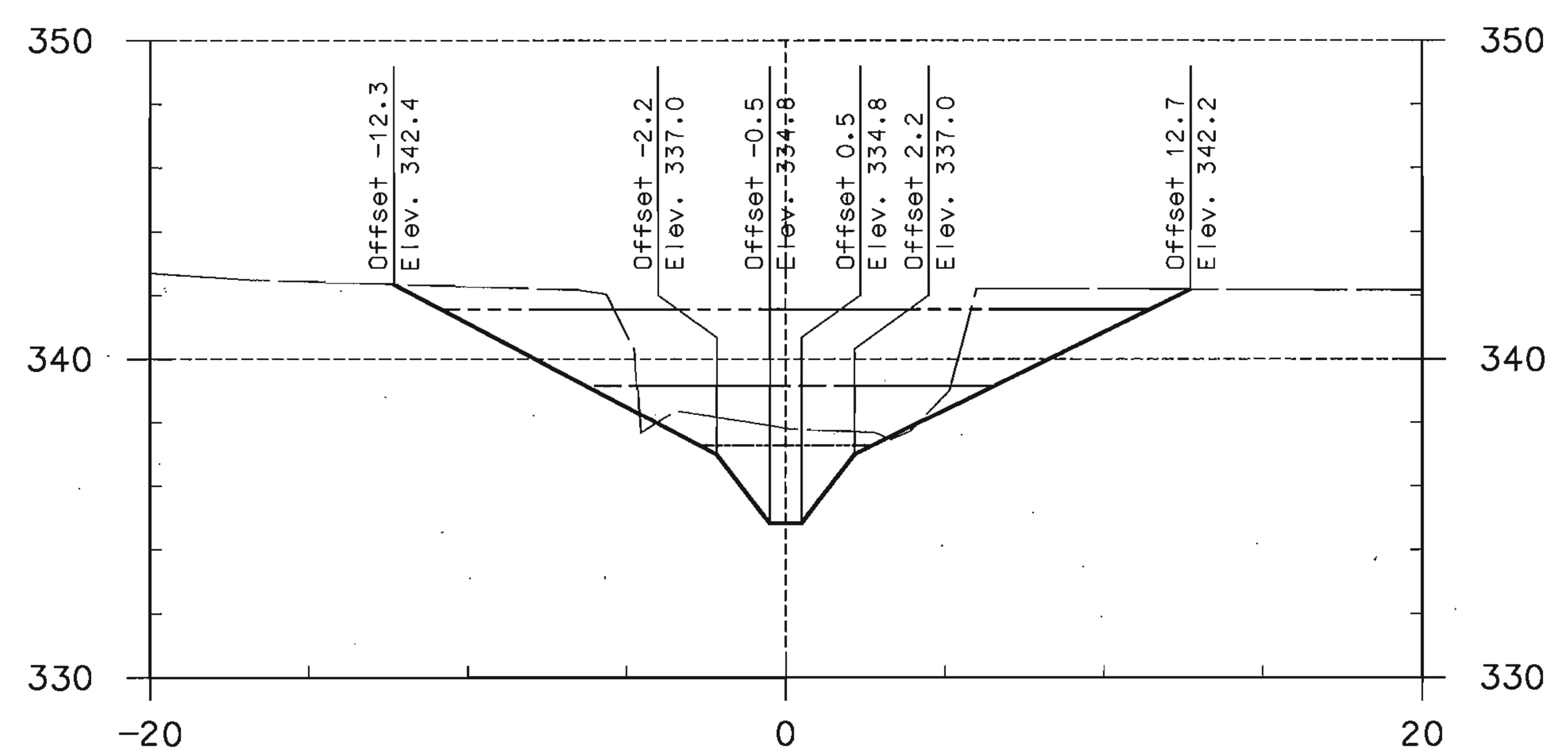
3+16



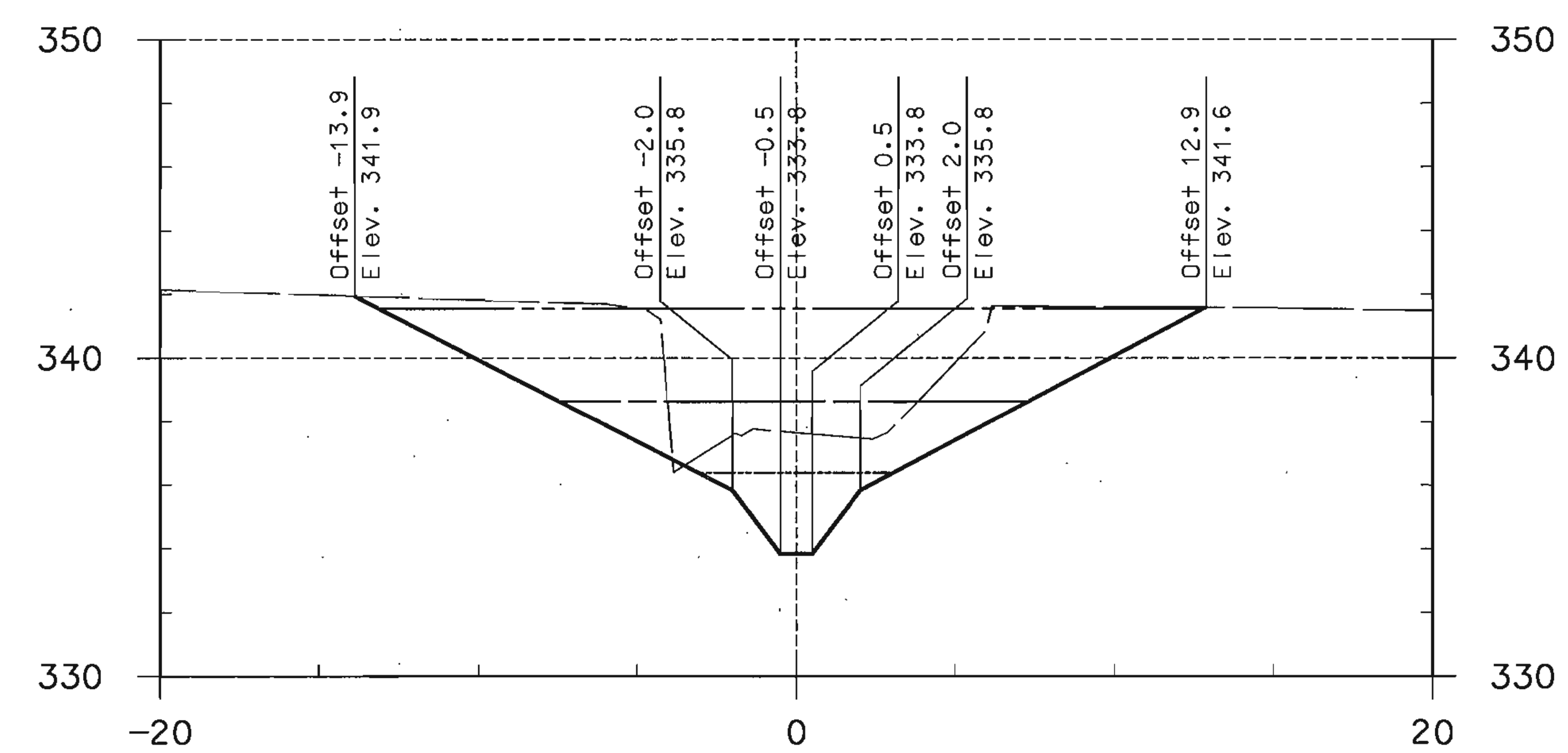
3+30



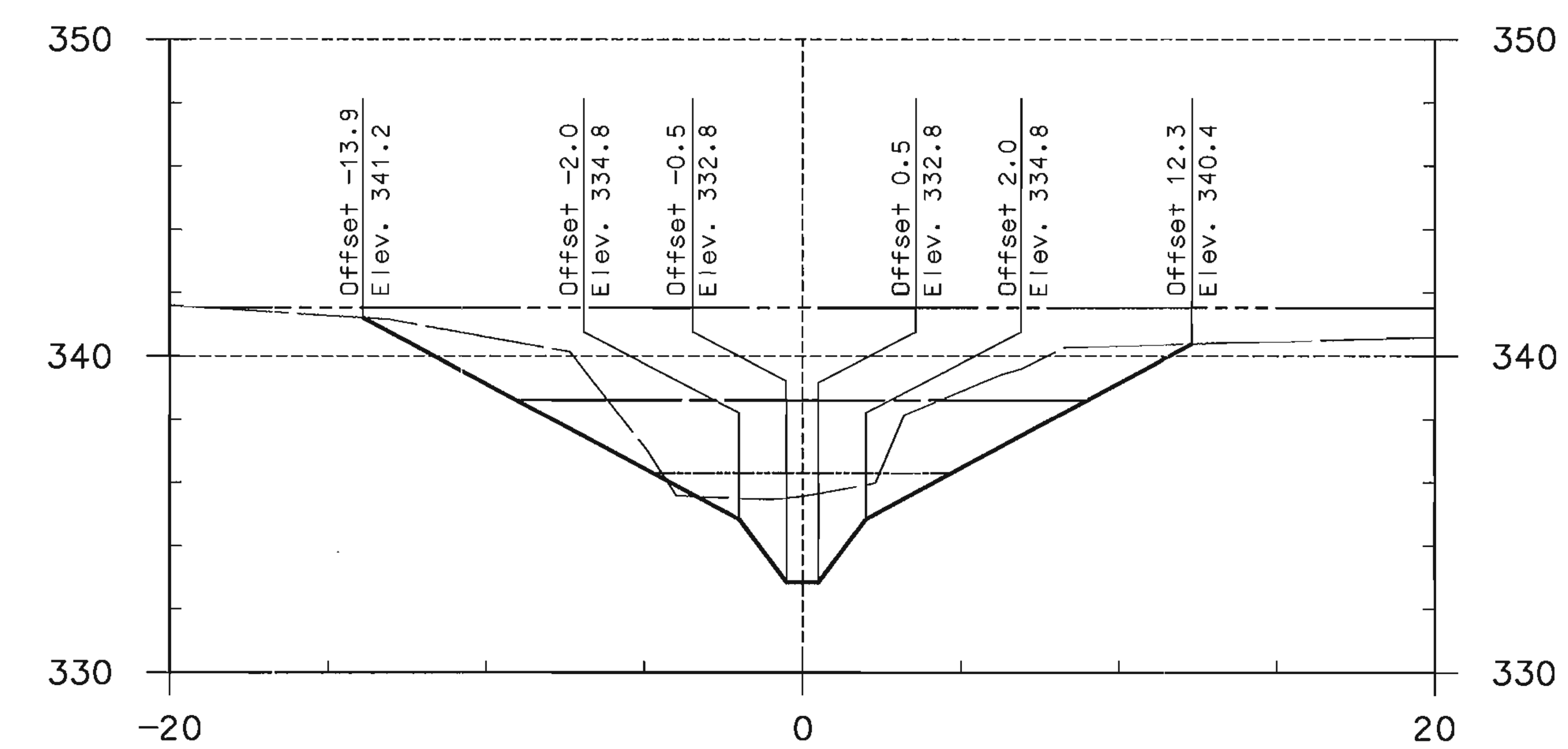
3+44



3+11



3+24.5



3+38.5

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR — DATE 12/27/04

ALL CROSS SECTIONS ARE SHOWN LEFT TO RIGHT LOOKING DOWNSTREAM

PROPOSED 100-YR WATER SURFACE ELEVATION

PROPOSED 10-YR WATER SURFACE ELEVATION

PROPOSED 2-YR WATER SURFACE ELEVATION

EXISTING GRADE (FEBRUARY, 2003)

PROPOSED GRADE

HOR. SCALE 0 5' 10'

VERT. SCALE 0 5' 10'

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 0101128.c \ cs04cherry.dgn

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

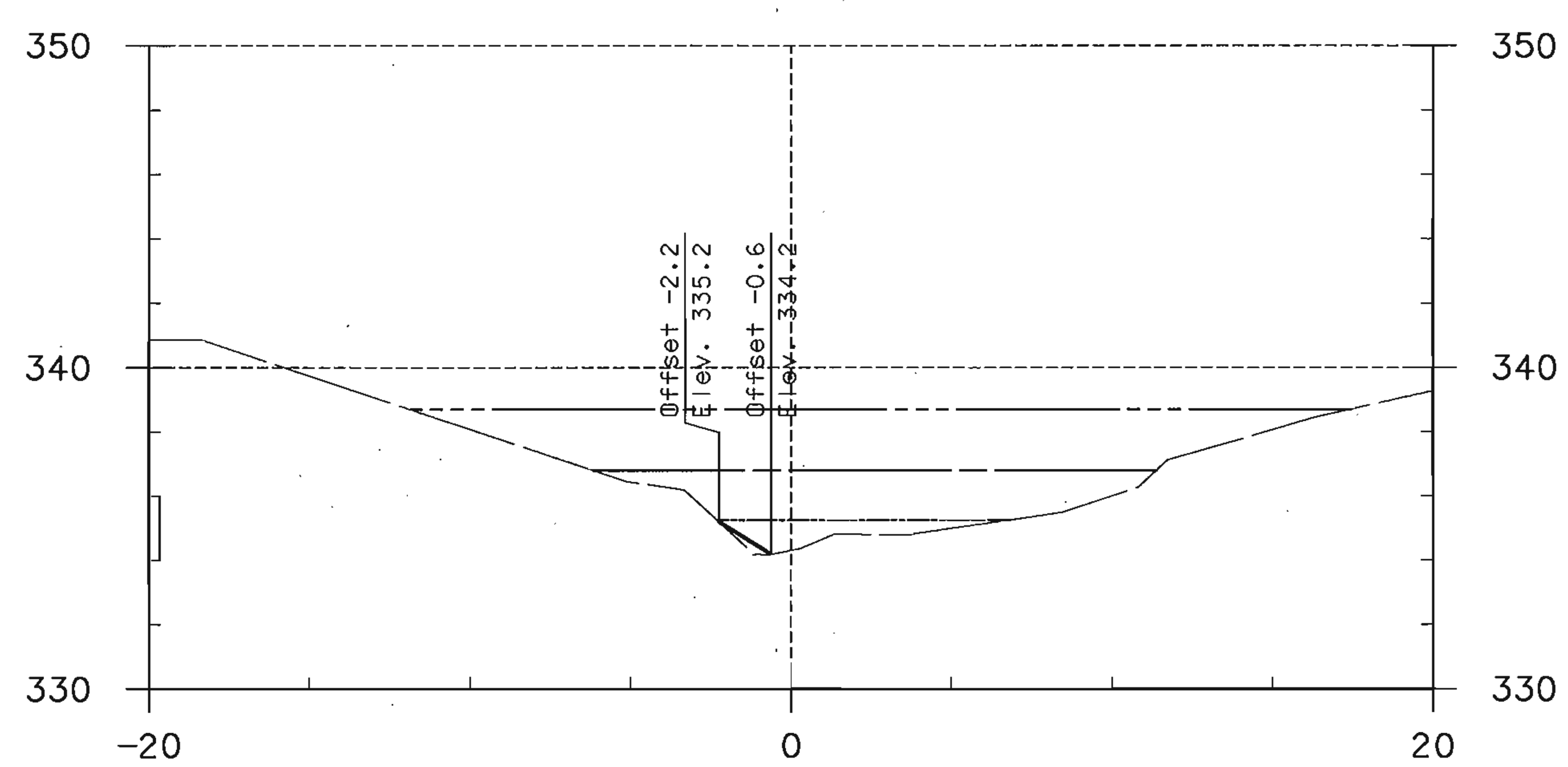
CROSS-SECTIONS

SCALE: 1" = 5'
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

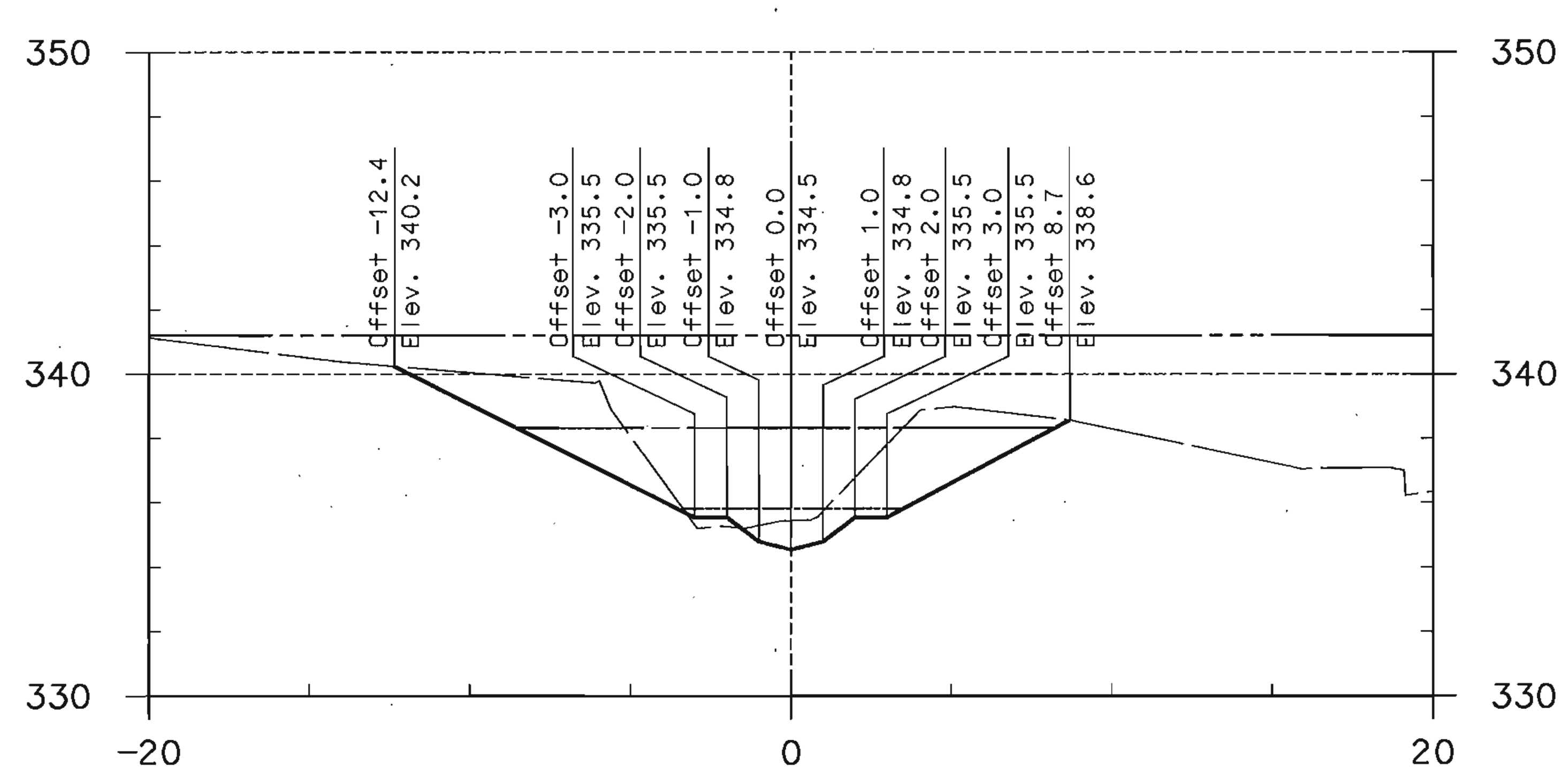
C4

SHEET NO.: 11 OF 36

PLOTTED: 01:49 PM on Monday, November 08, 2004
BY: Matt Snyder Division Water Resources
FILE: m:\2001\0101128.c\drawings\cs04cherry.dgn



3+75



3+62

PROPOSED 100-YR WATER SURFACE ELEVATION
PROPOSED 10-YR WATER SURFACE ELEVATION
PROPOSED 2-YR WATER SURFACE ELEVATION
EXISTING GRADE (FEBRUARY, 2003)
PROPOSED GRADE

ALL CROSS SECTIONS ARE SHOWN LEFT TO RIGHT LOOKING DOWNSTREAM

HOR. SCALE 0 5' 10'

VERT. SCALE 0 5' 10'

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/21/04

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 0101128.c \ cs05cherry.dgn

KCI TECHNOLOGIES www.kci.com
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS

CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE LOT 170

STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

CROSS-SECTIONS

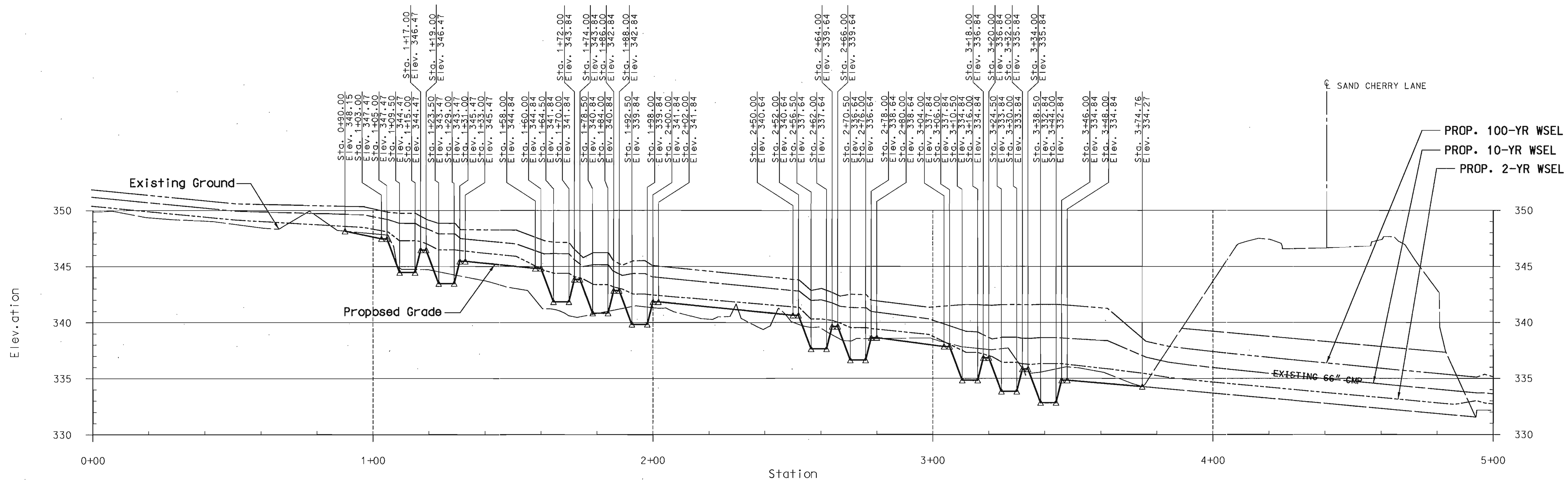
SCALE: 1" = 5'
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

C5

SHEET NO.: 12 OF 36

SDP-04-123

PLOTTED: 01:49 PM on Monday, November 08, 2004
FILE: m:\2001\0101128.c\drawings\cs05cherry.dgn



LOCATIONS OF STEP POOL WEIRS

CONSTRUCT AND INSTALL 18-30" WEIR STONES AS INDICATED ON TYPICAL DETAILS SHEET 14 OF 36 AT STATIONS LISTED BELOW.

STATION
1+04
1+18
1+32
1+59
1+73
1+87
2+01
2+51
2+65
2+79
3+05
3+19
3+33
3+47

PROPOSED 100-YR WATER SURFACE ELEVATION
PROPOSED 10-YR WATER SURFACE ELEVATION
PROPOSED 2-YR WATER SURFACE ELEVATION
EXISTING GROUND (FEBRUARY 2003)
PROPOSED GRADE

THE PROFILE SHOWN DEPICTS THE CENTERLINE OF PROPOSED CHANNEL, NOT THE THALWEG. REFER TO DETAILED CROSS SECTIONS, SHEETS C1-C5.

HOR. SCALE 0 20' 40'

VERT. SCALE 0 5' 10'

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/12/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

PLOTTED: "09:00 AM on Tuesday, November 09, 2004"
FILE: M:\2001\0101128.c\drawings\pr01cherry.dgn

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 0101128.c \ pr01cherry.dgn

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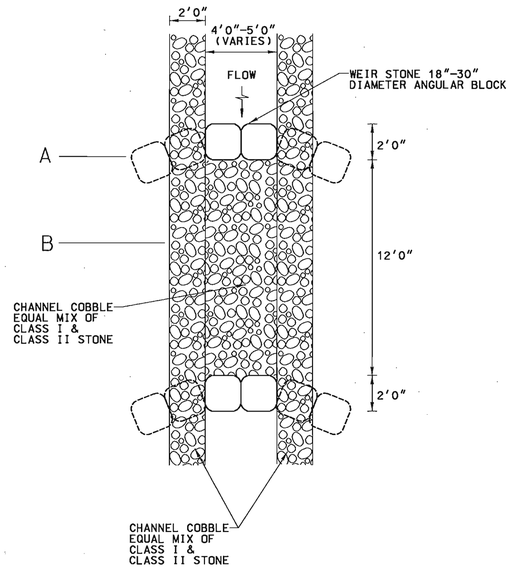
CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

STREAM PROFILE

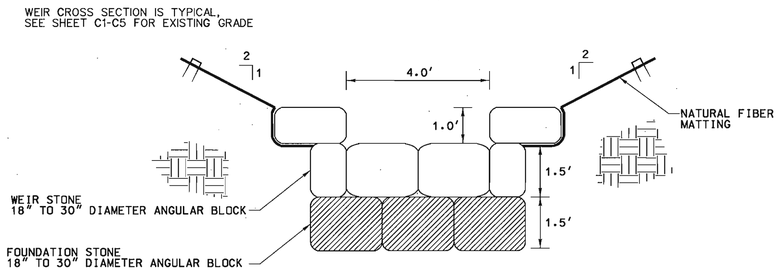
SCALE:	AS SHOWN
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

C6



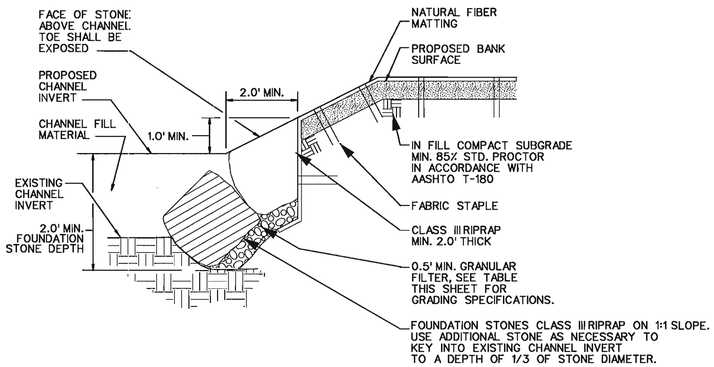
PLAN VIEW OF STEP-POOL

SCALE: 1"=4'



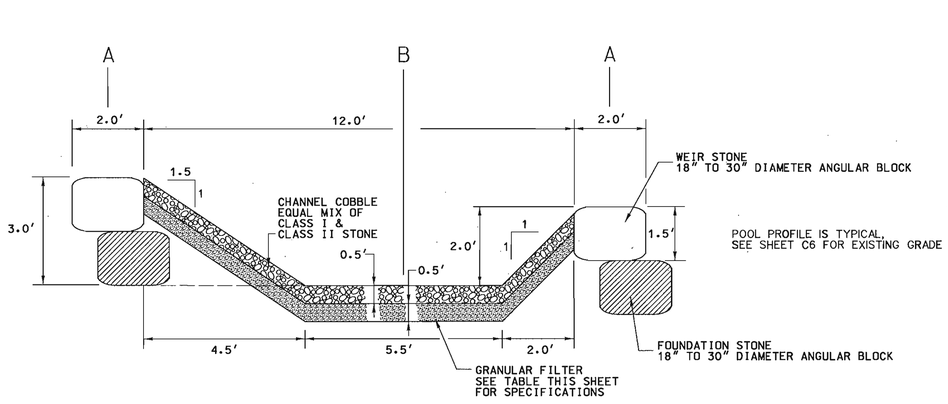
SECTION A- WEIR CROSS SECTION (TYPICAL)

SCALE: 1"=2'



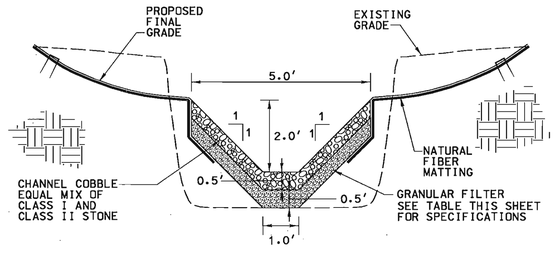
STONE TOE PROTECTION DETAIL

SCALE: 1"=2'



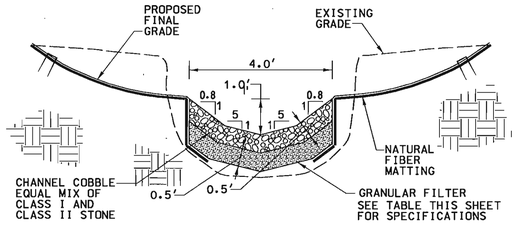
STEP POOL PROFILE (TYPICAL)

SCALE: 1"=2'



SECTION B- POOL CROSS SECTION (TYPICAL)

SCALE: 1"=2'



CHANNEL CROSS SECTION (TYPICAL)

SCALE: 1"=2'

NOTE: VOID SPACE IN CHANNEL COBBLE WILL BE FILLED BY WASHING IN EXISTING SAND AND GRAVEL MATERIAL OR NO. 57 STONE

GRANULAR FILTER MATERIAL	
% LESS THAN	U.S. STANDARD SIEVE SIZE
100	2½ IN. (64 mm)
85-100	1 IN. (25 mm)
60-100	½ IN. (13 mm)
35-70	No. 10
20-50	No. 40
3-20	No. 200

NOTE: MATERIAL CAN BE MADE BY MIXING

25%	CRUSHER RUN AGGREGATE (OR NO. 2 STONE)
25%	67 STONE
25%	PEA GRAVEL
25%	SAND/FINE AGGREGATE

NATURAL FIBER MATTING SPECIFICATION:

MATERIAL:	WOVEN COIR FIBER YARN OR TWINE
MINIMUM THICKNESS:	0.25 IN.
ELONGATION (DRY/WET):	9%/ 35% (APPROXIMATE)
MINIMUM WEIGHT:	20 OZ/SY
MAXIMUM OPEN AREA:	50%
FLOW VELOCITY THAT MATTING MUST WITHSTAND:	8 FT/SEC. OR GREATER
MAXIMUM ALLOWABLE SHEAR STRESS:	4.5 LBS/SQ FT
LIFE EXPECTANCY:	3 YRS
RECOMMENDED:	KOIR MAT 700 (NEDIA ENTERPRISES INC.) OR EQUIVALENT

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR — DATE 12/27/04

NO.	REVISIONS	DESCRIPTION	DATE

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ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
KCI TECHNOLOGIES
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CHERRY TREE FARM
SECTION 1 AREA 2,
OPEN SPACE LOT 170
STREAM RESTORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

STEP POOL/
WEIR DETAILS

SCALE: AS NOTED
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

C7

SHEET NO.: 14 OF 36

SDP-04-123

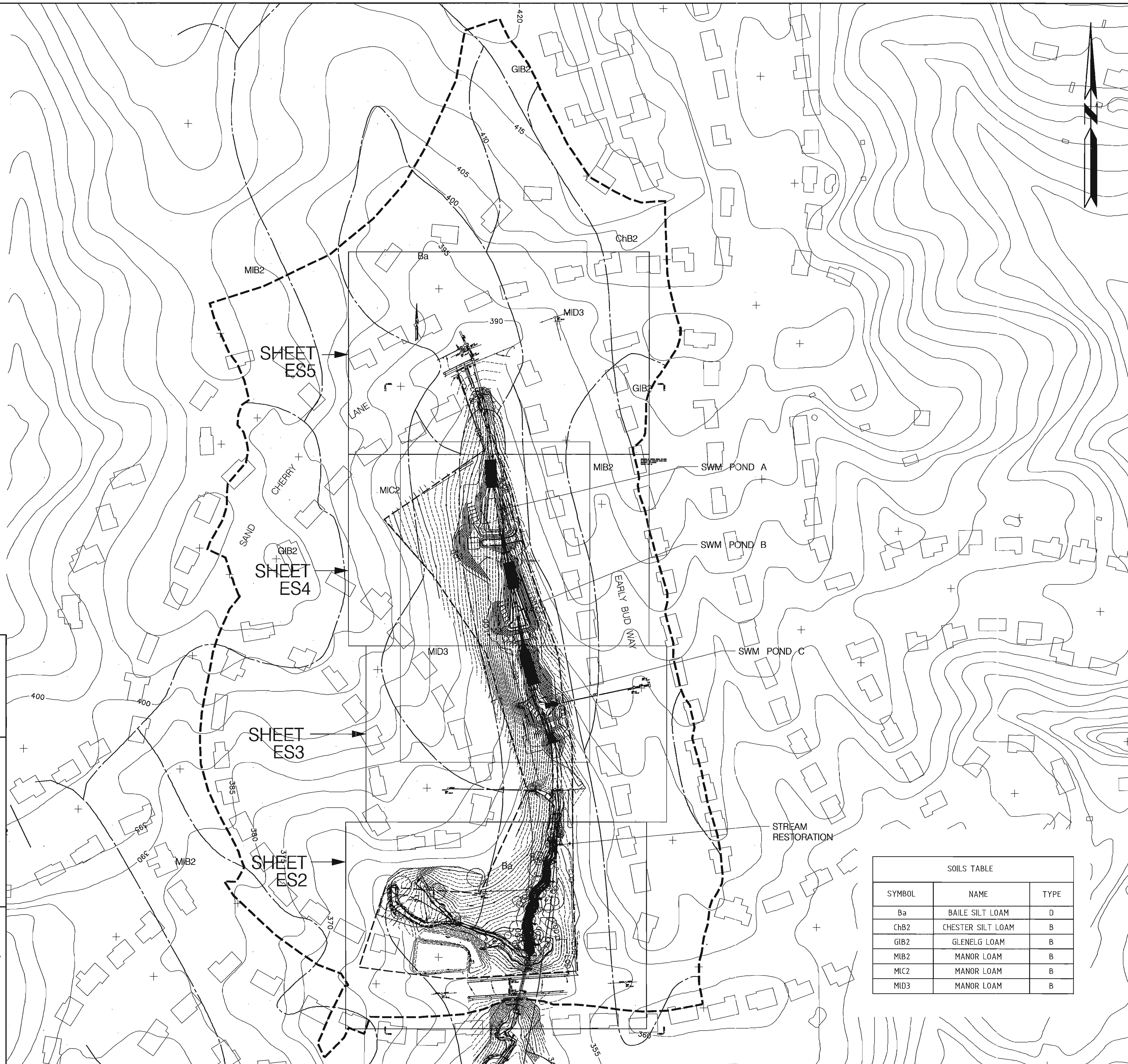
PLOTTED: "01:49 PM on Monday, November 08, 2004"
By: Matt Snyder, Division: Water Resources
File: M:\2001\0101128.c\dwg\de01cherry.dgn

LEGEND

— — — — (heavy dashed)	DRAINAGE AREA DIVIDE
——— 380 ———	EXISTING MAJOR CONTOUR (GIS)
——— — - —	SOIL BOUNDARY
MIC2	SOIL TYPE
———	EXISTING MAJOR CONTOUR (SURVEY)
- - - -	EXISTING MINOR CONTOUR (SURVEY)
— — — —	PROPERTY BOUNDARY
——— - ———	EXISTING 100-YEAR FLOODPLAIN
——— - - ———	PROPOSED 100-YEAR FLOODPLAIN
~~	EXISTING WOODS LINE
— LOD ——— LOD —	LIMIT OF DISTURBANCE

TOTAL AREA OF DISTURBANCE = 87,169 S.F. ± OR 2.00 AC. ±

NOTE: DRAINAGE AREA MAP SHOWS OVERALL LAYOUT OF SITE EROSION AND SEDIMENT CONTROL. SEE SHEETS ES2 TO ES5 FOR MORE DETAILED DEPICTION OF INDIVIDUAL FEATURES.



SOILS TABLE

SYMBOL	NAME	TYPE
Ba	BAILE SILT LOAM	D
ChB2	CHESTER SILT LOAM	B
GIB2	GLENELG LOAM	B
MIB2	MANOR LOAM	B
MIC2	MANOR LOAM	B
MID3	MANOR LOAM	B

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

[signature] 12/13/04
USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

[signature] 12/13/04
HOWARD SCD — DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 COUNTY SOIL CONSERVATION DISTRICT"

[signature] 11-10-04
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE
KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION 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 THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT"

Howard E Saltzman 11-24-04
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE
Howard E. Saltzman

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

[signature] 12/17/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Cindy Hamilton 12/21/04
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 12/27/04
DIRECTOR (ACTING) — DATE

PLOTTED: "01:49 PM on Monday, November 08, 2004"
BY: Matt Snyder Division: Water Resources
FILE: m:\2001\0101128.c\drawings\ep01cherry.dgn

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 0101128.C \ Drawings \ ep01cherry.dgn

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STATE OF MARYLAND — KERRY B. REXROAD — No. 19470 — REGISTERED PROFESSIONAL ENGINEER

CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

EROSION & SEDIMENT CONTROL DRAINAGE AREA MAP

SCALE: 1" = 100'
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

ES1

SDP-04-123

MATCHLINE - SEE SHEET ES3

D
C
B
A

187
188
189
190
165
166
167
169
170
172

WAKEFIELD DONALD T
WAKEFIELD ALON A
LOT 188 .377 A PARCEL 190
8328 CHERRYBROOK CT SS
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 1986/348
TAX ACCOUNT 06-517897
ZONED R20

VANCLEAVE JEFF
VANCLEAVE JENNIFER
LOT 189 .411 A PARCEL 190
8332 CHERRYBROOK CT
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 6231/257
TAX ACCOUNT 06-517900
ZONED R20

VAN WINTER JERROLD A
VAN WINTER NANCY ELWOOD
LOT 190 .352 A PARCEL 190
8333 CHERRYBROOK COURT
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 3773/605
TAX ACCOUNT 06-517919
ZONED R20

HOWARD COUNTY MARYLAND
DEPT OF RECREATION AND PARKS
LOT 170 4.904A OP SP PARCEL 190
SAND CHERRY LANE
CHERRYTREE FARM
LAUREL 20723
LIBER/FOLIO 1822/359
TAX ACCOUNT 06-517892
ZONED R20

PETRILLO GUY M
PETRILLO PAULA M T/E
LOT 165 .363 A PARCEL 190
8440 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 5136/168
TAX ACCOUNT 06-517633
ZONED R20

GLASS STEPHEN N
GLASS JULIE G
LOT 166 .377 A PARCEL 190
8444 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 2057/174
TAX ACCOUNT 06-517841
ZONED R20

SULLIVAN JOHN R
SULLIVAN KATHRYN H T/E
LOT 167 .384 A PARCEL 190
8448 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 4007/240
TAX ACCOUNT 06-517888
ZONED R20

HASSETT MICHAEL K
SIMONS JEANNETTE
LOT 169 .331 A PARCEL 190
8435 SAND CHERRY LANE
CHERRYTREE FARM
LAUREL MD 20723-1093
LIBER/FOLIO 2001/237
TAX ACCOUNT 06-517884
ZONED R20

BROWN GREGORY S SR
BROWN CATHERINE

E 1341200
N 536000
E 1347200
N 535800
E 1347700
N 535800

20' PUBLIC SEWER AND UTILITY EASEMENT (PLAT NO. 7839)

PHASE 4
PHASE 5
PHASE 6

PUMP AROUND PRACTICE (SEE SHEET ES6)

INITIAL CLEARWATER DIKE (TOP OF SANDBAGS TO BE SET AT TOP OF BANK). LOCATION TO SHIFT FOR PHASES 5, 6, AND 7.

INITIAL SEDIMENT DIKE (TOP OF SANDBAGS TO BE SET AT TOP OF BANK). LOCATION TO SHIFT FOR PHASES 5, 6, AND 7.

PHASE 5 LIMIT

EX. FENCE (TYP.)

STOCKPILE AREA (PHASE 4&5)

STOCKPILE AREA (PHASE 6&7)

SANDBAGS

FILTERBAG

EX. PUBLIC 100-YEAR FLOODPLAIN, DRAINAGE, AND UTILITY EASEMENT (PLAT NO. 7839)

EXISTING FLOODPLAIN ELEVATION

PROPOSED FLOODPLAIN ELEVATION

PUBLIC DRAINAGE AND UTILITY EASEMENT (PLAT NO. 7839)

CONTRACTOR TO PLACE "SIDEWALK CLOSED" SIGNS FOR DURATION OF PROJECT.

CONTRACTOR SHALL REPAIR SIDEWALK AND CURB TO PRE-CONSTRUCTION CONDITIONS IF DAMAGED DURING CONSTRUCTION.

20' PUBLIC WATER AND UTILITY EASEMENT (PLAT NO. 7839)

SAND CHERRY LANE

NOTE: 1. PROPOSED GRADING GRAYSCALED FOR CLARITY OF E & S CONTROL FEATURES.

2. ALL WATER COLLECTED WITHIN THE LIMIT OF DISTURBANCE (WITH THE EXCEPTION OF WATER PUMPED FROM ABOVE THE CLEAN WATER DIKE) SHALL BE PUMPED THROUGH THE FILTER BAG.

3. STREAM ACCESS POINT (A) SHALL ONLY BE OPENED FOR PHASE 4 WORK. FOR PHASE 5, CLOSE AND STABILIZE ACCESS POINT (A) AND OPEN UP ACCESS POINT (B) ONLY. FOR PHASE 6 & 7, CLOSE AND STABILIZE ACCESS POINT (B) AND OPEN UP ACCESS POINT (C) ONLY. ACCESS POINTS (A), (B), AND (C) CAN BE CLEARED AS PART OF INITIAL CLEARING, BUT GRUBBING OF EACH ACCESS POINT SHALL ONLY BE PERFORMED IMMEDIATELY BEFORE THE SPECIFIC ACCESS POINT IS NEEDED.

4. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CONTRACTOR MAY ADJUST SANDBAGS FOR PUMP AROUNDS TO 5 FEET +/- OF THE PHASE LINE.

5. CONTRACTOR SHALL ONLY HAVE ONE PHASE OPEN AT A TIME.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

Jim Myers — 12/13/04
USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

HOWARD SCD — 12/13/04 DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 COUNTY SOIL CONSERVATION DISTRICT"

Kerry B. Rexroad — 11-10-04
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE
KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION 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 THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT"

Howard E Saltzman — 11-24-04
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE
Howard E Saltzman

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 12/17/04 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 12/21/04 DATE

DIRECTOR — 12/27/04 DATE

NO.	REVISIONS	DESCRIPTION	DATE

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CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE LOT 170
STREAM RESTORATION
HOWARD COUNTY, DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
8751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

EROSION & SEDIMENT CONTROL PLAN – AREA A

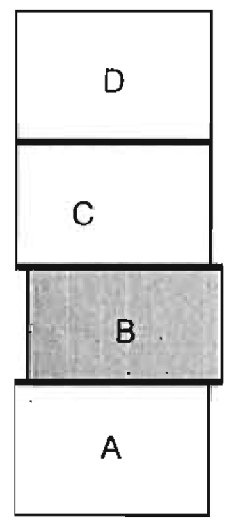
SCALE:	1" = 20'
DATE:	11-08-04
KCI JOB NO.:	01-0128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

ES2

SHEET NO.: 16 OF 36

SDP-04-123

PLOTTED: "01:49 PM on Monday, November 08, 2004"
By: Matt Snyder Division: Water Resources
File: m:\2001\0101128.c\Drawings\ep02cherry.dgn



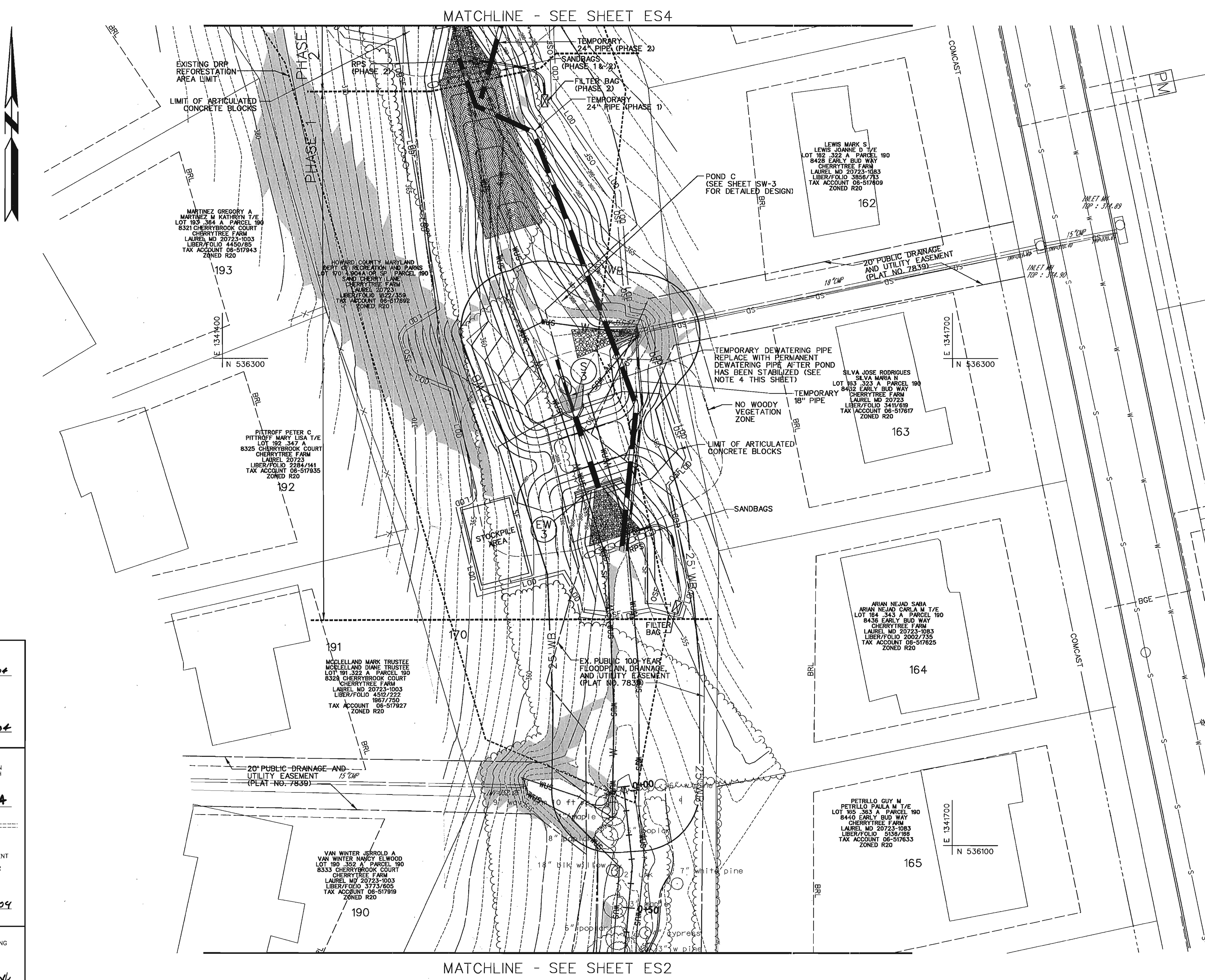
NOTES:

1. ALL WATER COLLECTED WITHIN THE LIMIT OF DISTURBANCE (WITH THE EXCEPTION OF WATER PUMPED FROM ABOVE THE CLEAN WATER DIKE) SHALL BE PUMPED THROUGH THE FILTER BAG.

2. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CONTRACTOR MAY ADJUST SANDBAGS FOR PUMP AROUNDS TO 5 FEET / OF THE PHASE LINE.

3. CONTRACTOR SHALL ONLY HAVE ONE PHASE OPEN AT A TIME.

4. THE TEMPORARY DEWATERING PIPES IN THE PONDS SHALL BE CONSTRUCTED THE SAME AS SHOWN ON SHEET SW4 WITH THE EXCEPTION THAT THE PERFORATED PIPE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC CLASS E DURING SEDIMENT CONTROL. WHEN THE POND HAS BEEN STABILIZED AND IS READY TO CONVERT TO FINAL STORMWATER MANAGEMENT, REMOVE THE HARDWARE CLOTH AND GEOTEXTILE CLASS E AND RECONSTRUCT THE PERMANENT DEWATERING PIPE AS PER DETAILS ON SHEET SW4.



TURF REINFORCEMENT MATTING

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/13/04

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

HOWARD SCD — DATE 12/13/04

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 COUNTY SOIL CONSERVATION DISTRICT"

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 11-10-04
KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION 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 THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT"

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 11-24-04
Howard E Saltzman

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

PLOTTED: "01:49 PM on Monday, November 08, 2004"
BY: Matt Snyder Division: Water Resources
FILE: m:\2001\0101128.c\drawings\ep03cherry.dgn

NO.	REVISIONS DESCRIPTION	DATE

KCIFILE: M:\ 2001 \ 0101128.C \ Drawings \ ep03cherry.dgn

KCI TECHNOLOGIES — ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS — www.kci.com

CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

EROSION & SEDIMENT CONTROL PLAN – AREA B

SCALE:	1" = 20'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

ES3

SDP-04-123

NOTES:

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3. CONTRACTOR SHALL ONLY HAVE ONE PHASE OPEN AT A TIME.

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TURF REINFORCEMENT MATTING

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

Jim Myers 12/13/04
USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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12/13/04
HOWARD SCD DATE

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11-10-04
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE
KERRY B. REXROAD, P.E.

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Howard E. Saltzman 11-24-04
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE
Howard E. Saltzman

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

12/17/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamilton 12/21/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

12/27/04
DIRECTOR (ACTING) DATE

PLOTTED: 01:49 PM on Monday, November 08, 2004
FILE: m:\2001\0101128.c\drawings\ep04cherry.dgn

NO.	REVISIONS DESCRIPTION	DATE

KCIFILE: M:\ 2001 \ 0101128.C \ Drawings \ ep04cherry.dgn

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CHERRY TREE FARM
SECTION 1 AREA 2,
OPEN SPACE LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

EROSION & SEDIMENT CONTROL PLAN - AREA C

SCALE:	1" = 20'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

ES4

SHEET NO.: 18 OF 36

SDP-04-123

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

[signature] 12/13/04
USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

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[signature] 12/13/04
HOWARD SCD — DATE

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[signature] 11-10-04
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE
KERRY B. REXROAD, P.E.

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Howard E Saltzman 11-24-04
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE
Howard E Saltzman

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

[signature] 12/17/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 12/21/04
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] (ACTING) 12/27/04
DIRECTOR — DATE

PLOTTED: "01:49 PM on Monday, November 08, 2004"
BY: Matt Snyder Division Water Resources
FILE: m:\2001\0101128.c\drawings\ep05cherry.dgn

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001\ 0101128.C \ Drawings \ ep05cherry.dgn

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170
STREAM RESTORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

EROSION & SEDIMENT CONTROL PLAN – AREA D

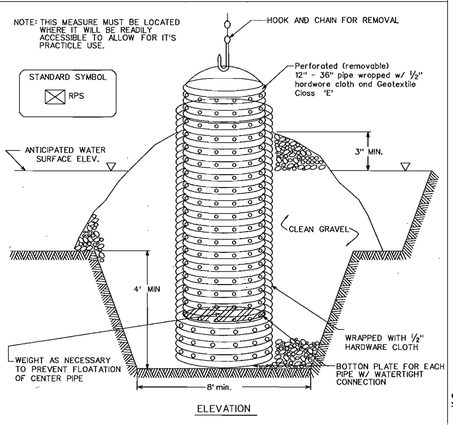
SCALE: 1" = 20'
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

ES5

SHEET NO.: 19 OF 36

SDP-04-123

DETAIL 20A - REMOVABLE PUMPING STATION



ELEVATION

Construction Specifications

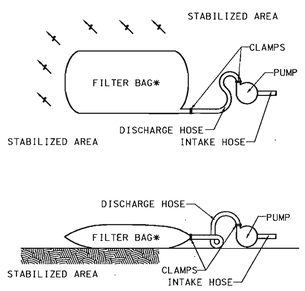
1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with ½" hardware cloth to prevent backfill material from entering the perforations.

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 ½" X 8" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with ½" hardware cloth first, then wrapped again with Geotextile Class E.

4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE D - 12 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



* NON-WOVEN GEOTEXTILE FILTER BAG WHICH RETAINS ALL SEDIMENT PARTICLES LARGER THAN 150 MICRONS.

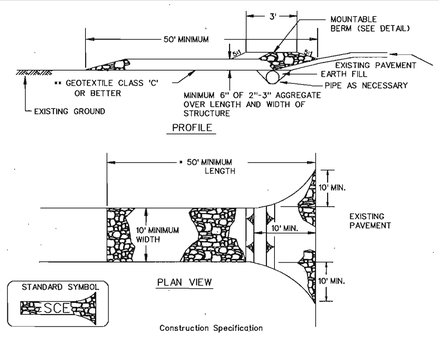
SILT BAG DEWATERING DEVICE FOR PUMPED WATER

NOT TO SCALE

NOTES:
1. PLACE FILTER BAGS ON STABLE OR WELL VEGETATED AREAS WHICH ARE FLATTER THAN 5% AND WILL NOT ERODE WHEN SUBJECTED TO BAG DISCHARGES.
2. CLAMP PUMP DISCHARGE HOSES SECURELY INTO FILTER BAGS.
3. LIMIT PUMPING RATE TO ½ THE MANUFACTURER'S MAXIMUM PUMPING RATE.
4. WHEN SEDIMENTS FILL ½ THE VOLUME OF A FILTER BAG, IMMEDIATELY REMOVE THAT BAG FROM SERVICE. PROPERLY DISPOSE OF SPENT BAGS WITH THEIR SEDIMENTS.

NOTE: ALL WATER COLLECTED WITHIN THE LIMIT OF DISTURBANCE (WITH THE EXCEPTION OF WATER DIVERTED AROUND THE WORK AREA) SHALL BE PUMPED THROUGH THE FILTER BAG.

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length - minimum of 50' (*30' for single residence lot).

2. Width - 10' minimum, should be flared at the existing road to provide a turning radius.

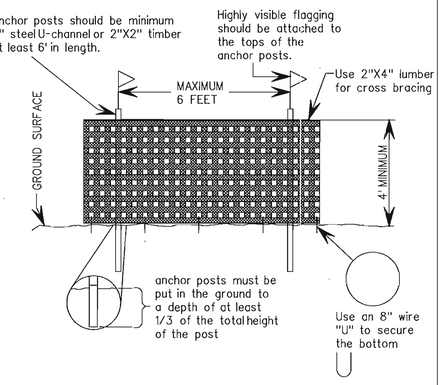
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

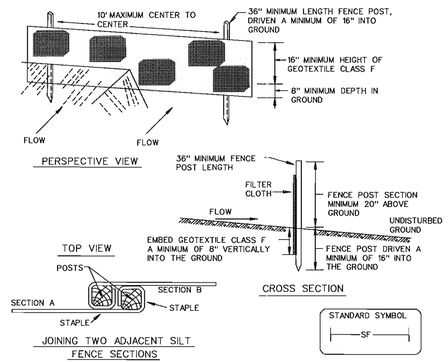
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F --17 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



DETAIL FOR BLAZE ORANGE PLASTIC MESH SAFETY FENCE

NOT TO SCALE

DETAIL 22 - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

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

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment by pass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E --15 - 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/13/04

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CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

NO.	REVISIONS	DESCRIPTION	DATE

KCIFILE: M:\2001\01128.c\drawings\es6cherry.dgn

ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS

KCI TECHNOLOGIES www.kci.com

CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE, LOT 170
STREAM RESTORATION
HOWARD COUNTY, DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

EROSION & SEDIMENT CONTROL DETAILS

SCALE:	N/A
DATE:	11-08-04
KCIJOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

ES6

SHEET NO.: 20 OF 36

SDP-04-123

PLOTTED: "09:01 AM on Tuesday, November 09, 2004"
By: Matt Stone, Division: Water Resources
File: M:\2001\01128.c\drawings\es6cherry.dgn

MGWC 1.2: PUMP-AROUND PRACTICE

DESCRIPTION
The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE
Sediment control measures, pump-around practices, and associated channel and bank construction should be completed in the following sequence (refer to Detail 1.2):

1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities should be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and should repair the damage at his/her own expense to the county*s or utility company*s satisfaction.

2. The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor should inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.

3. The contractor should conduct a pre-construction meeting on site with the WMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. The contractor should stake out all limits of disturbance prior to the pre-construction meeting so they may be reviewed. The participants will also designate the contractor*s staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees should not be removed within the limit of disturbance without approval from the WMA or local authority.

4. Construction should not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor should stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.

5. Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor should begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. In some cases, work may begin downstream if appropriate. The sequence of construction must be followed unless the contractor gets written approval for deviations from the WMA or local authority. The contractor should only begin work in an area which can be completed by the end of the day including grading adjacent to the channel. At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work should not be conducted in the channel during rain events.

6. Sandbag dikes should be situated at the upstream and downstream ends of the work area as shown on the plans, and stream flow should be pumped around the work area. The pump should discharge onto a stable velocity dissipater made of riprap or sandbags.

7. Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved source. The measure should be located such that the water drains back into the channel below the downstream sandbag dike.

8. Traversing a channel reach with equipment within the work area where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures should be used to minimize disturbance to the channel. Temporary stream crossings should be used only when necessary and only where noted on the plans or specified. (See Section 4, Stream Crossings, Maryland Guidelines to Waterway Construction).

9. All stream restoration measures should be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross- sections. All grading must be stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.

10. After an area is completed and stabilized, the clean water dike should be removed. After the first sediment flush, a new clean water dike should be established upstream from the old sediment dike. Finally, upon establishment of a new sediment dike below the old one, the old sediment dike should be removed.

11. A pump around must be installed on any tributary or storm drain outfall which contributes baseflow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipater used for the main stem pump around.

12. If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, should follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem should resume. Water from the tributary should continue to be pumped around the work area in the main stem.

13. The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approves their removal.

14. After construction, all disturbed areas should be regraded and revegetated as per the planting plan.

MGWC 1.4: DIVERSION PIPE

DESCRIPTION
The work should consist of installing flow diversion pipes in combination with sandbag or stone diversions when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS

Diversion pipes with an insufficient flow capacity can cause the channel diversion to fail thereby resulting in severe erosion of the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low flow.

MATERIAL SPECIFICATIONS

Materials for stream diversions should meet the following requirements:

Riprap: Riprap should be washed and have a minimum diameter of 6 inches (15 centimeters).
Sandbags: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of the fill material (i.e., sand, fine gravel, etc.).
Sheeting: Sheeting should consist of polyethylene or other material which is impervious and resistant to puncture and tearing.

INSTALLATION GUIDELINES

All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during periods of low flow. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

Diversion pipes with sandbag or stone barriers should proceed as follows (refer to Detail 1.4):

1. Sandbag/stone barriers should be sized and installed as detailed in MGWC 1.5: Sandbag/Stone Diversion. The materials should be sized to withstand baseflow velocities.

2. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.

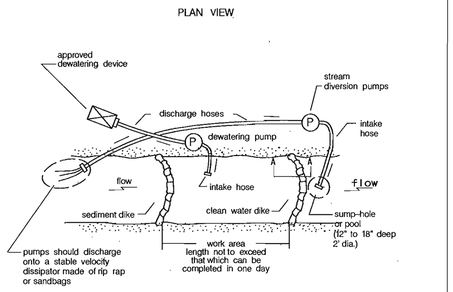
3. Sediment-laden water from the construction area should be pumped to a dewatering basin.

4. The diversion pipe should have a minimum capacity sufficient to convey the 2-year flow for projects with a duration of two weeks or greater. For projects of shorter duration, the capacity of the pipe can be reduced accordingly.

5. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

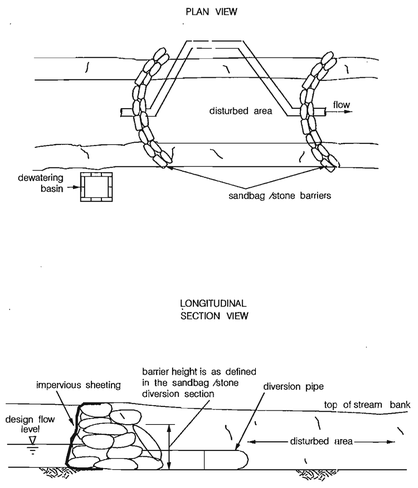
6. Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

Maryland's Guidelines To Waterway Construction
DETAIL 1.2: PUMP-AROUND PRACTICE



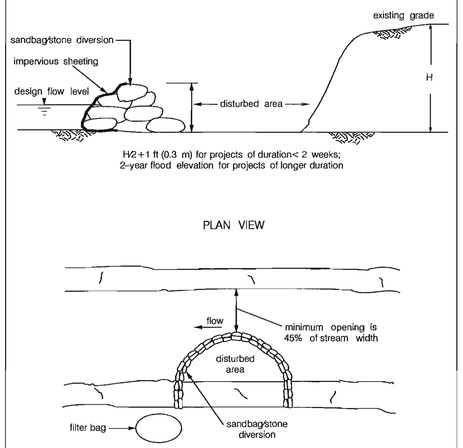
Note:
Sandbags shall extend to top of bank.

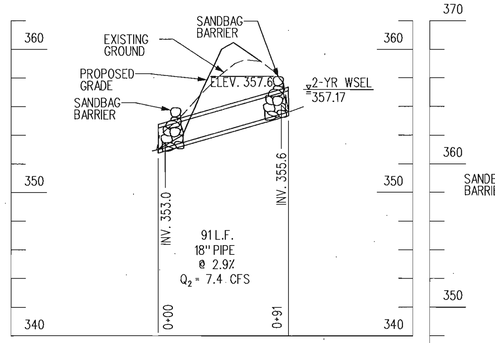
Maryland's Guidelines To Waterway Construction
DETAIL 1.4: DIVERSION PIPE



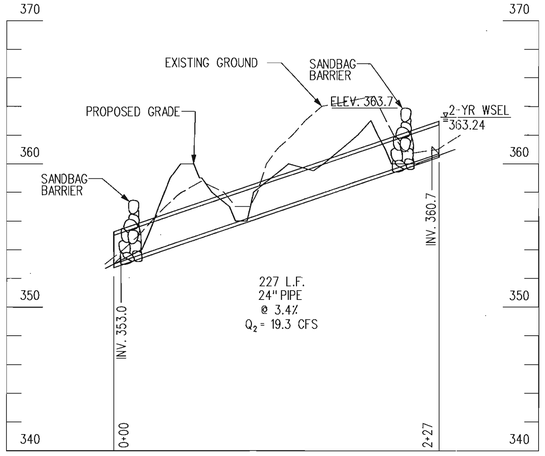
Note:
Sandbags shall extend to top of bank.

Maryland's Guidelines To Waterway Construction
DETAIL 1.5: SANDBAG/STONE DIVERSION

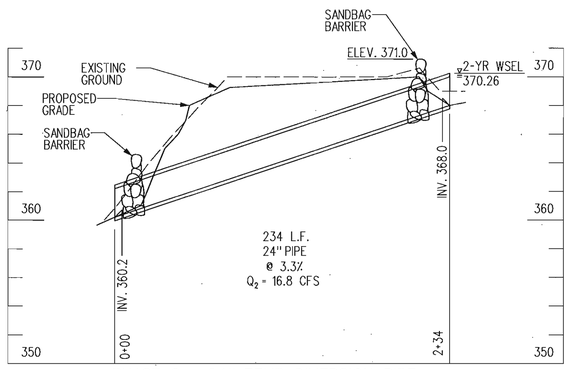




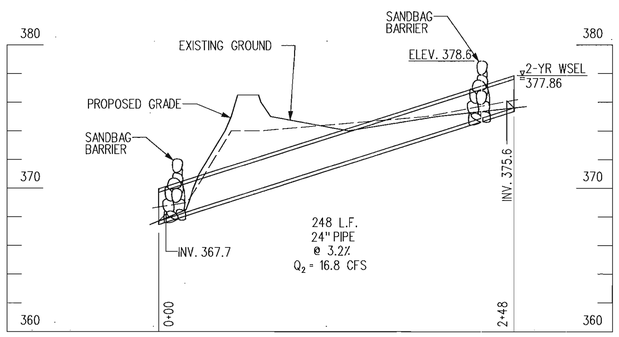
PHASE 1 - 18" TEMP. DIVERSION PIPE



PHASE 1 - 24" TEMP. DIVERSION PIPE



PHASE 2 - 24" TEMP. DIVERSION PIPE



PHASE 3 - 24" TEMP. DIVERSION PIPE

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

MGWC 1.5: SANDBAG/STONE CHANNEL DIVERSION

DESCRIPTION
The work should consist of installing sandbag or stone flow diversions for the purpose of erosion control when construction activities occur within the stream channel.

EFFECTIVE USES & LIMITATIONS
Diversions are used to isolate work areas from flow during the construction of in-stream projects. Diversions which have an insufficient flow capacity can fail and severely erode the disturbed channel section under construction. Therefore, in-channel construction activities should occur only during periods of low rainfall. This temporary measure may not be practical in large channels.

MATERIAL SPECIFICATIONS
Materials for sandbag and stone stream diversions should meet the following requirements:
* Riprap: Riprap should be washed and have a minimum diameter of 6 inches (0.15 meters).
* Sandbags: Sandbags should consist of materials which are resistant to ultra-violet radiation, tearing, and puncture and should be woven tightly enough to prevent leakage of the fill material (i.e., sand, fine gravel, etc.).
* Sheeting: Sheeting should consist of polyethylene or other materials which are impervious and resistant to puncture and tearing.

INSTALLATION GUIDELINES
All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during periods of low flow. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.

Sandbag/stone diversions can be used independently or as components of other stream diversion techniques. Installation of this measure should proceed as follows (refer to Detail 1.5):

1. The diversion structure should be installed from upstream to downstream.

2. The height of the sandbag/stone diversion should be a function of the duration of the project in the stream reach. For projects with a duration less than 2 weeks, the height of the diversion should be one half the streambank height, measured from the channel bed, plus 1 foot (0.3 meters) or bankfull height, whichever is greater. For projects of longer duration, the top of the sandbag or stone diversion should correspond to bankfull height. For diversion structures utilizing sandbags, the stream bed should be hand prepared prior to placement of the base layer of sandbags in order to ensure a water tight fit. Additionally, it may be necessary to prepare the bank in a similar fashion.

3. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.

4. Sediment-laden water from the construction area should be pumped to a dewatering basin.

5. Sheeting on the diversion should be positioned such that the upstream portion covers the downstream portion with at least a 18-inch (0.45 meters) overlap.

6. Sandbag or stone diversions should not obstruct more than 45% of the stream width. Additionally, bank stabilization measures should be placed in the constricted section if accelerated erosion and bank scour are observed during the construction time or if project time is expected to last more than 2 weeks.

7. Prior to removal of these temporary structures, any accumulated sediment should be removed, deposited and stabilized in an approved area outside the 100-year floodplain unless authorized by the WMA.

8. Sediment control devices are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspecting authority approves their removal.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/13/04

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

HOWARD SCD — DATE 12/13/04

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 COUNTY SOIL CONSERVATION DISTRICT"

SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE 11-10-04
KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION 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 THE BEGINNING OF THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT"

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 11-24-04
Howard E. Saltzman

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR — DATE 12/27/04

PLOTTED: "01:49 PM on Monday, November 08, 2004"
BY: Matt Snyder (Dodson Water Resources
FILE: m:\2001\0101128.c\drawings\epo6cherry.dgn

NO.	REVISIONS	DESCRIPTION	DATE

KCI FILE: M:\2001\0101128.c\drawings\epo6cherry.dgn

KCI TECHNOLOGIES
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS
www.kci.com

CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE, LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

EROSION & SEDIMENT CONTROL DETAILS

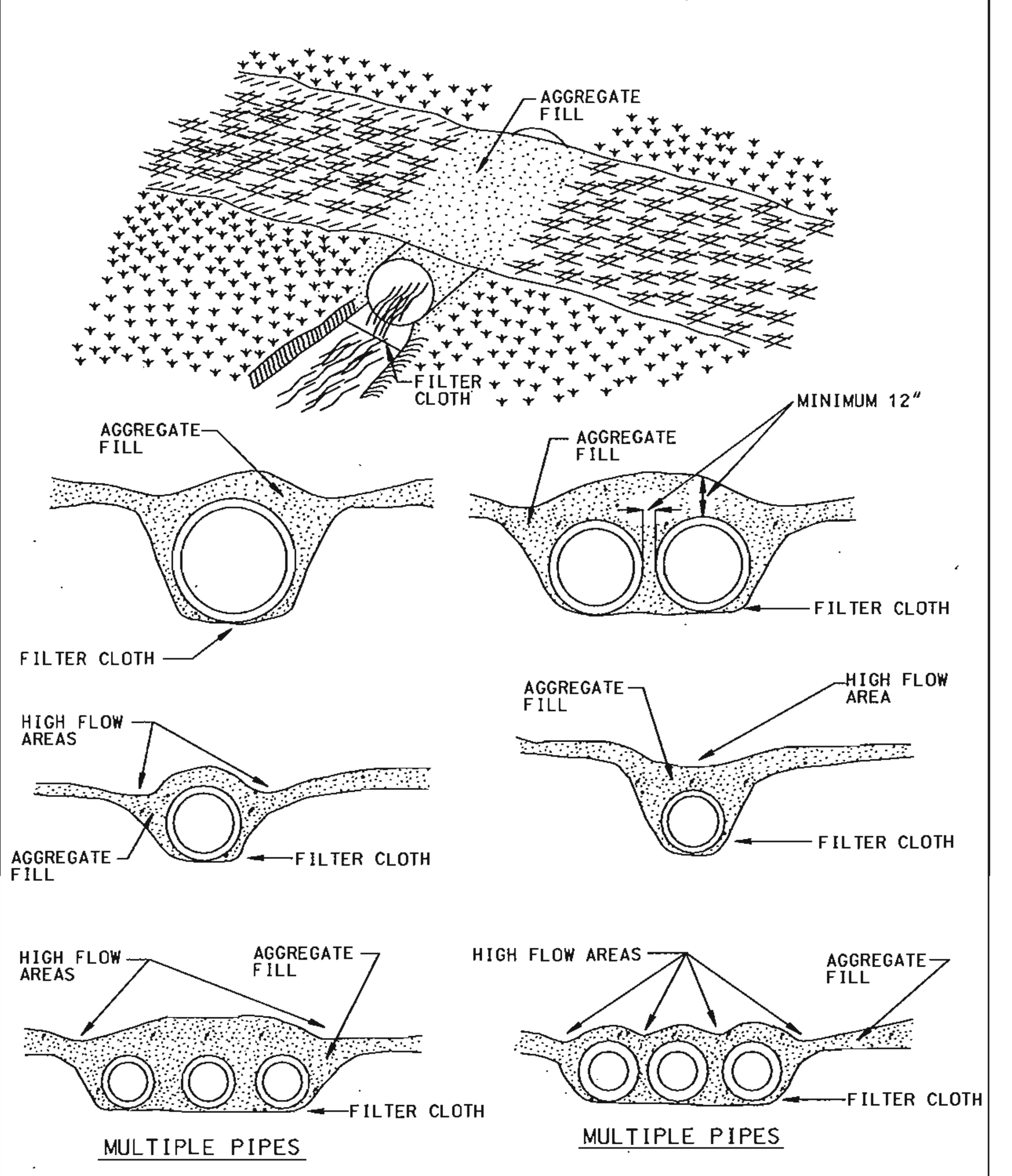
SCALE:	AS SHOWN
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

ES7

SHEET NO.: 21 OF 36

SDP-04-123

DETAIL 36 - TEMPORARY ACCESS CULVERT



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 29 - 12	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

TEMPORARY ACCESS CULVERT

Construction Specifications

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

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

3. Culvert Size - The size of the culvert pipe shall be the largest pipe diameter that will fit into the existing channel without major excavation of the waterway channel or without major approach fills. If a channel width exceeds 3 feet, additional pipes may be used until the cross sectional area of the pipes is greater than 60 percent of the cross sectional area of the existing channel. The minimum size culvert that may be used is a 12" diameter pipe. In all cases, the pipe(s) shall be large enough to convey normal stream flows.

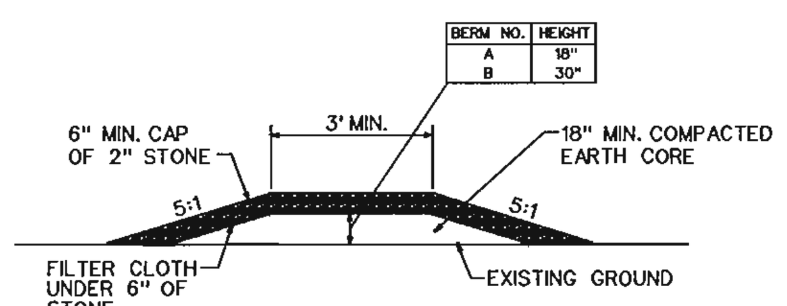
4. Culvert Length - The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe to the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.
5. Filter Cloth - Filter cloth shall be placed on the streambed and streambanks prior to placement of the pipe culvert(s) and aggregate. The filter cloth shall cover the streambed and extend a minimum six inches and a maximum one foot beyond the end of the culvert and bedding material. Filter cloth reduces settlement and improves crossing stability.

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

7. Culvert Protection - The culvert(s) shall be covered with a minimum of one foot of aggregate. If multiple culverts are used they shall be separated by at least 12" of compacted aggregate fill.

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE H - 29 - 12A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



FILTER CLOTH SHALL BE GEOTEXTILE CLASS "C", OR BETTER

MOUNTABLE BERM DETAIL
NOT TO SCALE

TEMPORARY ACCESS CULVERT TABLE

LOCATION	NUMBER OF PIPES	DIAMETER * (INCHES)	PIPE MATERIAL
NORTH OF PHASE 3	2	42" X 27"	RCP, CL IV

* ALL TEMPORARY ACCESS CULVERTS TO BE SET AT 1.0% (MIN.)

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS

[signature] 12/13/04
USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE

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

[signature] 12/13/04
HOWARD SCD — DATE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 COUNTY SOIL CONSERVATION DISTRICT"

[signature] 11-10-04
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE
KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

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Howard E Saltzman 11-24-04
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE
Howard E Saltzman

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

[signature] 12/17/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 12/21/04
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

[signature] 12/27/04
DIRECTOR (ACTING) — DATE

PLOTTED: "01:50 PM on Monday, November 08, 2004"
BY: Matt Snyder Division: Water Resources
FILE: m:\2001\0101128.c\drawings\ep08cherry.dgn

HOWARD COUNTY CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections. Licenses and Permits, Sediment Control Division prior to the start of any construction (410 313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol 1, Chapter 12 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (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	4.90	Acres
Area Disturbed	2.00	Acres
Area to be roofed or paved	0.0	Acres
Area to be vegetatively stabilized	2.00	Acres
Total Cut	1947.47	Cu. Yds.
Total Fill	638.98	Cu. Yds.
Offsite waste/borrow area location	UNKNOWN*	

8. Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made
11. Trenches for the construction utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each work day, whichever is shorter.

* OFFSITE WASTE /BORROW AREA, IF NEEDED, SHALL HAVE AN APPROVED EROSION AND SEDIMENT CONTROL PLAN AND ACTIVE PERMIT.

TIME RESTRICTION NOTES:

1. Pumping is not permitted between the hours of 7:00 PM and 7:00 AM, Monday through Friday.
2. Construction equipment shall not be started nor run between the hours of 7:00 PM and 7:00 AM, Monday through Friday.
3. For Saturday work, the above hours shall be 5:00 PM and 9:00 AM, respectively.
4. No work shall be done on Sunday.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

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

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

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

ii. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.

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

III. For sites having disturbed areas under 5 acres:

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

IV. For sites having disturbed areas over 5 acres:

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

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

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

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

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

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

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

V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

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

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

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

HOWARD SOIL CONSERVATION DISTRICT

TEMPORARY SEEDING NOTES**

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

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

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

Seeding: — For periods March 1 - April 30 and from August 15 - October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 - August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 ft.). For the period November 16 - February 28, protect site by applying 2 tons/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/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool. No asphalt emulsion shall be used for anchoring. Only a non-toxic, latex backing material is allowed.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

** Contractor shall perform a soil test at the site as a first order of business. The results shall be reviewed by Department of Recreation and Parks to determine appropriate soil amendments and fertilization needs for this project. No fertilizer or soil amendments shall be added without approval af Department of Recreation and Parks.

SEQUENCE OF CONSTRUCTION

1 DAY	1. OBTAIN GRADING PERMIT. STREAM CLOSURE PERIOD IS MARCH 1-JUNE 15, INCLUSIVE. MDE PERMIT TRACKING NO. 200463320. PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, A VIDEOTAPE AND PHOTOGRAPHS OF THE PROPOSED WORK AREA FROM THE UPPER SAND CHERRY LANE TO THE LOWER SAND CHERRY LANE SHALL BE TAKEN.
5 DAYS	2. NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT'S NONTIDAL WETLANDS AND WATERWAYS INSPECTIONS AND COMPLIANCE DIVISION AT LEAST FIVE (5) DAYS PRIOR TO ANY EARTH MOVING CONSTRUCTION WITHIN NONTIDAL WETLANDS AND/OR THEIR BUFFERS. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS PRIOR TO ANY WORK BEING DONE. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY CONSTRUCTION INSPECTION DIVISION (410-313-1880) A MINIMUM OF 24 HOURS PRIOR TO THE START OF ANY CONSTRUCTION. NOTE: TIME RESTRICTION NOTES ON THIS SHEET.
1 WEEK	3. CONSTRUCT ORANGE SAFETY FENCE AS SHOWN ON THE PLANS. HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS SHALL REVIEW AND APPROVE THE LOCATION OF THE ORANGE SAFETY FENCE PRIOR TO ANY EARTH MOVING OR REMOVING OF EXISTING TREES OR SHRUBS.
2 DAYS	4. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AT NORTH END OF SITE.
3 DAYS	5. INSTALL TEMPORARY ACCESS CULVERTS UPSTREAM OF PHASE 3.
2 DAYS	6. CLEAR AND GRUB FOR AND INSTALL EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES FOR PHASE 1 CONSTRUCTION.
5 DAYS	7. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB WITHIN LIMIT OF DISTURBANCE FOR PHASE 1 CONSTRUCTION.
4 WEEKS	8. CONSTRUCT STORMWATER MANAGEMENT POND C, INCLUDING OUTLET STRUCTURE, DEWATERING DEVICE, AND SLOPE PROTECTION ACCORDING TO CONSTRUCTION PLANS.
3 DAYS	9. UPON COMPLETION OF STORMWATER MANAGEMENT POND C, PERMANENTLY STABILIZE ACCORDING TO PERMANENT SEEDING SCHEDULE.
2 DAYS	10. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL TEMPORARY MEASURES WITHIN PHASE 1 AND PERMANENTLY STABILIZE THE AREA.
2 DAYS	11. CLEAR AND GRUB FOR AND INSTALL EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES FOR PHASE 2 CONSTRUCTION.
3 DAYS	12. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB WITHIN LIMIT OF DISTURBANCE FOR PHASE 2 CONSTRUCTION.
3 WEEKS	13. CONSTRUCT STORMWATER MANAGEMENT POND B, INCLUDING OUTLET STRUCTURE, DEWATERING DEVICE, AND SLOPE PROTECTION ACCORDING TO CONSTRUCTION PLANS.
3 DAYS	14. UPON COMPLETION OF STORMWATER MANAGEMENT POND B, PERMANENTLY STABILIZE ACCORDING TO PERMANENT SEEDING SCHEDULE.
2 DAYS	15. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL TEMPORARY MEASURES WITHIN PHASE 2 AND PERMANENTLY STABILIZE THE AREA.
2 DAYS	16. CLEAR AND GRUB FOR AND INSTALL EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES FOR PHASE 3 CONSTRUCTION.
3 DAYS	17. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB WITHIN LIMIT OF DISTURBANCE FOR PHASE 3 CONSTRUCTION.
3 WEEKS	18. CONSTRUCT STORMWATER MANAGEMENT POND A, INCLUDING OUTLET STRUCTURE, DEWATERING DEVICE, AND SLOPE PROTECTION ACCORDING TO CONSTRUCTION PLANS.
2 DAYS	19. UPON COMPLETION OF STORMWATER MANAGEMENT POND A, PERMANENTLY STABILIZE ACCORDING TO PERMANENT SEEDING SCHEDULE.
5 DAYS	20. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL TEMPORARY MEASURES WITHIN PHASE 3 AND PERMANENTLY STABILIZE THE AREA.
2 DAYS	21. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE AT SOUTH END OF SITE.
7 DAYS	22. CLEAR AND GRUB FOR AND INSTALL EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES FOR PHASE 4 CONSTRUCTION.
2 DAYS	23. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB WITHIN LIMIT OF DISTURBANCE FOR PHASE 4 CONSTRUCTION.
7 DAYS	24. PERFORM GRADING AND RESTORATION WORK IN THE PHASE 4 AREA ON THE CONTRACT DRAWINGS. PERMANENTLY STABILIZE THE WORK AREA AS NOTED ON THE CONTRACT DRAWINGS, INCLUDING LANDSCAPING.
5 DAYS	25. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB FOR EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES FOR PHASE 5 CONSTRUCTION, REMOVE ALL TEMPORARY MEASURES WITHIN PHASE 4, INSTALL EROSION AND SEDIMENT CONTROL MEASURES IN PHASE 5, AND PERMANENTLY STABILIZE THE AREA IN PHASE 4 DISTURBED BY THE OPERATION.
2 DAYS	26. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB WITHIN LIMIT OF DISTURBANCE FOR PHASE 5 CONSTRUCTION.
7 DAYS	27. PERFORM GRADING AND RESTORATION WORK IN THE PHASE 5 AREA ON THE CONTRACT DRAWINGS. PERMANENTLY STABILIZE THE WORK AREA AS NOTED ON THE CONTRACT DRAWINGS, INCLUDING LANDSCAPING.
5 DAYS	28. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB FOR EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES FOR PHASE 6 CONSTRUCTION, REMOVE ALL TEMPORARY MEASURES WITHIN PHASE 5, INSTALL EROSION AND SEDIMENT CONTROL MEASURES IN PHASE 6, AND PERMANENTLY STABILIZE THE AREA IN PHASE 5 DISTURBED BY THE OPERATION.
2 DAYS	29. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB WITHIN LIMIT OF DISTURBANCE FOR PHASE 6 CONSTRUCTION.
7 DAYS	30. PERFORM GRADING AND RESTORATION WORK IN THE PHASE 6 AREA ON THE CONTRACT DRAWINGS. PERMANENTLY STABILIZE THE WORK AREA AS NOTED ON THE CONTRACT DRAWINGS, INCLUDING LANDSCAPING.
5 DAYS	31. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB FOR EROSION AND SEDIMENT CONTROL MEASURES OR DEVICES FOR PHASE 7 CONSTRUCTION, REMOVE ALL TEMPORARY MEASURES WITHIN PHASE 6, INSTALL EROSION AND SEDIMENT CONTROL MEASURES IN PHASE 7, AND PERMANENTLY STABILIZE THE AREA IN PHASE 6 DISTURBED BY THE OPERATION.
2 DAYS	32. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB WITHIN LIMIT OF DISTURBANCE FOR PHASE 7 CONSTRUCTION.
7 DAYS	33. PERFORM GRADING AND RESTORATION WORK IN THE PHASE 7 AREA ON THE CONTRACT DRAWINGS. PERMANENTLY STABILIZE THE WORK AREA AS NOTED ON THE CONTRACT DRAWINGS, INCLUDING LANDSCAPING.
2 DAYS	34. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL TEMPORARY MEASURES WITHIN PHASE 7 AND PERMANENTLY STABILIZE THE AREA.
3 WEEKS	35. INSTALL REMAINING LANDSCAPING AS SPECIFIED ON THE PLAN.
7 DAYS	36. WHEN VEGETATION IS ESTABLISHED AND WITH PERMISSION OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING EROSION AND SEDIMENT CONTROL MEASURES AND PERMANENTLY STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.
4 WEEKS	37. CONDUCT FINAL "AS-BUILT" SURVEY OF STORM WATER MANAGEMENT FACILITIES AND STREAM PROFILE WITHIN RESTORATION AREA AND SUBMIT "AS-BUILT" PLANS TO THE APPROPRIATE AGENCIES WITHIN 30 DAYS OF COMPLETION OF CONSTRUCTION.

NOTE: HARVESTING AND INSTALLATION OF LIVE STAKES SHALL ONLY OCCUR DURING THE DORMANT SEASON, I.E. NOVEMBER 1 THROUGH MARCH 1.

HOWARD SOIL CONSERVATION DISTRICT

PERMANANT SEEDING NOTES**

(For areas within LOD with no designated planting area symbol use permanent seeding below. For all areas denoted by symbol see sheet LS-5 for permanent seeding.)

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

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

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

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

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

Seeding - For the periods March 1 - April 30, and August 1 - October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 - July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/100sq. ft.) of weeping lovegrass. During the period of October 16 - February 28, protect site by: Option 1 - Two 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. No asphalt emulsion shall be used for anchoring. Only a non-toxic, latex backing material is allowed.

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

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001\ 0101128.c \ drawings \ ep07cherry.dgn

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CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE, LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

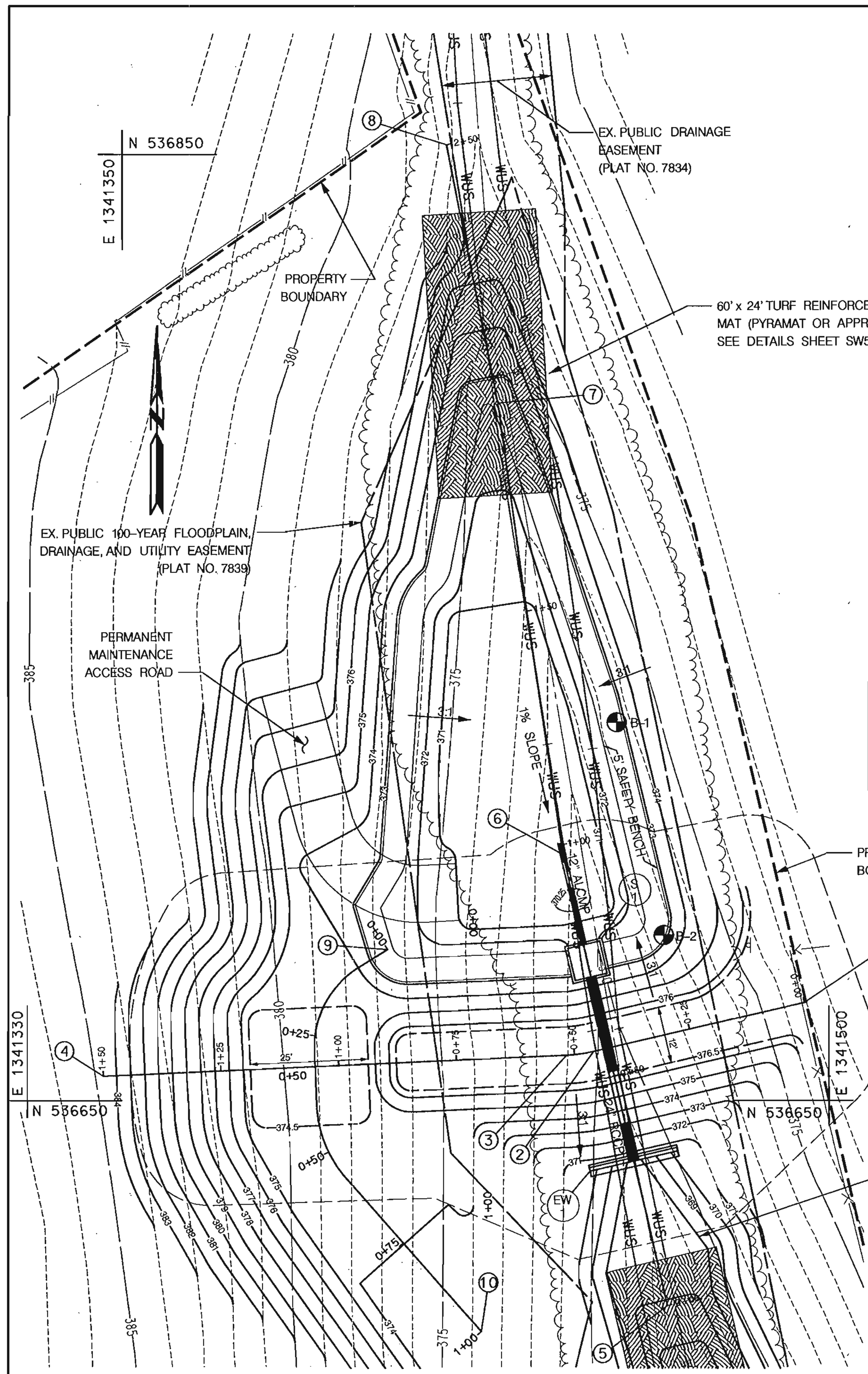
EROSION & SEDIMENT CONTROL DETAILS & NOTES

SCALE:	N/A
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

ES8

SHEET NO.: 22 OF 36

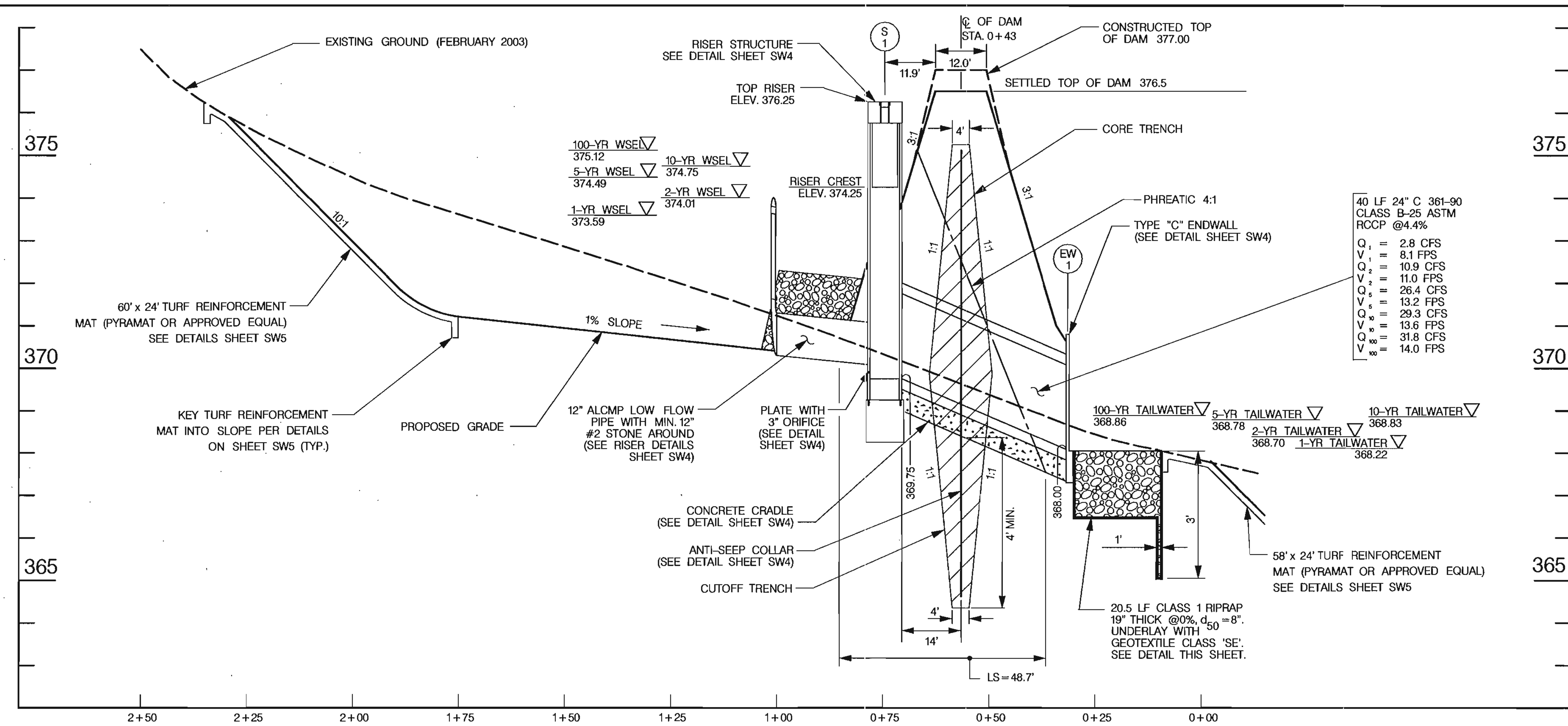
SDP-04-123



PLAN VIEW – POND A

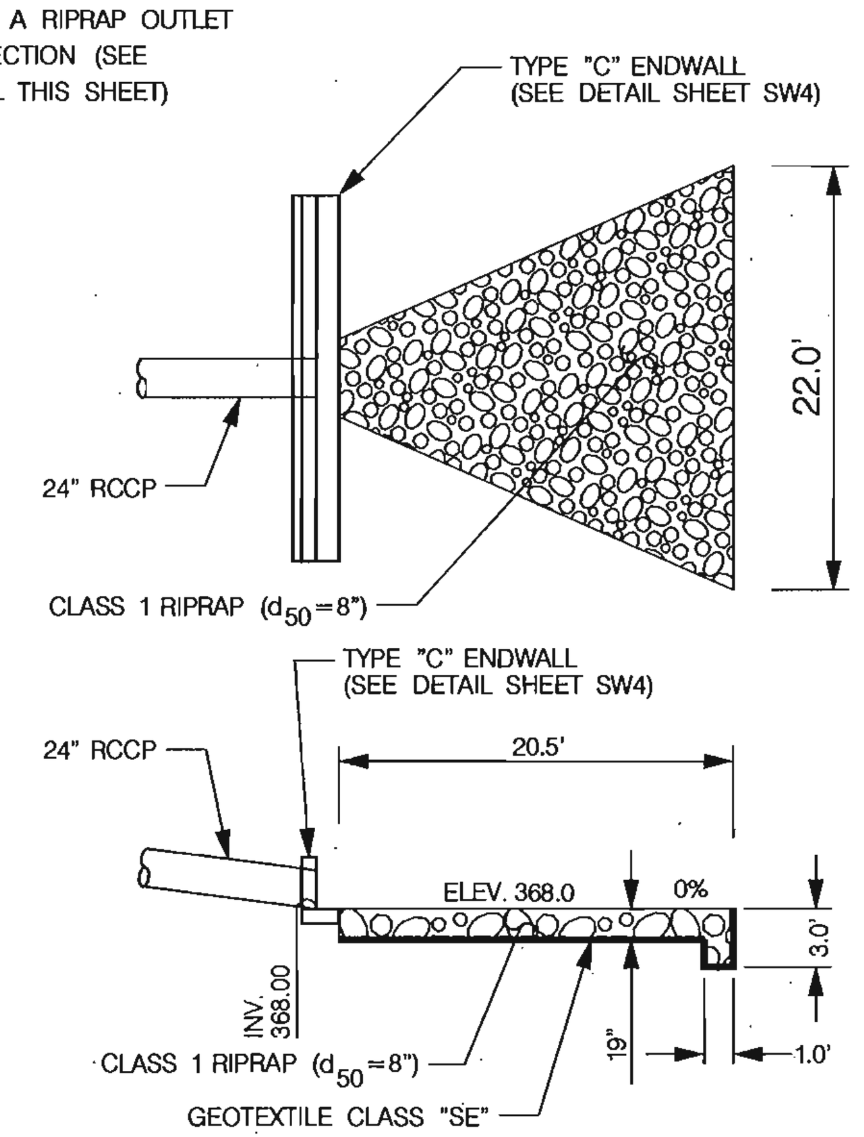
SCALE: 1" = 20'

CONTROL POINTS OF POND A		
POINT	COORDINATES	
	NORTH	EAST
1	536670.74	1341494.80
2	536660.37	1341450.17
3	536659.57	1341444.40
4	536655.20	1341346.14
5	536606.64	1341465.78
6	536701.97	1341443.63
7	536797.51	1341429.77
8	536852.02	1341418.86
9	536681.90	1341406.50
10	536601.10	1341426.40



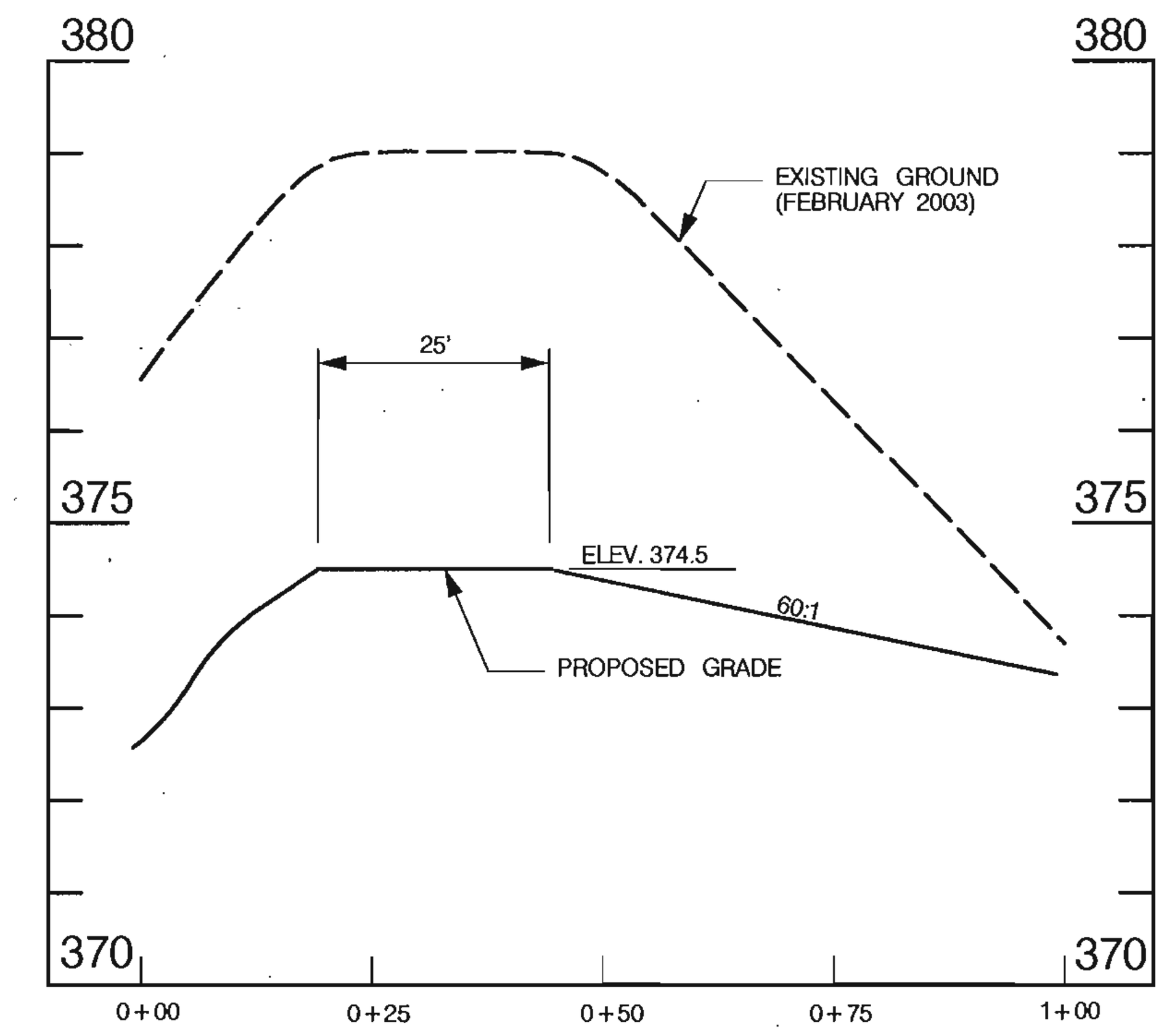
PROFILE ALONG PRINCIPAL SPILLWAY

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



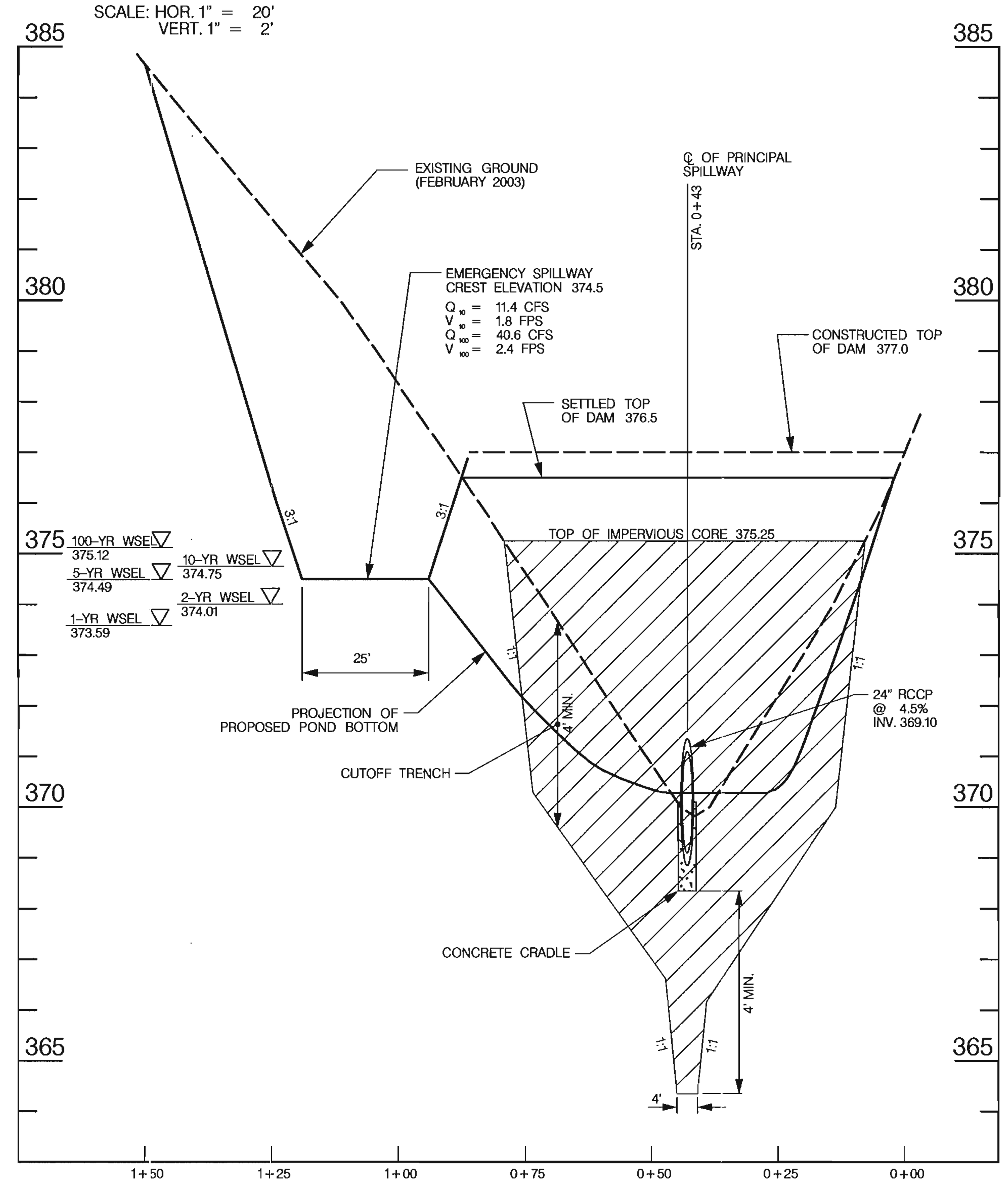
POND A OUTLET PROTECTION

SCALE: 1" = 10'



PROFILE ALONG EMERGENCY SPILLWAY

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



PROFILE ALONG ℄ OF DAM

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

S.W.M. DESIGN SUMMARY				
DESIGN STORM	FACILITY INFLOW (cfs)	FACILITY OUTFLOW (cfs)	STAGE	STORAGE VOLUME AC. FT.
1-Year	10.1	2.8	373.59	0.25
2-Year	16.8	10.9	374.01	0.31
5-Year	29.7	26.4	374.49	0.39
10-Year	42.1	40.7	374.75	0.44
100-Year	73.7	72.4	375.12	0.51

STRUCTURE TYPE: DRY EXTENDED DETENTION POND
SURFACE AREA: 0.27 AC.
STRUCTURE HAZARD CLASSIFICATION: "A"
STORAGE-HEIGHT PRODUCT: 2.16
WATERSHED AREA TO FACILITY (ACRES): 14.53
THIS FACILITY SHALL BE PUBLICLY MAINTAINED BY HOWARD COUNTY.

WATERSHED: CHERRY CREEK
STREAM CLASS: I
FREEBOARD: 1.38 FT.
WATER QUALITY: N/A
LEVEL OF MANAGEMENT PROVIDED BY FACILITY: 1-YEAR (QUANTITY)

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

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 (PRINT NAME BELOW SIGNATURE) — DATE 11-10-04
KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

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

Howard E Saltzman
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 11-24-04
Howard E Saltzman

THIS PLAN HAS BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/13/04

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 12/13/04

PLOTTED: 01:50 PM on Monday, November 08, 2004
BY: Mall, Snyder (Division Water Resources)
FILE: m:\2001\01011128.c\drawings\swm01.dgn

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 01011128.C \ Drawings \ swm01.dgn

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

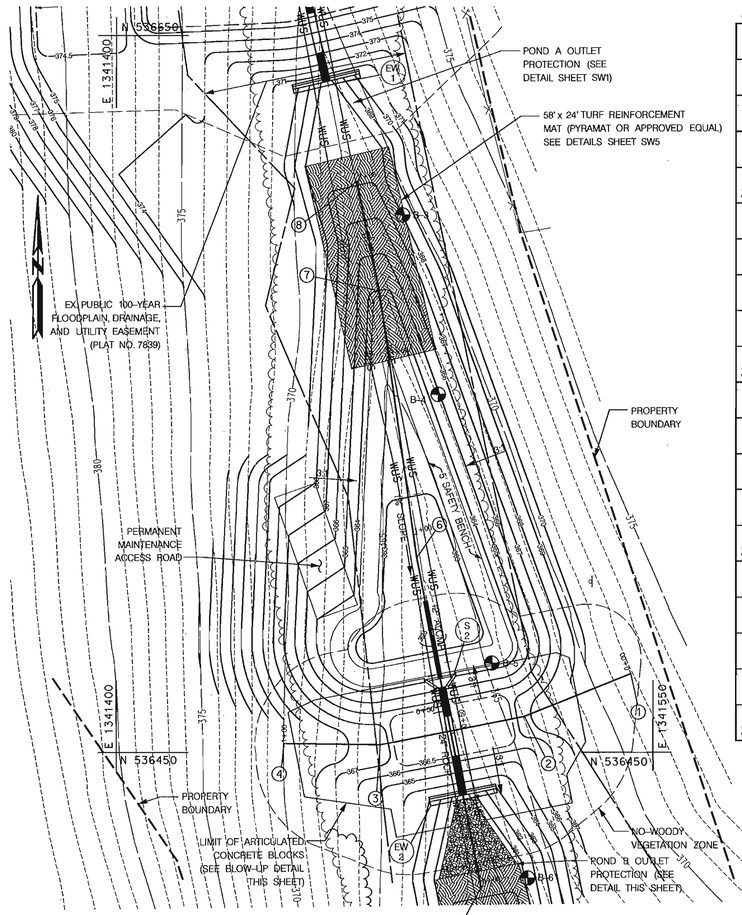
POND A PLAN, PROFILES, AND DETAILS

SCALE:	AS SHOWN
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

SW1

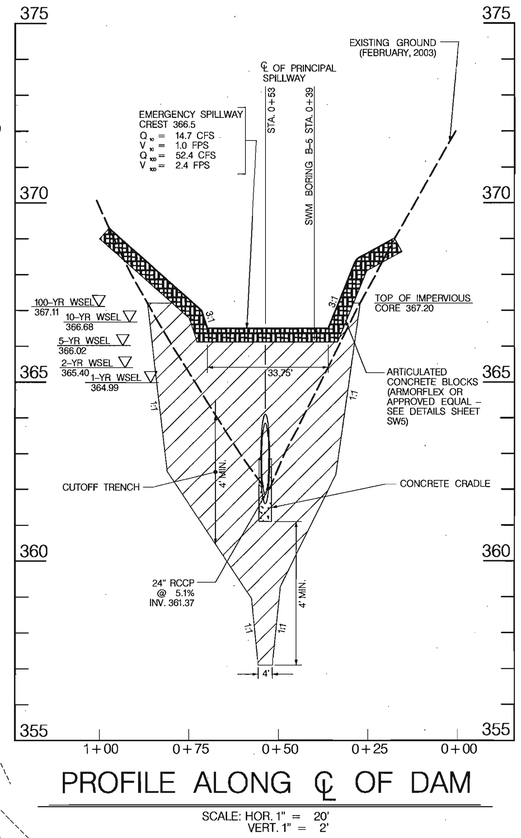
SHEET NO.: 23 OF 36

SDP-04-123



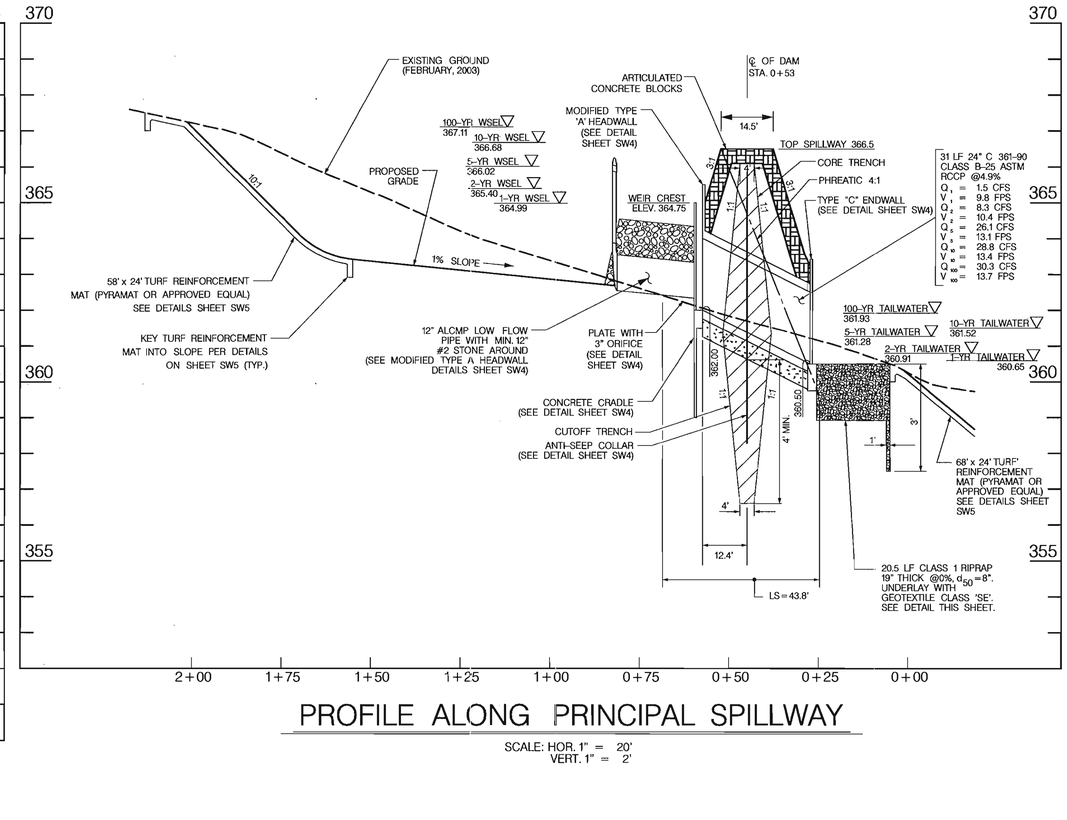
PLAN VIEW – POND B

SCALE: 1" = 20'



PROFILE ALONG ℄ OF DAM

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



PROFILE ALONG PRINCIPAL SPILLWAY

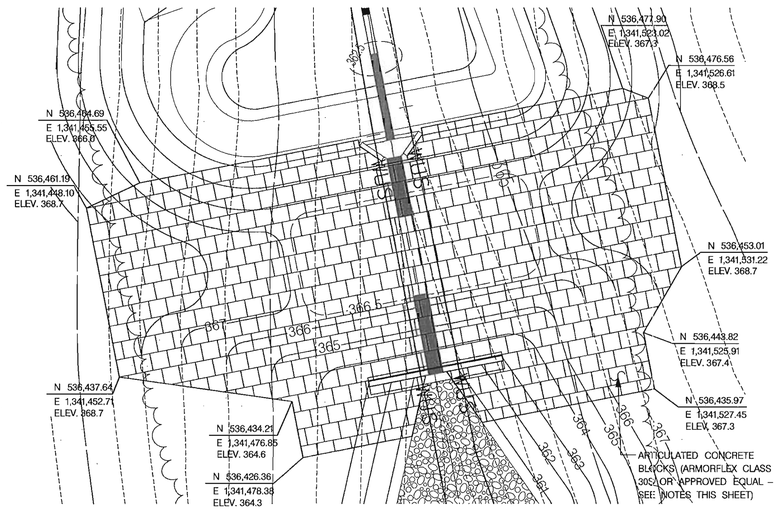
SCALE: HOR. 1" = 20'
VERT. 1" = 2'

S.W.M. DESIGN SUMMARY				
DESIGN STORM	FACILITY INFLOW (cfs)	FACILITY OUTFLOW (cfs)	STAGE	STORAGE VOLUME AC. FT.
1-Year	3.1	1.5	364.99	0.15
2-Year	12.1	8.3	365.40	0.19
5-Year	30.0	26.1	366.02	0.27
10-Year	46.5	43.5	366.68	0.36
100-Year	83.2	82.7	367.11	0.43

STRUCTURE TYPE: DRY EXTENDED DETENTION POND
SURFACE AREA: 0.19 AC.
STRUCTURE HAZARD CLASSIFICATION: "A"
STORAGE-HEIGHT PRODUCT: 1.32
WATERSHED AREA TO FACILITY (ACRES): 16.80
THIS FACILITY SHALL BE PUBLICLY MAINTAINED BY HOWARD COUNTY.

WATERSHED: CHERRY CREEK
STREAM CLASS: I
FREEBOARD: 1.39 FT.
WATER QUALITY: N/A
LEVEL OF MANAGEMENT PROVIDED BY FACILITY: 1-YEAR (QUANTITY)

CONTROL POINTS OF POND B		
POINT	COORDINATES	
	NORTH	EAST
①	536472.01	1341543.83
②	536460.04	1341514.10
③	536452.16	1341473.88
④	536452.49	1341446.92
⑤	536412.58	1341502.03
⑥	536504.37	1341484.06
⑦	536578.85	1341473.55
⑧	536609.46	1341467.25

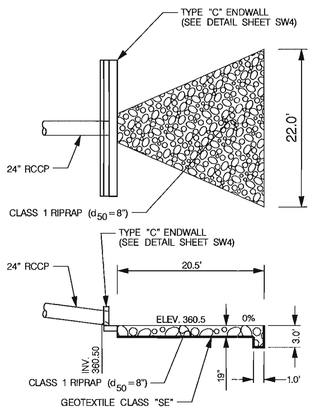


ARTICULATED CONCRETE BLOCKS PLAN

SCALE: 1" = 10'

ARTICULATED CONCRETE BLOCK NOTES

1. SEE SHEET SW5 FOR ARTICULATED CONCRETE BLOCK DETAILS AND SHEET SW6 FOR ARTICULATED CONCRETE BLOCK NOTES.
2. ARTICULATED CONCRETE BLOCKS ARE TO BE HAND PLACED WITHIN THE LIMITS SHOWN ON THIS PLAN. CABLES ARE TO BE SET AFTER BLOCKS ARE PLACED.
3. ARTICULATED CONCRETE BLOCKS ARE TO BE PLACED DIRECTLY ON GEOTEXTILE FABRIC (MIRAFI FW500 MONOFILAMENT GEOTEXTILE)
4. GROUT SEAMS ARE NOT REQUIRED BUT MAY BE USED AS SHOWN ON SHEET SW5.



POND B OUTLET PROTECTION

SCALE: 1" = 10'

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/16/04

DIRECTOR — DATE 12-7-04

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 (PRINT NAME BELOW SIGNATURE) — DATE 11-10-04

KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

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

Howard E. Saltzman — SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 11-24-04

Howard E Saltzman

THIS PLAN HAS BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/13/04

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 12/13/04

PLOTTED: "01:50 PM on Monday, November 08, 2004"
BY: Matt Snyder Division: Water Resources
FILE: m:\2001\0101128c\drawings\swm02.dgn

NO.	REVISIONS	DATE

KCI FILE: M:\2001\0101128C\Drawings\swm02.dgn

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CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE, LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
9780 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

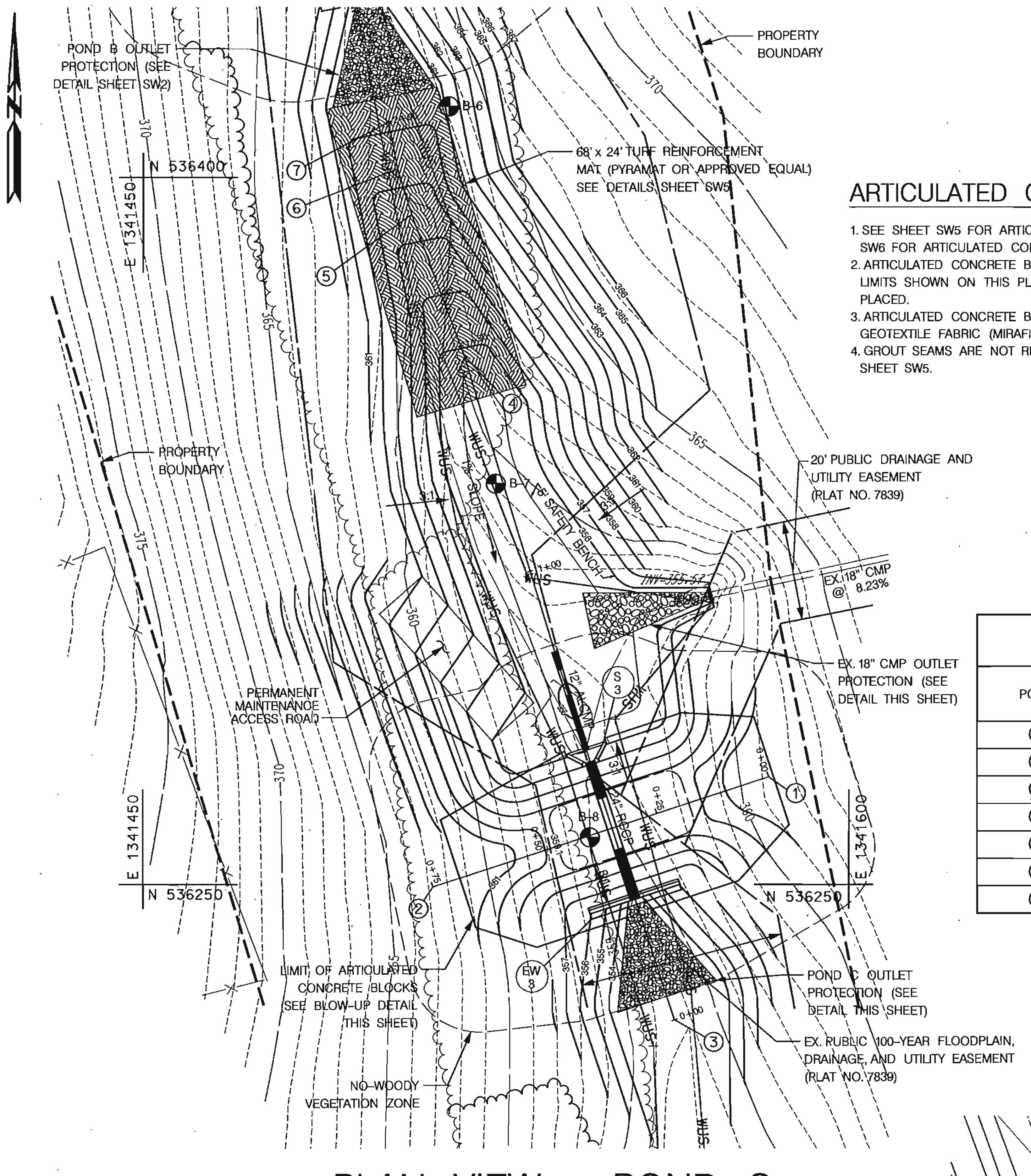
POND B PLAN, PROFILES, AND DETAILS

SCALE:	AS SHOWN
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

SW2

SHEET NO.: 24 OF 36

SDP-04-123



PLAN VIEW – POND C

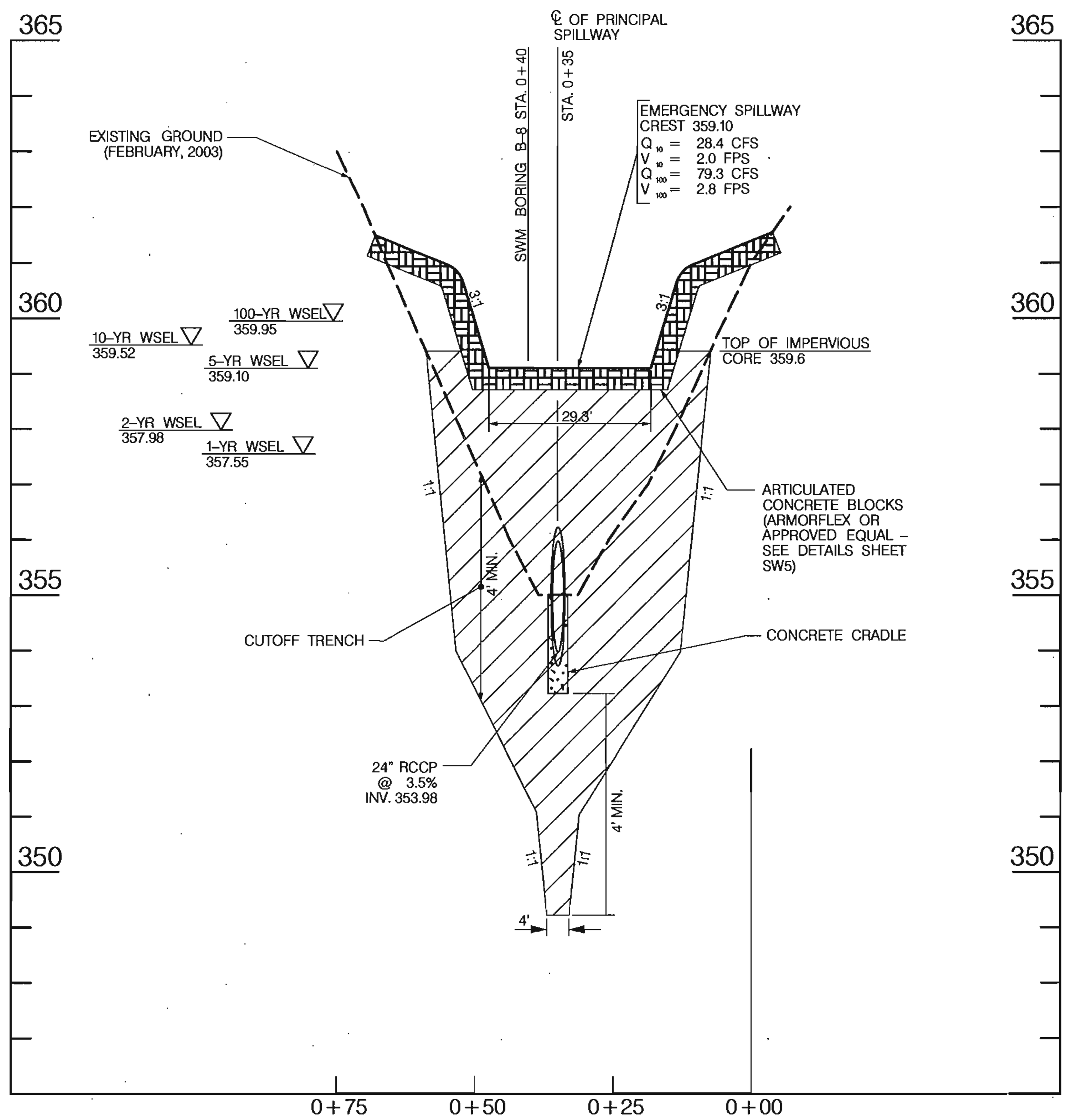
SCALE: 1" = 20'

ARTICULATED CONCRETE BLOCK NOTES

1. SEE SHEET SW5 FOR ARTICULATED CONCRETE BLOCK DETAILS AND SHEET SW6 FOR ARTICULATED CONCRETE BLOCK NOTES.
2. ARTICULATED CONCRETE BLOCKS ARE TO BE HAND PLACED WITHIN THE LIMITS SHOWN ON THIS PLAN. CABLES ARE TO BE SET AFTER BLOCKS ARE PLACED.
3. ARTICULATED CONCRETE BLOCKS ARE TO BE PLACED DIRECTLY ON GEOTEXTILE FABRIC (MIRAFI FW500 MONOFILAMENT GEOTEXTILE).
4. GROUT SEAMS ARE NOT REQUIRED BUT MAY BE USED AS SHOWN ON SHEET SW5.

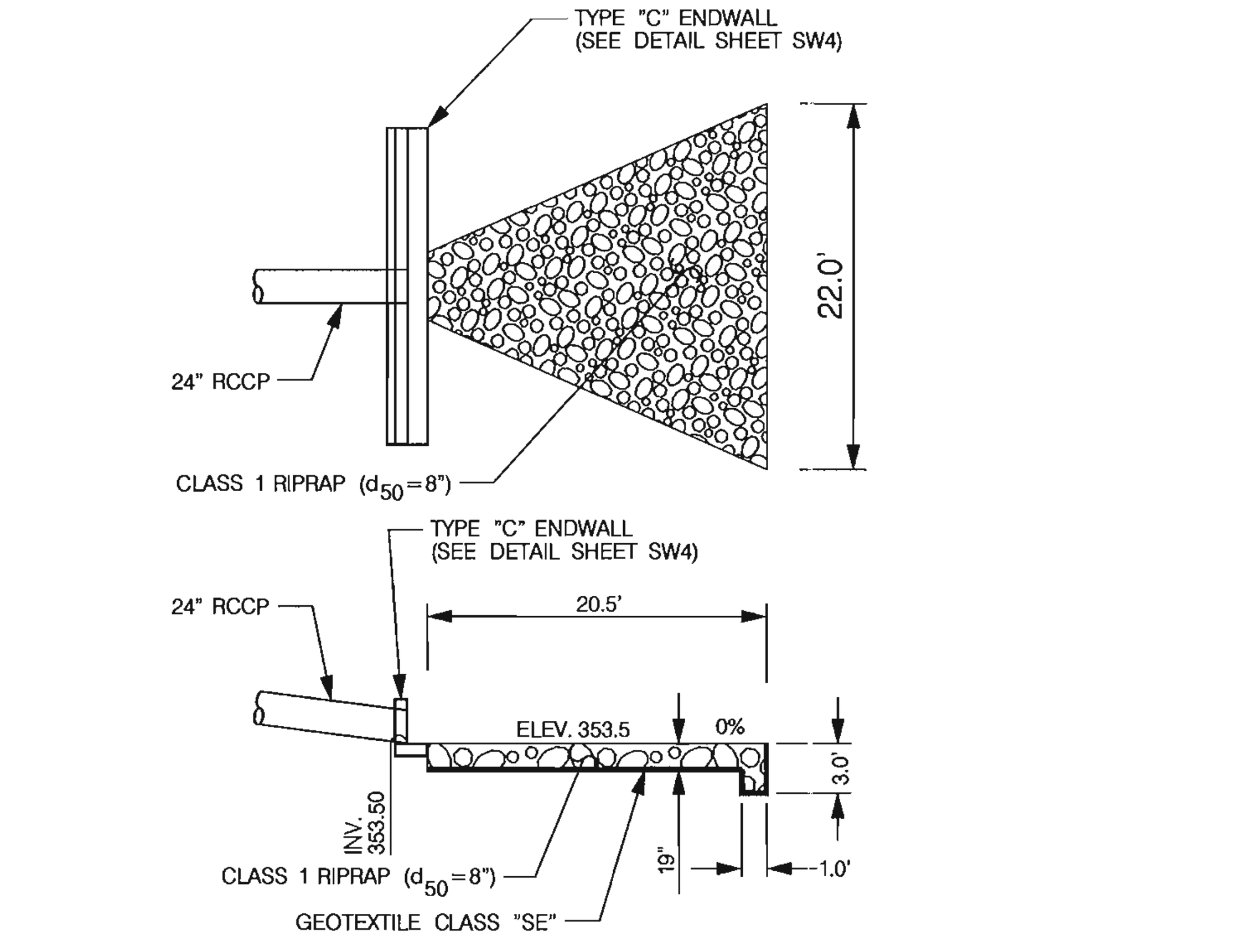
CONTROL POINTS OF POND C

POINT	COORDINATES NORTH	EAST
1	536272.79	1341582.97
2	536249.46	1341511.69
3	536221.28	1341562.99
4	536362.08	1341518.28
5	536392.17	1341507.06
6	536401.78	1341504.11
7	536411.60	1341502.18



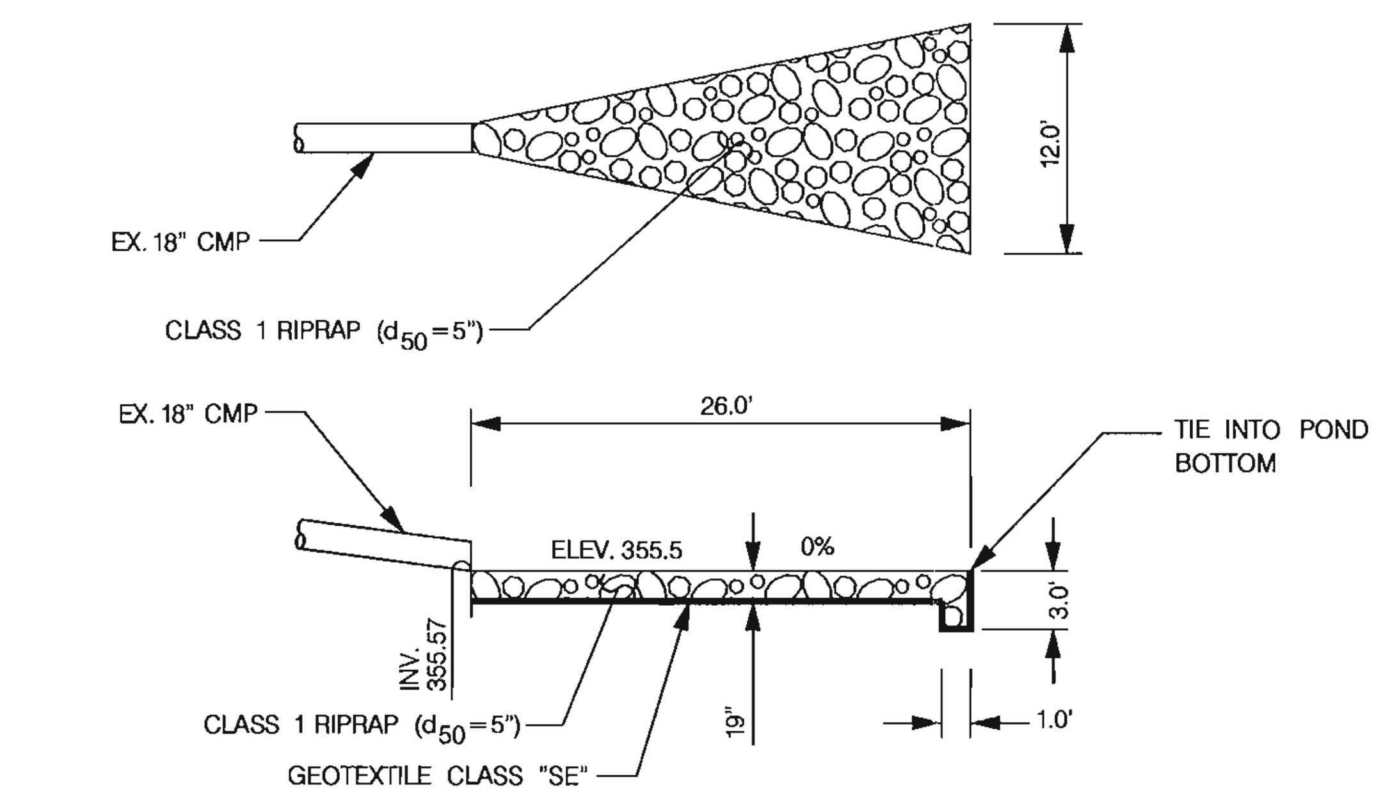
PROFILE ALONG ℄ OF DAM

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



POND C OUTLET PROTECTION

SCALE: 1" = 10'



EX. 18" CMP OUTLET PROTECTION

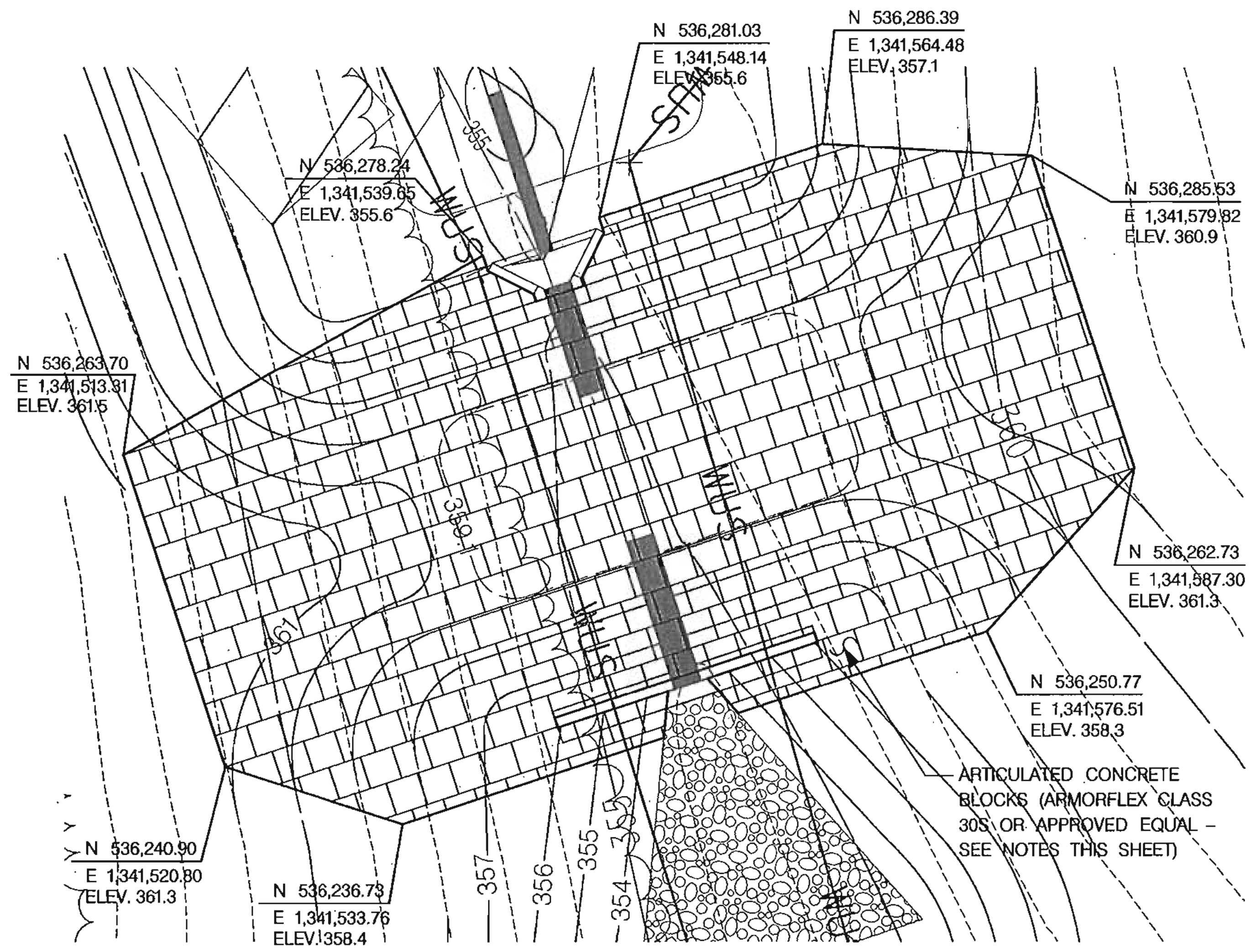
SCALE: 1" = 10'

S.W.M. DESIGN SUMMARY

DESIGN STORM	FACILITY INFLOW (cfs)	FACILITY OUTFLOW (cfs)	STAGE	STORAGE VOLUME AC. FT.
1-Year	4.7	2.0	357.55	0.14
2-Year	10.8	10.2	357.98	0.18
5-Year	37.4	28.9	359.10	0.31
10-Year	59.4	58.4	359.52	0.37
100-Year	112.4	111.8	359.95	0.43

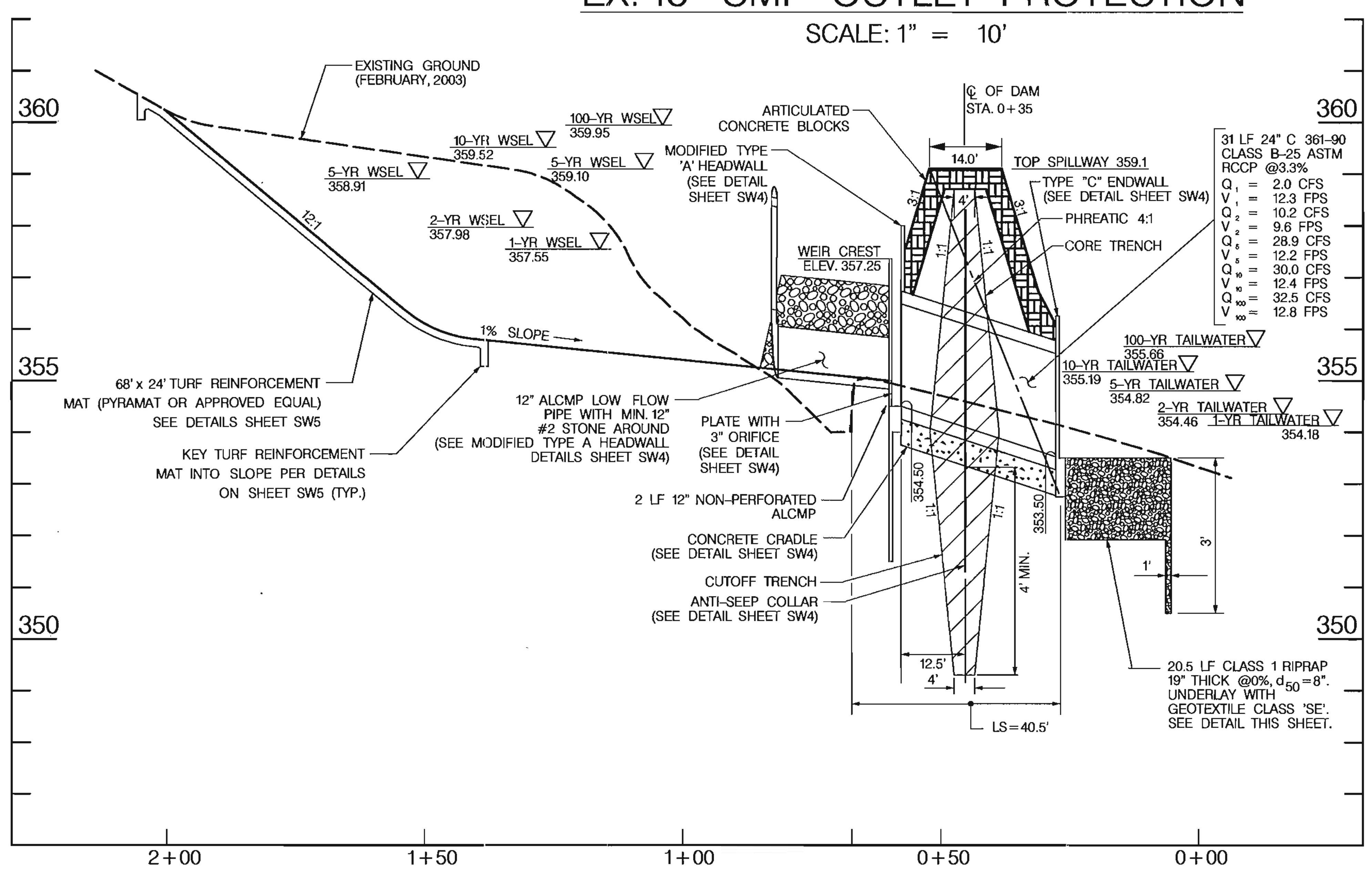
STRUCTURE TYPE: DRY EXTENDED DETENTION POND
SURFACE AREA: 0.17 AC.
STRUCTURE HAZARD CLASSIFICATION: "A"
STORAGE-HEIGHT PRODUCT: 1.25
WATERSHED AREA TO FACILITY (ACRES): 22.52
THIS FACILITY SHALL BE PUBLICLY MAINTAINED BY HOWARD COUNTY.

WATERSHED: CHERRY CREEK
STREAM CLASS: I
FREEBOARD: 1.05 FT.
WATER QUALITY: N/A
LEVEL OF MANAGEMENT PROVIDED BY FACILITY: 1-YEAR (QUANTITY)



ARTICULATED CONCRETE BLOCKS PLAN

SCALE: 1" = 10'



PROFILE ALONG PRINCIPAL SPILLWAY

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

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

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 (PRINT NAME BELOW SIGNATURE) — DATE 11-10-04
KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 11-24-04
Howard E Saltzman

THIS PLAN HAS BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/13/04

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 12/13/04

NO.	REVISIONS DESCRIPTION	DATE

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

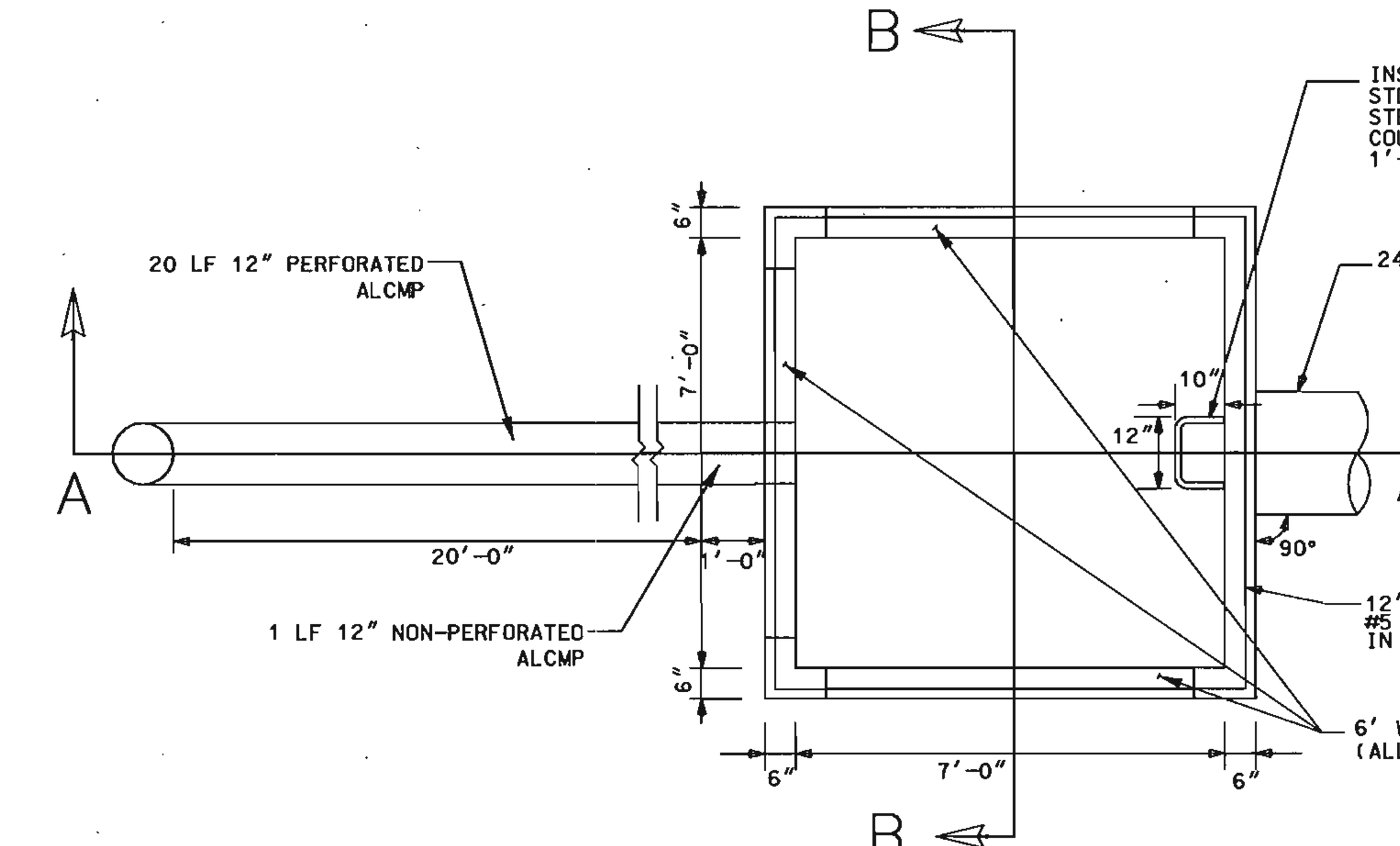
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

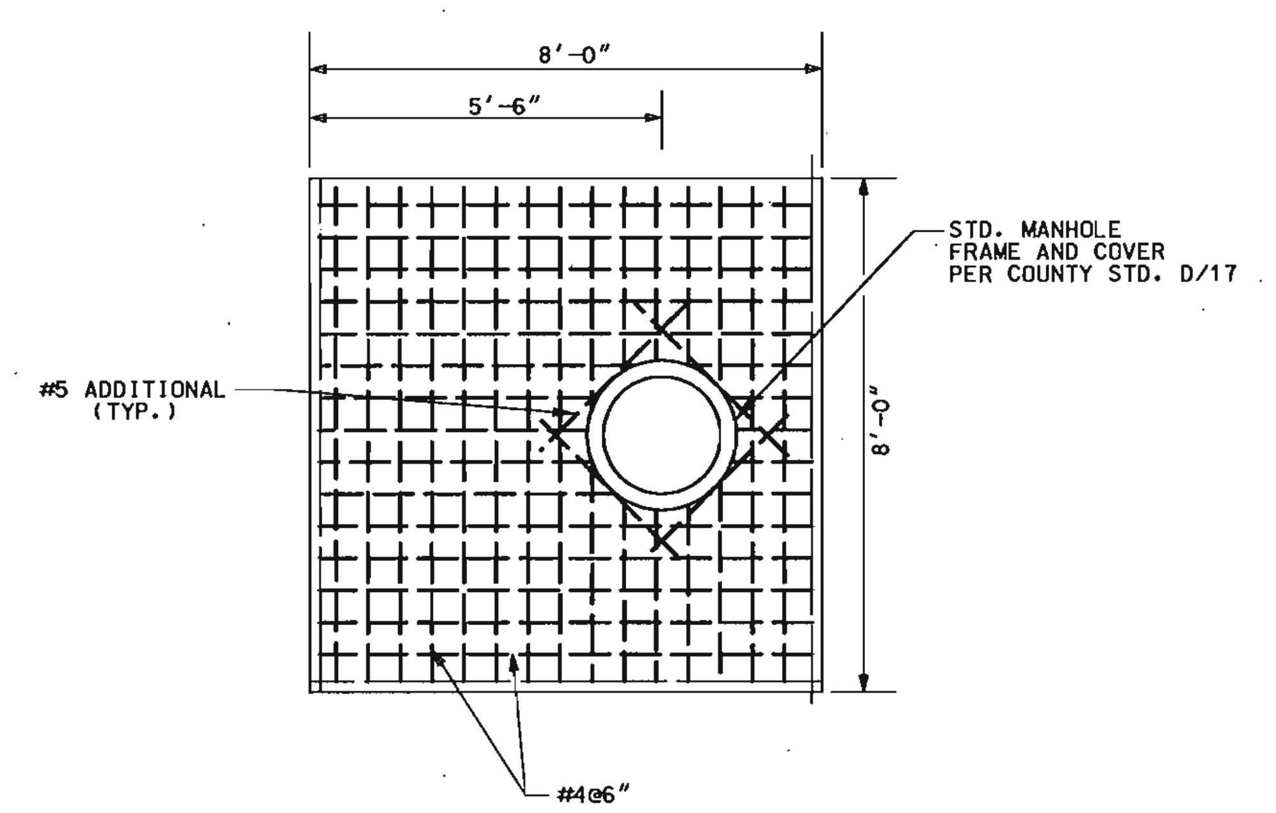
POND C PLAN, PROFILES, AND DETAILS

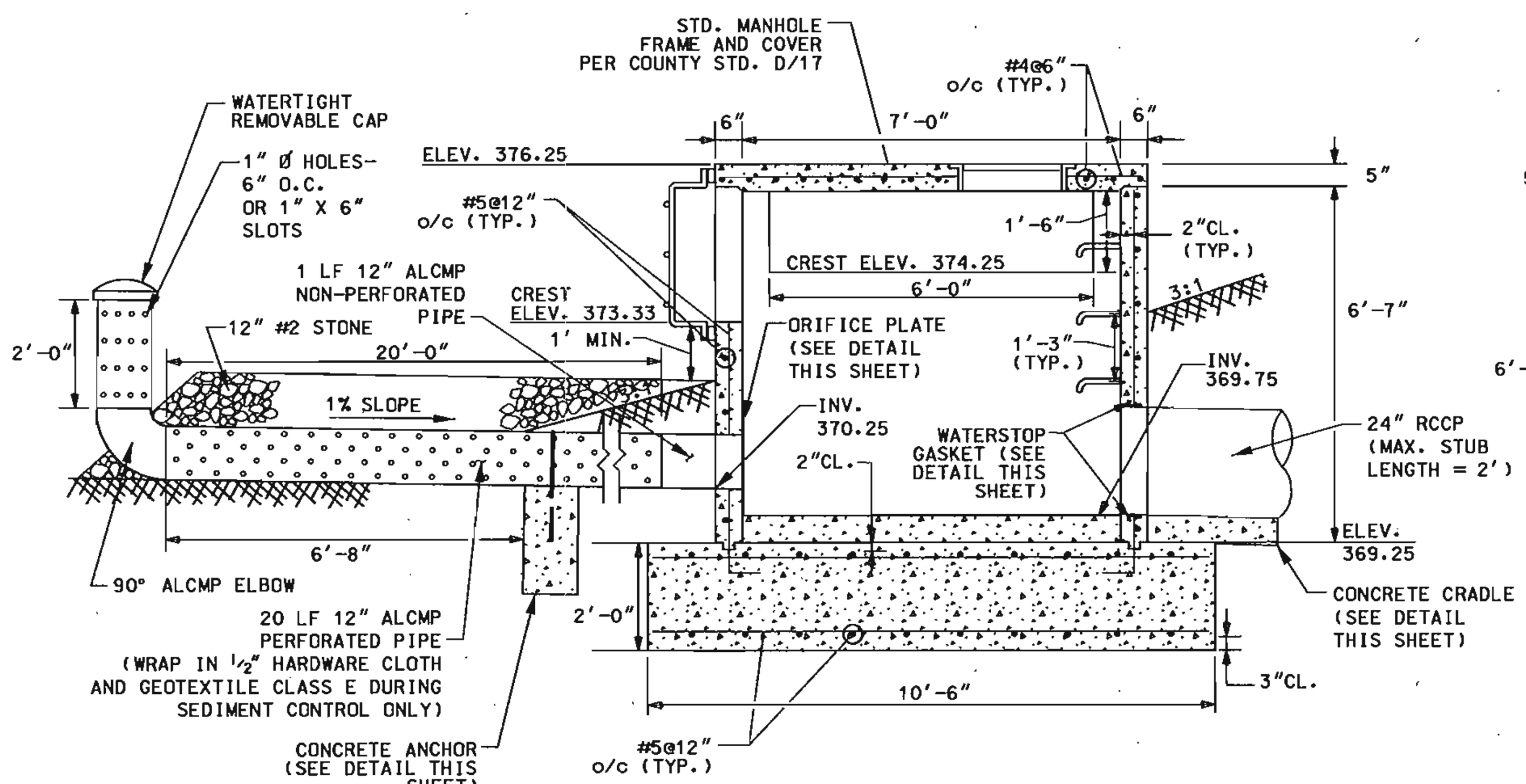
SCALE:	AS SHOWN
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

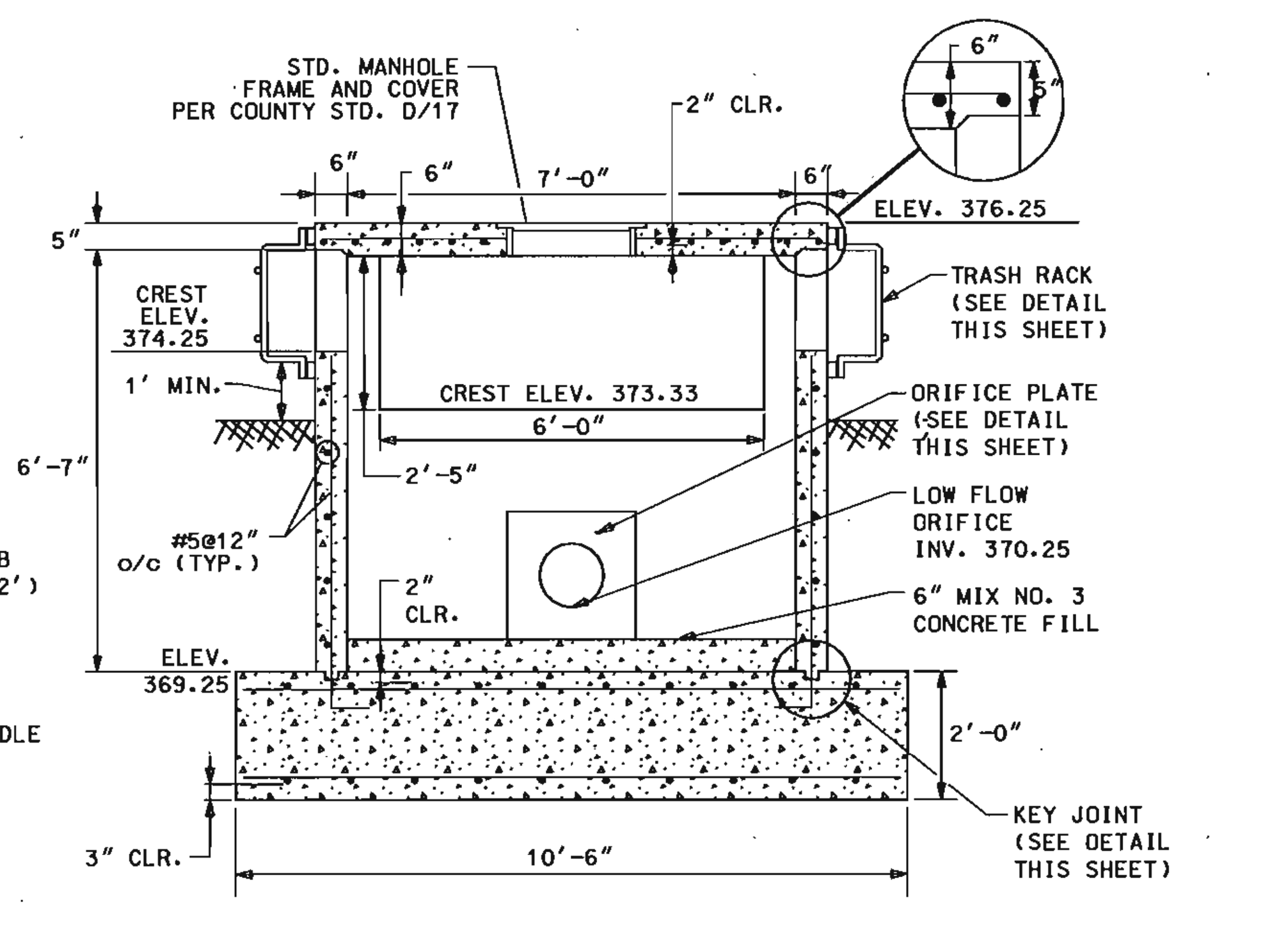
SW3

SDP-04-123



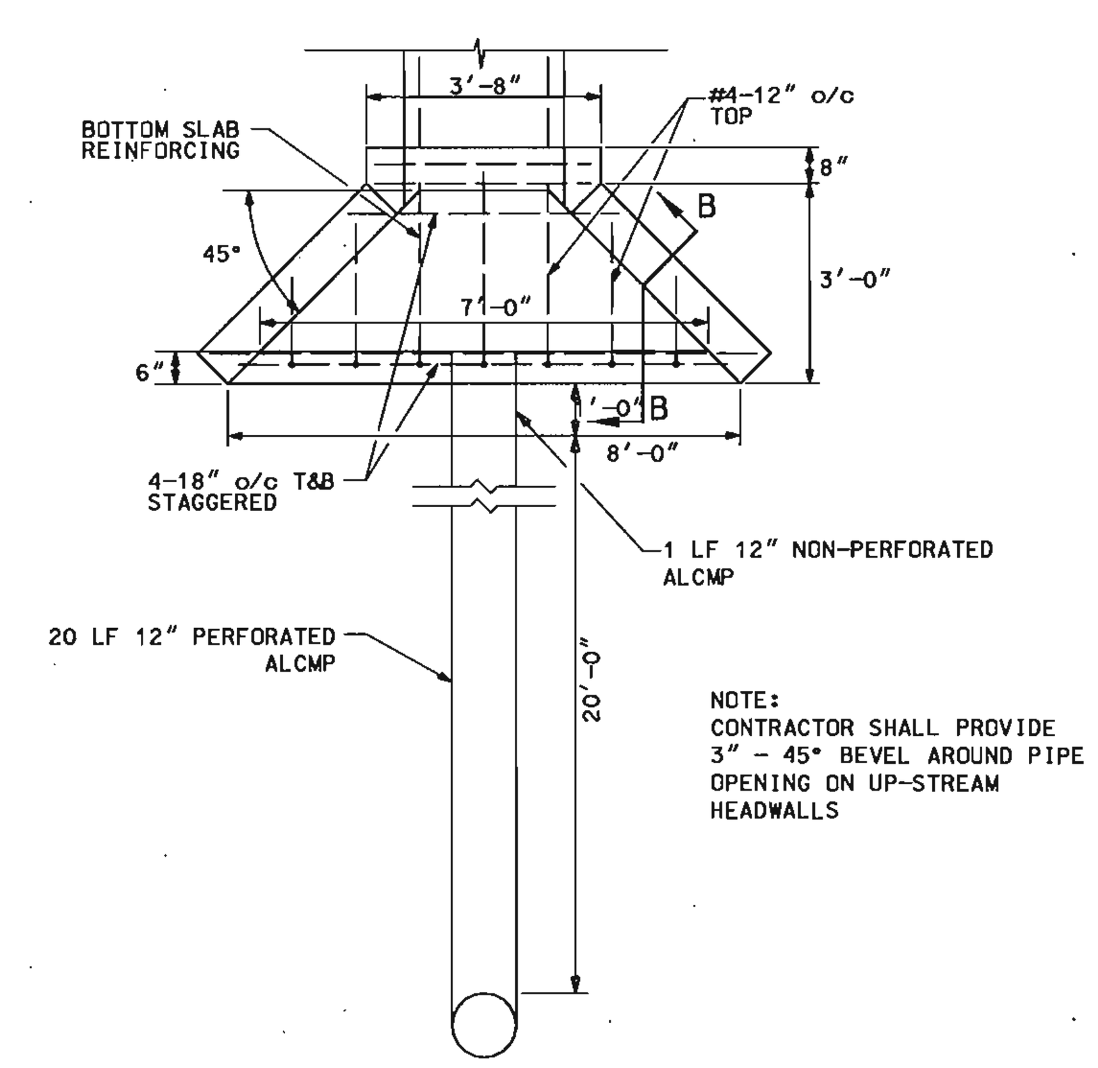


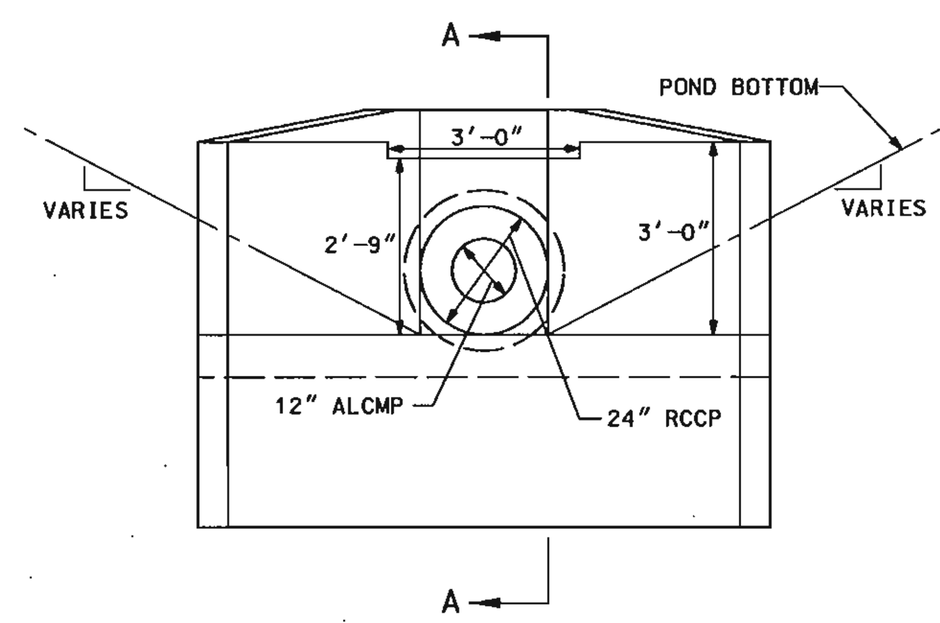


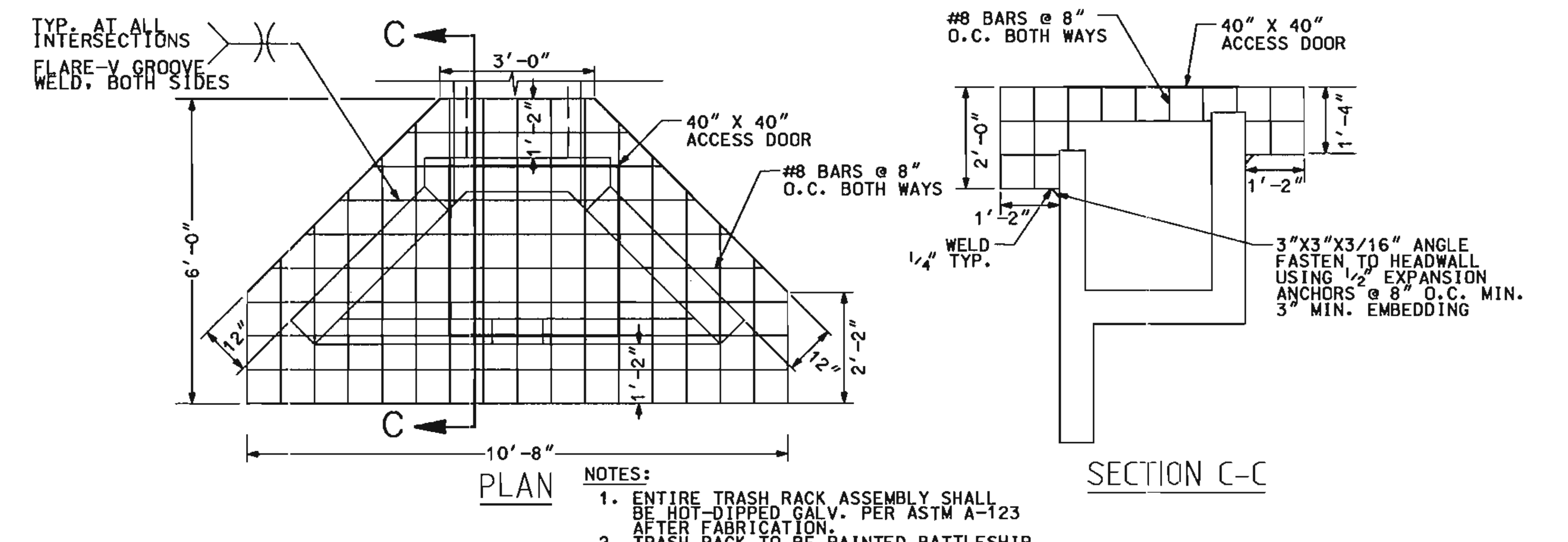


RISER STRUCTURE (S-1)

SCALE: 1"=3'





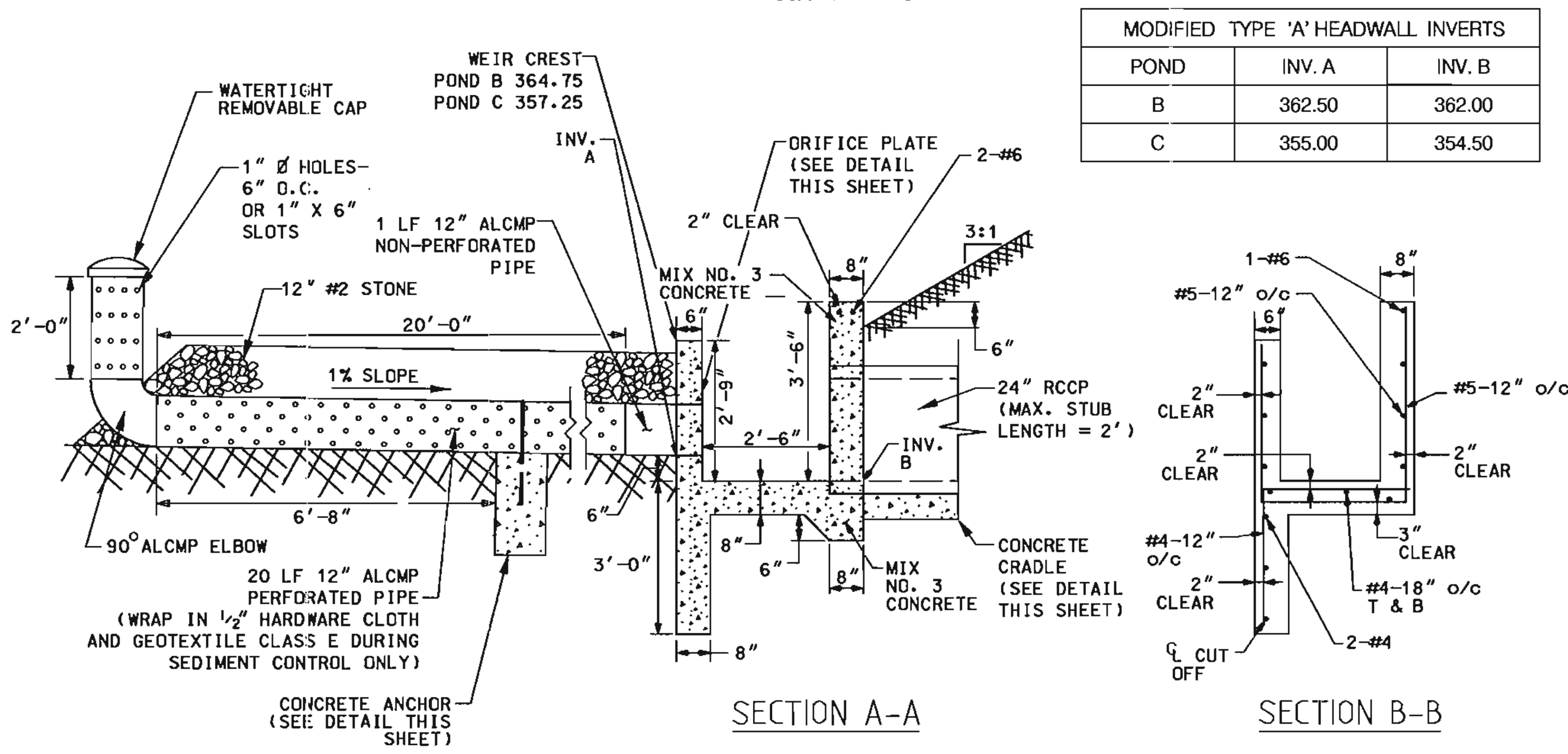


NOTES:
1. ENTIRE TRASH RACK ASSEMBLY SHALL BE HOT-DIPPED GALV. PER ASTM A-123 AFTER FABRICATION.
2. TRASH RACK TO BE PAINTED BATTLESHIP GREY.
3. CONTRACTOR TO PROVIDE 40" X 40" HINGED ACCESS DOOR USING #8 REBAR SPACED 8" O.C. BOTH WAYS. OWNER TO PROVIDE LOCK FOR UNHINGED SIDE.

TYPE 'A' HEADWALL TRASH RACK

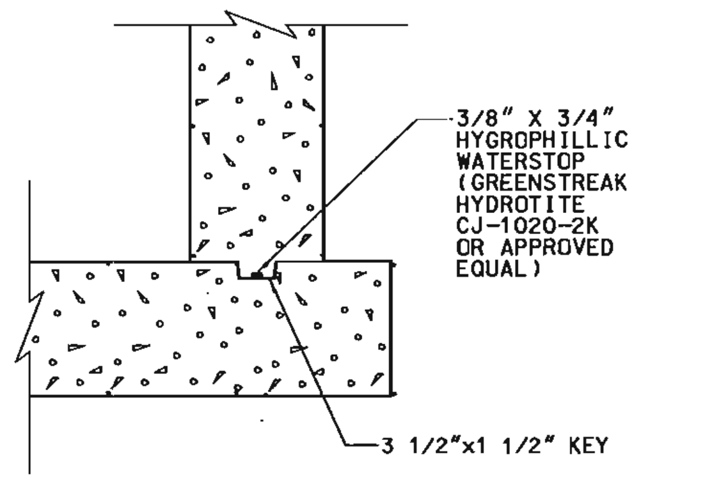
SCALE: 1" = 3'

MODIFIED TYPE 'A' HEADWALL INVERTS		
POND	INV. A	INV. B
B	362.50	362.00
C	355.00	354.50



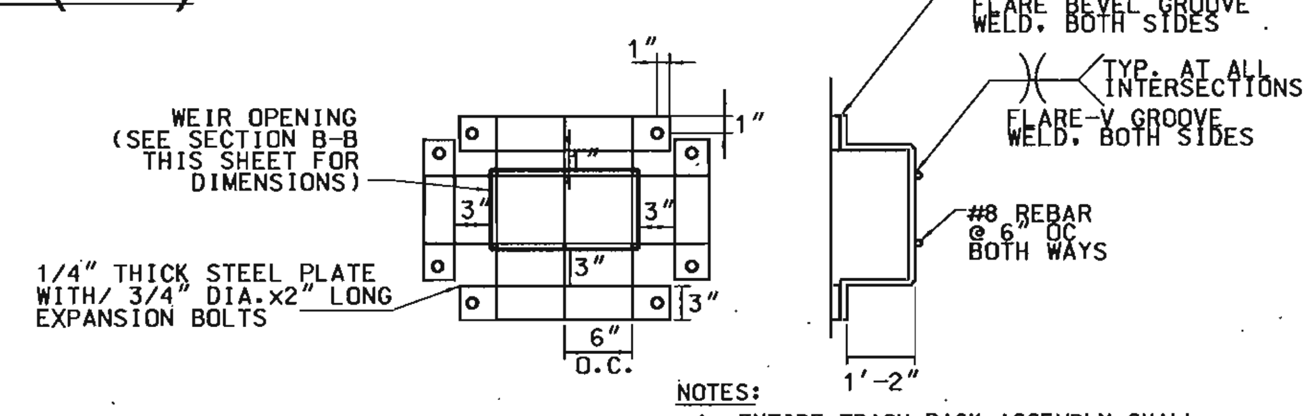
MODIFIED TYPE 'A' HEADWALL

SCALE: 1" = 3'



KEY JOINT DETAIL

NOT TO SCALE



NOTES:
1. ENTIRE TRASH RACK ASSEMBLY SHALL BE HOT-DIPPED GALV. PER ASTM A-123 AFTER FABRICATION.
2. TRASH RACK TO BE PAINTED BATTLESHIP GREY.

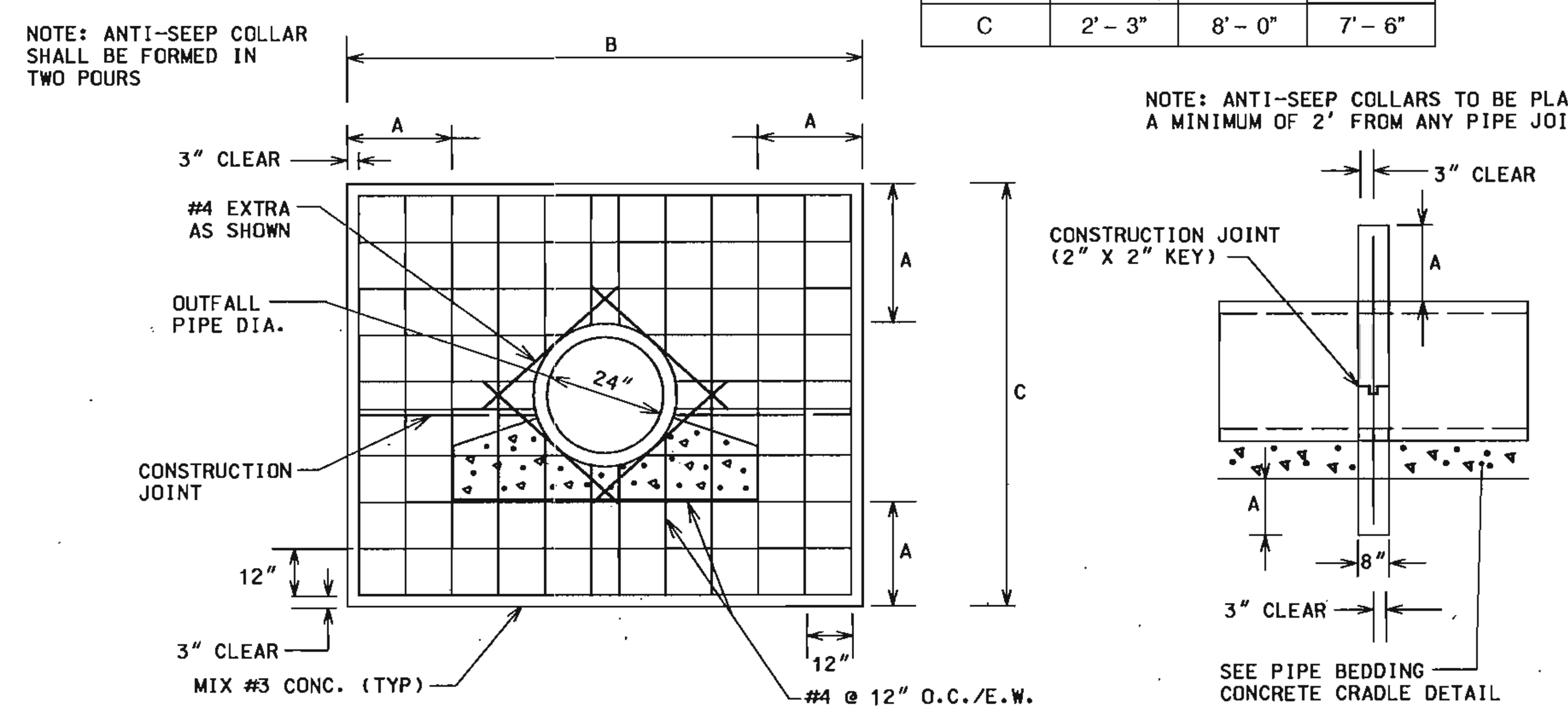
WEIR TRASH RACK DETAIL

NOT TO SCALE

ANTI-SEEP COLLAR DIMENSIONS			
POND	A	B	C
A	3' - 8"	10' - 10"	10' - 4"
B	2' - 4"	8' - 2"	7' - 8"
C	2' - 3"	8' - 0"	7' - 6"

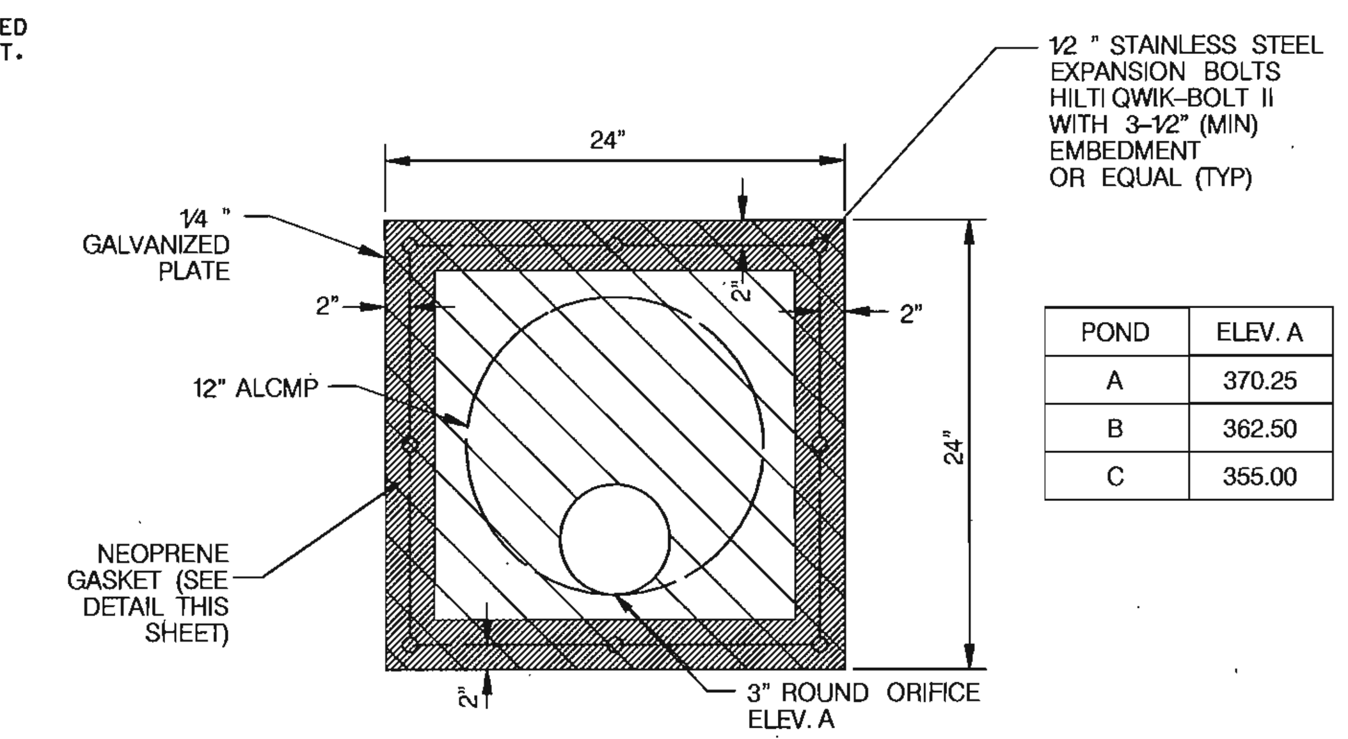
NOTE: ANTI-SEEP COLLAR SHALL BE FORMED IN TWO POURS

NOTE: ANTI-SEEP COLLARS TO BE PLACED A MINIMUM OF 2' FROM ANY PIPE JOINT.



ANTI-SEEP COLLAR

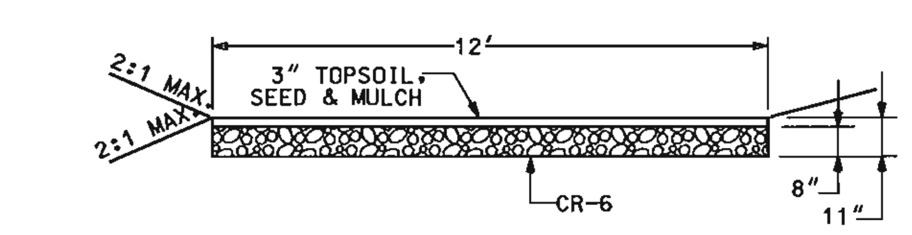
NOT TO SCALE



POND	ELEV. A
A	370.25
B	362.50
C	355.00

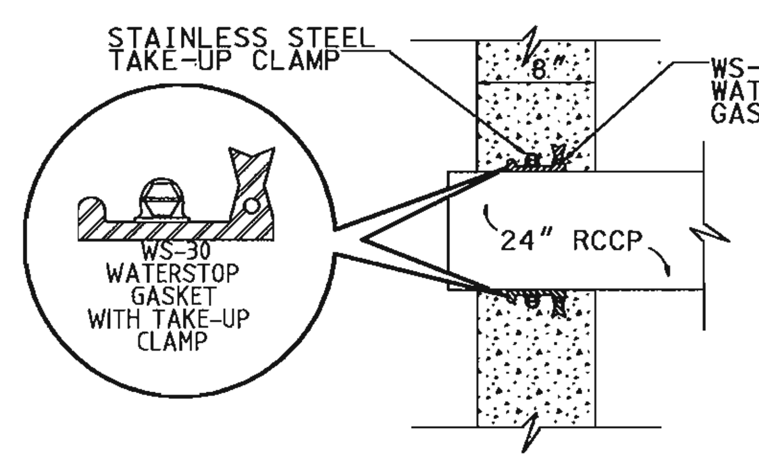
ORIFICE PLATE DETAIL

NOT TO SCALE



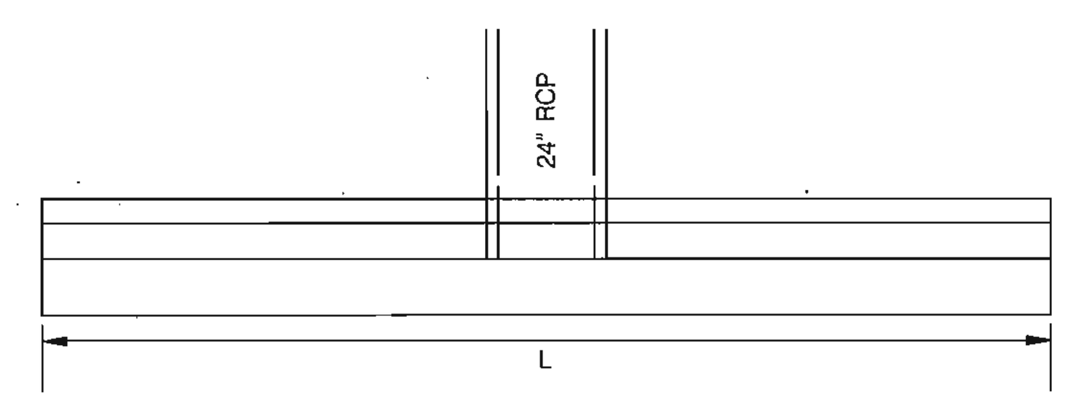
ACCESS ROAD DETAIL (TYPICAL)

NOT TO SCALE



WS-30 WATERSTOP GASKET DETAIL

NOT TO SCALE



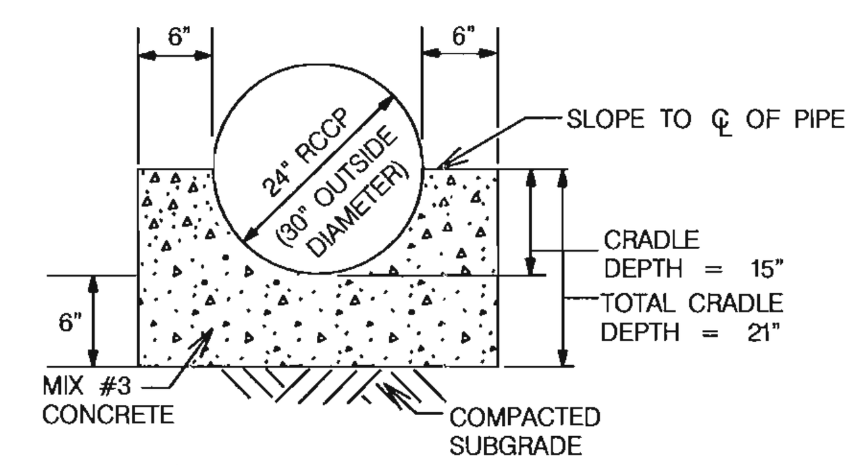
POND	'L' (FT.)
A	19.0
B	19.0
C	20.0

NOTE: TYPE "C" ENDWALL SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL SD-5.21 FOR 24" PIPES, WITH THE FOLLOWING CHANGES:

1. MODIFY LENGTH 'L' OF ENDWALL ACCORDING TO THIS DETAIL
2. PROPOSED GRADE SHALL BE SLOPED AT 3:1 ALONG ENDWALL
3. ALL REBAR SIZING AND SPACING SHALL BE MAINTAINED ACCORDING TO STANDARD DETAIL SD-5.21.

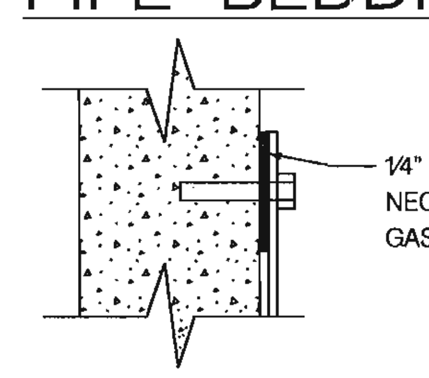
TYPE "C" ENDWALL

NOT TO SCALE



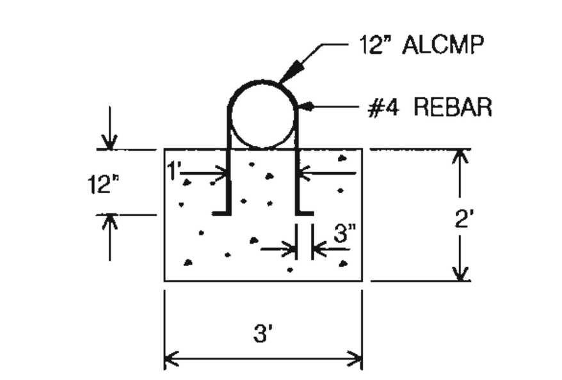
PIPE BEDDING CONCRETE CRADLE

NOT TO SCALE



ORIFICE PLATE GASKET DETAIL

NOT TO SCALE



CONCRETE ANCHOR

NOT TO SCALE

GENERAL STRUCTURAL NOTES:

CODES:

A. CURRENT HOWARD COUNTY BUILDING CODE.
B. LATEST EDITION OF AMERICAN CONCRETE INSTITUTE (ACI 318), "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
C. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE) 7, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES".

DESIGN LOADS:

A. DEAD LOADS: ACTUAL WEIGHT
B. LIVE LOADS:
   TOP SLAB - 100 PSF
C. SNOW LOAD (GROUND SNOW LOAD): 25 PSF
D. WIND LOAD: LOADS BASED ON BASIC WIND SPEED OF 90 MPH (EXPOSURE C)
E. SEISMIC LOAD:
   SEISMIC USE GROUP: I
   SITE CLASS: D
   SPECTRAL RESPONSE COEFFICIENTS: SDS=0.2133, SD1=0.0992
   DESIGN CATEGORY: B
   BASIC SEISMIC FORCE RESISTING SYSTEM: ORDINARY REINFORCED CONCRETE SHEAR WALLS
   DESIGN BASE SHEAR: 3.31 KIPS
   ANALYSIS PROCEDURE: SIMPLIFIED ANALYSIS PROCEDURE

CONCRETE:

A. ALL CONCRETE WORK SHALL CONFORM TO ALL PROVISIONS OF "SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301) AND TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318).
B. ALL STRUCTURAL CONCRETE UNLESS NOTED OTHERWISE, SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,500 P.S.I. AT 28 DAYS.
C. ALL REINFORCING BARS SHALL CONFORM TO ASTM A-615, GRADE 60.
D. HOOKS ON BARS SHALL HAVE STANDARD ACI LENGTHS AND BEND RADII UNLESS INDICATED OTHERWISE.
E. REINFORCEMENT COVER SHALL CONFORM TO ACI 318 UNLESS INDICATED OTHERWISE.
F. CHAMFER ALL EXPOSED CORNERS 3/4" UNLESS INDICATED OTHERWISE.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

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 (PRINT NAME BELOW SIGNATURE) — DATE 11-10-04
KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 11-24-04
Howard E Saltzman

THIS PLAN HAS BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/13/04

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 12/13/04

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 0101128.C \ Drawings \ swm04.dgn

KCI TECHNOLOGIES www.kci.com
ENGINEERS PLANNERS SCIENTISTS CONSTRUCTION MANAGERS

CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE LOT 170

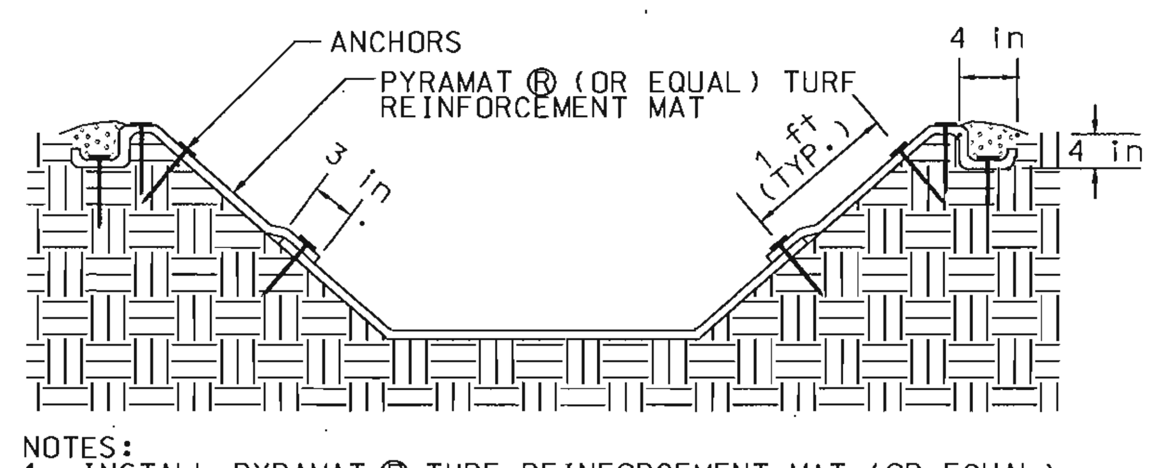
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

STORMWATER MANAGEMENT DETAILS

SCALE:	AS SHOWN
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

SW4

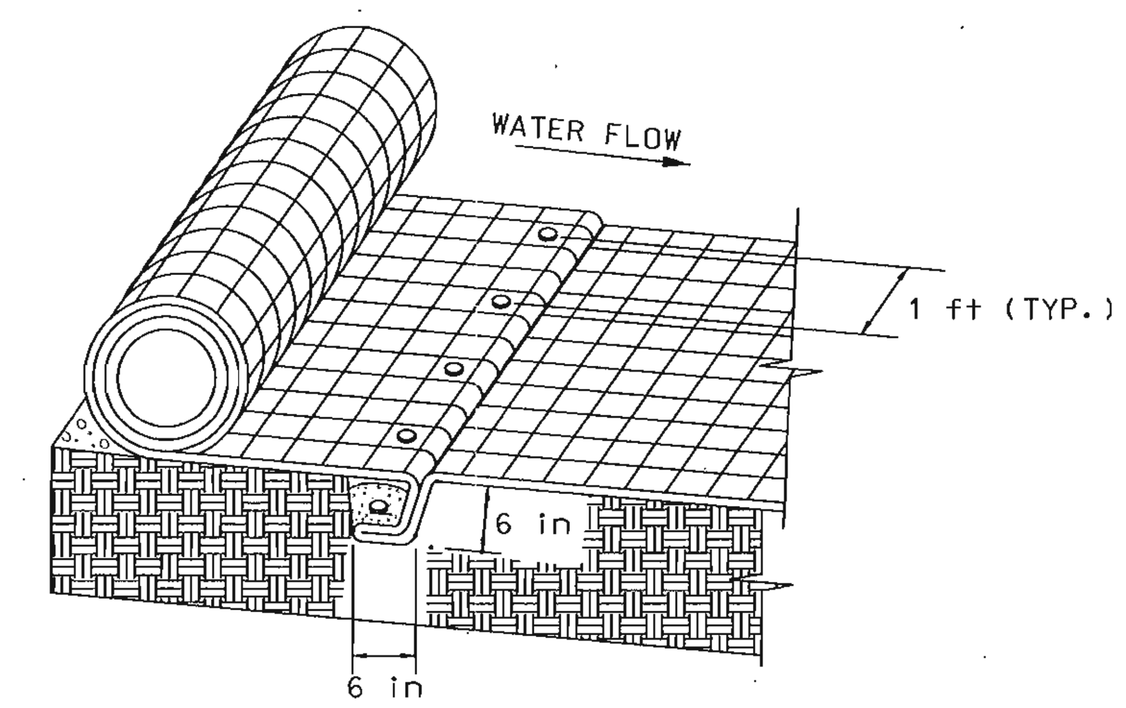
SDP-04-123



NOTES:
1. INSTALL PYRAMAT ® TURF REINFORCEMENT MAT (OR EQUAL) AND SOIL FILL
2. SECURE LONGITUDINAL ANCHOR TRENCH AT 1 ft INTERVALS O/C. BACKFILL AND COMPACT SOIL

LONGITUDINAL ANCHOR TRENCH

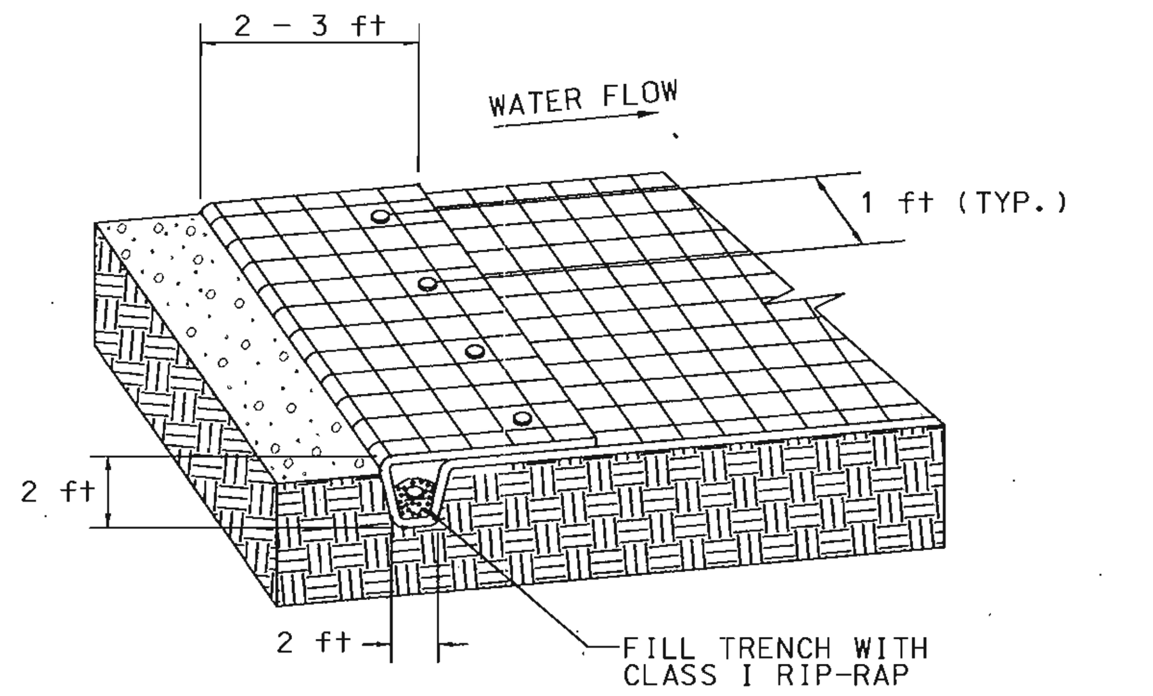
NOT TO SCALE



NOTE:
1. SECURE AT 1 ft INTERVALS O/C. BACKFILL AND COMPACT SOIL

INTERMITTENT CHECK SLOT DETAIL

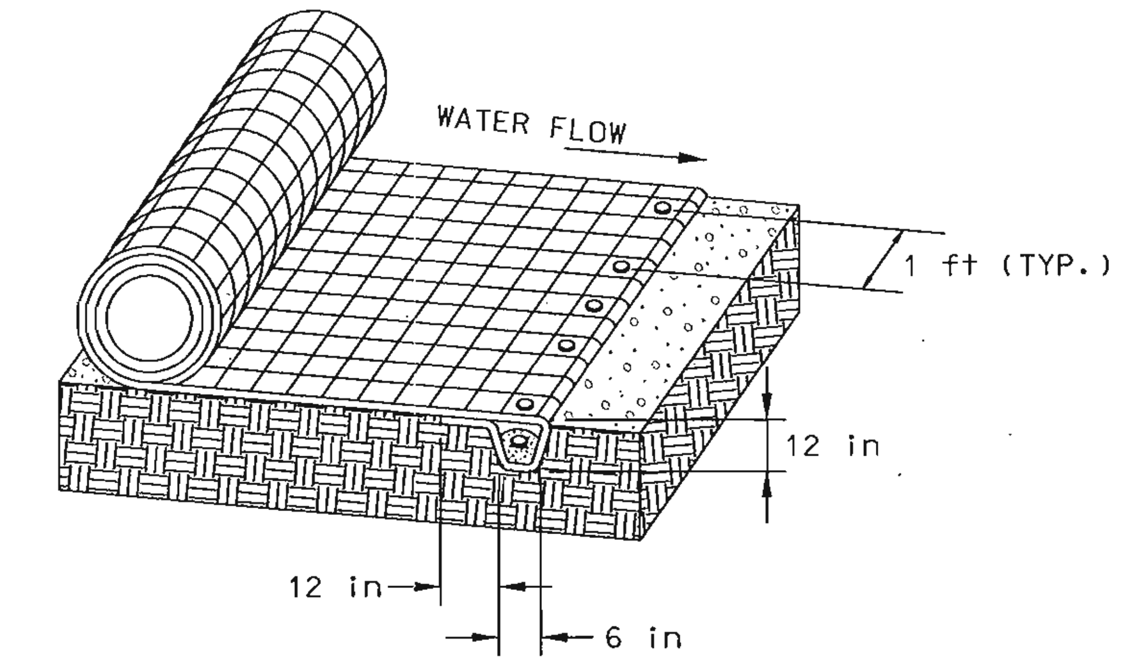
NOT TO SCALE



NOTE:
1. SECURE AT 1 ft INTERVALS O/C. BACKFILL AND COMPACT SOIL

TERMINAL CHANNEL ANCHOR TRENCH DETAIL

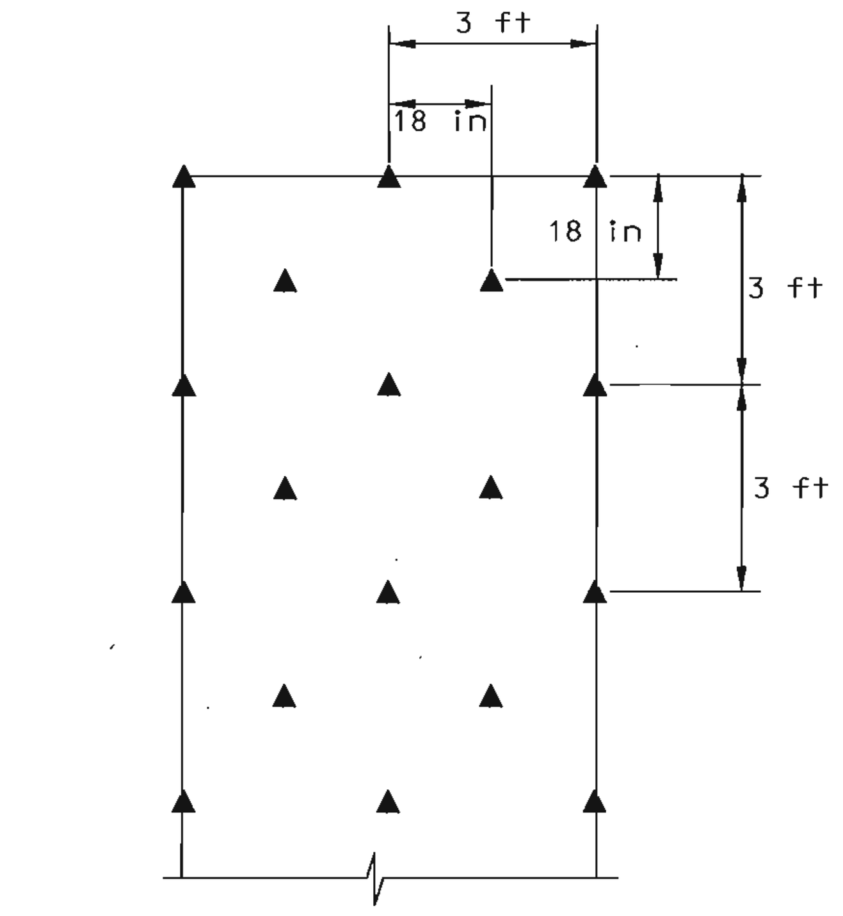
NOT TO SCALE



NOTE:
1. SECURE AT 1 ft INTERVALS O/C. BACKFILL AND COMPACT SOIL

INITIAL ANCHOR TRENCH DETAIL

NOT TO SCALE



NOTES:
1. PLACE $2\frac{1}{2}$ ANCHORS / SY FOR CHANNELS
2. 12" METAL PINS SHALL BE USED TO ANCHOR TURF REINFOREMENT MATS TO THE GROUND SURFACE

ANCHOR PATTERN FOR CHANNELS

NOT TO SCALE

INSTALLATION GUIDELINES

SITE PREPARATION

1. GRADE AND COMPACT AREA OF INSTALLATION.
2. PREPARE SEEDBED BY LOOSENING 2-3 INCHES OF TOPSOIL ABOVE FINAL GRADE.
3. INCORPORATE AMENDMENTS SUCH AS LIME AND FERTILIZER INTO SOIL.
4. REMOVE ALL ROCKS, CLODS, VEGETATION OR OTHER OBSTRUCTIONS SO THAT THE INSTALLED PYRAMAT WILL HAVE DIRECT CONTACT WITH SOIL SURFACE.
5. DO NOT MULCH AREAS WHERE MAT IS TO BE PLACED.

SEEDING

1. APPLY SEED TO THE SOIL SURFACE BEFORE INSTALLING PYRAMAT OR AFTER INSTALLATION FOR ENHANCED PERFORMANCE PRIOR TO SOIL FILLING (PREFERABLE).
2. WHEN SEEDING PRIOR TO PYRAMAT INSTALLATION, ALL CHECK SLOTS AND OTHER AREAS DISTURBED MUST ALSO BE RE-SEEDED.
3. SEED PYRAMAT AND ENTIRE DISTURBED AREA AFTER INSTALLATION, PRIOR TO FILLING MAT WITH SOIL.

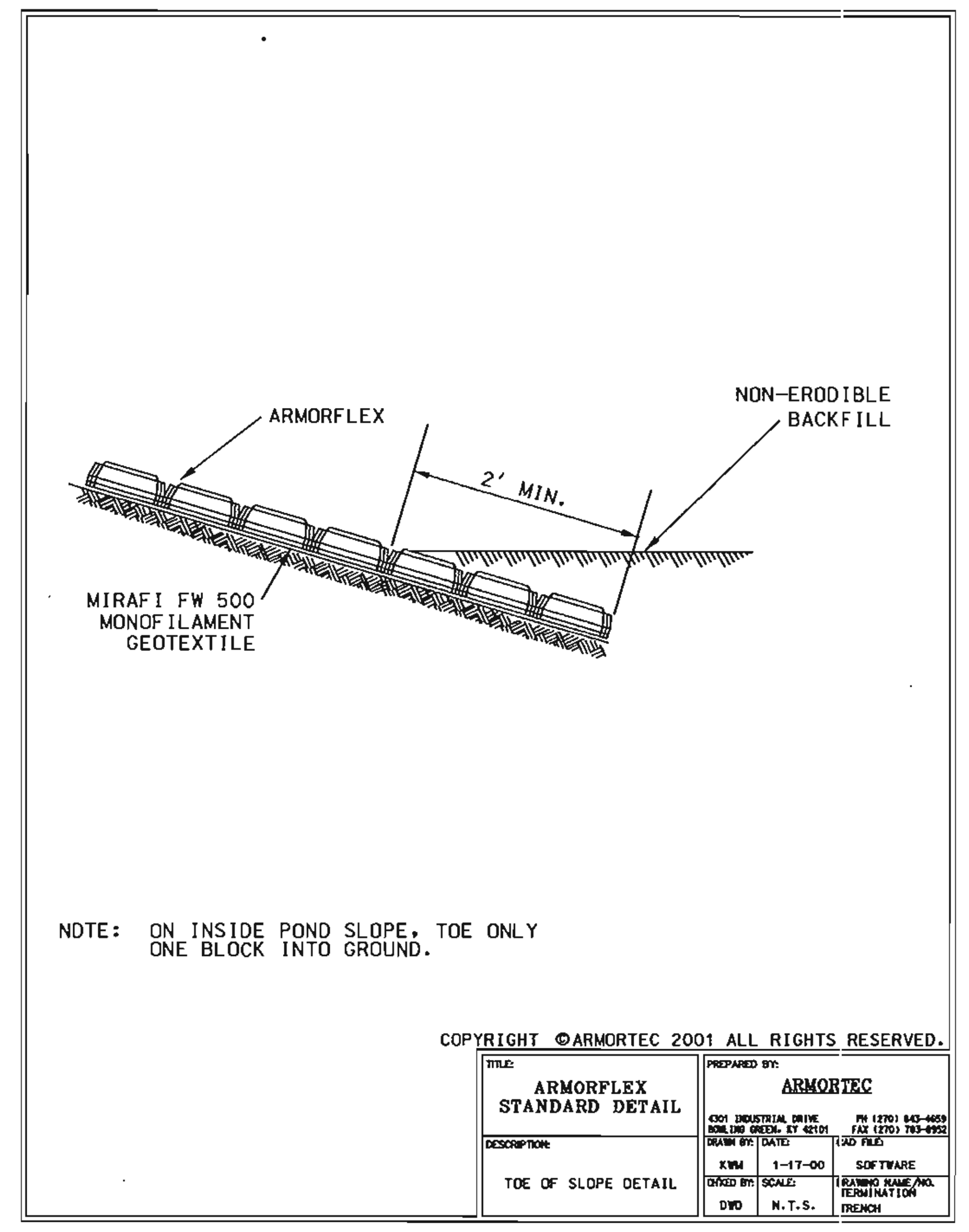
PYRAMAT PLACEMENT FOR CHANNELS

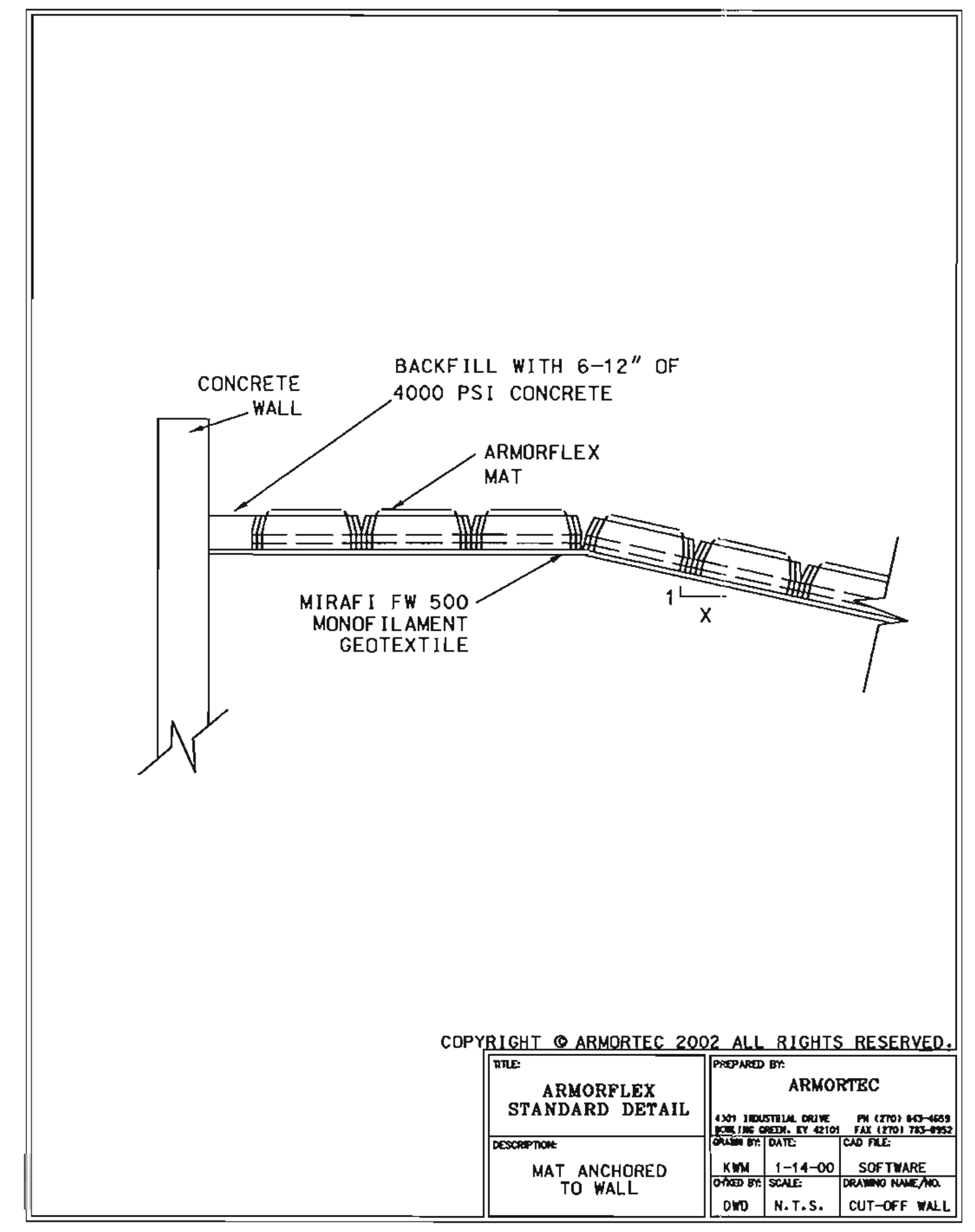
1. EXCAVATE AN INITIAL ANCHOR TRENCH (SEE DETAIL THIS SHEET) 12 INCHES DEEP AND 6 INCHES WIDE ACROSS THE CHANNEL AT THE LOWER END OF THE PROJECT AREA.
2. EXCAVATE INTERMITTENT CHECK SLOTS (SEE DETAIL THIS SHEET) 6 INCHES DEEP AND 6 INCHES WIDE ACROSS THE CHANNEL AT 30 FOOT INTERVALS ALONG THE CHANNEL.
3. CUT LONGITUDINAL CHANNEL ANCHOR SLOTS (SEE DETAIL THIS SHEET) 4 INCHES DEEP AND 4 INCHES WIDE ALONG BOTH SIDES OF THE INSTALLATION TO BURY EDGES OF PYRAMAT. WHENEVER POSSIBLE, EXTEND MAT 2-3 FEET ABOVE CREST OF CHANNEL SIDE SLOPES.
4. BEGINNING AT THE CENTER OF DOWNSTREAM END OF CHANNEL, PLACE THE END OF THE FIRST ROLL IN THE ANCHOR TRENCH AND SECURE WITH FASTENING DEVICES AT 1 FOOT INTERVALS.
5. IN SAME MANNER, POSITION ADJACENT ROLLS IN ANCHOR TRENCH, OVERLAPPING THE PRECEDING ROLL A MINIMUM OF 3 INCHES.
6. AGAIN, SECURE AT 1 FOOT INTERVALS, BACKFILL, AND COMPACT SOIL.
7. UNROLL PYRAMAT OVER THE COMPACTED TRENCH. STOP AT NEXT CHECK SLOT OR TERMINAL ANCHOR SLOT.
8. UNROLL ADJACENT ROLLS UPSTREAM TO MAINTAIN A 3 INCH OVERLAP AND ANCHORING EVERY 18 INCHES.
9. FOLD AND SECURE ALL PYRAMAT ROLLS SNUGLY INTO INTERMITTENT CHECK SLOTS. LAY PYRAMAT IN THE BOTTOM AND FOLD BACK AGAINST ITSELF. ANCHOR THROUGH BOTH LAYERS OF MAT AT 1 FOOT INTERVALS, THEN BACKFILL AND COMPACT SOIL. CONTINUE ROLLING PYRAMAT UPSTREAM OVER THE COMPACTED SLOT TO THE NEXT CHECK SLOT OR TERMINAL ANCHOR TRENCH.
10. OVERLAP ROLL ENDS A MINIMUM OF 1 FOOT WITH UPSTREAM PYRAMAT ON TOP. BEGIN ALL NEW ROLLS IN A CHECK SLOT. ANCHOR OVERLAPPED AREA BY PLACING TWO ROWS OF ANCHORS, 1 FOOT APART ON 1 FOOT INTERVALS.
11. PLACE OUTER EDGE OF PYRAMAT IN PREVIOUSLY EXCAVATED LONGITUDINAL SLOTS, ANCHOR USING PRESCRIBED STAPLE PATTERN, BACKFILL AND COMPACT SOIL.
12. ANCHOR BACKFILL AND COMPACT UPSTREAM END OF PYRAMAT IN A 12 X 6 INCH TERMINAL TRENCH.
13. SECURE PYRAMAT TO GROUND SURFACE USING 12" METAL PINS.
14. SEE ANCHOR PATTERN DETAIL THIS SHEET FOR APPROPRIATE NUMBER AND PATTERN OF ANCHORS.
15. SEED AND FILL PYRAMAT WITH SOIL.

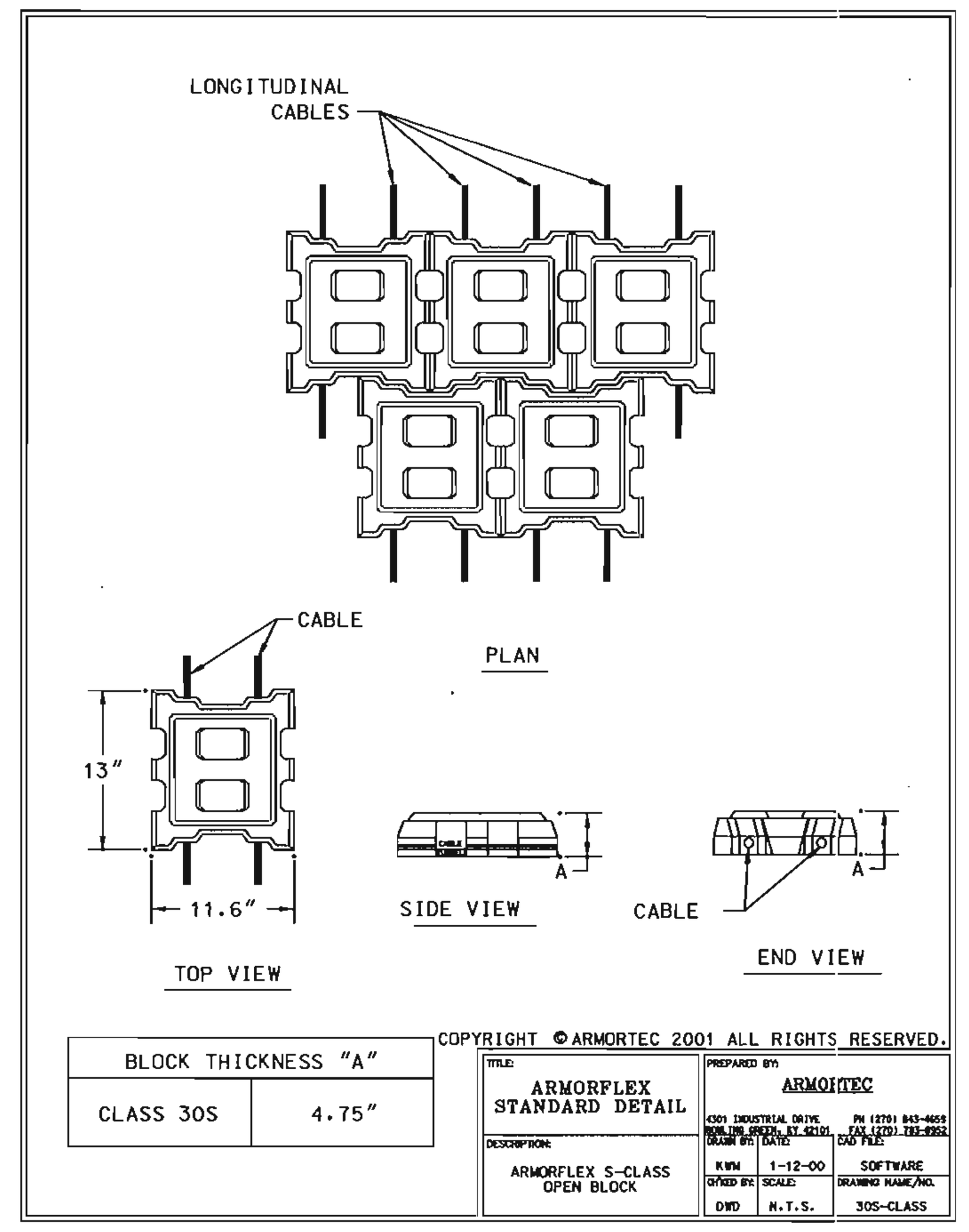
GROUND ANCHORING DEVICES

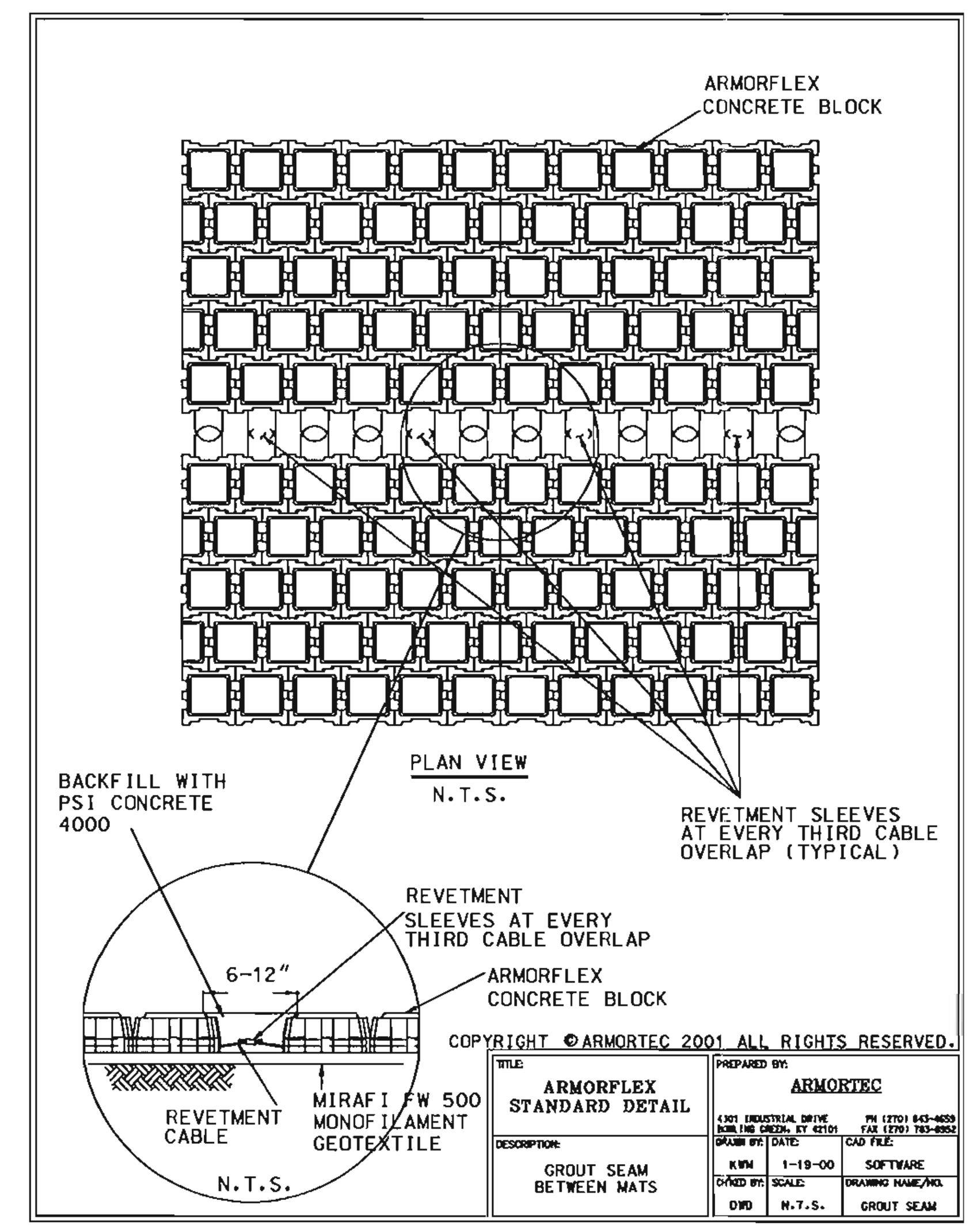
12" METAL PINS SHALL BE USED TO ANCHOR PYRAMAT TO THE GROUND SURFACE. METAL PINS SHOULD BE AT LEAST $\frac{3}{16}$ INCH DIAMETER STEEL WITH A $1\frac{1}{2}$ INCH STEEL WASHER AT THE HEAD OF THE PIN. METAL PINS SHOULD BE DRIVEN FLUSH TO THE SOIL SURFACE AND HAVE SUFFICIENT GROUND PENETRATION TO RESIST PULLOUT.

TURF REINFORCEMENT MATTING DETAILS AND NOTES

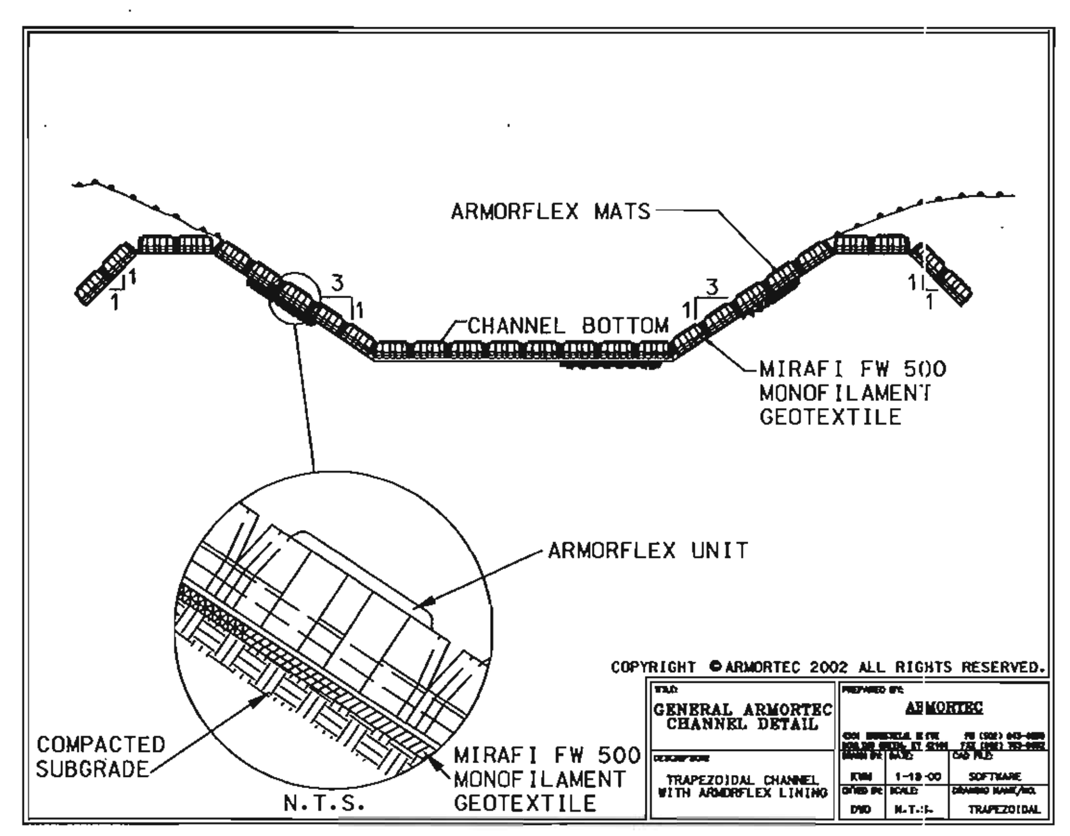






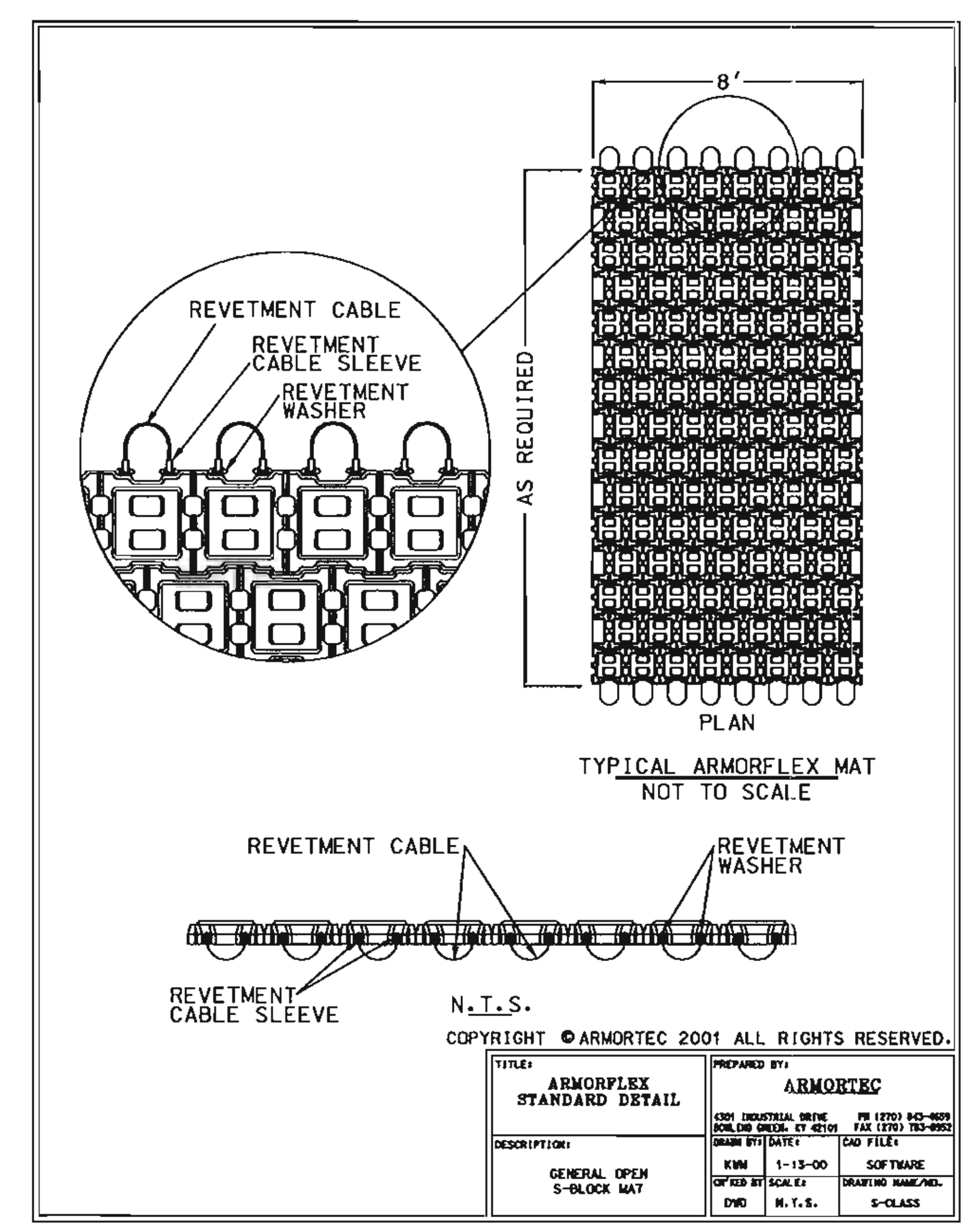


ARMORFLEX CONCRETE BLOCK
BACKFILL WITH PSI CONCRETE 4000
PLAN VIEW
N.T.S.
REVETMENT SLEEVES AT EVERY THIRD CABLE OVERLAP (TYPICAL)
REVETMENT SLEEVES AT EVERY THIRD CABLE OVERLAP
6-12"
ARMORFLEX CONCRETE BLOCK
REVETMENT CABLE
MIRAFI FW 500 MONOFILAMENT GEOTEXTILE
N.T.S.
COPYRIGHT © ARMORTEC 2001 ALL RIGHTS RESERVED.
ARMORFLEX STANDARD DETAIL
ARMORTEC
GROUT SEAM BETWEEN MATS
GROUT SEAM



ARMORFLEX MATS
CHANNEL BOTTOM
MIRAFI FW 500 MONOFILAMENT GEOTEXTILE
ARMORFLEX UNIT
COMPACTED SUBGRADE
N.T.S.
MIRAFI FW 500 MONOFILAMENT GEOTEXTILE
COPYRIGHT © ARMORTEC 2002 ALL RIGHTS RESERVED.
GENERAL ARMORTEC CHANNEL DETAIL
TRAPEZOIDAL CHANNEL WITH ARMORFLEX LINING

NOTE: A CONTECH REPRESENTATIVE SHALL BE ON CALL AT 410-740-8490 AND AVAILABLE ON-SITE WITHIN 24-HOURS.



8'
REVETMENT CABLE
REVETMENT CABLE SLEEVE
REVETMENT WASHER
AS REQUIRED
PLAN
TYPICAL ARMORFLEX MAT
NOT TO SCALE
REVETMENT CABLE
REVETMENT WASHER
REVETMENT CABLE SLEEVE
N.T.S.
COPYRIGHT © ARMORTEC 2001 ALL RIGHTS RESERVED.
ARMORFLEX STANDARD DETAIL
ARMORTEC
GENERAL OPEN S-BLOCK MAT
S-CLASS

ARTICULATED CONCRETE BLOCK DETAILS

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

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 (PRINT NAME BELOW SIGNATURE) — DATE 11-10-04

KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

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

Howard E Saltzman

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 11-24-04

Howard E Saltzman

THIS PLAN HAS BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/13/04

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 12/13/04

NO.	REVISIONS DESCRIPTION	DATE

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ENGINEERS
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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

STORMWATER MANAGEMENT DETAILS

SCALE:	N/A
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

SW5

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SWM POND CONSTRUCTION SPECIFICATIONS (MARYLAND CODE 378 POND – JANUARY 2000)

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 DISIGNATED 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 THAT 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 CUTOFF TRENCH SHALL CONFORM TO UNIFIED SOIL CALSSIFICATION 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 CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OFTHE 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 HEAVY 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 OBTIANED 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 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" (MEASURED 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 RIDGID 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 THAT 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 ON 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 ON 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 FOR 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 COMPLETLEY 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 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, PRE-PUNCHED 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 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 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. MATERIAL - 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 REQUIREMENTS OF AASHTO M2 52 TYPE S, AND 12" THROUGH 24" INCH SHALL MEET THE REQUIREMENTS 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 UNSUITABLE 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 OR AS NOTED ON THE PLANS.

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 OR WATER FROM VARIOUS PARTS OF THE WORK AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED 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 ACCOMPANING 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.

FENCE AND GATE (42-INCH HEIGHT)

CONSTRUCT FENCING IN ACCORDANCE WITH THE STATE HIGHWAY ADMINISTRATION STANDARD DETAILS 690.01 AND 690.02. USE SPECIFICATIONS FOR A 6-FOOT FENCE, SUBSTITUTING 42-INCH FABRIC AND 6-FOOT 8-INCH LINE POSTS. CONSTRUCT THE GATE IN ACCORDANCE WITH STATE HIGHWAY ADMINISTRATION STANDARD DETAIL 692.01 WITH 42-INCH FABRIC. THE FABRIC USED FOR THE FENCE AND GATE MUST CONFORM TO AASHTO DESIGNATION M181.74.

FILTER CLOTH

FILTER CLOTH SHALL BE MIRAFI 1405, DUPONT TYPAR •3341 OR APPROVED EQUAL.

GABIONS

ALL GABIONS SHALL BE CLASS IV PVC COATED.

WOODY VEGETATION NOTE

TREES, SHRUBS, OR OTHER WOODY VEGETATION WILL NOT BE ALLOWED WITHIN A 25' RADIUS OF THE INLET STRUCTURE IN THE POOL AREA, AND NOT ALLOWED ON, OR WITHIN 15' OF ANY PORTION OF THE EMBANKMENT.

CONSULTANT'S HAZARD CLASS CERTIFICATION (PONDS A, B, AND C)

"I CERTIFY THAT THIS POND MEETS ALL REQUIREMENTS FOR HAZARD CLASS (A), B, OR C). [REQUIREMENTS AS STATED IN THE USDA NATURAL RESOURCES CONSERVATION SERVICE- MARYLAND CONSERVATION PRACTICE STANDARD FOR POND, CODE 378, JANUARY 2000.] ALL NECESSARY INVESTIGATIONS AND COMPUTATIONS HAVE BEEN PERFORMED TO VERIFY THIS FINDING. A COPY OF SAID INFORMATION HAS BEEN SUPPLIED TO N.R.C.S./H.C.S.C.D.

SIGNATURE [signature] DATE 11-10-04

PRINT NAME KERRY B. REXROAD MD LICENSE No. 18470

CONTRACTOR'S NOTE

THE CONSTRUCTION SHOWN HEREON MUST BE CERTIFIED TO THE HOWARD COUNTY SOIL CONSERVATION DISTRICT. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE MD. STANDARD AND SPECIFICATION FOR PONDS (CODE 378) AND THIS SET OF DRAWINGS.
A REGISTERED PROFESSIONAL ENGINEER MUST BE NOTIFIED SUFFICIENTLY IN ADVANCE OF CONSTRUCTION SO THAT HE CAN ARRANGE FOR:

1. INSPECTION OF THE PIPE TRENCH, BEDDING, AND CONCRETE RISER.
2. SUPERVISION OF EMBANKMENT CONSTRUCTION AND COMPACTION TESTING.
3. COMPLETION OF AS-BUILT SURVEY AND STUDY AT TIME OF CONVERSION TO STORM WATER MANAGEMENT AND SUBMIT TO APPROPRIATE AGENCIES WITHIN 30 DAYS AFTER COMPLETION.

SEQUENCE OF CONSTRUCTION

SEE SHEET ES8 FOR DETAILED SEQUENCE OF CONSTRUCTION.

CONSTRUCTION NOTE:

UNLESS OTHERWISE NOTED, ALL CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH:

1. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION IV OCTOBER, 1990, ERRATA & ADDENDA.
2. SOIL CONSERVATION SERVICE OF MARYLAND STANDARDS AND SPECIFICATIONS, POND, CODE 378, JANUARY, 2000.
3. MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION, JANUARY, 2001, STANDARD SPECIFICATION FOR CONSTRUCTION AND MATERIAL.

GENERAL NOTES

1. UTILITIES AND TOPOGRAPHICAL FEATURES SHOWN ON THESE PLANS ARE ONLY FOR THE CONVENIENCE OF THE USER AND THERE IS NO WARRANTY OR GUARANTEE OF THE CORRECTNESS OR THE COMPLETENESS OF THE INFORMATION GIVEN. THE USER OF THESE DRAWINGS MUST VERIFY ALL SUCH INFORMATION TO HIS OWN SATISFACTION.
2. AS-BUILT PLANS & CERTIFICATION ARE REQUIRED FOR THE STORM WATER MANAGEMENT FACILITIES. THESE MUST BE PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. HOWARD COUNTY WILL NOT PERFORM THE INSPECTION OR PREPARE THE AS-BUILT PLANS OR CERTIFICATION.
3. IN ORDER TO PREPARE THE REQUIRED AS-BUILT PLANS & CERTIFICATION, THIS STORM WATER MANAGEMENT FACILITY MUST BE INSPECTED BY THE ENGINEER AT SPECIFIC STAGES DURING CONSTRUCTION AS REQUIRED BY THE CURRENT HOWARD COUNTY STORM WATER MANAGEMENT POLICY AND DESIGN MANUAL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST FIVE (5) WORKING DAYS PRIOR TO STARTING ANY WORK SHOWN ON THESE PLANS.

OPERATION AND MAINTENANCE SCHEDULE FOR EXTENDED DETENTION STORMWATER PONDS

ROUTINE MAINTENANCE:

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

NON- ROUTINE MAINTENANCE:

A. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISERS, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
B. SEDIMENT SHALL BE REMOVED FROM THE POND NO LATER THAN WHEN THE CAPACITY OF THE POND IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS.

"AS-BUILT" CERTIFICATION-FACILITY "A"

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

SIGNATURE ____ P.E.No. ____

PRINT NAME ____ DATE ____

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

"AS-BUILT" CERTIFICATION-FACILITY "B"

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

SIGNATURE ____ P.E.No. ____

PRINT NAME ____ DATE ____

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

"AS-BUILT" CERTIFICATION-FACILITY "C"

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

SIGNATURE ____ P.E.No. ____

PRINT NAME ____ DATE ____

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

OPERATION, MAINTENANCE, AND INSPECTION

HOWARD COUNTY WILL OWN, OPERATE, AND MAINTAIN THE STORMWATER MANAGEMENT FACILITIES. INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND ANY HEIRS, SUCCESSORS, OR ASSIGNEES SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 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.

ARMORFLEX® CELLULAR CONCRETE MAT (OR APPROVED EQUAL) SPECIFICATION FOR OVERTOPPING APPLICATIONS

PART 1: GENERAL

A. Scope of Work

The Contractor shall furnish all labor, materials, equipment, and incidentals required and perform all operations in connection with the installation of cellular concrete erosion control mats in accordance with the lines, grades, design and dimensions shown on the Contract Drawings and as specified herein.

PART 2: PRODUCTS

A. General

All cellular concrete mats shall be premanufactured as an assembly of concrete blocks, with specific hydraulic capacities, bound into mats by the use of revetment cables. Cellular concrete mats may be assembled on-site by hand-placing individual blocks with subsequent insertion of cables.

Individual blocks in the cellular mats shall be staggered and interlocked for enhanced stability. The open cell version of the blocks have two (2) vertical openings of rectangular cross section with sufficient wall thickness to resist breakage during shipping and installation. The mats shall be constructed of open and/or closed cell blocks as shown on the contract drawings. Parallel strands of cable shall extend through two (2) ducts in each block in a manner which provides for longitudinal binding of the blocks within the mats. Each row of blocks shall be laterally offset by one-half block width from the adjacent row so that any given block is cabled to four other blocks (two in the row above and two in the row below).

The gross area of each individual block in direct contact with the protected subgrade shall be no less than one square foot. Each block shall incorporate interlocking surfaces that prevent lateral displacement of the blocks within the mats when they are lifted by the longitudinal revetment cables. The interlocking surfaces must not protrude beyond the perimeter of the blocks to such an extent that they reduce the flexibility or articulation capability of the cellular mats or become damaged or broken when the mats are lifted during shipment or placement. Once the mats are in place, the interlocking surfaces shall prevent the lateral displacement of the blocks even if the cables should become damaged or removed. The mats must be able to flex a minimum of 25 degrees between any given row or column of blocks in the uplift direction and a minimum of 45 degrees in the downward direction.

The cables shall be inserted into the mats in such a manner to form lifting loops at one end of the mat with the corresponding cable ends spliced together to form a lifting loop at the other end of the mat with sleeves approved by the Engineer.

The cellular concrete mats shall be placed on a filter fabric as specified herein. Under no circumstances shall the filter fabric be affixed (i.e. chemically bonded to the blocks) to the mattress in a manner in which would jeopardize the functionality of the filter fabric. Specifically, the filter fabric shall be independent of the block system.

B. Cellular Concrete Blocks

1. Scope

1.1 This specification covers concrete blocks for erosion control mats used in revetments, storm channels, etc. and for soil stabilization.

Note 1 - Concrete units covered by this specification are made from lightweight or normal weight aggregates, or both.

Note 2 - The values stated in U.S. customary units are to be regarded as the standard.

2. Materials

2.1 Cementitious Materials - Materials shall conform to the following applicable ASTM specifications:

2.1.1 Portland Cements - Specification C 150, for Portland Cement.

2.1.2 Blended Cements - Specification C 595, for Blended Hydraulic Cements.

2.1.3 Hydrated Lime Types - Specification C 207, for Hydrated Lime Types.

2.1.4 Pozzolans - Specification C 618, for Fly Ash and Raw or Calcined Natural Pozzolans for use in Portland Cement Concrete.

2.2 Aggregates shall conform to the following ASTM specifications, except that grading requirements shall not necessarily apply:

2.2.1 Normal Weight - Specification C 33, for Concrete Aggregates.

3. Physical Requirements

3.1 At the time of delivery to the work site, the units shall conform to the physical requirements prescribed in Table 1 below.

TABLE 1. PHYSICAL REQUIREMENTS

Compressive Strength Net Area Min. psi (mPa)		Water Absorption Max., lb/ft³ (kg/m³)	
Avg. of 3 units	Individual Unit	Avg. of 3 units	Individual Unit
4,000 (27.6)	3,500 (24.1)	10 (160)	12 (192)

3.2 Durability. The manufacturer shall satisfy the purchaser by proven field performance that the concrete units have adequate durability even if they are to be subjected to a freeze-thaw environment.

3.3 Sample and test units in accordance with ASTM D 6684-01, Standard Specification for Materials and Manufacture of Articulating Concrete Block (ACB) Revetment Systems.

4. Visual Inspection

4.1 All units shall be sound and free of defects that would interfere with the proper placing of the unit or impair the strength or permanence of the construction. Surface cracks incidental to the usual methods of manufacture, or surface chipping resulting from customary methods of handling in shipment and delivery, shall not be deemed grounds for rejection.

4.2 Cracks exceeding 0.25 inches (.635 cm) in width and/or 1.0 inch (2.54 cm) in depth shall be deemed grounds for rejection.

4.3 Chipping resulting in a weight loss exceeding 10% of the average weight of the blocks shall be deemed grounds for rejection.

4.4 Blocks rejected prior to delivery from the point of manufacture shall be replaced at the manufacturer's expense. Blocks rejected at the job site shall be repaired with structural grout at the expense of the contractor.

5. Sampling and Testing

5.1 The purchaser or his authorized representative shall be accorded proper access to facilities to inspect and sample the units at the place of manufacture from lots ready for delivery.

6. Expense of Tests

Additional testing, other than that provided by the manufacturer, shall be borne by the purchaser.

7. Manufacturer

Cellular concrete blocks shall be ARMORFLEX® as manufactured and sold by:

ARMORTEC
4301 Industrial Drive
Bowling Green, KY 42102
Phone: (270) 843-4659, (800) 305-0523
Fax: (270) 783-8952

The ARMORFLEX® cellular concrete blocks shall have the following nominal characteristics:

TABLE 2. STANDARD SIZES OF ARMORFLEX® BLOCKS

Class	Type	Lbs	Lbs./Sq.ft.	Length Inches	Width Inches	Height Inches	Open Area %
30 S	Open	31-33	32-34	13.0	11.6	4.75	20

C. Revetment Cable and Fittings

Polyester Revetment Cable and Fittings. Revetment cable shall be constructed of high tenacity, low elongating, continuous filament polyester fibers. Cable shall consist of a core construction comprised of parallel fibers contained within an outer jacket or cover. The weight of the parallel core shall be between 65% to 70% of the total weight of the cable. The revetment cable shall have the following physical characteristics:

Nominal Cable Diam.	Approx. Avg. Strength Lbs. (KN)	Min. Lbs. (kg)	Lbs./100 ft (kg/m) Max Lbs. (kg)
1/4"	3,700 (16.4)	2.47 (.04)	2.74 (.04)
5/16"	7,000 (31.1)	3.99 (.06)	4.42 (.07)
3/8"	10,000 (44.5)	3.75 (.07)	5.26 (.08)
1/2"	15,000 (66.7)	8.93 (.13)	9.90 (.15)

Elongation requirements specified below are based upon stabilized new, dry cable. Stabilization refers to a process in which the cable is cycled fifty (50) times between a load corresponding to 2000# and a load equal to 10%, 20% or 30% of the cable's approximate average breaking strength. Relevant elongation values are as shown in the table below. The tolerance on these values is ± 5%.

	% Breaking Strength 10%	20%	30%
Permanent Elongation	0.7	1.8	2.6
Elastic Elongation	0.6	1.4	2.2
Total Stretch	1.3	3.2	4.8

The revetment cable shall exhibit good to excellent resistance to most concentrated acids, alkalis and solvents. Cable shall be impervious to rot, mildew and degradation associated with marine organisms. The materials used in the construction of the cable shall not be affected by continuous immersion in fresh or salt water.

Selection of cable and fittings shall be made in a manner that insures a safe design factor for mats being lifted from both ends, thereby forming a catenary. Consideration shall be taken for the bending of the cables around hooks or pins during lifting. Revetment cable splicing fittings shall be selected so that the resultant splice shall provide a minimum of 60% of the minimum rated cable strength. Fittings such as sleeves and stops shall be aluminum and washers shall be galvanized steel unless otherwise shown on the Contract Drawings.

D. Anchors

Where permanent anchoring is required, e.g. hanging mats on steep slopes without toe construction, the cables (polyester or steel) shall be attached to the anchoring system as indicated on the Contract Drawings.

E. Filter Fabric

The geotextile filter shall meet the minimum physical requirements listed in Table No. 3 of these Specifications. Consultation with the manufacturer is recommended.

The geotextile fiber shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of propylene, ethylene, ester, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic. If necessary, to make the filaments resistant to deterioration due to ultraviolet and heat exposure. The edges of the geotextiles shall be finished to prevent the outer fiber from pulling away from the geotextiles.

The Contractor shall furnish the Engineer, in duplicate, manufacturer's certified test results showing actual test values obtained when the physical properties are tested for compliance with the specifications.

During all periods of shipment and storage, the filter fabric shall be protected from direct sunlight, ultraviolet rays and temperatures greater than 140 degrees Fahrenheit. To the extent possible, the fabric shall be maintained wrapped in its protective covering.

TABLE 3. PHYSICAL REQUIREMENTS

Physical Property	Test Procedure	Minimum Value
Grab Tensile Strength (Unaged Geotextile)	ASTM D4632	200 Lbs. (in any principal direction)
Breaking Elongation (Unaged Geotextile)	ASTM D4632	30% max. (in any principal direction)
Burst Strength	ASTM D3786	400 psi
Puncture Strength	ASTM D4833	115 lbs.
A.O.S., U.S. Std. Sieve	ASTM D4751	see Design Manual
% Open Area	CWO-22125-86	5%
Permittivity	ASTM D4491	0.5 sec⁻¹

Final acceptance of the filtration geotextile by the Engineer shall be dependent upon the geotextile performance when tested in accordance with ASTM D5105, Standard Test Method for Measuring the Soil-Geotextile System Clogging by the Gradient Ratio test or the Hydraulic Conductivity Ratio test. Soil characteristics such as grain size, gradation, and plasticity shall be determined for every 200,000 square feet of geotextile installed, or for each source of borrow material used during construction. Significant differences in soil characteristics shall require further performance testing by either the Gradient Ratio or the Hydraulic Conductivity Ratio tests at the discretion of the Engineer. The locations for which the material to be tested is extracted shall be approved by the Engineer. The Contractor shall provide the site-specific soil and modified proctor curves for the site-soil, at his own expense, to the manufacturer. The manufacturer shall be responsible for the performance of the test by a certified independent laboratory experienced in performing such test. The test shall be performed under the actual field soil conditions or as otherwise required by the Engineer.

At the time of installation, the filter fabric shall be rejected if it has been removed from its protective cover for over 72 hours or has defects, tears, punctures, flow deterioration, or damage incurred during manufacture, transportation or storage. With the acceptance of the Engineer, a torn or punctured section of fabric shall be repaired by placing a filter fabric patch over the damaged area prior to placing the mats. The patch shall be large enough to overlap a minimum of three (3) feet in all directions.

F. Size of Cellular Concrete Mats

The cellular concrete blocks, cables and fittings shall be fabricated at the manufacturer or another approved location into mats with a width of up to eight (8) feet and a length, which is approved by the Engineer.

PART 3: FOUNDATION PREPARATION, GEOTEXTILE AND MAT PLACEMENT

A. Foundation Preparation

General. Areas on which filter fabric and cellular concrete blocks are to be placed shall be constructed to the lines and grades shown on the Contract Drawings and to the tolerances specified in the Contract Documents, and approved by the Engineer.

Grading. The slope shall be graded to a smooth plane surface to ensure that intimate contact is achieved between the slope face and the geotextile (filter fabric), and between the geotextile and the entire bottom surface of the cellular concrete blocks. All slope deformities, roots, grade stakes, and stones which project normal to the local slope face must be regraded or removed. No holes, "pockmarks", slope board teeth marks, footprints, or other voids greater than 1.0 inch in depth normal to the local slope face shall be permitted. No grooves or depressions greater than 0.5 inches in depth normal to the local slope face with a dimension exceeding 1.0 foot in any direction shall be permitted. Where such areas are evident, they shall be brought to grade by placing compacted homogeneous material. The slope and slope face shall be uniformly compacted, and the depth of layers, homogeneity of soil, and amount of compaction shall be as required by the Engineer.

Excavation and preparation for anchor trenches, side trenches, and toe trenches or aprons shall be done in accordance to the lines, grades and dimensions shown in the Contract Drawings. The anchor trench hinge-point at the top of the slope shall be uniformly graded so that no dips or bumps greater than 0.5 inches over or under the local grade occur. The width of the anchor trench hinge-point shall also be graded uniformly to assure intimate contact between all cellular concrete blocks and the underlying grade at the hinge-point.

Inspection. Immediately prior to placing the filter fabric and cellular concrete blocks, the prepared area shall be inspected by the Engineer, the owner's representative, and by the manufacturer's representative. No fabric or blocks shall be placed thereon until that area has been approved by each of these parties.

B. Placement of Geotextile Filter Fabric

General. Filter Fabric, or filtration geotextile, as specified elsewhere, shall be placed within the limits shown on the Contract Drawings.

Placement. The filtration geotextile shall be placed directly on the prepared area, in intimate contact with the subgrade, and free of folds or wrinkles. The geotextile shall not be walked on or disturbed when the result is a loss of intimate contact between the cellular concrete block and the geotextile or between the geotextile and the subgrade. The geotextile filter fabric shall be placed so that the upstream strip of fabric overlaps the downstream strip. The longitudinal and transverse joints shall be overlapped at least two (2) feet. The geotextile shall extend at least one foot beyond the top and bottom revetment termination points. If cellular concrete blocks are assembled and placed as large mattresses, the top lap edge of the geotextile should not occur in the same location as a space between cellular concrete mats unless the space is concrete filled.

C. Placement of Cellular Concrete Blocks/Mats

General. Cellular concrete block/mats, as specified in Part 2:A of these Specifications, shall be constructed within the specified lines and grades shown on the Contract Drawings.

Placement.

No individual block within the plane of placed cellular concrete blocks shall protrude more than one-half inch or as otherwise specified by the Engineer. To ensure that the cellular concrete blocks are flush and develop intimate contact with the subgrade, the blocks shall be "seated" with a roller or other means as approved by the Engineer.

If assembled and placed as large mattresses, the cellular concrete mats shall be attached to a spreader bar or other approved device to aid in the lifting and placing of the mats in their proper position by the use of a crane or other approved equipment. The equipment used should have adequate capacity to place the mats without bumping, dragging, tearing or otherwise damaging the underlying fabric. The mats shall be placed side by side and/or end to end, so that the mats abut each other. Mat seams or openings between mats greater than two (2) inches shall be filled with grout. Whether placed by hand or in large mattresses, distinct changes in grade that results in a discontinuous revetment surface in the direction of flow shall require a grout seam at the grade change location so as to produce a continuous surface.

Anchor trenches and side trenches shall be backfilled and compacted flush with the top of the blocks. The integrity of a soil trench backfill must be maintained so as to ensure a surface that is flush with the top surface of the cellular concrete blocks for its entire service life. Toe trenches shall be backfilled as shown on the Contract Drawings. Backfilling and compaction of trenches shall be completed in a timely fashion. No more than 500 lineal feet of placed cellular concrete blocks with non-completed anchor and/or toe trenches shall be permitted at any time.

Finishing. The cells or openings in the cellular concrete blocks shall be backfilled and compacted immediately with suitable material to assure that there are not voids and so that compacted material extends from the filter fabric to one-inch above the surface of the cellular concrete block. Backfilling and compaction shall be completed in a timely manner such that no more than 500 feet of exposed mats exist at any time.

Consultation. The manufacturer of the cellular concrete blocks/mats shall provide design and construction advice during the design and initial installation phases of the project, when required.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

[signature] 12/17/04
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[signature] 12/21/04
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[signature] 12/27/04
DIRECTOR (ACTING) DATE

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] 11-10-04
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE
KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

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

Howard E. Saltzman 11-24-04
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE
Howard E Saltzman

THIS PLAN HAS BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

[signature] 12/13/04
USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE

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

[signature] 12/13/04
HOWARD SOIL CONSERVATION DISTRICT DATE

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 0101128.c \ drawings \ swm06.dgn

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI TECHNOLOGIES www.kci.com

CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE, LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

STORMWATER MANAGEMENT NOTES

SCALE: N/A
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

SW6

SHEET NO.: 28 OF 36

SDP-04-123

PLOTTED: "01:50 PM on Monday, November 08, 2004"
BY: Matt Snyder Division: Water Resources
FILE: m:\2001\0101128.c\drawings\swm06.dgn

TEST BORING LOG — BORING B-1

KCI Technologies

PROJECT : Cherry Creek Flow Attenuation Weirs
CLIENT : Howard County Department of Public Works – SWM Division
SITE: Howard County, MD

JOB NUMBER: 01-01128.C
SHEET NO. 1 of 1
NORTH: 536730
EAST: 1341455
ELEVATION: 374
START DATE: 2/10/2003
END DATE: 2/10/2003
DRILLER: E2CR
LOGGED BY: CMN

GROUNDWATER DATA (feet)				
Date	Time	Water	Inside Casing	Cave-In
2/10/2003	10:30:30 AM	dry		6.3
2/11/2003	10:30:30 AM	dry		6.3

EQUIPMENT	CASING	SAMPLER	CORE
TYPE	HSA	SS	
SIZE, ID	4 1/4"	1 3/8"	
HAMMER WT.		140 lb	—
HAMMER FALL		30"	—

SAMPLE NUMBER	SAMPLE DEPTH	SAMPLE RECOVERY	BLOWS /6" (%ROD)	NMC / Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX
S-1	0.0	22"	2 3 3 4	20.9%		
S-2	2.0	23"	4 5 5 6	21.1%		
S-3	4.0	18"	6 7 7 8	22.0%	33	9
S-4	6.0	10"	12 14 16 9	16.8%		
S-5	8.0	3"	50/4"	1.1%		

ELEV. / DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
0.0 – EL 372.0 / 2.0	medium brown, moist, loose, micaceous Silty SAND, (sm)	1.5" of topsoil
EL 372.0 / 2.0 – EL 368.0 / 6.0	orange-brown and light gray, moist, stiff, SILT, some sand, trace organics, trace to little mica (ML). Minimum Infiltration USDA Rate: (in/hr): 0.27	
EL 368.0 / 6.0 – EL 366.0 / 8.0	orange, light gray, and black, moist, medium dense, micaceous Silty SAND (sm)	
EL 366.0 / 8.0 – 8.3	gravel-sized, sub-angular, QUARTZ fragments	
8.3	Bottom of Boring @ 8.3 ft.	

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTANCY	SAMPLE IDENTIFICATION	SAMPLE PROPORTIONS: DESCRIPTIVE TERM	PERCENT
0-4	VERY LOOSE	0-2	VERY SOFT	S - SPLIT SPOON	TRACE	1 TO 10
5-10	LOOSE	3-4	SOFT	T - THIN WALL TUBE	LITTLE	11 TO 20
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SS - 3in. SPLIT SPOON	SOME	21 TO 35
31-50	DENSE	9-15	STIFF	R - DIAMOND CORE	AND	35 TO 50
OVER 50	VERY DENSE	16-30	VERY STIFF	W - WASH SAMPLE		
		OVER 30	HARD	U - UNDISTURBED		

BORING B-1

KCI2 B&W LOG CHERRY CREEK.GPJ KCI1.GDT 7/03

TEST BORING LOG — BORING B-2

PROJECT : Cherry Creek Flow Attenuation Weirs
CLIENT : Howard County Department of Public Works – SWM Division
SITE: Howard County, MD

JOB NUMBER: 01-01128.C
SHEET NO. 1 of 1
NORTH: 536685
EAST: 1341465
ELEVATION: 373
START DATE: 2/11/2003
END DATE: 2/11/2003
DRILLER: E2CR
LOGGED BY: CMN

Date	Time	Water	Inside Casing	Cave-In
2/11/2003	12:50:00 PM	dry		9

EQUIPMENT	CASING	SAMPLER	CORE
TYPE	HSA	SS	
SIZE, ID	4 1/4"	1 3/8"	
HAMMER WT.		140 lb	—
HAMMER FALL		30"	—

SAMPLE NUMBER	SAMPLE DEPTH	SAMPLE RECOVERY	BLOWS /6" (%ROD)	NMC / Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX
S-1	0.0	14"	3 4 5	17.7%	34	6
S-2	2.5	15"	7 9 10	17.7%		
S-3	5.0	14"	9 11 12	18.5%		
S-4	8.5	14"	15 17 28	10.5%		
S-5	13.5	9"	27 50/3"	20.4%		

ELEV. / DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES ON:
0.0 – EL 371.0 / 2.0	orange-brown, moist, loose, Silty SAND, trace to little mica, trace gravel-sized subangular quartz fragments (SM). Minimum Infiltration USDA Rate: (in/hr): 1.02	1" of topsoil
EL 371.0 / 2.0 – EL 365.5 / 7.5	orange-brown, moist, very stiff, micaceous SILT, trace sand (ml)	
EL 365.5 / 7.5 – EL 361.0 / 12.0	gray-brown, orange and black, moist, dense, micaceous Silty SAND (sm)	
EL 361.0 / 12.0 – EL 358.8 / 14.2	completely weathered rock, sampled as: gray-brown, orange, and black, moist, very dense, micaceous Silty SAND (sm)	
14.2	Bottom of Boring @ 14.2 ft.	split spoon refusal @ 14.2'

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTANCY	SAMPLE IDENTIFICATION	SAMPLE PROPORTIONS: DESCRIPTIVE TERM	PERCENT
0-4	VERY LOOSE	0-2	VERY SOFT	S - SPLIT SPOON	TRACE	1 TO 10
5-10	LOOSE	3-4	SOFT	T - THIN WALL TUBE	LITTLE	11 TO 20
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SS - 3in. SPLIT SPOON	SOME	21 TO 35
31-50	DENSE	9-15	STIFF	R - DIAMOND CORE	AND	35 TO 50
OVER 50	VERY DENSE	16-30	VERY STIFF	W - WASH SAMPLE		
		OVER 30	HARD	U - UNDISTURBED		

BORING B-2

TEST BORING LOG — BORING B-3

PROJECT : Cherry Creek Flow Attenuation Weirs
CLIENT : Howard County Department of Public Works – SWM Division
SITE: Howard County, MD

JOB NUMBER: 01-01128.C
SHEET NO. 1 of 1
NORTH: 536600
EAST: 1341480
ELEVATION: 370
START DATE: 2/10/2003
END DATE: 2/10/2003
DRILLER: E2CR
LOGGED BY: CMN

Date	Time	Water	Inside Casing	Cave-In
2/10/2003	11:30:00 AM	dry		2.3
2/11/2003	11:30:00 AM	dry		2.3

EQUIPMENT	CASING	SAMPLER	CORE
TYPE	HSA	SS	
SIZE, ID	4 1/4"	1 3/8"	
HAMMER WT.		140 lb	—
HAMMER FALL		30"	—

SAMPLE NUMBER	SAMPLE DEPTH	SAMPLE RECOVERY	BLOWS /6" (%ROD)	NMC / Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX
S-1	0.0	16"	3 7 7 12	9.5%	NP	NP
S-2	2.0	10"	27 505"	5.1%	NP	NP
S-3	4.0	1"	501" 500"	3.5%		

ELEV. / DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES ON:
0.0 – EL 368.0 / 2.0	orange, black, and tan, moist, medium dense to very dense, micaceous Silty SAND (SM). Minimum Infiltration USDA Rate: (in/hr): 2.41	2" of topsoil
EL 368.0 / 2.0 – EL 365.9 / 4.1	completely weathered rock, sampled as: orange, black, and tan, moist, very dense Silty SAND, trace gravel-sized subangular quartz fragments, trace mica	
4.1	Bottom of Boring @ 4.1 ft.	auger and split spoon refusal @ 4.1'

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTANCY	SAMPLE IDENTIFICATION	SAMPLE PROPORTIONS: DESCRIPTIVE TERM	PERCENT
0-4	VERY LOOSE	0-2	VERY SOFT	S - SPLIT SPOON	TRACE	1 TO 10
5-10	LOOSE	3-4	SOFT	T - THIN WALL TUBE	LITTLE	11 TO 20
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SS - 3in. SPLIT SPOON	SOME	21 TO 35
31-50	DENSE	9-15	STIFF	R - DIAMOND CORE	AND	35 TO 50
OVER 50	VERY DENSE	16-30	VERY STIFF	W - WASH SAMPLE		
		OVER 30	HARD	U - UNDISTURBED		

BORING B-3

TEST BORING LOG — BORING B-4

PROJECT : Cherry Creek Flow Attenuation Weirs
CLIENT : Howard County Department of Public Works – SWM Division
SITE: Howard County, MD

JOB NUMBER: 01-01128.C
SHEET NO. 1 of 1
NORTH: 536550
EAST: 1341490
ELEVATION: 367
START DATE: 2/11/2003
END DATE: 2/11/2003
DRILLER: E2CR
LOGGED BY: CMN

Date	Time	Water	Inside Casing	Cave-In
2/11/2003	12:30:20 PM	7		7.5

EQUIPMENT	CASING	SAMPLER	CORE
TYPE	HSA	SS	
SIZE, ID	4 1/4"	1 3/8"	
HAMMER WT.		140 lb	—
HAMMER FALL		30"	—

SAMPLE NUMBER	SAMPLE DEPTH	SAMPLE RECOVERY	BLOWS /6" (%ROD)	NMC / Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX
S-1	0.0	16"	4 7 7	20.0%		
S-2	2.5	18"	6 7 7	17.7%		
S-3	5.0	6"	7 8 8	26%		
S-4	8.5	12"	12 16 19	15%		

ELEV. / DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES ON:
0.0 – EL 356.0 / 11.0	gray-brown, moist, stiff, micaceous SILT (ml). S-2: trace gravel-sized subangular quartz fragments. S-3: very stiff, trace sand, trace gravel-sized quartz fragments. S-4: little black and tan	1.5" topsoil
11.0	Bottom of Boring @ 11 ft.	auger refusal at 11'

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTANCY	SAMPLE IDENTIFICATION	SAMPLE PROPORTIONS: DESCRIPTIVE TERM	PERCENT
0-4	VERY LOOSE	0-2	VERY SOFT	S - SPLIT SPOON	TRACE	1 TO 10
5-10	LOOSE	3-4	SOFT	T - THIN WALL TUBE	LITTLE	11 TO 20
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SS - 3in. SPLIT SPOON	SOME	21 TO 35
31-50	DENSE	9-15	STIFF	R - DIAMOND CORE	AND	35 TO 50
OVER 50	VERY DENSE	16-30	VERY STIFF	W - WASH SAMPLE		
		OVER 30	HARD	U - UNDISTURBED		

BORING B-4

TEST BORING LOG — BORING B-5

PROJECT : Cherry Creek Flow Attenuation Weirs
CLIENT : Howard County Department of Public Works – SWM Division
SITE: Howard County, MD

JOB NUMBER: 01-01128.C
SHEET NO. 1 of 1
NORTH: 536475
EAST: 1341505
ELEVATION: 366
START DATE: 2/10/2003
END DATE: 2/10/2003
DRILLER: E2CR
LOGGED BY: CMN

Date	Time	Water	Inside Casing	Cave-In
2/10/2003	1:30:00 PM	dry		6
2/11/2003	1:30:00 PM	3.6		4

EQUIPMENT	CASING	SAMPLER	CORE
TYPE	HSA	SS	
SIZE, ID	4 1/4"	1 3/8"	
HAMMER WT.		140 lb	—
HAMMER FALL		30"	—

SAMPLE NUMBER	SAMPLE DEPTH	SAMPLE RECOVERY	BLOWS /6" (%ROD)	NMC / Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX
S-1	0.0	10"	4 4 5 6	17.4%		
S-2	2.0	22"	4 6 6 8	20.6%		
S-3	4.0	23"	7 8 8 11	22.1%	38	NP
S-4	6.0	22"	12 14 16 18	26.5%		
S-5	8.0	12"	16 505"	11.3%		

ELEV. / DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES ON:
0.0 – EL 362.0 / 4.0	gray-brown, moist, stiff, micaceous SILT, trace sand, trace organics (ml). S-2: orange-brown and light gray	1.5" of topsoil
EL 362.0 / 4.0 – EL 358.0 / 8.0	orange-brown, moist, medium dense, micaceous Silty SAND, trace decomposed rock (SM). Minimum Infiltration USDA Rate: (in/hr): 1.02	
EL 358.0 / 8.0 – EL 357.1 / 8.9	completely weathered rock, sampled as: black, dark brown, and light gray, moist, very dense, Silty SAND, trace silt, trace gravel-sized sub-angular quartz fragments (sm)	
8.9	Bottom of Boring @ 8.9 ft.	

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTANCY	SAMPLE IDENTIFICATION	SAMPLE PROPORTIONS: DESCRIPTIVE TERM	PERCENT
0-4	VERY LOOSE	0-2	VERY SOFT	S - SPLIT SPOON	TRACE	1 TO 10
5-10	LOOSE	3-4	SOFT	T - THIN WALL TUBE	LITTLE	11 TO 20
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SS - 3in. SPLIT SPOON	SOME	21 TO 35
31-50	DENSE	9-15	STIFF	R - DIAMOND CORE	AND	35 TO 50
OVER 50	VERY DENSE	16-30	VERY STIFF	W - WASH SAMPLE		
		OVER 30	HARD	U - UNDISTURBED		

BORING B-5

TEST BORING LOG — BORING B-6

PROJECT : Cherry Creek Flow Attenuation Weirs
CLIENT : Howard County Department of Public Works – SWM Division
SITE: Howard County, MD

JOB NUMBER: 01-01128.C
SHEET NO. 1 of 1
NORTH: 536415
EAST: 1341515
ELEVATION: 364
START DATE: 2/11/2003
END DATE: 2/11/2003
DRILLER: E2CR
LOGGED BY: CMN

Date	Time	Water	Inside Casing	Cave-In
2/11/2003	11:45:00 AM	dry		6.2

EQUIPMENT	CASING	SAMPLER	CORE
TYPE	HSA	SS	
SIZE, ID	4 1/4"	1 3/8"	
HAMMER WT.		140 lb	—
HAMMER FALL		30"	—

SAMPLE NUMBER	SAMPLE DEPTH	SAMPLE RECOVERY	BLOWS /6" (%ROD)	NMC / Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX
S-1	0.0	12"	5 5 6	19.8%		
S-2	2.5	18"	5 5 7	18.5%		
S-3	5.0	14"	7 9 11	29.8%		
S-4	8.5	7"	38 501"	8.7%		

ELEV. / DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES ON:
0.0 – EL 356.5 / 7.5	gray-brown, moist, stiff, micaceous SILT, trace sand (ml)	1.5" of topsoil
EL 356.5 / 7.5 – EL 354.9 / 9.1	completely weathered rock, sampled as: gray, black, and tan, moist, very dense, micaceous Silty SAND (sm)	
9.1	Bottom of Boring @ 9.1 ft.	

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTANCY	SAMPLE IDENTIFICATION	SAMPLE PROPORTIONS: DESCRIPTIVE TERM	PERCENT
0-4	VERY LOOSE	0-2	VERY SOFT	S - SPLIT SPOON	TRACE	1 TO 10
5-10	LOOSE	3-4	SOFT	T - THIN WALL TUBE	LITTLE	11 TO 20
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SS - 3in. SPLIT SPOON	SOME	21 TO 35
31-50	DENSE	9-15	STIFF	R - DIAMOND CORE	AND	35 TO 50
OVER 50	VERY DENSE	16-30	VERY STIFF	W - WASH SAMPLE		
		OVER 30	HARD	U - UNDISTURBED		

BORING B-6

TEST BORING LOG — BORING B-7

PROJECT : Cherry Creek Flow Attenuation Weirs
CLIENT : Howard County Department of Public Works – SWM Division
SITE: Howard County, MD

JOB NUMBER: 01-01128.C
SHEET NO. 1 of 1
NORTH: 536335
EAST: 1341525
ELEVATION: 360
START DATE: 2/10/2003
END DATE: 2/10/2003
DRILLER: E2CR
LOGGED BY: CMN

Date	Time	Water	Inside Casing	Cave-In
2/10/2003	3:00:00 PM	dry		4.5
2/11/2003	2:30:00 PM	dry		4.3

EQUIPMENT	CASING	SAMPLER	CORE
TYPE	HSA	SS	
SIZE, ID	4 1/4"	1 3/8"	
HAMMER WT.		140 lb	—
HAMMER FALL		30"	—

SAMPLE NUMBER	SAMPLE DEPTH	SAMPLE RECOVERY	BLOWS /6" (%ROD)	NMC / Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX
S-1	0.0	20"	3 3 5 3	18.7%		
S-2	2.0	18"	3 2 3 3	29%		
S-3	4.0	16"	6 8 9 12	30.1%	37	9
S-4	6.0	23"	12 16 15 505"	9.2%		
S-5	8.0	3"	503"	11.4%		

ELEV. / DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES ON:
0.0 – EL 356.0 / 4.0	dark and light gray, trace black, moist, medium stiff, micaceous SILT (ml)	1.5" of topsoil
EL 356.0 / 4.0 – EL 352.5 / 7.5	green-brown, moist, very stiff, micaceous Sandy SILT, trace decomposed rock (ML). Minimum Infiltration USDA Rate: (in/hr): 0.52	
EL 352.5 / 7.5 – EL 351.8 / 8.3	completely weathered rock, sampled as: dark brown, tan, and black, moist, very dense, micaceous Silty SAND (sm)	
8.3	Bottom of Boring @ 8.3 ft.	

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTANCY	SAMPLE IDENTIFICATION	SAMPLE PROPORTIONS: DESCRIPTIVE TERM	PERCENT
0-4	VERY LOOSE	0-2	VERY SOFT	S - SPLIT SPOON	TRACE	1 TO 10
5-10	LOOSE	3-4	SOFT	T - THIN WALL TUBE	LITTLE	11 TO 20
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SS - 3in. SPLIT SPOON	SOME	21 TO 35
31-50	DENSE	9-15	STIFF	R - DIAMOND CORE	AND	35 TO 50
OVER 50	VERY DENSE	16-30	VERY STIFF	W - WASH SAMPLE		
		OVER 30	HARD	U - UNDISTURBED		

BORING B-7

TEST BORING LOG — BORING B-8

PROJECT : Cherry Creek Flow Attenuation Weirs
CLIENT : Howard County Department of Public Works – SWM Division
SITE: Howard County, MD

JOB NUMBER: 01-01128.C
SHEET NO. 1 of 1
NORTH: 536260
EAST: 1341545
ELEVATION: 358
START DATE: 2/11/2003
END DATE: 2/11/2003
DRILLER: E2CR
LOGGED BY: CMN

Date	Time	Water	Inside Casing	Cave-In
2/11/2003	11:05:00 AM	5.3		7.8

EQUIPMENT	CASING	SAMPLER	CORE
TYPE	HSA	SS	
SIZE, ID	4 1/4"	1 3/8"	
HAMMER WT.		140 lb	—
HAMMER FALL		30"	—

SAMPLE NUMBER	SAMPLE DEPTH	SAMPLE RECOVERY	BLOWS /6" (%ROD)	NMC / Frac. Freq.	LIQUID LIMIT	PLASTICITY INDEX
S-1	0.0	3"	2 3 3	32%		
S-2	2.5	16"	3 5 5	12.2%		
S-3	5.0	2"	5 8 12	29.2%		
S-4	7.5	10"	6 6 8	20.7%		
S-5	13.5	18"	9 16 21	16.2%		

ELEV. / DEPTH	DESCRIPTION AND CLASSIFICATION	NOTES ON:
0.0 – EL 353.5 / 4.5	gray-brown, moist, stiff, micaceous Sandy SILT, trace gravel-sized sub-angular quartz fragments (ml)	2" of topsoil
EL 353.5 / 4.5 – EL 347.0 / 11.0	gray-brown, moist, stiff to very stiff, micaceous, SILT, trace 1/4"-1/2" sub-rounded gravel (ml). S-4: little orange and black, little sand	
EL 347.0 / 11.0 – EL 343.0 / 15.0	gray-brown, black, and tan, moist, hard, micaceous Sandy SILT, trace gravel-sized subangular quartz fragments (ml)	
15.0	Bottom of Boring @ 15 ft.	

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTANCY	SAMPLE IDENTIFICATION	SAMPLE PROPORTIONS: DESCRIPTIVE TERM	PERCENT
0-4	VERY LOOSE	0-2	VERY SOFT	S - SPLIT SPOON	TRACE	1 TO 10
5-10	LOOSE	3-4	SOFT	T - THIN WALL TUBE	LITTLE	11 TO 20
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	SS - 3in. SPLIT SPOON	SOME	21 TO 35
31-50	DENSE	9-15	STIFF	R - DIAMOND CORE	AND	35 TO 50
OVER 50	VERY DENSE	16-30	VERY STIFF	W - WASH SAMPLE		
		OVER 30	HARD	U - UNDISTURBED		

BORING B-8

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/22/04

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 (PRINT NAME BELOW SIGNATURE) — DATE 11-10-04
KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 11-24-04
Howard E Saltzman

THIS PLAN HAS BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/13/04

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 12/13/04

PLOTTED: 01:50 PM on Monday, November 08, 2004
FILE: m:\2001\0101128.c\drawings\swm07.dgn

NO.	REVISIONS DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 0101128.c \ drawings \ swm07.dgn

KCI TECHNOLOGIES — ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS — www.kci.com

CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

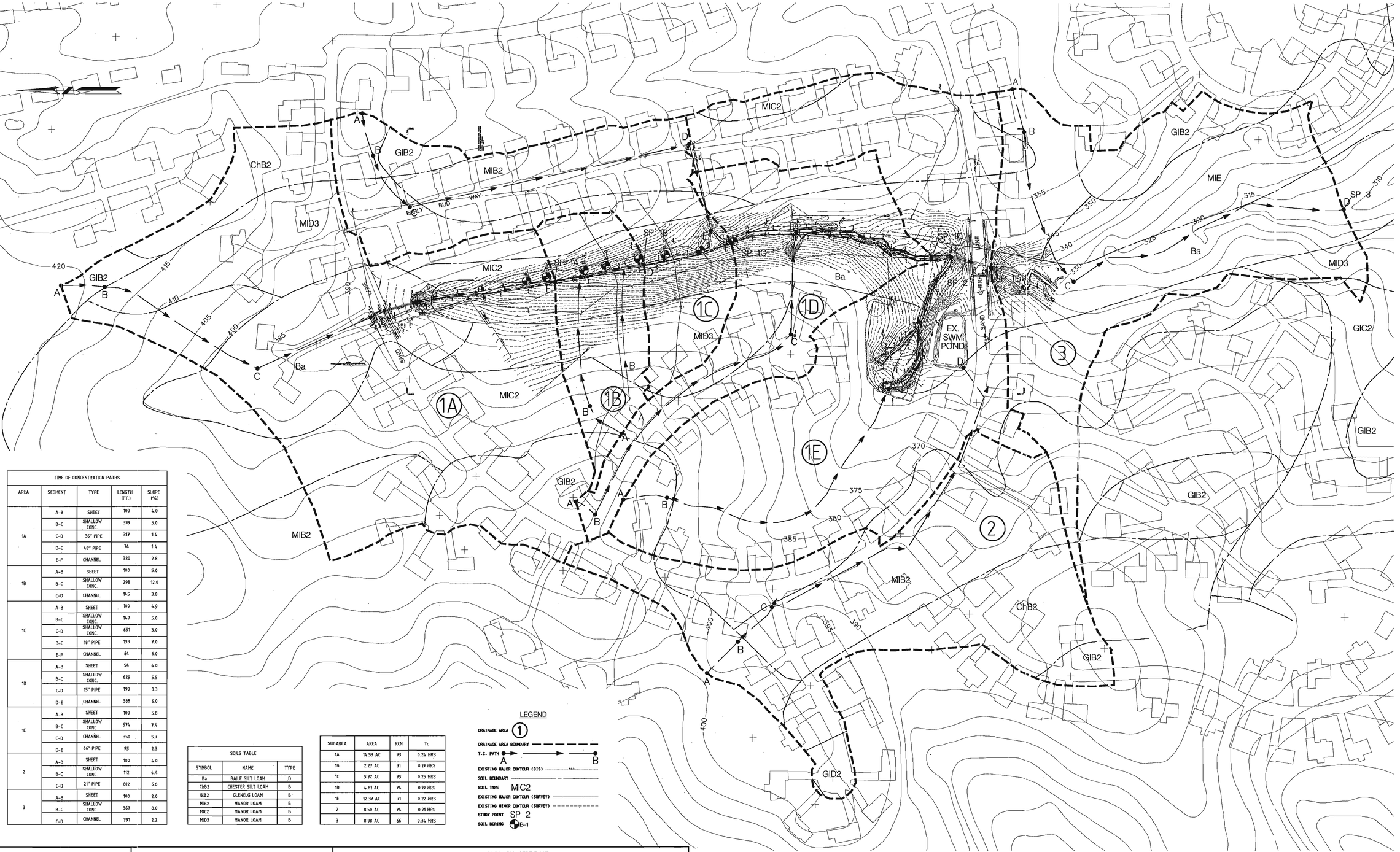
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

SOIL BORING LOGS

SCALE: N/A
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

SW7

SDP-04-123



TIME OF CONCENTRATION PATHS				
AREA	SEGMENT	TYPE	LENGTH (FT.)	SLOPE (%)
1A	A-B	SHEET	100	4.0
	B-C	SHALLOW CONC.	399	5.0
	C-D	36" PIPE	317	1.4
	D-E	48" PIPE	74	1.4
	E-F	CHANNEL	320	2.8
1B	A-B	SHEET	100	5.0
	B-C	SHALLOW CONC.	298	12.0
	C-D	CHANNEL	145	3.8
1C	A-B	SHEET	100	4.0
	B-C	SHALLOW CONC.	147	5.0
	C-D	SHALLOW CONC.	651	3.0
	D-E	18" PIPE	198	7.0
	E-F	CHANNEL	64	6.0
1D	A-B	SHEET	54	4.0
	B-C	SHALLOW CONC.	629	5.5
	C-D	15" PIPE	190	8.3
	D-E	CHANNEL	388	6.0
1E	A-B	SHEET	100	5.8
	B-C	SHALLOW CONC.	674	7.4
	C-D	CHANNEL	350	5.7
	D-E	66" PIPE	95	2.3
2	A-B	SHEET	100	4.0
	B-C	SHALLOW CONC.	112	4.4
	C-D	21" PIPE	812	6.6
3	A-B	SHEET	100	2.0
	B-C	SHALLOW CONC.	367	8.0
	C-D	CHANNEL	791	2.2

SOILS TABLE		
SYMBOL	NAME	TYPE
Ba	BAILE SILT LOAM	D
ChB2	CHESTER SILT LOAM	B
GlB2	GLENELG LOAM	B
MIB2	MANOR LOAM	B
MIC2	MANOR LOAM	B
MID3	MANOR LOAM	B

SUBAREA	AREA	RCN	Tc
1A	14.53 AC	73	0.24 HRS
1B	2.27 AC	71	0.19 HRS
1C	5.72 AC	75	0.25 HRS
1D	4.81 AC	74	0.19 HRS
1E	12.37 AC	71	0.22 HRS
2	8.50 AC	74	0.21 HRS
3	8.98 AC	66	0.34 HRS

LEGEND

- DRAINAGE AREA (1)
- DRAINAGE AREA BOUNDARY
- T.C. PATH A → B
- EXISTING MAJOR CONTOUR (GIS) 380
- SOIL BOUNDARY
- SOIL TYPE MIC2
- EXISTING MAJOR CONTOUR (SURVEY)
- EXISTING MINOR CONTOUR (SURVEY)
- STUDY POINT SP 2
- SOIL BORING B-1

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (DESIGNEE) — DATE 12/27/04

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 (PRINT NAME BELOW SIGNATURE) — DATE 11-10-04

KERRY B. REXROAD, P.E.

DEVELOPER'S CERTIFICATE

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

SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE 11-24-04

Howard E Saltzman

THIS PLAN HAS BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.

USDA - NATURAL RESOURCES CONSERVATION SERVICE — DATE 12/13/04

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 12/13/04

NO.	REVISIONS	DESCRIPTION	DATE

KCI FILE: M:\ 2001 \ 010128.c \ swm08.dgn

KCI TECHNOLOGIES — ENGINEERS, PLANNERS, SCIENTISTS, CONSTRUCTION MANAGERS — www.kci.com

CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

DRAINAGE AREA MAP

SCALE: 1" = 60'
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

SW8

SHEET NO.: 30 OF 36

SDP-04-123

PLOTTED: "01:51 PM on Monday, November 08, 2004"
BY: Matt Snyder, Division Water Resources
FILE: M:\2001\010128.c\swm08.dgn

LEGEND

- LIVE STAKES / STREAM BANK SEED MIX & MATTING 4,624 S.F. / 0.10 AC.
- TREES / SHRUBS / FLOODPLAIN WILDLIFE SEED MIX 30,537 S.F. / 0.70 AC.
- FLOODPLAIN WILDLIFE SEED MIX 0.0 S.F.
- STORMWATER WETLAND SEED MIX 0.0 S.F.
- TURF REINFORCEMENT MATTING 0.0 S.F.
- SHRUB/STORMWATER WETLAND SEED MIX 0.0 S.F.
- ARTICULATED CONCRETE BLOCK 0.0 S.F. /0.0 AC.

MATCHLINE - SEE SHEET LS2

ADDITIONAL PROPOSED REFORESTATION AREA BY DRP (NO OTHER DISTURBANCE IN THIS AREA)

VAN WINTER JERROLD A
VAN WINTER NANCY ELWOOD
LOT 190 .352 A PARCEL 190
8333 CHERRYBROOK COURT
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 3773/605
TAX ACCOUNT 06-517919
ZONED R20

WAKEFIELD DONALD T
WAKEFIELD ALON A
LOT 188 .377 A PARCEL 190
8328 CHERRYBROOK CT SS
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 1986/348
TAX ACCOUNT 06-517897
ZONED R20

VANCLEAVE JEFF
VANCLEAVE JENNIFER
LOT 189 .411 A PARCEL 190
8332 CHERRYBROOK CT
CHERRYTREE FARM
LAUREL MD 20723-1003
LIBER/FOLIO 6221/257
TAX ACCOUNT 06-517900
ZONED R20

HOWARD COUNTY MARYLAND
DEPT OF RECREATION AND PARKS
LOT 170 4.904A OR 55' PARCEL 190
SAND CHERRY LANE
CHERRYTREE FARM
LAUREL 20723
LIBER/FOLIO 1822/359
TAX ACCOUNT 06-517692
ZONED R20

PETRILLO GUY M
PETRILLO PAULA M T/E
LOT 165 .363 A PARCEL 190
8440 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 5136/168
TAX ACCOUNT 06-517633
ZONED R20

GLASS STEPHEN N
GLASS JULIE C
LOT 166 .377 A PARCEL 190
8444 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 2027/174
TAX ACCOUNT 06-517644
ZONED R20

SULLIVAN JOHN R
SULLIVAN KATHRYN H T/E
LOT 167 .384 A PARCEL 190
8448 EARLY BUD WAY
CHERRYTREE FARM
LAUREL MD 20723-1083
LIBER/FOLIO 4007/240
TAX ACCOUNT 06-517658
ZONED R20

HASSETT MICHAEL K
SIMONS JEANNETTE
LOT 169 .331 A PARCEL 190
8435 SAND CHERRY LANE
CHERRYTREE FARM
LAUREL MD 20723-1093
LIBER/FOLIO 2001/237
TAX ACCOUNT 06-517684
ZONED R20

BROWN GREGORY L SR
BROWN CATHERINE N
LOT 171 .347 A PARCEL 190
8411 SAND CHERRY LANE
CHERRYTREE FARM
LAUREL MD 20723-1093
LIBER/FOLIO 6002/341
TAX ACCOUNT 06-517706
ZONED R20

20' PUBLIC SEWER AND UTILITY EASEMENT (PLAT NO. 7839)

100-YR EXISTING FLOODPLAIN ELEVATION

100-YR PROPOSED FLOODPLAIN ELEVATION

75' STREAM BUFFER (TYP)

100-YEAR FLOODPLAIN DRAINAGE AND UTILITY EASEMENT (PLAT NO. 7839)

SAND CHERRY LANE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 12/12/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 12/21/04
DIRECTOR (RETIRED)	DATE 12/27/04

NO.	REVISIONS	DESCRIPTION	DATE

KCI FILE: M:\ 2001\ 01-01128.C \ Drawings \ lsCherry.dgn

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CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

LANDSCAPE PLAN - AREA A

SCALE:	1" - 20'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

LS1

SHEET NO.: 31 OF 36

SDP-04-123

PLOTTED: "01:50 PM on Monday, November 08, 2004"
BY: Matt Snyder, Division: Water Resources
FILE: m:\2001\01-01128.c\Drawings\lsCherry.dgn

LEGEND

- LIVE STAKES / STREAM BANK SEED MIX & MATTING
  0.0 S.F. / 0.0 AC.
- TREES / SHRUBS / FLOODPLAIN WILDLIFE SEED MIX
  7,416 S.F. / 0.17 AC.
- FLOODPLAIN WILDLIFE SEED MIX
  6,463 S.F. / 0.14 AC.
- STORMWATER WETLAND SEED MIX
  1,542 S.F. / 0.03 AC.
- TURF REINFORCEMENT MATTING
  1623 S.F. / 0.04 AC.
- SHRUB/STORMWATER WETLAND SEED MIX
  1840 S.F. /0.04 AC.
- ARTICULATED CONCRETE BLOCK
  2591 S.F. / 0.6 AC.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 12/17/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 12/21/04
DIRECTOR	DATE 12/27/04

NO.	REVISIONS	DESCRIPTION	DATE

KCI FILE: M:\ 2001\ 0101128.c \ Drawings \ ls02cherry.dgn

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CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

LANDSCAPE PLAN - AREA B

SCALE:	1" = 20'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

LS2

SHEET NO.: 32 OF 36

SDP-04-123

PLOTTED: "01:50 PM on Monday, November 08, 2004"
BY: Matt Snyder Division: Water Resources
FILE: m:\2001\0101128\drawings\ls02cherry.dgn

LEGEND

LIVE STAKES / STREAM BANK SEED MIX & MATTING	0.0 S.F. / 0.0 AC.
TREES / SHRUBS / FLOODPLAIN WILDLIFE SEED MIX	14,092 S.F. / 0.32 AC.
FLOODPLAIN WILDLIFE SEED MIX	13,425 S.F. / 0.30 AC.
STORMWATER WETLAND SEED MIX	3,137 S.F. / 0.07 AC.
TURF REINFORCEMENT MATTING	2,814 S.F. / 0.06 AC.
SHRUB/STORMWATER WETLAND SEED MIX	6,008 S.F. /0.13 AC.
ARTICULATED CONCRETE BLOCK	2627 S.F. / 0.6 AC.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/7/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR — DATE 12/27/04

NO.	REVISIONS DESCRIPTION	DATE

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

LANDSCAPE PLAN - AREA C

SCALE:	1" = 20'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

LS3

SHEET NO.: 33 OF 36

SDP-04-123

PLOTTED: 01:50 PM on Monday, November 08, 2004
FILE: m:\2001\01001128.c\drawings\ls03cherry.dgn

LEGEND

- LIVE STAKES / STREAM BANK SEED MIX & MATTING 0.0 S.F.
- TREES / SHRUBS / FLOODPLAIN WILDLIFE SEED MIX 43 S.F. / 0.001 AC.
- FLOODPLAIN WILDLIFE SEED MIX 2,972 S.F. / 0.06 AC.
- STORMWATER WETLAND SEED MIX 0.0 S.F.
- TURF REINFORCEMENT MATTING 0.0 S.F.
- SHRUB/STORMWATER WETLAND SEED MIX 0.0 S.F.
- ARTICULATED CONCRETE BLOCK 0.0 S.F. / 0.0 AC.

MATCHLINE - SEE SHEET LS3

NO.	REVISIONS DESCRIPTION	DATE

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A | B | C | D

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

LANDSCAPE PLAN - AREA D

SCALE:	1" = 20'
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

LS4

SHEET NO.: 34 OF 36

SDP-04-123

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR (ACTING) — DATE 12/27/04

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BY: Matt Snyder Division: Water Resources
FILE: m:\2001\0101128.c\drawings\ls04cherry.dgn

MASTER PLANTING SCHEDULE

PLANTING ZONE	QUANTITY	COMMON NAME	SCIENTIFIC NAME	SIZE	SPACING
LIVE STAKES / STREAM BANK SEED MIX & NATURAL FIBER MAT 4,624 S.F. / 0.10 AC.	STAKES				
	289	SILKY DOGWOOD	Cornus amomum	36" Live Stake	2' O.C.
	289	RED-OSIER DOGWOOD	Cornus sericea	36" Live Stake	2' O.C.
	289	SHINING WILLOW	Salix lucida	36" Live Stake	2' O.C.
	289	BLACK WILLOW	Salix nigra	36" Live Stake	2' O.C.
	SEED - (44 LBS/AC - 4.4 LBS TOTAL)				
	65%	ANNUAL RYE	Lolium multiflorum	SEED	Seed Entire Area
	13%	VIRGINIA WILD RYE	Elymus virginicus	SEED	Seed Entire Area
	15%	EASTERN GAMMAGRASS	Tripsacum dactyloides	SEED	Seed Entire Area
	7%	CREEPING BENTGRASS	Agrostis stolonifera	SEED	Seed Entire Area
TREES / SHRUBS / FLOODPLAIN WILDLIFE SEED MIX 52,089 S.F. / 1.20 AC.	TREES				
	85	PIN OAK	Quercus palustris	CONT. 5 GAL	10' O.C.
	85	TULIP POPLAR	Liriodendron tulipfera	CONT. 5 GAL	10' O.C.
	85	SYCAMORE	Plantanus occidentalis	CONT. 5 GAL	10' O.C.
	70	WHITE PINE	Pinus stroba	CONT. 5 GAL	10' O.C.
	SHRUBS				
	65	RIVER BIRCH	Betula nigra	CONT. 2-3' HT.	10' O.C.
	65	ARROWWOOD VIBURNUM	Viburnum dentatum	CONT. 2-3' HT.	10' O.C.
	65	WITCH HAZEL	Hamamelis virginiana	CONT. 2-3' HT.	10' O.C.
	SEED	Floodplain Wildlife Mix (15 LBS/AC - 18.0 LBS TOTAL)		SEED	Seed Entire Area
	SEED	Annual Rye - Lolium multiflorum (10 LBS/AC - 12.0 LBS TOTAL)			Seed Entire Area
FLOODPLAIN WILDLIFE SEED MIX 22,860 S.F. / 0.52 AC.	SEED - (15 LBS/AC - 7.8 LBS TOTAL)				
	15%	BIG BLUESTEM	Andropogon gerardii	SEED	-
	9%	VIRGINIA WILD RYE	Elymus virginicus	SEED	-
	8%	CANADA WILD RYE	Elymus canadensis	SEED	-
	8%	SILKY WILD RYE	Elymus villosus	SEED	-
	8%	CUPPLANT	Silphium perfoliatum	SEED	-
	8%	INDIANGRASS	Sorghastrum nutans	SEED	-
	5%	COMMON MILKWEED	Asclepias syriaca	SEED	-
	5%	FLAT-TOP ASTER	Aster umbellatus	SEED	-
	5%	BEARD TONGUE	Penstemon digitalis	SEED	-
	4%	WINGSTEM	Verbesina alternifolia	SEED	-
	3%	NODDING BUR-MARIGOLD	Bidens cernua	SEED	-
	3%	SPOTTED JOE PYE WEED	Eupatorium maculatum	SEED	-
	3%	BLACK-EYED SUSAN	Rudbeckia hirta	SEED	-
	2%	SWAMP MILKWEED	Asclepias incarnata	SEED	-
	2%	SWITCHGRASS	Panicum virgatum	SEED	-
	2%	GREYHEADED CONEFLOWER	Ratibida pinnata	SEED	-
	2%	MARYLAND SENNA	Senna marilandica	SEED	-
	2%	NEW YORK IRONWEED	Veronia noveboracensis	SEED	-
	1%	NEW ENGLAND ASTER	Aster novae-angliae	SEED	-
	1%	SHOWY TICK-TREFOIL	Desmodium canadensis	SEED	-
	1%	WRINKLE-LEAF GOLDENROD	Solidago rugosa	SEED	-
	1%	GOLDEN ALEXANDERS	Zizia aurea	SEED	-
	SEED	Annual Rye - Lolium multiflorum (10 LBS/AC - 5.2 LBS TOTAL)			Seed Entire Area

STORMWATER WETLAND SEED MIX 4,679 S.F. / 0.11 AC.	SEED - (20 LBS/AC - 2.2 LBS TOTAL)				
	25%	CREEPING BENTGRASS	Agrostis stolonifera	SEED	-
	25%	MEADOW FOXTAIL	Alopecurus pratensis	SEED	-
	25%	VIRGINIA WILD RYE	Elymus virginicus	SEED	-
	4%	GREEN BULRUSH	Scirpus atrovirens	SEED	-
	4%	SHOWY TICKSEED SUNFLOWER	Bidens aristosa	SEED	-
	4%	MANY-LEAVED BULRUSH	Scirpus polyphyllus	SEED	-
	3%	PURPLE STEMMED ASTER	Aster puniceus	SEED	-
	2%	BLUE VERVAIN	Verbena hastata	SEED	-
	2%	MONKEY FLOWER	Mimulus ringens	SEED	-
	2%	WOOLGRASS	Scirpus cyperinus	SEED	-
	2%	WOOD BULRUSH	Scirpus expansus	SEED	-
	2%	ROUGH-LEAF GOLDENROD	Solidago patula	SEED	-
	SEED	Annual Rye - Lolium multiflorum (10 LBS/AC - 1.1 LBS TOTAL)			Seed Entire Area
SHRUB/STORMWATER WETLAND SEED MIX 7,848 S.F. / 0.18 AC.	SHRUBS				
	26	RIVER BIRCH	Betula nigra	Cont. 2-3' Ht.	10' O.C.
	26	ARROWWOOD VIBURNUM	Viburnum dentatum	Cont. 2-3' Ht.	10' O.C.
	26	WITCH HAZEL	Hamamelis virginiana	Cont. 2-3' Ht.	10' O.C.
	SEED	Stormwater Wetland Mix (20 LBS/AC - 3.6 LBS TOTAL)			Seed Entire Area
	SEED	Annual Rye - Lolium multiflorum (10 LBS/AC - 1.8 LBS TOTAL)			Seed Entire Area
TURF REINFORCEMENT MATTING 4437 S.F. / 0.10 AC.	SEED	Floodplain wildlfie seed mix (15 LBS/AC - 1.0 LBS TOTAL)			Seed Entire Area
ARTICULATED CONCRETE BLOCK 5218 S.F. /0.12 AC.	SEED	Standard Howard Soil Conservation District Permanent Seeding - See ES8 for details (8 LBS/AC - 1.0 LBS TOTAL)			Seed Open Cells

NOTES

1. PLANTING OF WOODY MATERIAL (TREES AND SHRUBS) WITHIN THE LOD AND OUTSIDE THE LOD WILL BE COMPLETED BY HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS (DRP).
2. WITHIN THE LOD: ANY NECESSARY PRETREATMENT, WHICH WILL INCLUDE REMOVAL OF INVASIVE AND UNDESIREABLE SPECIES, AND ALL SEEDING WILL BE COMPLETED BY THE CONTRACTOR.
3. PLANTING AREAS THAT ARE LOCATED OUTSITE OF THE LOD: ANY NECESSARY PRETREATMENT, WHICH WILL INCLUDE REMOVAL OF INVASIVE AND UNDESIREABLE SPECIES, AND ALL SEEDING WILL BE COMPLETED BY HOWARD COUNTY DRP.
4. SEE SHEET 22 (ES8) FOR PERMANENT SEEDING NOTES, WHICH SHALL APPLY TO AREAS WITHIN THE LOD AND NOT WITHIN THE ZONES SHOWN ABOVE.

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 12/17/04

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 12/21/04

DIRECTOR — DATE 12/27/04

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CHERRY TREE FARM SECTION 1, AREA 2, OPEN SPACE, LOT 170

STREAM RESTORATION

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

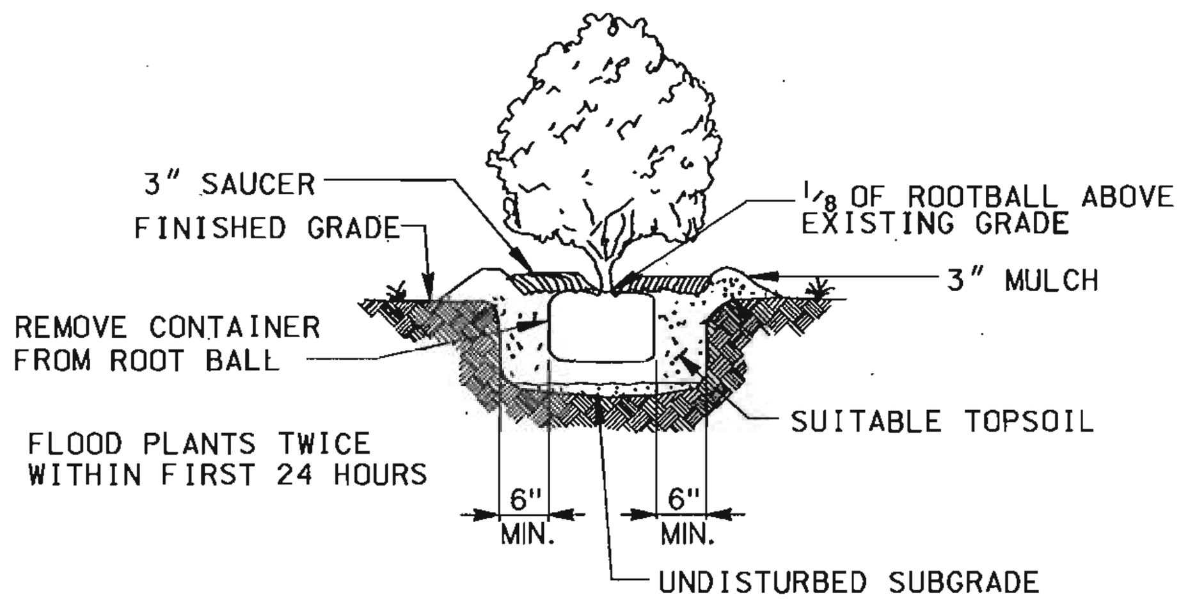
LANDSCAPE NOTES

SCALE: N/A
DATE: 11-08-04
KCI JOB NO.: 01-01128.c
CAPITAL PROJECT NO.: D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:
CONSTRUCTION ISSUE:

LS5

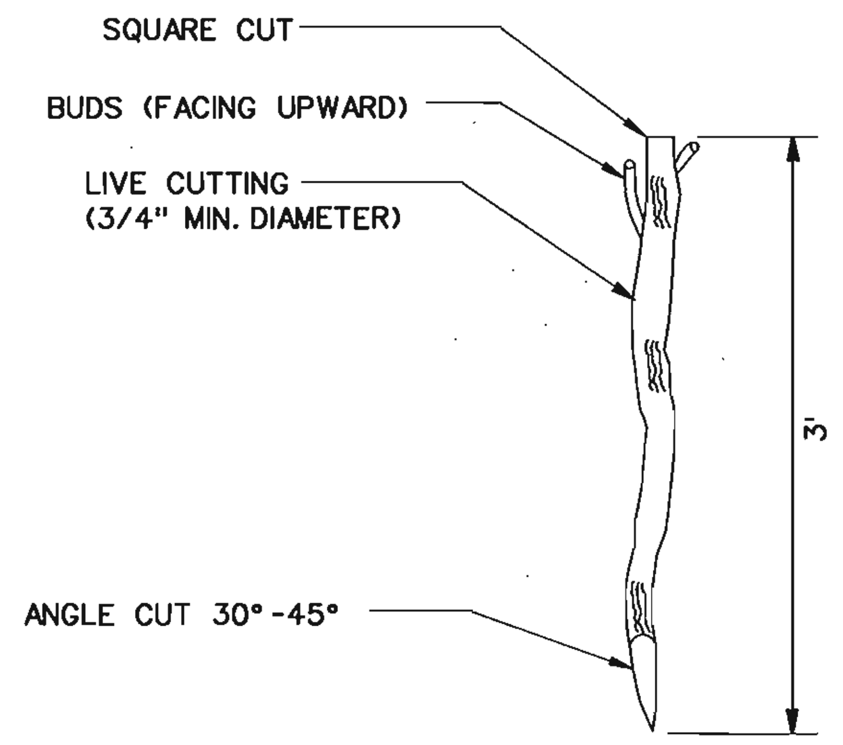
SHEET NO.: 35 OF 36

SDP-04-123

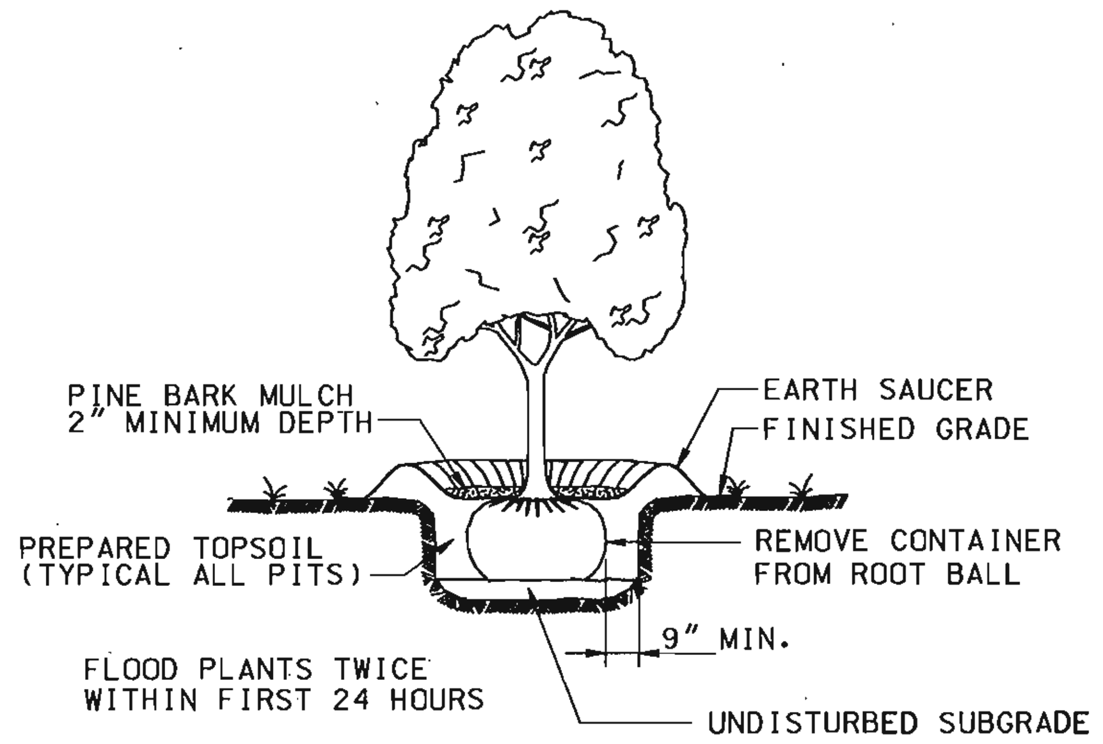


SHRUB PLANTING DETAIL

NOT TO SCALE

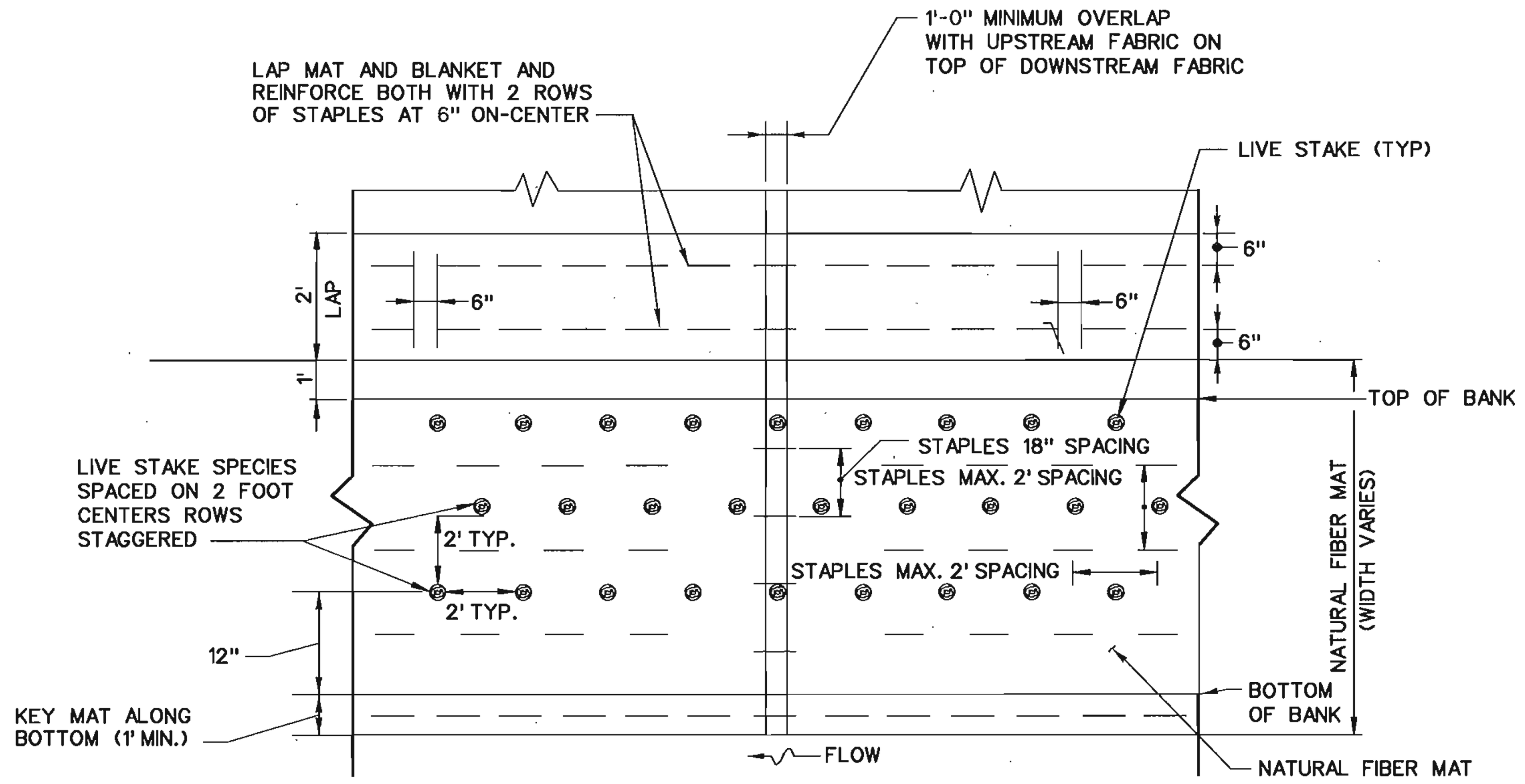


LIVE STAKE DETAIL



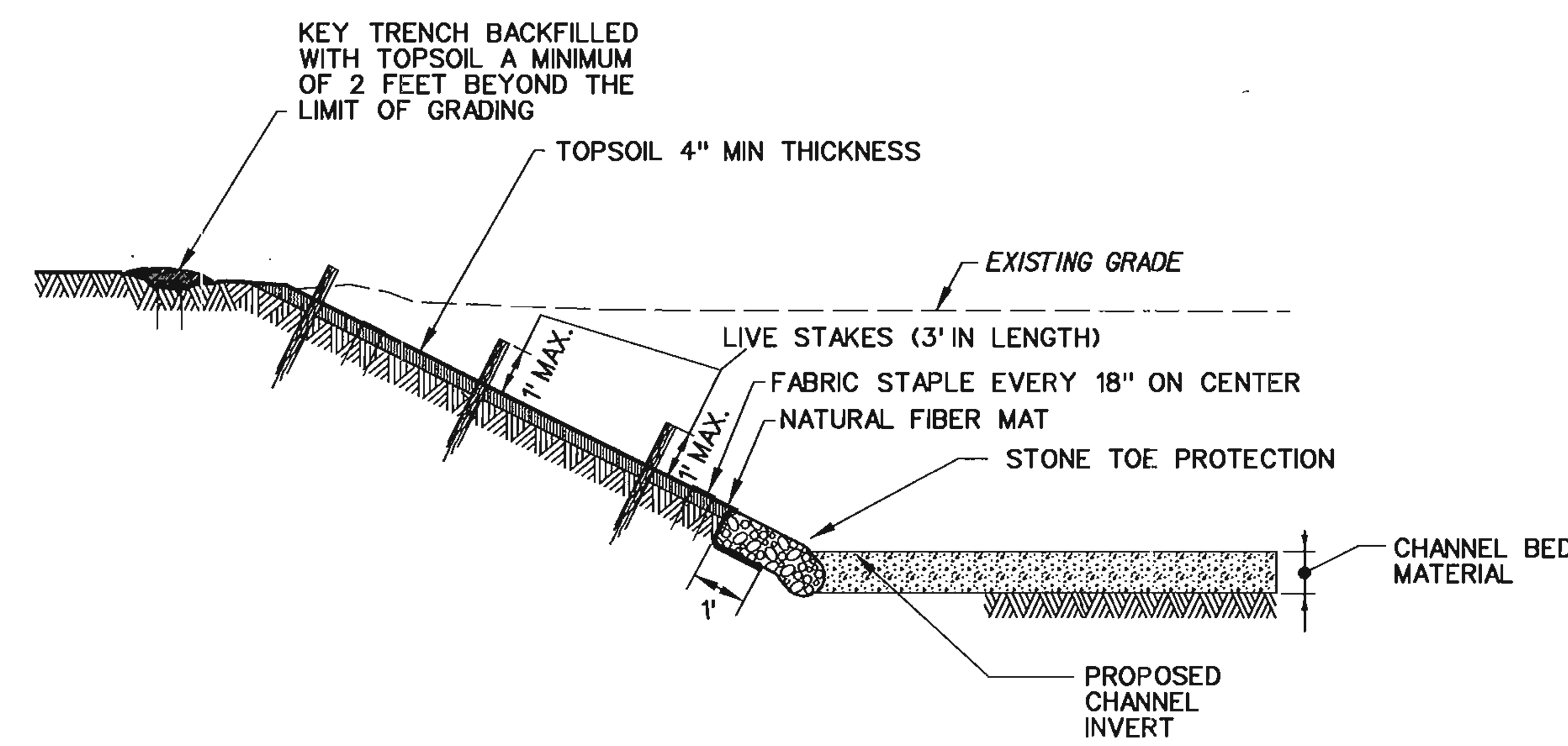
TREE PLANTING DETAIL

NOT TO SCALE



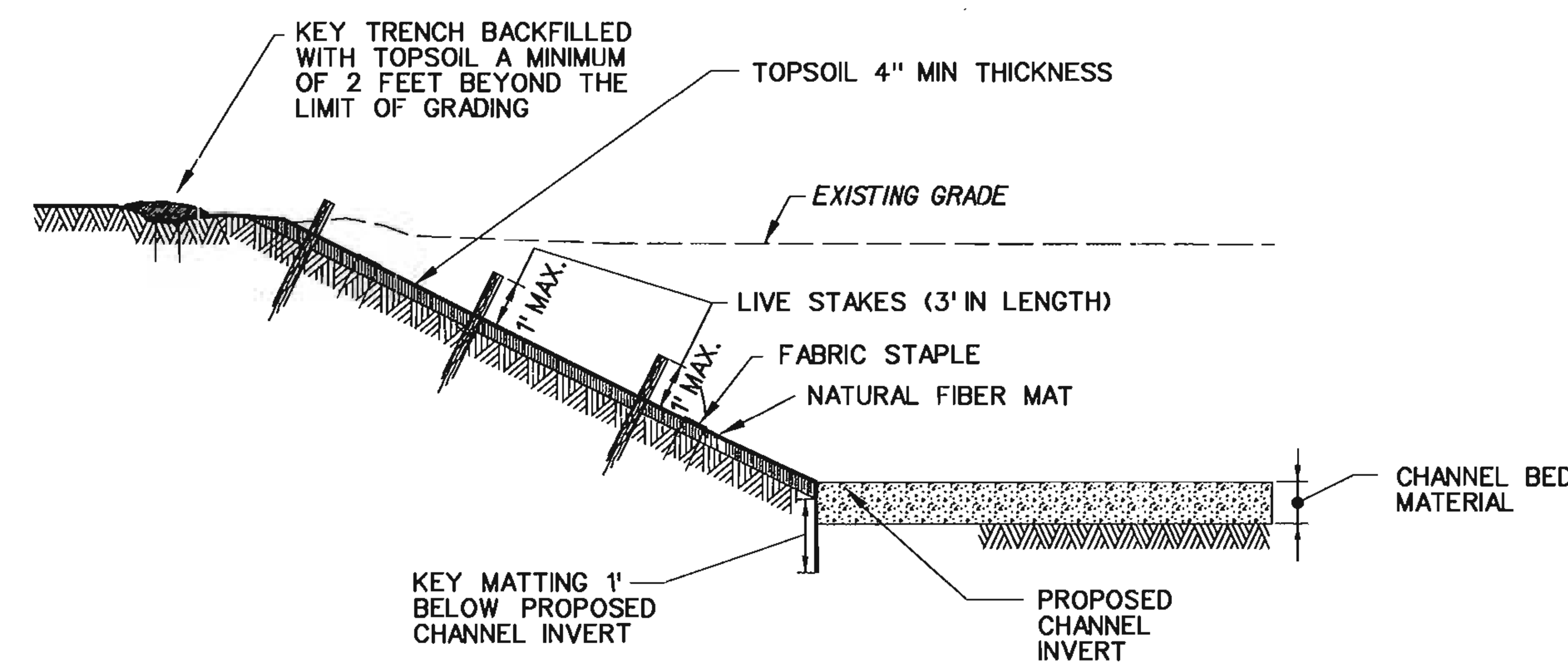
TYPICAL PLAN VIEW NATURAL FIBER MAT WITH LIVE STAKES

NOT TO SCALE



NATURAL FIBER MAT (W/ STONE TOE PROTECTION)

NOT TO SCALE



NATURAL FIBER MAT (W/OUT STONE TOE PROTECTION)

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 12/17/04
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 12/21/04
DIRECTOR (ACTING)	DATE 12/27/04

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CHERRY TREE FARM
SECTION 1, AREA 2,
OPEN SPACE, LOT 170
STREAM RESTORATION
HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
STORMWATER MANAGEMENT DIVISION
6751 COLUMBIA GATEWAY DRIVE
COLUMBIA, MARYLAND 21046

LANDSCAPE DETAILS

SCALE:	AS SHOWN
DATE:	11-08-04
KCI JOB NO.:	01-01128.c
CAPITAL PROJECT NO.:	D-1132 (PONDS) D-1128 (STREAM)
PERMIT ISSUE:	
CONSTRUCTION ISSUE:	

LS6

SHEET NO.: 36 OF 36

SDP-04-123