

# STORMWATER MANAGEMENT RETROFIT AT ROCKBURN TOWNSHIP

## GENERAL NOTES

- THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AND MISS UTILITY AT 1-800-257-7777 AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK.
- ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, ISSUED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT AND THE NATURAL RESOURCES CONSERVATION SERVICE.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH ONE FOOT CONTOUR INTERVALS PREPARED BY URS CORPORATION DATE NOV. 2000.
- THE PROPERTY LINES AND EASEMENT LINES ARE APPROXIMATELY INDICATED AS SHOWN ON PLAT NO. 7394.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND THE FIELD CONDITIONS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION, SHOULD THE
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHOD, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- APPROXIMATE UTILITIES ARE SHOWN FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- POND STRUCTURE HAZARD CLASSIFICATION = A, DUE TO NATURE OF PROXIMITY OF ROCKBURN BRANCH PARK.
- THIS PROJECT IS SUBJECT TO THE FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE SYSTEM, HOWARD COUNTY MONUMENT NOS. 17E8 AND 17E4 WERE USED FOR THIS PROJECT.
- THERE IS NO FLOODPLAIN ON THIS SITE.
- THERE ARE NO WETLANDS ON THIS SITE.
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- THIS PROJECT IS EXEMPT FROM THE FOREST CONSERVATION REQUIREMENTS IN ACCORDANCE WITH APPENDIX 'O' - HOWARD COUNTY CAPITAL IMPROVEMENT PROJECTS OF THE FOREST CONSERVATION MANUAL AS A SINGLE LOT CLEARING LESS THAN 40,000 SQUARE FEET OF FOREST.

## INDEX OF DRAWINGS

- TITLE SHEET
- GRADING AND EROSION AND SEDIMENT CONTROL PLAN
- STORMWATER MANAGEMENT POND AND DETAILS
- STORMWATER MANAGEMENT NOTES AND DETAILS
- EROSION AND SEDIMENT CONTROL NOTES AND DETAILS
- POND SPECIFICATIONS
- LANDSCAPING PLAN
- LANDSCAPING DETAILS

## 1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND CAPITAL PROJECT NO. D-1106

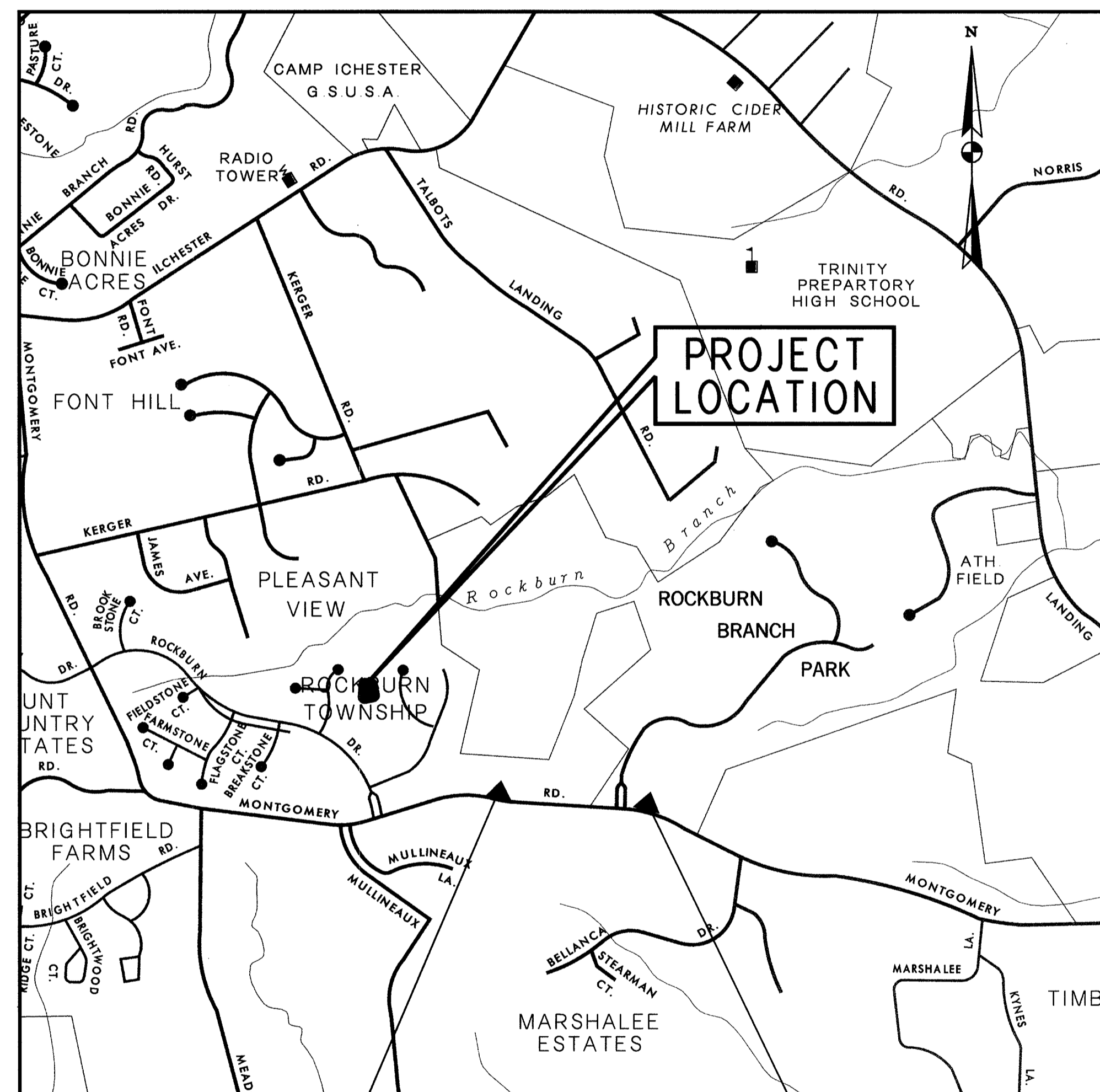
PERMIT INFORMATION BLOCK					
SUBDIVISION NAME	SECTION/AREA	LOT / PARCEL*			
ROCKBURN TOWNSHIP	1/2	O.S. LOT 200			
PLAT* OR L/F	BLOCK*	ZONE	TAX/ZONE MAP	ELEC. DIST	CENSUS TRACT
8633, 8635 8638	21/3	R-20	31/37	1	6011.01

ADDRESS CHART	
LOT NUMBER	STREET ADDRESS
O.S. LOT 200	7782 ROCKBURN DRIVE

SITE ANALYSIS DATA CHART	
a. TOTAL PROJECT AREA:	= 0.95 ACRES
b. AREA OF PLAN SUBMISSION:	= 0.95 ACRES
c. LIMIT OF DISTURBED AREA:	= 0.95 ACRES
d. PRESENT ZONING DESIGNATION:	= 'R-20'
e. DPZ FILE REFERENCE:	= S-87-26, P-87-58, F-88-273

BMP DATA SUMMARY	
ADDRESS	ROCKBURN TOWNSHIP, HOWARD COUNTY, MD
MD COORDINATES (NADS83)	NORTH 564,705 EAST 1,375,317
ADC MAP/GRID	16/J6
STRUCTURE TYPE	EXTENDED DETENTION
MOP LAND USE	OPEN SPACE
STRUCTURE DRAINAGE AREA	21.4 ACRES
TOTAL SITE DRAINAGE AREA	21.4 ACRES
RCN - POST DEVELOPMENT	76
ON/OFF SITE SWM	ON SITE STORMWATER MANAGEMENT
OWNER	HOWARD COUNTY, MD

STORMWATER MANAGEMENT SUMMARY CHART						
STORM	(AS-BUILT) EXISTING INFLOW	(AS-BUILT) EXISTING PEAK DISCHARGE	(AS-BUILT) EXISTING POND ELEVATION	PROPOSED PEAK DISCHARGES	PROPOSED POND ELEVATIONS	PROPOSED STORAGE VOLUMES
	CFS	CFS	FT.	CFS	FT.	AC.-FT.
1 YR.	23.29	12.98	373.75	3.21	374.60	0.58
2 YR.	34.71	20.47	374.57	11.94	374.89	0.68
10 YR.	75.30	56.88	376.01	45.63	375.66	1.00
100 YR.	122.77	115.38	376.69	85.33	376.47	1.34

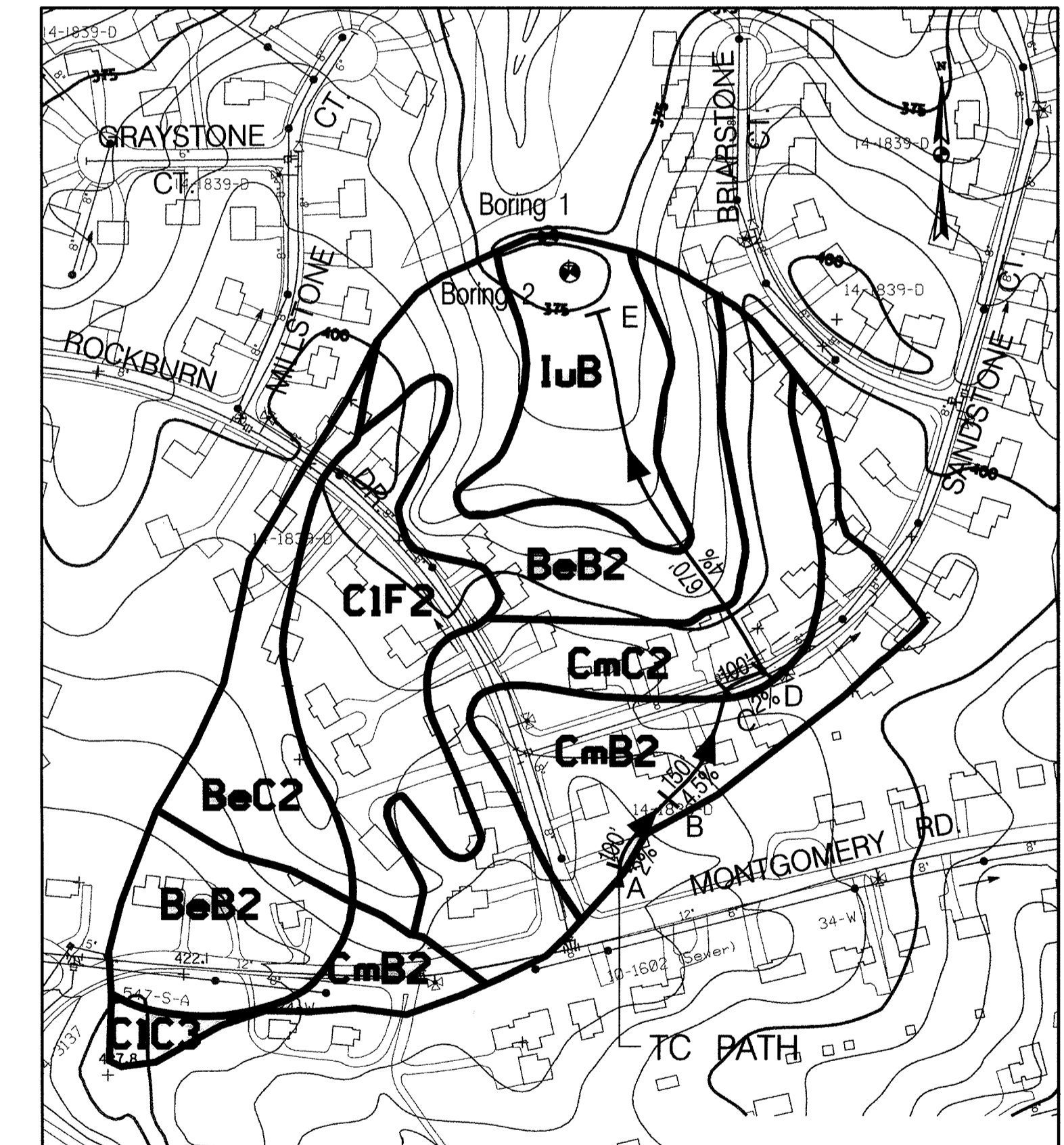


37BA  
EL. 394.75  
N 563785.62  
E 1376343.17

LOCATION MAP  
HOWARD COUNTY

37BB  
EL. 373.81  
N 563663.42  
E 1378040.47

SCALE: 1" = 1000'



HYDROLOGIC SOIL:  
TYPE 'B' = 16.06 AC.  
TYPE 'C' = 5.08 AC.

DRAINAGE AREA =  
21.14 AC.  
Tc = 0.336 hr  
PERCENT IMPERVIOUS = 34%

### STORMWATER MANAGEMENT DRAINAGE AREA MAP - ROCKBURN TOWNSHIP

FIRST ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND  
SCALE: 1" = 200' SEPT. 20, 1988

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

PE NO. \_\_\_\_\_  
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 TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION BELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

**BY THE DEVELOPER:**  
\* I / WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN ON THE POND WITHIN 30 DAY OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Howard E. Saltzman 12/8/03  
DEVELOPER DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division 12/24/03  
Date  
Kat Shulman 12/30/03  
Chief, Division of Land Development  
Date  
Frank A. Leyer 12/10/03  
Date  
Director

APPROVED: DEPARTMENT OF RECREATION AND PARKS

12-9-03  
Date  
Larry J. Archer 12-9-03  
Date  
Director

Howard County  
Owners: Department of Recreation and Parks  
7120 Oakland Mills Rd.  
Columbia, MD 21046-1677  
Phone No. 410-313-4640

Howard County  
Department of Public Works  
6751 Columbia Gateway Drive, Fifth Floor  
Columbia, MD 21046  
Phone No. 410-313-2330

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND  
12/8/03  
DATE  
Howard E. Saltzman 12/8/03  
DATE  
CHIEF, STORMWATER MANAGEMENT DIVISION

PREPARED BY  
**URS**  
4 NORTH PARK DRIVE  
HUNT VALLEY, MARYLAND  
TEL: (410) 785-7220



DES: WLM			
DRN: SYC/EGB			
CHK: DTM			
DATE: 8-01-03	BY: NO.	REVISION	DATE

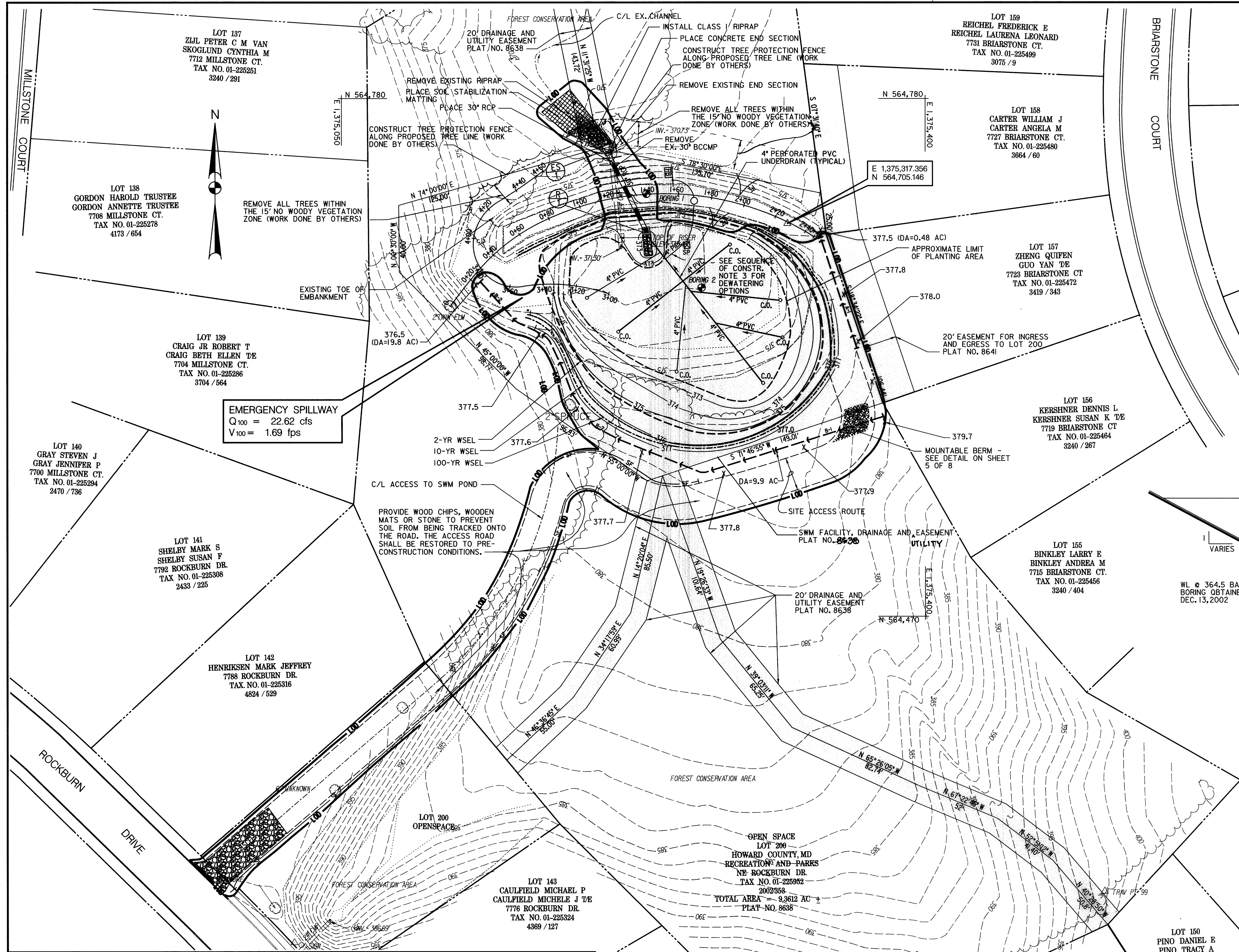
TITLE SHEET

SCALE MAP NO. N/A BLOCK NO.

STORMWATER MANAGEMENT RETROFIT AT  
ROCKBURN TOWNSHIP - OPEN SPACE LOT 200  
CAPITAL PROJECT NO. D-1106

1ST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
TAX MAP NO. 31/37, GRID NO. 21/3, PARCEL NO. 793

SCALE AS SHOWN  
SHEET 1 OF 8



OWNERSHIP AND MAINTENANCE RESPONSIBILITY OF THIS STORMWATER MANAGEMENT FACILITY (P-1) BELONGS TO HOWARD COUNTY

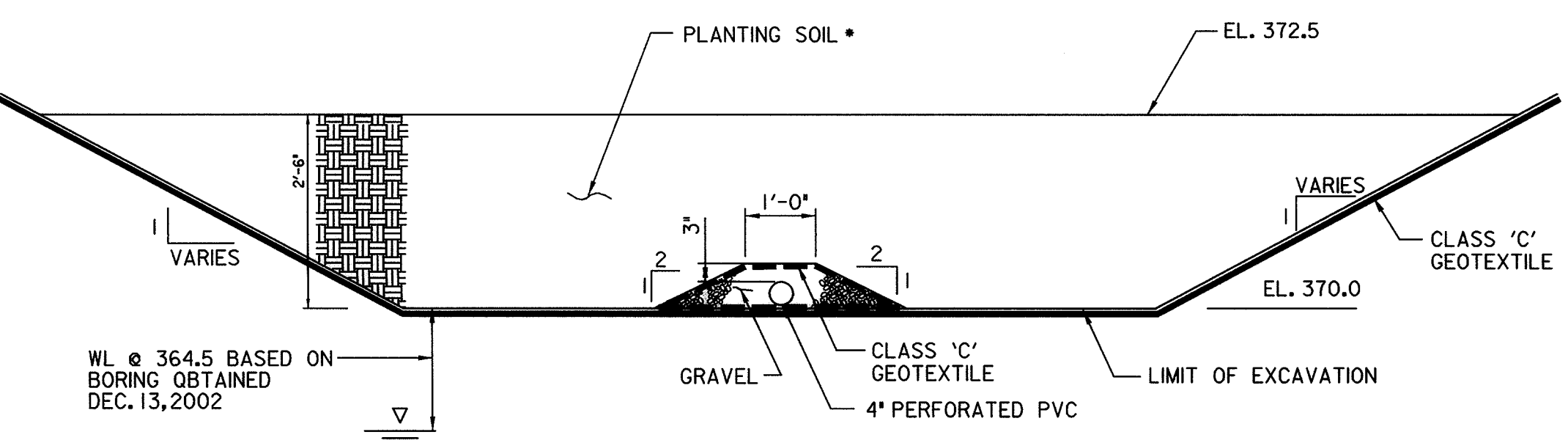
**MATERIAL SPECIFICATIONS FOR PLANTING AREA**

- PLANTING SOIL: SAND 35% - 60%, SILT 30% - 55%, CLAY 10% - 25%
- PROVIDE FOR TESTING OF EXISTING SOILS FOR COMPLIANCE WITH BIORETENTION SPECIFICATIONS.
- GEOTEXTILE: CLASS 'C'
- OPENING SIZE PER ASTM-D-4751, GRAB TENSILE STRENGTH PER ASTM-D-4632, PUNCTURE RESISTANCE PER ASTM-D-4833
- GRAVEL: AASHTO M-43 (0.25" TO 0.75")
- UNDERDRAIN PIPING: 4" RIGID SCHEDULE 40 PVC OR SDR 35 3/4" PERFORATIONS @ 6" O.C., 4 HOLES PER ROW, MIN. OF 3" OF GRAVEL OVER PIPE

NO STOCKPILES ARE PERMITTED ON SITE

**OPERATION, MAINTENANCE AND INSPECTION**

Inspection of the pond(s) shown hereon shall be performed at least annually, in accordance with the checklist and requirements contained within USDA, NRCS "Standards and Specifications For Ponds" (MD-378). The pond owner(s) and any heirs, successors, or assigns shall be responsible for the safety of the pond and the continued operation, surveillance, inspection, and maintenance thereof. The pond owner(s) shall promptly notify the Soil Conservation District of any unusual observations that may be indications of distress such as excessive seepage, turbid seepage, sliding or slumping.



TYPICAL SECTION - PLANTING AREA

SCALE: NOT TO SCALE

**AS-BUILT CERTIFICATION**  
I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plan and meets the approved plans and specifications.

Signature: \_\_\_\_\_ PE NO. \_\_\_\_\_  
DATE: \_\_\_\_\_

**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 that 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 day of completion. I also authorize periodic on-site inspection by the Howard Soil Conservation District"

*Howard E. Sully* 12/10/03  
DEVELOPER 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 is 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 "as-built" plan of the pond within 30 days of completion."

*David T. Morlock* NOV 25, 2003  
Signature of Engineer (Print name below signature) DATE

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

*Jill Munn* 12/23/03  
USDA - Natural Resources Conservation Service DATE

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

*David T. Morlock* 12/23/03  
Signature of Engineer (Print name below signature) DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*David J. ...* 12/24/03  
Chief, Development Engineering Division DATE

*Howard E. Sully* 12/30/03  
Chief, Division of Land Development DATE

*David J. ...* 12/24/03  
Director DATE

APPROVED: DEPARTMENT OF RECREATION AND PARKS

*Gayle J. ...* 12/9/03  
Director DATE

LOT 144 NORDBY CRAIG J  
NORDBY KRISTINA M T/E  
7772 ROCKBURN DR.  
TAX NO. 01-225332  
4047 / 112

LOT 148 MCCRURKIN REGINALD ONEAL  
MCCRURKIN MINNIE DENISE  
7709 SANDSTONE CT.  
TAX NO. 01-225375  
2382 / 426

LOT 149 SCHANTZ DAVID LLOYD JR  
SCHANTZ OONAGH MARY  
7713 SANDSTONE CT.  
TAX NO. 01-225383  
2427 / 339

LOT 150 PINO DANIEL E  
PINO TRACY A  
7717 SANDSTONE CT.  
TAX NO. 01-225389  
2413 / 738

LOT 155 BINKLEY LARRY E  
BINKLEY ANDREA M  
7715 BRIARSTONE CT.  
TAX NO. 01-225456  
3240 / 404

LOT 156 KERSHNER DENNIS L  
KERSHNER SUSAN K T/E  
7719 BRIARSTONE CT.  
TAX NO. 01-225464  
3240 / 287

LOT 157 ZHENG QIPEN  
GUO YAN T/E  
7723 BRIARSTONE CT.  
TAX NO. 01-225472  
3419 / 343

LOT 158 CARTER WILLIAM J  
CARTER ANGELA M  
7727 BRIARSTONE CT.  
TAX NO. 01-225480  
3664 / 60

LOT 159 REICHEL FREDERICK E  
REICHEL LAURENA LEONARD  
7731 BRIARSTONE CT.  
TAX NO. 01-225499  
3075 / 9

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

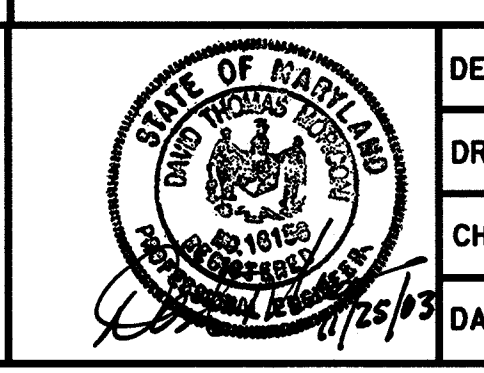
*Howard E. Sully* 12/18/03  
DIRECTOR OF PUBLIC WORKS DATE

*Howard E. Sully* 12/18/03  
CHIEF, STORMWATER MANAGEMENT DIVISION DATE

*John J. ...* 12/18/03  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

*William J. ...* 12-9-03  
CHIEF, BUREAU OF HIGHWAYS DATE

PREPARED BY  
**URS**  
4 NORTH PARK DRIVE  
HANT VALLEY, MARYLAND  
TEL: (410) 785-7220



DES: WLM	DRN: SYC/EGB	CHK: DTM	DATE: 8-01-03	BY NO.	REVISION	DATE
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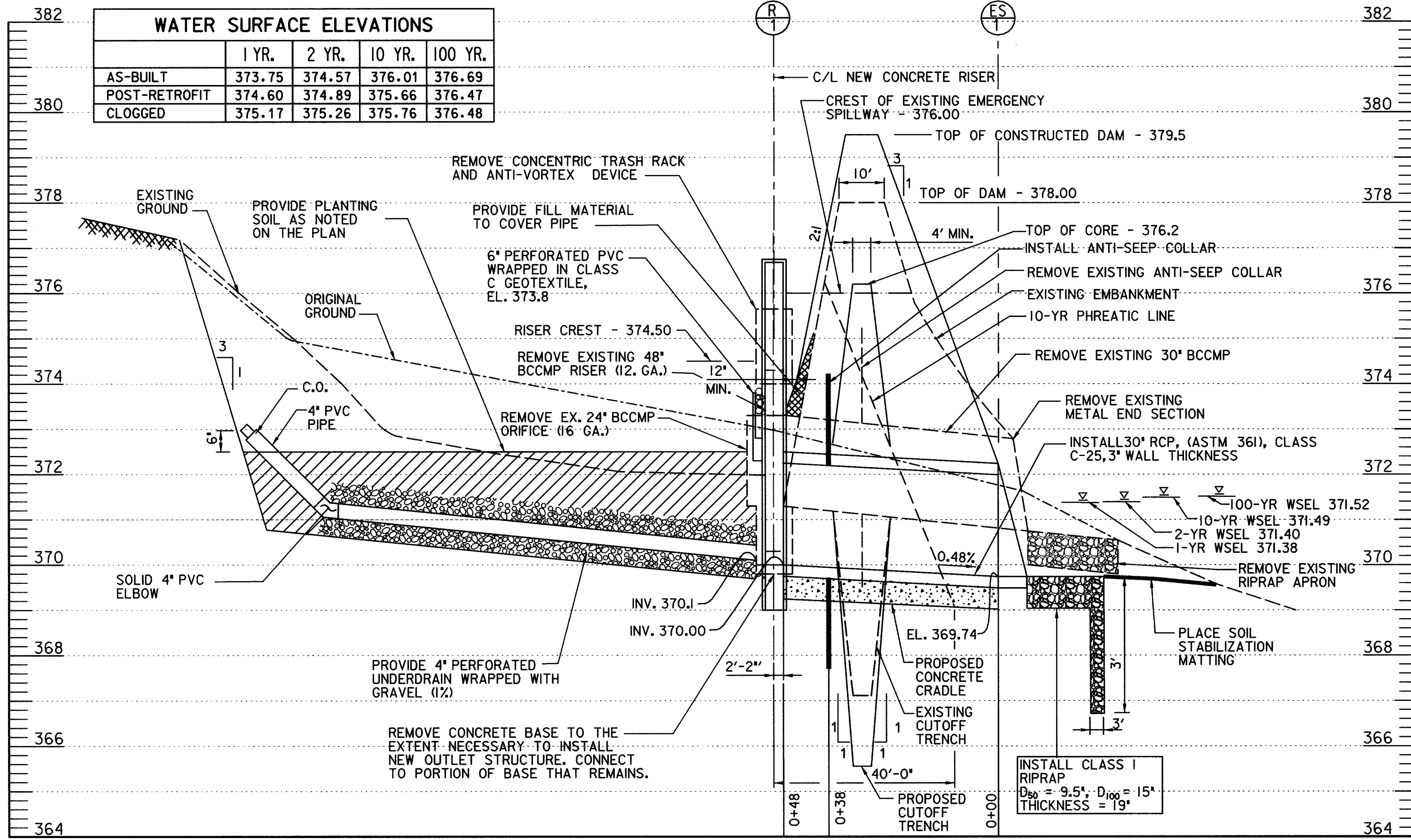
GRADING AND EROSION AND SEDIMENT CONTROL PLAN

SCALE MAP NO. N/A BLOCK NO.

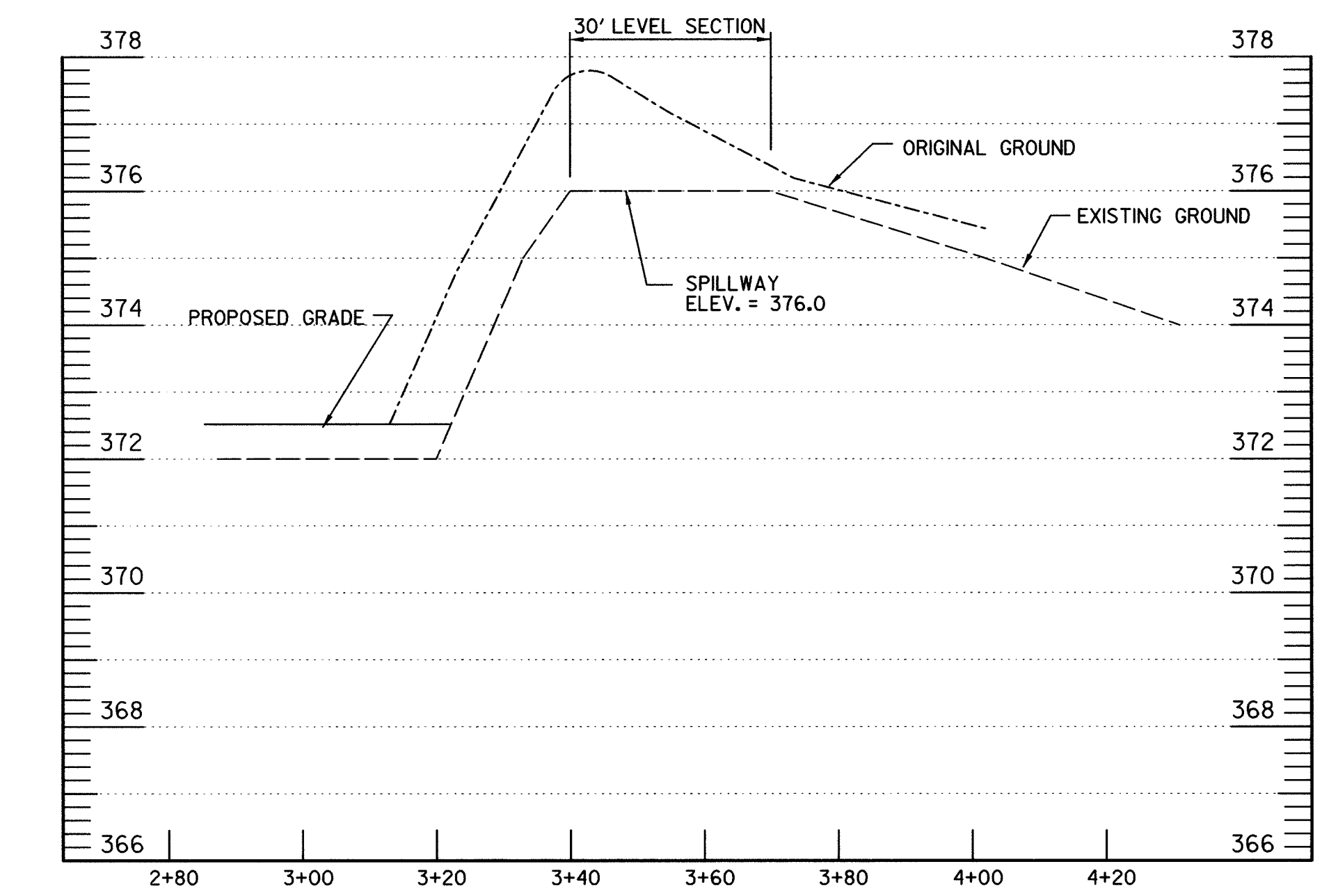
STORMWATER MANAGEMENT RETROFIT AT ROCKBURN TOWNSHIP - OPEN SPACE LOT 200 CAPITAL PROJECT NO. D-1106

1ST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
TAX MAP NO. 31/37, GRID NO. 21/3, PARCEL NO. 793

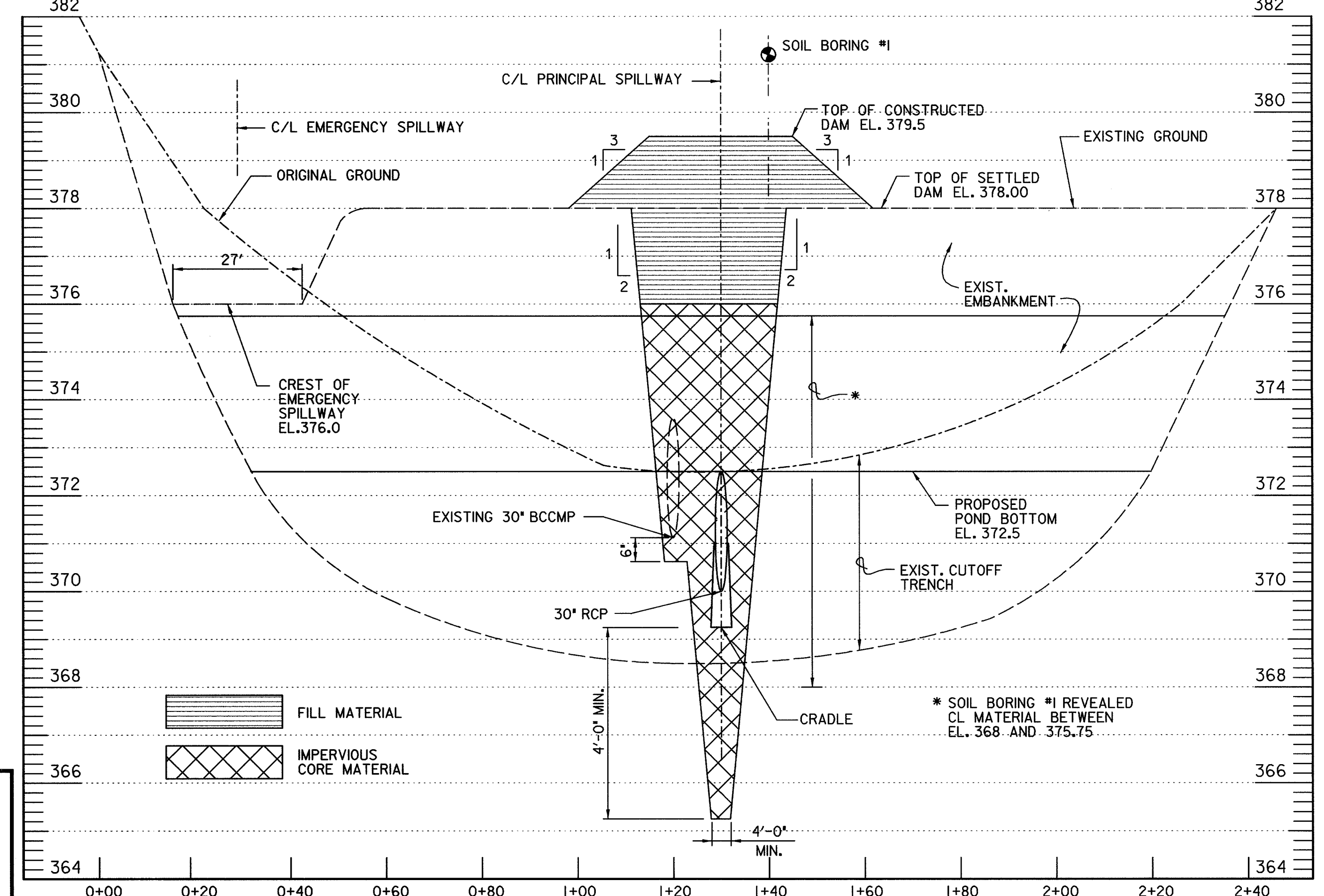
SCALE AS SHOWN  
SHEET 2 OF 8



**PROFILE ALONG PRINCIPAL SPILLWAY**  
 SCALE: HORIZONTAL 1" = 20'  
 VERTICAL 1" = 2'

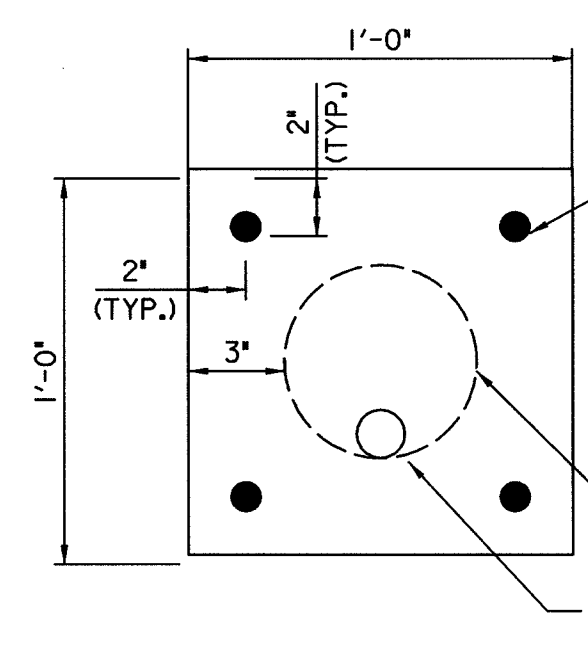


**EMERGENCE SPILLWAY PROFILE**  
 SCALE: HORIZONTAL 1" = 20'  
 VERTICAL 1" = 2'

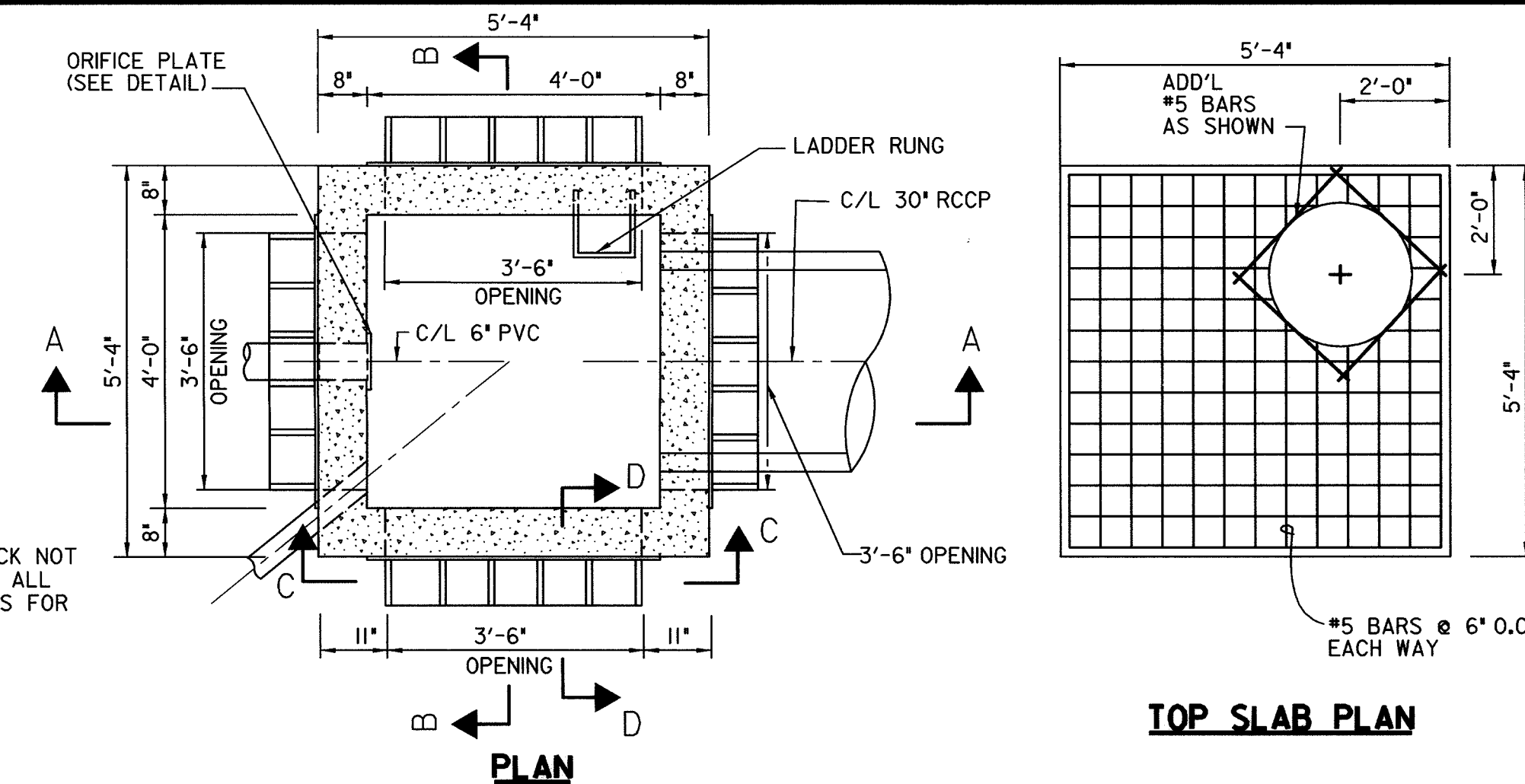


**CROSS SECTION OF DAM ALONG CENTER LINE**  
 SCALE: HORIZONTAL 1" = 20'  
 VERTICAL 1" = 2'

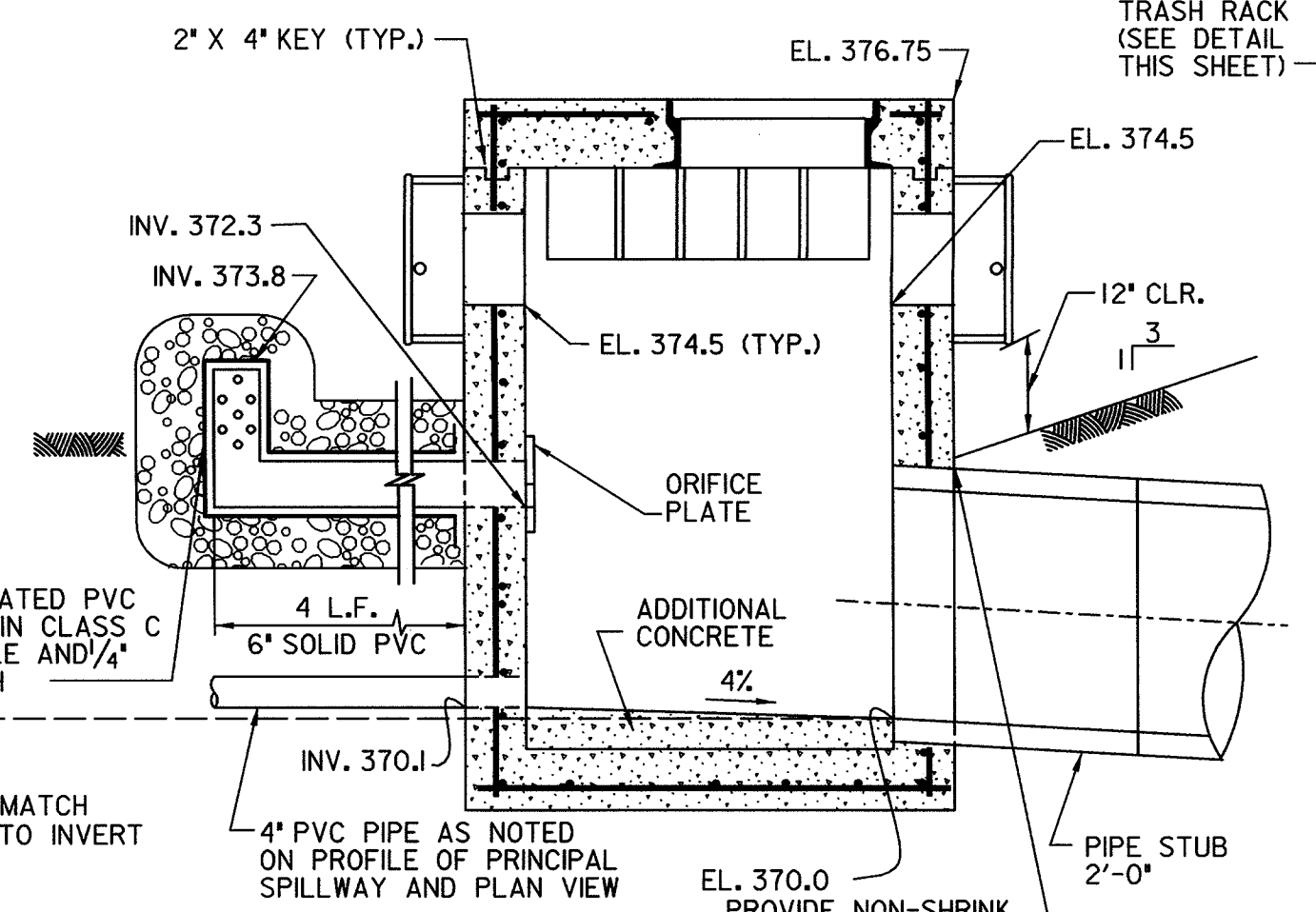
- GENERAL NOTES:**
- REFER TO STANDARD SD-3.9I FOR SIDEWALK FRAME AND COVER.
  - ALL REBAR TO HAVE 2" CONCRETE COVER MINIMUM.
  - CONCRETE SHALL BE MIX NO. 2 (3000 PSI) FOR CAST-IN-PLACE UNIT OR MIX NO. 6 (4500 PSI) FOR PRECAST UNIT.
  - REINFORCEMENT SHALL CONFORM TO ASTM A-615, GRADE 60, AND ALL EXPOSED REBAR SHALL BE GALVANIZED PER ASTM A 153 (AASHTO M 232).
  - ALL REINFORCING BARS ARE #5 @ 6" O.C. E. W. SHOWN UNLESS NOTED OTHERWISE.
  - LADDER RUNGS SHALL BE INSTALLED IN VERTICAL ALIGNMENT AT 1'-4" MAX. VERTICAL SPACING. RUNG TYPES SHALL BE IN ACCORDANCE WITH STANDARD MD 383.92 AND SHALL BE INCIDENTAL TO THE COST OF THE RISER STRUCTURE.
  - 6-INCH OF NO. 57 STONE UNDER THE OUTLET STRUCTURE SHALL BE PROVIDED.



**ORIFICE PLATE**  
 SCALE: 2" = 1'-0"

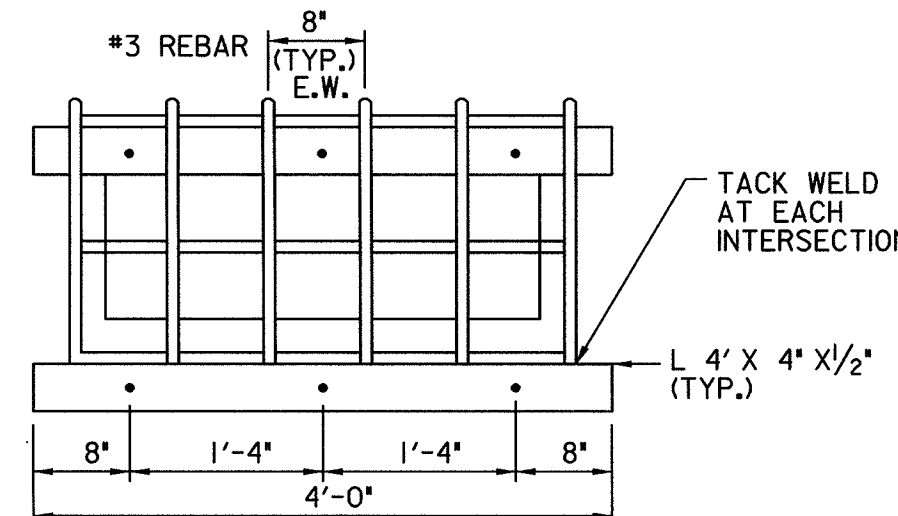


**TOP SLAB PLAN**



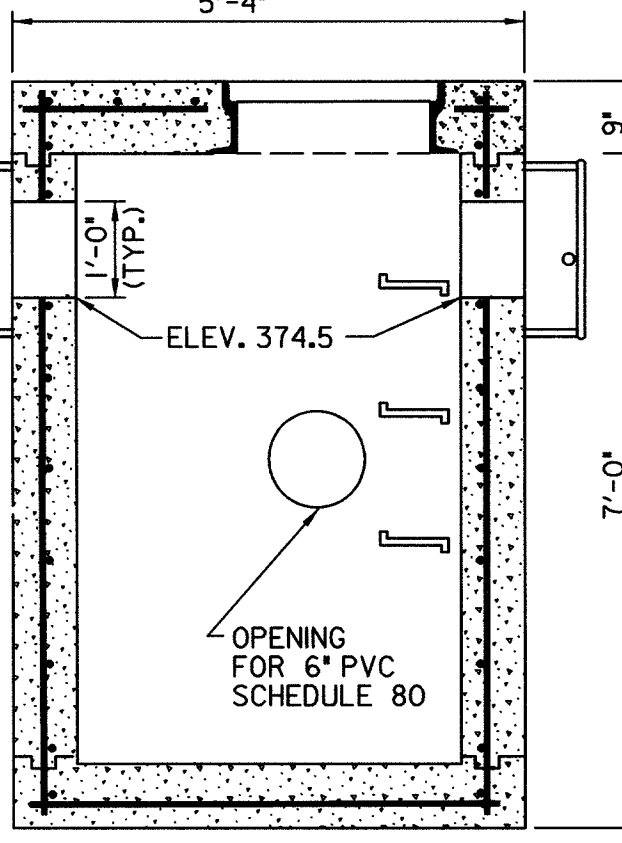
**SECTION A-A**

**RISER STRUCTURE**  
 SCALE: 1/2" = 1'-0"



**SECTION C-C**  
 NOT TO SCALE

**SECTION B-B**



**SECTION D-D**  
 NOT TO SCALE

- NOTES:**
- CONTRACTOR SHALL FIELD MEASURE THE STRUCTURE DIMENSIONS FOR EXACT FITTING OF TRASH RACK.
  - ENTIRE RACK SHALL BE GALVANIZED AFTER FABRICATION.
  - STEPS SHALL BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATION G-5-21.
  - PAINT TRASH RACK BATTLESHIP GREY.

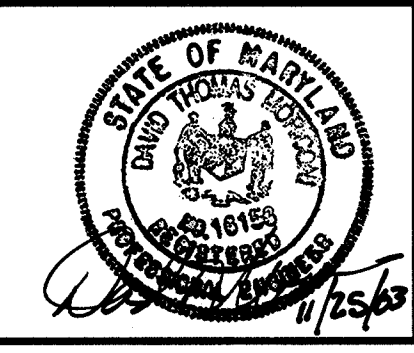
**NOTE:**  
 ORIGINAL GROUND FROM 1992. AS-BUILT DRAWINGS. EXISTING GROUND FROM NOV. 2000 SURVEY BY URS CORPORATION

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division  
 Chief, Division of Land Development  
 Director

APPROVED: DEPARTMENT OF RECREATION AND PARKS  
 Director

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 Director of Public Works  
 Chief, Stormwater Management Division

PREPARED BY  
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 4 NORTH PARK DRIVE  
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 TEL: (410) 785-7220

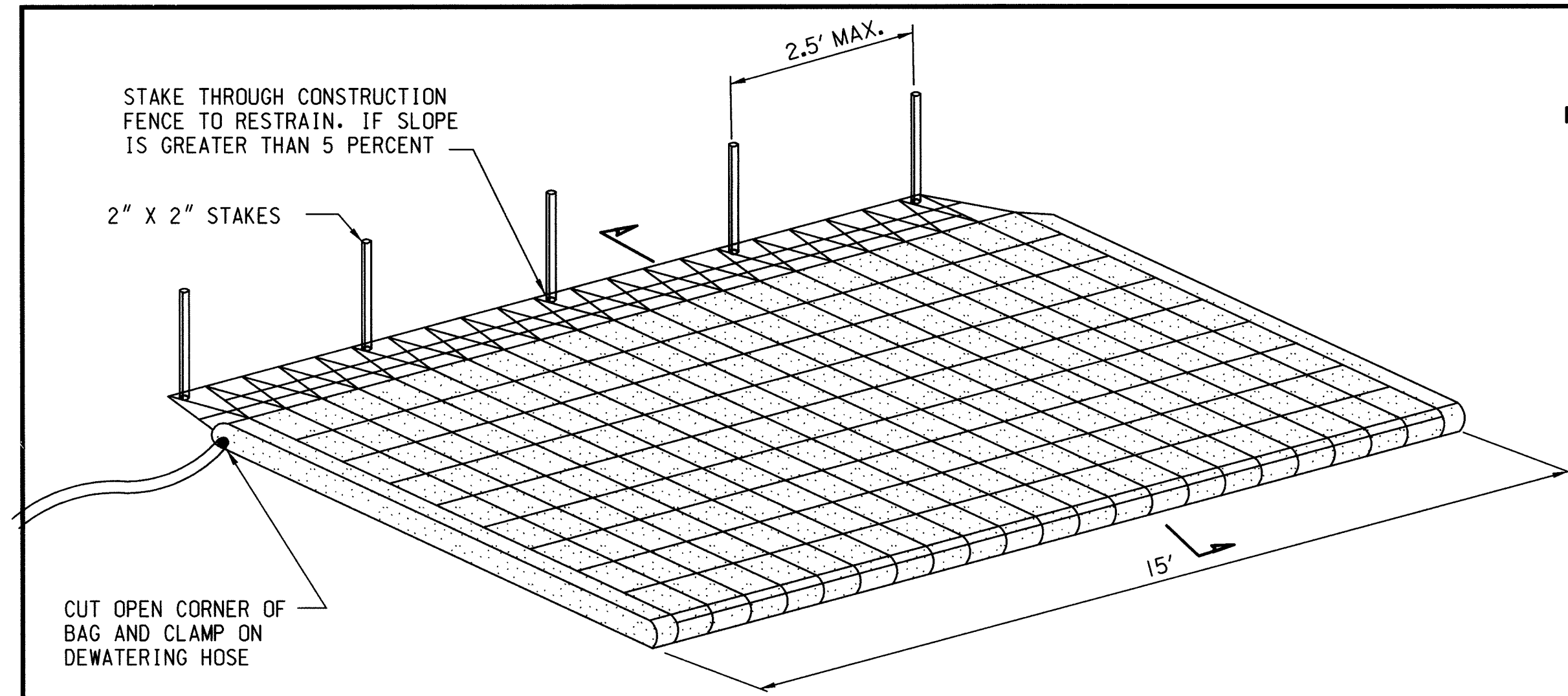


DES:	WLM
DRN:	SYC/EGB
CHK:	DTM
DATE:	8-01-03
BY:	NO.
REVISION:	
DATE:	

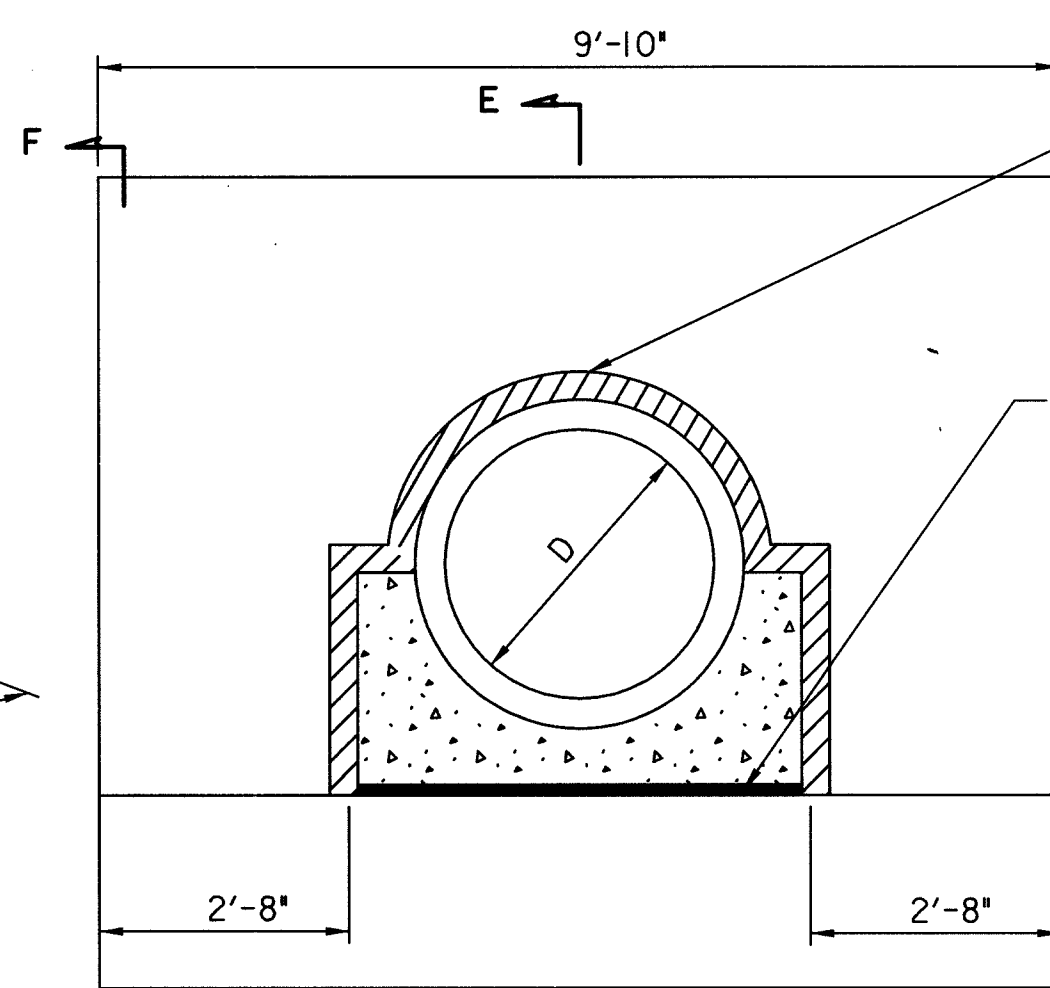
**STORMWATER MANAGEMENT POND AND DETAILS**  
 SCALE MAP NO. N/A BLOCK NO.

**STORMWATER MANAGEMENT RETROFIT AT ROCKBURN TOWNSHIP - OPEN SPACE LOT 200 CAPITAL PROJECT NO. D-1106**  
 1ST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
 TAX MAP NO. 31/37, GRID NO. 21/3, PARCEL NO. 793

SCALE AS SHOWN  
 SHEET 3 OF 8



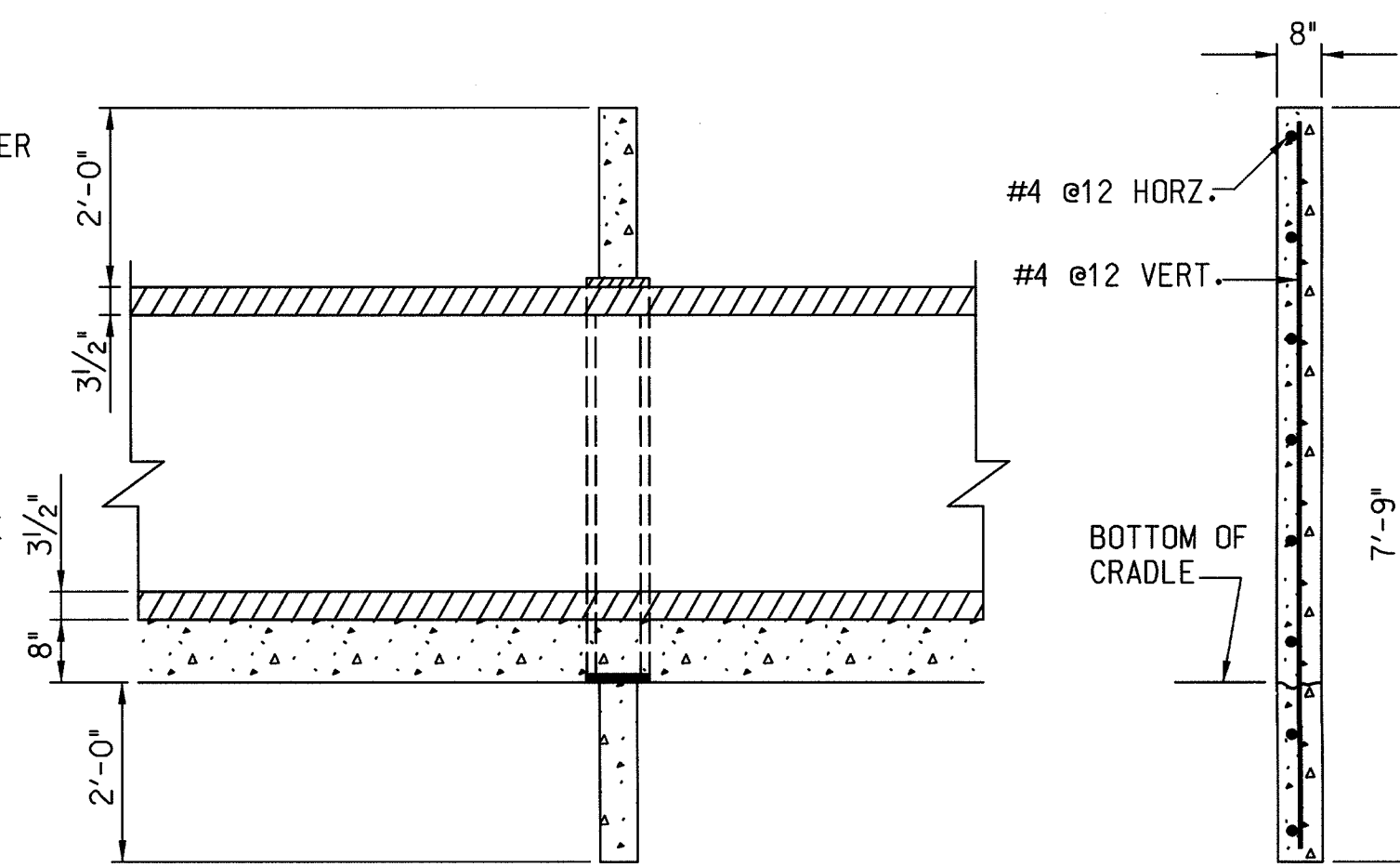
ISOMETRIC VIEW



PLAN VIEW

ASPHALT JOINT FILLER MATERIAL SHALL BE PLACED BETWEEN ALL CONCRETE SURFACES EXCEPT BETWEEN THE PIPE AND CRADLE

ONE LAYER OF HEAVY, SMOOTH SURFACE, ASPHALT TREATED, ROOFING FELT, APPROX. WT. 55 LBS. PER SQUARE FINISH COLLAR SURFACE TRUE AND SMOOTH, SEE A2 CONCRETE CRADLE DETAIL (SAME PAGE)



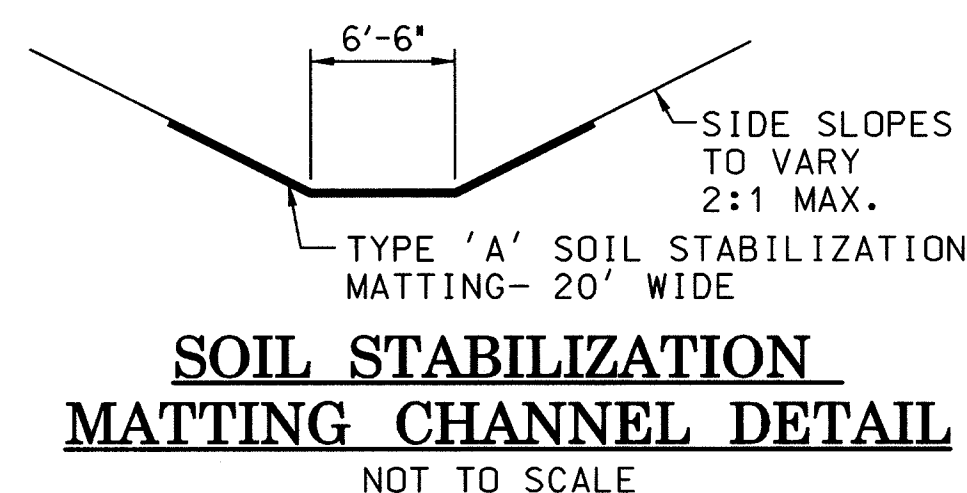
SECTION E-E

SECTION F-F (SHOWING STEEL)

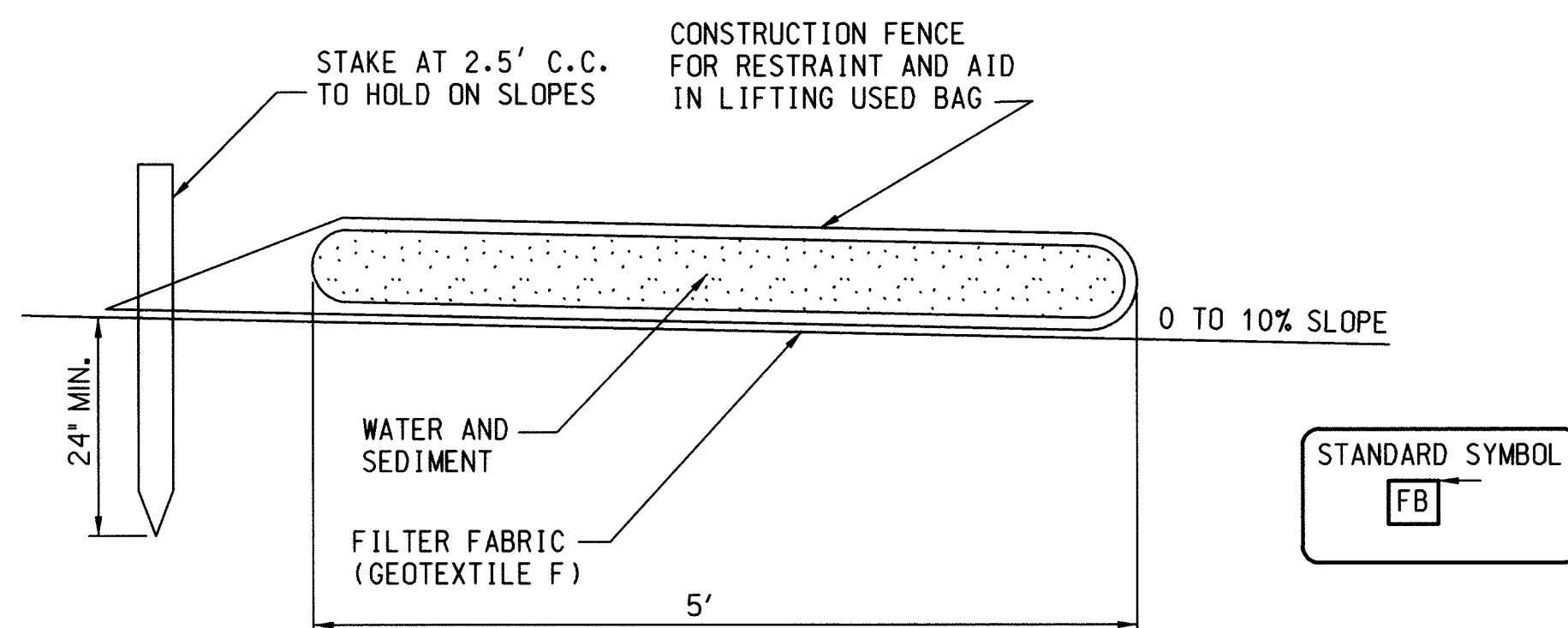
SCS TR-46  
A2 CONCRETE CRADLE DETAIL  
NOT TO SCALE

DETAIL SHOWN FOR EARTH FOUNDATION. FOR ROCK FOUNDATION, FOUND BOTTOM OF CRADLE ON ROCK LINE AND KEY COLLAR 6" INTO ROCK

DETAIL OF ANTI-SEEP COLLAR  
ALTERNATE FOR CLASS(a) DAMS LESS THAN 50 F.T. HIGH  
NOT TO SCALE



SOIL STABILIZATION  
MATTING CHANNEL DETAIL  
NOT TO SCALE



SECTION

NOTES:

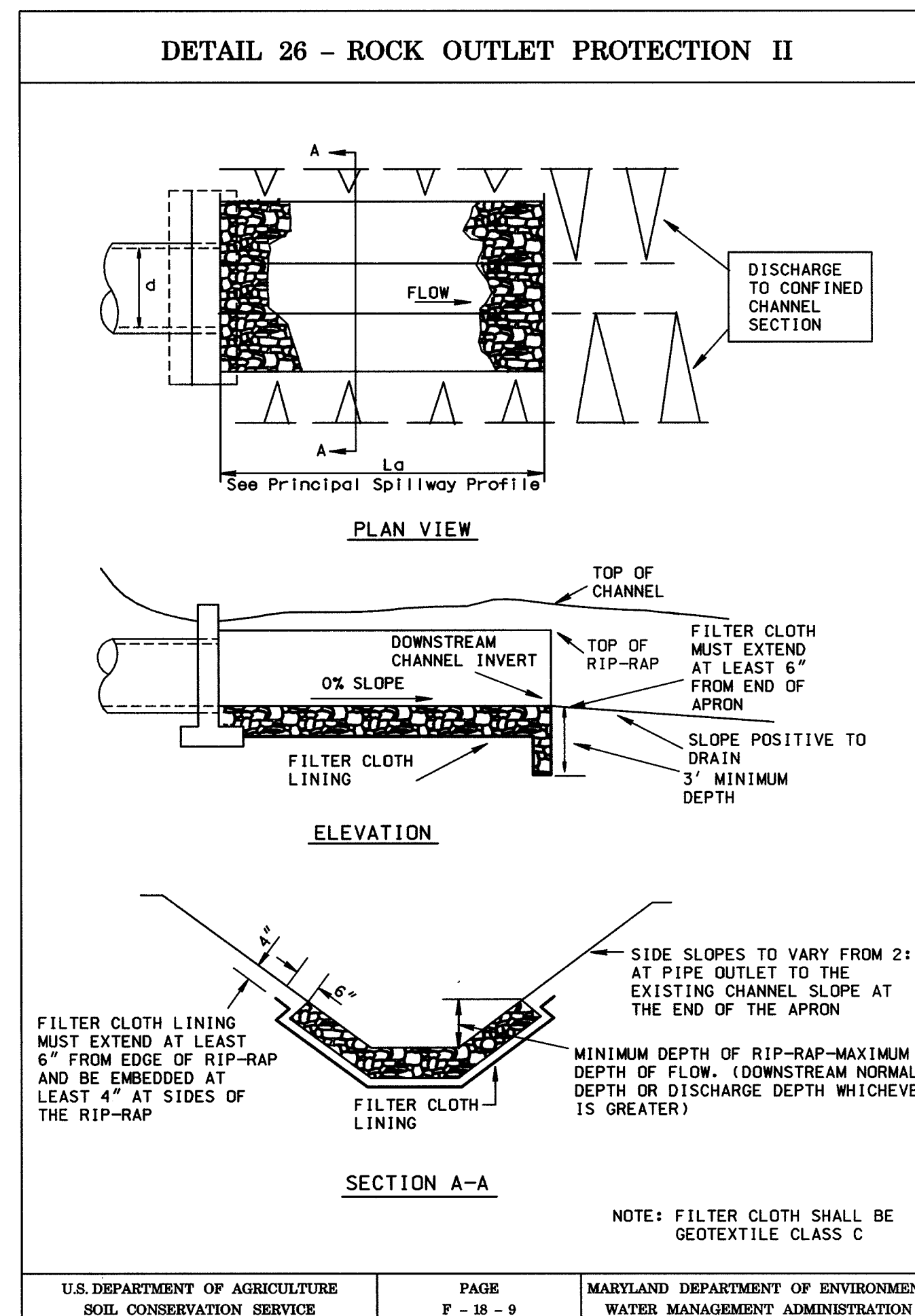
1. FILTER BAG SHALL BE PLACED ON A SLOPING OR LEVEL, WELL GRADED VEGETATED SITE SUCH THAT WATER WILL FLOW AWAY FROM DEVICE AND ANY WORK AREAS.
2. WIDTH AND LENGTH SHALL BE AS SHOWN.
3. THE FILTER BAG MUST BE STAKED IN PLACE AND SECURED TO THE PUMP DISCHARGE LINE.
4. FILTER BAG SHALL NOT BE USED FOR DISCHARGE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

Tensile Strength	50 lb / in (min)	Test : MSMT 509
Tensile Modulus	20 lb / in (min)	Test : MSMT 509
Flow Rate	0.3 gal ft <sup>2</sup> / minute (max.)	Test : MSMT 322
Filtering Efficiency	75% (min)	Test : MSMT 322

FILTER BAG



(TEMPORARY EROSION CONTROL MEASURE)  
NOT TO SCALE



DETAIL 26 - ROCK OUTLET PROTECTION II

PLAN VIEW

ELEVATION

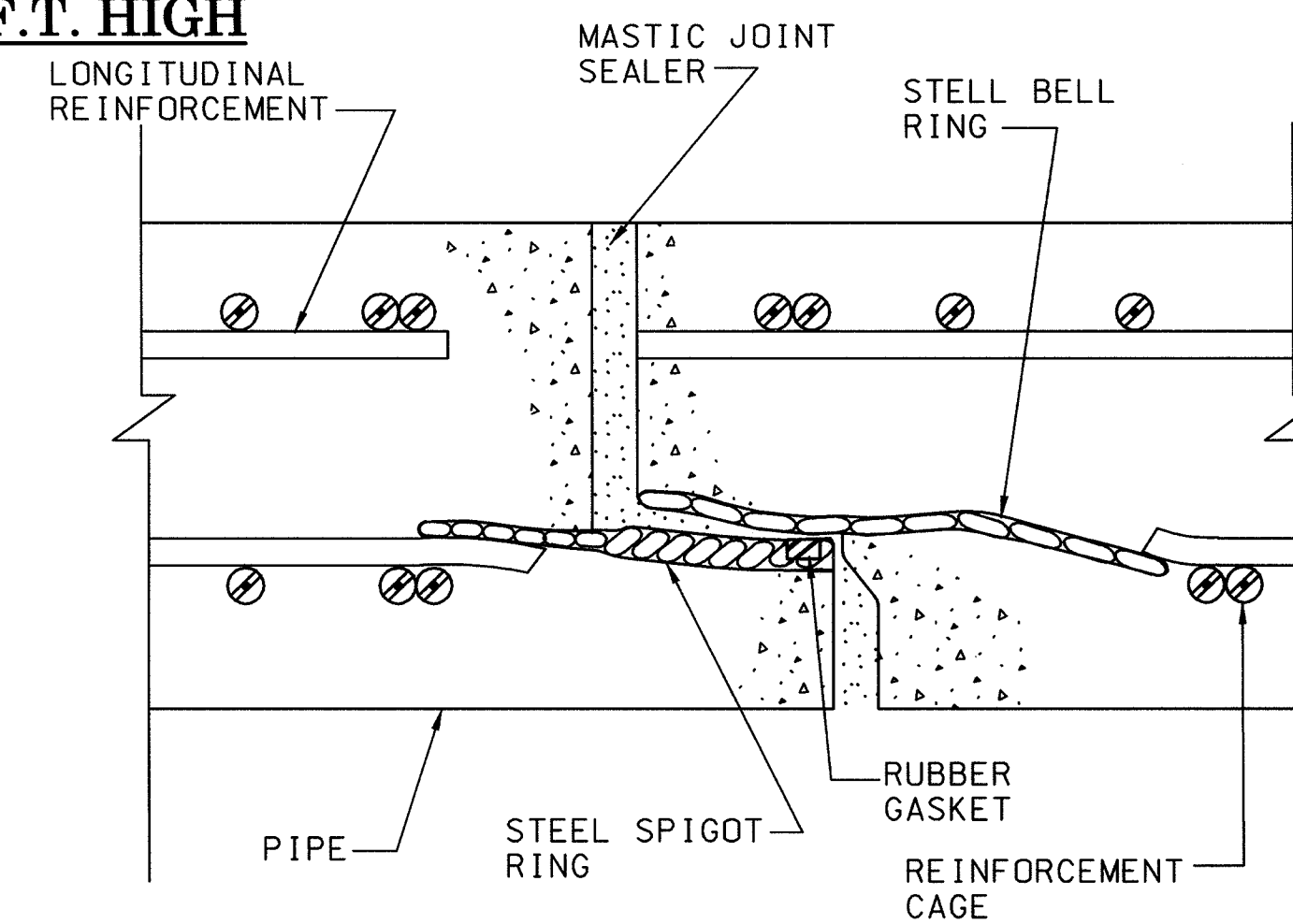
SECTION A-A

**ROCK OUTLET PROTECTION II**

Construction Specifications

1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
3. Geotextile shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.
5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F - 18 - 9A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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ASTM DESIGNATION C361  
(Diameters 12 thru 168 inch  
pressures to 125 feet of head)  
NOT TO SCALE

AS-BUILT CERTIFICATION

I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plan and meets the approved plans and specifications.

Signature: \_\_\_\_\_ PE NO. \_\_\_\_\_  
DATE: \_\_\_\_\_

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 that 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 12/8/03  
DEVELOPER 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 as 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."

DAVID T. MORIWSKI 12/25/2003  
Signature of Engineer (Print name below signature) DATE

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

Jim M... 12/23/03  
USDA - Natural Resources Conservation Service DATE

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

Howard Soil Conservation District 12/23/03  
DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: \_\_\_\_\_ Date: 12/24/03

Chief, Division of Land Development: \_\_\_\_\_ Date: 12/30/03

Director: \_\_\_\_\_ Date: 12/21/03

APPROVED: DEPARTMENT OF RECREATION AND PARKS

Director: \_\_\_\_\_ Date: 12-7-03

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

Director of Public Works: \_\_\_\_\_ Date: 12/19/03

Chief, Stormwater Management Division: \_\_\_\_\_ Date: 12/18/03

Chief, Bureau of Environmental Services: \_\_\_\_\_ Date: 12-9-03

Chief, Bureau of Highways: \_\_\_\_\_ Date: \_\_\_\_\_

PREPARED BY

URS  
4 NORTH PARK DRIVE  
HUNT VALLEY, MARYLAND  
TEL: (410) 785-7220

State of Maryland Seal

DES: WLM	BY NO.	REVISION	DATE
DRN: SYC/EGB			
CHK: DTM			
DATE: 8-01-03			

STORMWATER MANAGEMENT  
NOTES AND DETAILS

SCALE MAP NO. N/A BLOCK NO. \_\_\_\_\_

STORMWATER MANAGEMENT RETROFIT AT  
ROCKBURN TOWNSHIP - OPEN SPACE LOT 200  
CAPITAL PROJECT NO. D-1106

1ST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
TAX MAP NO. 31/37, GRID NO. 21/3, PARCEL NO. 793

SCALE AS SHOWN  
SHEET 4 OF 8

PERMANENT SEEDING NOTES

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

SEEDBED PREPARATION: LOOSEN UPPER 3 INCHES OF SOIL BY RAKING, DISCING, OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

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

- 1) PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS. PER 1,000 SQUARE FEET) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS. PER 1,000 SQUARE FEET) BEFORE SEEDING...

SEEDING: FOR THE PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS. PER ACRE...

- 1) 2 TONS PER ACRE OF WELL-ANCHORED MULCH STRAW AND SEED AS SOON AS POSSIBLE IN THE SPRING.

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1,000 SQUARE FEET) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING...

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

TEMPORARY SEEDING NOTES

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

SEEDBED PREPARATION: LOOSEN UPPER 3 INCHES OF SOIL BY RAKING, DISCING, OR OTHER ACCEPTABLE MEANS BEFORE SEEDING.

SOIL AMENDMENTS: APPLY 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS. PER 1,000 SQUARE FEET).

SEEDING: FOR PERIODS MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 1 THROUGH NOVEMBER 15...

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1,000 SQUARE FEET) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING...

MULCHING: APPLY 1 1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1,000 SQUARE FEET) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING...

SEQUENCE OF CONSTRUCTION

- 1. OBTAIN THE NECESSARY PERMITS PRIOR TO CONSTRUCTION. (1 DAY)
2. INSTALL TREE PROTECTION FENCE. (1 DAY)
3. INSTALL THE PERIMETER SEDIMENT CONTROL MEASURES INCLUDING SILT FENCE, SUPER SILT FENCE, EARTH DIKE, SUMP PIT, FILTER BAG AND STABILIZED CONSTRUCTION ENTRANCE...

NOTE: THE TIME LINE EXCLUDES WEATHER RELATED DELAYS.

STANDARD SEDIMENT CONTROL NOTES

- 1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS...
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 1994 MARYLAND STANDARDS AND SPECIFICATIONS...

- 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...

- 11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY...

- 12. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
13. SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.

- 14. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL...

- 15. CONSTRUCTION WITHIN, ALONG OR ACROSS STREAM CHANNELS SHALL, AS A MINIMUM, CONFORM TO CRITERIA DESCRIBED UNDER MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION.

SOIL STABILIZATION MATTING

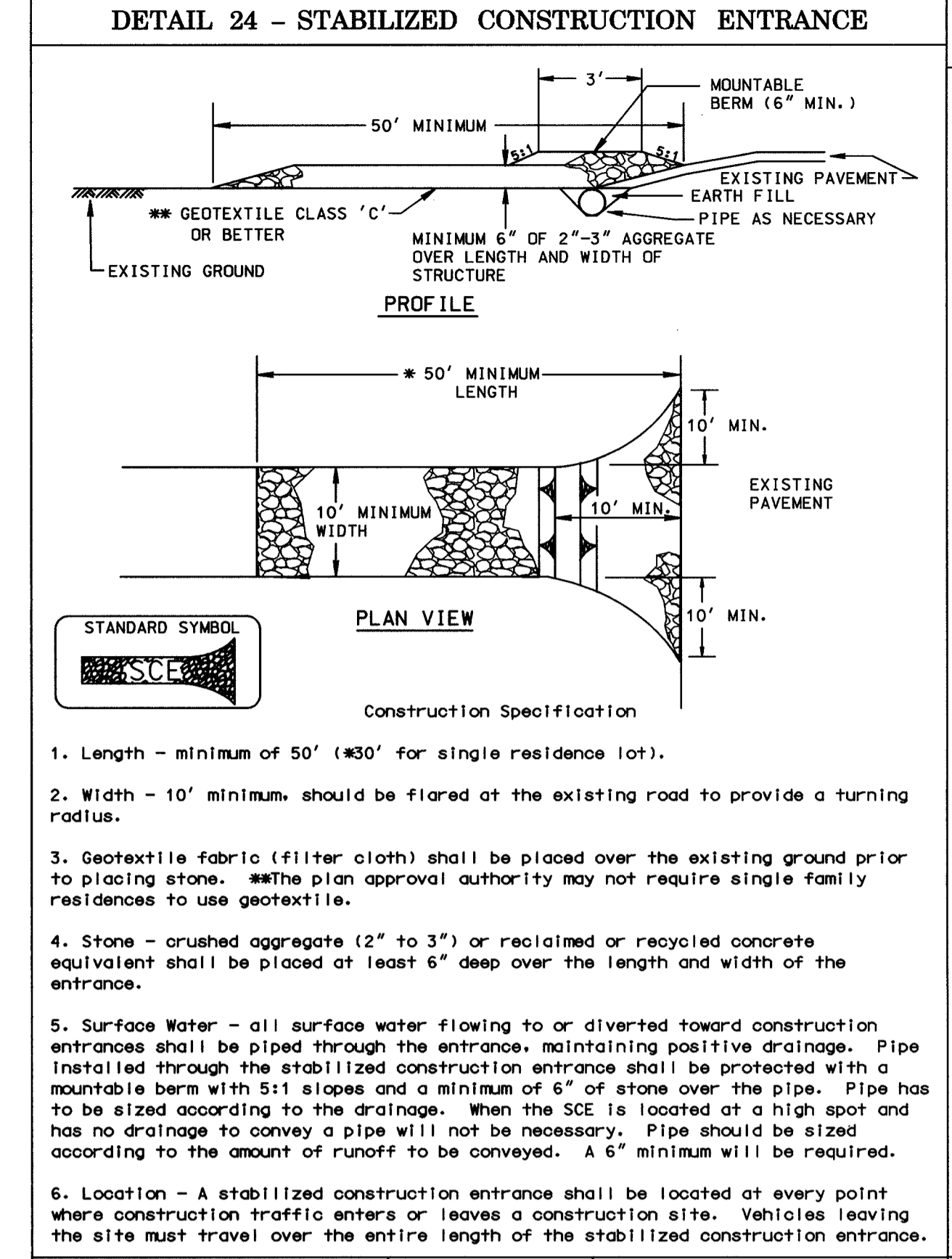
Construction Specifications

- 1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section.
2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.

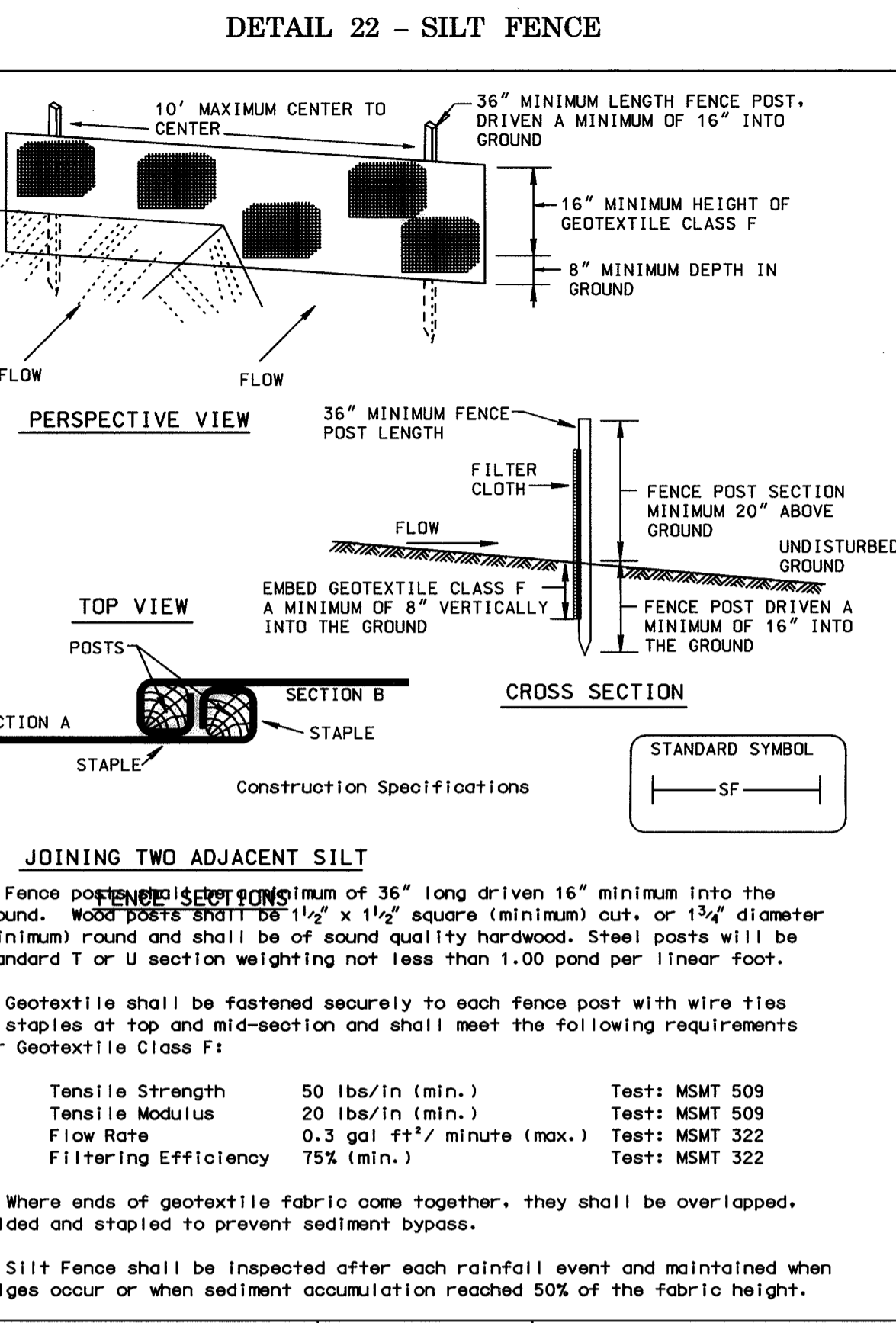
Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

Table with 2 columns: U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

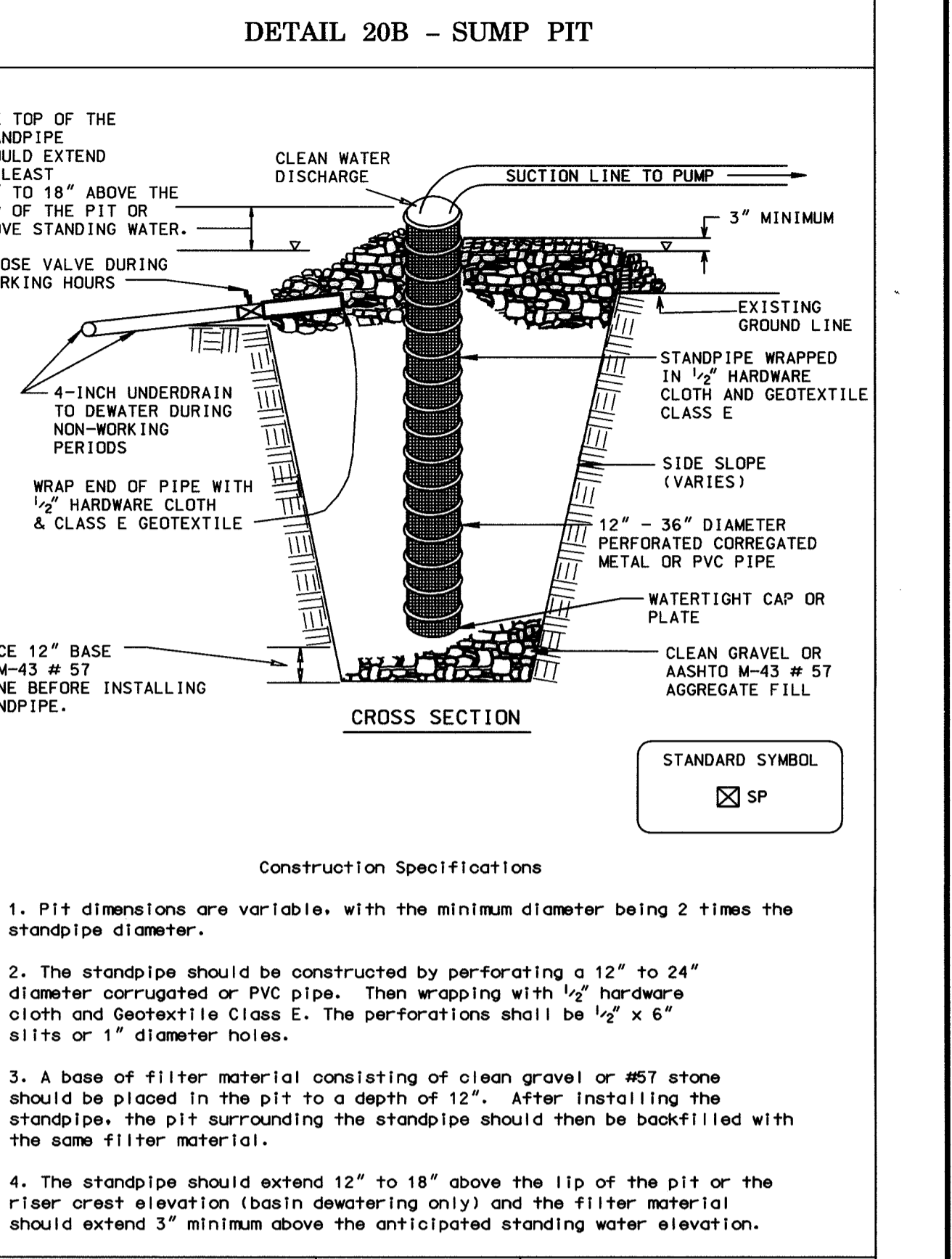
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



DETAIL 22 - SILT FENCE



DETAIL 20B - SUMP PIT



APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division
Katherine L. Smith
12/24/03

APPROVED: DEPARTMENT OF RECREATION AND PARKS
Gary J. Cochran
12-9-03

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works
Howard E. Sattyma
12/16/03

PREPARED BY URS
4 NORTH PARK DRIVE
HUNT VALLEY, MARYLAND
TEL: (410) 785-7220

APPROVED: MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE
PAGE G-22-2

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE
PAGE A-1-6

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

AS-BUILT CERTIFICATION
I hereby certify that the facility shown on this plan was constructed as shown on the "as-built" plan and meets the approved plans and specifications.

DEVELOPER'S CERTIFICATE
I/We Certify that all development and construction will be done according to this plan for sediment and erosion control...

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...

USDA - Natural Resources Conservation Service
12/23/03

STORMWATER MANAGEMENT RETROFIT AT ROCKBURN TOWNSHIP - OPEN SPACE LOT 200 CAPITAL PROJECT NO. D-1106



WET AREA SEED MIX (WAM)					
SEED VARIETY	PERCENTAGE OF SEED	MINIMUM PURITY	GERMINATION RATE	MAXIMUM % WEED	RATE LBS./1,000 SF
AGROSTIS ALBA - RED TOP	20%	98%	90%	.15%	2.0
AGROSTIS STOLONIFERA - CREEPING BENT GRASS	20%	98%	90%	.15%	2.0
POA PALUSTRIS - FOWL BLUEGRASS	20%	98%	90%	.15%	2.0
ELYMUS RIPARIUS - RIVERBANK WILD RYE	20%	98%	90%	.15%	2.0
PUCCINELLIA DISTANS - ALKALIGRASS	20%	98%	90%	.15%	2.0
TOTAL					10.0 LBS

NATIVE GRASS SEED MIX (NGM)					
SEED VARIETY	PERCENTAGE OF SEED	MINIMUM PURITY	GERMINATION RATE	MAXIMUM % WEED	RATE LBS./1,000 SF
TRIPSACUM DACTYLOIDES - EASTERN GAMMAGRASS	20%	98%	90%	.15%	2.2
ELYMUS CANDENSIS - CANADA WILD RYE	12%	98%	90%	.15%	1.1
ANDROPOGON GERARDII - BIG BLUESTEM	10%	98%	90%	.15%	1.1
ANDROPOGON SCOPARIUS - LITTLE BLUESTEM	10%	98%	90%	.15%	1.1
CHAMAECRISTA FASCICULATA - PARTRIDGE PEA	10%	98%	90%	.15%	1.1
PANICUM VIRGATUM - SWITCHGRASS	10%	98%	90%	.15%	1.1
POA PALUSTRIS - FOWL BLUEGRASS	10%	98%	90%	.15%	1.1
SORGHASTRUM NUTANS - INDIANGRASS	10%	98%	90%	.15%	1.1
COREOPSIS TINCTORIA - COREOPSIS	8%	98%	90%	.15%	0.9
TOTAL					10.8 LBS

MASTER PLANT SCHEDULE							
KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	REMARKS
AR	9	ALNUS RUGOSA	SPECKLED ALDER	6' HT.	B&B	10' O.C.	
BN	6	BETULA NIGRA	RIVER BIRCH	8' HT.	B&B	14' O.C.	
BB	29	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	36" HT.	CONT.	9' O.C.	
CA	16	CLETHRA ALNIFOLIA	CLETHRA	24" HT.	CONT.	9' O.C.	
MV	3	MAGNOLIA VIRGINIANA	SWEETBAY	6' HT.	B&B		
PS	12	PINUS STROBUS	WHITE PINE	6' HT.	B&B	RANDOM	20' TO 35' O.C.
QP	5	QUERCUS PHELLOS	WILLOW OAK	2-1/2" CAL.	B&B	40' O.C.	
WAM	10,242 SF	WET AREA SEED MIX					
NGM	19,870 SF	NATIVE GRASS SEED MIX					

CAL. INDICATES CALIPER IN INCHES FOR SHADE TREES.  
 HT. INDICATES HEIGHT IN FEET.  
 B&B INDICATES PLANT MATERIAL SUPPLIED BALLED AND BURLAPPED.  
 O.C. INDICATES ON CENTER SPACING

SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING	
Linear Feet of Perimeter (LF)	776
Linear Feet of Existing Vegetation (LF)	302
Net Linear Feet of Perimeter (LF)	474
Number of Trees Required	
Shade Trees (1 per 50 LF)	10
Evergreen Trees (1 per 40 LF)	12
Credit for Existing Vegetation (No, Yes and %)	Yes 39%
Credit for Existing Landscaping (No, Yes and %)	No
Number of Trees Provided	
Shade Trees (1 per 50 LF)	5
Evergreen Trees (1 per 40 LF)	12
Other Trees (2:1 substitution)	18 (= 9 Shade Trees)
Shrubs (10:1 substitution)	45 (= 4.5 Shade Trees)

FINAL PLANTINGS OUTSIDE THE LIMIT OF DISTURBANCE SHALL BE PERFORMED AT THE COUNTY'S DISCRETION. PLANTINGS SHALL BE COORDINATED WITH THE DEPARTMENT OF RECREATION AND PARKS

I/We certify that the landscaping shown on this plan will be done according to the approved plan, Section 16.124 of the Howard County Code and the Landscape Manual. I/We further certify that upon completion a letter of installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

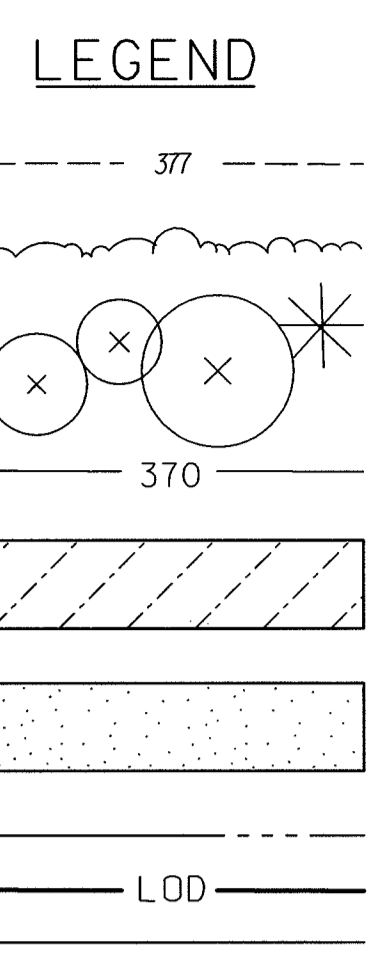
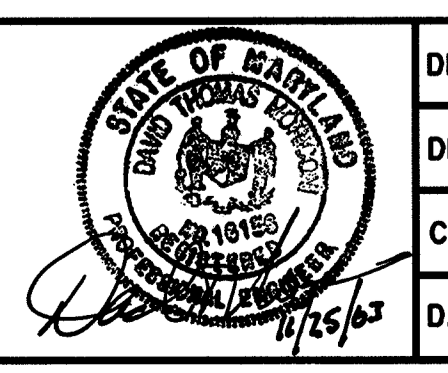
Howard E. Saltzman 12/10/03  
 Developer's Name Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division 4 12/24/03  
 Chief, Division of Land Development 12/30/03  
 Director 12/31/03

APPROVED: DEPARTMENT OF RECREATION AND PARKS  
 Director 12-7-03  
 Date

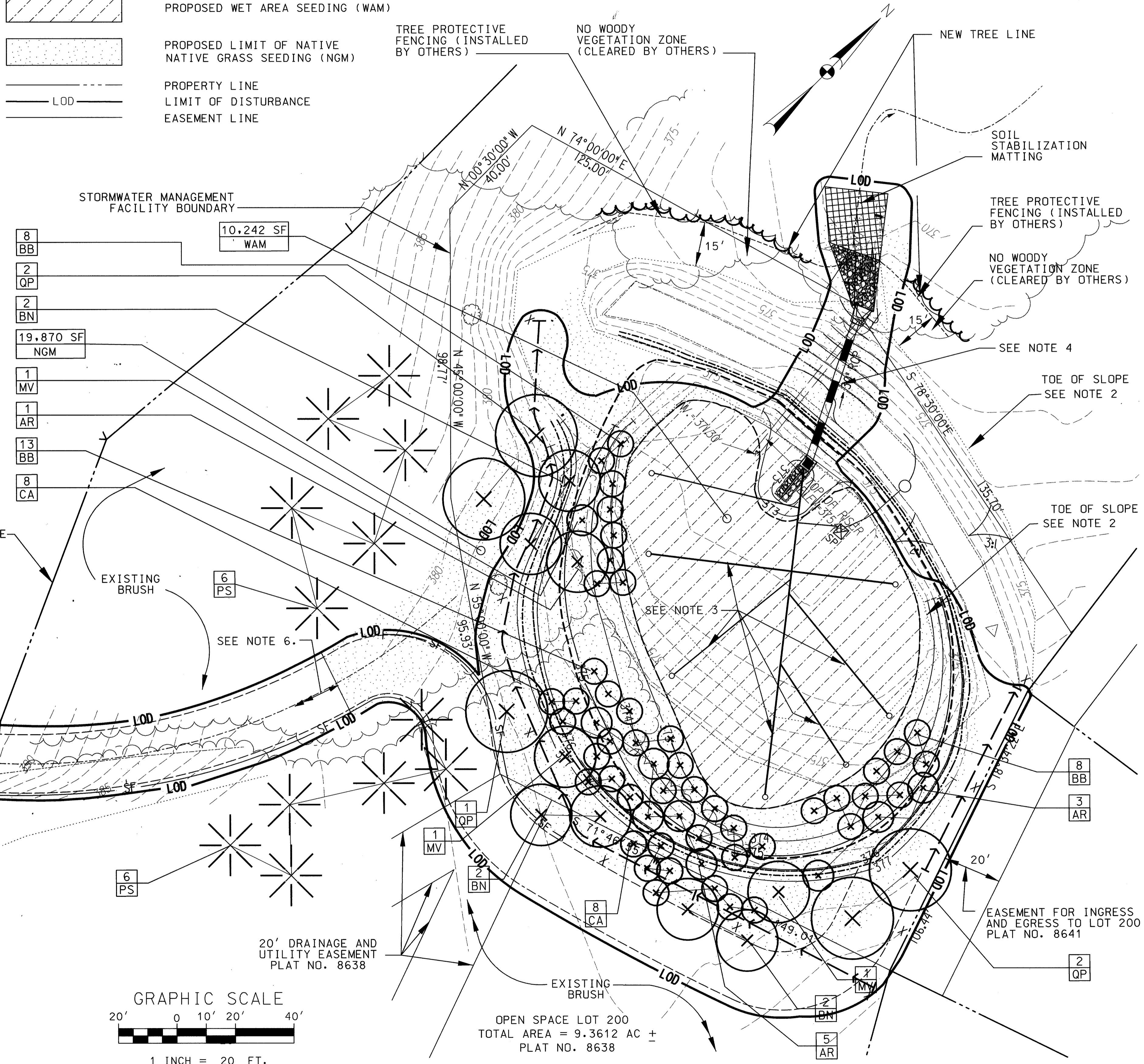
DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND  
 Director of Public Works 12/10/03  
 Chief, Stormwater Management Division 12/10/03

PREPARED BY  
 URS  
 4 NORTH PARK DRIVE  
 HUNT VALLEY, MARYLAND  
 TEL: (410) 785-7220  
 Chief, Bureau of Environmental Services 12/10/03  
 Chief, Bureau of Highways 12-9-03

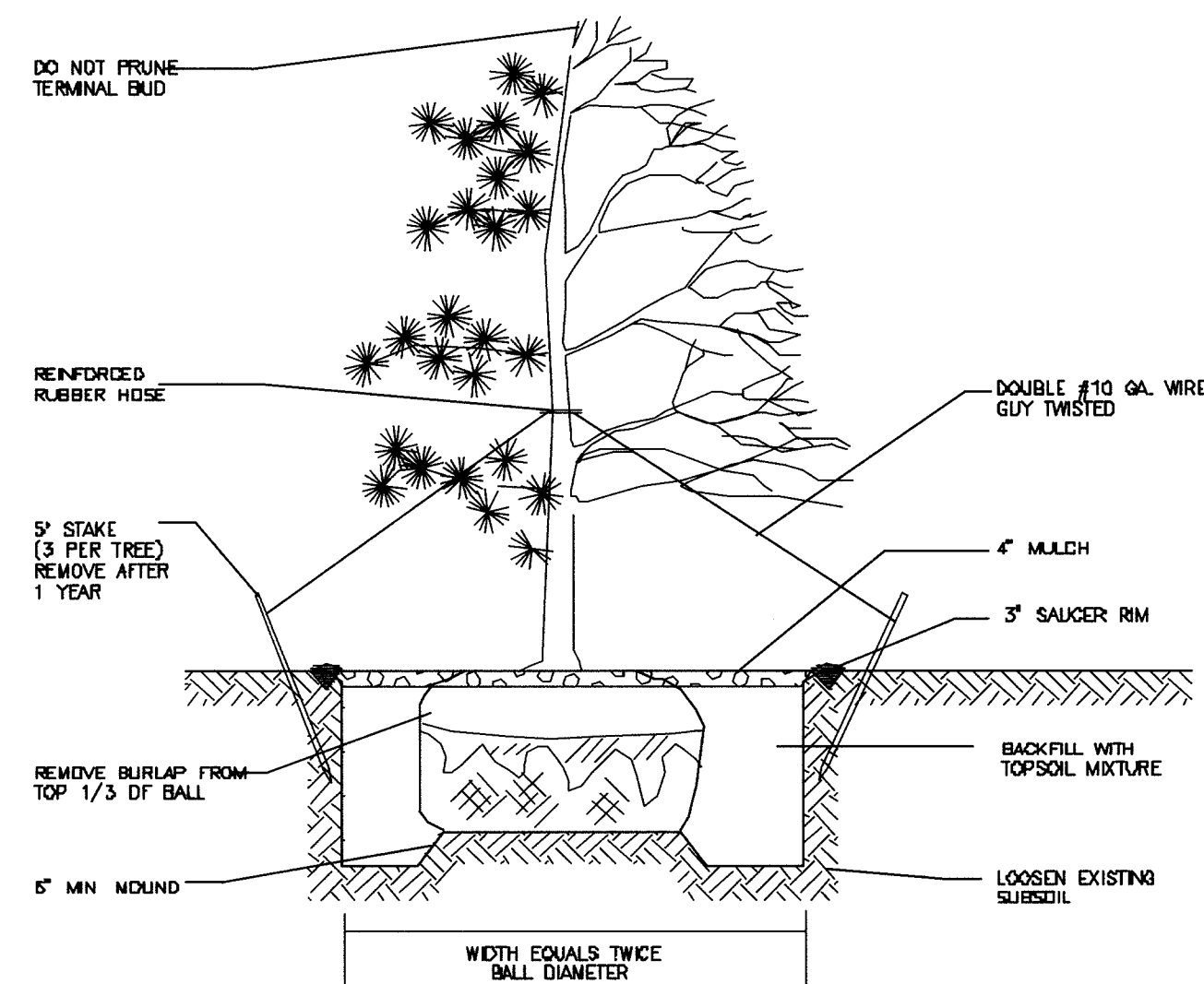


PLANTING NOTES

1. PLAN FOR LANDSCAPING PURPOSES ONLY.
2. PLANT TREES AND SHRUBS 15 FEET AWAY FROM THE TOE OF SLOPE OF A DAM.
3. PLANT TREES AND SHRUBS 25 FEET AWAY FROM 4" PERFORATED PVC PIPES.
4. PLANT TREES AND SHRUBS 25 FEET AWAY FROM PRINCIPAL SPILLWAY STRUCTURES.
5. NO FERTILIZER SHALL BE ADDED TO SEEDING AND SHRUB PLANTING AREAS.
6. AREAS DISTURBED BEYOND LIMITS OF DISTURBANCE OR SEEDING AREAS SHOWN SHALL BE SEEDDED WITH KENTUCKY 31 TALL FESCUE - SEE EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.
7. PLANT MATERIAL SHALL BE WARRANTED FOR ONE YEAR AFTER DATE OF ACCEPTANCE.



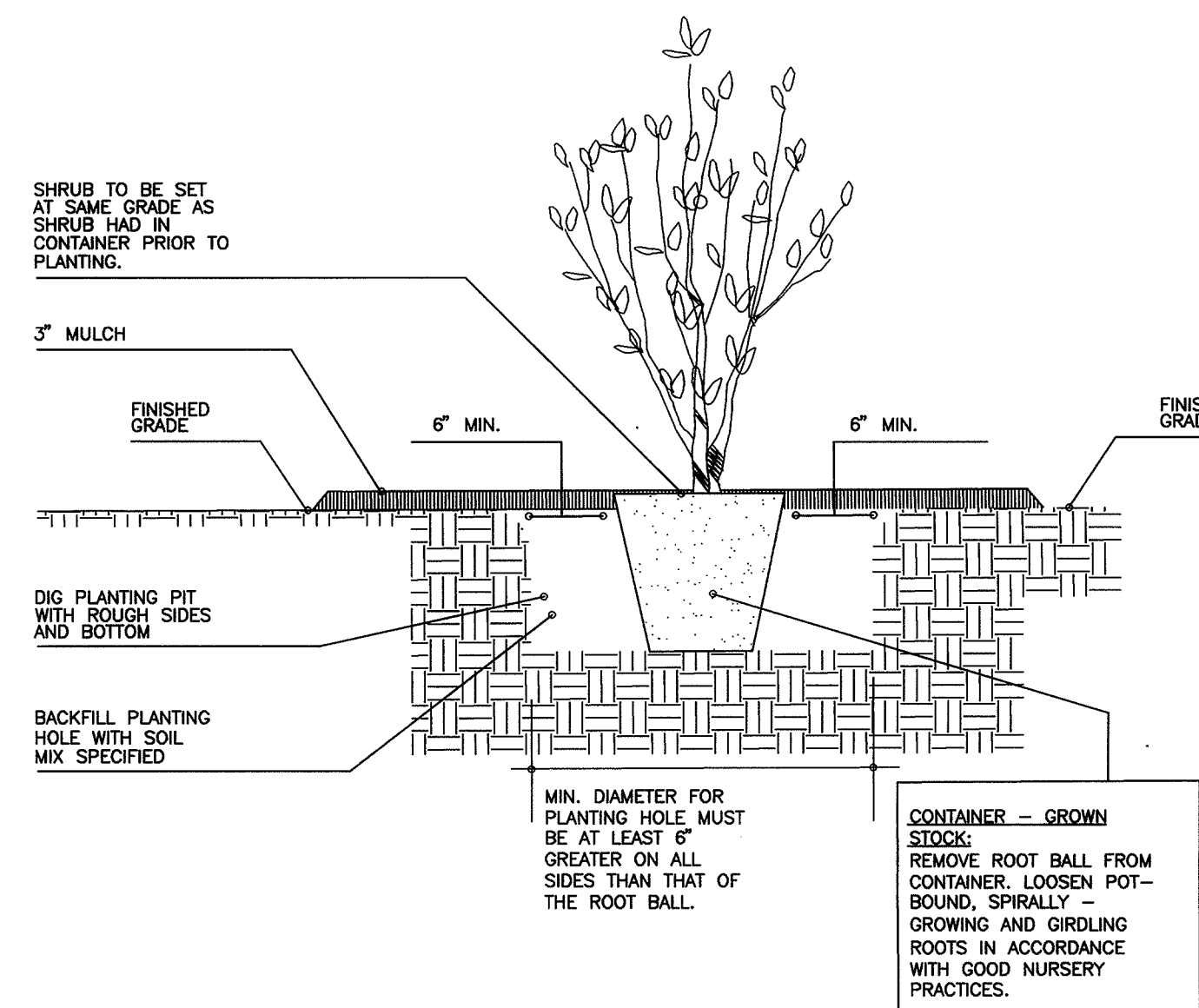
DES: WHS	DRN: WHS	CHK: RKK	DATE: 8-01-03	BY: NO.	REVISION	DATE	SCALE MAP NO. N/A BLOCK NO.	STORMWATER MANAGEMENT RETROFIT AT ROCKBURN TOWNSHIP - OPEN SPACE LOT 200 CAPITAL PROJECT NO. D-1106	SCALE 1"=20'
LANDSCAPE PLAN								1ST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND	SHEET 7 OF 8
TAX MAP NO. 31/37, GRID NO. 21/3, PARCEL NO. 793								SDP-02-157	



- NOTES
1. STAKES TO BE DRIVEN INTO UNDISTURBED SOIL
  2. PRUNE ALL BROKEN OR DAMAGED BRANCHES
  3. GROUND LINE TO BE THE SAME AS EXISTED AT NURSERY
  4. FOLLOW DETAIL ABOVE FOR SHRUB PLANTING NO STAKING NECESSARY
  5. MATERIALS WITH A FALL PLANTING HAZARD SHALL BE HANDLED ACCORDINGLY
  6. ALL PLANT MATERIAL SHALL CONFORM TO THE AMER. ASSOC OF NURSERMEN'S STANDARDS.

**EVERGREEN/DECIDUOUS TREE PLANTING DETAIL**

NOT TO SCALE



**SHRUB PLANTING DETAIL**

NOT TO SCALE

I/We certify that the landscaping shown on this plan will be done according to the approved plan, Section 16.124 of the Howard County Code and the Landscape Manual. I/We further certify that upon completion a letter of installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

*Howard E. Saltzman* 12/8/03  
Developer's Name Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

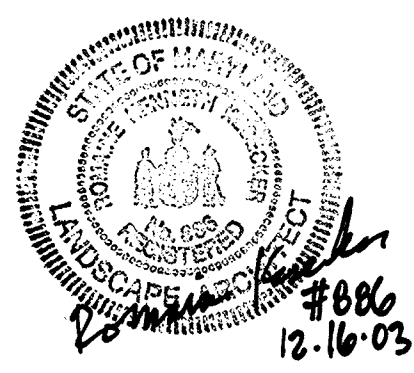
*[Signature]* 12/24/03  
Chief, Development Engineering Division Date

*[Signature]* 12/20/03  
Chief, Division of Land Development Date

*[Signature]* 12/11/03  
Director Date

APPROVED: DEPARTMENT OF RECREATION AND PARKS

*[Signature]* 12-9-03  
Director Date



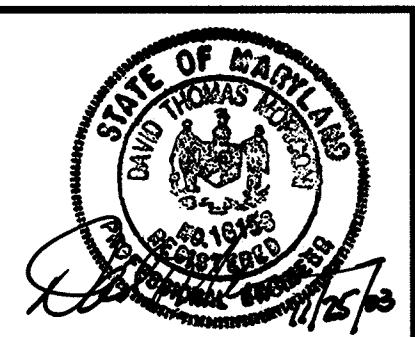
DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*[Signature]* 12/8/03  
DIRECTOR OF PUBLIC WORKS DATE

*[Signature]* 12/9/03  
CHIEF, BUREAU OF ENVIRONMENTAL SERVICES DATE

*[Signature]* 12/9/03  
CHIEF, BUREAU OF HIGHWAYS DATE

PREPARED BY  
**URS**  
4 NORTH PARK DRIVE  
HUNT VALLEY, MARYLAND  
TEL: (410) 785-7220



DES:	WHS				
DRN:	WHS				
CHK:	RKK				
DATE:	8-01-03	BY	NO.	REVISION	DATE

**LANDSCAPE DETAILS**

SCALE MAP NO. N/A BLOCK NO.

STORMWATER MANAGEMENT RETROFIT AT  
ROCKBURN TOWNSHIP - OPEN SPACE LOT 200  
CAPITAL PROJECT NO. D-1106

1ST ELECTION DISTRICT - HOWARD COUNTY, MARYLAND  
TAX MAP NO. 31/37, GRID NO. 21/3, PARCEL NO. 793

SCALE AS SHOWN

SHEET 8 OF 8