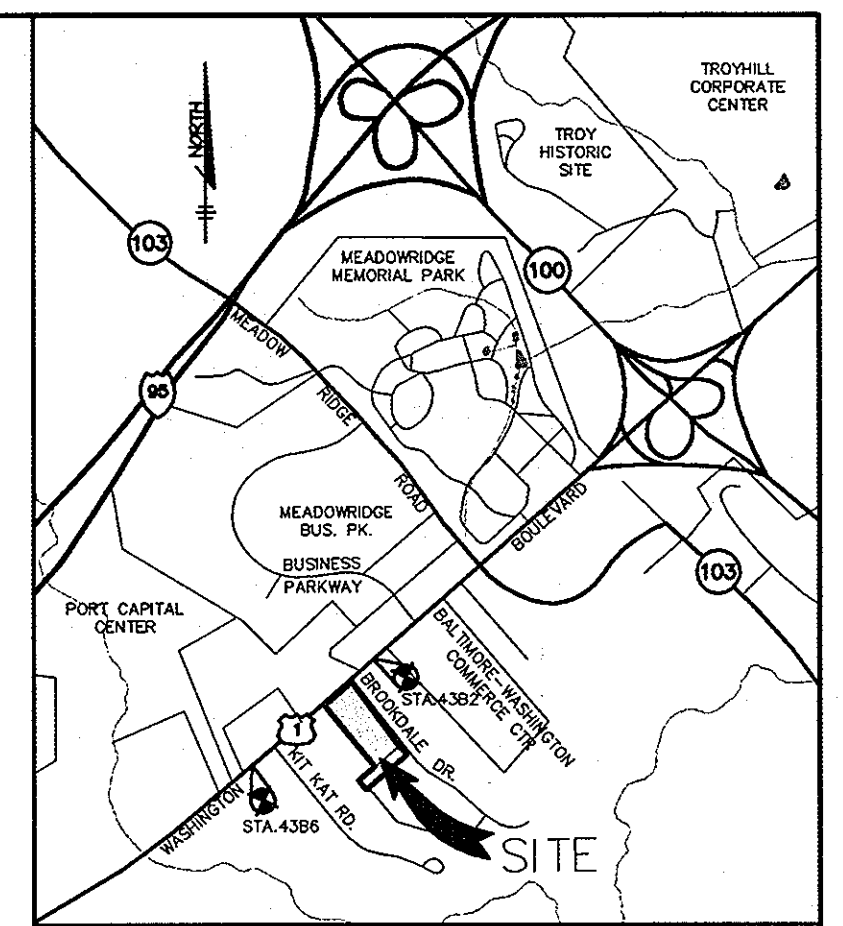


# SITE DEVELOPMENT PLAN CENTRAL TRANSPORT PHASE 2 PARKING EXPANSION 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND



VICINITY MAP  
SCALE: 1" = 2000'

### BENCHMARKS

- \* HOWARD COUNTY SURVEY CONTROL STATION: 4386  
N 550601.59 E 1376866.05  
ELEV. 210.61
- \* HOWARD COUNTY SURVEY CONTROL STATION: 4382  
N 551655.01 E 1378176.94  
ELEV. 209.67
- \* CONTROLS USED FOR AS-BUILT SURVEY

### SITE ANALYSIS

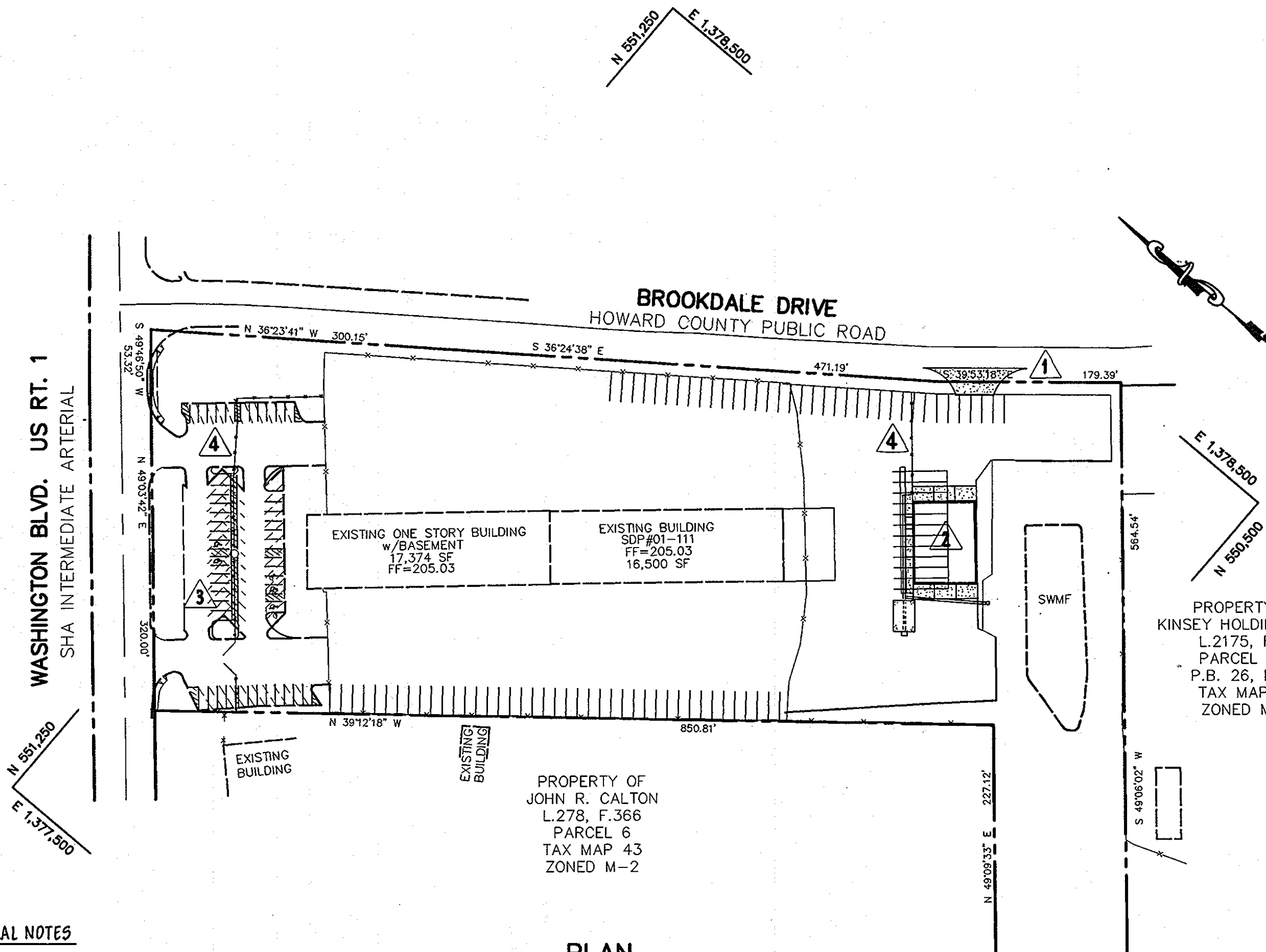
AREA OF PARCEL	8.3 ACRES 361,548 SF
DISTURBED AREA	2.6 ACRES 113,256 SF
PRESENT ZONING	M-2
PROPOSED USE	TRUCK TERMINAL
TOTAL BUILDING COVERAGE	33,874 SF (9.4% COVERAGE)
# OF EXISTING PARKING SPACES	54 (INCLUDING 3 HC)

THERE ARE NO ADDITIONAL PARKING SPACES REQUIRED FOR PHASE 2

SHEET INDEX	
No.	DESCRIPTION
1	TITLE SHEET
2	SITE DEVELOPMENT PLAN
3	GRADING, SEDIMENT CONTROL AND DRAINAGE AREA MAP
4	DETAIL SHEET
5	SEDIMENT CONTROL NOTES AND DETAILS
6	EXISTING SWM DRAINAGE AREA MAP
7	PROPOSED SWM DRAINAGE AREA MAP
8	PROFILES AND DETAILS
9	DETAILS
10	LANDSCAPE PLAN
11	LANDSCAPE DETAILS AND SCHEDULES
12	FOREST CONSERVATION PLAN
13	FOREST STAND DELINEATION
14	SITE GRADING PLAN DETAIL FOR PARKING LOT RECONFIGURATION
15	SITE GRADING PLAN DETAIL FOR PROPOSED BUILDING AND SITE ENTRANCE
16	STORM WATER MANAGEMENT CONSTRUCTION DETAILS
17	CONSTRUCTION SPECIFICATIONS, SEDIMENT CONTROL DETAILS, AND PERMANENT SEEDING SPECIFICATIONS

### GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. 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 THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR
4. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
6. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL SURVEY BY WINGS, INC AND FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY RIEMER MUEGGE A DIVISION OF PHR&A JAN. 2001.
7. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 4382 AND 4386 WERE USED FOR THIS PROJECT.
8. WATER IS PUBLIC. CONTRACT NO. 573 W&S
9. SEWER IS PUBLIC. SEWER DRAINAGE AREA: PATAPSCO CONTRACT NO. 579-S
10. STORMWATER MANAGEMENT FOR THIS SITE IS PROVIDED BY PRIVATE GRASS CHANNELS AND A PRIVATELY OWNED AND MAINTAINED POCKET POND.
11. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL AVAILABLE 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. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
12. THIS PROJECT IMPACTS NO 100-YEAR FLOODPLAIN.
13. THIS PROJECT IMPACTS NO WETLANDS.
14. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP INC. DATED FEBRUARY, 2001, AND APPROVED UNDER SDP-01-111.
15. NO NOISE STUDY IS REQUIRED.
16. THE GEOTECHNICAL STUDY FOR STORMWATER MANAGEMENT WAS PREPARED BY HILLIS CARNES ENGINEERING ASSOCIATES, INC. DATED APRIL 2001.
17. THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY RIEMER MUEGGE A DIVISION OF PHR&A. DATED FEBRUARY, 2000.
18. SUBJECT PROPERTY ZONED M-2 PER 10-18-93 COMPREHENSIVE ZONING PLAN.
19. ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
20. SEE DEPARTMENT OF PLANNING AND ZONING FILE NO. SDP-01-111, WP-02-117.
21. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
22. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
23. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
24. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
25. ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
26. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
27. STORM DRAIN TRENCHES WITHIN ROAD RIGHT OF WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, I.E., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, LATEST AMENDMENTS.
28. PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
29. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T180.
30. THERE ARE NO CEMETARIES ON THE SUBJECT PROPERTY.
31. ALL LIGHTING TO BE DIRECTED/REFLECTED AWAY FROM ADJACENT PUBLIC ROADS AND RESIDENTIALLY ZONED PROPERTIES, AND BE IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
32. THE FOREST CONSERVATION OBLIGATION FOR THE PROPOSED SITE DEVELOPMENT PLAN HAS BEEN MET BY PLACING 0.27 ACRES OF FOREST IN FOREST RETENTION EASEMENT AND PAYING A FEE-IN-LIEU OF \$53,578.80 FOR THE REMAINING 2.46 ACRE OBLIGATION. THE PLAT OF FOREST CONSERVATION EASEMENT IS RECORDED IN *pat no. 16294*.
33. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE REQUIRED WETLANDS, STREAMS OR THEIR BUFFERS AND FOREST CONSERVATION EASEMENT AREAS.
34. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$16,400 FOR 10 SHADE TREES, 11 EVERGREEN TREES, 1115 LINEAR FEET OF FENCE, AND 20 SHRUBS.
35. THIS PLAN IS SUBJECT TO COMPLIANCE WITH THE FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
36. WP-02-117 IS A WAIVER REQUESTING TO LOCATE SOME OF THE PROPOSED PARKING, DRIVE AISLES, AND STORMWATER MANAGEMENT IN AN EXISTING INTERMITTENT STREAM AND ITS ASSOCIATED BUFFERS. APPROVAL WAS GRANTED AUGUST 15, 2002 WITH THE FOLLOWING CONDITIONS:
  1. IN CONSIDERATION OF THE FIELD INVESTIGATION CONDUCTED BY THE HOWARD SOIL CONSERVATION DISTRICT, THE SUBJECT STREAM MAY BE CONSIDERED EPHEMERAL UPSTREAM OF THE POINT WHERE IT ENTERS THE WOODS (IN THE VICINITY OF THE PROPOSED OUTFALL). THE APPROPRIATE STREAM BUFFER SHOULD BE ESTABLISHED FOR THE INTERMITTENT PORTION OF THIS TRIBUTARY IN ACCORDANCE WITH THIS DETERMINATION. FOR THE PROPOSED IMPACTS TO THE PORTION OF THE STREAM/STREAM BUFFER CLASSIFIED AS INTERMITTENT, THIS DEPARTMENT'S DENIAL REMAINS UNALTERED (SEE OUR LETTER OF JUNE 20, 2002). FOR THE IMPACTS TO THE PORTION OF THE STREAM CONSIDERED EPHEMERAL, A WAIVER IS NOT NEEDED.
  2. PRIOR TO MODIFYING THIS SITE DESIGN TO ELIMINATE IMPACTS TO THE PORTION OF THE STREAM/STREAM BUFFER CONSIDERED INTERMITTENT, THE DEVELOPER AND HIS CONSULTANT ARE ADVISED TO CONSIDER THE ENCLOSED COMMENTS FROM THE DEVELOPMENT ENGINEERING DIVISION.
  3. THE INSTALLATION OF RIP RAP FOR THE STORMWATER OUTFALL WILL NOT IMPACT THE 50' STREAM BUFFER.



PLAN  
1" = 100'

### SUPPLEMENTAL GENERAL NOTES

1. EXISTING ZONING: CE-C11 (CORRIDOR EMPLOYMENT - CONTINUING LIGHT INDUSTRIAL OVERLAY)
2. TOTAL AREA OF SITE = 8.468 ACRES
3. THE PROPERTY SHOWN HEREON IS OWNED BY:  
CROWN ENTERPRISES, INC. BY DEED DATED JUNE 20, 2003 AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY IN LIBER 7504, FOLIO 959.
4. TAX MAP 43, BLOCKS 4 & 5, PARCEL 462 TAX ACCOUNT NO. D1-177249
5. AREAS OF EXISTING BUILDINGS AND EXISTING USE  
EXISTING USE: WAREHOUSE  
AREA OF EXISTING BUILDING: ONE-STORY, BRICK AND METAL FRAME BUILDING WITH A TOTAL FLOOR AREA OF 33,874 SQ.FT. AND A 3,830 SQ.FT. BASEMENT. APPROX. 3,250 SQ.FT. OF THE BUILDING IS USED FOR OFFICE SPACE.
6. AREAS OF PROPOSED BUILDINGS AND PROPOSED USE:  
PROPOSED USE: THE NEW BUILDING WILL BE USED FOR TRUCK INSPECTION AND MAINTENANCE. THIS USE IS ACCESSORY TO THE WAREHOUSING OPERATIONS.  
AREA OF PROPOSED BUILDING: ONE-STORY, METAL FRAME BUILDING 19 PROPOSED WITH A FLOOR AREA OF 4,960 SQUARE FEET.
7. WATER: PUBLIC SEWER: PUBLIC
8. NUMBER OF EMPLOYEES: 36 DRIVERS, 6 DOCK WORKERS, AND 3 ADMINISTRATORS = 45 EMPLOYEES DURING THE MAXIMUM SHIFT
9. PARKING REQUIREMENTS:  
WAREHOUSE: 0.5 PARKING SPACES PER 1,000 SQ.FT. OF FLOOR AREA  
OFFICE SPACE: 3.3 SPACES PER 1,000 SQ.FT. OF FLOOR AREA  
PARKING REQUIRED: (33,874 SQ.FT. - 3,250 SQ.FT.) x (0.5 SPACE/1,000 SQ.FT.) + (3,250 SQ.FT.) x (3.3 SPACES/1,000 SQ.FT.) = 29 PARKING SPACES  
PARKING PROVIDED: 45 STANDARD AND 4 HANDICAP SPACES = 49 PARKING SPACES  
10. BULK REGULATIONS FROM SECTION 127.2.E.4 OF THE HOWARD CO. ZONING REGULATIONS:  
BUILDING SETBACKS: FROM PUBLIC STREET RIGHT-OF-WAY = 50 FEET EXCEPT FOR PARKING USES = 30 FEET FROM RESIDENTIAL DISTRICTS = 100 FEET
11. THE SUBJECT PROPERTY IS ZONED CE-C11 PER THE 2/2/04 COMPREHENSIVE ZONING PLAN AND THE COMP LITE ZONING AMENDMENTS EFFECTIVE 7/28/06.
12. THE PROPOSED EXPANSION TO THE TRUCK TERMINAL IS PERMITTED PER SECTION 127.3.D.2 OF THE HOWARD COUNTY ZONING REGULATIONS.

SITE ANALYSIS DATA SHEET	
PROJECT AREA:	8.468 ACS. ± 368,870 SQ.FT.
LIMIT OF DISTURBED AREA:	20,720 SQ.FT. (0.476 AC. ±)
PRESENT ZONING:	CE-C11 (CORRIDOR EMPLOYMENT - LIGHT INDUSTRIAL OVERLAY)
EXISTING & PROPOSED USE:	WAREHOUSE FLOOR AREA: EXISTING WAREHOUSE - 33,874 SQ.FT. WITH 3,830 SQ.FT. OF BASEMENT APPROXIMATELY 3,250 SQ.FT. OF THE MAIN FLOOR IS USED AS OFFICE SPACE. THE 3,830 SQ.FT. BASEMENT IS USED FOR STORAGE AND MECHANICAL ROOM.
PROPOSED BUILDING:	4,960 SQ.FT. TRUCK INSPECTION AND MAINTENANCE BUILDING
NUMBER OF EMPLOYEES:	36 DRIVERS, 6 DOCK WORKERS AND 3 ADMINISTRATORS = 45 EMPLOYEES DURING THE MAXIMUM SHIFT
PARKING SPACES REQUIRED:	22 (SEE SUPPLEMENTAL GENERAL NOTE 9 ON THIS SHEET)
PARKING SPACES PROVIDED:	49 (INCLUDING 4 HANDICAP SPACES)
BUILDING COVERAGE OF SITE:	38,834 SQ.FT. ± (10.50% OF GROSS AREA)
APPLICABLE DPZ FILE REFERENCES:	SDP-01-111, WP-02-117 AND SDP-03-017
HOWARD COUNTY WATER CONTRACT NO. 573-W&S	
HOWARD COUNTY SEWER CONTRACT NO. 579-S	



- REVISIONS:
- 1) DEPICTED PROPOSED SITE ENTRANCE ONTO BROOKDALE DRIVE.
  - 2) DEPICTED PROPOSED 62'-80" METAL RISID FIRMED BUILDING AND ASSOCIATED SWM BMP #1.
  - 3) DEPICTED PROPOSED FRONT PARKING LOT RECONFIGURATION.
  - 4) DEPICTED PROPOSED FENCE LINES AND TURNPIECE GATE.

RED-LINED REVISIONS PREPARED BY:  
LEON A. PODOIAK & ASSOCIATES, LLC  
147 E. MAIN ST. P.O. BOX 266  
WESTMINSTER, MARYLAND 21157  
PHONE: 410-876-1226

PROPERTY OWNER / DEVELOPER  
CROWN ENTERPRISES, INC.  
#12225 STEPHENS ROAD  
WARREN, MI 48089-2070  
PHONE: (586) 939-7000

### ADDRESS CHART

PARCEL	STREET ADDRESS
462	7471 WASHINGTON BOULEVARD

SUBDIVISION NAME:	CENTRAL TRANSPORT	SECT./AREA:	-	PARCEL:	462
PLAT #:	L 349 F 183	BLOCK #:	4 & 5	ZONE:	CE-C11
TAX MAP NO.:	43	ELECT. DIST.:	1st	CENSUS TRACT:	6012
WATER CODE:	B01	SEWER CODE:	2350000		

AS-BUILT CERTIFICATION	
APPROVED:	HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
DIRECTOR	<i>Marsha McLaughlin</i> 11/18/03 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	<i>Chris Rasmussen</i> 11/10/03 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	<i>Cindy Harwitz</i> 11/12/03 DATE
11-16-12	1 HOWARD COUNTY RED-LINE COMMENTS
DATE	NO. REVISION
OWNER / DEVELOPER	
CROWN ENTERPRISES, INC. 6497 EAST TEN MILE ROAD CENTER LINE, MICHIGAN 48015 810-939-7000	
PROJECT	
CENTRAL TRANSPORT PHASE 2 PARKING EXPANSION	
AREA	ZONED M-2 PARCEL 462 TAX MAP 43 GRID NO. 4 & 5 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE	
TITLE SHEET	
Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects. 8918 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282	
DATE	6-17-03
DESIGNED BY:	A.C.R.
DRAWN BY:	MAD
CHECKED BY:	C.J.R.
PROJECT NO.:	00364/2-0/ENR/PLANS CO00COV.DWG
DATE:	FEBRUARY 6, 2003
SCALE:	1" = 100'
DRAWING NO.:	1 OF 17

SWM SUMMARY

CRITERIA	REQUIRED	PROVIDED	COMMENTS
RE <sub>v</sub>	0.023 AC-FT	0.023 AC-FT	BIORETENTION
WQ <sub>v</sub> *	0.217 AC-FT	0.218 AC-FT	POCKET POND
C <sub>p</sub> v	0.53 AC-FT	0.582 AC-FT	POCKET POND
Q <sub>p</sub> & Q <sub>t</sub>	N/A		

\*WQ<sub>v</sub> - Rev

NOTES:

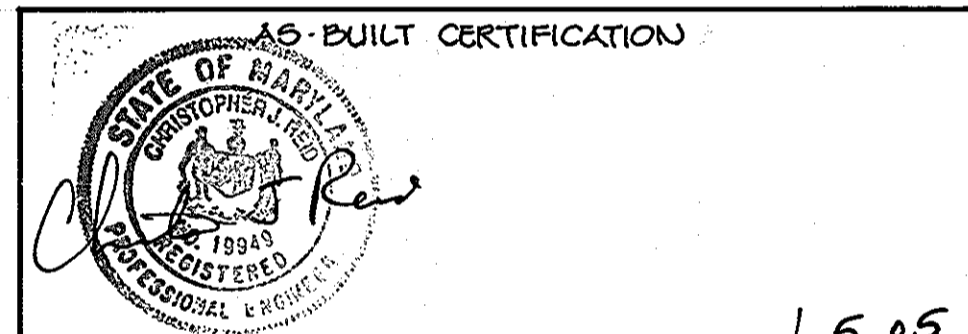
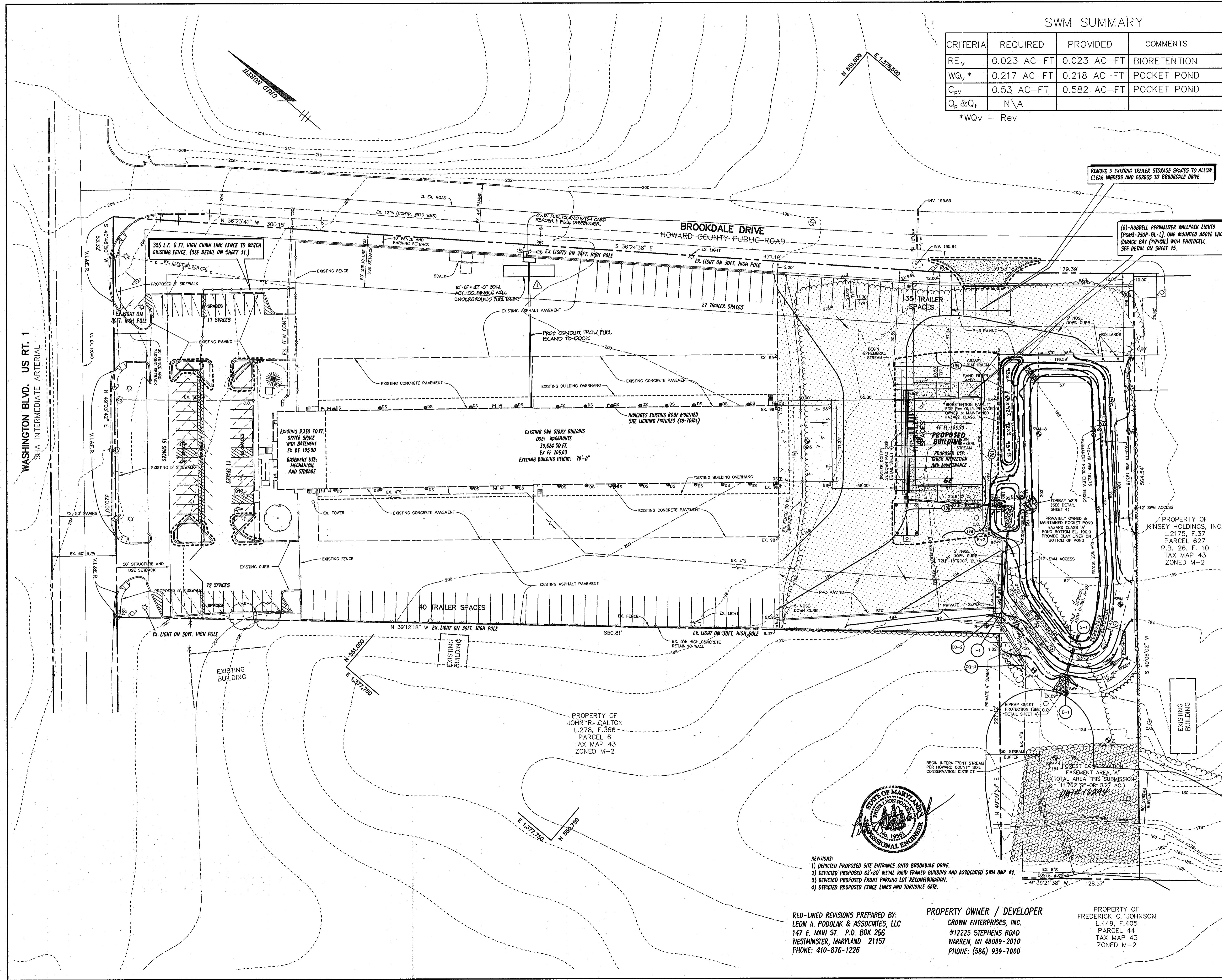
1. ALL RADII ARE 5' UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE TO FACE OF CURB OR BUILDING UNLESS OTHERWISE NOTED.
3. ALL ON-SITE ROADS ARE PRIVATE.
4. ALL LIGHTING IS TO BE DIRECTED/REFLECTED AWAY FROM ADJACENT PUBLIC ROADS AND RESIDENTIALLY ZONED PROPERTIES, AND BE IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
5. \* STD/REV - STANDARD TO REVERSE CURB TRANSITION.
6. P-3 PAVING
7. CONCRETE
8. EXISTING LIGHTS
9. BORING

LEGEND

- - - - - EXISTING 10' CONTOURS
- - - - - EXISTING 2' CONTOURS
- — — — — PROPOSED 10' CONTOURS
- — — — — PROPOSED 2' CONTOURS
- — — — — PROPOSED CURB & GUTTER
- — — — — PROPOSED STORM DRAIN
- — — — — PROPOSED TREE LINE
- — — — — EXISTING TREE LINE

DAM CENTERLINE DATA

- |                             |                           |
|-----------------------------|---------------------------|
| ① N 550571.90, E 1378206.40 | ④ - ⑤ R=29.06', L=30.83"  |
| ② - ③ R=14.67', L=5.31"     | ⑤ - ⑥ R=25.47', L=29.63"  |
| ③ S 12° 37' 10" E, 30.95'   | ⑥ - ⑦ R=110.30', L=18.54" |
| ③ - ④ R=392.21', L=26.40'   |                           |



AS-BUILT CERTIFICATION  
 1.5.05 DATE  
 CHRISTOPHER J. REID #10040  
 APPROVED BY: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.  
 Director: [Signature] 1/11/05 DATE  
 Chief, Development Engineering Division: [Signature] 1/10/05 DATE  
 Chief, Division of Land Development: [Signature] 1/12/05 DATE

11-16-12 1 HOWARD COUNTY REP-LINE COMMENTS  
 1-3-09 1 MODIFIED FUEL TANK AND DISPENSER ISLAND  
 DATE NO. REVISION  
 OWNER / DEVELOPER  
 CROWN ENTERPRISES, INC.  
 6497 EAST TEN MILE ROAD  
 CENTER LINE, MICHIGAN 48015  
 810-939-7000

PROJECT CENTRAL TRANSPORT PHASE 2 PARKING EXPANSION  
 AREA ZONED M-2 PARCEL 462 TAX MAP 43 GRID No. 4 & 5 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 TITLE SITE DEVELOPMENT PLAN  
 Patton Harris Rust & Associates, pc  
 Engineers, Surveyors, Planners, Landscape Architects.  
 8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

10.13.03 DATE  
 DESIGNED BY: A.C.R.  
 DRAWN BY: MAD  
 CHECKED BY: C.J.R.  
 PROJECT NO: 00364/2-0/ENGR/PLANS C400SIT.DWG  
 DATE: FEBRUARY 6, 2003  
 SCALE: 1" = 40'  
 DRAWING NO. 2 OF 17

- REVISIONS:  
 1) DEPICTED PROPOSED SITE ENTRANCE ONTO BROOKDALE DRIVE.  
 2) DEPICTED PROPOSED 62'-80" METAL RIGID FRAMED BUILDING AND ASSOCIATED SWM BMP #1.  
 3) DEPICTED PROPOSED FRONT PARKING LOT RECONFIGURATION.  
 4) DEPICTED PROPOSED FENCE LINES AND TURNSTILE GATE.

RED-LINED REVISIONS PREPARED BY:  
 LEON A. PODOLAK & ASSOCIATES, LLC  
 147 E. MAIN ST. P.O. BOX 266  
 WESTMINSTER, MARYLAND 21157  
 PHONE: 410-876-1226

PROPERTY OWNER / DEVELOPER  
 CROWN ENTERPRISES, INC.  
 #12225 STEPHENS ROAD  
 WARREN, MI 48089-2010  
 PHONE: (586) 939-7000

PROPERTY OF  
 FREDERICK C. JOHNSON  
 L.449, F.405  
 PARCEL 44  
 TAX MAP 43  
 ZONED M-2

**DRAINAGE DATA**

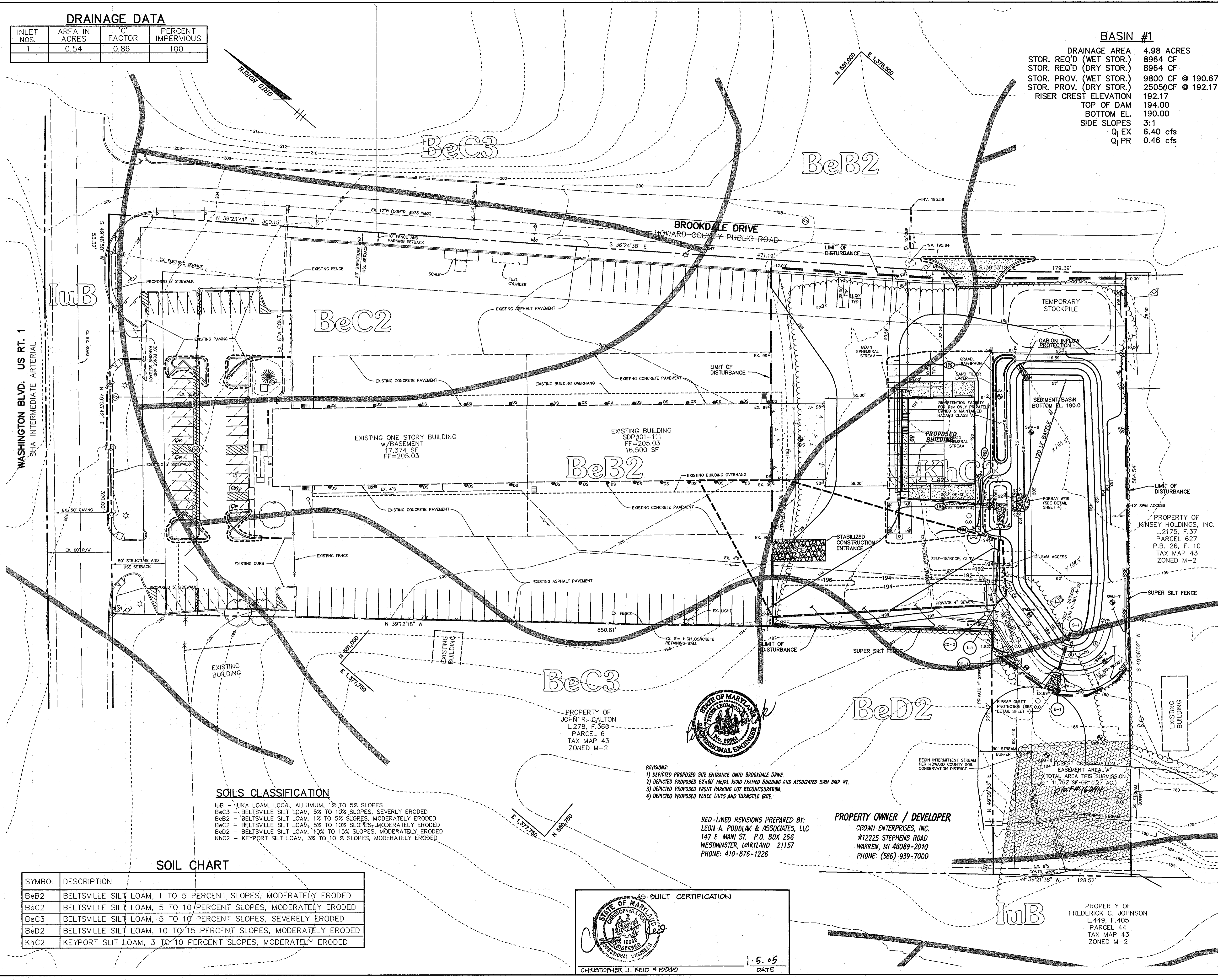
INLET NOS.	AREA IN ACRES	C FACTOR	PERCENT IMPERVIOUS
1	0.54	0.86	100

**BASIN #1**

DRAINAGE AREA	4.98 ACRES
STOR. REQ'D (WET STOR.)	8964 CF
STOR. REQ'D (DRY STOR.)	8964 CF
STOR. PROV. (WET STOR.)	9800 CF @ 190.67
STOR. PROV. (DRY STOR.)	25050CF @ 192.17
RISER CREST ELEVATION	192.17
TOP OF DAM	194.00
BOTTOM EL.	190.00
SIDE SLOPES	3:1
Q <sub>1</sub> EX	6.40 cfs
Q <sub>1</sub> PR	0.46 cfs

**LEGEND**

- DRAINAGE AREA DIVIDE
- SOILS
- STABILIZED CONSTRUCTION ENTRANCE
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE
- RPS EX
- RPS PR
- REMOVABLE PUMPING STATION



**SOILS CLASSIFICATION**

IuB - LUKA LOAM, LOCAL ALLUVIUM, 1% TO 5% SLOPES  
 BeC3 - BELTSVILLE SILT LOAM, 5% TO 10% SLOPES, SEVERELY ERODED  
 BeB2 - BELTSVILLE SILT LOAM, 1% TO 5% SLOPES, MODERATELY ERODED  
 BeC2 - BELTSVILLE SILT LOAM, 5% TO 10% SLOPES, MODERATELY ERODED  
 BeD2 - BELTSVILLE SILT LOAM, 10% TO 15% SLOPES, MODERATELY ERODED  
 KhC2 - KEYPORT SILT LOAM, 3% TO 10% SLOPES, MODERATELY ERODED

**SOIL CHART**

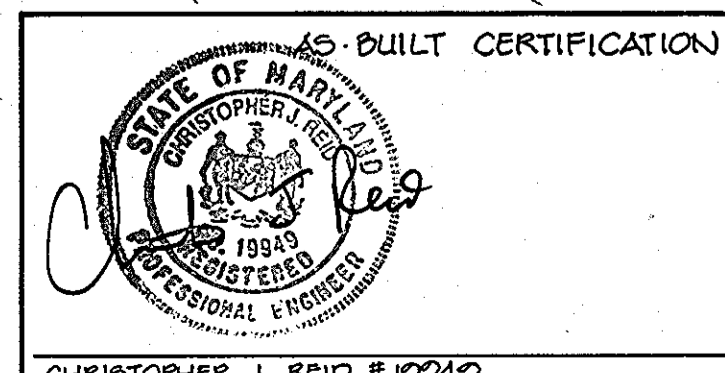
SYMBOL	DESCRIPTION
BeB2	BELTSVILLE SILT LOAM, 1 TO 5 PERCENT SLOPES, MODERATELY ERODED
BeC2	BELTSVILLE SILT LOAM, 5 TO 10 PERCENT SLOPES, MODERATELY ERODED
BeC3	BELTSVILLE SILT LOAM, 5 TO 10 PERCENT SLOPES, SEVERELY ERODED
BeD2	BELTSVILLE SILT LOAM, 10 TO 15 PERCENT SLOPES, MODERATELY ERODED
KhC2	KEYPORT SILT LOAM, 3 TO 10 PERCENT SLOPES, MODERATELY ERODED

- REVISIONS:**
- 1) DEPICTED PROPOSED SITE ENTRANCE ONTO BROOKDALE DRIVE.
  - 2) DEPICTED PROPOSED 62'x80' METAL RIGID FRAMED BUILDING AND ASSOCIATED SHM BMP #1.
  - 3) DEPICTED PROPOSED FRONT PARKING LOT RECONFIGURATION.
  - 4) DEPICTED PROPOSED FENCE LINES AND TURNSTILE GATE.



RED-LINED REVISIONS PREPARED BY:  
 LEON A. PODOLAK & ASSOCIATES, LLC  
 147 E. MAIN ST. P.O. BOX 266  
 WESTMINSTER, MARYLAND 21157  
 PHONE: 410-876-1226

**PROPERTY OWNER / DEVELOPER**  
 CROWN ENTERPRISES, INC.  
 #12225 STEPHENS ROAD  
 WARREN, MI 48089-2010  
 PHONE: (586) 939-7000



AS-BUILT CERTIFICATION  
 CHRISTOPHER J. REID #19949  
 1-5-05  
 DATE

**BY THE DEVELOPER :**

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

*DDP*  
 DEVELOPER 10/13/03  
 DATE

**BY THE ENGINEER :**

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

*Chris J Reid*  
 ENGINEER 10-13-03  
 DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*Jim Ryan*  
 NATURAL RESOURCES CONSERVATION SERVICE 10/22/03  
 DATE

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

*Chris Reid*  
 HOWARD SOIL CONSERVATION DISTRICT 10/22/03  
 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

*Thomas D. Wright*  
 DIRECTOR 11/10/03  
 DATE

*Chris Reid*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 11/10/03  
 DATE

*Chris Reid*  
 CHIEF, DIVISION OF LAND DEVELOPMENT 11/12/03  
 DATE

11-16-12	1	HOWARD COUNTY RED-LINE COMMENTS
DATE	NO.	REVISION

**OWNER / DEVELOPER**  
 CROWN ENTERPRISES, INC.  
 6497 EAST TEN MILE ROAD  
 CENTER LINE, MICHIGAN 48015  
 810-939-7000

**PROJECT**  
 CENTRAL TRANSPORT  
 PHASE 2  
 PARKING EXPANSION

**AREA**  
 ZONED M-2  
 PARCEL 462 TAX MAP 43 GRID No. 4 & 5  
 1st ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

**TITLE**  
 GRADING, SEDIMENT CONTROL  
 AND DRAINAGE AREA MAP

**Patton Harris Rust & Associates, pc**  
 Engineers, Surveyors, Planners, Landscape Architects.  
 8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

*PHRA*

**DESIGNED BY :** A.C.R.  
 DATE 11-13-03

**DRAWN BY:** MAD

**CHECKED BY:** C.J.R.

**PROJECT NO:** 00364/2-0/ENR/PLANS  
 C200ESC.DWG

**DATE :** FEBRUARY 6, 2003

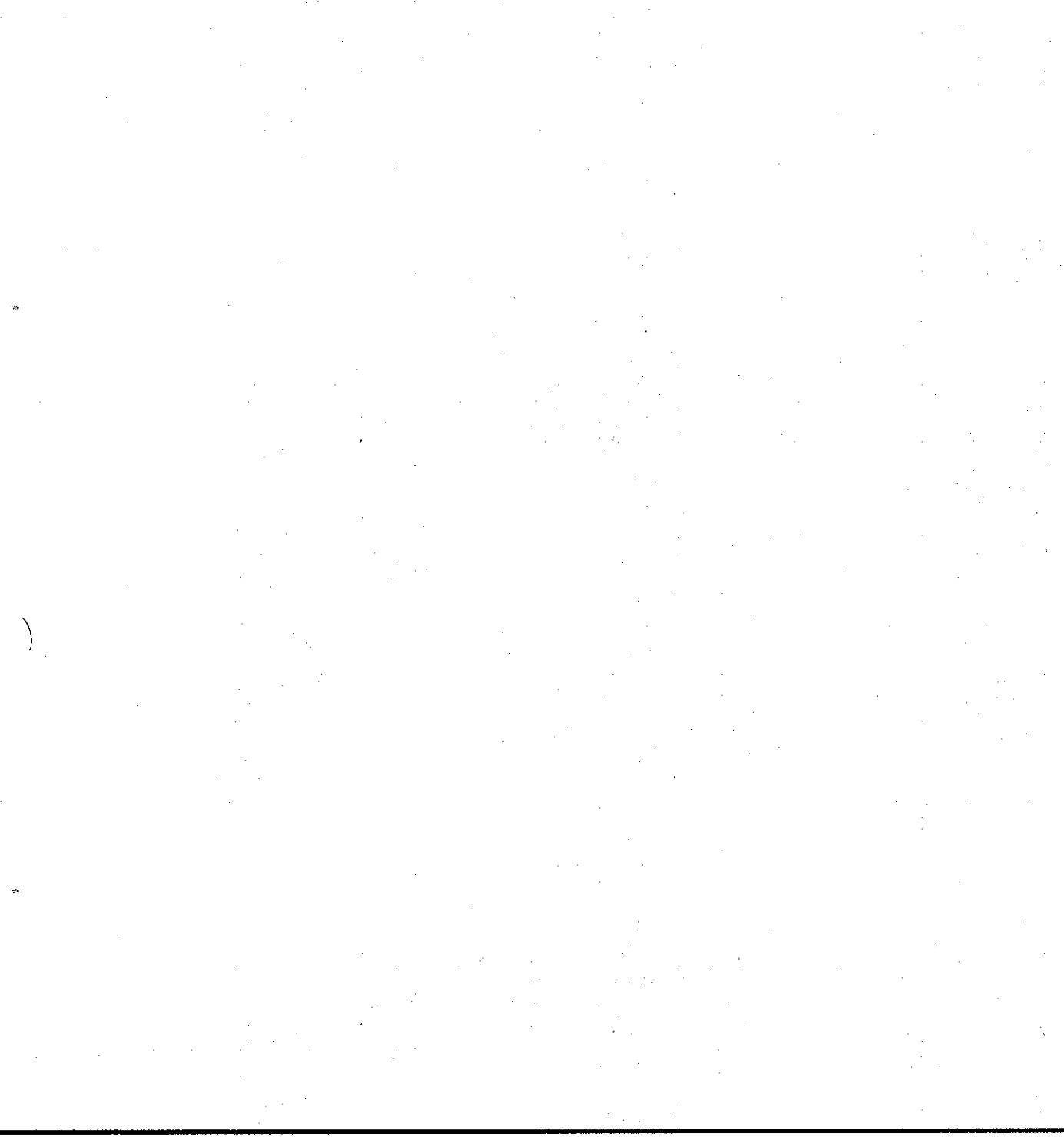
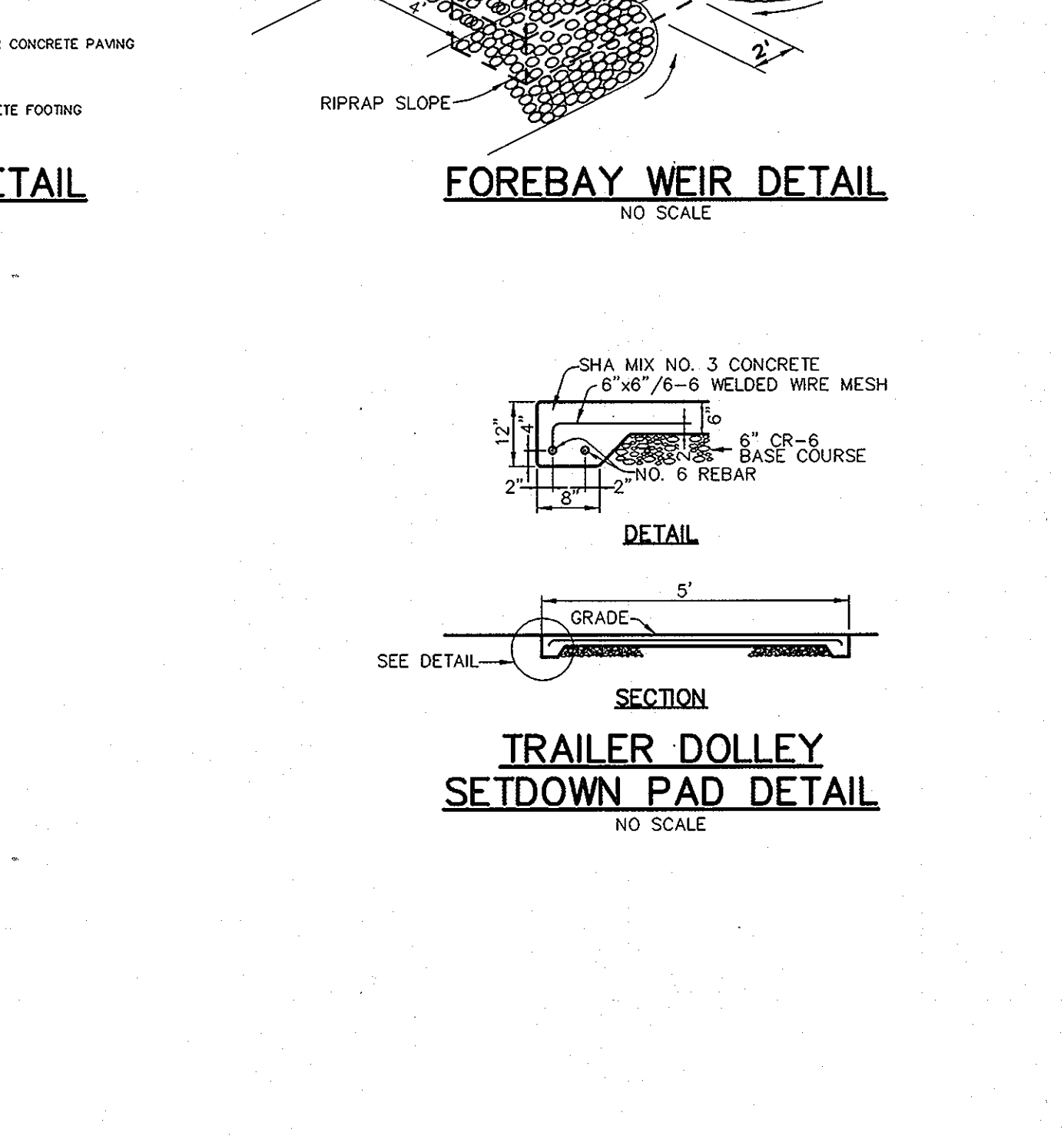
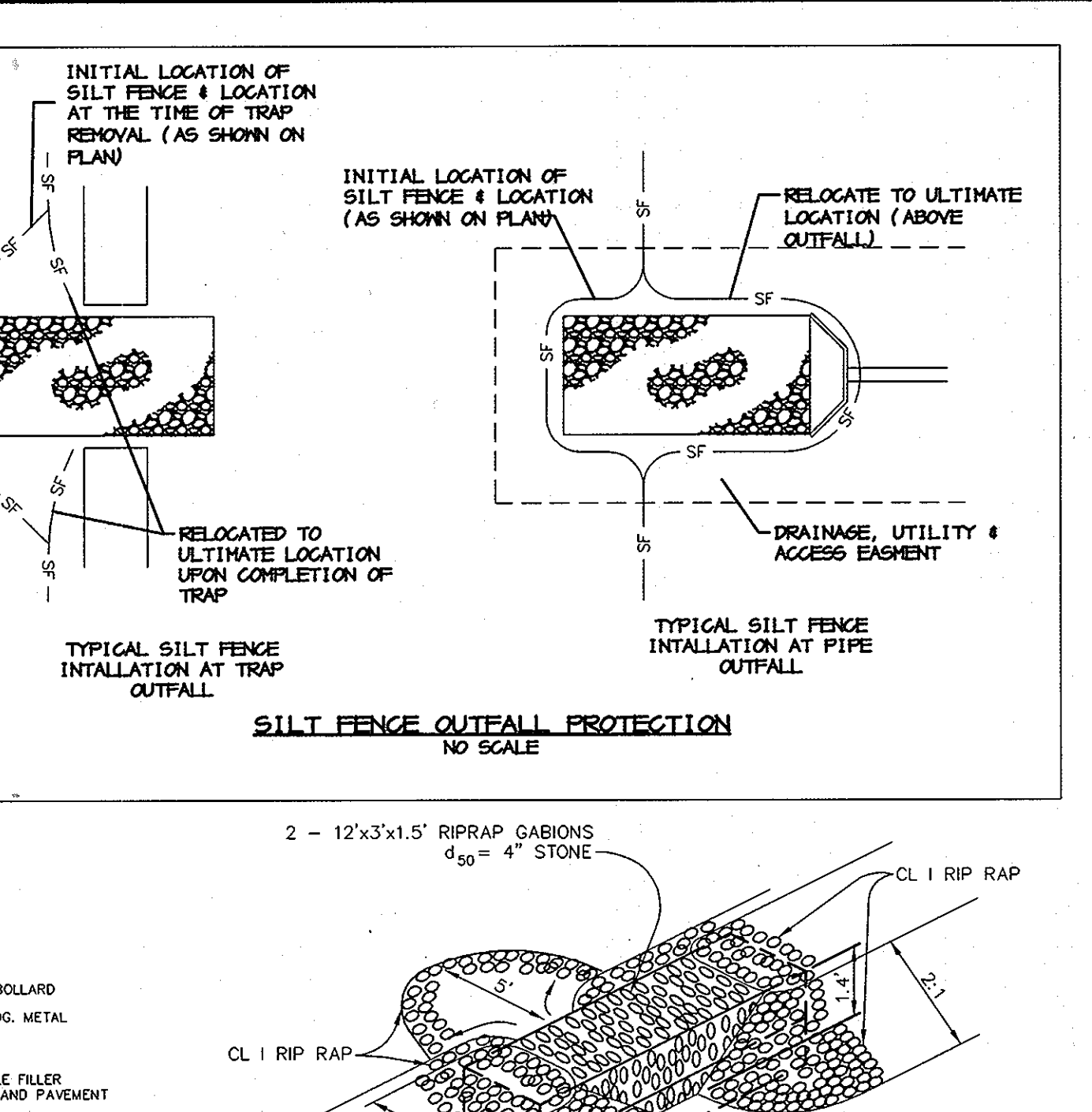
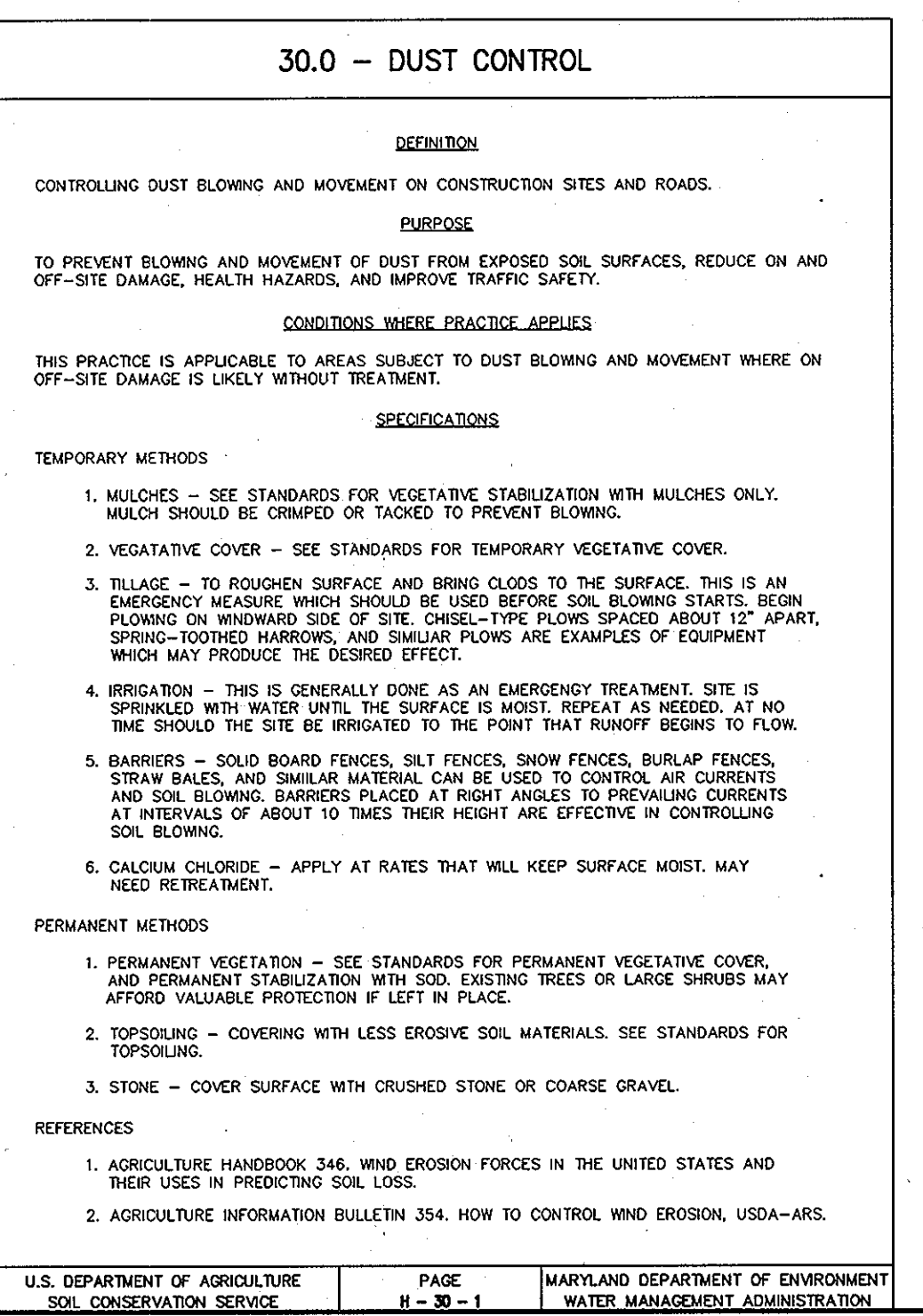
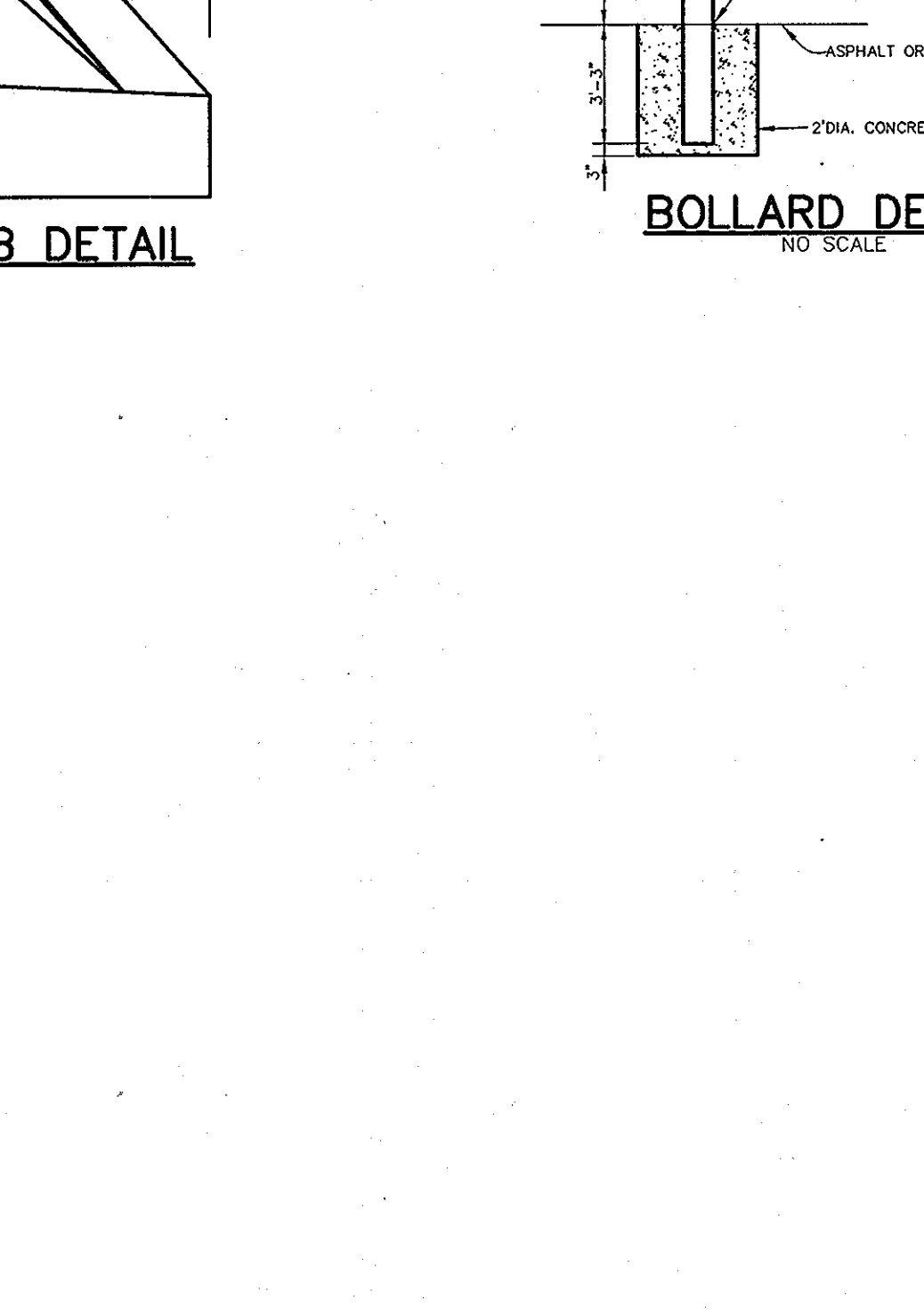
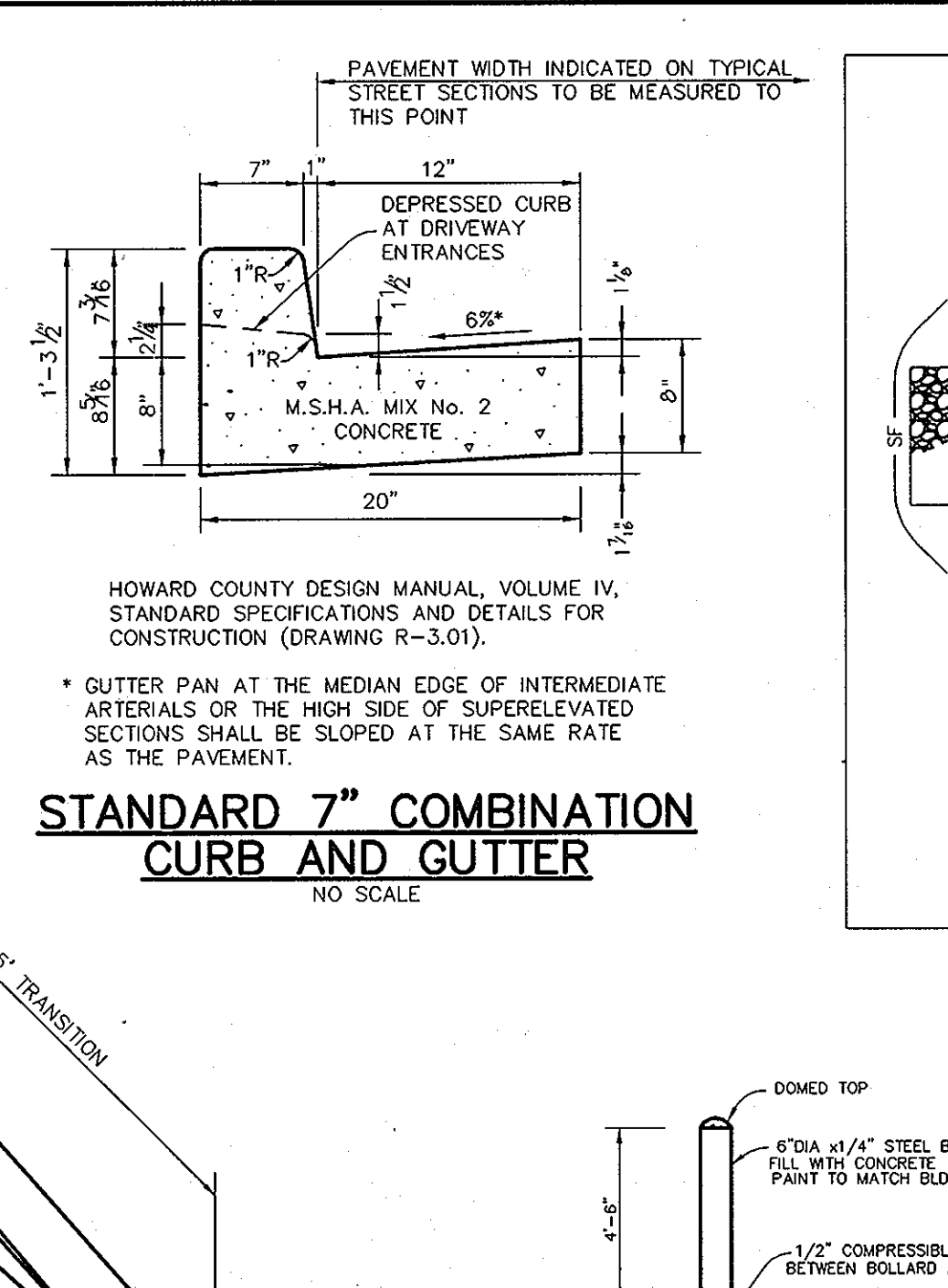
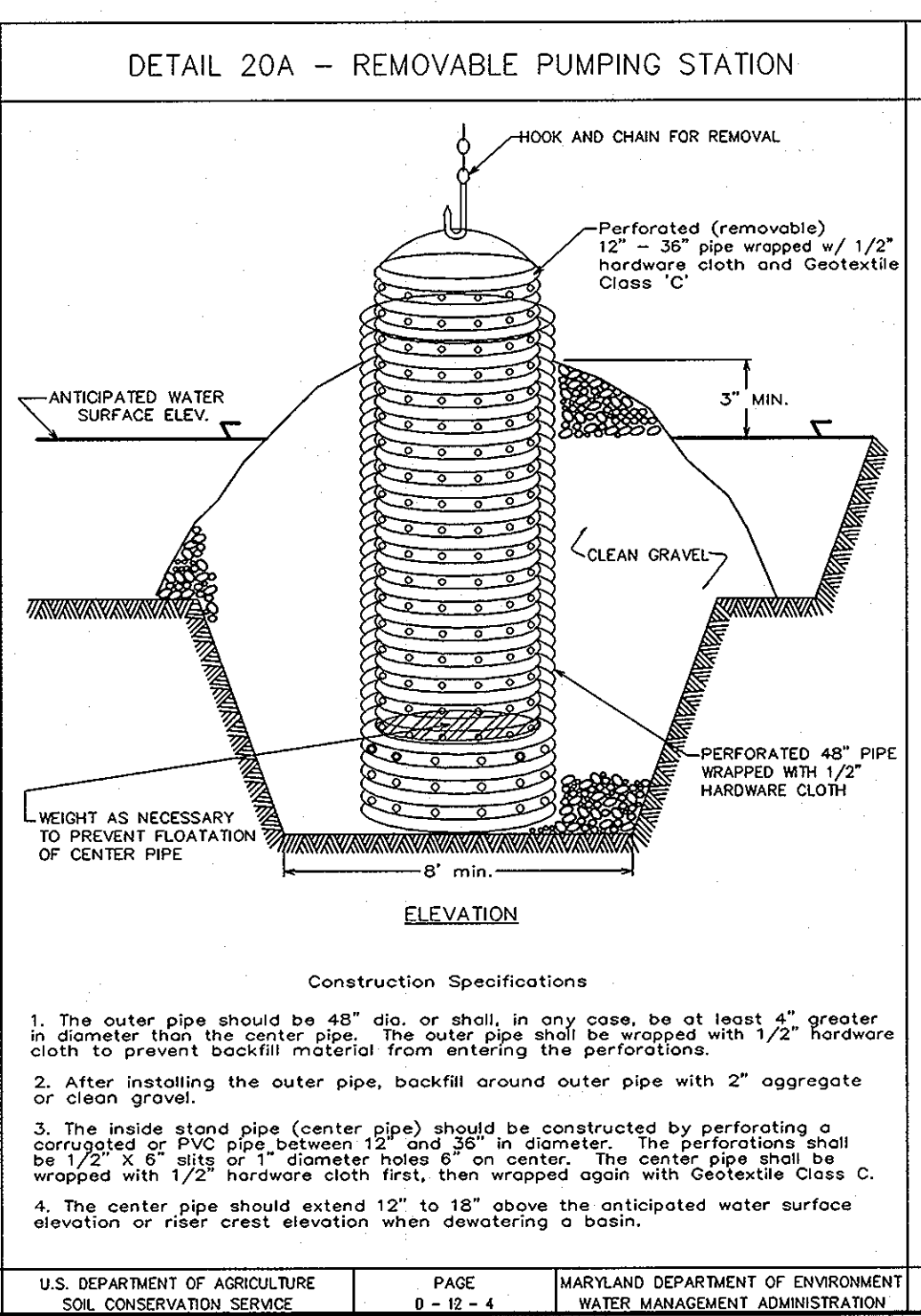
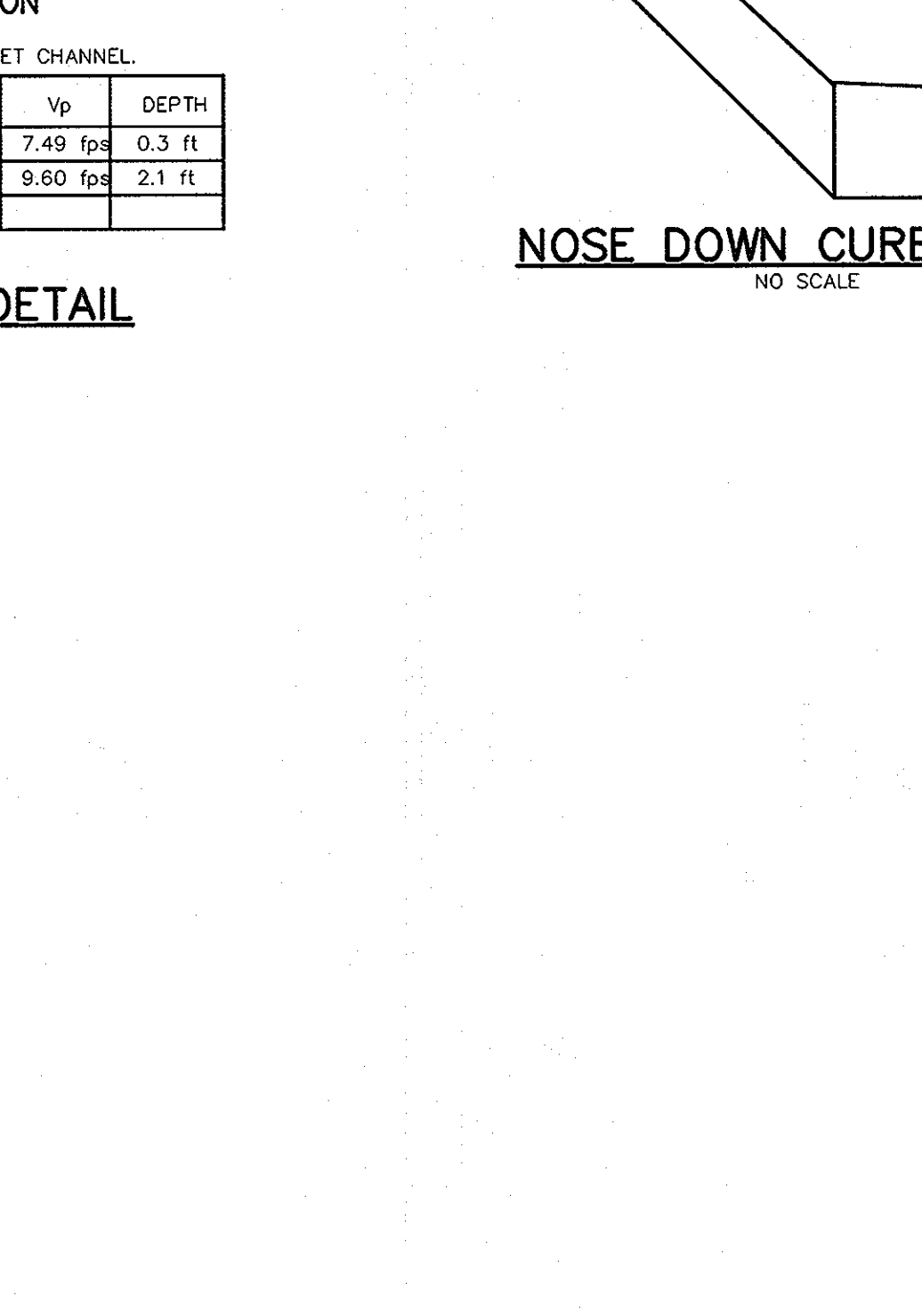
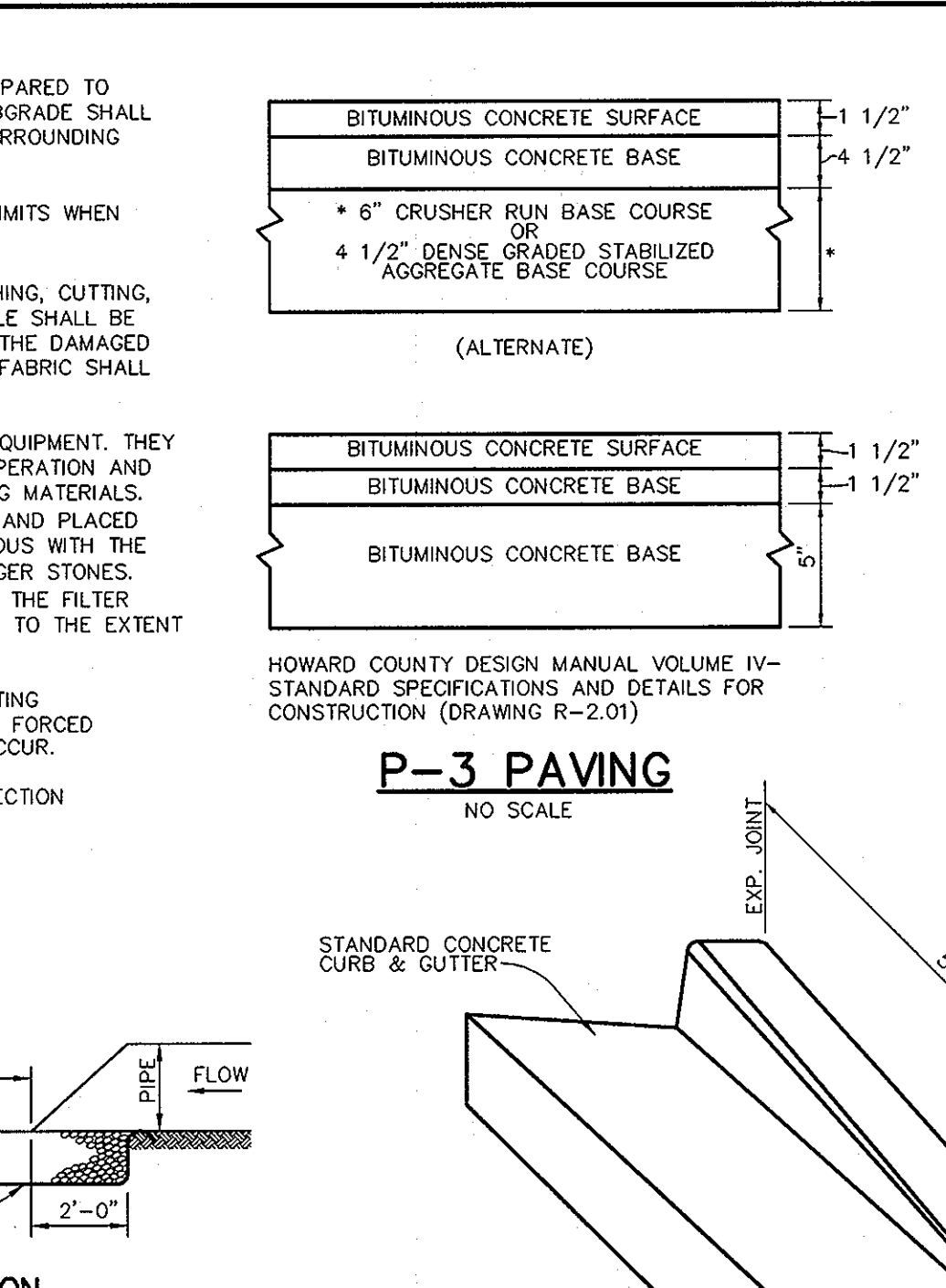
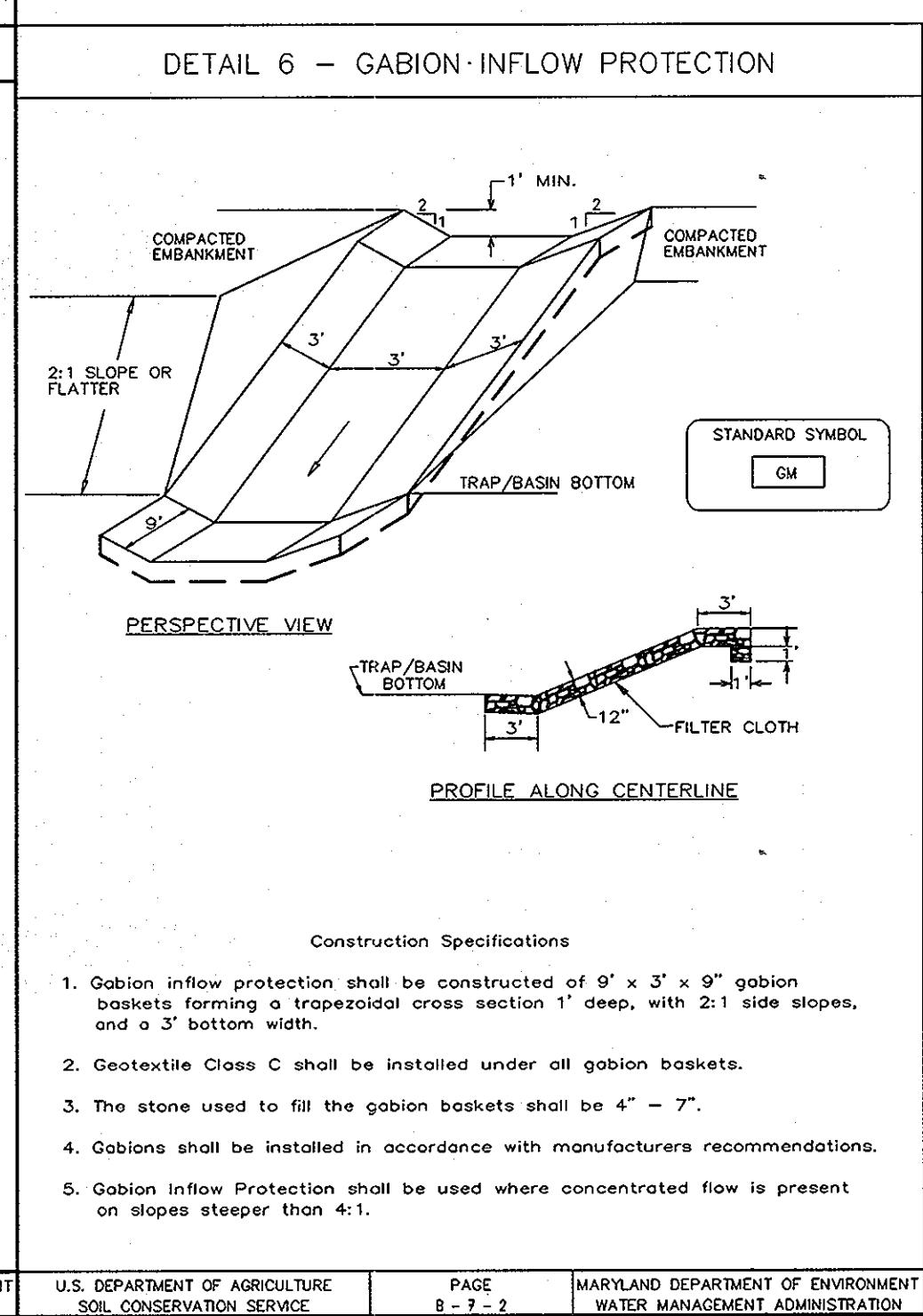
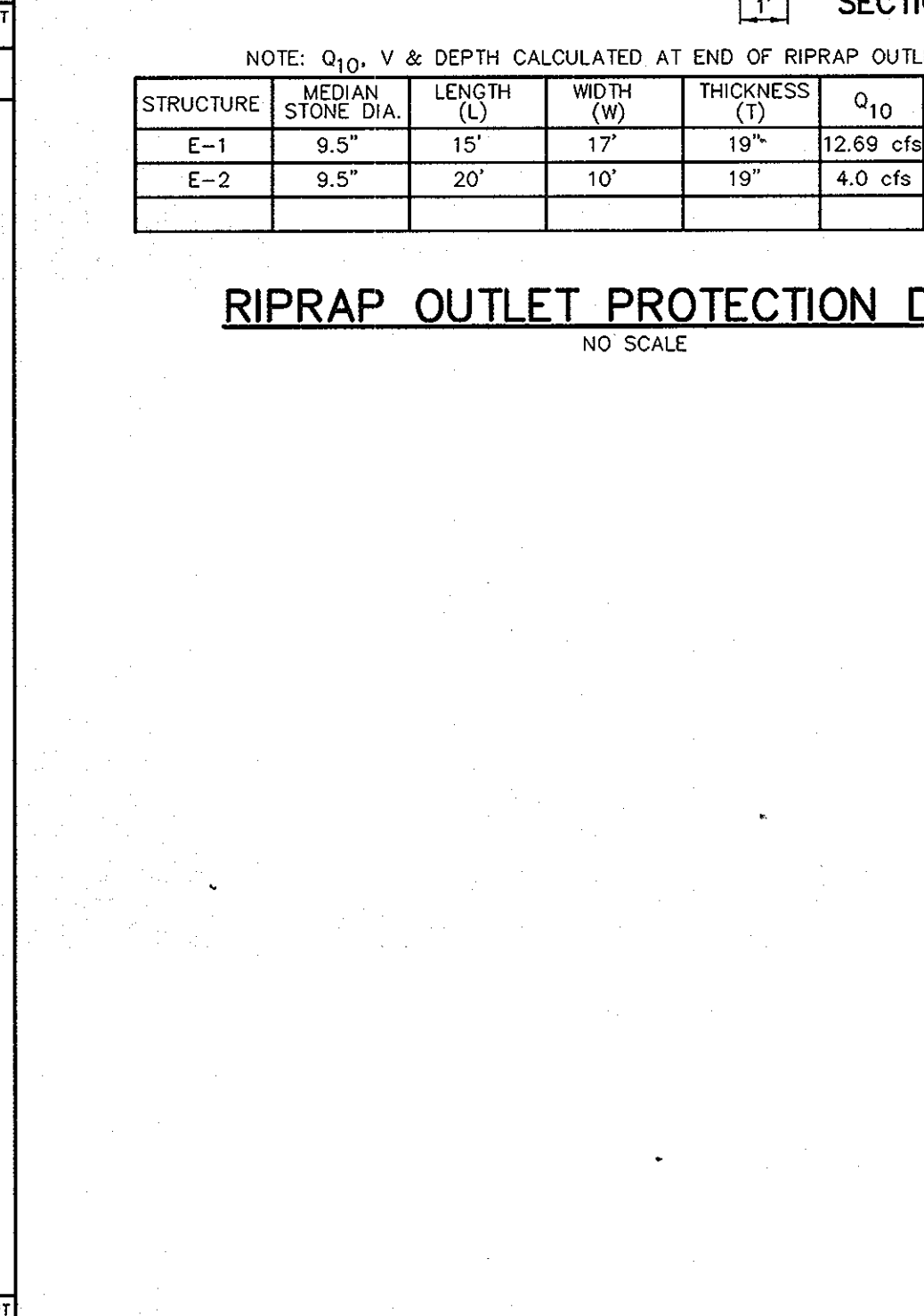
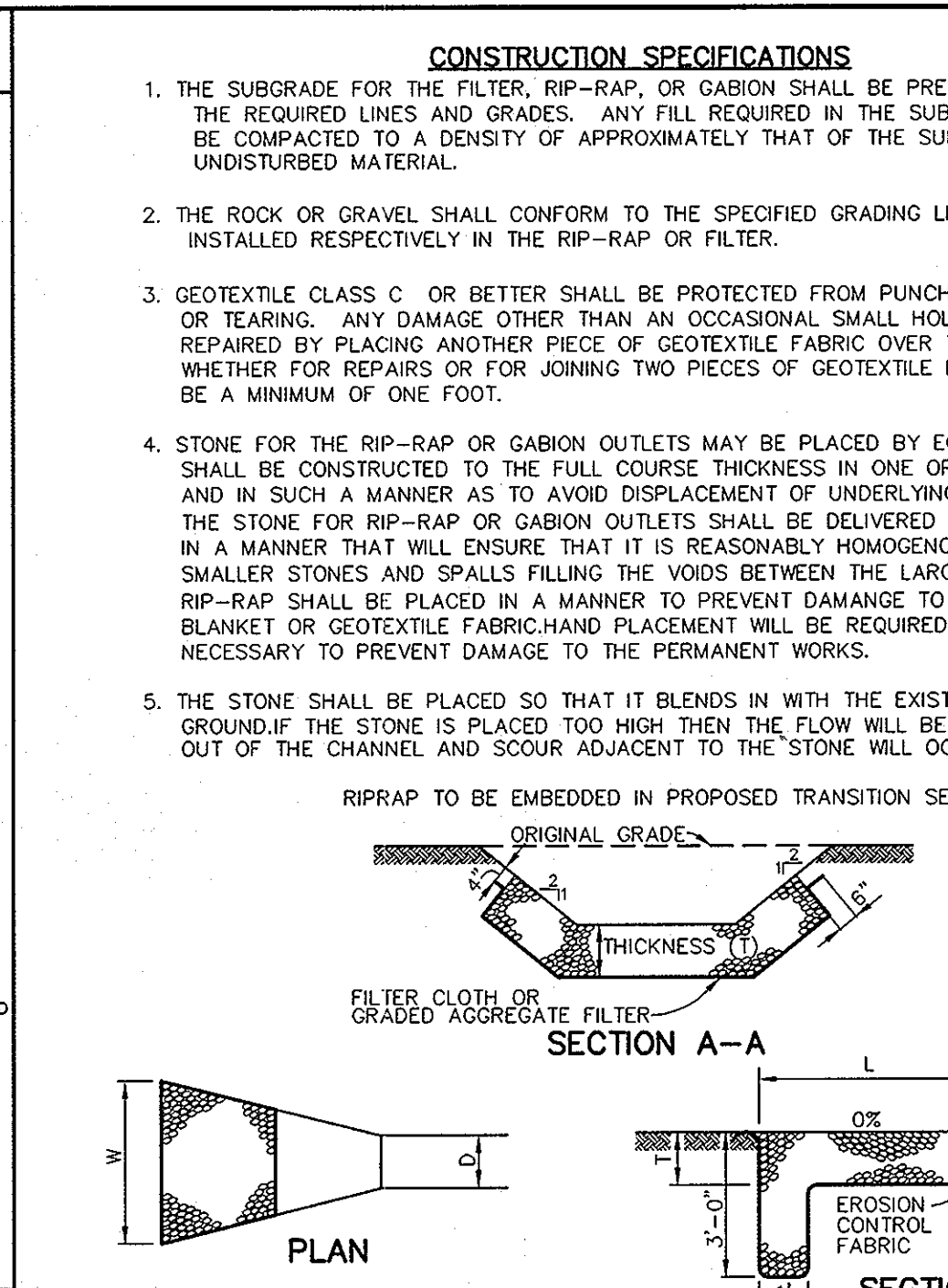
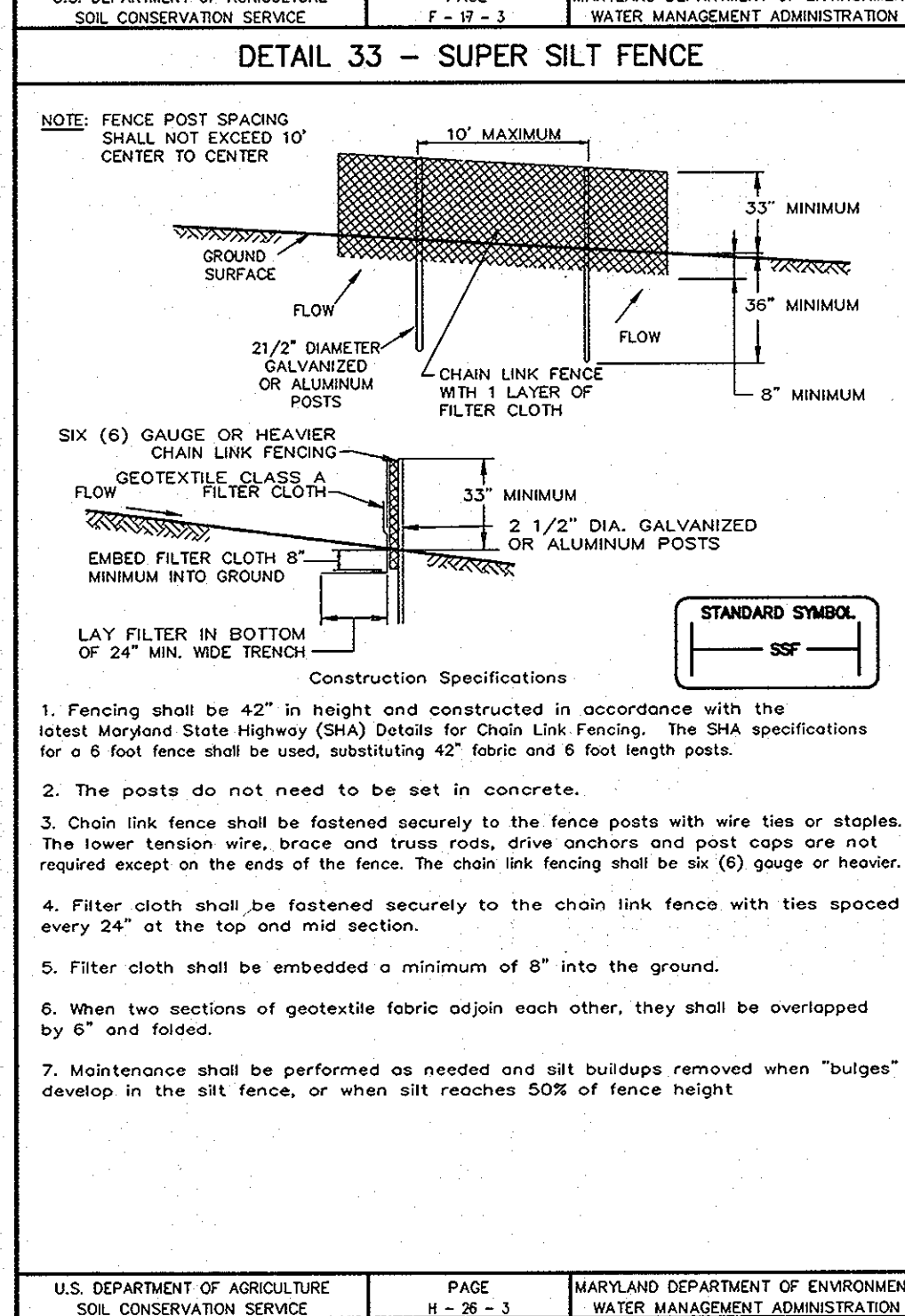
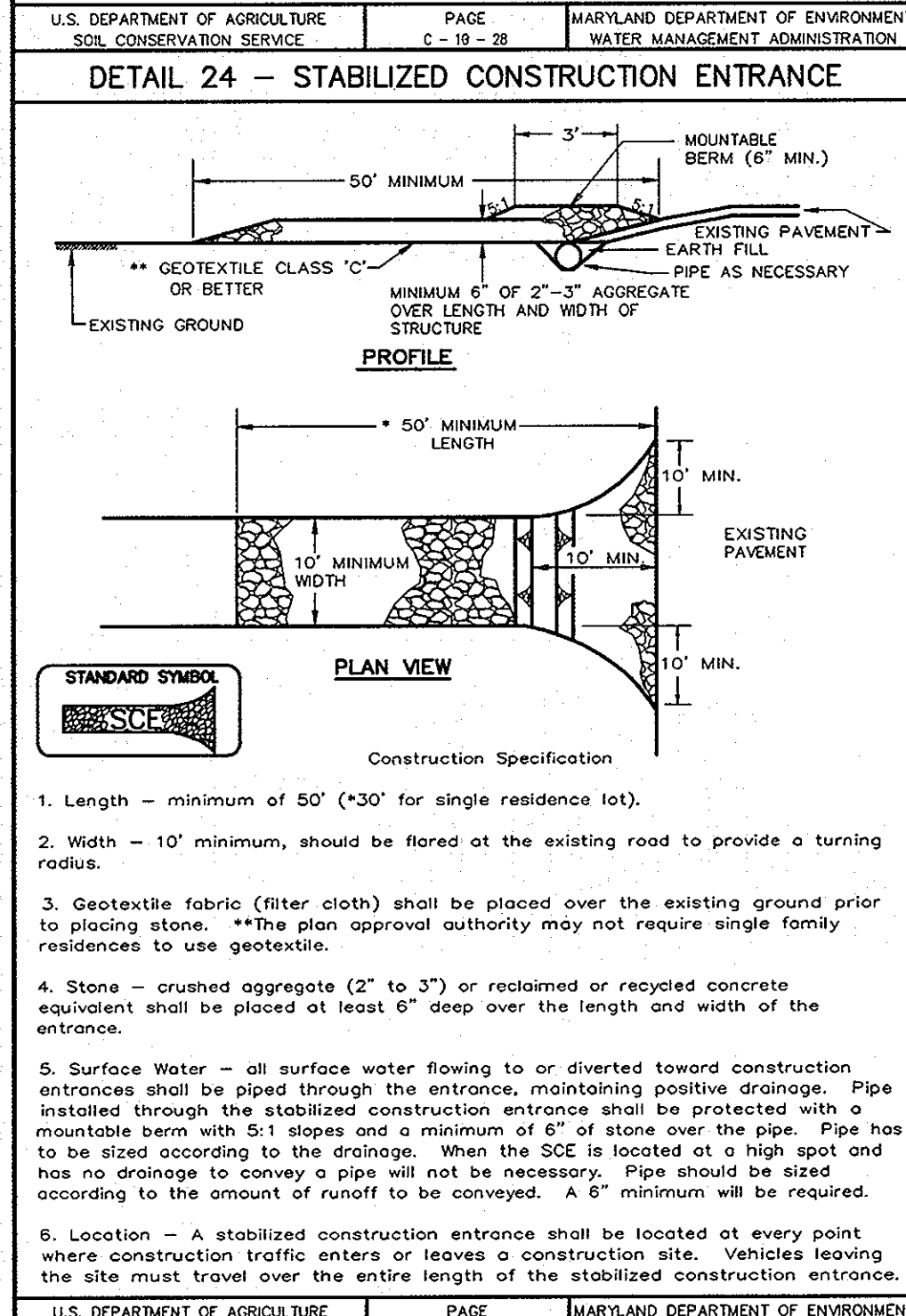
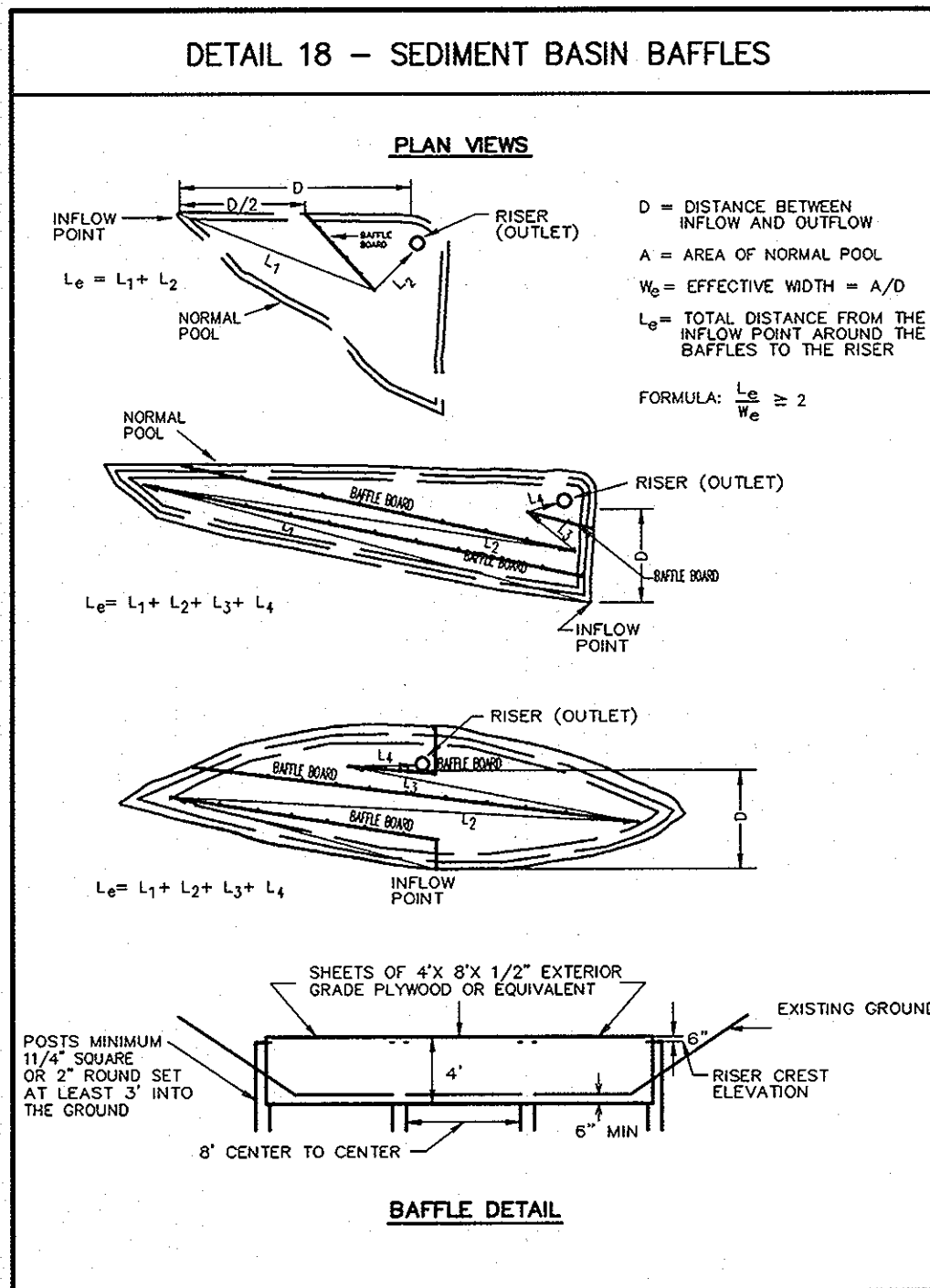
**SCALE :** 1" = 40'

**DRAWING NO. 3 OF 17**

CHRISTOPHER J. REID #19949

AS-BUILT - 01/09/05 SDP-03-77

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**AS-BUILT CERTIFICATION**

STATE OF MARYLAND  
CHRISTOPHER J. REID  
PROFESSIONAL ENGINEER

DATE: 1.5.05

BY THE DEVELOPER:  
CHRISTOPHER J. REID #10040

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

DEVELOPER: *Depo* DATE: 6.17.03

ENGINEER: *Christopher J. Reid* DATE: 6.17.03

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE DATE: 11/22/03

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

HOWARD SOIL CONSERVATION DISTRICT DATE: 10/22/03

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR: *Marsha A. Lough* DATE: 1/24/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *Chris Starnes* DATE: 1/12/03

CHIEF, DIVISION OF LAND DEVELOPMENT: *Chris Starnes* DATE: 1/12/03

DATE	NO.	REVISION

OWNER / DEVELOPER: CROWN ENTERPRISES, INC. 6497 EAST TEN MILE ROAD CENTER LINE, MICHIGAN 48015 810-939-7000

PROJECT: CENTRAL TRANSPORT PHASE 2 PARKING EXPANSION

AREA: ZONED M-2 TAX MAP 43 GRID NO. 4 & 5 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: DETAIL SHEET

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

DATE: 1.17.03

DESIGNED BY: A.C.R.

DRAWN BY: MAD

CHECKED BY: C.J.R.

PROJECT NO: 03564/2-0/ENR/PLANS C202ESC.DWG

DATE: FEBRUARY 6, 2003

SCALE: AS SHOWN

DRAWING NO. 4 OF 17

CHRISTOPHER J. REID #19949

AS-BUILT: 01/03/05 SDP-03-77

**TEMPORARY SEEDING NOTES**

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

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

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

**SEEDING:** FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS. PER 1000 SQ.FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (0.07 LBS. PER 1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

**MULCHING:**  
APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING, ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL. PER 1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES, 8 FT. OR HIGHER, USE 347 GAL. PER ACRE (8 GAL. PER 1000 SQ.FT.) FOR ANCHORING.

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

**PERMANENT SEEDING NOTES**

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

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

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

- PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS. PER 1000 SQ.FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS. PER 1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS. PER 1000 SQ.FT.).
- ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS. PER 1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS. PER 1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

**SEEDING:**  
FOR THE PERIOD MARCH 1 THRU APRIL 30 AND FROM AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. PER ACRE (4LBS. PER 1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2LBS. PER ACRE (0.05 LBS. PER 1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY ONE OF THE FOLLOWING OPTIONS:

- 2 TONS PER ACRE OF WELL-ANCHORED MULCH STRAW AND SEED AS SOON AS POSSIBLE IN THE SPRING.
- USE SOD.
- SEED WITH 60 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE WELL ANCHORED STRAW.

**MULCHING:** APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL. PER 1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS, ON SLOPES, 8 FT. OR HIGHER, USE 347 GAL. PER ACRE (8 GAL. PER 1000 SQ.FT.) FOR ANCHORING.

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

**STANDARD SEDIMENT CONTROL NOTES**

- 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 (313-1895).
- 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 FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
- 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 STEEPER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 7, OF THE HOWARD COUNTY DESIGN MANUAL FOR STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING, SOD, TEMPORARY SEEDING, AND MULCHING (SEC. G.). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHED OF GRASSES.
- 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.
- SITE ANALYSIS:  
TOTAL AREA OF SITE: 5.3 ACRES  
AREA DISTURBED: 2.6 ACRES  
AREA TO BE ROOFED OR PAVED: 1.6 ACRES  
AREA TO BE VEGETATIVELY STABILIZED: 1.0 ACRES  
TOTAL CUT: 5000 CU. YARDS  
TOTAL FILL: 3000 CU. YARDS  
OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- 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.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
- SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
- SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.
- 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, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK.

**21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL**

**DEFINITION:**  
SUBSOIL  
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:**
- 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.

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:**

- 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 MARYLAND AGRICULTURAL EXPERIMENTATION STATION.
- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

- TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILTY LOAM, LOAMY SAND, LOAMY SILT, OR SILTY CLAY. SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CONCRETES, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1" IN DIAMETER.
- TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
- WHERE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
- FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES:  
1. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.  
2. FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:  
I. ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS DICTATING FERTILIZER AND LIME AMENDMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:  
A. PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.  
B. ORGANIC CONTENT 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 HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

NOTE: TOPSOIL SUBSTITUTES TO AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY MAY BE USED IN LIEU OF NATURAL TOPSOIL.

II. PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 20.0 VEGETATIVE STABILIZATION - SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS.

V. TOPSOIL APPLICATION

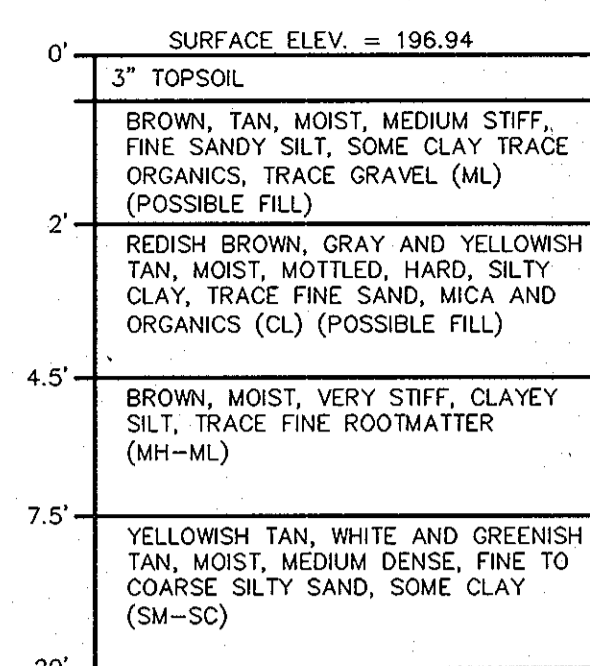
- WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
- GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4" - 8" HIGHER IN ELEVATION.
- 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 SOODING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
- TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDING PREPARATION.
- ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW.

- COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITE HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:  
A. COMPOSTED SLUDGE SHALL BE SUPPLIED BY, OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.04.06.  
B. COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.  
C. COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.  
D. COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.

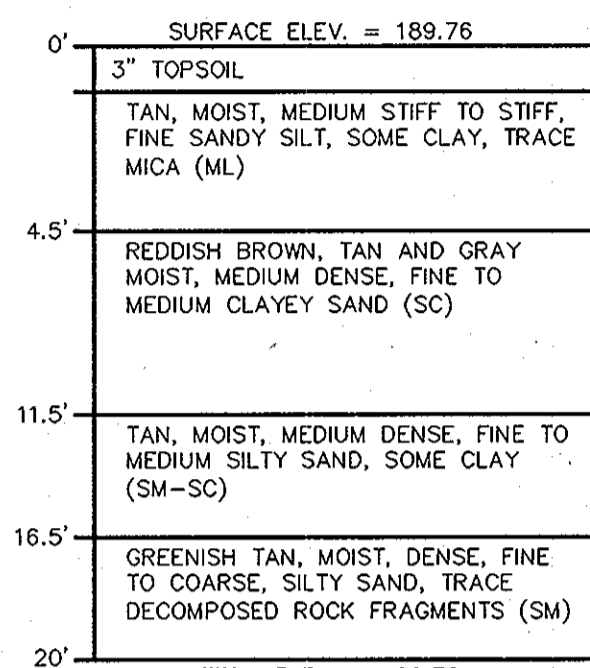
REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SOODING, MD-VA, PUB. #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES, REVISED 1973.

**SEQUENCE OF CONSTRUCTION**

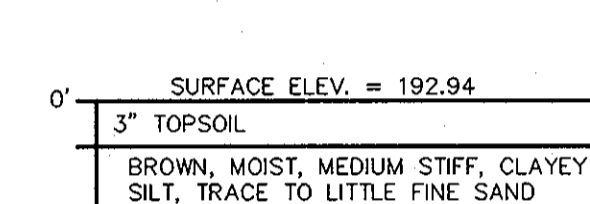
- OBTAIN GRADING PERMIT.
- INSTALL STABILIZED CONSTRUCTION ENTRANCE, SUPER SILT FENCE, AND CONSTRUCT SEDIMENT BASIN (4 WEEKS).
- UPON ACCEPTANCE BY THE COUNTY INSPECTOR CONTRACTOR PROCEED WITH ROUGH GRADING. (2 WEEK)
- AS SUBGRADE ELEVATIONS ARE ESTABLISHED, INSTALL STORM DRAINS, AND SEWER. (1 WEEK)
- INSTALL CURB AND GUTTER AND PAVE. (2 WEEKS)
- APPLY TOPSOIL AND STABILIZE DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (1 WEEK)
- PERFORM FINE GRADING, LANDSCAPING, LIGHTING AND SIDEWALKS. (2 WEEKS)
- INSTALL BIOTENTION FACILITY. (1 WEEK)
- UPON PERMISSION OF COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES AND CONVERT SEDIMENT BASINS TO PERMANENT STORM WATER MANAGEMENT FACILITIES. CONVERT FACILITIES IN THE FOLLOWING STEPS:  
A. CLEAN STORM DRAIN INLETS AND FLUSH OUT PIPES. (5 DAYS)  
B. PUMP OUT STANDING WATER IN BASIN USING PUMPING STATION. (2 DAYS)  
C. REMOVE ACCUMULATED SEDIMENT. (2 DAYS)  
D. REMOVE TEMPORARY DEWATERING DEVICE AND PLYWOOD. (1 DAY)  
E. INSTALL POND DRAIN AND ORIFICE PLATES. (1 DAY)  
F. STABILIZE REMAINING DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (3 DAYS)



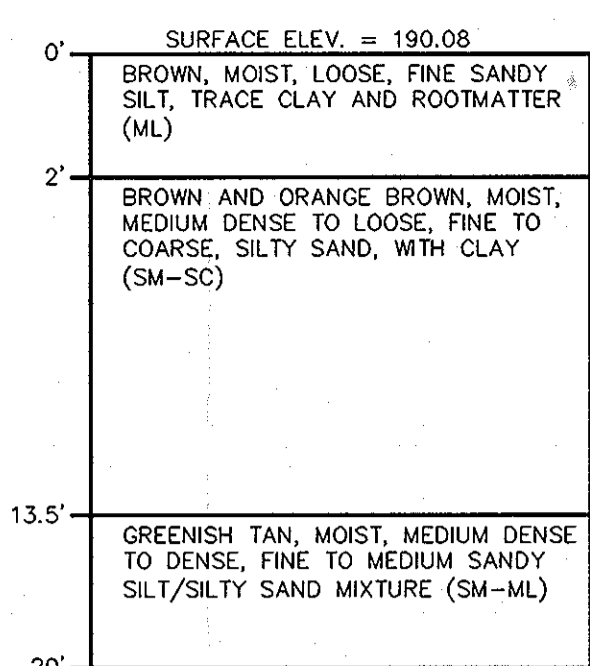
**BORING B-3**  
NO SCALE



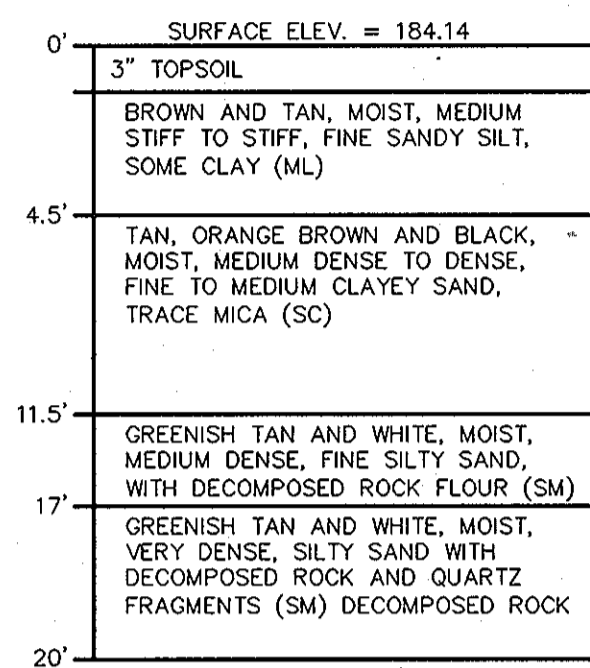
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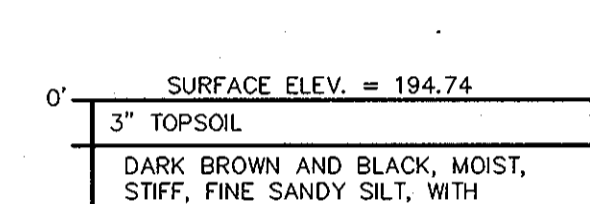
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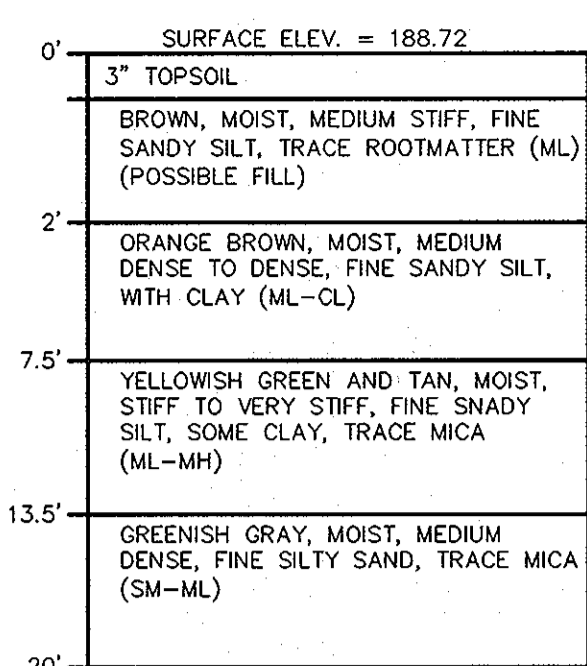
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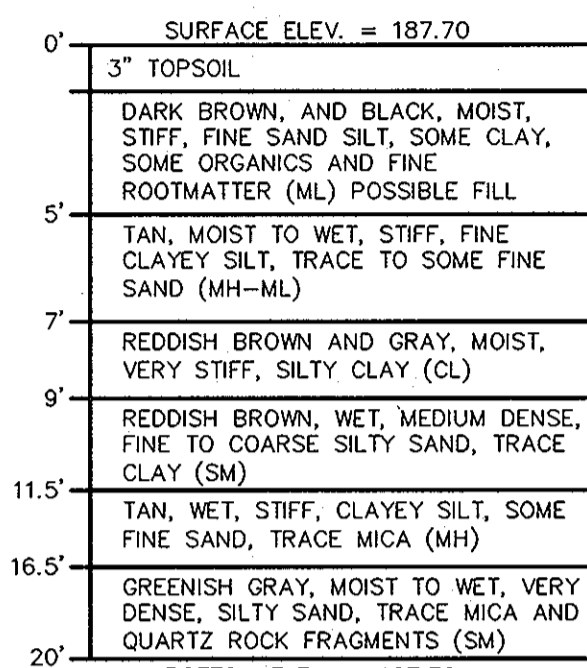
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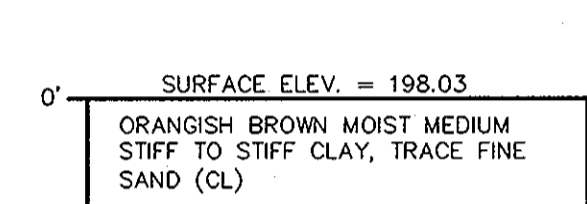
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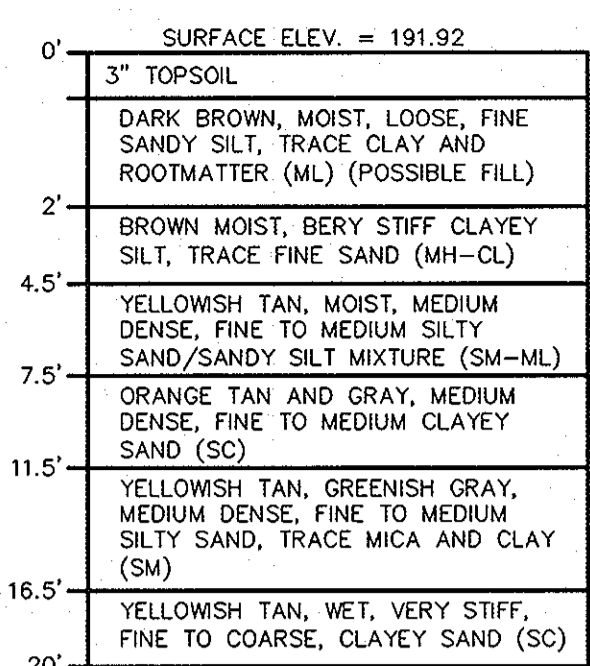
**BORING SWM-1**  
NO SCALE



**BORING SWM-5**  
NO SCALE



**BORING SWM-8**  
NO SCALE



**BORING SWM-2**  
NO SCALE



**BORING SWM-9**  
NO SCALE

**AS-BUILT CERTIFICATION**

DATE: 1-5-05

CHRISTOPHER J. REID #19940

BY THE DEVELOPER:

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

DEVELOPER: *D.P.O.G.* DATE: 6.17.03

BY THE ENGINEER:

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

ENGINEER: *Chet J. Reid* DATE: 6.17.03

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE DATE: 10/22/03

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

HOWARD SOIL CONSERVATION DISTRICT DATE: 10/22/03

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR: *Dan L. Luyck* DATE: 4/11/03

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *Michael P. ...* DATE: 4/10/03

CHIEF, DIVISION OF LAND DEVELOPMENT: *Condy ...* DATE: 11/12/03

DATE	NO.	REVISION

OWNER / DEVELOPER: CROWN ENTERPRISES, INC. 6497 EAST TEN MILE ROAD CENTER LINE, MICHIGAN 48015 810-939-7000

PROJECT: CENTRAL TRANSPORT PHASE 2 PARKING EXPANSION

AREA: ZONED M-2 PARCEL 462 TAX MAP 43 GRID NO. 4 & 5 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT CONTROL NOTES AND DETAILS

Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects. 8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282

DATE: 6.17.03

DESIGNED BY: A.C.R.

DRAWN BY: MAD

CHECKED BY: C.J.R.

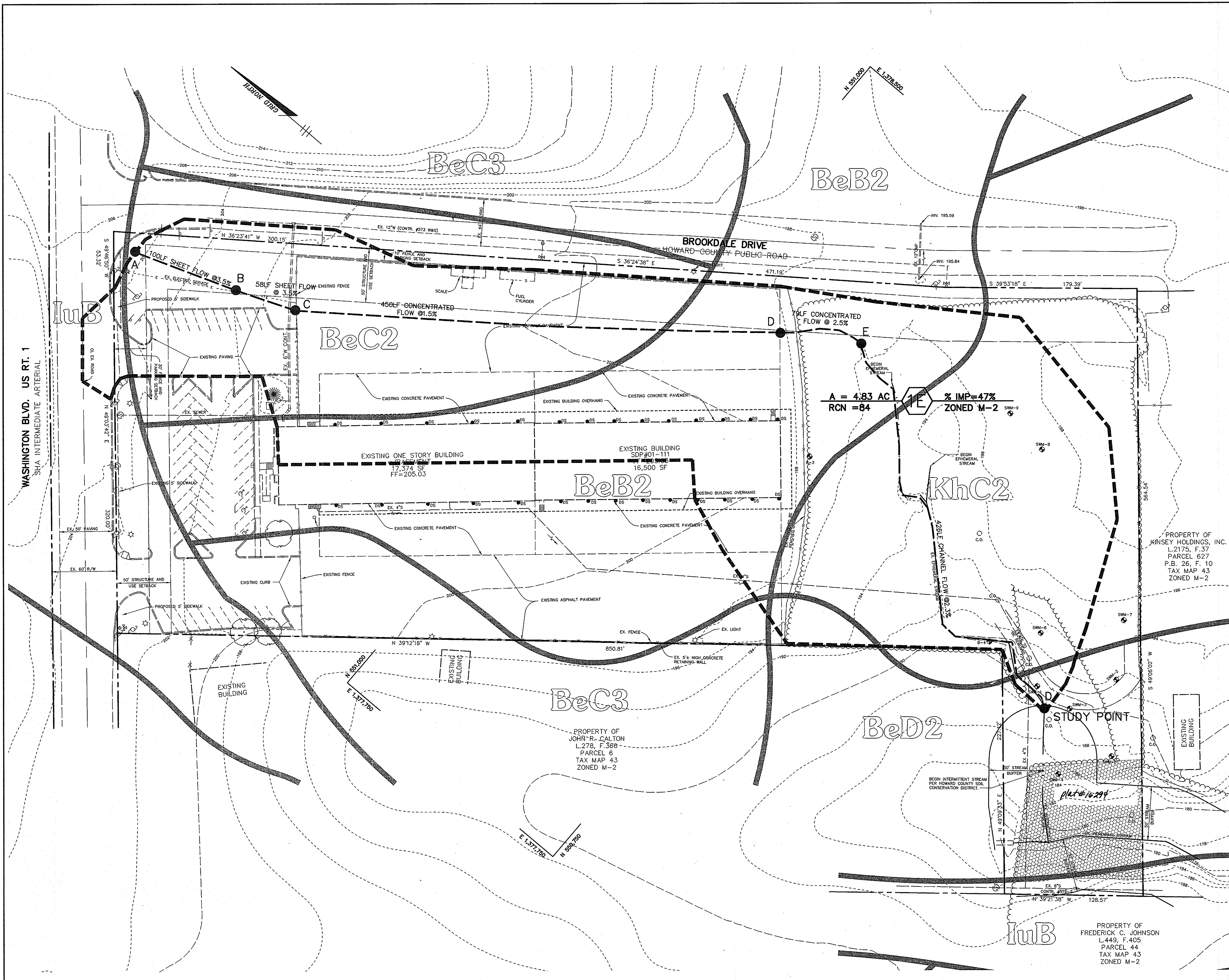
PROJECT NO: 00364/2-0/ENGR/PLANS C201ESC.DWG

DATE: FEBRUARY 6, 2003

SCALE: AS SHOWN

DRAWING NO. 5 OF 17

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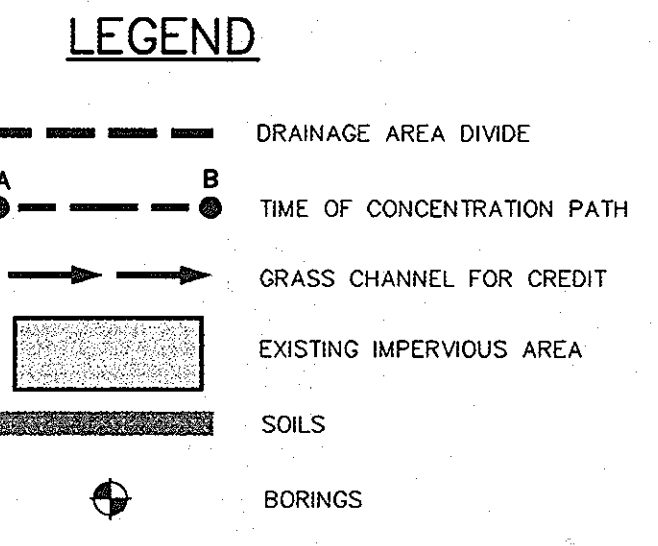
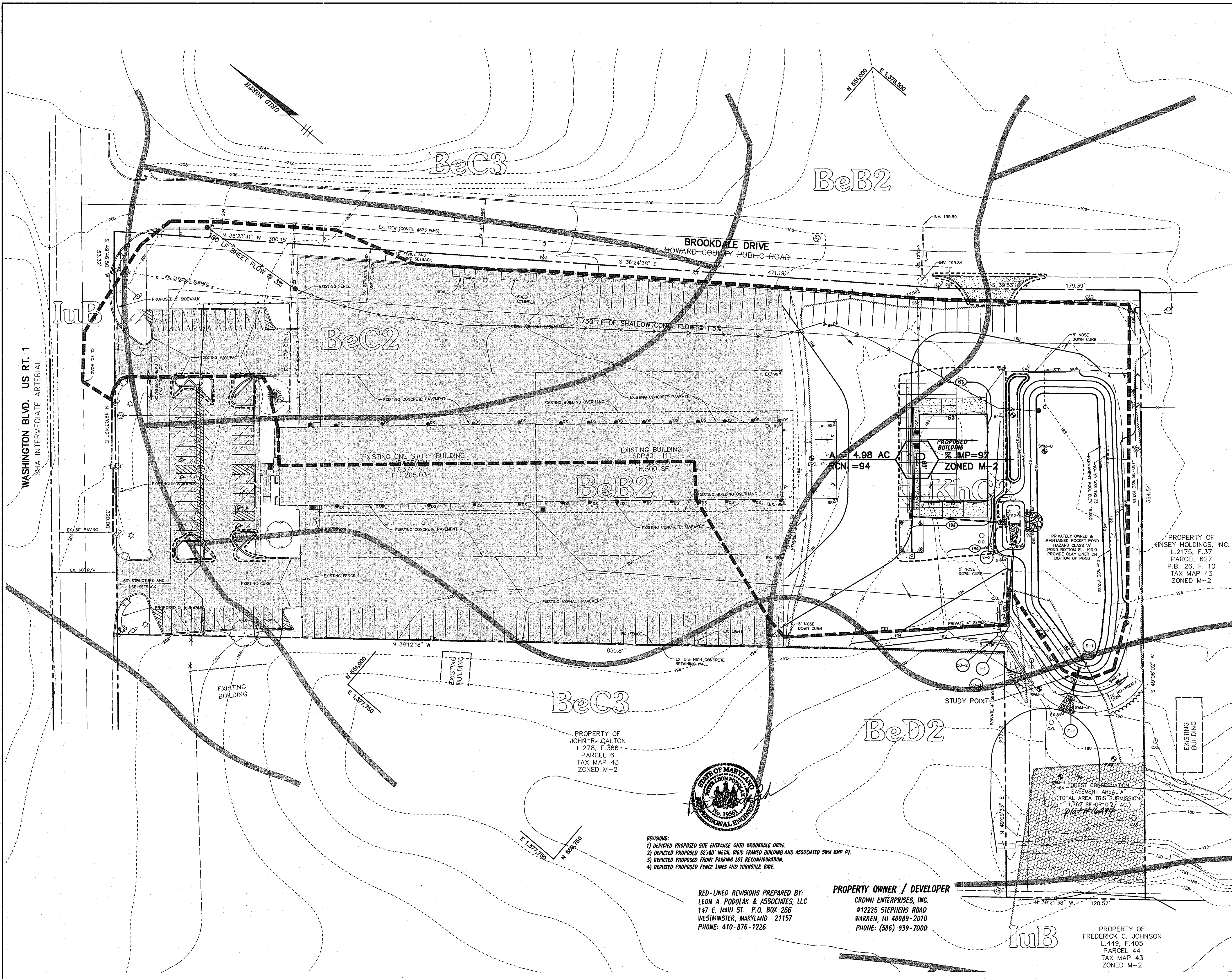


**LEGEND**

- DRAINAGE AREA DIVIDE
- TIME OF CONCENTRATION PATH
- SOILS
- BORINGS

AS-BUILT CERTIFICATION	
	1.5.05 DATE
CHRISTOPHER J. REID #19949	
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
	11/14/03 DATE
DIRECTOR	
	11/10/03 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION MWJ	
	11/14/03 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	
DATE NO.	REVISION
OWNER / DEVELOPER	
CROWN ENTERPRISES, INC. 6497 EAST TEN MILE ROAD CENTER LINE, MICHIGAN 48015 810-939-7000	
PROJECT	
CENTRAL TRANSPORT PHASE 2 PARKING EXPANSION	
AREA	
ZONED M-2 PARCEL 462 TAX MAP 43 GRID No. 4 & 5 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
TITLE	
EXISTING SWM DRAINAGE AREA MAP	
Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects. 8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282	
	6.17.03 DATE
DESIGNED BY: A.C.R.	
DRAWN BY: MAD	
CHECKED BY: C.J.R.	
PROJECT NO: 00364/2-0/ENGR/PLANS C410XDA.DWG	
DATE: FEBRUARY 6, 2003	
SCALE: 1" = 40'	
DRAWING NO. 6 OF 17	

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<b>AS-BUILT CERTIFICATION</b>	
	1.5.05 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>Mark Wright</i> DIRECTOR	11/11/05 DATE
<i>Christopher J. Reid</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	11/10/05 DATE
<i>Cindy Horvath</i> CHIEF, DIVISION OF LAND DEVELOPMENT	11/10/05 DATE
11-16-12   HOWARD COUNTY RED-LINE COMMENTS	
DATE NO.	REVISION
OWNER / DEVELOPER CROWN ENTERPRISES, INC. 6497 EAST TEN MILE ROAD CENTER LINE, MICHIGAN 48015 810-939-7000	
PROJECT <b>CENTRAL TRANSPORT PHASE 2 PARKING EXPANSION</b>	
AREA PARCEL 462 ZONED M-2 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
TITLE <b>PROPOSED SWM DRAINAGE AREA MAP</b>	
Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects. 8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282	
DATE 16-13-05	DESIGNED BY: A.C.R.
	DRAWN BY: CAD
	CHECKED BY: C.J.R.
	PROJECT NO: 00364/2-0/ENGR/PLANS C410PDA.DWG
	DATE: FEBRUARY 6, 2003
	SCALE: 1" = 40'
CHRISTOPHER J. REID #19949	DRAWING NO. 7 OF 17

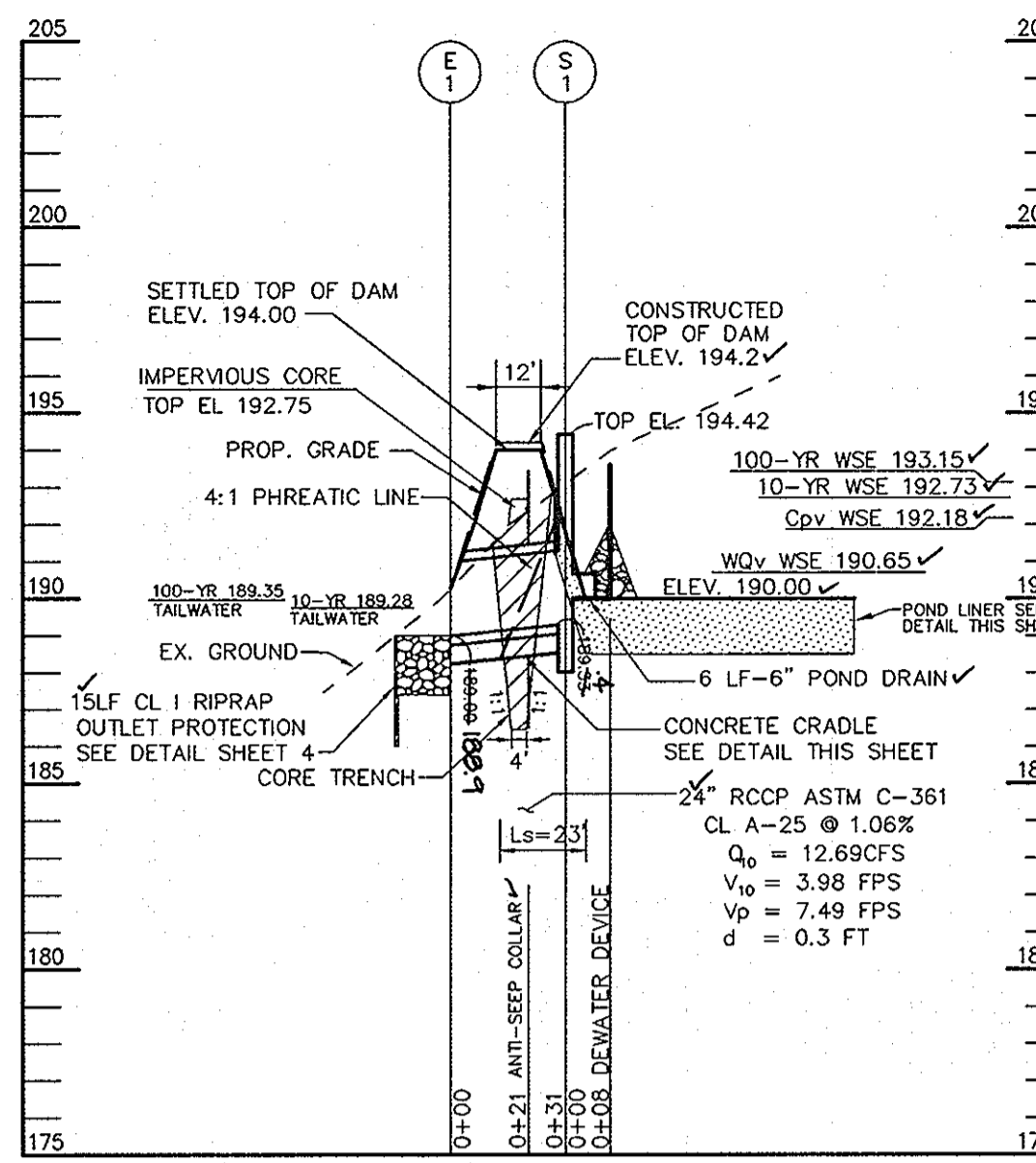
- REVISIONS:
- 1) DEPICTED PROPOSED SITE ENTRANCE ONTO BROOKDALE DRIVE.
  - 2) DEPICTED PROPOSED 62'-80" METAL RIGID FRAMED BUILDING AND ASSOCIATED SWM BMP #1.
  - 3) DEPICTED PROPOSED FRONT PARKING LOT RECONFIGURATION.
  - 4) DEPICTED PROPOSED FENCE LINES AND TURNSTILE GATE.



RED-LINED REVISIONS PREPARED BY:  
LEON A. PODOLAK & ASSOCIATES, LLC  
147 E. MAIN ST. P.O. BOX 266  
WESTMINSTER, MARYLAND 21157  
PHONE: 410-876-1226

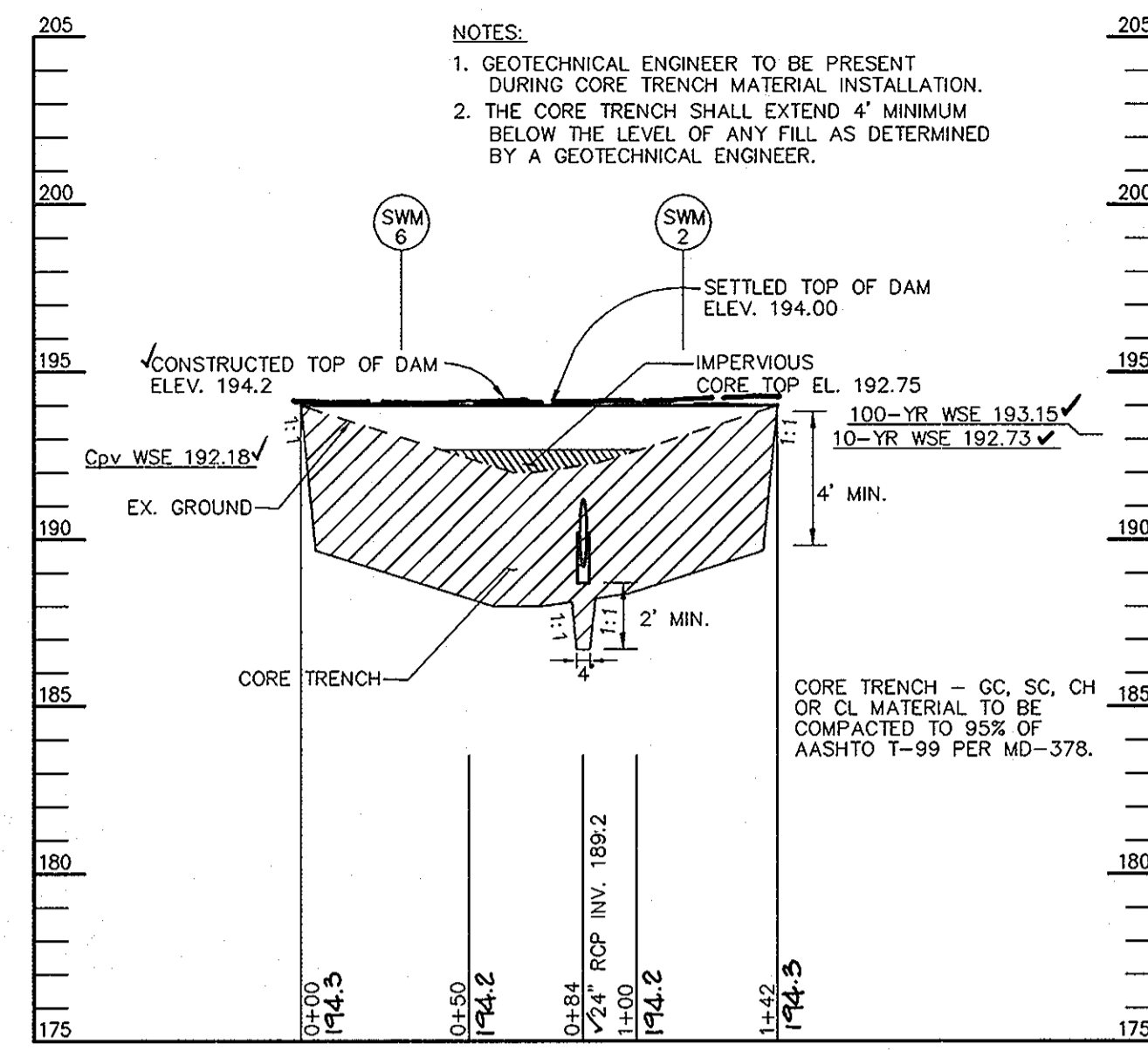
PROPERTY OWNER / DEVELOPER  
CROWN ENTERPRISES, INC.  
#12225 STEPHENS ROAD  
WARREN, MI 48089-2010  
PHONE: (586) 939-7000

PROPERTY OF  
FREDERICK C. JOHNSON  
L.449, F.405  
PARCEL 44  
TAX MAP 43  
ZONED M-2



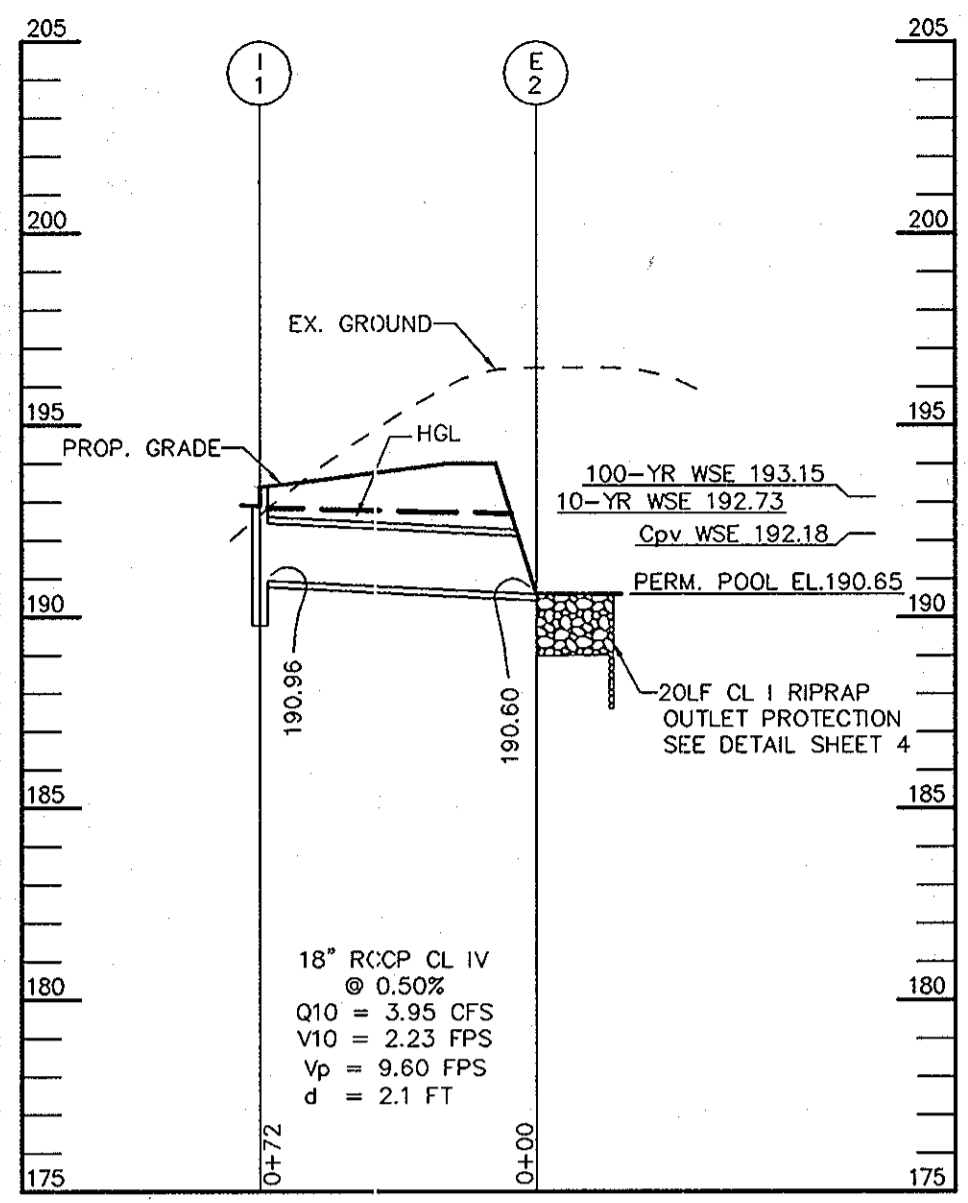
PRINCIPAL SPILLWAY PROFILE

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



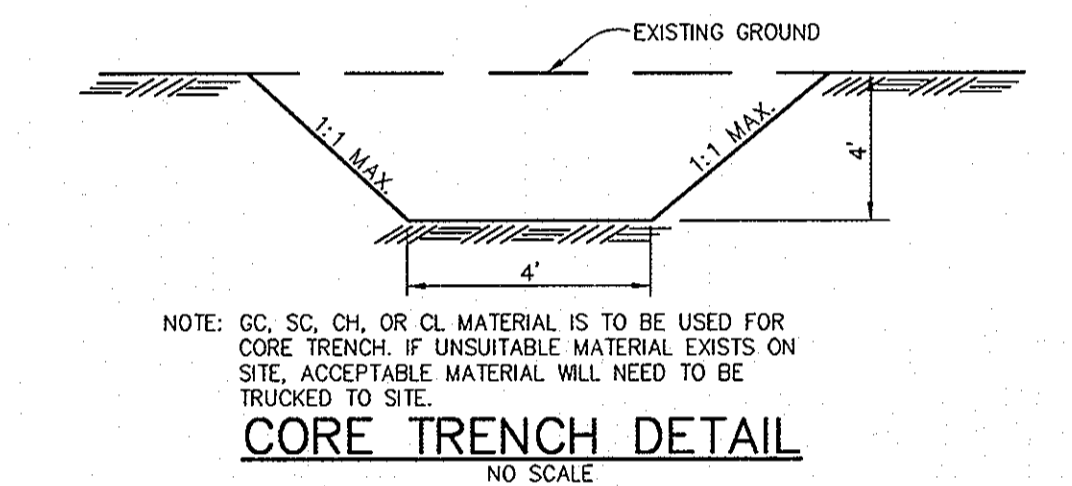
EMBANKMENT CENTERLINE PROFILE

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

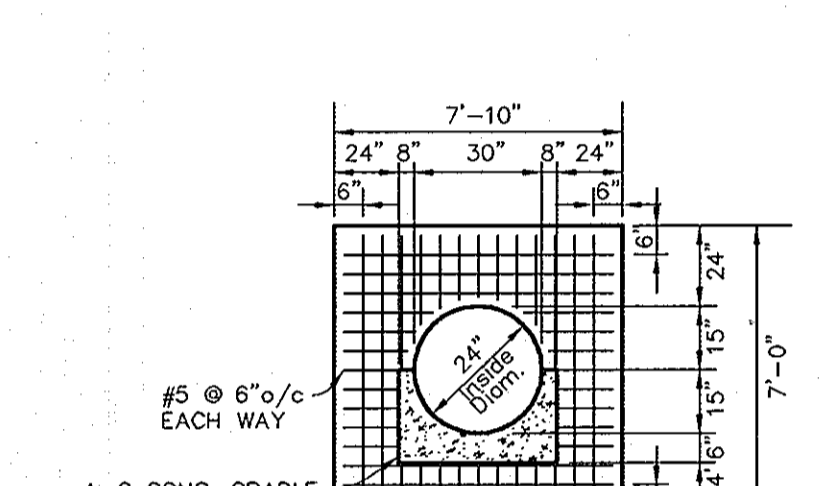


STORM DRAIN PROFILE

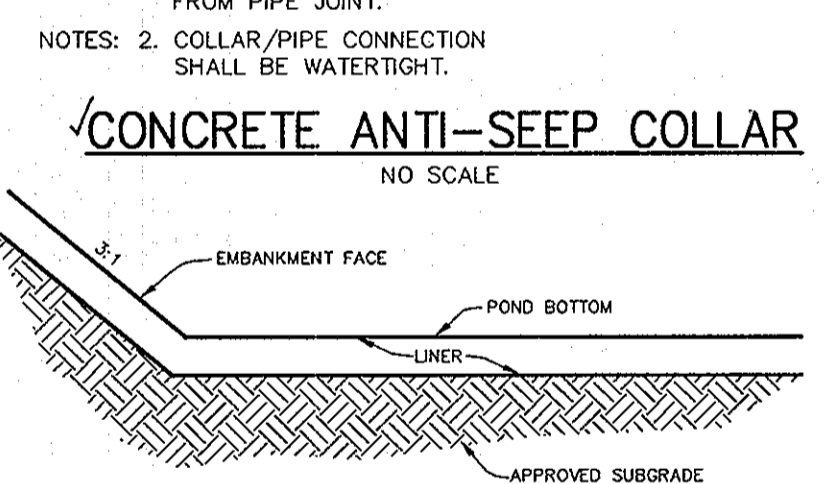
SCALE: HOR.-1"=50'  
VERT.-1"=5'



CORE TRENCH DETAIL



CONCRETE ANTI-SEEP COLLAR

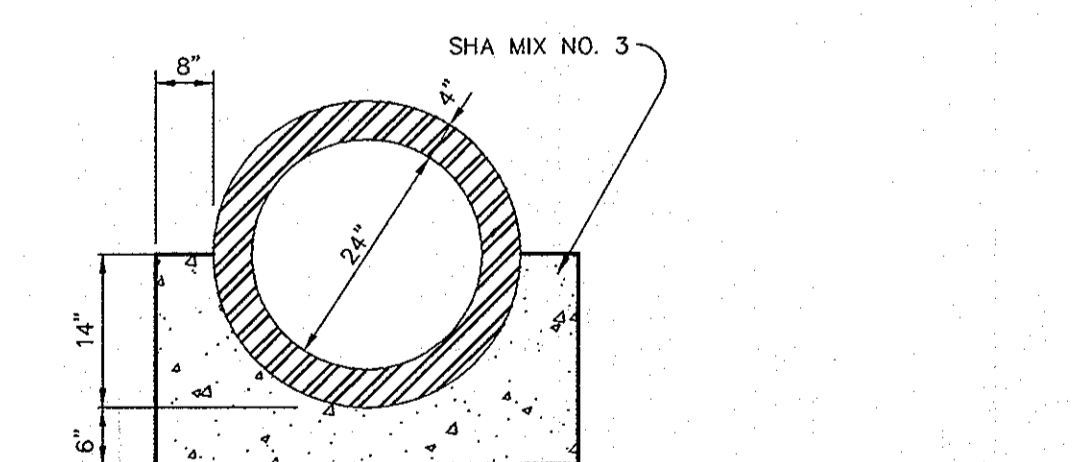


POND LINER DETAIL

LINER NOTES:  
1. THE LINER SHALL BE AT LEAST 18" THICK PLACED AS COMPACTED FILL IN LOOSE LIFTS OF 8" COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR METHOD (ASTM D-998).  
2. FILL MATERIAL FOR THE LINER SHALL CONSIST OF SILTY OR SANDY CLAY (CL), OR CLAYEY SAND (SC). CLAYEY SAND MATERIALS SHALL HAVE NO LESS THAN 20% PASSING THE NO. 200 SIEVE. OTHER BACKFILL MATERIALS MAY BE CONSIDERED AND APPROVED BY THE GEOTECHNICAL ENGINEER.  
3. THE LINER SUBGRADE SHALL BE OBSERVED BY THE GEOTECHNICAL TO BE STABLE PRIOR TO BACKFILLING THE LINER.  
4. THE LINER SHALL EXTEND VERTICALLY AT LEAST TO THE 10 YEAR WATER SURFACE ELEVATION.

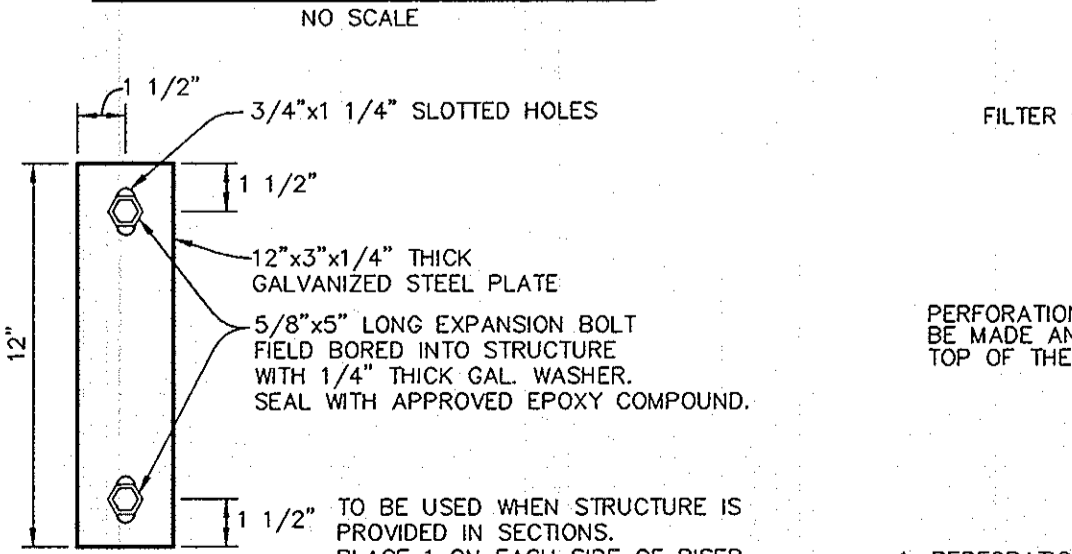
OPERATION AND MAINTENANCE SCHEDULE OF PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITY POND

- ROUTINE MAINTENANCE
- Facility shall be inspected annually and after major storms. Inspections should be performed during wet weather to determine if the pond is functioning properly.
  - Top and side slopes of the embankment shall be mowed a minimum of two (2) times a year, once in June and once in September. Other side slopes, the bottom of the pond, and maintenance access should be mowed as needed.
  - Debris and litter next to the outlet structure shall be removed during regular mowing operations and as needed.
  - Visible signs of erosion in the pond and as well as riprap outlet area shall be repaired as soon as it is noticed.
- NON-ROUTINE MAINTENANCE
- Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components should be inspected during routine maintenance operations.
  - Sediment should be removed when its accumulation significantly reduces the design storage, interfere with the function of the riser, when deemed necessary for aesthetic reasons, or when deemed necessary by the Howard County's Department of Public Works.



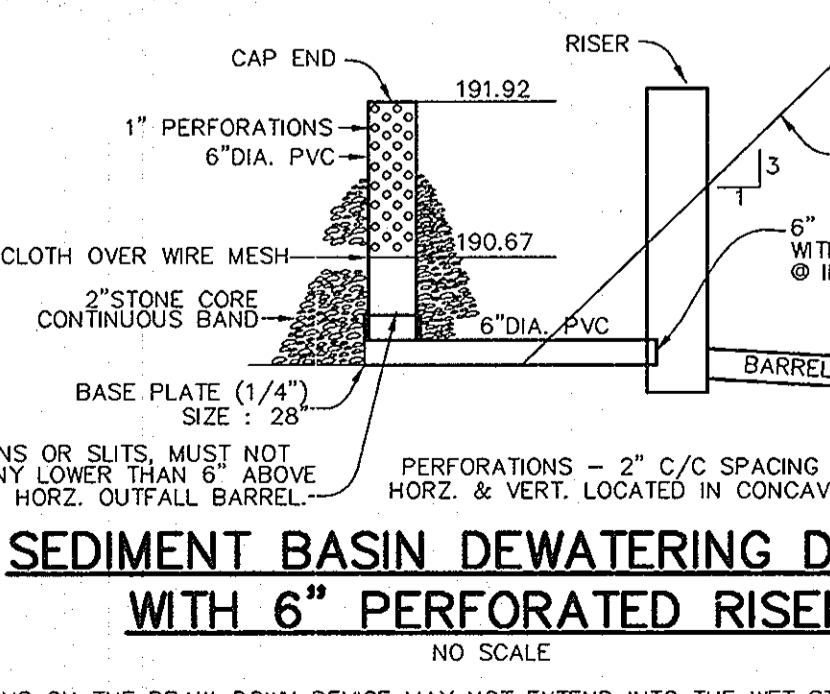
RISER JOINT FASTENER

CLASS 'A' DAMS LESS THAN 50' HIGH



A-2 CONCRETE CRADLE

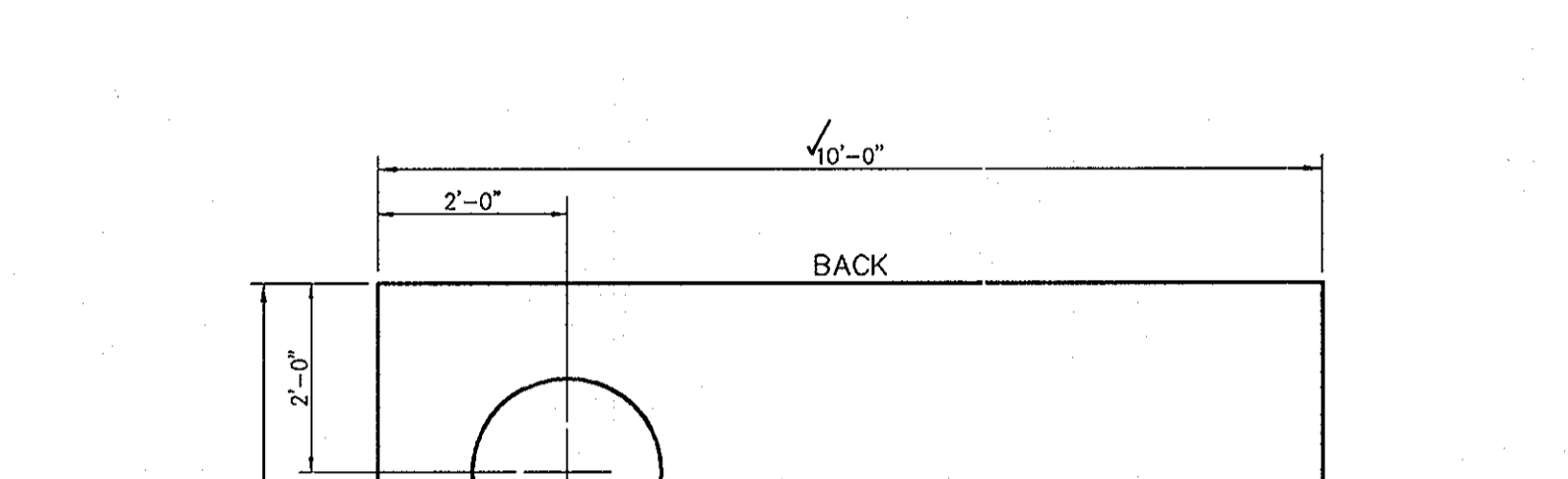
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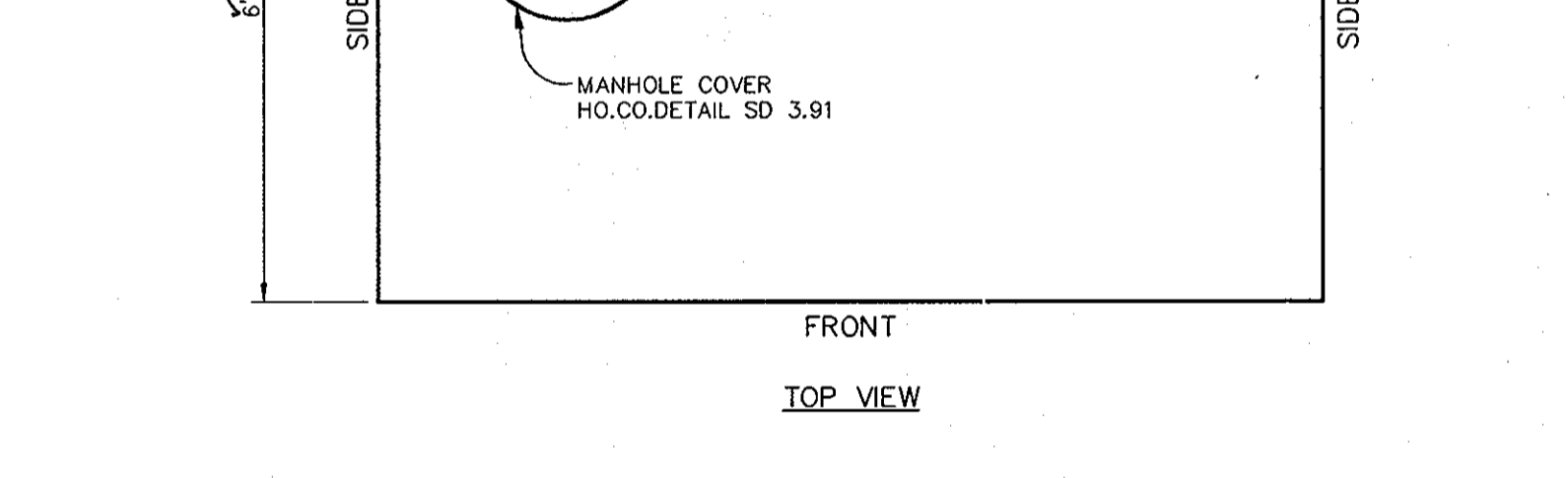
SEDIMENT BASIN DEWATERING DEVICE WITH 6" PERFORATED RISER

NO SCALE

- PERFORATIONS ON THE DRAW-DOWN DEVICE MAY NOT EXTEND INTO THE WET STORAGE.
- THE TOTAL AREA OF THE PERFORATIONS MUST BE GREATER THAN 2 TIMES THE AREA OF THE INTERNAL ORIFICE.
- THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE SHALL BE WRAPPED WITH 1/2" HARDWARE CLOTH AND GEOTEXTILE FABRIC. THE GEOTEXTILE FABRIC SHALL MEET THE SPECIFICATIONS FOR GEOTEXTILE CLASS E.

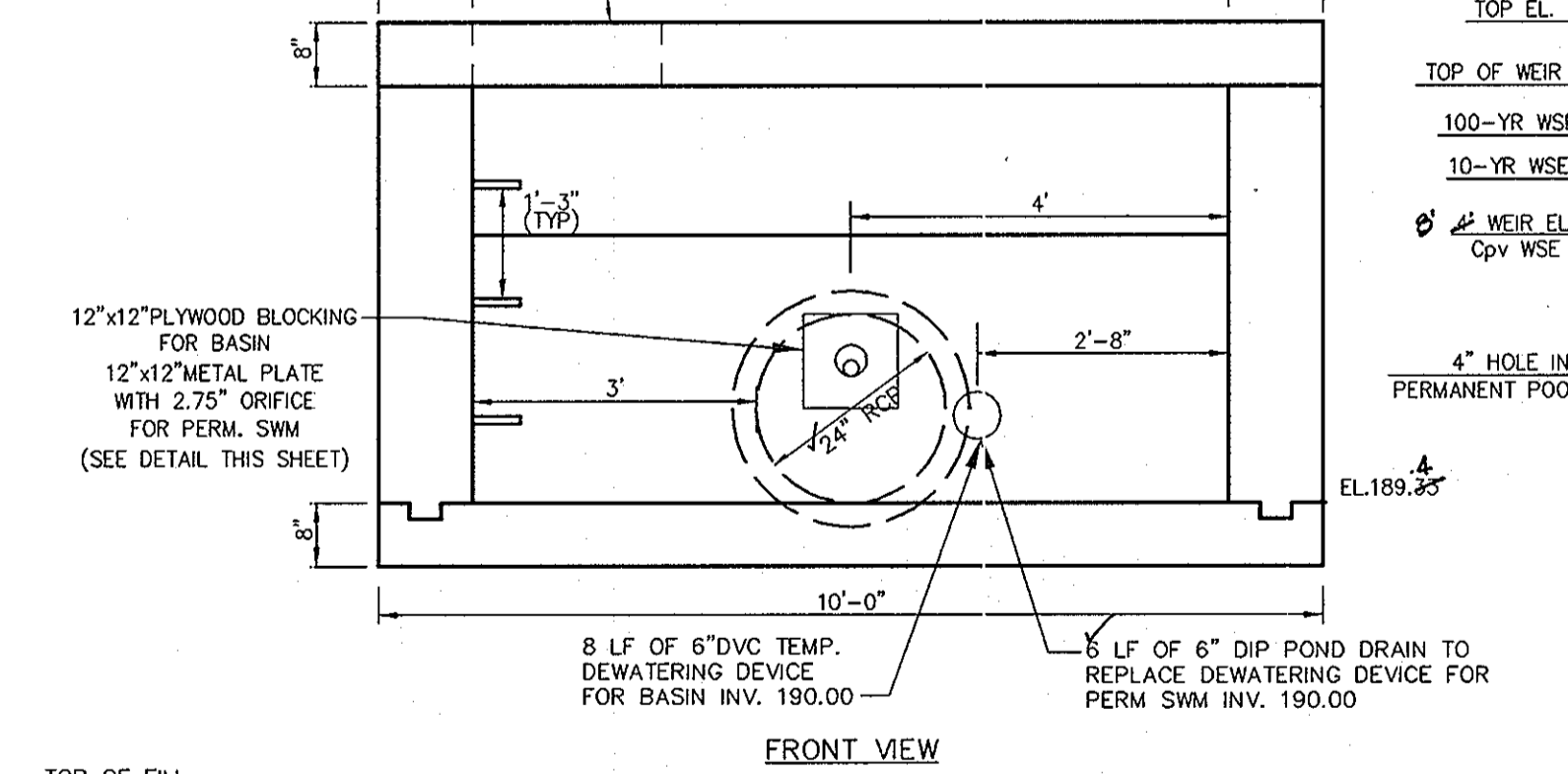


MANHOLE COVER DETAIL



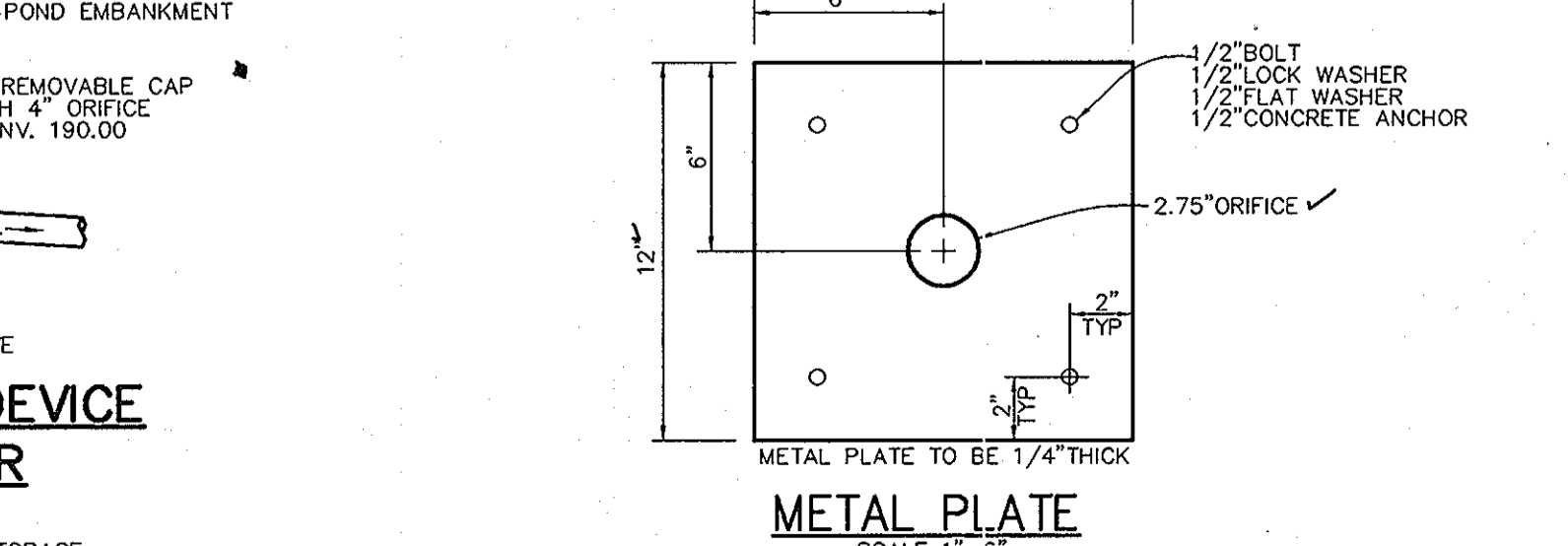
TRASH RACK DETAIL

SCALE 1"=2'



S-1 DETAILS

SCALE 1"=2'



METAL PLATE

SCALE 1"=5'

GALVANIZE METAL PLATE AFTER FABRICATION AND PAINT BATTLESHIP GRAY.

STRUCTURE SCHEDULE

STRUCTURE	TYPE	LOCATION	INV. IN	INV. OUT	TOP	REMARKS
I-1	A-10	N 550572 E 1378189	-	190.96 (18")	193.4	HOCO STD. DETAIL SD-4.41
S-1	MODIFIED STRUCTURE	N 550496 E 1378203	190.00 (6")	189.33 (24")	194.42	SEE DETAIL THIS SHEET
E-1	24" ASTM END SECTION	N 550483 E 1378174	189.00 (24")	-	-	HOCO STD. DETAIL SD-5.51
E-2	18" RCCP END SECTION	N 550614 E 1378247	190.60 (18")	-	-	-
CO-1	4" CLEANOUT	N 550518 E 1378160	-	-	189.4	HOCO STD. DETAIL S-2.22
CO-2	4" CLEANOUT	N 550570 E 1378175	-	-	191.5	HOCO STD. DETAIL S-2.22

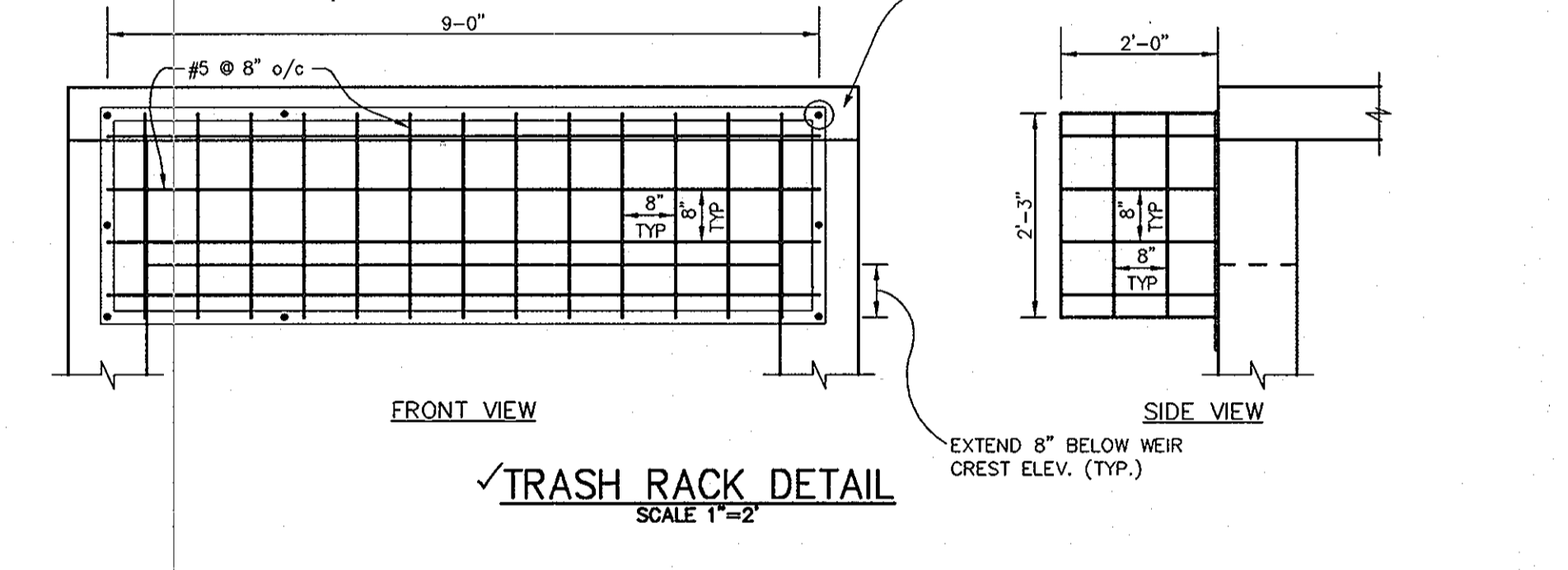
NOTES:  
FOR END SECTIONS THE LOCATION IS BOTTOM CENTER OF STRUCTURE.  
LOCATION OF 'X' INLETS IS GIVEN FOR CENTER OF THROAT OPENING AT FACE OF CURB.

RISER STRUCTURE NOTES FOR S-1

- RISER TO BE PRECAST. SHOP DRAWINGS FOR THIS CONCRETE STRUCTURE SHALL MEET THE MINIMUM ASTM REQUIREMENTS FOR PRECAST STRUCTURES. A SHOP DRAWING SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION AND SHALL BE SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER.
- CONCRETE SHALL BE MSHA MIX NO. 3 (f<sub>c</sub>=3,500 psi MINIMUM)
- REFER TO HOWARD COUNTY STD. G-5.21 FOR MANHOLE STEP DETAILS.
- RISER JOINTS SHALL BE WATERTIGHT USING NEOPRENE GASKETS.
- ALL PIPE CONNECTIONS SHALL PROVIDE RUBBER GASKET FOR WATERTIGHTNESS.
- RISER SHALL BE PLACED ON A FIRMLY COMPACTED SUBGRADE AND SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.
- A 6" BUTTERFLY VALVE SHALL BE CONNECTED TO THE RISER WALL WITH ALL-THREADED ROD AND A FLANGE JOINT.

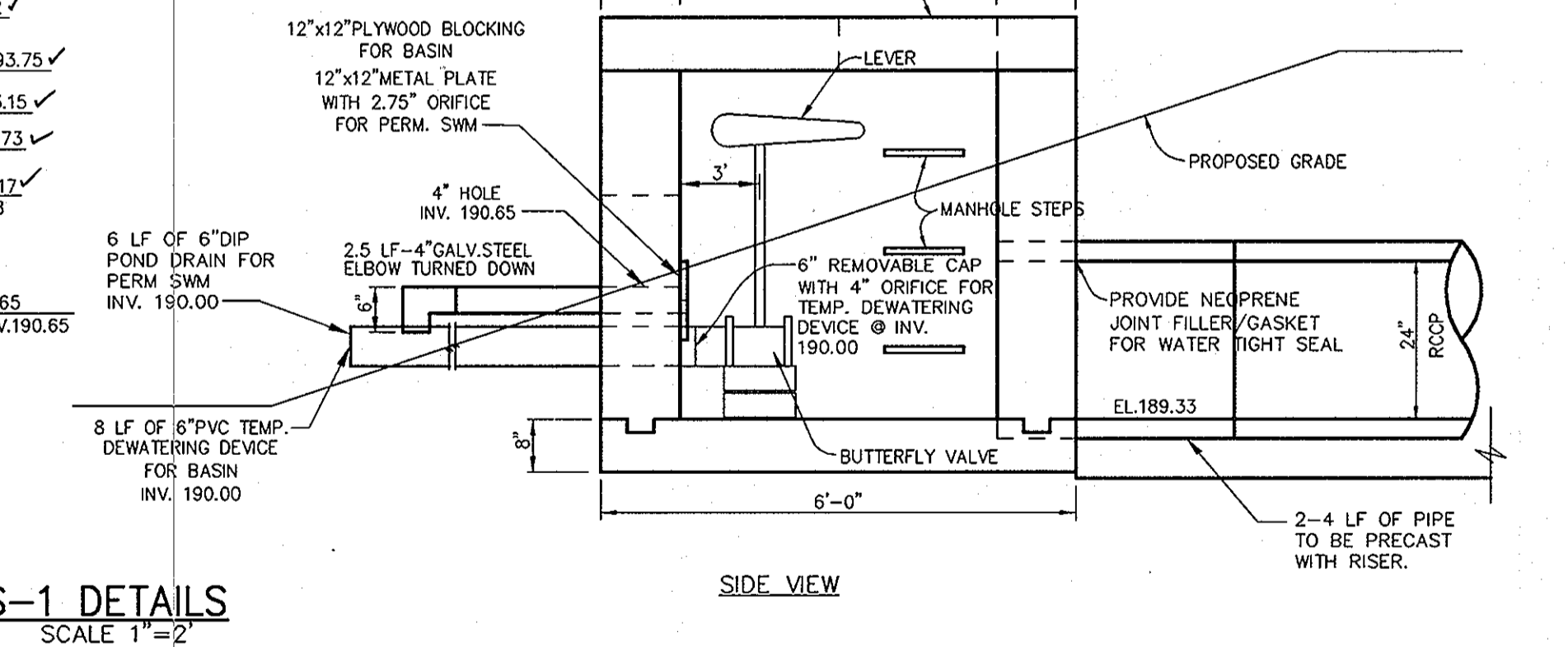
REMOVABLE TRASH RACK NOTES:

- STEEL TO CONFORM TO ASTM A-36. #5 BARS TO BE SMOOTH. SEE DETAIL FOR SPACING.
- ALL REBAR TO BE WELDED AT ALL INTERSECTIONS.
- ALL BENDS TO BE 2" RADIUS. 2" x 2" ANGLE IRON AND 1/2" DIAMETER ANCHOR BOLTS TO BE USED FOR TRASH RACK FRAME.
- GALVANIZE TRASH RACK AFTER FABRICATION AND PAINT TWO COATS BATTLESHIP GRAY.



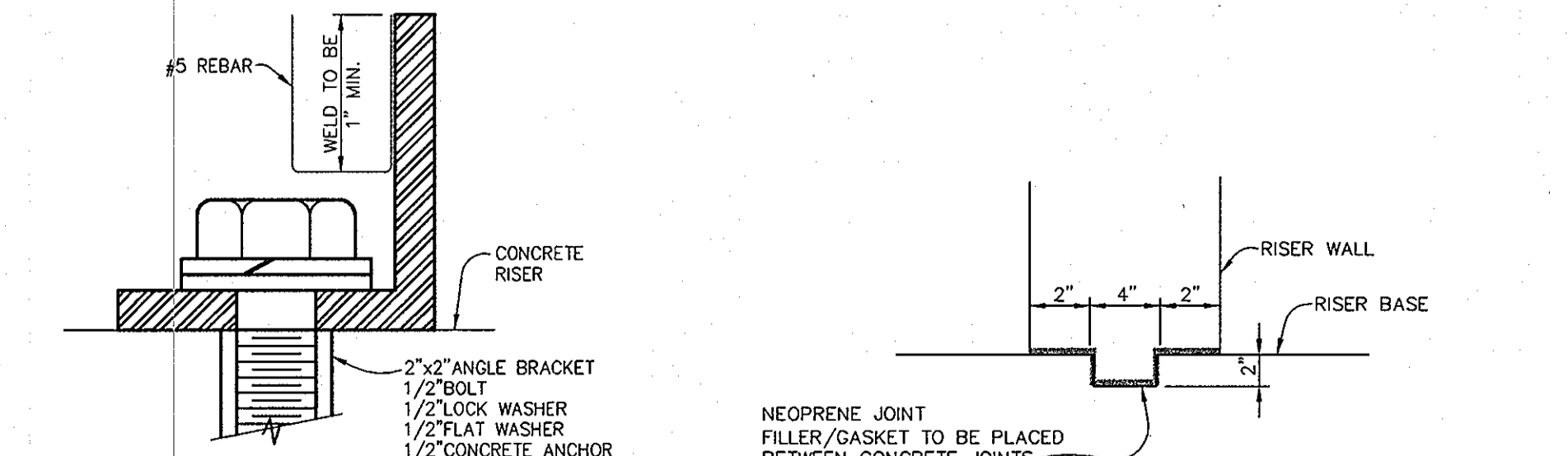
TRASH RACK DETAIL

SCALE 1"=2'



S-1 DETAILS

SCALE 1"=2'



ENLARGEMENT A

NO SCALE

NEOPRENE JOINT FILLER/GASKET TO BE PLACED BETWEEN CONCRETE JOINTS

PIPE SCHEDULE

PIPE LENGTH	SIZE	TYPE
72	18"	RCCP CL IV
31	24"	RCCP ASTM

AS-BUILT CERTIFICATION

STATE OF MARYLAND  
REGISTERED PROFESSIONAL ENGINEER  
CHRISTOPHER J. REID #19949  
DATE 1.5.05

BY THE DEVELOPER:

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

BY THE ENGINEER:

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

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

NATURAL RESOURCES CONSERVATION SERVICE DATE

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

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

OWNER / DEVELOPER

CROWN ENTERPRISES, INC.  
6497 EAST TEN MILE ROAD  
CENTER LINE, MICHIGAN 48015  
810-939-7000

PROJECT

CENTRAL TRANSPORT PHASE 2 PARKING EXPANSION  
AREA ZONED M-2  
PARCEL 462 TAX MAP 43 GRID No. 4 & 5  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE

PROFILES & DETAILS

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

DESIGNED BY: A.C.R.  
DRAWN BY: MAD

CHECKED BY: C.J.R.  
PROJECT NO: 00364/2-0/ENR/PLANS  
CS00DET.DWG

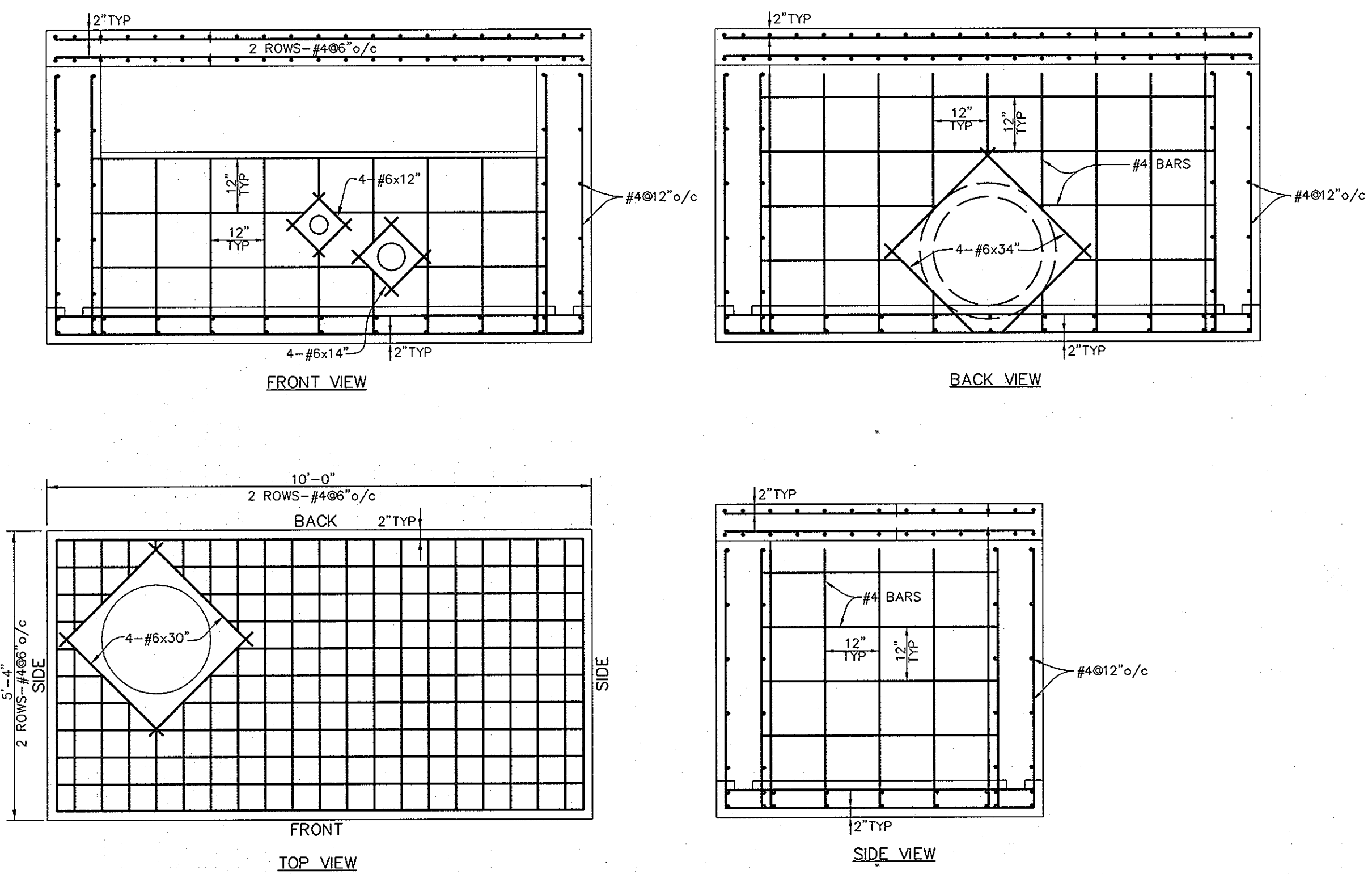
DATE: FEBRUARY 6, 2003  
SCALE: AS SHOWN  
DRAWING NO. 8 OF 17

CHRISTOPHER J. REID #19949  
AS-BUILT - 01/03/05 SDP-03-77

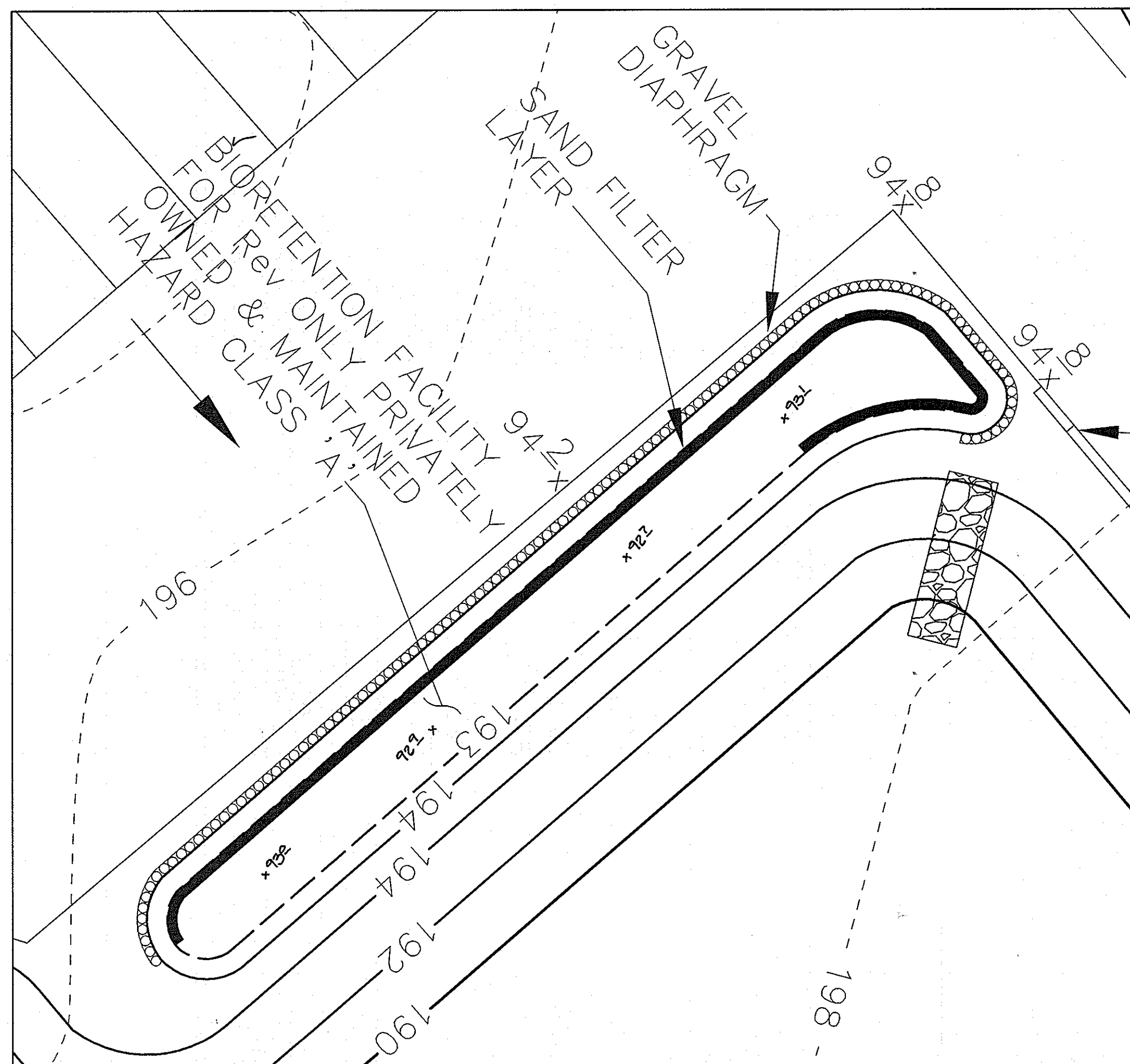


SPECIFICATIONS FOR BIORETENTION

- MATERIAL SPECIFICATIONS**  
THE ALLOWABLE MATERIALS TO BE USED IN BIORETENTION AREA ARE DETAILED IN TABLE B.3.2.
- PLANTING SOIL**  
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUD GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.  
  
THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:  
pH RANGE 5.2-7.  
ORGANIC MATTER 1.5-4% (BY WEIGHT)  
MAGNESIUM 35 lb./ac  
PHOSPHORUS (PHOSPHATE-P<sub>2</sub> O<sub>5</sub>) 75 lb./ac  
POTASSIUM (POTASH-K<sub>2</sub> O) 85 lb./ac  
SOLUBLE SALTS NOT TO EXCEED 500 ppm  
  
ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, PHOSPHORUS, AND POTASSIUM AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOP SOIL WAS EXCAVATED.  
  
SINCE DIFFERENT LABS CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY, ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY.  
  
SHOULD THE pH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR.
- COMPACTION**  
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BIORETENTION AREAS ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.  
  
COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACATURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.  
  
ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.  
  
WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.  
  
WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- PLANT MATERIAL**  
SEE LANDSCAPE PLAN FOR PLANT MATERIALS.
- PLANT INSTALLATION**  
MULCH SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.  
  
ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8th OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANT PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.  
  
TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.  
  
GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.  
  
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS, DEERATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.
- UNDERDRAINS**  
UNDERDRAINS ARE TO BE PLACED ON A 3'-0" WIDE SECTION OF FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED.
- MISCELLANEOUS**  
THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.



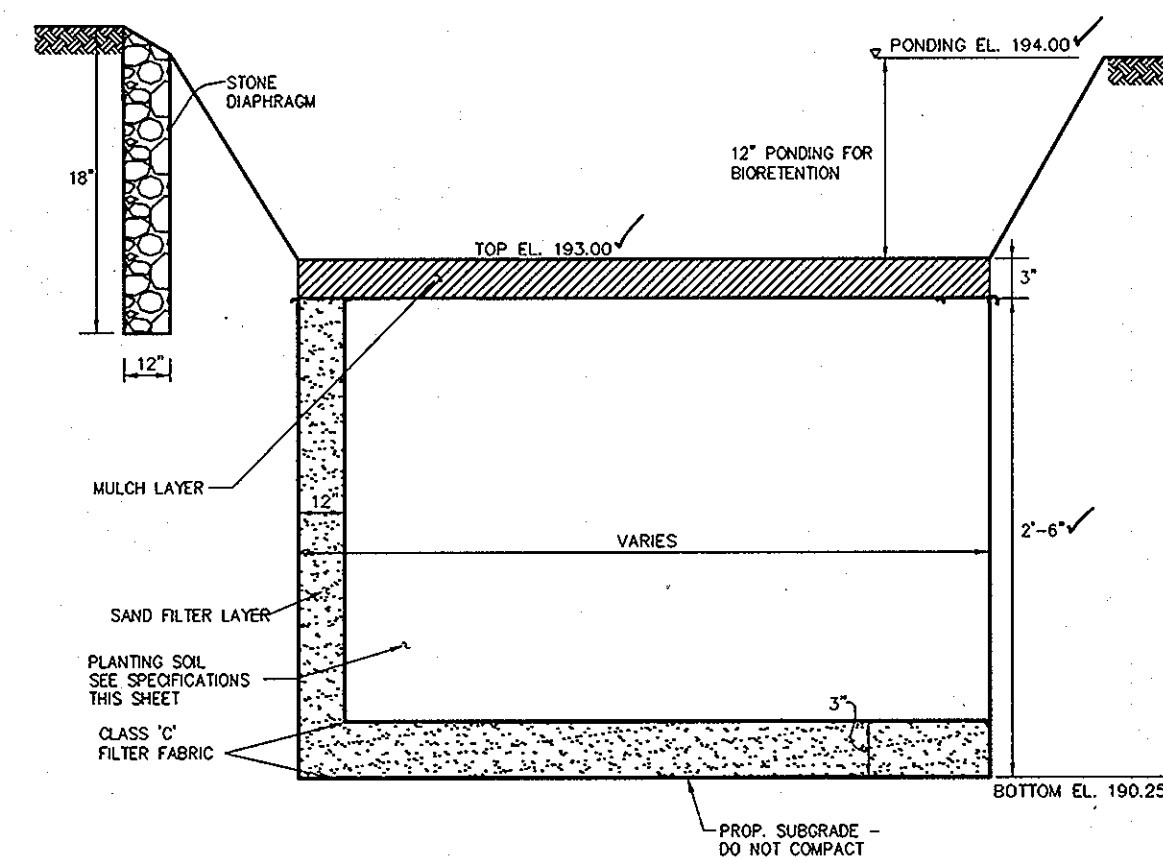
S-1 REINFORCEMENT DETAILS  
SCALE 1" = 2'



SCALE: 1" = 10'

OPERATION AND MAINTENANCE SCHEDULE  
OF PRIVATELY OWNED AND MAINTAINED  
BIORETENTION FACILITY

- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER, AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.



BIORETENTION FACILITY SECTION  
SCALE: HOR. 1" = 5'  
VERT. 1" = 1'

MATERIAL	SPECIFICATIONS	SIZE	NOTES
PLANTINGS	SEE LANDSCAPE PLAN SHEET	N/A	
PLANTING SOIL (2.5' TO 4' DEEP)	SAND 35 - 60 % SILT 30 - 55 % CLAY 10 - 25 %	N/A	USDA SOIL TYPES LOAMY SAND, SANDY LOAM, OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
STONE DIAPHRAGM AND CURTAIN DRAIN	PEA GRAVEL: ASTM-D-448 ORNAMENTAL STONE: WASHED COBBLES	PEA GRAVEL: No. 6 STONE: 2" to 5"	
GEOTEXTILE	CLASSE "C" - APPARENT OPENING SIZE (ASTM-D-4751), GRAB TENSILE STRENGTH (ASTM-D-4632), PUNCTURE RESISTANCE (ASTM-D-4822)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY.
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" to 0.75"	
UNDERDRAIN PIPE	F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	3/8" PERF. @ 6" O/C, 4 HOLES PER ROW;
SAND	AASHTO M-6 or ASTM C-33	0.02" to 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRASTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

AS-BUILT CERTIFICATION

CHRISTOPHER J. REID #19949 DATE 1-5-05

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Director: *Janice A. Cagle* DATE 1/14/05

Chief, Development Engineering Division: *Mark J. ...* DATE 1/10/05

Chief, Division of Land Development: *Carly Hamilton* DATE 1/14/05

DATE	NO.	REVISION

OWNER / DEVELOPER  
CROWN ENTERPRISES, INC.  
6497 EAST TEN MILE ROAD  
CENTER LINE, MICHIGAN 48015  
810-939-7000

PROJECT  
CENTRAL TRANSPORT  
PHASE 2  
PARKING EXPANSION

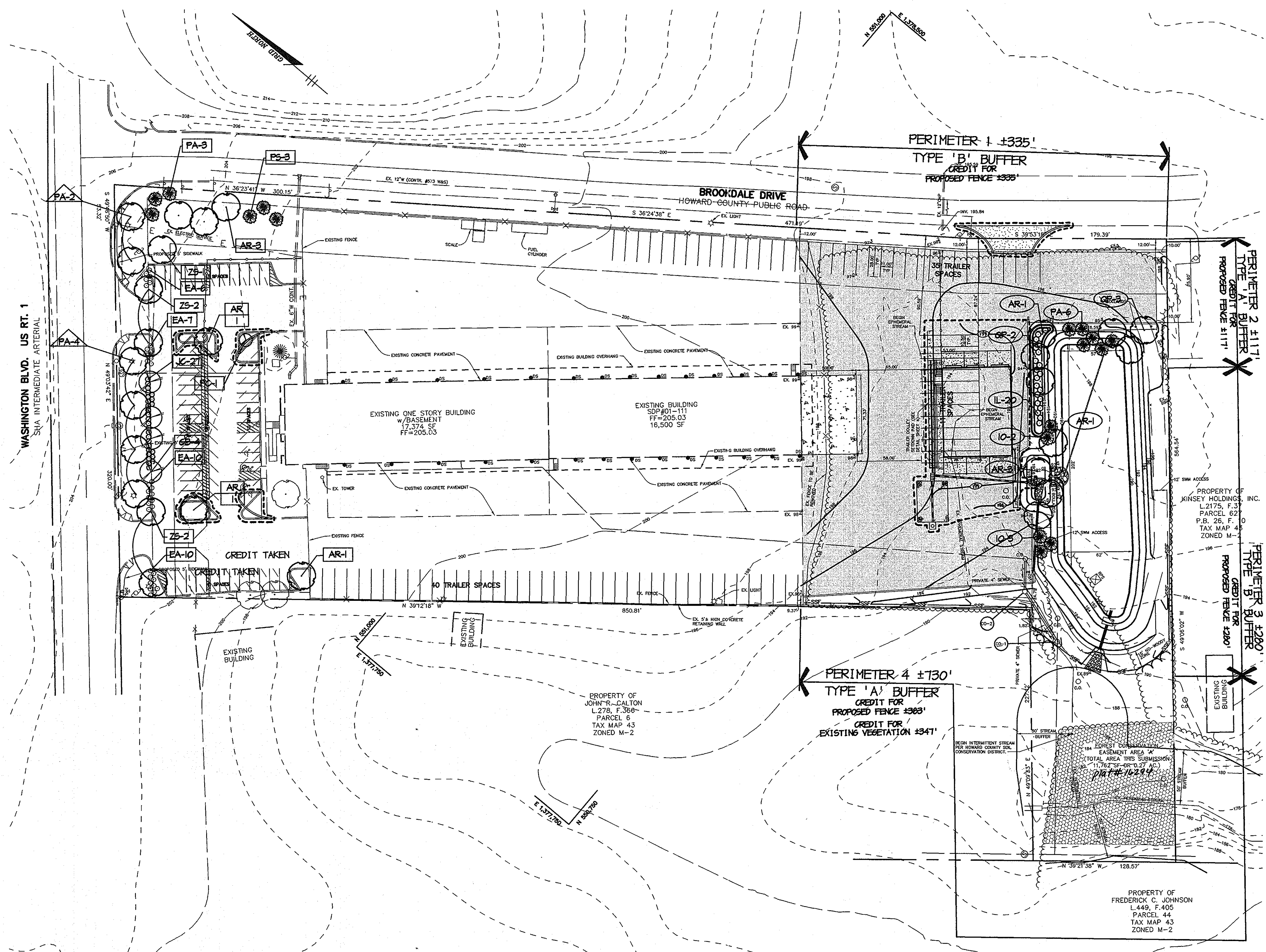
AREA  
ZONED M-2  
PARCEL 462 TAX MAP 43 GRID No. 4 & 5  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE  
DETAILS

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

DATE 6-17-03  
DESIGNED BY: A.C.R.  
DRAWN BY: MAD  
CHECKED BY: C.J.R.  
PROJECT NO: 00364/2-0/ENGR/PLANS  
C901DET.DWG  
DATE: FEBRUARY 6, 2003  
SCALE: AS SHOWN  
DRAWING NO. 9 OF 17

AS-BUILT - 01/03/05 SDP-03-77



**PLAN**  
SCALE: 1" = 50'

NOTE: LANDSCAPING SHALL BE PROVIDED AND MAINTAINED AS DEPICTED AND SPECIFIED HEREON. ANY LANDSCAPING THAT IS REMOVED OR DESTROYED DURING CONSTRUCTION SHALL BE REPLACED TO SATISFY THE PLANTING REQUIREMENTS AS SPECIFIED. LIKEWISE, ANY EXISTING LANDSCAPING UNITS WHICH HAVE PERISHED MUST ALSO BE REPLACED TO SATISFY THE REQUIREMENTS OF TITLE 16, SUBTITLE 1, ARTICLE II, SECTION 16-124 OF THE CODE OF ORDINANCES FOR HOWARD COUNTY, MARYLAND.

- REVISIONS:
- 1) DEPICTED PROPOSED SITE ENTRANCE ONTO BROOKDALE DRIVE.
  - 2) DEPICTED PROPOSED 62'x80' METAL RIGID FRAMED BUILDING AND ASSOCIATED SWM BMP #1.
  - 3) DEPICTED PROPOSED FRONT PARKING LOT RECONFIGURATION.
  - 4) DEPICTED PROPOSED FENCE LINES AND TURNSTILE GATE.

RED-LINED REVISIONS PREPARED BY:  
LEON A. PODOLAK & ASSOCIATES, LLC  
147 E. MAIN ST. P.O. BOX 266  
WESTMINSTER, MARYLAND 21157  
PHONE: 410-876-1226

PROPERTY OWNER / DEVELOPER  
CROWN ENTERPRISES, INC.  
#12225 STEPHENS ROAD  
WARREN, MI 48089-2010  
PHONE: (586) 939-7000

**LEGEND**

EX. TREELINE	
PROP. TREELINE	
PROPERTY LINE	
PERENNIAL STREAM AND 50' BUFFER	
CONTOUR LINES	
EX. BUILDING	
PROP. SHADE TREE	
PROP. EVERGREEN TREE	
EXISTING SHADE TREE	
EXISTING EVERGREEN TREE	
PHASE I PERIMETER LANDSCAPE REQUIREMENT	
PHASE II S.H.M. LANDSCAPE REQUIREMENT	
PHASE I INTERNAL PARKING LANDSCAPE REQUIREMENT	
PHASE I STREET TREE LANDSCAPE REQUIREMENT	
PERIMETER LANDSCAPE EDGE LIMITS	

**AS-BUILT CERTIFICATION**

CHRISTOPHER J. REID # 10240 1.5.05  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.  
*Director* 1/18/05  
DIRECTOR DATE

*Chief, Development Engineering Division* 11/10/03  
CHIEF, DEVELOPMENT ENGINEERING DIVISION M&Z DATE

*Chief, Division of Land Development* 11/12/03  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

11-16-12	1	HOWARD COUNTY RED-LINE COMMENTS
DATE	NO.	REVISION

OWNER / DEVELOPER  
CROWN ENTERPRISES, INC.  
6497 EAST TEN MILE ROAD  
CENTER LINE, MICHIGAN 48015  
810-939-7000

PROJECT  
**CENTRAL TRANSPORT  
PHASE 2  
PARKING EXPANSION**

AREA  
ZONED M-2  
PARCEL 462 TAX MAP 43 GRID No. 4 & 5  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE  
**LANDSCAPE PLAN**

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

**PHRA**

6.3.03  
DATE

DESIGNED BY: K.L.S.  
DRAWN BY: K.L.S.  
CHECKED BY: D.T.D.  
PROJECT NO: 00364/2-0/ENGR/PLANS  
L200LND.DWG  
DATE: FEBRUARY 6, 2003  
SCALE: 1" = 50'  
DRAWING NO. 10 OF 17

DAVID T. DOWS #830  
AS-BUILT - 01/03/05

SDP-03-77

**PLANTING SPECIFICATIONS**

- Plants, related material, and operations shall meet the detailed description, as given on the plans and as described herein. Where discrepancies exist between Standards & Guidelines referenced within these specifications and the Howard County Landscape Manual, the latter takes precedence.
- All plant material, unless otherwise specified, that is not nursery grown, uniformly branched, does not have a vigorous root system, and does not conform to the most recent edition of the American Association of Nurserymen (AAN) Standards will be rejected. Plant material that is not healthy, vigorous, free from defects, decay, disfiguring roots, substantial injuries to the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements will be rejected. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will be rejected. All B & B plants shall be freshly dug; no healed-in plants or plants from cold storage will be accepted.
- Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.
- Contractor shall guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section on the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.
- Contractor shall be responsible for notifying all relevant and appropriate utility companies, utility contractors, and "Miss Utility" a minimum of 48 hours prior to the beginning of any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Major changes will require the approval of the landscape architect. Damage to existing structure and utilities shall be repaired at the expense of the contractor.
- Protection of existing vegetation to remain shall be accomplished via the temporary installation of 4 foot high snow fence at the drip line, see detail.
- Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within growing season of completion of site construction. Do not plant Pinus strobus or Xpressacyparis leylandii between November 15 and March 15. Landscape plants are not to be installed before site is graded to final grade.
- Contractor to regrade, fine grade, sod, hydroseed and straw mulch all areas disturbed by their work.
- Bid shall be based on actual site conditions. No extra payment shall be made for work arising from actual site conditions differing from those indicated on drawings and specifications.
- Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence. Where discrepancies on the plan exist between the symbols and the callout leader, the number of symbols take precedence.
- All shrubs and groundcover areas shall be planted in continuous planting beds, prepared as specified, unless otherwise indicated on plans. (See Specification 13). Beds to be mulched with minimum 2" and maximum 3" of composted, double-shredded hardwood mulch throughout.
- Positive drainage shall be maintained on planting beds (minimum 2 percent slope).
- Bed preparation shall be as follows: Till into a minimum depth of 6" 1 yard of Compro or Leafgro per 200 SF of planting bed, and 1 yard of topsoil per 100 SF of bed. Add 3 lbs of standard 5-10-5 Fertilizer per cubic yard of planting mix and till. Ericaceous plants (Azaleas, Rhododendrons, etc.); top dress after planting with Iron sulfate or comparable product according to package directions. Taxus baccata 'Repandens' (English weeping yew); Top dress after planting with 1/4 to 1/2 cup lime each.
- Planting mix: For trees not in a prepared bed, mix 50% Compro or Leafgro with 50% soil from tree hole to use as backfill, see tree planting detail.
- Seed & insect control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. For tree planting, apply a pre-emergent on top of soil and root ball before mulching. Caution: For areas to be planted with a ground cover, be sure to carefully check the chemical used to assure its adaptability to the specific groundcover to be treated; Maintain the mulch weed-free for the extent of the warranty period. Under no circumstances is a pesticide containing chlorpyrifos to be used as a means of pest control.
- Water: All plant material planted shall be watered thoroughly the day of planting. All plant material not yet planted shall be properly protected from drying out until planted. At a minimum, water unplanted plant material daily and as necessary to avoid desiccation.
- Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.
- All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.

SCHEDULE A - PERIMETER LANDSCAPE EDGE	ADJACENT TO PERIMETER PROPERTIES			ADJACENT TO ROADWAYS
	2	3	4	1
PERIMETER	A	B	A	B
LANDSCAPE TYPE	A	B	A	B
LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	117'±	280'±	730'±	335'±
CREDIT FOR EXISTING DRIVE AISLE (LINEAR FEET)	NO	NO	NO	NO
CREDIT FOR EXISTING VEGETATION (YES/ NO/ LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	YES 347'±	NO
LINEAR FEET REMAINING	117'±	280'	383'	335'±
CREDIT FOR HALL, FENCE, OR BERM (YES/NO/LINEAR FEET)	YES 117'±	YES 280'±	YES 383'±	YES 335'±
NUMBER OF PLANTS REQUIRED				
SHADE TREES	0	0	0	0
EVERGREEN TREES	0	0	0	0
SHRUBS	0	0	0	0
NUMBER OF PLANTS PROVIDED				
SHADE TREES	0	0	0	0
EVERGREEN TREES	0	0	0	0
SMALL FLOWERING TREES	0	0	0	0
SHRUBS	0	0	0	0

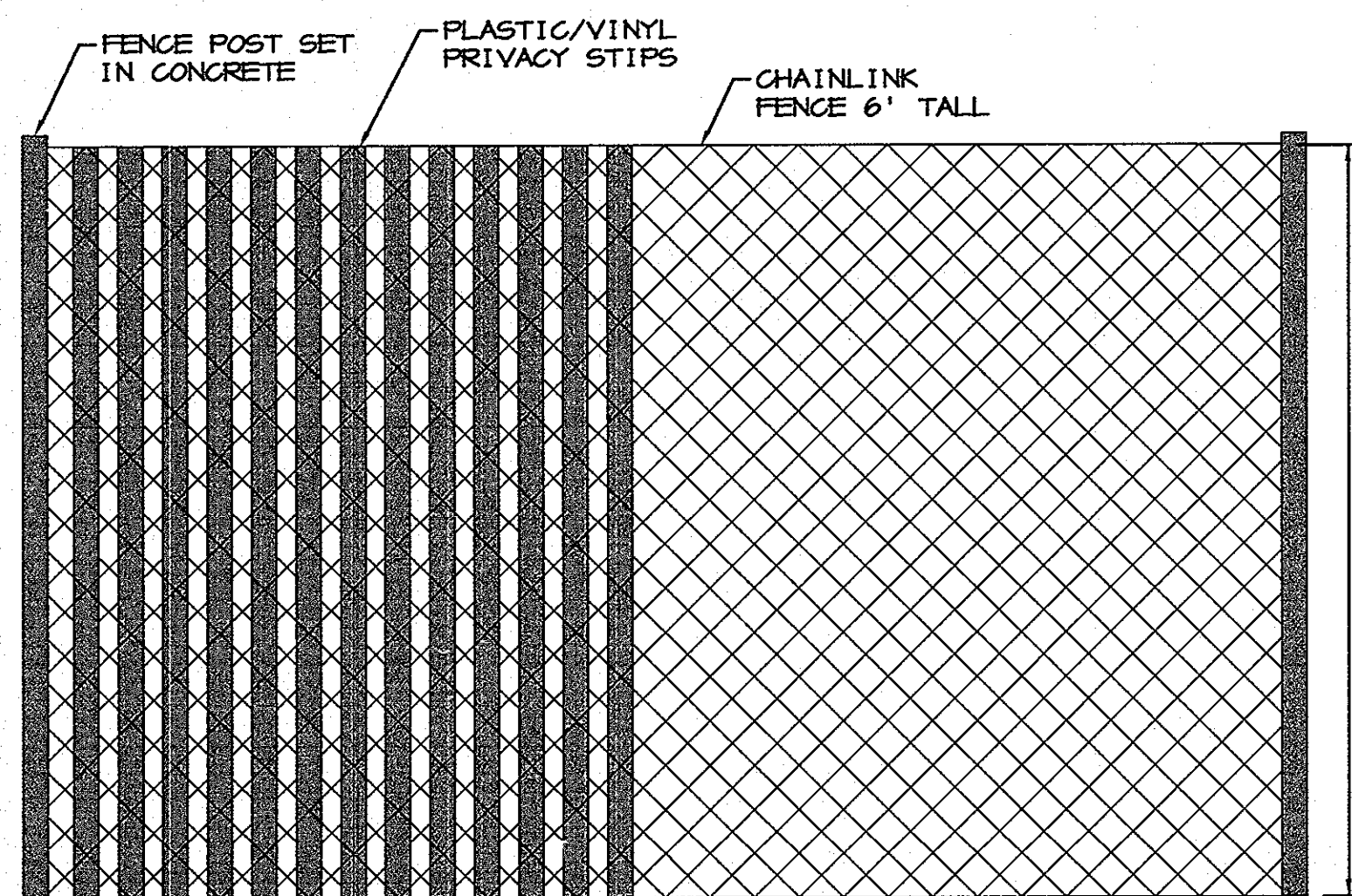
\* FENCE WILL BE A 6' HIGH CHAINLINK FENCE WITH PRIVACY STRIPS, TO MATCH EX. FENCE

SCHEDULE D-STORMWATER MANAGEMENT AREA LANDSCAPING	
S.M.M. POND PERIMETER	1
LANDSCAPE TYPE	B
LINEAR FEET OF TOTAL PERIMETER	775'±
CREDIT FOR EX. VEGETATION (NO OR YES & %)	NO
CREDIT FOR OTHER PROP. LANDSCAPING (NO OR YES & %)	YES 36%*
LINEAR FEET OF REMAINING PERIMETER	445
NUMBER OF TREES REQUIRED:	
SHADE TREES	10
EVERGREEN TREES	13
NUMBER OF PLANTS PROVIDED	
SHADE TREES	10
EVERGREEN TREES	11**
OTHER TREES (2:1 SUBSTITUTION, 50% MAX.)	0
SHRUBS	20

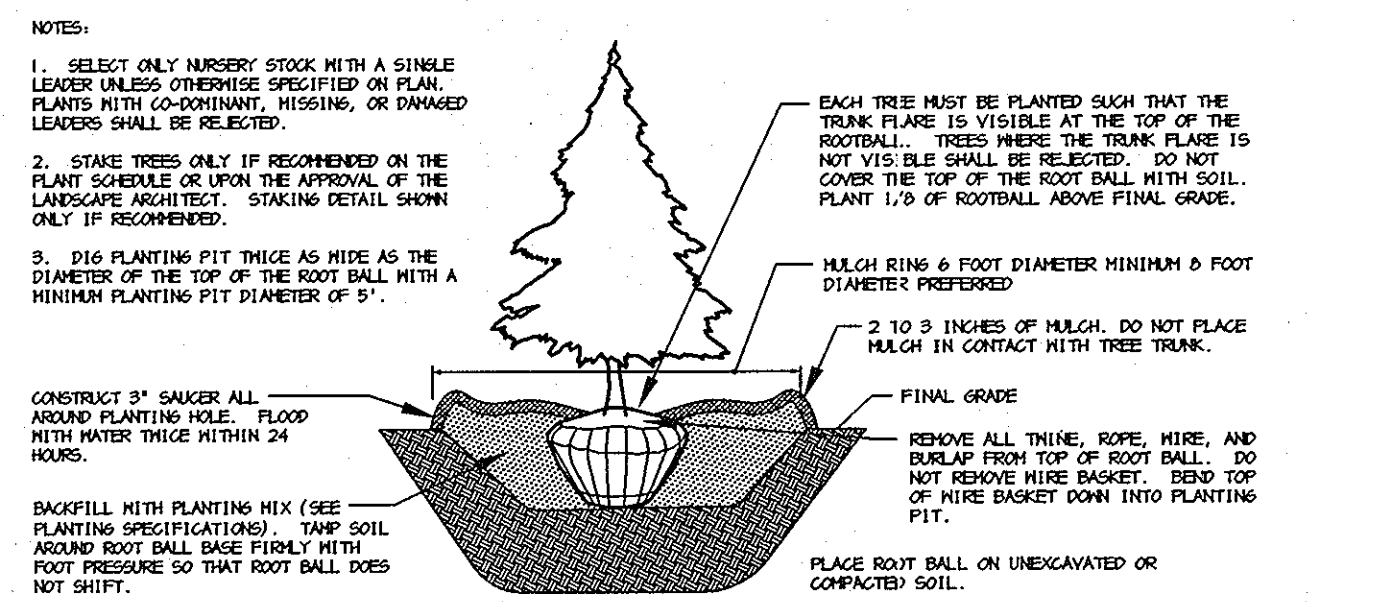
\* CREDIT TAKEN FOR PROPOSED FENCE ALONG PERIMETER 3.  
\*\* 20 SHRUBS WERE SUBSTITUTED FOR 2 EVERGREEN TREES.

STREET TREE PLANT LIST					
KEY	QTY.	SCIENTIFIC/COMMON NAME	SIZE	ROOT	REMARKS
PA	6	PLATANUS X ACERIFOLIA LONDON PLANETREE	2.5"-3" CAL.	B4B	PLANT AS SHOWN

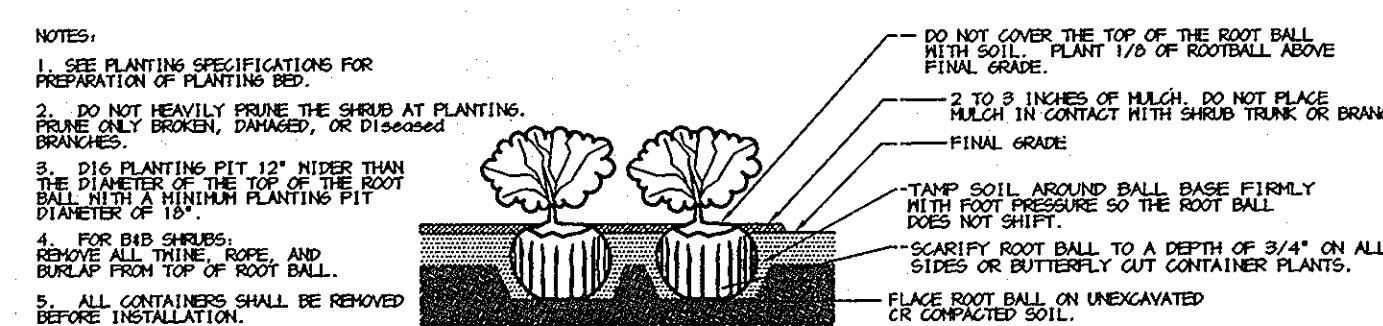
STORM WATER MANAGEMENT AREA PLANT LIST					
KEY	QTY.	SCIENTIFIC/COMMON NAME	SIZE	ROOT	REMARKS
AR	5	ACER RUBRUM 'OCTOBER GLORY' OCTOBER GLORY RED MAPLE	2.5"-3" CAL.	B4B	PLANT AS SHOWN
QP	5	QUERCUS PALUSTRIS PIN OAK	2.5"-3" CAL.	B4B	PLANT AS SHOWN
IO	5	ILEX OPACA AMERICAN HOLLY	5-6' HT.	B4B	PLANT AS SHOWN
FA	6	PICEA ABIES NORWAY SPRUCE	6-8' HT.	B4B	PLANT AS SHOWN
IL	20	ITEA LAEVI GATA WINTERBERRY	2.5"-3" HT.	B4B	PLANT AS SHOWN



**PROPOSED FENCE DETAIL**  
NOT TO SCALE



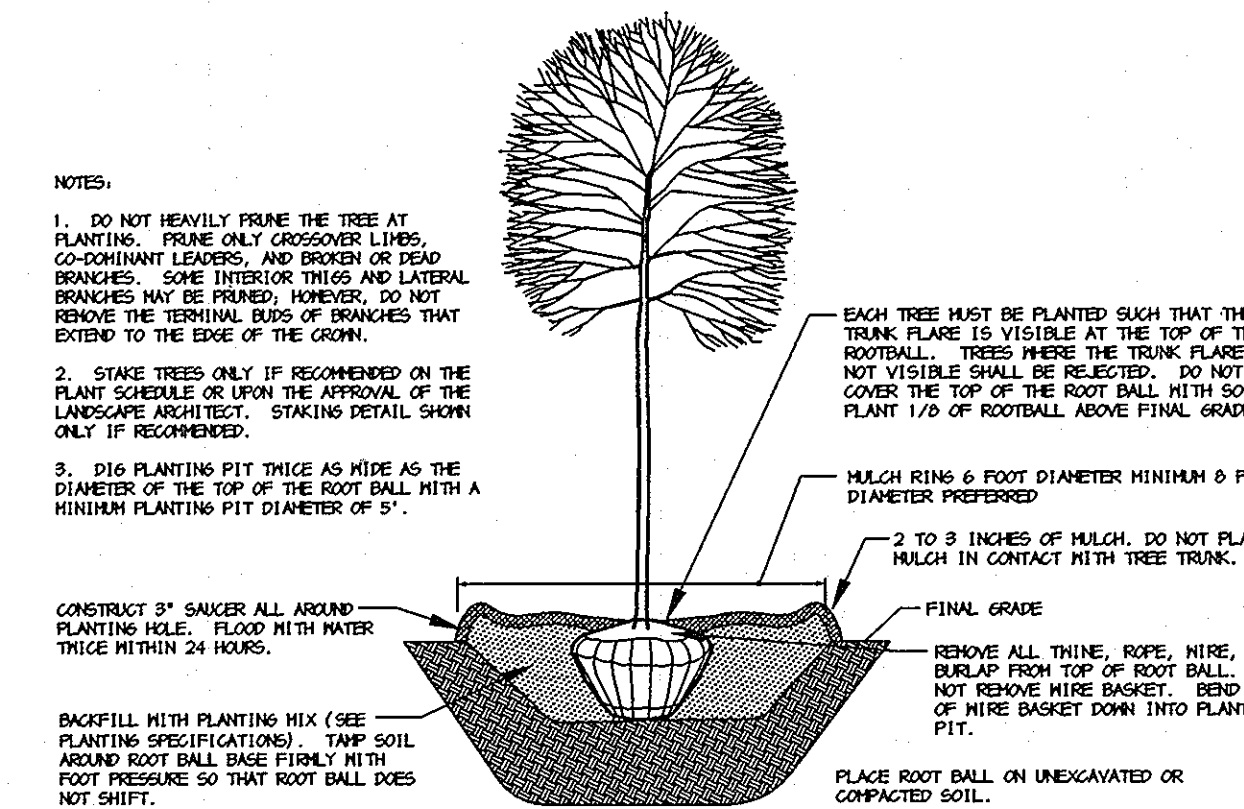
**EVERGREEN B&B TREE PLANTING DETAIL**  
NOT TO SCALE



**SHRUB BED PLANTING DETAIL - B&B AND CONTAINER SHRUBS**  
NOT TO SCALE

**DEVELOPER'S/BUILDER'S CERTIFICATE:**  
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

*DEPO* *6/1/03*  
SIGNATURE DATE



**DECIDUOUS B&B TREE PLANTING DETAIL**  
NOT TO SCALE

- GENERAL NOTES:**
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
  - PLEASE SEE LANDSCAPE PLAN ASSOCIATED WITH SDP-01-111 FOR PARKING LOT LANDSCAPING AND PERIMETER LANDSCAPING ASSOCIATED WITH FRONT PORTION OF SITE. THE LOCATIONS OF THE PLANT MATERIAL SHOWN ON SDP-01-111 HAVE BEEN SHIFTED TO ALLOW FOR THE CONSTRUCTION OF A SIDEWALK ALONG THE ROUTE 1 FRONTAGE AND TO ALLOW FOR STREET TREE PLANTING, BUT NO CHANGES WERE MADE TO THE QUANTITIES OR TYPE OF PLANT MATERIAL PROPOSED UNDER SDP-01-111.
  - FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$16,400.  
10 SHADE TREES @ \$300 = \$3,000  
11 EVERGREEN TREES @ \$150 = \$1,650  
0 ORNAMENTAL TREES @ \$150 = \$0  
20 SHRUBS @ \$30 = \$600  
1115' L.F. FENCE @ \$10 = \$11,150
  - THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.
  - CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
  - ALL MATERIAL SELECTED SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK", LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
  - ALL MATERIAL SHALL BE PLANTED IN ACCORDANCE WITH THE MINIMUM STANDARDS CITED IN THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION.
  - AT THE TIME OF INSTALLATION, ALL SHRUBS AND OTHER PLANTINGS SHALL BE OF THE PROPER HEIGHT AND/OR SPREAD REQUIREMENTS IN ACCORDANCE WITH THIS PLAN AND THE HOWARD COUNTY LANDSCAPE MANUAL.
  - NO SUBSTITUTIONS OR RELOCATION OF PLANTS MAY BE MADE WITHOUT PRIOR APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING OF HOWARD COUNTY. ANY DEVIATION FROM THIS LANDSCAPE PLAN MAY RESULT IN A REQUIREMENT FOR SUBMITTAL OF AN OFFICIAL "REDLINE REVISION" TO THE SITE DEVELOPMENT PLAN(S) AND/OR DENIAL IN THE RELEASE OF LANDSCAPE SURETY.

**STATE OF MARYLAND**  
REGISTERED PROFESSIONAL ENGINEER  
CHRISTOPHER J. REID #10040 DATE 1.5.05  
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.  
*Mark H. Taylor* 11/14/02  
DIRECTOR DATE  
*David R. Dows* 11/12/03  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAJ DATE  
*Candy Hamate* 11/12/03  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

OWNER / DEVELOPER  
CROWN ENTERPRISES, INC.  
6497 EAST TEN MILE ROAD  
CENTER LINE, MICHIGAN 48015  
810-939-7000

PROJECT  
**CENTRAL TRANSPORT PHASE 2 PARKING EXPANSION**

AREA  
ZONED M-2  
PARCEL 462 TAX MAP 43 GRID No. 4 & 5  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

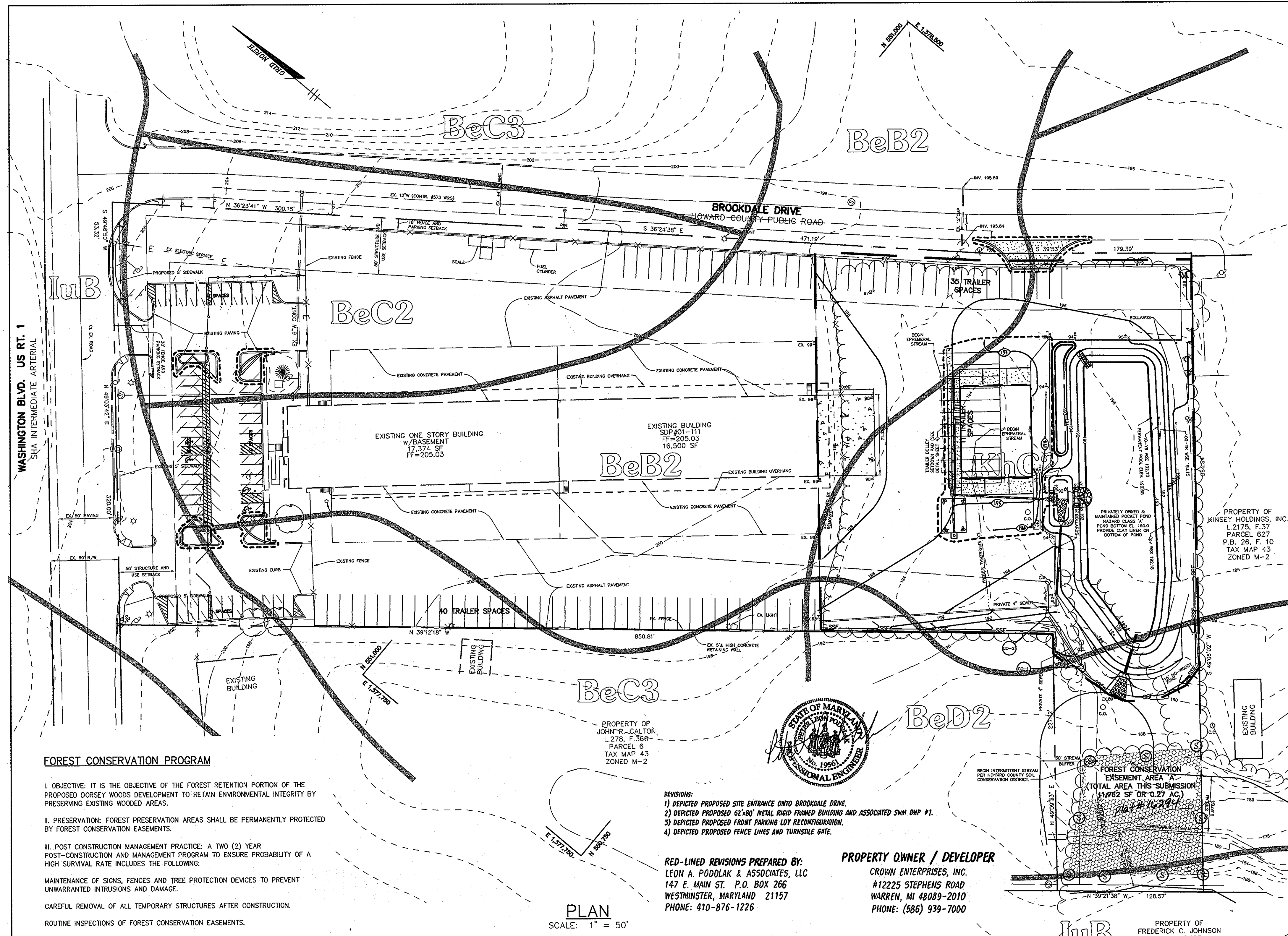
TITLE  
**LANDSCAPE DETAILS AND SCHEDULES**

**Patton Harris Rust & Associates, pc**  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

6.5.03 DATE  
DESIGNED BY: K.L.S.  
DRAWN BY: K.L.S.  
CHECKED BY: D.T.D.  
PROJECT NO: 00364/2-0/ENGR/PLANS L201LND.DWG  
DATE: FEBRUARY 6, 2003  
SCALE: AS SHOWN  
DRAWING NO. 11 OF 17

**STATE OF MARYLAND**  
REGISTERED PROFESSIONAL ENGINEER  
DAVID R. DOWS #830  
DAVID R. DOWS #830

AS-BUILT - 01/02/05 SDP-03-77



**Howard County Forest Conservation Worksheet**

Project Name: Central Transport  
 State File #: November 25, 2002  
 Date:

**Net Tract Area**

A. Total Tract Area = 8.31  
 B. Other Deductions = 0.00  
 C. Net Tract Area = (A-B-C) = 8.31

**Land Use Category: Commercial**

D. Afforestation Threshold (Net Tract Area X .15%) = 1.25  
 E. Conservation Threshold (Net Tract Area X .15%) = 1.25

**Existing Forest Cover**

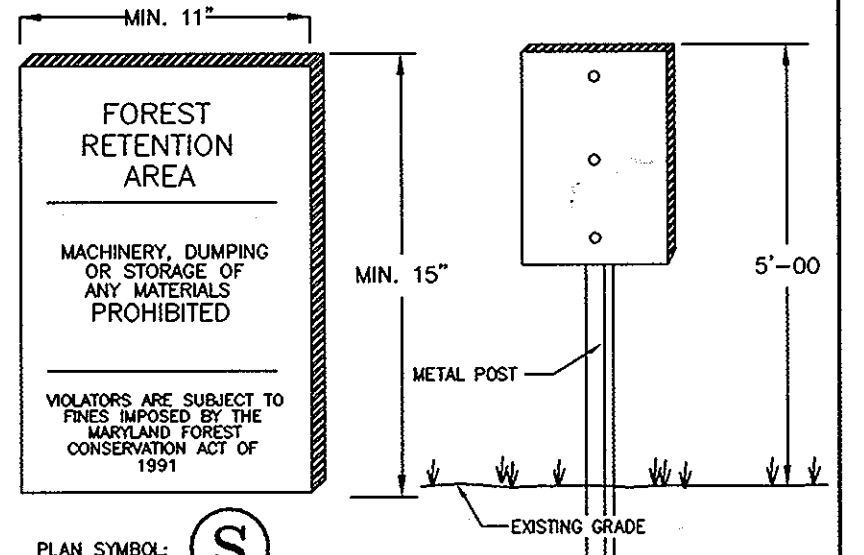
F. Existing Forest Cover within the Net Tract Area = 3.29  
 G. Area of Forest Above Conservation Threshold = 2.04  
 H. If the Existing Forest Cover (F) is greater than Conservation Threshold (G), then H = (0.2 X the area of forest above Conservation Threshold (G)) + the Conservation Threshold (E) = 1.68  
 I. If the area of forest above the Conservation Threshold (G) is equal to zero, then I = Existing Forest Cover (F) - Break Even Point (H) = 1.63

**Proposed Forest Clearing**

J. Total Area of Forest to be Cleared = 3.02  
 K. Total Area of Forest to be Retained = 0.27

**Planting Requirements**

L. Reforestation for Clearing Above the Conservation Threshold = 0.51  
 M. Reforestation for Clearing Below the Conservation Threshold = 1.95  
 N. Total Reforestation Required = 0.00  
 P. Total Afforestation Required = 2.46  
 Q. Total Planting Requirement = 0.00  
 R. Total Planting Requirement R = P + Q = 2.46



**LEGEND**

EX. TREELINE  
 PROP. TREELINE  
 PROPERTY LINE  
 WETLANDS AND 25' BUFFER  
 FERRUGINAL STREAM AND 50' BUFFER  
 100-YEAR FLOODPLAIN  
 LIMIT OF DISTURBANCE  
 FOREST CONSERVATION SIGN PLACEMENT  
 FOREST CONSERVATION AREA  
 TREE PROTECTION FENCE  
 STEEP SLOPES 15%+  
 STEEP SLOPES 25%+  
 EX. CONTOUR LINES  
 PROP. CONTOUR LINES  
 EX. BUILDINGS  
 EX. SPECIMEN TREE (100')

**FOREST CONSERVATION CHART**

LAND USE	Industrial	SUBWATERSHED NUMBER	2131005	ON-SITE MD GRID N (1)	551,000	ON-SITE MD GRID E (1)	1,377,750	NET TRACT AREA	8.31	TOTAL SITE DISTURBANCE (AC)	7.98
PRIORITY DISTURBANCE WITHIN TOTAL DISTURBED AREA (AC) (2)	0	% PRIORITY DISTURBANCE (3)	0%	EXISTING FOREST (AC) (4)	3.29	ON-SITE RETENTION (AC)	0.27	OFF-SITE RETENTION (AC)	0	CLEARED FOREST (AC) (4)	3.02
ON-SITE REFORESTATION (AC)	0	OFF-SITE REFORESTATION (AC)	0	ON-SITE AFFORESTATION (AC)	0	OFF-SITE AFFORESTATION (1)	0	OFF-SITE MD GRID N (1)	0	OFF-SITE GRID E (1)	0
TOTAL ACRES OF PRIORITY AREA WITHIN TOTAL EASEMENT	0.27	% OF PRIORITY AREA WITHIN TOTAL EASEMENT	0.25	TOTAL ACRES OF PRIORITY AREA WITHIN TOTAL EASEMENT	100%	AMOUNT OF SURETY POSTED	\$2,700.72	AMOUNT OF FEE-IN-LIEU REQUESTED	\$53,578.80	OFF-SITE SUBWATERSHED NUMBER	0

(1) THESE 6 DIGIT COORDINATES CAN BE TAKEN FROM ADCS STREET MAP OF HOWARD COUNTY  
 (2) PROVIDE THE ACREAGE OF THE TOTAL SITE DISTURBANCE WHICH OCCURS IN PRIORITY AREAS (WETLANDS, WETLAND BUFFERS, STREAM BUFFERS, STEEP SLOPES, FLOODPLAIN)  
 (3) PROVIDE THE PERCENTAGE OF THE TOTAL SITE DISTURBANCE WHICH OCCURS WITHIN THE PRIORITY AREAS  
 (4) THESE FIGURES APPLY TO THE ACREAGE OF EXISTING FOREST IN THE NET TRACT AREA AND TO THE ACREAGE OF THAT FOREST WHICH WILL BE CLEARED

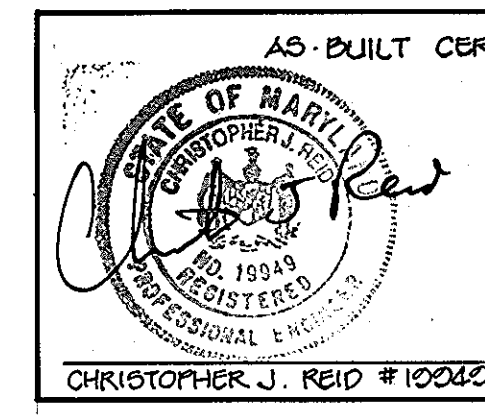
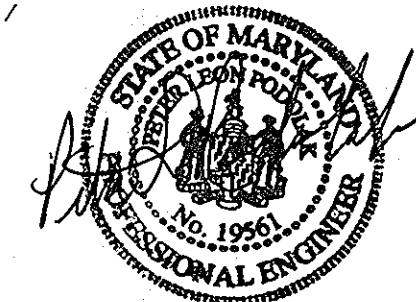
**FOREST CONSERVATION PROGRAM**

I. OBJECTIVE: IT IS THE OBJECTIVE OF THE FOREST RETENTION PORTION OF THE PROPOSED DORSEY WOODS DEVELOPMENT TO RETAIN ENVIRONMENTAL INTEGRITY BY PRESERVING EXISTING WOODED AREAS.  
 II. PRESERVATION: FOREST PRESERVATION AREAS SHALL BE PERMANENTLY PROTECTED BY FOREST CONSERVATION EASEMENTS.  
 III. POST CONSTRUCTION MANAGEMENT PRACTICE: A TWO (2) YEAR POST-CONSTRUCTION AND MANAGEMENT PROGRAM TO ENSURE PROBABILITY OF A HIGH SURVIVAL RATE INCLUDES THE FOLLOWING:  
 MAINTENANCE OF SIGNS, FENCES AND TREE PROTECTION DEVICES TO PREVENT UNWARRANTED INTRUSIONS AND DAMAGE.  
 CAREFUL REMOVAL OF ALL TEMPORARY STRUCTURES AFTER CONSTRUCTION.  
 ROUTINE INSPECTIONS OF FOREST CONSERVATION EASEMENTS.

- REVISIONS:**
- 1) DEPICTED PROPOSED SITE ENTRANCE ONTO BROOKDALE DRIVE.
  - 2) DEPICTED PROPOSED 62'x80' METAL RIGID FRAMED BUILDING AND ASSOCIATED SWM BMP #1.
  - 3) DEPICTED PROPOSED FRONT PARKING LOT RECONFIGURATION.
  - 4) DEPICTED PROPOSED FENCE LINES AND TURNSTILE GATE.

**RED-LINED REVISIONS PREPARED BY:**  
 LEON A. PODOLAK & ASSOCIATES, LLC  
 147 E. MAIN ST. P.O. BOX 266  
 WESTMINSTER, MARYLAND 21157  
 PHONE: 410-876-1226

**PROPERTY OWNER / DEVELOPER**  
 CROWN ENTERPRISES, INC.  
 #12225 STEPHENS ROAD  
 WARREN, MI 48089-2010  
 PHONE: (586) 939-7000



**APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.**

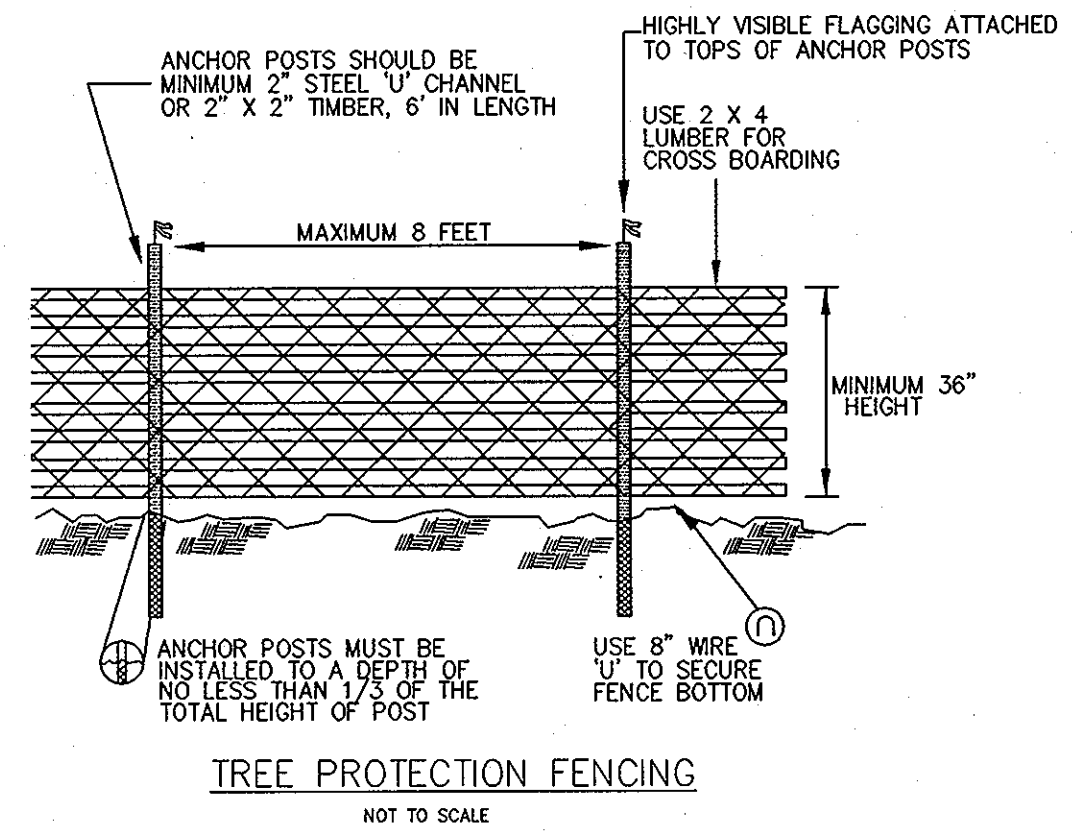
Director: [Signature] DATE: 11/14/02  
 Chief, Development Engineering Division: [Signature] DATE: 11/10/02  
 Chief, Division of Land Development: [Signature] DATE: 11/12/02

**GENERAL NOTES:**

1. THIS PLAN HAS BEEN PREPARED USING FIELD RUN TOPOGRAPHY. PORTIONS OF THE EXISTING TREELINE AND SPECIMEN TREE LOCATIONS WERE FIELD APPROXIMATED.
2. NO CRITICAL HABITATS OF RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.
3. NO TREES, SHRUBS, OR PLANTS IDENTIFIED AS RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.
4. THERE ARE NO KNOWN CEMETERIES OR BURIAL PLOTS LOCATED ON THE SITE, ACCORDING TO THE HOWARD COUNTY CEMETERIES INVENTORY.
5. ONE EXISTING STRUCTURE IS PRESENT ON THE SITE AS SHOWN. AN ADDITION TO THIS STRUCTURE WAS CONSTRUCTED UNDER SDP-01-111.
6. THIS SITE CONTAINS NO HYDRIC SOILS AND FIVE SOILS WITH POSSIBLE HYDRIC INCLUSIONS. BELTSVILLE (BeB2), BELTSVILLE (BeC2), BELTSVILLE (BeC3), AND BELTSVILLE (BeD2), AND IUKA (IuB). KEYPORT SILT LOAMS (KHC2) ARE ALSO PRESENT ON THE SITE.
7. THE FSD, DATED NOVEMBER 20, 2002, HAS BEEN PREPARED BY PATTON HARRIS RUST & ASSOCIATES IN CONJUNCTION WITH THIS PROJECT.
8. JUSTIFICATION FOR FOREST REMOVAL: IN ORDER TO PROVIDE PARKING AND STORMWATER MANAGEMENT, A PORTIONS OF THE FORESTED AREA NEEDS TO BE CLEARED.
9. THE HOWARD COUNTY FOREST CONSERVATION MANUAL SUPERCEDES ANY DISCREPANCIES BETWEEN THE MANUAL AND THESE PLANS.
10. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION.
11. THE FOREST CONSERVATION OBLIGATION FOR THE PROPOSED SITE DEVELOPMENT HAS BEEN MET BY PLACING 0.27± AC OF ON-SITE FOREST IN ON-SITE FOREST RETENTION EASEMENTS AND PAYMENT OF A FEE-IN-LIEU FOR THE REMAINING OBLIGATION. SURETY IN THE AMOUNT OF \$2,700.72 (3,504 SF x \$0.20) HAS BEEN POSTED FOR THE ON-SITE EASEMENTS. PAYMENT OF FEE-IN-LIEU IN THE AMOUNT OF \$53,578.80 (107,157.6 SF x \$0.50 SF) IS PROPOSED FOR THE REMAINING OBLIGATION OF 2.46 AC.
12. THE ON-SITE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
13. BEARINGS AND DISTANCES FOR THE FOREST CONSERVATION EASEMENT ARE PROVIDED ON AN EASEMENT PLAT AS PLAT NO. XXX, DATED XXX.

**FOREST CONSERVATION SEQUENCE OF OPERATIONS**

1. Prior to beginning any grading operations on this site or on a respective lot, there shall be a preconstruction meeting held at the site which is to include the Contractor and representatives from Patton Harris Rust & Associates, pc. The Howard County Department of Planning and Zoning (DPZ) and the owner will be notified by the Contractor as to the time and place of the field meeting, should they wish to send a representative. The purpose of this meeting will be to review the approved FCP and to field verify the correct Limits of Disturbance (LOD).
2. The Limits of Disturbance (LOD) pertinent to the preservation of wooded areas shall be staked in the field with final adjustments being made as necessary to insure adequate protection of the Critical Root Zone of trees designated for retention. Stakes to be used shall be those specified for the "TREE PROTECTION DEVICE" to which approved protective material will be attached. Alternate means of defining the LOD may be used if approved by the DPZ.
3. All forest retention areas shall be protected by highly visible, well anchored temporary protection devices (see detail), which shall be securely in place prior to any clearing or grading operations.
4. Install tree protection signage.
5. Grading operations or other construction operations which could dislodge or otherwise damage the protective devices shall be avoided along the edges of the LOD lines if possible. Any protective devices which are damaged during site construction operations shall be properly repaired immediately by the Contractor.
6. After site grading, utility access road, and driveway construction have been completed, all trees adjacent to the LOD line shall be inspected for indications of crown die-back (summer indicator), damage within respective critical root zones or any dead wood or other conditions which might be hazardous to pedestrians, buildings, utility lines vehicular access ways or parked vehicles.
7. Should there be evidence of any damage to tree trunks, branches or the critical root zone of trees within the protected areas, or to isolated specimen trees to be preserved, the damage shall be examined within a period of two (2) days from the date of observation by a licensed tree care professional. Exposed roots should be covered immediately to a depth of 6 - 8 inches with soil, preferably mixed with 50% peat moss or leaf mold.
8. Remove damaged, dead or dying trees or limbs only if the trees or limbs pose an immediate safety hazard to buildings, utility lines, vehicles, or access and egress drives or pedestrian areas. Trees designated for pruning or removal shall be pruned or removed using equipment and methods which will not damage or destroy adjacent large trees or understory trees or shrubs designated for retention.
9. All temporary forest protection devices will be carefully removed after all general construction, necessary tree surgery, removal of debris, etc. grading and reseeded sediment and erosion control disturbance have been completed and acceptance and approval of the work and site conditions have been given by the DPZ.



- NOTES:**
1. BLAZE ORANGE OR BLUE PLASTIC MESH FENCE FOR FOREST PROTECTION DEVICE, ONLY.
  2. SUPER SILT FENCE MAY BE SUBSTITUTED FOR TREE PROTECTION FENCING.
  3. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
  4. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
  5. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
  6. PROTECTION SIGNS ARE REQUIRED. SEE SIGN DETAIL.
  7. FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

**11-16-12 | HOWARD COUNTY RED-LINE COMMENTS**

DATE	NO.	REVISION

**OWNER / DEVELOPER**  
 CROWN ENTERPRISES, INC.  
 6497 EAST TEN MILE ROAD  
 CENTER LINE, MICHIGAN 48015  
 810-939-7000

**PROJECT**  
 CENTRAL TRANSPORT  
 PHASE 2  
 PARKING EXPANSION

**AREA**  
 ZONED M-2  
 PARCEL 462 TAX MAP 43 GRID NO. 4 & 5  
 1ST ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

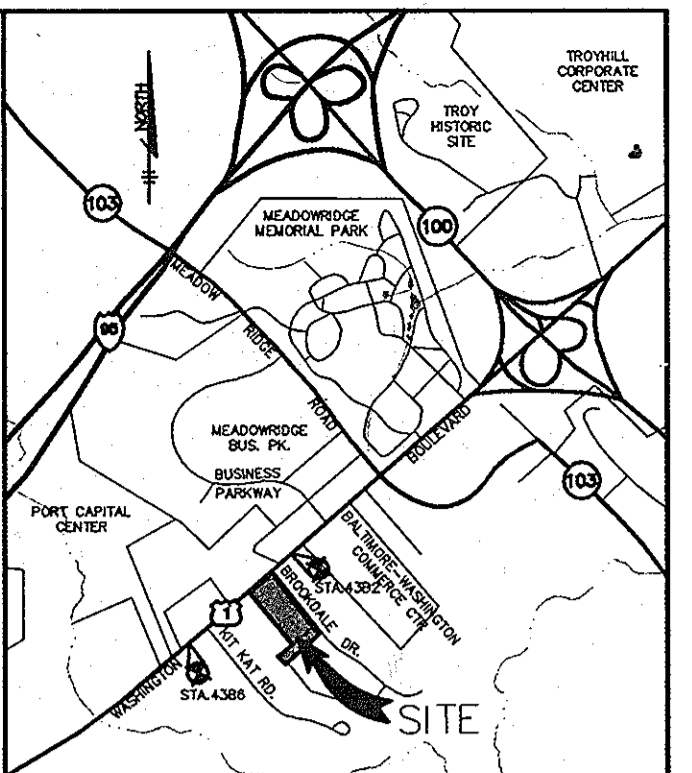
**TITLE**  
 FOREST CONSERVATION PLAN

**Patton Harris Rust & Associates, pc**  
 Engineers. Surveyors. Planners. Landscape Architects.  
 8818 Center Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

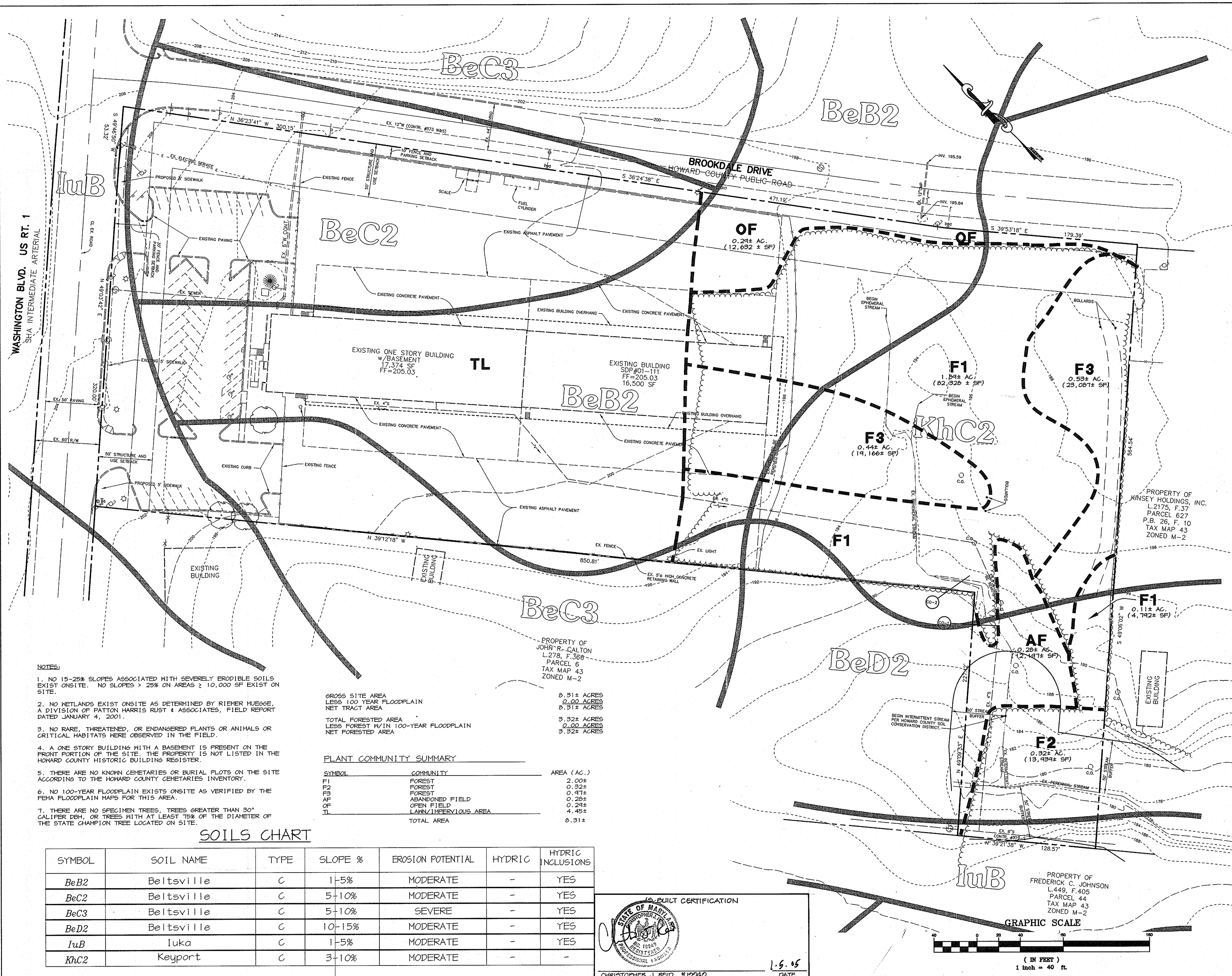
**6.3.03**  
 DATE  
 DESIGNED BY: K.L.S.  
 DRAWN BY: K.L.S.  
 CHECKED BY: D.T.D.  
 PROJECT NO: 00364/2-0/ENR/PLANS  
 L300FCP.DWG  
 DATE: FEBRUARY 6, 2003  
 SCALE: 1" = 50'  
 DRAWING NO. 12 OF 17

**DAVID T. DOWS**  
 880  
 STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 LICENSE NO. 100000

**AS-BUILT - 01/02/05**      **SDP-03-77**



VICINITY MAP  
SCALE: 1"=2000'



**LEGEND**

EX. CURB	[Symbol]
EX. TREELINE	[Symbol]
PROPERTY LINE	[Symbol]
SOILS	[Symbol] BeB2
CONTOUR LINES	[Symbol] 410, 412
EX. BUILDING	[Symbol]
EX. TREE	[Symbol]
PLANT COMMUNITY TYPE	[Symbol] F3
PLANT COMMUNITY LINE	[Symbol]
50' STREAM BUFFER	[Symbol]

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Director: *Frank L. Wright* DATE: 1/14/03

Chief, Development Engineering Division: *John D. Williams* DATE: 1/10/03

Chief, Division of Land Development: *Cinda Hamada* DATE: 1/12/03

DATE NO. REVISION

OWNER / DEVELOPER: CROWN ENTERPRISES, INC.  
6497 EAST TEN MILE ROAD  
CENTER LINE, MICHIGAN 48015  
810-939-7000

PROJECT: CENTRAL TRANSPORT PHASE 2 PARKING EXPANSION

AREA: ZONED M-2  
PARCEL 462 TAX MAP 43 GRID No. 4 & 5  
1st ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: FOREST STAND DELINEATION

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

DESIGNED BY: P.J.S.  
DRAWN BY: P.J.S.  
CHECKED BY: D.T.D.  
PROJECT NO: 00364/2-0/ENGR/PLANS  
L202FSD.dwg  
DATE: FEBRUARY 6, 2003  
SCALE: AS SHOWN  
DRAWING NO. 13 OF 17

- NOTES:**
- NO 15-25% SLOPES ASSOCIATED WITH SEVERELY ERODIBLE SOILS EXIST ONSITE. NO SLOPES > 25% ON AREAS ≥ 10,000 SF EXIST ON SITE.
  - NO WETLANDS EXIST ONSITE AS DETERMINED BY RIEMER MUEGGE, A DIVISION OF PATTON HARRIS RUST & ASSOCIATES, FIELD REPORT DATED JANUARY 4, 2001.
  - NO RARE, THREATENED, OR ENDANGERED PLANTS OR ANIMALS OR CRITICAL HABITATS WERE OBSERVED IN THE FIELD.
  - A ONE STORY BUILDING WITH A BASEMENT IS PRESENT ON THE FRONT PORTION OF THE SITE. THE PROPERTY IS NOT LISTED IN THE HOWARD COUNTY HISTORIC BUILDING REGISTER.
  - THERE ARE NO KNOWN CEMETARIES OR BURIAL PLOTS ON THE SITE ACCORDING TO THE HOWARD COUNTY CEMETARIES INVENTORY.
  - NO 100-YEAR FLOODPLAIN EXISTS ONSITE AS VERIFIED BY THE FEMA FLOODPLAIN MAPS FOR THIS AREA.
  - THERE ARE NO SPECIMEN TREES, TREES GREATER THAN 30" CALIFER DBH, OR TREES WITH AT LEAST 75% OF THE DIAMETER OF THE STATE CHAMPION TREE LOCATED ON SITE.

**GROSS SITE AREA**

LESS 100 YEAR FLOODPLAIN	0.31± ACRES
NET TRACT AREA	0.32± ACRES
<b>TOTAL FORESTED AREA</b>	3.32± ACRES
LESS FOREST W/IN 100-YEAR FLOODPLAIN	0.00 ACRES
NET FORESTED AREA	3.32± ACRES

**PLANT COMMUNITY SUMMARY**

SYMBOL	COMMUNITY	AREA (AC.)
F1	FOREST	2.00±
F2	FOREST	0.32±
F3	FOREST	0.47±
AF	ABANDONED FIELD	0.28±
OF	OPEN FIELD	0.24±
TL	LANN/IMPERVIOUS AREA	4.45±
	TOTAL AREA	8.31±

**SOILS CHART**

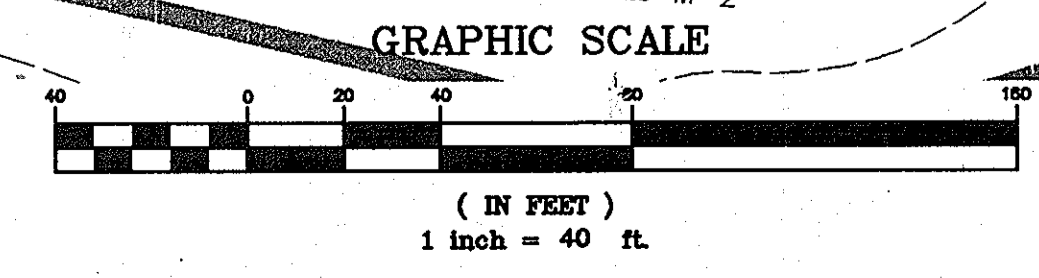
SYMBOL	SOIL NAME	TYPE	SLOPE %	EROSION POTENTIAL	HYDRIC	HYDRIC INCLUSIONS
BeB2	Beltsville	C	1-5%	MODERATE	-	YES
BeC2	Beltsville	C	5-10%	MODERATE	-	YES
BeC3	Beltsville	C	5-10%	SEVERE	-	YES
BeD2	Beltsville	C	10-15%	MODERATE	-	YES
IuB	Iuka	C	1-5%	MODERATE	-	YES
KhC2	Keypoint	C	3-10%	MODERATE	-	-

AS BUILT CERTIFICATION

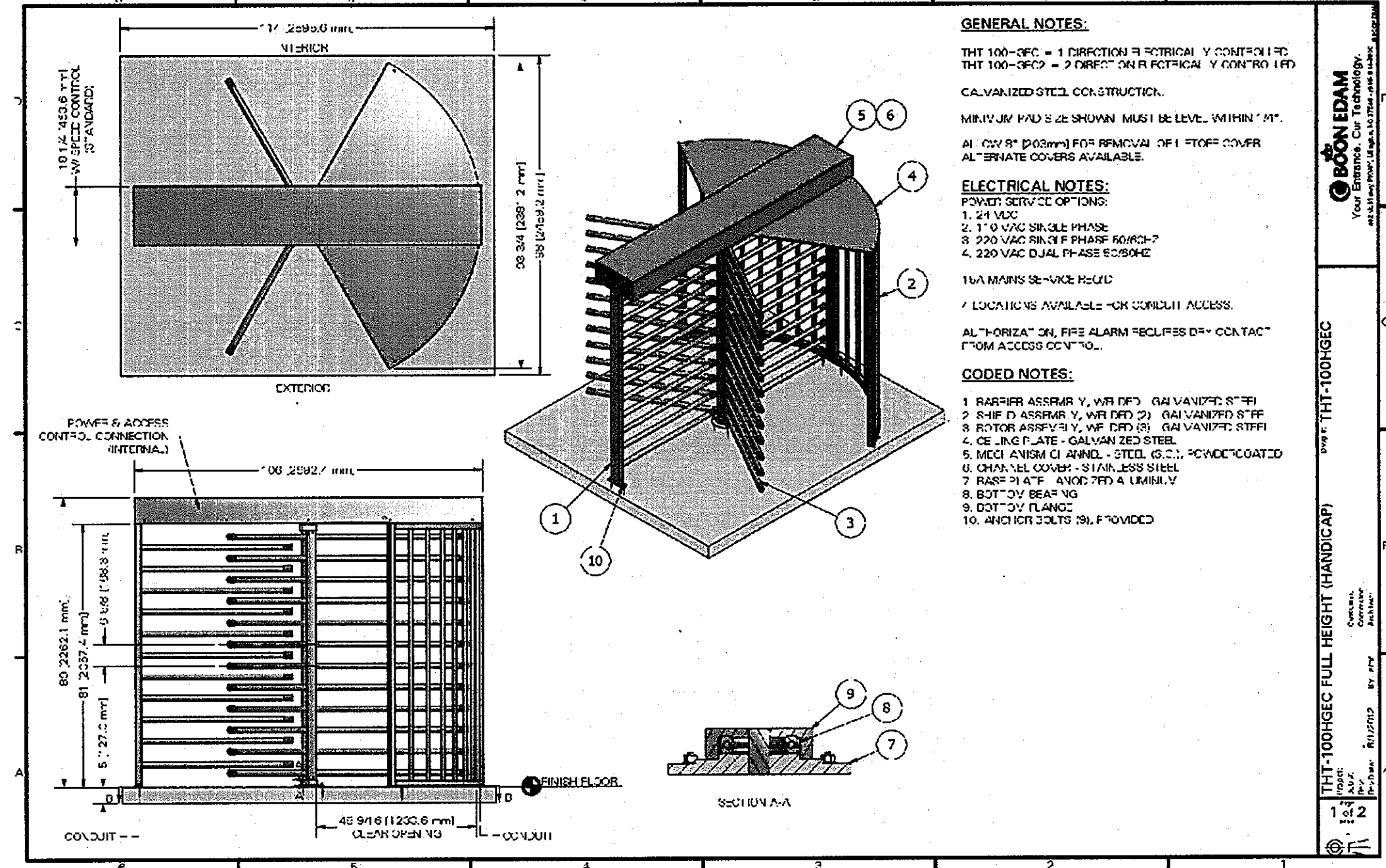
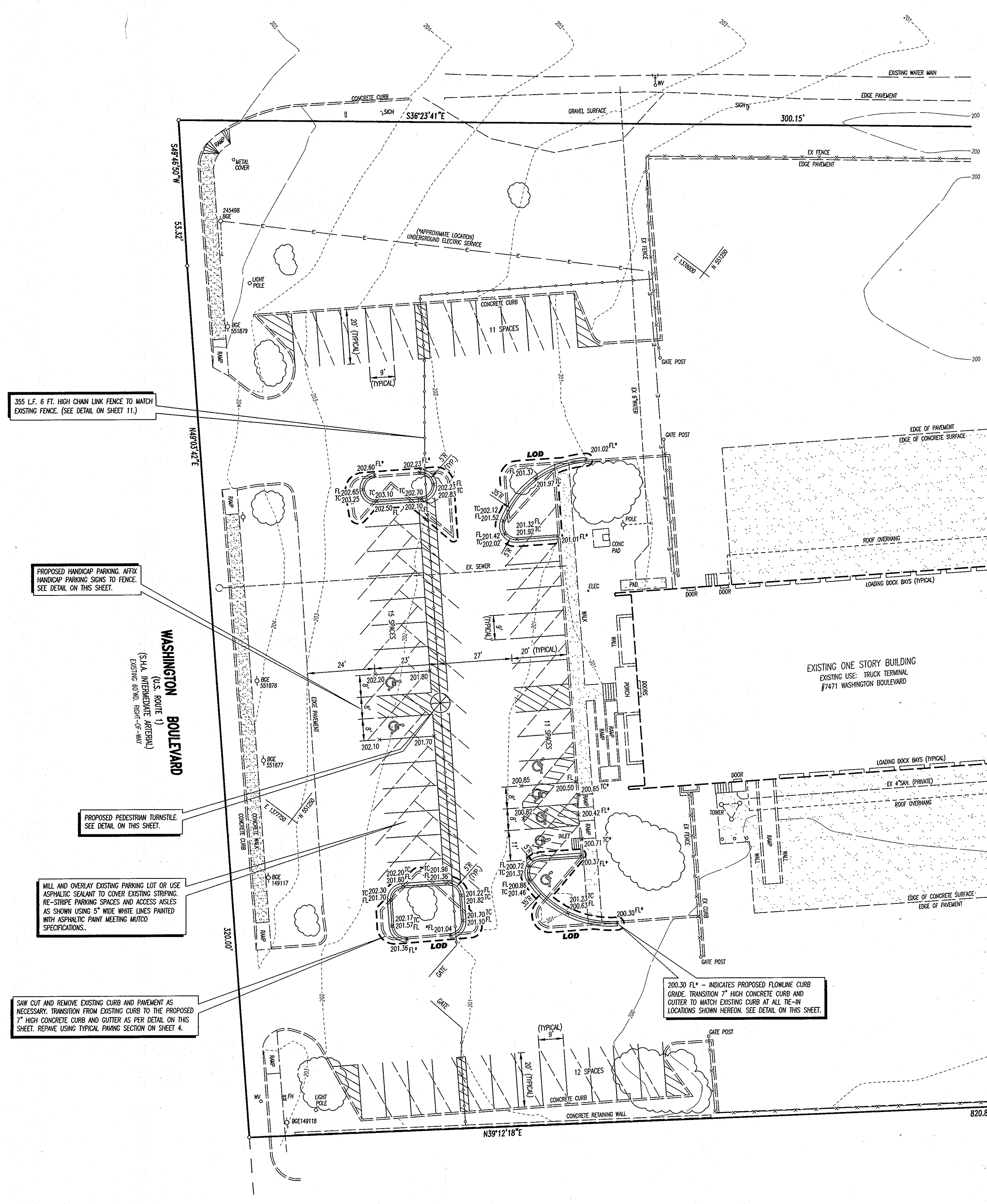
STATE OF MARYLAND PROFESSIONAL ENGINEERS & SURVEYORS

CHRISTOPHER J. REID #10240

1.6.05 DATE



\\freedom\top\job\_files\Crown Enterprises\HOWARD CO RED-LINE REVISIONS r1.dwg 10-31-2012



- GENERAL NOTES:**
1. THIS 100-000 = 1. DIRECTION IS ELECTRICAL CONTROLLED.
  2. THIS 100-000 = 2. DIRECTION IS ELECTRICAL CONTROLLED.
  3. CALVANIZED STEEL CONSTRUCTION.
  4. MINIMUM 1/2" GAP BETWEEN CURBS TO ALLOW FOR THERMAL EXPANSION.
  5. ALTERNATE CURBS AVAILABLE.
- ELECTRICAL NOTES:**
1. 24" VAC.
  2. 1" O.D. VAC BRASS PIPE.
  3. 2" O.D. VAC BRASS PIPE.
  4. 2" O.D. VAC BRASS PIPE.
- CODED NOTES:**
1. RAINFALL ASSESSMENT, W/ 10% OVERLAP.
  2. RAINFALL ASSESSMENT, W/ 10% OVERLAP.
  3. RAINFALL ASSESSMENT, W/ 10% OVERLAP.
  4. RAINFALL ASSESSMENT, W/ 10% OVERLAP.
  5. RAINFALL ASSESSMENT, W/ 10% OVERLAP.
  6. RAINFALL ASSESSMENT, W/ 10% OVERLAP.
  7. RAINFALL ASSESSMENT, W/ 10% OVERLAP.
  8. RAINFALL ASSESSMENT, W/ 10% OVERLAP.
  9. RAINFALL ASSESSMENT, W/ 10% OVERLAP.
  10. RAINFALL ASSESSMENT, W/ 10% OVERLAP.

**REQUIRED SEQUENCE OF CONSTRUCTION**

1. Contact the Howard County Department of Public Works, Construction Inspection Division, at 410-313-1855 at least three working days prior to commencing any work, to schedule a pre-construction meeting. Also at this time contact the office of Leon A. Podolak and Associates, LLC 410-876-1226 [Engineer] to arrange for inspection of the construction of the storm water management facilities.
2. Install stabilized construction entrance and super silt fence. Saw cut existing pavement.
3. Upon approval of the Sediment Control Inspector, remove pavement and dispose of properly. Grade building slab and site to lines and elevations shown on plan. Excess borrow material shall be hauled from the site and disposed of properly. All fill material shall be compacted in 8 inch layers and to a dry density of 95 percent, as measured by AASHTO Method T-99.
4. Fine grade for building and install floor slab. Begin construction of building.
5. Install slotted drain and install storm drain inlet 1-1. PROVIDE "AT-GRADE" SILENT PROTECTION PAVEMENT.
6. At this time, contact the office of Leon A. Podolak and Associates, LLC at 410-876-1226 [Engineer] to arrange for inspection of the construction of the storm water management infiltration trench. Construct trench in accordance with the Required Sequence of Construction for the Infiltration Trench depicted on Sheet #16.
7. Install concrete curb and gutter at entrance, around parking lot islands and along the length of the slotted drain. Stabilize all pervious areas with topsoil, and stabilize in accordance with permanent seeding specifications.
8. Overlay parking lot or reseat using an asphaltic sealant. Restripe parking lot as depicted on plans. Install fencing as shown on plan. Landscape in accordance with approved landscaping plan.
9. Upon approval of the Howard County Sediment Control Inspector, remove all temporary sediment control devices.

- NOTES:**
1. THE USE OF STRUCTURAL SEDIMENT CONTROL MEASURES IS NOT REQUIRED FOR THE RECONSTRUCTION OF PARKING ISLANDS, AS LONG AS THE FOLLOWING BEST MANAGEMENT PRACTICES (BMPs) ARE IMPLEMENTED:
    - a. KEEP AN EXCAVATED MATERIAL UPGRADE OF OPEN EXCAVATIONS, SO THAT RUNOFF SHALL ENTER THE EXCAVATION IN THE EVENT OF A RAIN.
    - b. ONLY EXCAVATE THAT PORTION OF THE ISLAND WHICH CAN BE BACKFILLED & STABILIZED IN ONE WORKING DAY.
  2. SILT FENCE ON PAVING SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR. SEE STANDARD DETAIL ON SHEET #17.

TOTAL DISTURBED AREA = 20,720 SQ.FT. OR 0.476 ACRES±

**SITE GRADING PLAN DETAIL for PARKING LOT RECONFIGURATION PLAN VIEW**  
SCALE: 1"=20'

APPROVED: DEPARTMENT OF PLANNING AND ZONING	
Chief, Development Engineering Division	Date: 2/22/13
Chief, Division of Land Development	Date: 2/25/13
Director	Date: 2/25/13

**CENTRAL TRANSPORT CROWN ENTERPRISES, INC. PROPERTY**

#7471 WASHINGTON BLVD. (U.S. ROUTE 1) NEAR ELK RIDGE  
1-ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**PROPERTY OWNER**  
CROWN ENTERPRISES, INC.  
#12225 STEPHENS ROAD  
WARREN, MI 48089-2010  
PHONE: (586) 939-7000

CURRENT TITLE REFERENCE: CROWN ENTERPRISES, INC., A MICHIGAN CORPORATION DEED: M.D.R. 7504/559  
PLAT# 16294 8.4681 ACRES±

#7471 WASHINGTON BLVD., ELK RIDGE, MD 21075 TAX MAP: 43 BLOCK: 4 PARCEL: 462 ACCT. NO.: 01-177249

**LEON A. PODOLAK and ASSOCIATES, L.L.C.**

**SHEET 14 OF 17**

**SURVEYING AND CIVIL ENGINEERING**  
147 East Main St. (P.O. Box 266) Westminster, Maryland 21157  
(410) 848-2229 - (410) 876-1226

Date: 11-16-12

Revision: HOWARD COUNTY RED-LINE COMMENTS

Date: Sept. 18, 2012  
Scale: 1"=20'  
Drawing No.

SDP-03-077



**STORM WATER MANAGEMENT CALCULATIONS:**

Water Quality Volume:

$$WQv = \frac{[(P)(Rv)(A)]}{12}$$

where, P = 1.0 inch in Eastern Zone of Maryland  
 Rv = Volumetric Runoff Coefficient  
 $Rv = (0.05) + (0.009)(I)$   
 I = Percent Impervious Cover = 100 %  
 A = Disturbed Area = 20522 square feet = 0.47 Acres

$$WQv = \frac{\{(1.0 \text{ in.})[(0.05) + (0.009)(100)](0.47 \text{ acs.})\}}{12 \text{ in/ft.}} = 0.0372 \text{ Acre-feet}$$

Water Quality Volume = 1620 cubic feet

Credit for Removal of Impervious Surface:

Approximately 2041 square feet (0.05 Acres) of impervious area shall be permanently removed and stabilized with a vegetative cover.

Adjusted Water Quality Volume:

$$WQv = \frac{\{(1.0 \text{ in.})[(0.05) + (0.009)(100)](0.47 - 0.05 \text{ acs.})\}}{12 \text{ in/ft.}} = 0.0333 \text{ Acre-feet}$$

Water Quality Volume = 1450 cubic feet

Recharge Volume:

$$Rev = \frac{[(S)(Rv)(A)]}{12}$$

where, S = Soil Specific Recharge Factor  
 S = 0.13 inches for Type C Soils

$$Rev = \frac{\{(0.13)[(0.05) + (0.009)(100)](0.42 \text{ acs.})\}}{12 \text{ in/ft.}} = 0.0043 \text{ Acre-feet}$$

Recharge Volume = 190 cubic feet

**Stormwater Management Best Management Practice:**

In determining the best method of providing qualitative stormwater management for this project, several options were considered. First the rooftop runoff from the proposed building could be captured and conveyed to a drywell. This certainly would be an acceptable management practice, and would provide thermal treatment of runoff from the roof on a hot summer day. However, from an environmental perspective, it would be better to capture and treat some of the runoff from the (on site) pavement. With the amount of truck traffic at this facility, surface runoff is bound to have some oil or grease mixed in with dust and debris and treatment of this runoff would greatly benefit the receiving waters.

Since runoff from the existing loading dock sheet flows toward the proposed building, a slotted drain will be used to capture this runoff. A slotted drain is being used, because the grades in the vicinity of the proposed building are too flat, and there is insufficient fall to divert the runoff to an inlet or around the proposed building. Approximately 9868 square feet (0.22 acres) of pavement drains to the slotted drain and this runoff will be conveyed to an underground infiltration trench. The runoff in the slotted drain will be conveyed to an inlet which has been designed with a stilling basin. A one-quarter bent intake pipe shall be used to convey this runoff to the infiltration trench. The use of this inlet, will not only provide for some sedimentation of influent, but will also act as a sort of oil/grit separator, allowing for the greases and oils to concentrate within the inlet, where they can then be physically removed.

**Design of Infiltration Trench:**

Only 50 percent of the total impervious surface within the redeveloped area needs to be returned to a pervious condition, in order to satisfy the Howard County Stormwater Management Ordinance.

Required Storage Volume of Infiltration Trench = (0.50)(WQv) = (0.50)(1450 cu ft) = 725 cu ft.

Stone has a void ratio of 40 percent, therefore the actual volume of the stone trench = 725/0.40 Physical Volume of Stone Trench = 1,815 cubic feet.

**Infiltration Rate:**

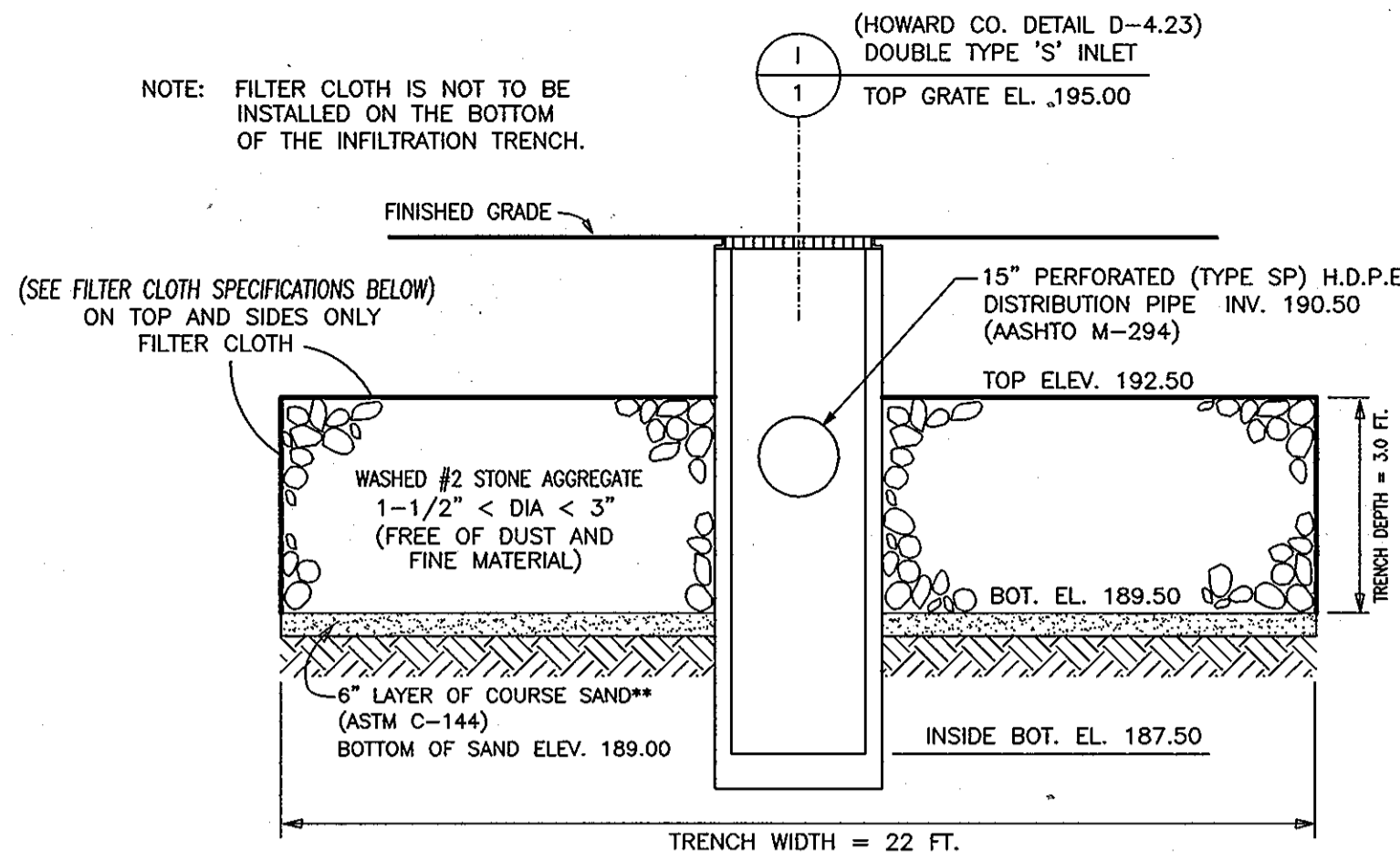
The soils where the Infiltration Trench is to be located are from the Keyport soil group and are represented by the SCS Symbol KhC2 on the Howard County Soil. These soils are silty loams created from fragments of hard mica schist. Soil borings were conducted at the locations depicted on the following page and the boring logs for these tests are also appended hereto. Please note that no groundwater or bedrock was encountered in these borings.

**Trench Dimensions:**

Length = 30 feet  
 Width = 22 feet  
 Depth = 3 feet

**CONCRETE GENERAL NOTES AND SPECIFICATIONS**

- Concrete shall conform to Maryland State Highway Administration Mix no. 3 and shall have a minimum 28 day compressive strength of 3,500 psi. Concrete shall meet minimum requirements set forth in SHA Specifications, Section 918 (portland cement concrete mixtures), for Mix no. 3(a-1) or 2(p-1) concrete and Section 911 for reinforcement. Concrete construction shall conform to SHA Specifications, Section 608 and Section 905.
- Reinforcing steel shall have a minimum yield strength of 60,000 psi.
- Soil for foundation of structure shall be compacted to a minimum of 95 percent of the maximum dry density obtained in compaction tests performed in accordance with the requirements of the AASHTO Designation T-99 Method A.
- Contractor to notify the office of Leon A. Podolak and Associates, LLC, at (410) 876-1226, for periodic inspection of construction.
- Contractor shall vibrate concrete in place to remove entrapped air during casting.



\*\*NOTE: SAND SUBSTITUTIONS SUCH AS "DIABASE" AND "GRAYSTONE #10" ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

**CROSS SECTION OF INFILTRATION TRENCH**  
 NOT TO SCALE

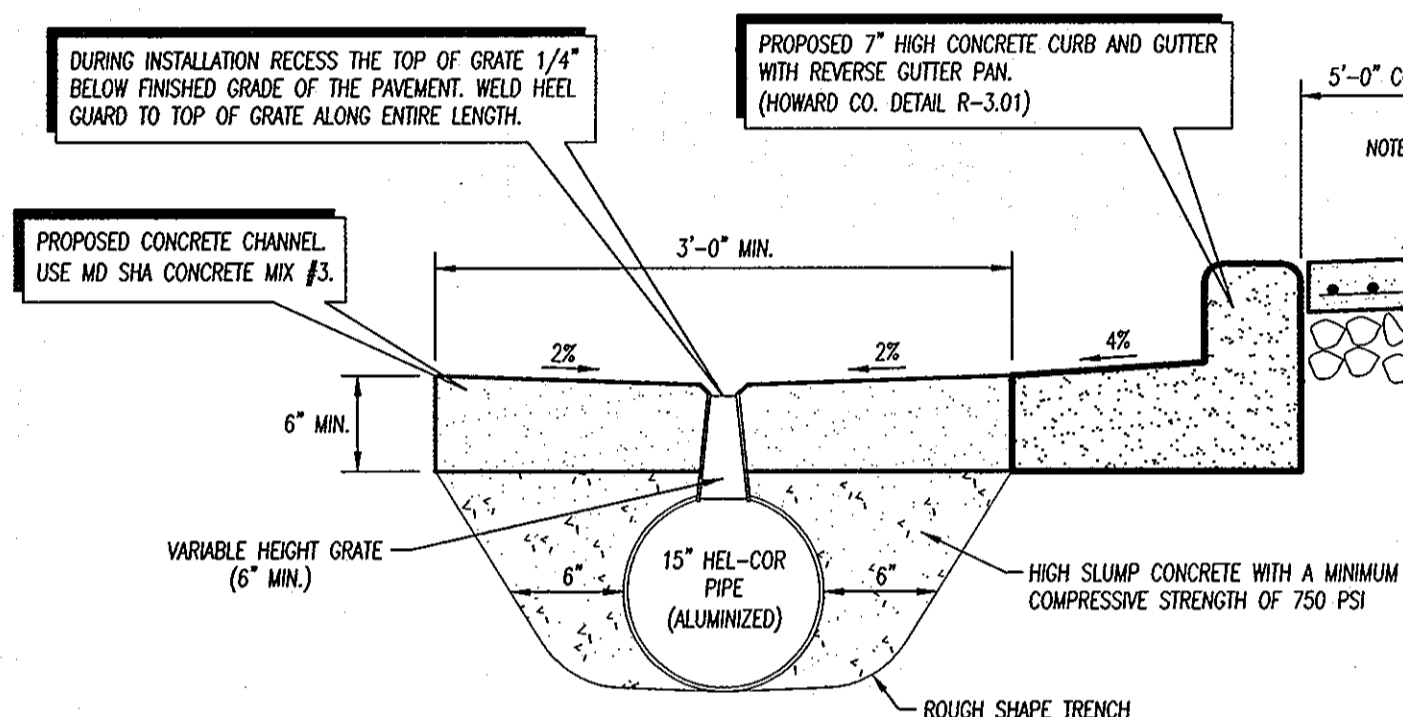
**NOTES**

- STEEL ENCAPSULATED LADDER RUNGS AS PER MD. SHA 381.92 SHALL BE PROVIDED FOR ALL STRUCTURES. (M-1 AND I-1)
- SHA NO. 57 STONE AGGREGATE SHALL BE USED FOR THE BASE OF ALL STRUCTURES.
- FILTER CLOTH SHALL MEET OR EXCEED THE FOLLOWING PHYSICAL PROPERTIES:  
 A. Permittivity (ASTM D449185) = 0.1 sec<sup>-1</sup> (MIN)  
 B. Opening Size (ASTM D4751-87) = 60 (U.S. sieve size) (MAX)  
 C. Flowrate (ASTM D4451-85) = 10 gal/min/ft (MIN)  
 D. Mullen Burst (ASTM D3786) = 200 psi (MIN)
- ALL STONE AGGREGATE SHALL BE WASHED AND FREE OF DUST, DIRT AND FINE MATERIAL.

**INSPECTION CHART FOR 'SWM' INFILTRATION TRENCH SWM BMP#1**

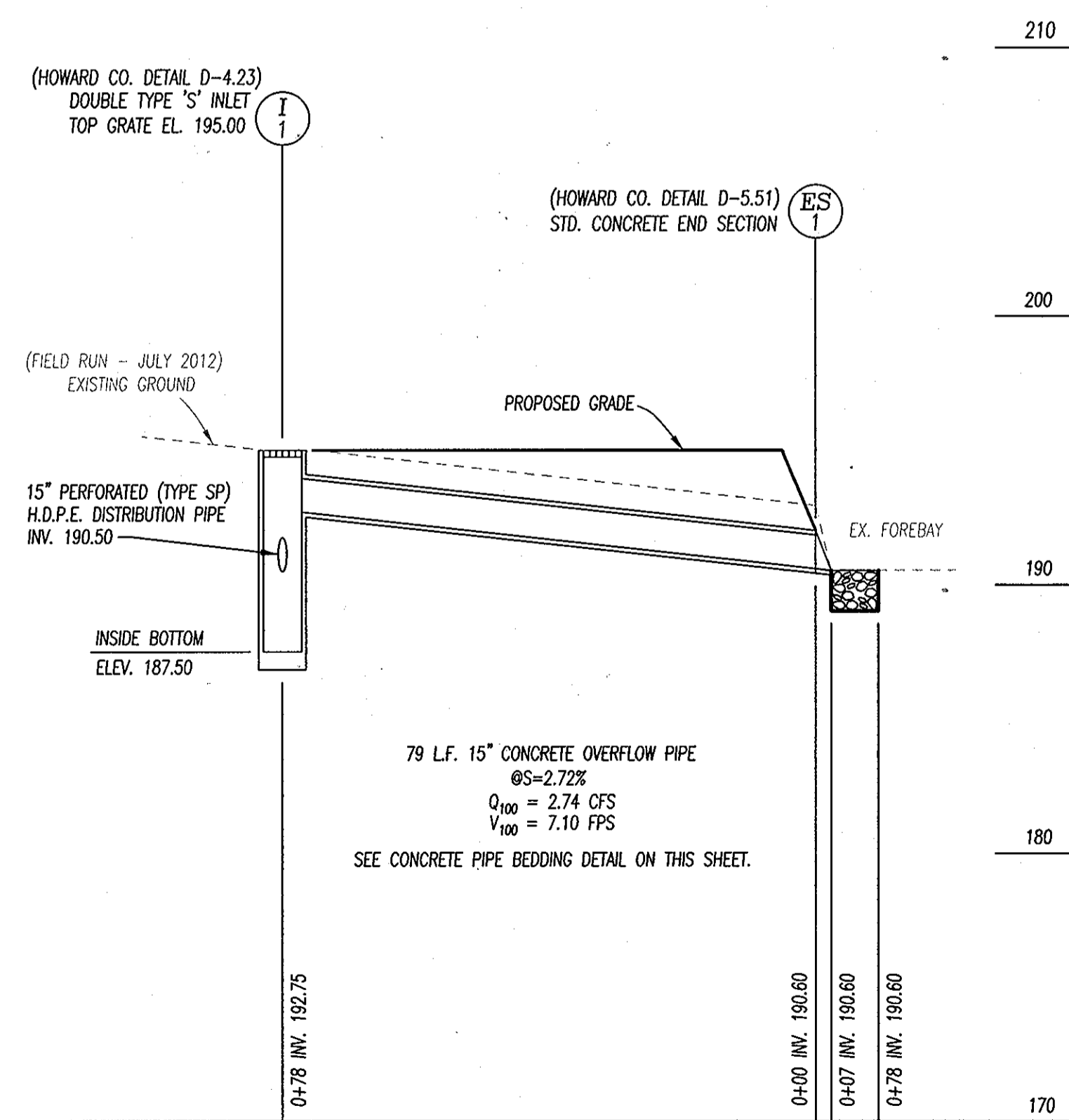
Note: Contractor should contact the Office of Leon A. Podolak and Associates, L.L.C. at (410) 876-1226, at least 48 hours prior to commencing construction of proposed Storm Water Management Devices

STAGE	ENGINEER'S APPROVAL	
	Initials	Date
1.) Excavation to subgrade & 'As-Built' verification of bottom trench elevation.		
2.) Construction of drainage structures (M-1 & M-2)		
3.) Geotextile installation along sides only.		
4.) Placement of sand along bottom of trench		
5.) Placement of no. 2 stone and perforated distribution pipe. Temporarily cap distribution pipe. (SEE DETAIL)		
6.) Installation of remaining stone & 'As-Built' verification of top of stone elevation. Cover with filter cloth.		
7.) Completion of final grading, seed & mulch of disturbed areas & final grading.		
8.) Upon establishment of 2 inch stand of grass, remove sediment in structures and uncapped distribution pipe.		
9.) Submit SWM 'As-Built' mylars to Howard County		



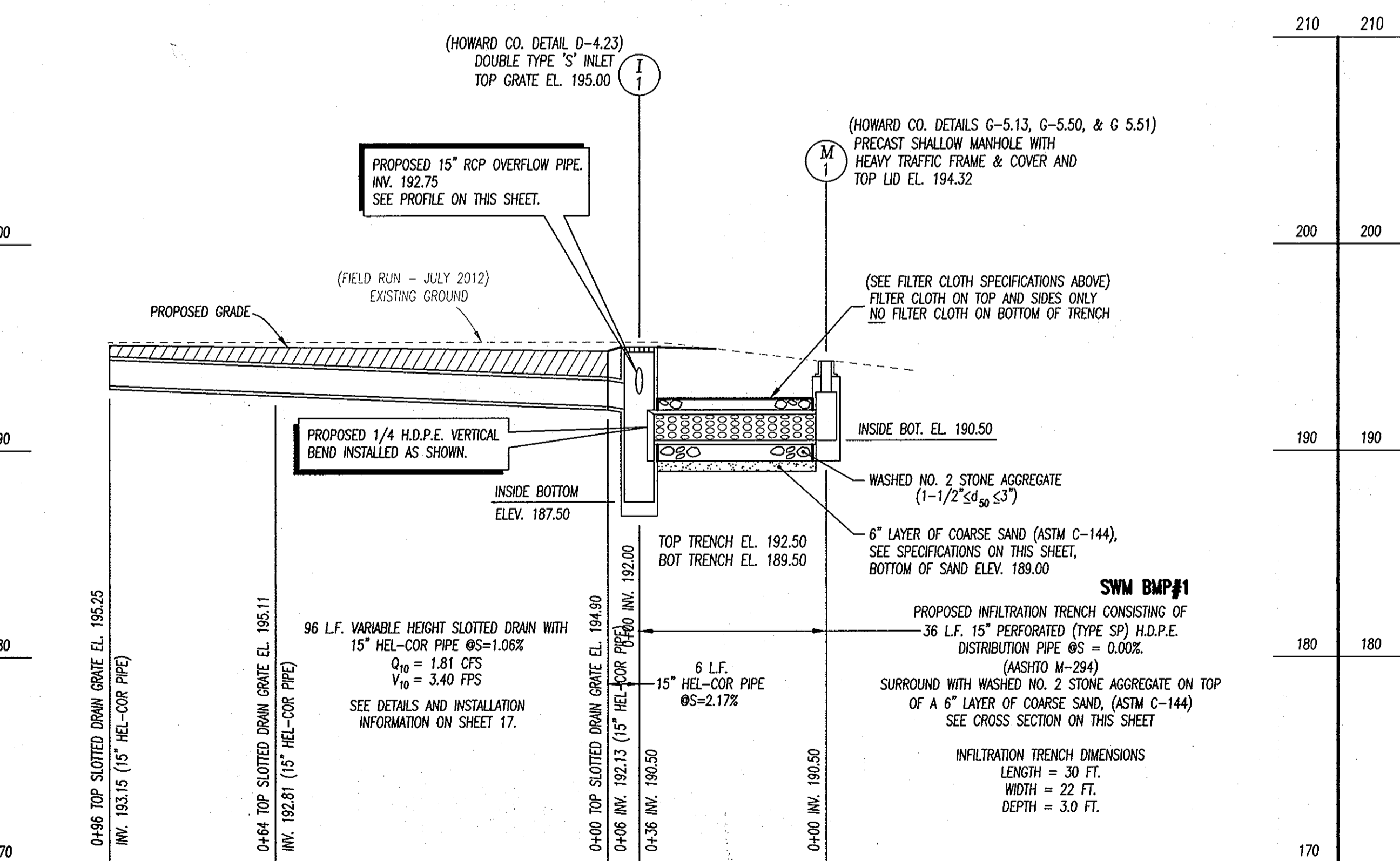
**SLOTTED DRAIN DETAIL**

SCALE: 1" = 1'-0"



**(PRIVATE) SWM OVERFLOW PIPE PROFILE**

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



**(PRIVATE) STORM DRAIN PROFILE: SLOTTED DRAIN TO INFILTRATION TRENCH**

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

**\* PRIVATE \* STORM WATER MANAGEMENT FACILITY MAINTENANCE SCHEDULE**

- The Stormwater Management Facility/Facilities shown on these plans shall be constructed and maintained by the owner(s).
- Owner/his heirs or assigns shall be responsible for continuing maintenance of the facility/facilities which shall include such items as mowing, cleaning and removing sediment, trees, shrubs and debris. The time period for this continuing maintenance shall be on "as-needed" basis but not be delayed longer than 30 days.
- Owner, his heirs or assigns shall be responsible for any structural damages or failure which may occur as a result of negligence, accident or misuse. In the event of structural damage, owner shall be responsible to make necessary repairs as quickly as possible but in any case within 30 days.

**Required Sequence of Construction for Infiltration Trench**

- Contact the office of Leon A. Podolak and Associates, L.L.C., (the Engineer) at (410) 876-1226, at least 48 hours prior to commencing construction on the infiltration trench, to schedule construction inspection.
- Excavate the trench to the design dimensions. Excavated materials shall be placed away from the trench sides to enhance trench wall stability. The side walls of the trench shall be roughened where sealed by heavy equipment. Contact Engineer to arrange for 'As-Built' verification of excavated bottom elevation of trench. Provide temporary safety fence around open excavation.
- Install storm drainage structures M-1 and I-1. Cut the filter fabric to a length sufficient to conform to trench sides and top including all irregularities. Line the sides of the trench perimeter with the cut fabric rolls. Do not line the bottom of the trench with filter cloth. Overlaps between rolls should be a minimum of 2 feet over adjacent rolls to provide a shingled effect. Fill the bottom of the trench with 6 inches of clean sand (ASTM-33). Contact the Engineer to arrange for 'As-Built' verification of top of sand elevation.
- Place the washed, stone aggregate into the trench in 12 inch lifts, level and compact using plate compactors or heavy equipment. Install distribution pipe when stone backfill has reached the appropriate elevation and connect to Manhole M-1 and Inlet I-1.
- Once the required volume of stone has been placed in the trench, contact the engineer for verification of the 'As-Built' top elevation of the trench. Upon the Engineer's approval, overlap filter cloth and backfill over trench.
- Stabilize all disturbed areas according to the permanent seeding specifications.
- Once the contributing drainage area is to final grade, structures are completed, proposed paved areas are paved, proposed building are constructed, and two inches of grass is established on all disturbed areas, upon the Engineer's approval, dewater & flush storm drain system and remove all sediment.
- Submit Stormwater Management 'As-Built' mylars to Howard County.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *[Signature]* Date: 2/22/13

Chief, Division of Land Development: *[Signature]* Date: 2/25/13

Director: *[Signature]* Date: 2/27/13

**SWM CONSTRUCTION DETAILS**

#7471 WASHINGTON BLVD., ELK RIDGE, MD 21075 TAP MAP: 43 BLOCK: 4 PARCEL: 462 ACCT. NO.: 01-177249

SHEET 16 OF 17

LEON A. PODOLAK and ASSOCIATES, L.L.C.

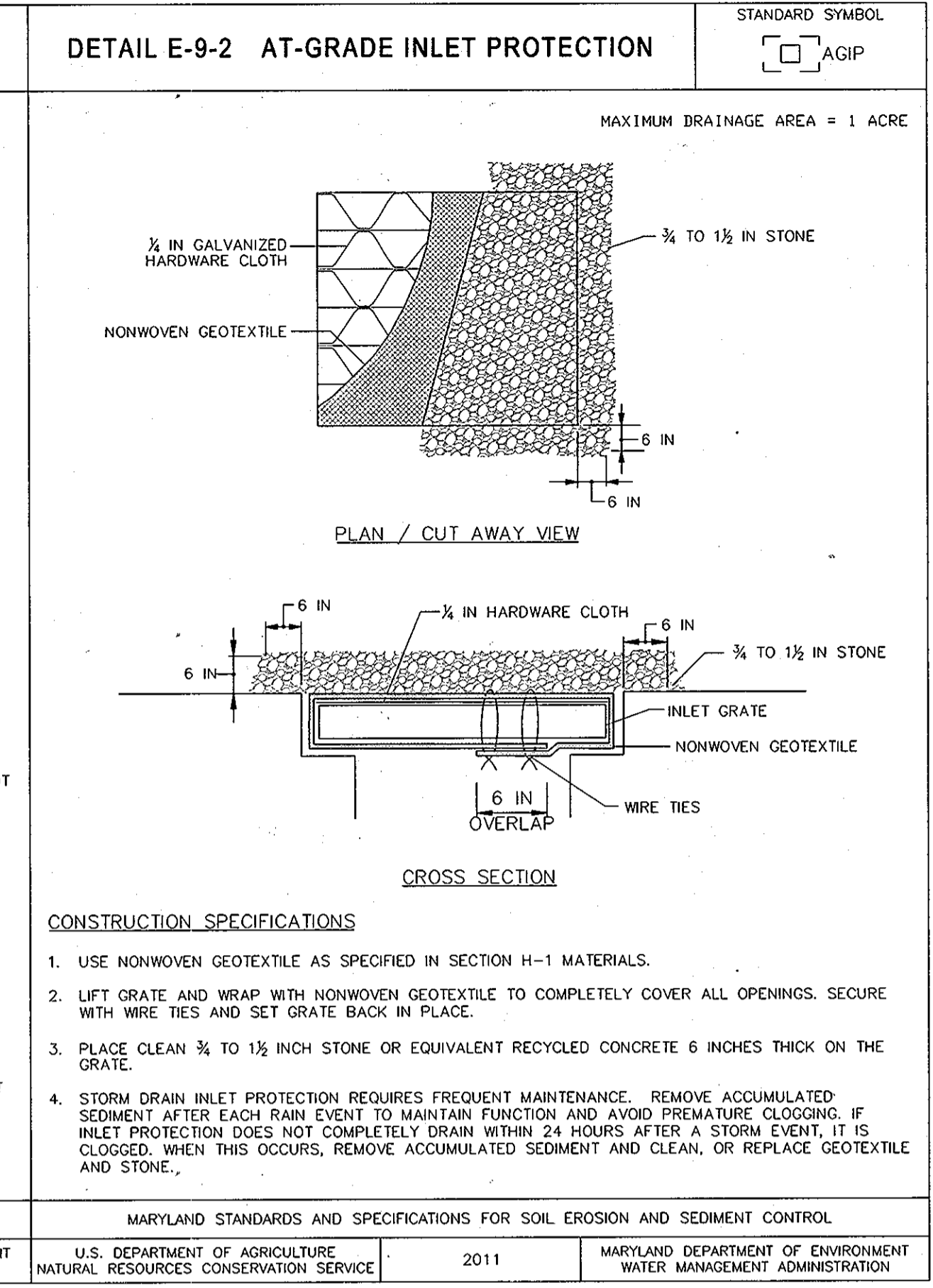
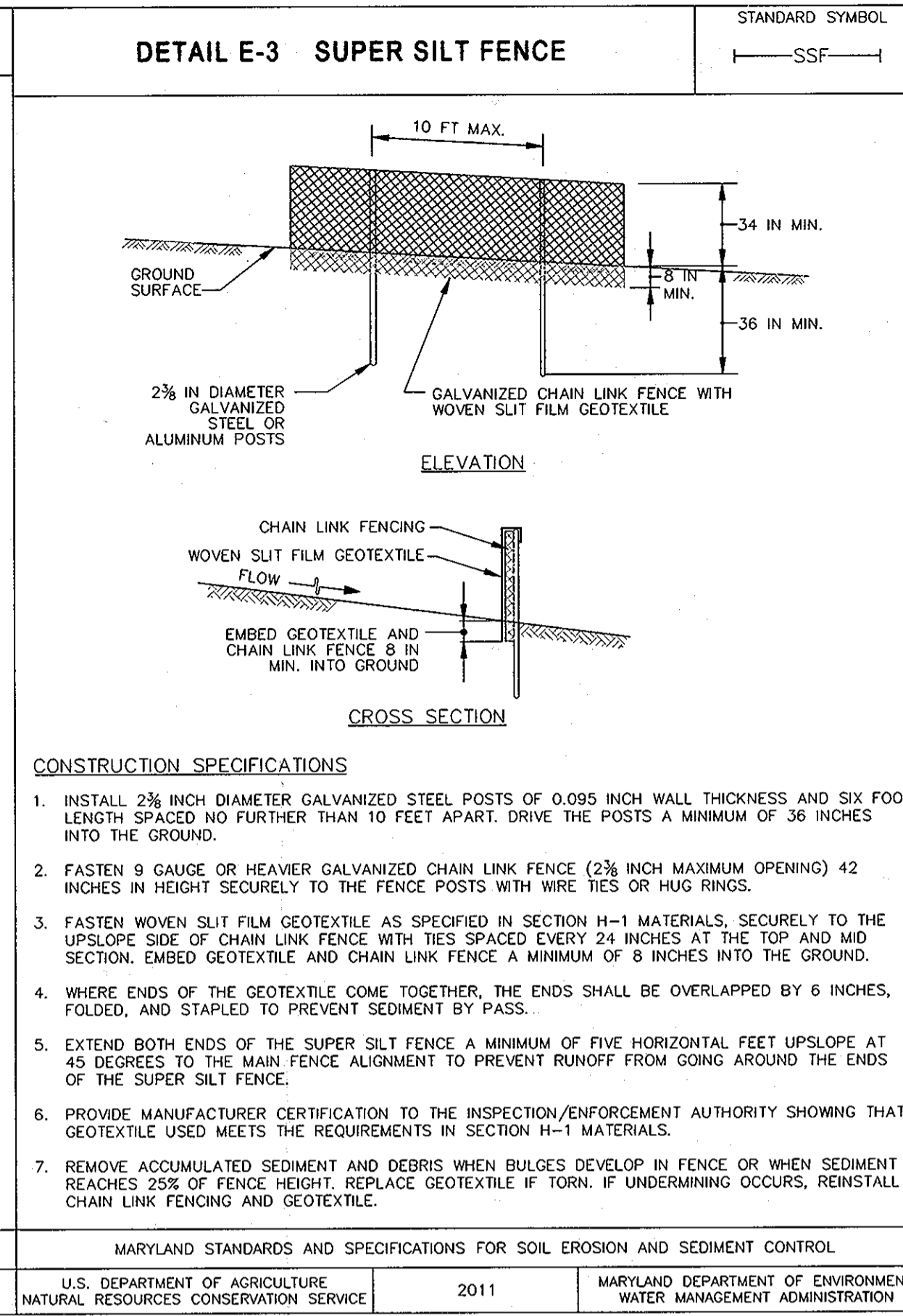
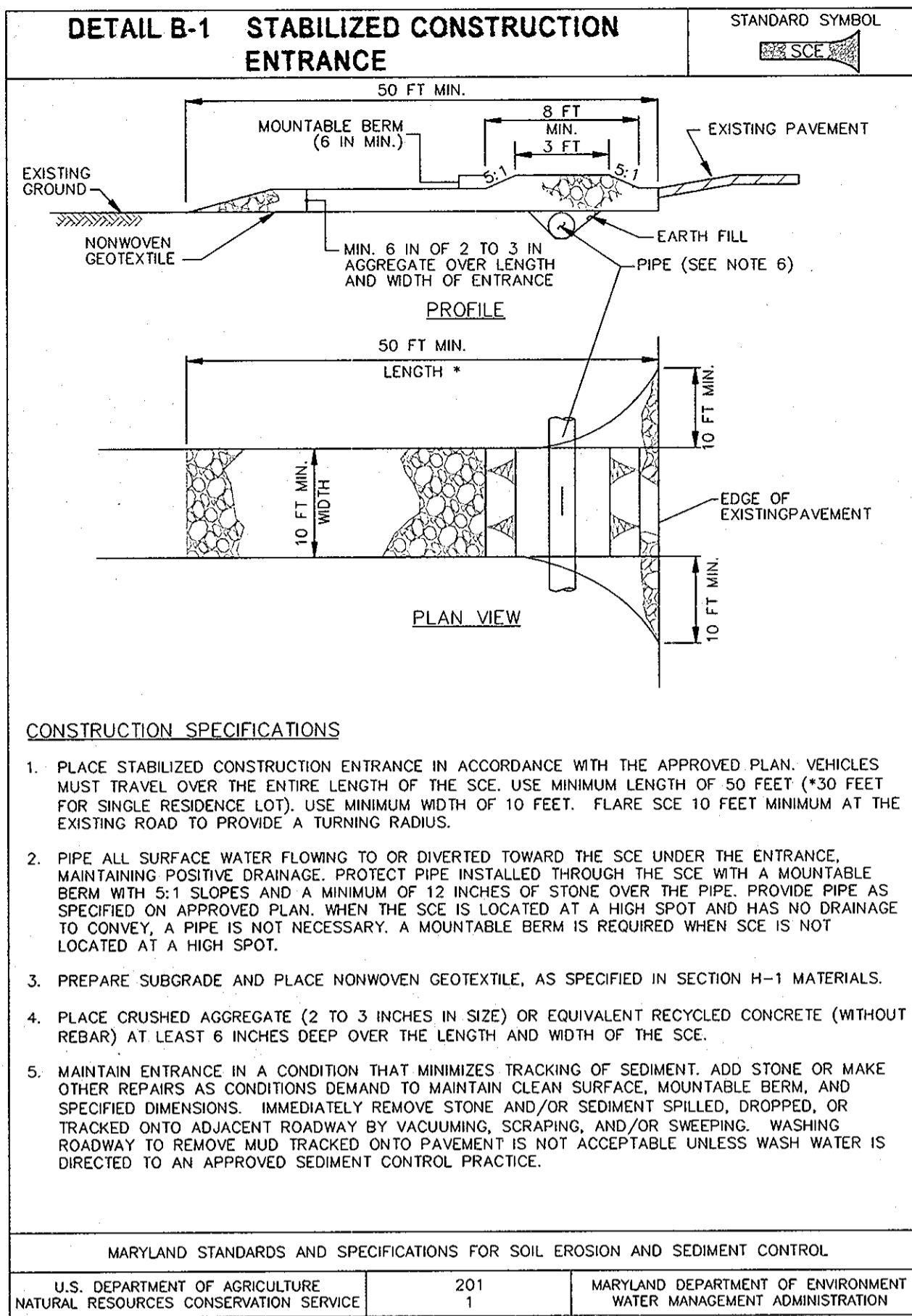
SURVEYING and CIVIL ENGINEERING  
 147 East Main St. (P.O. Box 266) Westminster, Maryland 21157  
 (410) 848-2228 - (410) 876-1226

Date: 11-16-12 Revision: RED-LINE COMMENTS

Date: Sept. 18, 2012 Scale: 1" = 20' Drawing No.

SDP-03-077





### CONSTRUCTION SPECIFICATIONS

**General**

The Contractor shall maintain on the site at all times copies of the following documents

- Approved Red-Lined Site Development Plan for Central Transport, prepared by Leon A. Podolak and Associates, LLC
- The latest edition of the Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction, and all amendments thereto
- The latest edition of the Maryland State Highway Administration Standard Specifications for Construction and Materials
- The latest edition of the Maryland Standards and Specifications for Soil Erosion and Sediment Control
- The latest edition of the Manual on Uniform Traffic Control Devices

In the event of a conflict between this and any portions of the contract documents the order of precedence shall be as follows:

- Direction of the Engineer in the Field
- These Standard Provisions
- Construction Drawings
- Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction
- Maryland State Highway Administration Standard Specifications for Construction and Materials
- Maryland Standards and Specifications for Soil Erosion and Sediment Control
- Manual on Uniform Traffic Control Devices

**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.

**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 compacted over the entire length of the fill.

**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 obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that water can be squeezed out.

The minimum required density shall not be less than 95% of maximum dry density with a moisture content within, more or less, 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and it to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

**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 12" or greater over the structure or pipe.

**Pipe Conduits**

All pipes shall be circular in cross section.

**Variable Height Slotted Drain**

This specification covers Slotted Drain used for the removal of water as shown on the plans. The Corrugated Steel Pipe used in the Slotted Drain shall meet the requirements of AASHTO M36/ASTM A760. The CMP shall be ALUMINIZED STEEL Type 2 per AASHTO M-274, or galvanized steel per AASHTO M 218. The diameter and gage shall be as shown on the plans.

**Connections** - The Corrugated Steel Pipe shall have a minimum of two rolled annular ends. The Slotted Drain bands shall be modified HUGGER Bands to secure the pipe and prevent infiltration of the backfill.

**Grates** - The grates shall be manufactured from ASTM A1011, Grade 36 steel. The spacers and bearing bars (sides) shall be 3/16" material, more or less, 0.005". The spacers shall be on 6" centers and welded on both sides to each bearing bar (sides) with four (4) 1/4" long 3/16" fillet welds on each side of the bearing bar. The plate extenders shall be 7 gage steel meeting ASTM A 761 with minimum yield/tensile strengths of 28,000 and 42,000 respectively. The engineer may call for tensile strength tests on the grate if the grate is not in compliance with Section 3.2. If tensile strength tests are called for, minimum results for an in-place spacer pulled perpendicular to the bearing bar shall be:

T = 12,000 pounds for 2-1/2" grate  
T = 15,000 pounds for 6" grate

The grates shall be vertical (straight sides) with a 1-3/4" opening in the top and spacers centered 6" unless shown otherwise on the plans. The top and bottom grate shall be 2-1/2" or 6" high as needed. CONTECH Method #1 for variable height grates, or an approved equal, shall be used to achieve the slope shown on the plans.

**Galvanizing** - The grate and plate extenders shall be galvanized in accordance with ASTM A 123 except with a 2 oz. galvanized coating, total both sides.

**Grate Attached to CSP** - The grate shall be fillet welded with a minimum weld 1" long to the CSP on each side of the grate at every other corrugation.

**Tolerances - Finished Slotted Drain -20' Length**

Vertical Bow +3/8"  
Horizontal Bow +5/8"  
Twist -+1/2"

**Reinforced Concrete Pipe**

All of the following criteria shall apply for reinforced concrete pipe:

**Materials** - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.

**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. Gravel bedding is not permitted.

**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.

Backfilling shall conform to "Structure Backfill".

**Concrete**

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

**Rock Riprap**

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

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

**Care of Water during Construction**

Should groundwater be encountered during any excavation operations, contact the Engineer at (410) 876-1226 to determine if a redesign of any portion of the project will be necessary. Should rainwater collect in the bottom of any excavation, the contractor can remove this water by pumping it into a sediment bag and then diverting it into the forebay of the existing stormwater management pond.

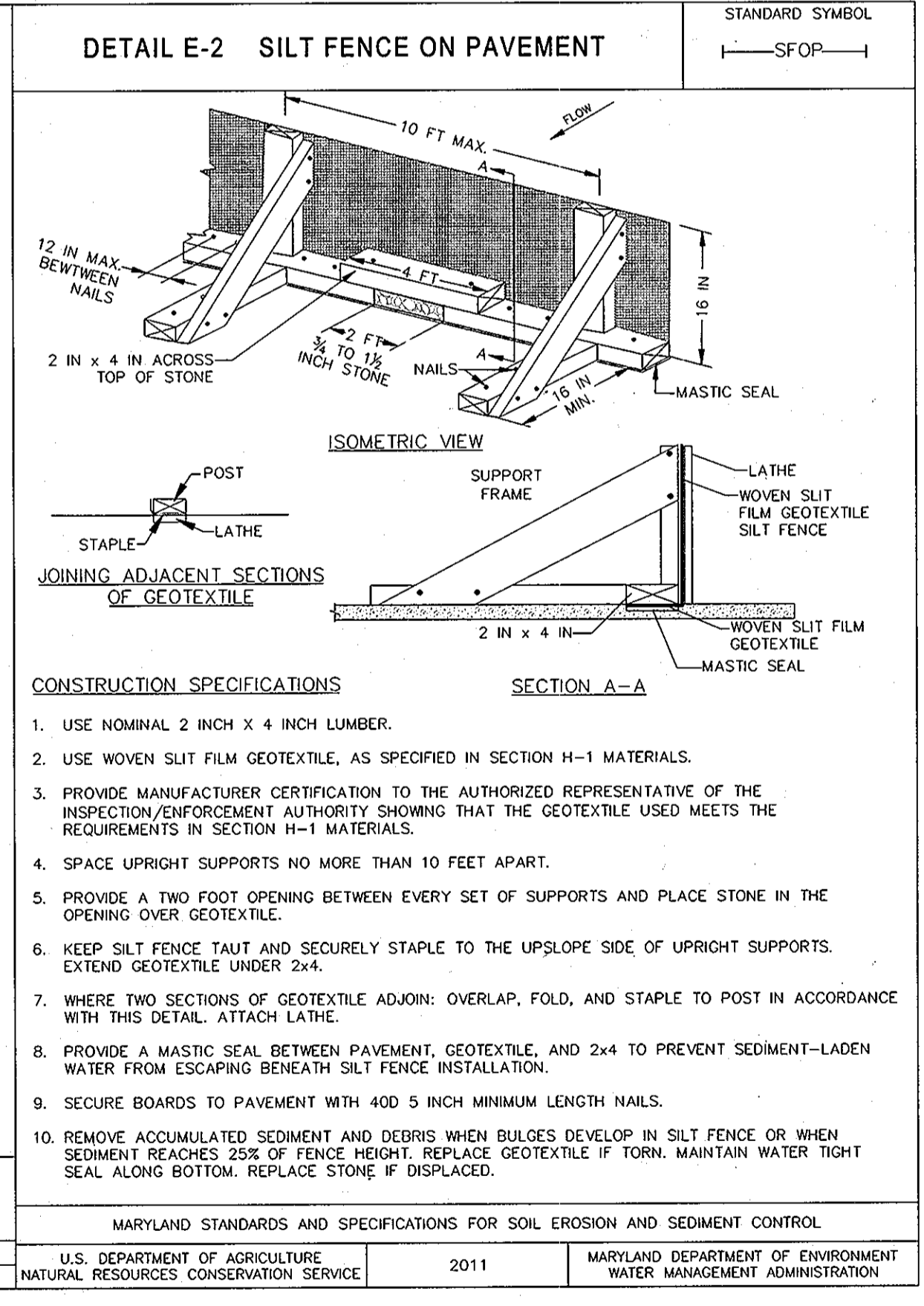
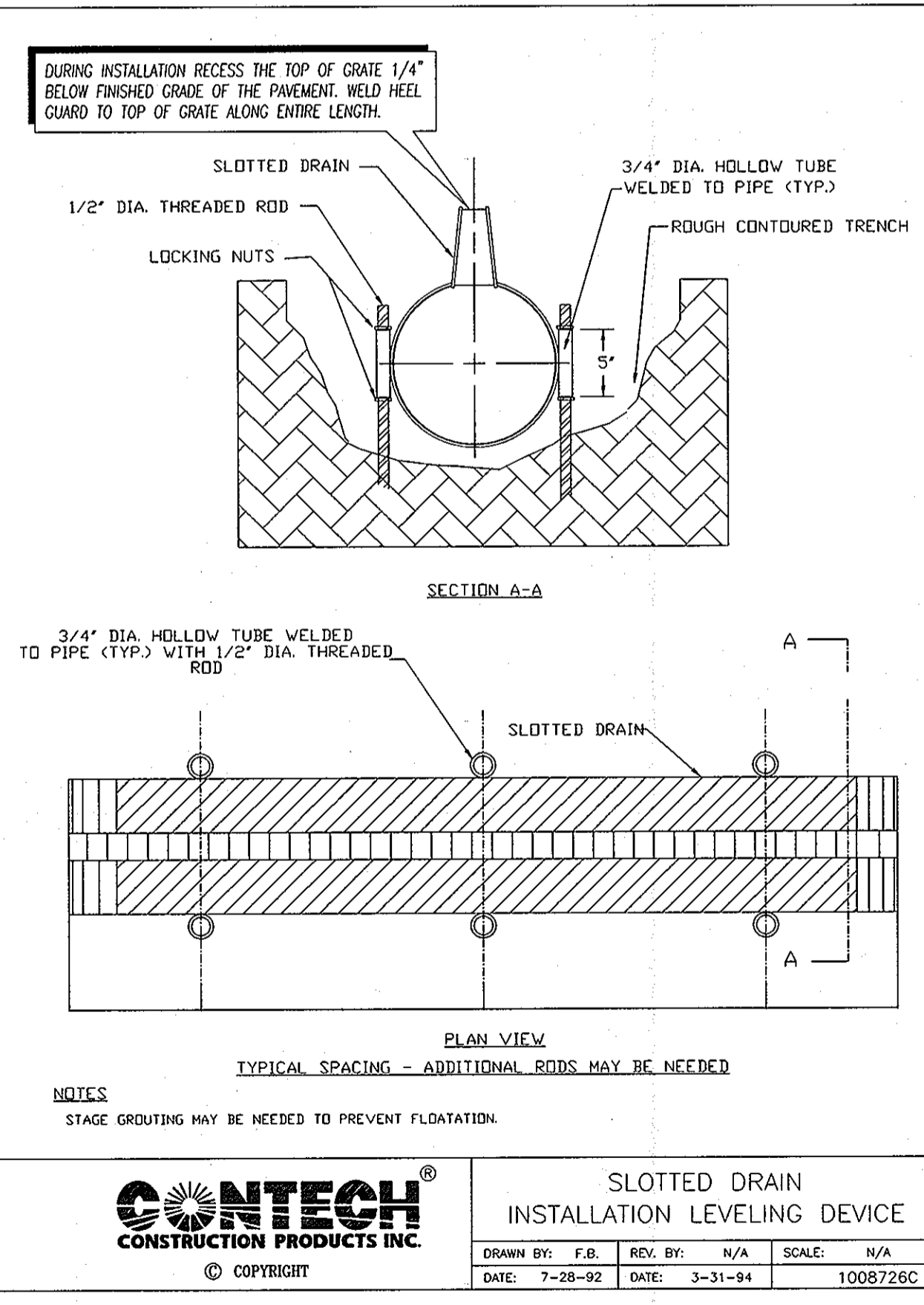
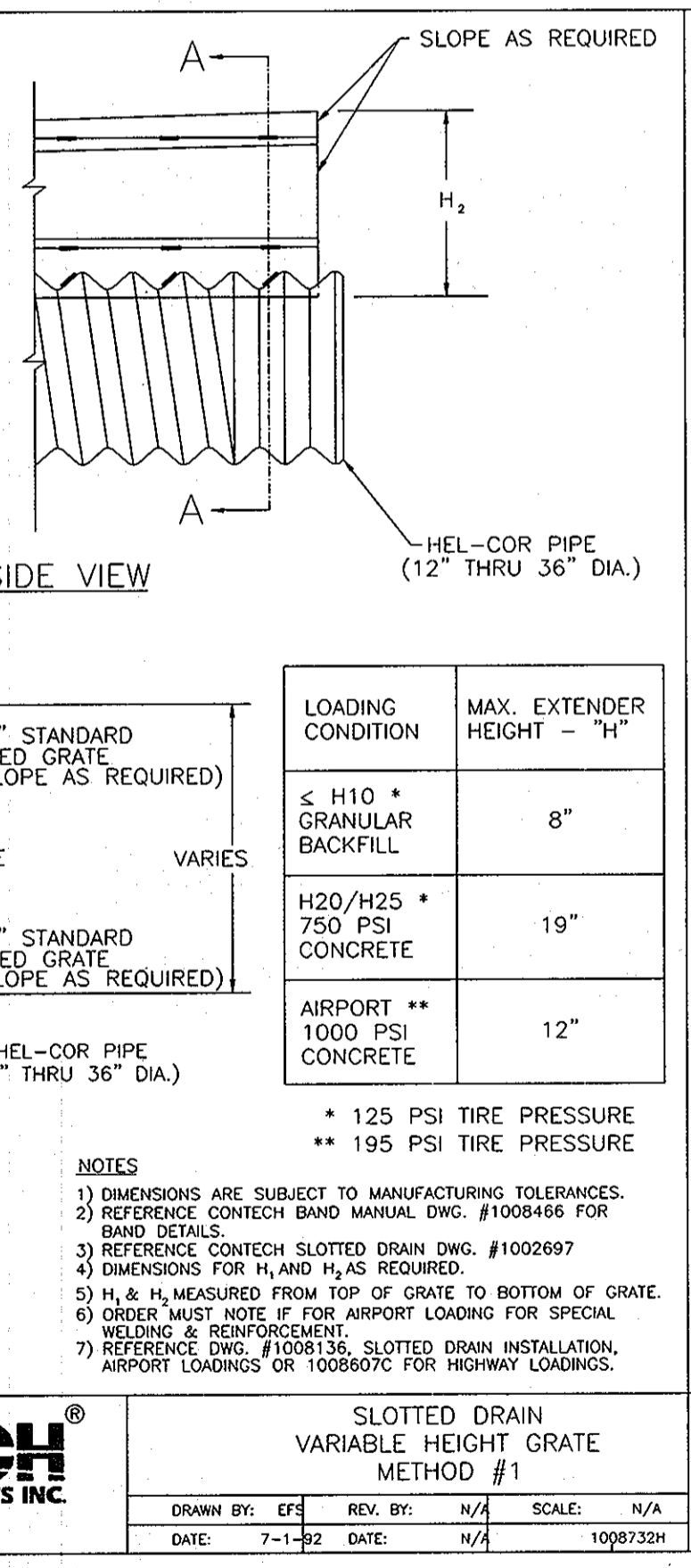
**Patching Existing Paving**

The existing paving shall be repaired with bituminous concrete surface in accordance with standard detail G 4.01 as shown in the Howard County Design Manual, Volume IV, Standard Specifications and Details for Construction. Concrete curb and gutter, that has been disturbed during construction operations, shall be hand formed and set to the same lines and grades that existed prior to construction and shall conform with standard detail R 9.01 of said manual.

**Stabilization**

All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed previous surfaces shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

**Erosion and Sediment Control** - Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.



### PERMANENT SEEDING NOTES

Scope: Planting permanent, long lived vegetative cover on graded and/or cleared areas and areas that have been in temporary vegetation for more than 6 months.

Standards: The following notes shall conform to Section B-4 of the "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" published jointly by the Maryland Department of Environment - Water Management Administration, the National Resource Conservation Service and the Maryland Association of Soil Conservation Districts.

The seed bed shall be prepared by loosening the soil to a depth of 3 to 5 inches and incorporating the lime and fertilizer into this loosened layer of soil. See section B-4-2.

For sites over 5 ac. soil tests will be performed. Soil tests will be conducted by the University of Maryland or a recognized commercial laboratory. Minimum soil conditions shall meet the requirements of section B-4-2-A-2-a, otherwise soil amendments or topsoil will need to be applied. Topsoiling may occur when soil conditions meet the minimum requirements as stated in section B-4-2-B. Soil amendments must meet the requirements as set forth in section B-4-2-C and must be applied as indicated by the soil tests.

For sites of 5 ac. or less of disturbance, the following fertilizer and lime rates shall apply. Fertilizer shall consist of a mixture of 10-20-20 and be applied at the following rates:

N = 45 lb. per acre (1 lb. per 1000 sq.ft.)  
P2O5 = 90 lb. per acre (2 lb. per 1000 sq.ft.)  
K2O = 90 lb. per acre (2 lb. per 1000 sq.ft.)

Lime shall be applied at a rate of 2 tons per acre (90 lb. per 1000 sq.ft.)

Seed type, turfgrass or sod application shall meet the requirements in section B-4-5. Seed tags shall be made available to the inspector to verify the type and application rate of seed used. Multiple type and its application will meet the requirements in section B-4-3-a, b and c, and will be applied along with seed or immediately after seeding.

Seeding mixtures shall be selected from or will be equal to those on Table B-3. The seeding chart below will need to be placed on and filled in on the sediment control plan.

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20)		Lime Rate
					N	P2O5	
8	Tall Fescue	100	3-1 to 5-15 8-1 to 10-15	1/4-1/2 in 1/4-1/2 in	45 pounds per acre (1 lb./1000 sq ft)	90 lb/ac (2 lb./1000 sq ft)	2 tons/ac (90 lb./1000 sq ft)

### TEMPORARY SEEDING NOTES

Scope: Planting short term (no more than 6 Months) vegetation to temporarily stabilize any areas where soil disturbance has occurred, until the area can be permanently stabilized with vegetative or non-vegetative practices.

Standards: The following notes shall conform to Section B-4 of the "2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" published jointly by the Maryland Department of Environment - Water Management Administration, the National Resource Conservation Service and the Maryland Association of Soil Conservation Districts.

The seed bed shall be prepared by loosening the soil to a depth of 3 to 5 inches and incorporating the lime and fertilizer into this loosened layer of soil. See section B-4-2.

For temporary stabilization, fertilizer shall consist of a mixture of 10-20-20 and be applied at a rate of 436 lb. per acre (10 lb. per 1000 sq. ft.) and will meet the requirements in section B-4-2. Lime shall be applied at a rate of 2 tons per acre (90 lb. per sq. ft.) and shall meet the requirements in section B-4-2 and B-4-4.

Seed type and application shall meet the requirements in section B-4-5. Seed tags shall be made available to the inspector to verify the type and rate of seed used. Multiple type and its application will meet the requirements in section B-4-3-a, b and c and will be applied along with the seed or immediately after seeding.

Seeding mixtures shall be selected from or will be equal to those on Table B.1 (page B.20).

**Temporary Seeding Summary**

The seeding chart below will need to be placed on and filled in on the sediment control plan

No.	Species	Application Rate (lb/ac)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20)		Lime Rate
					N	P2O5	
	Annual Ryegrass	40	3-15 to 5-31 8-1 to 9-30	0.5"	436 lb/ac (10 lb./1000 sq ft)	90 lb/ac (2 lb./1000 sq ft)	2 tons/ac (90 lb./1000 sq ft)

# CONSTRUCTION SPECIFICATIONS SEDIMENT CONTROL DETAILS and SEEDING SPECIFICATIONS

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

Approved: *John A. Johnston* 2/14/13  
Howard S.C.D.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division: *[Signature]* Date: 2/22/13

Chief, Division of Land Development: *[Signature]* Date: 2/25/13

Director: *[Signature]* Date: 2/27/13

#7471 WASHINGTON BLVD., ELK RIDGE, MD 21075 TAX MAP: 43 BLOCK: 4 PARCEL: 462 ACCT. NO.: 01-177249

**LEON A. PODOLAK and ASSOCIATES, L.L.C.**

SURVEYING AND CIVIL ENGINEERING  
147 East Main St. (P.O. Box 286) Westminster, Maryland 21157  
(410) 848-2228 - (410) 876-1226

Professional Engineer Seal: Peter L. Podolak, P.E. No. 19561, expiration date: 3-3-2014.

Date: Sept. 18, 2012  
Scale: 1"=20'  
Drawing No. SDP-03-077