Site Development Plan
CORRIDOR 95 BUSINESS PARK
PARCELS 'A' & 'B'
HOWARD COUNTY, MARYLAND
SDP 08-082

DMW
DAFT McCUNE WALKER, INC.
200 E.PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

PURPOSE STATEMENT: REVISION No. 1
The purpose for this redline revision is to separate the construction into 2-stages. The first stage is to complete the construction of Summit Rock Drive and all public utility connections to a point just beyond the 3rd stream crossing. The second stage is to finish out the remainder of the SDP proposed plans for future development. Additionally two borrow areas were added to provide fill for the limited road construction in lieu of using the previously proposed borrow area located in what is now sequenced as the stage 2 construction area.

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 INSPECTIONS 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 LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST MARYLAND EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
5. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
6. THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY G. W. STEPHENS JR. & ASSOC.. DATED DECEMBER 07.
7. THE COORDINATES SHOWN HEREON ARE BASED UPON HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. BENCH MARK IS HOWARD COUNTY GEODETIC SURVEY CONTROL.
8. WATER AND SEWER ARE PUBLIC PER CONTRACTNO. 14-4576-D.
9. PRIVATE TRASH REMOVAL SERVICES WILL BE PROVIDED BY THE DEVELOPER.
10. DRAINS ARE PRIVATE
11. EXISTING UTILITIES ARE BASED ON GWS TOPO
12. THERE IS FLOOD PLAIN ON SITE.
13. THERE ARE WETLANDS ON SITE. ECO-SCIENCE PROFESSIONALS ARE RESPONSIBLE FOR THE ENVIRONMENTAL SITE INVESTIGATION. DATE OF INVESTIGATION (FEBRUARY 27, 2009). MDE / CORPS OF ENGINEERS PERMIT TRACKING # 200860826 / 08-NT-3066. LETTER OF AUTHORIZATION TO DISTURB WETLANDS ISSUED 3-22-11.
14. THE SUBJECT PROPERTIES ARE ZONED M-1 PER THE 02/02/04 COMPREHENSIVE ZONING PLAN AND PER THE "COMP LITE" ZONING REGULATION AMENDMENTS EFFECTIVE 7/28/06.
15. ALL EXTERIOR LIGHTING WILL BE DIRECTED / REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONED DISTRICTS AND COMPLY WITH ALL OTHER REQUIREMENTS OF SECTION 134 OF THE ZONING REGULATIONS.
16. THERE ARE NO CEMETERIES AND/OR GRAVESITES WITHIN THE PROJECT BOUNDARIES SUBJECT TO THE REQUIREMENTS OF SECTION 16.1300 OF THE HOWARD COUNTY CODE. CEMETERIES AND/OR GRAVESITES ARE LOCATED ON THE ADJACENT PROPERTY OWNED BY MEADOWRIDGE MEMORIAL PARK.
OFFSITE SEWER SHOWN ON SHEETS 6, 9 AND 10 ARE IN COMPLIANCE WITH SECTION 16.118C AND SUBTITLE 13 OF THE SUBDIVISION AND LAND DEVELOPMENT REULATIONS. ENCROACHMENT BY THE PROPOSED OFF-SITE SEWER ON THE EXISTING BURIAL PLOTS IN CEMETARY ARE MINIMIZED TO THE GREATEST EXTENT PRACTIBLE PER WP 08-084.
17. FOREST CONSERVATION ACT REQUIREMENTS FOR THIS PHASE OF THE PROJECT INCLUDES THE RETENTION OF 4.4 ACRES OF NET TRACT AREA FOREST AND REFORESTATION OF 8.4 ACRES. THE PROPOSED DEVELOPMENT WILL ALLOW FOR 0.9 ACRES OF ONSITE REFORESTATION. THE BALANCE OF THE OBLIGATION WILL BE MET IN AN APPROVED FOREST CONSERVATION BANK. SURETY AMOUNTS FOR DPW OBLIGATION PARCELS 'A' & 'B'.
ONSITE REFORESTATION : 0.9 ACRES OR 39,204 SQ. FT. X $0.50 PER SQ. FT. = $19,602.00.
OFFSITE REFORESTATION : 7.5 ACRES OR 326,700 SQ. FT. X $0.50 PER SQ. FT. = $163,350.00.
(PROVIDED AT BRIGHTON MILLS SUBDIVISION)
18. THE TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP DATED JANUARY 28, 2008 AND WAS APPROVED BY SHA PER LETTER RECEIVED OCTOBER 13, 2009
19. PREVIOUS RELATED FILE NUMBERS: F 06-09, F 11-029, EX. WATER 713W, EX. SEWER 1523-D, F 10-013, WP 05-084, WP 08-084, WP 09-212, WP 11-131, WP 12-072.
20. STORMWATER MANAGEMENT INCLUDES POND NO. 1 EXTENDED DETENTION WITH FOREBAY AND BIORETENTION AREA NO.1, TWO BIORETENTION AREAS NO. 2 AND NO. 3 BOTH WHICH HAVE FOREBAYS. TWO UNDERGROUND SWM FACILITIES NO. 1 AND NO. 3, PROVIDING WATER QUALITY, CHANNEL PROTECTION AND RECHARGE VOLUME AREAS AND A POND NO. 2 PROVIDING WATER QUALITY AND RECHARGE WITHIN A BIORETENTION AREA,WITH TWO FOREBAYS AND CHANNEL PROTECTION STORAGE. ALL STORMWATER FACILITIES ARE PRIVATELY OWNED AND MAINTAINED. IF TEMPORARY POND NO. 2 SHOWN ON SHEET NO. 49 IS REMOVED. IMPLEMENTATION OF THE MD STORMWATER ACT OF 2007 IS REQURED FOR THE AREA DRAINING TO THIS FACILITY. THIS IS REQUIRED BECAUSE A NEW SITE PLAN WILL BE REQUIRED FOR THIS LOT. ANY REMAINING STORMWATER MANAGEMENT REQUIREMENTS NOT APPROVED WITH THIS SDP PRIOR TO MAY 04, 2013 SHALL MEET THE LATEST STANDARDS OF MDE AND HOWARD COUNTY.
21. WATER AND SEWER CONTRACT NO. 14-4576-D.
22. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
23. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED SQUARE TUBE POST (14 GAUGE)-3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
24. NO GRADING, REMOVAL OF VEGETATIVE COVER OT TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN. UNLESS ACTIVITIES ARE DETERMINED NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING OR WAIVERS HAVE BEEN APPROVED.
25. ALL OF THE STORMWATER MANAGEMENT FACILITIES AND RETAINING WALLS WILL BE PRIVATELY MAINTAINED BY THE DEVELOPER.
26. MDE PERMIT / CORPS OF ENGINEERS TRACKING NO. 200860826 / 08-NT-3066 (PERMIT ISSUED 3/22/11).
27. CONTRACTOR TO REMOVE ALL OLD AND NEW JUNK, TRASH,DEBRIS AND OTHER NON-NATURAL ITEMS FROM FLOODPLAIN, WETLANDS, STREAMS AND THEIR BUFFERS.
28. DESIGN MANUAL WAIVER REQUEST OF THE 10-FOOT HORIZONTAL CLEARANCE REQUIREMENT AND A REDUCTION OF THE CLEARANCE TO 1-FOOT BETWEEN THE EDGE OF THE UTILITY EASEMENT AND THE PROPOSED BUILDING WAS GRANTED BY MR. RONALD LEPSON PER LETTER DATED FEBRUARY 17, 2009.
29. DESIGN MANUAL WAIVER REQUEST ACCESS TO UNDERGROUND STORMWATER MANAGEMENT FACILITIES TO BE LOCATED OUTSIDE VEHICULAR TRAVEL LANES AND THAT THE STORAGE FACILITY AND THE CONTROL STRUCTURE BE MADE OF LIKE MATERIALS APPROVED OCTOBER 06, 2008.
30. WP 09-212 PART APPROVED JULY 09, 2009
REQUEST TO WAIVE SUBSECTION 16.116(b)(1)-APPROVED-GRADING REMOVAL OF VEGETATIVE COVER AND TREES, NEW STRUCTURES, AND PAVING SHALL NOT BE PERMITTED ON LAND WITH EXIST. STEEP SLOPES.
REQUEST TO WAIVE SUBSECTION 16.118(c)- APPROVED-CEMETERIES SHALL BE DEALT WITH IN ACCORDANCE WITH SUBTITLE 13 OF THIS TITLE. IN ANY CASE, NO GRADING OR CONSTRUCTION SHALL BE PERMITTED WITHIN 30 FEET OF A CEMETERY BOUNDARY OR WITHIN 10 FEET OF INDIVIDUAL GRAVE SITE.
REQUEST TO WAIVE SUBSECTION 16.1202(a)(1)- APPROVED PER LETTER SEPTEMBER 3, 2009-FOREST CONSERVATION PLAN REQUIRED FOR SUBDIVISION PLAN, SITE DEVELOPMENT OR GRADING PERMIT- SUBDIVISION PLAN.
31. PRIOR TO GRADING PERMIT APPLICATION A LETTER SHALL BE OBTAINED BY THE DEVELOPER FROM BGE ACKNOWLEDGING ACTIVITIES PROPOSED IN THE BGE GAS EASEMENT.

LEGEND

FIRE HYDRANT
WATER VALVE
INLETS
STORM DRAIN MH
SANITARY MH
UTILITY BOX
TRANSFORMER
SOIL BORING
DECIDUOUS TREE
EVERGREEN TREE

PROPERY LINE
LOT LINE
BUILDING SETBACK LINE
EASEMENT LINE
BUILDING LINE
EX. SANITARY LINE (APPROX.)
EX. STORM DRAIN LINE (APPROX.) 24"RCCP
EX. PAVING, CONCRETE
EX. TREE LINE
EX. INDEX CONTOUR 220
EX. INTERMEDIATE CONTOUR
EX. CURB LINE
PROP. CURB & GUTTER
PROP. INDEX CONTOUR 220
PROP. INTERMEDIATE CONTOUR 216
PROP. WATER LINE
PROP. STORM DRAIN 18" D
PROP. SAN. SEWER PROP. 8" SEWER

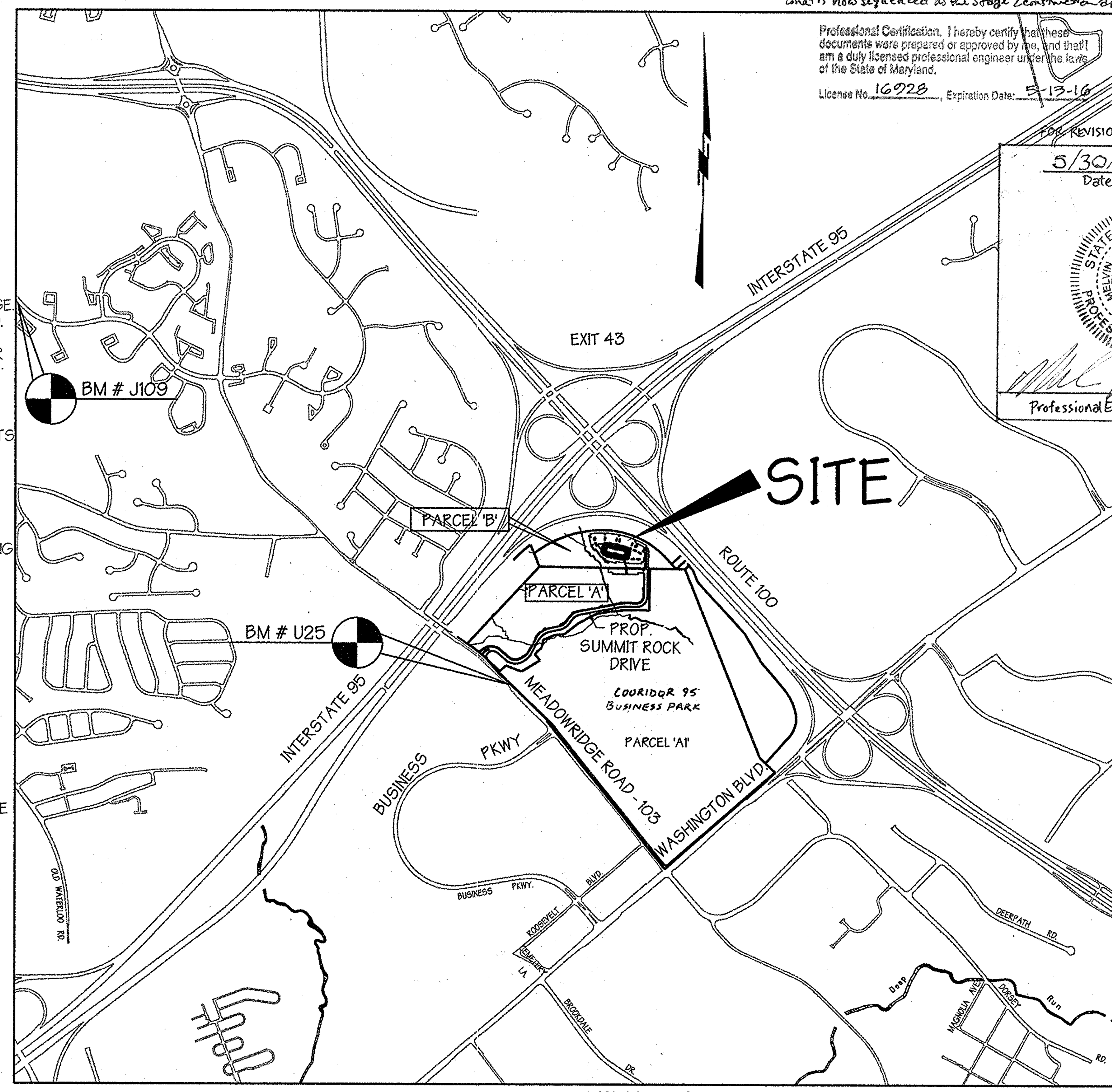
APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/3/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
4692 MILLENNIUM DR. SUITE 100
BELCAMP, Maryland 21017
(410) 297 - 2340

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12-08-2013."



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16928, Expiration Date: 5-13-16

FOR REVISION NO.1 ONLY
5/30/14
Date
Professional Engr. No. 16928

VICINITY MAP
SCALE: 1" = 2,000'

BENCHMARKS

NOTE: HORIZONTAL AND VERTICAL DATUMS BASED ON (NAD 83) MARYLAND STATE COORDINATE SYSTEM AS PROJECTED BY NATIONAL GEODETIC SURVEY MONUMENT CONTROL STATIONS.

BM # J 109 ELEVATION 348.04
NAD 83
THE DISK IS SET IN A CONCRETE MONUMENT PROJECTING TEN CENTIMETERS AND THE DISK IS STAMPED J 109 1965 USC AND GS

N 557,526.35 E 1,370,661.99

BM # U 25 ELEVATION 215.39
NAD 83
THE DISK IS SET IN A ROUND CONCRETE POST PROJECTING SIX INCHES AND THE DISK IS STAMPED U 25 1957
N 554,701.88 E 1,377,647.62

SITE DATA

1. TOTAL AREA OF SITE: 1,722,733 SQ. FT. OR 39.55 ACRES
2. EXISTING ZONING: M-1 .
3. PROPERTY REFERENCE: LIBER 12945 FOLIO 093 PARCEL 'A'
LIBER 12945 FOLIO 099 PARCEL 'B', M.D.R. PLATS 21333 THRU 21338
4. EXISTING USE: VACANT
5. PROPOSED USE: OFFICES
6. BUILDING COVERAGE: 108,000 SQ. FT.
7. % OF BUILDING COVERAGE: 6.77%
8. AREA TO BE PAVED PLUS BUILDING AREA: 349,786.80 SQ. FT. OR 8.03 AC.
9. AREA TO BE DISTURBED: 672,566.40 SQ. FT. OR 15.44 AC.±
10. AREA TO BE VEGETATIVELY STABILIZED: 303,613.20 SQ. FT. OR 6.97 AC.
11. TAX MAP: 37
12. PARCELS: A & B
13. HORIZONTAL DATUM: MARYLAND NAD83/91
14. VERTICAL DATUM: NGVD29
15. BENCH MARK: GEODETIC SURVEY CONTROL
BM # U25 AND BM # J109
16. RELATED DPZ FILE NUMBERS: F-06-09, WP-05-084, WP-08-084 WP 09-212, PUBLIC WATER & SEWER CONTRACT NO. 14-4576-D AND F 10-013

NOTE: The owner shall provide a separate and independent sewer connection for each tenant or occupant of any building, shown on this site development plan who will discharge non- domestic waste to the public sewerage system if each separate and independent sewer connection shall include a standard manhole and other waste pre treatment devices as required and approved by Howard County. Waste lines on the interior of the building shall be designed, constructed or modified such that non- domestic waste will be discharged to the separate and independent sewer connection. No tenant or occupant of any building shown on this site development plan shall discharge regulated non- domestic waste to the public sewerage system prior to installation of the separate and independent sewer connection and related interior waste lines. The above statement shall apply to all initial and future occupants or tenants.

CONSTRUCTION NOTES

1. THE CONTRACTOR OR DEVELOPER SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST 24 HOURS PRIOR TO STARTING ANY OF THE WORK SHOWN HEREON.
2. ALL AREAS NOT BEING PAVED OR RECEIVING BUILDING COVERAGE SHALL BE STABILIZED IN ACCORDANCE WITH THE PLANS APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
3. THE CONTRACTOR SHALL NOTE THAT IN CASE OF DISCREPANCY BETWEEN ANY SCALED DIMENSIONS AND THE FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN.
4. CONTRACTOR SHALL MEET ALL EXISTING IMPROVEMENTS SMOOTHLY FOR LINE, GRADE AND FINISH.
5. ALL WORK SHOWN ON THESE PLANS SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND OF THE MARYLAND STATE HIGHWAY ADMINISTRATION AND THE HOWARD COUNTY PLUMBING CODE, UNLESS OTHERWISE NOTED.
6. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM SUCH WORK. THE COST OF SUCH WORK SHALL BE INCLUDED IN THE BASE BID.
7. THE CONTRACTOR SHALL INSPECT THE SITE TO DETERMINE IF ANY TREES, PAVING, ETC. ARE TO BE REMOVED PRIOR TO PLACING A BID ON SUCH ITEMS.
8. THE LOCATIONS OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE LOCATIONS ARE TAKEN FROM LOCATIONS. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 A MINIMUM OF 5 WORKING DAYS PRIOR TO DIGGING. THE CONTRACTOR SHALL CONFIRM TO HIS OWN SATISFACTION THE LOCATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION OR PLACEMENT OF MATERIALS. IF ANY CONFLICT IS FOUND BETWEEN UNDERGROUND UTILITIES AND THE PROPOSED LOCATION OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT G. W. STEPHENS AND THE OWNER OF THE UTILITY IMMEDIATELY. ANY DAMAGE OR DISRUPTION OF SERVICE SHALL BE AT THE EXPENSE OF THE CONTRACTOR. RELOCATION OF ANY EXISTING UTILITIES, IF NECESSARY, SHALL BE AT THE EXPENSE OF THE OWNER. THE CONTRACTOR SHALL COORDINATE RELOCATION OF THESE FACILITIES, IF NECESSARY.
9. CONTRACTOR SHALL PROTECT ALL EXISTING TREES OUTSIDE THE LIMIT OF DISTURBANCE AT ALL TIMES DURING CONSTRUCTION.
10. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS NOT SCHEDULED FOR REMOVAL OR DEMOLITION. COST OF REPAIR TO EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE BASE BID. ALL EXISTING SITE FEATURES NOT BEING RETAINED SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION. ANY DAMAGE TO OFFSITE ROADS, RIGHTS OF WAY, OR ADJACENT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT THE EXPENSE OF THE CONTRACTOR.
11. THE CONTRACTOR SHALL CLEAR THE PROJECT SITE OF ALL TREES, PAVING, STRUCTURES, ETC. WITHIN THE CONSTRUCTION AREA UNLESS OTHERWISE NOTED ON THE PLAN.
12. ONLY SUITABLE MATERIAL SHALL BE USED AS FILL AND ALL FILL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN THE SOILS REPORT PREPARED FOR THIS SITE OR AS RECOMMENDED BY THE EXCEPTING THOSE ASSOCIATED WITH LANDSCAPE BERMING,

LANDSCAPING AND FOREST CONSERVATION NOTES

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $100,740.00 FOR SHADE TREES, EVERGREEN TREES AND SHRUBS.
3. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY A COMBINATION OF ONSITE RETENTION AND REFORESTATION. THE PROJECT WILL BE DEVELOPED IN PHASES AND THE RETENTION AREAS WILL BE DEFINED AS EACH PHASE IS DESIGNED.

SITE USE AND PARKING TABULATION

A. EXISTING USE : VACANT
B. PROPOSED USE: OFFICE 108,000 SQ. FT.
C. NUMBER OF PARKING SPACES REQUIRED (PER ZONING REQUIREMENTS SECTION 133)

OFFICE = 108,000 SQ. FT. @ 3.3 PER 1,000 = 357 P.S. REQUIRED

D. NUMBER OF PARKING SPACES PROVIDED: 405 P.S. (INCLUDING 8 HANDICAPPED SPACES)

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T./S.J.G.
REVISIONS

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ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

Date	No.	Revision Description
1-22-14	△	Sheets Impacted by Project Staging 1, 13, 14, 15-25, 45, 50, 61 & 64
		New Sheets added 14A, 21A, 21B, 21C

SUBDIVISION NAME		SECTION NAME		PARCEL #
CORRIDOR 95 BUS. PARK		N/A		134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 | SEWER CODE 4020000

COVER SHEET
CORRIDOR 95 BUSINESS PARK
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 1 OF 94

SDP-08-082 P/N : 10762

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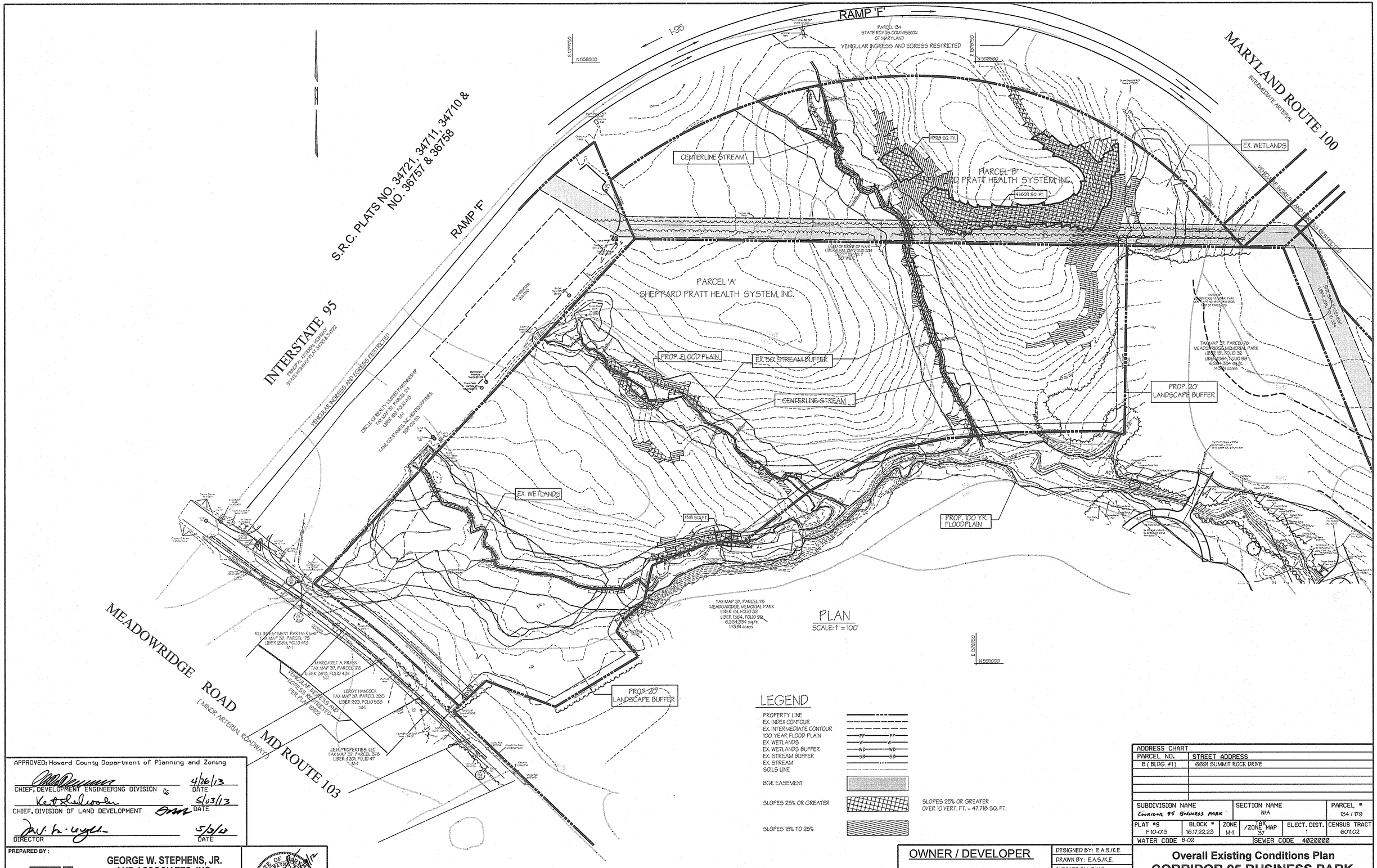

PLAN
SCALE: 1" = 100'

LEGEND

- PROPERTY LINE
- EX. INDEX CONTOUR
- EX. INTERMEDIATE CONTOUR
- 100 YEAR FLOOD PLAIN (FP)
- EX. WETLANDS (W)
- EX. WETLANDS BUFFER (WB)
- EX. STREAM BUFFER (SB)
- EX. STREAM
- SOILS LINE
- BGE EASEMENT
- SLOPES 25% OR GREATER — SLOPES 25% OR GREATER OVER 10 VERT. FT. = 47,718 SQ. FT.
- SLOPES 15% TO 25%

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/3/13

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
Corridor 95 Business Park	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6840~~

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

Overall Existing Conditions Plan
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1ST
HOWARD CO., MARYLAND

SCALE: 1" = 100'
DATE : FEBRUARY 04, 2011
SHT. 2 OF 9~~4~~

SDP-08-082 P/N : 10762

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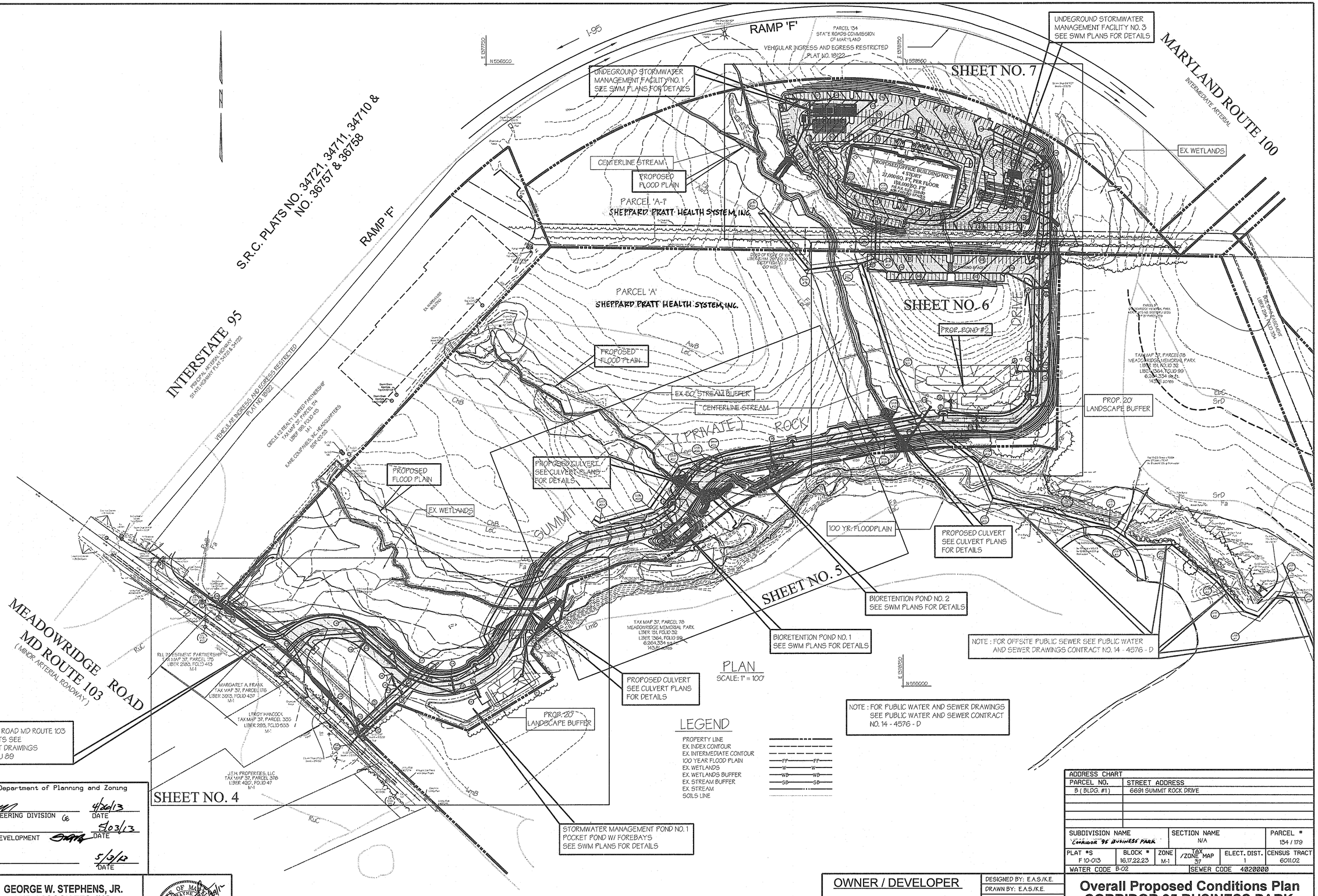

LEGEND

PROPERTY LINE
EX. INDEX CONTOUR
EX. INTERMEDIATE CONTOUR
100 YEAR FLOOD PLAIN
EX. WETLANDS
EX. WETLANDS BUFFER
EX. STREAM BUFFER
EX. STREAM
SOILS LINE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY :

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410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION / NAME	PARCEL #
~~CORRIDOR 95 BUSINESS PARK~~	N/A	134 / 179

PLAT #'S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

Overall Proposed Conditions Plan
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1ST
HOWARD CO., MARYLAND

SCALE: 1" = 100'
DATE : FEBRUARY 04, 2011
SHT. 3 OF 94

SDP-08-082 F/N : 10762

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NOTE :
FOR SPOT SHOT GRADES ALONG MEADOWRIDGE ROAD MD 103 BASE LINE AND CURB LINE EVERY 50' SEE SHEET NO. 74

NOTE:
FOR MEADOWRIDGE ROAD MD ROUTE 103 ROAD IMPROVEMENTS SEE ROAD IMPROVEMENT DRAWINGS SHEET NO'S. 72 THRU 89

CENTERLINE STA. 0+00 SUMMIT ROCK DRIVE = CENTERLINE STA.12+97.58 MEADOWRIDGE ROAD MD ROUTE 103 N 555,050.32, E 1,377,242.61

" NO IMPROVEMENTS SHALL BE CONSTRUCTED OR PLACED WITHIN THE PUBLIC WATER, SEWER AND UTILITY EASEMENTS THAT WILL IMPEDE OR HINDER ACCESS TO THE WATER OR SEWER MAINS. IMPROVEMENTS SUCH AS, DECKS, FENCING, AND TREES SHALL NOT BE PLACED WITHIN THE EASEMENT."

NOTE : FOR ROAD LAYOUT AND STORMDRAINS SEE ROAD AND DRAIN PLANS SHEET NO.'S 60 THRU 71

Typical Lighting

□•□ TWIN 400 W METAL HALIDE FIXTURES ON 25' POLE TYPE 3 DISTRIBUTION WIDELITE AL3M400 SERIES HORIZONTAL LAMP FLAT GLASS FULL CUT-OFF & FULL SHIELDED LIGHT FIXTURE INTENSITY: 22,000 LUMENS

•□ SINGLE 400 W METAL HALIDE FIXTURES ON 25' POLE TYPE 3 DISTRIBUTION WIDELITE AL3M400 SERIES HORIZONTAL LAMP FLAT GLASS FULL CUT-OFF & FULL SHIELDED LIGHT FIXTURE INTENSITY: 22,000 LUMENS

NOTE: ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 134

PLAN
SCALE : " = 30'

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13
DIRECTOR — DATE 5/3/13

PREPARED BY :
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
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OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME			SECTION NAME		PARCEL #
CORRIDOR 95 BUSINESS PARK			N/A		134 / 179
PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02
WATER CODE B-02			SEWER CODE 4020000		

SITE & GRADING PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 4 OF 94

SDP-08-082
P/N : 10762

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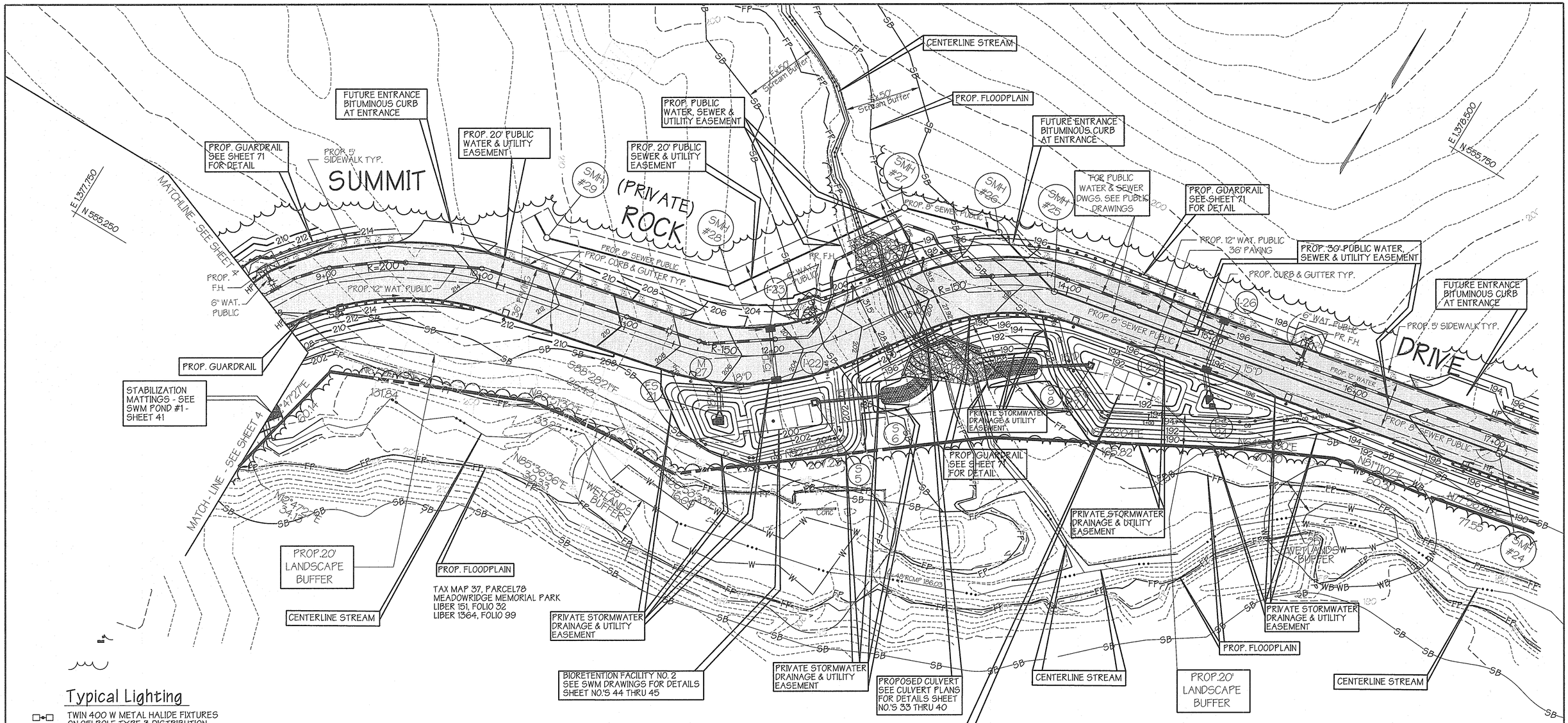

Typical Lighting

TWIN 400 W METAL HALIDE FIXTURES
ON 25' POLE TYPE 3 DISTRIBUTION
WIDELITE AL3M400 SERIES HORIZONTAL
LAMP FLAT GLASS FULL CUT-OFF & FULL
SHIELDED LIGHT FIXTURE INTENSITY: 22,000 LUMENS

SINGLE 400 W METAL HALIDE FIXTURES
ON 25' POLE TYPE 3 DISTRIBUTION
WIDELITE AL3M400 SERIES HORIZONTAL
LAMP FLAT GLASS FULL CUT-OFF & FULL
SHIELDED LIGHT FIXTURE INTENSITY: 22,000 LUMENS

NOTE: ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 134

PLAN
SCALE: 1" = 30'

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
~~CORRIDOR 95 BUSINESS PARK~~	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

PREPARED BY :

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Civil Engineers and Land Surveyors
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~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND — TAYNTON W. TAYLOR — NO. 13741 — REGISTERED PROFESSIONAL ENGINEER — 4/9/13

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/9/13

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

SITE & GRADING PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 5 OF 94

SDP-08-082 P/N : 10762

MATCH LINE - SEE SHEET 7

MATCH LINE - SEE SHEET 7

MATCH LINE - SEE SHEET 7

PROP. 8" SEWER

N 556,000

PROP. 20' SEWER & UTILITY EASEMENT

E 1,378,500

MEADOWRIDGE ROCK, LLC

CENTERLINE STREAM

FOR PUBLIC SEWER DWGS. SEE PUBLIC DRAWINGS CONTRACT NO. 14-4576-D

PROP. 20' PUBLIC SEWER & UTILITY EASEMENT

SHEPPARD PRATT HEALTH SYSTEM, INC.

PROP. 20' PUBLIC WATER & UTILITY EASEMENT

PRIVATE STORMWATER DRAINAGE & UTILITY EASEMENT

PROP. CURB & GUTTER TYP.

PROP. 5' SIDEWALK TYP.

FUTURE ENTRANCE BITUMINOUS CURB AT ENTRANCE

PROP. POND #2 SEE SWM PLANS SHEET NO.'S 49 THRU 51

FUTURE ENTRANCE BITUMINOUS CURB AT ENTRANCE

SUMMIT ROCK DRIVE (PRIVATE)

PROP. GUARDRAIL SEE SHEET 71 FOR DETAIL

PROP. 20' LANDSCAPE BUFFER

PROP. CURB & GUTTER TYP.

PROP. 12" WAT. PUBLIC

TAX MAP 37, PARCEL 78
MEADOWRIDGE MEMORIAL PARK
LIBER 151, FOLIO 32
LIBER 1364, FOLIO 99

STA. 1+56 (TW 194.0,BW 194.0)
N 555,827.18
E 1,379,111.83

PROP. RET. WALL #3

Ex. Treeline

WB

E 1,378,500

N 555,750

PROP. FLOODPLAIN

Ex.50 Stream Buffer

PROP. 8" SEWER PUBLIC

SMH #17

SMH #16

SMH #15

SMH #14

SMH #23

PROP. 20' PUBLIC SEWER & UTILITY EASEMENT

PRIVATE STORMWATER DRAINAGE & UTILITY EASEMENT

PROP. GUARDRAIL SEE SHEET 71 FOR DETAIL

PROP. 5' SIDEWALK TYP.

MATCH LINE - SEE SHEET 5

PROPOSED CULVERT SEE CULVERT PLANS FOR DETAILS SHEET NO.'S 33 THRU 40

PROP. CURB & GUTTER TYP.

CENTERLINE STREAM

PRIVATE STORMWATER DRAINAGE & UTILITY EASEMENT

PROP. GUARDRAIL SEE SHEET 71 FOR DETAIL

EX. FLOODPLAIN

PROP. FLOODPLAIN

PROP. 20' PUBLIC SEWER & UTILITY EASEMENT

MATCH LINE - SEE SHEET 9

PRIVATE STORMWATER DRAINAGE & UTILITY EASEMENT

NOTE : FOR OFFSITE PUBLIC SEWER SEE PUBLIC WATER AND SEWER DRAWINGS CONTRACT NO. 14-4576-D

PROP. 20' PUBLIC WATER & UTILITY EASEMENT

NOTE:
FOR STORM DRAINS AND ROAD SEE ROAD AND STORM DRAIN PLANS SHEET NO.'S 59 THRU 71

PROP. 20' LANDSCAPE BUFFER

PROP. GUARDRAIL SEE SHEET 71 FOR DETAIL

PRIVATE STORMWATER DRAINAGE & UTILITY EASEMENT

FOR PUBLIC WATER DWGS. SEE PUBLIC DRAWINGS CONTRACT NO. 14-4576-D

STA. 0+00 (TW 188.0, BW 188.0)
N 555,671.26
E 1,379,109.62

PROP. GUARDRAIL SEE SHEET 71 FOR DETAIL

PROP. 20' PUBLIC WATER & UTILITY EASEMENT

PROP. 12" WAT. PUBLIC

PROP. 8" SEWER PUBLIC

PROP. 6" W

PROP. F.H.

N85°17'51"E 94.67

N89°16'45"E 265.88

S77°43'23"E 43.47

R=519.00

R=100.00

L=471.25

L=212.00

L=202.01

20+00

21+00

PLAN
SCALE: 1" = 30'

Typical Lighting

TWIN 400 W METAL HALIDE FIXTURES
ON 25' POLE TYPE 3 DISTRIBUTION
WIDELITE AL3M400 SERIES HORIZONTAL
LAMP FLAT GLASS FULL CUT-OFF & FULL
SHIELDED LIGHT FIXTURE INTENSITY: 22,000 LUMENS

SINGLE 400 W METAL HALIDE FIXTURES
ON 25' POLE TYPE 3 DISTRIBUTION
WIDELITE AL3M400 SERIES HORIZONTAL
LAMP FLAT GLASS FULL CUT-OFF & FULL
SHIELDED LIGHT FIXTURE INTENSITY: 22,000 LUMENS

NOTE: ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 134

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/8/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
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OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

SITE & GRADING PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 6 OF 94

SDP-08-082 P/N : 10762

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" NO IMPROVEMENTS SHALL BE CONSTRUCTED OR PLACED WITHIN THE PUBLIC WATER, SEWER AND UTILITY EASEMENTS THAT WILL IMPEDE OR HINDER ACCESS TO THE WATER OR SEWER MAINS. IMPROVEMENTS SUCH AS, DECKS, FENCING, AND TREES SHALL NOT BE PLACED WITHIN THE EASEMENT."

State of Maryland
BookRHM 325 Page 160

Site Construction Notes

1. 4" WIDE,WHITE PAINTED LINES, TYP. FOR PARKING SPACE DELINEATION
2. PROP. DUMPSTER ENCLOSURE (SEE DETAIL ON SHEET 11)
3. PROP. HANDICAPPED PARKING SPACE - TOTAL OF 8 (SEE DETAIL ON SHEET 11)
4. PROP. 6' CONCRETE SIDEWALK, 4" THICK CONCRETE MIX NO. 2. (SEE DETAIL ON SHEET 11)
5. PROP. PARKING LOT CURB AND GUTTER PER HOWARD CO. STD. DET.R-301.CONTRACTOR SHALL REVERSE GUTTER PAN WHERE NECESSARY TO INSURE PROPER DRAINAGE
6. PROP. ROOF DRAIN, (SEE DETAIL ON SHEET 11) FOR DOWNSPOUT CONNECTION
7. SANITARY CLEANOUT, 5 FEET FROM BUILDING
8. PROP. RETAINING WALL, SEE WALL PLANS, SHEETS 9 AND 90 THRU 92. FENCE TO BE LOCATED AT RETAINING WALL NEAR ALL PEDESTRIAN WALKS
9. PROP. SIAMESE CONNECTION
10. A KNOX BOX (FIRE DEPARTMENT ACCESS BOX) SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4-5' IN HEIGHT AND NO MORE THAN 6' LATERALLY FROM THE DOOR. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED (INTEGRATED WITH THE FIRE ALARM SYSTEM). NFPA-1 18.2.2.1

RETAINING WALL #1					
1	STA. 0+00	E 1,378,475.06	N 556,287.97	TW 213.0	BW 215.0
2	STA. 0+56	E 1,378,508.13	N 556,241.96	TW 218.0	BW 210.0
3	STA. 0+84	E 1,378,536.01	N 556,233.69	TW 218.70	BW 210.0
4	STA. 1+43	E 1,378,569.56	N 556,185.58	TW 220.20	BW 211.0
5	STA. 2+12	E 1,378,619.03	N 556,137.32	TW 219.50	BW 212.50
6	STA. 2+37	E 1,378,629.66	N 556,114.46	TW 217.0	BW 211.0
7	STA. 2+62	E 1,378,653.89	N 556,107.33	TW 217.0	BW 212.0
8	STA. 2+82	E 1,378,674.25	N 556,107.18	TW 219.0	BW 219.0

RETAINING WALL #2					
1	STA. 0+00	E 1,379,106.80	N 556,097.95	TW 206.0	BW 206.0
2	STA. 0+22.86	E 1,379,107.45	N 556,120.80	TW 207.39	BW 202.0
3	STA. 1+08	E 1,379,112.10	N 556,205.83	TW 210.0	BW 210.0

NOTE:
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Typical Lighting

TWIN 400 W METAL HALIDE FIXTURES
ON 25' POLE TYPE 3 DISTRIBUTION
WIDELITE AL3M400 SERIES HORIZONTAL
LAMP FLAT GLASS FULL CUT-OFF & FULL
SHIELDED LIGHT FIXTURE INTENSITY: 22,000 LUMENS

SINGLE 400 W METAL HALIDE FIXTURES
ON 25' POLE TYPE 3 DISTRIBUTION
WIDELITE AL3M400 SERIES HORIZONTAL
LAMP FLAT GLASS FULL CUT-OFF & FULL
SHIELDED LIGHT FIXTURE INTENSITY: 22,000 LUMENS

NOTE: ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 134

SLOPES 25% OR GREATER

SLOPES 15% TO 25%

UNDERGROUND STORMWATER MANAGEMENT FACILITY NO. 1 SEE SWM DWGS. FOR DETAILS SHEETS 46 THRU 48

UNDERGROUND STORMWATER MANAGEMENT FACILITY NO. 3 SEE SWM DWGS. FOR DETAILS SHEETS 52 THRU 54

PROPOSED OFFICE BUILDING NO. 1
4 STORY
27,000 SQ. FT. PER FLOOR
108,000 SQ. FT.
FIN. FLR. ELEV. 226.00
405 PARKING SPACES

70 PARKING SPACES

PROP. 20' WATER & UTILITY EASEMENT (TYP.)

PRIVATE STORMWATER DRAINAGE & UTILITY EASEMENT

PROP. GUARDRAIL SEE SHEET 71 FOR DETAIL

PROP. RET. WALL NO. 1

PROP. RET. WALL #2

SUMMIT ROCK DRIVE (PRIVATE)

PRINCIPAL ARTERIAL HIGHWAY

VEHICULAR INGRESS AND EGRESS RESTRICTED

CENTERLINE STREAM

PROP. FLOODPLAIN

Ex.50' Stream Buffer

PROP. 20' SEWER & UTILITY EASEMENT

EX. 20" GAS LINE

PROP. 8" SEWER

BGE GAS EASEMENT

25' WETLANDS BUFFER

PROP. STAIRS WITH HANDRAILS SEE HO. CO. STD. DTL. G-7.02

PROP. 12"X 8" REDUCER

#2 STONE RECHARGE VOLUME AREA

PROP. INSIDE WATER METER SETTING 6" FIRE, 3" DOMESTIC

SEE SHEET 8 FOR HANDICAPPED DETAIL ENLARGEMENT

SEE SHEET 8 FOR HANDICAPPED RETAIL ENLARGEMENT

MATCH LINE - SEE SHEET 6

DEED OF RIGHT OF WAY LIBER R.H.M. 297 FOLIO 334 EXCEPTION NO. 7

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/3/13

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
"CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX / ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

PREPARED BY:

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Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

NOTE : ALL RADII ON SITE PLAN 5' UNLESS OTHERWISE NOTED

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MATCH LINE - SEE SHEET 6

PLAN
SCALE: 1" = 30'

NOTE : FOR STORM DRAINS AND ROAD SEE ROAD AND STORMDRAIN PLANS

NOTE :
FOR SEQUENCE OF OPERATIONS, SEE SEDIMENT CONTROL PLANS SHT C-12 (PHASE 1), SHT. C-14 (PHASE 2), SHT. C-15 (PARCEL A-1, & TEMP. POND #1)

OWNER / DEVELOPER

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410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

SITE & GRADING PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 7 OF 94

SDP-08-082 P/N : 10762

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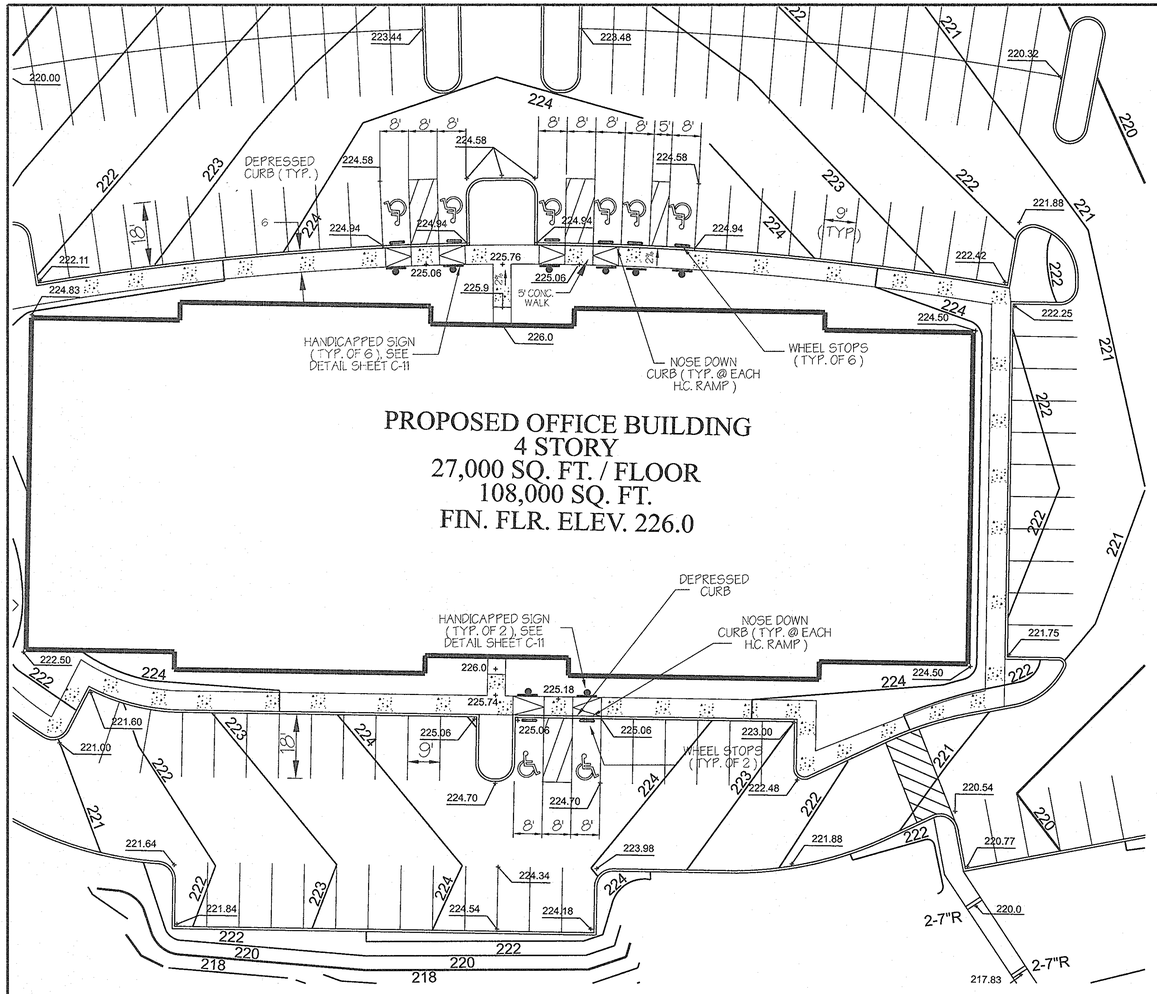
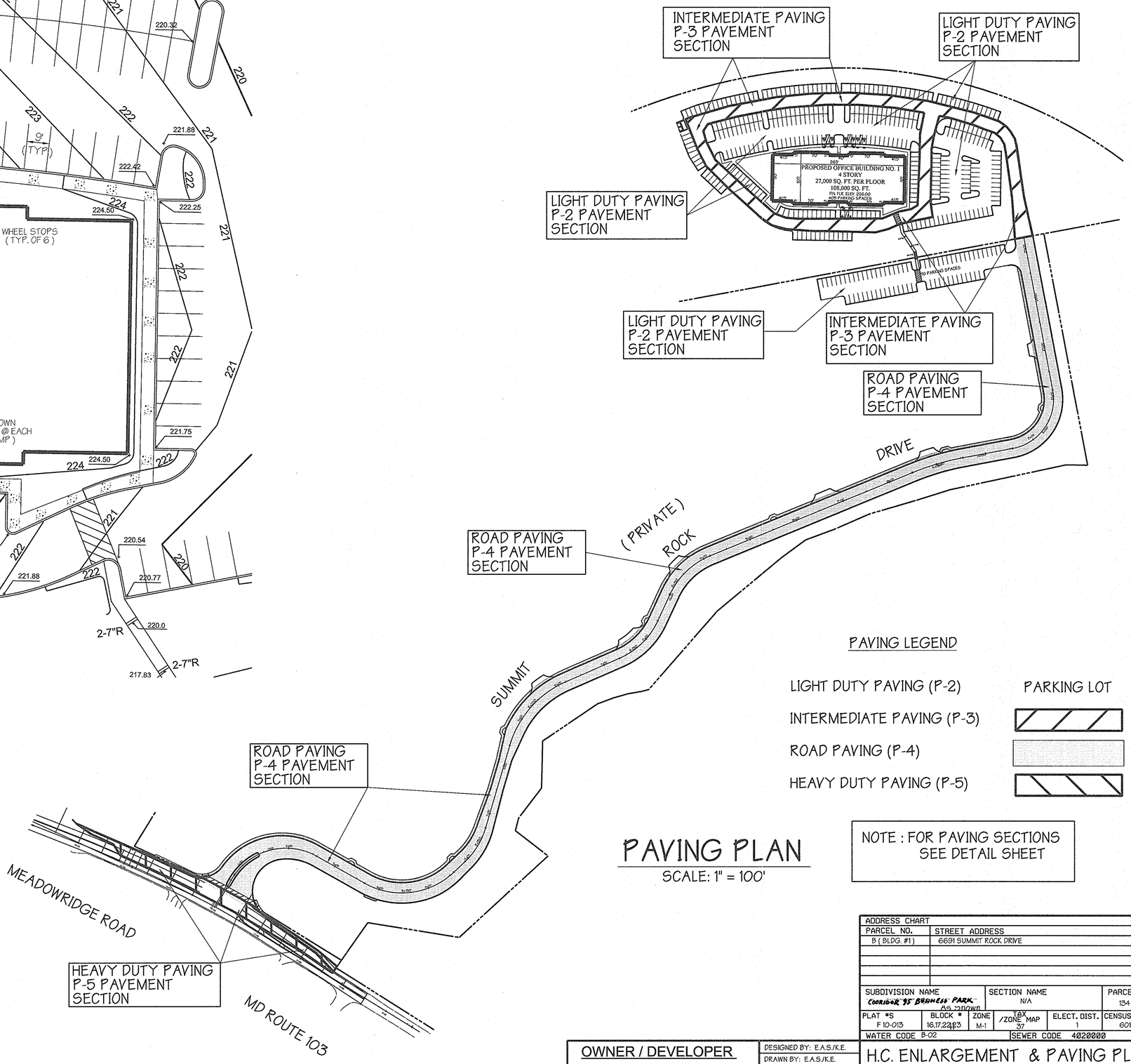


PLAN

SCALE: 1" = 20'



PAVING PLAN

SCALE: 1" = 100'

PAVING LEGEND

LIGHT DUTY PAVING (P-2)	PARKING LOT
INTERMEDIATE PAVING (P-3)	
ROAD PAVING (P-4)	
HEAVY DUTY PAVING (P-5)	

NOTE : FOR PAVING SECTIONS SEE DETAIL SHEET

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6840~~

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2015"

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
~~CORRIDOR 95 BUSINESS PARK~~ As Shown	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,23 ~~23~~	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

H.C. ENLARGEMENT & PAVING PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 8 OF 94

SDP-08-082 — P/N : 10762

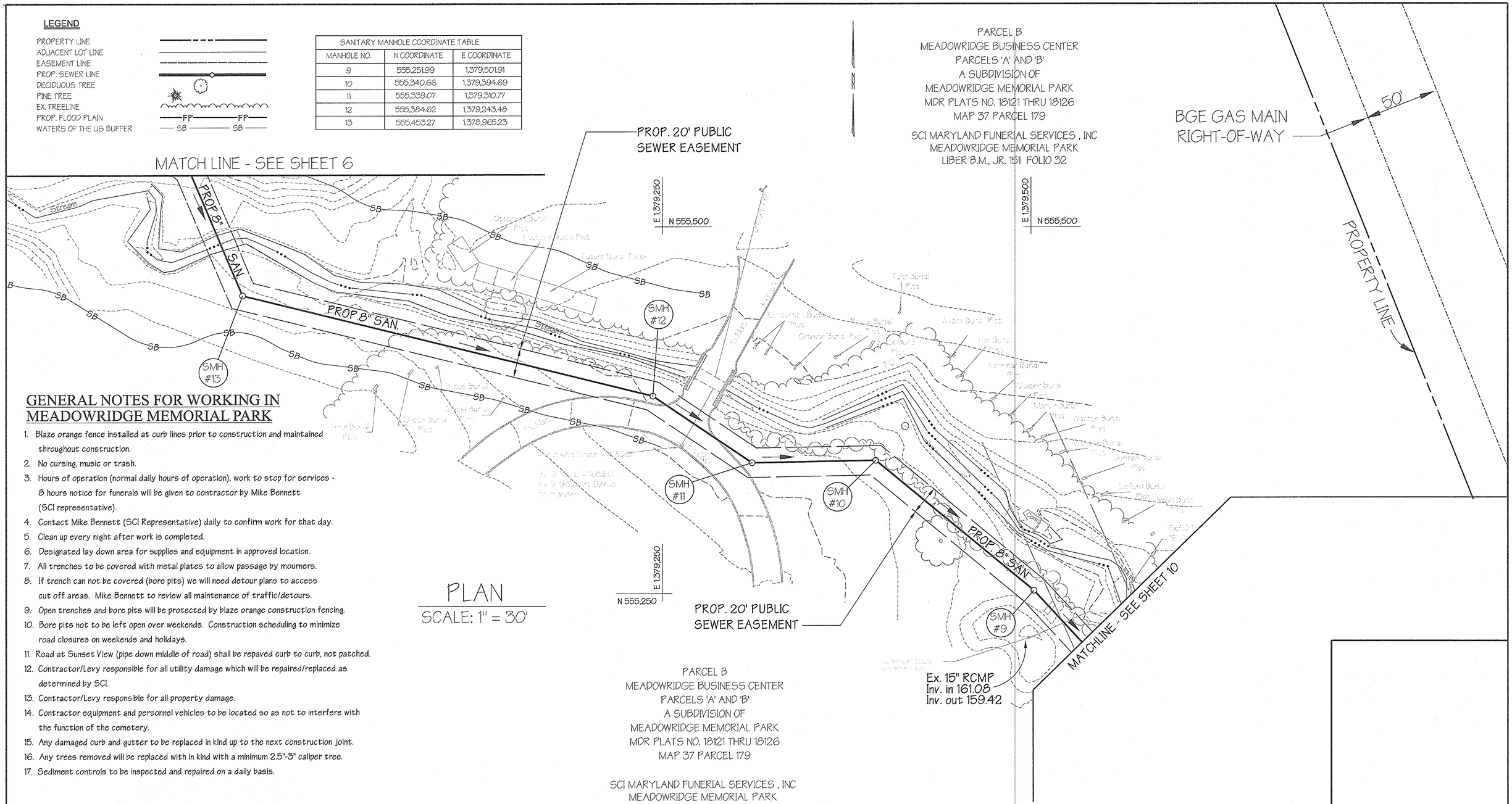
...\10762c-08hcenlargement20.s01 10/18/2011 1:42:30 PM SCALE 20.0000 ' / IN.

LEGEND

PROPERTY LINE
ADJACENT LOT LINE
EASEMENT LINE
PROP. SEWER LINE
DECIDUOUS TREE
PINE TREE
EX TREELINE
PROP. FLOOD PLAIN
WATERS OF THE US BUFFER

FP FP
SB SB

SANITARY MANHOLE COORDINATE TABLE		
MANHOLE NO.	N COORDINATE	E COORDINATE
9	555,251.99	1,379,501.91
10	555,340.66	1,379,394.69
11	555,339.07	1,379,310.77
12	555,384.62	1,379,243.48
13	555,453.27	1,378,965.23



PLAN
SCALE: 1" = 30'

GENERAL NOTES FOR WORKING IN MEADOWRIDGE MEMORIAL PARK

1. Blaze orange fence installed at curb lines prior to construction and maintained throughout construction.
2. No cursing, music or trash.
3. Hours of operation (normal daily hours of operation), work to stop for services - 8 hours notice for funerals will be given to contractor by Mike Bennett (SCI representative).
4. Contact Mike Bennett (SCI Representative) daily to confirm work for that day.
5. Clean up every night after work is completed.
6. Designated lay down area for supplies and equipment in approved location.
7. All trenches to be covered with metal plates to allow passage by mourners.
8. If trench can not be covered (bore pits) we will need detour plans to access cut off areas. Mike Bennett to review all maintenance of traffic/detours.
9. Open trenches and bore pits will be protected by blaze orange construction fencing.
10. Bore pits not to be left open over weekends. Construction scheduling to minimize road closures on weekends and holidays.
11. Road at Sunset View (pipe down middle of road) shall be repaved curb to curb, not patched.
12. Contractor/Levy responsible for all utility damage which will be repaired/replaced as determined by SCI.
13. Contractor/Levy responsible for all property damage.
14. Contractor equipment and personnel vehicles to be located so as not to interfere with the function of the cemetery.
15. Any damaged curb and gutter to be replaced in kind up to the next construction joint.
16. Any trees removed will be replaced with in kind with a minimum 2.5"-3" caliper tree.
17. Sediment controls to be inspected and repaired on a daily basis.

PARCEL B
MEADOWRIDGE BUSINESS CENTER
PARCELS 'A' AND 'B'
A SUBDIVISION OF
MEADOWRIDGE MEMORIAL PARK
MDR PLATS NO. 18121 THRU 18126
MAP 37 PARCEL 179

SCI MARYLAND FUNERIAL SERVICES , INC
MEADOWRIDGE MEMORIAL PARK
LIBER B.M., JR. 151 FOLIO 32

NOTE:
FOR REFERENCE ONLY. FOR PUBLIC SEWER PLANS AND PROFILES SEE CONTRACT NO. 14-4576-D

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/6/13

* Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND — PAYNE T. STEPHENS — No. 13741 — PROFESSIONAL ENGINEER — 4/26/13

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP /ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

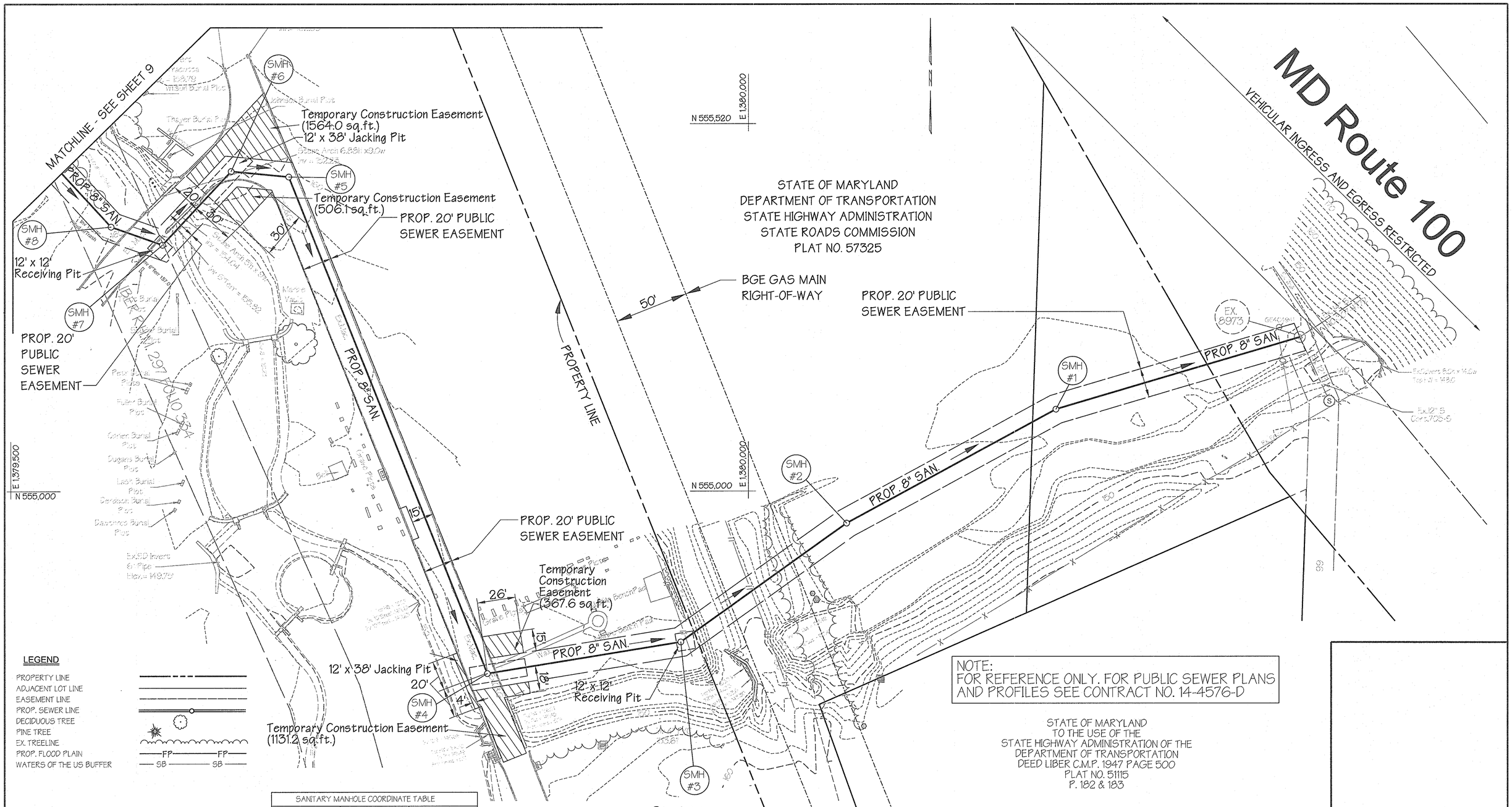
SEWER PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 9 OF 94

SDP-08-082 — P/N : 10762

...\10762c-09sewerrev08302010.s01 10/18/2011 1:39:20 PM SCALE 30.000000 ' / IN.



NOTE:
FOR REFERENCE ONLY. FOR PUBLIC SEWER PLANS AND PROFILES SEE CONTRACT NO. 14-4576-D

STATE OF MARYLAND
TO THE USE OF THE
STATE HIGHWAY ADMINISTRATION OF THE
DEPARTMENT OF TRANSPORTATION
DEED LIBER C.M.P. 1947 PAGE 500
PLAT NO. 51115
P. 182 & 183

PLAN
SCALE: 1" = 30'

SANITARY MANHOLE COORDINATE TABLE

MANHOLE NO.	N COORDINATE	E COORDINATE
1	555,055.53	1,380,208.37
2	554,978.13	1,380,066.56
3	554,897.31	1,379,954.09
4	554,875.87	1,379,822.98
5	555,214.03	1,379,688.36
6	555,217.83	1,379,649.34
7	555,167.64	1,379,602.84
8	555,180.01	1,379,568.01

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785-6640~~

STATE OF MARYLAND — PAUL WAYNE TAYLOR — No. 13741 — REGISTERED PROFESSIONAL ENGINEER — 4/26/13

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

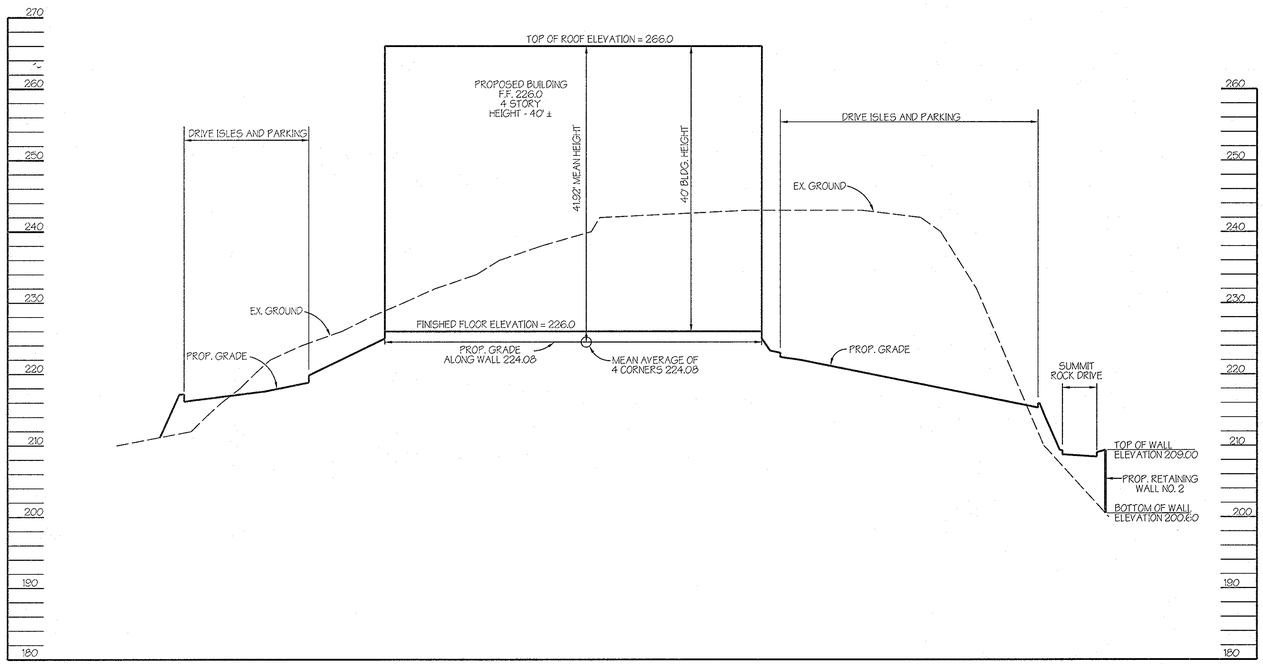
SEWER PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

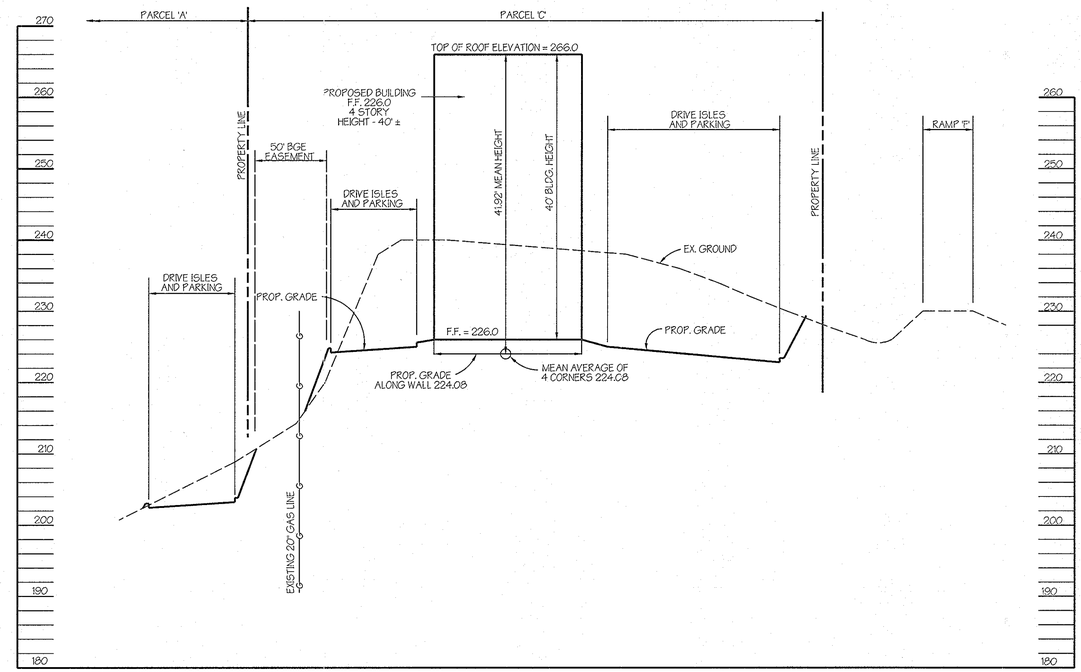
SCALE: AS SHOWN
DATE : FEBRUARY 04, 2011
SHT. 10 OF 94

SDP-08-082 P/N: 10762

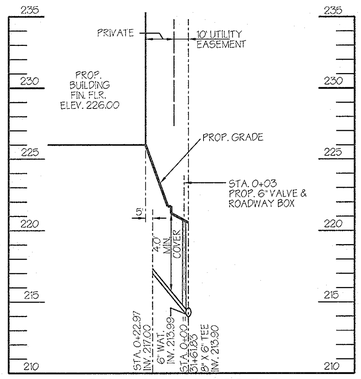
...\sdp\10762c-10sewerrev.s01 10/18/2011 1:44:56 PM SCALE 30.000000 ' / IN.



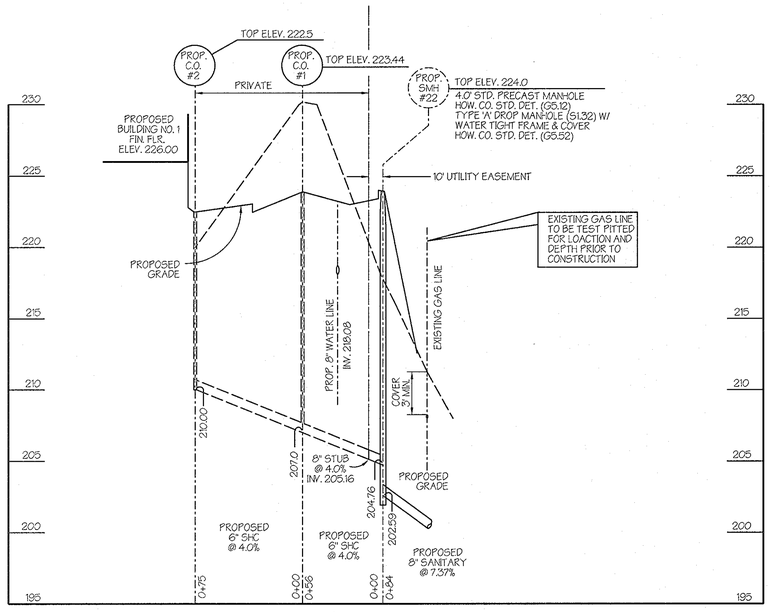
SECTION A-A
SCALE: 1" = 10' VERT.
1' = 50' HORIZ.



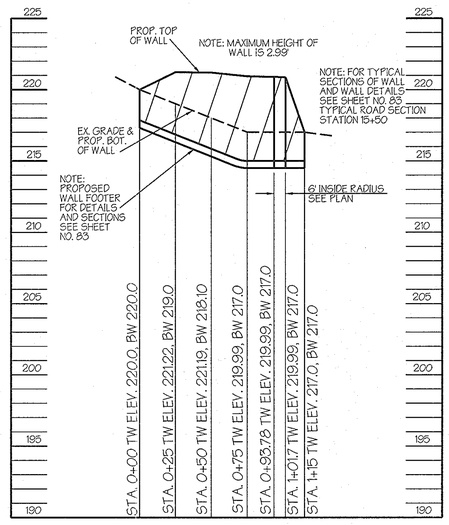
SECTION B-B
SCALE: 1" = 10' VERT.
1' = 50' HORIZ.



PRIVATE WHC PROFILE
BUILDING NO. 1
SCALE: 1" = 5' VERT.
1' = 50' HORIZ.



PRIVATE SHC PROFILE
BUILDING NO. 1
SCALE: 1" = 5' VERT.
1' = 50' HORIZ.



RETAINING WALL PROFILE NO. 5
WALL BETWEEN CURB & R/W ALONG MD 103 AT
KANE PROPERTY FOR WALL DETAILS SEE SHEET NO. 83

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/6/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 403~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND · FRANCIS WAYNE KNEE · 21741 · REGISTERED PROFESSIONAL ENGINEER

* Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013*

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410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
'CORRIDOR 95 BUSINESS PARK'	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

Site Sections & Utility Profiles
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 11 OF 94

SDP-08-082 P/N : 10762

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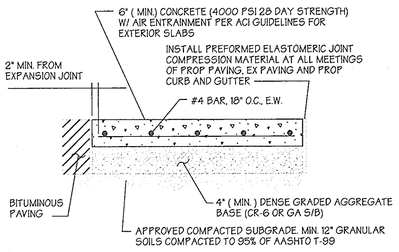
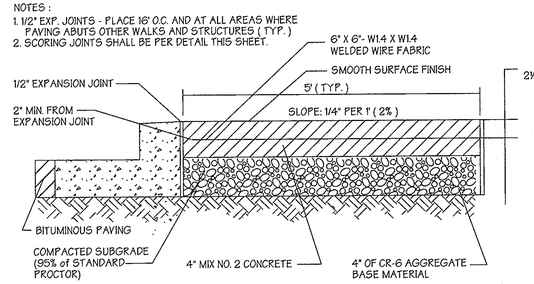
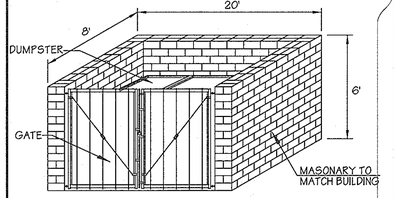


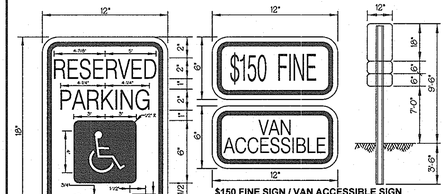
CONCRETE PAVING SECTION
NOT TO SCALE



CONCRETE SIDEWALK PAVING SECTION
NOT TO SCALE



DUMPSTER ENCLOSURE DETAIL
NOT TO SCALE



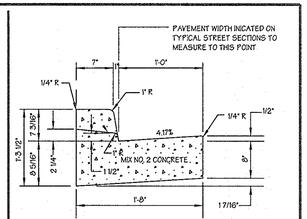
$150 FINE SIGN / VAN ACCESSIBLE SIGN
SIGN TO UTILIZE AN ALUMINUM BLANK 6" X 12" X 0.080 " THICK WITH TWO SINGLE POST MOUNTING HOLES.

THE TEXT AND BORDER SHALL BE STANDARD GREEN TO MATCH THAT ON R7-8 AND, THE BACKGROUND SHALL BE REFLECTIVE WHITE. TEXT SHALL BE IN 2" CHARACTERS

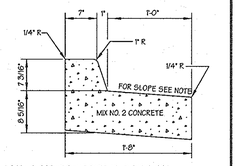
SIGN SHALL BE MOUNTED DIRECTLY BELOW THE STANDARD R7-8 RESERVED PARKING FOR HANDICAPPED SIGN. ITS BOTTOM EDGE SHALL BE NO LESS THAN 7 FEET ABOVE GROUND. IF THE SIGN IS PLACED AGAINST A BUILDING, STRUCTURE, OR OTHER LOCATION WHERE VEHICLE OF PEDESTRIAN TRAFFIC IS NOT OBSTRUCTED THE BOTOM EDGE OF THE SIGN SHALL BE AT LEAST 6 FEET BUT NOT MORE THAN 10 FEET ABOVE GROUND

COLORS
GREEN - LEGEND AND BORDER
WHITE - SYMBOL ON BLUE BACKGROUND
WHITE - BACKGROUND

HANDICAPPED SIGN DETAIL
NOT TO SCALE

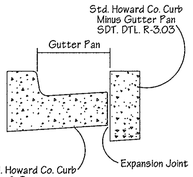


CURB AND GUTTER DETAIL
NOT TO SCALE
SEE HO. CO. STD. DTL. R-3.01

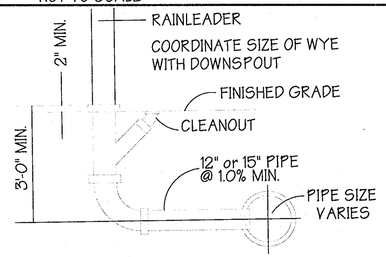


NOTE : SLOPE AT SAME RATE AS LINEAR SLOPE ACROSS PAVING

REVERSE SLOPE CURB AND GUTTER
NOT TO SCALE



CURB OPENING DETAIL
NOT TO SCALE



TYPICAL RAINLEADER DETAIL
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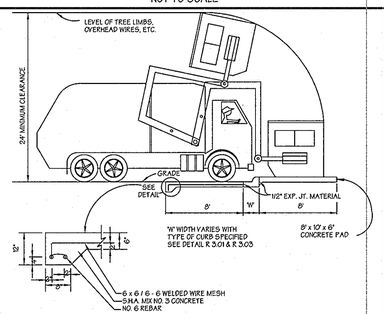
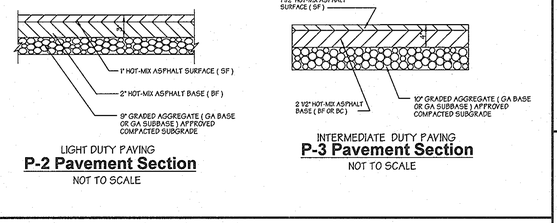


SOLID WASTE SERVICE PAD
NOT TO SCALE



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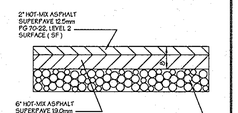
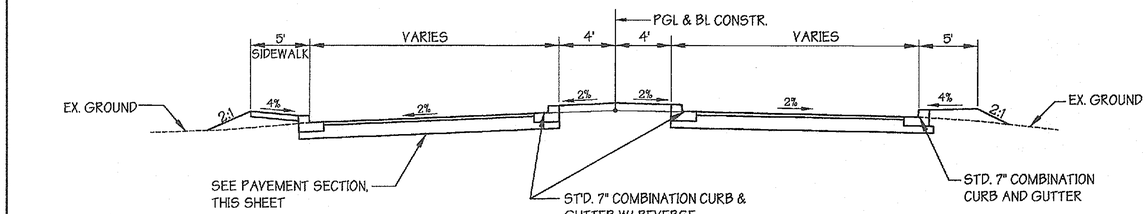
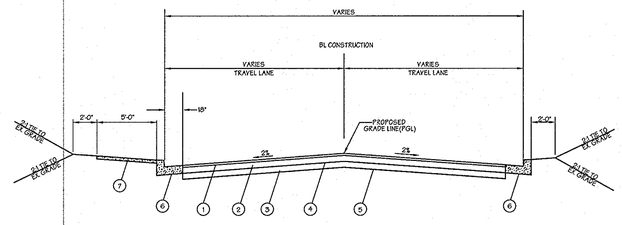


HEAVY DUTY PAVING
P-5 Pavement Section
FOR MD RTE. 103
NOT TO SCALE



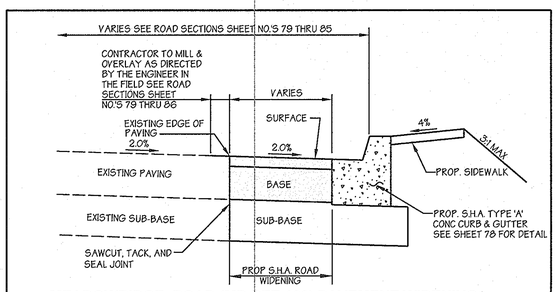
STA. 0+47.65 TO STA. 1+40
MONUMENTAL ENTRANCE
NOT TO SCALE



PAVEMENT LEGEND

1. 2" HMA SUPERPAVE FINAL SURFACE
2. 2" HMA SUPERPAVE INTERMEDIATE SURFACE
3. 3" HMA SUPERPAVE BASE
4. 4" GRADED AGGREGATE BASE (GAB)
5. LIMIT OF CLASS 'I' EXCAVATION
6. STANDARD 7" COMBINATION CURB & GUTTER, HOWARD CO. STD. R-3.01, SEE DETAIL THIS SHEET
7. 5' WIDE CONCRETE SIDEWALK (EAST SIDE ONLY) SEE DETAIL THIS SHEET

P-4 PAVEMENT SECTION
TYPICAL PAVING SECTION - SUMMIT ROCK DRIVE
NOT TO SCALE



MEADOWRIDGE ROAD (MD RTE 103) PAVEMENT WIDENING
NOT TO SCALE SEE SHEET NO. 78

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/3/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND PAUL WAYNE TAYLOR NO. 13741 PROFESSIONAL ENGINEER

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
(CORRIDOR 95 BUSINESS PARK)	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 | SEWER CODE 4020000

OWNER / DEVELOPER
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410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

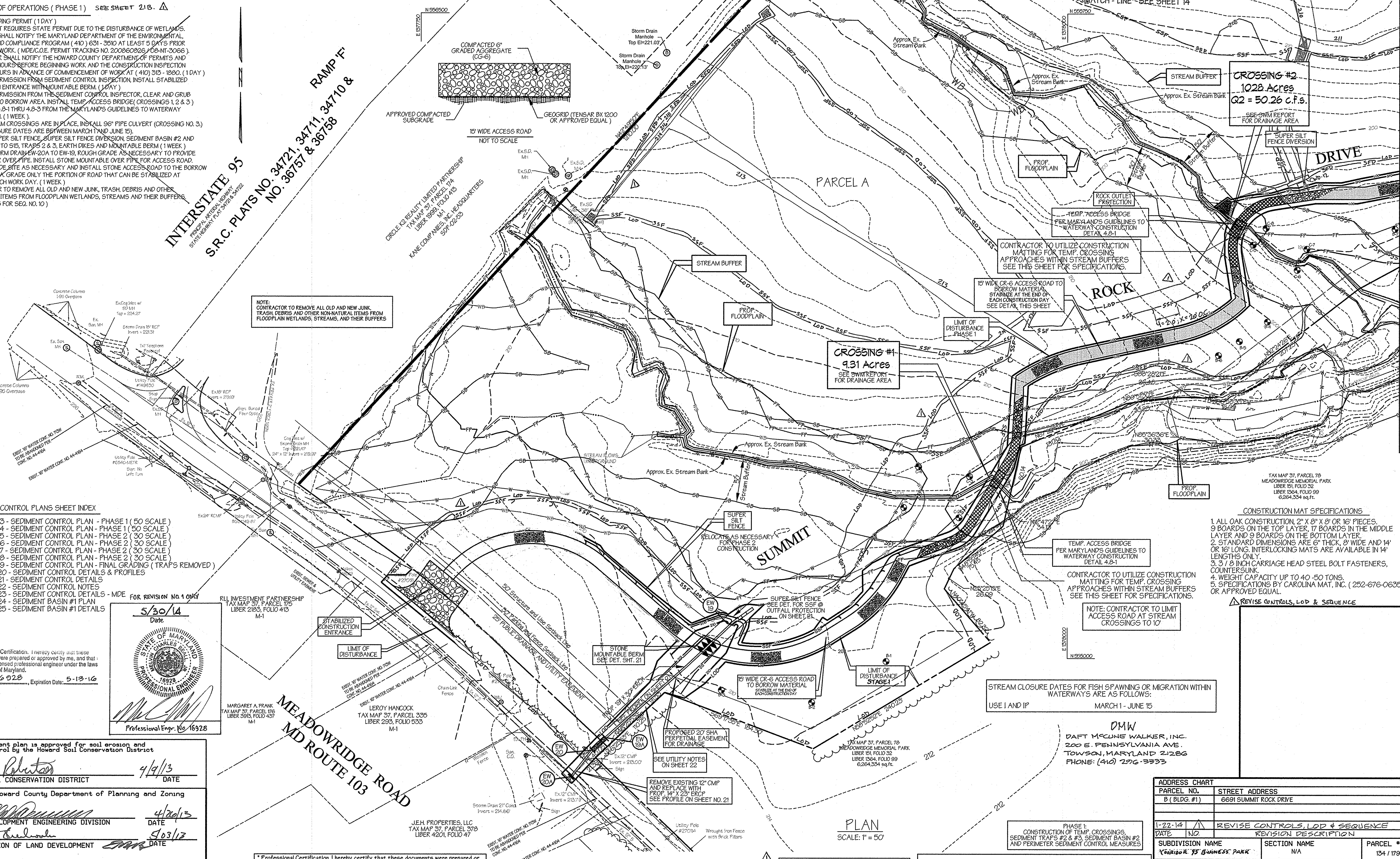
SITE DETAILS
CORRIDOR 95 BUSINESS PARK
~~**MEADOWRIDGE BUSINESS CENTER**~~
PARCELS A & B
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND
SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 12 OF 94

SDP-08-082 P/N : 10762

10762siteplandetails.s01
...\sdp\10762c-12sitedetails.s01 10/18/2011 1:47:39 PM SCALE 30.0000 " / IN.

SEQUENCE OF OPERATIONS (PHASE 1) SEE SHEET 21B. ⚠1

~~1. OBTAIN GRADING PERMIT (1 DAY)~~
~~* THIS PROJECT REQUIRES STATE PERMIT DUE TO THE DISTURBANCE OF WETLANDS. CONTRACTOR SHALL NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENTAL, INSPECTION AND COMPLIANCE PROGRAM (410) 631 - 3510 AT LEAST 5 DAYS PRIOR TO BEGINNING WORK. (MDE/C.O.E. PERMIT TRACKING NO. 200860826 / 08-NT-3066).~~
~~2. CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PERMITS AND LICENSES 48 HOURS BEFORE BEGINNING WORK AND THE CONSTRUCTION INSPECTION DIVISION 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT (410) 313 - 1880. (1 DAY)~~
~~3. WITH THE PERMISSION FROM SEDIMENT CONTROL INSPECTION, INSTALL STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE BERM. (1 DAY)~~
~~4. WITH THE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB FOR ACCESS TO BORROW AREA. INSTALL TEMP. ACCESS BRIDGE(CROSSINGS 1, 2 & 3) PER DETAILS 4.8-1 THRU 4.8-3 FROM THE MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION. (1 WEEK).~~
~~5. ONCE STREAM CROSSINGS ARE IN PLACE, INSTALL 96" PIPE CULVERT (CROSSING NO. 3.) (STREAM CLOSURE DATES ARE BETWEEN MARCH 1 AND JUNE 15).~~
~~6. INSTALL SUPER SILT FENCE, SUPER SILT FENCE DIVERSION, SEDIMENT BASIN #2 AND OUTFALL S16A TO S15, TRAPS 2 & 3, EARTH DIKES AND MOUNTABLE BERM (1 WEEK)~~
~~7. INSTALL STORM DRAIN EW-20A TO EW-19, ROUGH GRADE AS NECESSARY TO PROVIDE PROPER COVER OVER PIPE. INSTALL STONE MOUNTABLE OVER PIPE FOR ACCESS ROAD.~~
~~8. ROUGH GRADE SITE AS NECESSARY AND INSTALL STONE ACCESS ROAD TO THE BORROW MATERIAL AREA. GRADE ONLY THE PORTION OF ROAD THAT CAN BE STABILIZED AT THE END OF EACH WORK DAY. (1 WEEK)~~
~~9. CONTRACTOR TO REMOVE ALL OLD AND NEW JUNK, TRASH, DEBRIS AND OTHER NON-NATURAL ITEMS FROM FLOODPLAIN WETLANDS, STREAMS AND THEIR BUFFERS. (SEE SHEET 15 FOR SEQ. NO. 10)~~



SEDIMENT CONTROL PLANS SHEET INDEX

SHEET NO. 13 - SEDIMENT CONTROL PLAN - PHASE 1 (50 SCALE)
SHEET NO. 14 - SEDIMENT CONTROL PLAN - PHASE 1 (50 SCALE)
SHEET NO. 15 - SEDIMENT CONTROL PLAN - PHASE 2 (30 SCALE)
SHEET NO. 16 - SEDIMENT CONTROL PLAN - PHASE 2 (30 SCALE)
SHEET NO. 17 - SEDIMENT CONTROL PLAN - PHASE 2 (30 SCALE)
SHEET NO. 18 - SEDIMENT CONTROL PLAN - PHASE 2 (30 SCALE)
SHEET NO. 19 - SEDIMENT CONTROL PLAN - FINAL GRADING (TRAPS REMOVED)
SHEET NO. 20 - SEDIMENT CONTROL DETAILS & PROFILES
SHEET NO. 21 - SEDIMENT CONTROL DETAILS
SHEET NO. 22 - SEDIMENT CONTROL NOTES
SHEET NO. 23 - SEDIMENT CONTROL DETAILS - MDE
SHEET NO. 24 - SEDIMENT BASIN #1 PLAN
SHEET NO. 25 - SEDIMENT BASIN #1 DETAILS

FOR REVISION NO. 1 ONLY
5/30/14
Date
STATE OF MARYLAND · MELVIN CHARLES BEALL JR. · 16928 · PROFESSIONAL ENGINEER
Professional Engr. No 16928

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16928 , Expiration Date: 5-13-16

CONSTRUCTION MAT SPECIFICATIONS

1. ALL OAK CONSTRUCTION, 2" X 8" X 8' OR 16' PIECES. 9 BOARDS ON THE TOP LAYER, 17 BOARDS IN THE MIDDLE LAYER AND 9 BOARDS ON THE BOTTOM LAYER.
2. STANDARD DIMENSIONS ARE 6" THICK, 8' WIDE AND 14' OR 16' LONG. INTERLOCKING MATS ARE AVAILABLE IN 14' LENGTHS ONLY.
3. 3 / 8 INCH CARRIAGE HEAD STEEL BOLT FASTENERS, COUNTERSUNK.
4. WEIGHT CAPACITY UP TO 40 -50 TONS.
5. SPECIFICATIONS BY CAROLINA MAT, INC. (252-676-0635) OR APPROVED EQUAL.

⚠1 REVISE CONTROLS, LOD & SEQUENCE

STREAM CLOSURE DATES FOR FISH SPAWNING OR MIGRATION WITHIN WATERWAYS ARE AS FOLLOWS:

USE I AND IP	MARCH 1 - JUNE 15

DMW
DAFT McCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

PHASE 1:
CONSTRUCTION OF TEMP. CROSSINGS, SEDIMENT TRAPS #2 & #3, SEDIMENT BASIN #2 AND PERIMETER SEDIMENT CONTROL MEASURES

⚠1 LIMIT OF DISTURBANCE (STAGE 1)= 12.08 AC. (526,204.8 SQ. FT.)

MDE / C.O.E. PERMIT TRACKING NO. 200860826 / 08-NT-3066

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13
DIRECTOR — DATE 5/13/13

* Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741 , Expiration Date: 12/08/2013"

PREPARED BY :

GWS
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND · PAUL WAYNE TAYLOR · NO. 13741 · REGISTERED PROFESSIONAL ENGINEER

ENGINEER CERTIFICATION:

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature of Engineer ________ Date 6/28/12
Print Name PAUL W. TAYLOR PE # 13741

DEVELOPER CERTIFICATION:

"I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer ________ Date 10/25/2011
Print Name THOMAS D. HESS

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

DATE	NO.	REVISION DESCRIPTION
1-22-14	1	REVISE CONTROLS, LOD & SEQUENCE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

STAGE I

SEDIMENT CONTROL - PHASE 1
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 50'
DATE : FEBRUARY 04, 2011
SHT. 13 OF 94

SDP-08-082 P/N : 10762

..\10762c-13initialsed50scale.s01 10/18/2011 1:48:54 PM SCALE 50.000000 ' / IN.

RAMP 'F'

PARCEL B

PARCEL A

MARYLAND ROUTE 100
INTERMEDIATE ARTERIAL

STAGE II
SUPER SILT FENCE
SEE DETAIL FOR SUPER SILT FENCE AT OUTFALL INSTALLATION ON SHEET 21

STAGE II
EARTH DIKE #4

STAGE II
LIMIT OF DISTURBANCE

STAGE II
EARTH DIKE #6 TYPE A-1

STAGE II
TRAP #2 BOTTOM EL. 210.0

STAGE II
SILT FENCE

STAGE II
TRAP #3 BOTTOM EL. 210.0

STAGE II
EARTH DIKE #3 TYPE A-2

STAGE II
MOUNTABLE BERM TYPE A
RESTORE TO IT'S ORIGINAL CONDITION AT THE END OF EACH WORK DAY

STAGE II
EARTH DIKE #5 TYPE A-2

BORROW AREA TO BE REMOVED FOR THE CONSTRUCTION OF ROAD

LIMIT OF DISTURBANCE - PHASE I

STAGE II
MOUNTABLE BERM - TYPE A
RESTORE TO IT'S ORIGINAL CONDITION AT THE END OF EACH WORK DAY

STAGE II
SUPER SILT FENCE

STAGE II
EARTH DIKE #2 TYPE A-2

STAGE II
SEDIMENT BASIN #2

STAGE II
BAFFLE LENGTH = 60'

STAGE II
24" RCCP
SEE PROFILE SHT. 20

STAGE II
15' WIDE CR-6 ACCESS ROAD TO BORROW MATERIAL
STABILIZE AT THE END OF EACH CONSTRUCTION DAY

GRADE AS NECESSARY TO PROVIDE ACCESS TO BORROW AREA

N 555750
E 1378250

NOTE #1 - SEE DETAIL FOR SUPER SILT FENCE AT OUTFALL INSTALLATION ON SHEET 21

SEE SHEET 21B FOR SEQUENCE OF OPERATIONS - PHASE 1

DEED OF RIGHT OF WAY
LIBER R.H.M. 297 FOLIO 334
EXCEPTION NO. 7

Approx. Ex. Stream Bank

STREAM BUFFER

PROP. FLOODPLAIN

CROSSING #3
14.66 Acres
Q2 = 48.64 c.f.s.
SEE SWM REPORT FOR DRAINAGE AREA

SEE DIVERSION PIPE DETAIL THIS SHEET

ROCK OUTLET PROTECTION

TEMPORARY BRIDGE PER MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION DETAIL 4.8-1

CONTRACTOR TO UTILIZE CONSTRUCTION MATTING FOR TEMP. CROSSING APPROACHES WITH STREAM BUFFERS SEE SPECIFICATIONS ON SHEET 13.

DEWATERING DEVICE
17 L.F., 6" PVC (SCH40)
SEE SHT. 20 FOR DETAIL

RIP RAP INFLOW PROTECTION

PERMANENT OUTFALL PROTECTION SEE DETAIL SHEET 21
SEE NOTE 1 THIS SHT.

SUPER SILT FENCE DIVERSION

PROP. 96" CMP CULVERT PIPE

15' WIDE ACCESS ROAD TO BORROW MATERIAL
STABILIZE AT THE END OF EACH CONSTRUCTION DAY

SEE SHEET 13

MATCH - LINE

SUMMIT

ROCK

DRIVE

TEMP. ACCESS BRIDGE PER MARYLAND'S GUIDLINES TO WATERWAY CONSTRUCTION DET. 4.8-1

SANDBAG DIKE (SEE SHT. 23 FOR DETAIL)

Q2 = 48.64 c.f.s.
d = 1.26' + 2.0 Freeboard
h = 3.26'
ELEV. @ TOP OF SANDBAG = 186.00

SUPER SILT FENCE DIVERSION

PROP. 96" CMP CULVERT PIPE

36" DIVERSION PIPE - SEE DET. SHEET 23

LIMIT OF DISTURBANCE

STAGE I HAUL ROAD

STAGE II

FILTER BAG

LIMIT OF DISTURBANCE @ PROPERTY LINE

N85°17'51"E 94.97'

N83°56'31"E 72.01'

DIVERSION PIPE DETAIL
SCALE: 1" = 30'

LEGEND
DRAINAGE AREA TO PROP. BASIN #2

* Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013*

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/8/13

FOR REVISION NO.1 ONLY

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 16028, Expiration Date: 5-13-16

DMW
DAFT McCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MD 21286 PHONE: (410) 296-3333

PARCEL B
MEADOWRIDGE MEMORIAL PARK
MDR PLATS NO. 18121 THRU 18126
MAP 37 PARCEL 179

5/30/14
DATE

PROF. ENGR. NO. 16028

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

1-22-14	1	REVISE CONTROLS & LOD
DATE	NO.	REVISION DESCRIPTION

SUBDIVISION NAME	SECTION NAME	PARCEL #
'CORRIDOR 95' BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785-6640~~

ENGINEER CERTIFICATION:

I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature of Engineer — Date 6/29/12

Print Name PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:

I/ We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personal 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.

Signature of Developer — Date 10/25/2011

Print Name THOMAS D. HESS

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

STAGE I & II

SEDIMENT CONTROL - PHASE 1

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~
~~PARCELS A & B~~

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 50'
DATE : FEBRUARY 04, 2011
SHT. 14 OF 94

SDP-08-082

P/N : 10762

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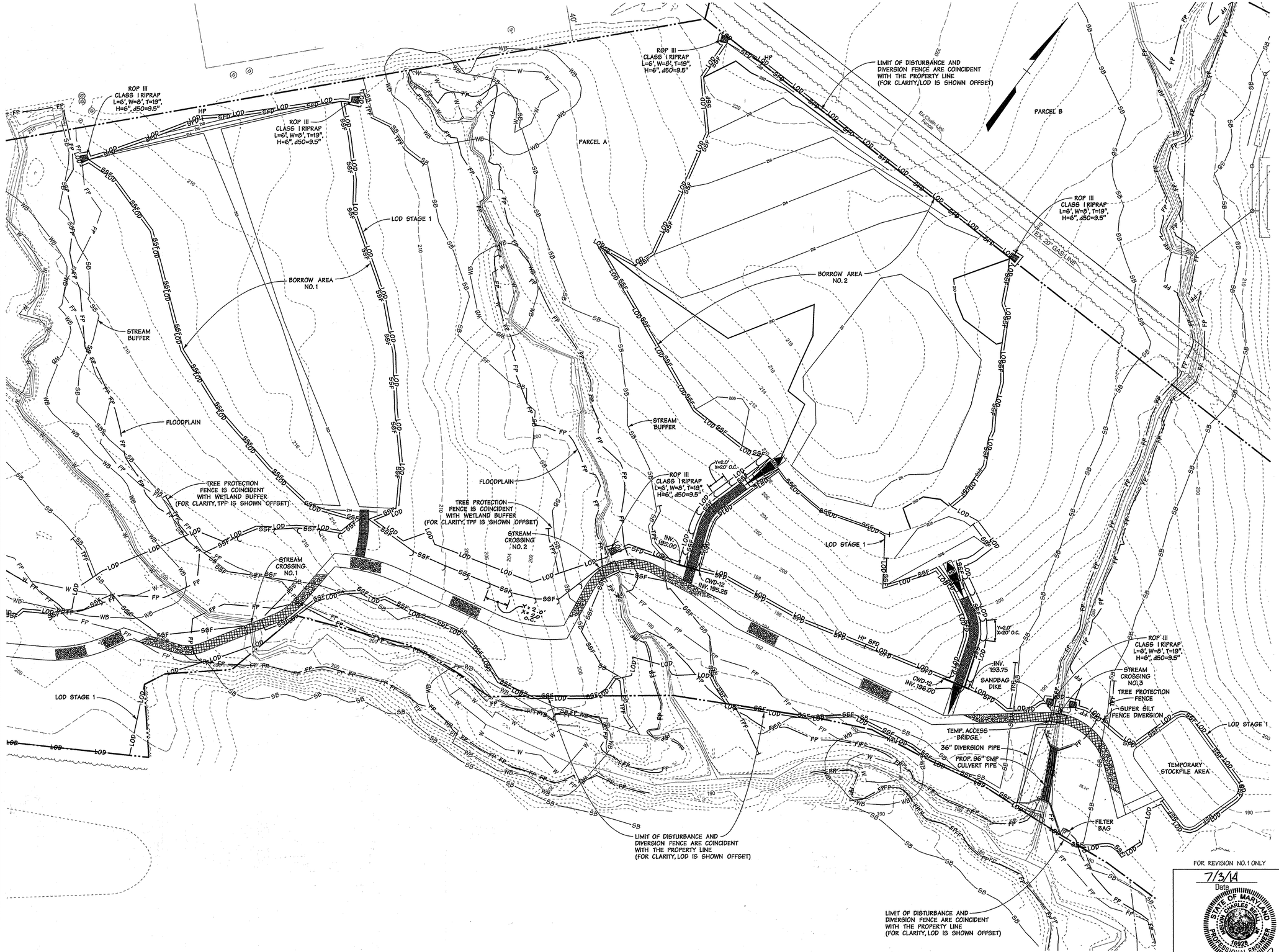


THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/16/14

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-17-14

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.15.14

DIRECTOR — DATE 7/17/14

Date	No.	Revision Description
	1	SHOW BORROW AREAS INCORPORATED INTO SEQUENCE

CORRIDOR 95 BUSINESS PARK

PARCELS A & B

OWNER/DEVELOPER:
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DMW
DAFT McCUNE WALKER INC
200 EAST PENNSYLVANIA AVENUE • TOWSON, MD 21286
P: 410 296 3333 F: 410 296 4705 WWW.DMW.COM
A TEAM OF LAND PLANNERS, LANDSCAPE ARCHITECTS, ENGINEERS, SURVEYORS & ENVIRONMENTAL PROFESSIONALS

AREA
CORRIDOR 95 BUSINESS PARK
TAX MAP 37 PARCEL 134179
1 ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
SEDIMENT & EROSION CONTROL PLAN
STAGE NO. 1 - PHASE NO. 1

Des. By GDT/LNL	Scale 1"=50'	Proj. No. 10015.B	14A of 94
Drn. By GMO	Date		
Chk. By	Approved		

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16928 EXPIRATION DATE: 5/13/16

FOR REVISION NO.1 ONLY

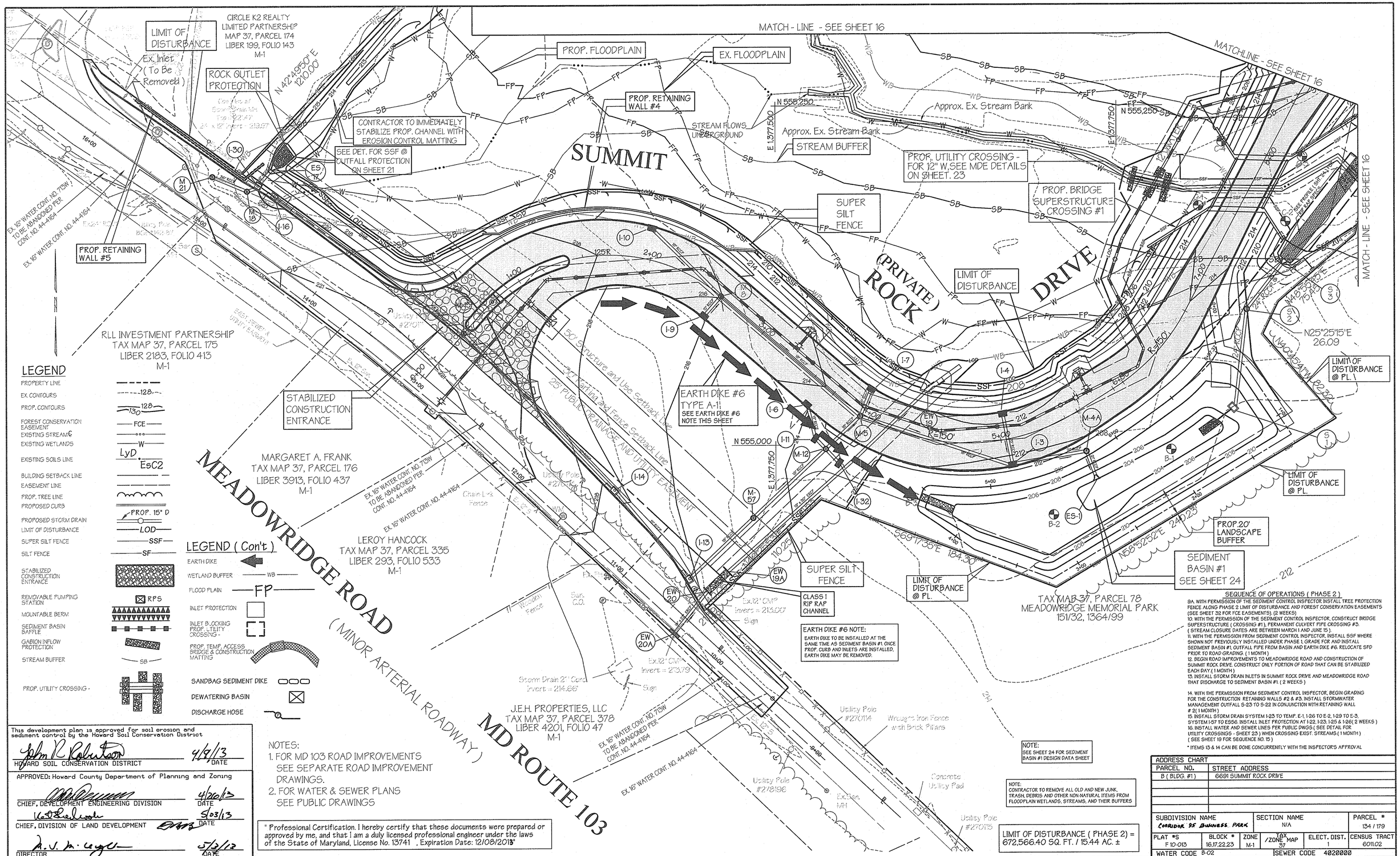
7/3/14
Date

STATE OF MARYLAND — CHARLES REED — 16928 — PROFESSIONAL ENGINEER

Professional Engr. No. 16928

SDP-08-082

$$DATE$$ $$TIME$$ $$SCHOFFEC$$



LEGEND

PROPERTY LINE
EX. CONTOURS 128
PROP. CONTOURS 130 128
FOREST CONSERVATION EASEMENT FCE
EXISTING STREAM
EXISTING WETLANDS W
EXISTING SOILS LINE LyD EsC2
BUILDING SETBACK LINE
EASEMENT LINE
PROP. TREE LINE
PROPOSED CURB
PROPOSED STORM DRAIN PROP. 15" D
LIMIT OF DISTURBANCE LOD
SUPER SILT FENCE SSF
SILT FENCE SF
STABILIZED CONSTRUCTION ENTRANCE
REMOVABLE PUMPING STATION RPS
MOUNTABLE BERM
SEDIMENT BASIN BAFFLE
GABION INFLOW PROTECTION
STREAM BUFFER SB
PROP. UTILITY CROSSING -

LEGEND (Con't)

EARTH DIKE
WETLAND BUFFER WB
FLOOD PLAIN FP
INLET PROTECTION
INLET BLOCKING PROP. UTILITY CROSSING -
PROP. TEMP. ACCESS BRIDGE & CONSTRUCTION MATTING
SANDBAG SEDIMENT DIKE
DEWATERING BASIN
DISCHARGE HOSE

NOTES:
1. FOR MD 103 ROAD IMPROVEMENTS SEE SEPARATE ROAD IMPROVEMENT DRAWINGS.
2. FOR WATER & SEWER PLANS SEE PUBLIC DRAWINGS

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741 , Expiration Date: 12/08/2013"

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6840~~

STATE OF MARYLAND — THOMAS P. TAYLOR — NO. 13741 — REGISTERED PROFESSIONAL ENGINEER — 6/25/12

ENGINEER CERTIFICATION:

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/25/12

Print Name PAUL TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:

"I/ We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/2011

Print Name THOMAS D HESS

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

SEDIMENT CONTROL PLAN - PHASE 2
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 15 OF 34

SDP-08-082 — P/N : 10762

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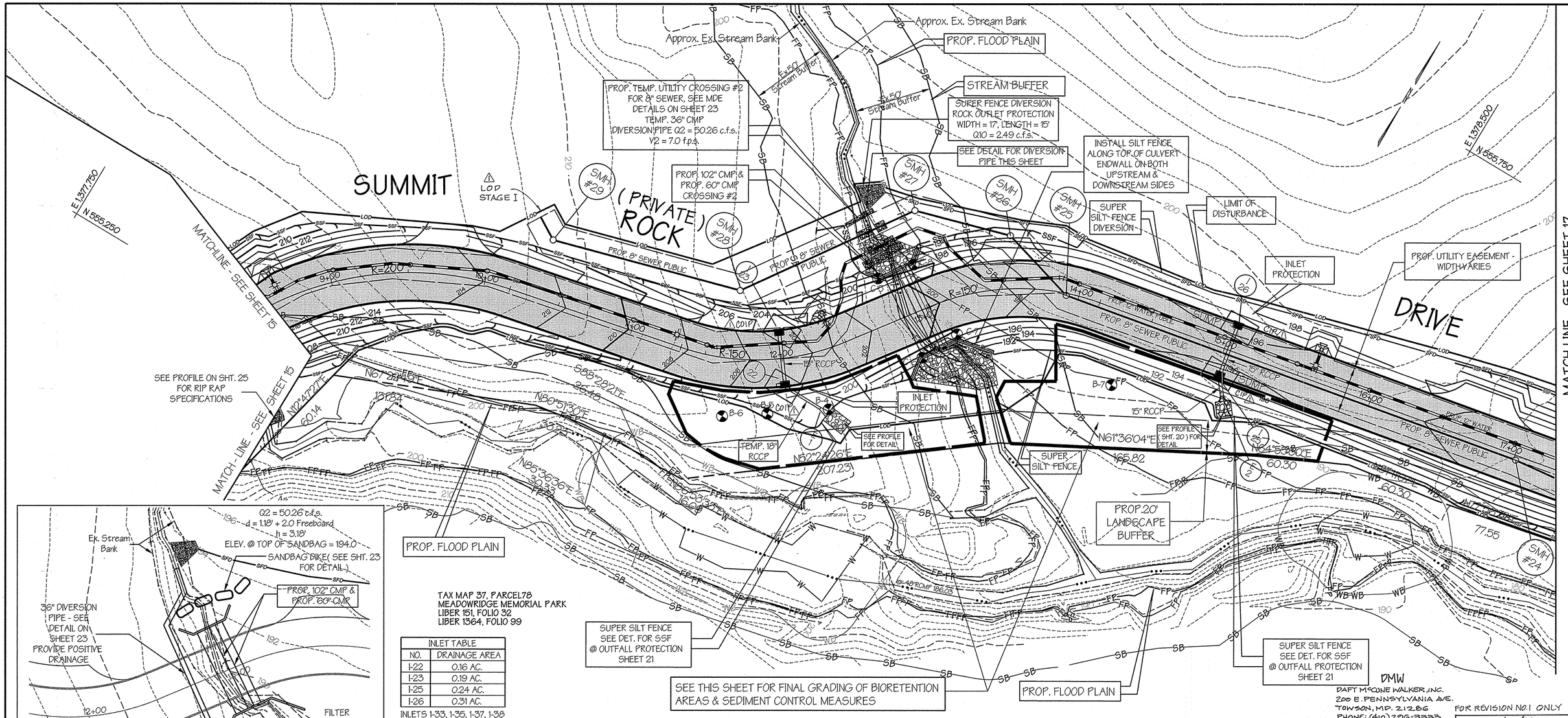

INLET TABLE	
NO.	DRAINAGE AREA
I-22	0.16 AC.
I-23	0.19 AC.
I-25	0.24 AC.
I-26	0.31 AC.

INLETS I-33, I-35, I-37, I-38
DISCHARGE TO TRAP #1

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

John R Robertson — HOWARD SOIL CONSERVATION DISTRICT — 4/9/13 DATE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741 , Expiration Date: 12/08/2013"

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND — No. 13741 — REGISTERED PROFESSIONAL ENGINEER

ENGINEER CERTIFICATION:

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Signature of Engineer — Date 6/25/12
Print Name PAUL W. TAYLOR — PE # 13741

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Signature of Developer — Date 10/25/2011
Print Name THOMAS D. HESS

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

DMW

DAFT McCONE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MD. 21286
PHONE: (410) 296-3333

FOR REVISION NO.1 ONLY
5/30/14 DATE

STATE OF MARYLAND — CHARLES BENJAMIN EISENBERG — 16928 — PROFESSIONAL ENGINEER

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 16928, Expiration Date: 5-13-16

PROF. ENGR. NO. 16928

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

DATE	NO.	REVISION DESCRIPTION
1-22-14	1	UPDATE TO 2011 MD. STD. & SPECS. FOR SOIL EROSION & SED. CONTROL

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

STAGE 1

SEDIMENT CONTROL PLAN PHASE 2
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 16 OF 94

SDP-08-082 — P/N : 10762

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STOCKPILE AREA NOTES :

1. ANY AREA NEEDED FOR TEMPORARY STOCKPILE AND SEDIMENT TRAP SPOIL WILL BE LOCATED WITHIN THE LIMITS OF DISTURBANCE, AND UPSTREAM FROM A SEDIMENT CONTROL MEASURE, BUT LOCATED SUCH AS NOT TO IMPEDE UPON THE MEASURE NOR ALTER DRAINAGE DIVIDES.
2. SUPER SILT FENCE TO BE PLACED BELOW (DOWNSLOPE) OF THE TEMPORARY STOCKPILE.

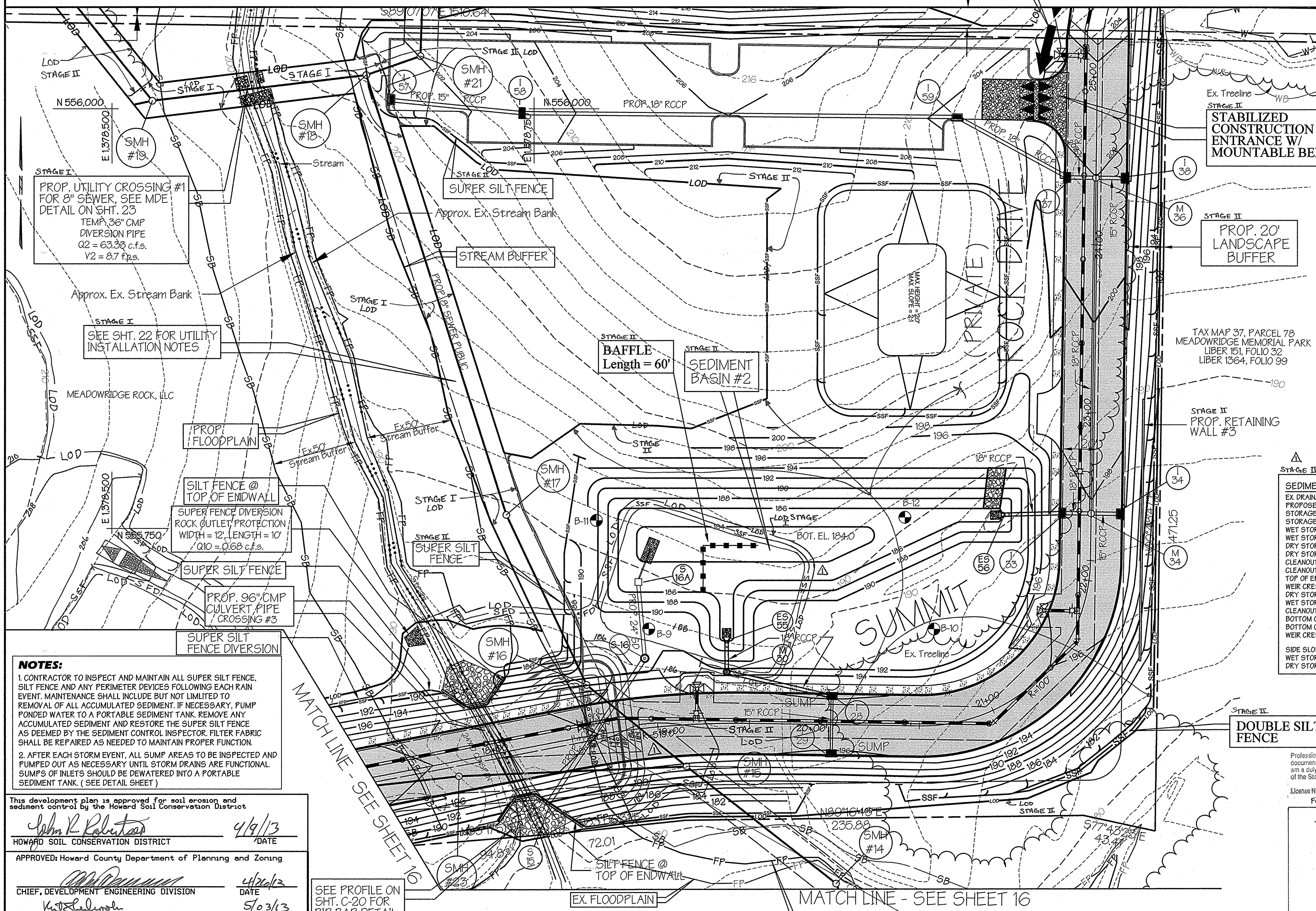

Figure 2 Temporary Sediment Basin Design Data Sheet

Computed by: D.M.B. Date: 06/15/09 Checked by: ____ Date: ____
Project Name: Corridor 95 - Business Park Basin #: 2
Location: SWM Facility Temporarily Used As A Sediment Basin

Total Area Draining to Basin: 3.96 acres (ac) **Requires user input**

Basin Volume Design

Note: 1. Also see Surface Area Design #30, this form.
2. To Convert ft³ to yd³, divide ft³ by 27. To Convert ft² to yd², divide ft² by 9.

1. Min. Required Vol. = 3600 ft³/ac x 3.96 ac. Drainage = 14,256 ft³
2. Actual Volume of Basin = 18,519 ft³ at Weir Crest Elev. 187.00
3. Excavate ~ ft³ (~ yd³) to obtain required capacity.
4. Vol. at Dewatering Elev. = 1800 ft³/ac x 3.96 ac. = 7,128 ft³
5. Vol. of Basin at Cleanout = 900 ft³/ac x 3.96 ac. = 3,564 ft³
6. Elevation Corresponding to Min. Required Volume of Basin (Riser Crest Elevation) 187.00 ft
7. Permanent Pool Elevation 186.00 ft = 9,341 ft³
8. Distance from Riser Crest Elevation to Permanent Pool Elevation 1.00 ft
9. Basin Cleanout Elevation 185.50 ft = 5,756 ft³
10. Distance from Riser Crest Elevation to Cleanout Elevation 1.50 ft

Spillway Design

11. Q10 = 24.82 cfs (From TR-20, Attached Computations)

Principal Spillway (Qps) (See Detail 11)

12. Design Principal Spillway (Barrel) Discharge, Design Qps = 24.82 cfs (Min. 10% of 10 Year Peak or 8" Diameter Pipe)
13. H = 6.18 ft.; Barrel Length = 44 ft.
14. Barrel Dia. 24 in. Note: Qps must equal or exceed Design Qps
Qps = Q (From Table 13 or 14) 36.94 x (Length Correction Factor) 1.07 = 39.53 cfs
15. Riser Diameter ~ in.; Riser Height ~ ft.; Riser Head (h) = ~ ft.
16. Trash Rack Diameter ~ in.; Trash Rack Height = ~ in.

N/A CONCRETE RELEASE STRUCTURE, SEE SWM PLANS

Note: A Table showing Design Data shall be included on the plan for each Basin.

C-10-10

Emergency Spillway (Qes)

17. Emergency Spillway Capacity, Qes = Q10 - Qps = ~ - ~ = ~ cfs
18. Width ~ ft.; Hp ~ ft
19. Entrance Channel Slope ~ %
20. Exit Channel Slope ~ %

Anti-Seep Collar Design (If Required)

21. y = ~ ft.; z = ~ :1; pipe slope = ~ %; Ls = ~ ft.
22. Use ~ collars, ~ ft. - ~ in. square; projection = ~ ft.

Design Elevations

23. Riser Crest = 187.00 ft. 24. Design High Water = 187.46 ft.
25. Emergency Spillway Crest = ~ ft. 26. Min. Settled Top of Dam = 190.00 ft.
27. Permanent Pool = 186.00 ft. 28. Bottom of Basin = 184.00 ft.
29. Draw-down Orifice Invert = 184.00 ft.

Surface Area Design

30. Min. Basin Surface Area; SA ≥ 0.0035 x Q10 = 0.0035 x 24.82 cfs ≤ 0.08687 ac.

Draw-Down Device

31. Draw-Down Device Orifice Diameter = 3.00 in. (From Table 11)
32. At = Total Area of perforations ≥ 4Ao
At = (# of perforation / foot) x (perforation area ft2) x (perforated section length ft.)
At = (6) x (0.0055) x (4.50)
⚠ At = 0.149 ft2 ≥ 0.136 ft2

Ao = Internal Orifice Area (From Table 11 or Computed)

$Qd\text{-}d = \frac{1800 \times 3.96}{10 \times 3600} = 0.198$; $Hd\text{-}d = 2/3 \times (187.00 - 186.00) = 0.67$

$Ao = \frac{0.198}{0.6 \sqrt{2 \times 32.166 \times 0.67}} = \frac{0.198}{3.929} = 0.05$

$do = \sqrt{\frac{4 \times 0.05}{3.1416}} = 0.25' = 3.04"$

C-10-11

⚠ STAGE II

SEDIMENT BASIN #2

EX. DRAINAGE AREA - 2.10 AC.
PROPOSED DRAINAGE AREA - 3.96 AC. ±
STORAGE REQUIRED - 14,256 CU. FT.
STORAGE PROVIDED - 18,519 CU. FT.
WET STORAGE REQUIRED - 7,128 CU. FT.
WET STORAGE PROVIDED - 9,341 CU. FT.
DRY STORAGE REQUIRED - 7,128 CU. FT.
DRY STORAGE PROVIDED - 9,178 CU. FT.
CLEANOUT STORAGE REQUIRED - 3,564 CU. FT.
CLEANOUT STORAGE PROVIDED - 5,756 CU. FT.
TOP OF EMBANKMENT ELEVATION - 190.00'
WEIR CREST ELEVATION - 187.00
DRY STORAGE ELEVATION - 187.00
WET STORAGE ELEVATION - 186.00
CLEANOUT STORAGE ELEVATION - 185.50
BOTTOM OF BASIN ELEVATION - 184.00
BOTTOM OF BASIN DIMENSIONS - 21' X 138'
WEIR CREST LENGTH - 8.67'

SIDE SLOPES - 3:1
WET STORAGE ZONE = 184.00 - 186.00
DRY STORAGE ZONE = 186.00 - 187.00

NOTES:

1. CONTRACTOR TO INSPECT AND MAINTAIN ALL SUPER SILT FENCE, SILT FENCE AND ANY PERIMETER DEVICES FOLLOWING EACH RAIN EVENT. MAINTENANCE SHALL INCLUDE BUT NOT LIMLITED TO REMOVAL OF ALL ACCUMULATED SEDIMENT. IF NECESSARY, PUMP PONDED WATER TO A PORTABLE SEDIMENT TANK. REMOVE ANY ACCUMULATED SEDIMENT AND RESTORE THE SUPER SILT FENCE AS DEEMED BY THE SEDIMENT CONTROL INSPECTOR. FILTER FABRIC SHALL BE REPAIRED AS NEEDED TO MAINTAIN PROPER FUNCTION.
2. AFTER EACH STORM EVENT, ALL SUMP AREAS TO BE INSPECTED AND PUMPED OUT AS NECESSARY UNTIL STORM DRAINS ARE FUNCTIONAL. SUMPS OF INLETS SHOULD BE DEWATERED INTO A PORTABLE SEDIMENT TANK. (SEE DETAIL SHEET)

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13
DIRECTOR — DATE 5/3/13

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16928, Expiration Date: 5-13-16
FOR REVISION NO.1 ONLY

5/30/14
Date

Professional Engr. No. 16928

DMW
DAFT McCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

⚠ UPDATE GRADING FOR STAGE I. SHOW LOD STAGE II, UPDATE PERFORATIONS CALCULATION.

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

DATE	NO.	REVISION DESCRIPTION
1-22-14	1	SHOW STAGE I GRADING, STAGE II LOD & PERF. CALCS.

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

PREPARED BY :

GWS
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND — PAUL WAYNE TAYLOR — NO. 13741 — REGISTERED PROFESSIONAL ENGINEER

ENGINEER CERTIFICATION:

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/29/12
Print Name PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:

"I/ We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspections by the Howard soil Conservation District."

Signature of Developer — Date 10/25/2011
Print Name THOMAS D. HESS

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

STAGE I & II
⚠ **SEDIMENT CONTROL PLAN PHASE 2**
CORRIDOR 95 BUSINESS PARK
~~**MEADOWRIDGE BUSINESS CENTER**~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 17 OF 94

SDP-08-082 — P/N : 10762

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STATE OF MARYLAND
TO THE USE OF THE
STATE ROADS COMMISSION OF MARYLAND
BOOK R.H.M. 325 PAGE 160 FIRST PARCEL
DESCRIPTION SEE LIBER B.M., JR. 173 FOLIO 186
S&E LIBER W.W.L.C. 81 FOLIO 121 AND
LIBER J.H.O. 58 FOLIO 606

NOTE: SEE SEDIMENT CONTROL PLAN (SHT.19) FOR FINAL LOCATION OF PROP. CURB, PROP.UTILITIES & FINAL GRADES WHEN SEDIMENT TRAPS 2 & 3 ARE REMOVED

RAMP 'F'
PRINCIPAL ARTERIAL HIGHWAY

E 1,379,500
N 556,500

EARTH DIKE #2 TYPE A- 2

BAFFLE Length = 75'

30' PARKING AND FENCE SETBACK LINE

CHD.= N 71°53'12" E 839.15'

R=945.92'

L=742.16'

EARTH DIKE #4 TYPE A- 2

BAFFLE Length = 72'

TRAP #3 BOTTOM EL. 210.0

Storm Drain 24" RCP Invert = 202.75'

SUPER SILT FENCE

REMOVE EARTH DIKE #3 (PHASE I) AS AREA IS GRADED TO SUBGRADE. MAINTAIN POSITIVE DRAINAGE TO TRAP #3

STONE / RIP RAP OUTLET
SEDIMENT TRAP ST- IV
TRAP #3

EX. DRAINAGE AREA - 1.61 AC.
PROPOSED DRAINAGE AREA - 1.92 AC. ±
STORAGE REQUIRED - 6912 CU. FT.
STORAGE PROVIDED - 10,964 CU. FT.
SLOPE INSIDE EMBANKMENT - 2:1
SLOPE OUTSIDE EMBANKMENT - 2:1
CLEANOUT ELEVATION - 211.2'
WET STORAGE ZONE - 210.0 - 212.0
DRY STORAGE ZONE - 212.0 - 214.0
WET STORAGE REQUIRED - 3456 CU. FT.
WET STORAGE PROVIDED - 3786 CU. FT.
DRY STORAGE REQUIRED - 3456 CU. FT.
DRY STORAGE PROVIDED - 7178 CU. FT.
TOP OF EMBANKMENT ELEVATION - 215.00'
TOP OF EMBANKMENT WIDTH - 4'
BOTTOM OF TRAP ELEVATION - 210.00'
BOTTOM OF TRAP DIMENSIONS - 15' X 75'
WEIR LENGTH - 8.0'
ELEVATION OF WEIR - 214.0
Q1 (EXIST.) = 1.09 c.f.s.
Q1 (INTERIM) = 4.98 c.f.s.
Q1 (PROP.) = 5.61 c.f.s.

Ex.50' Stream Buffer
Stream
FP
SB
LOD
WB
W

MH 47
MH 50
I-48
I-49
I-52
I-53
I-44
I-43
I-42
M-39
S-11
S-10
S-22
RIP-RAP INFLOW PROTECTION (TYP.)
TRAP #2 BOTTOM EL. 210.0
RIP-RAP OUTLET
B-16
B-13
B-17
B-18
B-19
B-20
A-1
A-2
A-3
A-4
SEE NOTE #1
SEE EARTH DIKE NOTE THIS SHT.
SEE SWM FACILITY #1 (SHT. 46) FOR OUTFALL SPECS
C.O. NO.2
C.O. NO.1

PROPOSED OFFICE BUILDING NO.1
NOTE: SEE SEQUENCE OF OPERATIONS - PHASE 3

Approx. Ex. Stream Bank
PROP. FLOODPLAIN
EARTH DIKE #5 TYPE A- 2
SMH #20
SMH #22
SUPER SILT/ FENCE
STREAM BUFFER
EX. 20" GAS LINE
50' BGE GAS EASEMENT
PROP. RETAINING WALL #1
MATCH LINE - SEE SHEET 17

SUPER SILT FENCE @ LOD
SEE SWM PROFILE FOR RIP RAP OUTFALL DETAIL
PROP. RETAINING WALL #2
SUMMIT ROCK DRIVE (PRIVATE)
S 42°19'20" E 179.97'
21" RCCP
15" RCCP
PROP. 24" RCCP
LIBER R.H.M. 297 FOLIO 334

EARTH DIKE NOTE:
REMOVE EARTH DIKE #5 (PHASE I) AS AREA IS GRADED TO SUBGRADE. MAINTAIN POSITIVE DRAINAGE TO TRAP #2

NOTE #1: BLOCK INLETS I-40, I-41, I-42, I-43, I-44, I-48, I-49, I-52 & I-53 UNTIL SWM FACILITIES #2 & #3 ARE CONSTRUCTED AND SITE IS STABILIZED
SEE SHEET C-19 FOR CONNECTION OF STORM DRAIN SYSTEM TO SWM FACILITIES

STONE / RIP RAP OUTLET
SEDIMENT TRAP ST- IV (TRAP #2)

EX. DRAINAGE AREA - 1.74 AC.
PROPOSED DRAINAGE AREA - 1.95 AC. ±
STORAGE REQUIRED - 7200 CU. FT.
STORAGE PROVIDED - 7784 CU. FT.
SLOPE INSIDE EMBANKMENT - 2:1
SLOPE OUTSIDE EMBANKMENT - 2:1
CLEANOUT ELEVATION - 211.2'
WET STORAGE ZONE - 210.0 - 212.3
DRY STORAGE ZONE - 212.3 - 214.0
WET STORAGE REQUIRED - 3600 CU. FT.
WET STORAGE PROVIDED - 3957 CU. FT.
DRY STORAGE REQUIRED - 3600 CU. FT.
DRY STORAGE PROVIDED - 3927 CU. FT.
TOP OF EMBANKMENT ELEVATION - 215.00'
TOP OF EMBANKMENT WIDTH - 4'
BOTTOM OF TRAP ELEVATION - 210.00'
BOTTOM OF TRAP DIMENSIONS - 25' x 50'
WEIR LENGTH - 8.4'
ELEVATION OF WEIR - 214.0
Q1 (EXIST.) = 1.17 c.f.s.
Q1 (INTERIM) = 5.20 c.f.s.
Q1 (PROP.) = 5.86 c.f.s.

E 1,379,000
N 556,000
EARTH DIKE #2 TYPE A- 2

DMW
DAFT McCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16928, Expiration Date: 5-13-16

FOR REVISION NO.1 ONLY
5/30/14
DATE

PROF. ENGR. NO. 16928

SEE SHEET 19 FOR FINAL GRADING WHEN TRAPS 1 & 2 ARE REMOVED

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/16/13
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13
DIRECTOR — DATE 5/3/13

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741 , Expiration Date: 12/08/2013"

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE
1-22-14 1	REVISE SHEET TITLE
DATE NO.	REVISION DESCRIPTION

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX ZONE	MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16.17.22.23	M-1	37		1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

PREPARED BY :
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

ENGINEER CERTIFICATION:
"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Signature of Engineer — Date 6/25/12
Print Name PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:
"I/ We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspections by the Howard soil Conservation District."
Signature of Developer — Date 10/25/2011
Print Name THOMAS D. HESS

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

STAGE II
⚠ SEDIMENT CONTROL PLAN PHASE 2
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND
SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 18 OF ~~24~~

SDP-08-082 — P/N : 10762

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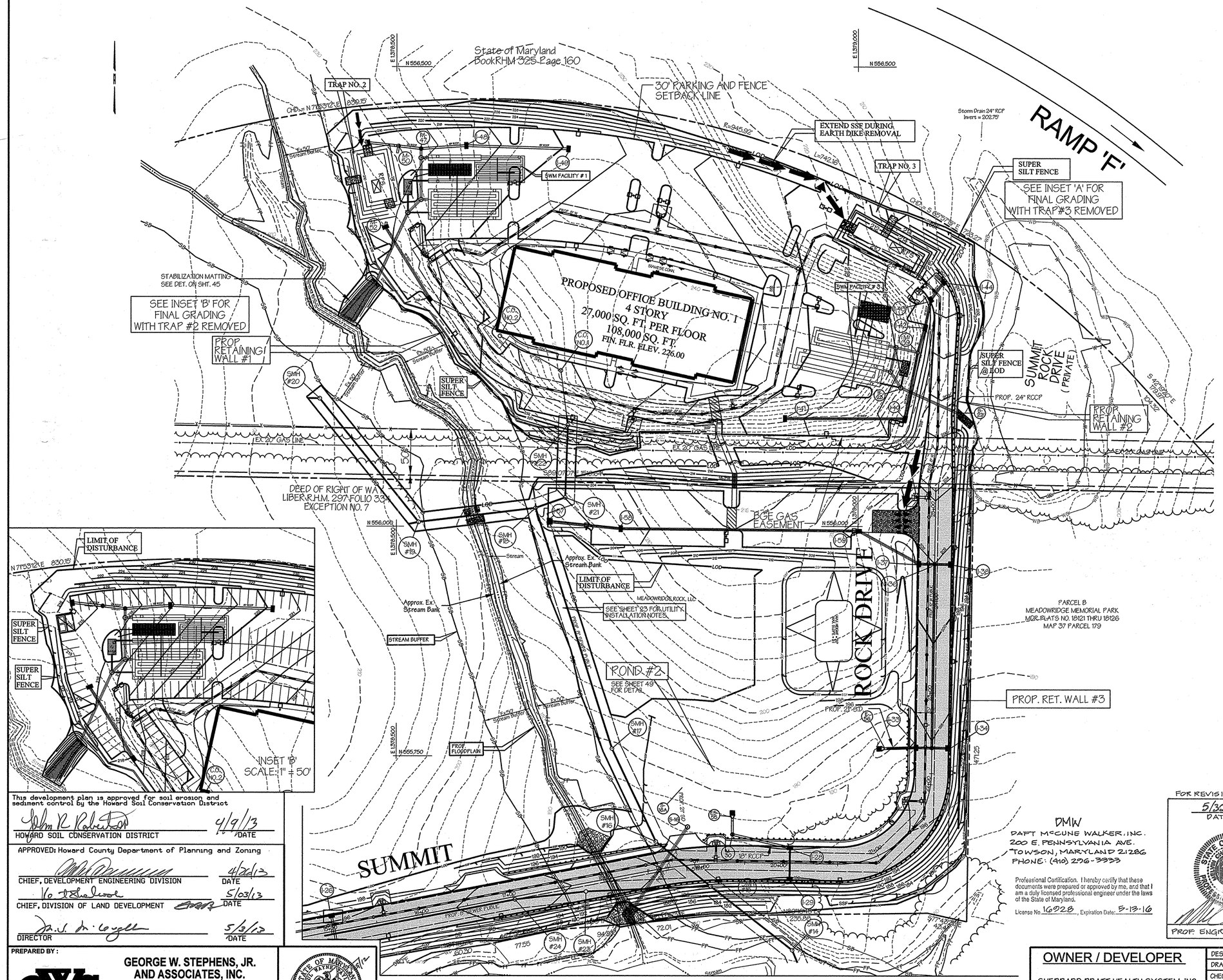


SEQUENCE OF OPERATIONS - PHASE 3
PARCEL A-1 & POND #2

⚠ SEE SHEET 21B.

17. WITH THE PERMISSION FROM SEDIMENT CONTROL INSPECTOR, BEGIN GRADING SITE. (1 MONTH)
18. BEGIN CONSTRUCTION OF RETAINING WALL #1, INSTALL SWM OUTFALL S-11 TO S-10. (2 WEEKS)
19. BEGIN BUILDING #1 CONSTRUCTION (9 MONTHS)
20. INSTALL SANITARY, WATER, ONSITE SWM STRUCTURES AND STORM DRAIN EXCEPT WHERE IT CONFLICTS WITH SEDIMENT TRAPS #2 & #3. (2 MONTHS)
21. BEGIN STONE SUBBASE AND INSTALL CURB AND SIDEWALKS (EXCEPT WHERE IT CONFLICTS WITH SEDIMENT TRAPS #2 & #3. FINE GRADE GRASS AREAS AND STABILIZE. (2 WEEKS)
22. UPON STABILIZATION OF SITE AND PRIOR TO THE REMOVAL OF SEDIMENT TRAPS #2 & #3, FLUSH STORM DRAINS. WITH THE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR REMOVE SEDIMENT TRAPS #2 & #3. (1 WEEK)
23. INSTALL REMAINING STORM DRAIN AND UTILITIES. MAKE FINAL CONNECTION TO UNDERGROUND SWM FACILITIES #1 & #3. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR CONVERT SED. TRAP #1 TO POND #2 PER SWM PLANS. (3 WEEKS)
24. COMPLETE THE INSTALLATION OF CURB AND GUTTER, STONE SUBBASE, FINE GRADE REMAINING DISTURBED AREAS. (1 WEEK)
25. PROCEED WITH FINAL PAVING OPERATIONS AND LANDSCAPING. (2 WEEKS)

ITEMS 18, 19 & 20 CAN BE DONE CONCURRENTLY WITH THE INSPECTOR'S APPROVAL

ENGINEER CERTIFICATION:

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature of Engineer _____ Date 6/25/12

Print Name PAUL W. TAYLOR PE # 13741

DEVELOPER CERTIFICATION:

"I/ We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personal 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."

Signature of Developer _____ Date 6/29/2012

Print Name THOMAS D. HESS

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT _____ 4/9/13 DATE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION _____ 4/22/13 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT _____ 5/03/13 DATE

DIRECTOR _____ 5/3/13 DATE

PREPARED BY :

GWS

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.

Civil Engineers and Land Surveyors

~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND — PAUL WILLIAM TAYLOR — No. 13741 — REGISTERED PROFESSIONAL ENGINEER — 6/25/12

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

FINAL SEDIMENT CONTROL PLAN WITH TRAPS REMOVED (SEE INSETS) AND POND #2 IN PLACE

DMW
DAFT McCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No 16928, Expiration Date: 5-13-16

FOR REVISION NO.1 ONLY
5/30/14 DATE

STATE OF MARYLAND — CHARLES SCOTT HOLLAND — 16928 — PROFESSIONAL ENGINEER

PROF. ENGR. NO. 16928

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

DATE	NO.	REVISION DESCRIPTION
1-22-14	⚠	UPDATE SEQUENCE OF OPERATION

SUBDIVISION NAME	SECTION NAME	PARCEL #
"CORRIDOR 95 BUSINESS PARK"	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX ZONE	MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1		37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

STAGE II

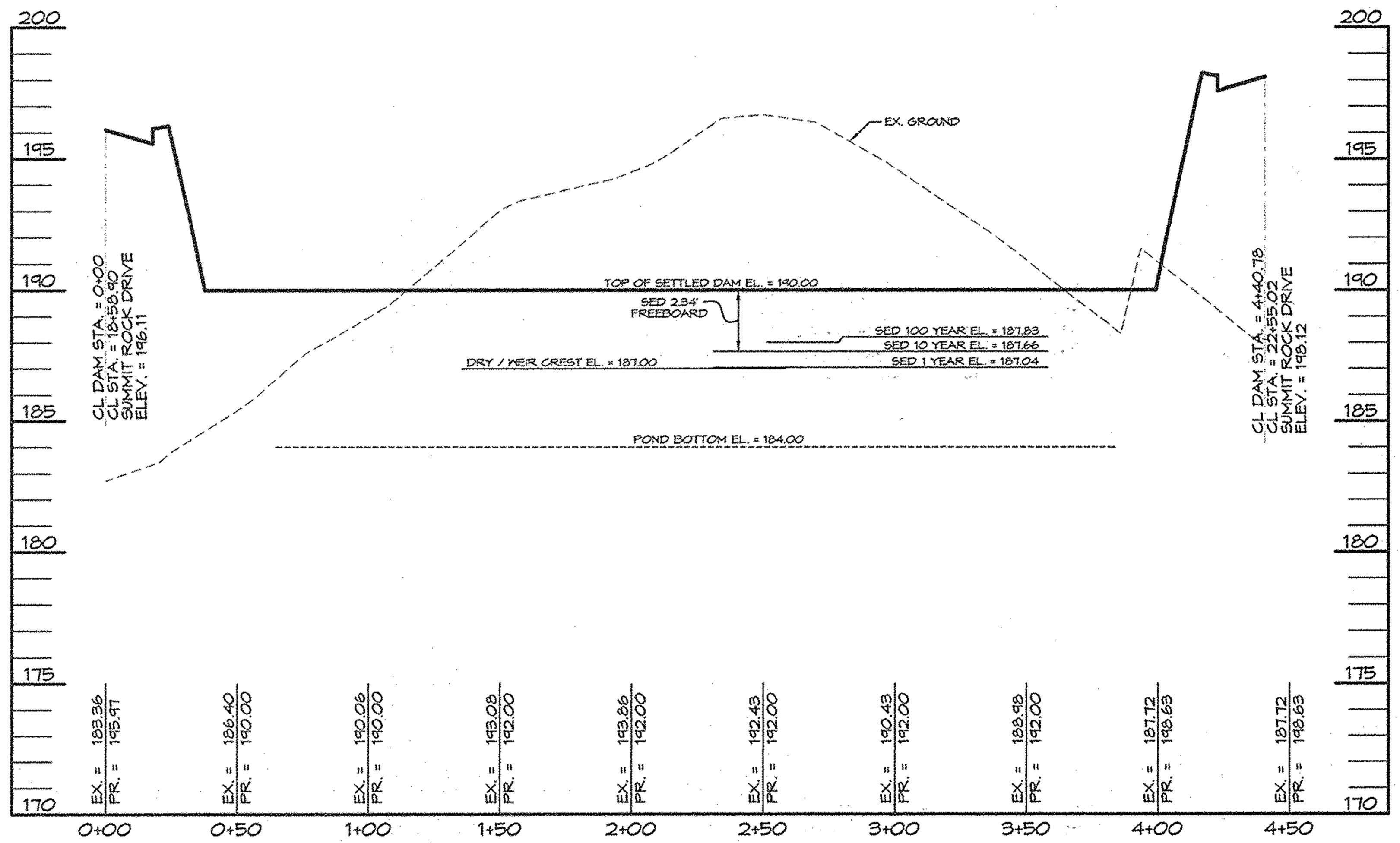
⚠ **SEDIMENT CONTROL PLAN - PHASE 3**

CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1ST
HOWARD CO., MARYLAND

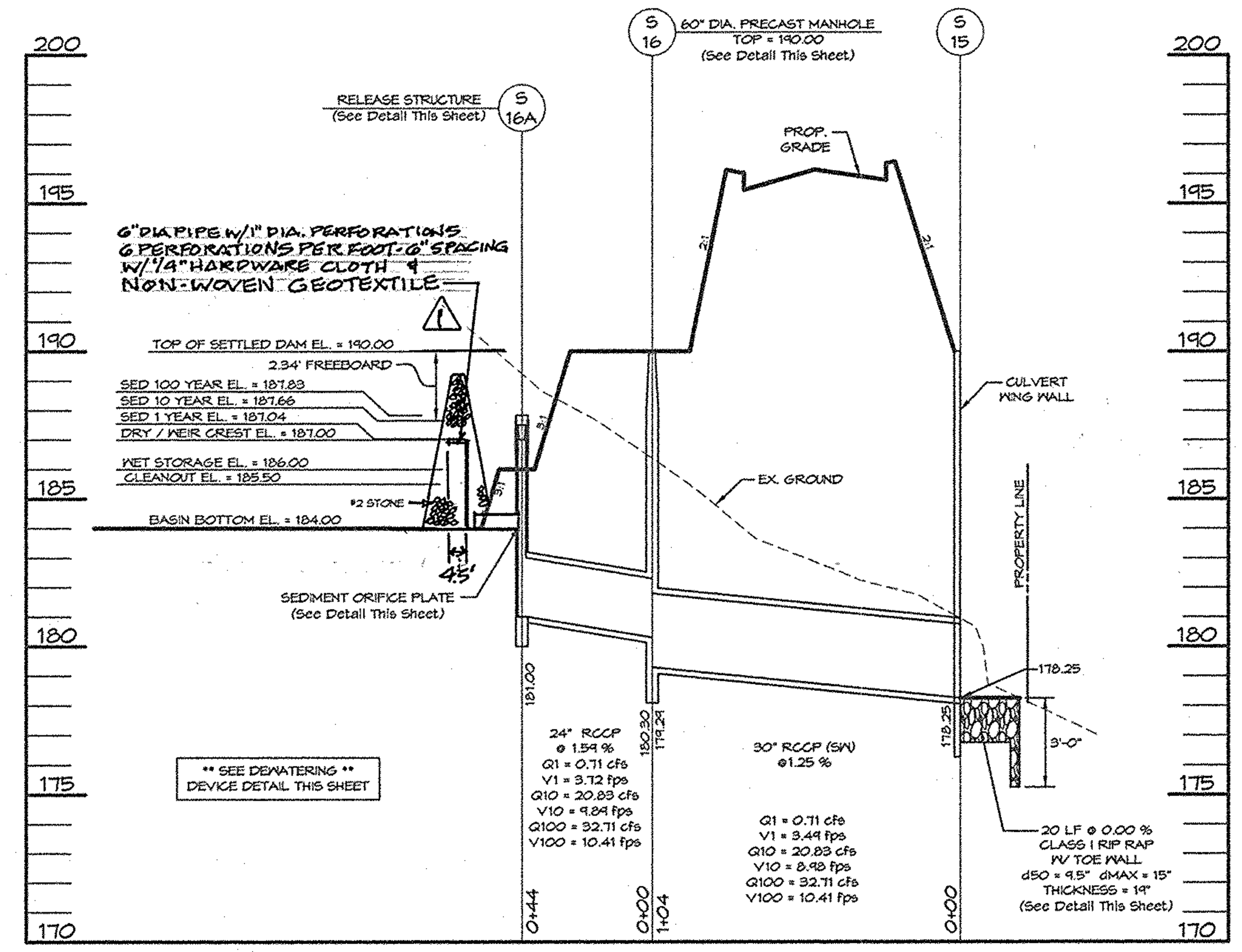
SCALE: 1" = 50'
DATE : FEBRUARY 04, 2011
SHT. 19 OF 94

SDP-08-082 P/N : 10762



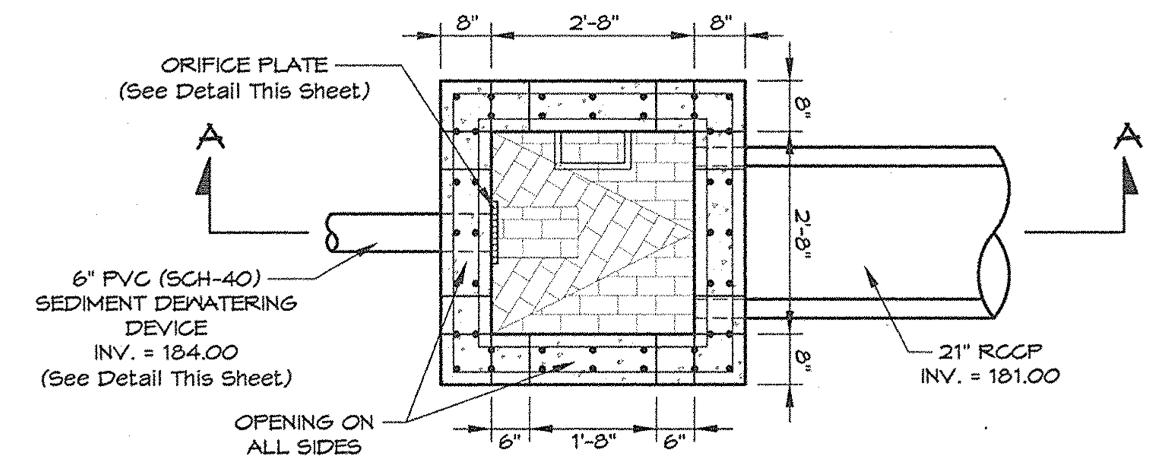
PROFILE ALONG EMBANKMENT

SCALE: HORZ 1" = 50'
VERT 1" = 5'

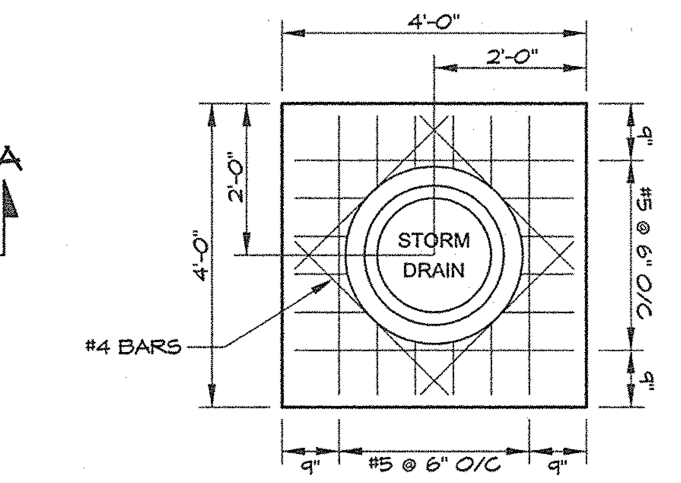


PROFILE THRU PRINCIPAL SPILLWAY

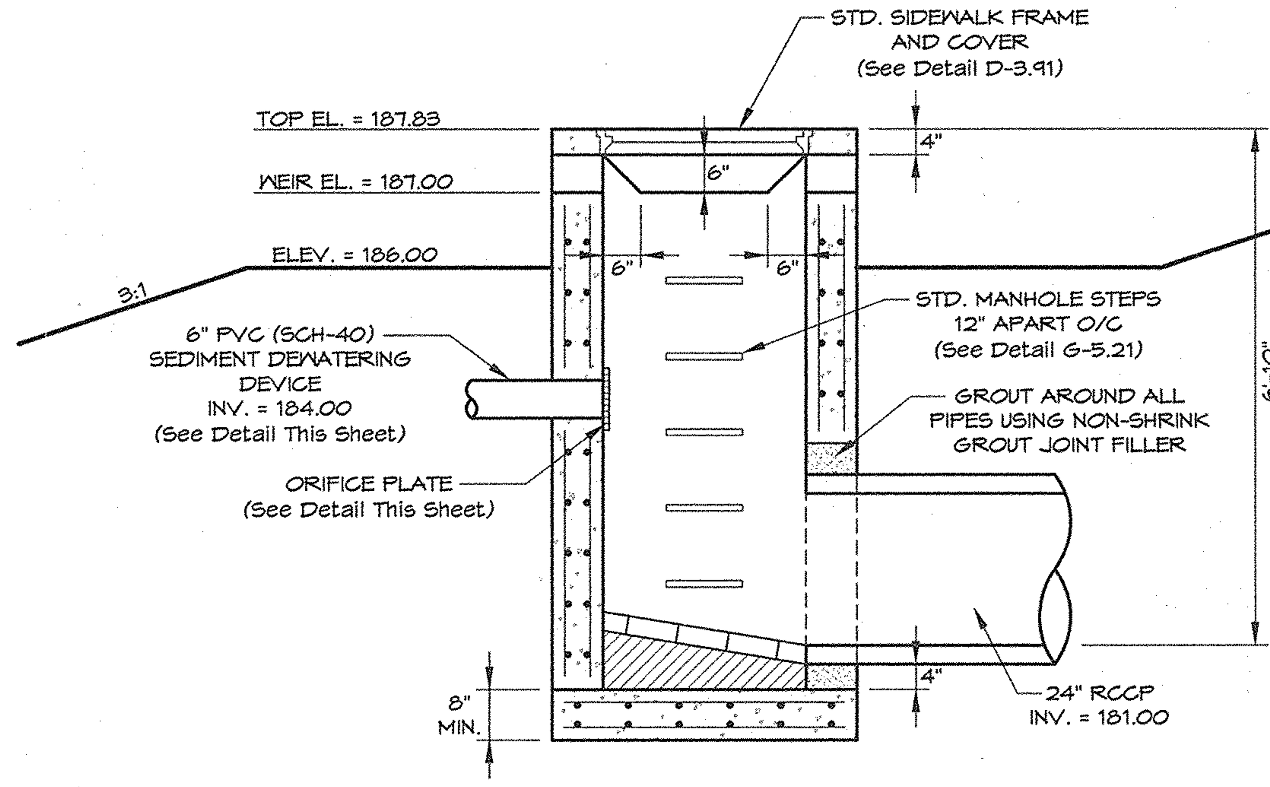
SCALE: HORZ 1" = 50'
VERT 1" = 5'



PLAN BELOW SLAB



SLAB



SECTION A-A

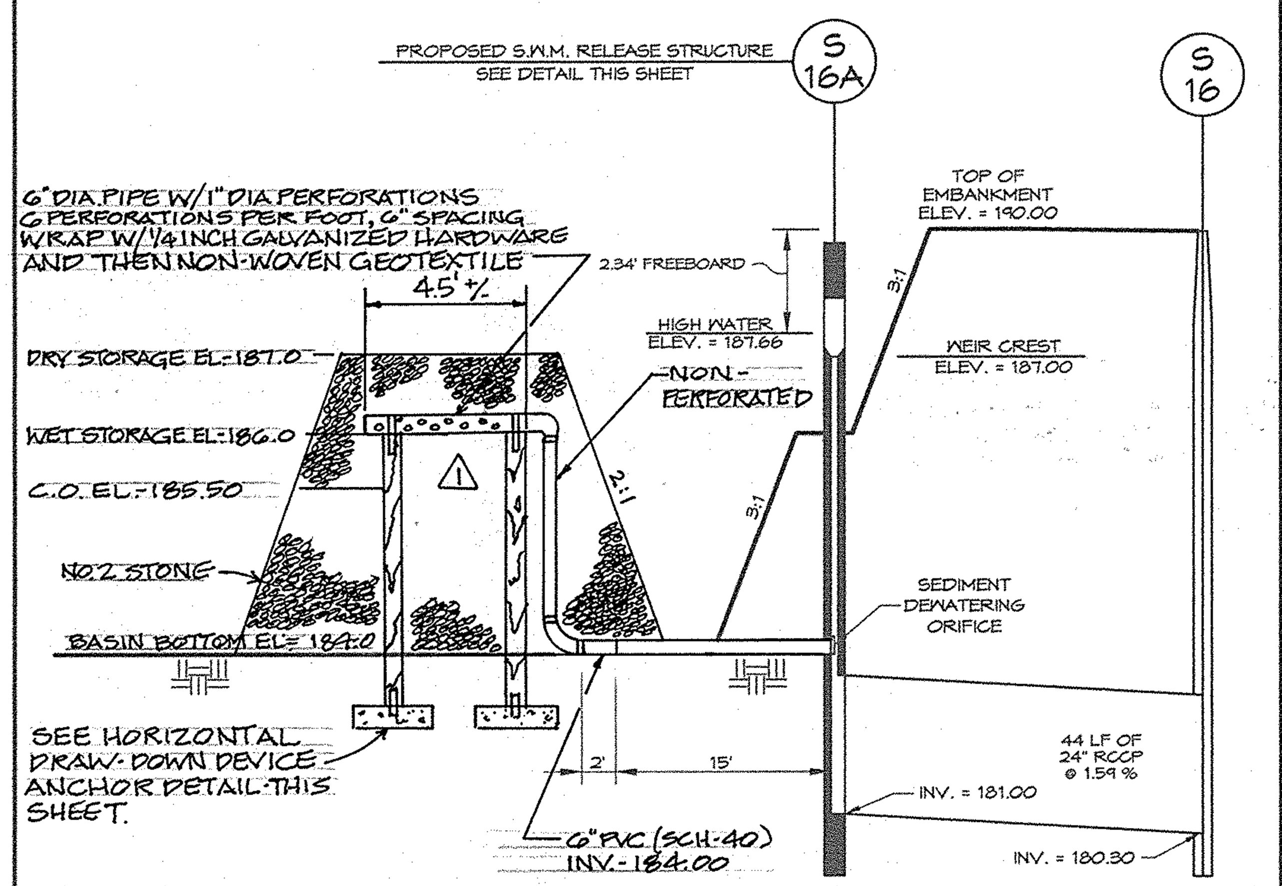
** TRASH RACKS TO BE INSTALLED ON ALL SIDES OF STRUCTURE, SEE TRASH RACK DETAIL THIS SHEET **

NOTES:
1. WALL AND BOTTOM SLAB REINFORCING SHALL BE NO. 4 BARS @ 8" O/C OF WALLS OR SLAB

2. SLOPE BOTTOM TOWARDS OUTLET AT THE RATE OF 2" PER FOOT, USING BRICK OR CONCRETE

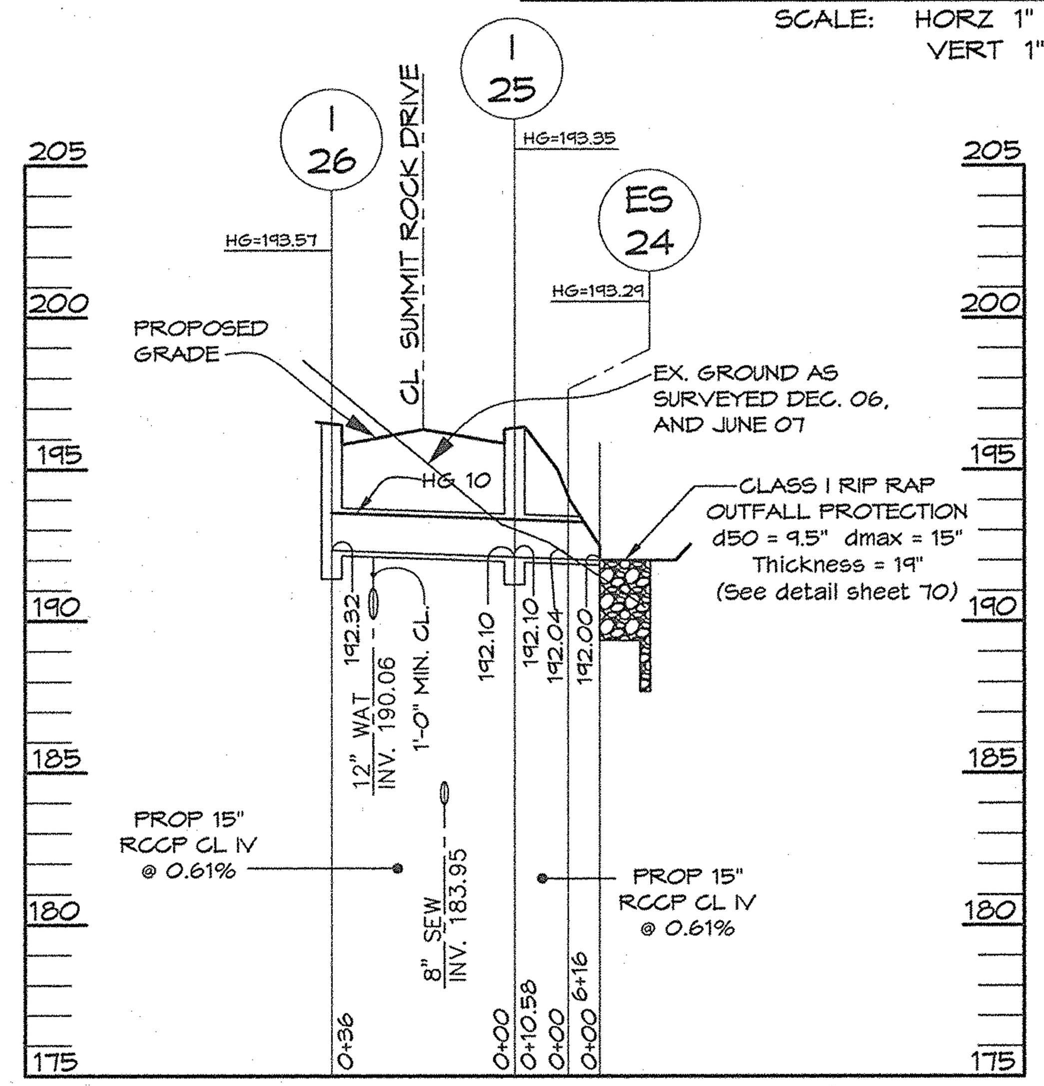
RELEASE STRUCTURE

SCALE : 1" = 2'



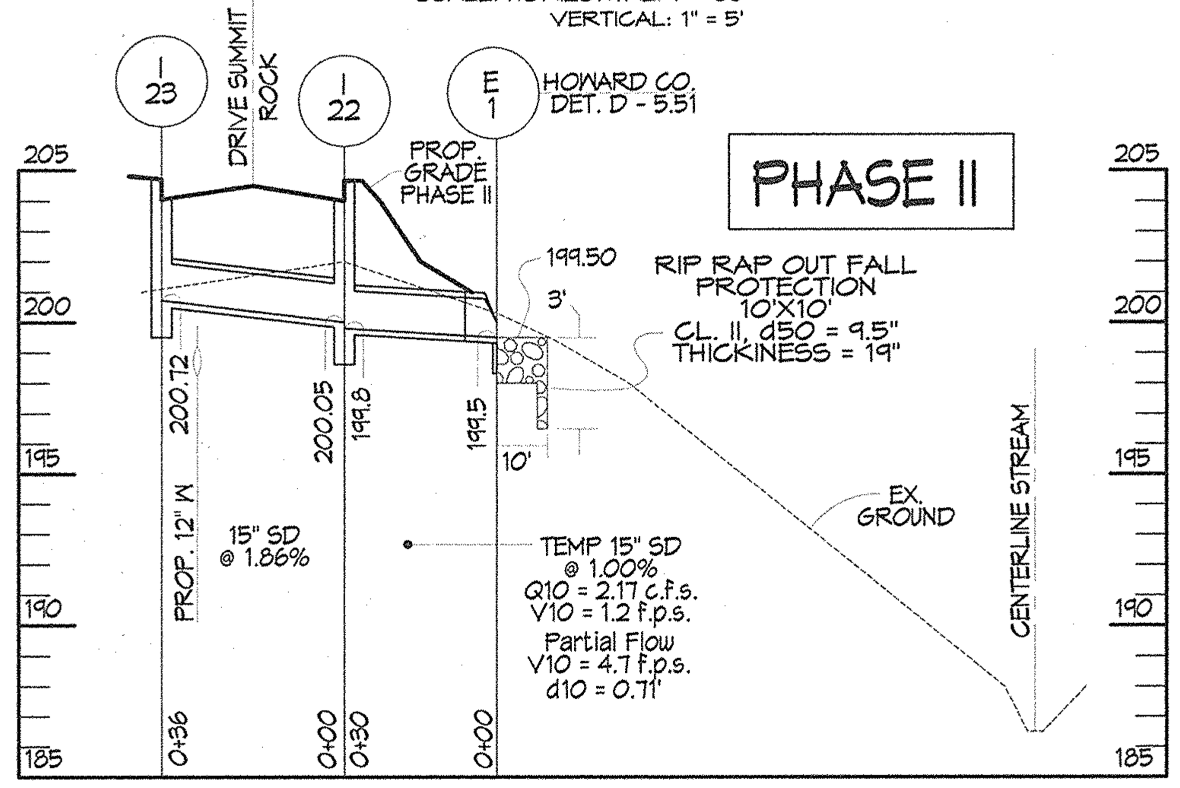
SEDIMENT BASIN #2 DEWATERING DEVICE

NOT TO SCALE



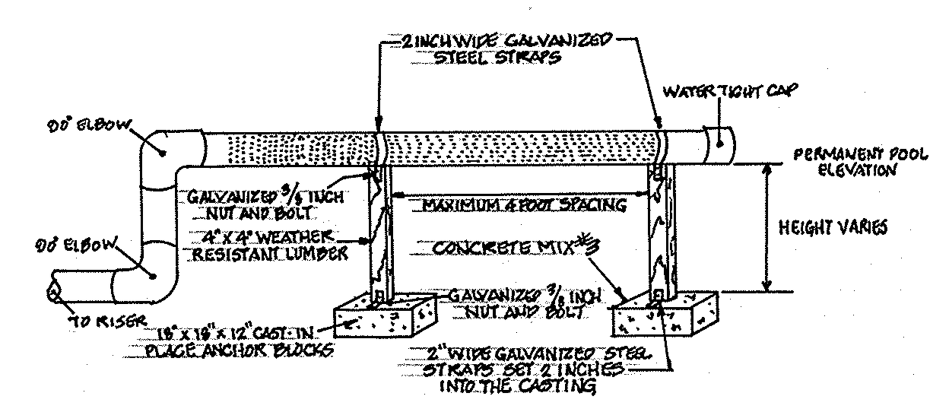
PROFILE I-26 TO E-24

SCALE: HORIZONTAL: 1" = 30'
VERTICAL: 1" = 5'

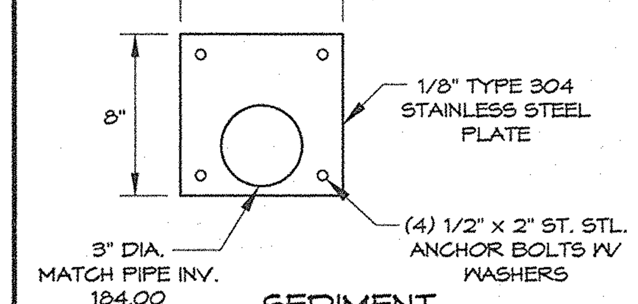


PROFILE I-23 TO E-1

SCALE: HORIZONTAL: 1" = 30'
VERTICAL: 1" = 5'

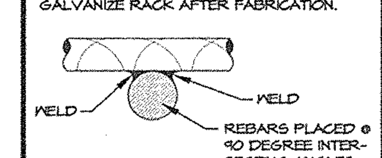


HORIZONTAL DRAW-DOWN DEVICE
ANCHOR DETAIL
NTS



SEDIMENT
DEWATERING ORIFICE DETAIL
NOT TO SCALE

NOTE: NO RUST SHALL BE PERMITTED ON REBAR SURFACES TO BE WELDED. GALVANIZE RACK AFTER FABRICATION.

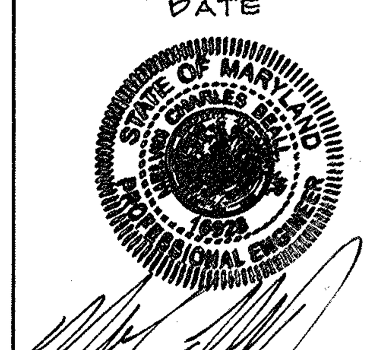


TRASH RACK
WELDING DETAIL
NOT TO SCALE

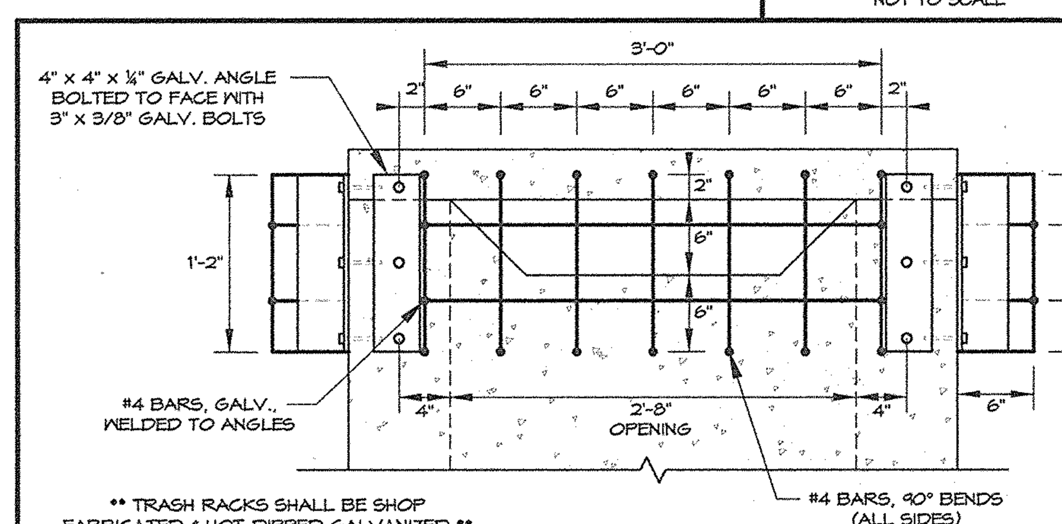
DMW
DAFT McCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16928, Expiration Date: 5-13-16

FOR REVISION NO.1 ONLY
5/30/14
DATE



PROF. ENGR. NO.16928



** TRASH RACKS SHALL BE SHOP FABRICATED & HOT-DIPPED GALVANIZED **

TRASH RACK DETAIL
NOT TO SCALE

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

DATE	NO.	REVISION DESCRIPTION
1-22-14	1	UPDATE DETAILS PER 2011 MD STDS. & SPECS. FOR SOIL EROSION & SED. CONTROL

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 | SEWER CODE: 4020000

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

John R Robertson — HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

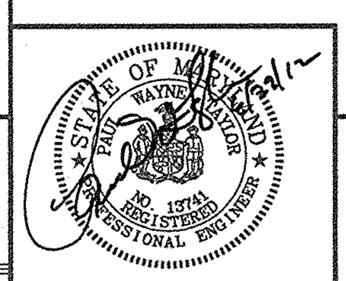
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 SHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~
~~Ph: (410) 785-6640~~ http://www.gwstephens.com ~~Fax: (410) 785-6647~~



"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/29/12

PAUL W. TAYLOR — Print Name — 13741 PE #

DEVELOPER CERTIFICATION:

"I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/2011

THOMAS D. HESS — Print Name

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.
REVISIONS	

STAGE II
SEDIMENT CONTROL DETAILS AND PROFILES

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : FEBRUARY 4, 2011
SHEET 20 OF 94

SDP-08-082

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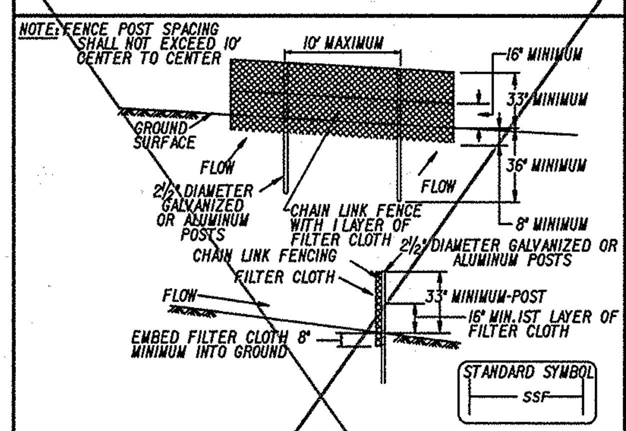
DETAIL 33 - SUPER SILT FENCE



Construction Specifications

Fencing shall be 42" high and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The specifications for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.

1. The posts do not need to be set in concrete.

2. Chain link fence shall be fastened securely to the fence posts with wire ties or staples.

3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

4. Filter cloth shall be embedded a minimum of 8" into the ground.

5. When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.

6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE H - 26 - 3 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
0 - 10%	0 - 10:1	unlimited	unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

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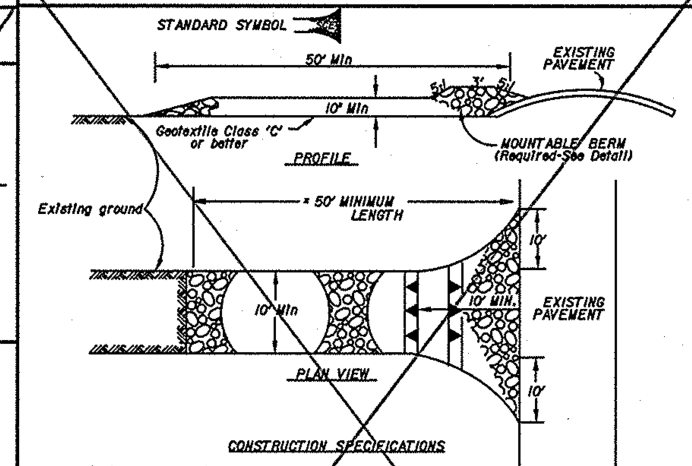
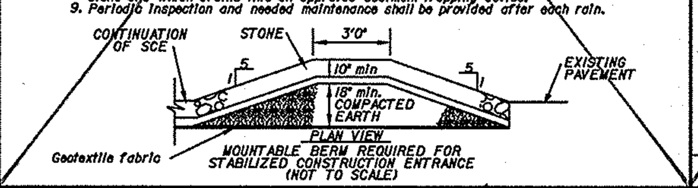
HEAVY DUTY STABILIZED CONSTRUCTION ENTRANCE - not to scale



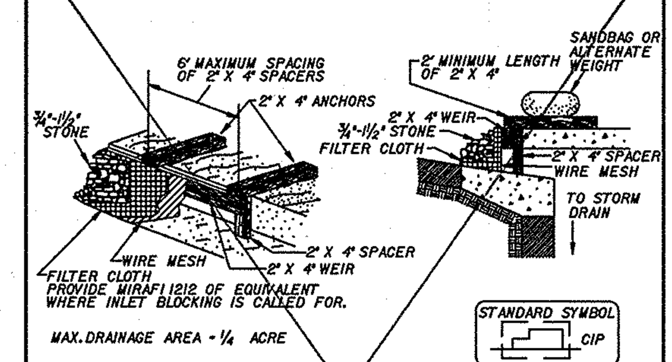
CONSTRUCTION SPECIFICATIONS

1. Stone - crushed aggregate (2" to 3") or reclaimed or recycle concrete equivalent.
2. Length - As required, but not less than 50 feet (except on single residence lot where a 30 foot minimum length will apply.)
3. Thickness - not less than ten (10) inches.
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress and egress occurs.
5. Geotextile fabric class 'C' or better shall be placed over the existing ground prior to placing of stone. Geotextile fabric will not be required on a single family resident lot.
6. A mountable berm with 5:1 slopes is required for all surface water flowing or diverted towards construction entrance.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public right-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public right-of-way must be removed immediately.
8. Washing - Wheels must be cleaned to removed sediment prior to entrance onto public right-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Periodic inspection and needed maintenance shall be provided after each rain.



MOUNTABLE BERM REQUIRED FOR STABILIZED CONSTRUCTION ENTRANCE (NOT TO SCALE)

CURB INLET PROTECTION (COG OR COS INLETS)



MAX. DRAINAGE AREA = ¼ ACRE

Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.

2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.

3. Securely nail the 2" x 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).

4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.

5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.

6. Form the ½" x ½" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean ¾" x 1½" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.

7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.

8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

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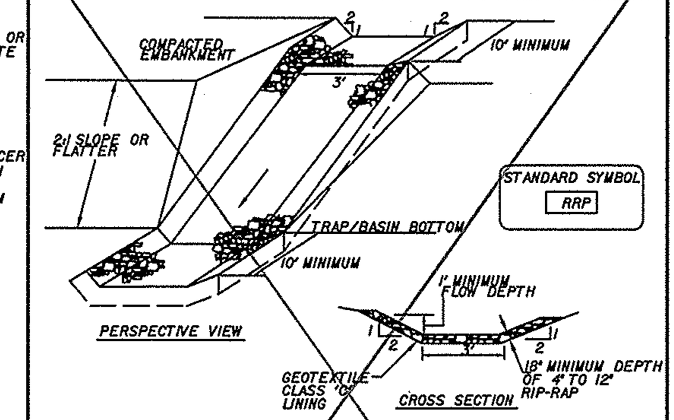
DETAIL 5 - RIP-RAP INFLOW PROTECTION



Construction Specifications

1. Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3' (min.) bottom width. The channel shall be lined with 4" to 12" rip-rap to a depth of 18".

2. Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.

3. Entrance and exit sections shall be installed as shown on the detail section.

4. Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.

5. Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.

6. Rip-rap should blend into existing ground.

7. Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1, for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

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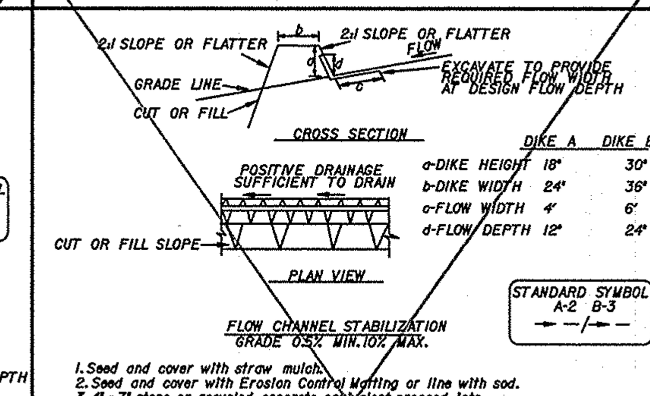
DETAIL 1 - EARTH DIKE



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

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

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

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.

2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.

3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.

4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.

6. Fill shall be compacted by earth moving equipment.

7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

8. Inspection and maintenance must be provided periodically and after each rain event.

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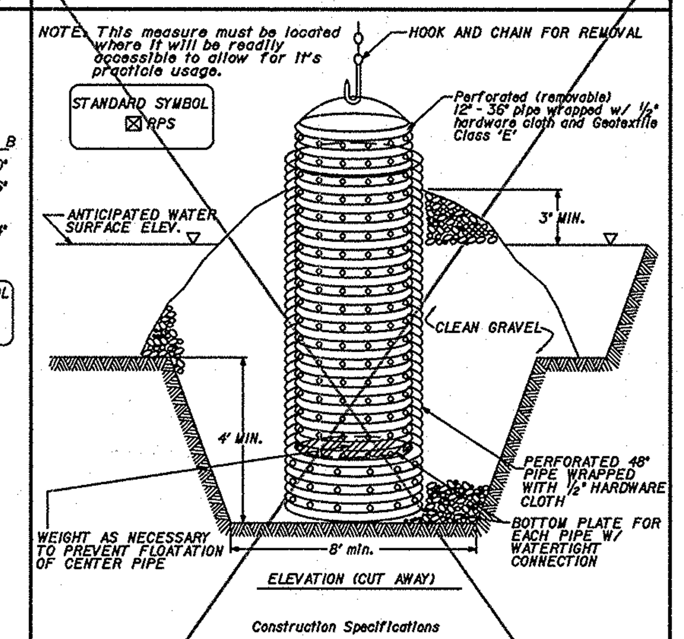
DETAIL 20A - REMOVABLE PUMPING STATION



Construction Specifications

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

2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.

3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be ½" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with ½" hardware cloth first, then wrapped again with Geotextile Class E.

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

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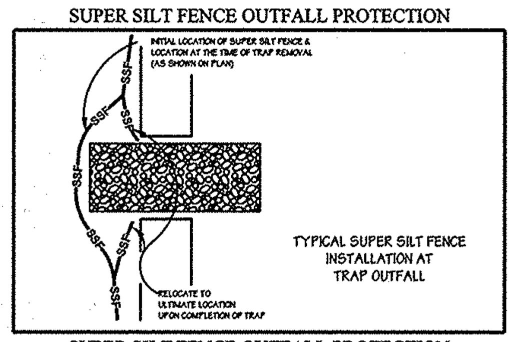
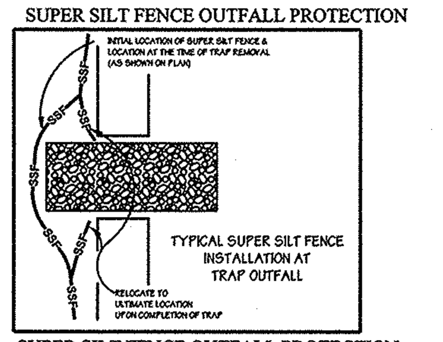
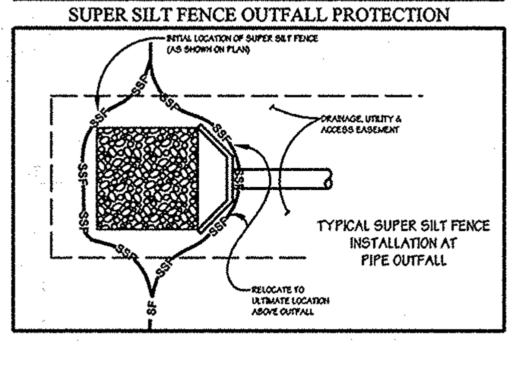
SUPER SILT FENCE OUTFALL PROTECTION



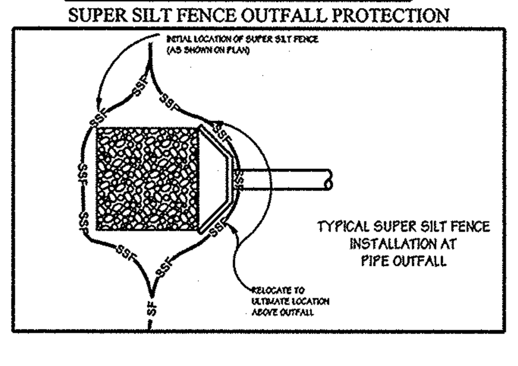
SUPER SILT FENCE OUTFALL PROTECTION



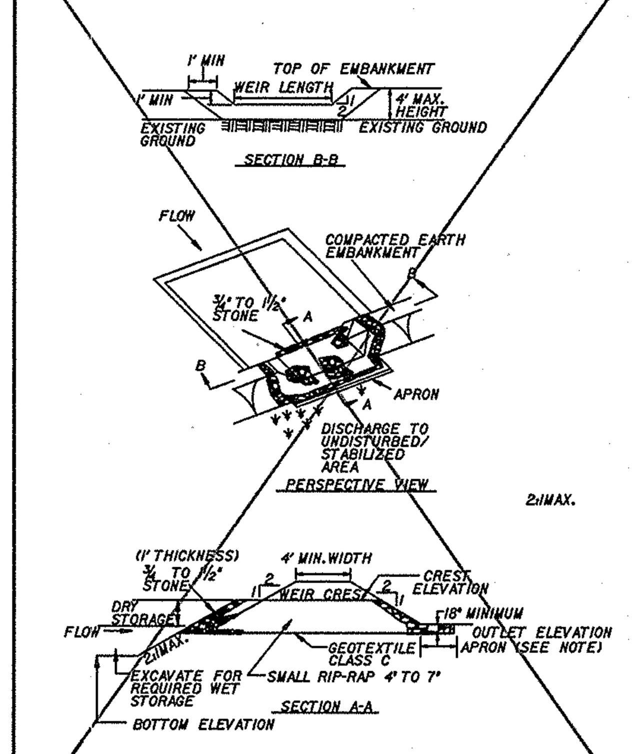
SUPER SILT FENCE OUTFALL PROTECTION



SUPER SILT FENCE OUTFALL PROTECTION



DETAIL 10A - STONE/RIPRAP OUTLET SEDIMENT TRAP-ST IV



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STONE/RIPRAP OUTLET SEDIMENT TRAP - ST IV

Constuction Specifications

1. The area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.

2. The fill material for the embankment shall be free of roots or other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed. Maximum height of embankment shall be 4', measured at centerline of embankment.

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

4. Elevation of the top of any dike directing water into trap must equal or exceed the height of trap embankment.

5. Storage area provided shall be figured by computing the volume measured from top of excavation. (For storage requirements see Table 9).

6. Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to placement of stone. Section of fabric must overlap at least 1' with section nearest the entrance placed on top. Fabric shall be embedded at least 6" into existing ground at entrance of outlet channel.

7. 4" - 7" stone shall be used to construct the weir and 4" - 12" or Class I rip-rap shall be used to construct the outlet channel.

8. Outlet - An outlet shall include a means of conveying the discharge in an erosion free manner to an existing stable channel. Protection against scour at the discharge point shall be provided as necessary.

9. Outlet channel must have positive drainage from the trap.

10. Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to ½ of the wet storage depth of the trap (900 cf/ac). Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.

11. The structure shall be inspected periodically after each rain and repaired as needed.

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

13. The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.

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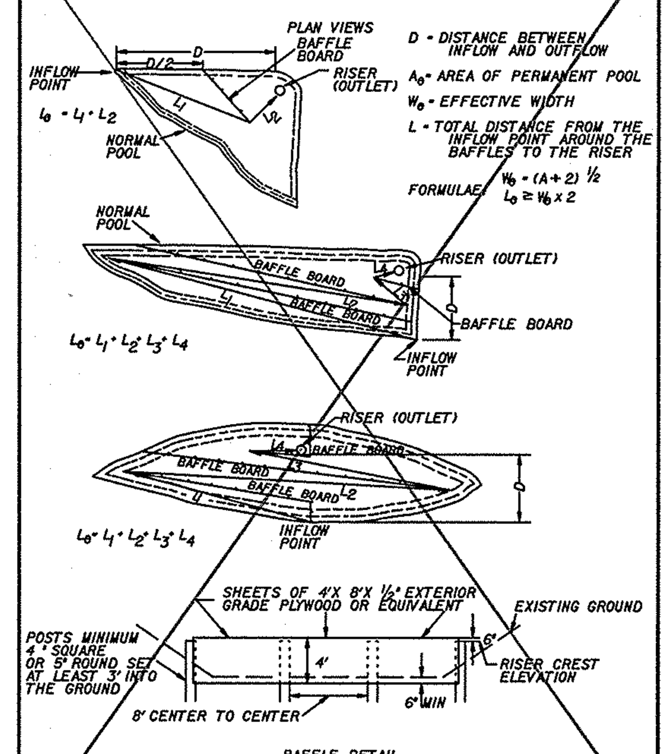
DETAIL 18 - SEDIMENT BASIN BAFFLES



D = DISTANCE BETWEEN INFLOW AND OUTFLOW

A_e = AREA OF PERMANENT POOL

W_e = EFFECTIVE WIDTH

L = TOTAL DISTANCE FROM THE INFLOW POINT AROUND THE BAFFLES TO THE RISER

FORMULAE: $W_e = (A \div 2)^{1/2}$, $L_e \geq W_e \times 2$

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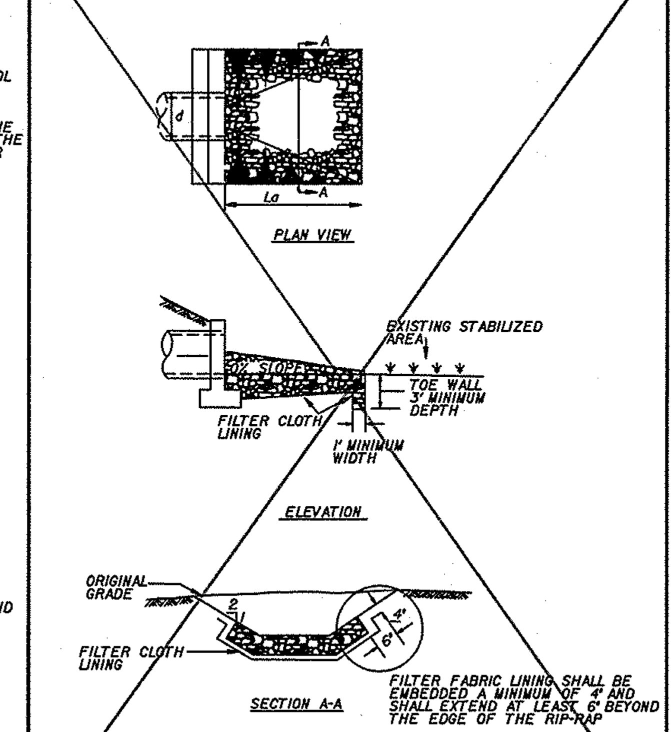
DETAIL 27 - ROCK OUTLET PROTECTION III



NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS SE NONWOVEN

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | PAGE F - 18 - 10 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

ROCK OUTLET PROTECTION III

Construction Specifications

1. The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.

2. The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.

3. Geotextile Class SE Nonwoven shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.

4. Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

5. The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

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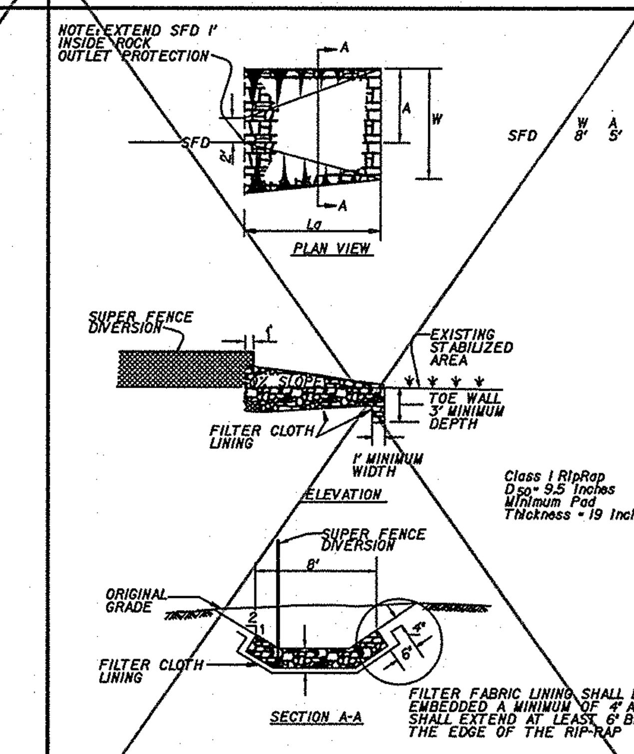
MODIFICATION 1 - ROCK OUTLET PROTECTION III



NOTE: FILTER CLOTH SHALL BE GEOTEXTILE CLASS C

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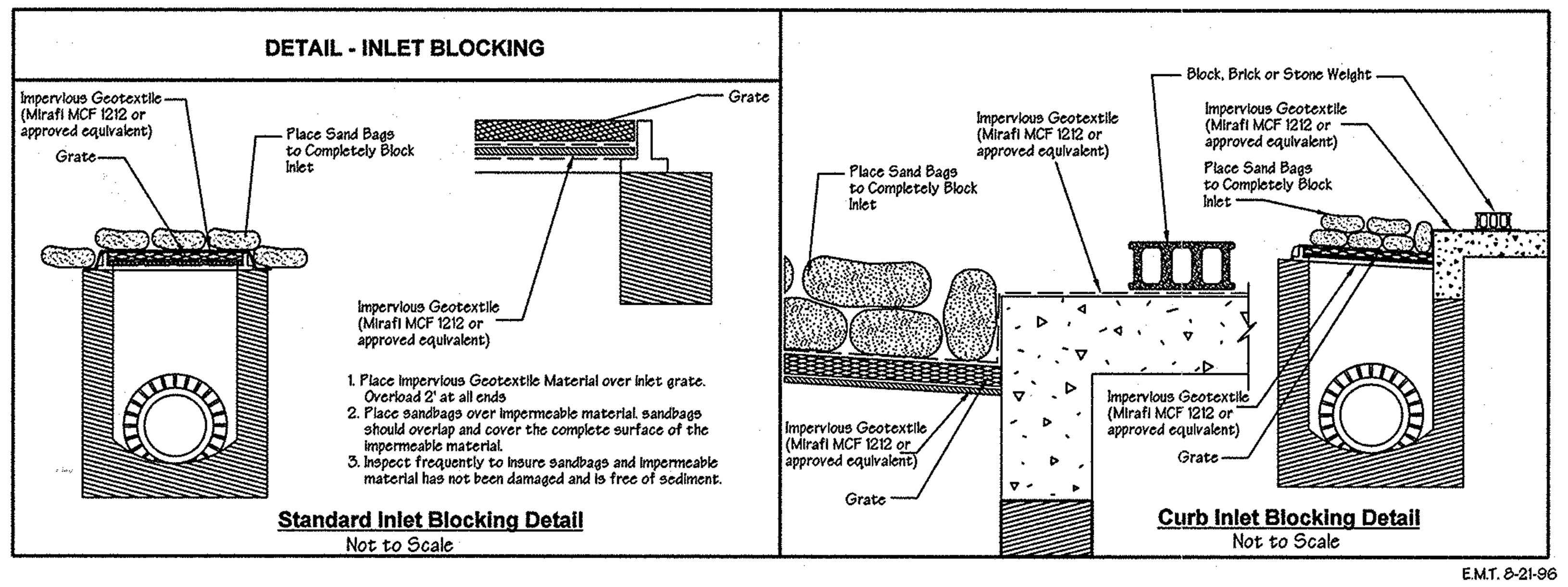
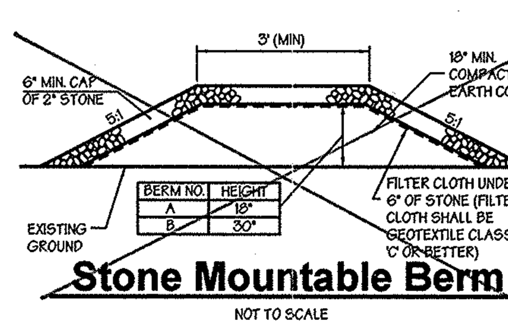
⚠ SEE SHEETS 21A, 21B & 21C FOR 2011 MD. STD. & SPECS. FOR SOIL EROSION & SEDIMENT CONTROL.

DETAIL - INLET BLOCKING

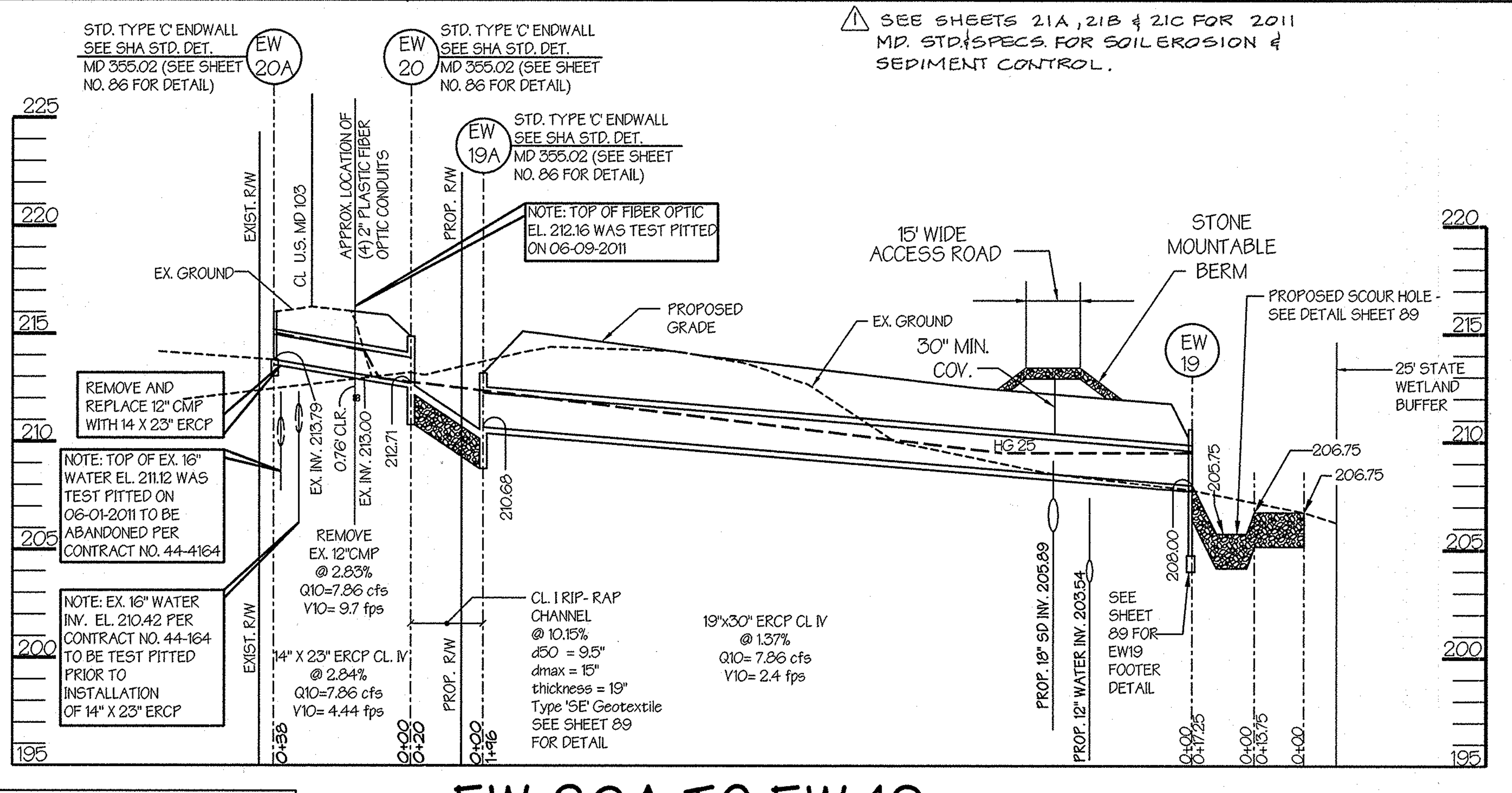


E.M.T. 8-21-96



Stone Mountable Berm

NOT TO SCALE



EW-20A TO EW-19

SCALE: HORIZONTAL: 1" = 30'
VERTICAL: 1" = 5'

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

DMW
DAFT McCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

License No. 16928, Expiration Date: 5-13-16

FOR REVISION NO. 1 ONLY

5/30/14
DATE

STATE OF MARYLAND MELVIN CHARLES BEALL JR. 16928 PROFESSIONAL ENGINEER

PROF. ENGR. NO. 16928

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

DATE	NO.	REVISION DESCRIPTION
1-22-14	⚠	UPDATE TO 2011 MD. STD. & SPECS FOR SOIL EROSION & SED. CNTRL

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND PAUL WAYNE TAYLOR NO. 13741 REGISTERED PROFESSIONAL ENGINEER

ENGINEER CERTIFICATION:

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature of Engineer — Date 6/28/12

Print Name PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:

"I/ We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/2011

Print Name THOMAS D. HESS

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

SEDIMENT CONTROL DETAILS #1
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

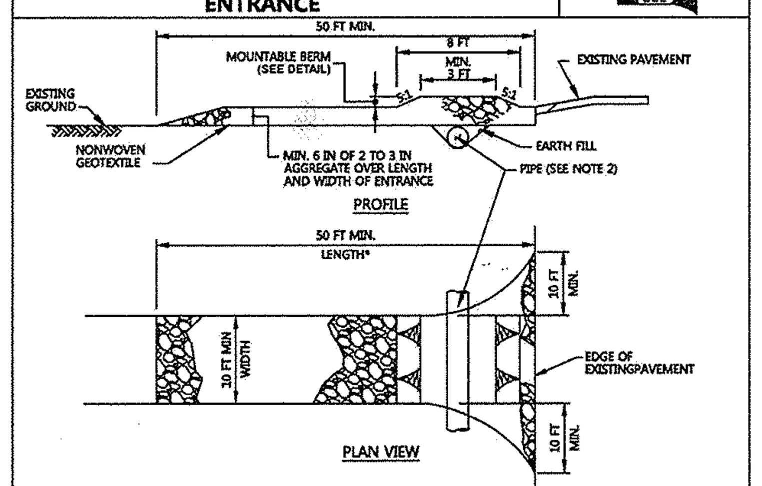
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: N.T.S.
DATE : FEBRUARY 04, 2011
SHT. 21 OF 94

SDP-08-082 — P/N : 10762

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

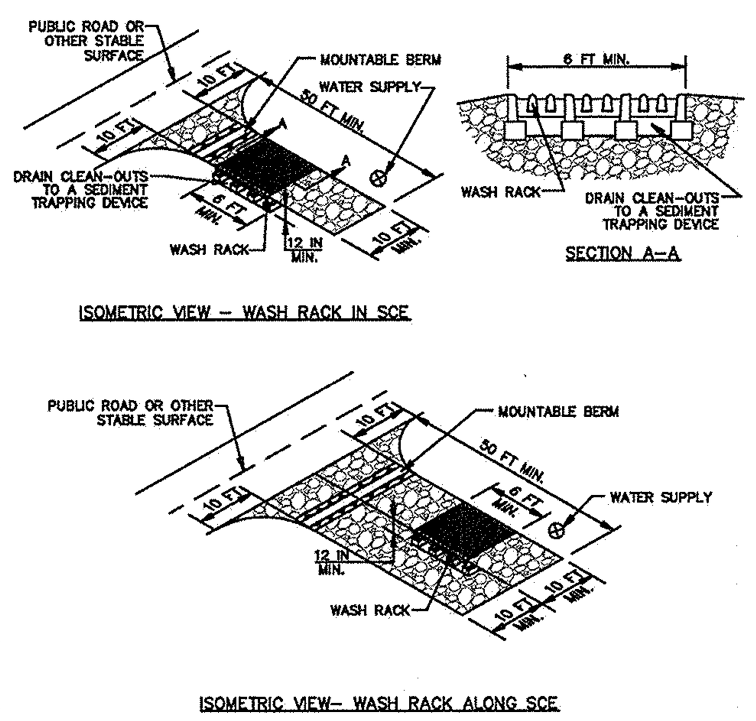
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-2 WASH RACK OPTION

STANDARD SYMBOL: WR



CONSTRUCTION SPECIFICATIONS

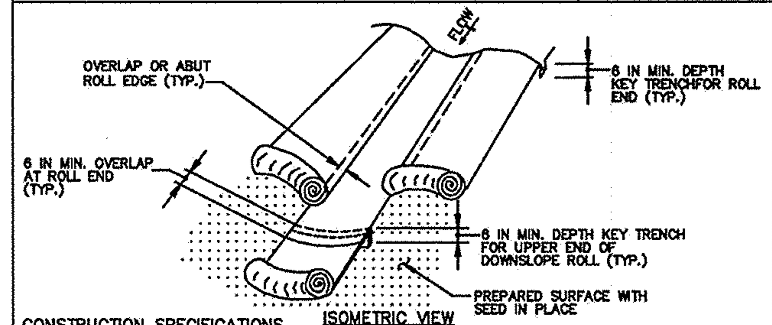
1. USE A WASH RACK DESIGNED AND CONSTRUCTED/MANUFACTURED FOR THE ANTICIPATED TRAFFIC LOADS. CONCRETE, STEEL, OR OTHER MATERIALS ARE ACCEPTABLE. PRE-FABRICATED UNITS SUCH AS CATTLE GUARDS ARE ACCEPTABLE. USE MINIMUM DIMENSION OF 6 FEET x 10 FEET. ORIENT DIRECTION OF RIBS AS SHOWN ON THE DETAIL.
2. INSTALL PRIOR TO, ALONG SIDE OF, OR AS PART OF THE SCE.
3. DIRECT WASH WATER TO AN APPROVED SEDIMENT TRAPPING DEVICE.
4. KEEP AREA UNDER WASH RACK FREE OF ACCUMULATED SEDIMENT. IF DAMAGED, REPAIR OR REPLACE WASH RACK.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-A TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: TSSMC – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

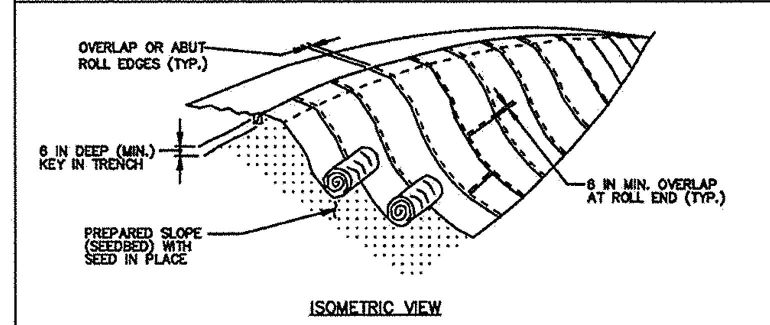
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTERLINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MAT SMOOTHLY AND FIRMLY ON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. KEY-IN UPSTREAM END OF EACH MAT ROLL BY DIGGING A 6 INCH (MINIMUM) TRENCH AT THE UPSTREAM END OF THE MATTING, PLACING THE ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END.
7. OVERLAP OR ABUT THE ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-B TEMPORARY SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: TSSMS – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

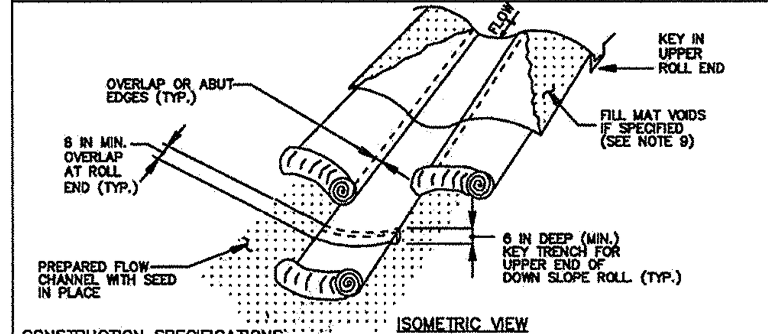
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE TEMPORARY SOIL STABILIZATION MATTING MADE OF DEGRADABLE (LASTS 6 MONTHS MINIMUM) NATURAL OR MAN-MADE FIBERS (MOSTLY ORGANIC). MAT MUST HAVE UNIFORM THICKNESS AND DISTRIBUTION OF FIBERS THROUGHOUT AND BE SMOLDER RESISTANT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES, WOOD STAKES, OR BIODEGRADABLE EQUIVALENT. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND A MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPED AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION & SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWNSLOPE. LAY MAT SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT ROLL EDGES PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSLOPE MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE UPSLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: PSSMC – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

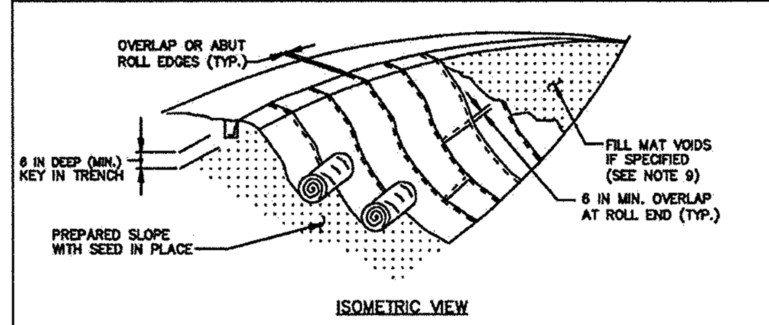
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: PSSMS – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

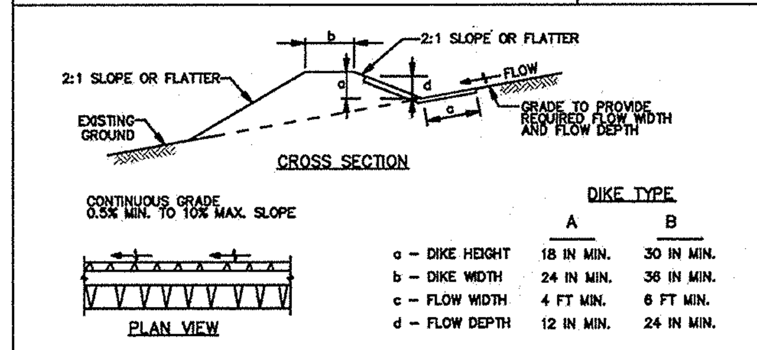
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWN SLOPE. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-1 EARTH DIKE

STANDARD SYMBOL: A-1 (PLACE DESIGNATION (e.g. A-1) ON FLOW CHANNEL SIDE OF DIKE.)



DIKE TYPE	A	B
a – DIKE HEIGHT	18 IN MIN.	30 IN MIN.
b – DIKE WIDTH	24 IN MIN.	36 IN MIN.
c – FLOW WIDTH	4 FT MIN.	6 FT MIN.
d – FLOW DEPTH	12 IN MIN.	24 IN MIN.

FLOW CHANNEL STABILIZATION

A-1	SEED WITH STRAW MULCH AND TACK. (NOT ALLOWED FOR CLEAR WATER DIVERSION.)
A-2/B-2	SEED WITH SOIL STABILIZATION MATTING OR LINE WITH SOD.
A-3/B-3	4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE PRESSED INTO SOIL A MINIMUM OF 7 INCHES AND FLUSH WITH GROUND.

CONSTRUCTION SPECIFICATIONS

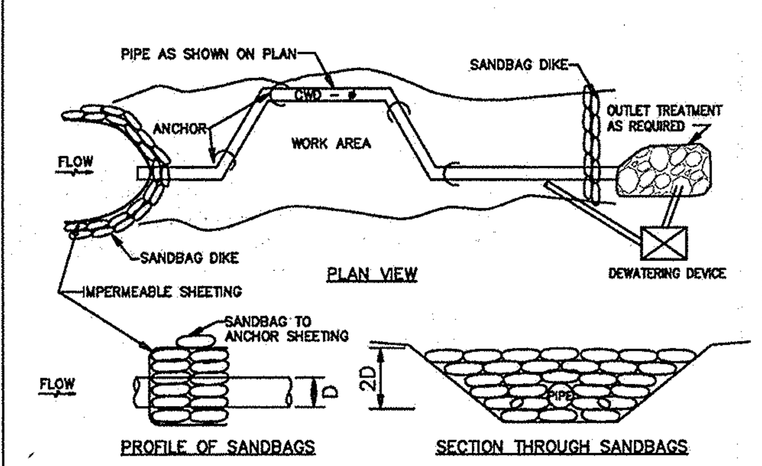
1. REMOVE AND DISPOSE OF ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SO AS NOT TO INTERFERE WITH PROPER FUNCTION OF EARTHDIKE.
2. EXCAVATE OR SHAPE EARTH DIKE TO LINE, GRADE, AND CROSS SECTION AS SPECIFIED. BANK PROJECTIONS OR OTHER IRREGULARITIES ARE NOT ALLOWED.
3. COMPACT FILL.
4. CONSTRUCT FLOW CHANNEL ON AN UNINTERRUPTED, CONTINUOUS GRADE, ADJUSTING THE LOCATION DUE TO FIELD CONDITIONS AS NECESSARY TO MAINTAIN POSITIVE DRAINAGE.
5. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
6. STABILIZE EARTH DIKE WITHIN THREE DAYS OF INSTALLATION. STABILIZE FLOW CHANNEL FOR CLEAR WATER DIVERSION WITHIN 24 HOURS OF INSTALLATION.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS, AND MAINTAIN POSITIVE DRAINAGE. KEEP EARTH DIKE AND POINT OF DISCHARGE FREE OF EROSION, AND CONTINUOUSLY MEET REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.
8. UPON REMOVAL OF EARTH DIKE, GRADE AREA FLUSH WITH EXISTING GROUND. WITHIN 24 HOURS OF REMOVAL STABILIZE DISTURBED AREA WITH TOPSOIL, SEED, AND MULCH, OR AS SPECIFIED ON APPROVED PLAN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-6 CLEAR WATER DIVERSION PIPE

STANDARD SYMBOL: CWD – 12 (DESIGNATION CWD-12 REFERS TO 12 INCH CLEAR WATER DIVERSION.)



CONSTRUCTION SPECIFICATIONS

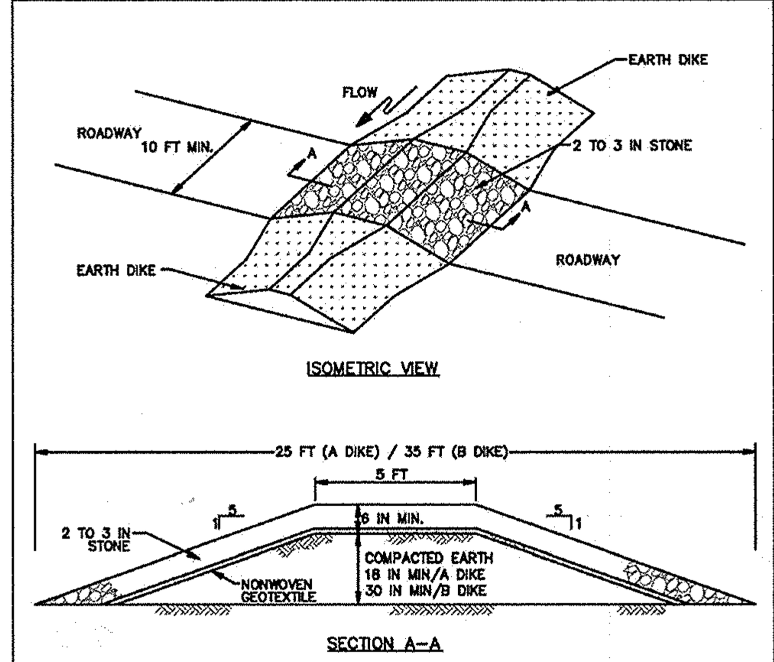
1. FLEXIBLE PIPE IS PREFERRED. HOWEVER, CORRUGATED METAL PIPE OR EQUIVALENT PVC PIPE CAN BE USED. MAKE ALL JOINTS WATERTIGHT.
2. FOR SANDBAGS USE MATERIALS THAT ARE RESISTANT TO ULTRA-VIOLENT RADIATION, TEARING, AND PUNCTURE AND WOVEN TIGHTLY ENOUGH TO PREVENT LEAKAGE OF FILL MATERIAL.
3. USE 10 MIL OR THICKER, UV RESISTANT, IMPERMEABLE SHEETING OR OTHER APPROVED MATERIAL THAT IS IMPERMEABLE AND RESISTANT TO PUNTURING AND TEARING.
4. PLACE IMPERMEABLE SHEETING SUCH THAT UPGRADE PORTION OVERLAPS DOWNGRADE PORTION BY A MINIMUM OF 18 INCHES.
5. SET HEIGHT OF SANDBAG DIKE AT TWICE THE PIPE DIAMETER. MAINTAIN HEIGHT ALONG LENGTH OF SANDBAG DIKE. PLACE DOUBLE ROW OF SANDBAGS.
6. AT A MINIMUM, SECURELY ANCHOR DIVERSION PIPE AT EACH DOWNGRADE JOINT.
7. SET OUTLET END OF DIVERSION PIPE LOWER THAN INLET END.
8. PROVIDE OUTLET PROTECTION AS REQUIRED ON APPROVED PLAN.
9. DEWATER WORK AREA USING AN APPROVED EROSION AND SEDIMENT CONTROL PRACTICE AS SPECIFIED ON APPROVED PLAN.
10. KEEP POINT OF DISCHARGE FREE OF EROSION. MAINTAIN WATER TIGHT CONNECTIONS AND POSITIVE DRAINAGE. REPLACE SANDBAGS AND IMPERMEABLE SHEETING IF TORN.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-8 MOUNTABLE BERM

STANDARD SYMBOL: MB



CONSTRUCTION SPECIFICATIONS

1. USE MINIMUM WIDTH OF 10 FEET TO ALLOW FOR VEHICULAR PASSAGE.
2. PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE EARTH MOUND PRIOR TO PLACING STONE.
3. PLACE 2 TO 3 INCH STONE OR EQUIVALENT RECYCLED CONCRETE AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE MOUNTABLE BERM.
4. MAINTAIN LINE, GRADE, AND CROSS SECTION. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN SPECIFIED DIMENSIONS. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE.

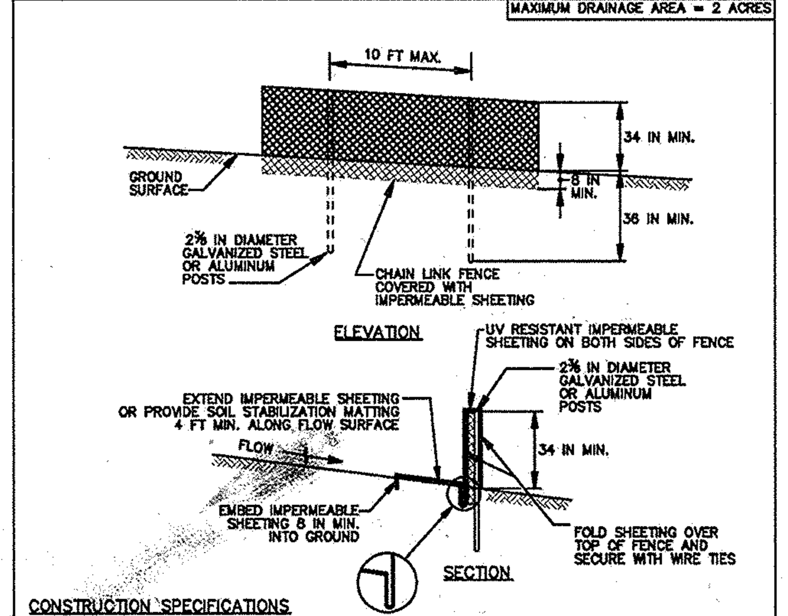
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL

MAXIMUM DRAINAGE AREA = 2 ACRES



CONSTRUCTION SPECIFICATIONS

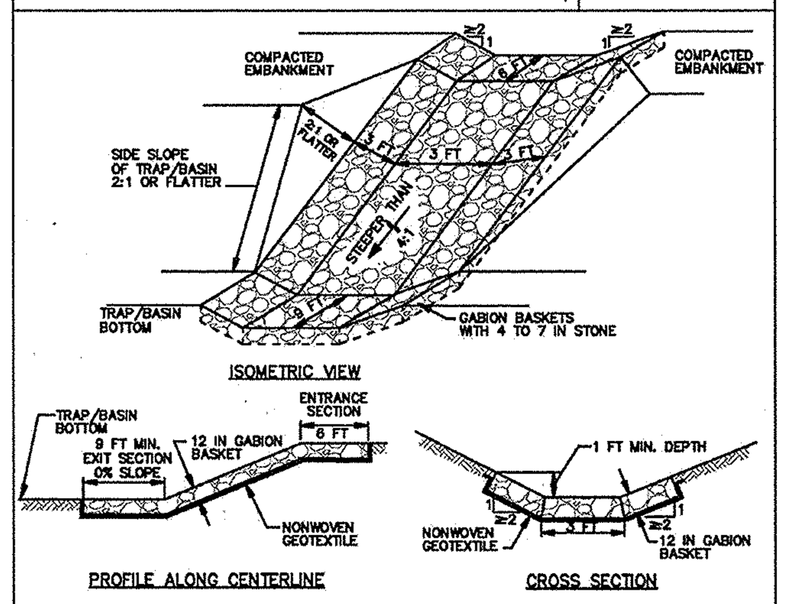
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-3-2 GABION INFLOW PROTECTION

STANDARD SYMBOL: GP



CONSTRUCTION SPECIFICATIONS

1. PROVIDE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, UNDER THE BOTTOM AND ALONG SIDES OF ALL GABION BASKETS.
2. USE BASKETS MADE OF MINIMUM 11 GAUGE WIRE.
3. CONSTRUCT GABION INFLOW PROTECTION BY ARRANGING 9 X 3 X 1 FOOT GABION BASKETS TO FORM A TRAPEZOIDAL SECTION WITH A 3 FOOT BOTTOM WIDTH, 1 FOOT MINIMUM DEPTH, 3 FOOT SIDE WALLS, AND 2:1 OR FLATTER SIDE SLOPES. FILL GABION BASKETS WITH 4 TO 7 INCH STONE OR EQUIVALENT RECYCLED CONCRETE WITHOUT REBAR OR WEIR MESH.
4. INSTALL ENTRANCE AND EXIT SECTIONS AS SHOWN ON THE PROFILE.
5. INSTALL GABIONS IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
6. BLEND GABIONS INTO EXISTING GROUND.
7. MAINTAIN LINE, GRADE, AND CROSS SECTION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. KEEP POINTS OF INFLOW AND OUTFLOW FREE OF EROSION

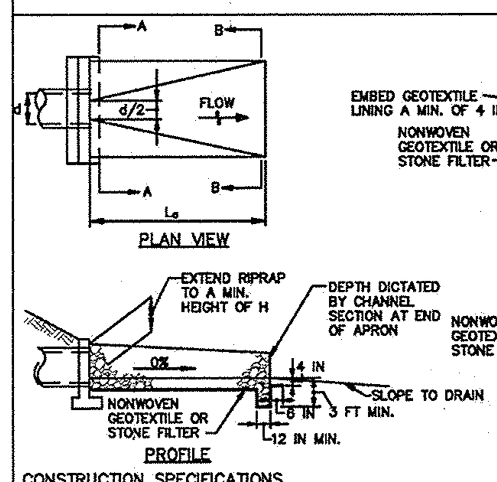
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-1-A ROCK OUTLET PROTECTION I

STANDARD SYMBOL: ROP1

DISCHARGE TO SEMI CONFINED CHANNEL SECTION



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF THE RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

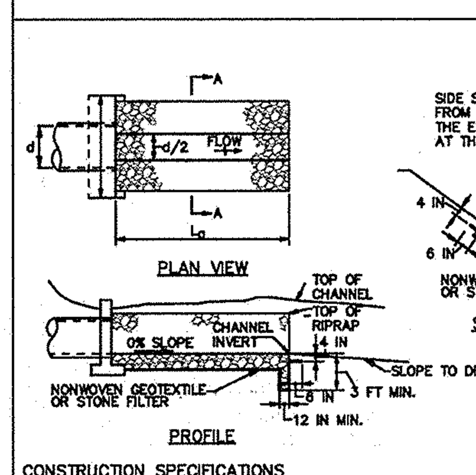
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-1-B ROCK OUTLET PROTECTION II

STANDARD SYMBOL: ROPII

DISCHARGE TO CONFINED CHANNEL SECTION



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

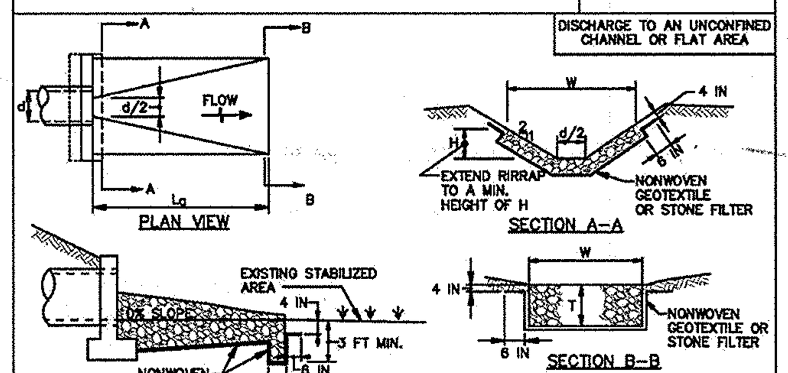
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL D-4-1-C ROCK OUTLET PROTECTION III

STANDARD SYMBOL: ROPIII

DISCHARGE TO AN UNCONFINED CHANNEL OR FLAT AREA



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

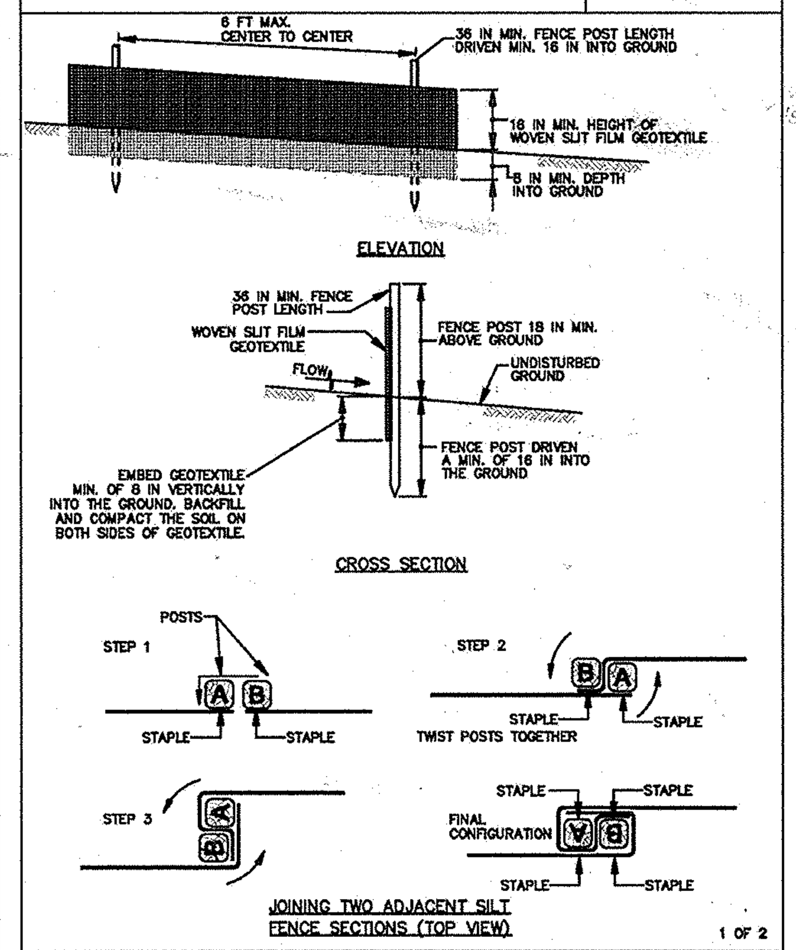
1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH MINIMUM STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND RIPRAP DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1¾ X 1¾ ± ⅛ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/10/14

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-17-14

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.15.14

DIRECTOR — DATE 7/17/14

Date	No.	Revision Description
	1	2011 MD STD. & SPECS FOR SOIL EROSION CONTROL

CORRIDOR 95 BUSINESS PARK

PARCELS A & B

OWNER/DEVELOPER:
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DMW
DAFT McCUNE WALKER INC
200 EAST PENNSYLVANIA AVENUE • TOWSON, MD 21286
P : 410 296 3333 F : 410 296 4705 WWW.DMW.COM
A TEAM OF LAND PLANNERS, LANDSCAPE ARCHITECTS, ENGINEERS, SURVEYORS & ENVIRONMENTAL PROFESSIONALS

AREA
CORRIDOR 95 BUSINESS PARK
TAX MAP 37 PARCEL 134/179
1 ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
SEDIMENT & EROSION CONTROL DETAILS AND SPECIFICATIONS

Des. By GDT/LNL	Scale AS SHOWN	Proj. No. 10015.B
Drn. By GMO	Date	21A of 94
Chk. By	Approved	

FOR REVISION NO. 1 ONLY

7/3/14
Date

STATE OF MARYLAND MELVIN CHARLES BEALL JR. 16928 PROFESSIONAL ENGINEER

Professional Engr. No. 16928

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16928 EXPIRATION DATE: 5/13/16

SDP-08-082

$$$$$$$SYTIME$$$$$ $$$$$$$$DGNSPEC$$$$$$$$

STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

(B-4-1) SECTION 1 - INCREMENTAL STABILIZATION

A. INCREMENTAL STABILIZATION - CUT SLOPES

1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.

2. Construction sequence example (Refer to Figure B.1):

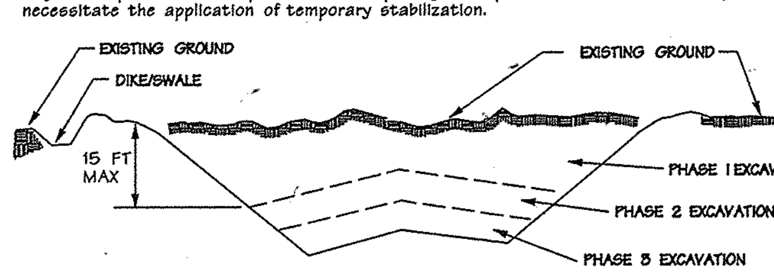
   a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.

   b. Perform Phase 1 excavation, prepare seedbed, and stabilize.

   c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.

   d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.



B. INCREMENTAL STABILIZATION - FILL SLOPES

1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.

2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.

3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.

4. Construction sequence example (Refer to Figure B.2):

   a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.

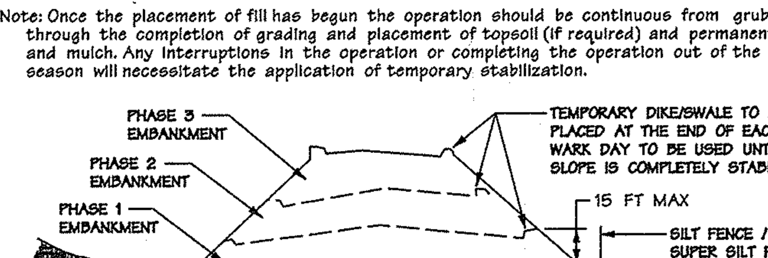
   b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.

   c. Place Phase 1 fill, prepare seedbed, and stabilize.

   d. Place Phase 2 fill, prepare seedbed, and stabilize.

   e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.



(B-4-2) SECTION 2 - SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

A. SOIL PREPARATION

1. Temporary Stabilization

   a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.

   b. Apply fertilizer and lime as prescribed on the plans.

   c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization

   a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

      i. Soil pH between 6.0 and 7.0.

      ii. Soluble salts less than 500 parts per million (ppm).

      iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

      iv. Soil contains 1.5 percent minimum organic matter by weight.

      v. Soil contains sufficient pore space to permit adequate root penetration.

   b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

   c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

   d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

   e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. TOPSOILING

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is 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.

2. Topsoil salvaged from an existing site may be used provided 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-NRCS.

3. Topsoiling 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.

4. Areas having slopes steeper than 2:1 require special consideration and design.

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

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

   b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

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

6. Topsoil Application

   a. Erosion and sediment control practices must be maintained when applying topsoil.

   b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.

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

C. SOIL ADMENMENTS (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.

3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.

4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

(B-4-3) SECTION 3 - SEEDING AND MULCHING

A. SEEDING

1. Specifications

   a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.

   b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.

   c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding.

Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.

   d. Sod or seed must not 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.

2. Application

   a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.

      i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.

      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

   b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

      i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.

      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.

   c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).

      i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P205 (phosphorous), 200 pounds per acre; K20 (potassium), 200 pounds per acre.

      ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.

      iii. Mix seed and fertilizer on site and seed immediately and without interruption.

      iv. When hydroseeding do not incorporate seed into the soil.

B. MULCHING

1. Mulch Materials (in order of preference)

   a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.

   b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.

      i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.

      ii. WCFM, including dye, must contain no germination or growth inhibiting factors.

      iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

      iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.

      v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application

   a. Apply mulch to all seeded areas immediately after seeding.

   b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.

   c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

3. Anchoring

   a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:

      i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.

      ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

      iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.

      iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

(B-4-4) SECTION 4 - TEMPORARY STABILIZATION

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria:

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

TEMPORARY SEEDING SUMMARY

Seed Mixture (Hardiness Zone 7A) [3]					Fertilizer Rate (10-20-20)	Lime Rate
Season	Species	Application [1] Rate (Lb./Ac.)	Seeding Dates	Seeding [2] Depths		
Cool	Annual Ryegrass	40	2/15-4/30 8/15-11/30	1/2"	436 Lbs./Ac. (10 Lbs./ 1000 Sq.Ft.)	2 Tons/Ac. (90 Lbs./ 1000 Sq.Ft.)
Warm	Foxtail Millet	30	5/1-8/14	1/2"		

NOTE:
1. Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

   Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

   Oats are the recommended nurse crop for warm-season grasses.

2. For sandy soils, plant seeds at twice the depth listed above.

3. The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

(B-4-5) SECTION 5 - PERMANENT STABILIZATION

Exposed soils where ground cover is needed for 6 months or more.

A. Seed Mixtures

1. General Use

   a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.

   b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.

   c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.

   d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 1/2 pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .

2. Turfgrass Mixtures

   a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.

   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.

      i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

      ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.

      iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.

      iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 1/2 to 3 pounds per 1000 square feet.

Notes: Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland" Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

   c. Ideal Times of Seeding for Turf Grass Mixtures

      Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

      Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

      Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

   d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 1/2 inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.

   e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

PERMANENT SEEDING SUMMARY

Seed Mixture No. 9 (Hardiness Zone 7A)					** Fertilizer Rate (10-20-20)			** Lime Rate
No.	Species	Application Rate (Lb./Ac.)	Seeding*** Dates	Seeding Depths	N	P_2O_5	K_2O	
9	* Tall Fescue	60	2/15 - 4/30 8/15 - 10/31	¼"-½"	45 Lb./Ac. (1 Lb./ 1000 Sq.Ft.)	90 Lb./Ac. (2 Lb./ 1000 Sq.Ft.)	90 Lb./Ac. (2 Lb./ 1000 Sq.Ft.)	2 Tons/Ac. (90 Lb./ 1000 Sq.Ft.)
	* Kentucky Bluegrass	20						
	Pennfine Perennial Ryegrass	40						

* Blend 3 cultivars of any cultivar listed on page B.32 of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control.

** At time of fine grading, fertilizer and lime rates will be based on soil test results; (see section 2.C). Copy of recommended rates to be supplied to the Sediment Control Inspector.

*** For seeding dates 5/1-8/14, add a nurse crop to seed mixture No. 9; see note 1 under "Temporary Seeding Summary" table above.

FOR THE USE IN THE POND AREA ONLY: Seed Mixture No. 6 (Hardiness Zone 7A)					** Fertilizer Rate (10-20-20)			** Lime Rate
No.	Species	Application Rate (Lb./Ac.)	Seeding*** Dates	Seeding Depths	N	P_2O_5	K_2O	
6	* Tall Fescue	40	2/15 - 4/30 8/15 - 10/31	¼"-½"	45 Lb./Ac. (1 Lb./ 1000 Sq.Ft.)	90 Lb./Ac. (2 Lb./ 1000 Sq.Ft.)	90 Lb./Ac. (2 Lb./ 1000 Sq.Ft.)	2 Tons/Ac. (90 Lb./ 1000 Sq.Ft.)
	Perennial Ryegrass	25						
	White Clover	5						

* Blend 3 cultivars of any cultivar listed on page B.32 of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control.

** At time of fine grading, fertilizer and lime rates will be based on soil test results; (see section 2.C). Copy of recommended rates to be supplied to the Sediment Control Inspector.

*** For seeding dates 2/15-4/30, add 15 lb./ac inoculated Crownvetch. For seeding dates 5/1-8/14, add 4.25 lb./ac. Foxtail Millet or 4.25 lb./ac. Pearl Millet. During the period of 11/1-2/14 protect site by: 2 tons per acre of well-ancored straw mulch and seed as soon as possible in the spring. Inocculated crownvetch shall be applied during the subsequent period of February 15 through April 30, at a rate of 15 lbs. per acre. Baltimore County will not acquire the SWM Facility in fee until the Crownvetch groundcover is uniformly established.

Note: All seed must comply with the Maryland State Seed Law. Seed must be free of prohibited or restricted noxious weeds, as currently listed by the Maryland Department of Agriculture, Turf and Seed section.

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

1. General Specifications

   a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.

   b. Sod must be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.

   c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

   d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

   e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

2. Sod Installation

   a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.

   b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

   c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.

   d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

3. Sod Maintenance

   a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.

   b. After the first week, sod watering is required as necessary to maintain adequate moisture content.

   c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

(H-1) STANDARDS AND SPECIFICATIONS FOR MATERIALS

TABLE H.1: GEOTEXTILE FABRICS

		WOVEN SLIT FILM GEOTEXTILE		WOVEN MONOFILAMENT GEOTEXTILE		NONWOVEN GEOTEXTILE	
		MINIMUM AVERAGE ROLL VALUE[1]					
PROPERTY	TEST METHOD	MD	CD	MD	CD	MD	CD
Grab Tensile Strength	ASTM D-4632	200 lb	200 lb	370 lb	250 lb	200 lb	200 lb
Grab Tensile Elongation	ASTM D-4632	15%	10%	15%	15%	50%	50%
Trapezoidal Tear Strength	ASTM D-4533	75 lb	75 lb	100 lb	60 lb	80 lb	80 lb
Puncture Strength	ASTM D-6241	450 lb		900 lb		450 lb	
Apparent Opening Size[2]	ASTM D-4751	U.S. Sieve 30 (0.59 mm)		U.S. Sieve 70 (0.21 mm)		U.S. Sieve 70 (0.21 mm)	
Permittivity	ASTM D-4491	0.05 sec -1		0.28 sec -1		1.1 sec -1	
Ultraviolet Resistance Retained at 500 hours	ASTM D-4355	70% strength		70% strength		70% strength	

1. All numeric values except apparent opening size (AOS) represent minimum average roll values (MARV). MARY is calculated as the typical minus two standard deviations. MD is machine direction; CD is cross direction.

2. Values for AOS represent the average maximum opening.

Geotextiles must be evaluated by the National Transportation Product Evaluation Program (NTPEP) and conform to the values in Table H.1.

The geotextile must be inert to commonly encountered chemicals and hydrocarbons and must be rot and mildew resistant. The geotextile must be manufactured from fibers consisting of long chain synthetic polymers and composed of a minimum of 95 percent by weight of polyolefins or polyesters, and formed into a stable network so the filaments or yarns retain their dimensional stability relative to each other, including selvages.

When more than one section of geotextile is necessary, overlap the sections by at least one foot. The geotextile must be pulled taut over the applied surface. Equipment must not run over exposed fabric. When placing riprap on geotextile, do not exceed a one foot drop height.

TABLE H.2: STONE SIZES

	SIZE RANGE	d50	d100	AASHTO	MIDSIZE WEIGHT[3]
NUMBER 57[1]	⅜ to 1½ in	½ in	1½ in	M-43	N/A
NUMBER 1	2 to 3 in	2½ in	3 in	M-43	N/A
RIPRAP[2] (CLASS 0)	4 to 7 in	5½ in	7 in	N/A	N/A
CLASS I	N/A	9½ in	15 in	N/A	40 lb
CLASS II	N/A	16 in	24 in	N/A	200 lb
CLASS III	N/A	23 in	34 in	N/A	600 lb

1. This classification is to be used on the upstream face of stone outlets and check dams.

2. This classification is to be used for gabions.

3. Optimum gradation is 50 percent of the stone being above and 50 percent below the midsize.

Stone must be composed of a well graded mixture of stone sized so that fifty (50) percent of the pieces by weight are larger than the size determined by using the charts. A well graded mixture, as used herein, is defined as a mixture composed primarily of larger stone sizes but with a sufficient mixture of other sizes to fill the smaller voids between the stones. The diameter of the largest stone in such a mixture must not exceed the respective d100 selected from Table H.2. The d50 refers to the median diameter of the stone. This is the size for which 50 percent, by weight, will be smaller and 50 percent will be larger.

Note: Recycled concrete equivalent may be substituted for all stone classifications for temporary control measures only. Concrete broken into the sizes meeting the appropriate classification, containing no steel reinforcement, and having a minimum density of 150 pounds per cubic foot may be used as an equivalent.

TABLE H.3: COMPOST

PARAMETERS[1]	ACCEPTABLE RANGE
pH	5.0 - 8.5
Moisture content	30% - 60%, wet weight basis
Organic matter content	25% - 65%, dry weight basis
Particle size	% passing a selected mesh size, dry weight basis 3 in (75 mm), 100% passing 1 in (25 mm), 90 - 100% passing 0.75 in (19 mm), 70 - 100% passing 0.25 in (6.4 mm), 30 - 60% passing 0.04 in (1 mm), 30% min. passing
Physical contaminants (manmade inerts)	<1% dry weight basis

Adapted from AASHTO Standards Specs for Compost Filter Socks and EPA Example Compost Filter Parameters.

1. Recommended test methodologies are provided in Test Methods for the Examination of Composting and Compost (TMEC, The U.S Composting Council).

(B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA)

Definition:
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose:
To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies:
Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.

2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.

3. Runoff from the stockpile area must drain to a suitable sediment control practice.

4. Access the stockpile area from the upgrade side.

5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.

6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.

7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.

8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.
B.43

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/10/14

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-17-14

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7.15.14

DIRECTOR — DATE 7/17/14

Date	No.	Revision Description
	1	2011 MD STD. & SPECS FOR SOIL EROSION CONTROL

CORRIDOR 95 BUSINESS PARK

PARCELS A & B

OWNER/DEVELOPER:
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DMW
DAFT McCUNE WALKER INC
200 EAST PENNSYLVANIA AVENUE • TOWSON, MD 21286
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A TEAM OF LAND PLANNERS, LANDSCAPE ARCHITECTS, ENGINEERS, SURVEYORS & ENVIRONMENTAL PROFESSIONALS

AREA: CORRIDOR 95 BUSINESS PARK
TAX MAP 37 PARCEL 134/179
1 ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE: **SEDIMENT & EROSION CONTROL DETAILS AND SPECIFICATIONS**

Des. By GDT/LNL	Scale AS SHOWN	Proj. No. 10015.B
Dm. By GMO	Date	21C of 94
Chk. By	Approved	

FOR REVISION NO. 1 ONLY
7/3/14
Date

STATE OF MARYLAND — MELVIN CHARLES BEALL JR — 16928 — PROFESSIONAL ENGINEER

Professional Engr. No. 16928

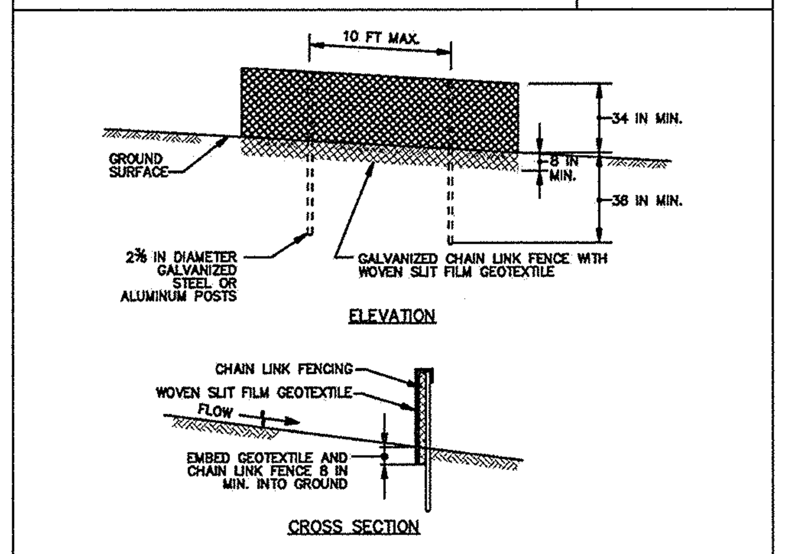
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16928 EXPIRATION DATE: 5/13/16

SDP-08-082

$$$$$$$$SYTIME$$$$$
$$$$$$$$DGNSPEC$$$$$$$$

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF



CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

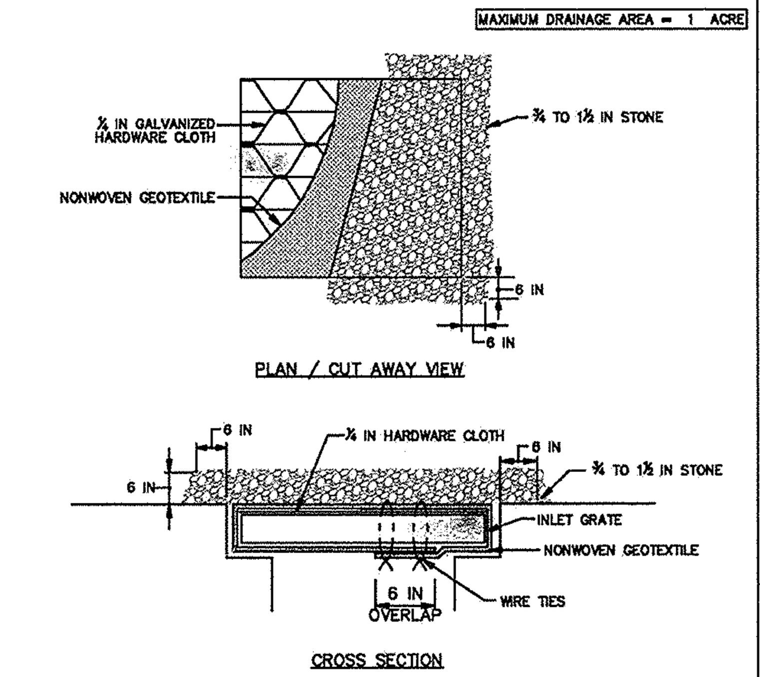
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

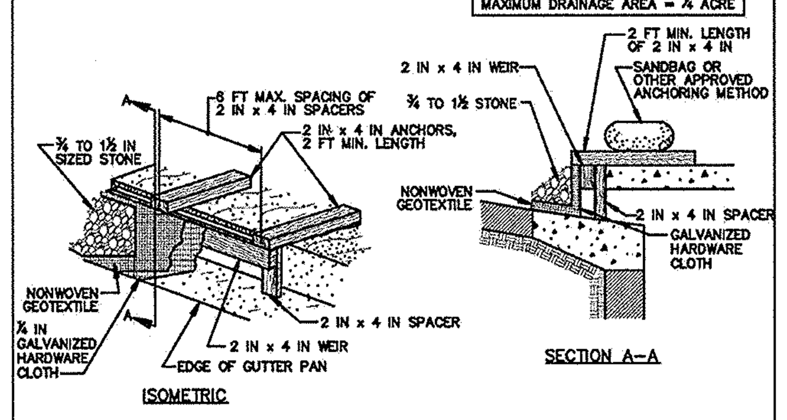
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¼ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

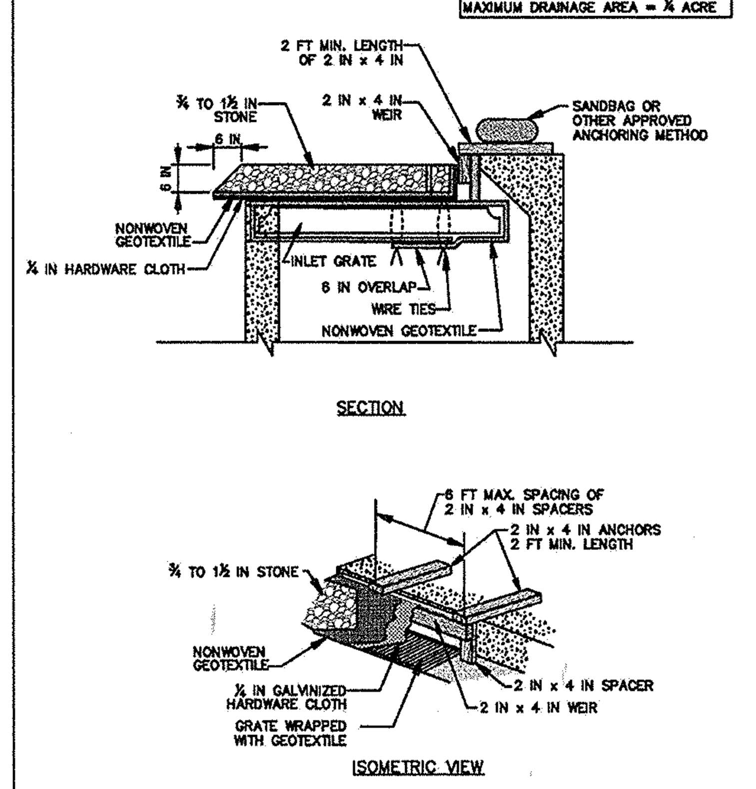
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: COIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-6 COMBINATION INLET PROTECTION

STANDARD SYMBOL: COIP

CONSTRUCTION SPECIFICATIONS

1. USE NOMINAL 2 INCH x 4 INCH LUMBER.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
3. LIFT GRATE, AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS, THEN SET GRATE BACK IN PLACE.
4. ATTACH A CONTINUOUS PIECE OF ½ INCH GALVANIZED HARDWARE CLOTH WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2X4 WEIR, EXTENDING 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH IT TO THE WEIR.
6. NAIL THE 2X4 WEIR TO THE TOP OF A 9 INCH LONG VERTICAL SPACER TO BE LOCATED BETWEEN THE WEIR AND THE INLET FACE (MAXIMUM 4 FEET APART).
7. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2X4 ANCHORS (MINIMUM 2 FOOT LENGTHS OF 2x4 INCH TO THE TOP OF THE WEIR AT SPACER LOCATIONS). EXTEND 2X4 ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
8. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND BOTH ENDS OF THE THROAT OPENING.
9. FORM THE ¼ INCH HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND AGAINST THE FACE OF THE CURB ON BOTH SIDES OF THE INLET. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE OVER THE HARDWARE CLOTH AND GEOTEXTILE IN SUCH A MANNER TO PREVENT WATER FROM ENTERING THE INLET UNDER OR AROUND THE GEOTEXTILE.
10. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
11. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

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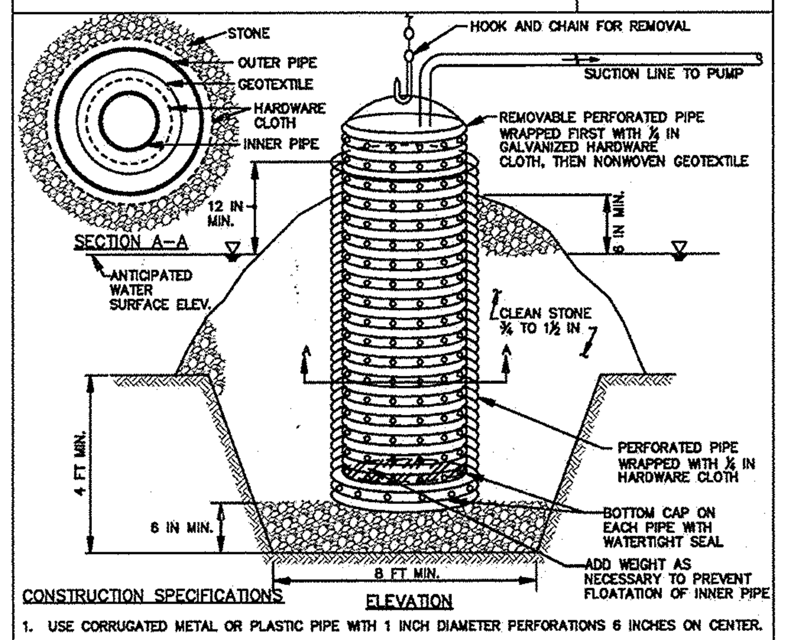
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-1 REMOVABLE PUMPING STATION

STANDARD SYMBOL: RPS



CONSTRUCTION SPECIFICATIONS

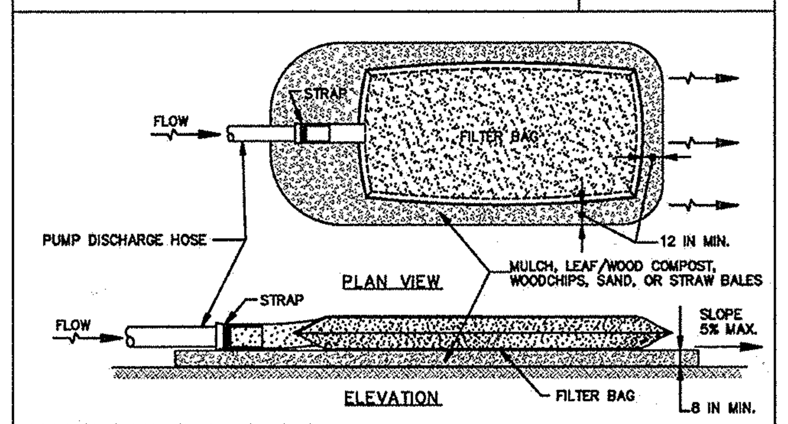
1. USE CORRUGATED METAL OR PLASTIC PIPE WITH 1 INCH DIAMETER PERFORATIONS 6 INCHES ON CENTER.
2. USE A MINIMUM 12 INCH DIAMETER INNER PIPE WITH AN OUTER PIPE A MINIMUM 8 INCHES LARGER IN DIAMETER. BOTTOM OF EACH PIPE MUST BE CAPPED WITH WATERTIGHT SEAL.
3. WRAP EACH PIPE WITH ¼ INCH GALVANIZED HARDWARE CLOTH. ON INNER PIPE WRAP NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS, OVER THE HARDWARE CLOTH.
4. EXCAVATE 8 FEET X 8 FEET X 4 FEET DEEP PIT FOR PIPE PLACEMENT. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE, 6 INCHES IN DEPTH PRIOR TO PIPE PLACEMENT.
5. SET TOP OF INNER AND OUTER PIPES MINIMUM 12 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION (OR RISER CREST ELEVATION WHEN DEWATERING A BASIN).
6. BACKFILL PIT AROUND THE OUTER PIPE WITH ¾ TO 1½ INCH CLEAN STONE OR EQUIVALENT RECYCLED CONCRETE AND EXTEND STONE A MINIMUM OF 6 INCHES ABOVE ANTICIPATED WATER SURFACE ELEVATION.
7. DISCHARGE TO A STABLE AREA AT A NONEROSIVE RATE.
8. A REMOVABLE PUMPING STATION REQUIRES FREQUENT MAINTENANCE. IF SYSTEM CLOGS, PULL OUT INNER PIPE AND REPLACE GEOTEXTILE. KEEP POINT OF DISCHARGE FREE OF EROSION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL F-4 FILTER BAG

STANDARD SYMBOL: FB



CONSTRUCTION SPECIFICATIONS

1. TIGHTLY SEAL SLEEVE AROUND THE PUMP DISCHARGE HOSE WITH A STRAP OR SIMILAR DEVICE.
2. PLACE FILTER BAG ON SUITABLE BASE (E.G., MULCH, LEAF/WOOD COMPOST, WOODCHIPS, SAND, OR STRAW BALES) LOCATED ON A LEVEL OR 5% MAXIMUM SLOPING SURFACE. DISCHARGE TO A STABILIZED AREA. EXTEND BASE A MINIMUM OF 12 INCHES FROM EDGES OF BAG.
3. CONTROL PUMPING RATE TO PREVENT EXCESSIVE PRESSURE WITHIN THE FILTER BAG IN ACCORDANCE WITH THE MANUFACTURER RECOMMENDATIONS. AS THE BAG FILLS WITH SEDIMENT, REDUCE PUMPING RATE.
4. REMOVE AND PROPERLY DISPOSE OF FILTER BAG UPON COMPLETION OF PUMPING OPERATIONS OR AFTER BAG HAS REACHED CAPACITY, WHICHEVER OCCURS FIRST. SPREAD THE DEWATERED SEDIMENT FROM THE BAG IN AN APPROVED UPLAND AREA AND STABILIZE WITH SEED AND MULCH BY THE END OF THE WORK DAY. RESTORE THE SURFACE AREA BENEATH THE BAG TO ORIGINAL CONDITION UPON REMOVAL OF THE DEVICE.
5. USE NONWOVEN GEOTEXTILE WITH DOUBLE STITCHED SEAMS USING HIGH STRENGTH THREAD. SIZE SLEEVE TO ACCOMMODATE A MAXIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE BAG MUST BE MANUFACTURED FROM A NONWOVEN GEOTEXTILE THAT MEETS OR EXCEEDS MINIMUM AVERAGE ROLL VALUES (MARV) FOR THE FOLLOWING:

GRAB TENSILE	250 LB	ASTM D-4632
PUNCTURE	150 LB	ASTM D-4833
FLOW RATE	70 GAL/MIN/FT²	ASTM D-4491
PERMITTIVITY (SEC⁻¹)	1.2 SEC⁻¹	ASTM D-4491
UV RESISTANCE	70% STRENGTH @ 500 HOURS	ASTM D-4355
APPARENT OPENING SIZE (AOS)	0.15–0.18 MM	ASTM D-4751
SEAM STRENGTH	90%	ASTM D-4632

6. REPLACE FILTER BAG IF BAG CLOGS OR HAS RIPS, TEARS, OR PUNCTURES. DURING OPERATION KEEP CONNECTION BETWEEN PUMP HOSE AND FILTER BAG WATER TIGHT. REPLACE BEDDING IF IT BECOMES DISPLACED.

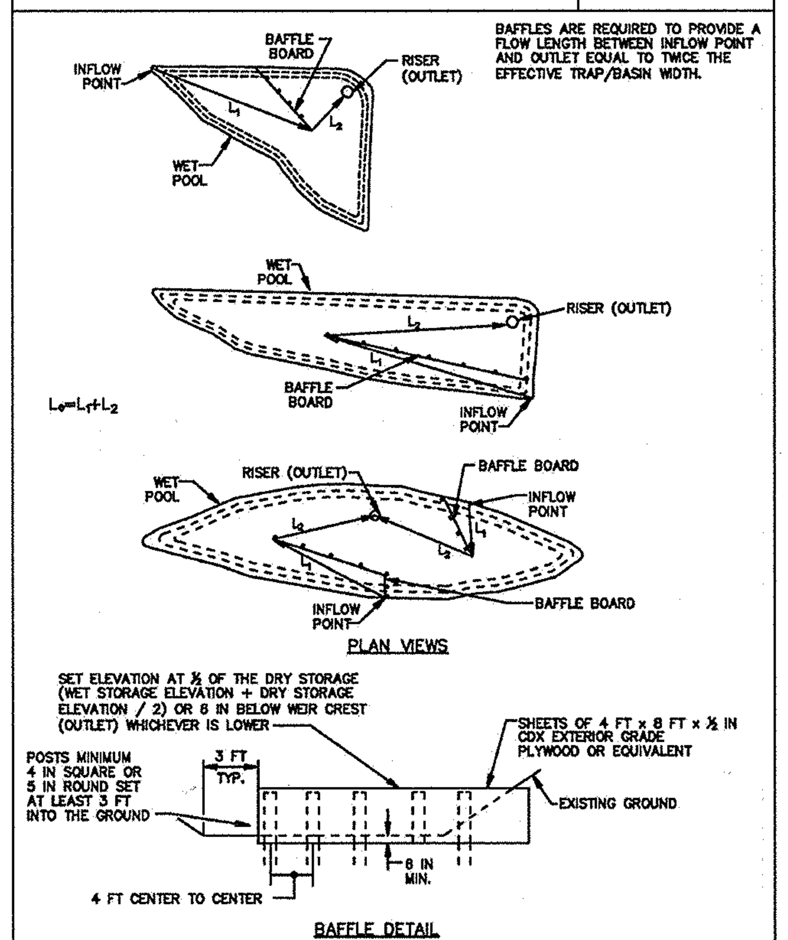
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-2-4 BAFFLE BOARDS

STANDARD SYMBOL: BB

BAFFLES ARE REQUIRED TO PROVIDE A FLOW LENGTH BETWEEN INFLOW POINT AND OUTLET EQUAL TO TWICE THE EFFECTIVE TRAP/BASIN WIDTH.

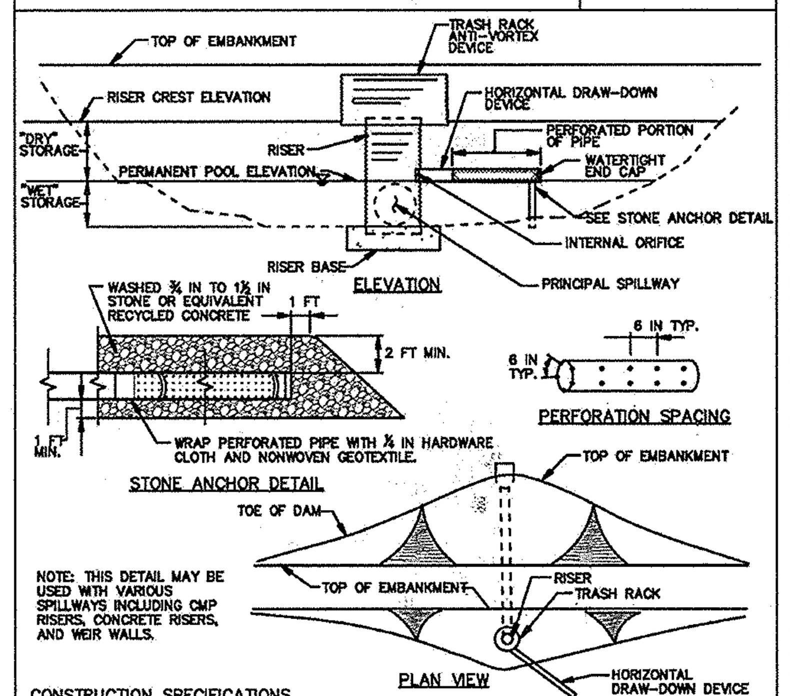


MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL G-2-6 SEDIMENT BASIN SCHEMATIC HORIZONTAL DRAW-DOWN DEVICE

STANDARD SYMBOL: HDDD



NOTE: THIS DETAIL MAY BE USED WITH VARIOUS SPILLWAYS INCLUDING CMP RISERS, CONCRETE RISERS, AND WEIR WALLS.

CONSTRUCTION SPECIFICATIONS

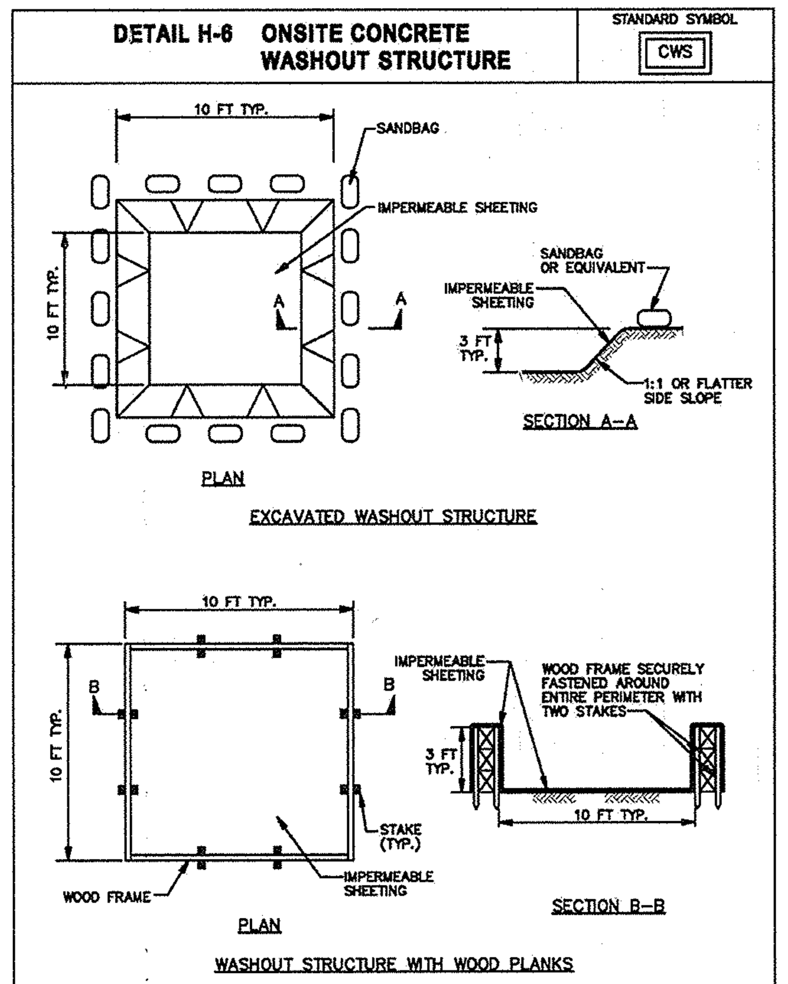
1. PERFORATE PIPE WITH 1 INCH DIAMETER PERFORATIONS SPACED 6 INCHES APART LONGITUDINALLY AND RADIALLY OR IN ACCORDANCE WITH APPROVED PLAN.
2. WRAP THE PERFORATED PORTION OF THE DRAW-DOWN DEVICE FIRST WITH ¼ INCH GALVANIZED HARDWARE CLOTH, THEN WITH NONWOVEN GEOTEXTILE. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS. DO NOT WRAP WITH MORE THAN ONE LAYER OF GEOTEXTILE.
3. AS AN ALTERNATE TO STONE ANCHORING, SECURE DRAW-DOWN DEVICE WITH TWO 1 INCH STEEL ANGLES SET 3 FEET MINIMUM INTO THE GROUND ATTACHED TO DRAW-DOWN DEVICE BY A 1 INCH WIDE GALVANIZED STEEL STRAP OR 12 GAUGE OR HEAVIER WIRE.
4. REMOVE SEDIMENT WHEN IT ACCUMULATES TO CLEANOUT ELEVATION (50% OF THE WET STORAGE DEPTH). DEPOSIT REMOVED SEDIMENT IN AN APPROVED AREA IN A SUCH A MANNER THAT IT WILL NOT ERODE. MAINTAIN WATER TIGHT CONNECTIONS. REPLACE GEOTEXTILE AROUND PERFORATED RISER IF DRY STORAGE VOLUME DOES NOT DRAW DOWN WITHIN 10 HOURS.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL: CWS



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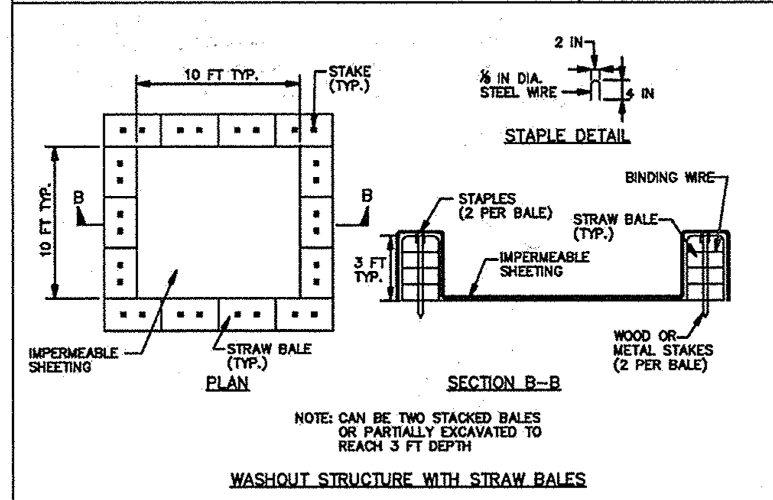
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE

STANDARD SYMBOL: CWS



CONSTRUCTION SPECIFICATIONS

1. LOCATE WASHOUT STRUCTURE A MINIMUM OF 50 FEET AWAY FROM OPEN CHANNELS, STORM DRAIN INLETS, SENSITIVE AREAS, WETLANDS, BUFFERS AND WATER COURSES AND AWAY FROM CONSTRUCTION TRAFFIC.
2. SIZE WASHOUT STRUCTURE FOR VOLUME NECESSARY TO CONTAIN WASH WATER AND SOLIDS AND MAINTAIN AT LEAST 4 INCHES OF FREEBOARD. TYPICAL DIMENSIONS ARE 10 FEET X 10 FEET X 3 FEET DEEP.
3. PREPARE SOIL BASE FREE OF ROCKS OR OTHER DEBRIS THAT MAY CAUSE TEARS OR HOLES IN THE LINER. FOR LINER, USE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING, FREE OF HOLES AND TEARS OR OTHER DEFECTS THAT COMPROMISE IMPERMEABILITY OF THE MATERIAL.
4. PROVIDE A SIGN FOR THE WASHOUT IN CLOSE PROXIMITY TO THE FACILITY.
5. KEEP CONCRETE WASHOUT STRUCTURE WATER TIGHT. REPLACE IMPERMEABLE LINER IF DAMAGED (E.G., RIPPED OR PUNCTURED). EMPTY OR REPLACE WASHOUT STRUCTURE THAT IS 75 PERCENT FULL, AND DISPOSE OF ACCUMULATED MATERIAL PROPERLY. DO NOT REUSE PLASTIC LINER. WET-VACUUM STORED LIQUIDS THAT HAVE NOT EVAPORATED AND DISPOSE OF IN AN APPROVED MANNER. PRIOR TO FORECASTED RAINSTORMS, REMOVE LIQUIDS OR COVER STRUCTURE TO PREVENT OVERFLOWS. REMOVE HARDENED SOLIDS, WHOLE OR BROKEN UP, FOR DISPOSAL OR RECYCLING. MAINTAIN RUNOFF DIVERSION AROUND EXCAVATED WASHOUT STRUCTURE UNTIL STRUCTURE IS REMOVED.

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MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE | 2011 | MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF OPERATIONS STAGE 1 (PARCEL 'A')

(PHASE 1) (PARCEL 'A') (SHEETS 13, 14, 14A)

1. OBTAIN GRADING PERMIT (1 DAY)
* THIS PROJECT REQUIRES STATE PERMIT DUE TO THE DISTURBANCE OF WETLANDS. CONTRACTOR SHALL NOTIFY THE MARYLAND DEPARTMENT OF THE ENVIRONMENTAL, INSPECTION AND COMPLIANCE PROGRAM (410) 631 - 3510 AT LEAST 5 DAYS PRIOR TO BEGINNING WORK. (MDE/C.O.E. PERMIT TRACKING NO. 200860826/08-NT-3066).

2. CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PERMITS AND LICENSES 48 HOURS BEFORE BEGINNING WORK AND THE CONSTRUCTION INSPECTION DIVISION 24-HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT (410)313-1880. (1 DAY)

3. WITH THE PERMISSION FROM SEDIMENT CONTROL INSPECTION, INSTALL STABILIZED CONSTRUCTION ENTRANCE (SCE). (1 DAY)

4. WITH THE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB FOR ACCESS TO BORROW AREAS AND STREAM CROSSINGS 1, 2, & 3 (SEE SHEETS 13, 14 &14A). ROUGH GRADE ACCESS ROAD AS NECESSARY AND STABILIZE W/ CR6 STONE. GRADE ONLY THE PORTION OF ROAD THAT CAN BE STABILIZED AT THE END OF EACH WORK DAY. (1 WEEK) INSTALL PERIMETER CONTROLS (SSF & SFD), MOUNTABLE BERMS AND CLEAR WATER DIVERSION PIPES. INSTALL TEMP. ACCESS BRIDGE (CROSSINGS 1, 2 & 3) PER DETAILS 4.8-1 THRU 4.8-3 FROM THE MARYLAND'S GUIDELINES TO WATERWAY CONSTRUCTION. (1 WEEK). (REFER TO SHEET 23 FOR INSTREAM DETAILS)

5. ONCE STREAM CROSSINGS ARE IN PLACE, INSTALL 96" PIPE CULVERT (CROSSING NO. 3.) (STREAM CLOSURE DATES ARE BETWEEN MARCH 1 AND JUNE 15).

6. INSTALL OUTFALL S-16 TO S-15 AND MOUNTABLE BERM (1 WEEK)

7. INSTALL STORM DRAIN EW-20A TO EW-19, ROUGH GRADE AS NECESSARY TO PROVIDE PROPER COVER OVER PIPE. INSTALL STONE MOUNTABLE BERM OVER PIPE FOR ACCESS ROAD. INSTALL SSF OUTFALL PROTECTION (SEE DETAILS & PROFILE ON SHEET 21)

8. CONTRACTOR TO REMOVE ALL OLD AND NEW JUNK, TRASH, DEBRIS AND OTHER NON-NATURAL ITEMS FROM FLOODPLAIN WETLANDS, STREAMS AND THEIR BUFFERS.

PHASE 2 (PARCEL 'A') (SHEETS 15, 16, 17 & 64)

9. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR INSTALL TREE PROTECTION FENCE ALONG STAGE 1, PHASE 2 LIMIT OF DISTURBANCE AND FOREST CONSERVATION EASEMENTS (SEE SHEET 32 FOR FCE EASEMENTS). (1 WEEK)

10. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, CONSTRUCT BRIDGE SUPERSTRUCTURE (CROSSING NO.1) & PERMANENT CULVERT PIPE CROSSING NO.2. (STREAM CLOSURE DATES ARE BETWEEN MARCH 1 AND JUNE 15).

11. WITH THE PERMISSION FROM SEDIMENT CONTROL INSPECTOR, ADJUST SSF AT STREAM CROSSING PREVIOUSLY INSTALLED UNDER PHASE 1, GRADE FOR AND INSTALL SEDIMENT BASIN NO.1, OUTFALL PIPE (S-1, S-2 & S-3) FROM BASIN AND EARTH DIKE NO.1. PRIOR TO ROAD GRADING, RELOCATE SFD AND ADJUST THE SCE. (1 MONTH)

12. BEGIN ROAD IMPROVEMENTS TO MEADOWRIDGE ROAD AND CONSTRUCTION OF SUMMIT ROCK DRIVE JUST PAST 3RD STREAM CROSSING. CONSTRUCT ONLY PORTION OF ROAD THAT CAN BE STABILIZED EACH DAY (SEE SHEETS 17 & 64 FOR SUMMIT ROCK DRIVE STAGE 1 LIMITS OF CONSTRUCTION). BEGIN INSTALLATION OF RETAINING WALL NO.4 AND NO.5. (1 MONTH)

13. INSTALL STORM DRAIN INLETS IN SUMMIT ROCK DRIVE AND MEADOWRIDGE ROAD THAT DISCHARGE TO SEDIMENT BASIN NO.1. (2 WEEKS)

14. INSTALL STORM DRAIN SYSTEM (ES-17, I-30, M-18, M-21 TO EXISTING MANHOLE) IN MEADOWRIDGE ROAD THAT DISCHARGE DOWNSTREAM OF KANE WAY AND PROPOSED RETAINING WALL NO.5.

15. INSTALL STORM DRAIN SYSTEM I-23 TO TEMP. E-1, I-26 TO E-2 SEE PROFILES ON SHEET 20. INSTALL INLET PROTECTION AT I-22, I-23, I-25 & I-26 (2 WEEKS)

16. INSTALL WATER (STA. 0+00 THROUGH STA. 19+20, INCLUDING AUTOMATIC FLUSHING DEVICE & APPURTENANCES) AND SANITARY SEWER LINES (FROM EX. SMH #8973 THROUGH SMH-16 AND SMH-15 THROUGH SMH-29) PER PUBLIC DRAWINGS 14-4576-D REV.1 (SEE DETAIL FOR UTILITY CROSSINGS - SHEET 23) WHEN CROSSING EXISTING STREAMS. (1 MONTH)

PHASE 3 (PARCEL 'A') (SHEETS 16, 41-45)

17. WITH THE APPROVAL OF SEDIMENT CONTROL INSPECTOR, SEE SHEET 16 TO BEGIN GRADING SITE FOR BIORETENTION FACILITIES NO. 2 & NO. 3 AND INSTALL OUTFALL RISER STRUCTURES S-5, S-6, S-7, & S-8. DO NOT INSTALL FILTER MEDIA UNTIL ALL AREAS DRAINING TO FACILITIES ARE STABILIZED. (1 MONTH)

18. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR CONVERT BASIN NO.1 TO SWM (STORM WATER MANAGEMENT) POND NO.1 PER SWM PLANS BEGINNING WITH SHEET 41. (3 WEEKS)

19. UPON PERMANENTLY STABILIZATION OF AREAS DRAINING TO BIORETENTION FACILITIES NO. 2 & NO. 3, INSTALL FILTER MEDIA AND APPURTENANCES (SEE SWM SHEETS 44-45). (1 WEEK)

SEQUENCE OF OPERATIONS STAGE 2 (PARCEL 'B')

PHASE 1 (PARCEL 'B') (SHEET 14)

1. WITH THE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB TO EXTEND ACCESS TO BORROW AREA PARCEL 'B'. (1 WEEK).

2. INSTALL SUPER SILT FENCE, DIVERSION FENCE, SEDIMENT BASIN NO.2 (SEE DETAILS ON SHEET 20) AND OUTFALL S16A TO S16, TRAPS 2 & 3 WITH GABION INFLOW PROTECTION (GP), REMOVABLE PUMPING STATIONS (RPS), EARTH DIKES #1 THROUGH NO.6 AND MOUNTABLE BERMS (1 WEEK)

3. ROUGH GRADE SITE AS NECESSARY AND INSTALL STONE ACCESS ROAD TO THE BORROW AREA IN PARCEL 'B'. GRADE ONLY THE PORTION OF ROAD THAT CAN BE STABILIZED AT THE END OF EACH WORK DAY. (1 WEEK)
(SEE PHASE 2, STAGE 2, FOR SEQ. NO. 4 BELOW)

PHASE 2 (PARCEL 'B') (SHEETS 17 & 18)

4. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR INSTALL TREE PROTECTION FENCE ALONG STAGE 2, PHASE 2 LIMIT OF DISTURBANCE AND FOREST CONSERVATION EASEMENTS (SEE SHEET 32 FOR FCE EASEMENTS). (1 WEEK)

5. WITH THE PERMISSION FROM SEDIMENT CONTROL INSPECTOR, BEGIN GRADING FOR THE CONSTRUCTION RETAINING WALLS NO.2 & NO.3. INSTALL SWM OUTFALL S-23 TO S-22 IN CONJUNCTION WITH RETAINING WALL NO.2 (1 MONTH)

6. INSTALL STORM DRAIN SYSTEM I-29 TO ES-55, SYSTEM I-57 TO ES-56. INSTALL INLET PROTECTION. (2 WEEKS)

7. INSTALL WATER AND SANITARY SEWER LINES PER PUBLIC DRAWINGS. (1 MONTH)
(SEE PHASE 3, STAGE 2, FOR SEQ. NO. 8 BELOW)

PHASE 3 (PARCEL 'B') PARCEL A-1 (SHEETS 18, 19, 46-55)

8. WITH THE PERMISSION FROM SEDIMENT CONTROL INSPECTOR, BEGIN GRADING SITE. (1 MONTH)

9. BEGIN CONSTRUCTION OF RETAINING WALL NO.1, INSTALL SWM OUTFALL S-11 TO S-10 (2 WEEKS)*

10. BEGIN BUILDING NO.1 CONSTRUCTION (9 MONTHS)*

11. INSTALL SANITARY SEWER, WATER, UNDERGROUND SWM STRUCTURES #1 AND #3 (SEE SHEETS 46-48 AND 52-55) AND STORM DRAIN EXCEPT WHERE IT CONFLICTS WITH SEDIMENT TRAPS NO.2 & NO.3. (2 MONTHS)

12. BEGIN STONE SUB-BASE AND INSTALL CURB AND SIDEWALKS (EXCEPT WHERE IT CONFLICTS WITH SEDIMENT TRAPS NO.2 & NO.3. FINE GRADE GRASS AREAS AND STABILIZE. (2 WEEKS)

13. UPON STABILIZATION OF SITE AND PRIOR TO THE REMOVAL OF SEDIMENT TRAPS NO.2 & NO.3, FLUSH STORM DRAINS. WITH THE PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR REMOVE SEDIMENT TRAPS NO.2 & NO.3. (1 WEEK)

14. INSTALL REMAINING STORM DRAIN AND UTILITIES. MAKE FINAL CONNECTION TO UNDERGROUND SWM FACILITIES NO.1 & NO.3. WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR CONVERT BASIN NO.2 TO POND NO.2 PER SWM PLANS (SEE SHEETS 49-51). (3 WEEKS)

15. COMPLETE THE INSTALLATION OF CURB AND GUTTER, STONE SUB-BASE. FINE GRADE THE REMAINING DISTURBED AREAS. (1 WEEK)

16. PROCEED WITH FINAL PAVING OPERATIONS AND LANDSCAPING. (2 WEEKS)
* ITEMS 9, 10 & 11 CAN BE DONE CONCURRENTLY WITH THE INSPECTOR'S APPROVAL

17. UPON STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16928 EXPIRATION DATE: 5/13/16

FOR REVISION NO. 1 ONLY

7/3/14

Date

STATE OF MARYLAND · MELVIN CHARLES BEALL JR · 16928 · PROFESSIONAL ENGINEER

Professional Engr. No. 16928

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 7/10/14

APPROVED: HOWARD COUNTY DEPT. OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 7-17-14

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 7-15-14

DIRECTOR — DATE 7/17/14

Date	No.	Revision Description
	1	2011 MD STD. & SPECS FOR SOIL EROSION CONTROL

CORRIDOR 95 BUSINESS PARK

PARCELS A & B

OWNER/DEVELOPER:
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DMW
DAFT McCUNE WALKER INC
200 EAST PENNSYLVANIA AVENUE • TOWSON, MD 21286
P: 410 296 3333 F: 410 296 4705 WWW.DMW.COM
A TEAM OF LAND PLANNERS, LANDSCAPE ARCHITECTS, ENGINEERS, SURVEYORS & ENVIRONMENTAL PROFESSIONALS

AREA
CORRIDOR 95 BUSINESS PARK
TAX MAP 37 PARCEL 134/179
1 ELECTION DISTRICT OF HOWARD COUNTY, MARYLAND

TITLE
SEDIMENT & EROSION CONTROL DETAILS AND SPECIFICATIONS

Des. By GDT/LNL	Scale AS SHOWN	Proj. No. 10015.B	
Drn. By GMO	Date	21B of 94	
Chk. By	Approved		

$$$$$$$SYTIME$$$$$$
$$$$$$$$DGNSPEC$$$$$$$$

Sediment Control Notes

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (313-1855).
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL" AND REVISIONS THERETO
3. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
   - 3½ CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1
   - 7 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL PERIMETER SILT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH SEC. 50.1 CHAPTER 12 OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
4. 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 (~~5 DAYS~~). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
5. 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.
6. SITE ANALYSIS:

	STAGE I	STAGE II	TOTAL
TOTAL AREA OF SITE: 39.55 ACRES			39.55 Ac.
AREA DISTURBED: 15.44 ACRES	12.08 Ac.	8.74 Ac.	20.82 Ac.
AREA TO BE ROOFED OR PAVED: 8.47 ACRES	2.10 Ac.	5.05 Ac.	7.15 Ac.
AREA TO BE VEGETATIVELY STABILIZED: 6.97 ACRES	9.98 Ac.	3.69 Ac.	13.67 Ac.
TOTAL CUT 56,500 C.Y.	28,912 C.Y.	54,756 C.Y.	83,668 C.Y.
TOTAL FILL 51,069 C.Y. (INCLUDES 15% COMPACTION)	32,940 C.Y.	18,729 C.Y.	51,069 C.Y.
OFFSITE WASTE/BORROW AREA LOCATION: EXCESS CUT SHALL BE TAKEN TO A SITE WITH AN OPEN GRADING PERMIT.			

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

⚠ 11. ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO PROCEEDING WITH CONSTRUCTION.

12. A PROJECT IS TO SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 Ac. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.

UTILITY NOTES:

1. CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE) THE TRENCH.
2. PLACE ALL EXCAVATED MATERIAL ON THE UPHILL SIDE OF THE TRENCH.
3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
4. SEE SEQUENCE OF CONSTRUCTION AND SEDIMENT CONTROL NOTES FOR ADDITIONAL DIRECTION.

* Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

John R. Robertson — 4/9/13
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 4/26/13 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 5/03/13 DATE

DIRECTOR — 5/8/13 DATE

Stabilization Specifications

⚠ SEE SHEET 21C FOR REVISED SPECIFICATIONS

Section I - Vegetative Stabilization Methods and Materials

A. Site Preparation

i. Install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.

ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.

iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)

i. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas over 5 areas. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples may be taken for engineering purposes may also be used for chemical analysis.

ii. Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warrantee of the producer.

iii. Lime materials shall be ground limestone (hydrated or burnt lime may be substituted) which contains at least 50% total oxides (calcium oxide plus magnesium oxide). Limestone shall be ground to such fineness that at least 50% will pass through a #100 mesh sieve and 98 - 100% will pass through a #20 mesh sieve.

iv. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.

v. Soil Amendments : Use only one of the following schedules

i. Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs. / 100 s.f.) and 600 lbs. per acre 10-10-10 fertilizer (14 lbs. / 100 s.f.). Before seeding, harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs. per acre 30-0-0 auriform fertilizer (9.1 lbs / 100 s.f.).

ii. Acceptable - Apply 2 tons per acre dolomitic limestone (92lbs. / 1000 s.f.) and 1000 lbs. per acre 10-10-10 fertilizer (23 lbs. / 1000 s.f.) before seeding, harrow or disc upper three inches of soil.

C. Seedbed Preparation

i. Temporary Seeding

a. Seedbed preparation shall consist of loosening soil to a depth of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth but left in the roughened condition. Sloped areas (greater than 3:1) should not be tracked leaving the surface in an irregular condition with ridges running parallel to the contour of the slope.

b. Apply fertilizer and lime as prescribed on the plans.

c. Incorporate lime and fertilizer into the top 3 - 5" of soil by disking or other suitable means.

ii. Permanent Seeding

a. Minimum soil conditions required for permanent vegetative establishment:

1. Soil pH shall be between 6.0 and 7.0.
2. Soluble salts shall be less than 500 parts per million (ppm).
3. The soil shall contain less than 40% clay but enough fine grained material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or sericea lespedeza to be planted, then a sandy soil (<30% silt plus clay) would be acceptable.
4. Soil shall contain 1.5% minimum organic matter by weight.
5. Soil must contain sufficient pore space to permit adequate root penetration.
6. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil.

b. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3 - 5" to permit bonding of the topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.

c. Apply soil amendments as per soil test or as included on the plans.

d. Mix soil amendments into the top 3 - 5" of topsoil by disking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Where site conditions will not permit normal seedbed preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1 - 3" of soil should be loose and friable. Seedbed loosening may not be necessary on newly disturbed areas.

D. Seed Specifications

i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material in this job.

ii. Inoculant - The inoculant for treating legume seed in the seed mixture shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. NOTE: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 - 80 degrees F. can weaken bacteria and make inoculant less effective.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.

E. Methods of Seeding

i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder.

a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen: maximum of 100 lbs. per acre total available nitrogen; P2O5 (phosphorus): 200 lbs./ac.; K2O (potassium): 200 lbs./ac.

b. Lime - use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding).

lime when hydroseeding

c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.

ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.

a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.

b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

a. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.

b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (in order of preference)

i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.

ii. Wood Cellulose Fiber Mulch (WCFM)

a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.

b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.

c. WCFM, including dye, shall contain no germination or growth inhibiting factors.

d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

e. WCFM material shall contain no elements or compounds at concentration levels that will be phyto-toxic.

f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.

i. When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.

ii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:

i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.

ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a minimum of 50 pounds of wood cellulose fiber per 100 gallons of water.

iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on the crests of banks. The remainder of area should appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Argo-Tack), DCA-70, Petrosest, Terra Tack II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.

iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3000 feet long.

Section II - Temporary Seeding

Vegetation - annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed Mixtures - Permanent Seeding

i. select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from figure 5) and enter them in Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes or for special purposes such as wildlife or esthetic treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintainance areas, see Sections IV Sod and V Turfgrass.

ii. For sites having disturbed areas over 5 acres, the rates shownon this table shall be deleted and the rates recommended by the testing agency shall be written in.

iii. For areas recieving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil ammendments shown in the table below, to be performed at the time of seeding

Section III - Permanent Seeding

Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.

A. Seed Mixtures - Permanent Seeding

i. select one or more off the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from figure 5) and enter them in Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this Summary is not put on the construction plans and completed, then Table 25 must be put on the plans, Additional planting specifications for exceptional sites such as shorelines, streambanks, dunes or for special purposes such as wildlife or esthetic treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 - Critical Area Planting. For special lawn maintainance areas, see Sections IV Sod and V Turfgrass.

ii. For sites having disturbed areas over 5 acres, the rates shownon this table shall be deleted and the rates recommended by the testing agency shall be written in.

iii. For areas recieving low maintenance, apply ureaform fertilizer (46-0-0) at 3-1/2 lbs/1000 sq. ft. (150 lbs/ac), in addition to the above soil ammendments shown in the table below, to be performed at the time of seeding

Section IV - Sod: To provide quick cover on disturbed areas (2:1 grade or steeper).

A. General specifications

i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approval. Sod labels shall be made available to the job foreman and inspector.

ii. Sod shall be machine cut at a uniform soil thickness of 3/4" plus or minus 1/4", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.

iii. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

v. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

vi. Site Preparation : Fertilizer and Lime application rates will be determined by soil tests. Under unusual circumstances where there is insufficient time for a complete soil test, fertilizer and lime may be applied in amounts shown under vi.b, below.

a. Prior to sodding, the surface will be cleared of all trash, debris, and all roots, brush, wire, grade stakes and other objects that would interfere with planting, fertilizing, or maintenance operations.

b. Where soil is acid or composed of heavy clays, ground limestone will be spread at the rate of 2 tons per acre(100 lbs. / 1000 s.f.). In all soils 1000 lbs. per acre (25 lbs. / 1000 s.f.) of 10-10-10 fertilizer or equivalent will be uniformly applied and mixed into the top three inches of soil with the required time.

c. All areas recieving sod will be uniformly fine graded. Hard packed earth will be scarified prior to placement of sod.

B. Sod Installation

i. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.

ii. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause drying of the roots.

iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.

iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

C. Sod Maintenance

i. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.

ii. After the first week, sod watering is required as necessary to maintain adequate moisture content.

iii. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

Section IV - Turfgrass Establishment

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methods to a depth of 2 to 4 inches, leveled and raked to prepare a proper seedbed. Stones and debris over 1 1/2 inches in diameter shall be removed. The resulting seedbed shall be in such condition that future mowing of grasses will pose no difficulty.

NOTE: Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

A. Turfgrass Mixtures

i. Kentucky Bluegrass - Full sun mixture - For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and eastern shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds/1000 square feet. A minimum of three bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.

ii. Kentucky Bluegrass/Perennial Rye - Full sun mixture - For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/ Certified Kentucky Bluegrass Seeding rate; 2 pounds mixture/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.

iii. Tall Fescue/Kentucky Bluegrass - Full sun mixture - For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; certified Tall Fescue Cultivars 95 - 100%, certified Kentucky Bluegrass Cultivars 0 - 5%. Seeding rate 5 to 8 lb/1000 square feet. One or more cultivars may be blended.

iv. Kentucky Bluegrass/Fine Fescue - Shade Mixture - For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; certified Kentucky Bluegrass Cultivars 30 - 40% and certified Fine Fescue and 60 - 70%. Seeding rate; 1 1/2 - 3 lbs/1000 square feet. A minimum of 3 Kentucky bluegrass cultivars must be chosen, with each cultivar ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.

NOTE: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Mimeo #77, "Turfgrass Cultivar Recommendations for Maryland".

B. Ideal times of seeding

Western MD: March 15-June 1, August 1-October 1 (Hardiness Zones - 5b, 6a)

Central MD: March 1-May 15, August 15-October 15 (Hardiness Zones - 6b)

Southern MD, Eastern Shore: March 1-May 15, August 15-October 15 (Hardiness Zones - 7a, 7b)

C. Irrigation

If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2" - 1" every 5 to 6 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

D. Repairs and Maintenance

Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season.

i. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.

ii. If the stand provides less than 40% ground coverage, reestablish following original lime, fertilizer, seedbed preparation and seeding recommendations.

iii. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.

iv. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawns and other medium to high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in Maryland" Bulletin No. 171.

24.0 MATERIALS SPECIFICATIONS
Table 27 Geotextile Fabrics

CLASS	APPARENT OPENING SIZE MM. MAX	GRAB TENSILE STRENGTH LB. MIN.	BURST STRENGTH PSI. MIN.
A	0.50 **	250	500
B	0.60	200	320
C	0.30	200	320
D	0.60	90	145
E	0.30	90	145
F (SILT FENCE)	0.40-0.80*	90	190

* US Std Sieve CW-02215 ** 0.50 MM. MAX. FOR SUPER SILT FENCE

The properties shall be determined in accordance with the following procedures:
- Apparent opening size — MSMT 325
- Grab tensile strength — ASTM D 1682: 4 x 8" specimen, 1x2" clamps, 12" /min. strain rate in both principal directions of geotextile fabric.
- Burst strength — ASTM D 3786

The fabric shall be inert to commonly encountered chemicals and hydrocarbons, and will be rot and mildew resistant. It shall be manufactured from fibers consisting of long chain synthetic polymers, and composed of a minimum of 85% by weight of polyolefins, polyesters, or polymides. The geotextile fabric shall resist deterioration from ultraviolet exposure.

In addition, Classes A through E shall have a 0.01 cm/sec. minimum permeability when tested in accordance with MSMT 507, and an apparent minimum elongation of 20 percent (20%) when tested in accordance with the grab tensile strength requirements listed above.

Silt Fence
Class F geotextile fabrics for silt fence have a 50 lb/in. minimum tensile strength and a 20 lb/in. minimum tensile modules when tested in accordance with MSMT 509. The material shall also have a 0.3 gal/ft²/min. flow rate and seventy-five percent (75%) minimum filtering efficiency when tested in accordance with MSMT 322.

Geotextile fabrics used in the construction of silt fence shall resist deterioration from ultraviolet exposure. The fabric shall contain sufficient amounts of ultraviolet ray inhibitors and stabilizers to provide a minimum of 12 months of expected usable construction life at a temperature range of 0 to 120 degrees F.

NOTES:
A. USED BY SHA ON SLOPED AREAS. ADD A LEGUME FOR SLOPES > THAN 3:1.
B. USED IN MEDIAN AREAS BY SHA. SHADE TOLERANT.
C. POPULAR MIX - PRODUCES PERMANENT GROUNDCOVER QUICKLY. BLUEGRASS THICKENS STAND.
D. BEST USE ON SHADY SLOPES - NOT ON POORLY DRAINED CLAYS.
E. USE ON LOW MAINTENANCE, STEEP SLOPES. USE TALL FESCUE IN DRAUGHTY CONDITIONS. CROWN VETCH BEST FOR 5b, 6a, 6b
F. SUITABLE FOR SEEDING IN MID-SUMMER.
G. WEEPING LOVEGRASS MAY BE SEEDED WITH TALL FESCUE IN MID-SUMMER. SERECIA LESPEDEZA IS BEST SUITED FOR ZONES 7a AND 7b.
H. USE ON POORLY DRAINED SOILS - DITCHES OR WATERWAYS. BIRDSFOOT TREEFOILS BEST FOR ZONES 5b, 6a, ABOVE 2,000 FEET.
I. USE IN AREAS OF MOIST SHADE. POA TRIVIALIS THRIVES IN WET SHADY AREAS.
J. TALL FESCUE MAY BE SEEDED ALONE. THE HARD FESCUE PROVIDES BETTER SHADE TOLERANCE AND PRODUCES A BETTER STAND.
K. LOW FERTILITY GRASS. REQUIRES INFREQUENT MOWING. GOOD COMPANION FOR WILDFLOWERS.

PERMANENT SEEDING RATES

FERTILIZER RATE (10-20-20) N	P2O5	K2O	LIME RATE
90LB/AC (2.0 LB/1000 S.F.)	175 LB/AC (4.0 LB/1000 S.F.)	175 LB/AC (4.0 LB/1000 S.F.)	2 TONS/AC (100 LB/1000 S.F.)

NOTE:
FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES THE RATES SHOWN ABOVE FOR PERMANENT SEEDING SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE USED. SOIL TESTING SHALL BE PERFORMED AT THE TIME OF FINE GRADING AND THE RESULTS SHALL BE FURNISHED TO THE SEDIMENT CONTROL INSPECTOR.

Table 26 - Temporary Seeding Rates, Depths, and Dates

SPECIES	MINIMUM SEEDING RATES PER ACRE	MINIMUM SEEDING RATES 1000 S.F.	PLANTING DEPTH INCHES	HARDINESS ZONE 6b SEEDING DATES 7a and 7b: 2/1-4/30	5/1-8/14	8/15-11/30	12/1-2/14	6a and 6b: 2/1-4/30	5/1-7/31	8/1-10/15	10/16-1/31
CHOICE S. BARLEY OR RYE	2.5 BU. (122 lbs.) 3 BU. (96 lbs.) 2.5 BU. (140 lbs.)	2.80 3.20 3.22	1 - 2 1 - 2 1 - 2	X X X	- - X	X X X	- - -	BY 10/15 X X X	X X X	- - -	BY 10/15 X X X
TIMOTHY OR RYE PLUS PERMA. RYE GRASS	150 lbs.	3.45	1	X X	X X	10/15 X	X X	10/15 X	X X	X X	10/15 X
WEEPING LOVEGRASS	4 lbs.	.09	1/4 - 1/2	--	X	--	--	X	--	X	--
ANNUAL RYEGRASS	50 lbs.	1.15	1/4 - 1/2	--	X	--	X	--	11/1	--	3/1
MILLET	50 lbs.	1.15	1/2	--	X	--	--	X	--	X	--

Table 25 - Permanent Seeding for Low Maintenance Areas

NO.	SEED MIX (USE CERTIFIED MATERIAL IF AVAILABLE)	PLANTING RATE LBS/AC	PLANTING RATE LBS/1000 SQ. FT.	SITE CONDITIONS	USDA HARDINESS ZONES	RECOMMENDED PLANTING DATES 3/1-5/15	5/15-6/1	5/16-8/14	8/15-9/30	9/1-10/1	10/1-10/15	10/15-11/15	SEED MIX NO.
1	TALL FESCUE (95%) CANADA BLUEGRASS (5%)	150	3.4	MOIST TO DRY	5b	X	X					X	A
	KENTUCKY BLUEGRASS (30%) CREEPING RED FESCUE OR A HARD FESCUE (40%) REDTOP (5%)	150	3.4	MOIST TO MODERATELY DRY TO DRY	6b	X	X					X	
2	TALL FESCUE (85%) PERENNIAL RYEGRASS (10%) KENTUCKY BLUEGRASS (5%)	125 10 10	2.9 .34 .23	MOIST TO DRY	5b	X	X			X		X	B
					6b	X	X			X		X	
3	RED FESCUE OR CHEWINGS FESCUE (60%) PERENNIAL RYEGRASS (20%)	60 20 15	.90 .90 .34	MOIST TO DRY	5b	X	X			X		X	C
					6b	X	X			X		X	
4	TALL FESCUE (85%) OR PERENNIAL RYEGRASS (50%) PLUS CROWNVETCH OR FLATTEA	110 20 20	2.5 .46 .46	MOIST TO DRY	5b	X	X			X		X	D
					6b	X	X			X		X	
5	WEEPING LOVEGRASS (15%) BERECIA LESPEDEZA (85%)	4 20	.09 .46	DRY TO VERY DRY	5b	X	X			X		X	E
					6b	X	X			X		X	
6	TALL FESCUE (85%) WEEPING LOVEGRASS (5%) PLUS BERECIA LESPEDEZA (5%)	110 3 20	2.5 .09 .46	DRY TO VERY DRY	5b	X	X	X		X		X	F
					6b	X	X	X		X		X	
7	REED CANARYGRASS (75%) REDTOP (6%) PLUS BIRDSFOOT TREFOIL (19%)	40 8 10	.92 .03 .23	WET TO MODERATELY DRY	5b	X	X			X		X	G
					6b	X	X			X		X	
8	TALL FESCUE (66%) POA TRIVIALIS (7%) BIRDSFOOT TREFOIL (27%)	125 10 10	2.9 .23 .23	WET TO MODERATELY DRY	5b	X	X			X		X	H
					6b	X	X			X		X	
9	TALL FESCUE (60%) HARD FESCUE (20%)	120 30	3.4 .69	WET TO DRY	5b	X	X			X		X	I
					6b	X	X			X		X	
10					5b	X	X			X		X	J
					6b	X	X			X		X	
11	HARD FESCUE (100%)	75	1.7	MOIST TO DRY	5b	X	X			X		X	K
					6b	X	X			X		X	

⚠ SEE SHEET 21C. FOR REVISED SPECIFICATIONS.

Fertilizer Rates

Temporary Seeding

Fertilizer Rate (10-10-10)	Lime Rate
600 lb/ac (15lb/1000 s.f.)	2 Tons/ac (100lb/1000 s.f.)

Permanent Seeding

Fertilizer Rate (10-20-20)			Lime Rate
N	P2O5	K2O	
90 lb/ac (2.0lb/ 1000 s.f.)	175 lb/ac (4.0lb/ 100 s.f.)	175 lb/ac (4.0lb/ 1000 s.f.)	2 tons/ac (100 lb/ 1000 s.f.)

STREAM CLOSURE DATES FOR FISH SPAWNING OR MIGRATION WITHIN WATERWAYS ARE AS FOLLOWS:

USE I AND IP	March 1 - June 15

* SEE DETAIL H-29 -1 AND H29-2 (TEMPORARY ACCESS WATERWAY CROSSINGS) 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

DMW
DAFT MCCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16928, Expiration Date: 5-13-16

FOR REVISION NO.1 ONLY
5/30/14
DATE

STATE OF MARYLAND — CHARLES SCOTT HARRIS — 16928 — PROFESSIONAL ENGINEER
PROF. ENGR. NO. 16928

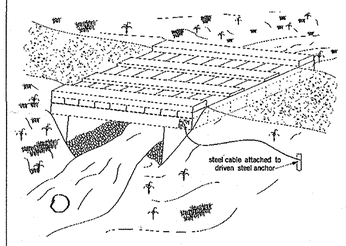
ADDRESS CHART

PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

| DATE |

Maryland's Guidelines To Waterway Construction
DETAIL 4.8: TEMPORARY ACCESS BRIDGE

SKETCH



MGWC 4.8: TEMPORARY ACCESS BRIDGE

Temporary stream crossing intended for minimum corridor disturbance

SCRIPTION

porary access bridges is a stream crossing made of wood, metal, or other materials designed to limit the amount urbance to the stream banks and bed.

CTIVE USES & LIMITATIONS

rary access bridges are the preferred method of waterway crossing since they typically cause the least nce to the waterway bed and banks, pose the least chance for interference with fish migration, and can be y removed and reused.

ERIAL SPECIFICATIONS

ringers: Stringers should either be logs, sawn timber, prestressed concrete beams, metal beams, or other proved materials.
ack Materials: Deck materials should be of sufficient strength to support the anticipated load.

TRUCTION SEQUENCE:

sion and sediment control devices, including stream diversions, should be implemented as the first order of ns according to a plan approved by the WMA or local authority. Dewatering basins should be built as needed nks or ditches should be used to prevent surface drainage from entering the stream via the bridge crossing. *e 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control.*) The proposed action, maintenance, and removal sequence is as follows:

butments should be placed parallel to, and on, stable banks such that the structure is at or above bankfull depth prevent the entrapment of floating materials and debris.

mporary access bridges should be constructed to span the entire channel. If the bankfull channel width ceeds 8 feet (2.5 meters), then a footing, pier, or other bridge support may be constructed within the stream. No support will be permitted within the channel for waterways less than 8 feet wide. One additional idge support will be permitted for each additional 8-foot width of the channel.

l decking members should be placed perpendicularly to the stringers, butted tightly, and securely fastened to e stringers. Decking materials must be butted tightly to prevent any soil material tracked onto the bridge from lling into the waterway.

lthough run planks are optional, they may be necessary to properly distribute loads. One run plank should be ovided for each track of the equipment wheels and should be securely fastened to the length of the span.

urbs or fenders may be installed along the outer sides of the deck to provide additional safety.

tidges should be securely anchored at one end using steel cable or chain to prevent the bridge from floating ownstream and possibly creating an obstruction to the flow. Anchoring at only one end will prevent channel nstriction in the event that flood waters float the bridge. Acceptable anchors are large trees, boulders, or lven steel anchors.

MGWC 4.8: TEMPORARY ACCESS BRIDGE

7. All areas disturbed during installation should be stabilized within 14 calendar days in accordance with a revegetation plan approved by the WMA.
8. Periodic inspection should be performed by the user to ensure that the bridge, streambed, and stream banks are maintained and not damaged.
9. Maintenance should be performed as needed to ensure that the structure complies with all standards and specifications. This should include the removal of trapped sediment and debris which should then be disposed of and stabilized outside the floodplain.
10. When the temporary bridge is no longer needed, all structures including abutments and other bridging materials should be removed within 14 calendar days. In all cases, the bridge materials should be removed within 1 year of installation. Removal of the bridge and clean-up of the area, including protection and stabilization of disturbed stream banks, should be accomplished without the use of construction equipment in the waterway.

MGWC 4.2: UTILITY CROSSING

Temporary bi-stream construction

DESCRIPTION

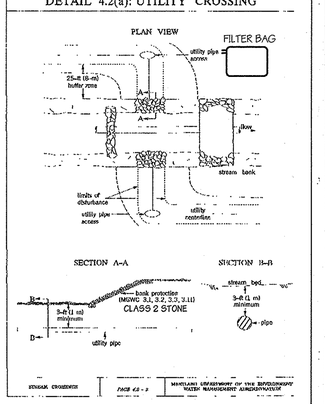
The work should consist of installing erosion control devices in and adjacent to the construction of utility crossings.

INSTALLATION GUIDELINES

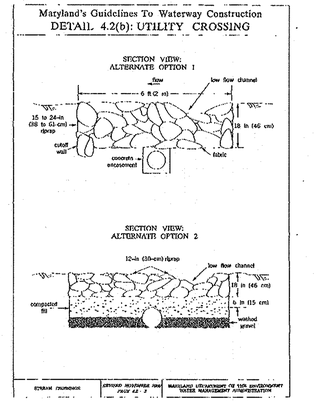
All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority. (See the *1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control.*) The proposed construction sequence is as follows: (refer to Detail 4.2):

1. The contractor should ensure that a continuous perimeter control barrier is in place to eliminate the amount of pollutants entering the flow. A diversion pipe as shown in MGWC 1.4: Diversion Pipe or other measure should be installed and working to divert baseflow as shown in MGWC 1.5: Sandbag/Stone. Silt fence should be constructed according to specifications to ensure this assumption.
2. Excavated topsoil and subsoil should be kept separate, placed on the upland side of the excavation, and replaced in their natural order.
3. All construction should take place during stream low flows. The length of construction time should be limited to a maximum of 5 consecutive days for each crossing.
4. All utility crossings should be placed a minimum of 2 feet (1 meter) beneath the stream bed unless an alternative section is specifically approved by the WMA. For instances where a 2-foot cover is not viable, two alternate stabilization options are given in the Detail 4.2. A low flow channel shall be constructed through all flume placements across the stream bed.
5. The stream should be diverted by an approved temporary stream diversion, the construction area should be dewatered, and any disturbed banks should be stabilized. The contractor may elect to construct the utility crossing in two stages. In this case, a WMA approved flow barrier may be constructed to keep the construction area dry.
6. Once the crossing is completed, the diversion should be removed from upstream to downstream. Sediment control devices, including perimeter control controls, are to remain in place until all disturbed areas are stabilized in accordance with an approved sediment and erosion control plan and the inspection authority approves their removal.

Maryland's Guidelines To Waterway Construction
DETAIL 4.2(a): UTILITY CROSSING



Maryland's Guidelines To Waterway Construction
DETAIL 4.2(b): UTILITY CROSSING



MGWC 1.4: DIVERSION PIPE

Temporary measure for dewatering in-channel construction sites

DESCRIPTION

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

EFFECTIVE USES & LIMITATIONS

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

MATERIAL SPECIFICATIONS

Materials for stream diversions should meet the following requirements:

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

INSTALLATION GUIDELINES

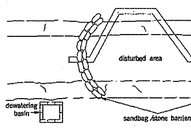
All erosion and sediment control devices including constructing dewatering basins should be installed as the first order of business according to a plan approved by the WMA or local authority. Installation should proceed from upstream to downstream during low flow conditions. If necessary, silt fence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

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

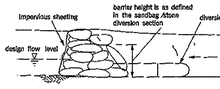
1. Sandbag/stone barriers should be sized and installed as detailed in MGWC 1.5: Sandbag/Stone Diversion. The materials should be sized to withstand baseflow velocities.
2. All excavated material should be deposited and stabilized in an approved area outside the 100-year floodplain unless otherwise authorized by the WMA.
3. Sediment-laden water from the construction area should be pumped to a dewatering basin.
4. The diversion pipes should have a minimum capacity sufficient to convey the 2-year flow for projects with a duration of two weeks or greater. For projects of shorter duration, the capacity of the pipe can be reduced accordingly.
5. If necessary, silt fence or straw bales should be installed around the perimeter of the work area.
6. Sediment control devices are to remain in place until all disturbed areas are stabilized and the inspecting authority approves their removal.

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

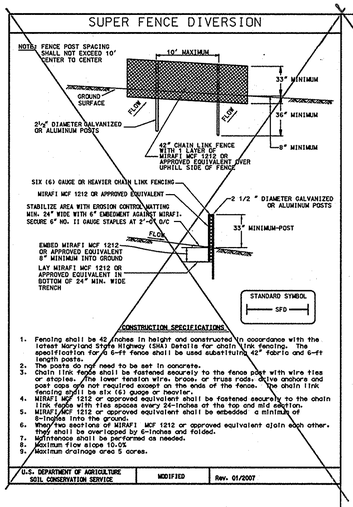
PLAN VIEW

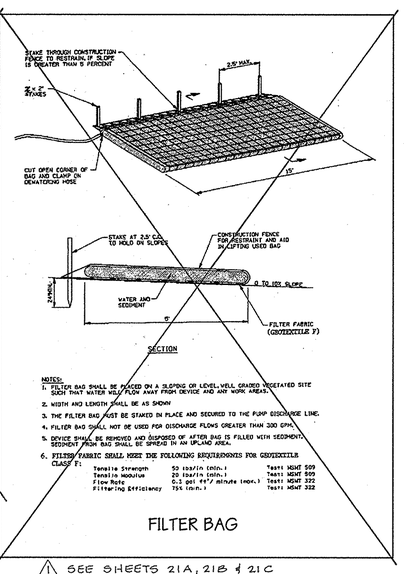


LONGITUDINAL SECTION VIEW



SUPER FENCE DIVERSION


NOTES: FENCE POST SPACING SHALL NOT EXCEED 10' CENTER TO CENTER
10' MAXIMUM
33" MINIMUM
GROUND SURFACE
FLOW
FLOW
36" MINIMUM
2 1/4" DIAMETER GALVANIZED OR ALUMINUM POSTS
8" MINIMUM
48" CHAIN LINK FENCE WITH 1 LAYER OF MIRAFI 140N OR APPROVED EQUIVALENT OVER UPHILL SIDE OF FENCE
SIX (6) GAUGE OR HEAVIER CHAIN LINK FENCING
MIRAFI MCF 1212 OR APPROVED EQUIVALENT
2 1/2 " DIAMETER GALVANIZED OR ALUMINUM POSTS
STABILIZE AREA WITH EROSION CONTROL MATTING MIN. 24" WIDE WITH 6" EMBEDMENT AGAINST MIRAFI. SECURE 6" NO. 11 GAUGE STAPLES AT 2'-0" O.C.
33" MINIMUM-POST
FLOW
EMBED MIRAFI MCF 1212 OR APPROVED EQUIVALENT 8" MINIMUM INTO GROUND
LAY MIRAFI MCF 1212 OR APPROVED EQUIVALENT IN BOTTOM OF 24" MIN. WIDE TRENCH
STANDARD SYMBOL
SFD
CONSTRUCTION SPECIFICATIONS
1. Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway (SHA) details for chain link fencing. The specification for 6 ft fence shall be used substituting 42" fabric and 6-ft length posts.
2. Top, bottom, and mid rail to be set in concrete.
3. Chain link fence shall be fastened securely to the fence post with wire ties or staples. The lower tension wire, brace, or truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) gauge or heavier.
4. MIRAFI MCF 1212 or approved equivalent shall be fastened securely to the chain link fence with ties spaced every 24-inches at the top and mid section.
5. MIRAFI MCF 1212 or approved equivalent shall be embedded a minimum of 8-inches into the ground.
6. Where two sections of MIRAFI MCF 1212 or approved equivalent abin each other, they shall be overlapped by 6-inches and folded.
7. Maintenance shall be performed as needed.
8. Maximum flow slope 10-0%
9. Maximum drainage area 5 acres.
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE | MODIFIED | Rev. 01/2007



FILTER BAG

⚠ SEE SHEETS 21A, 21B & 21C FOR REVISED DETAILS & SPECIFICATIONS

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

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

Purpose

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

Conditions Where Practice Applies

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

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

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

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

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

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

Construction and Material Specifications

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

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

I. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 ½" in diameter.

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

III. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas a nd worked into the soil in conjunction with tillage operations as described in the following procedures.

II For sites having disturbed areas under 5 acres:

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

III 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 have soluble salt content greater than 500 parts per million shall not be used.

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

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

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

V. Topsoil Application

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

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

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

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

(CONT)

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

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

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

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

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

III. 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 Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

G-21-13
1994

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2012"

DMW
DAFT McCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

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License No. 16028, Expiration Date: 5-13-16

FOR REVISION NO.1 ONLY
5/30/14
DATE
STATE OF MARYLAND CHARLES D. HESS 16028 PROFESSIONAL ENGINEER
PROF. ENGR. NO. 16028

ADDRESS CHART					
PARCEL NO.	STREET ADDRESS				
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE				
1-22-14 / 1	UPDATE TO 2011 MD STD & SPECS. FOR SOIL EROSION + SED. CNTRL				
DATE / NO.	REVISION DESCRIPTION				
SUBDIVISION NAME	SECTION NAME	PARCEL #			
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179			
PLAT #S	BLOCK #	ZONE	TAX / ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	57	1	6011.02
WATER CODE B-02		SEWER CODE 4020000			

PREPARED BY:
GWS
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785-6640~~

STATE OF MARYLAND PAUL WAYNE TAYLOR NO. 13741 REGISTERED PROFESSIONAL ENGINEER

ENGINEER CERTIFICATION:
"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
Signature of Engineer — Date 6/28/12
Print Name PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:
"I/ We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."
Signature of Developer — Date 10/25/2011
Print Name THOMAS D. HESS

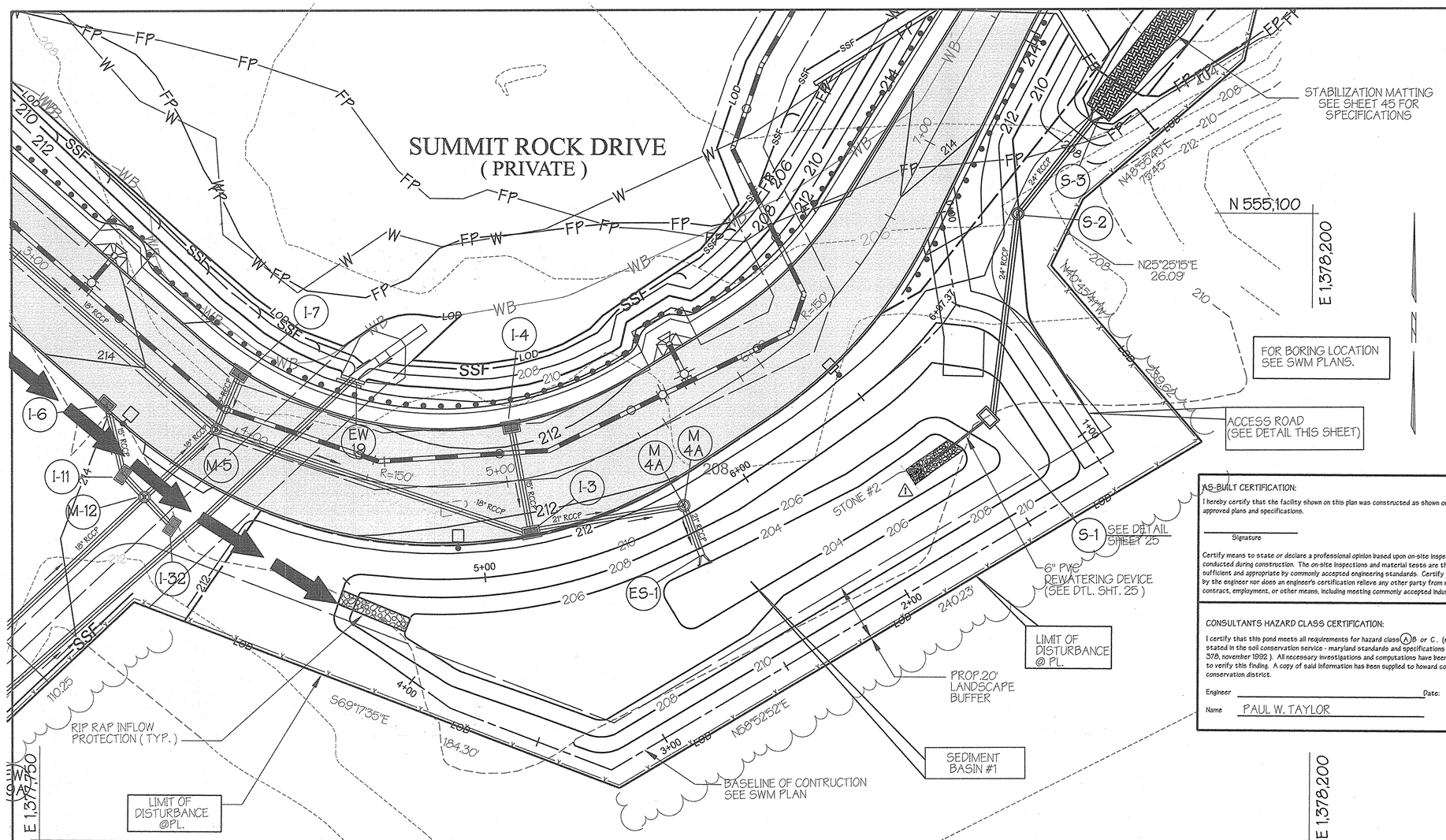
OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

STAGE 1
⚠
SEDIMENT CONTROL DETAILS - MDE
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND
SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 23 OF 94

SDP-08-082
P/N : 10762

.\sdp\10762c-23seddetails.s01 10/19/2011 8:35:26 AM SCALE 100.0000 ' / IN.



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APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/6/13

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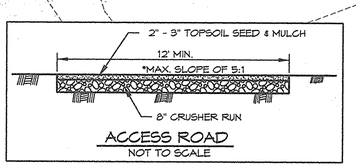

ACCESS ROAD
NOT TO SCALE

SEDIMENT BASIN #1

EX. DRAINAGE AREA - 2.87 AC.
PROP. DRAINAGE AREA - NA
STORAGE REQUIRED - 10,332 CU. FT.
STORAGE PROVIDED - 18,906 CU. FT.
WET STORAGE REQUIRED - 5,166 CU. FT.
WET STORAGE PROVIDED - 6,576 CU. FT.
DRY STORAGE REQUIRED - 5,166 CU. FT.
DRY STORAGE PROVIDED - 12,330 CU. FT.
CLEANOUT STORAGE REQUIRED - 2,583 CU. FT.
CLEANOUT STORAGE PROVIDED - 3,088 CU. FT.
TOP OF EMBANKMENT ELEVATION - 210.0'
WEIR CREST ELEVATION - 207.50
DRY STORAGE ELEVATION - 207.50
WET STORAGE ELEVATION - 206.00
CLEANOUT STORAGE ELEVATION - 205.25
BOTTOM OF BASIN ELEVATION - 204.0
BOTTOM OF BASIN DIMENSIONS - 17' X 103'
WEIR CREST LENGTH - 12.33'
SIDE SLOPES - 3:1

WET STORAGE ZONE = 204.00 - 206.00
DRY STORAGE ZONE = 206.00 - 207.50

AS-BUILT CERTIFICATION:

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

Signature — P.E. # ____ Date: ____

Certify means to state or declare a professional opinion based upon on-site inspections and material tests which are conducted during construction. The on-site inspections and material tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the engineer nor does an engineer's certification relieve any other party from meeting requirements imposed by contract, employment, or other means, including meeting commonly accepted industry practices.

CONSULTANTS HAZARD CLASS CERTIFICATION:

I certify that this pond meets all requirements for hazard class (A) B or C. (requirements as stated in the soil conservation service - maryland standards and specifications for pond, code 378, november 1992). All necessary investigations and computations have been performed to verify this finding. A copy of said information has been supplied to howard county soil conservation district.

Engineer ____ Date: ____

Name PAUL W. TAYLOR

Figure 2 Temporary Sediment Basin Design Data Sheet

Computed by : B.G.A. Date : 06/15/06 Checked by : ____ Date : ____
Project Name : Corridor 95 - Business Park Basin # : 1
Location : SWM Facility Temporarily Used As A Sediment Basin

Total Area Draining to Basin : 2.87 acres (ac) **Requires user input**

Basin Volume Design

Note : 1. Also see Surface Area Design #30, this form.
2. To Convert ft³ to yd³, divide ft³ by 27. To Convert ft² to yd², divide ft² by 9.

1. Min. Required Vol. = 3600 ft³ / ac x 2.87 ac. Drainage = 10,332 ft³
2. Actual Volume of Basin = 18,906 ft³ at Weir Crest Elev. 207.50
3. Excavate -- ft³ (-- yd³) to obtain required capacity.
4. Vol. at Dewatering Elev. = 1800 ft³ / ac x 2.87 ac. = 5,166 ft³
5. Vol. of Basin at Cleanout = 900 ft³ / ac x 2.87 ac. = 2,583 ft³
6. Elevation Corresponding to Min. Required Volume of Basin (Riser Crest Elevation) 207.50 ft
7. Permanent Pool Elevation 206.00 ft = 6,576 ft³
8. Distance from Riser Crest Elevation to Permanent Pool Elevation 1.50 ft
9. Basin Cleanout Elevation 205.25 ft = 3,088 ft³
10. Distance from Riser Crest Elevation to Cleanout Elevation 2.25 ft

Spillway Design

11. Q10 = 17.98 cfs (From TR-20, Attached Computations)

Principal Spillway (Ops) (See Detail 11)

12. Design Principal Spillway (Barrel) Discharge, Design Ops = 17.98 cfs (Min. 10% of 10 Year Peak or 6" Diameter Pipe)
13. H = 4.65 ft. ; Barrel Length = 70 ft.
14. Barrel Dia. 24 in. Note: Ops must equal or exceed Design Ops
Ops = Q (From Table 13 or 14) 32.18 x (Length Correction Factor) 1.02 = 32.82 cfs
15. Riser Diameter -- in. ; Riser Height -- ft. ; Riser Head (h) = -- ft.
16. Trash Rack Diameter. -- in. ; Trash Rack Height = -- in.

N/A CONCRETE RELEASE STRUCTURE, SEE SWM PLANS

Note: A Table showing Design Data shall be included on the plan for each Basin.

Emergency Spillway (Qes)

17. Emergency Spillway Capacity, Qes = Q10 - Ops = -- - -- = -- cfs
18. Width -- ft. ; Hp -- ft
19. Entrance Channel Slope -- %
20. Exit Channel Slope -- %

Anti-Seep Collar Design (If Required)

21. y = -- ft. ; z = -- :1 ; pipe slope = -- % ; Ls = -- ft.
22. Use -- collars, -- ft. - -- in. square; projection = -- ft.

Design Elevations

23. Riser Crest = 207.50 ft. 24. Design High Water = 207.90 ft.
25. Emergency Spillway Crest = -- ft. 26. Min. Settled Top of Dam = 210.00 ft.
27. Permanent Pool = 206.00 ft. 28. Bottom of Basin = 204.00 ft.
29. Draw-down Orifice Invert = 203.00 ft.

Surface Area Design

30. Min. Basin Surface Area; SA ≥ 0.0035 x Q10 = 0.0035 x 17.98 cfs ≤ 0.06293 ac.

Draw-Down Device

31. Draw-Down Device Orifice Diameter = 2.50 in. (From Table 11)
32. At = Total Area of perforations ≥ 4Ao
At = (# of perforation / foot) x (perforation area ft2) x (perforated section length ft.)
At = (6) x (0.0055) x (4.5)
⚠ At = 0.149 ft2 ≥ 0.136 ft2

Ao = Internal Orifice Area (From Table 11 or Computed)

Cd-d = 1800 x 2.87 / 10 x 3600 = 0.144 Hd-d = 2/3 x (207.50 - 206.00) = 1.00

Ao = 0.144 / 0.6 √2 x 32.166 x 1.00 = 0.144 / 4.812 = 0.03

do = √ 4 x 0.03 / 3.1416 = 0.19' = 2.34"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16028, Expiration Date: 5-13-16

FOR REVISION NO. 1 ONLY
5/30/14 DATE
STATE OF MARYLAND — CHARLES B. GLASGOW — 16028 — PROFESSIONAL ENGINEER
PROF. ENGR. NO. 16028

DMW
DAFT MCCUNE WALKER, INC
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

DATE	NO.	REVISION DESCRIPTION
1-22-14	⚠1	UPDATE TO 2011 MD. STD. & SPECS. FOR SOIL EROSION & SED. CNTRL.

SUBDIVISION NAME	SECTION NAME	PARCEL #
'CORRIDOR 95 BUSINESS PARK'	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX / ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

PREPARED BY :
GWS
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND — PAUL WAYNE TAYLOR — 13741 — PROFESSIONAL ENGINEER — 6/29/12

ENGINEER CERTIFICATION:
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Signature of Engineer ____ Date 6/29/12
Print Name PAUL W. TAYLOR PE # 13741

DEVELOPER CERTIFICATION:
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Signature of Developer ____ Date 10/25/2011
Print Name THOMAS D. UESS

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

STAGE I
SEDIMENT BASIN #1
CORRIDOR 95 BUSINESS PARK
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1ST
HOWARD CO., MARYLAND
SCALE: 1" = 20'
DATE : FEBRUARY 04, 2011
SHT. 24 OF 34

SDP-08-082 P/N : 10762

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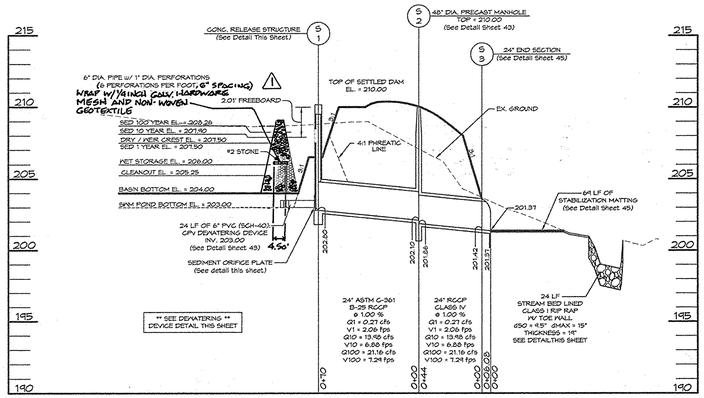
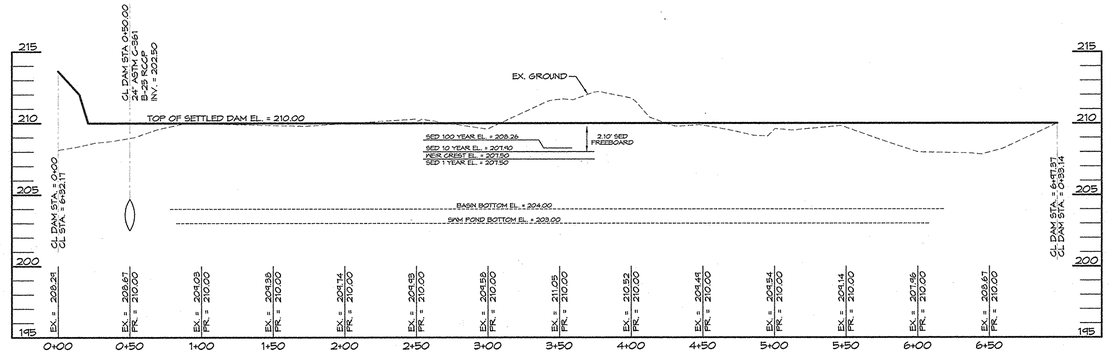


PROFILE THRU PRINCIPAL SPILLWAY

SCALE: HORZ 1" = 50'
VERT 1" = 5'



PROFILE ALONG EMBANKMENT

SCALE: HORZ 1" = 50'
VERT 1" = 5'

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.

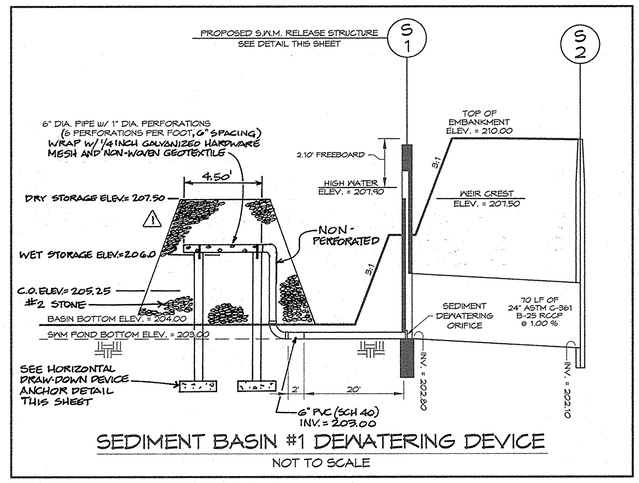
License No. 16928, Expiration Date: 5-13-16

FOR REVISION NO.1 ONLY

5/30/14
DATE

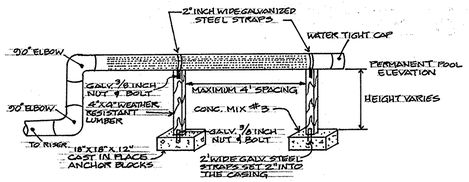
STATE OF MARYLAND
CHARLES E. LOY
16928
PROFESSIONAL ENGINEER

PROF. ENGR. NO. 16928



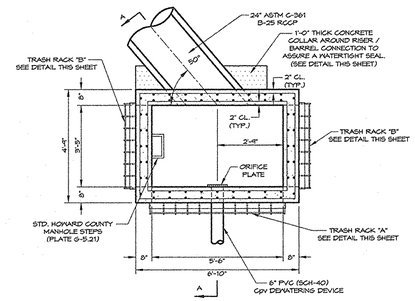
SEDIMENT BASIN #1 DEWATERING DEVICE

NOT TO SCALE

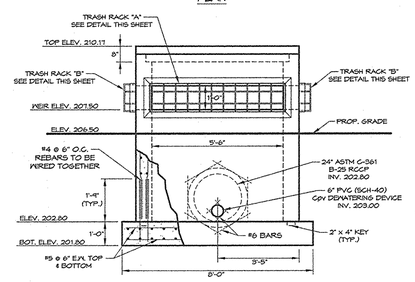


⚠ HORIZONTAL DRAW-DOWN DEVICE ANCHOR DETAIL

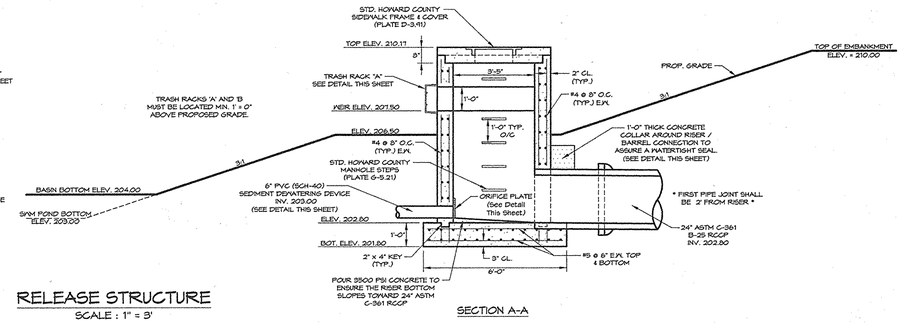
N.T.S.



PLAN



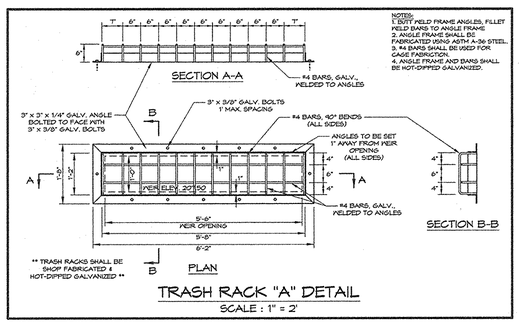
FRONT ELEVATION



SECTION A-A

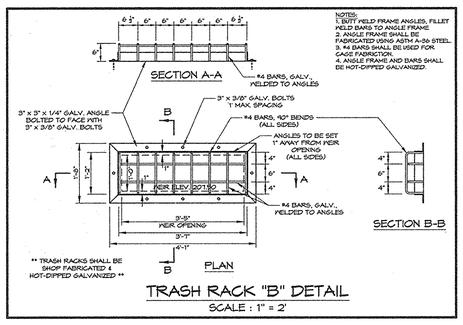
RELEASE STRUCTURE

SCALE : 1" = 3'



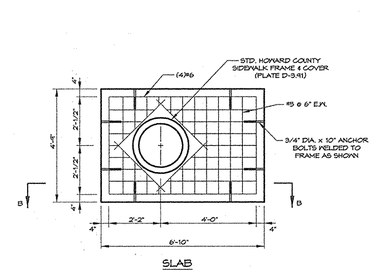
TRASH RACK "A" DETAIL

SCALE : 1" = 2'

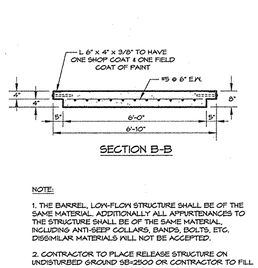


TRASH RACK "B" DETAIL

SCALE : 1" = 2'



SLAB

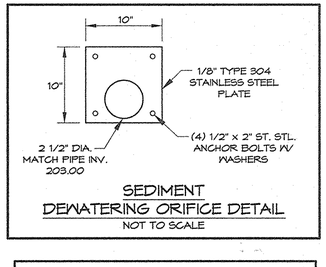


SECTION B-B

NOTE:

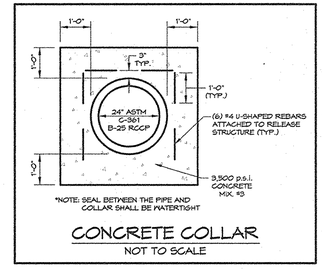
1. THE BARREL, LOW-FLOW STRUCTURE SHALL BE OF THE SAME MATERIAL. ADDITIONALLY ALL APPURTENANCES TO THE STRUCTURE SHALL BE OF THE SAME MATERIAL, INCLUDING ANTI-SEEP COLLARS, BANDS, BOLTS, ETC. DISSIMILAR MATERIALS WILL NOT BE ACCEPTED.

2. CONTRACTOR TO PLACE RELEASE STRUCTURE ON UNDISTURBED GROUND SB=2500 OR CONTRACTOR TO FILL BELOW STRUCTURE USING (CL) MATERIAL COMPACTED TO 95% OF AASHTO T-99.



SEDIMENT DEWATERING ORIFICE DETAIL

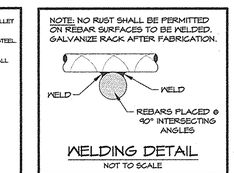
NOT TO SCALE



CONCRETE COLLAR

NOT TO SCALE

NOTE: NO RUST SHALL BE PERMITTED ON REBAR SURFACES TO BE WELDED. GALVANIZE RACK AFTER FABRICATION.



WELDING DETAIL

NOT TO SCALE

DMW
DAFT MCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/8/13

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~225 SHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 785-6640~~ http://www.gwstephens.com ~~Fax: (410) 785-6647~~

STATE OF MARYLAND — PAUL WAYNE TAYLOR — No. 13741 — REGISTERED PROFESSIONAL ENGINEER — 12/6/12

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013

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Signature of Engineer — Date 6/25/12

PAUL W. TAYLOR — Print Name — 13741 — PE #

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Signature of Developer — 10/25/2011 — Date

THOMAS D. HESS — Print Name

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

DATE	NO.	REVISION DESCRIPTION
1-22-14	⚠	ADD ANCHOR DETAIL & REVISE PROFILES

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 — SEWER CODE: 4020000

STAGE I ⚠

SEDIMENT BASIN #1 DETAILS

CORRIDOR 95 BUSINESS PARK

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : FEBRUARY 4, 2011
SHEET 25 OF 94

SDP-08-082

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DEVELOPER'S/OWNER'S LANDSCAPE 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 LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER'S / OWNER'S NAME

** AREA IN WHICH PLANTING IS RESTRICTED TO PLANTS BETWEEN 0 AND 45' HEIGHT AT MATURITY PER THE BGE TREE PLANTING GUIDE PG 6.
http://www.bge.com/vcmfiles/BGE/Files/Tree%20Trimming/TreePlantingGuide.pdf

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13
DIRECTOR — DATE 5/3/13

PREPARED BY:

GWS
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~2205-C Commerce Road~~
~~Forest Hill, Maryland 21050~~
~~(410) 297 - 2340~~

BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS — BERNT CHRISTIAN PETERSEN — 1095 — STATE OF MARYLAND

PLANT SCHEDULE SUMMIT ROCK DRIVE, PERIMETER, SWM, AND LOWER PARKING LOT

KEY	QUANT	BOTANICAL NAME	COMMON NAME	SIZE / COND.	SPACING	REMARKS
		SHADE TREES				
ASB	22	Acer saccharum 'Bonfire'	Bonfire Sugar Maple	2 1/2-3" cal. / B & B	as shown	full crown
AR	33	Acer rubrum 'Autumn Flame'	Autumn Flame Red Maple	2 1/2-3" cal. / B & B	as shown	full crown
CO	24	Celtis occidentalis 'Magnifica'	Hackberry 'Magnifica'	2 1/2-3" cal. / B & B	as shown	full crown
NS	36	Nyssa sylvatica *	Black Tupelo	2 1/2-3" cal. / B & B	as shown	full crown *
QP	10	Quercus palustris	Willow Oak	2 1/2-3" cal. / B & B	as shown	full crown
TD	3	Taxodium distichum	Common Bald Cypress	6-8' ht./ B & B	as shown	full to base
TT	30	Tilia tomentosa	Silver Linden	2 1/2-3" cal. / B & B	as shown	full crown
		SMALL DECIDUOUS TREES				
AT	11	Acer truncatum	Purpleblow Maple	8-10' ht. / B & B	as shown	full crown
AC	17	Amalanchier canadensis	Shadblow Serviceberry	8-10' ht. / B & B	as shown	Single stem, tree form
AMA	2	Amalanchier arborea	Downy Serviceberry	8-10' ht. / B & B	as shown	full crown
BN	8	Betula nigra	River Birch	8-10' ht. / B & B	as shown	full crown
CC	17	Cercis canadensis	Eastern Redbud	8-10' ht. / B & B	as shown	full crown
MH	18	Malus hupehensis 'Cardinal'	Cardinal Tea Crabapple Rosaceae	8-10' ht. / B & B	as shown	full crown
PrO	4	Prunus incamp 'Okame'	Okame Cherry	8-10' ht. / B & B	as shown	
		EVERGREENS				
AF	12	Abies fraserii	Frasier Fir	6-8' ht. / B & B	as shown	full to base
PM	33	Pseudotsuga menziesii	Douglass Fir	6-8' ht. / B & B	as shown	full to base
PO	39	Picea omorika	Serbian Spruce	6-8' ht. / B & B	as shown	full to base
TO	4	Thuja occidentalis	White Cedar	6-8' ht. / B & B	as shown	full to base
		SHRUBS				
AM	80	Aronia melanocarpa	Black Chokeberry	2 1/2-3' ht. / B & B	as shown	heavy
JC	13	Juniperus chinensis 'Plumosa'	Andorra Juniper	2 1/2-3' ht. / B & B	as shown	heavy
MA	67	Mahonia aquafolium	Oregon Grape Holly	2 1/2-3' ht. / B & B	as shown	heavy
VP	8	Viburnum plicatum tomentosum 'Shasta'	Shasta Doublefile Viburnum	2 1/2-3' ht. / B & B	as shown	heavy

* ALL BLACK TUPELO TREES SHALL BE PLANTED IN THE EARLY SPRING SEASON. THE SOIL IN AREAS WHERE BLACK TUPELO TREES ARE LOCATED SHALL BE SPECIFICALLY TESTED FOR SOIL pH VALUTE. IF HIGH pH SOILS ARE FOUND A PLANT SUSTITUTION SHALL BE ACCOMPLISHED AS THIS PLANT PREFERS ACID SOIL (pH 5.5-6.5)

Plant Legend

- PROPOSED SHADE TREE
- PROPOSED FLOWERING TREE
- PROPOSED EVERGREEN TREE
- PROPOSED SHRUBS
- PROPOSED TREE LINE
- EXISTING TREE LINE

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME		SECTION NAME			PARCEL #
CORRIDOR 95 BUSINESS PARK		N/A			134 / 179
PLAT #S	BLOCK #	ZONE	/ZONE TAX MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02
WATER CODE B-02			SEWER CODE 4020000		

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A. M.E.H.
DRAWN BY: E M.E.H.
CHECKED BY: P. B.C.P.G.
REVISIONS

LANDSCAPE PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 26 OF 94

SDP-08-082 P/N : 10762

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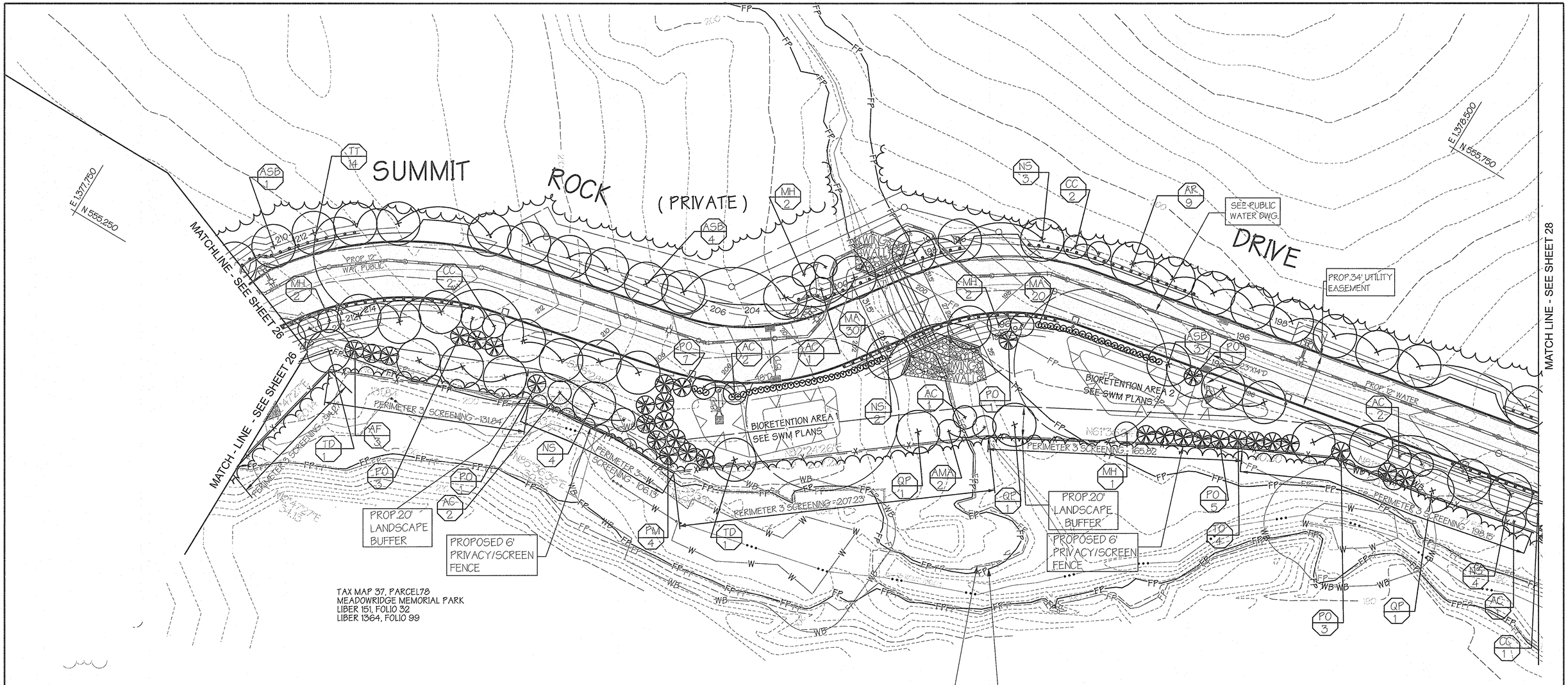

TAX MAP 37, PARCEL 78
MEADOWRIDGE MEMORIAL PARK
LIBER 151, FOLIO 32
LIBER 1364, FOLIO 99

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DEVELOPER'S / OWNER'S NAME

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

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~2205 G Commerce Road~~
~~Forest Hill, Maryland 21050~~
~~(410) 297 - 2340~~

BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS 1095 STATE OF MARYLAND

PLANT SCHEDULE SUMMIT ROCK DRIVE, PERIMETER, SWM, AND LOWER PARKING LOT

KEY	QUANT	BOTANICAL NAME	COMMON NAME	SIZE / COND.	SPACING	REMARKS
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CO	24	Celtis occidentalis 'Magnifica'	Hackberry 'Magnifica'	2 1/2-3" cal. / B & B	as shown	full crown
NS	36	Nyssa sylvatica *	Black Tupelo	2 1/2-3" cal. / B & B	as shown	full crown *
QP	10	Quercus palustris	Willow Oak	2 1/2-3" cal. / B & B	as shown	full crown
TD	3	Taxodium distichum	Common Bald Cypress	6-8' ht. / B & B	as shown	full to base
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		SMALL DECIDUOUS TREES				
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AC	17	Amalanchier canadensis	Shadblow Serviceberry	8-10' ht. / B & B	as shown	Single stem, tree form
AMA	2	Amalanchier arborea	Downy Serviceberry	8-10' ht. / B & B	as shown	full crown
BN	8	Betula nigra	River Birch	8-10' ht. / B & B	as shown	full crown
CC	17	Cercis canadensis	Eastern Redbud	8-10' ht. / B & B	as shown	full crown
MH	18	Malus hupehensis 'Cardinal'	Cardinal Tea Crabapple Rosaceae	8-10' ht. / B & B	as shown	full crown
PrO	4	Prunus incamp 'Okame'	Okame Cherry	8-10' ht. / B & B	as shown	
		EVERGREENS				
AF	12	Abies fraserii	Frasier Fir	6-8' ht. / B & B	as shown	full to base
PM	33	Pseudotsuga menziesii	Douglass Fir	6-8' ht. / B & B	as shown	full to base
PO	39	Picea omorika	Serbian Spruce	6-8' ht. / B & B	as shown	full to base
TO	4	Thuja occidentalis	White Cedar	6-8' ht. / B & B	as shown	full to base
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Plant Legend

PROPOSED SHADE TREE
PROPOSED FLOWERING TREE
PROPOSED EVERGREEN TREE
PROPOSED SHRUBS
PROPOSED TREE LINE
EXISTING TREE LINE

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.M.E.H.
DRAWN BY: E.M.E.H.
CHECKED BY: P. B.C.P.I.G.
REVISIONS

LANDSCAPE PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 27 OF 94

SDP-08-082 — P/N : 10762

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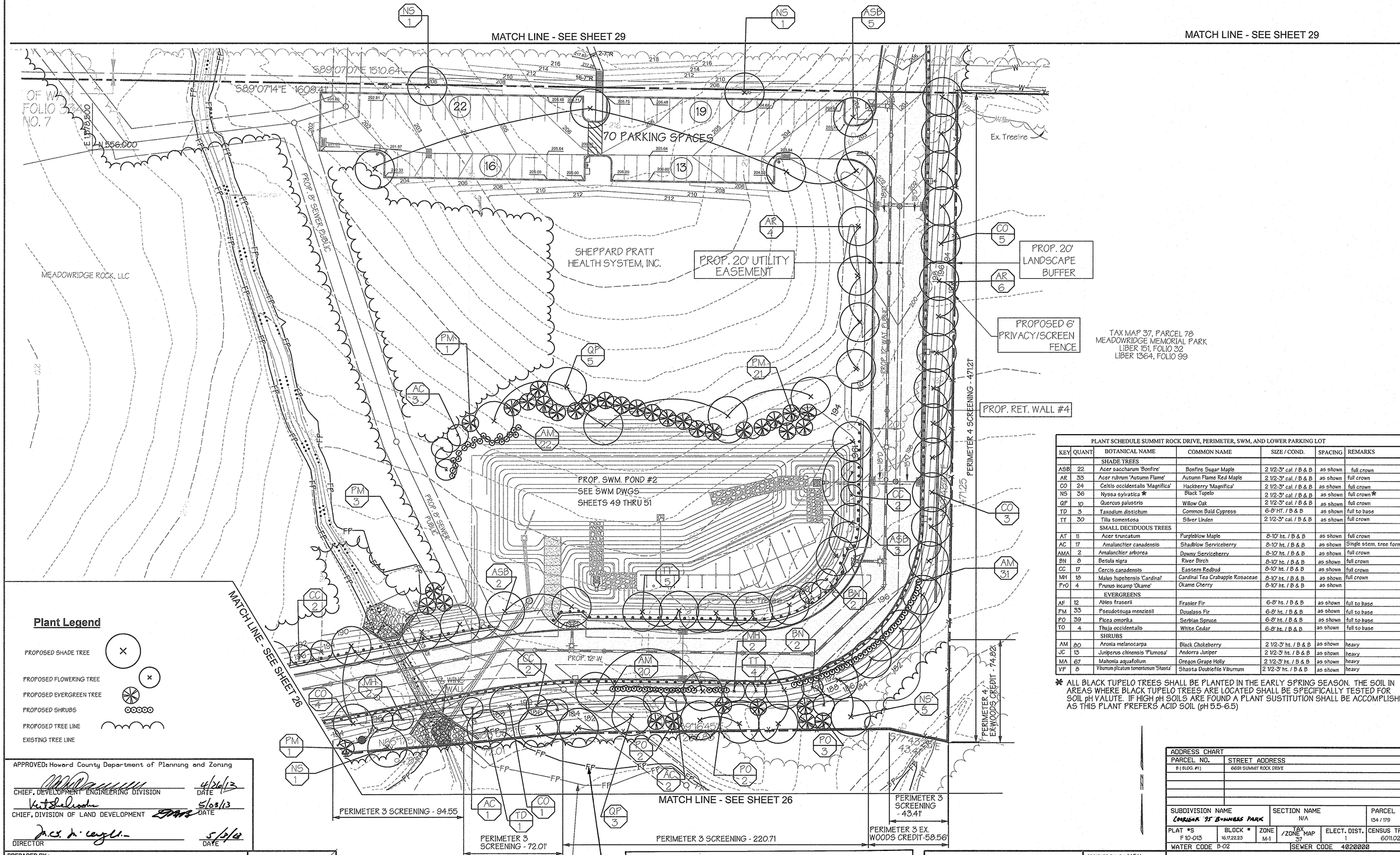

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- PROPOSED EVERGREEN TREE
- PROPOSED SHRUBS
- PROPOSED TREE LINE
- EXISTING TREE LINE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/3/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.

Civil Engineers and Land Surveyors

~~2205-G Commerce Road~~
~~Forest Hill, Maryland 21050~~
~~(410) 297 - 2340~~

1095 REGISTERED PROFESSIONAL ENGINEER STATE OF MARYLAND

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DEVELOPER'S / OWNER'S NAME

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

DESIGNED BY: E.A.M.E.H.
DRAWN BY: E.M.E.H. :
CHECKED BY: P.J.B.C.P. G.
REVISIONS

LANDSCAPE PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 28 OF 94

SDP-08-082 F/N : 10762

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State of Maryland
Book RHM 325 Page 160

PERIMETER - 1 (27.27 LF of 390.44 L.F.)

E 1,378,500
N 556,500

CHD.= N 71°53'12" E 830.15'

30' PARKING AND FENCE SETBACK LINE

E 1,379,000
N 556,500

RAMP 'F'
PRINCIPAL ARTERIAL HIGHWAY

PERIMETER - 2 (752.16 LF)
R=945.92'
L=742.16'

Storm Drain 24" RCP
Invert = 202.75'

PROP. 20' UTILITY EASEMENT

CHD.= S 65°57'18" E 723.27'

UNDERGROUND STORMWATER MANAGEMENT FACILITY NO. 1
SEE SWM DWGS FOR DETAILS
SHEETS 46 THRU 49

PROP. 8" W PUBLIC

PROP. 20' UTILITY ESMT.

PROP. F.H.

PROPOSED SIDEWALK

SIAMESE CONN.

PROPOSED OFFICE BUILDING NO. 1
4 STORY
27,000 SQ. FT. PER FLOOR
108,000 SQ. FT.
FIN. FLR. ELEV. 226.00
405 PARKING SPACES

41.5' 5' 70' 5' 40' 5' 70' 5' 41.5'
263'
93'
103'

C.O. NO.2
C.O. NO.1

SEE SHEET 8 FOR HANDICAPPED DETAIL ENLARGEMENT

PROP. INSIDE WATER METER SETTING 6" TIRE, 3" DOMESTIC

PROP. 8" W PUBLIC

PROP. 20' UTILITY ESMT.

PROP. 6" W PUBLIC

UNDERGROUND SWM FACILITY NO. 3
SEE SWM DWGS
SHEETS 53 THRU 55

PROP. GUARDRAIL SEE SHEET 71 FOR DETAIL

PROP. RET. WALL #1

PROP. RET. WALL #2

PROPOSED FLOODPLAIN

PROP. 8" SEWER PUBLIC

PROP. 20' UTILITY EASEMENT

EX. 20" GAS LINE TO REMAIN

50' BGE GAS EASEMENT

PROP. 8" SEWER PUBLIC

PROP. 20' UTILITY EASEMENT

S89°07'07"E 1510.64'

SUMMIT ROCK DRIVE
(PRIVATE)

25' WETLANDS BUFFER

25' WETLANDS BUFFER

PERIMETER 3 (289.08 L.F.)
S89°07'14"E 1510.64'

PERIMETER - 1 (363.17 LF of 390.44 L.F.)
S 42°19'20" E
179.97'
104.32'

PROP. STAIRS WITH HANDRAILS SEE HO. CO. STD. DTL. G-7.02

MATCH LINE - SEE SHEET 28

E 1,379,000
N 556,000

PROP. 20' LANDSCAPE BUFFER

PROPOSED 6' PRIVACY/SCREEN FENCE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/3/13

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DEVELOPER'S / OWNER'S NAME

PLANT SCHEDULE LOT 1

KEY	QUANT.	BOTANICAL NAME / COMMON NAME	SIZE / COND.	SPACING	REMARKS
SHADE TREES					
QW	3	Quercus phellos / Willow Oak	2 1/2 - 3" B&B	As Shown	Full Crown
GTI	16	Gleditsia triacanthos inermis 'Shademaster' / Honeylocust	2 1/2 - 3" B&B	As Shown	Full Crown
AR	4	Acer rubrum / Red Maple	2 1/2 - 3" B&B	As Shown	Full Crown
QP	6	Quercus palustris / Pin Oak	2 1/2 - 3" B&B	As Shown	Full Crown
ZS	21	Zelkova serrata 'Green Vase' / 'Green Vase' Zelkova	2 1/2 - 3" B&B	As Shown	Full Crown
SMALL DECIDUOUS TREES					
AC	3	Amelanchier canadensis / Servicebery	6 - 8' B&B	As Shown	Heavy
SHRUBS					
SJ	38	Spirea japonica 'Little Princess' / 'Little Princess' Spirea	18 - 24" ht. / #3 cont.	3' o/c	Heavy

Plant Legend

PROPOSED SHADE TREE
PROPOSED FLOWERING TREE
PROPOSED SHRUBS
PROPOSED TREE LINE
EXISTING TREE LINE

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

REGISTERED PROFESSIONAL ENGINEERS 10955 ROBERT BRUCE SCHMITT STATE OF MARYLAND

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: M.K. /K.E.
DRAWN BY: M.K. /K.E.
CHECKED BY: B.C.P.
REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
'CORRIDOR 95 BUSINESS PARK'	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

LANDSCAPE PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
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SHT. 29 OF 94

SDP-08-082

F/N : 10762

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SUMMIT ROCK DRIVE
LANDSCAPE PLANS
1-3

SCHEDULE A PERIMETER 3 & 4 LANDSCAPE EDGE			
	ROADWAYS		PERIMETER PROPERTIES
Landscape Type	B	E	A
Linear Feet of Perimeter 3	0	0	2090.30
Perimeter 4	0	0	471.21
Credit for existing Vegetation, (Yes, No Linear Feet)	NO	NO	YES - 118.23
Credit for Wall, Fence, or Berm (Yes, No, Linear Feet)	NO	NO	NO
Number of Plants Required			
Shade Trees	0	0	42
Evergreen Trees	0	0	0
Shrubs	0	0	0
Number of Plants Provided			
Shade Trees	0	0	22
Evergreen Trees	0	0	22
Other Trees (2:1 sub.)	0	0	15
Shrubs (10:1 sub.)	0	0	15

COMMENTS:

SCHEDULE D - SWM POND 1 STORMWATER MANAGEMENT AREA LANDSCAPING	
Linear Feet of Perimeter	770
Number of Trees Required	
Shade Trees	16
Evergreen Trees	20
Credit for Existing Vegetation (No, Yes, and %)	NO
Credit for Other Landscaping (No, Yes, and %)	NO
Number of Trees Provided	
Shade Trees	10
Evergreen Trees	20
Other trees (2:1 Substitution)	8
Shrubs (10:1 Substitution)	20

Comments:

SCHEDULE D - BIORETENTION AREAS 1 &2 STORMWATER MANAGEMENT AREA LANDSCAPING	
Linear Feet of Perimeter	917
Number of Trees Required	
Shade Trees	19
Evergreen Trees	23
Credit for Existing Vegetation (No, Yes, and %)	NO
Credit for Other Landscaping (No, Yes, and %)	NO
Number of Trees Provided	
Shade Trees	9
Evergreen Trees	23
Other trees (2:1 Substitution)	7
Shrubs (10:1 Substitution)	58

Comments:

SCHEDULE D - SWM POND 2 STORMWATER MANAGEMENT AREA LANDSCAPING	
Linear Feet of Perimeter	892
Number of Trees Required	
Shade Trees	18
Evergreen Trees	23
Credit for Existing Vegetation (No, Yes, and %)	NO
Credit for Other Landscaping (No, Yes, and %)	YES, 31%
Number of Trees Provided	
Shade Trees	5
Evergreen Trees	23
Other trees (2:1 Substitution)	4
Shrubs (10:1 Substitution)	20

Comments: 9 Shade Trees credit for street trees adjacent to and contributing to SWM planting

STREET TREE CALCULATION	
Linear Feet of R/W	5261
Number of Shade Trees Required	132
Number of Trees Provided	
Shade Trees	108
Evergreen Trees	0
Other trees (2:1 Substitution)	38
Shrubs (10:1 Substitution)	55

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
Number of Parking Spaces	70
Number of Islands Required	4
Number of Trees Required	4
Number of Islands Provided	4
Number of Shade Trees Provided	4

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

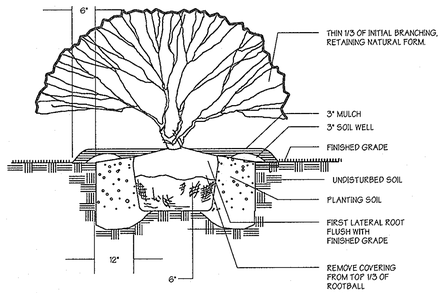
DIRECTOR — DATE 5/8/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.

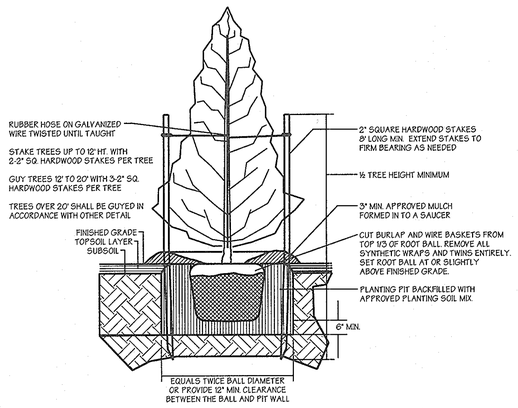
Civil Engineers and Land Surveyors

~~2205 G Commerce Road~~
~~Forest Hill, Maryland 21050~~
~~(410) 297 - 2340~~



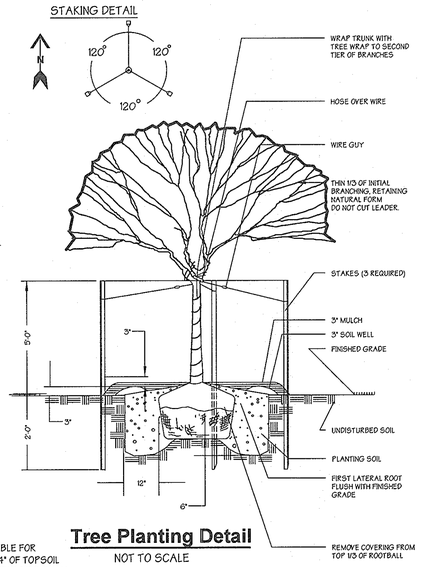
Shrub Planting Detail

NOT TO SCALE



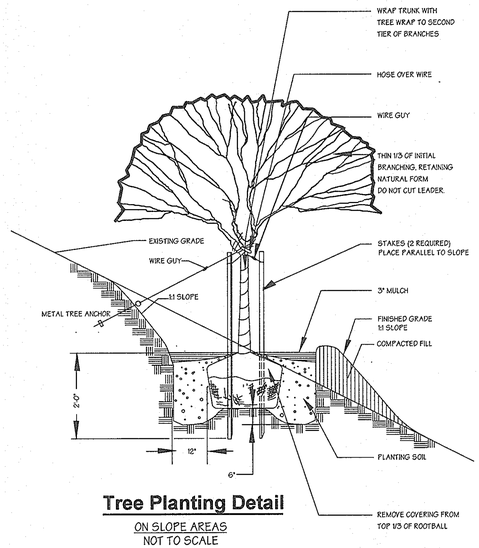
Evergreen Planting Detail

NOT TO SCALE



Tree Planting Detail

NOT TO SCALE



Tree Planting Detail

ON SLOPE AREAS
NOT TO SCALE

LANDSCAPE NOTES

A. STANDARDS

1. ALL PLANT MATERIAL, CONSTRUCTION METHODS AND MATERIAL PLACEMENT SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC., THE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS," AS PROPOSED BY THE LANDSCAPE CONTRACTORS ASSOCIATION, EDITION OF THE "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS" OF THE MARYLAND STATE DEPARTMENT OF TRANSPORTATION. INFERIOR NURSERY STOCK WILL BE SUBJECT TO REJECTION BY THE LANDSCAPE ARCHITECT.
2. ALL TREES SHALL BE DELIVERED TO THE SITE BALLED AND BURLAPPED. ALL SHRUBS SHALL BE BALLED AND BURLAPPED OR IN CONTAINERS. ALL GRASSES & PERENNIALS SHALL BE IN CONTAINERS. BARE-ROOT SHALL NOT BE ALLOWED FOR ANY TREE DEFINED AS SHADE, FLOWERING, OR EVERGREEN
3. LANDSCAPE SPECIFICATION SHALL CONFORM TO LCA LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREA, INCLUDING PLANTING PROCEDURES AND SOIL PREPARATION FOR SHRUBS AND PERENNIAL BEDS.A ONE-YEAR WARRANTY PERIOD SHALL BE REQUIRED. MAINTENANCE REQUIRED TO HONOR THE ONE YEAR WARRANTY SHALL BE PERFORMED AS PART OF THIS CONTRACT.
4. PLANT LOCATIONS SHALL BE FIELD ADJUSTED TO AVOID UTILITIES. CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO START OF WORK. ALL TREES AND SHRUBS SHALL BE MULCHED TO A MINIMUM OF 18" BEYOND THE EDGE OF THE ROOT BALL. SHRUBS MASSES SHALL BE PLANTED IN CONTINUOUS MULCH BEDS. ALL WIRE,PLASTIC AND TWINE TIES SHALL BE REMOVED FROM TOP OF THE ROOT BALL.
5. NO EXCEPTIONS TO THE GUARANTEE PROVISIONS ARE ALLOWED UNLESS AGREED TO IN WRITING PRIOR TO PLANTING.
6. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 AND CHAPTER V OF THE HOWARD COUNTY CODE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN THE AMOUNT OF $100,740.00 HAS BEEN POSTED AS A PART OF THE DEVELOPER'S AGREEMENT.

B. WATERING

1. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATERING SHALL NOT BE DONE DURING THE HEAT OF THE DAY. CONTRACTOR SHALL PROVIDE A SEPARATE LUMP SUM PRICE IN THE OVERALL LANDSCAPE BID FOR WATERING TO ALL NEW PLANTINGS DURING ONE GROWING SEASON.

C. MAINTENANCE:

1. AFTER THE PLANTING HAS BEEN APPROVED BY THE LANDSCAPE ARCHITECT AND THE OWNER, THE MAINTENANCE OF WATERING AND WEEDING OF SUCH PLANTS AND PLANTED AREAS SHALL BE PROVIDED BY THE OWNER. SINCE THE PLANTS ARE TO BE GUARANTEED BY THE CONTRACTOR, THE CONTRACTOR SHALL PERIODICALLY CHECK THE MAINTENANCE CONDUCTED BY THE OWNER. IF THE CONTRACTOR IS NOT SATISFIED WITH THE MAINTENANCE OF THE PLANTS, A WRITTEN REPORT, IN TRIPLICATE, STATING APPROPRIATE CHANGES SHALL BE GIVEN IMMEDIATELY TO THE LANDSCAPE ARCHITECT; TWO COPIES WILL BE FORWARDED TO THE OWNER. BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING.

D. EXCAVATION

1. CONTRACTOR IS ENCOURAGED TO PERFORM SOIL TESTING. TEST RESULTS SHALL BE SUBMITTED 30 DAYS BEFORE PLANTING. FAILURE TO PERFORM TESTING WILL NOT VOID GUARANTEE PROVISIONS.
2. CONTRACTOR SHALL REVIEW AND TEST SUBSOIL DRAINAGE CHARACTERISTICS 30 DAYS PRIOR TO PLANTING AND NOTIFY OWNER UNACCEPTABLE CONDITIONS.
3. DEPTH AND WIDTH OF EXCAVATION FOR PLANTING OF ALL PLANTS SHALL BE TO TWICE THE DEPTH AND WIDTH OF ROOT BALL OR CONTAINER OF PLANT TO BE INSTALLED, EXCEPT AS NOTED ON DETAILS.

E. TOPSOIL & PLANTING MIX

1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF REQUIRED TOPSOIL. A MINIMUM OF 4" OF TOPSOIL SHALL BE PLACED IN ALL LANDSCAPED AREAS. PLANTING PITS SHALL RECEIVE TOPSOIL AS NOTED ON DETAILS SHOWN HEREON.
2. ALL TOPSOIL SHALL BE WELL GRADED LOAM OF GOOD UNIFORM QUALITY AND SHALL BE A NATURAL FRIABLE SOIL FREE OF OBJECTS LARGER THAN ONE INCH IN ANY DIMENSION, AND FREE OF TOXIC SUBSTANCES, WEEDS AND ANY MATERIAL OF SUBSTANCES THAT MAY BE HARMFUL TO PLANT GROWTH.
3. FOR PLANTING MIX, MIX THOROUGHLY 2/3 APPROVED TOPSOIL AND 1/3 APPROVED ORGANIC MATTER.

F. SUBSTITUTIONS

1. PLANT TYPES (DECIDUOUS TREES, EVERGREEN, ETC.), QUANTITIES, SPACING, LOCATION, AND SPECIES SHOWN ON THE APPROVED LANDSCAPE PLAN ARE BASED ON REQUIREMENTS STATED IN THE LATEST HOWARD COUNTY LANDSCAPE MANUAL. ANY CHANGE IN THESE ITEMS MAY AFFECT THE REQUIRED APPROVAL AND CERTIFICATION OF THE INSTALLED PLANTING. OWNER IS REQUIRED TO ARRANGE AND PAY FOR CERTIFICATION BY LANDSCAPE ARCHITECT IF A PLANT IS FOUND NOT TO BE SUITABLE OR AVAILABLE, THE LANDSCAPE CONTRACTOR IS TO NOTIFY THE LANDSCAPE ARCHITECT BEFORE BIDDING. THE LANDSCAPE ARCHITECT WILL THEN SELECT A REASONABLE ALTERNATE OR INFORM ALL LANDSCAPE CONTRACTORS OF THE AVAILABILITY OF THE ORIGINAL PLANT.

G. PRUNING, CLEANUP, PROTECTION OF EXISTING MATERIALS AND RESTORATION

1. DURING COURSE OF PLANTING, EXCESS AND WASTE MATERIALS SHALL BE CONTINUOUSLY AND PROMPTLY REMOVED, LAWN AREAS KEPT CLEAR, AND ALL REASONABLE PRECAUTIONS TAKEN TO AVOID DAMAGE TO ANY EXISTING LAWNS, PAVING, ETC. NOT SCHEDULED FOR REMOVAL. WHEN PLANTING IN AN AREA HAS BEEN COMPLETED, THE AREA SHALL BE CLEANED UP THOROUGHLY. DEBRIS, RUBBISH, SUBSOIL AND WASTE MATERIALS SHALL BE CLEANED UP AND REMOVED FROM THE PROPERTY, EXISTING GRASS AREAS WHICH HAVE BEEN INJURED BY THE WORK SHALL BE REGRADED AND SODDED TO MATCH THE EXISTING LAWN, THE ENTIRE AREA SHALL BE NEAT AND CLEAN TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT.
2. CONTRACTOR SHALL, AT ALL TIMES, PROTECT ALL PLANTS AND LAWNS FROM DAMAGE. THE MOVING OF HEAVY EQUIPMENT OR MATERIAL OVER THE LAWN AREAS SHALL BE DONE ON PLANKS OR PONTOONS.
3. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION ALL PAVEMENTS, SODDED OR PLANTED AREAS, STRUCTURES, OR SUBSTRUCTURES, NOT SCHEDULED FOR REMOVAL WHICH ARE DISTURBED BY THE CONTRACTOR DURING PLANTING OPERATIONS. SUCH RESTORATION SHALL BE IN A MANNER SATISFACTORY TO THE LANDSCAPE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.

H. FERTILIZER, MULCH & SOIL AMENDMENTS

1. FERTILIZER TABLETS OR SPIKES SHALL BE PLACED AT EACH TREE AND SHRUB AT A RATE OF 1 PER 2" OF TRUNK CALIPER OR GALLON OF ROOTBALL. TABLETS OR SPIKES SHALL NOT BE IN CONTACT WITH THE ROOTBALL.
2. MULCH MATERIAL SHALL BE OF UNIFORM SIZE, FINESHREDDED HARDWOOD MULCH OR APPROVED EQUAL. MULCH SHALL BE LAID TO A UNIFORM MINIMUM DEPTH OF 2 INCHES. MULCH AREASAROUND TREES AT THE RATE OF 1" OF DIAMETER PER 1" OF TRUNK CALIPER.
3. HYDROGEL ABSORBENT MATERIAL SHALL BE ADDED TO THE PLANTING HOLE FOR EACH TREE AND SHRUB AT THE RATE OF 4 OUNCES PER 2-1/2" CALIPER OR PER GALLON OF ROOTBALL.

I. FINAL INSPECTION AND GUARANTEE

1. AFTER PLANTING IS COMPLETED (INCLUDING MULCHING AND CLEANUP) THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING TO REQUEST FINAL INSPECTION OF THE TOTAL PLANTING. THE LANDSCAPE ARCHITECT SHALL MAKE A FINAL INSPECTION VISIT AS SOON AS POSSIBLE. LANDSCAPE ARCHITECT SHALL NOTIFY THE LANDSCAPE CONTRACTOR, IN WRITING, WHEN ALL WORK IS SATISFACTORILY COMPLETE.
2. ALL PLANT MATERIAL AND LAWN AREAS SHALL BE GUARANTEED TO BE IN A VIGOROUS GROWING CONDITION ONE YEAR FROM THE DATE OF FINAL INSPECTION AND ACCEPTANCE. AT THE TERMINATION OF THIS PERIOD, THE CONTRACTOR SHALL HAVE COMPLETED THE PRECEDING MAINTENANCE SCHEDULE. ANY PLANTS INFECTED WITH DISEASE OR INSECTS WILL BE REMOVED OR TREATED. ALL DEAD OR UNACCEPTABLE PLANTS WILL BE REPLACED BY THE SAME PLANTS AND SIZES DESIGNATED ON THE PLANT LIST. THESE PLANTS SHALL BE PLANTED, MULCHED, AND GUY AS SPECIFIED HEREIN AND WITHOUT EXTRA COMPENSATION TO THE CONTRACTOR. AT THE COMPLETION OF ALL SUCH WORK AND WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT, THE CONTRACT WILL BE CONSIDERED COMPLETE.
IF WORK IS NOT SATISFACTORILY COMPLETE, THE LANDSCAPE ARCHITECT WILL NOTIFY THE LANDSCAPE CONTRACTOR, IN WRITING AS TO THE DEFICIENCIES IN THE WORK AND THE NECESSARY CORRECTIVE MEASURES. THELANDSCAPE CONTRACTOR WILL BE GIVEN A REASONABLE AMOUNT OF TIME TO CORRECT THE DEFICIENCIES, AND ANOTHER FINAL INSPECTION WILL BE SCHEDULED BY THE LANDSCAPE ARCHITECT.

NOTE:

(1) CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT 48 HOURS PRIOR TO A MAJOR PHASE INSTALLATION OF PLANT MATERIAL.
(2) WHERE ANY PLANT MATERIAL IS TO BE INSTALLED ON INDIVIDUAL LOT AREAS THE LOT OWNER SHALL BE NOTIFIED 48 HOURS PRIOR TO THE INSTALLATION.
(3) WHERE FENCING IS INSTALLED IN CLOSE PROXIMITY TO PROPOSED LANDSCAPING, THE PLANTING LOCATIONS SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT.

PLANT SCHEDULE SUMMIT ROCK DRIVE, PERIMETER, SWM, AND LOWER PARKING LOT						
KEY	QUANT	BOTANICAL NAME	COMMON NAME	SIZE / COND.	SPACING	REMARKS
		SHADE TREES				
ASB	22	Acer saccharum 'Bonfire'	Bonfire Sugar Maple	2 1/2-3" cal. / B & B	as shown	full crown
AR	32	Acer rubrum 'Autumn Flame'	Autumn Flame Red Maple	2 1/2-3" cal. / B & B	as shown	full crown
CO	24	Celtis occidentalis 'Magnifica'	Hackberry 'Magnifica'	2 1/2-3" cal. / B & B	as shown	full crown
NS	36	Nyssa sylvatica *	Black Tupelo	2 1/2-3" cal. / B & B	as shown	full crown *
QP	11	Quercus palustris	Willow Oak	2 1/2-3" cal. / B & B	as shown	full crown
TD	3	Taxodium distichum	Common Bald Cypress	6-8' ht. / B & B	as shown	full to base
TT	30	Tilia tomentosa	Silver Linden	2 1/2-3" cal. / B & B	as shown	full crown
		SMALL DECIDUOUS TREES				
AT	11	Acer truncatum	Purpleblow Maple	8-10' ht. / B & B	as shown	full crown
AC	17	Amalanchier canadensis	Shadblow Serviceberry	8-10' ht. / B & B	as shown	Single stem, tree form
AMA	2	Amalanchier arborea	Downy Serviceberry	8-10' ht. / B & B	as shown	full crown
BN	8	Betula nigra	River Birch	8-10' ht. / B & B	as shown	full crown
CC	17	Cercis canadensis	Eastern Redbud	8-10' ht. / B & B	as shown	full crown
MH	18	Malus hupehensis 'Cardinal'	Cardinal Tea Crabapple Rosaceae	8-10' ht. / B & B	as shown	full crown
PrO	4	Prunus incamp 'Okame'	Okame Cherry	8-10' ht. / B & B	as shown	
		EVERGREENS				
AF	12	Abies fraseri	Frasier Fir	6-8' ht. / B & B	as shown	full to base
PM	33	Pseudotsuga menziesii	Douglass Fir	6-8' ht. / B & B	as shown	full to base
PO	39	Picea omorika	Serbian Spruce	6-8' ht. / B & B	as shown	full to base
TO	4	Thuja occidentalis	White Cedar	6-8' ht. / B & B	as shown	full to base
		SHRUBS				
AM	80	Aronia melanocarpa	Black Chokeberry	2 1/2-3' ht. / B & B	as shown	heavy
JC	13	Juniperus chinensis 'Plumosa'	Andorra Juniper	2 1/2-3' ht. / B & B	as shown	heavy
MA	67	Mahonia aquafolium	Oregon Grape Holly	2 1/2-3' ht. / B & B	as shown	heavy
VP	8	Viburnum plicatum tomentosum 'Shasta'	Shasta Doublefile Viburnum	2 1/2-3' ht. / B & B	as shown	heavy

* ALL BLACK TUPELO TREES SHALL BE PLANTED IN THE EARLY SPRING SEASON. THE SOIL IN AREAS WHERE BLACK TUPELO TREES ARE LOCATED SHALL BE SPECIFICALLY TESTED FOR SOIL pH VALUTE. IF HIGH pH SOILS ARE FOUND A PLANT SUSTITUTION SHALL BE ACCOMPLISHED AS THIS PLANT PREFERS ACID SOIL (pH 5.5-6.5)

PLANTS REQUIRED SUMMIT ROCK DRIVE, PERIMETER, SWM, AND LOWER PARKING LOT CALCULATIONS

SHADE TREES	230	@ 300.00 =	$69,000.00
EVERGREEN TREES	66	@ 150.00 =	$9,900.00
SHRUBS	0	@ 0.00 =	$0.00
TOTAL SUMMIT ROCK DRIVE, PERIMETER, SWM, AND LOWER PARKING LOT :			$78,900.00

PLANTS REQUIRED LOT 1 CALCULATIONS

SHADE TREES	49	@ 300.00 =	$14,700.00
EVERGREEN TREES	10	@ 150.00 =	$1,500.00
SHRUBS	188	@ 30.00 =	$5,640.00
		TOTAL LOT 1 =	$21,840.00
		GRAND TOTAL:	$100,740.00

DEVELOPER'S/OWNER'S LANDSCAPE 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 Landscape Manual. I/We further certify that upon completion a Letter of Landscape Installation, accompanied by an executed one year guarantee of plant materials, will be submitted to the Department of Planning and Zoning.

Developer's / Owner's Name

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A. M.E.H.	
DRAWN BY: E.M.E.H.	
CHECKED BY: P. B.C.P.	
REVISIONS	

SCHEDULE A PERIMETER LANDSCAPE EDGE				
	ROADWAYS		PERIMETER PROPERTIES	
Landscape Type	B	E	A	C
Perimeter 1	390.44 L.F.	0	0	0
Perimeter 2	0	752.16 L.F.	0	0
Perimeter 3	0	0	289.08 L.F.	0
Credit for existing Vegetation, (Yes, No Linear Feet)	YES 390.44 L.F. Of Evergreen Screen	YES 600.00 L.F. Of Shrub Screen	NO	N/A
Credit for Wall, Fence, or Berm (Yes, No, Linear Feet)	NO	NO	N/A	N/A
Number of Plants Required				
Shade Trees	7.8 (8)	18.8 (19)	5	0
Evergreen Trees	9.7 (10)	0	0	0
Shrubs	0	188.04 (188)	0	0
Number of Plants Provided				
Shade Trees	8	20	5	0
Evergreen Trees	0	0	0	0
Other Trees (2:1 sub.)	0	3	0	0
Shrubs (10:1 sub.)	0	38	0	0

COMMENTS:

SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
Number of Parking Spaces	335
Number of Islands Required	17
Number of Trees Required	17
Number of Islands Provided	17
Number of Shade Trees Provided	17

PLANT SCHEDULE LOT 1					
KEY	QUANT.	BOTANICAL NAME / COMMON NAME	SIZE / COND.	SPACING	REMARKS
SHADE TREES					
QW	3	Quercus phellos / Willow Oak	2 1/2 - 3" B&B	As Shown	Full Crown
GTI	16	Gleditsia tricanthos inermis 'Shademaster' / Honeylocust	2 1/2 - 3" B&B	As Shown	Full Crown
AR	4	Acer rubrum / Red Maple	2 1/2 - 3" B&B	As Shown	Full Crown
QP	6	Quercus palustris / Pin Oak	2 1/2 - 3" B&B	As Shown	Full Crown
ZS	21	Zelkova serrata 'Green Vase' / 'Green Vase' Zelkova	2 1/2 - 3" B&B	As Shown	Full Crown
SMALL DECIDUOUS TREES					
AC	3	Amelanchier canadensis / Servicebery	6 - 8' B&B	As Shown	Heavy
SHRUBS					
SJ	38	Spirea japonica 'Little Princess' / 'Little Princess' Spirea	18 - 24" ht. / #3 cont.	3' o/c	Heavy

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
'CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

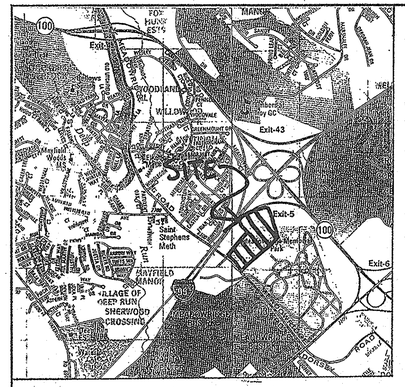
WATER CODE 8-02 — SEWER CODE 4020000

LANDSCAPE NOTES
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

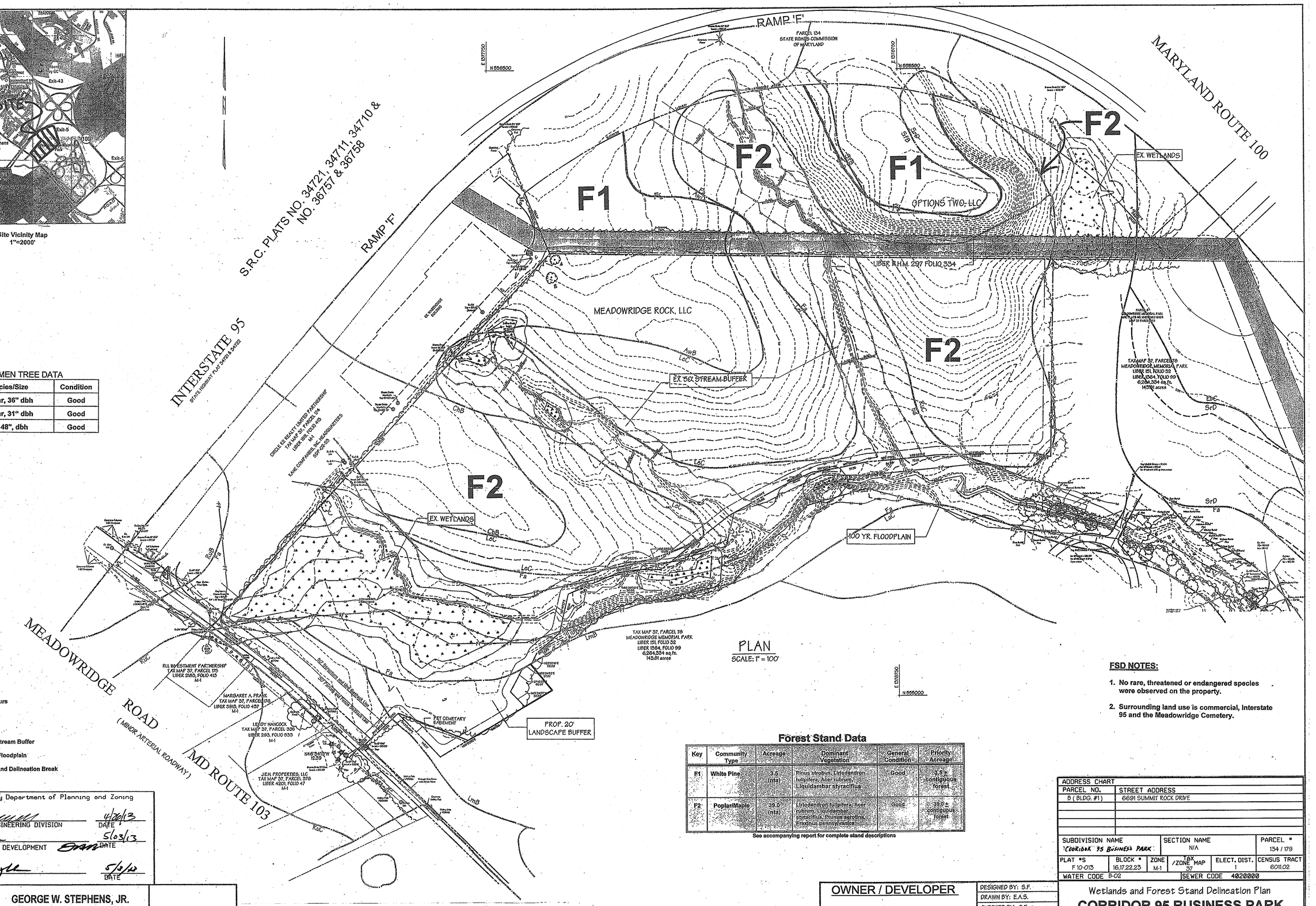
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: N/A
DATE : FEBRUARY 04, 2011
SHT. 30 OF 94

SDP-08-082 — P/N : 10762



Site Vicinity Map
1"=2000'



PLAN
SCALE: 1" = 100'

SPECIMEN TREE DATA

Key	Species/Size	Condition
A	Tulip poplar, 36" dbh	Good
B	Tulip poplar, 31" dbh	Good
C	White oak, 48", dbh	Good

Legend

- Ex. Contours
- Ex. Forest
- Wetlands
- Wetland/Stream Buffer
- 100 Year Floodplain
- Forest Stand Delineation Break

FSD NOTES:

1. No rare, threatened or endangered species were observed on the property.
2. Surrounding land use is commercial, Interstate 95 and the Meadowridge Cemetery.

Forest Stand Data

Key	Community Type	Acreage	Dominant Vegetation	General Condition	Priority Acreage
F1	White Pine	3.5 (nta)	Pinus strobus, Liriodendron tulipifera, Acer rubrum, Liquidambar styraciflua	Good	3.5 ± contiguous forest
F2	Poplar/Maple	39.0 (nta)	Liriodendron tulipifera, Acer rubrum, Liquidambar styraciflua, Prunus serotina, Fraxinus pennsylvanica	Good	39.0 ± contiguous forest

See accompanying report for complete stand descriptions

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785-6640~~

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044D2
John P. Canoles

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 6006 Glen Arm, Maryland 21057 Telephone (410) 592-6152 Fax (410) 592-3498

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: S.F.
DRAWN BY: E.A.S.
CHECKED BY: S.F.
REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
'CORRIDOR' 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

Wetlands and Forest Stand Delineation Plan

CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 31 OF 94

SDP-08-082 P/N: 10762

PLANTING SCHEDULE

FCE # 5 - Planting Area - 0.4 acres
Planting units Required: 280
Planting units Provided: 280

Qty	Species	Size	Spacing	Total FCA Units
20	Acer rubrum - Red maple	2-3' whip	11' o.c.	
15	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.	
20	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.	
25	Nyssa sylvatica - Black gum	2-3' whip	11' o.c.	
20	Platanus occidentalis - Sycamore	2-3' whip	11' o.c.	
15	Prunus serotina - Black cherry	2-3' whip	11' o.c.	
10	Robinia pseudo-acacia - Black locust	2-3' whip	11' o.c.	
15	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.	
140	Total whip plantings x 2 units /tree = FCA unit credit			280
	Total Unit Credit			280

FCE # 6 - Planting Area - 0.1 acres
Planting units Required: 70
Planting units Provided: 70

Qty	Species	Size	Spacing	Total FCA Units
9	Acer rubrum - Red maple	2-3' whip	11' o.c.	
8	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.	
4	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.	
7	Nyssa sylvatica - Black gum	2-3' whip	11' o.c.	
7	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.	
35	Total whip plantings x 2 units /tree = FCA unit credit			70
	Total Unit Credit			70

FCE # 7 - Planting Area - 0.3 acres
Planting units Required: 210
Planting units Provided: 210

Qty	Species	Size	Spacing	Total FCA Units
15	Acer rubrum - Red maple	2-3' whip	11' o.c.	
10	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.	
15	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.	
15	Nyssa sylvatica - Black gum	2-3' whip	11' o.c.	
15	Platanus occidentalis - Sycamore	2-3' whip	11' o.c.	
15	Prunus serotina - Black cherry	2-3' whip	11' o.c.	
5	Robinia pseudo-acacia - Black locust	2-3' whip	11' o.c.	
15	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.	
105	Total whip plantings x 2 units /tree = FCA unit credit			210
	Total Unit Credit			210

FCE # 8 - Planting Area - 0.1 acres
Planting units Required: 70
Planting units Provided: 70

Qty	Species	Size	Spacing	Total FCA Units
5	Acer rubrum - Red maple	2-3' whip	11' o.c.	
5	Cornus florida - Flowering dogwood	2-3' whip	11' o.c.	
5	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.	
7	Prunus serotina - Black cherry	2-3' whip	11' o.c.	
8	Robinia pseudo-acacia - Black locust	2-3' whip	11' o.c.	
5	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.	
35	Total whip plantings x 2 units /tree = FCA unit credit			70
	Total Unit Credit			70

Planting Notes:

Planting density based spacing requirements: whips with shelter @ 11' on center.

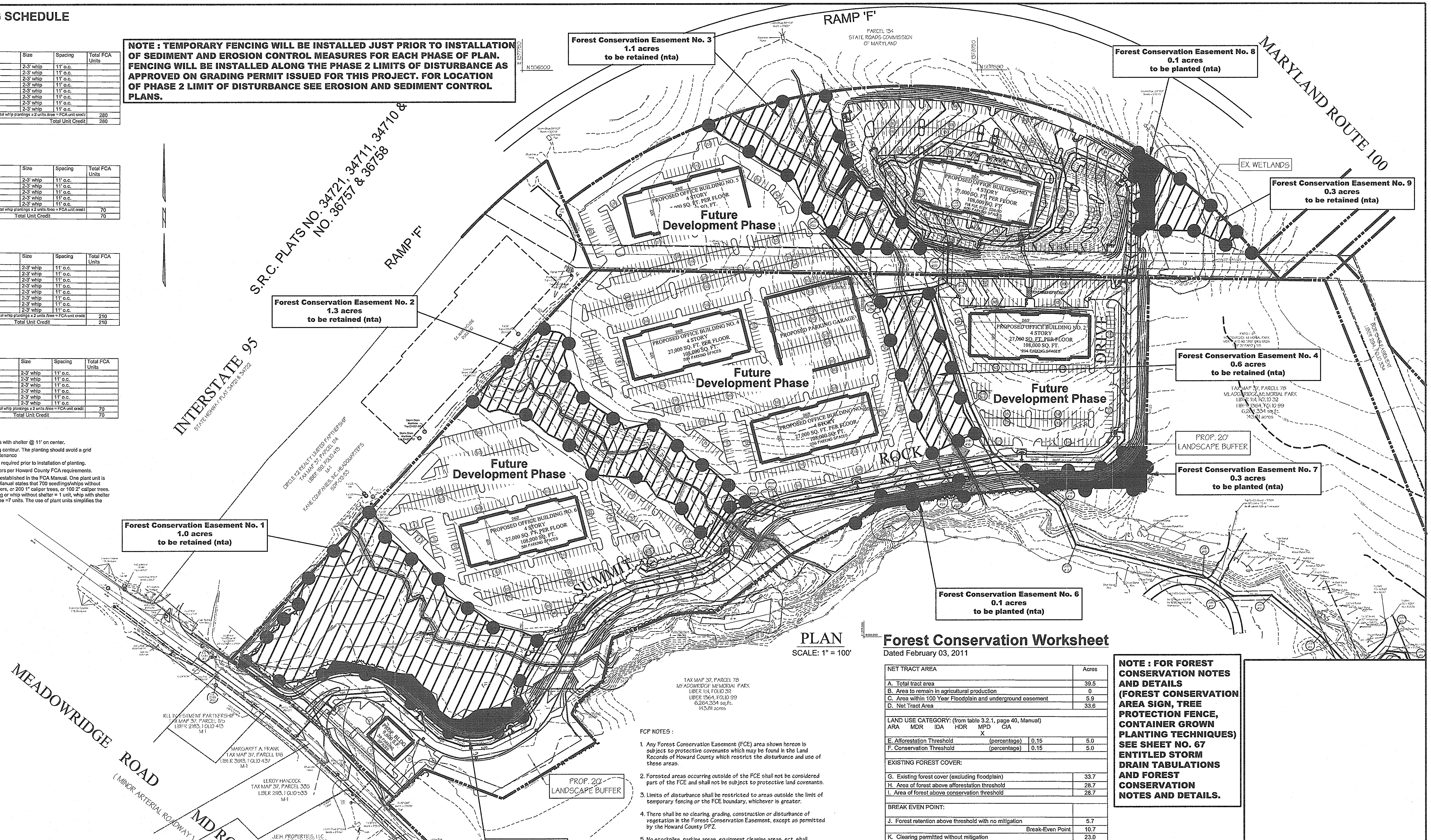
Planting may be made in a curvilinear fashion along contour. The planting should avoid a grid appearance but should be spaced to facilitate maintenance

Multiflora rose/heavy brush removal/control may be required prior to installation of planting.

All whips are required to be installed with tree shelters per Howard County FCA requirements.

Planting units defined by the spacing requirements established in the FCA Manual. One plant unit is defined as 1 seedling or whip without shelter. The Manual states that 700 seedlings/whips without shelters are required per acre, or 350 whips w/shelters, or 200 1" caliper trees, or 100 2" caliper trees. By conversion it has been determined that a seeding or whip without shelter = 1 unit, whip with shelter = 2 units, 1"caliper tree = 3.5 units and 2" caliper tree =7 units. The use of plant units simplifies the plant density calculations when mixing stock size.

NOTE : TEMPORARY FENCING WILL BE INSTALLED JUST PRIOR TO INSTALLATION OF SEDIMENT AND EROSION CONTROL MEASURES FOR EACH PHASE OF PLAN. FENCING WILL BE INSTALLED ALONG THE PHASE 2 LIMITS OF DISTURBANCE AS APPROVED ON GRADING PERMIT ISSUED FOR THIS PROJECT. FOR LOCATION OF PHASE 2 LIMIT OF DISTURBANCE SEE EROSION AND SEDIMENT CONTROL PLANS.



PLAN
SCALE: 1" = 100'

LEGEND

PROPERTY LINE	
EX. INDEX CONTOUR	
EX. INTERMEDIATE CONTOUR	
100 YEAR FLOOD PLAIN	FP
EX. WETLANDS	W
EX. WETLANDS BUFFER	WB
EX. STREAM BUFFER	SB
EX. STREAM	
SOILS LINE	
FOREST CONSERVATION AREA SIGN	

FCP NOTES :

1. Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
2. Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants.
3. Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or the FCE boundary, whichever is greater.
4. There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by the Howard County DPZ.
5. No stockpiles, parking areas, equipment cleaning areas, ect. shall occur within areas designated as Forest Conservation Easements.
6. Temporary fencing shall be used to protect forest resources during construction. Fencing shall be installed along limits of disturbance occurring within 50 feet of the proposed FCE limits. Permanent signage will be posted at 50-100 foot intervals along all FCE limits.
7. The FCA obligation is based on a proposed overall site development plans. Final grading design has not been completed for future phases of the development. Deductions from the gross acreage include 100 year flood plain and the underground easement with in the overall gross area.
8. The Forest Conservation Act requirements for this phase of the project includes the retention of 4.4 acres of net tract area forest and reforestation of 8.4 acres. The proposed development will allow for 0.9 acres of onsite reforestation. The balance of the obligation will be met in an approved Forest Conservation Bank.
Surety amounts for DPW obligations Parcels 'A' & 'B'
Onsite Reforestation : 0.9 acres or 39,204 Sq. Ft. x $0.50 per Sq. Ft. = $19,602.00
Offsite Reforestation : 7.5 acres or 326,700 Sq. Ft. x $0.50 per Sq. Ft. = $163,350.00
Offsite reforestation is provided at Brighton Mills subdivision.

Floodplain Note :
Portions of the site occurring within the 100 year floodplain are not included as part of the net tract area of the site. Areas of floodplain forest occuring within the limits of a Forest Conservation Easement will be protected by the easement restrictions but have not been credited toward the projects FCA obligations.

Forest Conservation Worksheet

Dated February 03, 2011

NET TRACT AREA		Acres
A. Total tract area		39.5
B. Area to remain in agricultural production		0
C. Area within 100 Year Floodplain and underground easement		5.9
D. Net Tract Area		33.6
LAND USE CATEGORY: (from table 3.2.1, page 40, Manual) ARA MDR IDA HDR MPD CIA X		
E. Afforestation Threshold (percentage)	0.15	5.0
F. Conservation Threshold (percentage)	0.15	5.0
EXISTING FOREST COVER:		
G. Existing forest cover (excluding floodplain)		33.7
H. Area of forest above afforestation threshold		28.7
I. Area of forest above conservation threshold		28.7
BREAK EVEN POINT:		
J. Forest retention above threshold with no mitigation		5.7
Break-Even Point		10.7
K. Clearing permitted without mitigation		23.0
PROPOSED FOREST CLEARING		
L. Total area of forest to be Cleared or Retained Outside FCE		29.3
M. Total area of forest to be Retained in FCE		4.4
PLANTING REQUIREMENTS		
N. Reforestation for clearing above Conservation Threshold (28.7 ac)		7.2
P. Reforestation for clearing below Conservation Threshold (0.6 ac)		1.2
Q. Credit for retention above conservation threshold		0
R. Total reforestation required		8.4
S. Total afforestation required		0
T. Total reforestation and afforestation required		8.4

NOTE : FOR FOREST CONSERVATION NOTES AND DETAILS (FOREST CONSERVATION AREA SIGN, TREE PROTECTION FENCE, CONTAINER GROWN PLANTING TECHNIQUES) SEE SHEET NO. 67 ENTITLED STORM DRAIN TABULATIONS AND FOREST CONSERVATION NOTES AND DETAILS.

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/3/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~2205 C Commerce Road~~
~~Forest Hill, Maryland 21050~~
~~(410) 297 - 2340~~

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5006 Glen Arm, Maryland 21057 Telephone (410) 832-2480 Fax (410) 832-2438

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B2
John F. Canoles

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME			SECTION NAME		PARCEL #
CORRIDOR 95 BUSINESS PARK			N/A		134 / 179
PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02
WATER CODE B-02			SEWER CODE 4020000		

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

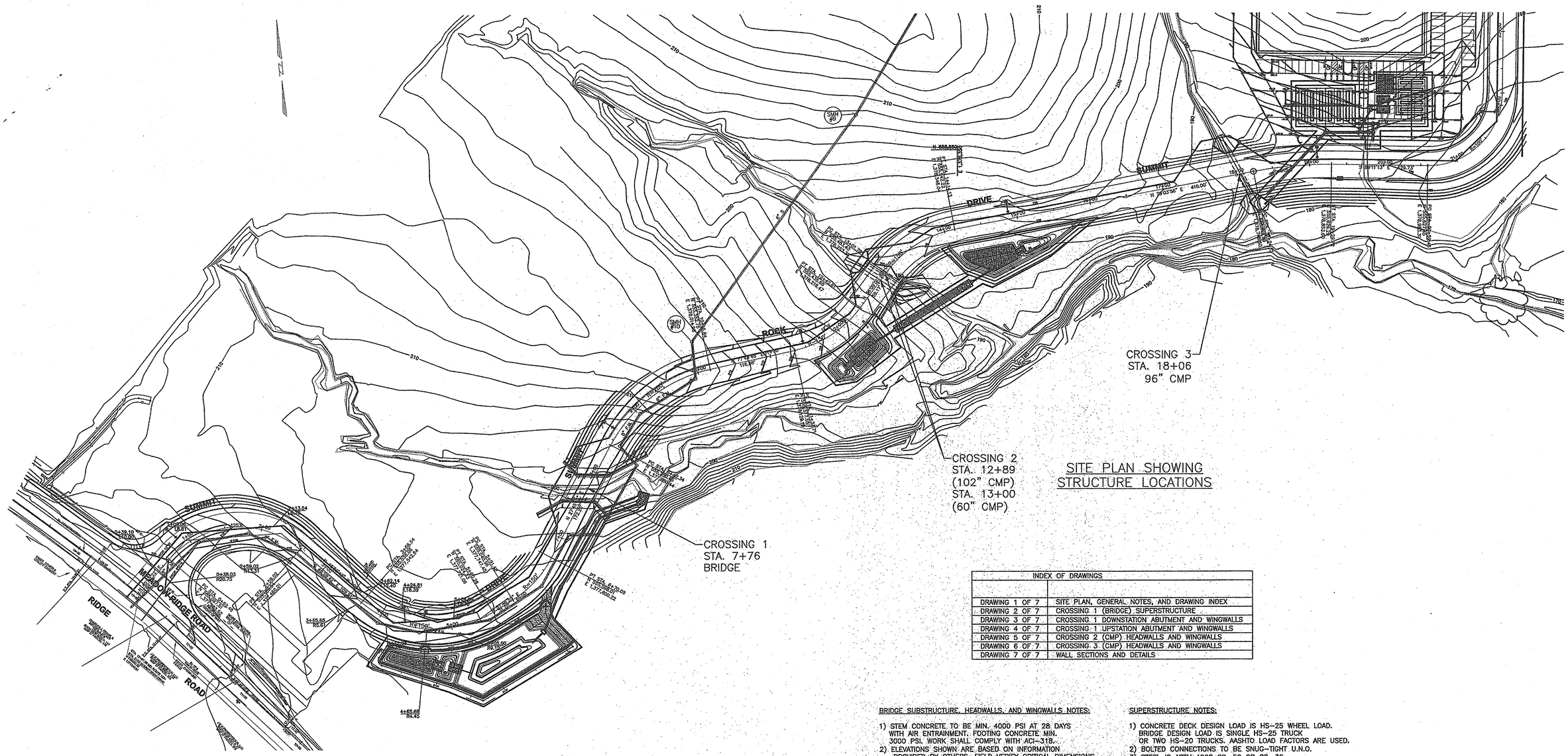
Overall Forest Conservation Plan CORRIDOR 95 BUSINESS PARK

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 100'
DATE : FEBRUARY 04, 2011
SHT. 32 OF 94

SDP-08-082 P/N : 10762



SITE PLAN SHOWING
STRUCTURE LOCATIONS

INDEX OF DRAWINGS	
DRAWING 1 OF 7	SITE PLAN, GENERAL NOTES, AND DRAWING INDEX
DRAWING 2 OF 7	CROSSING 1 (BRIDGE) SUPERSTRUCTURE
DRAWING 3 OF 7	CROSSING 1 DOWNSTATION ABUTMENT AND WINGWALLS
DRAWING 4 OF 7	CROSSING 1 UPSTATION ABUTMENT AND WINGWALLS
DRAWING 5 OF 7	CROSSING 2 (CMP) HEADWALLS AND WINGWALLS
DRAWING 6 OF 7	CROSSING 3 (CMP) HEADWALLS AND WINGWALLS
DRAWING 7 OF 7	WALL SECTIONS AND DETAILS

BRIDGE SUBSTRUCTURE, HEADWALLS, AND WINGWALLS NOTES:

1) STEM CONCRETE TO BE MIN. 4000 PSI AT 28 DAYS WITH AIR ENTRAINMENT. FOOTING CONCRETE MIN. 3000 PSI. WORK SHALL COMPLY WITH ACI-318.
2) ELEVATIONS SHOWN ARE BASED ON INFORMATION PROVIDED BY OTHERS. FIELD VERIFY CRITICAL DIMENSIONS.
3) STEM AND FOOTING REINFORCEMENT IS PLAIN STEEL U.N.O. ALL REINFORCING IS ASTM A615 GR. 60.
4) WALL BACKFILL TO BE TYPE SM OR BETTER, COMPACTED TO 95% OF ASTM T-99.
5) REBAR SPLICES SHALL BE MIN. 30 BAR DIAMETERS UNLESS NOTED OTHERWISE.
6) SOIL PARAMETERS ASSUMED ARE ø=30°, WT. = 125 PCF (BACKFILL), SOIL BEARING 4000 PSF OR 6000 PSF PER HOEA GEOTECH REPORT AND AS INDICATED ON PLANS (FIELD VERIFICATION REQUIRED, AND UNDERCUT AS REQ'D. ESTIMATED EXTENTS OF UNDERCUT ARE INDICATED ON THE PLANS). UNDERCUT FILL MATERIAL TO BE LEAN CONCRETE (2000 PSI).
7) LAYOUT BASED ON INFORMATION PROVIDED BY OTHERS. CONTRACTOR TO VERIFY CRITICAL DIMENSIONS. NOTIFY ENGINEER OF ANY DISCREPANCY. COORDINATE STRUCTURAL DRAWINGS WITH CIVIL PLANS.

SUPERSTRUCTURE NOTES:

1) CONCRETE DECK DESIGN LOAD IS HS-25 WHEEL LOAD. BRIDGE DESIGN LOAD IS SINGLE HS-25 TRUCK OR TWO HS-20 TRUCKS. AASHTO LOAD FACTORS ARE USED.
2) BOLTED CONNECTIONS TO BE SNUG-TIGHT U.N.O.
3) STEEL IS ASTM A992 GD. 50 OR GD. 36 AS INDICATED. HSS SECTIONS ARE ASTM A500B GD. 46. BOLTS ARE ASTM A325, HOT-DIP GALVANIZED.
4) BRIDGE DECK REINFORCING STEEL SHALL BE EPOXY COATED.
5) BEARINGS ARE LAMINATED 1"X 10"X 16" 50-DUROMETER NEOPRENE.
6) ANCHOR BOLTS ARE 1"X 15" HDG (MIN. EMBED. 10")
7) FABRICATION WORKMANSHIP TO AISC/AASHTO REQUIREMENTS FOR FABRICATED STEEL. WELDING TO AWS BRIDGE REQ'S.
8) STEEL GALVANIZED TO ASTM A123. TOUCH UP ANY REPAIRS WITH 2 COATS COLD-GALV. PAINT.

SDP-08-082

SUBDIVISION NAME		SECTION NAME		PARCEL #
CORRIDOR 95 BUSINESS PARK		N/A		134 / 179
PLAT #S	BLOCK #	ZONE	TAX MAP /ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02
WATER CODE 8-02			SEWER CODE 4020000		

SITE PLAN AND NOTES - CROSSINGS 1-3

CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: NOT TO SCALE
DATE : OCTOBER 16, 2009
SHT. 33 OF 94

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A, Annapolis Junction, MD
(410) 880-4788 Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/26/13

Chief, Division of Land Development — Date 5/03/13

Director — Date

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

REVISIONS: 7/23/09 GEOTECHNICAL AND SCOUR REQUIREMENTS CLARIFIED PER COUNTY COMMENTS.

JOB NUMBER:	08006-A
DESIGNED BY:	PR
DRAWN BY:	PR
APPROVED BY:	JJC

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 9454, EXPIRATION DATE: 09/09/09.

STATE OF MARYLAND — JOHN J. KELLY — NO. 9454 — REGISTERED PROFESSIONAL ENGINEER — 7/23/09

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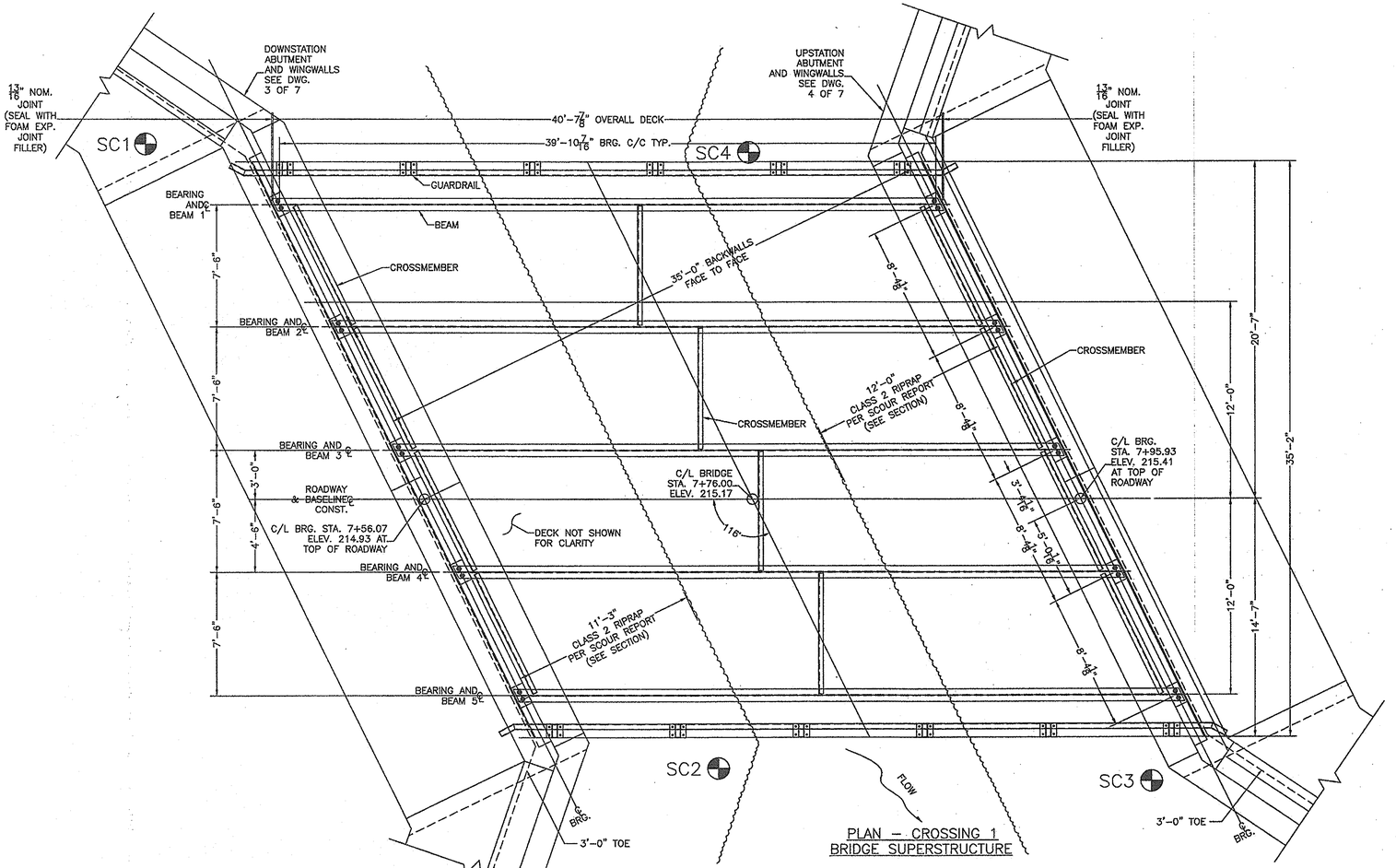
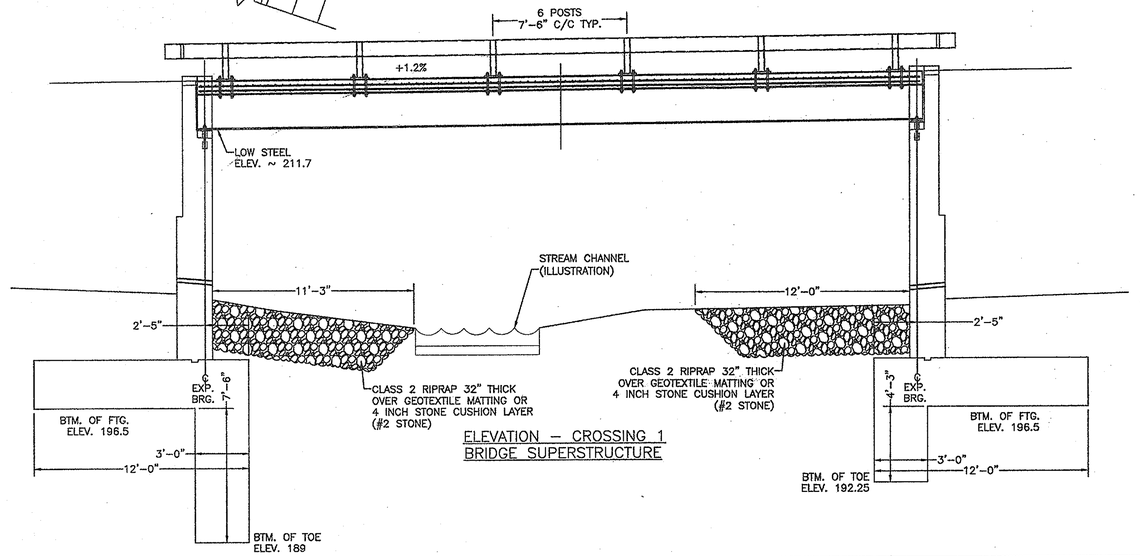
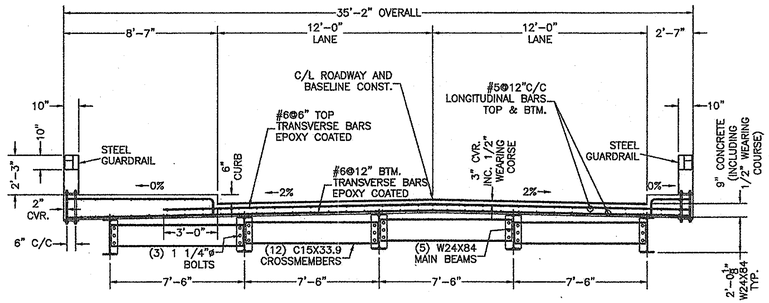


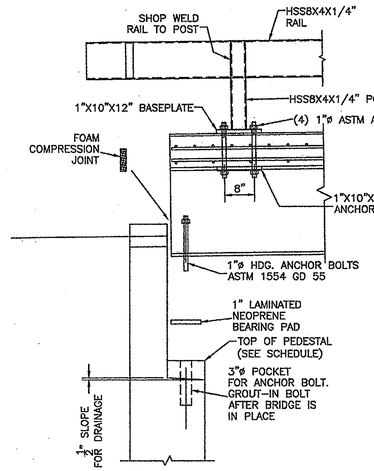
PLAN – CROSSING 1
BRIDGE SUPERSTRUCTURE



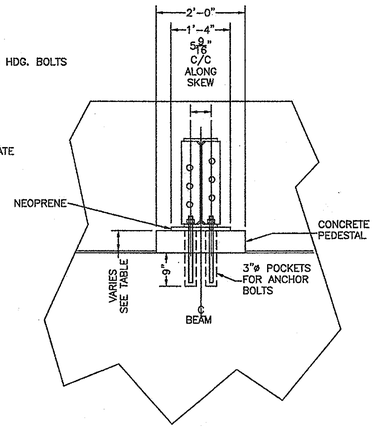
ELEVATION – CROSSING 1
BRIDGE SUPERSTRUCTURE



TYP. SECTION – CROSSING 1
BRIDGE SUPERSTRUCTURE



ENLARGED DETAIL
AT END



BRIDGE REACTIONS		
	MAX. PER GIRDER	TOTAL END
DEAD	35k	22k
LIVE	54k	146k
TOTAL	89k	168k

SUBDIVISION NAME (CORRIDOR 95 BUSINESS PARK)		SECTION NAME N/A			PARCEL # 134 / 179
PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02
WATER CODE B-02			SEWER CODE 4020000		

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, MD
(410) 880-4788 Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 5/03/13
Director — Date

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

REVISIONS: 7/23/09 GEOTECHNICAL AND SCOUR REQUIREMENTS CLARIFIED PER COUNTY COMMENTS.

JOB NUMBER:	08006-A
DESIGNED BY:	PR
DRAWN BY:	PR
APPROVED BY:	JJC

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 9454, EXPIRATION DATE: 09/08/09.

STATE OF MARYLAND — JOHN J. CARNES — 9454 — REGISTERED PROFESSIONAL ENGINEER

SUPERSTRUCTURE - CROSSING 1

CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: NOT TO SCALE
DATE : OCTOBER 16, 2009
SHT. 34 OF 94

SDP-08-082

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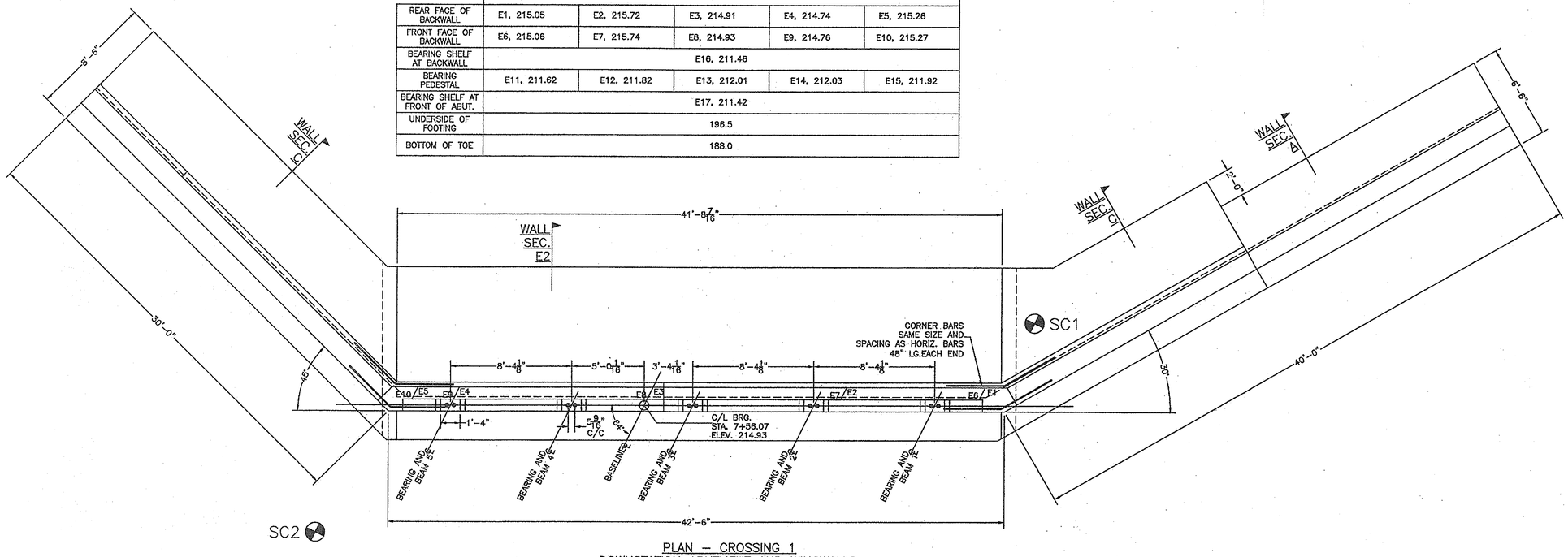
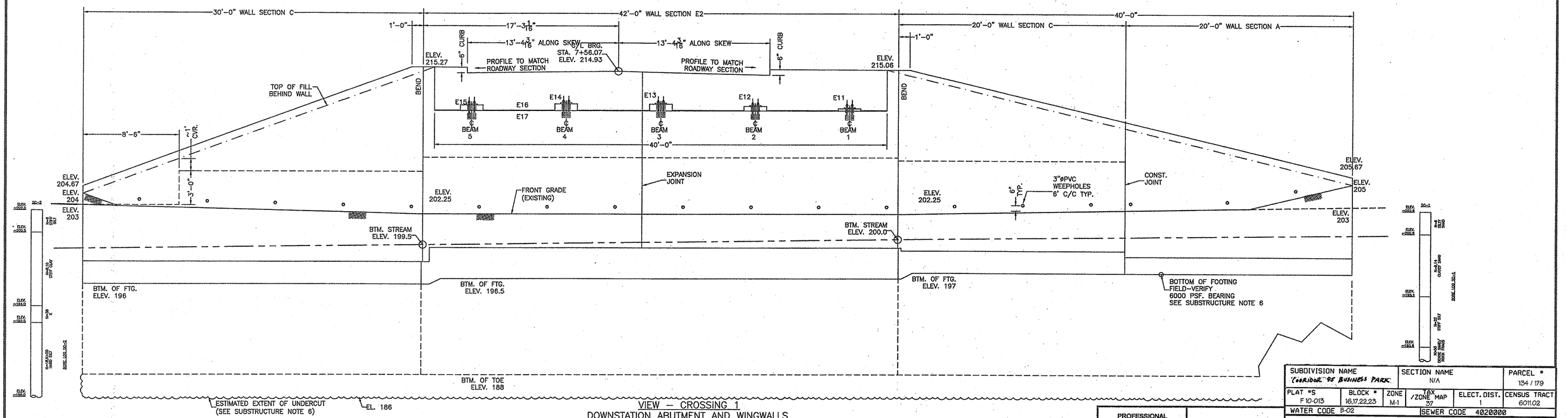
	CROSSING 1 – DOWNSTATION ABUTMENT				
	TABLE OF ELEVATIONS				
REAR FACE OF BACKWALL	E1, 215.05	E2, 215.72	E3, 214.91	E4, 214.74	E5, 215.26
FRONT FACE OF BACKWALL	E6, 215.06	E7, 215.74	E8, 214.93	E9, 214.76	E10, 215.27
BEARING SHELF AT BACKWALL	E16, 211.46				
BEARING PEDESTAL	E11, 211.62	E12, 211.82	E13, 212.01	E14, 212.03	E15, 211.92
BEARING SHELF AT FRONT OF ABUT.	E17, 211.42				
UNDERSIDE OF FOOTING	196.5				
BOTTOM OF TOE	188.0				



PLAN – CROSSING 1
DOWNSTATION ABUTMENT AND WINGWALLS



VIEW – CROSSING 1
DOWNSTATION ABUTMENT AND WINGWALLS

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, MD
(410) 880-4788 Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 5/03/13
Director — Date

OWNER
OPTIONS TWO, LLC
MEADOWRIDGE ROCK, LLC
C/O H & H ROCK COMPANIES
6800 DEERPATH ROAD, SUITE 100
ELKRIDGE, MD 21075
410-579-2442

DEVELOPER
ROCK REALTY, INC.
6800 DEERPATH ROAD, SUITE 100
ELKRIDGE, MD 21075
410-579-2442

REVISIONS: 7/23/09 GEOTECHNICAL AND SCOUR REQUIREMENTS CLARIFIED PER COUNTY COMMENTS.

JOB NUMBER:	08006-A
DESIGNED BY:	PR
DRAWN BY:	PR
APPROVED BY:	JJC

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 9454, EXPIRATION DATE: 09/09/09.

STATE OF MARYLAND — JOHN J. CARNES — 9454 — REGISTERED PROFESSIONAL ENGINEER

SUBDIVISION NAME: "CORRIDOR 95 BUSINESS PARK"		SECTION NAME: N/A			PARCEL #: 134 / 179
PLAT #S: F 10-013	BLOCK #: 16,17,22,23	ZONE: M-1	TAX ZONE MAP: 37	ELECT. DIST.: 1	CENSUS TRACT: 6011.02
WATER CODE: W-02			SEWER CODE: 4020000		

ABUTMENT AND WINGWALLS - CROSSING 1 DOWNSTN.

CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

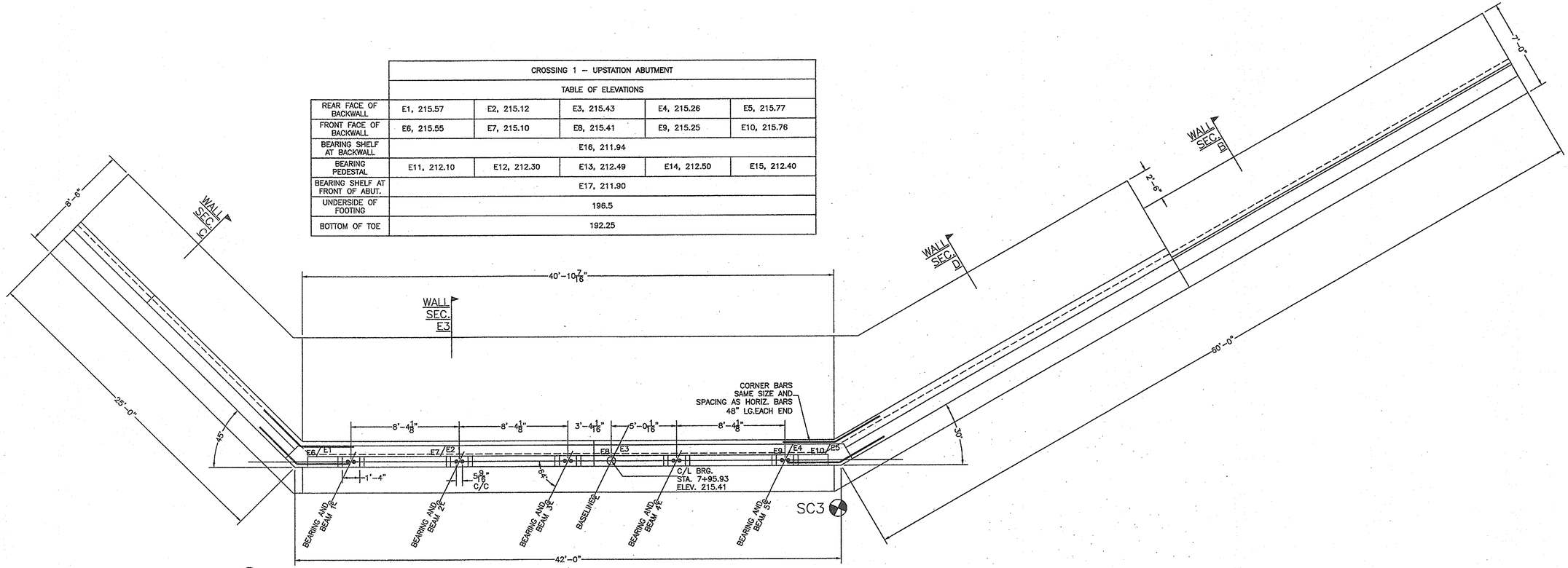
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1ST
HOWARD CO., MARYLAND

SCALE: NOT TO SCALE
DATE : OCTOBER 16, 2009
SHT. 35 OF 94

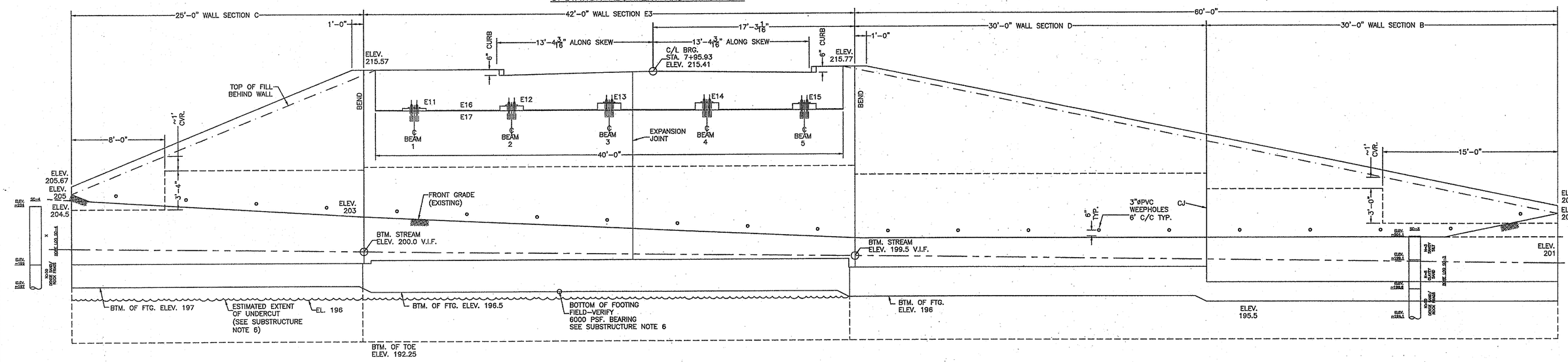
SDP-08-082

RText (RText)

	CROSSING 1 – UPSTATION ABUTMENT				
	TABLE OF ELEVATIONS				
REAR FACE OF BACKWALL	E1, 215.57	E2, 215.12	E3, 215.43	E4, 215.26	E5, 215.77
FRONT FACE OF BACKWALL	E6, 215.55	E7, 215.10	E8, 215.41	E9, 215.25	E10, 215.76
BEARING SHELF AT BACKWALL	E16, 211.94				
BEARING PEDESTAL	E11, 212.10	E12, 212.30	E13, 212.49	E14, 212.50	E15, 212.40
BEARING SHELF AT FRONT OF ABUT.	E17, 211.90				
UNDERSIDE OF FOOTING	196.5				
BOTTOM OF TOE	192.25				



PLAN – CROSSING 1
UPSTATION ABUTMENT AND WINGWALLS



VIEW – CROSSING 1
UPSTATION ABUTMENT AND WINGWALLS

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A (410) 880-4788
Annapolis Junction, MD Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 5/03/13
Director — Date

OWNER
OPTIONS-TWO, LLC
MEADOWRIDGE ROCK, LLC
C/O H & H ROCK COMPANIES
6800 DEERPATH ROAD, SUITE 100
ELKRIDGE, MD 21075
410-579-2442

DEVELOPER
ROCK REALTY, INC.
6800 DEERPATH ROAD, SUITE 100
ELKRIDGE, MD 21075
410-579-2442

REVISIONS: 7/23/09 GEOTECHNICAL AND SCOUR REQUIREMENTS CLARIFIED PER COUNTY COMMENTS.

JOB NUMBER:	08006-A
DESIGNED BY:	PR
DRAWN BY:	PR
APPROVED BY:	JJC

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 9454, EXPIRATION DATE: 09/09/09.

STATE OF MARYLAND — JOHN J. CARNES — No. 9454 — REGISTERED PROFESSIONAL ENGINEER

SUBDIVISION NAME: CORRIDOR 95 BUSINESS PARK		SECTION NAME: N/A		PARCEL #: 134 / 179
PLAT #S: F 10-013	BLOCK #: 16,17,22,23	ZONE: M-1	TAX MAP / ZONE: 37	ELECT. DIST.: 1
CENSUS TRACT: 6011.02				
WATER CODE: 8-02		SEWER CODE: 4020000		

ABUTMENT AND WINGWALLS - CROSSING 1 UPSTATION

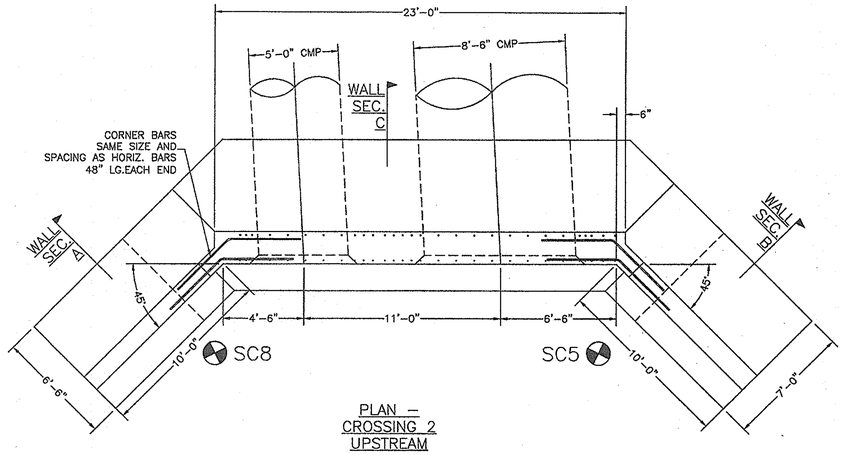
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

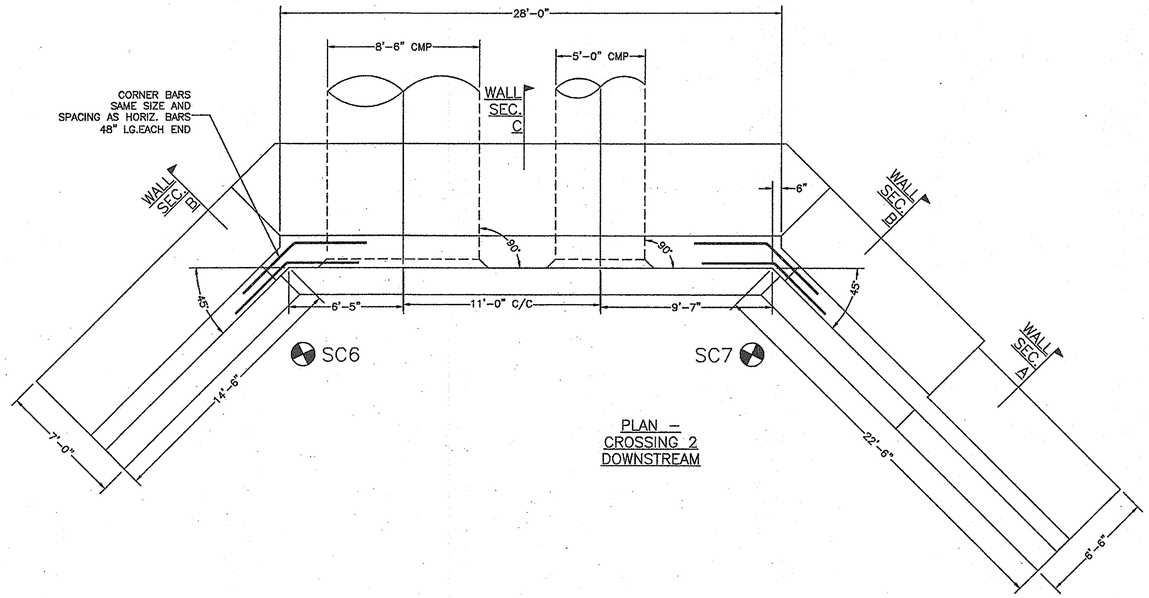
SCALE: NOT TO SCALE
DATE : OCTOBER 16, 2009
SHT. 36 OF 94

SDP-08-082

R1ext (R1ext)



PLAN – CROSSING 2 UPSTREAM



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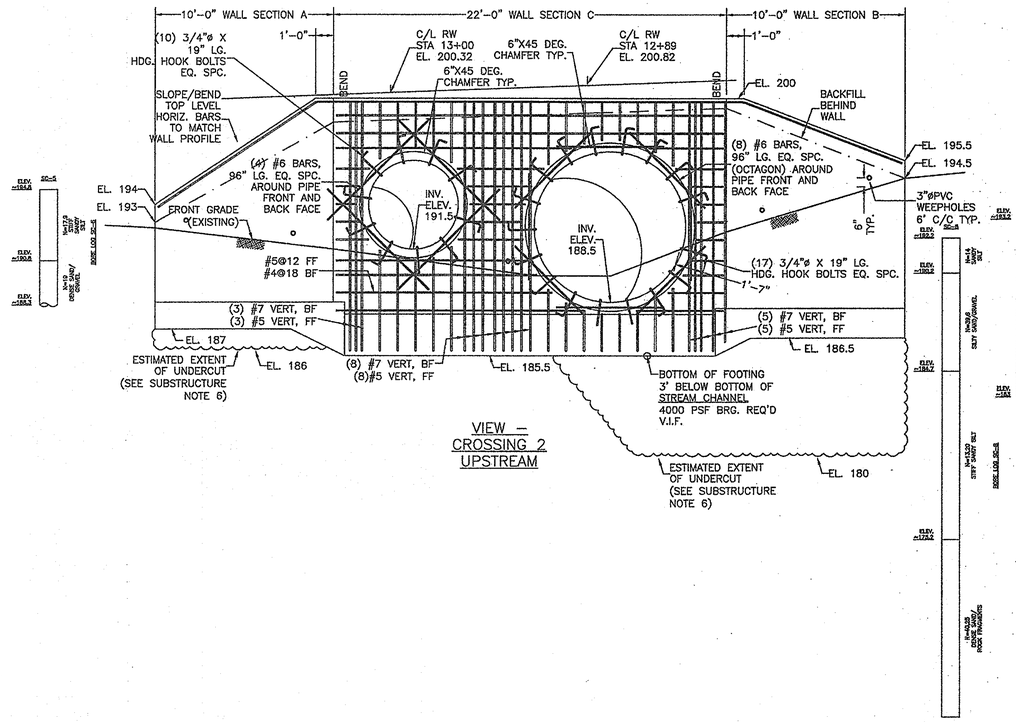
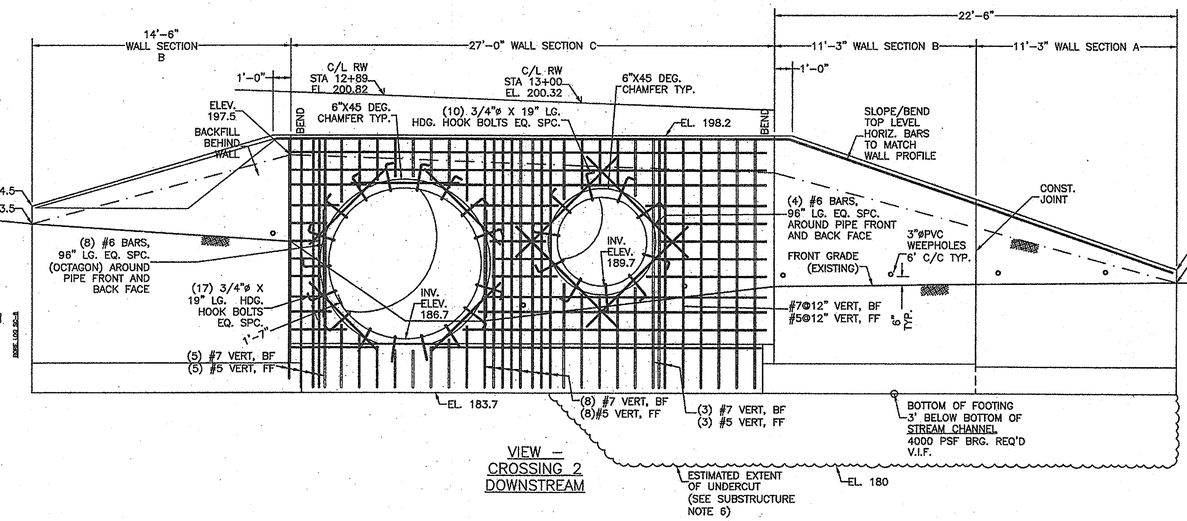


VIEW – CROSSING 2 UPSTREAM



VIEW – CROSSING 2 DOWNSTREAM

R1ext (R1ext)

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, MD
(410) 880-4788 Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 5/03/13
Director — Date

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

REVISIONS: 7/23/09 GEOTECHNICAL AND SCOUR REQUIREMENTS CLARIFIED PER COUNTY COMMENTS.

JOB NUMBER:	08006-A
DESIGNED BY:	PR
DRAWN BY:	PR
APPROVED BY:	JJC

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 9454, EXPIRATION DATE: 09/09/09.

STATE OF MARYLAND — JOSEPH J. CARNES — No. 9454 — REGISTERED PROFESSIONAL ENGINEER

SUBDIVISION NAME: "CORRIDOR 95 BUSINESS PARK"			SECTION NAME: N/A		PARCEL #: 134 / 179
PLAT #S: F 10-013	BLOCK #: 16,17,22,23	ZONE: M-1	TAX/ZONE MAP: 37	ELECT. DIST.: 1	CENSUS TRACT: 6011.02
WATER CODE: B-02			SEWER CODE: 4020000		

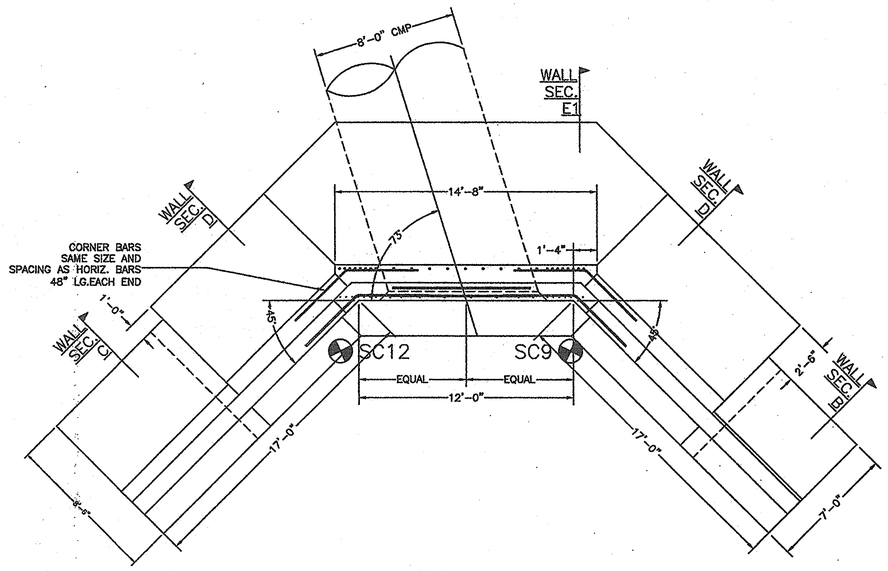
HEADWALLS AND WINGWALLS - CROSSING 2

CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

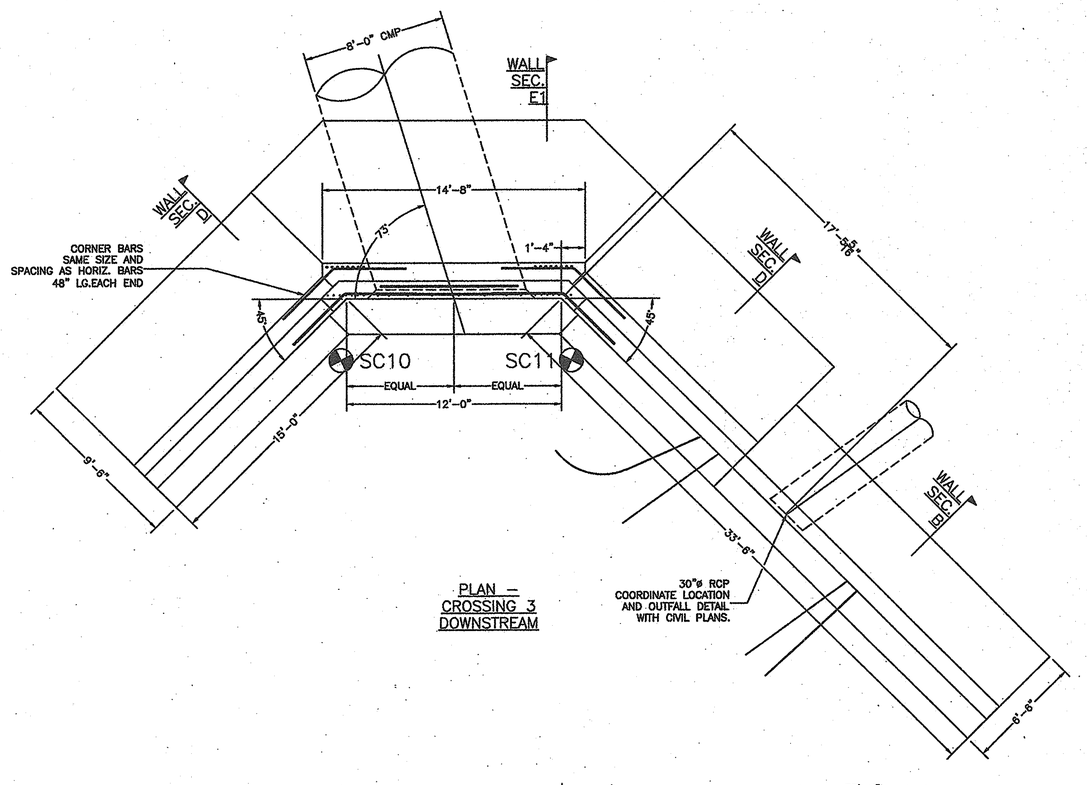
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: NOT TO SCALE
DATE : OCTOBER 16, 2009
SHT. 37 OF 94

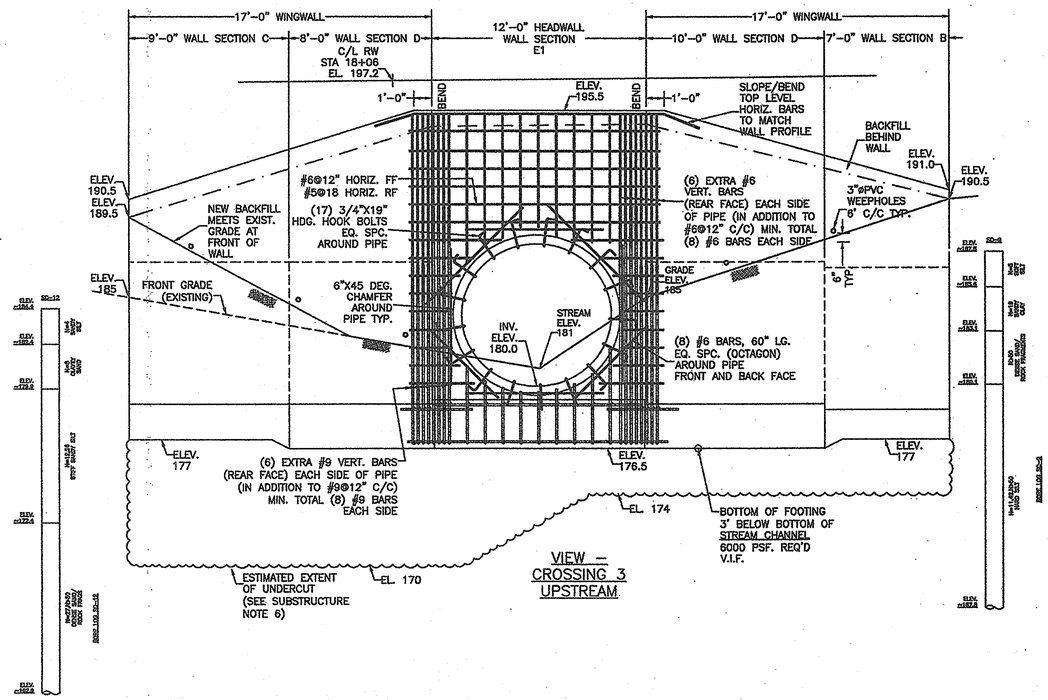
SDP-08-082



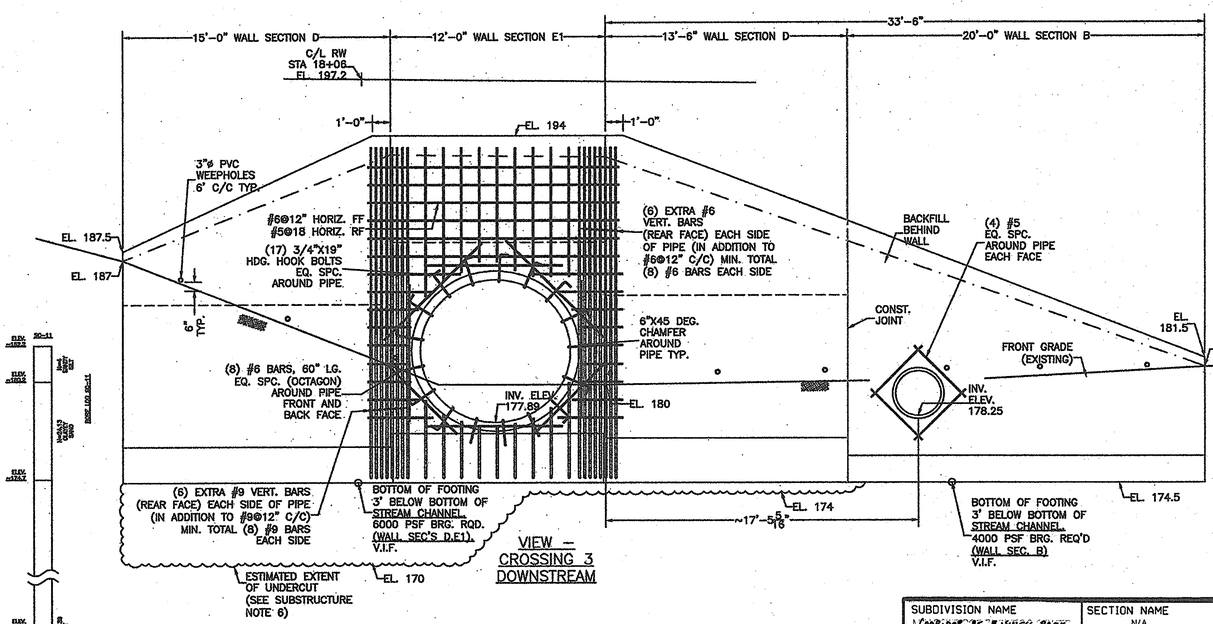
PLAN – CROSSING 3 UPSTREAM



PLAN – CROSSING 3 DOWNSTREAM



VIEW – CROSSING 3 UPSTREAM



VIEW – CROSSING 3 DOWNSTREAM

SUBDIVISION NAME	SECTION NAME	PARCEL #
'CORRIDOR 95 BUSINESS PARK'	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX / ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

HEADWALLS AND WINGWALLS - CROSSING 3

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: NOT TO SCALE
DATE : OCTOBER 16, 2009
SHT. 38 OF 94

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, MD
(410) 880-4788 Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 5/03/13
Director — Date

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

REVISIONS: 7/23/09 GEOTECHNICAL AND SCOUR REQUIREMENTS CLARIFIED PER COUNTY COMMENTS. PROFILE GRADE ADJUSTED.

JOB NUMBER:	08006-A
DESIGNED BY:	PR
DRAWN BY:	PR
APPROVED BY:	JJC

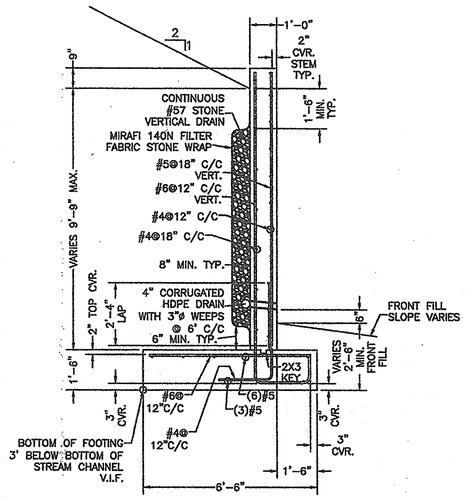
PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 9454, EXPIRATION DATE: 09/09/09.

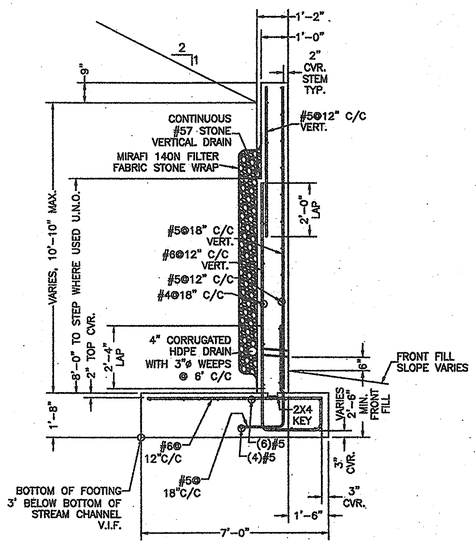
STATE OF MARYLAND — JOHN J. CARNES — REG. NO. 9454 — PROFESSIONAL ENGINEER

SDP-08-082

R1 ext (R1 ext)



TYP. SECTION
WALL TYPE A



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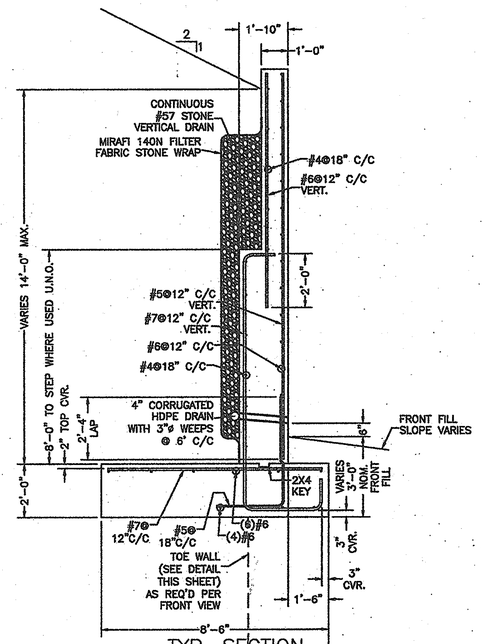
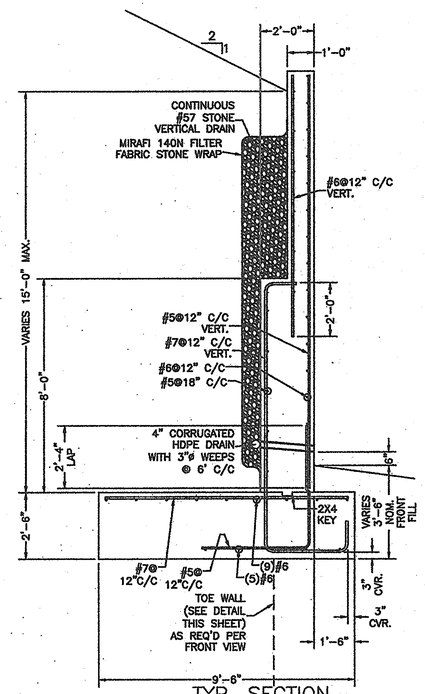
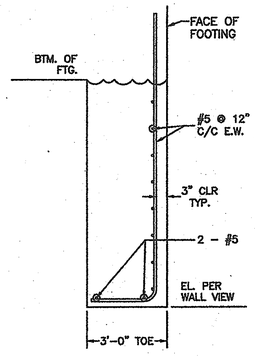


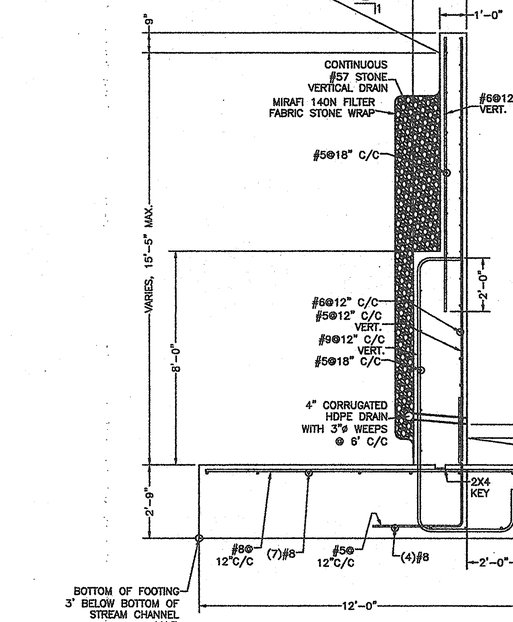
TYP. SECTION
WALL TYPE C



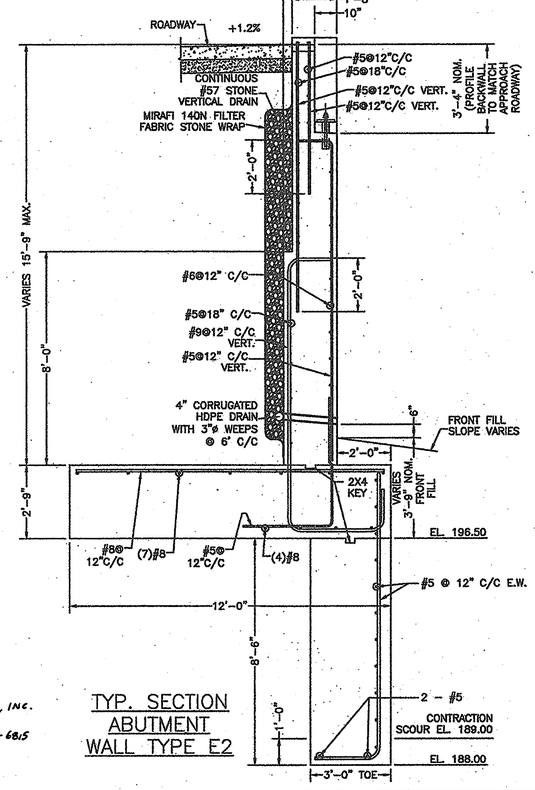
TYP. SECTION
WALL TYPE D



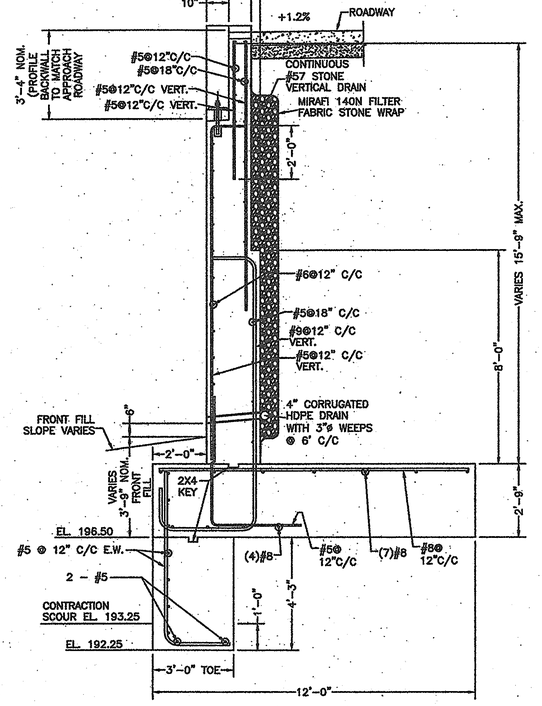
TOE WALL
DETAIL



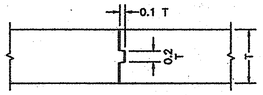
TYP. SECTION
WALL TYPE E1



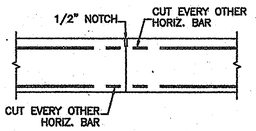
TYP. SECTION
ABUTMENT
WALL TYPE E2



TYP. SECTION
ABUTMENT
WALL TYPE E3



TYP. EXP. JT.



TYP. CONST. JT.

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

SDP-08-082

SUBDIVISION NAME: "CORRIDOR 95 BUSINESS PARK"		SECTION NAME: N/A		PARCEL #: 134 / 179	
PLAT #S: F 10-013	BLOCK #: 16,17,22,23	ZONE: M-1	TAX MAP / ZONE: 37	ELECT. DIST.: 1	CENSUS TRACT: 6011.02
WATER CODE: B-02		SEWER CODE: 4020000			

WALL SECTIONS AND DETAILS - CROSSINGS 1-3

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: NOT TO SCALE
DATE : OCTOBER 16, 2009
SHT. 39 OF 94

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A, Annapolis Junction, MD
(410) 880-4788 Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 5/23/13
Director — Date

OWNER
OPTIONS-TWO, LLC
MEADOWRIDGE ROCK, LLC
C/O H & H ROCK COMPANIES
6800 DEERPATH ROAD, SUITE 100
ELKRIDGE, MD 21075
410-579-2442

DEVELOPER
ROCK REALTY, INC.
6800 DEERPATH ROAD, SUITE 100
ELKRIDGE, MD 21075
410-579-2442

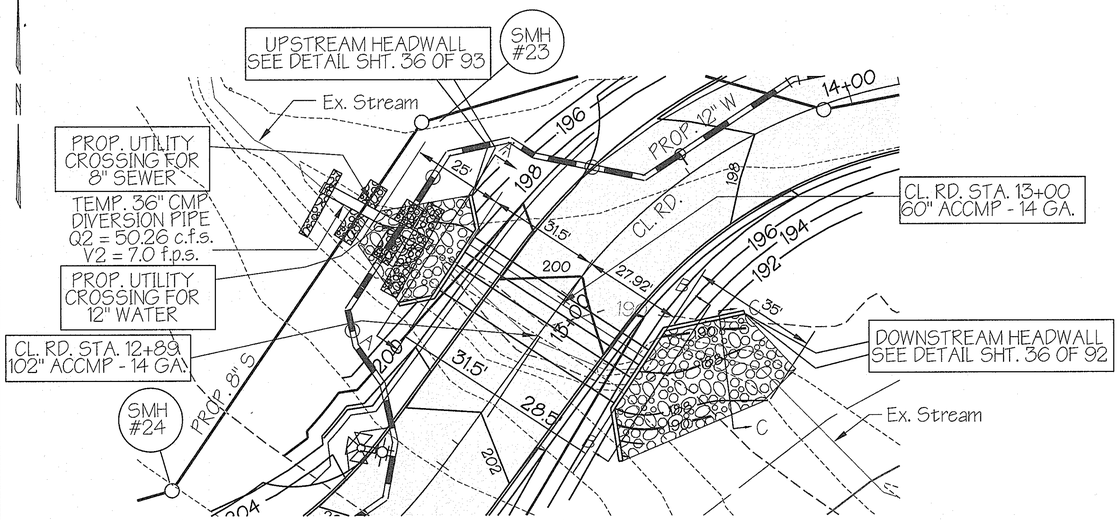
REVISIONS: 7/23/09 GEOTECHNICAL AND SCOUR REQUIREMENTS CLARIFIED PER COUNTY COMMENTS.

JOB NUMBER: 08006-A
DESIGNED BY: PR
DRAWN BY: PR
APPROVED BY: JJC

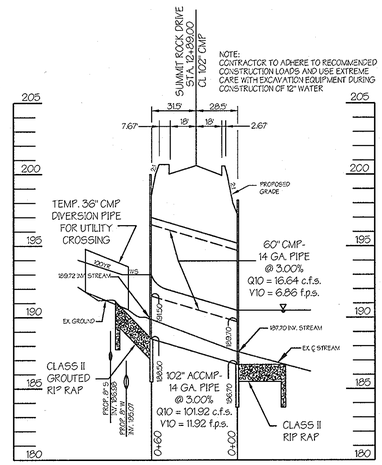
PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 24264, EXPIRATION DATE: 09/09/09.

STATE OF MARYLAND — JUSTIN J. CROSBY — NO. 24264 — REGISTERED PROFESSIONAL ENGINEER

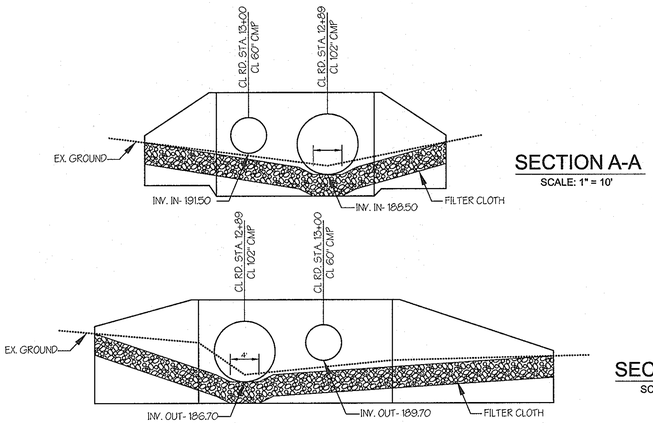
rtext (rtext)

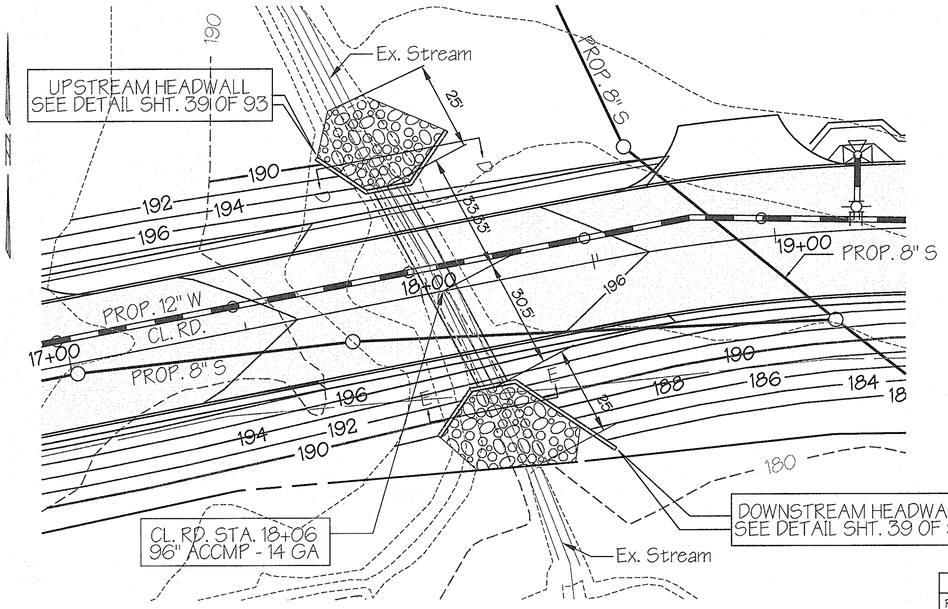


PROPOSED CULVERT CROSSING
STA. 12+88 & 13+00
SCALE: 1" = 20'

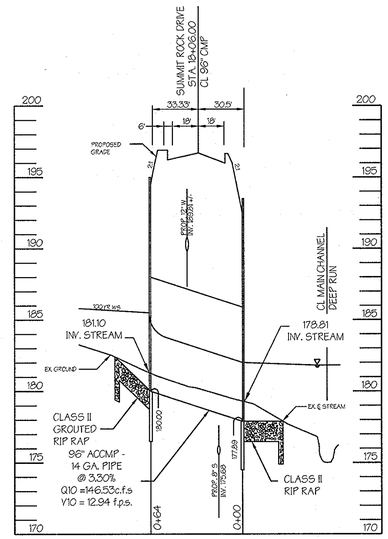


PROFILE
SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

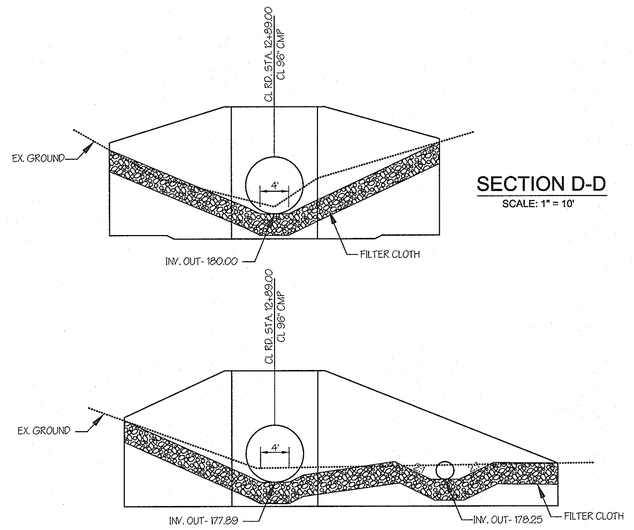




PROPOSED CULVERT CROSSING
STA. 18+06
SCALE: 1" = 20'



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



C.L.	CULVERT	DISCHARGE - CFS			HW ELEVATION			VELOCITY @ OUTLET - FPS			FLOW
ROAD STA.	SIZE - (IN.)	100 YR.	10 YR.	2 YR.	100 YR.	10 YR.	2 YR.	100 YR.	10 YR.	2 YR.	CONTROL
12+89	102" ACCMP	141.09	101.92	63.84	193.61	193.00	192.28	12.44	11.92	10.32	INLET
13+00	60" ACCMP	31.94	16.64	4.74	193.61	193.00	192.28	8.15	6.86	4.66	INLET
18+06	96" ACCMP	212.31	146.53	86.13	186.16	185.16	184.15	14.14	12.94	11.68	INLET

	TW DEPTH			TW VELOCITY - FPS			d_{50} STONE	STONE
SECTION	100 YR.	10 YR.	2 YR.	100 YR.	10 YR.	2 YR.	IN.	DEPTH - IN.
A-A	-	-	-	-	-	-	9.5	19
B-B , C-C	3.15	1.99	4.74	193.61	193.00	192.28	9.5	19
D-D	-	-	-	-	-	-	9.5	19
E-E	4.32	2.76	1.97	3.15	6.50	6.58	9.5	19

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND — PAUL WAYNE TAYLOR — No. 21603 — REGISTERED PROFESSIONAL ENGINEER

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013."

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: P.W.T. K.E.
DRAWN BY: B.A.W. K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

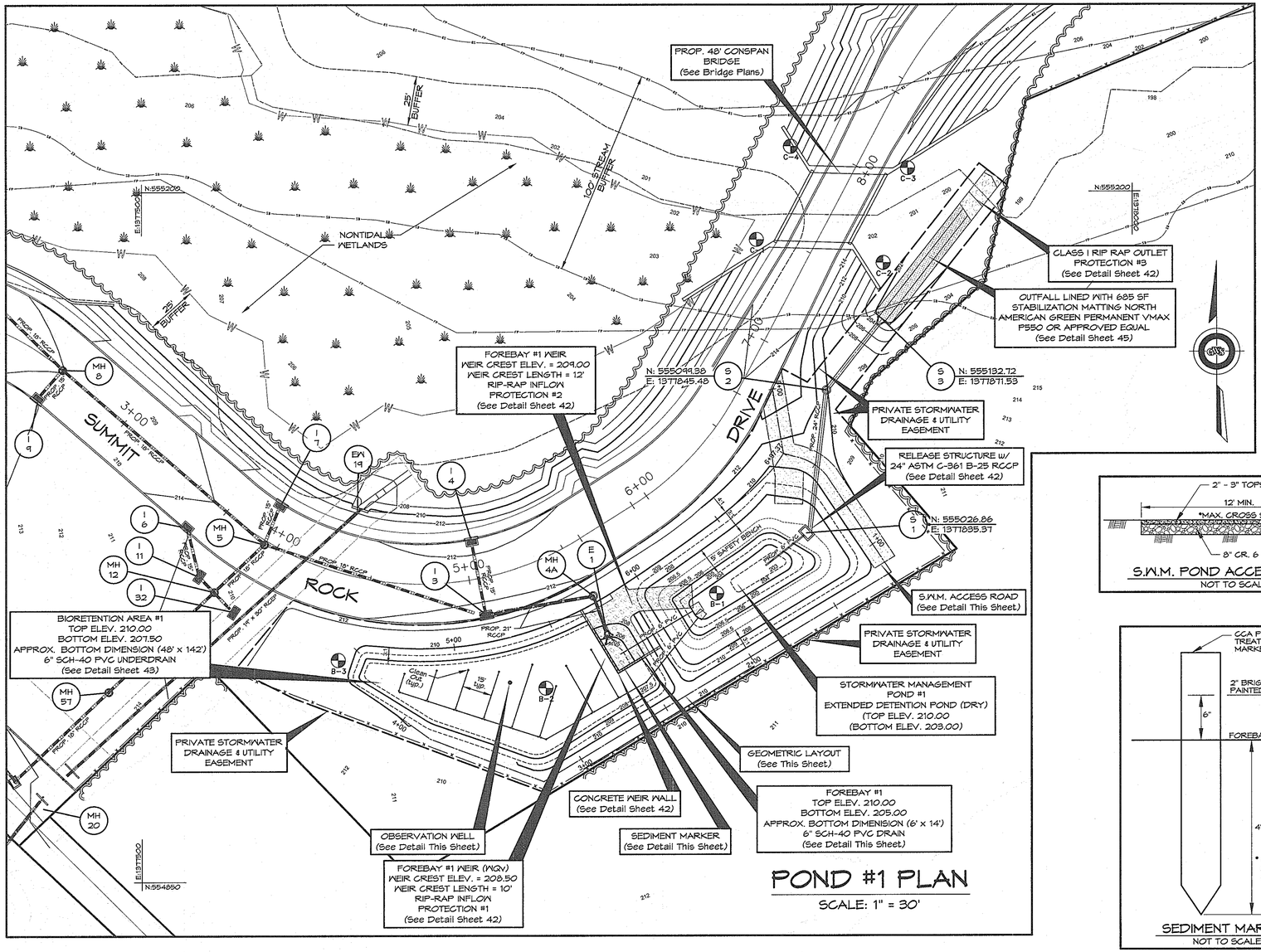
Culvert Crossing Plans and Profiles
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 40 OF 94

SDP-08-082 — P/N : 10762

...\10762c-40culvertcrossing.s01 10/19/2011 10:42:47 AM SCALE 50.000000 ' / IN.

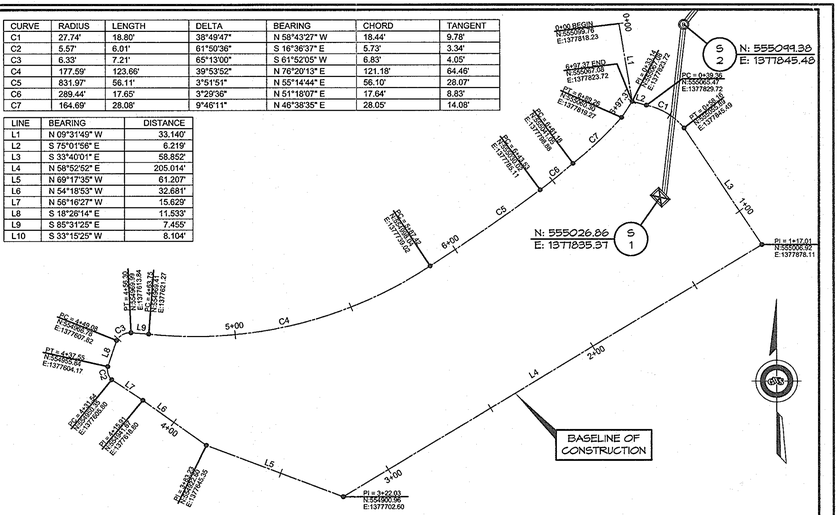


POND #1 PLAN

SCALE: 1" = 30'

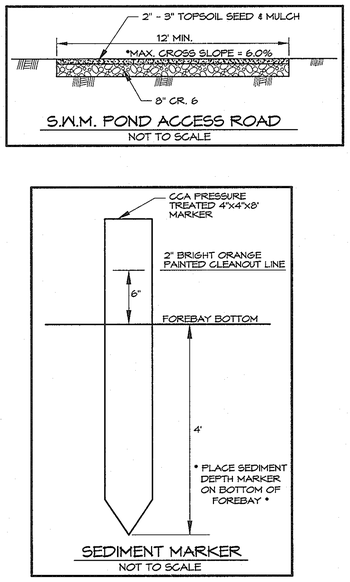
CURVE	RADIUS	LENGTH	DELTA	BEARING	CHORD	TANGENT
C1	27.74'	16.80'	38°49'47"	N 58°43'27" W	18.44'	9.78'
C2	5.57'	6.01'	61°50'36"	S 16°36'37" E	5.73'	3.34'
C3	6.33'	7.21'	65°13'00"	S 61°52'05" W	6.83'	4.05'
C4	177.59'	123.66'	39°53'52"	N 76°20'13" E	121.18'	64.46'
C5	831.97'	56.11'	3°51'51"	N 55°14'44" E	56.10'	28.07'
C6	289.44'	17.65'	3°29'36"	N 51°16'07" E	17.64'	8.83'
C7	164.69'	28.08'	9°46'11"	N 46°38'35" E	28.05'	14.08'

LINE	BEARING	DISTANCE
L1	N 09°31'49" W	33.140'
L2	S 75°01'56" E	6.219'
L3	S 33°40'01" E	58.852'
L4	N 58°52'52" E	205.014'
L5	N 69°17'35" W	61.207'
L6	N 54°18'53" W	32.681'
L7	N 56°16'27" W	15.629'
L8	S 18°26'14" E	11.533'
L9	S 85°31'25" E	7.455'
L10	S 33°15'25" W	8.104'



POND #1 GEOMETRIC LAYOUT

SCALE: 1" = 30'

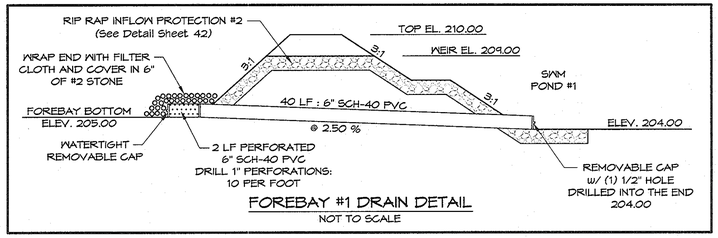


SEDIMENT MARKER

NOT TO SCALE

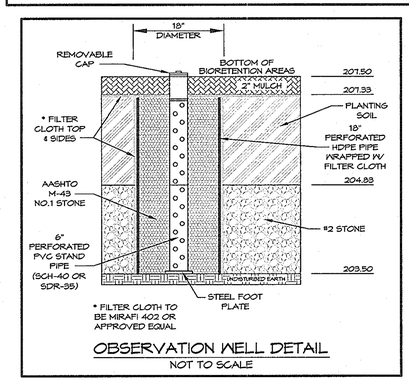
S.W.M. POND ACCESS ROAD

NOT TO SCALE



FOREBAY #1 DRAIN DETAIL

NOT TO SCALE



OBSERVATION WELL DETAIL

NOT TO SCALE

POND #1 – SPECIFICATION FOR DRAINAGE AREA 'A-3'	
DESCRIPTION	DATA
STRUCTURE CLASSIFICATION	" A "
STORAGE X HEIGHT PRODUCT	n/a
WATERSHED AREA TO POND	2.87 Ac.
HEIGHT TO EMERGENCY SPILLWAY	n/a
NORMAL SURFACE AREA	4114 sq. ft.
PRINCIPAL SPILLWAY CAPACITY	0.241 cc. ft.
EMERGENCY SPILLWAY CAPACITY / CREST	n/a
POND TYPE	" P-1 "
FREEBOARD (REQUIRED / PROVIDED)	1.0' / 1.64'
IMPERVIOUS AREA TO POND	1.72 Ac.
TOP OF EMBANKMENT	210.00
MAXIMUM HEIGHT OF FILL (FT.)	0.0'
WATERSHED	DEEP RUN

NO TREES, SHRUBS OR OTHER WOODY VEGETATION WILL BE ALLOWED WITHIN 25' OF THE INLET STRUCTURE IN THE POOL AREA.

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE

PREPARED BY :

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYS ♦ TRANSPORTATION

~~256 CHILLING CIRCLE, SUITE 103~~

~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 785-6640~~ http://www.gwstephens.com ~~Fax: (410) 785-6647~~

Minimum Design & Construction Criteria For SWM Ponds Exempt From MD 378 Pond Code

While not required to meet all conditions of MD-378, facilities that are exempt shall be approved by the appropriate authority and conform to the following minimum design and construction criteria:

1. Design for a stable outfall using the ten year design storm (or two year design storm if the pond is an off-line structure providing WQv storage only).
2. Dams shall meet class A dam safety hazards classification.
3. Principal spillway/riser shall provide anti-flotation, anti-vortex, and trash-rack design.
4. One (1) foot of freeboard shall be provided above the design high water for the 10 year storm.
5. Material and construction specifications for the principal spillway shall be in accordance with MD 378 code.
6. Material and construction specifications for the embankment shall be in accordance with MD 378 code, except that fill material for the embankment shall conform to Unified Soil Classification GC, SC, SM, MH, ML, CH, or CL, and no cutoff trench is required.
7. Woody vegetation is prohibited on the embankment.

STATEMENT OF DETERMINATION OF MD 378

Pond #1 is Exempt From The Maryland 378 Pond Code Due to the Following :

1. Ponds or other structures have less than four (4) feet of embankment.

2. The storage at emergency spillway design high water elevation does not exceed 40,000 cubic feet, and the height of the embankment is 6 feet or less.

AS-BUILT CERTIFICATION

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

Signature — P.E. No. — Date

Certify means to state or declare a professional opinion based upon onsite inspections and material tests which are conducted during construction. The onsite inspections and material tests are those inspections and tests deemed sufficient and appropriate by commonly accepted engineering standards. Certify does not mean or imply a guarantee by the engineer nor does an engineer's certification relieve any other party from meeting requirements imposed by contract, employment, or other means, including meeting commonly accepted industry practices.

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 10/25/11

PAUL W. TAYLOR — PE # 13741

Print Name

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspections by the Howard soil Conservation District."

Signature of Developer — Date 10/25/11

THOMAS D. HESS

Print Name

OWNER/DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

STORMWATER MANAGEMENT POND #1 – UNIFIED STORMWATER SIZING CRITERIA					
		REQ.	PROV.		
Water Quality Volume (WQv) (Acre-feet)	WQv = [(P)(Rv)(A)] /12	0.141	0.142	Acre-feet	Bioretention Area
Recharge Volume (Rev) (Acre-feet)	Rev = [(S)(Rv)(A)] /12	0.016	0.020	Acre- feet	Below Bioretention Area
Channel Protection Storage Volume (Cpv)		0.231	0.241	Acre- feet	Extended Detention Pond
Overbank Flood Protection Volume (Qp)		13.98		10-Year Storm (CFS)	
Extreme Flood Volume (Qf)		21.16		100-Year Storm (CFS)	

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:			SECTION NAME:		PARCEL #
CORRIDOR 95 BUSINESS PARK			N/A		134 / 179
PLAT # F-10-013	BLOCK # 16,17,22,23	ZONE M-1	TAX MAP # 37	ELECT. DIST. 1st	CENSUS TRACT 6011.02
WATER CODE: B-02			SEWER CODE: 4020000		

STORMWATER MANAGEMENT POND #1 PLAN SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : February 4, 2011
SHEET 41 OF 94

SDP-08-082

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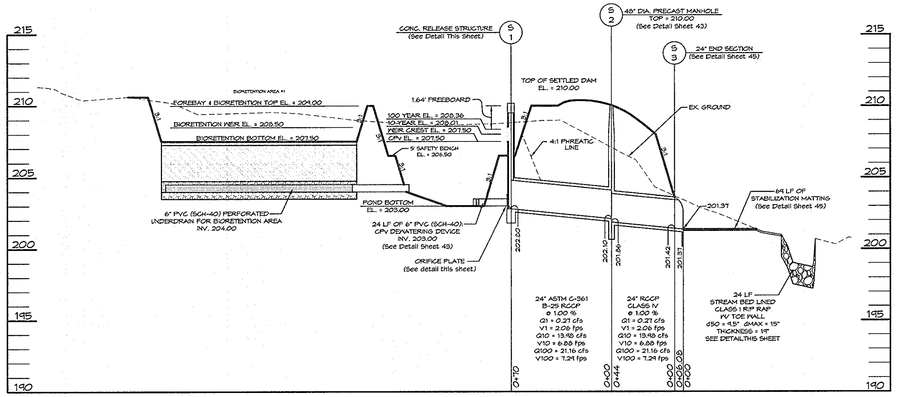
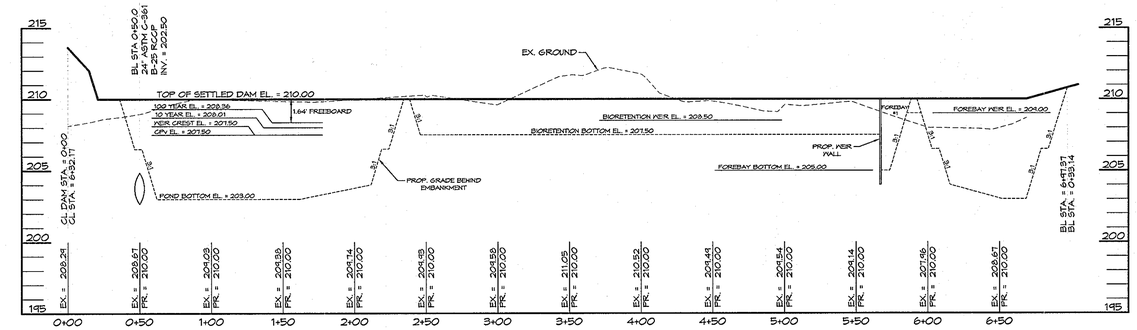


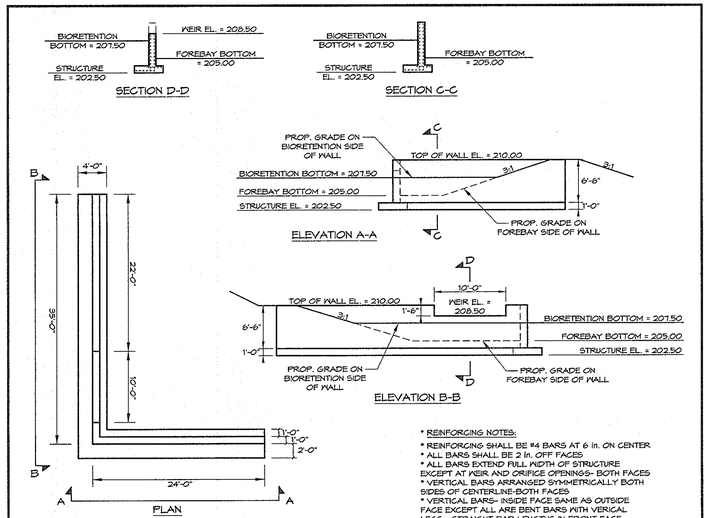
PROFILE THRU PRINCIPAL SPILLWAY

SCALE: HORZ 1" = 50'
VERT 1" = 5'



PROFILE AT BASELINE OF EMBANKMENT

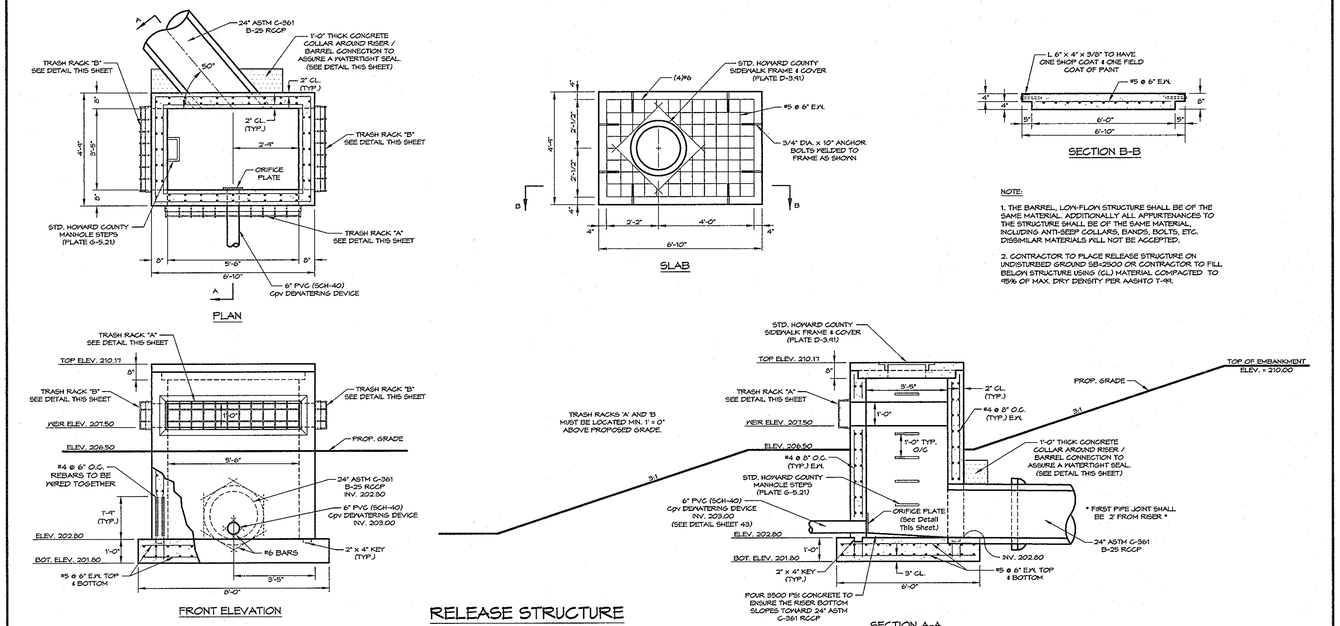
SCALE: HORZ 1" = 50'
VERT 1" = 5'



CONCRETE WEIR WALL

SCALE: 1"=10'

GENERAL NOTES
CONCRETE SHALL BE MIX NO.2
REINFORCING: DEFORMED STEEL BARS-IN CONFORMANCE WITH ASTM A615 GRADE 60
CHAMFER: ALL EXPOSED EDGES 1"X1" OR AS DIRECTED



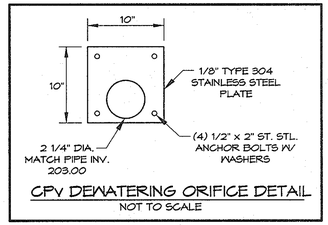
RELEASE STRUCTURE

SCALE : 1" = 3'

NOTE:

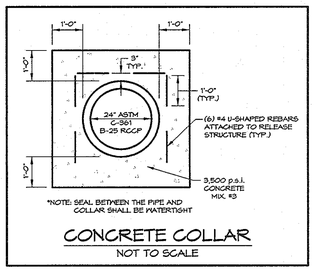
1. THE BARREL, LOW-FLOW STRUCTURE SHALL BE OF THE SAME MATERIAL. ADDITIONALLY ALL APPURTENANCES TO THE STRUCTURE SHALL BE OF THE SAME MATERIAL, INCLUDING ANTI-SEEP COLLARS, BANDS, BOLTS, ETC. DISSIMILAR MATERIALS WILL NOT BE ACCEPTED.

2. CONTRACTOR TO PLACE RELEASE STRUCTURE ON UNDISTURBED GROUND SB=2500 OR CONTRACTOR TO FILL BELOW STRUCTURE USING (CL) MATERIAL COMPACTED TO 95% OF MAX. DRY DENSITY PER AASHTO T-99.



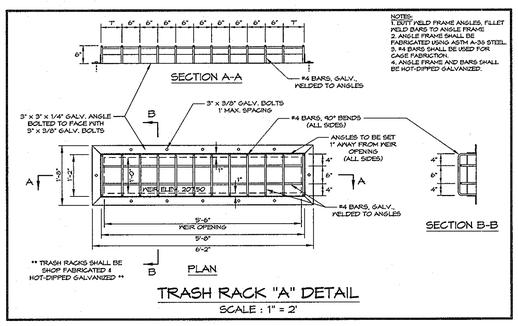
CPV DEWATERING ORIFICE DETAIL

NOT TO SCALE



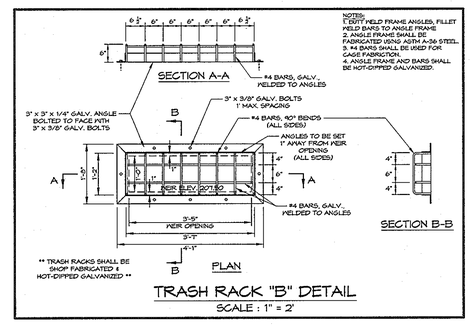
CONCRETE COLLAR

NOT TO SCALE



TRASH RACK "A" DETAIL

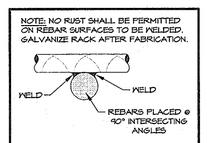
SCALE : 1" = 2'



TRASH RACK "B" DETAIL

SCALE : 1" = 2'

NOTE: NO RUST SHALL BE PERMITTED ON REBAR SURFACES TO BE WELDED. GALVANIZE RACK AFTER FABRICATION.



WELDING DETAIL

NOT TO SCALE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~225 SCHILLING CIRCLE, SUITE 160~~
~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 785-6540~~ http://www.gwstephens.com ~~Fax: (410) 785-6547~~

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013."

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/28/11

PAUL W. TAYLOR — PE # 13741

Print Name

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/11

THOMAS D. HESS

Print Name

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.
REVISIONS	

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:			SECTION NAME:		PARCEL #
CORRIDOR 95 BUSINESS PARK			N/A		134 / 179
PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02
WATER CODE:	B-02		SEWER CODE:	4020000	

STORMWATER MANAGEMENT POND #1 PROFILE SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : February 4, 2011
SHEET 42 OF 94

SDP-08-082

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B.3.B Specifications for Bioretention

1. Material Specifications

The allowable materials to be used in bioretention area are detailed in Table B.3.2.

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 Bermuda 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 - 7.0
organic matter	1.5 - 4% (by weight)
magnesium	35 lb./ac
phosphorus (phosphate - P_2O_5)	75 lb./ac
potassium (potash - K_2O)	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.

3. 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 type 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 refracture 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.

4. Plant Material

Recommended plant material for bioretention areas can be found in Appendix A, Section A.2.3.

5. 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 planting 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 defeats, 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.

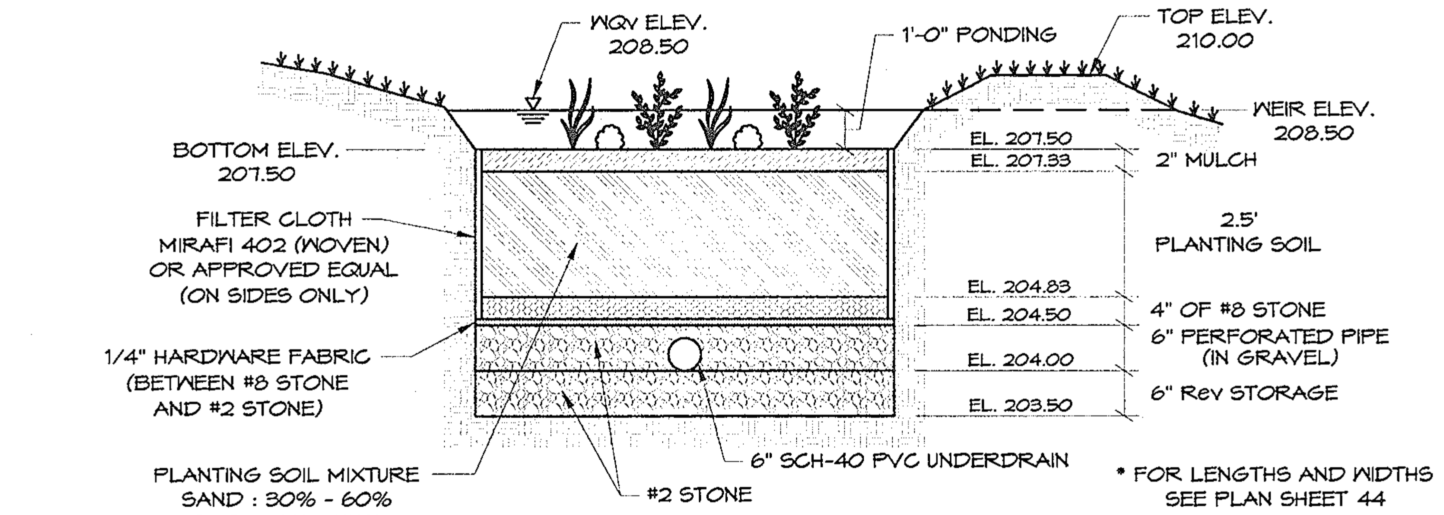
6. Underdrains

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.

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous

The bioretention facility may not be constructed until all contributing drainage area has been stabilized.



* FOR LENGTHS AND WIDTHS SEE PLAN SHEET 44

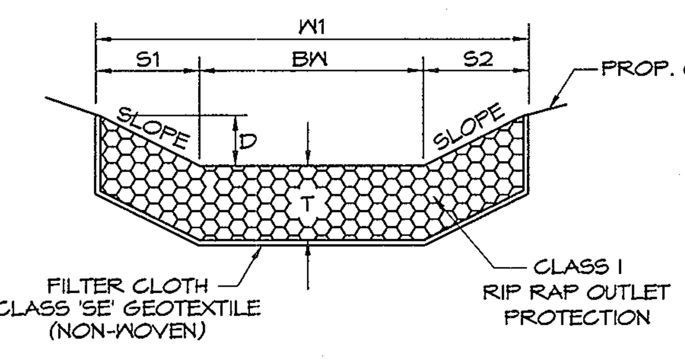
U.S.D.A. SOIL TYPES
Loamy Sand (Min. infiltration rate (f) = 2.41 in/hr)
Sandy Loam (Min. infiltration rate (f) = 1.02 in/hr)
Loam (Min. infiltration rate (f) = 0.52 in/hr)

BIORETENTION #1 TYPICAL SECTION

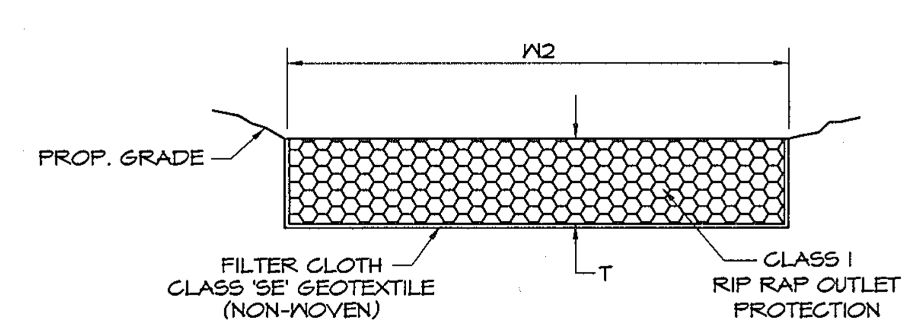
NOT TO SCALE

	LOCATION	DESCRIPTION	W1	W2	BW	S1	S2	SLOPE	T	D	L	Q	V
**	FOREBAY #1 WEIR (WQv) Below Wall	RIP RAP INFLOW PROTECTION #1	n\a	14'-0"	n\a	n\a	n\a	n\a	1'-7"	n\a	5'-0"	16.36	1.24
**	FOREBAY #1 WEIR	RIP RAP INFLOW PROTECTION #2	18'-0"	18'-0"	12'-0"	3'-0"	3'-0"	3:1	1'-7"	1'-0"	50'-0"	16.36	1.24
**	BELOW S-4 (WING WALL)	RIP RAP OUTLET PROTECTION #3	12'-0"	12'-0"	6'-0"	3'-0"	3'-0"	2:1	1'-7"	1'-6"	20'-0"	13.98	1.28

** OUTFALL DESIGN BASED ON 10-YR STORM FREQUENCY



SECTION THROUGH RIP RAP PROTECTION AT CONTROL STRUCTURE



SECTION THROUGH RIP RAP PROTECTION AT END OF RIP RAP APRON

RIP RAP OUTLET SECTIONS

NOT TO SCALE

Table B.3.2 Materials Specifications for Bioretention

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
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		aged 6 months, minimum
pea gravel diaphragm and curtain drain	pea gravel: ASTM-D-448 ornamental stone: washed cobbles	pea gravel: No. 6 stone: 2" to 5"	
geotextile	Class "C" - apparent opening size (ASTM-D-4751), grab tensile strength (ASTM-D-4632), puncture resistance (ASTM-D-4833)	n/a	for use as necessary beneath underdrains only
underdrain gravel	AASHTO M-43	0.375" to 0.75"	
underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
sand [1' deep]	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	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.

Operation and Maintenance Schedule for Privately owned and Maintained Bioretention Systems. (F-6)

1. The sediment chamber outlet devices shall be cleaned and/or repaired when drawdon times within the chamber exceed 36 hours.

2. Debris and litter shall be removed as necessary to insure proper operation of the system.

3. Sediment shall be cleaned out of the sedimentation chamber when it accumulates to a depth of 6 inches. Vegetation within the sediment chamber shall be limited to a height of 18 inches.

4. When water ponds on the the surface of the filter bed for more than 72 hours, the top few inches of discolored material shall be replaced with fresh material. Proper cleaning and disposal of the removed materials and liquid must be followed by the owner.

5. Dead or diseased plant material shall be replaced. Areas devoid of mulch should be re-mulched on an annual basis.

6. A logbook shall be maintained to determine the rate at which the facility drain. The maintenance logbook shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.

7. Once the performance characteristics of the infiltration system have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

Operation and Maintenance Schedule for Privately Owned and Maintained Stormwater Ponds (P-1 thru P-5)

Routine Maintenance:

1.Facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the pond is functioning properly.

2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times per year, once in June and once in September. Other side slopes and maintenance access shall be mowed as needed.

3. Debris and litter shall be removed during regular mowing operations and as needed.

4. Visible signs of erosion in the pond as well as the rip-rap or gabion outlet areas shall be repaired as soon as it is noticed.

Non-Routine Maintenance:

1. Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components shall be inspection during routine maintenance operations.

2. Sediment shall be removed from the pond, and forebay, no later than when the capacity of the pond, or forebay, is half full of sediment, or when deemed necessary for aesthetic reasons, upon approval from the Department of Public Works.

Stormwater Management Sequence of Construction for Pond #1

1.Complete the Sequence of Operation on the Approved sediment and erosion control plans.

2. Notify Howard County Department of Public Works, Geotechnical company observing/documenting the construction and the engineering company preparing the as-built drawings, at least 48 hours prior to commencing construction.

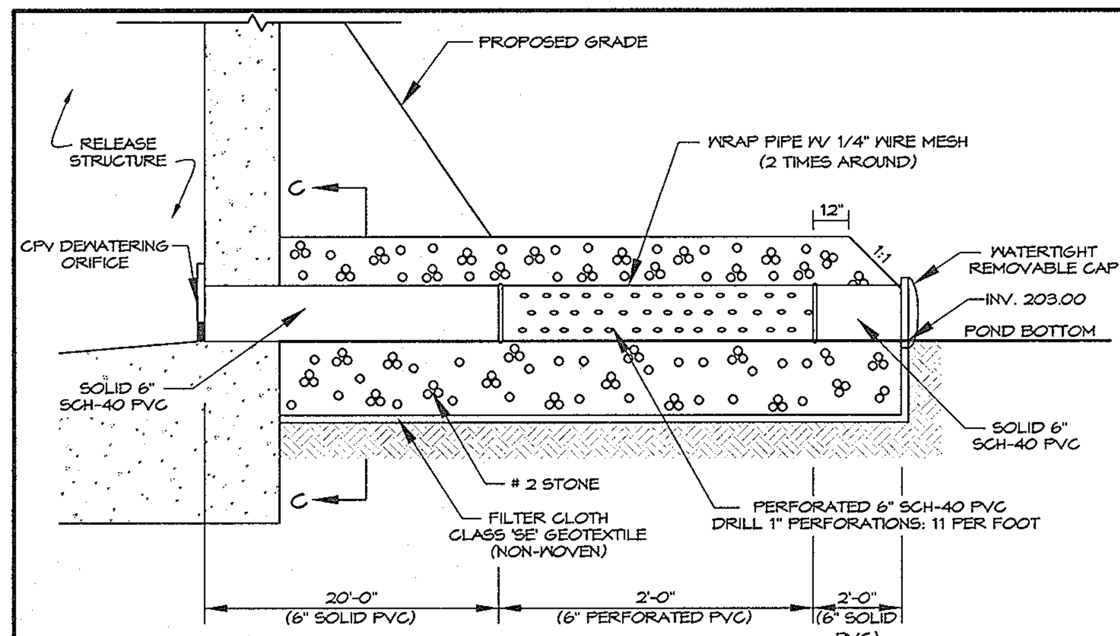
3. After all areas have been permanently stabilized and with the approval from Howard County Department of Public Works Sediment Control Inspector, remove all sediment control devices within the pond #1 area and stabilize with permanent seeding. Begin converting the sediment basin to stormwater management pond #1 in accordance with the approved stormwater management plans.
   a. Clean-out basin
   b. Excavate and install forebay, bioretention #1 and observation well, see Swm plans for details.
   c. Excavate remainder of the pond area and install weir wall.
   d. Remove sediment basin dewatering device and install Wqv low flow device. See Swm plans for details.
   e. Uncap Cpv low flow pipe and install remaining portion of Cpv low flow pipe. See Swm plans for details.

4. Install access road.

5. At this time the Swm pond #1 shall be completely converted.

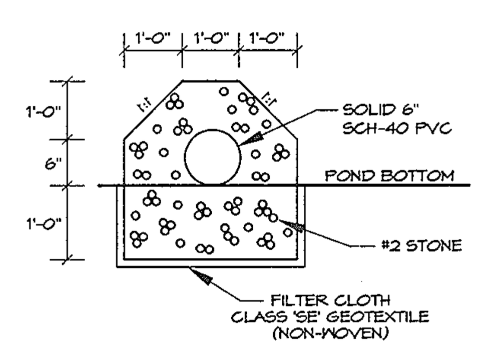
6. Permanently stabilize pond area as necessary.

7. Provide an as-built survey, Geotechnical engineer's report and Professional engineer's or Surveyor's Certification within 30 days of construction of the facility.

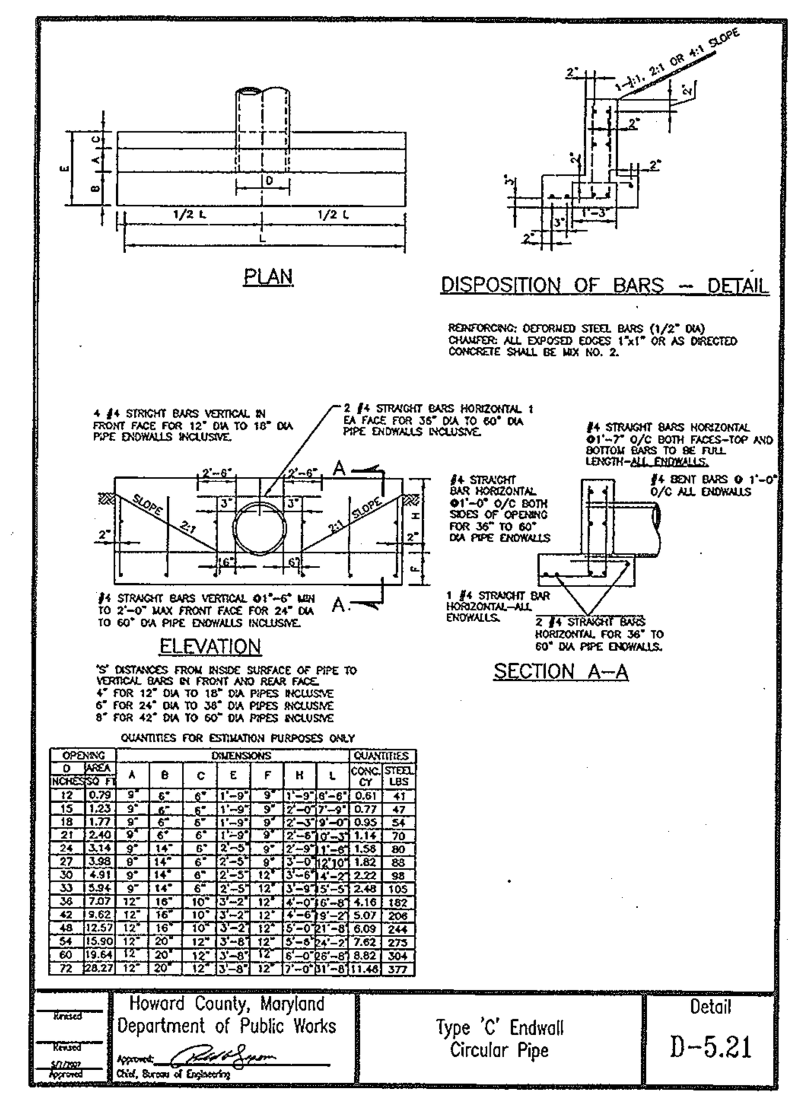


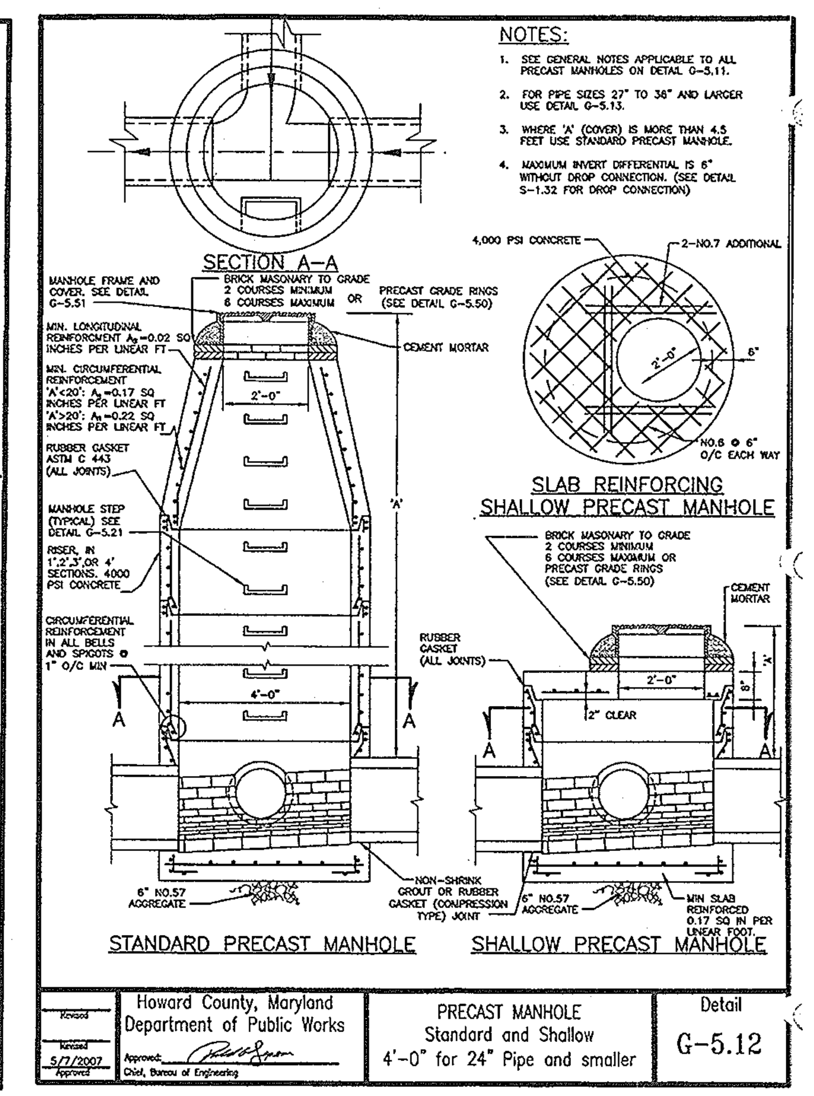
DEWATERING DEVICE DETAIL

NOT TO SCALE



SECTION C-C
DEWATERING DEVICE
NOT TO SCALE





This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~
~~Ph: (410) 785-6640~~ http://www.gwstephens.com ~~Fax: (410) 785-6647~~

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/29/12
Print Name: PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:

"I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/11
Print Name: THOMAS D. HESS

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 — SEWER CODE: 4020000

STORMWATER MANAGEMENT POND #1 DETAIL SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE — SCALE: AS SHOWN
ELECTION DISTRICT: 1st — DATE: February 4, 2011
HOWARD CO., MARYLAND — SHEET 43 OF 94

SDP-08-082

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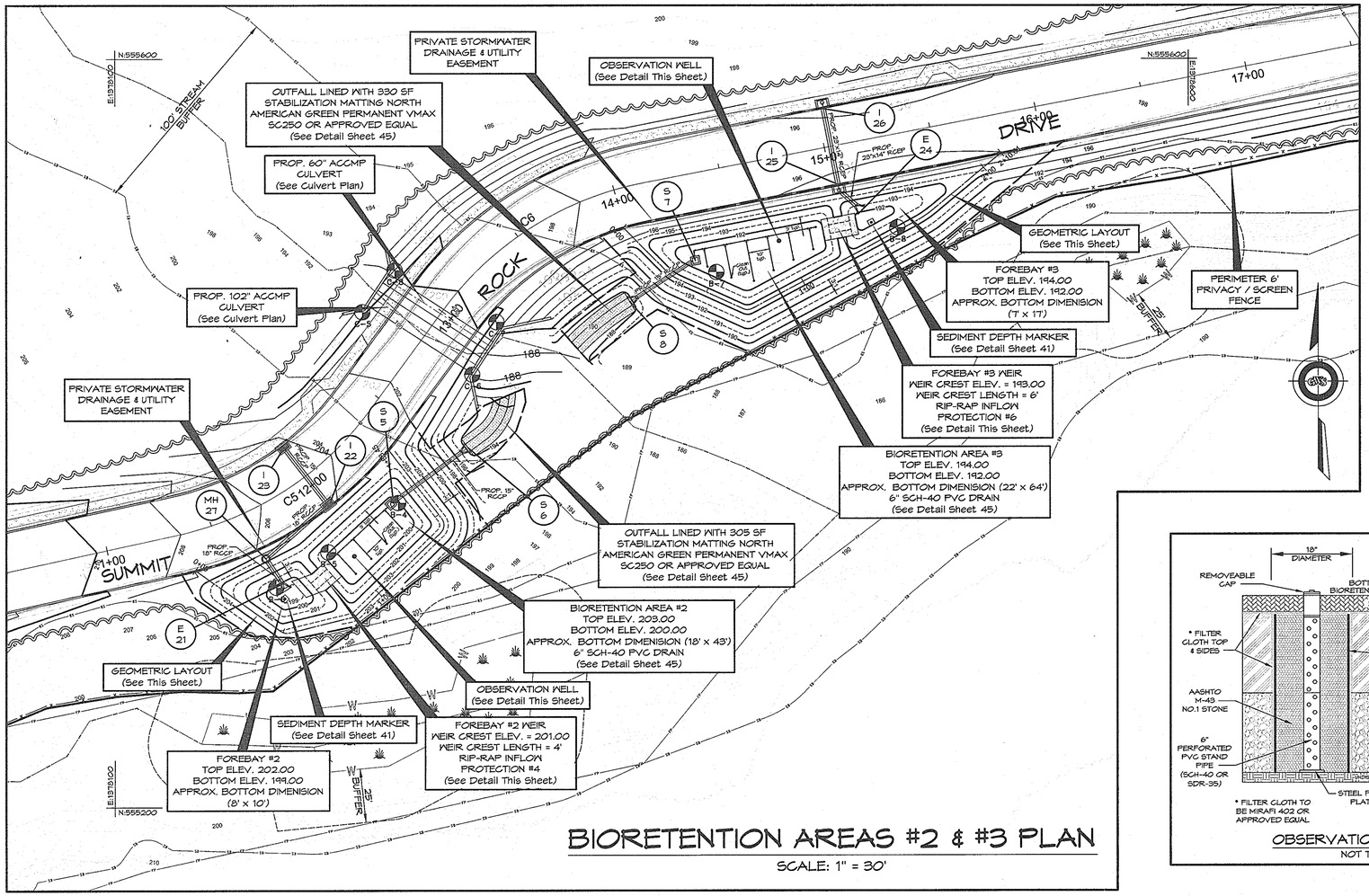
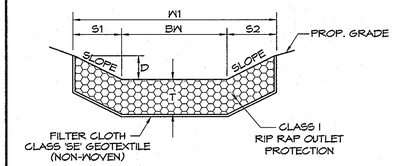


BIORETENTION AREAS #2 & #3 PLAN

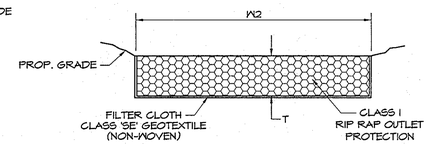
SCALE: 1" = 30'

	LOCATION	DESCRIPTION	W1	W2	BW	S1	S2	SLOPE	T	D	L	Q	V
**	FOREBAY #2 WEIR	RIP RAP INFLOW PROTECTION #4	8'-0"	8'-0"	4'-0"	2'-0"	2'-0"	2:1	1'-7"	1'-0"	14'-0"	2.83	0.84
**	FOREBAY #3 WEIR	RIP RAP INFLOW PROTECTION #6	8'-0"	8'-0"	4'-0"	2'-0"	2'-0"	2:1	1'-7"	1'-0"	14'-0"	4.40	0.96

** OUTFALL DESIGN BASED ON 10-YR STORM FREQUENCY



SECTION THROUGH RIP RAP PROTECTION AT CONTROL STRUCTURE



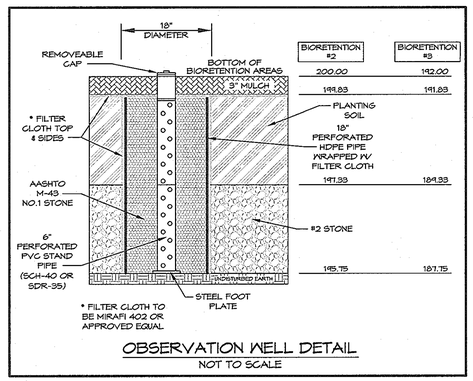
SECTION THROUGH RIP RAP PROTECTION AT END OF RIP RAP APRON

RIP RAP OUTLET SECTIONS

NOT TO SCALE

STORMWATER MANAGEMENT BIORETENTION #2 – UNIFIED STORMWATER SIZING CRITERIA					
		REQ.	PROV.		
Water Quality Volume (WQv) (Acre–feet)	WQv = [(P)(Rv)(A)] /12	0.024	0.025	Acre–feet	Bioretention
Recharge Volume (Rev) (Acre–feet)	Rev = [(S)(Rv)(A)] /12	0.003	0.005	Acre– feet	Below Bioretention Area
Channel Protection Storage Volume (Cpv)		N/A	N/A	Acre– feet	Cpv Not Required Cpv = 1.2 cfs
Overbank Flood Protection Volume (Qp)		2.83		10–Year Storm (CFS)	
Extreme Flood Volume (Qf)		4.22		100–Year Storm (CFS)	

STORMWATER MANAGEMENT BIORETENTION #3 – UNIFIED STORMWATER SIZING CRITERIA					
		REQ.	PROV.		
Water Quality Volume (WQv) (Acre–feet)	WQv = [(P)(Rv)(A)] /12	0.038	0.041	Acre–feet	Bioretention
Recharge Volume (Rev) (Acre–feet)	Rev = [(S)(Rv)(A)] /12	0.004	0.009	Acre– feet	Below Bioretention Area
Channel Protection Storage Volume (Cpv)		N/A	N/A	Acre– feet	Cpv Not Required Cpv = 2.0 cfs
Overbank Flood Protection Volume (Qp)		4.40		10–Year Storm (CFS)	
Extreme Flood Volume (Qf)		6.47		100–Year Storm (CFS)	



OBSERVATION WELL DETAIL

NOT TO SCALE

NO TREES, SHRUBS OR OTHER WOODY VEGETATION WILL BE ALLOWED WITHIN 25' OF THE INLET STRUCTURE IN THE POOL AREA AND NOT ALLOWED WITH IN 15' FROM THE TOE OF THE EMBANKMENT.

Operation and Maintenance Schedule for Privately owned and Maintained Bioretention Systems. (F-6)

1. The sediment chamber outlet devices shall be cleaned and/or repaired when drawdown times within the chamber exceed 36 hours.

2. Debris and litter shall be removed as necessary to insure proper operation of the system.

3. Sediment shall be cleaned out of the sedimentation chamber when it accumulates to a depth of 6 inches. Vegetation within the sediment chamber shall be limited to a height of 18 inches.

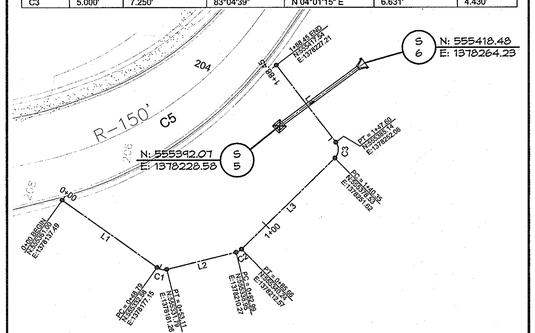
4. When water ponds on the the surface of the filter bed for more than 72 hours, the top few inches of discolored material shall be replaced with fresh material. Proper cleaning and disposal of the removed materials and liquid must be followed by the owner.

5. Dead or diseased plant material shall be replaced. Areas devoid of mulch should be re-mulched on an annual basis.

6. A logbook shall be maintained to determine the rate at which the facility drain. The maintenance logbook shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.

7. Once the performance characteristics of the infiltration system have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	BEARING	CHORD	TANGENT
C1	5.000'	4.318'	49°29'09"	S 79°07'21" E	4.185'	2.304'
C2	5.000'	2.668'	30°34'31"	N 60°50'50" E	2.637'	1.367'
C3	5.000'	7.250'	83°04'39"	N 04°01'15" E	6.631'	4.430'

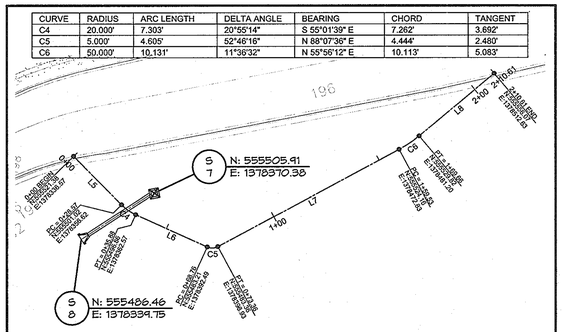


LINE	BEARING	DISTANCE
L1	N 54°22'46" W	48.793'
L2	S 76°08'05" W	29.876'
L3	S 45°33'34" W	54.693'
L4	N 37°31'05" W	40.849'

BIORETENTION #2 GEOMETRIC LAYOUT

SCALE: 1" = 30'

CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	BEARING	CHORD	TANGENT
C4	20.000'	7.303'	20°55'14"	S 55°01'39" E	7.262'	3.692'
C5	5.000'	4.605'	52°46'16"	N 88°07'36" E	4.444'	2.480'
C6	50.000'	10.131'	11°36'32"	N 55°56'12" E	10.113'	5.083'



LINE	BEARING	DISTANCE
L5	N 44°34'01" W	28.673'
L6	S 66°29'16" E	32.880'
L7	N 61°44'28" E	86.168'
L8	S 50°07'56" W	40.948'

BIORETENTION #3 GEOMETRIC LAYOUT

SCALE: 1" = 30'

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~235 SCHILLING CIRCLE, SUITE 103~~ ~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 785-6848~~ http://www.gwstephens.com ~~Fax: (410) 785-6847~~

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2012"

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/29/12

PAUL W. TAYLOR — PE # 13741

Print Name

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/11

~~THOMAS D. HESS~~

Print Name

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

STORMWATER MANAGEMENT BIORETENTION PLAN SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE: February 4, 2011
SHEET 44 OF 94

SDP-08-082

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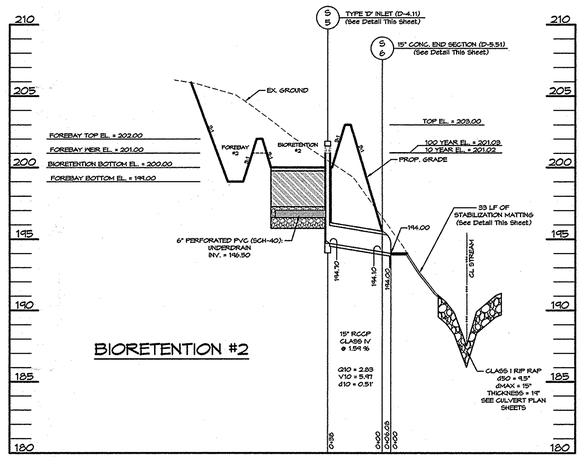
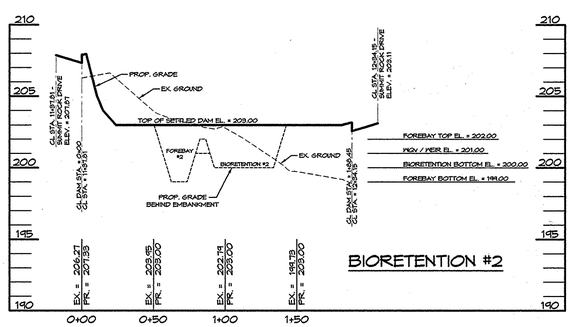


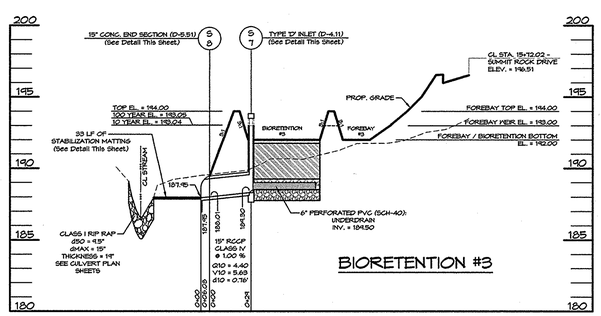
PROFILE THRU PRINCIPAL SPILLWAY

SCALE: HORZ 1" = 50'
VERT 1" = 5'



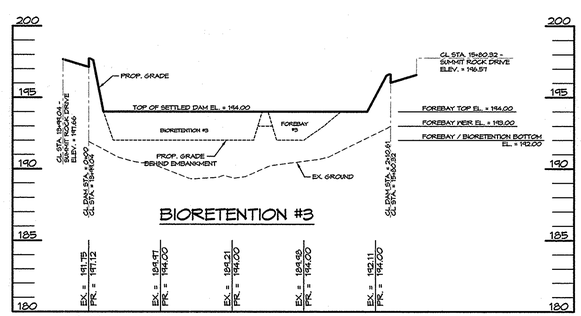
PROFILE ALONG EMBANKMENT

SCALE: HORZ 1" = 50'
VERT 1" = 5'



PROFILE THRU PRINCIPAL SPILLWAY

SCALE: HORZ 1" = 50'
VERT 1" = 5'



PROFILE ALONG EMBANKMENT

SCALE: HORZ 1" = 50'
VERT 1" = 5'

B.3.B Specifications for Bioretention

1. Material Specifications

The allowable materials to be used in bioretention area are detailed in Table B.3.2.

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 Bermuda 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 - 7.0
organic matter	1.5 - 4% (by weight)
magnesium	35 lb./ac
phosphorus (phosphate - P_2O_5	75 lb./ac
potassium (potash - K2O)	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 diffferently, 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.

3. Compaction

It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation boes 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 type 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 refracture 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.

4. Plant Material

Recommended plant material for bioretention areas can be found in Appendix A, Section A.2.3.

5. 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 1/8" of the ball is above final grade surface. The diameter of the planting 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 defeats, 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.

6. 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.

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous

The bioretention facility may not be constructed until all contributing drainage area has been stabilized.

Table B.3.2 Materials Specifications for Bioretention

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
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		aged 6 months, minimum
pea gravel diaphragm and curtain drain	pea gravel: ASTM-D-448 ornamental stone: washed cobbles	pea gravel: No. 6 stone: 2" to 5"	
geotextile	Class "C" - apparent opening size (ASTM-D-4751), grab tensile strength (ASTM-D-4632), puncture resistance (ASTM-D-4833)	n/a	for use as necessary beneath underdrains only
underdrain gravel	AASHTO M-43	0.375" to 0.75"	
underdrain piping	P 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/85; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
sand [1' deep]	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	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.

Stormwater Management Sequence of Construction for Bioretentions #2 & #3

1. Notify Howard County Department of Public Works, Geotechnical company observing/documenting the construction and the engineering company preparing the as-built drawings, at least 48 hours prior to commencing construction.

2. After all areas have been permanently stabilized and with the approval from Howard County Department of Public Works Sediment Control Inspector, remove all sediment control devices within bioretention areas and stabilize with permanent seeding.

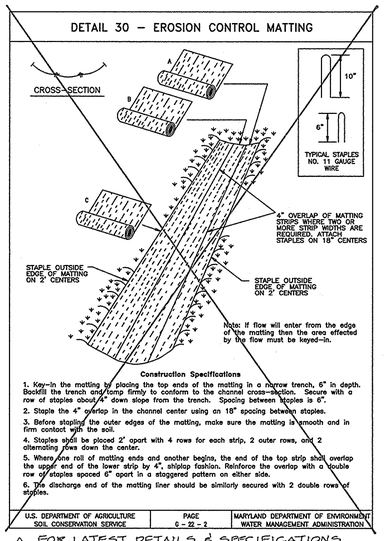
3. Begin Excavating and Installing Forebay & Bioretentions, Including under drain system, observation well, and type 'D' inlet. Refer to "Specifications for Bioretention" on sheet 45 for construction of Bioretention areas.

4. Remove Temporary 15" drain from I-22 & I-25 and install Prop. 15" Rccp drains leading into the forebays.

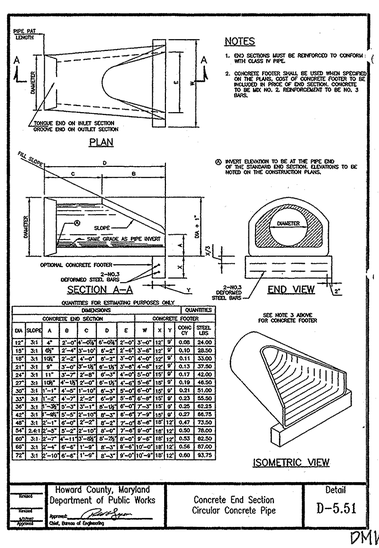
5. At this time the both Bioretention areas shall be completed.

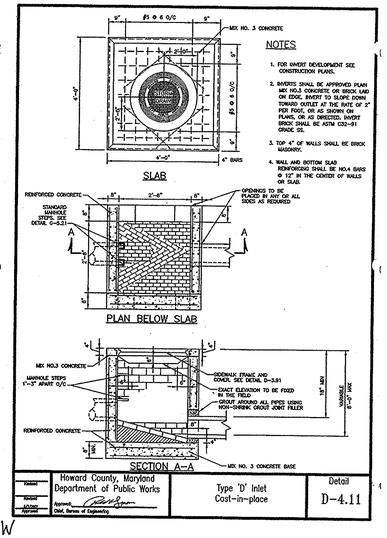
6. Permanently stabilize areas as necessary.

7. Provide an as-built survey, Geotechnical engineer's report and Professional engineer's or Surveyor's Certification within 30 days of construction of the facilities.



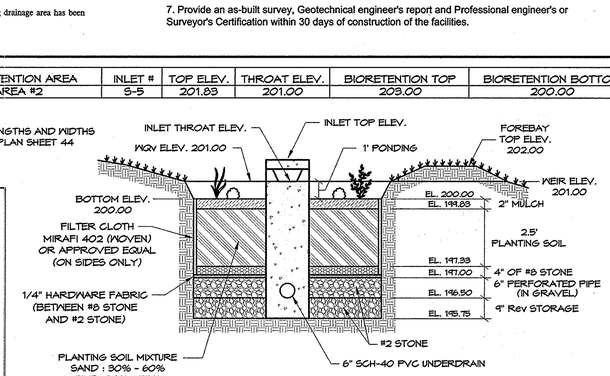
⚠ FOR LATEST DETAILS & SPECIFICATIONS SEE SHEETS 21A, 21B & 21C





DMW
DAFT MCCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

BIORETENTION AREA	INLET #	TOP ELEV.	THROAT ELEV.	BIORETENTION TOP	BIORETENTION BOTTOM
AREA #2	S-5	201.83	201.00	203.00	200.00

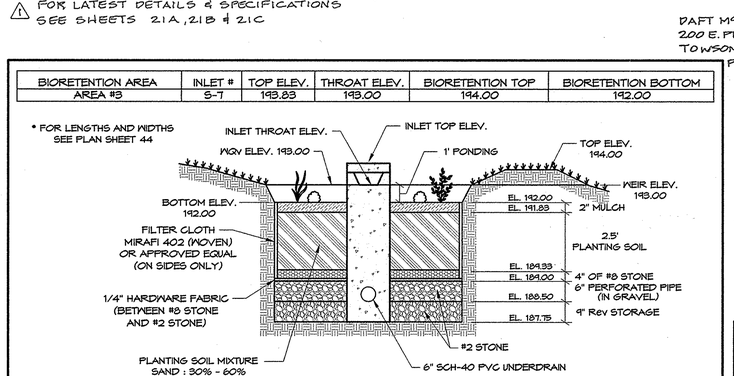


U.S.D.A. SOIL TYPES
Loamy Sand (Min. infiltration rate (f) = 2.41 in/hr)
Sandy Loam (Min. infiltration rate (f) = 1.02 in/hr)
Loam (Min. infiltration rate (f) = 0.52 in/hr)

BIORETENTION #2 TYPICAL SECTION

NOT TO SCALE

BIORETENTION AREA	INLET #	TOP ELEV.	THROAT ELEV.	BIORETENTION TOP	BIORETENTION BOTTOM
AREA #3	S-7	193.83	193.00	194.00	192.00

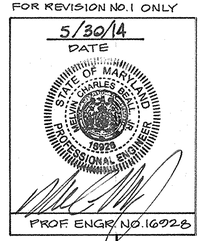


U.S.D.A. SOIL TYPES
Loamy Sand (Min. infiltration rate (f) = 2.41 in/hr)
Sandy Loam (Min. infiltration rate (f) = 1.02 in/hr)
Loam (Min. infiltration rate (f) = 0.52 in/hr)

BIORETENTION #3 TYPICAL SECTION

NOT TO SCALE

FOR REVISION NO.1 ONLY
5/30/14
DATE



PROF. ENGR. NO. 16028

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16028, Expiration Date: 5-13-16

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

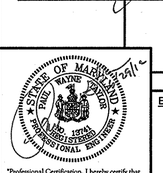
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~
~~Ph: (410) 785-6640~~ http://www.gwstephens.com ~~Fax: (410) 785-6647~~



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2012

ENGINEER CERTIFICATION:

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/29/12

PAUL W. TAYLOR — PE # 13741
Print Name

DEVELOPER CERTIFICATION:

"I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/11

THOMAS D. HESS
Print Name

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

DATE	NO.	REVISION DESCRIPTION
1-22-14	1	UPDATE TO 2011 MD STD.& SPECS. FOR SOIL EROSION & SED. CONTROL

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 — SEWER CODE: 4020000

STORMWATER MANAGEMENT BIORETENTION PROFILE SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE: February 4, 2011
SHEET 45 OF 94

SDP-08-082

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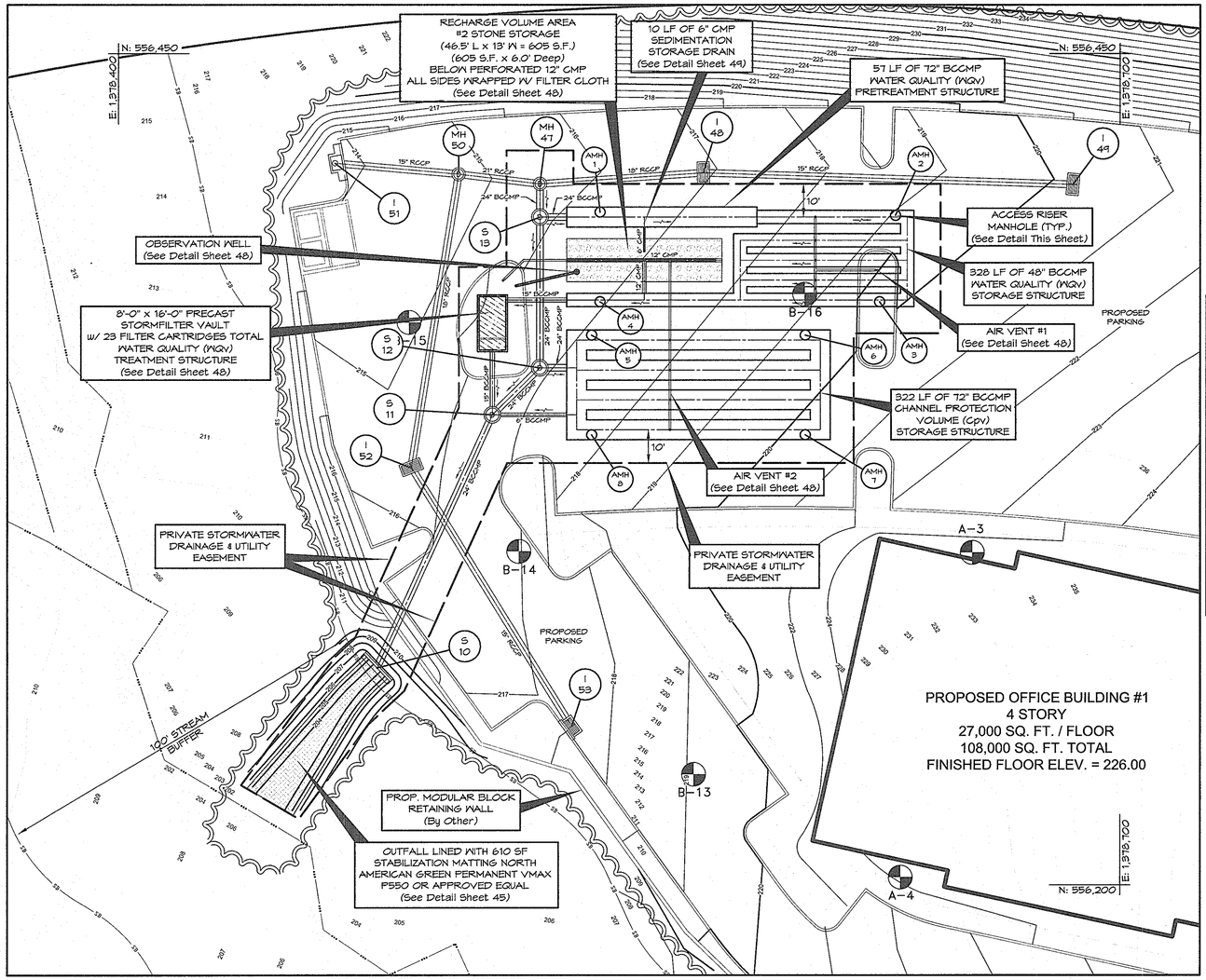


FACILITY #1 PLAN

SCALE: 1" = 20'

NOTE: ALL DEBRIS IS TO BE KEPT OUT OF THE FACILITY DURING AND AFTER CONSTRUCTION.

Operation and Maintenance Schedule for Privately Owned and Maintained Underground Facilities

1. The underground stormwater management facility is privately owned and it shall be the responsibility of the owner to periodically inspect and clean the facility to maintain its operation and function.

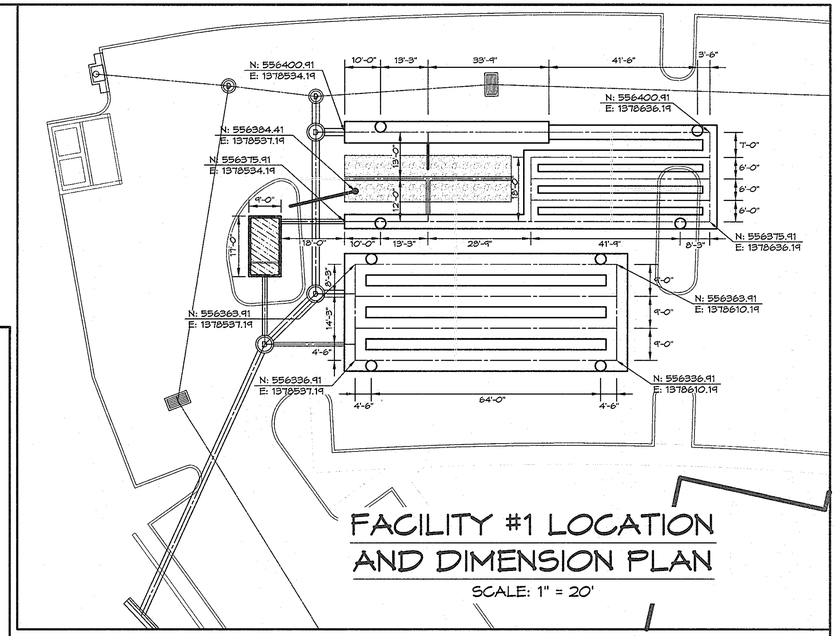
2. The underground stormwater management facility shall be inspected quarterly at a minimum and after especially severe storm events.

3. Systems should be cleaned when inspection reveals that accumulated sediment or trash is clogging the discharge orifice or accumulation of more than 2" is observed.

4. The facility shall be cleaned immediately after petroleum spills. The owner shall contact the appropriate regulatory agencies notifying them of the spill and cleanup operation.

5. The sediment and debris shall be removed from the underground stormwater management facility by vacuum truck or other manual means. The owner shall follow proper cleaning and disposal of the removed material and liquid.

6. The inlet and outlet pipes shall be checked for any obstructions at least once every six (6) months. If obstructions are found, the owner shall have them removed and properly disposed of.



FACILITY #1 LOCATION AND DIMENSION PLAN

SCALE: 1" = 20'

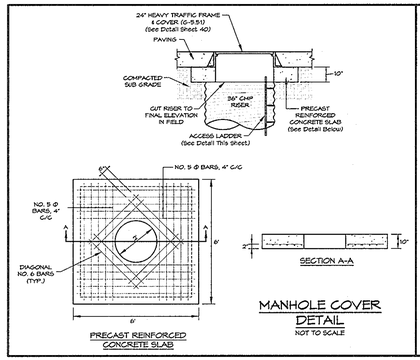
ACCESS RISER MANHOLE STRUCTURE SCHEDULE

STRUCTURE #	DESCRIPTION	NORTHING & EASTING	TOP ELEVATION
AMH-1	36" ACCESS RISER MANHOLE	N: 556,402.41 / E: 1,378,544.20	216.32
AMH-2	36" ACCESS RISER MANHOLE	N: 556,401.41 / E: 1,378,632.69	219.05
AMH-3	36" ACCESS RISER MANHOLE	N: 556,375.41 / E: 1,378,627.94	220.30
AMH-4	36" ACCESS RISER MANHOLE	N: 556,375.41 / E: 1,378,544.20	216.93
AMH-5	36" ACCESS RISER MANHOLE	N: 556,365.41 / E: 1,378,541.69	217.10
AMH-6	36" ACCESS RISER MANHOLE	N: 556,365.41 / E: 1,378,605.69	219.23
AMH-7	36" ACCESS RISER MANHOLE	N: 556,335.41 / E: 1,378,605.69	220.27
AMH-8	36" ACCESS RISER MANHOLE	N: 556,335.41 / E: 1,378,541.69	217.80

STRUCTURE SCHEDULE

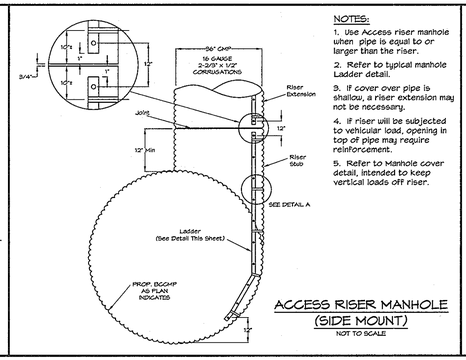
STRUCTURE #	DESCRIPTION	NORTHING & EASTING	REMARKS
S-10	TYPE 'C' ENDWALL	N: 556,265.31 / E: 1,378,477.49	HOWARD COUNTY DETAIL D-5.21
S-11	48" DIA. PRECAST MANHOLE	N: 556,341.41 / E: 1,378,511.99	HOWARD COUNTY DETAIL G-5.12
S-12	48" DIA. PRECAST MANHOLE	N: 556,355.62 / E: 1,378,526.19	HOWARD COUNTY DETAIL G-5.12
S-13	48" DIA. PRECAST MANHOLE	N: 556,400.91 / E: 1,378,526.19	HOWARD COUNTY DETAIL G-5.12

STORMWATER MANAGEMENT FACILITY #1 – UNIFIED STORMWATER SIZING CRITERIA					
		REQ.	PROV.		
Water Quality Volume (WQv) (Acre–feet)	WQv = [(P)(Rv)(A)] /12	0.130	0.131	Acre–feet	Stormfilter Vault
Recharge Volume (Rev) (Acre–feet)	Rev = [(S)(Rv)(A)] /12	0.033	0.033	Acre– feet	Recharge Volume Area
Channel Protection Storage Volume (Cpv)		0.180	0.186	Acre– feet	72" BCCMP Pipe Storage
Overbank Flood Protection Volume (Qp)		11.67		10–Year Storm (CFS)	BYPASSES THUR 24" BCCMP
Extreme Flood Volume (Qf)		17.01		100–Year Storm (CFS)	BYPASSES THUR 24" BCCMP



MANHOLE COVER DETAIL

NOT TO SCALE

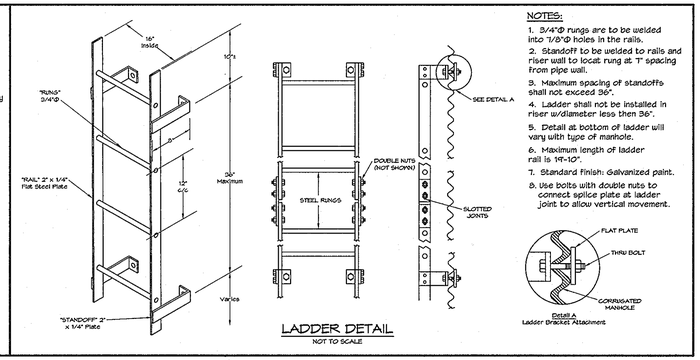


ACCESS RISER MANHOLE (SIDE MOUNT)

NOT TO SCALE

NOTES:

1. Use Access riser manhole when pipe is equal to or larger than the riser.
2. Refer to typical manhole Ladder detail.
3. If cover over pipe is shallow, a riser extension may not be necessary.
4. If riser will be subjected to vehicular load, opening in top of pipe may require reinforcement.
5. Refer to Manhole cover detail, intended to keep vertical loads off riser.



LADDER DETAIL

NOT TO SCALE

NOTES:

1. 3/4"Ø rungs are to be welded into 1/8"Ø holes in the rails.
2. Standoff to be welded to rails and riser wall to locat rung at 1' spacing from pipe wall.
3. Maximum spacing of standoffs shall not exceed 36".
4. Ladder shall not be installed in riser w/diameter less then 36".
5. Detail at bottom of ladder will vary with type of manhole.
6. Maximum length of ladder rail is 14'-10".
7. Standard finish: Galvanized paint.
8. Use bolts with double nuts to connect splice plate at ladder joint to allow vertical movement.

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

John R. Robertson — 4/9/13
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~230 SCHILLING CIRCLE, SUITE 193~~
~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 785-6510~~ http://www.gwstephens.com ~~Fax: (410) 785-6517~~

"Professional Certification. I hereby certify that those documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

6/20/12

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/20/12

PAUL W. TAYLOR — PE # 13741

Print Name

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/11

THOMAS D. HESS

Print Name

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:			SECTION NAME:		PARCEL #
(CORRIDOR 95 BUSINESS PARK)			N/A		134 / 179
PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02
WATER CODE:	B-02		SEWER CODE:	4020000	

STORMWATER MANAGEMENT FACILITY #1 PLAN SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : February 4, 2011
SHEET 46 OF 94

SDP-08-082

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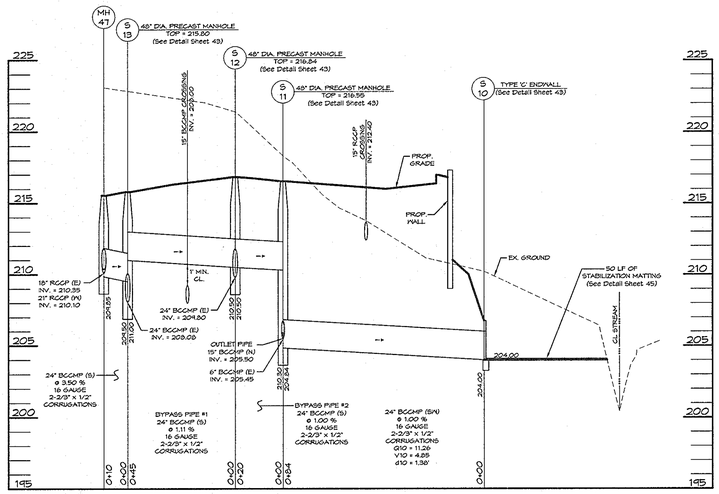
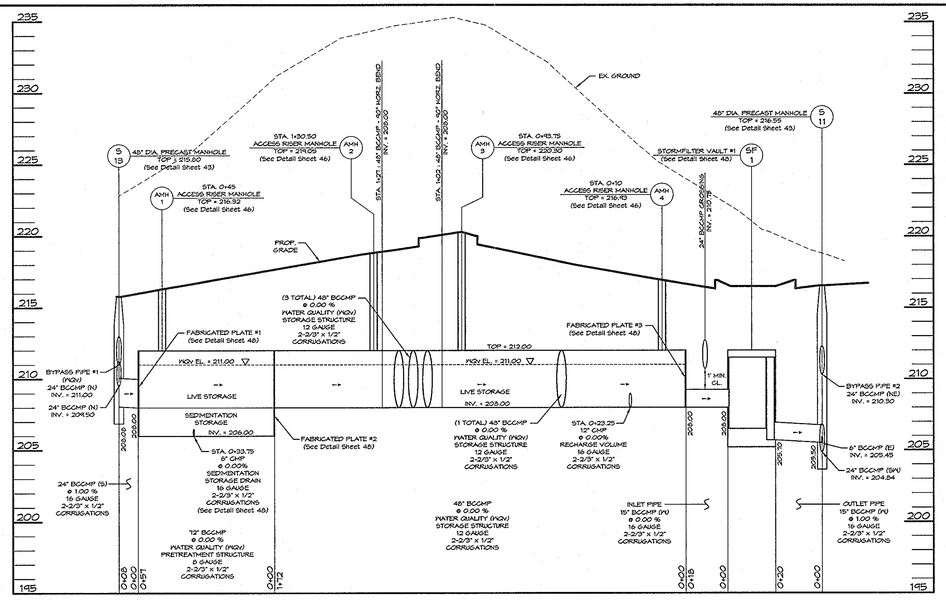


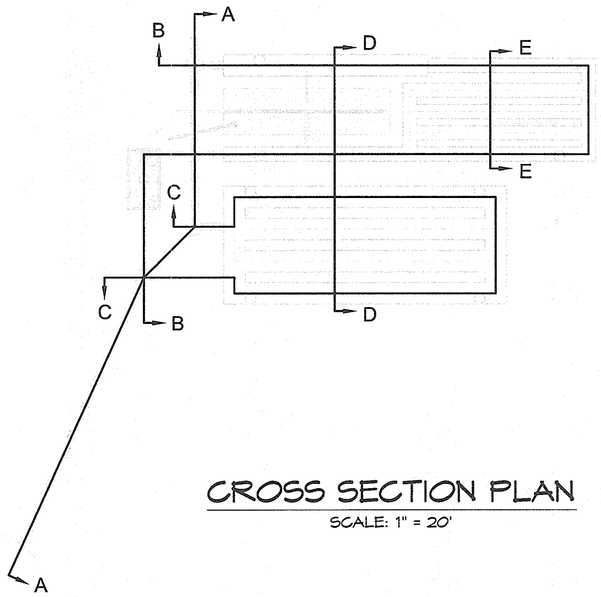
PROFILE ALONG SECTION A-A

SCALE: HORZ. 1" = 30'
VERT. 1" = 5'



PROFILE ALONG SECTION B-B

SCALE: HORZ. 1" = 30'
VERT. 1" = 5'



CROSS SECTION PLAN

SCALE: 1" = 20'

NOTE: USE STANDARD METHOD OF SHOP FABRICATING FOR ALL PIPE JOINTS AND CONNECTIONS, THE SEAMS ARE A LOCK SEAM OR CONTINUOUS WELDING SEAM

Stormwater Management Sequence of Construction for Facility #1

1.Complete the Sequence of Operation on the Approved sediment and erosion control plans.

2. Notify Howard County Department of Public Works, Geotechnical company observing/documenting the construction and the engineering company preparing the as-built drawings, at least 48 hours prior to commencing construction.

3. After all areas have been permanently stabilized and with the approval from Howard County Department of Public Works Sediment Control Inspector, remove all sediment control devices with the exception of the sediment trap.

4. Excavate/install 72" BCCMP water quality pretreatment structures, 48" BCCMP water quality storage structures, recharge volume area #2 stone storage with 12" perforated CMP and 72" channel protection volume storage structures. Also install 6" CMP air vents over storage structures.
Note: Use standard method of shop fabricating for all pipe joints and connections. The seams are a lock seam or continuous welding seam.

5. Excavate/install StormFilter vault and all BCCMP pipes connecting the storage structures.
Note: Don't install the filter cartridges within the StormFilter vault until storm drains have been flushed and all areas have been stabilized.

6. Connect MH-47 to S-13 with 24" BCCMP.

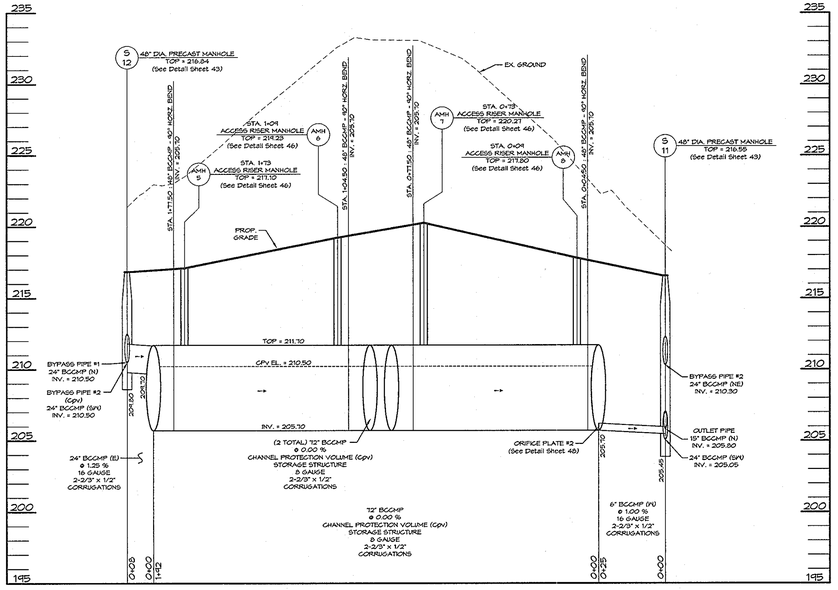
7. With Approval from Howard County Department of Public Works Sediment Control Inspector, remove sediment trap and complete grading operation in this area.

8. Permanently stabilize areas.

9. Complete curbing and paving in these areas.

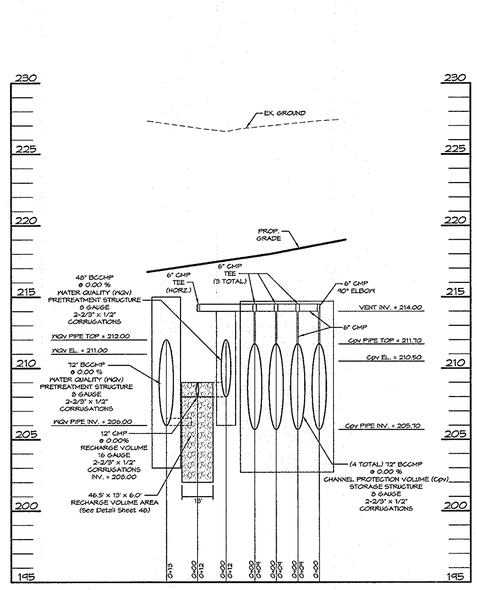
10. With Approval from Howard County Department of Public Works Sediment Control Inspector, remove inlet blocking and flush storm drains and stormwater management systems. Once systems are flushed install filter cartridges within StormFilter vault (24 total).

11. It this time all Stormwater Management and Storm Drain systems shall be complete and all areas should be permanently stabilized and/or paved.



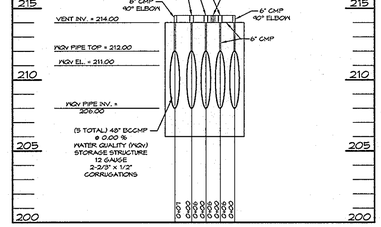
PROFILE ALONG SECTION C-C

SCALE: HORZ. 1" = 30'
VERT. 1" = 5'



PROFILE ALONG SECTION D-D

SCALE: HORZ. 1" = 30'
VERT. 1" = 5'



PROFILE ALONG SECTION E-E

SCALE: HORZ. 1" = 30'
VERT. 1" = 5'

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

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~~HUNT VALLEY, MARYLAND 21031~~
http://www.gwstephens.com
~~Ph: (410) 785-6640~~ ~~Fax: (410) 785-6647~~

STATE OF MARYLAND — PAUL WAYNE TAYLOR — No. 13741 — REGISTERED PROFESSIONAL ENGINEER — 6/29/12

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/29/12

PAUL W. TAYLOR — PE # 13741

Print Name

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Signature of Developer — Date 10/25/11

THOMAS D. HESS

Print Name

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
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BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 — SEWER CODE: 4020000

STORMWATER MANAGEMENT FACILITY #1 PROFILE SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : February 4, 2011
SHEET 47 OF 94

SDP-08-082

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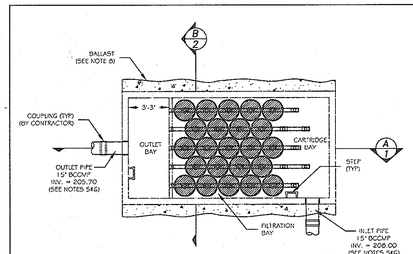
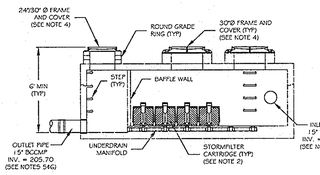


8' x 16' VOLUME STORMFILTER – PLAN VIEW (1/1)



8' x 16' VOLUME STORMFILTER – SECTION VIEW (A/1)

SF-1

THE STORMWATER MANAGEMENT SYSTEM EMBODIED IN THESE PLANS IS COVERED BY U.S. PATENT NOS. 5,322,629, No. 5,707,527, No. 5,057,629 No. 6,649,048, No. 5,624,576, AND OTHER U.S. AND FOREIGN PATENTS PENDING

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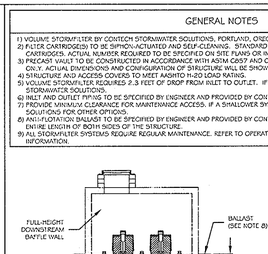
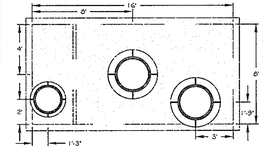
CONTECH STORMWATER SOLUTIONS
contechstormwater.com

8' x 16' PRECAST VOLUME STORMFILTER PLAN AND SECTION VIEWS CORRIDOR 95 BUSINESS PARK - SF-1	DRAWING 1 1/2
DATE: 11/15/07	SCALE: NONE	FILE NAME: CORRIDOR95_F-1_DTL	DRAWN: MJW	CHECKED: ATM



8' x 16' VOLUME STORMFILTER – SECTION VIEW (B/2)



8' x 16' VOLUME STORMFILTER – TOP VIEW (1/2)

SF-1

THE STORMWATER MANAGEMENT SYSTEM EMBODIED IN THESE PLANS IS COVERED BY U.S. PATENT NOS. 5,322,629, No. 5,707,527, No. 5,057,629 No. 6,649,048, No. 5,624,576, AND OTHER U.S. AND FOREIGN PATENTS PENDING

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CONTECH STORMWATER SOLUTIONS
contechstormwater.com

8' x 16' PRECAST VOLUME STORMFILTER TOP AND SECTION VIEWS, NOTES AND DATA CORRIDOR 95 BUSINESS PARK - SF-1	DRAWING 2 2/2
DATE: 11/15/07	SCALE: NONE	FILE NAME: CORRIDOR95_F-1_DTL	DRAWN: MJW	CHECKED: ATM

GENERAL NOTES

1) VOLUME STORMFILTER BY CONTECH STORMWATER SOLUTIONS, PORTLAND, OREGON (800) 548-4667.
2) FILTER CARTRIDGE(S) TO BE SIPHON-ACTUATED AND SELF-CLEANING. STANDARD DETAIL DRAWING SHOWS MAXIMUM NUMBER OF CARTRIDGES. ACTUAL NUMBER REQUIRED TO BE SPECIFIED ON SITE PLANS OR IN DATA TABLE BELOW
3) PRECAST VAULT TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C857 AND C858. DETAIL DRAWING REFLECTS DESIGN INTENT ONLY. ACTUAL DIMENSIONS AND CONFIGURATION OF STRUCTURE WILL BE SHOWN ON PRODUCTION SHOP DRAWING.
4) STRUCTURE AND ACCESS COVERS TO MEET AASHTO H-20 LOAD RATING.
5) VOLUME STORMFILTER REQUIRES 2.3 FEET OF DROP FROM INLET TO OUTLET. IF LESS DROP IS AVAILABLE, CONTACT CONTECH STORMWATER SOLUTIONS.
6) INLET AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
7) PROVIDE MINIMUM CLEARANCE FOR MAINTENANCE ACCESS. IF A SHALLOWER SYSTEM IS REQUIRED, CONTACT CONTECH STORMWATER SOLUTIONS FOR OTHER OPTIONS.
8) ANTI-FLOTATION BALLAST TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR, IF REQUIRED. BALLAST TO BE SET ALONG ENTIRE LENGTH OF BOTH SIDES OF THE STRUCTURE.
9) ALL STORMFILTER SYSTEMS REQUIRE REGULAR MAINTENANCE. REFER TO OPERATION AND MAINTENANCE GUIDELINES FOR MORE INFORMATION.

8' x 16' PRECAST VOLUME STORMFILTER DATA

STRUCTURE ID	SF-1
WATER QUALITY VOLUME (ft^3)	5,271
STORAGE IN STORMFILTER (ft^3)	3
# OF CARTRIDGES REQUIRED	23
CARTRIDGE FLOW RATE (15 GPF, 7.5 gpm)	7.5
MEDIA TYPE	CSF

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	208.00	BCCMP	15"
INLET PIPE #2	--	--	--
OUTLET PIPE	205.70	BCCMP	15"

RIM: 216.50 / FLOW / 216.50

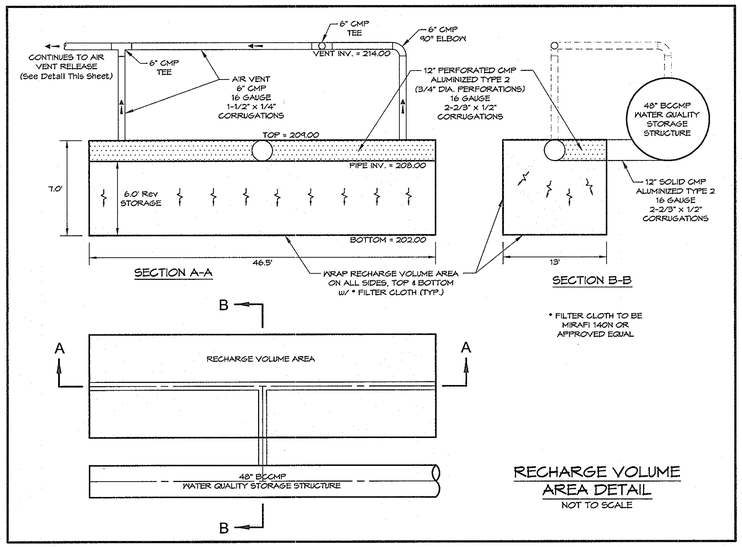
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	--	--

NOTES/SPECIAL REQUIREMENTS:

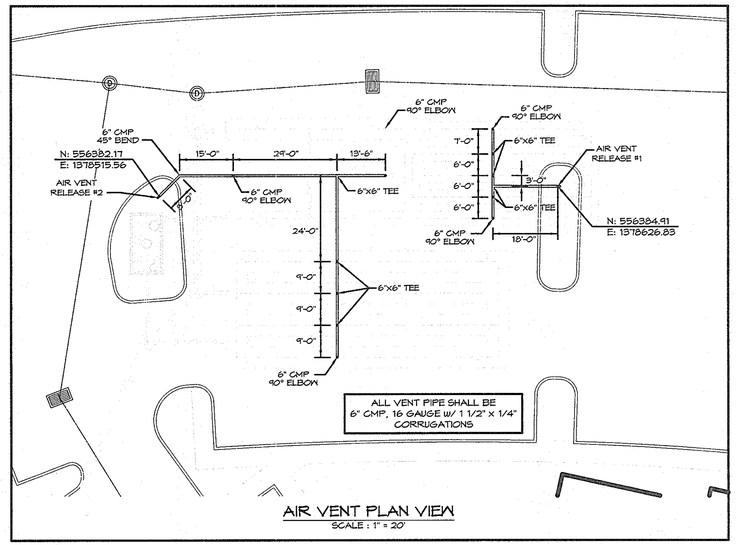
Stormfilter Cartridge Data
Volume Based System
(23) 18" Tall Cartridges
Media Surface Area = 7.5 sf
Media Flow Depth = 7"
Cartridge Specific Flow Rate = 1 gpm/sf
Cartridge Operating Flow Rate = 7.5gpm

The Stormwater Management StormFilter is a Radial Flow, Siphon Actuated Media Filtration Cartridge utilizing Extra-Fine Compost Stormwater Filter (CSF) Media.

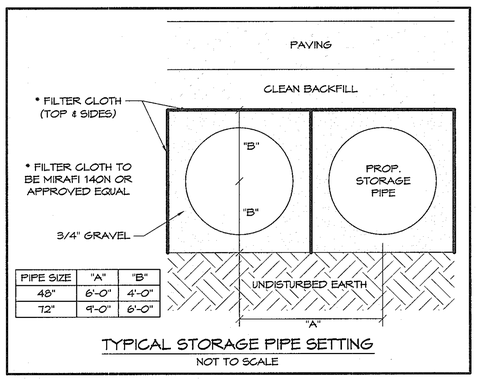
The StormFilter is the only manufactured BMP device that has received NJDEP full certification for 80% TSS removal as a stand-alone water treatment system.



RECHARGE VOLUME AREA DETAIL
NOT TO SCALE

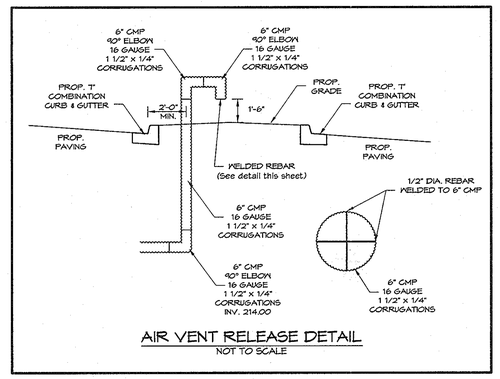


AIR VENT PLAN VIEW
SCALE : 1" = 20'



PIPE SIZE	"A"	"B"
48"	6'-0"	4'-0"
72"	9'-0"	6'-0"

TYPICAL STORAGE PIPE SETTING
NOT TO SCALE



AIR VENT RELEASE DETAIL
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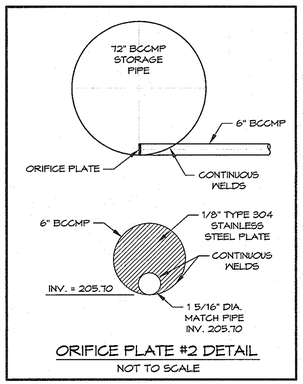
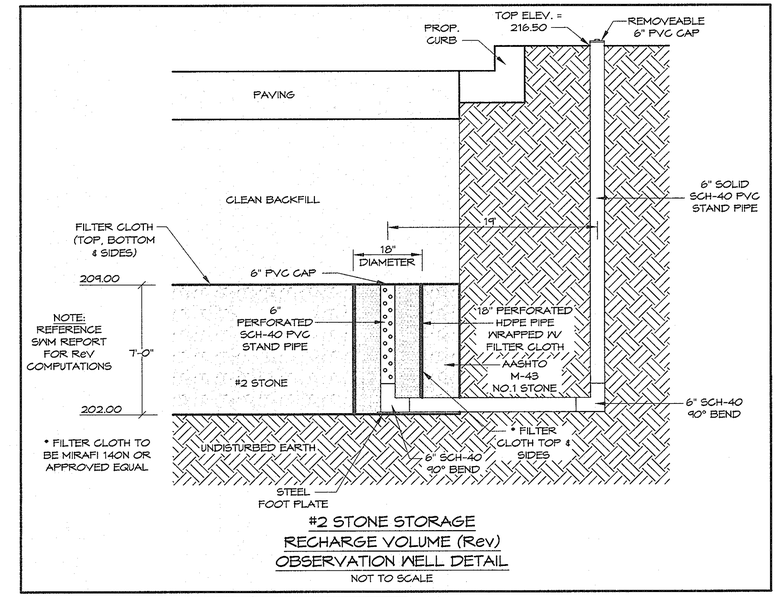
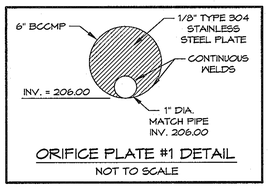


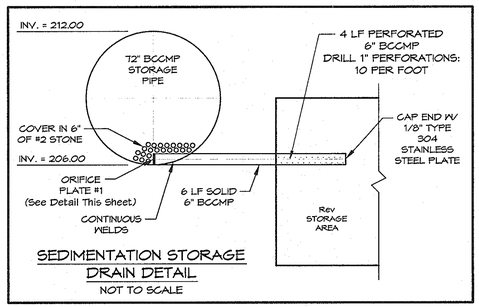
ORIFICE PLATE #2 DETAIL
NOT TO SCALE



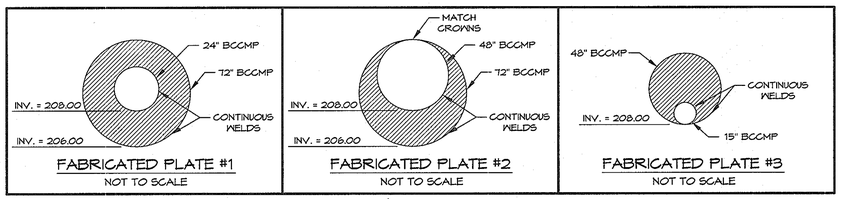
#2 STONE STORAGE RECHARGE VOLUME (RecV) OBSERVATION WELL DETAIL
NOT TO SCALE



ORIFICE PLATE #1 DETAIL
NOT TO SCALE



SEDIMENTATION STORAGE DRAIN DETAIL
NOT TO SCALE



FABRICATED PLATE #1
NOT TO SCALE

FABRICATED PLATE #2
NOT TO SCALE

FABRICATED PLATE #3
NOT TO SCALE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE: 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 5/03/13

DIRECTOR — DATE: 5/3/13

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~206 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~
http://www.gwstephens.com
~~Phn (410) 785-5840~~ ~~Fax (410) 785-5847~~

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013.

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date: 6/29/12

PAUL W. TAYLOR — Print Name — 13741 PE #

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date: 10/25/11

THOMAS D. HESS — Print Name

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
~~"CORRIDOR 95" BUSINESS PARK~~	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 — SEWER CODE: 4020000

STORMWATER MANAGEMENT FACILITY #1 DETAIL SHEET

CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : February 4, 2011
SHEET 48 OF 94

SDP-08-082

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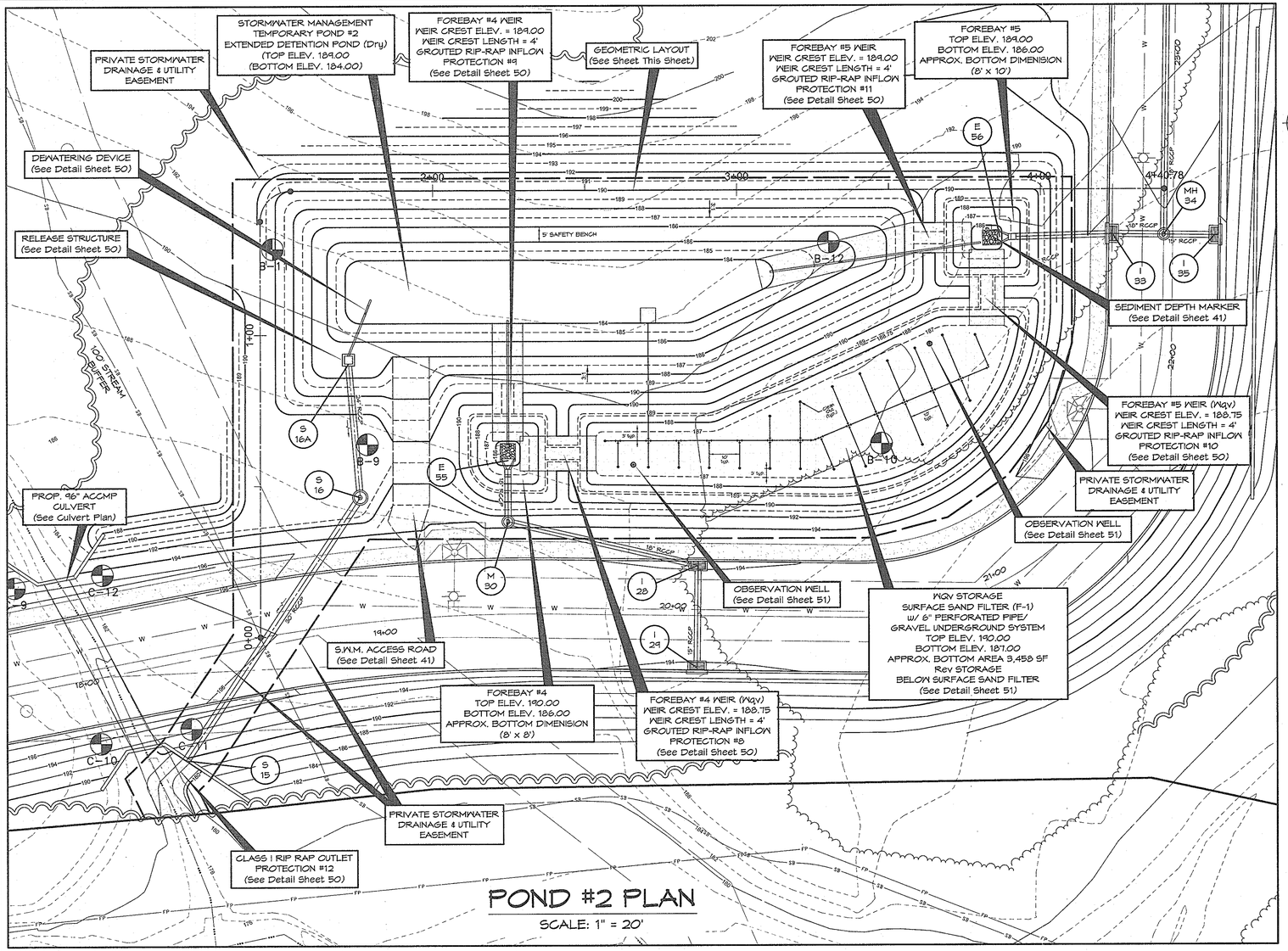
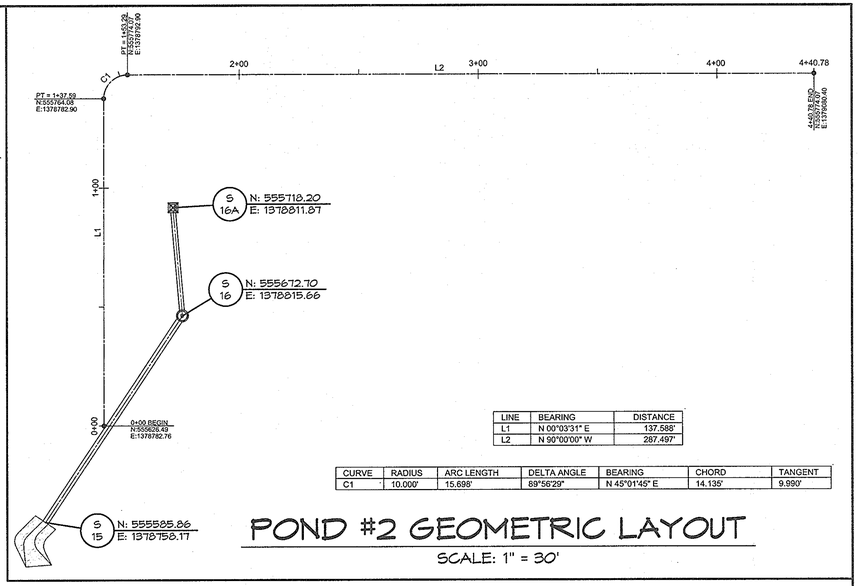




LINE	BEARING	DISTANCE
L1	N 00°03'31" E	137.588'
L2	N 90°00'00" W	287.497'

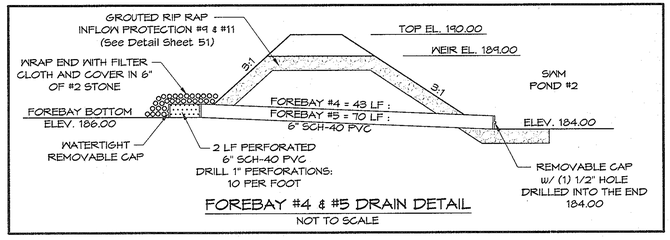
CURVE	RADIUS	ARC LENGTH	DELTA ANGLE	BEARING	CHORD	TANGENT
C1	10.000'	15.698'	89°56'29"	N 45°01'45" E	14.135'	9.990'

POND #2 GEOMETRIC LAYOUT

SCALE: 1" = 30'

NO TREES, SHRUBS OR OTHER WOODY VEGETATION WILL BE ALLOWED WITHIN 25' OF THE INLET STRUCTURE IN THE POOL AREA AND NOT ALLOWED WITH IN 15' FROM THE TOE OF THE EMBANKMENT.

NOTE: IF THE TEMPORARY POND #2 IS REMOVED AFTER THE MDE DEADLINE OF MAY 4, 2010, IMPLEMENTION OF THE MARYLAND STROMWATER ACT OF 2007 IS REQUIRED FOR THE AREA DRAINING TO THE FACILITY.



FOREBAY #4 & #5 DRAIN DETAIL

NOT TO SCALE

Minimum Design & Construction Criteria For SWM Ponds Exempt From MD 378 Pond Code

While not required to meet all conditions of MD-378, facilities that are exempt shall be approved by the appropriate authority and conform to the following minimum design and construction criteria:

1. Design for a stable outfall using the ten year design storm (or two year design storm if the pond is an off-line structure providing WQv storage only).
2. Dams shall meet class A dam safety hazards classification.
3. Principal spillway/riser shall provide anti-flotation, anti-vortex, and trash-rack design.
4. One (1) foot of freeboard shall be provided above the design high water for the 10 year storm.
5. Material and construction specifications for the principal spillway shall be in accordance with MD 378 code.
6. Material and construction specifications for the embankment shall be in accordance with MD 378 code, except that fill material for the embankment shall conform to Unified Soil Classification GC, SC, SM, MH, ML, CH, or CL, and no cutoff trench is required.
7. Woody vegetation is prohibited on the embankment.

STATEMENT OF DETERMINATION OF MD 378

Pond #2 is Exempt from The Maryland 378 Pond Code Due to the Following :

1. Ponds or other structures have less than four (4) feet of embankment.

2. The storage at emergency spillway design high water elevation does not exceed 40,000 cubic feet, and the height of the embankment is 6 feet or less.

POND #2 - SPECIFICATION FOR DRAINAGE AREA 'C-4'	
DESCRIPTION	DATA
STRUCTURE CLASSIFICATION	"A"
STORAGE X HEIGHT PRODUCT	n/a
WATERSHED AREA TO POND	4.18 Ac.
HEIGHT TO EMERGENCY SPILLWAY	n/a
NORMAL SURFACE AREA	16345 sq. ft.
PRINCIPAL SPILLWAY CAPACITY	0.369 ac. ft.
EMERGENCY SPILLWAY CAPACITY / CREST	n/a
POND TYPE	ED-Dry
FREEBOARD (REQUIRED / PROVIDED)	2.0 / 2.0
IMPERVIOUS AREA TO POND	1.20 Ac.
TOP OF EMBANKMENT	190.00
MAXIMUM HEIGHT OF FILL (FT.)	6.0
WATERSHED	DEER RUN

Operation and Maintenance Schedule for Privately Owned and Maintained Stormwater Ponds (P-1 thru P-5)

Routine Maintenance:

1.Facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the pond is functioning properly.

2. Top and side slopes of the embankment shall be mowed a minimum of two (2) times per year, once in June and once in September. Other side slopes and maintenance access shall be mowed as needed.

3. Debris and litter shall be removed during regular mowing operations and as needed.

4. Visible signs of erosion in the pond as well as the rip-rap or gabion outlet areas shall be repaired as soon as it is noticed.

Non-Routine Maintenance:

1. Structural components of the pond such as the dam, the riser, and the pipes shall be repaired upon the detection of any damage. The components shall be inspection during routine maintenance operations.

2. Sediment shall be removed from the pond, and forebay, no later than when the capacity of the pond, or forebay, is half full of sediment, or when deemed necessary for aesthetic reasons, upon approval from the Department of Public Works.

STORMWATER MANAGEMENT TEMPORARY POND #2 - UNIFIED STORMWATER SIZING CRITERIA					
		REQ.	PROV.		
Water Quality Volume (WQv) (Acre-feet)	WQv = [(F)(Rv)(A)] /12	0.164	0.174	Acre-feet	Surface Sand Filter (F-1)
Recharge Volume (Rev) (Acre-feet)	Rev = [(S)(Rv)(A)] /12	0.021	0.024	Acre- feet	Below Surface Sand Filter
Channel Protection Storage Volume (Cpv)		0.276	0.389	Acre- feet	Extended Detention Pond (Dry)
Overbank Flood Protection Volume (Qp)		7.90		10-Year Storm (CFS)	
Extreme Flood Volume (Qf)		22.05		100-Year Storm (CFS)	

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY :

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 297-3340~~ http://www.gwstephens.com ~~Fax: (410) 297-3345~~

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 7/16/12

PAUL W. TAYLOR — PE # 13741

Print Name

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Signature of Developer — Date 10/25/11

THOMAS D. HESS

Print Name

OWNER/DEVELOPER
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ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
'CORRIDOR 95 BUSINESS PARK'	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.
REVISIONS	

STORMWATER MANAGEMENT POND #2 PLAN SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : February 4, 2011
SHEET 49 OF 94

SDP-08-082

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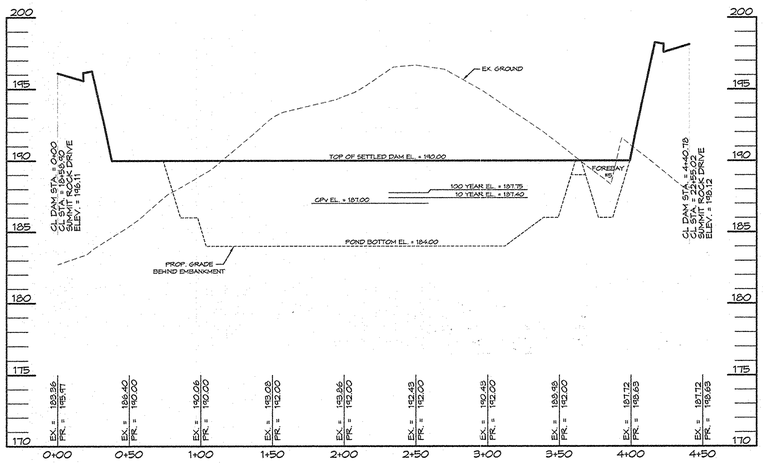
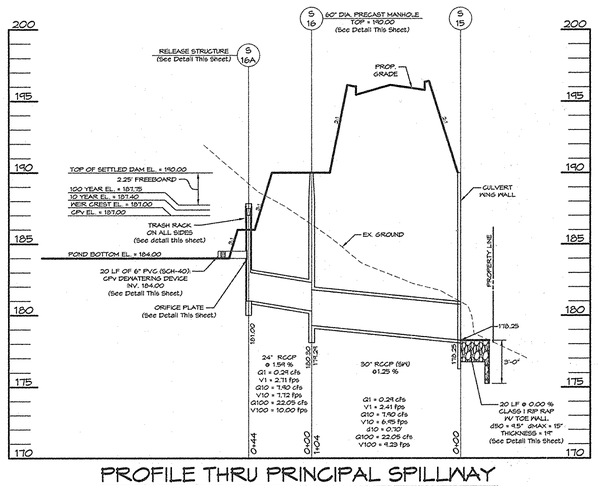


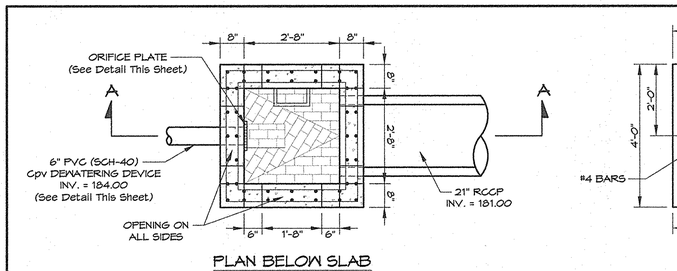
PROFILE ALONG EMBANKMENT

SCALE: HORZ 1" = 50'
VERT 1" = 5'

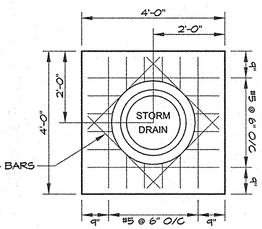


PROFILE THRU PRINCIPAL SPILLWAY

SCALE: HORZ 1" = 50'
VERT 1" = 5'



PLAN BELOW SLAB



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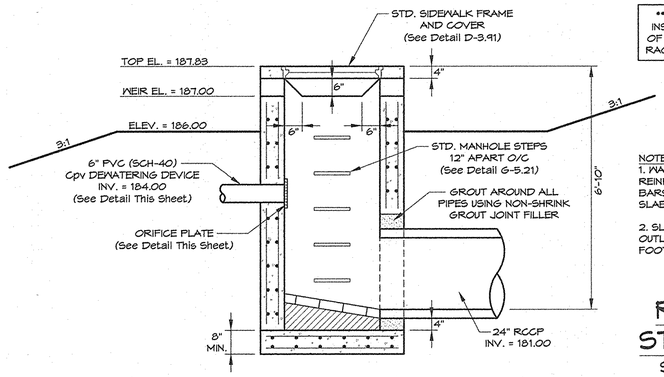


SECTION A-A

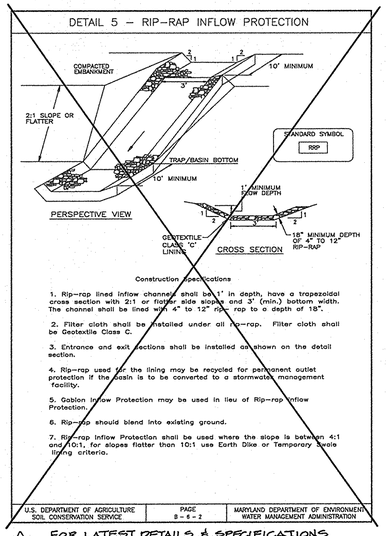
** TRASH RACKS TO BE INSTALLED ON ALL SIDES OF STRUCTURE. SEE TRASH RACK DETAIL THIS SHEET **

NOTES:
1. WALL AND BOTTOM SLAB REINFORCING SHALL BE NO. 4 BARS @ 8" O/C OF WALLS OR SLAB

2. SLOPE BOTTOM TOWARDS OUTLET AT THE RATE OF 2" PER FOOT, USING BRICK OR CONCRETE

RELEASE STRUCTURE

SCALE : 1" = 2'

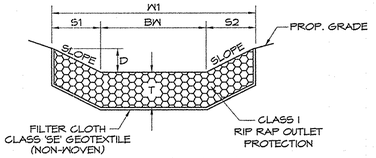


⚠ FOR LATEST DETAILS & SPECIFICATIONS SEE SHEETS 21A, 21B, & 21C.

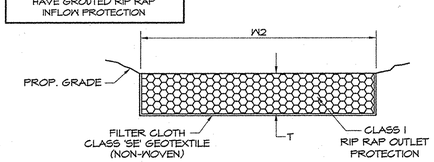
	LOCATION	DESCRIPTION	W1	W2	BW	S1	S2	SLOPE	T	D	L	Q	V
**	FOREBAY #4 WEIR (Nqv)	GROUTED RIP RAP INFLOW PROTECTION #8	11'-6"	11'-6"	4'-0"	3'-9"	3'-9"	3:1	1'-7"	1'-0"	25'-0"	3.56	0.85
**	FOREBAY #4 WEIR	GROUTED RIP RAP INFLOW PROTECTION #9	10'-0"	10'-0"	4'-0"	3'-0"	3'-0"	3:1	1'-7"	1'-0"	34'-0"	3.56	0.85
**	FOREBAY #5 WEIR (Nqv)	GROUTED RIP RAP INFLOW PROTECTION #10	11'-6"	11'-6"	4'-0"	3'-9"	3'-9"	3:1	1'-7"	1'-3"	25'-0"	5.51	0.98
**	FOREBAY #5 WEIR	GROUTED RIP RAP INFLOW PROTECTION #11	10'-0"	10'-0"	4'-0"	3'-0"	3'-0"	3:1	1'-7"	1'-0"	13'-0"	5.51	0.98
**	BELOW S-15 (WING WALL)	RIP RAP OUTLET PROTECTION #12	12'-0"	12'-0"	6'-0"	3'-0"	3'-0"	2:1	1'-7"	1'-6"	20'-0"	7.90	1.08

** OUTFALL DESIGN BASED ON 10-YR STORM FREQUENCY

* ALL FOREBAY WEIRS SHALL HAVE GROUTED RIP RAP INFLOW PROTECTION *



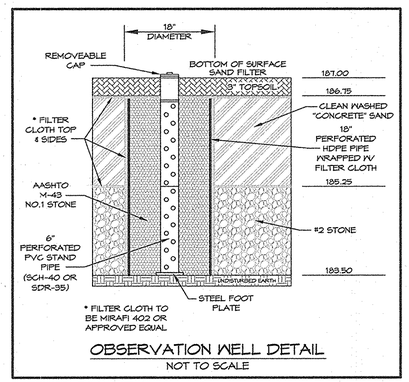
SECTION THROUGH RIP RAP PROTECTION AT CONTROL STRUCTURE



SECTION THROUGH RIP RAP PROTECTION AT END OF RIP RAP APRON

RIP RAP OUTLET SECTIONS

NOT TO SCALE



OBSERVATION WELL DETAIL

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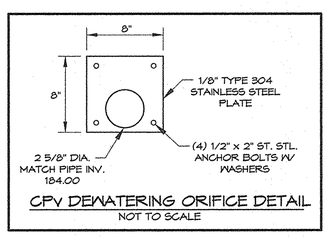
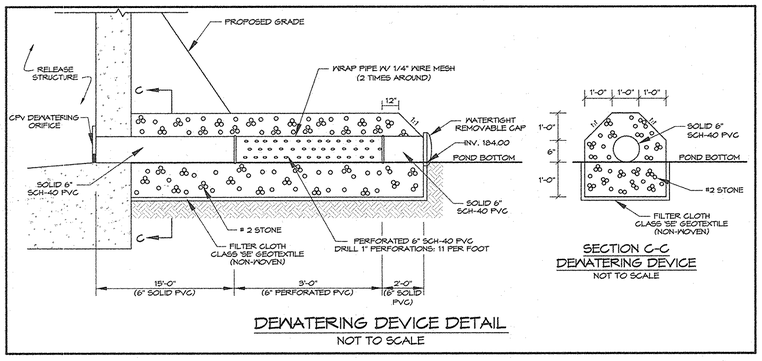


CPV DEWATERING ORIFICE DETAIL

NOT TO SCALE



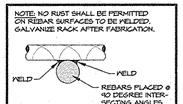
DEWATERING DEVICE DETAIL

NOT TO SCALE

SECTION C-C DEWATERING DEVICE

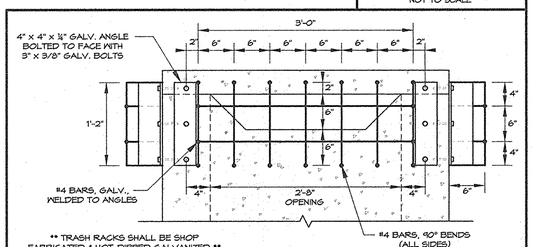
NOT TO SCALE

NOTE: NO RUST SHALL BE PERMITTED ON REBAR SURFACES TO BE WELDED. GALVANIZE RACK AFTER FABRICATION.



TRASH RACK WELDING DETAIL

NOT TO SCALE



** TRASH RACKS SHALL BE SHOP FABRICATED & HOT-DIPPED GALVANIZED **

TRASH RACK DETAIL

NOT TO SCALE

FOR REVISION NO.1 ONLY
5/30/14
DATE

PROF ENGR. NO. 16028

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16028, Expiration Date: 5-13-16

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/9/13

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~225 SCHILLING CIRCLE, SUITE 400~~
~~HUNT VALLEY, MARYLAND 21031~~

~~PH. (410) 527-2340~~ http://www.gwstephens.com ~~FAX (410) 527-2346~~

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2015

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/28/12

PAUL W. TAYLOR — PE # 13741

Print Name

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspections by the Howard soil Conservation District."

Signature of Developer — Date 10/25/11

THOMAS D. HESS

Print Name

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DMW
DAFT MCCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE (410) 296-3333

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART		
PARCEL NO.	STREET ADDRESS:	
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE	
1-22-14	⚠	UPDATE TO 2011 MD. STD. & SPECS. FOR SOIL EROSION & SED. CONTROL
DATE	NO.	REVISION DESCRIPTION

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
"CORRIDOR 95 BUSINESS PARK"	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

STORMWATER MANAGEMENT POND #2 PROFILE SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE: February 4, 2011
SHEET 50 OF 94

SDP-08-082

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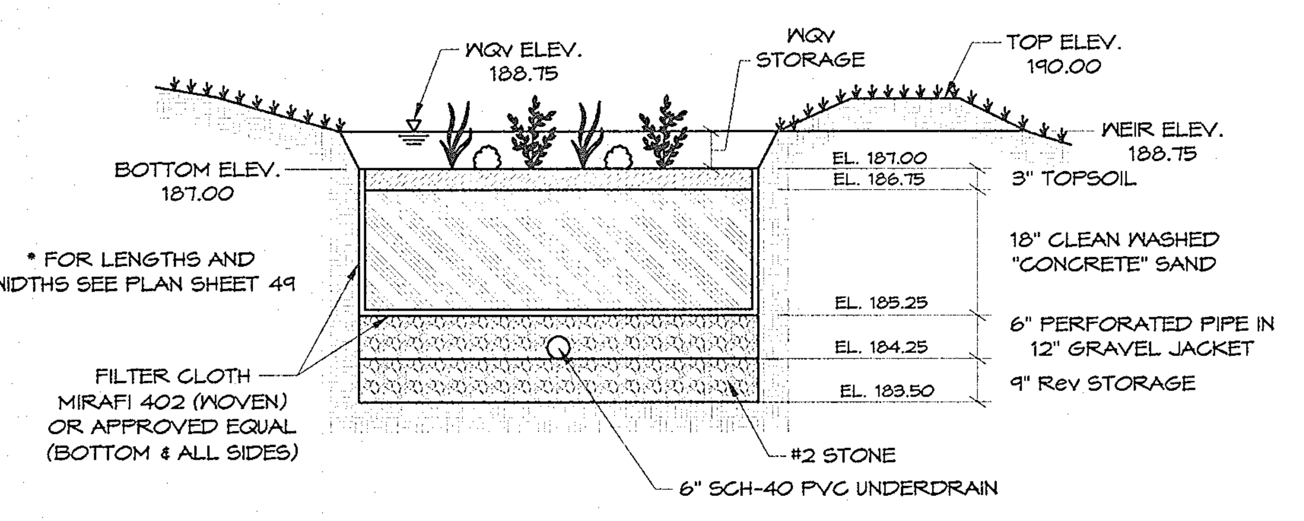


SURFACE SAND FILTER (F-1)
TYPICAL SECTION

NOT TO SCALE

Operation and Maintenance Schedule for Privately owned and Maintained Surface Sand Filters Systems. (F-1)

1. The sediment chamber outlet devices shall be cleaned and/or repaired when drawdon times within the chamber exceed 36 hours.

2. Debris and litter shall be removed as necessary to insure proper operation of the system.

3. Sediment shall be cleaned out of the sedimentation chamber when it accumulates to a depth of 6 inches. Vegetation within the sediment chamber shall be limited to a height of 18 inches.

4. When water ponds on the the surface of the filter bed for more than 72 hours, the top few inches of discolored material shall be replaced with fresh material. Proper cleaning and disposal of the removed materials and liquid must be followed by the owner.

5. Surface Sand Filters that have grass cover should be mowed a minimum of 3 times per growing season to maintain maximum grass heights less than 12 inches.

6. Dead or diseased plant material shall be replaced. Areas devoid of mulch should be re-mulched on an annual basis.

7. A logbook shall be maintained to determine the rate at which the facility drain. The maintenance logbook shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.

8. Once the performance characteristics of the infiltration system have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.

Stormwater Management Sequence of Construction for Pond #1

1.Complete the Sequence of Operation on the Approved sediment and erosion control plans.

2. Notify Howard County Department of Public Works, Geotechnical company observing/documenting the construction and the engineering company preparing the as-built drawings, at least 48 hours prior to commencing construction.

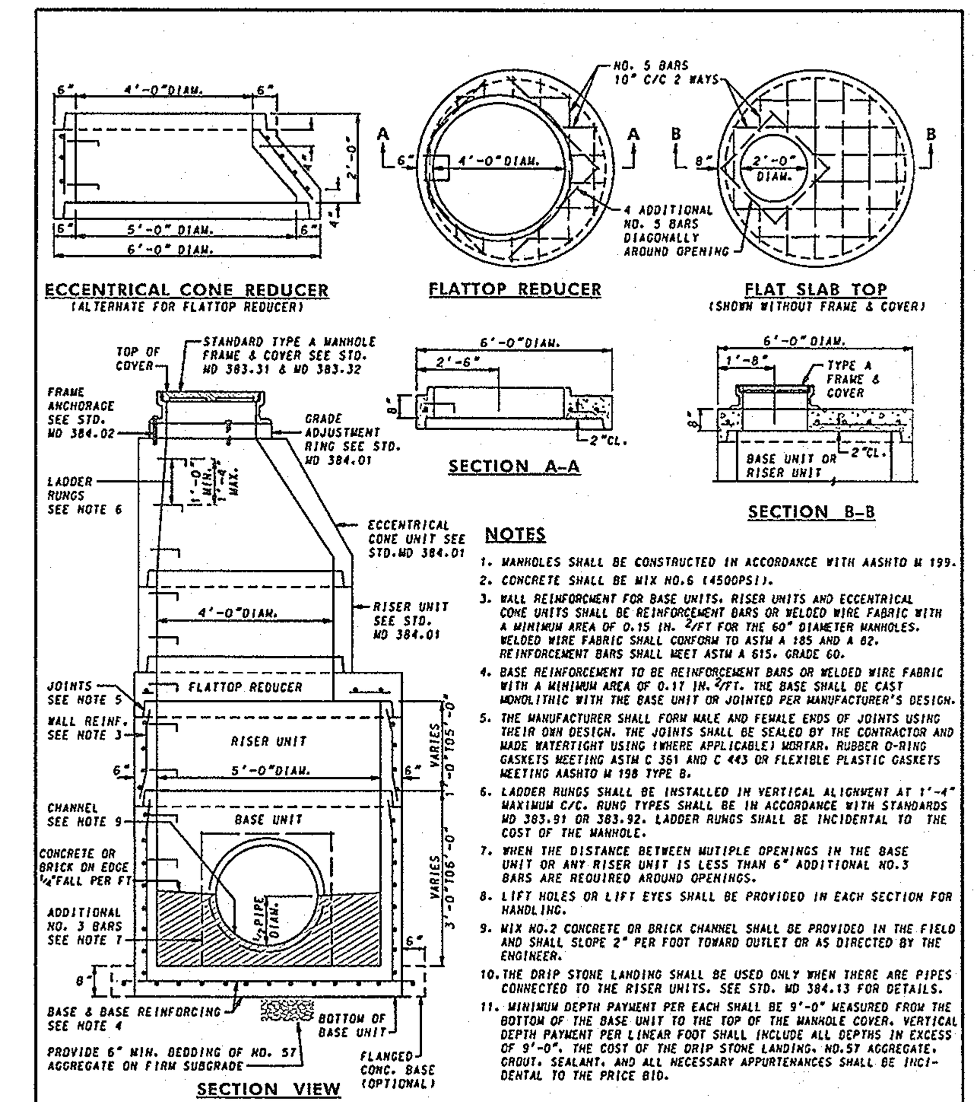
3. After all areas have been permanently stabilized and with the approval from Howard County Department of Public Works Sediment Control Inspector, remove all sediment control devices within the pond #2 area and stabilize with permanent seeding. Begin constructing stormwater management pond #2 in accordance with the approved stormwater management plans.
   a. Excavate and install forebay, sand filter and observation well, see Swm plans for details.
   b. Excavate remainder of the pond area.
   c. Install Cpv low flow pipe. See Swm plans for details.

4. Install access road.

5. At this time the Swm pond #2 shall be completely converted.

6. Permanently stabilize pond area as necessary.

7. Provide an as-built survey, Geotechnical engineer's report and Professional engineer's or Surveyor's Certification within 30 days of construction of the facility.



NOTES

1. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH AASHTO M 199.
2. CONCRETE SHALL BE MIX NO.6 (4500PSI).
3. WALL REINFORCEMENT FOR BASE UNITS, RISER UNITS AND ECCENTRICAL CONE UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.15 IN. ²/FT FOR THE 60" DIAMETER MANHOLES. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 AND A 82. REINFORCEMENT BARS SHALL MEET ASTM A 615, GRADE 60.
4. BASE REINFORCEMENT TO BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.17 IN. ²/FT. THE BASE SHALL BE CAST MONOLITHIC WITH THE BASE UNIT OR JOINTED PER MANUFACTURER'S DESIGN.
5. THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING (WHERE APPLICABLE) MORTAR, RUBBER O-RING GASKETS MEETING ASTM C 361 AND C 443 OR FLEXIBLE PLASTIC GASKETS MEETING AASHTO M 198 TYPE B.
6. LADDER RUNGS SHALL BE INSTALLED IN VERTICAL ALIGNMENT AT 1'-4" MAXIMUM C/C. RUNG TYPES SHALL BE IN ACCORDANCE WITH STANDARDS MD 383.91 OR 383.92. LADDER RUNGS SHALL BE INCIDENTAL TO THE COST OF THE MANHOLE.
7. WHEN THE DISTANCE BETWEEN MUTIPLE OPENINGS IN THE BASE UNIT OR ANY RISER UNIT IS LESS THAN 6" ADDITIONAL NO.3 BARS ARE REQUIRED AROUND OPENINGS.
8. LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.
9. MIX NO.2 CONCRETE OR BRICK CHANNEL SHALL BE PROVIDED IN THE FIELD AND SHALL SLOPE 2" PER FOOT TOWARD OUTLET OR AS DIRECTED BY THE ENGINEER.
10. THE DRIP STONE LANDING SHALL BE USED ONLY WHEN THERE ARE PIPES CONNECTED TO THE RISER UNITS. SEE STD. MD 384.13 FOR DETAILS.
11. MINIMUM DEPTH PAYMENT PER EACH SHALL BE 9'-0" MEASURED FROM THE BOTTOM OF THE BASE UNIT TO THE TOP OF THE MANHOLE COVER. VERTICAL DEPTH PAYMENT PER LINEAR FOOT SHALL INCLUDE ALL DEPTHS IN EXCESS OF 9'-0". THE COST OF THE DRIP STONE LANDING, NO.57 AGGREGATE, GROUT, SEALANT, AND ALL NECESSARY APPURTENANCES SHALL BE INCIDENTAL TO THE PRICE BID.

SPECIFICATION 305 | CATEGORY CODE ITEMS
APPROVED: Kirk G. McClelland, DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT
APPROVAL • SHA REVISIONS: APPROVAL 2-22-91, REVISED 10-1-01 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 1-2-91

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

60" DIAMETER PRECAST MANHOLE FOR 27" TO 36" PIPES

STANDARD NO. MD 384.03

Appendix B.3. Construction Specifications for Sand Filters, Bioretention and Open Channels

B.3.A Sand Filter Specifications

1. Material Specifications for Sand Filters

The allowable materials for sand filter construction are detailed in Table B.3.1.

2. Sand Filter Testing Specifications

Underground sand filters, facilities within sensitive groundwater aquifers, and filters designed to serve urban hot spots are to be tested for water tightness prior to placement of filter media. Entrances and exits should be plugged and the system completely filled with water to demonstrate water tightness. Water tightness means no leakage for a period of 8 hours.

All overflow weirs, multiple orifices and flow distribution slots are to be field-tested to verify adequate distribution of flows.

3. Sand Filter Construction Specifications

Provide sufficient maintenance access (i.e., 12-foot-wide road with legally recorded easement). Vegetated access slopes are to be a maximum of 10%; gravel slopes to 15%; paved slopes to 25%.

Absolutely no runoff is to enter the filter until all contributing drainage areas have been stabilized.

Surface of filter bed is to be level.

All underground sand filters should be clearly delineated with signs so that they may be located when maintenance is due.

Surface sand filters may be planted with appropriate grasses; see Appendix A.

"Pocket" sand filters (and residential bioretention facilities treating areas larger than an acre) shall be sized with a stone "window" that covers approximately 10% of the filter area. This "window" shall be filled pea gravel (3/4 inch stone).

Table B.3.1 Material Specifications for Sand Filters

Material	Specification/Test Method	Size	Notes
sand	clean AASHTO-M-6 or ASTM-C-33 concrete sand	0.02" to 0.04"	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.
peat	ash content: < 15% pH range: 5.2 to 4.9 loose bulk density 0.12 to 0.15 g/cc	n/a	The material must be reed-sedge hemic peat, shredded, uncompacted, uniform, and clean.
leaf compost		n/a	
underdrain gravel	AASHTO-M-43	0.375" to 0.75"	
geotextile fabric (if required)	ASTM-D-4833 (puncture strength - 125 lb.) ASTM-D-4632 (Tensile Strength - 300 lb.)	0.08" thick equivalent opening size of #80 sieve	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer may be substituted for geotextiles meant to "separate" sand filter layers.
impermeable liner (if required)	ASTM-D-4833 (thickness) ASTM-D-412 (tensile strength 1,100 lb., elongation 200%) ASTM-D-624 (Tear resistance - 150 lb./in) ASTM-D-471 (water adsorption: +8 to -2% mass)	30 mil thickness	Liner to be ultraviolet resistant. A geotextile fabric should be used to protect the liner from puncture.
underdrain piping	F 758, Type PS 28 or AASHTO-M-278	4" - 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
concrete (cast-in-place)	MSHA Standards and Specs. Section 902, Mix No. 3, f'_c = 3500 psi, normal weight, air-entrained; re-inforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland
concrete (pre-cast)	per pre-cast manufacturer	n/a	SEE ABOVE NOTE
non-rebar steel	ASTM A-36	n/a	structural steel to be hot-dipped galvanized ASTM-A-123

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

John R Robertson — HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 297-2340~~ http://www.gwstephens.com ~~Fax: (410) 297-2345~~

STATE OF MARYLAND — PAUL WAYNE TAYLOR — No. 13741 — REGISTERED PROFESSIONAL ENGINEER — 6/29/12

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/29/12

Print Name: PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/11

Print Name: THOMAS D. HESS

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.
REVISIONS	

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:			SECTION NAME:		PARCEL #
CORRIDOR 95 BUSINESS PARK			N/A		134 / 179
PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02
WATER CODE:	B-02		SEWER CODE:	4020000	

STORMWATER MANAGEMENT POND #2 DETAIL SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : February 4, 2011
SHEET 51 OF 94

SDP-08-082

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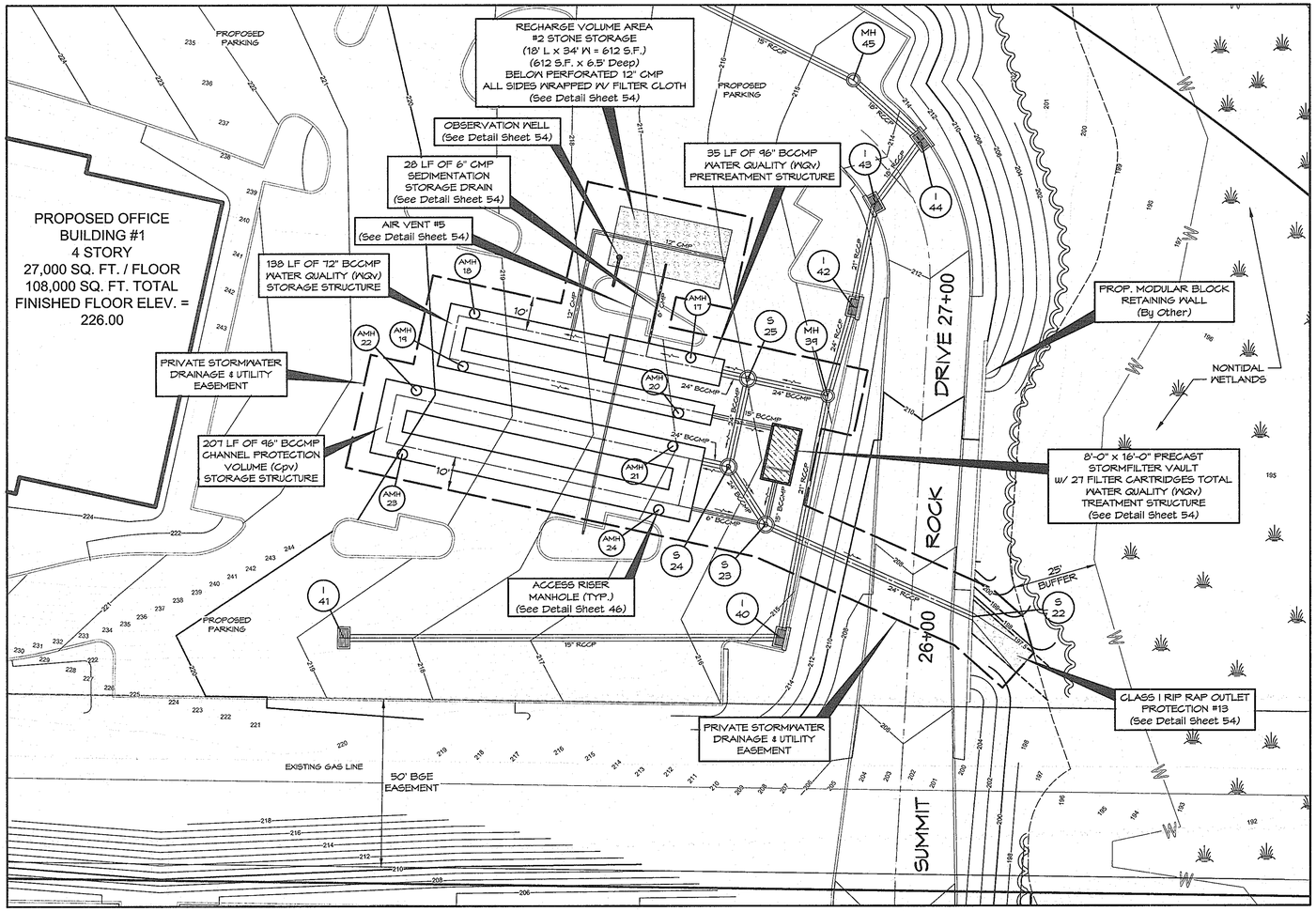
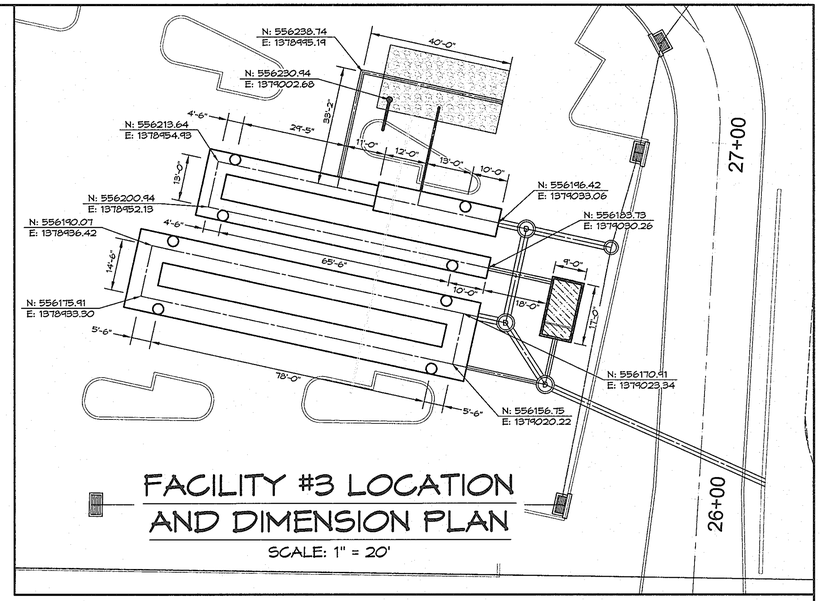


FACILITY #3 PLAN

SCALE: 1" = 20'



FACILITY #3 LOCATION AND DIMENSION PLAN

SCALE: 1" = 20'

Operation and Maintenance Schedule for Privately Owned and Maintained Underground Facilities

1. The underground stormwater management facility is privately owned and it shall be the responsibility of the owner to periodically inspect and clean the facility to maintain its operation and function.

2. The underground stormwater management facility shall be inspected quarterly at a minimum and after especially severe storm events.

3. Systems should be cleaned when inspection reveals that accumulated sediment or trash is clogging the discharge orifice or accumulation of more than 2" is observed.

4. The facility shall be cleaned immediately after petroleum spills. The owner shall contact the appropriate regulatory agencies notifying them of the spill and cleanup operation.

5. The sediment and debris shall be removed from the underground stormwater management facility by vacuum truck or other manual means. The owner shall follow proper cleaning and disposal of the removed material and liquid.

6. The inlet and outlet pipes shall be checked for any obstructions at least once every six (6) months. If obstructions are found, the owner shall have them removed and properly disposed of.

NOTE: ALL DEBRIS IS TO BE KEPT OUT OF THE FACILITY DURING AND AFTER CONSTRUCTION.

Stormwater Management Sequence of Construction for Facility #3

1.Complete the Sequence of Operation on the Approved sediment and erosion control plans.

2. Notify Howard County Department of Public Works, Geotechnical company observing/documenting the construction and the engineering company preparing the as-built drawings, at least 48 hours prior to commencing construction.

3. After all areas have been permanently stabilized and with the approval from Howard County Department of Public Works Sediment Control Inspector, remove all sediment control devices with the exception of the sediment trap.

4. Excavate/install 96" BCCMP water quality pretreatment structures, 72" BCCMP water quality storage structures, recharge volume area #2 stone storage with 12" perforated CMP and 96" channel protection volume storage structures. Also install 6" CMP air vents over storage structures.
Note: Use standard method of shop fabricating for all pipe joints and connections. The seams are a lock seam or continuous welding seam.

5. Excavate/install StormFilter vault and all BCCMP pipes connecting the storage structures.
Note: Don't install the filter cartridges within the StormFilter vault until storm drains have been flushed and all areas have been stabilized.

6. Connect MH-39 to S-25 with 24" BCCMP.

7. With Approval from Howard County Department of Public Works Sediment Control Inspector, remove sediment trap and complete grading operation in this area.

8. Permanently stabilize areas.

9. Complete curbing and paving in these areas.

10. With Approval from Howard County Department of Public Works Sediment Control Inspector, remove inlet blocking and flush storm drains and stormwater management systems. Once systems are flushed install filter cartridges within StormFilter vault (25 total).

11. It this time all Stormwater Management and Storm Drain systems shall be complete and all areas should be permanently stabilized and/or paved.

STORMWATER MANAGEMENT FACILITY #3 – UNIFIED STORMWATER SIZING CRITERIA

		REQ.	PROV.		
Water Quality Volume (WQv) (Acre–feet)	WQv = [(P)(Rv)(A)] /12	0.138	0.147	Acre–feet	Stormfilter Vault
Recharge Volume (Rev) (Acre–feet)	Rev = [(S)(Rv)(A)] /12	0.035	0.037	Acre– feet	Recharge Volume Area
Channel Protection Storage Volume (Cpv)		0.190	0.222	Acre– feet	96" BCCMP Pipe Storage
Overbank Flood Protection Volume (Qp)		12.33		10–Year Storm (CFS)	BYPASSES THUR 24" BCCMP
Extreme Flood Volume (Qf)		17.97		100–Year Storm (CFS)	BYPASSES THUR 24" BCCMP

STRUCTURE SCHEDULE

STRUCTURE #	DESCRIPTION	NORTHING & EASTING	REMARKS
S-22	RETAINING WALL	N: 556,123.50 / E: 1,379,107.63	
S-23	48" DIA. PRECAST MANHOLE	N: 556,151.05 / E: 1,379,046.10	HOWARD COUNTY DETAIL G-5.12
S-24	48" DIA. PRECAST MANHOLE	N: 556,168.33 / E: 1,379,035.06	HOWARD COUNTY DETAIL G-5.12
S-25	48" DIA. PRECAST MANHOLE	N: 556,194.70 / E: 1,379,040.87	HOWARD COUNTY DETAIL G-5.12

ACCESS RISER MANHOLE STRUCTURE SCHEDULE

STRUCTURE #	DESCRIPTION	NORTHING & EASTING	TOP ELEVATION
AMH-17	36" ACCESS RISER MANHOLE	N: 556,201.02 / E: 1,379,023.83	216.67
AMH-18	36" ACCESS RISER MANHOLE	N: 556,214.14 / E: 1,378,959.65	219.41
AMH-19	36" ACCESS RISER MANHOLE	N: 556,198.51 / E: 1,378,956.21	219.61
AMH-20	36" ACCESS RISER MANHOLE	N: 556,184.41 / E: 1,379,020.17	216.93
AMH-21	36" ACCESS RISER MANHOLE	N: 556,174.54 / E: 1,379,018.51	217.05
AMH-22	36" ACCESS RISER MANHOLE	N: 556,191.33 / E: 1,378,942.33	220.22
AMH-23	36" ACCESS RISER MANHOLE	N: 556,172.29 / E: 1,378,938.14	219.96
AMH-24	36" ACCESS RISER MANHOLE	N: 556,155.50 / E: 1,379,014.31	216.85

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/8/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY :

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

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~~235 SCHILLING CIRCLE, SUITE 100~~
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"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:

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Signature of Engineer — Date 6/29/12

PAUL W. TAYLOR — PE # 13741

Print Name

DEVELOPER CERTIFICATION:

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Signature of Developer — Date 10/25/11

THOMAS D. HESS

Print Name

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6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
~~CORRIDOR 95 BUSINESS PARK~~	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

STORMWATER MANAGEMENT FACILITY #3 PLAN SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : February 4, 2011
SHEET 52 OF 94

SDP-08-082

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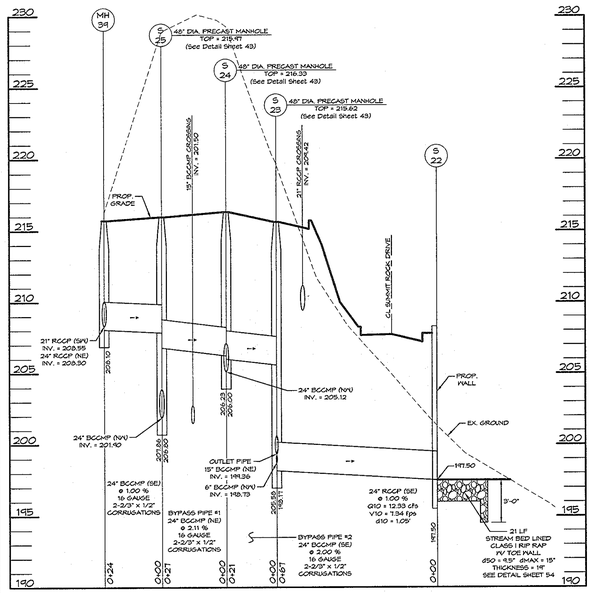
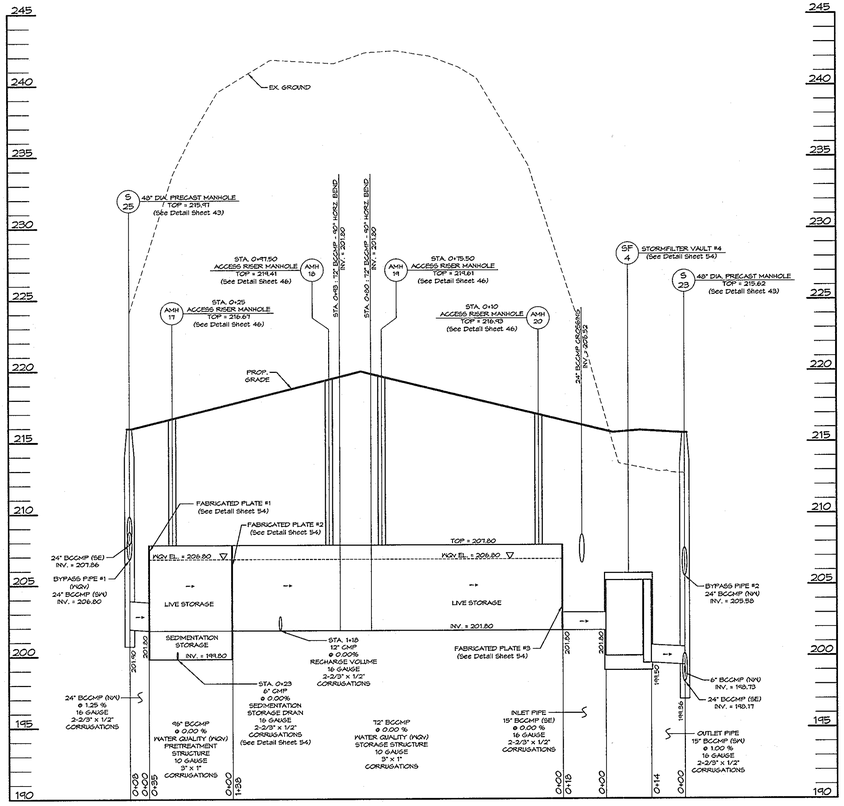


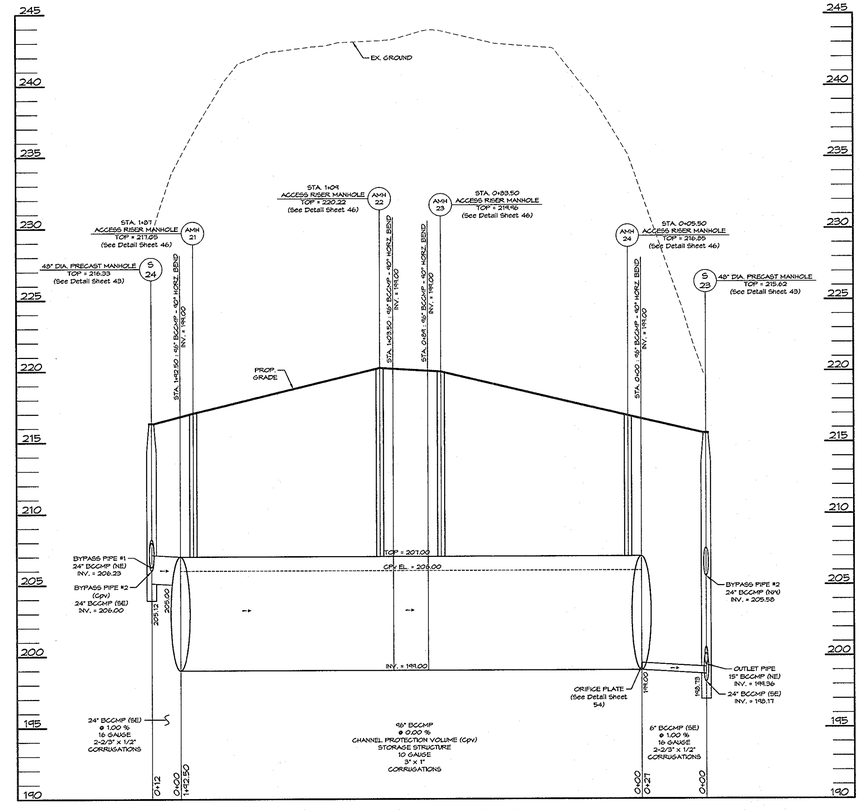
PROFILE ALONG SECTION A-A

SCALE: HORZ. 1" = 30'
VERT. 1" = 5'



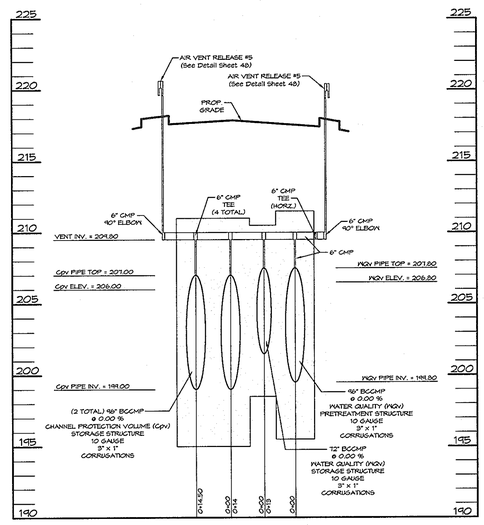
PROFILE ALONG SECTION B-B

SCALE: HORZ. 1" = 30'
VERT. 1" = 5'



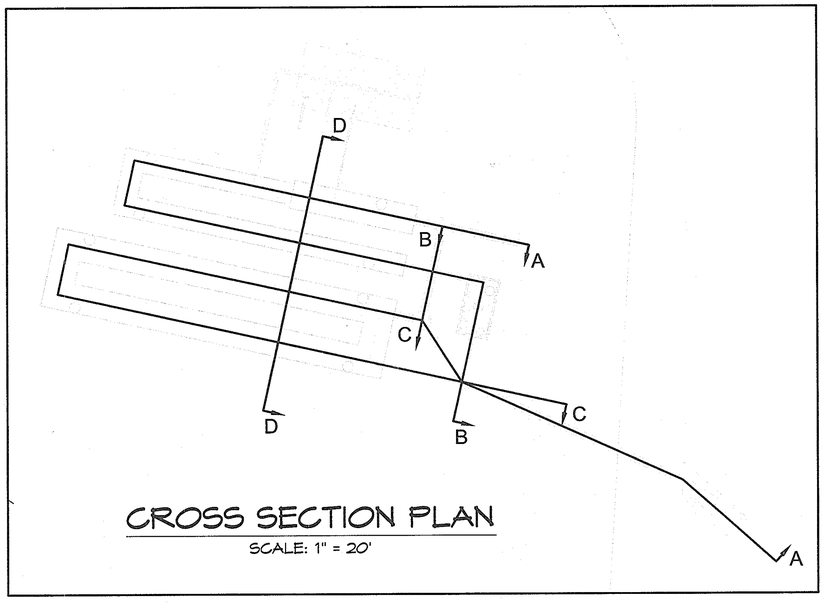
PROFILE ALONG SECTION C-C

SCALE: HORZ. 1" = 30'
VERT. 1" = 5'



PROFILE ALONG SECTION D-D

SCALE: HORZ. 1" = 30'
VERT. 1" = 5'



CROSS SECTION PLAN

SCALE: 1" = 20'

NOTE: USE STANDARD METHOD OF SHOP FABRICATING FOR ALL PIPE JOINTS AND CONNECTIONS, THE SEAMS ARE A LOCK SEAM OR CONTINUOUS WELDING SEAM

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/9/13

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~239 SCHILLING CIRCLE, SUITE 105~~
~~HUNT VALLEY, MARYLAND 21031~~

Ph: (410) 297-2340 http://www.gwstephens.com Fax: (410) 297-2345

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/29/11

PAUL W. TAYLOR — PE # 13741

Print Name

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspections by the Howard soil Conservation District."

Signature of Developer — Date 10/25/11

THOMAS D. HESS

Print Name

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE:	B-02	SEWER CODE:	4020000

STORMWATER MANAGEMENT FACILITY #3 PROFILE SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE: February 4, 2011
SHEET 53 OF ~~94~~

SDP-08-082

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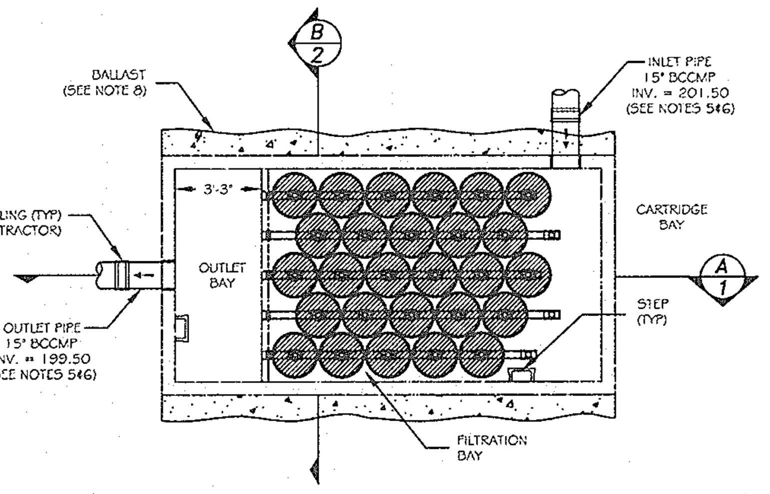
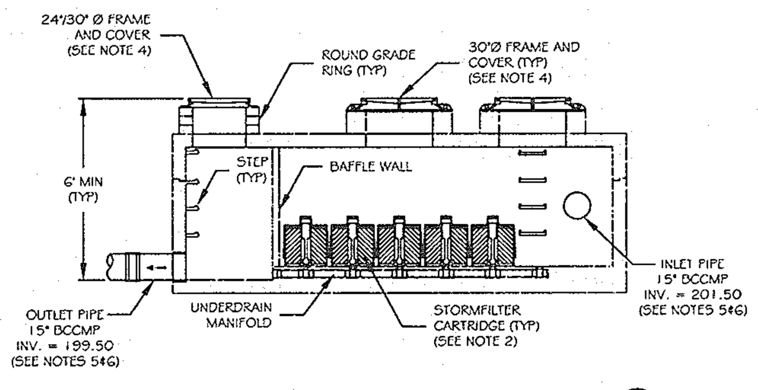
GENERAL NOTES

1) VOLUME STORMFILTER BY CONTECH STORMWATER SOLUTIONS, PORTLAND, OREGON (800) 548-4667.
2) FILTER CARTRIDGE(S) TO BE SIPHON-ACTUATED AND SELF-CLEANING. STANDARD DETAIL DRAWING SHOWS MAXIMUM NUMBER OF CARTRIDGES. ACTUAL NUMBER REQUIRED TO BE SPECIFIED ON SITE PLANS OR IN DATA TABLE BELOW
3) PRECAST VAULT TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C857 AND C858. DETAIL DRAWING REFLECTS DESIGN INTENT ONLY. ACTUAL DIMENSIONS AND CONFIGURATION OF STRUCTURE WILL BE SHOWN ON PRODUCTION SHOP DRAWING.
4) STRUCTURE AND ACCESS COVERS TO MEET AASHTO H-20 LOAD RATING.
5) VOLUME STORMFILTER REQUIRES 2.0 FEET OF DROP FROM INLET TO OUTLET. IF LESS DROP IS AVAILABLE, CONTACT CONTECH STORMWATER SOLUTIONS.
6) INLET AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
7) PROVIDE MINIMUM CLEARANCE FOR MAINTENANCE ACCESS. IF A SHALLOWER SYSTEM IS REQUIRED, CONTACT CONTECH STORMWATER SOLUTIONS FOR OTHER OPTIONS.
8) ANTI-FLOTATION BALLAST TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR, IF REQUIRED. BALLAST TO BE SET ALONG ENTIRE LENGTH OF BOTH SIDES OF THE STRUCTURE.
9) ALL STORMFILTER SYSTEMS REQUIRE REGULAR MAINTENANCE. REFER TO OPERATION AND MAINTENANCE GUIDELINES FOR MORE INFORMATION.



8' x 16' VOLUME STORMFILTER – PLAN VIEW (1/1)
SCALE: N.T.S.



8' x 16' VOLUME STORMFILTER – SECTION VIEW (A/1)
SCALE: N.T.S.

SF-4

THE STORMWATER MANAGEMENT StormFilter® U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639 No. 6,649,048, No. 5,624,576, AND OTHER U.S. AND FOREIGN PATENTS PENDING

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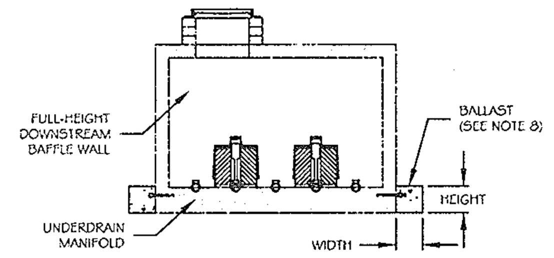
CONTECH STORMWATER SOLUTIONS — contechstormwater.com

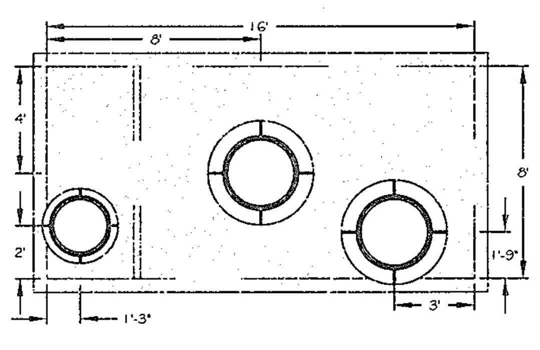
8' x 16' PRECAST VOLUME STORMFILTER
PLAN AND SECTION VIEWS
CORRIDOR 95 BUSINESS PARK - SF-4

DRAWING 1 — 1/2

DATE: 11/15/07 | SCALE: NONE | FILE NAME: CORRIDOR95_F-3_DTL | DRAWN: MJW | CHECKED: ATM



8' x 16' VOLUME STORMFILTER – SECTION VIEW (B/2)
SCALE: N.T.S.



8' x 16' VOLUME STORMFILTER – TOP VIEW (1/2)
SCALE: N.T.S.

8' x 16' PRECAST VOLUME STORMFILTER DATA

STRUCTURE ID	SF-4
WATER QUALITY VOLUME (ft^3)	6,273
STORAGE IN STORMFILTER (ft^3)	505
# OF CARTRIDGES REQUIRED	27
CARTRIDGE FLOW RATE (15 OR 7.5 gpm)	7.5
MEDIA TYPE	CSF

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	201.80	BCCMP	15"
INLET PIPE #2	--	--	--
OUTLET PIPE #1	199.50	BCCMP	15"

RIM: 215.75; 215.69; FLOW; 215.57

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	--	--

NOTES/SPECIAL REQUIREMENTS:

StormFilter Cartridge Data
Volume Based System
(27) 18" Tall Cartridges
Media Surface Area = 7.5 sf
Media Flow Depth = 7"
Cartridge Specific Flow Rate = 1 gpm/sf
Cartridge Operating Flow Rate = 7.5gpm

The Stormwater Management StormFilter is a Radial Flow, Siphon Actuated Media Filtration Cartridge utilizing Extra-Fine Compost Stormwater Filter (CSF) Media.

The StormFilter is the only manufactured BMP device that has received NJDEP final certification for 80% TSS removal as a stand-alone water treatment system.

SF-4

THE STORMWATER MANAGEMENT StormFilter® U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639 No. 6,649,048, No. 5,624,576, AND OTHER U.S. AND FOREIGN PATENTS PENDING

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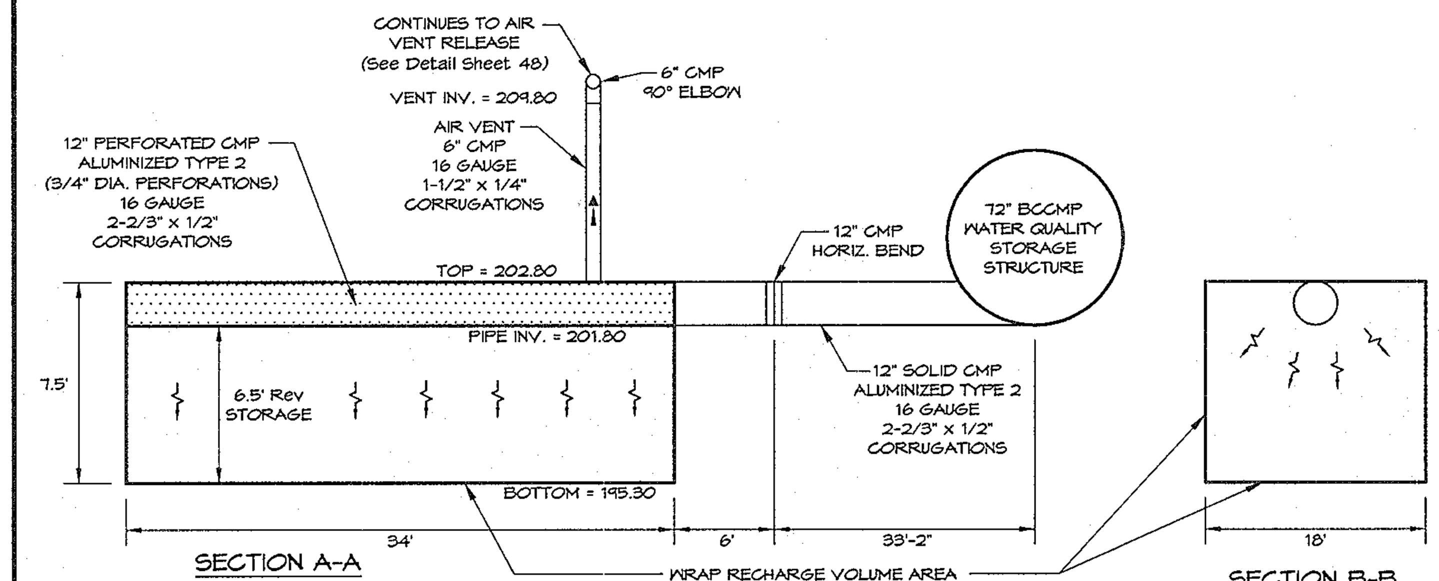
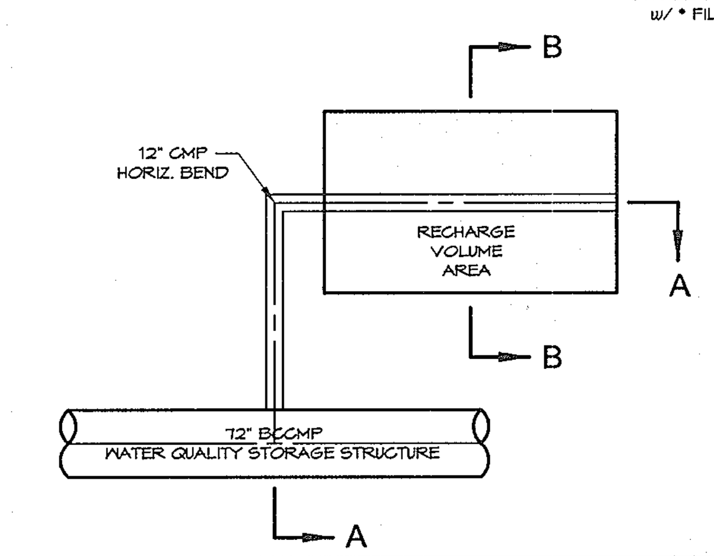
8' x 16' PRECAST VOLUME STORMFILTER
TOP AND SECTION VIEWS, NOTES AND DATA
CORRIDOR 95 BUSINESS PARK - SF-4

DRAWING 2 — 2/2

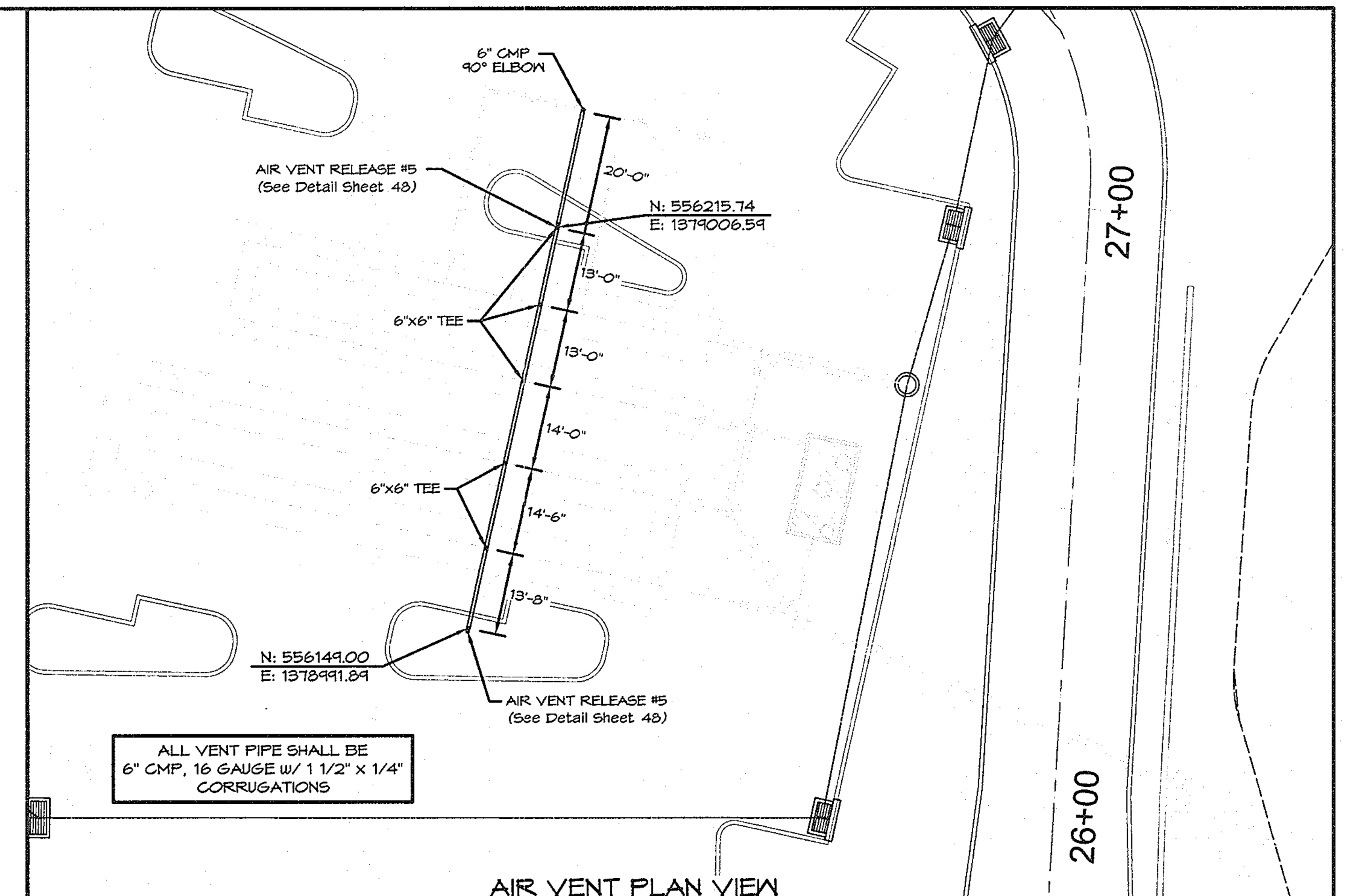
DATE: 11/15/07 | SCALE: NONE | FILE NAME: CORRIDOR95_F-3_DTL | DRAWN: MJW | CHECKED: ATM



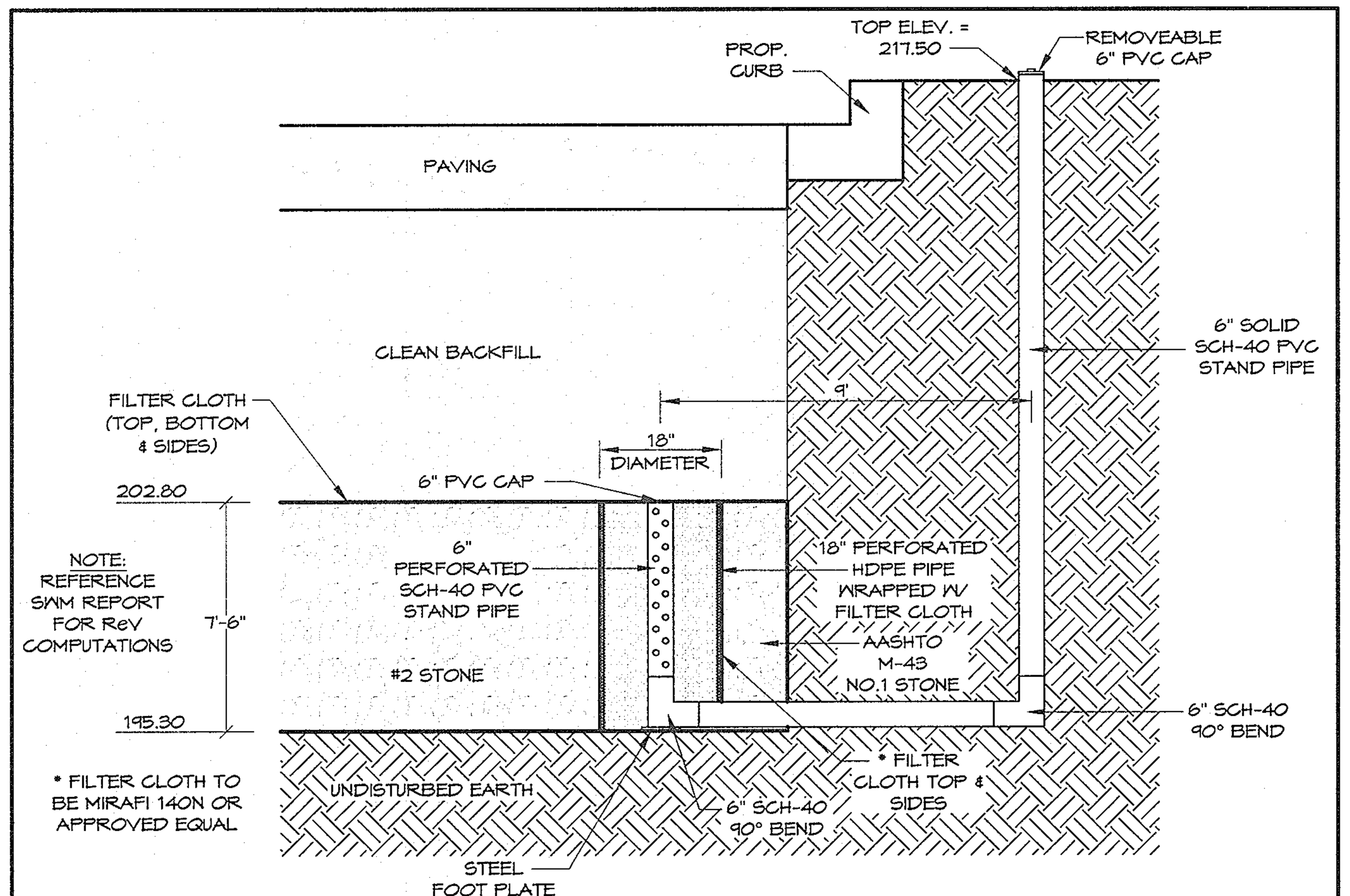
* FILTER CLOTH TO BE MIRAFI 140N OR APPROVED EQUAL



RECHARGE VOLUME AREA DETAIL
NOT TO SCALE

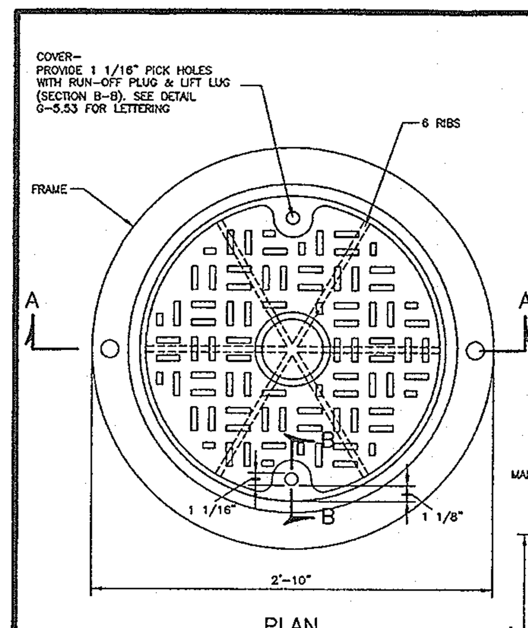


AIR VENT PLAN VIEW
SCALE : 1" = 20'



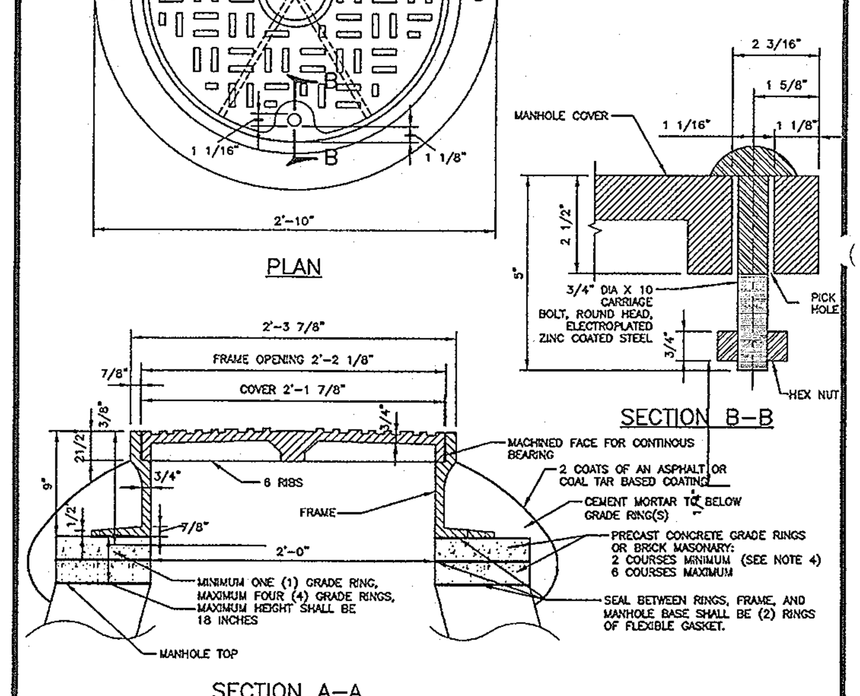
* FILTER CLOTH TO BE MIRAFI 140N OR APPROVED EQUAL

#2 STONE STORAGE
RECHARGE VOLUME (Rev)
OBSERVATION WELL DETAIL
NOT TO SCALE



NOTES:

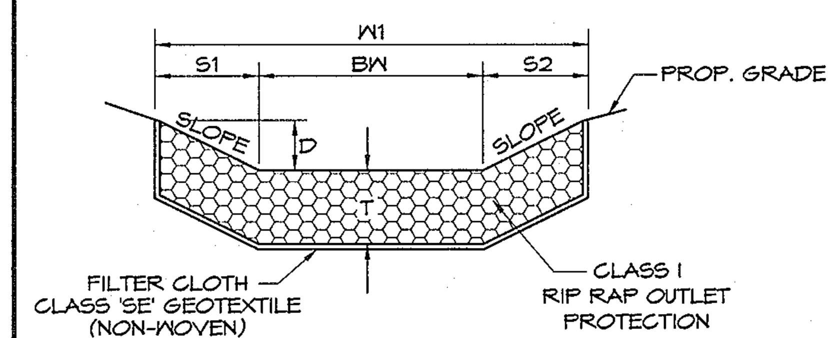
1. WEIGHT OF FRAME SHALL NOT BE LESS THAN 250 POUNDS.
2. WEIGHT OF COVER SHALL NOT BE LESS THAN 170 POUNDS.
3. MANHOLE FRAME AND COVER SHALL BE HEAVY DUTY AND BE CAST IRON MEETING ASTM-48 CLASS 35B
4. PRECAST CONCRETE RINGS MAY BE USED IN PLACE OF BRICK MASONRY COURSES. A MINIMUM OF ONE GRADE RING AND MAXIMUM OF FOUR GRADE RINGS SHALL BE PROVIDED, WITH A MAX. TOTAL HEIGHT OF 18 INCHES FROM THE TOP OF THE MANHOLE TO BOTTOM OF FRAME, SEE DETAIL G-5.50. GRADE RINGS SHALL BE BEVELED WHEN NECESSARY TO ACCOMODATE ROAD SLOPE.
5. SEE DETAILS G-5.11 FOR GENERAL NOTES.



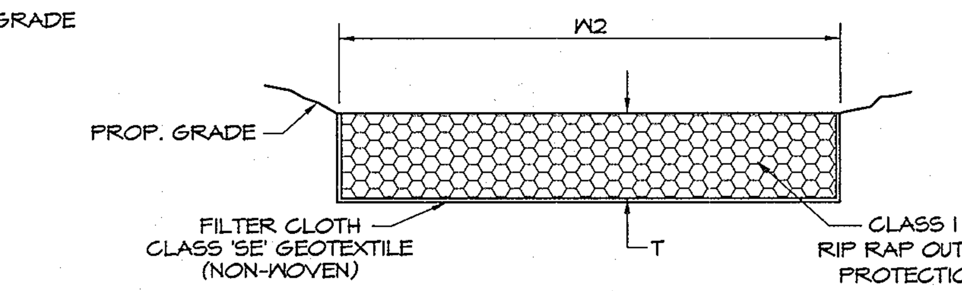
Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works — Approved: Chief, Bureau of Engineering	Manhole Heavy Traffic Frame and Cover	Detail G-5.51

	LOCATION	DESCRIPTION	W1	W2	BW	S1	S2	SLOPE	T	D	L	Q	V
**	BELOW S-22	RIP RAP OUTLET PROTECTION #13	14'-0"	14'-0"	10'-0"	2'-0"	2'-0"	2:1	1'-7"	1'-0"	21'-0"	12.33	1.13

** OUTFALL DESIGN BASED ON 10-YR STORM FREQUENCY

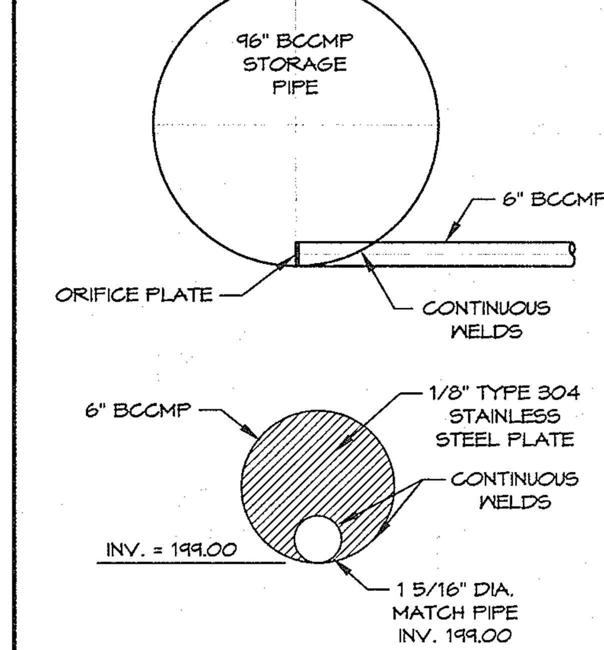


SECTION THROUGH RIP RAP PROTECTION
AT CONTROL STRUCTURE

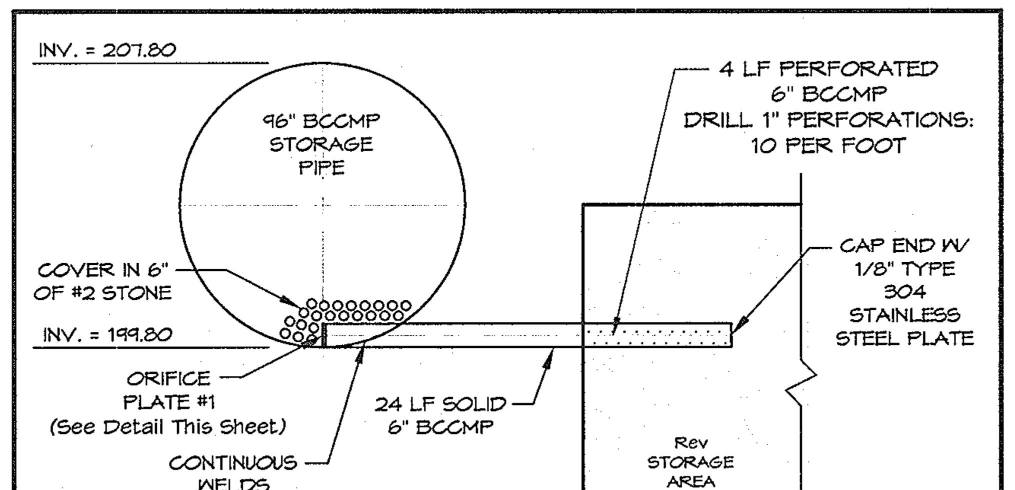


SECTION THROUGH RIP RAP PROTECTION
AT END OF RIP RAP APRON

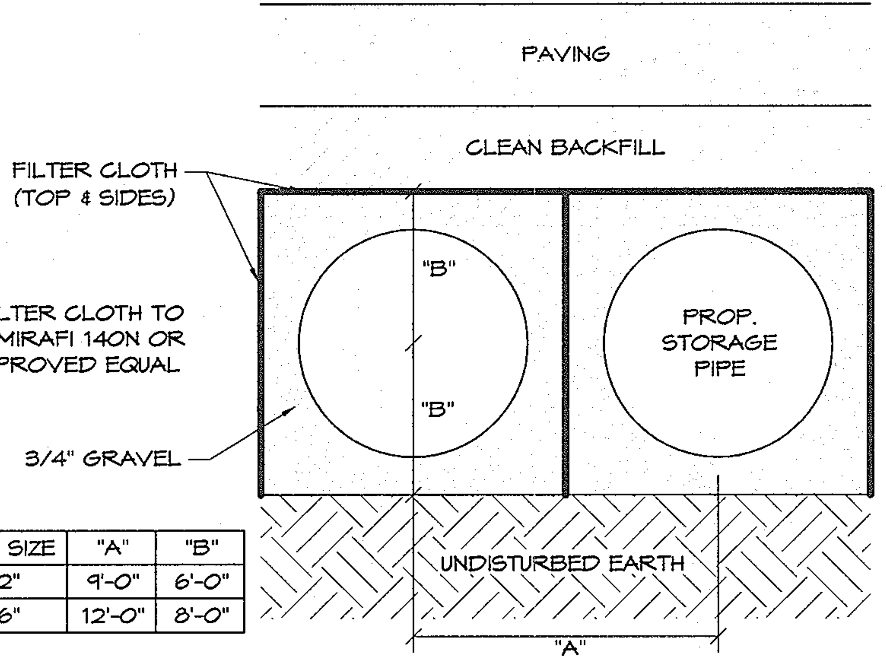
RIP RAP OUTLET SECTIONS
NOT TO SCALE



ORIFICE PLATE #2 DETAIL
NOT TO SCALE



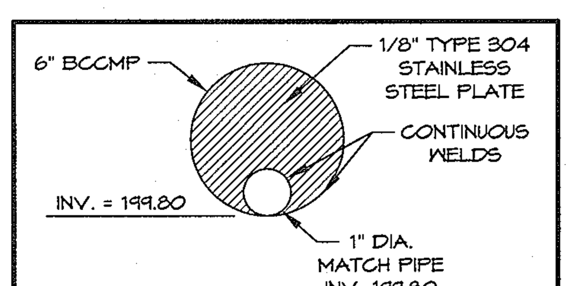
SEDIMENTATION STORAGE
DRAIN DETAIL
NOT TO SCALE



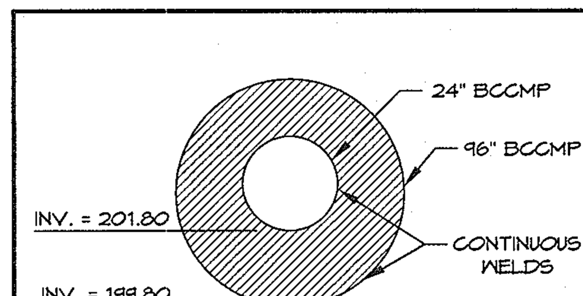
* FILTER CLOTH TO BE MIRAFI 140N OR APPROVED EQUAL

PIPE SIZE	"A"	"B"
72"	9'-0"	6'-0"
96"	12'-0"	8'-0"

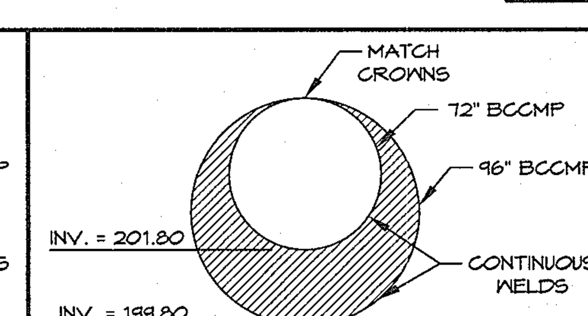
TYPICAL STORAGE PIPE SETTING
NOT TO SCALE



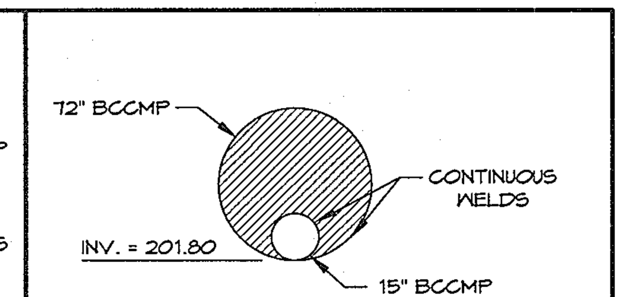
ORIFICE PLATE #1 DETAIL
NOT TO SCALE



FABRICATED PLATE #1
NOT TO SCALE



FABRICATED PLATE #2
NOT TO SCALE



FABRICATED PLATE #3
NOT TO SCALE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

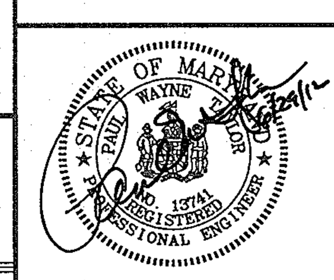
PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~

Ph: (410) 297-2340 http://www.gwstephens.com Fax: (410) 297-2345



"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/29/12

Print Name: PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/11

Print Name: THOMAS D. HESS

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.
REVISIONS	

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 | SEWER CODE: 4020000

STORMWATER MANAGEMENT FACILITY #3 DETAIL SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE: February 4, 2011
SHEET 54 OF 94

SDP-08-082

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Maintenance Guidelines

The primary purpose of the Stormwater Management StormFilter® is to filter out and prevent pollutants from entering our waterways. Like any effective filtration system, periodically these pollutants must be removed to restore the StormFilter to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site. Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is a good practice to inspect the system after major storm events.

Maintenance Procedures

Although there are likely many effective maintenance options, we believe the following procedure is efficient and can be implemented using common equipment and existing maintenance protocols. A two step procedure is recommended as follows:

1. Inspection
Inspection of the vault interior to determine the need for maintenance.

2. Maintenance
Cartridge replacement
Sediment removal

Inspection and Maintenance Timing

At least one scheduled inspection should take place per year with maintenance following as warranted.

First, an inspection should be done before the winter season. During the inspection the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, a maintenance (replacement of the filter cartridges and removal of accumulated sediments) should be performed during periods of dry weather.

In addition to these two activities, it is important to check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the inspection/maintenance schedule depending on the actual operating conditions encountered by the system. In general, inspection activities can be conducted at any time, and maintenance should occur, if warranted, in late summer to early fall when flows into the system are not likely to be present.

Maintenance Frequency

The primary factor controlling timing of maintenance of the StormFilter is sediment loading.

A properly functioning system will remove solids from water by trapping particulates in the porous structure of the filter media inside the cartridges. The flow through the system will naturally decrease as more and more particulates are trapped. Eventually the flow through the cartridges will be low enough to require replacement. It may be possible to extend the usable span of the cartridges by removing sediment from upstream trapping devices on a routine as-needed basis in order to prevent material from being re-suspended and discharged to the StormFilter treatment system.

Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction may need to be inspected and maintained more often than those with fully stabilized surface conditions.

The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after major storms. Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system or site. It is recommended that the site owner develop a database to properly manage StormFilter inspection and maintenance programs.

Prior to the development of the maintenance database, the following maintenance frequencies should be followed:

Inspection

One time per year
After major storms

Maintenance

As needed, based on results of inspection (The average maintenance lifecycle is approximately 1-3 years)
Per Regulatory requirement
In the event of a chemical spill.

Frequencies should be updated as required. The recommended initial frequency for inspection is one time per year. StormFilter units should be inspected after major storms.

Sediment removal and cartridge replacement on an as needed basis is recommended unless site conditions warrant.

Once an understanding of site characteristics has been established, maintenance may not be needed for one to three years, but inspection is warranted and recommended annually.

Inspection Procedures

The primary goal of an inspection is to assess the condition of the cartridges relative to the level of visual sediment loading as it relates to decreased treatment capacity. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Stormwater Solutions immediately.

To conduct an inspection:

Important: Inspection should be performed by a person who is familiar with the operation and configuration of the StormFilter treatment unit.

1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.

2. Visually inspect the external condition of the unit and take notes concerning defects/problems.

3. Open the access portals to the vault and allow the system vent.

4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.

5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.

6. Close and fasten the access portals.

7. Remove safety equipment.

8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.

9. Discuss conditions that suggest maintenance and make decision as to weather or not maintenance is needed.

Maintenance Decision Tree

The need for maintenance is typically based on results of the inspection. The following Maintenance Decision Tree should be used as a general guide. (Other factors, such as Regulatory Requirements, may need to be considered)

1. Sediment loading on the vault floor.
   a. If >4" of accumulated sediment, maintenance is required.

2. Sediment loading on top of the cartridge.
   a. If >1/4" of accumulation, maintenance is required.

3. Submerged cartridges.
   a. If >4" of static water in the cartridge bay for more that 24 hours after end of rain event, maintenance is required.

4. Plugged media.
   a. If pore space between media granules is absent, maintenance is required.

5. Bypass condition.
   a. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), maintenance is required.

6. Hazardous material release.
   a. If hazardous material release (automotive fluids or other) is reported, maintenance is required.

7. Pronounced scum line.
   a. If pronounced scum line (say ≥ 1/4" thick) is present above top cap, maintenance is required.

8. Calendar Lifecycle.
   a. If system has not been maintained for 3 years maintenance is required.

Assumptions

No rainfall for 24 hours or more
No upstream detention (at least not draining into StormFilter)
Structure is online
Outlet pipe is clear of obstruction
Construction bypass is plugged

Maintenance

Depending on the configuration of the particular system, maintenance personnel will be required to enter the vault to perform the maintenance.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows is occurring.

Replacement cartridges can be delivered to the site or customers facility. Information concerning how to obtain the replacement cartridges is available from CONTECH Stormwater Solutions.

Warning: In the case of a spill, the maintenance personnel should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Stormwater Solutions immediately.

To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect maintenance personnel and pedestrians from site hazards.

2. Visually inspect the external condition of the unit and take notes concerning defects/problems.

3. Open the doors (access portals) to the vault and allow the system to vent.

4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.

5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.

6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.

7. Remove used cartridges from the vault using one of the following methods:

Method 1:

A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Unscrew (counterclockwise rotations) each filter cartridge from the underdrain connector. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact CONTECH Stormwater Solutions for suggested attachment devices.

Important: Note that cartridges containing leaf media (CSF) do not require unscrewing from their connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and could be capped during the maintenance activity to prevent sediments from entering the underdrain manifold.

B. Remove the used cartridges (up to 250 lbs. each) from the vault.

Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner unless CONTECH Stormwater Solutions performs the maintenance activities and damage is not related to discharges to the system.

C. Set the used cartridge aside or load onto the hauling truck.

D. Continue steps a through c until all cartridges have been removed.

Method 2:

A. Enter the vault using appropriate confined space protocols.

B. Unscrew the cartridge cap.

C. Remove the cartridge hood screws (3) hood and float.

D. At location under

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

D. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.

E. Set the empty, used cartridge aside or load onto the hauling truck.

F. Continue steps a through e until all cartridges have been removed.

8. Remove accumulated sediment from the floor of the vault and from the forebay. This can most effectively be accomplished by use of a vacuum truck.

9. Once the sediments are removed, assess the condition of the vault and the condition of the connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude about 1" above the floor of the vault. Lightly wash down the vault interior.

a. If desired, apply a light coating of FDA approved silicon lube to the outside of the exposed portion of the connectors. This ensures a watertight connection between the cartridge and the drainage pipe.

b. Replace any damaged connectors.

10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.

11. Close and fasten the door.

12. Remove safety equipment.

13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used empty cartridges to CONTECH Stormwater Solutions.

Related Maintenance Activities -
Performed on an as-needed basis

StormFilter units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

The Stormwater Management StormFilter® Specifications
PRECAST FILTER UNIT

PART 1 GENERAL

1.1 Description

The Contractor shall furnish and install the Stormwater Management StormFilter® stormwater treatment system, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents. StormFilter stormwater treatment system shall consist of an underground Precast structure that houses passive siphon-actuated, radial-flow media-filled filter cartridges.

The siphon actuated radial flow filter cartridges shall be rechargeable and shall incorporate a self actuated surface cleaning mechanism to increase the effective life of the filter media and to reduce the accumulation of material on the cartridge surface. Each radial flow filter cartridge shall operate at a predetermined flow rate through the use of an integrated flow control orifice located within each filter cartridge outlet manifold.

1.2. Manufacturer

The StormFilter stormwater treatment system shall be of a type that has been installed and in use successfully for a minimum of five (5) or more years. StormFilter stormwater treatment system shall be supplied by CONTECH Stormwater Solutions Inc, 12021-B NE Airport Way, Portland, OR 97220 (800/548-4667), without exception.

1.3 Related Sections

A. Section [ ]:

1.4 Submittals

A. Submit shop drawings for StormFilter stormwater treatment system vault with filter cartridges and accessory equipment. Drawings shall include principal dimensions, filter placement, location of piping and unit foundation.

B. Submit StormFilter stormwater treatment system Operation and Maintenance Manual upon request.

PART 2 PRODUCTS

2.1 Internal Components

All internal components including ABS and PVC manifold piping, filter cartridge(s), filter media (as specified on the plans in the StormFilter data block or by the Engineer), flow spreaders, and energy dissipators shall be provided by Stormwater Management, Inc.

A. ABS manifold pipe and fittings shall meet ASTM F628. PVC manifold pipe and fittings shall meet ASTM D1785.

B. Filter cartridge bottom pan, inner ring, and hood shall be constructed from linear low-density polyethylene (LLDPE). Filter cartridge screen shall consist of galvanized 1" x ½" welded wire fabric (16 gauge minimum) with a bonded PVC coating. Internal parts shall consist of ABS or PVC material. Siphon-priming float shall be constructed from linear high-density polyethylene. All miscellaneous nuts, bolts, screws, and other fasteners shall be stainless steel or aluminum.

An orifice plate shall be supplied with each cartridge to restrict flow rate to a maximum of 15 gpm at system design head.

C. Filter media shall be provided by CONTECH Stormwater Solutions or approved alternate source. Filter media shall consist of one or more of the following, as specified in the StormFilter data block, or by the Engineer:

1. Perlite Media: Perlite media shall be made of natural siliceous volcanic rock free of any debris or foreign matter. The perlite media shall have a bulk density ranging from 6.5 to 8.5 lb/ft3 and particle sizes ranging from that passing through a 0.50 inch screen and retained on a U.S. Standard #8 sieve.

2. CSF Media: CSF media shall be made exclusively of composted fallen deciduous leaves. Filter media shall be granular. Media shall be dry at the time of installation. The CSF leaf media shall have a bulk density ranging from 40 to 50 lb/ft3 and particle sizes ranging from that passing through a 0.50 inch screen to that retained on a U.S. Standard #8 sieve.

3. Metal Rx Media: Metal Rx media shall be made exclusively of composted fallen deciduous leaves. Filter media shall be granular. Media shall be dry at the time of installation. The Metal Rx media shall have a bulk density ranging from 40 to 50 lb/ft3 and particle sizes ranging from that passing through a U.S. Standard #8 sieve to that retained on a U.S. Standard #14 sieve.

4. Zeolite Media: Zeolite media shall be made of naturally occurring clinoptilolite, which has a geological structure of potassium-calciumsodium aluminosilicate. The zeolite media shall have a bulk density ranging from 44 to 49 lb/ft3, particle sizes ranging from that passing through a U.S. Standard #4 sieve to that retained on a U.S. Standard #6 sieve, and a cation exchange capacity ranging from 1.0 to 2.2 meq/g.

5. Granular Activated Carbon: Granular activated carbon (GAC) shall be made of lignite coal that has been steam activated. The GAC media shall have a bulk density ranging from 28 to 31 lb/ft3 and particle sizes ranging from that passing through a U.S. Standard #4 sieve to that retained on a U.S. Standard #8 sieve.

6. Zeolite-Perlite-Granular Activated Carbon (ZPG): ZPG is a mixed media that shall be composed of a 1.3 ft3 outer layer of 100% Perlite (see above) and a 1.3 ft3 inner layer consisting of a mixture of 90% Zeolite (see above) and 10% Granular Activated Carbon (see above).

7. Zeolite-Perlite (Zeo/Perl): Zeo/Perl is a mixed media that shall be composed of a 1.3 ft3 outer layer of 100% Perlite (see above) and a 1.3 ft3 inner layer consisting of 100% Zeolite.

8. CSF - Granular Activated Carbon (CSF/GAC): CSF/GAC is a mixed media that shall be composed of a 1.3 ft3 outer layer of 100% CSF media (see above) and a 1.3 ft3 inner layer consisting of 100% Granular Activated Carbon (see above).

9. Perlite - Metal Rx : Perlite/Metal Rx is a mixed media that shall be composed of a 1.3 ft3 outer layer of 100% Perlite (see above) and a
1.3 ft3 inner layer consisting of 100% Metal Rx (see above).

D. Flow spreader shall be constructed of LLDPE.

E. Energy dissipater shall be constructed of polyolefins.

2.2 Precast Concrete Vault Components

A. Precast concrete vault shall be provided according to ASTM C857 and C858.

B. Vault joint sealant shall be Conseal CS-101 or approved equal.

C. If interior concrete baffle walls are provided, baffle walls shall be sealed to the interior vault walls and floor with a polyurethane construction sealant rated for use below the waterline, SikaFlex 1a or equal. Contractor to provide sealant material and installation unless completed prior to shipment.

D. Frames and covers shall be gray cast iron and shall meet AASHTO H-20 loading requirements, and shall be provided according to ASTM A48.

E. Doors shall have hot-dipped galvanized frame and covers. Covers shall have diamond plate finish. Each door to be equipped with a recessed lift handle. Doors shall meet H-20 loading requirements for incidental traffic at a minimum.

F. Steps shall be constructed of copolymer polypropylene conforming to ASTM D-4101. Steps shall be driven into preformed or drilled holes once concrete is cured. Steps shall meet the requirements of ASTM C-478 and AASHTO M 199. The ½" Grade 60 deformed reinforcing bar shall meet ASTM A-615.

G. Ladders shall be constructed of aluminum and steel reinforced copolymer polypropylene conforming to ASTM D-4101. Ladder shall bolt in place. Ladder shall meet all ASTM C-497 load requirements. Ladders provided upon request or where required.

2.3 Contractor Provided Components

All contractor-provided components shall meet the requirements of this section, the plans specifications and contract documents. In the case of conflict, the more stringent specification shall apply.

A. Crushed rock base material shall be six-inch minimum layer of ¾-inch minus rock. Compact undisturbed sub-grade materials to 95% of maximum density at +/-2% of optimum moisture content. Unsuitable material below sub-grade shall be replaced to engineer's approval.

B. Concrete shall have an unconfined compressive strength at 28 days of at least 3000 psi, with ¾-inch round rock, a 4-inch slump maximum, and shall be placed within 90 minutes of initial mixing.

C. Silicone Sealant shall be pure RTV silicone conforming to Federal Specification Number TT S001543A or TT S00230C or Engineer approved.

D. Grout shall be non-shrink grout meeting the requirements of Corps of Engineers CRD-C588. Specimens molded, cured and tested in accordance with ASTM C-109 shall have minimum compressive strength of 6,200 psi. Grout shall not exhibit visible bleeding.

E. Backfill material shall be ¾-inch minus crushed rock, or approved equal.

PART 3 EXECUTION

3.1 Precast Concrete Vault

A. Set precast vault on crushed rock base material that has been placed in maximum 12-inch lifts, loose thickness, and compacted to at least 95-percent of the maximum dry density as determined by the standard Proctor compaction test, ASTM D698, at moisture content of +/-2% of optimum water content.

B. Vault floor shall slope 1/4 inch maximum across the width and slope downstream 1 inch per 12 foot of length. Vault top finish grade shall be even with surrounding finish grade surface unless otherwise noted on plans.

C. Inlet and outlet pipes shall be stubbed in and connected to precast concrete vault according to Engineer's requirements and specifications.

D. If grout is used, Contractor to grout all inlet and outlet pipes flush with or protruding up to 2 inches into interior of vault.

3.2 Ballast

A. When required, ballast shall be placed to the dimensions specified by the engineer and noted on the data block. Ballast shall not encase the inlet and/or outlet piping. Provide 12" clearance from outside diameter of pipes.

3.3 Clean Up

A. Remove all excess materials, rocks, roots, or foreign material, leaving the site in a clean, complete condition approved by the engineer. All filter components shall be free of any foreign materials including concrete and excess sealant.

3.4 Filter Cartridges

A. Filter cartridges shall be delivered with the vault. Contractor shall take appropriate action to protect the cartridges from sediment and other debris during construction. Methods for protecting the cartridges include but are not limited to:

1. Remove cartridges from the vault and store appropriately. Cartridges shall be reinstalled to operate according to 3.4 B (see below).

2. If vault is equipped with underdrain bypass piping, Contractor may leave cartridges in the vault and allow stormwater entering collection system to bypass filter bay through underdrain bypass piping.

3. Leave cartridges in the vault and plug inlet and outlet pipe to prevent stormwater from entering the vault.

The method ultimately selected shall be at Contractor's discretion and Contractor's risk.

B. Filter cartridges shall not be placed in operation until the vault is clean and the project site is clean and stabilized. The project site includes any surface that contributes storm drainage to the StormFilter. All impermeable surfaces shall be clean and free of dirt and debris. All catch basins, manholes and pipes shall be free of dirt and sediments. Contact CONTECH Stormwater Solutions to assist with system activation and/or inspect the system for proper installation once site is clean and stabilized.

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY :

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~235 SCHILLING CIRCLE, SUITE 105~~
~~HUNT VALLEY, MARYLAND 21031~~

Ph: (410) 297-2340 http://www.gwstephens.com Fax: (410) 297-2345

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STATE OF MARYLAND — PAUL W. TAYLOR — No. 13741 — REGISTERED PROFESSIONAL ENGINEER — 12/08/2012

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/29/12

Print Name PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/11

Print Name THOMAS D. HESS

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:			SECTION NAME:		PARCEL #
CORRIDOR 95 BUSINESS PARK			N/A		134 / 179
PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02
WATER CODE:	B-02		SEWER CODE:	4020000	

STORMWATER MANAGEMENT NOTES SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : February 4, 2011
SHEET 55 OF 94

SDP-08-082

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-1
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 208.33 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
208 / 0		Brown, moist, medium stiff, SILT with organics (ML)	No groundwater encountered while drilling.	5"		1-4-4	8
		Brown, dry to moist, medium stiff, silty CLAY (CL-ML)		10"		4-5-5	10
				13"		1-4-4	8
198 / 10		Bottom of Boring at 10.0'		14"		1-2-4	6

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: GROUND WATER Dry ft.; CAVE IN DEPTH ft.
AFTER 24 HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
AFTER ___ HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-2
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 209.58 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
210 / 0		Brown, moist, medium stiff, SILT (ML)	No groundwater encountered while drilling.	8"		WOH/6"-3-3	6
		Brown, moist, medium stiff to stiff, silty CLAY (CL-ML)		9"		4-4-5	9
				16"		5-6-5	11
200 / 10		Brown, moist, medium stiff, sandy SILT (ML)		15"		4-5-5	10
		Bottom of Boring at 10.0'					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: GROUND WATER Dry ft.; CAVE IN DEPTH ft.
AFTER 24 HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
AFTER ___ HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-3
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 209.89 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
210 / 0		Brown, moist, medium stiff, SILT, with organics (ML)	No groundwater encountered while drilling.	7"		WOH/6"-2-4	6
		Brown, moist, medium stiff to stiff, silty CLAY (CL-ML)		4"		6-7-8	15
				1"		4-5-5	10
200 / 10		Brown, moist, medium stiff, SILT (ML)		18"		3-5-5	10
		Bottom of Boring at 10.0'					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: GROUND WATER Dry ft.; CAVE IN DEPTH ft.
AFTER 24 HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
AFTER ___ HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-4
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 200.64 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
200 / 0		Brown, moist to dry, stiff to hard, silty CLAY (CL-ML)	No groundwater encountered while drilling.	12"		3-4-7	11
				12"		17-37-41	78
				12"		7-13-14-16	27
190 / 10		Bottom of Boring at 7.0'					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: GROUND WATER ft.; CAVE IN DEPTH ft.
AFTER 24 HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
AFTER ___ HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-5
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 204.05 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
205 / 0		Brown, moist, stiff to hard, sandy SILT (ML)	No groundwater encountered while drilling. Sample 4 contains some rock fragments.	12"		3-5-7	12
				12"		16-25-40	65
				8"		43-44-46	90
195 / 10		Bottom of Boring at 7.9'		6"		31-40-50/5"	100+

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: GROUND WATER Dry ft.; CAVE IN DEPTH ft.
AFTER 24 HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
AFTER ___ HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-6
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 205.98 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
205 / 0		Brown, moist, medium stiff to hard, silty CLAY (CL-ML)	No groundwater encountered while drilling.	3"		1-3-4	7
				10"		7-17-27	44
		Gray, dry to moist, hard, sandy SILT (ML)		17"		10-21-29	50
195 / 10		Bottom of Boring at 9.4'		6"		25-50/5"	100+

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: GROUND WATER Dry ft.; CAVE IN DEPTH 5.3 ft.
AFTER 24 HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
AFTER ___ HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-7
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 190.46 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
190 / 0		Brown, moist, soft to hard, silty CLAY (CL-ML)	No groundwater encountered while drilling. Sample 3 contains some rock fragments.	15"		1-2-3	5
				14"		7-12-17	29
				10"		20-34-25-14	59
180 / 10		Bottom of Boring at 6.0'					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: GROUND WATER ft.; CAVE IN DEPTH ft.
AFTER 24 HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
AFTER ___ HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-8
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 190.26 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
190 / 0		Brown, moist, medium stiff, SILT (ML)	No groundwater encountered while drilling.	16"		1-3-3	6
		Brown, dry, dense to very dense, silty SAND and ROCK FRAGMENTS (GM-SM)		16"		6-14-19	33
				14"		14-34-25	59
180 / 10		Bottom of Boring at 6.0'					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: GROUND WATER Dry ft.; CAVE IN DEPTH 3.3 ft.
AFTER 24 HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
AFTER ___ HRS.: GROUND WATER ft.; CAVE IN DEPTH ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30". COUNT MADE AT 6" INTERVALS.

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

John R. Robertson — HOWARD SOIL CONSERVATION DISTRICT — 4/9/13 DATE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 4/26/13 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 5/03/13 DATE

DIRECTOR — 5/3/13 DATE

PREPARED BY:
GW S — GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 SCHILLING CIRCLE, SUITE 160~~
~~HUNT VALLEY, MARYLAND 21031~~
Ph: (410) 297-2340 http://www.gwstephens.com Fax: (410) 297-2345

STATE OF MARYLAND — PAUL WAYNE TAYLOR — No. 13741 — REGISTERED PROFESSIONAL ENGINEER — 6/29/12

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:
" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Signature of Engineer — 6/29/12 Date
PAUL W. TAYLOR — Print Name — 13741 PE #

DEVELOPER CERTIFICATION:
" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspections by the Howard soil Conservation District."
Signature of Developer — 10/25/11 Date
THOMAS — Print Name

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.

REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 — SEWER CODE: 4020000

STORMWATER MANAGEMENT BORINGS SHEET #1

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND
SCALE: AS SHOWN
DATE: February 4, 2011
SHEET 56 OF 94

SDP-08-082

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HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-9
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 187.55 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOL/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
0		Brown, moist, soft, silty CLAY (CL-ML)	No groundwater encountered while drilling.	16"		2-2-3	5
5		Brown, moist, medium dense to dense, clayey SAND (SC)		18"		6-12-19	31
10		Brown, moist, stiff, silty CLAY (CL-ML)		17"		7-10-10	20
		Bottom of Boring at		14"		8-9-8	17

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: Dry ft.; AFTER 24 HRS. ___ ft.; AFTER ___ HRS. ___ ft.
GROUND WATER: Dry ft.; ___ ft.; ___ ft.
CAVE IN DEPTH: ___ ft.; ___ ft.; ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-10
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 190.61 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOL/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
0		Brown, moist, medium stiff, SILT, with organics (ML)	No groundwater encountered while drilling.	3"		1-3-4	7
5		Brown, moist to damp, soft to stiff, silty CLAY (CL-ML)		7"		1-2-3	5
		Bottom of Boring at 8.0'		3"		2-4-5	9
10				14"		5-5-7	13

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: Dry ft.; AFTER 24 HRS. ___ ft.; AFTER ___ HRS. ___ ft.
GROUND WATER: Dry ft.; ___ ft.; ___ ft.
CAVE IN DEPTH: ___ ft.; ___ ft.; ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-11
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 191.27 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOL/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
0		Brown, moist, soft, silty CLAY (CL-ML)	No groundwater encountered while drilling.	16"		1-2-3	5
5		Brown, dry, stiff to hard, sandy CLAY (CL)		16"		7-9-12	21
		Bottom of Boring at 10.0'		16"		7-9-14	23
10			Sample 4 contains some rock fragments.	10"		31-22-16	38

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: Dry ft.; AFTER 24 HRS. ___ ft.; AFTER ___ HRS. ___ ft.
GROUND WATER: Dry ft.; ___ ft.; ___ ft.
CAVE IN DEPTH: ___ ft.; ___ ft.; ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-12
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 191.02 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOL/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
0		Light brown, moist, soft, silty CLAY (CL-ML)	No groundwater encountered while drilling.	13"		1-2-3	5
5		Brown, moist, stiff, sandy SILT (ML)		18"		4-12-16	28
		Bottom of Boring at 10.0'		12"		7-8-12	20
10				18"		6-7-11	18

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: Dry ft.; AFTER 24 HRS. ___ ft.; AFTER ___ HRS. ___ ft.
GROUND WATER: Dry ft.; ___ ft.; ___ ft.
CAVE IN DEPTH: ___ ft.; ___ ft.; ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-13
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 216.17 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOL/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
0		Brown, moist, soft, SILT, with organics (ML)	No groundwater encountered while drilling.	7"		1-2-2	4
5		Brown, moist, loose, silty SAND (SM)		6"		2-3-5	8
		Brown, moist, medium stiff, silty CLAY (CL-ML)		13"		3-4-6	10
10				16"		3-5-5	10
		Bottom of Boring at 15.0'	Sample 5 contains some rock fragments.	9"		11-5-5	10

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: Dry ft.; AFTER 24 HRS. ___ ft.; AFTER ___ HRS. ___ ft.
GROUND WATER: Dry ft.; ___ ft.; ___ ft.
CAVE IN DEPTH: ___ ft.; ___ ft.; ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-14
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 217.24 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOL/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
0		Brown, moist, soft, SILT (ML)	No groundwater encountered while drilling.	10"		1-2-2	4
5		Brown, dry, medium stiff to stiff, sandy CLAY (CL)		8"		8-5-5	10
		Gray, moist, medium stiff, silty CLAY (CL-ML)		9"		9-12-11	23
10		Bottom of Boring at 15.0'		15"		4-5-6	11
				16"		3-5-5	10

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: Dry ft.; AFTER 24 HRS. ___ ft.; AFTER ___ HRS. ___ ft.
GROUND WATER: Dry ft.; ___ ft.; ___ ft.
CAVE IN DEPTH: ___ ft.; ___ ft.; ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-15
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 217.30 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOL/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
0		Brown, moist, soft, silty CLAY (CL-ML)		7"		1-2-3	5
5		Brown, dry, medium stiff to stiff, sandy CLAY (CL)		9"		4-7-10	17
		Brown, moist, medium stiff, silty CLAY (CL-ML)		6"		7-5-4	9
10			Groundwater encountered at 11.0' while drilling.	11"		1-4-5	9
		Brown, moist, hard, SILT (ML)		17"		9-16-17	33
		Bottom of Boring at 15.0'					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: 8.0 ft.; AFTER 24 HRS. ___ ft.; AFTER ___ HRS. ___ ft.
GROUND WATER: 8.0 ft.; ___ ft.; ___ ft.
CAVE IN DEPTH: ___ ft.; ___ ft.; ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-16
Location: Howard County, Maryland — Job #: 07319A

SAMPLER
Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 233.05 Ft. — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	SOIL SYMBOL/ SAMPLE CONDITIONS	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot Curve N (10 30 50)
0		Brown, moist, very soft to medium stiff, SILT (ML)	No groundwater encountered while drilling.	7"		1-1-2	3
5		Brown, moist to damp, soft to stiff, silty CLAY (CL-ML)		8"		2-4-4	8
				10"		2-3-3	6
10				11"		1-2-2	4
		Bottom of Boring at 15.0'		14"		4-6-7	13

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
AT COMPLETION: Dry ft.; AFTER 24 HRS. ___ ft.; AFTER ___ HRS. ___ ft.
GROUND WATER: Dry ft.; ___ ft.; ___ ft.
CAVE IN DEPTH: ___ ft.; ___ ft.; ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/6/13

PREPARED BY:
GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 SCHILLING CIRCLE, SUITE 105~~
~~HUNT VALLEY, MARYLAND 21031~~
Ph: (410) 297-2340 http://www.gwstephens.com Fax: (410) 297-2345

STATE OF MARYLAND — PAUL WAYNE TAYLOR — No. 13741 — REGISTERED PROFESSIONAL ENGINEER

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:
" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Signature of Engineer — Date 6/28/12
Print Name: PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:
" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."
Signature of Developer — Date 10/25/11
Print Name: THOMAS D. HESS

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.
REVISIONS	

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:		SECTION NAME:		PARCEL #
CORRIDOR 95 BUSINESS PARK		N/A		134 / 179
PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02
WATER CODE: B-02			SEWER CODE: 4020000		

STORMWATER MANAGEMENT BORINGS SHEET #2

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND
SCALE: AS SHOWN
DATE: February 4, 2011
SHEET 57 OF 94

SDP-08-082

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HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-17
Location: Howard County, Maryland — Job #: 07319A

SAMPLER

Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 219.39 FL — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
0	D	Brown, moist, soft to stiff, SILT, with organics (ML)		6"		1-2-2	4	
5	D		Sample 2 contains a trace of ice standing and rock fragments	16"		5-5-8	13	
10	D	Brown, moist, hard, silty CLAY (CL-ML)		18"		11-16-27	43	
15	D	Dark gray, moist, hard, sandy SILT (ML)		18"		14-35-28	63	
20	D		Groundwater encountered at 15.0' while drilling.	7"		15-50/3"	100+	
25	D	Auger refusal at 18.9' Bottom of Boring at 18.9'		4"		50/4"	100+	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

GROUND WATER: AT COMPLETION ____ ft.; AFTER 24 HRS. ____ ft.; AFTER ___ HRS. ____ ft.

CAVE IN DEPTH: ____ ft.; ____ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-18
Location: Howard County, Maryland — Job #: 07319A

SAMPLER

Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 222.65 FL — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
0	D	Brown, dry to damp, medium stiff to stiff, silty CLAY (CL-ML)	No groundwater encountered while drilling.	15"		1-3-4	7	
5	D			14"		4-4-4	8	
10	D			13"		4-5-8	13	
15	D			15"		3-5-9	14	
20	D			16"		3-3-4	7	
25	D	Bottom of Boring at 22.0'		17"		3-3-5	8	
				18"		4-7-7	14	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. ____ ft.; AFTER ___ HRS. ____ ft.

CAVE IN DEPTH: 1.3 ft.; ____ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-19
Location: Howard County, Maryland — Job #: 07319A

SAMPLER

Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 237.01 FL — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
0	D	Brown, moist, soft to stiff, sandy SILT (ML)	No groundwater encountered while drilling.	15"		1-2-3	5	
5	D			14"		3-4-6	11	
10	D	Brown to tan, moist, medium stiff to stiff, silty CLAY (CL-ML)		15"		3-4-5	9	
15	D			15"		4-6-7	13	
20	D			16"		4-5-6	11	
25	D	Light brown, moist, loose, silty SAND (SM)		18"		4-6-6	12	
30	D			17"		4-5-5	10	
35	D	Gray to brown, moist, stiff to hard, SILT (ML)		18"		4-6-8	14	
40	D			18"		13-15-17	32	
45	D	Bottom of Boring at 42.0'		18"		3-8-9	17	
				18"		20-23-35	58	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. ____ ft.; AFTER ___ HRS. ____ ft.

CAVE IN DEPTH: 1.7 ft.; ____ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

RECORD OF SOIL EXPLORATION

Project Name: Corridor 95 — Boring No.: SB-20
Location: Howard County, Maryland — Job #: 07319A

SAMPLER

Datum: — Hammer Wt.: 140 lbs. — Hole Diameter: 6" — Foreman: M. Pearce
Surf. Elev.: 244.07 FL — Hammer Drop: 30 in. — Rock Core Diameter: — Inspector: —
Date Started: 12/07 — Pipe Size: 2 in. — Boring Method: HSA — Date Completed: 12/07

Elevation/ Depth	Soil Symbols/ Sample Conditions	Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	SPT Blows/Foot N	SPT Blows/Foot Curve (10 30 50)
0	D	Light brown, moist, medium stiff, silty CLAY, with organics (CL-ML; FILL)	No groundwater encountered while drilling.	7"		2-3-4	7	
5	D	Brown, moist, medium stiff to stiff, sandy SILT (ML)		7"		3-4-5	9	
10	D			14"		3-6-7	13	
15	D			15"		3-4-6	10	
20	D	Brown, damp, medium stiff, silty CLAY (CL-ML)		6"		2-3-4	7	
25	D			17"		1-3-3	6	
30	D	Light brown, dry, medium dense, silty SAND (SM)		18"		3-3-4	7	
35	D			17"		11-12-9	21	
40	D	Tan to brown, moist, stiff, silty CLAY (CL-ML)		18"		5-8-12	20	
45	D	Bottom of Boring at 42.0'		18"		5-6-13	19	
				18"		6-7-9-11	16	

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE

SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. ____ ft.; AFTER ___ HRS. ____ ft.

CAVE IN DEPTH: ____ ft.; ____ ft.

BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/9/13

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/20/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/12

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~235 GOLLING CIRCLE, SUITE 100~~
~~HUNT VALLEY, MARYLAND 21031~~

Ph: (410) 297-2340 — http://www.gwstephens.com — Fax: (410) 297-2345

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ENGINEER CERTIFICATION:

" I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."

Signature of Engineer — Date 6/24/12

PAUL W. TAYLOR — Print Name — PE # 13741

DEVELOPER CERTIFICATION:

" I / We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer — Date 10/25/11

THOMAS D. HESS — Print Name

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	D.M.B.
Drawn By:	D.M.B.
Checked By:	P.W.T.
REVISIONS	

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILDING #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
~~CORRIDOR 95 BUSINESS PARK~~	N/A	134 / 179

PLAT #	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1st	6011.02

WATER CODE: B-02 — SEWER CODE: 4020000

STORMWATER MANAGEMENT BORINGS SHEET #3

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSINESS CENTER~~

PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT: 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE: February 4, 2011
SHEET 58 OF 94

SDP-08-082

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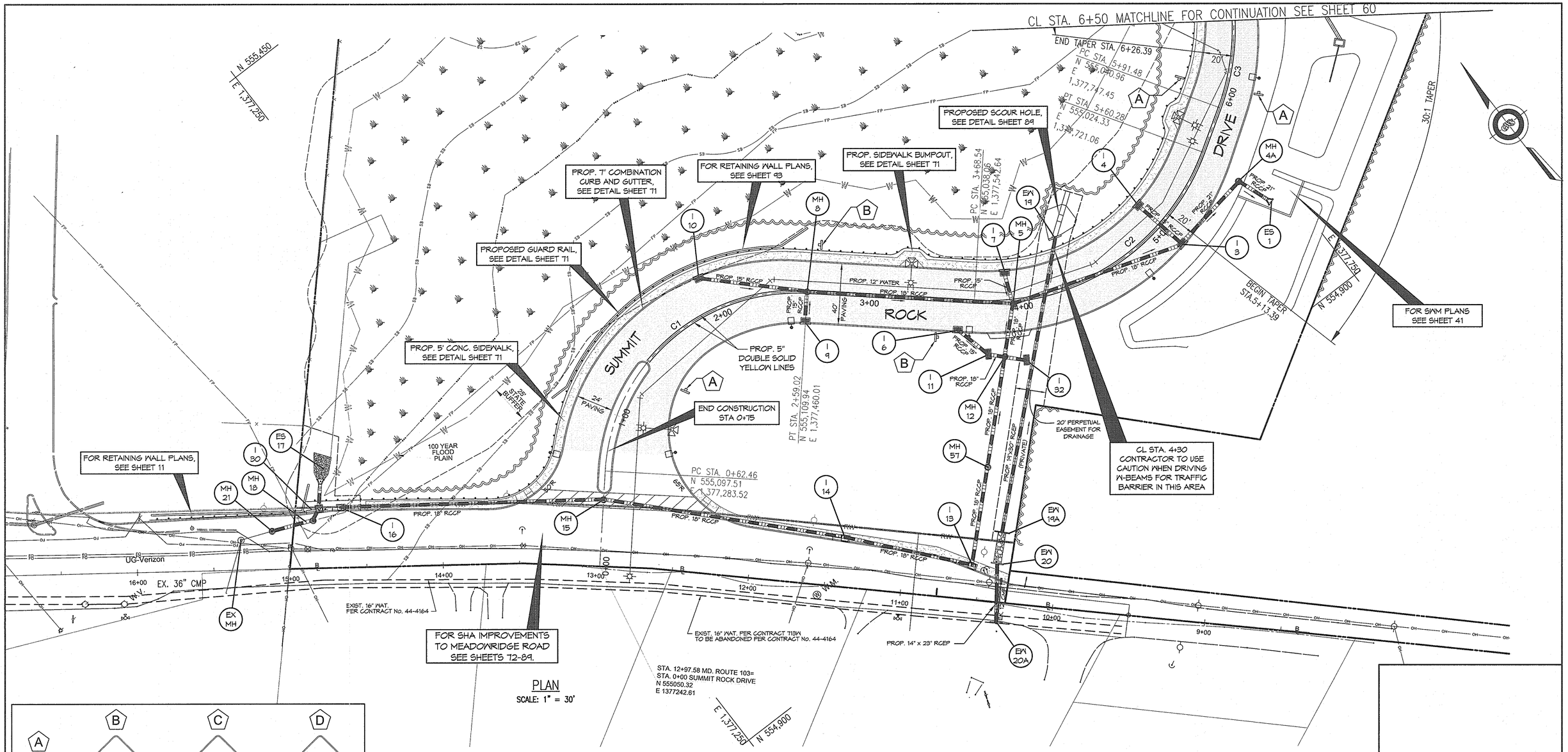
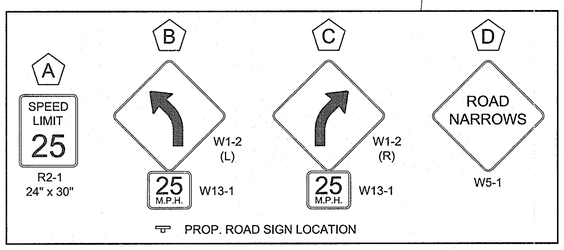


PLAN
SCALE: 1" = 30'



PROVIDE 'T' COMBINATION CURB AND GUTTER, HOWARD COUNTY R 3.01
CL STA. 0+73.65-28.63' LT. OF CL TO CL STA. 6+50-17.86' LT. OF CL
CL STA. 0+80.40-28.89' RT. OF CL TO CL STA. 3+66.90-20' RT. OF CL
CL STA. 4+11.17-20' RT. OF CL TO CL STA. 6+50-15.44' RT. OF CL

PROVIDE HOT MIX ASPHALT CURB HOWARD COUNTY R 3.03
CL STA. 3+66.90-20' RT. OF CL TO CL STA. 4+11.17-20' RT. OF CL

PROVIDE 5' CONCRETE SIDEWALK HOWARD COUNTY R 3.05
BL STA. MEADOWRIDGE ROAD 14+50 TO CL STA. SUMMIT ROCK DRIVE 6+50 LT.

PROVIDE TYPE C SIDEWALK RAMP HOWARD COUNTY R 4.04
CL STA. 0+42.02 TO 0+47.81 LT.

PROVIDE TYPE 'C' TRAFFIC BARRIER END TREATMENT, MD 605.03
CL STA. 1+00-36.07' LT. OF CL TO CL STA. 1+50-33.12' LT. OF CL

PROVIDE TRAFFIC BARRIER 'W' BEAM SINGLE FACE WITH 8' 'W' BEAM MD 605.22
CL STA. 1+50-33.12' LT. OF CL TO CL STA. 6+50-25.54' LT. OF CL

INSTALL 5" DOUBLE SOLID YELLOW LINES
CL STA. 1+41 - ON CL TO CL STA. 6+50 - ON CL

SEE STRUCTURAL SCHEDULE ON SHEET 69 FOR STATION AND OFFSET FOR STORM DRAIN STRUCTURES

FOR MONUMENTAL ENTRANCE TYPICAL SECTION, SEE DETAIL SHEET 78.

LIGHTING	
▢• SINGLE 400 W METAL HALIDE FIXTURES ON 25' POLE, TYPE 3 DISTRIBUTION WIDELITE AL3M400 SERIES HORIZONTAL LAMP FLAT GLASS FULL CUT-OFF & FULL SHIELDED LIGHT FIXTURE. INTENSITY: 22,000 LUMENS	
CL STA. 0+70 : 37' LT CL STA. 0+85 : 44' RT CL STA. 2+48 : 24' RT	CL STA. 3+66 : 23' RT CL STA. 4+79 : 23' RT CL STA. 6+16 : 20' RT

NOTE: ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 134

CURVE DATA

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	TANGENT
C1	125.00'	196.57'	176.93'	N 85°58'20" E	125.22'
C2	150.00'	191.74'	178.95'	S 85°35'53" E	111.48'
C3	150.00'	78.61'	77.71'	N 42°46'07" E	40.23'

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYS ♦ TRANSPORTATION
~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~
~~Ph: (410) 785-0040~~ http://www.gwstephens.com ~~Fax: (410) 785-5647~~

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13781, Expiration Date: 12/08/2013." 7/29/12

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134/179

PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RLM
Drawn By:	JLB
Checked By:	PWT

REVISIONS

ROAD AND DRAIN PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

SCALE: AS SHOWN
DATE : FEBRUARY 4, 2011
SHEET 59 OF 94

ELECTION DISTRICT: 1
HOWARD CO., MARYLAND

SDP-08-082

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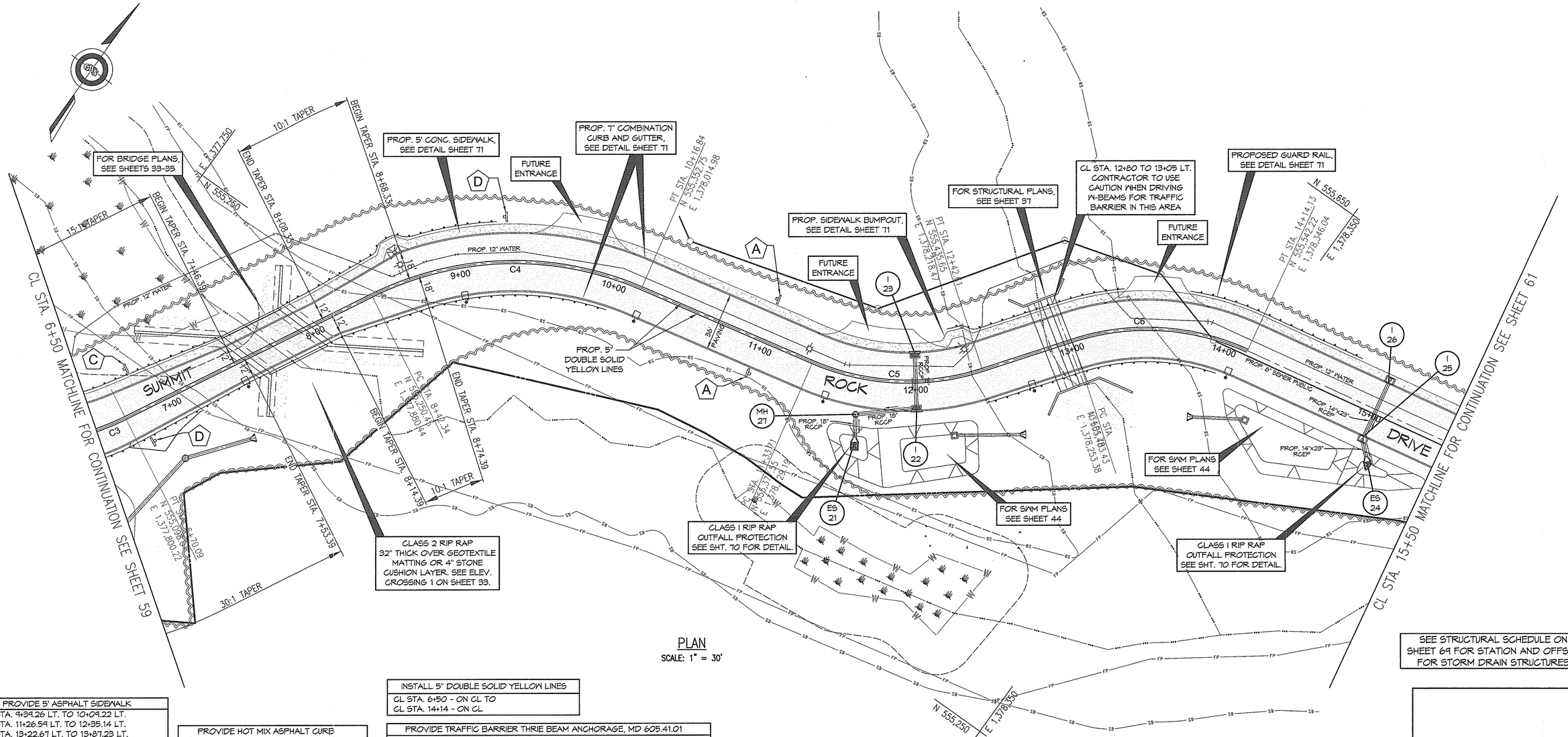

PLAN
SCALE: 1" = 30'

SEE STRUCTURAL SCHEDULE ON SHEET 69 FOR STATION AND OFFSET FOR STORM DRAIN STRUCTURES

PROVIDE 5' ASPHALT SIDEWALK
CL STA. 9+39.26 LT. TO 10+09.22 LT.
CL STA. 11+26.59 LT. TO 12+35.14 LT.
CL STA. 13+22.67 LT. TO 13+87.23 LT.

PROVIDE "T" COMBINATION CURB AND GUTTER, HOWARD COUNTY R 3.01
CL STA. 6+50-17.86' LT. OF CL TO CL STA. 9+39.26-18' LT. OF CL
CL STA. 10+09.22-18' LT. OF CL TO CL STA. 11+26.59-18' LT. OF CL
CL STA. 12+35.14-18' LT. OF CL TO CL STA. 13+22.67-18' LT. OF CL
CL STA. 13+87.23-18' LT. OF CL TO CL STA. 15+50-18' LT. OF CL
CL STA. 6+50-15.44' RT. OF CL TO CL STA. 15+50-18' RT. OF CL

PROVIDE HOT MIX ASPHALT CURB HOWARD COUNTY R 3.03
CL STA. 9+39.26-18' LT. OF CL TO CL STA. 10+09.22-18' LT. OF CL
CL STA. 11+26.59-18' LT. OF CL TO CL STA. 12+35.14-18' LT. OF CL
CL STA. 13+22.67-18' LT. OF CL TO CL STA. 13+87.23-18' LT. OF CL

PROVIDE 5' CONCRETE SIDEWALK HOWARD COUNTY R 3.05
CL STA. 6+50 LT. TO 9+39.26 LT.
CL STA. 10+09.22 LT. TO 11+26.59 LT.
CL STA. 12+35.14 LT. TO 13+22.67 LT.
CL STA. 13+22.67 LT. TO 15+50 LT.

INSTALL 5" DOUBLE SOLID YELLOW LINES
CL STA. 6+50 - ON CL TO
CL STA. 14+14 - ON CL

PROVIDE TRAFFIC BARRIER THRIE BEAM ANCHORAGE, MD 605.41.01
CL STA. 7+00.95-22.84' LT. OF CL TO CL STA. 7+46.60-19.08' LT. OF CL
CL STA. 7+87.66-19.08' LT. OF CL TO CL STA. 8+33.31-21.58' LT. OF CL
CL STA. 7+17.61-15.86' RT. OF CL TO CL STA. 7+63.26-16.54' RT. OF CL
CL STA. 8+03.43-14.67' RT. OF CL TO CL STA. 8+49.08-18.14' RT. OF CL

PROVIDE TYPE 'C' TRAFFIC BARRIER END TREATMENT, MD 605.03
CL STA. 8+75.02-25.67' LT. OF CL TO CL STA. 9+25.02-25.67' LT. OF CL
CL STA. 12+25-30.68' LT. OF CL TO CL STA. 12+75-25.67' LT. OF CL
CL STA. 12+87.23-25.67' LT. OF CL TO CL STA. 13+37.23-25.67' LT. OF CL
CL STA. 13+72.68-25.67' LT. OF CL TO CL STA. 14+22.68-25.67' LT. OF CL
CL STA. 14+31.73-25.67' LT. OF CL TO CL STA. 14+81.73-25.67' LT. OF CL
CL STA. 6+50-18.11' RT. OF CL TO CL STA. 7+00-16.44' RT. OF CL
CL STA. 9+50.08-20.67' RT. OF CL TO CL STA. 10+00.08-20.67' RT. OF CL
CL STA. 12+40.07-20.67' RT. OF CL TO CL STA. 12+90.07-20.67' RT. OF CL
CL STA. 13+50-20.67' RT. OF CL TO CL STA. 14+00-20.67' RT. OF CL

PROVIDE TRAFFIC BARRIER 'W' BEAM SINGLE FACE WITH 8' 'W' BEAM MD 605.22
CL STA. 6+50-25.54' LT. OF CL TO CL STA. 7+00.95-22.84' LT. OF CL
CL STA. 8+33.31-21.58' LT. OF CL TO CL STA. 8+75-25.67' LT. OF CL
CL STA. 12+75-25.67' LT. OF CL TO CL STA. 12+87.23-25.67' LT. OF CL
CL STA. 14+22.68-25.67' LT. OF CL TO CL STA. 14+31.73-25.67' LT. OF CL
CL STA. 7+00-16.44' RT. OF CL TO CL STA. 7+17.61-16.54' RT. OF CL
CL STA. 8+49.08-18.14' RT. OF CL TO CL STA. 9+50.08-20.67' RT. OF CL
CL STA. 12+90.07-20.67' RT. OF CL TO CL STA. 13+50-20.67' RT. OF CL

A — SPEED LIMIT 25 — R2-1, 24" x 30"

B — W1-2 (L), 25 M.P.H. W13-1

C — W1-2 (R), 25 M.P.H. W13-1

D — ROAD NARROWS — W5-1

PROP. ROAD SIGN LOCATION

LIGHTING	
SINGLE 400 W METAL HALIDE FIXTURES ON 25' POLE, TYPE 3 DISTRIBUTION WIDELITE ALSM400 SERIES HORIZONTAL LAMP FLAT GLASS FULL CUT-OFF & FULL SHIELDED LIGHT FIXTURE. INTENSITY: 22,000 LUMENS	
CL STA. 7+48 : 17' RT CL STA. 9+01 : 23' RT CL STA. 10+21 : 21' RT	CL STA. 11+48 : 21' RT CL STA. 12+69 : 23' RT CL STA. 14+08 : 21' RT

NOTE: ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 134

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/23/13

DIRECTOR — DATE 5/3/13

PREPARED BY:
GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 GOLLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21030~~
Ph: (410) 297-2340 http://www.gwstephens.com Fax: (410) 297-2345

STATE OF MARYLAND — TIMOTHY WAYNE TAYLOR — No. 19743 — PROFESSIONAL ENGINEER

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013

CURVE DATA

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	TANGENT
C3	150.00'	78.61'	77.71'	N 42°46'07" E	40.23'
C4	200.00'	174.50'	169.02'	N 52°45'03" E	93.24'
C5	150.00'	108.90'	106.52'	N 56°56'55" E	56.97'
C6	150.00'	112.35'	109.74'	N 57°36'28" E	58.96'

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
I CORRIDOR 95 BUSINESS PARK	N/A	134/179

PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RLM
Drawn By:	JLB
Checked By:	PWT

REVISIONS

ROAD AND DRAIN PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

SCALE: AS SHOWN
DATE : FEBRUARY 4, 2011
SHEET 60 OF 94

ELECTION DISTRICT: 1
HOWARD CO., MARYLAND

SDP-08-082

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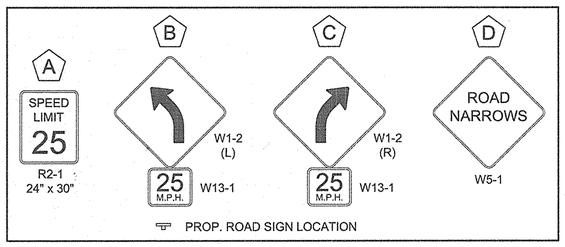
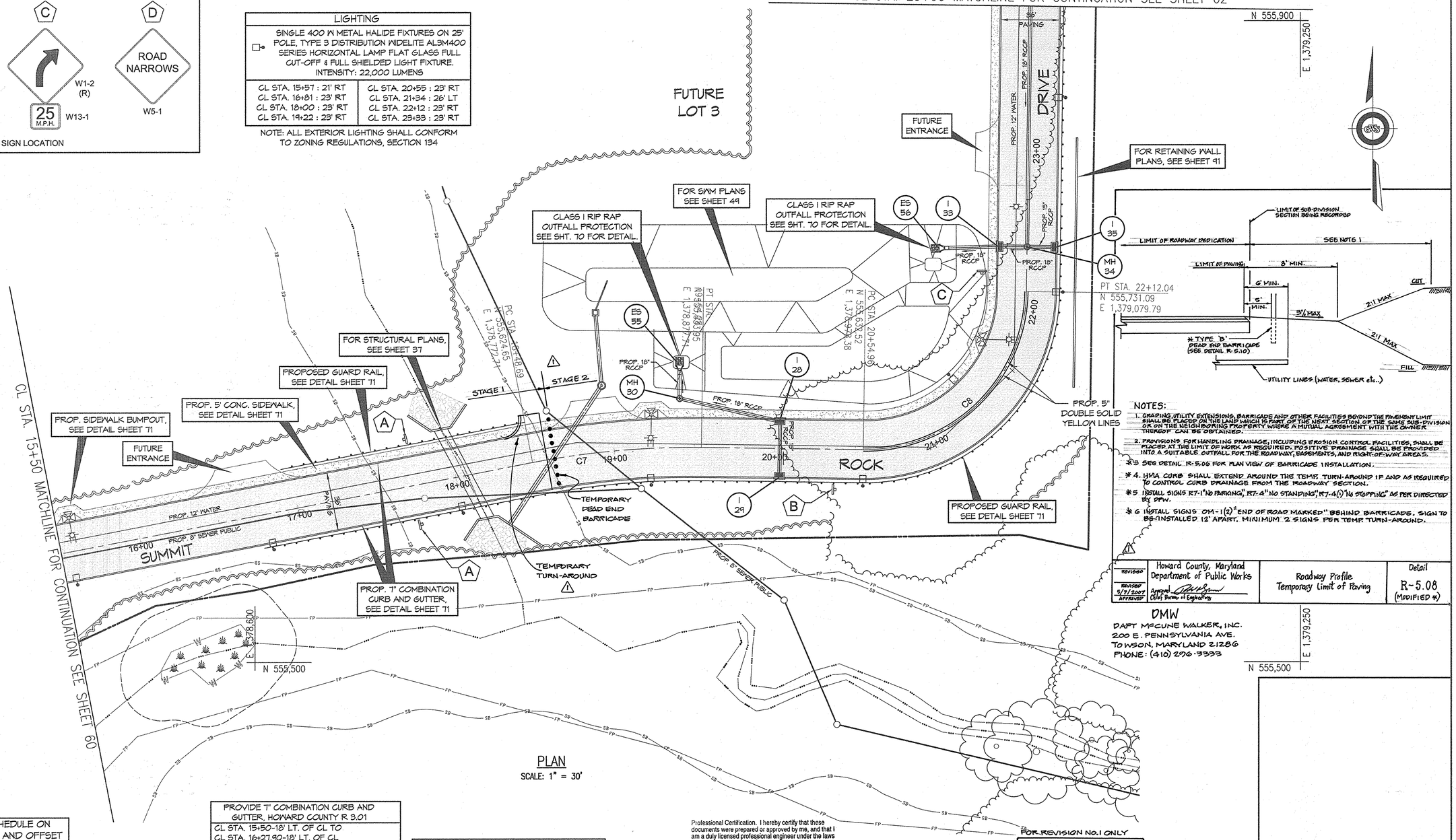


LIGHTING	
□• SINGLE 400 W METAL HALIDE FIXTURES ON 25' POLE, TYPE 3 DISTRIBUTION WIDELITE AL3M400 SERIES HORIZONTAL LAMP FLAT GLASS FULL CUT-OFF & FULL SHIELDED LIGHT FIXTURE. INTENSITY: 22,000 LUMENS	
CL STA. 15+57 : 21' RT CL STA. 16+81 : 23' RT CL STA. 18+00 : 23' RT CL STA. 19+22 : 23' RT	CL STA. 20+55 : 23' RT CL STA. 21+34 : 26' LT CL STA. 22+12 : 23' RT CL STA. 23+33 : 23' RT

NOTE: ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 134



PLAN
SCALE: 1" = 30'

NOTES:
1. GRADING, UTILITY EXTENSIONS, BARRICADE AND OTHER FACILITIES BEYOND THE PAVEMENT LIMIT SHALL BE PLACED ON THE LAND WHICH IS PART OF THE NEXT SECTION OF THE SAME SUB-DIVISION OR ON THE NEIGHBORING PROPERTY WHERE A MUTUAL AGREEMENT WITH THE OWNER THEREOF CAN BE OBTAINED.
2. PROVISIONS FOR HANDLING DRAINAGE, INCLUDING EROSION CONTROL FACILITIES, SHALL BE PLACED AT THE LIMIT OF WORK AS REQUIRED. POSITIVE DRAINAGE SHALL BE PROVIDED INTO A SUITABLE OUTFALL FOR THE ROADWAY, EASEMENTS, AND RIGHT-OF-WAY AREAS.
3. SEE DETAIL R-5.06 FOR PLAN VIEW OF BARRICADE INSTALLATION.
* 4. HVA CURB SHALL EXTEND AROUND THE TEMP. TURN-AROUND IF AND AS REQUIRED TO CONTROL CURB DRAINAGE FROM THE ROADWAY SECTION.
* 5. INSTALL SIGNS R7-1 "NO PARKING", R7-4 "NO STANDING", R7-4() "NO STOPPING" AS PER DIRECTED BY DPW.
* 6. INSTALL SIGNS OM-1(2) "END OF ROAD MARKED" BEHIND BARRICADES. SIGN TO BE INSTALLED 12' APART. MINIMUM 2 SIGNS PER TEMP. TURN-AROUND.

SEE STRUCTURAL SCHEDULE ON SHEET 69 FOR STATION AND OFFSET FOR STORM DRAIN STRUCTURES

PROVIDE "I" COMBINATION CURB AND GUTTER, HOWARD COUNTY R 3.01
CL STA. 15+50-18' LT. OF CL TO CL STA. 16+27.90-18' LT. OF CL
CL STA. 17+12.03-18' LT. OF CL TO CL STA. 18+54.87-18' LT. OF CL
CL STA. 19+25.28-18' LT. OF CL TO CL STA. 22+71.93-18' LT. OF CL
CL STA. 23+25.95-18' LT. OF CL TO CL STA. 23+90-18' LT. OF CL
CL STA. 15+50-18' RT. OF CL TO CL STA. 23+90-18' RT. OF CL

PROVIDE HOT MIX ASPHALT CURB HOWARD COUNTY R 3.03
CL STA. 16+27.90-18' LT. OF CL TO CL STA. 17+12.03-18' LT. OF CL
CL STA. 18+54.87-18' LT. OF CL TO CL STA. 19+25.28-18' LT. OF CL
CL STA. 22+71.93-18' LT. OF CL TO CL STA. 23+25.95-18' LT. OF CL

INSTALL 5" DOUBLE SOLID YELLOW LINES
CL STA. 20+55 - ON CL TO CL STA. 22+12 - ON CL

PROVIDE 5' CONCRETE SIDEWALK HOWARD COUNTY R 3.05
CL STA. 15+50 LT. TO 16+27.90 LT.
CL STA. 17+12.03 LT. TO 18+54.87 LT.
CL STA. 19+25.28 LT. TO 22+71.93 LT.
CL STA. 23+25.95 LT. TO 23+90 LT.

PROVIDE 5' ASPHALT SIDEWALK
CL STA. 16+27.90 LT. TO 17+12.03 LT.
CL STA. 18+54.87 LT. TO 19+25.28 LT.
CL STA. 22+71.93 LT. TO 23+25.95 LT.

PROVIDE TYPE 'C' TRAFFIC BARRIER END TREATMENT, MD 605.03
CL STA. 16+94-25.67' LT. OF CL TO CL STA. 17+44-25.67' LT. OF CL
CL STA. 17+99-25.67' LT. OF CL TO CL STA. 18+49-25.67' LT. OF CL
CL STA. 16+75-20.67' RT. OF CL TO CL STA. 17+25-20.67' RT. OF CL

PROVIDE TRAFFIC BARRIER 'W' BEAM SINGLE FACE WITH 8' 'W' BEAM MD 605.22
CL STA. 17+44-25.67' LT. OF CL TO CL STA. 17+99-25.67' LT. OF CL
CL STA. 17+25-20.67' RT. OF CL TO CL STA. 23+90-20.67' RT. OF CL

CURVE DATA

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	TANGENT
C7	515.00'	105.59'	105.41'	N 84°56'21" E	52.98'
C8	100.00'	157.08'	141.42'	N 45°48'47" E	100.00'

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY:
GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~225 SCHILLING CIRCLE, SUITE 150~~
~~HUNT VALLEY, MARYLAND 21030~~
Ph: (410) 297-2340 http://www.gwstephens.com Fax: (410) 297-2345

STATE OF MARYLAND — WAYNE L. MOSER — No. 15121 — REGISTERED PROFESSIONAL ENGINEER

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013.

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16928, Expiration Date: 5-13-16

FOR REVISION NO.1 ONLY
5/30/14 DATE
STATE OF MARYLAND — JAMES ROBERT MCCUNE WALKER — 16928 — PROFESSIONAL ENGINEER
PROF ENGR. NO. 16928

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By: RLM
Drawn By: JLB
Checked By: PWT
REVISIONS

DMW
DAFT MCCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

REVISED / DATE APPROVED	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	Roadway Profile Temporary Limit of Paving	Detail R-5.08 (MODIFIED #)

ADDRESS CHART		
PARCEL NO.	STREET ADDRESS:	
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE	
1-22-14 / DATE	⚠ / NO.	SHOW TEMP. TURN-AROUND & MODIFIED R-5.08 DTL. / REVISION DESCRIPTION

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134/179

PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

ROAD AND DRAIN PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B
SCALE: AS SHOWN
ELECTION DISTRICT: 1 DATE : FEBRUARY 4, 2011
HOWARD CO., MARYLAND SHEET 61 OF 94
SDP-08-082

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PROVIDE TRAFFIC BARRIER 'W' BEAM SINGLE FACE WITH 8' 'W' BEAM MD 605.22
CL STA. 23+90-20.67' RT. OF CL TO CL STA. 27+56.26-31.24' RT. OF CL *

PROVIDE TRAFFIC BARRIER 'W' BEAM END SECTION MD 605.20
CL STA. 27+56.26-31.24' RT. OF CL *

* CL STA. EXTENDED

PROVIDE 7" COMBINATION CURB AND GUTTER, HOWARD COUNTY R 3.01
CL STA. 23+90-18' LT. OF CL TO CL STA. 24+53.65-18' LT. OF CL
CL STA. 23+90-18' RT. OF CL TO CL STA. 25+23.04-18' RT. OF CL

PROVIDE HOT MIX ASPHALT CURB HOWARD COUNTY R 3.03
CL STA. 24+53.65-18' LT. OF CL TO CL STA. 25+23.04-18' LT. OF CL

PROVIDE 5' CONCRETE SIDEWALK HOWARD COUNTY R 3.05
CL STA. 23+90 LT. TO 24+53.65 LT.

PROVIDE 5' ASPHALT SIDEWALK
CL STA. 24+53.65 LT. TO 25+23.04 LT.

INSTALL 5" DOUBLE SOLID YELLOW LINES
CL STA. 27+03 - ON CL TO
CL STA. 27+56 - ON CL

N 556,450
E 1,379,250

RAMP 'F'

N 556,450
E 1,378,400

FOR SWM PLANS SEE SHEET 46

FOR SITE PLAN OF PARCEL B SEE SHEET 7

BUILDING NO. 1
6691 SUMMIT ROCK DRIVE
108,000 SQ. FT.

FOR SWM PLANS SEE SHEET 52

FOR RETAINING WALL PLANS, SEE SHEET 92

FOR RETAINING WALL PLANS, SEE SHEET 92

PROP. 8" WATER
PROP. 8" SEWER PUBLIC
PROP. 15" RCCP
PROP. 18" RCCP
PROP. 21" RCCP
PROP. 24" RCCP
PROP. 12" RCCP (ROOF DRAIN)
PROP. 8" SEWER PUBLIC
PROP. 12" WATER
PROP. 18" RCCP

50' DR. & UTIL. ESM'T.

PC STA. 27+03.18
N 556,221.88
E 1,379,094.95

PT STA. 27+56.26
N 556,268.80
E 1,379,074.50

C10

27+00

26+00

25+00

24+00

12'

24'

18'

36'

END TAPER STA. 26+03.04

BEGIN TAPER STA. 25+23.04

33.33:1 TAPER

EX. 20" GAS

PT STA. 25+38.00
N 555,731.09
E 1,379,079.79

PC STA. 25+02.20
N 556,021.22
E 1,379,083.91

1,379,250

N 556,000

C9

CL STA. 25+60 RT. CONTRACTOR TO USE CAUTION WHEN DRIVING W-BEAMS FOR TRAFFIC BARRIER IN THIS AREA

PROP. 7" COMBINATION CURB AND GUTTER, SEE DETAIL SHEET 71

PROP. 5' CONC. SIDEWALK, SEE DETAIL SHEET 71

PROPOSED GUARD RAIL, SEE DETAIL SHEET 71

FUTURE LOT 3

CL STA. 23+90 MATCHLINE FOR CONTINUATION SEE SHEET 61

SEE STRUCTURAL SCHEDULE ON SHEET 69 FOR STATION AND OFFSET FOR STORM DRAIN STRUCTURES

A — SPEED LIMIT 25 — R2-1 24" x 30"

B — W1-2 (L) — 25 M.P.H. W13-1

PROP. ROAD SIGN LOCATION

PLAN
SCALE: 1" = 30'

LIGHTING	
SINGLE 400 W METAL HALIDE FIXTURES ON 25' POLE, TYPE 3 DISTRIBUTION WIDELITE AL3M400 SERIES HORIZONTAL LAMP FLAT GLASS FULL CUT-OFF & FULL SHIELDED LIGHT FIXTURE. INTENSITY: 22,000 LUMENS	
CL STA. 24+57 : 23' RT CL STA. 25+86 : 18' RT	CL STA. 27+09 : 17' RT

NOTE: ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 134

CURVE DATA

CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	TANGENT
C9	800.00'	35.80'	35.80'	N 02°05'42" E	17.90'
C10	57.00'	53.08'	51.18'	N 23°32'48" W	28.64'

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/6/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYS ♦ TRANSPORTATION
~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21030~~
Ph: (410) 297-2340 http://www.gwstephens.com Fax: (410) 297-2345

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6601 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
~~CORRIDOR 95 BUSINESS PARK~~	N/A	134/179

PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

Designed By:	RLM
Drawn By:	JLB
Checked By:	PWT

REVISIONS

ROAD AND DRAIN PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

SCALE: AS SHOWN
DATE : FEBRUARY 4, 2011
SHEET 62 OF 94

ELECTION DISTRICT: 1
HOWARD CO., MARYLAND

SDP-08-082

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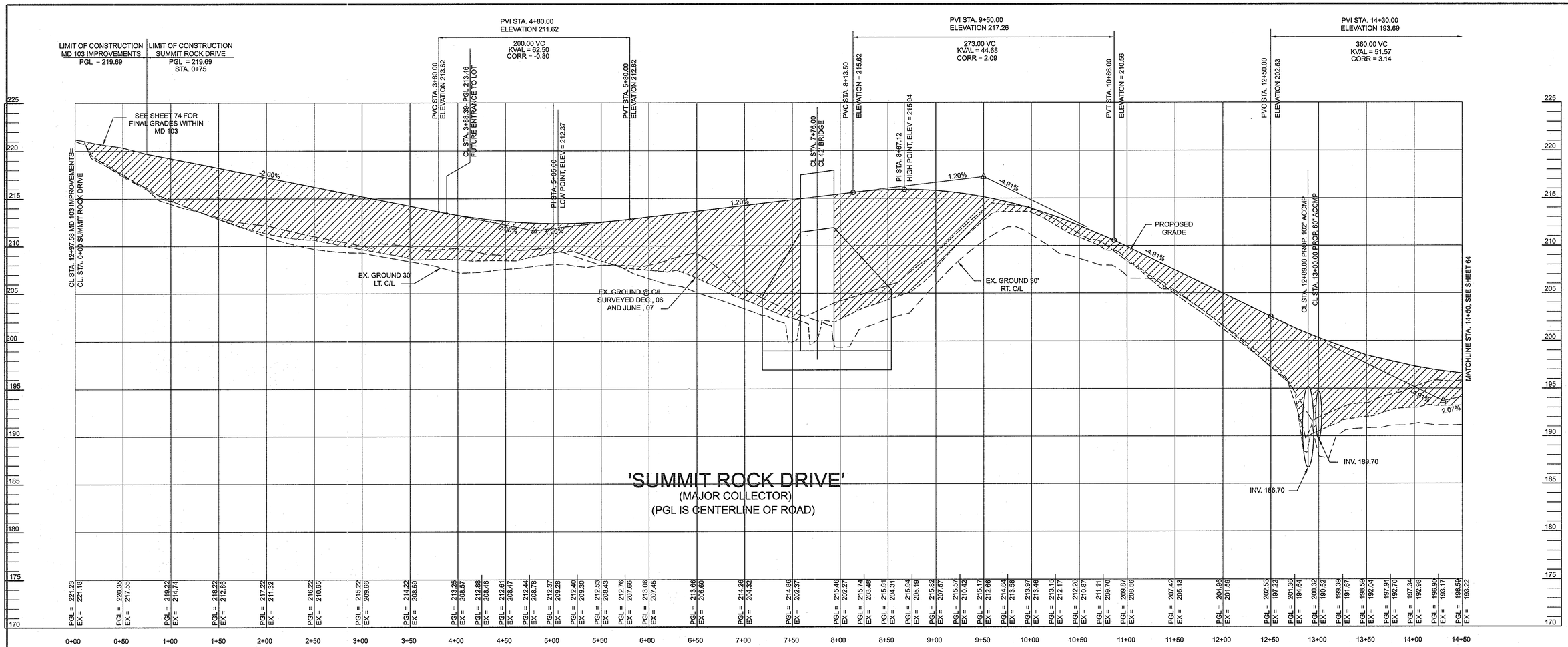
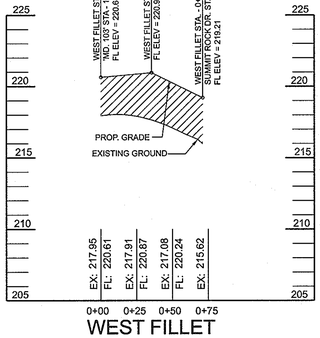


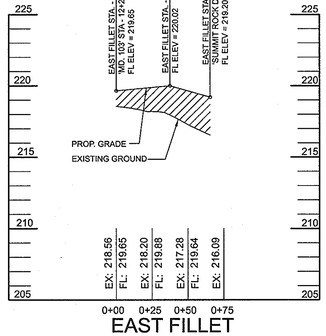
FILL MATERIAL IS TO BE CONTROLLED AND COMPACTED AS CERTIFIED BY AN APPROVED SOILS ENGINEER. FILL MATERIAL IS TO BE PLACED NO GREATER THAN 8" LIFTS AND ROLLED TO 95% COMPACTION FOR THE TOP 1 FOOT AND 92% COMPACTION ELSEWHERE. GEOTECHNICAL CERTIFICATION OF FILL MATERIAL SHALL BE PROVIDED TO PLACEMENT OD SUB-BASE MATERIALS.FI

PROFILES

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



WEST FILLET



EAST FILLET

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

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 5/03/13

DIRECTOR DATE 5/3/13

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND PAUL WILLIAM TAYLOR No. 13741 REGISTERED PROFESSIONAL ENGINEER 6/25/12

ENGINEER CERTIFICATION:

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature of Engineer _____ Date 6/25/12

Print Name PAUL W. TAYLOR PE # 13741

DEVELOPER CERTIFICATION:

"I/ We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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."

Signature of Developer _____ Date 9/24/12

Print Name THOMAS D. HESS

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

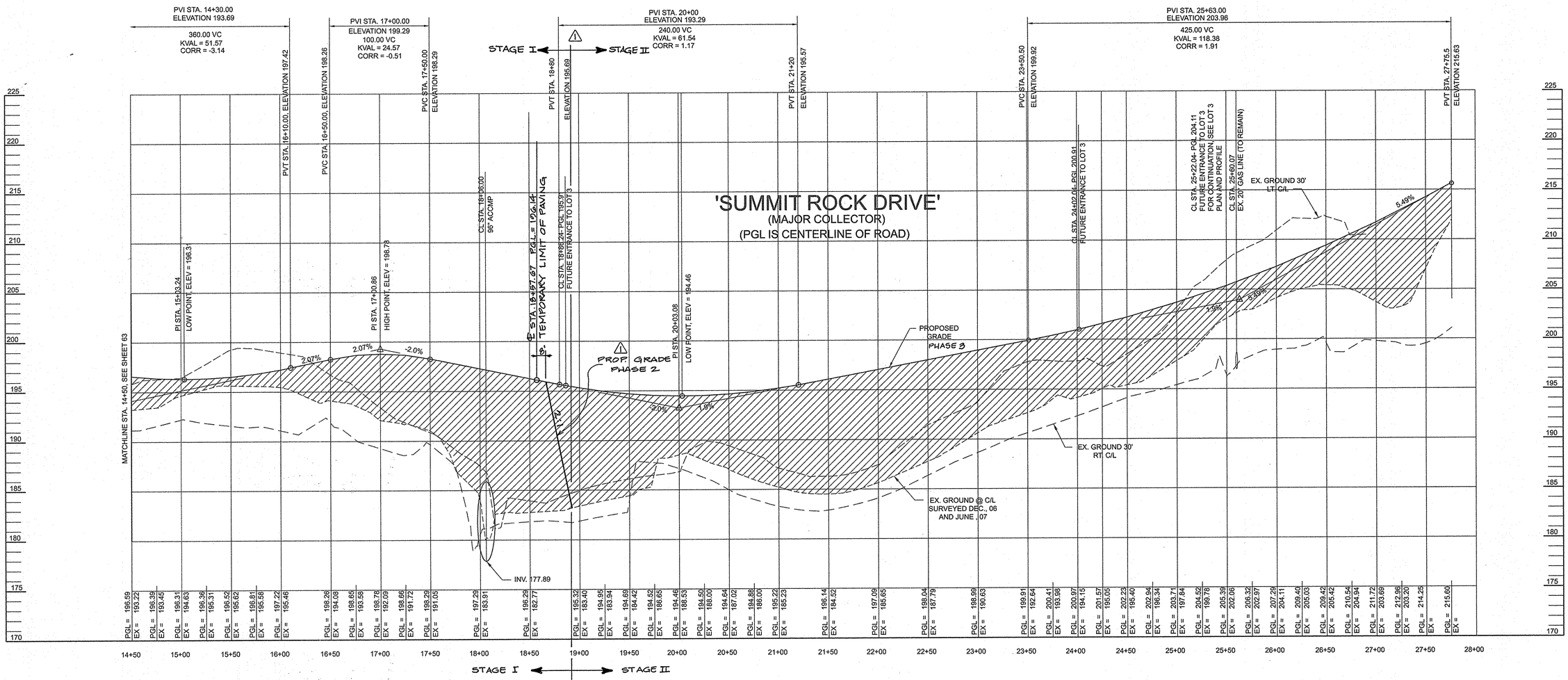
DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ROAD PROFILE
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 63 OF 94

SDP-08-082 P/N : 10762



FILL MATERIAL IS TO BE CONTROLLED AND COMPACTED AS CERTIFIED BY AN APPROVED SOILS ENGINEER. FILL MATERIAL IS TO BE PLACED NO GREATER THAN 8" LIFTS AND ROLLED TO 95% COMPACTION FOR THE TOP 1 FOOT AND 92% COMPACTION ELSEWHERE. GEOTECHNICAL CERTIFICATION OF FILL MATERIAL SHALL BE PROVIDED TO PLACEMENT OD SUB-BASE MATERIALS.FI

PROFILE

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

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 16028, Expiration Date: 5-13-16

FOR REVISION NO.1 ONLY
5/30/14
DATE

PROF. ENGR. NO. 16028

~~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

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

DMW
DAFT McCUNE WALKER, INC.
200 E. PENNSYLVANIA AVE.
TOWSON, MARYLAND 21286
PHONE: (410) 296-3333

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE
1-22-14 / 1	SHOW STAGE I & STAGE II LIMITS
DATE / NO.	REVISION DESCRIPTION

SUBDIVISION NAME	SECTION NAME	PARCEL #
'CORRIDOR 95 BUSINESS PARK'	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

ENGINEER CERTIFICATION:

"I certify that this plan for sediment and erosion control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Signature of Engineer — Date 6/29/13
Print Name PAUL W. TAYLOR — PE # 13741

DEVELOPER CERTIFICATION:

"I/ We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personel 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.

Signature of Developer — Date 9/24/2012
Print Name THOMAS D. HESS

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ROAD PROFILE
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 64 OF 94

SDP-08-082 — P/N : 10762

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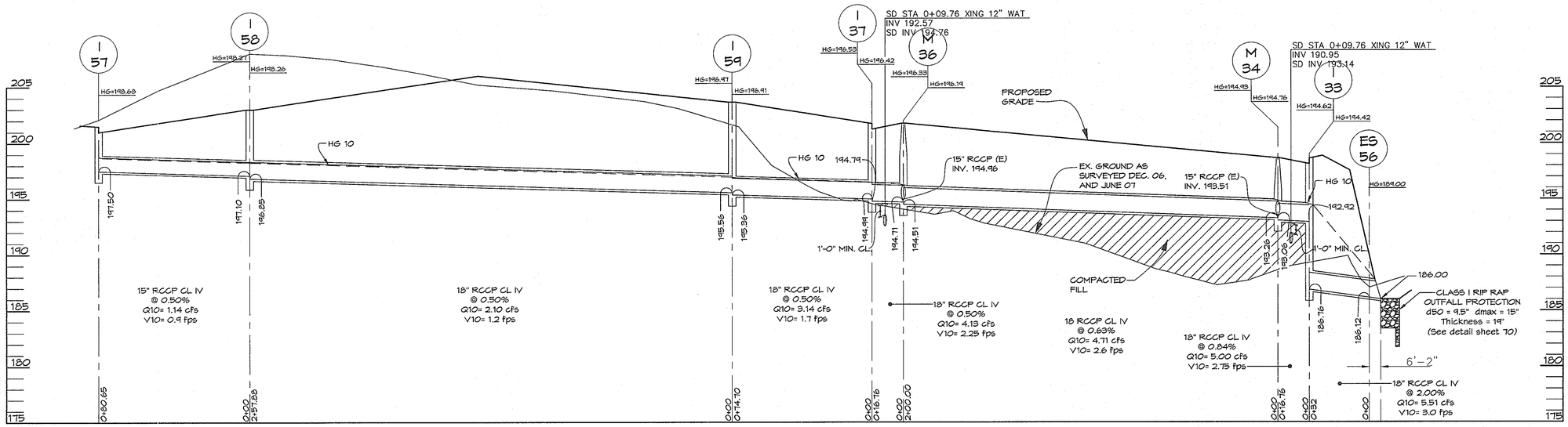
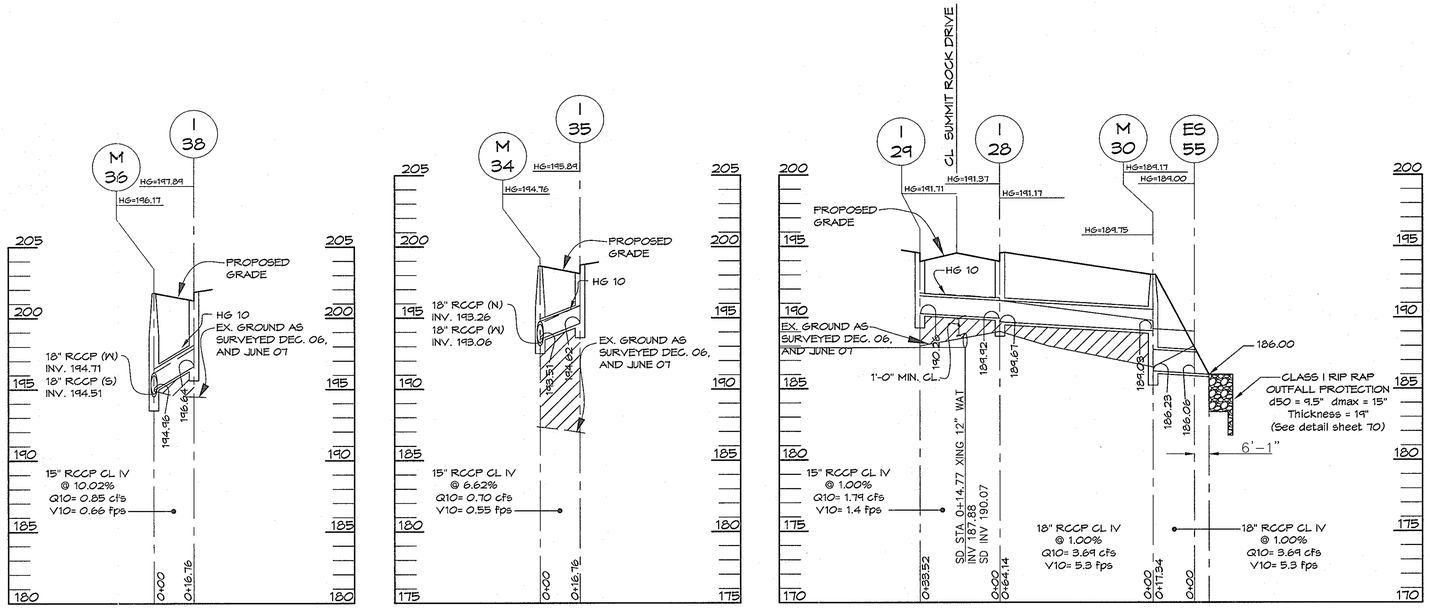


I-57 TO ES-56

PIPE SCHEDULE			
SIZE	CLASSIFICATION	TYPE	TOTAL LENGTH (FT.)
15"	IV	RCCP	147.7
18"	IV	RCCP	602.7

PROFILES
SCALE: HORIZ. 1"=30'
VERT. 1"=5'



COMPACTED FILL IN ACCORDANCE WITH AASHTO T-180 SPECIFCATION (FOR ALL PIPES IN FILL)

I-38 TO M-36

I-35 TO M-34

I-29 TO ES-55

PROFILES
SCALE: HORIZ. 1"=30'
VERT. 1"=5'

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/6/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~
~~PH: (410) 785-0040~~ http://www.gwstephens.com ~~Fax: (410) 785-0047~~

STATE OF MARYLAND — TIMOTHY RAYNE TAYLOR — No. 13741 — REGISTERED PROFESSIONAL ENGINEER — 12-5-12

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RAL/RLM
Drawn By:	JLB
Checked By:	PWT

REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134/179

PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE: B-02 — SEWER CODE: 4020000

STORM DRAIN PROFILES
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

SCALE: AS SHOWN
ELECTION DISTRICT: 1
HOWARD CO., MARYLAND
DATE : FEBRUARY 4, 2011
SHEET 65 OF 94

SDP-08-082

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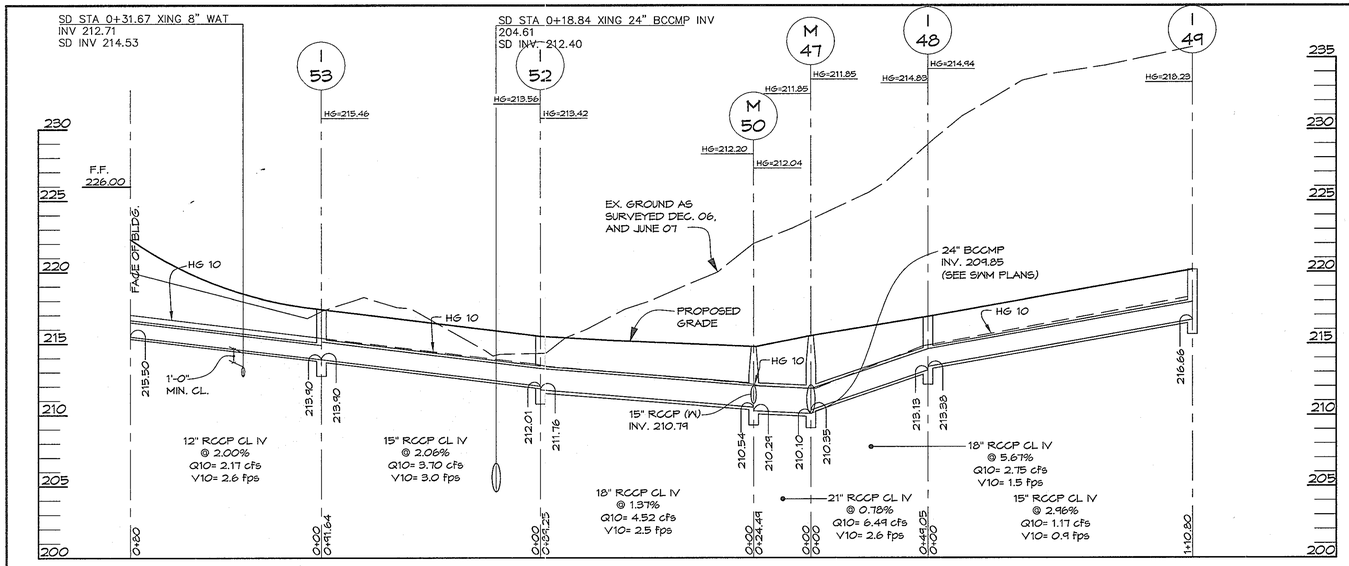
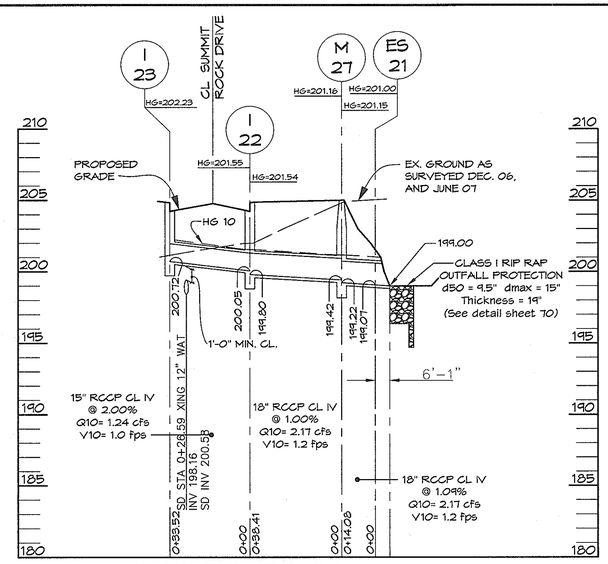
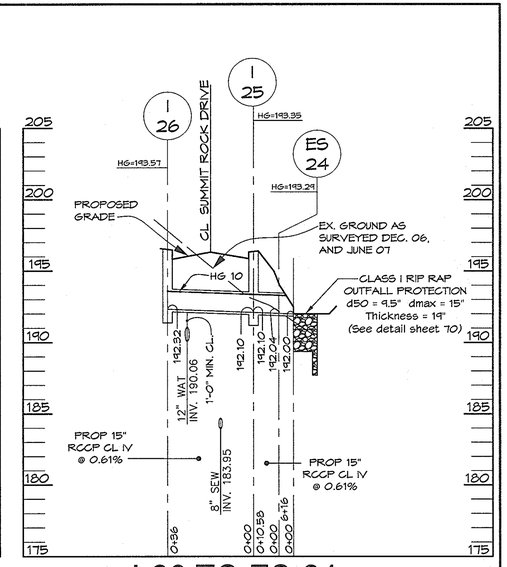


I-49 TO I-53

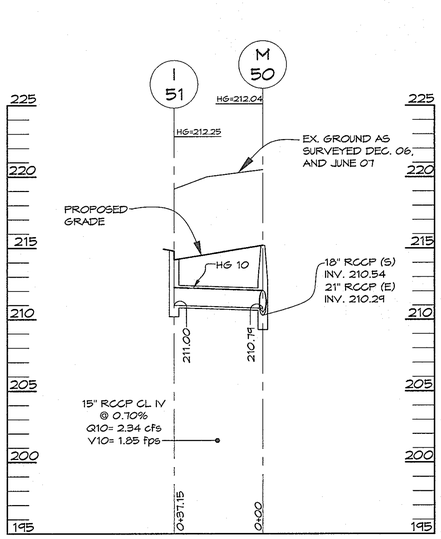


I-23 TO ES-21

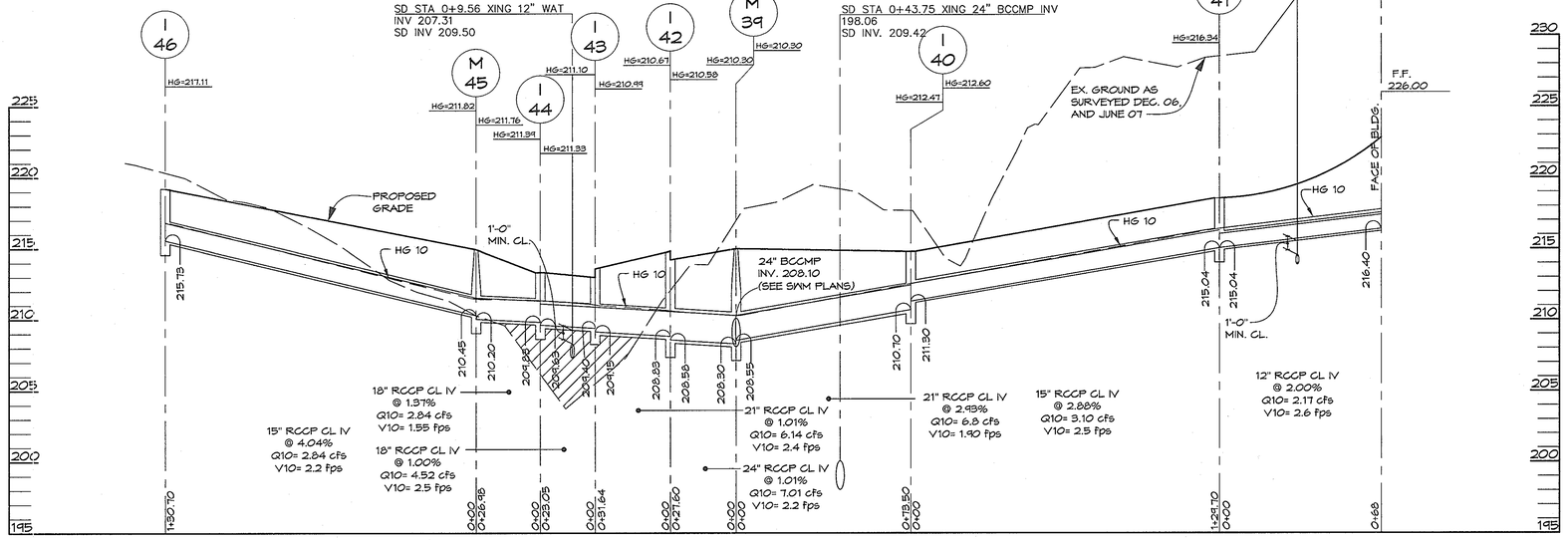


I-26 TO ES-24

PROFILES
SCALE: HORIZ. 1"=30'
VERT. 1"=5'



I-51 TO M-50



I-41 TO I-46

PROFILES
SCALE: HORIZ. 1"=30'
VERT. 1"=5'

COMPACTED FILL IN ACCORDANCE WITH AASHTO T-180 SPECIFCATION (FOR ALL PIPES IN FILL)

PIPE SCHEDULE			
SIZE	CLASSIFICATION	TYPE	TOTAL LENGTH (FT.)
12"	IV	RCCP	148.0
15"	IV	RCCP	480
18"	IV	RCCP	217.8
21"	IV	RCCP	129.6
24"	IV	RCCP	27.6

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~
~~Ph. (410) 785-6640~~ http://www.gwstephens.com ~~Fax: (410) 785-6647~~

STATE OF MARYLAND — RAYMOND L. MAYER — No. 13741 — REGISTERED PROFESSIONAL ENGINEER

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691SUMMIT ROCK DRIVE

SUBDIVISION NAME:		SECTION NAME:		PARCEL #
CORRIDOR 95 BUSINESS PARK		N/A		134/179
PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02
WATER CODE: B-02			SEWER CODE: 4020000		

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RAL/RLM
Drawn By:	JLB
Checked By:	PWT
REVISIONS	

STORM DRAIN PROFILES
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B
SCALE: AS SHOWN
ELECTION DISTRICT: 1
HOWARD CO., MARYLAND
DATE : FEBRUARY 4, 2011
SHEET 66 OF 94
SDP-08-082

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STORM DRAIN COMPUTATIONS

Project Name: CORRIDOR 95 BUSINESS PARK
Comp. By: RLM
Date: 12/20/2007
Checked By:
Date:
Sheet 1 of
Design Frequency: 10 Yr

From No.	To No.	Inc. Area (ac.)	Total Area (ac.)	C	CxA	Sum (CxA)	Time (min)	I (in/hr)	Q (cfs)	Des Slope (%)	Diameter (in)	Velocity (fps)	Length (ft)	Time (min)	Remarks
	I-23	0.19		0.82	0.1558		6.14	7.94	1.24						
I-23	I-22		0.19	0.82		0.1558	6.14	7.94	1.24	2.00%	15	1.00	34.00	0.57	
	I-22	0.16		0.78	0.1248		6.14	7.94	0.99						
I-22	M-27		0.35			0.2806	6.71	7.72	2.17	1.00%	18	1.20	38.00	0.53	
M-27	ES-21		0.35			0.2806	7.24	7.72	2.17	1.09%	18	1.20	14.00	0.19	
	I-26	0.31		0.82	0.2542		6.14	7.94	2.02						
I-26	I-25		0.31	0.82		0.2542	6.14	7.94	2.02	0.89%	23 x 14	1.10	42.00	0.64	SUMP
	I-25	0.24		0.81	0.1944		6.01	8.00	1.55						
I-25	ES-24		0.55			0.4486	6.78	7.69	3.45	1.00%	23 x 14	1.90	11.00	0.10	SUMP
	I-29	0.29		0.78	0.2262		6.24	7.90	1.79						
I-29	I-28		0.29	0.78		0.2262	6.24	7.90	1.79	1.00%	15	1.40	34.00	0.40	SUMP
	I-28	0.38		0.66	0.2508		5.91	8.04	2.02						
I-28	M-30		0.67			0.4770	6.64	7.74	3.69	1.00%	18	5.30	64.00	0.20	SUMP
M-30	ES-55		0.67			0.4770	6.84	7.66	3.69	1.00%	18	5.30	17.00	0.05	
	I-57	0.36		0.43	0.1548		7.55	7.38	1.14						
I-57	I-58		0.36	0.43		0.1548	7.55	7.38	1.14	0.50%	15	0.90	81.00	1.50	SUMP
	I-58	0.25		0.60	0.1500		7.75	7.30	1.10						
I-58	I-59		0.61			0.3048	9.05	6.88	2.10	0.50%	18	1.20	258.00	3.58	
	I-59	0.34		0.67	0.2278		7.05	7.58	1.73						
I-59	I-37		0.95			0.5326	12.63	5.89	3.14	0.50%	18	1.70	75.00	0.74	
	I-37	0.40		0.47	0.1880		6.95	7.62	1.43						
I-37	M-36		1.35			0.7206	13.37	5.73	4.13	0.50%	18	2.25	17.00	0.13	
	I-38	0.13		0.81	0.1053		5.92	8.04	0.85						
I-38	M-36		0.13	0.81		0.1053	5.92	8.04	0.85	10.00%	15	0.66	17.00	0.43	
M-36	M-34		1.48			0.8259	13.50	5.70	4.71	0.63%	18	2.60	200.00	1.28	
	I-35	0.11		0.79	0.0869		5.81	8.09	0.70						
I-35	M-34		0.11	0.79		0.8690	5.81	8.09	0.70	6.62%	15	0.55	17.00	0.52	
M-34	I-33		1.59			0.9128	14.78	5.48	5.00	0.84%	18	2.75	17.00	0.10	
	I-33	0.12		0.79	0.0948		5.81	8.09	0.70						
I-33	ES-56		1.71			1.0076	14.88	5.47	5.51	2.00%	18	3.00	37.00	0.21	
	I-46	0.44		0.76	0.3344		5.00	8.50	2.84						
I-46	M-45		0.44	0.76		0.3344	5.00	8.50	2.84	4.04%	15	2.20	131.00	0.99	
M-45	I-44		0.44			0.3344	5.99	8.00	2.84	1.37%	18	1.55	27.00	0.29	
	I-44	0.31		0.77	0.2387		7.91	7.24	1.73						
I-44	I-43		0.75			0.5731	6.28	7.89	4.52	1.00%	18	2.50	23.00	0.15	
	I-43	0.26		0.81	0.2106		6.14	7.94	1.67						
I-43	I-42		1.01			0.7837	6.43	7.83	6.14	1.01%	21	2.40	32.00	0.22	
	I-42	0.15		0.81	0.1215		6.36	7.86	0.95						
I-42	M-39		1.16			0.9052	6.65	7.74	7.01	1.01%	24	2.20	28.00	0.21	
	ROOF	0.30		0.85	0.2550		5.00	8.50	2.17						
	I-41	0.26		0.75	0.1950		9.03	6.89	1.34						
I-41	I-40		0.56			0.4500	9.03	6.89	3.10	2.88%	15	2.50	130.00	0.87	
	I-40	0.32		0.80	0.2560		6.80	7.68	1.97						
I-40	M-39		0.88			0.7060	9.90	6.63	4.68	2.93%	21	1.90	74.00	0.65	
	I-49	0.23		0.71	0.1633		8.14	7.16	1.17						
I-49	I-48		0.23			0.1633	8.14	7.16	1.17	2.96%	15	0.90	111.00	2.06	
	I-48	0.39		0.66	0.2574		8.27	7.12	1.83						
I-48	M-47		0.62			0.4207	10.20	6.54	2.75	5.67%	18	1.50	49.00	0.54	
	ROOF	0.30		0.85	0.2550		5.00	8.50	2.17						
	I-53	0.32		0.72	0.2304		6.93	7.63	1.76						
I-53	I-52		0.62			0.4854	6.93	7.63	3.70	2.06%	15	3.00	92.00	0.51	
	I-52	0.20		0.62	0.1240		8.26	7.12	0.88						
I-52	M-50		0.82			0.6094	7.44	7.42	4.52	1.37%	18	2.50	89.00	0.59	
	I-51	0.48		0.70	0.3360		8.79	6.96	2.34						
I-51	M-50		0.48			0.3360	8.79	6.96	2.34	1.10%	15	1.85	37.00	0.33	SUMP
M-50	M-47		1.30			0.9454	9.12	6.86	6.49	0.78%	21	2.60	24.00	0.15	

REFORESTATION PLAN

The reforestation area will be placed into a Forest Conservation Easement.

A. Planting Plan and Methods

Plant species selection was based on our knowledge regarding plant communities in Maryland's Piedmont Plateau and information provided in the soil survey on typical vegetation for the soil type on the planting site. Species selection was also based on our knowledge of plant availability in the nursery industry.

Reforestation will be accomplished through a mixed planting of whips and branched transplants. Container grown stock is recommended but bareroot stock may be used to help control reforestation costs. If bareroot stock is used the root systems of all plants will be dipped in an anti-desiccant gel prior to planting to improve moisture retention in the root systems.

Prior to planting the proposed Forest Conservation Easements all multiflora rose in the planting area shall be removed. Removal of the rose may be performed with mowing and herbicide treatments. Physical removal of all top growth following by a periodic herbicide treatment of stump sprouts is recommended. Native tree and shrub species occurring within the rose thickets should be retained wherever possible. Herbicides treatments shall occur on 2 month intervals during the first growing season and once each in the spring and fall for subsequent years. Herbicide used shall be made specifically to address woody plant material and shall be applied as per manufacturers specifications. Care should be taken not to spray planted trees or naturally occurring native tree/shrub seedlings. It is recommended that initiation of rose removal begin at least six months prior to planting.

B. Planting and Soil Specifications

Plant material will be installed in accordance with the Planting Detail and Planting Specifications shown on the Forest Conservation Plan.

Amendments to existing soil will be in accordance with the Planting Specifications shown on the Forest Conservation Plan. Soil disturbance will be limited to individual planting locations.

C. Maintenance of Plantings

For information regarding maintenance of the reforestation plantings, see Section VIII B.

D. Guarantee Requirements

A 90 percent survival rate of the reforestation plantings will be required after one growing season. All plant material below the 90 percent survival threshold will be replaced at the beginning of the second growing season. At the end of the second growing season, a 75 percent survival rate will be required. All plant material below the 75 percent survival threshold will be replaced by the beginning of the next growing season.

E. Security for Reforestation

Section 16-1209 of the Howard County Forest Conservation Act requires that a developer shall post a security (bond, letter of credit, etc.) with the County to insure that all work is done in accordance with the FCP.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. Forest Protection Techniques

1. Soil Protection Area (Critical Root Zone)

The soil protection area, or critical root zone, of a tree is that portion of the soil column where most of a its roots may be found. The majority of roots responsible for water and nutrient uptake are located just below the soil surface. Temporary fencing shall be placed around the critical root zone of the forest in areas where the forest limits occur within 25 feet of the limit of disturbance.

2. Fencing and Signage

Existing forest limits occurring within 25 feet of the limits of disturbance shall be protected using temporary protective fencing. Permanent signage shall be placed around the reforestation area prior to plant installation, as shown on the plan.

B. Pre-Construction Meeting

Upon staking of limits of disturbance a pre-construction meeting will be held between the developer, contractor and appropriate County inspector. The purpose of the meeting will be to
verify that all sediment control is in order, and to notify the contractor of possible penalties for non-compliance with the FCP.

C. Storage Facilities/Equipment Cleaning

All equipment storage, parking, sanitary facilities, material stockpiling, etc. associated with construction of the project will be restricted to those areas outside of the proposed Forest Conservation Easement. Cleaning of equipment will be limited to area within the LOD of the proposed homesites. Wastewater resulting from equipment cleaning will be controlled to prevent runoff into environmentally sensitive areas.

D. Sequence of Construction

The following timetable represents the proposed timetable for development. The items outlined in the Forest Conservation Plan will be enacted within two (2) years of subdivision approval.

Below find a proposed sequence of construction.

1. Install all signage and sediment control devices.
2. Hold pre-construction meeting between developer, contractor and County inspector.
3. Build access roads, install well and septic systems, and construct houses. Stabilize all disturbed areas accordingly.
4. Begin multiflora rose removal. Install permanent protective signage for
Easements and initiate plantings in accordance with Forest Conservation Plan. Plantings will be completed within two (2) years of subdivision approval.
5. Remove sediment control.
6. Hold post-construction meeting with County inspectors to assure compliance with FCP. Submit Certification of Installation.
7. Monitor and maintain plantings for 2 years.

E. Construction Monitoring

Eco-Science Professionals, or another qualified professional designated by the developer, will monitor construction of the project to ensure that all activities are in compliance with the Forest Conservation Plan.

F. Post-Construction Meeting

Upon completion of construction, Eco-Science Professionals, or another qualified professional designated by the developer, will notify the County that construction has been completed and arrange for a post-construction meeting to review the project site. The meeting will allow the County inspector to verify that reforestation plantings have been installed.

POST-CONSTRUCTION MANAGEMENT PLAN

Howard County requires a two year post-construction management plan be prepared as part of the forest conservation plan. The plan goes into effect upon acceptance of the construction certification of completion by the County. Eco-Science Professionals, or another qualified professional designated by the developer, will be responsible for implementation of the post-construction management plan.

The following items will be incorporated into the plan:

A. Fencing and Signage

Permanent signage indicating the limits of the retention/reforestation area shall be maintained.

B. General Site Inspections/Maintenance of Plantings

Site inspections will be performed a minimum of three times during the growing season. The purpose of the inspections will be to assess the health of the reforestation plantings. Appropriate measures will be taken to rectify any problems which may arise.

In addition, maintenance of the reforestation plantings will involve the following steps:

1. Watering - All plant material shall be watered twice a month during the 1st growing season, more or less frequently depending on weather conditions. During the second growing season, once a month during May-September, if needed.
2. Removal of invasive exotics and noxious weeds. Old field successional species will be retained.
3. Identification of serious plant pests and diseases, treatment with appropriate agent.
4. Pruning of dead branches.
5. After 12 and 24 months, replacement of plants, if required, in accordance with the Guarantee Requirements shown on the FCP.

C. Education

The developer will provide appropriate materials to property owners informing them of the location and purpose of the reforestation area. Materials may include site plans and information explaining the intent of the forest conservation law.

D. Final Inspection

At the end of the two year post-construction management period, Eco-Science Professionals, or another qualified professional, will submit to the administrator of the Howard County Forest Conservation Program certification that all retention/ reforestation/afforestation requirements have been met. Upon acceptance of this certification, the County will release the developer from all future obligations and release the developer's bond.

Planting/Soil Specifications

1. Installation of bareroot/plug plant stock shall take place between March 15 - April 20; b&b/container stock March 15 -May 30 or September 15 - November 15. Fall planting of B&B stock is not recommended.
2. Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
3. Bareroot plants shall be installed so that the top of root mass is level with the top of existing grade. Roots shall be dipped in an anti-desiccant gel prior to planting. Backfill in the planting pits shall consist of 3 parts existing soil to 1 part pine fines or equivalent.
4. Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications, for woody plants. Herbaceous plant shall be fertilized with Osmocote 8-6-12.
5. Plant material shall be transported to the site in a tarped or covered truck. Plants shall be kept moist prior to planting.
6. The contractor shall remove all non-organic debris associated with the planting operation from
the site.

Sequence of Construction

1. Sediment control shall be installed in accordance with general construction plan for site.
2. Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
3. Upon completion of the planting, signage shall be installed as shown.
4. Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

Maintenance of Plantings

1. Maintenance of plantings shall last for a period of two years.
2. Plantings must receive 2 gallons of water, either through precipitation or watering, weekly during the 1st growing season, as needed. During second growing season, once a month during May-September, if needed.
3. Invasive exotics and noxious weeds will be removed, as required, from planting areas mechanically and/or with limited herbicide. Old field successional species will be retained.
4. Plants shall be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.
5. Dead branches will be pruned from plantings.

Guarantee Requirements

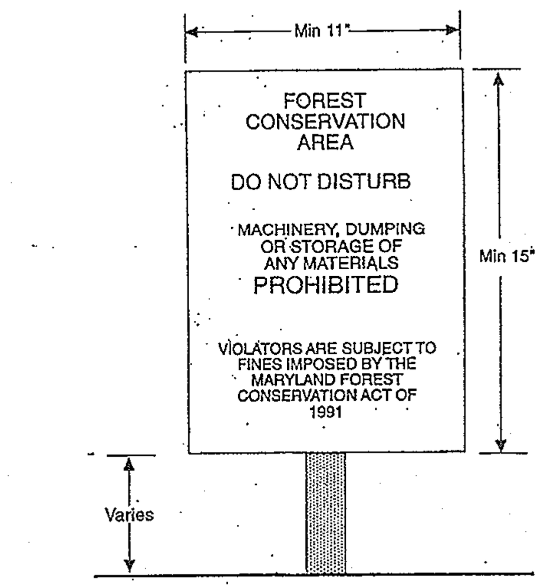
1. A 90 percent survival rate of the reforestation plantings will be required after one growing season. All plant material below the 90 percent survival threshold will be replaced at the beginning of the second growing season. At the end of the second growing season, a 75 percent survival rate will be required. All plant material below the 75 percent survival threshold will be replaced by the beginning of the next growing season.

Education of New Occupants

1. The developer shall provide educational information to all property owners within the new development/home about the proper use of forest conservation areas.

Final Inspection and Release of Obligations

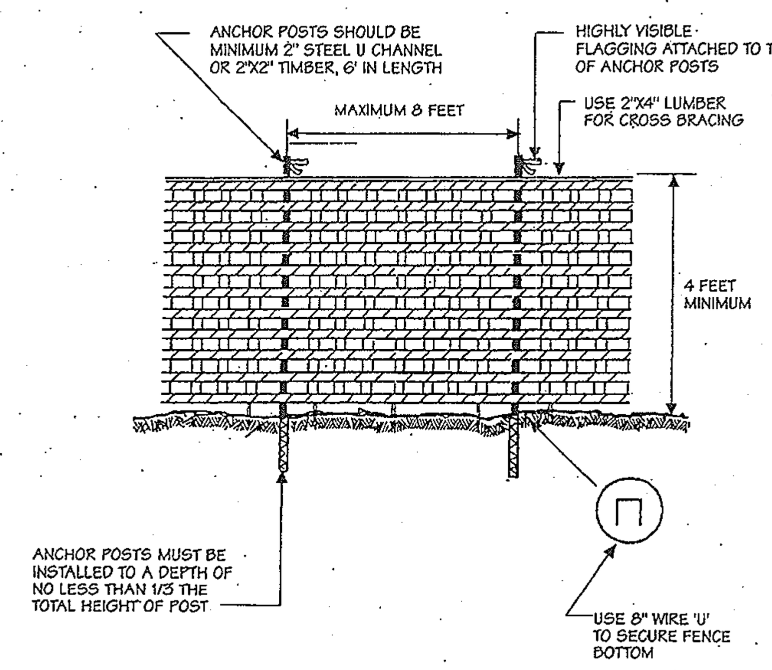
1. At the end of the post-construction management and protection period the developer shall submit a certification to the County that all forest conservation areas have remained intact or have been restored to appropriate condition, that the stipulated survival rates have been achieved, and that any permanent protection measures required by the plan are in place. Upon review and acceptance, the County will inform the developed of their release the development of future obligations related to the Forest Conservation Act.



Notes:
1. Bottom of signs to be higher than top of tree protection fence.
2. Signs to be placed approximately 50' feet apart. Conditions on site affecting visibility may warrant placing signs closer or farther apart.
3. Attachment of signs to trees is prohibited.

Source: Adapted from Forest Conservation Manual, 1991

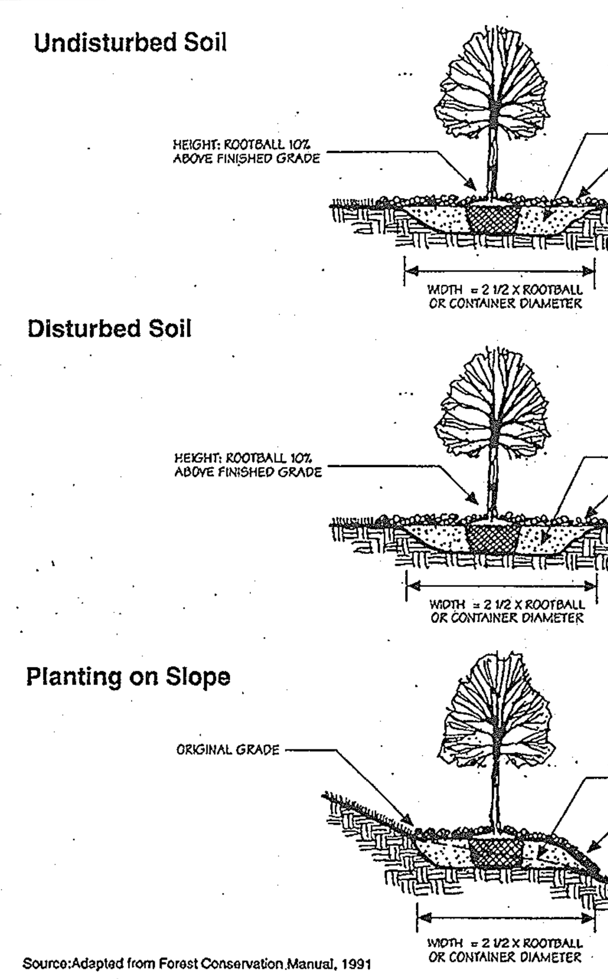
Construction Signs — Figure C-4



Notes:
1. Blaze orange or blue plastic mesh fence for forest protection device, only.
2. Boundaries of Retention Area will be established as part of the forest conservation plan review process.
3. Boundaries of Retention Area should be staked and flagged prior to installing device.
4. Avoid damage to critical root zone. Do not damage or sever large roots when installing posts.
5. Protection signs are required, See Figure C-4.
6. Device should be maintained throughout construction.

Source: Adapted from Prince George's County, Maryland: Woodland Conservation Manual and Forest Conservation Manual, 1991

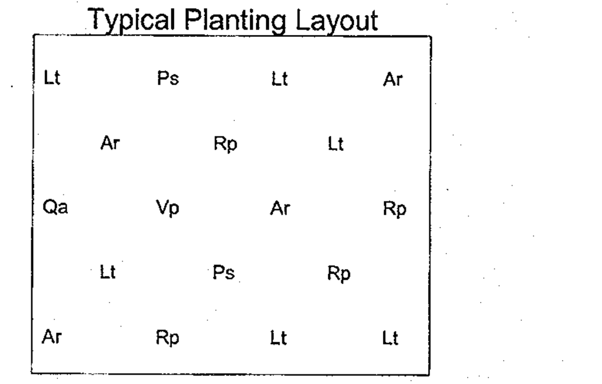
Plastic Mesh Tree Protection Fence — Figure C-5



Source: Adapted from Forest Conservation Manual, 1991

Container Grown and B&B Planting Techniques — Figure C-16

Typical Planting Layout



This diagram shows a typical dispersal of species within planting area. The spacing shall be in accordance with the approved planting schedule. Where the size of the planting stock varies, the planting units shall installed at averaged spacing to provide approximately uniform coverage.

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

GWS GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 785-6640~~ http://www.gwstephens.com ~~Fax: (410) 785-6647~~

STATE OF MARYLAND — PAUL WAYNE TAYLOR — NO. 13741 — REGISTERED PROFESSIONAL ENGINEER

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

NOTE: FOR FOREST CONSERVATION PLAN SEE SHEET NO. 32

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RLM
Drawn By:	JLB
Checked By:	PWT
REVISIONS	

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:			SECTION NAME:		PARCEL #
CORRIDOR 95 BUSINESS PARK			N/A		134/179
PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02
WATER CODE: B-02			SEWER CODE: 4020000		

STORM DRAIN TABULATIONS
AND FOREST CONSERVATION NOTES AND DETAILS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

SCALE: AS SHOWN
ELECTION DISTRICT: 1
DATE : FEBRUARY 4, 2011
HOWARD CO., MARYLAND

SDP-08-082

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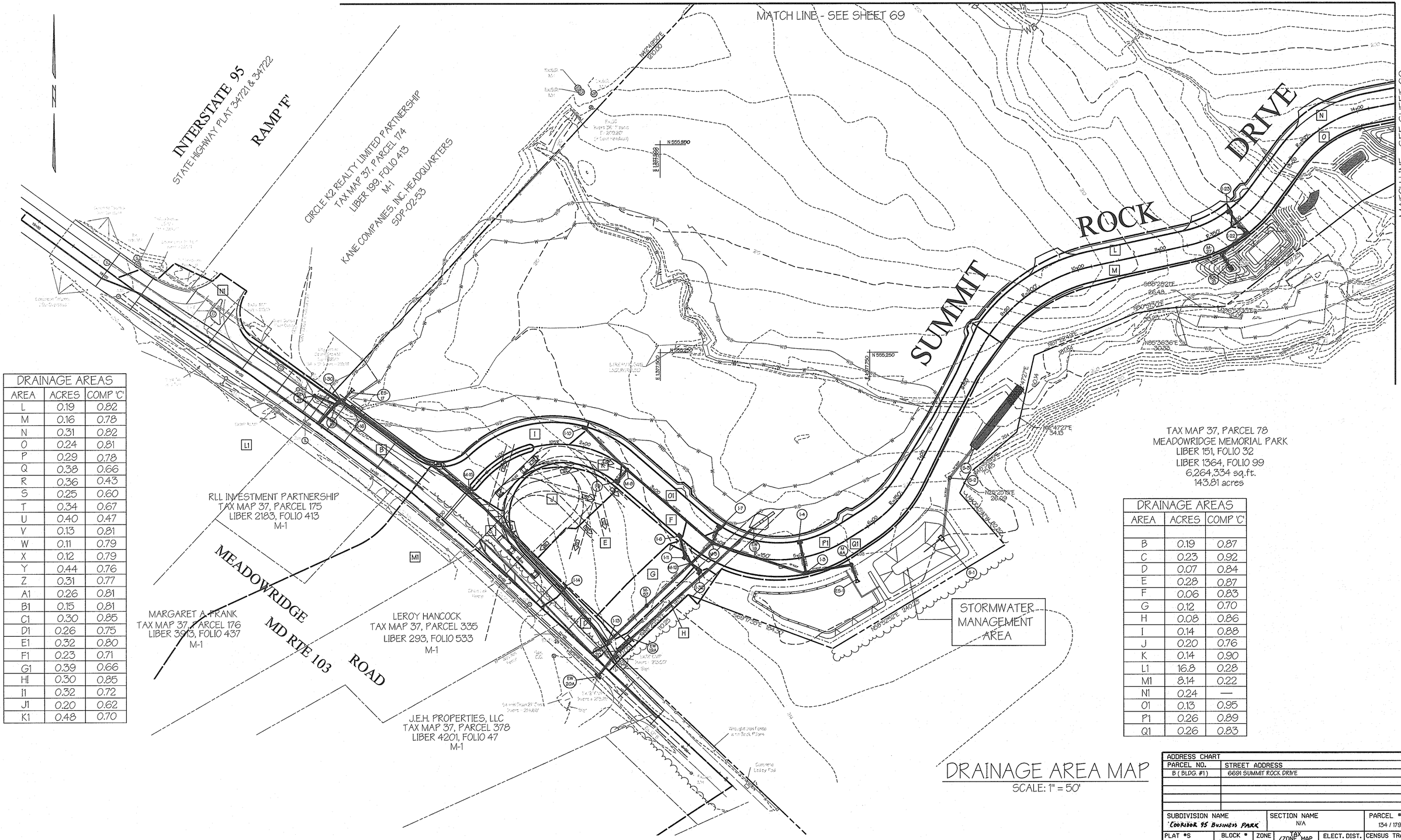

DRAINAGE AREAS		
AREA	ACRES	COMP 'C'
L	0.19	0.82
M	0.16	0.78
N	0.31	0.82
O	0.24	0.81
P	0.29	0.78
Q	0.38	0.66
R	0.36	0.43
S	0.25	0.60
T	0.34	0.67
U	0.40	0.47
V	0.13	0.81
W	0.11	0.79
X	0.12	0.79
Y	0.44	0.76
Z	0.31	0.77
A1	0.26	0.81
B1	0.15	0.81
C1	0.30	0.85
D1	0.26	0.75
E1	0.32	0.80
F1	0.23	0.71
G1	0.39	0.66
H1	0.30	0.85
I1	0.32	0.72
J1	0.20	0.62
K1	0.48	0.70

DRAINAGE AREAS		
AREA	ACRES	COMP 'C'
B	0.19	0.87
C	0.23	0.92
D	0.07	0.84
E	0.28	0.87
F	0.06	0.83
G	0.12	0.70
H	0.08	0.86
I	0.14	0.88
J	0.20	0.76
K	0.14	0.90
L1	16.8	0.28
M1	8.14	0.22
N1	0.24	—
O1	0.13	0.95
P1	0.26	0.89
Q1	0.26	0.83

DRAINAGE AREA MAP
SCALE: 1" = 50'

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
'CORRIDOR 95 BUSINESS PARK'	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 | SEWER CODE 4020000

PREPARED BY:
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
235 Schilling Circle, Suite 103
Hunt Valley, Maryland 21031
(410) 785 - 6640

APPROVED: DEPT. OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/2/13

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: RLM K.E.
DRAWN BY: EAS /K.E.
CHECKED BY: PWT
REVISIONS

STORM DRAIN DRAINAGE AREA MAP
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : FEBRUARY 04, 2011
SHT. 68 OF 94

SDP-08-082 P/N : 10762

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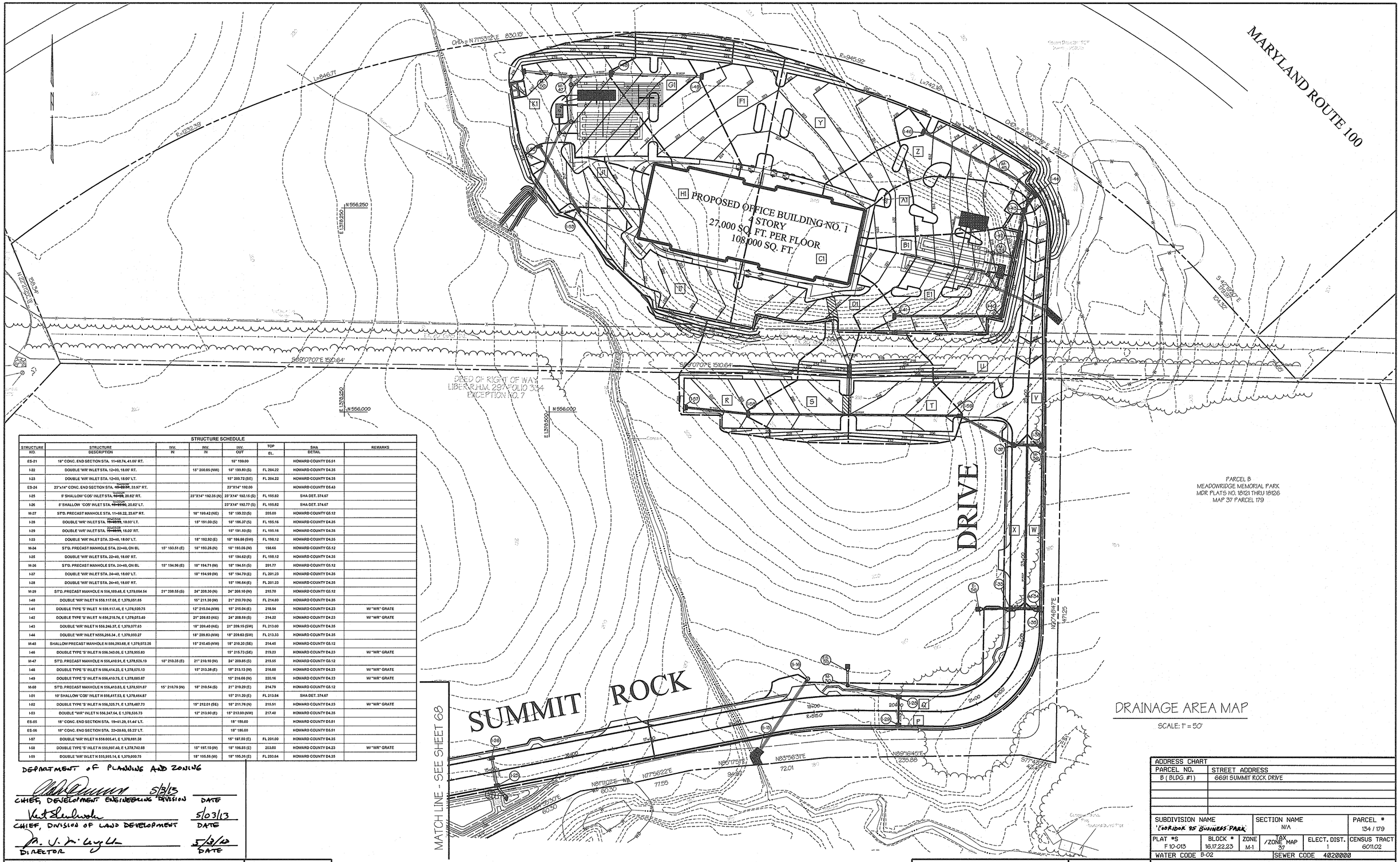


DRAINAGE AREA MAP

SCALE: 1" = 50'

STRUCTURE SCHEDULE							
STRUCTURE NO.	STRUCTURE DESCRIPTION	INV. IN	INV. IN	INV. OUT	TOP EL.	SHA DETAIL	REMARKS
ES-21	18" CONC. END SECTION STA. 11+68.74, 41.06' RT.			18" 199.00		HOWARD COUNTY D5.51	
I-22	DOUBLE 'WR' INLET STA. 12+00, 18.00' RT.		18" 200.05 (NW)	18" 199.80 (S)	FL 204.22	HOWARD COUNTY D4.35	
I-23	DOUBLE 'WR' INLET STA. 12+00, 18.00' LT.			15" 200.72 (SE)	FL 204.22	HOWARD COUNTY D4.35	
ES-24	23"x14" CONC. END SECTION STA. ~~15+22.97~~ 15+23.00, 33.97' RT.			23"X14" 192.00		HOWARD COUNTY D5.43	
I-25	5' SHALLOW 'COS' INLET STA. ~~16+99~~ 16+99.00, 20.82' RT.		23"X14" 192.35 (N)	23"X14" 192.15 (S)	FL 195.82	SHA DET. 374.67	
I-26	5' SHALLOW 'COS' INLET STA. ~~16+99.00~~ 16+99.00, 20.82' LT.			23"X14" 192.77 (S)	FL 195.82	SHA DET. 374.67	
M-27	ST'D. PRECAST MANHOLE STA. 11+66.22, 23.67' RT.		18" 199.42 (NE)	18" 199.22 (S)	205.00	HOWARD COUNTY G5.12	
I-28	DOUBLE 'WR' INLET STA. ~~19+00.00~~ 19+00.00, 18.00' LT.		15" 191.00 (S)	18" 186.37 (S)	FL 195.16	HOWARD COUNTY D4.35	
I-29	DOUBLE 'WR' INLET STA. ~~19+00.00~~ 19+00.00, 18.00' RT.			15" 191.50 (S)	FL 195.16	HOWARD COUNTY D4.35	
I-33	DOUBLE 'WR' INLET STA. 22+40, 18.00' LT.		18" 192.92 (E)	18" 186.66 (SW)	FL 198.12	HOWARD COUNTY D4.35	
M-34	ST'D. PRECAST MANHOLE STA. 22+49, ON BL	15" 193.51 (E)	18" 193.26 (N)	18" 193.06 (W)	198.66	HOWARD COUNTY G5.12	
I-35	DOUBLE 'WR' INLET STA. 22+40, 18.00' RT.			15" 194.62 (E)	FL 198.12	HOWARD COUNTY D4.35	
M-36	ST'D. PRECAST MANHOLE STA. 24+40, ON BL	15" 194.96 (E)	18" 194.71 (W)	18" 194.51 (S)	201.77	HOWARD COUNTY G5.12	
I-37	DOUBLE 'WR' INLET STA. 24+40, 18.00' LT.		18" 194.99 (W)	18" 194.79 (E)	FL 201.23	HOWARD COUNTY D4.35	
I-38	DOUBLE 'WR' INLET STA. 24+40, 18.00' RT.			15" 195.64 (E)	FL 201.23	HOWARD COUNTY D4.35	
M-39	ST'D. PRECAST MANHOLE N 556,189.48, E 1,379,054.54	21" 208.55 (S)	24" 208.30 (N)	24" 208.10 (W)	215.70	HOWARD COUNTY G5.12	
I-40	DOUBLE 'WR' INLET N 556,117.68, E 1,379,051.65		15" 211.30 (W)	21" 210.70 (N)	FL 214.80	HOWARD COUNTY D4.35	
I-41	DOUBLE TYPE 'S' INLET N 556,117.46, E 1,378,930.75		12" 215.04 (NW)	15" 215.04 (E)	218.54	HOWARD COUNTY D4.23	W/ "WR" GRATE
I-42	DOUBLE TYPE 'S' INLET N 556,216.74, E 1,379,073.40		21" 208.83 (NE)	24" 208.63 (S)	214.22	HOWARD COUNTY D4.23	W/ "WR" GRATE
I-43	DOUBLE 'WR' INLET N 556,246.37, E 1,379,077.63		18" 209.40 (NE)	21" 209.15 (SW)	FL 213.00	HOWARD COUNTY D4.35	
I-44	DOUBLE 'WR' INLET N556,266.34 , E 1,379,093.27		18" 209.83 (NW)	18" 209.63 (SW)	FL 213.33	HOWARD COUNTY D4.35	
M-45	SHALLOW PRECAST MANHOLE N 556,283.68, E 1,379,072.26		15" 210.45 (NW)	18" 210.20 (SE)	214.45	HOWARD COUNTY G5.12	
I-46	DOUBLE TYPE 'S' INLET N 556,343.05, E 1,378,955.83			15" 215.73 (SE)	219.23	HOWARD COUNTY D4.23	W/ "WR" GRATE
M-47	ST'D. PRECAST MANHOLE N 556,410.91, E 1,378,826.19	18" 210.35 (E)	21" 210.10 (W)	24" 209.85 (S)	215.55	HOWARD COUNTY G5.12	
I-48	DOUBLE TYPE 'S' INLET N 556,414.23, E 1,378,575.13		15" 213.38 (E)	18" 213.13 (W)	216.88	HOWARD COUNTY D4.23	W/ "WR" GRATE
I-49	DOUBLE TYPE 'S' INLET N 556,410.75, E 1,378,685.87			15" 216.66 (W)	220.16	HOWARD COUNTY D4.23	W/ "WR" GRATE
M-50	ST'D. PRECAST MANHOLE N 556,413.83, E 1,378,501.67	15" 210.79 (W)	18" 210.54 (S)	21" 210.29 (E)	214.79	HOWARD COUNTY G5.12	
I-51	10' SHALLOW 'COS' INLET N 556,417.53, E 1,378,464.87			15" 211.20 (E)	FL 213.84	SHA DET. 374.67	
I-52	DOUBLE TYPE 'S' INLET N 556,325.71, E 1,378,487.73		15" 212.01 (SE)	18" 211.76 (N)	215.51	HOWARD COUNTY D4.23	W/ "WR" GRATE
I-53	DOUBLE "WR" INLET N 556,247.64, E 1,378,535.73		12" 213.90 (E)	15" 213.90 (NW)	217.40	HOWARD COUNTY D4.35	
ES-55	18" CONC. END SECTION STA. 19+41.29, 51.44' LT.			18" 186.00		HOWARD COUNTY D5.51	
ES-56	18" CONC. END SECTION STA. 22+28.60, 55.23' LT.			18" 186.00		HOWARD COUNTY D5.51	
I-57	DOUBLE 'WR' INLET N 556,605.41, E 1,378,681.38			15" 197.50 (E)	FL 201.00	HOWARD COUNTY D4.35	
I-58	DOUBLE TYPE 'S' INLET N 555,997.40, E 1,378,742.88		15" 197.10 (W)	18" 196.85 (E)	203.60	HOWARD COUNTY D4.23	W/ "WR" GRATE
I-59	DOUBLE 'WR' INLET N 555,995.14, E 1,379,000.75		18" 195.56 (W)	18" 195.35 (E)	FL 203.64	HOWARD COUNTY D4.35	

DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 5/3/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
235 Schilling Circle, Suite 103
Hunt Valley, Maryland 21031
(410) 785 - 6640

STATE OF MARYLAND — PAUL WAYNE TURNER — No. 21741 — REGISTERED PROFESSIONAL ENGINEER

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
'CORRIDOR 95 BUSINESS PARK'	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 | SEWER CODE 4020000

DESIGNED BY: R.I.M K.E.
DRAWN BY: E.A.S I.K.E.
CHECKED BY: P.W.T
REVISIONS

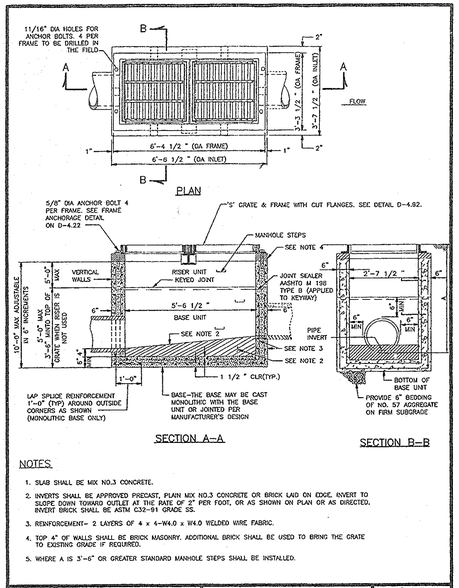
STORM DRAIN DRAINAGE AREA MAP
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : FEBRUARY 04, 2011
SHT. 69 OF 94

SDP-08-082

P/N : 10762

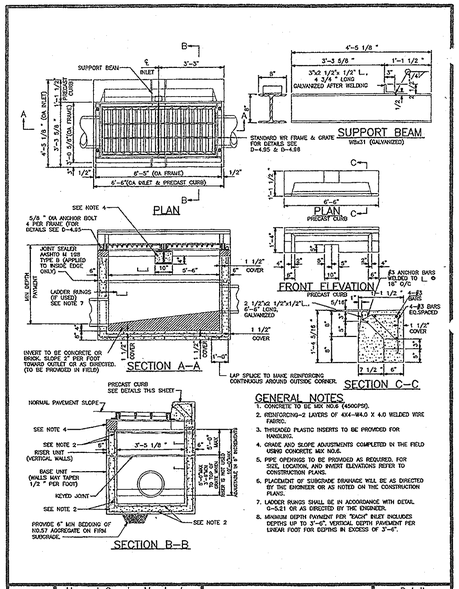


NOTES

1. SLAB SHALL BE MIX NO.3 CONCRETE.
2. INVERTS SHALL BE APPROVED PRECAST, PLAIN MIX NO.3 CONCRETE OR BRICK LAID ON EDGE. INVERT TO SLOPE DOWN TOWARD OUTLET AT THE RATE OF 2" PER FOOT, OR AS SHOWN ON PLAN OR AS DIRECTED. INVERT BRICK SHALL BE ASTM C32-91 GRADE SS.
3. REINFORCEMENT- 2 LAYERS OF 4 x 4-W4.0 x W4.0 WELDED WIRE FABRIC.
4. TOP 4" OF WALLS SHALL BE BRICK MASONRY. ADDITIONAL BRICK SHALL BE USED TO BRING THE GRATE TO EXISTING GRADE IF REQUIRED.
5. WHERE A IS 3'-6" OR GREATER STANDARD MANHOLE STEPS SHALL BE INSTALLED.

Revised	Howard County, Maryland Department of Public Works	Double Type 'S' Inlet	Detail
Revised 5/1/2007	Approved: Chief, Bureau of Engineering		D-4.23
Revised			

I-11	I-32	I-41	I-46	I-48	I-49	I-52	I-58

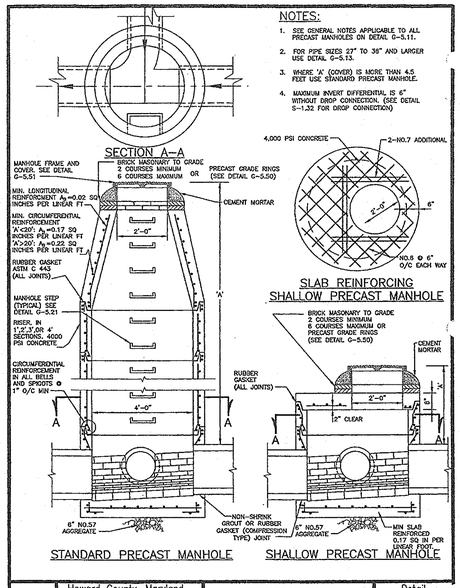


GENERAL NOTES

1. CONCRETE TO BE MIX NO.6 (4500PSI).
2. REINFORCING-2 LAYERS OF 4X4-W4.0 X 4.0 WELDED WIRE FABRIC.
3. THREADED PLASTIC INSERTS TO BE PROVIDED FOR HANDLING.
4. GRADE AND SLOPE ADJUSTMENTS COMPLETED IN THE FIELD USING CONCRETE MIX NO.6.
5. PIPE OPENINGS TO BE PROVIDED AS REQUIRED. FOR SIZE, LOCATION, AND INVERT ELEVATIONS REFER TO CONSTRUCTION PLANS.
6. PLACEMENT OF SUBGRADE DRAINAGE WILL BE AS DIRECTED BY THE ENGINEER OR AS NOTED ON THE CONSTRUCTION PLANS.
7. LADDER RUNGS SHALL BE IN ACCORDANCE WITH DETAIL M-6.21 OR AS DIRECTED BY THE ENGINEER.
8. MINIMUM DEPTH PAVEMENT FOR "EACH" INLET INCLUDES DEPTHS UP TO 3'-6". VERTICAL DEPTH PAVEMENT PER LINEAR FOOT FOR DEPTHS IN EXCESS OF 3'-6".

Revised	Howard County, Maryland Department of Public Works	Double WR Inlet Precast	Detail
Revised 5/1/2007	Approved: Chief, Bureau of Engineering		D-4.35
Revised			

I-22	I-23	I-25	I-26	I-28	I-29	I-33	I-35	I-37
I-38	I-40	I-42	I-43	I-44	I-51	I-53	I-57	I-59

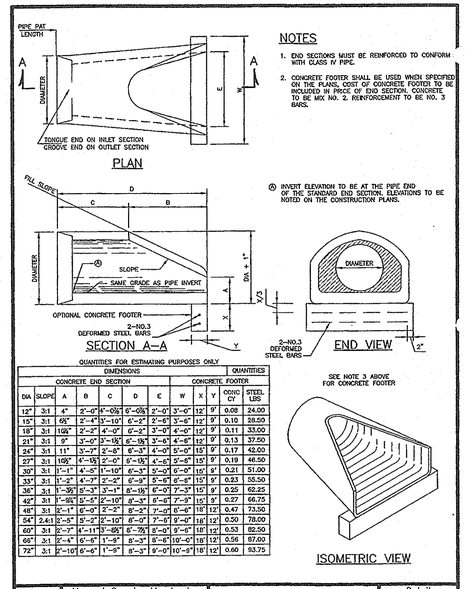


NOTES:

1. SEE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON DETAIL G-5.11.
2. FOR PIPE SIZES 27" TO 36" AND LARGER USE DETAIL G-5.13.
3. WHERE 'A' (COVER) IS MORE THAN 4.5 FEET USE STANDARD PRECAST MANHOLE.
4. MAXIMUM INVERT DIFFERENTIAL IS 6" WITHOUT DROP CONNECTION. (SEE DETAIL S-1.22 FOR DROP CONNECTION)

Revised	Howard County, Maryland Department of Public Works	PRECAST MANHOLE Standard and Shallow 4'-0" for 24" Pipe and smaller	Detail
Revised 5/1/2007	Approved: Chief, Bureau of Engineering		G-5.12
Revised			

MH-27	MH-34	MH-36	MH-39	MH-45	MH-47



NOTES

1. END SECTIONS MUST BE REINFORCED TO CONFORM WITH CLASS IV PIPE.
2. CONCRETE FOOTER SHALL BE USED WHEN SPECIFIED ON THE PLANS. COST OF CONCRETE FOOTER TO BE INCLUDED IN PRICE OF END SECTION. CONCRETE TO BE MIX NO. 2. REINFORCEMENT TO BE NO. 3 BARS.

④ INVERT ELEVATION TO BE AT THE PIPE END OF THE STANDARD END SECTION. ELEVATIONS TO BE NOTED ON THE CONSTRUCTION PLANS.

QUANTITIES FOR ESTIMATING PURPOSES ONLY

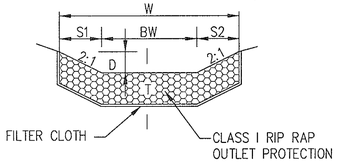
DIMENSIONS									QUANTITIES	
CONCRETE END SECTION						CONCRETE FOOTER				
DIA	SLOPE	A	B	C	D	E	W	X	Y	CONC. CY	STEEL LBS
12"	3:1	4"	2'-0"	4'-0⅝"	6'-0⅝"	2'-0"	3'-0"	12"	9"	0.08	24.00
15"	3:1	6⅝"	2'-4"	3'-10"	6'-2"	2'-6"	3'-6"	12"	9"	0.10	28.50
18"	3:1	10⅝"	2'-5"	4'-0"	6'-2"	3'-0"	4'-0"	12"	9"	0.11	33.00
21"	3:1	9"	2'-10"	3'-10⅝"	6'-3⅝"	3'-6"	4'-6"	12"	9"	0.13	37.50
24"	3:1	11"	3'-2"	3'-8"	6'-3"	4'-0"	5'-0"	15"	9"	0.17	42.00
27"	3:1	10⅝"	4'-10½"	2'-0"	6'-1½"	4'-6"	5'-6"	15"	9"	0.19	46.50
30"	3:1	1'-1"	4'-5"	1'-10"	6'-3"	5'-0"	6'-0"	15"	9"	0.21	51.00
33"	3:1	1'-2"	4'-7"	2'-2"	6'-3"	5'-6"	6'-6"	15"	9"	0.23	55.50
36"	3:1	1'-3½"	5'-3"	2'-1"	6'-1½"	6'-0"	7'-3"	15"	9"	0.25	62.25
42"	3:1	1'-5⅛"	5'-5"	2'-10"	6'-3"	6'-6"	7'-3"	15"	9"	0.27	66.75
48"	3:1	2'-1"	6'-0"	2'-5"	8'-3"	7'-0"	8'-6"	18"	12"	0.47	73.50
54"	2.4:1	2'-5"	5'-2"	2'-10"	6'-0"	7'-6"	9'-0"	18"	12"	0.50	78.00
60"	3:1	2'-7"	4'-11⅜"	3'-6⅝"	6'-7½"	8'-0"	9'-6"	18"	12"	0.53	82.50
66"	3:1	2'-4"	6'-6"	1'-5"	8'-3"	8'-6"	10'-0"	18"	12"	0.56	87.00
72"	3:1	2'-10"	6'-6"	1'-5"	8'-3"	9'-0"	10'-3"	18"	12"	0.60	93.75

Revised	Howard County, Maryland Department of Public Works	Concrete End Section Circular Concrete Pipe	Detail
Revised	Approved: Chief, Bureau of Engineering		D-5.51
Revised			

ES-1	ES-21	ES-24	ES-55	ES-56

OUTFALL DESIGN BASED ON 10YR STORM FREQUENCIES

STRUCTURE	W	BW	S1	S2	T	D	L	Q	V
ES-21	9'-0"	3'-0"	2'-0"	2'-0"	1'-7"	1'-0"	5'-0"	2.17	0.80
ES-24	9'-0"	3'-0"	2'-0"	2'-0"	1'-7"	1'-0"	5'-0"	3.39	0.91
ES-55	9'-0"	3'-0"	2'-0"	2'-0"	1'-7"	1'-0"	5'-0"	3.56	0.93
ES-56	9'-0"	3'-0"	2'-0"	2'-0"	1'-7"	1'-0"	5'-0"	5.51	1.05



SECTION THROUGH RIP RAP PROTECTION

NOT TO SCALE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/20/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/6/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYS ♦ TRANSPORTATION

~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 785-2040~~ http://www.gwstephens.com ~~Fax: (410) 785-6647~~

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013.

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
"CORRIDOR 95 BUSINESS" PARK	N/A	134/179

PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6601 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RLM
Drawn By:	JLB
Checked By:	PWT

REVISIONS

STORM DRAIN DETAIL SHEET

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSNIESS CENTER~~

PARCELS A & B

SCALE: AS SHOWN

ELECTION DISTRICT: 1
HOWARD CO., MARYLAND

DATE : FEBRUARY 4, 2011

SHEET 70 OF 94

SDP-08-082

DPZ FILE # (SDP-08-082)

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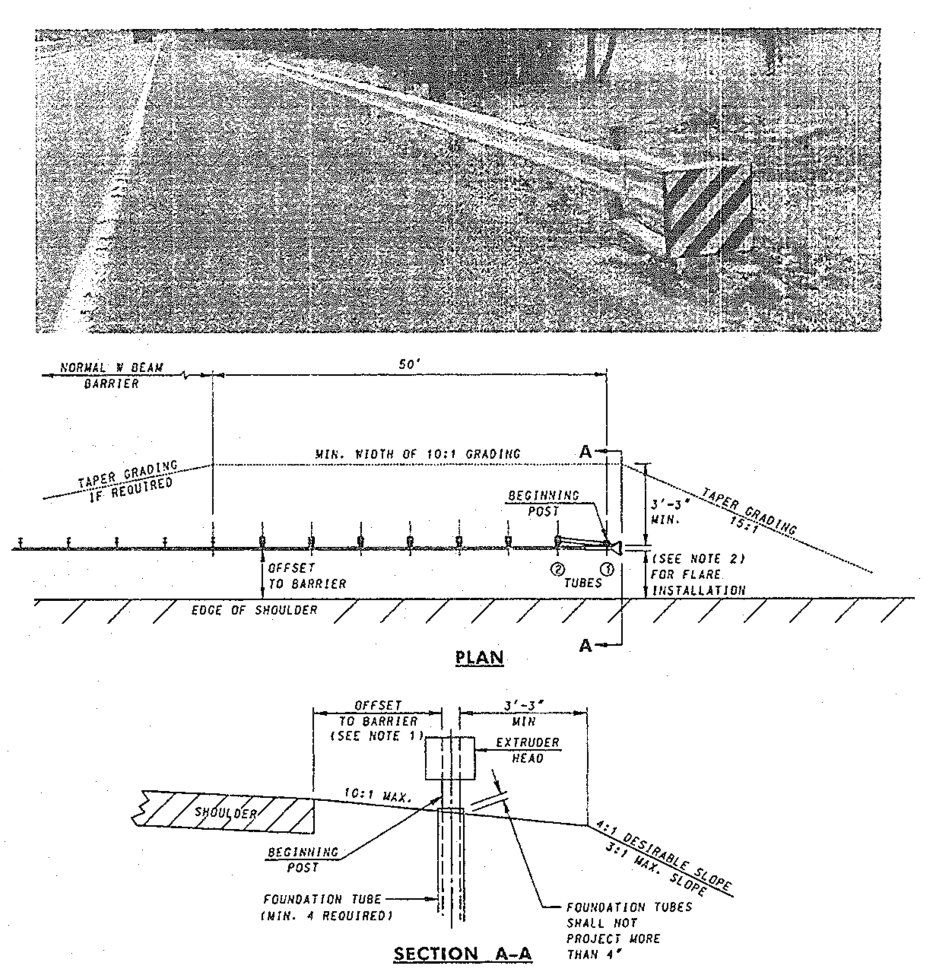
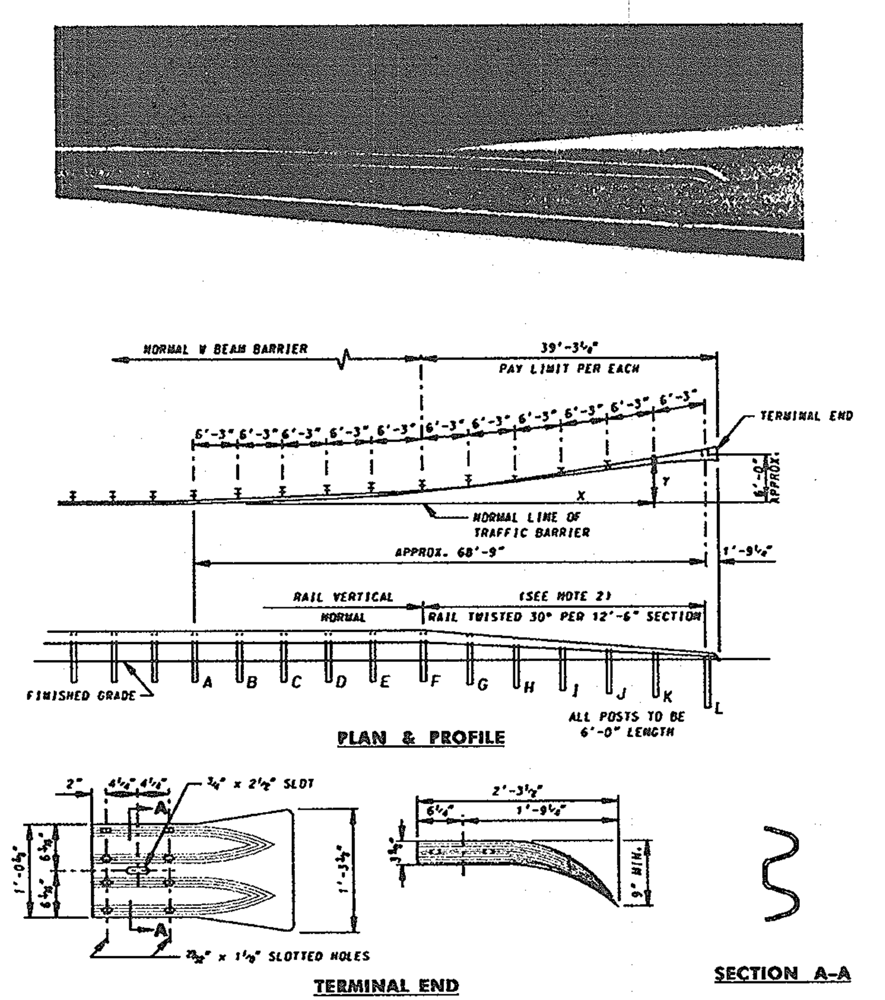


NOTES APPLICABLE TO ALL TYPE C TERMINALS

1. 6:1 MAX GRADING IS ALLOWABLE WHEN THE BARRIER IS LOCATED 12 FT. OR MORE FROM THE OUTSIDE EDGE OF SHOULDER.
2. WHEN THE TRAFFIC BARRIER POST IS PLACED LESS THAN 4' FROM THE EDGE OF SHOULDER/PAVEMENT THE END TREATMENT SHALL BE FLARED AT A RATE OF 50:1
3. GRADING SHALL BE AS SHOWN ABOVE.

SPECIFICATION 605	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROVED	Kirk G. McClelland DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	TYPE C TRAFFIC BARRIER END TREATMENT
SHA	APPROVAL • SHA REVISIONS: APPROVAL 11-10-99, REVISED 11-08-06; APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 7-2-99, REVISED 10-25-06	STANDARD NO. MD 605.03

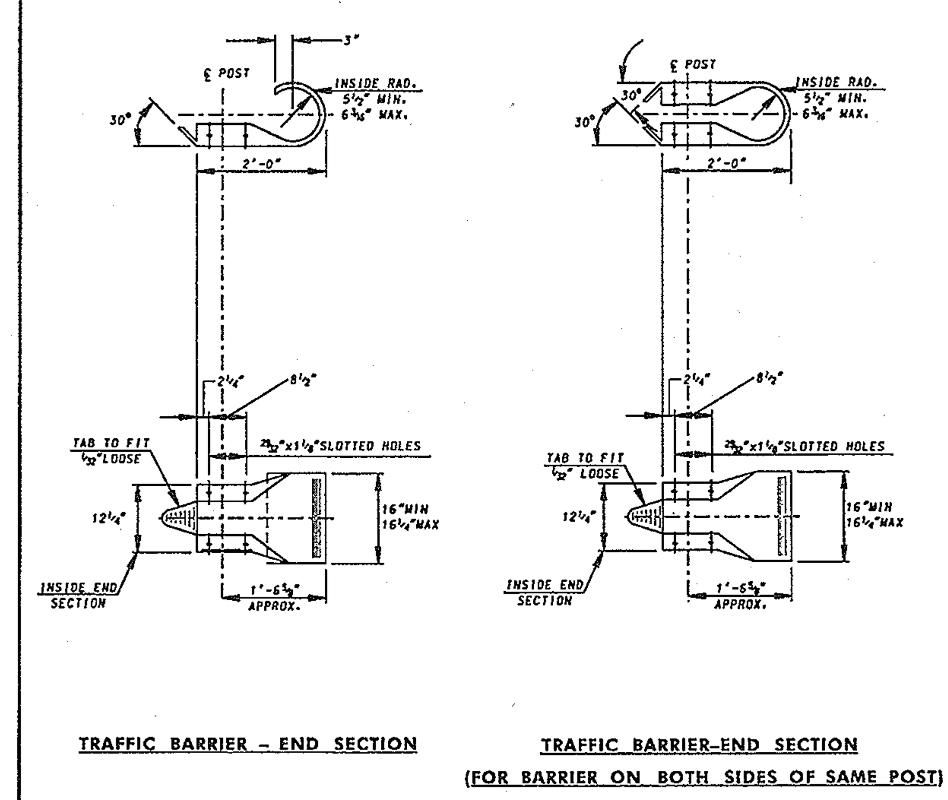


NOTES

1. THE USE OF THIS END TREATMENT IS LIMITED TO POSTED SPEEDS OF 40 MPH OR LESS.
2. USE TYPE G TRAFFIC BARRIER END TREATMENT ANCHORAGE BRACKET (SEE STD. MD 605.08-01) FROM POST 6 TO POST L.
3. SEE STD. MD 605.08-01 FOR X AND Y DISTANCES.

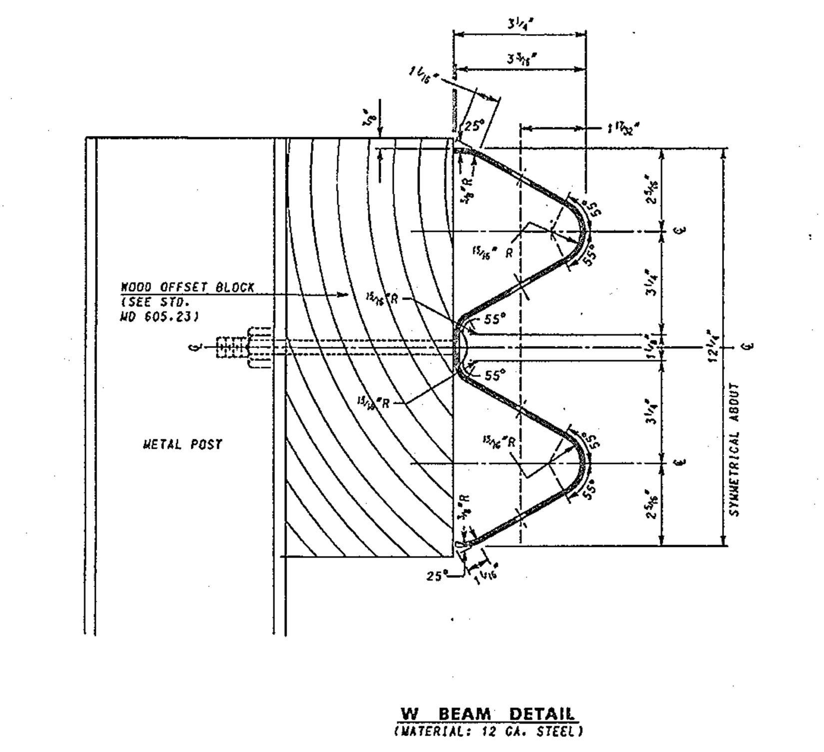
NOT TO BE USED ON NATIONAL HIGHWAY SYSTEM (NHS)

SPECIFICATION 605	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROVED	Kirk G. McClelland DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	TYPE G TRAFFIC BARRIER END TREATMENT
SHA	APPROVAL • SHA REVISIONS: APPROVAL 3-15-78, REVISED 8-12-02; APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 7-11-78, REVISED 9-4-02	STANDARD NO. MD 605.08



NOTE: THE END SECTIONS SHOWN ARE INCIDENTAL TO THE PAY ITEMS TRAFFIC BARRIER W BEAM USING 6 FT POSTS OR TRAFFIC BARRIER W BEAM USING 8 FT POSTS.

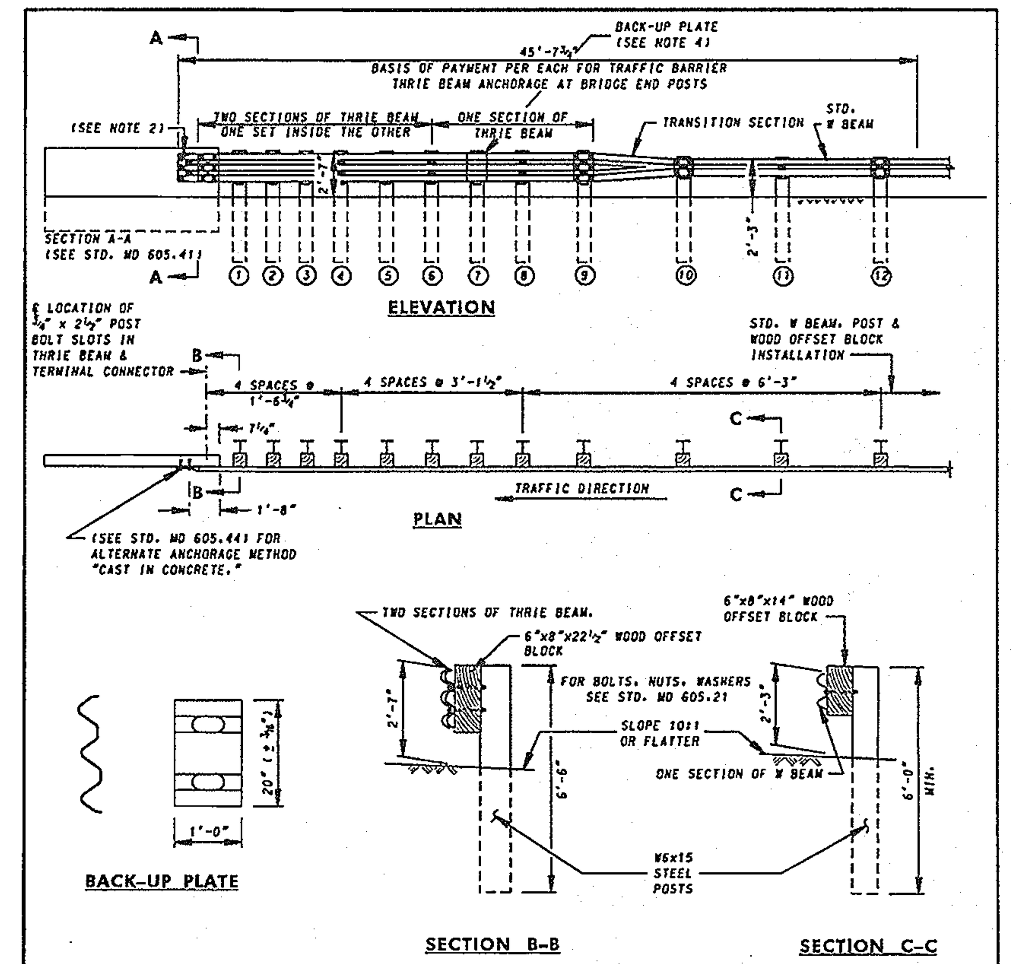
SPECIFICATION 605	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROVED	Kirk G. McClelland DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	TRAFFIC BARRIER W BEAM END SECTIONS
SHA	APPROVAL • SHA REVISIONS: APPROVAL 2-27-61, REVISED 3-31-05; APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 2-24-82, REVISED 7-2-99	STANDARD NO. MD 605.20



NOTES

1. RAIL ELEMENTS ARE FURNISHED SHOP CURVED, CONCAVE OR CONVEX TO RADII BETWEEN 20 FT. & 150 FT.
2. BARRIER SECTIONS SHALL BE 12'-6" OR 25'-0" LENGTHS.
3. FOR COMPOSITE OFFSET BLOCKS SEE NOTE 5 ON MD 605.21

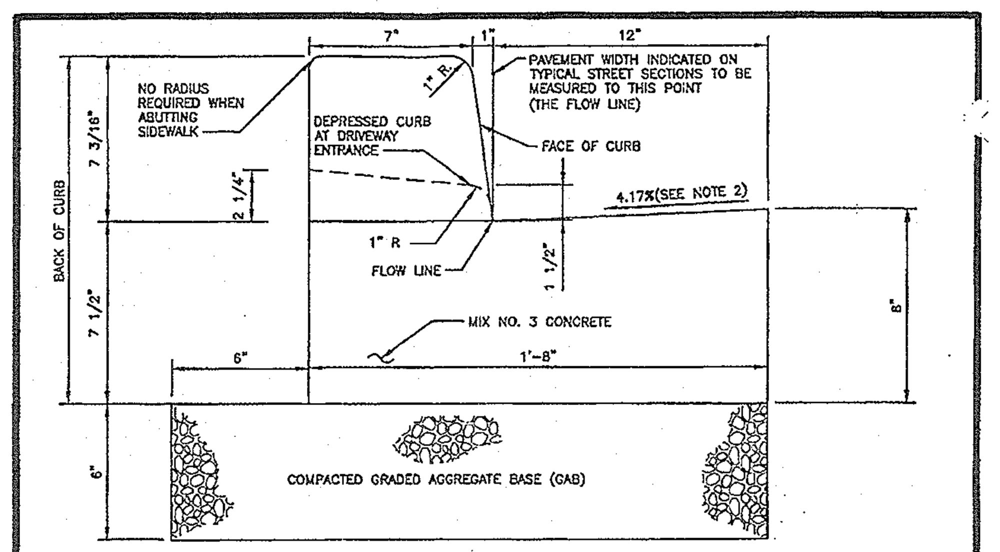
SPECIFICATION 605	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROVED	Kirk G. McClelland DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	TRAFFIC BARRIER W BEAM SINGLE FACE
SHA	APPROVAL • SHA REVISIONS: APPROVAL 3-24-69, REVISED 3-15-06; APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 3-4-69, REVISED 4-5-06	STANDARD NO. MD 605.22



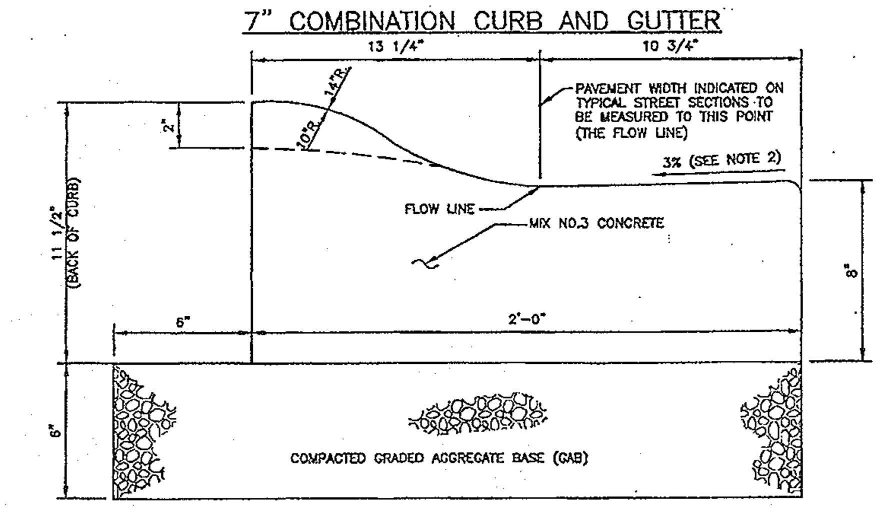
NOTES

1. THE TRAFFIC BARRIER THRIE BEAM ANCHORAGE AT BRIDGE END POSTS SHALL BE PLACED ON SLOPES 10:1 OR FLATTER.
2. DETAILS OF THE THRIE BEAM, SPLICE, TERMINAL CONNECTOR, TRANSITION SECTION, SQUARE PLATE WASHERS, AND RECTANGULAR PLATE WASHERS, ARE SHOWN ON STD. MD 605.41-02.
3. POSTS 1, 2, 3, 5, AND 7 ARE NOT BOLTED TO RAIL.
4. AT POST 7 BACK-UP PLATE BOLTED TO OFFSET BRACKET ONLY.
5. THE CONTRACTOR SHALL FURNISH AND INSTALL FIVE (5) 7/8" DIA. HEAVY DUTY GALV. THREADED ANCHOR RODS WITH HEX. HEAD RECESSED NUTS AND RECTANGULAR PLATE WASHERS. ANCHOR RODS SHALL BE ANCHORED WITH EPOXY GROUT AS SPECIFIED IN SPEC. 902.

SPECIFICATION 605	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROVED	Kirk G. McClelland DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	SPECIAL TRAFFIC BARRIER THRIE BEAM ANCHORAGE AT VERTICAL FACE (STEEL POST)
SHA	APPROVAL • SHA REVISIONS: APPROVAL 11-10-99, REVISED 10-7-01; APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 7-2-99	STANDARD NO. MD 605.41-01



7" COMBINATION CURB AND GUTTER

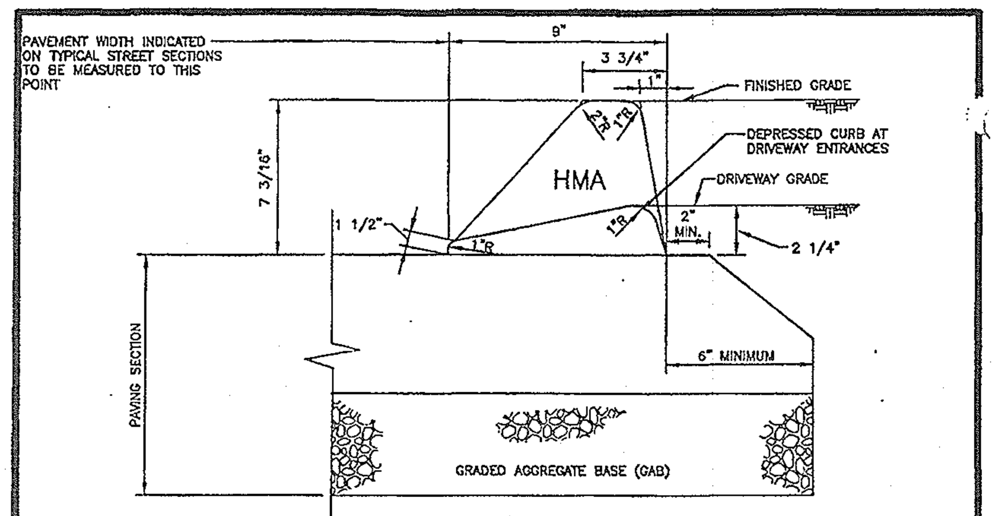


MODIFIED COMBINATION CURB AND GUTTER

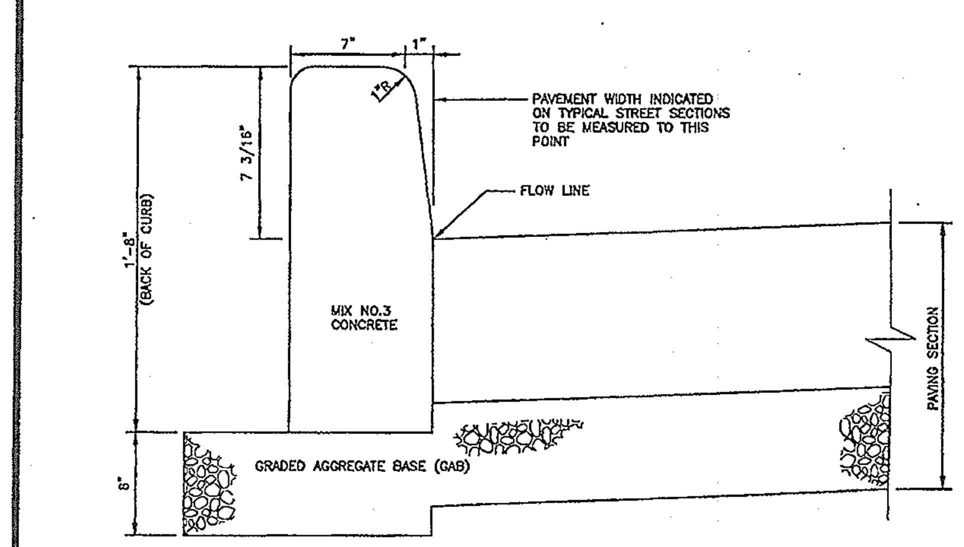
NOTE:

1. A REVERSE GUTTER PAN SHALL HAVE A GUTTER SLOPE OF 4.17% AWAY FROM THE FLOW LINE, AND SHALL NOT BE USED WHERE THIS DRAINAGE CREATES A HAZARDOUS CONDITION.
2. GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AND IN THE SAME DIRECTION AS THE PAVEMENT. MATCH PAVEMENT CROSS SLOPE WHEN CURB IS LOCATED ON THE LOW SIDE OF SUPERELEVATED SECTION AND THE RATE OF SUPERELEVATION IS GREATER THAN 3% FOR MODIFIED CURB & GUTTER.
3. A MINIMUM OF TWO (2) FEET OF COMPACTED STABILIZED EARTH, OR EQUIVALENT, SHALL SUPPORT THE ENTIRE BACK OF CURB.
4. POSITIVE DRAINAGE SHALL BE PROVIDED BOTH BEHIND THE CURB AND ALONG THE GUTTER AND FLOW LINE.

Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	CURB AND GUTTER 7" & Modified	Detail R-3.01



HOT MIX ASPHALT CURB

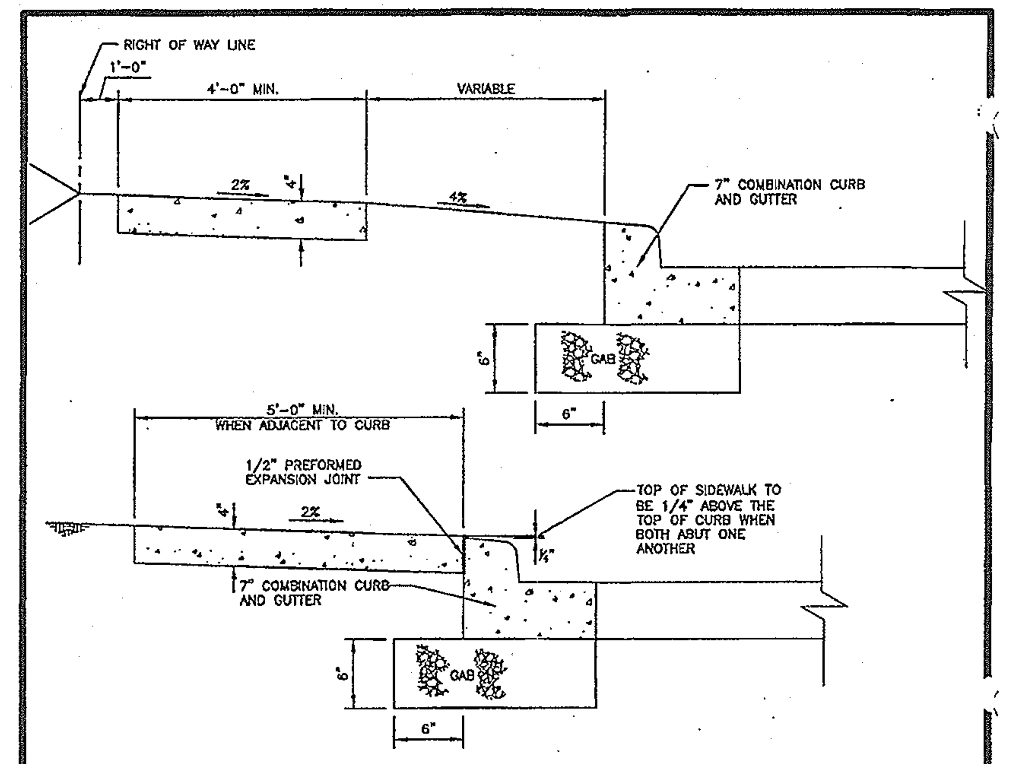


CONCRETE BARRIER CURB

NOTES:

1. A MINIMUM OF TWO (2) FEET OF COMPACTED STABILIZED EARTH, OR EQUIVALENT, SHALL SUPPORT THE ENTIRE BACK OF CURB.
2. POSITIVE DRAINAGE SHALL BE PROVIDED BOTH BEHIND THE CURB AND ALONG THE GUTTER AND FLOW LINE.

Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	CURBS Hot Mix Asphalt & Concrete Barrier	Detail R-3.03

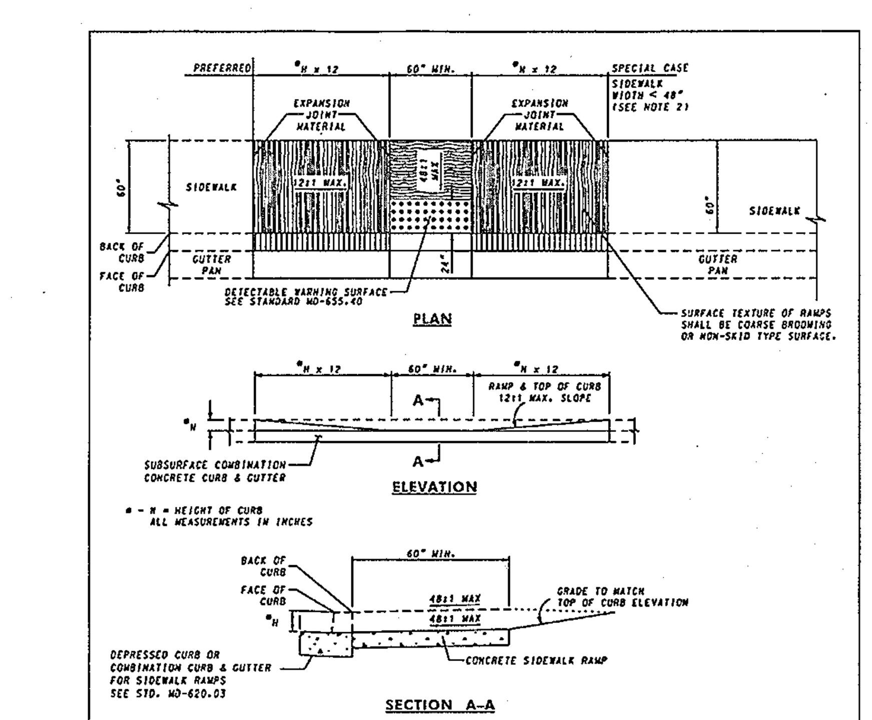


NOTES:

1. SIDEWALK TO BE SCRIBED IN 5'-0" MAXIMUM SQUARES.
2. EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO BE MORE THAN 15' APART.
3. 1/2" PREFORMED EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/4" BELOW SURFACE OF SIDEWALK.
4. CONCRETE TO BE MIX NO.3.
5. WHEN SIDEWALK ABUTS CURB, SIDEWALK SHALL BE 1/4" ABOVE CURB WITH 1/2" PREFORMED EXPANSION JOINT BETWEEN SIDEWALK AND CURB.
6. ON LONGITUDINAL SIDEWALK GRADES OF 5% OR GREATER, A CONCRETE HEADER, 6" THICK AND 6" DEEP BELOW THE NORMAL 4" SIDEWALK THICKNESS SHALL BE CONSTRUCTED FOR THE FULL WIDTH OF THE SIDEWALK AT INTERVALS OF 48 FEET. THE HEADERS SHALL BE PLACED AT THE EXPANSION JOINT LOCATIONS AND SHALL BE MONOLITHIC WITH THE SIDEWALK.
7. SIDEWALK WIDTH ADJACENT TO CURB SHALL BE 5'-0" MINIMUM EXCEPT SIDEWALK ADJACENT TO CURB IN CUL-DE-SAC BULBS MAY BE 4'-0" WIDE.
8. SIDEWALK LOCATED 2' OR MORE FROM CURB MAY BE 4'-0" IN WIDTH WITH A 5'x5' PAVED SECTION PLACED 200' APART.
9. 4'-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).

Revised / Revised 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	Concrete Sidewalk	Detail R-3.05

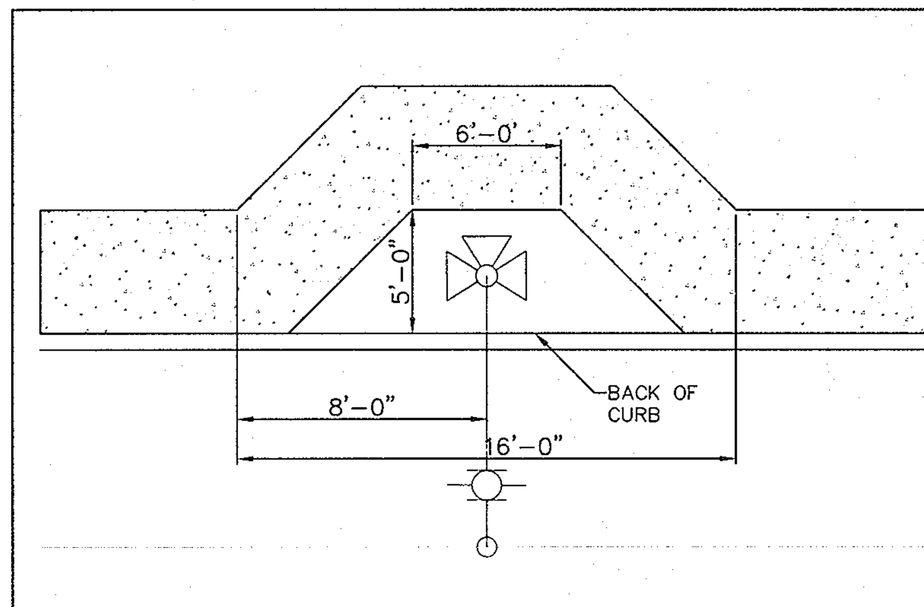
DETECTABLE WARNING TRUNCATED DOMES AS APPLICABLE



NOTES

1. TO BE USED WHERE SIDEWALK IS ADJACENT TO THE CURB. THIS STANDARD MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. WHERE 60" SIDEWALK CAN NOT BE PROVIDED, A DESIGN WAIVER MUST BE REQUESTED.
3. NO TRAVERSABLE SLOPE ON THE RAMP OR SIDEWALK SHALL EXCEED 12:1 IN THE DIRECTION OF PEDESTRIAN TRAVEL, OR 48:1 PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL.
4. EXPANSION JOINT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH STD. MD-655.01.
5. SIDEWALK RAMP SHALL BE INCLUDED IN PRICE BID FOR CONCRETE SIDEWALK. DEPRESSED CURB AND CURB TRANSITION SHALL BE INCLUDED IN PRICE BID FOR CURB OR CURB & GUTTER ADJACENT TO SIDEWALK RAMP. DETECTABLE WARNING SURFACE SHALL BE PAID FOR IN ACCORDANCE WITH SECTION 611 OF THE SPECIFICATIONS.
6. SIDEWALK RAMPS TO BE SHOWN ON PLANS SYMBOLICALLY AND REFERENCED WITH THE CENTER OF THE RAMP ALIGNED TO A STATION ON THE CONSTRUCTION CENTERLINE. SEPARATE DETAILS SHALL BE SHOWN WHERE PROPOSED RAMP VARIES FROM STANDARD CASES.

SPECIFICATION 603 & 611	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
APPROVED	Kirk G. McClelland DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT	SIDEWALK RAMPS PARALLEL
SHA	APPROVAL • SHA REVISIONS: APPROVAL 2-10-04, REVISED 3-25-08; APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 3-31-04, REVISED 4-5-06	STANDARD NO. MD 655.12



SIDEWALK BUMPOUT DETAIL

NOT TO SCALE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/3/13

PREPARED BY:

GWS — GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21030~~

Ph: (410) 297-2340 http://www.gwstephens.com Fax: (410) 297-2345

STATE OF MARYLAND — PAUL WAYNE TAYLOR — No. 13741 — REGISTERED PROFESSIONAL ENGINEER

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RLM
Drawn By:	JLB
Checked By:	PWT
REVISIONS	

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:			SECTION NAME:		PARCEL #
CORRIDOR 95 BUSINESS PARK			N/A		134/179
PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02
WATER CODE: B-02			SEWER CODE: 4020000		

ROAD DETAILS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

SCALE: AS SHOWN
ELECTION DISTRICT: 1
DATE : FEBRUARY 4, 2011
HOWARD CO., MARYLAND
SHEET 71 OF 94

SDP-08-082

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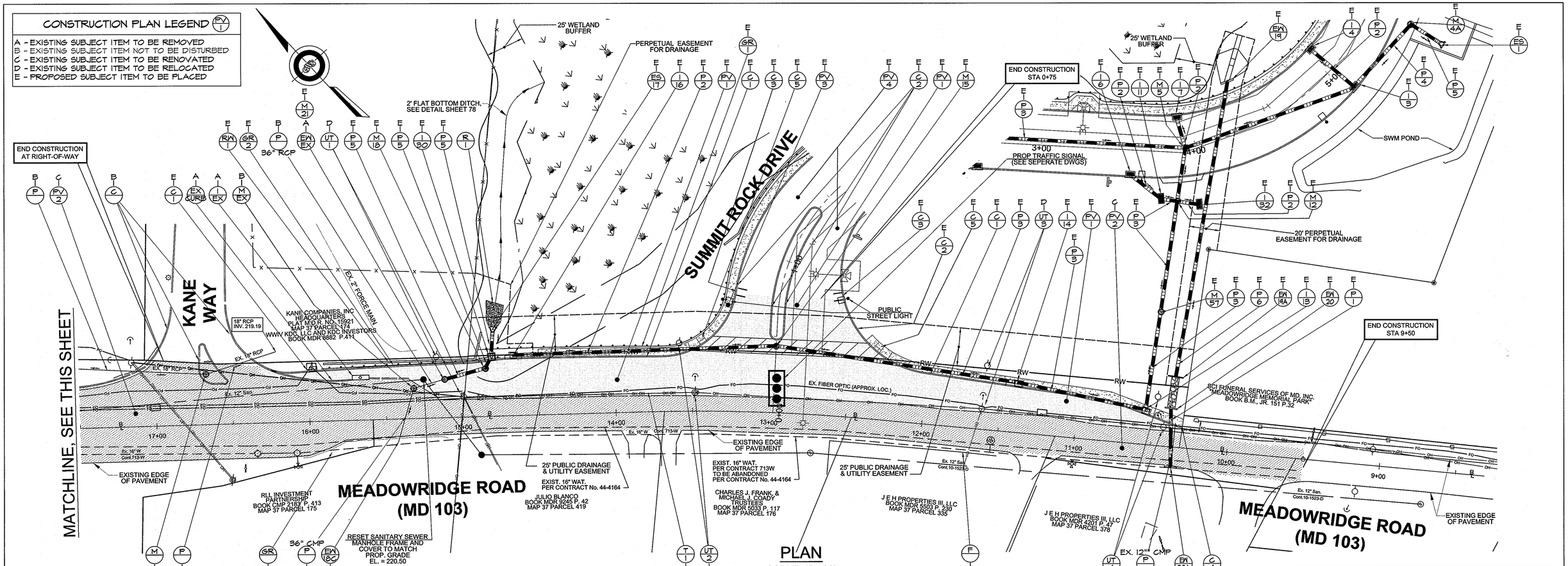
CONSTRUCTION PLAN LEGEND (PV 1)

A - EXISTING SUBJECT ITEM TO BE REMOVED
B - EXISTING SUBJECT ITEM NOT TO BE DISTURBED
C - EXISTING SUBJECT ITEM TO BE RENOVATED
D - EXISTING SUBJECT ITEM TO BE RELOCATED
E - PROPOSED SUBJECT ITEM TO BE PLACED



PLAN
SCALE: 1" = 30'

PAVEMENT SCHEDULE (PV 1)

NO.	TYPE	CUBIC FEET
1	2" HOT MIX ASPHALT SUPERPAVE 12.5 mm PG 70 - 22, LEVEL 2	2,610.00
	6" HOT MIX ASPHALT SUPERPAVE 19.0 mm PG 64 - 22 (2 - 3" LIFTS)	7,830.00
	12" GRADED AGGREGATE BASE COURSE (2 - 6" LIFTS)	15,660.00
2	2" ROTO-MILL	-6176.00
	2" HOT MIX ASPHALT SUPERPAVE 12.5 mm PG 70 - 22, LEVEL 2	6176.00
*3	4" MIX NUMBER 2 CONCRETE	224.00
	4" CR-6 AGGREGATE BASE MATERIAL	224.00
4	1-½" BITUMINOUS CONCRETE SURFACE 6-½" BITUMINOUS CONCRETE BASE 4" GRADED AGGREGATE BASE	REFER TO ON-SITE ROAD PLANS

*CONTRACTOR MUST ENSURE SIDEWALKS ARE BUILT TO ADA STANDARDS (REFER TO ADA DESIGN STANDARDS FOR FURTHER DETAIL)

RIP RAP SCHEDULE (R 1)

CLASS 1 RIP RAP
OUTFALL PROTECTION
d50 = 9.5" dmax. = 15"
Thickness = 19"
Type 'SE' Geotextile

SEE SHEET 84 FOR DETAIL

PIPE SCHEDULE (P 1)

NO.	SIZE/TYPE & CLASS
1	14"x23" ERCP CLASS IV
2	15" RCCP CLASS IV
3	18" RCCP CLASS IV
4	21" RCCP CLASS IV
5	36" RCCP CLASS IV
6	19"x30" ERCP CLASS IV

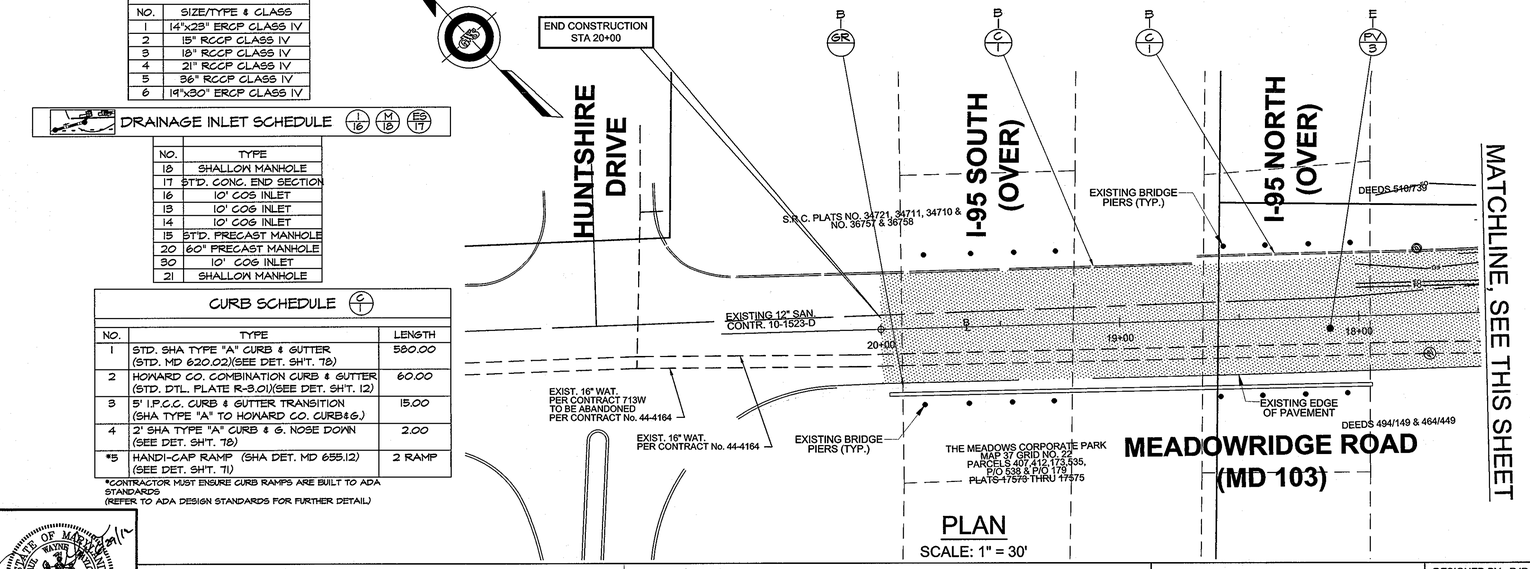
DRAINAGE INLET SCHEDULE (I 16) (M 18) (ES 17)

NO.	TYPE
18	SHALLOW MANHOLE
17	STD. CONC. END SECTION
16	10' COG INLET
13	10' COG INLET
14	10' COG INLET
15	STD. PRECAST MANHOLE
20	60" PRECAST MANHOLE
30	10' COG INLET
21	SHALLOW MANHOLE

CURB SCHEDULE (C 1)

NO.	TYPE	LENGTH
1	STD. SHA TYPE "A" CURB & GUTTER (STD. MD 620.02)(SEE DET. SH'T. 78)	580.00
2	HOWARD CO. COMBINATION CURB & GUTTER (STD. DTL. PLATE R-3.01)(SEE DET. SH'T. 12)	60.00
3	5' I.P.C.C. CURB & GUTTER TRANSITION (SHA TYPE "A" TO HOWARD CO. CURB&G.)	15.00
4	2' SHA TYPE "A" CURB & G. NOSE DOWN (SEE DET. SH'T. 78)	2.00
*5	HANDI-CAP RAMP (SHA DET. MD 655.12) (SEE DET. SH'T. 71)	2 RAMP

*CONTRACTOR MUST ENSURE CURB RAMPS ARE BUILT TO ADA STANDARDS (REFER TO ADA DESIGN STANDARDS FOR FURTHER DETAIL)



PLAN
SCALE: 1" = 30'

ROADSIDE OBSTRUCTION SCHEDULE (UT 1) (GR 1) (RA 1)

NO.	UTILITY POLES	STA.	OFFSET	
1	UTILITY POLE - B.G.&E. #142-87	15+15.40	44.00	-
2	UTILITY POLE - B.G.&E. #207111	13+57.40	34.00	-
3	UTILITY POLE - B.G.&E. #207113	11+61.74	42.00	-
4	UTILITY POLE - B.G.&E. #207114	10+48	32.00	-

NO.	GUARD RAIL	STA.	OFFSET	LENGTH
1	GUARD RAIL	13+29-14+90	76' - 48'	165'
2	GUARD RAIL	14+84-15+89	35'	96'

NO.	RETAINING WALL	STA.	OFFSET	LENGTH
1	RETAINING WALL	14+85-15+84	55' - 37'	115'

SHA BMP NO. 130490

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13
DIRECTOR — DATE 5/3/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~225 SCHILLING CIRCLE, SUITE 150~~
~~HUNT VALLEY, MARYLAND 21031~~
~~Phr (410) 785-0640~~ http://www.gwstephens.com ~~Fax: (410) 785-0647~~

STATE OF MARYLAND — RAYNE MARK TAYLOR — NO. 13741 — REGISTERED PROFESSIONAL ENGINEER

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT # S	BLOCK #	ZONE	TAX ZONE MAP	ELECT. DIST.	CENSUS TRACT
F10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: RJR
DRAWN BY: RJR
CHECKED BY: PWT
REVISIONS

SHA ROAD IMPROVEMENT PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 4, 2011
SHEET 72 OF 94

SDP-08-082

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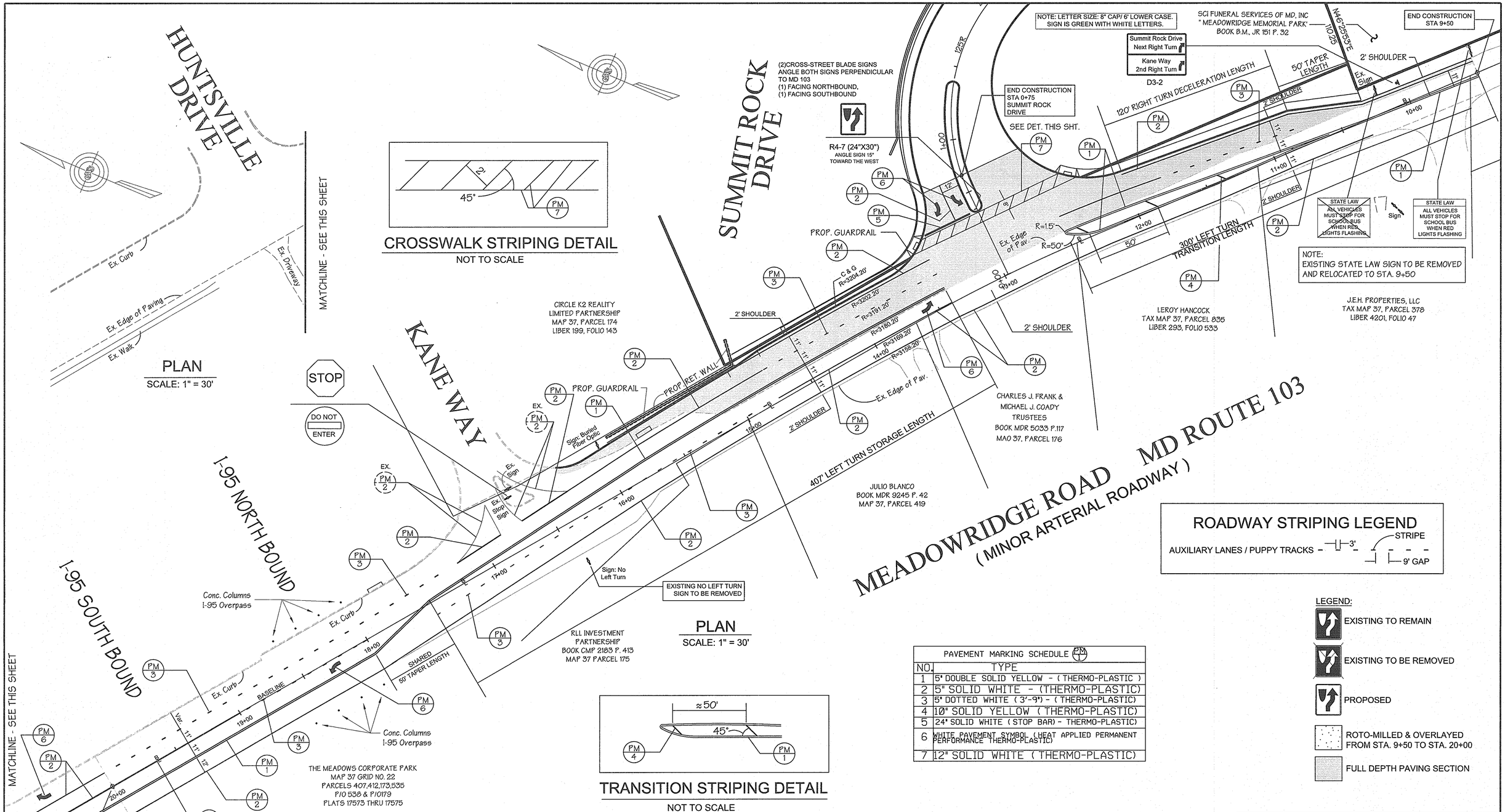


PAVEMENT MARKING SCHEDULE (PM 1)	
NO.	TYPE
1	5" DOUBLE SOLID YELLOW - (THERMO-PLASTIC)
2	5" SOLID WHITE - (THERMO-PLASTIC)
3	5" DOTTED WHITE (3'-9") - (THERMO-PLASTIC)
4	10" SOLID YELLOW (THERMO-PLASTIC)
5	24" SOLID WHITE (STOP BAR) - THERMO-PLASTIC)
6	WHITE PAVEMENT SYMBOL (HEAT APPLIED PERMANENT PERFORMANCE THERMO-PLASTIC)
7	12" SOLID WHITE (THERMO-PLASTIC)

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

PREPARED BY :
GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~2205-C Commerce Road~~
~~Forest Hill, Maryland 21050~~
(410) 297 - 2340

STATE OF MARYLAND · PAUL WAYNE TAYLOR · NO. 13741 · REGISTERED PROFESSIONAL ENGINEER

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/2/13

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013."

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

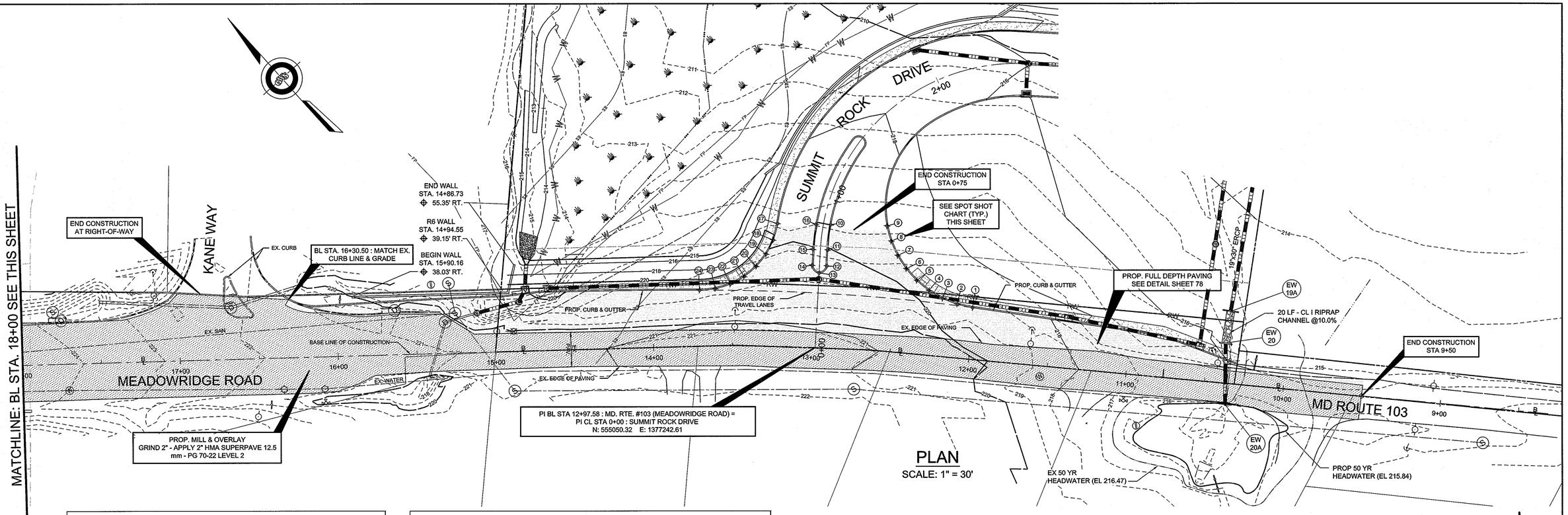
DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

SIGNING & STRIPING PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

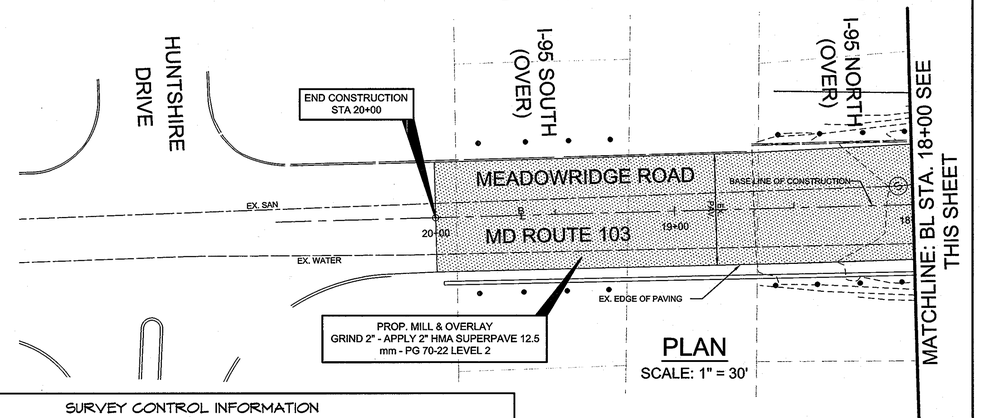
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: 1" = 30'
DATE : FEBRUARY 04, 2011
SHT. 73 OF 94

SDP-08-082 P/N : 10762



PLAN
SCALE: 1" = 30'



PLAN
SCALE: 1" = 30'

CURB SPOT SHOTS

SPOT SHOT NO.	BASE LINE OF CONSTRUCTION STATION	ELEV. @ BASE LINE	DISTANCE TO CURB	ELEV. @ CURB	REMARKS
1	12+00.57	220.11	32.99'	219.45	Begin Curb Fillet
2	12+10.49	220.25	34.31'	219.30	
3	12+20.08	220.39	37.12'	219.15	
4	12+29.13	220.52	41.38'	219.00	
5	12+37.32	220.63	46.97'	218.85	
6	12+44.32	220.73	53.81'	218.70	
7	12+50.17	220.81	61.71'	218.55	
8	12+54.71	220.85	70.49'	218.40	
9	12+57.88	220.88	79.90'	218.25	End Curb Fillet
10	12+91.32	221.16	78.56'	219.63	
11	12+92.45	221.17	62.41'	219.97	
12	12+92.52	221.17	52.28'	220.17	
13	12+97.04	221.21	47.65'	220.27	
14	13+01.47	221.23	52.38'	220.17	
15	13+01.33	221.23	62.52'	219.97	
16	13+00.20	221.23	78.37'	219.66	
17	13+22.96	221.28	78.21'	219.24	Begin Curb Fillet
18	13+25.41	221.28	67.72'	219.44	
19	13+29.59	221.29	58.73'	219.62	
20	13+35.44	221.30	50.83'	219.81	
21	13+42.76	221.31	44.34'	219.99	
22	13+51.25	221.32	39.56'	220.17	
23	13+60.53	221.29	36.69'	220.36	
24	13+70.21	221.26	35.86'	220.54	End Curb Fillet

M.D. ROUTE 103 IMPROVEMENTS

BASE LINE OF CONSTRUCTION STATION	ELEV. @ BASE LINE	DISTANCE OF TRAVEL LANES	SLOPE OF PROP. TRAVEL LANES	ELEV. @ EDGE OF PROP. TRAVEL LANES	ROAD IMPROVEMENT
9+50.00	216.14	10.85'	2.00%	215.92	Begin Improvements
9+75.00	216.20	11.43'	2.00%	215.97	
10+00.00	216.28	12.00'	2.00%	216.04	
10+25.00	216.35	12.58'	2.00%	216.10	
10+30.50	216.37	12.70'	2.00%	216.12	Begin Curb & Taper
10+50.00	216.42	18.15'	2.00%	216.06	
10+75.00	216.82	25.12'	2.00%	216.32	
10+79.58	216.89	26.40'	2.00%	216.36	End Taper
11+00.00	217.22	27.51'	2.00%	216.67	
11+25.00	217.93	28.88'	2.00%	217.35	
11+50.00	218.64	30.24'	2.00%	218.04	
11+75.00	219.37	31.60'	2.00%	218.74	
12+00.00	220.10	32.96'	2.00%	219.44	
12+00.57	220.11	32.99'	2.00%	219.45	Begin Right Fillet
12+25.00	220.46	33.77'	2.00%	219.78	
12+50.00	220.81	34.16'	2.00%	220.13	
12+75.00	221.02	34.51'	2.00%	220.33	
13+00.00	221.23	34.86'	2.00%	220.53	
13+25.00	221.28	35.19'	2.00%	220.58	
13+50.00	221.32	35.52'	2.00%	220.61	
13+70.21	221.26	35.86'	2.00%	220.54	Begin Left Fillet
13+75.00	221.24	35.97'	2.00%	220.52	
14+00.00	221.15	36.58'	2.00%	220.42	
14+25.00	221.03	37.01'	2.00%	220.29	
14+50.00	220.91	37.24'	2.00%	220.17	
14+71.61	220.92	37.28'	2.00%	220.17	
14+75.00	220.92	36.99'	2.00%	220.18	
14+96.24	220.93	35.15'	2.00%	220.23	
15+00.00	220.93	35.11'	2.00%	220.23	
15+25.00	221.03	34.76'	2.00%	220.33	
15+50.00	221.13	34.21'	2.00%	220.45	
15+75.00	221.30	33.46'	2.00%	220.63	
16+00.00	221.47	32.52'	2.00%	220.82	
16+10.82	221.60	32.05'	2.00%	220.96	Begin Kane Way Fillet
16+25.00	221.76	34.36'	2.00%	221.07	
16+30.52	221.82	37.07'	1.48%	221.27	Tie-in to Ex. Curbing, End Curb

SURVEY CONTROL INFORMATION

NAME	STATION	NORTHING	EASTING	ELEVATION	DESCRIPTION
MEADOWRIDGE ROAD	9+50.00	554813.3284	1377446.8930	216.14	END CONSTRUCTION
MEADOWRIDGE ROAD	20+00.00	555468.2522	1376618.1817	224.93	END CONSTRUCTION
SUMMIT ROCK DRIVE	P.O.B. 0+47.58	555050.3144	1377242.6086	221.23	MEADOWRIDGE RD. INTERSECTION
SUMMIT ROCK DRIVE	0+75.00	555107.3474	1377243.1867	219.64	END CONSTRUCTION
SUMMIT ROCK DRIVE CENTERLINE BEARING N 40°55'22.32" E					

MEADOWRIDGE ROAD BASELINE INFORMATION

NAME	STATION	NORTHING	EASTING	DELTA	RADIUS	CHORD	FORWARD TANGENT
PC	12+34.67	555008.4180	1377284.5872	6°58'57.42"	1200.4441	146.2107	N 46°44'15.08" W
PI	13+07.91	555058.6133	1377236.2013			CHORD BEARING	BACK TANGENT
PT	13+80.97	555101.4523	1377177.1587			N 50°13'44.04" W	N 53°43'13.00" W

SUMMIT ROCK DRIVE CENTERLINE INFORMATION

NAME	STATION	NORTHING	EASTING	DELTA	RADIUS	CHORD	FORWARD TANGENT
PC	0+62.46	555047.5133	1377283.5222	90°55'51"	125.0000	176.9288	N 40°55'22.32" E
PI	1+87.68	555142.1253	1377365.5438			CHORD BEARING	BACK TANGENT
PT	2+59.02	555104.9409	1377460.0140			N 85°58'19.84" E	S 48°58'42.17" E

SHA BMP MD. 130489 AND 130490

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT # S	BLOCK #	ZONE	TAX MAP	ELECT. DIST.	CENSUS TRACT
F10-013	16,17,22,23	M-1	/ZONE 37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~
~~Ph: (410) 785-0640~~ http://www.gwstephens.com ~~Fax: (410) 785-0647~~

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: RJR
DRAWN BY: RJR
CHECKED BY: PWT
REVISIONS

GRADES & GEOMETRICS PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 4, 2011
SHEET 74 OF 94

SDP-08-082

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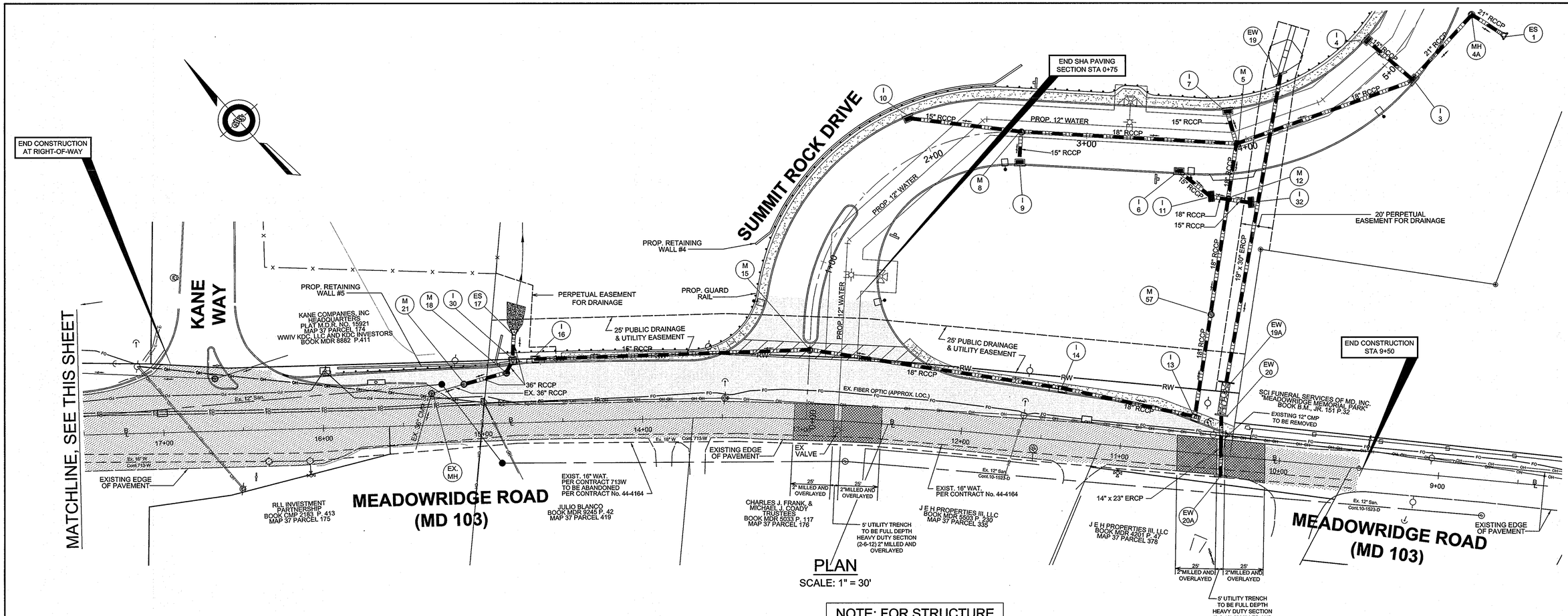
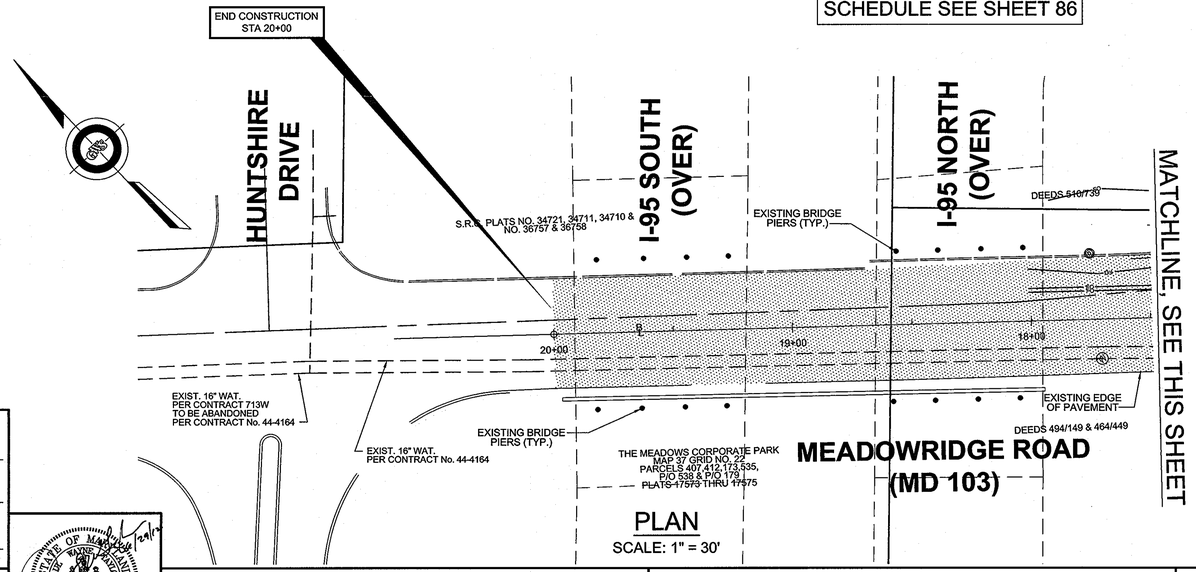


NOTE: FOR STRUCTURE SCHEDULE SEE SHEET 86



SHA BMP MD. 130490

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

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~~HUNT VALLEY, MARYLAND 21031~~

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"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT # S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

DESIGNED BY: RJR
DRAWN BY: RJR
CHECKED BY: PWT
REVISIONS

UTILITY LOCATION PLAN
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 4, 2011
SHEET 75 OF ~~94~~

SDP-08-082

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12.0 TEMPORARY LIGHTING

12.1 Roadway lighting shall be considered during the planning of temporary traffic control plans. Lighting may be required due to nighttime work zone traffic operations or for new traffic patterns (e.g., new exit or lane shift). Once the need for temporary lighting is identified, it should be provided in one of two ways:

1. If practical, permanent lighting that is being installed as part of the project should be installed in the early stages so that it can be used for illuminating travel lanes through the work zone throughout the project.
2. If installation of permanent lighting is not a part of project, then temporary lighting (temporary light poles or flood lights) should be provided to illuminate travel path.

Contractor shall maintain existing lighting.

12.2 The Contractor shall submit a Situation Plan to the Engineer showing the locations and aiming of floodlights. The floodlighting system shall be capable of maintaining 20 ft-c without producing a disabling glare condition for approaching road users. The adequacy of the floodlight placement and the absence of glare should be field-verified by the Engineer and Contractor. This involves driving through and observing the floodlighted area from each direction on all approaching roadways immediately after the initial floodlight setup, at night, and periodically.

13.0 PAVEMENT DROP-OFF

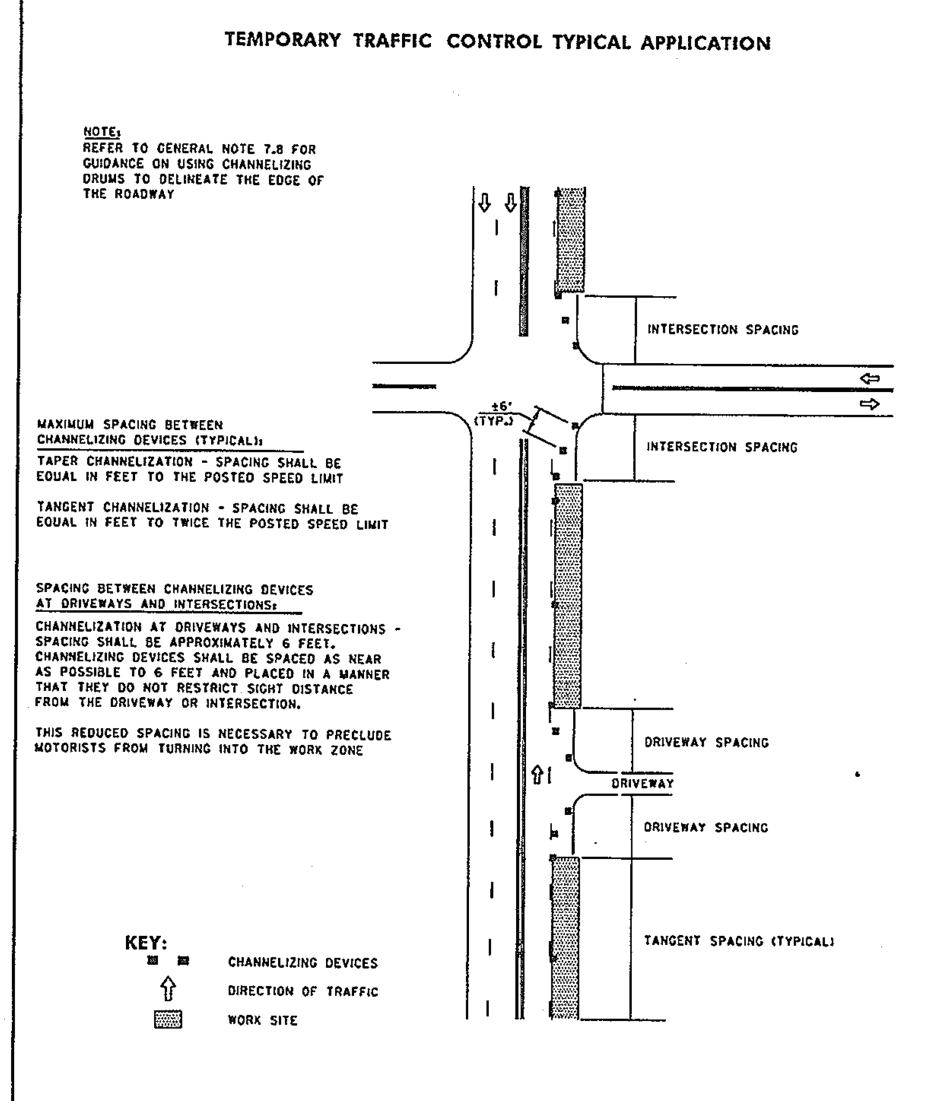
13.1 When pavement drop-offs are present, the placement of temporary traffic control devices, including signs, channelizing devices, and barriers, as well as slope fillet wedges, shall follow SHA Standard Nos. MD 104.06-11, MD 104.06-12, MD 104.06-13, MD 104.06-14, MD 104.06-15, and MD 104.01-28. The Engineer may recommend alternative methods to protect the pavement edge drop-off, considering factors such as: pedestrian, bicycle, and traffic volumes, vehicle speeds, size of work zone, duration of work, etc.

14.0 CLEAR ZONE

14.1 AASHTO's Roadside Design Guide defines the clear zone as "an unencumbered roadside recovery area." The "clear roadside" concept applies to both natural and man made objects (trees, bridge piers, sign supports, culverts, ditches, and other design features of the roadway). For temporary traffic control zones, SHA intends that clear zone concepts be applied so that the areas outside of the travel lanes are not needlessly populated by objects that constitute hazards to motorists. In addition to those objects listed above, potential hazards would include unprotected barrier ends, steep slopes, and temporary barricades. Table (make reference to Clear Zone Distances Table) lists the distances that must remain unencumbered by such objects for various conditions (design speed, ADT, and side slopes). Where barrier curb is present parallel to the edge of travel lanes and prevailing speeds are less than 40 mph, offsets to such objects may be reduced to 2 feet, with approval of the Engineer.

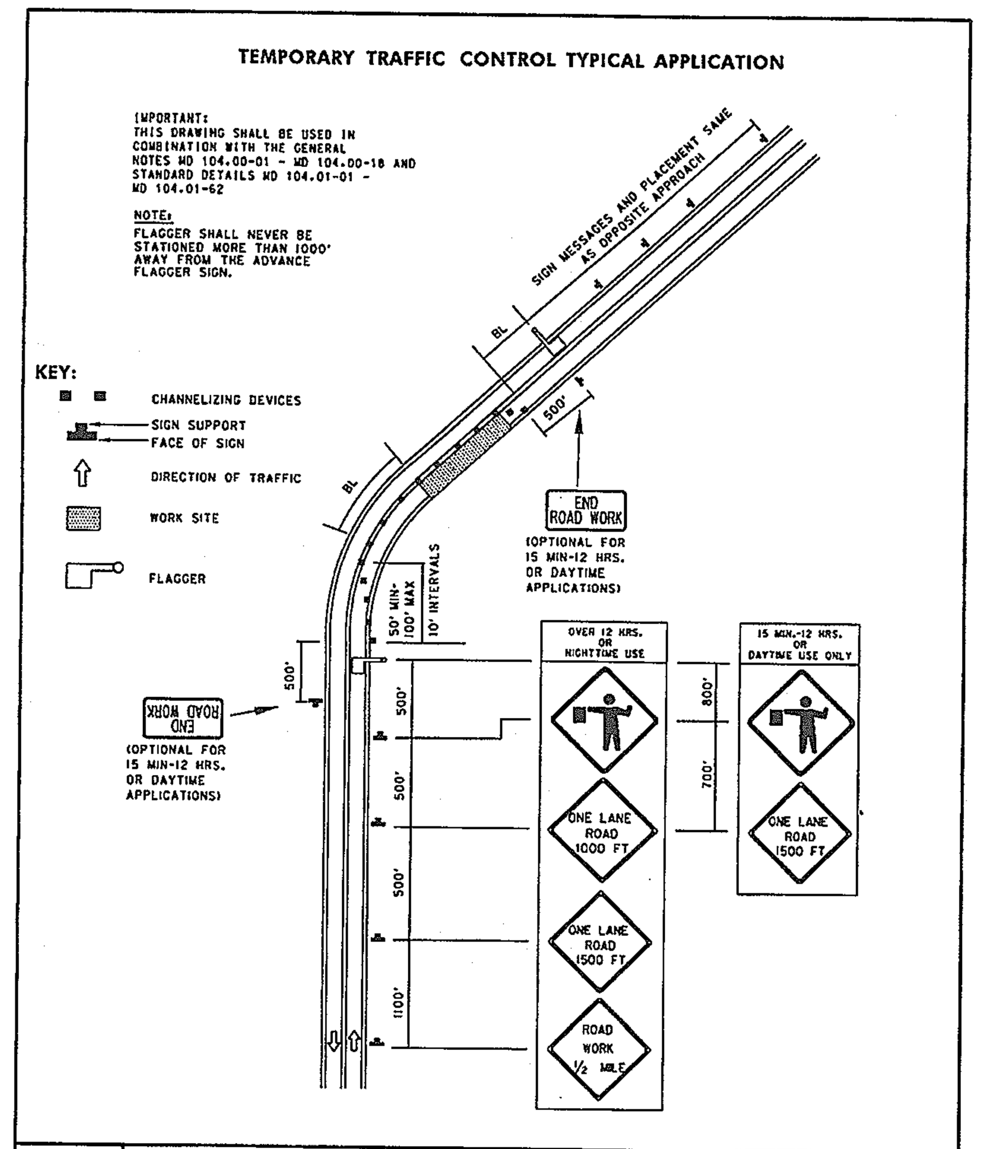
SPECIFICATION | CATEGORY CODE ITEMS | APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY | APPROVAL • SHA REVISIONS: APPROVAL 8-20-03 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
GENERAL NOTES
STANDARD NO. MD 104.00-14



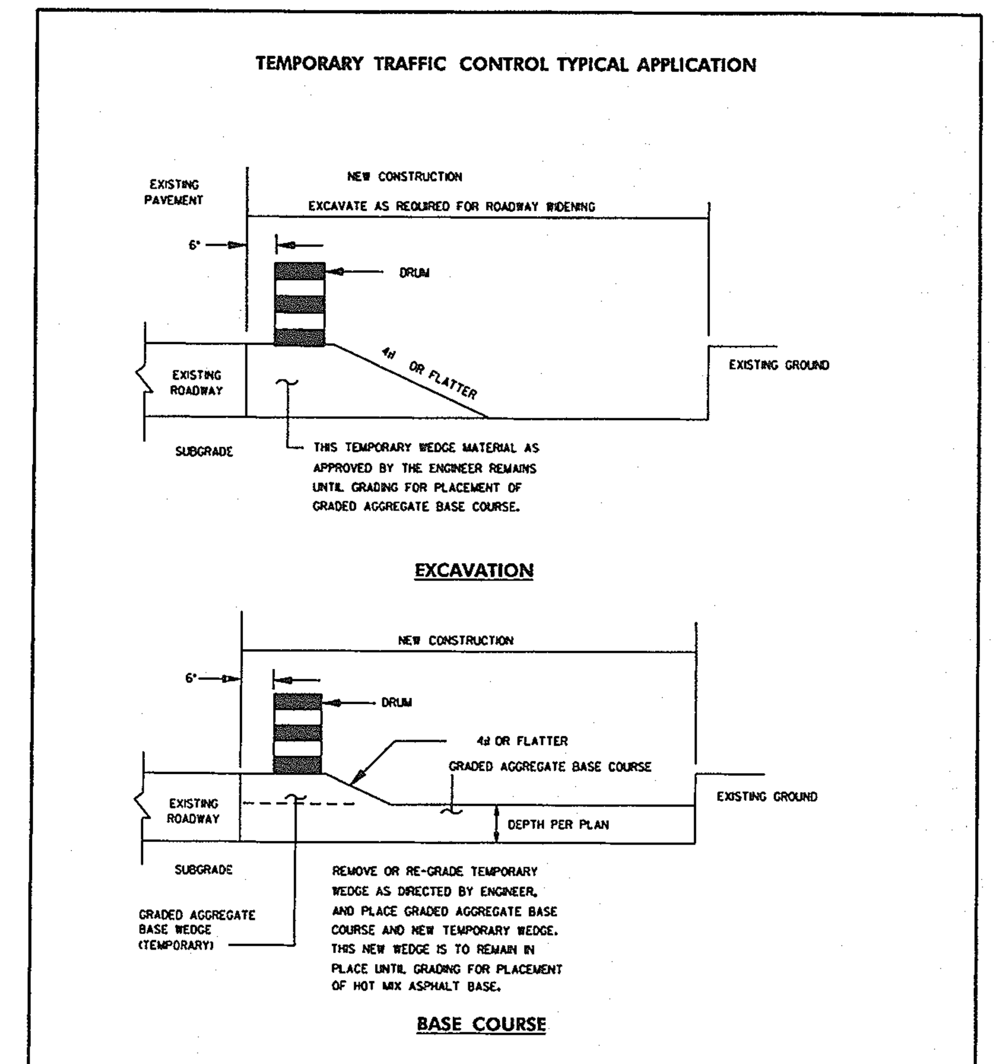
SPECIFICATION 104 | CATEGORY CODE ITEMS | APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY | APPROVAL 8-20-03 | APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
CHANNELIZATION DEVICE USAGE
STANDARD NO. MD 104.01-30



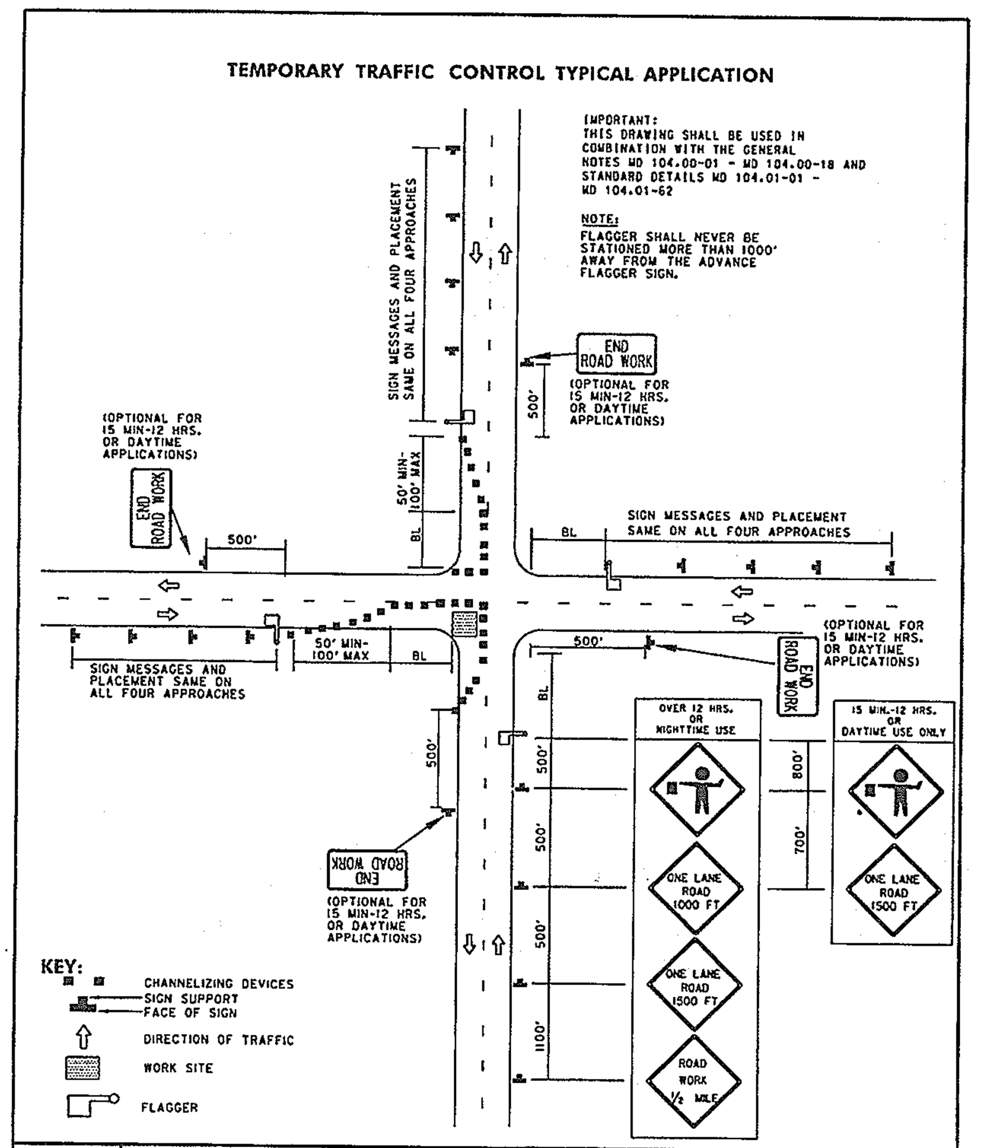
SPECIFICATION 104 | CATEGORY CODE ITEMS | APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY | APPROVAL 8-20-03 | APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATION/2-LANE, 2-WAY EQL/LESS THAN 40 MPH
STANDARD NO. MD 104.02-10



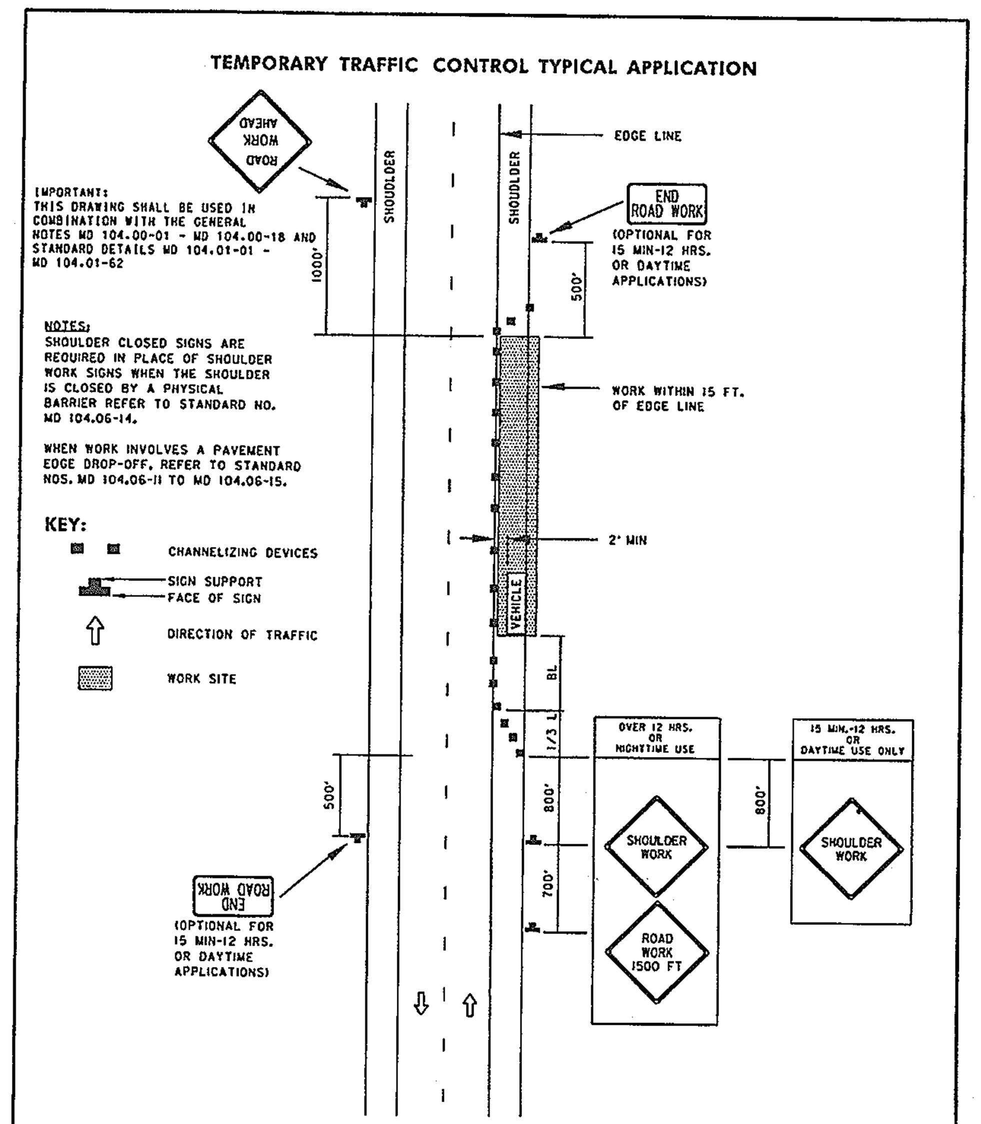
SPECIFICATION 104,201,501 | CATEGORY CODE ITEMS | APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY | APPROVAL 8-20-03 | APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
STAGED ROADWAY CONSTRUCTION
STANDARD NO. MD 104.01-28



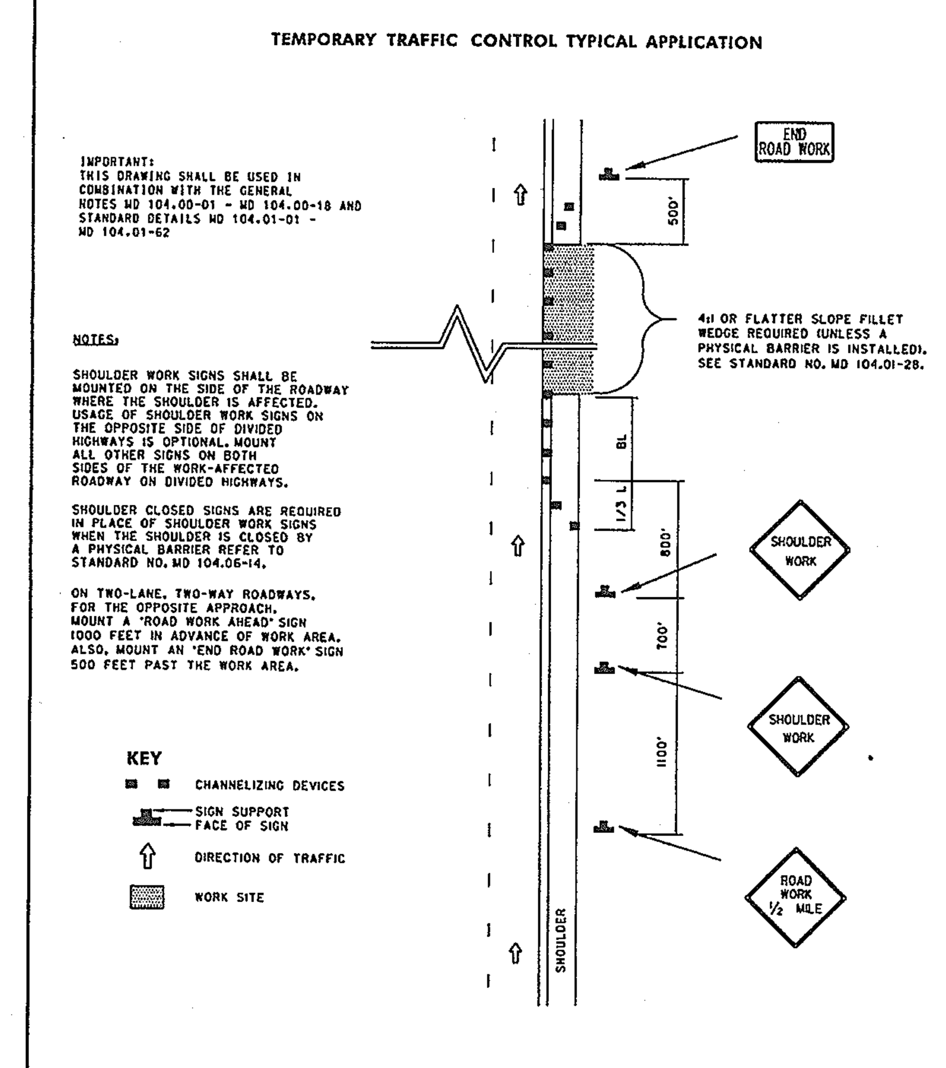
SPECIFICATION 104 | CATEGORY CODE ITEMS | APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY | APPROVAL 8-20-03 | APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
INTERSECTION FLAGGING OPERATION 2-LANE,2-WAY EQL/LESS THAN 40 MPH
STANDARD NO. MD 104.02-14



SPECIFICATION 104 | CATEGORY CODE ITEMS | APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY | APPROVAL 8-20-03 | APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SHOULDER WORK/2-LANE, 2-WAY EQL/LESS THAN 40 MPH
STANDARD NO. MD 104.02-02



SPECIFICATION 104, 201, 501 | CATEGORY CODE ITEMS | APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY | APPROVAL 8-20-03 | APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
PAVEMENT EDGE DROP-OFF GREATER THAN 2.5 INCHES BUT EQUAL TO OR LESS THAN 5 INCHES (BETWEEN TRAFFIC LANES AND SHOULDER)
STANDARD NO. MD 104.06-13

APPROVED: Howard County Department of Planning and Zoning

Signature	Date
CHIEF, DEVELOPMENT ENGINEERING DIVISION	4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	5/03/13
DIRECTOR	5/3/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
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"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2015"

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: RJR
DRAWN BY: JLB
CHECKED BY: PWT
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT # S	BLOCK #	ZONE	TAX/ZONE MAP	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 | SEWER CODE 4020000

M.O.T. NOTES & DETAILS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND
SCALE: As Shown
DATE : FEBRUARY 4, 2011
SHEET 76 OF 94

SDP-08-082

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4.0 SIGNS

4.1 Signs should be spaced at the distances shown on the TTCTA diagrams.

4.2 See the "Sign and Buffer Spacing Charts/Standard Temporary Traffic Control Operations" for the appropriate spacing of the advance warning signs for lower speed highway facilities.

4.3 At locations where queues extend beyond the first advance warning sign, additional advance warning signs (static and/or PCMS) shall be placed in advance of the longest observed queue.

4.4 When bus and/or truck volumes are high, an initial advance warning sign may be placed on the left side of a multilane undivided roadway.

4.5 As of December 31, 2003, Fluorescent Orange High Performance Wide Angle (FOHPWA) Retroflective Sign Sheeting material shall be used on all temporary post-mounted warning signs erected in work zones.

4.6 FOHPWA Retroreflective Sign Sheeting material may be used for maintenance work along freeways and major expressways at the discretion of the Engineer.

4.7 Approved temporary roll-up signs may be used for maintenance work along all roadways.

4.8 When work zone speed limits along 65 and 60 mph roadways are reduced, temporary regulatory speed signing shall be posted for work activities of one-hour duration or longer, unless otherwise directed by the Engineer. These signs are to be placed as directed in Standard Nos. MD 104.01-06 and MD 104.01-07.

4.9 Sign designations and messages for the signs most commonly used in work zones are shown within these General Notes. See Specification 104.08-03 for information on other temporary traffic signs.

4.10 G95-4 (Hat and Shovel) signs shall be used for projects lasting greater than two months in duration, unless otherwise specified by the Engineer.

4.11 Along streets in urban areas where the prevailing speed is 35 mph or less, and along secondary roads where the Average Daily Traffic (ADT) is less than 1000 vehicles, the minimum sign size of 36" x 36" may be used.

SPECIFICATION | CATEGORY CODE ITEMS
APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
APPROVAL • SHA REVISIONS: APPROVAL 8-20-03 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
GENERAL NOTES
STANDARD NO. MD 104.00-06

4.12 For utility operations, the word "AHEAD" may be used on warning signs in lieu of distance messages for warning signs placed up to and including 1500 feet in advance of the work area. At greater distances, the correct distance messages shall be used on such warning signs. Also, the message UTILITY WORK may be used in lieu of ROAD WORK or SHOULDER WORK. ROAD WORK AHEAD signs may also be used in lieu of distance messages on side streets and entrance ramps that intersect roads where work is being performed (as shown in the Typical Applications) and on the main road during mobile and mowing operations.

4.13 ROAD WORK AHEAD signs shall be installed on all side streets and entrance ramps that intersect roads within work zones. The signing shall be placed along the intersection approach to the right of the travel lane. Refer to Standard Detail 104.01-02 for guidance on sign placement. For side streets intersecting roads outside of work zone boundaries, no advanced signing should be installed.

4.14 Warning signs mounted on wood posts, and those mounted on approved portable supports, shall be mounted in conformance with Standard No. MD 104.01-17. Signs mounted on concrete barrier shall be installed using clamps that are on the Office of Traffic & Safety's Approved Product List.

4.15 For shoulder closures greater than a half (1/2) mile in length, advance warning signs should be placed as follows:

a. A NEXT XX MILES supplemental plate should be provided with the first SHOULDER CLOSED sign in the sequence

b. The second SHOULDER CLOSED sign in the sequence should be replaced with either:

- a NO PULL OFF AREA warning sign with NEXT XX MILES supplemental plate, if there are no pull off areas throughout the work area, or

- a PULL OFF AREA warning sign with EVERY XX MILES supplemental plate, if pull off areas are provided (see MD 104.06-14).

SHOULDER CLOSED / NEXT X MILES — NO PULL OFF AREA / NEXT X MILES — OR — PULL OFF AREA / EVERY X MILES

SPECIFICATION | CATEGORY CODE ITEMS
APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
APPROVAL • SHA REVISIONS: APPROVAL 8-20-03 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
GENERAL NOTES
STANDARD NO. MD 104.00-07

7.0 CHANNELIZING DEVICES

7.1 Taper Formulas:

L = WS for speeds greater than (>) 40 mph

L = $WS^2/60$ for speeds equal to or less than (≤) 40 mph

Where: L = minimum length of taper (ft)
S = numerical value of prevailing travel speed or speed limit (MPH), whichever is higher, prior to work starting,
W = width of offset (ft)

7.2 Maximum spacing between channelizing devices:

Taper Channelization: equal in feet to the posted speed limit.

Tangent Channelization: equal in feet to twice the posted speed limit.

7.3 At horizontal or vertical curves, channelizing devices should be extended to a point where they are visible to approaching traffic. On two-lane, two-way roadways, a full taper length shall always be provided in advance of curves.

7.4 Drums, not cones, should always be used to form the taper on roadways having a prevailing travel speed greater than 40 MPH.

7.5 Storing channelizing devices within 30 feet of the edge of open section roadway or 15 feet of a closed section roadway along any roadway is prohibited without approval of the Engineer.

7.6 Type 3 object markers (VP-1) are required for barrier flare / tangent points.

7.7 The appropriate channelizing devices (including approved barrier) to separate opposing traffic shall be as shown on the plans or as directed by the Engineer.

7.8 On straight sections of roadway with full dimension center and / or lane lines, but without edge lines, channelizing drums shall be used to delineate the edge of the roadway, except at locations designated by the Engineer. Examples would include roadways with curbs, parking, bicycle lanes, or other markings. The channelizing drums may be spaced up to 500' apart where no undue hazards exist unless otherwise directed by the Engineer. On curves, these spacings shall be reduced to a value equal to the posted speed limit, unless otherwise directed by the Engineer.

SPECIFICATION | CATEGORY CODE ITEMS
APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
APPROVAL • SHA REVISIONS: APPROVAL 8-20-03 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
GENERAL NOTES
STANDARD NO. MD 104.00-10

SEQUENCE OF CONSTRUCTION

1. Place warning signs and channelizing devices per MD 104.02-02 (Shoulder work - 2 lane - 2 way, equal/less than 40 mph) and MD 104.01-30 (Channelization device usage).

2. Widen right side of MD. 103 for decceleration/acceleration lanes and bypass lane following MD. 104.01-28 and MD. 104.06-13 for staged construction and pavement edge drop-off.

3. Once widening is completed to base HMA application, grind existing pavement and place finished surface HMA course per MD. 104.02-10 and MD 104.02-14.

9.0 FLAGGING

9.1 Where two or more flaggers are used and are unable to see each other, two-way radio communications shall be used.

9.2 If the entire work area is visible from one station, a single flagger may be used, subject to other safety considerations.

9.3 Guidance on flagging at signalized intersections:

1. Issues regarding flagging at signalized intersections should be discussed in the planning/design stages of the project and the recommended intersection control strategy should be specified in the contract documents.

2. At the pre-construction conference, SHA staff and the contractor should discuss the need for flagging operations, MSP (or local police) presence, and the Standard Operating Procedures to request signal operating mode modifications (if needed).

3. In general, all persons (contractors, maintenance, and utility) should contact the Assistant District Engineer - Traffic (ADE-T) to determine the best method for temporary traffic control at a signalized intersection from the following two (2) cases:

Case 1: The signal is turned to flashing mode during flagging operation.

Case 2: The signal is turned off (dark mode) during flagging operation.

Note: Except for police, flagging shall not occur at a signalized intersection operating in a full-color stop-and-go mode (Normal Operation).

SPECIFICATION | CATEGORY CODE ITEMS
APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
APPROVAL • SHA REVISIONS: APPROVAL 8-20-03 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
GENERAL NOTES
STANDARD NO. MD 104.00-12

10.0 VEHICLES

10.1 If work vehicles need to be stopped in a lane beyond a horizontal curve or a vertical curve (hill), non-essential vehicles are to be pulled as far off the road as possible or be otherwise parked in a manner as to inhibit the movement of traffic as little as possible. If no protection vehicle is available, channelizing devices shall be placed as specified in 7.0, Channelizing Devices.

10.2 Work vehicles should not occupy any part of the buffer area.

10.3 Vehicle safety lights (amber in color) shall be from the Office of Traffic & Safety's Approved Products list.

10.4 A protection vehicle with a rear truck-mounted-attenuator (TMA) is required for all freeway work operations that have no formal lane closure. A formal lane closure is one that includes a full complement of advance warning devices and a lane closure taper and a work area delineated by channelizing devices placed in accordance with these TTCTAs.

A protection vehicle is also required for highway marking operations and may be required under other traffic and work conditions in conformance with SHA policy or as directed by the Engineer. The protection vehicle may be considered as a substitute for the initial advance warning sign for some mobile work operations. A protection vehicle should also be used in advance of a work operation that is located beyond a horizontal and/or vertical curve. Consideration should also be given to placing an additional temporary advance warning sign(s) or truck mounted variable message sign no less than 500' and no more than 1500' (1/2 mile for expressway conditions) in advance of the protection vehicle, when one or more of the traffic factors listed under General Notes 1.2 exist.

10.5 When a police vehicle is required, the vehicle shall not be located in the buffer and/or taper, but should be located as directed by the Engineer, depending on the type of work. It is sometimes preferable to deploy the police vehicle in advance of the work zone or queue (if queue exists) to encourage speed reduction prior to the work zone.

11.0 WORK HOUR RESTRICTIONS

11.1 Unless otherwise specified in the Contract Document or permitted by the Engineer, work within a lane, within 15 feet of the nearest edge line (open section roadway), or within 2 feet of the face of curb (closed section roadway), is prohibited during peak hours 6 a.m. - 9 a.m. and 3 p.m. - 7 p.m., Monday - Friday. Also, such work is not permitted on Saturdays, Sundays, National or State holidays, or days preceding and following said holidays.

SPECIFICATION | CATEGORY CODE ITEMS
APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
APPROVAL • SHA REVISIONS: APPROVAL 8-20-03 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
GENERAL NOTES
STANDARD NO. MD 104.00-13

12.0 TEMPORARY LIGHTING

12.1 Roadway lighting shall be considered during the planning of temporary traffic control plans. Lighting may be required due to nighttime work zone traffic operations or for new traffic patterns (e.g., new exit or lane shift). Once the need for temporary lighting is identified, it should be provided in one of two ways:

1. If practical, permanent lighting that is being installed as part of the project should be installed in the early stages so that it can be used for illuminating travel lanes through the work zone throughout the project.

2. If installation of permanent lighting is not a part of project, then temporary lighting (temporary light poles or flood lights) should be provided to illuminate travel path.

Contractor shall maintain existing lighting.

12.2 The Contractor shall submit a Situation Plan to the Engineer showing the locations and aiming of floodlights. The floodlighting system shall be capable of maintaining 20 ft-c without producing a disabling glare condition for approaching road users. The adequacy of the floodlight placement and the absence of glare should be field-verified by the Engineer and Contractor. This involves driving through and observing the floodlighted area from each direction on all approaching roadways immediately after the initial floodlight setup, at night, and periodically.

13.0 PAVEMENT DROP-OFF

13.1 When pavement drop-offs are present, the placement of temporary traffic control devices, including signs, channelizing devices, and barriers, as well as slope fillet wedges, shall follow SHA Standard Nos. MD 104.06-11, MD 104.06-12, MD 104.06-13, MD 104.06-14, MD 104.06-15, and MD 104.01-28. The Engineer may recommend alternative methods to protect the pavement edge drop-off, considering factors such as: pedestrian, bicycle, and traffic volumes, vehicle speeds, size of work zone, duration of work, etc.

14.0 CLEAR ZONE

14.1 AASHTO's Roadside Design Guide defines the clear zone as "an unencumbered roadside recovery area." The "clear roadside" concept applies to both natural and man made objects (trees, bridge piers, sign supports, culverts, ditches, and other design features of the roadway). For temporary traffic control zones, SHA intends that clear zone concepts be applied so that the areas outside of the travel lanes are not needlessly populated by objects that constitute hazards to motorists. In addition to those objects listed above, potential hazards would include unprotected barrier ends, steep slopes, and temporary barricades. Table (make reference to Clear Zone Distances Table) lists the distances that must remain unencumbered by such objects for various conditions (design speed, ADT, and side slopes). Where barrier curb is present parallel to the edge of travel lanes and prevailing speeds are less than 40 mph, offsets to such objects may be reduced to 2 feet, with approval of the Engineer.

SPECIFICATION | CATEGORY CODE ITEMS
APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
APPROVAL • SHA REVISIONS: APPROVAL 8-20-03 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 9-23-03

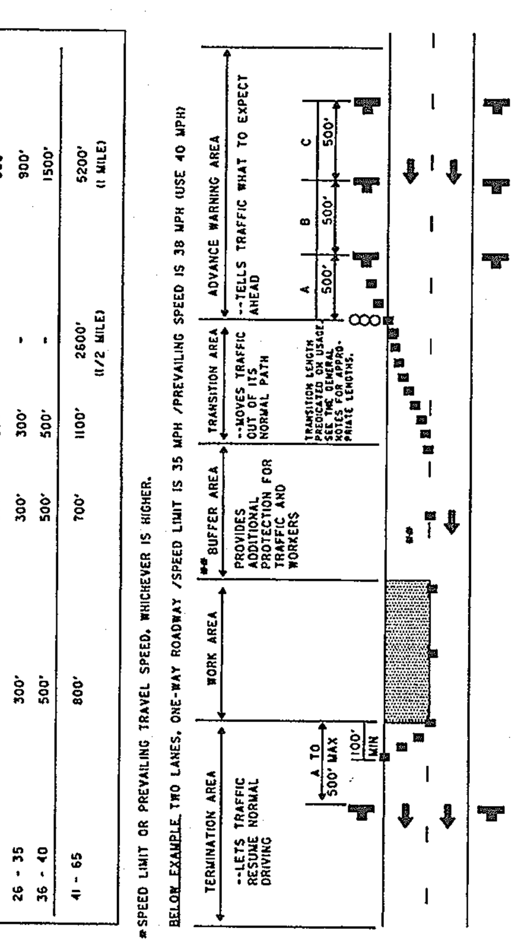
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
GENERAL NOTES
STANDARD NO. MD 104.00-14

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION
SIGN SPACING CHART
STANDARD TEMPORARY TRAFFIC CONTROL OPERATIONS

*SPEED (MPH)	MINIMUM DISTANCE FROM TAPER TO FIRST SIGN & FOR SIDE STREET SIGN DISTANCE A	ADDITIONAL SIGNS IN SERIES TO BE SPACED AT A MINIMUM B	C	D	MINIMUM COMBINED ADVANCED WARNING
≤ 25	200'	200'	200'	-	600'
26 - 35	300'	300'	300'	-	900'
36 - 40	500'	500'	500'	-	1500'
41 - 65	800'	700'	1100'	2600' (1/2 MILE)	5200' (1 MILE)

*SPEED LIMIT OR PREVAILING TRAVEL SPEED, WHICHEVER IS HIGHER.

BELOW EXAMPLE TWO LANES, ONE-WAY ROADWAY /SPEED LIMIT IS 35 MPH /PREVAILING SPEED IS 38 MPH (USE 40 MPH)



**REFER TO STANDARD NO. MD 104.01-81 (TYPICAL APPLICATION NOTES) FOR BUFFER LENGTHS.

SPECIFICATION | CATEGORY CODE ITEMS
APPROVED — DIRECTOR - OFFICE OF TRAFFIC AND SAFETY
APPROVAL • SHA REVISIONS: APPROVAL 8-20-03 | APPROVAL • FEDERAL HIGHWAY ADMINISTRATION: APPROVAL 9-23-03

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
SIGN SPACING CHART
STANDARD NO. MD 104.01-02

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

GWS
GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~
~~Ph: (410) 785-6640~~ http://www.gwstephens.com ~~Fax: (410) 785-6647~~

STATE OF MARYLAND — PAUL WAYNE TAYLOR — NO. 13741 — REGISTERED PROFESSIONAL ENGINEER — 4/29/12

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: RJR
DRAWN BY: JLB
CHECKED BY: PWT
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT # S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 | SEWER CODE 4020000

M.O.T. NOTES & DETAILS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND
SCALE: As Shown
DATE : FEBRUARY 4, 2011
SHEET 77 OF 94

SDP-08-082

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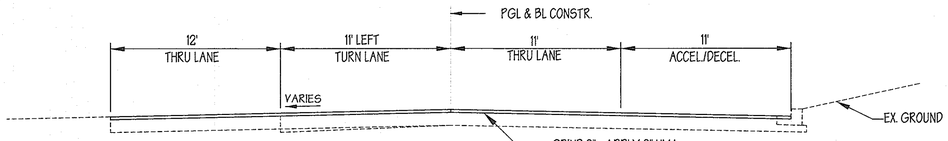
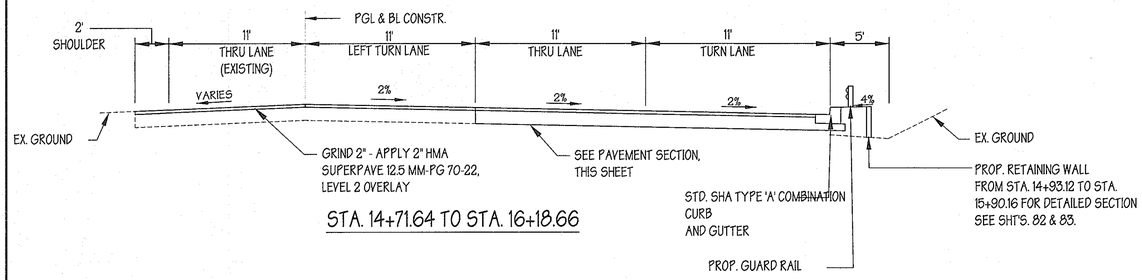
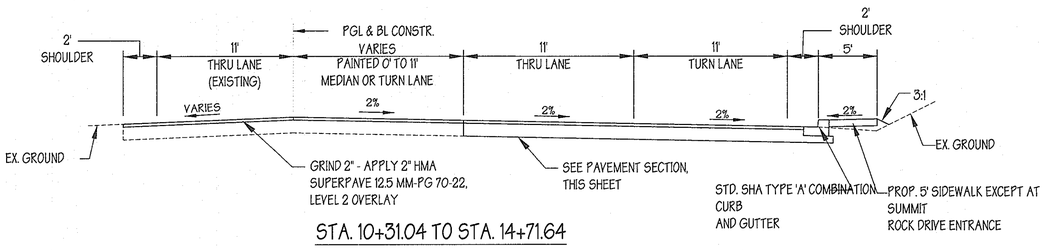


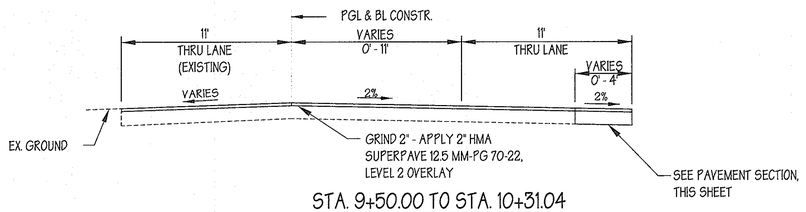
STA. 16+18.66 TO STA. 20+00.00



STA. 14+71.64 TO STA. 16+18.66



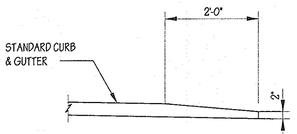
STA. 10+31.04 TO STA. 14+71.64



STA. 9+50.00 TO STA. 10+31.04

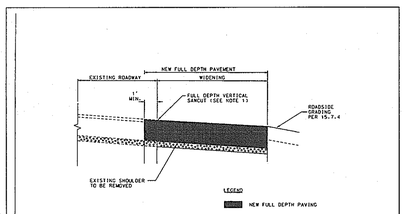
TYPICAL SECTIONS - MD 103

NOT TO SCALE



NOSE DOWN DETAIL

NOT TO SCALE



NOTES:
1. SAWCUT SHALL BE LOCATED ALONG THE EXISTING EDGELINE SUCH THAT A MINIMUM OF 1' FT OF THE EXISTING FULL DEPTH PAVEMENT IS REMOVED AND REPLACED. FOR A PROPER JOINT.
2. REFER TO 15.8 FOR PAVING GUIDELINES.

109

TYPICAL SHOULDER REMOVAL AND FULL DEPTH WIDENING ENGINEERING ACCESS PERMITS

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

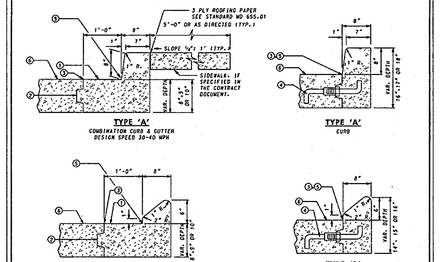
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/6/13

GW'S
GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.
ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION
~~235 O'HILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~
~~PH (410) 785-6540~~ http://www.gwstephens.com ~~FAX (410) 785-6547~~

STATE OF MARYLAND — MICHAEL T. SHIVINE — No. 13741 — REGISTERED PROFESSIONAL ENGINEER

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2015



① SLOPE GUTTER PAN ¼" PER FOOT TOWARD FLOW LINE ON ALL ROADWAYS INCLUDING SUPERELEVATED SECTIONS. EXCEPT INTERCHANGE RAMPS.
② PROVIDE KEY AND LONGITUDINAL TIE BAR AS REQUIRED: SEE NOTE A
③ ROADWAY PAVEMENT CONSTRUCTION JOINT
④ LONGITUDINAL TIE DEVICE "J" BAR MODIFIED
⑤ FLOW LINE
⑥ ROADWAY PAVEMENT SLOPE

NOTES

A. RIGID PAVEMENT ROADWAY ADJACENT TO COMBINATION CURB AND GUTTER AND CLOSED SECTION ROADWAY USING RIGID PAVEMENT WITH COMBINATION CURB AND GUTTER SHALL BE KEYED AND TIED AT THE ROADWAY PAVEMENT CONSTRUCTION JOINT. REFER TO STANDARD NO 570.01 FOR METHOD OF KEYWAY AND LONGITUDINAL TIE DEVICES. SPACING OF THE TIE BARS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. RIGID PAVEMENT AND CURB SHALL BE CONSTRUCTED AS INDICATED. TIE DEVICES AND KEYS ARE NOT REQUIRED WHEN USING FLEXIBLE PAVEMENT FOR ROADWAY.
B. MAXIMUM JOINT SPACING FOR CONCRETE CURB AND COMBINATION CURB & GUTTER IS 10'. SEE SPECIFICATION FOR LOCATIONS AND DESCRIPTION OF TREATMENT FOR THE TYPES OF JOINTS USED.
C. TYPE A OR B COMBINATION CURB AND GUTTER SHALL BE USED FOR ALL APPLICABLE NEW CONSTRUCTION AND IN THOSE AREAS WHERE THE COMBINATION CURB AND GUTTER IS TO BE REPLACED IN KIND.
D. TYPE A OR B CURB SHALL BE USED FOR THE REPLACEMENT OF LIKE KIND OF CURB ONLY. NOT TO BE USED FOR NEW CONSTRUCTION EXCEPT WHERE INDICATED ON APPROPRIATE INLET STANDARDS.

SPECIFICATION 602	CATEGORY CODE ITEMS
APPROVED	DIRECTOR – OFFICE OF HIGHWAY DEVELOPMENT

SHA — STATE HIGHWAY ADMINISTRATION

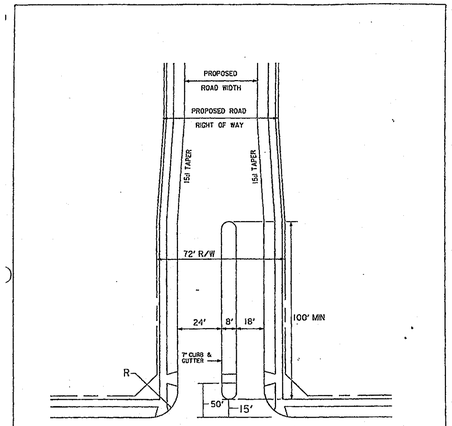
REVISIONS	APPROVAL + DATE	APPROVAL + INITIAL
REVISED	APPROVAL 3-30-04	HIGHWAY ADMINISTRATION APPROVAL 3-31-04
REVISED		REVISED
REVISED		REVISED
REVISED		REVISED

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

STANDARD TYPES A & B CONCRETE CURB AND COMBINATION CONCRETE CURB & GUTTER

STANDARD NO. MD 620.02

1 OF 2



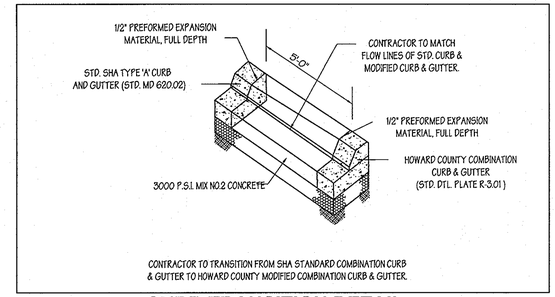
R = 40' RESIDENTIAL ROADS
R = 50' COMMERCIAL/INDUSTRIAL ROADS

HARFORD COUNTY, MD DEPARTMENT OF PUBLIC WORKS

MONUMENTAL ENTRANCE

PLATE 21

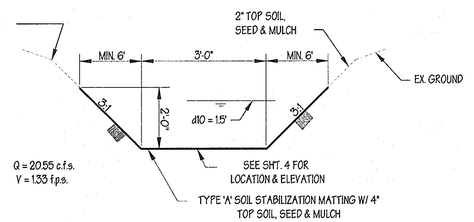
USER\DETAILS\SPEC\ROADSIDE\GEORGESTANDARD\PLATE-21.DGN 11/27/02



CONTRACTOR TO TRANSITION FROM SHA STANDARD COMBINATION CURB & GUTTER TO HOWARD COUNTY MODIFIED COMBINATION CURB & GUTTER.

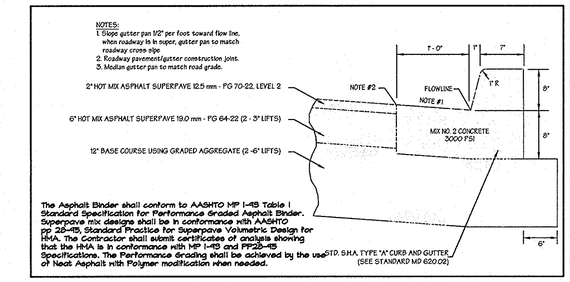
CURB TRANSITION DETAIL

NO SCALE



FLAT BOTTOM DITCH DETAIL

NOT TO SCALE



STANDARD S.H.A. TYPE "A" CURB AND GUTTER

NOT TO SCALE

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT # S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F-10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: R.L.M.
DRAWN BY: J.L.B.
CHECKED BY: M.T.S.
REVISIONS

TYPICAL SECTIONS AND DETAILS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 4, 2011
SHEET 78 OF 84

SDP-08-082

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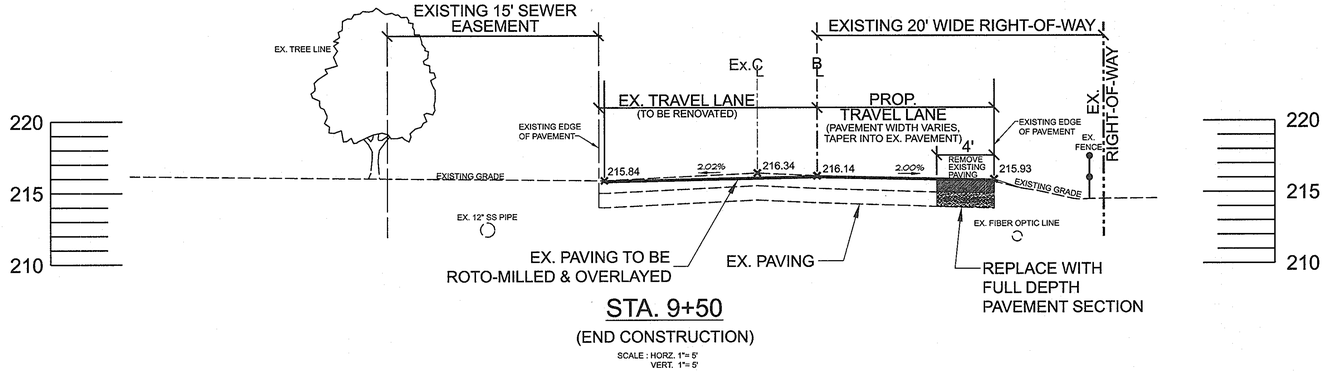

STA. 9+50

(END CONSTRUCTION)

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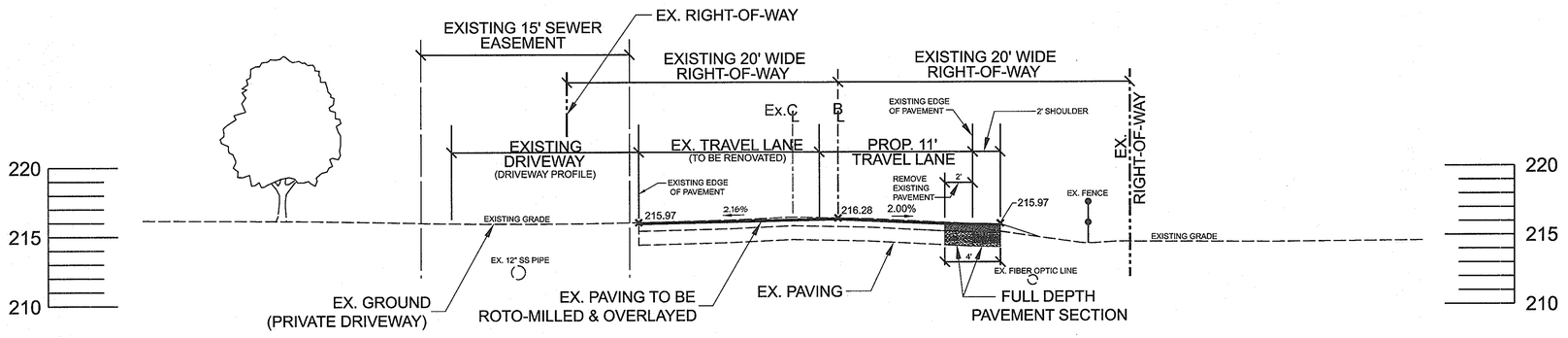
VERT. 1"= 5'



STA. 10+00

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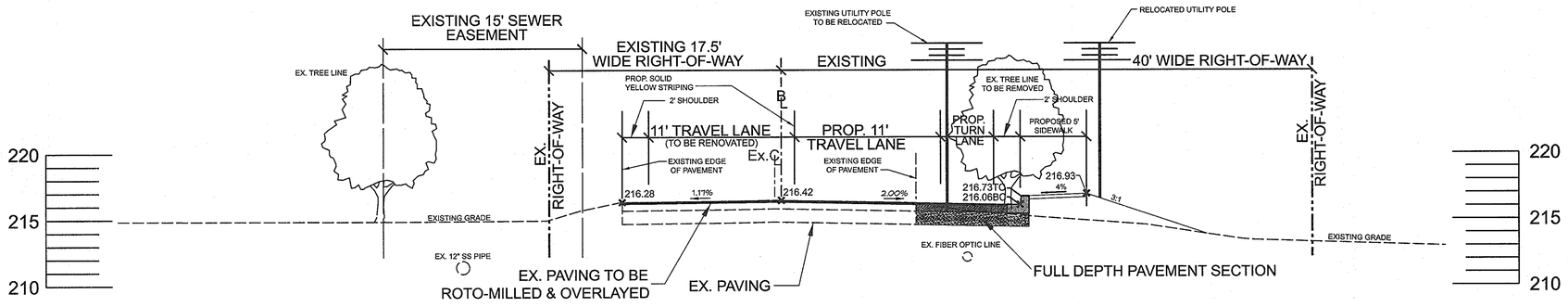

STA. 10+50

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

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND — ALAN KEITH STEPHENS — No. 13741 — REGISTERED PROFESSIONAL ENGINEER

* Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013*

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
~~CORRIDOR 95 BUSINESS PARK~~	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

CROSS SECTION VIEWS
CORRIDOR 95 BUSINESS PARK
~~**MEADOWRIDGE BUSINESS CENTER**~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 79 OF 94

SDP-08-082

P/N : 10762

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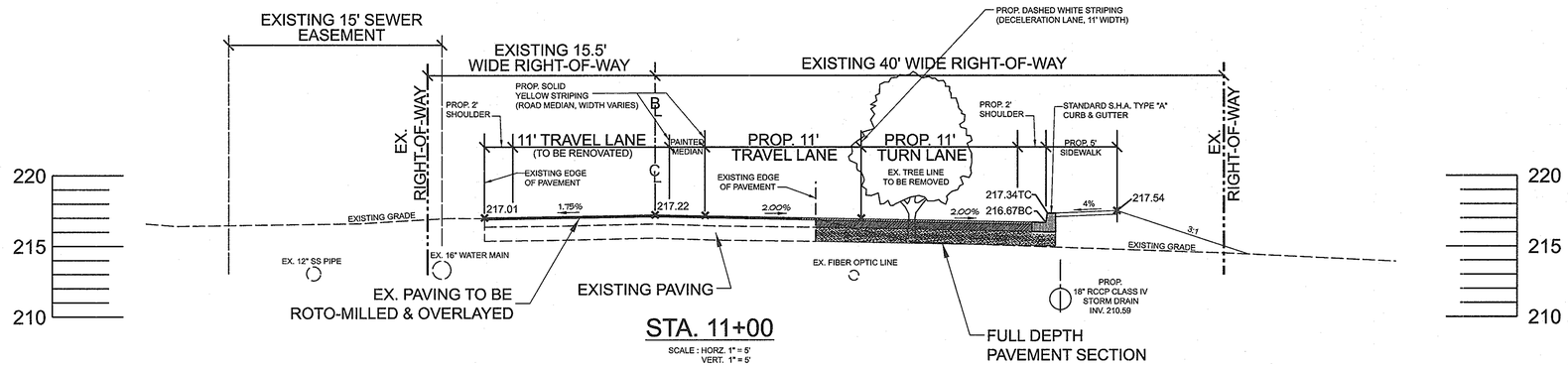

STA. 11+00

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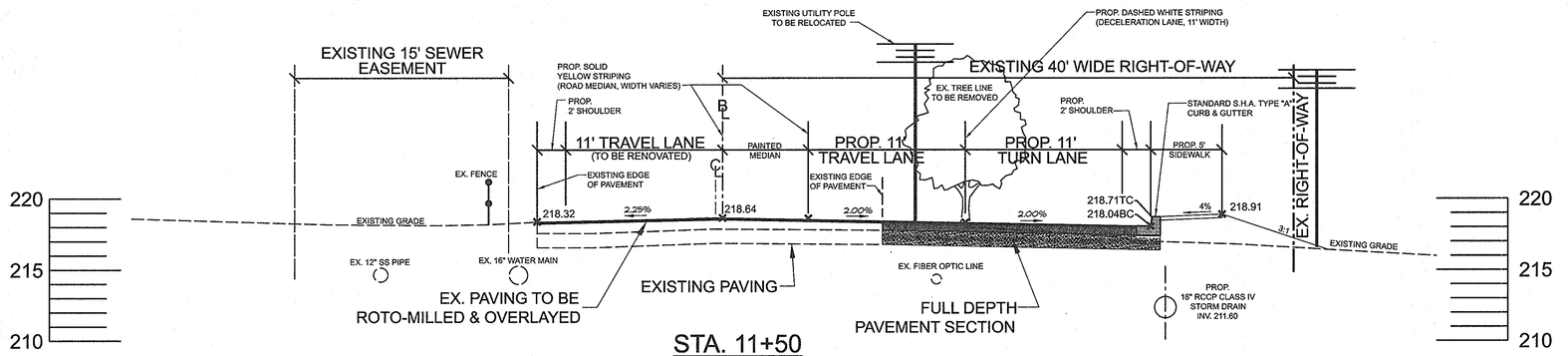

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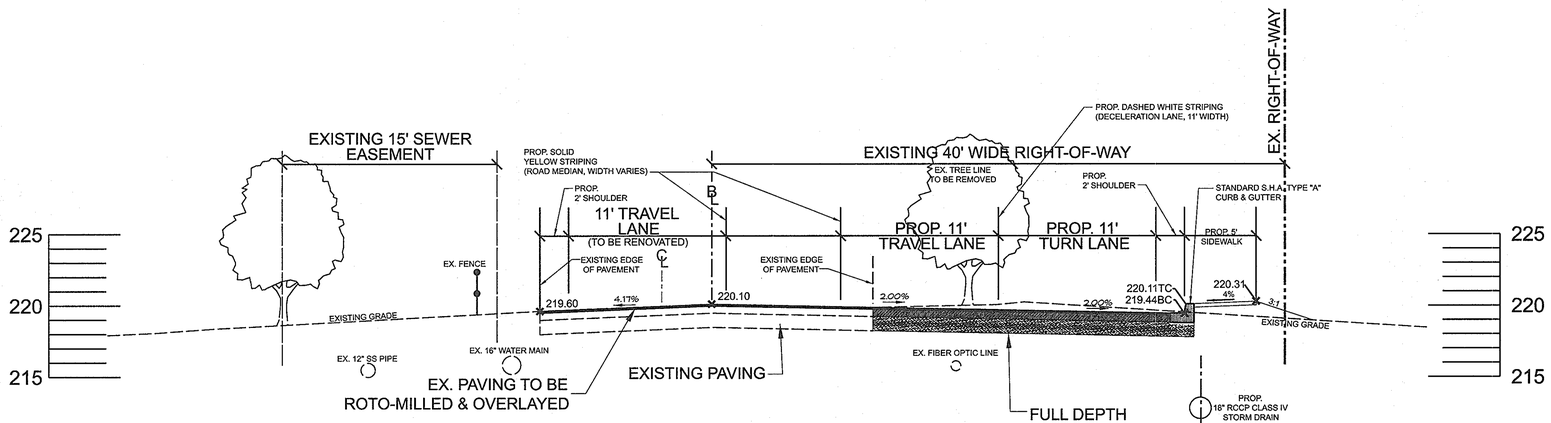

STA. 12+00

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

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/2/13

PREPARED BY:

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

CROSS SECTION VIEWS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 80 OF 94

SDP-08-082 P/N : 10762

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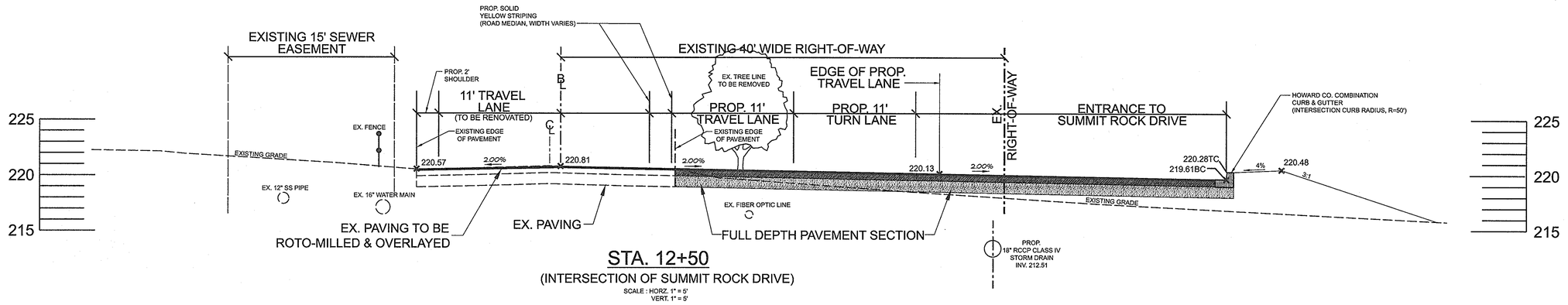
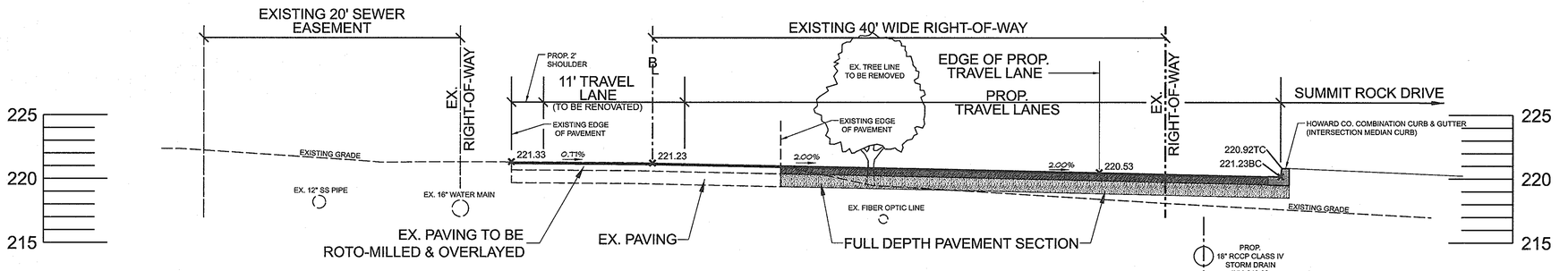


STA. 12+50

(INTERSECTION OF SUMMIT ROCK DRIVE)

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

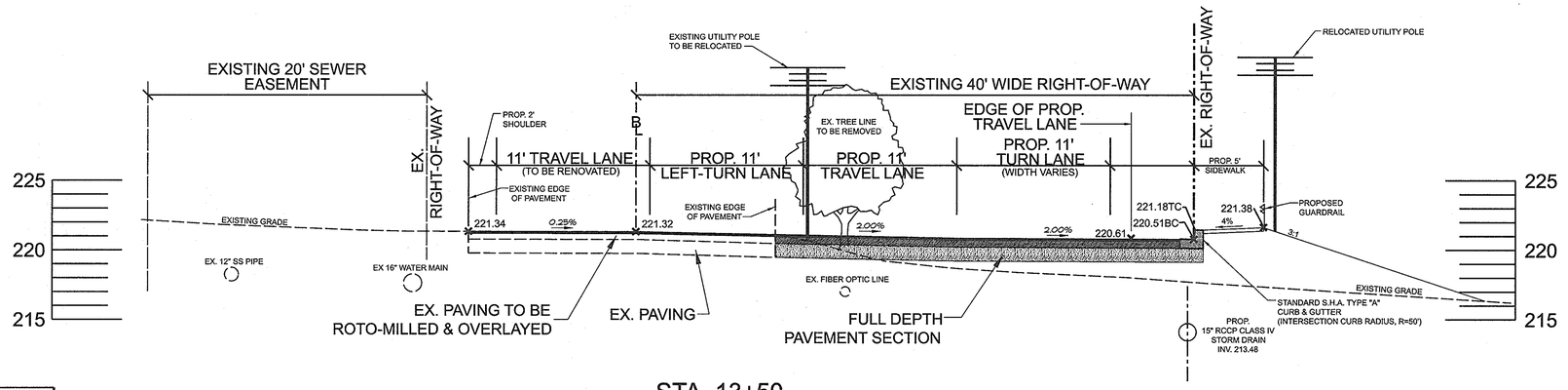


STA. 13+00

(INTERSECTION OF SUMMIT ROCK DRIVE)

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

NOTE: PROPOSED MEDIAN AT SUMMIT ROCK DRIVE DOES NOT MEET EXISTING GRADES.



STA. 13+50

(INTERSECTION OF SUMMIT ROCK DRIVE)

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

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/6/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

* Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013*

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

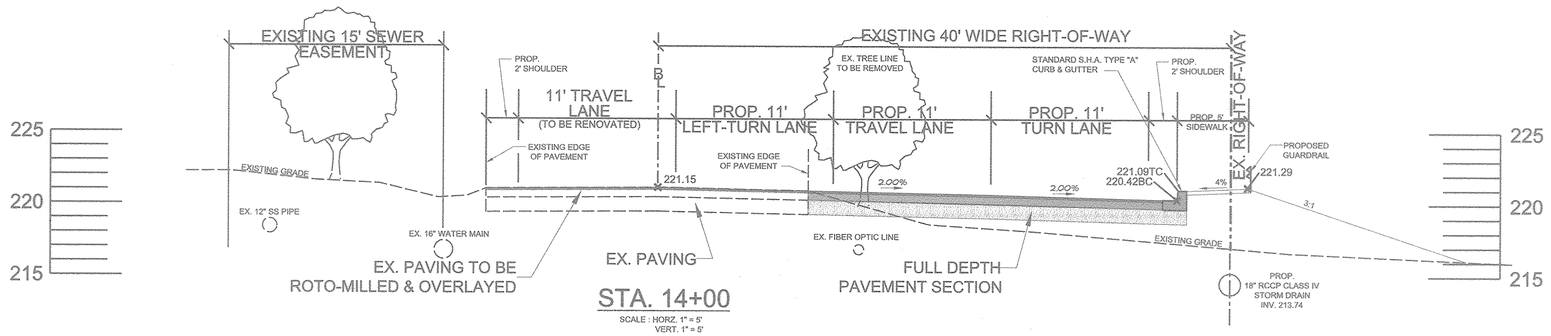
DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

CROSS SECTION VIEWS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

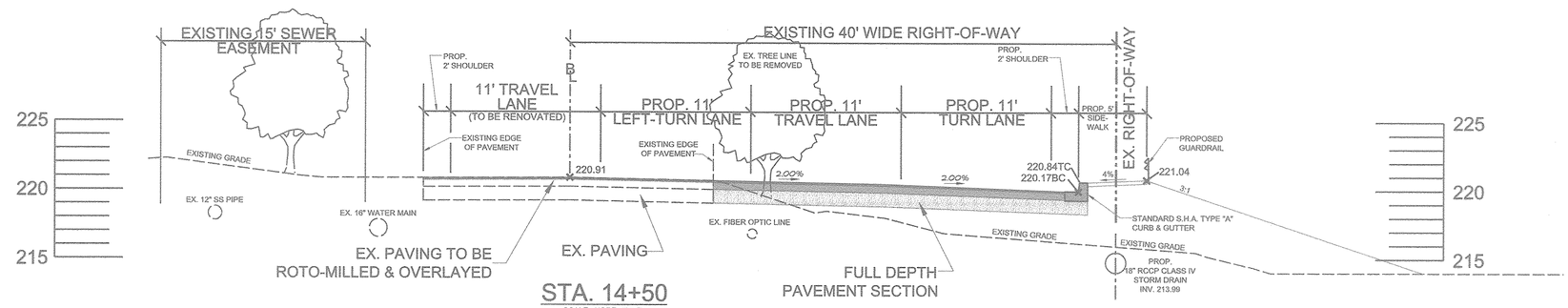
SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 81 OF 94

SDP-08-082 — P/N : 10762



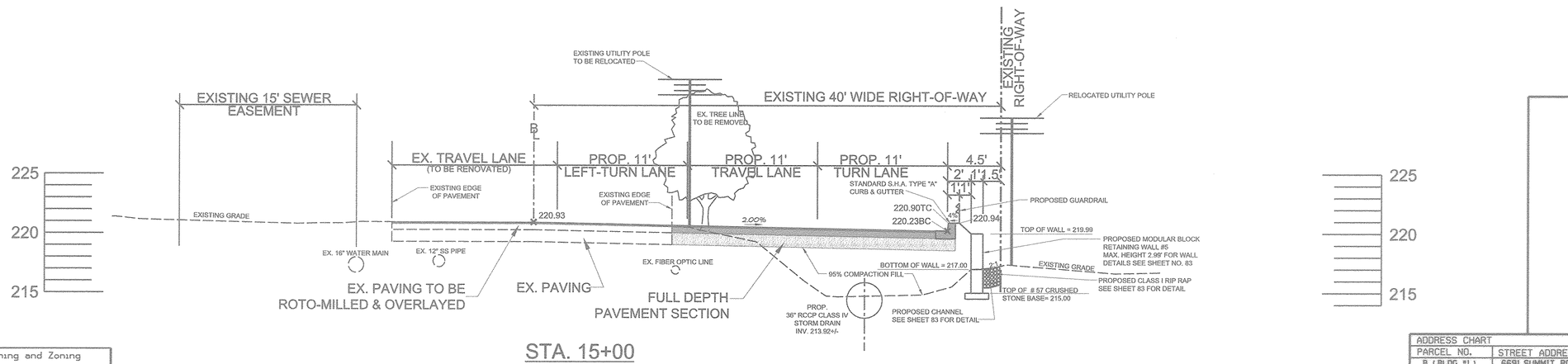
STA. 14+00

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



STA. 14+50

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



STA. 15+00

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

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/9/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~2205-C Commerce Road~~
~~Forest Hill, Maryland 21050~~
(410) 297 - 2340

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013.

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX MAP / ZONE	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

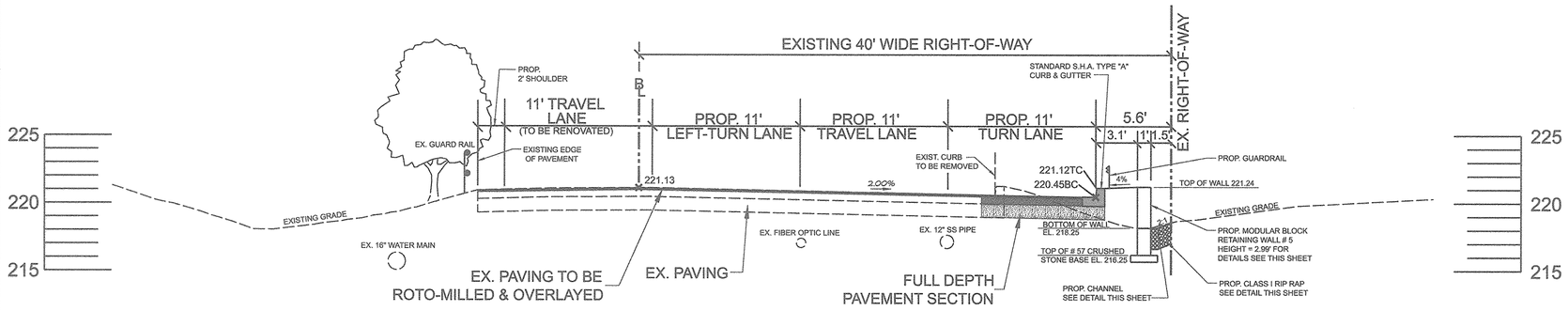
CROSS SECTION VIEWS

CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1ST C
HOWARD CO., MARYLAND

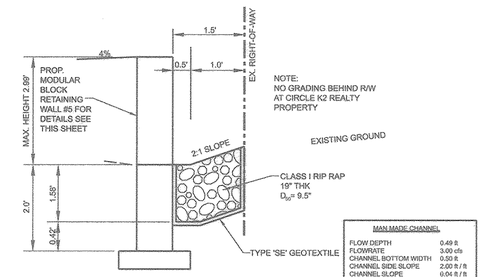
SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 82 OF 94

SDP-08-082 P/N : 10762



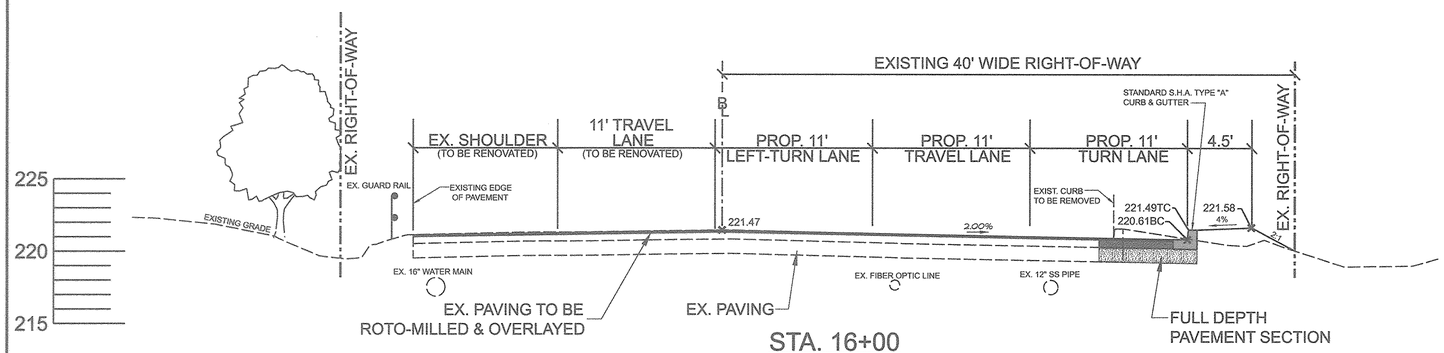
STA. 15+50

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



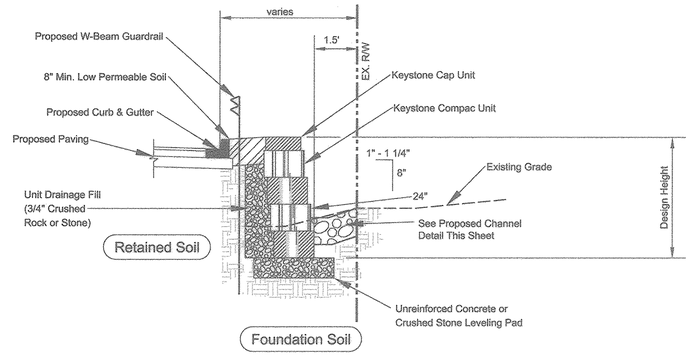
PROPOSED CHANNEL DETAIL BEHIND RETAINING WALL NO. 5

NTS



STA. 16+00

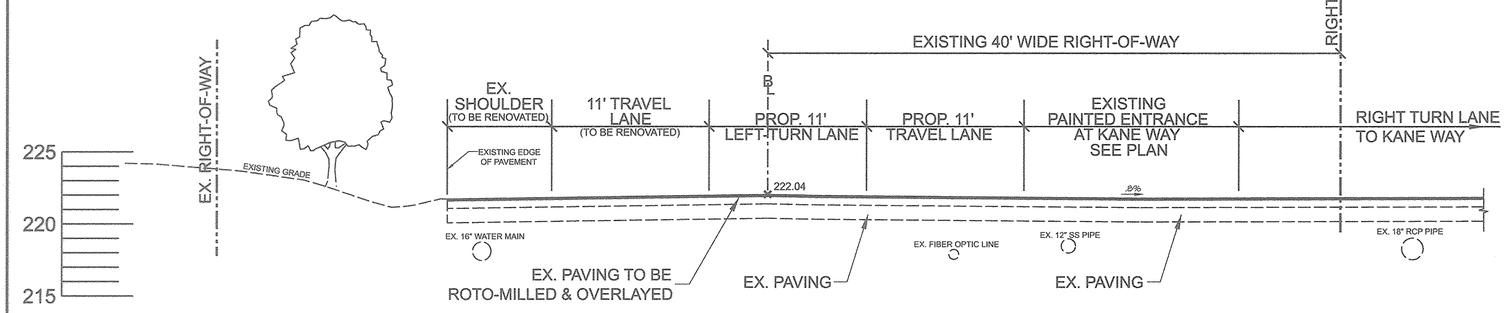
SCALE : HORZ. 1"= 5'
VERT. 1" = 5'



Typical Gravity Wall No. 5 Section

Compac Unit - 1" Setback

NOT TO SCALE



STA. 16+50 (INTERSECTION OF KANE WAY)

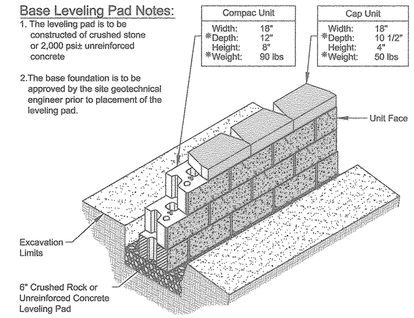
SCALE : HORZ. 1"= 5'
VERT. 1" = 5'

Base Leveling Pad Notes:

1. The leveling pad is to be constructed of crushed stone or 2,000 psi± unreinforced concrete
2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

Compac Unit	
Width:	18"
*Depth:	12"
Height:	8"
*Weight:	90 lbs

Cap Unit	
Width:	18"
*Depth:	10 1/2"
Height:	4"
*Weight:	50 lbs



Compac Unit/Base Pad Isometric Section View Wall No. 5

* Dimensions & Weight May Vary by Region NOT TO SCALE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/8/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND — PAYNE K. ELLIS — No. 10741 — REGISTERED PROFESSIONAL ENGINEER — 11-9-12

* Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX ZONE	MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37		1	6011.02

WATER CODE B-02 SEWER CODE 4020000

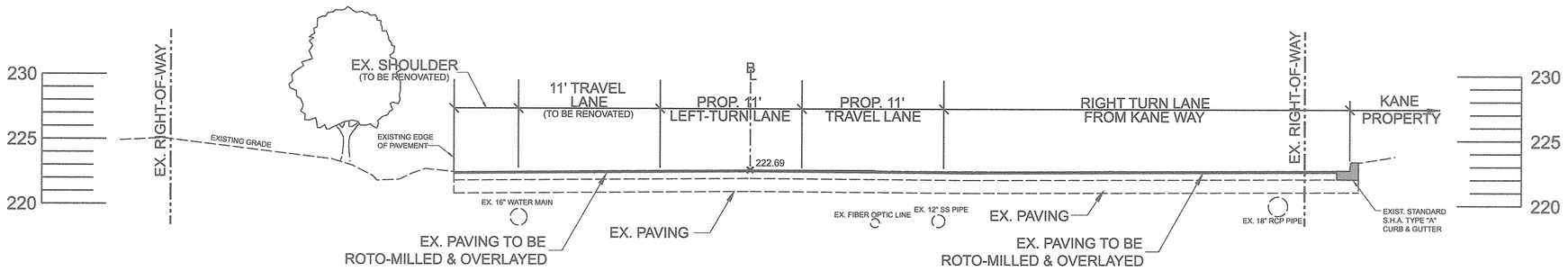
CROSS SECTION VIEWS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 83 OF 84

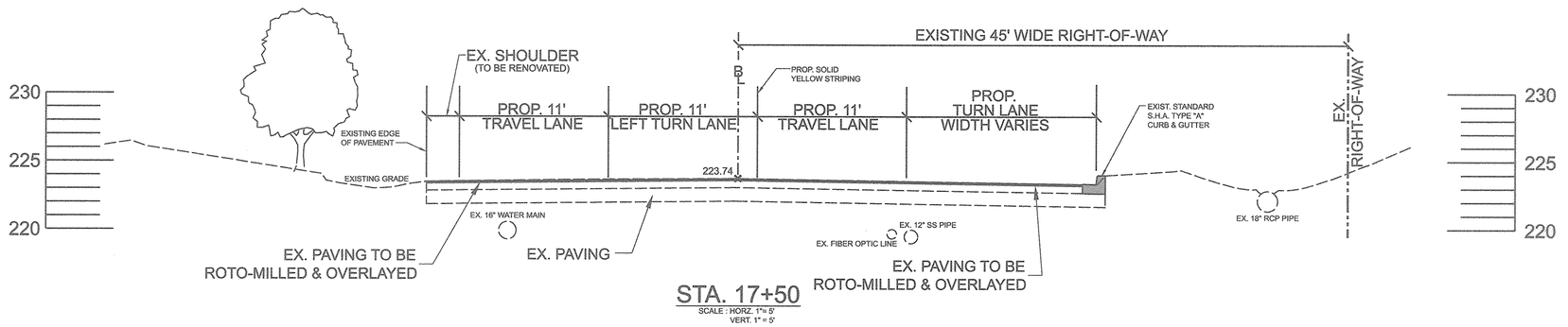
SDP-08-082 P/N : 10762

...\10762sections_sht83.s01 10/21/2011 9:50:39 AM SCALE 1.0000 ft / IN.



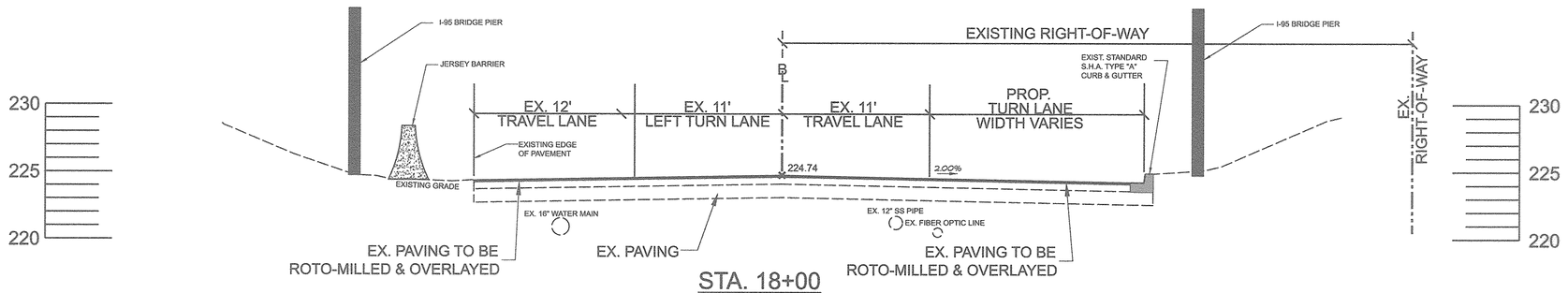
STA. 17+00
(INTERSECTION OF KANE WAY)

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



STA. 17+50

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



STA. 18+00

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

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/6/13

PREPARED BY :

GEORGE W. STEPHENS, JR.
AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

STATE OF MARYLAND — KARL WAYNE KEHLER — No. 19741 — REGISTERED PROFESSIONAL ENGINEER — 2/2/11

" Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUSINESS PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

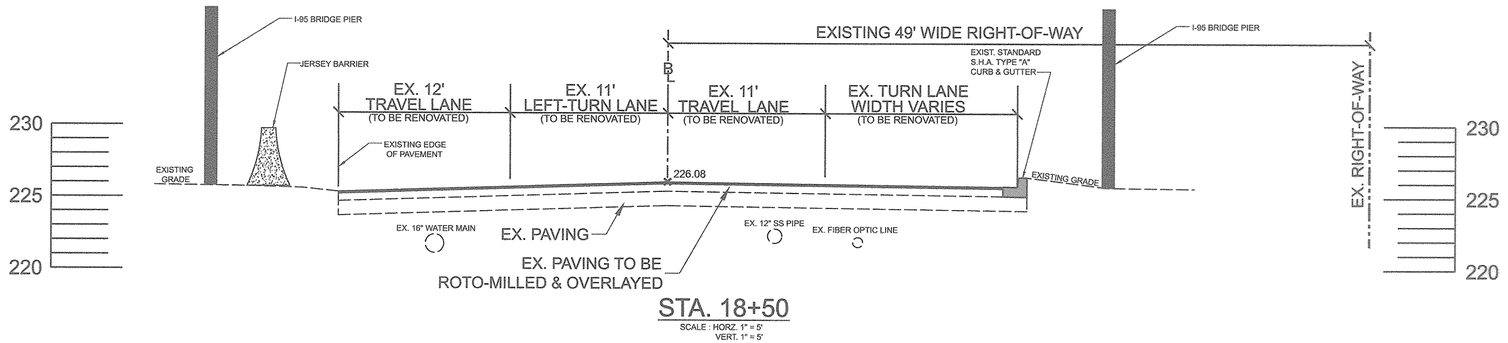
WATER CODE B-02 — SEWER CODE 4020000

CROSS SECTION VIEWS
CORRIDOR 95 BUSINESS PARK
~~**MEADOWRIDGE BUSINESS CENTER**~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1ST
HOWARD CO., MARYLAND

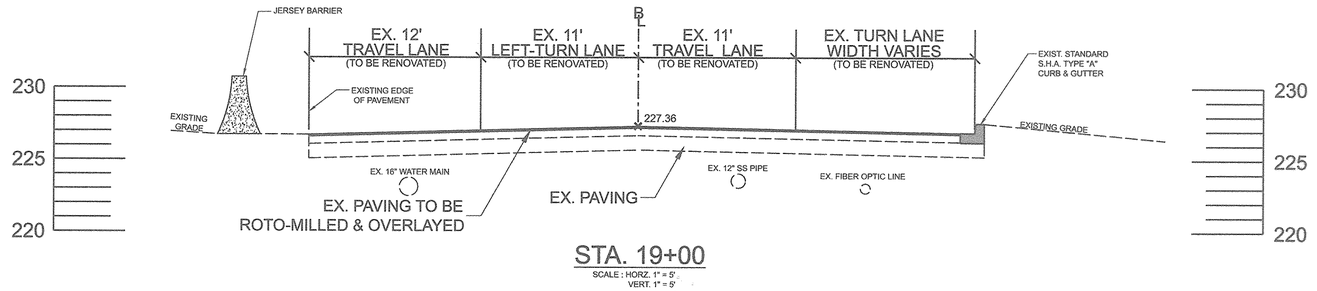
SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT. 84 OF 94

SDP-08-082 — P/N : 10762



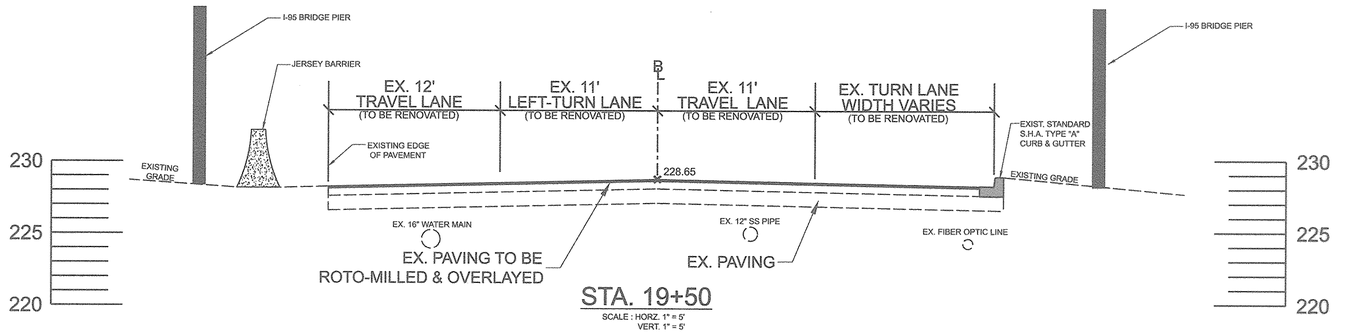
STA. 18+50

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



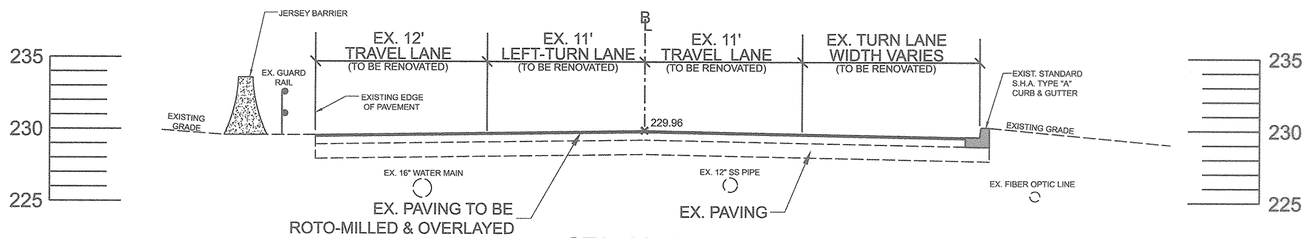
STA. 19+00

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



STA. 19+50

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



STA. 20+00

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

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/13/13

PREPARED BY :

GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.
Civil Engineers and Land Surveyors
~~235 Schilling Circle, Suite 103~~
~~Hunt Valley, Maryland 21031~~
~~(410) 785 - 6640~~

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OWNER / DEVELOPER

SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

DESIGNED BY: E.A.S./K.E.
DRAWN BY: E.A.S./K.E.
CHECKED BY: P.W.T.
REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
B (BLDG. #1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUS. PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

CROSS SECTION VIEWS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 04, 2011
SHT.85 OF 94

SDP-08-082 — P/N : 10762

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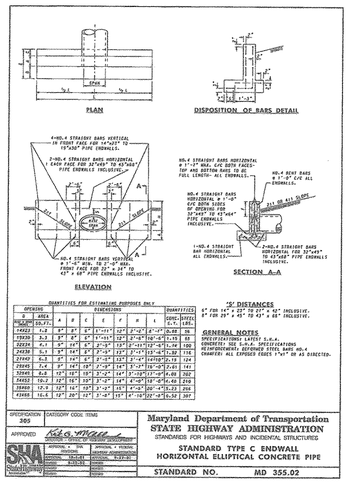
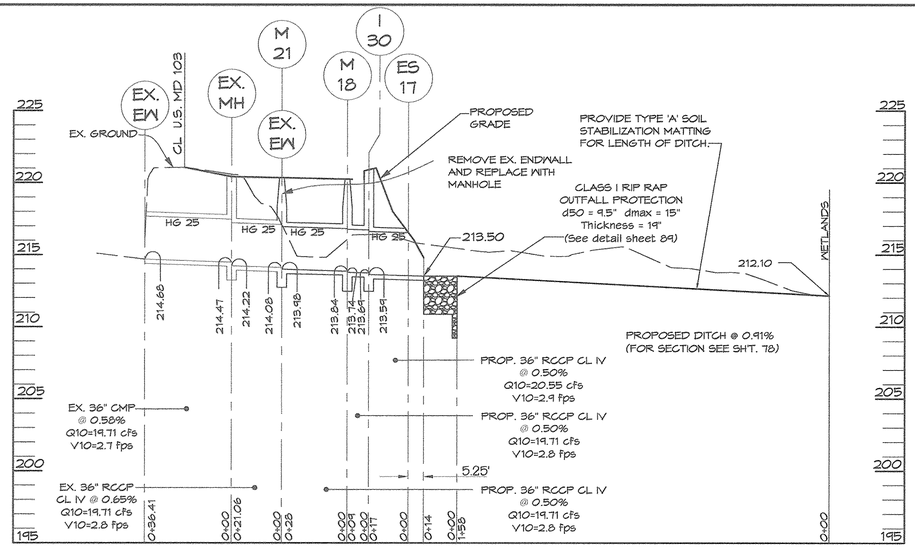
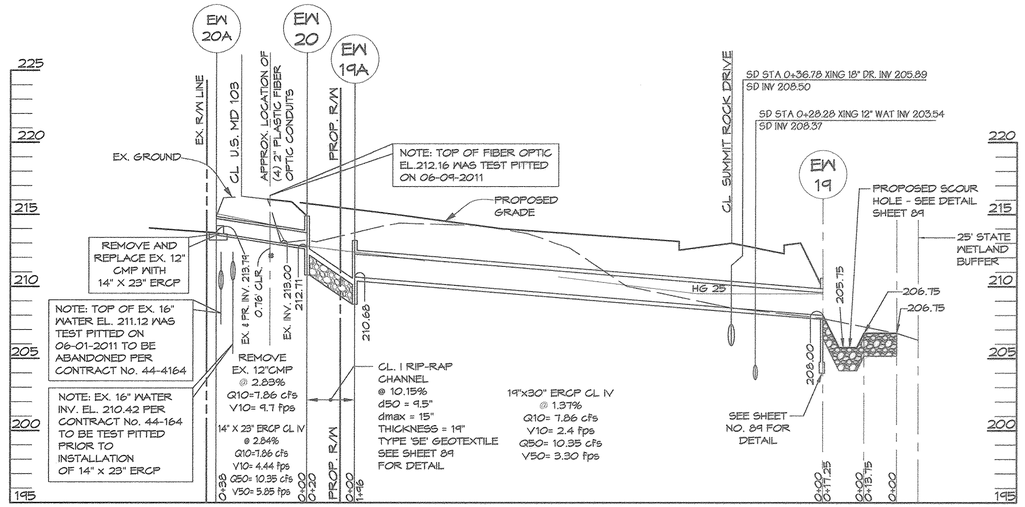


TO BE MODIFIED (SEE SHEET NO. 89 FOR DETAIL)
EW-19 EW-19A
EW-20 EW-20A SEE ABOVE DETAIL THIS SHEET

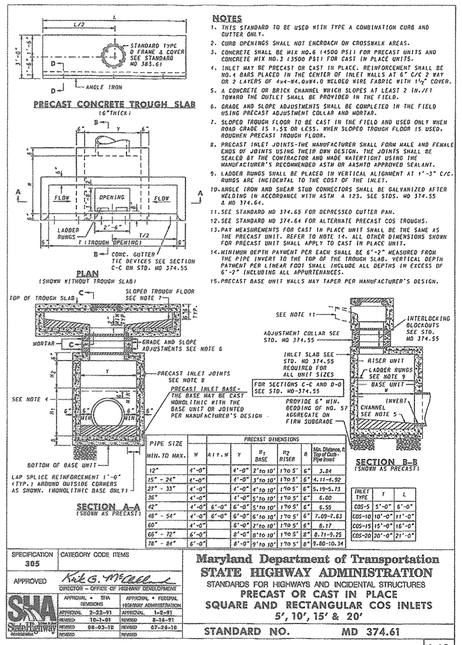


EX. EW TO ES-17

PROFILES
SCALE: HORIZ. 1"=30'
VERT. 1"=5'



EW-20A TO EW-19



NOTES

1. THIS STANDARD TO BE USED WITH TYPE A COMBINATION CURB AND CUTTER ONLY.
2. CURB OPENINGS SHALL NOT ENCROACH ON CROSSWALK AREAS.
3. CONCRETE SHALL BE MIX NO.6 (4500 PSI) FOR PRECAST UNITS AND CONCRETE MIX NO.3 (3500 PSI) FOR CAST IN PLACE UNITS.
4. INLET MAT BE PRECAST OR CAST IN PLACE. REINFORCEMENT SHALL BE NO.4 BARS PLACED IN THE CENTER OF INLET WALLS AT 6" C/C & MAT OR 2 LAYERS OF 4x4-W4.0xW4.0 WELDED WIRE FABRIC WITH 1½" COVER.
5. A CONCRETE OR BRICK CHANNEL WHICH SLOPES AT LEAST 2 IN./FT TOWARD THE OUTLET SHALL BE PROVIDED IN THE FIELD.
6. GRADE AND SLOPE ADJUSTMENTS SHALL BE COMPLETED IN THE FIELD USING PRECAST ADJUSTMENT COLLAR AND MORTAR.
7. SLOPED TROUGH FLOOR TO BE CAST IN THE FIELD AND USED ONLY WHEN ROAD GRADE IS 1.25 OR LESS. WHEN SLOPED TROUGH FLOOR IS USED, ROUGHEN PRECAST TROUGH FLOOR.
8. PRECAST INLET JOINTS-THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING THE MANUFACTURER'S RECOMMENDED ASTM OR AASHTO APPROVED SEALANT.
9. LADDER RUNGS SHALL BE PLACED IN VERTICAL ALIGNMENT AT 1'-3" C/C. RUNGS ARE INCIDENTAL TO THE COST OF THE INLET.
10. ANGLE IRON AND SHEAR STUD CONNECTORS SHALL BE GALVANIZED AFTER WELDING IN ACCORDANCE WITH ASTM A 123. SEE STDS. NO 374.55 & NO 374.64.
11. SEE STANDARD NO 374.65 FOR DEPRESSED CUTTER PAN.
12. SEE STANDARD NO 374.64 FOR ALTERNATE PRECAST COS TROUGHS.
13. PAY MEASUREMENTS FOR CAST IN PLACE UNIT SHALL BE THE SAME AS THE PRECAST UNIT. REFER TO NOTE 14. ALL OTHER DIMENSIONS SHOWN FOR PRECAST UNIT SHALL APPLY TO CAST IN PLACE UNIT.
14. MINIMUM DEPTH PAYMENT PER EACH SHALL BE 6'-2" MEASURED FROM THE PIPE INVERT TO THE TOP OF THE TROUGH SLAB. VERTICAL DEPTH PAYMENT PER LINEAR FOOT SHALL INCLUDE ALL DEPTHS IN EXCESS OF 6'-2" INCLUDING ALL APPURTENANCES.
15. PRECAST BASE UNIT WALLS MAY TAPER PER MANUFACTURER'S DESIGN.

LAP SPLICE REINFORCEMENT 1'-0" (TYP.) AROUND OUTSIDE CORNERS AS SHOWN. (INDIVIDUAL BASE ONLY)

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~236 SCHILLING CIRCLE, SUITE 102~~
~~HUNT VALLEY, MARYLAND 21031~~

~~Phn (410) 785-6940~~ http://www.gwstephens.com ~~Fax: (410) 785-6947~~

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2015"

MARYLAND STATE HIGHWAY ADMINISTATION
STORM SEWER DESIGN

SHA 61.1-487
9/1/1980

Sheet 1 of 1
Date 2-Oct-07

DESIGNED BY: R. Montgomery
CHECKED BY:
CONTRACT NO. 1010762
PROJECT: Corridor 95 Business Park - Maryland Route 103 Road Improvements
RAINFALL FACTORS
DURATION: 0-10 10.1-40 40.1-150

Structure FROM	Structure TO	Contributing C Area #	Contributing A Area Acres	Runoff Coef.	Δ CA	∑ A	∑ CA	10 Year Runoff t_c Time Conc. Min.	i_{10} Rainfall intens. (in./hr.)	Q cfs	Pipe Size in.	Type	n Mannings Coef.	S_o Slope %	L length Ft.	V_O Vel ft./sec.	Time In Pipe min.	Capac Full cfs	Remarks
	I-16	B	0.12	0.83	0.0996			5.71	6.84	0.68									
I-16	M-15	B	0.12	0.83			0.0996	5.71	6.84	0.68	15"	RCCP	0.013	0.50	171.95	0.55	5.21	4.60	
M-15	I-14	B	0.12	0.83			0.0996	10.92	6.84	0.68	18"	RCCP	0.013	0.91	160.05	0.40	6.67	10.10	
	I-14	C	0.23	0.92	0.212			5.31	6.93	1.47									
I-14	I-13	B&C				0.35	0.3112	17.59	4.71	1.47	18"	RCCP	0.013	1.75	85.38	0.8	1.78	14.20	
	I-13	D	0.07	0.84	0.0588			5.12	6.98	0.41									
I-13	M-57	B-D				0.42	0.3700	19.37	4.48	1.66	18"	RCCP	0.013	0.51	65.29	0.9	1.21	7.50	
	FUT. INLET	E	0.28	0.87	0.2436			5.00	7.00	1.71									ULTIMATE CONDITION LOT 1
M-57	M-12	B-E				0.70	0.6136	20.58	4.34	2.66	18"	RCCP	0.013	0.50	73.57	1.5	0.85	7.50	
	I-6	F	0.06	0.83	0.0498			5.22	6.95	0.35									
I-6	I-11	F	0.06	0.83			0.0498	5.22	6.95	0.35	15"	RCCP	0.013	0.50	25.81	0.20	2.15	4.60	
	I-11	G	0.12	0.70	0.084			5.00	7.00	0.59									
I-11	M-12	F&G				0.18	0.1338	7.37	6.45	0.86	18"	RCCP	0.013	1.64	10.99	0.45	0.41	13.90	
	I-32	H	0.08	0.86	0.0688			7.14	6.51	0.45									
I-32	M-12	H	0.08	0.86			0.0888	7.14	6.51	0.45	15"	RCCP	0.013	0.50	14.26	0.30	0.79	4.60	
M-12	M-5	B-H				0.95	0.8162	21.43	4.26	3.48	18"	RCCP	0.013	0.50	35.00	1.9	0.31	8.20	
	I-10	I	0.14	0.88	0.1232			6.41	6.68	0.82									
I-10	M-8	I	0.14	0.88			0.1232	6.41	6.68	0.82	15"	RCCP	0.013	3.45	71.25	0.7	1.7	12.00	
	FUT. INLET	J	0.20	0.76	0.152			5.00	7.00	1.06									
	I-9	K	0.14	0.90	0.126			6.82	6.59	0.83									
I-9	M-8	J&K				0.34	0.278	6.82	6.59	1.83	15"	RCCP	0.013	5.72	18.88	1.5	0.21	15.50	
M-8	M-5	I-K				0.48	0.4012	8.38	6.25	2.51	18"	RCCP	0.013	1.03	135.04	1.4	1.61	10.80	
	I-7	O1	0.13	0.95	0.1235			5.00	7.00	0.86									
I-7	M-5	O1	0.13	0.95			0.1235	5.00	7.00	0.86	15"	RCCP	0.013	0.50	21.23	0.70	0.51	4.60	
M-5	I-3	B-K&O1				1.57	1.3409	21.74	4.23	5.67	18"	RCCP	0.013	0.50	117.25	3.1	0.63	7.50	
	I-4	P1	0.26	0.89	0.2314			6.92	5.91	1.37									
I-4	I-3	P1	0.26	0.89			0.2314	6.92	5.91	1.37	15"	RCCP	0.013	0.50	37.52	1.15	0.54	7.50	
	I-3	Q1	0.26	0.83	0.2158			6.92	5.91	1.28									
I-3	ES-I	I-K&O1-Q1				2.09	1.7881	22.37	4.16	7.44	21"	RCCP	0.013	0.50	26.03	3.0	0.14	11.30	
EX. EW	EX.M-1	L1	16.8	0.28	4.70			22.12	4.19	19.71	36"	CMP	0.024	0.58	36.41	2.7	0.22	27.5	
EX.M-1	M-21	L1	16.8	0.28			4.70	22.34	4.19	19.71	36"	RCCP	0.013	0.65	21.0	2.8	0.13	54.5	MH @ LOCATION OF OLD EW
M21	M18	L1	16.8	0.28			4.70	22.47	4.19	19.71	36"	RCCP	0.013	0.50	28.0	2.8	0.14	47.8	
M18	I30	L1	16.8	0.28			4.70	22.61	4.19	19.71	36"	RCCP	0.013	0.50	9.0	2.8	0.05		
	I30	NI	0.31	0.85	0.2635			7.51	6.43	1.69									
I30	ES-17	L1 & N1	17.11				4.9635	22.61	4.14	20.55	36"	RCCP	0.013	0.50	17	2.9	0.10	47.8	
	EX.12"CMP	M1	8.14	0.22	1.791			20.12	5.78*	10.35	12"	CMP	0.024	2.62	30.16	9.7	0.05	3.1	
EW-20A	EW-20	M1	8.14	0.22			1.791	20.12	5.78*	10.35	12"	RCP	0.013	2.62	38	9.5	0.07	3.1	REMOVE/REPLACE 12"
EW-19A	EW-19	M1	8.14	0.22			1.791	20.19	5.78*	10.35	19"x30"	ERCP	0.013	1.36	196	2.4	1.36	26.5	TO SCOUR HOLE

* 50 YR STORM

STRUCTURE SCHEDULE

STRUCTURE NO.	STRUCTURE DESCRIPTION	INV. IN	INV. OUT	TOP OR FL EL.	SHA DETAIL	REMARKS
M-57	ST'D. PRECAST MANHOLE STA. 3+77.41, 108.54' RT.	STUB TO LOT 1 (16") 209.33 (W) (15") 209.39 (S)	(18") 209.08	T 214.70	HOWARD COUNTY G5.12	SEE SHEET 89 FOR DETAIL
I-32	DOUBLE TYPE 'S' INLET STA. 3+97.52, 39.72' RT.		(15") 208.83	FL 212.75	HOWARD COUNTY D4.23	W/WR GRATE, SEE SHEET 70 FOR DETAIL
I-30	10' COG INLET STA. 14+85.06, 36.09' RT.	(36") 213.69	(36") 213.59	FL 220.05	SHA STD. MD - 374.51	10' LONG, SEE SHEET 89 FOR DETAIL
M-21	SHALLOW MANHOLE STA. 15+11.33, 25.20' RT.	(36") 214.08	(36") 213.98	T 220.30	SHA STD. MD - 383.00	SEE SHEET 89 FOR DETAIL
M-20	60" PRECAST MANHOLE STA. 10+34.60, 24.72' RT. 14" x 23 ERCP	(PR.) 212.77	(19"x30")210.96	T 215.75	SHA STD. MD - 384.03	CAUTION!! FIBER OPTICS IN AREA, SEE SHEET 89 FOR DETAIL
EW-19	MODIFIED TYPE 'C' ENDWALL FOR ERCP STA. 4+35.49, 34.31' LT.		(19"x 30") 208.00	T 210.60	SHA MOD. MD - 355.02	SEE DETAIL THIS SHEET
M-18	SHALLOW MANHOLE STA. 14+89.50, 31.00' RT.	(36") 213.84	(36") 213.74	T 220.13	SHA STD. MD - 383.00	SEE SHEET 89 FOR DETAIL
ES-17	ST'D. CONC. END SECTION STA. 14+79.91, 55.20' RT.		(36") 213.50		SHA STD. MD - 368.02	SEE SHEET 89 FOR DETAIL
I-16	COG INLET STA. 14+66.08, 37.28' RT.	--	(15") 214.07	T 220.41	SHA STD. MD - 374.61	10' LONG, SEE SHEET 89 FOR DETAIL
M-15	ST'D PRECAST MANHOLE STA.12+97.00,43.50' RT.	(15") 213.21	(18") 212.96	T 220.36	SHA STD. MD - 384.01	SEE SHEET 89 FOR DETAIL
I-14	COG INLET STA. 11+39.71, 29.68' RT.	(18") 211.50	(18") 211.30	T 218.40	SHA STD. MD - 374.51	10' LONG, SEE SHEET 89 FOR DETAIL
I-13	COG INLET STA 10+55.67, 19.73' RT.	(18") 209.81	(18") 209.61	T 216.61	SHA STD. MD - 374.51	10' LONG, SEE SHEET 89 FOR DETAIL
M-12	ST'D. PRECAST MANHOLE STA. 3+86.49, 36.18' RT.	(18")209.76 (I) (18") 209.61 (I) (15") 209.71 (W)	(18") 208.51	T 213.25	HOWARD COUNTY G5.12	SEE SHEET 89 FOR DETAIL
I-11	DOUBLE TYPE 'S' INLET STA. 3+77.41, 34.15' RT.	(15") 209.14	(18") 208.89	FL 213.50	HOWARD COUNTY D4.23	W/WR GRATE, SEE SHEET 70 FOR DETAIL
I-10	DOUBLE 'WR' INLET STA. 1+96.35, 24.03' LT.		(15") 212.40	FL 216.57	HOWARD COUNTY D4.35	SEE SHEET 89 FOR DETAIL
I-9	DOUBLE 'WR' INLET STA. 2+59.02, 20.15' RT.	STUB TO LOT 1 (15") 211.22 (SW)	(15") 211.02	FL 215.50	HOWARD COUNTY D4.35	SEE SHEET 89 FOR DETAIL
M-8	ST'D. PRECAST MANHOLE STA. 2+59.02, ON BL	(18")209.94 (S) (15") 209.94 (W)	(18") 209.69	T 216.00	HOWARD COUNTY G5.12	SEE SHEET 89 FOR DETAIL
I-7	DOUBLE 'WR' INLET STA. 3+90.00, 20.00' LT.		(15") 208.66	FL 213.00	HOWARD COUNTY D4.35	SEE SHEET 89 FOR DETAIL
I-6	DOUBLE 'WR' INLET STA. 3+58.86, 20.00' RT.		(15") 209.27	FL 213.55	HOWARD COUNTY D4.35	SEE SHEET 89 FOR DETAIL
M-5	ST'D. PRECAST MANHOLE STA. 3+93.83, 2.16' RT.	(18")209.30 (W) (15") 209.66 (N) (18") 209.30 (S)	(18") 209.00	T 213.30	HOWARD COUNTY G5.12	SEE SHEET 89 FOR DETAIL
M-4A	ST'D. PRECAST MANHOLE STA. 5+51.91, 28.68' RT.	(21") 205.15	(21") 205.08	T 211.00	HOWARD COUNTY G5.12	SEE SHEET 89 FOR DETAIL
I-4	DOUBLE 'WR' INLET STA. 5+05.00, 20.00' LT.		(15") 207.60	FL 211.77	HOWARD COUNTY D4.35	SEE SHEET 89 FOR DETAIL
I-3	DOUBLE 'WR' INLET STA. 5+05.00, 20.00' RT.	(15") 207.41 (N) (18") 205.41 (W)	(21") 205.31	FL 211.77	HOWARD COUNTY D4.35	SEE SHEET 89 FOR DETAIL
ES-1	21" CONC. END SECTION STA. 5+49.70, 47.23' RT.		(21") 205.00		HOWARD COUNTY D5.51	OUTFALL INTO SWM POND #1, SEE SHEET 70 FOR DETAIL
EW-20A	ST'D TYPE 'C' ENDWALL FOR ERCP STA. 10+35.60, 14.23' LT	213.79		T 215.96	SHA STD. MD - 355.02	SEE DETAIL THIS SHEET
EW-20	ST'D TYPE 'C' ENDWALL FOR ERCP STA. 10+38.82, 24.93' RT	--	212.71	T 214.88	SHA STD. MD - 355.02	SEE DETAIL THIS SHEET
EW-19A	ST'D TYPE 'C' ENDWALL FOR ERCP STA. 10+37.66, 45.82' RT	210.68	--	T 213.18	SHA STD. MD - 355.02	SEE DETAIL THIS SHEET

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RLM
Drawn By:	JLB
Checked By:	MTS

REVISIONS

ADDRESS CHART

PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUS. PARK	N/A	134 / 179

PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

SHA STORM DRAIN PROFILES
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

P/N : 10762
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
DATE : February 4, 2011
SHEET 86 OF 94

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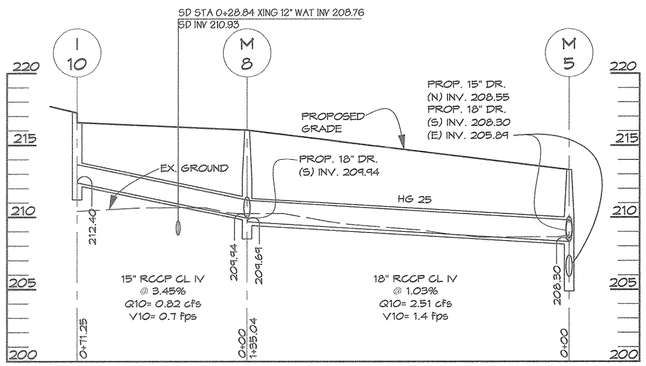
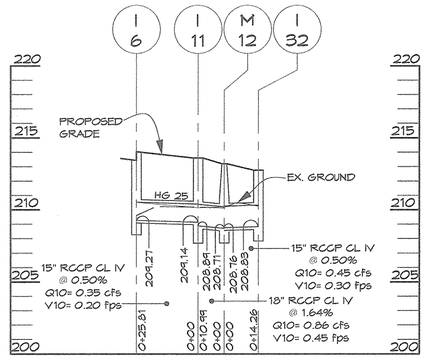
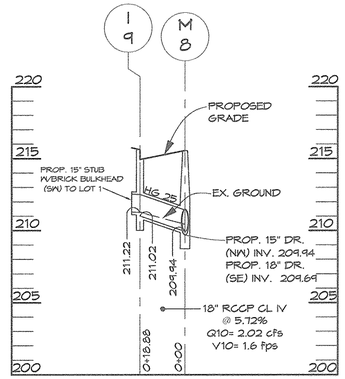


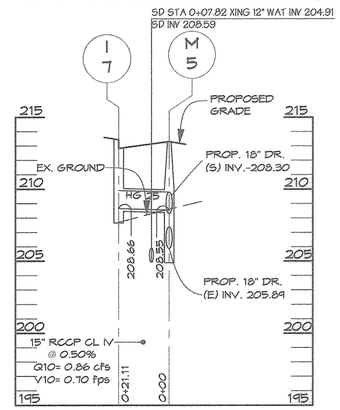
I-10 TO M-5



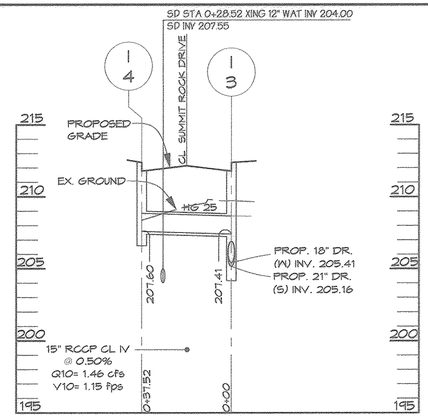
I-6 TO I-32



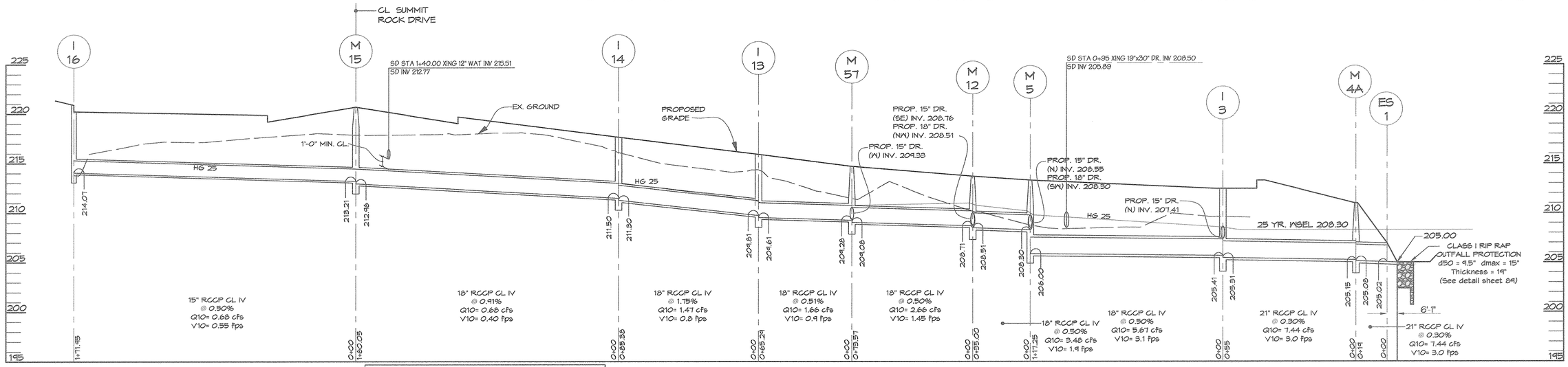
I-9 TO M-8



I-7 TO M-5

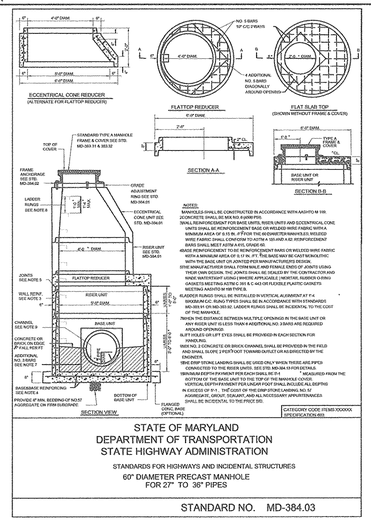


I-4 TO I-3



I-16 TO ES-1

PROFILES
SCALE: HORIZ. 1"=30'
VERT. 1"=5'



ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUS. PARK	N/A	134 / 179

PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/6/13

PREPARED BY:

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~238 SHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~

Ph: (410) 785-6840 http://www.gwstephens.com ~~Fax: (410) 785-6017~~

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licenced professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013"

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RLM
Drawn By:	JLB
Checked By:	MTS

REVISIONS

SHA STORM DRAIN PROFILES
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

SCALE: AS SHOWN
P/N : 10762 DATE : February 4, 2011
HOWARD COUNTY, MARYLAND SHEET 87 OF 94

SDP-08-082

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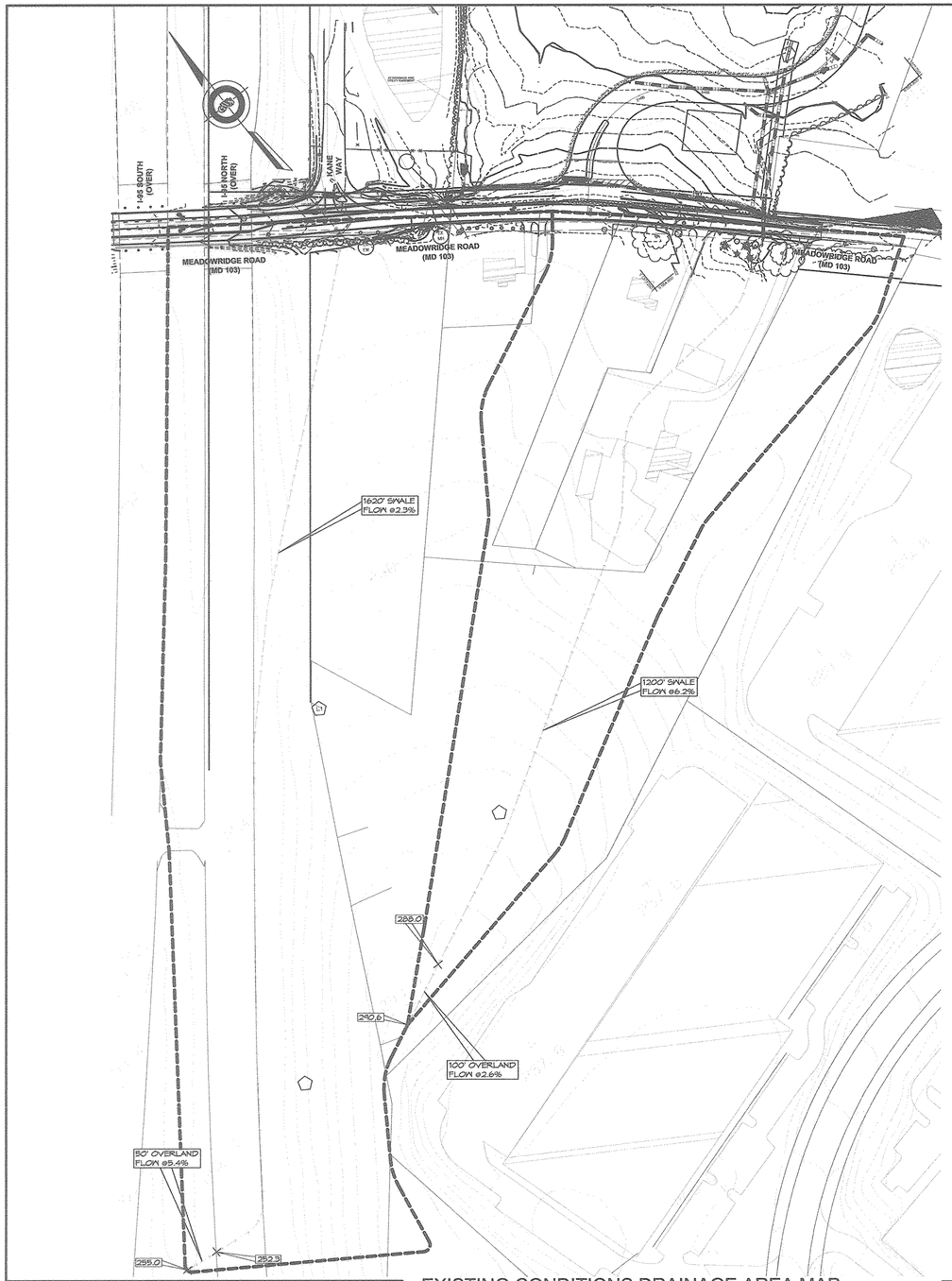
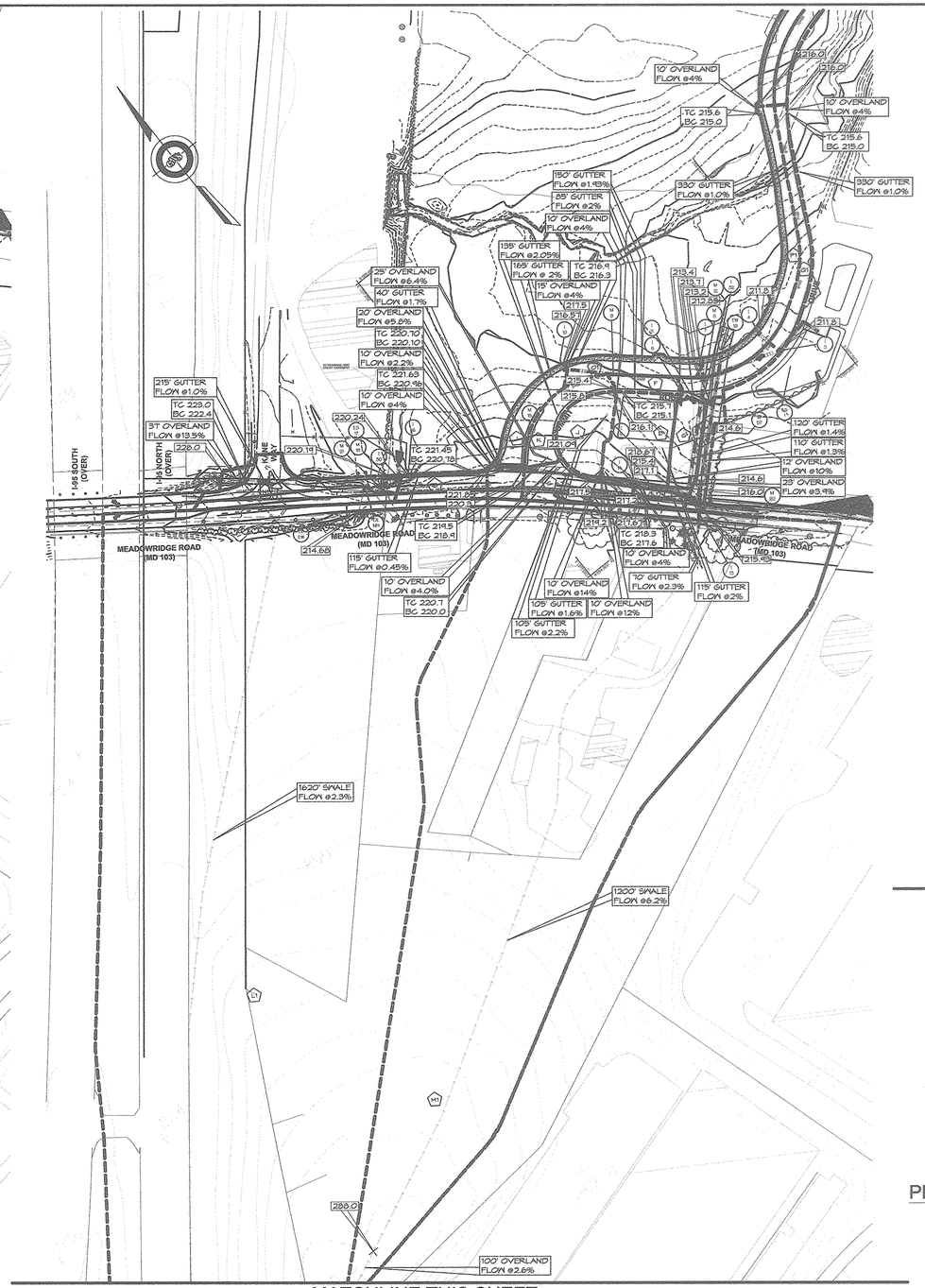


EXISTING CONDITIONS DRAINAGE AREA MAP

SCALE: 1" = 100'



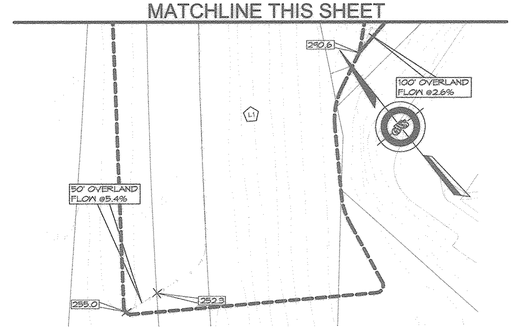
MATCHLINE THIS SHEET

PROPOSED CONDITIONS DRAINAGE AREA MAP

SCALE: 1" = 100'

AREA	ACRES
B	0.12
C	0.23
D	0.07
E	0.28
F	0.06
G	0.12
H	0.08
I	0.14
J	0.20
K	0.14
L1	16.8
M1	8.14
N1	0.31
O1	0.13
P1	0.26
Q1	0.26

MATCHLINE THIS SHEET



PROPOSED CONDITIONS DRAINAGE AREA MAP

SCALE: 1" = 100'

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/3/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~235 SCHILLING CIRCLE, SUITE 103~~
~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 785-6640~~ http://www.gwstephens.com ~~Fax: (410) 785-6647~~

STATE OF MARYLAND — KYLE JAMES BOWERS — NO. 19741 — REGISTERED PROFESSIONAL ENGINEER

*Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2013

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RLM
Drawn By:	JLB
Checked By:	PWT

REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUS. PARK	N/A	134/179

PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE: B-02 SEWER CODE: 4020000

SHA STORM DRAINAGE AREA MAP

CORRIDOR 95 BUSINESS PARK

~~MEADOWRIDGE BUSNIESS CENTER~~

PARCELS A & B

SCALE: AS SHOWN

ELECTION DISTRICT: 1 — DATE : FEBRUARY 4, 2011

HOWARD CO., MARYLAND — SHEET 88 OF 94

SDP-08-082

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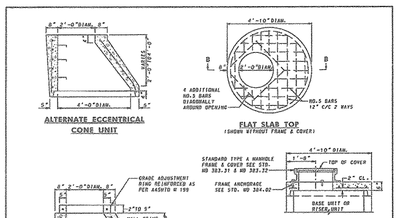


SPECIFICATION	CATEGORY CODE ITEMS
305	

APPROVED: Kirk G. Mette, DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

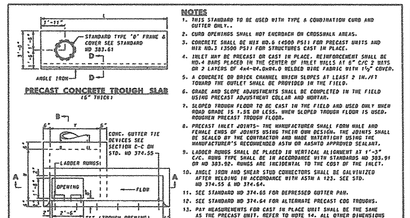
SHA	APPROVAL • SHA	REVISIONS	APPROVAL • FEDERAL	REVISIONS
State Highway Administration	APPROVAL	10-1-01	APPROVAL	5-25-01
	REVISED		REVISED	
	REVISED		REVISED	
	REVISED		REVISED	

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

48" DIAMETER PRECAST MANHOLE FOR 12" TO 24" PIPES

STANDARD NO. MD 384.01

MH-15



SPECIFICATION	CATEGORY CODE ITEMS
305	

APPROVED: Kirk G. Mette, DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

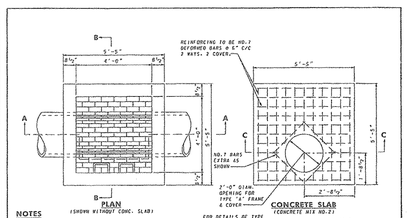
SHA	APPROVAL • SHA	REVISIONS	APPROVAL • FEDERAL	REVISIONS
State Highway Administration	APPROVAL	5-25-01	APPROVAL	5-25-01
	REVISED	10-1-01	REVISED	
	REVISED		REVISED	
	REVISED		REVISED	

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

PRECAST OR CAST IN PLACE SQUARE AND RECTANGULAR COG INLETS 5', 10', 15' & 20'

STANDARD NO. MD 374.51

I-13 | I-14 | I-30



SPECIFICATION	CATEGORY CODE ITEMS
305	

APPROVED: Kirk G. Mette, DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

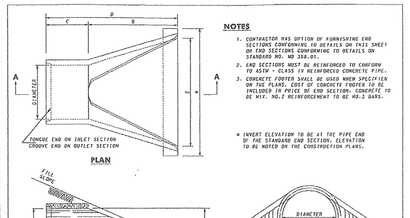
SHA	APPROVAL • SHA	REVISIONS	APPROVAL • FEDERAL	REVISIONS
State Highway Administration	APPROVAL	10-1-01	APPROVAL	4-28-99
	REVISED		REVISED	
	REVISED		REVISED	
	REVISED		REVISED	

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

48" SQUARE STANDARD SHALLOW MANHOLE

STANDARD NO. MD. 383.00

MH-18 | MH-21


NOTES
1. THIS STANDARD TO BE USED WITH TYPE A COMBINATION CURB AND GUTTER ONLY.
2. CURB OPENINGS SHALL NOT EXCROACH ON CROSSWALK AREAS.
3. CONCRETE SHALL BE MIX NO.6 4500 PSI FOR PRECAST UNITS AND CONCRETE MIX NO.1 (3500 PSI) FOR CAST IN PLACE UNITS.
4. INLET MAY BE PRECAST OR CAST IN PLACE. REINFORCEMENT SHALL BE NO.4 BARS PLACED IN THE CENTER OF INLET WALLS AT 6" C/C 2 BARS OR 2 LAYERS OF 4x4-W4.0xW4.0 WELDED WIRE FABRIC WITH 1½" COVER.
5. A CONCRETE OR BRICK CHANNEL WHICH SLOPES AT LEAST 2 IN./FT TOWARD THE OUTLET SHALL BE PROVIDED IN THE FIELD.
6. GRADE AND SLOPE ADJUSTMENTS SHALL BE COMPLETED IN THE FIELD USING PRECAST ADJUSTMENT COLLAR AND MORTAR.
7. SLOPED TROUGH FLOOR TO BE CAST IN THE FIELD AND USED ONLY WHEN ROAD GRADE IS 1.5% OR LESS. WHEN SLOPED TROUGH FLOOR IS USED, ROUGHEN PRECAST TROUGH FLOOR.
8. PRECAST INLET JOINTS-THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATERTIGHT USING THE MANUFACTURER'S RECOMMENDED ASTM OR AASHTO APPROVED SEALANT.
9. LADDER RUNGS SHALL BE PLACED IN VERTICAL ALIGNMENT AT 1'-4" C/C. RUNGS ARE INCIDENTAL TO THE COST OF THE INLET.
10. ANGLE IRON AND SHEAR STUD CONNECTORS SHALL BE GALVANIZED AFTER WELDING IN ACCORDANCE WITH ASTM A 123. SEE STDS. NO 374.55 & NO 374.64.
11. SEE STANDARD NO 374.65 FOR DEPRESSED GUTTER PAN.
12. SEE STANDARD NO 374.64 FOR ALTERNATE PRECAST CGG TROUGHS.
13. PAY MEASUREMENTS FOR CAST IN PLACE UNIT SHALL BE THE SAME AS THE PRECAST UNIT. REFER TO NOTE 14. ALL OTHER DIMENSIONS SHOWN FOR PRECAST SHALL APPLY TO CAST IN PLACE UNIT.
14. MINIMUM DEPTH PAYMENT PER EACH SMALL BE 4'-0" MEASURED FROM THE PIPE INVERT TO THE TOP OF THE THROUGH SLAB. VERTICAL DEPTH PAYMENT PER LINEAR FOOT SHALL INCLUDE ALL DEPTHS IN EXCESS OF 4'-0" INCLUDING ALL APPURTENANCES.
15. PRECAST BASE UNIT WALLS MAY TAPER PER MANUFACTURER'S DESIGN.
PRECAST CONC. SLAB WITH TYPE 'S' FRAME & COVER (NON-TRAFFIC AREAS)
SECTION A-A
END VIEW
QUANTITIES FOR ESTIMATING PURPOSES ONLY
DIMENSIONS — CONCRETE END SECTION: DIA. | SLOPE | A | B | C | D | E | W | X
QUANTITIES — CONCRETE END SECTION: CONC. C.Y. | STEEL LBS.
12" | 3:1 | 4" | 2'-0" | 4'-6⅝" | 8'-0⅝" | 2'-0" | 1'-0" | 12" | 0.08 | 2.01
15" | 3:1 | 5" | 2'-3" | 5'-1⅛" | 9'-1⅛" | 2'-3" | 1'-3" | 12" | 0.10 | 2.28
18" | 3:1 | 5" | 2'-3" | 5'-1⅛" | 9'-1⅛" | 2'-3" | 1'-3" | 12" | 0.11 | 2.76
21" | 3:1 | 5" | 2'-3" | 5'-1⅛" | 9'-1⅛" | 2'-3" | 1'-3" | 12" | 0.13 | 3.13
24" | 3:1 | 5½" | 2'-3" | 5'-1⅛" | 9'-1⅛" | 2'-3" | 1'-3" | 12" | 0.15 | 3.23
27" | 3:1 | 10½" | 4'-1½" | 2'-0" | 5'-1⅛" | 9'-1⅛" | 2'-3" | 1'-3" | 15" | 0.19 | 3.83
30" | 3:1 | 11" | 4'-1½" | 2'-0" | 5'-1⅛" | 9'-1⅛" | 2'-3" | 1'-3" | 15" | 0.209 | 4.26
33" | 3:1 | 1'-2" | 4'-1½" | 2'-0" | 5'-1⅛" | 9'-1⅛" | 2'-3" | 1'-3" | 15" | 0.23 | 4.64
36" | 3:1 | 1'-3" | 5'-1½" | 2'-10⅝" | 6'-10⅝" | 3'-5" | 1'-3" | 15" | 0.25 | 5.08
SEE NOTE 3 ABOVE FOR CONCRETE FOOTER
ISOMETRIC VIEW

SPECIFICATION	CATEGORY CODE ITEMS
305	

APPROVED: Kirk G. Mette, DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

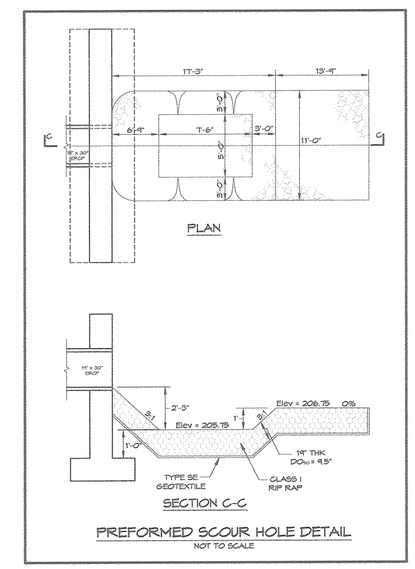
SHA	APPROVAL • SHA	REVISIONS	APPROVAL • FEDERAL	REVISIONS
State Highway Administration	APPROVAL	4-28-99	APPROVAL	10-1-01
	REVISED	5-10-01	REVISED	4-28-99
	REVISED	7-1-99	REVISED	7-27-99
	REVISED		REVISED	

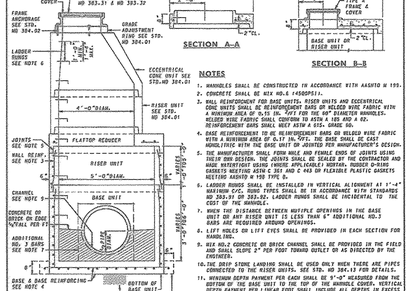
Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

STANDARD CONCRETE END SECTION ROUND CONCRETE PIPE

STANDARD NO. MD 368.02

ES-17





SPECIFICATION	CATEGORY CODE ITEMS
305	

APPROVED: Kirk G. Mette, DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

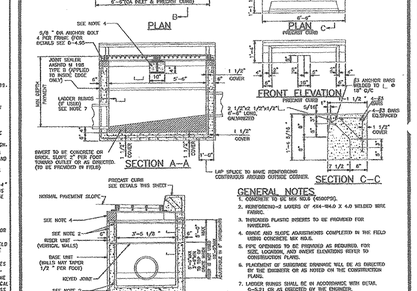
SHA	APPROVAL • SHA	REVISIONS	APPROVAL • FEDERAL	REVISIONS
State Highway Administration	APPROVAL	5-25-01	APPROVAL	5-25-01
	REVISED	10-1-01	REVISED	
	REVISED		REVISED	
	REVISED		REVISED	

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

60" DIAMETER PRECAST MANHOLE FOR 27" TO 36" PIPES

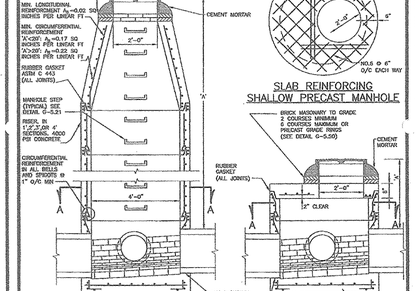
STANDARD NO. MD 384.03

MH-20



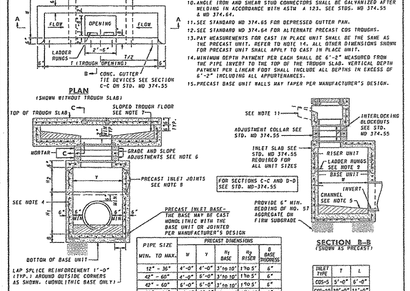
Revisions	Howard County, Maryland Department of Public Works	Double WR Inlet Precast	Detail D-4.35
5/1/2001 Revised	Approved: Chief, Bureau of Engineering		

I-3 | I-4 | I-6 | I-7 | I-9 | I-19



Revisions	Howard County, Maryland Department of Public Works	PRECAST MANHOLE Standard and Shallow 4'-0" for 24" Pipe and smaller	Detail G-5.12
5/1/2001 Revised	Approved: Chief, Bureau of Engineering		

MH-4A | MH-5 | MH-8 | MH-12 | MH-57



SPECIFICATION	CATEGORY CODE ITEMS
305	

APPROVED: Kirk G. Mette, DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

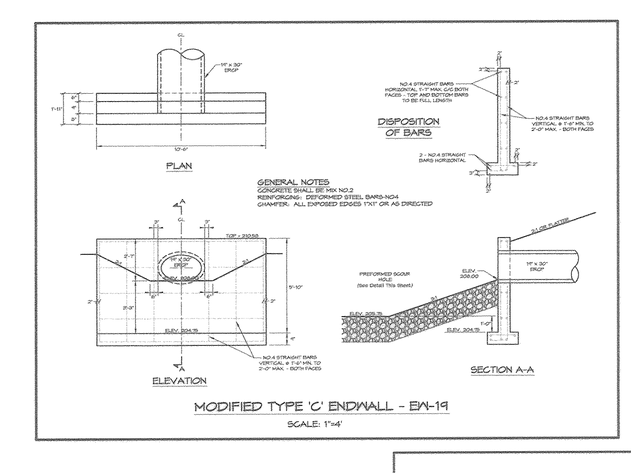
SHA	APPROVAL • SHA	REVISIONS	APPROVAL • FEDERAL	REVISIONS
State Highway Administration	APPROVAL	5-25-01	APPROVAL	5-25-01
	REVISED	10-1-01	REVISED	
	REVISED		REVISED	
	REVISED		REVISED	

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

PRECAST OR CAST IN PLACE SQUARE AND RECTANGULAR COG INLETS 5', 10', 15' & 20'

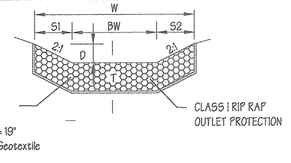
STANDARD NO. MD 374.61

I-16



OUTFALL DESIGN BASED ON 10YR STORM FREQUENCIES

STRUCTURE	W	BW	S1	S2	T	D	L	Q	V
ES-1	6'-0"	3'-0"	1'-6"	1'-6"	1'-7"	1'-0"	8'-0"	9.27	1.02
EW-17	15'-0"	3'-0"	6'-0"	6'-0"	1'-7"	2'-0"	14'-0"	20.55	6.49
EW-19	PLUNGE POOL								



SECTION THROUGH RIP RAP PROTECTION
NOT TO SCALE

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/26/13

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 5/03/13

DIRECTOR — DATE 5/6/13

GEORGE W. STEPHENS, JR. and ASSOCIATES, INC.

ENGINEERS ♦ PLANNERS ♦ SURVEYORS ♦ TRANSPORTATION

~~235 SCHILLING CIRCLE, SUITE 105~~
~~HUNT VALLEY, MARYLAND 21031~~

~~Ph: (410) 785-9540~~ http://www.gwstephens.com ~~Fax: (410) 785-9647~~

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12/08/2015"

OWNER / DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MARYLAND 21285-6815
410-938-3242

Designed By:	RLM
Drawn By:	JLB
Checked By:	MTS
REVISIONS	

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS:
B (BUILD. # 1)	6691 SUMMIT ROCK DRIVE

SUBDIVISION NAME:	SECTION NAME:	PARCEL #
CORRIDOR 95 BUS. PARK	N/A	134 / 179

PLAT # S	BLOCK #	ZONE	TAX MAP #	ELECT. DIST.	CENSUS TRACT
F10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE: B-02 SEWER CODE 4020000

SHA STORM DRAIN DETAIL SHEET
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSNIESS CENTER~~
PARCELS A & B

ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: As Shown
DATE : FEBRUARY 4, 2011
SHEET 89 OF 89

SDP-08-082

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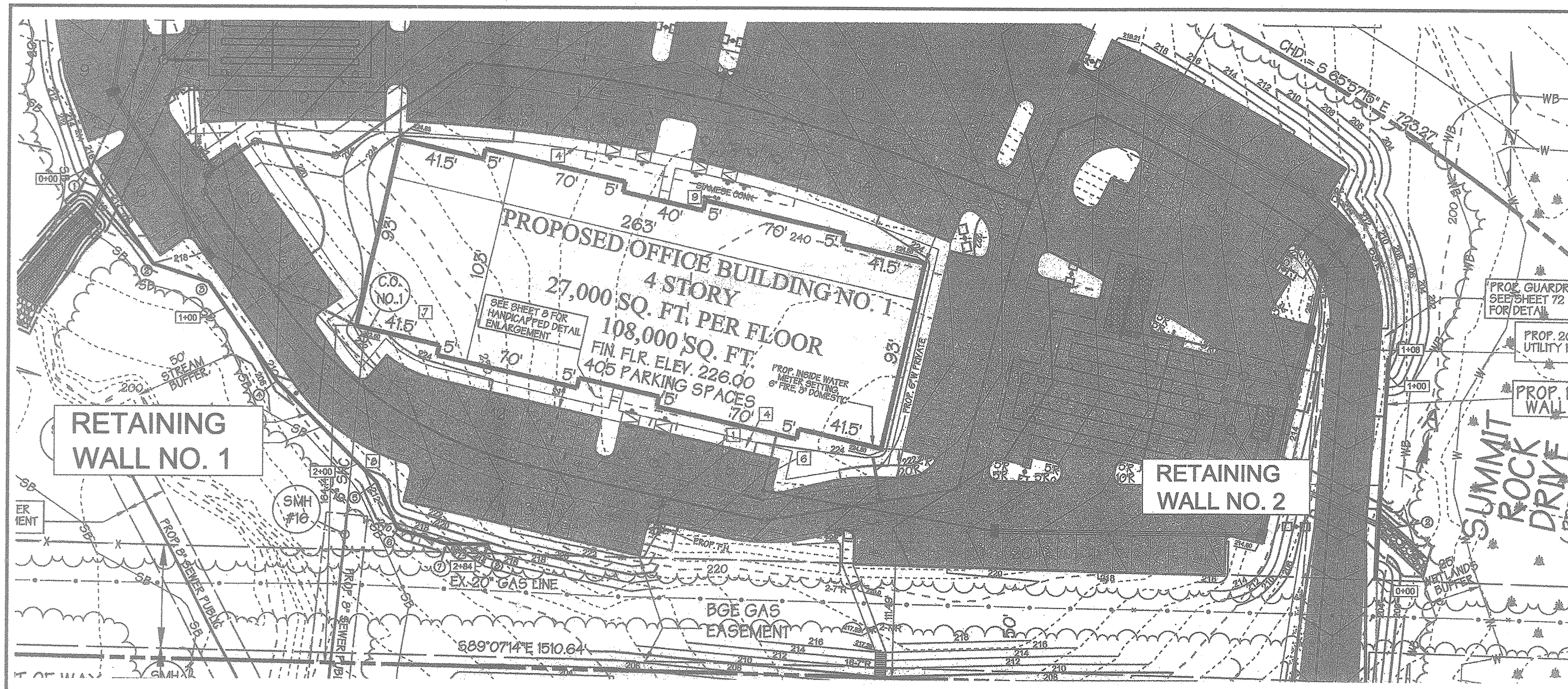
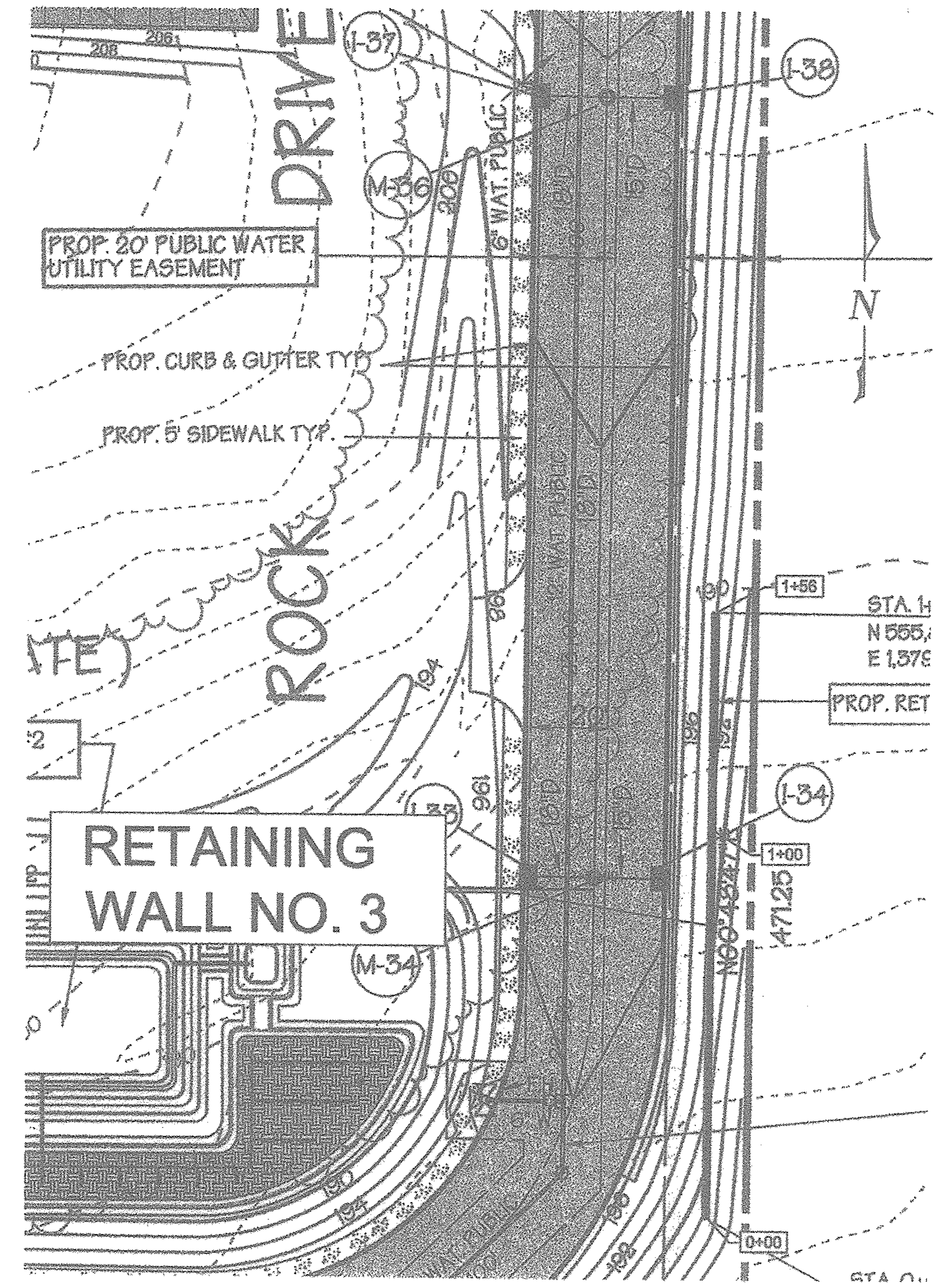


WALL NO. 1 & NO. 2 LOCATION PLAN

1"=30'



WALL NO. 3 LOCATION PLAN

1"=30'

SPECIFICATIONS

KEYSTONE MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 Description

A. Work shall consist of furnishing and construction of a KEYSTONE Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.

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

C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

1.02 Delivery, Storage and Handling

A. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.

B. Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

2.01 Modular Concrete Retaining Wall Units

A. Modular concrete units shall conform to the following architectural requirements:
face color - concrete gray - standard manufacturers' color may be specified by the Owner.
face finish - sculptured rock face in angular tri-planer configuration. Other face finishes will not be allowed without written approval of Owner.
bond configuration - running with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments.
exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.

B. Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.

C. Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references:
compressive strength = 3000 psi minimum;
absorption = 8 % maximum (6% in northern states) for standard weight aggregates;
dimensional tolerances = ± 1/8" from nominal unit dimensions not including rough split face, ±1/16" unit height - top and bottom planes;
unit size - 8" (H) x 18" (W) x 12" (D) minimum;
unit weight - 75 lbs/unit minimum for standard weight aggregates;
inter-unit shear strength - 1000 plf minimum at 2 psi normal pressure;
geogrid/unit peak connection strength - 1000 plf minimum at 2 psi normal force.

D. Modular concrete units shall conform to the following constructability requirements:
vertical setback = 1/8"± per course (near vertical) or 1"+ per course per the design;
alignment and grid positioning mechanism - fiberglass pins, two per unit minimum;
maximum horizontal gap between erected units shall be - 1/2 inch.

2.02 Shear Connectors

A. Shear connectors shall be 1/2 inch diameter thermoset isopthalic polyester resin-protruded fiberglass reinforcement rods or equivalent to provide connection between vertically and horizontally adjacent units. Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F.

B. Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

2.03 Base Leveling Pad Material

A. Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

2.04 Unit Drainage Fill

A. Unit drainage fill shall consist of #57crushed stone

2.05 Reinforced Backfill

A. Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

Sieve Size	Percent Passing
2 inch	100-75
3/4 inch	100-75
No. 40	0-60
No. 200	0-40

Plasticity Index (PI) <10 and Liquid Limit <40 per ASTM D-4318.

B. Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the reinforced soil mass.

2.06 Geogrid Soil Reinforcement

A. Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn.

2.07 Drainage Pipe

A. The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

PART 3 EXECUTION

3.01 Excavation

A. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

3.02 Base Leveling Pad

A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6" in front and behind the modular wall unit.

B. Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

3.03 Modular Unit Installation

A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.

B. Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.

C. Install shear/connecting devices per manufacturer's recommendations.

D. Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.

E. Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation

A. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.

B. Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings or as directed by the Engineer.

C. The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to backfill placement on the geogrid.

D. Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

3.05 Reinforced Backfill Placement

A. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage.

B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.

C. Reinforced backfill shall be compacted to 95% of the maximum density as determined by ASTM D698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be + 3% to - 3% of optimum.

D. Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete unit.

E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.

F. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.

G. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

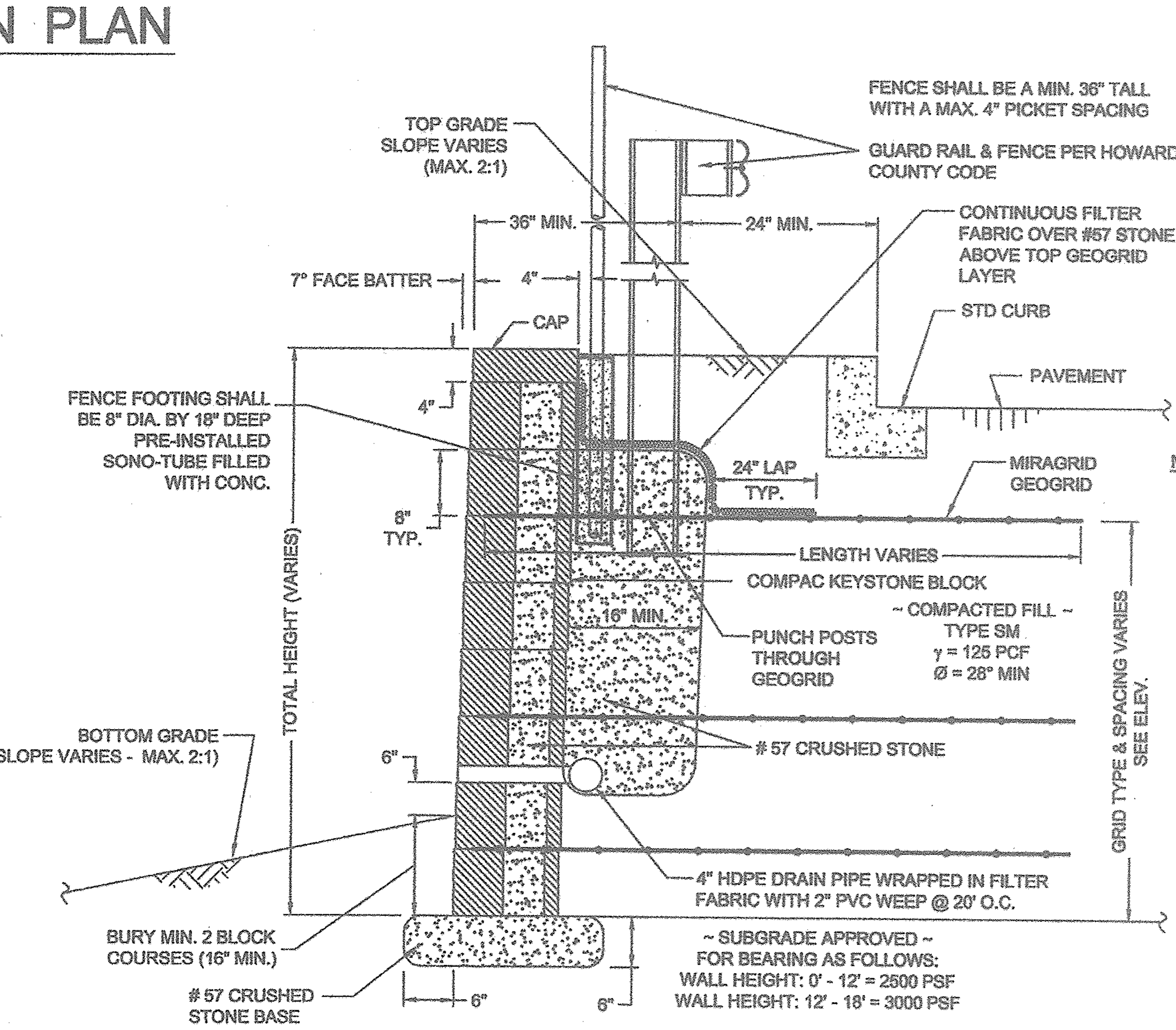
3.06 Cap Installation

A. Cap units shall be glued to underlying units with an all-weather adhesive recommended by the manufacturer.

3.07 Field Quality Control

A. The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction.

B. As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.



TYPICAL WALL SECTION

NTS

NOTE: TOP GRID LAYER SHALL BE LOCATED 2 BLOCK COURSES BELOW CAP ALONG ENTIRE WALL - SEE ELEV.

NOTES:

1. No trees shall be planted within 10 feet of the top of the retaining wall.
2. Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
3. One soil boring shall be required every one hundred feet along the entire length of the wall. Copies of all boring reports shall be provided to the Howard County Inspector Prior to the start of construction.
4. The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test ASTM STP-399.
5. The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
6. Walls shall not be constructed on uncertified fill materials.
7. Walls shall not be constructed within a Howard Co. right-of-way or easement.

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC
6501 N. CHARLES ST.
BALTIMORE, MD 21285-6815
410-938-3242

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A, Annapolis Junction, MD
(410) 880-4788 Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 5/03/13
Director — Date 5/3/13

~~OWNER~~
~~OPTIONS TWO, LLC~~
~~MEADOWRIDGE ROCK, LLC~~
~~C/O H & H ROCK COMPANIES~~
~~6800 DEERPATH ROAD, SUITE 100~~
~~ELKRIDGE, MD 21075~~
~~410 - 579 - 2442~~

~~DEVELOPER~~
~~ROCK REALTY, INC.~~
~~6800 DEERPATH ROAD, SUITE 100~~
~~ELKRIDGE, MD 21075~~
~~410 - 579 - 2442~~

REVISIONS:

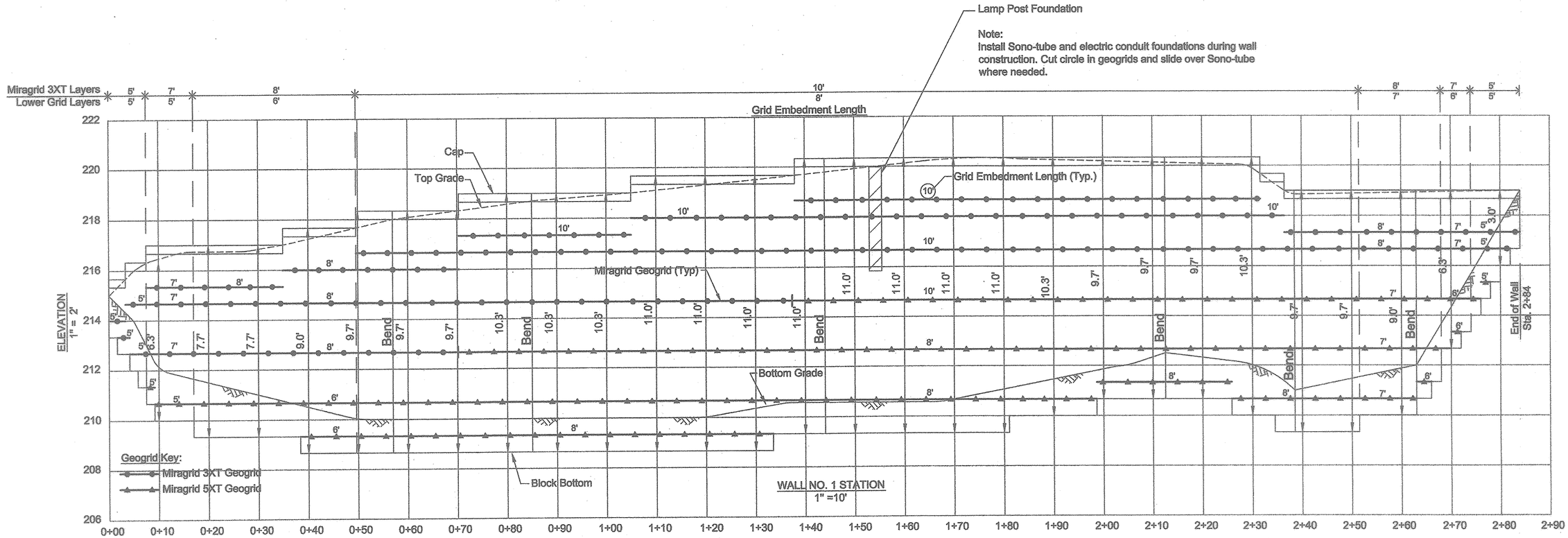
JOB NUMBER:	08006-B
DESIGNED BY:	HM
DRAWN BY:	HM
APPROVED BY:	RWS

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 05/13/13

SUBDIVISION NAME		SECTION NAME		PARCEL #
CORRIDOR 95 BUS. PARK		N/A		134 / 179
PLAT #S F 10-013	BLOCK # 16,17,22,23	ZONE M-1	TAX /ZONE MAP 37	ELECT. DIST. 1	CENSUS TRACT 6011.02
WATER CODE B-02		SEWER CODE 4020000		

RETAINING WALL CONSTRUCTION DETAILS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND
SCALE: AS SHOWN
DATE : OCTOBER 16, 2009
SHT. 90 OF 94

SDP-08-087



WALL NO. 1 ELEVATION

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC
6501 N. CHARLES ST.
BALTIMORE, MD 21285-6815
410-938-3292

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUS. PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, MD
(410) 880-4788 Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 5/03/13
Director — Date 5/3/13

OWNER
OPTIONS TWO, LLC
MEADOWRIDGE ROCK, LLC
C O H & H ROCK COMPANIES
6801 DEERPATH ROAD, SUITE 100
ELKRIDGE, MD 21075
410 - 579 - 2442

DEVELOPER
ROCK REALTY, INC.
6800 DEERPATH ROAD, SUITE 100
ELKRIDGE, MD 21075
410 - 579 - 2442

REVISIONS:

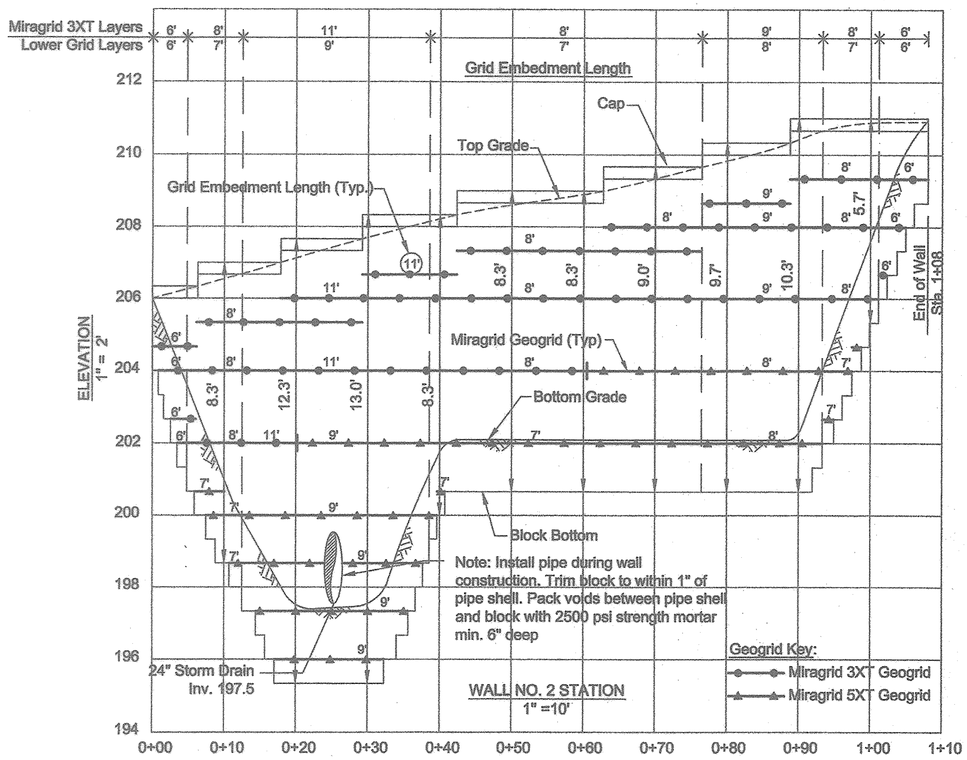
JOB NUMBER:	08006-B
DESIGNED BY:	HM
DRAWN BY:	HM
APPROVED BY:	RWS

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 05/13/13

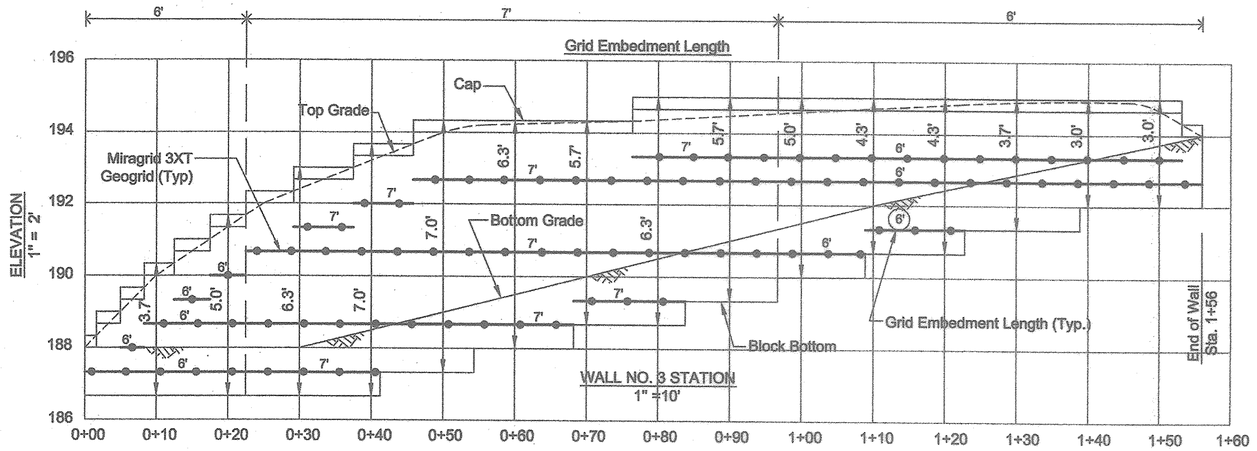
STATE OF MARYLAND — RICHARD N. STURTEVANT — No. 14434 — PROFESSIONAL ENGINEER

RETAINING WALL NO. 1 ELEVATION
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND
SCALE: AS SHOWN
DATE : OCTOBER 16, 2009
SHT. 91 OF 94

SDP-08-082



WALL NO. 2 ELEVATION



WALL NO. 3 ELEVATION

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC
6501 N. CHARLES ST
BALTIMORE, MD 21285-6815
410-938-3242

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A
Annapolis Junction, MD
(410) 880-4788
Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 4/26/13
Chief, Division of Land Development — Date 5/03/13
Director — Date 5/3/13

OWNER
OPTIONS TWO, LLC
MEADOWRIDGE ROCK, LLC
C/O H & H ROCK COMPANIES
6800 DEERPATH ROAD, SUITE 100
ELKRIDGE, MD 21075
410 - 579 - 2442

DEVELOPER
ROCK REALTY, INC.
6800 DEERPATH ROAD, SUITE 100
ELKRIDGE, MD 21075
410 - 579 - 2442

REVISIONS:

JOB NUMBER:	08006-B
DESIGNED BY:	HM
DRAWN BY:	HM
APPROVED BY:	RWS

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 05/13/13

STATE OF MARYLAND — HOWARD W. STURGHAM — No. 14434 — PROFESSIONAL ENGINEER

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUS. PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 — SEWER CODE 4020000

RETAINING WALL #2 & #3 ELEVATIONS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B

SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND

SCALE: AS SHOWN
DATE : OCTOBER 16, 2009
SHT. 92 OF 94

SDP-08-082

SPECIFICATIONS
KEYSTONE MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 Description
A. Work shall consist of furnishing and construction of a KEYSTONE Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.
B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings.
C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

1.02 Delivery, Storage and Handling
A. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.
B. Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

2.01 Modular Concrete Retaining Wall Units
A. Modular concrete units shall conform to the following architectural requirements:
face color - concrete gray - standard manufacturers' color may be specified by the Owner.
face finish - sculptured rock face in angular tri-planer configuration. Other face finishes will not be allowed without written approval of Owner.
bond configuration - running with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments.
exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.
B. Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.
C. Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references:
compressive strength = 3000 psi minimum;
absorption = 8 % maximum (6% in northern states) for standard weight aggregates;
dimensional tolerances = ± 1/8" from nominal unit dimensions not including rough split face, ±1/16" unit height - top and bottom planes;
unit size - 8" (H) x 18" (W) x 12" (D) minimum;
unit weight - 75 lbs/unit minimum for standard weight aggregates;
inter-unit shear strength - 1000 plf minimum at 2 psi normal pressure;
geogrid/unit peak connection strength - 1000 plf minimum at 2 psi normal force.
D. Modular concrete units shall conform to the following constructability requirements:
vertical setback = 1/8"± per course (near vertical) or 1"+ per course per the design;
alignment and grid positioning mechanism - fiberglass pins, two per unit minimum;
maximum horizontal gap between erected units shall be - 1/2 inch.

2.02 Shear Connectors
A. Shear connectors shall be 1/2 inch diameter thermoset isopthalic polyester resin-protruded fiberglass reinforcement rods or equivalent to provide connection between vertically and horizontally adjacent units. Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F.
B. Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

2.03 Base Leveling Pad Material
A. Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

2.04 Unit Drainage Fill
A. Unit drainage fill shall consist of #57crushed stone

2.05 Reinforced Backfill
A. Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

Sieve Size	Percent Passing
2 inch	100-75
3/4 inch	100-75
No. 40	0-60
No. 200	0-40

Plasticity Index (PI) <10 and Liquid Limit <40 per ASTM D-4318.
B. Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the reinforced soil mass.

2.06 Geogrid Soil Reinforcement

A. Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn.

2.07 Drainage Pipe
A. The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

PART 3 EXECUTION

3.01 Excavation
A. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

3.02 Base Leveling Pad
A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6" in front and behind the modular wall unit.
B. Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

3.03 Modular Unit Installation
A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.
B. Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.
C. Install shear/connecting devices per manufacturer's recommendations.
D. Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.
E. Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation
A. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.
B. Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings or as directed by the Engineer.
C. The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to backfill placement on the geogrid.
D. Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

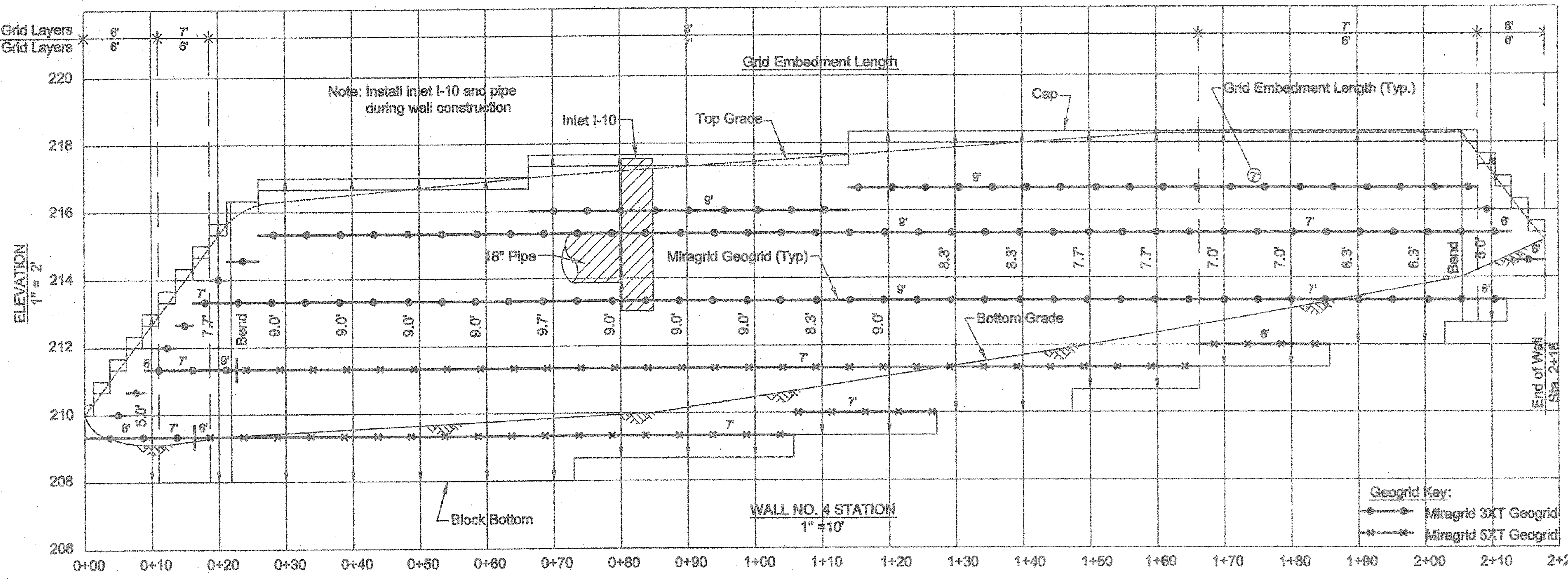
3.05 Reinforced Backfill Placement
A. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage.
B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.
C. Reinforced backfill shall be compacted to 95% of the maximum density as determined by ASTM D698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be + 3% to - 3% of optimum.
D. Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete unit.
E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.
F. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.
G. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

3.06 Cap Installation
A. Cap units shall be glued to underlying units with an all-weather adhesive recommended by the manufacturer.

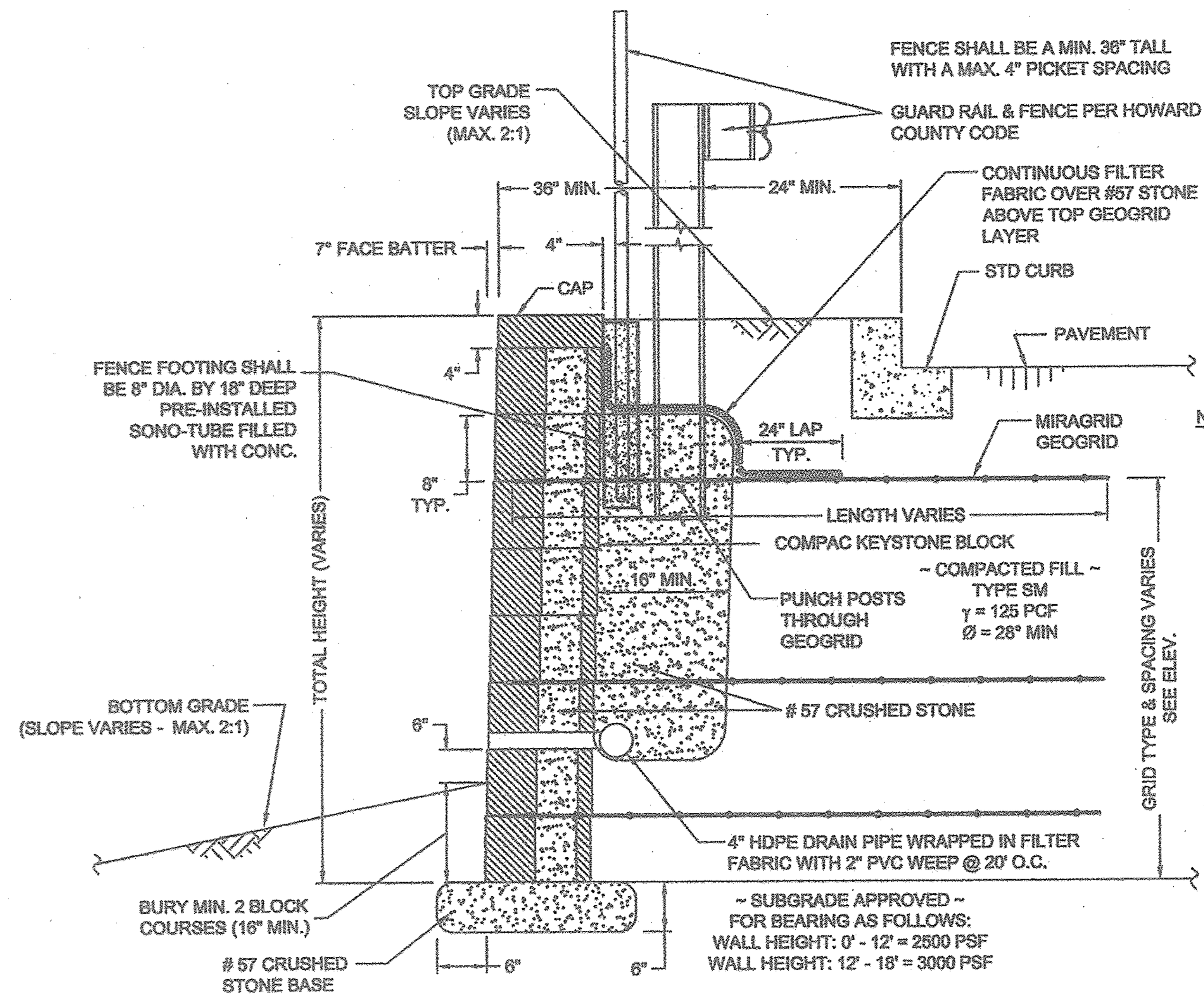
3.07 Field Quality Control
A. The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction.
B. As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.

NOTES:

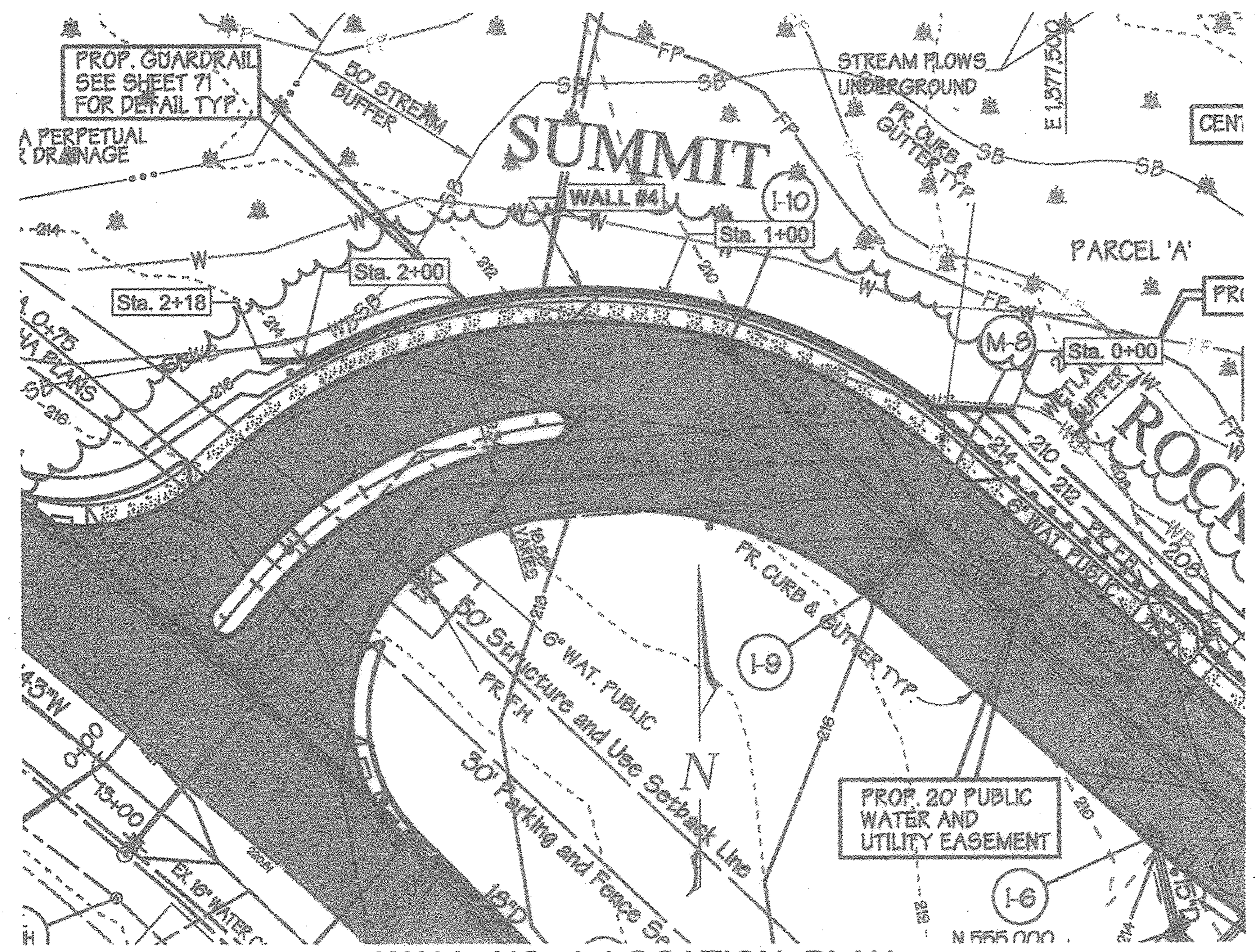
1. No trees shall be planted within 10 feet of the top of the retaining wall.
2. Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
3. One soil boring shall be required every one hundred feet along the entire length of the wall. Copies of all boring reports shall be provided to the Howard County Inspector Prior to the start of construction.
4. The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test ASTM STP-399.
5. The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
6. Walls shall not be constructed on uncertified fill materials.
7. Walls shall not be constructed within a Howard Co. right-of-way or easement.



WALL NO. 4 ELEVATION



TYPICAL WALL SECTION
NTS



WALL NO. 4 LOCATION PLAN
1"=30'

OWNER/DEVELOPER
SHEPPARD PRATT HEALTH SYSTEM, INC
6501 N. CHARLES ST.
BALTIMORE, MD 21285-6816
410-938-3242

SUBDIVISION NAME	SECTION NAME	PARCEL #
CORRIDOR 95 BUS. PARK	N/A	134 / 179

PLAT #S	BLOCK #	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F 10-013	16,17,22,23	M-1	37	1	6011.02

WATER CODE B-02 SEWER CODE 4020000

RETAINING WALL #4 PLAN & DETAILS
CORRIDOR 95 BUSINESS PARK
~~MEADOWRIDGE BUSINESS CENTER~~
PARCELS A & B
SITE IMPROVEMENTS: OFFICE
ELECTION DISTRICT : 1st
HOWARD CO., MARYLAND
SCALE: AS SHOWN
DATE : OCTOBER 16, 2009
SHT. 93 OF 94

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, MD
(410) 880-4788 Fax: (410)880-4098

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division 4/26/13 Date
Chief, Division of Land Development 5/03/13 Date
Director 5/3/13 Date

~~OWNER~~
~~OPTIONS TWO, LLC~~
~~MEADOWRIDGE ROCK, LLC~~
~~C/O H & H ROCK COMPANIES~~
~~6800 DEERPATH ROAD, SUITE 100~~
~~ELKRIDGE, MD 21075~~
~~410 - 579 - 2442~~

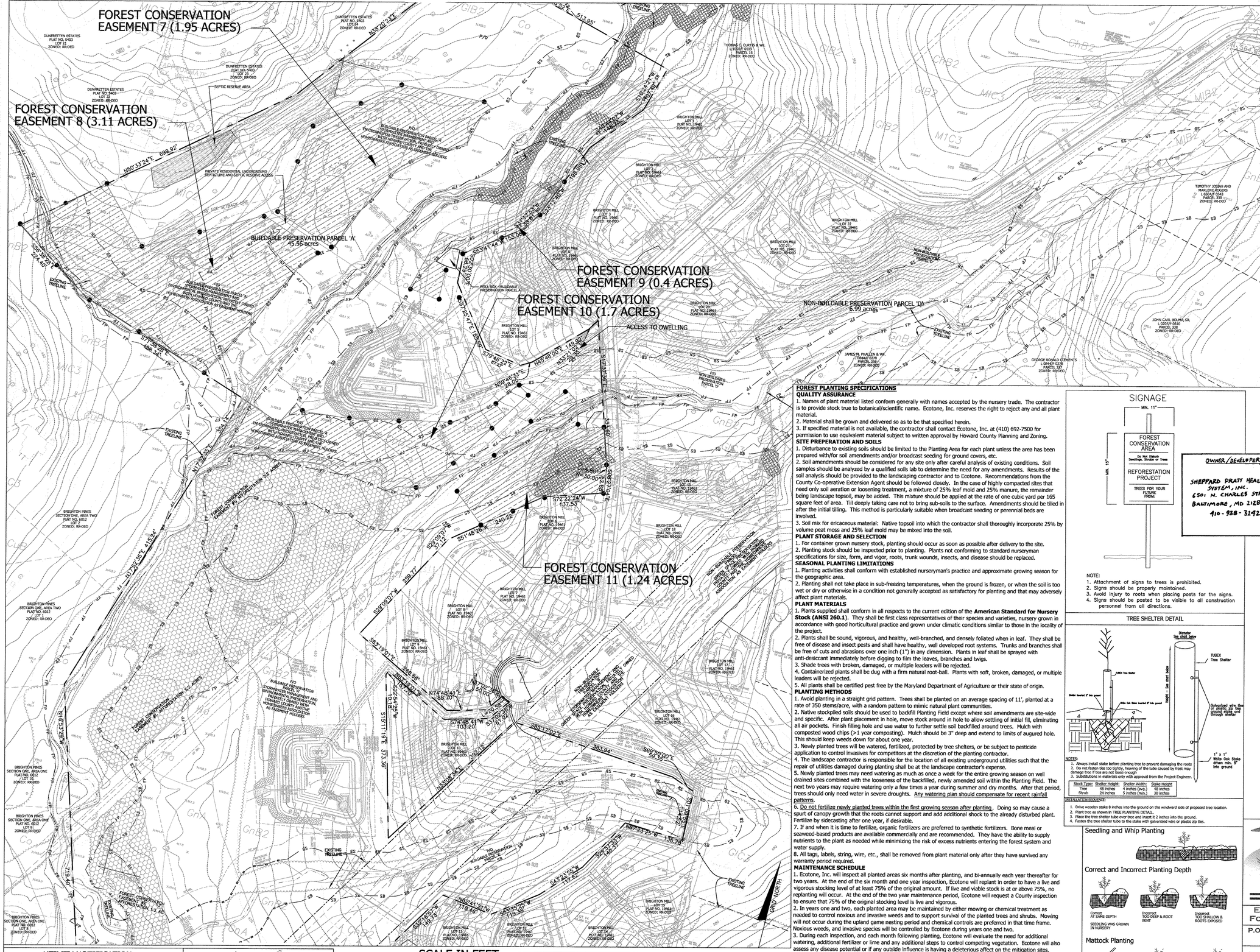
~~DEVELOPER~~
~~ROCK REALTY, INC.~~
~~6800 DEERPATH ROAD, SUITE 100~~
~~ELKRIDGE, MD 21075~~
~~410 - 579 - 2442~~

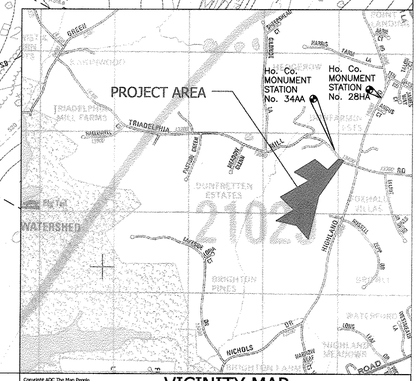
REVISIONS:

JOB NUMBER:	08006-B
DESIGNED BY:	RWS
DRAWN BY:	AM
APPROVED BY:	RWS

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14434, EXPIRATION DATE: 05/13/13.

SDP-08-082





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VICINITY MAP

SCALE (1" = 2000')

SOILS LEGEND

SYMBOL	SOIL DESCRIPTION
Co	Codorus silt loam
ChB2	Chester silt loam, 3-8% slopes, moderately eroded
GlB2	Glenelg loam, 3-8% slopes, moderately eroded
GlC2	Glenelg loam, 8-15% slopes, moderately eroded
GlC3	Glenelg loam, 8-15% slopes, severely eroded
GlD3	Glenelg loam, 15-25% slopes, severely eroded
GnA	Glenville silt loam, 0-3% slopes
GnB2	Glenville silt loam, 3-8% slopes, moderately eroded
Ha	Hatboro silt loam
MlB2	Manor loam, 3-8% slopes, moderately eroded
MlC2	Manor loam, 8-15% slopes, moderately eroded
MlD3	Manor loam, 15-25% slopes, severely eroded

LEGEND

- PROPERTY BOUNDARY
- 550 EXISTING CONTOURS
- SOIL BOUNDARY
- EXISTING TREELINE
- EXISTING STREAM CENTERLINE
- FP FP 100 YEAR FLOODPLAIN
- SB SB STREAM BUFFER
- NTW NTW EXISTING NONTIDAL WETLANDS
- WB WB EXISTING WETLAND BUFFER
- 15-25% SLOPES
- 25% AND GREATER SLOPES
- SEPTIC RESERVE AREA
- BUILDABLE PRESERVATION PARCEL A
- CORRIDOR 95 OFF-SITE REFORESTATION - 8.4 ACRES
- EXISTING FOREST CONSERVATION EASEMENTS
- FCE SIGNAGE (TYP.)

FOREST PLANTING SPECIFICATIONS

QUALITY ASSURANCE

1. Names of plant material listed conform generally with names accepted by the nursery trade. The contractor is to provide stock true to botanical/scientific name. Ecotone, Inc. reserves the right to reject any and all plant material.
2. Material shall be grown and delivered so as to be that specified herein.
3. If specified material is not available, the contractor shall contact Ecotone, Inc. at (410) 692-7500 for permission to use equivalent material subject to written approval by Howard County Planning and Zoning.

SITE PREPERATION AND SOILS

1. Disturbance to existing soils should be limited to the Planting Area for each plant unless the area has been prepared with/for soil amendments and/or broadcast seeding for ground covers, etc.
2. Soil amendments should be considered for any site only after careful analysis of existing conditions. Soil samples should be analyzed by a qualified soils lab to determine the need for any amendments. Results of the soil analysis should be provided to the landscaping contractor and to Ecotone. Recommendations from the County Co-operative Extension Agent should be followed closely. In the case of highly compacted sites that need only soil aeration or loosening treatment, a mixture of 25% leaf mold and 25% manure, the remainder being landscape topsoil, may be added. This mixture should be applied at the rate of one cubic yard per 165 square feet of area. Till deeply taking care not to bring sub-soils to the surface. Amendments should be tilled in after the initial tilling. This method is particularly suitable when broadcast seeding or perennial beds are involved.
3. Soil mix for ericaceous material: Native topsoil into which the contractor shall thoroughly incorporate 25% by volume peat moss and 25% leaf mold may be mixed into the soil.

PLANT STORAGE AND SELECTION

1. For container grown nursery stock, planting should occur as soon as possible after delivery to the site.
2. Planting stock should be inspected prior to planting. Plants not conforming to standard nurseryman specifications for size, form, and vigor, roots, trunk wounds, insects, and disease should be replaced.

SEASONAL PLANTING LIMITATIONS

1. Planting activities shall conform with established nurseryman's practice and approximate growing season for the geographic area.
2. Planting shall not take place in sub-freezing temperatures, when the ground is frozen, or when the soil is too wet or dry or otherwise in a condition not generally accepted as satisfactory for planting and that may adversely affect plant materials.

PLANT MATERIALS

1. Plants supplied shall conform in all respects to the current edition of the **American Standard for Nursery Stock (ANSI 260.1)**. They shall be first class representatives of their species and varieties, nursery grown in accordance with good horticultural practice and grown under climatic conditions similar to those in the locality of the project.
2. Plants shall be sound, vigorous, and healthy, well-branched, and densely foliated when in leaf. They shall be free of disease and insect pests and shall have healthy, well developed root systems. Trunks and branches shall be free of cuts and abrasions over one inch (1") in any dimension. Plants in leaf shall be sprayed with anti-desiccant immediately before digging to film the leaves, branches and twigs.
3. Shade trees with broken, damaged, or multiple leaders will be rejected.
4. Containerized plants shall be dug with a firm natural root-ball. Plants with soft, broken, damaged, or multiple leaders will be rejected.
5. All plants shall be certified pest free by the Maryland Department of Agriculture or their state of origin.

PLANTING METHODS

1. Avoid planting in a straight grid pattern. Trees shall be planted on an average spacing of 11', planted at a rate of 350 stems/acre, with a random pattern to mimic natural plant communities.
2. Native stockpiled soils should be used to backfill Planting Field except where soil amendments are site-wide and specific. After plant placement in hole, move stock around in hole to allow settling of initial fill, eliminating all air pockets. Finish filling hole and use water to further settle soil backfilled around trees. Mulch with composted wood chips (>1 year composting). Mulch should be 3" deep and extend to limits of augured hole. This should keep weeds down for about one year.
3. Newly planted trees will be watered, fertilized, protected by tree shelters, or be subject to pesticide application to control invasives for competitors at the discretion of the planting contractor.
4. The landscape contractor is responsible for the location of all existing underground utilities such that the repair of utilities damaged during planting shall be at the landscape contractor's expense.
5. Newly planted trees may need watering as much as once a week for the entire growing season on well drained sites combined with the looseness of the backfilled, newly amended soil within the Planting Field. The next two years may require watering only a few times a year during summer and dry months. After that period, trees should only need water in severe droughts. Any watering plan should compensate for recent rainfall patterns.
6. Do not fertilize newly planted trees within the first growing season after planting. Doing so may cause a spurt of canopy growth that the roots cannot support and add additional shock to the already disturbed plant. Fertilize by sidecasting after one year, if desirable.
7. If and when it is time to fertilize, organic fertilizers are preferred to synthetic fertilizers. Bone meal or seaweed-based products are available commercially and are recommended. They have the ability to supply nutrients to the plant as needed while minimizing the risk of excess nutrients entering the forest system and water supply.
8. All tags, labels, string, wire, etc., shall be removed from plant material only after they have survived any warranty period required.

MAINTENANCE SCHEDULE

1. Ecotone, Inc. will inspect all planted areas six months after planting, and bi-annually each year thereafter for two years. At the end of the six month and one year inspection, Ecotone will replant in order to have a live and vigorous stocking level of at least 75% of the original amount. If live and viable stock is at or above 75%, no replanting will occur. At the end of the two year maintenance period, Ecotone will request a County inspection to ensure that 75% of the original stocking level is live and vigorous.
2. In years one and two, each planted area may be maintained by either mowing or chemical treatment as needed to control noxious and invasive weeds and to support survival of the planted trees and shrubs. Mowing will not occur during the upland game nesting period and chemical controls are preferred in that time frame. Noxious weeds, and invasive species will be controlled by Ecotone during years one and two.
3. During each inspection, and each month following planting, Ecotone will evaluate the need for additional watering, additional fertilizer or lime and any additional steps to control competing vegetation. Ecotone will also assess any disease potential or if any outside influence is having a deleterious affect on the mitigation sites.

SIGNAGE

NOTE:
1. Attachment of signs to trees is prohibited.
2. Signs should be properly maintained.
3. Avoid injury to roots when placing posts for the signs.
4. Signs should be posted to be visible to all construction personnel from all directions.

OWNER/DEVELOPER

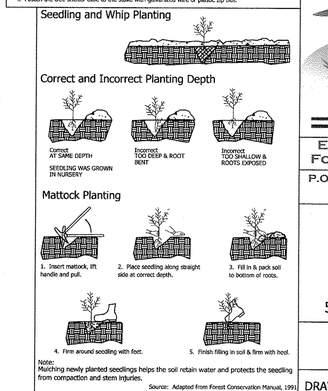
SHEPPARD PRATT HEALTH SYSTEM, INC.
6501 N. CHARLES STREET
BALTIMORE, MD 21285-6815
410-938-3292

TREE SHELTER DETAIL

NOTES:
1. Always install stake before planting tree to prevent damaging the roots
2. Do not fasten ties too tightly, heaving of the tube caused by frost may damage tree if ties are not loose enough
3. Substitutions in materials only with approval from the Project Engineer.

Stock Type:	Shelter Height:	Shelter Width:	Stake Height
Tree	48 inches	4 inches (avg.)	48 inches
Shrub	24 inches	5 inches (min.)	30 inches

INSTALLATION SEQUENCE:
1. Drive wooden stake 8 inches into the ground on the windward side of proposed tree location.
2. Plant tree as shown in TREE PLANTING DETAIL.
3. Place the tree shelter tube over tree and insert it 2 inches into the ground.
4. Fasten the tree shelter tube to the stake with galvanized wire or plastic zip ties.



UTILITY NOTIFICATION

"Ecotone, Inc. makes no representation as to the existence or non-existence of any utilities at the construction site. Shown on these construction drawings are those utilities which have been identified. It is the responsibility of the landowners or operators and contractors to assure themselves that no hazard exists or damage will occur to utilities. It is suggested that Miss Utility be contacted at: 1-800-257-7777."

"MD DNR APPROVED QUALIFIED PROFESSIONAL"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 4/26/13
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 5/03/13
DIRECTOR	DATE 5/8/13

The forest conservation easements have been established to fulfill the requirements of Section 16.1200 of the Howard County Code and the Forest Conservation Manual. No clearing, grubbing or construction (with the exception of mowing to keep invasives and competing species in check) is permitted within the forest conservation easements, however, forest management practices defined in the Deed of Forest Conservation Easement are allowed

Note:
Planting areas will be accessed without equipment encroaching into the environmental areas on the project site.

Note:
The lot shown herin complies with the minimum ownership, width, and lot area required by the Maryland State Department of the Environment.

This area designates a private sewage area of at least 10,000 square feet as required by the Maryland State Department of the Environment for individual sewage disposal. Improvements of any nature in this area are restricted until public seweage is available. These areas shall become null and void upon connection to a public sewerage system. The county Health Officer shall have the authority to grant adjustments to the private sewage area. Recordation of a modified sewage area shall not be necessary.

REFORESTATION PLANTING TABLE (+/ 8.4 acres)

	Quantity	Scientific Name	Common Name	Size	Condition	Spacing
Trees:	500	*Platanus occidentalis*	Sycamore	3-4'	Bare-root	11' Random Spacing
	350	*Populus deltoides*	Cottonwood	3-4'	Bare-root	11' Random Spacing
	250	*Quercus palustris*	Pin Oak	3-4'	Bare-root	11' Random Spacing
	350	*Liriodendron tulipifera*	Tulip Poplar	3-4'	Bare-root	11' Random Spacing
	350	*Liquidambar styraciflua*	Sweet Gum	3-4'	Bare-root	11' Random Spacing
	350	*Acer rubrum*	Red Maple	3-4'	Bare-root	11' Random Spacing
	250	*Quercus bicolor*	Swamp White Oak	3-4'	Bare-root	11' Random Spacing
	350	*Salix nigra*	Black Willow	3-4'	Bare-root	11' Random Spacing
	200	*Juniperus virginiana*	Red Cedar	3-4'	Bare-root	11' Random Spacing
Total:	2,950					

Ecotone Inc.
ENVIRONMENTAL CONSULTING, PERMITTING, & DESIGN, FOREST & WETLAND CREATION, & STREAM RESTORATION
P.O. BOX 5 • 1204 BALDWIN MILL ROAD • JARRETTSVILLE, MARYLAND 21084
(410) 692-7500 • FAX (410) 692-7503 • WWW.ECOTONEINC.COM

CORRIDOR 95 BUSINESS PARK OFF-SITE PLANTING @ BRIGHTON MILL PROPERTY

TAX MAP-34 GRID 2 PARCELS 2
5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

OFF-SITE PLANTING PLAN

JULY 2012

DRAWN BY: SFM

SHEET 94 OF 94 | SDP-08-082