SITE DEVELOPMENT PLAN
FOR
ATHOLTON SEVENTH DAY ADVENTIST CHURCH
BUILDING ADDITIONS (PHASES I AND II)
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

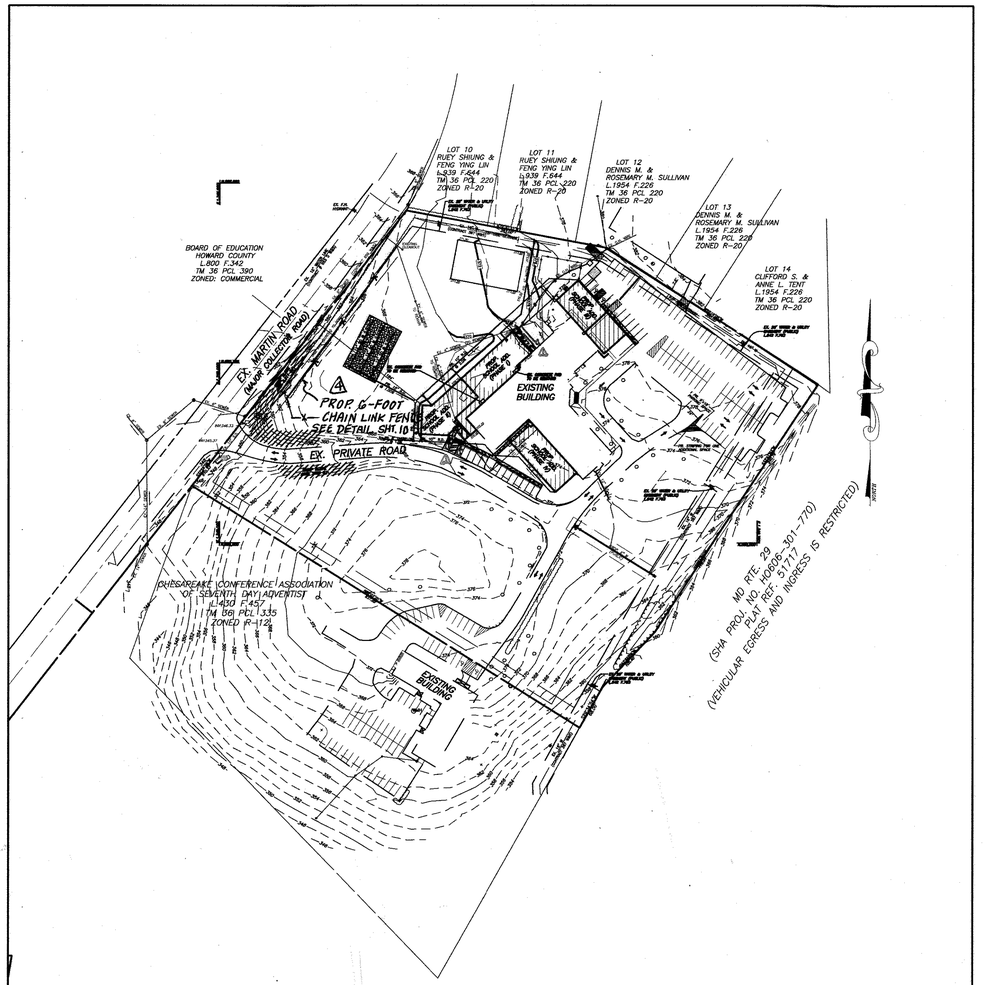
CONSTRUCTION NOTES

1. No sediment and erosion control devices may be removed without prior approval from the Howard County inspector.
2. Stabilize any disturbed area as soon as possible by permanent or temporary means.
3. All temporary stock piles and excess material shall be removed to an approved spoil site. All borrow material shall be obtained from an approved site.
4. It shall be the responsibility of the contractor or subcontractor to notify the engineer of any deviation to these plans prior to any change being made. Any change in these plans without the written authorization for said change from the engineer shall be the responsibility of the contractor or subcontractor.
5. Utilities shown on these plans are in accordance with the best information available for the contractor. The contractor shall be responsible for locating and protecting all existing services and mains (public or private). The contractor shall obtain the services of a private utility locator to locate all existing private services and mains. The owners and engineer assume no responsibility for accuracy or completeness of the information shown. Existing mains and services shall be carefully protected and any damage to them caused by the work shall be immediately repaired to the satisfaction of the engineer by the contractor at the contractor's expense, using materials of the kinds damaged.
6. The contractor shall call "MISS UTILITY", 1-800-257-7777, a minimum of 48 hours in advance of any excavation, boring, and/or digging to determine the location of underground utilities.
7. The contractor shall grade all areas within the area of construction and shall warp paving as necessary to insure positive drainage.
8. The Contractor shall be responsible for coordination of his construction with the construction by other contractors and subcontractors.
9. All soil erosion control measures shall be in accordance with the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL".
10. Failure to specifically mention items which would normally be required to complete the work and develop this site in accordance with the approved plans, shall not relieve the contractor from performing such work. This work shall be part of the contractors base bid.

GENERAL NOTES

1. All construction shall be in accordance with the latest standards and specifications of Howard County, plus MSHA standards and specifications, as applicable.
2. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 313-1880 at least five (5) working days prior to the start of work.
3. The contractor shall notify "MISS UTILITY" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
4. The existing topography is taken from field run survey with maximum two feet contour intervals prepared by Design Tech Associates, Inc. dated October 29, 1999.
5. Traffic control devices, markings, and signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to any work being done in the public road.
6. All plan dimensions are to face of curb and face of building unless otherwise noted.
7. The coordinates shown hereon are based upon the Howard County Geodetic Control which is based upon the Maryland State Plane Coordinate System. Howard County monument nos. 3513 and 41CC were used for this project.
8. Existing utilities are based on an as-built drawings as supplied by Howard County Development Engineering Division.
9. Water is public, (contract no. 367 W&S).
10. Sewer is public, (contract 659 W&S) existing Martin Road. The Drainage Area is Patuxent.
11. Storm water management for this project is provided on-site via infiltration drywell. The storm water management facility is privately owned and shall be maintained by the owner of the property.
12. There is no floodplain on this site.
13. A noise study is not required for this project.
14. A Geotechnical Study was provided for the Stormwater Management Infiltration Structure by Marshall Engineering on September 7, 2000.
15. The boundary for this project is based on the deed of record (365/73). The property is zoned R-12
16. There are no wetlands on this site.
17. All elevations shown are based on the existing manhole top elevation of 404.2 as shown on SDP 72-11.
18. See Department of Planning and Zoning file no. BA 99-60E, SDP-72-114.
19. Board of Appeals Case No. BA 99-60E was approved on April 11, 2000 subject to the following conditions listed below:
    - A.) The special exception shall apply only to the child day care facility and the religious facility and private school as described in the petition and as depicted on the special exception plan submitted on September 21, 1999 or as may be revised by the Board, and not to any other activities, uses or structures on the property.
    - B.) The fenced outdoor play area for the child day care center shall be a minimum of 20 feet from the property line to the north.
    - C.) Any new outdoor lighting provided shall comply with Section 134 of the Zoning Regulations.
20. Contractor is solely responsible for construction means, methods, techniques, sequences, procedures, and safety precautions and programs.
21. All storm drain pipe bedding shall be Class 'C' as shown in Fig. 11.4, Volume 1 of Howard County Design Manual unless otherwise noted.
22. All inlets shall be constructed in accordance with Howard County Standards.
23. All pipe elevations shown are invert elevations.
24. Storm drain trenches within road right-of-way shall be backfilled and compacted in accordance with the Howard County Design Manual, Volume IV, i.e., Standard Specifications and Details for Construction including the latest amendments.
25. All fill areas within roadway and under structures to be compacted to a minimum of 95% compaction of AASHTO T180.
26. No public notice posters are required since no roadway entrance's are proposed, and no wetland mitigation areas are proposed.
27. This plan has been prepared in accordance with the Forest Conservation Act and Manual per Section 16.1204 with the filing of a Declaration of Intent for a single lot exemption, clearing less than 40,000 square feet of forest (zero feet of forest clearing proposed).
28. All outdoor lighting shall conform to Section 134 of the Zoning Regulations. All exterior lighting shall be shielded and directed towards this site. However, no outdoor lighting is proposed at this time.
29. The additions shall not exceed the roof line of the existing buildings.
30. The Traffic Study for this project was prepared by Traffic Concepts, Inc. dated September 2000 and was approved on September 25, 2000.

⚠ 3) TEMPORARY USE CASE #07-007 WAS APPROVED ON JUNE 26, 2007 TO ALLOW FOR A TEMPORARY USE OF LAND FOR A MODULAR CLASSROOM BUILDING, SUBJECT TO THE FOLLOWING CONDITIONS:
- A. THE PETITIONER SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND COUNTY LAWS AND REGULATIONS.
- B. THE PETITIONER SHALL CONDUCT THE TEMPORARY USE IN SUBSTANTIAL CONFORMANCE WITH THE RECORDED TESTIMONY.
- C. THE FIRST TEMPORARY USE PERIOD SHALL RUN STARTING FROM THE DATE THE BUILDING PERMIT IS APPROVED FOR THE MODULAR CLASSROOM BUILDING AND SHALL END 90 DAYS THEREAFTER. EXTENSIONS MAY BE GRANTED IN ACCORDANCE WITH THE PROVISION IN SECTION 130.A. OF THE ZONING REGULATIONS.



PLAN VIEW 1"=100'

BENCHMARKS

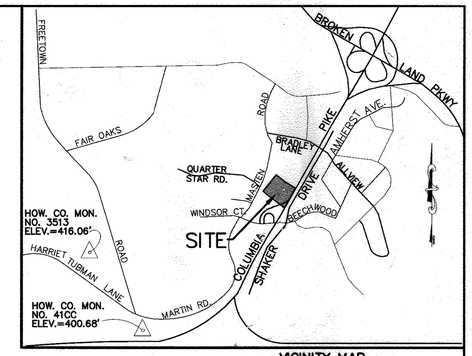
TRAVERSE #7
N 655,662.30
E 1,349,116.32
ELEV. 365.52
GALVANIZED STEEL SPIKE

TRAVERSE #12
N 553,534.98
E 1,349,510.98
ELEV. 379.49
GALVANIZED STEEL SPIKE

LEGEND

- EXISTING CONTOURS
- EXISTING CURB & GUTTER
- PROPERTY LINE
- EXISTING LIGHT POLE
- EXISTING POWER POLE
- EXISTING BUILDING
- EXISTING CONCRETE SIDEWALK
- EXISTING STORM DRAIN
- EXISTING SEWER
- EXISTING TREELINE
- EXISTING TREE/SHRUB
- PROP. TREELINE
- EXISTING OVERHEAD POWER LINE
- PROPOSED BUILDING ADDITION
- PROPOSED CONTOUR
- PROPOSED SPOT SHOT
- PROPOSED SIDEWALK
- SILT FENCE
- LIMIT OF DISTURBANCE
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- TRAFFIC FLOW ARROW
- DRAINAGE FLOW ARROW
- DRAINAGE AREA LINE
- STEEP SLOPE > 25% (SUSTAINED FOR 10 VERTICAL FEET)
- PROP. 6" WATER — PROPOSED WATER
- PROP. 15" S.D. — PROPOSED STORM DRAIN

SHEET INDEX



VICINITY MAP
SCALE: 1"=2000'

SITE ANALYSIS DATA CHART

TOTAL PROJECT AREA:	6.47 ACRES
AREA OF PLAN SUBMISSION:	6.47 ACRES
LIMIT OF DISTURBED AREA: (PHASE I)	69,244.79 S.F./1.59 ACRES
LIMIT OF DISTURBED AREA: (PHASE II)	18,843.51 S.F./0.43 ACRES
PRESENT ZONING:	R-12
PROPOSED USE:	CHURCH & SCHOOL
FLOOR AREAS:	
EXISTING:	
EXISTING CHURCH	4,921 SQ. FT.
EXISTING SCHOOL	14,039 SQ. FT.
TOTAL EXISTING	18,960 SQ. FT.
PROPOSED:	
PROPOSED SCHOOL (PHASE I)	9,800 SQ. FT.
PROPOSED SCHOOL (PHASE II)	6,290 SQ. FT.
TOTAL PROPOSED	16,090 SQ. FT.
MAXIMUM NUMBER OF EMPLOYEES/STUDENTS:	
CHURCH EMPLOYEES:	4
SCHOOL EMPLOYEES:	12
SCHOOL STUDENTS:	170
PARKING REQUIREMENTS:	
PARKING SPACES REQUIRED: *	
CHURCH (500 SEATS) x (1 SPC/3 SEATS)	167
SCHOOL (170 STUDENTS) X (1 SPC/6 STUDENTS)	28
PARKING SPACES PROVIDED: *	
EXISTING PARKING SPACES (PARCEL 148)	85
EXISTING PARKING SPACES (PARCEL 335)	66
PROPOSED PARKING SPACES (PARCEL 148)	16
TOTAL SPACES PROVIDED (INCLUDES 7 HANDICAP SPACES)	167
VOLUME OF CUT:	800 CY
VOLUME OF FILL:	320 CY

*NOTE: SEE SECTION IV, ITEM A4 OF THE SPECIAL EXCEPTION DECISION 99-60E REGARDING THE PARKING REQUIREMENTS FOR THE SITE. HIGHEST PARKING REQUIREMENT IS FROM CHURCH; THEREFORE, MAXIMUM PARKING SPACES REQUIRED IS 167 SPACES

BUILDING COVERAGE: (35,676 SQ. FT/ 281,833 SQ. FT.) 13%
APPLICABLE DPZ FILE REFERENCES: BA 99-60E, SDP 72-114

9/15/2016 ⚠ 2) ADDED 6' CHAIN LINK FENCE ON NW SIDE OF SPORTS FLD

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/26/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/24/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/23/01

DATE	NO.	REVISION
5/25/01	1	REVISION PER ARCHITECTURAL CHANGES
8/07/07	2	ADDED GENERAL NOTE #21 - TEMPORARY USE

OWNER/DEVELOPER
ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
TITLE SHEET

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

12-23-00 DATE

STATE OF MARYLAND — DARRELL J. VOLNEY — NO. 22098 — REGISTERED PROFESSIONAL ENGINEER
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV	
DRAWN BY: BPO/MRL	
PROJECT NO:	
DATE: JUNE, 2000	
SCALE: AS SHOWN	
DRAWING NO.: 1 OF 10	

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THE REVISIONS HEREON LABELED ⚠ 2 WERE PERFORMED UNDER MY DIRECT SUPERVISION; THAT THEIR SOLE PURPOSE IS TO DEPICT THE PROPOSED 6-FOOT CHAIN-LINK FENCE ALONG THE NORTHWESTERLY SIDE OF THE SPORTS FIELD; AND THAT THESE ARE THE ONLY REVISIONS PERFORMED BY CLOVERLEAF LAND SURVEYS, INC. ON THIS PROJECT.

09-16-2016 — DATE
R. WINFIELD VINING JR.
PROFESSIONAL LAND SURVEYOR #10957

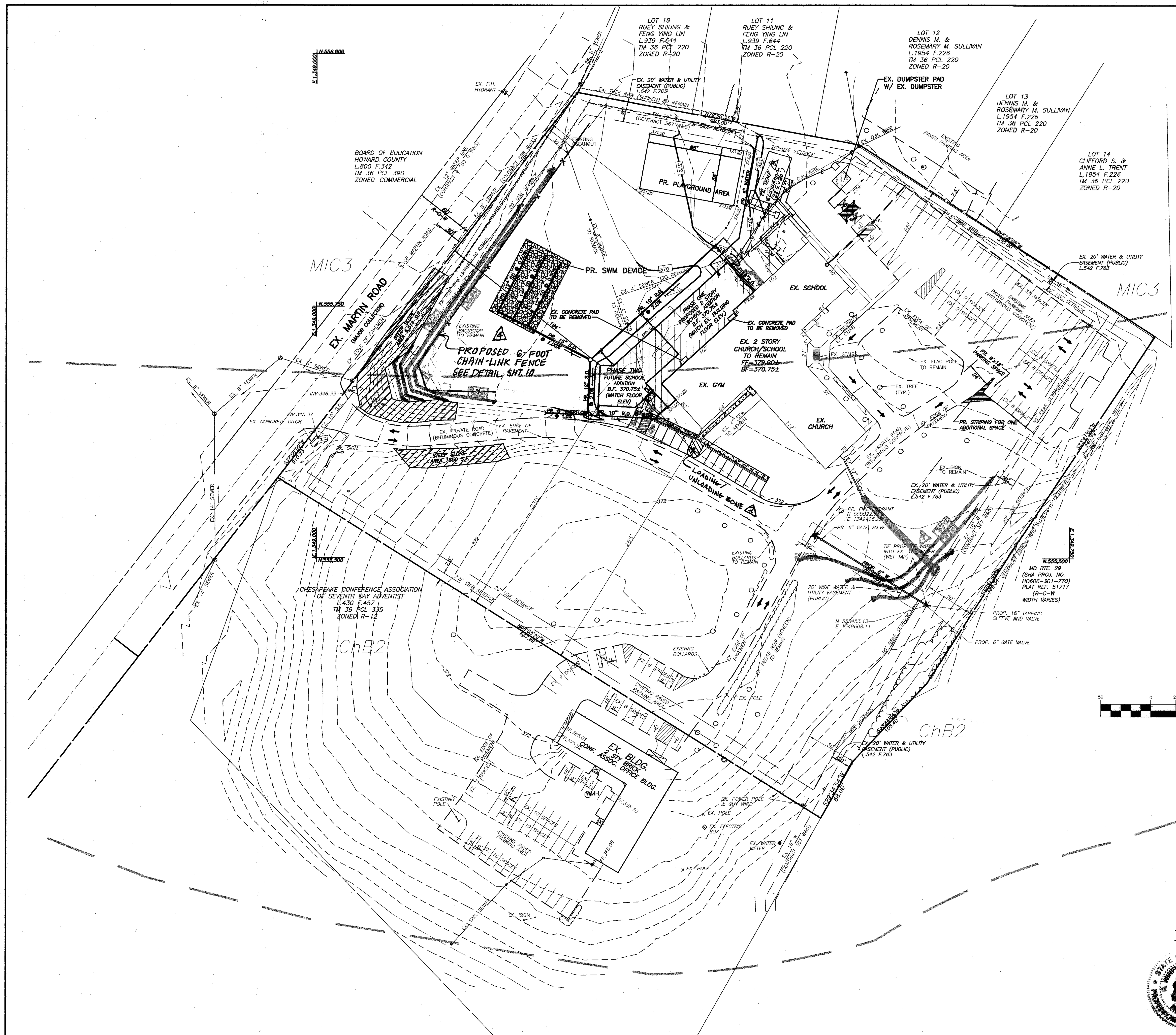
STATE OF MARYLAND — R. WINFIELD VINING JR. — NO. 10957 — PROFESSIONAL LAND SURVEYOR

ADDRESS CHART

PARCEL	STREET ADDRESS
148	6520 MARTIN ROAD COLUMBIA, MD. 21044

SUBDIVISION NAME – N/A			SECT./AREA –	PARCEL – 148	
DEED REF – L.365 F.73	BLOCK # – 19	ZONING – R-12	TAX MAP NO. – 36	ELECT. DIST. – 5th	CENSUS TRACT – 6056
WATER CODE – E30			SEWER CODE – 532600		

SDP-01-02



GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

LEGEND

- EXISTING CONTOURS
- EXISTING CURB & GUTTER
- PROPERTY LINE
- EXISTING LIGHT POLE
- EXISTING POWER POLE
- EXISTING BUILDING
- EXISTING CONCRETE SIDEWALK
- EXISTING STORM DRAIN
- EXISTING SEWER
- EXISTING TREELINE
- EXISTING TREE/SHRUB
- PROP. TREELINE
- EXISTING OVERHEAD POWER LINE
- PROPOSED BUILDING ADDITION
- PROPOSED CONTOUR
- PROPOSED SPOT SHOT (x32.45)
- PROPOSED SIDEWALK
- SILT FENCE (SF)
- LIMIT OF DISTURBANCE (LOD)
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- TRAFFIC FLOW ARROW
- DRAINAGE FLOW ARROW
- DRAINAGE AREA LINE
- STEEP SLOPE > 25% (SUSTAINED FOR 10 VERTICAL FEET)
- PROPOSED WATER (PROP. 6" WATER)
- PROPOSED STORM DRAIN (PROP. 15" S.D.)
- PROPOSED BUILDING ADDITIONS

9/15/2016 △4 ADDED PROP. 6' FENCE ON NW SIDE OF SPORTS FLD.
7/05/07 △3 ADDED TEMPORARY CLASSROOM & UTILITIES

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/26/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/18/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/23/01

DATE	NO.	REVISION
3/15/07	2	REVISION TO SHOW LOADING/UNLOADING ZONE
5/15/01	1	REVISION PER ARCHITECTURAL CHANGES
2-02-05	1	REVISED GRADING & EXTEND EX. 12" SD

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
OVERALL SITE DEVELOPMENT PLAN

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

12-28-00
DATE

DARRELL J. VOLNEY #22098

DESIGNED BY: DJV	
DRAWN BY: BPO/MRL	
PROJECT NO:	
DATE: JUNE, 2000	
SCALE: AS SHOWN	
DRAWING NO.: 2 OF 10	

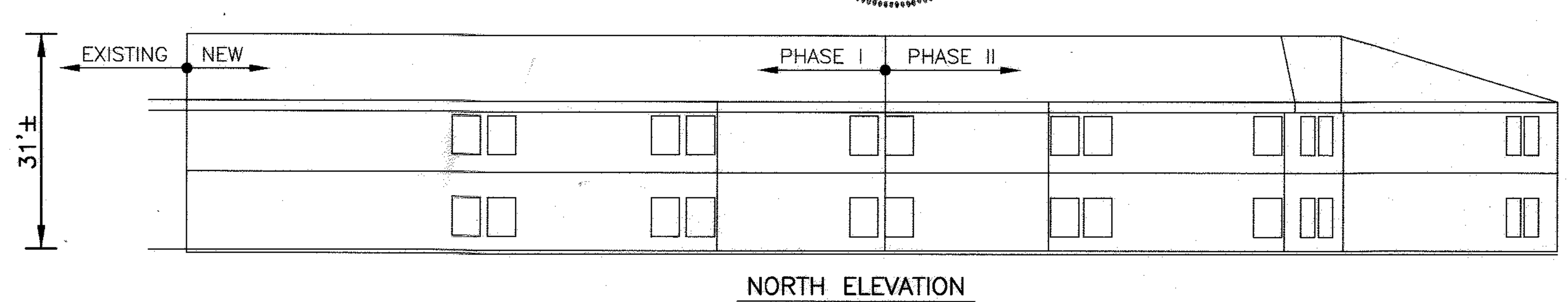
SDP-01-02

PROFESSIONAL CERTIFICATION

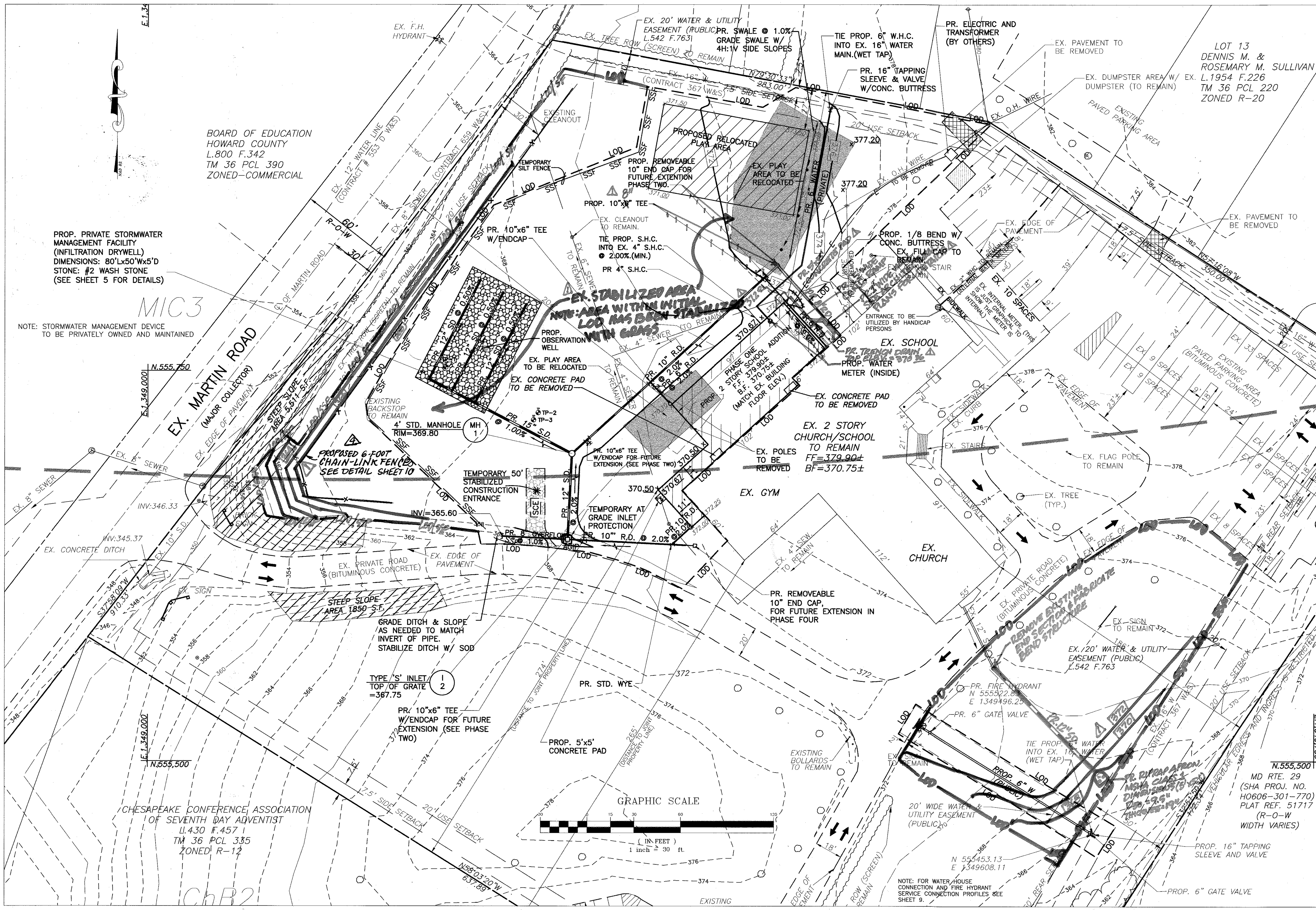
I HEREBY CERTIFY THAT THE REVISIONS HEREON LABELED △4 WERE PERFORMED UNDER MY DIRECT SUPERVISION; THAT THEIR SOLE PURPOSE IS TO DEPICT THE PROPOSED 6-FOOT CHAIN-LINK FENCE ALONG THE NORTHWESTERLY SIDE OF THE SPORTS FIELD; AND THAT THESE ARE THE ONLY REVISIONS PERFORMED BY CLOVERLEA LAND SURVEYS, INC. ON THIS PROJECT.

09-16-2016
DATE

R. WINFIED VINING Jr.
PROFESSIONAL LAND SURVEYOR #10957



NORTH ELEVATION
NOT TO SCALE



NOTES:

1. ALL 6" WATER LINE SHALL BE DUCTILE IRON PIPE (AWWA C-151) UNLESS OTHERWISE SPECIFIED AND SHALL BE LAID AT A MINIMUM 42" BELOW GRADE.

2. THE PROPOSED WATER METER AS SHOWN SHALL BE AN INSIDE WATER METER. THE METER SETTING/LOCATION IS CONCEPTUAL, THE ACTUAL SETTING WILL BE PLACED INSIDE THE BUILDING IN ACCORDANCE WITH ARCHITECTURAL PLANS. PER HOWARD COUNTY DEVELOPMENT ENGINEERING DIVISION, UTILITIES SECTION, THE 2ND WATER CONNECTION WILL BE ALLOWED WITH A SEPERATE METER. THE 2ND WATER HOUSE CONNECTION AND THE PROPOSED FIRE HYDRANT WILL BE INSTALLED UNDER A ADVANCE DEPOSIT ORDER (ADO).

3. ALL SANITARY SEWER PIPING SHALL BE SCHEDULE 40 POLYVINYL CHLORIDE (PVC) PIPE UNLESS OTHERWISE SPECIFIED.

4. ALL PROPOSED BUILDING ADDITIONS WILL BE CONSTRUCTED TO INCLUDE AUTOMATIC FIRE SPRINKLER SYSTEM.

5. ALL ROOF LEADERS DRAINING FROM THE EXISTING SCHOOL AND GYMNASIUM ROOFS SHALL BE TIED INTO NEW ROOF LEADER/STORM DRAIN SYSTEM.

6. THE SUPER SILT FENCE ALONG MARTIN ROAD SHALL REMAIN UNTIL THE SITE IS STABILIZED. ONCE THE SITE IS STABILIZED AND WITH APPROVAL OF THE HOWARD COUNTY SCD INSPECTOR, THE CONTRACTOR CAN REMOVE THE SUPER SILT FENCE.

09-16-2016 (4) ADDED 6' FENCE ON NW SIDE OF SPORTS FLD.

BY THE DEVELOPER :

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

Eugene F. Burgess 12-28-00
DEVELOPER DATE

BY THE ENGINEER :

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

Darrell J. Volney 12-28-00
ENGINEER DATE

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

Jim Meyers 1/19/01
NATURAL RESOURCES CONSERVATION SERVICE DATE

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

John Robertson 1/19/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

1/26/01
DIRECTOR DATE

1/18/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamilton 1/23/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION
5/15/01	△	REVISIONS PER ARCHITECTURAL CHANGES
2-02-05	△	REVISED GRADING, LOD & SSF + EXTEND 12" SD

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
SITE DEVELOPMENT PLAN
PHASE ONE

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

12-28-00
DATE

STATE OF MARYLAND DARRELL J. VOLNEY No. 22098 REGISTERED PROFESSIONAL ENGINEER

DARRELL J. VOLNEY #22098

DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 3 OF 10

SDP-01-02

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THE REVISIONS HEREON LABELED (4) WERE PERFORMED UNDER MY DIRECT SUPERVISION; THAT THEIR SOLE PURPOSE IS TO DEPICT THE PROPOSED 6'-FOOT CHAIN-LINK FENCE ALONG THE NORTHWESTERLY SIDE OF THE SPORTS FIELD; AND THAT THESE ARE THE ONLY REVISIONS PERFORMED BY CLOVERLEA LAND SURVEYS, INC. ON THIS PROJECT.

09-16-2016
DATE R. WINFIELD VINING, Jr.
PROFESSIONAL LAND SURVEYOR #10957

STATE OF MARYLAND R. WINFIELD VINING, JR. No. 10957 PROFESSIONAL LAND SURVEYOR

STORMWATER MANAGEMENT NOTE:
THE UNDERGROUND STORMWATER MANAGEMENT INFILTRATION DEVICE AND THE ASSOCIATED STORMDRAIN PIPE AND STRUCTURES ARE PRIVATELY OWNED. THE OWNER SHALL MAINTAIN THE DEVICE AND APPURTENANCES AT HIS OWN EXPENSE.

WARNING!!
THE EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE. THE CONTRACTOR SHALL TEST PIT AS NEEDED TO VERIFY THE EXACT TYPE, SIZE AND LOCATION OF SAID UTILITIES.

NOTE:
ALL CONSTRUCTION DETAILS SHALL INCLUDE BUT NOT BE LIMITED TO THE DETAILS SHOWN. THE CONTRACTOR SHALL REFERENCE TO THE MOST RECENT VERSION OF VOLUME IV OF HOWARD COUNTY'S DESIGN MANUAL FOR ADDITIONAL DETAILS UNLESS OTHERWISE PROVIDED.

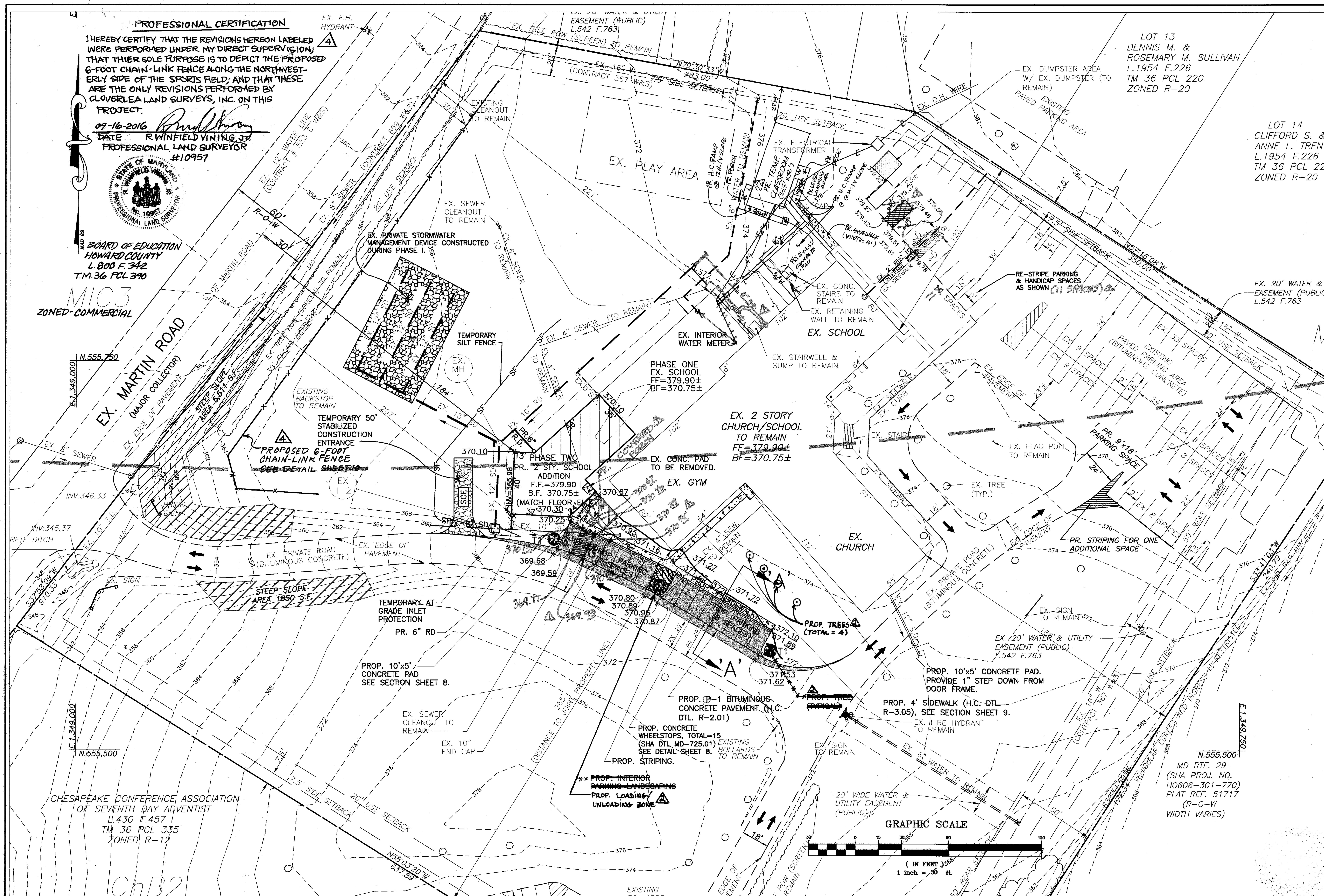
STANDARD DETAILS

DETAIL	DETAIL REFERENCE	LOCATION
4'-0" STD. PRECAST MANHOLE	G-5.12 (H.C.)	SEE SHEET 6
TYPE 'S' INLET	SD-4.22 (H.C.)	SEE SHEET 6
SWM DEVICE	N/A	SEE SHEET 5
AT GRADE INLET PROTECTION	E-16-5A (MDE DTL 23B)	SEE SHEET 8
STABILIZED CONSTRUCTION ENTRANCE	F-17-3 (MDE DTL 24)	SEE SHEET 8
SUPER SILT FENCE	H-26-3 (MDE DTL 33)	SEE SHEET 8

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THE REVISIONS HEREON LABELED (4) WERE PERFORMED UNDER MY DIRECT SUPERVISION; THAT THIER SOLE PURPOSE IS TO DEPICT THE PROPOSED 6-FOOT CHAIN-LINK FENCE ALONG THE NORTHWESTERLY SIDE OF THE SPORTS FIELD; AND THAT THESE ARE THE ONLY REVISIONS PERFORMED BY CLOVERLEA LAND SURVEYS, INC. ON THIS PROJECT.

09-16-2016
DATE R WINFIELD VINING, JR.
PROFESSIONAL LAND SURVEYOR
#10957



NOTES:

1. THE AUTOMATIC FIRE SPRINKLER SYSTEM FOR THE PROPOSED PHASE II SCHOOL ADDITION WILL BE SERVICED BY INTERNAL PIPING FROM THE PHASE I ADDITION.

2. THE PROPOSED BUILDING IN PHASE II WILL BE PLACED ATOP THE EXISTING SANITARY SEWER HOUSE CONNECTION. THE CONTRACTOR SHALL PROTECT THE SANITARY SEWER AS NEEDED TO PREVENT DAMAGE. IF THE SANITARY SEWER IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPAIR IT AT HIS OWN EXPENSE.

3. CONTRACTOR TO EXCAVATE THE EXISTING SANITARY SEWER TO INSPECT THE CONDITION AND REPLACE AS NECESSARY.

4. TEMPORARY CLASSROOM HANDICAP RAMPS
- MATERIAL : TIMBER
- SLOPE : 12H:1V

09-16-2016 (4) ADDED 6' CHAINLINK FENCE ON NW'LY SIDE
7/05/07 (2) ADDED TEMPORARY CLASSROOM & UTILITIES

BY THE DEVELOPER :

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

DEVELOPER 12-28-00 DATE

BY THE ENGINEER :

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

ENGINEER 12-28-00 DATE

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

Jim Meyers 1/17/01
NATURAL RESOURCES CONSERVATION SERVICE DATE

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

John Robertson 1/17/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR 1/26/01 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 1/18/01 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT 1/23/01 DATE

DATE	NO.	REVISION
5/15/01	1	REVISIONS PER ARCHITECTORAL CHANGES
3/15/07	2	CHANGED LANDSCAPE ISLAND TO LOADING/UNLOADING ZONE REVISED LANDSCAPING + PLANT LIST

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

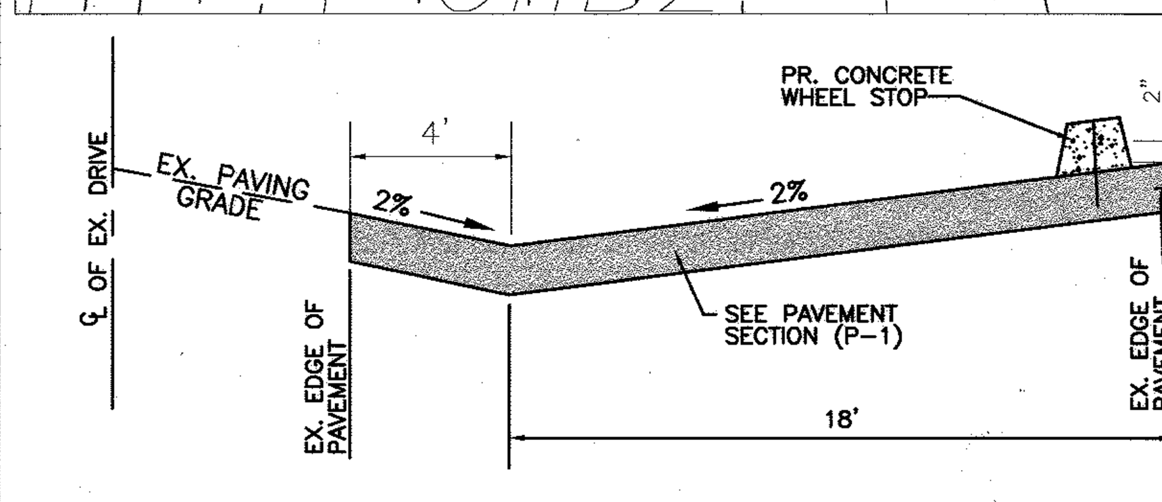
TITLE
SITE DEVELOPMENT PLAN
PHASE TWO

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

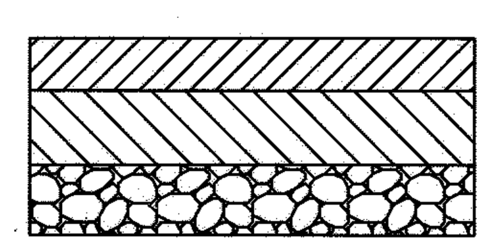
12-28-00
DATE
STATE OF MARYLAND DARRELL J. VOLNEY No. 22098 REGISTERED PROFESSIONAL ENGINEER
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 4 OF 10

SDP-01-02



PARKING LOT SECTION
SECTION A-A
N.T.S.



SEE H.C. DETAIL R-2.01

PAVEMENT SECTION (P-1)
N.T.S.

WARNING!!
THE EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE. THE CONTRACTOR SHALL TEST PIT AS NEEDED TO VERIFY THE EXACT TYPE, SIZE AND LOCATION OF SAID UTILITIES.

STANDARD DETAILS

DETAIL	DETAIL REFERENCE	LOCATION
CONCRETE WHEELSTOPS	MD-725.01 (SHA)	SEE SHEET 8
CONCRETE SIDEWALK/PAD	R-3.05 (H.C.)	SEE SHEET 8
PAVEMENT SECTION	R-2.01 (H.C.)	SEE THIS SHEET
AT GRADE INLET PROTECTION	E-16-5A (MDE DTL. 23B)	SEE SHEET 8
STABILIZED CONSTRUCTION ENTRANCE	F-17-3 (MDE DTL. 24)	SEE SHEET 8
SILT FENCE	E-15-3 (MDE DTL. 22)	SEE SHEET 8

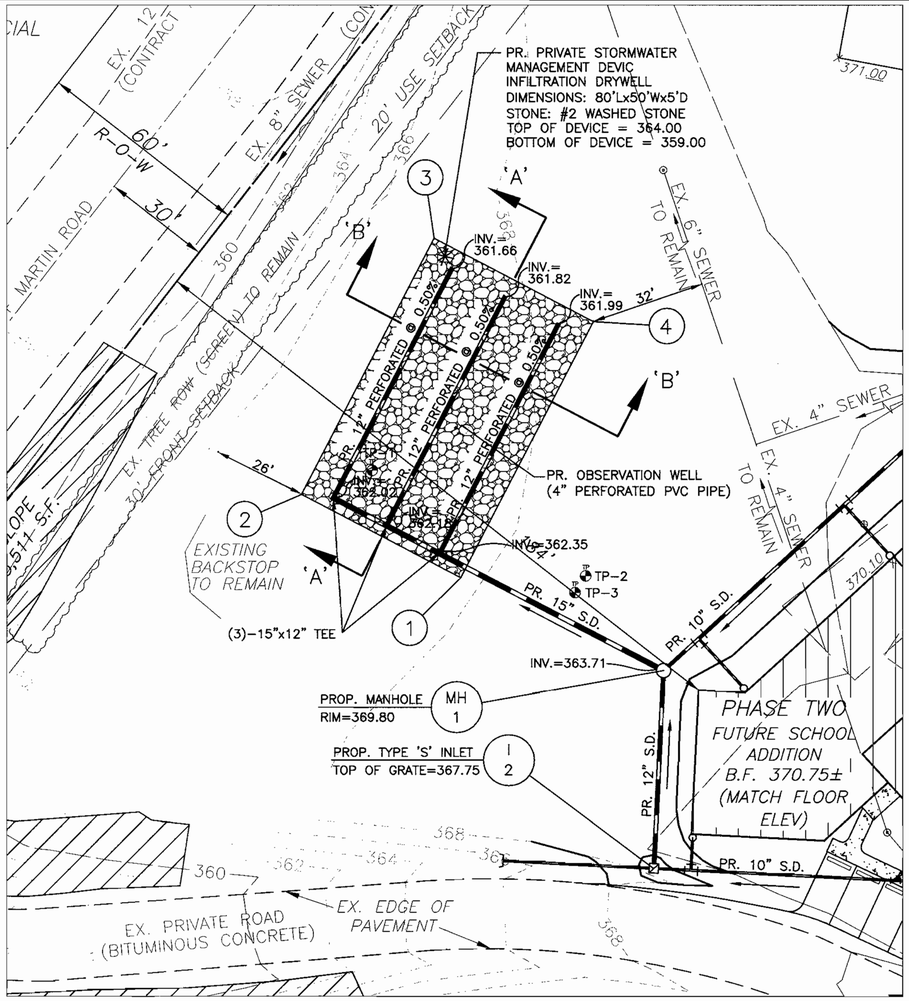
NOTE:
ALL CONSTRUCTION DETAILS SHALL INCLUDE BUT NOT BE LIMITED TO THE DETAILS SHOWN. THE CONTRACTOR SHALL REFERENCE THE MOST RECENT VERSION OF VOLUME IV OF HOWARD COUNTY'S DESIGN MANUAL FOR ADDITIONAL DETAILS UNLESS OTHERWISE PROVIDED.

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

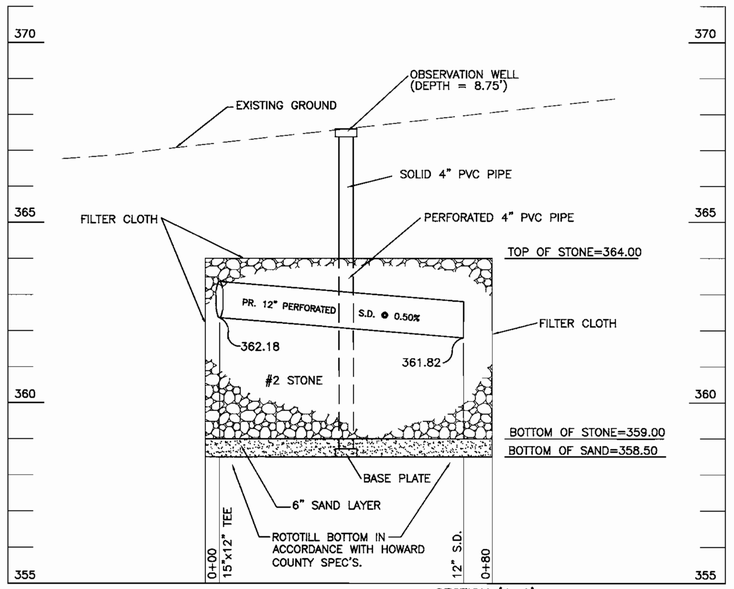
NUMBER OF NEW PARKING SPACES	15
NUMBER OF TREES/ISLAND REQ'D (1/20 SP.)	1
NUMBER OF TREES PROVIDED -SHADE -OTHER (2:1 SUBSTITUTION)	3 3 0
NUMBER OF ISLANDS PROV'D (200 SF/ISLAND, 12' MIN. WIDTH)	1

PLANT LIST (2)

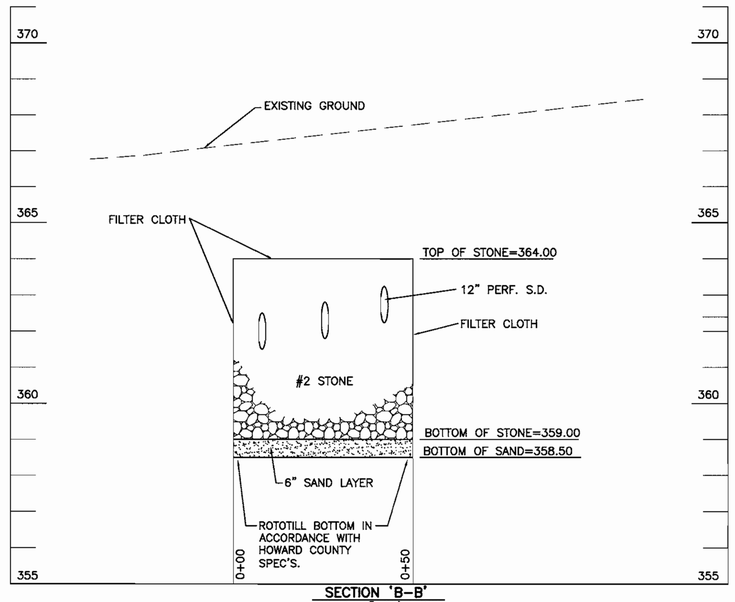
SYMBOL	KEY	BOTANICAL NAME / COMMON NAME	SIZE	QUANTITY
	~~T1~~	~~ACER RUBRUM "October Glory" October Glory Red Maple~~	~~2-1/2"-3" cal. B&B~~	~~3~~
	~~G1~~	~~LIRIOPE "Big Blue" Lily Turf~~	~~1 GAL. CONT.~~	~~90~~
⊙	—	CRAPE MYRTLE	—	4



PLAN VIEW
SCALE: 1"=20'



SECTION 'A-A'
SCALE: 1"=20' HORIZ.
1"=2' VERT.



SECTION 'B-B'
SCALE: 1"=20' HORIZ.
1"=2' VERT.

Construction specifications (infilltration drywell /trench)

Timing

A infilltration device shall not be constructed or placed in service until all of the contributing drainage area has been stabilized and approved by the responsible inspector.

Dry Well Preparation

Excavate the dry well to the design dimensions. Excavated materials shall be placed away from the excavated sides to enhance wall stability. Large tree roots shall be trimmed flush with the sides in order to prevent fabric puncturing or tearing during the installation procedures. The side walls of the dry well shall be roughened where sheared and sealed by heavy equipment. The bottom of the trench below the sand layer is to be rototilled to a minimum depth of one (1) foot prior to sand placement to preserve infiltration rates.

Fabric Laydown

The filter fabric roll shall be cut to the proper width prior to installation. The cut width must include sufficient material to conform to trench perimeter irregularities and for a 6-inch minimum top overlap. Place the fabric roll over the trench and unroll a sufficient length to allow placement of the fabric down into the trench. Stones or other anchoring objects should be placed on the fabric at the edge of the trench to keep the lined trench open during windy periods. When overlaps are required between rolls, the upstream roll shall lap a minimum of 2 feet over the downstream roll in order to provide a shingled effect. The overlap ensures fabric continuity and that the fabric conforms to the excavation surface during aggregate placement and compaction.

Aggregate Placement and Compaction

The stone aggregate should be placed in lifts and compacted using plate compactors. As a rule of thumb, a maximum loose lift thickness of 12 inches is recommended. The compaction process ensures fabric conformity to the excavation sides, thereby reducing the potential for soil piping and fabric clogging.

Overlapping and Covering

Following the stone aggregate placement, the fabric shall be folded over the stone aggregate to form a 6" minimum longitudinal lap. The desired fill soil should be placed over the lap at sufficient intervals to maintain the lap during subsequent backfilling.

Contamination

Care should be exercised to prevent natural or fill soils from intermixing with the stone aggregate. All contaminated stone aggregate shall be removed and replaced with uncontaminated aggregate.

Voids Behind Fabric

Voids can be created between the fabric and excavation sides and should be avoided. Removing boulders or other obstacles from the trench walls is one source of such voids. Natural soils should be placed in these voids at the most convenient time during construction to ensure fabric conformity to the excavated sides. Soil piping, fabric clogging, and possible surface subsidence will be avoided by this remedial process.

Unstable Excavation Sides

Vertically excavated trench walls may be difficult to maintain in areas where the soil moisture is high or where soft cohesive or cohesionless soils predominate. These conditions may require laying back of the side slopes to maintain stability; trapezoidal rather than rectangular cross sections may result.

Vegetative Buffers

A vegetative buffer of at least 20 feet (wider if possible) shall be used to intercept surface runoff from all impervious areas.

Observation Well

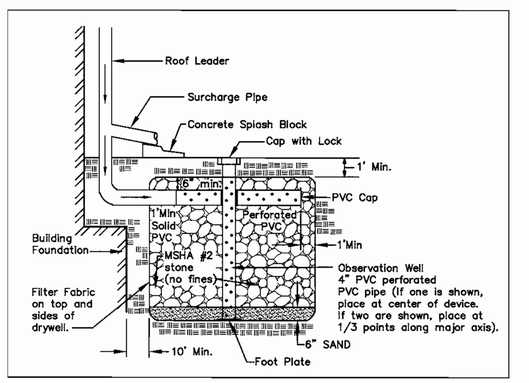
An observation well will be provided. The depth of the well, at the time of installation, will be clearly marked on the well cap.

Operation & Maintenance Schedule

Infiltration dry wells/trenches shall be designed to minimize maintenance. However, it is recognized that all infiltration facilities are subject to clogging by sediment, oil, grease, grit and other debris. In addition, the performance and longevity of these structures is not well documented. Consequently, a monitoring observation well is required for all infiltration structures.

The observation well should be monitored periodically. For the first year after completion of construction, the well should be monitored on a quarterly basis and after every large storm. It is recommended that a logbook be maintained indicating the rate at which the facility dewaters after large storms and the depth of the well for each observation. Once the performance characteristics of the structure 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.

Sediment build-up in the top foot of stone aggregate or the surface inlet should be monitored on the same schedule as the observation well. A monitoring well in the top foot of the stone aggregate will be required when the trench has a stone surface. Sediment deposited shall not be allowed to build up to the point where it will reduce the rate of infiltration into the trench.



TYPICAL S.W.M. DRYWELL DETAIL

Not to scale

Infiltration Drywell Design

Project Atholton Seventh Day Adventist Church
County/State: Howard County, Maryland

Design basis: Infiltrate the runoff from the 10 year storm event from the impervious area.
Enter the following information:

Rainfall Depth (in): P =	5.1 (10 Year Storm)

Contributing Area	
Curve Number: CN $_c$ =	98
Runoff Depth (in): Q_c =	4.86
Contributing Area (ft^2): A_c =	20500

Overlying Soil	
Curve Number: CN =	61
Runoff Depth (in): Q =	1.43
Water Capacity (in/in): C_s =	0.31
Average Soil Depth (ft): d_s =	4

Enter the following information:

Soil infiltration rate (in/hr): f =	2.41
Void ratio: V_r =	0.4
Max. Storage Time (hrs): T_s =	72
Effective Filling Time (hrs): T =	0.5

Determine the maximum allowable depth (ft): $d_{max} = fT/V_r$ d_{max} = 36.15 feet

Determine the size of the drywell: $A_s = \frac{Q_c A_c}{(V_r d_s - P + Q + C_s C_c + fT)}$

Dry Well Depth (ft): d_s =	4	USE 5	6	7	8
Dry Well Surface Area (ft^2): A_s =	4886	3955	3523	2864	2517

Dry Well Dimensions
Length (ft) 80
Width (ft) 50
Depth (ft) 5

Area Provd = 4000sq. ft.

Compare area provided with area required:
Area Provd = 4000 sq. ft. is greater than Area Reqd = 3955 sq. ft

USE: One Dry Well 80' long x 50' wide x 5' deep
Area of filter Cloth (sy): 589
Observation Wells: 1

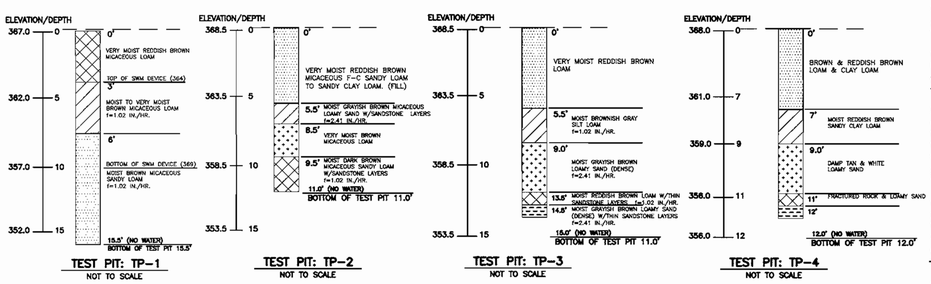
Design References:
1. Standards and Specifications for Infiltration Practices, MD Department of Natural Resources, Feb 1984.
2. Urban Hydrology for Small Watersheds (TR-55), Soil Conservation Service, June 1986

NOTES:

1. ALL STORM DRAIN PIPE SHALL BE N-12 SMOOTH INTERIOR STORM DRAIN PIPE (MAX. N.=0.012) AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL.

2. ALL STORM DRAIN PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. ANY DEVIATION FROM THE SPECIFICATIONS MUST BE APPROVED BY THE ENGINEER.

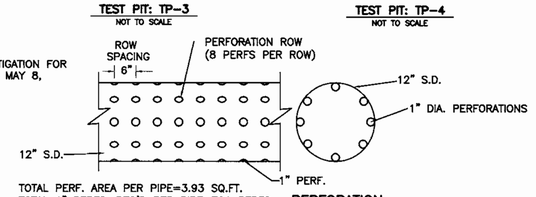
3. ALL STORM DRAIN PIPE SHALL BE CONNECTED USING A SNAP ON WATERTIGHT COUPLER.



NOTES:

1. FOR ADDITIONAL INFORMATION REGARDING GEOTECHNICAL INVESTIGATION FOR THE SWM DEVICE SEE GEOTECHNICAL INVESTIGATION REPORT DATED MAY 8, 2000.

COORDINATES		
POINTS	NORTHING	EASTING
①	N. 555,722.60	E. 1,349,216.44
②	N. 555,745.68	E. 1,349,172.09
③	N. 555,816.65	E. 1,349,209.02
④	N. 555,793.57	E. 1,349,253.37



TOTAL PERF. AREA PER PIPE=3.93 SQ.FT.
TOTAL 1" PERFS. REQ'D PER PIPE=721 PERFS

PERFORATION DIAGRAMS
NOT TO SCALE

NOTES:

1. THE NUMBER OF PERFORATIONS, SIZE AND THE LAYOUT MAY BE ALTERED AS LONG AS THE TOTAL AREA OF OPENINGS REMAIN THE SAME. ANY CHANGES TO THE PERFORATION PATTERN OR SIZES MUST BE APPROVED BY THE ENGINEER.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/26/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/19/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/23/01

DATE	NO.	REVISION

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT ATHOLTON SEVENTH DAY ADVENTIST CHURCH

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

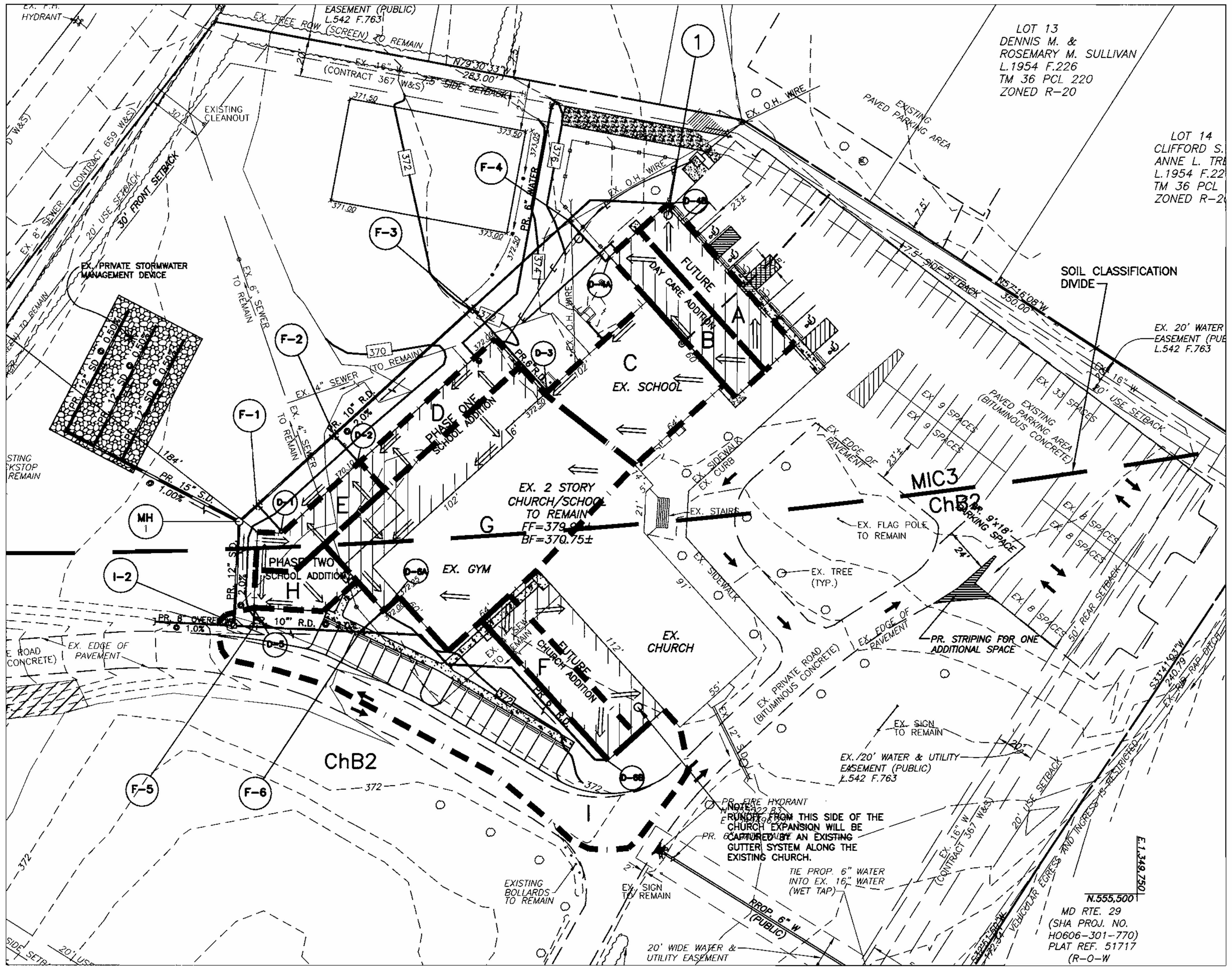
TITLE
STORMWATER MANAGEMENT PLAN
PROFILES AND DETAILS

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

12-28-00
STATE OF MARYLAND DARRELL J. VOLNEY 22098 REGISTERED PROFESSIONAL ENGINEER
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV	
DRAWN BY: BPO/MRL	
PROJECT NO:	
DATE: JUNE, 2000	
SCALE: AS SHOWN	
DRAWING NO.: 5 OF 10	

SDP-01-02



STORM DRAIN DESIGN
DRAINAGE AREA MAP
SCALE: 1"=40'

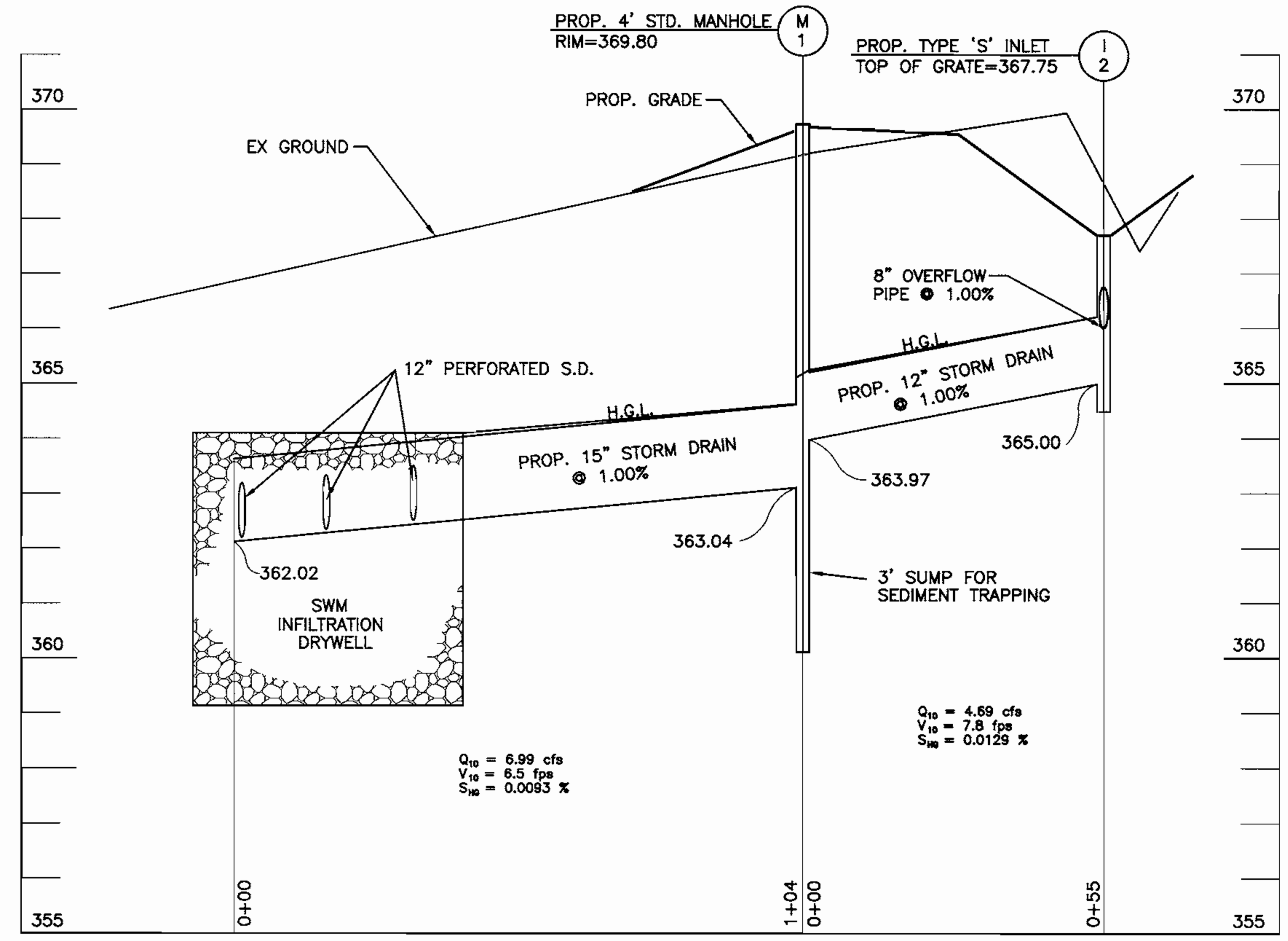
NOTES:

1. ALL TIME OF CONCENTRATIONS WERE ASSUMED TO BE 5 MINUTES.

SOILS CHART	
Chester siltloam (ChB2)	3 to 8 Percent slopes, moderate eroded
Manor Loam (MIC3)	8 to 15 Percent severly eroded

LEGEND

— — —	DRAINAGE AREA BOUNDARY
A	DRAINAGE AREA IDENTIFICATION
⇐	FLOW DIRECTION
— —	SOIL CLASSIFICATION DIVIDE



STORM DRAIN PROFILE
SCALE: 1"=20' HORIZ.
1"=2' VERT.

STORM DRAIN STRUCTURE SCHEDULE							
STRUCTURE ID	STRUCTURE TYPE	TOP ELEVATION	INVERTS		LOCATION (COORDINATES)		DETAIL REFERENCE
			IN	OUT	NORTHING	EASTING	
M-1	4' MANHOLE	269.80	363.97	363.04	555,696.84	1,349,272.90	HO. CO. STD DTL G-5.12
I-2	TYPE 'S' INLET	367.75	365.58	365.00	555,641.90	1,349,270.18	HO. CO. STD DTL SD-4.22

STORM DRAIN PIPE SCHEDULE			
PIPE SIZE (INCHES)	PIPE TYPE	PIPE CLASSIFICATION	TOTAL LENGTH
12	HDPE	PERFORATED	210
15	HDPE	ADS-N12	104
12	HPDE	ADS-N12	55
10	HDPE	ADS-N12	235
6	HDPE	ADS-N12	440

NOTES:

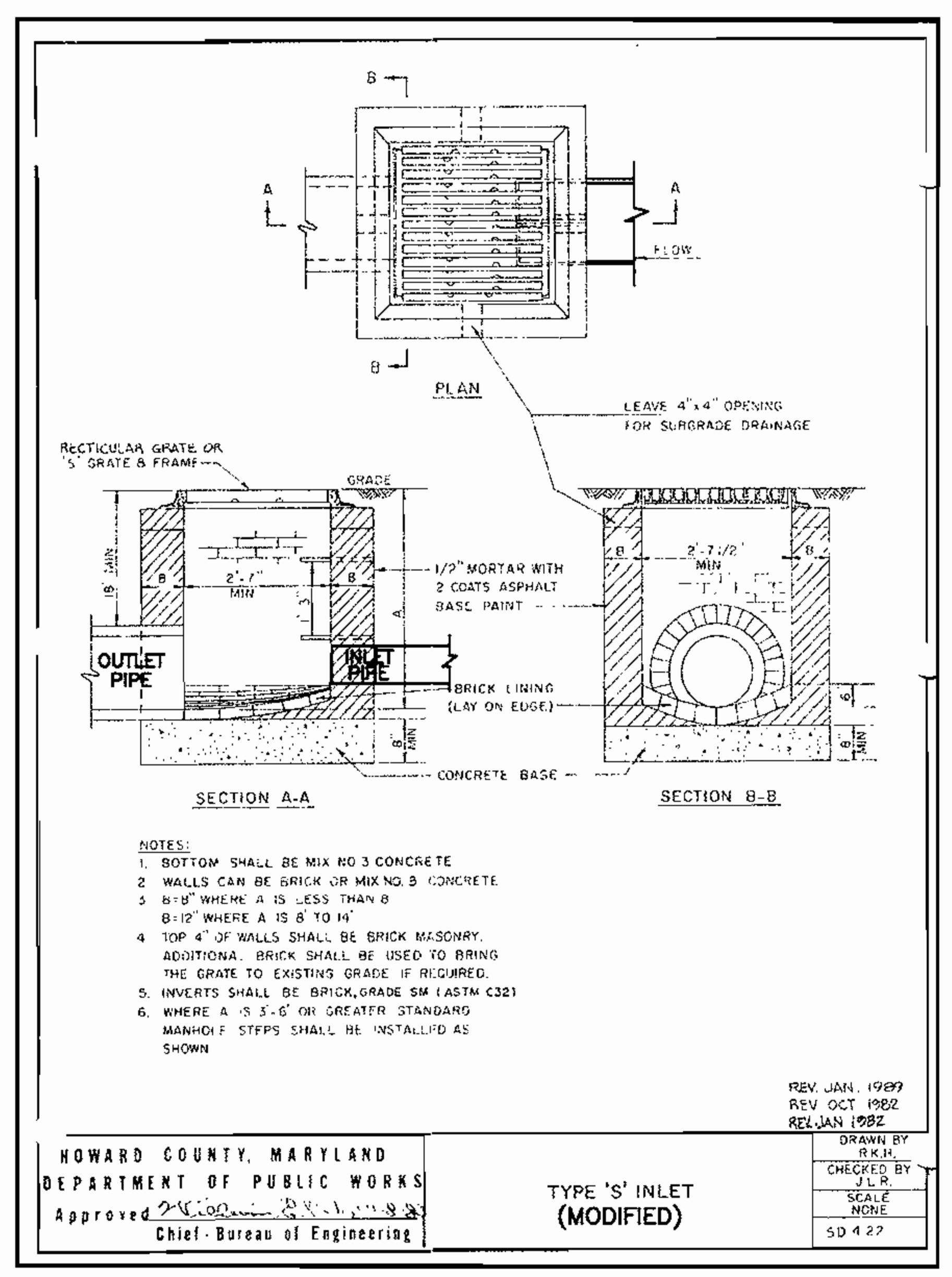
1. ALL STORM DRAIN PIPES AND ROOF DRAIN PIPES SHALL BE N-12 SMOOTH INTERIOR STORM DRAIN PIPE (MAX. N=0.012) AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL.

2. ALL STORM DRAIN PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS, ANY DEVIATION FROM THE SPECIFICATIONS MUST BE APPROVED BY THE ENGINEER.

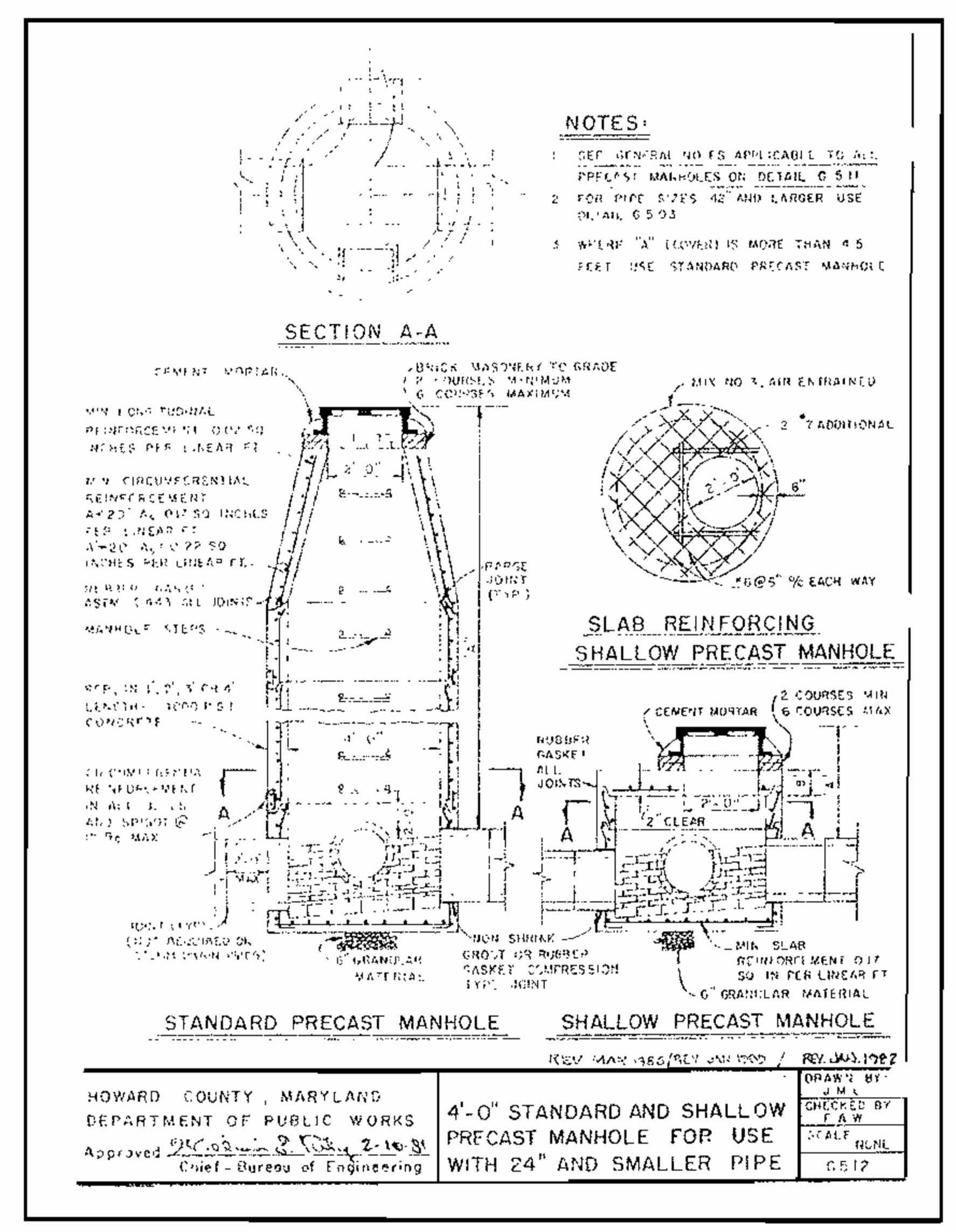
3. ALL STORM DRAIN PIPE AND ROOF DRAIN PIPES SHALL BE CONNECTED USING A SNAP ON WATERTIGHT COUPLER.

4. ALL ROOF DRAIN PIPES SHALL BE LAID AT A MINIMUM SLOPE OF 2.00%. (SEE PROFILES ON SHEET 7)

AREA ID	TOTAL AREA (AC)	PERCENT IMPERVIOUS %	COMPOSITE "C" FACTOR
A	0.05	100	0.87
B	0.05	100	0.87
C	0.10	100	0.87
D	0.04	100	0.87
E	0.04	100	0.87
F	0.05	100	0.87
G	0.27	100	0.87
H	0.03	100	0.87
I	0.30	57	0.56



TYPE 'S' INLET
(MODIFIED)



4'-0" STANDARD AND SHALLOW PRECAST MANHOLE FOR USE WITH 24" AND SMALLER PIPE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — 1/26/01 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 1/19/01 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 1/23/01 DATE

DATE	NO.	REVISION

OWNER/DEVELOPER
ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

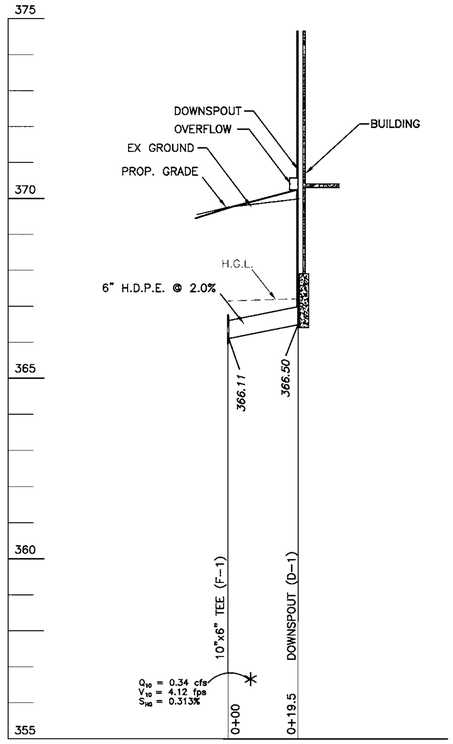
TITLE
STORM DRAIN PROFILES & DETAILS

MESSICK & ASSOCIATES
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212

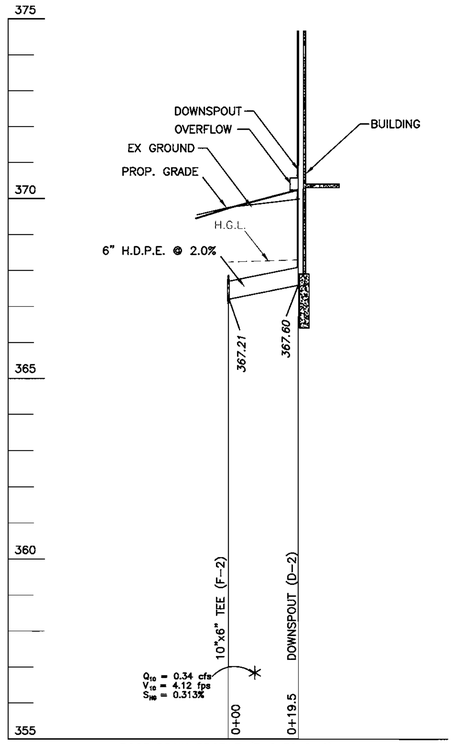
12-28-00
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 6 OF 10

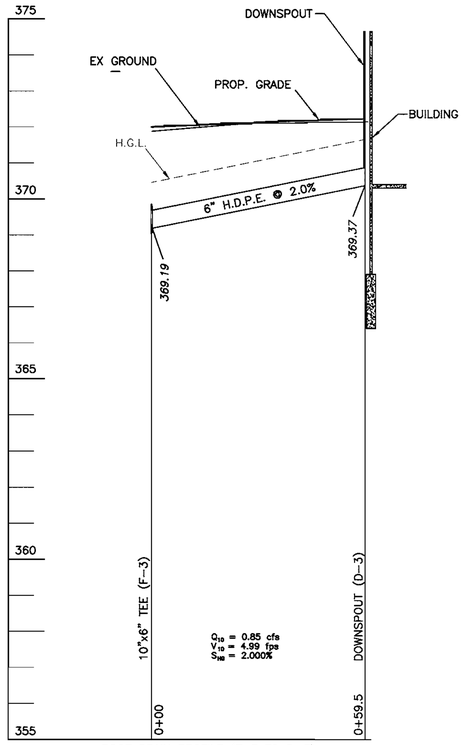
SDP-01-02



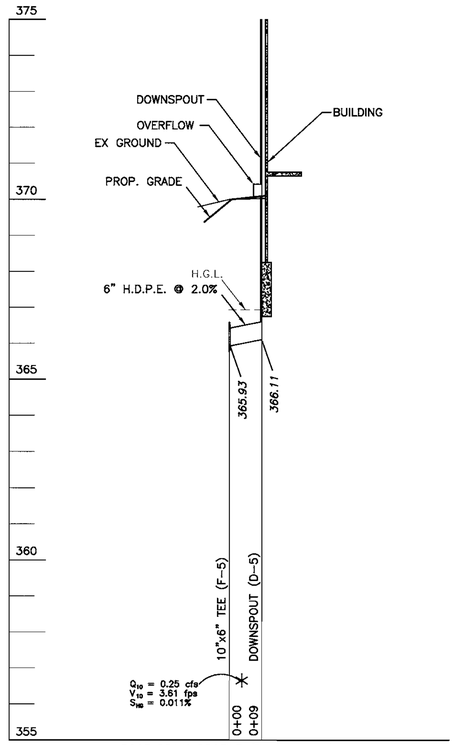
ROOF DRAIN PROFILE (F-1 TO D-1)
SCALE: 1"=20' HORIZ.
1"=2' VERT.



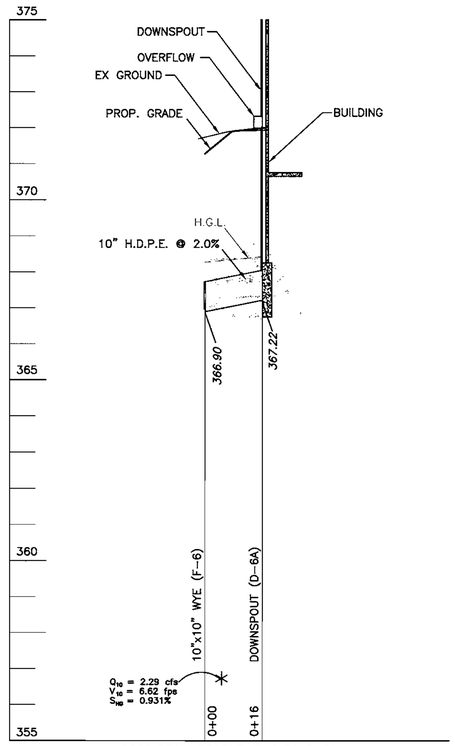
ROOF DRAIN PROFILE (F-2 TO D-2)
SCALE: 1"=20' HORIZ.
1"=2' VERT.



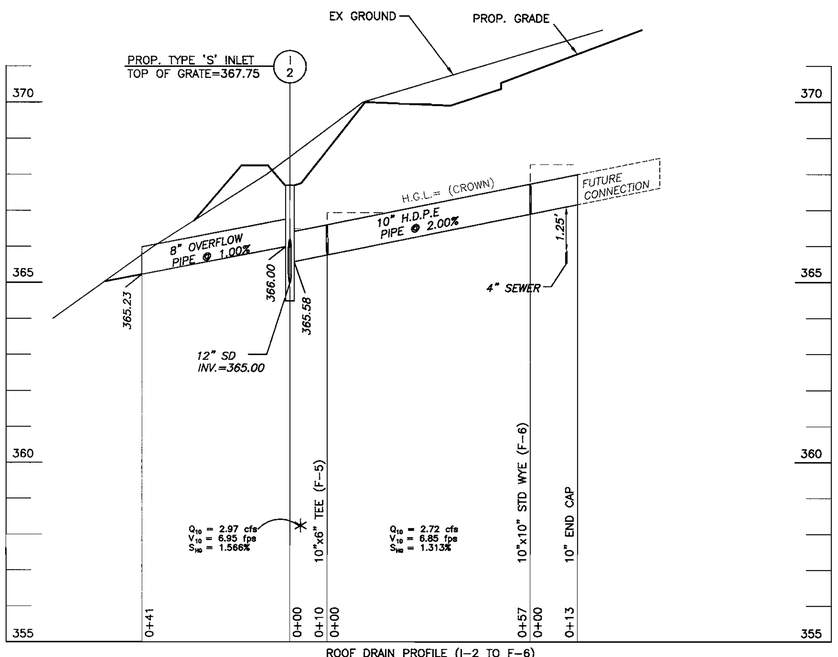
ROOF DRAIN PROFILE (F-3 TO D-3)
SCALE: 1"=20' HORIZ.
1"=2' VERT.



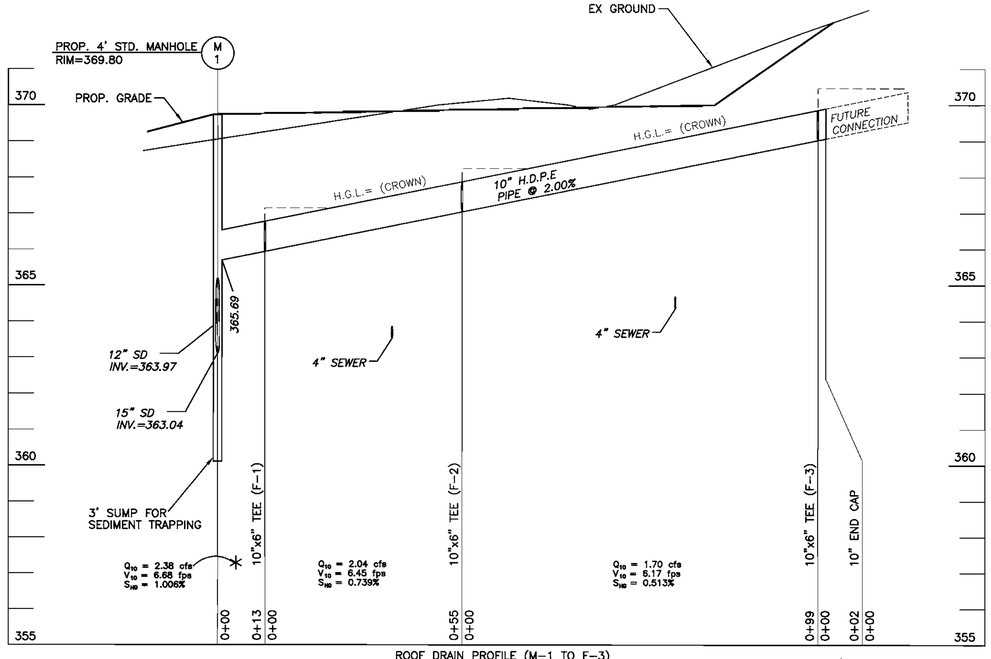
ROOF DRAIN PROFILE (F-5 TO D-5)
SCALE: 1"=20' HORIZ.
1"=2' VERT.



ROOF DRAIN PROFILE (F-6 TO D-6A)
SCALE: 1"=20' HORIZ.
1"=2' VERT.



ROOF DRAIN PROFILE (I-2 TO F-6)
SCALE: 1"=20' HORIZ.
1"=2' VERT.



ROOF DRAIN PROFILE (M-1 TO F-3)
SCALE: 1"=20' HORIZ.
1"=2' VERT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/26/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/16/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/25/01

DATE	NO.	REVISION

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
STORM DRAIN PROFILES

MESSICK & ASSOCIATES *
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STATE OF DARRELL J. VOLNEY No. 22098 REGISTERED PROFESSIONAL ENGINEER

DARRELL J. VOLNEY #22098

DESIGNED BY: DJV	
DRAWN BY: BPO/MRL	
PROJECT NO:	
DATE: JUNE, 2000	
SCALE: AS SHOWN	
DRAWING NO.: 7 OF 10	

SDP-01-02

TEMPORARY SEEDING NOTES

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

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

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

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2-1/2 bushels per acre of annual rye (3.2 lbs.per 1000 sq. ft.) For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (0.07 lbs. per 1000 sq. ft.) For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Refer to the 1983 Maryland Standards and Specifications for Soil Erosion and Sediment Control for rate and methods not covered.

PERMANENT SEEDING NOTES

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

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

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

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

2) Acceptable – Apply 2 tons per acre dolomitic limestone (92 lbs. per 1000 sq.ft.) and 1000 lbs. per acre 10-10-10 fertilizer (25 lbs. per 1000 sq. ft.) before seeding. Harrow or disc into upper three inches of soil.

Seeding: for the period March 1 thru April 30 and from August 1 thru October 15, seed with 60 lbs. per acre (1.4 lbs. per 1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 thru July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs. per acre (0.05 lbs. per 1000 sq.ft.) of weeping lovegrass. During the period October 16 thru February 28, protect site by one of the following options:

1) 2 tons per acre of well-anchored mulch straw and seed as soon as possible in the spring.

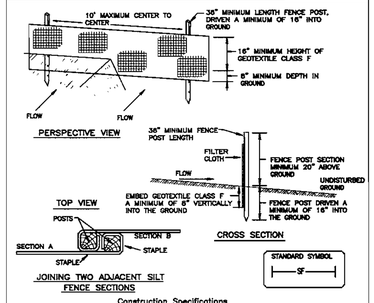
2) Use sod.

3) Seed with 60 lbs. per acre Kentucky 31 Tall Fescue and mulch with 2 tons per acre well anchored straw.

Mulching: Apply 1-1/2 to 2 tons per acre (70 to 90 lbs. per 1000 sq.ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal. per 1000 sq.ft.) of emulsified asphalt on flat areas. On slopes, 8 ft. or higher, use 347 gal. per acre (8 gal. per 1000 sq.ft.) for anchoring.

Maintenance: Inspect all seeded areas and make needed repairs, replacements and reseedings.

DETAIL 22 - SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1-1/2" x 1-1/2" square (minimum) cut, or 1-3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.
2. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

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21.0 Standard and Specifications for Topsoil

Definition

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

Purpose

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

Conditions Where Practice Applies

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

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

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

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

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

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

Construction and Material Specifications

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

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

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a 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 1-1/2" in diameter.

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

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

For sites having disturbed areas under 5 acres:

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

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

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

II. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

V. Topsoil Application

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

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

III. Topsoil shall be uniformly distributed in a 4" – 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that seeding 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.

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:

1. Composted sludge material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for site having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percentp potassium and have a pH of 7.0 to 8.0 If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

d. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

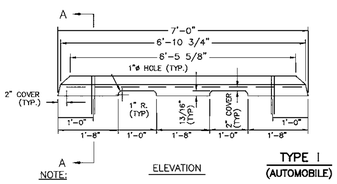
References: Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

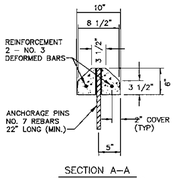
SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES, AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (410) 313-1855.
2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL, AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1; B) 14 DAYS AS TO OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL FOR PERMANENT SEEDINGS (SEC. 51), SOD (SEC. 54). TEMPORARY SEEDINGS (SEC.50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS

TOTAL SITE AREA	6.47 ACRES
AREA DISTURBED	2.02 ACRES
AREA TO BE ROOFED AND PAVED	0.59 ACRES (PHASE I & II)
AREA TO BE VEGETATIVELY STABILIZED	1.43 ACRES (PHASE I & II)
TOTAL CUT	850 CU. YDS.
TOTAL FILL	300 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A

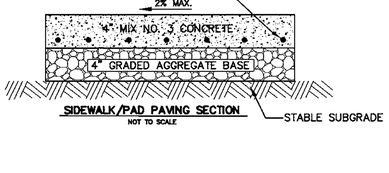
8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.
11. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 AC., 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.
12. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACKFILLED AND STABILIZED BY THE END OF EACH WORKING DAY, WHICHEVER IS SHORTER.





NOTE:
1. PRECAST CONCRETE WHEEL STOPS SHALL BE LOCATED AS SHOWN ON THE PLANS, THEN SECURED IN PLACE WITH TWO (2) NO. 7 REINFORCEMENT BARS PER WHEEL STOP.
2. CONCRETE TO BE MIX NO. 2.

PRECAST CONCRETE WHEEL STOPS
(SHA STANDARD NO. MD-725.01)
NOT TO SCALE

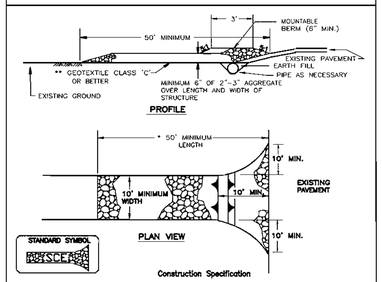


SIDEWALK/PAD PAVING SECTION
NOT TO SCALE

Reviewed for HOWARD S.C.D. Name and meets Technical Requirements
Signature Date 1/17/01
USDA, NATURAL RESOURCES CONS. SERVICE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Approved Howard S.C.D. Date 1/17/01

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).
2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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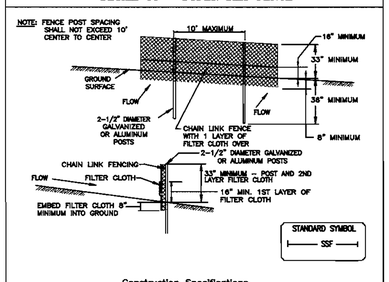
DETAIL 33 – SUPER SILT FENCE



Construction Specifications

Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6 foot fence shall be used, substituting 42 inch fabric and 8 foot length posts.

1. The poles 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 filter cloth adjoin each other, the 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.

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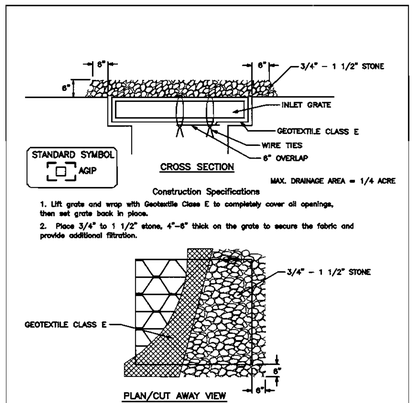

Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
2. Place 3/4" to 1 1/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

DETAIL 23B – AT GRADE INLET PROTECTION

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SEQUENCE OF CONSTRUCTION

All work included in this plan set will be completed in four (4) phases. Only work in which permits and approvals from Howard County have been obtained can be worked on. Below is a sequence of construction for each phase as shown this plan set.

PHASE 1

1. Obtain all necessary approvals, permits, and easements. The contractor must notify the Howard County Department of Inspection and Permits, Howard County Soil Conservation District, and Miss Utility at least 48 hours prior to beginning work.
2. The contractor shall schedule a pre-construction meeting with the respective agencies to review the plans and permits. (1 day)
3. Clear only for, grade, and install stabilized construction entrance. (1 day)
4. Clear only for and install perimeter super silt fence. (1 day)
5. Remove and relocate Playground Area. (2 days)
6. Excavate for footings and construction building addition (6 months)
7. Install water and sanitary sewer connections. (3 days)
8. Excavate and install stormwater management infiltration drywell. Cap inlet pipe. (2 days)
9. Rough grade site per approved plans. (1 week)
10. Install storm drain, roof leaders and ancillary structures. Cap roof leaders and storm drain to prevent runoff from entering the system until all areas have been stabilized. (1 week)
11. Install at grade inlet protection. (1 day)
12. Fine grade and place 2 inches of topsoil. Stabilize with seed and mulch. (1 week)
13. Once the site has stabilized and with approval of the Howard County Sediment Control Inspector, connect the storm drain into stormwater management infiltration drywell.
14. Once the site is stabilized and with the approval of the Howard County Sediment Control Inspector, remove all sediment controls measures. Re-stabilize areas, which were disturbed during removal of the sediment control measures.

PHASE 2

1. Obtain all necessary approvals, permits, and easements. The contractor must notify the Howard County Department of Inspection and Permits, Howard County Soil Conservation District, and Miss Utility at least 48 hours prior to beginning work.
2. The contractor shall schedule a pre-construction meeting with the respective agencies to review the plans and permits. (1 day)
3. Clear only for, grade, and install stabilized construction entrance. (1 day)
4. Clear only for and install perimeter silt fence and install at grade inlet protection. (1 day)
5. Excavate for footings and construction building addition (6 months)
6. Install sanitary sewer connection. (3 days)
7. Install roof leaders. (1 week)
8. Clear for and rough grade parking. (1 week)
9. Construct and stripe parking. Install concrete wheel stops. (1 week)
10. Install concrete sidewalks and landing areas. (1 week)
11. Fine grade and place 2 inches of topsoil. Stabilize with seed and mulch. (1 week)
12. Once the site is stabilized and with the approval of the Howard County Sediment Control Inspector, remove all sediment controls measures. Re-stabilize areas, which were disturbed during removal of the sediment control measures.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 11/26/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/16/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/23/01

DATE	NO.	REVISION

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
SEDIMENT CONTROL NOTES AND DETAILS

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

12-28-00 DATE

STATE OF MARYLAND DARRELL J. VOLNEY 21088 REGISTERED PROFESSIONAL ENGINEER

DARRELL J. VOLNEY #21088

DESIGNED BY: DJV	
DRAWN BY: BPO/MRL	
PROJECT NO:	
DATE: JUNE, 2000	
SCALE: AS SHOWN	
DRAWING NO.: 8 OF 10	

SDP-01-02

SPECIFICATIONS

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

Site Preparation

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of 25 foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Earth Fill

Materials – The fill material shall be taken from approved, designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stone greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment shall conform to Unified Soil Classification GC, SC, CH or CL and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required to prevent erosion of the embankment.

Placement – Areas on which fill is to be placed shall be scarified prior to placement of the fill. Fill materials shall be placed in maximum 8" thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction – The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than on tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

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

Cut Off Trench – The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

Embankment Core

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

Structure Backfill

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of the structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

Structure backfill may be flowable fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100–200 psi; 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm–cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable fill shall be under (bedding), over and, on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure flowability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completelly fill all voids adjacent to the flowable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24' or greater over the structure or pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

All pipes shall be circular in cross section.

Corrugated Metal Pipe – All of the following criteria shall apply for corrugated metal pipe:

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

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

Materials – (Aluminum Pipe) – This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M–196 or M–211 with watertight coupling bands or flanges. Aluminum Pipe, when used with flowable fill or when soil and /or water conditions warrant for, increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M–190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer or two coats of asphalt. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be between 4 and 9.

2. Coupling Bands, anti–seep collars, end sections, etc. must be composed of the same materials coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections – All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti–seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re–rolled an adequate number of corrugations to accommodate the band width. The following type connections are acceptable for pipes less that 24" inches diameter: flanges on both ends of the pipe, a 12 inch wide standard lap type band with 12 inch wide by 3/8 inch thick closed cell circular neoprene gasket; and a 12 inch wide hugger type band with o–ring gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by a 24 inches long annular corrugated band using a minimum of 4 (four) rods and lugs, 2 on each connecting pipe end. A 24 inch wide by 3/8 inch thick closed cell circular neoprene gasket will be installed with 12 inches on the end of each pipe. Flanged joints with 3/8 inch closed cell gaskets the full width of the flange is also acceptable.

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

4. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall be conform to "Structural Backfill"

6. Other details (anti–seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe – All of the following criteria shall apply for reinforced concrete pipe:

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

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

3. Laying Pipe – Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall confirm to "Structural Backfill"

5. Other details (anti–seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe – The following criteria shall apply for plastic pipe.

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

2. Joints and connections to anti–seep collars shall be completely watertight.

3. Bedding – The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill"

5. Other details anti–seep collars, valves, etc. shall be as shown on the drawings.

Concrete

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

Rock Riprap

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

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

Care of Water During Construction

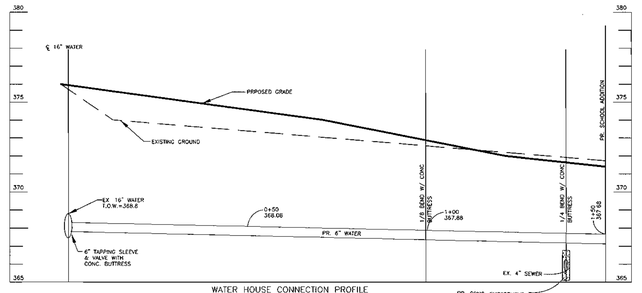
All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which the water will be pumped.

Stabilization

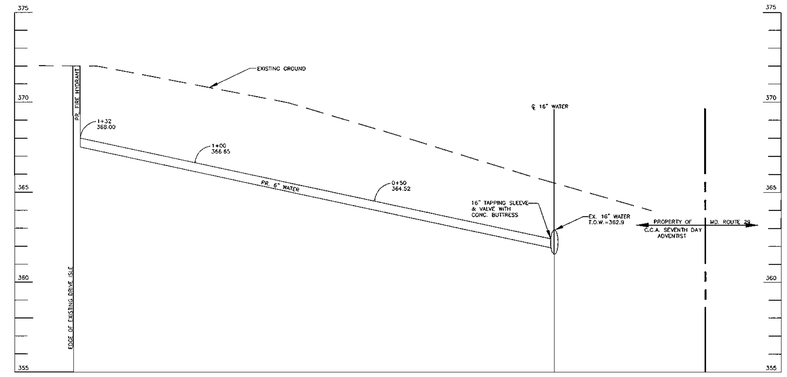
All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing, and mulching in accordance with the Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD–342) or as shown on the accompanying drawings.

Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.



WATER HOUSE CONNECTION PROFILE
SCALE: 1"=20' HORIZ.
1"=4' VERT.



FIRE HYDRANT CONNECTION PROFILE
SCALE: 1"=20' HORIZ.
1"=4' VERT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/26/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/24/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/23/01

DATE	NO.	REVISION

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R–12
5th ELECTION DISTRICT
WATER CODE E–30 SEWER CODE 532600

TITLE
MD. 378 POND SPECS AND WATER PROFILES

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266–3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

12-28-00
DATE

STATE OF MARYLAND — DARRELL J. VOLNEY — REG. NO. 22098 — PROFESSIONAL ENGINEER

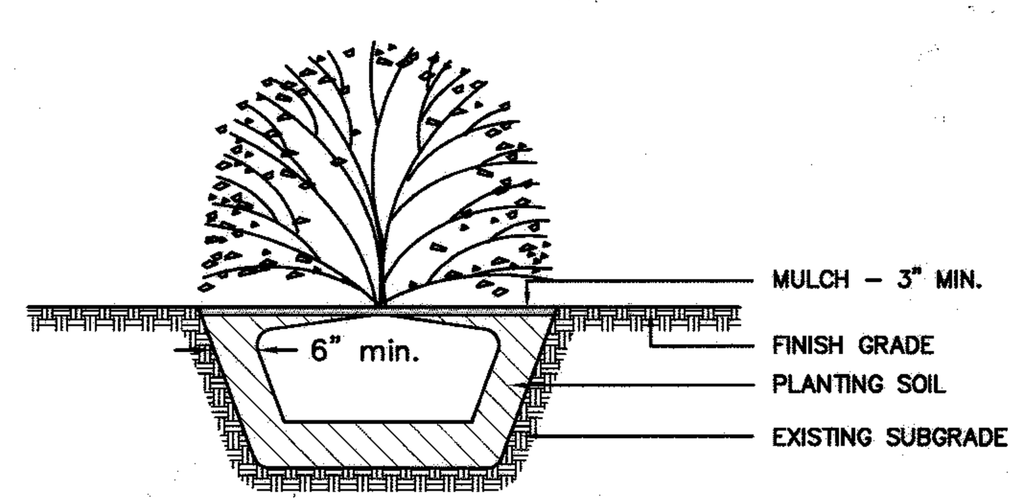
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV	
DRAWN BY: BPO/MRL	
PROJECT NO:	
DATE: JUNE, 2000	
SCALE: AS SHOWN	
DRAWING NO.: 9 OF 10	

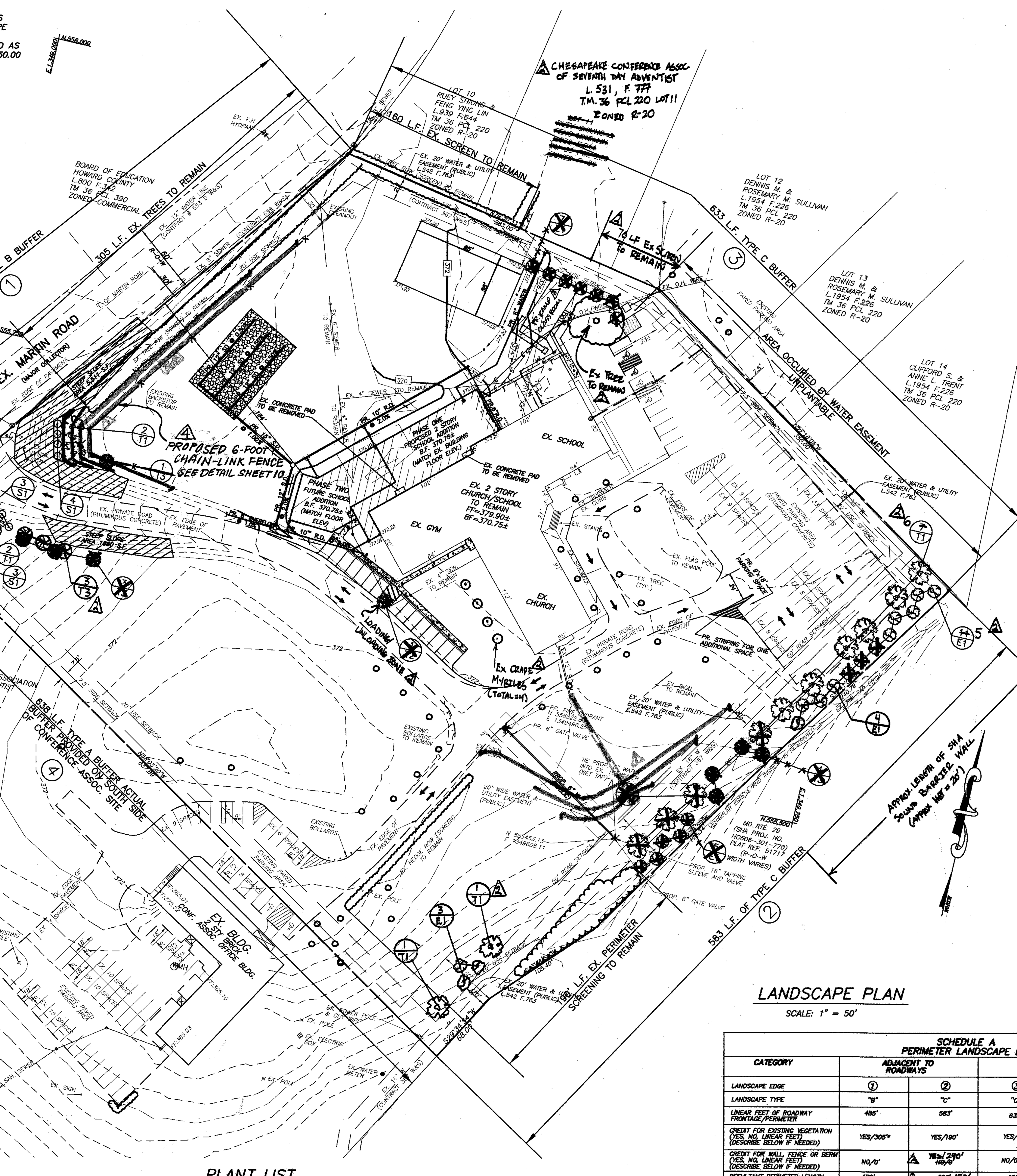
SDP-01-02

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $18,750.00



SHRUB PLANTING DETAIL



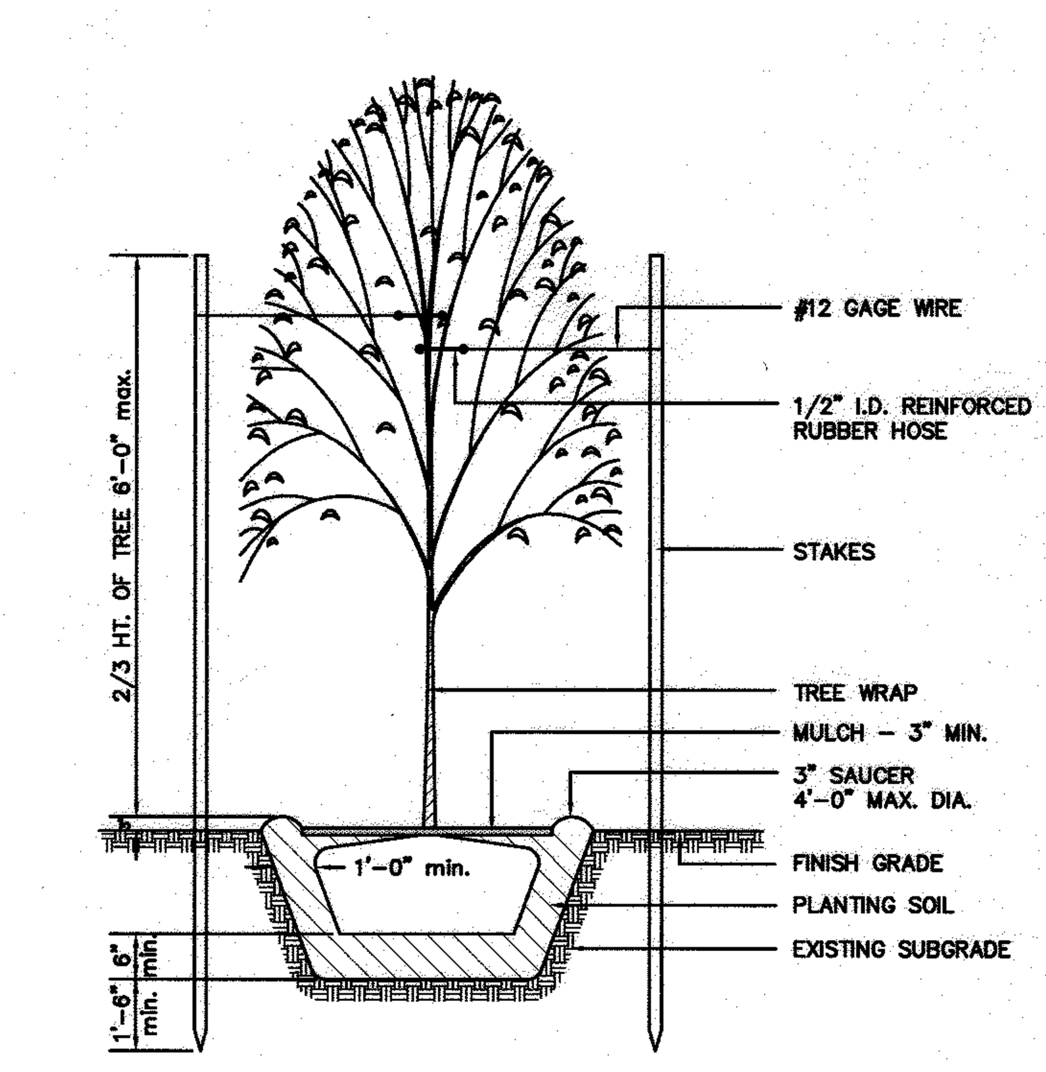
LANDSCAPE PLAN

SCALE: 1" = 50'

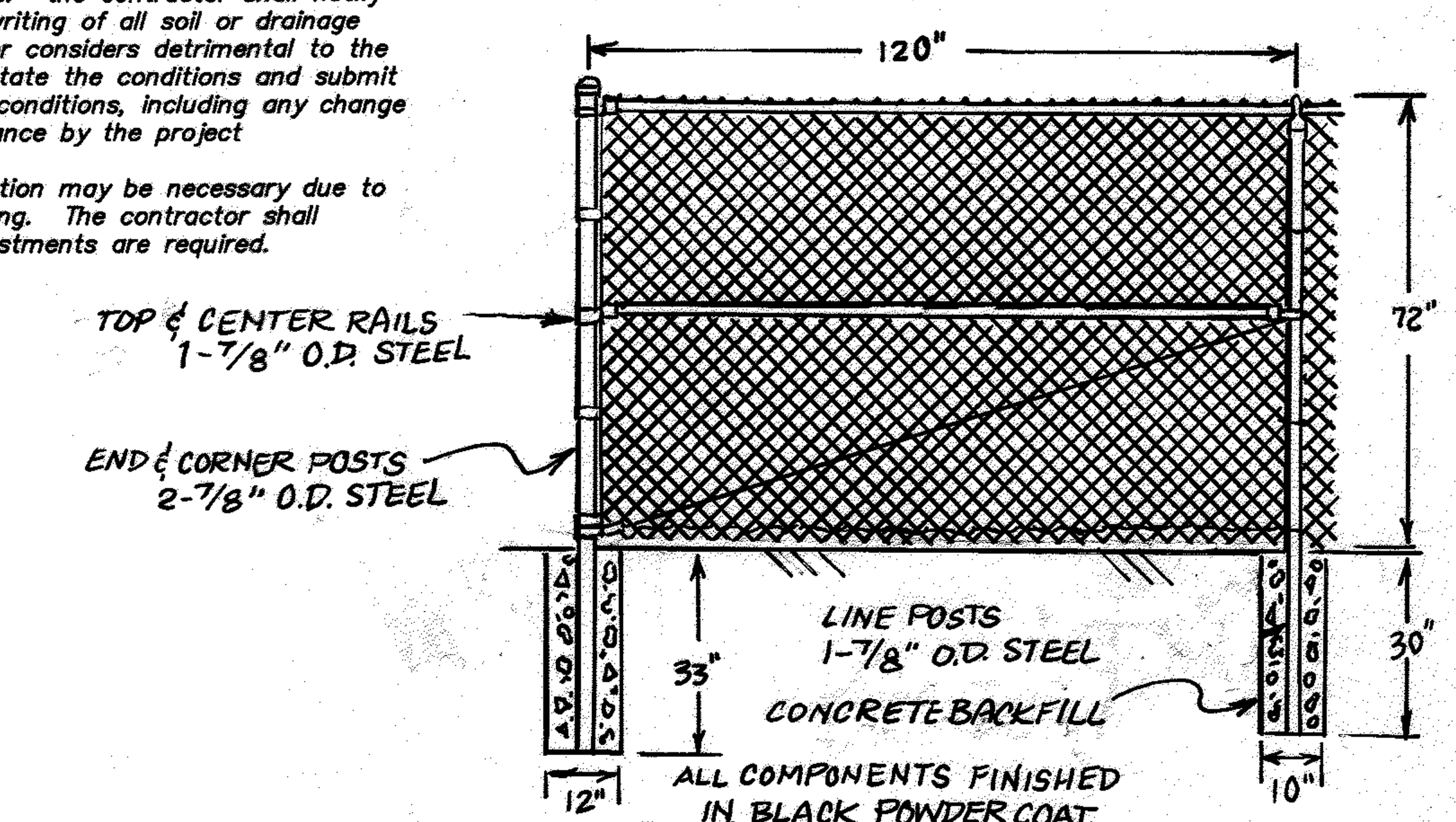
PLANTING NOTES:

1. All plants shall be nursery grown.
2. All plants shall conform to the standards of AAN. They shall be typical of their species or variety and shall have a normal habit of growth. They shall be sound, healthy and vigorous, well-branched and densely foliated when in leaf. They shall be free of disease and insect pests, eggs, or larvae. They shall have healthy, well-developed root systems.
3. No substitutions shall be made without the approval of the landscape architect.
4. Balled and burlapped plants shall be dug with firm natural balls of earth, of diameter and depth to include most of the fibrous roots. Container grown stock shall have been grown in a container long enough for the root system to be have developed sufficiently to hold its soil together firm and whole. No plants shall be loose in the container.
5. Root balls of all plants shall be adequately protected at all times from sun and drying winds or frost.
6. Owner or his representative shall be notified prior to beginning planting operations.
7. All trees shall be wrapped immediately after they are planted.

   Approved tree wrap shall be installed according to accepted industry practice.
8. Each tree and shrub shall be pruned in accordance with the American Association of Nurserymen Standards to preserve the natural character of the plant. All dead wood or suckers and all broken or badly bruised branches shall be removed. Cuts over 1" in diameter shall be painted with an approved tree paint.
9. Mulch: immediately after planting operations are completed all trees and shrub planting pits shall be covered with a 2" layer of Shredded Hardwood Bark Mulch or other material approved by the owner or his representative. The limit of this mulch for trees shall be the area of the pit and for shrubs in beds, the entire area of the shrub bed.
10. Trees in leaf when planted shall be treated with anti-desiccant such as Wilt-proof.
11. Conditions detrimental to plants: the contractor shall notify the project representative in writing of all soil or drainage conditions which the contractor considers detrimental to the growth of plants. He shall state the conditions and submit a proposal for correcting the conditions, including any change in cost for review and acceptance by the project representative.
12. Minor adjustments to tree location may be necessary due to field conditions and final grading. The contractor shall notify the owner if major adjustments are required.



TREE PLANTING DETAIL – LESS THAN 4" CAL.



6-FOOT CHAIN-LINK FENCE DETAIL Δ4

(NOT TO SCALE)

09/16/2016 Δ4 ADDED PROP. 6' FENCE ON NW SIDE OF SPORTS FLD

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES (NEW)	15
NUMBER OF TREES REQUIRED (1/20 sp.)	1
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUBSTITUTION)	x 4 Δ2 x 0 x 4 *A
NUMBER OF ISLANDS REQUIRED	1
NUMBER OF ISLANDS PROVIDED (200 sf/ISLAND, 12' MIN. WIDTH)	1

NOTE: A – SUBSTITUTE 4 CRAPE MYRTLES FOR 1 SHADE TREE Δ2 (UNDERSTORY FLOWERING)

PLANT LIST

Symbol	Key	Botanical Name / Common Name	Size	Quantitiy
	T1	Acer Rubrum "October Glory" / October Glory Red Maple	2 1/2" – 3" Cal. B&B	~~14~~ 12 Δ2
	~~T2~~	~~Platanus Acerfolia Bloodgood / Bloodgood London Plane Tree~~	~~2' – 2 1/2' HT. B&B~~	~~7~~ 0 Δ2
	T3	Cornus florida "rubra" / Red Flowering Dogwood	8' – 10' ht.	~~5~~ 4 Δ2
	S1	Euonymus Alatus Compacta / Dwarf Winged Euonymus	2' – 2 1/2' HT. B&B	10
	E1	Cupressocyparis Leylandii / Leyland Cypress	5–6' Hgt. B&B	~~23~~ 12 Δ2

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS		ADJACENT TO PERIMETER PROPERTIES	
LANDSCAPE EDGE	①	②	③	④
LANDSCAPE TYPE	"B"	"C"	"C"	"A"
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	485'	583'	633'	638'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES/305'*	YES/190'	YES/~~480'~~ 230' Δ2	NO/0'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO/0'	Δ2 YES/240' ~~NO/0'~~	NO/0'	NO/0'
RESULTANT PERIMETER LENGTH	180'	Δ2 ~~393'~~ 153'	~~473'~~ 403' Δ2	638'
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	180/50=4 180/40=5 0	Δ2 153' ~~393~~/40=~~10~~ 4 ~~393~~/20=~~20~~ 7 153' 0	403' ~~473~~/40'=~~12~~ 10 Δ2 ~~473~~/20'=~~24~~ 20 403' 0	638/60'=11 0=0 0=0
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	4 0 4**** 10 (SHRUBS)*****	~~10~~ 8 Δ2 ~~16~~ 12 ~~4****~~ 0 0	0** ~~7**~~ 0 Δ2 0 0	0*** 0 0 0

* = EX. SCREEN ROW OF TREES ALONG MARTIN RD. TO REMAIN
** = NO AVAILABLE PLANTING AREA DUE TO EX. COUNTY WATER EASEMENT.
*** = ADJACENT PROPERTY OWNER IS SAME AS PROJECT SITE. ON SOUTH SIDE OF ADJACENT LOT, EX. WOODED EDGE BUFFERS THE SITE FROM THE ACCESS RAMP.
**** = DECIDUOUS TREE SUBSTITUTION – CAN BE SUBSITUTED ON 1 TO 1 BASIS FOR EVERGREENS
***** = SHRUB SUBSTITUTION – 10 SHRUBS WILL BE PROVIDED AS UNDERGROWTH SCREENING AROUND THE ENTRANCE THE 10 SHRUBS WILL BE SUBSTITUTED FOR 1 EVERGREEN TREE.

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THE REVISIONS HEREON LABELED Δ4 WERE PERFORMED UNDER MY DIRECT SUPERVISION; THAT THEIR SOLE PURPOSE IS TO DEPICT THE PROPOSED 6-FOOT CHAIN-LINK FENCE ALONG THE NORTHWESTERLY SIDE OF THE SPORTS FIELD; AND THAT THESE ARE THE ONLY REVISIONS PERFORMED BY CLOVERLEA LAND SURVEYS, INC. ON THIS PROJECT.

09-16-2016
DATE

R. WINFIELD VINING, Jr.
PROFESSIONAL LAND SURVEYOR #10957

STATE OF MARYLAND · R. WINFIELD VINING, JR. · No. 10957 · PROFESSIONAL LAND SURVEYOR

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/26/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/18/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/23/01

DATE	NO.	REVISION
7/05/07	Δ3	ADDED TEMPORARY CLASSROOM & UTILITIES
3/15/07	Δ2	REVISED LANDSCAPING EDGES 2+3, ADDED LOADING/UNLOADING ZONE, REVISED PLANT LIST + SCHEDULES
3-03-05	Δ1	REVISED GRADING

OWNER/DEVELOPER
ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
LANDSCAPE PLAN

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

12-28-00
DATE
STATE OF MARYLAND · DARRELL J. VOLNEY · No. 22098 · REGISTERED PROFESSIONAL ENGINEER
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 10 OF 10

SDP-01-02

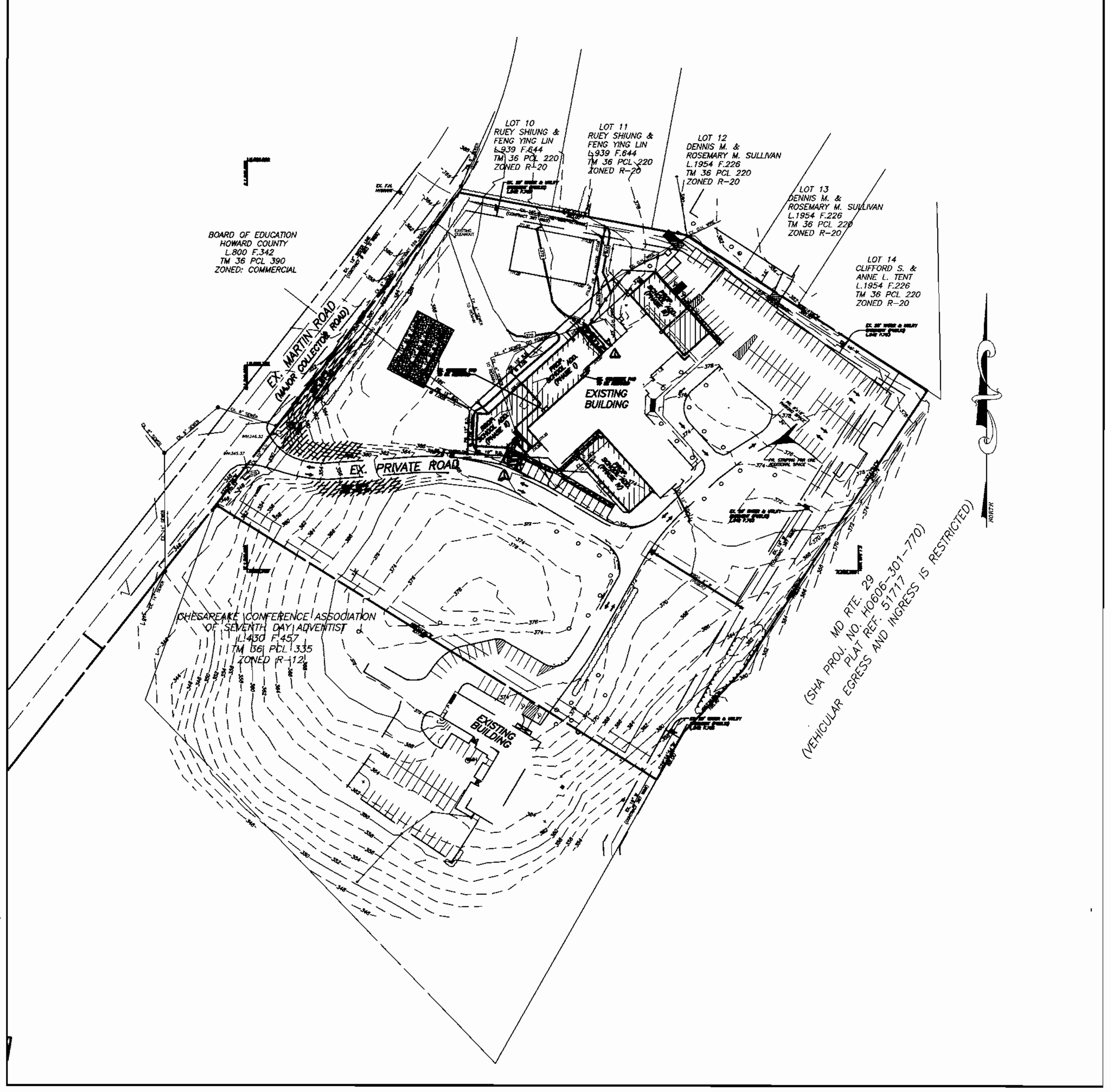
SITE DEVELOPMENT PLAN
FOR
ATHOLTON SEVENTH DAY ADVENTIST CHURCH
BUILDING ADDITIONS (PHASES I AND II)
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

CONSTRUCTION NOTES

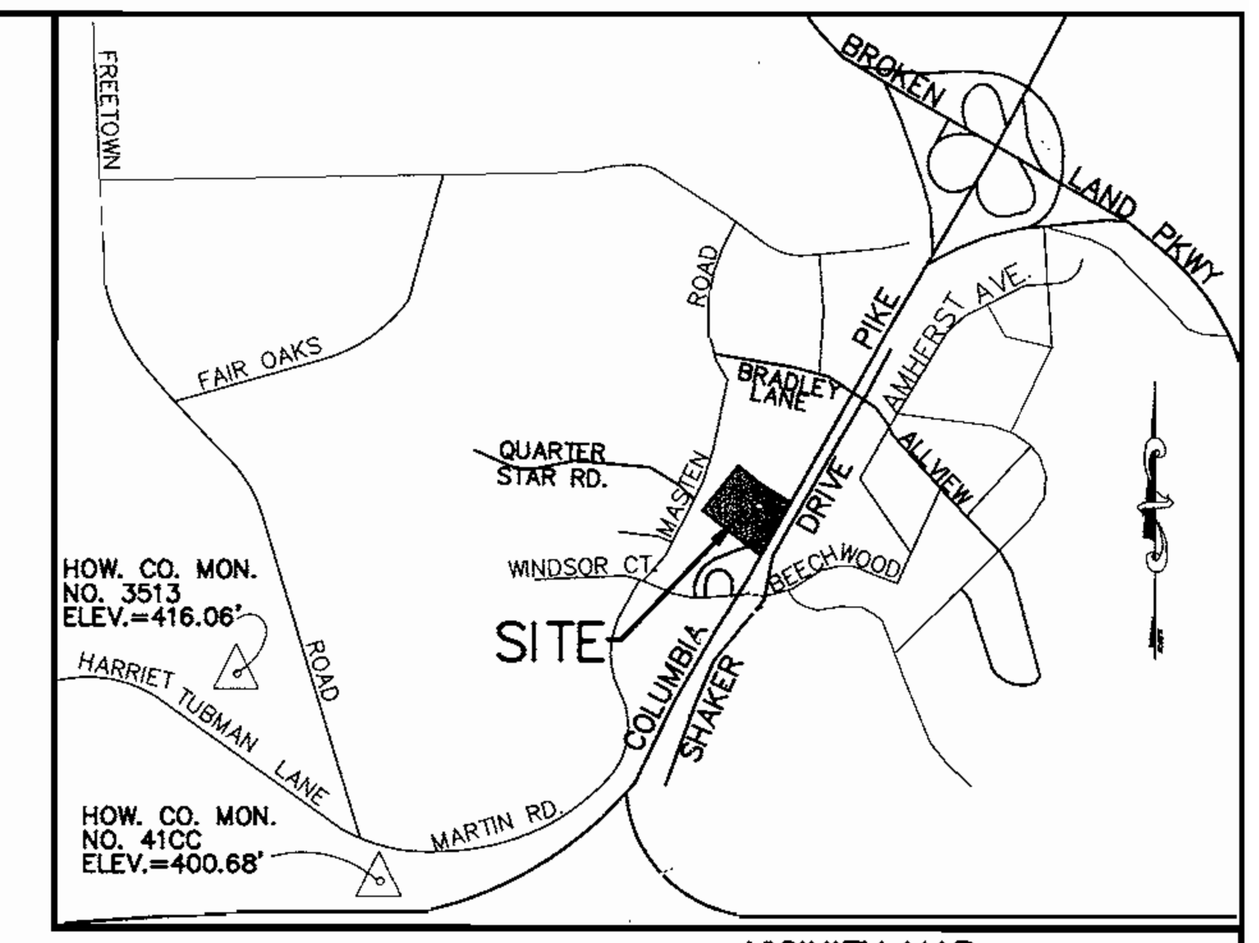
1. No sediment and erosion control devices may be removed without prior approval from the Howard County inspector.
2. Stabilize any disturbed area as soon as possible by permanent or temporary means.
3. All temporary stock piles and excess material shall be removed to an approved spoil site. All borrow material shall be obtained from an approved site.
4. It shall be the responsibility of the contractor or subcontractor to notify the engineer of any deviation to these plans prior to any change being made. Any change in these plans without the written authorization for said change from the engineer shall be the responsibility of the contractor or subcontractor.
5. Utilities shown on these plans are in accordance with the best information available for the contractor. The contractor shall be responsible for locating and protecting all existing services and mains (public or private). The contractor shall obtain the services of a private utility locator to locate all existing private services and mains. The owners and engineer assume no responsibility for accuracy or completeness of the information shown. Existing mains and services shall be carefully protected and any damage to them caused by the work shall be immediately repaired to the satisfaction of the engineer by the contractor at the contractor's expense, using materials of the kinds damaged.
6. The contractor shall call "MISS UTILITY", 1-800-257-7777, a minimum of 48 hours in advance of any excavation, boring, and/or digging to determine the location of underground utilities.
7. The contractor shall grade all areas within the area of construction and shall warp paving as necessary to insure positive drainage.
8. The Contractor shall be responsible for coordination of his construction with the construction by other contractors and subcontractors.
9. All soil erosion control measures shall be in accordance with the "1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL".
10. Failure to specifically mention items which would normally be required to complete the work and develop this site in accordance with the approved plans, shall not relieve the contractor from performing such work. This work shall be part of the contractors base bid.

GENERAL NOTES

1. All construction shall be in accordance with the latest standards and specifications of Howard County, plus MSHA standards and specifications, as applicable.
2. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection Division at (410) 313-1880 at least five (5) working days prior to the start of work.
3. The contractor shall notify "MISS UTILITY" at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
4. The existing topography is taken from field run survey with maximum two feet contour intervals prepared by Design Tech Associates, Inc. dated October 29, 1999.
5. Traffic control devices, markings, and signing shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to any work being done in the public road.
6. All plan dimensions are to face of curb and face of building unless otherwise noted.
7. The coordinates shown hereon are based upon the Howard County Geodetic Control which is based upon the Maryland State Plane Coordinate System. Howard County monument nos. 3513 and 41CC were used for this project.
8. Existing utilities are based on an as-built drawings as supplied by Howard County Development Engineering Division.
9. Water is public, (contract no. 367 W&S).
10. Sewer is public, (contract 659 W&S) existing Martin Road. The Drainage Area is Patuxent.
11. Storm water management for this project is provided on-site via infiltration drywell. The storm water management facility is privately owned and shall be maintained by the owner of the property.
12. There is no floodplain on this site.
13. A noise study is not required for this project.
14. A Geotechnical Study was provided for the Stormwater Management Infiltration Structure by Marshall Engineering on September 7, 2000.
15. The boundary for this project is based on the deed of record (365/73). The property is zoned R-12
16. There are no wetlands on this site.
17. All elevations shown are based on the existing manhole top elevation of 404.2 as shown on SDP 72-11.
18. See Department of Planning and Zoning file no. BA 99-60E, SDP-72-114.
19. Board of Appeals Case No. BA 99-60E was approved on April 11, 2000 subject to the following conditions listed below:
    A.) The special exception shall apply only to the child day care facility and the religious facility and private school as described in the petition and as depicted on the special exception plan submitted on September 21, 1999 or as may be revised by the Board, and not to any other activities, uses or structures on the property.
    B.) The fenced outdoor play area for the child day care center shall be a minimum of 20 feet from the property line to the north.
    C.) Any new outdoor lighting provided shall comply with Section 134 of the Zoning Regulations.
20. Contractor is solely responsible for construction means, methods, techniques, sequences, procedures, and safety precautions and programs.
21. All storm drain pipe bedding shall be Class 'C' as shown in Fig. 11.4, Volume 1 of Howard County Design Manual unless otherwise noted.
22. All inlets shall be constructed in accordance with Howard County Standards.
23. All pipe elevations shown are invert elevations.
24. Storm drain trenches within road right-of-way shall be backfilled and compacted in accordance with the Howard County Design Manual, Volume IV, i.e., Standard Specifications and Details for Construction including the latest amendments.
25. All fill areas within roadway and under structures to be compacted to a minimum of 95% compaction of AASHTO T180.
26. No public notice posters are required since no roadway entrance's are proposed, and no wetland mitigation areas are proposed.
27. This plan has been prepared in accordance with the Forest Conservation Act and Manual per Section 16.1204 with the filing of a Declaration of Intent for a single lot exemption, clearing less than 40,000 square feet of forest (zero feet of forest clearing proposed).
28. All outdoor lighting shall conform to Section 134 of the Zoning Regulations. All exterior lighting shall be shielded and directed towards this site. However, no outdoor lighting is proposed at this time.
29. The additions shall not exceed the roof line of the existing buildings.
30. The Traffic Study for this project was prepared by Traffic Concepts, Inc. dated September 2000 and was approved on September 25, 2000.



PLAN VIEW 1"=100'



VICINITY MAP
SCALE: 1"=2000'

BENCHMARKS

TRAVERSE #7	TRAVERSE #12
N 555,662.30	N 553,834.98
E 1,349,116.32	E 1,349,510.98
ELEV. 365.52	ELEV. 379.49
GALVANIZED STEEL SPIKE	GALVANIZED STEEL SPIKE

LEGEND

- EXISTING CONTOURS
- EXISTING CURB & GUTTER
- PROPERTY LINE
- EXISTING LIGHT POLE
- EXISTING POWER POLE
- EXISTING BUILDING
- EXISTING CONCRETE SIDEWALK
- EXISTING STORM DRAIN
- EXISTING SEWER
- EXISTING TREELINE
- EXISTING TREE/SHRUB
- PROP. TREELINE
- EXISTING OVERHEAD POWER LINE
- PROPOSED BUILDING ADDITION
- PROPOSED CONTOUR
- x32.45 PROPOSED SPOT SHOT
- PROPOSED SIDEWALK
- SF — SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- TRAFFIC FLOW ARROW
- DRAINAGE FLOW ARROW
- DRAINAGE AREA LINE
- STEEP SLOPE > 25% (SUSTAINED FOR 10 VERTICAL FEET)
- PROP. 6" WATER — PROPOSED WATER
- PROP. 15" S.D. — PROPOSED STORM DRAIN

SITE ANALYSIS DATA CHART

TOTAL PROJECT AREA:	6.47 ACRES
AREA OF PLAN SUBMISSION:	6.47 ACRES
LIMIT OF DISTURBED AREA: (PHASE I)	69,244.79 S.F./1.59 ACRES
LIMIT OF DISTURBED AREA: (PHASE II)	18,843.51 S.F./0.43 ACRES
PRESENT ZONING:	R-12
PROPOSED USE:	CHURCH & SCHOOL
FLOOR AREAS:	
EXISTING:	
EXISTING CHURCH	4,921 SQ. FT.
EXISTING SCHOOL	14,039 SQ. FT.
TOTAL EXISTING	18,960 SQ. FT.
PROPOSED:	
PROPOSED SCHOOL (PHASE I)	9,800 SQ. FT.
PROPOSED SCHOOL (PHASE II)	6,290 SQ. FT.
TOTAL PROPOSED	16,090 SQ. FT.
MAXIMUM NUMBER OF EMPLOYEES/STUDENTS:	
CHURCH EMPLOYEES:	4
SCHOOL EMPLOYEES:	12
SCHOOL STUDENTS:	170
PARKING REQUIREMENTS:	
PARKING SPACES REQUIRED: *	
CHURCH (500 SEATS) x (1 SPC/3 SEATS)	167
SCHOOL (170 STUDENTS) X (1 SPC/6 STUDENTS)	28
PARKING SPACES PROVIDED: *	
EXISTING PARKING SPACES (PARCEL 148)	85
EXISTING PARKING SPACES (PARCEL 335)	66
PROPOSED PARKING SPACES (PARCEL 148)	16
TOTAL SPACES PROVIDED	167
(INCLUDES 7 HANDICAP SPACES)	
VOLUME OF CUT:	800 CY
VOLUME OF FILL:	320 CY

*NOTE: SEE SECTION IV, ITEM A4 OF THE SPECIAL EXCEPTION DECISION 99-60E REGARDING THE PARKING REQUIREMENTS FOR THE SITE. HIGHEST PARKING REQUIREMENT IS FROM CHURCH; THEREFORE, MAXIMUM PARKING SPACES REQUIRED IS 167 SPACES

BUILDING COVERAGE: (35,676 SQ. FT/ 281,833 SQ. FT.) 13%
APPLICABLE DPZ FILE REFERENCS: BA 99-60E, SDP 72-114

SHEET INDEX

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[illegible] 1/26/01
DIRECTOR DATE

[illegible] 1/10/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[illegible] 1/23/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION
5/25/01	1	Revision Per Architectural changes

OWNER/DEVELOPER
ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
TITLE SHEET

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

ADDRESS CHART

PARCEL	STREET ADDRESS
148	6520 MARTIN ROAD COLUMBIA, MD. 21044

SUBDIVISION NAME –			SECT./AREA –	PARCEL –	
N/A				148	
DEED REF –	BLOCK # –	ZONING –	TAX MAP NO. –	ELECT. DIST. –	CENSUS TRACT –
L.365 F.73	19	R-12	36	5th	6056
WATER CODE – E30			SEWER CODE – 532600		

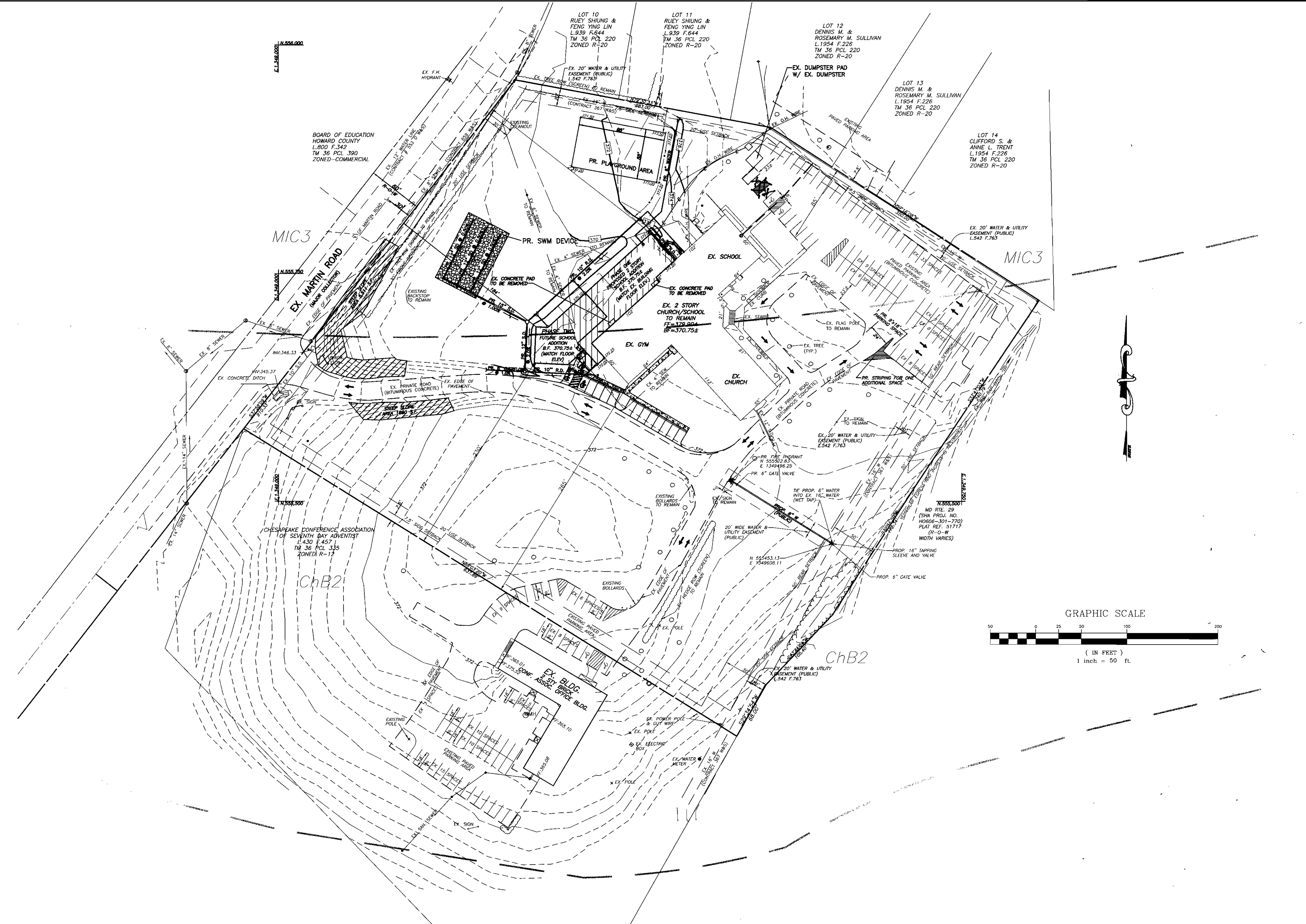
12-28-00
DATE

STATE OF MARYLAND
DARRELL J. VOLNEY
No. 22098
REGISTERED
PROFESSIONAL ENGINEER

[illegible]
DARRELL J. VOLNEY #22098

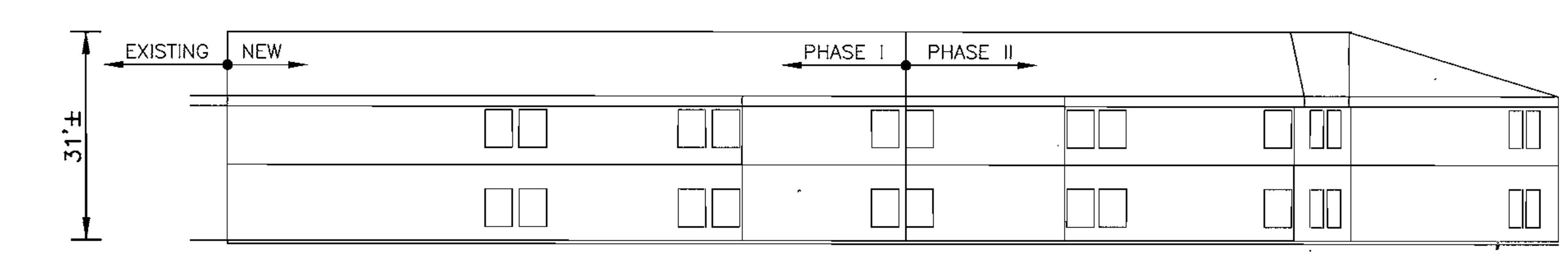
DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 1 OF 10

SDP-01-02



LEGEND

- EXISTING CONTOURS
- EXISTING CURB & GUTTER
- PROPERTY LINE
- EXISTING LIGHT POLE
- EXISTING POWER POLE
- EXISTING BUILDING
- EXISTING CONCRETE SIDEWALK
- EXISTING STORM DRAIN
- EXISTING SEWER
- EXISTING TREELINE
- EXISTING TREE/SHRUB
- PROP. TREELINE
- EXISTING OVERHEAD POWER LINE
- PROPOSED BUILDING ADDITION
- PROPOSED CONTOUR
- PROPOSED SPOT SHOT
- PROPOSED SIDEWALK
- SILT FENCE
- LIMIT OF DISTURBANCE
- INLET PROTECTION
- STABILIZED CONSTRUCTION ENTRANCE
- TRAFFIC FLOW ARROW
- DRAINAGE FLOW ARROW
- DRAINAGE AREA LINE
- STEEP SLOPE > 25% (SUSTAINED FOR 10 VERTICAL FEET)
- PROP. 6" WATER — PROPOSED WATER
- PROP. 15" S.D. — PROPOSED STORM DRAIN
- PROPOSED BUILDING ADDITIONS



NORTH ELEVATION
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR	1/26/01 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	1/18/01 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	1/23/01 DATE

DATE	NO.	REVISION
5/15/01	1	REVISION PER ARCHITECTURAL CHANGES

OWNER/DEVELOPER
ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
OVERALL SITE DEVELOPMENT PLAN

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC T/A MESSICK AND ASSOCIATES

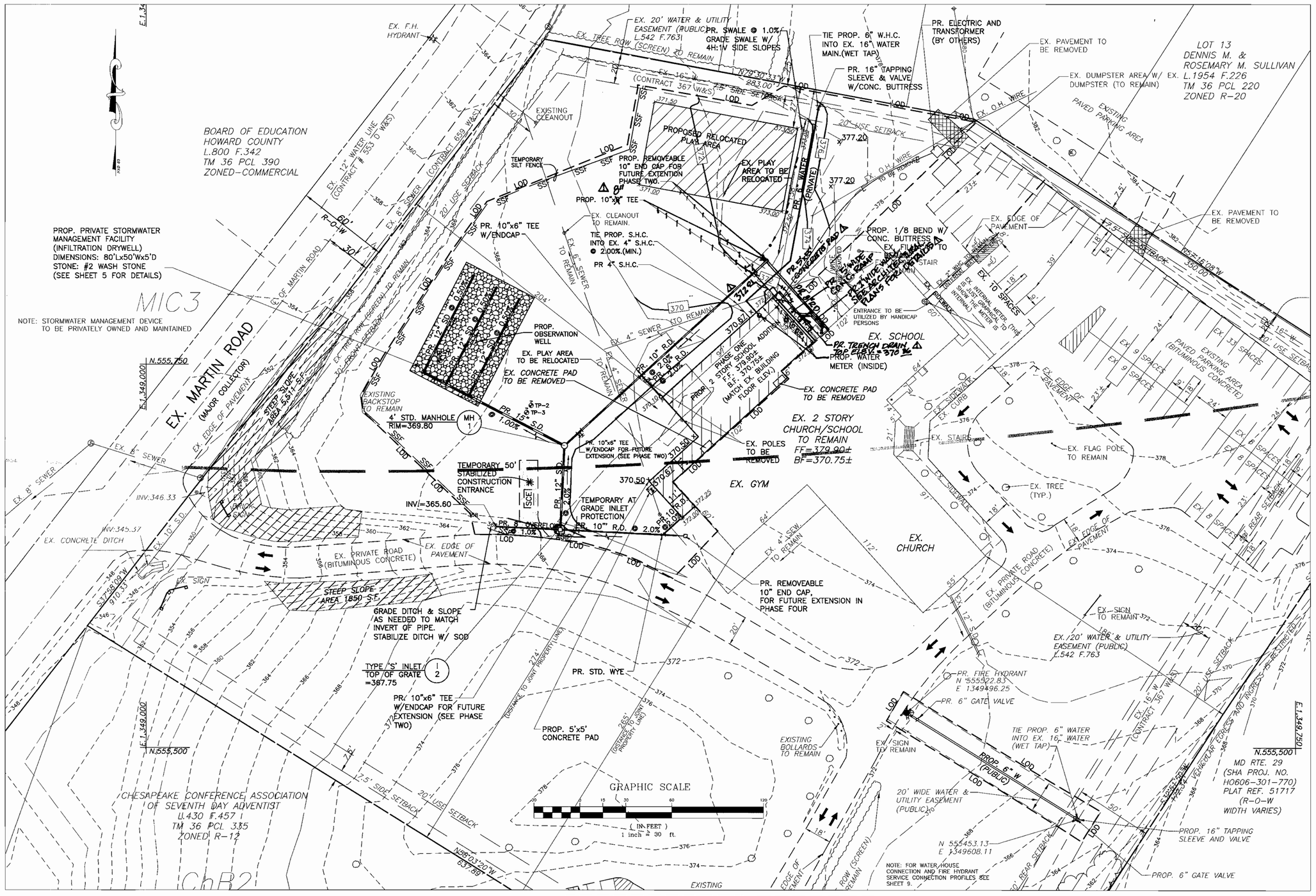
12-28-00
DATE

STATE OF MARYLAND DARRELL J. VOLNEY No. 22098 REGISTERED PROFESSIONAL ENGINEER

DARRELL J. VOLNEY #22098

DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 2 OF 10

SDP-01-02



NOTES:

1. ALL 6" WATER LINE SHALL BE DUCTILE IRON PIPE (AWWA C-151) UNLESS OTHERWISE SPECIFIED AND SHALL BE LAID AT A MINIMUM 42" BELOW GRADE.

2. THE PROPOSED WATER METER AS SHOWN SHALL BE AN INSIDE WATER METER. THE METER SETTING/LOCATION IS CONCEPTUAL, THE ACTUAL SETTING WILL BE PLACED INSIDE THE BUILDING IN ACCORDANCE WITH ARCHITECTURAL PLANS. PER HOWARD COUNTY DEVELOPMENT ENGINEERING DIVISION, UTILITIES SECTION, THE 2ND WATER CONNECTION WILL BE ALLOWED WITH A SEPERATE METER. THE 2ND WATER HOUSE CONNECTION AND THE PROPOSED FIRE HYDRANT WILL BE INSTALLED UNDER A ADVANCE DEPOSIT ORDER (ADO).

3. ALL SANITARY SEWER PIPING SHALL BE SCHEDULE 40 POLYVINYL CHLORIDE (PVC) PIPE UNLESS OTHERWISE SPECIFIED.

4. ALL PROPOSED BUILDING ADDITIONS WILL BE CONSTRUCTED TO INCLUDE AUTOMATIC FIRE SPRINKLER SYSTEM.

5. ALL ROOF LEADERS DRAINING FROM THE EXISTING SCHOOL AND GYMNASIUM ROOFS SHALL BE TIED INTO NEW ROOF LEADER/STORM DRAIN SYSTEM.

6. THE SUPER SILT FENCE ALONG MARTIN ROAD SHALL REMAIN UNTIL THE SITE IS STABILIZED. ONCE THE SITE IS STABILIZED AND WITH APPROVAL OF THE HOWARD COUNTY SCD INSPECTOR, THE CONTRACTOR CAN REMOVE THE SUPER SILT FENCE.

BY THE DEVELOPER :

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

Eugene A. Burgess 12-28-00
DEVELOPER DATE

BY THE ENGINEER :

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

Darrell J. Volney 12-28-00
ENGINEER DATE

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

Jim Meyers 1/19/01
NATURAL RESOURCES CONSERVATION SERVICE DATE

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

John Robertson 1/19/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

1/26/01
DIRECTOR DATE

1/18/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

1/23/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION
5/15/01	1	REVISIONS PER ARCHITECTURAL CHANGES

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
SITE DEVELOPMENT PLAN
PHASE ONE

MESSICK & ASSOCIATES
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212

12-28-00
DATE
STATE OF MARYLAND DARRELL J. VOLNEY No. 21098 REGISTERED PROFESSIONAL ENGINEER
DARRELL J. VOLNEY #21098

DESIGNED BY: DJV	
DRAWN BY: BPO/MRL	
PROJECT NO:	
DATE: JUNE, 2000	
SCALE: AS SHOWN	
DRAWING NO.: 3 OF 10	

STORMWATER MANAGEMENT NOTE:
THE UNDERGROUND STORMWATER MANAGEMENT INFILTRATION DEVICE AND THE ASSOCIATED STORMDRAIN PIPE AND STRUCTURES ARE PRIVATELY OWNED. THE OWNER SHALL MAINTAIN THE DEVICE AND APPURTENANCES AT HIS OWN EXPENSE.

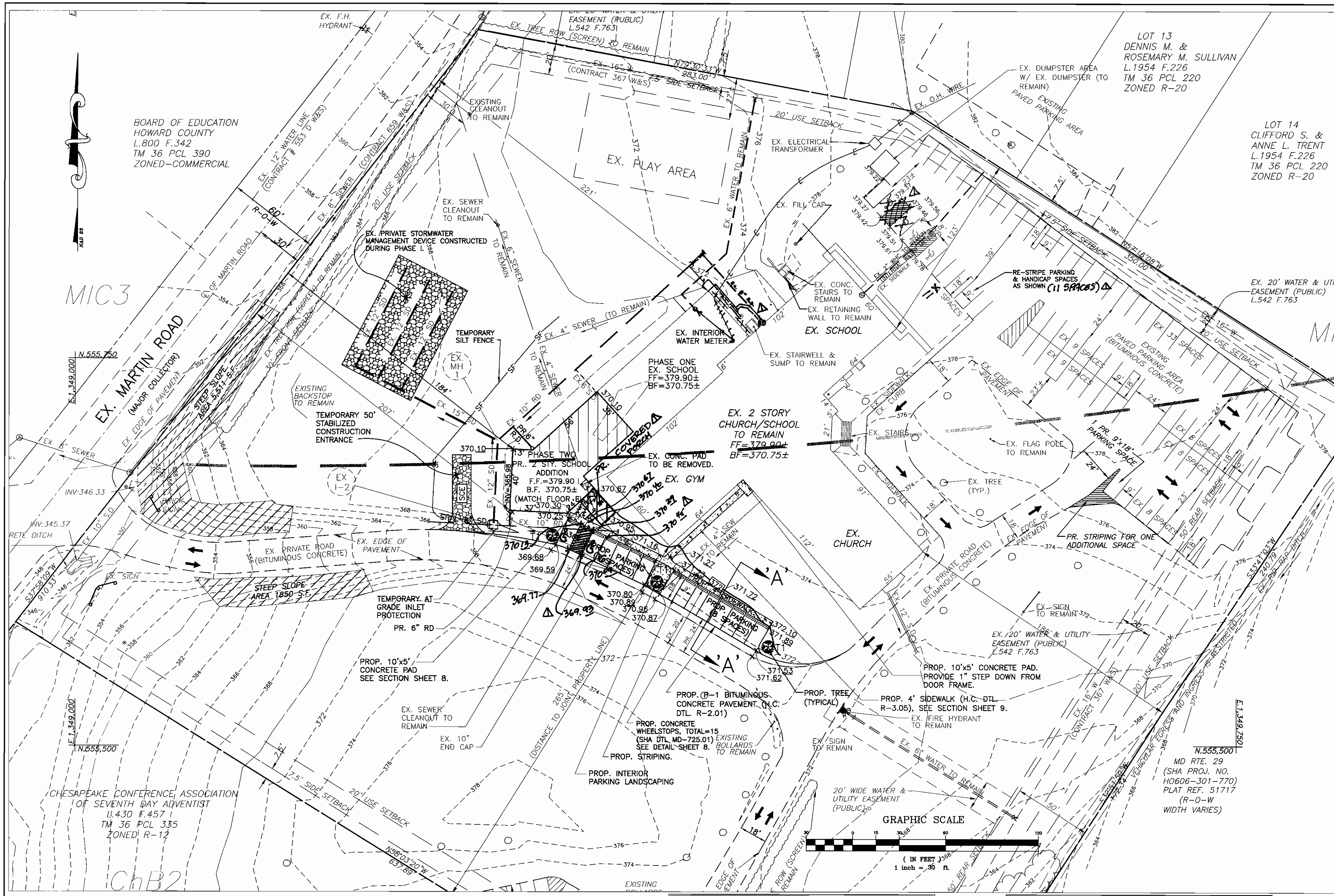
WARNING!!
THE EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE. THE CONTRACTOR SHALL TEST PIT AS NEEDED TO VERIFY THE EXACT TYPE, SIZE AND LOCATION OF SAID UTILITIES.

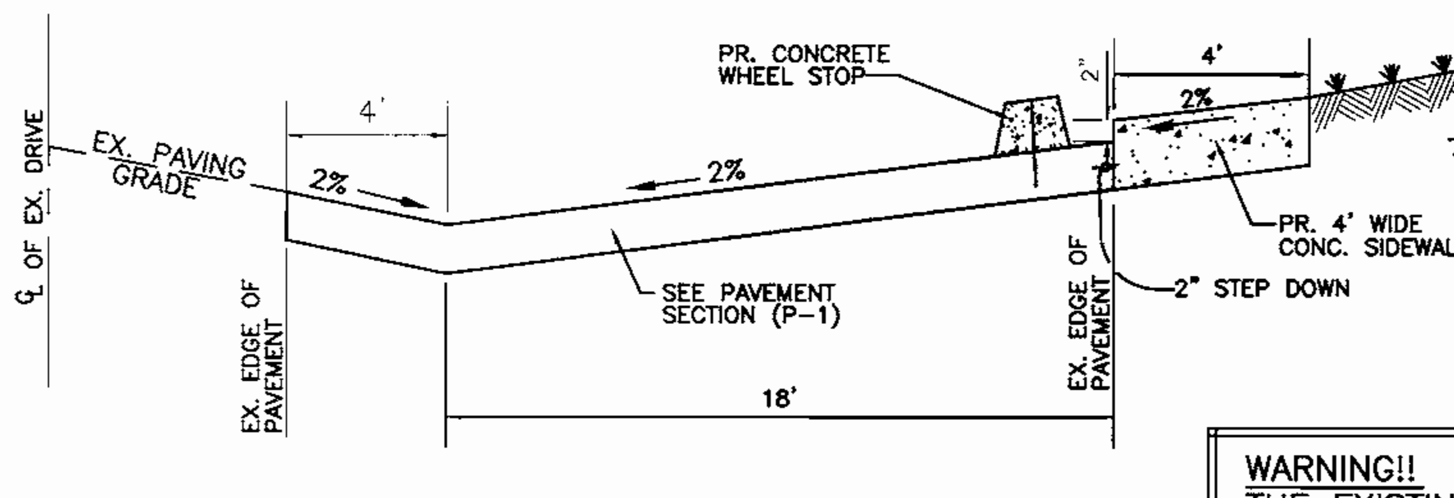
NOTE:
ALL CONSTRUCTION DETAILS SHALL INCLUDE BUT NOT BE LIMITED TO THE DETAILS SHOWN. THE CONTRACTOR SHALL REFERENCE TO THE MOST RECENT VERSION OF VOLUME IV OF HOWARD COUNTY'S DESIGN MANUAL FOR ADDITIONAL DETAILS UNLESS OTHERWISE PROVIDED.

STANDARD DETAILS

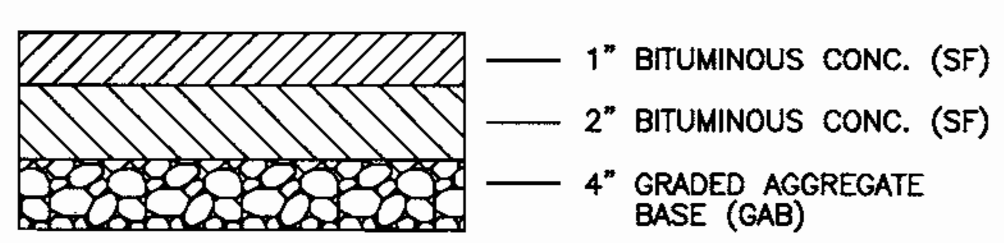
DETAIL	DETAIL REFERENCE	LOCATION
4'-0" STD. PRECAST MANHOLE	G-5.12 (H.C.)	SEE SHEET 6
TYPE 'S' INLET	SD-4.22 (H.C.)	SEE SHEET 6
SWM DEVICE	N/A	SEE SHEET 5
AT GRADE INLET PROTECTION	E-16-5A (MDE DTL 23B)	SEE SHEET 8
STABILIZED CONSTRUCTION ENTRANCE	F-17-3 (MDE DTL 24)	SEE SHEET 8
SUPER SILT FENCE	H-26-3 (MDE DTL 33)	SEE SHEET 8

SDP-01-02





PARKING LOT SECTION
SECTION A–A
N.T.S.



PAVEMENT SECTION (P–1)
N.T.S.

WARNING!!
THE EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE. THE CONTRACTOR SHALL TEST PIT AS NEEDED TO VERIFY THE EXACT TYPE, SIZE AND LOCATION OF SAID UTILITIES.

STANDARD DETAILS

DETAIL	DETAIL REFERENCE	LOCATION
CONCRETE WHEELSTOPS	MD–725.01 (SHA)	SEE SHEET 8
CONCRETE SIDEWALK/PAD	R–3.05 (H.C.)	SEE SHEET 8
PAVEMENT SECTION	R–2.01 (H.C.)	SEE THIS SHEET
AT GRADE INLET PROTECTION	E–16–5A (MDE DTL. 23B)	SEE SHEET 8
STABILIZED CONSTRUCTION ENTRANCE	F–17–3 (MDE DTL. 24)	SEE SHEET 8
SILT FENCE	E–15–3 (MDE DTL. 22)	SEE SHEET 8

NOTE:
ALL CONSTRUCTION DETAILS SHALL INCLUDE BUT NOT BE LIMITED TO THE DETAILS SHOWN. THE CONTRACTOR SHALL REFERENCE THE MOST RECENT VERSION OF VOLUME IV OF HOWARD COUNTY'S DESIGN MANUAL FOR ADDITIONAL DETAILS UNLESS OTHERWISE PROVIDED.

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

NUMBER OF NEW PARKING SPACES	15
NUMBER OF TREES/ISLAND REQ'D (1/20 SP.)	1
NUMBER OF TREES PROVIDED –SHADE –OTHER (2:1 SUBSTITUTION)	3 3 0
NUMBER OF ISLANDS PROV'D (200 SF/ISLAND, 12' MIN. WIDTH)	1

PLANT LIST

SYMBOL	KEY	BOTANICAL NAME / COMMON NAME	SIZE	QUANTITY
	TI	ACER RUBRUM "October Glory" October Glory Red Maple	2 1/2"–3" cal. B&B	3
	G1	LIRIOPE "Big Blue" Lily Turf	1 GAL. CONT.	30

NOTES:

1. THE AUTOMATIC FIRE SPRINKLER SYSTEM FOR THE PROPOSED PHASE II SCHOOL ADDITION WILL BE SERVICED BY INTERNAL PIPING FROM THE PHASE I ADDITION.

2. THE PROPOSED BUILDING IN PHASE II WILL BE PLACED ATOP THE EXISTING SANITARY SEWER HOUSE CONNECTION. THE CONTRACTOR SHALL PROTECT THE SANITARY SEWER AS NEEDED TO PREVENT DAMAGE. IF THE SANITARY SEWER IS DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL REPAIR IT AT HIS OWN EXPENSE.

3. CONTRACTOR TO EXCAVATE THE EXISTING SANITARY SEWER TO INSPECT THE CONDITION AND REPLACE AS NECESSARY.

BY THE DEVELOPER :

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

Eugene F. Burgess 12-28-00
DEVELOPER DATE

BY THE ENGINEER :

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

Darrell J. Volney 12-28-00
ENGINEER DATE

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

Jim Meyers 1/17/01
NATURAL RESOURCES CONSERVATION SERVICE DATE

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

John Robertson 1/17/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

1/26/01
DIRECTOR DATE

1/18/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamilton 1/23/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION
5/15/01	△	REVISIONS PER ARCHITECTURAL CHANGES

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

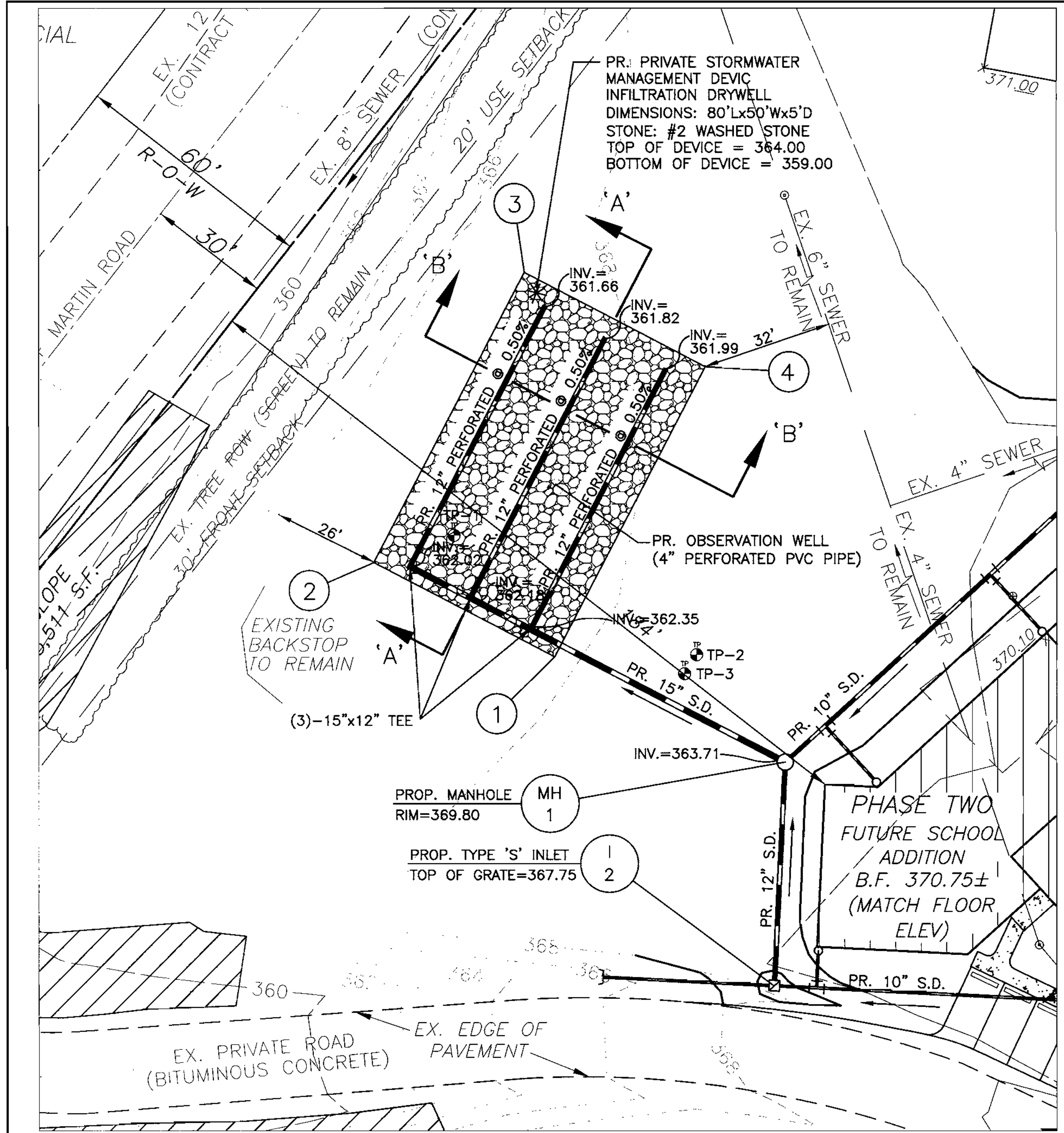
TITLE
SITE DEVELOPMENT PLAN
PHASE TWO

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

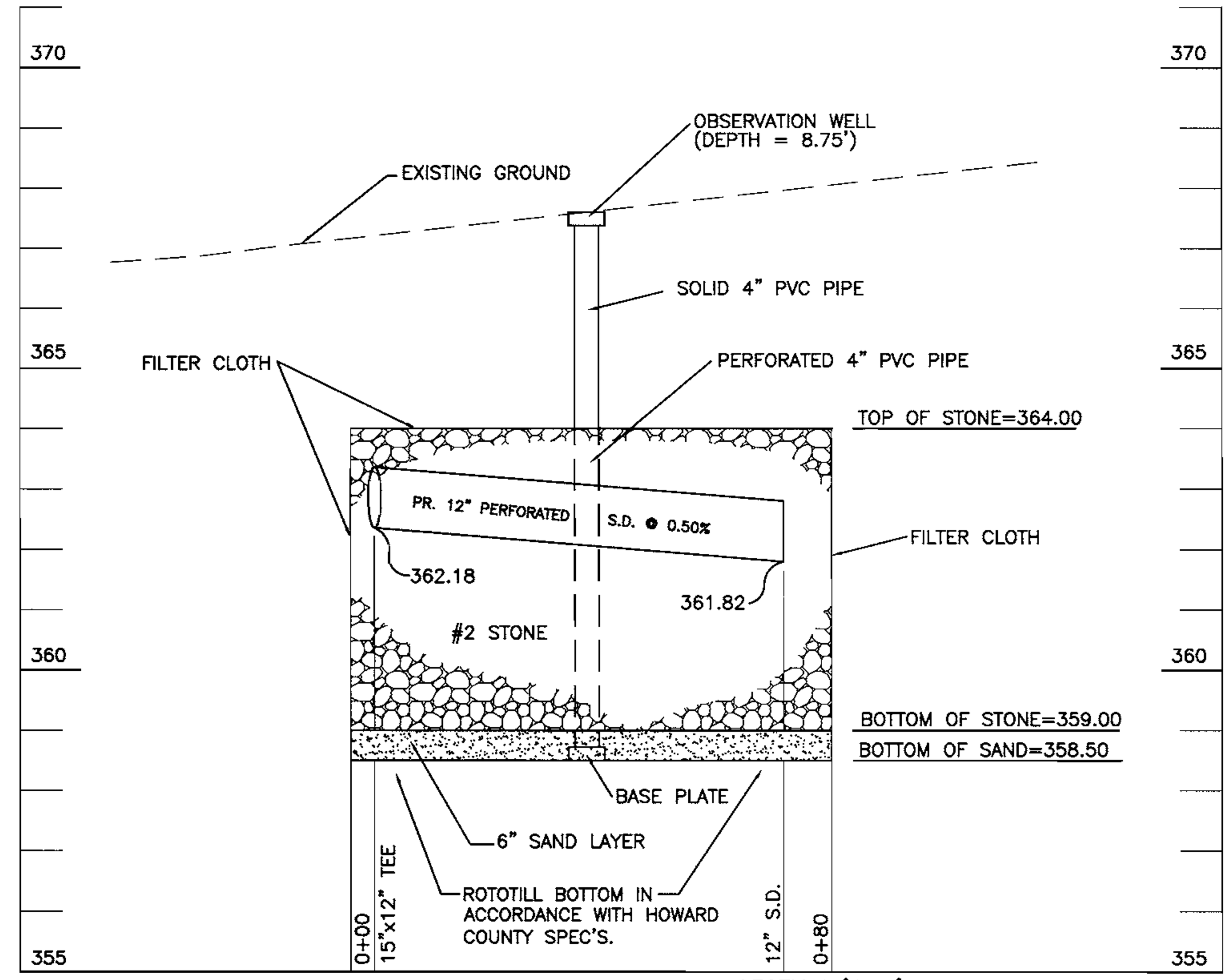
12-28-00
STATE OF MARYLAND — DARRELL J. VOLNEY — No. 22098 — REGISTERED PROFESSIONAL ENGINEER
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 4 OF 10

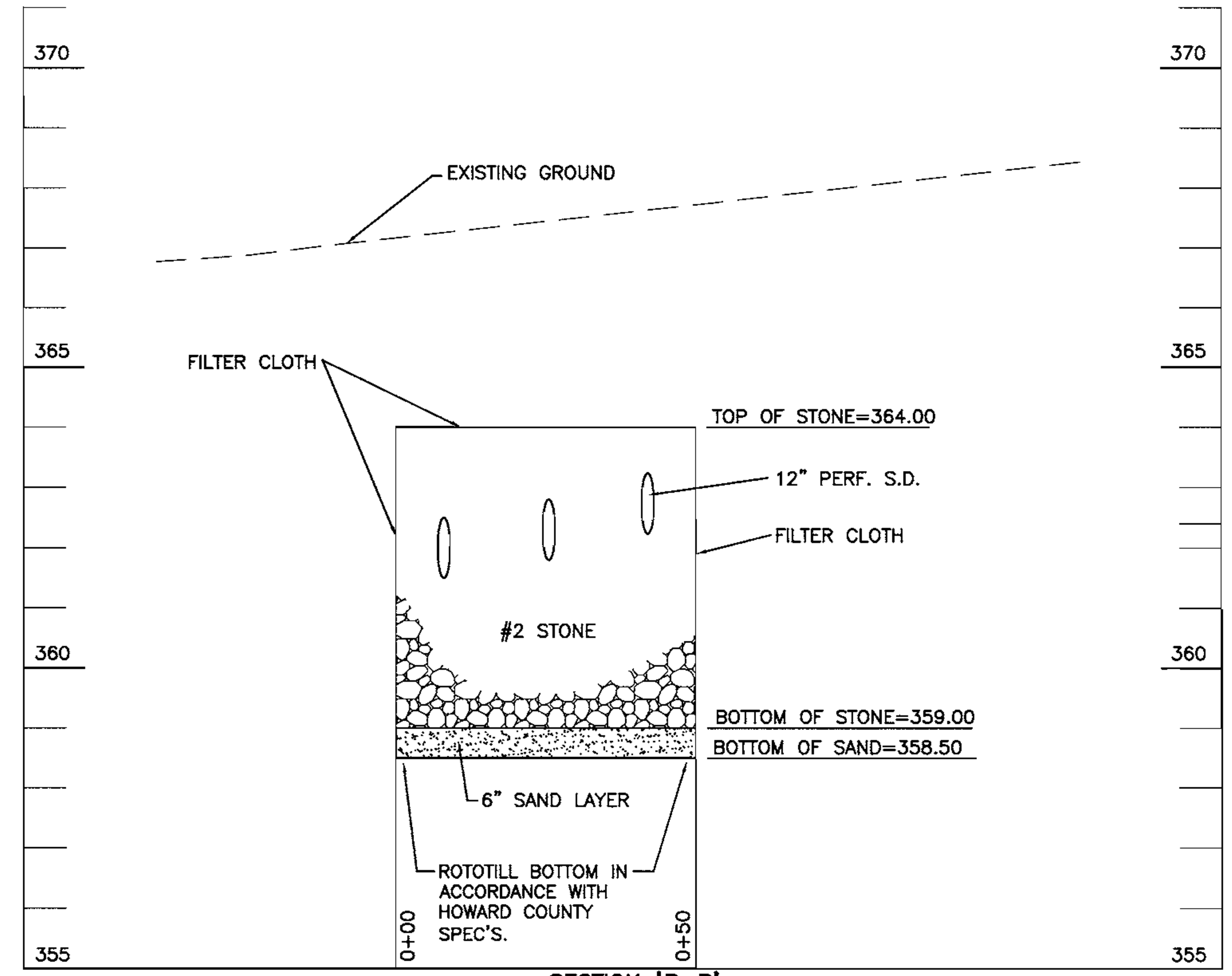
SDP-01-02



PLAN VIEW
SCALE: 1"=20'



SECTION 'A-A'
SCALE: 1"=20' HORIZ.
1"=2' VERT.



SECTION 'B-B'
SCALE: 1"=20' HORIZ.
1"=2' VERT.

Construction specifications (Infilltration drywell /trench)

Timing

A infilltration device shall not be constructed or placed in service until all of the contributing drainage area has been stabilized and approved by the responsible inspector.

Dry Well Preparation

Excavate the dry well to the design dimensions. Excavated materials shall be placed away from the excavated sides to enhance wall stability. Large tree roots shall be trimmed flush with the sides in order to prevent fabric puncturing or tearing during the installation procedures. The side walls of the dry well shall be roughened where sheared and sealed by heavy equipment. The bottom of the trench below the sand layer is to be rototilled to a minimum depth of one (1) foot prior to sand placement to preserve infiltration rates.

Fabric Laydown

The filter fabric roll shall be cut to the proper width prior to installation. The cut width must include sufficient material to conform to trench perimeter irregularities and for a 6-inch minimum top overlap. Place the fabric roll over the trench and unroll a sufficient length to allow placement of the fabric down into the trench. Stones or other anchoring objects should be placed on the fabric at the edge of the trench to keep the lined trench open during windy periods. When overlaps are required between rolls, the upstream roll shall lap a minimum of 2 feet over the downstream roll in order to provide a shingled effect. The overlap ensures fabric continuity and that the fabric conforms to the excavation surface during aggregate placement and compaction.

Aggregate Placement and Compaction

The stone aggregate should be placed in lifts and compacted using plate compactors. As a rule of thumb, a maximum loose lift thickness of 12 inches is recommended. The compaction process ensures fabric conformity to the excavation sides, thereby reducing the potential for soil piping and fabric clogging.

Overlapping and Covering

Following the stone aggregate placement, the fabric shall be folded over the stone aggregate to form a 6" minimum longitudinal lap. The desired fill soil should be placed over the lap at sufficient intervals to maintain the lap during subsequent backfilling.

Contamination

Care should be exercised to prevent natural or fill soils from intermixing with the stone aggregate. All contaminated stone aggregate shall be removed and replaced with uncontaminated aggregate.

Voids Behind Fabric

Voids can be created between the fabric and excavation sides and should be avoided. Removing boulders or other obstacles from the trench walls is one source of such voids. Natural soils should be placed in these voids at the most convenient time during construction to ensure fabric conformity to the excavated sides. Soil piping, fabric clogging, and possible surface subsidence will be avoided by this remedial process.

Unstable Excavation Sides

Vertically excavated trench walls may be difficult to maintain in areas where the soil moisture is high or where soft cohesive or cohesionless soils predominate. These conditions may require laying back of the side slopes to maintain stability; trapezoidal rather than rectangular cross sections may result.

Vegetative Buffers

A vegetative buffer of at least 20 feet (wider if possible) shall be used to intercept surface runoff from all impervious areas.

Observation Well

An observation well will be provided. The depth of the well, at the time of installation, will be clearly marked on the well cap.

Operation & Maintenance Schedule

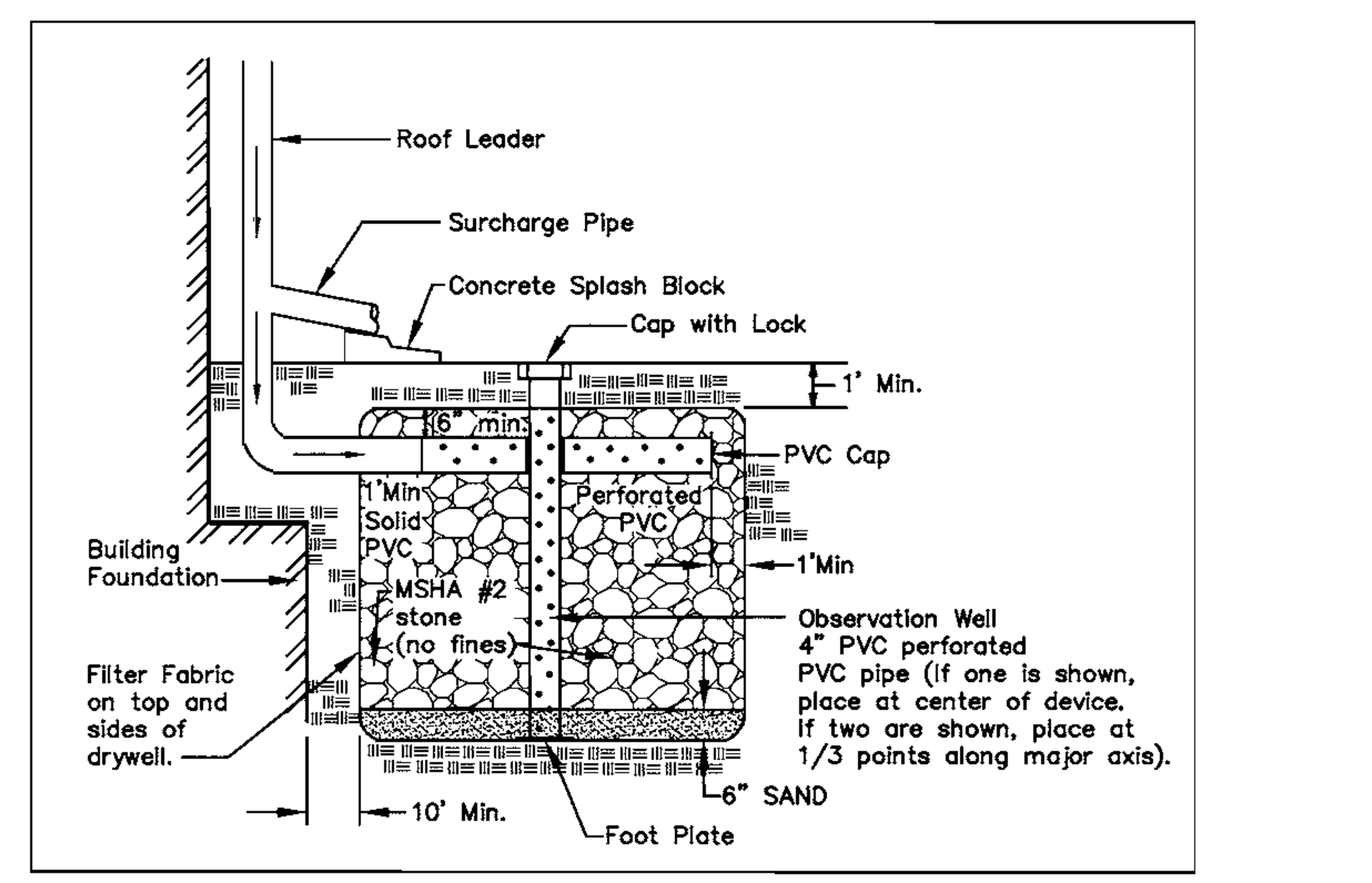
Infiltration dry wells/trenches shall be designed to minimize maintenance. However, it is recognized that all infiltration facilities are subject to clogging by sediment, oil, grease, grit and other debris. In addition, the performance and longevity of these structures is not well documented. Consequently, a monitoring observation well is required for all infiltration structures.

The observation well should be monitored periodically. For the first year after completion of construction, the well should be monitored on a quarterly basis and after every large storm. It is recommended that a logbook be maintained indicating the rate at which the facility dewaters after large storms and the depth of the well for each observation. Once the performance characteristics of the structure 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.

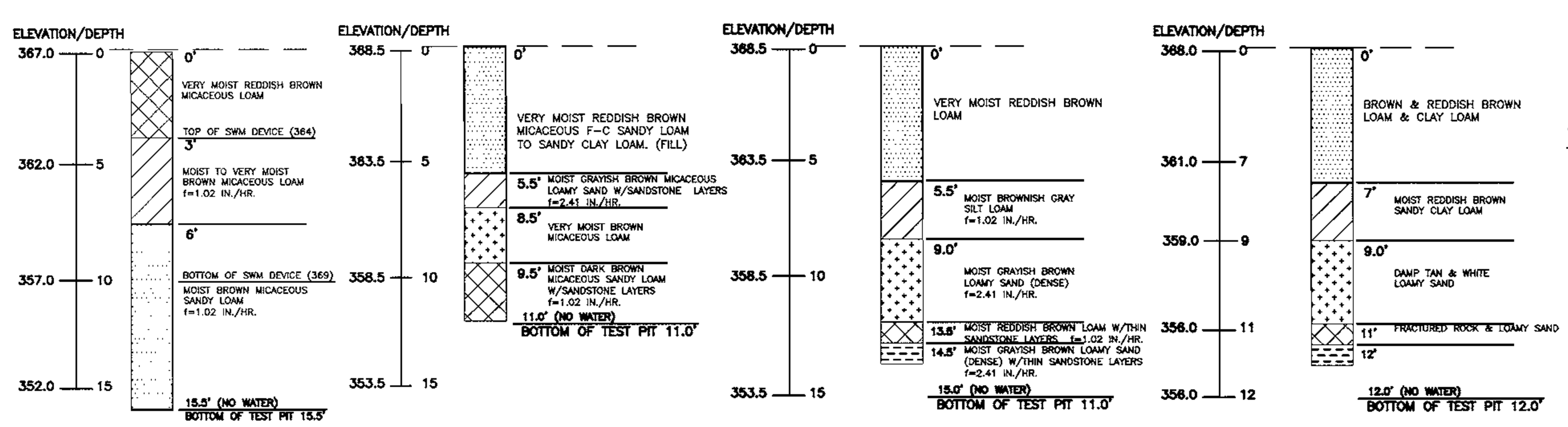
Sediment build-up in the top foot of stone aggregate or the surface inlet should be monitored on the same schedule as the observation well. A monitoring well in the top foot of the stone aggregate will be required when the trench has a stone surface. Sediment deposited shall not be allowed to build up to the point where it will reduce the rate of infilltration into the trench.

NOTES:

1. ALL STORM DRAIN PIPE SHALL BE N-12 SMOOTH INTERIOR STORM DRAIN PIPE (MAX. N.=0.012) AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL.
2. ALL STORM DRAIN PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. ANY DEVIATION FROM THE SPECIFICATIONS MUST BE APPROVED BY THE ENGINEER.
3. ALL STORM DRAIN PIPE SHALL BE CONNECTED USING A SNAP ON WATERTIGHT COUPLER.



TYPICAL S.W.M. DRYWELL DETAIL
Not to scale

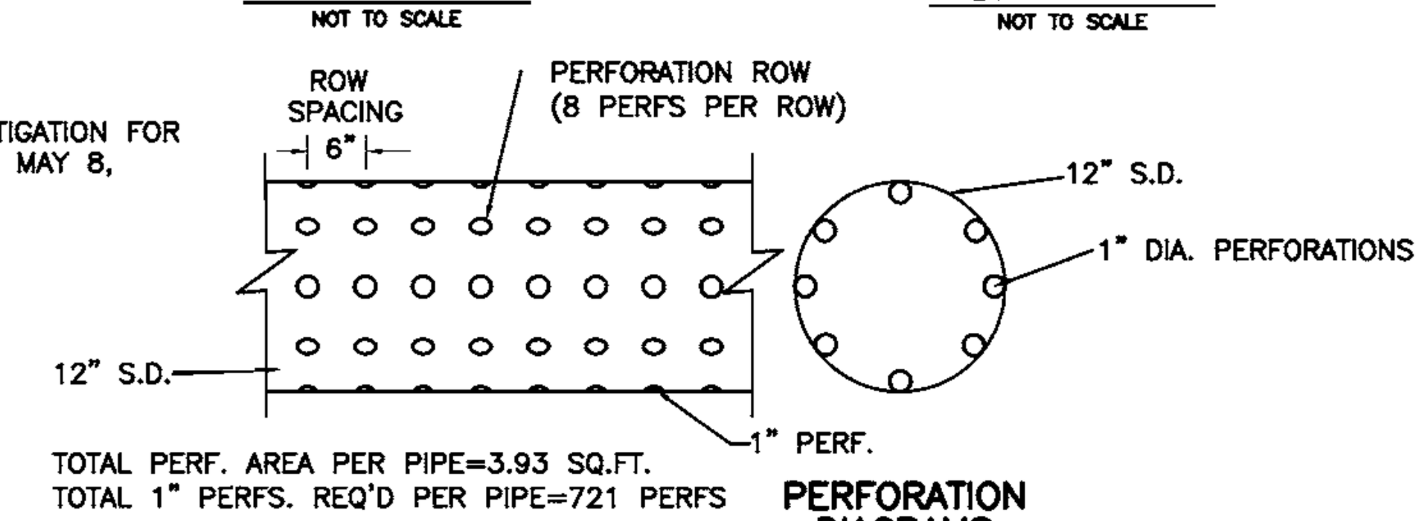


TEST PIT: TP-1 (NOT TO SCALE)
TEST PIT: TP-2 (NOT TO SCALE)
TEST PIT: TP-3 (NOT TO SCALE)
TEST PIT: TP-4 (NOT TO SCALE)

NOTES:

1. FOR ADDITIONAL INFORMATION REGARDING GEOTECHNICAL INVESTIGATION FOR THE SWM DEVICE SEE GEOTECHNICAL INVESTIGATION REPORT DATED MAY 8, 2000.

COORDINATES		
POINTS	NORTHING	EASTING
①	N. 555,722.60	E. 1,349,216.44
②	N. 555,745.68	E. 1,349,172.09
③	N. 555,816.65	E. 1,349,209.02
④	N. 555,793.57	E. 1,349,253.37



TOTAL PERF. AREA PER PIPE=3.93 SQ.FT.
TOTAL 1" PERFS. REQ'D PER PIPE=721 PERFS

PERFORATION DIAGRAMS
NOT TO SCALE

NOTES:

1. THE NUMBER OF PERFORATIONS, SIZE AND THE LAYOUT MAY BE ALTERED AS LONG AS THE TOTAL AREA OF OPENINGS REMAIN THE SAME. ANY CHANGES TO THE PERFORATION PATTERN OR SIZES MUST BE APPROVED BY THE ENGINEER.

Infiltration Drywell Design

Project: Atholton Seventh Day Adventist Church
Count/State: Howard County, Maryland
Design basis: Infiltrate the runoff from the 10 year storm event from the impervious area.
Enter the following information:

Rainfall Depth (in): P =	5.1	(10 Year Storm)

Contributing Area	
Curve Number: CN_c =	98
Runoff Depth (in): Q_c =	4.86
Contributing Area (ft²): A_c =	~~20500~~ 20614 ⚠

Overlying Soil	
Curve Number: CN =	61
Runoff Depth (in): Q =	1.43
Water Capacity (in/in): C_w =	0.31
Average Soil Depth (ft): d_o =	4

Enter the following information:

Soil infiltration rate (in/hr): f =	2.41
Void ratio: V_r =	0.4
Max. Storage Time (hrs): T_s =	72
Effective Filling Time (hrs): T =	0.5

Determine the maximum allowable depth (ft): $d_{max} = fT_s/V_r$, d_{max} = 36.15 feet

Determine the size of the drywell: $A_w = \frac{Q_c A_c}{(V_r d_w - P + Q + d_o C_w + fT)}$

Dry Well Depth (ft): d_w =	4	USE 5	6	7	8
Dry Well Surface Area (ft²): A_w =	4886	~~3955~~ 3977 ⚠	3523	2864	2517

Dry Well Dimensions
Length (ft) 80
Width (ft) 50
Depth (ft) 5

Area Provd = 4000sq. ft.

Compare area provided with area required:
Area Provd = 4000 sq. ft. is greater than Area Reqd = ~~3955~~ 3977 ⚠ sq. ft

USE: One Dry Well 80' long x 50' wide x 5' deep
Area of filter Cloth (sy): 589
Observation Wells: 1

Design References:
1. Standards and Specifications for Infiltration Practices, MD Department of Natural Resources, Feb 1984.
2. Urban Hydrology for Small Watersheds (TR-55), Soil Conservation Service, June 1986

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR	DATE 1/26/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1/17/01
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/23/01

DATE	NO.	REVISION
5/15/01	⚠	REVISIONS PER ARCHITECTURAL CHANGES

OWNER/DEVELOPER
ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT: ATHOLTON SEVENTH DAY ADVENTIST CHURCH

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

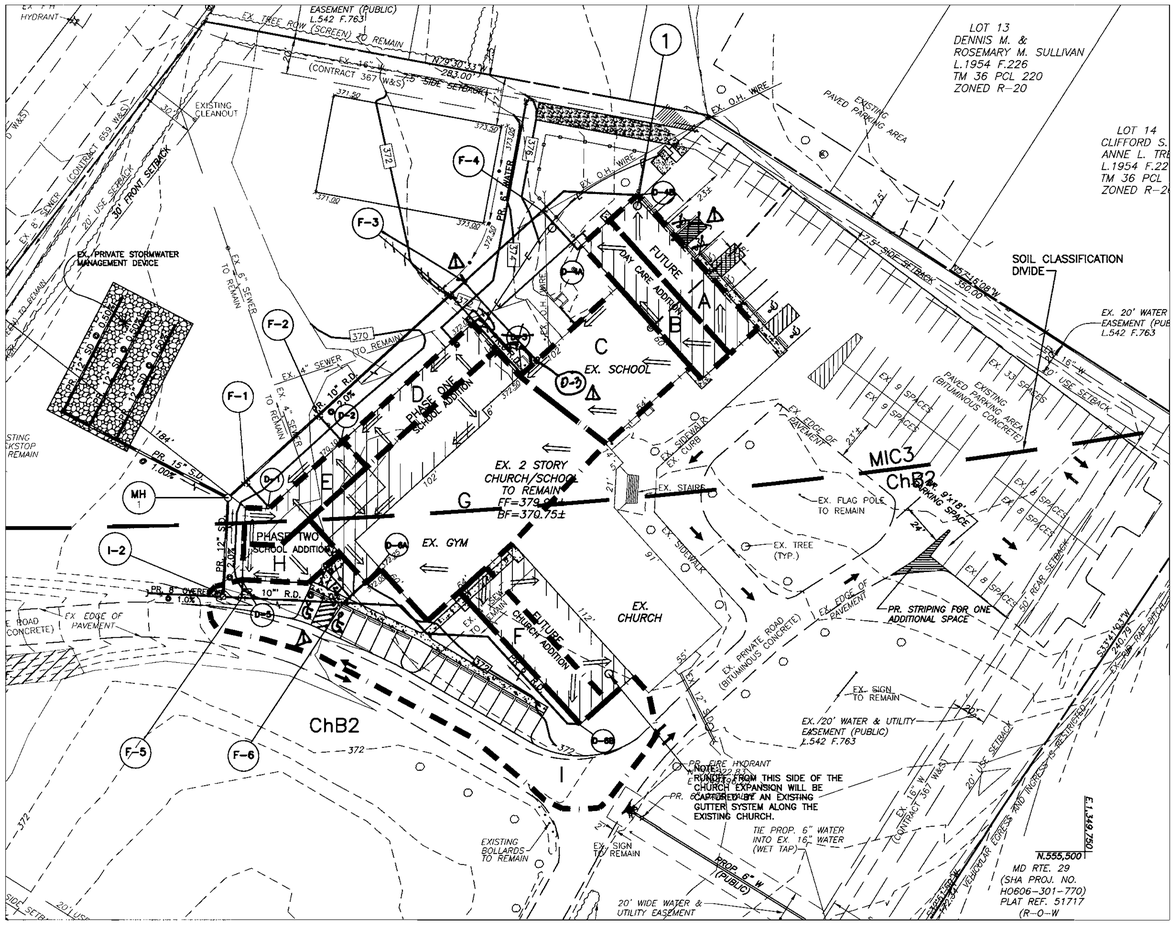
TITLE: STORMWATER MANAGEMENT PLAN PROFILES AND DETAILS

MESSICK & ASSOCIATES
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212

12-28-00
DARRELL J. VOLNEY #22098

DESIGNED BY:	DJV
DRAWN BY:	BPO/MRL
PROJECT NO:	
DATE:	JUNE, 2000
SCALE:	AS SHOWN
DRAWING NO.:	5 OF 10

SDP-01-02



STORM DRAIN DESIGN
DRAINAGE AREA MAP
SCALE: 1"=40'

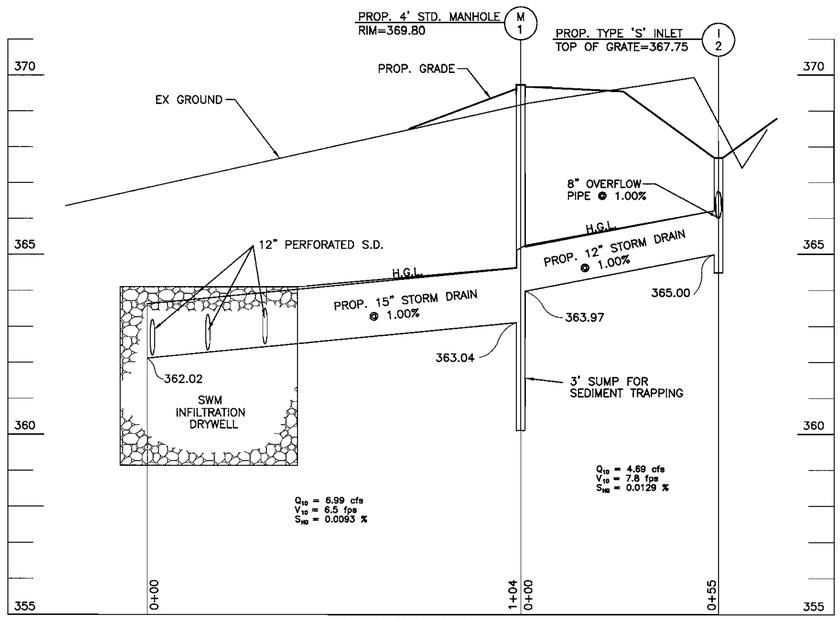
NOTES:

1. ALL TIME OF CONCENTRATIONS WERE ASSUMED TO BE 5 MINUTES.

SOILS CHART	
Chester silt loam (ChB2)	3 to 8 Percent slopes, moderate eroded
Manor Loam (MIC3)	8 to 15 Percent severly eroded

LEGEND

- DRAINAGE AREA BOUNDARY
- A — DRAINAGE AREA IDENTIFICATION
- ⇐ FLOW DIRECTION
- SOIL CLASSIFICATION DVIDE



STORM DRAIN PROFILE
SCALE: 1"=20' HORIZ.
1"=2' VERT.

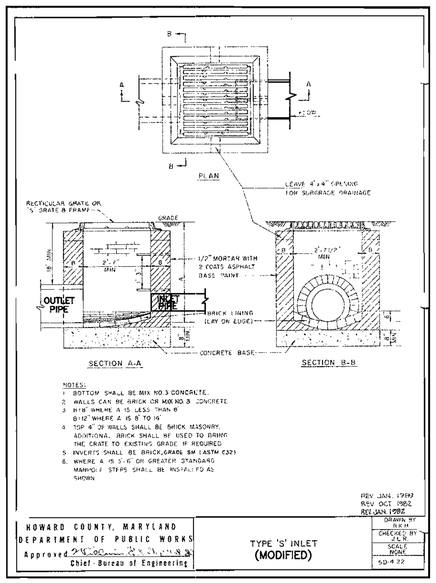
STORM DRAIN STRUCTURE SCHEDULE							
STRUCTURE ID	STRUCTURE TYPE	TOP ELEVATION	INVERTS		LOCATION (COORDINATES)		DETAIL REFERENCE
			IN	OUT	NORTHING	EASTING	
M-1	4' MANHOLE	269.80	363.97	363.04	555,696.84	1,349,272.90	HO. CO. STD DTL G-5.12
I-2	TYPE 'S' INLET	367.75	365.58	365.00	555,641.90	1,349,270.18	HO. CO. STD DTL SD-4.22

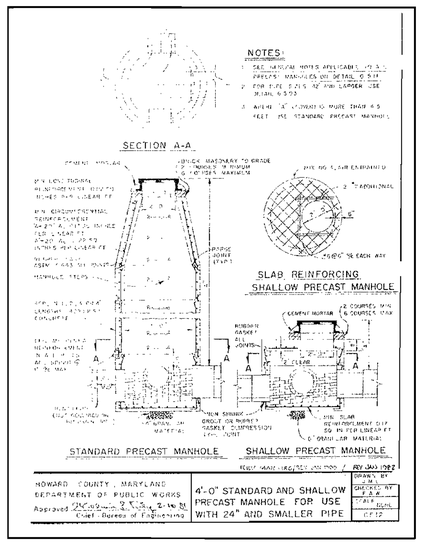
NOTES:

1. ALL STORM DRAIN PIPES AND ROOF DRAIN PIPES SHALL BE N-12 SMOOTH INTERIOR STORM DRAIN PIPE (MAX. N=0.012) AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL.
2. ALL STORM DRAIN PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS, ANY DEVIATION FROM THE SPECIFICATIONS MUST BE APPROVED BY THE ENGINEER.
3. ALL STORM DRAIN PIPE AND ROOF DRAIN PIPES SHALL BE CONNECTED USING A SNAP ON WATERTIGHT COUPLER.
4. ALL ROOF DRAIN PIPES SHALL BE LAID AT A MINIMUM SLOPE OF 2.00%. (SEE PROFILES ON SHEET 7)

AREA ID	TOTAL AREA (AC)	PERCENT IMPERVIOUS %	COMPOSITE "C" FACTOR
A	0.05	100	0.87
B	0.05	100	0.87
C	0.10	100	0.87
D	0.04	100	0.87
E	0.04	100	0.87
F	0.05	100	0.87
G	0.27	100	0.87
H	0.03	100	0.87
I	0.30	57	0.56

STORM DRAIN PIPE SCHEDULE			
PIPE SIZE (INCHES)	PIPE TYPE	PIPE CLASSIFICATION	TOTAL LENGTH
12	HDPE	PERFORATED	210
15	HDPE	ADS-N12	104
12	HPDE	ADS-N12	55
10	HDPE	ADS-N12	235
6	HDPE	ADS-N12	~~200~~ 250
8	HDPE	ADS-N12	60 ⚠1





APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 11/6/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/1/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/23/01

DATE	NO.	REVISION
5/15/01	⚠1	REVISIONS PER ARCHITECTURAL CHANGES

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
STORM DRAIN PROFILES & DETAILS

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

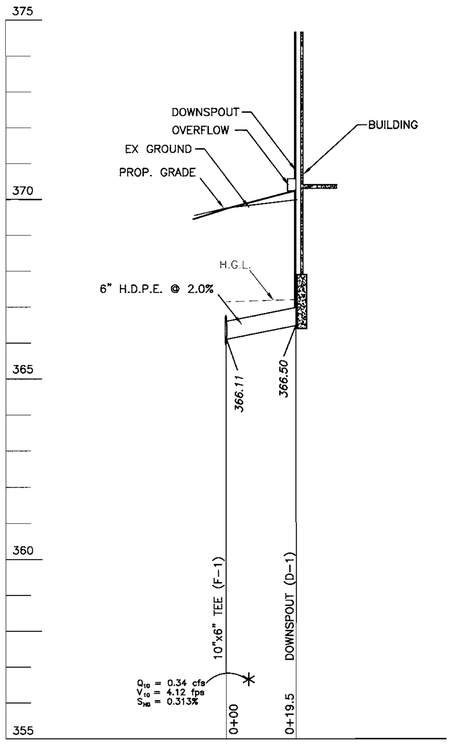
12-28-00

STATE OF MARYLAND — DARRELL J. VOLNEY — No. 22098 — REGISTERED PROFESSIONAL ENGINEER

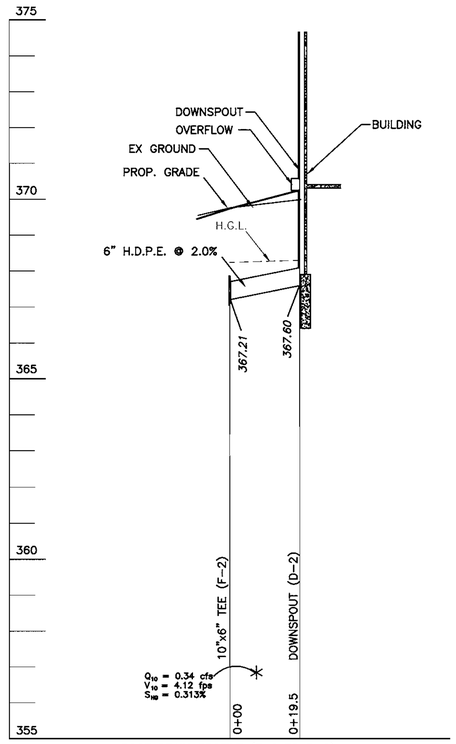
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV	
DRAWN BY: BPO/MRL	
PROJECT NO:	
DATE: JUNE, 2000	
SCALE: AS SHOWN	
DRAWING NO.: 6 OF 10	

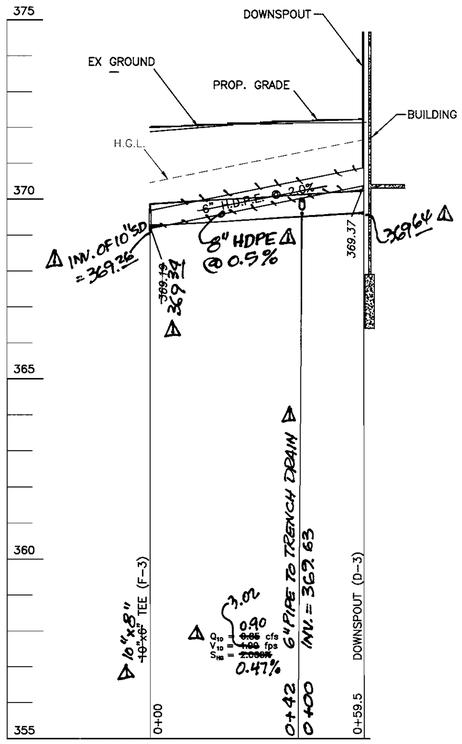
SDP-01-02



ROOF DRAIN PROFILE (F-1 TO D-1)
SCALE: 1"=20' HORIZ.
1"=2' VERT.

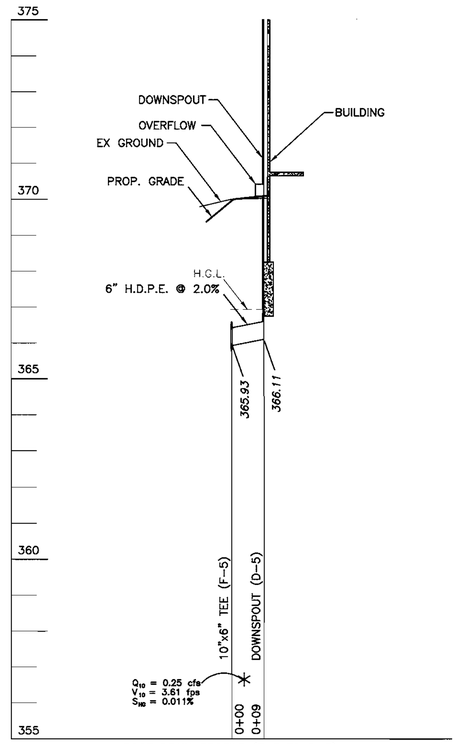


ROOF DRAIN PROFILE (F-2 TO D-2)
SCALE: 1"=20' HORIZ.
1"=2' VERT.

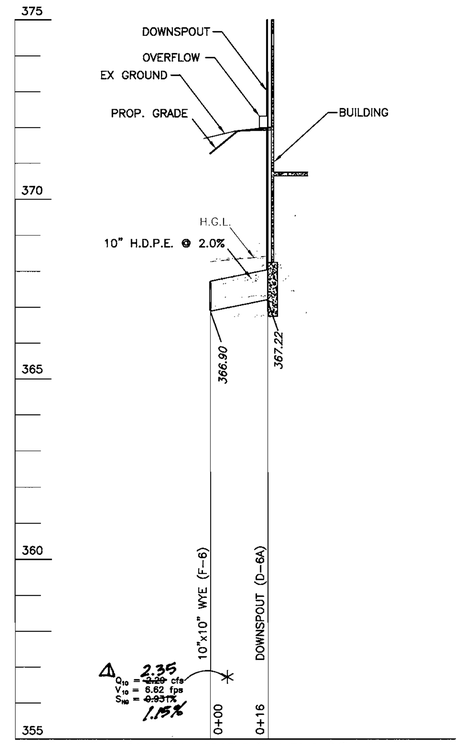


ROOF DRAIN PROFILE (F-3 TO D-3)
SCALE: 1"=20' HORIZ.
1"=2' VERT.

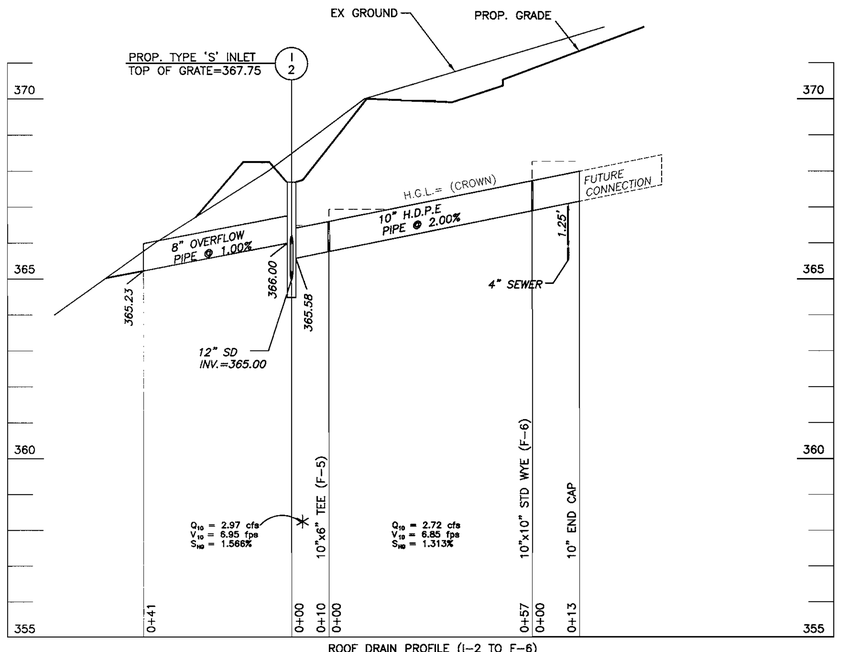
NOTE :
DR. TRENCH DRAIN SHALL BE 6" WIDE TRENCH AS MANUFACTURED BY ZURN PRODUCT NO. Z-806 CHANNEL No. 1004 W/6" END OUTLET.



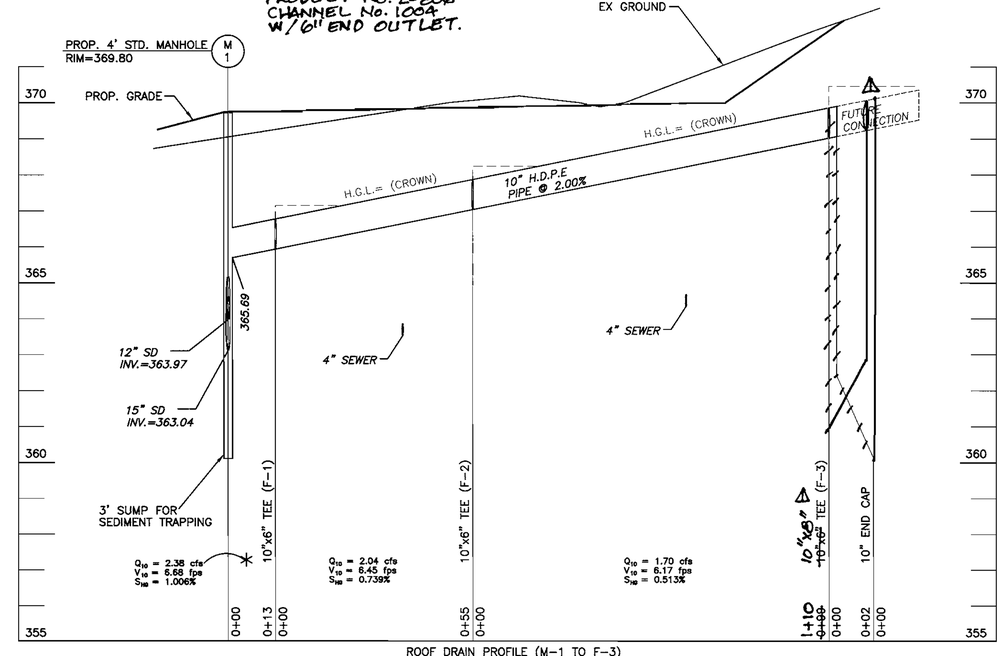
ROOF DRAIN PROFILE (F-5 TO D-5)
SCALE: 1"=20' HORIZ.
1"=2' VERT.



ROOF DRAIN PROFILE (F-6 TO D-6A)
SCALE: 1"=20' HORIZ.
1"=2' VERT.



ROOF DRAIN PROFILE (I-2 TO F-6)
SCALE: 1"=20' HORIZ.
1"=2' VERT.



ROOF DRAIN PROFILE (M-1 TO F-3)
SCALE: 1"=20' HORIZ.
1"=2' VERT.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 11/26/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 11/16/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 11/23/01

DATE	NO.	REVISION
5/15/01	1	REVISIONS PER ARCHITECTURAL CHANGES

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
STORM DRAIN PROFILES

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. f/k/a MESSICK AND ASSOCIATES

12-06-00
DATE

STATE OF MARYLAND — DARRELL J. VOLNEY — No. 22098 — REGISTERED PROFESSIONAL ENGINEER

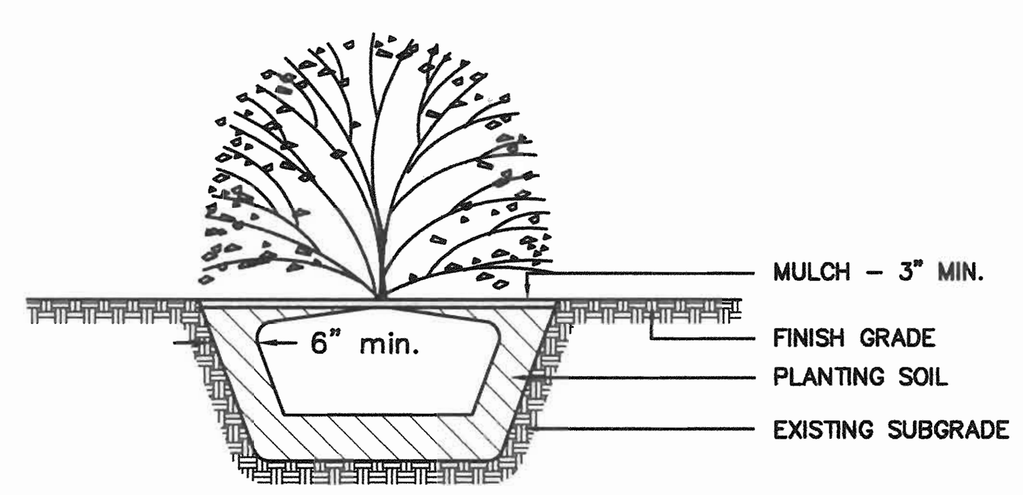
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV	
DRAWN BY: BPO/MRL	
PROJECT NO:	
DATE: JUNE, 2000	
SCALE: AS SHOWN	
DRAWING NO.: 7 OF 10	

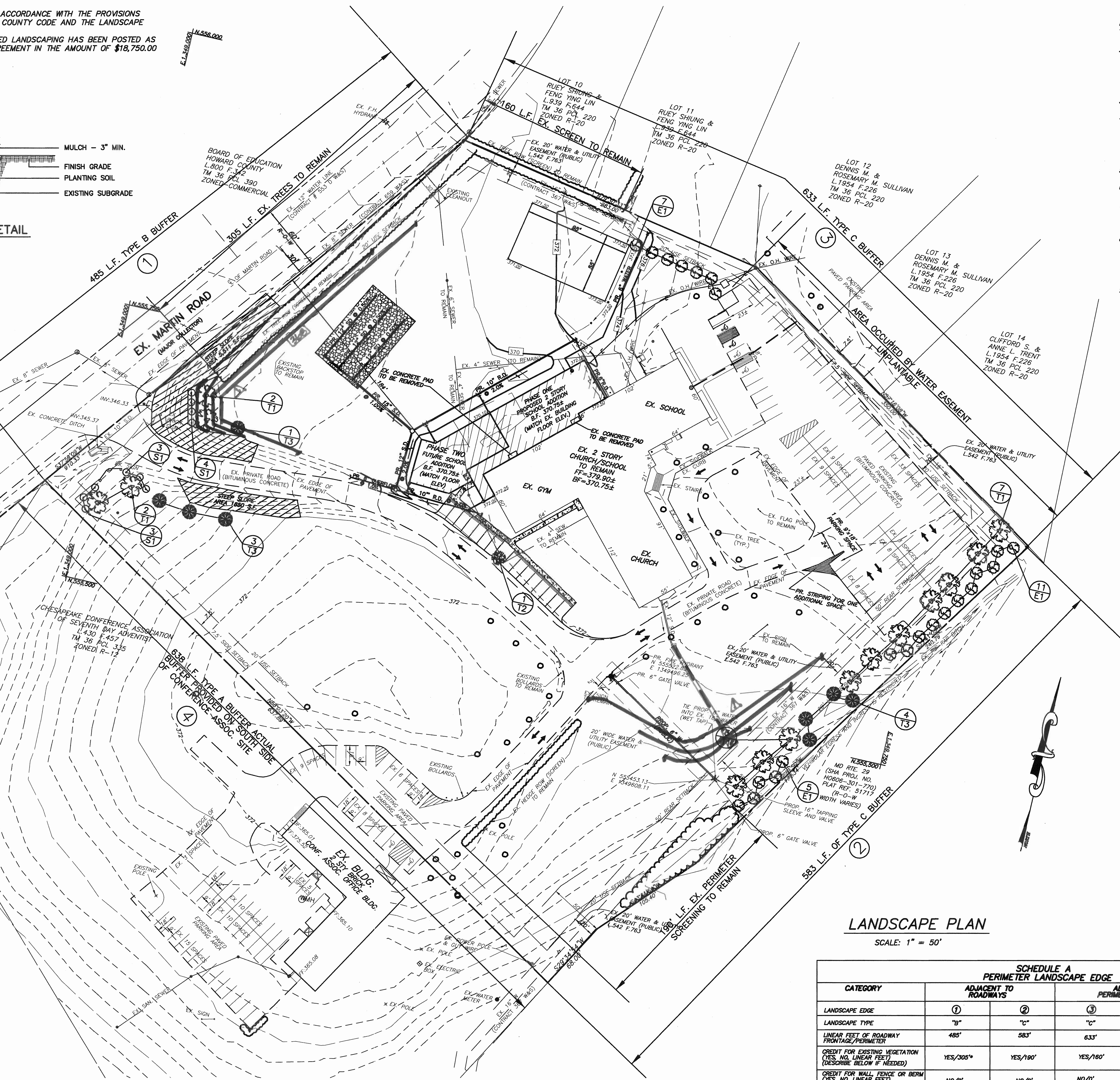
SDP-01-02

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $18,750.00



SHRUB PLANTING DETAIL



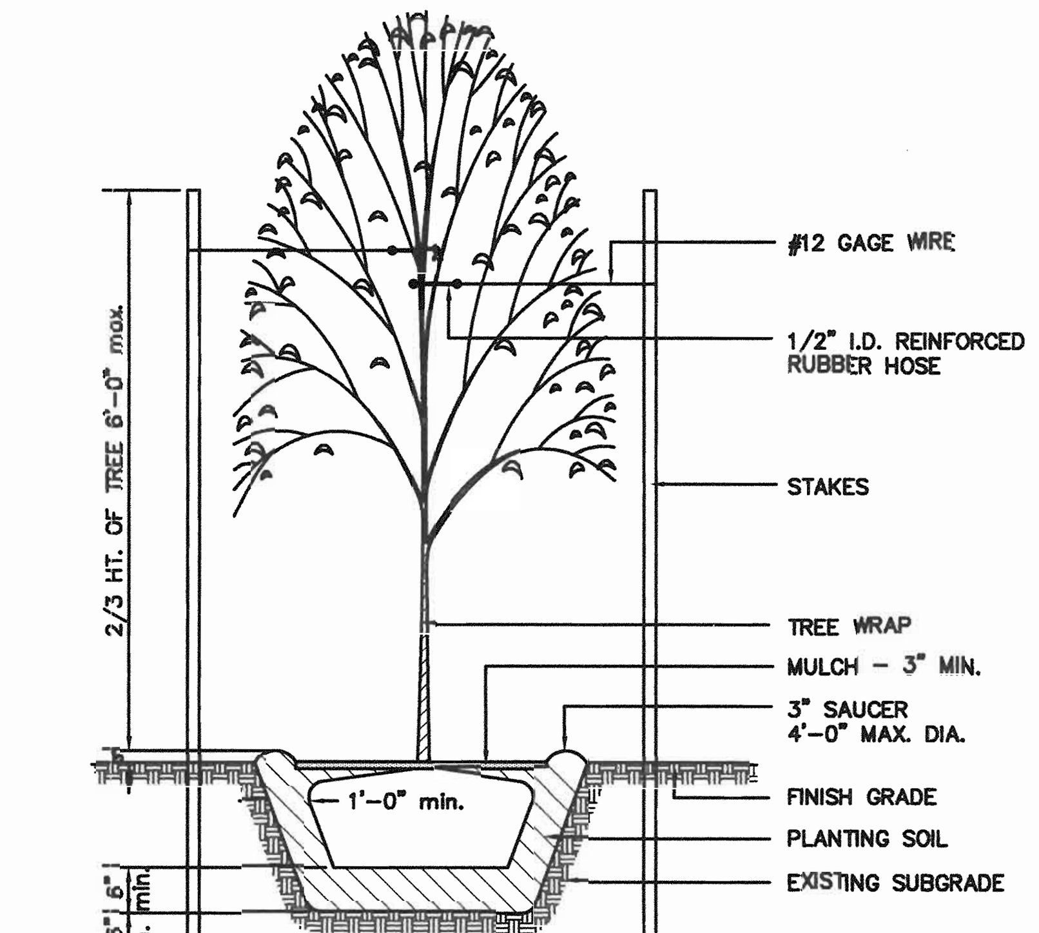
LANDSCAPE PLAN

SCALE: 1" = 50'

PLANTING NOTES:

1. All plants shall be nursery grown.
2. All plants shall conform to the standards of AAN. They shall be typical of their species or variety and shall have a normal habit of growth. They shall be sound, healthy and vigorous, well–branched and densely foliated when in leaf. They shall be free of disease and insect pests, eggs, or larvae. They shall have healthy, well–developed root systems.
3. No substitutions shall be made without the approval of the landscape architect.
4. Balled and burlapped plants shall be dug with firm natural balls of earth, of diameter and depth to include most of the fibrous roots. Container grown stock shall have been grown in a container long enough for the root system to be have developed sufficiently to hold its soil together firm and whole. No plants shall be loose in the container.
5. Root balls of all plants shall be adequately protected at all times from sun and drying winds or frost.
6. Owner or his representative shall be notified prior to beginning planting operations.
7. All trees shall be wrapped immediately after they are planted.

   Approved tree wrap shall be installed according to accepted industry practice.
8. Each tree and shrub shall be pruned in accordance with the American Association of Nurserymen Standards to preserve the natural character of the plant. All dead wood or suckers and all broken or badly bruised branches shall be removed. Cuts over 1" in diameter shall be painted with an approved tree paint.
9. Mulch: immediately after planting operations are completed all trees and shrub planting pits shall be covered with a 2" layer of Shredded Hardwood Bark Mulch or other material approved by the owner or his representative. The limit of this mulch for trees shall be the area of the pit and for shrubs in beds, the entire area of the shrub bed.
10. Trees in leaf when planted shall be treated with anti–desiccant such as Wilt–proof.
11. Conditions detrimental to plants: the contractor shall notify the project representative in writing of all soil or drainage conditions which the contractor considers detrimental to the growth of plants. He shall state the conditions and submit a proposal for correcting the conditions, including any change in cost for review and acceptance by the project representative.
12. Minor adjustments to tree location may be necessary due to field conditions and final grading. The contractor shall notify the owner if major adjustments are required.



TREE PLANTING DETAIL – LESS THAN 4" CAL.

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PARKING SPACES (NEW)	15
NUMBER OF TREES REQUIRED (1/20 sp.)	1
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUBSTITUTION)	1 1 0
NUMBER OF ISLANDS REQUIRED	1
NUMBER OF ISLANDS PROVIDED (200 sf/ISLAND, 12' MIN. WIDTH)	1

PLANT LIST

Symbol	Key	Botanical Name / Common Name	Size	Quantitiy
	T1	Acer Rubrum "October Glory" / October Glory Red Maple	2 1/2" – 3" Cal. B&B	14
	T2	Platanus Acerfolio Bloodgood / Bloodgood London Plane Tree	2' – 2 1/2' HT. B&B	1
	T3	Cornus florida "rubra" / Red Flowering Dogwood	8' – 10' ht.	8
x	S1	Euonymus Alatus Compacta / Dwarf Winged Euonymus	2' – 2 1/2' HT. B&B	10
	E1	Cupressocyparis Leylandii / Leyland Cypress	5–6' Hgt. B&B	23

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS		ADJACENT TO PERIMETER PROPERTIES	
LANDSCAPE EDGE	①	②	③	④
LANDSCAPE TYPE	"B"	"C"	"C"	"A"
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	485'	583'	633'	638'
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES/305'*	YES/190'	YES/160'	NO/0'
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO/0'	NO/0'	NO/0'	NO/0'
RESULTANT PERIMETER LENGTH	180'	393'	473'	638'
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	180/50=4 180/40=5 0	393/40=10 393/20=20 0	473/40'=12 473/20'=24 0	638/60'=11 0=0 0=0
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	4 0 4**** 10 (SHRUBS)*****	10 16 4**** 0	0** 7** 0 0	0*** 0 0 0

* = EX. SCREEN ROW OF TREES ALONG MARTIN RD. TO REMAIN
** = NO AVAILABLE PLANTING AREA DUE TO EX. COUNTY WATER EASEMENT.
*** = ADJACENT PROPERTY OWNER IS SAME AS PROJECT SITE. ON SOUTH SIDE OF ADJACENT LOT, EX. WOODED EDGE BUFFERS THE SITE FROM THE ACCESS RAMP.
**** = DECIDUOUS TREE SUBSTITUTION – CAN BE SUBSITUTED ON 1 TO 1 BASIS FOR EVERGREENS
***** = SHRUB SUBSTITUTION – 10 SHRUBS WILL BE PROVIDED AS UNDERGROWTH SCREENING AROUND THE ENTRANCE THE 10 SHRUBS WILL BE SUBSTITUTED FOR 1 EVERGREEN TREE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — DATE 1/26/01

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 1/18/01

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 1/23/01

DATE	NO.	REVISION
2-02-05	1	REVISED GRADING

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R–12
5th ELECTION DISTRICT
WATER CODE E–30 SEWER CODE 532600

TITLE **LANDSCAPE PLAN**

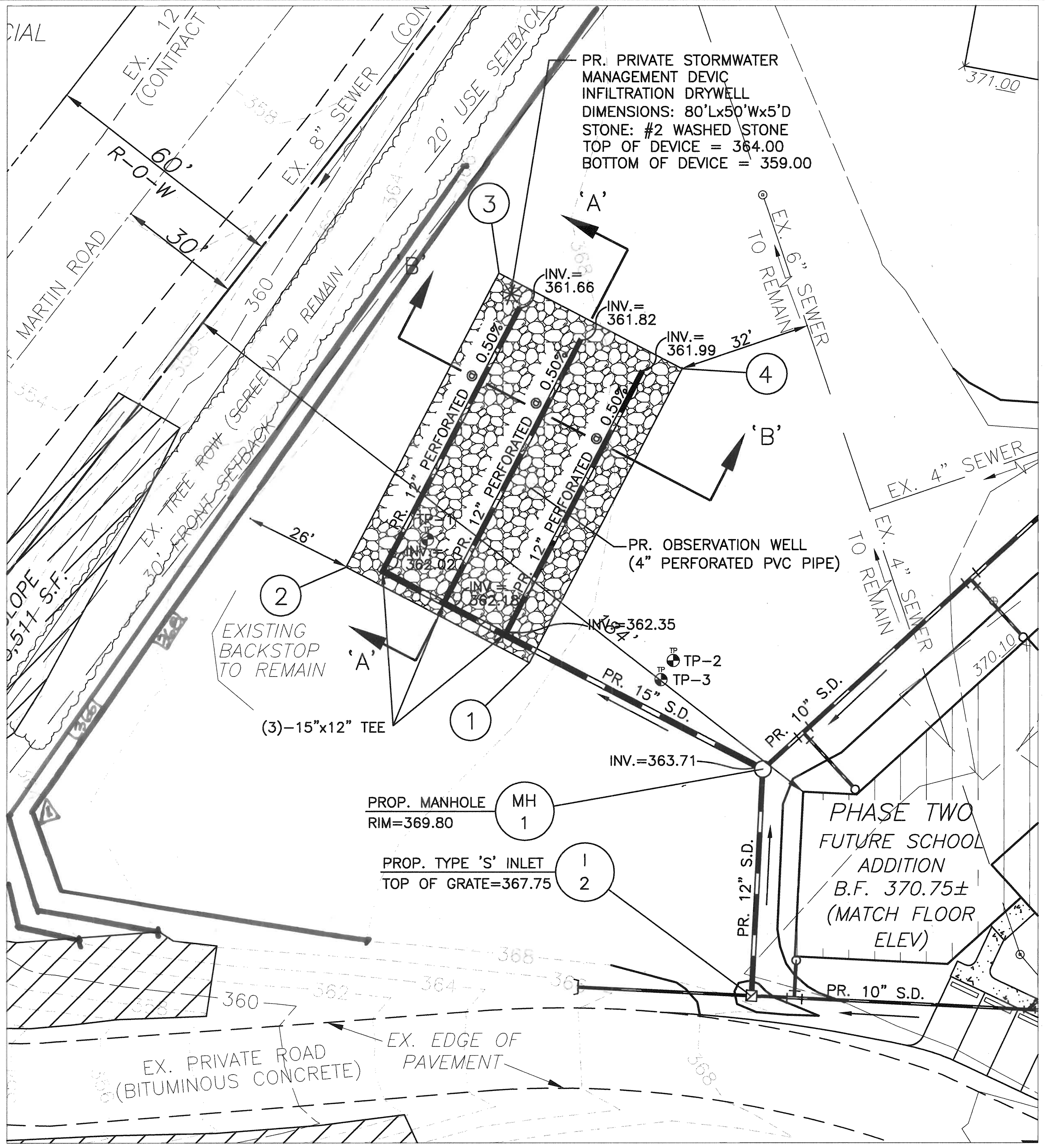
MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266–3212

12-28-00
DATE

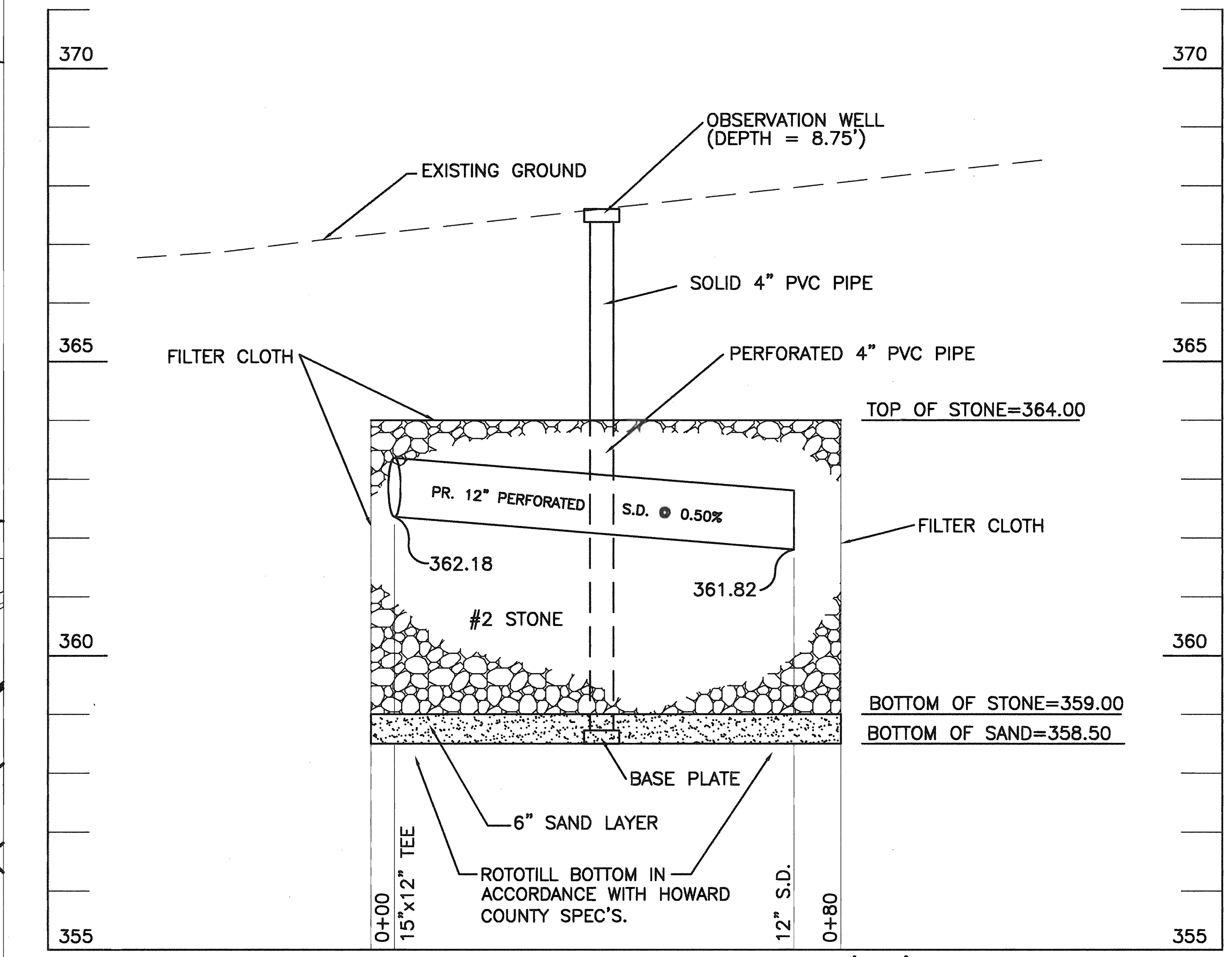
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 10 OF 10

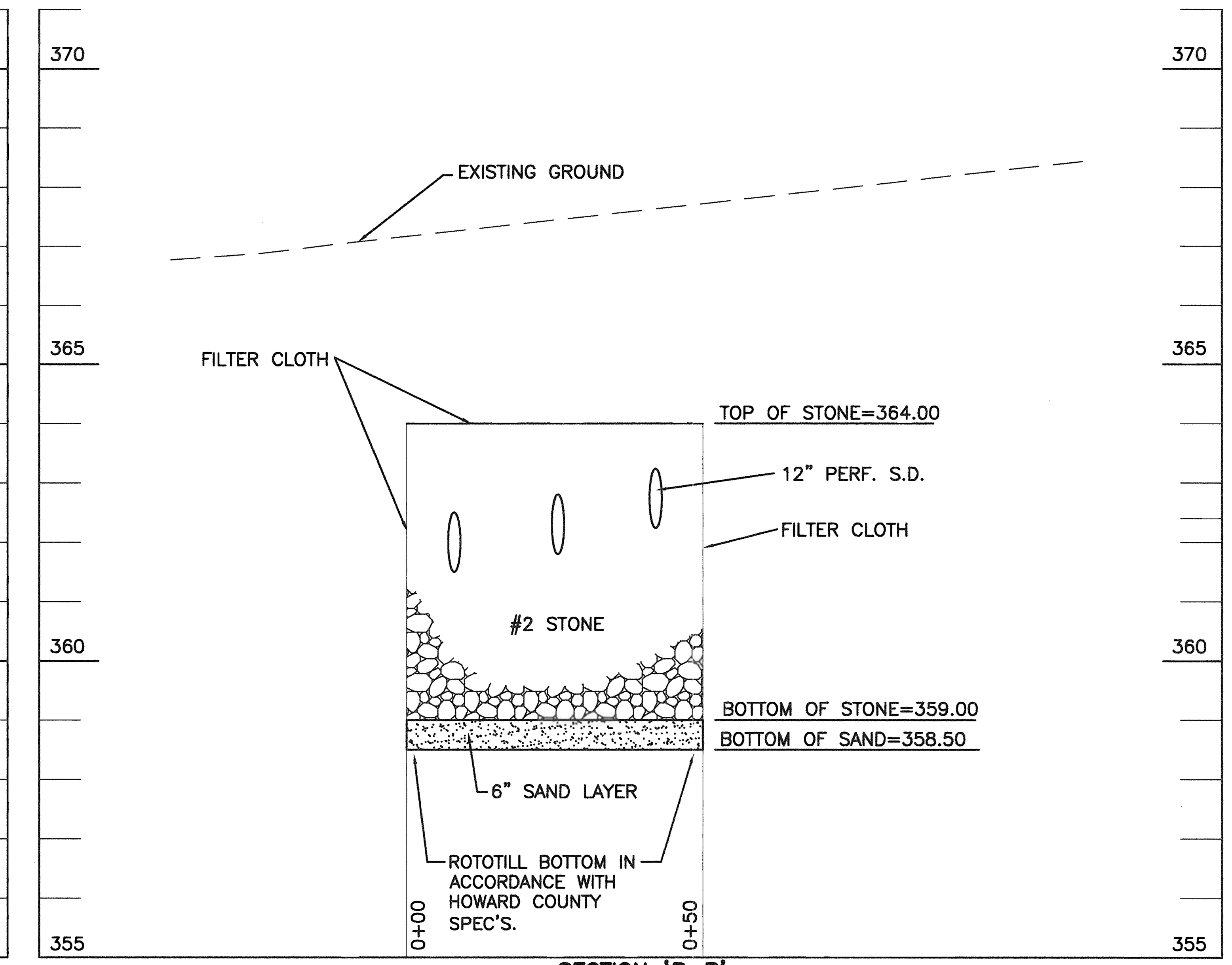
SDP-01-02



PLAN VIEW
SCALE: 1"=20'



SECTION 'A-A'
SCALE: 1"=20' HORIZ.
1"=2' VERT.



SECTION 'B-B'
SCALE: 1"=20' HORIZ.
1"=2' VERT.

Construction specifications (Infilltration drywell /trench)

Timing

A infilltration device shall not be constructed or placed in service until all of the contributing drainage area has been stabilized and approved by the responsible inspector.

Dry Well Preparation

Excavate the dry well to the design dimensions. Excavated materials shall be placed away from the excavated sides to enhance wall stability. Large tree roots shall be trimmed flush with the sides in order to prevent fabric puncturing or tearing during the installation procedures. The side walls of the dry well shall be roughened where sheared and sealed by heavy equipment. The bottom of the trench below the sand layer is to be rototilled to a minimum depth of one (1) foot prior to sand placement to preserve infiltration rates.

Fabric Laydown

The filter fabric roll shall be cut to the proper width prior to installation. The cut width must include sufficient material to conform to trench perimeter irregularities and for a 6-inch minimum top overlap. Place the fabric roll over the trench and unroll a sufficient length to allow placement of the fabric down into the trench. Stones or other anchoring objects should be placed on the fabric at the edge of the trench to keep the lined trench open during windy periods. When overlaps are required between rolls, the upstream roll shall lap a minimum of 2 feet over the downstream roll in order to provide a shingled effect. The overlap ensures fabric continuity and that the fabric conforms to the excavation surface during aggregate placement and compaction.

Aggregate Placement and Compaction

The stone aggregate should be placed in lifts and compacted using plate compactors. As a rule of thumb, a maximum loose lift thickness of 12 inches is recommended. The compaction process ensures fabric conformity to the excavation sides, thereby reducing the potential for soil piping and fabric clogging.

Overlapping and Covering

Following the stone aggregate placement, the fabric shall be folded over the stone aggregate to form a 6" minimum longitudinal lap. The desired fill soil should be placed over the lap at sufficient intervals to maintain the lap during subsequent backfilling.

Contamination

Care should be exercised to prevent natural or fill soils from intermixing with the stone aggregate. All contaminated stone aggregate shall be removed and replaced with uncontaminated aggregate.

Voids Behind Fabric

Voids can be created between the fabric and excavation sides and should be avoided. Removing boulders or other obstacles from the trench walls is one source of such voids. Natural soils should be placed in these voids at the most convenient time during construction to ensure fabric conformity to the excavated sides. Soil piping, fabric clogging, and possible surface subsidence will be avoided by this remedial process.

Unstable Excavation Sides

Vertically excavated trench walls may be difficult to maintain in areas where the soil moisture is high or where soft cohesive or cohesionless soils predominate. These conditions may require laying back of the side slopes to maintain stability; trapezoidal rather than rectangular cross sections may result.

Vegetative Buffers

A vegetative buffer of at least 20 feet (wider if possible) shall be used to intercept surface runoff from all impervious areas.

Observation Well

An observation well will be provided. The depth of the well, at the time of installation, will be clearly marked on the well cap.

Operation & Maintenance Schedule

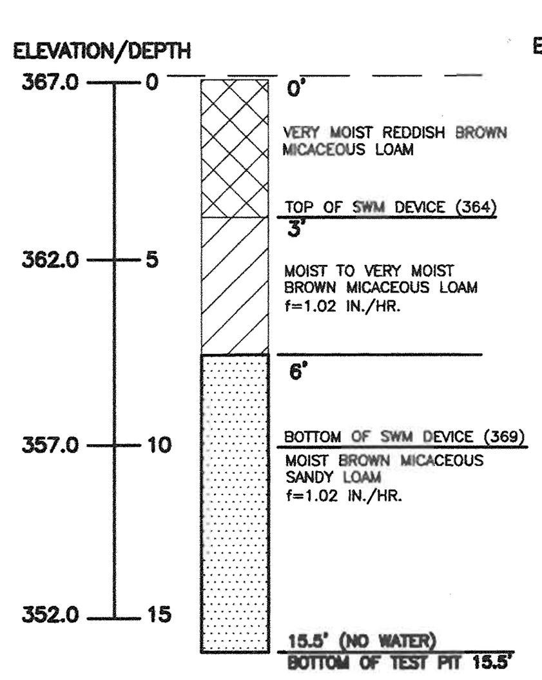
Infiltration dry wells/trenches shall be designed to minimize maintenance. However, it is recognized that all infiltration facilities are subject to clogging by sediment, oil, grease, grit and other debris. In addition, the performance and longevity of these structures is not well documented. Consequently, a monitoring observation well is required for all infiltration structures.

The observation well should be monitored periodically. For the first year after completion of construction, the well should be monitored on a quarterly basis and after every large storm. It is recommended that a logbook be maintained indicating the rate at which the facility dewaters after large storms and the depth of the well for each observation. Once the performance characteristics of the structure 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.

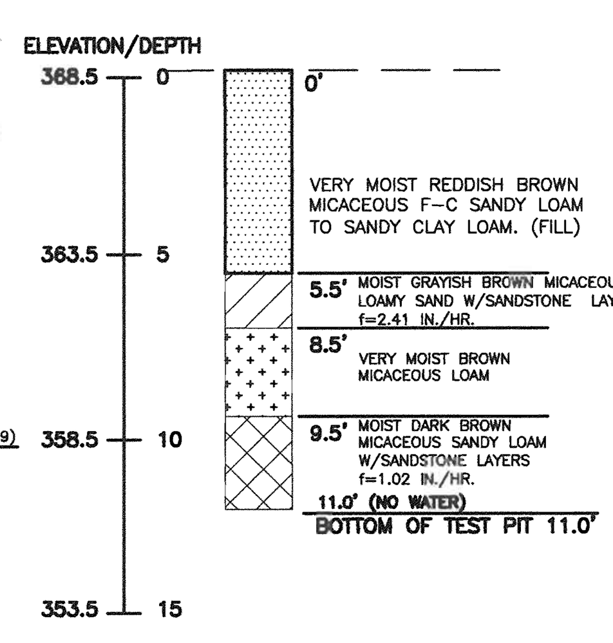
Sediment build-up in the top foot of stone aggregate or the surface inlet should be monitored on the same schedule as the observation well. A monitoring well in the top foot of the stone aggregate will be required when the trench has a stone surface. Sediment deposited shall not be allowed to build up to the point where it will reduce the rate of infilltration into the trench.

NOTES:

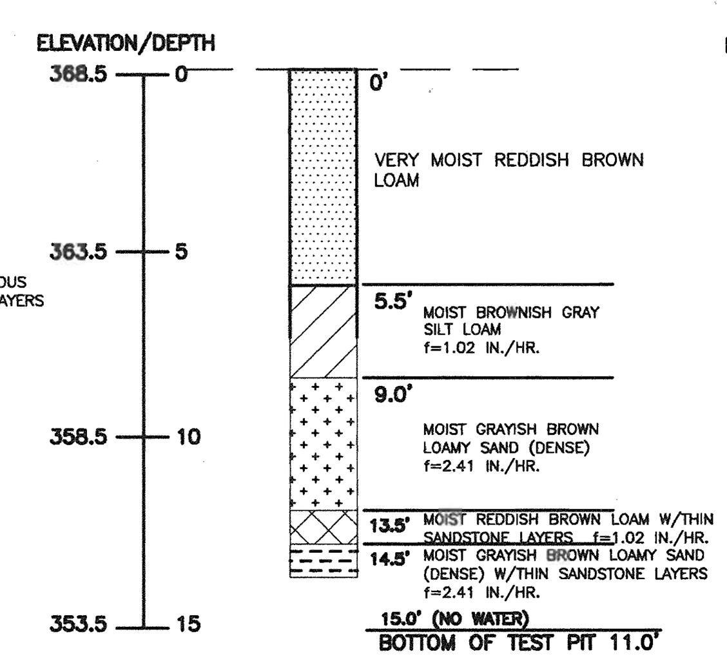
1. ALL STORM DRAIN PIPE SHALL BE N-12 SMOOTH INTERIOR STORM DRAIN PIPE (MAX. N.=0.012) AS MANUFACTURED BY ADVANCED DRAINAGE SYSTEMS, INC. OR APPROVED EQUAL.
2. ALL STORM DRAIN PIPE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. ANY DEVIATION FROM THE SPECIFICATIONS MUST BE APPROVED BY THE ENGINEER.
3. ALL STORM DRAIN PIPE SHALL BE CONNECTED USING A SNAP ON WATERTIGHT COUPLER.



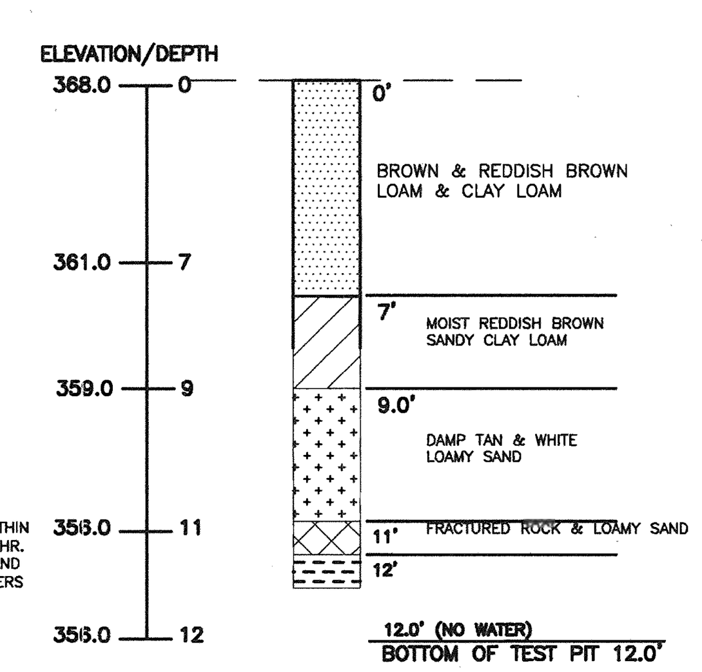
TEST PIT: TP-1
NOT TO SCALE



TEST PIT: TP-2
NOT TO SCALE



TEST PIT: TP-3
NOT TO SCALE

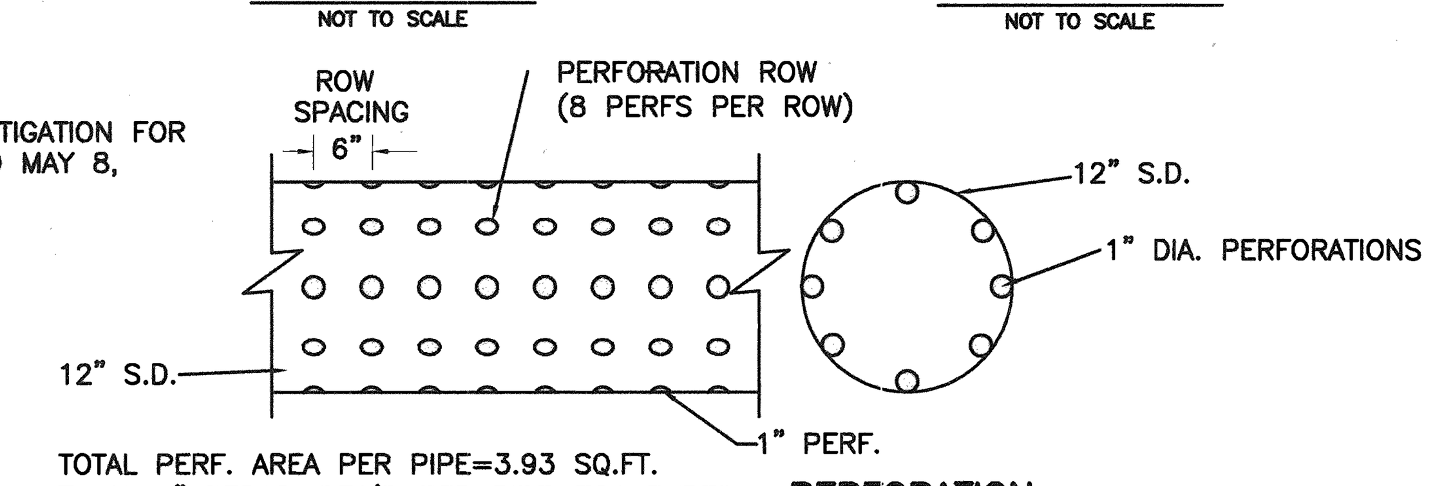


TEST PIT: TP-4
NOT TO SCALE

NOTES:

1. FOR ADDITIONAL INFORMATION REGARDING GEOTECHNICAL INVESTIGATION FOR THE SWM DEVICE SEE GEOTECHNICAL INVESTIGATION REPORT DATED MAY 8, 2000.

COORDINATES		
POINTS	NORTHING	EASTING
①	N. 555,722.60	E. 1,349,216.44
②	N. 555,745.68	E. 1,349,172.09
③	N. 555,816.65	E. 1,349,209.02
④	N. 555,793.57	E. 1,349,253.37

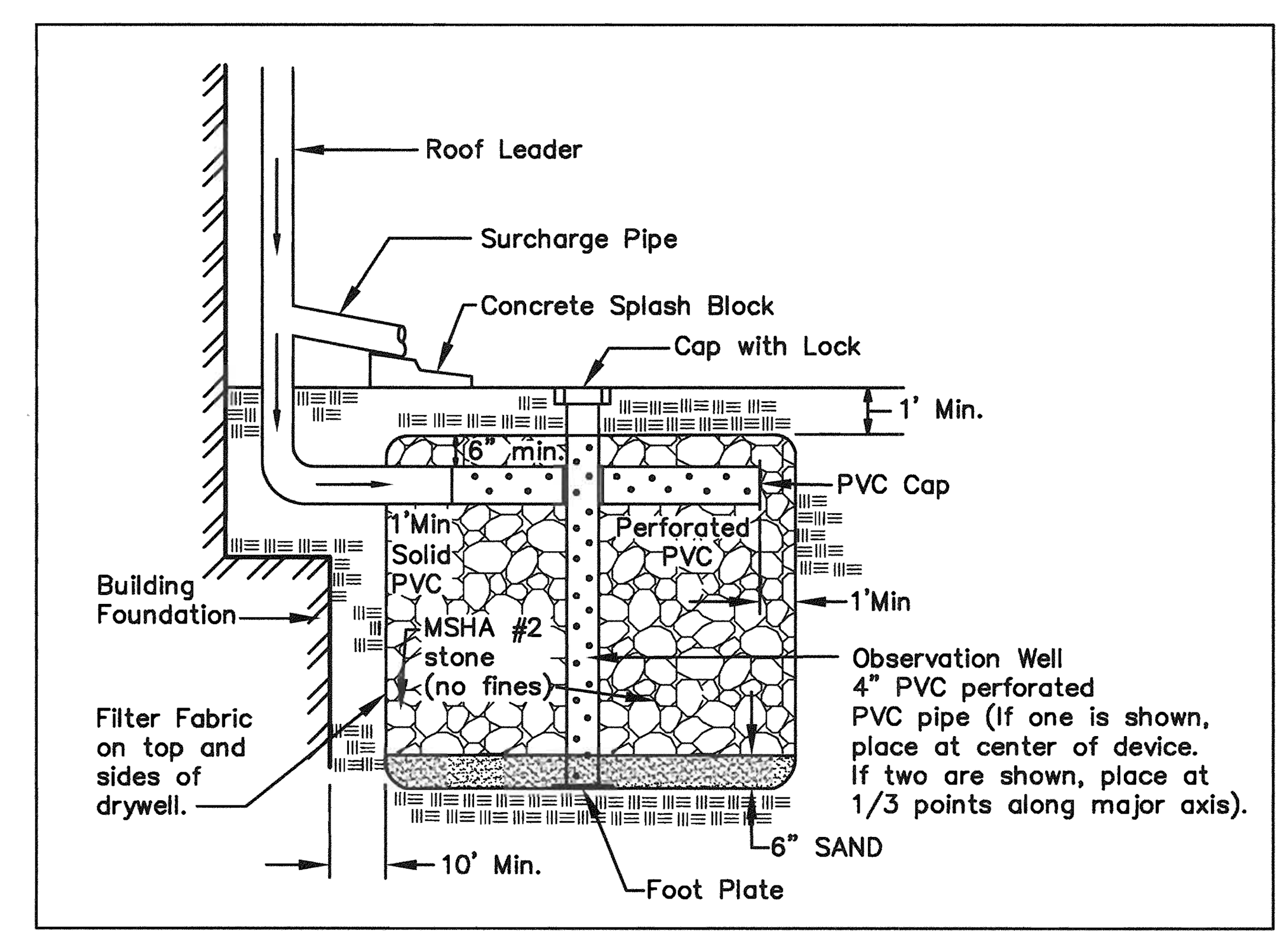


TOTAL PERF. AREA PER PIPE=3.93 SQ.FT.
TOTAL 1" PERFS. REQ'D PER PIPE=721 PERFS

PERFORATION DIAGRAMS
NOT TO SCALE

NOTES:

1. THE NUMBER OF PERFORATIONS, SIZE AND THE LAYOUT MAY BE ALTERED AS LONG AS THE TOTAL AREA OF OPENINGS REMAIN THE SAME. ANY CHANGES TO THE PERFORATION PATTERN OR SIZES MUST BE APPROVED BY THE ENGINEER.



TYPICAL S.W.M. DRYWELL DETAIL
Not to scale

Infiltration Drywell Design

Project Atholton Seventh Day Adventist Church
Count/State: Howard County, Maryland
Design basis: Infiltrate the runoff from the 10 year storm event from the impervious area.
Enter the following information:

Rainfall Depth (in): P =	5.1	(10 Year Storm)

Contributing Area	
Curve Number: CN_c =	98
Runoff Depth (in): Q_c =	4.86
Contributing Area (ft^2): A_c =	~~20500~~ 20614 △

Overlying Soil	
Curve Number: CN =	61
Runoff Depth (in): Q =	1.43
Water Capacity (in/in): C_w =	0.31
Average Soil Depth (ft): d_o =	4

Enter the following information:

Soil infiltration rate (in/hr): f =	2.41
Void ratio: V_r =	0.4
Max. Storage Time (hrs): T_s =	72
Effective Filling Time (hrs): T =	0.5

Determine the maximum allowable depth (ft): $d_{max} = fT_s/V_r$, d_{max} = 36.15 feet

Determine the size of the drywell: $A_w = \frac{Q_c A_c}{(V_r d_w - P + Q + d_o C_w + fT)}$

Dry Well Depth (ft): d_w =	4	USE 5	6	7	8
Dry Well Surface Area (ft^2): A_w =	4886	~~3955~~ 3977 △	3523	2864	2517

Dry Well Dimensions
Length (ft) 80
Width (ft) 50
Depth (ft) 5

Area Provd = 4000sq. ft.

Compare area provided with area required:
Area Provd = 4000 sq. ft. is greater than Area Reqd = ~~3955~~ 3977 △ sq. ft

USE: One Dry Well 80' long x 50' wide x 5' deep
Area of filter Cloth (sy): 589
Observation Wells: 1

Design References:
1. Standards and Specifications for Infiltration Practices, MD Department of Natural Resources, Feb 1984.
2. Urban Hydrology for Small Watersheds (TR-55), Soil Conservation Service, June 1986

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR	DATE 1/26/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 1/17/01
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 1/23/01

DATE	NO.	REVISION
5/15/01	△	REVISIONS PER ARCHITECTURAL CHANGES
2-2-06	△	REVISED GRADING

OWNER/DEVELOPER
ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

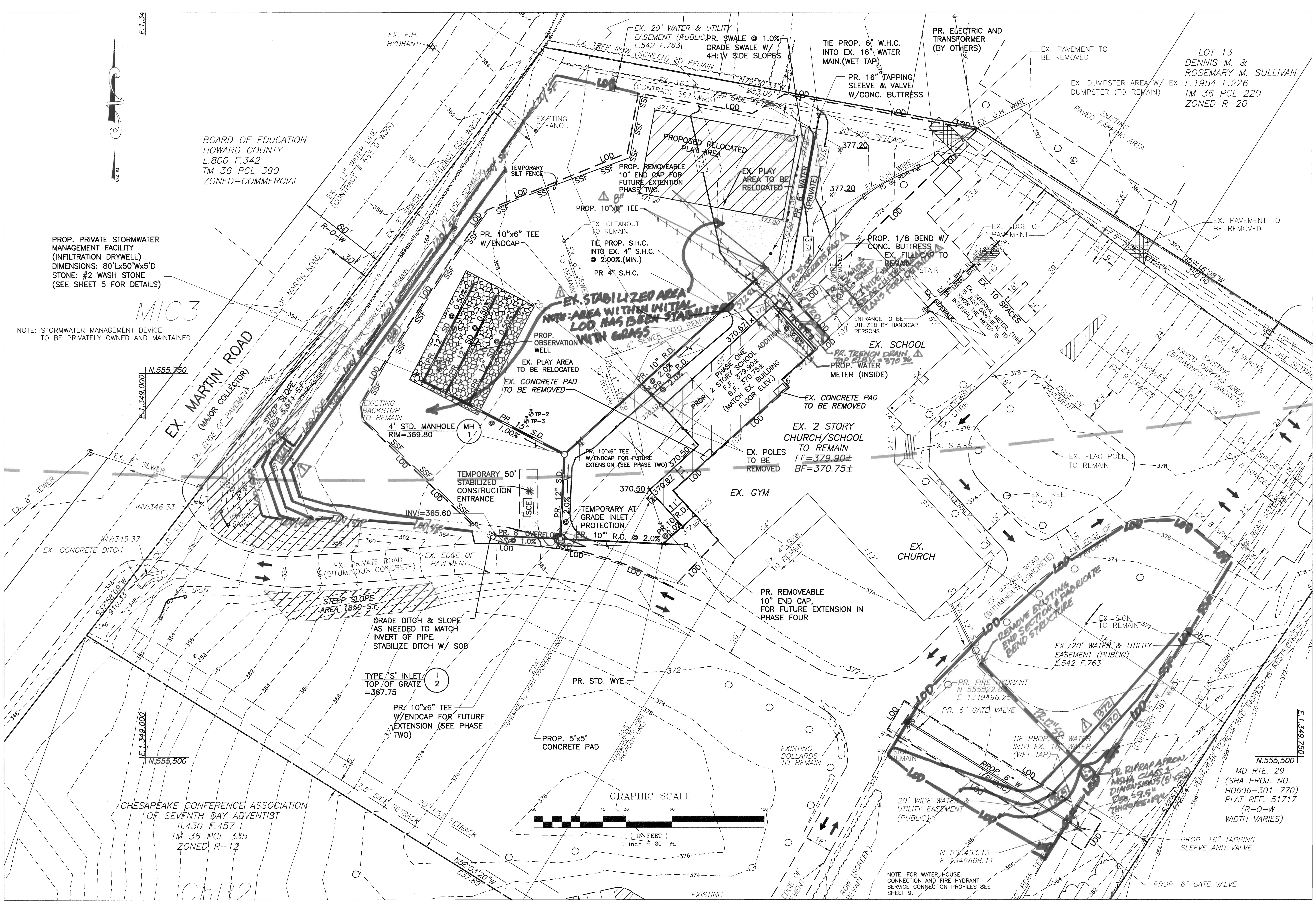
TITLE
STORMWATER MANAGEMENT PLAN
PROFILES AND DETAILS

MESSICK & ASSOCIATES
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212

12-28-00
DATE
DARRELL J. VOLNEY #22098

DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 5 OF 10

SDP-01-02



NOTES:

1. ALL 6" WATER LINE SHALL BE DUCTILE IRON PIPE (AWWA C-151) UNLESS OTHERWISE SPECIFIED AND SHALL BE LAID AT A MINIMUM 42" BELOW GRADE.

2. THE PROPOSED WATER METER AS SHOWN SHALL BE AN INSIDE WATER METER. THE METER SETTING/LOCATION IS CONCEPTUAL, THE ACTUAL SETTING WILL BE PLACED INSIDE THE BUILDING IN ACCORDANCE WITH ARCHITECTURAL PLANS. PER HOWARD COUNTY DEVELOPMENT ENGINEERING DIVISION, UTILITIES SECTION, THE 2ND WATER CONNECTION WILL BE ALLOWED WITH A SEPERATE METER. THE 2ND WATER HOUSE CONNECTION AND THE PROPOSED FIRE HYDRANT WILL BE INSTALLED UNDER A ADVANCE DEPOSIT ORDER (ADO).

3. ALL SANITARY SEWER PIPING SHALL BE SCHEDULE 40 POLYVINYL CHLORIDE (PVC) PIPE UNLESS OTHERWISE SPECIFIED.

4. ALL PROPOSED BUILDING ADDITIONS WILL BE CONSTRUCTED TO INCLUDE AUTOMATIC FIRE SPRINKLER SYSTEM.

5. ALL ROOF LEADERS DRAINING FROM THE EXISTING SCHOOL AND GYMNASIUM ROOFS SHALL BE TIED INTO NEW ROOF LEADER/STORM DRAIN SYSTEM.

6. THE SUPER SILT FENCE ALONG MARTIN ROAD SHALL REMAIN UNTIL THE SITE IS STABILIZED. ONCE THE SITE IS STABILIZED AND WITH APPROVAL OF THE HOWARD COUNTY SCD INSPECTOR, THE CONTRACTOR CAN REMOVE THE SUPER SILT FENCE.

BY THE DEVELOPER :

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

Eugene F. Burgess 12-28-00
DEVELOPER DATE

BY THE ENGINEER :

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

Darrell J. Volney 12-28-00
ENGINEER DATE

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

Jim Meyers 1/18/01
NATURAL RESOURCES CONSERVATION SERVICE DATE

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

John Robertson 1/18/01
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

1/26/01
DIRECTOR DATE

1/18/01
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamilton 1/23/01
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION
5/15/01	△	REVISIONS PER ARCHITECTURAL CHANGES
02-02-05	△	REVISED GRADING, LOD, SSF + EXTEND 12" SD

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
SITE DEVELOPMENT PLAN
PHASE ONE

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212

* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

12-28-00
DATE

STATE OF MARYLAND
DARRELL J. VOLNEY
No. 22098
REGISTERED
PROFESSIONAL ENGINEER

DARRELL J. VOLNEY #22098

DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 3 OF 10

SDP-01-02

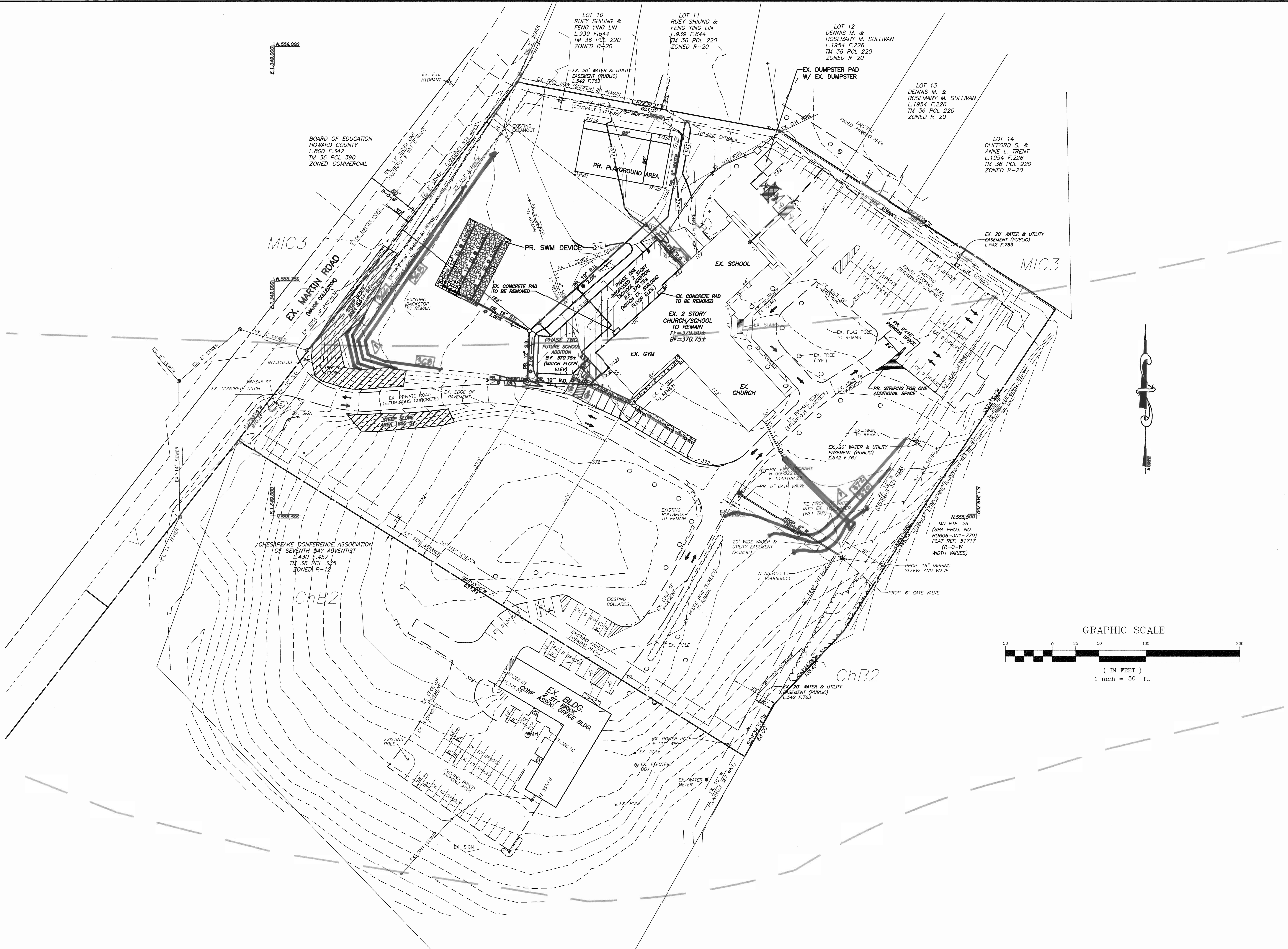
STORMWATER MANAGEMENT NOTE:
THE UNDERGROUND STORMWATER MANAGEMENT INFILTRATION DEVICE AND THE ASSOCIATED STORMDRAIN PIPE AND STRUCTURES ARE PRIVATELY OWNED. THE OWNER SHALL MAINTAIN THE DEVICE AND APPURTENANCES AT HIS OWN EXPENSE.

WARNING!!
THE EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE. THE CONTRACTOR SHALL TEST PIT AS NEEDED TO VERIFY THE EXACT TYPE, SIZE AND LOCATION OF SAID UTILITIES.

NOTE:
ALL CONSTRUCTION DETAILS SHALL INCLUDE BUT NOT BE LIMITED TO THE DETAILS SHOWN. THE CONTRACTOR SHALL REFERENCE TO THE MOST RECENT VERSION OF VOLUME IV OF HOWARD COUNTY'S DESIGN MANUAL FOR ADDITIONAL DETAILS UNLESS OTHERWISE PROVIDED.

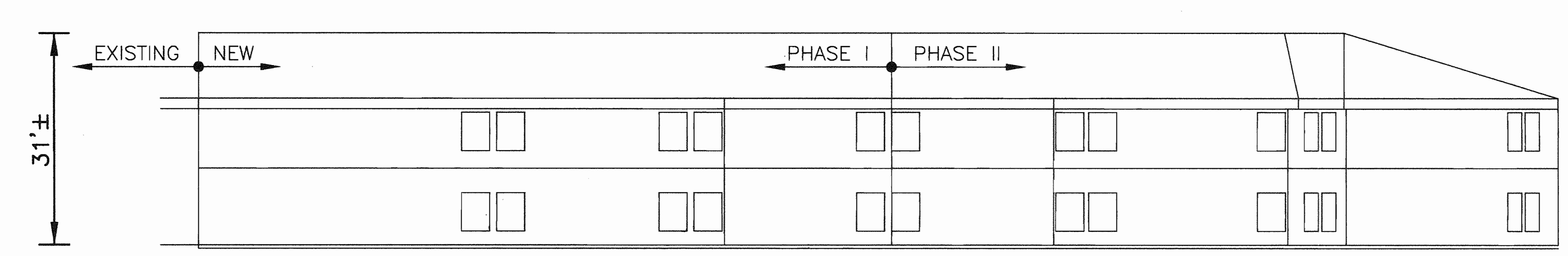
STANDARD DETAILS

DETAIL	DETAIL REFERENCE	LOCATION
4'-0" STD. PRECAST MANHOLE	G-5.12 (H.C.)	SEE SHEET 6
TYPE 'S' INLET	SD-4.22 (H.C.)	SEE SHEET 6
SWM DEVICE	N/A	SEE SHEET 5
AT GRADE INLET PROTECTION	E-16-5A (MDE DTL 23B)	SEE SHEET 8
STABILIZED CONSTRUCTION ENTRANCE	F-17-3 (MDE DTL 24)	SEE SHEET 8
SUPER SILT FENCE	H-26-3 (MDE DTL 33)	SEE SHEET 8


LOT 10
RUEY SHIUNG &
FENG YING LIN
L.939 F.644
TM 36 PCL 220
ZONED R-20
LOT 11
RUEY SHIUNG &
FENG YING LIN
L.939 F.644
TM 36 PCL 220
ZONED R-20
LOT 12
DENNIS M. &
ROSEMARY M. SULLIVAN
L.1954 F.226
TM 36 PCL 220
ZONED R-20
LOT 13
DENNIS M. &
ROSEMARY M. SULLIVAN
L.1954 F.226
TM 36 PCL 220
ZONED R-20
LOT 14
CLIFFORD S. &
ANNE L. TRENT
L.1954 F.226
TM 36 PCL 220
ZONED R-20
EX. DUMPSTER PAD
W/ EX. DUMPSTER
BOARD OF EDUCATION
HOWARD COUNTY
L.800 F.342
TM 36 PCL 390
ZONED-COMMERCIAL
MIC3
EX. MARTIN ROAD
PR. PLAYGROUND AREA
PR. SWM DEVICE
EX. SCHOOL
EX. 2 STORY
CHURCH/SCHOOL
TO REMAIN
EX. GYM
EX. CHURCH
PHASE TWO
FUTURE SCHOOL
ADDITION
B.F. 370.75±
(MATCH FLOOR
ELEV)
EX. CONCRETE PAD
TO BE REMOVED
EX. PRIVATE ROAD
(BITUMINOUS CONCRETE)
STEEP SLOPE
PR. STRIPING FOR ONE
ADDITIONAL SPACE
EX. 20' WATER & UTILITY
EASEMENT (PUBLIC)
L.542 F.763
MD RTE. 29
(SHA PROJ. NO.
HO606-301-770)
PLAT REF. 51717
(R-O-W
WIDTH VARIES)
CHESAPEAKE CONFERENCE ASSOCIATION
OF SEVENTH DAY ADVENTIST
L.430 F.457
TM 36 PCL 335
ZONED R-12
ChB2
EXISTING
BOLLARDS
EXISTING PAVED
PARKING AREA
EX. BLDG.
2 ST. BRICK
CONF. ASSOC. OFFICE BLDG.
PROP. 6" GATE VALVE
PROP. 16" TAPPING
SLEEVE AND VALVE
GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

LEGEND

— — 42 — —	EXISTING CONTOURS
	EXISTING CURB & GUTTER
	PROPERTY LINE
	EXISTING LIGHT POLE
	EXISTING POWER POLE
	EXISTING BUILDING
	EXISTING CONCRETE SIDEWALK
	EXISTING STORM DRAIN
	EXISTING SEWER
	EXISTING TREELINE
	EXISTING TREE/SHRUB
	PROP. TREELINE
	EXISTING OVERHEAD POWER LINE
	PROPOSED BUILDING ADDITION
42	PROPOSED CONTOUR
x32.45	PROPOSED SPOT SHOT
	PROPOSED SIDEWALK
SF	SILT FENCE
LOD	LIMIT OF DISTURBANCE
	INLET PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE
	TRAFFIC FLOW ARROW
	DRAINAGE FLOW ARROW
	DRAINAGE AREA LINE
	STEEP SLOPE > 25% (SUSTAINED FOR 10 VERTICAL FEET)
PROP. 6" WATER	PROPOSED WATER
PROP. 15" S.D.	PROPOSED STORM DRAIN
	PROPOSED BUILDING ADDITIONS



NORTH ELEVATION
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DIRECTOR — 1/26/01 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 1/18/01 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 1/23/01 DATE

DATE	NO.	REVISION
5/15/01	1	REVISION PER ARCHITECTURAL CHANGES
2-02-05	2	REVISED GRADING & EXTEND EX. 12" SD

OWNER/DEVELOPER

ATHOLTON SEVENTH DAY ADVENTIST CHURCH
6520 MARTIN ROAD
COLUMBIA, MD. 21044
ATTN: GENE BURGESS

PROJECT **ATHOLTON SEVENTH DAY ADVENTIST CHURCH**

TAX MAP 36, PARCEL 148, ZONED R-12
5th ELECTION DISTRICT
WATER CODE E-30 SEWER CODE 532600

TITLE
OVERALL SITE DEVELOPMENT PLAN

MESSICK & ASSOCIATES *
CONSULTING ENGINEERS
31 OLD SOLOMONS ISLAND RD., SUITE 201
ANNAPOLIS, MARYLAND 21401
(410) 266-3212
* MESSICK GROUP INC. T/A MESSICK AND ASSOCIATES

12-28-00
DATE

STATE OF MARYLAND DARRELL J. VOLNEY No. 22098 REGISTERED PROFESSIONAL ENGINEER

DARRELL J. VOLNEY #22098

DESIGNED BY: DJV
DRAWN BY: BPO/MRL
PROJECT NO:
DATE: JUNE, 2000
SCALE: AS SHOWN
DRAWING NO.: 2 OF 10

SDP-01-02