



CERTIFICATE OF AUTHENTICITY

THIS IS TO CERTIFY THAT THE FOLLOWING ELECTRONIC RECORDS ARE TRUE AND ACCURATE REPRODUCTIONS OF THE ORIGINAL RECORDS OF JAMES CITY COUNTY GENERAL SERVICES DEPARTMENT- STORMWATER DIVISION; WERE SCANNED IN THE REGULAR COURSE OF BUSINESS PURSUANT TO GUIDELINES ESTABLISHED BY THE LIBRARY OF VIRGINIA AND ARCHIVES; AND HAVE BEEN VERIFIED IN THE CUSTODY OF THE INDIVIDUAL LISTED BELOW.

BMP NUMBER: SC015

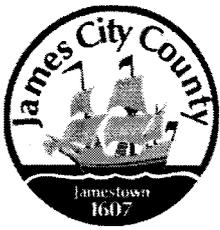
DATE VERIFIED: April 13, 2012

QUALITY ASSURANCE TECHNICIAN:

Leah Hardenbergh

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA



Stormwater Division

MEMORANDUM

DATE: March 10, 2010
TO: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services
FROM: Jo Anna Ripley, Stormwater
PO: 270712
RE: Files Approved for Scanning

General File ID or BMP ID: SC015

PIN: 5920600001A

Subdivision, Tract, Business or Owner

Name (if known):

Carters Village

Property Description:

Common Area & Private Road

Site Address:

(For internal use only)

Box 8

Drawer: 5

Agreements: (in file as of scan date)

Y

Book or Doc#:

010015439

Page:

63

22

020008198

030001075

46

03

44

100

798

951

Comments

Carters Village Parcel B Created out of parcel (59-2)(1-15) created lots 1-31, new PINs (59-2)(6-1 through 31)

DECLARATION OF COVENANTS

COPY

INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

THIS DECLARATION made this 15th day of August, 2001, between Greensprings Plantation, Inc.

and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: 8998 Pocahontas Trail, Williamsburg, Virginia 23185

*Deed Book 63, Page No. 22 or Instrument No. 59-2,1-15 and James City County, Virginia, hereinafter referred to as the "COUNTY."

Also on: Deed Book 46, Page No. 03
Deed Book 44, Page No. 100
Deed Book 798, Page No. 951

WITNESSETH:

We, the COVENANTOR(S), with full authority to execute deeds, mortgages, other covenants, and all rights, titles and interests in the property described above, do hereby covenant with the COUNTY as follows:

1. The COVENANTOR(S) shall provide maintenance for the drainage system including any runoff control facilities, conveyance systems and associated easements, hereinafter referred to as the "SYSTEM," located on and serving the above-described property to ensure that the SYSTEM is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations. The SYSTEM shall not include any elements located within any Virginia Department of Transportation rights-of-way.

2. If necessary, the COVENANTOR(S) shall levy regular or special assessments against all present or subsequent owners of property served by the SYSTEM to ensure that the SYSTEM is properly maintained.

3. The COVENANTOR(S) shall provide and maintain perpetual access from public right-of-ways to the SYSTEM for the COUNTY, its agent and its contractor.

4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the SYSTEM for the purpose of inspecting, operating, installing, constructing, reconstructing, maintaining or repairing the SYSTEM.

5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the SYSTEM in accordance with the approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the SYSTEM for the cost of the work and any applicable penalties.

6. The COVENANTOR(S) shall indemnify and save the COUNTY harmless from any and all claims for damages to persons or property arising from the installation, construction, maintenance, repair, operation or use of the SYSTEM.

7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the SYSTEM. The COVENANTOR(S)' shall supply the COUNTY with a copy of any document of transfer, executed by both parties.

8. The covenants contained herein shall run with the land and shall bind the COVENANTOR(S) and the COVENANTOR(S)' heirs, executors, administrators, successors and assignees, and shall bind all present and subsequent owners of property served by the SYSTEM.

9. This COVENANT shall be recorded in the County Land Records.

Instrument # 010015439
Recorded on Aug. 27, 2001

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 15th day of August, 2001.

COVENANTOR(S)

Marc B. Sharp

Print Name/Title Marc B. Sharp/President

ATTEST:

Michelle Z. Ball

COVENANTOR(S)

Print Name/Title _____

ATTEST:

COMMONWEALTH OF VIRGINIA
CITY/COUNTY OF James City

I hereby certify that on this 15th day of August, 2001, before the subscribed, a Notary Public of the State of Virginia, and for the City/County of James City, aforesaid personally appeared Marc B. Sharp and did acknowledge the foregoing instrument to be their Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 15th day of August, 2001.

Gloria M. Judah
Notary Public

My Commission expires: August 31, 2004

Approved as to form:

Les P. Royce
Deputy County Attorney

This Declaration of Covenants prepared by:

Marc B. Sharp
(Print Name)

President
(Title)

4029 Iron Bound Rd. Suite 200
(Address)

Williamsburg, VA 23188
(City) (State) (Zip)

drainage.pre
Revised 2/97

**James City County, Virginia
Environmental Division**

**Stormwater Management/BMP
Record Drawing and Construction Certification Review
Tracking Form**

County Plan No.: SP-5-01; Amend SP-28-02 Village
 Project Name: Carters Village (Former Skittles Creek Parcel B)
 Stormwater Management Facility: ED Wetland

Phase: I II III
 Information Received. Date/By: 5/13/03 FES (L)
 Administrative Check.
 Record Drawing Date/By: 5/20/03 SIRINE GLOVR
 Construction Certification Date/By: FES 5/13/03
 RD/CC Standard Forms (Required for all BMPs after Feb 1st 2001 Only)
 Insp/Maint Agreement #/Date: # 010015439 AVG 27 '01
 BMP Maintenance Plan Location: PLAN
 Other: _____

Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review file.
 Yes No Location: Note 20, Sheet 4 of 5

Assign County BMP ID Code: Code: SC 015
 Preliminary Input into Division's "As-Built Tracking Log"
 Add Location to GIS Database Map. Obtain site information (GPIN, Owner, Site Area, Address, etc.)
 Preliminary Log into Access BMP Database (BMP ID #, Plan No., GPIN, Project Name, etc.)
 Active Project File Review (correspondence, H&H, etc.).
 Initial As-Built File setup (Label, copy hydraulics, BMP plan and detail information, etc.).
 Inspector Check of RD/CC (forward to inspector using transmittal for cursory review).
 Pre-Inspection Drawing Review - Approved Plan (Quick look prior to Field Inspection).
 Final Inspection (FI) Performed Date: 6/06/03 SIT, GEL
 Record Drawing (RD) Review (***) Date: 6/09/03 SIT
 Construction Certification (CC) Review Date: 5/14/03 SIT OK.

Actions:
 No comments.
 Comments. Letter Forwarded. Date: 6/9/09
 Record Drawing (RD)
 Construction Certification (CC)
 Construction-Related (CR)
 Site Issues (SI)
 Other: _____

Second Submission: 7-2-03 SIRINE (RD)
 Reinspection (if necessary): 6-27-03 SIT
 Acceptable for stormwater management facility purposes (RD/CC/CR/Other). Proceed with bond release.
 If ok for full release, notify Inspector and Inspector Supervisor using "Surety Request Form".
 Check/Clean active file of any remaining material and finish "As-Built" file.
 Add to County BMP Inventory/Inspection schedule (Phase I, II or III).
 Copy Final Inspection Report into County BMP Inspection Program file.
 Obtain Digital Photographs of BMP and log into computer.
 Add to JCC Hydrology & Hydraulic database (optional).
 Complete "As-built Tracking Log".

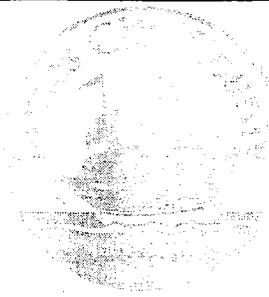
ADD TO APPR WEBSITE
 BMP Certification Information Acceptable

Plan Reviewer: [Signature] Date: 7/2/03

*** See separate checklist.

*Contractor
Gary Albenson
VICO
757-487-8680*

*James Paganò
Buck Construction Rd., Suite 200
4029 Ironbound
Wmng VA 23188
PH 342-5000
FAX 1-757-229-2542*



James City County, Virginia
Environmental Division

Stormwater Management / BMP Facilities Record Drawing and Construction Certification

Standard Forms & Instructions

<u>Contents</u>		<u>Page</u>
Record Drawing and Construction Certification Forms		
	Section 1 - Site Information	1
	Section 2 - Construction Information	2
	Section 3 - Owner / Designer / Contractor Information	2
	Section 4 - Professional Certifications	3
	Section 5 - Certification Requirements and Instructions	4
Record Drawing Checklist		
I.	Methods and Presentation (Required for All Facilities)	6
II.	Minimum Standards (Required for All Facilities)	6
III.	Group A - Wet Ponds	8
IV.	Group B - Wetlands	9
V.	Group C - Infiltration Practices	10
VI.	Group D - Filtering Systems	11
VII.	Group E - Open Channel Systems	12
VIII.	Group F - Extended Dry Detention	13
IX.	Group G - Open Spaces	14
X.	Storm Drainage Systems (Associated with BMP's Only)	15
XII.	Other Systems	15
XIII.	References	16

SC015; SP-5-01

*Issue Date
February 1, 2001*



James City County, Virginia
Environmental Division

Stormwater Management / BMP Facilities
Record Drawing and Construction Certification Forms

(Note: In accordance with the requirements of the Chesapeake Bay Preservation Ordinance, Chapter 23, Section 23-10(4), BMP's shall be designed and constructed in accordance with the manual entitled James City County Guidelines for Design and Construction of Stormwater Management BMP's. Erosion and sediment control policy and approved plans generally require that at the completion of the project and prior to release of surety, an "as-built" plan prepared by a registered Professional Engineer or Certified Land Surveyor must be provided for the drainage system for the project, including any Best Management Practice (BMP) facilities. In addition, for BMP facilities involving the construction of an impounding structure or dam embankment, certification is required by a Professional Engineer who has inspected the structure during its construction. Currently there are over 20 water quality type BMP's accepted by the County.)

Section 1 - Site Information:

Project Name: CARTER'S VILLAGE
 Structure/BMP Name: SHALLOW MARSH DETENTION BASIN
 Project Location: NORTHEAST QUADRANT OF SHIFFERS BLVD / U.S. RT. 60
 BMP Location: EAST END OF SITE
 County Plan No.: SP - S - 01 AMENDED PLAN SP-2B-02

Project Type: Residential Business Tax Map/Parcel No.: (59-2) (1-15)
 Commercial Office BMP ID Code (if known): SC 015
 Institutional Industrial Zoning District: R-5 WITH PROFFERS
 Public Roadway Land Use: IN RESIDENTIAL
 Other Site Area (sf or acres): 4.341 ACRES

Brief Description of Stormwater Management/BMP Facility: EXTENDED DETENTION
SHALLOW MARSH BASIN

Nearest Visible Landmark to SWM/BMP Facility: TOWNHOUSES AT PARKING

Nearest Vertical Ground Control (if known):

JCC Geodetic Ground Control USGS Temporary Arbitrary Other

Station Number or Name: BM 350

Datum or Reference Elevation: EL. 59.90

Control Description: 3/4" DISK SET APPROX. 3" BELOW SURFACE.

Control Location from Subject Facility: EAST SIDE OF BLOW FLATS RD. APPROX. 0.1 MILES SOUTH OF U.S. ROUTE 60.

Section 2 - Stormwater Management / BMP Facility Construction Information:

PreConstruction Meeting Held for Construction of SWM/BMP Facility: Yes No Unknown
Approx. Construction Start Date for SWM/BMP Facility: _____
Facility Monitored by County Representative during Construction: Yes No Unknown
Name of Site Work Contractor Who Constructed Facility: _____
Name of Professional Firm Who Routinely Monitored Construction: _____
Date of Completion for SWM/BMP Facility: _____
Date of Record Drawing/Construction Certification Submittal: _____

(Note: Record Drawing and Construction Certifications are required within thirty (30) days of the completion of Stormwater Management and/or BMP facility construction. Record Drawings and Construction Certifications must be reviewed and approved by the James City County Environmental Division prior to final inspection, acceptance and bond or surety release.)

Section 3 - Owner / Designer / Contractor Information:

Owner/Developer: *(Note: Site Owner or Applicant responsible for development of the project.)*

Name: THE BUSH COMPANIES
Mailing Address: 4029 IRON BOUND RD, SUITE 200
WILLIAMSBURG VA 23188
Business Phone: (757) 220-2874 Fax: (757) 229-2542
Contact Person: MISHELLE BALL Title: _____

Design Professional: *(Note: Professional Engineer or Certified Land Surveyor responsible for the design and preparation of plans and specifications for the Stormwater Management / BMP facility.)*

Firm Name: THE SIRINE GROUP, LTD
Mailing Address: PO BOX 450, WHITE MARSH, VA 23183
Business Phone: 804-693-9548
Fax: 804-693-9550
Responsible Plan Preparer: G.L. PITTMAN
Title: PROFESSIONAL ENGINEER
Plan Name: SITE DEV. PLAN FOR SUBDIVISION OF CARTERS VILLAGE
Firm's Project No. 9757
Plan Date: 7/13/2001
Sheet No.'s Applicable to SWM/BMP Facility: 1 / 2 / 3 / 4 / 5

BMP Contractor: *(Note: Site Work Contractor directly responsible for construction of the Stormwater Management / BMP facility.)*

Name: Uico Construction Co
Mailing Address: PO BOX 6186
CHESAPEAKE VA 23323
Business Phone: (757) 487-3441
Fax: (757) 487-8680
Contact Person: PAT UIOLA
Site Foreman/Supervisor: GRANT PARKER
Specialty Subcontractors & Purpose (for BMP Construction Only):
Uico Construction Co

Section 4 - Professional Certifications:

Certifying Professionals: (Note: A Registered Professional Engineer or Certified Land Surveyor is responsible for preparation of a Record Drawing, sometimes referred to as an As-Built plan, for the drainage system for the project including any Stormwater Management/BMP Facilities. A Registered Professional Engineer is responsible for the inspection, monitoring and certification of Stormwater Management / BMP facilities during its construction.)

Record Drawing and Construction Certifications for Stormwater Management / BMP Facilities

Record Drawing Certification

Firm Name: THE SIRING GROUP, LTD.
Mailing Address: PO BOX 450
WHITE MARSH, VA 23183
Business Phone: 804-693-9548
Fax: 804-693-9590

Name: JAMES S. LEIGH
Title: PRESIDENT

Signature: *James S. Leigh*
Date: 6/30/2003

I hereby certify to the best of my knowledge and belief that this record drawing represents the actual condition of the Stormwater Management / BMP facility. The facility appears to conform with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically noted.

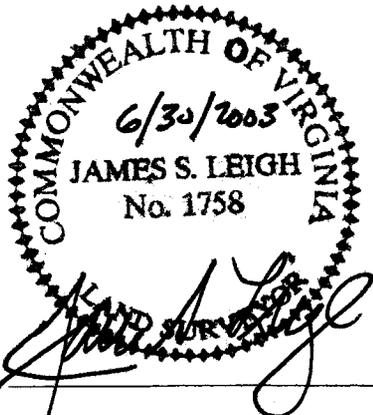
Construction Certification

Firm Name: _____
Mailing Address: _____
Business Phone: _____
Fax: _____

Name: _____
Title: _____

Signature: _____
Date: _____

I hereby certify to the best of my knowledge and belief that this Stormwater Management/BMP facility was monitored and constructed in accordance with the provisions of the approved design plan, specifications and stormwater management plan, except as specifically noted.



Virginia Registered Professional Engineer
or Certified Land Surveyor

Virginia Registered
Professional Engineer

NOW OR FORMERLY
SKIFFES CREEK TERRACE, PHASE I
P.B. 44 PG.100

NOW OR FORMERLY
SKIFFES CREEK TERRACE
PHASE V
P.B. 46 PG. 3
PIN # 5920400001A

PARCEL "B"
NOW OR FORMERLY
189,101 SF±
4.34 ACRES±
(59-2)(1-15)
ZONED R-5

20" SANITARY SEWER EASEMENT
DB 148/307
PB 39/13

EXIST. SEWER MANHOLE
RIM=40.04
INV. OUT=31.52
INV. IN=31.59

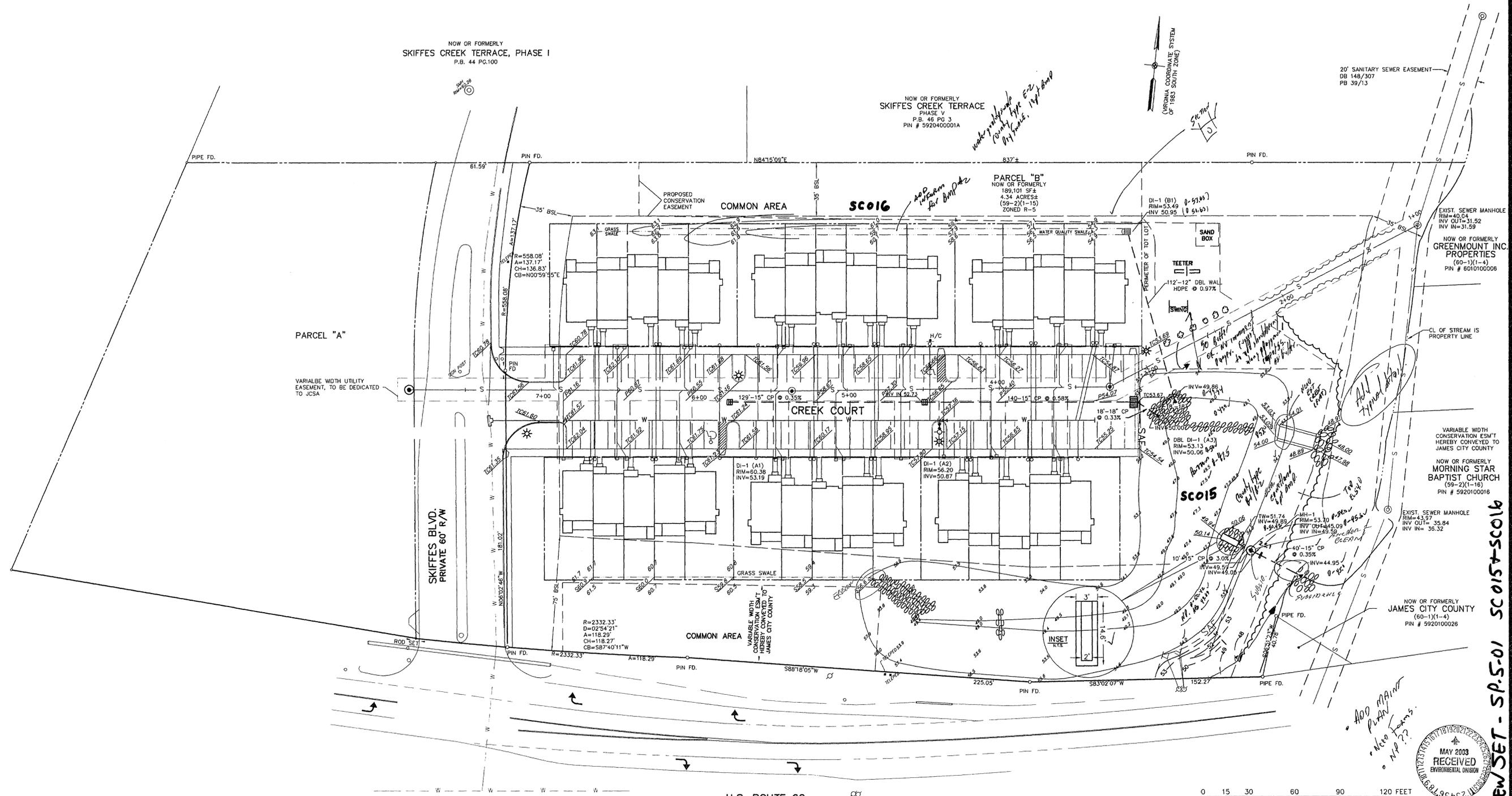
NOW OR FORMERLY
GREENMOUNT INC.
PROPERTIES
(60-1)(1-4)
PIN # 6010100006

VARIABLE WIDTH
CONSERVATION ESM'T
HEREBY CONVEYED TO
JAMES CITY COUNTY

NOW OR FORMERLY
MORNING STAR
BAPTIST CHURCH
(59-2)(1-16)
PIN # 5920100016

EXIST. SEWER MANHOLE
RIM=43.57
INV. OUT=35.84
INV. IN=35.32

NOW OR FORMERLY
JAMES CITY COUNTY
(60-1)(1-4)
PIN # 5920100026



PARCEL "A"

VARIABLE WIDTH UTILITY
EASEMENT, TO BE DEDICATED
TO JCSCA

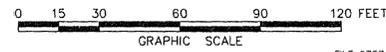
SKIFFES BLVD.
PRIVATE 60' R/W

VARIABLE WIDTH
CONSERVATION ESM'T
HEREBY CONVEYED TO
JAMES CITY COUNTY

U.S. ROUTE 60
POCAHONTAS TRAIL
(VARIABLE WIDTH R/W)

"THE DRAINAGE LOCATIONS AND GRADES SHOWN ON THESE
DRAWINGS ARE ACCURATE AND COMPLETE TO THE BEST OF
MY KNOWLEDGE AND BELIEF AND I CERTIFY THAT I, OR MY
AGENT, HAS MADE SUFFICIENT INSPECTIONS TO INSURE THE
ACCURACY OF THIS STATEMENT."

James S. Leigh
JAMES S. LEIGH L.S.#1758



FILE 9757:11434DRAINAGEASBUILT; GDR

DRAINAGE ASBUILT				
PARCEL "B"				
CARTER'S VILLAGE				
ROBERT'S DISTRICT - JAMES CITY COUNTY, VIRGINIA				
THE SIRINE GROUP, LTD. SURVEYORS • ENGINEERS • PLANNERS GLOUCESTER COUNTY, VIRGINIA				
DESIGN:	SCALE	REF. BOOK	DATE	JOB NO.
DRAWN:	1"=30'	PS. 73 PG.	5/9/03	11434
CHECK:				
				SHEET NO. 1 OF 1



• ADD MAINT
PLAN
• New Forms
• NP??

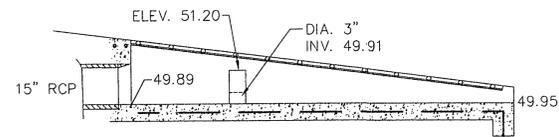
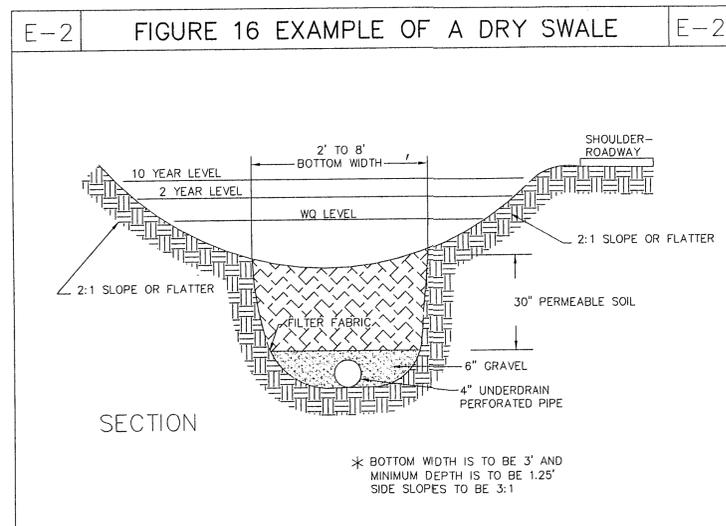
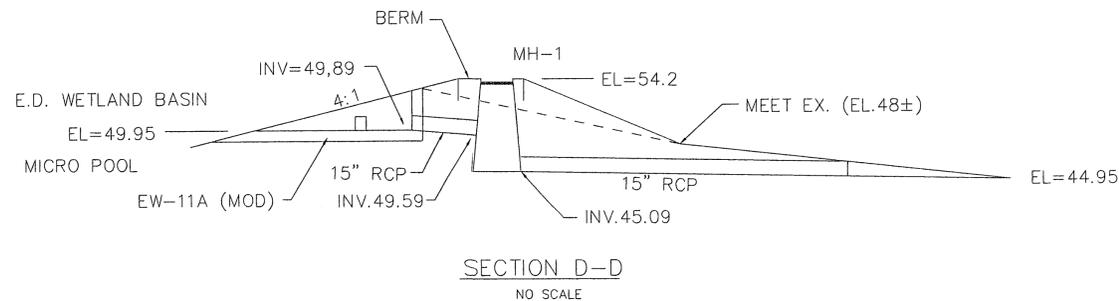
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SJT

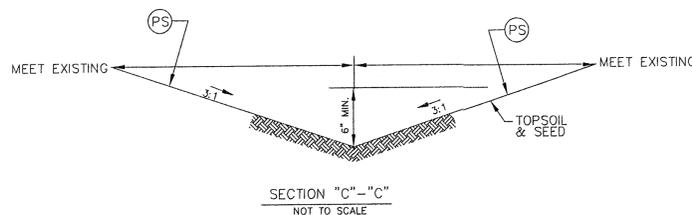
STORMWATER POND MAINTENANCE PLAN

BOTH ROUTINE AND NON-ROUTINE MAINTENANCE ARE REQUIRED TO ENSURE THE PERFORMANCE OF THESE FACILITIES.

1. ROUTINE MAINTENANCE - THE STORM WATER WETLAND WILL BE INSPECTED AFTER HEAVY RAINS BETWEEN THE TIME OF CONSTRUCTION AND FULL VEGETATION ESTABLISHMENT. INSPECTION FOR OTHER CONDITIONS WILL BE MADE TWICE PER YEAR. WHEN NECESSARY, REPAIRS WILL BE PERFORMED WITHIN THIRTY DAYS OF DEFICIENCY REPORT.
 - A. SITE INSPECTIONS - INSPECTIONS ARE THE BASE OF THE ROUTINE MAINTENANCE PROGRAM. THEY SHOULD FOCUS ON BOTH THE AESTHETIC QUALITY AND STRUCTURAL INTEGRITY OF THE FACILITY. RECORDS OF ALL INSPECTIONS ARE TO BE KEPT DETAILING CONDITIONS FOUND AND ANY REQUIRED ACTIONS ALONG WITH WHEN ALL MAINTENANCE IS ACCOMPLISHED.
 - B. ALL MAINTENANCE OF TEMPORARY AND PERMANENT SEDIMENTATION AND EROSION CONTROL FACILITIES SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 1.7 OF VESCH REGULATIONS (VR 625-02-00). DURING THE PERIOD THAT THE PROJECT SITE IS UNDER CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE AND THE INSPECTION OF THE SEDIMENTATION AND EROSION CONTROL FACILITIES ON A REGULAR BASIS, ESPECIALLY AFTER PERIODS OF HEAVY RAIN-FALL. ANY DAMAGE DISCOVERED WILL BE REPAIRED PROMPTLY BY THE CONTRACTOR.
 - C. BANK STABILIZATION - ANY AREAS THAT HAVE BECOME UNSTABLE SHOULD BE PROTECTED AND STABILIZED.
 - D. FREQUENT MONITORING/INSPECTION WITHIN FIRST THREE YEARS AFTER PRIMARY VEGETATION IS INSTALLED. SITE WILL BE MONITORED FOR EXCESS SCOUR PROBLEMS, SEDIMENT ACCUMULATION IN THE FOREBAY AND MICROPOOL (LOW NEAR OUTLET); DENUDED AREAS, PRESENCE OF INVASIVE SPECIES, PLANT STRESS, WEED INFESTATION, ETC.
 - E. OBSERVATIONS REGARDING WATER INFLOW AND OUTFLOW WILL BE MADE TO DETERMINE IF ACCEPTABLE MOISTURE REGIMES CAN BE MAINTAINED. THE DRAINAGE ARE CONTRIBUTING TO THE STORMWATER WETLAND IS SMALL AND THEREFORE THE BASE GRADE OF THE FACILITY HAS BEEN ESTABLISHED TO TAKE ADVANTAGE OF GROUNDWATER INFLUENCES.
 - F. INSECT/MOSQUITO CONTROL - INSECT ACTIVITY, INCLUDING MOSQUITO, SHOULD BE MONITORED AND APPROPRIATE ACTION TAKEN.
 - G. TRASH AND LITTER WILL BE REMOVED FROM INLET AND OUTLET STRUCTURES AS NEEDED.
 - H. VEGETATION SURVIVAL WILL BE MONITORED TO ENSURE ADEQUATE COVERAGE OF THE FACILITY. DENUDED AREAS OF DEAD PLANT STOCK WILL BE REPLACED AS NEEDED.
2. NON-ROUTINE MAINTENANCE - THESE TASKS SHOULD BE ACCOMPLISHED AS REQUIRED TO MAINTAIN THE FACILITY'S STRUCTURAL INTEGRITY AND EFFECTIVENESS. REPAIR AND/OR REPLACEMENT OF THE OUTFALL AND INLET PIPING SYSTEMS EVERY 10-15 YEARS. PARTICULAR ATTENTION WILL BE GIVEN TO THE ACCUMULATION OF SEDIMENT IN THE FOREBAY AND WITHIN THE FLOOR AND MICROPOOL AREAS. IT IS ANTICIPATED THAT CLEAN-OUT OF THE FOREBAY WILL BE NEEDED EVERY 5-7 YEARS. SPOIL MATERIALS WILL BE TAKEN OFF-SITE. PROPER SEDIMENTATION AND EROSION CONTROL PRACTICES WILL BE FOLLOWED.



A TRASH RACK OF 3lb/sf EXPANDED STEEL IS REQUIRED FROM 1" BELOW TOP OF ORIFICE WALL TO EW-11A (MOD) BASE, 4' FROM ORIFICE WALL.
PIPE ENDWALL WITH LOAD-CARRYING GRATE FOR 12"-24" PIPES



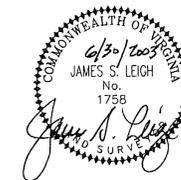
APPROVED
 James City County
 Environmental Division
 By: *[Signature]*
 Date: 6/2/03

COUNTY PLAN SP-5-01
 BMP ID CODE SC 015, SC 016

FILE 9757:11434DRAINAGEASBUILT; GDRIVE

"THE DRAINAGE LOCATIONS AND GRADES SHOWN ON THESE DRAWINGS ARE ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF AND I CERTIFY THAT I, OR MY AGENT, HAS MADE SUFFICIENT INSPECTIONS TO INSURE THE ACCURACY OF THIS STATEMENT."

[Signature]
 JAMES S. LEIGH L.S.#1758



DRAINAGE ASBUILT					
PARCEL "B"					
CARTER'S VILLAGE					
ROBERT'S DISTRICT - JAMES CITY COUNTY, VIRGINIA					
THE SIRINE GROUP, LTD. SURVEYORS • ENGINEERS • PLANNERS GLOUCESTER COUNTY, VIRGINIA					
DESIGN:	SCALE	REF. BOOK	DATE	JOB NO.	SHEET NO.
DRAWN:	N.T.S.	PS. 73 PG.	5/9/03	11434	2 OF 2
CHECK:					



NOW OR FORMERLY
SKIFFES CREEK TERRACE, PHASE I
P.B. 44 PG.100

NOW OR FORMERLY
SKIFFES CREEK TERRACE
PHASE V
P.B. 46 PG. 3
PIN # 592040001A

20' SANITARY SEWER EASEMENT
DB 148/307
PB 39/13

PARCEL "A"

VARIABLE WIDTH UTILITY
EASEMENT, TO BE DEDICATED
TO JCSA

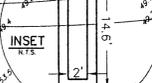
SKIFFES BLVD.
PRIVATE 60' R/W

COMMON AREA

CREEK COURT

COMMON AREA

PARCEL "B"
NOW OR FORMERLY
189,101 SF ±
4.34 ACRES ±
(59-2)(1-15)
ZONED R-5



EXIST SEWER MANHOLE
RIM=40.04
INV OUT=31.52
INV IN=31.59

NOW OR FORMERLY
GREENMOUNT INC.
PROPERTIES
(60-1)(1-4)
PIN # 601010006

VARIABLE WIDTH
CONSERVATION ESM'T
HEREBY CONVEYED TO
JAMES CITY COUNTY

NOW OR FORMERLY
MORNING STAR
BAPTIST CHURCH
(59-2)(1-18)
PIN # 5920100016

NOW OR FORMERLY
JAMES CITY COUNTY
(60-1)(1-4)
PIN # 5920100026

APPROVED
James City County
Environmental Division
By: *[Signature]*
Date: 7-2-03

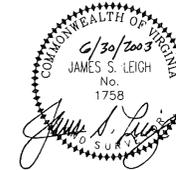
COUNTY PLAN SP-5-01
BMP ID CODE SC 015, SC 016



U.S. ROUTE 60
POCAHONTAS TRAIL
(VARIABLE WIDTH R/W)

"THE DRAINAGE LOCATIONS AND GRADES SHOWN ON THESE DRAWINGS ARE ACCURATE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF AND I CERTIFY THAT I, OR MY AGENT, HAS MADE SUFFICIENT INSPECTIONS TO INSURE THE ACCURACY OF THIS STATEMENT."

[Signature]
JAMES S. LEIGH L.S.#1758

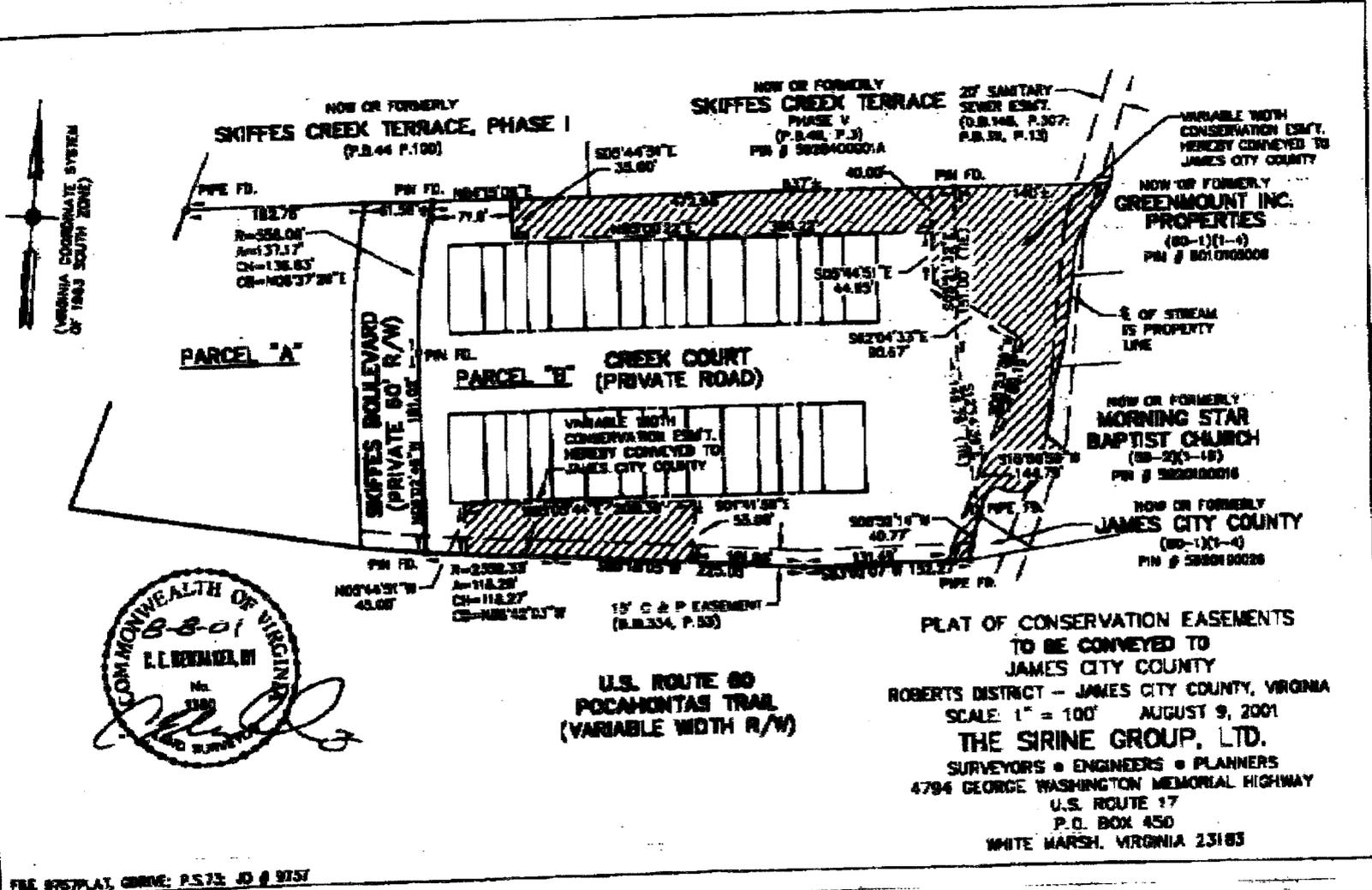


DRAINAGE ASBUILT					
PARCEL "B" CARTER'S VILLAGE					
ROBERT'S DISTRICT - JAMES CITY COUNTY, VIRGINIA					
THE SIRINE GROUP, LTD. SURVEYORS • ENGINEERS • PLANNERS GLOUCESTER COUNTY, VIRGINIA					
DESIGN:	SCALE	REF. BOOK	DATE	JOB NO.	SHEET NO.
DRAWN:	1"=30'	PS. 73 PG.	5/9/03	11434	1 OF 2
CHECK:					



PH: 1-804-693-9548
FAX: 1-804-693-9550
EMAIL: TSGL@PRODIGY.NET

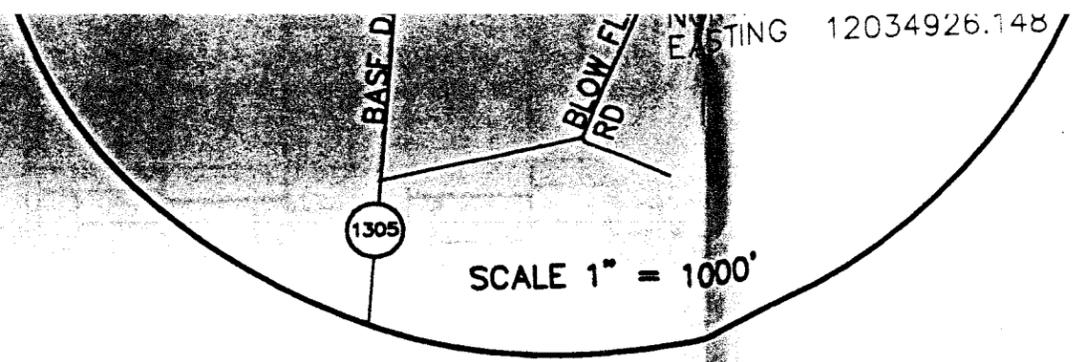
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THE SANITARY SEWER SHALL BE DESIGNED TO PROVIDE FUTURE CONNECTION TO THE VACANT B-1 PROPERTY (PARCEL A) ON THE WEST SIDE OF THE ENTRANCE ROAD. THE DESIGN, CONSTRUCTION MATERIALS, DETAILING AND COLORS OF DEVELOPMENT OF THE UNITS SHALL BE COMPARATIBLE WITH THE EXISTING SKIFFES CREEK TOWNHOUSE DEVELOPMENT AND SHALL BE APPROVED BY THE DIRECTOR OF PLANNING.

B. PARCEL "B" OF THE PROPERTY SHALL NOT BE ACCESSED DIRECTLY OFF OF POCAHONTAS TRAIL AND THE ENTRANCE TO PARCEL "B" SHALL BE NO LESS THAN 140 FEET FROM THE POCAHONTAS TRAIL RIGHT OF WAY.

9. A PERPETUAL ROAD MAINTENANCE AGREEMENT APPROVED BY THE COUNTY ATTORNEY AND SIGNED BY THE OWNER AND SKIFFE'S CREEK TERRACE HOMEOWNERS ASSOCIATION SHALL BE RECORDED AFTER THE TIME A SITE PLAN HAS BEEN APPROVED BY THE COUNTY FOR THE DEVELOPMENT OF PARCEL B, BUT PRIOR TO THE TIME ANY SITE WORK HAS BEGUN AND/OR A BUILDING PERMIT IS ISSUED BY THE COUNTY, WHICHEVER SHALL FIRST OCCUR.



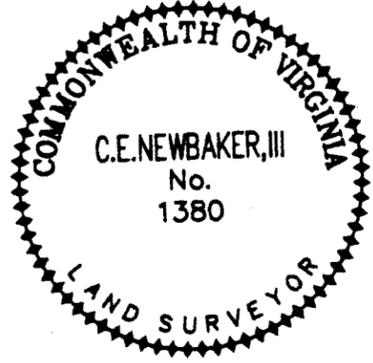
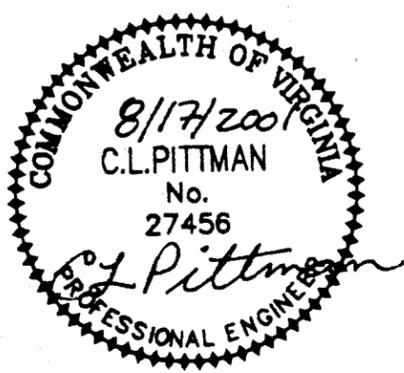
7. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CONSULT WITH THE DEVELOPERS ENGINEER TO VERIFY THE FINAL APPROVAL OF THE PLANS, FOR ANY REVISED PLANS, BY THE VARIOUS AGENCIES (COUNTY, VDOT, ETC.).
8. VDOT APPROVAL OF THESE PLANS WILL EXPIRE IN FIVE (5) YEARS FROM THE DATE OF APPROVAL.
9. VDOT AND THE COUNTY APPROVAL OF THE SITE/SUBDIVISION PLANS DO NOT PRECLUDE THE RIGHT OF THE OWNER TO ADD OTHER FACILITIES (LANDSCAPING, IRRIGATION SYSTEMS, ETC.) WITHOUT PRIOR APPROVAL BY VDOT AND THE COUNTY.
10. VDOT IS TO RECEIVE WRITTEN NOTIFICATION 48 HOURS PRIOR TO THE START OF ANY WORK. A PRE-CONSTRUCTION MEETING WILL BE REQUIRED PRIOR TO ANY LAND DISTURBANCE OF THE SITE. THE DEVELOPER, HIS ENGINEER, GEOTECHNICAL (SOILS) ENGINEER, AND CONTRACTOR SHALL ATTEND THE PRE-CONSTRUCTION MEETING. THE DEVELOPERS CONTRACTOR SHALL HAVE A PROPOSED PROGRESS SCHEDULE OF WORK.
11. ANY ERRORS, CONFLICTS, OR DISCREPANCIES ON THE APPROVED PLANS SHALL BE REPORTED TO THE DEVELOPER'S ENGINEER AND VDOT FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
12. THE DEVELOPERS ENGINEER AND CONTRACTOR (SUB-CONTRACTOR) SHALL VERIFY IN THE FIELD THE ELEVATIONS OF ALL POINTS OF CONNECTION OF PROPOSED WORK TO EXISTING CURBS, SANITARY SEWER, STORM SEWER, DRAINAGE STRUCTURES, WATERLINES, ETC., PRIOR TO THE CONSTRUCTION IN THE FIELD.
13. AN OPERATIONAL PROJECT (ACCOUNTS RECEIVABLE) NUMBER MAY BE ASSIGNED TO THE SITE/SUBDIVISION. THE DEVELOPER WILL BE RESPONSIBLE FOR THIS BY PROVIDING THE NECESSARY INFORMATION REQUESTED BY VDOT.
14. ALL MATERIALS AND CONSTRUCTION WITHIN THE PROPOSED PUBLIC RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE CURRENT VDOT SPECIFICATIONS AND STANDARDS.
15. ANY REQUEST FOR A CHANGE OF SPECIFIED MATERIALS OR DESIGN FROM THE APPROVED PLANS WILL NEED TO BE SUBMITTED TO VDOT. A LETTER MUST ACCOMPANY THE PROPOSED CHANGES AND REVISED PLAN SHEETS AND/OR DRAINAGE CALCULATIONS FOR REVIEW AND APPROVAL BY THE VDOT RESIDENT ENGINEER.

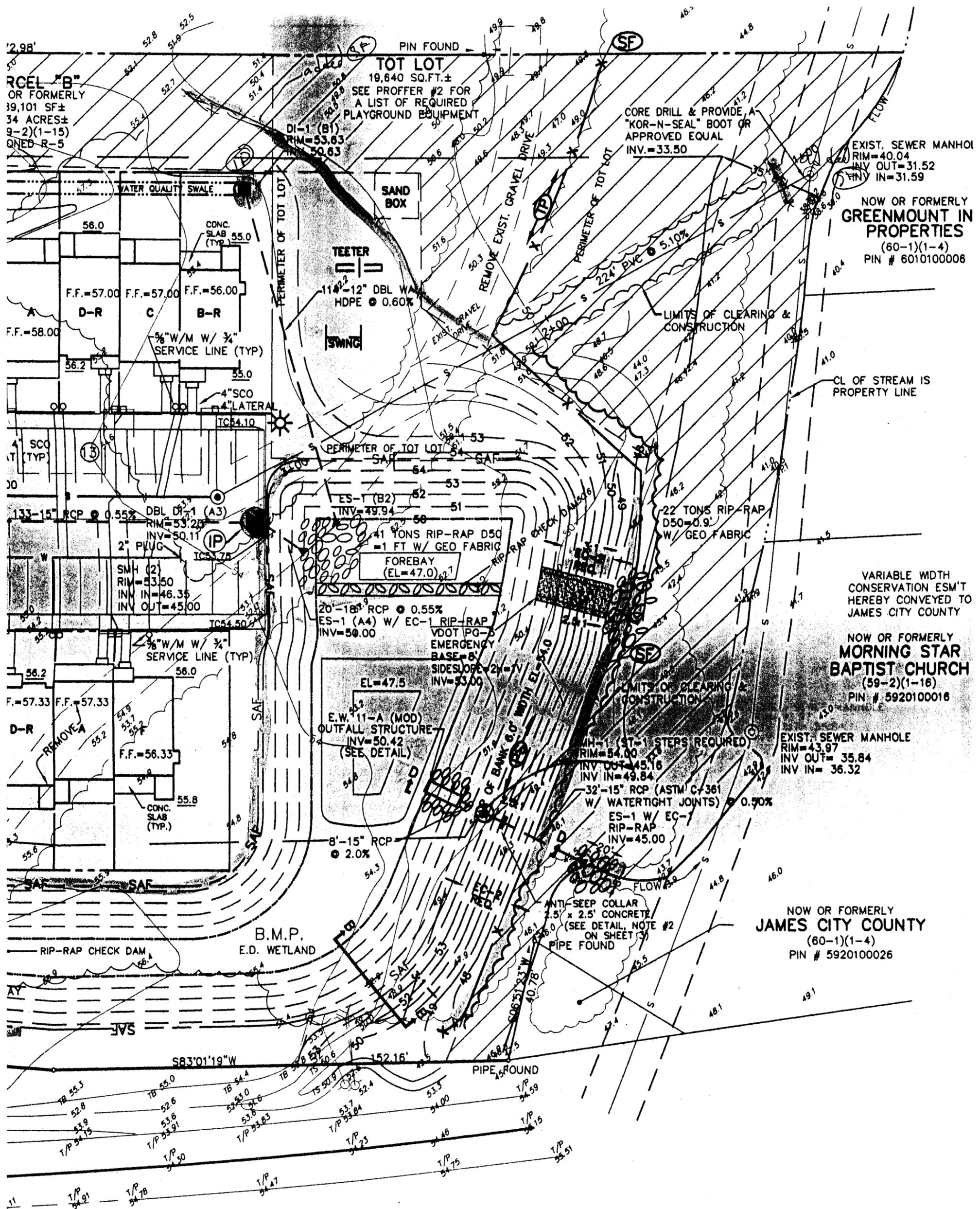
TABLE OF LAND USE AND STATISTICAL DATA:

1. AREA OF SITE = 189,101± SQ.FT. OR 4.341 ACRES
2. NUMBER OF PROPOSED TOWNHOUSES UNITS = 31
3. ZONING DISTRICT IS R-5 WITH PROFFERS
4. AREAS:
 GREEN SPACE = 138,383 SQ.FT., 3.177 ACRES, OR 73.2%
 PARKING LOTS, SIDEWALKS & OTHER = 29,095 SQ.FT., 0.668 ACRES OR 15.4%
 BUILDING AREA = 21,623 SQ.FT., 0.495 ACRES, OR 11.4%
 TOTAL AREA OF IMPERVIOUSNESS = 50,718 SQ.FT., 1.164 ACRES, OR 26.8%
5. MINIMUM SETBACKS:
 NORTH SIDE = 35'
 SKIFFE'S CREEK BLVD. = 35'
 U.S. ROUTE 60, POCAHONTAS TRAIL VARIABLE WIDTH R/W = 75'
 EAST SIDE = 35'
6. MAXIMUM BUILDING HEIGHT = 23'
7. AREA OF DISTURBANCE = 131,231 SQ.FT., 3.01 ACRES, OR 69.4%
8. PARKING SPACE REQUIRMENTS: 2.5 SPACES/S.F. UNIT x 31=78 SPACES
 PARKING PROVIDED: 78 SPACES
 0 HANDICAPPED SPACES REQUIRED
 2 HANDICAPPED SPACES PROVIDED
9. NET DEVELOPABLE AREA = (4.341-1.1) AC
 = 3.241±AC.

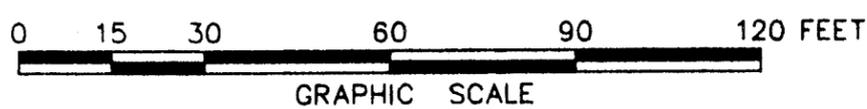
INDEX OF DRAWINGS:

SHEET 1	SITE DEVELOPMENT PLAN	<i>SP-5-01</i>
SHEET 2	LAYOUT PLAN	
SHEET 3	NOTES, SECTIONS, AND DETAILS	
SHEET 4	PROFILES, DRAINAGE AREAS & SOILS	
SHEET 5	EROSION & SEDIMENT CONTROL NOTES &	





**U.S. ROUTE 60
POCAHONTAS TRAIL
(VARIABLE WIDTH R/W)**

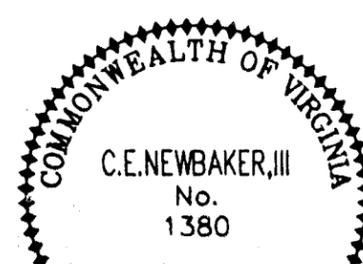


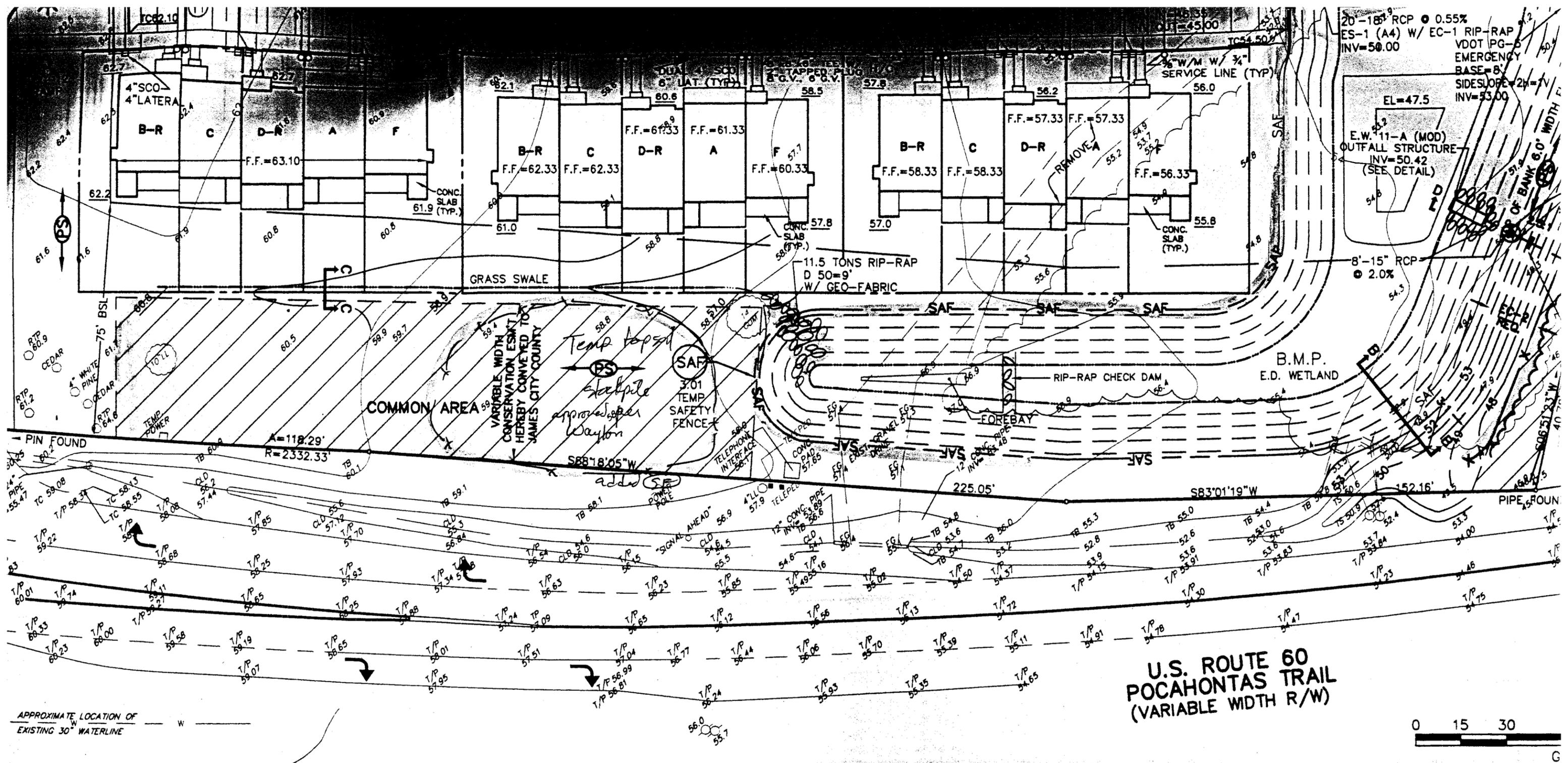
FILE 9757, EHDD

SITE DEVELOPMENT PLAN

**PARCEL "B"
SKIFFE'S CREEK VILLAGE**

ROBERT'S DISTRICT - JAMES CITY COUNTY, VIRGINIA



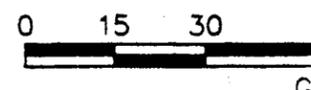


DEVELOPABLE
DEVELOPABLE

8/17/01	COUNTY COMMENTS
8/6/01	COUNTY COMMENTS
7/13/01	COUNTY AND OWNER COMMENTS



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ROBERT'S DI
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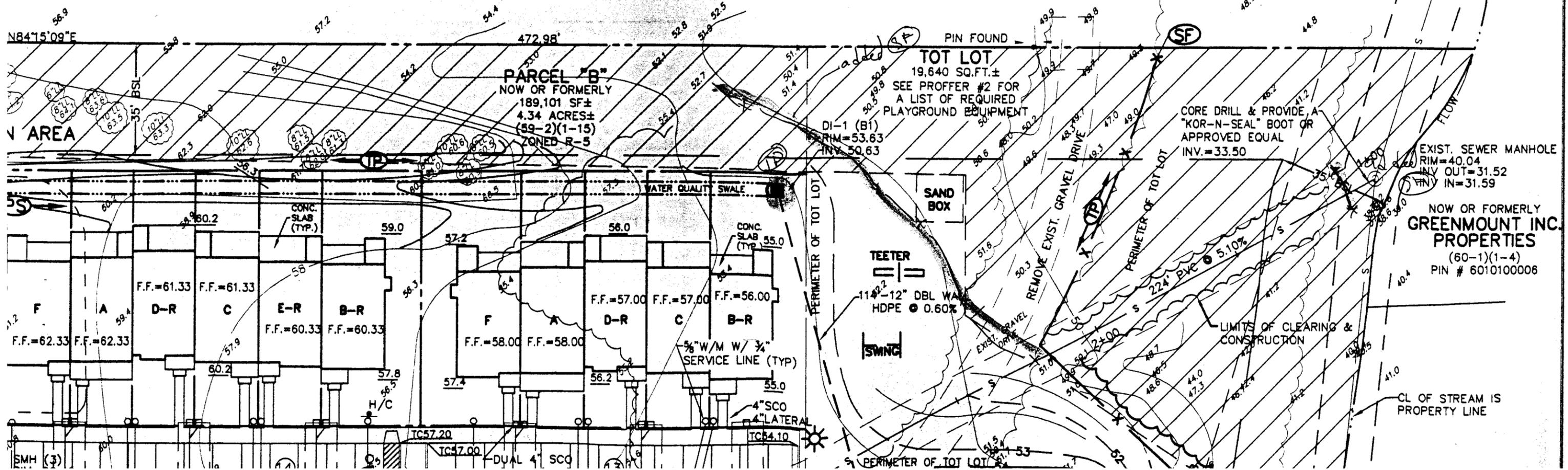


NOTE:
 L DIMENSIONS ARE
 THE FACE OF CURB
 SS OTHERWISE NOTED

NOW OR FORMERLY
SKIFFES CREEK TERRACE
 PHASE V
 P.B. 46 PG 3
 PIN # 5920400001A



20' SANITARY SEWER EASEMENT
 DB 148/307
 PB 39/13



PARCEL "B"
 NOW OR FORMERLY
 189,101 SF±
 4.34 ACRES±
 (59-2)(1-15)
 ZONED R-5

TOT LOT
 19,640 SQ.FT.±
 SEE PROFFER #2 FOR
 A LIST OF REQUIRED
 PLAYGROUND EQUIPMENT

NOW OR FORMERLY
**GREENMOUNT INC.
 PROPERTIES**
 (60-1)(1-4)
 PIN # 6010100006

EXIST. SEWER MANHOLE
 RIM=40.04
 INV OUT=31.52
 INV IN=31.59

DI-1 (B1)
 RIM=53.63
 INV=50.63

CORE DRILL & PROVIDE A
 "KOR-N-SEAL" BOOT OR
 APPROVED EQUAL
 INV.=33.50

TEETER
 114-12" DBL WALL
 HDPE @ 0.60%

WATER QUALITY SWALE

SAND BOX

5/8" W/M W/ 3/4" SERVICE LINE (TYP)

4" SCO
 4" LATERAL

LIMITS OF CLEARING &
 CONSTRUCTION

CL OF STREAM IS
 PROPERTY LINE

N84°15'09"E

PIN FOUND

SMH (3)

TC57.20

TC54.10

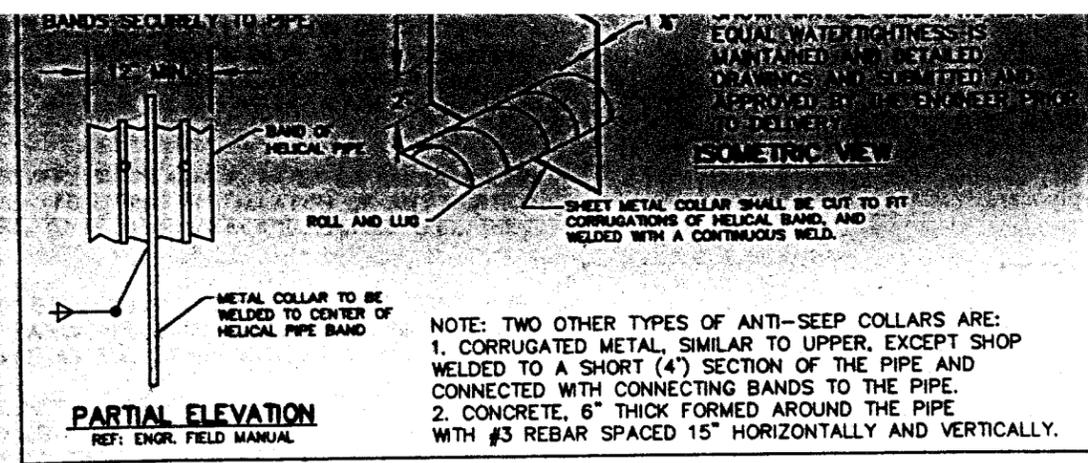
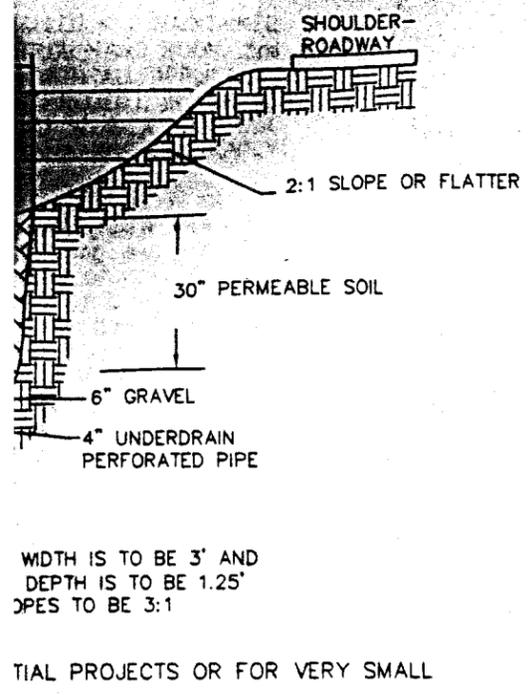
DUAL 4" SCO

PERIMETER OF TOT LOT

PERIMETER OF TOT LOT

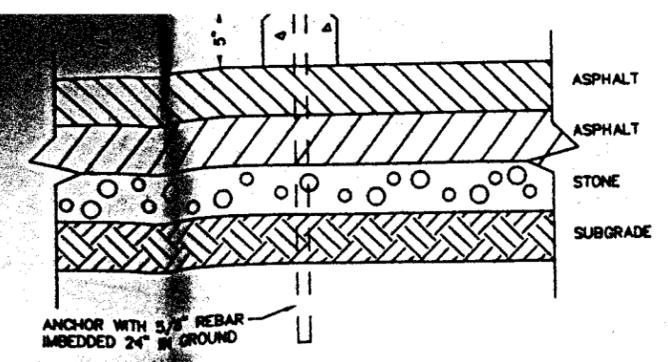
PERIMETER OF TOT LOT

PERIMETER OF TOT LOT

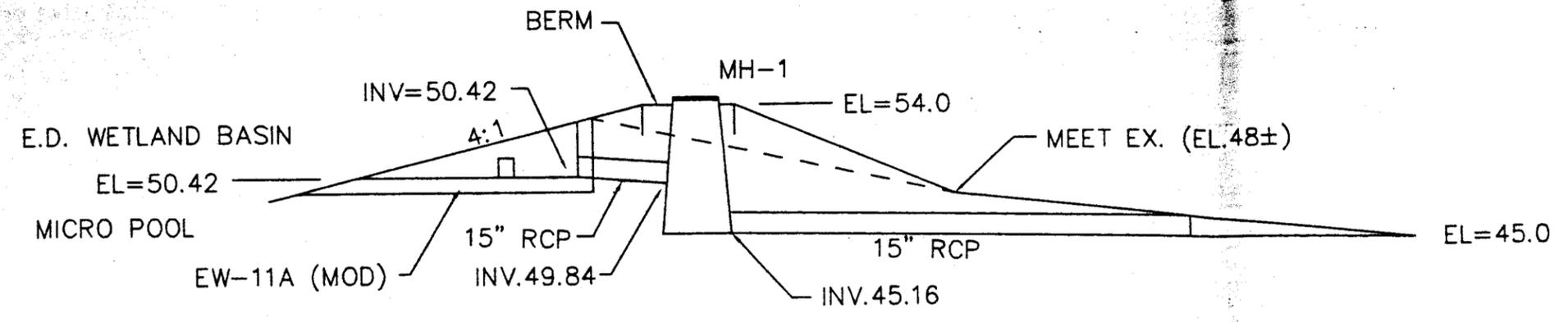


SOURCE: USDA-SCS

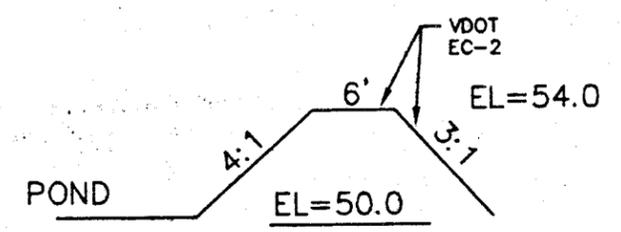
PLATE 3.14-13



PRECAST BUMPER BLOCK
 AVAILABLE IN 4'-0" TO 8'-0" LENGTHS
 NO SCALE



SECTION D-D
 NO SCALE



1. REMOVE TOPSOIL, ORGANIC MATERIAL AND LARGE DEBRIS FROM BASIN AREA.
2. BACKFILL IN 6" MAXIMUM LIFTS.
3. COMPACT EACH LIFT TO 95% MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT.

SECTION B-B
 NO SCALE

WARNING - AS THE FIRST STEP IN CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND DETERMINING THE SIZE OF THE EXISTING WATER, SEWER, GAS, ELECTRICAL, TELEPHONE, STORM DRAINAGE AND LOCATING ALL OTHER UTILITIES WHICH COULD AFFECT THE PROPOSED CONNECTION.

CAUTION - A CE-7 V.D.O.T. PERMIT IS REQUIRED BEFORE ANY CONSTRUCTION IS STARTED WITHIN THE STATE RIGHT-OF-WAY.

DATE	REVISION
8/6/01	COUNTY LAND DISTURBANCE PERMIT
7/13/01	COUNTY/OWNER COMMENTS
5/30/01	COUNTY/OWNER COMMENTS

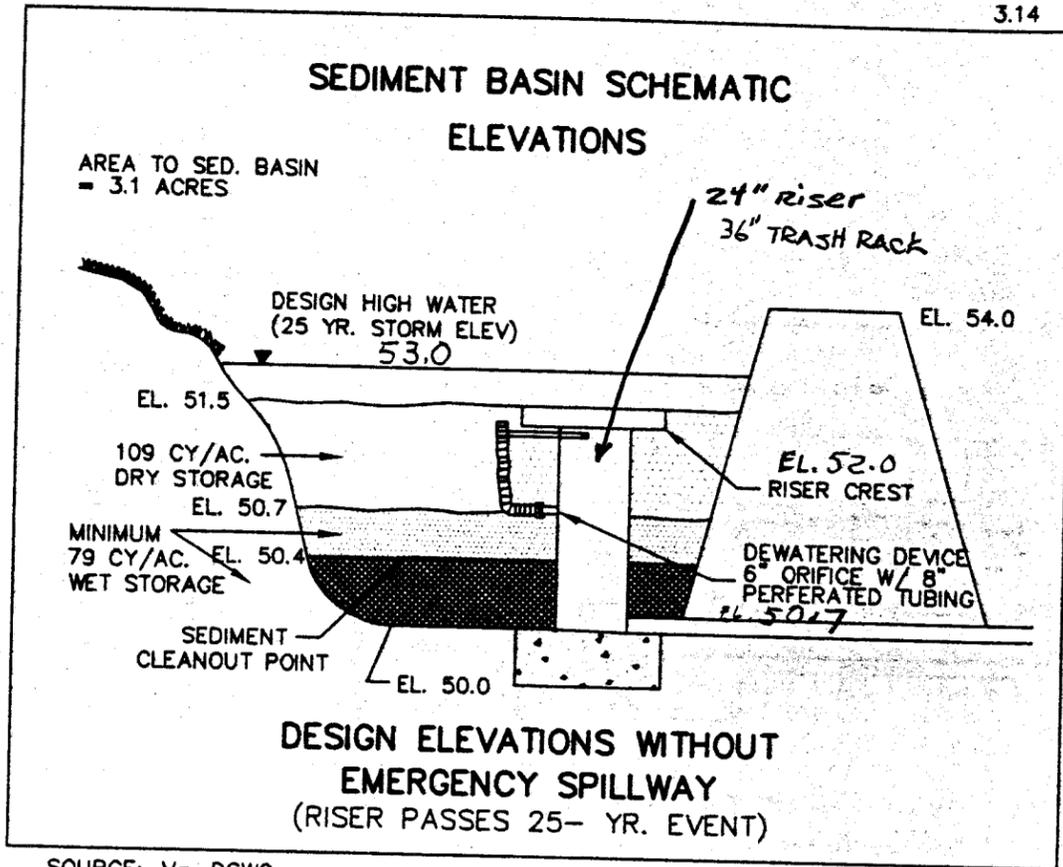
IF X IS THEN T SHALL N

NOTE ONTC 2 CC PAIN OF T

5'-6"

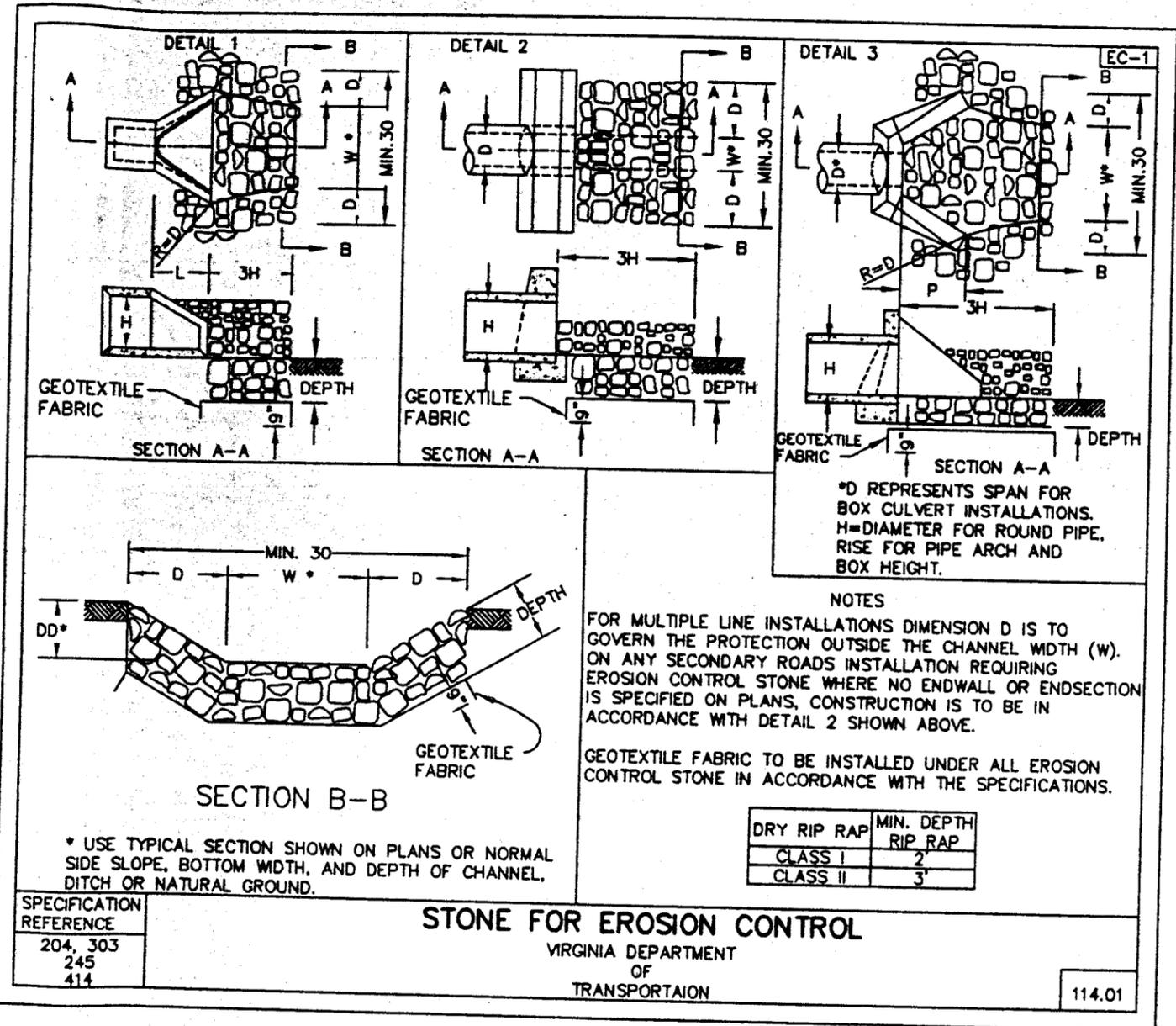
TYPIC HAN

COMMON



SOURCE: Va. DSWC

PLATE: 3.14-2



VAN ACCESSIBLE

PENALTY \$100-\$500 TOW-AWAY-ZONE



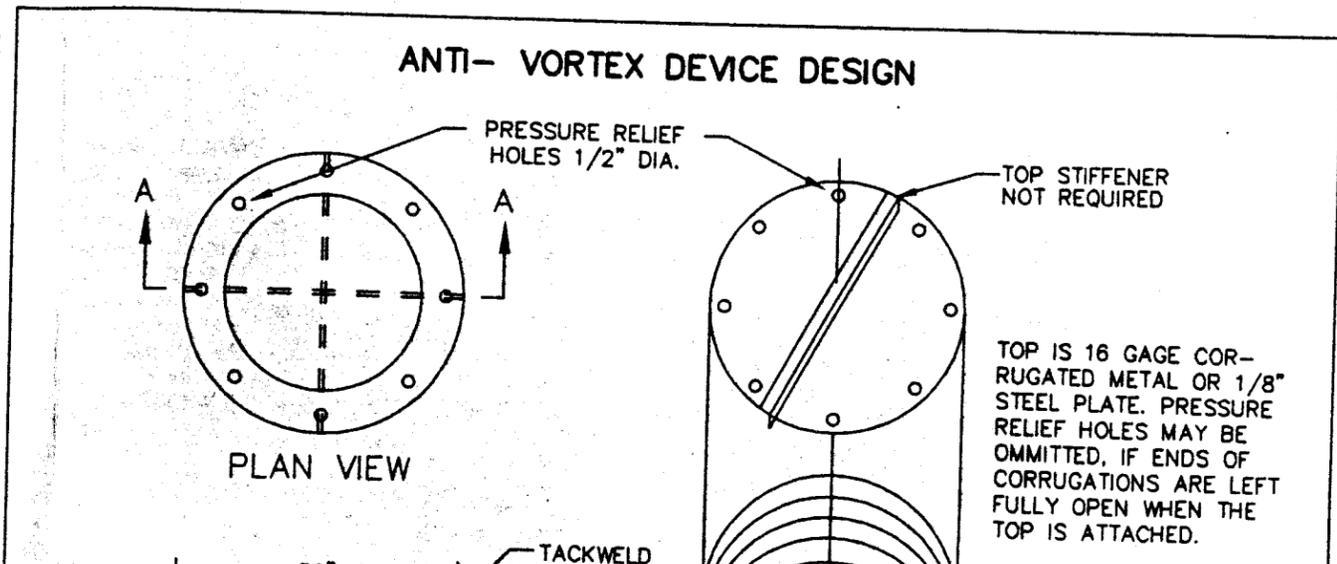
PENALTY \$100-\$500 TOW-AWAY-ZONE

HANDICAPPED SPACES SHALL BE IDENTIFIED BY ABOVE GRADE SIGNS AS RESERVED FOR PHYSICALLY HANDICAPPED PERSONS. PROVIDE ONE (1) R-7-8 SIGN AT EACH HANDICAPPED PARKING SPACE INDICATED ON THE SITE PLAN. SIGN WILL BE ALUMINUM (PAINTED WHITE) WITH GREEN LETTERS AND INTERNATIONAL WHEELCHAIR SYMBOL. THE CENTER OF THE SIGN SHALL BE AT LEAST FIVE (5) FEET ABOVE GRADE, BUT NO MORE THAN SEVEN (7) FEET ABOVE GRADE. SIGN SHALL BE PLACED ON STEEL POST 1-1/2" DIA. PAINTED BLACK SET IN 12" OF CONCRETE. TYPICAL ACCESSIBLE SIGNS SHALL CONFORM TO ADA REQUIREMENTS.

CONC. PARKING STOPS WHERE REQ.

HANDICAP PARKING SIGNS
N.T.S.

SOURCE: USDA-SCS



THE PURPOSE OF THE EROSION CONTROL MEASURES SHOWN ON THESE PLANS SHALL BE TO PRECLUDE THE TRANSPORT OF ALL WATERBORNE SEDIMENTS RESULTING FROM CONSTRUCTION ACTIVITIES FROM ENTERING ONTO ADJACENT PROPERTIES OR STATE WATERS. FIELD INSPECTION REVEALS THE INADEQUACY OF THE PLAN TO CONFINE SEDIMENT TO THE PROJECT SITE, APPROPRIATE MODIFICATIONS WILL BE MADE TO CORRECT ANY PLAN DEFICIENCIES. IN ADDITION TO THESE NOTES, ALL PROVISIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS SHALL APPLY TO THIS PROJECT.

ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED ACCORDANCE WITH THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, 3rd EDITION, 1992". THE CONTRACTOR SHALL BE THOROUGHLY FAMILIAR WITH ALL APPLICABLE MEASURES CONTAINED THEREIN THAT MAY BE PERTINENT TO THIS PROJECT, INCLUDING MINIMUM STANDARDS 1 THROUGH 19. IF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS FOUND TO BE INADEQUATE IN THE FIELD, THE MINIMUM STANDARDS WILL APPLY IN ADDITION TO THE PROVISIONS OF THE APPROVED PLAN.

AS A PREREQUISITE TO APPROVAL OF AN EROSION AND SEDIMENT CONTROL PLAN FOR ANY LAND-DISTURBING ACTIVITIES, THE NAME OF A RESPONSIBLE LAND-DISTURBER SHALL BE PROVIDED. THE RESPONSIBLE LAND-DISTURBER SHALL BE AN INDIVIDUAL WHO HOLDS A VALID CERTIFICATE OF COMPETENCE ISSUED BY THE VIRGINIA DEPARTMENT OF CONSERVATION AND IS DEFINED AS THE PERSON IN CHARGE OF AND RESPONSIBLE FOR CARRYING OUT THE LAND-DISTURBING ACTIVITY. PERMITS OR PLANS WITHOUT THIS INFORMATION ARE DEEMED INCOMPLETE AND WILL NOT BE APPROVED UNTIL PROPER NOTIFICATION IS RECEIVED. ALSO, THE PERSON DESIGNATED AS RESPONSIBLE LAND-DISTURBER CHANGES BETWEEN THE TIME OF PLAN APPROVAL AND THE SCHEDULED PRECONSTRUCTION MEETING, THE ENVIRONMENTAL DIVISION SHALL BE INFORMED OF THE CHANGE, IN WRITING 24-HOURS IN ADVANCE OF THE PRECONSTRUCTION MEETING.

3. A PRECONSTRUCTION MEETING SHALL BE HELD ON SITE BETWEEN THE COUNTY, THE DEVELOPER, THE PROJECT ENGINEER, THE RESPONSIBLE LAND-DISTURBER AND THE CONTRACTOR PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT. THE CONTRACTOR SHALL SUBMIT A SEQUENCE OF CONSTRUCTION TO THE COUNTY FOR APPROVAL PRIOR TO THE PRECONSTRUCTION MEETING. THE DESIGNATED RESPONSIBLE LAND-DISTURBER IS REQUIRED TO ATTEND THE PRECONSTRUCTION MEETING FOR THE PROJECT.

4. ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS SHALL BE PROTECTED BY A TEMPORARY CONSTRUCTION ENTRANCE TO PREVENT TRACKING OF MUD ONTO PUBLIC RIGHT-OF-WAYS. AN ENTRANCE PERMIT FROM VDOT IS REQUIRED PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN STATE RIGHT-OF-WAYS. WHERE SEDIMENT IS TRANSPORTED ONTO A PUBLIC ROAD SURFACE, THE ROAD SHALL BE THOROUGHLY CLEANED AT THE END OF EACH DAY (STD & SPEC 3.02).

5. SEDIMENT BASINS AND TRAPS (STD & SPEC 3.13 AND 3.14), PERIMETER DIKES (STD & SPEC 3.09 AND 3.12), SEDIMENT FILTER BARRIERS (STD & SPEC 3.05) AND OTHER MEASURES INTENDED TO TRAP SEDIMENT ON-SITE MUST BE CONSTRUCTED AS A FIRST STEP IN GRADING AND MUST BE FUNCTIONAL PRIOR TO ANY UPSLOPE LAND DISTURBANCE TAKING PLACE. EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS MUST BE SEEDED AND MULCHED IMMEDIATELY AFTER INSTALLATION. PERIODIC INSPECTIONS OF THE EROSION CONTROL MEASURES BY THE OWNER OR OWNERS REPRESENTATIVE SHALL BE MADE TO ASSESS THEIR CONDITION. ANY NECESSARY MAINTENANCE OF THE MEASURES SHALL BE ACCOMPLISHED IMMEDIATELY AND SHALL INCLUDE THE REPAIR OF MEASURES DAMAGED BY ANY SUBCONTRACTOR INCLUDING THOSE OF THE PUBLIC UTILITY COMPANIES.

6. SURFACE FLOWS OVER CUT AND FILL SLOPES SHALL BE CONTROLLED BY EITHER REDIRECTING FLOWS FROM TRANSVERSING THE SLOPES OR BY INSTALLING MECHANICAL DEVICES TO SAFELY LOWER WATER DOWNSLOPE WITHOUT CAUSING EROSION. A TEMPORARY FILL DIVERSION (STD & SPEC 3.10) AND SLOPE DRAIN (STD & SPEC 3.15) SHALL BE INSTALLED PRIOR TO THE END OF EACH WORKING DAY.

7. SEDIMENT CONTROL MEASURES MAY REQUIRE MINOR FIELD ADJUSTMENTS AT TIME OF CONSTRUCTION TO INSURE THEIR INTENDED PURPOSE IS ACCOMPLISHED. ENVIRONMENTAL DIVISION APPROVAL WILL BE REQUIRED FOR OTHER DEVIATIONS FROM THE APPROVED PLAN.

8. THE CONTRACTOR SHALL PLACE SOIL STOCKPILES AT THE LOCATIONS SHOWN ON THE PLAN. SOIL STOCKPILES SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. OFF-SITE WASTE OR BORROW AREAS SHALL BE APPROVED BY THE ENVIRONMENTAL DIVISION PRIOR TO THE IMPORT OF ANY BORROW OR EXPORT OF ANY WASTE TO OR FROM

9. THE CONTRACTOR SHALL COMPLETE DRAINAGE FACILITIES WITHIN 30 DAYS FOLLOWING COMPLETION OF ROUGH GRADING AT ANY POINT WITHIN THE PROJECT. THE INSTALLATION OF DRAINAGE FACILITIES SHALL TAKE PRECEDENCE OVER ALL UNDERGROUND UTILITIES. OUTFALL DITCHES FROM DRAINAGE STRUCTURES SHALL BE STABILIZED IMMEDIATELY AFTER CONSTRUCTION OF THE SAME (STD & SPEC 3.18). THIS INCLUDES INSTALLATION OF EROSION CONTROL STONE OR PAVED DITCHES WHERE REQUIRED. ANY DRAINAGE OUTFALLS REQUIRED FOR A STREET MUST BE COMPLETED BEFORE STREET GRADING OR UTILITY INSTALLATION BEGINS.

10. PERMANENT OR TEMPORARY STABILIZATION SHALL BE APPLIED TO DENuded AREAS WITHIN SEVEN DAYS AFTER THE COMPLETION OF ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENuded AREAS THAT MAY NOT BE AT THE SITE FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO DENuded AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN 30 DAYS.

11. NO MORE THAN 300 FEET OF EXPOSED EARTH SHALL BE LEFT UNPROTECTED. FOLLOWING INSTALLATION OF ANY PORTION OF THESE ITEMS, ALL DISTURBED AREAS SHALL BE IMMEDIATELY STABILIZED (I.E., THE SAME DAY).

12. IF DISTURBED AREA STABILIZATION IS TO BE ACCOMPLISHED DURING THE MONTHS OF DECEMBER, JANUARY OR FEBRUARY, STABILIZATION SHALL CONSIST OF MULCHING (STD & SPEC 3.35). SEEDING WILL BE REQUIRED AS SOON AS THE SEASON PERMITS.

13. THE TERM SEEDING, FINAL SEEDING, COVER OR STABILIZATION ON THIS PLAN SHALL MEAN THE SUCCESSFUL GERMINATION AND ESTABLISHMENT OF A STABLE GRASS COVER FROM A PROPERLY PREPARED SEED MIXTURE CONTAINING THE SPECIFIED AMOUNTS OF SEED, LIME AND FERTILIZER (STD & SPEC 3.35). IRRIGATION SHALL BE REQUIRED AS NECESSARY TO ENSURE ESTABLISHMENT OF GRASS COVER.

14. ALL SLOPES STEEPER THAN 3H:1V SHALL REQUIRE THE USE OF EROSION CONTROL BLANKETS AND MATTINGS TO AID IN THE ESTABLISHMENT OF A VEGETATIVE COVER. INSTALLATION SHALL BE IN ACCORDANCE WITH STD & SPEC 3.35, MULCHING, STD & SPEC 3.36, SOIL STABILIZATION BLANKETS AND MATTING AND MANUFACTURERS INSTRUCTION. NO SLOPES SHALL BE CREATED STEEPER THAN 2H:1V.

15. INLET PROTECTION (STD & SPEC 3.07 AND 3.08) SHALL BE PROVIDED FOR ALL STORM DRAIN AND CULVERT INLETS FOLLOWING CONSTRUCTION OF THE SAME.

16. TEMPORARY LINERS, SUCH AS POLYETHYLENE SHEETS, SHALL BE PROVIDED FOR ALL PAVED DITCHES UNTIL THE PERMANENT CONCRETE LINER IS INSTALLED.

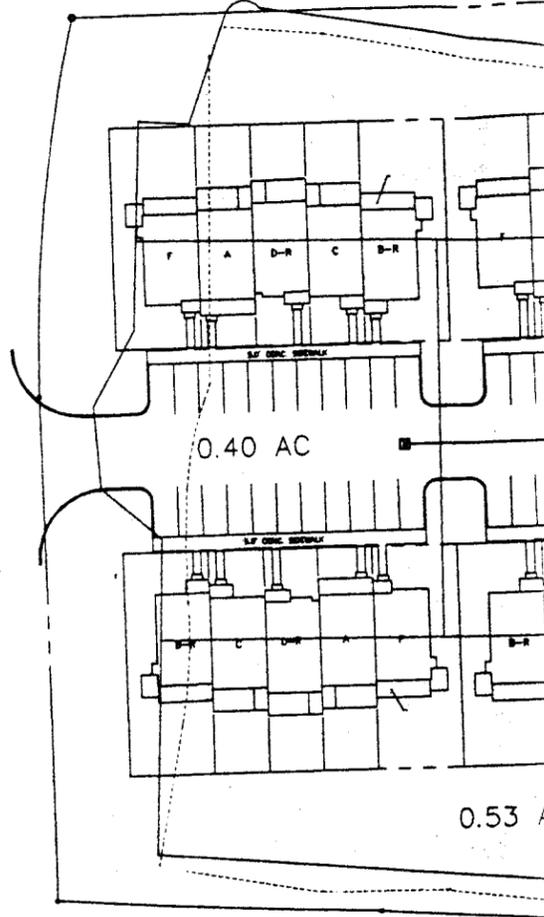
17. PAVED DITCHES SHALL BE REQUIRED WHEREVER ACCELERATED EROSION IS EVIDENT. PARTICULAR ATTENTION SHALL BE PAID TO THOSE AREAS WHERE GRADES EXCEED 2 PERCENT.

18. TEMPORARY EROSION CONTROL MEASURES SUCH AS SILT FENCE ARE NOT TO BE REMOVED UNTIL ALL DISTURBED AREAS ARE STABILIZED. TRAPPED SEDIMENT SHALL BE SPREAD, SEEDED AND MULCHED. AFTER THE PROJECT AND STABILIZATION IS COMPLETE, ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS.

19. NO SEDIMENT TRAP OR SEDIMENT BASIN SHALL BE REMOVED UNTIL A) AT LEAST 75 PERCENT OF THE LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN HAVE BEEN SOLD TO A THIRD PARTY (UNRELATED TO THE DEVELOPER) FOR THE CONSTRUCTION OF HOMES AND/OR B) 60 PERCENT OF THE SINGLE FAMILY LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN HAVE BEEN COMPLETED AND THE SOIL STABILIZED. A BULK SALE OF THE LOTS TO ANOTHER BUILDER DOES NOT SATISFY THIS PROVISION. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL NOT BE REMOVED WITHOUT THE EXPRESS AUTHORIZATION OF THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION.

20. RECORD DRAWINGS (AS-BUILTS) AND CONSTRUCTION CERTIFICATIONS ARE BOTH REQUIRED FOR NEWLY CONSTRUCTED OR MODIFIED STORMWATER MANAGEMENT/BMP FACILITIES. CERTIFICATION ACTIVITIES SHALL BE ADEQUATELY COORDINATED AND PERFORMED BEFORE, DURING AND FOLLOWING CONSTRUCTION IN ACCORDANCE WITH THE CURRENT VERSION OF THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION, STORMWATER MANAGEMENT/BMP FACILITIES, RECORD DRAWING AND CONSTRUCTION CERTIFICATION, STANDARD FORMS & INSTRUCTIONS.

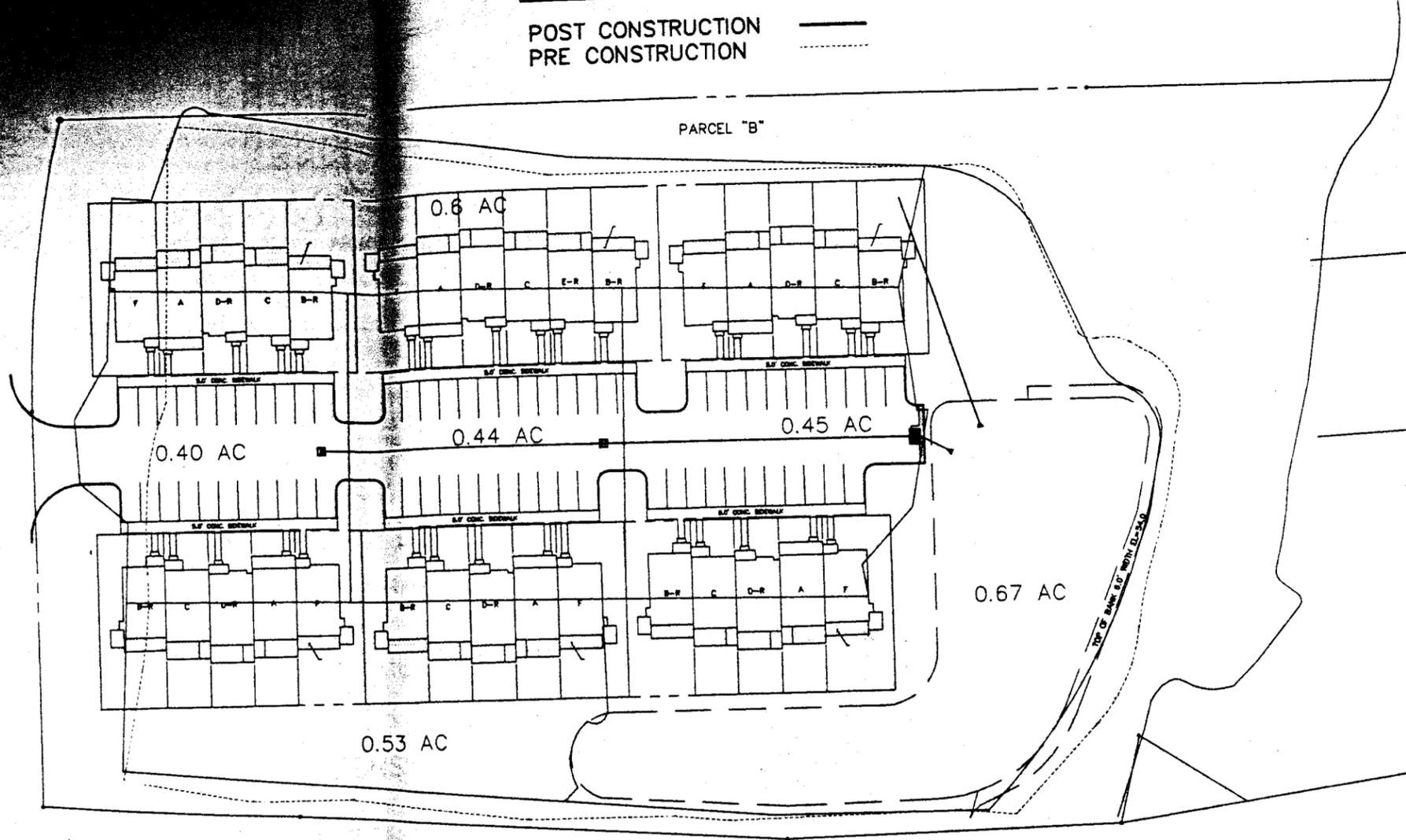
21. DESIGN AND CONSTRUCTION OF PRIVATE-TYPE SITE DRAINAGE SYSTEMS OUTSIDE VDOT RIGHTS-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION, STORMWATER DRAINAGE CONVEYANCE SYSTEMS (NON-BMP RELATED), GENERAL DESIGN AND CONSTRUCTION GUIDELINES.



8/6/01	COUN
7/13/01	COUN
5/30/01	COUN
DATE	

DRAINAGE AREA MAP (3.1 ACRES TO BASIN)

POST CONSTRUCTION ———
 PRE CONSTRUCTION - - - - -



ACCOMPLISHED DURING THE MONTHS OF
 SHALL CONSIST OF MULCHING (STD &
 S SOON AS THE SEASON PERMITS.

OR STABILIZATION ON THIS PLAN SHALL
 ABISHMENT OF A STABLE GRASS COVER
 IING THE SPECIFIED AMOUNTS OF SEED,
 TION SHALL BE REQUIRED AS NECESSARY

EQUIRE THE USE OF EROSION CONTROL
 ENT OF A VEGETATIVE COVER. INSTALLATION
 1.35, MULCHING, STD. & SPEC. 3.36, SOIL
 UFACTURERS INSTRUCTION. NO SLOPES

.08) SHALL BE PROVIDED FOR ALL STORM
 UCTION OF THE SAME.

IE SHEETS, SHALL BE PROVIDED FOR ALL
 TE LINER IS INSTALLED.

EVER ACCELERATED EROSION IS EVIDENT,
 AREAS WHERE GRADES EXCEED 2 PERCENT.

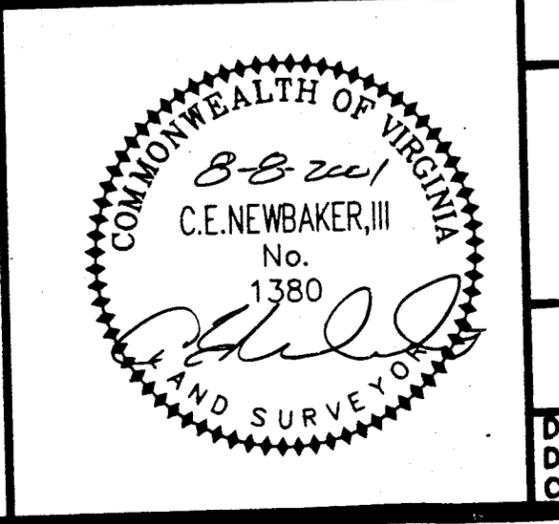
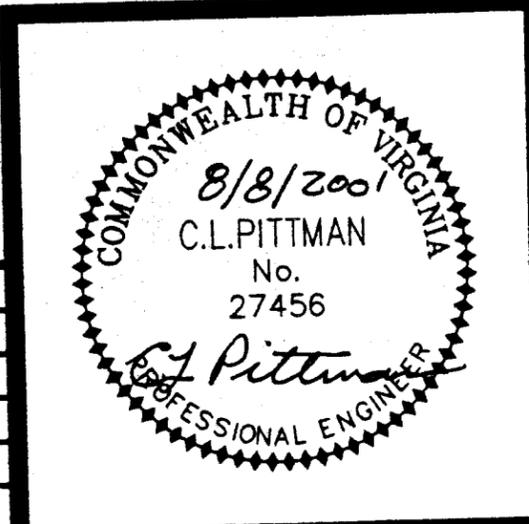
H AS SILT FENCE ARE NOT TO BE REMOVED
 TRAPPED SEDIMENT SHALL BE SPREAD,
) STABILIZATION IS COMPLETE, ALL EROSION
 REMOVED WITHIN 30 DAYS.

HALL BE REMOVED UNTIL A) AT LEAST 75
 AREA TO THE TRAP OR BASIN HAVE BEEN
 DEVELOPER) FOR THE CONSTRUCTION OF
 FAMILY LOTS WITHIN THE DRAINAGE AREA
 AND THE SOIL STABILIZED. A BULK SALE
 SATISFY THIS PROVISION. SEDIMENT TRAPS
 WITHOUT THE EXPRESS AUTHORIZATION OF
 ION.

CTION CERTIFICATIONS ARE BOTH REQUIRED
 TER MANAGEMENT/BMP FACILITIES. CERT-
 RDINATED AND PERFORMED BEFORE, DURING
 WITH THE CURRENT VERSION OF THE JAMES
 ATER MANAGEMENT/BMP FACILITIES, RECORD
 STANDARD FORMS & INSTRUCTIONS.

PE SITE DRAINAGE SYSTEMS OUTSIDE VDOT
 ORDANCE WITH THE CURRENT VERSION OF
 ION, STORMWATER DRAINAGE CONVEYANCE
 AN AND CONSTRUCTION GUIDELINES.

DATE	REVISION
8/6/01	COUNTY COMMENTS
7/13/01	COUNTY AND OWNER COMMENTS
5/30/01	COUNTY AND OWNER COMMENTS



STORMWATER POND MAINTENANCE PLAN

BOTH ROUTINE AND NON-ROUTINE MAINTENANCE ARE REQUIRED TO ENSURE THE PERFORMANCE OF THESE FACILITIES.

1. ROUTINE MAINTENANCE - THE STORMWATER WETLAND WILL BE INSPECTED AFTER HEAVY RAINS BETWEEN THE TIME OF CONSTRUCTION AND FULL VEGETATION ESTABLISHMENT. INSPECTION FOR OTHER CONDITIONS WILL BE MADE TWICE PER YEAR. WHEN NECESSARY, REPAIRS WILL BE PERFORMED WITHIN THIRTY DAYS OF DEFICIENCY REPORT.
 - A. SITE INSPECTIONS - INSPECTIONS ARE THE BASE OF THE ROUTINE MAINTENANCE PROGRAM. THEY SHOULD FOCUS ON BOTH THE AESTHETIC QUALITY AND STRUCTURAL INTEGRITY OF THE FACILITY. RECORDS OF ALL INSPECTIONS ARE TO BE KEPT DETAILING CONDITIONS FOUND AND ANY REQUIRED ACTIONS ALONG WITH WHEN ALL MAINTENANCE IS ACCOMPLISHED.
 - B. ALL MAINTENANCE OF TEMPORARY AND PERMANENT SEDIMENTATION AND EROSION CONTROL FACILITIES SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 1.7 OF VESCH REGULATIONS (VR 625-02-00). DURING THE PERIOD THAT THE PROJECT SITE IS UNDER CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE AND THE INSPECTION OF THE SEDIMENTATION AND EROSION CONTROL FACILITIES ON A REGULAR BASIS, ESPECIALLY AFTER PERIODS OF HEAVY RAINFALL. ANY DAMAGE DISCOVERED WILL BE REPAIRED PROMPTLY BY THE CONTRACTOR.
 - C. BANK STABILIZATION - ANY AREAS THAT HAVE BECOME UNSTABLE SHOULD BE PROTECTED AND STABILIZED.
 - D. FREQUENT MONITORING/INSPECTION WITHIN FIRST THREE YEARS AFTER PRIMARY VEGETATION IS INSTALLED. SITE WILL BE MONITORED FOR EXCESS SCOUR PROBLEMS, SEDIMENT ACCUMULATION IN THE FOREBAY AND MICROPOOL (LOW NEAR OUTLET); DENUDED AREAS, PRESENCE OF INVASIVE SPECIES, PLANT STRESS, WEED INFESTATION, ETC.
 - E. OBSERVATIONS REGARDING WATER INFLOW AND OUTFLOW WILL BE MADE TO DETERMINE IF ACCEPTABLE MOISTURE REGIMES CAN BE MAINTAINED. THE DRAINAGE ARE CONTRIBUTING TO THE STORMWATER WETLAND IS SMALL AND THEREFORE THE BASE GRADE OF THE FACILITY HAS BEEN ESTABLISHED TO TAKE ADVANTAGE OF GROUNDWATER INFLUENCES.
 - F. INSECT/MOSQUITO CONTROL - INSECT ACTIVITY, INCLUDING MOSQUITO, SHOULD BE MONITORED AND APPROPRIATE ACTION TAKEN.
 - G. TRASH AND LITTER WILL BE REMOVED FROM INLET AND OUTLET STRUCTURES AS NEEDED.
 - H. VEGETATION SURVIVAL WILL BE MONITORED TO ENSURE ADEQUATE COVERAGE OF THE FACILITY. DENUDED AREAS OF DEAD PLANT STOCK WILL BE REPLACED AS NEEDED.
2. NON-ROUTINE MAINTENANCE - THESE TASKS SHOULD BE ACCOMPLISHED AS REQUIRED TO MAINTAIN THE FACILITY'S STRUCTURAL INTEGRITY AND EFFECTIVENESS. REPAIR AND/OR REPLACEMENT OF THE OUTFALL AND INLET PIPING SYSTEMS EVERY 10-15 YEARS. PARTICULAR ATTENTION WILL BE GIVEN TO THE ACCUMULATION OF SEDIMENT IN THE FOREBAY AND WITHIN THE FLOOR AND MICROPOOL AREAS. IT IS ANTICIPATED THAT CLEAN-OUT OF THE FOREBAY WILL BE NEEDED EVERY 5-7 YEARS. SPOIL MATERIALS WILL BE TAKEN OFF-SITE. PROPER SEDIMENTATION AND EROSION CONTROL PRACTICES WILL BE FOLLOWED.

... MUST BE CROSSED BY CONSTRUCTION VEHICLES ... SIX-MONTH PERIOD, A TEMPORARY STREAM OF NONERODIBLE MATERIAL SHALL BE

... STATE AND LOCAL REGULATIONS PERTAINING TO ... LIVE WATERCOURSES SHALL BE MET.

... WATERCOURSE SHALL BE STABILIZED IMMEDIATELY ... COURSE IS COMPLETED.

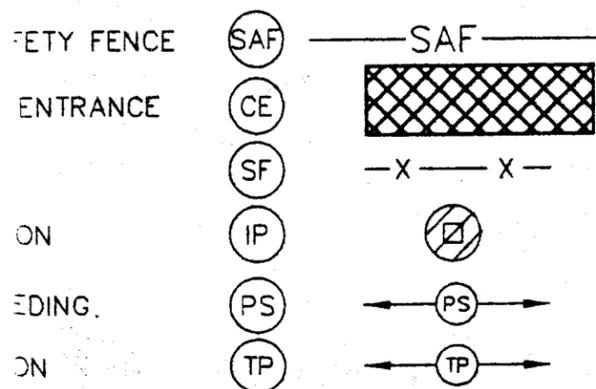
... HELD RESPONSIBLE FOR THE ACTIONS AND PER- ... PARTIES PERFORMING WORK ON THIS PROJECT.

... SION AND SEDIMENT CONTROL PRACTICES SHALL ... KLY BASIS AND AFTER EACH RAINFALL PRODUCING ... AIR, ADJUSTMENT AND/OR REPLACEMENT SHALL BE ... RAINY SEASONS OR WET PERIODS WILL BE OF ... AND THE PROJECT SHALL BE INSPECTED DAILY.

... ST) SHALL BE CONTROLLED IN ACCORDANCE WITH ... SINIA EROSION AND SEDIMENT CONTROL HANDBOOK.

... N AND SEDIMENT CONTROL MEASURES SHALL BE ... S AFTER FINAL SITE STABILIZATION OR AFTER THE ... ARE NO LONGER NEEDED, UNLESS OTHERWISE ... Y, TRAPPED SEDIMENT AND THE DISTURBED SOIL ... THE DISPOSITION OF TEMPORARY MEASURES SHALL ... LIZED TO PREVENT FURTHER EROSION AND SED-

E. & S. LEGEND



... SION AND SEDIMENT CONTROL HANDBOOK, 1992. FOR

STRATEGIES AND SEQUENCE OF EROSION CONTROL MEASURES

... EVENTS AND EROSION CONTROL MEASURES SHALL BE ... TRUCTION SCHEDULE FOR THIS PROJECT AND SHALL APPLY

1992

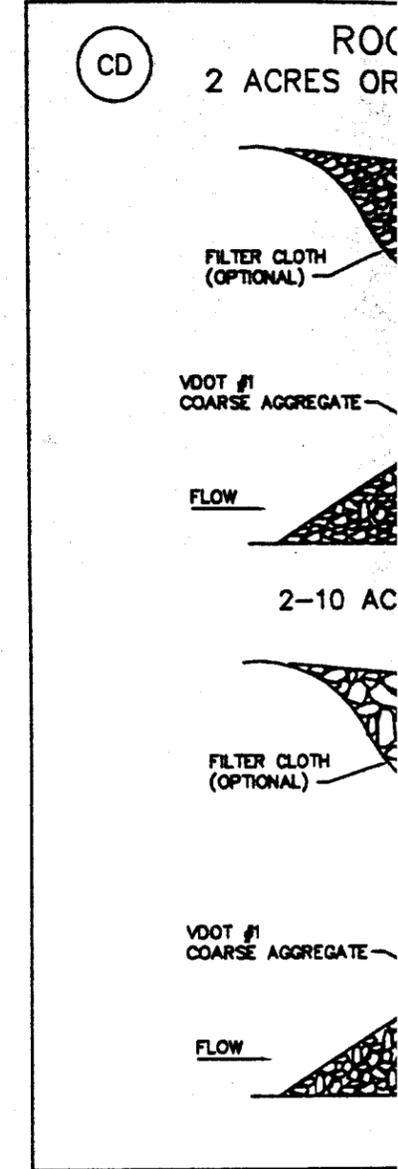
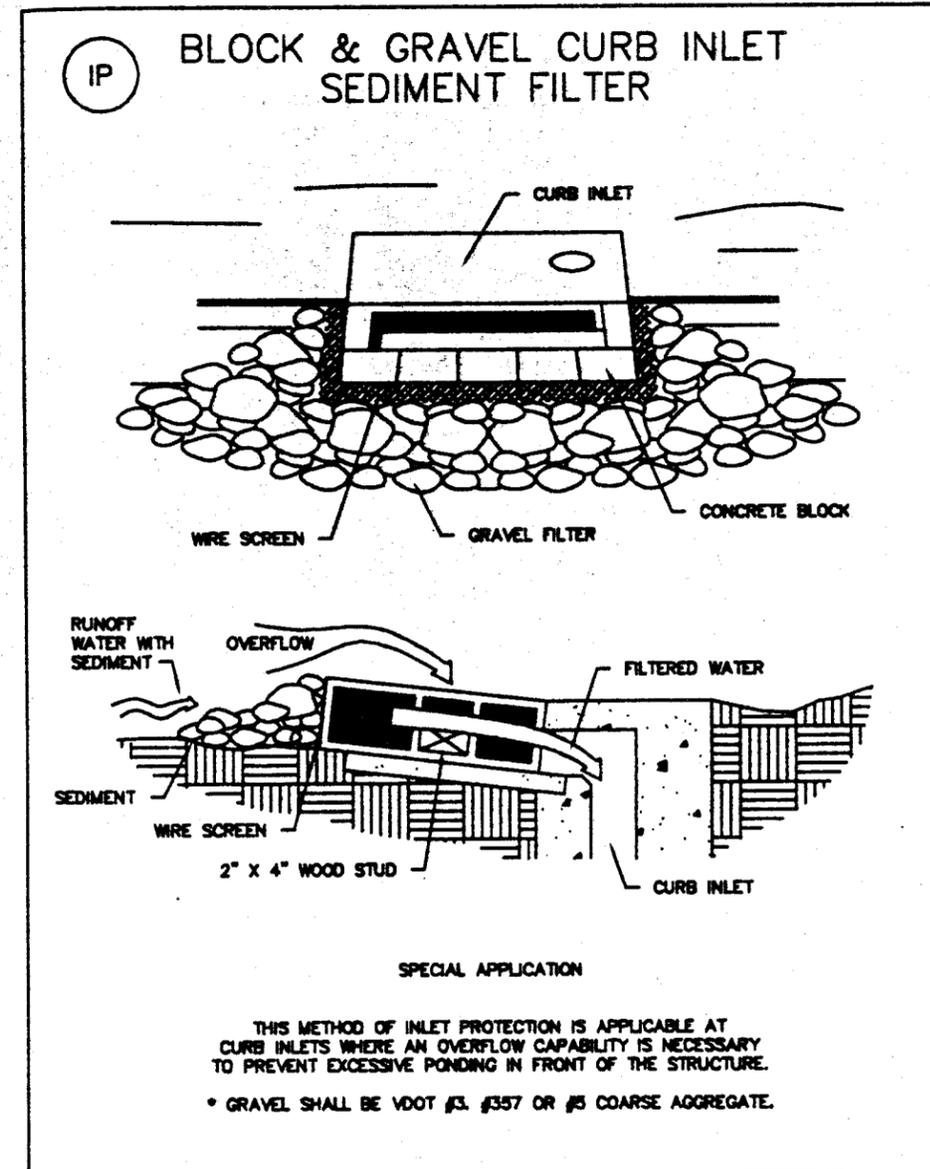
3.38



1992

3.07

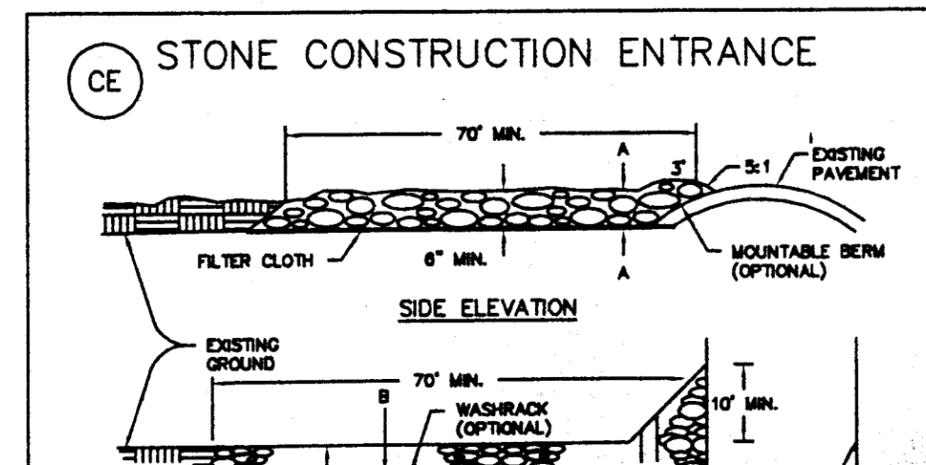
1992



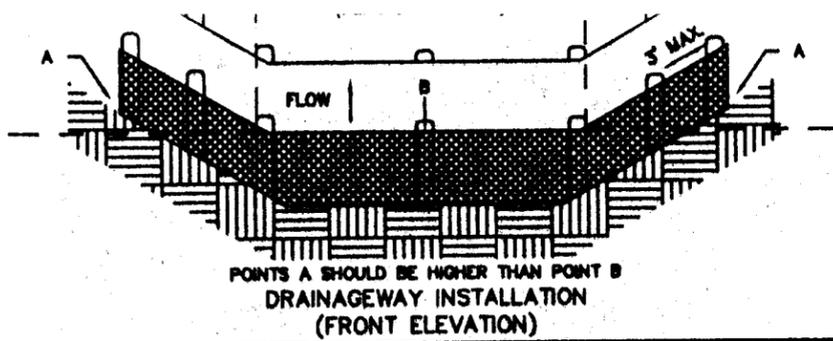
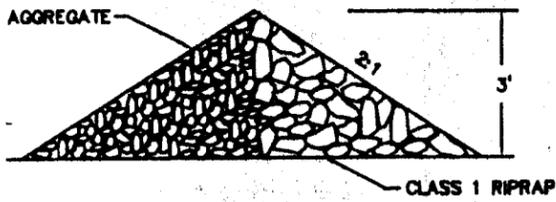
1992

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1992



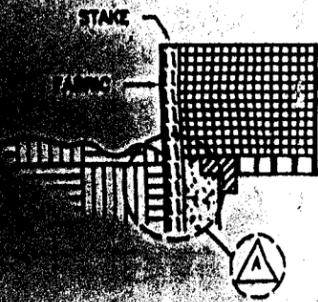
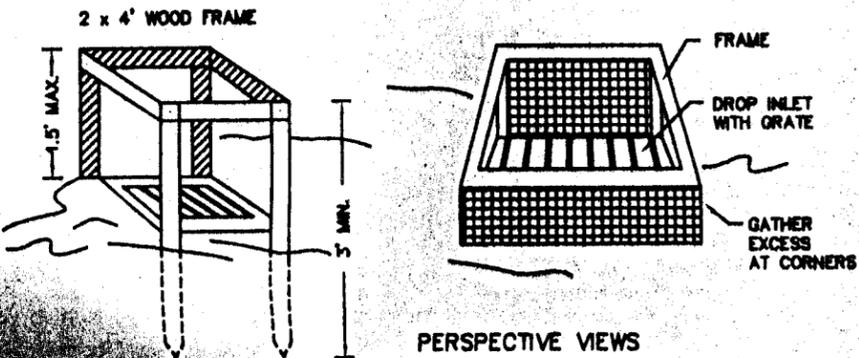
(DOWNSTREAM VIEW)



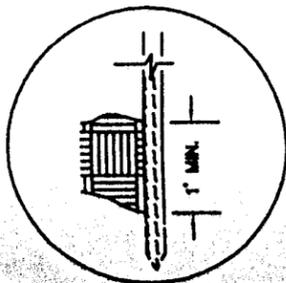
1992

3.07

IP SILT FENCE DROP INLET PROTECTION



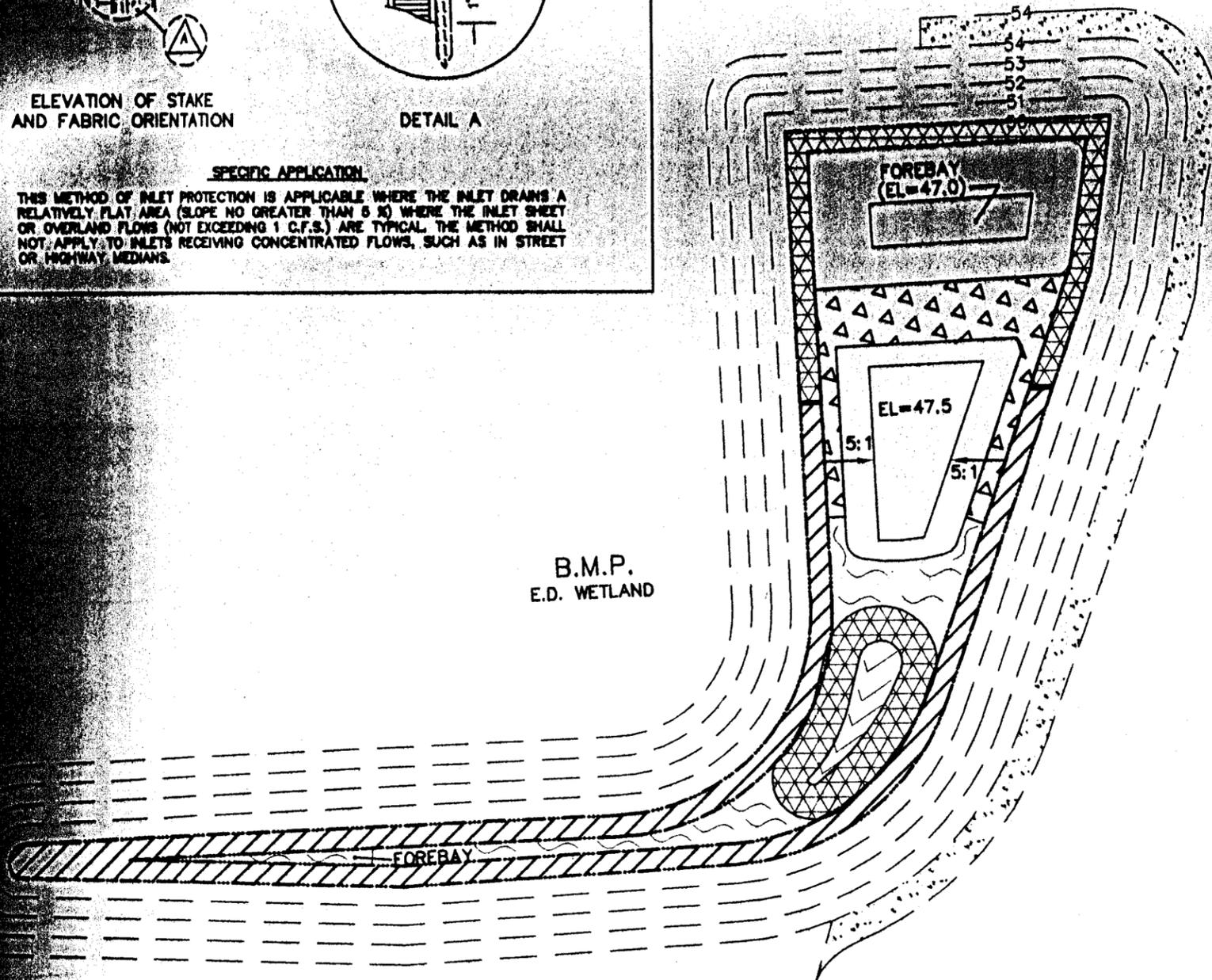
ELEVATION OF STAKE AND FABRIC ORIENTATION



SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

B.M.P.
E.D. WETLAND



FILE 9757e&s, EHDD

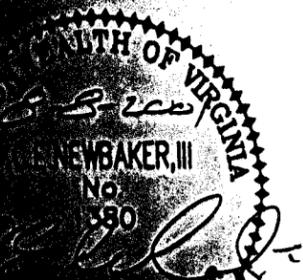
EROSION & SEDIMENT CONTROL NOTES & DETAILS

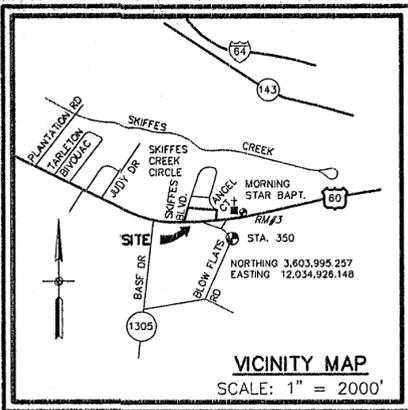
PARCEL "B"
SKIFFE'S CREEK VILLAGE

ROBERT'S DISTRICT - JAMES CITY COUNTY, VIRGINIA

THE SIRINE GROUP, LTD.

PH: 1-804-693-9548





LEGEND:

- DENOTES PIN SET
- DENOTES PIN, PIPE, OR MONUMENT FOUND
- PROPERTY IS ZONED R-5 WITH PROFFERS (D.B.798, P.951)

NOTES:

1. ALL NEW UTILITIES SHALL BE PLACED UNDERGROUND IN ACCORDANCE WITH SECTION 19-33(a) OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
2. UNLESS OTHERWISE NOTED ALL DRAINAGE EASEMENTS SHALL REMAIN PRIVATE.
3. NEW MONUMENTS SHALL BE SET IN ACCORDANCE WITH SECTIONS 19-34 THRU 19-36 OF THE JAMES CITY COUNTY SUBDIVISION ORDINANCE.
4. NATURAL OPEN SPACE EASEMENTS SHALL REMAIN IN AN UNDISTURBED STATE EXCEPT FOR THOSE ACTIVITIES REFERENCED ON THE DEED OF EASEMENT.
5. ALL PRIVATE STREETS ARE TO BE OWNED AND MAINTAINED BY THE CARTER'S VILLAGE HOMEOWNER'S ASSOCIATION.
6. DENOTES ADDITIONAL AREA REQUIRED FOR A 25 FOOT BUFFER EXTENDING LANDWARD OF THE DESIGN HIGH WATER ELEVATION OF THE BMP.

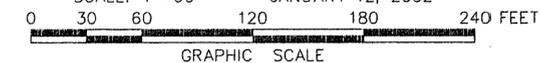
CURVE TABLE

NO.	RADIUS	DELTA	ARC	TANGENT	CHORD	CHORD BRG.
1	2332.33'	02°54'21"	118.29'	59.15'	118.27'	S87°40'11"W
2	558.08'	14°04'57"	137.17'	68.93'	136.83'	N00°59'55"E

LOT #	AREA	LOT #	AREA	LOT #	AREA
1	2,480 SQ.FT.	11	2,520 SQ.FT.	21	2,520 SQ.FT.
2	1,600 SQ.FT.	12	2,520 SQ.FT.	22	2,520 SQ.FT.
3	1,600 SQ.FT.	13	1,600 SQ.FT.	23	1,600 SQ.FT.
4	1,600 SQ.FT.	14	1,600 SQ.FT.	24	1,600 SQ.FT.
5	2,520 SQ.FT.	15	1,600 SQ.FT.	25	1,600 SQ.FT.
6	2,520 SQ.FT.	16	2,480 SQ.FT.	26	2,484 SQ.FT.
7	1,600 SQ.FT.	17	2,520 SQ.FT.	27	2,484 SQ.FT.
8	1,600 SQ.FT.	18	1,600 SQ.FT.	28	1,600 SQ.FT.
9	1,600 SQ.FT.	19	1,600 SQ.FT.	29	1,600 SQ.FT.
10	1,600 SQ.FT.	20	1,600 SQ.FT.	30	1,600 SQ.FT.
				31	2,520 SQ.FT.

**SUBDIVISION PLAT
CARTER'S VILLAGE
PROPERTY OF
GREENSPRINGS PLANTATION, INC.,
A VIRGINIA CORPORATION**

ROBERTS DISTRICT - JAMES CITY COUNTY, VIRGINIA
SCALE: 1"=60' JANUARY 12, 2002



THE SIRINE GROUP, LTD.

SURVEYORS • ENGINEERS • PLANNERS
4794 GEORGE WASHINGTON MEMORIAL HIGHWAY
U.S. ROUTE 17
P.O. BOX 450
WHITE MARSH, VIRGINIA 23183

THE SUBDIVISION OF LAND SHOWN ON THIS PLAT AND KNOWN AS CARTER'S VILLAGE IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNERS, PROPRIETORS, AND TRUSTEES, IF ANY.

**GREENSPRINGS PLANTATION, INC.
A VIRGINIA CORPORATION**

SIGNED: _____ DATE: _____
MARC B. SHARP, PRESIDENT

STATE OF _____, CITY/COUNTY OF _____ TO WIT:
I, _____, A NOTARY PUBLIC IN AND FOR THE COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT THE ABOVE NAMED PERSONS WHOSE NAMES ARE SIGNED TO THE FOREGOING WRITING HAVE ACKNOWLEDGED THE SAME BEFORE ME IN MY COUNTY AND STATE AFORESAID.

GIVEN UNDER MY HAND THIS _____ DAY OF _____, 2002

NOTARY PUBLIC
MY COMMISSION EXPIRES: _____

S-011-02



SOURCE OF TITLE

THE PROPERTY DESIGNATED AS PARCEL "B" IS IN THE NAME OF GREENSPRINGS PLANTATION, INC. A VIRGINIA CORPORATION AND WAS ACQUIRED FROM CAL COMPANY, L.L.C., A VIRGINIA COMPANY BY INSTRUMENT # 01009119 DATED APRIL 25, 2001 RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT FOR JAMES CITY COUNTY, VIRGINIA.

SURVEYOR'S CERTIFICATE

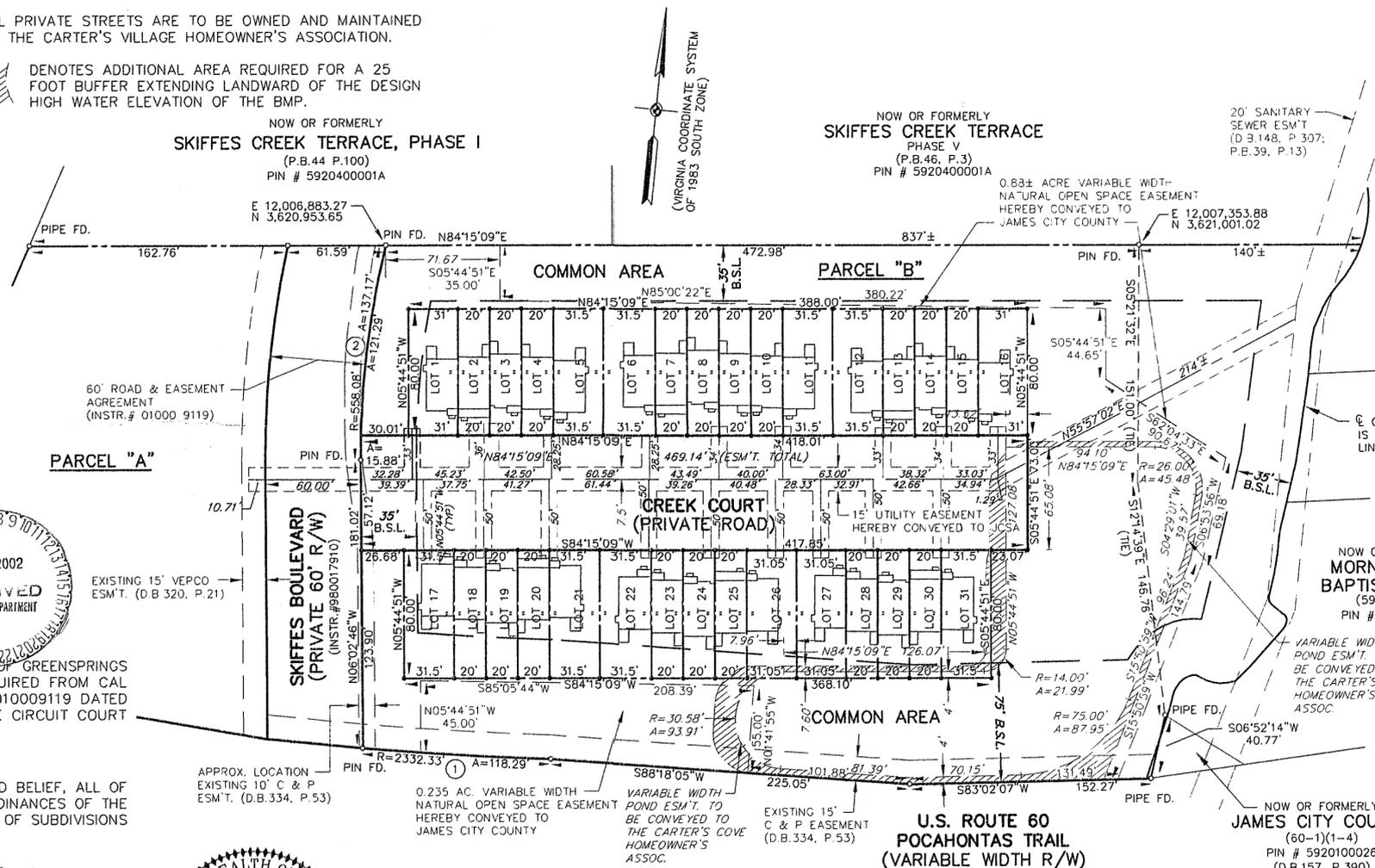
I HEREBY CERTIFY THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL OF THE REQUIREMENTS OF THE BOARD OF SUPERVISORS AND ORDINANCES OF THE COUNTY OF JAMES CITY, VIRGINIA, REGARDING THE PLATTING OF SUBDIVISIONS WITHIN THE COUNTY HAVE BEEN COMPLIED WITH.

C.E. NEWBAKER, III, L.S. # 1380
DATE: 2-4-2002

CERTIFICATE OF APPROVAL

THIS SUBDIVISION IS APPROVED BY THE UNDERSIGNED IN ACCORDANCE WITH EXISTING SUBDIVISION REGULATIONS AND MAY BE ADMITTED TO RECORD.

DATE: _____ VIRGINIA DEPARTMENT OF TRANSPORTATION
DATE: _____ VIRGINIA DEPARTMENT OF HEALTH
DATE: _____ SUBDIVISION AGENT OF JAMES CITY COUNTY



NOTE: "JCSA UTILITY EASEMENTS" ARE FOR THE EXCLUSIVE USE OF JAMES CITY SERVICE AUTHORITY AND THE PROPERTY OWNER. OTHER UTILITY SERVICE PROVIDERS DESIRING TO USE THESE EASEMENTS WITH THE EXCEPTION OF PERPENDICULAR UTILITY CROSSINGS MUST OBTAIN AUTHORIZATION FOR ACCESS AND USE FROM JCSA AND THE PROPERTY OWNER. ADDITIONALLY, JCSA SHALL NOT BE HELD RESPONSIBLE FOR ANY DAMAGE TO IMPROVEMENTS WITHIN THIS EASEMENT, FROM ANY CAUSE.

NOTE: PROPERTY LIES IN ZONE X, WHITE, (AREAS DETERMINED TO BE OUTSIDE 500-YEAR FLOOD PLAIN), AS SHOWN ON FLOOD INSURANCE RATE MAP FOR JAMES CITY COUNTY, VIRGINIA, COMM. NO. 510201 0060B, 2/6/91

AREA OF LOTS = 60,488 SQ.FT. OR 1.389 ACRES
COMMON AREA TO BE CONVEYED TO CARTER'S VILLAGE HOME OWNER'S ASSOCIATION = 2.95± ACRES.
(PRIVATE ROAD = 30,516 SQ.FT. OR 0.701 ACRE)
TOTAL SUBDIVIDED AREA = 189,101± SQ.FT. OR 4.34± ACRES

STATE OF VIRGINIA
JAMES CITY COUNTY

IN THE CLERK'S OFFICE OF THE CIRCUIT COURT FOR JAMES CITY COUNTY, VIRGINIA, THE _____ DAY OF _____, 2002, THIS PLAT WAS PRESENTED AND ADMITTED TO RECORD AS THE LAW DIRECTS IN PLAT BOOK _____ PAGE _____.

TESTE: _____
CLERK

BY: _____

PROPERTY IS ASSESSOR'S PARCEL (59-2)(1-15)
GPIN: 5920100015

8/2/01

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

(with or without an emergency spillway)

Project SKIFFES CREEK VILLAGE, PARCEL "B"

Basin # 1 Location JCC

Total area draining to basin: 3.1 acres.

Basin Volume Design

Wet Storage:

1. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).

$$67 \text{ cu. yds.} \times \underline{3.1} \text{ acres} = \underline{208} \text{ cu. yds.}$$

2. Available basin volume = 367.5 cu. yds. at elevation 51.0 ✓ (From storage - elevation curve)

3. Excavate _____ cu. yds. to obtain required volume*. N/A

* Elevation corresponding to required volume = invert of the dewatering orifice.

4. Available volume before cleanout required.

$$33 \text{ cu. yds.} \times \underline{3.1} \text{ acres} = \underline{103} \text{ cu. yds.}$$

5. Elevation corresponding to cleanout level = 50.5 ✓. (183.8CY)

(From Storage - Elevation Curve)

6. Distance from invert of the dewatering orifice to cleanout level = 1.5 ft. (Min. = 1.0 ft.)

Dry Storage:

7. Minimum required volume = 67 cu. yds. x Total Drainage Area (acres).

$$67 \text{ cu. yds.} \times \underline{3.1} \text{ acres} = \underline{208} \text{ cu. yds.}$$

8. Total available basin volume at crest of riser* = $\frac{842.2}{271.7 \text{ CY/Ac}}$ cu. yds. at elevation 52. (From Storage - Elevation Curve)

* Minimum = 134 cu. yds./acre of total drainage area.

9. Diameter of dewatering orifice = 6 in.
10. Diameter of flexible tubing = 8 in. (diameter of dewatering orifice plus 2 inches).

Preliminary Design Elevations

11. Crest of Riser = 52.0
- Top of Dam = 54.0
- Design High Water = 53
- Upstream Toe of Dam = 50.0

Basin Shape

12. $\frac{\text{Length of Flow}}{\text{Effective Width}} = \frac{L}{We} = \frac{105}{47}$

If > 2 , baffles are not required 2, 2

If < 2 , baffles are required _____

Runoff

13. $Q_2 = \underline{7.2}$ cfs (From Chapter 5)
14. $Q_{25} = \underline{10.5}$ cfs (From Chapter 5)

Principal Spillway Design

15. With emergency spillway, required spillway capacity $Q_p = Q_2 = \underline{\hspace{2cm}}$ cfs. (riser and barrel)

Without emergency spillway, required spillway capacity $Q_p = Q_{25} = \underline{10.5}$ cfs. (riser and barrel)

16. With emergency spillway:

$$\text{Assumed available head (h)} = \underline{\hspace{2cm}} \text{ ft. (Using } Q_2\text{)}$$

$$h = \text{Crest of Emergency Spillway Elevation} - \text{Crest of Riser Elevation}$$

Without emergency spillway:

$$\text{Assumed available head (h)} = \underline{\hspace{2cm}} \text{ ft. (Using } Q_{25}\text{)}$$

$$h = \text{Design High Water Elevation} - \text{Crest of Riser Elevation}$$

17. Riser diameter (D_r) = 24 in. Actual head (h) = 0.65 ft.

(From Plate 3.14-8.)

Note: Avoid orifice flow conditions.

18. Barrel length (l) = 40 ft.

$$\text{Head (H) on barrel through embankment} = \underline{9} \text{ ft.}$$

(From Plate 3.14-7).

19. Barrel diameter = 15 in.

$$1.13 (16.3) = 18.4 \text{ OK}$$

(From Plate 3.14-B [concrete pipe] or Plate 3.14-A [corrugated pipe]).

20. Trash rack and anti-vortex device

$$\text{Diameter} = \underline{36} \text{ inches.}$$

$$\text{Height} = \underline{13} \text{ inches.}$$

(From Table 3.14-D).

Emergency Spillway Design

21. Required spillway capacity $Q_e = Q_{25} - Q_p = \underline{\hspace{2cm}}$ cfs.

22. Bottom width (b) = ft.; the slope of the exit channel (s) = ft./foot; and the minimum length of the exit channel (x) = ft.

(From Table 3.14-C).

Anti-Seep Collar Design

23. Depth of water at principal spillway crest (Y) = 1 ft.
 Slope of upstream face of embankment (Z) = 4 :1.
 Slope of principal spillway barrel (S_b) = 0.5 %
 Length of barrel in saturated zone (L_s) = 8 ft.
24. Number of collars required = 1 dimensions = 2.5
 (from Plate 3.14-12).

Final Design Elevations

25. Top of Dam = 54.0
 Design High Water = 52.65
 Emergency Spillway Crest = —
 Principal Spillway Crest = ~~52.0~~ 51.5
 Dewatering Orifice Invert = ~~50.7~~ 50.7
 Cleanout Elevation = 50.7
 Elevation of Upstream Toe of Dam
 or Excavated Bottom of "Wet Storage
 Area" (if excavation was performed) = 50.0

J.O. # 9757
 SKIFFES CREEK, PARCEL "B"
 MAY 30, 2001/revised 7/13/2001

STORMWATER MANAGEMENT SUMMARY

BASIN

EL	VINC	VTOT	DEPTH
54.0	18,908	57,461	4.0
53.0	15,812	38,552	3.0
52.0	12,816	22,740	2.0
51.0	9,924	9,924	1.0
50.0	0	0	0

amp

PRE-DEVELOPMENT RUNOFF = ALLOWABLE 10 YR POST DEVELOPMENT DISCHARGE
 10 YR PRE-DEVELOPMENT STORM = 6 CFS
 1 YR STORM RUNOFF RELEASED OVER 24 HOURS IS USED FOR CHANNEL
 PROTECTION INSTEAD OF 2 YR STORM PREDEVELOPMENT RATE.
 10 YR POST DEVELOPMENT DISCHARGE = 3.7 CFS (WSE = 52.24)
 3.7 CFS < 6 CFS - OK
 100 YR STORM PASS SAFELY (WSE = 52.67)

SEE ATTACHED SWM CALCULATIONS

WATER QUALITY VOLUME REQUIRED (ED WETLAND BASIN)
 1.12AC IMP. X 1 IN/IMP. AC X 1 1/12" = 4084 CF EL = (50.42)

*Both need to be provided but
 min. size of release = 3"
 ∴ OK*

CP(VOL) = 1.16" X 3.1AC X 43560 X 1/12" = 13,054 CF
 13,054 CF > 4084 CF AND THEREFORE IS CONTROLLING

EL (CPV) = 51.28

Q AVG (24HR) = 13,054 CF/86400 SEC
 = 0.151 CFS

ASSUME ORIFICE DIAMETER = 3 IN.

H = (51.28 - 50.00) - ((3"/2)/12)
 = 1.16'

H/2 = 0.58

Q = 0.6A(64.4 (H/2)) ^ 0.5

0.151 = 0.6A(64.4(0.58))^0.5

0.0412 SF = A

(PI D^2)/4 = A

0.23 FT = D

2.76 IN. = D

USE 3 IN. DIAMETER ORIFICE ✓

J.O. # 9757
SKIFFES CREEK, PARCEL "B"
MAY 30, 2001
PAGE TWO

BMP #2

WATER QUALITY VOLUME REQUIRED (DRY SWALE)

0.185 IMP. AC. X 1"/IMP. AC X 1 FT/1 IN. = 675 CF

USE 310 LF SWALE; 3 FT BOTTOM (WIDTH AT 0.25' = D, W = 4.5')

3:1 SIDE SLOPE

WQ DEPTH = 0.5'

VOL = 697 CF > 675 CF - OK

BASIN OUTLET CONTROL

USE AN VDOT EW-11A(MOD.); 4:1 SLOPE

W/H = 2'-11"

L = 11'-8"

W = 3'-0"

WALL THICKNESS = 8"

15" OUTLET PIPE

INVERT = 50.42

LOCATE 3 INCH DIAMETER (INV 50.42)

ORIFICE IN 4" THICK, 1.28 FT HIGH

WALL. CENTER LINE OF WALL IS TO BE

9.07 FT FROM INLET END (3.27 FT FROM
ENDWALL.)

ORIFICE TRASH RACK OF 3 LB/SF EXPANDED STEEL GRATE IS REQUIRED
FROM EL 51.62 ON ORIFICE WALL TO EW-11A(MOD.) BASE
4.0 FT FROM ORIFICE WALL.

REQUIRED FORBAY VOLUME = 0.1"/IMPAC X 1.12 AC X 1'/12" = 407 CF
FORBAY VOLUME PROVIDED = 1033 CF + 185 CF = 1218 CF > 407 CF - OK

FILE:9757SWM/WORD2000

REVISED 5/2001 - LAYOUT REVISED
APT → TOWN HOUSE

PROJECT: SKIFFS CREEK VILLAGE - PARCEL B

DATE: DEC 1, 2000

JOB No. (9179) 9757

SHEET 1 OF 2

10 YR NORFOLK STORM n=0.013 RCP

STORM SEWER DESIGN CALCULATIONS

THE SIRINE GROUP, LTD.
SURVEYORS • ENGINEERS • PLANNERS
GLOUCESTER COUNTY, VIRGINIA

FROM POINT	TO POINT	AREA ACRES "A"	RUNOFF COEF. "C"	"CA"		MINUTES T _c	INCHES "I"	ACI=Q		INVERT		LENGTH L	SLOPE S%	DIA. D _{IN}	VEL. V _{FPS}	CAPACITY C.F.S.	FLOW $\frac{L}{V} \div 60$ (MIN)	NOTES:
				INCR.	ACCU.			INCR.	ACCU.	HIGH	LOW							
A1	A2	0.40	.77	.31	—	5	7	2.1	—	53.30	52.80	128	.33	15	3.0	3.8	0.71	
A2	A3	0.44	.74	.32	0.63	5.71	6.8	—	4.3	50.84	50.11	133	.55	15	3.8	4.8	.58	
A3	A4	0.45	.77	.35	0.98	6.29	6.6	—	6.5	50.11	50.00	20	.55	18	4.3	7.9	.08	
						6.38												
S. SWALE		0.53	.36	.19	—	10	5.9	1.12	—									SEE ATTACHED CALCULATION
B1	B2																	
N. SWALE (DRY SWALE)		.60	.45	.27	—	12	5.6	1.5	—	51.13	50.44	114	0.60	12	3.6	3.0	.53	HDPE-n=0.012

Triangular Channel Analysis & Design
Open Channel - Uniform flow

Worksheet Name: south swale

Comment: 10 YEAR PEAK = 1.12 CFS

Solve For Depth

Given Input Data:

Left Side Slope..	3.00:1 (H:V)
Right Side Slope..	3.00:1 (H:V)
Manning's n.....	0.040
Channel Slope....	0.0300 ft/ft
Discharge.....	1.12 cfs

Computed Results:

Depth.....	0.41 ft
Velocity.....	2.17 fps
Flow Area.....	0.51 sf
Flow Top Width...	2.49 ft
Wetted Perimeter.	2.62 ft
Critical Depth...	0.39 ft
Critical Slope...	0.0433 ft/ft
Froude Number....	0.84 (flow is Subcritical)

RUNOFF CURVE NUMBER COMPUTATION

Version 2.00

Project : Skiffe's Creek Village ParcelB
 County : James City State: VA
 Subtitle: Post Dev to basin -TOWNHOUSES
 Subarea : Basin

User: _____ Date: _____
 Checked: _____ Date: _____

COVER DESCRIPTION	Hydrologic Soil Group			D
	A	B	C	
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Open space (Lawns, parks etc.)				
Good condition; grass cover > 75%	-	.41(61)	1.53(74)	-
Impervious Areas				
Paved parking lots, roofs, driveways	-	.79(98)	.37(98)	-
Total Area (by Hydrologic Soil Group)		1.2	1.9	
		====	====	

 SUBAREA: Basin TOTAL DRAINAGE AREA: 3.1 Acres WEIGHTED CURVE NUMBER: 81

TIME OF CONCENTRATION AND TRAVEL TIME

Version 2.00

Project : Skiffe's Creek Village ParcelB
 County : James City State: VA
 Subtitle: Post Dev to basin -TOWNHOUSES

User: _____ Date: _____
 Checked: _____ Date: _____

----- Subarea #1 - Basin -----									
Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.5	100	.020	a					0.019
Open Channel		281						3.4	0.023
Time of Concentration = 0.04*									=====

--- Sheet Flow Surface Codes ---

- | | | |
|--------------------------|------------------|------------------------------|
| A Smooth Surface | F Grass, Dense | --- Shallow Concentrated --- |
| B Fallow (No Res.) | G Grass, Burmuda | --- Surface Codes --- |
| C Cultivated < 20 % Res. | H Woods, Light | P Paved |
| D Cultivated > 20 % Res. | I Woods, Dense | U Unpaved |
| E Grass-Range, Short | J Range, Natural | |

* - Generated for use by TABULAR method

Project : Skiffe's Creek Village ParcelB
 County : James City State: VA
 Subtitle: Post Dev to basin -TOWNHOUSES

User: _____ Date: _____
 Checked: _____ Date: _____

Total watershed area: 0.005 sq mi Rainfall type: II Frequency: 1 years
 ----- Subareas -----

Basin
 Area(sq mi) 0.00*
 Rainfall(in) 2.8
 Curve number 81*
 Runoff(in) 1.16
 Tc (hrs) 0.04*
 (Used) 0.10
 TimeToOutlet 0.00
 Ia/P 0.17

Time (hr)	Total Flow	Basin	Subarea Contribution to Total Flow (cfs)
11.0	0	0	
11.3	0	0	
11.6	0	0	
11.9	2	2	
12.0	3	3	
12.1	6P	6P	
12.2	3	3	
12.3	1	1	
12.4	1	1	
12.5	1	1	
12.6	1	1	
12.7	1	1	
12.8	0	0	
13.0	0	0	
13.2	0	0	
13.4	0	0	
13.6	0	0	
13.8	0	0	
14.0	0	0	
14.3	0	0	
14.6	0	0	
15.0	0	0	
15.5	0	0	
16.0	0	0	
16.5	0	0	
17.0	0	0	
17.5	0	0	
18.0	0	0	
19.0	0	0	
20.0	0	0	
22.0	0	0	
26.0	0	0	

P - Peak Flow

* - value(s) provided from TR-55 system routines

TABULAR HYDROGRAPH METHOD

Version 2.00

Project : Skiffe's Creek Village ParcelB
 County : James City State: VA
 Subtitle: Post Dev to basin -TOWNHOUSES

User: _____ Date: _____
 Checked: _____ Date: _____

Total watershed area: 0.005 sq mi Rainfall type: II Frequency: 10 years

----- Subareas -----
 Basin
 Area(sq mi) 0.00*
 Rainfall(in) 6.0
 Curve number 81*
 Runoff(in) 3.88
 Tc (hrs) 0.04*
 (Used) 0.10
 TimeToOutlet 0.00
 Ia/P 0.08
 (Used) 0.10

Time (hr)	Total Flow	Basin	Subarea Contribution to Total Flow (cfs)
11.0	0	0	
11.3	1	1	
11.6	1	1	
11.9	6	6	
12.0	12	12	
12.1	19P	19P	
12.2	12	12	
12.3	4	4	
12.4	3	3	
12.5	2	2	
12.6	2	2	
12.7	2	2	
12.8	1	1	
13.0	1	1	
13.2	1	1	
13.4	1	1	
13.6	1	1	
13.8	1	1	
14.0	1	1	
14.3	1	1	
14.6	1	1	
15.0	1	1	
15.5	0	0	
16.0	0	0	
16.5	0	0	
17.0	0	0	
17.5	0	0	
18.0	0	0	
19.0	0	0	
20.0	0	0	
22.0	0	0	
26.0	0	0	

P - Peak Flow * - value(s) provided from TR-55 system routines

RUNOFF CURVE NUMBER COMPUTATION

Version 2.00

Project : Skiffe's Creek Village Parcel B
 County : James City State: VA
 Subtitle: Post Dev to basin -TOWNHOUSES
 Subarea : Basin

User: _____ Date: _____
 Checked: _____ Date: _____

COVER DESCRIPTION	Hydrologic Soil Group			
	A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Open space (Lawns, parks etc.)				
Good condition; grass cover > 75%	-	.41(61)	1.53(74)	-
Impervious Areas				
Paved parking lots, roofs, driveways	-	.79(98)	.37(98)	-
Total Area (by Hydrologic Soil Group)		1.2	1.9	
		====	====	

SUBAREA: Basin TOTAL DRAINAGE AREA: 3.1 Acres WEIGHTED CURVE NUMBER: 81

TIME OF CONCENTRATION AND TRAVEL TIME

Version 2.00

Project : Skiffe's Creek Village ParcelB
 County : James City State: VA
 Subtitle: Post Dev to basin -TOWNHOUSES

User: _____ Date: _____
 Checked: _____ Date: _____

----- Subarea #1 - Basin -----									
Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.5	100	.020	a					0.019
Open Channel		281						3.4	0.023
Time of Concentration = 0.04*									=====

--- Sheet Flow Surface Codes ---

- | | | |
|--------------------------|------------------|------------------------------|
| A Smooth Surface | F Grass, Dense | --- Shallow Concentrated --- |
| B Fallow (No Res.) | G Grass, Bermuda | --- Surface Codes --- |
| C Cultivated < 20 % Res. | H Woods, Light | P Paved |
| D Cultivated > 20 % Res. | I Woods, Dense | U Unpaved |
| E Grass-Range, Short | J Range, Natural | |

* - Generated for use by TABULAR method

Project : Skiffe's Creek Village ParcelB
 County : James City State: VA
 Subtitle: Post Dev to basin -TOWNHOUSES

User: _____ Date: _____
 Checked: _____ Date: _____

Total watershed area: 0.005 sq mi Rainfall type: II Frequency: 1 years

----- Subareas -----

Basin
 Area(sq mi) 0.00*
 Rainfall(in) 2.8
 Curve number 81*
 Runoff(in) 1.16
 Tc (hrs) 0.04*
 (Used) 0.10
 TimeToOutlet 0.00
 Ia/P 0.17

Time Total ----- Subarea Contribution to Total Flow (cfs) -----
 (hr) Flow Basin

11.0	0	0
11.3	0	0
11.6	0	0
11.9	2	2
12.0	3	3
12.1	6P	6P
12.2	3	3
12.3	1	1
12.4	1	1
12.5	1	1
12.6	1	1
12.7	1	1
12.8	0	0
13.0	0	0
13.2	0	0
13.4	0	0
13.6	0	0
13.8	0	0
14.0	0	0
14.3	0	0
14.6	0	0
15.0	0	0
15.5	0	0
16.0	0	0
16.5	0	0
17.0	0	0
17.5	0	0
18.0	0	0
19.0	0	0
20.0	0	0
22.0	0	0
26.0	0	0

P - Peak Flow * - value(s) provided from TR-55 system routines

TABULAR HYDROGRAPH METHOD

Version 2.00

Project : Skiffe's Creek Village Parcel B
 County : James City State: VA
 Subtitle: Post Dev to basin -TOWNHOUSES

User: _____ Date: _____
 Checked: _____ Date: _____

Total watershed area: 0.005 sq mi Rainfall type: II Frequency: 10 years

	Basin	Subareas
Area(sq mi)	0.00*	
Rainfall(in)	6.0	
Curve number	81*	
Runoff(in)	3.88	
Tc (hrs)	0.04*	
(Used)	0.10	
TimeToOutlet	0.00	
Ca/P	0.08	
(Used)	0.10	

Time (hr)	Total Flow	Basin	Subarea Contribution to Total Flow (cfs)
11.0	0	0	
11.3	1	1	
11.6	1	1	
11.9	6	6	
12.0	12	12	
12.1	19P	19P	
12.2	12	12	
12.3	4	4	
12.4	3	3	
12.5	2	2	
12.6	2	2	
12.7	2	2	
12.8	1	1	
13.0	1	1	
13.2	1	1	
13.4	1	1	
13.6	1	1	
13.8	1	1	
14.0	1	1	
14.3	1	1	
14.6	1	1	
15.0	1	1	
15.5	0	0	
16.0	0	0	
16.5	0	0	
17.0	0	0	
17.5	0	0	
18.0	0	0	
19.0	0	0	
20.0	0	0	
22.0	0	0	
26.0	0	0	

P - Peak Flow * - value(s) provided from TR-55 system routines

TABULAR HYDROGRAPH METHOD

Version 2.00

Project : Skiffe's Creek Village ParcelB
 County : James City State: VA
 Subtitle: Post Dev to basin -TOWNHOUSES

User: _____ Date: _____
 Checked: _____ Date: _____

Total watershed area: 0.005 sq mi Rainfall type: II Frequency: 100 years

----- Subareas -----
 Basin
 Area(sq mi) 0.00*
 Rainfall(in) 8.0
 Curve number 81*
 Runoff(in) 5.74
 Tc (hrs) 0.04*
 (Used) 0.10
 TimeToOutlet 0.00
 Ia/P 0.06
 (Used) 0.10

Time (hr)	Total Flow	Basin	Subarea Contribution to Total Flow (cfs)
11.0	1	1	
11.3	1	1	
11.6	1	1	
11.9	9	9	
12.0	18	18	
12.1	28P	28P	
12.2	17	17	
12.3	6	6	
12.4	4	4	
12.5	3	3	
12.6	3	3	
12.7	2	2	
12.8	2	2	
13.0	2	2	
13.2	2	2	
13.4	1	1	
13.6	1	1	
13.8	1	1	
14.0	1	1	
14.3	1	1	
14.6	1	1	
15.0	1	1	
15.5	1	1	
16.0	1	1	
16.5	1	1	
17.0	1	1	
17.5	1	1	
18.0	1	1	
19.0	0	0	
20.0	0	0	
22.0	0	0	
26.0	0	0	

P - Peak Flow * - value(s) provided from TR-55 system routines

0 0

Q (CFS)	STORAGE(CU.FT.)
.24	9924
.27	13054
.93	16332
2.9	19536
5.5	22740
8.6	26693
10	38552

Q (CFS)	S/T+Q/2
.24	27.68667
.27	36.39611
.93	45.83167
2.9	55.71667
5.5	65.91666
8.6	78.44722
10	112.0889

T (MIN.)	INFLOW (CFS)	OUTFLOW (CFS)
660.00	0.00	0.00
666.00	0.00	0.00
672.00	1.00	0.00
678.00	1.00	0.00
684.00	1.00	0.00
690.00	1.00	0.00
696.00	1.00	0.00
702.00	2.00	0.10
708.00	4.00	0.10
714.00	6.00	0.10
720.00	12.00	0.20
726.00	19.00	0.40
732.00	12.00	2.40
738.00	4.00	3.70
744.00	3.00	3.60
750.00	2.00	3.30
756.00	2.00	3.00
762.00	2.00	2.80
768.00	1.00	2.50
774.00	1.00	2.20
780.00	1.00	2.00
786.00	1.00	1.80
792.00	1.00	1.60
798.00	1.00	1.50
804.00	1.00	1.40
810.00	1.00	1.30
816.00	1.00	1.30

STORAGE-INDICATION ROUTING FOR:

0 0

MAX. VOLUME STORED = 20472.5 (CU.FT.)

0

Q (CFS)	STORAGE(CU.FT.)
.24	9924
.27	13054
.93	16332
2.9	19536
5.5	22740
8.6	26693
10	38552

Q (CFS)	S/T+Q/2
.24	27.68667
.27	36.39611
.93	45.83167
2.9	55.71667
5.5	65.91666
8.6	78.44722
10	112.0889

(MIN.)	INFLOW (CFS)	OUTFLOW (CFS)
660.00	1.00	0.00
666.00	1.00	0.00
672.00	1.00	0.00
678.00	1.00	0.00
684.00	1.00	0.00
690.00	1.00	0.00
696.00	1.00	0.10
702.00	2.00	0.10
708.00	5.00	0.10
714.00	9.00	0.20
720.00	18.00	0.30
726.00	28.00	2.60
732.00	17.00	7.50
738.00	6.00	8.50
744.00	4.00	7.60
750.00	3.00	6.60
756.00	3.00	5.70
762.00	2.00	4.90
768.00	2.00	4.20
774.00	2.00	3.60
780.00	2.00	3.20
786.00	2.00	2.90
792.00	2.00	2.70
798.00	1.00	2.50
804.00	1.00	2.20
810.00	1.00	1.90
816.00	1.00	1.80

STORAGE-INDICATION ROUTING FOR:

0 0

MAX. VOLUME STORED = 26579.3 (CU.FT.)

=====

INLET NUMBER a1 LENGTH 2.5 STATION

DRAINAGE AREA = 0.400 ACRES C VALUE = .770 CA = 0.308
SUM CA= 0.308 INT= 4.00 CFS= 1.232 CO= 0.000 BUTTER FLOW= 1.232

GUTTER SLOPE = 0.0072 FT/FT PAVEMENT CROSS SLOPE = 0.0200 FT/FT

SPREAD	W	W/T	SW	SW/SX	Eo	a	S'W	SE
9.06	2.5	0.28	0.0200	1.0	0.58	0.0	0.000	0.020

XXXXXXXXXX GRATE INLET ON A GRADE XXXXXXXXXXXX
CFS INTERCEPTED= 0.89 CFS CARRYOVER= 0.34

=====

INLET NUMBER A2 LENGTH 2.5 STATION

DRAINAGE AREA = 0.440 ACRES C VALUE = .740 CA = 0.326

SUM CA= 0.326 INT= 4.00 CFS= 1.302 CD= 0.340 BUTTER FLOW= 1.642

GUTTER SLOPE = 0.0300 FT/FT PAVEMENT CROSS SLOPE = 0.0200 FT/FT

SPREAD	W	W/T	SW	SW/SX	Ed	a	S'W	SE
7.72	2.5	0.32	0.0200	1.0	0.65	0.0	0.000	0.020

XXXXXXXXXX GRATE INLET ON A GRADE XXXXXXXXXXXX

CFS INTERCEPTED= 1.15 CFS CARRYOVER= 0.49

=====

INLET NUMBER A3 LENGTH 2.5 STATION

DRAINAGE AREA = 0.230 ACRES C VALUE = .770 CA = 0.177

DRAINAGE AREA = 0.220 ACRES C VALUE = .770 CA = 0.169

SUM CA= 0.346 INT= 4.00 CFS= 1.386 CD= 0.490 BUTTER FLOW= 1.876

BUTTER SLOPE = 0.0267 FT/FT PAVEMENT CROSS SLOPE = 0.0290 FT/FT

SPREAD AT A SLOPE OF .027 (ft./ft.) IS 3.69 (ft.)

XXXXXXXXXX GRATE INLET IN A SUMP XXXXXXXXXXXX

DEPTH OF WATER = 0.13 SPREAD = 4.44

Grate operates as A WEIR

AUG 4, 2001

SKIFFE CREEK VILLAGE PARCEL B

JO# 9757

OUTFALL STRUCTURE DATA

DEPTH (FT)	ORIFICE (CFS)	WEIR (CFS)	PIPE (CFS)
1	0.24	0	9 PIPE
1.25	0.27	0	9 CAPACITY
1.50	-	0.93	9
1.75	-	2.9	9
2.0	-	5.5	9
2.25	-	8.6	9
3	-	20.3	10 IN LET CONSTRAINT

ORIFICE - 3" DIA - $Q = 0.6A(64.4H)^{1/2}$

$A = 0.049 SF$, $H = \text{DEPTH}$

FLOW THRU ORIFICE IS RENDERED
NEGLECTIBLE WHEN WEIR IS OPERATING.

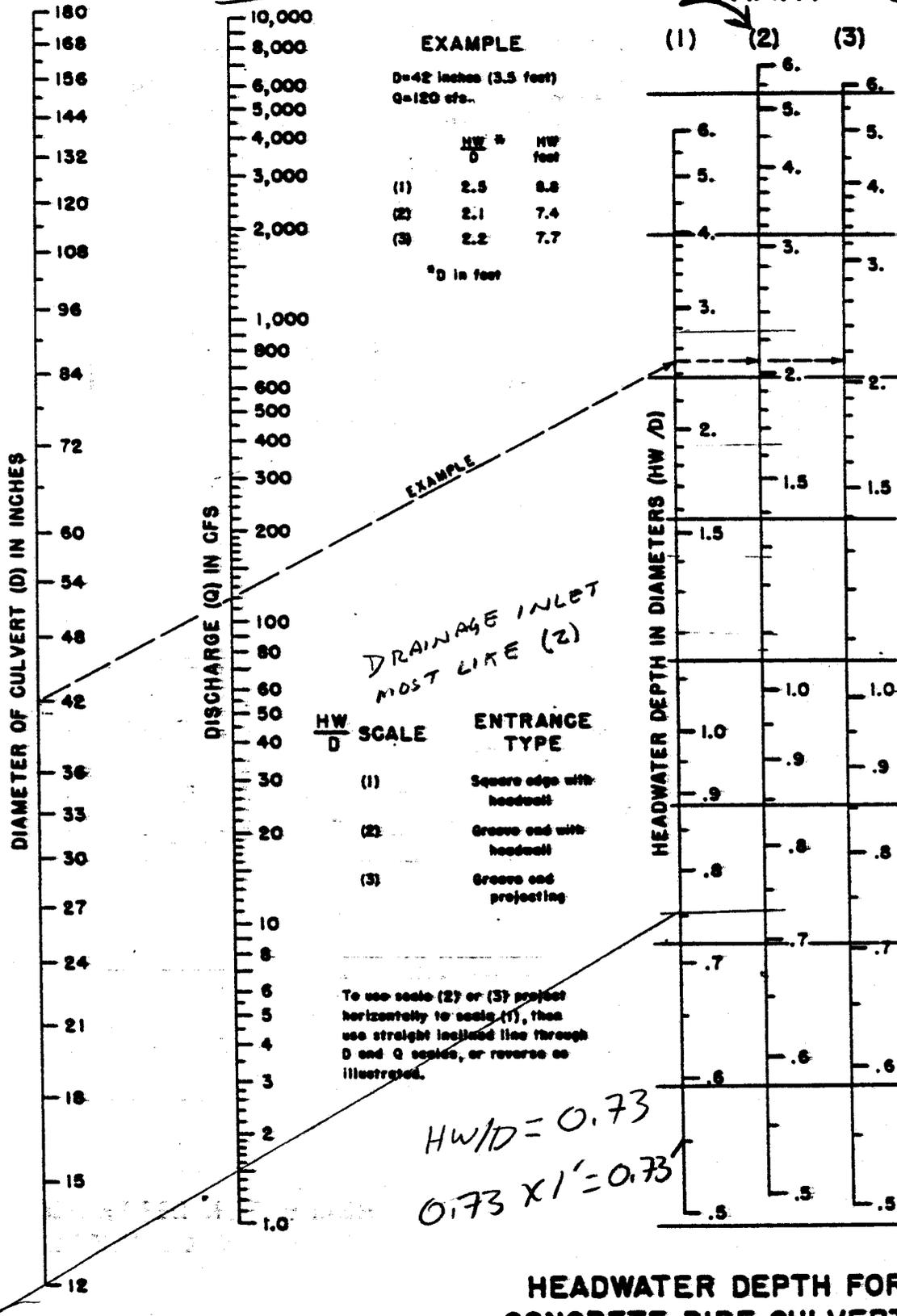
WEIR - 3 FT WIDE - $Q = 3(4)h$

$h = \text{DEPTH} - 1.28'$

PIPE - PIPE FLOW CAPACITY OR INLET
CONSTRAINED AS INDICATED.

D1 - B2

CHART 1



HEADWATER DEPTH FOR
 CONCRETE PIPE CULVERTS
 WITH INLET CONTROL

HEADWATER SCALES 283
 REVISED MAY 1964

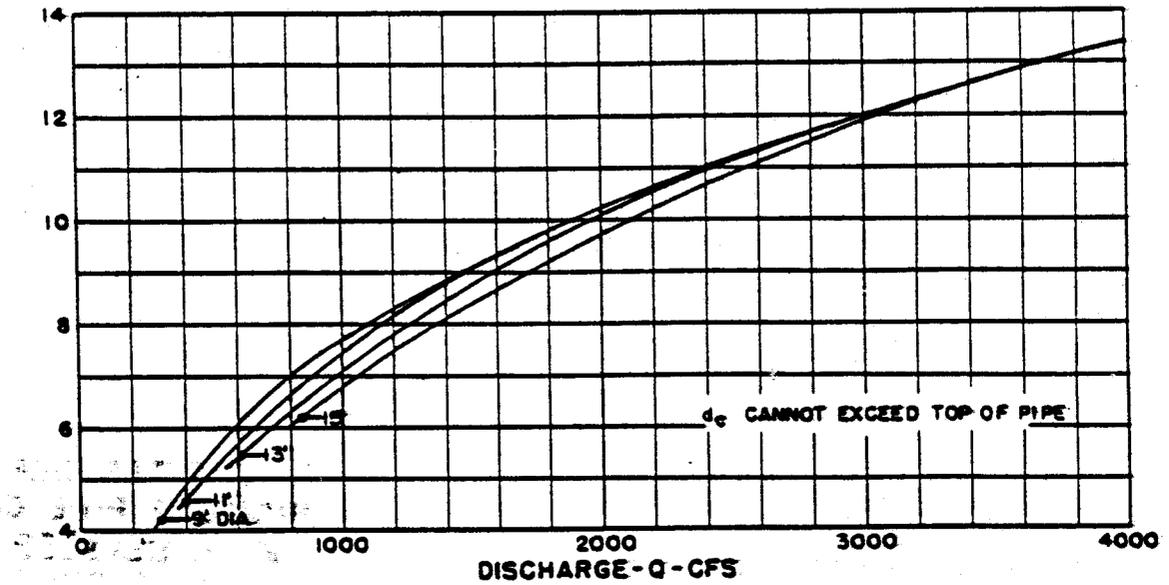
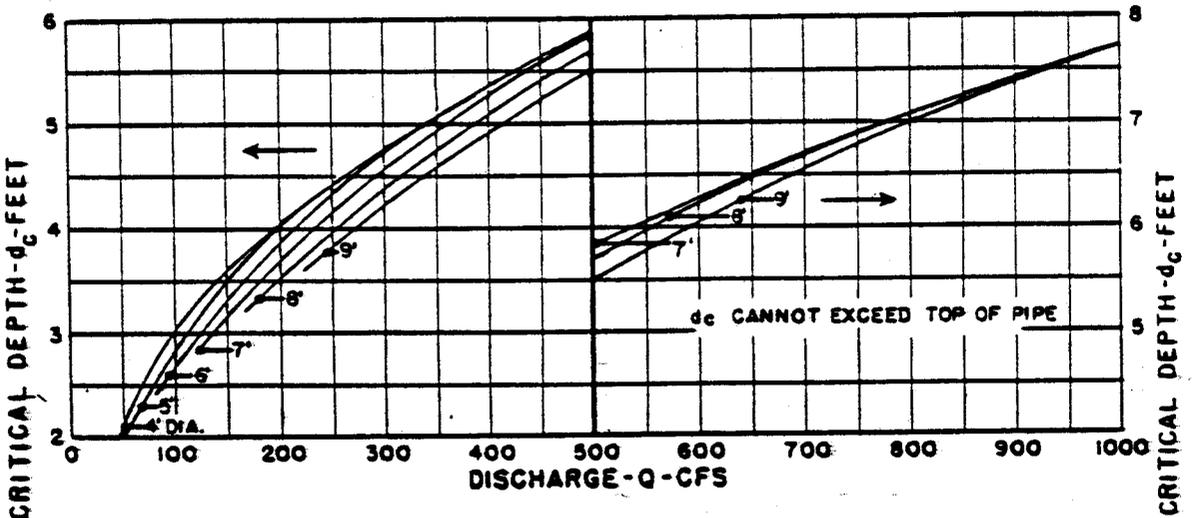
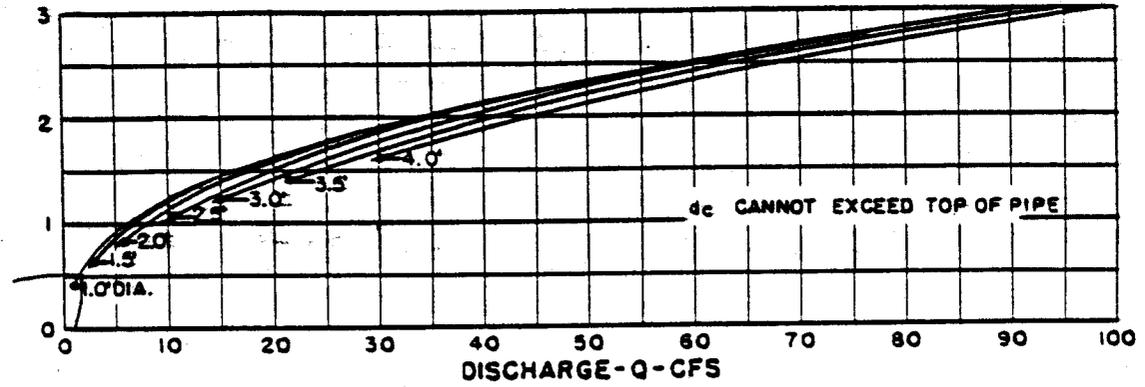
BUREAU OF PUBLIC ROADS JAN. 1963



CHART 4

1/2 7, 75

$d_c = 0.5$
 $Q = 1.5 \text{ CFS}$
 $\text{DIA} = 1.0'$



BUREAU OF PUBLIC ROADS

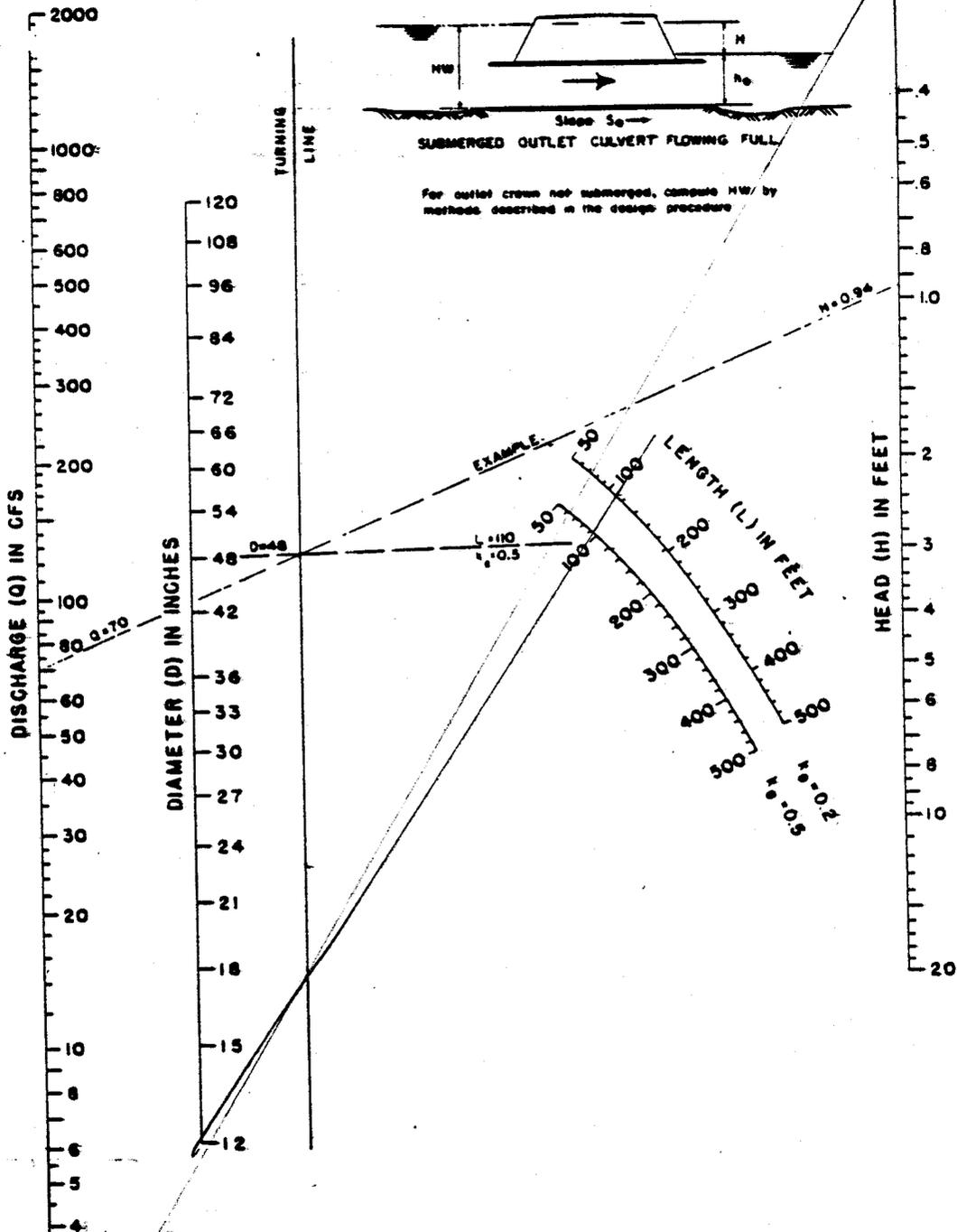
JAN. 1964

CRITICAL DEPTH CIRCULAR PIPE

SKIFFES CREEK VILLAGE
 PARCEL "B"
 JO 9757
 8/2/01

CHART 5

0.22



HEAD FOR
 CONCRETE PIPE CULVERTS
 FLOWING FULL
 n = 0.012

1.5

JAN 12, 2001
JOB # 9179

James City County BMP Guidelines

Table 1: BMP Point System for evaluating acceptable water quality BMPs and preservation of open space

BMP	Treatment Volume (WQ ₂)	Average Total P Removal Efficiency	Points
A. WET POND			
1. Small Wet Pond	1.5 in / imp acre	40%	6
2. Wet Pond	2.0 in / imp acre	50%	8
3. Wet ED Pond	2.0 in / imp acre	80%	10
B. WETLANDS			
1. Shallow Marsh	1.0 in / imp acre	40%	6
2. ED Shallow Wetland	1.0 in / imp acre	40%	6
3. Pond/Wetland System	1.0 in / imp acre	60%	10
4. Pocket Wetland	1.0 in / imp acre	40%	6
C. INFILTRATION (TRENCH OR BASIN)			
1. Infiltration Trench	0.5 in / imp acre	50%	8
2. Infiltration Trench	1.0 in / imp acre	60%	10
3. Infiltration Basin	0.5 in / imp acre	50%	8
4. Infiltration Basin	1.0 in / imp acre	60%	10
D. FILTERING SYSTEMS			
1. Bioretention	1.0 in / imp acre	50%	8
2. Surface Sand Filter	1.0 in / imp acre	50%	8
3. Underground Sand Filter	1.0 in / imp acre	50%	8
4. Perimeter Sand Filter	1.0 in / imp acre	50%	8
5. Organic Filter	1.0 in / imp acre	50%	8
6. Pocket Sand Filter	1.0 in / imp acre	40%	6
E. OPEN CHANNEL SYSTEMS			
1. Wet Swale (check dams)	1.0 in / imp acre	30%	4
2. Dry Swale	1.0 in / imp acre	60%	10
3. Biofilters	1.0 in / imp acre	30%	4
F. EXTENDED DRY DETENTION			
1. Timber Walls	1.0 in / imp acre	30%	4
2. Dry ED with forebay	1.0 in / imp acre	30%	4
G. OPEN SPACE CONSERVATION EASEMENTS			
1. Accepts and treats stormwater runoff from the development site per design specification	0.15 per 1% of site area		
2. Adjacent to a wetland, mature forest, or RPA	0.15 per 1% of site area		
3. All other open space	0.10 per 1% of site area		

Table 2

Worksheet for BMP Point System

A. STRUCTURAL BMP POINT ALLOCATION

Bmp #1
Bmp #2
B-1/B-2
E-2

BMP	BMP Points		Fraction of Site Served by BMP		Weighted BMP Points
			<u>4.34 - 1.1 = 3.24</u>		
ED WETLAND	6	x	<u>3.1 / 3.24</u>	=	<u>5.74</u>
DRY SWALE	10	x	<u>0.6 / 3.24</u>	=	<u>1.85</u>
		x		=	
		x		=	

TOTAL WEIGHTED STRUCTURAL BMP POINTS: 7.6

B. NATURAL OPEN SPACE CREDIT

Fraction of Site		Natural Open Space Credit		Points for Natural Open Space
<u>25%</u>	x	<u>.1</u> (0.1 per 1%)	=	<u>2.5</u>
	x	<u>(0.15 per 1%)</u>	=	

TOTAL NATURAL OPEN SPACE CREDIT: 2.5

C. TOTAL WEIGHTED POINTS

<u>7.6</u>	+	<u>2.5</u>	=	<u>10.1</u>
Structural BMP Points		Natural Open Space Points		Total

Table 2

Worksheet for BMP Point System

A. STRUCTURAL BMP POINT ALLOCATION

BMP	BMP Points		Fraction of Site Served by BMP		Weighted BMP Points
<i>BMP #1</i> ED WETLAND	6	x	$\frac{3.1}{3.24} = .956$	=	5.74
<i>BMP #2</i> DRY SWALE	10	x	$\frac{.6}{3.24} = 14\%$	=	1.4
		x	3.24	=	1.85
		x		=	
TOTAL WEIGHTED STRUCTURAL BMP POINTS:					7.59 <u>7.4</u>

B. NATURAL OPEN SPACE CREDIT

Fraction of Site		Natural Open Space Credit		Points for Natural Open Space
$\frac{1.1}{4.34} \cdot .253$	x		=	2.5
$\frac{1.1}{4.34} (2.5)$	x	(0.1 per 1%) 0.15	=	3.75
		(0.15 per 1%)		

TOTAL NATURAL OPEN SPACE CREDIT: 3.75

C. TOTAL WEIGHTED POINTS

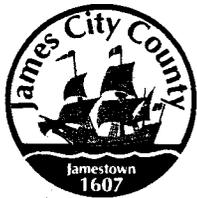
<u>7.6</u>		<u>2.5</u>		<u>10.1</u>
7.4	+	3.75	=	11.15
Structural BMP Points		Natural Open Space Points		Total

4.34
1.10
3.24 = area for structural BMP calc.

8.

Correspondence with owners

SJT File



DEVELOPMENT MANAGEMENT

101-E MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6671 Fax: (757) 253-6850 E-MAIL: devtman@james-city.va.us

CODE COMPLIANCE
(757) 253-6626
codecomp@james-city.va.us

ENVIRONMENTAL DIVISION
(757) 253-6670
environ@james-city.va.us

PLANNING
(757) 253-6685
planning@james-city.va.us

COUNTY ENGINEER
(757) 253-6678
INTEGRATED PEST MANAGEMENT
(757) 253-2620

June 9, 2003

Mr. James Pagano
Bush Construction
4029 Ironbound Road, Suite 200
Williamsburg, Va. 23188

*Reinspect
6-27-03*

Re: Carter's Village Parcel B
County Plan No. SP-5-01; Amended Plan SP-28-02
County BMP ID Codes: SC 015 and SC 016

Dear Mr. Pagano:

The Environmental Divisions has reviewed a record drawing (asbuilt) and construction certification as submitted to our office for stormwater management facilities associated with the above referenced project. The record drawing provides as-built information for a shallow marsh detention basin situated at the east end of the project (SC 015) and a water quality swale (SC 016) situated along the back of the north units adjacent to Skiffes Creek Terrace.

Based on our review of the project and a concurrent field inspection as performed on June 6th 2003, the following items must be addressed prior to release of the developer's surety instrument for the stormwater management/BMP facility at the site and to proceed with closing out the project. For simplicity purposes, this letter will cover outstanding issues associated with both the shallow marsh and water quality swale onsite BMPs (SC 015 and SC 016, respectively).

Construction Certification:

1. The construction certification for the shallow marsh detention basin (SC 015) is **satisfactory**.
2. In accordance with the Note # 20 on Sheet 4 of the approved plan, construction certification was required for all BMP facilities. None was provided for the water quality (dry swale) BMP situated along the back of the north units (SC 016). This is especially important since the facility has subsurface permeable soil and under drain layers. The certification can be in letter format or by use of the certification statements in Section 4 of the JCC, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions.

*✓
OK
REC'D
6/17/03*

Record Drawing:

SC 015 - Shallow Marsh Detention Basin at East End of Project

3. Provide an asbuilt elevation for normal pool (water surface elevation) of the shallow marsh and show the size (diameter) of the MH-1 access (grade control) structure along the outfall barrel.

*✓
OK
7-2-03
NSE 49.5*

✓
OK
7-2-07

Add "Section D-D" from Sheet 3 of the approved plan, annotated as necessary to show as-built conditions, to the record drawing set. This detail shows specific information about the principal flow control structure for the facility.

SC 016 - Water Quality (Dry Swale) along North Side of Project

5./
✓
OK
7-2-07

Add "Section C-C" and "Figure 16 Dry Swale" from Sheet 3 of the approved plan, annotated as necessary to show as-built conditions, to the record drawing set. These sections show specific information about the water quality swale for the project.

For Both BMP Facilities (SC 015 & SC 016)

✓
OK
7-2-07

6. Along with the record drawing set, submit completed record drawing and construction certification forms, Sections 1 through 5, from the *James City County, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions* (packet). The Environmental Division began use of the forms and checklists in this packet effective February 1st 2001. (Note: Each BMP should have a set of forms.)

✓
OK
7-2-07

7. Add the maintenance plan from Sheet 5 of the approved plan to the record drawing set.

✓
OK
7-2-07

8. If possible add the following County identifiers to the lower right hand corner of the record drawing: County Plan Number SP-5-01 and BMP ID Codes: SC 015 & SC 016.

Construction - Related Items:

SC 015 - Shallow Marsh Detention Basin at East End of Project

✓
OK
6-27-03

9. Clean the interior of the access (grade control) structure of all woody material and debris. Also, anchor the aluminized cap to the access structure. During the time of the inspection, the aluminum cap was easily able to be lifted off the concrete manhole structure. Provide an extra set of keys for any locking mechanisms to the Environmental Division. (Note: the access structure is a MH-1 concrete manhole with an aluminized cap which provides a grade change for the 15-inch barrel from the BMP.)

✓
OK
6-27-03

10. Approximately 2 to 3 ft. of subsidence was present around the access MH-1 structure on the dam. Fill subsided areas around the access (grade control) structure on the principal spillway with compacted fill material. Seed and mulch disturbed areas associated with this work.

✓
OK
6-27-03

11. Approximately 2 ft. of subsidence was present around both sides of the outfall barrel at the bottom end. This is the end at the downstream toe of dam near the riprap outlet protection pad. Fill subsided areas along the 15-inch barrel with compacted fill material. Seed and mulch disturbed areas associated with this work.

✓
OK
6-27-03

12. Provide a transition channel at the outlet end of the existing drainage channel from Pocahontas Trail (US 60) to safely convey channel flow from the existing channel to the outlet protection pad at the outfall end of the barrel through the dam. Currently riprap associated with the outlet protection pad is piled up enough that it obstructs positive drainage from the existing channel to the rock pad. If a proper transition is not provided, erosive velocities from the existing channel will continue to scour soils at the outfall end of the pipe barrel. This may promote erosion and piping of the dam embankment and displacement of the pipe which may lead to dam failure.

✓
OK
6-27-03
13. The concrete emergency spillway needs to be flat across the entire crest section. Based on the approved design the emergency spillway crest is at El. 53. The emergency spillway crest should be flat between El. 53 on the upslope face of the dam to El. 53 on the downslope face of the dam. Currently, there is no level crest portion on the concrete spillway. If the emergency spillway is used in an overflow situation, the lining would be undermined at the concrete/soil interface.

ANCHOR WALL INSTALLED

✓
OK
6-27-03
14. Repair channel erosion at the end of the stormwater conveyance channel behind (south of) Lot 26. This channel segment is situated just prior to (above and west of) the top of the riprap along the slope at the back west corner of the BMP (near Pocahontas Trail).

SC 016 - Water Quality (Dry Swale) along North Side of the Project

✓
OK
6-27-03
15. Because of newly placed fencing around the back yard of Lot 16, proper inspection could not be performed on the DI-1 grate which receives drainage from the water quality swale behind the north units. Lot 16 is the last (eastern) townhouse on the north side nearest the playground area. The water quality, dry swale BMP is a second onsite BMP for the project. Dry swales consist of an open channel on the surface with a subsurface permeable soil layer (typically 30 inch deep) and under drain pipe. Ensure the DI-1 inlet in back of Lot 16 does not contain excessive sediment, debris or trash that could affect the function of the under drain pipe. Proper coordination to inspect and/or clean this inlet may be necessary with the current tenant.

Other Issues:

Recently, our division has received various complaints concerning the proximity of the playground/tot lot area to the pretreatment forebay for shallow marsh BMP (SC 015). The approved plan did not call for any fencing or landscaping to provide separation between the playground and the BMP area. Normally, the owner or homeowner's association would decide what provisions are necessary to address this issue to reduce or minimize liability.

Currently, there are no formal local policies or guidelines relative to this issue. Fencing of stormwater management facilities is highly dependent on many factors such as the facility type, location, adjacent land uses, site conditions, soils, development plan characteristics, site amenities and character, facility design features and the level of future monitoring and maintenance by the Owner. Over the recent past, the Environmental Division has made substantial effort during the plan of development review process to evaluate access and safety and has strived to ensure non-structural measures (which complement our water quality program) are provided for stormwater management facilities, rather than use of purely structural measures such as fencing. Our informal approach follows applicable James City County zoning and BMP manual guidelines in conjunction with other established state agency criteria.

Normally, fencing is not required and is not used for most facilities, unless there are vertical walls present or distinct hazards are anticipated, such as adjacent school facilities. Newer stormwater management facilities are required to incorporate features into the design which tend to deter unauthorized access, entry and provide for safety enhancement. These features include better siting and configuration; screening; landscaping; buffering/setbacks; shoreline plantings; gentler (flatter) side slopes; and use of aquatic and safety benching. Signs and fencing are used as last resort if a substantial danger/risk is anticipated by the designer, owner or County.

Although fencing can deter unauthorized access, it can sometimes work in an opposite manner by creating curiosity, restricting passive recreation use, lowering aesthetic value, restricting routine inspection and limiting routine maintenance activities such as mowing and cleaning. In addition, a facility that is enclosed by fencing is difficult to observe and monitor consistently thus possibly decreasing the chance of detecting unauthorized entry.

In either case (fencing or not), specific determinations are made on a case-by-case basis. Based on our current observations of the situation at this time, fencing would not be a requirement from our division based on a stormwater management perspective. This was primarily based on our field observation of uses at the playground, the rolling terrain between the playground and the BMP, the horizontal distance between the playground and the normal water pool of the BMP and design features which were provided for the BMP including flatter interior side slopes for the BMP (4H:1V) and relatively shallow water depth in the pretreatment forebay area. However, we do **highly suggest** that the owner provide a single row of landscape shrubbery between the general location of the playground and the BMP forebay. The shrubbery should be situated outside and along the south (BMP) side of the sanitary sewer line and easement. This will provide an additional physical buffer and screen between the playground and the BMP area and also minimize access to the BMP directly from the playground area. Access to the top of dam area of the BMP should not be obstructed for future inspection and maintenance purposes. Also, the situation should be closely assessed and monitored on a regular basis as they could change quickly.

Once this work is satisfactorily completed, contact our office appropriately for reinspection. We can then proceed with final release of the surety and/or closing out the project. One reproducible and one blue/black line set of the record drawings will be required once the above items are adequately addressed.

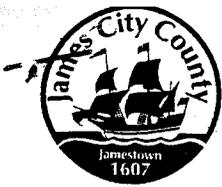
Please contact me at 757-253-6639 or the assigned Environmental Division inspector, Gerry Lewis at 757-253-6672 if you have any further comments or questions.

Sincerely,



Scott J. Thomas, P.E.
Civil Engineer
Environmental Division

cc: James S. Leigh, Sirine Group LTD - via fax
Mohammad Sharbafzher, FES - via fax
Gary Albertson, Vico Construction - via fax
Gerry Lewis, Environmental Division Inspector



**James City County Environmental Division
Stormwater Management / BMP Inspection Report
Detention and Retention Pond Facilities**

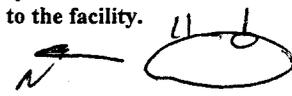
SP-5-01 PH 3

County BMP ID Code (if known): 5C015
 Name of Facility: Carters Village BMP No.: 1 of 2 Date: 6/6/03
 Location: 6
 Name of Owner: Greensprings Plantation Inc.
 Name of Inspector: Scott J. Thomas, G.E. Lewis
 Type of Facility: Shallow Marsh ED
 Weather Conditions: Sunny, Warm To's Type: Final Inspection County BMP Inspection Program Owner Inspection

If an inspection item is not applicable, mark NA, otherwise mark the appropriate column.

- O.K. - The item checked is in adequate condition and the maintenance program is currently satisfactory. No action required.
- Routine - The item checked requires attention, but does not present an immediate threat to the function/integrity of the BMP.
- Urgent - The item checked requires immediate attention to keep the BMP operational and to prevent damage to the facility.

Provide an explanation and details in the comment column, if routine or urgent are marked.



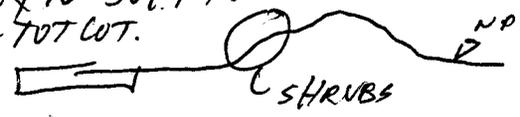
Facility Item	O.K.	Routine	Urgent	Comments
Embankments and Side Slopes:				<u>3H:1V DS; 3H:1V U/S 8-10' TOP WIDTH; 10-12' HIGH DAM</u>
Grass Height	<input checked="" type="checkbox"/>			<u>4" GRASS</u>
Vegetation Condition	<input checked="" type="checkbox"/>			
Tree Growth	<input checked="" type="checkbox"/>			<u>None, some along toe.</u>
Erosion	<input checked="" type="checkbox"/>			<u>None.</u>
Trash & Debris	<input checked="" type="checkbox"/>			<u>None.</u>
Seepage	<input checked="" type="checkbox"/>			<u>None Observed</u>
Fencing or Benches				
Interior Landscaping/Planted Areas: <input type="checkbox"/> None <input type="checkbox"/> Constructed Wetland/Shallow Marsh <input checked="" type="checkbox"/> Naturally Established Vegetation				
Vegetated Conditions	<input checked="" type="checkbox"/>			<u>Interior-Perimeter C/A tails</u>
Trash & Debris	<input checked="" type="checkbox"/>			<u>None</u>
Floating Material	<input checked="" type="checkbox"/>			<u>None - cloudy water</u>
Erosion	<input checked="" type="checkbox"/>			
Sediment	<input checked="" type="checkbox"/>			<u>About 6" deep.</u>
Dead Plant	<input checked="" type="checkbox"/>			
Aesthetics	<input checked="" type="checkbox"/>			<u>OK</u>
Other				
Notes:	<u>SERVES Townhouse, Parking + ROAD</u>			

Facility Item	O.K.	Routine	Urgent	Comments
Water Pools: <input type="checkbox"/> Permanent Pool (Retention Basin) <input checked="" type="checkbox"/> Shallow Marsh (Detention Basin) <input type="checkbox"/> None, Dry (Detention Basin)				
Shoreline Erosion	✓			2-3' deep at
Algae	✓			
Trash & Debris	✓			
Sediment	✓			
Aesthetics	✓			
Other	✓			
Inflows (Describe Types/Locations): 18" PIPE FROM DL-1 PARKING; 12" HOPE FROM ART SWALE Bm P2				
Condition of Structure	✓			Lots of CLASS I @ outfall
Erosion	✓			
Trash and Debris				
Sediment				
Outlet Protection				
Other				Rock check Forebay 40' LONG CLASS I; 1' high
Principal Flow Control Structure - Riser, Intake, etc. (Describe Type): 18 inch pipe; 7' deep w/ ALUM CAP				
Condition of Structure	✓			LONG EW-11 w/ GRATE
Corrosion	✓			
Trash and Debris	✓			
Sediment	✓			
Vegetation	✓			
Other		✓	✓	Subsidence around riser *
Principal Outlet Structure - Barrel, Conduit, etc. : 12" RCP w/ ES-1				
Condition of Structure	✓			
Settlement		✓	✓	@ PIPE outfall 2' *
Trash & Debris	✓			
Erosion/Sediment		✓	✓	Roadside Channel @ pipe end *
Outlet Protection				12x12 CLASS 1
Other	✓			
Emergency Spillway (Overflow): 8' wide CONC SPILLWAY; 7 ft. deep.				
Vegetation	✓			
Lining	✓			Concrete
Erosion	✓			
Trash & Debris	✓			
Other		✓	✓	Need crest (flat) sect.
Notes: Forebay working good.				

Facility Item	O.K.	Routine	Urgent	Comments
Disinfectant Type Conditions: <i>Townhomes, Parking</i>				
Mosquito Breeding	✓			<i>None, but moderate pot in FB</i>
Animal Burrows	✓			
Graffiti	✓			
Other	✓			
Surrounding Perimeter Conditions: <i>West Townhomes, North Skiffes Road Tot Lot</i>				
Land Uses	✓			<i>stabilized</i>
Vegetation	✓			
Trash & Debris	✓			
Aesthetics	✓			
Access /Maintenance Roads or Paths				<i>Main parking area</i>
Other				

Remarks:

- *Flow dam*
- *Fill w/ compacted ground riser, 2-3 ft. penetration w/ rod need more material. to prevent subsidence*
- *Road Ditch @ barrel. Need to tie into OP, outfall channel. if left go will erode along barrel.*
- *2 ft subsidence at end of outfall barrel. Fill w/ compacted material.*
- *clean riser access structure of wood debris (7' deep)*
- *Anchor alum cap to rep riser. I could remove.*
- *Need ES Crest Section (Flat). Undermine will occur.*
- *press erosion on west inflow channel behind units at rock slope riprap*
- *TOT LOT - swing, footer taller, sand box ~ 50 ft to NP ADD SHRUBS TO BUFFER Between BMP + TOT LOT.*



Overall Environmental Division Internal Rating: 3

CHANGE TO "4" DUE TO REWORK REINSPECT 6-27-03

Signature: *[Signature]* P.E.
 Title: Civil Engineer ENV DIV.

Date: 6-6-03

*BMP #2
 UNIT # 1533
 HAS ENCLOSED w/ FENCE
 (CAN'T ACCESS DI-1
 FOR INSPECTION.)*

WATERSHED	SC	MAINTENANCE PLAN	Yes	CTRL STRUC DESC	CMP Riser
BMP ID NO	015	SITE AREA acre	4.341	CTRL STRUC SIZE inches	24
PLAN NO	SP-5-01	LAND USE	MF Residential	OTLT BARRL DESC	RCP Barrel
TAX PARCEL	(59-02)(06-1A)	old BMP TYP		OTLT BARRL SIZE inch	15
PIN NO	5920600001A	JCC BMP CODE	B2 ED Shallow Wetland		
CONSTRUCTION DATE		POINT VALUE	6	EMERG SPILLWAY	Yes
PROJECT NAME	Carters Village			DESIGN HW ELEV	52.67
FACILITY LOCATION	8998 Pocahantas Trail			PERM POOL ELE	50.42
CITY-STATE	Williamsburg, Va. 23185	SVC DRAIN AREA acres	3.1	2-YR OUTFLOW cfs	6.00
CURRENT OWNER	Greensprings Plantation Inc.			10-YR OUTFLOW cfs	19.00
OWNER ADDRESS	4029 Ironbound Road			REC DRAWING	No
OWNER ADDRESS 2	Suite 200	SERVICE AREA DESCRI	SF Lots, roads, parking		
CITY-STATE-ZIP CODE	Williamsburg, Va. 23188	IMPERV AREA acres	1.12	CONSTR CERTI	Yes
OWNER PHONE	220-2874	RECV STREAM	UT of Skiffes Creek		
MAINT AGREEMENT	Yes	EXT DET-WQ-CTRL	Yes	LAST INSP DATE	
EMERG ACTION PLAN	No	WTR QUAL VOL acre-ft	0.094	INTERNAL RATING	
		CHAN PROT CTRL	Yes	MISC/COMMENTS	
		CHAN PROT VOL acre-ft	0.29	2-yr outflow is for 1-yr storm.	
		SW/FLOOD CONTROL	Yes	Micropool/forebay & 15" LF orif.	
		GEOTECH REPORT	No		

[Get Last BMP No](#)

[Return to Menu](#)

**THIS DEED OF EASEMENT IS EXEMPT FROM
RECORDATION TAX PURSUANT TO §58.1-811(A)(3)
OF THE CODE OF VIRGINIA (1950), AS AMENDED.**

**DEED OF EASEMENT
FOR NATURAL OPEN SPACE**

THIS DEED OF EASEMENT, made this _____ day of August, 2001, by and between **GREENSPRINGS PLANTATION, INC.**, a Virginia Corporation, its heirs, successors and assigns, hereinafter referred to as the "Grantor", and the **COUNTY OF JAMES CITY, VIRGINIA**, hereinafter referred to as "Grantee".

WHEREAS, the Grantor is the owner of certain property containing 4.34 acres, more or less, on Route 60 in James City County, Virginia, hereinafter referred to as the "Property";

WHEREAS, Grantee has adopted The Chesapeake Bay Preservation Ordinance, Chapter 19B of the *James City County Code*, as required by Chapter 21 of Title 10.1 of the *Code of Virginia* to protect the Chesapeake Bay and its tributaries from non-point source pollution from land uses or appurtenances within the Chesapeake Bay drainage area, and;

WHEREAS, Grantor wishes to preserve land as natural open space as part of Grantor's efforts to improve the quality of storm water runoff from the Property.

NOW, THEREFORE, in recognition of the foregoing and in consideration of the sum of Ten and No/100 Dollars (\$10.00) and other good and valuable consideration, the receipt of which is hereby acknowledged, the Grantor does hereby grant and convey to Grantee an easement in perpetuity in gross, with the right in perpetuity to restrict the use as described below, of the portion

herein described of that certain tract, lot, piece or parcel of land with improvements thereon ("Easement Property"), to-wit:

The parcel is shown and designated as "VARIABLE WIDTH CONSERVATION ESM'T HEREBY CONVEYED TO JAMES CITY COUNTY" on the Plat entitled "PLAT OF CONSERVATION EASEMENTS TO BE CONVEYED TO JAMES CITY COUNTY, ROBERTS DISTRICT-JAMES CITY COUNTY, VIRGINIA" made by The Sirine Group, Ltd. of White Marsh, Virginia, dated August 9, 2001, and recorded in the Clerk's Office of the Circuit Court of James City County concurrently with this Deed of Easement.

The restrictions hereby imposed on the use of the Easement Property, the acts which the Grantor covenants to do or not to do and the restrictions which the Grantee is hereby entitled to enforce, shall be as follows:

1. No building or structure shall be built or maintained on the Easement Property other than such building or structure approved by the County Engineer, in writing.
2. The Easement Property shall be kept free and clear of any junk, trash, rubbish or other unsightly or offensive material.
3. No new signs, billboards, outdoor advertising, road or utility lines shall be placed on the Property without the express written consent of the County Engineer.
4. The Easement Property shall remain in its natural condition with respect to natural leaf litter or other ground covering vegetation, under-story vegetation or shrub layer, and tree canopy. The activities of Grantor within the Easement Property shall be limited to, those which do not remove or damage any vegetation or disturb any soil, including, but not limited to selective trimming and pruning which will not alter the natural character of the Easement Property. Grantor may install walk

trails or remove dead, diseased, poisonous or invasive vegetation with the express written consent of the County Engineer.

5. Grantee and its representatives may enter upon the Easement Property from time to time for inspection, to enforce the terms of this Easement and to post a sign or marker identifying Grantee's interest in the Easement Property as natural open space.

6. In the event of a violation of the Easement, the Grantee shall have the right to seek all appropriate legal and equitable relief, including, but not limited to, the right to restore the Easement Property to its natural condition and assert the cost of such restoration as a lien against the Easement Property.

Although this Easement in gross will benefit the public in the ways recited above, nothing herein shall be construed to convey a right to the public of access to or use of the Easement Property, and the Grantor shall retain exclusive right to such access and use, subject only to the provisions herein recited.

WITNESS the following signatures and seals:

GREENSPRINGS PLANTATION, INC.

By _____

STATE OF VIRGINIA

CITY/COUNTY OF _____, to-wit:

The foregoing instrument was acknowledged before me by _____
of Greensprings Plantation, Inc., a Virginia Corporation, this _____ day of August, 2001.

NOTARY PUBLIC

My commission expires: _____

The form of this Deed of Easement is approved and, pursuant to Resolution of the Board of
Supervisors of James City County, Virginia, duly executed on _____, this
conveyance is hereby accepted on behalf of said County.

DATE

COUNTY ATTORNEY







4.341 AC.

1/1M AGREEMENT INET# 010015439
Aug 27 '01

GREENSPRING PLANTATION INC.

SUITE 200
4029 Lumbard Rd
Wmng VA 23188
2.95 AC.

1.1 AC CONSERV EASEMENT.

NOTE 20 sheet 4 of 5
AB & CC

Bush Construction Corp.
4029 Lumbard Rd.
Suite 200
Wmng VA 23188
ATTN: JAMES M. PAGANO VP.
PH 804-220-2874
FR 804-229-2542

Betty Phillips
873-4924

SP-5-01; ARND SP-28-02
5920600001A
2.95 AC
R5 MF RESID

5920100015
8998 Rector-McIntosh Trail

The Bush Co.
4029 Lumbard Rd
Wmng VA 23188

220-2874 342-5000
JAMES PAGANO

CC
FES
11513 B. Cannon Blvd
NW VA 23600
FAX 157-873-4114
Mohammad Sharbathy PE.



SC016

SC015

342-5060
(m)



BUSH CONSTRUCTION CORPORATION

JAMES M. PAGANO
VICE PRESIDENT

4029 IRONBOUND ROAD / SUITE 200 / WILLIAMSBURG, VA 23188
PHONE (804) 220-2874 / FAX (804) 229-2542

Phone (804) 487-3441
FAX (804) 487-8680

Vico Construction Corporation

Utility Contractors

GARY L. ALBERTSON
Estimator

4001 S. Military Hwy.
Chesapeake, VA 23320

GEDDY, HARRIS, FRANCK & HICKMAN, L.L.P.
P.O. BOX 379
516 SOUTH HENRY STREET
WILLIAMSBURG, VIRGINIA 23185

S. M. Franck

Telephone: (757) 220 6500
Telecopier: (757) 229 5342
Email: sfranck@widomaker.com

August 14, 2001

BY TELECOPY ONLY TO
259 4032

Darryl Cook
James City County

Dear Darryl:

At the request of Bush Construction, I enclose a copy of a conservation easement which I recently prepared.

With regards, I am

Sincerely yours,



S. M. Franck

FOUNDATION ENGINEERING SCIENCE, INC.



- Drilling Services [Geotechnical & Environmental]
- Geotechnical Engineering [Shallow & Deep Foundations, Retaining Walls & Pavement Design]
- Environmental Management [Phase I & II]
- Construction Inspection Services [Quality Control & Quality Assurance]
- Foundation/Structure & Pavement Distress Evaluations
- Value Engineering During Design & Construction
- Design & Build Segmental Reinforced Retaining Walls [SRRW]

SP-5-01; SC015

Mr. James M. Pagano, Vice President
Bush Construction Corporation
4029 Ironbound Road, Suite 200
Williamsburg, Virginia 23692

May 13, 2003

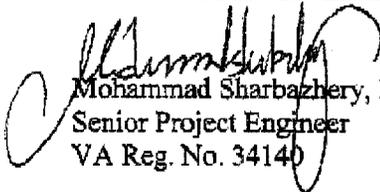
Re: Earthen Dam Certification Report
Skiffes Creek Village – Dam Area
James City County, Virginia
FES Report No: N354.048

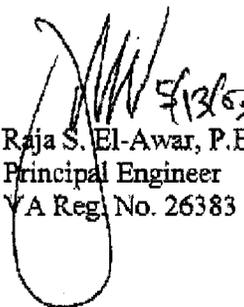
Foundation Engineering Science, Inc. (FES) hereby certifies to the best of our knowledge and belief that the Earthen Dam for the Storm Water Management/BMP facility for the Skiffes Creek Village was monitored and constructed in general accordance with the provisions of the approved design plans, specifications and storm water management plan.

FES appreciates the opportunity to be of service to **Bush Construction Corporation** on this important project and looks forward to its successful completion. Should you have any questions regarding this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

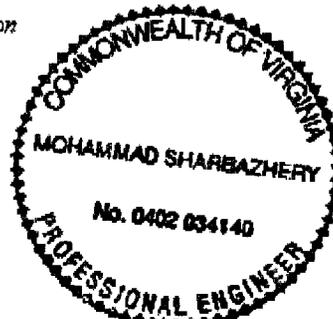
FOUNDATION ENGINEERING SCIENCE, INC.


Mohammad Sharbazhery, P. E.
Senior Project Engineer
VA Reg. No. 34140


Raja S. El-Awar, P.E.
Principal Engineer
VA Reg. No. 26383

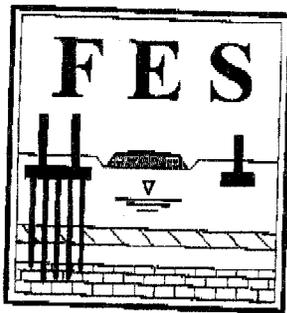
XCopies (1) James City County – Environmental Division

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11843 B CANON BOULEVARD > NEWPORT NEWS, VIRGINIA 23606 > PHONE: 757-873-4113 FAX: 757-873-4114

FOUNDATION ENGINEERING SCIENCE, INC.



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- Foundation/Structure & Pavement Distress Evaluations
- Value Engineering During Design & Construction
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Fax Cover Sheet

Date	May 13, 2003	Fax	(757) 259-4032	Pages	2
To	Mr. Scott Thomas, P.E.	Client	Bush Construction Corporation		
From	Mohammad Sharbzhery, P.E.	Ref.	FES Report No. N354.048 – Skiffes Creek Village – Dam Area Earthen Dam Certification Report		
URGENT	FOR REVIEW	PLEASE COMMENT	PLEASE REPLY	ORIGINAL MAILED – YES/NO	

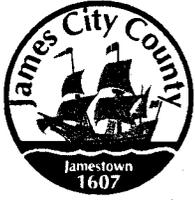
Please let me know at 757-873-4113 if you do not receive a clear transmission of all pages.

Sincerely,

Lil

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11843-B CANON BOULEVARD ► NEWPORT NEWS, VIRGINIA 23606 ► PHONE: 757-873-4113 FAX: 757-873-4114



DEVELOPMENT MANAGEMENT

101-E MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784

(757) 253-6671 Fax: (757) 253-6850 E-MAIL: devtman@james-city.va.us

CODE COMPLIANCE
(757) 253-6626
codecomp@james-city.va.us

ENVIRONMENTAL DIVISION
(757) 253-6670
environ@james-city.va.us

PLANNING
(757) 253-6685
planning@james-city.va.us

COUNTY ENGINEER
(757) 253-6678
INTEGRATED PEST MANAGEMENT
(757) 253-2620

June 9, 2003

Mr. James Pagano
Bush Construction
4029 Ironbound Road, Suite 200
Williamsburg, Va. 23188

Re: Carter's Village Parcel B
County Plan No. SP-5-01; Amended Plan SP-28-02
County BMP ID Codes: SC 015 and SC 016

Dear Mr. Pagano:

The Environmental Divisions has reviewed a record drawing (asbuilt) and construction certification as submitted to our office for stormwater management facilities associated with the above referenced project. The record drawing provides as-built information for a shallow marsh detention basin situated at the east end of the project (SC 015) and a water quality swale (SC 016) situated along the back of the north units adjacent to Skiffes Creek Terrace.

Based on our review of the project and a concurrent field inspection as performed on June 6th 2003, the following items must be addressed prior to release of the developer's surety instrument for the stormwater management/BMP facility at the site and to proceed with closing out the project. For simplicity purposes, this letter will cover outstanding issues associated with both the shallow marsh and water quality swale onsite BMPs (SC 015 and SC 016, respectively).

Construction Certification:

1. The construction certification for the shallow marsh detention basin (SC 015) is **satisfactory**.
2. In accordance with the Note # 20 on Sheet 4 of the approved plan, construction certification was required for all BMP facilities. None was provided for the water quality (dry swale) BMP situated along the back of the north units (SC 016). This is especially important since the facility has subsurface permeable soil and under drain layers. The certification can be in letter format or by use of the certification statements in Section 4 of the JCC, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions.

Record Drawing:

SC 015 - Shallow Marsh Detention Basin at East End of Project

3. Provide an asbuilt elevation for normal pool (water surface elevation) of the shallow marsh and show the size (diameter) of the MH-1 access (grade control) structure along the outfall barrel.

4. Add "Section D-D" from Sheet 3 of the approved plan, annotated as necessary to show as-built conditions, to the record drawing set. This detail shows specific information about the principal flow control structure for the facility.

SC 016 - Water Quality (Dry Swale) along North Side of Project

5. Add "Section C-C" and "Figure 16 Dry Swale" from Sheet 3 of the approved plan, annotated as necessary to show as-built conditions, to the record drawing set. These sections show specific information about the water quality swale for the project.

For Both BMP Facilities (SC 015 & SC 016)

6. Along with the record drawing set, submit completed record drawing and construction certification forms, Sections 1 through 5, from the *James City County, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions* (packet). The Environmental Division began use of the forms and checklists in this packet effective February 1st 2001. (Note: Each BMP should have a set of forms.)
7. Add the maintenance plan from Sheet 5 of the approved plan to the record drawing set.
8. If possible add the following County identifiers to the lower right hand corner of the record drawing: County Plan Number SP-5-01 and BMP ID Codes: SC 015 & SC 016.

Construction - Related Items:

SC 015 - Shallow Marsh Detention Basin at East End of Project

9. Clean the interior of the access (grade control) structure of all woody material and debris. Also, anchor the aluminized cap to the access structure. During the time of the inspection, the aluminum cap was easily able to be lifted off the concrete manhole structure. Provide an extra set of keys for any locking mechanisms to the Environmental Division. (Note: the access structure is a MH-1 concrete manhole with an aluminized cap which provides a grade change for the 15-inch barrel from the BMP.)
10. Approximately 2 to 3 ft. of subsidence was present around the access MH-1 structure on the dam. Fill subsided areas around the access (grade control) structure on the principal spillway with compacted fill material. Seed and mulch disturbed areas associated with this work.
11. Approximately 2 ft. of subsidence was present around both sides of the outfall barrel at the bottom end. This is the end at the downstream toe of dam near the riprap outlet protection pad. Fill subsided areas along the 15-inch barrel with compacted fill material. Seed and mulch disturbed areas associated with this work.
12. Provide a transition channel at the outlet end of the existing drainage channel from Pocahontas Trail (US 60) to safely convey channel flow from the existing channel to the outlet protection pad at the outfall end of the barrel through the dam. Currently riprap associated with the outlet protection pad is piled up enough that it obstructs positive drainage from the existing channel to the rock pad. If a proper transition is not provided, erosive velocities from the existing channel will continue to scour soils at the outfall end of the pipe barrel. This may promote erosion and piping of the dam embankment and displacement of the pipe which may lead to dam failure.

13. The concrete emergency spillway needs to be flat across the entire crest section. Based on the approved design the emergency spillway crest is at El. 53. The emergency spillway crest should be flat between El. 53 on the upslope face of the dam to El. 53 on the downslope face of the dam. Currently, there is no level crest portion on the concrete spillway. If the emergency spillway is used in an overflow situation, the lining would be undermined at the concrete/soil interface.
14. Repair channel erosion at the end of the stormwater conveyance channel behind (south of) Lot 26. This channel segment is situated just prior to (above and west of) the top of the riprap along the slope at the back west corner of the BMP (near Pocahontas Trail).

SC 016 - Water Quality (Dry Swale) along North Side of the Project

15. Because of newly placed fencing around the back yard of Lot 16, proper inspection could not be performed on the DI-1 grate which receives drainage from the water quality swale behind the north units. Lot 16 is the last (eastern) townhouse on the north side nearest the playground area. The water quality, dry swale BMP is a second onsite BMP for the project. Dry swales consist of an open channel on the surface with a subsurface permeable soil layer (typically 30 inch deep) and under drain pipe. Ensure the DI-I inlet in back of Lot 16 does not contain excessive sediment, debris or trash that could affect the function of the under drain pipe. Proper coordination to inspect and/or clean this inlet may be necessary with the current tenant.

Other Issues:

Recently, our division has received various complaints concerning the proximity of the playground/tot lot area to the pretreatment forebay for shallow marsh BMP (SC 015). The approved plan did not call for any fencing or landscaping to provide separation between the playground and the BMP area. Normally, the owner or homeowner's association would decide what provisions are necessary to address this issue to reduce or minimize liability.

Currently, there are no formal local policies or guidelines relative to this issue. Fencing of stormwater management facilities is highly dependent on many factors such as the facility type, location, adjacent land uses, site conditions, soils, development plan characteristics, site amenities and character, facility design features and the level of future monitoring and maintenance by the Owner. Over the recent past, the Environmental Division has made substantial effort during the plan of development review process to evaluate access and safety and has strived to ensure non-structural measures (which complement our water quality program) are provided for stormwater management facilities, rather than use of purely structural measures such as fencing. Our informal approach follows applicable James City County zoning and BMP manual guidelines in conjunction with other established state agency criteria.

Normally, fencing is ***not*** required and is ***not*** used for most facilities, unless there are vertical walls present or distinct hazards are anticipated, such as adjacent school facilities. Newer stormwater management facilities are required to incorporate features into the design which tend to deter unauthorized access, entry and provide for safety enhancement. These features include better siting and configuration; screening; landscaping; buffering/setbacks; shoreline plantings; gentler (flatter) side slopes; and use of aquatic and safety benching. Signs and fencing are used as last resort if a substantial danger/risk is anticipated by the designer, owner or County.

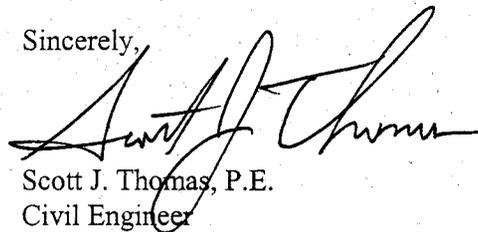
Although fencing can deter unauthorized access, it can sometimes work in an opposite manner by creating curiosity, restricting passive recreation use, lowering aesthetic value, restricting routine inspection and limiting routine maintenance activities such as mowing and cleaning. In addition, a facility that is enclosed by fencing is difficult to observe and monitor consistently thus possibly decreasing the chance of detecting unauthorized entry.

In either case (fencing or not), specific determinations are made on a case-by-case basis. Based on our current observations of the situation at this time, fencing would not be a requirement from our division based on a stormwater management perspective. This was primarily based on our field observation of uses at the playground, the rolling terrain between the playground and the BMP, the horizontal distance between the playground and the normal water pool of the BMP and design features which were provided for the BMP including flatter interior side slopes for the BMP (4H:1V) and relatively shallow water depth in the pretreatment forebay area. However, we do **highly suggest** that the owner provide a single row of landscape shrubbery between the general location of the playground and the BMP forebay. The shrubbery should be situated outside and along the south (BMP) side of the sanitary sewer line and easement. This will provide an additional physical buffer and screen between the playground and the BMP area and also minimize access to the BMP directly from the playground area. Access to the top of dam area of the BMP should not be obstructed for future inspection and maintenance purposes. Also, the situation should be closely assessed and monitored on a regular basis as they could change quickly.

Once this work is satisfactorily completed, contact our office appropriately for reinspection. We can then proceed with final release of the surety and/or closing out the project. One reproducible and one blue/black line set of the record drawings will be required once the above items are adequately addressed.

Please contact me at 757-253-6639 or the assigned Environmental Division inspector, Gerry Lewis at 757-253-6672 if you have any further comments or questions.

Sincerely,



Scott J. Thomas, P.E.
Civil Engineer
Environmental Division

cc: James S. Leigh, Sirine Group LTD - via fax
Mohammad Sharbathery, FES - via fax
Gary Albertson, Vico Construction - via fax
Gerry Lewis, Environmental Division Inspector



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June 16, 2003



Mr. Scott Thomas.
Civil Engineer
James City County Environmental Department.
101-E Mount Bay Road
P. O. Box 8784
Williamsburg, VA 23187-8784

**RE: CARTER'S VILLAGE PARCEL B, COUNTY PLAN NO. SP-5-01; AMENDED
PLAN SP-28-02; COUNTY BMP ID CODES SC1015 AND SC1016**

Dear Mr. Thomas:

This letter will serve as a recap of our June 16, 2003 conversation regarding your letter dated June 9, 2003 to the above referenced project as follows:

Construction Certification

FES, Inc. will be providing the construction certification for BMP SC016. You should receive the paperwork by June 18, 2003.

Record Drawing

The Sirine Group will be providing the revised as-built information requested (Items 3-8). Per The Sirine Group, the fieldwork is scheduled for the week of June 16, 2003 and the drawings will be submitted by June 25, 2003.

Construction-related items

- All the construction-related items (9-14) have been completed. On those items requiring grading, an erosion mat with seed has been installed for soil stabilization.
- A set of keys will be provided to James City County Environmental Department for the locking mechanism to the access MH-1 structure on the dam. Also, a set of keys will be provided to the Homeowners' Association.
- A concrete apron has been installed across the flat section of the concrete emergency spillway at El. 53. The surrounding area has been graded, compacted and stabilized with erosion control mat.

June 16, 2003

SC016

The DI-I inlet in back of Lot 16 has been inspected for sediment, debris and trash.

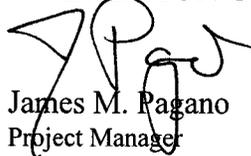
Other issues

- The site and BMP were landscaped per the approved plan. At this particular time, it is not our intention to provide any additional landscaping between the playground and BMP. However, we will bring your suggestions to the attention of the Homeowners' Association.
- It is our understanding that you will re-inspect the site during the week of June 16, 2003 to insure the items have been satisfactorily completed.
- Upon receipt of the revised as-builts from The Sirine Group, and the BMP SC016 certification from FES Inc., we will be in a position to have the bond released from James City County.

If you have any questions or comments, please contact me at (757) 220-2874.

Respectfully,

PLANTATION GROUP, L.L.C.



James M. Pagano
Project Manager

ENVIRONMENTAL DIVISION REVIEW COMMENTS
 Skiffes Creek Village
 SP-005-01
 February 2, 2001

MDW/DEC

General: Resp. Land Disturber

- ✓1. A Land Disturbing Permit and Siltation Agreement, with surety, are required for this project.
- ✓2. Water and sewer inspection fees must be paid prior to the issuance of a Land Disturbing Permit.
- ✓3. An Inspection/Maintenance Agreement shall be executed with the county for the BMP facility for this project.
- ✓4. As-built drawings must be provided for the detention basin on completion. Also, a note shall be provided on the plan stating that upon completion, the construction of the dam will be certified by a professional engineer who has inspected the structure during construction.
- ✓5. Environmental Inventory. Please provide an environmental inventory in accordance with Section 23-10(2) of the Chesapeake Bay Preservation ordinance. Components include tidal wetlands, tidal shores, non-tidal wetlands in RPA, resource protection areas, non-tidal wetlands in RMA, hydric soils and slopes 25 percent or greater. If none of these features are present on the site, provide a note to that effect.

Erosion & Sediment Control Plan:

- ✓6. Provide and label the limits of construction on the plan. Include the limits of clearing for the sewer connection to the existing line.
7. ✓ Show any temporary soil stockpile areas, staging and equipment storage areas.
8. Need to provide final topography or more spot elevation information. It is not apparent how the front of the units will drain towards the parking lots. The spot elevation information provided shows that the curb and corner elevations of the units are approximately the same and therefore will not drain properly.
- ✓9. Address in the sequence of construction how the sewer line installation will be handled. The sewer is to be constructed through the berm for the BMP.
10. More information is needed to describe how the detention basin will function as a sediment basin during construction. Submit a Sediment Basin Design Data Sheet for the sediment basin proposed to ensure design is in accordance with the 1992 VESCH criteria. Given that the drainage area is very close to the 3 acre threshold for use of a basin vs a trap, there may be other configurations of the outlet structure that can be used in place of a temporary riser and anti-vortex device. A variance would be needed to vary from the standard sediment basin design. -Need
- ✓11. Provide temporary safety fence around the basin while it is in sediment basin mode.
12. Provide more detailed information on what needs to be done to convert the sediment basin to the permanent SWM facility. inc removal of sed, fence, etc.

Stormwater Management / Drainage:

- ✓13. The BMP calculation worksheet needs to be modified to demonstrate compliance with the 10-point system. The fraction of the site served by the BMP needs to be based on the drainage area of the BM divided by the site area. However, in situations such as this where there are Natural Open Space (NOS) areas downstream of the BMP facility, the site area can be modified for the purposes of calculating the structural BMP points. We allow the site area to be reduced by the NOS area that does not drain to the BMP. Therefore, the site area for the BMP calculation is 4.34 - 1.1 or 3.24 acres. This yields 0.956 x 6 points or 5.74 points for the BMP. The calculation for the dry swale would be 0.6/3.24 x 10 or 1.85 points for a total of 7.6 structural points.