



## 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.

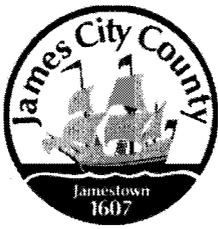
**BMP NUMBER:** JR026

**DATE VERIFIED:** June 12, 2012

**QUALITY ASSURANCE TECHNICIAN:** Leah Hardenbergh

*Leah Hardenbergh*  
\_\_\_\_\_

**LOCATION:** WILLIAMSBURG, VIRGINIA



# Stormwater Division

## MEMORANDUM

**DATE:** March 11, 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:** JR026

**PIN:** 4410200001C

**Subdivision, Tract, Business or Owner**

**Name (if known):**

Governors Land

**Property Description:**

Open Space 3 Travis Pond

**Site Address:**

2331 West Island Road

*(For internal use only)*

**Box** 14

**Drawer:** 7

**Agreements:** (in file as of scan date)

N

**Book or Doc#:**

**Page:**

Comments

JR-026

**Contents for Stormwater Management Facilities As-built Files**

Each file is to contain:

- ① As-built plan
2. Completed construction certification
3. Construction Plan
4. Design Calculations
5. Watershed Map
6. Maintenance Agreement
7. Correspondence with owners
- ⑧ Inspection Records
9. Enforcement Actions

EMB 7 of CUL-01-111  
 West Island Rd  
 Lot 22 TRAVIS ROAD  
 (2327 W ISLAND RD.)  
 Built 1990  
 GPIN 4410200016  
 2331 West Island Rd.  
 GOV LAND FORM  
 2700 Two Rivers Rd  
 WMSB 23185  
 OPENSPACE #3

James City County, Virginia  
Environmental Division

Stormwater Management/BMP Facilities  
Record Drawing/Construction Certification  
Review Tracking Form

County Plan No.: S-7-90  
 Project Name: Governors Land - West Island Road BMP #1  
 Stormwater Management Facility: Timber Crib Wall  
 Phase:  I  II  III

- Information Received. Date: 5-02-02
- Administrative Check.
- Record Drawing. Date: 5-2-02 AES.
- Construction Certification. Date: ?? None Apparent
- RD/CC Standard Forms. (Required after Feb 1<sup>st</sup> 2001 Only)
- Insp/Maint Agreement. Info: MISSING. GLOBAL I/M AGREEMENT
- BMP Maintenance Plan. Location: \_\_\_\_\_
- Other: \_\_\_\_\_

Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review file.

Yes  No. Location: \_\_\_\_\_

Assign County BMP ID Code. Code: JR026

Log into Division's "As-Built" Tracking Log

Add Location to GIS Database Map. Obtain GIS site information (GPIN, Owner, Site Area, Address, etc.)

Preliminary Log into BMP Database (BMP ID #, Site Plan #, GPIN, Project Name)

Active Project File Review (correspondence, H&H, etc.).

Initial As-Built File setup (label, copy hydraulics, BMP information, etc.).

Inspector Check of RD/CC. No

Pre-Inspection Drawing Review - Approved Plan (Quick look prior to field inspection).

Final Inspection (FI) Performed. Date: 2/21/03 RH.

Record Drawing (RD) Review. Date: 2/10/03 SVT

Construction Certification (CC) Review. Date: NA

Actions:

No comments.

Comments. Letter Forwarded. Date: 3/10/02

Record Drawing (RD)

Construction Certification (CC)

Construction-Related (CR) Severely Damaged.

Site Issues (SI)

Other: \_\_\_\_\_

Second Submission: 6/17/03 AES (RD)

Third Submission: \_\_\_\_\_

Acceptable for stormwater management facility purposes (RD/CC/CR/Other). Proceed with bond release.

Notify Darryl/Joan/Pat of acceptability using email (preferred), form or verbal.

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.

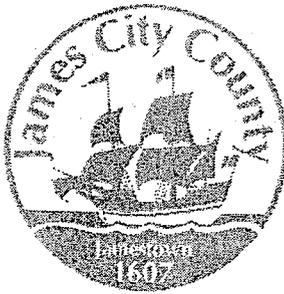
Digital Photographs obtained.

Add to JCC Hydrology & Hydraulic database (optional).

BMP Certification Information Acceptable

Plan Reviewer: [Signature]

Date: 6/27/03



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: GOVERNOR'S LAND AT TWO RIVERS - PHASE 1  
Structure/BMP Name: TIMBER STRUCTURE #1  
Project Location: SOUTH OF TWO RIVERS ROAD  
BMP Location: BETWEEN LOTS 22 AND 20, TRAVIS POND SUBD.  
County Plan No.: 5 - 7 - 90

Project Type:  Residential  Business Tax Map/Parcel No.: (44-1) (2-1C)  
 Commercial  Office BMP ID Code (if known): JR026  
 Institutional  Industrial Zoning District: POWHEATAN DISTRICT  
 Public  Roadway Land Use: RESIDENTIAL  
 Other Site Area (sf or acres): \_\_\_\_\_

Brief Description of Stormwater Management/BMP Facility: TIMBER STRUCTURE

Nearest Visible Landmark to SWM/BMP Facility: WEST ISLAND ROAD TO NEARBY GOLF COURSE TO SOUTH

Nearest Vertical Ground Control ( if known ):  
 JCC Geodetic Ground Control  USGS  Temporary  Arbitrary  Other  
Station Number or Name: 336  
Datum or Reference Elevation: 78.20  
Control Description: JCC MAIN STATION  
Control Location from Subject Facility: NORTH OF SITE, APPROX. 4000 FEET

**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: 1990  
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: 1990  
Date of Record Drawing/Construction Certification Submittal: APRIL 19 2002

*( 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: GOVERNOR'S LAND ASSOCIATES  
Mailing Address: 9701 MILL POND RUN  
TOANO, VIRGINIA  
Business Phone: 757-234-5000 Fax: 757-234-5111  
Contact Person: MR. JAMES H. BENNETT Title: VICE PRESIDENT - DEVELOPMENT

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: AES CONSULTING ENGINEERS  
Mailing Address: 5248 OLDE TOWNE ROAD, SUITE 1  
WILLIAMSBURG, VIRGINIA 23188  
Business Phone: 757-253-0040  
Fax: 757-220-8994  
Responsible Plan Preparer: G. ARCHER MARSHON III  
Title: VICE PRESIDENT?  
Plan Name: GOVERNOR'S LAND PHASE I  
Firm's Project No. 7173  
Plan Date: FEBRUARY 1990  
Sheet No.'s Applicable to SWM/BMP Facility: 29 / 34 / 1 / 1

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

Name: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
Business Phone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Contact Person: \_\_\_\_\_  
Site Foreman/Supervisor: \_\_\_\_\_  
Specialty Subcontractors & Purpose (for BMP Construction Only): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**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**

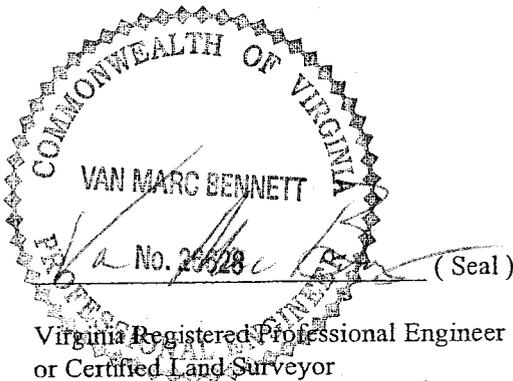
Firm Name: AES CONSULTING ENGINEERS  
Mailing Address: 5240 OLDE TOWNE RD, SUITE 1  
WILLIAMSBURG, VIRGINIA 23108  
Business Phone: 757-253-0040  
Fax: 757-220-8994  
Name: V. MARC BENNETT  
Title: SENIOR PROJECT MANAGER  
Signature: [Handwritten Signature]  
Date: 4/02/02

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.



\_\_\_\_\_  
(Seal)

Virginia Registered  
Professional Engineer

## Section 5 - Record Drawing and Construction Certification Requirements and Instructions:

- PreConstruction Meeting - Provides an opportunity to review SWM / BMP facility construction, maintenance and operation plans and address any questions regarding construction and/or monitoring of the structure. The design engineer, certifying professionals (if different), Owner/Applicant, Contractor and County representative(s) are encouraged to attend the preconstruction meeting. Advanced notice to the Environmental Division is requested. Usually, this requirement can be met simultaneously with Erosion and Sediment Control preconstruction meetings held for the project.
- A fully completed **STORMWATER MANAGEMENT / BMP FACILITIES, RECORD DRAWING and CONSTRUCTION CERTIFICATION FORM** and **RECORD DRAWING CHECKLIST**. All applicable sections shall be completed in their entirety and certification statements signed and sealed by the registered professional responsible for individual record drawing and/or construction certification.
- The Record Drawing shall be prepared by a Registered Professional Engineer or Certified Land Surveyor for the drainage system of the project including any Best Management Practices.
- Construction Certification. Construction of Stormwater Management / BMP facilities which contain impoundments, embankments and related engineered appurtenances including subgrade preparation, compacted soils, structural fills, liners, geosynthetics, filters, seepage controls, cutoffs, toe drains, hydraulic flow control structures, etc. shall be visually observed and monitored by a Registered Professional Engineer or his/her authorized representative. The Engineer must certify that the structure, embankment and associated appurtenances were built in accordance with the approved design plan, specifications and stormwater management plan and standard accepted construction practice and shall submit a written certification and/or drawings to the Environmental Division as required. Soil and compaction test reports, concrete test reports, inspection reports, logs and other required construction material or installation documentation may be required by the Environmental Division to substantiate the certification, if specifically requested. The Engineer shall have the authority and responsibility to make minor changes to the approved plan, in coordination with the assigned County inspector, in order to compensate for unsafe or unusual conditions encountered during construction such as those related to bedrock, soils, groundwater, topography, etc. as long as changes do not adversely affect the integrity of the structure(s). Major changes to the approved design plan or structure must be reviewed and approved by the original design professional and the James City County Environmental Division.
- Record Drawing and Construction Certifications are required within **thirty (30) days** of the completion of Stormwater Management / BMP facility construction. Submittals must be reviewed and accepted by James City County Environmental Division prior to final inspection, acceptance and bond/surety release.

**Dual Purpose Facilities** - Completion of construction also includes an interim stage for Stormwater Management / BMP facilities which serve dual purpose as temporary sediment basins during construction and as permanent stormwater management / BMP facilities following construction, once development and stabilization are substantially complete. For these dual purpose facilities, construction certification is required once the temporary sediment basin phase of construction is complete. Final record drawing and construction certification of additional permanent components is required once permanent facility construction is complete.

*Interim Construction Certification* is required for those dual purpose embankment-type facilities that are generally ten (10) feet or greater in dam height (\*) and may not be converted, modified or begin function as a permanent SWM / BMP structure for a period generally ranging from six (6) to eighteen (18) months or more from issuance of a Land Disturbance permit for construction.

Interim or final record drawing and construction certifications are not required for temporary sediment basins which are designed and constructed in accordance with current minimum standards and specifications for temporary sediment basins per the Virginia Erosion and Sediment Control Handbook (VESCH); have a temporary service life of less than eighteen (18) months; and will be removed completely once associated disturbed areas are stabilized, unless a distinct hazard to the public's health, safety and welfare is determined by the Environmental Division due to the size or presence of the structure or due to evidence of improper construction.

(\*Note: Dam Height as referenced above is generally defined as the vertical distance from the natural bed of the stream or waterway at the downstream toe of the embankment to the top of the embankment structure in accordance with 4VAC50-20-30, Virginia Impoundment Structure Regulations and the Virginia Dam Safety Program.)

- Record Drawings shall provide, at a minimum, all information as shown within these requirements and the attached **RECORD DRAWING CHECKLIST** specific to the type of SWM/BMP facility being constructed. Other additional record data may be formally requested by the James City County Environmental Division. *(Note: Refer to the current edition of the James City County Guidelines for Design and Construction of Stormwater Management BMP's manual for a complete list of acceptable BMP's. Currently there are over 20 acceptable water quality type BMP's accepted by the County.)*
- Record Drawings shall consist of blue/black line prints and a reproducible (mylar, sepia, diazo, etc.) set of the approved stormwater management plan including applicable plan views, profiles, sections, details, maintenance plans, etc. as related to the subject SWM / BMP facility. The set shall indicate "**RECORD DRAWING**" in large text in the lower right hand corner of each sheet with record elevations, dimensions and data drawn in a clearly annotated format and/or boxed beside design values. Approved design plan values, dimensions and data shall not be removed or erased. Drawing sheet revision blocks shall be modified as required to indicate record drawing status. Elevations to the nearest 0.1' are sufficiently accurate except where higher accuracy is needed to show positive drainage. Certification statements as shown in Section 4 of the Record Drawing and Construction Certification Form, *or similar forms thereof*, and professional signatures and seals, with dates matching that of the record drawing status in the revision or title block, are also required on all associated record drawing plans, prints or reproducible.
- Submission Requirements. Initial and subsequent submissions for review shall consist of a minimum of one (1) blue/black line set for record drawings and one copy of the construction certification documents with appropriate transmittal. Under certain circumstances, it is understood that the record drawing and construction certification submissions may be performed by different professional firms. Therefore, record drawing submission may be in advance of construction certification or vice versa. Upon approval and prior to release of bond/surety, final submission shall include one (1) reproducible set of the record drawings, one (1) blue/black line set of the record drawings and one (1) copy of the construction certification. Also for current and/or future incorporation into the County BMP database and GIS system, it is requested that the record drawings also be submitted to the Environmental Division on a diskette or CD-ROM in an acceptable electronic file format such as \*.dxf, \*.dwg, etc. or in a standard scanned and readable format. The electronic file requirement can be discussed and coordinated with Environmental Division staff at the time of final submission.

**STORMWATER MANAGEMENT / BMP FACILITIES  
RECORD DRAWING CHECKLIST**

(Key for Checklist is as follows: XX Acceptable    N/A Not Applicable    Inc Incomplete)

**I. Methods and Presentation: (Required for all Stormwater Management / BMP facilities.)**

- XX 1. All constructed facilities meet approved design plans, unless otherwise shown. Record information or deviations from approved design plan shown in clearly annotated format and/or boxed beside design values.
- XX 2. Elevations to the nearest 0.1' unless higher accuracy is needed to show positive drainage.
- XX 3. All plan sheets labeled with "RECORD DRAWING" in large text in lower right hand corner (Approved County Plan Number and BMP ID Code can be included if known).
- XX 4. All plan sheet revision blocks modified to indicate date and record drawing status.
- XX 5. All plan sheets have certification statements and certifying professional's signature and seal.

**II. Minimum Standards: (Required for all Stormwater Management / BMP facilities, as applicable.)**

- XX 1. All requirements of Section I (Methods and Presentation) apply to this section.
- XX 2. Plan Views: Show general location, arrangement and dimensions. Location and alignment shall generally match approved design plans.
- INC 3. Profile or elevations along top or berm of the facility. At a minimum, elevations are required at each end, at intervals not to exceed 50 feet and where low spots may be present. Top of embankment or berm elevations must be no less than design elevation plus any settlement allowances.
- N/A 4. Top widths, berm widths and embankment side slopes.
- N/A 5. Show length, width and depth of facility or grading, contours or spot elevations as required to verify permanent pool and design storage volumes were met or were reasonably close to the approved design. Evaluation of as-built grading, contours, spot elevations, or cross-sections, may be necessary by the professional to ensure approved design configurations, depths and volumes were closely maintained. If grading or elevations are significantly different from the approved plan, the Environmental Division shall be contacted immediately to determine whether the variation is acceptable or whether further evidence will be required. Facilities which do not closely resemble approved plan grades, elevations or configurations may require regrading by the Contractor; check volumetric computations; and/or a check hydraulic routing to ensure approved design water surface elevations, discharges or freeboard were closely maintained.
- INC 6. Cross-section of the embankment through the principal spillway or outlet barrel. Must extend at least 100 ft. downstream of the pipe outlet or to recorded site property line, whichever is closer. Proper correlation is required between principal spillway (control structure) crest, emergency spillway crest, orifice and weirs and the top of the dam or facility. All elevations and dimensions must reasonably match the design plan or be sequentially relative to each other and the facility must reflect the required design storage volume(s) and/or design depth.
- N/A 7. Profile or elevations along the entire centerline of the emergency spillway. Emergency spillway may be steeper, but no flatter or narrower than design.
- XX 8. Elevation of the principal spillway crest or outlet crest of the structure.

- XV 9. Primary control structure (riser) diameter or dimensions, height, type of material and base size. Indicate provisions for access that are present such as steps, ladders, etc.
- N/A 10. Dimensions, locations and elevations of outlet orifices, weirs, slots and drains.
- N/A 11. Type and size of anti-vortex and trash rack device. Height, diameter, dimensions, bar spacings (if applicable) and elevations relative to the principal spillway crest. Indicate if lockable hatch is present or not.
- N/A 12. Type, location, size and number of anti-seep collars or documentation of other methods utilized for seepage control. **May need to obtain this information during construction.**
- N/A 13. Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. **May need to obtain this information during construction.**
- XV 14. Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.
- XV 15. Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall.
- INC 16. Outfall protection dimension, type and depth of rock and if underlain filter fabric is present.
- N/A 17. BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.
- N/A 18. Maintenance plan taken from approved design plan transposed onto record drawing set.
- N/A 19. Fencing location and type, if applicable to facility.
- XV 20. BMP vicinity properly cleaned of stockpiles and construction debris.
- INC 21. No visual signs of erosion or channel degradation immediately downstream of facility.
- XV 22. Any other information formally requested by the Environmental Division specific to the constructed SWM/BMP facility.

**STORMWATER MANAGEMENT / BMP FACILITIES  
RECORD DRAWING CHECKLIST**

( Key for Checklist is as follows: XX Acceptable    N/A Not Applicable    Inc Incomplete )

**III.    Group A - Wet Ponds ( Includes A-1 Small Wet Ponds; A-2 Wet Ponds; A-3 Wet Ext Det Ponds. )**

- N/A A1.    All requirements of Section II, Minimum Standards, apply to Group A facilities.
- A2.    Principal spillway consists of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.
- A3.    Sediment forebays or pretreatment devices provided at inlets to pond. Generally 4 to 6 ft. deep.
- A4.    Access for maintenance and equipment is provided to the forebay(s). Access corridors are at least 12 ft. wide, have a maximum slope of 15 percent and are adequately stabilized to withstand heavy equipment or vehicle use.
- A5.    Adequate fixed vertical sediment depth markers installed in the forebay(s) for future sediment monitoring purposes.
- A6.    Pond liner (if required) provided. Either clay liners, polyliners, bentonite liners or use of chemical soil additives based on requirements of the approved plan.
- A7.    Minimum 6 percent slope safety bench extending a minimum of 15 feet outward from normal pool edge and/or an aquatic bench extending a minimum of 10 feet inward from the normal shoreline with a maximum depth of 12 inches below the normal pool elevation, if applicable, per the approved design plans. (Note: Safety benches may be waived if pond side slopes are no steeper than 4H:1V).
- A8.    No trees are present within a zone 15 feet around the embankment toe and 25 feet from the principal spillway structure.
- A9.    Wet permanent pool, typically 3 to 6 feet deep, is provided and maintains level within facility.
- A10.    Low flow orifice has a non-clogging mechanism.
- A11.    A pond drain pipe with valve was provided.
- A12.    Pond side slopes are not steeper than 3H:1V, unless approved plan allowed for steeper slope.
- N/A A13.    End walls above barrels (outlet pipe) greater than 48 inch in diameter are fenced to prevent a fall hazard.

**STORMWATER MANAGEMENT / BMP FACILITIES  
RECORD DRAWING CHECKLIST**

( Key for Checklist is as follows: **XX** Acceptable    **N/A** Not Applicable    **Inc** Incomplete )

**IV.    Group B - Wetlands**    ( Includes B-1 Shallow Marsh; B-2 Ext Det Shallow Wetlands; B-3 Pond Wetland System and B-4 Pocket Wetland )

- |            |     |  |
|------------|-----|--|
| <u>N/A</u> | B1. | Same requirements as Group A Wet Ponds.  |
|            | B2. | Minimum 2:1 length to width flow path provided across the facility.  |
|            | B3. | Micropool provided at or around outlet from BMP (generally 3 to 6 ft. deep).   |
|            | B4. | Wetland type landscaping provided in accordance with approved plan. Includes correct pondscaping zones, plant species, planting arrangements, wetland beds, etc. Wetland plants include 5 to 7 emergent wetland species. Individual plants at 18 inches on center in clumps. |
|            | B5. | Adequate wetland buffer provided (Typically 25 ft. outward from maximum design water surface elevation and 15 ft. setback to structures).  |
|            | B6. | No more than one-half (1/2) of the wetland surface area is planted.  |
|            | B7. | Topsoil or wetland mulch provided to support vigorous growth of wetland plants.  |
| <u>N/A</u> | B8. | Planting zones staked or flagged in field and locations subsequently established by appropriate field surveying methods for record drawing presentation.   |

**STORMWATER MANAGEMENT / BMP FACILITIES  
RECORD DRAWING CHECKLIST**

( Key for Checklist is as follows: XX Acceptable    N/A Not Applicable    Inc Incomplete )

**V.    Group C - Infiltration Practices**    ( Includes C-1 Infiltration Trench; C-2 Infiltration Trench; C-3 Infiltration Basin; and C-4 Infiltration Basin )

- N/A C1. All requirements of Section II, Minimum Standards, apply to Group C facilities as applicable.
- C2. Facility is not located on fill slopes or on natural ground in excess of six (6) percent.
- C3. Pretreatment devices provided prior to entry into the infiltration facility. Acceptable pretreatment devices include sediment forebays, sediment basins, sediment traps, sump pits or inlets, grass channels, plunge pools or other acceptable measures.
- C4. Three (3) or more of the following pretreatment devices provided to protect long term integrity of structure: grass channel; grass filter strip; bottom sand layer; upper filter fabric layer; use of washed bank run gravel aggregate.
- C5. Sides of infiltration practice lined with filter fabric.
- C6. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.
- C7. Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility.
- C8. Minimum one hundred (100) foot separation horizontally from any known water supply well and minimum one hundred (100) foot separation upslope from any building.
- C9. Minimum twenty-five (25) foot separation down gradient from any structure.
- C10. Stormwater outfalls provided for overflow associated with larger design storms.
- C11. No visual signs of erosion or channel degradation immediately downstream of facility.
- C12. Facility does not currently cause any apparent surface or subsurface water problems to downgrade properties.
- C13. Observation well provided.
- N/A C14. Adequate, direct access provided to the facility for future maintenance, operation and inspection.

**STORMWATER MANAGEMENT / BMP FACILITIES  
RECORD DRAWING CHECKLIST**

( Key for Checklist is as follows: XX Acceptable    N/A Not Applicable    Inc Incomplete )

**VI.    Group D - Filtering Systems**    ( Includes D-1 Bioretention Cells; D-2 Surface Sand Filters; D-3 Underground Sand Filters; D-4 Perimeter Sand Filters; D-5 Organic Filters; and D-6 Pocket Sand Filters )

- |            |      |  |
|------------|------|--|
| <u>N/A</u> | D1.  | All requirements of Section II, Minimum Standards, apply to Group D facilities.  |
|            | D2.  | Sediment pretreatment devices provided.  |
|            | D3.  | For D-1 BMPs (Bioretention Cells), pretreatment consisting of a grass filter strip below level spreader (deflector); a gravel diaphragm; and mulch and planting soil layers were provided.   |
|            | D4.  | For D-1 BMPs (Bioretention Cells), plantings consist of native plant species; vegetation provided was based on zones of hydric tolerances; trees and understory of shrubs and herbaceous materials were provided; woody vegetation is absent from inflow locations; and trees are located around facility perimeter. |
|            | D5.  | Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.   |
|            | D6.  | No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed .   |
|            | D7.  | Filtering system is off-line from storm drainage conveyance system.  |
|            | D8.  | Overflow outlet has adequate erosion protection.   |
|            | D9.  | Deflector, diversion, flow splitter or regulator structure provided to divert the water quality volume to the filtering structure.   |
|            | D10. | Minimum four (4) inch perforated underdrain provided in a clean aggregate envelope layer beneath the facility.   |
|            | D11. | Minimum fifty (50) foot separation from any slope fifteen (15) percent or greater. Minimum one hundred (100) foot separation horizontally from any known water supply well. Minimum one hundred (100) foot separation upslope and twenty-five (25) foot separation downslope from any building.                      |
|            | D12. | Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility.   |
|            | D13. | No visual signs of erosion or channel degradation immediately downstream of facility.  |
| <u>N/A</u> | D14. | Adequate, direct access provided to the pretreatment area and/or filter bed for future maintenance.  |

**STORMWATER MANAGEMENT / BMP FACILITIES  
AS-BUILT PLAN CHECKLIST**

( Key for Checklist is as follows: XX Acceptable    N/A Not Applicable    Inc Incomplete )

**VII.    Group E - Open Channel Systems    ( Includes E-1 Wet Swales (Check Dams); E-2 Dry Swales; and E-3 Biofilters )**

- N/A E1.    All requirements of Section II, Minimum Standards, apply to Group E facilities as applicable.
- E2.    Open channel system has constructed longitudinal slope of less than four (4) percent.
- E3.    No visual signs of erosion in the open channel system's soil and/or vegetative cover.
- E4.    Open channel side slopes are no steeper than 2H:1V at any location. Preferred channel sideslope is 3H:1V or flatter.
- E5.    No visual signs of ponding are present at any location in the open channel system, except at rock check dam locations for E-1 systems (Wet Swales).
- E6.    For E-2 BMPs (Dry Swales), an underdrain system was provided.
- E7.    Treated timber or rock check dams provided as pretreatment devices for the open channel system.
- E8.    Gravel diaphragm provided in areas where lateral sheet flow from impervious surfaces are directly connected to the open channel system.
- E9.    Grass cover/stabilization in the open channel system appears adaptable to the specific soils and hydric conditions for the site and along the channel system.
- E10.    Open channel system areas with grass covers higher than four (4) to six (6) inches were properly mowed.
- E11.    Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.
- E12.    No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated.
- E13.    For E-3 BMPs (Biofilters), the bottom width is six (6) feet maximum at any location.
- E14.    For E-3 BMPs (Biofilters), sideslopes are 3H:1V maximum at any location.
- E15.    For E-3 BMPs (Biofilters), the constructed channel slope is less than or equal to three (3) percent at any location.
- N/A E16.    For E-3 BMPs (Biofilters), the constructed grass channel is approximately equivalent to the constructed roadway length.

**STORMWATER MANAGEMENT / BMP FACILITIES  
RECORD DRAWING CHECKLIST**

( Key for Checklist is as follows: XX Acceptable    N/A Not Applicable    Inc Incomplete )

**VIII. Group F - Extended Dry Detention**    ( Includes F-1 Timber Walls; and F-2 Dry Extended Detention with Forebay )

- INC F1. All requirements of Section II, Minimum Standards, apply to Group F facilities.
- XX F2. Basin bottom has positive slope and drainage from all basin inflow points to the riser (or outflow) location.
- XX F3. Timber wall BMP used in intermittent stream only. (ie. Prohibited in perennial streams.)
- N/A F4. Forebay provided approximately 20 ft. upstream of the facility. Forebays generally 4 to 6 feet in depth.
- N/A F5. A reverse slope pipe, vertical stand pipe or mini-barrel and riser was provided to prevent clogging.
- N/A F6. Principal spillway and outlet barrel provided consisting of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.
- N/A F7. Mini-barrel and riser, if used, contains a removable trash rack to reduce clogging.
- INC ~~N/A~~ F8. Low flow orifice, if used, has a minimum diameter of three (3) inches or two (2) inches if internal orifice control was utilized and a small, cage type external trash rack.
- INC F9. Timbers properly reinforced or concrete footing provided if soil conditions were prohibitive.
- INC F10. Timber wall cross members extended to a minimum depth of two (2) feet below ground elevation.
- XX F11. Protection against erosion and scour from the low flow orifice and weir-flow trajectory provided.
- N/A F12. Stilling basin or standard outlet protection provided at principal spillway outlet.
- INC F13. Adequate, direct access provided to the facility. Access corridor to facility is at least ten (10) feet wide, slope is less than twenty (20) percent and appropriate stabilization provided for equipment and vehicle use. Access extends to forebay, standpipe and timber wall, as applicable.
- INC F14. No visual signs of undercutting of timber walls or clogging of the low orifice were present.
- INC F15. No visual signs of erosion or channel degradation immediately downstream of facility.
- INC F16. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated.

**STORMWATER MANAGEMENT / BMP FACILITIES  
RECORD DRAWING CHECKLIST**

( Key for Checklist is as follows: XX Acceptable    N/A Not Applicable    Inc Incomplete )

**IX.    Group G - Open Spaces    ( Includes All Open Space Types G-1; G-2; and G-3 )**

- |            |     |   |
|------------|-----|---|
| <u>N/A</u> | G1. | All requirements of Section II, Minimum Standards, apply to Group G facilities as applicable.   |
|            | G2. | Constructed impervious areas appear to conform with locations indicated on the approved plan and appear less than sixty (60) percent impervious in accordance with the requirements of the James City County Chesapeake Bay Preservation Ordinance. |
|            | G3. | Dedicated open space areas are in undisturbed common areas, conservation easements or are protected by other enforceable instruments that ensures perpetual protection.   |
|            | G4. | Provisions included to clearly specify how the natural vegetated areas utilized as dedicated open space will be managed and field identified (marked).  |
|            | G5. | Adequate protection measures were implemented during construction to protect the defined dedicated open space areas.  |
| <u>N/A</u> | G6. | Dedicated open space areas were not disturbed during construction (ie. cleared, grubbed or graded).   |

**STORMWATER MANAGEMENT / BMP FACILITIES  
RECORD DRAWING CHECKLIST**

( Key for Checklist is as follows: XX Acceptable    N/A Not Applicable    Inc Incomplete )

**X.    Storm Drainage Systems (Associated with BMP's Only)**

*( Includes all incidental stormwater drainage conveyance systems associated with SWM/BMP facilities such as onsite or offsite storm drains, open channels, inlets, manholes, junctions, outlet protections, deflectors, etc. These facilities are external to the treatment function of, but are directly associated with drainage to and/or from a constructed SWM/BMP facility. The intent of this portion of the certification is to accurately identify the type and quantity of inflow or outflow points associated with the facility for future reference. The Professional may use his/her own discretion to determine inclusive facilities to meet the intent of this section. As a general rule, storm drainage systems would include incidental facilities to the nearest access structure upslope or downslope from the normal physical limits of the facility or 800 feet of storm drainage conveyance system length, whichever is less. )*

- N/A SD1.    All requirements of Section II, Minimum Standards, apply to Storm Drainage Systems.
- SD2.    Horizontal location of all pipe and structures relative to the SWM/BMP facility.
- SD3.    Type, top elevation and invert elevation of all access type structures (inlets, manholes, etc.).
- SD4.    Material type, size or diameter, class, invert elevations, lengths and slopes for all pipe segments.
- N/A SD5.    Class, length, width and depth of riprap and outlet protections or dimensions of special energy dissipation structures.

**XII.    Other Systems**

*( Includes any non-typical, specialty, manufactured or innovative stormwater management/BMP practices or systems generally accepted for use as or in conjunction with other acceptable stormwater management / BMP practices. Requires evidence of prior satisfactory industry use and prior Environmental Division approval, waiver or exception .)*

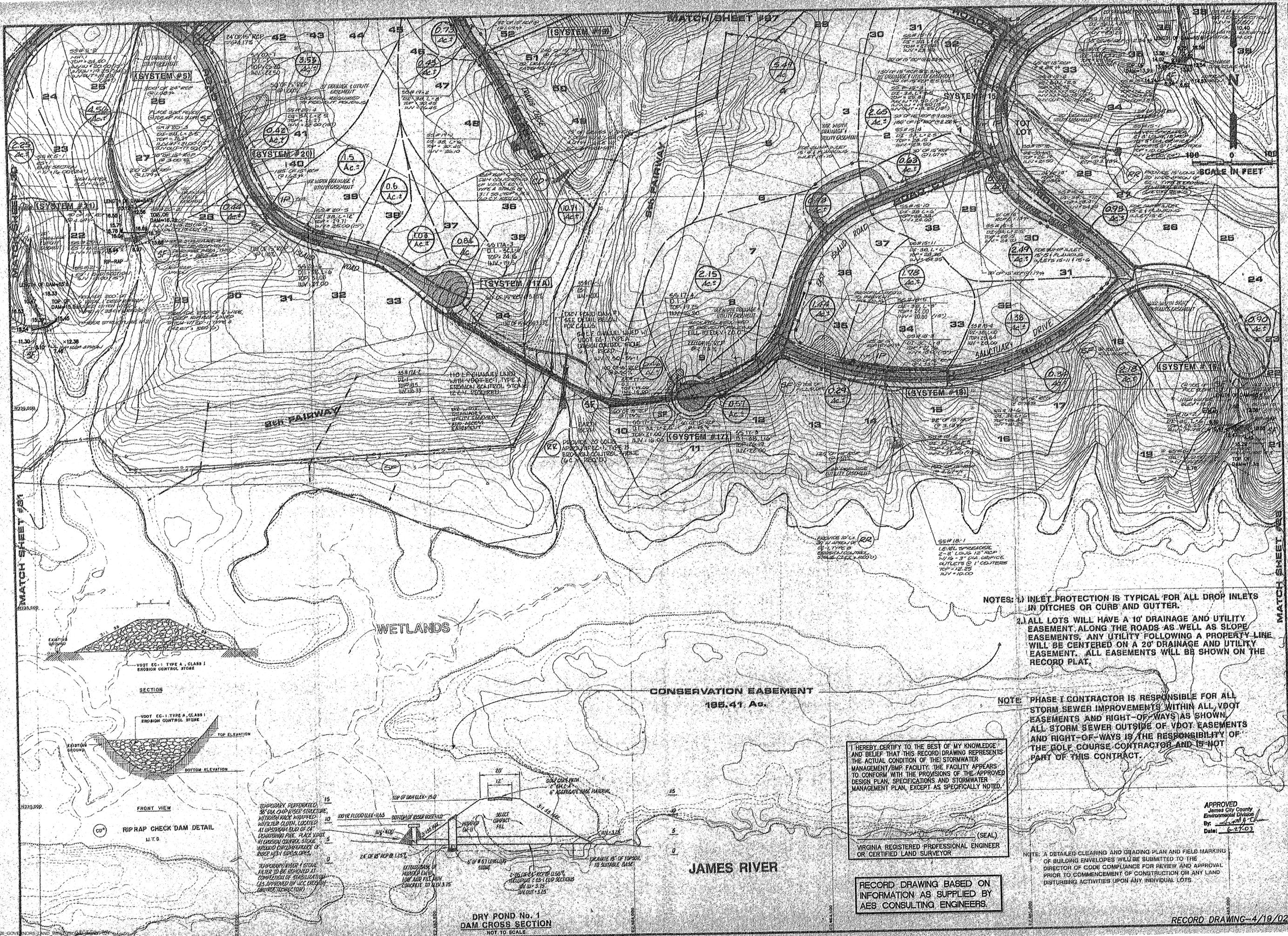
- N/A O1.    All requirements of Section II, Minimum Standards, apply to this section.
- N/A O2.    Certification criteria to be determined on a case-by-case basis by the Environmental Division specific to the proposed SWM/BMP facility.

**STORMWATER MANAGEMENT / BMP FACILITIES  
RECORD DRAWING CHECKLIST**

**XIII. References**    *( The James City County Record Drawing and Construction Certification Forms and Checklists for Stormwater Management / BMP facilities were developed using the following sources and references. )*

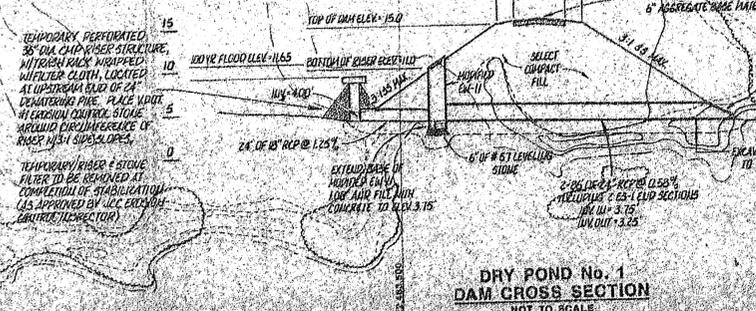
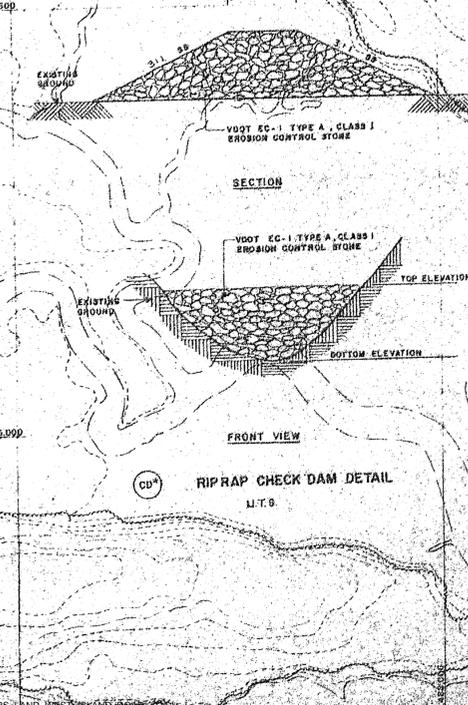
- Baltimore County, Maryland Soil Conservation District, As-Built Stormwater Management Pond Checklist.
- James City County, Virginia, Guidelines for Design and Construction of Stormwater Management BMP's (October 1999).
- James City County, Virginia, Stormwater Detention/Retention Basin Design Checklist and Erosion and Sediment Control and Stormwater Management Design Plan Checklists.
- James City County Stormwater Policy Framework, Final Report of the James City County BMP Policy Project, October 1998, The Center for Watershed Protection.
- Prince Georges County, Maryland, As-Built Requirements Retention or Detention Pond/Basin.
- Prince William County, Virginia, Stormwater Management Fact Sheet.
- Stafford County, Virginia, As-Built Plan Checklist.
- Stormwater Management Design Manual, NRCS Maryland Code No. 378, Pond Standards and Specifications.
- USEPA/Watershed Management Institute, Stormwater Management Inspection Forms.
- Virginia Impounding Structure Regulations (Dam Safety), Department of Conservation & Recreation, 1997.
- Virginia Erosion and Sediment Control Handbook, Third Edition 1992, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation.
- Virginia Stormwater Management Handbook, 1999 edition, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation.

File: Shared\SWMProg\BMP\Certif\RDCC.wpd



MATCH SHEET #81

MATCH SHEET #8



**NOTES:**

- 1) INLET PROTECTION IS TYPICAL FOR ALL DROP INLETS IN DITCHES OR CURB AND GUTTER.
- 2) ALL LOTS WILL HAVE A 10' DRAINAGE AND UTILITY EASEMENT ALONG THE ROADS AS WELL AS SLOPE EASEMENTS. ANY UTILITY FOLLOWING A PROPERTY LINE WILL BE CENTERED ON A 20' DRAINAGE AND UTILITY EASEMENT. ALL EASEMENTS WILL BE SHOWN ON THE RECORD PLAT.

**NOTE:** PHASE I CONTRACTOR IS RESPONSIBLE FOR ALL STORM SEWER IMPROVEMENTS WITHIN ALL VDOT EASEMENTS AND RIGHT-OF-WAYS AS SHOWN. ALL STORM SEWER OUTSIDE OF VDOT EASEMENTS AND RIGHT-OF-WAYS IS THE RESPONSIBILITY OF THE GOLF COURSE CONTRACTOR AND IS NOT PART OF THIS CONTRACT.

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.

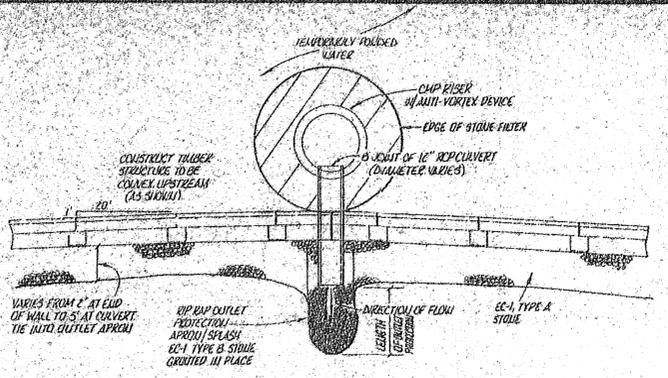
VIRGINIA REGISTERED PROFESSIONAL ENGINEER OR CERTIFIED LAND SURVEYOR

RECORD DRAWING BASED ON INFORMATION AS SUPPLIED BY AES CONSULTING ENGINEERS.

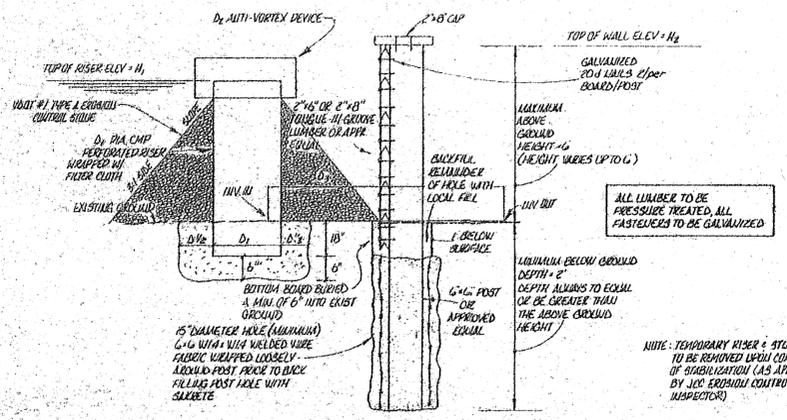
APPROVED  
James City County  
Environmental Division  
By: *[Signature]*  
Date: 6-27-02

NOTE: A DETAILED CLEARING AND GRADING PLAN AND FIELD MARKING OF BUILDING ENVELOPES WILL BE SUBMITTED TO THE DIRECTOR OF CODE COMPLIANCE FOR REVIEW AND APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION ON ANY LAND DISTURBING ACTIVITIES UPON ANY INDIVIDUAL LOTS.

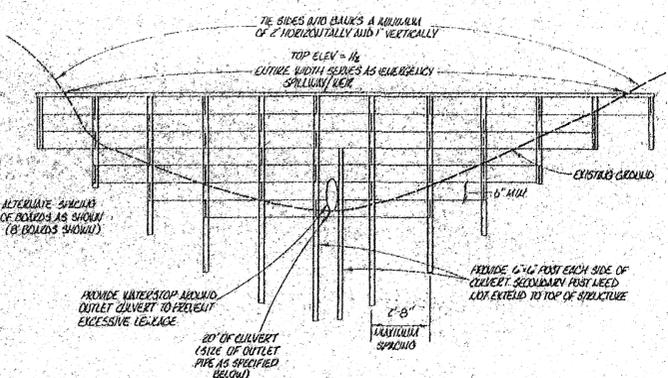
6/19/02	RECORD DRAWING	WBS
5/12/02	REVISED PER VDOT COMMENTS	WBS
4/11/02	REVISED PER VDOT COMMENTS	WBS
3/14/02	REVISED PER VDOT COMMENTS	WBS
2/14/02	REVISED PER VDOT COMMENTS	WBS
1/14/02	REVISED PER VDOT COMMENTS	WBS
12/14/01	REVISED PER VDOT COMMENTS	WBS
11/14/01	REVISED PER VDOT COMMENTS	WBS
10/14/01	REVISED PER VDOT COMMENTS	WBS
9/14/01	REVISED PER VDOT COMMENTS	WBS
8/14/01	REVISED PER VDOT COMMENTS	WBS
7/14/01	REVISED PER VDOT COMMENTS	WBS
6/14/01	REVISED PER VDOT COMMENTS	WBS
5/14/01	REVISED PER VDOT COMMENTS	WBS
4/14/01	REVISED PER VDOT COMMENTS	WBS
3/14/01	REVISED PER VDOT COMMENTS	WBS
2/14/01	REVISED PER VDOT COMMENTS	WBS
1/14/01	REVISED PER VDOT COMMENTS	WBS
12/14/00	REVISED PER VDOT COMMENTS	WBS
11/14/00	REVISED PER VDOT COMMENTS	WBS
10/14/00	REVISED PER VDOT COMMENTS	WBS
9/14/00	REVISED PER VDOT COMMENTS	WBS
8/14/00	REVISED PER VDOT COMMENTS	WBS
7/14/00	REVISED PER VDOT COMMENTS	WBS
6/14/00	REVISED PER VDOT COMMENTS	WBS
5/14/00	REVISED PER VDOT COMMENTS	WBS
4/14/00	REVISED PER VDOT COMMENTS	WBS
3/14/00	REVISED PER VDOT COMMENTS	WBS
2/14/00	REVISED PER VDOT COMMENTS	WBS
1/14/00	REVISED PER VDOT COMMENTS	WBS
12/14/99	REVISED PER VDOT COMMENTS	WBS
11/14/99	REVISED PER VDOT COMMENTS	WBS
10/14/99	REVISED PER VDOT COMMENTS	WBS
9/14/99	REVISED PER VDOT COMMENTS	WBS
8/14/99	REVISED PER VDOT COMMENTS	WBS
7/14/99	REVISED PER VDOT COMMENTS	WBS
6/14/99	REVISED PER VDOT COMMENTS	WBS
5/14/99	REVISED PER VDOT COMMENTS	WBS
4/14/99	REVISED PER VDOT COMMENTS	WBS
3/14/99	REVISED PER VDOT COMMENTS	WBS
2/14/99	REVISED PER VDOT COMMENTS	WBS
1/14/99	REVISED PER VDOT COMMENTS	WBS
12/14/98	REVISED PER VDOT COMMENTS	WBS
11/14/98	REVISED PER VDOT COMMENTS	WBS
10/14/98	REVISED PER VDOT COMMENTS	WBS
9/14/98	REVISED PER VDOT COMMENTS	WBS
8/14/98	REVISED PER VDOT COMMENTS	WBS
7/14/98	REVISED PER VDOT COMMENTS	WBS
6/14/98	REVISED PER VDOT COMMENTS	WBS
5/14/98	REVISED PER VDOT COMMENTS	WBS
4/14/98	REVISED PER VDOT COMMENTS	WBS
3/14/98	REVISED PER VDOT COMMENTS	WBS
2/14/98	REVISED PER VDOT COMMENTS	WBS
1/14/98	REVISED PER VDOT COMMENTS	WBS
12/14/97	REVISED PER VDOT COMMENTS	WBS
11/14/97	REVISED PER VDOT COMMENTS	WBS
10/14/97	REVISED PER VDOT COMMENTS	WBS
9/14/97	REVISED PER VDOT COMMENTS	WBS
8/14/97	REVISED PER VDOT COMMENTS	WBS
7/14/97	REVISED PER VDOT COMMENTS	WBS
6/14/97	REVISED PER VDOT COMMENTS	WBS
5/14/97	REVISED PER VDOT COMMENTS	WBS
4/14/97	REVISED PER VDOT COMMENTS	WBS
3/14/97	REVISED PER VDOT COMMENTS	WBS
2/14/97	REVISED PER VDOT COMMENTS	WBS
1/14/97	REVISED PER VDOT COMMENTS	WBS
12/14/96	REVISED PER VDOT COMMENTS	WBS
11/14/96	REVISED PER VDOT COMMENTS	WBS
10/14/96	REVISED PER VDOT COMMENTS	WBS
9/14/96	REVISED PER VDOT COMMENTS	WBS
8/14/96	REVISED PER VDOT COMMENTS	WBS
7/14/96	REVISED PER VDOT COMMENTS	WBS
6/14/96	REVISED PER VDOT COMMENTS	WBS
5/14/96	REVISED PER VDOT COMMENTS	WBS
4/14/96	REVISED PER VDOT COMMENTS	WBS
3/14/96	REVISED PER VDOT COMMENTS	WBS
2/14/96	REVISED PER VDOT COMMENTS	WBS
1/14/96	REVISED PER VDOT COMMENTS	WBS
12/14/95	REVISED PER VDOT COMMENTS	WBS
11/14/95	REVISED PER VDOT COMMENTS	WBS
10/14/95	REVISED PER VDOT COMMENTS	WBS
9/14/95	REVISED PER VDOT COMMENTS	WBS
8/14/95	REVISED PER VDOT COMMENTS	WBS
7/14/95	REVISED PER VDOT COMMENTS	WBS
6/14/95	REVISED PER VDOT COMMENTS	WBS
5/14/95	REVISED PER VDOT COMMENTS	WBS
4/14/95	REVISED PER VDOT COMMENTS	WBS
3/14/95	REVISED PER VDOT COMMENTS	WBS
2/14/95	REVISED PER VDOT COMMENTS	WBS
1/14/95	REVISED PER VDOT COMMENTS	WBS
12/14/94	REVISED PER VDOT COMMENTS	WBS
11/14/94	REVISED PER VDOT COMMENTS	WBS
10/14/94	REVISED PER VDOT COMMENTS	WBS
9/14/94	REVISED PER VDOT COMMENTS	WBS
8/14/94	REVISED PER VDOT COMMENTS	WBS
7/14/94	REVISED PER VDOT COMMENTS	WBS
6/14/94	REVISED PER VDOT COMMENTS	WBS
5/14/94	REVISED PER VDOT COMMENTS	WBS
4/14/94	REVISED PER VDOT COMMENTS	WBS
3/14/94	REVISED PER VDOT COMMENTS	WBS
2/14/94	REVISED PER VDOT COMMENTS	WBS
1/14/94	REVISED PER VDOT COMMENTS	WBS
12/14/93	REVISED PER VDOT COMMENTS	WBS
11/14/93	REVISED PER VDOT COMMENTS	WBS
10/14/93	REVISED PER VDOT COMMENTS	WBS
9/14/93	REVISED PER VDOT COMMENTS	WBS
8/14/93	REVISED PER VDOT COMMENTS	WBS
7/14/93	REVISED PER VDOT COMMENTS	WBS
6/14/93	REVISED PER VDOT COMMENTS	WBS
5/14/93	REVISED PER VDOT COMMENTS	WBS
4/14/93	REVISED PER VDOT COMMENTS	WBS
3/14/93	REVISED PER VDOT COMMENTS	WBS
2/14/93	REVISED PER VDOT COMMENTS	WBS
1/14/93	REVISED PER VDOT COMMENTS	WBS
12/14/92	REVISED PER VDOT COMMENTS	WBS
11/14/92	REVISED PER VDOT COMMENTS	WBS
10/14/92	REVISED PER VDOT COMMENTS	WBS
9/14/92	REVISED PER VDOT COMMENTS	WBS
8/14/92	REVISED PER VDOT COMMENTS	WBS
7/14/92	REVISED PER VDOT COMMENTS	WBS
6/14/92	REVISED PER VDOT COMMENTS	WBS
5/14/92	REVISED PER VDOT COMMENTS	WBS
4/14/92	REVISED PER VDOT COMMENTS	WBS
3/14/92	REVISED PER VDOT COMMENTS	WBS
2/14/92	REVISED PER VDOT COMMENTS	WBS
1/14/92	REVISED PER VDOT COMMENTS	WBS
12/14/91	REVISED PER VDOT COMMENTS	WBS
11/14/91	REVISED PER VDOT COMMENTS	WBS
10/14/91	REVISED PER VDOT COMMENTS	WBS
9/14/91	REVISED PER VDOT COMMENTS	WBS
8/14/91	REVISED PER VDOT COMMENTS	WBS
7/14/91	REVISED PER VDOT COMMENTS	WBS
6/14/91	REVISED PER VDOT COMMENTS	WBS
5/14/91	REVISED PER VDOT COMMENTS	WBS
4/14/91	REVISED PER VDOT COMMENTS	WBS
3/14/91	REVISED PER VDOT COMMENTS	WBS
2/14/91	REVISED PER VDOT COMMENTS	WBS
1/14/91	REVISED PER VDOT COMMENTS	WBS
12/14/90	REVISED PER VDOT COMMENTS	WBS
11/14/90	REVISED PER VDOT COMMENTS	WBS
10/14/90	REVISED PER VDOT COMMENTS	WBS
9/14/90	REVISED PER VDOT COMMENTS	WBS
8/14/90	REVISED PER VDOT COMMENTS	WBS
7/14/90	REVISED PER VDOT COMMENTS	WBS
6/14/90	REVISED PER VDOT COMMENTS	WBS
5/14/90	REVISED PER VDOT COMMENTS	WBS
4/14/90	REVISED PER VDOT COMMENTS	WBS
3/14/90	REVISED PER VDOT COMMENTS	WBS
2/14/90	REVISED PER VDOT COMMENTS	WBS
1/14/90	REVISED PER VDOT COMMENTS	WBS
12/14/89	REVISED PER VDOT COMMENTS	WBS
11/14/89	REVISED PER VDOT COMMENTS	WBS
10/14/89	REVISED PER VDOT COMMENTS	WBS
9/14/89	REVISED PER VDOT COMMENTS	WBS
8/14/89	REVISED PER VDOT COMMENTS	WBS
7/14/89	REVISED PER VDOT COMMENTS	WBS
6/14/89	REVISED PER VDOT COMMENTS	WBS
5/14/89	REVISED PER VDOT COMMENTS	WBS
4/14/89	REVISED PER VDOT COMMENTS	WBS
3/14/89	REVISED PER VDOT COMMENTS	WBS
2/14/89	REVISED PER VDOT COMMENTS	WBS
1/14/89	REVISED PER VDOT COMMENTS	WBS
12/14/88	REVISED PER VDOT COMMENTS	WBS
11/14/88	REVISED PER VDOT COMMENTS	WBS
10/14/88	REVISED PER VDOT COMMENTS	WBS
9/14/88	REVISED PER VDOT COMMENTS	WBS
8/14/88	REVISED PER VDOT COMMENTS	WBS
7/14/88	REVISED PER VDOT COMMENTS	WBS
6/14/88	REVISED PER VDOT COMMENTS	WBS
5/14/88	REVISED PER VDOT COMMENTS	WBS
4/14/88	REVISED PER VDOT COMMENTS	WBS
3/14/88	REVISED PER VDOT COMMENTS	WBS
2/14/88	REVISED PER VDOT COMMENTS	WBS
1/14/88	REVISED PER VDOT COMMENTS	WBS
12/14/87	REVISED PER VDOT COMMENTS	WBS
11/14/87	REVISED PER VDOT COMMENTS	WBS
10/14/87	REVISED PER VDOT COMMENTS	WBS
9/14/87	REVISED PER VDOT COMMENTS	WBS
8/14/87	REVISED PER VDOT COMMENTS	WBS
7/14/87	REVISED PER VDOT COMMENTS	WBS
6/14/87	REVISED PER VDOT COMMENTS	WBS
5/14/87	REVISED PER VDOT COMMENTS	WBS
4/14/87	REVISED PER VDOT COMMENTS	WBS
3/14/87	REVISED PER VDOT COMMENTS	WBS
2/14/87	REVISED PER VDOT COMMENTS	WBS
1/14/87	REVISED PER VDOT COMMENTS	WBS
12/14/86	REVISED PER VDOT COMMENTS	WBS
11/14/86	REVISED PER VDOT COMMENTS	WBS
10/14/86	REVISED PER VDOT COMMENTS	WBS
9/14/86	REVISED PER VDOT COMMENTS	WBS
8/14/86	REVISED PER VDOT COMMENTS	WBS
7/14/86	REVISED PER VDOT COMMENTS	WBS
6/14/86	REVISED PER VDOT COMMENTS	WBS
5/14/86	REVISED PER VDOT COMMENTS	WBS
4/14/86	REVISED PER VDOT COMMENTS	WBS
3/14/86	REVISED PER VDOT COMMENTS	WBS
2/14/86	REVISED PER VDOT COMMENTS	WBS
1/14/86	REVISED PER VDOT COMMENTS	WBS
12/14/85	REVISED PER VDOT COMMENTS	WBS
11/14/85	REVISED PER VDOT COMMENTS	WBS
10/14/85	REVISED PER VDOT COMMENTS	WBS
9/14/85	REVISED PER VDOT COMMENTS	WBS
8/14/85	REVISED PER VDOT COMMENTS	WBS
7/14/85	REVISED PER VDOT COMMENTS	WBS
6/14/85	REVISED PER VDOT COMMENTS	WBS
5/14/85	REVISED PER VDOT COMMENTS	WBS
4/14/85	REVISED PER VDOT COMMENTS	WBS
3/14/85	REVISED PER VDOT COMMENTS	WBS
2/14/85	REVISED PER VDOT COMMENTS	WBS
1/14/85	REVISED PER VDOT COMMENTS	WBS
12/14/84	REVISED PER VDOT COMMENTS	WBS
11/14/84	REVISED PER VDOT COMMENTS	WBS
10/14/84	REVISED PER VDOT COMMENTS	WBS
9/14/84	REVISED PER VDOT COMMENTS	WBS
8/14/84	REVISED PER VDOT COMMENTS	WBS
7/14/84	REVISED PER VDOT COMMENTS	WBS
6/14/84	REVISED PER VDOT COMMENTS	WBS
5/14/84	REVISED PER VDOT COMMENTS	WBS
4/14/84	REVISED PER VDOT COMMENTS	WBS
3/14/84	REVISED PER VDOT COMMENTS	WBS
2/14/84	REVISED PER VDOT COMMENTS	WBS
1/14/84	REVISED PER VDOT COMMENTS	WBS
12/14/83	REVISED PER VDOT COMMENTS	WBS
11/14/83	REVISED PER VDOT COMMENTS	WBS
10/14/83	REVISED PER VDOT COMMENTS	WBS
9/14/83	REVISED PER VDOT COMMENTS	WBS
8/14/83	REVISED PER VDOT COMMENTS	WBS
7/14/83	REVISED PER VDOT COMMENTS	WBS
6/14/83	REVISED PER VDOT COMMENTS	WBS
5/14/83	REVISED PER VDOT COMMENTS	WBS
4/14/83	REVISED PER VDOT COMMENTS	WBS
3/14/83	REVISED PER VDOT COMMENTS	WBS
2/14/83	REVISED PER VDOT COMMENTS	WBS
1/14/83	REVISED PER VDOT COMMENTS	WBS
12/14/82	REVISED PER VDOT COMMENTS	WBS
11/14/82	REVISED PER VDOT COMMENTS	WBS
10/14/82	REVISED PER VDOT COMMENTS	WBS
9/14/82	REVISED PER VDOT COMMENTS	WBS
8/14/82	REVISED PER VDOT COMMENTS	WBS
7/14/82	REVISED PER VDOT COMMENTS	WBS
6/14/82	REVISED PER VDOT COMMENTS	WBS
5/14/82	REVISED PER VDOT COMMENTS	WBS
4/14/82	REVISED PER VDOT COMMENTS	WBS
3/14/82	REVISED PER VDOT COMMENTS	WBS
2/14/82	REVISED PER VDOT COMMENTS	WBS
1/14/82	REVISED PER VDOT COMMENTS	WBS
12/14/81	REVISED PER VDOT COMMENTS	WBS
11/14/81	REVISED PER VDOT COMMENTS	WBS
10/14/81	REVISED PER VDOT COMMENTS	WBS
9/14/81	REVISED PER VDOT COMMENTS	WBS
8/14/81	REVISED PER VDOT COMMENTS	WBS
7/14/81	REVISED PER VDOT COMMENTS	WBS
6/14/81	REVISED PER VDOT COMMENTS	WBS
5/14/81	REVISED PER VDOT COMMENTS	WBS
4/14/81	REVISED PER VDOT COMMENTS	WBS
3/14/81	REVISED PER VDOT COMMENTS	WBS
2/14/81	REVISED PER VDOT COMMENTS	WBS
1/14/81	REVISED PER VDOT COMMENTS	WBS
12/14/80	REVISED PER VDOT COMMENTS	WBS
11/14/80	REVISED PER VDOT COMMENTS	WBS
10/14/80	REVISED PER VDOT COMMENTS	WBS
9/14/80	REVISED PER VDOT COMMENTS	WBS
8/14/80	REVISED PER VDOT COMMENTS	WBS
7/14/80	REVISED PER VDOT COMMENTS	WBS
6/14/80	REVISED PER VDOT COMMENTS	WBS
5/14/80	REVISED PER VDOT COMMENTS	WBS
4/14/80	REVISED PER VDOT COMMENTS	WBS
3/14/80	REVISED PER VDOT COMMENTS	WBS
2/14/80	REVISED PER VDOT COMMENTS	WBS
1/14/80	REVISED PER VDOT COMMENTS	WBS
12/14/79	REVISED PER VDOT COMMENTS	WBS
11/14/79	REVISED PER VDOT COMMENTS	WBS
10/14/79	REVISED PER VDOT COMMENTS	WBS
9/14/79	REVISED PER VDOT COMMENTS	WBS
8/14/79	REVISED PER VDOT COMMENTS	WBS
7/14/79	REVISED PER VDOT COMMENTS	WBS
6/14/79	REVISED PER VDOT COMMENTS	WBS
5/14/79	REVISED PER VDOT COMMENTS	WBS
4/14/79	REVISED PER VDOT COMMENTS	



**PLAN VIEW**  
**PRESSURE TREATED WOOD DRY DETENTION STRUCTURE**  
 N.T.S.



**END VIEW**  
**PRESSURE TREATED WOOD DRY DETENTION STRUCTURE**  
 N.T.S.



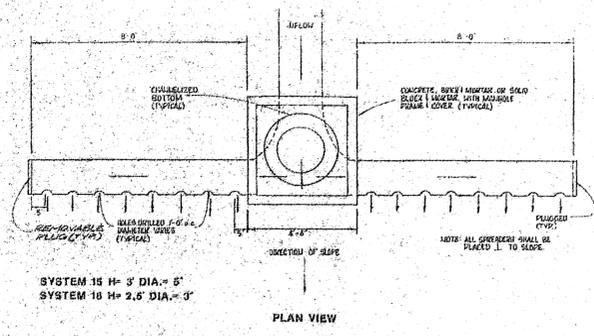
**UPSTREAM ELEVATION**  
**PRESSURE TREATED WOOD DRY DETENTION STRUCTURE**  
 N.T.S.

**TIMBER DRY DETENTION STRUCTURE DIMENSIONS**

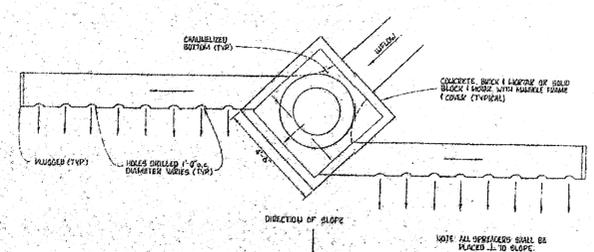
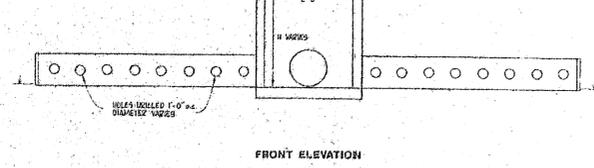
TIMBER STRUCTURE	ELEVATION OF RISER H <sub>1</sub>	ELEVATION OF STRUCTURE H <sub>2</sub>	RISER DIA. D <sub>1</sub>	ANTI-VORTEX DIA. D <sub>2</sub>	OUTLET PIPE DIA. D <sub>3</sub>	ELEVATION OF INV. IN	ELEVATION OF INV. OUT	
NO. 1	16.3'±	16'	48"	72"	18"	10.43'	10.21'	DAM TOP=16.7'±
NO. 2	15.3'±	15'	24"	36"	8"	9.12'	8.76'	DAM TOP=15.5'±
NO. 3	NO RISER	15'	24"	36"	8"	7.96'	7.21'	DAM TOP=11.3'±
NO. 4	NO RISER	14'	24"	36"	8"	7.82'	5.17'	DAM TOP=13.9'±

**TIMBER DRY DETENTION STRUCTURE OUTLET PROTECTION**

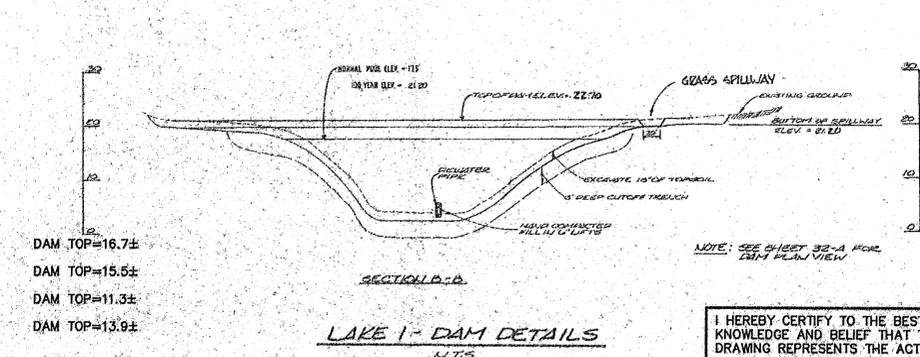
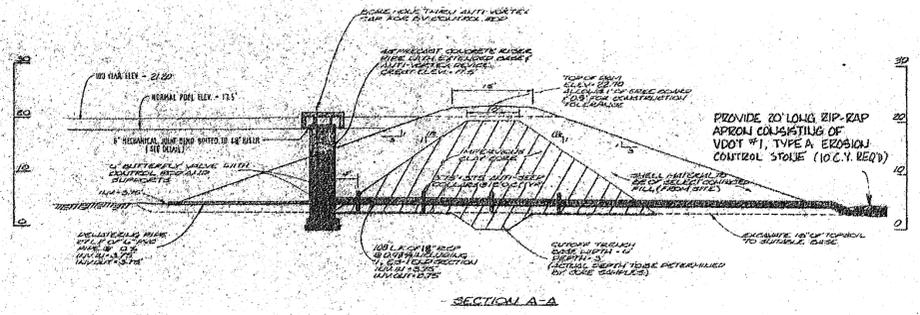
TIMBER STRUCTURE	10' WIDE RIPRAP APRON BEHIND WALL	OUTLET PROTECTION
NO. 1	20 CY EC-1 TYPE A	7 CY EC-1 TYPE B LENGTH = 25'
NO. 2	15 CY EC-1 TYPE A	3 CY EC-1 TYPE B LENGTH = 15'
NO. 3	15 CY EC-1 TYPE A	3 CY EC-1 TYPE B LENGTH = 15'
NO. 4	15 CY EC-1 TYPE A	3 CY EC-1 TYPE B LENGTH = 15'



**PLAN VIEW**  
**SPREADER DETAILS**



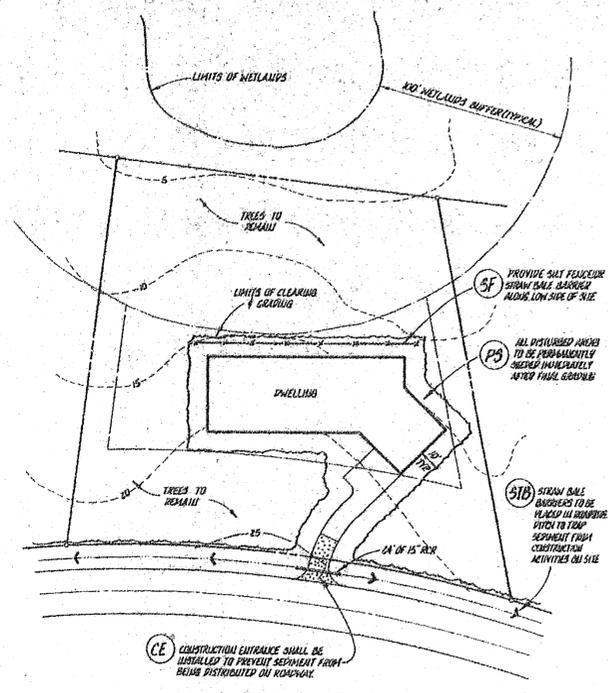
**PLAN VIEW WHEN INFLOW PIPE IS SKEWED TO THE SLOPE OF THE LAND**  
**SPREADER DETAILS**



**SECTION B-B**  
**LAKE I - DAM DETAILS**  
 N.T.S.

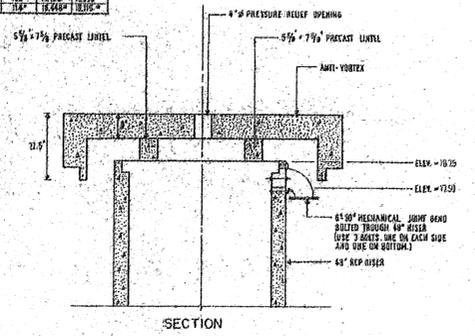
I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE ACTUAL CONDITION OF THE STORMWATER MANAGEMENT/BMP FACILITY. THE FACILITY APPEARS TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN, SPECIFICATIONS AND STORMWATER MANAGEMENT PLAN, EXCEPT AS SPECIFICALLY NOTED.

(SEAL)  
 VIRGINIA REGISTERED PROFESSIONAL ENGINEER OR CERTIFIED LAND SURVEYOR

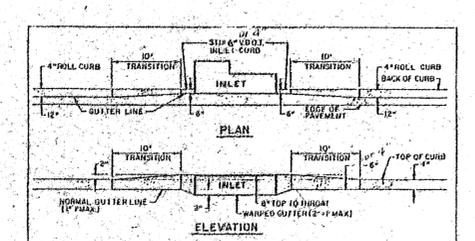


**TYPICAL EROSION CONTROL PLAN FOR SITES THAT BORDER WETLANDS**  
 NOT TO SCALE

STANDARD PIPE DIA.	CAP DIA.	PIPE DIA.	PIPE DIA.	CAP DIA.
12"	12"	12"	12"	12"
18"	18"	18"	18"	18"
24"	24"	24"	24"	24"
30"	30"	30"	30"	30"
36"	36"	36"	36"	36"
42"	42"	42"	42"	42"
48"	48"	48"	48"	48"
54"	54"	54"	54"	54"
60"	60"	60"	60"	60"
66"	66"	66"	66"	66"
72"	72"	72"	72"	72"
78"	78"	78"	78"	78"
84"	84"	84"	84"	84"
90"	90"	90"	90"	90"
96"	96"	96"	96"	96"
102"	102"	102"	102"	102"
108"	108"	108"	108"	108"
114"	114"	114"	114"	114"
120"	120"	120"	120"	120"



**SECTION**  
**WATER QUALITY CONTROL DEVICE DETAIL**  
 N.T.S.

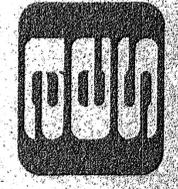


**PLAN**  
**ELEVATION**  
**CURB TRANSITION DETAIL FOR 6\"/>
 (DETAIL PROVIDED BY V.O.D.T.)**

APPROVED  
 James City County  
 Environmental Division  
 By: *[Signature]*  
 Date: 6-19-07

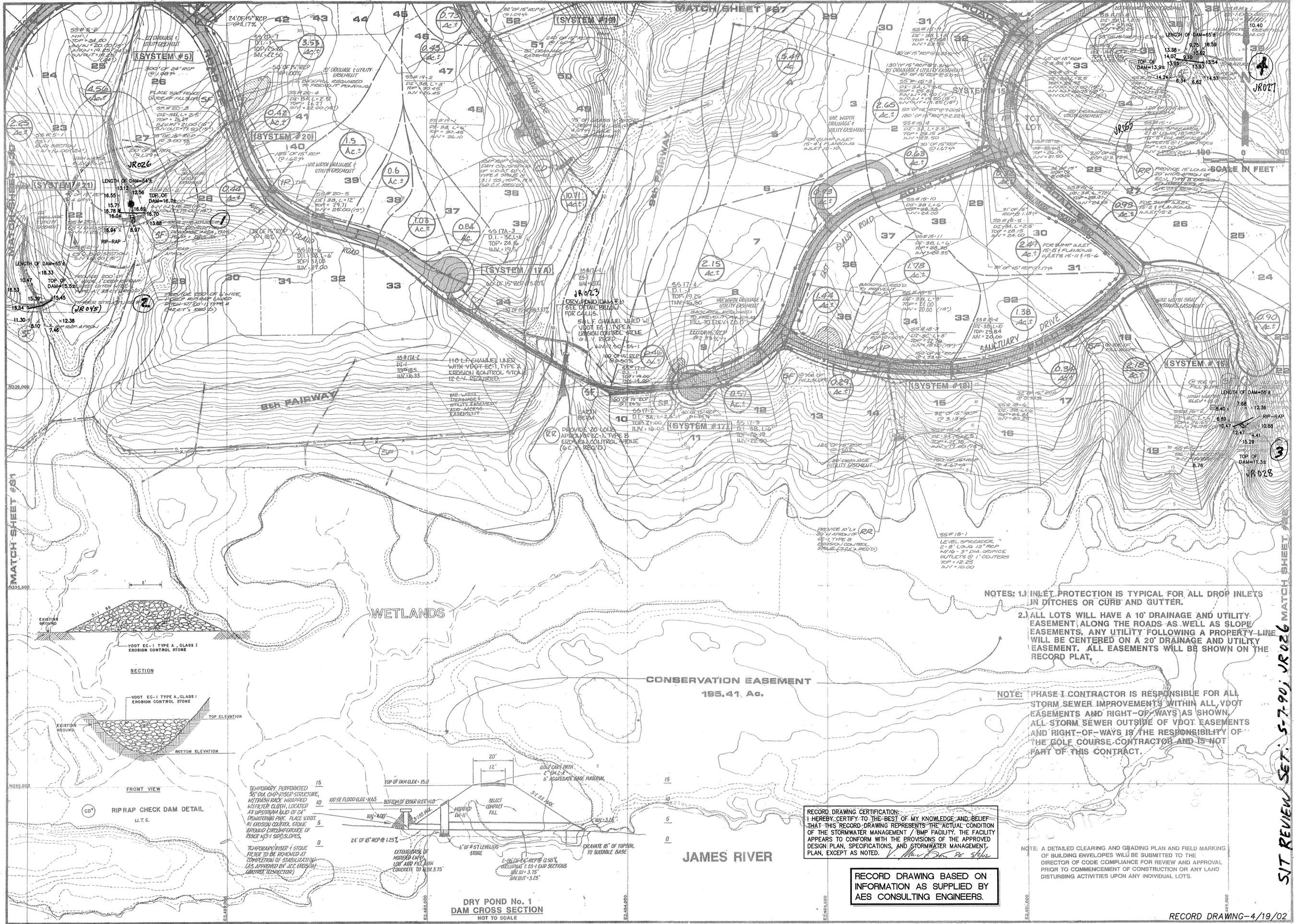
NO.	DATE	REVISIONS AS PER JAMES CITY COUNTY REVIEW	BY
1	1/10/07	RECORD DRAWING	AE
2	1/10/07	DESIGNER'S REVIEW	AE
3	1/10/07	DESIGNER'S REVIEW	AE
4	1/10/07	DESIGNER'S REVIEW	AE
5	1/10/07	DESIGNER'S REVIEW	AE
6	1/10/07	DESIGNER'S REVIEW	AE
7	1/10/07	DESIGNER'S REVIEW	AE

AEI, a professional corporation  
 5248 Old Towne Road, Suite 1  
 Williamsburg, Virginia 23185  
 (804) 253-0040  
 Engineering, Planning, Surveying



MISCELLANEOUS DETAILS  
**GOVERNOR'S LAND PHASE I**  
 OWNER/DEVELOPER: GOVERNOR'S LAND PARTNERS  
 JAMES CITY COUNTY  
 PROJECT NO. 7173  
 DRAWING NO. 4/19/02

DESIGNED	DRAWN
AEI	AEI
Scale	Date
1" = 100'	FEB. 1990
Project No.	7173
Drawing No.	4/19/02



NOTES: 1.) INLET PROTECTION IS TYPICAL FOR ALL DROP INLETS IN DITCHES OR CURB AND GUTTER.  
 2.) ALL LOTS WILL HAVE A 10' DRAINAGE AND UTILITY EASEMENT ALONG THE ROADS AS WELL AS SLOPE EASEMENTS. ANY UTILITY FOLLOWING A PROPERTY LINE WILL BE CENTERED ON A 20' DRAINAGE AND UTILITY EASEMENT. ALL EASEMENTS WILL BE SHOWN ON THE RECORD PLAT.

NOTE: PHASE I CONTRACTOR IS RESPONSIBLE FOR ALL STORM SEWER IMPROVEMENTS WITHIN ALL VDOT EASEMENTS AND RIGHT-OF-WAYS AS SHOWN. ALL STORM SEWER OUTSIDE OF VDOT EASEMENTS AND RIGHT-OF-WAYS IS THE RESPONSIBILITY OF THE GOLF COURSE CONTRACTOR AND IS NOT PART OF THIS CONTRACT.

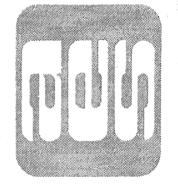
RECORD DRAWING CERTIFICATION:  
 I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE ACTUAL CONDITION OF THE STORMWATER MANAGEMENT / BMP FACILITY. THE FACILITY APPEARS TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN, SPECIFICATIONS, AND STORMWATER MANAGEMENT PLAN, EXCEPT AS NOTED.

RECORD DRAWING BASED ON INFORMATION AS SUPPLIED BY AES CONSULTING ENGINEERS.

DATE	BY	REVISION / COMMENT
6/19/02	WBE	RECORD DRAWING
12/19/00	VMS	REVISED FOR VDOT FINAL COMMENTS
4/19/00	VMS	REVISED FOR FINAL COMMENTS
3/17/00	VMS	REVISED FOR FINAL COMMENTS
2/14/00	VMS	REVISED FOR FINAL COMMENTS
1/17/00	VMS	REVISED FOR FINAL COMMENTS



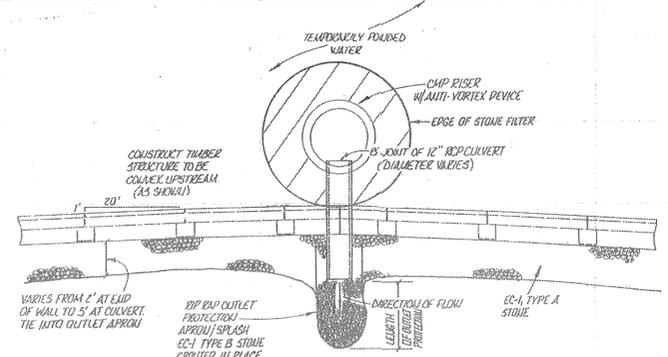
AES, a professional corporation  
 5248 Old Towne Road, Suite 1  
 Williamsburg, Virginia 23185  
 804-253-0040  
 Engineering, Planning, Surveying



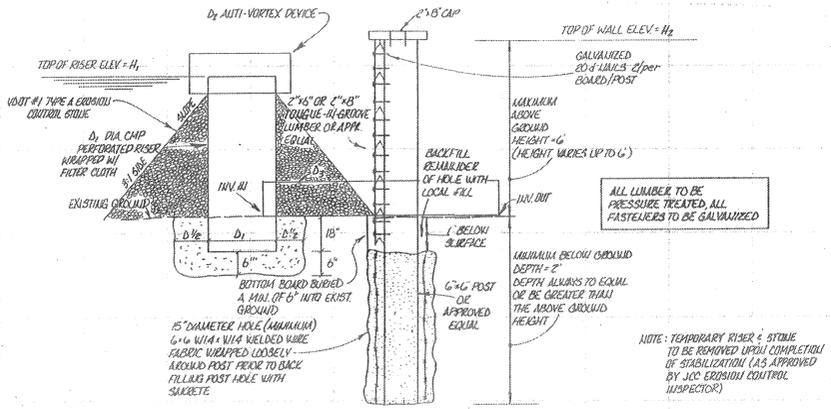
DESIGNED AND EROSION CONTROL PLAN  
**GOVERNOR'S LAND**  
 OWNER DEVELOPER: GOVERNOR'S LAND PARTNERS  
 ENGINEER: JAMES H. BENNETT, P.E.  
 PROJECT NO. 7173

Designed	AES	Drawn	AES
Scale	1" = 100'	Date	7/17/02
Project No.	7173	Sheet No.	4

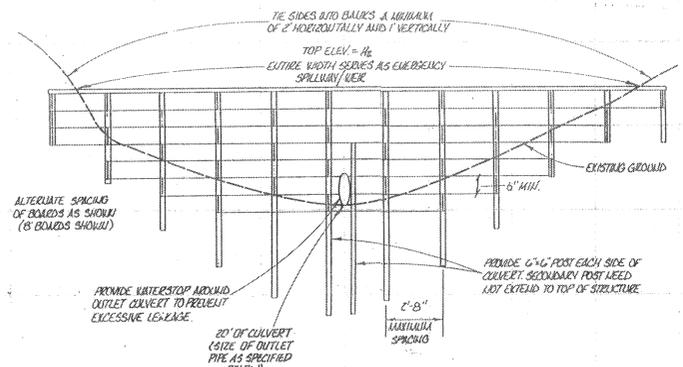
SIT REVIEW SET: 5-7-90; JR 026 MATCH SHEET #2



**PLAN VIEW**  
**PREBBURE TREATED WOOD DRY DETENTION STRUCTURE**  
N.T.S.



**END VIEW**  
**PREBBURE TREATED WOOD DRY DETENTION STRUCTURE**  
N.T.S.



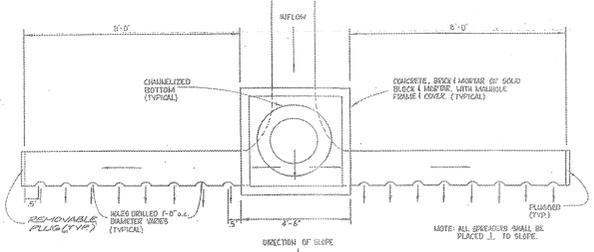
**UPSTREAM ELEVATION (JR026)**  
**PREBBURE TREATED WOOD DRY DETENTION STRUCTURE**  
N.T.S.

TIMBER DRY DETENTION STRUCTURE DIMENSIONS

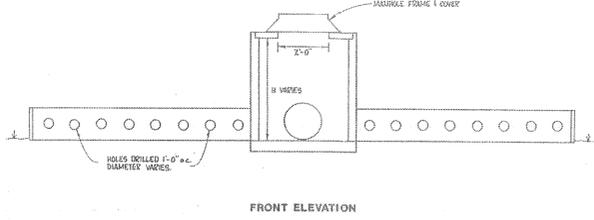
TIMBER STRUCTURE	ELEVATION OF RISER H1	ELEVATION OF STRUCTURE H2	RISER DIA D1	ANTI-VORTEX DIA D2	OUTLET PIPE DIA D3	ELEVATION OF INV. IN	ELEVATION OF INV. OUT
NO. 1 (JR026)	16.3±	16' (16.1)	48"	72"	18"	10.43'	10.0
NO. 2 (JR045)	15.8±	15'	24"	36"	8"	9.12'	8.7
NO. 3 (JR026)	14'	15'	24"	36"	8"	7.96	7.21
NO. 4 (JR021)	13'	14'	24"	36"	8"	8.0'	5.17

TIMBER DRY DETENTION STRUCTURE OUTLET PROTECTION

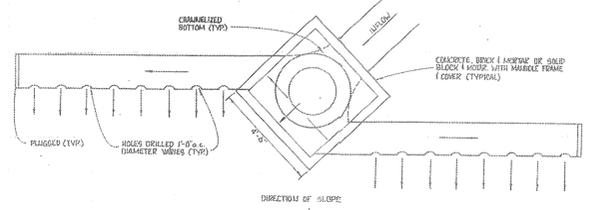
TIMBER STRUCTURE	10' WIDE RIFRAP APRON BEHIND WALL	OUTLET PROTECTION
NO. 1	20 CY EC-1 TYPE A	7 CY EC-1 TYPE B LENGTH = 25'
NO. 2	15 CY EC-1 TYPE A	3 CY EC-1 TYPE B LENGTH = 15'
NO. 3	15 CY EC-1 TYPE A	3 CY EC-1 TYPE B LENGTH = 15'
NO. 4	15 CY EC-1 TYPE A	3 CY EC-1 TYPE B LENGTH = 15'



SYSTEM 15 H= 3' DIA= 5"  
SYSTEM 18 H= 2.5' DIA= 3"

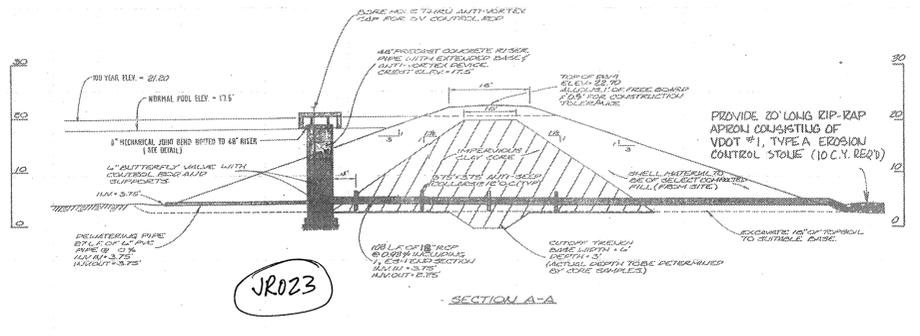


FRONT ELEVATION



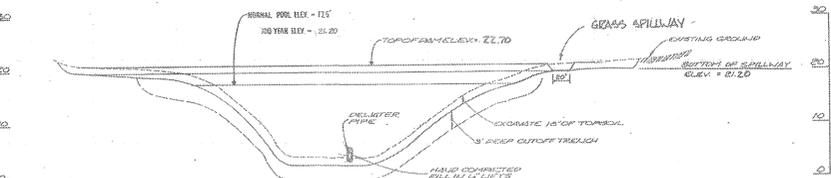
PLAN VIEW WHEN INFLOW PIPE IS SKEWED TO THE SLOPE OF THE LAND

SPREADER DETAILS



JR023

SECTION A-A

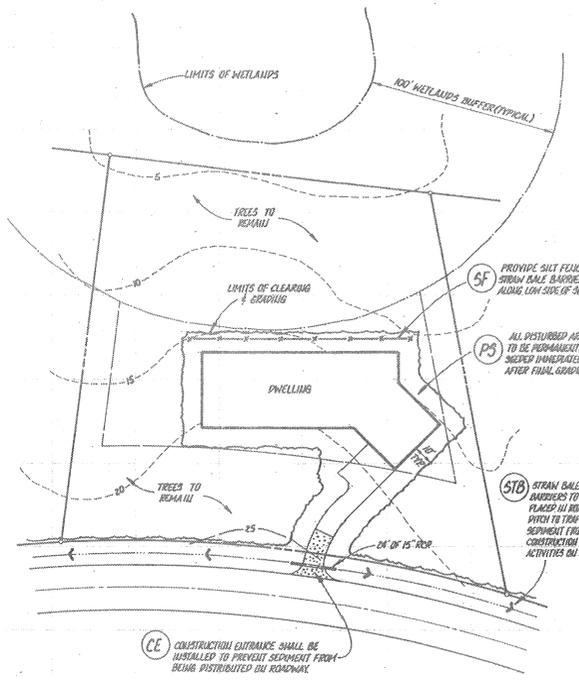


LAKE 1 - DAM DETAILS  
N.T.S.

DAM TOP = 16.7±  
DAM TOP = 15.5  
DAM TOP = 11.3  
DAM TOP = 13.9

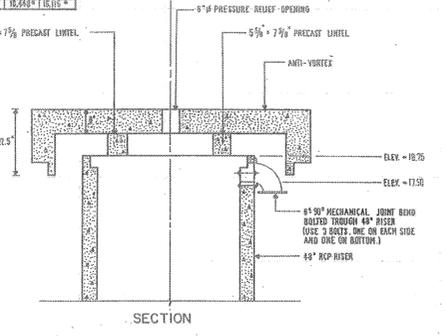
I HEREBY CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS RECORD DRAWING REPRESENTS THE ACTUAL CONDITION OF THE STORMWATER MANAGEMENT/BMP FACILITY. THE FACILITY APPEARS TO CONFORM WITH THE PROVISIONS OF THE APPROVED DESIGN PLAN, SPECIFICATIONS AND STORMWATER MANAGEMENT PLAN, EXCEPT AS SPECIFICALLY NOTED.

*V. Mac B...* (SEAL)  
VIRGINIA REGISTERED PROFESSIONAL ENGINEER OR CERTIFIED LAND SURVEYOR

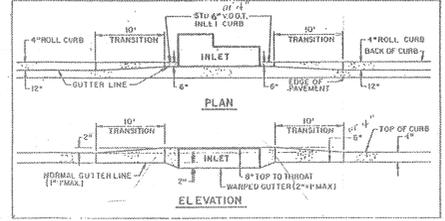


TYPICAL EROSION CONTROL PLAN FOR SITES THAT BORDER WETLANDS  
NOT TO SCALE

STANDARD PIPE DIA	CAP DIA	JOINT WEIGHT	CAP WEIGHT
12"	12"	285	544
14"	14"	385	755
16"	16"	485	1000
18"	18"	585	1255
20"	20"	685	1510
22"	22"	785	1765
24"	24"	885	2020
26"	26"	985	2275
28"	28"	1085	2530
30"	30"	1185	2785
32"	32"	1285	3040
34"	34"	1385	3295
36"	36"	1485	3550
38"	38"	1585	3805
40"	40"	1685	4060
42"	42"	1785	4315



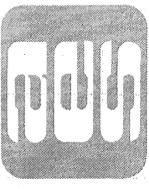
SECTION  
WATER QUALITY CONTROL DEVICE DETAIL  
N.T.S.



CURB TRANSITION DETAIL FOR 4" ROLL CURB S.B.I. 3A, B, C (DETAIL PROVIDED BY V.D.O.T.)

NO.	DATE	REVISION / COMMENT / NOTE
5	4/19/02	RECORD DRAWING
4	10/10	REVISED PER FINAL COMMENTS
3	10/10	REVISED PER CHAIRMAN'S DEVELOPER
2	6/10	REVISED PER J.C.C. REVIEWER'S LOT CHANGES
1	5/21/02	REVISED PER J.C.C. COMMENTS

AES, a professional corporation  
5248 Old Towne Road, Suite 1  
Williamsburg, Virginia 23185  
(804) 253-0040  
Engineering, Planning, Surveying



MISCELLANEOUS DETAILS  
GOVERNOR'S LAND  
PHASE I  
OWNER/DEVELOPER: GOVERNOR'S LAND PARTNERS  
JAMES CITY COUNTY, VIRGINIA

Designed	Drawn
AES	AES
Scale	Date
1" = 100'	FEB, 1990
Project No.	7173
Drawing No.	

RECORD DRAWING: 4/19/02

**AES CONSULTING ENGINEERS**

Engineering, Surveying and Planning

5248 Olde Towne Road, Suite 1

WILLIAMSBURG, VIRGINIA 23188

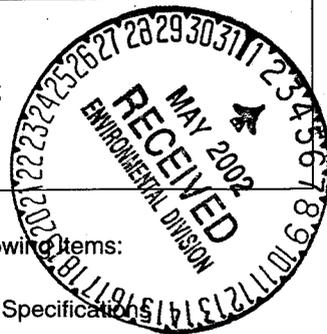
**LETTER OF TRANSMITTAL**

(757) 253-0040  
FAX (757) 220-8994

DATE 5/02/02	JOB NO. 7173-00
ATTENTION	
RE: GOVERNOR'S LAND BMP AS-BUILTS	

TO JAMES CITY ENVIRONMENTAL DIVISION  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

S-7-90  
JR 02b



WE ARE SENDING YOU  Attached  Under separate cover via \_\_\_\_\_ the following items:

- >  Shop drawings     Prints     Plans     Samples     Specifications  
 Copy of letter     Change order     \_\_\_\_\_

COPIES	DATE	NO.	DESCRIPTION
1			EXCERPT FROM GEO-TECHNICAL REPORT FOR FOWLER'S LAKE
1			EXCERPT FROM GEO-TECHNICAL REPORT FOR WINDFIELD LAKE
2			RECORD DRAWINGS FOR TIMBER STRUCTURES #1, #2, #3, #4 IN PHASE 1
2			RECORD DRAWINGS FOR WINDFIELD LAKE
2			RECORD DRAWINGS FOR HORNES LAKE
2			RECORD DRAWINGS FOR MARINA BMP
2			RECORD DRAWINGS FOR THE HARBOR BMP
2			RECORD DRAWINGS FOR WYCHE HAMLET BMP
2			RECORD DRAWINGS FOR NAUMANN'S CREEK TIMBER STRUCTURE BMP

THESE ARE TRANSMITTED as checked below:

- >  For approval     Approved as submitted     Resubmit \_\_\_\_\_ copies for approval  
 For your use     Approved as noted     Submit \_\_\_\_\_ copies for distribution  
 As requested     Returned for corrections     Return \_\_\_\_\_ corrected prints  
 For review and comment     \_\_\_\_\_  
 FOR BIDS DUE \_\_\_\_\_     PRINTS RETURNED AFTER LOAN TO US

REMARKS

~~THE~~ SHOULD BE THE FINISH OF THE BMP  
RECORD DRAWINGS IN GOVERNOR'S LAND

COPY TO \_\_\_\_\_

SIGNED: \_\_\_\_\_

*[Signature]*

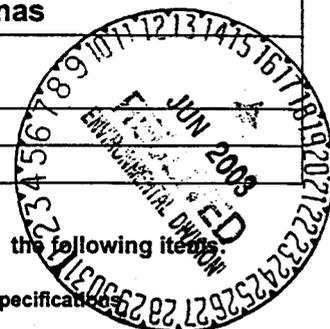
# AES CONSULTING ENGINEERS

Engineering, Surveying and Planning  
 5248 Olde Towne Road, Suite 1  
 Williamsburg, Virginia 23188  
 Phone: (757) 253-0040  
 Fax: (757) 220-8994

## LETTER OF TRANSMITTAL

TO : James City County  
 Environmental Division  
 101 Mounts Bay Road  
 Williamsburg, VA 23187

DATE: 17-Jun-03	JOB NO. 7173-09
ATTENTION: Scott Thomas	
RE: Governor's Land	



WE ARE SENDING YOU:  Attached  Under separate cover via \_\_\_\_\_ the following items

Shop drawings  Prints  Plans  Samples  Specifications

Copy of letter  Change order  Other Construction Certification

COPIES	DATE	NO.	DESCRIPTION
1	6-17-03		As-Built drawing (Mylar) - Two Rivers Country Club JR035
1	6-17-03		As-Built drawing (Black line) - Two Rivers Country Club JR035
1	6-17-03		Memo responding to letter from County - Two Rivers Country Club JR035
1	6-17-03		As-Built drawing (Mylar) - West Island Road BMP #1 JR026
1	6-17-03		As-Built drawing (Black line) - West Island Road BMP #1 JR026
1	6-17-03		Memo responding to letter from County - West Island Road BMP #1 JR026
1	6-17-03		As-Built drawing (Mylar) - West Island Road BMP #2 JR045
1	6-17-03		As-Built drawing (Black line) - West Island Road BMP #2 JR045
1	6-17-03		Memo responding to letter from County - West Island Road BMP #2 JR045
1	6-17-03		As-Built drawing (Mylar) - Sanctuary Road BMP #3 JR028
1	6-17-03		As-Built drawing (Black line) - Sanctuary Road BMP #3 JR028
1	6-17-03		Memo responding to letter from County - Sanctuary Road BMP #3 JR028
1	6-17-03		As-Built drawing (Mylar) - Whittaker Island BMP #4 JR027
1	6-17-03		As-Built drawing (Black line) - Whittaker Island BMP #4 JR027
1	6-17-03		Memo responding to letter from County - Whittaker Island BMP #4 JR027

THESE ARE TRANSMITTED as checked below:

- For Approval  Approved as submitted  Resubmit \_\_\_\_\_ copies for approval
- For your use  Approved as noted  Submit \_\_\_\_\_ copies for distribution
- As requested  Returned for corrections  Return \_\_\_\_\_ Corrected prints
- For review and comment  For Signature \_\_\_\_\_
- FOR BIDS DUE \_\_\_\_\_  PRINTS RETURNED AFTER LOAN TO US

REMARKS:

If you have any questions please contact me. Thank you.

COPIES TO: file

SIGNED:

*Victoria Bains*  
 Victoria Bains

# Memorandum

**DATE:** June 17, 2003  
**TO:** Scott Thomas  
**FROM:** Victoria Bains  
**SUBJECT:** West Island Road BMP #1, County BMP ID Code: JR026

---

In response to your letter dated March 10, 2003 AES Consulting Engineers has taken several actions.

**Construction Certification:**  
No further action required.

**Record Drawings:**  
Corrected and added appropriate information to the table shown on sheet 2 of the record drawing set (Sheet 34).

**Construction – Related Items:**  
Sediment and debris has been cleared and removed from the upstream and downstream sides of the timber wall.

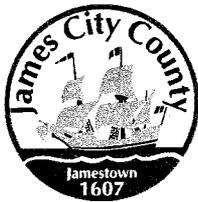
The tree has been cleared and removed from the wall and the wall has been stabilized with concrete in the area that had been undermined due to the riser not functioning properly. Stone has been placed over the concrete on the upstream and downstream side of the wall meeting conditions of the approved plan.

The riser and all pipes have been repaired and reconnected and are functioning as designed and approved.

Outlet protection has been restored to meet approved plans.



5248 Olde Towne Road • Suite 1 • Williamsburg, Virginia 23188  
(757) 253-0040 • Fax (757) 220-8994 • E-mail [aes@aesva.com](mailto:aes@aesva.com)



# 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

March 10, 2003

Mr. James H. Bennett  
Governors Land Associates  
9701 Mill Pond Run  
Toano, Va. 23168

*Rainspect  
6-2-03*

Re: Governor's Land - West Island Road BMP # 1  
County Plan No. S-7-90  
Timber Crib Wall  
County BMP ID Code: JR 026

Dear Mr. Bennett:

The Environmental Division has reviewed a record drawing set dated April 19<sup>th</sup> 2002 as submitted to our office for the above referenced BMP facility. The record drawing provides as-built information for timber crib wall structure # 1 which is situated in a wooded area east of the cul-de-sac at the end of West Island Road and Lot 22 Travis Pond (2327 West Island Road).

Based on our review of the project and a concurrent field inspection as performed on February 21<sup>st</sup> 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:

Construction Certification:

*✓  
OK*

1. Based on a review of the approved plan and active file for the project, there appears to be no construction certification requirement imposed on this BMP.

Record Drawing:

*✓  
OK  
6-27-03*

2. The record drawing set dated April 19<sup>th</sup> 2002 is **satisfactory for this BMP only**. Please note that this record drawing set shows information for four other BMP facilities within Governor's Land (ie. JR045, JR028, JR027 and JR 023) and this does not give approval of asbuilt information for these other facilities. Also, the final record drawings for this BMP may be affected by comments as outlined below in the "construction-related" section. Please forward one reproducible and one blue/black line set of the record drawings for JR 026 to our office when complete.

Construction - Related Items:

OK  
6-2-03

3. Clean and remove excessive accumulations of sediment and debris and completely replace filter stone around the riser. Sediment and debris shall not obstruct flows into the riser structure.

OK  
6-2-03

4. A large tree has fallen and severely damaged the timber crib wall near the center of the wall alignment. Clear and remove the fallen tree as appropriate. As significant structural damage has occurred, the wall either needs to be repaired or replaced back to the approved design condition; or alternatively, assessment (and report) by a professional engineer is necessary to ensure that damage did not affect the stormwater function or structural integrity of the extended detention BMP.

OK  
6-2-03

5. Repair or replace damaged portions of the riser and barrel structures to a condition meeting the approved design plan. The pipe barrel has disconnected at the last joint and erosion is undermining the wall.

OK  
6-2-03

6. Repair severe undercutting which has exposed foundation timbers along the wall.

OK  
6-2-03

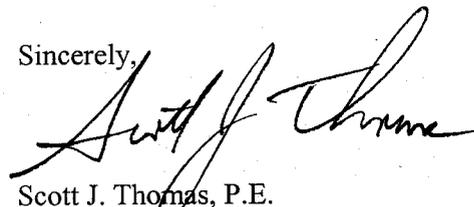
Restore the outlet protection rock pad to approved design specifications.

As outlined above, there appears to be some serious issues that need resolved for this timber crib wall BMP. The Environmental Division reserves the right to further comment on repairs and corrections that are made to restore the BMP back to acceptable stormwater function and structural integrity per the provisions of the previously approved design plan.

Once this work is satisfactorily completed, contact our office appropriately for reinspection. We can then proceed with final release of the surety on 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, Joe Buchite at 757-253-6643 if you have any further comments or questions.

Sincerely,



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

cc: Marc Bennett, AES - via fax

G:\AsBuilts\S790.jr026

**James City County Stormwater Division  
Stormwater Management / BMP Inspection Report  
Timber Crib Walls**

Submit by Email

Print Form

County BMP ID Code

Name of Facility  BMP No:  Date

Location

Owner Name

Inspector Name

Type of Facility

Weather Conditions  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
<b>Wall Conditions:</b>				
Piles	X			
Walers/Joists/Wood		X		Some damage at the end of wall
Joints	X			
Caps	X			
Base of Wall/Toe	X			
Vegetation Along Wall	X			
Other				
Interior Landscaping/ Planted Areas:	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Constructed Wetland/ Shallow Marsh	<input type="checkbox"/> Naturally Established Vegetation	
Vegetated Condition	X			
Trash & Debris	X			
Floating Material	X			
Erosion	X			
Sediment	X			
Dead Plant	X			
Aesthetics	X			
Other				

Notes:

Facility Item	O.K.	Routine	Urgent	Comments
<b>Water Pools:</b>	<input type="checkbox"/> Permanent Pool (Retention Basin)	<input type="checkbox"/> Shallow Marsh (Detention Basin)	<input checked="" type="checkbox"/> None, Dry (Detention Basin)	
Shoreline Erosion	X			
Algae	X			
Trash & Debris	X			
Sediment	X			
Aesthetics	X			
Others				
<b>Inflows (Describe Types/Locations)</b> Sheet Flow from curb inlet catchbasin				
Condition of Structure	X			
Erosion	X			
Trash and Debris	X			
Sediment	X			
Outlet Protection	X			
Other				
<b>Principal flow control Structure - Riser, Intake, etc. (Describe Type)</b>			CMP Riser	
Condition of Structure	X			
Corrosion	X			
Trash and Debris	X			
Sediment	X			
Vegetation	X			
Other				
<b>Principal Outlet Structure - Barrel, Conduit, Etc.</b>			15" RCP	
Condition of Structure	X			
Settlement	X			
Trash & Debris	X			
Erosion/Sediment	X			
Outlet Protection	X			
Other				
<b>Emergency Spillway (Overflow)</b>			N/A	
Top of Wall				
Weirs				
Outlet				
Trash & Debris				
Other				

Facility Item	O.K.	Routine	Urgent	Comments
<b>Nuisance type Conditions:</b> <input type="text"/>				
Mosquito Breeding	X			
Animal Burrows	X			
Graffiti	X			
Other				
<b>Surrounding Perimeter Conditions:</b> <input type="text"/>				
Land Uses	X			
Vegetation	X			
Trash & Debris	X			
Aesthetics	X			
Access/Maintenance Road or Path	N/A			
Other				

Remarks

It appears that there has been recent repairs to this BMP. Additional bracing has been added to the wall along with stone around the riser.

Overall Environmental Division Internal Rating:

Signature



Date

Title





James City County ENV  
 Stormwater Management / B  
 Detention and Retentio

County BMP ID Code (if known): JR026  
 Name of Facility: GOVERNORS LAND BMP No.: 1 of 4 Date: 2/21/03  
 Location: W of West Island East of 2327 West Island Road  
LOT 22  
 Name of Owner: \_\_\_\_\_  
 Name of Inspector: Rick Hall  
 Type of Facility: TIMBER CRIB WALL  
 Weather Conditions: cloudy-cool 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>Wall</u>				
Grass Height	<input checked="" type="checkbox"/>			<u>LARGE OAK TREE HAS HIT THE CENTER OF WALL PUSHING IT BACK 12" OR MORE - SIGNIFICANT DEFORMATION - WASHED BOTTOM TIMBER ARE EXPOSED</u>
<del>Grass</del> Condition				
Tree Growth				
Erosion				
Trash & Debris				
Seepage				
Fencing or Benches				
Interior Landscaping/Planted Areas: <input checked="" type="checkbox"/> None <input type="checkbox"/> Constructed Wetland/Shallow Marsh <input type="checkbox"/> Naturally Established Vegetation				
Vegetated Conditions				<u>X</u>
Trash & Debris				
Floating Material				
Erosion				
Sediment				
Dead Plant				
Aesthetics				
Other				
Notes:				

Facility Item	O.K.	Routine	Urgent	Comments
<b>Water Pools:</b> <input type="checkbox"/> Permanent Pool (Retention Basin) <input type="checkbox"/> Shallow Marsh (Detention Basin) <input checked="" type="checkbox"/> None, Dry (Detention Basin)				
Shoreline Erosion				
Algae				
Trash & Debris				
Sediment				
Aesthetics				
Other				
<b>Inflows (Describe Types/Locations):</b> <i>NATURAL STREAM CHANNEL -</i>				
Condition of Structure	<input checked="" type="checkbox"/>			<i>AND CURB DRAIN</i>
Erosion	<input checked="" type="checkbox"/>			<i>18" RCP</i>
Trash and Debris	<input checked="" type="checkbox"/>			
Sediment		<input checked="" type="checkbox"/>		
Outlet Protection		<input checked="" type="checkbox"/>		
Other				
<b>Principal Flow Control Structure - Riser, Intake, etc. (Describe Type):</b> <i>EMP RISER/ANTI VORTEX</i>				
Condition of Structure		<input checked="" type="checkbox"/>		<i>sediment built up</i>
Corrosion	<input checked="" type="checkbox"/>			<i>to bottom of cap.</i>
Trash and Debris		<input checked="" type="checkbox"/>		<i>stream appears to</i>
Sediment		<input checked="" type="checkbox"/>		<i>flow under wall.</i>
Vegetation	<input checked="" type="checkbox"/>			
Other				
<b>Principal Outlet Structure - Barrel, Conduit, etc.:</b> <i>18" RCP</i>				
Condition of Structure			<input checked="" type="checkbox"/>	<i>last section disjointed</i>
Settlement		<input checked="" type="checkbox"/>		<i>barrel washed under</i>
Trash & Debris		<input checked="" type="checkbox"/>		
Erosion/Sediment			<input checked="" type="checkbox"/>	
Outlet Protection		<input checked="" type="checkbox"/>		
Other				
<b>Emergency Spillway (Overflow):</b> <i>NONE</i>				
Vegetation				
Lining				
Erosion				
Trash & Debris				
Other				
Notes:				

Facility Item	O.K.	Routine	Urgent	Comments
<b>Nuisance Type Conditions:</b>				
Mosquito Breeding	✓			
Animal Burrows	✓			
Graffiti	✓			
Other				
<b>Surrounding Perimeter Conditions:</b>				
Land Uses	✓			
Vegetation	✓			
Trash & Debris	✓			
Aesthetics	✓			
Access /Maintenance Roads or Paths	✓			
Other				

Remarks: An 18" oak tree up-rooted and has damaged wall at midpoint. Tree has been cut to logs and left against wall. Root ball has distorted stream channel riser silted up to cap. Washed under barrel and wall. Bottom exposed wall leaning slightly downstream

Overall Environmental Division Internal Rating: 1

Signature: *Eric Spera*

Date: 2/21/03

Title: Envr. Spera



# James City County Environmental Division

## Stormwater Management / BMP Inspection Report

### Detention and Retention Pond Facilities

County BMP ID Code (if known): JR026

Name of Facility: TRAVIS POND TIMBER STRUCTURE #1 BMP No.: 10 of 25 Date: 2/6/03

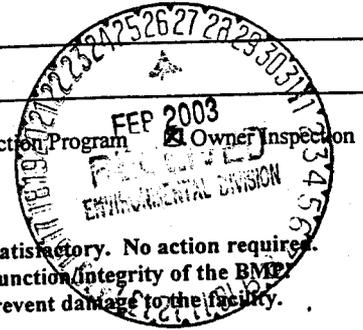
Location: GOVERNOR'S LAND (TRAVIS POND)

Name of Owner: DOMINION LAND MANAGEMENT CO

Name of Inspector: VICTORIA BAINS

Type of Facility: TIMBER STRUCTURE

Weather Conditions: CLEAR 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
<b>Embankments and Side Slopes:</b>				
Grass Height	N/A			
Vegetation Condition	✓			
Tree Growth	✓			
Erosion	✓			
Trash & Debris	✓			
Seepage	✓			
Fencing or Benches	N/A			
<b>Interior Landscaping/Planted Areas:</b> <input type="checkbox"/> None <input type="checkbox"/> Constructed Wetland/Shallow Marsh <input checked="" type="checkbox"/> Naturally Established Vegetation				
Vegetated Conditions				
Trash & Debris			✓	FALLEN TREE PUSHING AGAINST STRUCT
Floating Material	N/A			
Erosion			✓	NEED TO STABILIZE INFLOW CHANNEL
Sediment			✓	SEDIMENT IS BEING TAKEN DOWNSTREAM DUE
Dead Plant			✓	FALLEN TREE NEEDS TO BE REMOVED
Aesthetics			✓	ONCE STRUCTURE IS REPAIRED THIS WILL BE T
Other				CAR
Notes:				

Facility Item	O.K.	Routine	Urgent	Comments
Water Pools: <input type="checkbox"/> Permanent Pool (Retention Basin) <input type="checkbox"/> Shallow Marsh (Detention Basin) <input checked="" type="checkbox"/> None, Dry (Detention Basin)				
Shoreline Erosion				
Algae				
Trash & Debris				
Sediment				
Aesthetics				
Other				
<b>Inflows (Describe Types/Locations):</b>				
Condition of Structure			✓	STONE IS CLOGGED W/ SEDIMENT AND NEEDS TO BE REPLACED AROUND RISER
Erosion			✓	NEW CHANNEL HAS BEEN ERODED AROUND RISER
Trash and Debris			✓	FALLEN TREE
Sediment			✓	SEDIMENT IS BEING CARRIED DOWNSTREAM DUE TO ER
Outlet Protection	N/A			
Other				
<b>Principal Flow Control Structure - Riser, Intake, etc. (Describe Type):</b>				
Condition of Structure			✓	FALLEN TREE, A SECTION IS LAYING ON PIPE BETWEEN RISER & WALL AND RISER LOOKS LIKE IT H
Corrosion	✓			
Trash and Debris			✓	FALLEN TREE
Sediment			✓	SEDIMENT IS BEING CARRIED DOWNSTREAM DUE TO EROS
Vegetation	✓			
Other				
<b>Principal Outlet Structure - Barrel, Conduit, etc. :</b>				
Condition of Structure			✓	OUTLET PIPE IS BROKEN OFF AT JOINT
Settlement				
Trash & Debris			✓	SECTION OF FALLEN TREE LAYING ON PIPE
Erosion/Sediment			✓	SEDIMENT IS BEING CARRIED DOWNSTREAM
Outlet Protection			✓	NEED TO REPLACE OUTLET PROTECTION
Other				
<b>Emergency Spillway (Overflow):</b>				
Vegetation	N/A			
Lining	N/A			
Erosion			✓	TIMBER WALL HAS BEEN UNDERMINED AND THERE IS A LARGE ERODED AREA W/ STANDING WATER
Trash & Debris	✓			
Other				
Notes:				

Facility Item	O.K.	Routine	Urgent	Comments
<b>Nuisance Type Conditions:</b>				
Mosquito Breeding	✓			
Animal Burrows	✓			
Graffiti	✓			
Other				
<b>Surrounding Perimeter Conditions:</b>				
Land Uses	✓			
Vegetation	✓			
Trash & Debris	✓			
Aesthetics	✓			
Access /Maintenance Roads or Paths	N/A			THERE IS A 20' EASEMENT
Other				
<b>Remarks:</b>				
<p>THIS STRUCTURE WAS FOUND IN URGENT NEED OF REPAIR. A TREE HAS FALLEN ONTO THE STRUCTURE AND WAS CUT INTO THREE SECTIONS. THE TOP SECTION <del>IS</del> IS LAYING ON THE OUTFLOW PIPE AND CAUSED IT TO BREAK AT THE JOINT THAT IS FLUSH W/ THE WALL. THE MIDDLE SECTION IS LAYING ON THE PIPE SECTION BETWEEN THE RISER AND TIMBER WALL. THE WALL HAS BEEN UNDERMINED DUE TO THE RISER NOT FUNCTIONING PROPERLY AND GROUND ELEVATIONS CHANGING DUE TO TREE FALLING OVER. TREE NEEDS TO BE CLEARED AND REMOVED FROM STRUCTURE AND ORGANIC MATERIAL NEEDS TO BE REMOVED FROM STRUCTURE AREA. WALL NEEDS TO BE STABILIZED WITH CONCRETE IN THE AREA THAT HAS BEEN UNDERMINED. OUTFLOW PIPE NEEDS TO BE REATTACHED AND RISER NEEDS TO BE STRAIGHTEN AND STONE REPLACED AROUND RISER. UPSTREAM SIDE NEEDS TO SLIGHTLY GRADED TO ASSURE FLOW TO RISER. OUTLET PROTECTION FOR OUTFLOW PIPE NEED TO BE REESTABLISHED.</p> <p>Overall Environmental Division Internal Rating: <u>1</u></p>				
Signature: <u>Victoria Bains</u>		Date: <u>2/6/03</u>		
Title: <u>PROJECT ENGINEER</u>				

SWMPProg\BMP\CoInspProg\DetRet.wpd

Date Record Created:

WS\_BMPNO:

Print Record

Created By:

JR026

PRINTED ON  
Thursday, March 11, 2010  
2:19:42 PM

WATERSHED JR

BMP ID NO 026

PLAN NO S-7-90

TAX PARCEL (44-1)(2-1C)

PIN NO 4410200001C

CONSTRUCTION DATE 1/1/1991

PROJECT NAME Gov Land - West Island Road BMP # 1

FACILITY LOCATION Near (east of) 2327 West Island Road

CITY-STATE Williamsburg, Va. 23185

CURRENT OWNER Governors Land Foundation

OWNER ADDRESS 2700 Two Rivers Road

OWNER ADDRESS 2

CITY-STATE-ZIP CODE Williamsburg, Va. 23185

OWNER PHONE

MAINT AGREEMENT Yes

EMERG ACTION PLAN No

MAINTENANCE PLAN

SITE AREA acre

No

1444

LAND USE

SF Residential

old BMP TYP

Timber Crib Wall

JCC BMP CODE

F1 Timber Walls

POINT VALUE

4

SVC DRAIN AREA acres

5.4

SERVICE AREA DESCR

SF Lots, Roadways and open space

IMPERV AREA acres

RECV STREAM

UT of James River

EXT DET-WQ-CTRL

Yes

WTR QUAL VOL acre-ft

0

CHAN PROT CTRL

No

CHAN PROT VOL acre-ft

0

SW/FLOOD CONTROL

Yes

GEOTECH REPORT

No

CTRL STRUC DESC

CMP Riser

CTRL STRUC SIZE inches

48

OTLT BARRL DESC

CMP Barrel

OTLT BARRL SIZE inch

18

EMERG SPILLWAY

No

DESIGN HW ELEV

17.0

PERM POOL ELEV

na

2-YR OUTFLOW cfs

10-YR OUTFLOW cfs

REC DRAWING

Yes

CONSTR CERTIF

No

LAST INSP DATE 2/23/2001

Inspected by:

INTERNAL RATING

1

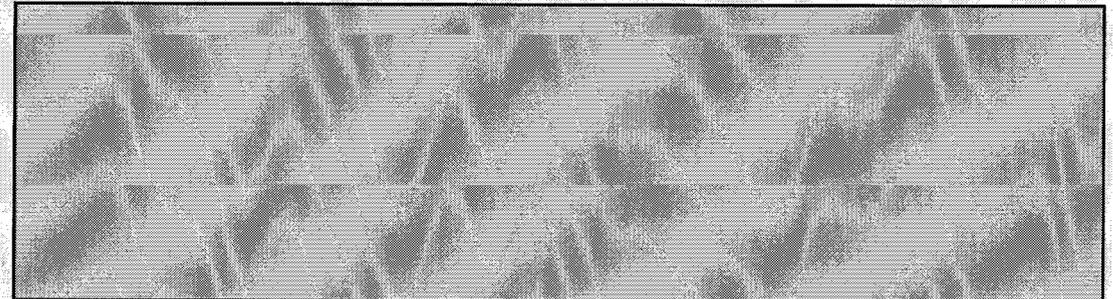
MISC/COMMENTS

Top wall El. 16.7. Tree on wall & undercut.

Get Last BMP No

Return to Menu

Additional Comments:



Bmp\_JR026



BMP JRO2L



Bmp\_JR026



BMP JR026



BMP IR026



BMP 024 JR.



