



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.

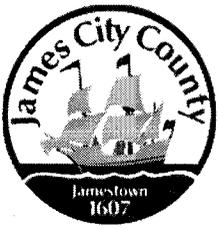
BMP NUMBER: JR032

DATE VERIFIED: June 20, 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: Tina Cantwell, Stormwater
PO: 270712
RE: Files Approved for Scanning

General File ID or BMP ID: JR032

PIN: 4320700001A

Subdivision, Tract, Business or Owner

Name (if known):

Governor's Land Foundation

Property Description:

Marina

Site Address:

End of Harbor Road

(For internal use only)

Box 11

Drawer: 7

Agreements: (in file as of scan date)

N

Book or Doc#:

Page:

Comments

JR-032

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

**James City County, Virginia
Environmental Division**

**Stormwater Management/BMP Facilities
Record Drawing/Construction Certification**

Review Tracking Form

County Plan No.: S-127-93
 Project Name: GOV LAND - MARINA VILLAGE BMP #2 (AT MARINA LOT PARKING)
 Stormwater Management Facility: WET MARSH

Phase: I II III
 Information Received. Date: 5/20/02 AES
 Administrative Check.
 Record Drawing Date: 6/7/99; REV 3/30/02 AES
 Construction Certification Date: NONE FOUND.
 RD/CC Standard Forms (Required after Feb 1st 2001 Only)
 Insp/Maint Agreement Info: Global
 BMP Maintenance Plan Location: NO
 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: JR032

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.
 Pre-Inspection Drawing Review - Approved Plan (Quick look prior to field inspection).
 Final Inspection (FI) Performed Date: 3/12/03 R.H.
 Record Drawing (RD) Review Date: 5/19/03 SJT
 Construction Certification (CC) Review Date: 5/19/03 SJT

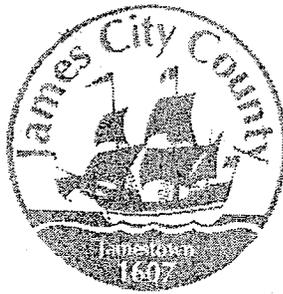
Actions:
 No comments.
 Comments. Letter Forwarded. Date: _____
 Record Drawing (RD)
 Construction Certification (CC)
 Construction-Related (CR)
 Site Issues (SI)
 Other: _____

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: 6/26/03



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 - THE HARBOR AT TWO RIVERS
Structure/BMP Name: HARBOR BMP
Project Location: SOUTH OF INTERSECTION OF HARBOR ROAD & RIVER OAKS ROAD
BMP Location: SOUTH OF HARBOR PARKING AREA
County Plan No.: S - 127 - 93

Project Type: Residential Business Commercial Office Institutional Industrial Public Roadway Other
Tax Map/Parcel No.: (43.2) (2-1A)
BMP ID Code (if known): JR032
Zoning District: POWHATAN DISTRICT
Land Use: RESIDENTIAL
Site Area (sf or acres): _____

Brief Description of Stormwater Management/BMP Facility: EXTENDED DETENTION MARSH AUGMENTED POND

Nearest Visible Landmark to SWM/BMP Facility: HARBOR JUST TO NORTH

Nearest Vertical Ground Control (if known):
 JCC Geodetic Ground Control USGS Temporary Arbitrary Other
Station Number or Name: 349
Datum or Reference Elevation: 12.79
Control Description: JCC MAIN STATION
Control Location from Subject Facility: 8100 FEET DUE NORTH

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

Construction Certification

Firm Name: AES CONSULTING ENGINEERS
Mailing Address: 5240 OLDS TOWNE RD, SUITE 1
WILLIAMSBURG, VIRGINIA 23188
Business Phone: 757-253-0040
Fax: 757-220-8994

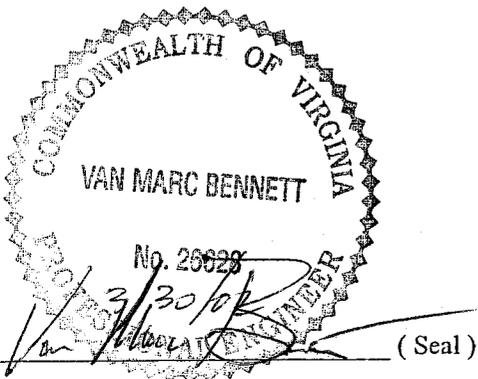
Firm Name: _____
Mailing Address: _____
Business Phone: _____
Fax: _____

Name: V. MARC BENNETT
Title: SENIOR PROJECT MANAGER
Signature: [Signature]
Date: 3/30/02

Name: _____
Title: _____
Signature: _____
Date: _____

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.

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
or Certified Land Surveyor

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 reproducibles.
- 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.)

- INC 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.
- XY 2. Elevations to the nearest 0.1' unless higher accuracy is needed to show positive drainage.
- XY 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).
- XY 4. All plan sheet revision blocks modified to indicate date and record drawing status.
- XY 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.)

- INC 1. All requirements of Section I (Methods and Presentation) apply to this section.
- XY 2. Plan Views: Show general location, arrangement and dimensions. Location and alignment shall generally match approved design plans.
- XY 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.
- XY 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.
- N/A 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.
- N/A 8. Elevation of the principal spillway crest or outlet crest of the structure.

- N/A 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.**
- N/A 14. Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.
- N/A 15. Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall.
- N/A 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.
- XY 20. BMP vicinity properly cleaned of stockpiles and construction debris.
- XY 21. No visual signs of erosion or channel degradation immediately downstream of facility.
- XY 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.)

- | | | |
|------------|------|--|
| <u>N/A</u> | 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. |
| <u>N/A</u> | 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*)

- INC B1. Same requirements as Group A Wet Ponds.
- XX B2. Minimum 2:1 length to width flow path provided across the facility.
- INC B3. Micropool provided at or around outlet from BMP (generally 3 to 6 ft. deep).
- XX 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.
- N/A B5. Adequate wetland buffer provided (Typically 25 ft. outward from maximum design water surface elevation and 15 ft. setback to structures).
- N/A B6. No more than one-half (1/2) of the wetland surface area is planted.
- NA B7. Topsoil or wetland mulch provided to support vigorous growth of wetland plants.
- N/A 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)

- N/A 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.
- N/A 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)

- N/A F1. All requirements of Section II, Minimum Standards, apply to Group F facilities.
- N/A F2. Basin bottom has positive slope and drainage from all basin inflow points to the riser (or outflow) location.
- N/A 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.
- 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.
- N/A F9. Timbers properly reinforced or concrete footing provided if soil conditions were prohibitive.
- N/A F10. Timber wall cross members extended to a minimum depth of two (2) feet below ground elevation.
- N/A 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.
- N/A 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.
- N/A F14. No visual signs of undercutting of timber walls or clogging of the low orifice were present.
- N/A F15. No visual signs of erosion or channel degradation immediately downstream of facility.
- N/A 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 .)

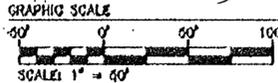
- N/A O1. All requirements of Section II, Minimum Standards, apply to this section.
- N/A O2. Certification criteria to be determined on a case-by-case basis by the Environmental Division specific to the proposed SWM/BMP facility.

**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\CertifRDCC.wpd



NOTE:
REFER TO SHEET 8, PREPARED BY WILLIAMSBURG
ENVIRONMENTAL GROUP, INC., FOR DESIGN INFORMATION
OF BMP #1, #2, AND #3.

STREET NAME ASSIGNMENTS

- ROAD A - RIVER OAKS ROAD
- ROAD B - NO NAME ASSIGNED
- ROAD C - NO NAME ASSIGNED
- ROAD D - BARRY'S POINT ROAD
- ROAD E - HARBOR ROAD
- ROAD F - HARBOR ROAD
- ROAD G - HARBOR ROAD

SELECT CLEARING

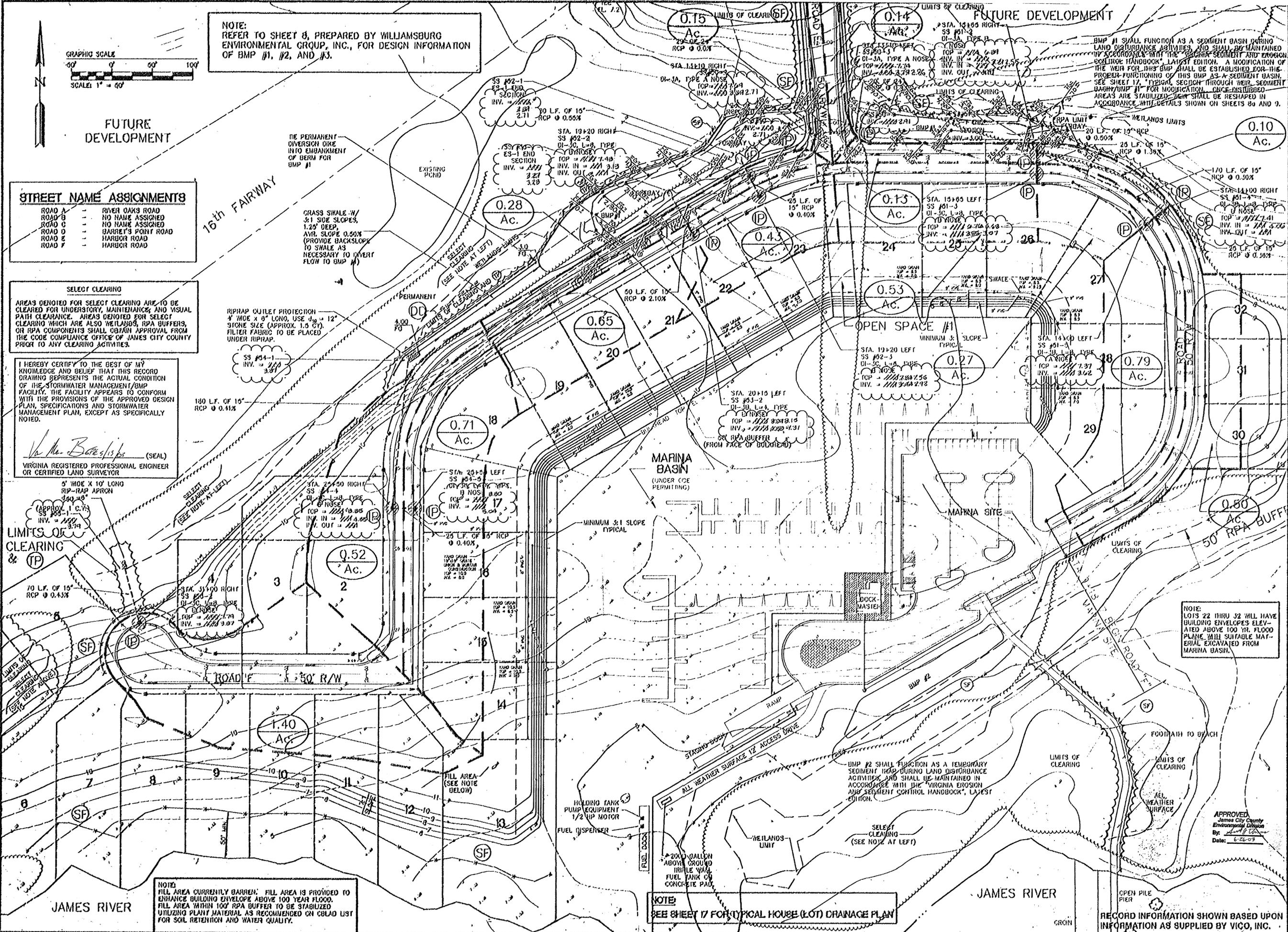
AREAS DENOTED FOR SELECT CLEARING ARE TO BE
CLEARED FOR UNDERSTORY, MAINTENANCE, AND VISUAL
PATH CLEARANCE. AREAS DENOTED FOR SELECT
CLEARING WHICH ARE ALSO WETLANDS, RPA BUFFERS,
OR RPA COMPONENTS SHALL OBTAIN APPROVAL FROM
THE CODE COMPLIANCE OFFICE OF JAMES CITY COUNTY
PRIOR TO ANY CLEARING ACTIVITIES.

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.

Va. M. B. [Signature] (SEAL)
VIRGINIA REGISTERED PROFESSIONAL ENGINEER
OR CERTIFIED LAND SURVEYOR

5' WIDE X 10' LONG
RIP-RAP APRON
APPROX. 1 C.Y.
SS #34-1
INV. = 2.71

NOTE:
FILL AREA CURRENTLY BARREN. FILL AREA IS PROVIDED TO
ENHANCE BUILDING ENVELOPE ABOVE 100 YEAR FLOOD.
FILL AREA WITHIN 100' RPA BUFFER TO BE STABILIZED
UTILIZING PLANT MATERIAL AS RECOMMENDED ON CBLAD LIST
FOR SOIL RETENTION AND WATER QUALITY.



BMP #1 SHALL FUNCTION AS A SEDIMENT BASH DURING
LAND DISTURBANCE ACTIVITIES AND SHALL BE MAINTAINED
IN ACCORDANCE WITH THE "VIRGINIA EROSION AND SEDIMENT
CONTROL HANDBOOK" LATEST EDITION. A MODIFICATION OF
THE WEIR FOR THIS BMP SHALL BE ESTABLISHED FOR THE
PROPER FUNCTIONING OF THIS BMP AS A SEDIMENT BASH.
SEE SHEET 17, "TYPICAL SECTION THROUGH WEIR, SEDIMENT
BASH/BMP #1" FOR MODIFICATION. ONCE DISTURBED
AREAS ARE STABILIZED, THEY SHALL BE RESHAPED IN
ACCORDANCE WITH DETAILS SHOWN ON SHEETS 8a AND 9.

BMP #2 SHALL FUNCTION AS A TEMPORARY
SEDIMENT TRAP DURING LAND DISTURBANCE
ACTIVITIES AND SHALL BE MAINTAINED IN
ACCORDANCE WITH THE "VIRGINIA EROSION
AND SEDIMENT CONTROL HANDBOOK", LATEST
EDITION.

NOTE:
SEE SHEET 17 FOR TYPICAL HOUSE (LOT) DRAINAGE PLAN

NOTE:
LOTS 22 THRU 32 WILL HAVE
BUILDING ENVELOPES ELEVATED ABOVE 100 YR. FLOOD
PLANE. WILL SUITABLE MATERIAL EXCAVATED FROM
MARINA BASIN.

APPROVED
James City County
Environmental Division
By: [Signature]
Date: 6-26-99

RECORD INFORMATION SHOWN BASED UPON
INFORMATION AS SUPPLIED BY VICO, INC.

1	SSS	BMP RECORD DRAWING	DATE
2	RZS	REVISED DRAWING	DATE
3	6/24	REVISED MARINA ROAD ALIGNMENT	DATE
4	1/24	REVISED PER COUNTY AND DEVELOPER COMMENTS	DATE
5		REVISION / COMMENT / DATE	



6248 Old Towne Road, Suite 1
Williamsburg, Virginia 23188
(804) 265-0040
Fax (804) 220-8894

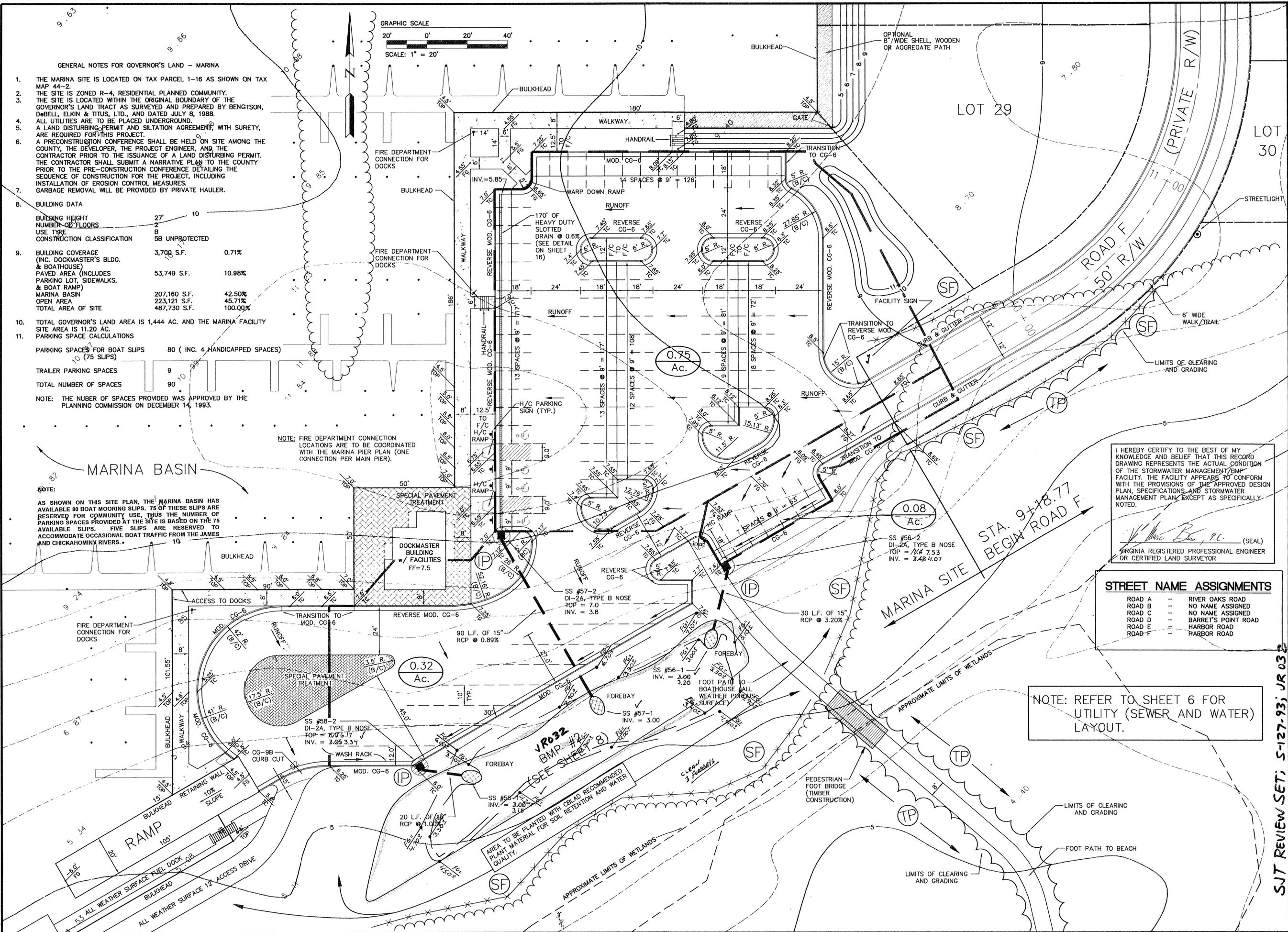
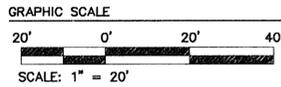


DRAINAGE AND EROSION CONTROL PLAN
THE HARBOR • TWO RIVERS
GOVERNOR'S LAND
AT
TWO RIVERS
JAMES CITY COUNTY
POWhatan DISTRICT

Designed	VMG	Drawn	BUJ/SCL
Scale	1"=50'	Date	JAN, 1994
Project No.	7173		
Drawing No.	7		

GENERAL NOTES FOR GOVERNOR'S LAND - MARINA

- THE MARINA SITE IS LOCATED ON TAX PARCEL 1-16 AS SHOWN ON TAX MAP 44-2.
 - THE SITE IS ZONED R-4, RESIDENTIAL PLANNED COMMUNITY. THE SITE IS LOCATED WITHIN THE ORIGINAL BOUNDARY OF THE GOVERNOR'S LAND TRACT AS SURVEYED AND PREPARED BY BENGTON, DEBELL, ELKIN & TITUS, LTD., AND DATED JULY 8, 1988.
 - ALL UTILITIES ARE TO BE PLACED UNDERGROUND.
 - A LAND DISTURBING PERMIT AND SILTATION AGREEMENT, WITH SURETY, ARE REQUIRED FOR THIS PROJECT.
 - A PRECONSTRUCTION CONFERENCE SHALL BE HELD ON SITE AMONG THE COUNTY, THE DEVELOPER, THE PROJECT ENGINEER, AND THE CONTRACTOR PRIOR TO THE ISSUANCE OF A LAND DISTURBING PERMIT. THE CONTRACTOR SHALL SUBMIT A NARRATIVE PLAN TO THE COUNTY PRIOR TO THE PRE-CONSTRUCTION CONFERENCE DETAILING THE SEQUENCE OF CONSTRUCTION FOR THE PROJECT, INCLUDING INSTALLATION OF EROSION CONTROL MEASURES.
 - GARBAGE REMOVAL WILL BE PROVIDED BY PRIVATE HAULER.
8. BUILDING DATA
- | | | |
|-----------------------------|----------------|----|
| BUILDING HEIGHT | 27' | 10 |
| NUMBER OF FLOORS | 5 | |
| USE TYPE | 5B UNPROTECTED | |
| CONSTRUCTION CLASSIFICATION | 5B UNPROTECTED | |
9. BUILDING COVERAGE (INC. DOCKMASTER'S BLDG. & BOATHOUSE)
- | | | |
|---|--------------|---------|
| PAVED AREA (INCLUDES PARKING LOT, SIDEWALKS, & BOAT RAMP) | 53,749 S.F. | 10.98% |
| MARINA BASIN | 207,180 S.F. | 42.50% |
| OPEN AREA | 223,121 S.F. | 45.71% |
| TOTAL AREA OF SITE | 487,730 S.F. | 100.00% |
10. TOTAL GOVERNOR'S LAND AREA IS 1,444 AC. AND THE MARINA FACILITY SITE AREA IS 11.20 AC.
11. PARKING SPACE CALCULATIONS
- | | |
|--|--------------------------------|
| PARKING SPACES FOR BOAT SLIPS (75 SLIPS) | 80 (INC. 4 HANDICAPPED SPACES) |
| TRAILER PARKING SPACES | 9 |
| TOTAL NUMBER OF SPACES | 90 |
- NOTE: THE NUMBER OF SPACES PROVIDED WAS APPROVED BY THE PLANNING COMMISSION ON DECEMBER 14, 1993.



NOTE: AS SHOWN ON THIS SITE PLAN, THE MARINA BASIN HAS AVAILABLE 80 BOAT MOORING SLIPS. 75 OF THESE SLIPS ARE RESERVED FOR COMMUNITY USE, THUS THE NUMBER OF PARKING SPACES PROVIDED AT THE SITE IS BASED ON THE 75 AVAILABLE SLIPS. FIVE SLIPS ARE RESERVED TO ACCOMMODATE OCCASIONAL BOAT TRAFFIC FROM THE JAMES AND CHICKAHOMINY RIVERS.

NOTE: FIRE DEPARTMENT CONNECTION LOCATIONS ARE TO BE COORDINATED WITH THE MARINA PIER PLAN (ONE CONNECTION PER MAIN PIER).

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. M. ... (SEAL)
 VIRGINIA REGISTERED PROFESSIONAL ENGINEER OR CERTIFIED LAND SURVEYOR

STREET NAME ASSIGNMENTS

ROAD A	RIVER OAKS ROAD
ROAD B	NO NAME ASSIGNED
ROAD C	NO NAME ASSIGNED
ROAD D	BARRET'S POINT ROAD
ROAD E	HARBOR ROAD
ROAD F	HARBOR ROAD

NOTE: REFER TO SHEET 6 FOR UTILITY (SEWER AND WATER) LAYOUT.

NO.	DATE	REVISION / COMMENT / NOTE	BY
3	6/3/99	BMP RECORD DRAWING	VMB
2	6/7/94	REVISED MARINA ROAD ALIGNMENT	VMB
1	3/7/94	REVISED PER COUNTY AND DEVELOPER COMMENTS	VMB



5248 Old Towne Road, Suite 1
 Williamsburg, Virginia 23188
 (804) 253-0040
 Fax (804) 220-8994



SJT REVIEW SET: S-127-93; JR 032

SITE PLAN - MARINA SITE
 THE HARBOR - TWO RIVERS
 GOVERNOR'S LAND
 AT
 TWO RIVERS
 JAMES CITY COUNTY
 VIRGINIA

Designed	VMB	Drawn	BJU
Scale	1"=20'	Date	JAN, 1994
Project No.	7173	Drawing No.	10

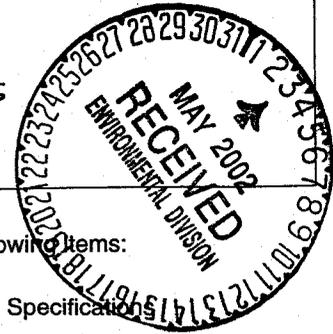
LETTER OF TRANSMITTAL

(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

5-127-93
~~JR032~~
 JR032



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 HARBOR ROAD BMP?
2			RECORD DRAWINGS FOR THE HARBOR BMP
2			RECORD DRAWINGS FOR WILCOE HAMLET BMP
2			RECORD DRAWINGS FOR NAHANNIEL'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: V. MacB...

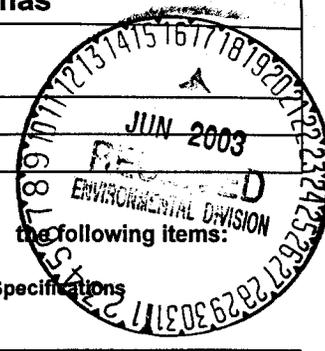
AES CONSULTING ENGINEERS

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

LETTER OF TRANSMITTAL

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

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



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	6-16-03		As-Built drawing (Mylar) – Fowler's Lake JR018
1	6-16-03		As-Built drawing (Black line) – Fowler's Lake JR018
1	6-16-03		Memo responding to letter from County – Fowler's Lake JR018
1	6-16-03		As-Built drawing (Mylar) – Horne's Lake JR022
1	6-16-03		As-Built drawing (Black line) – Horne's Lake JR022
1	6-16-03		Memo responding to letter from County – – Horne's Lake JR022
1	6-16-03		As-Built drawing (Mylar) – Marina Village JR032
1	6-16-03		As-Built drawing (Black line) – Marina Village JR032
1	6-16-03		Memo responding to letter from County – Marina Village
1	6-16-03		As-Built drawing (Mylar) – Travis Pond Dry Pond #1
1	6-16-03		As-Built drawing (Black line) – Travis Pond Dry Pond #1
1	6-16-03		Memo responding to letter from County – Travis Pond Dry Pond #1

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

BMP #2

JR032

Routing Calculations

Inflow Hydrograph: GLND22 .HYD
 Rating Table file: GLAND2 .PND

----INITIAL CONDITIONS----
 Elevation = 4.25 ft
 Outflow = 0.00 cfs
 Storage = 0.17 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
3.00	0.0	0.000
3.25	0.0	0.031
3.50	0.0	0.063
3.75	0.0	0.096
4.00	0.0	0.131
4.25	0.0	0.168
4.50	8.3	0.206
4.75	23.4	0.246
5.00	42.9	0.287

INTERMEDIATE ROUTING
 COMPUTATIONS

2S/t (cfs)	2S/t + 0 (cfs)
0.0	0.0
7.4	7.4
15.2	15.2
23.3	23.3
31.7	31.7
40.5	40.5
49.8	58.1
59.4	82.8
69.5	112.4

Time increment (t) = 0.100 hrs.

***** SUMMARY OF ROUTING COMPUTATIONS *****

Pond File: GLAND2 .PND
Inflow Hydrograph: GLND22 .HYD
Outflow Hydrograph: GLND20 .HYD

Starting Pond W.S. Elevation = 4.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 6.00 cfs
Peak Outflow = 4.99 cfs
Peak Elevation = 4.40 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0.17 ac-ft
Peak Storage From Storm = 0.02 ac-ft

Total Storage in Pond = 0.19 ac-ft

Inflow Hydrograph: GLND210 .HYD
 Rating Table file: GLAND2 .PND

----INITIAL CONDITIONS----
 Elevation = 4.25 ft
 Outflow = 0.00 cfs
 Storage = 0.17 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
3.00	0.0	0.000
3.25	0.0	0.031
3.50	0.0	0.063
3.75	0.0	0.096
4.00	0.0	0.131
4.25	0.0	0.168
4.50	8.3	0.206
4.75	23.4	0.246
5.00	42.9	0.287

INTERMEDIATE ROUTING
 COMPUTATIONS

2S/t (cfs)	2S/t + 0 (cfs)
0.0	0.0
7.4	7.4
15.2	15.2
23.3	23.3
31.7	31.7
40.5	40.5
49.8	58.1
59.4	82.8
69.5	112.4

Time increment (t) = 0.100 hrs.

***** SUMMARY OF ROUTING COMPUTATIONS *****

Pond File: GLAND2 .PND
Inflow Hydrograph: GLND210 .HYD
Outflow Hydrograph: GLND100 .HYD

Starting Pond W.S. Elevation = 4.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 10.00 cfs
Peak Outflow = 7.99 cfs
Peak Elevation = 4.49 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0.17 ac-ft
Peak Storage From Storm = 0.04 ac-ft

Total Storage in Pond = 0.20 ac-ft

Inflow Hydrograph: GLND2100.HYD
 Rating Table file: GLAND2 .PND

----INITIAL CONDITIONS----
 Elevation = 4.25 ft
 Outflow = 0.00 cfs
 Storage = 0.17 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
3.00	0.0	0.000
3.25	0.0	0.031
3.50	0.0	0.063
3.75	0.0	0.096
4.00	0.0	0.131
4.25	0.0	0.168
4.50	8.3	0.206
4.75	23.4	0.246
5.00	42.9	0.287

INTERMEDIATE ROUTING
 COMPUTATIONS

2S/t (cfs)	2S/t + 0 (cfs)
0.0	0.0
7.4	7.4
15.2	15.2
23.3	23.3
31.7	31.7
40.5	40.5
49.8	58.1
59.4	82.8
69.5	112.4

Time increment (t) = 0.100 hrs.

***** SUMMARY OF ROUTING COMPUTATIONS *****

Pond File: GLAND2 .PND
Inflow Hydrograph: GLND2100.HYD
Outflow Hydrograph: GLND1000.HYD

Starting Pond W.S. Elevation = 4.25 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 15.00 cfs
Peak Outflow = 12.72 cfs
Peak Elevation = 4.57 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0.17 ac-ft
Peak Storage From Storm = 0.05 ac-ft

Total Storage in Pond = 0.22 ac-ft

BMP #3

Routing Calculations

>>>>> Warning, peak outflow = last ordinate point. <<<<<<

POND-2 Version: 5.15 S/N: 1295100016

Page 1

EXECUTED: 12-22-1993 10:24:42

Return Freq: 10 years

Inflow Hydrograph: GLND310 .HYD
Rating Table file: GLAND3 .PND

----INITIAL CONDITIONS----

Elevation = 4.00 ft
Outflow = 0.00 cfs
Storage = 0.01 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
3.00	0.0	0.000
3.25	0.0	0.001
3.50	0.0	0.003
3.75	0.0	0.005
4.00	0.0	0.008
4.25	8.3	0.011
4.50	23.4	0.014
4.75	42.9	0.018
5.00	65.9	0.022

INTERMEDIATE ROUTING
COMPUTATIONS

2S/t (cfs)	2S/t + 0 (cfs)
0.0	0.0
0.3	0.3
0.7	0.7
1.2	1.2
1.9	1.9
2.6	10.9
3.4	26.8
4.3	47.2
5.3	71.2

Time increment (t) = 0.100 hrs.

***** SUMMARY OF ROUTING COMPUTATIONS *****

Pond File: GLAND3 .PND
Inflow Hydrograph: GLND32 .HYD
Outflow Hydrograph: GLND20 .HYD

Starting Pond W.S. Elevation = 4.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow = 0.00 cfs
Peak Outflow = 0.00 cfs
Peak Elevation = 4.00 ft

***** Summary of Approximate Peak Storage *****

Initial Storage = 0.01 ac-ft
Peak Storage From Storm = 0.00 ac-ft

Total Storage in Pond = 0.01 ac-ft

>>>>> Warning, peak outflow = last ordinate point. <<<<<<

Inflow Hydrograph: GLND3100.HYD
 Rating Table file: GLAND3 .PND

----INITIAL CONDITIONS----
 Elevation = 4.00 ft
 Outflow = 0.00 cfs
 Storage = 0.01 ac-ft

GIVEN POND DATA

ELEVATION (ft)	OUTFLOW (cfs)	STORAGE (ac-ft)
3.00	0.0	0.000
3.25	0.0	0.001
3.50	0.0	0.003
3.75	0.0	0.005
4.00	0.0	0.008
4.25	8.3	0.011
4.50	23.4	0.014
4.75	42.9	0.018
5.00	65.9	0.022

INTERMEDIATE ROUTING
 COMPUTATIONS

2S/t (cfs)	2S/t + 0 (cfs)
0.0	0.0
0.3	0.3
0.7	0.7
1.2	1.2
1.9	1.9
2.6	10.9
3.4	26.8
4.3	47.2
5.3	71.2

Time increment (t) = 0.100 hrs.

***** SUMMARY OF ROUTING COMPUTATIONS *****

Pond File: GLAND3 .PND
Inflow Hydrograph: GLND3100.HYD
Outflow Hydrograph: GLND1000.HYD

Starting Pond W.S. Elevation = 4.00 ft

***** Summary of Peak Outflow and Peak Elevation *****

Peak Inflow	=	1.00 cfs
Peak Outflow	=	0.92 cfs
Peak Elevation	=	4.03 ft

***** Summary of Approximate Peak Storage *****

Initial Storage	=	0.01 ac-ft
Peak Storage From Storm	=	0.00 ac-ft

Total Storage in Pond	=	0.01 ac-ft

Outlet Structure File: GLAND1 .STR

POND-2 Version: 5.15

S/N: 1295100016

Date Executed:

Time Executed:

Outflow Rating Table for Structure #1

WEIR-VR Weir - Vertical Rectangular

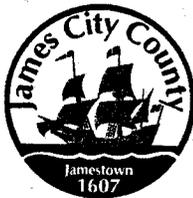
***** INLET CONTROL ASSUMED *****

Elevation (ft)	Q (cfs)	Computation Messages
3.00	0.0	E < Inv.El.= 3.8
3.25	0.0	E < Inv.El.= 3.8
3.50	0.0	E < Inv.El.= 3.8
3.75	0.0	E < Inv.El.= 3.8
4.00	8.9	H =.2
4.25	30.1	H =.45
4.50	58.2	H =.7
4.75	91.9	H =.95
5.00	130.3	H =1.2

C = 3.33 L (ft) = 30

H (ft) = Table elev. - Invert elev. (3.8 ft)

Q (cfs) = C * (L-.2H) * (H**1.5) -- Contracted Weir



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

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

May 19, 2003

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

Re: Governor's Land - Marina Village
County Plan No. S-127-93
Stormwater Management Facility
County BMP ID Code: JR 032

Dear Mr. Bennett:

The Environmental Divisions has reviewed a record drawing (asbuilt) as submitted for the stormwater management facility for the above referenced project. The record drawing provides as-built information for a shallow marsh situated near the Marina Village parking lot.

Based on our review of the project and a concurrent field inspection as performed on March 12th 2003, the following items must be addressed prior to release of the developer's surety instrument for the stormwater management/BMP facility at the site and to proceed with closing out the project:

Construction Certification:

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

Record Drawing:

2. The record drawing dated June 7th 1999, with a certification date of March 30th 2002, is **satisfactory**. Please forward one reproducible and one blue/black line set of the record drawings to our office.

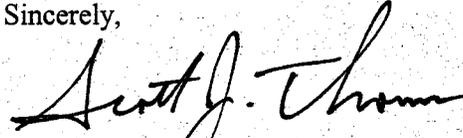
Construction - Related Items:

3. Clean accumulated sediment, debris and vegetation within the outfall end of the pipes and the designed forebays which enter into the shallow marsh basin. There are three (3) 15-inch storm drain pipes which enter into the shallow marsh area. The storm pipes are situated along the north (parking lot) side and are situated at the west, center and east ends of the marsh respectively. Flow out of the inflow pipes shall not be obstructed by sediment, debris and vegetation.

Once this work is satisfactorily completed, contact our office appropriately for reinspection. We can then proceed with final release of the surety and/or closing out the project.

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.

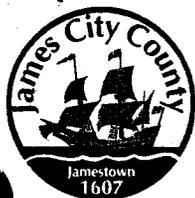
Sincerely,



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

cc: Marc Bennett, AES - via fax

G:\AsBuilts\Reviews\GovLand\S12793.jr032



DEVELOPMENT MANAGEMENT

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May 19, 2003

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

*Re-inspect
6-2-03*

Re: Governor's Land - Marina Village
County Plan No. S-127-93
Stormwater Management Facility
County BMP ID Code: JR 032

Dear Mr. Bennett:

The Environmental Divisions has reviewed a record drawing (asbuilt) as submitted for the stormwater management facility for the above referenced project. The record drawing provides as-built information for a shallow marsh situated near the Marina Village parking lot.

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Construction Certification:

- ✓
OK
6-2-03
1. Based on a review of the plans and active file for the project, there appears to be no construction certification requirement imposed for this BMP.

Record Drawing:

- OK
6-2-03
2. The record drawing dated June 7th 1999, with a certification date of March 30th 2002, is **satisfactory**. Please forward one reproducible and one blue/black line set of the record drawings to our office.

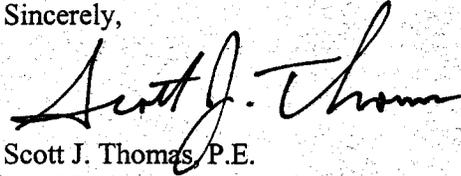
Construction - Related Items:

- OK
6-2-03
3. Clean accumulated sediment, debris and vegetation within the outfall end of the pipes and the designed forebays which enter into the shallow marsh basin. There are three (3) 15-inch storm drain pipes which enter into the shallow marsh area. The storm pipes are situated along the north (parking lot) side and are situated at the west, center and east ends of the marsh respectively. Flow out of the inflow pipes shall not be obstructed by sediment, debris and vegetation.

Once this work is satisfactorily completed, contact our office appropriately for reinspection. We can then proceed with final release of the surety and/or closing out the project.

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\Reviews\GovLand\S12793.jr032

Memorandum

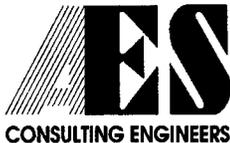
DATE: June 13, 2003
TO: Scott Thomas
FROM: Victoria Bains
SUBJECT: Marina Village, County BMP ID Code: JR032

In response to your letter dated May 19, 2003 AES Consulting Engineers has taken several actions.

Construction Certification:
No further action required.

Record Drawings:
No further action required.

Construction – Related Items:
Accumulated sediment, debris and vegetation within 10 ft. of all inflow pipes has been cleared and removed on the outfall end.



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

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



County BMP ID Code (if known): JR032
 Name of Facility: GOVERNORS LAND BMP No.: _____ of _____ Date: 3/12/03
 Location: END HARBOR RD - LEFT SIDE NEAR RIVER @ Parking Lot - MARINA
 Name of Owner: _____
 Name of Inspector: PICK HALL
 Type of Facility: Wet pond - MARSH Augmented SHALLOW MARSH
 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
Embankments and Side Slopes:				
Grass Height	✓			Excavated
Vegetation Condition	✓			
Tree Growth		✓		Trees along side
Erosion	✓			
Trash & Debris		✓		Dead plants, leaves
Seepage	✓			
Fencing or Benches				
Interior Landscaping/Planted Areas: <input type="checkbox"/> None <input checked="" type="checkbox"/> Constructed Wetland/Shallow Marsh <input type="checkbox"/> Naturally Established Vegetation				
Vegetated Conditions	✓			Winter season
Trash & Debris	✓			lots of dead
Floating Material		✓		plant material
Erosion	✓			
Sediment	✓			
Dead Plant		✓		
Aesthetics	✓			
Other				
Notes:				

Priority Item	O.K.	Routine	Urgent	Comments
Water Pools: <input type="checkbox"/> Permanent Pool (Retention Basin) <input checked="" type="checkbox"/> Shallow Marsh (Detention Basin) <input type="checkbox"/> None, Dry (Detention Basin)				
Shoreline Erosion	✓			
Algae	✓			
Trash & Debris		✓		
Sediment	✓			
Aesthetics	✓			
Other				
Inflows (Describe Types/Locations): <i>2" REP - 12" FROM NORTH W/DCS STREET</i>				
Condition of Structure		✓		<i>OUTLET</i>
Erosion	✓			<i>50% blocked</i>
Trash and Debris		✓		
Sediment		✓		
Outlet Protection		✓		
Other				
Principal Flow Control Structure - Riser, Intake, etc. (Describe Type): <i>NO RISER</i>				
Condition of Structure				
Corrosion				
Trash and Debris				
Sediment				
Vegetation				
Other				
Principal Outlet Structure - Barrel, Conduit, etc. : <i>NONE</i>				
Condition of Structure				
Settlement				
Trash & Debris				
Erosion/Sediment				
Outlet Protection				
Other				
Emergency Spillway (Overflow): <i>NONE</i>				
Vegetation				
Lining				
Erosion				
Trash & Debris				
Other				
Notes:				

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

Remarks:

*Primarily needs clean out
of INFLOW outlets and
renewal of protection*

Overall Environmental Division Internal Rating: 3

Signature: *[Signature]*
 Title: *ENVIRON. SPEC.*

Date: *3/12/03*



James City County Environmental Division

Stormwater Management / BMP Inspection Report

Detention and Retention Pond Facilities

County BMP ID Code (if known): JR032

Name of Facility: THE HARBOR @ TWO RIVERS BMP BMP No.: 14 of 25 Date: 2/6/03

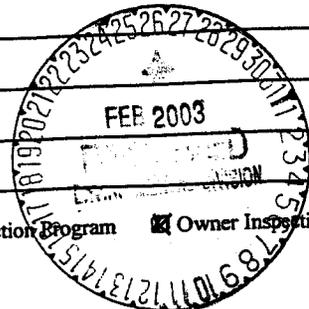
Location: GOVERNOR'S LAND

Name of Owner: DOMINION LAND MANAGEMENT CO.

Name of Inspector: VICTORIA BAINS

Type of Facility: MARSH AUGMENTED BMP

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
Embankments and Side Slopes:				
Grass Height	✓			
Vegetation Condition	✓			
Tree Growth	✓			
Erosion	✓			
Trash & Debris	✓			
Seepage	✓			
Fencing or Benches	N/A			
Interior Landscaping/Planted Areas: <input type="checkbox"/> None <input checked="" type="checkbox"/> Constructed Wetland/Shallow Marsh <input type="checkbox"/> Naturally Established Vegetation				
Vegetated Conditions	✓			
Trash & Debris		✓		PICK UP TRASH & LITTER THAT HAS BLOWN INTO BMP.
Floating Material	✓			
Erosion	✓			
Sediment		✓		CLEAN & REMOVE ACCUM. VEGETATION, DEBRIS & SEDIM. WITHIN 10' OF INLETS
Dead Plant		✓		REMOVE DEAD TREE LIMBS IN BMP
Aesthetics	✓			
Other				
Notes:				

Facility Item	O.K.	Routine	Urgent	Comments
Water Pools: <input type="checkbox"/> Permanent Pool (Retention Basin) <input checked="" type="checkbox"/> Shallow Marsh (Detention Basin) <input type="checkbox"/> None, Dry (Detention Basin)				
Shoreline Erosion	✓			
Algae	✓			
Trash & Debris		✓		PICKUP TRASH & LITTER BLOWN INTO BMP CLEAN & REMOVE ACCUM. SEDIMENT, VEGETATION, & DEBRIS FROM WITHIN 10' OF INLETS.
Sediment		✓		
Aesthetics	✓			
Other				
Inflows (Describe Types/Locations):				
Condition of Structure	✓			
Erosion	✓			
Trash and Debris	✓			
Sediment		✓		CLEAN SEDIMENT FROM INFLOW PIPE
Outlet Protection	✓			
Other				
Principal Flow Control Structure - Riser, Intake, etc. (Describe Type): <i>WIER</i>				
Condition of Structure	✓			
Corrosion	✓			
Trash and Debris	✓			
Sediment	✓			
Vegetation	✓			
Other				
Principal Outlet Structure - Barrel, Conduit, etc. :				
Condition of Structure	N/A			
Settlement	↓			
Trash & Debris	↓			
Erosion/Sediment	↓			
Outlet Protection	↓			
Other				
Emergency Spillway (Overflow):				
Vegetation	N/A			
Lining	↓			
Erosion	↓			
Trash & Debris	↓			
Other	↓			
Notes:				

Facility Item	O.K.	Routine	Urgent	Comments
Nuisance Type Conditions:				
Mosquito Breeding	✓			
Animal Burrows	✓			
Graffiti	✓			
Other				
Surrounding Perimeter Conditions:				
Land Uses	✓			
Vegetation	✓			
Trash & Debris	✓			
Aesthetics	✓			
Access /Maintenance Roads or Paths	✓			
Other				
Remarks:				
NEED TO REMOVE ACCUMULATED SEDIMENT IN INFLOW PIPES AND VEGETATION, DEBRIS AND SEDIMENT WITHIN 10FT. OF THE ENDS OF ALL STORM DRAIN PIPES. PICK UP TRASH & LITTER THAT HAS BLOWN INTO BMP AND ANY DEAD TREE LIMBS.				
Overall Environmental Division Internal Rating: _____				
Signature: _____		Date: _____		
Title: _____				

SWMPProg\BMP\CoInspProg\DetRet.wpd

Date Record Created:

WS_BMPNO:

JR032

Print Record

Created By:

WATERSHED JR
BMP ID NO 032
PLAN NO S-127-93
TAX PARCEL (43-2)(7-1B)
PIN NO 4320700001B
CONSTRUCTION DATE 1/1/1995

**PRINTED ON
Thursday, March 11, 2010
12:10:31 PM**

PROJECT NAME Governors Land Marina Village BMP 2
FACILITY LOCATION 1636 Harbor Road, near boat ramp
CITY-STATE Williamsburg, VA
CURRENT OWNER Governor's Land Management Comp.
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

No

SITE AREA acre

29

LAND USE

Marina

old BMP TYP

Dry Pond - SM

JCC BMP CODE

B1 Shallow Marsh

POINT VALUE

9

SVC DRAIN AREA acres

1.2

SERVICE AREA DESCR

SF Lots, roadways & parking

IMPERV AREA acres

RECV STREAM

UT of James River

EXT DET-WQ-CTRL

Yes

WTR QUAL VOL acre-ft

0.13

CHAN PROT CTRL

No

CHAN PROT VOL acre-ft

0

SW/FLOOD CONTROL

No

GEOTECH REPORT

No

CTRL STRUC DESC

Weir Overflo

CTRL STRUC SIZE inches

48

OTLT BARRL DESC

Overflow

OTLT BARRL SIZE inch

EMERG SPILLWAY

No

DESIGN HW ELEV

4.25

PERM POOL ELEV

2-YR OUTFLOW cfs

5.00

10-YR OUTFLOW cfs

8.00

REC DRAWING

Yes

CONSTR CERTIF

No

LAST INSP DATE 3/12/2003

Inspected by:

INTERNAL RATING

3

MISC/COMMENTS

Forebay/shallow marsh adjacent to tidal wetland.

Get Last BMP No

Return to Menu

Additional Comments:

