



**James City County Environmental Division  
Stormwater Management/BMP Record Drawing and  
Construction Certification Review Tracking Form**

Project Name: Chickahominy Riverfront Park EV Loop  
 County Plan No.: SP-0009-2010  
 Stormwater Management Facility: \_\_\_\_\_  
 BMP Phase #:  I  II  III  
 Information Package Received. Date/By: 12/7/2011  
 Completeness Check:  
    Record Drawing Date/By: 12/7/11 Thomas Sublett  
    Construction Certification Date/By: 12/7/11 Herman Small  
    RD/CC Standard Forms (Required for all BMPs after Feb 1<sup>st</sup> 2001 Only)  
      Insp/Maint Agreement # / Date: N/A  
      BMP Maintenance Plan Location: N/A  
      Other: Volunteer installation  
 Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review  
    Yes  No Location: \_\_\_\_\_  
 Assign County BMP ID Code #: Code: ~~RD~~ GCOIS  
 Preliminary Input/Log into Division's "As-Built Tracking Log"  
 Add Location to GIS Map. Obtain basic site information (GPIN, Owner, Address, etc.)  
 Preliminary Log into Access Database (BMP ID #, Plan No., GPIN, Project Name, etc.)  
 Active Project File Review (correspondence, H&H, design computations, etc.)  
 Initial As-Built File setup (File label, folder, copy plan/details/design information, etc.)  
 Inspector Check of RD/CC (forward to Inspector using transmittal for cursory review).  
 Pre-Inspection Drawing Review of Approved Plan (Quick look prior to Field Inspection).  
 Final Inspection (FI) Performed Date: 12/8/11  
 Record Drawing (RD) Review Date: 12/8/11  
 Construction Certification (CC) Review Date: 12/8/11  
 Actions:  
    No comments.  
    Comments. Letter Forwarded. Date: \_\_\_\_\_  
      Record Drawing (RD)  
      Construction Certification (CC)  
    Construction-Related (CR)  
    Site Issues (SI)  
    Other: \_\_\_\_\_  
 Second Submission: \_\_\_\_\_  
 Reinspection (if necessary): \_\_\_\_\_  
 Acceptable for SWM Purposes (RD/CC/CR/Other). Ok to proceed with bond release.  
 Complete "Surety Request Form".  
 Check/Clean active file of any remaining material and finish "As-Built" file.  
 Add to County BMP Inventory/Inspection schedule (Phase I, II or III)  
 Copy Final Inspection Report into County BMP Inspection Program file.  
 Obtain Digital Photographs of BMP and save into County BMP Inventory.  
 Request mylar/reproducible from As-Built plan preparer.  
 Complete "As-built Tracking Log".  
 Last check of BMP Access Database (County BMP Inventory).  
 Add BMP to JCC Hydrology & Hydraulic database (optional).  
 Add BMP to Municipal BMP list (if a County-owned facility) SWD-STW  
 Add BMP to PRIDE BMP ratings database.

**Final Sign-Off**

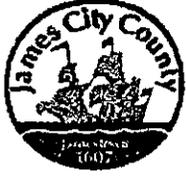
Inspector: [Signature] Date: 12/09/2011  
 Chief Engineer: [Signature] Date: 12/16/11

\*\*\* See separate checklist, if needed.

Need to see if this is in the BMP As-built file

1/24/2012

GCD18



James City County Environmental Division Stormwater Management/BMP Record Drawing and Construction Certification Review Tracking Form

Project Name: Chickahominy Riverfront Park RV Loop
County Plan No.: SP-0009-2010
Stormwater Management Facility:
BMP Phase #: [ ] I [ ] II [ ] III
Information Package Received. Date/By: 12/7/2011
Completeness Check:
[X] Record Drawing Date/By: 12/7/11 Thomas Sublett
[X] Construction Certification Date/By: 12/7/11 Howard Small
[X] RD/CC Standard Forms (Required for all BMPs after Feb 1st 2001 Only)
[ ] Insp/Maint Agreement # / Date: N/A
[ ] BMP Maintenance Plan, Location: N/A
[ ] Other: Volunteer installation
Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review
Assign County BMP ID Code #: Code: GCD18
Preliminary Input/Log into Division's "As-Built Tracking Log"
Add Location to GIS Map. Obtain basic site information (GPIN, Owner, Address, etc.)
Preliminary Log into Access Database (BMP ID #, Plan No., GPIN, Project Name, etc.)
Active Project File Review (correspondence, H&H, design computations, etc.)
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Pre-Inspection Drawing Review of Approved Plan (Quick look prior to Field Inspection)
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Record Drawing (RD) Review Date: 12/8/11
Construction Certification (CC) Review Date: 12/8/11
Actions:
[X] No comments.
[ ] Comments. Letter Forwarded. Date:
[ ] Record Drawing (RD)
[ ] Construction Certification (CC)
[ ] Construction-Related (CR)
[ ] Site Issues (SI)
[ ] Other :
[ ] Second Submission:
[ ] Reinspection (if necessary):
[X] Acceptable for SWM Purposes (RD/CC/CR/Other). Ok to proceed with bond release.
[X] Complete "Surety Request Form".
[X] Check/Clean active file of any remaining material and finish "As-Built" file.
[X] Add to County BMP Inventory/Inspection schedule (Phase I, II or III)
[ ] Copy Final Inspection Report into County BMP Inspection Program file.
[ ] Obtain Digital Photographs of BMP and save into County BMP Inventory.
[ ] Request mylar/reproducible from As-Built plan preparer.
[X] Complete "As-built Tracking Log".
[X] Last check of BMP Access Database (County BMP Inventory).
[ ] Add BMP to JCC Hydrology & Hydraulic database (optional).
[ ] Add BMP to Municipal BMP list (if a County-owned facility) SWD-STW
[ ] Add BMP to PRIDE BMP ratings database.

Final Sign-Off

Inspector: [Signature]
Chief Engineer: [Signature]

Date: 12/09/2011
Date: 12/16/11

\*\*\* See separate checklist, if needed.

Need to see if this is in the BMP As-built file

1/24/2012

GCO18



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County Plan No.: SP-009-2010
Stormwater Management Facility:
BMP Phase #: [ ] I [ ] II [ ] III
Information Package Received. Date/By: 12/7/2011
Completeness Check:
[X] Record Drawing Date/By: 12/7/11 Thomas Sublett
[X] Construction Certification Date/By: 12/7/11 Aaron Small
[X] RD/CC Standard Forms (Required for all BMPs after Feb 1st 2001 Only)
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[ ] BMP Maintenance Plan, Location: N/A
[ ] Other: Volunteer installation
[ ] Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review
[ ] Yes [ ] No Location:
[X] Assign County BMP ID Code #: Code: GCO18
[X] Preliminary Input/Log into Division's "As-Built Tracking Log"
[X] Add Location to GIS Map. Obtain basic site information (GPIN, Owner, Address, etc.)
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[X] Construction Certification (CC) Review Date: 12/8/11
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[ ] Comments. Letter Forwarded. Date:
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[ ] Construction Certification (CC)
[ ] Construction-Related (CR)
[ ] Site Issues (SI)
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[X] Add to County BMP Inventory/Inspection schedule (Phase I, II or III)
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[ ] Request mylar/reproducible from As-Built plan preparer.
[X] Complete "As-built Tracking Log".
[X] Last check of BMP Access Database (County BMP Inventory).
[ ] Add BMP to ICC Hydrology & Hydraulic database (optional).
[ ] Add BMP to Municipal BMP list (if a County-owned facility) SWD-STW
[ ] Add BMP to PRIDE BMP Ratings Database.

Final Sign-Off

Inspector: [Signature]
Chief Engineer: [Signature]

Date: 12/09/2011
Date: 12/16/11

\*\*\* See separate checklist, if needed.

Document any file missing a signature



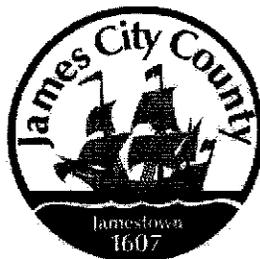
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Stormwater Management/BMP Record Drawing and  
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 Other: Volunteer installation  
 Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review  
 Yes  No Location: \_\_\_\_\_  
 Assign County BMP ID Code #: Code: GC018  
 Preliminary Input/Log into Division's "As-Built Tracking Log"  
 Add Location to GIS Map. Obtain basic site information (GPIN, Owner, Address, etc.)  
 Preliminary Log into Access Database (BMP ID #, Plan No., GPIN, Project Name, etc.)  
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 Complete "As-built Tracking Log".  
 Last check of BMP Access Database (County BMP Inventory).  
 Add BMP to JCC Hydrology & Hydraulic database (optional).  
 Add BMP to Municipal BMP list (if a County-owned facility) SWD-STW  
 Add BMP to PRIDE BMP ratings database.

**Final Sign-Off**

Inspector: [Signature] Date: 12/09/2011  
 Chief Engineer: [Signature] Date: 12/16/11

\*\*\* See separate checklist, if needed.



Environmental Division

DEC 07 2011

RECEIVED

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:	Chickahominy Riverfront Park RV Area
Structure/BMP Name:	Stormwater Cascades
Project Location:	1350 John Tyler Highway
BMP Location:	Along Gordon Creek in RV Loop (300 series sites)
County Plan No.:	SP - 0009 - 2010

Project Type:	<input type="checkbox"/> Residential	<input type="checkbox"/> Business	Tax Map/Parcel No.:	(34-3)(1-2)
	<input checked="" type="checkbox"/> Commercial	<input type="checkbox"/> Office	BMP ID Code (if known):	
	<input type="checkbox"/> Institutional	<input type="checkbox"/> Industrial	Zoning District:	PL
	<input checked="" type="checkbox"/> Public	<input checked="" type="checkbox"/> Roadway	Land Use:	Public Lands (Park)
	<input type="checkbox"/> Other		Site Area (sf or acres):	4.12 Ac.

**Brief Description of Stormwater Management/BMP Facility:**

Timber wall cascade structures to convey water down steep bank from RV Loop to Gordon Creek (Energy Dissipation)

Nearest Visible Landmark to SWM/BMP Facility: Between Sites 156 & 157 and Across from Site 185

**Nearest Vertical Ground Control ( if known ):**

JCC Geodetic Ground Control     USGS     Temporary     Arbitrary     Other  
JCC Monument #348

Station Number or Name: \_\_\_\_\_

Datum or Reference Elevation: \_\_\_\_\_

Control Description: \_\_\_\_\_

Control Location from Subject Facility: \_\_\_\_\_

**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: May 2011  
Facility Monitored by County Representative during Construction:  Yes  No  Unknown  
Name of Site Work Contractor Who Constructed Facility: Henry S. Branscome, LLC  
Name of Professional Firm Who Routinely Monitored Construction: AES Consulting Engineers  
Date of Completion for SWM/BMP Facility: June 30, 2011  
Date of Record Drawing/Construction Certification Submittal: August 10, 2011

**( 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: James City County (Parks & Recreation)  
Mailing Address: P.O. Box 8784  
Williamsburg, VA 23187  
Business Phone: (757) 259-5370 Fax: (757) 259-5362  
Contact Person: Nancy Ellis Title: Superintendent of Parks

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, VA 23188  
Business Phone: (757) 253-0040  
Fax: (757) 220-8994  
Responsible Plan Preparer: Aaron B. Small, P.E.  
Title: Project Manager  
Plan Name: Chickahominy Riverfront Park RV Loop Renovations  
Firm's Project No. 9801-E-21  
Plan Date: December 7, 2010  
Sheet No.'s Applicable to SWM/BMP Facility: 06 / 10 / / /

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

Name: Henry S. Branscome, LLC  
Mailing Address: P.O Box 6478  
Williamsburg, VA 23187  
Business Phone: (757) 221-7221  
Fax: (757) 221-7220  
Contact Person: Jordan Hockaday  
Site Foreman/Supervisor: Rick Cook  
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: 5248 Olde Towne Road, Suite 1  
Williamsburg, VA 23188  
Business Phone: (757) 253-0040  
Fax: (757) 220-8994

Name: Thomas C. Sublett, LS  
Title: Land Surveyor

Signature: *Thomas C. Sublett*  
Date: 12/7/11

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.

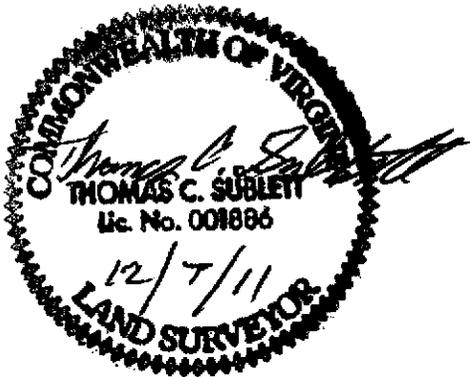
**Construction Certification**

Firm Name: AES Consulting Engineers  
Mailing Address: 5248 Olde Towne Road, Suite 1  
Williamsburg, VA 23188  
Business Phone: (757) 253-0040  
Fax: (757) 220-8994

Name: Aaron B. Small, PE  
Title: Project Manager

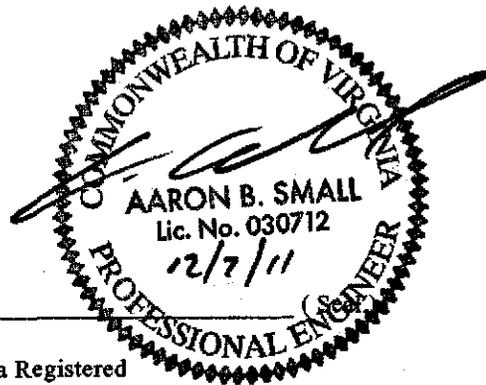
Signature: *Aaron B. Small*  
Date: 12/7/11

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 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.
- XX    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.
- XX    4.     Top widths, berm widths and embankment side slopes.
- XX    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.
- XX    8.     Elevation of the principal spillway crest or outlet crest of the structure.

- xx 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.
- xx 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.
- xx 16. Outfall protection dimension, type and depth of rock and if underlain filter fabric is present.
- xx 17. BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.
- xx 18. Maintenance plan taken from approved design plan transposed onto record drawing set.
- n/a 19. Fencing location and type, if applicable to facility.
- xx 20. BMP vicinity properly cleaned of stockpiles and construction debris.
- xx 21. No visual signs of erosion or channel degradation immediately downstream of facility.
- xx 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.
- 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 )

- n/a    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 (½) of the wetland surface area is planted.
- B7.    Topsoil or wetland mulch provided to support vigorous growth of wetland plants.
- 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.
- 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.
  
- 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.
- 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.
- F2. Basin bottom has positive slope and drainage from all basin inflow points to the riser (or outflow) location.
- F3. Timber wall BMP used in intermittent stream only. (ie. Prohibited in perennial streams.)
- F4. Forebay provided approximately 20 ft. upstream of the facility. Forebays generally 4 to 6 feet in depth.
- F5. A reverse slope pipe, vertical stand pipe or mini-barrel and riser was provided to prevent clogging.
- F6. Principal spillway and outlet barrel provided consisting of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.
- F7. Mini-barrel and riser, if used, contains a removable trash rack to reduce clogging.
- 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.
- F9. Timbers properly reinforced or concrete footing provided if soil conditions were prohibitive.
- F10. Timber wall cross members extended to a minimum depth of two (2) feet below ground elevation.
- F11. Protection against erosion and scour from the low flow orifice and weir-flow trajectory provided.
- F12. Stilling basin or standard outlet protection provided at principal spillway outlet.
- 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.
- F14. No visual signs of undercutting of timber walls or clogging of the low orifice were present.
- F15. No visual signs of erosion or channel degradation immediately downstream of facility.
- 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 )**

- n/a    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.
  
- 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. )*

- XX    SD1.    All requirements of Section II, Minimum Standards, apply to Storm Drainage Systems.
- n/a    SD2.    Horizontal location of all pipe and structures relative to the SWM/BMP facility.
- n/a    SD3.    Type, top elevation and invert elevation of all access type structures (inlets, manholes, etc.).
- n/a    SD4.    Material type, size or diameter, class, invert elevations, lengths and slopes for all pipe segments.
- XX    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 .)*

- XX    O1.    All requirements of Section II, Minimum Standards, apply to this section.
- XX    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\_fillable.wpd



**James City County Environmental Division  
Stormwater Management/BMP Record Drawing and  
Construction Certification Review Tracking Form**

Project Name: Chickahominy Riverfront Park EV Loop  
 County Plan No.: SP-0009-2010  
 Stormwater Management Facility: \_\_\_\_\_  
 BMP Phase #:  I  II  III  
 Information Package Received. Date/By: 12/7/2011  
 Completeness Check:  
 Record Drawing Date/By: 12/7/11 Thomas Subler  
 Construction Certification Date/By: 12/7/11 Alison Small  
 RD/CC Standard Forms (Required for all BMPs after Feb 1<sup>st</sup> 2001 Only)  
 Insp/Maint Agreement # / Date: N/A  
 BMP Maintenance Plan, Location: N/A  
 Other: Volunteer installation  
 Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review  
 Yes  No Location: \_\_\_\_\_  
 Assign County BMP ID Code #: Code: GC018  
 Preliminary Input/Log into Division's "As-Built Tracking Log"  
 Add Location to GIS Map. Obtain basic site information (GPIN, Owner, Address, etc.)  
 Preliminary Log into Access Database (BMP ID #, Plan No., GPIN, Project Name, etc.)  
 Active Project File Review (correspondence, H&H, design computations, etc.)  
 Initial As-Built File setup (File label, folder, copy plan/details/design information, etc.)  
 Inspector Check of RD/CC (forward to Inspector using transmittal for cursory review).  
 Pre-Inspection Drawing Review of Approved Plan (Quick look prior to Field Inspection).  
 Final Inspection (FI) Performed Date: 12/8/11  
 Record Drawing (RD)-Review Date: 12/8/11  
 Construction Certification (CC) Review Date: 12/8/11  
 Actions:  
 No comments.  
 Comments. Letter Forwarded. Date: \_\_\_\_\_  
 Record Drawing (RD)  
 Construction Certification (CC)  
 Construction-Related (CR)  
 Site Issues (SI)  
 Other : \_\_\_\_\_  
 Second Submission: \_\_\_\_\_  
 Reinspection (if necessary): \_\_\_\_\_  
 Acceptable for SWM Purposes (RD/CC/CR/Other). Ok to proceed with bond release.  
 Complete "Surety Request Form".  
 Check/Clean active file of any remaining material and finish "As-Built" file.  
 Add to County BMP Inventory/Inspection schedule (Phase I, II or III)  
 Copy Final Inspection Report into County BMP Inspection Program file.  
 Obtain Digital Photographs of BMP and save into County BMP Inventory.  
 Request mylar/reproducible from As-Built plan preparer.  
 Complete "As-built Tracking Log".  
 Last check of BMP Access Database (County BMP Inventory).  
 Add BMP to ICC Hydrology & Hydraulic database (optional).  
 Add BMP to Municipal BMP list (if a County-owned facility) SWD-STW  
 Add BMP to PRIDE BMP ratings database.

**Final Sign-Off**

Inspector: [Signature] Date: 12/09/2011  
 Chief Engineer: [Signature] Date: 12/16/11

\*\*\* See separate checklist, if needed.

[Signature] 04/23/12

**Development  
Management**

101-A Mounts Bay Road  
P.O. Box 8784  
Williamsburg, VA 23187-8784  
P: 757-253-6671  
F: 757-253-6822  
devman@james-city.va.us



jccEgov.com

**Code Compliance**

(757) 253-6620  
codecomp@james-city.va.us

**Environmental Division**

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

**Planning and Zoning**

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

March 29, 2010

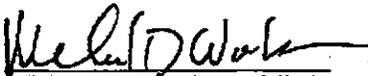
Mr. Brendan Clisso, PE  
AES Consulting Engineers  
5248 Olde Towne Road, Suite 1  
Williamsburg, Virginia 23188

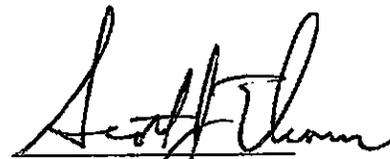
RE: Water Quality Impact Assessment, Chickahominy Riverfront Park – RV Loop Renovations  
AES Project Number – 9801-E-21  
James City County Plan Numbers: SP-009-10, CBE-10-067

Dear Mr. Clisso:

We have reviewed your resubmitted Water Quality Impact Assessment dated March 2010 for an exemption to the County's Chesapeake Bay Preservation. This project has a net reduction of impervious cover within the RPA, with the elimination of four RV camping spaces and the clubhouse; therefore under Section 23-7(a) (2) this exception request is approved. Further, the two timber wall cascade structures are considered self-mitigating for any impacts these structures create and are also approved administratively. If there are any questions regarding this issue, please call 253-6823.

Sincerely,

  
Michael D. Woolson, C.L.A.  
Senior Watershed Planner

  
Scott J. Thomas, P.E.  
Environmental Division Director



## DEVELOPMENT MANAGEMENT

101-A MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784  
(757) 253-6671

E-MAIL: devtman@james-city.va.us  
FAX: (757) 253-6822

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

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

COUNTY ENGINEER  
(757) 253-6678

MOSQUITO CONTROL  
(757) 259-4116

March 23, 2010

Mr. Brendan Clisso  
AES Consulting Engineers  
5248 Olde Towne Road, Suite 1  
Williamsburg, VA 23188

Re: Exception for Disturbance of Steep Slopes  
JCC - RV Loop Renovation (Chickahominy Riverfront Park)  
County Plan No.: SP-09-10    **CB S-10-24**

Dear Mr. Clisso:

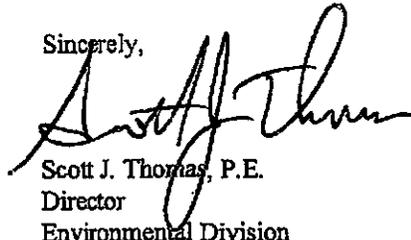
The Environmental Division is in receipt of your written request dated February 10<sup>th</sup> 2010 to obtain exception from Section 23-5 of the County's Chesapeake Bay Preservation ordinance for disturbance of slopes 25 percent or greater associated with the above referenced project. Pursuant to the provisions of 23-14(e) of the County's Chesapeake Bay Preservation ordinance, an exception is hereby granted. Applicable conditions include:

1. Steep slope disturbances are only authorized within the defined limits of work for the project.
2. Steep slope disturbances are limited to a total of 0.02 acres as defined on the environmental inventory.
3. Approved erosion and sediment control plan measures must be fully implemented downstream of applicable steep slope impact areas prior to their disturbance.
4. The two (2) permanent stormwater conveyance control measures (i.e. stormwater timber wall cascade structures), as shown on the approved plan, are required to control runoff down/along steep slope areas.

Please note that approval of this exception, with the conditions stated, in no way implies final approval of a site or subdivision plan as required by the Chapter 24 Zoning or Chapter 19 Subdivisions of the County Code; nor does it constitute final approval of an erosion and sediment control or stormwater management plan as required by Chapter 8 Erosion and Sediment Control and Chapter 23 Chesapeake Bay Preservation of the County Code. Approval of this exception is also contingent upon no major (substantial) changes in the development plan, or if site conditions change, become apparent or alter significantly following the date of this approval.

Thank you for your efforts to protect the Chesapeake Bay and its tributaries from the effects of non-point source pollution associated with land use activities. Please contact me at 253-6639 if you have any questions about this exception or any of its associated conditions.

Sincerely,



Scott J. Thomas, P.E.  
Director  
Environmental Division

SJT/sjt  
ChesBay\SteepSlope\SP0910.approval

# RECORD DRAWINGS

## FOR

# RV LOOP RENOVATIONS

# CHICKAHOMINY RIVERFRONT PARK

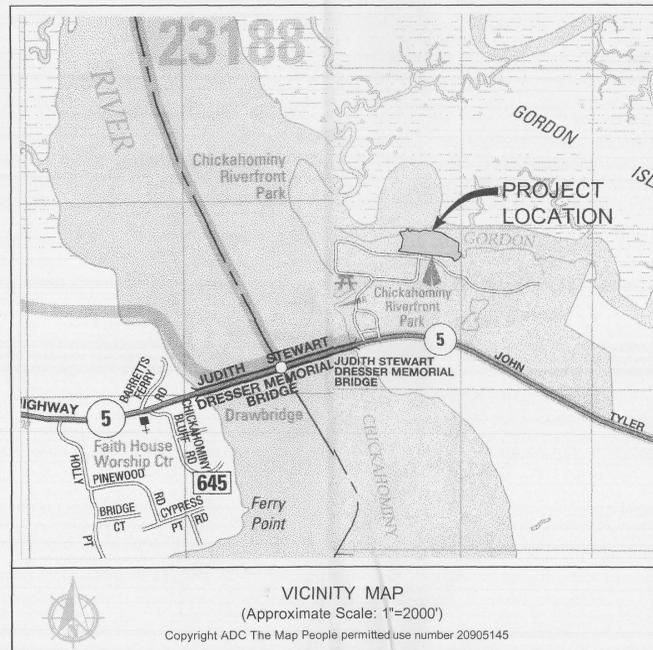
### SITE DATA:

SITE ADDRESS: 1350 JOHN TYLER HIGHWAY WILLIAMSBURG, VIRGINIA 23185  
 TAX MAP PARCEL: (34-3)(1-2)  
 ZONING: SITE IS CURRENTLY ZONED PL AND SUBJECT TO SPECIAL USE PERMIT CONDITIONS. JCC CASE NO. SUP-0014-2009 APPROVED BY THE BOARD OF SUPERVISORS ON NOVEMBER 10, 2009  
 FLOOD HAZARD MAP: THE PROPERTY FOR THE RV SITES LIES IN ZONE X. AREAS DETERMINED TO BE OUTSIDE 500 YEAR FLOOD PLAIN. THE BANKS IN ZONE X WITHIN IS WITHIN THE 100 YEAR FLOOD PLAIN, PER F.L.R.M. #51055C-01150, DATED 9/28/07.  
 TOTAL DISTURBED AREA: 179,362 S.F.±, 4.12 AC.±  
 PROJECT LIMITS: 179,362 S.F.±, 4.12 AC.±  
 EXISTING IMPERVIOUS AREA: 30,190 S.F.±, 0.69 AC.± (BASED ON LIMITS OF EXISTING GRAVEL)  
 PROPOSED IMPERVIOUS AREA: 19,442 S.F.±, 0.45 AC.±

### SUP-0014-2009 CHICKAHOMINY RIVERFRONT PARK-RV LOOP AND MASTER PLAN

- MASTER PLAN. THIS SUP SHALL PERMIT A PUBLIC COMMUNITY RECREATION FACILITY AND ACCESSORY USES THERETO, INCLUDING, BUT NOT LIMITED TO, TENT SITES, CABINS, RECREATIONAL VEHICLE (RV) CAMPING AREAS, SPECIAL EVENT AREAS, DOCKS/PIERS, SWIMMING FACILITIES, PLAYGROUNDS, BOAT LAUNCHES, ROWING FACILITIES, PICNIC PAVILIONS, CAMP STORE, AND SEASONAL CONCESSION STANDS ON PROPERTY LOCATED AT 1350 JOHN TYLER HIGHWAY (THE "PROPERTY"). IMPROVEMENTS TO THE SITE SHALL GENERALLY BE LOCATED AS SHOWN ON THE DOCUMENT ENTITLED "FIGURE 4-2: MASTER PLAN-CHICKAHOMINY RIVERFRONT PARK," (THE "MASTER PLAN") PREPARED BY VANASSE, HANGEN, AND BRUSTLIN, INC. (VHB) AND DATE STAMPED OCTOBER 14, 2009, WITH ONLY CHANGES THERETO THAT THE DEVELOPMENT REVIEW COMMITTEE (DRC) DETERMINES TO BE GENERALLY CONSISTENT WITH THE MASTER PLAN AND SHAPING OUR SHORES REPORT.
- SOIL STUDIES. SOIL FEASIBILITY STUDIES TO DETERMINE APPROPRIATE AREAS FOR SEPTIC DRAINFIELDS SHALL BE SUBMITTED TO THE VIRGINIA DEPARTMENT OF HEALTH FOR REVIEW AND APPROVAL PRIOR TO FINAL DEVELOPMENT PLAN APPROVAL FOR ANY NEW DEVELOPMENT ON THE PROPERTY. REDEVELOPMENT PLANS ("REDEVELOPMENT") FOR THE PROPERTY SHALL NOT BE SUBJECT TO THIS REQUIREMENT. REDEVELOPMENT SHALL INCLUDE THE REMOVAL AND REPLACEMENT, RENOVATION, OR REHABILITATION OF EXISTING BUILDINGS OR FACILITIES THAT DOES NOT INCREASE OR CHANGE THE GENERAL SHAPE OR LOCATION OF IMPERVIOUS AREA OR NUMBER OF TENT SITES OR RV SPACES, DOES NOT CHANGE THE EXISTING PRIMARY USE OF AN AREA, AND/OR DOES NOT CHANGE EXISTING POINTS OF ACCESS, BASED ON THE FINDINGS OF ANY STUDY, IF A PROPOSED USE NEEDS TO BE RELOCATED, A PLAN DETAILING THE RELOCATION SHALL BE PROVIDED TO THE DRC TO DETERMINE WHETHER THE PLAN IS GENERALLY CONSISTENT WITH THE MASTER PLAN AND SHAPING OUR SHORES REPORT.
- RIGHT-OF-WAY BUFFER. A 150-FOOT BUFFER SHALL BE MAINTAINED ALONG JOHN TYLER HIGHWAY. THAT BUFFER SHALL REMAIN UNDISTURBED WITH THE EXCEPTION OF BREAKS FOR ROADWAYS AND PEDESTRIAN CONNECTIONS, UTILITIES, WALKING, HIKING, AND BIKING TRAILS, AND OTHER USES SPECIFICALLY APPROVED BY THE DIRECTOR OF PLANNING AND THE DRC.
- LIGHTING. ANY NEW EXTERIOR SITE OR BUILDING LIGHTING SHALL HAVE RECESSED FIXTURES WITH NO BULB, LENS, OR GLOBE EXTENDING BELOW THE CASING. THE CASING SHALL BE OPAQUE AND SHALL COMPLETELY SURROUND THE ENTIRE LIGHT FIXTURE AND LIGHT SOURCE IN SUCH A MANNER THAT ALL LIGHT WILL BE DIRECTED DOWNWARD AND THE LIGHT SOURCE ARE NOT VISIBLE FROM THE SIDE. FIXTURES WHICH ARE HORIZONTALLY MOUNTED ON POLES SHALL NOT EXCEED 15 FEET IN HEIGHT. NO GLARE DEFINED AS 0.1 FOOT-CANDLE OR HIGHER SHALL EXTEND OUTSIDE THE PROPERTY LINES.
- SPEAKERS. ALL PERMANENT PUBLIC ADDRESS SPEAKERS USED ON THE SITE SHALL BE ORIENTED GENERALLY TOWARD THE INTERIOR OF THE PROPERTY AND AWAY FROM EXTERIOR PROPERTY LINES.
- ARCHAEOLOGY. ADDITIONAL ARCHAEOLOGICAL STUDIES FOR ANY AREA TO BE DISTURBED THAT IS IDENTIFIED AS "ELIGIBLE" FOR INCLUSION ON THE NATIONAL REGISTER OF HISTORIC PLACES AND/OR "UNKNOWN (FURTHER WORK NEEDED)" ON PAGES 109-112 OF THE REPORT TITLED "PHASE I CULTURAL RESOURCES SURVEY AND ARCHAEOLOGICAL INVENTORY OF THE CHICKAHOMINY RIVERFRONT PARK, JAMES CITY COUNTY, VIRGINIA" BY GEO-MARINE, INC. AND DATED JUNE 2009, SHALL BE SUBMITTED TO THE DIRECTOR OF PLANNING FOR REVIEW AND APPROVAL PRIOR TO THE COMMENCEMENT OF ANY LAND-DISTURBING ACTIVITY ON THE PROPERTY. IF A PHASE II STUDY IS UNDERTAKEN, SUCH A STUDY SHALL BE APPROVED BY THE DIRECTOR OF PLANNING AND A TREATMENT PLAN FOR SAID SITES SHALL BE SUBMITTED TO, AND APPROVED BY, THE DIRECTOR OF PLANNING FOR SITES THAT ARE DETERMINED TO BE ELIGIBLE FOR INCLUSION ON THE NATIONAL REGISTER OF HISTORIC PLACES AND/OR THOSE SITES THAT REQUIRE A PHASE III STUDY. IF IN THE PHASE III STUDY, A SITE IS DETERMINED ELIGIBLE FOR NOMINATION TO THE NATIONAL REGISTER OF HISTORIC PLACES AND SAID SITE IS TO BE PRESERVED IN PLACE, THE TREATMENT PLAN SHALL INCLUDE NOMINATION OF THE SITE TO THE NATIONAL REGISTER OF HISTORIC PLACES. IF A PHASE III STUDY IS UNDERTAKEN FOR SAID SITES, SUCH STUDIES SHALL BE APPROVED BY THE DIRECTOR OF PLANNING PRIOR TO LAND DISTURBANCE WITHIN THE STUDY AREAS. ALL PHASE I, PHASE II, AND PHASE III STUDIES SHALL MEET THE VIRGINIA DEPARTMENT OF HISTORIC RESOURCES' GUIDELINES FOR PREPARING ARCHAEOLOGICAL RESOURCE MANAGEMENT REPORTS AND THE SECRETARY OF THE INTERIOR'S STANDARDS AND GUIDELINES FOR ARCHAEOLOGICAL DOCUMENTATION, AS APPLICABLE, AND SHALL BE CONDUCTED UNDER THE SUPERVISION OF A QUALIFIED ARCHAEOLOGIST WHO MEETS THE QUALIFICATIONS SET FORTH IN THE SECRETARY OF THE INTERIOR'S PROFESSIONAL QUALIFICATION STANDARDS. ALL APPROVED TREATMENT PLANS SHALL BE INCORPORATED INTO THE PLAN OF DEVELOPMENT FOR THE SITE AND THE CLEARING, GRADING, OR CONSTRUCTION ACTIVITIES THEREON.
- TREE CLEARING. TREE CLEARING ON THE ENTIRE PROPERTY SHALL BE LIMITED TO THE MINIMUM NECESSARY TO ACCOMMODATE THE PROPOSED RECREATIONAL USES SHOWN ON THE MASTER PLAN AND RELATED DRIVEWAYS, ENTRANCE IMPROVEMENTS, AND FACILITIES AS DETERMINED BY THE DIRECTOR OF PLANNING OR DESIGNER AND THE DRC.
- MASTER STORMWATER MANAGEMENT PLAN. A MASTER STORMWATER MANAGEMENT PLAN FOR THE PROPERTY SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE COUNTY'S ENVIRONMENTAL DIVISION DIRECTOR PRIOR TO FINAL DEVELOPMENT PLAN APPROVAL FOR ANY NEW DEVELOPMENT ON THE PROPERTY. REDEVELOPMENT OF THE PROPERTY SHALL NOT BE SUBJECT TO THIS REQUIREMENT.
- SPECIAL STORMWATER CRITERIA. SPECIAL STORMWATER CRITERIA (SSC) AS ADOPTED BY THE COUNTY IN THE POWHATAN AND YARMOUTH CREEK WATERSHEDS SHALL APPLY TO THIS PROJECT. LOW-IMPACT DEVELOPMENT PRINCIPLES AND TECHNIQUES SHALL ALSO BE USED IN ALL DEVELOPMENT PLANS TO REDUCE AND CONTROL IMPACTS ASSOCIATED WITH ANY INCREASED STORM WATER RUNOFF. THE OWNER SHALL DEMONSTRATE THE APPLICATION OF SSC AND LOW-IMPACT DESIGN ON ALL DEVELOPMENT PLANS TO THE SATISFACTION AND APPROVAL OF THE COUNTY'S ENVIRONMENTAL DIVISION DIRECTOR PRIOR TO FINAL DEVELOPMENT PLAN APPROVAL FOR ANY NEW DEVELOPMENT ON THE PROPERTY. REDEVELOPMENT OF THE PROPERTY SHALL NOT BE SUBJECT TO THIS REQUIREMENT.
- RESOURCE MANAGEMENT AREA (RMA) BUFFERS. ALL DEVELOPMENT PLANS SHALL HAVE THE RMA BUFFERS DELINEATED IN ACCORDANCE WITH THE POWHATAN CREEK WATERSHED MANAGEMENT PLAN REVISION DATED OCTOBER 11, 2006, OR ANY SUCH RMA BUFFERS AS OUTLINED IN ANY FUTURE GORDON CREEK WATERSHED MANAGEMENT PLAN, TO THE SATISFACTION AND APPROVAL OF THE COUNTY'S ENVIRONMENTAL DIVISION DIRECTOR PRIOR TO FINAL DEVELOPMENT PLAN APPROVAL FOR ANY NEW DEVELOPMENT ON THE PROPERTY. REDEVELOPMENT OF THE PROPERTY SHALL NOT BE SUBJECT TO THIS REQUIREMENT.
- SEVERANCE CLAUSE. THIS SUP IS NOT SEVERABLE. INVALIDATION OF ANY WORD, PHRASE, CLAUSE, SENTENCE, OR PARAGRAPH SHALL INVALIDATE THE REMAINDER.

### BERKELEY DISTRICT JAMES CITY COUNTY, VIRGINIA



VICINITY MAP  
(Approximate Scale: 1"=2000')

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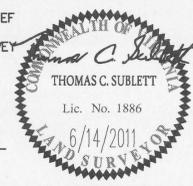
### IFB #10-3930

County Project No.: SP-0009-2010  
Original Submittal Date: February 10, 2010  
Approval Date: December 7, 2010

I HEREBY CERTIFY TO THE BEST OF MY JUDGEMENT, KNOWLEDGE, AND BELIEF THAT THE INFORMATION SHOWN HEREON AS BOLD TEXT IS ACCURATE AND CORRECT. THE INFORMATION SHOWN IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED BY AES CONSULTING ENGINEERS ON 06/14/11.

*Thomas C. Sublett*  
THOMAS C. SUBLETT, L.S. #001886

6/14/2011  
DATE



### INDEX OF SHEETS

SHEET NUMBER	DESCRIPTION
01	COVER
02	ENVIRONMENTAL INVENTORY
03	DEMOLITION PLAN
04A	SITE AND UTILITY PLAN (WATER)
04B	SITE AND UTILITY PLAN (SANITARY)
05	SEPTIC SYSTEM PLAN (FORCE MAIN)
06	GRADING AND DRAINAGE PLAN
07	ELECTRICAL SITE PLAN PER CONTRACTOR
07B	ELECTRICAL SITE PLAN
08	ACCESS ROAD PROFILE
09	NOTES AND DETAILS
10	NOTES AND DETAILS

### GENERAL NOTES

OWNER/DEVELOPER: JAMES CITY COUNTY  
P.O. BOX 8784  
WILLIAMSBURG, VIRGINIA 23187

- THIS SITE IS LOCATED IN THE GORDON CREEK WATERSHED.
- SURVEY DATA PROVIDED BASED UPON JAMES CITY COUNTY GEODETIC CONTROL NAD-83 ESTABLISHED FROM MONUMENT 348.
- CONTOUR INTERVAL IS 1 FOOT.
- IN ACCORDANCE WITH SUP CONDITION #7 A TREE CLEARING PLAN WAS APPROVED BY THE DRC ON JANUARY 27, 2010.
- A PRE-CONSTRUCTION MEETING IS REQUIRED PRIOR TO THE ISSUANCE OF A LAND DISTURBING ACTIVITY PERMIT (LDA) AND COMMENCING ANY SITE WORK REQUIRED BY THE PROJECT. THE PROPERTY OWNER/DEVELOPER, OR THEIR REPRESENTATIVE, AND THE SITE WORK CONTRACTOR ARE REQUIRED TO ATTEND.
- ALL PROPOSED UTILITIES ARE TO BE PLACED UNDERGROUND. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING MISS UTILITY (1-800-552-7001) FOR EXISTING UTILITY LOCATIONS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES WHETHER OR NOT SAID UTILITIES ARE SHOWN ON THE PLANS AND SHALL REPAIR AT THE CONTRACTOR'S OWN EXPENSE ALL UTILITIES DAMAGED BY CONSTRUCTION.
- ALL CULVERTS SHALL BE INSTALLED IN ACCORDANCE WITH VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) STANDARDS AND SPECIFICATIONS AND JAMES CITY COUNTY'S STANDARDS AND SPECIFICATIONS. PIPE BEDDING SHALL BE IN ACCORDANCE WITH VDOT PB-1 PIPE BEDDING DETAIL.
- ALL MANHOLES SHALL BE INSTALLED WITH INLET SHAPING AND STEPS IN ACCORDANCE WITH VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) STANDARDS AND SPECIFICATIONS AND JAMES CITY COUNTY'S STANDARDS AND SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO COMMENCEMENT OF WORK TO INCLUDE, BUT NOT LIMITED TO LAND DISTURBANCE, CERTIFICATE TO CONSTRUCT UTILITIES & VDOT CE-7 PERMIT.
- THE CONTRACTOR SHALL SATISFY HIMSELF AS TO ALL SITE CONDITIONS PRIOR TO CONSTRUCTION, INCLUDING VERIFYING CLEARANCES BETWEEN EXISTING AND PROPOSED UTILITIES PRIOR TO CONSTRUCTION.
- ANY ERRORS OR DISCREPANCIES WITH THE PLANS OR EXISTING FIELD CONDITIONS SHALL BE REPORTED TO THE ENGINEER OR SURVEYOR BEFORE PROCEEDING WITH THE WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF CONSTRUCTION EFFORTS WITH VIRGINIA NATURAL GAS, VIRGINIA POWER, VERIZON, APPROPRIATE CABLE COMPANY, JAMES CITY COUNTY, HRSD, VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) AND OTHERS THAT MAY BE REQUIRED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL LINES AND GRADES REQUIRED.
- THE CONTRACTOR SHALL REESTABLISH ALL PROPERTY PINS, MONUMENTS, WATER METERS, DRAINAGE CULVERTS, FENCES, UTILITY POLES, DRIVEWAYS, CURBS, GUTTERS, ETC. DISTURBED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE DEVELOPER.
- THE CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS OF THE VIRGINIA UNDERGROUND UTILITY DAMAGE PREVENTION ACT (SECTION 58-265.14 ET. SEQ. CODE OF VIRGINIA, 1950, AS AMENDED) AND HEREBY AGREES TO HOLD THE DEVELOPER AND THE ENGINEER HARMLESS AGAINST ANY LOSS, DAMAGE, OR CLAIMS OF ANY NATURE WHATSOEVER ARISING OUT OF THE CONTRACTOR'S FAILURE TO COMPLY WITH THE REQUIREMENTS OF SAID ACT.
- THE CONTRACTOR IS REQUIRED TO COMPLY WITH THE VIRGINIA OVERHEAD HIGH VOLTAGE LINE SAFETY ACT (SECTIONS 59.1-406 THROUGH 59.1-414, CODE OF VIRGINIA, 1950, AS AMENDED). THE CONTRACTOR IS REQUIRED TO VISIT THE SITE AND NOTE THE POSITION OF OVERHEAD CABLES PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES AS SHOWN ON THE DRAWINGS AND FOR EXCAVATION STOCKPILES, STAGING AREAS, MOBILIZATION SITES, BEDDING/BACKFILL STOCKPILES AND OTHER LAND DISTURBANCES NOT SPECIFICALLY ADDRESSED IN THE DRAWINGS OR CONTRACT DOCUMENTS. EROSION AND SEDIMENT CONTROL MEASURES SHALL MEET OR EXCEED THE MINIMUM STANDARDS OF THE "VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK" (LATEST PUBLICATION) AND THE REQUIREMENTS OF THE LOCAL GOVERNING AUTHORITY.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF ANY BODY HAVING JURISDICTION. THE CONTRACTOR SHALL ERCT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR SAFETY AND PROTECTION.
- THE CONTRACTOR SHALL USE ONLY NEW MATERIALS, PARTS AND PRODUCTS ON ALL PROJECTS. ALL MATERIALS SHALL BE STORED SO AS TO ASSURE THE PRESERVATION OF THEIR QUALITY AND FITNESS FOR THE WORK.
- ANY UTILITIES TO BE RELOCATED SHALL BE RELOCATED AT THE OWNER/DEVELOPER'S EXPENSE, INCLUDING UTILITIES WITHIN THE RIGHT-OF-WAY OF THE COUNTY. ANY UTILITIES TO BE ABANDONED SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
- ANY EXISTING UNUSED WELLS SHALL BE ABANDONED IN ACCORDANCE WITH STATE WELL REGULATIONS AND JAMES CITY COUNTY CODE.
- ALL NEW SIGNS SHALL BE IN ACCORDANCE WITH ARTICLE II, DIVISION 3 OF THE JAMES CITY COUNTY ZONING ORDINANCE.
- ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE AS SHOWN ON PLANS. POSITIVE DRAINAGE IS CRITICAL TO THE PROJECT.
- ANY ERRORS OR DISCREPANCIES WITH THE PLANS OR EXISTING FIELD CONDITIONS SHALL BE REPORTED TO THE ENGINEER OR SURVEYOR BEFORE PROCEEDING WITH THE WORK.
- THE ABSENCE OF THE DEVELOPER OR THE ENGINEER AT THE JOB SITE DOES NOT, IN ANY WAY, RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM THE WORK IN ACCORDANCE WITH THE DRAWINGS, CONTRACT DOCUMENTS, ADDENDA, AND WRITTEN AUTHORIZED PLAN REVISIONS.
- THE PROFESSIONAL WHOSE SEAL IS AFFIXED HEREON SHALL ACT AS THE "RESPONSIBLE LAND DISTURBER" FOR PURPOSES OF PLAN APPROVAL ONLY. PRIOR TO ISSUANCE OF THE LAND DISTURBING PERMIT, THE CONTRACTOR OR DEVELOPER SHALL PROVIDE THE NAME OF A "RESPONSIBLE LAND DISTURBER" WHO SHALL ASSUME RESPONSIBILITY AS THE "RESPONSIBLE LAND DISTURBER" FOR THE CONSTRUCTION PHASE OF THE PROJECT. THE CONTRACTOR OR DEVELOPER SHALL PROVIDE WRITTEN NOTIFICATION SHOULD THE "RESPONSIBLE LAND DISTURBER" CHANGE DURING CONSTRUCTION.

SP-0009-2010

Rev	Date	Description
1		RECORD DRAWINGS
2		REVISIONS
3		REVISIONS
4		REVISIONS
5		REVISIONS

Environmental Division

DEC 07 2011

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RECORD DRAWINGS  
RV LOOP RENOVATIONS  
CHICKAHOMINY RIVERFRONT PARK

BERKELEY DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts: ABS/BMC  
Project Number: 9801-E-21  
Scale: NTS Date: 06/14/11

Sheet Title:  
COVER

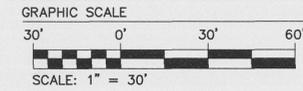
Sheet Number  
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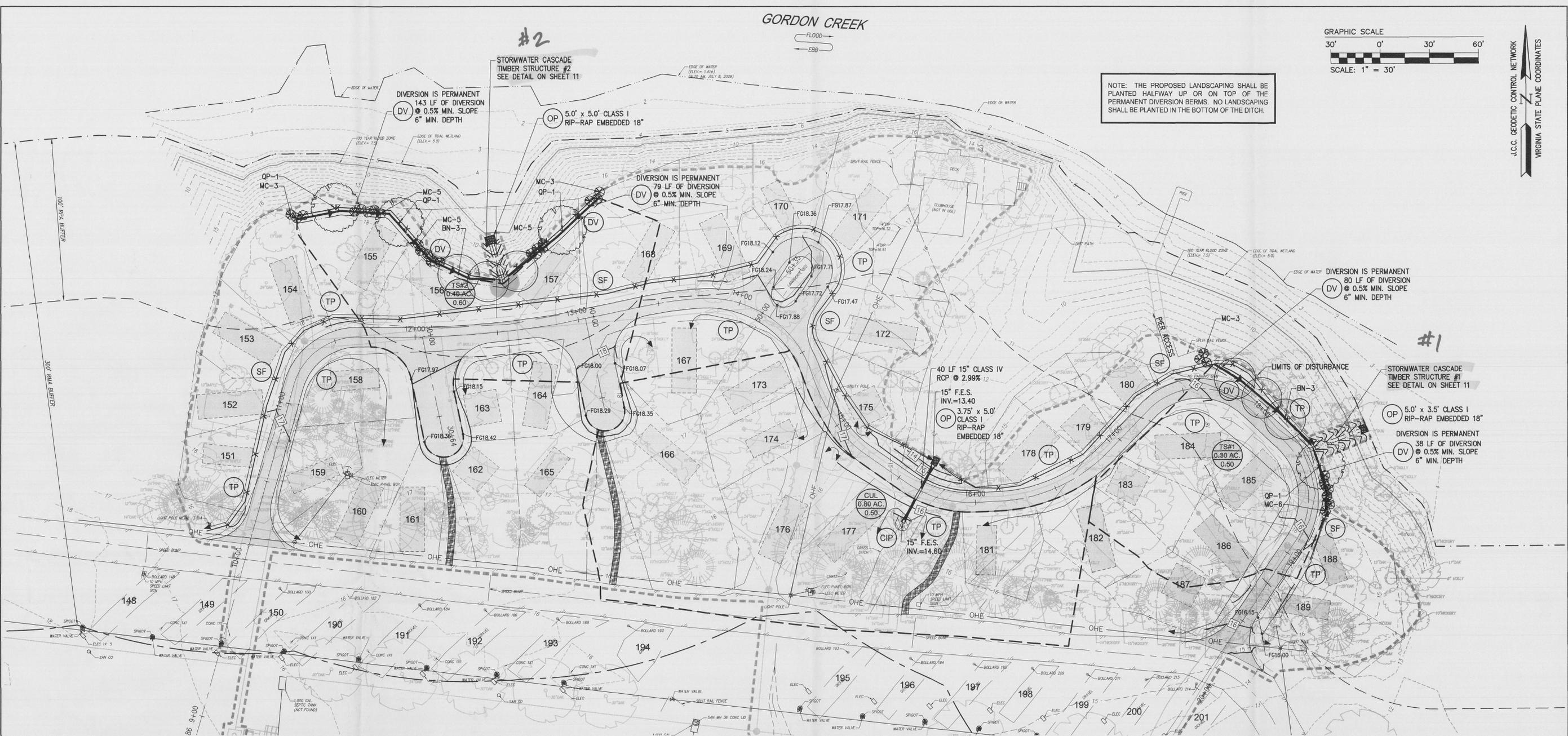




GORDON CREEK

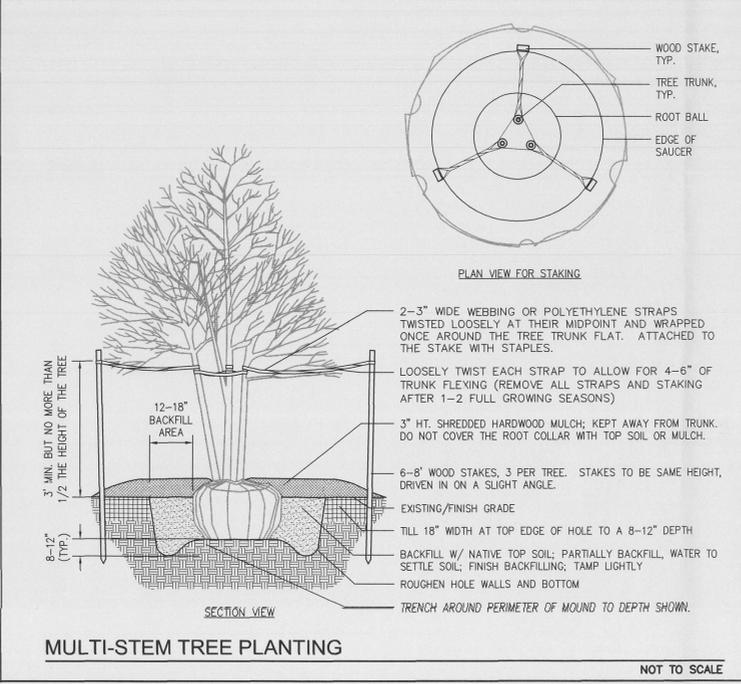
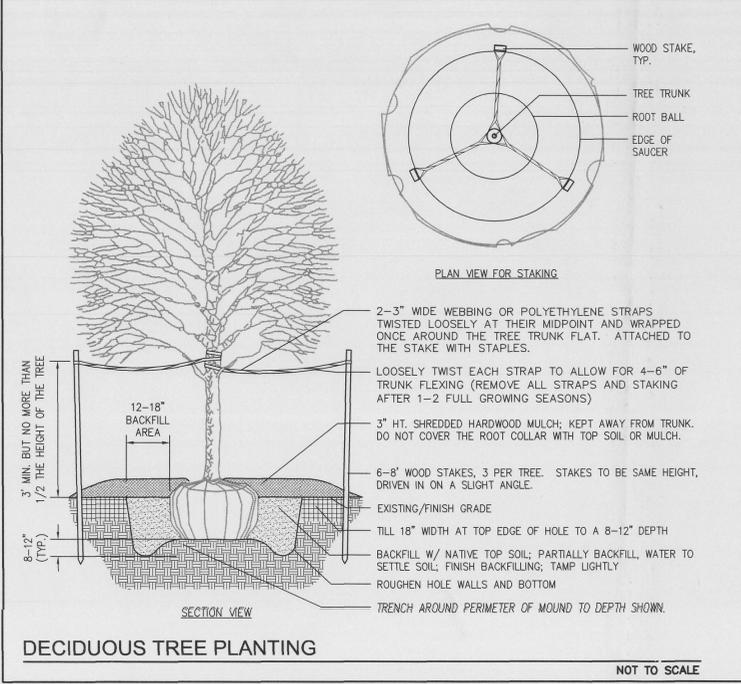


J.C.C. GEODETIC CONTROL NETWORK  
VIRGINIA STATE PLANE COORDINATES



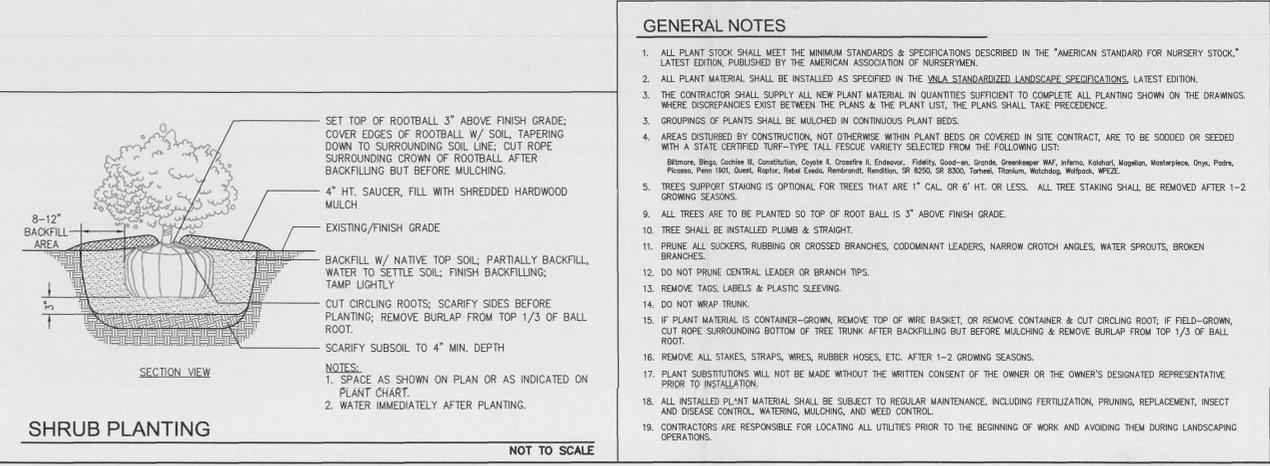
NOTE: THE PROPOSED LANDSCAPING SHALL BE PLANTED HALFWAY UP OR ON TOP OF THE PERMANENT DIVERSION BERMS. NO LANDSCAPING SHALL BE PLANTED IN THE BOTTOM OF THE DITCH.

Revised	Date	By	Description
1	03/03/10		REVISED PER JCC COUNTY COMMENTS



**PLANT SCHEDULE**

KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	COMMENT
<b>LARGE DECIDUOUS TREES:</b>						
BN	6	BETULA NIGRA 'DURA HEAT'	'DURA HEAT' RIVER BIRCH	1" CAL.	B & B	3-5 STEMS
QP	4	QUERCUS PHELLOS	WILLOW OAK	1" CAL.	B & B	SINGLE STEM
<b>MEDIUM SHRUBS:</b>						
MC	30	MYRICA CERIFERA	SOUTHERN WAXMYRTLE	12"-18" HT./W.	CONT.	DENSE, FULL



- GENERAL NOTES**
- ALL PLANT STOCK SHALL MEET THE MINIMUM STANDARDS & SPECIFICATIONS DESCRIBED IN THE "AMERICAN STANDARD FOR NURSERY STOCK," LATEST EDITION, PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERMEN.
  - ALL PLANT MATERIAL SHALL BE INSTALLED AS SPECIFIED IN THE VMIA STANDARDIZED LANDSCAPE SPECIFICATIONS, LATEST EDITION.
  - THE CONTRACTOR SHALL SUPPLY ALL NEW PLANT MATERIAL IN QUANTITIES SUFFICIENT TO COMPLETE ALL PLANTING SHOWN ON THE DRAWINGS. WHERE DISCREPANCIES EXIST BETWEEN THE PLANS & THE PLANT LIST, THE PLANS SHALL TAKE PRECEDENCE.
  - GROUPINGS OF PLANTS SHALL BE MULCHED IN CONTINUOUS PLANT BEDS.
  - AREAS DISTURBED BY CONSTRUCTION, NOT OTHERWISE WITHIN PLANT BEDS OR COVERED IN SITE CONTRACT, ARE TO BE SOODED OR SEEDED WITH A STATE CERTIFIED TURF-TYPE TALL FESCUE VARIETY SELECTED FROM THE FOLLOWING LIST:  
Biltmore, Bingo, Cochise II, Constitution, Coyote II, Endeavor, Fidelity, Good-mo, Grande, Greenkeeper WAF, Inferno, Kohler, Magellan, Montpelier, Oryx, Padre, Pinnacle, Penn 1901, Quest, Raptor, Rebel Exotic, Rembrandt, Rendition, SR 8250, SR 8300, Tarheel, Titanium, Watchdog, Wolfpack, WPEZE.
  - TREES SUPPORT STAKING IS OPTIONAL FOR TREES THAT ARE 1" CAL OR 6' HT. OR LESS. ALL TREE STAKING SHALL BE REMOVED AFTER 1-2 GROWING SEASONS.
  - ALL TREES ARE TO BE PLANTED SO TOP OF ROOT BALL IS 3" ABOVE FINISH GRADE.
  - TREE SHALL BE INSTALLED PLUMB & STRAIGHT.
  - PRUNE ALL SUCKERS, RUBBING OR GROSSED BRANCHES, CODOMINANT LEADERS, NARROW CROTCH ANGLES, WATER SPROUTS, BROKEN BRANCHES.
  - DO NOT PRUNE CENTRAL LEADER OR BRANCH TIPS.
  - REMOVE TAGS, LABELS & PLASTIC SLEEVING.
  - DO NOT WRAP TRUNK.
  - IF PLANT MATERIAL IS CONTAINER-GROWN, REMOVE TOP OF WIRE BASKET, OR REMOVE CONTAINER & CUT CIRCLING ROOT; IF FIELD-GROWN, CUT ROPE SURROUNDING BOTTOM OF TREE TRUNK AFTER BACKFILLING BUT BEFORE MULCHING & REMOVE BURLAP FROM TOP 1/3 OF BALL ROOT.
  - REMOVE ALL STAKES, STRAPS, WIRES, RUBBER HOSES, ETC. AFTER 1-2 GROWING SEASONS.
  - PLANT SUBSTITUTIONS WILL NOT BE MADE WITHOUT THE WRITTEN CONSENT OF THE OWNER OR THE OWNER'S DESIGNATED REPRESENTATIVE PRIOR TO INSTALLATION.
  - ALL INSTALLED PLANT MATERIAL SHALL BE SUBJECT TO REGULAR MAINTENANCE, INCLUDING FERTILIZATION, PRUNING, REPLACEMENT, INSECT AND DISEASE CONTROL, WATERING, MULCHING, AND WEED CONTROL.
  - CONTRACTORS ARE RESPONSIBLE FOR LOCATING ALL UTILITIES PRIOR TO THE BEGINNING OF WORK AND AVOIDING THEM DURING LANDSCAPING OPERATIONS.

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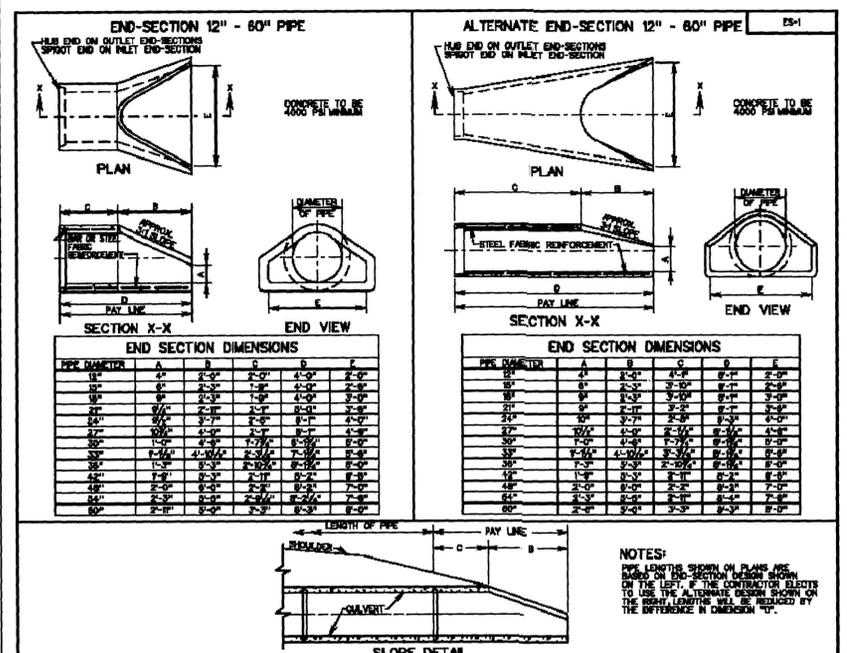
5248 Otter Towne Road, Suite 1  
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**RV LOOP RENOVATIONS**  
CHICKAHOMINY RIVERFRONT PARK  
VIRGINIA  
JAMES CITY COUNTY  
BERKELEY DISTRICT

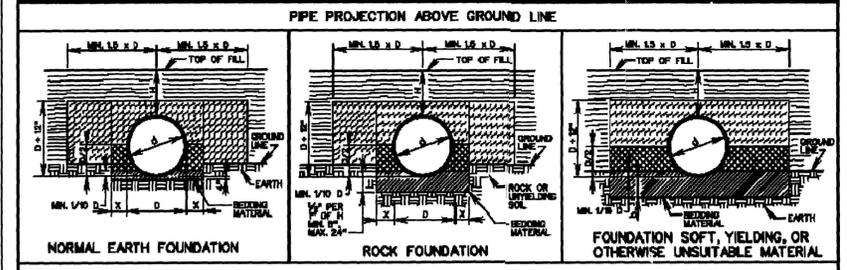
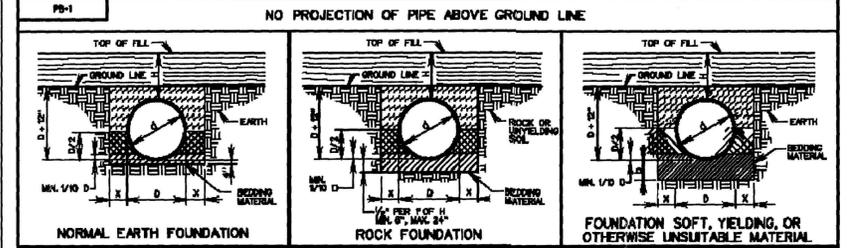
Project Contacts: ABS/BMC  
Project Number: 9801-E-21  
Scale: 1"=30'  
Date: 02/10/10

Sheet Title:  
**GRADING AND DRAINAGE PLAN**

Sheet Number  
**06**



PIPE DIAMETER	A	B	C	D	E
12"	1'-0"	1'-0"	1'-0"	1'-0"	1'-0"
18"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"
24"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"
30"	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"
36"	3'-0"	3'-0"	3'-0"	3'-0"	3'-0"
42"	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"
48"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"
54"	4'-6"	4'-6"	4'-6"	4'-6"	4'-6"
60"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"

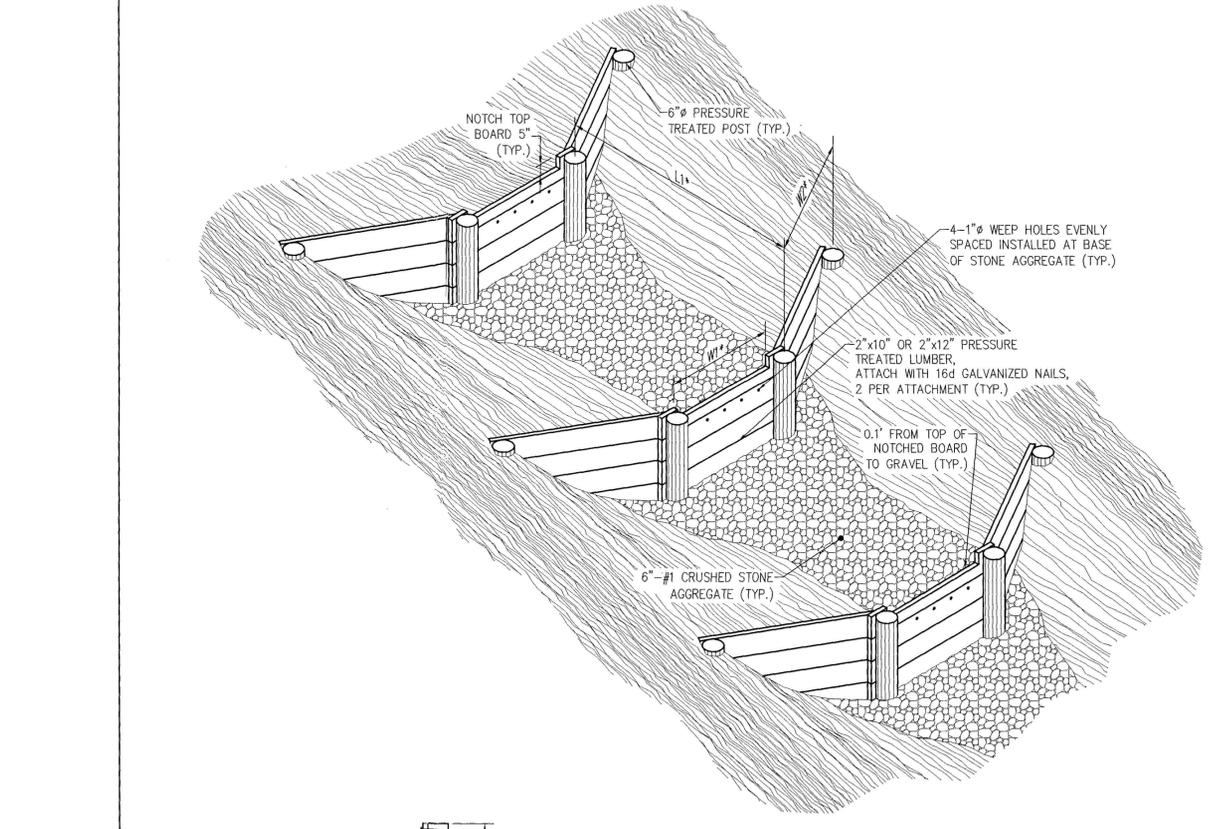
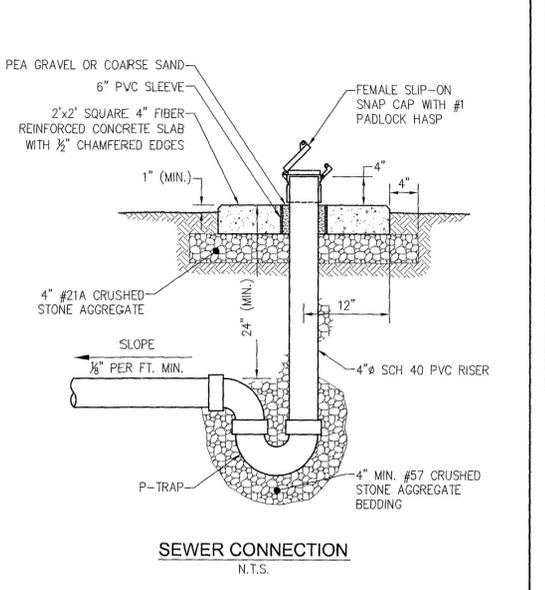
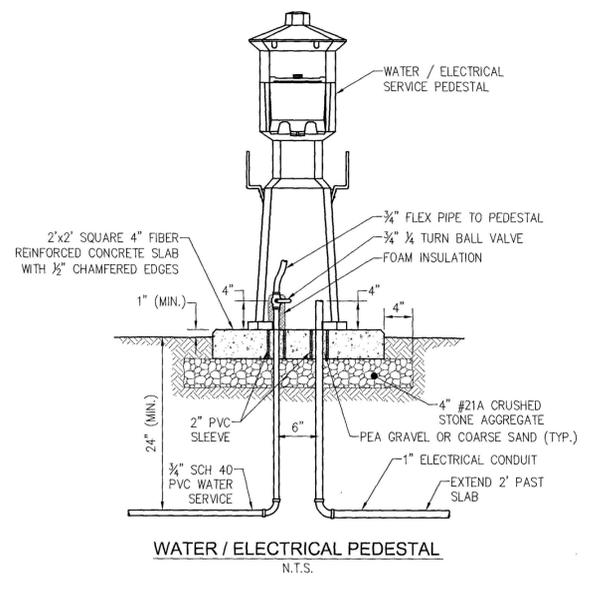
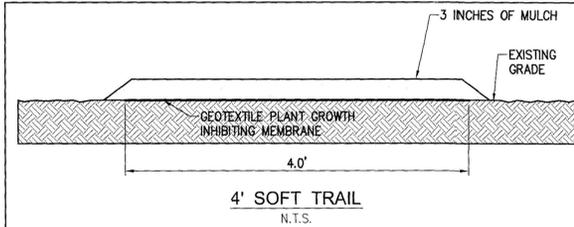
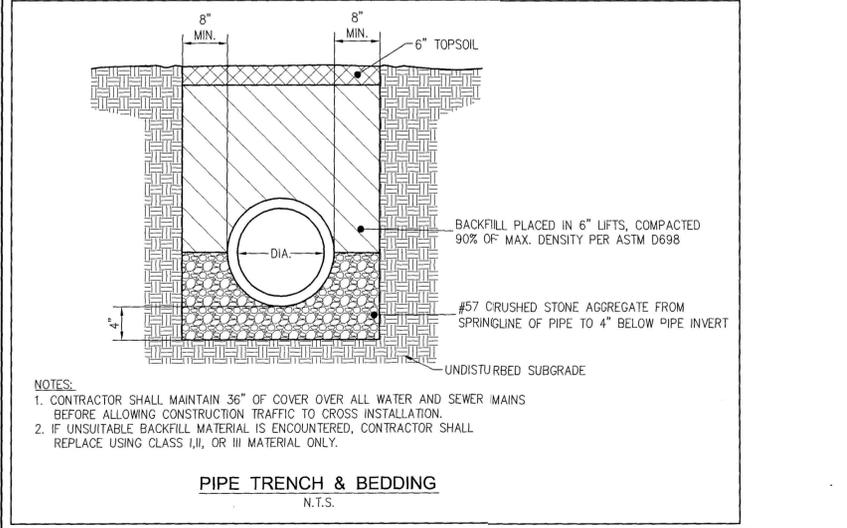


**NOTES:**

FOR PLASTIC PIPE, THE LIMITS OF THE CLASS 2 BACKFILL MATERIAL SHALL BE EXTENDED TO 18" ABOVE THE TOP OF THE PIPE.

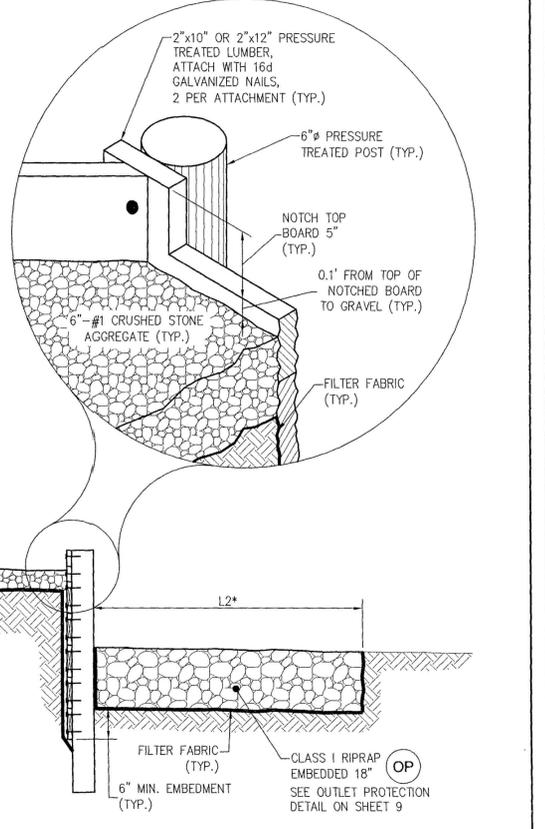
FOR GENERAL NOTES ON PIPE BEDDING, SEE INSTALLATION OF PIPE CULVERTS AND STORM SEWERS GENERAL NOTES ON SHEET 107.00.

CRUSHED GLASS CONFORMING TO THE SIZE REQUIREMENTS FOR CRUSHER RUN AGGREGATE SIZE 20S AND 30S MAY BE USED IN PLACE OF CLASS 2 BACKFILL.



	STRUCTURE #1	STRUCTURE #2
L1*	7.4'	6.7'
L2*	3.5'	5.0'
W1*	2.0'	3.0'
W2*	3.0'	4.0'

BACKFILL FOR THE TIMBER CASCADE STRUCTURE SHALL BE OF SOIL MATERIAL CLASSIFIED AS, SC, CL, OR CH WHICH CONTAINS AT LEAST 35% BY WEIGHT CLAY, FREE OF STUMPS, ROOTS, ROCKS, TRASH, ETC. BACKFILL SHALL BE COMPACTED TO 95%.



REV.	DATE	DESCRIPTION
1	03/03/10	REVISED PER JCC COUNTY COMMENTS



**ABS CONSULTING ENGINEERS**  
Hampton Roads | Central Virginia | Middle Peninsula

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www.absve.com

**RV LOOP RENOVATIONS**  
CHICKAHOMINY RIVERFRONT PARK

BERKELEY DISTRICT | JAMES CITY COUNTY | VIRGINIA

Project Contacts: ABS/BMC  
Project Number: 9801-E-21  
Scale: NTS  
Date: 02/10/10

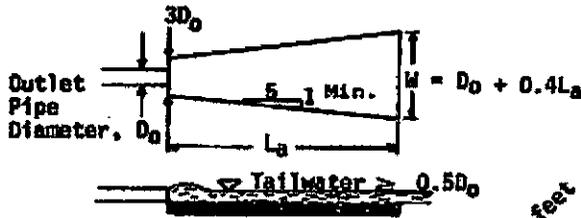
Sheet Title: **NOTES AND DETAILS**

Sheet Number: 11

**Outlet Location:**

DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL  
 MAXIMUM TAILWATER CONDITION ( $T_w \geq 0.5$  DIAMETER)

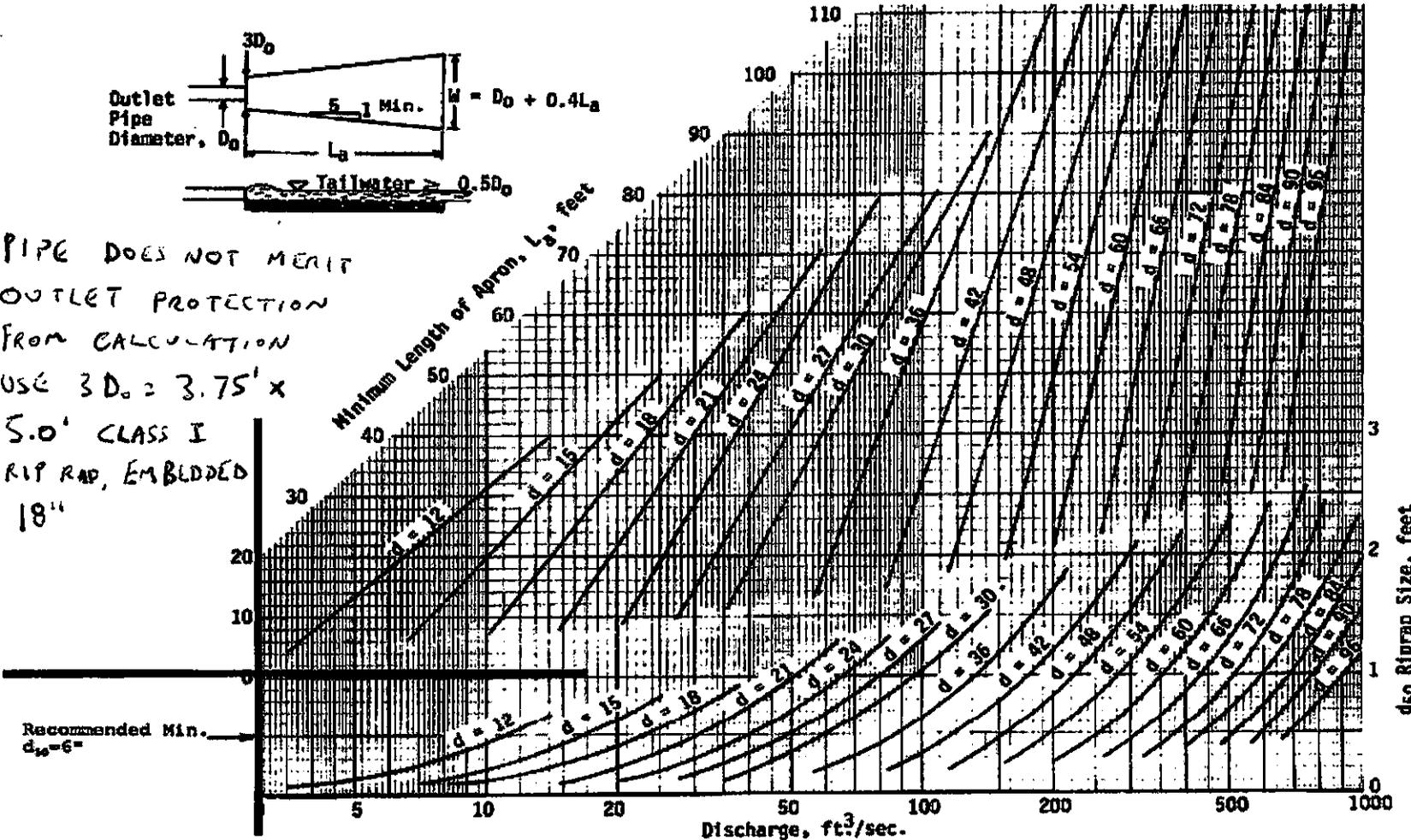
Source: USDA-SCS



PIPE DOES NOT MERIT  
 OUTLET PROTECTION  
 FROM CALCULATION  
 USE  $3D_0 = 3.75'$  x  
 5.0' CLASS I  
 RIP RAP, EMBEDDED  
 18"

III - 165

Plate 3.18-4



1992

3.18

$Q = 1.92$  cfs       $3D_0 = 3.75$  ft       $W = 1$  ft      Depth = \_\_\_\_\_ ft  
 $D_0 = 15$  in       $L_a = 5.0$  ft       $d_{50} =$  \_\_\_\_\_ ft

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

# LETTER OF TRANSMITTAL

ATTN: **Greg Johnson**

CO.: **JCC ERP**

Address: **101 Mounts Bay Road**  
**Williamsburg**

cc:

DATE Dec 7, 2011	JOB NO. 9801-E-21
FROM: Aaron Small	
RE Chickahominy Riverfront Park Record Drawings	

*Environmental Division*

DEC 07 2011

WE ARE SENDING YOU THE FOLLOWING ITEMS:

- Attached  
 Under separate cover via  
 Specification(s)  
 Change Order

RECEIVED

- Original(s)    Print(s)    Plan(s)  
 Copy of letter(s)    Other:

COPIES	DATE	No. of Pages	DESCRIPTION
1	6/14/2011	8	Chickahominy Riverfront Park Record Drawings
1	12/7/11	16	Original sealed BMP Construction Certification

THESE ARE TRANSMITTED as checked below:

- For your approval    For your signature    For review and comment  
 For your use    As you requested    As requested by:  
 Other:

REMARKS:

VIA:  Hand Deliver    UPS Ground    UPS Next Day Air    USPS Mail    Other:

*If enclosures are not as noted, kindly notify us at once.*

**Development  
Management**

101-A Mounts Bay Road  
P.O. Box 8784  
Williamsburg, VA 23187-8784  
P: 757-253-6671  
F: 757-253-6822  
devman@james-city.va.us



jccEgov.com

**Code Compliance**

(757) 253-6620  
codecomp@james-city.va.us

**Environmental Division**

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environ@james-city.va.us

**Planning and Zoning**

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planning@james-city.va.us

March 29, 2010

Mr. Brendan Clisso, PE  
AES Consulting Engineers  
5248 Olde Towne Road, Suite 1  
Williamsburg, Virginia 23188

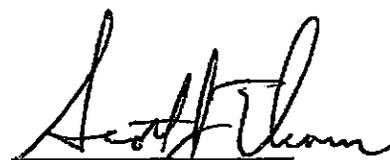
RE: Water Quality Impact Assessment, Chickahominy Riverfront Park – RV Loop Renovations  
AES Project Number – 9801-E-21  
James City County Plan Numbers: SP-009-10, CBE-10-067

Dear Mr. Clisso:

We have reviewed your resubmitted Water Quality Impact Assessment dated March 2010 for an exemption to the County's Chesapeake Bay Preservation. This project has a net reduction of impervious cover within the RPA, with the elimination of four RV camping spaces and the clubhouse; therefore under Section 23-7(a) (2) this exception request is approved. Further, the two timber wall cascade structures are considered self-mitigating for any impacts these structures create and are also approved administratively. If there are any questions regarding this issue, please call 253-6823.

Sincerely,

  
Michael D. Woolson, C.L.A.  
Senior Watershed Planner

  
Scott J. Thomas, P.E.  
Environmental Division Director

*Handwritten notes:*  
5/10/10  
10/10/10

# CHESAPEAKE BAY ACT - RPA EXCEPTIONS

CBE-	10-067	Get Last CBE#	DATE REC'	03/03/10	FISCAL YEAR	2010
LAST NAME OR AGENT'S COMPANY			FIRST NAME OR AGENT'S NAME			
JAMES CITY COUNTY			AES			
PHONE	HOUSE #	STREET			SP OR LINE #	
	1350	JOHN TYLER HIGHWAY			SP-009-10	
SUBDIVISION		PROJECT (NON-SF ONLY)			CBB HEARING	
		CHICKAHOMINY RIVERFRONT PARK - RV LOOP RENO				
EXCEPTION DESC		PARCEL ID #	MITTAGION PLAN RE		AREA OR INITS	
RPA/CAMPSITES & TIMBER WALLS		3430100002	\$ FEE PAID:		MDW	
ACTION	SURETY TYPE		SURETY #	SURETY AMOUNT		
GRANTED				\$0		
ACTION DATE	SURETY COMPANY		SURETY EXP DATE			
03/29/2010						
EXPIRATION DATE	SURETY COMMENT/RELEASE DATE		RELEASED			
02/16/2012			<input type="checkbox"/>			
IMPERVIOUS SQFT	RPA DATE (8/6/90 OR 1/1/04)	INSPECTION DATE	RELEASED	RELEASE DATE		
			<input checked="" type="checkbox"/>	12/21/2011		
COMMENT	CBS-10-024 3/28/11 - Still Active 12/21/11 Project released					

Environmental Division

MAR 25 2010

# Water Quality Impact Assessment

RECEIVED

*For*

# Chickahominy Riverfront Park – RV Loop Renovations

*Prepared for*

James City County

APPROVED

APPROVED

March 2010

AES Project Number 9801-E-21

**Chickahominy Riverfront Park**  
**Water Quality Impact Assessment**  
**March 2010**

**I. Introduction**

Chickahominy Riverfront Park is an existing James City County park consisting of approximately 140 acres and is currently zoned as Public Lands (PL) district with a Special Use Permit (JCC Case #SUP-0014-2009), which was approved on November 10, 2009. The park is located along John Tyler Highway (Route 5), close to the Judith Dresser Bridge crossing the Chickahominy River. The park is bordered by the Chickahominy River and Gordon Creek and currently has such amenities as a boat ramp, campground with RV spaces, fishing pier, picnic shelter, two swimming pools, and a playground.

The RV Loop Renovations plan is the first phase of the park's redevelopment. This redevelopment is located along the banks of Gordon Creek to the east of the boat ramp in the area of the existing RV campsites. The existing campsites in this area are being renovated to provide more useable campsites. There will be a total of 39 renovated campsites. These 39 campsites will replace 45 existing campsites for a net reduction in the total number of campsites. During this phase of redevelopment new utility connections will be installed throughout the redeveloped area along with improvements to the road system. Existing electric and water lines in these areas are deteriorated and in need of replacement. Existing sewer lines have already been abandoned due to the high number of repairs required. The proposed improvements will provide better access and full service connections for users and increase the revenue generating capabilities of the park. A portion of the camp ground is in the RPA. Included in the redevelopment are two timber wall cascade structures which are intended to convey storm water from the top of the steep slopes along Gordon Creek, to prevent erosion. These timber wall cascade structures are located in the RPA. This site is located in the Gordon Creek Watershed.

In accordance with Chapter 23 Section 23-11 of the James City County Ordinance, a minor water quality impact assessment has been prepared. To facilitate review, the document will follow in part the organization of the James City County Draft Water Quality Impact Assessment Guidelines Section C. All required items of the assessment are listed with the response following.

**II. Minor Water Quality Impact Assessment**

***Location of RPA buffers:***

The locations of the Resource Protection Area is in the Berkeley district of James City County on the banks of Gordon Creek and is shown on the attached display titled "RPA and RMA Impervious Cover Exhibit" dated March 3, 2010.

***Location and nature of the proposed encroachment into the RPA buffers, including limits of clearing or grading; locations of structure, drives and other impervious cover; location of erosion and sediment control measures; location of 25% and steeper slopes; and sewage disposal systems or reserve drainfield sites:***

**Chickahominy Riverfront Park**  
**Water Quality Impact Assessment**  
**March 2010**

Seventeen existing campsites are located in the RPA buffer. This existing encroachment is approximately 1.15 ac. Once the renovation of the campsites is complete there will be thirteen campsites in the RPA buffer.

As designed the encroachment areas are approximately 12 and 15 foot clearings to provide a 2' wide and 3' wide timber cascade structure to serve as a low-impact landscaping feature to prevent erosive storm water discharges. The cascade structures have been placed perpendicular to the RPA to provide the smallest impact possible. There is a disturbance to 2.5% slopes of 750 SF. The total impact to the RPA is 810 SF.

***Type and location of proposed best management practices to mitigate the proposed encroachment:***

There are no structural BMPs planned for this phase of redevelopment. The berms and timber cascade structures are intended to serve as a low-impact landscaping feature to prevent erosive storm water discharges. The reduction in impervious area within the buffer, including the reduction of campsites, is the main mitigation measure.

***Location of existing vegetation onsite; including number and type of trees and other vegetation to be removed in the buffer to accommodate the encroachment:***

The area of the impact is currently wooded with deciduous trees. Tree clearing will be limited to the maximum extent possible.

***Re-vegetation (buffer modifications) plan that supplements the existing buffer vegetation in a manner that provides for pollutant removal, erosion control, infiltration and filtering of runoff;***

The area of impact is permanent. To minimize erosion and prevent degradation of the wetlands the following measures have been used:

- The timber cascade structures are being installed to prevent further erosion of the steep slopes.
- Outlet protection is being installed at the discharge point into the wetlands.
- Landscaping is being planted along the berms which connect to the timber cascade structures.

***Listing of required permits from all applicable agencies necessary to develop this project;***

This project will require at a minimum:

- James City County – Land Disturbance Permit
- DCR – Virginia Stormwater Management Permit (VSMP)

**III. Appendix**

- a. RPA and RMA Impervious Cover Exhibit

**Development  
Management**

101-A Mounts Bay Road  
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Williamsburg, VA 23187-8784  
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devman@james-city.va.us



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**Code Compliance**

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**Environmental Division**

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

**Planning and Zoning**

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

March 24, 2010

Mr. Brendon Clisso, PE  
AES Consulting Engineers  
5248 Olde Towne Road, Suite 1  
Williamsburg, Virginia 23188

RE: Water Quality Impact Assessment, Chickahominy Riverfront Park – RV Loop Renovations  
AES Project Number – 9801-E-21  
James City County Plan Numbers: SP-009-10, CBE-10-067

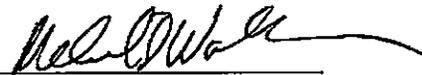
Dear Mr. Clisso:

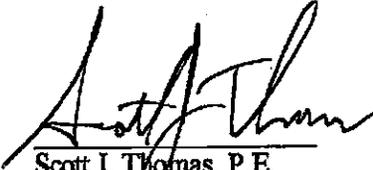
Staff has reviewed the submitted Water Quality Impact Assessment (WQIA) for the Chickahominy Riverfront Park – RV Loop Renovations. Staff offers the following comments for this WQIA that need to be addressed:

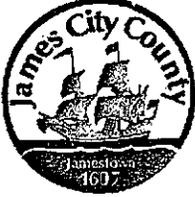
1. The clubhouse has been removed and needs to be included as part of the net reduction of impervious cover within the RPA for this project. Please revise the "existing impervious cover within the 100' RPA buffer" number accordingly.
2. Please indicate on the map the two interior former gravel connections to the main road to be removed and restored (stabilized).

As the overall project is a net reduction of impervious cover with in the RPA, this exception request may be granted administratively once the above comments have been addressed. Further, the timber wall cascade structures are considered self-mitigating for any impacts these two structures create and may also be granted administrative approval. If there are any questions regarding this issue, please call 253-6823.

Sincerely,

  
Michael D. Woolson, C.L.A.  
Senior Watershed Planner

  
Scott J. Thomas, P.E.  
Environmental Division Director



## DEVELOPMENT MANAGEMENT

101-A MOUNTS BAY ROAD, P.O. BOX 8784, WILLIAMSBURG, VIRGINIA 23187-8784  
(757) 253-6671

E-MAIL: devtman@james-city.va.us  
FAX: (757) 253-6822

ENVIRONMENTAL DIVISION  
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environ@james-city.va.us

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

COUNTY ENGINEER  
(757) 253-6678

MOSQUITO CONTROL  
(757) 259-4116

March 23, 2010

Mr. Brendan Clisso  
AES Consulting Engineers  
5248 Olde Towne Road, Suite 1  
Williamsburg, VA 23188

Re: Exception for Disturbance of Steep Slopes  
JCC – RV Loop Renovation (Chickahominy Riverfront Park)  
County Plan No.: SP-09-10    **CB 9-10-24**

Dear Mr. Clisso:

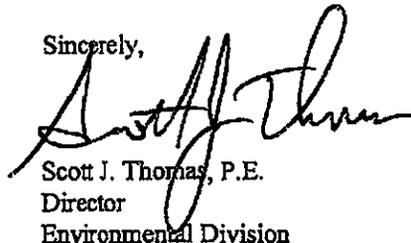
The Environmental Division is in receipt of your written request dated February 10<sup>th</sup> 2010 to obtain exception from Section 23-5 of the County's Chesapeake Bay Preservation ordinance for disturbance of slopes 25 percent or greater associated with the above referenced project. Pursuant to the provisions of 23-14(e) of the County's Chesapeake Bay Preservation ordinance, an exception is hereby granted. Applicable conditions include:

1. Steep slope disturbances are only authorized within the defined limits of work for the project.
2. Steep slope disturbances are limited to a total of 0.02 acres as defined on the environmental inventory.
3. Approved erosion and sediment control plan measures must be fully implemented downstream of applicable steep slope impact areas prior to their disturbance.
4. The two (2) permanent stormwater conveyance control measures (ie. stormwater timber wall cascade structures), as shown on the approved plan, are required to control runoff down/along steep slope areas.

Please note that approval of this exception, with the conditions stated, in no way implies final approval of a site or subdivision plan as required by the Chapter 24 Zoning or Chapter 19 Subdivisions of the County Code; nor does it constitute final approval of an erosion and sediment control or stormwater management plan as required by Chapter 8 Erosion and Sediment Control and Chapter 23 Chesapeake Bay Preservation of the County Code. Approval of this exception is also contingent upon no major (substantial) changes in the development plan, or if site conditions change, become apparent or alter significantly following the date of this approval.

Thank you for your efforts to protect the Chesapeake Bay and its tributaries from the effects of non-point source pollution associated with land use activities. Please contact me at 253-6639 if you have any questions about this exception or any of its associated conditions.

Sincerely,



Scott J. Thomas, P.E.  
Director  
Environmental Division

SJT/sjt  
ChesBay\SteepSlope\SP0910.approval

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**SUBMITTAL DOCUMENTS**

**FOR**

***RV Loop Renovations  
Chickahominy Riverfront Park***



**Environmental Division**

**FEB 11 2010**

**RECEIVED**

**SUBMITTED TO:**

**James City County  
Environmental Division**



**Prepared By:**

**AES Consulting Engineers  
5248 Olde Towne Road, Suite 1  
Williamsburg, Virginia 23188**

**February 10, 2010  
Revised:**

**AES Project No. 9801-E-21**

**SP-9-10  
6018**

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  - III. STORMWATER CASCADE #1
  - IV. STORMWATER CASCADE #2
  - V. CULVERT CALCULATION
  - VI. OUTLET PROTECTION CALCULATION
- > GC 018*



James City County, Virginia  
Environmental Division

**Erosion and Sediment Control and  
Stormwater Management Design Plan Checklists**

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GENERAL INFORMATION

Project Name: Chickahominy Riverfront Park - RV Loop Renovations

Owner / Applicant: James City County

Plan Preparer: AES Consulting Engineers Email: bclisso@aesva.com

Project Location: 1350 John Tyler Highway, Williamsburg Va

Tax Map / Parcel: (34-3)(1-2)

County Plan No. (if known): \_\_\_\_\_

County BMP Type: \_\_\_\_\_ ( \_\_\_\_\_ - \_\_\_\_\_ )

Other information submitted in addition to this checklist (Check all that apply):

- Design or Construction Drawings (Plans, Profiles, Details, etc.).
- Erosion & Sediment Control Plan (Plan, Details, etc.).
- Erosion & Sediment Control Plan Design Report.
- Stormwater Management Design Plan (Plans, Profiles, Details, etc.).
- Stormwater Management Design Report.
- Other, List: \_\_\_\_\_

*Issue Date*  
*March 1, 2001*

**JAMES CITY COUNTY, VIRGINIA  
ENVIRONMENTAL DIVISION**

***EROSION AND SEDIMENT CONTROL PLAN CHECKLIST***

**I. GENERAL:**

Yes No N/A

- FAMILIARITY** with current versions of Chapter 8, Erosion and Sedimentation Control and Chapter 23, Chesapeake Bay Preservation ordinances of the Code of James City County, Virginia and the Virginia Erosion and Sediment Control Handbook (VESCH).
- LAND DISTURBING PERMIT AND SILTATION AGREEMENT** with surety are required for the project.
- VARIANCE** if necessary, requested in writing, for the plan approving authority to waive or modify any of the minimum standards and specifications of the VESCH deemed inappropriate based on site conditions specific to this review case only. Variances which are approved shall be properly documented in the plan and become part of the approved erosion and sediment control plan for the site.

**II. SITE PLAN:**

Yes No N/A

- VICINITY MAP** locating the site in relation to the surrounding area. Include any major landmarks which might assist in physically locating the site.
- INDICATE NORTH** direction in relation to the site.
- LIMITS OF CLEARING AND GRADING** for the site including that required for implementation of erosion and sediment controls, stockpile areas and utilities.
- DISTURBED AREA ESTIMATES** in acres or square feet for the project.
- EXISTING TOPOGRAPHY** or contours for the site at no more than 5 foot contour interval.
- FINAL TOPOGRAPHY**, contours or proposed site grading in accordance with the design plan which indicates changes to existing topography and drainage patterns at no more than 2 foot contour interval (or 1 foot contours where required).
- EXISTING AND PROPOSED SPOT ELEVATIONS** to supplement existing and proposed contours, topography or site grading information. Spot elevations may replace final contours in some instances, especially if terrain is in a low lying area or relatively flat.
- EXISTING VEGETATION** including existing tree lines, grassed or unique vegetation areas.

Yes No N/A

**EXISTING SITE FEATURES** including roads, buildings, homes, utilities, streams, fences, structures and other important surface features of the site.

**SOILS MAP** with soil symbols, boundaries and legend in accordance with the current Soil Survey of James City and York Counties and the City of Williamsburg, Virginia.

**ENVIRONMENTAL INVENTORY** in accordance with Section 23-10(2) of the Chesapeake Bay Preservation Ordinance of James City County. Inventory generally includes: tidal shores and wetlands, non-tidal wetlands, resource protection area, hydric soils and slopes steeper than 25 percent. For wetlands, provide a copy of issued permits or satisfactory evidence that appropriate permits are being pursued for the entire project.

**100-YEAR FLOODPLAIN LIMITS** or any special flood hazard areas or flood zones based on appropriate Federal Management Agency Flood Insurance Rate Maps (FIRMs) or Flood Hazard Boundary Maps (FHBMs) of James City County, Virginia.

**DRAINAGE AREAS** for offsite and onsite areas, existing or proposed as applicable. Include drainage divides and directional labels for all subareas at points of interest and size (in acres), weighted runoff coefficient or curve number and times of concentration for each subarea.

**CRITICAL EROSION AREAS** which require special consideration or unique erosion and sediment control measures. Refer to the VESCH, Chapter 6 for criteria.

**DEVELOPMENT PLAN** for the site showing all improvements such as buildings, structures, parking areas, access roadways, above and below ground utilities, stormwater management and drainage facilities, trails or sidewalks, proposed vegetation and landscaping, amenities, etc.

**LOCATION OF PRACTICES** proposed for erosion and sediment control, tree protection and temporary stormwater management due to land disturbance activities at the site. Use standard abbreviations, labels and symbols consistent for plan views based on minimum standards and specifications in Chapter 3 of the VESCH.

**TEMPORARY STOCKPILE AREAS** or staging and equipment storage areas as required for onsite or offsite construction activities or indicate that none are anticipated for this project.

**OFFSITE LAND DISTURBING AREAS** including borrow sites, waste areas, utility extensions, etc. and required erosion and sediment controls. If none are anticipated for the project, then indicate on the plans by general or erosion and sediment control notes.

**DETAILS** or alternately, appropriate reference to current minimum standards and specifications of the VESCH for each measure proposed for the project. Non-modified, standard duplicated details (silt fence, diversion dikes, etc.) may be referenced to the current version of the VESCH. Specific dimensional or modified standards (basins, traps, outlet protections, check dams, etc.) require presentation on detail sheets. Schedules or tables may be used for multiple site measures such as sediment traps, basins, channels, slope drains, etc. Any modification to standard details should be clearly defined, explained and illustrated.

Yes No N/A

*MAINTENANCE PLAN* or alternately, appropriate reference to current minimum standards and specifications of the VESCH, outlining the inspection frequency and maintenance requirements for all erosion and sediment control measures proposed for the project.

*TRENCH DEWATERING* methods and erosion and sediment controls, if anticipated for the project.

*CONSTRUCTION SEQUENCE* outlining the anticipated sequence for installation of erosion and sediment controls and site, grading and utility work to be performed for the project by the site contractor.

*PHASING PLAN* if required for larger project sites that are to be developed in stages or phases.

*STANDARD COUNTY NOTES* are required to be placed on the erosion and sediment control plan. Refer to the standard James City County Erosion and Sediment Control Notes dated May 5, 1999.

*PROFESSIONAL SEAL AND SIGNATURE* required on final and complete approved plans, drawings, technical reports and specifications.

**III. NARRATIVE:**

Yes No N/A

*PROJECT DESCRIPTION* briefly describing the nature and purpose of the land disturbing activity and the acreage to be disturbed.

*EXISTING SITE CONDITIONS* description of existing topography, land use, cover and drainage patterns at the site.

*ADJACENT AREA* descriptions of neighboring onsite or offsite areas such as streams, lakes, property, roads, etc. and potential impacts due to concentrated flow or runoff from the land disturbing activity.

*OFFSITE DISTURBED AREA* descriptions of proposed borrow sites, water or surplus areas, utility extensions and erosion and sediment controls to be implemented.

*SOILS DESCRIPTION* briefly summarizing site, disturbed area and drainage basin soils including name, unit, hydrologic soil group (HSG) classification, surface runoff potential, erodibility, permeability, depth, texture, structure, erosion hazards, shrink-swell potential, limitations for use and anticipated depths to bedrock and the seasonal water table, as applicable.

*CRITICAL AREAS* on the site which may have potentially serious erosion and sediment control problems and special considerations required (i.e. steep slopes, hydric soils, channels, springs, sinkholes, water supply reservoirs, groundwater recharge areas, etc.)

Yes No N/A

*PROPOSED EROSION & SEDIMENT CONTROL MEASURES* inclusive to the specific erosion and sediment control plan as proposed for the land disturbing activity. Measures should be consistent with those proposed on the site drawings. Address general use, installation, limitations, sequencing and maintenance requirements for each control measure.

*STABILIZATION MEASURES* required for the site, either temporary or permanent, and during and following construction including temporary and permanent seeding and mulching, paving, stone, soil stabilization blankets and matting, sodding, landscaping or special stabilization techniques to be utilized at the site.

*STORMWATER MANAGEMENT CONSIDERATIONS* for the site, either of temporary or permanent nature, and strategies, sequences and measures required for control. May reference the stormwater management plan for the site, if prepared, for permanent stormwater management facilities and control of drainage once the site is stabilized.

**IV. CALCULATIONS:**

Yes No N/A

*CALCULATIONS AND COMPUTATIONS* associated with hydrology, hydraulics and design of proposed temporary and permanent erosion and sediment control measures including: sediment traps and basins, diversions, stormwater conveyance channels, culverts, slope drains, outlet protections, etc. Computations are not required on the construction plan and may be attached in a supplemental erosion and sediment control plan design report, if presented in a clear and organized format.

*TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET* submitted for each basin along with schematic or sketch cross-section showing applicable design and construction data, storage volumes (wet-dry), dimensions and elevations. Peak design runoff to be based on the 2- or 25-year design storm event based on maximum disturbed site conditions (existing, interim or proposed conditions) in accordance with Minimum Standard 3.14 of the VESCH.

**JAMES CITY COUNTY, VIRGINIA  
ENVIRONMENTAL DIVISION**

**STORMWATER MANAGEMENT DESIGN PLAN CHECKLIST**

**I. GENERAL:**

**Yes No N/A**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p><b>FAMILIARITY</b> with current versions of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual; Chapter 8, Erosion and Sediment Control and Chapter 23, Chesapeake Bay Preservation ordinances of the Code of James City County, Virginia; the Virginia Erosion and Sediment Control Handbook (VESCH); and the Virginia Stormwater Management Handbook (VSMH).</p>      |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | <p><b>WAIVER OR EXCEPTION</b> if necessary, requested in writing, for the plan approving authority to waive or except the requirements of Chapter 23, Chesapeake Bay Preservation ordinance in accordance with procedure established in Sections 23-14 through 23-17 of the ordinance. Applies to the review case only.</p>   |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | <p><b>VARIANCE REQUEST</b> if necessary, requested in writing for the plan approving authority to waive or modify any of the minimum standards and specifications of the VESCH deemed inappropriate based on site conditions specific to this review case only. Variances which are approved shall be properly documented in the plan and become part of the approved erosion and sediment control plan for the site.</p> |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p><b>PROFESSIONAL SEAL AND SIGNATURE</b> required on final and complete approved stormwater management plans, drawings, technical reports and specifications.</p>  |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | <p><b>WORKSHEET FOR BMP POINT SYSTEM</b> to ensure the stormwater management plan for the project attains at least 10 BMP points (New Development) or traditional pollutant load reduction computations per the Chesapeake Bay Local Assistance Manual (Redevelopment Only)</p>   |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | <p><b>PROPOSED CONSERVATION EASEMENT AREAS</b> for any natural open space points claimed in the BMP worksheet.</p>  |
| <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | <p><b>INSPECTION/MAINTENANCE AGREEMENT</b> is required to be prepared and executed with the County for the project.</p>   |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p><b>FEMA FIRM PANEL</b> reference with designated special flood hazard areas or zone designations associated with the site, as applicable.</p>  |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p><b>DRAINAGE AREA MAP</b> at a maximum scale of 1"=200' scale showing drainage area boundaries for pre- and postdevelopment conditions and associated time of concentration flow paths. Labels to include drainage area size, runoff coefficient or curve number and time of concentration for each subarea shown on the map.</p>   |

Yes No N/A

**SOILS MAP** with soil symbols, boundaries and legend in accordance with the current Soil Survey of James City and York Counties and the City of Williamsburg, Virginia with approximate locations of the project site, BMPs and applicable drainage basins.

**STORMWATER MANAGEMENT NARRATIVE** in a brief and simple format which describes the project; location; site and drainage basin soil characteristics; receiving water or drainage facility; existing site and drainage basin conditions (topography, land use, cover, slopes, etc.); proposed site development; proposed stormwater management and drainage plan including County BMP type selected; summary of hydrology and hydraulics; maintenance program; and any special assumptions utilized for development of the stormwater management and drainage design plan or computations.

**TEMPORARY STORMWATER MANAGEMENT** (if applicable) for control of stormwater runoff encountered during construction activities in addition to measures provided in the erosion and sediment control plan or stormwater management/drainage plan for the site. Adequate protection measures or sequencing provided.

**MODIFICATION PLAN** clearly defined for temporary sediment control structures which will be converted to permanent SWM/BMP structures. Includes appropriate hydrologic and hydraulic computations, conversions, sequencing and cleanout information or details. Normally related to primary control structures associated with dry detention or wet retention ponds. Normally not permitted for Group C or D categories such as bioretention, infiltration and filtering system facilities.

**STORMWATER MANAGEMENT and DRAINAGE DESIGN REPORT** in a bound 8-1/2 x 11 inch size format. Report shall generally include a title sheet, date, project identification, owner and preparer information, table of contents, narrative, summaries and computations as required. Computations may include: backwater, closed conduit, headwater, hydraulic, hydraulic grade line, hydrology, inlet, open channel, storm sewer, water quality, extended detention or stream channel protection and multi-stage storm routing calculations, as applicable, for the project. Computation data may include hand or computer generated computations, maps or schematics. All information should be presented in a clear, easy to follow format and should closely match construction plan information.

**PLAN VIEW** at 1 inch = 50 ft. scale or less (1" = 40', 1" = 30', etc.)

North arrow and plan legend.

Property lines.

Adjacent property information.

Existing site features and existing impervious cover areas.

Impervious cover tabulations.

Existing drainage facilities (natural or manmade)

Existing environmentally sensitive areas (RPA, wetlands, floodplain, steep slopes, critical soils, buffers, etc.)

Existing and proposed contours (1' or 2' contour interval) and spot elevations as necessary to define high and low topography.

Existing and proposed easement locations.

Yes	No	N/A	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proposed site improvements and proposed impervious cover areas.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proposed stormwater conveyance, drainage and management facilities with appropriate labeled construction data and information.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proposed landscaping and seeding plans (disturbed areas, pond interior, etc.)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proposed slope stabilization areas (riprap, blankets, mattings, walls, etc.)
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Delineation of permanent pools and the 1-, 2-, 10- and 100-year Design Water Surface Elevations.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Delineation of ponding, headwater, surcharge or backwater areas which may affect adjacent existing or proposed buildings, structures or upstream adjacent properties.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Test boring locations with reference surface elevations (if known).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Risers, barrels, underdrains, overflows and outlet protections.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Emergency spillway level section and outlet channel.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Existing and proposed site utilities and protection measures.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Erosion and sediment control measures (for site or BMP).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Maintenance or access corridors to permanent stormwater management, BMP or drainage facilities.

**II. STORMWATER CONVEYANCE SYSTEMS:**

Yes No N/A

**PLAN VIEWS**

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Storm drain lengths, sizes, types, classes and slopes for all segments. Label directly on plan or use structure/pipe schedule.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Access structure (inlets, manholes, junctions, etc.) rim elevations, inverts, type and required grate or top unit and lengths labeled.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	All structure numbers labeled.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Adequate horizontal clearance from other site utilities or structures.

**PROFILES** generally are not required but are encouraged to expedite review. If not provided, ensure all pipe segments have adequate minimum cover, do not exceed maximum depths of cover for the type/class of pipe specified and do not conflict with other site utilities or excavation areas.

**DETAILS**

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Typical storm drain bedding details or reference note.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Standard details or reference note for all proposed access structure types (inlets, manholes, junctions, etc.).
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Inlet shaping detail or applicable reference note.
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Step detail or applicable reference note (if depth 4 ft. or more).
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Typical open channel details with designation, location, shape, type, bottom width, top width, lining, slope, length, side slope, and installation depth required for construction. Channel design data as necessary may also be included.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Outlet protections at all pipe outfalls.

Yes No N/A

**STORMWATER CONVEYANCE SYSTEM COMPUTATIONS**

- Storm Sewer Design computations based on 10-year design event.
- Hydraulic Grade Line computations based on 10-year design event.
- Inlet computations based on current VDOT procedure for spread, ponding depth and grate size required.
- Culvert Headwater computations. Design based on 10-year design storm event and check only for 100-year storm event.
- Open Channel computations based on 2-year design event for velocity and 10-year design event for capacity.
- Standard outlet protection or special energy dissipators.
- Pipe thickness design computations, as required, for selected pipe type (live load, minimum cover, maximum height of cover, etc.).
- Adequate channel computations for receiving channels (based on field measured channel section data).

**III. STORMWATER MANAGEMENT/BMP FACILITIES:**

Yes No N/A

**HYDROLOGY** – An SCS based methodology is required for the design of stormwater management/BMP facilities with watersheds exceeding 20 acres. Under 20 acres, other generally accepted methodologies such as the modified rational, critical storm are allowable. Refer to Chapter 5 of the VESCH or Chapter 5 of the VSMH.

- Runoff Curve Number or Coefficient determinations: predeveloped and ultimate development land use scenarios.
- Time of concentration: predeveloped and ultimate development indicating overland, shallow concentrated, and channel flow components (200 ft. maximum length for overland flow).
- Hydrograph generation (tabular or graphical): pre- and postdevelopment conditions for the 1-, 2-, 10- and 100-year design storm events.

**FACILITY CONFIGURATION and MINIMUM SEPARATIONS**

- Screening and layout consistent with Section 24-98(d) of the Chapter 24 Zoning ordinance (landscaping, screening, visibility, etc.).
- Basic considerations for safety and unauthorized entry.
- Proper length to width ratio (Typically 2H:1V).
- Facilities with deep pools (4 feet or more in depth) provided with two benches. Fifteen (15) ft. safety bench outward from normal pool at maximum 6 percent slope and aquatic bench inward from normal shoreline below normal pool. Narrower widths may be considered on a case-by-case basis.
- Pond buffer minimum 25 feet outward from maximum design WSEL. Additional setbacks may be required to permanent structures.
- No trees, shrubs or woody plants within 15 feet of embankment toe or 25 feet from principal spillway structure.
- Infiltration and filtering system facilities generally located at least 100 feet horizontally from any water supply well; 100 feet from any downslope building; and 25 feet from any upslope buildings, unless site specific investigation allows for reduced separation.

Yes No N/A

**HYDRAULIC COMPUTATIONS**

- Elevation- or Stage-Storage curve and/or tabular data.
- Weir / Orifice Control – Extended Detention.
- Weir / Orifice Control – riser 1-year control for channel protection.
- Weir / Orifice Control – riser 2-year control for quantity (if required).
- Weir / Orifice Control – riser 10-year control for quantity (if required).
- Inlet / Outlet (barrel) control – (All Storms).
- Check for barrel control prior to riser orifice flow to prevent slug flow-water hammer conditions.
- Emergency spillway capacity and depth of flow.
- Elevation – Discharge (Outlet Rating) curve and/or table. Provide all supporting calculations and/or design assumptions.
- Adequate channel computations for receiving channel. May be waived if facility is designed based on current Stream Channel Protection criteria.

**POND or RESERVOIR ROUTING**

- Storage-Indication Routing of postdeveloped inflow hydrographs for the 1-, 2-, 10-, and 100-year design storms. Preference is for structure to discharge up to the 10-year storm through the principal spillway and pass the 100-year storm with a minimum 1 foot of freeboard through a combination principal and emergency spillways. If no emergency spillway is provided, riser must be large enough to pass the design high water flow and trash without overtopping the facility, have 3 square feet or more of cross-sectional area, contain a hood type inlet and have a minimum freeboard of 2 feet. Token spillways with minimum 8 ft. width are also recommended at or above the design 100-year storm elevation.
- Downstream hydrographs at established study points, if conditions warrant (i.e. facility discharge combined with uncontrolled bypass).

**MISCELLANEOUS COMPUTATIONS**

- Water quality volume for permanent pool based on selected BMP treatment volume (WQv).
- Water quality volume for extended detention base on selected BMP treatment volume (WQv) with drawdown computations.
- Drawdown computations for the 1-year, 24 hour detention for stream channel protection criteria.
- Pond drain computations (within 24 hours).
- Anti-seep collar design (concrete preferred) or match material type.
- Filter diaphragm design (or alternative method of controlling seepage).
- Riser / base structure flotation analyses. FS = 1.25 minimum.
- Downstream danger reach study and/or emergency action plan (if conditions warrant).
- Upstream backwater analyses onto offsite adjacent property (if conditions warrant).
- 100 year floodplain impacts (if conditions warrant).

Yes No N/A

**GEOTECHNICAL REQUIREMENTS**

- Geotechnical Report with recommendations specific to BMP facility type selected. Report prepared by a registered professional engineer. Requires submission, review and approval prior to issuance of Land Disturbance Permit.
- Initial Feasibility Testing requirements satisfied as per Appendix E of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual. (Infiltration, Bioretention and Filtering System BMP types only).
- Concept Design Testing requirements satisfied as per Appendix E of the James City County Guidelines for Design and Construction of Stormwater Management BMPs manual. (Infiltration, Bioretention and Filtering System BMP types only).
- Minimum Boring locations: borrow area, pool area, principal control structure, top of facility near one abutment and emergency spillway if provided.
- Boring logs with Unified Soil Classification (ASTM D2487), soils descriptions and depths to bedrock and the seasonal water table indicated.
- Standard County Record Drawing/Construction Certification note provided on plan. *Note: It is understood that preparation of record drawings and construction certifications as required for project facilities may not necessarily be performed by the plan preparer. These components may be performed by others.*

**PRINCIPAL SPILLWAY PROFILE AND ASSOCIATED DETAILS**

- EXISTING GROUND AND PROPOSED GRADE**
- Embankment or excavation side slopes labeled (3H:1V maximum).
- Minimum top width labeled (per VESCH or VSMH requirements).
- Removal of unsuitable material under proposed facility (per Geotechnical Report requirements).

Yes No N/A

**CORE TRENCH**

- Material (per plan or Geotechnical Report).  
   Bottom width (4' minimum or greater as dictated by Geotechnical Report recommendations).  
   Side slopes (1:1 maximum steepness)  
   Depth (4' minimum or greater as dictated by Geotechnical Report).

**PRINCIPAL CONTROL STRUCTURE. RISER OR SIMILAR STRUCTURE (DETAILS REQUIRED FOR ALL ITEMS)**

- Durable, watertight, resistant material (concrete preferred).  
   Riser diameter is at least 1.25 times larger than barrel diameter.  
   All pertinent dimensions and elevations shown.  
   Control orifice or weir dimensions and elevations shown.  
   Trash rack – removable – for each release.  
   Anti-vortex device, baffle or plate.  
   Riser base structure with dimensions and embedment specifications (concrete preferred).  
   Interior access (steps, ladders, etc.) for maintenance for structures over 4 feet in height. Excessively high risers may need some form of exterior access on top portion.  
   Low flow orifice with trash rack device.

**PRINCIPAL CONTROL STRUCTURE OUTLET BARREL**

- Material (ASTM C-361 reinforced concrete pipe) with watertight joints. Prior approval required for all other pipe material (other RCP types, CMP, CPP, PVC, etc.).  
   Support and bedding requirements for barrel – concrete cradles, etc. or as recommended by the Geotechnical Report.  
   Pipe inverts, length, size, class and slope shown.  
   Flared end section or endwall provided on barrel outlet.

**SEEPAGE CONTROL**

- Phreatic line shown (4:1 slope measured from the intersection of the embankment and the principal spillway design high water).

**ANTI-SEEP COLLARS**

- Anti-seep collar, concrete preferred.  
   Size – 15 percent increase in length of saturation using outside pipe diameter.  
   Spacing and location on barrel (located at least 2 feet from a pipe joint).

**FILTER DIAPHRAGMS**

- Design based on latest NRCS design methods and certified by a professional engineer.

Yes No N/A

***ELEVATION AND DIMENSIONAL DESIGN DATA***

- Top of facility – construction height and settled height (10 percent settlement).
- Crest of principal control structure spillway at least one (1) foot below crest of emergency spillway, if provided.
- Minimum freeboard of one (1) foot above the 100-year design high water elevation for facilities with an emergency spillway.
- Minimum freeboard of two (2) feet above the 100-year design high water elevation for facilities without an emergency spillway or in accordance with the SCS National Engineering Handbook (prior approval required).
- Basin Sediment Clean-Out elevation (permanent mode). Typically 10 to 25 percent of water quality volume.

***CROSS SECTION THROUGH FACILITY***

- Existing Ground.
- Proposed grade.
- Top of facility – constructed and settled.
- Location of emergency spillway with side slopes labeled (emergency spillway in cut).
- Bottom of core trench (4' minimum).
- Location of each soil boring.
- Barrel location.
- Existing and proposed utility location/protection.

***EMERGENCY SPILLWAY PROFILE***

- Existing ground.
- Inlet, level (control) and outlet sections per SCS.
- Spillway and crest elevations.

***PRETREATMENT DEVICES*** of adequate depth and properly designed using required pretreatment volumes for the selected County BMP facility type. Including, but not limited to: sediment forebays, sediment basins, sumps, grass channels, gravel diaphragms, plunge pools, chamber separators, manufactured systems or other acceptable methods.

Yes No N/A

**CONSTRUCTION SPECIFICATIONS and NOTES**

- Anticipated sequence of construction for BMP (consistent with erosion and sediment control plan).
- Provisions to control base stream or storm flow conditions encountered during construction.
- Site and subgrade preparation requirements.
- Embankment, fill and backfill material soil and placement (lift) thickness requirements.
- Compaction and soil moisture content requirements.
- Geosynthetics for drainage, filtration, moisture barrier, separation, and reinforcement purposes.
- Clay or synthetic (PVC or HDPE) pond liners.
- Storm drain, underdrain and pipe conduit requirements.
- Minimum depth of pipe cover for temporary (construction) and final cover conditions.
- Permanent shutoff valve and pond drain.
- Concrete requirements for structural components.
- Riprap and slope protection.
- Access or maintenance road surface, base, subbase.
- Temporary and permanent stabilization measures.
- Temporary or permanent safety fencing.
- BMP Landscaping (deep, shallow, fringe, perimeter, etc.)
- Dust and traffic control (if warranted).
- Construction monitoring and certification by professional.
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

**MAINTENANCE PROVISIONS**

- Entity responsible for maintenance identified.
- Maintenance Plan which outlines the long-term schedule for inspection/maintenance of the facility and forebays.
- Maintenance access from public right-of-way or publicly traveled road.
- Maintenance easement provided encompassing high water pool and buffer, principal and emergency spillways, outlet structures, forebays, embankment area and possible sediment-removal stockpile areas.
- Minimum 6 foot wide public safety shelf (landing) or alternative fencing.

**IV. OUTLET PROTECTIONS:**

Yes	No	N/A	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sized for maximum design release (generally 10-year storm).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Flared end section or endwall.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Dimensions.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Rock or riprap size, quantity and placement thickness.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Slope at 0 percent (Level Grade).
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Geotextiles (nonwoven).
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Special energy dissipators are required for design discharge velocities that exceed eighteen (18) feet per second; or if use of standard outlet protection would result in velocities exceeding permissible channel velocities; or if space restricts or limits their use.

**IV. ADDITIONAL COMMENTS OR INFORMATION SPECIFIC TO THE PLAN:**

Plan Preparer: BMC

Date: 2/10/10

Copy of JCC: SWMProg/BMP/Checklist/ChkList



# Weir Report

Hydraflow Express by Intelisolve

Tuesday, Feb 9 2010, 4:52 PM

*0.4 ACRES*

## Stormwater Cascade #2

### Rectangular Weir

Crest = Sharp  
 Bottom Length (ft) = 3.00  
 Total Depth (ft) = 0.50

### Calculations

Weir Coeff.  $C_w$  = 3.33  
 Compute by: Known Q  
 Known Q (cfs) = 1.44

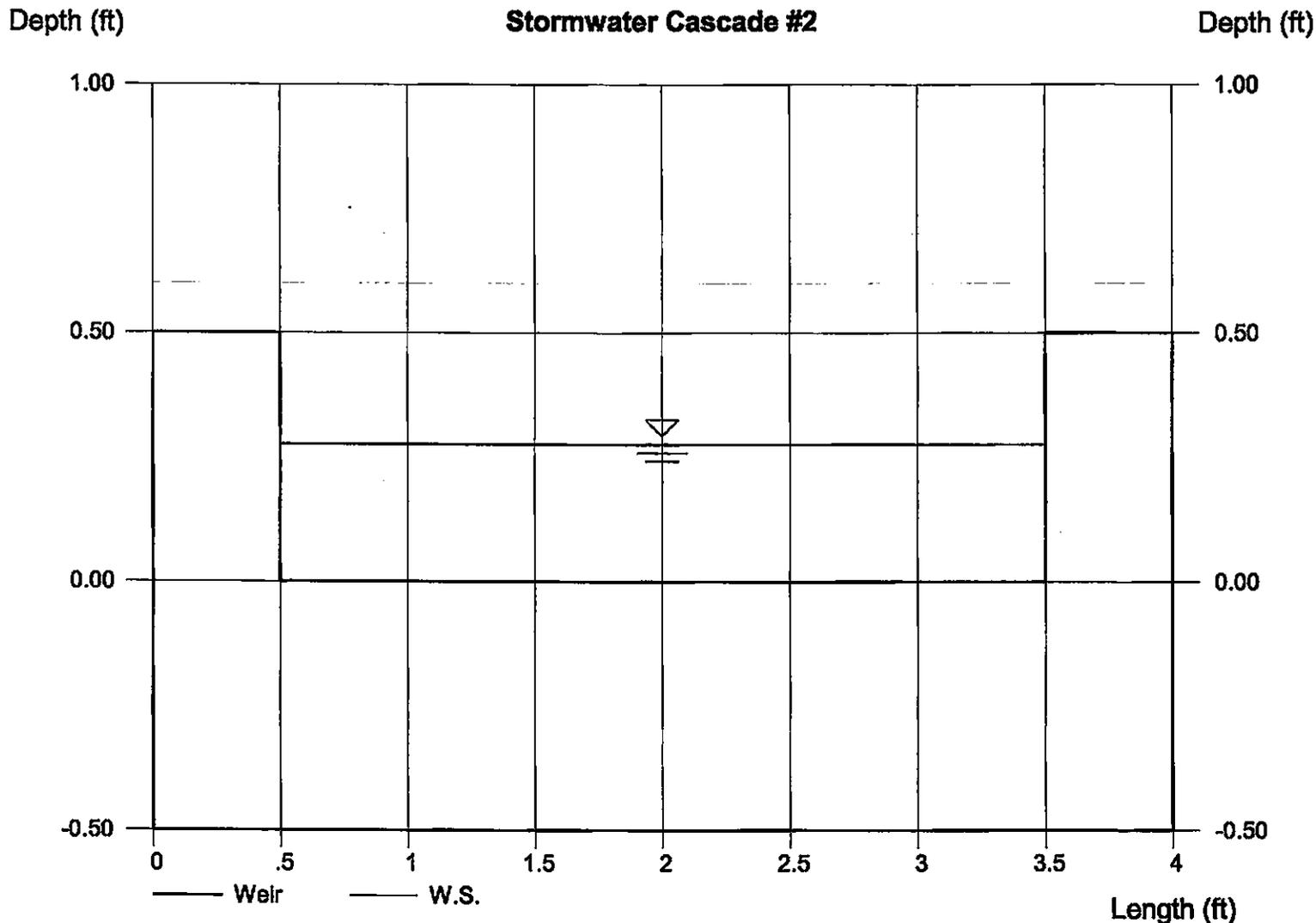
### Highlighted

Depth (ft) = 0.27  
 Q (cfs) = 1.440  
 Area (sqft) = 0.82  
 Velocity (ft/s) = 1.75  
 Top Width (ft) = 3.00

$$Q_{10} = C C_{10} A$$

$$Q_{10} = (0.6)(6)(0.4)$$

$$Q_{10} = 1.44 \text{ cfs}$$



# Culvert Report

Hydraflow Express by Intellisolve

Friday, Feb 5 2010, 8:25 AM

## Chickahominy Riverfront Park - Culvert

Invert Elev Dn (ft) = 13.40  
 Pipe Length (ft) = 40.10  
 Slope (%) = 2.99  
 Invert Elev Up (ft) = 14.60  
 Rise (in) = 15.0  
 Shape = Cir  
 Span (in) = 15.0  
 No. Barrels = 1  
 n-Value = 0.014  
 Inlet Edge = Projecting  
 Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.5

### Embankment

Top Elevation (ft) = 16.50  
 Top Width (ft) = 12.00  
 Crest Width (ft) = 40.00

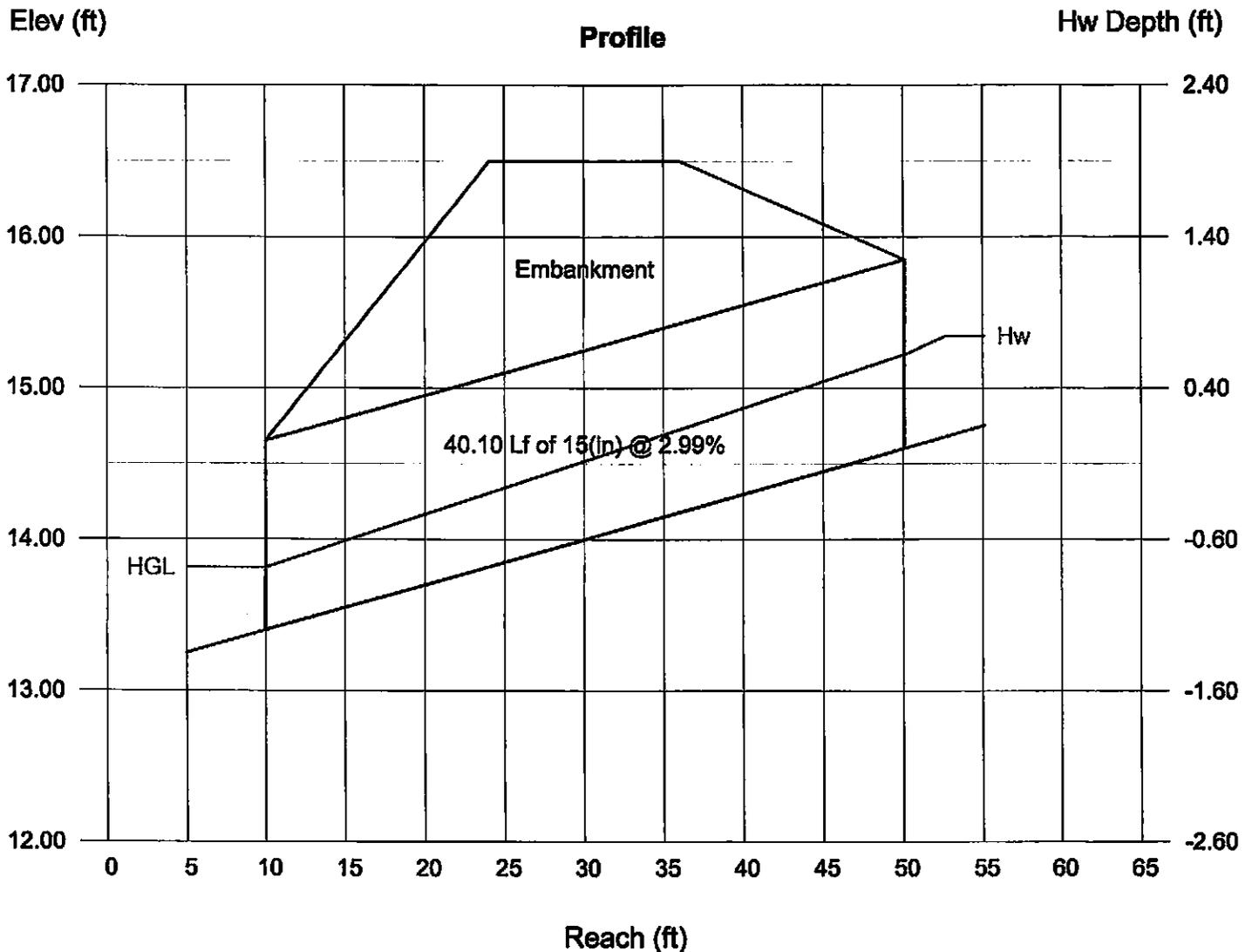
$Q = C \cdot A$   
 $Q = (0.5)(6 \text{ in/hr})(0.80 \text{ AC})$   
 $Q = 2.4 \text{ cfs}$

### Calculations

Qmin (cfs) = 2.40  
 Qmax (cfs) = 2.40  
 Tailwater Elev (ft) = Critical

### Highlighted

Qtotal (cfs) = 2.40  
 Qpipe (cfs) = 2.40  
 Qovertop (cfs) = 0.00  
 Veloc Dn (ft/s) = 6.78  
 Veloc Up (ft/s) = 3.95  
 HGL Dn (ft) = 13.81  
 HGL Up (ft) = 15.22  
 Hw Elev (ft) = 15.34  
 Hw/D (ft) = 0.59  
 Flow Regime = Outlet Control



**POOR  
QUALITY**

**ORIGINAL(S) FOLLOW**

**THIS IS THE BEST COPY  
AVAILABLE**

***VCE  
DOCUMENT  
CONVERSION***



**TRANSMITTAL SHEET**  
**ENGINEERING & RESOURCE PROTECTION → STORMWATER**

Project: JCC - Chickahominy Riverfront Park RV Loop

County Plan No. SP-09-10

Assigned BMP No.: GC 018

BMP Type: Energy Dissipator - G3 O.S. all other

Information Enclosed:

- Record Drawings (Asbuilts)
- Construction Certification
- Computations

\* Other: Recreated record file as per recent correspondence.  
See note in MS Access Database. Not a  
true BMP, but condition of steep slope warmer  
and Ches Bay Exception. Should be put on  
the municipal BMP list for inspects.  
Did not need a RO/CC.

Name: Scott J. Thomas

Date: 4/23/2

Signature: *Scott J. Thomas*

JAMES CITY COUNTY ENVIRONMENTAL DIVISION

Surety Tracking Sheet

Date: 12/9/2011

Due Date: \_\_\_\_\_

Project Name: JCC Chickahominy Riverfront Park LV Loop Improvement

Requested By: \_\_\_\_\_ Phone #: \_\_\_\_\_

Date Notified: \_\_\_\_\_ Case Number: SP-009-10

Siltation Surety: Original \$ 48,500.00 Current \$ 48,500.00 Needed \$ 0

\*maximum reduction of 80% of original bond amount unless project is to be released

- Calculate Evaluate/Reduce Release

Work to be completed for SILTATION Surety

- Stabilization of all disturbed areas
Removal of temporary erosion control measures
Submission of as-built drawings for stormwater management facility
Submission of construction certification for the stormwater management facility
Completion of field-related BMP items
Other -

Comments- Project completed on to close project as

Subdivision Surety: Original \$ \_\_\_\_\_ Current \$ \_\_\_\_\_

\*maximum reduction of 80% of original bond amount

- Calculate Evaluate/Reduce

Work to be completed for SUBDIVISION Surety

- Paving of streets
Dedication of streets to Virginia Dept of Transportation
Completion of water and sewer systems
Completion of water and sewer punchlist items
Submission of as-built drawings for water and sewer systems
Installation of street lights and street signs
Other -
Comments-

I am ok with release. Greg can you get me 1 or 2 photos of the outfall step down structure for my powerpoints. THANKS Scott

INDICATE YOUR APPROVAL BY INITIALING THE APPROPRIATE BLANK:

INSP SUPV ENG WTSHD PLNR ENV DIR 12/21/11 RELEASE PROJECT

## Scott Thomas

---

**From:** Fran Geissler  
**Sent:** Monday, April 09, 2012 10:48 AM  
**To:** Scott Thomas  
**Subject:** RE: Evaluation of BMP Files

Scott: Based on your email, I am to understand that when a file comes over to Stormwater it is the best condition possible, regardless of whether the ERP checklist is completed or not. We both understand that there are times when files will be missing items or data from one BMP will be combined with another due to the way they were permitted, designed, built, etc. What we in Stormwater don't know is the reason information is missing or located elsewhere. When we get a file that appears to not have been through your own QA procedures, it makes us wonder whether something got missed (or why have QA procedures).

I understand from our discussions that your folks feel that Stormwater staff do not have the history of projects and they are correct. What we would like in a file is an explanation for why a file is missing info or why a particular decision was made or even that a decision was made. Often what was constructed does not match the approved plan – was the change an oversight, *did field conditions require a modification?*

So the issue probably isn't the signatures on the ERP QA checklist. The issue is making sure that the next person who picks up the file – whether it is a consultant or another County employee – is able to understand what they should find on the ground and why. This would include any modifications from approved plans and any design calculations and investigations.

Items 9 and 10 on the Stormwater table of contents refer Stormwater Div inspections and enforcement actions – not ERP...☺ That said, inspection reports for the **stormwater system**, as opposed to the erosion and sediment control reports, **do have bearing on the future functioning of the system** and may be needed to assure the public that County staff were on top of a problem.

Please remember that today's staff won't always be here - these files are for everyone going forward: ERP staff, Stormwater staff, consultants, residents, management companies, etc.

So maybe we need to talk about these issues some more. Thanks for looking through these files for us.

---

**From:** Scott Thomas  
**Sent:** Friday, April 06, 2012 3:23 PM  
**To:** Fran Geissler  
**Subject:** Evaluation of BMP Files

On February 17 while at the Powhatan Creek Flood study meeting, several files record drawing files which were processed by our Division to STW were given back to me citing incomplete status. These files included:

WC080 Stonehouse Sec 5A Lisburn S-27-02  
WC079 Stonehouse Sec 5A Lisburn S-27-02  
YC058 Williamsburg Wicker Expansion SP-74-08  
GC018 JCC Chickahominy Riverfront Park RV Loop SP-9-10  
PC241 WindsorMeade Villas SP-3-04  
PC240 WindsorMeade Villas SP-3-04  
Storm Only – Zaxby's Restaurant SP-98-09

I instructed engineering and assigned inspection staff take another look at these files to determine their adequacy for turn over to postconstruction stormwater management (asbuilt) status. The results of their own analyses was given to me for my own look and concurrence. Based on our review, we found the following:

WC080 - Only missing sign-off by chief engineer on ERP tracking form.

WC079 - Only missing sign-off by chief engineer on ERP tracking form.

YC058 - Only missing sign-off by chief engineer on ERP tracking form.

GC018 – This BMP had a transmittal only, no file returned to us. The stormwater cascade structures for the Chickahominy RV Loop project were a condition of a Chesapeake Bay Exception, not primary stormwater treatment. However, the decision was made that the structures should be listed on the municipal BMP inventory so that they are inspected on a routine basis. Our Division insist a file was created, I even recall it myself too. Also, a very detailed note was placed on the MS Access database in the “Additional Comments” explaining the thinking on this BMP #. We will recreate another file and transfer it to STW. There were no asbuilt or construction certification requirements for these structures.

PC241 – Missing geotechnical design report and sign-off by chief engineer on ERP tracking form. Based on review of project comments, a geotechnical report was asked for on the Villas project, comment # 50 (02/13/04). The engineer responded that the geotechnical report for the Villas was included in another project, WindsorMeade Way Entrance Road, SP-93-03. Therefore, there was no separate geotechnical report for BMPs specific to this project. Further, the geotechnical report under SP-93-03 is not on electronic records but may be in our files which go to Richmond which are likely destroyed by now. Therefore, there was no ability to provide copy of the design geotechnical report. However, we have put copies of our 02/13/04 comments and the engineers response in the record file to show the geotechnical requirement for the BMPs was satisfied.

PC240 – same as above, PC241

Storm Only (Zaxby's) - Only missing sign-off by chief engineer on ERP tracking form. This is a storm system only, but was subject to inspection during construction by the May 2008 ordinance and because of the date of LDP (04/15/10) it fell to ERP by the pilot program within the second 6-month extension. A decision on what to do with the “storm only” type plans was made after this file was forwarded to STW. The file appears to be complete for this type of record and should go into the general Williamsburg Crossing file or if there is none, then downstream BMP MC038.

#### Summary/Remarks

Except for the few minor deficiencies as noted, it appears the main reason the files were returned was solely due to the fact that the chief engineer did not sign-off on our Division's tracking form. It should be noted that this tracking form is a QA/QC type process document that is internal to our Division's use and should not be interpreted with a if not signed, should not accept position. Yes, in our certification training we have instructed Division staff to utilize the form, as it is helpful to keep track of all the items needed in a record file, and should for some reason an item is not included, then when it is received you can recall the status of the review. Further, we have addressed this situation to ensure this is done in the future. However, even without the signed internal form, the Stormwater Division should feel rest assured that when a file is physically transmitted over, that procedurally - to the best extent practical and based on information availability – the proper amount of effort was put into the file to create an adequate record (of information available) for the postconstruction stormwater management MS4 permit requirements. This without even the need for our own tracking form.

Both Divisions have come a long way in establishing protocol and providing adequate information to create record files. Should an MS4 audit occur, I feel quite comfortable that our BMP record files exceed the minimum expectations from DCR or EPA. Further, each project is not going to be perfect in having every bit of information by the book. Each project may have it's own quirks and there must be some flexibility in making judgment that if each and every item is not

included then the file is deemed to be in "incomplete" status. The WindsorMeade examples above show that perhaps that information is not readily available to put to record, but it does not mean that those requirements were not satisfied. Being involved in the certification program myself for many years, I surely know that when these are processed you do the best you can to create a record file and some of the older projects are even more difficult and sometimes it is even easy to forget to make a copy. One of the fall-backs we do have now is the JCC-Land Records which now electronically has some of the information should the record files have an omission.

Lastly, I have discussed with staff and concur that Items # 9 and # 10 from the STW process checklist on the inside cover of record files "Order of Contents for Stormwater Management Facilities As-built files" should not be a procedure binding on our Division. The construction phase records, unless specific to the assigned BMP #, are irrelevant to the postconstruction stormwater management file. These records are available in our Division's records and would mainly pertain to onsite erosion and sediment control issues during construction and would have no bearing on a BMP inventory check. Our staff will use their discretion in the creation of the record file to put any construction inspections or correspondences that are relative to the BMP at hand. As an example, an inspection report or notice to comply for an inadequate maintained silt fence or construction entrance would have no bearing on the BMP record file and will only create more hard copy and electronic filing space problems.

I will return all the files back to STW with the exception of GC018 which we will create another makeshift file. Once that is done I will forward over. Please review and let me know if you have any questions or comments. Thanks.

*Please note that County e-mail addresses have changed.*

*Please use: [Scott.Thomas@jamescitycountyva.gov](mailto:Scott.Thomas@jamescitycountyva.gov) for all future correspondence*

Scott J. Thomas  
Director of Engineering and Resource Protection



101-E Mounts Bay Road  
Williamsburg, VA 23185  
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[jamescitycountyva.gov](http://jamescitycountyva.gov)

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Scott J. Thomas  
Director of Engineering and Resource Protection



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## CHESAPEAKE BAY ACT - RPA EXCEPTIONS

CBE-	10-067	Get Last CBE#	DATE REC'	03/03/10	FISCAL YEAR	2010
LAST NAME OR AGENT'S COMPANY			FIRST NAME OR AGENT'S NAME			
JAMES CITY COUNTY			AES			
PHONE	HOUSE #	STREET			SP OR LINE #	
	1350	JOHN TYLER HIGHWAY			SP-009-10	
SUBDIVISION		PROJECT (NON-SF ONLY)			CBB HEARING	
		CHICKAHOMINY RIVERFRONT PARK - RV LOOP RENO				
EXCEPTION DESC		PARCEL ID #	MITTAGION PLAN RE		AREA OR INITS	
RPA/CAMPSITES & TIMBER WALLS		3430100002	\$ FEE PAID:		MDW	
ACTION		SURETY TYPE		SURETY #		SURETY AMOUNT
GRANTED						\$0
ACTION DATE		SURETY COMPANY		SURETY EXP DATE		
03/29/2010						
EXPIRATION DATE		SURETY COMMENT/RELEASE DATE		RELEASED		
02/16/2012				<input type="checkbox"/>		
IMPERVIOUS SQFT	RPA DATE (8/6/90 OR 1/1/04)	INSPECTION DATE	RELEASED	RELEASE DATE		
			<input checked="" type="checkbox"/>	12/21/2011		
COMMENT	CBS-10-024 3/28/11 - Still Active 12/21/11 Project released					

Environmental Division

MAR 25 2010

# Water Quality Impact Assessment

RECEIVED

*For*

# Chickahominy Riverfront Park – RV Loop Renovations

*Prepared for*

James City County

APPROVED

APPROVED

CBE-10-067  
SP-09-10

March 2010

AES Project Number 9801-E-21

**I. Introduction**

Chickahominy Riverfront Park is an existing James City County park consisting of approximately 140 acres and is currently zoned as Public Lands (PL) district with a Special Use Permit (JCC Case #SUP-0014-2009), which was approved on November 10, 2009. The park is located along John Tyler Highway (Route 5), close to the Judith Dresser Bridge crossing the Chickahominy River. The park is bordered by the Chickahominy River and Gordon Creek and currently has such amenities as a boat ramp, campground with RV spaces, fishing pier, picnic shelter, two swimming pools, and a playground.

The RV Loop Renovations plan is the first phase of the park's redevelopment. This redevelopment is located along the banks of Gordon Creek to the east of the boat ramp in the area of the existing RV campsites. The existing campsites in this area are being renovated to provide more useable campsites. There will be a total of 39 renovated campsites. These 39 campsites will replace 45 existing campsites for a net reduction in the total number of campsites. During this phase of redevelopment new utility connections will be installed throughout the redeveloped area along with improvements to the road system. Existing electric and water lines in these areas are deteriorated and in need of replacement. Existing sewer lines have already been abandoned due to the high number of repairs required. The proposed improvements will provide better access and full service connections for users and increase the revenue generating capabilities of the park. A portion of the camp ground is in the RPA. Included in the redevelopment are two timber wall cascade structures which are intended to convey storm water from the top of the steep slopes along Gordon Creek, to prevent erosion. These timber wall cascade structures are located in the RPA. This site is located in the Gordon Creek Watershed.

In accordance with Chapter 23 Section 23-11 of the James City County Ordinance, a minor water quality impact assessment has been prepared. To facilitate review, the document will follow in part the organization of the James City County Draft Water Quality Impact Assessment Guidelines Section C. All required items of the assessment are listed with the response following.

**II. Minor Water Quality Impact Assessment**

***Location of RPA buffers:***

The locations of the Resource Protection Area is in the Berkeley district of James City County on the banks of Gordon Creek and is shown on the attached display titled "RPA and RMA Impervious Cover Exhibit" dated March 3, 2010.

***Location and nature of the proposed encroachment into the RPA buffers, including limits of clearing or grading; locations of structure, drives and other impervious cover; location of erosion and sediment control measures; location of 25% and steeper slopes; and sewage disposal systems or reserve drainfield sites:***

**Chickahominy Riverfront Park  
Water Quality Impact Assessment  
March 2010**

Seventeen existing campsites are located in the RPA buffer. This existing encroachment is approximately 1.15 ac. Once the renovation of the campsites is complete there will be thirteen campsites in the RPA buffer.

As designed the encroachment areas are approximately 12 and 15 foot clearings to provide a 2' wide and 3' wide timber cascade structure to serve as a low-impact landscaping feature to prevent erosive storm water discharges. The cascade structures have been placed perpendicular to the RPA to provide the smallest impact possible. There is a disturbance to 25% slopes of 750 SF. The total impact to the RPA is 810 SF.

***Type and location of proposed best management practices to mitigate the proposed encroachment:***

There are no structural BMPs planned for this phase of redevelopment. The berms and timber cascade structures are intended to serve as a low-impact landscaping feature to prevent erosive storm water discharges. The reduction in impervious area within the buffer, including the reduction of campsites, is the main mitigation measure.

***Location of existing vegetation onsite; including number and type of trees and other vegetation to be removed in the buffer to accommodate the encroachment:***

The area of the impact is currently wooded with deciduous trees. Tree clearing will be limited to the maximum extent possible.

***Re-vegetation (buffer modifications) plan that supplements the existing buffer vegetation in a manner that provides for pollutant removal, erosion control, infiltration and filtering of runoff;***

The area of impact is permanent. To minimize erosion and prevent degradation of the wetlands the following measures have been used:

- The timber cascade structures are being installed to prevent further erosion of the steep slopes.
- Outlet protection is being installed at the discharge point into the wetlands.
- Landscaping is being planted along the berms which connect to the timber cascade structures.

***Listing of required permits from all applicable agencies necessary to develop this project;***

This project will require at a minimum:

- James City County – Land Disturbance Permit
- DCR – Virginia Stormwater Management Permit (VSMP)

**III. Appendix**

**a. RPA and RMA Impervious Cover Exhibit**

**Development  
Management**

101-A Mounts Bay Road  
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devman@james-city.va.us



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**Environmental Division**

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**Planning and Zoning**

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

March 24, 2010

Mr. Brendon Clisso, PE  
AES Consulting Engineers  
5248 Olde Towne Road, Suite 1  
Williamsburg, Virginia 23188

RE: Water Quality Impact Assessment, Chickahominy Riverfront Park – RV Loop Renovations  
AES Project Number – 9801-E-21  
James City County Plan Numbers: SP-009-10, CBE-10-067

Dear Mr. Clisso:

Staff has reviewed the submitted Water Quality Impact Assessment (WQIA) for the Chickahominy Riverfront Park – RV Loop Renovations. Staff offers the following comments for this WQIA that need to be addressed:

1. The clubhouse has been removed and needs to be included as part of the net reduction of impervious cover within the RPA for this project. Please revise the “existing impervious cover within the 100’ RPA buffer” number accordingly.
2. Please indicate on the map the two interior former gravel connections to the main road to be removed and restored (stabilized).

As the overall project is a net reduction of impervious cover with in the RPA, this exception request may be granted administratively once the above comments have been addressed. Further, the timber wall cascade structures are considered self-mitigating for any impacts these two structures create and may also be granted administrative approval. If there are any questions regarding this issue, please call 253-6823.

Sincerely,

  
Michael D. Woolson, C.L.A.  
Senior Watershed Planner

  
Scott J. Thomas, P.E.  
Environmental Division Director

FEB 11 2010

**RESOLUTION**

RECEIVED

**CASE NO. SUP-0014-2009. CHICKAHOMINY RIVERFRONT PARK -**

**RV LOOP AND MASTER PLAN**

WHEREAS, the Board of Supervisors of James City County has adopted by Ordinance specific land uses that shall be subjected to a Special Use Permit (SUP) process; and

WHEREAS, Mr. Aaron Small of AES Consulting Engineers, on behalf of James City County Parks and Recreation, has applied for an SUP to make improvements to existing facilities at Chickahominy Riverfront Park and to master-plan the entire park property for community recreation; and

WHEREAS, the property is located on land zoned PL, Public Land, and can be further identified as James City County Real Estate Tax Map/Parcel No. 3430100002; and

WHEREAS, the Planning Commission of James City County, following its public hearing on October 7, 2009, recommended approval of this application by a vote of 6-1; and

WHEREAS, the Board of Supervisors of James City County, Virginia, finds this use to be consistent with the 2003 Comprehensive Plan Land Use Map designation for this site.

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of James City County, Virginia, after a public hearing does hereby approve the issuance of SUP No. 0014-2009 as described herein with the following conditions:

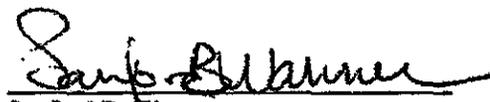
1. **Master Plan.** This SUP shall permit a public community recreation facility and accessory uses thereto, including, but not limited to, tent sites, cabins, recreational vehicle (RV) camping areas, special event areas, docks/piers, swimming facilities, playgrounds, boat launches, rowing facilities, picnic pavilions, camp store, and seasonal concession stands on property located at 1350 John Tyler Highway (the "Property"). Improvements to the site shall generally be located as shown on the document entitled "Figure 4-2: Master Plan-Chickahominy Riverfront Park," (the "Master Plan") prepared by Vanasse, Hangen, and Brustlin, Inc. (VHB) and date-stamped October 14, 2009, with only changes thereto that the Development Review Committee (DRC) determines to be generally consistent with the Master Plan and Shaping Our Shores report.
2. **Soil Studies.** Soil feasibility studies to determine appropriate areas for septic drainfields shall be submitted to the Virginia Department of Health for review and approval prior to final development plan approval for any new development on the Property. Redevelopment plans ("Redevelopment") for the Property shall not be subjected to this requirement. Redevelopment shall include the removal and replacement, renovation, or rehabilitation of existing buildings or facilities that does not increase or change the general shape or location of impervious area or number of tent sites or RV spaces, does not change the existing primary use of an area, and/or

8. **Master Stormwater Management Plan.** A Master Stormwater Management Plan for the Property shall be submitted for review and approval by the County's Environmental Division Director prior to final development plan approval for any new development on the Property. Redevelopment of the Property shall not be subjected to this requirement.
  
9. **Special Stormwater Criteria.** Special Stormwater Criteria (SSC) as adopted by the County in the Powhatan and Yarmouth Creek watersheds shall apply to this project. Low-impact development principles and techniques shall also be used in all development plans to reduce and control impacts associated with any increased storm water runoff. The owner shall demonstrate the application of SSC and low-impact design on all development plans to the satisfaction and approval of the County's Environmental Division Director prior to final development plan approval for any new development on the Property. Redevelopment of the Property shall not be subjected to this requirement.
  
10. **Resource Management Area (RMA) Buffers.** All development plans shall have the RMA buffers delineated in accordance with the Powhatan Creek Watershed Management Plan revision dated October 11, 2006, or any such RMA buffers as outlined in any future Gordon Creek Watershed Management Plan, to the satisfaction and approval of the County's Environmental Division Director prior to final development plan approval for any new development on the Property. Redevelopment of the Property shall not be subjected to this requirement.
  
11. **Severance Clause.** This SUP is not severable. Invalidation of any word, phrase, clause, sentence, or paragraph shall invalidate the remainder.

James G. Kennedy  
 Chairman, Board of Supervisors

SUPERVISOR	VOTE
GOODSON	AYE
JONES	AYE
MCGLENNON	AYE
ICENHOUR	AYE
KENNEDY	AYE

ATTEST:

  
 Sanford B. Wanner  
 Clerk to the Board

Adopted by the Board of Supervisors of James City County, Virginia, this 10th day of November, 2009.

SUP\_0014\_09\_res



5248 Olde Towne Road, Suite 1  
Williamsburg, Virginia 23188  
Phone (757) 253-0040  
Fax (757) 220-8994  
aesva.com

February 10, 2010

Mr. Scott Thomas, P.E.  
James City County Environmental Division  
101-E Mounts Bay Road  
P.O. Box 8784  
Williamsburg, Virginia 23187-8784

**RE: RV Loop Renovations- Chickahominy Riverfront Park  
Exception Request for Disturbance to 25% Slopes  
AES Project No. 9801-E-21**

Dear Mr. Thomas:

In accordance with the Chesapeake Bay Preservation Ordinance, exceptions to the requirements of the Ordinance may be granted provided that:

1. Exceptions to the requirements of the ordinances shall be the minimum necessary afforded relief; and
2. Reasonable and appropriate conditions upon any exception granted shall be imposed as necessary so that the intent and purpose of the Chesapeake Bay Preservation Ordinance is preserved.

The exception formally being requested by this letter is to allow for disturbances to two sections of 25% slopes. This exception request, if granted, will permit disturbances of these slopes for the construction of two Stormwater Cascade Timber Structures which are designed to convey storm water from the top of the steep slopes along the bank in a manner that helps to prevent erosion. The exception request for disturbance of 25% slopes is for the minimum disturbance necessary to complete the improvements to this site. The total disturbance to 25% or greater slopes is 0.02 acres and the areas can be seen on Sheet 02: The Environmental Inventory sheet of the RV Loop Renovations Chickahominy Riverfront Park Plan.

As a requirement to permit disturbance to 25% slopes, reasonable and appropriate conditions shall be provided, or imposed so that the intent of the Chesapeake Bay Preservation Act will be preserved.

It is my sincere request for a favorable response. If you should have any questions or concerns related to this request, please do not hesitate to contact me.

Sincerely,

AES Consulting Engineers

A handwritten signature in black ink, appearing to read 'Brendan Clisso', is written over the printed name.

Brendan Clisso, P.E.  
Project Engineer

S:\Jobs\9801\E-Engineering\21-Chickahominy Riverfront Park RV area\Admin\Reports\Eng\1st Submittal\9801-E-21-SLOPE  
WAIVER.doc

TRANSMITTAL

Environmental Division

DEC 30 2009

RECEIVED

**DATE:** December 29, 2009  
**TO:** Environmental  
Scott Whyte  
**FROM:** Leanne Reidenbach, Senior Planner  
**SUBJECT:** C-0059-2009- Chickahominy Riverfront Park RV Loop Improvements

**ITEMS**

**ATTACHED:** Tree removal plan  
Tree removal narrative

**ACTION:** Please review and return comments by January 11, 2010.

**NOTE:** Currently has an SUP on property- SUP-0014-2009.  
Per condition #7, "Tree clearing on the entire property shall be limited to the minimum necessary to accommodate the proposed recreational uses shown on the Master Plan and related driveways, entrance improvements, and facilities as determined by the Director of Planning or designee and the DRC."

**Tree clearing plan is tentatively scheduled for DRC review on January 27, 2009.**

*Concept plan, as necessary to meet Condition #7 requirements from approved SUP-14-09, is approved by the Environmental Division.*

*Scott Thomas*  
1-14-10

# Chickahominy Riverfront Park RV Loop Renovations

## James City County Parks and Recreation

December 23, 2009

### Tree Removal Narrative

Chickahominy Riverfront Park is an existing James City County park consisting of approximately 140 acres and is currently zoned as Public Lands (PL) district with a Special Use Permit (JCC Case #SUP-0014-2009), which was approved on November 10, 2009. The RV Loop Renovations plan is the first phase of the park's redevelopment. This redevelopment is located along the banks of Gordon Creek to the east of the boat ramp in the area of the existing RV campsites. The existing campsites in this area are being renovated to provide more useable campsites. There will be a total of 39 renovated campsites, which will include 23-40' x 15' RV Spaces, 9-30' x 12' RV spaces, and 7-20' x 20' vehicle parking spaces for tent camping. These 39 campsites will replace 45 existing campsites for a net reduction in the total number of campsites. During this phase of redevelopment new utility connections will be installed throughout the redeveloped area along with improvements to the road system. Existing electric and water lines in these areas are deteriorated and in need of replacement. Existing sewer lines have already been abandoned due to the high number of repairs required. The proposed improvements will provide better access and full service connections for users and increase the revenue generating capabilities of the park.

The park has existing trees throughout the renovation area and the proposed layout has been arranged to avoid the majority of the existing vegetation. Two factors decided which trees were to be removed: A landscape architect's recommendation and a layout designed to maximize the usability of the camp sites while minimizing tree removal. A landscape architect visited the park in early fall and identified trees to be removed based on three criteria: if the trees were dead or diseased, if the trees needed to be thinned out for other trees to have a better opportunity to grow and if the trees were not specimen trees or were damaged trees and their removal would not hinder the remaining trees. This information was used to layout the new camp sites to preserve the maximum amount of healthy trees. Thirteen trees are shown to be removed based on the landscape architect's recommendations and the layout design. A breakdown of each tree to be removed is below:

- Tree 'A' - 16" Holly - Recommended to be removed by Landscape Architect
- Tree 'B' - 6" Holly - Recommended to be removed by Landscape Architect
- Tree 'C' - 18" Oak - Recommended to be removed by Landscape Architect
- Tree 'D' - 18" Oak - Recommended to be removed by Landscape Architect
- Tree 'E' - 24" Oak - Recommended to be removed by Landscape Architect
- Tree 'F' - 16" Twin Oak - Recommended to be removed by Landscape Architect
- Tree 'G' - 6" Hickory - Recommended to be removed by Landscape Architect
- Tree 'H' - 28" Oak - Recommended to be removed by Landscape Architect
- Tree 'I' - 10" Holly - Recommended to be removed by Landscape Architect
- Tree 'J' - 7" Holly - Removed to accommodate the layout
- Tree 'K' - 6" Holly - Removed to accommodate the layout
- Tree 'L' - 16" Oak - Removed to accommodate the layout
- Tree 'M' - 14" Holly - Removed to accommodate the layout

Environmental Division  
DEC 30 2009

RECEIVED

RECEIVED  
DEC 2009  
Planning Department

**Chickahominy Riverfront Park RV Loop Renovations**  
**James City County Parks and Recreation**  
December 1, 2009

Conceptual Plan Narrative

Planning

Chickahominy Riverfront Park is an existing James City County park consisting of approximately 140 acres and is currently zoned as Public Lands (PL) district with a Special Use Permit (JCC Case #SUP-0014-2009), which was approved on November 10, 2009. The park is located along John Tyler Highway (Route 5), close to the Judith Dresser Bridge crossing the Chickahominy River. The park is bordered by the Chickahominy River and Gordon Creek and currently has such amenities as a boat ramp, campground with RV spaces, fishing pier, picnic shelter, two swimming pools, and a playground. The park is located outside of the Primary Service Area (PSA) and as such does not have public water or sanitary sewer. Water service is currently provided through a 4" water main from a single well which serves the entire park. Sanitary sewer service is currently provided through the use of multiple septic tanks and drainfields scattered throughout the park.

The RV Loop Renovations plan is the first phase of the park's redevelopment. This redevelopment is located along the banks of Gordon Creek to the east of the boat ramp in the area of the existing RV campsites. The existing campsites in this area are being renovated to provide more useable campsites. There will be a total of 39 renovated campsites, which will include 24-40' x 15' RV Spaces, 9-30' x 12' RV spaces, and 6-20' x 20' car parking for tent camping spaces. These 39 campsites will replace 45 existing campsites for a net reduction in the total number of campsites. During this phase of redevelopment new utility connections will be installed throughout the redeveloped area along with improvements to the road system. Existing electric and water lines in these areas are deteriorated and in need of replacement. Existing sewer lines have already been abandoned due to the high number of repairs required. The proposed improvements will provide better access and full service connections for users and increase the revenue generating capabilities of the park.

VDH, Code Compliance

New water lines will connect to the existing 4-inch water line which is served by an existing well. The water lines will be run to provide water service to each campsite. No improvements are proposed to the existing water main or the water supply system.

New sewer laterals, manholes, and sewer mains are planned throughout the project area to provide sewer services. Sewage generated from 17 RV campsites (1,700 gpd) will be collected and conveyed to a new septic tank (~3,500 gallon) at the west end of the project. Septic tank effluent will then flow into a pumping chamber (~2,500 gallon) to be conveyed, using time dosing, to three existing septic fields. The sewage from the remaining 16 RV camp sites will be conveyed to a separate new septic tank (~3,000 gallons) adjacent to Bath House #2.



Coupled with the bath house flow (a total of ~2,900 gpd) the septic tank effluent will flow to a pump chamber (~4,000 gal) which will time dose two existing septic fields. All of the fields noted were previously permitted by VDH and show no signs of failure. Note also that because the project is considered "Redevelopment", it is not subject to condition #2 of the Special Use Permit for the property regarding Soil Studies.

#### Environmental, County Engineer, Stormwater

As this project is renovation of an area and is considered "Redevelopment", it is not subject to condition #8, #9, or #10 of the Special Use Permit for the property regarding a Master Stormwater Management Plan, Special Stormwater Criteria, or Resource Management Area (RMA) Buffers, respectively. Much of the area consists of urban land soils that are highly compacted where RVs would park. These compacted areas could be considered impervious. However, because the project reduces the total number of campsites it is effectively reducing this impervious coverage by about 13.33%. The existing compacted gravel roadway will be replaced by a paved roadway to minimize dust and minimize maintenance.

No BMP's are planned for this stage of construction. Tree clearing will be minimized and there are no plans to clear any trees within the 100 ft RPA buffer. Some erosion of the banks of the Gordon Creek is observed adjacent to the area and appears to be caused by sheet flow down the slopes. The banks are heavily vegetated and would require a major disturbance to fully stabilize them. Regrading of the site is also impractical as it would require clear cutting and mass disturbance. In order to prevent further erosion of the banks, stormwater diversions (berms or channels) will be added at the top of the slope to intercept the sheet flow and convey the water to a storm drainage pipe or channel which will then discharge directly into Gordon Creek in a controlled manner. An energy dissipater will be provided at the outfall. The only encroachment to the seaward 50 feet of the RPA buffer is the proposed outfall pipe or channel. All other encroachments to the buffer (on the 50 ft landward side) are existing and are minimized by reducing the number of campsites.

#### VDOT and JCSA

No impact is anticipated to facilities overseen by these agencies.

#### Police & Fire

As the overall use is not changing, no impact from the project is anticipated to services provided by these agencies.

**Development Management**

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**Environmental Division**

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**Planning and Zoning**

757-253-6685  
planning@james-city.va.us

January 28, 2010

Mr. Craig Nordeman  
Grounds Superintendent  
James City County General Services  
113 Tewning Road  
Williamsburg, Va. 23187

Re: Chesapeake Bay Exception CBE-10-059  
Demolition of Existing Clubhouse at  
Chickahominy Riverfront Park  
1350 John Tyler Highway

Dear Mr. Nordeman:

This letter serves as administrative **approval** for minor demolition activities proposed within the Resource Protection Area (RPA) at the Chickahominy Riverfront Park. Approval is granted based on the redevelopment provisions of Section 23-7(a)(2) of the County's Chesapeake Bay Preservation Ordinance and 9VAC10-20-130(1)(c) of the Bay Act program regulations.

Work is to include the demolition of a existing above-ground structure situated in the woods in the north central portion of the park along Gordon Creek. This structure is identified as "Clubhouse (not in use)" from County Plan No. C-59-09 and as generally identified as existing Structure J per Appendix D of the Shaping Our Shores (SOS) Master Plan. The structure is unoccupied and approximately 2,340 square feet in size. The clubhouse structure is approximately 950 square feet and attached deck is approximately 1,388 square feet. This approval will also include the demolition and removal of an existing perimeter split rail fence if intended as part of the demolition work plan.

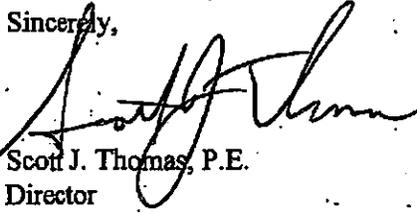
Immediately, demolition of the structure(s) will decrease impervious cover within the RPA and increase the ability of the buffer to perform a better water quality function. Demolition would also be consistent with policies related to RMA buffer on the parcel. A common goal of the Bay Act program is to establish riparian buffer where it does not exist. Normally mitigation is expected as part of any water quality impact assessment (WQIA) or as part of the exception process. However in this case, our Division clearly understands the forthcoming master plan intent of this parcel. As this particular area is designated as a future primitive tent camping area, we reserve the right to delay mitigation for this demolition area to such time as the plan of development or WQIA is submitted for this portion of the Chickahominy Riverfront Park project in accordance with the approved SOS master plan.

Conditions of this approval include:

- No additional development or redevelopment of this area is to occur until appropriate plans of development and water quality impact assessments (WQIAs) are submitted and approved. No new impervious cover is allowed in this location without appropriate authorization.
- A demolition permit may be required through Code Compliance.
- Erosion and sediment control measures are required during the demolition operation.

Thank you for your efforts to protect the Chesapeake Bay and its tributaries from the effects of non-point source pollution associated with land use activities. Please contact me at 253-6639 if you have any questions about this exception or any of its associated conditions.

Sincerely,



Scott J. Thomas, P.E.  
Director  
Environmental Division

SJT/sjt

cc: John Home, General Services Manager (via email)  
Stephanie Luton, Purchasing/Management Services Director (via email)

WQIACBE-10-059\letter.wpd

TRANSMITTAL

Environmental Division

MAR 5 2010

RECEIVED

**DATE:** March 5, 2010  
**TO:** Environmental  
**FROM:** Leanne Reidenbach, Senior Planner  
**SUBJECT:** SP-0009-2010- Chickahominy Riverfront Park RV Loop Expansion  
(page 11 slip sheeted per e-mails dated 3-5-10)

**ITEMS**

**ATTACHED:** Site Plan

**ACTION:** Please review and return comments by March 16, 2010.

**NOTE:** Currently has an SUP on property- SUP-0014-2009 and was reviewed as C-0059-2009.

Plan is approved by the Environmental Division. A Land-Disturbing Permit is required for this project. A Land-Disturbing Permit will not be issued for the project until the steep slope waiver and Chesapeake Bay Exception is submitted, reviewed and approved for the project.

CBS-10-024  
CBE 10-067.

*Anthony Thorne*  
03-15-10

## **TABLE OF CONTENTS**

- I. EROSION AND SEDIMENT CONTROL CHECKLIST
- II. LETTER FOR EXCEPTION REQUEST FOR DISTURBANCE TO 25% SLOPES
- III. STORMWATER CASCADE #1
- IV. STORMWATER CASCADE #2
- V. CULVERT CALCULATION
- VI. OUTLET PROTECTION CALCULATION

SP-09-10  
FINAL

CASCADE #1

# Weir Report

Hydraflow Express by Intallsolve

Tuesday, Feb 9 2010, 4:48 PM

## Stormwater Cascade #1

### Rectangular Weir

Crest = Sharp  
Bottom Length (ft) = 2.00  
Total Depth (ft) = 0.50

### Calculations

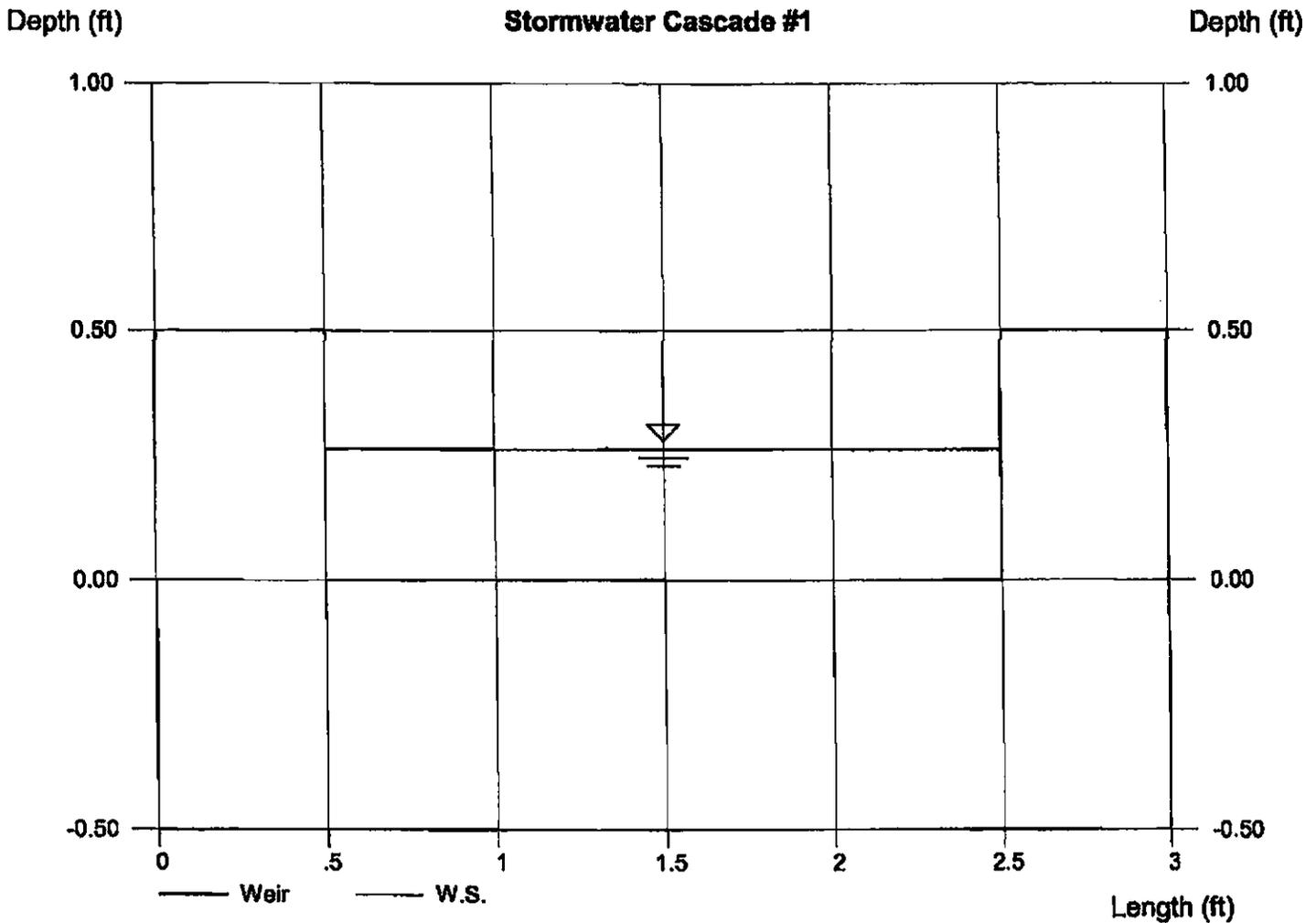
Weir Coeff. Cw = 3.33  
Compute by: Known Q  
Known Q (cfs) = 0.90

### Highlighted

Depth (ft) = 0.26  
Q (cfs) = 0.900  
Area (sqft) = 0.53  
Velocity (ft/s) = 1.71  
Top Width (ft) = 2.00

$$Q_{10} = C_w A$$
$$Q_{10} = (3.33)(2.0)(0.26)$$
$$Q_{10} = 0.9 \text{ cfs}$$

$$Q_{10} = 0.9 \text{ cfs}$$



#2

# Weir Report

Hydraflow Express by Intelsolve

Tuesday, Feb 9 2010, 4:52 PM

## Stormwater Cascade #2

### Rectangular Weir

Crest = Sharp  
 Bottom Length (ft) = 3.00  
 Total Depth (ft) = 0.50

### Highlighted

Depth (ft) = 0.27  
 Q (cfs) = 1.440  
 Area (sqft) = 0.82  
 Velocity (ft/s) = 1.75  
 Top Width (ft) = 3.00

### Calculations

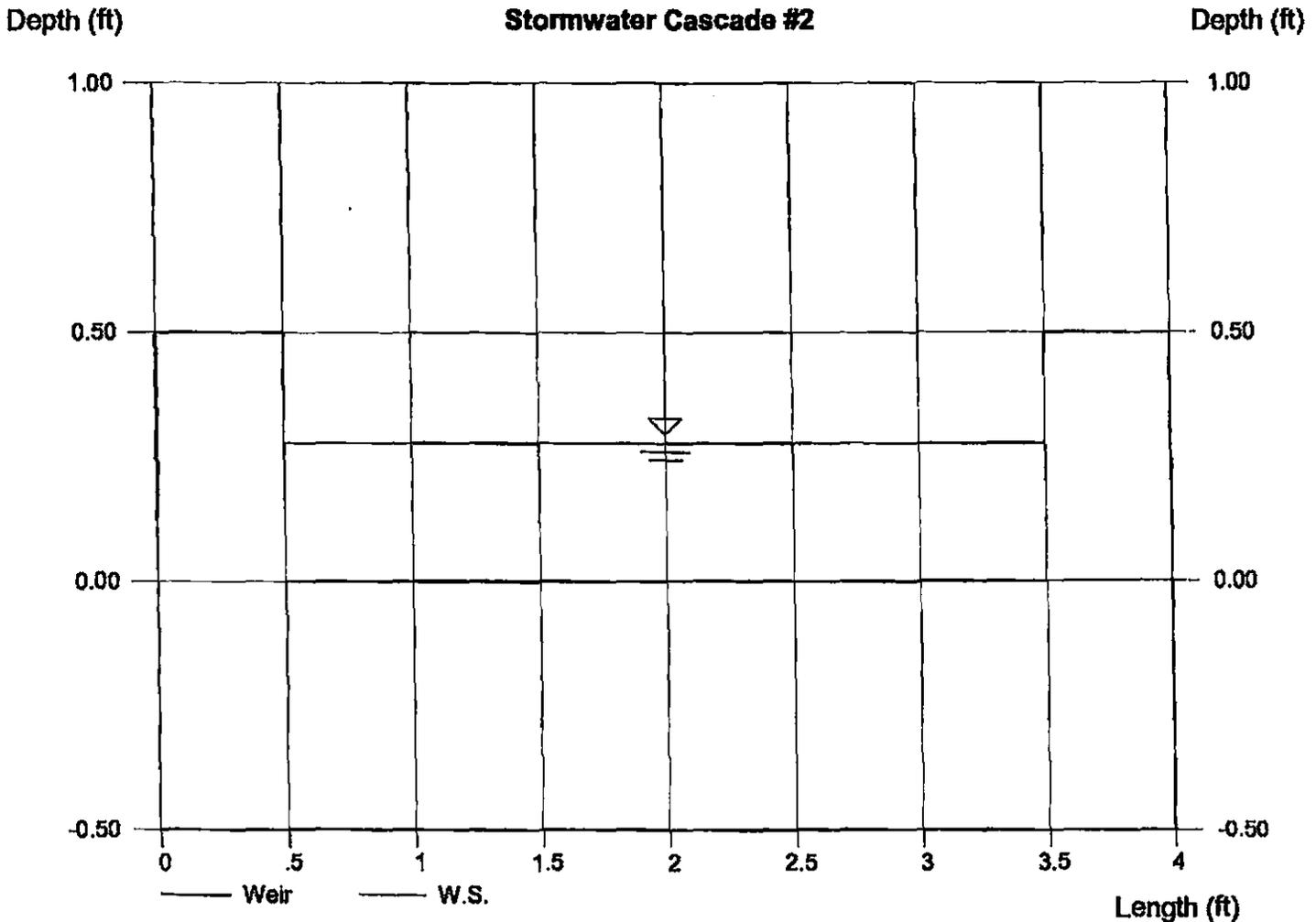
Weir Coeff. Cw = 3.33  
 Compute by: Known Q  
 Known Q (cfs) = 1.44

$$Q_{10} = C C_{10} A$$

$$Q_{10} = (0.6)(6)(0.4)$$

$$Q_{10} = 1.44 \text{ cfs}$$

$$Q_{10} = 1.44 \text{ cfs}$$



## Leanne Reidenbach

---

**From:** Barry Moses  
**Sent:** Friday, March 05, 2010 10:03 AM  
**To:** Leanne Reidenbach  
**Subject:** FW: Chickahominy Riverfront Park exhibit

I should have copied you.

---

**From:** Barry Moses  
**Sent:** Friday, March 05, 2010 9:53 AM  
**To:** 'Small, Aaron B'  
**Subject:** RE: Chickahominy Riverfront Park exhibit

Sounds good. I just got back from Leanne's office and the dimensions you list below are what I saw. The lower boards will be buried so, there may be other alternatives that are cheaper but, the extra boards to gain embedment shouldn't be too expensive.

*Barry E. Moses, P.E.  
James City County  
Environmental Division*

---

**From:** Small, Aaron B [mailto:aaron.small@aesva.com]  
**Sent:** Friday, March 05, 2010 9:46 AM  
**To:** Barry Moses  
**Subject:** RE: Chickahominy Riverfront Park exhibit

We are talking about the same issue. Here is my thinking: The 2 x 10s are 9.5" wide. On the lowest wall, there is 29" from the top of the wall (2' drop + 5" cut out for the weir) + 18" of rock for a total of 47 inches to the subgrade. 5-2x10s will extend 47.5 inches if there are no gaps (there usually is when I have built these but I probably shouldn't assume). How about I just show a 6 inch minimum embedment into the downhill subgrade (below the stone)? That way the contractor can determine the number (and width) of boards he needs and we have the embedment to prevent piping. I can see using 2x12s to gain a total height of 57.5 inches on the lower wall. We only need 35 inches on the upper tiers (29" + 6" stone) so 2x10s will work there.

**Aaron B. Small, P.E.**  
Project Manager  
AES Consulting Engineers



Hampton Roads | Central Virginia | Middle Peninsula  
Office (757) 253-0040  
[aesva.com](http://aesva.com)

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**From:** Barry Moses [mailto:BMoses@james-city.va.us]  
**Sent:** Friday, March 05, 2010 9:35 AM  
**To:** Small, Aaron B  
**Subject:** RE: Chickahominy Riverfront Park exhibit

Aaron,

My concern is that construction will require backfill behind the wall. These timber checks aren't driven into the ground. There will be nothing to compact against at the rear of the wall if the boards do not extend below subgrade which will likely leave loose material and voids which could allow for the material to wash out via piping. I can't picture why it would take 5 boards (are we speaking of 5 additional rows full width?) to get below subgrade. The stone is 18" deep and the drop from the weir was 2' typical.

Sincerely,

**Barry E. Moses, P.E.**  
James City County  
Environmental Division

---

**From:** Small, Aaron B [mailto:aaron.small@aesva.com]  
**Sent:** Friday, March 05, 2010 9:22 AM  
**To:** Barry Moses  
**Cc:** Clisso, Brendan M; Leanne Reidenbach  
**Subject:** FW: Chickahominy Riverfront Park exhibit

Barry,

Brendan is off today to take care of some family issues. I think I understand what you are looking for and I will get the plan revised and over to you today.

When we originally specified 2x10s I was looking at embedding them below the ground which it does on the upper tiers with 4 boards by about 8 inches on a 24" drop. But then we raised the top to create the weir shrinking the embedment to 3 inches. With the rip-rap being deeper at the bottom, it would require at least 5 boards to embed it below the rock.

Thanks for reviewing it so fast,

**Aaron B. Small, P.E.**  
Project Manager  
AES Consulting Engineers



Hampton Roads | Central Virginia | Middle Peninsula  
Office (757) 253-0040  
[aesva.com](http://aesva.com)

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♣ Please consider the environment before printing this email.

---

**From:** Nancy Ellis [mailto:nellis@james-city.va.us]  
**Sent:** Thursday, March 04, 2010 4:48 PM  
**To:** Small, Aaron B  
**Subject:** FW: Chickahominy Riverfront Park exhibit

FYI

---

**From:** Barry Moses  
**Sent:** Thursday, March 04, 2010 4:46 PM  
**To:** 'Clisso, Brendan M'; Nancy Ellis  
**Cc:** Leanne Reidenbach  
**Subject:** RE: Chickahominy Riverfront Park exhibit

Brendan,

I had a chance to look through the resubmittal this afternoon. I still think the lagging should be extended below subgrade further on all timber checks, especially the lowest timber check with the lagging terminating in the rip rap section. This will allow compaction both behind and in front of the timber wall which should help reduce the potential for piping.

If you are amenable to making this edit, the sheet can be slipsheeted into the plan set.

*Barry E. Moses, P.E.  
James City County  
Environmental Division*

---

**From:** Clisso, Brendan M [mailto:brendan.clisso@aesva.com]  
**Sent:** Monday, March 01, 2010 1:05 PM  
**To:** Barry Moses  
**Subject:** Chickahominy Riverfront Park exhibit

Barry,

I've attached an exhibit for Chickahominy Riverfront Park that shows approximate locations of the existing campsites along with the proposed camp sites. The exhibit has quantified the change in impervious cover and the change in RV camp sites within the RPA and RMA.

I believe that this exhibit covers the necessary information from comments 1, 2, and 3. Please let me know if this is sufficient or if you would like to see additional information on the exhibit.

**Brendan Clisso**  
Project Engineer  
AES Consulting Engineers

**Environmental Division Review Comments**  
*February 22, 2010*

1. This plan impacts the resource protection area (RPA) and as such, will need to have a water quality impact assessment (WQIA) submitted. This issue was mentioned at the December site visit as well as in the concept plan review comment letter from December. As no exception request has yet been made, it still cannot be determined at this time if this proposal will have to go through a Chesapeake Bay Board public hearing and approval or would be an administrative review. To help staff in making this determination, an exhibit showing the existing impervious area (not just disturbance) within the RPA, including the locations of existing RV camp sites, overlaid by the new proposal should be submitted. This exhibit should quantify the change in impervious cover and the change in RV camp sites within the RPA. It is stated in the conceptual plan write-up that there is a net reduction in camp sites (presumably in impervious cover as well), but it cannot be determined where these occur.

*An exhibit has been added to the submittal package which provides information on the amount of existing impervious cover and the number of existing RV campsites in the RPA and RMA. Information is also provided on the exhibit for proposed impervious cover and the number of proposed RV campsites in the RPA and RMA.*

2. Whether or not SUP condition #10 applies to this plan, there are impacts to the resource management area 300-foot buffer. In the same exhibit as the RPA impervious cover (see above), provide the same information regarding the RMA buffer for the WQIA.

*An exhibit has been added to the submittal package which provides information on the amount of existing impervious cover and the number of existing RV campsites in the RPA and RMA. Information is also provided on the exhibit for proposed impervious cover and the number of proposed RV campsites in the RPA and RMA.*

3. Stormwater Quality Management. The narrative describes the project as redevelopment with an impervious cover reduction of slightly more than 13% compared to existing site conditions for the project area. The proposed impervious cover reduction would satisfy redevelopment requirements under Chapter 23 Chesapeake Bay Preservation Ordinance which require a minimum 10% reduction. However, as stated in comment #1 impervious cover quantities will need to be verified on the requested exhibit.

*Please see the attached exhibit which provides impervious cover quantities.*

4. Stormwater Quantity Management. There are several areas in the project area that need to be addressed regarding stormwater flows and/or erosion issues. An on-site meeting to discuss these areas was held on December 11, 2009. During this meeting several locations were identified where erosive stormwater discharges will need to be mitigated through low-impact landscaping features with some minor use of stormwater conveyances/ energy dissipation structures. While the Cascade Timber Structure appears to address energy dissipation and stormwater conveyance requirements, no plantings were provided in the upland areas and it is unclear on the plans how water will be conveyed to the Cascade structure in the permanent condition. If the diversion (DV), typically a temporary E&S measure, is intended to be a permanent structure, it needs to be stated on the plans.

*Plantings have been added to the plan. The diversions are permanent. A note has been added to the plan above each diversion stating it is permanent. Please see the revised plan.*

5. Cascade Timber Structure. A review of the proposed Cascade Timber Structure has generated the following comments:

- a. It needs to be made clear on the plans what soil material is acceptable, or, what measures may be necessary, to prevent piping of detained runoff under the timber 2" x 10" planks. It is unclear if the soil behind the planks will be compacted fill, or native fill. If soils encountered/ used are sufficiently granular, piping could occur, undermining the stability of the structure. Long-term standing water conditions of 7 or 8 inches depth within the stone and below the lip of the timber structure could provide sufficient driving head and time to encourage piping. Weepholes may help mitigate this effect.

*Per discussion on March 3, 2010, a note on backfill for the timber cascade structure stating that the backfill material shall be soil material classified as SC, CL, or CH which contains at least 35% by weight clay, free of stumps, roots, rocks, trash, etc. and compacted to 95% has been added to the plan. Additionally 4 weep holes have been added at the base of the stone aggregate to allow any water in the stone to drain through the structure. Please see the revised plan.*

- b. Show filter fabric under the Class I rip rap at the base of the structure and include reference to the VESCH, or other suitable source, for filter fabric specifications concerning material type, placement and embedment/ attachment.

*Filter fabric has been added under the Class I rip rap at the base of the structure and a note added to see the Outlet Protection Detail on Sheet 9.*

- c. It is unclear if the 6-inches of 1" stone will be sufficient to dissipate the energy of the water dropping from the notched opening without being displaced/undermined.

*As discussed on March 3, 2010 the stone specified is #1 stone not 1" stone.*

**Virginia Health Department Review Comments**  
*February 26, 2010*

1. The health departments' review of this plan falls under 2 separate sets of regulations, the onsite sewage regulations and the campground regulations. Both of these reviews require an application and fee. The campground plan review fee is \$75.00 and is to be submitted with the plan to be reviewed. The onsite sewage system application would be for a modification permit submitted by an AOSE/PE with the fee of \$1075.00. (There is an application that can be obtained on-line at <http://www.vdh.virginia.gov/EnvironmentalHealth/ONSITE/gmp/documents/2009/pdfs/GMP%20148%20-%20Appendix%201.pdf>).

*Applications and fees for both reviews are being prepared by JCC Parks and Rec and will be provided under separate cover. It is our understanding that approval cannot be granted until these items are provided.*

**ENVIRONMENTAL DIVISION REVIEW COMMENTS**  
**Chickahominy Riverfront Park RV Loop Improvements**  
**COUNTY PLAN SP-009-10**  
*February 22, 2010*

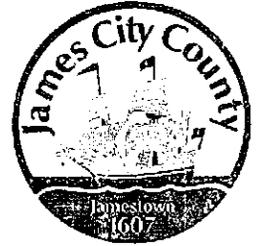
**General:**

1. This plan impacts the resource protection area (RPA) and as such, will need to have a water quality impact assessment (WQIA) submitted. This issue was mentioned at the December site visit as well as in the concept plan review comment letter from December. As no exception request has yet been made, it still cannot be determined at this time if this proposal will have to go through a Chesapeake Bay Board public hearing and approval or would be an administrative review. To help staff in making this determination, an exhibit showing the existing impervious area (not just disturbance) within the RPA, including the locations of the existing RV camp sites, overlaid by the new proposal should be submitted. This exhibit should quantify the change in impervious cover and the change in RV camp sites within the RPA. It is stated in the conceptual plan write-up that there is a net reduction in camp sites (presumably impervious cover as well), but it cannot be determined where these occur.
2. Whether or not SUP condition #10 applies to this plan, there are impacts to the resource management area 300-foot buffer. In the same exhibit as the RPA impervious cover (see above), provide the same information regarding the RMA buffer for the WQIA.
3. Stormwater Quality Management. The narrative describes the project as redevelopment with an impervious cover reduction of slightly more than 13% compared to existing site conditions for the project area. The proposed impervious cover reduction would satisfy redevelopment requirements under Chapter 23 Chesapeake Bay Preservation Ordinance which require a minimum 10% reduction. However, as stated in comment #1 impervious cover quantities will need to be verified on the requested exhibit.
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5. Cascade Timber Structure. A review of the proposed Cascade Timber Structure has generated the following comments:
  - a. It needs to be made clear on the plans what soil material is acceptable, or, what measures may be necessary, to prevent piping of detained runoff under the timber 2"x10" planks. It is unclear if the soil behind the planks will be compacted fill, or native fill. If soils encountered/used are sufficiently granular, piping could occur, undermining the stability of the structure. Long-term

standing water conditions of 7 or 8 inches depth within the stone and below the lip of the timber structure could provide sufficient driving head and time to encourage piping. Weepholes may help mitigate this effect.

- b. Show filter fabric under the Class I rip rap at the base of the structure and include reference to the VESCH, or other suitable source, for filter fabric specifications concerning material type, placement and embedment/attachment.
- c. It is unclear if the 6-inches of 1" stone will be sufficient to dissipate the energy of the water dropping from the notched opening without being displaced/undermined.

RECORD Drawing  
Transmittal



DATE: 1/03/2012

To: James City County Stormwater Division

From: Environmental Division- Greg Johnson

Subject: Record Drawing

Chickahominy Riverfront Park RV Loop (NO BMP NUMBER)

1/3/12

TO: Scott Thomas  
FROM: FRAN

Thanks!  
↓

TO FRAN  
Sent  
1-6-12

SP-09-10  
CBE-70-097



GC018

Date Record Created: 1/6/2012

Watershed and BMP ID Combined Ex: SC003

Created By: Scott Thomas

GC018

If BMP is active in ERP please check box

If BMP has been turned over to STW please check box

WATERSHED GC  
 BMP ID NO 018  
 PLAN NO SP-9-10  
 TAX PARCEL (34-03)(01-02)  
 PIN NO 3430100002  
 CONSTRUCTION DATE 6/30/2011  
 PROJECT NAME JCC - CRFP RV Loop Renovations  
 FACILITY LOCATION 1350 John Tyler Highway  
 CITY-STATE Williamsburg, VA 23168  
 CURRENT OWNER James City County  
 OWNER ADDRESS P.O. Box 6784  
 OWNER ADDRESS 2  
 CITY-STATE-ZIP CODE Williamsburg, VA 23187  
 OWNER PHONE  
 MAINT AGREEMENT No  
 EMERG ACTION PLAN No

MAINTENANCE PLAN

No

SITE AREA acre

138.4

LAND USE

PL-Public Lands

old BMP TYP

JCC BMP CODE

G3 OS - All other

POINT VALUE

0

SVC DRAIN AREA acres

0.7

SERVICE AREA DESCRI

Upland campground area

IMPERV AREA acres

0.07

RECV STREAM

Gordon Creek mainstem

EXT DET-WQ-CTRL

No

WTR QUAL VOL acre-ft

0

CHAN PROT CTRL

No

CHAN PROT VOL acre-ft

0

SW/FLOOD CONTROL

No

GEOTECH REPORT

No

CTRL STRUC DESC

Timber Weir

CTRL STRUC SIZE inches

OTLT BARRL DESC

OTLT BARRL SIZE inch

EMERG SPILLWAY

No

DESIGN HW ELEV

n/a

PERM POOL ELEV

n/a

2-YR OUTFLOW cfs

0.00

10-YR OUTFLOW cfs

0.00

REC DRAWING

No

CONSTR CERTIF

No

LAST INSP DATE

Inspected by: [redacted]

INTERNAL RATING

MISC/COMMENTS

Chickahominy Riverfront Park, C-59-09; CBE-10-067. Required as part of steep slope waiver CBS-10-24. Two stormwater cascade timber structures exist under this BMP number. See notes below.

Additional Comments:

Structures are not technically BMP treatment devices, but considered as stormwater conveyance channels and structures used to stabilize existing eroded slope areas. As under municipal control, want to put on list for routine inspection and operation consistent with the County's MS4 permit requirements. The first structure, # 1, is situated in the NE corner of the RV loop project, across from campsites # 185. The second structure, # 2, is situated approximately 500 ft. NW of structure # 1 near campground sites # 156 and # 167. Structures were constructed by volunteer Boy Scout Eagle scouts.

Get Last BMP No

Return to Menu

Date Record Created: 1/6/2012

Watershp and BMP ID Combined Ex:  
SC003

Created By: Scott Thomas

GC018

If BMP is active in ERP please check box

If BMP has been turned over to STW please check box

WATERSHED GC

BMP ID NO 018

PLAN NO SP-9-10

TAX PARCEL (34-03)(01-02)

PIN NO 3430100002

CONSTRUCTION DATE 6/30/2011

PROJECT NAME JCC - CRFP RV Loop Renovations

FACILITY LOCATION 1350 John Tyler Highway

CITY-STATE Williamsburg, VA 23188

CURRENT OWNER James City County

OWNER ADDRESS P.O. Box 8784

OWNER ADDRESS 2

CITY-STATE-ZIP CODE Williamsburg, VA 23187

OWNER PHONE

MAINT AGREEMENT No

EMERG ACTION PLAN No

MAINTENANCE PLAN No

SITE AREA acre 139.4

LAND USE PL-Public Lands

old BMP TYP

JCC BMP CODE G3 OS - All other

POINT VALUE 0

SVC DRAIN AREA acres 0.7

SERVICE AREA DESCRI Upland campground area

IMPERV AREA acres 0.07

RECV STREAM Gordon Creek mainstem

EXT DET-WQ-CTRL No

WTR QUAL VOL acre-ft 0

CHAN PROT CTRL No

CHAN PROT VOL acre-ft 0

SW/FLOOD CONTROL No

GEOTECH REPORT No

CTRL STRUC DESC Timber Weir

CTRL STRUC SIZE inches

OTLT BARRL DESC

OTLT BARRL SIZE inch

EMERG SPILLWAY No

DESIGN HW ELEV n/a

PERM POOL ELEV n/a

2-YR OUTFLOW cfs 0.00

10-YR OUTFLOW cfs 0.00

REC DRAWING No

CONSTR CERTIF No

LAST INSP DATE

Inspected by:

INTERNAL RATING

MISC/COMMENTS

Chickahominy Riverfront Park, C-59-09;  
CBE-10-067. Required as part of steep  
slope waiver CBS-10-24. Two stormwater  
cascade timber structures exist under this  
BMP number. See notes below.

[Get Last BMP No](#)

[Return to Menu](#)

Additional Comments:

Structures are not technically BMP treatment devices, but considered as stormwater conveyance channels and structures used to stabilize existing eroded slope areas. As under municipal control, want to put on list for routine inspection and operation consistent with the County's MS4 permit requirements. The first structure, # 1, is situated in the NE corner of the RV loop project, across from campsite # 185. The second structure, # 2, is situated approximately 500 ft. NW of structure # 1 near campground sites # 156 and # 157. Structures were constructed by volunteer Boy Scout Eagle scouts.