



CERTIFICATE OF AUTHENTICITY

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

BMP NUMBER: CC-025

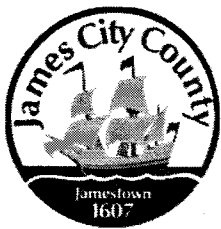
DATE VERIFIED: March 22, 2012

QUALITY ASSURANCE TECHNICIAN:

Leah Hardenbergh

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA



Stormwater Division

MEMORANDUM

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

General File ID or BMP ID: CC025

PIN: 4820100003

Subdivision, Tract, Business or Owner

Name (if known):

Williamsburg Landing

Property Description:

Senior Care/Retirement Facility

Site Address:

5560 Williamsburg Landing Drive

(For internal use only)

Box

18

Drawer: 6

Agreements: (in file as of scan date)

N

Book or Doc#:

Page:

Comments

CC-025

Contents for Stormwater Management Facilities As-built Files

Each file is to contain:

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

COPY

COUNTY OF JAMES CITY, VIRGINIA

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF DRAINAGE SYSTEM

THIS DECLARATION, made this 25 day of October, 2002, between Williamsburg Landing, Inc. and all successors in interest, hereinafter referred to as the "COVENANTORS (S)," owner(s) of the following property: James City County Tax Parcels 4820100003 and 4810100033, project name, Williamsburg Landing, Deed Book 809, Page No. 797; Instrument No. 020013717 and the County of James City, Virginia ("COUNTY.")

WITNESSETH:

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

1. The COVENANTOR (S) shall provide maintenance for the drainage system including any runoff control facilities, conveyance systems and associated easements, hereinafter referred to as the "SYSTEM," located on and serving the above-described property to ensure that the facility that the SYSTEM is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations. The SYSTEM shall not include any elements located within any Virginia Department of Transportation rights-of-way.
2. If necessary, the COVENANTOR (S) shall levy regular or special assessments against all present or subsequent owners of property served by the SYSTEM to ensure that the SYSTEM is properly maintained.
3. The COVENANTOR (S) shall provide and maintain perpetual access from public right-of-ways to the SYSTEM for the COUNTY, its agent and its contractor.
4. The COVENANTOR(S) shall grant the COUNTY, its agent and its contractor a right of entry to the FACILITY for the purpose of inspecting, operating, installing, construction, reconstruction, maintaining or repairing the SYSTEM.
5. If, after reasonable notice by the COUNTY, the COVENANTOR(S) shall fail to maintain the SYSTEM in accordance with approved design standards and with the law and applicable executive regulations, the COUNTY may perform all necessary repair or maintenance work, and the COUNTY may assess the COVENANTOR(S) and/or all property served by the SYSTEM for the cost of the work and any applicable penalties.

Instrument # 020026036
Recorded on Nov. 5, 2002

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

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

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

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

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of first above written.

COVENANTOR(S)

Wm. A. Doig

ATTEST:

Print Name/Title: William Doig, Executive Director

A
WMD

COMMONWEALTH OF VIRGINIA

CITY/COUNTY OF James City

I hereby certify that on this 25th day of October, 2002, before the subscribed, a Notary Public of the State of Virginia, and for the City/County of James City, aforesaid personally appeared William A. Doig and did acknowledge the foregoing instrument to be their Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 25 day of October, 2002

Jonni R. Symon
Notary Public

My Commission expires: August 31, 2004

Approved as to form:

Asst. County Attorney

This Declaration of Covenants prepared by:

Charles. J. Bodnar, P.E.

(Print Name)

Associate, The LandMark Design Group, Inc.

(Title)

4029 Ironbound Road, Suite 100

(Address)

Williamsburg, VA 23188

(City)

(State)

(Zip)

James City County, Virginia
Environmental Division

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

INTERIM
Note 2 ENV DIV
3/17/02
Required IC.

County Plan No.: SP-17-02; Amend SP-22-03
Project Name: WILLIAMSBURG LANDING Phase 2
Stormwater Management Facility: BMP #2
Phase: ☐ I ☐ II ☒ III

☒ Information Received. Date/By: 6/5/03 LANDMARK
☐ Administrative Check.
☒ Record Drawing Date/By: INTERIM LANDMARK 6/3/03
☒ Construction Certification Date/By: _____
☒ RD/CC Standard Forms (Required for all BMPs after Feb 1st 2001 Only)
☐ Insp/Maint Agreement #/Date: # 020026036, NOV 5 2002.
☐ BMP Maintenance Plan Location: C-14
☐ Other: _____

☐ Standard E&SC Note on Approved Plan Requiring RD/CC or County comment in plan review file. Comment #4
☒ Yes ☐ No Location: Note #20 Sheet C-18; 3/18/02

☒ Assign County BMP ID Code: Code: CC 025
☒ Preliminary Input into Division's "As-Built Tracking Log"
☒ Add Location to GIS Database Map. Obtain site information (GPIN, Owner, Site Area, Address, etc.)
☒ Preliminary Log into Access BMP Database (BMP ID #, Plan No., GPIN, Project Name, etc.)
☒ Active Project File Review (correspondence, H&H, etc.).
☒ Initial As-Built File setup (Label, copy hydraulics, BMP plan and detail information, etc.).
☒ Inspector Check of RD/CC (forward to inspector using transmittal for cursory review).
☒ Pre-Inspection Drawing Review - Approved Plan (Quick look prior to Field Inspection).
☒ Final Inspection (FI) Performed Date: 7/7/03 SVT
☒ Record Drawing (RD) Review (***) Date: INTERIM 7/8/03 SVT
☒ Construction Certification (CC) Review Date: _____

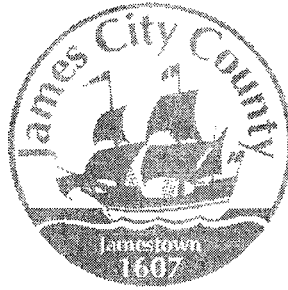
☐ Actions:
☐ No comments.
☒ Comments. Letter Forwarded. Date: July 8 2003
☒ Record Drawing (RD) NEW RD 7/14/03 OK.
☒ Construction Certification (CC)
☐ Construction-Related (CR) NONE
☐ Site Issues (SI)
☐ Other : _____

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

BMP Certification Information Acceptable

Plan Reviewer: _____ Date: _____

*** See separate checklist.



INTERIM

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: WILLIAMSBURG LANDING
Structure/BMP Name: BMP NO. 2
Project Location: INT OF WMBS LANDING AND LAKE POWELL RD
BMP Location: N/W COR OF SITE
County Plan No.: SP - 17 - 02

Project Type: ☒ Residential ☐ Business Tax Map/Parcel No.: 48-2-01-03, 48-2-01-33
☐ Commercial ☐ Office BMP ID Code (if known): CC 025
☐ Institutional ☐ Industrial Zoning District: R-5
☐ Public ☐ Roadway Land Use: RETIREMENT COMMUNITY
☐ Other Site Area (sf or acres): (50.35) PROJECT 25.5 AC.

Brief Description of Stormwater Management/BMP Facility: SEE RECORD DRAWING

Nearest Visible Landmark to SWM/BMP Facility: EXIST. BUILDING "WOODHAVEN"

Nearest Vertical Ground Control (if known):

☒ JCC Geodetic Ground Control ☐ USGS ☐ Temporary ☐ Arbitrary ☐ Other

Station Number or Name: STA. NO. 332

Datum or Reference Elevation: NGVD 29

Control Description: J.C.C. GEODETIC CONTROL MONUMENT

Control Location from Subject Facility: DUE SOUTH FROM PROJECT.

ALONG MARCLAY ROAD

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: FEB, 2003
Facility Monitored by County Representative during Construction: ☒ Yes ☐ No ☐ Unknown
Name of Site Work Contractor Who Constructed Facility: JACK MASSIE, CONTRACTOR
Name of Professional Firm Who Routinely Monitored Construction: McKINNEY & CO
Date of Completion for SWM/BMP Facility: MAY, 2003
Date of Record Drawing/Construction Certification Submittal: 6/3/03

(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: WILLIAMSBURG LANDING INC.
Mailing Address: 5700 WILLIAMSBURG LANDING DR
WILLIAMSBURG VA 23185
Business Phone: 253-0303 Fax: 220-1226
Contact Person: BILL DOIG Title: GEN. MGR.

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: LANOMARK DESIGN GROUP, INC.
Mailing Address: 4029 IRONBOUND RD.
WILLIAMS
Business Phone: 253-2975
Fax: 229-0049
Responsible Plan Preparer: STEPHEN ROMEO
Title: PRINCIPAL
Plan Name: WILLIAMSBURG LANDING
Firm's Project No. 2000312-000.07
Plan Date: 2/20/02
Sheet No.'s Applicable to SWM/BMP Facility: C-3/C-5/C-14/ 1

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

Name: JACK L. MASSIE, CONTRACTOR
Mailing Address: 3900 COKE LA.
WILLIAMSBURG VA
Business Phone: 566-8643
Fax: 566-8566
Contact Person: RICK COOK
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

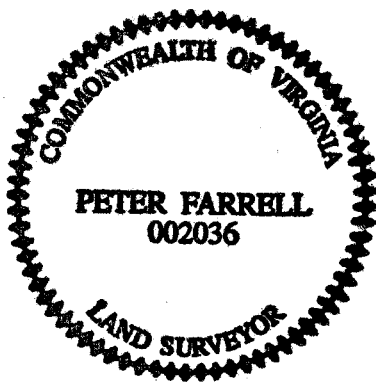
Record Drawing Certification

Firm Name: LANOMARK DESIGN
Mailing Address: 4029 IRONBOUND RD.
WILLIAMSBURG VA 23185
Business Phone: 253-2975
Fax: 229-0049

Name: PETER FARRELL, LS
Title: DIRECTOR OF SURVEYS

Signature: Peter Farrell
Date: 6/3/03

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



(Seal)

Virginia Registered Professional Engineer
or Certified Land Surveyor

Construction Certification

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

Name: _____
Title: _____

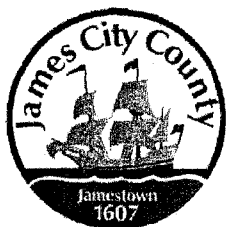
Signature: _____
Date: _____

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

NEED

(Seal)

Virginia Registered
Professional Engineer



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

Project Name: Williamsburg Landing - BMP #2
County Plan No.: SP-017-021
Stormwater Management Facility: _____
BMP Phase #: ☐ I ☐ II ☐ III
☒ Information Package Received. Date/By: Unknown
☐ Completeness Check:
 ☒ Record Drawing Date/By: 5/14/2008 Bruce Flory
 ☒ Construction Certification Date/By: 3/11/2009 Carl Benson
 ☒ RD/CC Standard Forms (Required for all BMPs after Feb 1st, 2001 Only)
 ☒ Insp/Maint Agreement # / Date: 020026030 11/5/2002
 ☒ BMP Maintenance Plan Location: _____
 ☐ Other: _____
☒ 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: CC025
☒ 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: 4/11/2009
☒ Record Drawing (RD) Review Date: 4/11/2009
☒ Construction Certification (CC) Review Date: 4/11/2009
☒ 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)
☐ Add BMP to PRIDE BMP ratings database.

Final Sign-Off

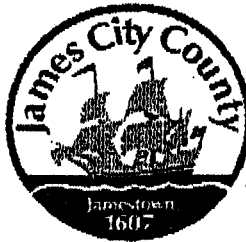
Inspector: _____

Date: _____

Chief Engineer: _____

Date: _____

*** See separate checklist, if needed.



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: WILLIAMSBURG LANDING
Structure/BMP Name: BMP-2 / STORMWATER BASIN #2
Project Location: BERKELEY DISTRICT, JAMES CITY COUNTY (OFF LAKE POWELL RD. NEAR INTX. OF
BMP Location: BEHIND WELLNESS CENTER - TO THE WEST SIDE Brookwood Dr.
County Plan No.: SP - 017 - 02

Project Type: ☒ Residential ☐ Business Tax Map/Parcel No.: (98-2)(01-03), (98-2)(01-33)
☐ Commercial ☐ Office BMP ID Code (if known):
☐ Institutional ☐ Industrial Zoning District: R-5
☐ Public ☐ Roadway Land Use: RESIDENTIAL-RETIREMENT LIVING
☐ Other Site Area (sf or acres): 50.35 AC.

Brief Description of Stormwater Management/BMP Facility:
BMP # 2 IS STORMWATER MANAGEMENT FACILITY LOCATED BEHIND WILLIAMSBURG
LANDING WELLNESS CENTER + ADJACENT TO COLONIAL PIPELINE EASEMENT.
BMP CONSISTS OF FOREBAY, BASIN, AND OUTFALL IN DOWNSTREAM RAVINE.
VOLUME OF BMP IS ACHIEVED BY EARTHEN DAM CONSTRUCTED BY CONTRACTOR

Nearest Visible Landmark to SWM/BMP Facility: WILLIAMSBURG LANDING WELLNESS CENTER

Nearest Vertical Ground Control (if known):

☒ JCC Geodetic Ground Control ☐ USGS ☐ Temporary ☐ Arbitrary ☐ Other

Station Number or Name: #333

Datum or Reference Elevation: 28.29

Control Description: 3 1/4" DIA. DISC. IN CONCRETE

Control Location from Subject Facility: CONTROL IS LOCATED 0.6 mi SOUTH OF LT. 618
(LAKE POWELL RD), 17.0' WEST OF THE G. OF LT. 617 (NEARBY ISLAND CO)

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: NOVEMBER 2002
Facility Monitored by County Representative during Construction: ☒ Yes ☐ No ☐ Unknown
Name of Site Work Contractor Who Constructed Facility: JACK L. MASSIE CONTRACTOR, INC.
Name of Professional Firm Who Routinely Monitored Construction: MCKENNEY + Co.
Date of Completion for SWM/BMP Facility: _____
Date of Record Drawing/Construction Certification Submittal: 10/30/08

(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: WILLIAMSBURG LANDINGS, INC.
Mailing Address: 5700 WILLIAMSBURG LANDING DRIVE
WILLIAMSBURG, VA 23185
Business Phone: 757-253-8801 Fax: _____
Contact Person: BEN TICKETT Title: _____

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

Firm Name: LANDRICK DESIGN GROUP
Mailing Address: 4029 MONROVIA RD, SUITE 100
WILLIAMSBURG, VA 23188
Business Phone: 757-253-2975
Fax: 757-229-0049
Responsible Plan Preparer: CHARLES J. BODNAR
Title: P.E.
Plan Name: WILLIAMSBURG LANDING
Firm's Project No. 2000312-000.07
Plan Date: 2/20/2002
Sheet No.'s Applicable to SWM/BMP Facility: C-9 / C-10 / C-11 /

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

Name: JACK L. MASSIE CONTRACTOR, INC.
Mailing Address: 3900 COKE'S LANE
WILLIAMSBURG, VA 23188
Business Phone: 757-566-8643
Fax: 757-566-8566
Contact Person: BRENT WILSON
Site Foreman/Supervisor: RICK COOK
Specialty Subcontractors & Purpose (for BMP Construction Only):

NONE REQUIRED

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: FLORA SURVEYING ASSOC., P.C.
Mailing Address: 12805 G.W. HWY. HWY.
GLENNES, VA 23049
Business Phone: 804-694-4518
Fax: 804-694-8265

Name: Bruce Flann
Title: OWNER

Signature: Bruce Flann
Date: 10/31/08

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.

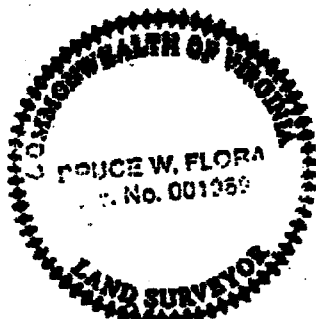
Construction Certification

Firm Name: M.E. Kinney & Company
Mailing Address: 100 S. Railroad Av.
Ashland, VA 23005
Business Phone: 804-798-1451
Fax: 804-459-0024

Name: Carl P. Benson
Title: Mgr. GEOT. Services

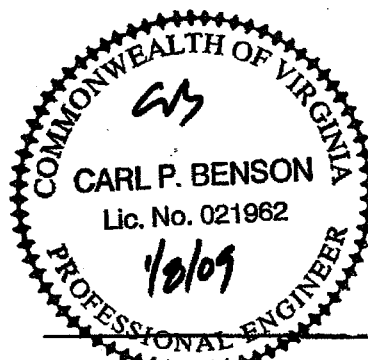
Signature: Carl P. Benson
Date: 1/2/09

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.



Bruce W. Flann (Seal)

Virginia Registered Professional Engineer
or Certified Land Surveyor



Carl P. Benson (Seal)

Virginia Registered
Professional Engineer

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.)*

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

1. All requirements of Section I (Methods and Presentation) apply to this section.
2. Plan Views: Show general location, arrangement and dimensions. Location and alignment shall generally match approved design plans.
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.
4. Top widths, berm widths and embankment side slopes.
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.
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.
7. Profile or elevations along the entire centerline of the emergency spillway. Emergency spillway may be steeper, but no flatter or narrower than design.
8. Elevation of the principal spillway crest or outlet crest of the structure.

- ___ 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.
- ___ 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.
- ___ 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.
- ___ 13. Top of impervious core embankment, core trench limits and elevation of cut-off trench bottom. May need to obtain this information during construction.
- ~~XX~~ 14. Elevation of the principal spillway barrel (outlet pipe) inlet and outlet invert.
- ___ 15. Outlet barrel diameter, length, slope, type and thickness class of material and type of flared end sections, headwall or endwall.
- ___ 16. Outfall protection dimension, type and depth of rock and if underlain filter fabric is present.
- ___ 17. BMP interior and periphery landscaping zones conform with arrangements and requirements of the approved design plan.
- ___ 18. Maintenance plan taken from approved design plan transposed onto record drawing set.
- ___ 19. Fencing location and type, if applicable to facility.
- ___ 20. BMP vicinity properly cleaned of stockpiles and construction debris.
- ___ 21. No visual signs of erosion or channel degradation immediately downstream of facility.
- ___ 22. Any other information formally requested by the Environmental Division specific to the constructed SWM/BMP facility.

Record Drawing & Construction Certification **Interim Certification Review Checklist**

(Note: Consistent with plan review comments and/or Page 4 of the James City County Environmental Division, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions, interim certification is required for BMP facilities which serve dual purpose as temporary sediment basins during construction and as permanent stormwater management / BMP facilities following construction. For these dual purpose facilities, construction certification is required once the temporary sediment basin phase of construction is complete. Interim 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-Disturbing permit for construction. 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.)

Yes **No**

Record Drawings (Asbuilts):

- | | | | |
|-------------------------------------|--------------------------|---|--------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Top of dam elevation per plan. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Finished contours or spot elevations reflect storage volume per plan. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Riser arrangement, type, size and crest elevation per plan. | CHANGES MADE |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Barrel type, size and slope per plan. | NEED CORRECT INFO. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Temporary dewatering device/size shown. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Asbuilt certification provided. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Standard forms (fully completed) provided. | |

Construction Certification:

- | | | |
|--------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Signed and sealed construction certification. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Optional - Field inspection, proctor and compaction test reports provided. |

Construction (Field) Related:

Inspection Date/By: 07/07/03 SH
BMP Rating (1-5): 3

- | | | | |
|-------------------------------------|--------------------------|---|--------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Dam sideslopes per plan. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Primary Structure - trash rack, riser and barrel in place per plan. | CHANGES MADE |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Emergency spillway in place per plan. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | All flow control unobstructed of debris, sediment, vegetation and functional. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Stabilization acceptable, especially top and side slopes of dam. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | No major seeps or dam slope erosion present. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Forebay(s) installed per plan. | NA |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Outlet protection per plan. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Low flow orifice installed, but temporarily blocked. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Stormwater function appears acceptable. | |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Structural integrity appears acceptable. | |

SH
7-8-03

6-6-03

Record Drawing / Construction Certification Submittal for a BMP

Date:

6-6-03

Inspector:

- ☒
☐
☐
☐
☐
☐

Pat Menichino
Joe Buchite
Beth Davis
Gerry Lewis
Jim Rudnick
Other: _____

Project:

BMP Facility:

Plan No.:

Assigned County BMP ID Code:

WILLIAMSBURG LANDING Phase 2
BMP # 2
SP-17-02
CC 025

I have received a transmittal for a ☒ ^{"INTERIM"} Record Drawing and ☐ Construction Certification for the above referenced facility on 6/5/03. Prior to performing a field inspection of the BMP and performing a full review of these certification items, I am first forwarding the items to you to cursory review in case any major field changes were performed that I should be aware of and/or to ensure the record drawing accurately portrays what you saw observed in the field. Please review the drawing and return to me promptly so I can proceed with the review of certification material.

During my review, I will look at issues related to the BMP and its primary inflow and outflow conveyance systems, and may make comment on the following areas: Inspection/Maintenance agreement, Record Drawings (RD), Construction Certification (CC) and Construction-Related (CR) field items as it pertains to the BMP. If you have any other related non-BMP site issues such as site erosion, stabilization, removal of erosion & sediment controls, etc. that are not related to the BMP, you must proceed with closing out these items on your own accord; or alternatively, if needed, I can easily add these items to any comment letter that I may generate to the owner.

Let me know if I need to add any site-related items to my punch list.

Scott

AsBUILTS\Admin\z-inspector

6-24-03
SCOTT, I LOOKED
AT THIS IN THE
FIELD. LOOKS
O.K.
GERRY

LANDMARK DESIGN GROUP TRANSMITTAL



To: SCOTT THOMAS, PE
Company: JAMES CITY COUNTY, ENVIRONMENTAL
From: **PETER FARRELL, L.S.**
Date: 06/02/03
Subject: WILLIAMSBURG LANDING BMP NO. 2 RECORD DRAWING

4820100003
SP-17-02
CC 025
INTERIM
CERTIFICATION

LMDG Job No.: 2000312-000.25

Attached please find:

- ☒ Prints
- ☐ Plans
- ☐ Specifications
- ☐ Drawings
- ☐ Report
- ☐ Letter

Transmitted as checked below:

- For your use
- As requested
- ☒ For review and comment
- ☐ For approval
- ☐ Approved
- ☐

Copies	Date	Drawing No.	Description
2	6/02/03	14355W	RECORD DRAWING PRINTS
1	6/02/03		RECORD DRAWING CERTIFICATION

Notes:

Scott,

Submitted for review. The construction certification is forthcoming from McKinney and Co.

Thanks
Peter Farrell, LS

Copies

1. File: _____
2. _____
3. _____
4. _____
5. _____

Enclosures

☐
☐
☐
☐
☐

LandMark Design Group, Inc.

By: _____ PF

****Acknowledgment by Recipient:** _____
Name Date

Engineers ♦ Planners ♦ Surveyors ♦ Landscape Architects ♦ Environmental Consultants
4029 Ironbound Road, Suite 100, Williamsburg, VA 23188 (757) 253-2975 FAX: (757) 229-0049 lmdg@landmarkdgwb.com

LANDMARK
DESIGN GROUP
TRANSMITTAL

To: SCOTT THOMAS, PE
Company: JAMES CITY COUNTY, ENVIRONMENTAL
From: PETER FARRELL, LS
Date: 07/14/03
Subject: WILLIAMSBURG LANDING INTERIM BMP RECORD DRAWINGS
LMDG Job No.: 2000312-000.25

Attached please find:

- X Prints
☐ Plans
☐ Specifications
☐ Drawings
☐ Report
☐ Letter

Transmitted as checked below:

- X For your use
X As requested
For review and comment
☐ For approval
☐ Approved
☐

Copies	Date	Drawing No.	Description
1	07/11/03	14355W	BMP RECORD DRAWINGS

Notes: SCOTT,
THE DETAIL FOR THE OUTFALL STRUCTURE REVISION HAS BEEN ADDED.

Copies

1. File: _____
2. _____
3. _____
4. _____
5. _____

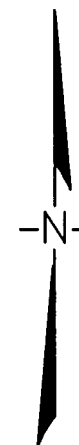
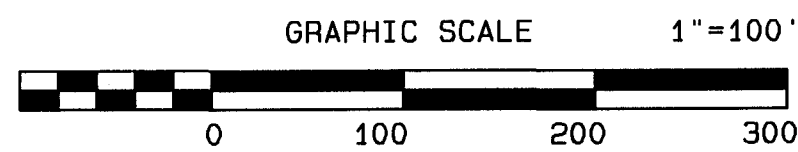
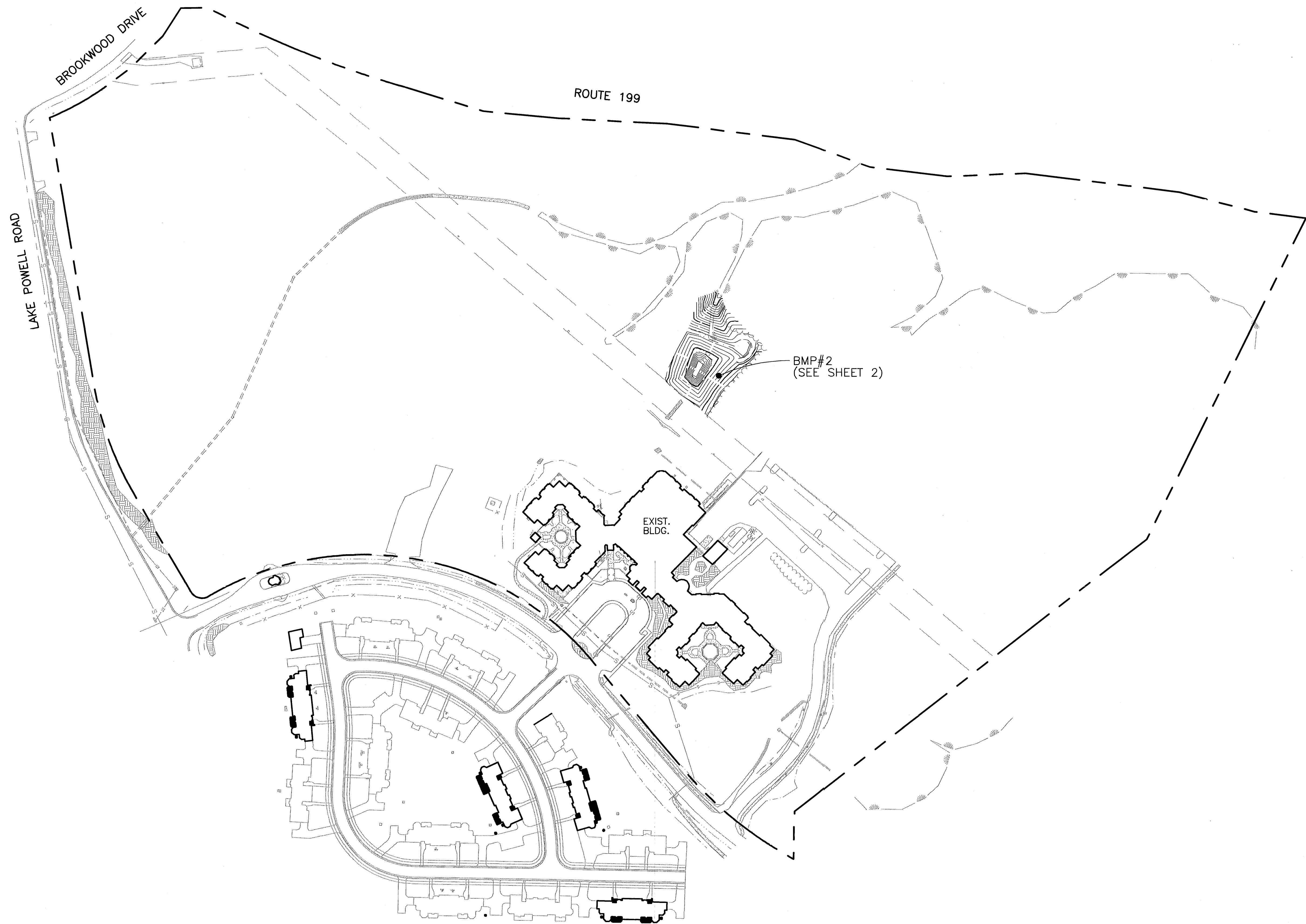
Enclosures

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LandMark Design Group, Inc.

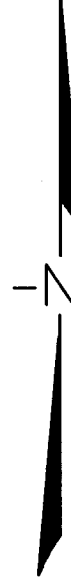
By: _____ PF

Engineers • Planners • Surveyors • Landscape Architects • Environmental Consultants
4029 Ironbound Road, Suite 100, Williamsburg, VA 23188 (757) 253-2975 FAX: (757) 229-0049 lmdg@landmarkdgwb.com



SJT REVIEW SET
INTERIM CERT. BMP #2
SP-17-02; CC025

<div>COMMONWEALTH OF VIRGINIA 6-2-03 PETER FARRELL No. 002036 <i>Peter Farrell</i> LAND SURVEYOR</div>																																																																																																																																																																																																													
<div>4025 Ironbound Road Suite 100 Williamsburg, VA 23188 Tel. (757) 253-2975 Fax (757) 228-0049 Email: info@landmarkdesigngroup.com</div> <div>1544 Greenwich Road Suite 200 Williamsburg, VA 23162 Tel. (757) 472-2000 Fax (757) 487-7933 Email: info@landmarkdesigngroup.com</div>																																																																																																																																																																																																													
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WILLIAMSBURG LANDING	WILLIAMSBURG, VIRGINIA																																																																																																																																																																																																												
BMP #2																																																																																																																																																																																																													
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Drawing Number																																																																																																																																																																																																													



Peter Farrell 6-2-03

49.0' AT FOREBAY OUTFALL

3:1 MAX SLOPE

EXIST. GRADE

WET VOLUME PROVIDED=4,979 CF
WATER QUALITY VOLUME PROVIDED=30,437 CF
TOTAL RETENTION VOLUME PROVIDED=37,119 CF
PERMANENT POOL VOLUME=15,200 CF

100-YR RISE=46.91
25-YR RISE=46.63
10-YR RISE=46.57
2-YR RISE=46.37

49.1' \pm
49.0' \pm
48.8' \pm

TOKEN EMERGENCY
SPILLWAY, ELEV.=47.5'

DAM SECTION CONSTRUCTION
OF NATURAL MATERIAL (SC AD CL)
PER GEOTECHNICAL SPECIFICATIONS

6' AQUATIC BENCH

END OF BENCH=39.64'
END OF BENCH=39.50'

BOTTOM=34.04'
BOTTOM=33.90'

16 LF. - 6" PVC @ 1.00%

OUTFALL STRUCTURE #1
(REFER TO DETAIL
THIS SHEET)

CONCRETE BEDDING SECTION
(REFER TO DETAIL THIS SHEET)

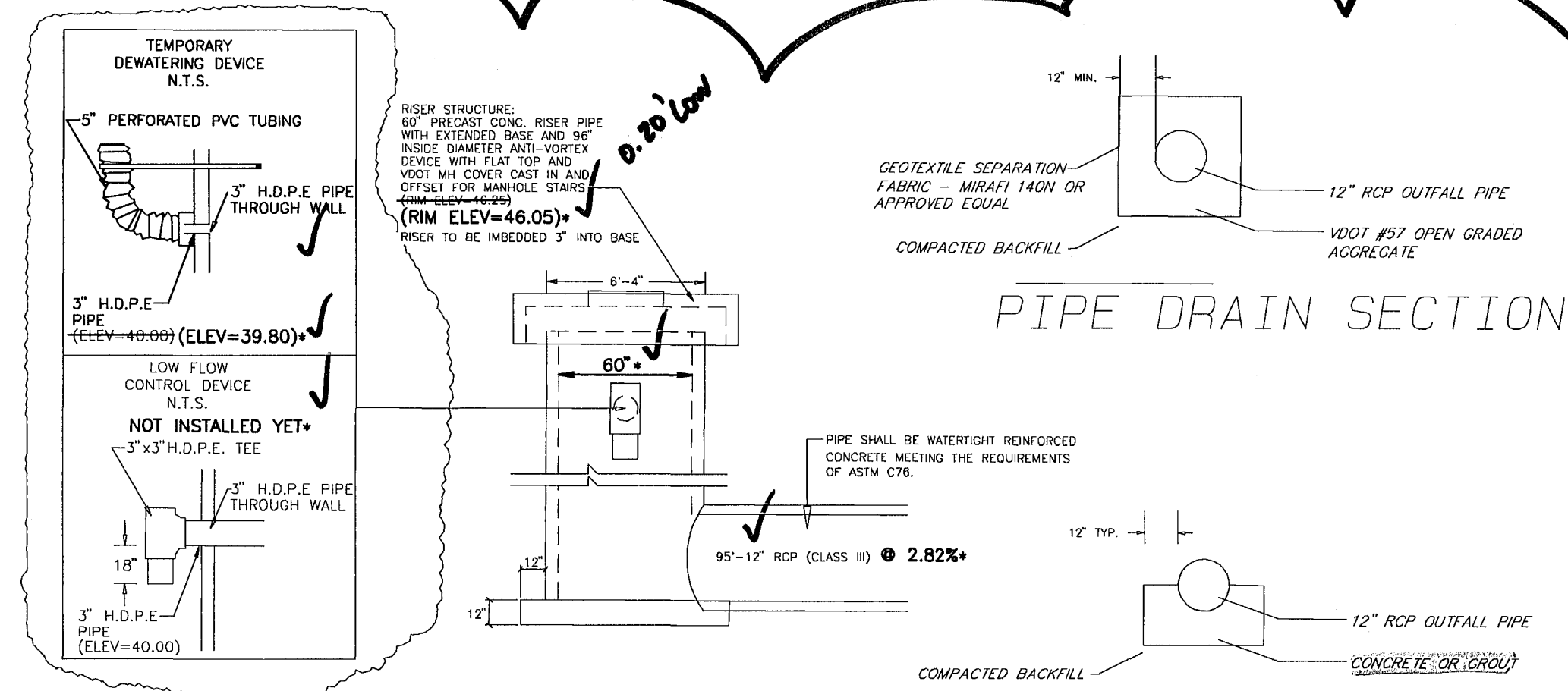
12" FES W/
4" 5' CLASS 1 RIP RAP
INV.=18.67'
PIPE DRAIN SECTION
(REFER TO DETAIL THIS SHEET)

CUTOUT TRENCH OF
NATURAL FILL PER
GEOTECHNICAL ENGINEER (10-10-02)

6" GATE VALVE TO BE MOUNTED TO INSIDE
OF RISER. VALVE SHALL HAVE OPERATING
MECHANISM (HAND WHEEL OR LEVER)
ATTACHED IN PLACE.

PER THE GEOTECHNICAL ENGINEER, NO LINER IS REQUIRED
FOR THE DAM OF THIS STRUCTURE.

N.T.S.

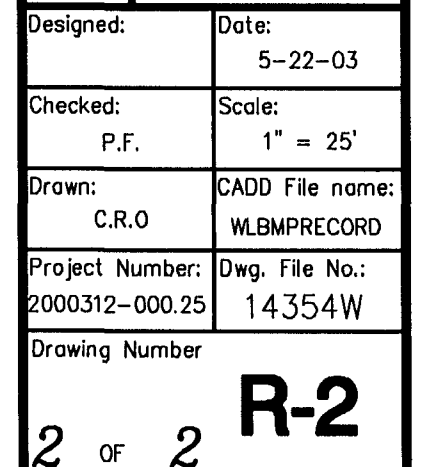


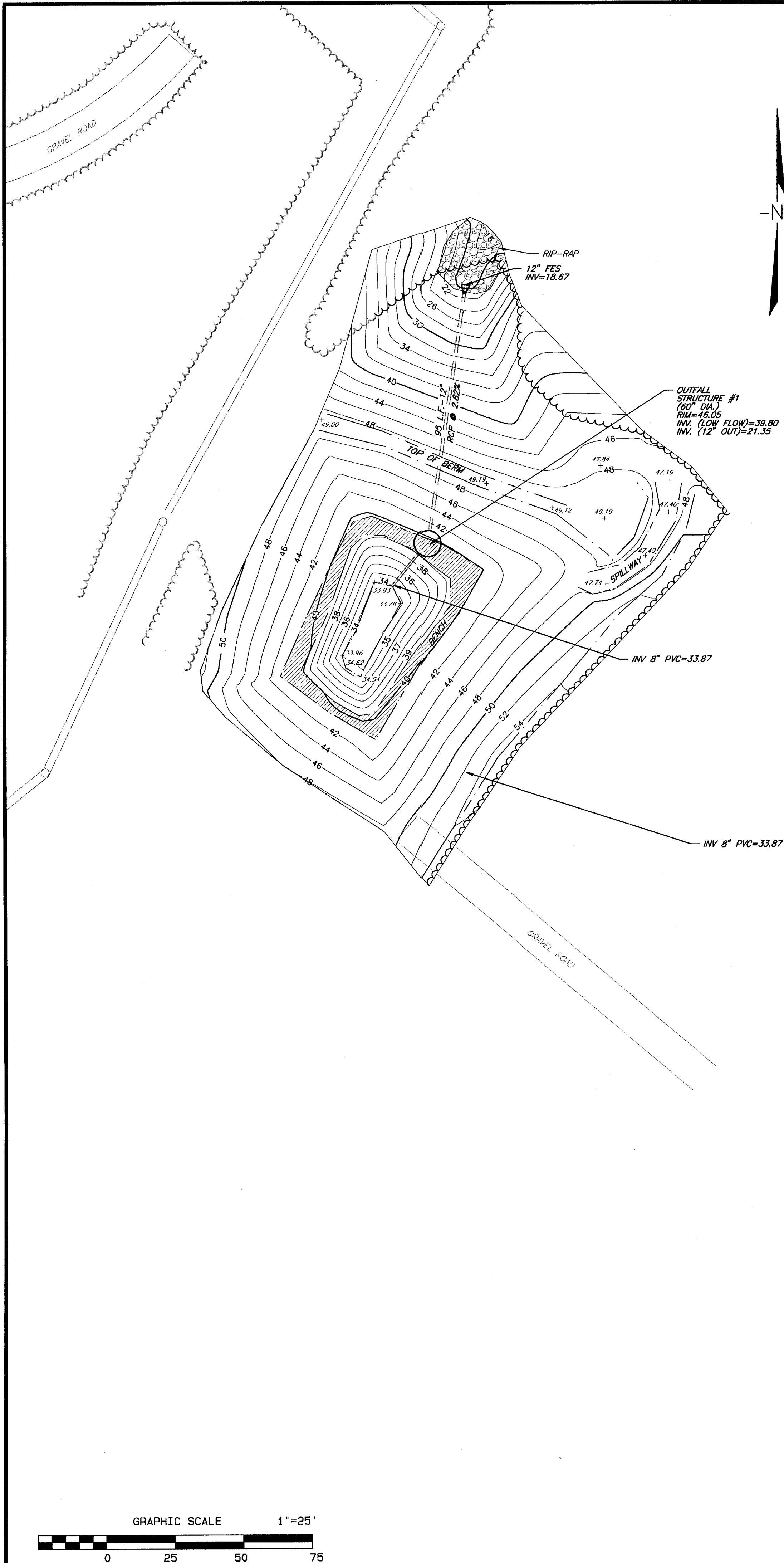
CONCRETE BEDDING SECTION

N.T.S

NEED BARREL
RISER PER
CONFIG
Rampo's 4-30-03
FAX.
(R. Spring Box
compression)

PERFORM YEARLY OBSERVATIONS OF PERIMETER AREAS SURROUNDING THE FACILITY TO ENSURE CHANGES IN LAND USE, TOPOGRAPHY OR ACCESS HAVE NOT OCCURRED AND DO NOT AFFECT THE OPERATION, MAINTENANCE, ACCESS OR SAFETY FEATURES AS PROVIDED. APPROPRIATE ACTION IS REQUIRED TO ENSURE ADEQUACY AND TO PROVIDE A CLEAR, SAFE PASSAGE FOR MAINTENANCE VEHICLES TO THE ENGINE

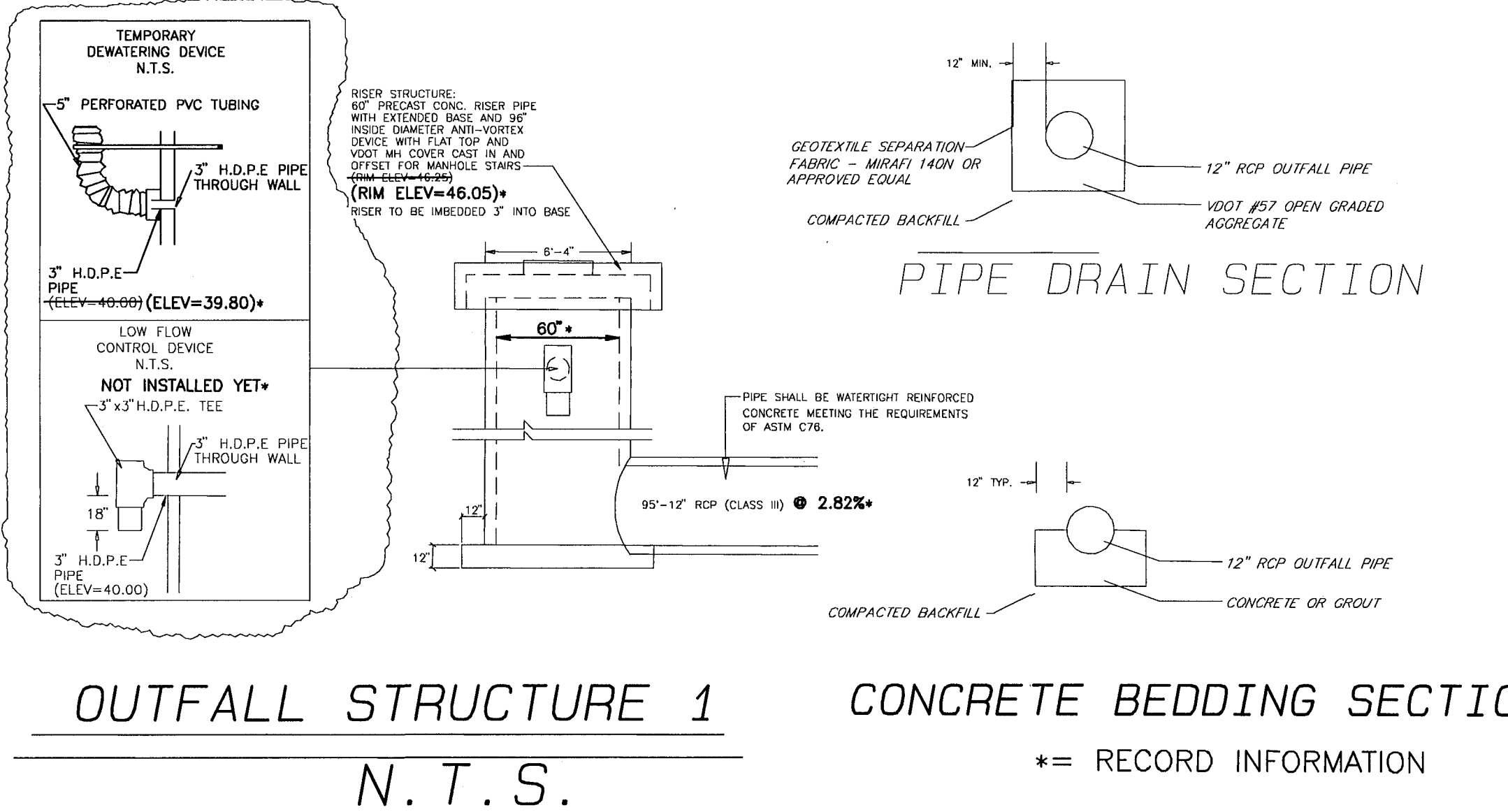
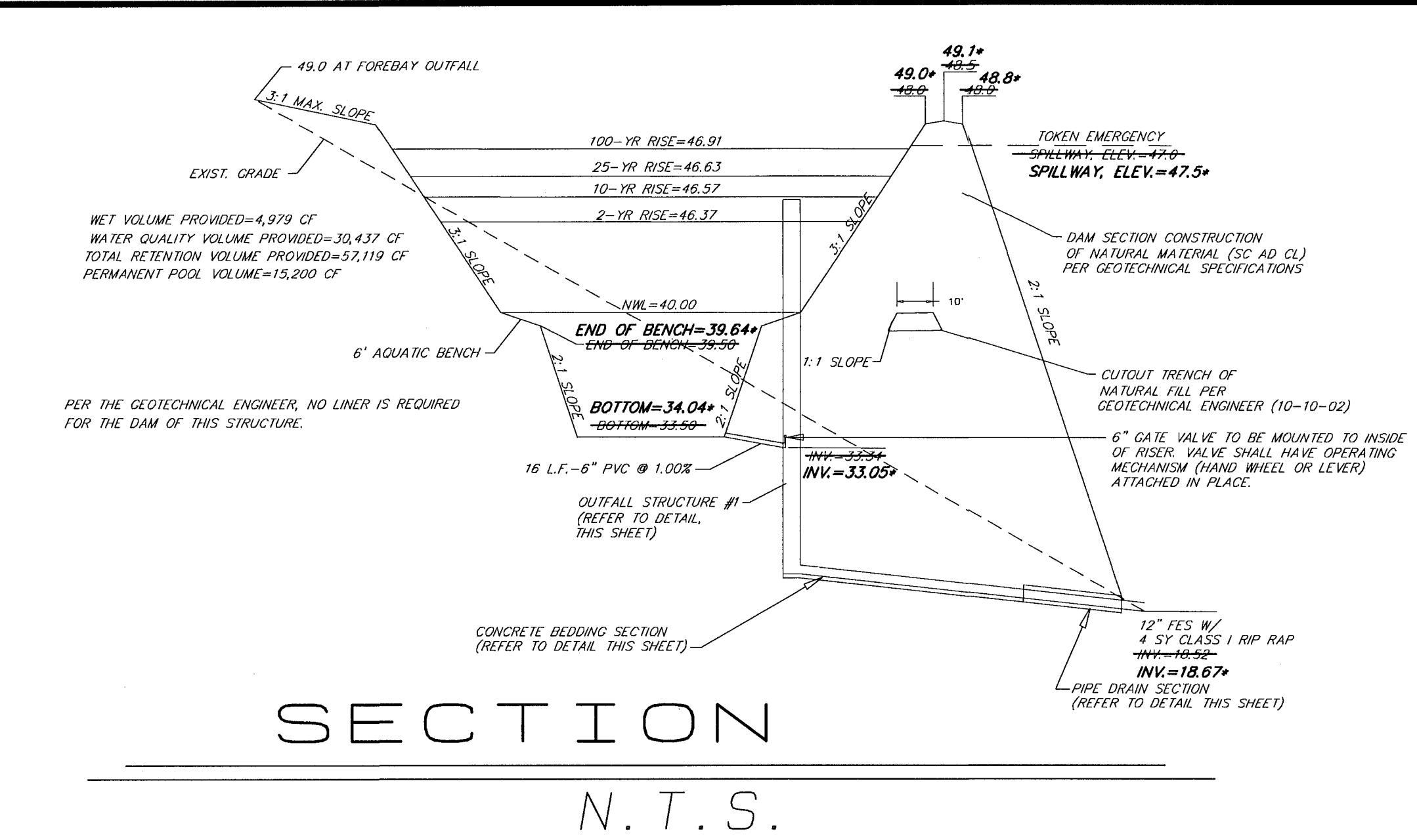




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Peter Farrell 6-2-03

PETER FARRELL, L.S. 002036



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COMMONWEALTH OF VIRGINIA
6-2-03
PETER FARRELL
No. 002036
Peter Farrell
LAND SURVEYOR

4025 Ironbound Road
Williamsburg, VA 23188
Tel. (757) 253-2975
Fax. (757) 253-2976
Email: info@landmarkdesign.com

2544 Greenwich Road
Virginia Beach, VA 23462
Tel. (757) 473-2000
Fax. (757) 473-2001
Email: info@landmarkdesign.com

LANDMARK
DESIGN GROUP
Engineers • Planners • Surveyors
Landscape Architects • Environmental Consultants

REVISIONS:	
No.	By

DRAWING STATUS:	
Interface Review	Comment

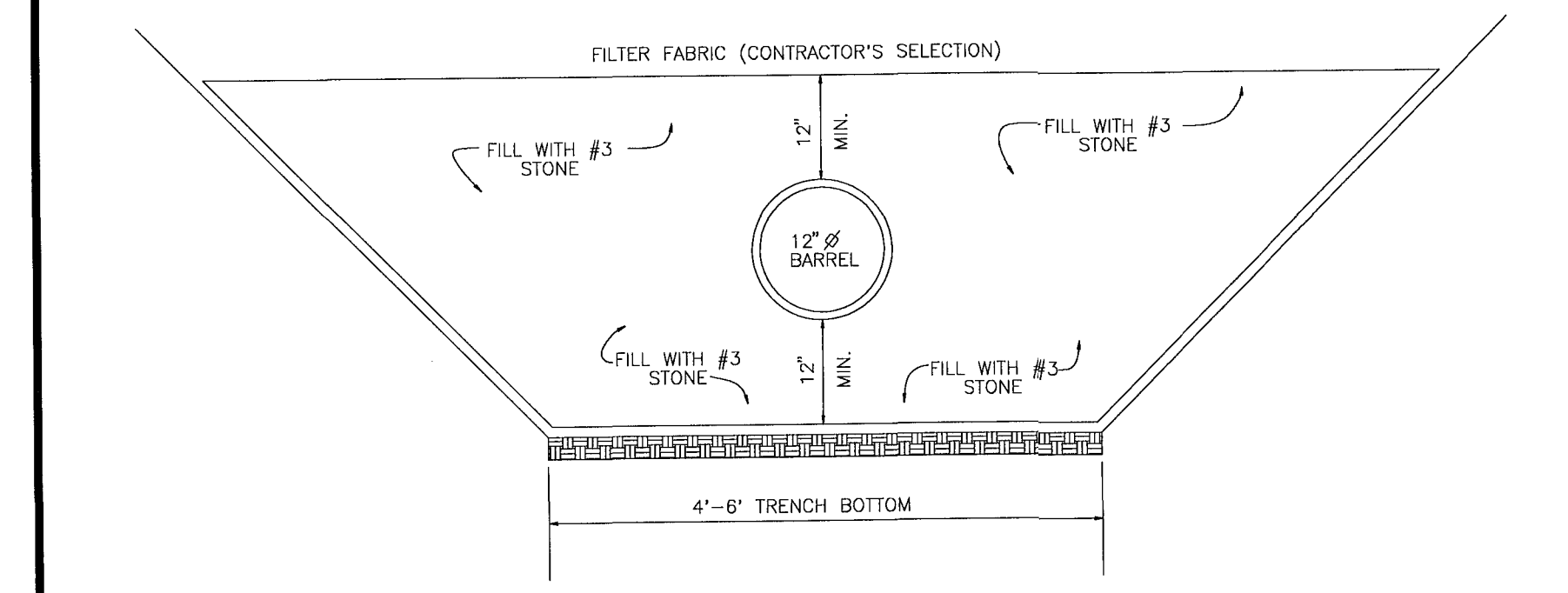
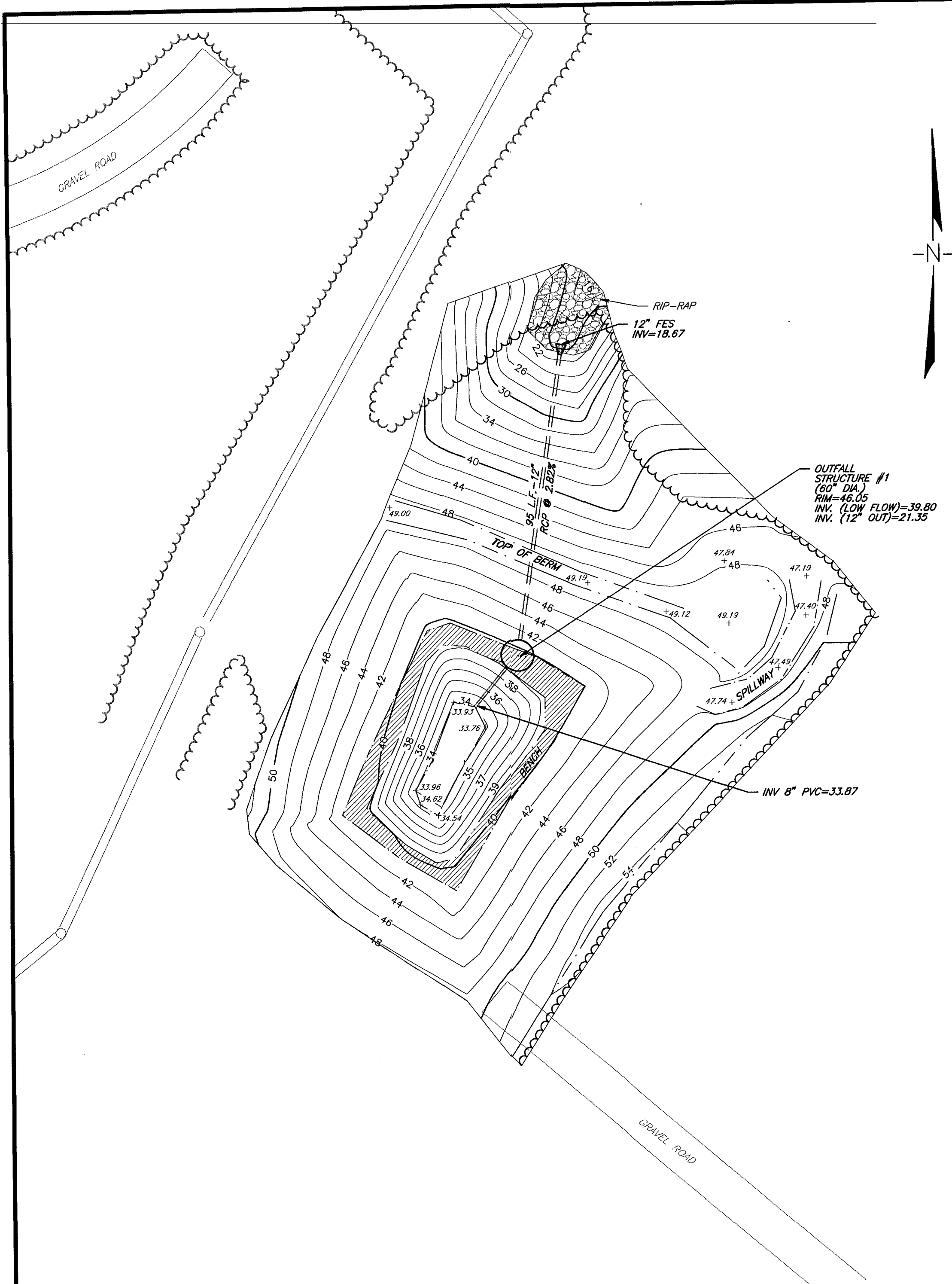
COUNTY APPROVAL:	
1st Submittal	2nd Submittal

RECORD DRAWINGS

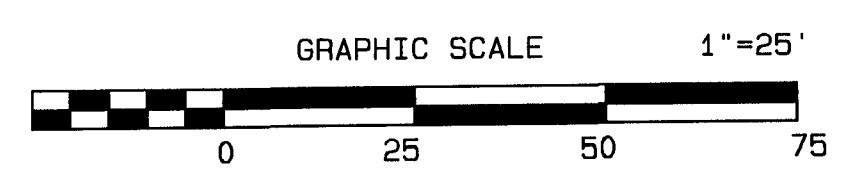
WILLIAMSBURG LANDING
BMP #2 PLAN, NOTES AND DETAILS
WILLIAMSBURG, VIRGINIA

Designed: Date: 5-22-03
Checked: P.F. Scale: 1" = 25'
Drawn: C.R.O. CADD File name: WLBMPRECORD
Project Number: 2000312-000.25 Dwg. File No.: 14354W
Drawing Number: 2 of 2

R-2

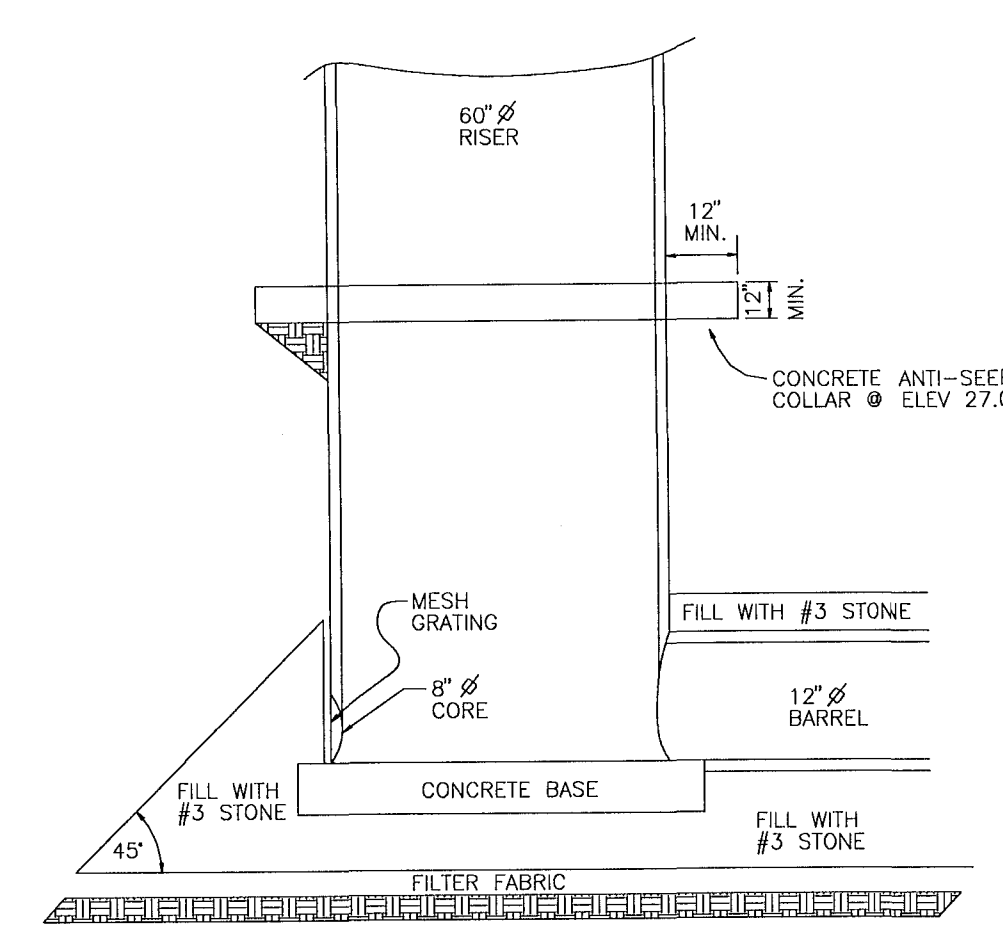


NOTE: THIS DETAIL (NOT TO SCALE) REPLACES "CONCRETE BEDDING SECTION" SHEET C-14

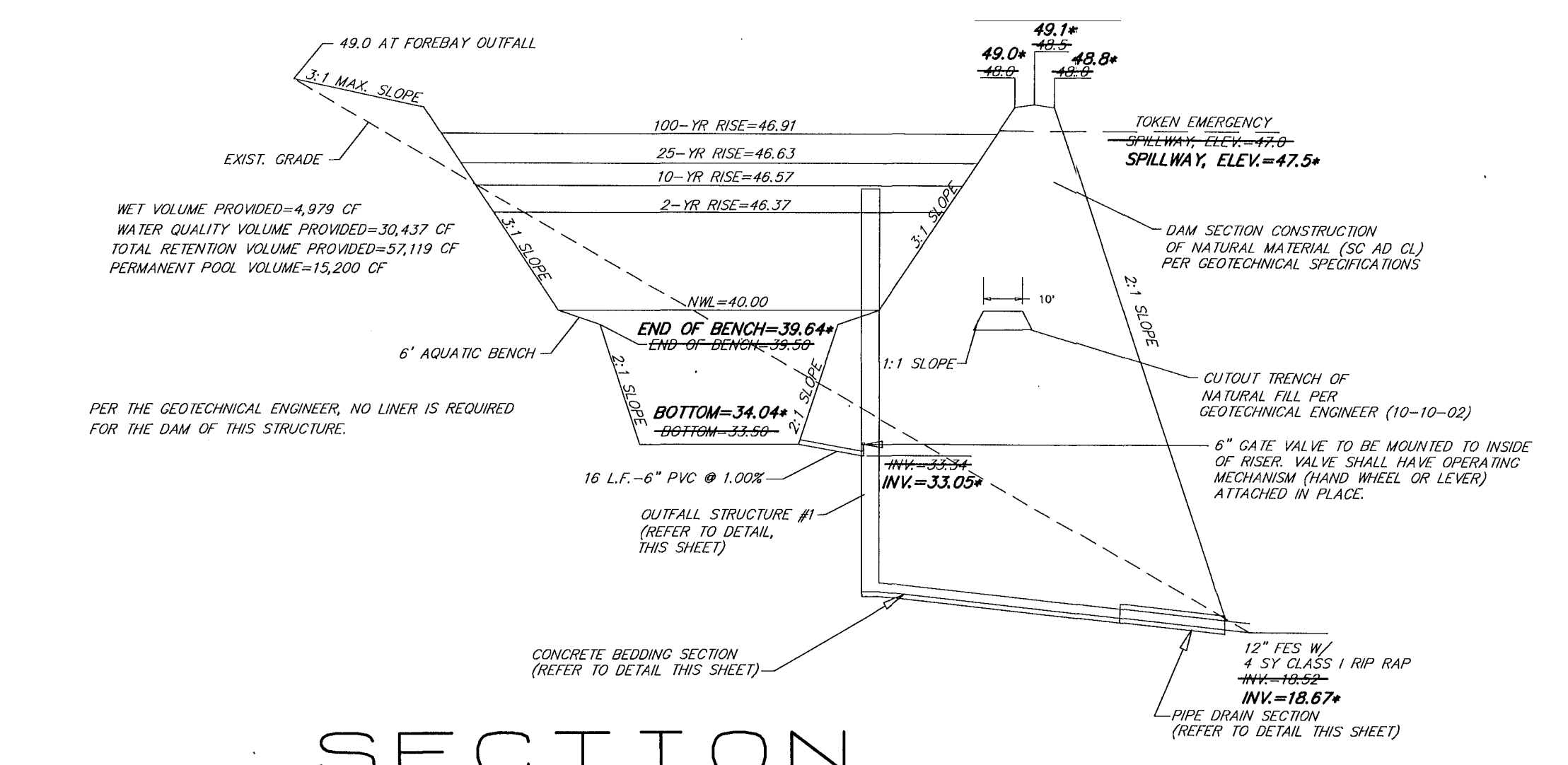


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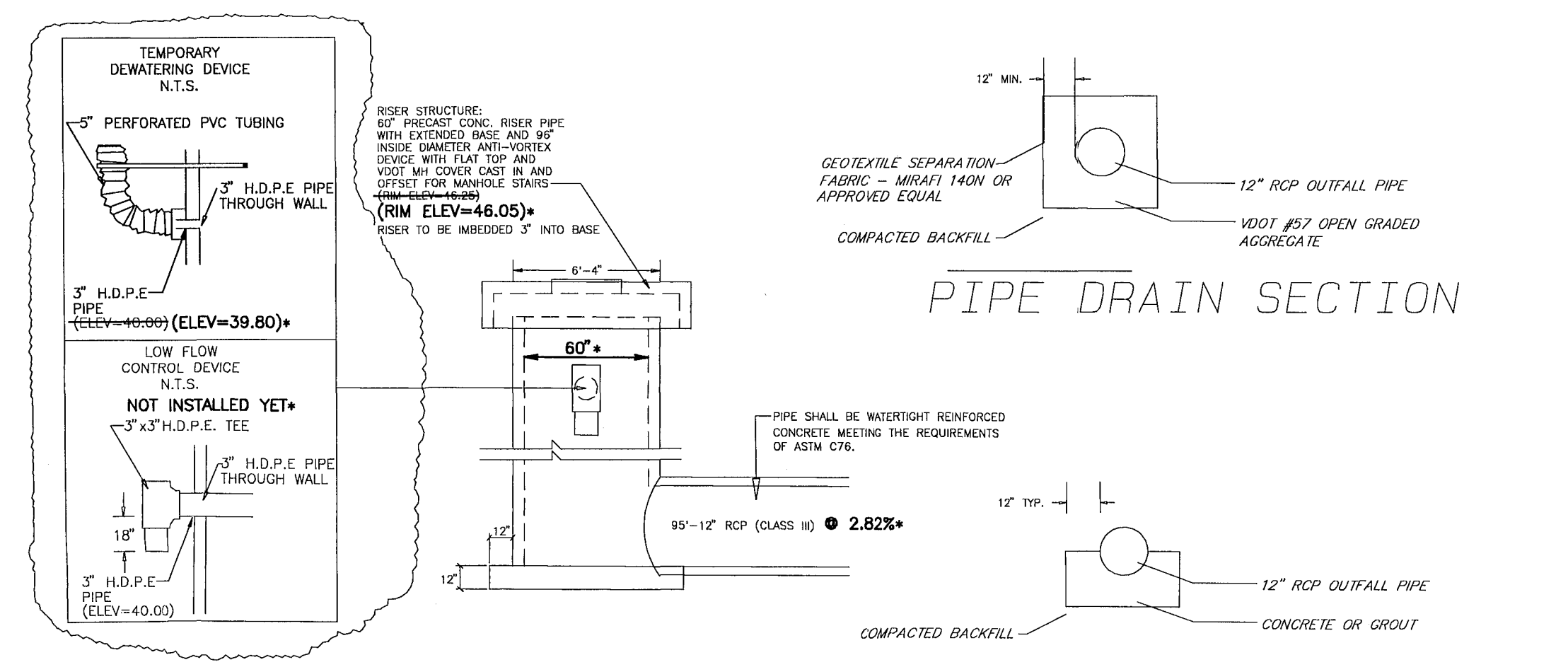


NOTE: THIS DETAIL (NOT TO SCALE) CONVERTS PRINCIPAL SPILLWAY TO SPPRING BOX (SHEET C-14)



SECTION

N.T.S.



OUTFALL STRUCTURE 1

CONCRETE BEDDING SECTION

* = RECORD INFORMATION

N.T.S.

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APPROVED
Jesse City County
Environmental Division
By: [Signature]
Date: 1/12/2003

COMMONWEALTH OF VIRGINIA
7-14-03
PETER FARRELL
No. 002036
LAND SURVEYOR

4029 Lakeshore Road
Suite 100
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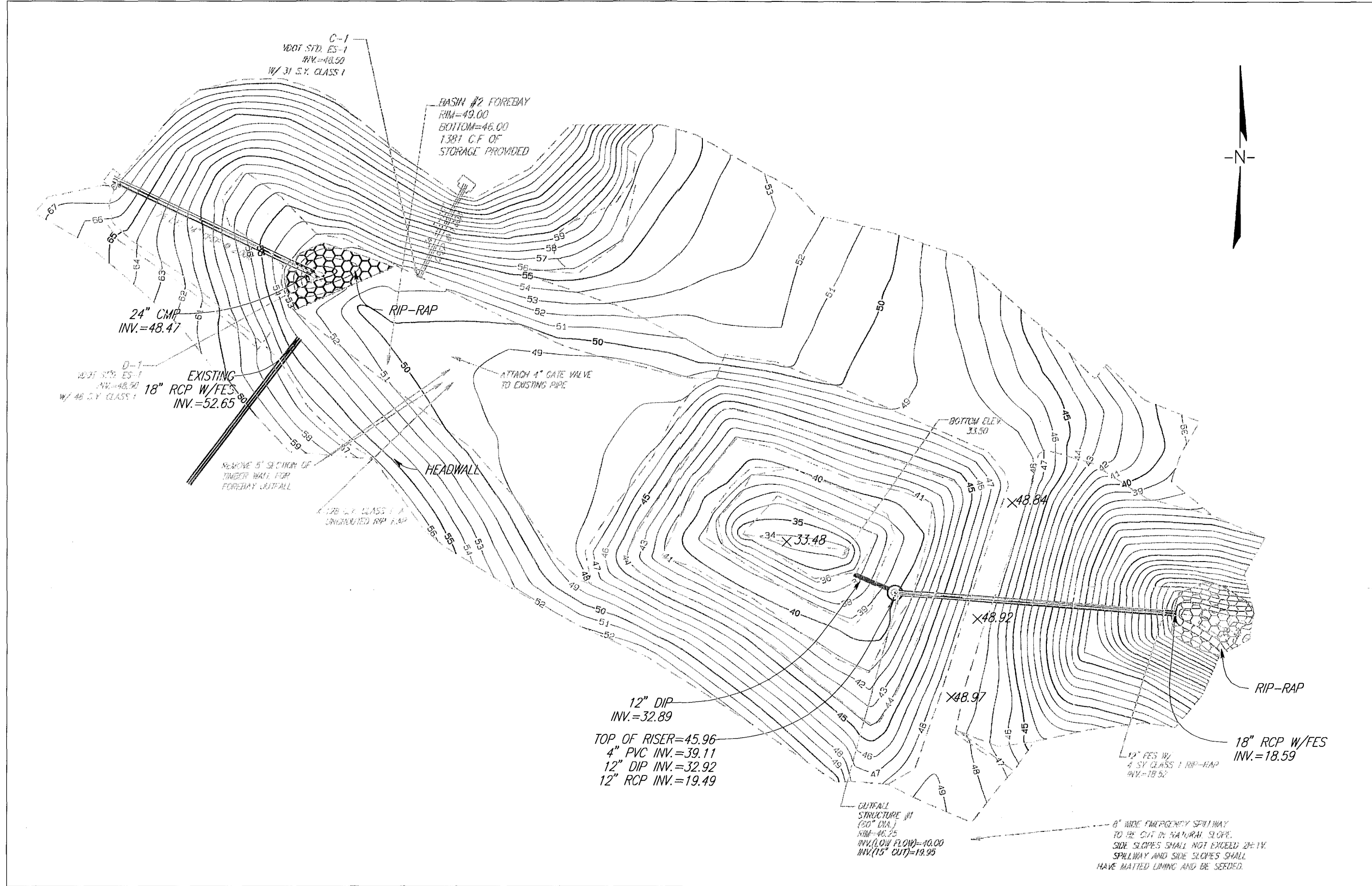
LANDMARK
DESIGN GROUP
Engineers • Planners • Surveyors
Landscape Architects • Environmental Consultants

REVISIONS		By	CRD
No.	Date	Comment	
1	7/11/03	Add note BMP details	

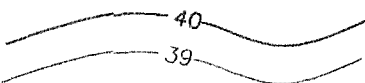
RECORD DRAWINGS
WILLIAMSBURG LANDING
BMP #2 PLAN, NOTES AND DETAILS
WILLIAMSBURG, VIRGINIA

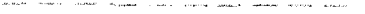
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Drawn:	CADD File name:
Project Number:	Dwg. File No.:
Drawing Number:	


2 of 2
R-2





LEGEND

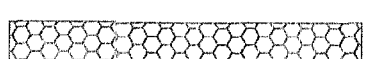

 EXISTING TOPO AS OF 9/9/08
 (1' CONTOUR INTERVAL)


 GRADE BREAKLINES


 PROPOSED STORMWATER PIPES


 AS-BUILT STORMWATER PIPE


 AS-BUILT ELEVATION


 RIP-RAP

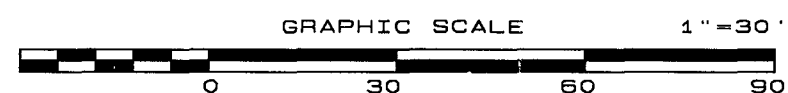
NOTE: PROPOSED DESIGN INFORMATION IS
SHOWN IN LIGHT GREY TEXT
AS-BUILT INFORMATION IS SHOWN
IN BOLD TEXT

RECORD DRAWING CERTIFICATION:

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FLORA SURVEYING ASSOCIATES, P.C.
12683 GEORGE WASHINGTON MEMORIAL HIGHWAY
GLENNS, VA 23149
PHONE - 804-694-4578
FAX - 804-694-8265
BRUCE W. FLORA, LS#001989
PRESIDENT

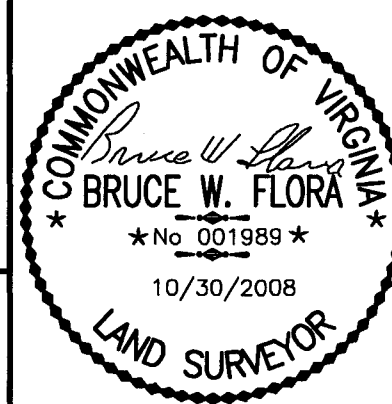
Bruce W. Lora 1/28/09



FLORA

SURVEYING ASSOCIATES

12863 GEORGE WASHINGTON
MEMORIAL HIGHWAY
GLENNS, VIRGINIA 23149
(800) 474-5052 (804) 694-4578



							DES BY		
							DRN BY	D.N.W.	10/08
							CHK BY	B.W.F.	10/08
REV.	DATE	DESCRIPTION			DR BY	APP BY	REV BY		
PROJECT No.		06-0301		SCALE:		1"=30'		APP BY	
PROJECT:								DATE:	
WILLIAMSBURG LANDING BERKELEY DISTRICT, JAMES CITY COUNTY, VIRGINIA								10/30/08	
SHEET TITLE: WILLIAMSBURG LANDING STORMWATER BASIN #2 RECORD DRAWING								SHEET 1 OF 1	
								DRAWING No. RD-01	

File: Universal Pre.xls
PROJECT: WILLIAMSBURG LANDING
 Description: **Pre-development to BMP #3**
 Date: 7-Feb-02
 Revised

LandMark Design Group
 4029 Ironbound Road, Suite 100
 Williamsburg, VA 23188

UNIVERSAL RATIONAL METHOD FOR HYDROGRAPH GENERATION

Drainage Area = 6.88 Acres
 Runoff Coefficient = 0.32
 Time of Concentration = 37.32 Min

1 Yr computed peak discharge = 4.06 cfs
 2 Yr computed peak discharge = 4.94 cfs
 10 Yr computed peak discharge = 7.05 cfs
 25 Yr computed peak discharge = 8.20 cfs
 100 Yr computed peak discharge = 10.05 cfs

COMPUTED HYDROGRAPH VERTEX POINTS

1 Yr Frequency		2 Yr Frequency		10 Yr Frequency		25 Yr Frequency		100 Yr Frequency	
Time (min)	Q (cfs)	Time (min)	Q (cfs)	Time (min)	Q (cfs)	Time (min)	Q (cfs)	Time (min)	Q (cfs)
0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
37.3	0.85	37.3	1.04	37.3	1.48	37.3	1.72	37.3	2.11
74.6	1.22	74.6	1.48	74.6	2.11	74.6	2.46	74.6	3.02
112.0	4.06	112.0	4.94	112.0	7.05	112.0	8.20	112.0	10.05
149.3	2.19	149.3	2.67	149.3	3.81	149.3	4.43	149.3	5.43
186.6	1.58	186.6	1.93	186.6	2.75	186.6	3.20	186.6	3.92
223.9	1.02	223.9	1.24	223.9	1.76	223.9	2.05	223.9	2.51
261.2	0.73	261.2	0.89	261.2	1.27	261.2	1.48	261.2	1.81
298.6	0.61	298.6	0.74	298.6	1.06	298.6	1.23	298.6	1.51
335.9	0.57	335.9	0.69	335.9	0.99	335.9	1.15	335.9	1.41
373.2	0.53	373.2	0.64	373.2	0.92	373.2	1.07	373.2	1.31
410.5	0.00	410.5	0.00	410.5	0.00	410.5	0.00	410.5	0.00

EQUATIONS

$$I = B / (t_c + D)^E$$

$$t_p = 3 * t_c$$

$$t_b = 11 * t_c$$

$$Q_p = C * I * A$$

B,D,E constants based on NWS Hydro 35

File: Universal Post.xls
PROJECT: WILLIAMSBURG LANDING
 Description: Postdevelopment to BMP #3

LandMark Design Group
 4029 Ironbound Road, Suite 100
 Williamsburg, VA 23188

Date: 21-Mar-02
 Revised:

UNIVERSAL RATIONAL METHOD FOR HYDROGRAPH GENERATION

Drainage Area = 13.15 Acres
 Runoff Coefficient = 0.49
 Time of Concentration = 18.50 Min

1Yr computed peak discharge = 18.32 cfs
 2 Yr computed peak discharge = 21.89 cfs
 10 Yr computed peak discharge = 30.21 cfs
 25 Yr computed peak discharge = 34.58 cfs
 100 Yr computed peak discharge = 41.56 cfs

COMPUTED HYDROGRAPH VERTEX POINTS

1 Yr Frequency		2 Yr Frequency		10 Yr Frequency		25 Yr Frequency		100 Yr Frequency	
Time (min)	Q (cfs)	Time (min)	Q (cfs)	Time (min)	Q (cfs)	Time (min)	Q (cfs)	Time (min)	Q (cfs)
0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00	0.0	0.00
18.5	3.85	18.5	4.60	18.5	6.34	18.5	7.26	18.5	8.73
37.0	5.49	37.0	6.57	37.0	9.06	37.0	10.37	37.0	12.47
55.5	18.32	55.5	21.89	55.5	30.21	55.5	34.58	55.5	41.56
74.0	9.89	74.0	11.82	74.0	16.31	74.0	18.67	74.0	22.44
92.5	7.14	92.5	8.54	92.5	11.78	92.5	13.49	92.5	16.21
111.0	4.58	111.0	5.47	111.0	7.55	111.0	8.65	111.0	10.39
129.5	3.30	129.5	3.94	129.5	5.44	129.5	6.22	129.5	7.48
148.0	2.75	148.0	3.28	148.0	4.53	148.0	5.19	148.0	6.23
166.5	2.56	166.5	3.06	166.5	4.23	166.5	4.84	166.5	5.82
185.0	2.38	185.0	2.85	185.0	3.93	185.0	4.50	185.0	5.40
203.5	0.00	203.5	0.00	203.5	0.00	203.5	0.00	203.5	0.00

EQUATIONS

$$I = B / (tc + D)^E$$

B,D,E constants based on NWS Hydro 35

$$tp = 3 * tc$$

$$tb = 11 * tc$$

$$Qp = C * I * A$$

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Return period (yrs)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Manual	4.06	37	111	29,659	1	---	---	---	1-Yr. Predev.
2	Manual	18.32	18	54	65,081	1	---	---	---	1-Yr. Postdev.
3	Manual	4.94	37	111	36,097	2	---	---	---	2-Yr. Predev.
4	Manual	21.89	18	54	77,782	2	---	---	---	2-Yr. Postdev.
5	Manual	7.05	37	111	51,504	10	---	---	---	10-Yr. Predev.
6	Manual	30.21	18	54	107,330	10	---	---	---	10-Yr. Postdev.
7	Manual	8.20	37	111	59,918	25	---	---	---	25-Yr. Predev.
8	Manual	34.58	18	54	122,872	25	---	---	---	25-Yr. Postdev.
9	Manual	10.05	37	111	73,438	100	---	---	---	100-Yr. Predev.
10	Manual	41.56	18	54	147,668	100	---	---	---	100-Yr. Postdev.
11	Reservoir	2.71	18	144	65,081	1	2	41.86	43,579	1-Yr. Routing
12	Reservoir	3.30	18	144	77,781	2	4	42.35	52,470	2-Yr. Routing
13	Reservoir	6.75	18	108	107,330	10	6	43.18	68,545	10-Yr. Routing
14	Reservoir	8.86	18	108	122,872	25	8	43.46	74,285	25-Yr. Routing
15	Reservoir	11.03	18	108	147,668	100	10	43.95	84,553	100-Yr Routing
<div> <div>Proj. file: Basin3.GPW</div> <div>IDF file: Norfolk.IDF</div> <div>Run date: 03-22-2002</div> </div>										

CHANNEL PROTECTION VOLUME CALCULATION

Project Name : Williamsburg Landing, Phase 2

Project # : 2000312-000.15

Basin 3

One Year Precipitation : P = 2.8 Inches

PRE-DEVELOPMENT CONDITIONS :

Drainage Area : $DA_{PRE} = 6.88$ Acres
 SCS Curve Number : $CN_{PRE} = 33$ Unitless
 Time of Concentration : $T_{C_{PRE}} = 0.62$ Hours

TABLE F1 / TR-55

Coefficients for Rainfall Type II

I_a/P	C_0	C_1	C_2
0.10	2.55323	-0.61512	-0.16403
0.30	2.46532	-0.62257	-0.11657
0.35	2.41896	-0.61594	-0.08820
0.40	2.36409	-0.59857	-0.05621
0.45	2.29238	-0.57005	-0.02281
0.50	2.20282	-0.51599	-0.01259

Initial abstraction ; $I_a = 0.2 \times (1000/CN - 10) = 4.061$ Inches
 $I_a/P = 1.45$

Accumulated direct runoff : $Q_U = (P - I_a)^2 / (P + 4 \times I_a) = 0.08$ Inches

Unit Peak Discharge : $q_u = 204$ cfs/sq.mile/in.
 $\log(q_u) = C_0 + C_1 \log(T_c) + C_2 [\log(T_c)]^2$
 C_0, C_1, C_2 : Coefficients from TABLE F1 above

Pre-development peak discharge : $q_p = q_u \times DA \times Q_U / 640 = 0.18$ c.f.s.

POST DEVELOPMENT CONDITIONS :

Drainage Area : $DA_{POST} = 13.15$ Acres
 SCS Curve Number : $CN_{POST} = 50$ Unitless
 Time of Concentration : $T_{C_{POST}} = 0.31$ Hours

Initial abstraction ; $I_a = 2.000$ Inches
 $I_a/P = 0.71$

Accumulated direct runoff : $Q_U = 0.06$ Inches

Unit Peak Discharge : $q_u = 290$ cfs/sq.mile/in.

Post development peak discharge rate : $q_i = q_p = 0.35$ c.f.s.

Ration of outflow to inflow : * $q_o/q_i = 11.98 \times q_u^{0.937} = 0.0591$

* Direct calculation using equation for T=24hr. developed by Stewart Comstock, P.E., MDE

Peak outflow discharge : $q_o = 0.0208$ c.f.s.

Ratio of storage volume to runoff volume : $V_s/V_r = 0.60$
 $V_s/V_r = 0.683 - 1.43(q_o/q_i) + 1.64(q_o/q_i)^2 - 8.04(q_o/q_i)^3$

Required Storage Volume : $V_s = V_s/V_r \times Q_u \times A / 12 \times 43560 = 1709$ cubic feet

ESTIMATED POND FULL DRAWDOWN

$H_{TRIAL} = 1.5$ Feet

$A_o = 0.003539$ sq. ft.

$d_o = 0.8055154$ inches

BMP BASIN 2

$D_{ORIFICE} = 1.75$ inches

W.S.E. (feet)	AREA s.f.	INC. VOL c.f.	STORAGE c.f.	H_{AVG} ft.	Q_{AVG} cfs	dT hours
45.00	7052	6542	23641	4.50		
44.00	6032	5560	17099	3.50		
43.00	5088	4653	11539	2.50	0.1253	10.3
42.00	4218	3821	6886	1.00	0.0774	13.7
WQVSE 41.45	3781.3	1621	4686	0.73	0.0649	6.9
41.00	3424	3065	3065	0.50	0.0526	16.2
40.00	2706	0	0	0.00		

DRAW DOWN TIME = 24.0

CHANNEL PROTECTION VOLUME CALCULATION

Project Name : Williamsburg Landing, Phase 2
Basin 2

Project # : 2000312-000.15

One Year Precipitation : P = 2.8 Inches

PRE-DEVELOPMENT CONDITIONS :

Drainage Area : $DA_{PRE} = 4.84$ Acres
SCS Curve Number : $CN_{PRE} = 50$ Unitless
Time of Concentration : $T_{C_{PRE}} = 0.6$ Hours

TABLE F1 / TR-55			
Coefficients for Rainfall Type II			
I_a/P	C_0	C_1	C_2
0.10	2.55323	-0.61512	-0.16403
0.30	2.46532	-0.62257	-0.11657
0.35	2.41896	-0.61594	-0.08820
0.40	2.36409	-0.59857	-0.05621
0.45	2.29238	-0.57005	-0.02281
0.50	2.20282	-0.51599	-0.01259

Initial abstraction ; $I_a = 0.2 \times (1000/CN - 10) = 2.000$ Inches
 $I_a/P = 0.71$

Accumulated direct runoff : $Q_U = (P - I_a)^2 / (P + 4 \times I_a) = 0.06$ Inches

Unit Peak Discharge : $q_u = 207$ cfs/sq.mile/in.
 $\log(q_u) = C_0 + C_1 \log(T_c) + C_2 [\log(T_c)]^2$
 C_0, C_1, C_2 Coefficients from TABLE F1 above

Pre-development peak discharge : $q_p = q_u \times DA \times Q_U / 640 = 0.09$ c.f.s.

POST DEVELOPMENT CONDITIONS :

Drainage Area : $DA_{POST} = 7.85$ Acres
SCS Curve Number : $CN_{POST} = 65$ Unitless
Time of Concentration : $T_{C_{POST}} = 0.31$ Hours

Initial abstraction ; $I_a = 1.077$ Inches
 $I_a/P = 0.38$

Accumulated direct runoff : $Q_U = 0.42$ Inches

Unit Peak Discharge : $q_u = 512$ cfs/sq.mile/in.

Post development peak discharge rate : $q_i = q_p = 2.62$ c.f.s.

Ration of outflow to inflow : * $q_o/q_i = 11.98 \times q_u^{0.937} = 0.0347$

* Direct calculation using equation for T=24hr. developed by Stewart Comstock, P.E., MDE

Peak outflow discharge : $q_o = 0.0909$ c.f.s.

Ratio of storage volume to runoff volume : $V_s/V_r = 0.64$
 $V_s/V_r = 0.683 - 1.43(q_o/q_i) + 1.64(q_o/q_i)^2 - 8.04(q_o/q_i)^3$

Required Storage Volume : $V_s = V_s/V_r \times Q_u \times A / 12 \times 43560 = 7563$ cubic feet

ESTIMATED POND FULL DRAWDOWN

$H_{TRIAL} = 1.5$ Feet

$A_o = 0.0154359$ sq. ft.

$d_o = 1.6822931$ inches

BMP BASIN 2

$D_{ORIFICE} = 1.75$ inches

W.S.E. (feet)	AREA s.f.	INC. VOL c.f.	STORAGE c.f.	H_{AVG} ft.	Q_{AVG} cfs	dT hours
45.00	7052	6542	23641	4.50		
44.00	6032	5560	17099	3.50		
43.00	5088	4653	11539	2.50	0.1253	10.3
42.00	4218	3821	6886	1.00	0.0774	13.7
WQVSE 41.45	3781.3	1621	4686	0.73	0.0649	6.9
41.00	3424	3065	3065	0.50	0.0526	16.2
40.00	2706	0	0	0.00		

DRAW DOWN TIME = 24.0

**FOREBAY SIZING CALCULATIONS
FOR
WILLIAMSBURG LANDING**

LMDG File No. 2000312-000.07

- James City County requires a forebay to be sized to contain 0.1 inches per impervious area of contributing drainage. 0.1-inch is 0.0083 feet. The forebay must be 4 to 6 feet deep.

Basin 2

- The impervious area from Basin 2's drainage area within the project limits is 3.052 acres, or 132,945 square feet. The impervious area from Woodhaven (Phase 1) that drains into Basin 2 is 1.186 acres, or 51,665 square feet. Total impervious area within Basin 2 is 4.238 acres, or 184,610 square feet.
- The forebay volume required is 1532.3 cubic feet ($0.0083 * 184610$).
- Calculate the volume provided per the design on the plans:

ELEVATION	SURFACE AREA (square feet)	INCREMENTAL VOLUME (cubic feet)	TOTAL VOLUME (cubic feet)
46.0	154	0	0
47.0	392	273	273
48.0	720	556	829
49.0	1139	929.5	1,758.5

- As the total volume provided (1,758.5 cubic feet) is greater than the total volume required (1,532.3 cubic feet), the forebay, as designed, is acceptable.

**WATER QUALITY VOLUME CALCULATION
FOR
BASIN 3, WILLIAMSBURG LANDING**

LMDG File No. 2000312-000.15

- Per the *James City County Guidelines for Design and Construction of Stormwater Management BMP's*, a timber wall extended detention system is required to have a water quality volume equal to 1-inch (0.08 feet) times the impervious area draining to the basin.
- The impervious area from Basin 3's drainage area is 4.2076 acres, or 183,283 square feet.
- The water quality volume required is 14,663 cubic feet ($0.08 * 183283$).

Subject WILLIAMSBURG LANDING

IMP #2

Computed _____ Checked SAR

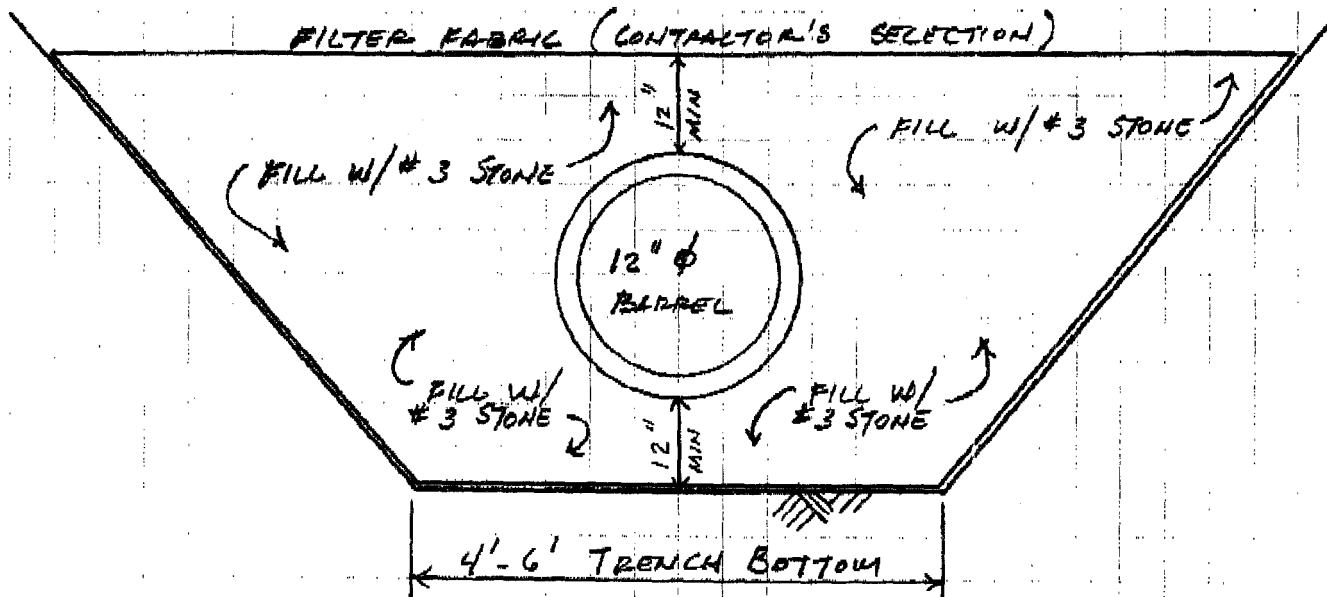
LANDMARK
DESIGN GROUP

Project # 2000312

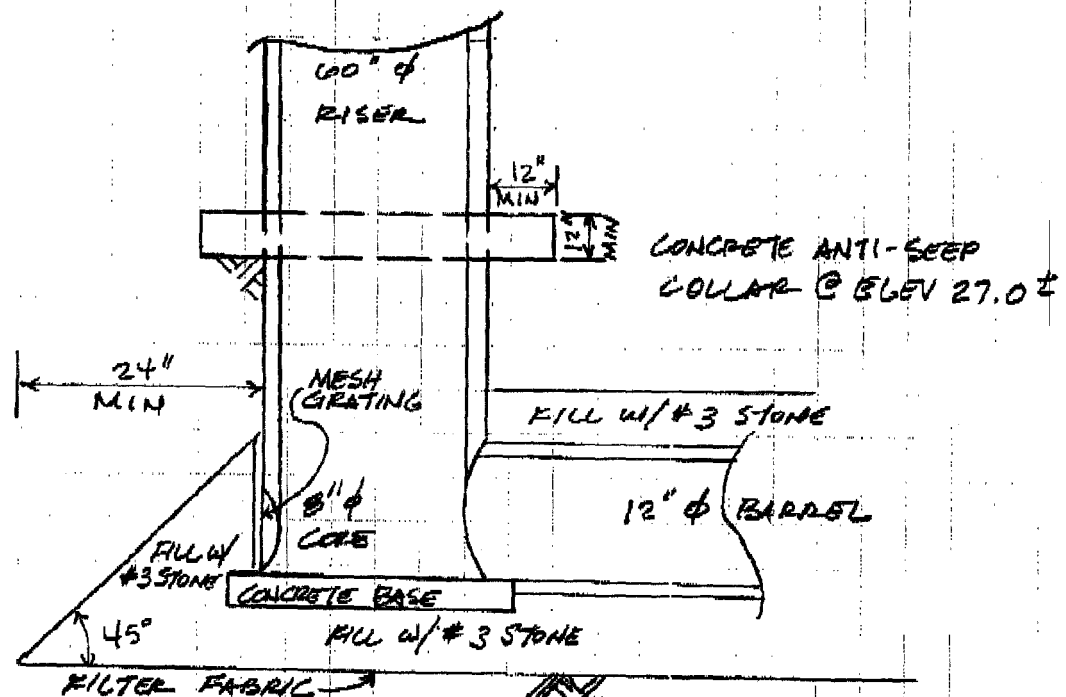
Client CS & D

Date 4-29-03 Sheet # 1

Engineers • Planners • Surveyors • Landscape Architects • Environmental Scientists

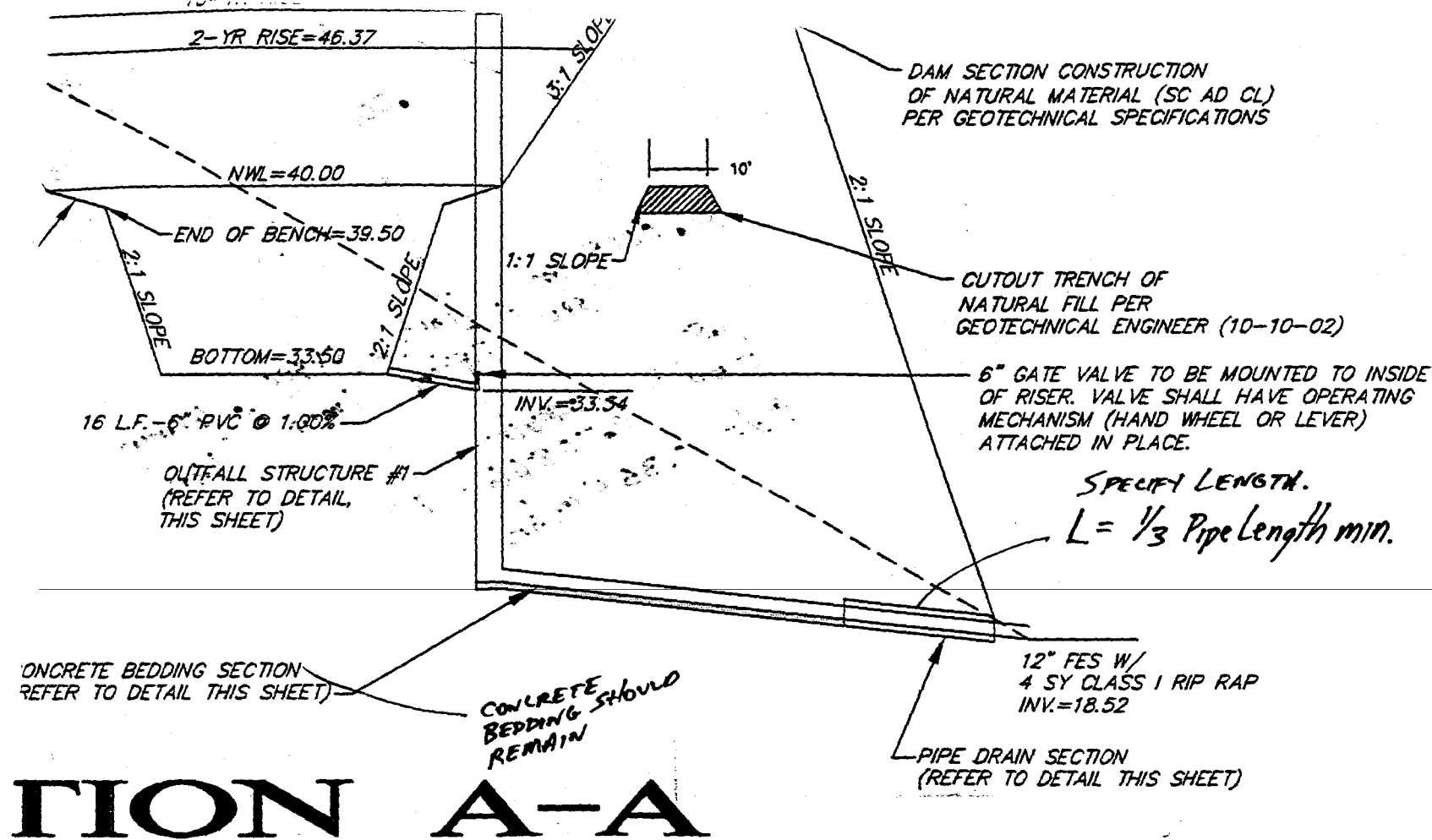


NOTE: THIS DETAIL (NOT TO SCALE) REPLACES "CONCRETE BEDDING SECTION" SHEET C-14



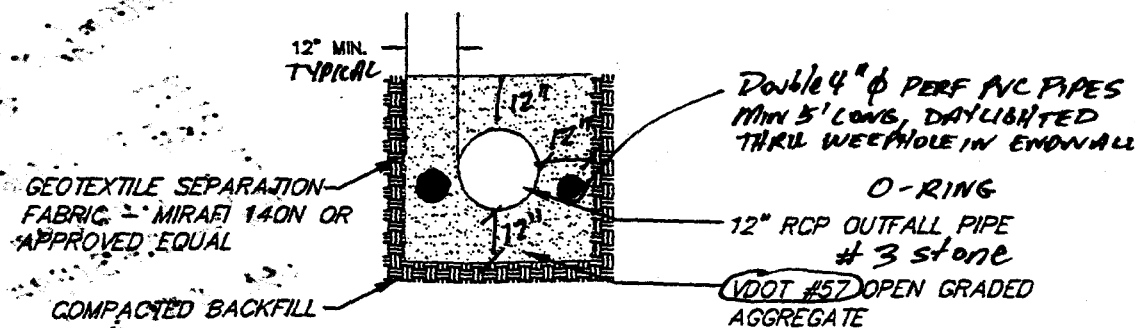
NOTE: THIS DETAIL (NOT TO SCALE) CONVERTS PRINCIPAL SPILLWAY TO SPRING BOX (SHEET C-14)

TOTAL P.02



SECTION A-A

N.T.S.



PIPE DRAIN SECTION

AN INTERNAL CORE IS NOT NECESSARY FOR THIS EMBANKMENT DRAINAGE CONDUCTIVITY. ADDITIONAL, IN THE ABSENCE OF VARIATION IN THE PRACTICAL. THE FOLLOWING CONSTRUCTION CRITERIA SHALL BE USED:

1. TOPSOIL, ORGANIC MATTER AND DISTURBED SOILS SHOULD BE REMOVED FROM THE EMBANKMENT FILL. THE RESULTING SUBGRADE SHOULD BE PROOFGRADED UNDER THE DIRECT VISUAL OBSERVATION OF THE GEOTECHNICAL ENGINEER. DISTURBED SHOULD BE UNDERCUT AND RETURNED TO GRADE USING A BACKHOE.
2. COMPACTED EMBANKMENT FILL SHOULD CONSIST OF NON-ORGANIC SAND, A PLASTICITY INDEX OF AT LEAST 15 AND A RECOMPACTION OF 95% CM/SEC. TIOS CLASSIFICATION ALLOWS FOR THE REUSE OF ON-SITE SAND AND OTHER PERVIOUS SANDY SOILS. SANDY SOILS NOT SUITABLE FOR OTHER AREAS OF THE OVERALL SITE DEVELOPMENT.
3. COMPACTED EMBANKMENT FILL SHALL BE PLACED IN HORIZONTAL LAYERS THICK, WHICH ARE COMPACTED TO AT LEAST 95 PERCENT OF THE THEORETICAL DENSITY USING ASTM D-698, STANDARD PROCTOR. WHERE EMBANKMENT FILL IS PLACED ON PREVIOUSLY-PLACED GRADES IN EXCESS OF 5H:1V, THE NEW SOILS SHALL BE PLACED IN HORIZONTAL LAYERS.
4. THE PERFORMANCE OF THE WET POND AND EMBANKMENT DAM SHALL BE BASED ON PERMEABILITY REQUIREMENT OF 0.00001 CM/SEC. DURING CONSTRUCTION PERMEABILITY AND CLASSIFICATION TESTS ON THE SOILS USED IN THE EMBANKMENT SHALL BE REQUIRED.
5. PORTIONS OF THE BMP BELOW THE NORMAL POOL ELEVATION AREAS, THE SUBGRADE SHOULD BE SCARIFIED, MOISTURE CONDITIONED AND RECOMPACTED TO MEET THE REQUIREMENTS OF EMBANKMENT FILL.
6. FOR THE CASE THAT THE RECOMPACTED PERMEABILITY TESTS SHOW A PERMEABILITY OF 0.00001 CM/SEC OR GREATER, WE RECOMMEND THE DESIGN BE MODIFIED TO INCLUDE AN ENGINEERED DRAINAGE SYSTEM ON THE UPSTREAM FACE OF THE EMBANKMENT.

THE FOLLOWING QUALITY CONTROL ASSURANCE (QCA) PROGRAM SHALL BE USED:

0.001

$$0.0005 \frac{\text{cm}}{\text{sec}} \times \frac{1 \text{ inch}}{2.54 \text{ cm}} \times \frac{60 \text{ sec}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr.}}$$
$$\frac{1.8}{2.54} = 0.70866 = F$$
$$Fd = 0.354 \text{ m/hr.}$$

$$0.001 - 0.0005 = 0.0005$$
$$Avg = 0.00075 \text{ m/hr.}$$
$$0.00075 \text{ m/hr} \times \frac{1 \text{ inch}}{2.54 \text{ cm}} \times \frac{60 \text{ sec}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr.}}$$
$$\frac{2.7}{2.54} = 1.06299 \text{ m/hr.}$$
$$F = 1.06299 \text{ m/hr}$$
$$Fd = 0.531495 \text{ m/hr}$$

use 0.53 m/hr.

Scott Thomas

From: Scott Thomas
Sent: Tuesday, December 02, 2003 12:11 PM
To: Gerry Lewis
Cc: Pat Menichino
Subject: Williamsburg Landing

Project: Williamsburg Landing
Plan No.: SP-17-02; amended SP-27-03
BMP ID: CC 025 (Wet Pond BMP # 2)

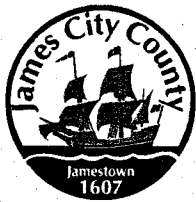
In response to our recent conversation about this project/BMP, I have not yet received the construction certification that would satisfy the INTERIM certification requirements. Per Environmental Division review comment # 2 dated March 18th 2002, interim certification was required for BMPs associated with this site. I issued a letter dated July 8th 2002 (attached) requesting interim construction certification and revisions to the interim record drawing. There were no field-related comments at that time based on my inspection.

I got the revised record drawing; however, I never received the INTERIM construction certification. This item is still pending and needs resolved.

Scott

12/2/2003

CC025_WILLIAMSBURG_LANDING_PHASE_2 - 038



DEVELOPMENT MANAGEMENT

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

CODE COMPLIANCE
(757) 253-6626

codecomp@james-city.va.us

ENVIRONMENTAL DIVISION
(757) 253-6670

environ@james-city.va.us

PLANNING
(757) 253-6685

planning@james-city.va.us

COUNTY ENGINEER
(757) 253-6678

INTEGRATED PEST MANAGEMENT
(757) 253-2620

Mr. Bill Doig
Williamsburg Landing Inc.
5700 Williamsburg Landing Drive
Williamsburg, Va. 23185

July 8, 2003

Tim Mills

*TAM
CONSULTANTS*

FAK: 757-564-1806

*P.O. Box 5365
WMBG VA 23188*

tmills@tamconsuHants.com

Re: Williamsburg Landing Phase 2
County Plan No. SP-17-02; Amended SP-27-03
Interim Certification - BMP # 2
County BMP ID Code: CC 025

Dear Mr. Doig:

The Environmental Division has reviewed interim certification materials as forwarded to our office on June 5th 2003 for the above referenced stormwater management facility. This particular stormwater management facility is situated to the north of the Woodhaven building and the Colonial Pipeline easement.

Interim certification was required for this facility due to Environmental Division comment # 2 dated March 18th 2002 for review and approval of County Plan No. SP-17-02 and to satisfy requirements imposed by the current James City County, Environmental Division, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions.

Based on our review of the submitted material and a subsequent field inspection as performed on July 7th 2003, the following additional information is necessary prior to approval of the interim certification:

Interim Construction Certification:

1. Due to the dual purpose function of the BMP detention facility, interim construction certification was required. None was provided. The certification can be in letter format or by use of the certification statements in Section 4 of the JCC, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions.

Interim Record Drawing:

- ✓ 2. The "Outfall Structure 1" detail on interim record drawing Sheet R-2 (2 of 2) must reflect changes that were recently made to the primary discharge (riser/barrel) structure due to unexpected field conditions that were encountered. Field changes included converting the principal spillway to a spring box, adding a vertical concrete anti-seep collar and use of stone bedding under the barrel to serve as an under drain mechanism.

*SUBMITTED
7-14-03
CERT.
6/3/03*

These changes were made to the previously approved design as a result of a meeting held April 29th 2003 and in accordance with a subsequent memorandum/sketch as prepared by Mr. Stephen Romeo of LandMark Design Group dated April 30th 2003 in conjunction with the project's geotechnical engineer.

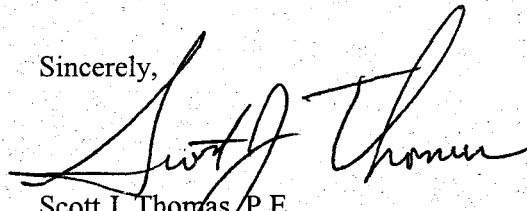
Construction (field) Related Items:

3. There are no field-related comments that need to be addressed at this time.

Final record drawing and construction certification of additional permanent components is required once the BMP is properly converted from a temporary sediment basin to a permanent BMP and final basin construction is complete.

Please contact me at 757-253-6639 or the Environmental Inspector Supervisor, Pat Menichino at 757-253-6675 if you have any further comments or questions.

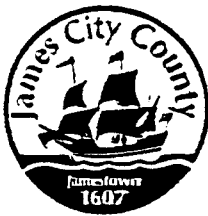
Sincerely,

A handwritten signature in black ink, appearing to read "Scott J. Thomas". The signature is fluid and cursive, with the first name "Scott" and last name "Thomas" clearly distinguishable.

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

cc: Peter Farrell & Stephen Romeo, LandMark Design Group (via fax)
Paul Burch, McKinney & Company (via fax)
Rick Cook, Jack L. Massie (via fax)

G:\SWMPProg\AsBuilts\Interim.cc025



JAMES CITY COUNTY - ENVIRONMENTAL DIVISION

Office Phone: 757-253-6670

Fax Number: 757-259-4032

DATE SENT: 07/08/03

Name: Bill Doig

Firm or Company: WILLIAMSBURG LANDING INC.

Facsimile Number: 220-1226

Number of pages including this transmittal: 3

From: Scott J. Thomas

James City County
P O Box 8784
Williamsburg VA 23187-8784

Comments: Interim Certification, BMP #2 at
Williamsburg LANDING PHASE 2,
County PLAN NO. SP-17-02, County
BMP ID CODE CC025

If you do not receive all pages, call 757-253-6670 as soon as possible

cc: Peter Farrell + Steve Romeo
LANDMARK DESIGN GROUP (VIA FAX)
229-0049

PAUL BURCH
MCKINNEY & COMPANY (VIA FAX)
804-459-0024

RICK COOK, JACK L. MASSIE (VIA FAX)
566-8566



SCOTT J. THOMAS, P.E.
CIVIL ENGINEER

ENVIRONMENTAL DIVISION

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

(757) 253-6639

FAX: (757) 259-4032

E-MAIL: scottt@james-city.va.us

***** -COMM. JOURNAL- ***** DATE APR-30-2003

TIME 15:34 *** P.01

MODE = MEMORY TRANSMISSION

START=APR-30 15:32

END=APR-30 15:34

FILE NO. = 147

STN NO.	COM	ABBR NO.	STATION NAME/TEL.NO.	PAGES	DURATION
001	OK	*	2536850	002/002	00:01'03"

-LAND MARK DESIGN

***** -LMDG UA

***** 757 229 0049- *****

TO: GERRY LEWIS

LANDMARK

DESIGN GROUP

FACSIMILE

SP-17-02
CC 025

259-4032

TO: SCOTT THOMAS
 COMPANY: VCC ENVIRONMENTAL DIV
 FROM: STEPHEN REMEDY
 DATE: 4-30-03
 SUBJECT: WILLIAMSBURG LANDING
 LMDG JOB NO.: 2000812

FACSIMILE NUMBER: 253-5855
 TELEPHONE NUMBER: _____
 NUMBER OF PAGES: 2 (including cover)

ORIGINAL: ☐ WILL ☒ WILL NOT BE MAILED

MESSAGE:

SCOTT-
THE CONTRACTOR HAS ENCOUNTERED A "SPRING" @ THE
LOCATION OF THE PRINCIPAL SPILLWAY FOR BWP #2.
A MEETING WAS HELD ON SITE YESTERDAY MORNING TO
DISCUSS CONDITION AND DEVELOP REMEDY. GERRY
LEWIS WAS IN ATTENDANCE. THE REMEDY INCLUDES
CONVERTING THE PRINCIPAL SPILLWAY TO A SPRING
BOX; ADDING A CONCRETE ANTI-SEEP COLLAR
(VERTICAL) ON THE RISER HALF-WAY BETWEEN
THE BOTTOM OF THE IMPOSED POND AND BARREL;
AND SUBSTITUTING STONE BEDDING FOR THE
CONCRETE CRADLE UNDER THE BARREL. ALL
OF THIS WILL BE INCORPORATED INTO RECORD
DRAWINGS. PLEASE CALL ME IF YOU WANT TO
DISCUSS FURTHER.

Engineers ♦ Planners ♦ Surveyors ♦ Landscape Architects ♦ Environmental Scientists
 4029 Ironbound Road, Suite 100, Williamsburg, VA 23188 (757) 253-2975 FAX: (757) 229-0049 lmdg@landmarkdg.com

FILE
200312-000.20

LANDMARK DESIGN GROUP

FACSIMILE

CC: DEC
PTM
GEL

I would think we need at least some kind of sketch for the file as these are considerable changes to the principal spillway arrangement.

TO: SCOTT THOMAS
COMPANY: VCC ENVIRONMENTAL DIV
FROM: STEPHEN ROWEN
DATE: 4-30-03
SUBJECT: WILLIAMSBURG LANDING
LMDG JOB NO.: 2000312

FACSIMILE NUMBER: 253-6850
TELEPHONE NUMBER: _____
NUMBER OF PAGES: 2 (including cover)

As I have not been involved in this issue, I should not respond to Steve. *Swf*
5-19-03

ORIGINAL: ☐ WILL ☒ WILL NOT BE MAILED

MESSAGE:

SCOTT -
THE CONTRACTOR HAS ENCOUNTERED A "SPRING" @ THE
LOCATION OF THE PRINCIPAL SPILLWAY FOR BAP #2.
A MEETING WAS HELD ON SITE YESTERDAY MORNING TO
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CONCRETE CRADLE UNDER THE BARREL. ALL
OF THIS WILL BE INCORPORATED INTO RECORD
DRAWINGS. PLEASE CALL ME IF YOU WANT TO
DISCUSS FURTHER.

JACK L. MASSIE

C O N T R A C T O R , I N C .

Road & Site Construction
Since 1947
3900 Cokes Lane
Williamsburg, VA 23188-7010
(757) 566-8643
FAX (757) 566-8566



April 10, 2003

Mr. Patrick Menichino
JCC Environmental Division
P.O. Box 8784
Williamsburg, VA 23187-8784

RE: Williamsburg Landing

Dear Mr. Menichino:

It is our goal at Jack L. Massie Contractor, Inc. (JLMCI) to comply with all government regulations. We strive to protect the environment in which we live. The impact we have on our environment today is the future of tomorrow. Because of this belief, we have several Registered Land Disturbers on staff.

We have submitted a Construction Sequence for Williamsburg Landing which you approved on November 12, 2002. We are constructing in accordance with this sequence and are in the process of completing Item #6. From the beginning, the work on this project has met or exceeded the Erosion Control Measures set forth by James City County Environmental Division.

It is our understanding that an Inspection Notice is issued before a Notice to Comply. We have not received an Inspection Notice for the deficiencies you cite in your April 8 Notice to Comply and take issue with several items presented in your Notice. With regard to your Notice to Comply issued on April 8, 2003 for the Williamsburg Landing project, all parties involved would have benefitted by having better communication on the job site and discussing issues or repairs that may be needed at the time to prevent any damages from occurring.

In your notice you stated that the erosion and sediment control measures have not been installed and maintained as required by Virginia Erosion and Sediment Control Regulations. All of the erosion and sediment control measures that are in place have been installed as required by Virginia Erosion and Sediment Control Regulations. These measures have been inspected on numerous occasions by James City County Environmental Division without complaint.



MEMORANDUM TO Darryl Cook, Scott Thomas , and Pat Menichino

April 29, 2003

From: Gerald E. Lewis

Environmental Division Inspector

Ref: Williamsburg Landing Project

*Reviewed Notes
Some Notes
on outfall
pipe filter.*

Darryl, Scott , and Pat

I attended a meeting at the site of the BMP at Williamsburg Landing today .The meeting was called to discuss the problem of "springs" which was encountered at the outfall area of the proposed BMP. The participants of the meeting were as follows: Steve Romeo-Landmark Design Group, Paul Burch of McKinney and Company (the geotec firm) Representatives of W.M.Jordan Company, Steve Massie, Bob Bean , Rick Cook from Jack L. Massie and my self.

The springs were encountered yesterday and were identified as all being in the area where the 12 Inch outfall pipe is to be installed. In order to construct the outfall the running water form these springs must be dealt with in some fashion. After many suggestions , it was determined that out area up to about elevation of 30 be treated as a spring control area. In order to do this some modification will have to take place, and are as follows:

- (1) The pipe outfall detail will need to modified some what by using no. 3 aggregate to increase the void content and thus promote more flow through the system.
- (2) The geotextile fabric would need to be completely around the system on all four sides .
- (3) The outfall system would need to be carried back to at least one beyond the riser pipe.
- (4) A perforation of about 6 inches in diameter would need to be cut into the rear of the riser pipe to allow flow into the back portion of the riser structure, and would be installed at the invert of the 12 inch pipe.
- (5) An anti-seep collar would need to be installed on the riser around the elevation of 30 or so, where this "Spring Control" vertically would end .This would prevent any seepage from coming down from the wet pond. The anit-seep collar must be at least 12 inch in thickness and be formed and poured of class A-1 3000 p.s.i. concrete.

Mr .Steve Romeo of Landmark Design Group will submit a drawing showing the necessary changes . The changes and recommendations are a collections of thoughts by Paul. W. Burch P.E. and Steve Romeo of Landmark Design Group. This seems to be a very good plan to serve to the problem of underground flows.

LANDMARK DESIGN GROUP



May 12, 2004

Ms. Ellen Cook
Planner
James City County
101 E Mounts Bay Road
Williamsburg, VA 23187-8784

Re: SP-023-04, Williamsburg Landing Site Plan Amendment

Dear Ms. Cook:

Attached are 10 sets of the above referenced plan, revised according to comments in your March 26, 2004 and April 2, 2004 letters. In response to those comments, we offer the following.

Planning

1. The plans have been revised to reflect the original road names.
2. See Item #1.
3. See Item #1.

Environmental (March 19, 2004)

1. The BMP/Stormwater Management access road has been relocated as recommended and a curb wipe down has been added.
2. The sediment basin has been relocated.
3. Acknowledged.

Environmental (April 6, 2004)

1. This is inconsistent with what has been approved for other projects with similar soils. A properly prepared 1:1 slope should perform adequately for this temporary function and we are confident that the sitework contractor working this project is accordingly consistent.
2. Retaining Wall Detail.
 - a. Acknowledged.
 - b. The concrete collars have been revised.
 - c. Note has been added to plan sheet C-14.
 - d. The concrete collars are not to function as anti-steep collars. Rather, they are to provide hard edges to lay the segmental block to.
 - e. Specifications sheet C-17 has been added to the plan set.

May 12, 2004

Page 2

3. No elevation changes are proposed for the final stage of the project and only temporary grading changes are proposed for the temporary sediment basin stage of construction.
4. The plans include a professional engineers seal, and this is sufficient documentation of the proper application of the design.
- 4. A baffle has been added to plan sheet C-2.
5. Upon approval of this amendment, the plan sheets can be re-indexed into the full set. No additional work is needed.

Fire

1. The plans have been revised to reflect the original road names.
2. The original site plan has been approved with the current waterline layout. We have not revised any of the water system as part of this site plan amendment.

Please call if you have any questions or need further information.

Best regards,

The LandMark Design Group, Inc.

Stephen A. Romeo, for

Stephen A. Romeo, L.S.
Principal

- SAR/tmp

- Enclosure



FILE

COMPLIANCE OF
ITEMS ON THIS REPORT
TO DAY 3/14/03

JAMES CITY COUNTY
ENVIRONMENTAL DIVISION
P. O. BOX 8784
WILLIAMSBURG, VIRGINIA 23187-8784
(757) 253-6670

INSPECTION REPORT - EROSION AND SEDIMENT CONTROL

Date: MARCH 11, 2003

Permittee:

Project: WILLIAMSBURG LANDING PHASE II

WILMSBURG LANDING INC.

565-6537

5700 WILLIAMSBURG LANDING DR.

Phone/Fax: 220-1226

WILLIAMSBURG, VA 23185

An inspection of the above-referenced project was conducted on 3/11/03, the following represents an evaluation of that projects compliance with James City County's Environmental Regulations. Items identified below as "Needs Repair" are deficiencies that must be corrected.

IN
COMPLIANCE

NEEDS
REPAIR

☐☐

SEDIMENT BASIN _____

☐☐

SEDIMENT TRAP _____

☐☐

CONSTRUCTION ENTRANCE _____

☐☐

SILT FENCE _____

☐☐

INLET PROTECTION _____

☐☒

STABILIZATION DEMOLITION SITE AT 3110 LAKE

POWELL ROAD (MS-1)

SEED & MULCH AREA

☐☐

OTHER ITEMS _____

565-6537

Notice is hereby given that those deficiencies listed shall be corrected in accordance with James City County's Environmental Requirements on or before 3/14/03. The site will be reinspected at that time and you are invited to accompany the inspector on that date. Failure to comply with this report will result in Enforcement Actions.

GERALD LEWIS

JCC Environmental Division Inspector
757-253-6670

WILLIAM DOIG

Project Representative Notified

3/00

ENVIRONMENTAL DIVISION REVIEW COMMENTS

Williamsburg Landing

SP-017-02

March 18, 2002

MDG/DEL

General Comments

1. A Land Disturbing Permit and Siltation Agreement, with surety, are required for this project.
2. Interim Certification. Due to the dual purpose function of both BMP detention facilities, interim construction certification will be required. Refer to current County guidelines for requirements.
3. An Inspection/Maintenance Agreement shall be executed with the county for the BMP facilities for this project.
4. Record Drawing and Construction Certification. The stormwater management/BMP facility as proposed for this project will require submission, review and approval of a record drawing (as-built) and construction certification prior to release of the posted bond/surety. Provide notes on the plan accordingly to ensure this activity is adequately coordinated and performed before, during and following construction in accordance with current County guidelines.
5. ✓ Water and sewer inspection fees, as applicable, must be paid in full prior to issuance of a Land Disturbing Permit.
6. ✓ Responsible Land-Disturber Notification. Provide the name of an individual who will be in charge of and responsible for carrying out the land-disturbing activity. Permits or plans without this information are deemed incomplete and not approved until proper notification is received.
7. Wetlands. Provide evidence that any necessary wetlands permits have been obtained as necessary for this project. Refer to Chapter 23 Chesapeake Bay Preservation ordinance, Section 23-9(b)(8). This includes securing necessary wetland permits through the U.S. Army Corps of Engineers Norfolk District and under the Virginia Department of Environmental Quality nontidal wetlands programs, which became effective October 1st 2001.)
8. ✓ Provide a clear and distinct property line for the project on every sheet.
9. ✓ Label the existing gas line easement on every sheet.
10. ✓ Provide all proposed grading, proposed sanitary sewers and storm sewer crossings on the VDOT storm sewer outfall profile. Label all proposed features.

Chesapeake Bay Preservation:

11. ✓ Delineate Steep Slope Areas. Section 23-10(2) of the Chesapeake Bay Preservation Ordinance requires delineation of areas with slopes 25 percent or greater. The plan has arrows indicating the presence of 25% slopes but no way of identifying the slopes has been provided on the plan.
12. Steep Slope Areas. Section 23-5 of the Chesapeake Bay Preservation Ordinance does not allow land disturbing activities to be performed on slopes of 25 percent or greater. It appears that steep slope areas are impacted for construction of the two basins and other drainage structures. Therefore, a written request for an exception is required. WE STILL NEED A LETTER.

Grading Plan:

13. Adjust the limits of clearing north of the Woodhaven building, these trees will no longer be existing once construction begins. Adjust the limits of clearing downstream of the proposed riprap for the bypass storm sewer.

**BMP POINT CALCULATIONS
FOR
WILLIAMSBURG LANDING DEVELOPMENT**

LMDG File No. 2000312-000.07

- Per phase 1, site area to the east of the Colonial Pipeline easement is 33.26 acres. A total of 11.20 acres on the west side of the Colonial Pipeline easement is developable as a 3rd phase.
- The total site area for BMP Point Calculations is 44.46 acres (33.26 on east plus 11.20 on west).
- Per phase 1 calculations, 23.05 acres of natural open space is located on the north and west side of the existing facility.
- Dry Basin 1 (Part of Phase 1) is an extended detention basin to the north side of the existing facility. This basin serves a drainage area of 6.20 acres.

$$\text{BMP Points} = \frac{6.20}{44.46} \times 4 = \underline{\underline{0.56 \text{ BMP points}}}$$

- Dry Basin 2 (Part of Phase 1) was designed as an extended detention system with a timber wall. As part of Phase 2, the extended detention system will become the forebay for a small wet pond to be constructed on the west side of the Colonial Pipeline easement. The wet pond and forebay will be designed to serve a drainage area of 4.20 acres.

$$\text{BMP Points} = \frac{4.40}{44.46} \times 6 = \underline{\underline{0.59 \text{ BMP points}}}$$

- Basin 3, to be constructed as part of Phase 2, will be an extended detention wet pond. This basin will be constructed on the west side of the Colonial Pipeline easement, with the forebay construction on the east side of the easement. The basin will be designed to handle 16.90 acres.

$$\text{BMP Points} = \frac{16.90}{44.46} \times 10 = \underline{\underline{3.80 \text{ BMP points}}}$$

- A total of 3 acres of the open space from Phase 1 will be utilized for the construction of BMPs as part of Phase 2. However, 2.88 acres of open space will remain in place in Phase 2. Thus, 22.93 acres of open space will exist on the site.

$$\text{BMP Points} = \frac{22.93}{67.51} \times 100 \times 0.15 = \underline{\underline{5.09 \text{ BMP points}}}$$

- Total BMP Points for Site = 0.56 + 0.59 + 3.80 + 5.09 = **10.04 BMP points**
- NOTE: As the 11.20 acres to the west is included in these calculations, no BMP is required for Phase 3 of this development.

**BMP POINT CALCULATIONS
FOR
WILLIAMSBURG LANDING DEVELOPMENT**

LMDG File No. 2000312-000.07

- Per phase 1, site area to the east of the Colonial Pipeline easement is 33.26 acres. A total of 11.20 acres on the west side of the Colonial Pipeline easement is developable as a 3rd phase.
- The total site area for BMP Point Calculations is 44.46 acres (33.26 on east plus 11.20 on west).
- Per phase 1 calculations, 23.05 acres of natural open space is located on the north and west side of the existing facility.
- Dry Basin 1 (Part of Phase 1) is an extended detention basin to the north side of the existing facility. This basin serves a drainage area of 6.20 acres.

$$\text{BMP Points} = \frac{6.20}{44.46} \times 4 = \underline{\underline{0.56 \text{ BMP points}}}$$

- Dry Basin 2 (Part of Phase 1) was designed as an extended detention system with a timber wall. As part of Phase 2, the extended detention system will become the forebay for a small wet pond to be constructed on the west side of the Colonial Pipeline easement. The wet pond and forebay will be designed to serve a drainage area of 4.20 acres.

$$\text{BMP Points} = \frac{4.40}{44.46} \times 6 = \underline{\underline{0.59 \text{ BMP points}}}$$

- Basin 3, to be constructed as part of Phase 2, will be an extended detention wet pond. This basin will be constructed on the west side of the Colonial Pipeline easement, with the forebay construction on the east side of the easement. The basin will be designed to handle 16.90 acres.

$$\text{BMP Points} = \frac{16.90}{44.46} \times 10 = \underline{\underline{3.80 \text{ BMP points}}}$$

- A total of 3 acres of the open space from Phase 1 will be utilized for the construction of BMPs as part of Phase 2. However, 2.88 acres of open space will remain in place in Phase 2. Thus, 22.93 acres of open space will exist on the site.

$$\text{BMP Points} = \frac{22.93}{67.51} \times 100 \times 0.15 = \underline{\underline{5.09 \text{ BMP points}}}$$

- Total BMP Points for Site = 0.56 + 0.59 + 3.80 + 5.09 = **10.04 BMP points**
- NOTE: As the 11.20 acres to the west is included in these calculations, no BMP is required for Phase 3 of this development.

**BMP POINT CALCULATIONS
FOR
WILLIAMSBURG LANDING DEVELOPMENT, PHASE 2**

LMDG File No. 2000312-000.15

- Per boundary of site, the site area is 50.22 acres. Of this acreage, 14.93 is on the west side of the Colonial Pipeline Easement as part of a future phase and will not be included in this calculation. Thus, the total site area for these calculations is 35.29 acres.
- Per recorded conservation easements for Phase 1, 25.01 acres of natural open space is located on the north and west side of the existing facility. Of this 25.01 acres, 0.41 acres is on this parcel. Thus, the total area for credit calculation is 59.89 acres (35.29 + 25.01 – 0.41).

$$\text{BMP Points} = \frac{25.01}{59.89} \times 100 \times 0.10 = \underline{\underline{4.18 \text{ BMP points}}}$$

- Dry Basin 1 (Part of Phase 1) is an extended detention basin to the north side of the existing facility. This basin serves a drainage area of 5.19 acres, per the Phase 1 as-built.

$$\text{BMP Points} = \frac{5.19}{35.29} \times 4 = \underline{\underline{0.59 \text{ BMP points}}}$$

-
- Dry Basin 2 (Part of Phase 1) was designed as an extended detention system with a timber wall. As part of Phase 2, the extended detention system will become the forebay for an extended detention wet pond to be constructed on the west side of the Colonial Pipeline easement. The wet pond and forebay will be designed to serve a drainage area of 7.85 acres.

$$\text{BMP Points} = \frac{7.85}{35.29} \times 10 = \underline{\underline{2.22 \text{ BMP points}}}$$

- Basin 3, to be constructed as part of Phase 2, will be a series of timber walls designed to provide water quality and flow attenuation. This basin will be constructed within the existing ravine on the west side of the Colonial Pipeline easement and the area between Cottage 6 and the Colonial Pipeline easement. The basin will be designed to handle 13.15 acres.

$$\text{BMP Points} = \frac{13.15}{35.29} \times 4 = \underline{\underline{1.49 \text{ BMP points}}}$$

- A total of 9.19 acres of open space will be recorded as part of a conservation easement in Phase 2.

$$\text{BMP Points} = \frac{9.19}{35.29} \times 100 \times 0.15 = \underline{\underline{3.91 \text{ BMP points}}}$$

- Total BMP Points for Site = $4.18 + 0.59 + 2.22 + 1.49 + 3.91$ = **12.39 BMP points**

**BMP POINT CALCULATIONS
FOR
WILLIAMSBURG LANDING DEVELOPMENT, PHASE 2**

LMDG File No. 2000312-000.15

- Per the boundary of the site, the site area is 50.22 acres.
- Per recorded conservation easements for Phase 1, 25.01 acres of natural open space is located on the north and west side of the existing facility. Of this 25.01 acres, 0.41 acres is on this parcel. Thus, the total area for credit calculation is 74.82 (50.22 + 25.01 – 0.41).

$$\text{BMP Points} = \frac{25.01}{74.82} \times 100 \times 0.10 = \underline{\underline{3.34 \text{ BMP points}}}$$

- Dry Basin 1 (Part of Phase 1) is an extended detention basin to the north side of the existing facility. This basin serves a drainage area of 5.19 acres, per the Phase 1 as-built.

$$\text{BMP Points} = \frac{5.19}{50.22} \times 4 = \underline{\underline{0.41 \text{ BMP points}}}$$

- Dry Basin 2 (Part of Phase 1) was designed as an extended detention system with a timber wall. As part of Phase 2, the extended detention system will become the forebay for an extended detention wet pond to be constructed on the west side of the Colonial Pipeline easement. The wet pond and forebay will be designed to serve a drainage area of 7.85 acres.

$$\text{BMP Points} = \frac{7.85}{50.22} \times 10 = \underline{\underline{1.56 \text{ BMP points}}}$$

- Basin 3, to be constructed as part of Phase 2, will be a series of timber walls designed to provide water quality and flow attenuation. This basin will be constructed within the existing ravine on the west side of the Colonial Pipeline easement and the area between Cottage 6 and the Colonial Pipeline easement. The basin will be designed to handle 13.15 acres.

$$\text{BMP Points} = \frac{13.15}{50.22} \times 4 = \underline{\underline{1.05 \text{ BMP points}}}$$

- A total of 9.10 acres of open space will be recorded as part of a conservation easement in Phase 2.

$$\text{BMP Points} = \frac{9.19}{50.22} \times 100 \times 0.15 = \underline{\underline{2.74 \text{ BMP points}}}$$

- Total BMP Points for Site = 3.34 + 0.41 + 1.56 + 1.05 + 2.74 = **9.10 BMP points**

- As the 14.93 acres to the west of the Colonial Pipeline easement is included in this calculation, a Phase 3 of development would be required to provide 0.90 BMP points as part of its development.



McKINNEY AND COMPANY
planning • design • construction

PAUL W. BURCH, P.E.
Senior Engineer and Head of Quality Assurance

100 South Railroad Ave. • Ashland, Virginia 23005
(804) 798-1451 • facsimile (804) 459-0024
email: pburch@mckinney-usa.com
