



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: MC014

DATE VERIFIED: August 20, 2012

QUALITY ASSURANCE TECHNICIAN: Leah Hardenbergh

Leah Hardenbergh

LOCATION: WILLIAMSBURG, VIRGINIA



Stormwater Division

MEMORANDUM

Date: April 4, 2012
To: Michael J. Gillis, Virginia Correctional Enterprises Document Management Services
From: Leah Hardenbergh
PO: 110426
Re: Files Approved for Scanning

General File ID or BMP ID: MC014
PIN: 4810600171A
Owner Name (if known): WILLIAMSBURG JAMES CITY COUNTY SCHOOLS
Legal Property Description: RAWLS-BYRD SCHOOL
Site Address: 112 LAUREL LANE

(For internal use only):

Box # 4

Agreements (in file as of scan date): Y Book or Doc #: 970001284

DECLARATION OF COVENANTS

INSPECTION/MAINTENANCE OF RUNOFF CONTROL FACILITY

copy

THIS DECLARATION, made this 15 day of January, 1997, between WJCCPS/BLUERIDGE GENERAL, INC., and all successors in interest, hereinafter referred to as the "COVENANTOR(S)," owner(s) of the following property: _____
RAWLS BYRD ELEMENTARY SCHOOL, 112 LAUREL LN.

K.D. ADDITIONS AND RENOVATIONS, Deed Book 96, Page No. 543, and James City County, Virginia, hereinafter referred to as the "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 runoff control facility, hereinafter referred to as the "FACILITY," located on and serving the above-described property to ensure that the FACILITY is and remains in proper working condition in accordance with approved design standards, and with the law and applicable executive regulations.

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

3. The COVENANTOR(S) shall provide and maintain perpetual access from public rights-of-way to the FACILITY 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, constructing, reconstructing, maintaining or repairing the FACILITY.

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

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

7. The COVENANTOR(s) shall promptly notify the COUNTY when the COVENANTOR(S) legally transfers any of the COVENANTOR(S)' responsibilities for the FACILITY. 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 FACILITY.

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

*Instrument # 970001284
Recorded 1-27-97*

IN WITNESS WHEREOF, the COVENANTOR(S) have executed this DECLARATION OF COVENANTS as of this 15 day of January, 1997.

COVENANTOR(S)

Furrott R. White

FURROTT R. WHITE
N-JCC PUBLIC SCHOOLS

ATTEST:

COVENANTOR(S)

Kevin Dorrian

KEVIN DORRIAN
BLUERIDGE GENERAL INC

ATTEST:

COMMONWEALTH OF VIRGINIA
COUNTY OF James City County

I hereby certify that on this 15 day of January 1997, before the subscribed, a Notary Public of the State of Virginia, and for the County of James City County, aforesaid personally appeared Furrott R. White + Kevin Dorrian and did acknowledge the foregoing instrument to be their Act.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this 15 day of January, 1997.

Shirley H. Hays
Notary Public

My Commission expires: My Commission Expires December 31, 1997

Approved as to form:

Lou P. Rogers
Deputy County Attorney

This Declaration of Covenants prepared by:

KEVIN DORRIAN

(Print Name)

PROJECT MGR. BLUERIDGE GENERAL INC

(Title)

3422 STRATHMORE AVE

(Address)

NORFOLK VA 23504

(City)

(State)

(Zip)

0261U.wpf
Revised 9/96



**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: Parking Lot Expansion for Rawls Byrd Elementary School
 Structure/BMP Name: Dry Detention Pond
 Project Location: South side of Rawls Byrd Elementary School on Laurel Lane
 BMP Location: Southwest corner of school property
 County Plan No.: SP - 45 - 07

Project Type: Residential Business Tax Map/Parcel No.: (48-1) (6-171A)
 Commercial Office BMP ID Code (if known): MC 014
 Institutional Industrial Zoning District: R-2
 Public Roadway Land Use: _____
 Other Site Area (sf or acres): 0.507 Acres (Project Area)

Brief Description of Stormwater Management/BMP Facility: Dry Detention Pond serving the new parking lot, a portion of the existing parking lot and school building, and the existing athletic fields.

Nearest Visible Landmark to SWM/BMP Facility: Parking lot and playground at south end of school building

Nearest Vertical Ground Control (if known):
 JCC Geodetic Ground Control USGS Temporary Arbitrary Other
 Station Number or Name: JCC Station No. 332
 Datum or Reference Elevation: Elevation 71.71 NGVD 29
 Control Description: _____
 Control Location from Subject Facility: _____

Section 2 – Stormwater Management / BMP Facility Construction Information:

PreConstruction Meeting Held for Construction of SWM/BMP Facility: Yes No Unknown

Approx. Construction Start Date for SWM/BMP Facility: June 21, 2007

Facility Monitored by County Representative during Construction: Yes No Unknown

Name of Site Work Contractor Who Constructed Facility: Stilley Company

Name of Professional Firm Who Routinely Monitored Construction: AES Consulting Engineers

Date of Completion for SWM/BMP Facility: August 29, 2007

Date of Record Drawing/Construction Certification Submittal: September 12, 2007

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

Section 3 – Owner / Designer / Contractor Information:

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

Name: James City County Parks and Recreation

Mailing Address: 597 Jolly Pond Road

Williamsburg, VA 23188

Business Phone: 757-259-7157

Fax: 757-565-1462

Contact Person: Alan Robertson

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: AES Consulting Engineers

Mailing Address: 5248 Olde Towne Road, Suite 1

Williamsburg, VA 23188

Business Phone: 757-253-0040

Fax: 757-220-8994

Responsible Plan Preparer: Nicholas Botta, P.E.

Title: Project Engineer

Plan Name: Parking Lot Expansion for Rawls Byrd Elementary School

Firm's Project No. 9517-16

Plan Date: April 24, 2007

Sheet No.'s Applicable to SWM/BMP Facility: 3 / 5 / / /

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

Name: Stilley Company

Mailing Address: 737 Shields Road, P.O.Box 14488

Newport News, VA 23608

Business Phone: 757-886-0721

Fax: 757-886-9302

Contact Person: W. W. Stilley

Site Foreman/Supervisor: Tom Smigiel

Specialty Subcontractors & Purpose (for BMP Construction Only):

N/A

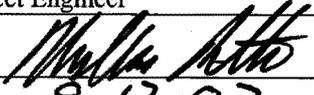
Section 4 – Professional Certifications:

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

Record Drawing and Construction Certifications for Stormwater Management / BMP Facilities

Record Drawing Certification

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

Name: Nicholas Botta, P.E.
Title: Project Engineer
Signature: 
Date: 9-17-07

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.

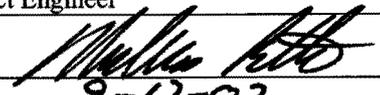


(Seal)

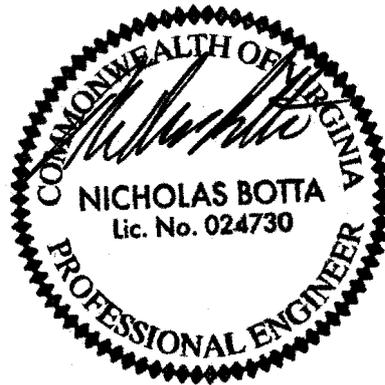
Virginia Registered Professional Engineer
Or Certified Land Surveyor

Construction Certification

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

Name: Nicholas Botta, P.E.
Title: Project Engineer
Signature: 
Date: 9-17-07

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



(Seal)

Virginia Registered
Professional Engineer



RECEIVED

SEP 17 2007

ENVIRONMENTAL
DIVISION

James City County, Virginia
Environmental Division

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

Standard Forms & Instructions

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MC014
SP-45-07

*Issue Date
February 1, 2001*

Section 5 – Record Drawing and Construction Certification Requirements and Instructions:

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

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

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

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

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

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

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

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

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

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

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

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

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

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

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

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

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

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

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

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

- N/A B1. Same requirements as Group A Wet Ponds.
- N/A B2. Minimum 2:1 length to width flow path provided across the facility.
- N/A B3. Micropool provided at or around outlet from BMP (generally 3 to 6 ft. deep).
- N/A B4. Wetland type landscaping provided in accordance with approved plan. Includes correct pondscaping zones, plant species, planting arrangements, wetland beds, etc. Wetland plants include 5 to 7 emergent wetland species. Individual plants at 18 inches on center in clumps.
- N/A B5. Adequate wetland buffer provided (Typically 25 ft. outward from maximum design water surface elevation and 15 ft. setback to structures).
- N/A B6. No more than one-half (½) of the wetland surface area is planted.
- N/A B7. Topsoil or wetland mulch provided to support vigorous growth of wetland plants.
- N/A B8. Planting zones staked or flagged in field and locations subsequently established by appropriate field surveying methods for record drawing presentation.

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

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

- V. **Group C – Infiltration Practices** (Includes C-1 Infiltration Trench; C-2 Infiltration Trench; C-3 Infiltration Basin; and C-4 Infiltration Basin)
- N/A C1. All requirements of Section II, Minimum Standards, apply to Group C facilities as applicable.
- N/A C2. Facility is not located on fill slopes or on natural ground in excess of six (6) percent.
- N/A C3. Pretreatment devices provided prior to entry into the infiltration facility. Acceptable pretreatment devices include sediment forebays, sediment basins, sediment traps, sump pits or inlets, grass channels, plunge pools or other acceptable measures.
- N/A C4. Three (3) or more of the following pretreatment devices provided to protect long term integrity of structure: grass channel; grass filter strip; bottom sand layer; upper filter fabric layer; use of washed bank run gravel aggregate.
- N/A C5. Sides of infiltration practice lined with filter fabric.
- N/A C6. Facility was not used for erosion and sediment control purposes and sediment was prevented from entering the facility to the greatest extent possible during construction.
- N/A C7. Stabilization and acceptable vegetative cover established over contributing drainage area prior to conveyance of stormwater to the facility.
- N/A C8. Minimum one hundred (100) foot separation horizontally from any known water supply well and minimum one hundred (100) foot separation upslope from any building.
- N/A C9. Minimum twenty-five (25) foot separation down gradient from any structure.
- N/A C10. Stormwater outfalls provided for overflow associated with larger design storms.
- N/A C11. No visual signs of erosion or channel degradation immediately downstream of facility.
- N/A C12. Facility does not currently cause any apparent surface or subsurface water problems to downgrade properties.
- N/A C13. Observation well provided.
- N/A C14. Adequate, direct access provided to the facility for future maintenance, operation and inspection.

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

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

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

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

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

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

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

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

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

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

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

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

XII. Other Systems

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

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

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

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

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

STORMWATER MANAGEMENT / BMP FACILITIES RECORD DRAWING CHECKLIST

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

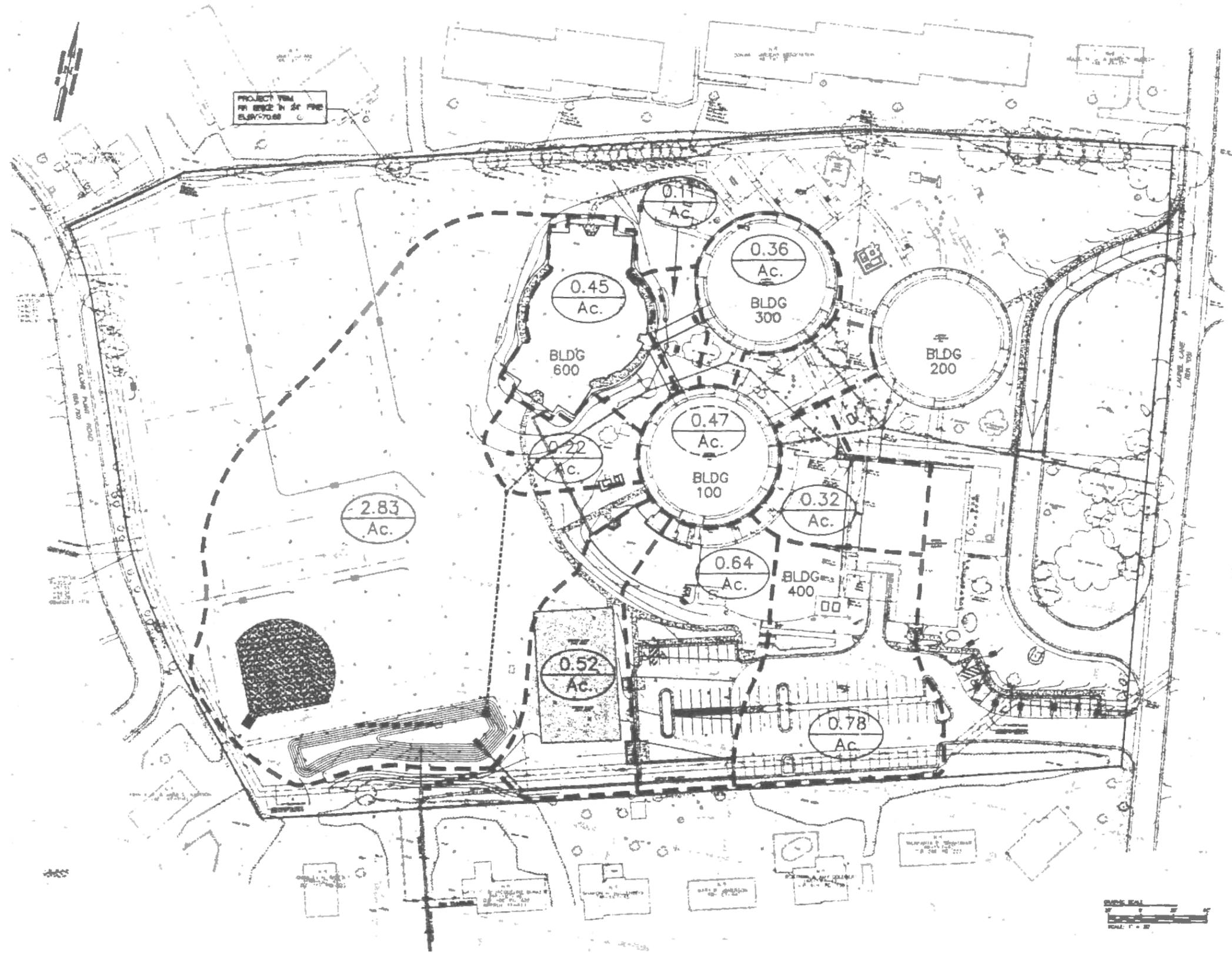
- VIII. Group F – Extended Dry Detention** *(Includes F-1 Timber Walls; and F-2 Dry Extended Detention with Forebay)*
- XX F1. All requirements of Section II, Minimum Standards, apply to Group F facilities.
 - XX F2. Basin bottom has positive slope and drainage from all basin inflow points to the riser (or outflow) location.
 - N/A F3. Timber wall BMP used in intermittent stream only. (ie. Prohibited in perennial streams.)
 - XX F4. Forebay provided approximately 20 ft. upstream of the facility. Forebays generally 4 to 6 feet in depth.
 - XX F5. A reverse slope pipe, vertical stand pipe or mini-barrel and riser was provided to prevent clogging
 - N/A F6. Principal spillway and outlet barrel provided consisting of reinforced concrete pipe with O-Ring gaskets for watertight joint construction.
 - N/A F7. Mini-barrel and riser, if used, contains a removable trash rack to reduce clogging.
 - XX F8. Low flow orifice, if used, has a minimum diameter of three (3) inches or two (2) inches if internal orifice control was utilized and a small, cage type external trash rack.
 - N/A F9. Timbers properly reinforced or concrete footing provided if soil conditions were prohibitive.
 - N/A F10. Timber wall cross members extended to a minimum depth of two (2) feet below ground elevation.
 - N/A F11. Protection against erosion and scour from the low flow orifice and weir-flow trajectory provided.
 - N/A F12. Stilling basin or standard outlet protection provided at principal spillway outlet.
 - XX F13. Adequate, direct access provided to the facility. Access corridor to facility is at least ten (10) feet wide, slope is less than twenty (20) percent and appropriate stabilization provided for equipment and vehicle use. Access extends to forebay, standpipe and timber wall, as applicable.
 - XX F14. No visual signs of undercutting of timber walls or clogging of the low orifice were present.
 - XX F15. No visual signs of erosion or channel degradation immediately downstream of facility.
 - XX F16. No visible signs of accumulated silt/sediment were present in the facility following construction or alternately, accumulated silt/sediment was properly removed and no adverse affects to the function of the facility are anticipated.

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

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

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

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



DRAINAGE AREA MAP

SCALE: 1" = 100'

60

55

50

45



COUNTY OF JAMES CITY
FINAL SITE PLAN

APPROVALS	DATE
Fire Dept. JBLV	5/14
Health Dept.	
VOOT	
Planning	6/14/07
Environ.	6/27/07
Zoning Adm.	6/28/07
JCSA	
County Eng. WBLAV	5/14/07
HEA	
Other SW/LAV	4/26/07

PARKING LOT EXPANSION RAWLS BYRD ELEMENTARY

FOR WJCC PUBLIC SCHOOLS

JAMES CITY COUNTY, VIRGINIA

LEGEND

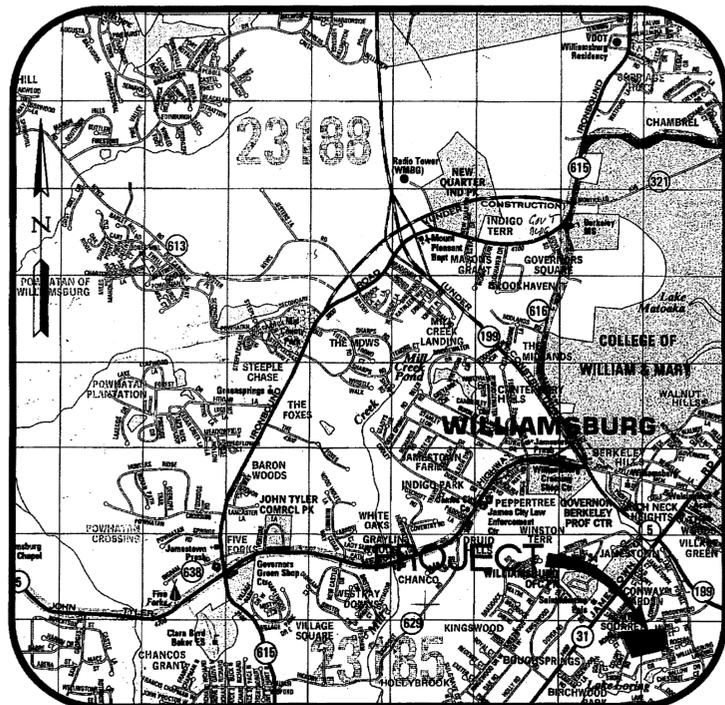
EXISTING	PROPOSED
EX. W	W
EX. S	S
EX. FM	FM
MANHOLE	MANHOLE
CURB DROP INLET	CURB DROP INLET
YARD DROP INLET	YARD DROP INLET
FLARED END SECTION	FLARED END SECTION
VALVE	VALVE
FIRE HYDRANT ASSEMBLY	FIRE HYDRANT ASSEMBLY
BLOW-OFF VALVE	BLOW-OFF VALVE
AIR RELEASE ASSEMBLY	AIR RELEASE ASSEMBLY
CLEAN OUT	CLEAN OUT
WM	WM
STREETLIGHT	STREETLIGHT
CENTERLINE/BASELINE	CENTERLINE/BASELINE
RIGHT OF WAY	RIGHT OF WAY
PROPERTY LINE	PROPERTY LINE
Q DITCH/SWALE	Q DITCH/SWALE
CONCRETE LINED DITCH	CONCRETE LINED DITCH
EXISTING TREELINE	EXISTING TREELINE
LIMITS OF CLEARING	LIMITS OF CLEARING
RIP RAP	RIP RAP
CURB	CURB
CURB AND GUTTER	CURB AND GUTTER
REVERSE GUTTER PAN	REVERSE GUTTER PAN
EDGE OF PAVEMENT	EDGE OF PAVEMENT
EXISTING GROUND ELEVATION	EXISTING GROUND ELEVATION
PROPOSED SPOT GRADE	PROPOSED SPOT GRADE
CONTOUR	CONTOUR
HIGH POINT	HIGH POINT
LOW POINT	LOW POINT

INDEX OF SHEETS

- COVER SHEET
- OVERALL / ENVIRONMENTAL INVENTORY / DEMO PLAN
- SITE / GRADING / DRAINAGE PLAN
- E&S / LANDSCAPE / LIGHTING PLAN
- STORMWATER MANAGEMENT NOTES & DETAILS
- NOTES & DETAILS

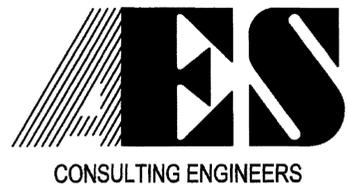
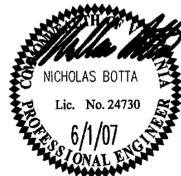
GENERAL NOTES

- SITE IS CURRENTLY ZONED GENERAL RESIDENTIAL DISTRICT, R-2, AIRPORT APPROACH OVERLAY DISTRICT, AA WITH SUP-34-06.
- SITE ADDRESS: 112 LAUREL LANE, WILLIAMSBURG, VA
- TAX MAP PARCEL NO. (48-1) (6-171A)
- APPLICANT: WILLIAMSBURG JAMES CITY COUNTY PUBLIC SCHOOLS
597 JOLLY POND ROAD
WILLIAMSBURG VA. 23188-7328
CONTACT: ED QUALTROUGH
PHONE: 757 565-2111
FAX: 757 565-1462
- PROPERTY SHOWN HEREON LIES IN ZONE "X", (AREA DETERMINED TO BE OUTSIDE THE 500 YEAR FLOOD PLAIN) PER F.I.R.M. #510201-0045B, DATED 2/6/91.
- THIS SITE LIES WITHIN THE MILL CREEK WATERSHED.
- SITE IS SERVED BY PUBLIC WATER AND SEWER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING MISS UTILITY (1-800-552-7001) FOR EXISTING UTILITY LOCATIONS AT LEAST 3 WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION AND ALSO HAVE A PRIVATE UTILITY LOCATOR FOR PRIVATE UTILITIES AT SAME TIME FRAME.
- EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES.
- ALL UTILITIES WILL BE PLACED UNDERGROUND.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR THIS PROJECT.
- ANY UTILITIES NOT LOCATED BY MISS UTILITY OR PRIVATE LOCATOR AND ARE UNCOVERED DURING CONSTRUCTION, CONTRACTOR SHALL NOTIFY OWNER/DEVELOPER'S IMMEDIATELY, SECURE AREA AND AT THE OWNER/DEVELOPER'S EXPENSE REPAIRS ARE TO BE MADE.
- ON-SITE EXTERIOR CONCRETE IS TO BE A MINIMUM OF 3000 PSI WITH 5% TO 7% AIR ENTRAINMENT.
- CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF ALL SITE IMPROVEMENTS, INCLUDING LANDSCAPING, AS SHOWN ON THE APPROVED PLAN.
- ALL WATER AND SEWER LINE CONSTRUCTION OF COUNTY OWNED MAINS SHALL MEET JAMES CITY COUNTY STANDARDS.
- ALL TRAFFIC CONTROL SIGNS AND MARKINGS TO CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (2003 EDITION).
- THE PROFESSIONAL WHOSE SEAL IS AFFIXED HEREON SHALL ACT AS THE "RESPONSIBLE LAND DISTURBER" FOR PURPOSES OF PLAN APPROVAL ONLY. PRIOR TO ISSUANCE OF THE LAND DISTURBER PERMIT, THE OWNER OR DEVELOPER SHALL PROVIDE THE NAME OF A "RESPONSIBLE LAND DISTURBER" WHO SHALL ASSUME RESPONSIBILITY AS THE "RESPONSIBLE LAND DISTURBER" FOR THE CONSTRUCTION PHASE OF THE PROJECT. THE OWNER OR DEVELOPER SHALL PROVIDE WRITTEN NOTIFICATION SHOULD THE "RESPONSIBLE LAND DISTURBER" CHANGE DURING CONSTRUCTION.
- A PROFESSIONAL ENGINEER WHO HAS INSPECTED THE BMP FACILITY DURING CONSTRUCTION SHALL CERTIFY THE CONSTRUCTION AND PROVIDE RECORD DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE CONSTRUCTION SCHEDULE WITH THE ENGINEER TO ENSURE ONSITE MONITORING.
- HORIZONTAL DATUM: JAMES CITY COUNTY GEODETIC CONTROL NETWORK
VIRGINIA STATE PLANE COORDINATE SYSTEM - SOUTH ZONE
NAD 83 (1994 VA HARN)
VERTICAL DATUM: JAMES CITY COUNTY GEODETIC CONTROL NETWORK
NGVD 29
- THE CONTRACTOR SHALL REMOVE ALL EXCESS SOIL FROM SITE. NO TEMPORARY STOCKPILES ARE PLANNED FOR THIS PROJECT.



COPYRIGHT ADC THE MAP PEOPLE - PERMITTED USE NUMBER 20605139
VICINITY MAP (APPROX. SCALE 1"=2000')

JCC SP-45-07
DATE: APRIL 24, 2007
AES PROJECT NO.: 9517-16
SHEET 1 OF 6



WILLIAMSBURG • RICHMOND • GLOUCESTER
5248 Olde Towne Road, Suite 1 • Williamsburg, Virginia 23188
(757) 253-0040 • Fax (757) 220-8994

PARKING CALCULATIONS

EXISTING PARKING	93 / INCLUDING 6 HANDICAPPED
PROPOSED PARKING	136 / INCLUDING 6 HANDICAPPED

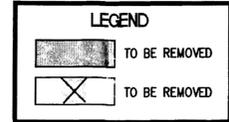
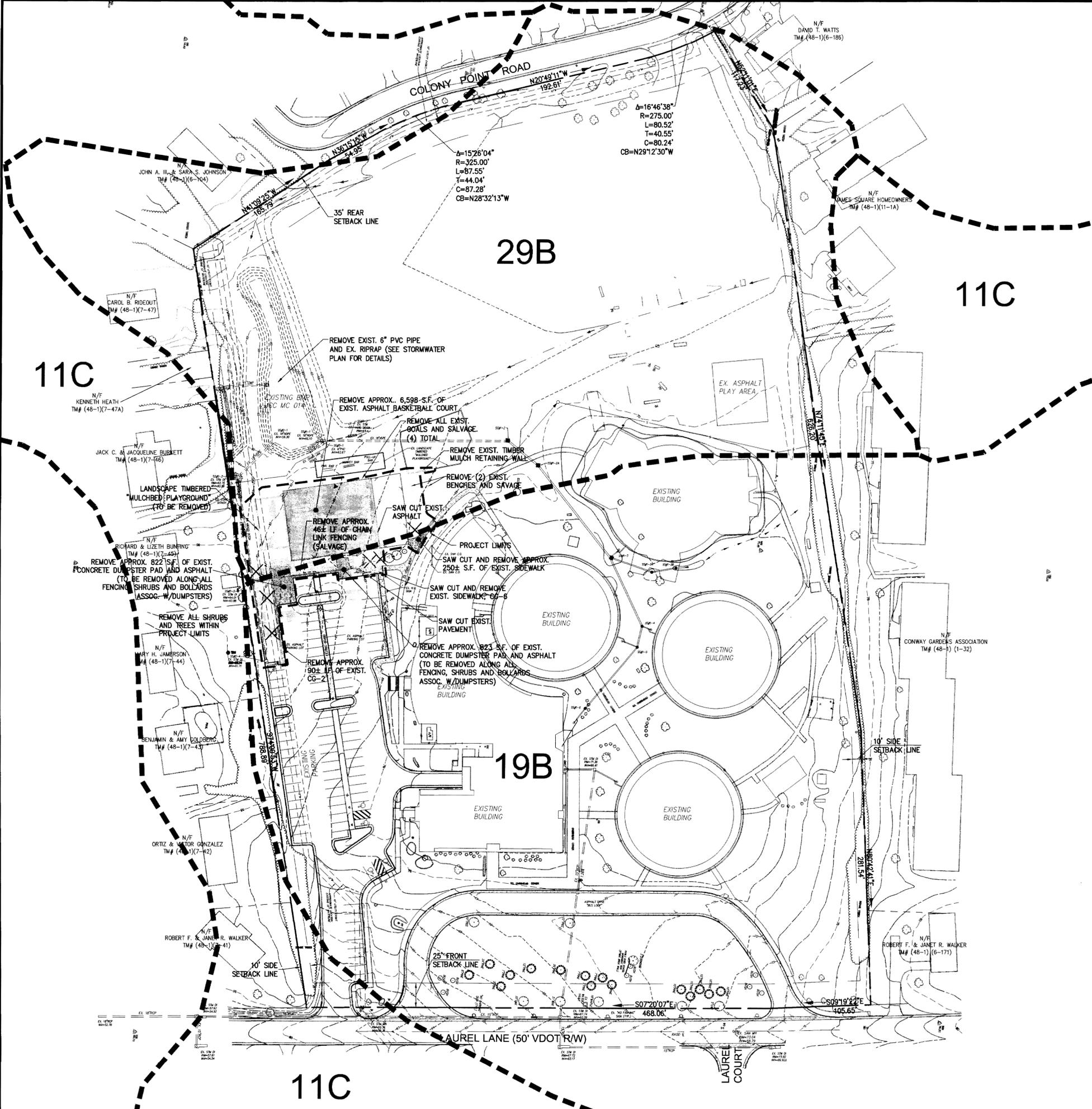
LAND USE SUMMARY TABLE

TOTAL SITE AREA	=	544,191 S.F.	=	100.0%	12.5± ACRES
EXISTING BUILDING AREA	=	62,332 S.F.	=	11.4%	
(INCLUDES TEMPORARY TRAILER CLASSROOM)					
EXISTING PAVEMENT AREA	=	82,502 S.F.	=	15.2%	
EXISTING OPEN SPACE	=	399,357 S.F.	=	73.4%	
PROPOSED BUILDING AREA	=	62,332 S.F.	=	11.4%	
(INCLUDES TEMPORARY TRAILER CLASSROOMS)					
PROPOSED IMPERVIOUS AREA	=	89,002 S.F.	=	16.4%	
PROPOSED OPEN SPACE	=	392,857 S.F.	=	72.2%	
PROPOSED DISTURBED AREA PARKING LOT	=	20,233 S.F.±	=	0.464 ACRES	
PROPOSED DISTURBED AREA POND	=	1,854 S.F.±	=	0.043 ACRES	
TOTAL PROJECT DISTURBED AREA	=	22,087 S.F.±	=	0.507 ACRES	



APPROVED
James City County
Environmental Division
By: [Signature]
Date: 6/1/07

APPROVAL DATE	No.	DATE	REVISION / COMMENT / NOTE	REVIEWED BY	DATE
6/1/07	1	6/1/07	REVISION PER JCC COMMENTS DATED 5/24/07	LBA	6/1/07



SOIL CHARACTERISTICS

SOIL#	SOIL NAME	HYDROLOGIC GROUP
11C	CRAVEN/UCHEE	C,A
19B	KEMPSVILLE/EMPORIA	B,C
29B	SLAGLE	C

INFORMATION TAKEN FROM "SOIL SURVEY OF JAMES CITY AND YORK COUNTIES AND THE CITY OF WILLIAMSBURG, VIRGINIA" ISSUED IN APRIL, 1985 BY THE UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE IN COOPERATION WITH VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY.

THE MAP SHOWN IS A "BEST FIT MODEL" OF THE SCS MAPS WITH EXISTING BASE INFORMATION.

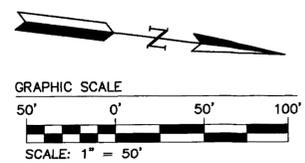
SOIL SUSCEPTIBILITY TO EROSION CLASSIFICATION (K)
 0.23 AND LOWER - LOW ERODIBILITY
 0.23 TO 0.36 - MODERATE ERODIBILITY
 0.36 AND UP - HIGH ERODIBILITY

THE MAP SHOWN IS A "BEST FIT MODEL" OF THE SCS MAPS WITH EXISTING BASE INFORMATION.

DENOTES 25% OR GREATER SLOPES

ENVIRONMENTAL INVENTORY

	ON SITE	IMPACTS
TIDAL WETLANDS:	0.00 AC	0.00 AC
TIDAL SHORES:	0.00 AC	0.00 AC
NON-TIDAL WETLANDS IN RPA:	0.00 AC	0.00 AC
100 FT RPA BUFFER:	0.00 AC	0.00 AC
NON-TIDAL WETLANDS IN RMA:	0.00 AC	0.00 AC
25% SLOPES	0.05 AC	0.00 AC



No.	DATE	REVISION / COMMENT / NOTE
1	6/7/07	REVISION PER JCC COMMENTS DATED 5/24/07



5248 Olde Towne Road, Suite 1
 Williamsburg, Virginia 23188
 (757) 253-0040
 Fax (757) 220-9994



OVERALL / ENVIRONMENTAL INVENTORY / DEMO PLAN
 PARKING LOT EXPANSION
 RAWLS BYRD ELEMENTARY SCHOOL
 WILLIAMSBURG/JAMES CITY COUNTY SCHOOLS
 JAMESTOWN DISTRICT JAMES CITY COUNTY VIRGINIA

Designed NB/LBA	Drawn LBA/BBS
Scale 1"=50'	Date 4/24/07
Project No. 9517-16	
Drawing No. 2	

**JAMES CITY COUNTY ENVIRONMENTAL DIVISION
EROSION AND SEDIMENT CONTROL NOTES
REVISED 7/6/01**

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

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

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

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

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

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

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

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

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

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

10. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

11. NO MORE THAN 300 FEET OF SANITARY SEWER, STORM DRAIN, WATER OR UNDERGROUND UTILITY LINES ARE TO BE OPEN AT ONE TIME. FOLLOWING INSTALLATION OF ANY PORTION OF THESE ITEMS, ALL DISTURBED AREAS ARE TO BE IMMEDIATELY STABILIZED (I.E., THE SAME DAY).

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

13. THE TERM SEEDING, FINAL VEGETATIVE COVER OR STABILIZATION ON THIS PLAN SHALL MEAN THE SUCCESSFUL GERMINATION AND ESTABLISHMENT OF A STABLE GRASS COVER FROM A PROPERLY PREPARED SEEDBED CONTAINING THE SPECIFIED AMOUNTS OF SEED, LIME AND FERTILIZER (STD & SPEC 3.32). IRRIGATION SHALL BE REQUIRED AS NECESSARY TO ENSURE ESTABLISHMENT OF GRASS COVER.

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

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

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

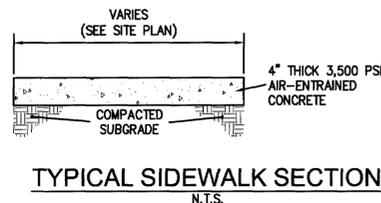
17. PAVED DITCHES SHALL BE REQUIRED WHEREVER ACCELERATED EROSION IS EVIDENT. PARTICULAR ATTENTION SHALL BE PAID TO THOSE AREAS WHERE GRADES EXCEED 3 PERCENT.

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

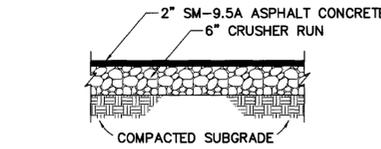
19. NO SEDIMENT TRAP OR SEDIMENT BASIN SHALL BE REMOVED UNTIL A) AT LEAST 75 PERCENT OF THE LOTS WITHIN THE DRAINAGE AREA TO THE TRAP OR BASIN HAVE BEEN SOLD TO A THIRD PARTY (UNRELATED TO THE DEVELOPER) FOR THE CONSTRUCTION OF HOMES AND/OR B) 60 PERCENT OF THE SINGLE FAMILY LOTS WITHIN THE DRAINAGE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

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

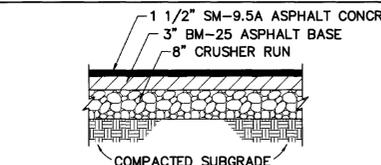
21. DESIGN AND CONSTRUCTION OF PRIVATE-TYPE SITE DRAINAGE SYSTEMS OUTSIDE VDOT RIGHTS-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT VERSION OF THE JAMES CITY COUNTY ENVIRONMENTAL DIVISION, STORMWATER DRAINAGE CONVEYANCE SYSTEMS (NON-BMP RELATED), GENERAL DESIGN AND CONSTRUCTION GUIDELINES.



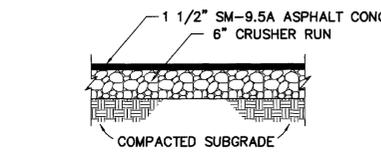
TYPICAL SIDEWALK SECTION
N.T.S.



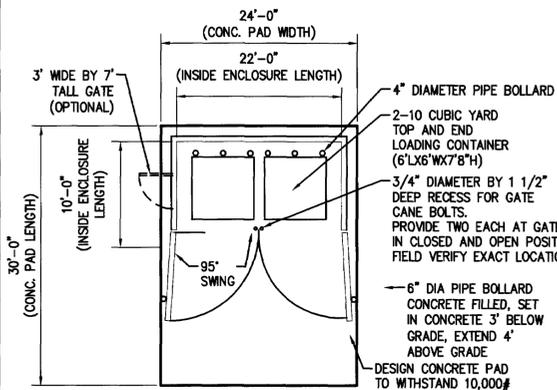
TYPICAL PARKING LOT PAVEMENT SECTION
N.T.S.



TYPICAL DRIVE ISLAND PAVEMENT SECTION
N.T.S.



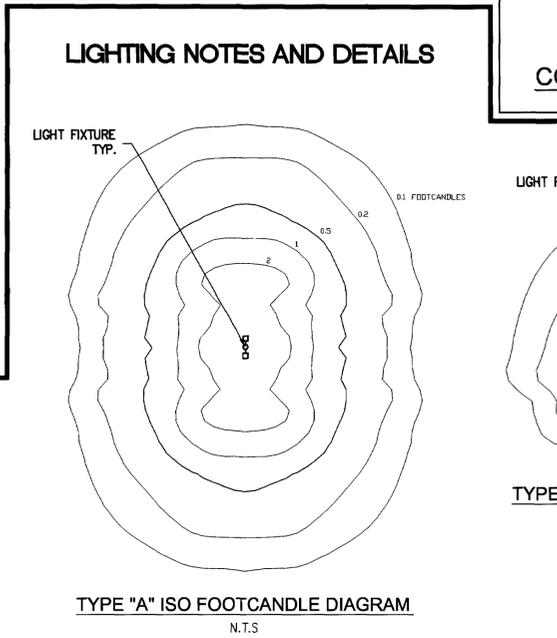
TYPICAL ASPHALT PLAY AREA SECTION
N.T.S.



DOUBLE DUMPSTER PAD DETAIL
N.T.S.

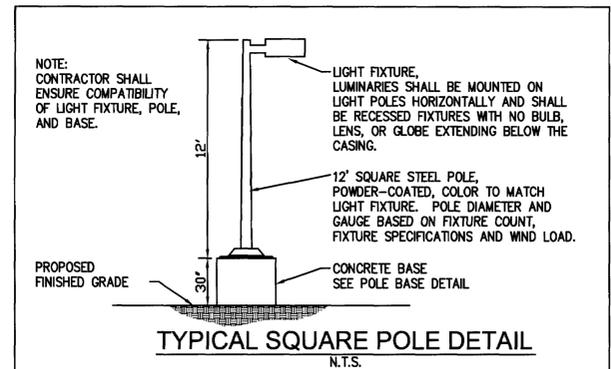


DUMPSTER PAD SECTION
N.T.S.

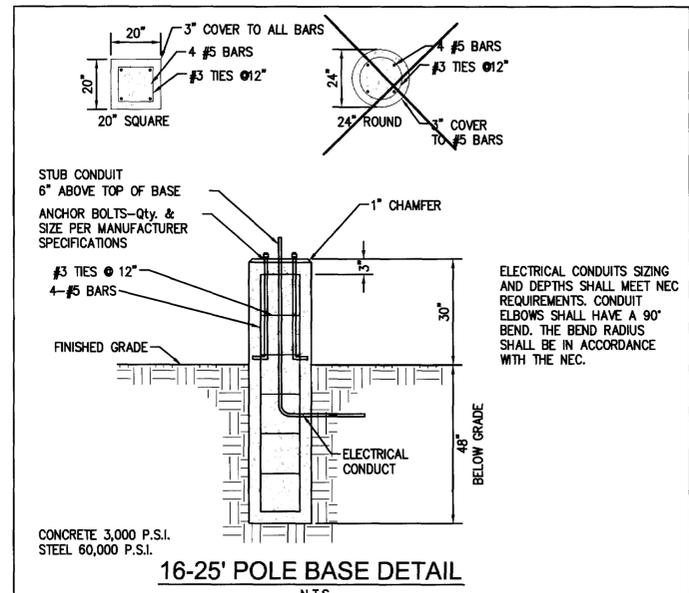


TYPE "A" ISO FOOTCANDLE DIAGRAM
N.T.S.

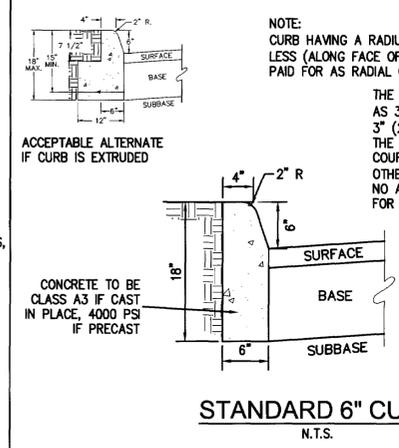
TYPE "B" ISO FOOTCANDLE DIAGRAM
N.T.S.



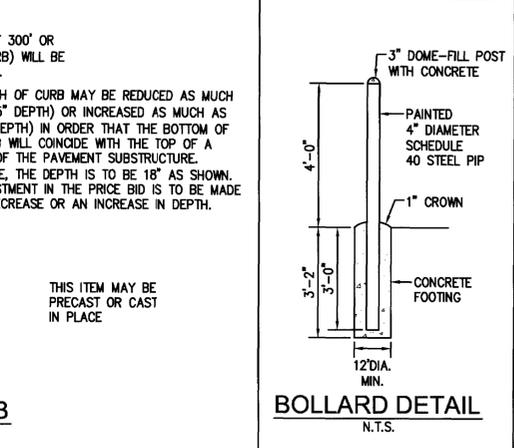
TYPICAL SQUARE POLE DETAIL
N.T.S.



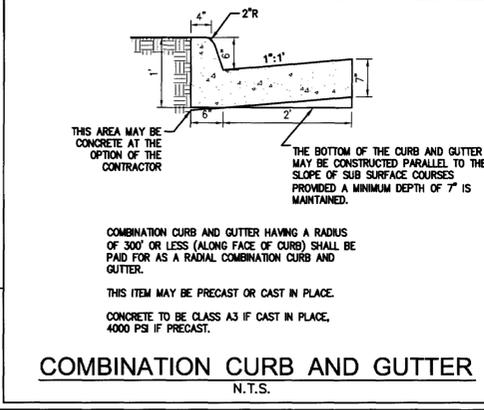
16-25' POLE BASE DETAIL
N.T.S.



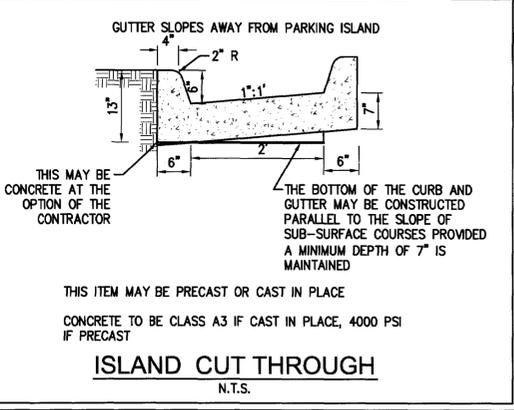
STANDARD 6" CURB
N.T.S.



BOLLARD DETAIL
N.T.S.



COMBINATION CURB AND GUTTER
N.T.S.



ISLAND CUT THROUGH
N.T.S.

LIGHTING SCHEDULE

KEY	FIXTURE TYPE	MOUNTING HEIGHT	POLE TYPE/ MOUNTING INSTRUCTIONS	FIXTURES PER POLE	TOTAL FIXTURES
A	LITHONIA MODEL# KSF2 250S R4SC DESCRIPTION 250 WATT HIGH PRESSURE SODIUM FIXTURE WITH TYPE IV SHARP CUTOFF DISTRIBUTION; COLOR: BLACK	12'	LITHONIA STRAIGHT, SQUARE, STEEL POLE COLOR: BLACK	2	2
B	LITHONIA MODEL# KSF2 250S R4SC DESCRIPTION 250 WATT HIGH PRESSURE SODIUM FIXTURE WITH TYPE IV SHARP CUTOFF DISTRIBUTION; COLOR: BLACK	12'	LITHONIA STRAIGHT, SQUARE, STEEL POLE COLOR: BLACK	1	1

Architectural Arm-Mounted Cutoff

KSF Spec-Form®

For car lots, street lighting or parking areas. Optics - Anodized segmented reflectors provide superior uniformity and control. KSF1 & KSF2 reflectors are rotatable and interchangeable. KSF3 Type IV is rotatable. Five cutoff distributions available: R1 (roadway), R3 (asymmetric), R4SC (forward throw, sharp cutoff), R4F (wide, forward throw), R5 (square).

Housing - Rugged, heavy-gauge, aluminum rectangular housing. All seams continuously welded for weather-tight integrity. Dark bronze corrosion-resistant polyester powder finish (DOR) standard. Other architectural colors available.

Door Frame - Natural anodized, extruded aluminum frame with mitered corners, reinforced with two hinge pins and secured with one quarter-turn, quick-release fastener. Integrally designed, extruded silicone gasket provides weatherproof seal between housing and frame.

Lens - 1/2" thick, impact-resistant, tempered glass with thermally applied, silk-screened power distribution.

Mounting - Extruded 4" (KSF1, KSF2) or 1/2" (KSF3) aluminum arm for square pole mounting shipped in future carton as standard. Optional mountings available.

Ordering Information: Example: KSF1 150S R2 120 SP09 PER LPI

Ordering Information	Options	Options	Options
1. KSF1 150S R2 120 SP09 PER LPI	2. KSF1 150S R2 120 SP09 PER LPI	3. KSF1 150S R2 120 SP09 PER LPI	4. KSF1 150S R2 120 SP09 PER LPI

www.lithonia.com

NO.	DATE	REVISION / COMMENT / NOTE
1	1/6/07	REVISION PER ACC COMMENTS DATED 5/24/07



5248 Old Towne Road, Suite 1
Williamsburg, Virginia 23188
(757) 253-0040
Fax (757) 220-9994



PARKING LOT NOTES & DETAILS

PARKING LOT EXPANSION

RAWLS BYRD ELEMENTARY SCHOOL

WILLIAMSBURG/JAMES CITY COUNTY SCHOOLS

Designed: AES
Scale: AS NOTED
Date: 4/24/07
Project No: 9517-16
Drawing No: 6

R = 275.00'
L = 80.53'
N 29°12'30" W
80.24'
CHORD BEARING

N 28°32'13" W
87.28'
CHORD BEARING

R = 325.00'
L = 87.54'

N 74°11'45" E
626.20'

N 80°42'41" E
281.54'

S 09°19'22" E
105.65'

LAUREL LANE (RT 703)

S 07°20'07" E
468.06'

N 3618461.51
E 11997839.75

N 3618246.24
E 11997080.80

- NOTES:
- ELEVATIONS ARE BASED ON PROJECT TBM, EL. 70.63', AS SHOWN ON SHEET C-2 OF THE PLANS TITLED "ADDITIONS & RENOVATIONS RAWLS BYRD ELEMENTARY SCHOOL" DATED 5/15/96.
 - BEARINGS/DISTANCES AND COORDINATES SHOWN ARE BASED ON PLANS TITLED "ADDITIONS AND RENOVATIONS RAWLS BYRD ELEMENTARY SCHOOL" DATED 5/15/96.

SS 1-3B
RIM = 70.80'
INV. = 67.75'

SS 1-3A
RIM = 70.80'
INV. = 67.60'

EXISTING BUILDING 300

SS 1-4
RIM = 71.05'
INV. = 65.40'

NEW BUILDING 600

SS 1-5
RIM = 71.35'
INV. = 65.90'

DI-1
RIM = 71.35'
INV. = 67.55'

SS 1-6
RIM = 71.50'
INV. = 67.45'

EXISTING BUILDING 100

SS 1-2A
RIM = 69.55'
INV. = 62.45'

SS 1-3
RIM = 71.30'
INV. = 65.10'

SS 1-2
RIM = 68.55'
INV. = 61.30'

MEDIA CTR ADDITION

EXISTING BUILDING 400

NEW SOCCER FIELD

NEW SOFTBALL FIELD

EXISTING BMP

SS 1-2
INV. = 59.55'

SS 2-3
RIM = 64.05'
INV. = 60.95'

SS 2-4
RIM = 65.15'
INV. = 61.65'

SS 2-1
INV. = 59.25'

SS 2-2
RIM = 62.70'
INV. = 60.05'

CMP RISER
EL. = 63.45'

ES-2
INV. = 58.55'

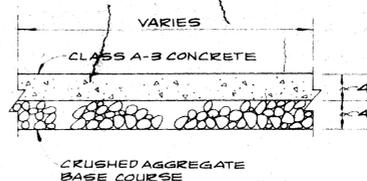
CONCRETE SWALE
EL. = 58.30'

60 30 0 60
scale 1" = 60' feet



PHR&A A Professional Corporation Engineers, Surveyors, Planners and Landscape Architects Bridgewater-Leesburg-Virginia Beach-Chantilly & Winchester Va.		PATTON HARRIS RUST & ASSOCIATES, PC 4542 BONNEY ROAD VIRGINIA BEACH, VIRGINIA 23462 (757) 497-7472 FAX (757) 497-0250	
CONTRACT NO.		FOR: WILLIAMSBURG-JAMES CITY COUNTY PUBLIC SCHOOLS	
APPROVALS	DATE	TITLE: RAWLS BYRD ELEMENTARY SCHOOL RIM AND INVERT LOCATIONS ON NEW STORM STRUCTURES	
DRAWN LDM	10/15/99	SIZE C	FSCM NO.
CHECKED BJJ		DWG NO.	9694-1-0
ACAD FILE	RAWLS.DWG	SCALE	1"=60'
		SHEET	1 OF 1

- FIRE LANE REQUIREMENTS**
- FIRE LANES SHALL BE 18 FEET IN WIDTH AS SHOWN ON PLAN.
 - MARKING OF THE FIRE LANE SHALL BE:
 - 4 INCH "TRAFFIC YELLOW" PAINTED STRIPING TO INDICATE OUTERMOST BOUNDARIES.
 - CURBS SHALL BE PAINTED "TRAFFIC YELLOW".
 - THE WORDS "FIRE LANE" AND "NO PARKING" SHALL BE PAINTED IN "TRAFFIC YELLOW" WITH LETTERS AT LEAST 18 INCHES IN HEIGHT WITH A STROKE WIDTH OF NO LESS THAN 2 INCHES AND SUCH WORDS SHALL BE LOCATED WITHIN THE BOUNDS OF THE FIRE LANE IDENTIFIED BY THE STRIPING MENTIONED IN 2.a. AND 2.b. AND SHALL NOT EXCEED 100 FOOT INTERVALS.
 - 4 INCH DIAGONAL STRIPING SHALL BE PAINTED "TRAFFIC YELLOW" AT A 45 DEGREE FROM THE CURB AND SPACED 2 FEET APART.
 - SIGNS SHALL BE INSTALLED AND INDICATE "FIRE LANE" AND "NO PARKING" WITH THE FOLLOWING REQUIREMENTS:
 - SIGNS SHALL BE APPROVED BY THE FIRE MARSHALL PRIOR TO INSTALLATION.
 - BOTTOM OF THE SIGN SHALL BE NO LOWER THAN 4 FEET AND NO HIGHER THAN 7 FEET ABOVE FINISHED GRADE.
 - SIGN SHALL BE INSTALLED NO FURTHER THAN 3 FEET FROM THE CURB.
 - SUCH SIGNS SHALL BE LOCATED AT INTERVALS NOT TO EXCEED 100 FEET.



TYPICAL SIDEWALK SECTION
NO SCALE

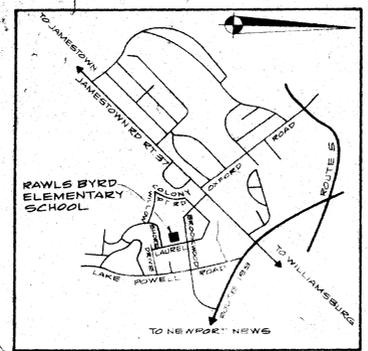
INFILTRATION TRENCH DESIGN CALCS.
2 YEAR STORM 10-BMP, SIZED FOR 1" RUNOFF OVER THE AREA.

$$\frac{12.125 \text{ SF} \times 1"}{12} = \frac{1010.42}{0.40} = 2526 \text{ CU. FT.}$$

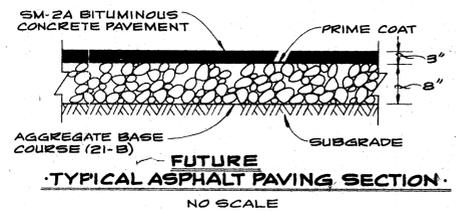
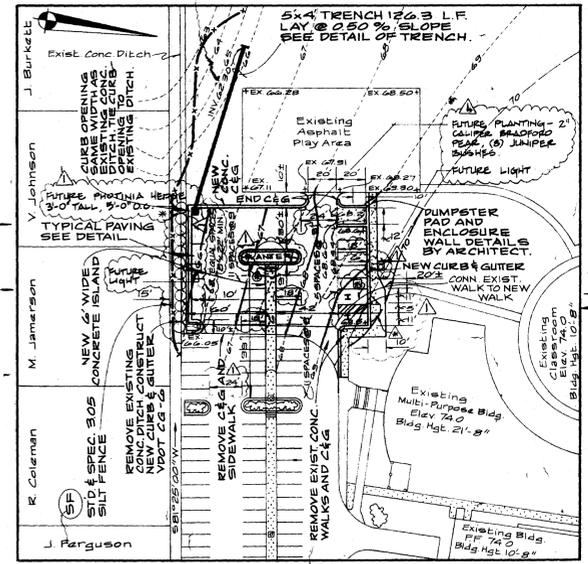
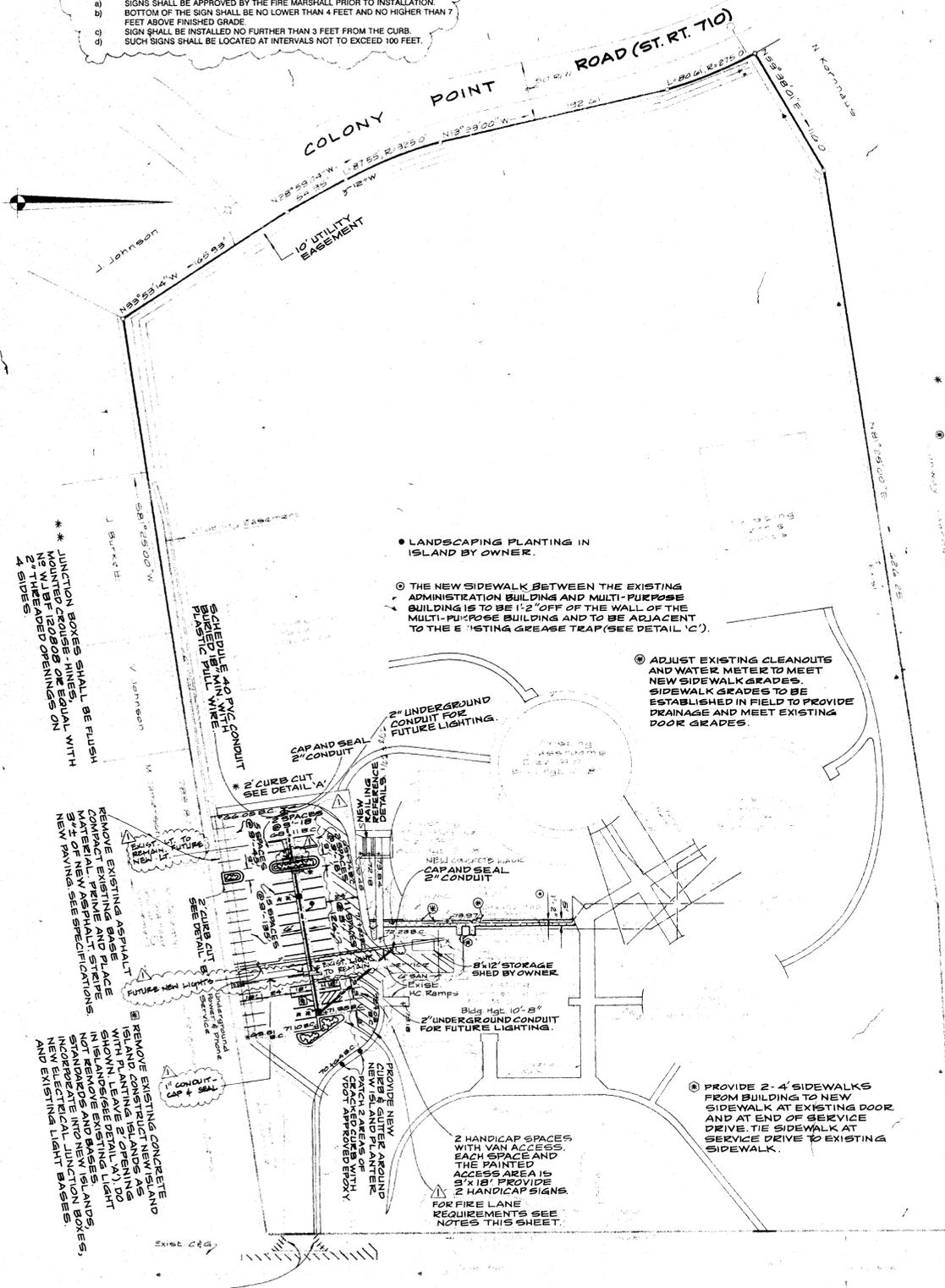
$$\frac{2526 \text{ CU. FT.}}{5' \times 4'} = 126.3 \text{ L.F.}$$

LAND USE SUMMARY TABLE

A. ZONING	R-2
B. PARKING	EXISTING PARKING SPACES TOTAL 52. SINCE THE SCHOOL FOOTPRINT WILL NOT BE INCREASED BY THIS ADDITION AND SINCE SECTION 20.12.D DOES NOT GIVE PARKING REQUIREMENTS FOR SCHOOLS, THERE SEEMS TO BE NO NEED FOR PARKING CALCULATIONS.
C. OPEN SPACE DATA	TOTAL SITE AREA 550,485 SF BUILDING AREA 52,600 SF % BUILDING AREA OF SITE 9.5% OPEN SPACE AREA 497,885 SF % OPEN SPACE OF SITE 90.5%
D. BUILDING DATA	BUILDING TYPE - A4 CONSTRUCTION CLASSIFICATION - 2C (SINGLE STORY)
E. OPEN SPACE DATA	TOTAL SITE AREA 550,485 SF TOTAL IMPERVIOUS AREA 160,180 SF TOTAL PERVIOUS AREA 390,305 SF % IMPERVIOUS AREA 29.1% % PERVIOUS AREA 70.9%



LOCATION MAP
1" = 2000'

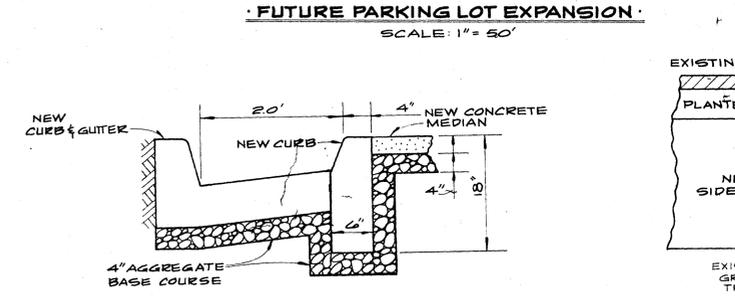


DRAINAGE CALCS. FOR EXISTING LOT
(10 YEAR STORM)
0.76 AC. $C=0.90$ $i=6.0$ $T_c=10$ MIN.
 $0.76 \times 0.9 = 0.68 \times 6.0 = 4.10 \text{ CFS}$

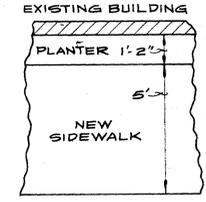
DRAINAGE CALCS. FOR FUTURE ASPHALT LOT
(10 YEAR STORM)
0.28 AC. $x 0.9 = 0.25 \times 6.0 = 1.50 \text{ CF}$

- SEE DETAIL NEW BASIN AND EXISTING CONCRETE DITCH
- 2" CURB CUT SEE DETAIL 'A'

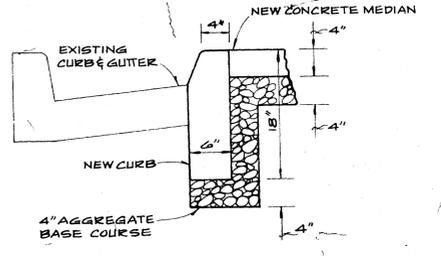
- REMOVE EXISTING WALK APPROXIMATELY 20' PAST NEW SIDEWALK. GRADE TO MATCH NEW SIDEWALK.
- HANDICAP RAMP SEE DETAIL



DETAIL 'A'
NO SCALE



DETAIL 'C'
NO SCALE



DETAIL 'B'
NO SCALE

PARKING TABULATION

SPACES	50
VAN ACCESSABLE	2
HANDICAP SPACES	2
EXISTING TOTAL	52
FUTURE EXPANSION SPACES	23
HANDICAP SPACES	2
TOTAL	75
GRAND TOTAL	77

LEGEND

- EXISTING CONTOUR
- EXISTING SIDEWALK
- EXISTING WATER
- EXISTING SANITARY
- EXISTING STORM
- EXISTING FENCE
- EXISTING LIGHT STANDARD
- EXISTING SANITARY CLEANOUT
- EXISTING WATER METER
- EXISTING ELECTRICAL TRANSFORMER
- PROPOSED CONCRETE SIDEWALKS AND ISLANDS
- PROPOSED CURB & GUTTER
- PROPOSED LANDSCAPE PLANTING
- PROPOSED ASPHALT PAVING
- EXISTING CURB & GUTTER
- SILT FENCE
- PROPOSED ELECTRICAL CONDUIT AND JUNCTION BOX
- FUTURE STONE INFILTRATION TRENCH

SCALE: 1" = 50'

RAWLS BYRD ELEMENTARY SCHOOL
PARKING LOT



PROJECT NUMBER 9219.03
PROJECT MANAGER CDF
DATE 11 DECEMBER 92

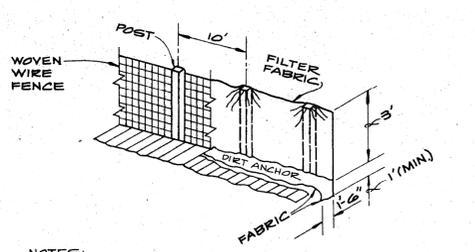
COUNTY OF JAMES CITY FINAL SITE PLAN

APPROVALS	DATE
Fire Dept.	
Health Dept.	
Public Works Dept.	
Planning Dept.	
Police Dept.	
Public Works Dept.	
Other	
Color	

SITE PLAN

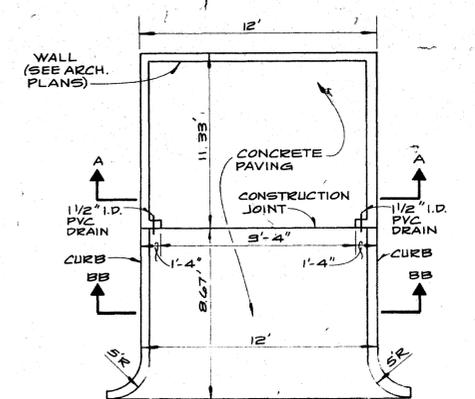
C-1

SP-2-93
PREVIOUS INFIL TRENCH BMP - PARKING AREA

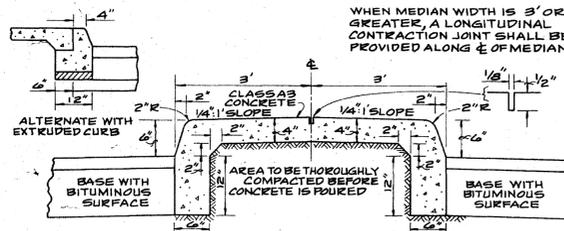


- NOTES:
1. THE WOODEN LINE POSTS SHALL BE EMBEDDED 3'-0" STEEL LINE POSTS, FLANGED 'U' TYPE OR 'T' TYPE MAY BE USED AT CONTRACTOR'S OPTION.
 2. WOVEN WIRE FENCE SHALL BE USED TO SUPPORT THE FILTER FABRIC.
 3. WOVEN WIRE AND FILTER FABRIC SHALL BE STAPLED OR OTHERWISE SUITABLY ATTACHED TO THE SUPPORTING POSTS AND/OR WIRE.

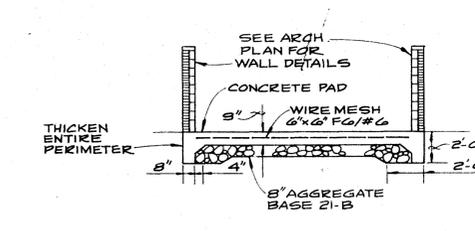
SILT FENCE DETAIL
ST'D AND SPEC. NO. 305
NO SCALE



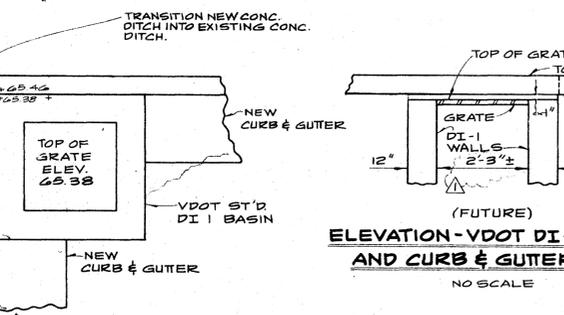
PLAN



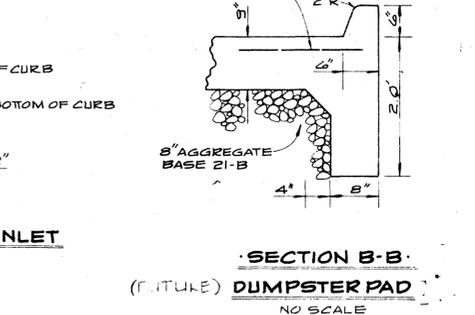
SECTION A-A
NO SCALE



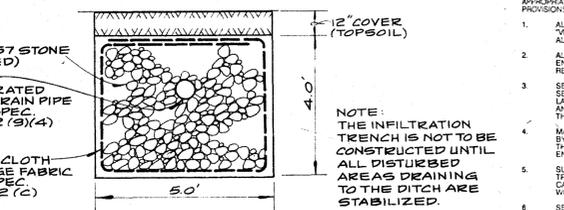
SECTION B-B
NO SCALE



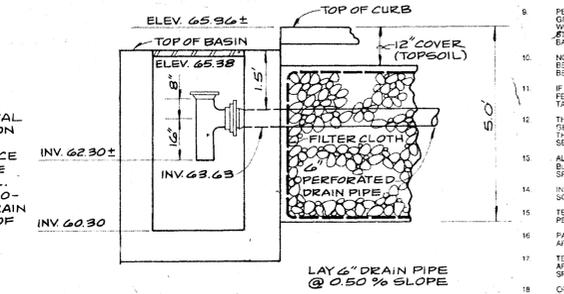
PLAN - VDOT DI-1 INLET
SCALE: 1" = 2'



SECTION B-B
NO SCALE



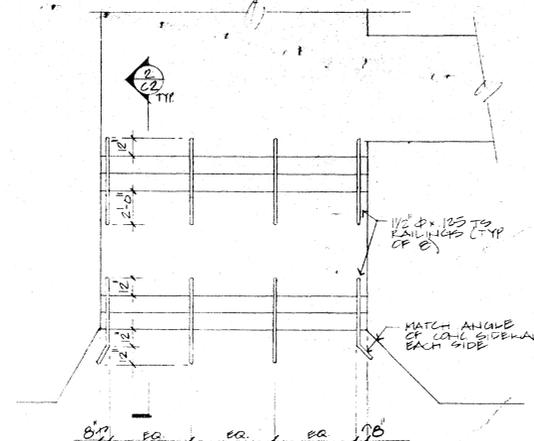
SECTION A-A
NO SCALE



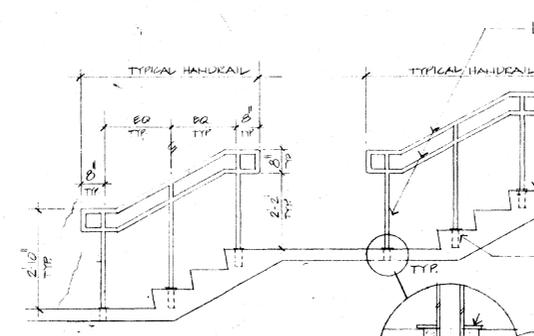
OUTLET ELEVATION DETAIL
NO SCALE

SPECIFICATIONS

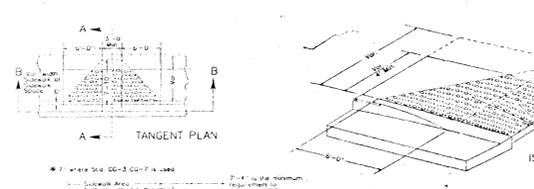
1. **SCOPE**
 - A. Install erosion control
 - B. Remove existing asphalt paving
 - C. Compact and shape existing base material to drain furnishing additional base material if necessary.
 - D. Install new electrical conduit & junction boxes.
 - E. Prime base and pave with 3 inches plus or minus of asphalt. Stripe paving.
 - F. Construct concrete islands and walks.
 - G. Remove and replace the existing concrete valley gutter and storm sewer.
 - H. Repair and replace concrete curb and gutter
 - I. Install railings along entrance to multi-purpose building.
 - J. Seed disturbed areas.
2. **MATERIALS AND WORKMANSHIP**
 - A. Erosion control measures shall be in accordance with City of Williamsburg Erosion Control Handbook.
 - B. Base material shall be VDOT Specifications size 21-B, Type 1 and placed in accordance with Section 309.
 - C. Prime coat shall be single application of 0.35 gallon per square yard of CMS-2, CMS-2h or CRS-2 in accordance with Section 211 and placed in accordance with Section 314 VDOT Specifications.
 - D. Asphalt shall be bituminous concrete VDOT Specifications, Type SM-2A in accordance with Section 212 and 320.
 - E. Paint for markings of asphalt shall be VDOT white traffic zone paint in accordance with Section 239, lines a minimum of 4 inches wide, machine painted. Paint two coats if necessary for dense covering.
 - F. Handicap signs shall be approved by Owner.
 - G. Concrete for islands, dumpster pad, walks, valley gutter and curb and gutter shall be VDOT AS, General Use, 3,000 psi. Workmanship shall meet VDOT Specification requirements. Cross section of curb and gutter shall match existing. Porous fill under curb and gutter shall be base material. Porous fill under walks shall be VDOT No. 57 stone.
 - H. Concrete storm sewer pipe shall be reinforced concrete, ASTM C76, Class III, bedded on 4 inches VDOT No. 57 stone and trench shall be backfilled to the bottom of the concrete valley gutter with VDOT No. 57 stone. Structures shall be VDOT standard. Perforate pipe shall be VDOT Specification Section 232.02(9)(4).
 - I. Filter cloth drainage fabric shall be VDOT Specifications, Section 245.02(C).
 - J. Epoxy for patching existing concrete shall be VDOT Specifications Section 243, Epoxy-Resin Systems Type EP-1 or EP-2.
 - K. Electrical Conduit shall be schedule 40 PVC buried 18 inches with plastic pull wire.
 - L. Junction Boxes shall be flush mounted Grouse-Hines No. WJBF 120808 or approved equivalent with 2 inch threaded openings on 4 sides.
 - M. Seed, fertilizer, lime and mulch disturbed areas in accordance with Seeding Specification.
3. **STEEL PIPE RAILINGS**
 1. Tube Steel (TS) railings shall be ASTM A500 grade A, 1-1/2" diameter x .125 inch.
 2. Interconnect railing and handrail members by butt-welding or welding with internal connectors, at fabricator's option, unless otherwise indicated. At tee and cross intersections, notch ends of intersecting members to fit contour of pipe to which end is joined and weld all around.
 3. Form changes in direction of railing members by radius bends of radius indicated or by mitering at elbow bends.
 4. Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross-section of pipe throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of pipe. Grind all welds smooth.
 5. Close exposed ends of pipe by welding 3/16 inch thick steel plate in place.
 6. Grout shall be non-shrink, non-metallic, "Five Star" or equal.
 7. Sealant shall be Tremco "Dynamic".
 8. All tube steel shall be shop primed and field finished.
 - A. Surface Preparation: SSPC-SP6, Commercial Blast Cleaning
 - B. Shop Primer & Field Touch Up: "Prime-Sealer" at 30-40 mils dry film thickness.
 - C. Field Finish: "Therme-Seal" "Endura-Shield V" at 30-50 mils dry film thickness.



PLAN C STAIR



SECTION C STAIR
NO SCALE



TANGENT PLAN
ISOMETRIC VIEW

HANDICAP CURB RAMP
NO SCALE

DETECTABLE WARNINGS ON WALKING SURFACES SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN. (23MM), A HEIGHT OF NOMINAL 0.2 IN. (5MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN. (60MM) AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT.

PERMANENT SEEDING, DISTURBED AREAS SHALL BE SEED WITHIN 30 DAYS OF THE LAND DISTURBING ACTIVITY IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS:

1. **PREPARATION OF GROUND SURFACE**
 - A. PRIOR TO GRADING AND FILLING, VEGETATION THAT MAY INTERFERE WITH OPERATIONS SHALL BE MOVED, CRUSHED, AND RAKED. THE SURFACE SHALL BE CLEARED OF STONES LARGER THAN 1/2" INCH IN DIAMETER, AND OTHER MATERIALS THAT MIGHT HINDER THE WORK OR SUBSEQUENT MAINTENANCE.
 - B. PREVIOUSLY ESTABLISHED GRADES SHALL BE MAINTAINED ON THE AREAS TO BE TREATED IN A TRUE AND EVEN CONDITION.
 - C. SOIL SHALL BE RAKED UNTIL THE CONDITION OF THE SOIL IS ACCEPTABLE, UNUNDULATIONS OR IRREGULARITIES SHALL BE LEVELLED.
 - D. TOPSOIL FOR REPAIRS AND FOR FILLING DEPRESSIONS SHALL BE PROVIDED FROM OFF-SITE SOURCES.
 - E. FERTILIZER (10-10-10) SHALL BE DISTRIBUTED UNIFORMLY AT A RATE OF 25 POUNDS PER 1,000 SQUARE FEET.
 - F. LIME (PULVERIZED AGRICULTURAL DOLOMITES) SHALL BE DISTRIBUTED UNIFORMLY AT A RATE OF 65 LBS. PER 1,000 SQUARE FEET. THE LIME AND FERTILIZER SHALL BE INCORPORATED INTO THE TOP 4" LAYER OF THE SOIL WHEN APPLYING LIME AND FERTILIZER WITH A HYDROSEEDER, APPLY TO A ROUGH, LOOSE SURFACE.
 - G. SEED LABELED IN ACCORDANCE WITH U.S. DEPARTMENT OF AGRICULTURE RULES AND REGULATION UNDER THE FEDERAL SEED ACT SHALL BE FURNISHED. SEED MIXTURE SHALL BE AS FOLLOWS:

GALAXY OR REBEL FESCUE	70%
COMMON BERBERIS	15%
FENOPHINE PERENNIAL RYEGRASS	15%
 - H. SEED MIXTURE SHALL BE PLACED AT THE RATE OF 205 POUNDS PER ACPF.
 - I. SEEDING AREAS SHALL BE MULCHED WITH THRESHED STRAW OF CEREAL GRAINS SUCH AS OATS, WHEAT, BARLEY, RYE, ETC. GRASS HAY, WOOD CHIPS, OR FIBER MATERIALS THAT CONTAIN ORBITICULARS, WOOD SEEDS OR OTHER STICKS THAT MIGHT BE DETERIMENTAL TO THE PLANTING SITE. RECYCLED OR TO ADJACENT LAWNS, WILL NOT BE ACCEPTABLE. STRAW MULCH SHALL BE APPLIED AT A RATE OF 70 POUNDS PER 1,000 SQUARE FEET BY EXCESS ON HAND. STRAW MULCH SHALL BE ANCHORED IMMEDIATELY AFTER SEEDING TO PREVENT WIND-EROSION ACCEPTABLE METHODS OF ANCHORING: 12 LBS. & MULCH ANCHORING TOOL, LIQUID MULCH BINDERS, MULCH SETTING AND PEEL AND TRINE, WIND FIBER MULCH SHALL BE APPLIED AT A RATE OF 30 POUNDS PER 1,000 SQUARE FEET.
2. **TEMPORARY SEEDING**, TEMPORARY VEGETATIVE COVER SHALL BE PROVIDED IN ALL AREAS WHICH ARE NOT DESIGNATED FOR PAVING, UNDERGROUND UTILITIES OR STRUCTURAL USES IN ACCORDANCE WITH SPECIFICATION 1.4. TEMPORARY SEEDING, SUCH AREAS SHALL NOT BE EXPOSED FOR PERIODS EXCEEDING 30 DAYS. TEMPORARY VEGETATIVE COVER MAY BE ELIMINATED IN FAVOR OF FINAL VEGETAL COVER IF CONSTRUCTION AND SEASONAL CONDITIONS PERMIT.

BOND CORNER WESTMORELAND + GALUSHA
207 Westland Street
Richmond, Virginia 23220

RAWLS BYRD ELEMENTARY SCHOOL
PARKING LOT

WJIC
WILLIAMSBURG-JAMES CITY COUNTY PUBLIC SCHOOLS

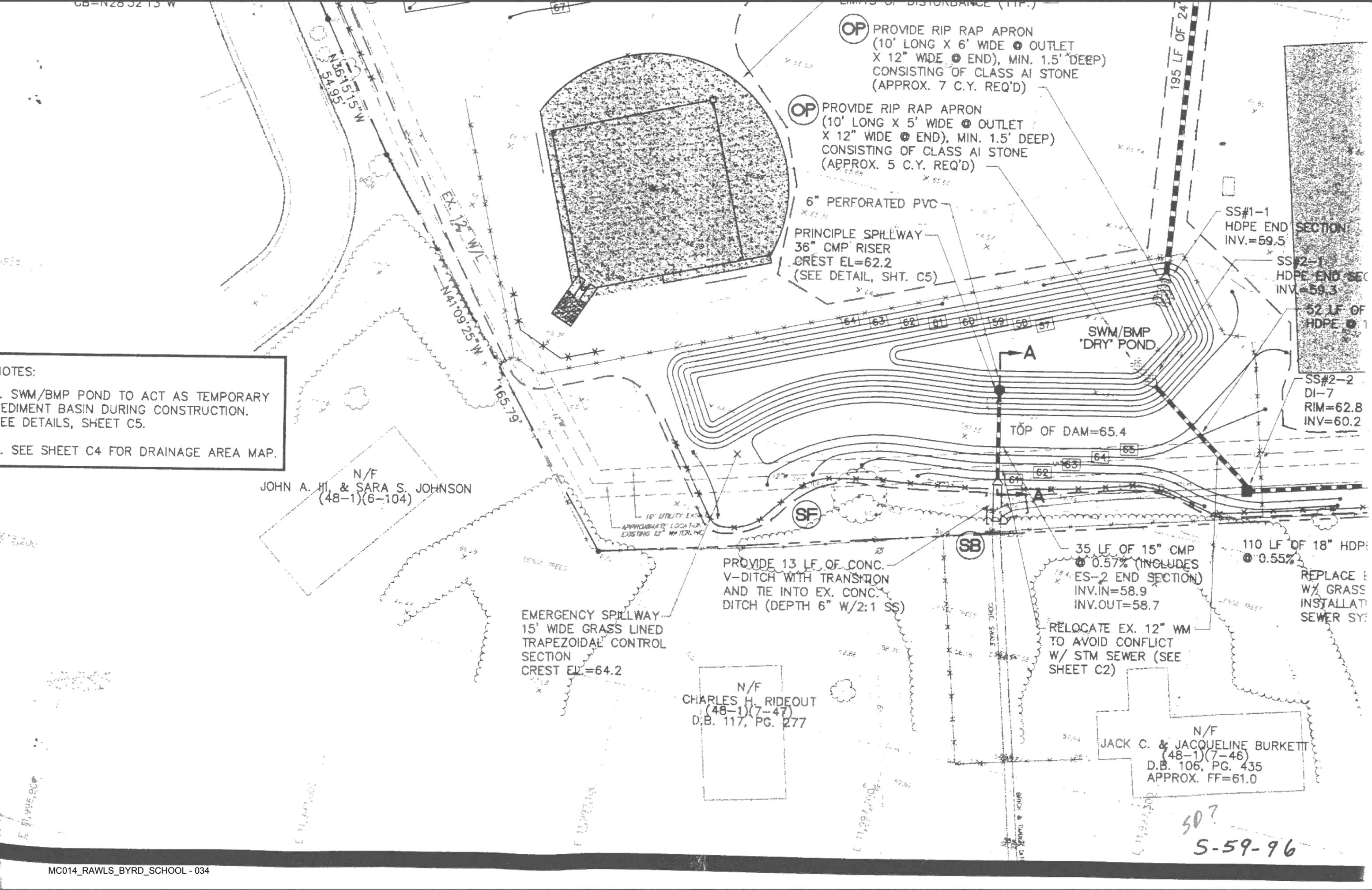
PROJECT NUMBER: 9219.03
PROJECT MANAGER: CDF
ISSUE DATE: 11 DECEMBER 92

REVISIONS:
1-12-93
3-5-93

COMMONWEALTH OF VIRGINIA
JAMES A. WHIT
CERTIFICATE NO. 3019
REGISTERED PROFESSIONAL ENGINEER

SHEET TITLE: NOTES AND DETAILS

SHEET NUMBER: C-2



OP PROVIDE RIP RAP APRON (10' LONG X 6' WIDE @ OUTLET X 12\"/>

OP PROVIDE RIP RAP APRON (10' LONG X 5' WIDE @ OUTLET X 12\"/>

6\"/>

PRINCIPLE SPILLWAY
36\"/>

SS#1-1
HDPE END SECTION
INV.=59.5

SS#2-1
HDPE END SECTION
INV.=59.3

52 LF OF
HDPE @ 1

SS#2-2
DI-7
RIM=62.8
INV=60.2

NOTES:
SWM/BMP POND TO ACT AS TEMPORARY
SEDIMENT BASIN DURING CONSTRUCTION.
SEE DETAILS, SHEET C5.
SEE SHEET C4 FOR DRAINAGE AREA MAP.

N/F
JOHN A. III & SARA S. JOHNSON
(48-1)(6-104)

10\"/>

PROVIDE 13 LF OF CONC.
V-DITCH WITH TRANSITION
AND TIE INTO EX. CONC.
DITCH (DEPTH 6\"/>

35 LF OF 15\"/>

110 LF OF 18\"/>

REPLACE EX.
W/ GRASS
INSTALLATION
SEWER SYSTEM

EMERGENCY SPILLWAY
15' WIDE GRASS LINED
TRAPEZOIDAL CONTROL
SECTION
CREST EL.=64.2

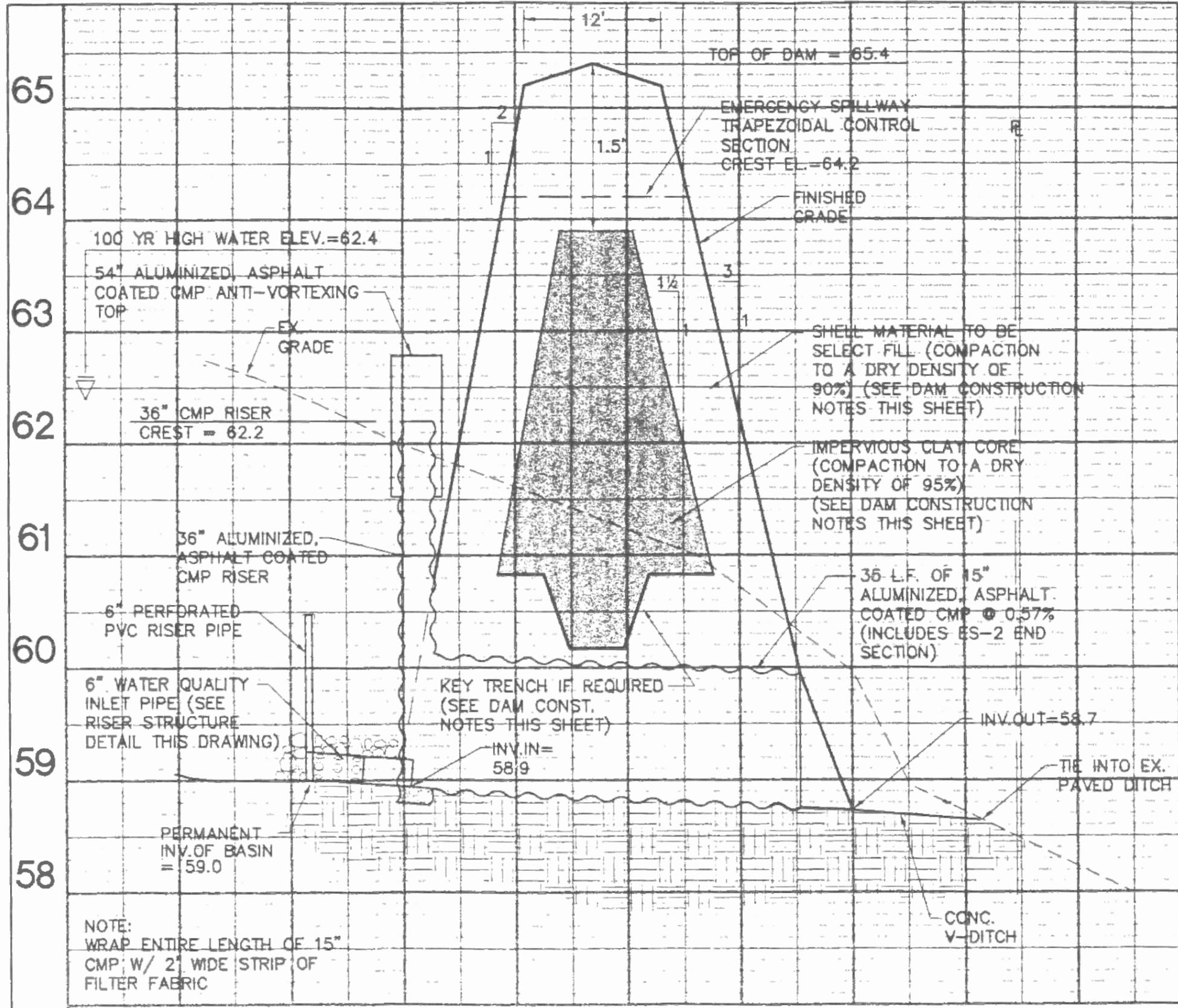
RELOCATE EX. 12\"/>

N/F
CHARLES H. RIDEOUT
(48-1)(7-47)
D.B. 117, PG. 277

N/F
JACK C. & JACQUELINE BURKETT
(48-1)(7-46)
D.B. 106, PG. 435
APPROX. FF=61.0

50?
5-59-96

65.4
 ALLWAY CONTROL
 2
 D
 MATERIAL TO BE
 CT FILL (COMPACTION
 A DRY DENSITY OF
) (SEE DAM CONSTRUCTION
 ES THIS SHEET)
 RVIOUS CLAY CORE
 COMPACTION TO A DRY
 DENSITY OF 95%)
 DAM CONSTRUCTION
 ES THIS SHEET)
 35 L.F. OF 15"
 ALUMINIZED, ASPHALT
 COATED CMP @ 0.57%
 (INCLUDES ES-2 END
 SECTION)
 INV.OUT=58.7
 TIE INTO EX.
 PAVED DITCH
 CONC.
 V-DITCH



1. A GEOTECHNICAL SUBSURFACE EXPLORATION SITE SHALL BE PERFORMED BY THE OWNER. THE GEOTECHNICAL INVESTIGATION SHALL BE TO A DEPTH AND WIDTH ACCORDINGLY, SUITABLE TO THE DENSITY OF COMPACTION. THE CONTRACTOR SHALL CONSTRUCT THE DAM EMBANKMENT IN ACCORDANCE WITH THE RECOMMENDATIONS.
2. SITE PREPARATION: THE CONTRACTOR SHALL PREPARE THE PERMANENT CONSTRUCTION TO REMOVE THE UNSUITABLE MATERIALS TO BE REPLACED WITH A WELL COMPACTED, SUITABLE MATERIAL. ALL TOPSOIL, DEBRIS AND VEGETATION STUMPS AND ROOTS, AND ALL OTHER MATERIALS UNSUITABLE FOR USE IN THE PERMANENT CONSTRUCTION SHALL BE REMOVED.
3. EMBANKMENT: THE EXPOSED SUBGRADE SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER. UNSUITABLE MATERIALS THUS EXPOSED SHALL BE REPLACED WITH A WELL COMPACTED, SUITABLE MATERIAL. DENSITY TESTING AT THE DISCRETION OF THE ENGINEER SHALL BE PERFORMED AT THIS TIME.

THE EMBANKMENT SHALL BE KEYED INTO THE (EXISTING) SOIL STRATUM. EMBANKMENT SHALL BE KEYPED INTO THE STRATUM AS SPECIFIED BY THE ENGINEER. THE EMBANKMENT FOUNDATION SHALL BEAR ON FIRM AND STABLE EXISTING SOILS WHICH HAVE BEEN PREPARED SO AS TO REMOVE ALL GENERALLY UNSUITABLE MATERIAL.

ALL MATERIALS TO BE USED FOR BACKFILL SHALL BE INSPECTED AND, IF NECESSARY, BY THE ENGINEER IN ACCORDANCE WITH ASTM SPECIFICATIONS TO DETERMINE IF THEY ARE SUITABLE.

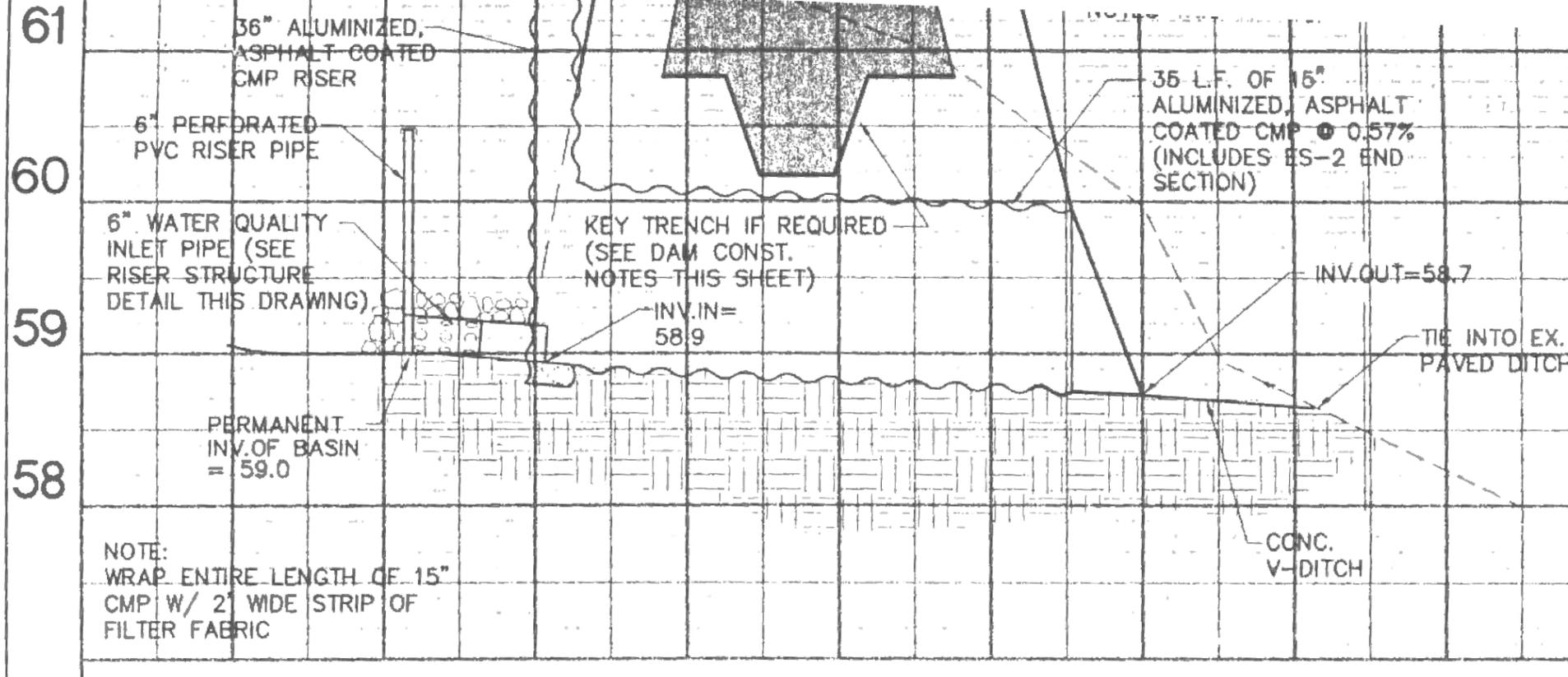
THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED AREAS. IT SHALL BE CLEAN MINERAL SOILS FREE OF VEGETATION, OVERSIZED STONES, ROCKS, AND OTHER MATERIALS WHICH ARE APPROVED BY THE ENGINEER. THE FILL MATERIAL SHALL BE CLASSIFIED IN ACCORDANCE WITH THE U.S. DEPARTMENT OF AGRICULTURE CLASSIFICATION SYSTEM, ARE CH, INOF.

- NOTES:
1. PROPOSED SWM/BMP "DRY" BASIN DURING CONSTRUCTION SECTION THIS SHEET.
 2. SEDIMENT CLEAN OUT POINT OF BASIN IS @ EL.=59.2.
 3. AFTER ALL DISTURBED AREA HAS BEEN RESTORED, THE SEDIMENT BASIN CEASES, THE RISER BASE SHALL BE LOWERED TO HAVE A POLYETHYLENE DEWATERING MAT. THE MAT SHALL BE FILLED TO AN INVERT OF 59.

SECTION A-A

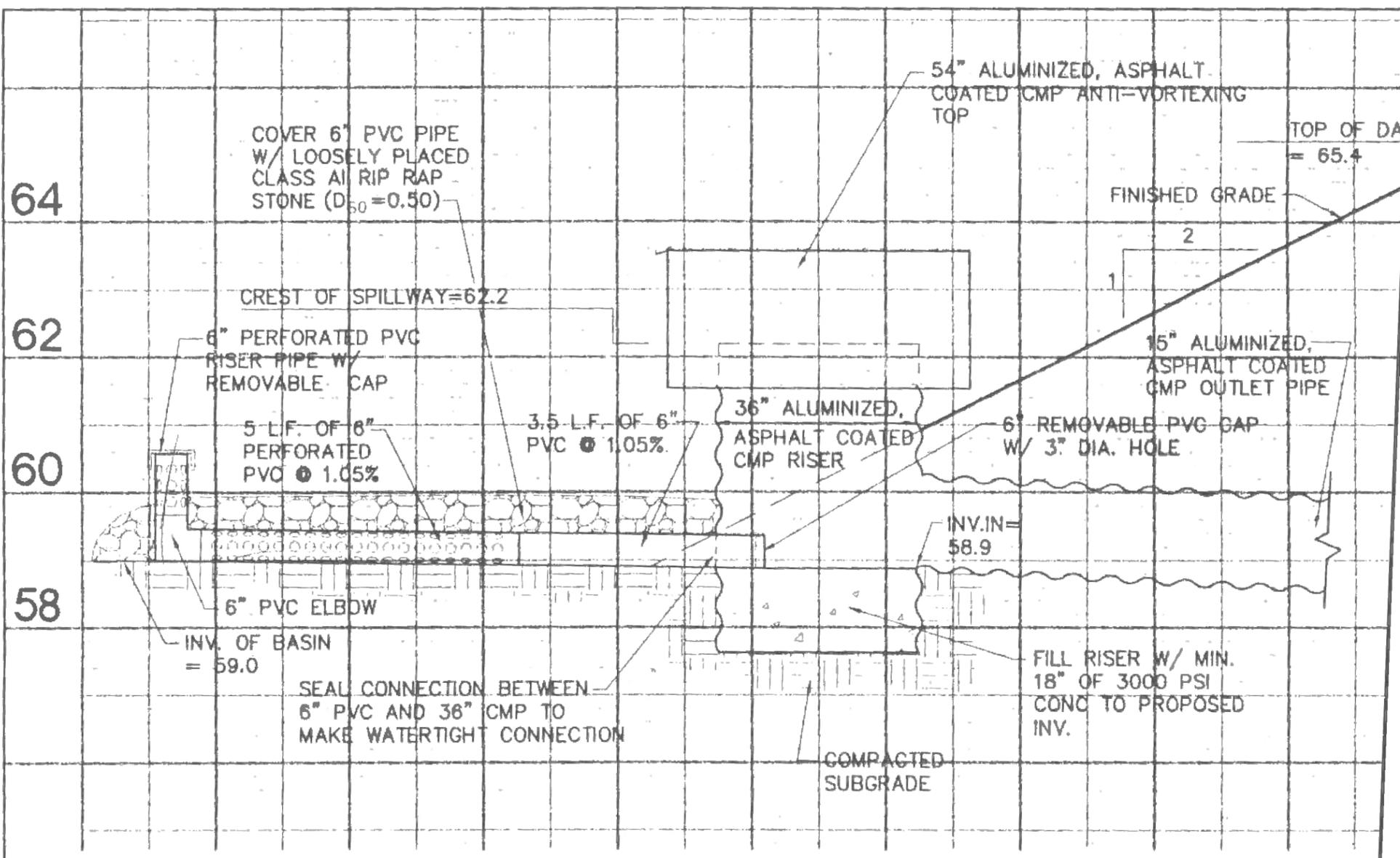
PERMANENT DAM SECTION A-A

SCALE: 1"=1' VERT
 1"=10' HORIZ.



PERMANENT DAM SECTION A-A

SCALE: 1"=1' VERT
1"=10' HORIZ.



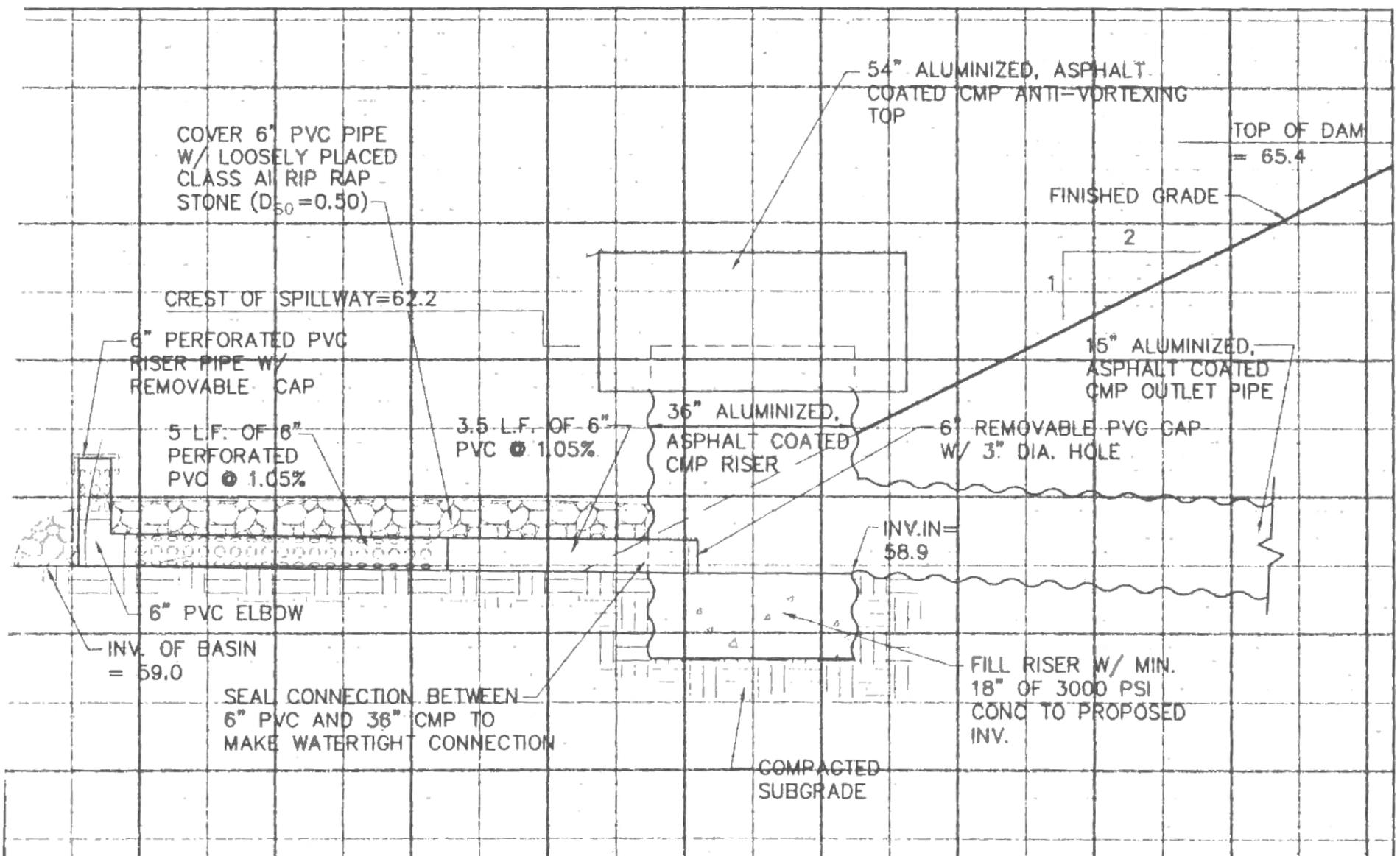
PERMANENT RISER STRUCTURE DETAIL

SCALE: HORIZ.: 1"=2'
VERT.: 1"=2'

EXISTING GRADE

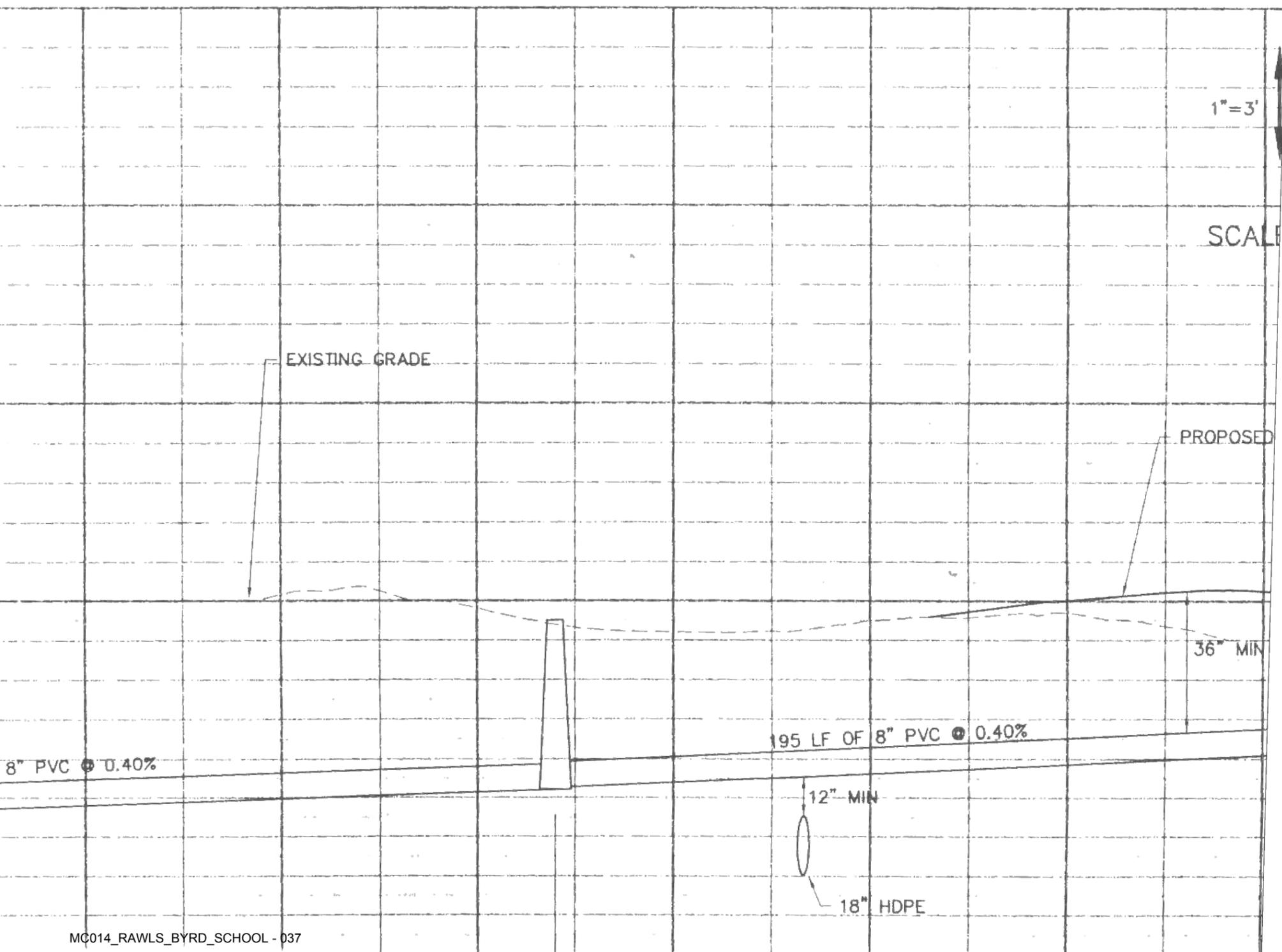
PERMANENT DAM SECTION A-A

SCALE: 1"=1' VERT
1"=10' HORIZ.



PERMANENT RISER STRUCTURE DETAIL

SCALE: HORIZ.: 1"=2'
VERT.: 1"=2'



DAM CONSTRUCTION NOTES

1. A GEOTECHNICAL SUBSURFACE EXPLORATION AT THE PROPOSED DAM SITE SHALL BE PERFORMED BY THE OWNERS TESTING AGENCY. THE GEOTECHNICAL INVESTIGATION SHALL DETERMINE KEY TRENCH DEPTH AND WIDTH ACCORDINGLY, SUITABILITY OF MATERIALS, AND DENSITY OF COMPACTION. THE CONTRACTOR SHALL CONSTRUCT THE DAM EMBANKMENT IN ACCORDANCE WITH THE REPORT'S RECOMMENDATIONS.
2. SITE PREPARATION: THE CONTRACTOR SHALL STRIP ALL AREAS OF THE PERMANENT CONSTRUCTION TO REMOVE ALL UNSUITABLE MATERIALS. THE UNSUITABLE MATERIALS TO BE REMOVED BY STRIPPING SHALL INCLUDE ALL TOPSOIL, DEBRIS AND VEGETABLE MATTER, INCLUDING STUMPS AND ROOTS, AND ALL OTHER MATERIALS WHICH MAY BE UNSUITABLE FOR USE IN THE PERMANENT CONSTRUCTION.
3. EMBANKMENT: THE EXPOSED SUBGRADE SOILS SHALL BE CAREFULLY INSPECTED BY THE GEOTECHNICAL ENGINEER. ANY UNSUITABLE SUBGRADE MATERIALS THUS EXPOSED SHALL BE REMOVED AND REPLACED WITH A WELL COMPACTED, SUITABLE MATERIAL. DENSITY TESTING AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER SHALL BE PERFORMED AT THIS TIME.

THE EMBANKMENT SHALL BE KEYED INTO THE UNDISTURBED (EXISTING) SOIL STRATUM. EMBANKMENT SHALL BE KEYED INTO THE STRATUM AS SPECIFIED BY THE GEOTECHNICAL ENGINEER. THE EMBANKMENT FOUNDATION AND ABUTMENTS SHALL BEAR ON FIRM AND STABLE EXISTING SUBGRADE WHICH BEEN PREPARED SO AS TO REMOVE ALL ORGANIC, LOOSE, AND GENERALLY UNSUITABLE MATERIAL.

ALL MATERIALS TO BE USED FOR BACK FILL OR COMPACTED FILL SHALL BE INSPECTED AND, IF NECESSARY, TESTED BY THE SOILS ENGINEER IN ACCORDANCE WITH ASTM D2487 PRIOR TO PLACEMENT TO DETERMINE IF THEY ARE SUITABLE FOR THE INTENDED USE.

THE FILL MATERIAL SHALL BE TAKEN FROM APPROVED BORROW AREAS. IT SHALL BE CLEAN MINERAL SOIL, FREE OF ROOTS, WOOD VEGETATION, OVERSIZED STONES, ROCKS, OR OTHER OBJECTIONABLE MATERIAL. SOILS WHICH ARE APPROVABLE FOR THE CONSTRUCTION OF THE IMPERVIOUS CLAY CORE, AS DEFINED BY THE UNIFIED SOIL CLASSIFICATION SYSTEM, ARE CL, INORGANIC CLAYS OF HIGH

PLASTICITY; CL, INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELY CLAYS, SANDY CLAYS, SILTY CLAYS; SC, (WITH ENGINEERS APPROVAL) CLAYEY SANDS, POORLY GRADED SAND CLAY MIXTURES. MATERIALS TO BE USED FOR THE CONSTRUCTION OF THE SHELL SHALL BE SELECT BACK FILL FREE OF STUMPS, ROOTS, ROCKS, TRASH, ETC. AND SHALL BE MORE PERVIOUS THAN THE IMPERVIOUS CLAY CORE. THE FILL MATERIAL'S MOISTURE CONTENT SHALL BE +3 TO -2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D2216 (I.E. IN GENERAL THE FILL MATERIAL SHOULD CONTAIN SUFFICIENT MOISTURE SO THAT IT CAN BE FORMED INTO A BALL WITHOUT CRUMBLING. IF WATER CAN BE SQUEEZED OUT OF THE BALL, IT IS TOO WET FOR PROPER COMPACTION). FILL MATERIAL SHALL BE PLACED IN 6 TO 8-INCH CONTINUOUS LAYERS OVER THE ENTIRE LENGTH OF THE FILL. FIRST LIFT ON SUB GRADE MAY BE PLACED AT A DEPTH UP TO 30 INCHES TO BRIDGE SUBGRADE SOILS WITH OVER OPTIMUM MOISTURE CONTENT. COMPACTION, AS NOTED ON PLAN, SHALL BE OBTAINED GENERALLY BY USING A SHEEPSFOOT COMPACTOR. FINISHED GRADES SHALL BE MERGED NATURALLY INTO THE EXISTING GRADES. THE OWNER'S TESTING AGENCY SHALL PROVIDE A TESTING PROGRAM TO ENSURE THE DAM WAS CONSTRUCTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT'S RECOMMENDATIONS. THE LAB SHALL, AT A MINIMUM, TEST EVERY LIFT OF FILL. IF THE LIFT EXCEEDS 15,000 SQUARE FEET THEN A TEST SHALL BE PROVIDED, AT A MINIMUM, FOR EACH 15,000 SQUARE FEET OF FILL IN THE LIFT. THESE TEST RESULTS SHALL BE PROVIDED TO THE OWNER/ARCHITECT AT AN ONGOING BASIS. AT THE COMPLETION OF THE EMBANKMENT THE TESTING AGENCY SHALL PROVIDE THE ARCHITECT/OWNER WITH A LETTER TO CERTIFY THAT SUFFICIENT TESTS HAVE BEEN TAKEN TO ENSURE THE CONSTRUCTION IS IN ACCORDANCE WITH GEOTECHNICAL REPORT'S RECOMMENDATIONS.

3. CUTOFF TRENCH/KEY TRENCH: THE TRENCH SHALL BE EXCAVATED ALONG THE CENTERLINE OF THE DAM. THE MINIMUM DEPTH AND WIDTH SHALL BE AS DETERMINED BY THE GEOTECHNICAL ENGINEER. THE MINIMUM BOTTOM WIDTH SHALL BE WIDE ENOUGH TO PERMIT OPERATION OF COMPACTION EQUIPMENT. THE SIDE SLOPES SHALL BE NO STEEPER THAN 1:1. COMPACTION REQUIREMENTS SHALL BE THE SAME AS THOSE FOR THE EMBANKMENT. THE TRENCH SHALL BE KEPT DRAINED DURING THE BACKFILLING-COMPACTING OPERATIONS.

4. PRINCIPAL SPILLWAY: THE BOTTOM OF THE SPILLWAY RISER FOUNDATION BASE EXCAVATION SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER TO ENSURE THAT ALL UNSUITABLE AND LOOSE MATERIALS ARE REMOVED AND THAT ACCEPTABLE BEARING CONDITIONS EXIST IN THE EXCAVATION'S BASE.

ALL JOINTS IN THE PRINCIPAL SPILLWAY RISER STRUCTURE AND BARREL SHALL BE OF WATERTIGHT CONSTRUCTION. THE RISER OF THE PRINCIPAL SPILLWAY SHALL BE SECURELY ATTACHED TO THE BARREL BY A WATERTIGHT CONNECTION. THE BARREL AND RISER SHALL BE PLACED ON A FIRM COMPACTED SOIL FOUNDATION, THE BASE OF THE RISER SHALL BE FIRMLY ANCHORED ACCORDING TO THE DESIGN CRITERIA TO PREVENT ITS FLOATING. PERVIOUS MATERIALS SUCH AS SAND, GRAVEL OR CRUSHED STONE SHALL NOT BE USED AS BACK FILL AROUND THE BARREL. FILL MATERIAL SHALL BE PLACED AROUND THE PIPE IN 4-INCH LAYERS AND COMPACTED BY HAND AT LEAST TO THE SAME DENSITY AS THE EMBANKMENT. A MINIMUM OF TWO FEET OF FILL SHALL BE HAND-COMPACTED OVER THE BARREL BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.

5. EMERGENCY SPILLWAY: THE EMERGENCY SPILLWAY SHALL NOT BE CONSTRUCTED OVER FILL MATERIAL.
6. VEGETATIVE STABILIZATION: FINAL VEGETATIVE COVER (STABILIZATION) SHALL CONSIST OF TOP SOILING, LIMING, FERTILIZING, SEEDING, AND MULCHING TO ASSURE A FIRM STAND OF GRASS AS SOON AS PRACTICAL. SEDIMENT BASINS AND OTHER TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED ONLY WHEN STABILIZATION IS COMPLETE. FINAL VEGETAL COVER SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING:

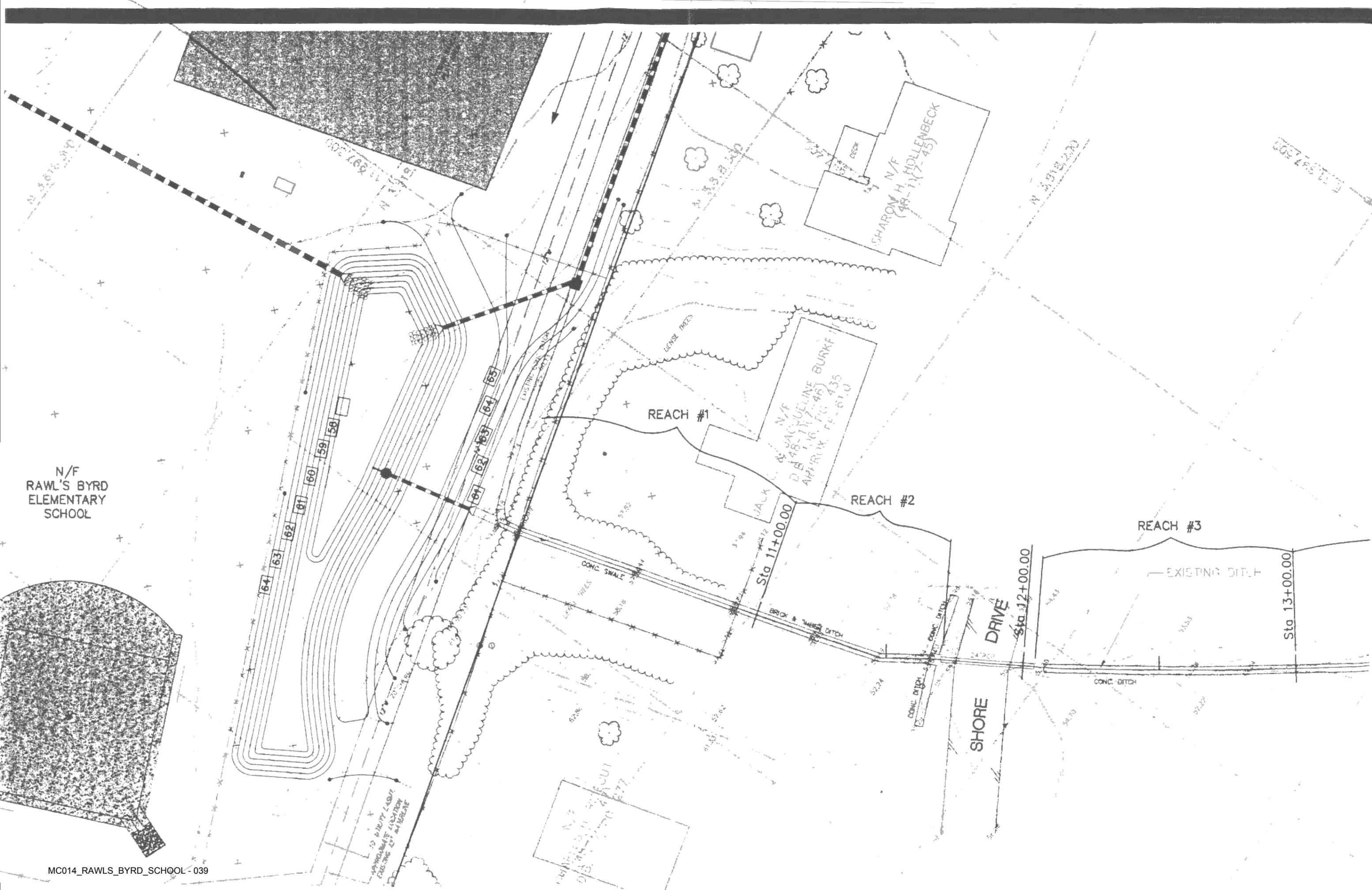
TOPSOIL: AT LEAST 2" THICKNESS OBTAINED FROM STOCKPILES ON SITE, FREE OF LARGE DEBRIS.
 LIME: 4,000#/ACRE (90#/1,000 S.F.)
 SEED: KENTUCKY 31 TALL FESCUE 250#/ACRE (6#/1,000 S.F.)
 FERTILIZER: 10/20/10 MIX, 1,000#/ACRE (25#/1,000 S.F.)
 MULCH: STRAW OR HAY (LOCALLY OBTAINED) 4,000#/ACRE (90#/1,000 S.F.)

NOTES:

1. PROPOSED SWM/BMP "DRY" POND SHALL ACT AS A TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION. SEE TEMPORARY RISER STRUCTURE AND DAM SECTION THIS SHEET.
2. SEDIMENT CLEAN OUT POINT DURING OPERATION AS TEMPORARY SEDIMENT BASIN IS @ EL.=59.2.
3. AFTER ALL DISTURBED AREAS ARE STABILIZED AND OPERATION AS TEMPORARY SEDIMENT BASIN CEASES, THE BASIN SHALL BE DEWATERED, THE 6" PVC CAP AT THE RISER BASE SHALL BE DRILLED WITH A 3" DIA. HOLE, THE 6" PERFORATED POLYETHYLENE DEWATERING DEVICE SHALL BE REMOVED, AND THE 36" CMP RISER SHALL BE LOWERED TO HAVE A CREST ELEV.=62.2. THE BASIN SHALL THEN BE FILLED TO AN INVERT OF 59.0.

O EX.
DITCH

N/F
RAWL'S BYRD
ELEMENTARY
SCHOOL



60

55

50

45

40

35

REACH #1

REACH #2

REACH #3

EXIST. SHORE DRIVE

33 LF. OF EXIST.
24" RCP
INV. IN=52.64
INV. OUT=52.29

PROFILE OF EXISTING DRAINAGE CHANNEL
STA. 10+00 TO STA. 14+24±

10+00

11+00

12+00

13+00

1"=30'
SCALE IN FEET

EXIST. SHORE DRIVE

33 LF-OF EXIST.
24" RCP
INV. IN=52.64
INV. OUT=52.29

EXIST. LAKE LORING

PROFILE OF EXISTING DRAINAGE CHANNEL
STA. 10+00 TO STA. 14+24±

11+00 12+00 13+00 14+00

55
50
45
40
35



James City County, Virginia
Environmental Division

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

Table of Contents

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Stormwater Management Design Plan	
I. General	5
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GENERAL INFORMATION

Project Name: Rawls Byrd Elementary School Parking Lot Expansion

Owner / Applicant: Williamsburg/James City County Schools

Plan Preparer: Nicholas Botta Email: nbotta@aesva.com

Project Location: 112 Laurel Lane

Tax Map / Parcel: 48-1 6-171A

County Plan No. (if known): _____

County BMP Type: _____ (_____ - _____)

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

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

Issue Date
March 1, 2001

**JAMES CITY COUNTY, VIRGINIA
ENVIRONMENTAL DIVISION**

EROSION AND SEDIMENT CONTROL PLAN CHECKLIST

I. GENERAL:

Yes No N/A

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

II. SITE PLAN:

Yes No N/A

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

Yes No N/A

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

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

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

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

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

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

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

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

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

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

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

Yes No N/A

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

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

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

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

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

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

III. NARRATIVE:

Yes No N/A

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

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

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

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

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

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

Yes No N/A

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

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

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

IV. CALCULATIONS:

Yes No N/A

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

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

**JAMES CITY COUNTY, VIRGINIA
ENVIRONMENTAL DIVISION**

STORMWATER MANAGEMENT DESIGN PLAN CHECKLIST

I. GENERAL:

Yes No N/A

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

Check list indicates calculations were provided with the application.

Yes No N/A

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

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

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

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

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

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

- | | | | |
|-------------------------------------|--------------------------|--------------------------|--|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | North arrow and plan legend. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Property lines. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Adjacent property information. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Existing site features and existing impervious cover areas. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Impervious cover tabulations. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Existing drainage facilities (natural or manmade) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Existing environmentally sensitive areas (RPA, wetlands, floodplain, steep slopes, critical soils, buffers, etc.) |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Existing and proposed contours (1' or 2' contour interval) and spot elevations as necessary to define high and low topography. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Existing and proposed easement locations. |

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

II. STORMWATER CONVEYANCE SYSTEMS:

Yes No N/A

PLAN VIEWS

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

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

DETAILS

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

Yes No N/A

STORMWATER CONVEYANCE SYSTEM COMPUTATIONS

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

III. STORMWATER MANAGEMENT/BMP FACILITIES:

Yes No N/A

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

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

FACILITY CONFIGURATION and MINIMUM SEPARATIONS

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

Yes No N/A

HYDRAULIC COMPUTATIONS

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

POND or RESERVOIR ROUTING

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

MISCELLANEOUS COMPUTATIONS

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

Yes No N/A

GEOTECHNICAL REQUIREMENTS

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

PRINCIPAL SPILLWAY PROFILE AND ASSOCIATED DETAILS

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

Yes No N/A

ELEVATION AND DIMENSIONAL DESIGN DATA

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

CROSS SECTION THROUGH FACILITY

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

EMERGENCY SPILLWAY PROFILE

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

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

Yes No N/A

CONSTRUCTION SPECIFICATIONS and NOTES

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

MAINTENANCE PROVISIONS

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

IV. **OUTLET PROTECTIONS:**

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

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

Plan Preparer: Nicholas Botta
Date: 4/24/07



Copy of JCC: SWMProg/BMP/Checklist/ChkList

HYDROLOGIC REPORT FOR

RAWL'S BYRD

ELEMENTARY SCHOOL

AES JOB NUMBER 8197

SWM/BMP POND DESIGN

PREPARED BY:

AES CONSULTING ENGINEERS

5248 OLDE TOWNE ROAD

WILLIAMSBURG, VA. 23188

MAY 10, 1996

REVISED 8/9/96

*MC 014
SP-59-96*

RAWLS BYRD #8197

5/10/96

SWM/BMP CALCULATIONS

→ RATIONAL METHOD — DA = 6.7 AC.

* TOTAL SITE AREA = 12.64 AC.

PRE-DEVELOPMENT

IMPERVIOUS COVER (BLDGs, PVMT, ETC.) = 4.21 AC

OPEN SPACE (PERVIOUS COVER) = 8.43 AC

IMPERVIOUS COVER → C = 0.90 T_c = 15 min

OPEN SPACE → C = 0.30

→ CALCULATE WEIGHTED "C" FACTOR

$$\frac{4.21(0.9) + 8.43(0.30)}{12.64} = 0.49 \text{ SAY } \underline{\underline{0.50}}$$

POST-DEVELOPMENT

T_c = 10 min

IMPERVIOUS COVER = 3.97 AC

OPEN SPACE = 8.67 AC

→ CALCULATE WEIGHTED "C" FACTOR

$$\frac{3.97(0.9) + 8.67(0.30)}{12.64} = 0.49 \text{ SAY } \underline{\underline{0.50}}$$

RAWL'S BYRD #8197

5/10/96

SWM/BMP CALCS

* DESIGN #3 - RUNOFF VOLUME PRODUCED BY
1 INCH RAINFALL DETAINED FOR
24 HRS.

$$DA = 6.7 AC$$

$$R_v = 0.05 + (0.009) * (\% IMP)$$

$$C = 0.50 - 50\% IMP AREA$$

$$R_v = 0.05 + (0.009)(50)$$

$$R_v = 0.50$$

$$\text{REQUIRED VOLUME} = (1") (DA) (R_v)$$

$$(1") (\frac{1}{12"}) (43,560 \text{ SF/AC}) (6.7 AC) (0.5) = \underline{12,161 CF} \leftarrow$$

→ PRINCIPLE SPILLWAY @ ELEV. = 62.2

$$\text{STORAGE PROVIDED} = \underline{12,950 CF} > 12,161 CF \checkmark$$

→ SIZE WATER QUALITY ORIFICE

$$\text{VOLUME} = 12,950 CF \quad \text{TIME} = 24 \text{ HRS} = 86,400 \text{ SEC}$$

$$Q_{\text{RELEASE}} = \frac{12,950}{86,400} = \underline{0.14 CFS}$$

* ORIFICE @ ELEV = 59.0

ORIFICE FLOW EQ.

$$Q = KA_0 \sqrt{2g\Delta h}$$

$$\Delta h = \frac{62.2 - 59}{2} = 1.6 \text{ ft}$$

$$0.14 = 0.73(A_0) \sqrt{2(32.2)(1.6)}$$

$$Q = 0.14 CFS$$

$$0.14 = 7.41 A_0 \quad A_0 = 0.0189 \text{ ft}^2 \quad K = 0.73$$

$$A = 0.0189 \text{ ft}^2 = \pi r^2 \quad r = 0.078 \text{ ft} = 1 \text{ in} \quad d = 1.9 \text{ in}$$

USE D = 3 in - MIN DIAMETER

TABLE 3
WORKSHEET FOR BMP POINT SYSTEM

A. STRUCTURAL BMP POINT ALLOCATION

<u>BMP</u>	<u>BMP Points</u>	<u>Fraction of Site Served by BMP</u>	<u>Weighted BMP Points</u>
DESIGN #3	6	$\frac{6.7}{1.03}$	39
_____	_____	x _____	= _____
_____	_____	x _____	= _____
_____	_____	x _____	= _____
_____	_____	x _____	= _____
TOTAL WEIGHTED STRUCTURAL BMP POINTS:			_____

B. NATURAL OPEN SPACE CREDIT

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

C. TOTAL WEIGHTED POINTS

<u>39</u>	+	<u>0</u>	=	<u>39</u>
Structural BMP Points		Natural Open Space Points		TOTAL

39 > 10 ✓

* NOTE:

1.03 AC OF ADDITIONAL IMPERVIOUS AREA IS PROPOSED FOR THIS SITE.

1. RESERVOIR No = 1. 2. RESERVOIR NAME = POND #1.....
 3. $S = K_s * Z^b$
 $K_s = 0.....$ $b = 0.....$
 START ELEV = 0..... INCREMENT = 0...

	STAGE ft	ELEVATION ft	CO AREA sq ft	INC STORAGE cu ft	TOT STORAGE cu ft
4	0.00	59.00.	2587.....	0	0
5	1.00	60.00.	3218.....	2902	2902
6	3.00	62.00.	5562.....	8780	11682
7	5.00	64.00.	7125.....	12687	24369
8	6.20	65.20.	17939...	15038	39407
9	0.00	0.00.	0.....	0	0
10	0.00	0.00.	0.....	0	0
11	0.00	0.00.	0.....	0	0
12	0.00	0.00.	0.....	0	0
13	0.00	0.00.	0.....	0	0
14	0.00	0.00.	0.....	0	0

Change item number: 0

— to cont

Reservoir No. 1

OUTLET STRUCTURES

CULVERT STRUC A. $Q = CoA[2gh/k]^{.5}$		CULVERT STRUC B. $Q = CoA[2gh/k]^{.5}$	
1. WIDTH (in) = 15.		9. WIDTH (in) = 3..	
2. HEIGHT (in) = 15.		10. HEIGHT (in) = 3..	
3. No. BARRELS = 1..		11. No. BARRELS = 1..	
4. INVERT ELEV. = 59.....		12. INVERT ELEV. = 59.....	
5. Co = 0.60		13. Co = 0.60	
6. CULVERT LENGTH (ft) = 35..		14. CULVERT LENGTH (ft) = 0...	
7. CULVERT SLOPE (%) = .86.		15. CULVERT SLOPE (%) = 0...	
8. MANNING'S N-VALUE = .022		16. MANNING'S N-VALUE = .013	
		17. MULTI-STAGE OPTION ? (Y/N) Y	
WEIR STRUCTURE A. $Q = CWLH^{EXP}$		WEIR STRUCTURE B. $Q = CWLH^{EXP}$	
18. CREST LENGTH (ft) = 7.07...		23. CREST LENGTH (ft) = 15.....	
19. CREST ELEVATION = 62.2...		24. CREST ELEVATION = 64.2...	
20. Cw = 3.00		25. Cw = 3.00	
21. EXP = 1.50		26. EXP = 1.50	
22. MULTI-STAGE OPTION ? (Y/N) Y		27. MULTI-STAGE OPTION ? (Y/N) N	

Change item number: 0

— to cont

HYDROLOGIC REPORT

2 YR PRE-DEVELOPMENT..

.....

Hyd. No. 1

Hydrograph type = RATIONAL	Peak discharge = 11.97 cfs
Storm frequency = 2 yr	Time interval = 1 min
Time of conc. = 15 min	Intensity = 3.57 in/hr
Runoff coeff. = .5	Basin area = 6.7 ac

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)	TIME--OUTFLOW (hrs cfs)	TIME--OUTFLOW (hrs cfs)	TIME--OUTFLOW (hrs cfs)
0.02 0.80	0.03 1.60	0.05 2.39	0.07 3.19
0.08 3.99	0.10 4.79	0.12 5.59	0.13 6.39
0.15 7.18	0.17 7.98	0.18 8.78	0.20 9.58
0.22 10.38	0.23 11.18	0.25 11.97	0.27 11.57
0.28 11.18	0.30 10.78	0.32 10.38	0.33 9.98
0.35 9.58	0.37 9.18	0.38 8.78	0.40 8.38
0.42 7.98	0.43 7.58	0.45 7.18	0.47 6.78
0.48 6.39	0.50 5.99	0.52 5.59	0.53 5.19
0.55 4.79	0.57 4.39	0.58 3.99	0.60 3.59
0.62 3.19	0.63 2.79	0.65 2.39	0.67 2.00
0.68 1.60	0.70 1.20	0.72 0.80	0.73 0.40

HYDROLOGIC REPORT

2 YR POST DEVELOPMENT.

.....
.....

Hyd. No. 3

Hydrograph type =	RATIONAL	Peak discharge =	14.47 cfs
Storm frequency =	2 yr	Time interval =	1 min
Time of conc. =	10 min	Intensity =	4.32 in/hr
Runoff coeff. =	.5	Basin area =	6.7 ac

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW		TIME--OUTFLOW		TIME--OUTFLOW		TIME--OUTFLOW	
(hrs	cfs)	(hrs	cfs)	(hrs	cfs)	(hrs	cfs)
0.02	1.45	0.03	2.89	0.05	4.34	0.07	5.79
0.08	7.23	0.10	8.68	0.12	10.13	0.13	11.57
0.15	13.02	0.17	14.47	0.18	13.74	0.20	13.02
0.22	12.30	0.23	11.57	0.25	10.85	0.27	10.13
0.28	9.40	0.30	8.68	0.32	7.96	0.33	7.23
0.35	6.51	0.37	5.79	0.38	5.06	0.40	4.34
0.42	3.62	0.43	2.89	0.45	2.17	0.47	1.45

HYDROLOGIC REPORT

2 YR POST DEVELOPMENT.
 ROUTED THROUGH POND...

.....

Hyd. No. 4

Hydrograph type = RESERVOIR ROUTE	Peak discharge = 0.40 cfs
Storm frequency = 2 yr	Time interval = 1 min
Inflow hyd. no. = 3	Reservoir no. = 1

HYDROGRAPH DISCHARGE TABLE

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-0 (i) cfs	2S/dt+0 (j) cfs	OUTFLOW cfs
0.02	1.45	2.89	1.45	1.45	0.00
0.03	2.89	4.34	5.79	5.79	0.00
0.05	4.34	5.79	12.97	13.02	0.02
0.07	5.79	7.23	22.96	23.10	0.07
0.08	7.23	8.68	35.77	35.98	0.11
0.10	8.68	10.13	51.38	51.68	0.15
0.12	10.13	11.57	69.83	70.19	0.18
0.13	11.57	13.02	91.11	91.53	0.21
0.15	13.02	14.47	115.25	115.71	0.23
0.17	14.47	13.74	142.23	142.74	0.25
0.18	13.74	13.02	169.90	170.44	0.27
0.20	13.02	12.30	196.09	196.67	0.29
0.22	12.30	11.57	220.81	221.41	0.30
0.23	11.57	10.85	244.04	244.68	0.32
0.25	10.85	10.13	265.81	266.47	0.33
0.27	10.13	9.40	286.11	286.79	0.34
0.28	9.40	8.68	304.94	305.64	0.35
0.30	8.68	7.96	322.30	323.02	0.36
0.32	7.96	7.23	338.21	338.94	0.37
0.33	7.23	6.51	352.65	353.40	0.37
0.35	6.51	5.79	365.63	366.39	0.38
0.37	5.79	5.06	377.16	377.93	0.39
0.38	5.06	4.34	387.22	388.01	0.39
0.40	4.34	3.62	395.84	396.63	0.39
0.42	3.62	2.89	403.00	403.80	0.40

HYDROGRAPH DISCHARGE TABLE Cont'd

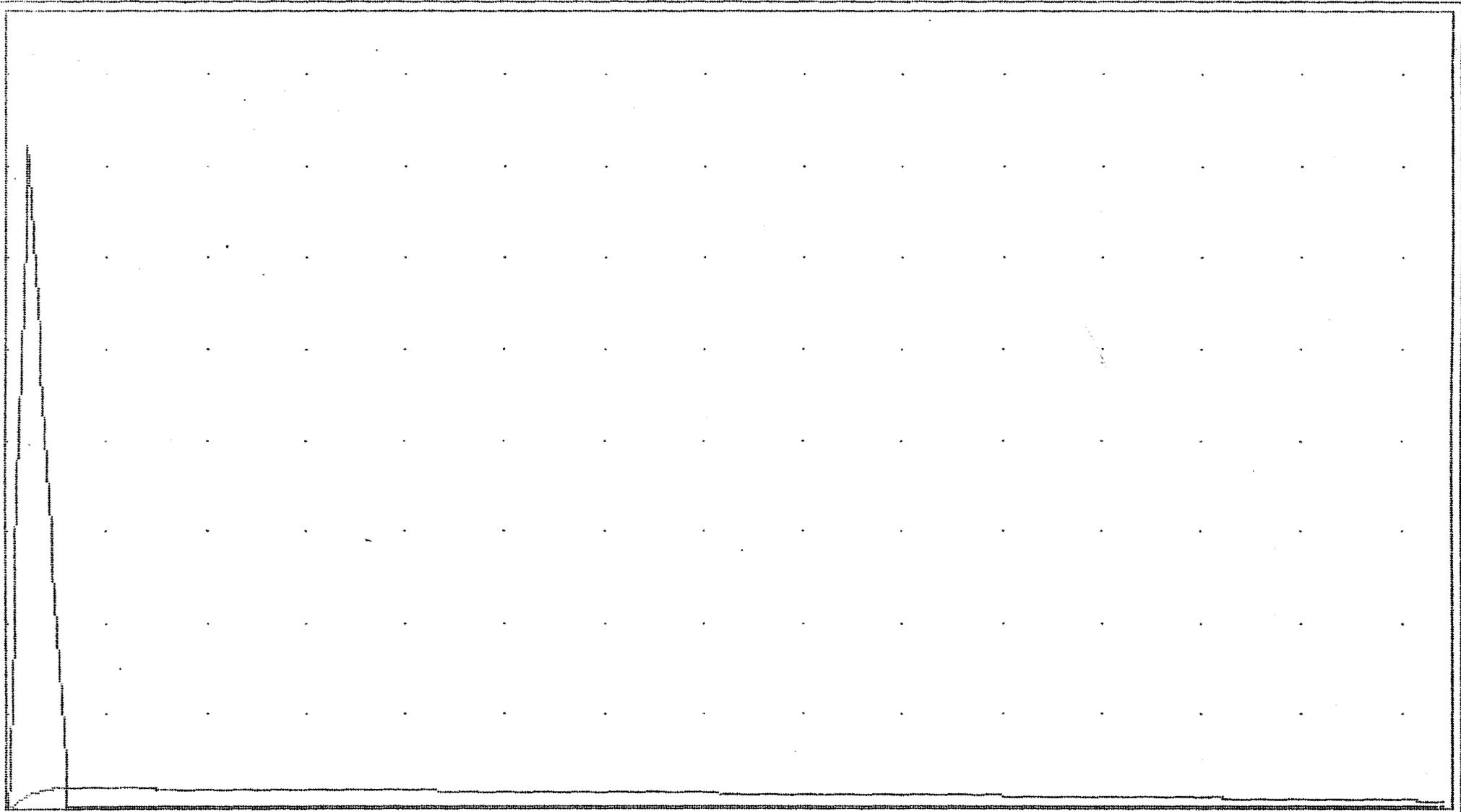
TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-0 (i) cfs	2S/dt+0 (j) cfs	OUTFLOW cfs
0.43	2.89	2.17	408.72	409.51	0.40
0.45	2.17	1.45	412.98	413.78	0.40
0.47	1.45	0.72	415.79	416.60	0.40

Maximum outflow (cfs) = 0.40
 Maximum storage (cu ft) = 12527
 Maximum elevation (ft) = 62.13

Op = 0.4

RESERVOIR ROUTE

2 Yr



HGU = 50 min

4

VCU = 2.0 cfs

MAX STORAGE = 12525

MAX ELEVATION = 62.13

HYDROLOGIC REPORT

10 YR PRE-DEVELOPMENT.

.....

Hyd. No. 2

Hydrograph type = RATIONAL	Peak discharge = 14.58 cfs
Storm frequency = 10 yr	Time interval = 1 min
Time of conc. = 15 min	Intensity = 4.35 in/hr
Runoff coeff. = .5	Basin area = 6.7 ac

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW (hrs cfs)	TIME--OUTFLOW (hrs cfs)	TIME--OUTFLOW (hrs cfs)	TIME--OUTFLOW (hrs cfs)
0.02 0.97	0.03 1.94	0.05 2.92	0.07 3.89
0.08 4.86	0.10 5.83	0.12 6.81	0.13 7.78
0.15 8.75	0.17 9.72	0.18 10.69	0.20 11.67
0.22 12.64	0.23 13.61	0.25 14.58	0.27 14.10
0.28 13.61	0.30 13.12	0.32 12.64	0.33 12.15
0.35 11.67	0.37 11.18	0.38 10.69	0.40 10.21
0.42 9.72	0.43 9.24	0.45 8.75	0.47 8.26
0.48 7.78	0.50 7.29	0.52 6.81	0.53 6.32
0.55 5.83	0.57 5.35	0.58 4.86	0.60 4.37
0.62 3.89	0.63 3.40	0.65 2.92	0.67 2.43
0.68 1.94	0.70 1.46	0.72 0.97	0.73 0.49

HYDROLOGIC REPORT

10 YR POST DEVELOPMENT

.....
.....

Hyd. No. 5

Hydrograph type =	RATIONAL	Peak discharge =	17.14 cfs
Storm frequency =	10 yr	Time interval =	1 min
Time of conc. =	10 min	Intensity =	5.12 in/hr
Runoff coeff. =	.5	Basin area =	6.7 ac

HYDROGRAPH DISCHARGE TABLE

TIME--OUTFLOW		TIME--OUTFLOW		TIME--OUTFLOW		TIME--OUTFLOW	
(hrs	cfs)	(hrs	cfs)	(hrs	cfs)	(hrs	cfs)
0.02	1.71	0.03	3.43	0.05	5.14	0.07	6.86
0.08	8.57	0.10	10.28	0.12	12.00	0.13	13.71
0.15	15.42	0.17	17.14	0.18	16.28	0.20	15.42
0.22	14.57	0.23	13.71	0.25	12.85	0.27	12.00
0.28	11.14	0.30	10.28	0.32	9.43	0.33	8.57
0.35	7.71	0.37	6.86	0.38	6.00	0.40	5.14
0.42	4.28	0.43	3.43	0.45	2.57	0.47	1.71

HYDROLOGIC REPORT

10 YR POST DEVELOPMENT
 ROUTED THROUGH POND...

Hyd. No. 6

Hydrograph type = RESERVOIR ROUTE	Peak discharge =	2.40 cfs
Storm frequency = 10 yr	Time interval =	1 min
Inflow hyd. no. = 5	Reservoir no. =	1

HYDROGRAPH DISCHARGE TABLE

TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-0 (i) cfs	2S/dt+0 (j) cfs	OUTFLOW cfs
0.02	1.71	3.43	1.71	1.71	0.00
0.03	3.43	5.14	6.86	6.86	0.00
0.05	5.14	6.86	15.34	15.42	0.04
0.07	6.86	8.57	27.20	27.34	0.07
0.08	8.57	10.28	42.36	42.62	0.13
0.10	10.28	12.00	60.88	61.21	0.17
0.12	12.00	13.71	82.76	83.16	0.20
0.13	13.71	15.42	108.02	108.47	0.23
0.15	15.42	17.14	136.66	137.16	0.25
0.17	17.14	16.28	168.68	169.22	0.27
0.18	16.28	15.42	201.52	202.10	0.29
0.20	15.42	14.57	232.61	233.23	0.31
0.22	14.57	13.71	261.94	262.60	0.33
0.23	13.71	12.85	289.54	290.22	0.34
0.25	12.85	12.00	315.39	316.10	0.36
0.27	12.00	11.14	339.50	340.24	0.37
0.28	11.14	10.28	361.88	362.64	0.38
0.30	10.28	9.43	382.53	383.30	0.39
0.32	9.43	8.57	401.44	402.24	0.40
0.33	8.57	7.71	418.63	419.44	0.40
0.35	7.71	6.86	433.86	434.92	0.53
0.37	6.86	6.00	446.20	448.43	1.11
0.38	6.00	5.14	455.92	459.06	1.57
0.40	5.14	4.28	463.22	467.06	1.92
0.42	4.28	3.43	468.33	472.65	2.16

HYDROGRAPH DISCHARGE TABLE Cont'd

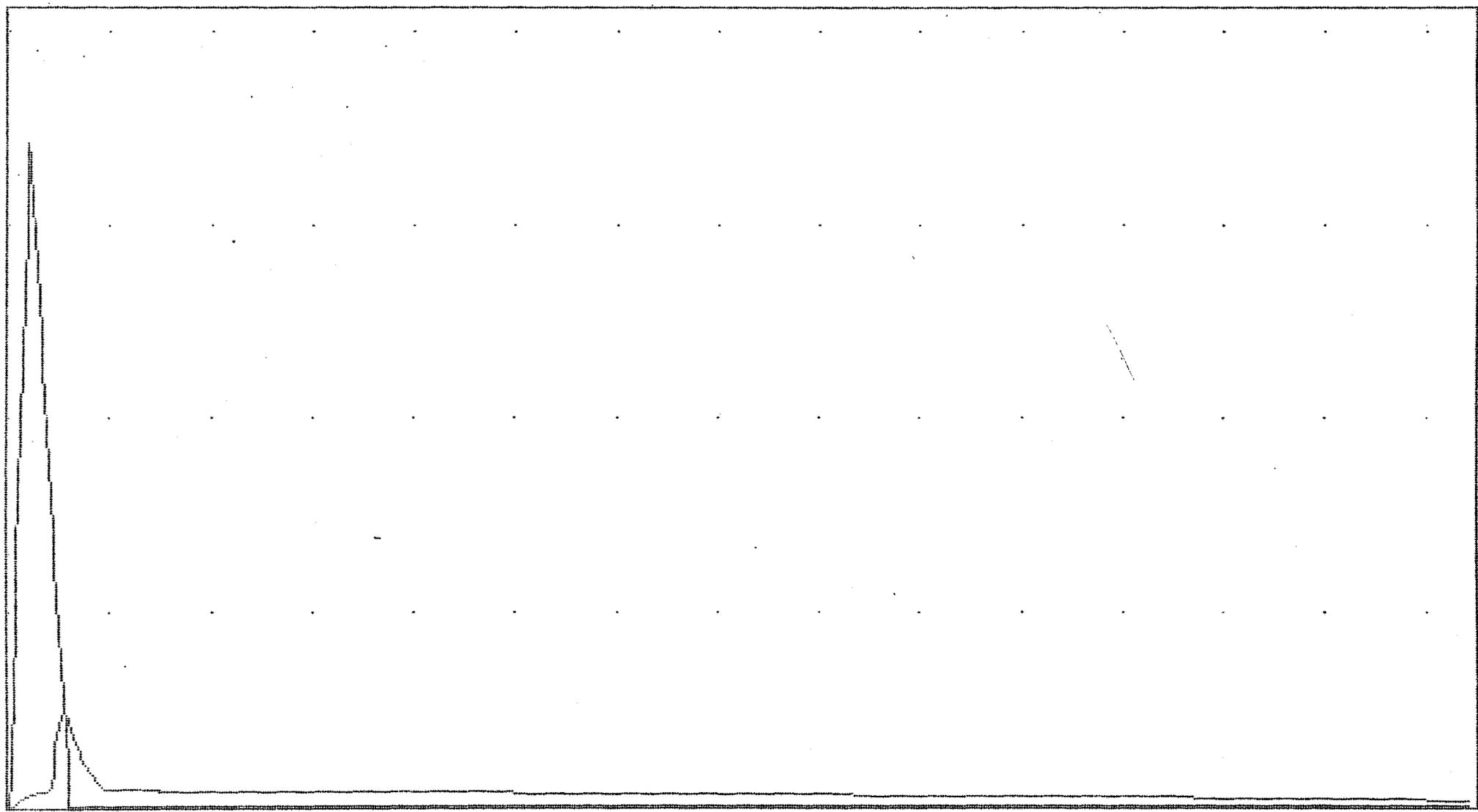
TIME hrs	INFLOW (i) cfs	INFLOW (j) cfs	2S/dt-0 (i) cfs	2S/dt+0 (j) cfs	OUTFLOW cfs
0.43	3.43	2.57	471.43	476.04	2.31
0.45	2.57	1.71	472.63	477.43	2.40
0.47	1.71	0.86	472.19	476.91	2.36
0.48	0.86	0.00	470.26	474.76	2.25
0.50	0.00	0.00	466.93	471.12	2.09
0.52	0.00	0.00	463.11	466.93	1.91
0.53	0.00	0.00	459.62	463.11	1.75
0.55	0.00	0.00	456.43	459.62	1.60
0.57	0.00	0.00	453.51	456.43	1.46
0.58	0.00	0.00	450.85	453.51	1.33
0.60	0.00	0.00	448.42	450.85	1.22
0.62	0.00	0.00	446.20	448.42	1.11
0.63	0.00	0.00	444.17	446.20	1.02

Maximum outflow (cfs) = 2.40
 Maximum storage (cu ft) = 14251
 Maximum elevation (ft) = 62.40

Qp = 2.4

RESERVOIR ROUTE

10 Yr



HGU = 50 min

6

VCU = 5.0 cfs

MAX STORAGE = 14251

MAX ELEVATION = 62.40

Qp = 8.6

RESERVOIR ROUTE

100 Yr



HGU = 50 min

10

VGU = 5.0 cfs

MAX STORAGE = 17125

MAX ELEVATION = 62.86

HYDRAULIC REPORT FOR

RAWL'S BYRD

ELEMENTARY SCHOOL

AES JOB NUMBER 8197

STORM SYSTEM #2

PREPARED BY:

AES CONSULTING ENGINEERS

5248 OLDE TOWNE ROAD

WILLIAMSBURG, VA. 23188

MAY 15, 1996 REV. 8/9/96

SP-59-96

Return Period = 10 Yrs
 Rainfall file: JCC

Run Date: 08-09-1996
 File: 8197-2.ST3

LINE 1 / Q = 7.02 / HT = 18 / WID = 18 / N = .011 / L = 52 / JLC = 1

SS#2-2 - SS#2-1 / Outfall

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	62.40	18.00	59.30	3.97	62.65	0.00	-.79	1.77
UPSTRM	62.57	18.00	60.20	3.97	62.81	0.00	1.09	1.77

Drainage area (ac)	=	0.52	Slope of invert (%)	=	1.7308
Runoff coefficient	=	0.50	Slope energy grade line (%)	=	0.3202
Time of conc (min)	=	11.12	Critical depth (in)	=	12.13
Inlet time (min)	=	10.00	Natural ground elev. (ft)	=	62.80
Intensity (in/hr)	=	5.60	Upstream surcharge (ft)	=	0.87
Cumulative C*A	=	1.25	Additional Q (cfs)	=	0.00
Q = CA * I (cfs)	=	7.02	Line capacity (cfs)	=	16.33

Q catchment (cfs)	=	1.51	Inlet length (ft)	=	0.00
Q carryover (cfs)	=	5.77	Gutter slope (ft/ft)	=	0.0000
Q captured (cfs)	=	0.00	Cross slope (ft/ft)	=	0.0000
Q bypassed (cfs)	=	7.28	Ponding width (ft)	=	N/A

LINE 2 / Q = 5.67 / HT = 18 / WID = 18 / N = .011 / L = 110 / JLC = 1

SS#2-3 - SS#2-2 / DNLN = 1

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	62.81	18.00	60.20	3.21	62.97	0.00	1.09	1.77
UPSTRM	63.04	18.00	60.80	3.21	63.20	0.00	1.79	1.77

Drainage area (ac)	=	0.64	Slope of invert (%)	=	0.5455
Runoff coefficient	=	0.70	Slope energy grade line (%)	=	0.2087
Time of conc (min)	=	10.55	Critical depth (in)	=	10.90
Inlet time (min)	=	10.00	Natural ground elev. (ft)	=	64.10
Intensity (in/hr)	=	5.70	Upstream surcharge (ft)	=	0.74
Cumulative C*A	=	0.99	Additional Q (cfs)	=	0.00
Q = CA * I (cfs)	=	5.67	Line capacity (cfs)	=	9.17

Q catchment (cfs)	=	2.60	Inlet length (ft)	=	0.00
Q carryover (cfs)	=	3.17	Gutter slope (ft/ft)	=	0.0000
Q captured (cfs)	=	0.00	Cross slope (ft/ft)	=	0.0000
Q bypassed (cfs)	=	5.77	Ponding width (ft)	=	N/A

LINE 3 / Q = 3.17 / HT = 15 / WID = 15 / N = .011 / L = 85 / JLC = 1

SS#2-4 - SS#2-3 / DNLN = 2

	HGL	DEPTH	INVERT	VEL	EGL	T WID	COVER	AREA
DNSTRM	63.20	15.00	60.80	2.58	63.30	0.00	2.04	1.23
UPSTRM	63.45	15.00	61.70	2.58	63.56	0.00	2.24	1.23

Drainage area (ac) =	0.78	Slope of invert (%) =	1.0588
Runoff coefficient =	0.70	Slope energy grade line (%) =	0.1726
Time of conc (min) =	10.00	Critical depth (in) =	8.55
Inlet time (min) =	10.00	Natural ground elev. (ft) =	65.20
Intensity (in/hr) =	5.81	Upstream surcharge (ft) =	0.50
Cumulative C*A =	0.55	Additional Q (cfs) =	0.00
Q = CA * I (cfs) =	3.17	Line capacity (cfs) =	7.85

Q catchment (cfs) =	3.17	Inlet length (ft) =	0.00
Q carryover (cfs) =	0.00	Gutter slope (ft/ft) =	0.0000
Q captured (cfs) =	0.00	Cross slope (ft/ft) =	0.0000
Q bypassed (cfs) =	3.17	Ponding width (ft) =	N/A

RAWLS BYRD #8197

5/10/96

CHANNEL ADEQUACY ANALYSIS

→ 10YR DESIGN STORM

DISCHARGE (Q, CFS) AT EX. DITCH STA 10+00

* FROM "DRY" POND DESIGN CALCULATIONS

$$Q_{10\text{pre}} = 14.58 \text{ CFS}$$

$$Q_{10\text{post}} = 17.14 \text{ CFS}$$

$$Q_{10\text{release}} = \underline{\underline{0.57 \text{ CFS}}}$$

from pond

* REACH #1 STA. 10+00 → STA 11+00

$$CDA = 0.72AC \quad C = 0.40$$

$$T_c = 10 \text{ min} \quad I_{10} = 5.5 \text{ in/hr}$$

$$Q_{10} = 1.58 \text{ CFS} + 0.57 \text{ CFS} = \underline{\underline{2.2 \text{ CFS}}}$$

* EX. DITCH = CONC. LINED, DEPTH = 8"

$$\text{SLOPE} = 2.0\% \pm \quad \text{SS} = 3:1 \quad n = 0.015$$

✓ FROM NOMOGRAPH $D = 2'' \quad V = 2.6 \text{ ft/s}$

RAWLS' BYRD #8197

5/10/96

CHANNEL ADEQUACY ANALYSIS CONT

* REACH #2 STA 11+00 TO 24" PCP

$$DA = 3.57 AC$$

$$C = 0.40 \quad T_c = 10 \text{ min}$$

$$I_{10} = 5.5 \text{ in/hr}$$

$$Q_{10} = 7.85 \text{ CFS} + 0.57 \text{ CFS} = \underline{\underline{8.42 \text{ CFS}}}$$

* EX. DITCH = BRICK BOTTOM W/ TIMBER SIDES
RECTANGULAR CHANNEL SECTION
15" DEEP W/ 15" WIDE BOTTOM

$$\text{SLOPE} = 2.9\% \pm$$

$$n = 0.015$$

→ APPROX. - USING RECTANGULAR CHANNEL W/
1" WIDE BOTTOM → $B = 1$

* FROM CHART

$$K' = \frac{Qn}{b^{2/3} \cdot S^{1/2}} = \frac{8.42(0.015)}{1(0.029)^{1/2}} = 0.742$$

$$K' = 0.742$$

$$d/b = 1.0$$

$$b = 1.0$$

✓ $d = 1.0'$ ←

RAWLS' BYRD # 8197

5/10/96

CHANNEL ADEQUACY ANALYSIS CONT

* REACH # 3 EX 24" PCP TO STA 13+00

$$DA = 5.24 \text{ AC} \quad C = 0.40 \quad T_c = 10 \text{ min}$$
$$I_p = 5.5 \text{ in/hr} \quad Q_{10} = 12.14 + 0.57 = \overset{12.71}{\underline{\underline{11.53 \text{ CFS}}}} \leftarrow$$

* EX. DITCH = CONC TRAPEZOIDAL CHANNEL
W/ 1:1 SS AND DEPTH = 1.5', B = 1 ft
SLOPE = 2.8% ± $n = 0.015$

$$K' = \frac{Q_n}{b^{2/3} s^{1/2}} = \frac{11.53 (0.015)}{(1)(0.028)^{1/2}} = \underline{\underline{1.03}}$$

$$d/b = 0.7 \quad \sqrt{d} = 0.7(1) = \underline{\underline{0.7 \text{ ft}}} \leftarrow$$

* REACH # 4 STA 13+00 TO EX POND

$$DA = 5.52 \text{ AC} \quad C = 0.40 \quad T_c = 10 \text{ min}$$
$$I_p = 5.5 \text{ in/hr} \quad Q_{10} = 12.14 \text{ CFS} + 0.57 \text{ CFS} = \underline{\underline{12.71 \text{ CFS}}}$$

* EX DITCH = CONC DITCH W/ 6:1 SS AND
DEPTH = 8" $SLOPE = 2.5\% \pm$

→ FROM NOMOGRAPH $D = 6''$
 $V = 8 \text{ ft/s}$

TEMPORARY SEDIMENT BASIN DESIGN DATA SHEET

(with or without an emergency spillway)

Project RAWL'S BYRD

Basin # 1 Location _____

Total area draining to basin: 6.7 acres.

Basin Volume Design

Wet Storage:

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

$$67 \text{ cu. yds.} \times \underline{6.7} \text{ acres} = \underline{449} \text{ cu. yds. (12,123 CF)}$$

2. Available basin volume = 600+ cu. yds. at elevation 62.2. (From storage - elevation curve)

3. Excavate _____ cu. yds. to obtain required volume*.

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

4. Available volume before cleanout required.

$$33 \text{ cu. yds.} \times \underline{6.7} \text{ acres} = \underline{221} \text{ cu. yds.}$$

5. Elevation corresponding to cleanout level = 59.2.

(From Storage - Elevation Curve)

6. Distance from invert of the dewatering orifice to cleanout level = 3.0 ft.
(Min. = 1.0 ft.)

Dry Storage:

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

$$67 \text{ cu. yds.} \times \underline{6.7} \text{ acres} = \underline{449} \text{ cu. yds. (12,123 CF)}$$

8. Total available basin volume at crest of riser* = 1,057 cu. yds. at elevation 64. (From Storage - Elevation Curve)

* Minimum = 134 cu. yds./acre of total drainage area. (898 cu yds reqd) ✓

9. Diameter of dewatering orifice = 4 in.

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

Preliminary Design Elevations

11. Crest of Riser = 64.0

Top of Dam = 65.4

Design High Water = 64.3

Upstream Toe of Dam = 57.0

Basin Shape

12. $\frac{\text{Length of Flow}}{\text{Effective Width}} = \frac{L}{We} = \frac{70}{30} = 2.3$

If > 2, baffles are not required 2.3 ✓

If < 2, baffles are required _____

Runoff

13. $Q_2 = \overset{0.65}{\underline{14.5}}$ cfs (From Chapter 5)

14. $Q_{25} = \underline{20.8}$ cfs (From Chapter 5)

Principal Spillway Design

15. With emergency spillway, required spillway capacity $Q_p = Q_2 = \overset{14.5}{\underline{1.5}}$ cfs. (riser and barrel)

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

16. With emergency spillway:

0.65' 64.65'

Assumed available head (h) = 0.2 ft. (Using Q_2)

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

Without emergency spillway:

Assumed available head (h) = ft. (Using Q_{25})

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

17. Riser diameter (D_r) = 36 in. Actual head (h) = neg ft.

(From Plate 3.14-8.)

Note: Avoid orifice flow conditions.

18. Barrel length (l) = 35 ft.

Head (H) on barrel through embankment = 3.3 ft.

(From Plate 3.14-7).

19. Barrel diameter = 15 in.

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

20. Trash rack and anti-vortex device

Diameter = 54 inches.

Height = 17 inches.

(From Table 3.14-D).

64.65' E.S. dw

0.8

Emergency Spillway Design

21. Required spillway capacity $Q_e = Q_{25} - Q_p =$ 3 cfs.

22. Bottom width (b) = 15 ft.; the slope of the exit channel (s) = 0.07 ft./foot; and the minimum length of the exit channel (x) = 32 ft.

(From Table 3.14-C).

Anti-Seep Collar Design N/A

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

Final Design Elevations

25. Top of Dam = 65.4
 Design High Water = 64.3
 Emergency Spillway Crest = 64.2
 Principal Spillway Crest = 64.0
 Dewatering Orifice Invert = 62.2
 Cleanout Elevation = 59.2
- Elevation of Upstream Toe of Dam
 or Excavated Bottom of "Wet Storage
 Area" (if excavation was performed) = 57.0

1. RESERVOIR No = 3. 2. RESERVOIR NAME = TOTAL STORAG
 3. $S = K_s * Z^b$
 $K_s = 0$ $b = 0$
 START ELEV = 0..... INCREMENT = 0...

	STAGE ft	ELEVATION ft	CO AREA sq ft	INC STORAGE cu ft	TOT STORAGE cu ft
4	0.00	57.00.	1562.....	0	0
5	2.00	59.00.	2587.....	4149	4149
6	3.00	60.00.	3218.....	2902	7051
7	5.00	62.00.	5562.....	8780	15831
8	7.00	64.00.	7125.....	12687	28518
9	8.20	65.20.	17939...	15038	43556
10	0.00	0.00.	0.....	0	0
11	0.00	0.00.	0.....	0	0
12	0.00	0.00.	0.....	0	0
13	0.00	0.00.	0.....	0	0
14	0.00	0.00.	0.....	0	0

Change item number: 0

└─ to cont

1. RESERVOIR No = 2. 2. RESERVOIR NAME = SED BASIN...
 3. $S = K_s * Z^b$
 $K_s = 0$ $b = 0$
 START ELEV = 0..... INCREMENT = 0...

	STAGE ft	ELEVATION ft	CO AREA sq ft	INC STORAGE cu ft	TOT STORAGE cu ft
4	0.00	59.00.	0.....	0	0
5	3.19	62.19.	.00001..	0	0
6	3.20	62.20.	5654....	28	28
7	5.00	64.00.	7125....	11501	11529
8	6.20	65.20.	17939...	15038	26567
9	0.00	0.00.	0.....	0	0
10	0.00	0.00.	0.....	0	0
11	0.00	0.00.	0.....	0	0
12	0.00	0.00.	0.....	0	0
13	0.00	0.00.	0.....	0	0
14	0.00	0.00.	0.....	0	0

Change item number: 0

└ to cont

Reservoir No. 2

OUTLET STRUCTURES

- | CULVERT STRUC A. $Q = CoA[2gh/k]^{.5}$ | | CULVERT STRUC B. $Q = CoA[2gh/k]^{.5}$ | |
|--|--|--|--|
| 1. WIDTH (in) = 15. | | 9. WIDTH (in) = 4.. | |
| 2. HEIGHT (in) = 15. | | 10. HEIGHT (in) = 4.. | |
| 3. No. BARRELS = 1.. | | 11. No. BARRELS = 1.. | |
| 4. INVERT ELEV. = 59..... | | 12. INVERT ELEV. = 62..... | |
| 5. Co = 0.60 | | 13. Co = 0.60 | |
| 6. CULVERT LENGTH (ft) = 35.. | | 14. CULVERT LENGTH (ft) = 0... | |
| 7. CULVERT SLOPE (%) = .86. | | 15. CULVERT SLOPE (%) = 0... | |
| 8. MANNING'S N-VALUE = .022 | | 16. MANNING'S N-VALUE = .013 | |
| | | 17. MULTI-STAGE OPTION ? (Y/N) Y | |
| WEIR STRUCTURE A. $Q = CWLH^{EXP}$ | | WEIR STRUCTURE B. $Q = CWLH^{EXP}$ | |
| 18. CREST LENGTH (ft) = 7.07... | | 23. CREST LENGTH (ft) = 15..... | |
| 19. CREST ELEVATION = 64..... | | 24. CREST ELEVATION = 64.2... | |
| 20. CW = 3.00 | | 25. CW = 3.00 | |
| 21. EXP = 1.50 | | 26. EXP = 1.50 | |
| 22. MULTI-STAGE OPTION ? (Y/N) Y | | 27. MULTI-STAGE OPTION ? (Y/N) N | |

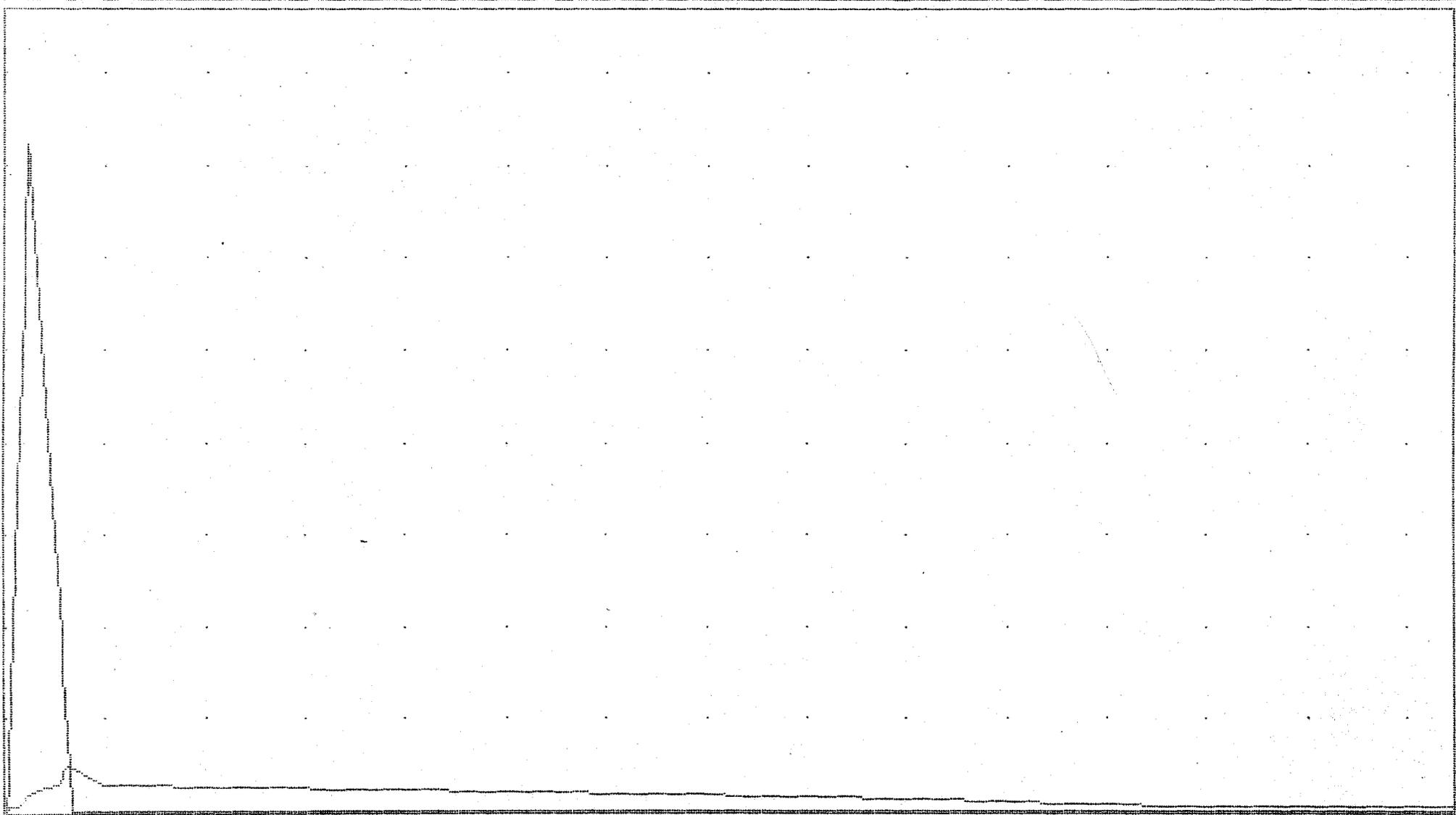
Change item number: 0

└ to cont

Qp = 1.0

RESERVOIR ROUTE TEMP. SED. BASIN

2 yr



HCU = 45 min

14

VCU = 2.0 cfs

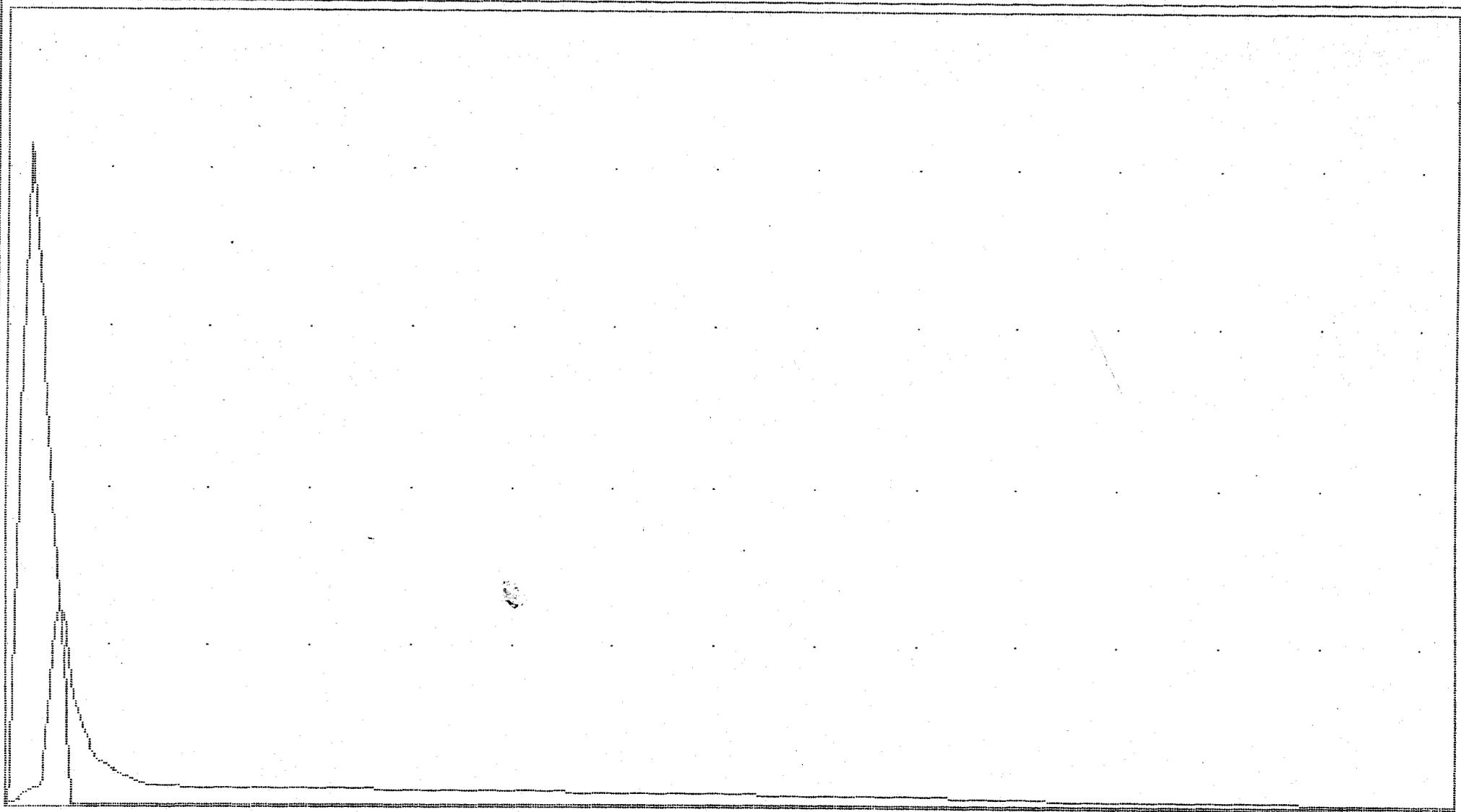
MAX STORAGE = 12215

MAX ELEVATION = 64.05

Op = 6.1

RESERVOIR ROUTE TEMP. SED. BASIN

25 Yr



HCU = 47 min

18

UCU = 5.0 cfs

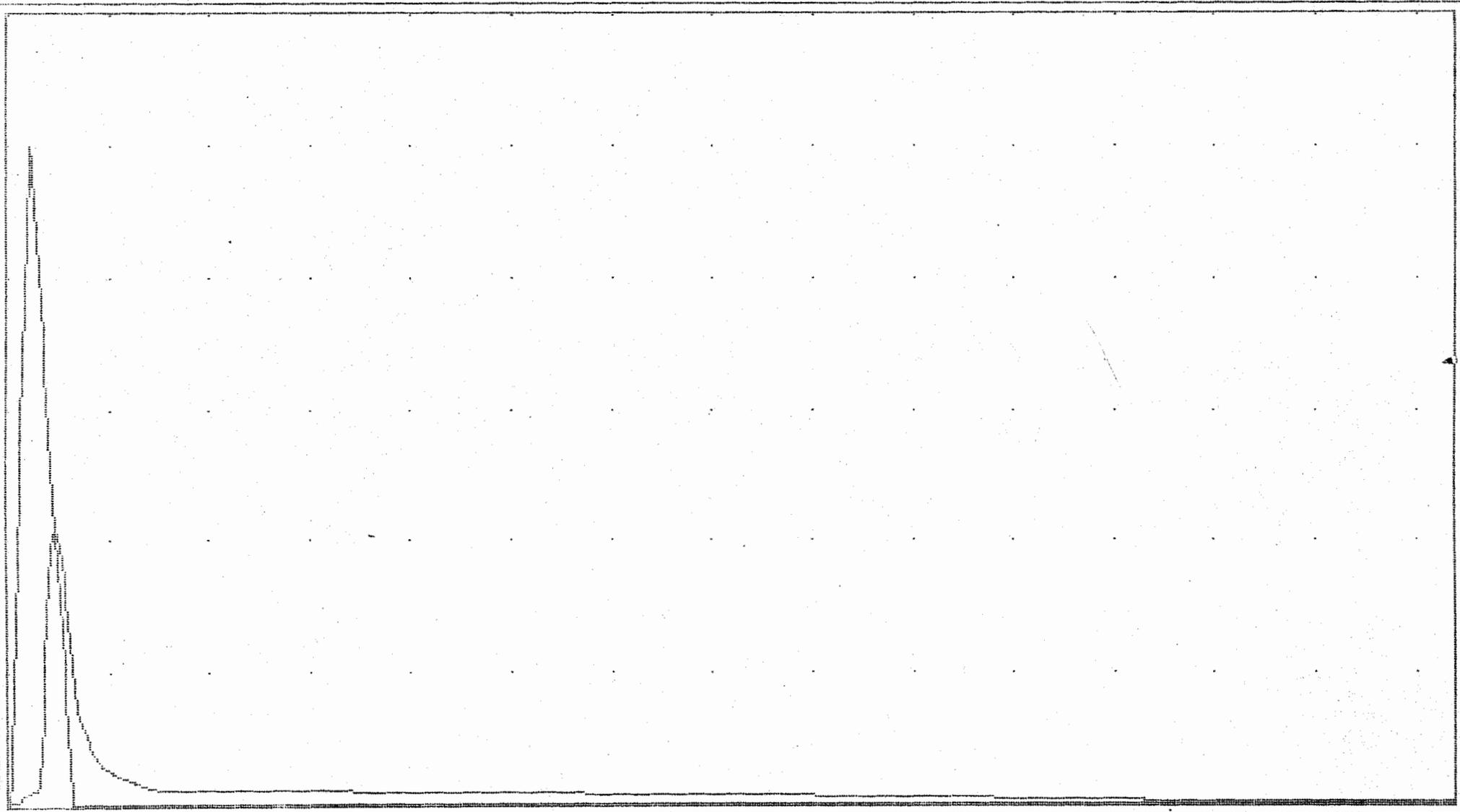
MAX STORAGE = 15393

MAX ELEVATION = 64.31

Qp = 10.4

RESERVOIR ROUTE TEMP. SED. BASIN

100 Yr



HCU = 47 min

20

VCU = 5.0 cfs

MAX STORAGE = 16586

MAX ELEVATION = 64.40

BLUERIDGE GENERAL, INC.

General Contractors

3422 STRATHMORE AVENUE / NORFOLK, VIRGINIA 23504

PHONE (757) 627-9914

FAX (757) 623-4248

January 24, 2000

James City County
Erosion Control Inspections
101 E. Mounts Bay Road
P. O. Box 8784
Williamsburg, VA 23187-8784

Attention: Mr. Patrick Menichino

RE: RAWLS BYRD ELEMENTARY SCHOOL, WILLIAMSBURG, VIRGINIA

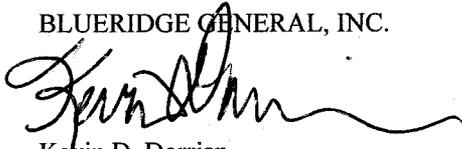
Gentlemen:

Enclosed is another copy of the as-built drawing of all the storm drainage structures that we constructed during the elementary school project. We understand that this is the last piece of information that you require to release our erosion control bond.

Please send our office a memo stating that the erosion control bond can now be released.

Very truly yours,

BLUERIDGE GENERAL, INC.



Kevin D. Dorrian
Project Manager

KDD/bjs

Enclosure

cc: 2105-R/P

BLUERIDGE GENERAL, INC.

General Contractors

3422 STRATHMORE AVENUE / NORFOLK, VIRGINIA 23504

PHONE (757) 627-9914

FAX (757) 623-4248

October 19, 1999

James City County
Erosion Control Inspections
101 E. Mounts Bay Road
P. O. Box 8784
Williamsburg, VA 23187-8784

Attention: Mr. Patrick Menichino

RE: RAWLS BYRD ELEMENTARY SCHOOL, WILLIAMSBURG, VIRGINIA

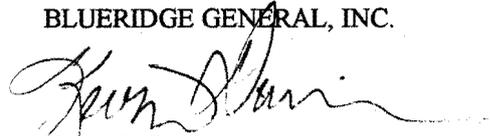
Gentlemen:

Enclosed is an as-built drawing of all the storm drainage structures that we constructed during the elementary school project. We understand that this is the last piece of information that you require to release our erosion control bond.

Please send our office a memo stating that the erosion control bond can now be released.

Very truly yours,

BLUERIDGE GENERAL, INC.



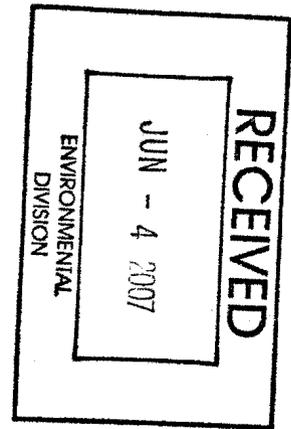
Kevin D. Dorrian
Project Manager

KDD/bjs

Enclosure

cc: Hampton Roads Bonding
2105-R/P

TRANSMITTAL



DATE: June 1, 2007

TO: Environmental

FROM: Luke Vinciguerra, Planner
WMSBa, JCC
SUBJECT: SP-45-07, Rawls Byrd Parking Lot Expansion

ITEMS
ATTACHED: Site Plan

ACTION: Please review and return comments by June 15, 2007. This is the second submittal

Approved.
Scott J. Thomas
06-20-07



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

SP-59-96
CPIN 4810600171A

County BMP ID Code (if known): MC 014

Name of Facility: RAWLS BYRD ELEM SCHOOL BMP No.: _____ of _____ Date: 11/20/01

Location: 112 LAUREL LANE

Name of Owner: WILLIAMSBURG-ICC SCHOOL BOARD

Name of Inspector: SJ THOMAS

Type of Facility: DRY POND W/ SHALLOW MARSH

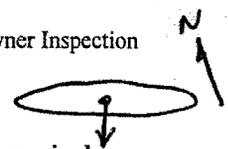
Weather Conditions: CLOUDY, COOL, 60'S Type: Final Inspection County BMP Inspection Program Owner Inspection

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

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

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

Facility Item	O.K.	Routine	Urgent	Comments
Embankments and Side Slopes: <u>6' HIGH EARTH; 34:1V O/S EMB; 13' TOP WIDTH</u>				
Grass Height	+			<u>GRASSED 2-4"</u>
Vegetation Condition	X			
Tree Growth	+			<u>NONE.</u>
Erosion	X			<u>NONE.</u>
Trash & Debris	+			<u>NONE.</u>
Seepage	X			<u>NONE.</u>
Fencing or Benches	+			<u>O/S FENCE ALONG SUBDIV.</u>
Interior Landscaping/Planted Areas: <input type="checkbox"/> None <input type="checkbox"/> Constructed Wetland/Shallow Marsh <input checked="" type="checkbox"/> Naturally Established Vegetation				
Vegetated Conditions				<u>CATTAILS, WEEDS</u>
Trash & Debris				
Floating Material				
Erosion				
Sediment				
Dead Plant				
Aesthetics				
Other				
<u>SCRUBS SCHOOL YARD, FIELDS, RD 6 + PARK AREA</u>				

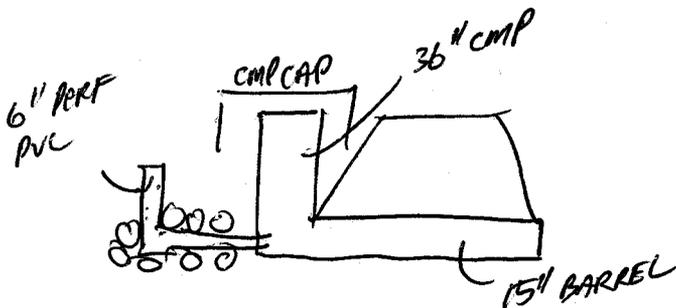


Facility Item	O.K.	Routine	Urgent	Comments
Water Pools: <input type="checkbox"/> Permanent Pool (Retention Basin) <input type="checkbox"/> Shallow Marsh (Detention Basin) <input checked="" type="checkbox"/> None, Dry (Detention Basin)				
Shoreline Erosion	X			GOOD VEG.
Algae	X			
Trash & Debris	X			SOME AT RISER.
Sediment	X			NONE.
Aesthetics	X			NAT VEG WITHIN BASIN-
Other				THICK VEG WITHIN BASIN
Inflows (Describe Types/Locations): 15" C.P.P. SE CORNER; 12" NE CORN CPP W/ END SECT				
Condition of Structure	X			
Erosion	X			
Trash and Debris	X			SOME.
Sediment	X			2" depth at pipe outfall
Aesthetics				
Other		X		clear mounds, trees 10' from outfall
Principal Flow Control Structure - Riser, Intake, etc. (Describe Location): 36" CMP RISER w/ CAP; ASPHALT COAT.				
Condition of Structure	X			
Corrosion	X			SOME RUST
Trash and Debris		X		clear VEG 10' from riser / LFORIF
Sediment	X			NONE.
Aesthetics	X			
Other				6" PERFOR LFORIF; ROCK FILTER
Principal Outlet Structure - Barrel, Conduit, etc.: 15" CMP Asphalt Coated w/ CMP END SECT				
Condition of Structure	X			
Settlement	X			
Trash & Debris	X			SOME LEAVES
Erosion/Sediment	X			
Outlet Protection				PAVED PG-2A CHANNEL TO SUBDIV
Other				
Emergency Spillway (Overflow): 15' WIDE; SHALLOW ES; PARABOLIC SHAPE				
Vegetation	X			GRASS
Lining	X			"
Erosion	X			
Trash & Debris	X			
Other				
SE SIDE, BERM w/ 11-7 YARD GRATES. GRATES CLEAN.				
STORM DRAINS TO BMP, CLEAR FUNCTIONAL.				

Facility Item	O.K.	Routine	Urgent	Comments
Nuisance Type Conditions:				
Mosquito Breeding	X			
Animal Burrows	X			
Graffiti	X			
Other				
Surrounding Perimeter Conditions: <i>North BALLFIELD; EAST SCHOOL; WEST/SOUTH SUBDIV</i>				
Land Uses	X			
Vegetation	X			
Trash & Debris	X			
Aesthetics	X			
Access /Maintenance Roads or Paths				<i>PARKING LOT TO BMP.</i>
Other	X			<i>6' HIGH CHAIN FENCE AROUND BMP</i>

Remarks:

- CLEAR veg 10' from 2 pipe inlets into facility.
- o CLEAR veg 10' from riser & low flow part pipe/rock filter.
- HEAVY VEG ON BOTTOM OF BASIN; SLIGHT OBSTRUCTION.



Overall Environmental Division Internal Rating: 3 (VEG IN BASIN)

Signature: *Scott J. Jones*
 Title: Civil Engineer ENV DIV

Date: 11/20/01 9:50AM

WATERSHED	MC	MAINTENANCE PLAN	No	CTRL STRUC DESC	Alum Riser
BMP ID NO	014	SITE AREA acre	12.63	CTRL STRUC SIZE inches	36
PLAN NO	SP-59-96	LAND USE	Elem School	OTLT BARRL DESC	Alum Barrel
TAX PARCEL	(48-1)(6-171A)	old BMP TYP	Dry Ext Det	OTLT BARRL SIZE inch	15
PIN NO	4810600171A	JCC BMP CODE			
CONSTRUCTION DATE	7/1/1993	POINT VALUE	6	EMERG SPILLWAY	Yes
PROJECT NAME	Rawls Byrd Elem School			DESIGN HW ELEV	62.86
FACILITY LOCATION	112 Laurel Lane			PERM POOL ELEV	na
CITY-STATE	Williamsburg, Va. 23185	SVC DRAIN AREA acres	6.7	2-YR OUTFLOW cfs	0.40
CURRENT OWNER	Williamsburg-James City County School Board			10-YR OUTFLOW cfs	2.40
OWNER ADDRESS				REC DRAWING	Yes
OWNER ADDRESS 2				SERVICE AREA DESCRI	Building, Parking & Fields
CITY-STATE-ZIP CODE	Williamsburg, Va. 23185	IMPERV AREA acres	3.35	CONSTR CERTI	No
OWNER PHONE				RECV STREAM	UT to Mill Creek
MAINT AGREEMENT	Yes	EXT DET-WQ-CTRL	Yes	LAST INSP DATE	1/18/2001 11/20/11
EMERG ACTION PLAN	No	WTR QUAL VOL acre-ft	0.2973	INTERNAL RATING	3 3
		CHAN PROT CTRL	No	MISC/COMMENTS	Infil trench per SP-2-93 phased out. Riser/barrel aluminized w/ asphalt coat.
		CHAN PROT VOL acre-ft	0		
		SW/FLOOD CONTROL	Yes		
		GEOTECH REPORT	No		

Get Last BMP No

Return to Menu



MC014



MC 014

Scott,
No FURTHER
Comments.

Bill

Environmental Division Review Comments
May 8, 2007

General:

1. A Land-Disturbing Permit and Siltation Agreement, with surety, are required for this project

Response: Noted ✓

2. Plan Number. Please reference the assigned County plan number on all subsequent submissions.

Response: The Site Plan Number has been added to the Cover Sheet. ✓

3. A Standard Inspection / Maintenance agreement is required to be executed with the County due to the proposed stormwater conveyance systems and Stormwater Management/BMP facilities associated with this project.

Response: Noted ✓

4. Professional seal and signature is required on final and complete approved stormwater management plans, drawings, technical reports and specifications.

Response: Noted ✓

5. Watershed. Provide a note on the cover sheet of the plans indicating which County watershed, sub-watershed and/or catchment for which the project is situated in. It appears this project is situated in the Mill Creek Watershed.

Response: A note has been added to the Cover Sheet. ✓

Erosion & Sediment Control Plan:

6. Silt Fence. The location of the proposed silt fence is currently outside the limits of disturbance. Please revise the plan to re-locate the proposed silt fence inside the limits of disturbance.

Response: The plans have been revised accordingly. ✓

7. Temporary Stockpile Areas. Show any temporary soil stockpile, staging and equipment storage areas (with required erosion and sediment controls) or indicate on the plans that none are anticipated for the project site.

Response: No temporary stockpiles are proposed outside of the limits of disturbance. A note has been added to the Cover Sheet for the contractor to remove all excess soil from the site. ✓

Mr. L. Vinciguerra

June 1, 2007

Page 3 of 4

8. Slope Stabilization. In accordance with James City County standard erosion and sediment control note # 13, all slopes steeper than 3H:1V require use of erosion control blankets installed in accordance with the minimum standards of the VESCH. No slopes shall be created steeper than 2H:1V. The slopes that are proposed for the expansion of the current stormwater basin are shown to be 3:1. Provide the provision for EC-2 matting in these areas.

Response: EC-2 matting has been added to the plans in the area of the stormwater basin expansion. ✓

9. Rock Check Dams. Be advised that the use of rock check dams may be warranted in the existing grass ditch line on the south side of the project. Please provide the proper drainage calculations for this ditch for review.

Response: A note was added to the plans delineating the existing concrete channel at the end of the grass channel, adjacent to Inlet #2-2. This concrete channel will not be removed and the proposed drainage area to this channel will be reduced with the construction of the parking lot, curb and gutter, and proposed inlet structure #2-2A.

10. Seeding and Mulching Specification. Provide a seeding and mulching specification or reference an appropriate mixture for the coastal plain region per the VESCH, Minimum Standard 3.32. Address both temporary and permanent stabilization requirements for the site.

Response: A temporary seeding reference to the VESCH has been added to the legend on Sheet 4. Please note that based on the size and construction completion deadline of this project, temporary seeding is not expected. Permanent seeding will be used once the site is brought to final grade. ✓

11. Sequence of Construction. Amend the current sequence of construction to include and/or adjust the following information. Step number five in the sequence should include the provision that all debris from the site shall be disposed of at a state approved facility. Please also revise note number seven in the management strategies section of the maintenance plan for the erosion and sediment controls. The provision for the use of EC-2 matting needs to be added to this section.

Response: The notes have been revised accordingly. ✓

Stormwater Management and Drainage:

12. Existing Conditions. The information provided on plan sheet 2 appears to be a representation of the existing and proposed conditions. This being the case, the modifications cannot be fully understood. This can lead to confusion in the field and change orders by the contractor should additional items be required for demolition that are not clearly indicated on the site plan. With the next submittal, provide the existing conditions and demolition plan on plan sheet 2. All other improvements should be shown on the remaining sheets.

Response: Plan Sheet 2 has been revised accordingly.

13. Forebay. Reference plan sheet 5 from plan sheet 3 in the location of the proposed forebay.

Response: The reference to Sheet 5 has been added to Sheet 3 accordingly.



JCC Environmental Division

Preconstruction Meeting

Project Parking Lot Expansion - Rawls Byrd Elem.

Date 7/5/2007

1. Is the person who will be designated as the *Responsible Land Disturber* for implementation of the approved Erosion Control Plan present?

YES NO Name Evan Lucas

2. Does the person who has been identified above possess a certificate of competence issued by the Department of Conservation and Recreation in Erosion and Sediment Control or are they a licensed Professional Engineer, Land Surveyor, Landscape Architect, or Architect?

YES NO Certificate or License No. 25296

3. The person designated above, is required by the Virginia Erosion and Sediment Control Regulations to insure the installation and daily maintenance of the erosion and sediment control measures.

4. A copy of the Virginia Erosion and Sediment Control Handbook (VESCH) is required to be on the project site daily.

5. A copy of the approved site plan is required to be on the project site daily.

6. Are there any proposed revisions to the approved plan pending?

YES NO

7. Any proposed changes to the approved plan must be submitted to James City County for review and approval prior to implementation.

8. Is the person designated above aware of any discrepancies, errors or deficiencies with the approved plan?

YES NO

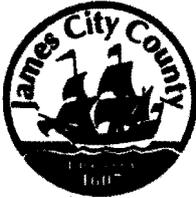
9. James City County is authorized under the Virginia Erosion and Sediment Control Law to require project monitoring and inspection reports to insure compliance with the approved plan. If James City County determines that inspection reports are required, they shall be submitted to the Environmental Division for review at intervals determined by the Division.

County Agent [Signature]

Responsible Land Disturber [Signature] for Evan Lucas

Preconcover

Rev. 1/05



Erosion and Sediment Control Preconstruction Meeting Checklist

Project: Parking lot expansion Rawls Byrd Elementary School
 Date: 7/5/2007 Time: 1000 AM PM
 Permittee: Wmby JCC Public School Address: 577 Jelly Pond R
 Contractor: Stilleq Company
 Phone No.: 757-886-0721 Fax No.: 886-9302
 Address: 737 Shields Rd Newport News, Va. 23608

1. Phasing of Erosion and Sediment Control Practices

- A. Narrative Plan
- B. Contractor-Developed Sequence of Construction

2. Installation Procedure for Primary Erosion and Sediment Control Practices

- | | |
|--|--|
| <input type="checkbox"/> Construction Entrance | <input type="checkbox"/> Sediment Basins |
| <input checked="" type="checkbox"/> Silt Fence | <input checked="" type="checkbox"/> Stormwater Management/BMP Facilities |
| <input checked="" type="checkbox"/> Rock Check Dams | <input type="checkbox"/> Diversions |
| <input checked="" type="checkbox"/> Culvert & Storm Drain Inlet Protection | <input checked="" type="checkbox"/> Soil Blankets & Matting |
| <input type="checkbox"/> Stormwater Conveyance Channels | <input checked="" type="checkbox"/> Mulching |
| <input checked="" type="checkbox"/> Temporary Seeding | <input checked="" type="checkbox"/> Permanent Seeding |
| <input type="checkbox"/> Outlet Protection | <input checked="" type="checkbox"/> Storm Drainage System |
| <input type="checkbox"/> Sediment Traps | <input type="checkbox"/> Other |

3. Inspection and Enforcement Procedures

- A. Permittee/Contractor Inspections:
- B. County Inspections:
- C. Enforcement Actions:
 - 1. Inspection Report & Informal Contact:
 - 2. Notice to Comply:

Revised 1/05

Erosion and Sediment Control Preconstruction Meeting Checklist

Page 2

3. Stop Work Order: X
4. Legal Proceedings: X
4. Limits of Clearing, Tree and Other Critical Areas Protection Measures Inspection
- A. Clearing limits properly flagged? Yes No
- B. Color of Flagging: _____
- C. Tree Presservations/Critical Areas protected adequately? Yes No
- D. Color of Flagging: Orange Const. Fence
- E. Tree Preservation/Critical Areas Protection Measures, Type: Orange Const. Fence
5. Issuance of Stormwater Management/BMP, Record Drawing and Construction Certification, Standard Forms and Instructions (If Applicable to Project)
6. Attendees - Identify Contract Person for Erosion Control
- Signature: WW Stille
- Printed Name: WW Stille
- Affiliation: Stille Company
- Address: PO Box 14485 737 Shields Rd.
Newport News, VA 23608
- Phone No. 757-886-0721
7. Comments: _____

County Agent Cynthia Hays Date: 7/5/2007

Title: Inspector

espolicy.frm

Revised 1/05



Land Disturbing Permit Application

James City County
Environmental Division
P.O. Box 8784
Williamsburg, VA 23187-8784
Telephone: (757) 253-6670

SP-045-07
LV ok 7/2/07
mc-146

Landowner

Name: Williamsburg-James City County Public Schools Date: 6/22/07

Mailing Address: 597 Jolly Pond Rd. Phone: 757-259-7157

Williamsburg, VA 23188 Fax: 757-565-1462

Project: Parking lot expansion - Rawls Byrd Elementary School

Project Street Address: 112 Laurel lane, Williamsburg, VA 23185

Total Size of Tract of Lot: 12.5 Acres

Total Area to Be Disturbed: 0.507 Acres

Description of Land Disturbing Activity:

Remove existing concrete and asphalt pavement and construct 43 new parking spaces.

Right of Entry

I, [Signature], (Signature) hereby grant designated officials of James City County,
(Alan Robertson, Facility Manager (Print Name and Title))

Virginia, the right to enter my property for the purpose of inspection or monitoring for compliance with the approved erosion and sediment plan on the above-referenced project.